

Permafrost monitoring and prediction in Southern Carpathians, Romania, Version 1

USER GUIDE

How to Cite These Data

As a condition of using these data, you must include a citation:

Urdea, P 1998. *Permafrost monitoring and prediction in Southern Carpathians, Romania, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center. <https://doi.org/10.7265/pm0x-jn74>. [Date Accessed].

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National Snow and Ice Data Center

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Notice:

This data set was first published on the [1998 CAPS CD](#).
The text for this document was taken unchanged from that CD.

Geocryological Database for Romanian Carpathians is based on both BTS measurements (bottom temperature of winter snow cover) and on summer temperatures of springs situated at the base of rock glaciers. The former were made using digital thermometers in February and March, the latter using digital and mercury thermometers in August and September at the end of the period of estival melting.

The measurements have been made in the Detunata Mountains (D) from Apuseni Mountains and in Retezat Mountains from Southern Carpathians

(R) (Fig. 1).

The Retezat Mountains are situated in the Southern Carpathians (Transylvanian Alps), where many peaks are higher than 2500 m. Moldoveanu Peak in Fagaras Mountains is 2544 m, the maximum for the Romanian Carpathians. In Retezat Mountains, with 10% of the surface area above 2000 m, the highest point is Peleaga Peak, with 2509 m a.s.l.

Glacial cirques and valleys are fundamental geomorphic elements in the landscape of the highest area of Retezat Mountains, having originated from Pleistocene glaciers, which reached altitudes of 1050 -1100 m a.s.l. during their maximum extension. The interaction of paraglacial processes and periglacial phenomena produced a variety of periglacial forms: rock glaciers, block fields, rock streams, talus cones and scree slopes, cryoplanation terraces and solifluction forms.

The climatic conditions specific for the high zone are cold; mean annual temperatures are below 0 deg.C above 2000 m (- 0.5 deg. C at Tarcu, 2180 m, - 2.6 deg.C at Omu, 2505 m), with an absolute minimum of -38 deg. C. The number of days with frost is 200-254, and the number of freezing-thawing cycles is more than 125, with frost being possible during the whole year. The mean annual precipitation is 1178 mm at Tarcu and 1278 mm at Omu. The thickness of the snow layer can be between 50 and 370 cm and is in function of wind; the upper limit of the forest is between 1750 and 1800 m.

1 DATA DESCRIPTION

All temperatures are in degrees C

1.1 Permafrost monitoring and prediction in Southern Carpathians, Romania

- File: rd1.dat
- Location: Detunata mountains, Romania
- Time period: 1995-1997
- Fields: Point, Snow thickness (cm) 6.03. 1995, BTS (C) 6.03. 1995, Snow thickness (cm)25.02.1997, BTS (C) 25.02. 1997
- File: rd2.dat
- Location: Detunata mountains, Romania
- Time period: 1996-1997
- Fields: Date, Spring temperature
- File: rrg1.dat
- Location: Retezat mountains, Romania
- Time period: 1992-1995
- Fields: Point, Snow thickness (cm), BTS (°C)
- File: rrg2.dat
- Location: Retezat mountains, Romania
- Time period: 1992-1995
- Fields: Point , Snow thickness(cm), BTS (°C)
- File: rrs1.dat
- Location: Retezat mountains, Romania
- Time period: 1986-1996
- Fields: Date, Sprint temperature
- File: rrs2.dat
- Location: Retezat mountains, Romania
- Time period: 1986-1996

- Fields: Date, Spring temperature
- File: rrs3.dat
- Location: Retezat mountains, Romania
- Time period: 1986-1996
- Fields: Date, Spring temperature
- File: rrs4.dat
- Location: Retezat mountains, Romania
- Time period: 1986-1996
- Fields: Date, Spring temperature
- File: rrs5.dat
- Location: Retezat mountains, Romania
- Time period: 1986-1996
- Fields: Date, Spring temperature
- File: rrs6.dat
- Location: Retezat mountains, Romania
- Time period: 1986-1996
- Fields: Date, Spring temperature
- File: rrs7.dat
- Location: Retezat mountains, Romania
- Time period: 1986-1996
- Fields: Date, Spring temperature

1.2 Retezat Mountains

Permafrost occurrence in the area Pietrele -Galesu (Retezat Mountains) on the basis of BTS measurements and estival temperatures of the springs situated at the base of rock glaciers front: 1- permafrost present, 2 - permafrost possible, 3 - peak, 4 - ridge, 5 - rock glaciers., 6 - rivers and lakes, 7 - BTS measurements, 8 - spring measurement.

