FILE NAME: Station Record AK011.doc

LAST UPDATED: 8/28/2023

**PRUDHOE BAY, ALASKA**

### BETTY PINGO

### Station AK011 Record

**STATION:** AK011, BETTY PINGO, FLUX STUDY SITE 95-1, PRUDHOE BAY (011). This station will monitor air temp and soil temperature at 14 soil depths. The station was installed to supplement the water content data collected by station AK004. The existing long term soil temperature monitoring Hobo probe system is old and was discontinued; this station will replace that system and continue long-term monitoring.

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|  |  |  |  |

**LOCATION:** West On BP Prudhoe Bay oil field north of Deadhorse, Alaska.

GPS (08/17/05): 70° 16’ 57.3” N

148° 53’ 36.5” W

46 ft elevation

GPS (08/14/07): 70° 16’ 57.3” N

148° 53’ 36.5” W

43 ft elevation

GPS (08/09/08): 70° 16’ 57.3” N

148° 53’ 36.4” W

36 ft elevation

GPS (08/16/09): 70° 16’ 57.2” N

148° 53’ 36.4” W

28 ft elevation

GPS (08/10/10): 70° 16’ 57.3” N

148° 53’ 36.4” W

41 ft elevation

GPS (08/10/12): 70° 16’ 57.2” N

148° 53’ 36.5” W

39 ft elevation

**INSTRUMENTATION:**

Summary

| Quantity | Description | Comments |
| --- | --- | --- |
| 1 | Campbell CR-10X-2M datalogger SN: Wiring panel SN: | Installed 8/05 |
| 1 | Campbell SM4M storage module SN: | Installed 8/05 |
| 1 | Campbell 12-Ah battery | Installed 8/05 |
| 1 | Campbell PS12LA regulator | Installed 8/05 |
| 1 | Solar panel | Installed 8/05 |
| 1 | Campbell ENC 16/18 enclosure | Installed 8/05 |
| 2 | MRC soil temperature probes | Installed 8/05 |
| 1 | Campbell 107 air temperature sensor  With radiation shield | Installed 8/05 |
| 1 | Campbell CM6 Tripod | Installed 8/05  Provided by Fritz Nelson |

**HISTORY:**  August 17, 2005: Station initiated. Two MRC probes and one air temp (2 m) were installed and wired to a CR10X-2M. The enclosure was mounted onto a tripod with station AK004. Clock was set to Alaska savings. MRC probe #1 was located in the center of the ice polygon and MRC probe #2 was located at the rim of the same polygon. The MRC probes were inserted so the first sensors was at the soil surface (zero depth). All sensors were collecting data. The MRC probes were installed with an ice auger (2 inch diameter) powered by drill.

August 19, 2006: Arrived at about 3:00 PM. Swapped storage modules. Station clock was 4 min ahead; reset clock. Added two desiccant packs. Everything seemed to be working OK.

August 14, 2007: Arrived at about 11:00 AM. Swapped storage modules. Downloaded data since last download from logger. Station clock was 7 min ahead; reset clock. Added two desiccant packs. Everything seemed to be working OK.

August 9, 2008: Arrived at site about 12:40 PM. Swapped storage modules and downloaded data from logger. Lithium battery was 3.15 volts. Station clock was 6 min ahead; reset clock. Everything seemed to be working OK. MRC on ridge was 3 cm out of the ground and MRC in polygon was 1.5 out of ground. Add desiccant for next time.

August 16, 2009: Swapped storage modules and downloaded data from logger. Lithium battery was 3.17 volts. Station clock was 7 min ahead—reset clock. Everything seemed to be working OK. MRC on ridge (#2) was 3.5 cm out of the ground and MRC in polygon (#1) was 0 cm out of ground. Added one desiccant pack.

August 10, 2010: Swapped storage modules and downloaded data from logger with RECON. Lithium battery was 3.1 volts; battery was 13.9 volts. Station clock was 5 min ahead—reset clock. Everything seemed to be working OK. MRC on ridge (#2) was 3.0 cm out of the ground and MRC in polygon (#1) was 0 cm out of ground or slightly below surface; only top is visible from above. Air temp was 4.6ºC.

August 10, 2012: Swapped storage modules and downloaded data from logger to RECON. Lithium battery was 3.24 volts; battery was 13.0 volts. Station clock was 13 min ahead—reset clock. Everything seemed to be working OK. MRC on ridge (#2) was 2.5 cm out of the ground and MRC in polygon (#1) was 1.5 cm out of ground or slightly below surface; only top is visible from above. Air temp was 5.5ºC, foggy with occasional drizzle.

August 10, 2014: Swapped storage modules. Couldn’t find the MRC probe in the polygon center. For next time replace battery.

August 12, 2015: AEK. Swapped storage modules. Replaced battery. Solar panel cables looked fine on top and bottom. MRC #1 out of ground 0.5 cm and MRC #2 out of ground 8 cm (to very top of probe).

August 12, 2016: Swapped storage modules. (next time replace regulator, battery, and datalogger)

August 15, 2017: Swapped storage modules. There was no data on storage module. Replaced the datalogger, battery, and regulator. Connectors are in tight. Screw reinserted on bracket and tightened, no wires disturbed. Power supply plugged back into wiring panel. Regulator replaced per instructions. Light on regulator came on when solar panel was plugged in. Battery plugged into regulator. Wiring panel also plugged into regulator per instructions. Switch is in “on” position.” Finished at 1610 ADT. All connectors seated and checked. MRC nearest trough (adjacent to logger): 13 cm above ground. MRC farthest from loggers (in raised polygon center): 3 cm above ground (measured from top of probe).

