S-Pol Radar Deployment

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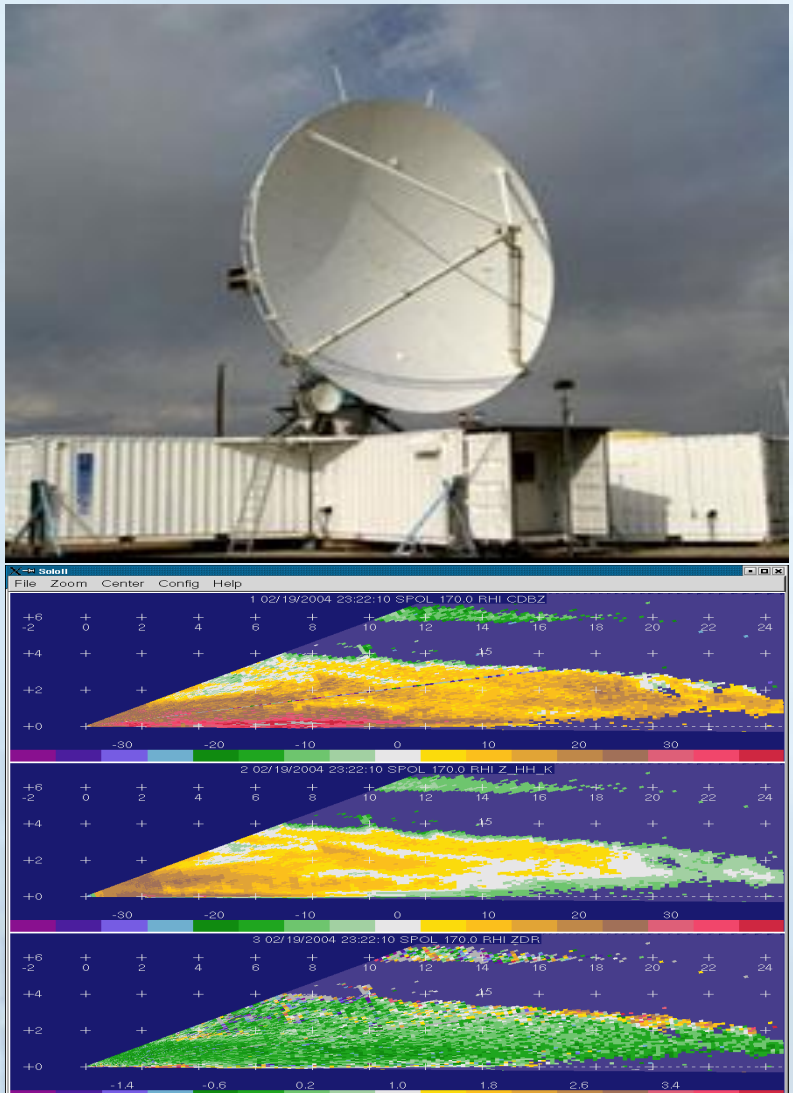


I. Tentative schedule
II. Measurements
III. System upgrades

S-Polka radar system at the Marshall field site near Boulder during WISP04 project.

