

## Electronic Air Temperature Methodology

(Last rev. 09/08/2019)

Air temperature is measured electronically using Onset Hobo U22-001 Pro V2 Underwater data loggers (see Fig. 1)

These loggers are used instead of the normal Campbell Sci. logger/sensor system due to the need to run these sensors for up to 6 months without supervision and external power.

There are two loggers (see Fig. 2 & 3).

1. One is located inside a Stevenson screen located in a small clearing ~10m north of the main building.
2. A second sensor is located near the top (~10m) of the radio tower that is located on the east side of the main building. The sensor is located inside of a standard 6-place solar radiation shield.

Temperature is measured once every 15 minutes. Data represent the temperature at the moment of the time stamp.

Sensor elements are replaced every 5-7 months (end of December and mid-July). The sensors are calibrated before they are deployed and when they are returned. The data are adjusted according to the results of the calibrations.

Records are provided with two Quality Control flags. Flag one indicates the fitness for use of each records. Possible values are: good, bad, doubtful, missing. Records are marked as bad if they fail one or more QC tests. Likewise, records are marked as doubtful if they are potentially bad, but without sufficiently strong evidence to be marked as bad. The second QC variable provides that reason for marking a variable as bad or doubtful. Potential values are: range, step, persistence, drift. At this time only range tests have been applied.



Figure 1. Onset Hobo U22-001 Pro V2 Underwater data logger



Figure 2. Location of Sensors



Figure 3 Radio Tower (left), north-side clearing