

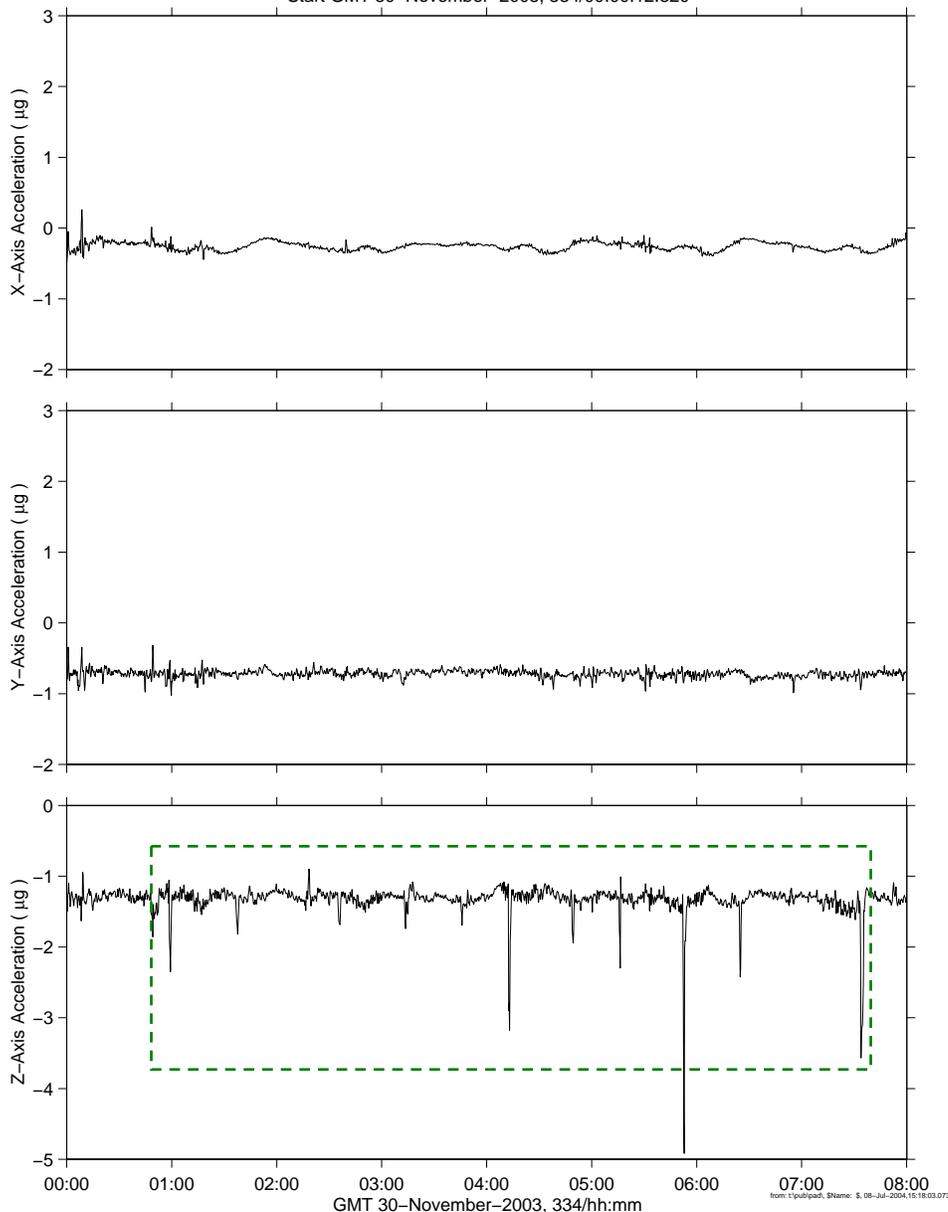
Ku-Band Antenna

mams, ossbtmf at LAB1O2, ER1, Lockers 3,4:[135.28 -10.68 132.12]
0.0625 sa/sec (0.01 Hz)

Increment: 8, Flight: 7S
SSAnalysis[0.0 0.0 0.0]

