SnowEx23 Colorado State University Ground Penetrating Radar Raw, Version 1 Technical Reference

1   INTRODUCTION

1.1 DATA SET OVERVIEW

This data set contains the raw results of 1 GHz ground-penetrating radar surveys conducted as part of the NASA SnowEx23 field campaign in Alaska, USA. Surveys were conducted at three different field sites between 07 March 2023 and 16 March 2023: 1) Farmers Loop/Creamers Field, 2) the Bonanza Creek Experimental Forest, and 3) the Caribou/Poker Creek Research Watershed.

1.2 File Information

1.2.1   Format

The data are available in three zipped folders, each containing a series of comma-separated value (.csv) files, binary files (.dt1), and two types of text files (.hd and .ini).

1.2.2   Naming Convention

The two zipped folders are named the following:

SNEX23_CSU_GPR_Raw_BCEF_20230310_20230310_v01.0.zip,
SNEX23_CSU_GPR_Raw_CPCRW_20230308_20230315_v01.0.zip
SNEX23_CSU_GPR_Raw_FLCF_20230307_20230316_v01.0.zip

SNEX23 refers to the SnowEx 2023 field campaign. CSU refers to Colorado State University. GPR_Raw refers to ground penetrating radar raw data. BCEF, CPCRW, and FLCF refers to the field site (Bonanza Creek Experimental Forest, Caribou/Poker Creek Research Watershed, and Farmers Loop/Creamers Field, respectively). The numbers are formatted as MMDDYYYY and represent the start and end of the temporal coverage. Individual files are named MMDDYYYY_line# followed by the file extensions: .dt1, .hd, .ini., or .csv. MMDDYYYY represents the date of data collection, and line# identifies the survey line.

1.2.3   File Contents

Descriptions of the contents of each file type are in Table 1.

Table 1. File Contents

Variable	Description
MMDDYYYY_line#.dt1	Ground-penetrating radar binary file containing the radargram
MMDDYYYY_line#.hd	Text file containing the instrument and collection parameters
MMDDYYYY_line#.ini	Text file containing the configuration settings for the radar collection
MMDDYYYY_line#.csv	Comma-separated values for radar traces and corresponding post-processed WGS84 GPS latitude, longitude, and elevation

Each .csv file contains 4 columns with the parameters listed in Table 2.

Table 2. CSV Parameters

Variable	Unit	Description
latitude	°	Post-processed WGS84 PGS latitude
longitude	°	Post-processed WGS84 PGS longitude
altitude	m	Meters above ellipsoid
tracenumber	-	Radar trace

2 RELATED DATA SETS

SnowEx at NSIDC | Data Sets

SnowEx23 University of Wyoming Ground Penetrating Radar, Version 1