

## Electronic Air Temperature and Relative Humidity Methodology

(Last rev. 13/11/2024)

Air temperature and relative humidity are measured electronically on the Celestino meteorological tower using combination sensors housed in naturally aspirated radiation shields\* at the AVA tower at 2m and 40m (see Figure 1 and 2).

\*(From the manufacturer: the naturally aspirated 6 and 10-plate radiation shields' louvered construction allows air to pass freely through the shield, keeping the probe at or near ambient temperature. The shields' white color reflects solar radiation.)

Campbell Sci. HygroVue10 sensors have always been used at this location (see Figure 3).

Air temperature and relative humidity are sampled every 10 seconds. The average, minimum and maximum values are recorded at the end of every 15 minute interval.

Sensor elements are replaced every year according to the manufacture's recommendations.

Records are provided with two Quality Control flags. Flag one indicates the fitness for use of each record. 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



Location of the AVA Tower. Red lines are trails. White rectangle is the 50ha plot.

Figure 2



AVA Tower

Figure 3



Campbell Sci. HygroVue10 Temperature & Humidity sensor inside 10-gill naturally aspirated radiation shield (left) and out (right)