



Sonic Minimet Drifter Deployments

April and August 2009

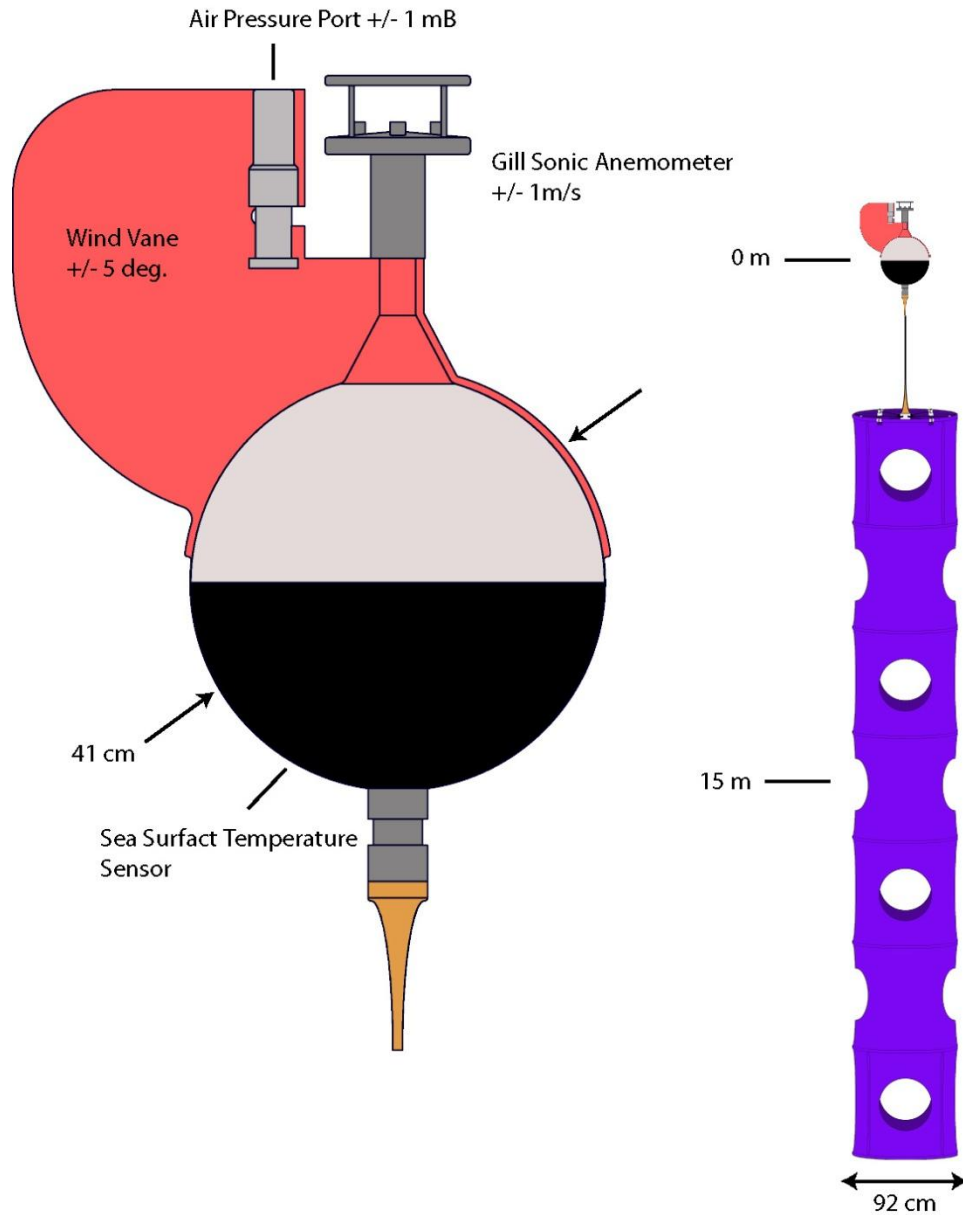
DBCP XVIII, Paris, France

Andy Sybrandy, Pacific Gyre Inc.

