

ReadMe - V_snowdepth_intensive

Dataset responsible: Nigel Yoccoz
(nigel.yoccoz@uit.no)

16.11.2020

1 Protocol

Snow depth has been measured following the COAT protocol ‘protocol_snow_depth_measurements_varanger’.

1.1 Timing of sampling and changes in that

Snow depth is measured once a year in the last two weeks of March.

1.2 Spatial layout of sampling and changes in that

Snow depth measurements were started in 2011 and were conducted in three localities (Ifjordfjellet, Komagdalen and Vestre Jakobselv). Within these, two spatially separate section were included in the design. The sections were some kilometers from the nearest neighbouring section. In each section, snow depth was measured 5 times at each of the spatially separate snowbed sits.

From 2014 onwards, three sections were excluded from the design (section Storelva at Ifjordfjellet, section Ruossachokka in Komagdalen and section Torvhaugdalen in Vestre Jakobselv).

From 2017 onwards, the locality Ifjordfjellet was excluded from the design.

From 2020 onwards, small rodent camera trapping sites were included in the design (Sections Kjøltingan, Hubedalen, Ryggfjellet and Gargas in Komagdalen and sections Reinhaugen, Gåsevannan, Skoarrajohka and Tranemyra in Vestre Jakobselv). Each section has spatially separate sampling sites in snowbed and hummock tundra. Some of the camera trapping sites are also included in the data set ‘V_snowstructure’ and snow depth is measured only once at these sites (sn_plot is set to NA).

More detailed information about which sites were included in the study design can be found in the auxiliary file `V_snowdepth_intensive_aux.txt`.

2 Description of the dataset

The dataset includes three different types of files and all files are saved as ;-separated txt-files:

- One data file per year (`_YEAR.txt`)
- One coordinate file with coordinates of all sites (`_coordinates.txt`)
- One auxiliary file with information about which sites are included in the study design (`_aux.txt`)

2.1 V_snowdepth_intensive_YEAR.txt

These files contain the snow depth measurements. Snow depth was measured in five plots (10, 5, 0, -5, -10) at each site:

Example of the first rows of the data files:

	sn_region	sn_locality	sn_section	sn_site	sn_plot	t_date
1	varanger	vestre_jakobselv	torvhaugdalen	vj_to_sn_22	0	2011-03-20
2	varanger	vestre_jakobselv	torvhaugdalen	vj_to_sn_22	5	2011-03-20
3	varanger	vestre_jakobselv	torvhaugdalen	vj_to_sn_22	10	2011-03-20
	v_observer	v_depth	v_comment			
1	<NA>	310	<NA>			
2	<NA>	350	<NA>			
3	<NA>	370	<NA>			

Description of the columns included in the data files:

Column name	Description	Possible values
sn_region	Study region	varanger
sn_locality	Locality (within region)	vestre_jakobselv, komagdalen, ifjordfjellet
sn_section	Section (within locality)	torvhaugdalen, bearylveaijohka, ruossachokka, kjoltindan, eastordalen, storelva, hubejohka
sn_site	Unique Site ID	e.g. vj_to_sn_22, vj_to_sn_2, vj_be_sn_7, ko_kj_sn_1, if_ea_sn_7, if_st_sn_15, ko_hu_sn_3
sn_plot	Plot (Distance of the measurement [m] from the coordinate/recco)	0 ,5 ,10 ,-5 ,-10
t_date	Sampling date	YYYY-MM-DD
v_observer	Initials of observer	[character]
v_depth	Snow depth [cm]	[numeric]
v_comment	Comments	[character]

2.2 V_snowdepth_intensive_coordinates.txt

This file contains the coordinates of all sites included in the study design. Coordinates are given in decimal degrees and UTM 33 (WGS 84).

Example of the first rows of coordinate files:

```
sn_site      e_dd      n_dd      e_utm33 n_utm33
1 if_ea_sn_1 27.35208 70.42404 959119.7 7860013
2 if_ea_sn_2 27.35316 70.42437 959151.9 7860058
3 if_ea_sn_3 27.35785 70.42369 959339.5 7860019
```

2.3 V_snowdepth_intensive_aux.txt

This file contains further information about the dataset such as old site names (for example used in raw data files before 2019) and the years when sites were first included in the study design and when sites were excluded from the study design.

Example of the first rows of auxiliary-files:

```
sn_region  sn_locality  sn_section  sc_type_of_sites_ecological  sn_site
1 varanger ifjordfjellet eastordalen          snowbed if_ea_sn_1
2 varanger ifjordfjellet eastordalen          snowbed if_ea_sn_2
3 varanger ifjordfjellet eastordalen          snowbed if_ea_sn_3
sn_site_old year_first year_last v_comment
1 ia01      2011      2016      NA
2 ia02      2011      2016      NA
3 ia03      2011      2016      NA
```

* year_last is NA if the site is still included in the study design

3 Data cleaning and formatting

Rawdata from 2011 to 2020 has been cleaned and formatted according to the requirements of the COAT data portal by Hanna Boehner.

From 2021 onwards, rawdata is cleaned and formatted using the script

`check_and_reformat_V_snowdepth_intensive.R`. The script checks that all entries are correct, reformats the data according to the requirements of the COAT data portal and produces a file which will be saved as a ;-separated txt-file (`V_snowdepth_intensive_YEAR.txt`).

The scripts checks all variables for correct spelling, correct format, outliers and missing observations. Errors will be corrected in the script. In particular, the script checks for:

- **sn_site:** Correct spelling of all site names and missing observation. Missing observations will be included with NA for snowdepth.
- **sn_plot:** Correct spelling of the plot ids (-10, -5, 0, 5 or 10) and missing observations (each site should have five plots). Missing observations will be included with NA for snowdepth.
- **t_date:** Correct format (yyyy-mm-dd), dates in other formats are reformatted.
- **v_observer:** Correct format (initials and lowercase letters), observer is reformatted e.g. if full names were used.
- **v_depth:** Outliers in snow depth (between 0 and 500 m).

- **v_comment:** Correct spelling and format (lowercase letters and english). Comments are edited or translated if necessary.
- The columns **sn_region**, **sn_locality** and **sn_section** are added based on the site name.

All corrections that lead to differences between rawdata and cleaned data are double-checked in the fieldbooks and a comment is added.