

Seeded and Natural Orographic Wintertime clouds—the Idaho Experiment (SNOWIE)
National Center for Atmospheric Research and Idaho Power Company SNOWIE Precipitation
Gauges

1. **Dataset Title**

Hydrology/Land Based: Precipitation – Idaho Power Company and NCAR SNOWIE
Precipitation Gauges

2. **Dataset Author(s)**

Kyoko Ikeda
National Center for Atmospheric Research
Research Applications Laboratory
P.O. Box 3000
Boulder, CO 80307-3000
kyoko@ucar.edu,
303-497-2842

also may contact Sarah Tessendorf (saraht@ucar.edu)

3. **Time of Interest**

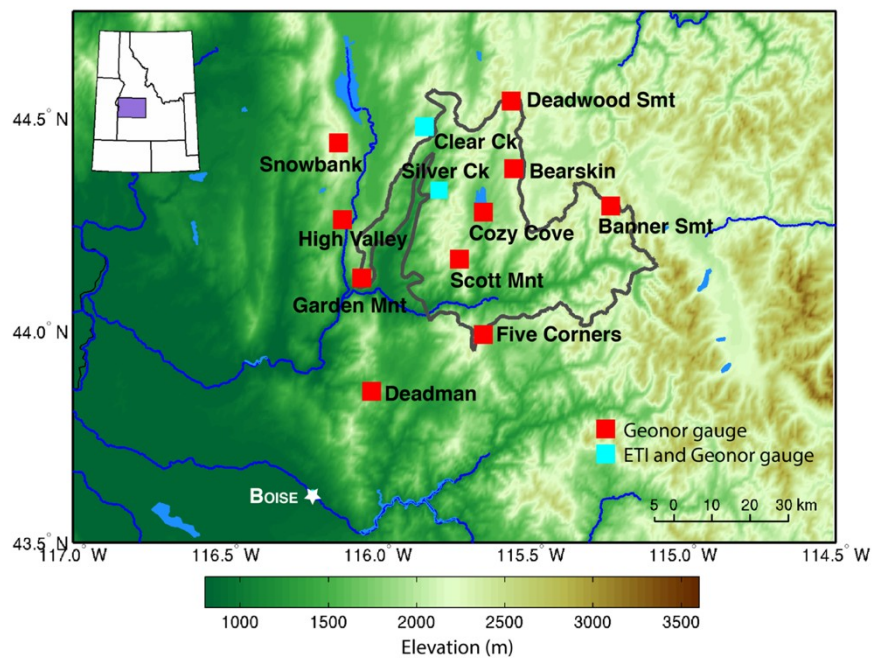
When gauge data are available, precipitation time series for the following dates are
provided for each gauge site. All IOP time periods are included.

2017/01/07 00:00 2017/01/07 23:59
2017/01/08 00:00 2017/01/08 23:59
2017/01/09 00:00 2017/01/09 23:59
2017/01/10 00:00 2017/01/10 23:59
2017/01/11 00:00 2017/01/11 23:59
2017/01/18 00:00 2017/01/18 23:59
2017/01/19 00:00 2017/01/19 23:59
2017/01/20 00:00 2017/01/20 23:59
2017/01/21 00:00 2017/01/21 23:59
2017/01/22 00:00 2017/01/22 23:59
2017/01/23 00:00 2017/01/23 23:59
2017/01/31 00:00 2017/01/31 23:59
2017/02/03 00:00 2017/02/03 23:59
2017/02/04 00:00 2017/02/04 23:59
2017/02/05 00:00 2017/02/05 23:59
2017/02/07 00:00 2017/02/07 23:59
2017/02/16 00:00 2017/02/16 23:59
2017/02/17 00:00 2017/02/17 23:59
2017/02/18 00:00 2017/02/18 23:59
2017/02/19 00:00 2017/02/19 23:59
2017/02/20 00:00 2017/02/20 23:59
2017/02/21 00:00 2017/02/21 23:59
2017/02/22 00:00 2017/02/22 23:59
2017/03/04 00:00 2017/03/04 23:59
2017/03/05 00:00 2017/03/05 23:59
2017/03/07 00:00 2017/03/07 23:59
2017/03/09 00:00 2017/03/09 23:59