Pearn P. Niiler, SIO

Jan Morzel, Rosetta Consulting

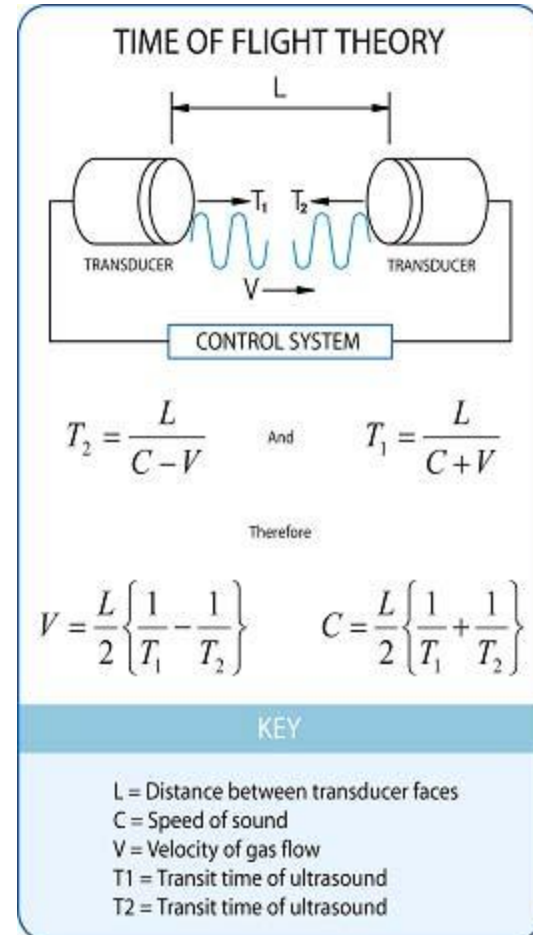
Sonic Minimet Drifter



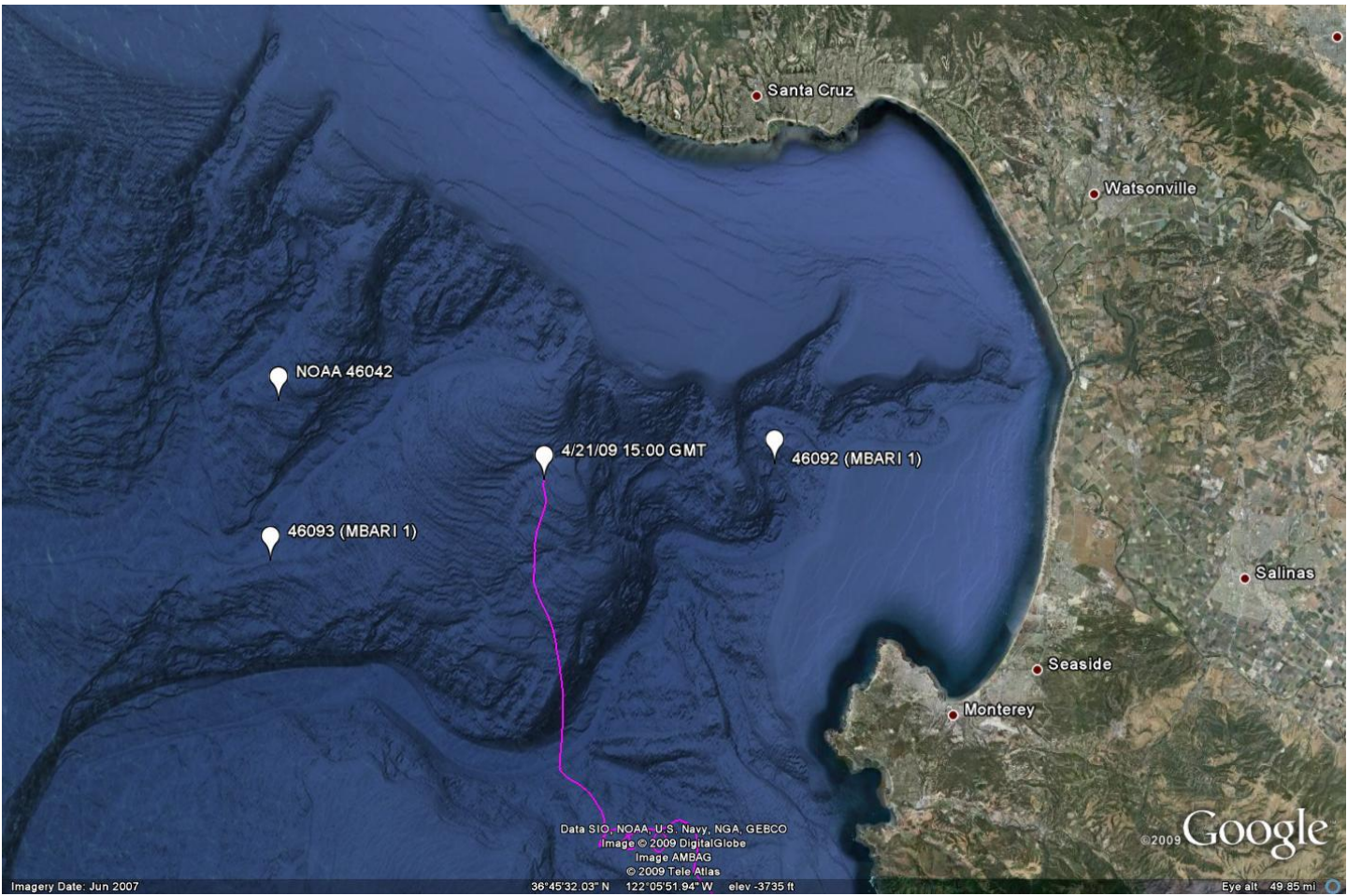
Gill Ultrasonic Anemometer



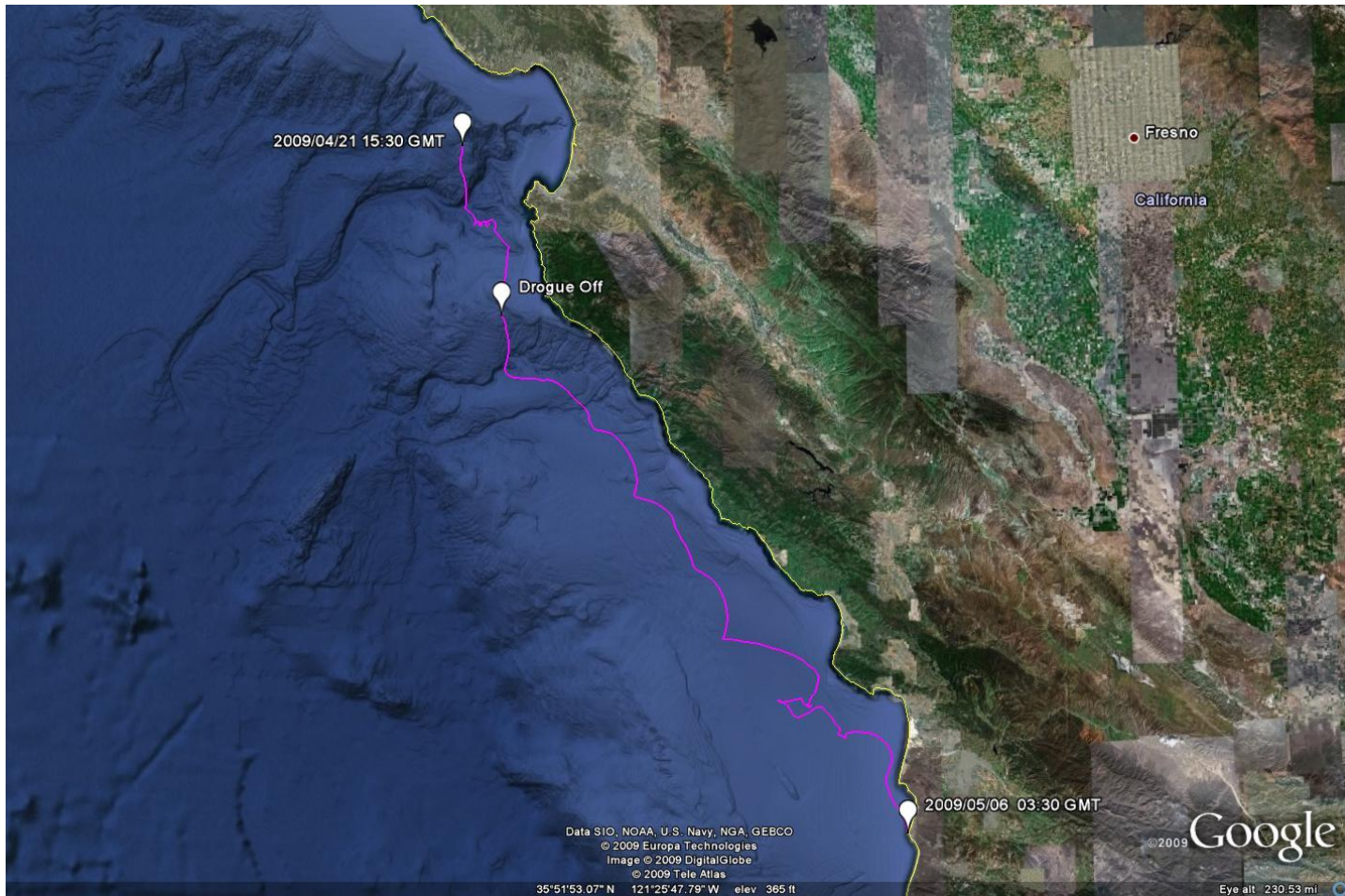
- 2-axis ultrasonic wind sensor
- 0-60m/s wind speed
- 0-359° wind direction range



