The following plots describe the data collection efforts and results from the TFS EDC met station during the past year.

Figure 1: While the station uses the solar-battery system only as a backup, the batteries started losing charge due to a faulty regulator on January 29 or so. This got replaced later in the summer. This same model of regulator was part of a bad batch from ABS and has failed on other stations.

Figure 2: The temps at 3m and 5m track closely and the impact of the new sensor at 5 m is illustrated here: the old 5m sensor bottomed out at -40°C in February but the new one measured the 5m temp accurately during the cold snap in December.

Figure 3: A diurnal swing of 5-10°C is common throughout the year at Toolik.
Figure 4: The station was only out of service for maintenance on one day this year: the rest of the record is continuous.

Figure 5

Figure 6: Wind speed at the daily and hourly intervals show a distinct regime shift between summer and winter here. Summer is less windy but varies a lot from hour to hour. Winter shows a stronger prevailing wind that varies on weekly time scales as synoptic systems pass through.
Figure 7: The noise in pressure in May was likely caused by a drop of water in the pressure sensor’s tubing.

Figure 8: Summer shows higher humidity but also higher hour-to-hour variability, like windspeed. Deviations between the two sensors are associated with extreme cold events.

Figure 9: The tipping bucket and Pluvio show good agreement during the summer of 2014. A bird was found in the Pluvio bucket during fall maintenance but the signal was filtered out by the sensor itself, as it was when the antifreeze was refilled.
Figure 10: The incoming solar radiation shows the same kind of hysteresis as in 2013.

Figure 11: One of the most notable changes is the change in upwelling shortwave radiation (captured by the downward looking sensor) at the end of snow season and again at snow onset.

Figure 12: The UV sensor was unfortunately inadvertently unplugged for part of May and June.
Figure 13: Of course considerably more PAR goes through the atmosphere than penetrates the lake.

Figure 14: The underwater Quantum sensor is a good way to quantify the ice-free season on the lake.