Ku Ops – XVV Attitude

Start GMT 30–November–2003, 334/00:00:12.320



Description

Sensor	MAMS,ossbtmf 0.0625 sa/sec (0.01 Hz)
Location	LAB1O2, ER1, Lockers 3,4
Orientation	Space Station Analysis (SSA)
Inc/Flight	Increment: 8, Flight: 7S
Plot Type	Time Series

NOTES:

- Operation of the Ku-band antenna introduces disturbances in the quasi-steady environment as it tracks satellites to maintain communication link. These disturbances can be of varying magnitude and are commonly seen in the Y and Z-axes.
- The plot shows a typical period when the ISS was in LVLH attitude. The peaks in the negative Z direction occur when the antenna transitions to “open loop slew” prior to going into auto-track acquisition.
- The peaks range from 0.2 - 5.0 μg in the negative Z-direction. These spikes are highlighted by the green dotted lines in the Z-axis subplot.
- Similar patterns of spikes in the Z-axis have been seen during XPOP attitude.



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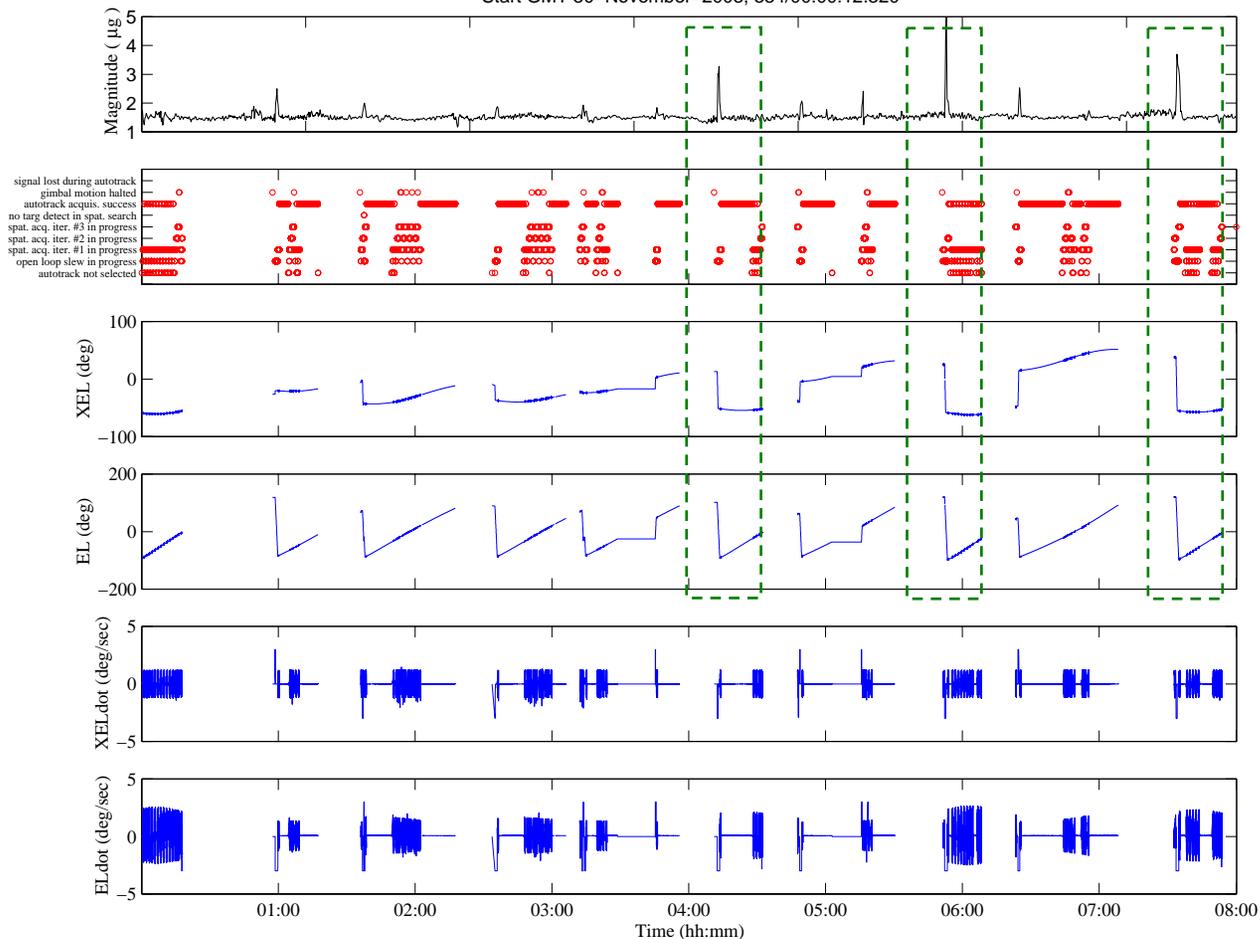
Regime:	Quasi-steady
Category:	Vehicle
Source:	Ku-Band Antenna