4. Area of Interest

- Approximately, 43.5 – 44.75 deg N. and 117.0 – 114.5 deg W.
- Ten sites in the SNOWIE domain were installed by IPC and equipped with Geonor gauges and two sites installed by NCAR had both ETI and Geonor gauges (total of 12 gauge sites in the SNOWIE domain).
- Site photos are available upon request.

| Site Name ID | Location | Equipment | Latitude (deg) | Longitude (deg) | Elevation |
|------------------|---------------------|-----------------|----------------|-----------------|-----------|
| Bearskin | Bearskin Creek | IPC Geonor | 44.3851 | -115.5512 | -9999 |
| BannerSmt | Banner Summit | IPC Geonor | 44.3038 | -115.2342 | -9999 |
| CozyCove | Cozy Cove | IPC Geonor | 44.2878 | -115.6553 | -9999 |
| Deadman | Deadman | IPC Geonor | 43.8657 | -116.0240 | -9999 |
| DeadwoodSmt | Deadwood Summit | IPC Geonor | 44.5450 | -115.5630 | -9999 |
| GardenMtn | Garden Mountain | IPC Geonor | 44.1344 | -116.0559 | -9999 |
| HighValley | High Valley | IPC Geonor | 44.2662 | -116.1168 | -9999 |
| ScottMtn | Scott Mountain | IPC Geonor | 44.1758 | -115.7267 | -9999 |
| SnowbankMountain | Snowbank Mtn Site A | IPC Geonor | 44.4402 | -116.1261 | -9999 |
| 5Corners | Five Corners | IPC Geonor | 43.9960 | -115.6582 | -9999 |
| ClearCreek | Clear Creek | NCAR ETI-Geonor | 44.4832 | -115.8483 | -9999 |
| SilverCreek | Silver Creek Plunge | NCAR ETI-Geonor | 44.3358 | -115.7988 | -9999 |



5. Data Frequency

- Frequency of data collection was continuous during IOPs.
- The data frequency of IPC Geonor gauges is ~1/15 min.
- NCAR gauges at Clear Creek and Silver Creek (ETI and GEONOR) are 1-min data.

6. Data Spatial Type

Readable ASCII text.

```
# Project : SNOWIE 2017
# NCAR, RAL 14-Sep-2017
#
# Gauge Type      : GEONOR
# Gauge Site Name  : Clear Creek
# Site Latitude (deg): 44.48324
# Site Longitude (deg): -115.84829
# Site Elevation (m) : -9999
#
yyyyymmdd  HHMMSS  avg_accumulation
           UTC      mm
20170203   235900      0.00
20170204   000000      0.01
20170204   000100      0.02
20170204   000200      0.02
20170204   000300      0.03
20170204   000400      0.03
20170204   000500      0.04
20170204   000600      0.03
20170204   000700      0.03
20170204   000800      0.04
20170204   000900      0.04
20170204   001000      0.04
20170204   001100      0.04
20170204   001200      0.04
```

7. General Dataset Description

Data files include general site information followed by three columns indicating date and time (in UTC) and precipitation accumulation in mm (see the above image).

Data provided are level 1 data.

- a) All Geonor vibrating wires (some had three and some others had four vibrating wires) were visually inspected, and the measurements from bad vibrating wires were eliminated. The precipitation accumulation in the data files (third column) are the average precipitation accumulation (in mm) from good vibrating wires. If data from the previous day is available, the last data record from the previous day is the initial time of accumulation; otherwise, the accumulation starts from the first record of the

day. If all vibrating wires misbehaved at a site, -999 was assigned to indicate bad values.

