

MOTE Summaries and Message Recovery Stats

The following directory was added: `/net/isf/isff/projects/METCRAXII/doc/MOTE_Statistics`

Under that are 3 more directories: `./farStatistics`, `./flrStatistics`, `./nearStatistics`

Each directory contains a listing of the **comment messages**, and the **serial number messages** sent by the motes from respective locations. The extracted messages are generated by `/net/isf/isff/src/wisard_code/wisardMessageDecoder` program, and there is a shell script to 'extract' them generated by listing the files found in the raw_data repository. If you are wondering what mote sensors were attached at a particular date, check the 'sn' file.

Each directory also contains a 'raw-data-file by raw-data-file' listing of the mote **message recovery statistics** for each site/motes. The statistics are generated by `/net/isf/isff/src/wisard_code/wisardMessageStatistics` program, and there are shell scripts for that per raw_data files as well. The results files contain and explanation of how the statistics are generated. **NOTE: this program does not look at the sensor data itself, only the raw message recovery:** ie if a proper mote message is received (prefix, eom, correct-crc) it is counted as good. Good include 'power-messages' which were sent every 1min, and supercede data; ie. 11 of 12 messages are sensor data 1 of 12 power. Recovery percentage is calculated assuming that each 8 hour file should have 'data-rate'/28800(sec) messages: ie 5760 for data motes and 2880 for power motes.

Here's are summary of the 'readme' files.

Site	Motes on Site PowerMonitor=Serial SensorMotes = Xbee	Summary Message Recovery% for the project	GPS recorded by mote			
FAR	ID2 = Power Monitor ID16 = RAD Briefly 10/1-2 ID4 = RAD, 10/2-on ID22 = SOIL	ID2 99.5% Power Mote ID16 not calculated, too short ID4 94.8% Rad from 10/2 ID22 98.8% Soil Mote	ID16 3458.0021,N 11103.1736W ID22 3457.9970,N 11103.1728W			
FLR	ID1 = SPN1-RAD ID2 = SOIL ID19 = RAD (Only 10/2-10/4) ID17 = RAD (thereafter) ID5 = Power Monitor	ID1 81.0% SPN1 ID2 82.4% Soil ID5 98.3% Power Mote ID17 81.8% Rad (Note installed 10/5 - 10/31 ID19 66.3% Rad (Note only for 10/2 - 10/4)	ID1 3501.678,N 11101.353W ID2 3501.682,N 11101.338W			
NEAR	ID8 = RAD ID3 = SOIL ID10 = SPN1-RAD (see power monitor mote note about redundant id's also) ID6 = Power Monitor (near-lower dsm) ID10/ID110 = Power Monitor (near-up)	ID3 90.4% Soil ID8 91.3% Rad ID10 89.6% SPN1 ID6 93.9% Power Mote ID110 94.8% Renumbered '10' Power Mote	ID3 3500.654,N 11102.260W ID10 3500.6527,N 11102.265W			

FLOOR NOTE: Fir recovery with xbee's in the early part of the project was worse than shown (see list).

The averages shown above include bunches of 100% data points for 8hour files after Steve Oncley interfaced them using serial cables (on 10/17?). It is unknown where the fixes that recovered the xbee's (ie xr=0) at far/near would have been as successful in the crater.

NEAR NOTE: ID10 had redundant motes from 10/1-16; 1=SPN1 plus the 2nd=PwrMonitor

The average shown for ID10 takes the counts total from 10/1-16 and removed an assumed 100% data recovery for the power monitor mote. This can be seen in the associated excel spreadsheet

GPS NOTE: Some Location were obtained for the few hours that they were enabled on the motes.

The gps' were turned off to save power and prevent those messages 'clogging' the comm. channel Without gps/time-keeping, the local data storage is worthless so that too was not used preventing recovery of message outages. Also Power Monitor motes don't have gps.

PWRMONITOR NOTES: Operated throughout the project without a reset, based upon their internal data/time incrementing without interruption. They were interfaced serially and 'outages' were probably dsm?

RECOVERY STATS NOTES:

Note: Data is calculated from wisardMessageStatistics and averaged for '8hour' files encountered

Note: Data recovery = #good-messages / #5secMessagesExpected (ie 5/8*60*60=28800),

dsm outages also reduce the recovery whether the mote continued working or not.

Note: Calculations do not evaluate sensor data quality! Bad data in 'good messages' are not accounted for.

Note: #good = includes power measurements which were reported every 1min, and takes place of sensor data