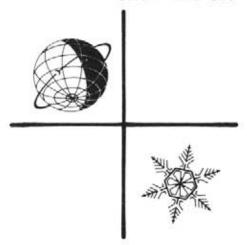
GLACIOLOGICAL DATA

this issue:

GLACIOLOGICAL FIELD STATIONS

PART 2

World Data Center A for Glaciology Snow and Ice



WORLD DATA CENTER A
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C., U.S.A., 20418

World Data Center A consists of the Coordination Office

and seven Subcenters:

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- Inquiries and communications concerning data in specific disciplines should be addressed to the appropriate subcenter listed above.

REPORT GD-4

GLACIOLOGICAL FIELD STATIONS

PART 2

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France

FEBRUARY 1979

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Data and Information Service
Boulder, Colorado 80303 U.S.A.

FOREWORD

Information on data collection activities in glaciological science is a necessary complement to data sets themselves and to published results based on data interpretation. This issue marks a first effort by the Data Center to assemble such information for glaciological field stations. The questionnaire was developed by Professor Robert Vivian, Director of the Institut de Géographie Alpine, Université de Grenoble, during his stay as visiting scientist with the WDC in 1977, and he undertook subsequently to collate and summarize the results. While the lists are undoubtedly not exhaustive, we believe that they provide a useful interim guide to facilities and organizations involved in field research relating to glaciers and ice caps. At a later date it may be desirable to publish a supplement with additions and corrections.

It is currently planned that <u>Glaciological Data</u> number 5 will contain results of a WDC Workshop on Snow Cover and Sea Ice Mapping and <u>Glaciological Data</u> number 6, a survey of related map products. The planned issue on snow cover, including a bibliography, has been delayed due to staffing problems relating to computer data entry of bibliographic items. This issue is now scheduled to appear as number 7.

Roger G. Barry Director World Data Center A for Glaciology (Snow and Ice)

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103

KEY TO MAP

- 1. Antarctica Byrd Station
- 2. Antarctica Hodges Glacier Hut
- 3. Antarctica Mawson, Casey Stations
- 4. Antarctica Scott Base, Vanda Station
- 5. Antarctica Spartan Glacier Station
- 6. Argentina Mascardi-Tronador Station
- 7. Austria Station Hintereis
- 8. Canada Gee Lake Station
- 9. Canada Icefield Ranges Research Project
- 10. Canada Peyto Glacier Station
- 11. Canada Wedgemount Lake
- 12. France Argentière (Mt. Blanc)
- 13. France Centre d'Etudes Nucleaires de Grenoble
- 14. France Centre Technique du Génie Rural, des Eaux et des Forêts
- 15. France Chalet Clos de l'Ours, Laboratoire de Cosmique, Observatoire Vallot, Cabane Tacul
- 16. France Chambeyron, Fouillouse
- 17. France Val Thorens-Chavière
- 18. Greenland Scottish Universities Research Hut
- 19. Iceland Satellite Monitoring of Changes of Glaciers of Iceland
- 20. Japan Moshiri
- 21. Japan Toikanbetsu
- 22. Japan Tomakomai
- Japan Tsurugisawa-goya
- 24. Kenya Alliance
- 25. Nepal Hidden Valley
- 26. Nepal Lhajung
- 27. New Zealand Carrick
- 28. New Zealand Dart Glacier Hut
- 29. New Zealand Ivory Glacier Hut
- 30. Norway Alfoten
- 31. Norway Blaisen
- 32. Norway Cainhavarre
- Norway Engabreen

- 34. Norway Erdalsbreen
- 35. Norway Folgefonni
- 36. Norway Grasubreen
- 37. Norway Hellstugubreen
- 38. Norway Høgtuvbreen
- 39. Norway Nigardsbreen
- 40. Norway Okstindsjøen Station
- 41. Norway Østre Memurūbre
- 42. Norway Storsteinsfjell
- 43. Norway Trollbergdalsbreen
- 44. Norway Tünsbergdalsbreen
- 45. Norway Vesledalsbreen
- 46. Peru Quelccaya
- 47. Spitsbergen Forskningsstasjonen på Svalbard
- 48. Sweden Tarfala Research Station
- 49. Switzerland Eidgenössische Institut für Schnee- und Lawinenforschung
- 50. USA Gulkana Glacier
- 51. USA Institute of Arctic and Alpine Research
- 52. USA Juneau Icefield Research Program (JIRP) Stations
- 53. USA Mt. Wrangell
- 54. USA Sperry Chalet Field Project
- 55. USA University of Buffalo Brooks Range Camp
- 56. USA Variegated Glacier
- 57. USA Wolverine Glacier
- 58. USSR Abramov Glacier
- 59. USSR Aktru glaciers
- 60. USSR Bol'shaya Khadata, Obruchev and IGAN Glaciers
- 61. USSR Dzhankuat Glacier
- 62. USSR Gergeti Glacier
- 63. USSR Karabatkak Glacier
- 64. USSR Marukh Glacier
- 65. USSR Medvezhy Glacier
- 66. USSR Shumsky Glacier
- 67. USSR Zentralnyi Tuyuksu Glacier

Questionnaires are included for the following glaciers:

Blåisen Storsteinsfjell Høgtuvbreen
Trollbergdalsbreen Engabreen Cainhavarrebreen
Østre Memurubre Hellstugubreen Folgefonni
Ålfotbreen Vesledalsbreen Erdalsbreen
Tunsbergdalsbreen Nigardsbreen Gråsubreen

The upper six glaciers are situated in northern Norway; the rest, in southern Norway. Glacier maps, and in some cases a sketch map showing triangulation points, are available for all glaciers except Blaisen. It should be noted that Erdalsbreen is portrayed on the map named Vesledalsbreen/Erdalsbreen.

We have built small A-frame houses at all of these glaciers. These huts are in some cases given special names, and are mentioned on the questionnaires; however, the names are not officially approved. They are only nicknames given to the huts by the student assistants. It might be more correct to name the station after the glacier's name.

Many of the observation stations are no longer in use, but observation records from various places are, of course, kept for those years when the stations were manned - in most cases a 5-year period. The observation stations at Nigardsbreen (southern Norway) and Engabreen (northern Norway) are still in operation, and mass balance investigations are continuously made at Alfotbreen, Folgefonni, Hellstugubreen, and Grasubreen. The latter glaciers are situated in southern Norway.

In addition to these stations, I should mention that Olav Liestøl, working with Norsk Polarinstitutt, has a research station at Storbreen.

Gunnar Østrem

ALFOTEN

GEOGRAPHICAL LOCATION.

1)	Country Norway
2)	Name of station Alfoten
3)	Locality Nordfjord
4)	Latitude: 61 45' Longitude: 5 40' Elevation(m) 905
5)	Mountain range Alfoten
6)	Drainage basin Askara
7)	Name of director G. Østrem
8)	Name of parent organization Glaciological Section
	Address NVE
	Box 5091
	Mj. Oslo 3 Norway
	Telephone number 02 469800
9)	Date of establishment of the station 1963
10)	Distance from the end of the road (in kilometers or hours of walking) 4 hours
	Other means of access: planes, float planes, helicopter, boat, etc.
	Boarding point
	Boarding point_
11)	Distance between the station and the glaciers studied
	Map: Alfotbreen (Nordfjord, Norway), 1:10,000, Norges Vassdrags- og Elektrisitetsvesen Hydrologisk Avd., Norway, 1969.
. DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 1
	a) Total floor space 12 m 2
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds 2
	Kitchens, dining rooms
	Workshops
	108

	Cold rooms
	Generator source
2)	Major research activities of the station (please check and rank in order of importance)
	a) Glaciology 1
	b) Snow studies 1
	e) Hydrology 2
	d) Climatology 3
	e) Geophysics
	f) Geomorphology
	g) Botany, biology
	h) Quaternary history
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1963
2)	Yearly utilization period 4 months
3)	Type of utilization (teaching, research, level of students involved)
٠,	measurements
60 40 m	
4)	Number of researchers: Summer 0 Winter 0
5)	Number of technicians: Summer 0 Winter 0
6)	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
	N TYPES OF RESEARCH AND DATA COLLECTED.
Put	"O" for ongoing research, "P" for previous studies. Indicate period of
rec	ords. (Add appropriate details.)
21	Cloud alamina 7 wassess to
T)	Glaciological research:
	a) Name/UNESCO inventory number of glacier(s) Alfotbreen/362-4
	b) Fluctuations (terminal position, surface, mass balance) 0
	o, radounded (octained postoron, our race, mass barance) o
	c) Dynamics, movement P
	d) Studies of surface
	e) Studies of deep ice (coring)
	f) Subglacial studies (access type)
	g) Ice Chemistry and physics
	h) Remote sensing
2)	Snow study:
	a) Snow cover 0
1000	b) Avalanches
3)	Hydrology:
	a) Discharges 0
	b) ice cover percentage
	c) Sub giacial hydrology
	d) Ice surface feature
	e) Lacustrine hydrology

c.

D.

	a) Proximity to glacier
	b) Parameters temperature, precipitation, humidity, wind, radiation
5) .	Geophysics:
	a) Radio-echo sounding method
	a) Radio-echo sounding method
)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
	c) Glacial geomorphology
)	c) Glacial geomorphology
•	a) Pollen analysis
	a) Pollen analysis b) Micro bacterial fauna
	c) Flora
	c) Flora d) Fossil woods (C ¹⁴ dating)
	e) Timberline
	f) Lichenometry
)	Quaternary history:
ATA	AVAILABILITY.
)	Tabulationsannual reports from NVE
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)	Tabulations Published reportsannual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3 Norway
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NORWAY BLAISEN

GEOGRAPHICAL LOCATION.

2) Name of station Blaisen 3) Locality Northern Norway 4) Latitude: 68° 21' N Longitude: 17° 52' E Elevation(m) 89 5) Mountain range Skjomen 6) Drainage basin Sildvikelv 7) Name of director G. Østrem 8) Name of parent organization Glaciological Section Address NVE Box 5091 Mj. Oslo 3, Norway Telephone number 02 469800 9) Date of establishment of the station 1963 O) Distance from the end of the road (in kilometers or hours of walking) 5 hours	1)	CountryNorway_
Abdress NVE Box 5091 Distance from the end of the road (in kilometers or hours of walking) 5 hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied Amap IF AVAILABLE). Number of buildings a) Total floor space a) Total floor space Dormitories Number of beds Latitude: 68° 21' N Longitude: 17° 52' E Elevation(m) 8: Bloading transport Elevation(m) 8: Bloading transport Elevation(m) 8: Bloading Skjomen Glaciological Section Address NVE Box 5091 Mj. 0slo 3, Norway Telephone number 02 469800 Date of establishment of the station 1963 Distance from the end of the road (in kilometers or hours of walking) Shours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 300 m DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space 12 m b) Details: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms	2)	Name of station Blaisen
Ab Latitude: 68° 21' N Longitude: 17° 52' E Elevation(m) 85 Mountain range Skjomen Drainage basin Sildvikelv Name of director G. Østrem Name of parent organization Glaciological Section Address NVE Box 5091 Mj. 0slo 3, Norway Telephone number 02 469800 Date of establishment of the station 1963 Distance from the end of the road (in kilometers or hours of walking) S hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 300 m DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space 12 m b) Details: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms	3)	Locality Northern Norway
Mountain range Skjomen Drainage basin Sildvikelv Name of director G. Østrem Name of parent organization Glaciological Section Address NVE Box 5091 Mj. Oslo 3, Norway Telephone number 02 469800 Date of establishment of the station 1963 Distance from the end of the road (in kilometers or hours of walking) S hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 300 m DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings 1 a) Total floor space 12 m b) Details: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms	4)	Latitude: 68° 21' N Longitude: 17° 52' F Elevation(m) 850
Name of director		Mountain range Skiomen
Name of parent organizationGlaciological Section AddressNVE	6)	Drainage basin Sildvikely
Name of parent organization Glaciological Section Address NVE Box 5091 Mj. Oslo 3, Norway Telephone number 02 469800 Date of establishment of the station 1963 Distance from the end of the road (in kilometers or hours of walking) 5 hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 300 m DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1.) Number of buildings 1 2 a) Total floor space 12 m b) Details: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms		Name of director G. Østrem
Box 5091 Mj. 0slo 3, Norway Telephone number 02 469800 Date of establishment of the station 1963 Distance from the end of the road (in kilometers or hours of walking) 5 hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 300 m DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings 1 a) Total floor space 12 m b) Details: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms	8)	Name of parent organization Glaciological Section
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Telephone number 02 469800 Date of establishment of the station 1963 Distance from the end of the road (in kilometers or hours of walking) 5 hours Other means of access: planes, float planes, helicopter, boat, etc Boarding point Distance between the station and the glaciers studied 300 m DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings 1 2 a) Total floor space 12 m b) Details: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms		Box 5091
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2)	
-,	Major research activities of the station (please check and rank in order of
	importance)
	a) Glaciology 1
	b) Snow studies 1
	c) Hydrology
	d) Climatology
	e) Geophysics
	f) Geomorphology
	g) Botany, biology
	h) Quaternary history
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1963-68
2)	Yearly utilization period 6-9days
3)	Type of utilization (teaching, research, level of students involved)
	measurements
1. 1	Number of researchers: Summer 0 Winter 0
4)	
>!	HUMBEL OF ACCUMENTATION Demmer
	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
	The state of the s
Put	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research:
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Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring)
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
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Putrecol)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover_P b) Avalanches
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology:
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges b) Ice cover percentage
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Blåisen/742-11 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology

Cold rooms

	a) Descriptive to glacier	
	a) Proximity to glacier	_
	b) Parameters	
5)	Geophysics:	
	a) Radio-echo sounding method	
	b) Magnetic surveys; electromagnetism	
		-
5)	Earth science (including area surrounding station)	
	a) Geology	
	b) Tectonics	
	c) Glacial geomorphology	
()	b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station)	
	a) Pollen analysis b) Micro bacterial fauna	-
	o) Micro dacterial launa	
	c) Flora d) Fossil woods (C ¹⁴ dating)	_
	d) Fossii woods (C- dauing)	-
	e) Timberline	
3)	i) Lichenometry	-
)	Quaternary history:	
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	Tabulations	
	Tabulations Published reports annual reports from NVE	
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2)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway	
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2)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information	
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2) 3) +)	Tabulations	
L) 2) 3) +)	Tabulations	
2) 3) +)	Tabulations	

CAINHAVARRE

A.	GEC	GRAPHICAL LOCATION.
	1)	Country Norway
	2)	Name of station Cainhavarre
	3)	Locality Northern Norway
	4)	Latitude: 68 06' Longitude: 18 01' Elevation(m) 980
	5)	Mountain range Skjomen
		Drainage basin Elvegårdselv
	7)	Name of director G. Østrem
	(8	Name of parent organization Glaciological Section
		Address NVE
		Box 5091
		Mj. Oslo 3, Norway
	-	Telephone number 02 469800
9.	9)	Date of establishment of the station 1964
	10)	Distance from the end of the road (in kilometers or hours of walking) 3 hours
		Other means of access: planes, float planes, helicopter, boat, etc
		Boarding point_
3	11)	Distance between the station and the glaciers studied 1200 m
		Map: Cainhavarre-breen, 1:10,000, Norges Vassdrags- og Elektrisitetsvesen Hydrologisk, Avd., Norway, 1967.
В.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 1
		a) Total floor space 12 m ²
		b) Details: e.g. Laboratories
		Dormitories
		Number of beds 2
		Kitchens, dining rooms
		Workshops
		114

	Cold rooms
	Generator source
2)	Major research activities of the station (please check and rank in order of importance) a) Glaciology 1
	b) Snow studies 1
	c) Hydrology
	d) Climatology
	e) Geophysics
	f) Geomorphology
	g) Botany, biology
51.1	h) Quaternary history
عالعا	
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1964-68
2)	Yearly utilization period 1 week
3)	Type of utilization (teaching, research, level of students involved)
	measurements
4)	Number of researchers: Summer 0 Winter 0 Number of technicians: Summer 0 Winter 0
5)	
6)	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
MAT	N TYPES OF RESEARCH AND DATA COLLECTED.
	"O" for ongoing research, "P" for previous studies. Indicate period of
	ords. (Add appropriate details.)
160	ords. (Add appropriate details.)
1)	Glaciological research:
11	a) Name/UNESCO inventory number of glacier(s) Cainhavarre / 738-34
	a name on soco inventory number of gracier(s) carmavarie / /30-34
	b) Fluctuations (terminal position, surface, mass balance)
	c) Dynamics, movement
	d) Studies of surface
	e) Studies of deep ice (coring)
	f) Subglacial studies (access type)
	g) Ice Chemistry and physics
	h) Remote sensing
2)	Snow study:
	a) Snow cover P
2)	b) Avalanches
3)	Hydrology:
	a) Discharges
	b) Ice cover percentage
	c) Sub glacial hydrology
	d) Ice surface feature
	el Lacustrine nyarology

c.

D.

)	b) Parameters
	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
	Earth science (including area surrounding station)
22	a) Geology
	b) Tectonics
	c) Glacial geomorphology
1	c) Glacial geomorphology Botany - biology (including area surrounding station)
,	a) Pollen englysis
	a) Pollen analysisb) Micro bacterial fauna
	c) Flora_ d) Fossil woods (C ¹⁴ dating)
	a) Timberline
	e) Timberline
1	f) LichenometryQuaternary history:
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m	A AVATLABILITY.
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2)	Tabulations
)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information
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;);;);;);;ai	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge

ENGABREEN

A. GEOGRAPHICAL LOCATION.

1)	Country Norway
	Name of station Takeheim - (Engabreen)
	Locality Northern Norway
	Latitude: 66 40' N Longitude: 13 51' E Elevation(m) 619
	Mountain range Syartisen
	Drainage basin Holandsfjord
	Name of director G. Østrem
8)	Name of parent organization Glaciological Section
	Address NVE
	Box 5091
	Mj. Oslo 3, Norway
	Telephone number 02 469800
9)	Date of establishment of the station 1969
10)	Distance from the end of the road (in kilometers or hours of walking) 3 hours
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point_
11)	Distance between the station and the glaciers studied 60 m
	Map: Engabreen (Svartisen, Norway), 1:20,000, Norges Vassdrags- of Elektrisitetsvesen, Hydrologisk Avd., Norway, 1970.
DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 2
1.00	a) Total floor space 27 m ²
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds 3
	Kitchens, dining rooms
	Workshops
	HOT KSHODS
	2) 3) 4) 5) 6) 7) 8) 9) 10)

	Major research activities of the station (please check and rank in	rehan
,		0
	importance)	
	a) Glaciology 1 b) Snow studies 1	
	b) blow studies	
	e) hydrology	
	d) Climatology 3	
	e).Geophysics	
	f) Geomorphology	
	g) Botany, biologyh) Quaternary history	
	n) quaternary mistory	
ΔΤ.	ENDAR TIMING OF ACTIVITIES OF THE STATION.	
0000		
	Period of record 1969-	-
2)	Yearly utilization period 2 1/2 months	
3)	Type of utilization (teaching, research, level of students involved)	-
	measurements	
1	Number of researchers: Summer 0 Winter 0	
()	11000001	
()		
	List of station personnel (and speciality). ATTACH LIST.	0.00
7		
7)	Other laboratories working temporarily at the station on joint/separ projects	ate
MAI Put		
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.)	
MAI	Projects	lof
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga	lof
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11	l of
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0	l of
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0	of breen/
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface	l of
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring)	l of
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)	of breen/
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)	of breen/
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring)	of breen/
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing	of breen/
MAI	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study:	breen/
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "p" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0	breen/
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10. Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0 b) Avalanches	breen/
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10. Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0 b) Avalanches Hydrology:	of breen/
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0 b) Avalanches Hydrology: a) Discharges 0	of breen/
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0 b) Avalanches Hydrology: a) Discharges 0 b) Ice cover percentage	l of
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0 b) Avalanches Hydrology: a) Discharges 0 b) Ice cover percentage c) Sub glacial hydrology	l of
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0 b) Avalanches Hydrology: a) Discharges 0 b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature	l of
MAI Put rec L)	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Lillebreen/670-10, Enga 670-11 b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover 0 b) Avalanches Hydrology: a) Discharges 0 b) Ice cover percentage c) Sub glacial hydrology	of breen/

Cold rooms___

C.

4)	Climatology:
	a) Proximity to glacier
	b) Parameters precipitation, temperature, wind, humidity, cloudiness
5)	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
5)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
	c) Glacial geomorphology
()	Botany - biology (including area surrounding station)
	a) Pollen analysis
	b) Micro bacterial fauna
	d) Fossil woods (C ¹⁴ dating)
	e) Timberline
	f) Lichenometry
)	Quaternary history:
DAT	A AVAILABILITY.
L)	Tabulations
	Published reports Annual reports from NVE
	Unpublished reports
2)	Data files (tape, cards, satellite transmissions)
)	Address from which data are available
	Hydrological Division, NVE
	Box 5091, Mj. Oslo 3 Norway
1)	Other information
IAI	N PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge;
	Materialtransportundersøkelser i norske breewer
	(annual reports)
THI	ER COMMENTS.