August 7, 2018: Swapped storage modules. Height of MRC probes above ground were: polygon center probe was 4 cm and polygon rim probe was 13 cm above ground.

August 8, 2019: Swapped storage modules. Height of MRC probes above ground were: polygon center probe was 3.5, 3.8 cm and polygon rim probe was 12.5, 12.9 cm above ground.

August 8, 2021: Swapped storage modules. Height of MRC probes above the ground were: polygon center probe (MRC #1) was 5.5 cm and polygon rim probe (MRC #2) was 18 cm above ground. The storage module was not working (no prompt detected), and no data was downloaded.

August 7, 2022: Swapped storage modules. Height of MRC probes above the ground were: polygon center probe (MRC #1) was 3.5 cm and polygon rim probe (MRC #2) was 16 cm above ground.

August 6, 2023: Swapped storage modules. Height of MRC probes above the ground were: polygon center probe (MRC #1) was 4 cm and polygon rim probe (MRC #2) was 17 cm above ground.

**DATA:**

DATALOGGER OUTPUT:

| COL | OUTPUT | UNITS | LOCATION | SENSOR | COMMENTS |
| --- | --- | --- | --- | --- | --- |
| 1 | Station ID | N/A | N/A | Campbell CR10X | 011 |
| 2 | Year | N/A | N/A | Campbell CR10X |  |
| 3 | Day | N/A | N/A | Campbell CR10X |  |
| 4 | Time | N/A | N/A | Campbell CR10X | AK savings time |
| 5 | Battery | Volts | Enclosure | Campbell CR10X |  |
| 6 | Int Battery | Volts | Datalogger | Campbell CR10X |  |
| 7 | Int Temp | °C | Datalogger | Campbell CR10X |  |
| 8 | Air Temp | °C | 2 m | Campbell 107 |  |
| 9 | Soil Temp | °C | Soil 0 cm | MRC probe #1 | Center of polygon |
| 10 | Soil Temp | °C | Soil 5 cm | MRC probe #1 | Center of polygon |
| 11 | Soil Temp | °C | Soil 10 cm | MRC probe #1 | Center of polygon |
| 12 | Soil Temp | °C | Soil 15 cm | MRC probe #1 | Center of polygon |
| 13 | Soil Temp | °C | Soil 20 cm | MRC probe #1 | Center of polygon |
| 14 | Soil Temp | °C | Soil 25 cm | MRC probe #1 | Center of polygon |
| 15 | Soil Temp | °C | Soil 30 cm | MRC probe #1 | Center of polygon |
| 16 | Soil Temp | °C | Soil 40 cm | MRC probe #1 | Center of polygon |
| 17 | Soil Temp | °C | Soil 50 cm | MRC probe #1 | Center of polygon |
| 18 | Soil Temp | °C | Soil 60 cm | MRC probe #1 | Center of polygon |
| 19 | Soil Temp | °C | Soil 70 cm | MRC probe #1 | Center of polygon |
| 20 | Soil Temp | °C | Soil 80 cm | MRC probe #1 | Center of polygon |
| 21 | Soil Temp | °C | Soil 95 cm | MRC probe #1 | Center of polygon |
| 22 | Soil Temp | °C | Soil 120 cm | MRC probe #1 | Center of polygon |
| 23 | Soil Temp | °C | Reference | MRC probe #1 | Center of polygon |
| 24 | Soil Temp | °C | Soil 0 cm | MRC probe #2 | Rim of polygon |
| 25 | Soil Temp | °C | Soil 5 cm | MRC probe #2 | Rim of polygon |
| 26 | Soil Temp | °C | Soil 10 cm | MRC probe #2 | Rim of polygon |
| 27 | Soil Temp | °C | Soil 15 cm | MRC probe #2 | Rim of polygon |
| 28 | Soil Temp | °C | Soil 20 cm | MRC probe #2 | Rim of polygon |
| 29 | Soil Temp | °C | Soil 25 cm | MRC probe #2 | Rim of polygon |
| 30 | Soil Temp | °C | Soil 30 cm | MRC probe #2 | Rim of polygon |
| 31 | Soil Temp | °C | Soil 40 cm | MRC probe #2 | Rim of polygon |
| 32 | Soil Temp | °C | Soil 50 cm | MRC probe #2 | Rim of polygon |
| 33 | Soil Temp | °C | Soil 60 cm | MRC probe #2 | Rim of polygon |
| 34 | Soil Temp | °C | Soil 70 cm | MRC probe #2 | Rim of polygon |
| 35 | Soil Temp | °C | Soil 80 cm | MRC probe #2 | Rim of polygon |
| 36 | Soil Temp | °C | Soil 95 cm | MRC probe #2 | Rim of polygon |
| 37 | Soil Temp | °C | Soil 120 cm | MRC probe #2 | Rim of polygon |
| 38 | Soil Temp | °C | Reference | MRC probe #2 | Rim of polygon |

DATA PROCESSING ALGORITHMS:

DATA STORAGE AND ACCESS:

**SOILS:**

CLASSIFICATION:

**LANDSCAPE:** Polygons.

SLOPE:

ASPECT:

ELEVATION:

**VEGETATION:**  Moss, grass, and small annual flowers.

GROUND COVER:

CANOPY COVER:

**COMMENTS:**

**NOTES FOR NEXT STATION VISIT:**