



What should we do about met (sensor) data?

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Problems

- Measurement uncertainties
- Calibration
- Corrections
- Format
- Application to observations

Corrections to be applied

- Calibration error
- Position (height) correction
 - **Give geocentric XYZ of each sensor**
 - (allows for multiple sensors, e.g. temperature at different heights)

Suggestion

■ One self-contained file per instrument

westford_pressure_1.txt

Name	epoch	hh	mm	value	sig	cal_error	sigma	X	Y	Z
w_p1	20060111	23	05	1004.5	0.2	0.9	0.5	6378000.0	4577000.0	1200000.3
w_p1	20060112	00	05	998.5	0.2	1.2	0.5	6378000.0	4577000.0	1200000.3
w_p1	20060112	00	10	997.4	0.2	1.2	0.5	6378000.0	4577000.0	1200000.3
w_p1	20060112	01	10	990.4	0.2	1.2	0.5	6378999.0	4577999.0	1200999.3

■ Separate files for temperature and humidity

- Allows for different temperature sensors, e.g. outside radome and at various positions on pedestal.
- Each technique calculates correction to intersection of axes since position of sensor contained in file.

Uncertainties

- Calibration (bias uncertainty)
- Measurement standard deviation
- How to propagate to estimation?
- Correlations over time?
- Correlations with other effects, e.g. antenna thermal deformation and ?

Calibration

- How to calibrate?
 - Bring calibration set to site
 - Remove met sensors and send away
 - Compare with “nearby” good instruments
 - Compare with Numerical Weather Product
- How often?
- What to do if met sensors have changed?
 - i.e. how to interpolate between calibrations

Storage and Format

- METEX (rinex-like)
- NetCDF (or similar)
- Continuous time-tagged (separate file each sensor)

yymmddhhmmss X Y Z P sigmaP Pcal_error Pcal_uncert

- Name-list

Application in Estimation

- Store in “database”
- Read files at estimation time
- Other?