ERDALSBREEN

Α.	GEO	GRAPHICAL LOCATION.
	1)	Country Norway
	2)	Name of station Erdalsbreen
	3)	Locality Western Norway
	4)	Latitude: 61 49' N Longitude: 7 16' E Elevation(m) 900
	5)	Mountain range Fostedalsbreen Icecap
	6)	Drainage basin Stryn
	7)	Name of director G. Østrem
	8)	Name of parent organization Glaciological Section
		Address NVE
		Box 5091
		Mj. Oslo 3, Norway
		Telephone number 02.469800
	9)	Date of establishment of the station 1967
	10)	Distance from the end of the road (in kilometers or hours of walking) 2 1/2-3 hours
		Other means of access: planes, float planes, helicopter, boat, etc.
		Boarding point_
	11)	Distance between the station and the glaciers studied 150 m
		Map: Erdalsbreen- Vesledalsbreen (Part of Jostedalsbreen, Norway), 1:20,000, Norges Vassdrags- og Elektrisitetsvesen, Hydrologisk Avd., Norway, 1967.
3.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 1 2
		a) Total floor space 12 m
		b) Details: e.g. Laboratories
		Number of hads 2
		Kitchens dining moons
		Kitchens, dining rooms
		120

	Generator source
2)	Major research activities of the station (please check and rank in order of importance)
	a) Glaciology 3
	b) Snow studies
	c) Hydrology 1
	b) Snow studies c) Hydrology 1 d) Climatology 2
	e) Geophysics
	f) Geomorphology
	g) Botany, biology
	h) Quaternary history
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1967-73
2)	Yearly utilization period 12-15 weeks
3)	Type of utilization (teaching, research, level of students involved)
4)	Number of researchers: Summer 0 Winter 0
5)	Number of technicians: Summer . 1 Winter 0
6)	List of station personnel (and speciality). ATTACH LIST.
	list of station personner (and speciality). Arran Bist.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of
	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research:
	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research:
	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Erdalsbreen / 373-34 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement P
	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Erdalsbreen / 373-34 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement P
	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Erdalsbreen / 373-34 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement P
	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Erdalsbreen / 373-34 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics
	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)Erdalsbreen / 373-34 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movementP d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study:
1)	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)Erdalsbreen / 373-34 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movementP d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study:
1)	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
2)	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
2)	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
2)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
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2)	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)Erdalsbreen / 373-34 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges
2)	"O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)

5)	a) Proximity to glacier
5)	
5)	b) Parameters temperature, cloudiness, precipitation, wind
	Geophysics:
	a) Radio-echo sounding method
- 2	b) Magnetic surveys; electromagnetism
- 3	
6)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
i i	c) Glacial geomorphology
7)	c) Glacial geomorphology
.,	a) Pollar englysis
	a) Pollen analysis b) Micro bacterial fauna
	o) Micro Dacterial Tauna
	c) Flora d) Fossil woods (C ¹⁴ dating)
	d) Fossil woods (C14 dating)
- 9	e) Timberline
	I) Dichenometry
8)	Quaternary history:
100	
9	
- 3	
• 3	
DATA	AVAILABILITY.
1)	Tabulations
1)	Tabulations Published reports annual reports from NVE
1)	Tabulations Published reports annual reports from NVE
1)	Tabulations Published reports annual reports from NVE Unpublished reports
1)	Tabulations Published reports annual reports from NVE
1)	Tabulations Published reports annual reports from NVE Unpublished reports
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2)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions)
2)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available
2)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE
2)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available
2)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE
2)	Tabulations
1) 2) 3)	Tabulations Published reportsannual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information
1) 2) 3)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge;
1) 2) 3)	Tabulations
2) 3) 4)	Tabulations Published reports annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information

FOLGEFONNI

A. GEOGRAPHICAL LOCATION.

1)	Country Norway
2)	
3)	Locality Hardauger
4)	
5)	Mountain range Folgefonni
6)	
7)	Name of director G. Østrem
8)	Name of parent organization Glaciological Section
	Address NVE
	Box 5091
	Mj. Oslo 3 Norway
	Telephone number 02 469800
9)	
10)	Distance from the end of the road (in kilometers or hours of walking) 2 1/2 hours
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point_
11)	Distance between the station and the glaciers studied 50 m
D DES	Map: Part of Folgefonni, 1:10,000, Norges Vassdrags- og Elektrisitetsvesen, 1964
B. DES	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 2 2 a) Total floor space 21 m
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds 2
	Kitchens, dining rooms
	Workshops
	123

2)	Major research activities of the station (please check and rank in order o
	importance)
	a) Glaciology 1
	b) Snow studies
	c) Hydrology
	a) Combusing 2
	e) Geophysics
	f) Geomorphology
	g) Botany, biologyh) Quaternary history
AL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
	Period of record 1963-
)	Yearly utilization period 2 1/2 months
)	Type of utilization (teaching, research, level of students involved)
	measurements
v.	
)	Number of researchers: Summer 0 Winter 0 Number of technicians: Summer 2 Winter 0
)	Number of technicians: Summer 2 Winter 0
	List of station personnel (and speciality). ATTACH LIST.
)	Other laboratories working temporarily at the station on joint/separate
	projects
ut	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research:
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8, Grabreen
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8, Grabreen and Blabreen /210-26
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8, Grabreen
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring)
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics
ut	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
Put rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing
Put rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P
Puttrec .)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology:
Puttrec .)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8, Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges
Puttrec .)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage
Puttrec .)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology
Puttrec .)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8, Gråbreen and Blåbreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement
utec)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)_Bondhusbreen /204-8. Grabreenand Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature e) Lacustrine hydrology
utec)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Bondhusbreen /204-8. Grabreen and Blabreen /210-26 b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature

Cold rooms____

a) Radio-echo sounding method b) Magnetic surveys; electromagnetism Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna
Geophysics: a) Radio-echo sounding method b) Magnetic surveys; electromagnetism Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna
a) Radio-echo sounding method b) Magnetic surveys; electromagnetism Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna
b) Magnetic surveys; electromagnetism Earth science (including area surrounding station) a) Geology
b) Magnetic surveys; electromagnetism Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna
a) Geology
a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna
c) Glacial geomorphology
a) Pollen analysisb) Micro bacterial fauna
a) Pollen analysis
a) Pollen analysis
b) Micro bacterial fauna
a) Flows
C) FIORA
c) Flora d) Fossil woods (C ¹⁴ dating)
e) Timberline
f) Lichenometry
) Quaternary history:
Published reports annual reports from NVE
Unpublished reports
) Data files (tape, cards, satellite transmissions)
) Address from which data are available
Hydrological Division, NVE
Box 5091 Mj. Oslo 3, Norway
) Other information
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MAIN PUBLICATIONS (<u>ATTACH LIST</u>). Glasiologiske undersøkelser i Norge (annual reports)
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AIN PUBLICATIONS (<u>ATTACH LIST</u>). Glasiologiske undersøkelser i Norge (annual reports)

GRÄSUBREEN

Α.	GEO	GRAPHICAL LOCATION.
	1)	Country Norway
	2)	
	3)	Locality South Norway
	4)	Locality South Norway Latitude: 61 40' N Longitude: 8 36' E Elevation(m) 2100
	5)	Mountain range Fotunheimen
	6)	Drainage basin Sjoa
	7)	Name of director G. Østrem
	8)	Name of parent organization Glaciological Section
		Address NVE
		Box 5091, Mj. Oslo 3, Norway
		Telephone number 02 469800
	9)	Date of establishment of the station 1961
	10)	Distance from the end of the road (in kilometers or hours of walking) 2 hours
		Other means of access: planes, float planes, helicopter, boat, etc.
		Boarding point
	11)	Distance between the station and the glaciers studied
		Map: Gråsubreen, Jotunheimen, Norway, 1:10,000, Norges Vassdrags- og Elektrisitetsvesen, Hydrologisk Avd., Norway, 1968.
В.	DES	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 1
		a) Total floor space 12 m
		b) Details: e.g. Laboratories
		Dormitories
		Number of beds 2
		Kitchens, dining rooms
		Workshops
		126

	Cold rooms
	Generator source
2)	Major research activities of the station (please check and rank in order of importance) a) Glaciology 1 b) Snow studies 1 c) Hydrology d) Climatology e) Geophysics f) Geomorphology g) Botany, biology h) Quaternary history
	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1961 -
2)	Yearly utilization period 5-8 days
3)	Type of utilization (teaching, research, level of students involved)
	measurements
4)	Number of researchers: Summer 0 Winter 0 Number of technicians: Summer 0 Winter 0
5)	Number of technicians: Summer 0 Winter 0
6)	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
Put	IN TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Gräsubreen/Sjoa 5/ 47
	b) Fluctuations (terminal position, surface, mass balance) 0
	c) Dynamics, movement P
	d) Studies of surface
	a) Studies of deep ice (coming)
	f) Subglacial studies (access type)
	g) Ice Chemistry and physics
	h) Remote sensing
	n/ nemote deligang
2)	Snow study:
-1	a) Snow cover0
	h) Avalanches
3)	b) AvalanchesHydrology:
31	nydrology:
	a) Discharges
	by ice cover percentage
	c) Sub glacial hydrology
	d) Ice surface feature
	e) Lacustrine hydrology

c.

D.

41	Climatology:
	a) Proximity to glacier
	b) Parameters
5)	Geophysics:
	a) Radio-echo sounding method P
	b) Magnetic surveys; electromagnetism
6)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
	c) Glacial geomorphology
7)	Botany - biology (including area surrounding station)
17	a) Pollen englysis
	a) Pollen analysis b) Micro bacterial fauna
	b) Micro Dacterial Iauna
	c) Flora d) Fossil woods (C ¹⁴ dating)
	d) Fossil woods (C14 dating)
	e) Timoerline
	1) bichenometry
8)	Quaternary history:
	
DAT	A AVAILABILITY.
1)	Tabulations
	Published reports Annual reports from NVE
	Unpublished reports
2)	Data files (tape, cards, satellite transmissions)
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10728	2 Table (vape, caras, sacciffic transmissions)
3)	
	Address from which data are available
2.4	Address from which data are available
	Address from which data are available
41	Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway
4)	Address from which data are available
4)	Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway
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MAI!	Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information PUBLICATIONS (ATTACH LIST). Glasiolgiske undersøkelser i Norge (annual reports)

HELLSTUGUBREEN

A. GEOGRAPHICAL LOCATION.

Mountain range Fotunheimen Drainage basin Bøyra and Sjoa Name of director G. Østrem Name of parent organization Glaciological section Address NVE Box 5091 Mj. Oslo 3, Norway Telephone number 02 469800 Date of establishment of the station 1961 Distance from the end of the road (in kilometers or hours of walking) 2 1/2 hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 10 m	South Norway :61° 34' N		
Name of station Tordenfjell (Hellstugubreen) Locality South Norway Latitude: 61° 34' N Longitude: 8° 27' E Elevation(m) 208 Mountain range Fotunheimen Drainage basin Bøvra and Sjoa Name of director G. Østrem Name of parent organization Glaciological section Address NVE Box 5091 Mj. Oslo 3, Norway Telephone number 02 469800 Date of establishment of the station 1961 Distance from the end of the road (in kilometers or hours of walking) 2 1/2 hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 10 m	South Norway : 61° 34' N Longitude: 8° 27' E Elevation(m) 2085 range Fotunheimen basin Bøyra and Sjoa director G. Østrem parent organization Glaciological section NVE Box 5091 Mj. Oslo 3, Norway e number 02 469800 establishment of the station 1961 from the end of the road (in kilometers or hours of walking) 2 1/2 hours eans of access: planes, float planes, helicopter, boat, etc. point between the station and the glaciers studied 10 m lstugubreen, Jotunheimen, 1:10,000, Norway. OF THE STATION (INCLUDE A MAP IF AVAILABLE). of buildings 1 floor space 9 m ls: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms)	Country Norway
Locality South Norway Latitude: 61° 34' N Longitude: 8° 27' E Elevation(m) 208 Mountain range Fotunheimen Drainage basin Bøvra and Sjoa Name of director G. Østrem Name of parent organization Glaciological section Address NVE Box 5091 Mj. Oslo 3, Norway Telephone number 02 469800 Date of establishment of the station 1961 Distance from the end of the road (in kilometers or hours of walking) 2 1/2 hours Other means of access: planes, float planes, helicopter, boat, etc. Boarding point Distance between the station and the glaciers studied 10 m	South Norway : 61 34' N Longitude: 80 27' E Elevation(m) 2085 range Fotunheimen basin Bøyra and Sjoa director G. Østrem parent organization Glaciological section NVE Box 5091 Mj. 0slo 3, Norway e number 02 469800 establishment of the station 1961 from the end of the road (in kilometers or hours of walking) 2 1/2 hours ans of access: planes, float planes, helicopter, boat, etc. point between the station and the glaciers studied 10 m Istugubreen, Jotunheimen, 1:10,000, Norway. Of THE STATION (INCLUDE A MAP IF AVAILABLE). of buildings 1 floor space 9 m² ls: e.g. Laboratories Dormitories Number of beds 2 Kitchens, dining rooms	5111	Name of station Tordenfjell (Hellstugubreen)
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Distance between the station and the glaciers studied	between the station and the glaciers studied		Boarding point
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Man: Hellstuguhreen Jotunheimen 1:10 000 Norway	OF THE STATION (INCLUDE A MAP IF AVAILABLE). of buildings 1		
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) Number of buildings 1	ls: e.g. Laboratories	١	Number of huildings
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	Number of beds 2 Kitchens, dining rooms		
	Kitchens, dining rooms		
Workshops			7 TO STORE AND THE STORE AND T
120			

?)	Major research activities of the stat				
	importance)	ion (prease the	on an	u lain	In Order
	a) Glaciology 1				
	b) Snow studies 1	_			
	b) Show studies 1	_			
	c) Hydrology				
	d) Climatology				
	e) Geophysics				
	f) Geomorphology	_			
	g) Botany, biology				
	h) Quaternary history				
AL	ENDAR TIMING OF ACTIVITIES OF THE STAT	ION.			
.)	Period of record 1961				
2)	Yearly utilization period 5-8 days				
3)	Type of utilization (teaching, resear measurements	ch, level of stu	dents	involv	red)
)	Number of researchers: Summer	0 Winte	er	0	
)	Number of technicians: Summer				
	List of station personnel (and specia	lity). ATTACH L	IST.		
)				oint/se	parate
•	projects	7	0		Puruo
	F0				
ut	N TYPES OF RESEARCH AND DATA COLLECTED "O" for ongoing research, "P" for pre- ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of gl	vious studies.			
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ut	"O" for ongoing research, "P" for preords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of gl	vious studies.	gubre	en/Bøvr	a 5-14
ut	"O" for ongoing research, "P" for preords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of gl W. Memurubre/Sjoa 5-31 b) Fluctuations (terminal position, s	vious studies.	gubre	en/Bøvr	a 5-14
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Cold rooms_

Generator source

	a) Proximity to glacier
	b) Parameters
5)	
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
)	Earth science (including area surrounding station)
•	a) Geology
	b) Tectonics
	c) Glacial geomorphology
7)	c) Glacial geomorphology
'	a) Pollen analysis
	a) Pollen analysis
	c) Flora
	c) Flora d) Fossil woods (C ¹⁴ dating)
	a) Mimbarline
	e) Timberline
01	f) Lichenometry
3)	Quaternary history:
AT	A AVAILABILITY.
	Tabulations
1)	Tabulations Published reports Annual reports from NVE Unpublished reports
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L) 2) 3) 4)	Tabulations Published reports
L) 2) 3) 4)	Tabulations Published reports

NORWAY HØGTUVBREEN

	Country Norway			
.)	None of station Tourstoon (Maturbuson)			
	Name of station Tuystuggu (Høgtuvbreen)			
()	Locality Northern Norway Latitude: Longitude: Elevation(m)			
(Mountain range Høgtuva			
í	Drainage basin Rana			
í	Name of director G. Østrem			
	Name of parent organization Glaciological Section			
	Address NVE			
	Box 5091			
	Mj. Oslo 3. Norway			
	Telephone number 02 469800			
)	Date of establishment of the station 1971			
)	4 hours			
	Other means of access: planes, float planes, helicopter, boat, etc			
	Boarding point_			
L)	Distance between the station and the glaciers studied 150 m			
	Elektrisitetsvesen, Hydrologisk Avd., Norway, 1973.			
ES	Map: Part of Høgtuvbreen, Northern Norway, 1:10,000, Norges Vassdrags- og Elektrisitetsvesen, Hydrologisk Avd., Norway, 1973. CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).			
	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).			
	Elektrisitetsvesen, Hydrologisk Avd., Norway, 1973. CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).			
	Elektrisitetsvesen, Hydrologisk Avd., Norway, 1973. CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings 1 a) Total floor space 15 m ²			
	Elektrisitetsvesen, Hydrologisk Avd., Norway, 1973. CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings 1 2 a) Total floor space 15 m² b) Details: e.g. Laboratories			
	Elektrisitetsvesen, Hydrologisk Avd., Norway, 1973. CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings 1 2 a) Total floor space 15 m² b) Details: e.g. Laboratories Dormitories			
	Elektrisitetsvesen, Hydrologisk Avd., Norway, 1973. CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings 1 2 a) Total floor space 15 m² b) Details: e.g. Laboratories Dormitories			

2)	Generator source		
2)	Generator source		
-/	Major research activities of the station	nlesse sheek an	d work in our work
	importance)	prease check an	d rank in order of
	a) Glaciology 1		
	b) Snow studies 1		
	c) Hydrology 2		
	d) Climatology 3		
	e) .Geophysics		
	f) Geomorphology		
	g) Botany, biology		
	h) Quaternary history		
AL	ENDAR TIMING OF ACTIVITIES OF THE STATION.		
	Period of record 1971-77 Yearly utilization period 2 1/2 months		
í			involved
•	measurements	rever or students	- Involved/
)	Number of researchers: Summer 0	Winter	0
	Number of technicians: Summer 2	Winter	0
	List of station personnel (and speciality		
í	Other laboratories working temporarily at		oint/semanate
,	projects	the station on J	oint/separate
	projects		***
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	N TYPES OF RESEARCH AND DATA COLLECTED		
nit.	N TYPES OF RESEARCH AND DATA COLLECTED.	s studies India	ete period of
ut	"O" for ongoing research, "P" for previous	s studies. Indic	ate period of
ut	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous ords. (Add appropriate details.)	s studies. Indic	ate period of
Put	"O" for ongoing research, "P" for previous ords. (Add appropriate details.)	s studies. Indic	ate period of
ec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research:		
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5	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research:	r(s) <u>Høgtuvbr</u>	een / 655-7
it ec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface) c) Dynamics, movement P	r(s) <u>Høgtuvbr</u>	een / 655-7
ut	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface) c) Dynamics, movement P	r(s) <u>Høgtuvbr</u> ce, <u>mass balanc</u> e)	een / 655-7
ut ec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface) c) Dynamics, movement P	r(s) <u>Høgtuvbr</u> ce, <u>mass balanc</u> e)	een / 655-7
ut	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)	r(s) <u>Høgtuvbr</u> ce, <u>mass balanc</u> e)	een / 655-7
ut	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)	r(s) <u>Høgtuvbr</u> ce, <u>mass balanc</u> e)	een / 655-7
t	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics	r(s) <u>Høgtuvbr</u> ce, <u>mass balanc</u> e)	een / 655-7
it ec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface) c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing	r(s) <u>Høgtuvbr</u> ce, <u>mass balanc</u> e)	een / 655-7
ut ec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface) c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study:	r(s) <u>Høgtuvbr</u> ce, <u>mass balance</u>)	een / 655-7
ut ec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P	r(s) Høgtuvbr	een / 655-7
ut ec)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches	r(s) Høgtuvbr	een / 655-7
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rut ec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P	r(s) Høgtuvbr	een / 655-7
Put rec L)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface) c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage	r(s) Høgtuvbr	een / 655-7
Put rec 1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover p b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology	r(s) Høgtuvbr	een / 655-7
Put rec 1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature	r(s) Høgtuvbr	een / 655-7
Put rec 1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surface) c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage	r(s) Høgtuvbr	een / 655-7

4)	Climatology: a) Proximity to glacier
	b) Parameters temperature, precipitation, humidity, wind, cloudiness
5)	Geophysics:
	a) Radio-echo sounding method
	a) Radio-echo sounding method b) Magnetic surveys; electromagnetism
6)	Earth science (including area surrounding station)
	a) Geology_
	b) reconics
	c) Glacial geomorphology Botany - biology (including area surrounding station)
7)	Botany - biology (including area surrounding station)
	a) Pollen analysis
	a) Pollen analysis b) Micro bacterial fauna
	c) Flora
	c) Flora d) Fossil woods (C ¹⁴ dating)
	e) Timberline
	1) Lichenometry
8)	Quaternary history:
DAT	A AVAILABILITY.
1 5201 4 00	
1)	Tabulations
	Published reports Annual reports from NVE
	Unpublished reports_
2)	Data files (tape, cards, satellite transmissions)
-,	Data liles (tape, cards, Satellite transmissions)
3)	Address from which data are available
	Hydrological Division, NVE
	Box 5091, Mj. Oslo 3, Norway
4)	Other information
98	
MAT	N PUBLICATIONS (ATTACH LIST). Clasiclogiska undersøkelser i Norge:
MAL	Glasiologiske underspherser i norge,
	Materialtransportundersøkelser i norski breewer
OPIT	(annual reports)
OTH	ER COMMENTS.
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	134
	134