1.2.1 Site No: RRG 1

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 22° 52' 29'' E
- Latitude: 45° 22' 50'' N
- UTM:

Geodetic datum: topographic map 1: 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 2005 – 2050
- (feet):

Aspect (slope orientation):

- North
- Northeast
- East

- Southeast
- South
- Southwest
- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 5 - 18

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained

- Rapidly drained
- Well drained X
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine X (with sporadic medium shrubs of *Pinus mugo*)
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface
- Vegetation cover (%): 12

Anthropogenically disturbed site:

- Yes

- No X

Fire history: there were no fires

Remarks: BTS Results (Rock glaciers Pietrele)

1.2.2 Site no: RRG 2

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log X
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 22o 52' 52'' N
- Latitude: 45o 22' 02'' E
- UTM:

Geodetic datum: topographic map 1: 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 2250 - 2260
- (feet):

Aspect (slope orientation):

- North X
- Northeast
- East
- Southeast
- South
- Southwest
- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 7 - 20

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling

- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained X
- Rapidly drained
- Well drained
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine
- Tundra, high shrub

- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface X

Vegetation cover (%): 0

Anthropogenically disturbed site:

- Yes
- No X

Fire history: there were no fires

Remarks:

BTS Results (Rock glaciers Curmatura Bucurei)

1.2.3 Site no: RS 1

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log X
- Borehole log

- Site visit description
- Other:

Location:

- Longitude: 22° 52' 30'' E
- Latitude: 45° 22' 50'' N
- UTM:

Geodetic datum: topographic map 1 : 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 2005
- (feet):

Aspect (slope orientation):

- North X
- Northeast
- East
- Southeast
- South
- Southwest
- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 5

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)

- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained X
- Well drained
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest

- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine (with sporadic shrubs of *Pinus mugo*)
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface

Vegetation cover (%): 12

Anthropogenically disturbed site:

- Yes
- No

Fire history: there were no fires

Remarks:

1.2.4 Site no: RS 2

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 22o 52' 31'' E
- Latitude: 45o 22' 29'' N
- UTM:

Geodetic datum: topographic map 1 : 25 000, ed. 1978, Military Topographic DEPARTMENT

Elevation a.s.l.:

- (m): 2025
- (feet):

Aspect (slopeorientation):

- North
- Northeast
- East
- Southeast
- South

- Southwest
- West
- Northwest
- Complex (undulating)
- Level
- Slope angle (degree): 5

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify): rock glaciers

Material:

- Anthropogenic
- Colluvial X

- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained X
- Well drained

- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine X (with sporadic medium shrub of *Pinus mugo*)
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface

Vegetation cover (%): 8

Anthropogenically disturbed site:

- Yes
- No X

Fire history: there were no fires

Remarks:

1.2.5 Site no: RS 3

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log X
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 22o 53' 39'' E
- Latitude: 45o 23' 04'' N
- UTM:

Geodetic datum: topographic map 1: 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 1960
- (feet):

Aspect (slopeorientation):

- North
- Northeast X

- East
- Southeast
- South
- Southwest
- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 6

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained
- Well drained X
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine (with medium shrub of *Pinus mugo*)
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface

Vegetation cover (%): 18

Anthropogenically disturbed site:

- Yes
- No X

Fire history: there were no fires

Remarks:

1.2.6 Site no: RS 4

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log X
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 22o 54' 19'' E
- Latitude: 45o 22' 24'' N
- UTM:

Geodetic datum: topographic map 1 : 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 2205
- (feet):

Aspect (slopeorientation):

- North X
- Northeast
- East
- Southeast
- South
- Southwest
- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 11

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced

- Undulating
- Veneer
- Other (specify) rock glaciers

Material:

- Anthropogenic
- Colluvial
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam

- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained X
- Well drained
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb

- Unvegetated surface

Vegetation cover (%): 0

Anthropogenically disturbed site:

- Yes
- No

Fire history: there were no fires

Remarks:

1.2.7 Site no: RS 5

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 22° 54' 21'' E
- Latitude: 45° 22' 25'' N
- UTM:

Geodetic datum: topographic map 1 : 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 2203
- (feet):

Aspect (slopeorientation):

- North
- Northeast
- East
- Southeast
- South
- Southwest
- West
- Northwest X
- Complex (undulating)
- Level

Slope angle (degree): 7

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling

- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained X
- Well drained
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine
- Tundra, high shrub

- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface

Vegetation cover (%): 0

Anthropogenically disturbed site:

- Yes
- No

Fire history: there were no fires

Remarks:

1.2.8 Site no: RS 6

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 22° 54' 25'' E

- Latitude: 45° 22' 27" N
- UTM:

Geodetic datum: topographic map 1 : 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 2210
- (feet):

Aspect (slopeorientation):

