**Flux Plates (HPF 01)**

The HPF01 is a flux plate. It measures the conductive flux across the plate and thus the conductive flux within the matrix where it is installed. The instrument is a thermopile similar to the IR20 and SR30 (refer to SR30 doc for explanation). It is an analog measurement. Two flux plates are installed at each ASFS and the tower. We have at least one HPF 01 SC, which may or may not be installed at the tower. This is a self-calibrating device and has a heater.

**Turning the system on/off:**

 Unpowered

**Communications & Settings:**

 The voltage across the thermopile is measured using a differential voltage measurement at differential channels 5 and 6 on the logger.

**Variables:**

 Variables are reported in the “slow” data table file. The calibration coefficients are hard-coded into the logger program and so both raw voltage (mV) and calibration fluxes (Wm-2) are recorded.

**Post Processing:**

* TBD

**Expected Values:**

* Over sea ice, generally positive probably 0 (summer) to 10s of Wm-2 in winter, but could be highly variable depending on snow/ice properties, depth to sensor and air temperature.

**Daily Data Checks:**

* There is little you will be able to tell from looking at the data in real time. Even if the instrument is completely ripped out of the logger you will still see numbers. Very large numbers (100s Wm-2) are not expected and if they occur could indicate an instrument exposed to direct sunlight.
* The best way to monitor the data is to look at a time series. Really noisy data is bad (possibly disconnected sensor). Abrupt and non-physical changes in variability are bad (possibly exposed sensor).

**ASFS Visit Checks:**

* The exact locations and depths of the flux plates are TBD. They will be marked with flags. Do your best to confirm that the sensor and flag are where they are supposed to be. Do not dig up the sensor or disturb the snow around it. Mainly you are looking to make sure the sensor hasn’t been scoured out. Replaced the flag if it has been lost.
* If you suspect the sensor was scoured, blown away and then reburied it will be necessary to reseat it because it needs to be level. Expose the plate carefully. If you can note, photograph and measure the level of the plate. Dig a snow pit and push the plate horizontally into the snowpack, red face up. Fill the pit.
* Inspect for signs of solar heating/melting. Photograph what you see. If the instrument has melted and refrozen, it may need to be moved and positioned deeper.
* Inspect exposed cables.

**Things to consider:**

* Level matters but if level is off, we can correct the value if we know what it is. So, measure the level if you can.
* The sensor may be exposed by wind scouring and blown around.
* Even if set into the snow/ice pack, the sensor plate may be heated by the sun causing it to sink and go out of level. This will also change the ice properties, thereby affecting the measurement.