Tentative Schedule

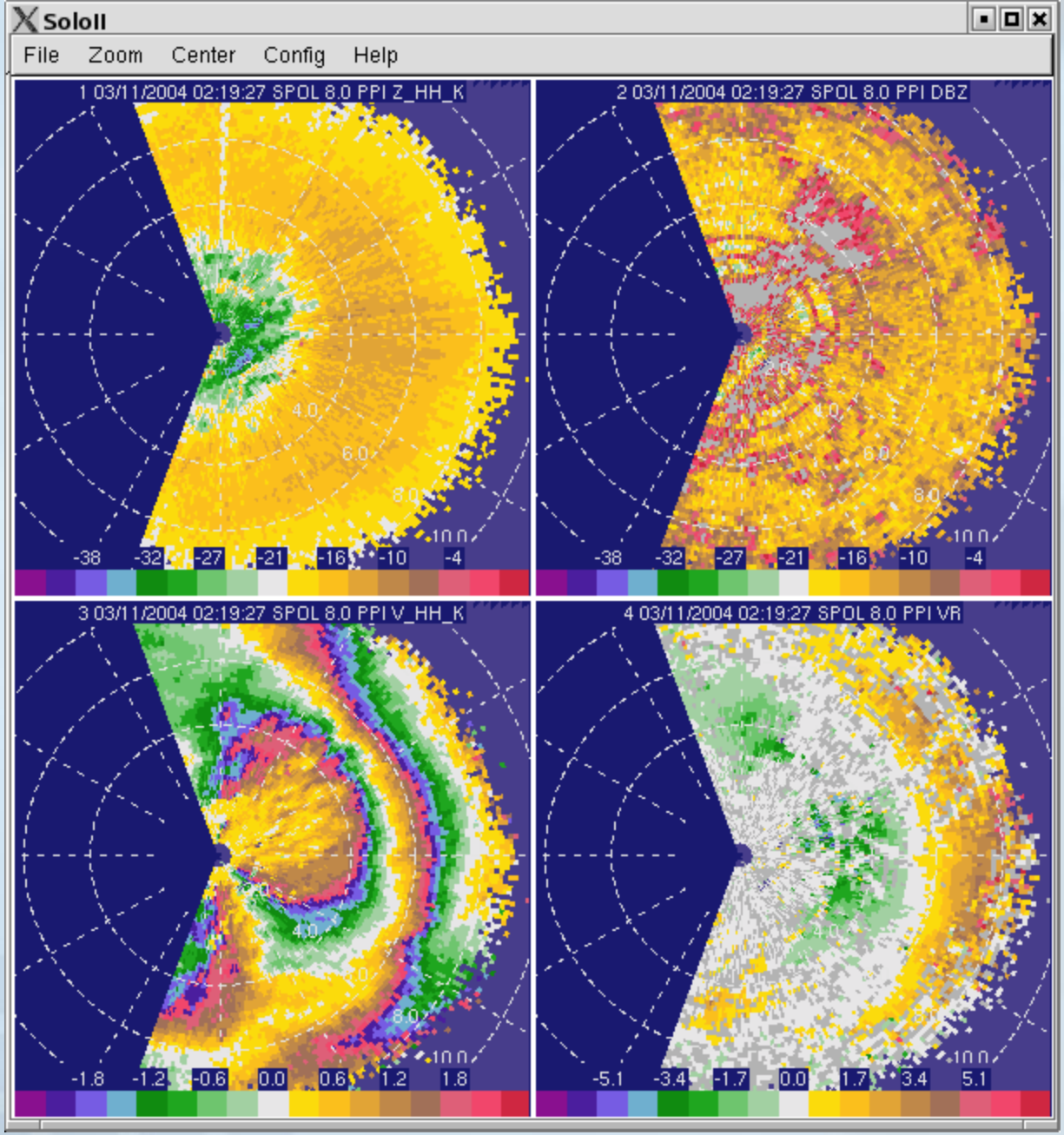
- S-Polka will arrive from Mexico on Sept. 10th
- Sept.13-26 : S-Pol maintenance
- S-Pol shipment to RICO : Sept. 27th