Ku-Band Antenna

mams_ossbtmf at LAB102, ER1, Lockers 3,4:[135.28 -10.68 132.12]
0.0625 sa/sec (0.01 Hz)

Ku Ops – XVV Attitude
Start GMT 30–November–2003, 334/00:00:12.320

Increment: 8, Flight: 7S
Vector Magnitude



Description	
Sensor	MAMS, ossbtmf 0.0625 sa/sec (0.01 Hz)
Location	LAB102, ER1, Lockers 3,4
Orientation	Space Station Analysis (SSA)
Inc/Flight	Increment: 8, Flight: 7S
Plot Type	Acceleration Magnitude

- NOTES:**
- This plot aligns acceleration magnitude of the quasi-steady vector with Ku operations data obtained from the Operational Data Reduction Complex (ODRC).
 - The peaks in magnitude occur during periods of increased slew rate as evidenced by the rapid change in the XEL and EL angles. The dotted green lines highlight some of these events.
 - The periods of increased slew rate are routinely 30-60 seconds in duration.



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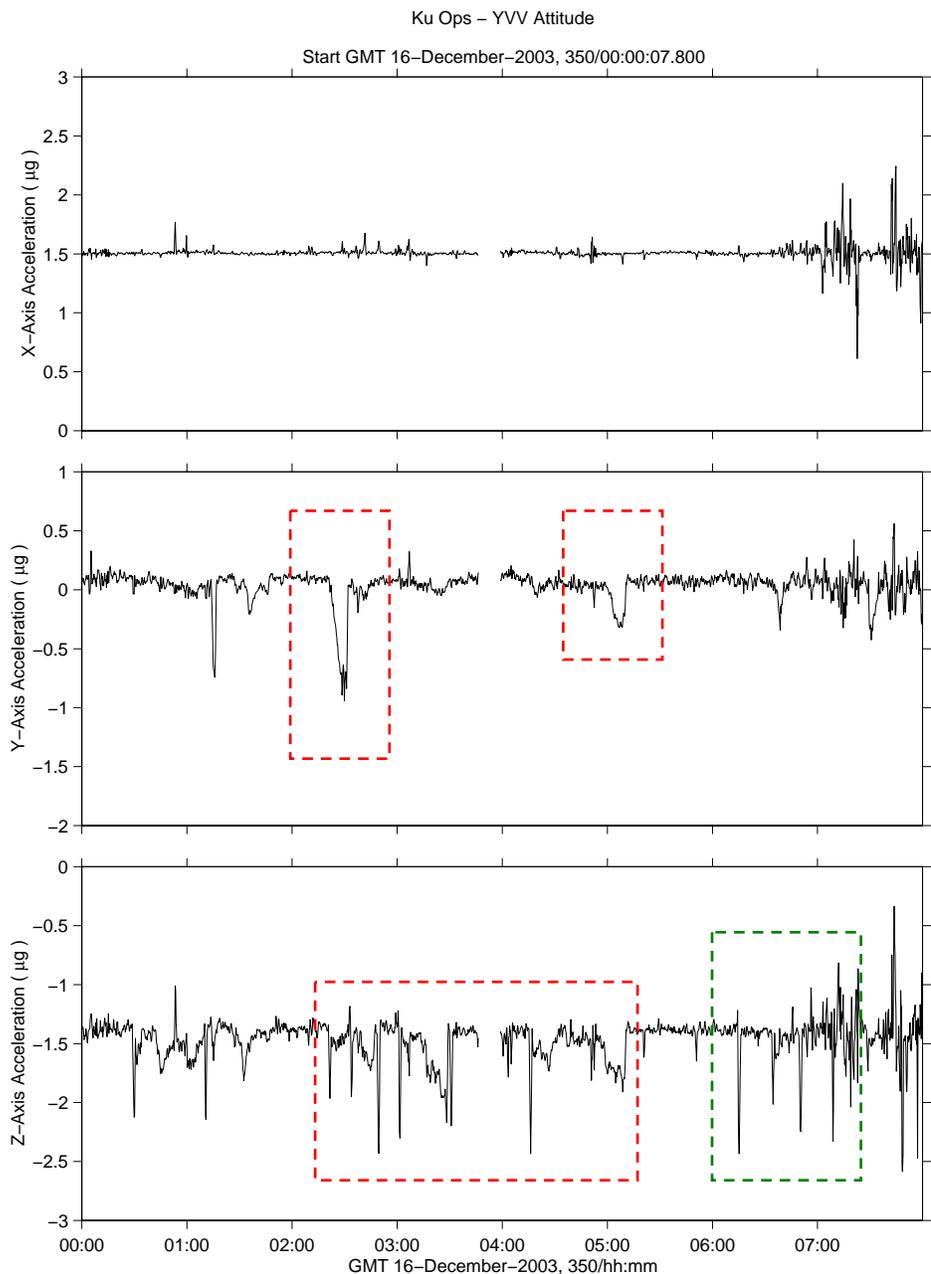
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Regime:	Quasi-steady
Category:	Vehicle
Source:	Ku-Band Antenna

