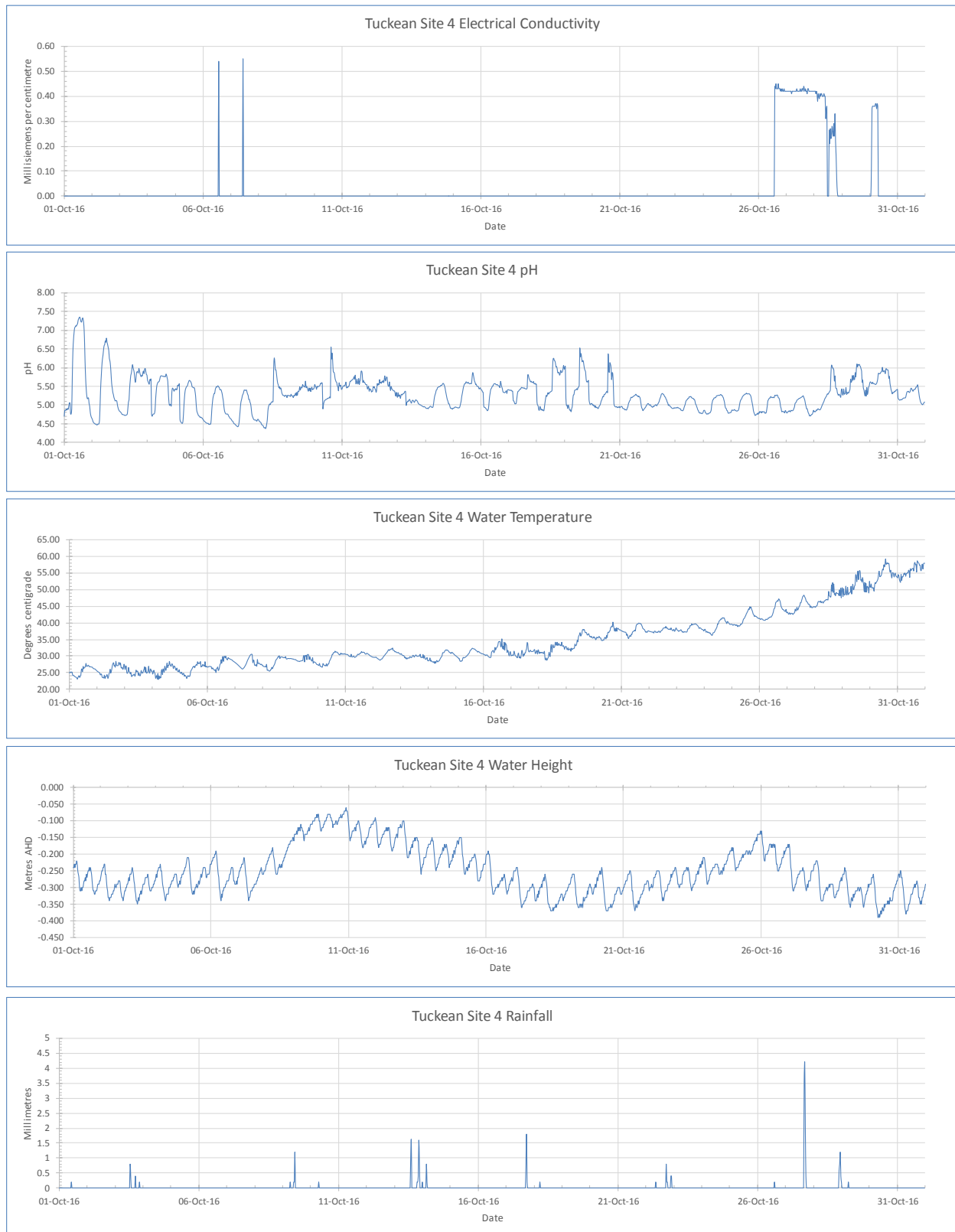


Tuckean site 4 water quality – October 2016

Data logger located in Tuckean Swamp, Northern NSW.



Interpretation

Note – Due to a fault the EC sensor did not record until late October and experienced drop outs while the temperature sensor was well above range. Site 4 is scheduled for an upgrade that should improve reliability.

Electrical conductivity (EC) did not record until late October however dropouts indicate unreliable data. Levels below 1.8 ms/cm indicate fresh water conditions. EC measures the ability of the water to conduct an electric current, which is the inverse of electrical resistance R (expressed in ohms) and is affected by rain and runoff, acid water, tidal brackish water and temperature.

pH was recorded in October between 4.4 and 7.3 with an average of 5.3. Peaks of pH normally occur in late afternoon as plants draw CO_2 from the water, while troughs occur in early mornings as plants respire CO_2 forming carbonic acid. pH is measured on a logarithmic scale, therefore each consecutive whole number below neutral represents 10 times the acidity that the previous number.

Water temperature. Water temperature recorded in October ranging from 23.3 to 58.1 deg C, which is far too high and indicates an equipment fault. Temperature variations are caused by cloud cover affecting solar radiation and air temperature, while rain, degree of shading, and season also affect water temperature.

Water level in October ranged from -0.39 to -0.07 m AHD giving a range of 0.32 m and averaging -0.25m AHD compared to last months -0.28m AHD. This was 23 cm lower than site 2 water level (-0.02 m) and 34cm lower than site 1 (0.09 m). Rainfall, tidal fluctuations, river level, sluice gate opening and to a lesser extent temperature, wind and barometric pressure can all affect the water level.

Rainfall recorded during October at the site 4 data logger was 30.0 mm over 13 days, which compares to the September reading of 24.3 mm over 11 days. Peak daily rainfall of 4.2 mm was recorded between 4:00 pm and 4:30 pm on the 27th October. During October, the Rocky Mouth Creek data logger located 19 km to the SSW recorded 38.8 mm over 12 days, while Ballina AWS located 19 km to the NE recorded 11.4 mm over 9 days.