- S-Pol setup : Oct. 18- Nov 23

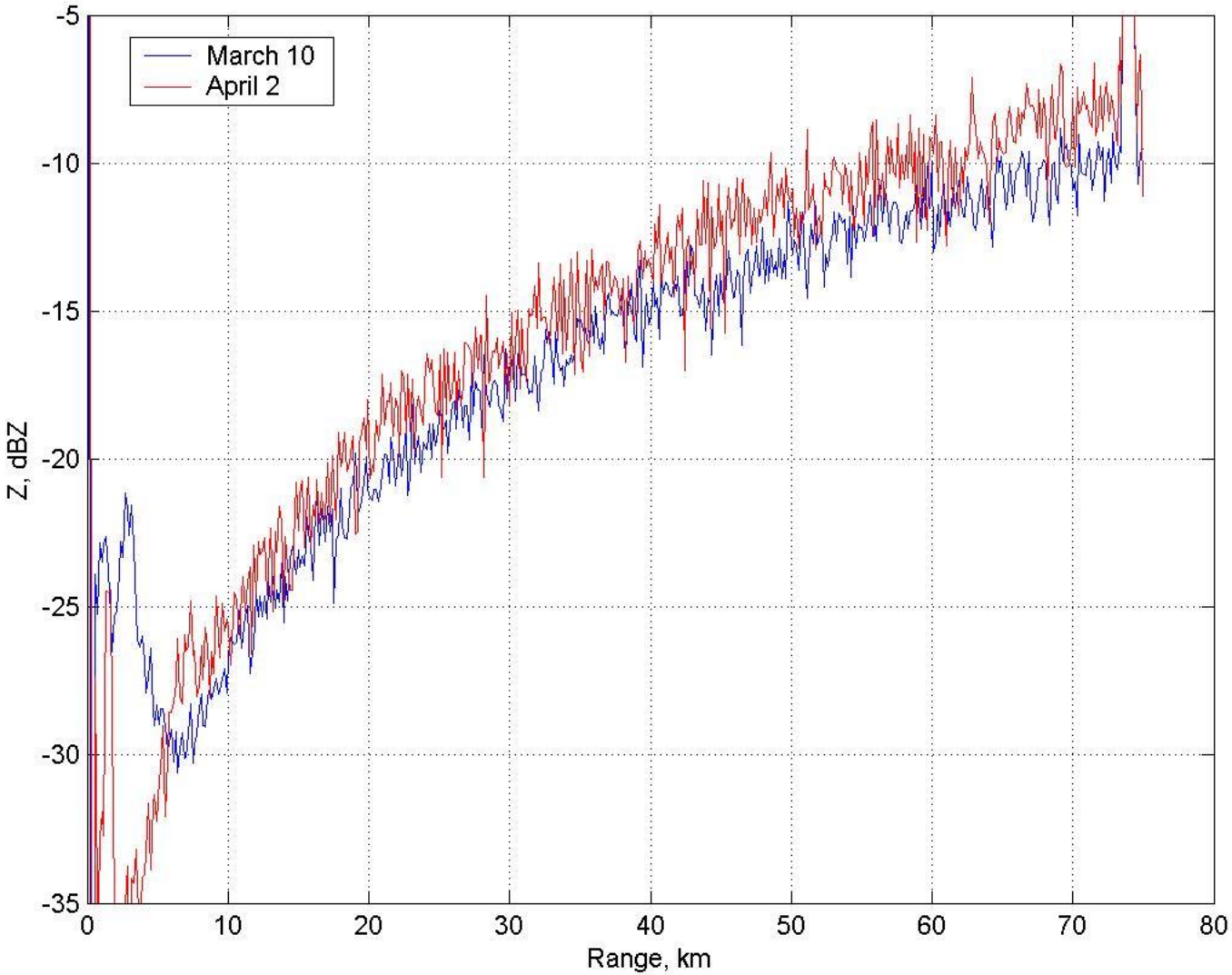
- Ka-band: RF and S and Ka-band sync. at ATD: Sept 13- October 17

S-Pol setup

- S-Pol setup: Oct. 18 - Nov 8
- Calibration and Ka-band: Nov. 5 – Nov. 23
- S-Pol network setup: Oct. 26 – Nov. 23