NORWAY NIGARDSBREEN

A. GEOGRAPHICAL LOCATION.

1)	Country
2)	Name of station Steinmannen (Nigardsbreen)
3)	Locality Western Norway
4)	Latitude: 61 36' N Longitude: 7 03' E Elevation(m) 1633
5)	Mountain range Fostedalsbreen Icecap
6)	Drainage basin Fostedalen
7)	Name of director G. Østrem
8)	Name of parent organization Glaciological Section
	Address NVE
	Box 5091
	Mj. Oslo 3, Norway
	Telephone number 02-469800
9)	Date of establishment of the station 1962
10)	Distance from the end of the road (in kilometers or hours of walking) 4 hours
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point_
11)	Distance between the station and the glaciers studied 100 m
B. DEX	Map: Nigardsbreen, part of Jostedalsbreen, Southern Norway, 1:20,000, Norges Vassdrags- og Elektrisitetsvesen Hydrologisk Avd., Norway, 1975. SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 2 a) Total floor space 20 m ²
	a) Total floor space 20 m ²
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds
	Kitchens, dining rooms 2
	Workshops
	135

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o: 5					heale au	A	
	Major research activit	ies of the	e station (prease c	neck an	d rank	in orae
	importance)						
- 1	a) Glaciology	1					
	b) Snow studies c) Hydrology d) Climatology	1					
	c) Hydrology	2					
- 9	d) Climatology	3					
1	e) Geophysics						
- 8	f) Geomorphology						
	g) Botany, biology						
	h) Quaternary history_						
AT.E	NDAR TIMING OF ACTIVIT	TES OF THE	E STATION.				
ALLE	IDAN IIIIII OF ROIIVII	ILD OF IM	2 DIRITON.				
)	Period of record	1962-					
)	Yearly utilization per	iod ca	3 months				
) !	Type of utilization (t	eaching,	research,	Level of s	tudents	involv	ed)
	researc						
. :							
)	Number of researchers: Number of technicians:	Summer	00	Wi	nter	0	
)	Number of technicians:	.Summer_	2	Wi	.nter	0	
)	List of station person	nel (and a	speciality). ATTACH	LIST.		
) (Other laboratories wor	king tempo	orarily at	the stati	on on j	oint/se	parate
	Drolects						
	projects						
3	projects						
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MAIN Put eco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research	DATA COLI ch, "P" fo details.	LECTED. or previous) of glacies	s studies.	igardsb	reen / 3	
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MAIN Put Peco:	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi	DATA COLL ch, "P" for details. : cry number nal posit:	LECTED. or previous) of glacies ion, surfac	s studies.	igardsb	reen / 3	
MAIN Put eco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice	DATA COLL ch, "P" for details. ry number nal posit:	LECTED. or previous) of glacies ion, surfac	s studies. r(s)N ce, mass b	igardsb	0 0	310-14
MAIN Put reco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies	DATA COLL ch, "P" for details. : : : : : : : : : : : : : : : : : : :	LECTED. or previous) of glacies ion, surface	s studies.	igardsb	0 0	510-14
MAIN Put reco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies g) Ice Chemistry and p	DATA COLL ch, "P" for details. ry number nal posit: 0 (coring) (access ty	LECTED. or previous) of glacies ion, surfac	s studies.	igardsb	0 0	510-14
MAIN Put reco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies	DATA COLL ch, "P" for details. ry number nal posit: 0 (coring) (access ty	LECTED. or previous) of glacies ion, surface	s studies.	igardsb	0 0	510-14
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Put reco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies g) Ice Chemistry and p h) Remote sensing Snow study:	DATA COLL ch, "P" for details. : pry number nal posit: 0 : (coring) (access to hysics	LECTED. or previous) of glacies ion, surface	s studies.	igardsb	0 0	510-14
main reco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies g) Ice Chemistry and p h) Remote sensing Snow study: a) Snow cover	DATA COLL ch, "P" for details. ry number nal posit: 0 (coring) (access typhysics 0	LECTED. or previous) of glacies ion, surface	s studies.	igardsb	0 0	510-14
MAIN Put Peco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies g) Ice Chemistry and p h) Remote sensing Snow study: a) Snow cover b) Avalanches	DATA COLL ch, "P" for details. ry number nal posit: 0 (coring) (access typhysics 0	LECTED. or previous) of glacies ion, surface	s studies.	igardsb	0 0	510-14
MAIN Put Peco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies g) Ice Chemistry and p h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology:	DATA COLL ch, "P" for details. ry number nal posit: 0 (coring) (access to hysics 0	LECTED. or previous) of glacies ion, surface	s studies.	igardsb	0 0	510-14
MAIN Put Peco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies g) Ice Chemistry and p h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges	DATA COLL ch, "P" for details. ry number nal position (coring) (access to hysics 0 0	LECTED. or previous) of glacies ion, surface	r(s) N	igardsb	0 0	510-14
HAIN Put Pecco	TYPES OF RESEARCH AND "O" for ongoing resear rds. (Add appropriate Glaciological research a) Name/UNESCO invento b) Fluctuations (termi: c) Dynamics, movement d) Studies of surface e) Studies of deep ice f) Subglacial studies g) Ice Chemistry and p h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges b) Ice cover percentag	DATA COLL ch, "P" for details. ry number nal posit: 0 (coring) (access to hysics 0 0	LECTED. or previous) of glacies ion, surface	r(s) N	igardsb	0 0	510-14
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Cold rooms

_,	al Dwayimity to glacian
- \	a) Proximity to glacier
	b) Parameters precipitation, wind, temperature, humidity, cloudiness, radiation
5)	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
6)	Earth science (including area surrounding station)
30000	a) Geology
	b) Tectonics
	c) Glacial geomorphology
7)	Botany - biology (including area surrounding station)
	a) Pollen analysis b) Micro bacterial fauna
7	b) Micro bacterial fauna
	d) Fossil woods (C ¹⁴ dating)
	e) Timberline
	f) Lichenometry
8)	Quaternary history:
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	Tabulations
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1) 2) 3)	Tabulations Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091 Mj. Oslo 3 Norway
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1) 2) 3) 4)	Tabulations Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091 Mj. Oslo 3 Norway Other information PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge; Materialtransportundersøkelser i Norske breewe
1) 2) 3) 4)	Tabulations Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091 Mj. Oslo 3 Norway Other information PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge; Materialtransportundersøkelser i Norske breewe (annual reports)
1) 2) 3) 4)	Tabulations Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091 Mj. Oslo 3 Norway Other information PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge; Materialtransportundersøkelser i Norske breewe
1) 2) 3) 4)	Tabulations Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091 Mj. Oslo 3 Norway Other information PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge; Materialtransportundersøkelser i Norske breewe (annual reports)
1) 2) 3) 4)	Tabulations Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091 Mj. Oslo 3 Norway Other information PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge; Materialtransportundersøkelser i Norske breewe (annual reports)

NORWAY OKSTINDSJØEN STATION

Α.	GEC	GRAPHICAL LOCATION.
	1)	Country Norway
	2)	Name of station Okstindsjøen Field Station
	3)	Locality Okstindan, Rana, Nordland
	4)	Latitude: 62 02' N Longitude: 14 25' E Elevation(m) 760
	5)	Mountain range Okstindan
	6)	Drainage basin Bjerka Elva
	7)	Name of director Peter Worsley
	8)	Name of parent organization University of Reading
		Okstindan Research Project
		Address Department of Geography
		The University, Reading RG6 2AB
		England
		Telephone number 0734-85123
	9)	Date of establishment of the station 1969
3	10)	Distance from the end of the road (in kilometers or hours of walking) 2 hours
		Other means of access: planes, float planes, helicopter, boat, etc.
		Helicopter (Umbukta) Float plane (Grasvatn 30 min.)
		Boarding point_
8	u)	Distance between the station and the glaciers studied
		2 km (nearest glacier)
	220	COTOMICAL OF MUR COMMICAL (TAGLISER & MAR TO AMARTAN - 1)
В.	משת	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 1
	-1	a) Total floor space 51 m ²
		b) Details: e.g. Laboratories
		Dormitories 2
		Number of beds 8
		Kitchens, dining rooms 1
		terocitore animal rooms 1

138

	Cold rooms
	Generator source Petrol
2) .	Major research activities of the station (please check and rank in order
	importance)
	a) Glaciology 4
	b) Snow studies 6
	c) Hydrology 5
	d) Climatology 3
	e) Geophysics 7
	f) Geomorphology 1
	g) Botany, biology 8
	h) Quaternary history 1
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1968 to date
2)	Yearly utilization period June to September
3)	
3,	Research 75% teaching 25%
	Graduates & Undergraduates
4)	Number of researchers: Summer 6(average) Winter
5)	Number of technicians: Summer Winter
6)	
	Other laboratories working temporarily at the station on joint/separate
7)	Other laboratories working temporarily at the station on joint/separate
	projects Department of Geology, Cardiff Department of Geography, Durham
	Department of Geography, Durham IN TYPES OF RESEARCH AND DATA COLLECTED.
Put	Department of Geography, Durham IN TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of
Put	Department of Geography, Durham IN TYPES OF RESEARCH AND DATA COLLECTED.
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Put rec 1)	Department of Geography, Durham IN TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Charles Rabots Bre (Røssåga 20) and others b) Fluctuations (terminal position, surface, mass balance) 0 1968 - c) Dynamics, movement P 1971-4 Hambrey d) Studies of surface P 1971-4 Hambrey e) Studies of deep ice (coring) f) Subglacial studies (access type) 0 Natural caves g) Ice Chemistry and physics P-016:018 Hambrey h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges P Cheetham 1974-6 b) Ice cover percentage c) Sub glacial hydrology
Put rec 1)	Department of Geography, Durham IN TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Charles Rabots Bre (Røssåga 20) and others b) Fluctuations (terminal position, surface, mass balance) 0 1968 c) Dynamics, movement p 1971-4 Hambrey d) Studies of surface p 1971-4 Hambrey e) Studies of deep ice (coring) f) Subglacial studies (access type) 0 Natural caves g) Ice Chemistry and physics P-0 16 18 Hambrey h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges P Cheetham 1974-6 b) Ice cover percentage

	4)	Climatology:
		a) Proximity to glacier
	E1	b) Parameters 0 Radiation balance/energy balance; standard climatological data Geophysics:
	21	
		a) Radio-echo sounding method b) Magnetic surveys; electromagnetism
		b) Magnetic surveys; electromagnetism_
	6)	Earth science (including area surrounding station)
		a) Geology 0
		b) Tectonics
		c) Glacial geomorphology 0 End moraine genesis:till deposition
	7)	Botany - biology (including area surrounding station)
		a) Pollen analysis 0 b) Micro bacterial fauna
		b) Micro bacterial fauna
		c) Flore
	36	d) Fossil woods (C ¹⁴ dating) 0
		e) limbeliline o
		f) Lichenometry 0 Griffey: Bertie
	8)	Quaternary history:
	127	Neoglacial geology, late-glacial deglaciation, land/sea level changes,
		periglacial processes, soil development, cirque history
E.		A AVAILABILITY. Tabulations
	-/	Published reports x
		Unpublished reports x
		onputational reports A
	2)	Data files (tape, cards, satellite transmissions)
	3)	Address from which data are available Okstindan Research Project
		Dept. of Geography, University of Reading
		Reading RG6 2AB, England
	128	
	4)	Other information
F.	MAIN	PUBLICATIONS (ATTACH LIST). x
	- DESCRIPTION	(ILLINI DEDL)
G.	OTHE	OR COMMENTS.
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Staff with long-term interest or commitment (as at January 1978)

University of Reading (Department of Geography)

Peter Worsley, Ph.D. F.G.S.

Quaternary geology, geomorphology

Ian M. Fenwick, M.Sc.

Pedology

Russell D. Thompson, Ph.D.

Climatology

Robert B. Parry, B.A.

Geomorphology

University of Durham (Department of Geography)

Michael J. Alexander, M.Sc.

Pedology

University of Cardiff (Department of Geology)

Charles Harris, Ph.D.

Pedology, periglacial processes

NORWAY ØSTRE MEMURŪBRE

А.	GEO	GRAPHICAL LOCATION.
	1)	Country Norway
	2)	Name of station Ravnarheim (Østre Memurubre)
	3)	Locality South Norway
	4)	Latitude: 61° 33' N Longitude: 8° 31' E Elevation(m) 1870
	5)	Mountain range Fotunheimen
	6)	Drainage basin Sjoa
	7)	Name of director G. Østrem
	8)	Name of parent organization Glaciological Section
		Address NVE
		Box 5091 Mj. Oslo 3, Norway
		Telephone number 02 469800
	9)	Date of establishment of the station 1967
-	10)	Distance from the end of the road (in kilometers or hours of walking) 4 hours
		Other means of access: planes, float planes, helicopter, boat, etc.
		Boarding point
	11)	Distance between the station and the glaciers studied 100 m
		Map: Austre Memurübre, Jotunheimen, Norway, 1:10,000, Norges Vassdrags- og Elektrisitetsvesen, Hydrologisk Avd., Norway, 1968.
В.	DES	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 1
		a) Total floor space 15 m 2
		b) Details: e.g. Laboratories
		Dormitories
		Number of beds 2
		Kitchens, dining rooms
		Workshops

2)		
27.5	Major research activities of the station	(please check and rank in order or
	importance)	
	a) Glaciology 1	
	b) Snow studies 1	
	c) Hydrology 2	
	d) Climatology 3	
	a) Caophysics	
	e) .Geophysics	
	f) Geomorphology	
	g) Botany, biology	
	h) Quaternary history	
CAI	ENDAR TIMING OF ACTIVITIES OF THE STATION	,
1)	Period of record 1967-72	
	Yearly utilization period 3 months	
3)	Type of utilization (teaching, research,	level of students involved
31	5.77 ·	level of students involved)
	measurements	
4)	Number of researchers: Summer 0	Winter 0
5)	Number of technicians: Summer 2	Winter 0
6)	Number of technicians: Summer 2 List of station personnel (and specialit	v) ATTACH LIST
7)	Other laboratories working temporarily a	t the station on joint/separate
. ,	projects	o one station on joint/separate
Put	IN TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous	us studies. Indicate period of
Put	"O" for ongoing research, "P" for previous. (Add appropriate details.)	us studies. Indicate period of
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Put	"O" for ongoing research, "P" for previous. (Add appropriate details.)	Control Paris Conditions (1) - English Conditi
Put	"O" for ongoing research, "P" for previous (Add appropriate details.) Glaciological research:	er(s) <u>Østre Memurubre / Sjoa 5-33</u>
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Put rec 1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glaci b) Fluctuations (terminal position, surf c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology	er(s) Østre Memurubre / Sjoa 5-33 ace, mass balance) P
Put rec 1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glaci b) Fluctuations (terminal position, surf c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature	er(s) Østre Memurübre / Sjoa 5-33 ace, mass balance) P
Put rec 1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glaci b) Fluctuations (terminal position, surf c) Dynamics, movement P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology	er(s) Østre Memurübre / Sjoa 5-33 ace, mass balance) P

Cold rooms_

Generator source

4)	Climatology:
	a) Proximity to glacier
	b) Parameters temperature, precipitation, humidity, wind, cloudiness, radiation
5)	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
5)	Earth science (including area surrounding station)
	a) Geology
	h) Tectonics
	c) Glacial geomorphology_ Botany - biology (including area surrounding station)
)	Botany - biology (including area surrounding station)
	a) Pollen analysis
	a) Pollen analysis
	c) Flora
	c) Flora d) Fossil woods (C ¹⁴ dating)
	e) Timberline
	f) Lichenometry
3)	Quaternary history:
DAT	A AVAILABILITY.
	■ 1 × × × × × × × × × × × × × × × × × ×
1)	Tabulations
	Published reports Annual reports from NVE
	Unpublished reports
2)	Data files (tape, cards, satellite transmissions)
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3)	Address from which data are available
	Hydrological Division, NVE
	Box 5091, Mj. Oslo 3, Norway
4)	Other information
4)	Other information
MAT	N PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge;
MAL	N PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norge;
	Materialtransportundersøkelser i norske breewer
	(annual reports)
OTH	ER COMMENTS.
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NORWAY STORSTEINSFJELL

Α.	GEO	GRAPHICAL LOCATION.
	1)	Country Norway
	2)	Name of station Storsteinsfiell
	3)	Locality Northern Norway
	4)	Latitude: 68 13' N Longitude: 17 55' E Elevation(m) 975
	5)	Mountain range Storsteinsfjell
	6)	Drainage basin Elvegårdselv
		Name of director G. Østrem
	8)	
		Address NVE
		Box 5091
		Mj. Oslo 3, Norway
	4505	Telephone number 02 469800
	9)	
	10)	1 1/2 hours
		Other means of access: planes, float planes, helicopter, boat, etc
		Boarding point
	11)	Distance between the station and the glaciers studied 400 m
		Map: Storsteinsfjellbreen, 1:10,000, Norges Vassdrags- og Elektrisitetsvesen, Norway, 1964.
В.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 3
		Number of buildings 3 a) Total floor space ca 30 m ²
		b) Details: e.g. Laboratories
		Dormitories
		Number of beds 4
		Kitchens, dining rooms
		Workshops
		146

	Cold rooms
	Generator source
2)	Major research activities of the station (please check and rank in order importance)
	a) Glaciology 1
	h) Snow studies 1
	c) Hydrology 2
	b) Snow studies 1 c) Hydrology 2 d) Climatology 3
	e).Geophysics
	f) Geomorphology
	g) Botany, biology
	h) Quaternary history
CAL	LENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1963-68
2)	Yearly utilization period 2 1/2 months
3)	Type of utilization (teaching, research, level of students involved)
275	
4)	Number of researchers: Summer 0 Winter 0
5)	Number of technicians: Summer 2 Winter 0
	List of station personnel (and speciality). ATTACH LIST.
7)	
	projects
Put	IN TYPES OF RESEARCH AND DATA COLLECTED. t "O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.)
rec	ords. (Add appropriate details.)
1)	Glaciological research:
	a) Name/UNESCO inventory number of glacier(s) Storsteinsfiellbreen/738-1
	a) hane/onesco inventory number of gracier(s) Storsternstjerioreent/chart
	b) Fluctuations (terminal position, surface, mass balance) P
	b) Fluctuations (terminal position, surface, mass balance) P
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring)
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring)
2)	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing
2)	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P
2)	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology:
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature e) Lacustrine hydrology
	b) Fluctuations (terminal position, surface, mass balance) P c) Dynamics, movement, P d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature

b) Parameters temperature, cloudiness, wind, precipitation Geophysics: a) Radio-echo sounding method b) Magnetic surveys; electromagnetism 3) Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (C ¹⁴ dating) e) Timberline f) Lichenometry Quaternary history: MATA AVAILABILITY. Tabulations Published reports Unpublished reports Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are svailable Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)	1	olimatology.
a) Radio-echo sounding method b) Magnetic surveys; electromagnetism 5) Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology (7) Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (CI [‡] dating) e) Timberline f) Lichenometry g) Quaternary history: DATA AVAILABILITY. 1) Tabulations Published reports Unpublished reports 2) Data files (tape, cards, satellite transmissions) 3) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway 4) Other information MAIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norway (AIN PUBLICATIONS (ATTACH LIST).		a) Proximity to glacier
a) Radio-echo sounding method b) Magnetic surveys; electromagnetism Signature (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology (r) Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (C ¹⁴ dating) e) Timberline f) Lichenometry Quaternary history: DATA AVAILABILITY. 1) Tabulations Published reports Annual reports from NVE Unpublished reports 2) Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway 4) Other information MAIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		
Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (C ¹⁴ dating) e) Timberline f) Lichenometry Quaternary history: ATA AVAILABILITY.) Tabulations Published reports Annual reports from NVE Unpublished reports c) Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway) Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports))	Geophysics:
Earth science (including area surrounding station) a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (Clt dating) e) Timberline f) Lichenometry Quaternary history: ATA AVAILABILITY. Tabulations Published reports Annual reports from NVE Unpublished reports Unpublished reports) Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		a) Radio-echo sounding method
a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (C ¹⁴ dating) e) Timberline f) Lichenometry Quaternary history: ATA AVAILABILITY. Tabulations Published reports Unpublished reports Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		b) Magnetic surveys; electromagnetism
a) Geology b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (C ¹⁴ dating) e) Timberline f) Lichenometry Quaternary history: Tabulations Published reports Unpublished reports Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		
b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (C ¹⁴ dating) e) Timberline f) Lichenometry Quaternary history: ATA AVAILABILITY.) Tabulations Published reports Annual reports from NVE Unpublished reports) Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway) Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports))	
b) Tectonics c) Glacial geomorphology Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (C ¹⁴ dating) e) Timberline f) Lichenometry Quaternary history: ATA AVAILABILITY.) Tabulations Published reports Annual reports from NVE Unpublished reports) Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway) Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		a) Geology
a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (CI4 dating) e) Timberline f) Lichenometry Quaternary history: ATA AVAILABILITY.) Tabulations Published reports Unpublished reports) Data files (tape, cards, satellite transmissions)) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway) Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		b) Tectonics
a) Pollen analysis b) Micro bacterial fauna c) Flora d) Fossil woods (CI4 dating) e) Timberline f) Lichenometry Quaternary history: ATA AVAILABILITY.) Tabulations Published reports Unpublished reports c) Data files (tape, cards, satellite transmissions) () Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway) Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)	Ţ	c) Glacial geomorphology
d) Fossil woods (C14 dating) e) Timberline f) Lichenometry B) Quaternary history: DATA AVAILABILITY. Data Availability. Data files (tape, cards, satellite transmissions) Data files (tape, cards, satellite transmissions) B) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway D) Other information D) Other information D) Glasiologiske undersøkelser i No (annual reports)	()	Botany - biology (including area surrounding station)
c) Flora d) Fossil woods (C14 dating) e) Timberline f) Lichenometry 3) Quaternary history: DATA AVAILABILITY. DATA AVAILABILITY. Data files reports Annual reports from NVE Unpublished reports Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway DOTHER INFORMATION AND PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		a) Pollen analysis
d) Fossil woods (C14 dating) e) Timberline f) Lichenometry 3) Quaternary history: DATA AVAILABILITY. 1) Tabulations Published reports Annual reports from NVE Unpublished reports 2) Data files (tape, cards, satellite transmissions) 3) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway 4) Other information MAIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		b) Micro bacterial fauna
e) Timberline f) Lichenometry Quaternary history: Data AVAILABILITY. Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		c) Flora
e) Timberline f) Lichenometry f) Lichenometry Quaternary history: Data AVAILABILITY. Data files (reports Annual reports from NVE Unpublished reports Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information Glasiologiske undersøkelser i No (annual reports)		d) Fossil woods (C14 dating)
Quaternary history: DATA AVAILABILITY. L) Tabulations Published reports Annual reports from NVE Unpublished reports Published reports		e) Timberline
DATA AVAILABILITY. 1.) Tabulations Published reports Annual reports from NVE Unpublished reports 2.) Data files (tape, cards, satellite transmissions) 3.) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway 4.) Other information MAIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		f) Lichenometry
DATA AVAILABILITY. 1.) Tabulations Published reports Annual reports from NVE Unpublished reports 2.) Data files (tape, cards, satellite transmissions) 3.) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway 4.) Other information AAIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)	3)	Quaternary history:
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Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information AIN PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i No (annual reports)		
Published reports Annual reports from NVE Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Hydrological Division, NVE Box 5091, Mj. Oslo 3, Norway Other information Glasiologiske undersøkelser i No (annual reports)		
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	inen.	Box 5091, Mj. Oslo 3, Norway Other information
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	íAI	Box 5091, Mj. Oslo 3, Norway Other information N PUBLICATIONS (ATTACH LIST). Glasiologiske undersøkelser i Norgannual reports)