- b) Diurnal temperature variations affect the ETI measurement. Thus, temperature-based corrections have been performed to the raw data. This involves applying a correction factor (which varies with time and is not the same for all gauges), which is determined from the air temperature and depth indicator on clear days, to each day of interest. More detailed description of this technique is available upon request. No data smoothing has been performed for level 1 data.
- c) Each ETI data file also starts from the last record from the previous day if available; otherwise, the accumulation starts from the first record of the day. -999 indicates unusable data.
- d) For level 1 data, the time series contain all available data. However, there are signs of **capping** (when snow adheres/accumulates around the gauge orifice excessively and causes an under-accumulation until a sudden precipitation increase when the adhered snow falls into the gauge) and **dumping** (when the capped snow dumps into the gauge, often occurs due to warming in the morning) noted during the visual inspection. Users of the data should carefully inspect the data for these features when using the data initially.
- e) Large negative data were identified as bad data as best possible. However, small oscillations from vibrating wires can produce small negative accumulation. These negative accumulations are left in the data.
- f) If the gauge was not working during the entire day, then the data file was not generated.
- g) Level 2 data (will be released at a later time) will filter capping and dumping.

Raw precipitation data that includes measurements from all vibrating wires are available upon request.

8. File Names

General format : PG_Geonor_SITENAME_YYYYMMDD_lv1.txt where Geonor is ETI for ETI data, YYYYMMDD indicates date, and lv1 is the level of quality control performed (see data description of lv1 data).

IPC Geonor gauges:

[illegible]

NCAR ETI-Geonor gauges at Clear Creek and Silver Creek sites: ETI and Geonor data are stored separately.