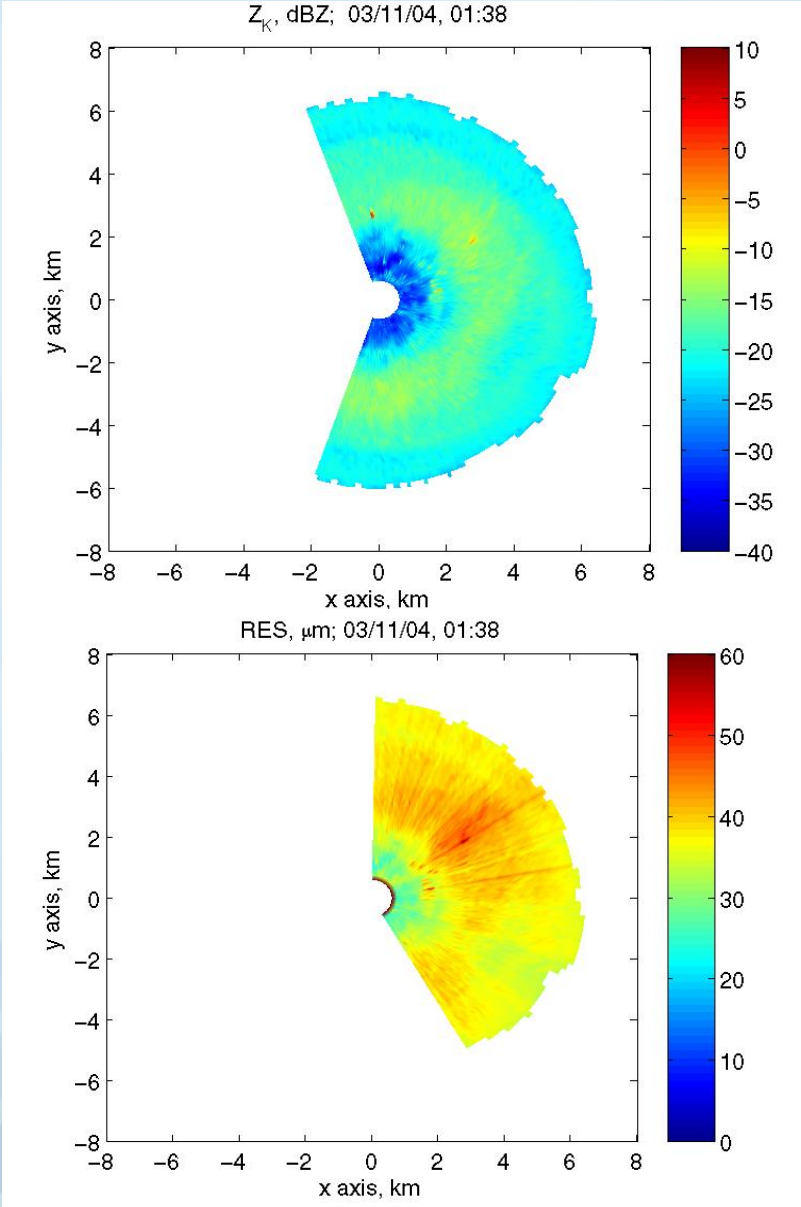


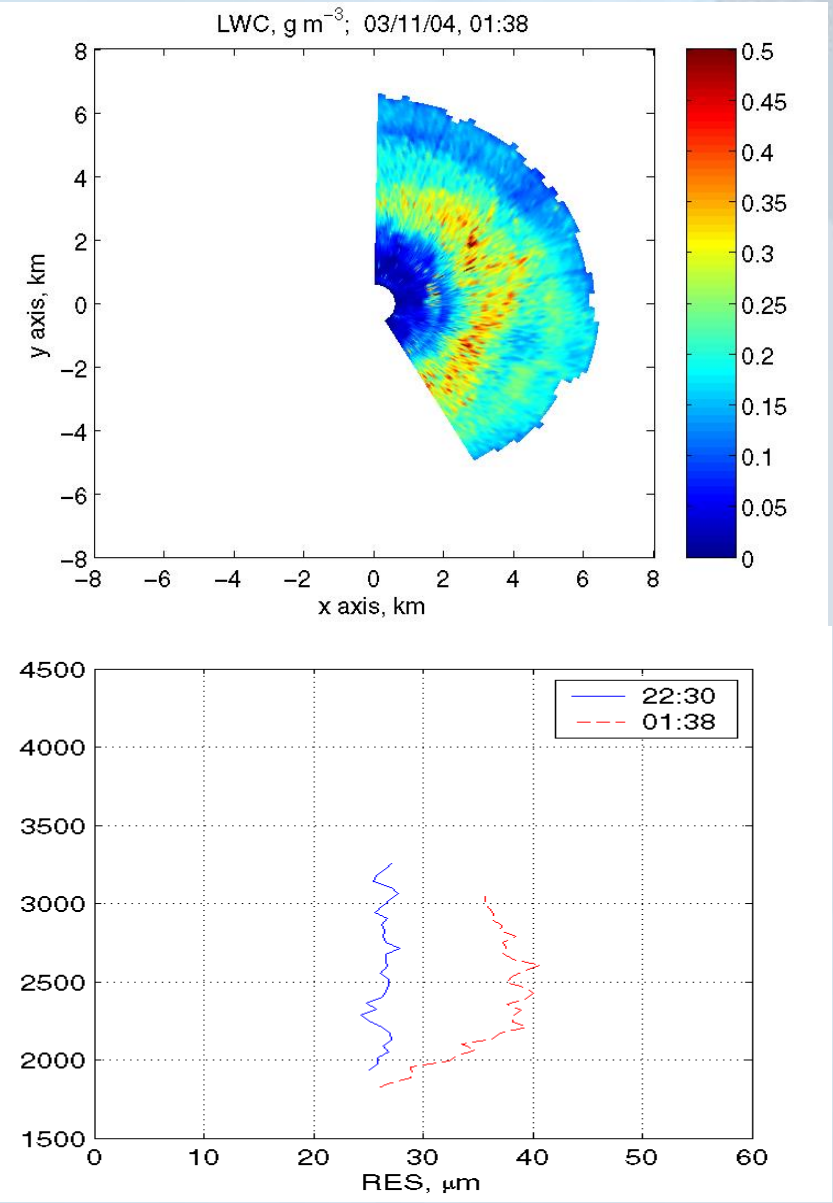
Sample Plane Parallel Indicator (PPI) Scan From WISP04, 2004.