NORWAY TROLLBERGDALSBREEN

A. GEOGRAPHICAL LOCATION.

1)	Country Norway
2)	Name of station Versailles (Trollbergdalsbreen)
3)	Locality Northern Norway
4)	Latitude: 66 43' N Longitude: 14 27' E Elevation(m) 950
	Mountain range Beiarn
	Drainage basin Beiarely
7)	Name of director G. Østrem
8)	Name of parent organization Glaciological Section
	AddressNVE
	Box 5091
	Mj. Oslo 3, Norway
	Telephone number 02 469800
9)	Date of establishment of the station 1969
10)	Distance from the end of the road (in kilometers or hours of walking) 3 hours
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point_
11)	Distance between the station and the glaciers studied 200 m
	Map: Trollbergdalsbreen, Beiarn, Norway.
	map. Holiberguarsbreen, betain, Norway.
. DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	The state of the s
1)	Number of buildings 1
	a) Total floor space 15 m ²
	b) Details: e.g. Laboratories
	Dormitories
	Dormitories Number of beds 2
	Kitchens, dining rooms
	Workshops
	149

	Generator source
	ajor research activities of the station (please check and rank in order
	mportance)
) Glaciology 1
Ъ) Snow studies 1
c) Hydrology 2) Climatology 3
d	Climatology 3
e).Geophysics
f) Geomorphology
g) Botany, biology
h) Quaternary history
CALEN	DAR TIMING OF ACTIVITIES OF THE STATION.
L) P	eriod of record 1969-75
	early utilization period 2 1/2 months
	ype of utilization (teaching, research, level of students involved)
	measurements
3.0	
t) N	umber of researchers: Summer 0 Winter 0
5) N	umber of technicians: Summer 2 Winter 0
	ist of station personnel (and speciality). ATTACH LIST.
) 0	ther laboratories working temporarily at the station on joint/separate
	rojects
MATRI	
Put "	TYPES OF RESEARCH AND DATA COLLECTED. O" for ongoing research, "P" for previous studies. Indicate period of
Put "	
Put "cecor	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.)
Put "cecor	O" for ongoing research, "P" for previous studies. Indicate period of
Put "cecor	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.) laciological research: Name/UNESCO inventory number of glacier(s) Trollbergdalsbreen/685-7
Put "recor L) G a	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.) laciological research: Name/UNESCO inventory number of glacier(s) Trollbergdalsbreen/685-7 Fluctuations (terminal position, surface, mass balance) P
Put "recor" L) G a b	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.) laciological research: Name/UNESCO inventory number of glacier(s) Trollbergdalsbreen/685-7 Fluctuations (terminal position, surface, mass balance) P Dynamics, movement P
Put "recor" L) G a b	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.) laciological research: Name/UNESCO inventory number of glacier(s) Trollbergdalsbreen/685-7 Fluctuations (terminal position, surface, mass balance) P Dynamics, movement P Studies of surface Studies of deep ice (coring)
ecor a b c d	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.) laciological research: Name/UNESCO inventory number of glacier(s) Trollbergdalsbreen/685-7 Fluctuations (terminal position, surface, mass balance) P Dynamics, movement P Studies of surface Studies of deep ice (coring)
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ecor a b c d e f	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.) laciological research: Name/UNESCO inventory number of glacier(s) Trollbergdalsbreen/685-7 Fluctuations (terminal position, surface, mass balance) P Dynamics, movement P Studies of surface Studies of deep ice (coring) Subglacial studies (access type)
Put "Pecor" a b c d e f g h	O" for ongoing research, "P" for previous studies. Indicate period of ds. (Add appropriate details.) laciological research: Name/UNESCO inventory number of glacier(s) Trollbergdalsbreen/685-7 Fluctuations (terminal position, surface, mass balance) P Dynamics, movement P Studies of surface Studies of deep ice (coring) Subglacial studies (access type) Ice Chemistry and physics Remote sensing
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NORWAY TÜNSBERGDALSBREEN

GEOGRAPHICAL LOCATION.

1)	Country Norway
2)	Name of station Tunsbu (Tunsbergdalsbreen)
3)	Locality Western Norway
4)	Latitude: 61 43' N Longitude: 7 08' E Elevation(m) 1350
5)	Mountain range Fostedalsbreen Icecap
6)	Drainage basin Fostedalen
7)	Name of director G. Østrem
8)	Name of parent organization Glaciological Section
	Address NVE
	Box 5091 Mj. Oslo 3, Norway
31	Telephone number 02 469800
9)	Date of establishment of the station 1966
10)	Distance from the end of the road (in kilometers or hours of walking) 3 hours
	Other means of access: planes, float planes, helicopter, boat, etc.
	HARRING HINNING TRANSPIRED AND MARKET FRANK OF THE COURSE STATE WITH SECTION OF THE STATE OF THE
	Boarding point_
11)	Distance between the station and the glaciers studied
	1000 m
	Many Tymphonodolohuson 1,20,000 Norman Variation of Elektricity
	Map: Tunsbergdalsbreen, 1:20,000, Norges Vassdrags- og Elektrisitetsvesen, Norway, 1966.
. DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
. DEC	CHITION OF THE STATION (INCOME A MAI IT ANALIZABLE).
1)	Number of buildings 1
	a) Total floor space 9 m ²
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds 2
	Kitchens, dining rooms
	Workshops
	152

	Generator source			-		_		-
1	Major research activities of the statio	n (please	check	and	rank	in	order	
,	importance)	. , passes						
	a) Glaciology 1							
	b) Snow studies							
	b) Snow studiesc) Hydrology2							
	d) Climatology 3	7						
	e) Geophysics							
	f) Geomorphology							
	g) Botany, biology							
	h) Quaternary history							
		SECTION 1						7
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~ \	a) Proximity to glacier
-1	b) Parameters temperature, humidity, wind, cloudiness, precipitation
21	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
6)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
	c) Glacial geomorphology
7)	Botany - biology (including area surrounding station)
	a) Pollen analysis
	a) Pollen analysis b) Micro bacterial fauna
	c) Flora
0	d) Fossil woods (C14 dating)
	e) Timberline
	e) Timberline f) Lichenometry
8)	Quaternary history:
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NORWAY VESLEDALSBREEN

A. GEOGRAPHICAL LOCATION.

1)	Country Norway
2)	Name of station Optimus (Vesledalsbreen)
3)	Locality Western Norway
4)	Latitude: 61 51' N Longitude: 7 16' E Elevation(m) 1573 m
	Mountain range Fostedalsbreen icecap
	Drainage basin Stryn
	Name of director G. Østrem
8)	Name of parent organization Glaciological Section
	Address NVE
	Box 5091
	Mj. Oslo 3, Norway
	Telephone number 02 469800
9)	Date of establishment of the station 1967
10)	Distance from the end of the road (in kilometers or hours of walking) 4 hours
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point
11)	Distance between the station and the glaciers studied 50 m
B. DESC	Map: Erdalsbreen- Vesledalsbreen (Part of Jostedalsbreen, Norway), 1:20,000, Norges Vassdrags- og Elektrisitetsvesen, Hydrologisk Avd., Norway, 1967. RIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 2 2
	a) Total floor space 24 m
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds 2
	Kitchens, dining rooms
	Workshops
	155

- 5	Major research activities of the station (please check and	rank in order of
	importance)	
	a) Glaciology 1	
Ь	b) Snow studies c) Hydrology2	
c	c) Hydrology 2	
a	d) Climatology	
e	e) Geophysics	
I	f) Geomorphology	
- 8	g) Botany, Glology	
п	h) Quaternary history	
EN	NDAR TIMING OF ACTIVITIES OF THE STATION.	- 29
P	Period of record1966-72	
Y	Yearly utilization period 1-2 weeks	
	Type of utilization (teaching, research, level of students i	nvolved)
7.5	measurements	
N	Number of researchers: Summer 0 Winter	0
N	Number of technicians: Summer 0 Winter	0
L	List of station personnel (and speciality). ATTACH LIST.	0
0	Other laboratories working temporarily at the station on joi	nt/separate
	projects	
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ENT.	MANAGE OF BUGGAROUS AND DAMA GOLL DOWNER	
	TYPES OF RESEARCH AND DATA COLLECTED.	
	"O" for ongoing research, "P" for previous studies. Indicat	
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	rds. (Add appropriate details.)	e period of
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	Glaciological research:	1 11
	Glaciological research: a) Name/UNESCO inventory number of glacier(s)	1 11
a	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7	
a	Glaciological research: a) Name/UNESCO inventory number of glacier(s)	
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a b c d	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface	
a b c d	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface	
a c d e	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring)	P
a c d e f	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)	P
a b c d e f g	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics	P
a b c d e f g	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)	P
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a b c d e f g h S a b	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Snow study: a) Snow cover P b) Avalanches	P
a c d e f g h	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Snow study: a) Snow cover b) Avalanches Hydrology:	P
a cd eff gh	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Snow study: a) Snow cover P b) Avalanches Hydrology: a) Discharges	P
a lo	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges b) Ice cover percentage	P
a deff gh Sabh	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Show study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology	P
a b c d e f g h S a b H a b c d	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Show study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature	P
a b c d d e f g h h a a b c c d	Glaciological research: a) Name/UNESCO inventory number of glacier(s) Tunsbergdalsbreen /310-7 b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Show study: a) Snow cover P b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology	P

Cold rooms

C.

D.

	a) Proximity to glacier
	b) Parameters
)	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
,	
5)	Earth science (including area surrounding station)
	a) Geology
	b) rectorics
	c) Glacial geomorphology
7)	Botany - biology (including area surrounding station)
	a) Pollen analysis
	b) Micro bacterial fauna
	d) Fossil woods (C ¹⁴ dating)
	e) Timberline
	e) Timberline f) Lichenometry
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PERU QUELCCAYA

	020	Old II old Book I out
	1)	Country Peru
	2)	Name of station Quelccava
	3)	Locality Andes Mt. South Central Peru Latitude: 14 S Longitude: 70 50 W Elevation(m) 5645m
	4)	Latitude: 14°S Longitude: 70° 50' W Elevation(m) 5645m
	5)	Mountain range Andes
	6)	Drainage basin Amazon
	7)	Name of director Dr. Lonnie C. Thompson
	8)	Name of parent organization National Science Foundation
		Address 1800 G. Street
		Washington, DC USA
		Telephone number
	9)	Date of establishment of the station 1974
	10)	Distance from the end of the road (in kilometers or hours of walking) 100 km 3 days
		Other means of access: planes, float planes, helicopter, boat, etc. horse
		Boarding point_
	11)	Distance between the station and the glaciers studied5km
В.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings None (this is a seasonal station) a) Total floor space
		b) Details: e.g. Laboratories
		Dormitories
		Number of beds
		Kitchens, dining rooms
		Workshops
		158

- \	Generator source
- \	
73.1	Motor research satisfities of the station (-2 are about -2 are) to a second
2)	Major research activities of the station (please check and rank in order of importance)
	a) Glaciology 3
	b) Snow studies 2 c) Hydrology 5 d) Climatology 1 e) Geophysics 6
	d) Climatelogy 1
	a) Coophysics 6
	f) Geomorphology
	g) Betany hieless
	g) Botany, biologyh) Quaternary history_4
	, quastracty
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1974 - present
2)	Yearly utilization period June - August
3)	Type of utilization (teaching, research, level of students involved)
-	Research
4)	Number of researchers: Summer 6 Winter Number of technicians: Summer 2 Winter
5)	Number of technicians: Summer 2 Winter
	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
rec	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research:
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance)
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rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement 0 d) Studies of surface 0
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rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement 0 d) Studies of surface 0 e) Studies of deep ice (coring) planned f) Subglacial studies (access type)
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement 0 d) Studies of surface 0 e) Studies of deep ice (coring) planned f) Subglacial studies (access type)
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement 0 d) Studies of surface 0 e) Studies of deep ice (coring) planned f) Subglacial studies (access type) g) Ice Chemistry and physics 0 h) Remote sensing Snow study:
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement 0 d) Studies of surface 0 e) Studies of deep ice (coring) planned f) Subglacial studies (access type) g) Ice Chemistry and physics 0 h) Remote sensing Snow study: a) Snow cover 0
rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance) c) Dynamics, movement 0 d) Studies of surface 0 e) Studies of deep ice (coring) planned f) Subglacial studies (access type) g) Ice Chemistry and physics 0 h) Remote sensing Snow study: a) Snow cover 0
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rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)Quelccaya Ice Cap b) Fluctuations (terminal position, surface, mass balance)

4)	Climatology:
	a) Proximity to glacier 0 km
	b) Parameters long term automatic weather stations
5)	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism planned
6)	Earth science (including area surrounding station)
	a) Geology
	h) Mantanias
	(2) - (-)
7)	Botany - biology (including area surrounding station)
17	a) Ballon analysis
	a) Pollen analysis planned
	b) Micro bacterial fauna
	c) Flora
	d) Fossil woods (C14 dating) peat
	e) Timberline
	f) Lichenometry
8)	Quaternary history:
	On going-establishing ice cap fluctuations from C14 dating of morain
DAM	A AMATI ADTI TOV
DAT	A AVAILABILITY.
- 1	m-1-1-4/
T)	Tabulations
	Published reports 4
	Unpublished reports 3
2)	Data files (tape, cards, satellite transmissions)
77.6	
3)	Address from which data are available
٥,	
4)	Other information
MAI	N PUBLICATIONS (ATTACH LIST).
	a proper posture vividos en 60%. El Carrolla de Carrolla de 1900.
	See .
ОТН	ER COMMENTS.
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SPITSBERGEN FORSKNINGSSTASJONEN PÅ SVALBARD

GEOGRAPHICAL LOCATION.

1)	Country Norway, Svalbard (Spitsbergen)
2)	Name of station Forskningsstasjonen på Svalbard
3)	Locality Spitsbergen
4)	Latitude: 78° 50' Longitude: 11° 30' Elevation(m) 10
5)	Mountain range ?
6)	
7)	Name of director ?
8)	Name of parent organization Norsk Polarinstitutt
	Address Norsk Polarinstitutt, Rolfstang veien 12, 1330 Oslo Lüfthavn Norway
	Telephone number 02.123650
9)	Date of establishment of the station 1966
10)	Distance from the end of the road (in kilometers or hours of walking)
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point Ny Alesund
11)	Distance between the station and the glaciers studied 3 km to Bröggerbreen, 4 km to Lovenbreen glacier
B. DE	SCRIPTION OF THE STATION (<u>INCLUDE A MAP IF AVAILABLE</u>).
1)	Number of buildings 5
	a) Total floor space ca 400 m ²
	b) Details: e.g. Laboratories (2 biology)
	Dormitories 20 rooms
	Number of beds ca 40
	Kitchens, dining rooms 1 each
	Workshops 1

	Generator source	
21	V	/
2)	Major research activities of the station	(please check and rank in order
	importance)	
	a) Glaciology mass balance	
	b) Snow studies	
	c) Hydrology discharge, sediment load	\$ 1 E
	d) Climatology meteorological station	± ones:
	e) Geophysics seismology, Ionosphere phys	ics
	f) Geomorphology	
	g) Botany, biology M.A.B.	
	h) Quaternary history	
		28 V
2011		
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.	
	Period of record from 1966	
	Yearly utilization period 5 months	
3)	Type of utilization (teaching, research,	level of students involved)
	research	
4)	Number of researchers: Summer 2	Winter 1
	Number of technicians: Summer (5)	Winter (5)
6)	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at	the station on joint/senarate
	projects M.A.B., seismology, Ionospher	e physics
T		
	M WALES OF BEGEVERA VID DAWN COLLECTION	
Put	N TYPES OF RESEARCH AND DATA COLLECTED.	
	"O" for ongoing research, "P" for previous	s studies. Indicate period of
		as studies. Indicate period of
rec	"O" for ongoing research, "P" for previous ords. (Add appropriate details.)	as studies. Indicate period of
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rec(1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surfation of mass balance) c) Dynamics, movement of movement of movement of studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics of the hold Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges Discharge and sedime	er(s) ? dece, mass balance) mistry of melt water
rec(1)	"O" for ongoing research, "P" for previous ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacies b) Fluctuations (terminal position, surfation of mass balance) c) Dynamics, movement of movement of movement of studies of surface; e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics of chemistry and	er(s) ? dece, mass balance)
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D.

.,	Description to place
	a) Proximity to glacier
- 1	b) Parameters radiation, wind, temperature, moisture
5)	
	a) Radio-echo sounding method P
	b) Magnetic surveys; electromagnetism
5)	Earth science (including area surrounding station)
	a) Geology h) Testonics
	b) Tectonics
)	c) Glacial geomorphology
•	a) Pollen analysis
	a) Pollen analysis b) Micro bacterial fauna
	c) Flore
	c) Flora d) Fossil woods (C ¹⁴ dating)
	a) Figherline
	c) limberline
١	f) LichenometryQuaternary history:
,	Quaternary history:
	A AVAILABILITY. Tabulations
,	
	Published reports Norsk Polarinstitutt Arbok
	Unpublished reports_
)	Data files (tape, cards, satellite transmissions)
	tape
)	Address from which data are available Norsk Polarinstitutt
	Rolfstans veien 12, 1330 Oslo Lufthavn
	Norway
)	
,	Other information_
AIR	PUBLICATIONS (ATTACH LIST). Norsk Polarinstitutt Arbok
THE	ER COMMENTS.
	