April 2009 Deployment Site



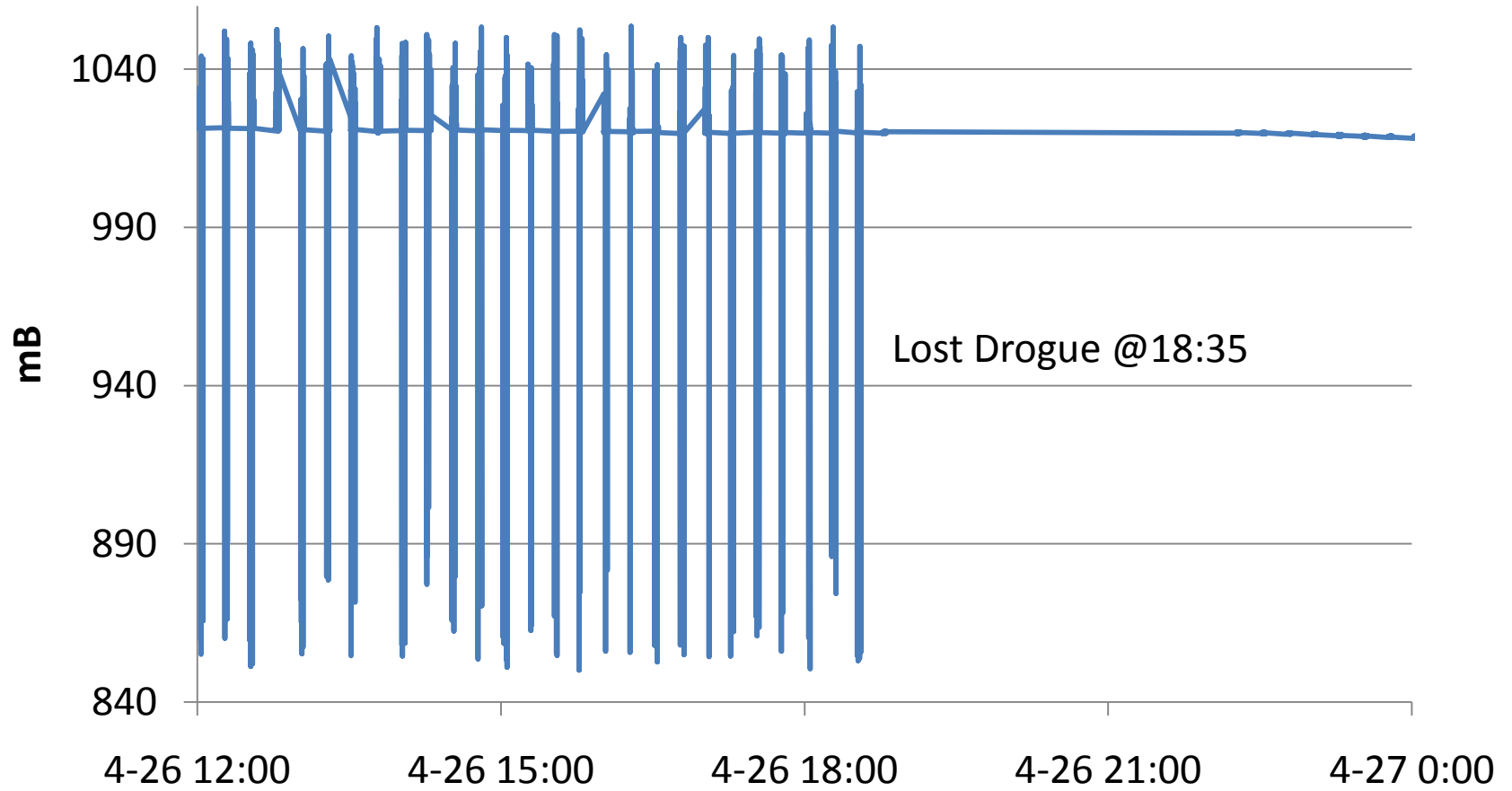
April 2009 Drifter Track

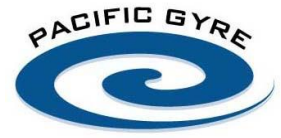


Stressed Tether



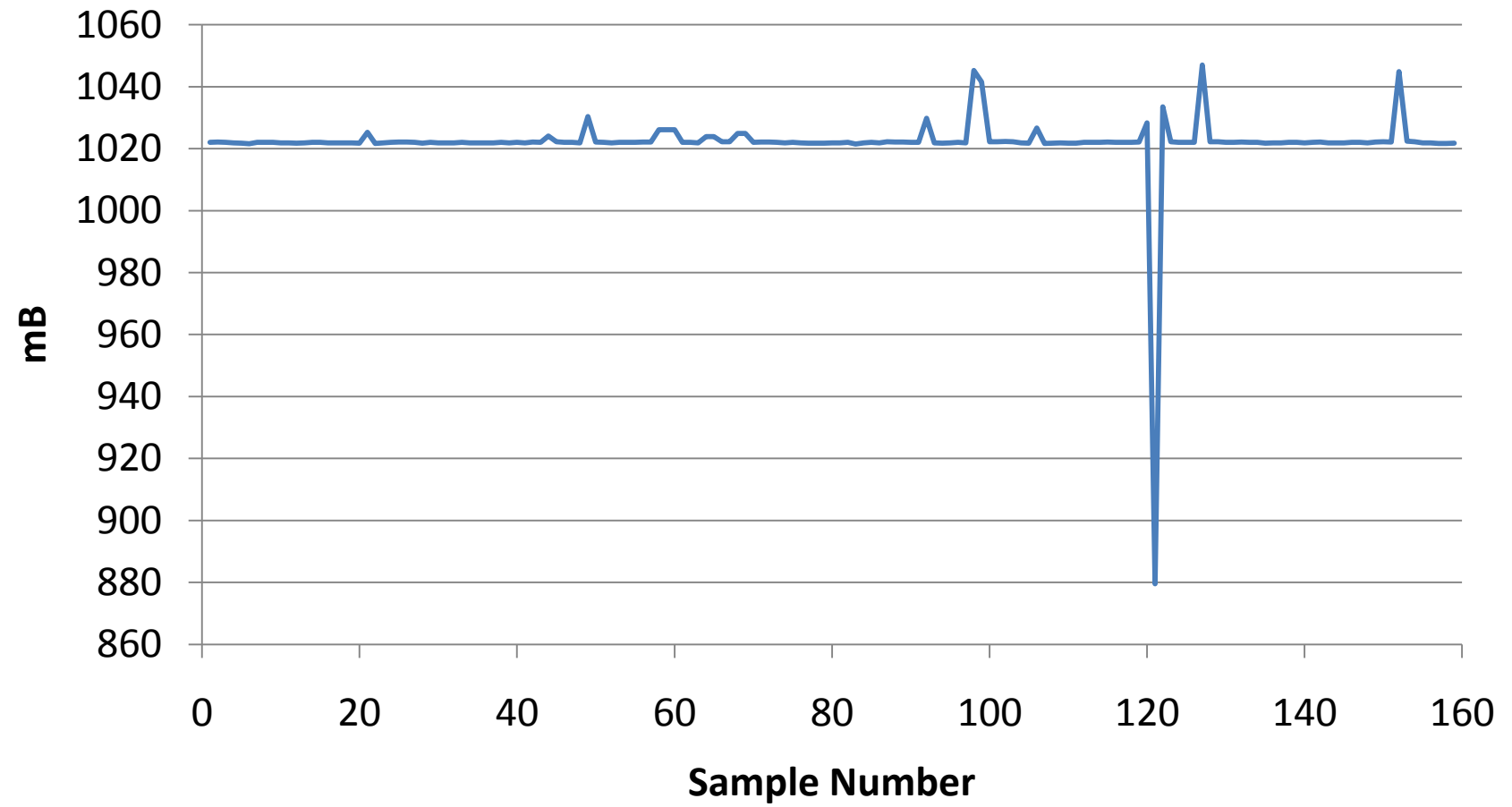
AP Data





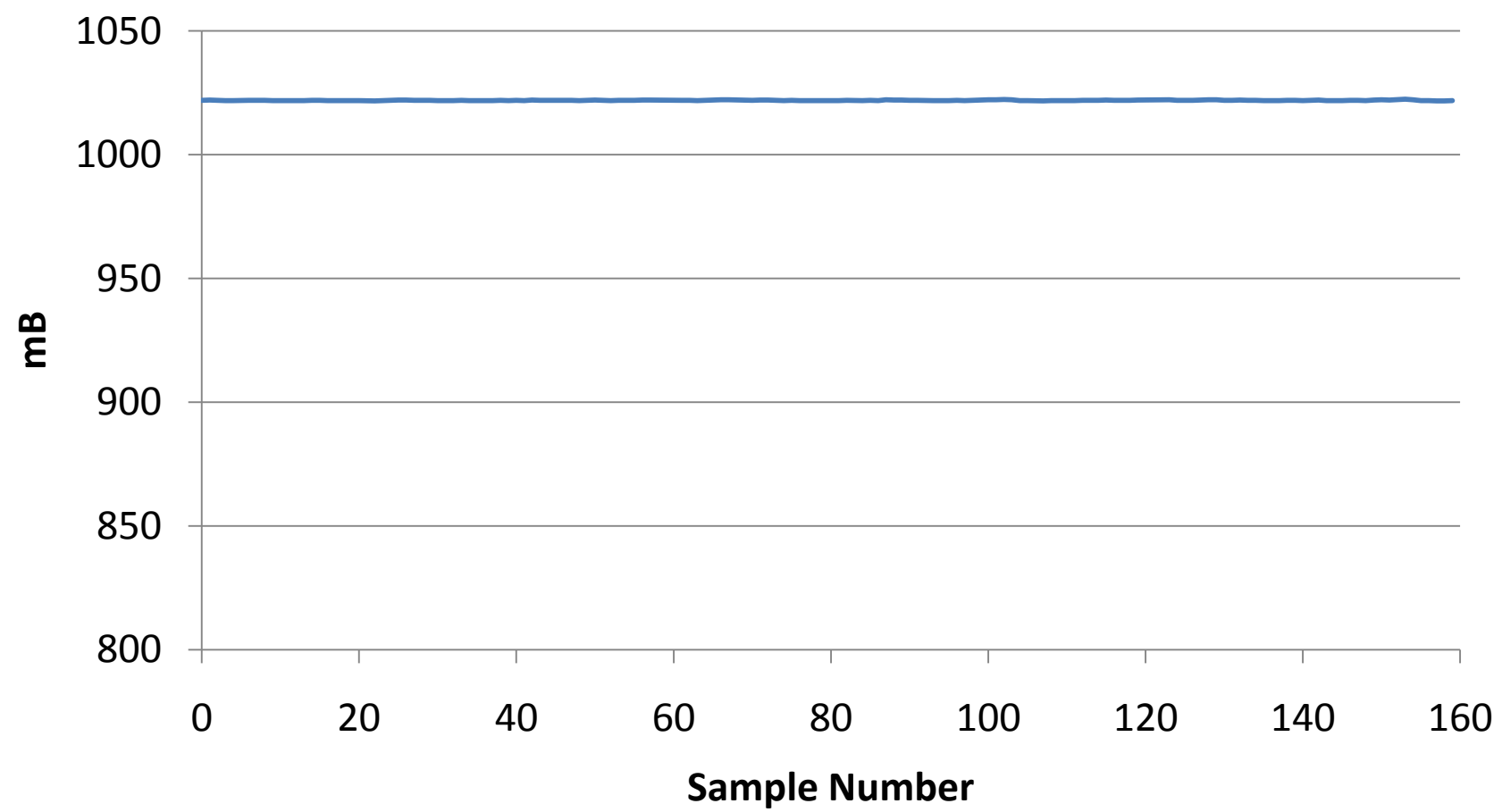
Single Raw AP Data Set

Sampled during storm before drogue parted



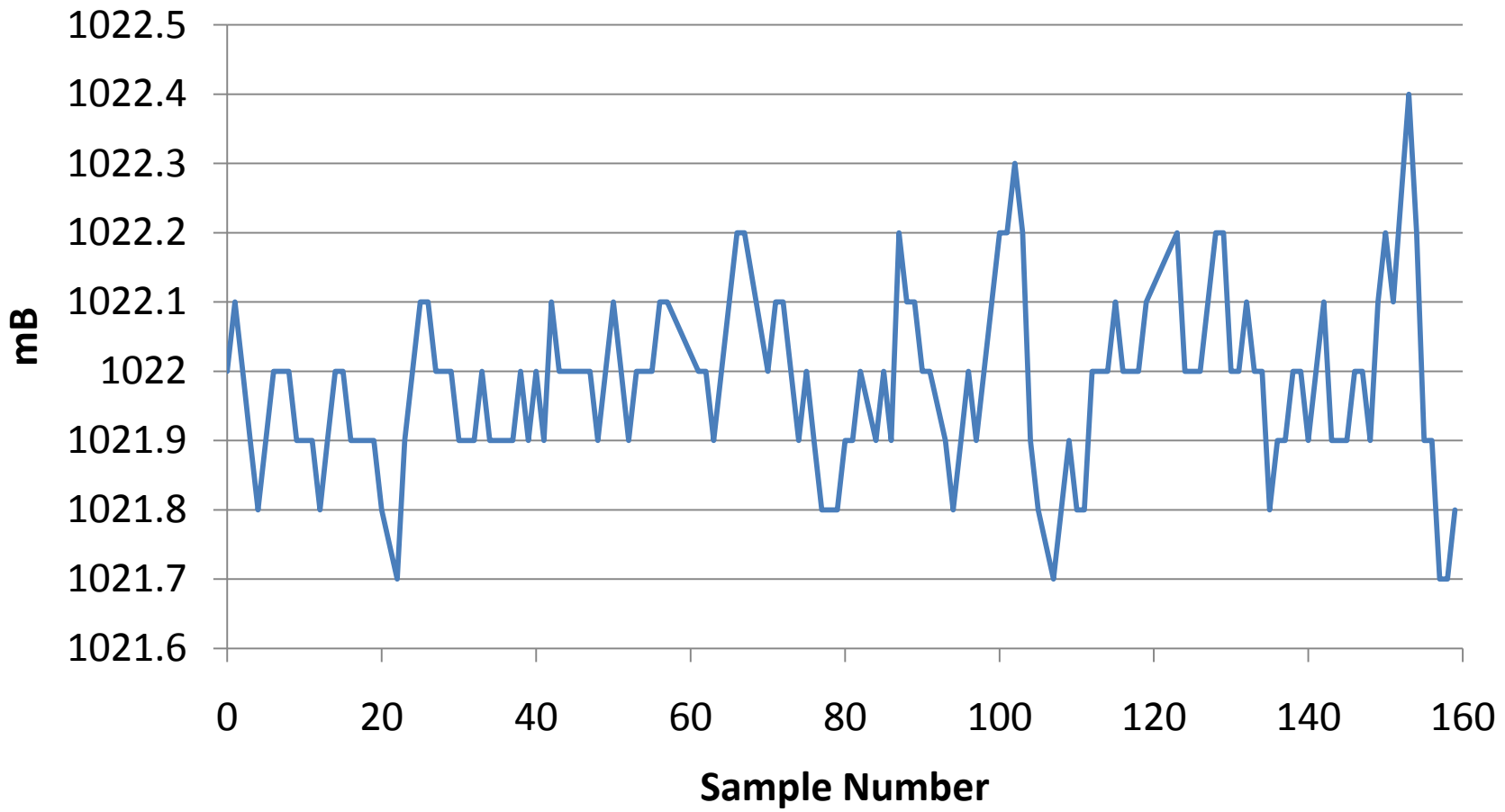


De-spiked AP Data

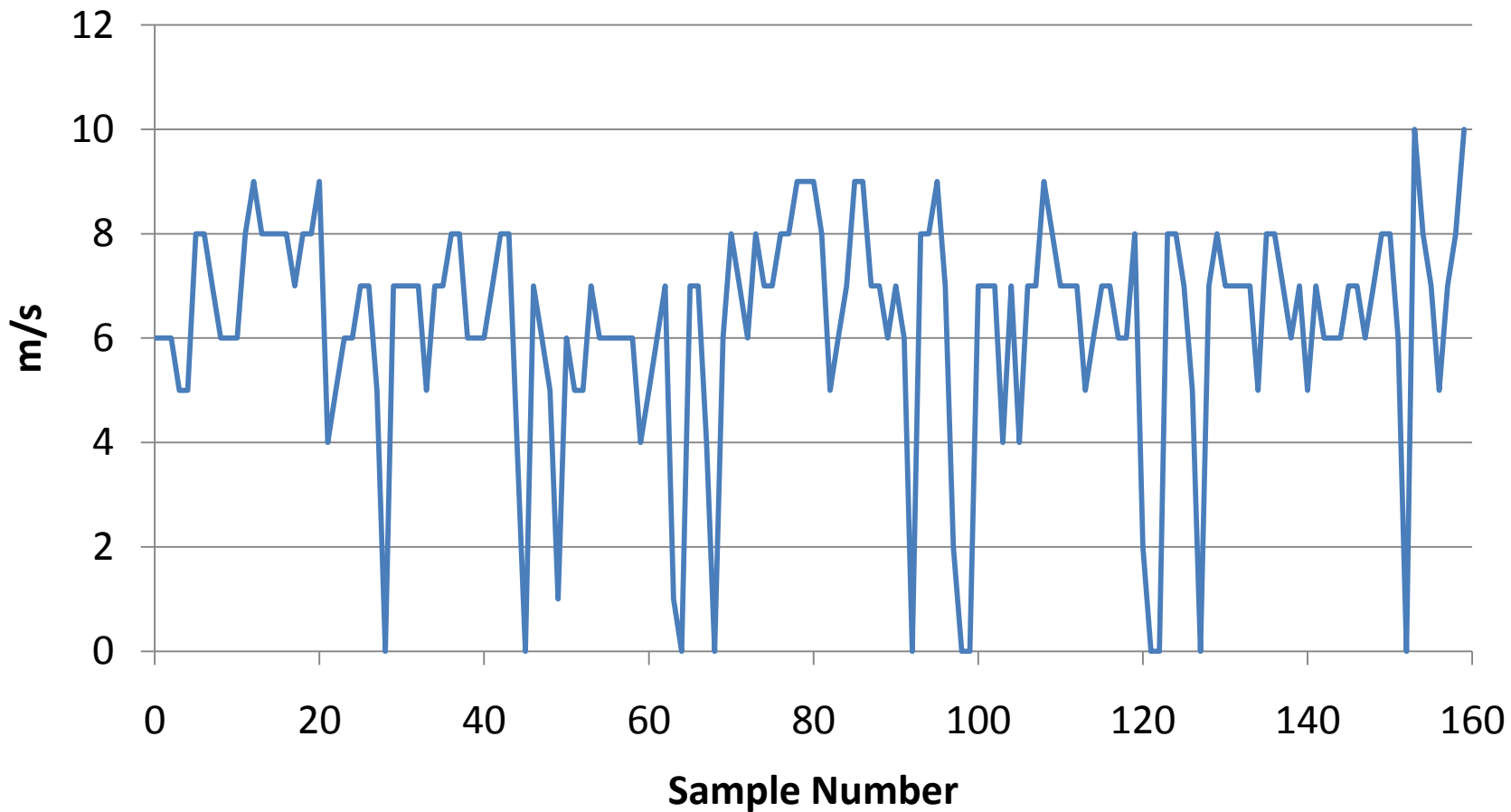




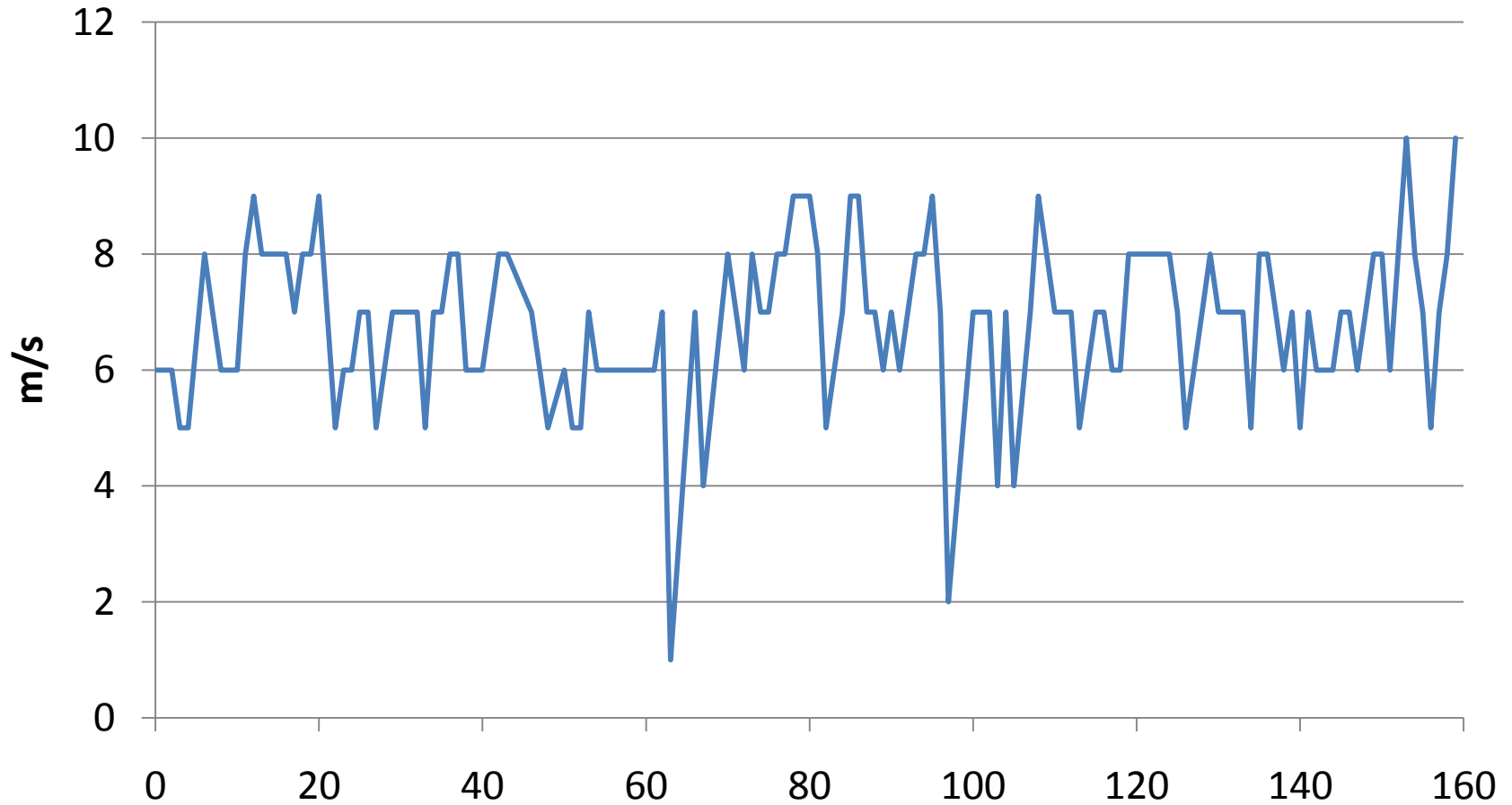