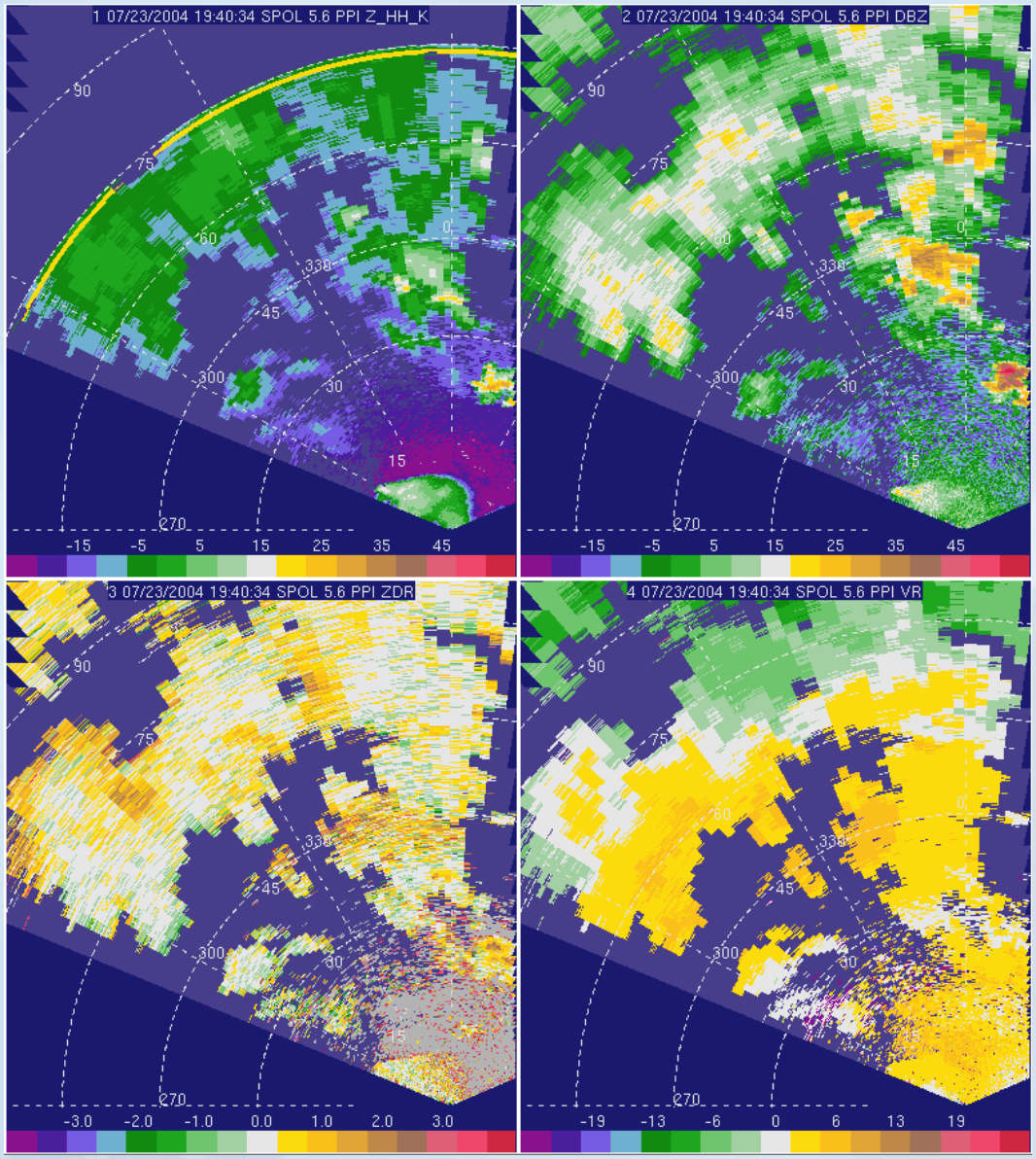


Plots of minimum detectable reflectivity (dBZ) for SNR = 0 dB. The red line is a plot of the values presented above, the other lines are plots of actual blue sky reflectivity measurements for the days indicated. These plots will likely change when the final data set is produced with all the known corrections applied.

Marshall Test Site


Z_K, dBZ; 03/11/04, 01:38
y axis, km
x axis, km
RES, μm; 03/11/04, 01:38
y axis, km
x axis, km


LWC, g m^{-3}; 03/11/04, 01:38
y axis, km
x axis, km
22:30
01:38
RES, μm



K-band reflectivity (Z_HH_K, upper left), S-band reflectivity (DBZ, upper right), reflectivity difference (ZDR, lower left) and radial velocity (VR, lower right) during NAME project light drizzle event on 23JUL2004 at 19:40 GMT at 5.6 degrees elevation.

Engineering Work

- Improve reliability and sensitivity of the system
- Synchronize S-band and Ka-band data
- Implement ZDR mesurement

Parameters for S-Polka

- Fixed PRF ~ 1000 Hz

Scan rate 10 deg/s Dwell time 0.1 s 100 samples

- Standard error in reflectivity

sigmaV= 1m/s S-band TOI = 0.01s; Kband TOI=0.001s

S-band 1.2 dB Kband 0.4 dB

- Standard error in ZDR