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SWEDEN TARFALA RESEARCH STATION

Α.	GEO	OGRAPHICAL LOCATION.
	1)	Country_ Sweden
	2)	Name of station Tarfala
	3)	
		Latitude: 67° 55° N Longitude: 18° 40E Elevation(m) 1130
	5)	
	6)	Drainage basin Tarfalajakka, tributary to Kalix älv
	7)	
	8)	
		University of Stockholm
		Address Box 6801 Field station: Tarfala Research Station
		S-11386, Stockholm c/o Kebnekaise
		S-98100 Kiruna, Sweden
		Telephone number 06-340660 0960-16165
	9)	Date of establishment of the station 1948 (work since 1945)
	10)	Distance from the end of the road (in kilometers or hours of walking)
		Other means of access: planes, float planes, helicopter, boat, etc. Float plane (only in August), ski plane (FebrMay), helicopter (all year)
		Boarding point
		Kiruna (sometimes Nikkaluokta)
	11)	Distance between the station and the glaciers studied
		0.5 km
В.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
•	DLO	OHITION OF THE BIRITON (MINERALLY)
	1)	Number of buildings a total of 12
		a) Total floor space 500 m 2
		a) Total floor space 500 m b) Details: e.g. Laboratories 41 m in two houses Dormitories in 6 houses
		Number of beds 41 + a few extra
		Kitchens, dining rooms 1 mess hut with good facilities
		Workshops, Snow scooter garage, sauna, laundry

	Generator source 220 V AC (power from outside)
2) Major research activities of the station (please check and rank in order of
2070	importance)
	a) Glaciology 1
	b) Snow studies 4
	c) Hydrology 3
	d) Climatology 5
	e) Geophysics
	f) Geomorphology 2
	g) Botany, biology
	h) Quaternary history
CA	LENDAR TIMING OF ACTIVITIES OF THE STATION.
O.A.	
1)	
2)	
3)	Type of utilization (teaching, research, level of students involved)
	courses for graduate and undergraduate students in summer, research all year
4)	Number of researchers: Summer 2-8 Winter 2-3
5)	
6)	
7)	
	projects Dept. of Meteorology, University of Uppsala
	Dept. of Hydrology, University of Uppsala
MAT	IN MYDEC OF DECEARCH AND DAMA COLLEGISTE
Don	IN TYPES OF RESEARCH AND DATA COLLECTED.
rut	t "O" for ongoing research, "P" for previous studies. Indicate period of
rec	cords. (Add appropriate details.)
- 1	
1)	- 2003 11 11 11 11 11 11 11 11 11 11 11 11 11
	a) Name/UNESCO inventory number of glacier(s)Storglaciaren
	Isfallsglaciären
	b) Fluctuations (terminal position, surface, mass balance)
	0 since 1945/46
	c) Dynamics, movement several years
	d) Studies of surface 0
	e) Studies of deep ice (coring)
	f) Subglacial studies (access type)
	g) Ice Chemistry and physics
	h) Remote sensing
2)	Snow study:
	a) Snow cover 0 since 1946
	b) Avalanches
3)	Hydrology:
1700	a) Discharges 0 since 1959
	b) Ice cover percentage
	d) Ice surface feature some
	e) Lacustrine hydrology some
	166

no

Cold rooms_

c.

D.

	4)	Climatology: a) Proximity to glacier _ 0.5 km - Base station. On glacier - temporarity
		b) Parameters wind, temperature (air, ground, river), radiation
	51	Geophysics:
	11	\ \hat{h}_{1}\cdots \ \tag{\tag{\tag{\tag{\tag{\tag{\tag{
		b) Magnetic surveys; electromagnetism
		b) Magnetic surveys, electromagnetism
	6)	Earth science (including area surrounding station)
		a) Geology
		b) Tectonics
	500000	c) Glacial geomorphology 0
	7)	Botany - biology (including area surrounding station)
		a) Pollen analysis
		b) Micro bacterial fauna
		c) Flora
		d) Fossil woods (C14 dating)
		e) Timberline
		f) Lichenometry0
	8)	Quaternary history:
		Several studies
E.	DAT	A AVAILABILITY.
	1)	Tabulations
		Published reports Geogr. Annaler, ICE, Hydrological Data-Norden
		Unpublished reports
	2)	Data files (tape, cards, satellite transmissions)
		Meteorolog. data, accumulation data and hydrological data on card and/or tape
		meteorotog, data, accumutation data and nyurotogical data on card and/or supe
	3)	meteorolog. data, accumulation data and hydrological data on card and/or outper
	3,	
		Address from which data are available Stockholm office.
		Address from which data are available Stockholm office.
	4)	
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P	4)	Address from which data are available Stockholm office. Other information
F.	4)	Address from which data are available Stockholm office.
F.	4)	Address from which data are available Stockholm office. Other information
F.	4) MAII	Address from which data are available Stockholm office. Other information PUBLICATIONS (ATTACH LIST).
F.	4) MAII	Address from which data are available Stockholm office. Other information
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F.	4) MAII	Address from which data are available Stockholm office. Other information PUBLICATIONS (ATTACH LIST).

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SWITZERLAND EIDGENÖSSISCHE INSTITUT FÜR SCHNEE-UND LAWINENFORSCHUNG

A. GEOGRAPHICAL LOCATION.

Address 7260 Weissfluhjoch-Davos Telephone number 083 532 64 9) Date of establishment of the station 1942 10) Distance from the end of the road (in kilometers or hours of walking) 3 hours	1)	Country Switzerland
3) Locality Weissfluhjoch 4) Latitude: N 46° 50' Longitude: E 9° 48' Elevation(m) 2667 5) Mountain range Swiss Alps (Nordbünden) 6) Drainage basin Rhein 7) Name of director Prof. M. de Quervain 8) Name of parent organization Oberforstinspektorat, Bern Eidg. Institut für Schnee-und Lawinenforschung Address 7260 Weissfluhjoch-Davos Telephone number 083 532 64 9) Date of establishment of the station 1942 10) Distance from the end of the road (in kilometers or hours of walking) 3 hours Other means of access: planes, float planes, helicopter, boat, etc. helicopter and cablecar Boarding point Davos 11) Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1	2)	Name of station Eidgenössische Institut für Schnee- und Lawinenforschung
h) Latitude: N 46° 50' Longitude: E 9° 48' Elevation(m) 2667 Mountain range Swiss Alps (Nordbünden) Drainage basin Rhein Name of director Prof. M. de Quervain Name of parent organization Oberforstinspektorat, Bern Eidg. Institut für Schnee-und Lawinenforschung Address 7260 Weissfluhjoch-Davos Telephone number 083 532 64 Date of establishment of the station 1942 Distance from the end of the road (in kilometers or hours of walking) 3 hours Other means of access: planes, float planes, helicopter, boat, etc. helicopter and cablecar Boarding point Davos Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1	3)	Locality Weissfluhjoch
Mountain range Swiss Alps (Nordbünden)	4)	Latitude: N 46 50' Longitude: E 9 48' Elevation(m) 2667
6) Drainage basin Rhein 7) Name of director Prof. M. de Quervain 8) Name of parent organization Oberforstinspektorat, Bern Eidg. Institut für Schnee-und Lawinenforschung Address 7260 Weissfluhjoch-Davos Telephone number 083 532 64 9) Date of establishment of the station 1942 10) Distance from the end of the road (in kilometers or hours of walking) 3 hours Other means of access: planes, float planes, helicopter, boat, etc. helicopter and cablecar Boarding point Davos 11) Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1	5)	Mountain range Swiss Alps (Nordbünden)
8) Name of parent organization Oberforstinspektorat, Bern Eidg. Institut für Schnee-und Lawinenforschung Address 7260 Weissfluhjoch-Davos Telephone number 083 532 64 9) Date of establishment of the station 1942 10) Distance from the end of the road (in kilometers or hours of walking) 3 hours Other means of access: planes, float planes, helicopter, boat, etc. helicopter and cablecar Boarding point Davos 11) Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m ² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1		Drainage basin Rhein
8) Name of parent organization Oberforstinspektorat, Bern Eidg. Institut für Schnee-und Lawinenforschung Address 7260 Weissfluhjoch-Davos Telephone number 083 532 64 9) Date of establishment of the station 1942 10) Distance from the end of the road (in kilometers or hours of walking) 3 hours Other means of access: planes, float planes, helicopter, boat, etc. helicopter and cablecar Boarding point Davos 11) Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m ² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1	7)	Name of director Prof. M. de Quervain
Eidg. Institut für Schnee-und Lawinenforschung Address 7260 Weissfluhjoch-Davos Telephone number 083 532 64 9) Date of establishment of the station 1942 10) Distance from the end of the road (in kilometers or hours of walking) 3 hours Other means of access: planes, float planes, helicopter, boat, etc. helicopter and cablecar Boarding point Davos 11) Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1		Name of parent organization Oberforstinspektorat, Bern
Telephone number 083 532 64 9) Date of establishment of the station 1942 10) Distance from the end of the road (in kilometers or hours of walking) 3 hours Other means of access: planes, float planes, helicopter, boat, etc. helicopter and cablecar Boarding point Davos 11) Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1		
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Other means of access: planes, float planes, helicopter, boat, etc		Date of establishment of the station 1942
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Davos Distance between the station and the glaciers studied 20 km DESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). 1) Number of buildings 1 a) Total floor space ca 700 m ² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1		
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1) Number of buildings 1 a) Total floor space ca 700 m ² b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1	DEG	CRIPTION OF THE STATION (INCLIDE A MAP IF AVAILABLE)
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b) Details: e.g. Laboratories 5 (cold rooms included) Dormitories Number of beds none Kitchens, dining rooms 1	/	a) Total floor space ca 700 m ²
Dormitories Number of beds none Kitchens, dining rooms 1		h) Details: e.g. Laboratories 5 (cold rooms included)
Number of beds none Kitchens, dining rooms 1		
Kitchens, dining rooms 1		
worksnops 2		
171		"OT KSHOPS

	Generator source AC
2)	Major research activities of the station (please check and rank in order of importance)
	a) Glaciology 4
	b) Snow studies 1 & avalanches
	c) Hydrology 3
	c) Hydrology 3 d) Climatology 2
	e) Geophysics
	f) Geomorphology
	g) Botany, biology
	g) Botany, biology h) Quaternary history
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 1936/371976/77
2)	
3)	Type of utilization (teaching, research, level of students involved)
	snow and avalanche research consulting work, teaching at ETH in Zurich
4)	Number of researchers: Summer 12 Winter 12
5)	Number of technicians: Summer 8 Winter 8
5)	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects University of Berne
Put	a) Name/UNESCO inventory number of glacier(s) 1 b) Fluctuations (terminal position, surface, mass balance) 0, winter & yearly balance; cooperation with Swiss Glacier_Commission c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
	g) Ice Chemistry and physics
	h) Remote sensing snow cover by aeroplane photography
2)	Snow study: a) Snow cover 0 1936/37-1976/77 formation, properties, distribution, melt, runof b) Avalanches 0 1952/53-1976/77 formation, dynamics, effects, protection, Hydrology: forestry aspects 16.18
	a) Discharges 0 snow hydrology, 0 ¹⁶ /0 ¹⁸ , T, D-studies of discharge water
	b) Ice cover percentage
	c) Sub glacial hydrology
	d) Ice surface feature
	e) Lacustrine hydrology
	172

Cold rooms

C.

D.

5)	a) Proximity to glacier 20 km b) Parameters air temp., precipitation, wind, radiation, clouds, humidity.
5)	b) Parameters air temp., precipitation, wind, radiation, clouds, humidity
5)	The state of the s
-	
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
82VI	
5)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
	c) Glacial geomorphology
)	Botany - biology (including area surrounding station)
	a) Pollen analysis
	b) Micro bacterial fauna
	c) Flora reforestation projects
	d) Fossil woods (C-4 dating)
	e) Timberline
	i) Lichenometry
)	Quaternary history:
AT	A AVAILABILITY.
	Tabulations yes
	Tabulations yes Published reports annual report: "Schnee und Lawinen in den Schweizer Alpen"
-	Tabulations yes
L)	Tabulationsyes Published reportsannual report: "Schnee und Lawinen in den Schweizer Alpen" Unpublished reportsinternal reports
.)	Tabulations yes Published reports annual report: "Schnee und Lawinen in den Schweizer Alpen" Unpublished reports internal reports Data files (tape, cards, satellite transmissions)
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For complete citations, please contact the Eidgenössische Institut für Schnee- und Lawinenforschung, Davos.

USA GULKANA GLACIER

Country USA	
Name of station Gulkana G	acier
Locality Alaska Range, Alas	a
Latitude: 63 15' N Long	itude: 145° 28' W Elevation(m) 1800m
Mountain range Alaska Range	
Drainage basin Delta River	
Drainage basin Delta River Name of director L.R. May	
Name of parent organization_	U.S. Geological Survey
Wa	er Resources Division
Address Bo	(11
	12th Ave.
	rbanks, Alaska 99701
Telephone number 452-1951	Ext 214
Date of establishment of the	station 1967
	road (in kilometers or hours of walking)
	s, float planes, helicopter, boat, etc.
plane and helicopt	
Boarding point Fairban	
rairoan	
Distance between the station	and the glaciers studied 0.2 km
Distance between the station	and the graciers studied U.Z Kill
CRIPTION OF THE STATION (INCLU	DE A MAP IF AVAILABLE).
Number of buildings 1 - A fr	ime
a) Total floor space 11	
b) Details: e.g. Laboratorie	
Dormitorie	
Number of h	
11 combined into Kitchens.	ining rooms
Il combined into Kitchens, of Single bldg. Workshops	

В.

	Generator source wind powered
2)	Major research activities of the station (please check and rank in order o
	a) Glaciology 1
	b) Snow studies 4
	c) Hydrology 2
	d) Climatology 3
	e) Geophysics
	f) Geomorphology 5
	g) Botany, biology
	h) Quaternary history 6
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record continuously recorded air temp, and precipitation
2)	Yearly utilization period 4 visits per year
3)	Type of utilization (teaching, research, level of students involved) research monitoring
4)	Number of researchers: Summer 2 Winter 2
100	Number of technicians: Summer 0 Winter 0
	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
MAI	L.R. Mayo, Glaciologist; D.C. Trabant, Glaciologist N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of cords. (Add appropriate details.)
rec	ords. (Add appropriate details.)
1)	
	Glaciological research:
	POT EL INCIDENTAL DE LA CONTRACTOR DE LA
	Glaciological research: a) Name/UNESCO inventory number of glacier(s)
	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967-
	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974-
	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface
	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring)
	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics
	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)
2)	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study:
2)	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study: a) Snow cover 0 denth, density 1967-
1950	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches
1950	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology:
1950	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967-
1950	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967- b) Ice cover percentage P 1967
1950	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967- b) Ice cover percentage P 1967 c) Sub glacial hydrology
1950	Glaciological research: a) Name/UNESCO inventory number of glacier(s) b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0 aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967- b) Ice cover percentage P 1967

	Climatology: a) Proximity to glacier 1480 m altitude very close
5)	b) Parameters air temperature, precipitation Geophysics: a) Radio-echo sounding method upcoming
	b) Magnetic surveys; electromagnetism
6) .	Earth science (including area surrounding station)
	a) Geologyb) Tectonics
	b) Tectonics
7)	c) Glacial geomorphology
	a) Pollen analysis
	a) Pollen analysis b) Micro bacterial fauna
	c) Flora
	c) Flora d) Fossil woods (C ¹⁴ dating)
	e) Timberline
	f) Lichenometry
8)	Quaternary history:
DATA	A AVAILABILITY.
1)	Tabulations From USGS-WRD, Fairbanks (address above)
	Tabulacions Fiom 0505-WKD. Patribanks (address above)
	Published reports USGS - Profession Papers 715 A.B
	Published reports USGS - Profession Papers 715 A.B Unpublished reports
2)	Published reports USGS - Profession Papers 715 A.B
2)	Published reports USGS - Profession Papers 715 A.B Unpublished reports
	Published reportsUSGS - Profession Papers 715 A.B Unpublished reports Data files (tape, cards, satellite transmissions)
	Published reports USGS - Profession Papers 715 A.B Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available
	Published reportsUSGS - Profession Papers 715 A.B Unpublished reports Data files (tape, cards, satellite transmissions)
3)	Published reports
3)	Published reports USGS - Profession Papers 715 A.B Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available
3)	Published reports
3)	Published reportsUnpublished reportsUnpublished reports
3)	Published reports
3) 4) MAIN	Published reportsUnpublished reportsUnpublished reports
3) 4) MAIN	Published reports USGS - Profession Papers 715 A.B Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available same as parent organization Other information PUBLICATIONS (ATTACH LIST). OR COMMENTS. We have just begun a mass balance-dynamics program on Columbia Glacier in Prince
3) 4) MAIN OTHE	Published reports Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available same as parent organization Other information PUBLICATIONS (ATTACH LIST). OR COMMENTS. We have just begun a mass balance-dynamics program on Columbia Glacier in Prince liam Sound, Alaska. You will probably receive this report from our Tacoma, WA
3) 4) MAIN OTHE	Published reports USGS - Profession Papers 715 A.B Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available same as parent organization Other information PUBLICATIONS (ATTACH LIST). OR COMMENTS. We have just begun a mass balance-dynamics program on Columbia Glacier in Prince

USA INSTITUTE OF ARCTIC AND ALPINE RESEARCH

A. GEOGRAPHICAL LOCATION.

1)	Country U.S.A.
2)	Name of station INSTAAR Mountain Research Station
3)	Locality Colorado
4)	Latitude: 40° 02' 13S Longitude: 105° 32' 39S Elevation(m)2,925 m
5)	Mountain range Front Range
6)	Drainage basin North Boulder Creek
7)	
8)	
	Address Mountain Research Station, Nederland, Colorado 80466, U.S.A.
12-10	Telephone number (303) 492-8841
9)	
10)	Distance from the end of the road (in kilometers or hours of walking) dirt road from highway to the station - 3 km long
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point_
11)	Distance between the station and the glaciers studied 9 km
B. DES	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 41
-/	a) Total floor space
	b) Details: e.g. Laboratories alpine lab - 502 m ²
	Dormitories 29 two-person summer cabins, 7 winterized family
	Number of beds cabins Kitchens, dining rooms 1
	Workshops 1
	170

2)	
- /	Major research activities of the station (please check and rank in order
2.50	importance)
	a) Glaciology 5
	b) Snow studies 6
	c) Hydrology 7
	d) Climatology 1
	e) Geophysics 8
	f) Geomorphology 2
	g) Botany, biology 3
	h) Quaternary history 4
CALI	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record 25 years
2)	Yearly utilization period year round
3)	Type of utilization (teaching, research, level of students involved)
	research and teaching (undergraduate and graduate)
	Number of researchers: Summer 6 + 8 graduates Winter 3 + 5 graduates
5)	Number of technicians: Summer 2 Winter 2
5)	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
	projects
	W TURNS OF PROPERTY AND PARK COLL POSTER
Put	TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: Arapahoe, Arikaree, Isabello
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabelle
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabello b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabellob) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabellob) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring)
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabello b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type)
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabellob) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 6 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics
Put	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabello b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type)
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Put rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabello b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing p Snow study:
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Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabello b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing p Snow study: a) Snow cover 0 b) Avalanches 0 Hydrology:
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabelle b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing p Snow study: a) Snow cover 0 b) Avalanches 0 Hydrology: a) Discharges P
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabelle b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing p Snow study: a) Snow cover 0 b) Avalanches 0 Hydrology: a) Discharges P b) Ice cover percentage
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabelle b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing p Snow study: a) Snow cover 0 b) Avalanches 0 Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabelle b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing p Snow study: a) Snow cover 0 b) Avalanches 0 Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature
Put rec 1)	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s) Arapahoe, Arikaree, Isabell b) Fluctuations (terminal position, surface, mass balance) 0 c) Dynamics, movement d) Studies of surface 0 e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing P Snow study: a) Snow cover 0 b) Avalanches 0 Hydrology: a) Discharges P b) Ice cover percentage c) Sub glacial hydrology

Cold rooms____

	.) Proximity to glacier
) Parameters temp., PPT, humidity, solar, wind
	eophysics:
) Radio-echo sounding method
2) Magnetic surveys; electromagnetism
,	
	arth science (including area surrounding station)
) Geology
) Glacial geomorphology 0
	otany - biology (including area surrounding station)
) Pollen englycic
֡) Pollen analysis) Micro bacterial fauna
	Flore 0
	Flora 0 Fossil woods (C ¹⁴ dating)
*	Timberline 0
4	Timberline 0) Lichenometry
	Quaternary history:
•	0
•	
	AVAILABILITY.
5	abulations
1	abulations
1	Pabulations
-	Pabulations
-	Pabulations
	Pabulations
C. 71 II	Pabulations Published reports Yes Inpublished reports Yes Oata files (tape, cards, satellite transmissions) climate data on cards
	Cabulations
	Pabulations Published reports Yes Inpublished reports Yes Oata files (tape, cards, satellite transmissions) climate data on cards
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C	Published reports Yes Inpublished reports Yes Inpublished reports Yes Inpublished reports Yes Inpublished reports Yes Interport
F	Published reports Yes Inpublished reports Yes Inpublished reports Yes Inpublished reports Yes Inpublished reports Yes Intuitive of Arctic and Alpin Arctic and Alpin Research, Mountain Research Station, Nederland, Co. 80466, U.S.A. Inter information Publications (ATTACH LIST).

