

Net Solar Radiation Methodology

(Last rev. 14/11/2024)

Net solar radiation is measured electronically beside the Celestino meteorological tower (see Figures 1 & 2) using a Kipp & Zonen CNR4 Net Radiometer (Figure 3).

The sensor is located approximately 2m above sparse vegetation.

Net solar radiation is sampled once every 10 seconds. Interval-average values are recorded every 15 minutes. The following parameters are recorded:

- soil albedo, 0-1 (statistics calculated only for data between 8am and 5pm)
- down-welling long wave radiation, W/m^2
- down-welling short wave radiation, W/m^2
- net long wave radiation, W/m^2
- net short wave radiation, W/m^2
- net radiation, W/m^2
- radiometer temperature, C
- raw down-welling long wave radiation, W/m^2
- raw upwelling long wave radiation, W/m^2
- upwelling long wave radiation, W/m^2
- upwelling short wave radiation, W/m^2
- soil temperature, C

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 Agua Salud research plots (red polygons) and the Celestino Meteorology Station

Figure 2



Celestino tower

Figure 3



Installed CNR4 Net Radiometer (left) and close-up view (right)