De-spiked AP Data



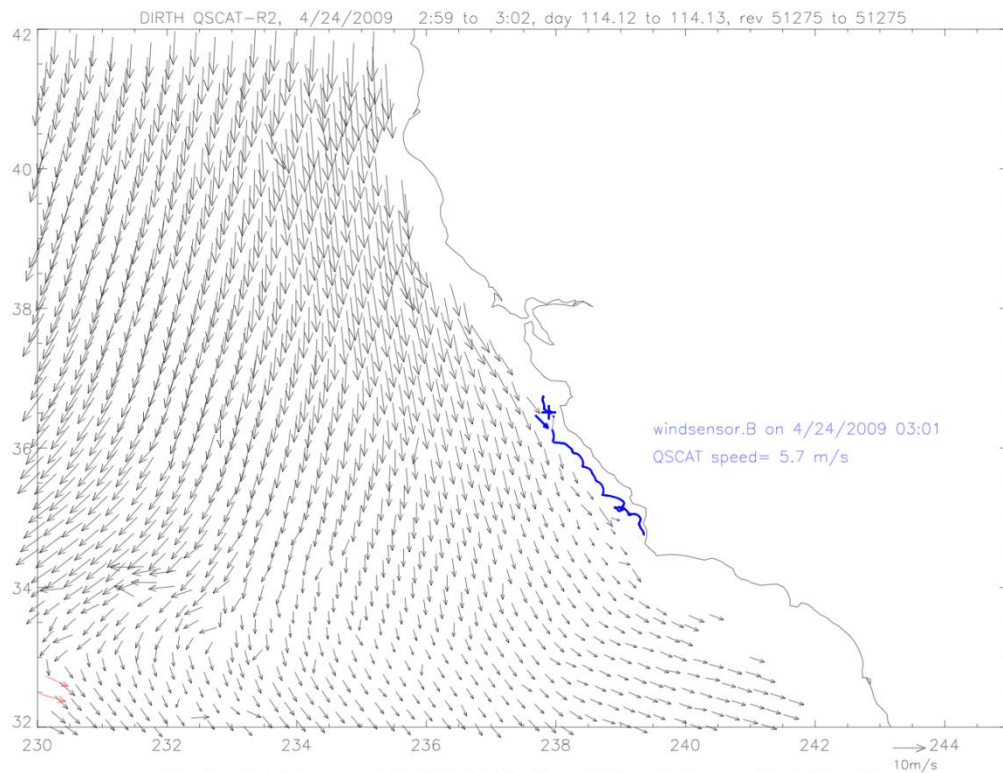
Raw Wind Speed



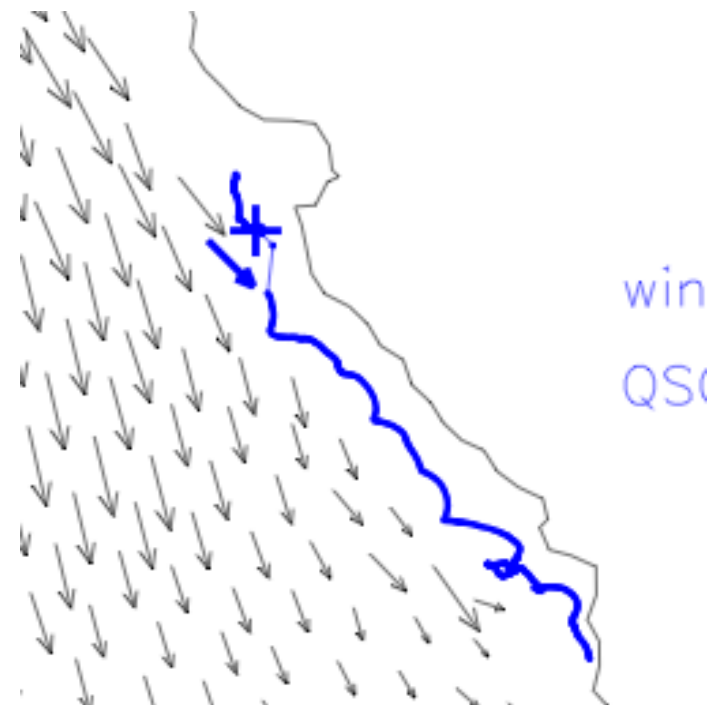
De-spiked Wind Speed



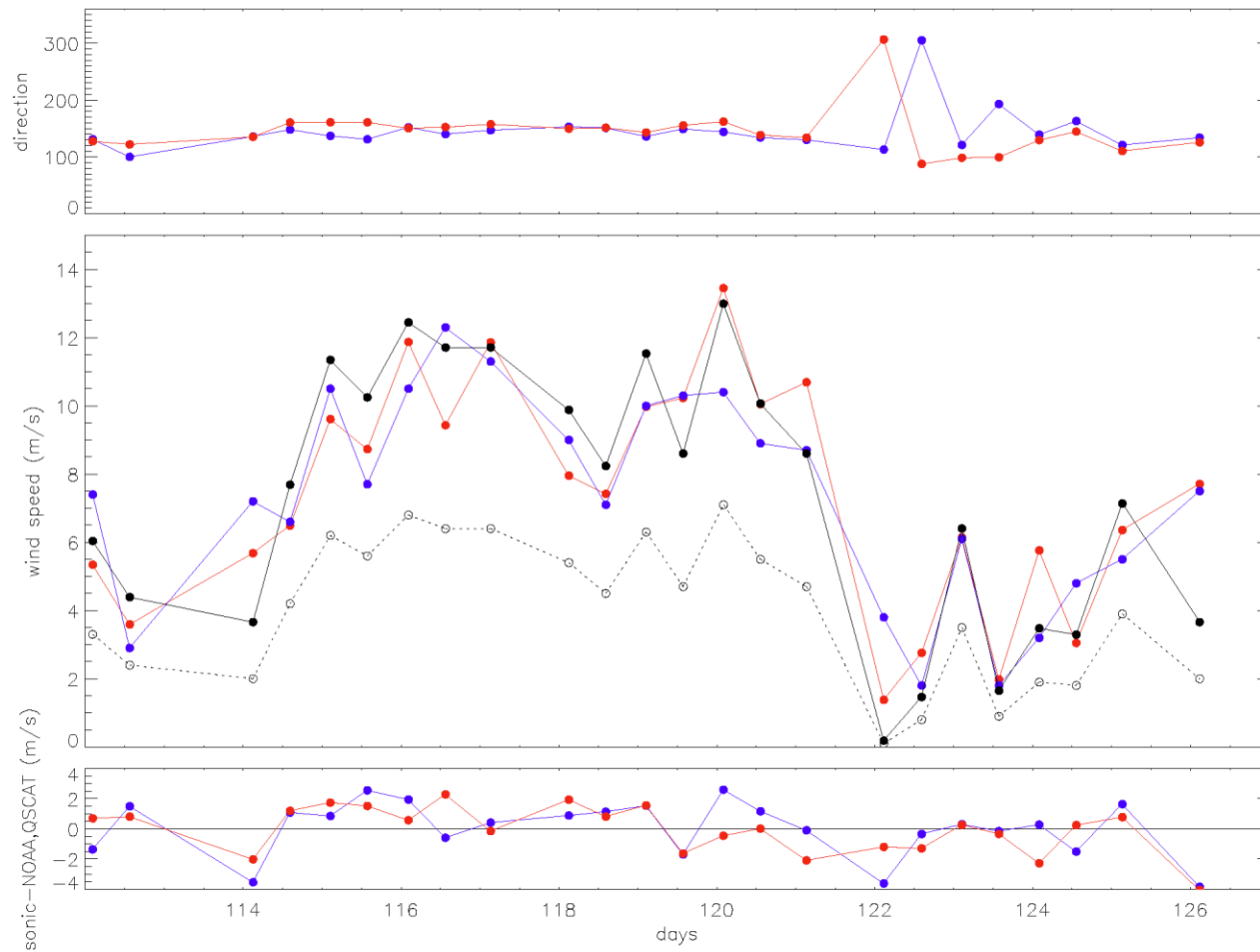
April 2009 QSCAT Swath



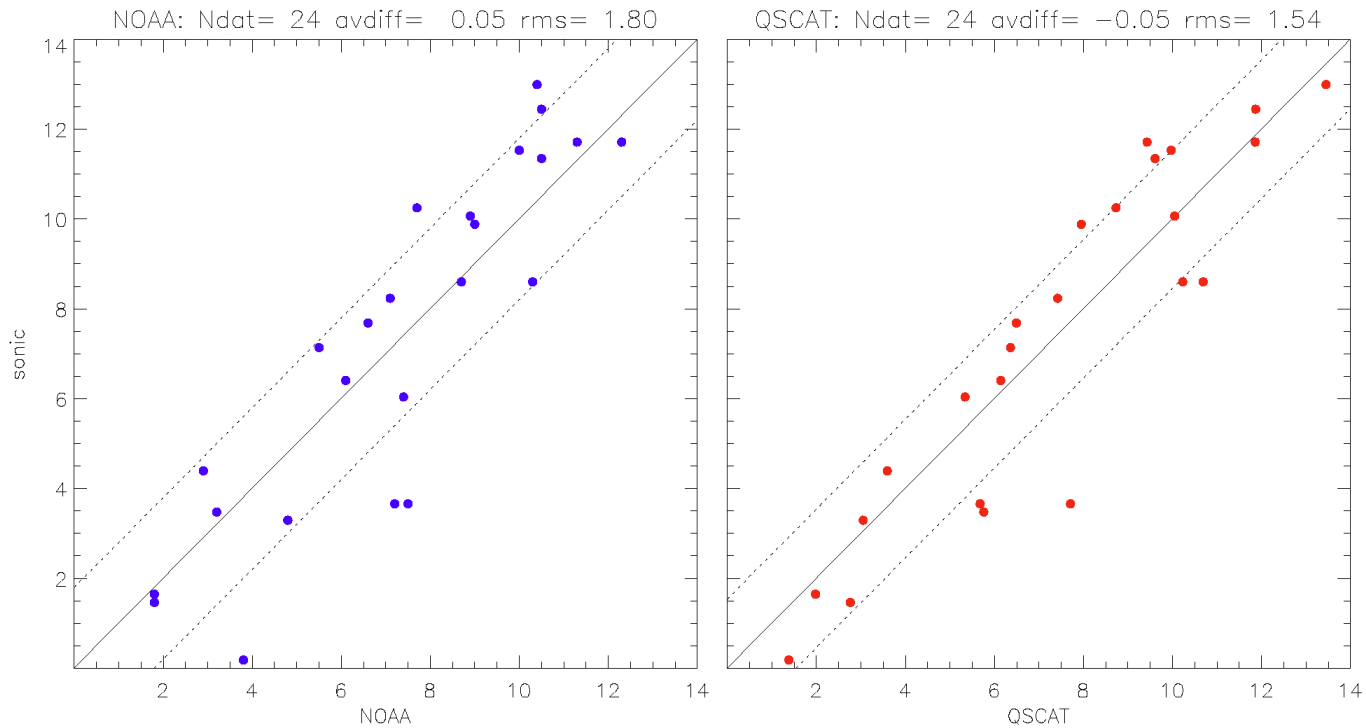
Nplot= 1234, from Rev 51275 to 51275, Nrev= 1, Speed min,max= 2.0, 17.7 m/s
N(rain,red)= 2



April 2009 Time Series



April 2009 Scatter Plots





Wind Speed Altitude Adjustment