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USA JUNEAU ICEFIELD RESEARCH PROGRAM (JIRP) STATIONS

A. GEC	OGRAPHICAL DOCATION.	
1)	Country USA (and Canada)	
2)	Name of station Juneau Icefield Research	
3)	Locality Juneau Icefield, Alaska-B.C.	
4)	Latitude: Longitude:	
5)		on Alaska-B.CYukon border
6)	The state of the s	
7)		
8)	Name of parent organization_Foundation	for Glacier and Environmental Research
	Address Pacific Science Center, 200-2nd	
field	and P.O. Box 775, Juneau, Alaska, 99801	Also c/o Glaciological Inst.
ddresses	and P.O. Box 99, Atlin, B.C., Canada VOW Telephone number 206-523-3909 (Seattle)	1AO Univ. of Idaho, Moscow
25.80	Telephone number 206-523-3909 (Seattle)	Idaho, 83893 (208-885-6195)
The second secon	Date of establishment of the station 19	049 (1st) to 1974 (most recent)
10)	Distance from the end of the road (in nearest 8 km; farthest 150 km from Juneau	
	Other means of access: planes, float	planes, helicopter, boat, etc
	ski-plane or helicopter	
	Boarding point Juneau, Alaska	
11)	Distance between the station and the g cases	laciers studied 5 to 100 meters in most
	Map: Study Area of the Icefield Ranges I Geographical Society, 1969.	Research Project, 1:500,000, American
B. DES	SCRIPTION OF THE STATION (INCLUDE A MAP	IF AVAILABLE).
1)	Number of buildings 41 in 12 different	research stations; max at any one station=
	a) Total floor space 1500 square meters	
	b) Details: e.g. Laboratories 5	
	Dormitories 15	
		40 per camp
	Kitchens, dining roo	
	Workshops - generator	buildings - 6

	Cold rooms none
	Generator source field generator units, 3-5 kw and smaller in
2)	lesser stations. Major research activities of the station (please check and rank in order of
	importance)
	a) Glaciology 1
	b) Snow studies 2
	c) Hydrology 4
	d) Climatology 3
	e) Geophysics 5
	f) Geomorphology 6
25	g) Botany, biology 8
	h) Quaternary history 7
	i) Geology 9
. CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record Every year consecutively since 1946
2)	Yearly utilization period all summer; some winter and spring occupancy
3)	Type of utilization (teaching, research, level of students involved)
	Teaching, field research graduate students, some undergraduates, also each summer
	10 high-ability highschool students (NSF support) and some post-doctorals
4)	Number of researchers: Summer 10 to 20 Winter 5 to 10
5)	
6)	
7)	
5,50	projects US Geological Survey; NASA; US Forest Service; National Weather Service;
	Glaciological and Arctic Sciences Institute; University of Idaho; Michigan
	State University; National Geographic Society; Geophysical Inst. of University
	of Alaska; Univ. of B.C.; Univ. of New Brunswick; Queens University, etc.
MAT	N TYPES OF RESEARCH AND DATA COLLECTED.
Doct	WOW for organize research Well for resident to the Table Table
ruc	"O" for ongoing research, "P" for previous studies. Indicate period of
104	ords. (Add appropriate details.) (Period covers all summers consecutively since 6 - esp. in glaciology, meteorology, geophysics, geobiology, geology, geomorphology)
T)	Glaciological research:
	a) Name/UNESCO inventory number of glacier(s) 36 main glaciers (0 & P), on about
	1/3 of these annual data since 1946.
0&P	b) Fluctuations (terminal position, surface, mass balance) termini; and total
	glacier systems including surface and mass balance
0&P	c) Dynamics, movement continuum mechanics, transverse, and vertical velocity pro-
0&P	d) Studies of surface test pits, crevasse stratigraphy, firm files, basal slip, etc
0&P	e) Studies of deep ice (coring) mechanical & thermal drilling, physical character-
0	f) Subglacial studies (access type) glacier cave mapping, struc.,etc. istics &
P	g) Ice Chemistry and physics salinity studies; particulate analysis thermal
0&P	h) Remote sensing Landsat IR analyses re nèvè-lines & hydrological changes regimes.
2)	thermal scanner research, etc. Snow study:
0&P	a) Snow cover snow metamorphism; albedo; suncup evolution, ablation, etc.
0&P	b) Avalanches ice-fall research using geophones & hydrophone records; micro-seisms
3)	Hydrology: glacial stream hydrometrics
0&P	a) Discharges liquid balance studies; jokulhlaup phenomena; crevasse water tables,
0gP	
Our	b) Ice cover percentage nèvè-line recordsannual
OCD	c) Sub glacial hydrology crevasse & glacier core reservoirs for liquid water, run-
0&P	d) Ice surface feature suncup evolution; sastrugi studies (water), off stage
0&P	e) Lacustrine hydrology piston corer samples; sediment crevasse patterns, record.
	analysis, stage recorder data/level changes, etc.
	103

ç.

D.

	a) Proximity to glacier 5 to 100 meters
	b) Parameters Katabatic flow; surface shear; eddy convection; micro-met;
	Geophysics: regional synoptic weather data; solar radiation, duration of sun-
	a) Radio-echo sounding method planned - have used micro-wave shine, etc.
	b) Magnetic surveys; electromagnetism magnetics re subglacial ore bodies, etc.;
	also extensive seismic & gravity surveys re glacier depths as well as much bore-hole
	thermal sensing using glacier thermisters.
	Earth science (including area surrounding station)
	a) Geology bedrock geology mapping; structural study (joints); differential
	b) Tectonics micro-seism research to differentiate glacier "noise" weathering
	c) Glacial geomorphology weathering phenomena; moraines; periglacial features, etc
	Botany - biology (including area surrounding station)
	a) Pollen analysis glacial bogs on Alaskan coast & inland in B.C. & Yukon
	b) Micro bacterial fauna mold-spore research
•	c) Flora taxonomic assessments & regional botany surveys
	d) Fossil woods (C ¹⁴ dating) many sites in peripheral sectors & in soils of high
	e) Timberline dendro-chronology & dendro-glaciology \ nunataks on icefield.
	f) Lichenometry extensive in deglaciated sectors
	Quaternary history:
	Detailed studies of this both on Alaskan coastal side of icefield and in B.C.
	§ Yukon interior flanks. Also in adjoining Atlin § Raish lakes areas to north (see map).
_	§ Yukon interior flanks. Also in adjoining Atlin & Raish lakes areas to north (see map). AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc.
	§ Yukon interior flanks. Also in adjoining Atlin & Raish lakes areas to north (see map). AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations Published reports annual reports of JIRP & some monographs & professional
	§ Yukon interior flanks. Also in adjoining Atlin & Raish lakes areas to north (see map). A AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations
of	§ Yukon interior flanks. Also in adjoining Atlin & Raish lakes areas to north (see map). AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations Published reports annual reports of JIRP & some monographs & professional
offa	§ Yukon interior flanks. Also in adjoining Atlin & Raish lakes areas to north (see map). AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations Published reports annual reports of JIRP & some monographs & professional Unpublished reports many in process journal papers Data files (tape, cards, satellite transmissions) glaciology card data; some tape in avalanche records; satellite imagery file; complete files of annual meteorological from each field station, especially summer record. Complete annual theadolite survey cier flow, etc. Address from which data are available c/o Glaciological & Arctic Sciences Inst.
offa	AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations Published reports annual reports of JIRP & some monographs & professional Unpublished reports many in process journal papers Data files (tape, cards, satellite transmissions) glaciology card data; some tape in avalanche records; satellite imagery file; complete files of annual meteorological from each field station, especially summer record. Complete annual theadolite survey cier flow, etc. Address from which data are available c/o Glaciological & Arctic Sciences Inst. University of Idaho, Moscow, Idaho, 83843; and published reports for Office of Naval Research, Army Research Office, National Geographic Society Research
offa	AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations Published reports annual reports of JIRP & some monographs & professional unpublished reports many in process journal papers Data files (tape, cards, satellite transmissions) glaciology card data; some tape in avalanche records; satellite imagery file; complete files of annual meteorological from each field station, especially summer record. Complete annual theadolite survey cier flow, etc. Address from which data are available c/o Glaciological & Arctic Sciences Inst. University of Idaho, Moscow, Idaho, 83843; and published reports for Office of Naval Research, Army Research Office, National Geographic Society Research Series, theses, Dept. of Commerce, Dept. of Interior, etc.
offa	AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations Published reports annual reports of JIRP & some monographs & professional Unpublished reports many in process journal papers Data files (tape, cards, satellite transmissions) glaciology card data; some tape in avalanche records; satellite imagery file; complete files of annual meteorological from each field station, especially summer record. Complete annual theadolite survector flow, etc. Address from which data are available c/o Glaciological & Arctic Sciences Inst. University of Idaho, Moscow, Idaho, 83843; and published reports for Office of Naval Research, Army Research Office, National Geographic Society Research Series, theses, Dept. of Commerce, Dept. of Interior, etc. Other information Extensive field research libraries at these stations, especial
offa	AVAILABILITY. Full record of all glaciological, survey data, photo station, air & weather data from all station, plus comparison of annual firm stratigraphy, etc. Tabulations Published reports annual reports of JIRP & some monographs & professional unpublished reports many in process journal papers Data files (tape, cards, satellite transmissions) glaciology card data; some tape in avalanche records; satellite imagery file; complete files of annual meteorological from each field station, especially summer record. Complete annual theadolite survey cier flow, etc. Address from which data are available c/o Glaciological & Arctic Sciences Inst. University of Idaho, Moscow, Idaho, 83843; and published reports for Office of Naval Research, Army Research Office, National Geographic Society Research Series, theses, Dept. of Commerce, Dept. of Interior, etc.

- F. MAIN PUBLICATIONS (ATTACH LIST). See attached in study 38 M-S & PhD theses developed out of this program
- C. OTHER COMMENTS. Program has continued annually without interruption each year since 1946. 12 station network (S/20 note (sunilar ferm) on adjunct stations (29 & 30) in Atlin Lake region north of the Juneau Icefield in the B.C.-Yukon area; also maps--attached with station locations.

Between 80 & 120 students, staff, research associates, etc. use these stations each summer. The field season normally extends from early June to late Sept., with the Glaciological Inst. field courses (Univ. of Idaho) conducted during July & August. Students & staff representing some two dozen Universities are annually involved.

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USA MT. WRANGELL

Α.	GEO	GRAPHICAL LOCATION.
	1)	Country USA
	2)	Name of station Mt. Wrangell
	3)	Locality Summit of Mt. Wrangell, Alaska
	4)	Latitude: 62 N Longitude: 144 W Elevation(m) 4000
	5)	Mountain range Wrangell Mountains
	6)	Drainage basinCopper River
	7)	Name of director
	8)	Name of parent organization Geophysical Institute, University of Alaska
		Address Carl S. Benson
		Geophysical Institute
		University of Alaska
	~ 1	Telephone number Fairbanks, Alaska 99701
	9)	Date of establishment of the station 1953 and again in 1961
	10)	Distance from the end of the road (in kilometers or hours of walking) no roads in area
		Other means of access: planes, float planes, helicopter, boat, etc.
		air craft-on skis or helicopter (high altitude models only)
		Boarding point Gulkana Air strip-near Glennallen or Copper Center; Alaska
	11)	Distance between the station and the glaciers studied
		0 km-station is on an exposed ridge of crater surrounded by ice cap
В.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 2 in poor condition-the station building was designed to
		a) Total Tioor space he heated by volcano heat Increased heat
		b) Details: e.g. Laboratories 1 flow and sulfur fumes have made the building
		Dormitories uninhabitable. Possible rebuilding is
		Number of bedsbeing considered.
		Kitchens, dining rooms
		Workshops

		Generator source
	2)	Major research activities of the station (please check and rank in order of importance) a) Glaciology X b) Snow studies X c) Hydrology d) Climatology Ceophysics Geomorphology Company, biology Dotany, biology h) Quaternary history
ç.	CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
	1) 2) 3)	Period of record 1953 & 1954, 1961-67, 1965,66, 1972 to present Yearly utilization period mainly summer Type of utilization (teaching, research, level of students involved) Research - PhD and MS students
	4) 5) 6) 7)	List of station personnel (and speciality). ATTACH LIST.
D.	MAI Put rec	No permanent staff at summit N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
		b) Fluctuations (terminal position, surface, mass balance)
		W + 1 × 0 N S N N N N N N N N
		c) Dynamics, movement 0
		d) Studies of surface 0 e) Studies of deep ice (coring)
		f) Subglacial studies (access type)
		g) Ice Chemistry and physics 0 chemistry of volcanic and glacier water
		h) Remote sensing 0 aerial photogrammetry and ERTS imagery
	2)	Snow study:
		a) Snow cover 0
	3)	b) Avalanches
	31	a) Discharges
		b) Ice cover percentage
		c) Sub glacial hydrology
		d) Ice surface feature
		e) Lacustrine hydrology
	+	188

Cold rooms_

	A CONTROL OF THE PARTY OF THE P
	a) Proximity to glacier
	b) Parameters
)	Geophysics:
100	a) Radio-echo sounding method during 1976 and 1975
	b) Magnetic surveys; electromagnetism
)	Earth science (including area surrounding station)
	a) Geology Recon: Geology + petrology of glacier-volcano interaction
	b) Tectonics
1	Botany - biology (including area surrounding station)
,	botany - biology (including area surrounding station)
	a) Polien analysis
	a) Pollen analysis b) Micro bacterial fauna
	c) Flora d) Fossil woods (C ¹⁴ dating)
	d) Fossil woods (C14 dating)
	e) Timberline
	i) Lichenometry
)	Quaternary history:
AT.	A AVAILABILITY.
300	Tabulations
300	Tabulations_ Published reports
600	
)	Tabulations_ Published reports_ Unpublished reports_
)	Tabulations_ Published reports_ Unpublished reports_
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- *Most useful

Bingham, D.K.; Benson, C.S. (1967) Glaciological studies on Mt. Wrangell, Alaska, Part II--Ice motion and heat flow studies. Proceedings 18th Alaska Science Conference.

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USA SPERRY CHALET FIELD PROJECT

GE	OGRAPHICAL LOCATION.
1)	Country IIS A
2)	Name of station Sperry Chalet Field Project
3)	Locality Glacier National Park, Montana, USA
4)	Latitude: 48°37 Longitude: 113°52' Elevation(m)2469
5)	Mountain rangRocky Mountains - main divide
6)	Drainage basin Flathead River/ Columbia River
7)	
8)	Name of parent organization University of Montana, Department of Geology
	Address Missoula, Montana 59812 USA
00.00	Telephone number 406 243-2341
9)	
10)	Distance from the end of the road (in kilometers or hours of walking) 6 hours walking
	Other means of access: planes, float planes, helicopter, boat, etc. none
	Boarding point -
11)	Distance between the station and the glaciers studied 0-3km
	8-
DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
- 1	Number of buildings 2 (1 operated by the National Park Service; one
1)	a) Total floor space by a contractor) ??
	a) Total floor space by a contractory ff
	b) Details: e.g. Laboratories no laboratory space
	Dormitories at Sperry Chalet
	Number of beds 10-20 Kitchens, dining rooms 1 each at Sperry Chalet
	Workshops yes
	192

	Generator source no
2)	Major research activities of the station (please check and rank in order of importance) a) Glaciology 1 b) Snow studies 2 c) Hydrology 3 d) Climatology 3 e) Geophysics 4 f) Geomorphology 5 g) Botany, biology
CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1) 2) 3)	Graduate and undergraduate teaching and faculty research
4) 5) 6) 7)	Number of researchers: Summer 2 Winter 2 Number of technicians: Summer 1 Winter 1 List of station personnel (and speciality). ATTACH LIST. Other laboratories working temporarily at the station on joint/separate
	projects. Geological Survey maintains primary responsibility for mass balance studies. National Park Service coordinates researchers
Put rec	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
	b) Fluctuations (terminal position, surface, mass balance)
	1935 to present + historical photographs
	c) Dynamics, movement 1973 ff d) Studies of surface 1973 ff
	e) Studies of deep ice (coring) 1975ff
	f) Subglacial studies (access type) proposed by Stanford University g) Ice Chemistry and physics 1973 ff
	h) Remote sensing 1972 ff
2)	Snow study: a) Snow cover(and chemistry) 1973 ff
3)	b) Avalanches
31	a) Discharges 1972 ff
	b) Ice cover percentage
	c) Sub glacial hydrologyd) Ice surface feature
	e) Lacustrine hydrology
	193

no

Cold rooms_

C.

D.

	4)	Climatology: a) Proximity to glacier
	5)	b) Parameters 1973 ff Geophysics: a) Radio-echo sounding method b) Magnetic surveys; electromagnetism
		e) Seismie profiling 1975ff
	6)	Earth science (including area surrounding station) a) Geology 1970 ff b) Tectonics
	7)	c) Glacial geomorphology 1973 ff Botany - biology (including area surrounding station) a) Pollen analysis b) Micro bacterial fauna
		d) Fossil woods (C ¹⁴ dating)e) Timberline
	8)	f) Lichenometry_ Quaternary history:
E.	DAT 1)	Tabulations through U.S. Geological Survey, Mater Pesources Division, Helena Published reports glacier maps through USGS Unpublished reports Through Dept. of Geology, University of Montana and through National Park Service, Office of the Naturalist, Glacier National Park. Data files (tape, cards, satellite transmissions)
	3)	Address from which data are available as above
	4)	Other information
F.	MAIN	PUBLICATIONS (ATTACH LIST).
G.	OTHE TI	R COMMENTS. his is not a single-use glaciologic research station since it lies within
	aı	national park. Rather, a field station facility, operated for tourists and National Park maintenance it is used cooperatively by federal and university esearch scientists.

References

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Dightman, R.A. (1967) Historical and climatological study of Grinnell Glacier, Montana. U.S. Department of Commerce, Weather Bureau, Technical Memorandum WR-24.

Dyson, J.L. (1966) Glacier and glaciation in Glacier National Park, Glacier National History Association, Inc., Glacier National Park.

U.S. Geological Survey (Various dates) Reports on glaciers in Glacier National Park; Helena Office, U.S. Geological Survey.

Principal Personnel

Robert R. Curry - Professor of Geology, University of Montana, Missoula, Mt. 59812

Charles Dalby - Graduate student, U.S. Forest Service, Kootenai National Forest,

Libby, Montana

Tom Gignoux - Graduate student, Department of Geology, University of Montana

Gail McMurtrey - U.S. Geological Survey, Federal Building, Helena, Mt. 59601

USA UNIVERSITY OF BUFFALO BROOKS RANGE CAMP

Α.	GEO	GRAPHICAL LOCATION.
	1)	Country USA
	2)	Name of station University of Buffalo Brooks Range Camp
		Locality Brooks Range, Alaska - Trans Alaska Pineline Road at Continental Divide Latitude: 68 06' N Longitude: 149 27'W Elevation(m) 1440
	5)	등을 보았습니다. 이 전에 있는데 그렇게 되면 보고 있다면 보다면 보고 있다면 보고 있다면
	6)	Drainage basin Atigun River
		Name of director Parker E. Calkin
	8)	Name of parent organization Dept. of Geological Sciences, State University of New York at Buffalo
		LOLO Dides Too Did
		Buffalo, N.Y. 14226
		Telephone number (716) 831-1852
	9)	Date of establishment of the station 21 June 1977
	10)	Distance from the end of the road (in kilometers or hours of walking) On TransAlaska Pipeline Road
		Other means of access: planes, float planes, helicopter, boat, etc. Access by car or plane via air strip at Gailbraith Lake or Chandalar Camps
		Boarding point_
1	11)	Distance between the station and the glaciers studied 2 to 17 km
В.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings Trailer at present (simply eating and sleeping space)
		b) Details: e.g. Laboratories
		Dormitories
		Number of beds
		Kitchens, dining rooms
		Workshops
		196
		The state of the s

	Generator source
2)	Major research activities of the station (please check and rank in order o importance) a) Glaciology 3 b) Snow studies c) Hydrology 2 d) Climatology 5 e) Geophysics f) Geomorphology 4 g) Botany, biology h) Quaternary history 1
CALI	ENDAR TIMING OF ACTIVITIES OF THE STATION.
1)	Period of record Start June, 1977 -
	Yearly utilization period Plan May through Aug.
3)	Type of utilization (teaching, research, level of students involved)
	Water Water
4)	Number of researchers: Summer 4 Winter Number of technicians: Summer Winter
5) 6)	List of station personnel (and speciality). ATTACH LIST.
7)	Other laboratories working temporarily at the station on joint/separate
17	projects
Put reco	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research:
	a) Name/UNESCO inventory number of glacier(s) not available, tentative name on enclosed map: Grizzly, Marmot, Buffalo, and Snow Bunting Glaciers. b) Fluctuations (terminal position, surface, mass balance) O -Stakes placed over surfaces of L cirque glaciers to help measure balance. c) Dynamics, movement d) Studies of surface O - Related to moraine formation. e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics
	b) Fluctuations (terminal position, surface, mass balance) O -Stakes placed over surfaces of & cirque glaciers to help measure balance. c) Dynamics, movement d) Studies of surface O - Related to moraine formation. e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing
2)	b) Fluctuations (terminal position, surface, mass balance) O-Stakes placed over surfaces of & cirque glaciers to help measure balance. c) Dynamics, movement d) Studies of surface O-Related to moraine formation. e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover O-Studied with ablation stakes and pits on & glaciers
	b) Fluctuations (terminal position, surface, mass balance) O -Stakes placed over surfaces of 4 cirque glaciers to help measure balance. c) Dynamics, movement d) Studies of surface O - Related to moraine formation. e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover O - Studied with ablation stakes and pits on 4 glaciers b) Avalanches Hydrology: a) Discharges O- Will be measured starting May 1978
	b) Fluctuations (terminal position, surface, mass balance) O -Stakes placed over surfaces of 1 cirque glaciers to help measure balance. c) Dynamics, movement d) Studies of surface O - Related to moraine formation. e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover O - Studied with ablation stakes and pits on 1 glaciers b) Avalanches Hydrology: a) Discharges O- Will be measured starting May 1978 b) Ice cover percentage O
	b) Fluctuations (terminal position, surface, mass balance) O -Stakes placed over surfaces of L cirque glaciers to help measure balance. c) Dynamics, movement d) Studies of surface O - Related to moraine formation. e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover O - Studied with ablation stakes and pits on L glaciers b) Avalanches Hydrology: a) Discharges O- Will be measured starting May 1978 b) Ice cover percentage O c) Sub glacial hydrology
	b) Fluctuations (terminal position, surface, mass balance) O -Stakes placed over surfaces of L circue glaciers to help measure balance. c) Dynamics, movement d) Studies of surface O - Related to moraine formation. e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing Snow study: a) Snow cover O - Studied with ablation stakes and pits on L glaciers b) Avalanches Hydrology: a) Discharges O - Will be measured starting May 1978 b) Ice cover percentage O

Cold rooms_

	a) Proximity to glacier
	b) Parameters
)	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
	c) Glacial geomorphology O - Atigun River Basin north to Gailbraith Lake
)	Botany - biology (including area surrounding station)
	a) Pollen analysis b) Micro becterial fauna
	o, micro bacteriar rama
	c) Flora
	d) Fossil woods (C-4 dating)
	e) Timberline
	e) Timberline f) Lichenometry 0 - On Neoglacial moraines and late Wisconsin deposits
	Quaternary history:
	We are attempting to work out the Quaternary history of the Atigun River
	Basin north to Gailbraith Lake with particular emphasis on Neoglacial history
	of glacier fluctuations and slope movement.
T.	AVAILABILITY.
	Tabulations Discharge measurements of headwaters of Atigun and North Fork
	Tabulations Discharge measurements of headwaters of Atigun and North Fork Published reports Chandalar rivers for summer (July, 1977)
	Tabulations Discharge measurements of headwaters of Atigun and North Fork
	Tabulations Discharge measurements of headwaters of Atigun and North Fork Published reports Chandalar rivers for summer (July, 1977) Unpublished reports
)	Tabulations Discharge measurements of headwaters of Atigun and North Fork Published reports Chandalar rivers for summer (July, 1977)
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	Tabulations Discharge measurements of headwaters of Atigun and North Fork Published reports Chandalar rivers for summer (July, 1977) Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available P. Calkin, Dept. of Geological Sciences, SUNY, 4240 Ridge Lea Rd., Buffalo, 14226 or Dr. Larry Onesti,
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E

F.