- North X
- Northeast
- East
- Southeast
- South
- Southwest
- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 21

Landform:

- Blanket
- Fan
- Hummock

- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify): rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock

- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained X
- Rapidly drained
- Well drained
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland

- Wetland (including peatland)
- Tundra, alpine
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface X

Vegetation cover (%): 0

Anthropogenically disturbed site:

- Yes
- No X

Fire history: there were no fires

Remarks:

1.2.9 Site no: RS 7

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log X
- Borehole log
- Site visit description

- Other:

Location:

- Longitude: 22° 54' 54" E
- Latitude: 45° 22' 48" N
- UTM:

Geodetic datum: topographic map 1 :25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 2130
- (feet):

Aspect (slopeorientation):

- North X
- Northeast
- East
- Southeast
- South
- Southwest
- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 14

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic

- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained X
- Well drained
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest

- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine (with sporadic medium shrub of *Pinus mugo*)
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface

Vegetation cover (%): 9

Anthropogenically disturbed site:

- Yes
- No

Fire history: there were no fires

Remarks:

1.3 Detunata Mountain (Apuseni Mountains)

Fig. 3. Detunata Goala - morphological sketch map and BTS measurements: 1 - cliffs, 2 - debris, 3- rock glaciers front, 4 - peak, 5 - BTS measurements, 6 - cemented ice, 7 -dendrochronological date, 8- spring, 9. forest limit .

1.3.1 Site no: D 1

Source of data:

- Name of investigator: dr. Petru Urdea

- Name of institute: West University of Timioara,
 - Dept. of Geography

Data type:

- Temperature log X
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 23o 12' 46'' E
- Latitude: 46o 16' N
- UTM:

Geodetic datum: topographic map 1 : 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 1100 - 1125
- (feet):

Aspect (slopeorientation):

- North
- Northeast
- East
- Southeast
- South
- Southwest

- West
- Northwest
- Complex (undulating)
- Level

Slope angle (degree): 5 -27

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial
- Eolian

- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained
- Well drained X
- Moderately well drained

- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest X
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface

Vegetation cover (%): 47

Anthropogenically disturbed site:

- Yes
- No X

Fire history: there were no fires

Remarks:

1.3.2 Site no: D 2

Source of data:

- Name of investigator: dr. Petru Urdea
- Name of institute: West University of Timisoara,
 - Dept. of Geography

Data type:

- Temperature log X
- Borehole log
- Site visit description
- Other:

Location:

- Longitude: 23o 12'45'' E
- Latitude: 46o 16' N
- UTM:

Geodetic datum: topographic map 1: 25 000, ed. 1978, Military Topographic Department

Elevation a.s.l.:

- (m): 990
- (feet):

Aspect (slopeorientation):

- North
- Northeast

- East
- Southeast
- South
- Southwest
- West
- Northwest X
- Complex (undulating)
- Level

Slope angle (degree): 18

Landform:

- Blanket
- Fan
- Hummock
- Inclined
- Level
- Rolling
- Ridged
- Steep
- Terraced
- Undulating
- Veneer
- Other (specify) : rock glaciers

Material:

- Anthropogenic
- Colluvial X
- Eolian
- Fluvial
- Lacustrine
- Alluvial
- Residual
- Morainal (till)
- Volcanic
- Marine
- Organic
- Bedrock
- Ice
- Other (specify)

Texture of material:

- Clay
- Silt
- Loam
- Coarse, gravelly X
- Diamicton

Drainage:

- Very rapidly drained
- Rapidly drained
- Well drained X
- Moderately well drained
- Imperfectly drained
- Poorly drained
- Very poorly drained

Vegetation type:

- Closed coniferous forest
- Open coniferous forest X
- Deciduous forest
- Mixed deciduous and coniferous forest
- Grassland
- Wetland (including peatland)
- Tundra, alpine
- Tundra, high shrub
- Tundra, medium shrub
- Tundra, low shrub
- Tundra, broken herb
- Unvegetated surface

Vegetation cover (%): 78

Anthropogenically disturbed site:

- Yes
- No X

Fire history: there were no fires

Remarks:

Fig. 2

Fig 1 and 3

2 DOCUMENT INFORMATION

2.1 Please cite these data as follows:

Urdea, P. 1998. Permafrost monitoring and prediction in Southern Carpathians, Romania. In: International Permafrost Association, Data and Information Working Group, comp. Circumpolar Active-Layer Permafrost System (CAPS), version 1.0. CD-ROM available from National Snow and Ice Data Center, nsidc@kryos.colorado.edu. Boulder, Colorado: NSIDC, University of Colorado at Boulder.

2.2 Publication Date

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2.3 Date Last Updated

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