$$\frac{u_2}{u_1} = \left(\frac{z_2}{z_1} \right)^{0.11} \quad (1)$$

April 2009 Adjustment to QSCAT:

1.83

$$7cm \leq z_2 \leq 50cm$$

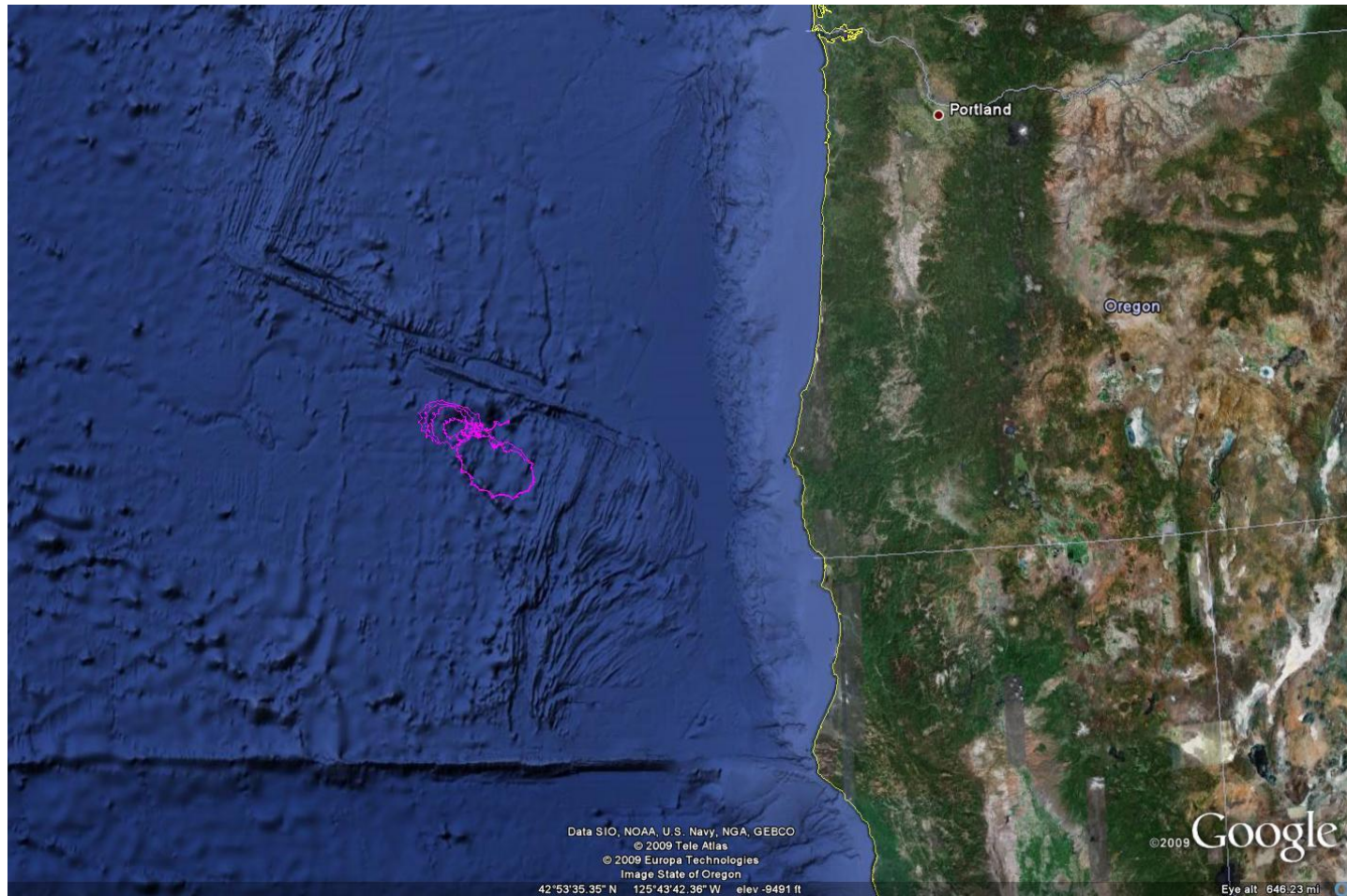
$$z_1 = 1000cm$$

$$7cm \Rightarrow 1.72$$

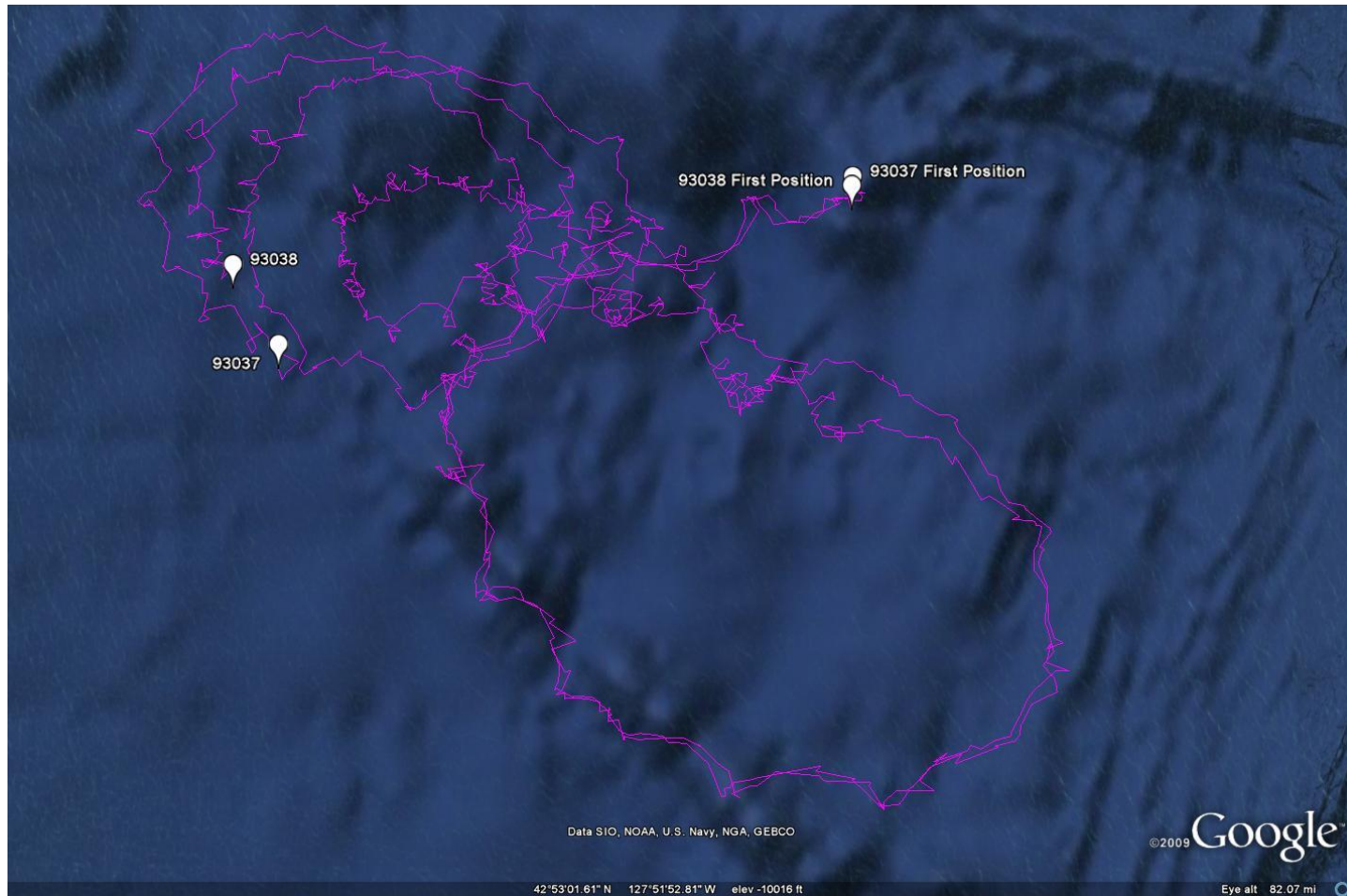
$$50cm \Rightarrow 1.39$$

(1) Hsu, S. A., E. A. Meindl, and D. B. Gilhousen, 1994: Determining the power-law wind-profile exponent under near neutral stability conditions at sea. *J. Appl. Meteor.*, **33**, 757-765.