Ku-Band Antenna

mams, ossbtmf at LAB1O2, ER1, Lockers 3,4:[135.28 -10.68 132.12]
0.0625 sa/sec (0.01 Hz)

Increment: 8, Flight: 7S
SSAnalysisj 0.0 0.0 0.0



Description	
Sensor	MAMS,ossbtmf 0.0625 sa/sec (0.01 Hz)
Location	LAB1O2, ER1, Lockers 3,4
Orientation	Space Station Analysis (SSA)
Inc/Flight	Increment: 8, Flight: 7S
Plot Type	Time Series

NOTES:

- Broader disturbances in the quasi-steady environment can also be attributed to the Ku-Band antenna when in auto-track mode. These auto-track mode disturbances can be seen in both XVV and YVV attitudes.
- The plot shows a typical period for when the ISS was in -YVV attitude. These broader disturbances, highlighted by red dotted box, can be seen in the Y and Z-axes. They range from 0.5 - 0.8 μg , measured from the baseline. Duration lasts on the order of 10-50 minutes, corresponding with Ku-band signal acquisition.
- The green dotted box highlights spikes that occur during the faster rates of open slew mode.



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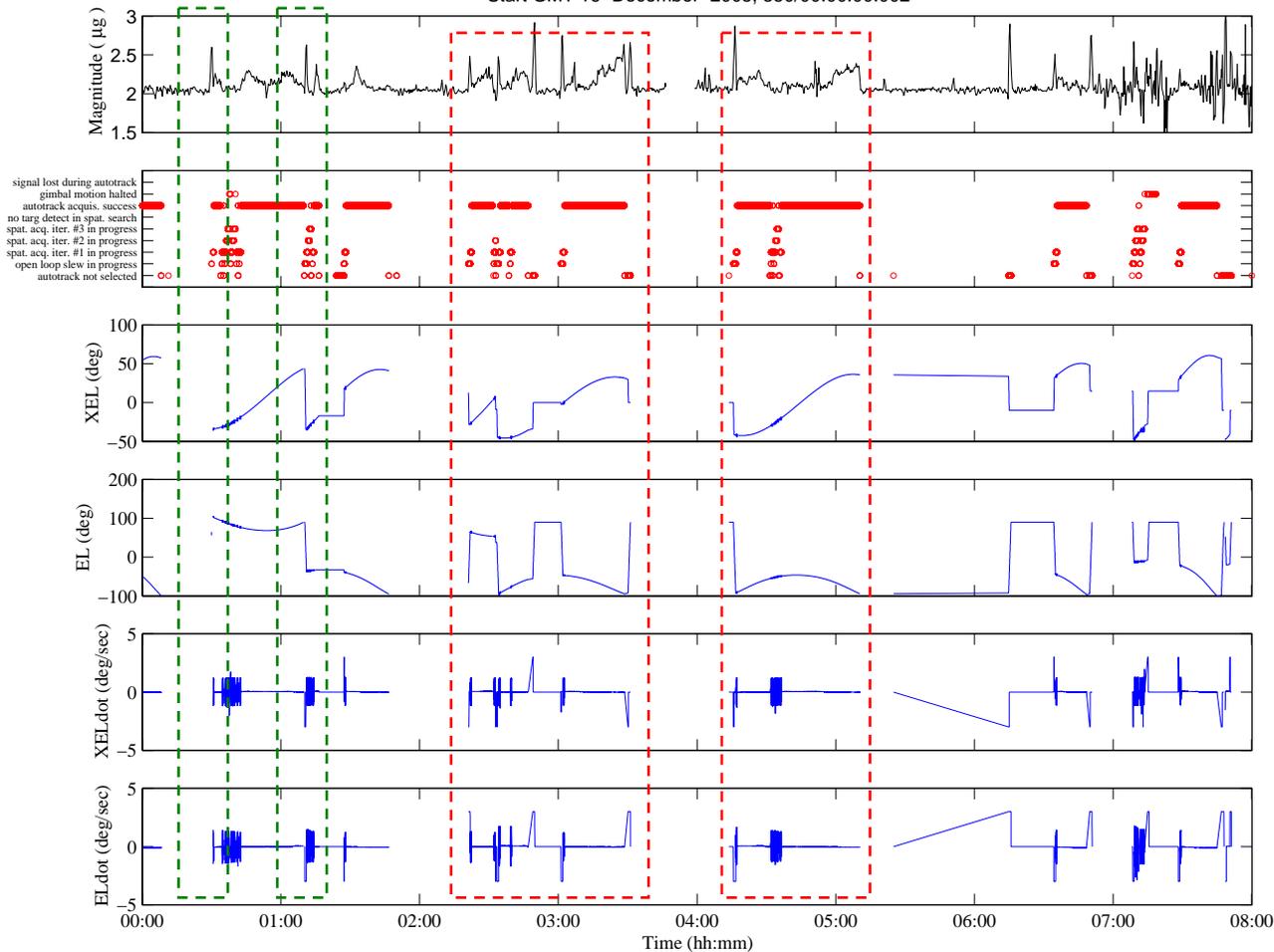
Regime:	Quasi-steady