G.

USA VARIEGATED GLACIER

A. GEOGRAPHICAL LOCATION.

)	Country USA
)	Name of station Variegated Glacier
)	Locality
)	Locality Latitude: 60 N Longitude: Elevation(m) 120
)	Mountain range St. Elias
)	Drainage basin
)	Name of director Barclay KambHermann Engelhardt
)	Name of parent organization California Institute of Technology
	Pasadena, CA 91125
	Address
	Telephone number 213-795-6841
	Date of establishment of the station June 1978
	Distance from the end of the road (in kilometers or hours of walking)
'	Distance from the end of the road (in kilometers of hours of watering)
	Other means of access: planes, float planes, helicopter, boat, etc boat and helicopter
	Boarding point_ Yakutat
)	Distance between the station and the glaciers studied
)	
(CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	Number of buildings
	\ m. + - 1
	b) Details: e.g. Laboratories
	Dormitories
	Dormitories
	Number of beds
	Kitchens dining rooms
	Kitchens, dining rooms

	2)	Major research activities of the station (please check and rank in order of
		importance)	
		a) Glaciology borehole photography	
		b) Snow studies	
		c) Hydrology	*
		d) Climatology	
		e).Geophysics	
		r) Geomorphology	
		g) Botany, biology	
		h) Quaternary history	
		0.9% (19.00%) T. (20.00%) (20.	
			9
C.	CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.	
	1)	Period of record 1978	
	2)	Yearly utilization period June - August	
	3)	Type of utilization (teaching, research, le	
	(T)	research	
	4)	Number of researchers: Summer 4	Winter
	5)	Number of technicians: Summer 1	Winter
	6)	List of station personnel (and speciality)	ATTACH LIST
	7)	Other laboratories working temporarily at	
	17	projects	the station on joint/separate
		projects	
D.	Put	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous ords. (Add appropriate details.)	studies. Indicate period of
		order (mad appropriate doubter)	
	T)	MANAGEMENT OF STATE O	
		Glaciological research:	21 1 8
		Glaciological research: a) Name/UNESCO inventory number of glacier	(s)
		a) Name/UNESCO inventory number of glacier	
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface	
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry	
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying	
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring)	e, mass balance)sliding
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring)	e, mass balance)sliding
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh	e, mass balance) sliding ole photography
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock	ole photography
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh	ole photography
	2)	a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing	ole photography
	2)	a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study:	ole photography interface
	2)	a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover	ole photography interface
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover b) Avalanches	ole photography interface
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology:	ole photography interface
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges	ole photography interface
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges b) Ice cover percentage	ole photography interface
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology	ole photography interface
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology	ole photography interface
		a) Name/UNESCO inventory number of glacier b) Fluctuations (terminal position, surface c) Dynamics, movement inclinometry d) Studies of surface surveying e) Studies of deep ice (coring) f) Subglacial studies (access type) boreh g) Ice Chemistry and physics ice-bedrock h) Remote sensing Snow study: a) Snow cover b) Avalanches Hydrology: a) Discharges b) Ice cover percentage	ole photography interface

Cold rooms Generator source

4)	Climatology:
	a) Proximity to glacier
- 5	b) Parameters
5)	Geophysics:
	a) Radio-echo sounding method
	b) Magnetic surveys; electromagnetism
6)	Earth science (including area surrounding station)
155-43	a) Geology
	b) Tectonics
	c) Glacial geomorphology
7)	b) Tectonics
	a) Pollen analysis
	a) Pollen analysis b) Micro bacterial fauna
	c) Flora d) Fossil woods (C ¹⁴ dating)
	d) Fossil woods (C14 dating)
	e) Timberline
0.1	f) Lichenometry
3)	Quaternary history:
1)	Tabulations
	Published reports basal sliding and conditions at the glacier bed as revealed
	by borehole photography
2)	Data files (tape, cards, satellite transmissions)
3)	Address from which data are available
1753	Journal of Glaciologyto be published
4)	Other information
4)	Other information
. MAI	
	IN PUBLICATIONS (ATTACH LIST).
	N PUBLICATIONS (ATTACH LIST).
. OTH	IN PUBLICATIONS (ATTACH LIST). HER COMMENTS.
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. OTH	5, 600
. OTH	5, 600

USA WOLVERINE GLACIER

Α.	GEO	GEOGRAPHICAL LOCATION.			
	1)	Country USA			
	2)	Name of station Wolverine Glacier			
	3)	Locality Kenai Peninsula, Alaska			
	4)	Latitude: 60° 24' N Longitude: 148° 54' W Elevation(m) 900			
		Mountain range Kenai Mtns			
		Drainage basin Nellie Juan			
		Name of director L.R. Mayo			
		Water Resources Division			
		Address Box 11			
		101 12th Ave.			
		Fairbanks, Alaska 99701			
	11/18	Telephone number 452-1951 Ext. 214			
	9)	Date of establishment of the station 1967			
	10)	[200] 이 경기 전기 전기 전기 전기 전기 전기 전기 전기 이 기계 전기 기계 전기 기계 전기 전기 전기 전기 전기 전기 기계			
		27 km from road			
		Other means of access: planes, float planes, helicopter, boat, etc.			
		planes, float planes, helicopter4.5 km from lake for float plane			
		Boarding point for air transportation, Lawing Air strip			
	11)	Distance between the station and the glaciers studied immediately			
	/	adjacent to Wolverine Glacier. Snow Glacier is 5 km from station			
В.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).			
	1)	Number of buildings 1 A-frame			
		a) Total floor space 11 m ²			
		b) Details: e.g. Laboratories all combined into the			
		Dormitories single building			
		Number of beds 2			
		Kitchens, dining rooms			
		Workshops			
		202			

	Cold rooms none			
	Generator source wind powered			
2)	Main and activities of the station (places shock and work in smin			
	Major research activities of the station (please check and rank in order importance)			
	a) Glaciology 1 b) Snow studies 4			
	c) Hydrology 2			
	d) Climatology 3			
	e) Geophysics f) Geomorphology5			
	g) Botany, biology			
	h) Quaternary history 6			
CALENDAR TIMING OF ACTIVITIES OF THE STATION.				
1)	Period of record Continuously recorded air temperature and precipitation			
2)	Yearly utilization period 4 visits per year			
3)	Type of utilization (teaching, research, level of students involved)			
	research monitoring			
4)	Number of researchers: Summer 2 Winter 2 Number of technicians: Summer 0 Winter 0			
5)	Number of technicians: Summer 0 Winter 0			
	List of station personnel (and speciality). ATTACH LIST.			
	Other laboratories working temporarily at the station on joint/separate			
	projects			
Put	6) L.R. Mayo, Glaciologist; D.C. Trabant, Glaciologist V TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)			
60	CONTROL OF THE CONTRO			
1)	Glaciological research:			
	a) Name/UNESCO inventory number of glacier(s)			
	b) Fluctuations (terminal position, surface, mass balance)			
	b) Fluctuations (terminal position, surface, mass balance)			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974-			
	b) Fluctuations (terminal position, surface, mass balance)			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring)			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type)			
2)	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study:			
2)	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967-			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology:			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967-			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967- b) Ice cover percentage P 1967			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967- b) Ice cover percentage P 1967 c) Sub glacial hydrology			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches fiydrology: a) Discharges 0 1967- b) Ice cover percentage P 1967 c) Sub glacial hydrology d) Ice surface feature			
	b) Fluctuations (terminal position, surface, mass balance) 0 1967- c) Dynamics, movement 0 1974- d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing 0-Aerial photography 1967- Snow study: a) Snow cover 0 depth, density 1967- b) Avalanches Hydrology: a) Discharges 0 1967- b) Ice cover percentage P 1967 c) Sub glacial hydrology			

none

	a) Proximity to glacier 1000 m altitude very close
	b) Parameters air temperature and precipitation
5)	Geophysics:
	a) Radio-echo sounding method upcoming
	b) Magnetic surveys; electromagnetism
6)	Earth science (including area surrounding station)
0,	a) Geology
	b) Tectonics
-1	c) Glacial geomorphology
()	Botany - blology (including area surrounding station)
	a) Pollen analysis b) Micro bacterial fauna
	o) Micro Dacterial Tauna
	c) Flora d) Fossil woods (C ¹⁴ dating)
	d) Fossil woods (Car dating)
	e) Timberline
(8)	f) Lichenometry Quaternary history:
0)	Quaternary history.
DAT	A AVAILABILITY.
DAT	A AVAILABILITY.
	Tabulations from USGS-WRD, Fairbanks (address above)
	Tabulations from USGS-WRD, Fairbanks (address above) Published reports USGS - Profession Papers 715 A. B
1)	Tabulations from USGS-WRD. Fairbanks (address above) Published reports USGS - Profession Papers 715 A, B Unpublished reports
L)	Tabulations from USGS-WRD. Fairbanks (address above) Published reports USGS - Profession Papers 715 A, B Unpublished reports
1)	Tabulations from USGS-WRD. Fairbanks (address above) Published reports USGS - Profession Papers 715 A, B Unpublished reports
L)	Tabulations from USGS-WRD, Fairbanks (address above) Published reports USGS - Profession Papers 715 A, B Unpublished reports Data files (tape, cards, satellite transmissions)
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1) 2)	Tabulations from USGS-WRD. Fairbanks (address above) Published reports USGS - Profession Papers 715 A, B Unpublished reports Data files (tape, cards, satellite transmissions)
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1) 2) 3) 4)	Tabulations from USGS-WRD, Fairbanks (address above) Published reports USGS - Profession Papers 715 A, R Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Same as parent organization Other information PUBLICATIONS (ATTACH LIST). ER COMMENTS. We also have snow balance and ice dynamics data on Black Rapids Glacies
1) 2) 3) 4)	Tabulations from USGS-WRD. Fairbanks (address above) Published reports USGS - Profession Papers 715 A, R Unpublished reports Data files (tape, cards, satellite transmissions) Address from which data are available Same as parent organization Other information PUBLICATIONS (ATTACH LIST).

USSR

ABRAMOV GLACIER

A. GEOGRAPHICAL LOCATION.

	Country USSR
2)	Name of station Abramov Glacier
3)	Locality Kirgiz SSR
4)	Latitude: 39°35' N Longitude: 71°35' E Elevation(m) 3850 m
5)	Mountain range Alai Range (southern slope)
6)	Drainage basin Koksu River - Kysylsu River - Vachsh - Amudaria - Aral Sea
7)	Name of director Dr. V.F. Suslov
8)	Name of parent organization Tashkent Hydrometeorological Institute (SARNIGMI)
	Address Observatorskaya St., 72
	Tashkent, 700000, USSR
# E	Telephone number
9)	
10)	about 60 km from autoroad by horse road
	Other means of access: planes, float planes, helicopter, boat, etc there is a place for helicopter landing
	Boarding point
11)	Distance between the station and the glaciers studied 1-5 km by foot and by tractor
B. DES	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	Number of buildings Some buildings, function - year around
	Number of buildings Some buildings, function - year around a) Total floor space
	Number of buildings Some buildings, function - year around a) Total floor space
	Number of buildings Some buildings, function - year around
	Number of buildings Some buildings, function - year around a) Total floor space b) Details: e.g. Laboratories Dormitories Number of beds
	Number of buildings Some buildings, function - year around a) Total floor space b) Details: e.g. Laboratories Dormitories
	Number of buildings Some buildings, function - year around a) Total floor space b) Details: e.g. Laboratories Dormitories Number of beds

		Generator source				
	2)	Major research activities of the station (please check and rank in order of importance) a) Glaciology x				
		b) Snow studies *				
		b) Snow studies X c) Hydrology X d) Climatology X e) Geophysics X f) Geomorphology X				
		d) Climatology A				
		e) Geophysics ^				
		f) Geomorphology x				
		f) Geomorphology x g) Botany, biology x h) Quaternary history x				
		h) Quaternary history x				
	litio :lyak	onal information can be obtained from principal investigator or from Prof. V.M.				
	CALENDAR TIMING OF ACTIVITIES OF THE STATION.					
	1)	Period of record				
		Yearly utilization period				
	3)	Type of utilization (teaching, research, level of students involved)				
	1. 1	Number of uses whom Common Winton				
	=1	Number of researchers: Summer Winter Number of technicians: Summer Winter				
		List of station personnel (and speciality). ATTACH LIST.				
	7)	Other laboratories working temporarily at the station on joint/separate projects				
D.	MAIN TYPES OF RESEARCH AND DATA COLLECTED. Put "O" for ongoing research, "P" for previous studies. Indicate period of records. (Add appropriate details.)					
	1)	Glaciological research: a) Name/UNESCO inventory number of glacier(s)				
		b) Fluctuations (terminal position, surface, mass balance)				
		c) Dynamics, movement				
		d) Studies of surface				
		e) Studies of deep ice (coring)				
		f) Subglacial studies (access type)				
		g) Ice Chemistry and physics				
		h) Remote sensing				
	2)	Snow study:				
		a) Snow cover				
	19792	b) Avalanches				
	3)	Hydrology:				
		a) Discharges				
		b) Ice cover percentage				
		c) Sub gradial hydrotogy				
		d) Ice surface feature				
		e) Lacustrine hydrology206				
		200				

Cold rooms

AKTRU GLACIERS

1)	Country USSR
2)	Name of station Aktru electors
3)	Locality Altaiskly kray
4)	Latitude: 50°05' N Longitude: 87°45' E Elevation(m) 2150 m
5)	Mountain range Severo-Chuiskiy Range (Altai), northern slope
6)	
7) 8)	
	Address Lenina Av., 36 Tomsk, 634010, USSR
	Telephone number
9)	Date of establishment of the station 1957
10)	
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point_
11)	Distance between the station and the glaciers studied 2-5 km by foot
B. DE	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
- 1	W 1 0 2
Τ)	Number of buildings 2 a) Total floor space
	hl Dataile: A w Ichoratories
	b) Details: e.g. Laboratories
	Dormitories
	Dormitories
	Dormitories

	2)	Major research activities of the station (please check and rank in order of
	57.60	importance)
		a) Glaciology x
		b) Snow studies X
		d) Climatology X
		e) Geophysics X
		f) Geomorphology_x
		g) Betany hielogy
		g) Botany, biology x h) Quaternary history x
Add	itio	nal information can be obtained from principal investigator or from Prof. V.M.
Kot	1yak	ov.
C	CAT	ENDAR TIMING OF ACTIVITIES OF THE STATION.
٠.	CAL	EMPAR TIMING OF ACTIVITIES OF THE STATION.
	2)	Period of record
		Yearly utilization period
		Type of utilization (teaching, research, level of students involved)
	31	Type of utilization (teaching, research, level of students involved)
	1. 1	Number of researchers: Summer Winter
	21	Number of technicians: Summer Winter List of station personnel (and speciality). ATTACH LIST.
	6)	List of station personnel (and speciality). ATTACH LIST.
	7)	Other laboratories working temporarily at the station on joint/separate
		projects
D.		N TYPES OF RESEARCH AND DATA COLLECTED.
	Put	"0" for ongoing research, "P" for previous studies. Indicate period of
	rec	ords. (Add appropriate details.)
	1)	Glaciological research:
		a) Name/UNESCO inventory number of glacier(s)
		1926 (1906) 2006 (2006) (1916)
		b) Fluctuations (terminal position, surface, mass balance)
		c) Dynamics, movement
		d) Studies of surface
		e) Studies of deep ice (coring)
		f) Subglacial studies (access type)
		g) Ice Chemistry and physics
		h) Remote sensing
	21	
	2)	Snow study:
		a) Snow cover
	017477	b) Avaianches
	3)	Hydrology:
		a) Discharges
		b) Ice cover percentage
		c) Sub glacial hydrology
		d) Ice surface feature
		d) Ice surface featuree) Lacustrine hydrology

Cold rooms______ Generator source

USSR BOL'SHAYA KHADATA, OBRUCHEV AND IGAN GLACIERS

Α.	GEC	GRAPHICAL LOCATION.
	1)	Country USSR
	2)	Name of station Bol'shaya Khadata, Obruchev and IGAN glaciers
	3)	Locality Tyumenskaya Oblact'
	4)	Latitude: 67°35' N Longitude: 66°05' E Elevation(m) 230 m Mountain range Polar Urals (eastern slope)
	5)	Mountain range Polar Urals (eastern slope)
	6)	Drainage basin Bol.Khadata River - Ob' River
	7)	Name of director Dr. V.G. Khodakov
	8)	Name of parent organization Institute of Geography, Academy of Sciences of the USSR
		Address Staromonetny St., 29
		Moscow, 109017, USSR
		Telephone number
	9)	Date of establishment of the station 1957
	10)	Distance from the end of the road (in kilometers or hours of walking) 110 km from the rail road. The station can be reached by cross-country road
		Other means of access: planes, float planes, helicopter, boat, etc The station can be reached by helicopter
		Boarding point_
	11)	Distance between the station and the glaciers studied 6-8 km by boat and by foot
В.		CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE). Number of buildings Many buildings ("village") a) Total floor space b) Details: e.g. Laboratories Dormitories Number of beds Kitchens, dining rooms
		Workshops
		209

		Cold rooms
		Generator source
	2)	Major research activities of the station (please check and rank in order of importance) a) Glaciology x b) Snow studies x c) Hydrology x d) Climatology x e) Geophysics x f) Geomorphology x g) Botany, biology x h) Quaternary history x
	litic :lyak	onal information can be obtained from principal investigator or from Prof. V.M.
c.	CAL	ENDAR TIMING OF ACTIVITIES OF THE STATION.
	1)	Period of record
		Yearly utilization period
		Type of utilization (teaching, research, level of students involved)
		, , , , , , , , , , , , , , , , , , , ,
	4)	Number of researchers: Summer Winter
	5)	Number of technicians: Summer Winter
	6)	Number of technicians: Summer Winter List of station personnel (and speciality). ATTACH LIST.
	7)	Other laboratories working temporarily at the station on joint/separate projects
D.	Put rec	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
		b) Fluctuations (terminal position, surface, mass balance)
		c) Dynamics, movement
		d) Studies of surface
		e) Studies of deep ice (coring)
		f) Subglacial studies (access type)
		g) Ice Chemistry and physics
		h) Remote sensing
	2)	Snow study:
		a) Snow cover
		b) Avalanches
	3)	Hydrology:
		a) Discharges
		b) Ice cover percentage
		c) Sub glacial hydrology
		d) Ice surface feature
		a) Leggetrine hydrology
		e) Lacustrine hydrology

USSR DZHANKUAT GLACIER

	1)	Country_ USSR
	2)	Name of station Dzhankuat Glacier
	3)	Locality Central Caucasus
	4)	Latitude: 43 N Longitude: 43 E Elevation(m) 2700-4000
	5)	Mountain range the Caucasus
	6)	Drainage basin Terek river (Caspian Sea)
	7)	Name of director Prof. Genady Goluber (scientific leader)
	8)	Name of parent organization Faculty of Geography
		Moscow State University
		Address Faculty of Geography, Moscow State University
		Moscow 117234 USSR
		Telephone number
	9)	Date of establishment of the station 1965
	10)	4 km. 1 1/2 hours walking
		Other means of access: planes, float planes, helicopter, boat, etc. helicopter
		Boarding point 15 km from the station, the main road
	11)	Distance between the station and the glaciers studied
		0.5 km from the tongue
В.		SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 2 huts (and tents)
		a) Total floor space
		b) Details: e.g. Laboratories
		Dormitories
		Kitchens, dining rooms
		Workshops

	Cold rooms
	Generator source
)	Major research activities of the station (please check and rank in order of
	importance)
	a) Glaciology 1
	b) Snow studies 2 (as related to glacial and hydrological studies)
	c) Hydrology 1
	d) Climatology 3 e) Geophysics 4
	e) Geophysics 4 f) Geomorphology 7
	g) Botany, biology 6
	h) Quaternary history 5
L	ENDAR TIMING OF ACTIVITIES OF THE STATION.
i d	Period of record Constant mass and water balance measurements from 1968 on
	Yearly utilization period May-September
	Type of utilization (teaching, research, level of students involved)
	Research; 3-8 students participate every year
	Number of researchers: Summer 3-7 Winter 2-4 (office work
	Number of researchers: Summer 2-5 Winter 1-3 (n)
	List of station personnel (and speciality). ATTACH LIST.
	Other laboratories working temporarily at the station on joint/separate
	projects various departments of Moscow University
it	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
C	ords. (Add appropriate details.)
	Glaciological research:
	a) Name/UNESCO inventory number of glacier(s) Dzhankuat Glacier
	b) Fluctuations (terminal position, surface, mass balance) 0, from 1968
	d) Studies of surface 0, Stereophotogrammetric survey from 1968.
	e) Studies of deep ice (coring) 0, thermoelectrodrilling from 1970
	f) Subglacial studies (access type)
	g) Ice Chemistry and physics 0, from 1976
	h) Remote sensing
	n) Remote sensing
	Snow study:
	a) Snow cover 0, snow surveys and other studies for mass balance, 1968-presen
	b) Avalanchestime Hydrology:
0	a) Discharges 0, 1965, 1968-present time
	b) Ice cover percentage 0, from 1968
	c) Sub glacial hydrology 0, from 1969
	d) Ice surface feature 0, from 1968
	e) Lacustrine hydrology
	e) bacustrine hydrology

c.