August 2009 Deployments

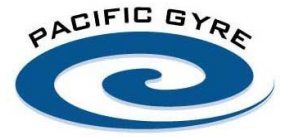


August 2009 Drifters Tracks

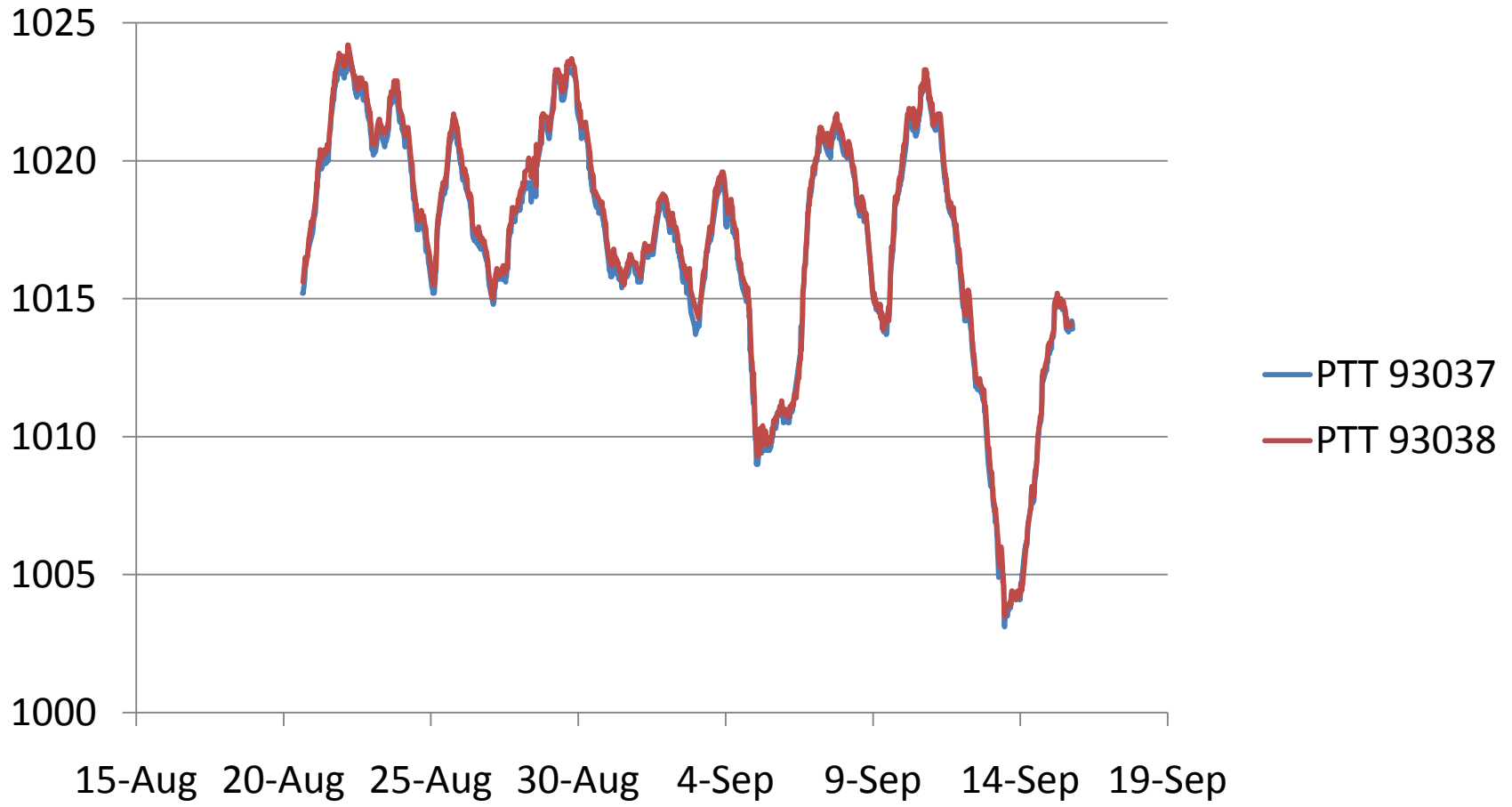


New Barometer Port



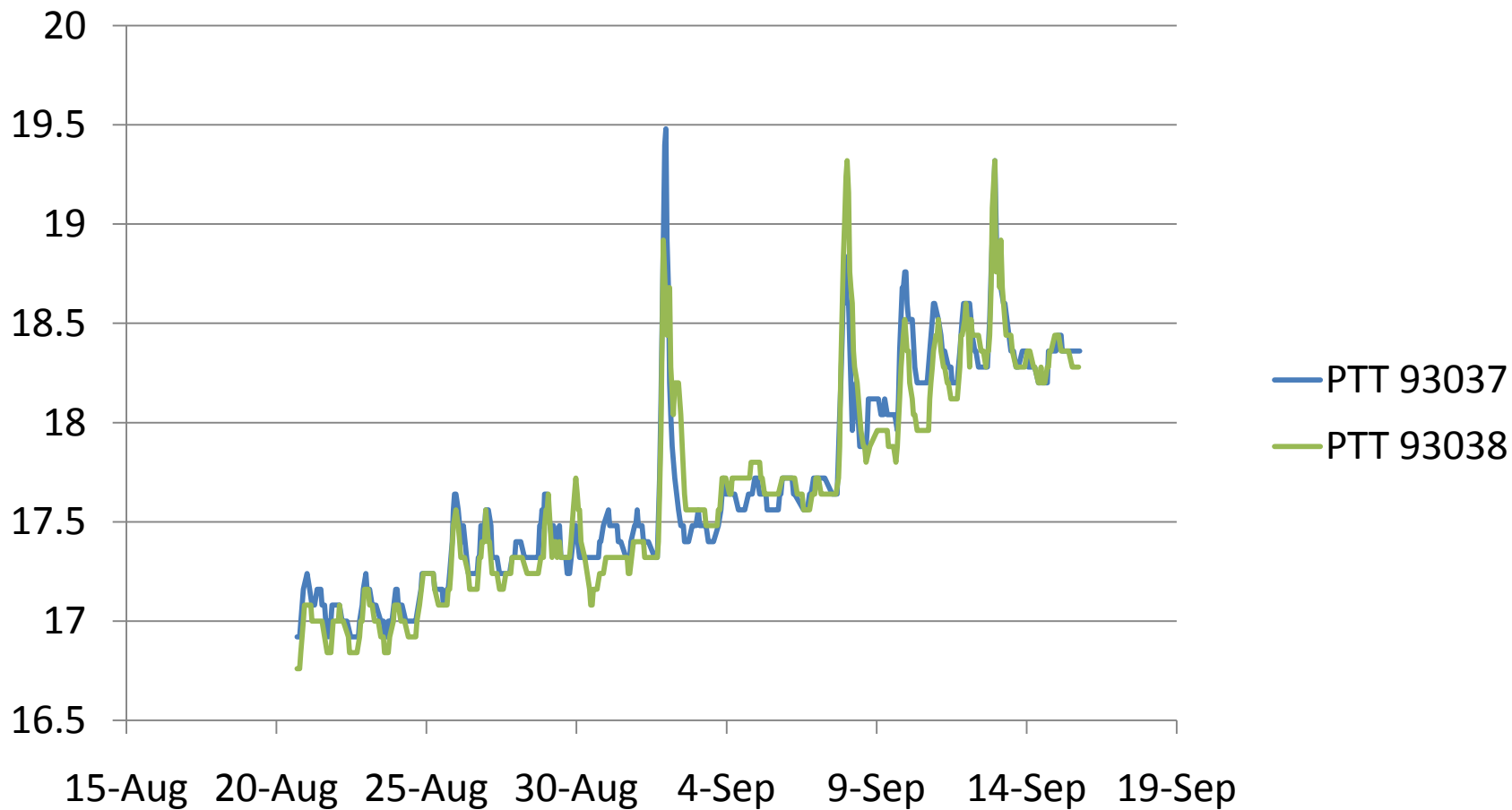


AP Time Series

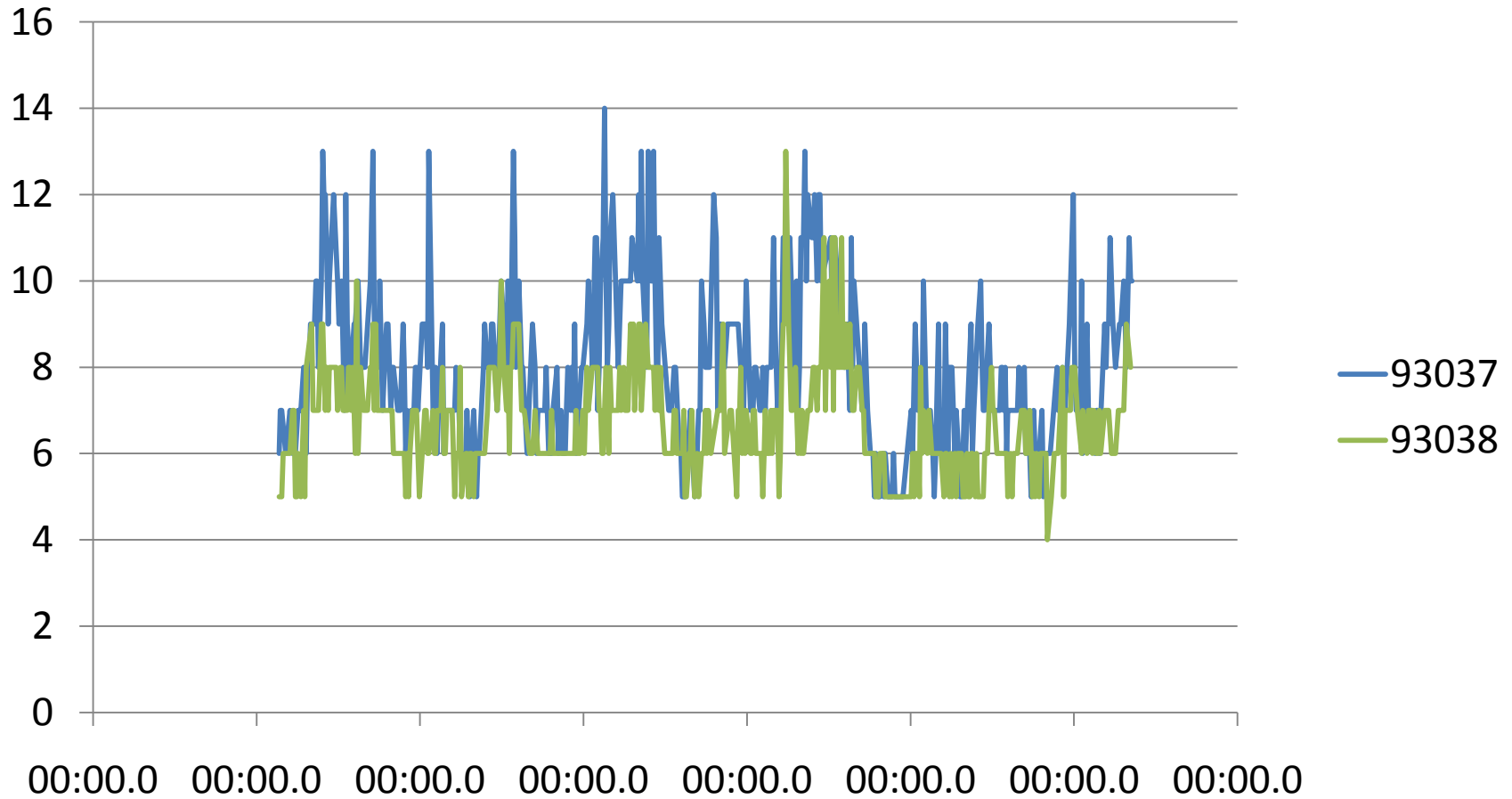




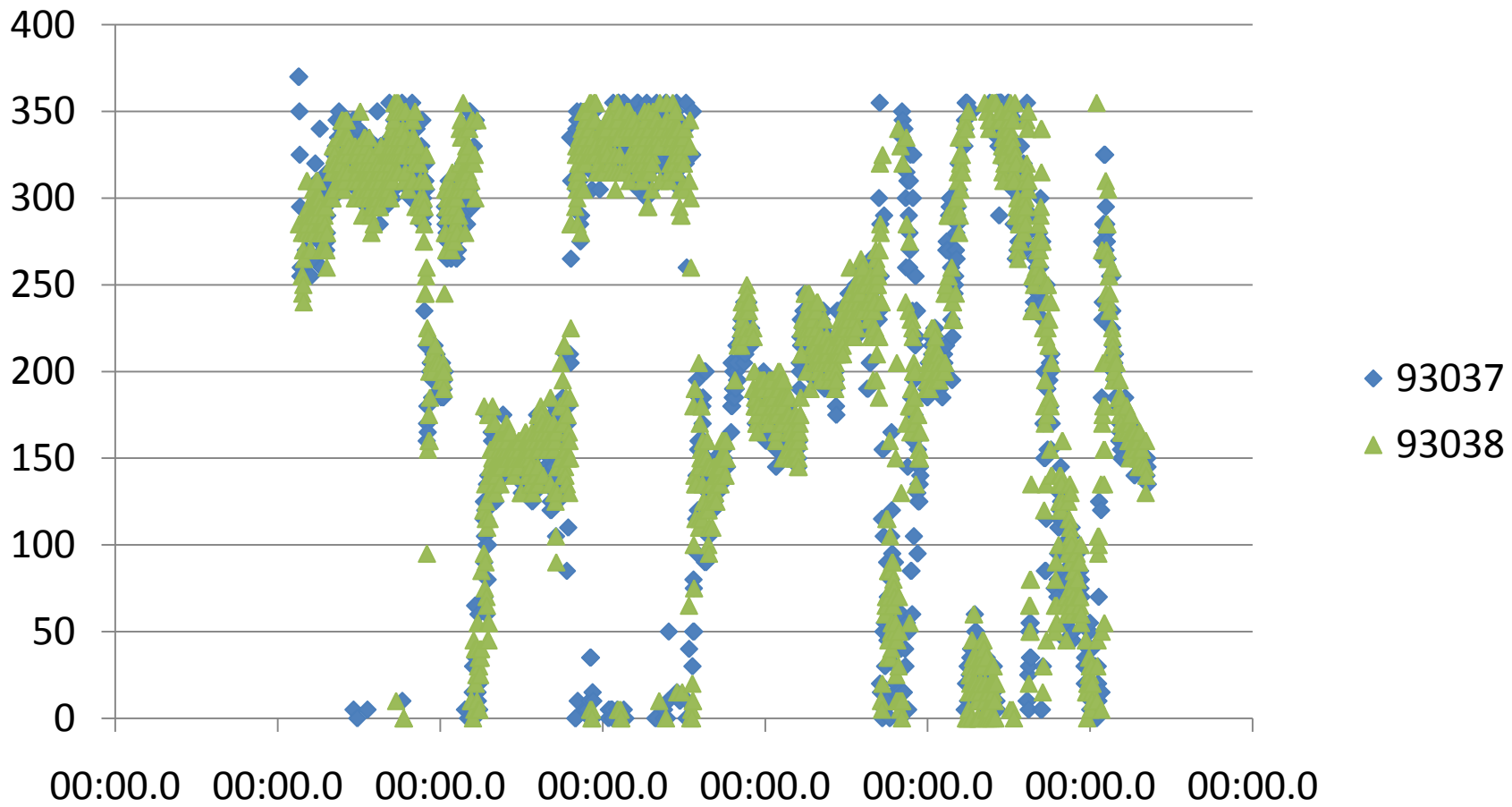
SST Time Series