| | |
|-------------------------------------|--|
| PG_ETI_ClearCreek_20170107_lv1.txt | PG_Geonor_ClearCreek_20170107_lv1.txt |
| PG_ETI_ClearCreek_20170108_lv1.txt | PG_Geonor_ClearCreek_20170108_lv1.txt |
| PG_ETI_ClearCreek_20170109_lv1.txt | PG_Geonor_ClearCreek_20170109_lv1.txt |
| PG_ETI_ClearCreek_20170110_lv1.txt | PG_Geonor_ClearCreek_20170110_lv1.txt |
| PG_ETI_ClearCreek_20170111_lv1.txt | PG_Geonor_ClearCreek_20170111_lv1.txt |
| PG_ETI_ClearCreek_20170118_lv1.txt | PG_Geonor_ClearCreek_20170118_lv1.txt |
| PG_ETI_ClearCreek_20170120_lv1.txt | PG_Geonor_ClearCreek_20170120_lv1.txt |
| PG_ETI_ClearCreek_20170121_lv1.txt | PG_Geonor_ClearCreek_20170121_lv1.txt |
| PG_ETI_ClearCreek_20170122_lv1.txt | PG_Geonor_ClearCreek_20170122_lv1.txt |
| PG_ETI_ClearCreek_20170123_lv1.txt | PG_Geonor_ClearCreek_20170123_lv1.txt |
| PG_ETI_ClearCreek_20170131_lv1.txt | PG_Geonor_ClearCreek_20170131_lv1.txt |
| PG_ETI_ClearCreek_20170203_lv1.txt | PG_Geonor_ClearCreek_20170203_lv1.txt |
| PG_ETI_ClearCreek_20170204_lv1.txt | PG_Geonor_ClearCreek_20170204_lv1.txt |
| PG_ETI_ClearCreek_20170205_lv1.txt | PG_Geonor_ClearCreek_20170205_lv1.txt |
| PG_ETI_ClearCreek_20170207_lv1.txt | PG_Geonor_ClearCreek_20170207_lv1.txt |
| PG_ETI_ClearCreek_20170216_lv1.txt | PG_Geonor_ClearCreek_20170216_lv1.txt |
| PG_ETI_ClearCreek_20170217_lv1.txt | PG_Geonor_ClearCreek_20170217_lv1.txt |
| PG_ETI_ClearCreek_20170218_lv1.txt | PG_Geonor_ClearCreek_20170218_lv1.txt |
| PG_ETI_ClearCreek_20170219_lv1.txt | PG_Geonor_ClearCreek_20170219_lv1.txt |
| PG_ETI_ClearCreek_20170220_lv1.txt | PG_Geonor_ClearCreek_20170220_lv1.txt |
| PG_ETI_ClearCreek_20170221_lv1.txt | PG_Geonor_ClearCreek_20170221_lv1.txt |
| PG_ETI_ClearCreek_20170222_lv1.txt | PG_Geonor_ClearCreek_20170222_lv1.txt |
| PG_ETI_ClearCreek_20170304_lv1.txt | PG_Geonor_ClearCreek_20170304_lv1.txt |
| PG_ETI_ClearCreek_20170305_lv1.txt | PG_Geonor_ClearCreek_20170305_lv1.txt |
| PG_ETI_ClearCreek_20170307_lv1.txt | PG_Geonor_ClearCreek_20170307_lv1.txt |
| PG_ETI_SilverCreek_20170107_lv1.txt | PG_Geonor_SilverCreek_20170107_lv1.txt |
| PG_ETI_SilverCreek_20170108_lv1.txt | PG_Geonor_SilverCreek_20170108_lv1.txt |
| PG_ETI_SilverCreek_20170109_lv1.txt | PG_Geonor_SilverCreek_20170109_lv1.txt |
| PG_ETI_SilverCreek_20170110_lv1.txt | PG_Geonor_SilverCreek_20170110_lv1.txt |
| PG_ETI_SilverCreek_20170111_lv1.txt | PG_Geonor_SilverCreek_20170111_lv1.txt |
| PG_ETI_SilverCreek_20170118_lv1.txt | PG_Geonor_SilverCreek_20170118_lv1.txt |
| PG_ETI_SilverCreek_20170119_lv1.txt | PG_Geonor_SilverCreek_20170119_lv1.txt |
| PG_ETI_SilverCreek_20170120_lv1.txt | PG_Geonor_SilverCreek_20170120_lv1.txt |
| PG_ETI_SilverCreek_20170121_lv1.txt | PG_Geonor_SilverCreek_20170121_lv1.txt |
| PG_ETI_SilverCreek_20170122_lv1.txt | PG_Geonor_SilverCreek_20170122_lv1.txt |
| PG_ETI_SilverCreek_20170123_lv1.txt | PG_Geonor_SilverCreek_20170123_lv1.txt |
| PG_ETI_SilverCreek_20170131_lv1.txt | PG_Geonor_SilverCreek_20170131_lv1.txt |
| PG_ETI_SilverCreek_20170203_lv1.txt | PG_Geonor_SilverCreek_20170203_lv1.txt |
| PG_ETI_SilverCreek_20170204_lv1.txt | PG_Geonor_SilverCreek_20170204_lv1.txt |
| PG_ETI_SilverCreek_20170205_lv1.txt | PG_Geonor_SilverCreek_20170205_lv1.txt |
| PG_ETI_SilverCreek_20170207_lv1.txt | PG_Geonor_SilverCreek_20170207_lv1.txt |
| PG_ETI_SilverCreek_20170216_lv1.txt | PG_Geonor_SilverCreek_20170216_lv1.txt |
| PG_ETI_SilverCreek_20170217_lv1.txt | PG_Geonor_SilverCreek_20170217_lv1.txt |
| PG_ETI_SilverCreek_20170218_lv1.txt | PG_Geonor_SilverCreek_20170218_lv1.txt |
| PG_ETI_SilverCreek_20170219_lv1.txt | PG_Geonor_SilverCreek_20170219_lv1.txt |
| PG_ETI_SilverCreek_20170220_lv1.txt | PG_Geonor_SilverCreek_20170220_lv1.txt |
| PG_ETI_SilverCreek_20170221_lv1.txt | PG_Geonor_SilverCreek_20170221_lv1.txt |
| PG_ETI_SilverCreek_20170222_lv1.txt | PG_Geonor_SilverCreek_20170222_lv1.txt |
| PG_ETI_SilverCreek_20170304_lv1.txt | PG_Geonor_SilverCreek_20170304_lv1.txt |
| PG_ETI_SilverCreek_20170305_lv1.txt | PG_Geonor_SilverCreek_20170305_lv1.txt |
| PG_ETI_SilverCreek_20170307_lv1.txt | PG_Geonor_SilverCreek_20170307_lv1.txt |
| PG_ETI_SilverCreek_20170309_lv1.txt | PG_Geonor_SilverCreek_20170309_lv1.txt |
| PG_ETI_SilverCreek_20170316_lv1.txt | PG_Geonor_SilverCreek_20170316_lv1.txt |

9. Data restrictions

No data restriction