	Climatology: 0, 0.5 km from the glacier, from 1968 a) Proximity to glacier 0, on the glacier tongue
	b) Parameters precipitation, temperature, sunshine, humidity, wind, energy
5)	Geophysics: balance (P)
-	a) Radio-echo sounding method 0, from 1968
	b) Magnetic surveys; electromagnetism electromagnetic surveys of the moraines, 1970-71, (P)
6)	Earth science (including area surrounding station)
	a) Geology
	b) Tectonics
1000020	c) Glacial geomorphology P
7)	Botany - biology (including area surrounding station)
	a) Pollen analysis P
	b) Micro bacterial fauna P
	c) Flora
	d) Fossil woods (C14 dating)
	e) Timberline
٥١	f) Lichenometry P, 1968-1974
8)	Quaternary history: P, 1968-1974, Glacier fluctuation during the Little Ice Age
	P, 1968-1974, Glacier Huctuation during the bittle records
DAT	A AVAILABILITY
(2)	
1)	Mahulatiana
	Published reports
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2)	Published reports
	Published reports
	Published reports Unpublished reports Data files (tape, cards, satellite transmissions) Data are being prepared for further partial publication in the
	Published reports
3)	Published reports Unpublished reports Data files (tape, cards, satellite transmissions) Data are being prepared for Further partial publication in the "Fluctuations of Glaciers"
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4) MAI	Published reports Unpublished reports Data files (tape, cards, satellite transmissions) Data are being prepared for further partial publication in the "Fluctuations of Glaciers" Address from which data are available Other information N PUBLICATIONS (ATTACH LIST).

References

There are about 40 publications in Russian on Dzhjanknat Glacier Basin. Many of them have been published in <u>Materialy Glaciologicheskih Issledovanii</u>. Chronika, Obsuzjdenia, volumes 17-23, Moscow, 1970-1977.

Many of the results of the investigations have been discussed by G. Golubev in a book, <u>Gidrologia Lednikov</u> (Hydrology of Glaciers), Leningrad, 1976. Another book prepared by a group of authors under the leadership of G. Golubev presented the results of studies on the International Hydrological Decade Programme, and is being published by Gidrometeoizdat. It is expected to appear in 1978.

GERGETI GLACIER

1)	Country USSR
2)	Name of station Gergeti Glacier
3)	Locality Georgian SSR
4)	Latitude: 42°40' N Longitude: 44°35' E Elevation(m) 3650 m
5)	Mountain range Kazbek Massiv, Main Caucasian Range
6)	Drainage basin Chkheri River - Terek River - Caspian Sea
7)	Name of director Dr. V.S. Tsomaya
8)	Name of parent organization Caucasian Hydrometeorological Institute
	Address Plekhanov Av., 150
	Tbilisi, 380012, USSR
	Telephone number
9)	Date of establishment of the station 1961
10)	Distance from the end of the road (in kilometers or hours of walking) 10 km by horse road from Military Georgian Road
	Other means of access: planes, float planes, helicopter, boat, etc.
	Boarding point
11)	Distance between the station and the glaciers studied 0.5-1 km by foot
DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 1
	a) Total floor space
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds
	Kitchens, dining rooms
	Workshops
	215

		Generator source
Kot	litic :lyal	Major research activities of the station (please check and rank in order of importance) a) Glaciology x b) Snow studies x c) Hydrology x d) Climatology x e) Geophysics f) Geomorphology x g) Botany, biology h) Quaternary history onal information can be obtained from principal investigator or from Prof. V.M. ENDAR TIMING OF ACTIVITIES OF THE STATION.
	- 1	**************************************
	1)	Period of record
	2)	Yearly utilization period
	3)	Type of utilization (teaching, research, level of students involved)
	1.1	
	4)	Number of researchers: Summer Winter
	21	Number of researchers: Summer Winter Number of technicians: Summer Winter List of station personnel (and speciality). ATTACH LIST.
	7)	Other laboratories working temporarily at the station on joint/separate projects
D.	Put rec	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
		b) Fluctuations (terminal position, surface, mass balance)
		c) Dynamics, movement d) Studies of surface e) Studies of deep ice (coring) f) Subglacial studies (access type) g) Ice Chemistry and physics h) Remote sensing
	2)	Snow study: a) Snow cover
	3)	Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature
		e) Lacustrine hydrology 216

KARABATKAK GLACIER

A. GEOGRAPHICAL LOCATION.

1) Country_USSR

2)	Name of station Karabatkak Glacier
3)	Locality Kirgiz SSR
4)	Tatitude: 4205' N Tangitude: 78025' E Elevation(m) 2560 m
5)	Mountain range Terskey Alatau (northern slope)
6)	Drainage basin Chon-Kysylsu River - Issyk-Kul Lake
7)	
8)	Name of parent organization Tien-Shan highmountain Station of the Academy of Sciences of the Kirgiz SSR
	Address Pionerskaya St., 19
	Pokrovka, Kirgiz SSR
	722400, USSR
	Telephone number
9)	Date of establishment of the station 1947
10)	Distance from the end of the road (in kilometers or hours of walking) Horse road reaches the station
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point
	9-10 km by horse
11)	Distance between the station and the glaciers studied 8-10 km by horse
B. DE	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings 2
	a) Total floor space
	b) Details: e.g. Laboratories
	Dormitories
	Dormitories
	Kitchens, dining rooms
	Workshops
	217

		Generator source	
	2)	Major research activities of the static importance)	on (please check and rank in order of
		a) Glaciology x	
		b) Snow studies x	- :
		c) Hydrology X	₹.
		d) Climatology X	5 :
		e) Georphysics X	-
		f) Geomorphology X	.
		g) Botany biology X	-
		c) Hydrology × d) Climatology × e) Geophysics × f) Geomorphology × g) Botany, biology × h) Quaternary history ×	-
		onal information can be obtained from prin	
		kov.	
c.		LENDAR TIMING OF ACTIVITIES OF THE STATIC	DN.
	1)	Period of record	
		Yearly utilization period	
	3)	Type of utilization (teaching, research	, level of students involved)
	1.1		
	4)		Winter
	2)	Number of technicians: Summer	Winter
	7)	List of station personnel (and special) Other laboratories working temporarily projects	at the station on joint/separate
D.	Put	IN TYPES OF RESEARCH AND DATA COLLECTED. t "O" for ongoing research, "P" for previ cords. (Add appropriate details.)	ous studies. Indicate period of
	1)	Glaciological research: a) Name/UNESCO inventory number of glace	ier(s)
		b) Fluctuations (terminal position, sur	face, mass balance)
		c) Dynamics, movement	
		d) Studies of surface	
		e) Studies of deep ice (coring)	
		f) Subglacial studies (access type)	
		g) Ice Chemistry and physics	
		h) Remote sensing	
	2)	Snow study:	
		a) Snow cover	
		b) Avalanches	
	3)	nydrology:	
		a) Discharges_	
		b) ice cover percentage	
		c) Sub gracial hydrology	
		d) ice surface feature	
		e) Lacustrine hydrology 218	
		218	

c.

A. GEOGRAPHICAL LOCATION.

MARUKH GLACIER

1) Country USSR
2) Name of station Marukh Glacier
3	
4) Latitude: 43°20' N Longitude: 41°25' E Elevation(m) 2900 m
5	Mountain range West Caucasus, Main Caucasian Range (northern slope)
6) Drainage basin Marukha River - Mal.Zelenchuk River - Kuban River
7	None of Simultan Dr. A.N. Krenke
8	
	Address Staromonetny St., 29
	Moscow, 109017, USSR
	Telephone number
9) Date of establishment of the station 1967
10) Distance from the end of the road (in kilometers or hours of walking) 14 km by horse road from autoroad
	Other means of access: planes, float planes, helicopter, boat, etc there is a place for helicopter landing
	Boarding point_
11	Distance between the station and the glaciers studied 0.5-1 km by foot
B. DE	ESCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
-	
1	Number of buildings Summer huts
	a) Total floor space
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds
	Kitchens, dining rooms
	Workshops219
	219

		Cold rooms_
		Generator source
	2)	Major research activities of the station (please check and rank in order of
		importance)
		a) Glaciology x
		b) Snow studies x
		c) Hydrology x
		d) Climatology x
		e) Geophysics x
		f) Geomorphology x
		f) Geomorphology x g) Botany, biology x
		h) Quaternary history_x
Kot	t1yal	
c.	CAI	ENDAR TIMING OF ACTIVITIES OF THE STATION.
	1)	Period of record_
	2)	Yearly utilization period
	3)	Type of utilization (teaching, research, level of students involved)
	1.1	Number of recessarians, Company
	5)	Number of researchers: Summer Winter
	6)	Number of technicians: Summer Winter List of station personnel (and speciality). ATTACH LIST.
	7)	Other laboratories working temporarily at the station on joint/separate
	17	projects
		p. 0, ec us
	890000	
D.		N TYPES OF RESEARCH AND DATA COLLECTED.
	Put	"O" for ongoing research, "P" for previous studies. Indicate period of
	rec	ords. (Add appropriate details.)
	7)	Glaciological research:
	1/	a) Name/UNESCO inventory number of glacier(s)
		a, name, on boto inventory number of gracier(s)
		b) Fluctuations (terminal position, surface, mass balance)
		c) Dynamics, movement
		d) Studies of surface
		e) Studies of deep ice (coring)
		f) Subglacial studies (access type)
		g) Ice Chemistry and physics
		h) Remote sensing
	21	
	2)	Snow study:
		a) Snow cover
	3)	b) Avalanches
	31	
		a) Discharges
		c) Sub glacial hydrology
		d) Ice surface feature
		e) Lacustrine hydrology
		e) Lacustrine hydrology 220

c.

MEDVEZHY GLACIER

1)	Country USSR
2)	Name of station Medvezhy Glacier
3)	Locality Tadzhik SSR
4)	Latitude: 38°40' N Longitude: 72°05' E Elevation(m) 2900 m
5)	Mountain range Akademii Nauk Range, Central Pamirs
6)	Drainage basin Vanch River - Pyandzh River - Amudaria River - Aral Sea
7)	Name of director Before 1975 Dr. L.D. Dolgushin, now Dr. D.G. Tcvetkov
8)	Name of parent organization Institute of Geography, Academy of Sciences of the USSR
	Address Staromonetny St., 29
	Moscow, 109017, USSR
	Telephone number .
9)	Date of establishment of the station 1963
10)	Distance from the end of the road (in kilometers or hours of walking) Autoroad reaches glacier
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point_
11)	Distance between the station and the glaciers studied 2-10 km by foot
DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
220	ATTION OF THE STATES (MINUSCHE)
1)	Number of buildings Summer huts
-/	a) Total floor space
	b) Details: e.g. Laboratories
	D//
	Number of beds
	Kitchens, dining rooms
	Workshops

		Generator source
	2)	Major research activities of the station (please check and rank in order of
		importance)
		a) Glaciology x
		h) Cross studios
		c) Hydrology x d) Climatology x e) Geophysics x f) Geomorphology x g) Botany, biology
		d) Climatology X
		e) Geophysics X
		f) Geomorphology X
		g) Botany, biology
		h) Quaternary history x
		onal information can be obtained from principal investigator or from Prof. V.M.
	tlyal	
c.		ENDAR TIMING OF ACTIVITIES OF THE STATION.
	1)	Period of record_
	2)	Yearly utilization period
	3)	Type of utilization (teaching, research, level of students involved)
	1.1	Number of receptables, Summer
	5)	Number of researchers: Summer Winter Number of technicians: Summer Winter
	6)	List of station personnel (and speciality). ATTACH LIST.
	7)	Other laboratories working temporarily at the station on joint/separate projects
D.		N TYPES OF RESEARCH AND DATA COLLECTED.
	rec	"O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.)
	7.1	034-343
	1)	Glaciological research:
		a) Name/UNESCO inventory number of glacier(s)
		b) Fluctuations (terminal position, surface, mass balance)
		c) Dynamics, movement
		d) Studies of surface
		f) Subglacial studies (access type)
		g) ice Chemistry and physics
		h) Remote sensing
	2)	
	2)	Snow study:
		a) Snow cover
	21	o, maranenes
	3)	ny dr o togy.
		a) Discharges
		b) Ice cover percentage c) Sub glacial hydrology
		of one Preserve manoroel
		d) ice surface feature
		e) Lacustrine hydrology 222

SHUMSKY GLACIER

1)	Countries HCCD
2)	Country_USSR Name of station Shumsky Glacier
3)	Locality Kazakh SSR
4)	
5)	Mountain range Dzhungarskiy Alatau (northern slope)
6)	Drainage basin Lepsa River - Balkhash Lake
7)	Name of director Dr. P.A. Cherkasov
8)	
	Address Kalinina St., 69A
	Alma-Ata, 480100, USSR
	Telephone number
9)	Date of establishment of the station 1957, but not every year
10)	Distance from the end of the road (in kilometers or hours of walking)
	Other means of access: planes, float planes, helicopter, boat, etc
	Boarding point
11)	Distance between the station and the glaciers studied
B. DES	SCRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
1)	Number of buildings Summer hut
	a) Total floor space
	b) Details: e.g. Laboratories
	Dormitories
	Number of beds
	Kitchens, dining rooms
	Workshops
	223

	Generator source	
2)	Major research setimities of the sta	tion / places shock and work in order of
21	importance)	tion (please check and rank in order of
	a) Glaciology x	
	b) Snow studies	
	c) Hydrology x	
	d) Climatology x	
	e) Geophysics	
	n) Betany biology	
	f) Geomorphology x g) Botany, biology h) Quaternary history x	
	ional information can be obtained from p	rincipal investigator or from Prof. V.M.
	ikov.	
CA	LENDAR TIMING OF ACTIVITIES OF THE STAT	rion.
- 1	127722 02 00 00 0	
1)	Period of record_ Yearly utilization period	
2)	Yearly utilization period	
3)	Type of utilization (teaching, resear	rch, level of students involved)
4)	Number of researchers: Summer	Winter
5)	Number of technicians: Summer	Winter
6)	List of station personnel (and specia	ality). ATTACH LIST.
	Other laboratories working temporari	
, ,	projects	
	pr-00-00-	
Put	IN TYPES OF RESEARCH AND DATA COLLECTED t "O" for ongoing research, "P" for pre- cords. (Add appropriate details.)	
1)	Glaciological research: a) Name/UNESCO inventory number of gl	acier(s)
	b) Fluctuations (terminal position, s	urface, mass balance)
	c) Dynamics, movement	
	d) Studies of surface	
	e) Studies of deep ice (coring)	
	f) Subglacial studies (access type)	
	g) Ice Chemistry and physics	
	h) Remote sensing	
2)	Snow study:	
	a) Snow cover	
Dellara	a, chem cover	
3)	a) Snow cover	
	Hydrology:	
	Hydrology: a) Discharges	
	Hydrology: a) Discharges b) Ice cover percentage	
	Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology	
	Hydrology: a) Discharges b) Ice cover percentage c) Sub glacial hydrology d) Ice surface feature	
	Hydrology: a) Discharges b) Ice cover percentage	

c.

ZENTRALNYI TUYUKSU GLACIER

	1)	Country USSR
	2)	Name of station Zentralnyi Tuyuksu Glacier
	3)	Locality Kazakh SSR
	4)	Latitude: 43005' N Longitude: 77010' E Elevation(m)3420 m a.s.
	5)	Mountain range Zailiyskiy Alatau (northern slope)
	6)	Drainage basin Malaya Almatinka River - Ili River - Balkhash Lake
	7)	Name of director Dr. K.G. Makarevich
	8)	Name of parent organization Section of Geography, Academy of Sciences of the Kazakh SSR
		Address Kalinina St., 69A
		Alma-Ata, 480100, USSR
		Telephone number
	9)	
	10)	
	10.00	Autoroad in summer time reaches the station: 30 km from Alma-Ata
		Other means of access: planes, float planes, helicopter, boat, etc
		Boarding point_
	11)	Distance between the station and the glaciers studied 1-3 km by foot
в.	DES	CRIPTION OF THE STATION (INCLUDE A MAP IF AVAILABLE).
	1)	Number of buildings 1
		a) Total floor space
		b) Details: e.g. Laboratories
		Dormitories
		Number of beds
		Kitchens, dining rooms
		Workshops 225
		223

		Generator source
	2)	Major research activities of the station (please check and rank in order of importance) a) Glaciology
		b) Snow studies x
		c) Hydrology x
		d) Climatology x
		e) Geophysics x
		1) Geomorphology x
		g) Botany, biology x
		h) Quaternary history x
	itio lyak	nal information can be obtained from principal investigator or from Prof. V.M.
		ENDAR TIMING OF ACTIVITIES OF THE STATION.
	1)	Period of record
		Yearly utilization period
	3)	Type of utilization (teaching, research, level of students involved)
	4)	Number of researchers: Summer Winter
	5)	Number of technicians: Summer Winter List of station personnel (and speciality). ATTACH LIST.
	6) 7)	Other laboratories working temporarily at the station on joint/separate projects
D.	Put rec	N TYPES OF RESEARCH AND DATA COLLECTED. "O" for ongoing research, "P" for previous studies. Indicate period of ords. (Add appropriate details.) Glaciological research: a) Name/UNESCO inventory number of glacier(s)
		b) Fluctuations (terminal position, surface, mass balance)
		c) Dynamics, movement
		d) Studies of surface
		e) Studies of deep ice (coring)
		e) Studies of deep ice (coring)
		g) Ice Chemistry and physics
		h) Remote sensing
	2)	Snow study:
		a) Snow cover
		b) Avaianches
	3)	Hydrology:
		a) Discharges
		b) Ice cover percentage
		c) Sub glacial hydrology
		d) Ice surface feature
		e) Lacustrine hydrology 226

ERRATA

Glaciological Data, no. 3, December 1978

pp. 54, line 21, "Applied studies of snow" should read "Applied studies of snow and ice".

pp. 57, References should read "Kotlyakov, V.M., editor (1977)...

GLACIOLOGICAL DATA SERIES

Glaciological Data, which supercedes Glaciological Notes, is published by the World Data Center A for Glaciology (Snow and Ice) several times per year. It contains bibliographies, inventories, and survey reports relating to snow and ice data, specially prepared by the Center, as well as invited articles and brief, unsolicited statements on data sets, data collection and storage, methodology, and terminology in glaciology. Contibutions are edited, but not refereed or copyrighted. WDC publications are distributed without charge to interested individuals and institutions.

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