**Notes on data files from ESRL’s instrumentation.**

**Stratus 14 cruise on Cabo de Hornos, April 2015.**

Sergio Pezoa mounted the met tower on the bow O2 deck and radiometers on O3 deck, before departure from Valparaiso on April 16. Sergio brought down tower after recovery of Stratus 13 buoy on April 24. During transit, Sergio had to replace sonic wind sensor on top of his tower, which had been damaged, most probably by a bird. Sergio replaced this sensor with his spare sonic sensor. During intercomparison, an apparent offset of between 30 to 40 degrees in wind direction between ESRL and buoy/ship brought up the possibility that the spare sonic had a different setting for its reference heading (spar vs transducer).

there are pictures of ESRL’s installation if necessary (see for examples Sebastien’s pictures).

Instrumentation:

Sonic, RH/ATMP, Licor, motion package on tower.

Radiometers SWR, LWR Eppleys on platform on O3 deck (one deck below wheelhouse), next to railing on starboard side (possible shade from wheelhouse at times).

Seasnake for SST.

Instrument heights for ESRL instrumentation:

Sonic 16.1 m Above Sea Level

RH/ATMP 15.6 m ASL

Other heights for comparison: Back deck ~ 3 m ASL, Vaisala met station (on mast above wheelhouse) ~ 24.5 m ASL. Most ASIMET instruments on WHOI buoys are between 3.2 and 3.5 m ASL.

Periods of intercomparison with buoys:

Stratus 14: April 21 21:00 UTC to April 22 20:00 UTC

Ship sails away from buoy for CTD cast (~ 2 hrs) on April 22 13:00 UTC.

Stratus 13: April 22 22:00 UTC to April 24 12:00 UTC

Ship sails away from buoy for CTD cast (~ 2 hrs) on April 23 13:00 UTC.

Ship sails away from buoy for engine’s filter maintenance on April 23 from 22 to 23 UTC.

Note that night watch did not always maintain position with bow into wind and downwind of buoy.

Data processing:

Nan accessed Sergio’s laptop through local network and grabbed his data to produce Matlab files called esrl.mat, esrlflux.mat (1 –minute data) and esrlflux30.mat. Data variables in these files are stored in structure arrays. After intercomparison period, Sergio reprocessed his wind data to take into account a 30 degree offset. Nan produced a new file called swnd.mat, which has this new corrected wind. esrl.mat, esrlflux.mat and esrlflux30.mat are unchanged.

However, quick look at intercomparison data (using swnd.mat) showed this correction produced negative effects on ESRL’s wind speed and direction when compared to buoy/ship sensors. Sergio advises to wait for post-processing to be done at Boulder so that correction is consistently applied in software.

Buoy data is based on telemetry and contains hourly averages. Telemetry was picked up with Alpha Omega receiver while at sea with no Internet connection. UOP website may contain more data if necessary, obtained from satellite transmissions.