Category:	Vehicle
Source:	Ku-Band Antenna

Ku-Band Antenna

mams_ossbmf at LAB102, ER1, Lockers 3,4:[135.28 -10.68 132.12]
0.0625 sa/sec (0.01 Hz)

Ku Ops – YVV Attitude
Start GMT 16–December–2003, 350/00:00:00.002

Increment: 8, Flight: 7S
Vector Magnitude



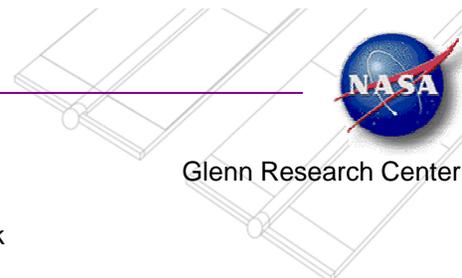
Description	
Sensor	MAMS, ossbmf 0.0625 sa/sec (0.01 Hz)
Location	LAB102, ER1, Lockers 3,4
Orientation	Space Station Analysis (SSA)
Inc/Flight	Increment: 8, Flight: 7S
Plot Type	Acceleration Magnitude

NOTES:

- This plot correlates the broad disturbance in the quasi-steady environment magnitude with the moderately faster slewing during auto-track mode. The Ku operations data was obtained from the Operational Data Reduction Complex (ODRC).
- The red boxes highlight the auto-track slewing that causes the broader (longer duration) disturbances.
- The spikes due to open loop slew are highlighted by the green dotted boxes.



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PIMS ISS Acceleration Handbook
Date last modified 7/12/2004

Regime:	Quasi-steady
Category:	Vehicle
Source:	Ku-Band Antenna