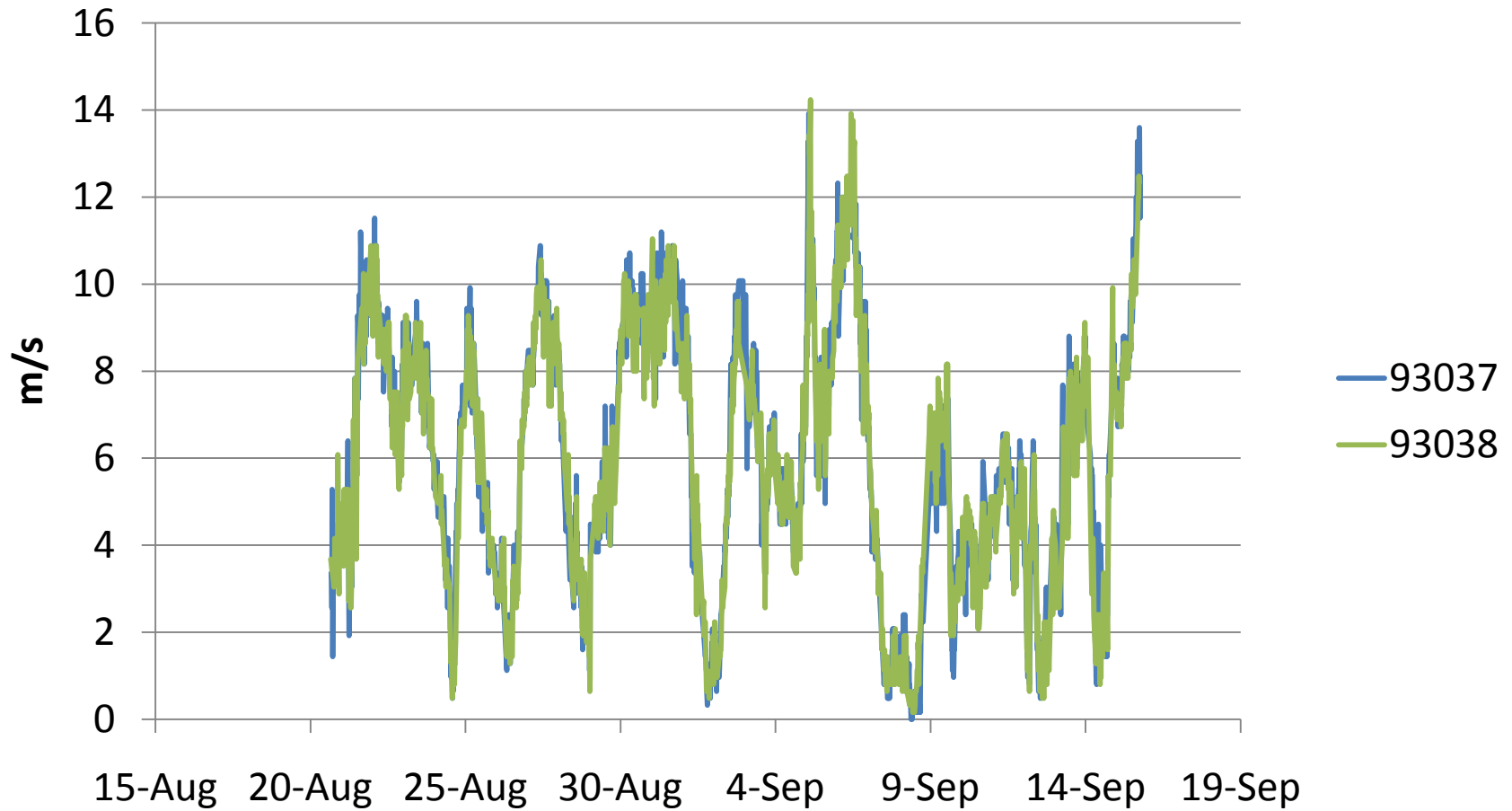
Strain Gauge Time Series



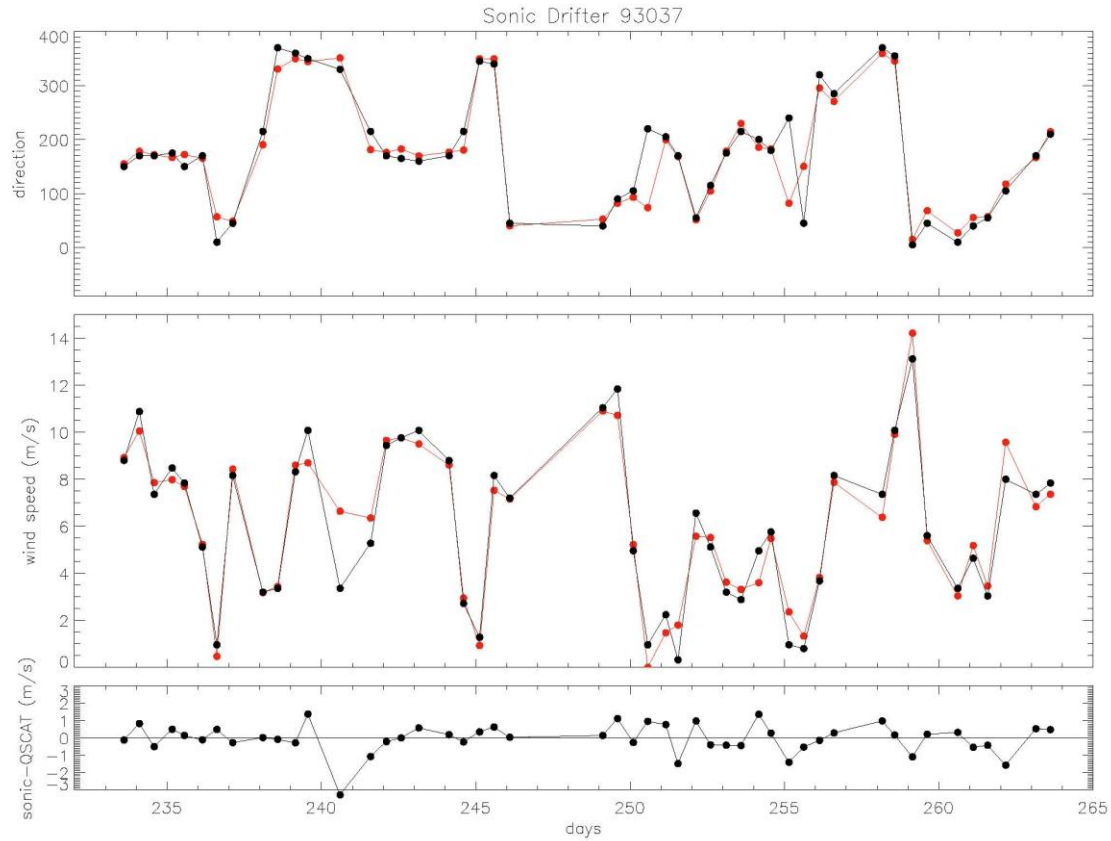
Wind Direction Time Series



Wind Speed Time Series

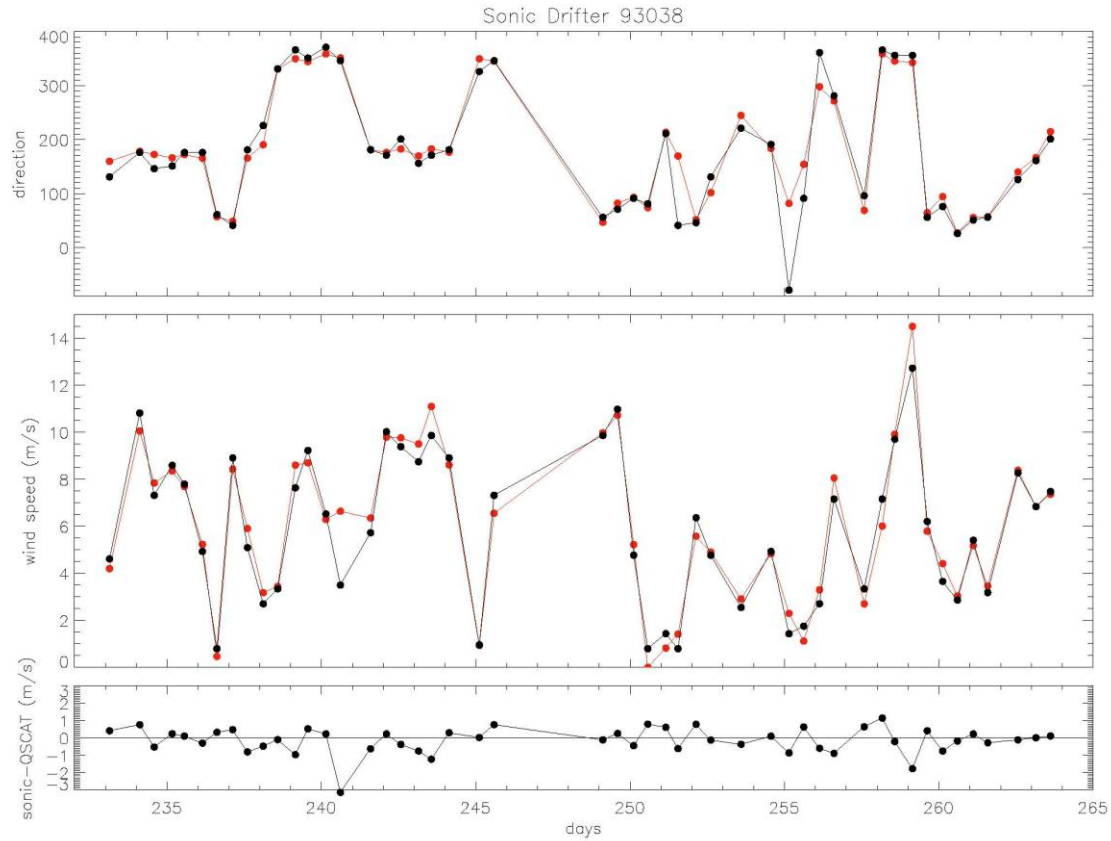


QSCAT/Drifter Time Series



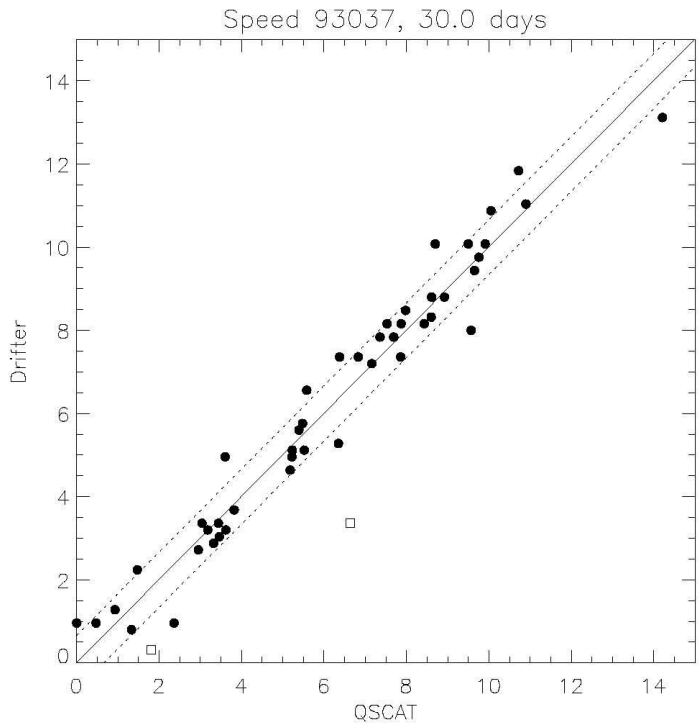
Drifter 93037

QSCAT/Drifter Time Series

