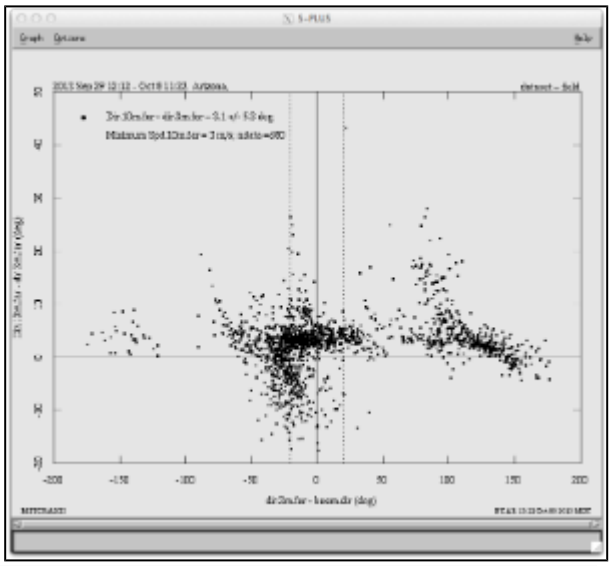
10m wind direction at FAR and FLR

10/8, twh

Compared 2D sonic 10m wind directions to 3m sonic in order to orient 2D sonics. Only used winds from +/- 20 degrees from CSAT u axis and 10m wind speeds > 3 m/s (at FAR);
2 m/s at FLR. Could recalculate this at the end of the project, but likely will not change much. Used function dir.diff in project S directory.

At FAR, selected the median value of Dir.10m + 230.1 - dir.3m = 3.1 +/- 5.3 degrees. See attached plot. The 2D sonic is aligned with the boom, so need to add the boom direction, 230.1, minus the offset of 3.1 degrees, or 227 degrees to the 2D wind direction data.

10/30, I recalculated the offset using data from Sept 30 through 12:00 Oct 30 and set the minimum speed equal to 10 m/s. The result is Dir.10m - dir.3m = 0.2 +/- 0.8 degree, so need to subtract another 0.2 degrees or add 226.8 degrees to the 2D wind direction data.



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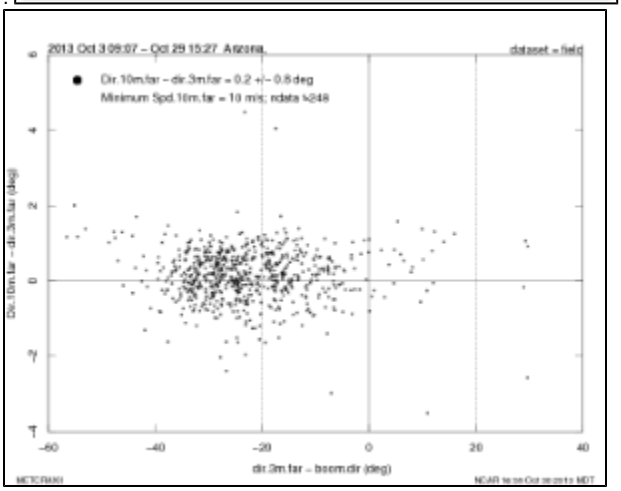
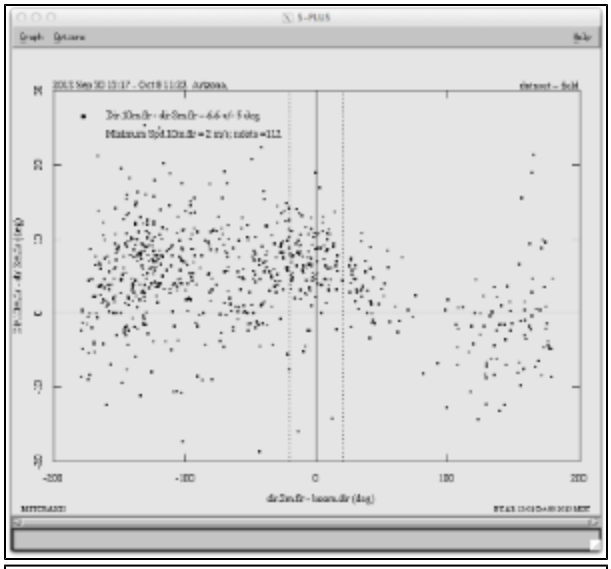
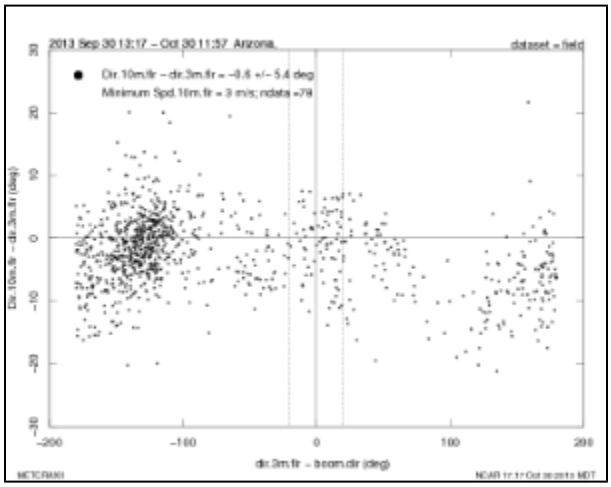


10/8, At FLR, the 2D sonic was pointed nominally north, but must be off by 180 degrees. The median value of Dir.10m + 180 - dir.3m = 6.6 +/- 5 deg. Thus need to add 180 - 6.6 = 173.4 deg to 2D wind direction data.

10/30, I recalculated the offset using data from Sept 30 through 12:00 Oct 30 and set the minimum speed equal to 3 m/s. The result is Dir.10m - dir.3m = -0.6 +/- 5.4 degree, so need to add another 0.6 degrees or add 174 degrees to the 2D wind direction data.




2013 Sep 30 13:17 – Oct 30 11:57 Arizona
dataset = field
Dir.10m.flr – dir.3m.flr = –0.6 +/– 5.4 deg
Minimum Spd.10m.flr = 3 m/s; ndata =79
dir.10m.flr – dir.3m.flr (deg)
dir.3m.flr – beam.dir (deg)
–200
–100
0
100
200
30
20
10
0
–10
–20
–30