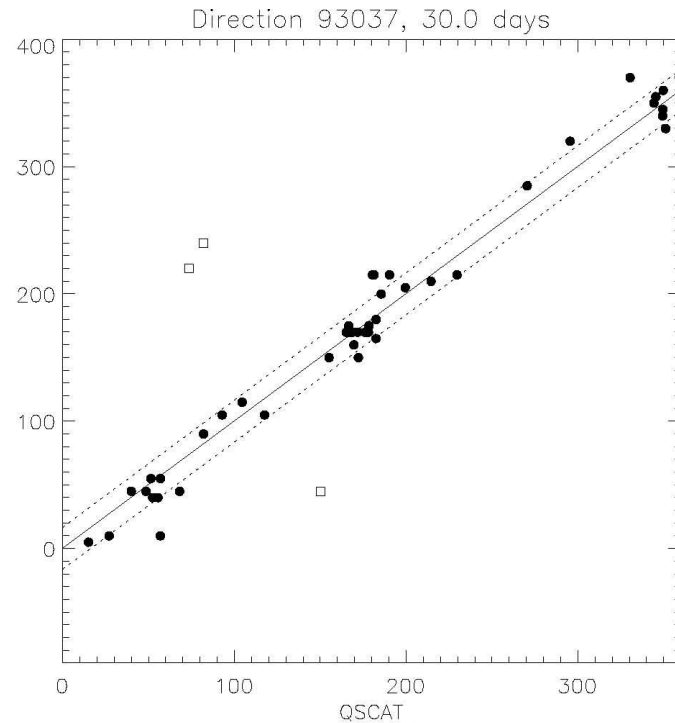


Drifter 93038

Scatter Plot, PTT 93037

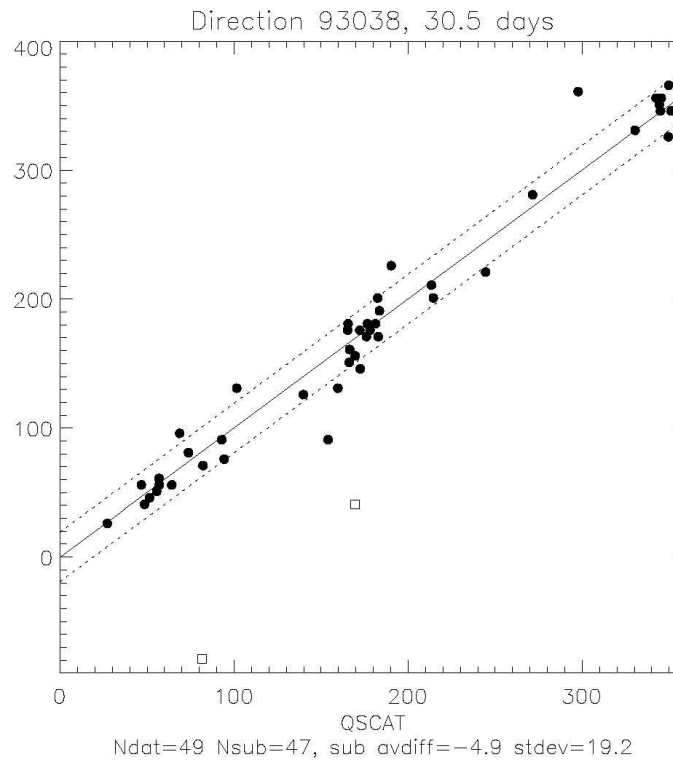
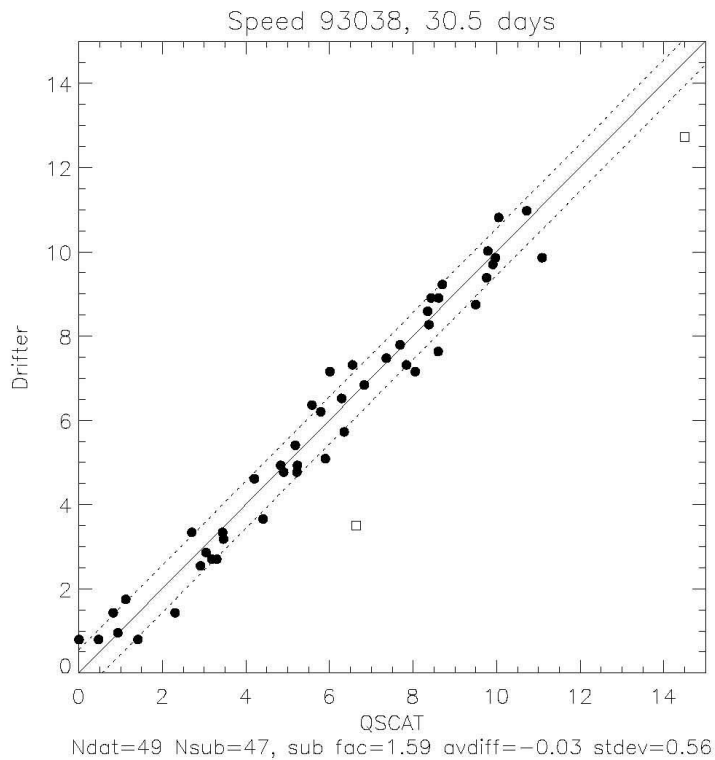


Ndat=48 Nsub=46, sub fac=1.60 avdiff= 0.08 stdev=0.66



Ndat=48 Nsub=45, sub avdiff=-8.9 stdev=16.5

Scatter Plot, PTT 93038





<http://tao-tc.ucsd.edu/drifters.sonic.html>