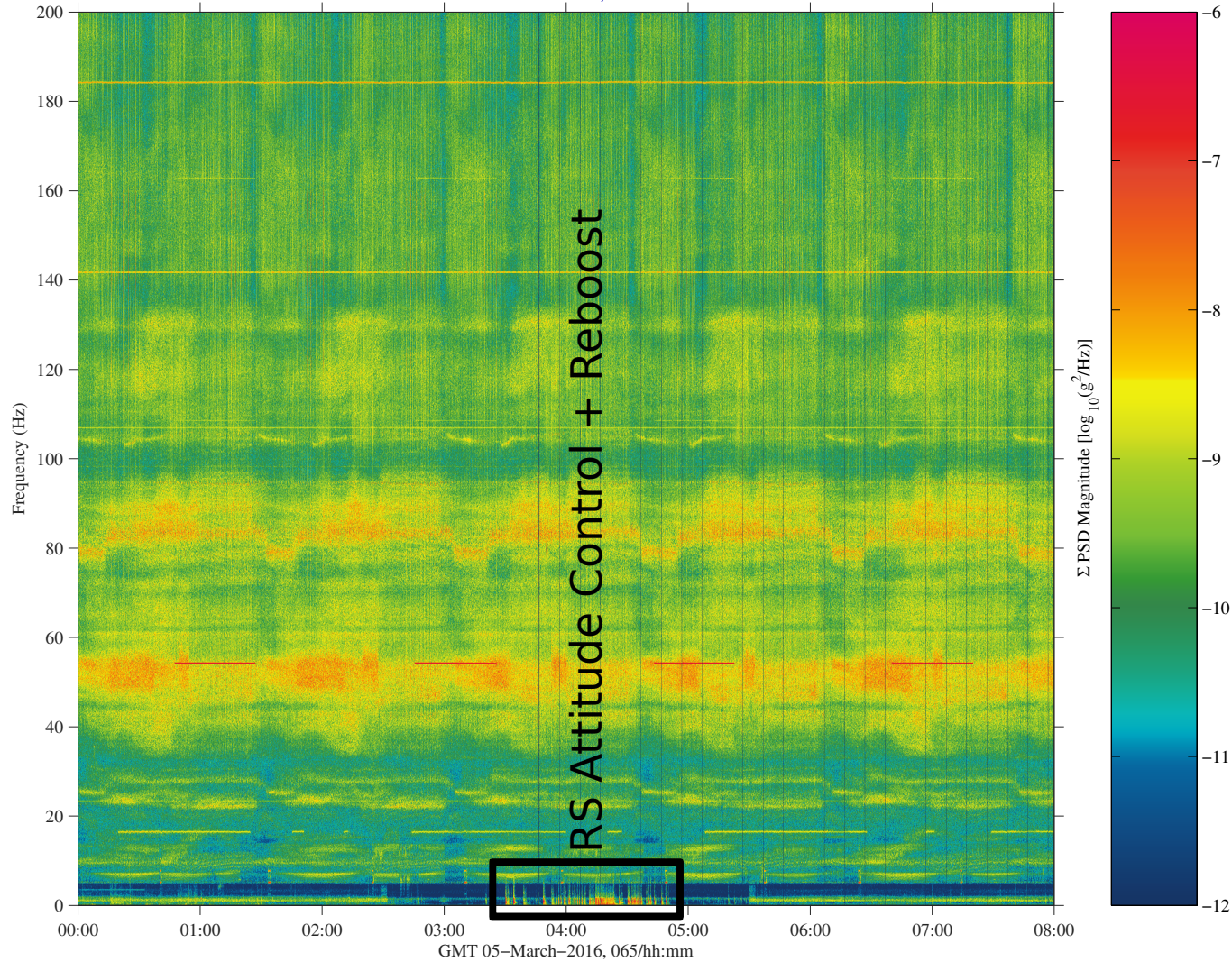


Progress 61P Reboost 2016-03-05 Qualify

sams2, 121f05 at COL, Starboard Endcone, Adapter Bracket:[378.90 320.60 233.90]
 500.0000 sa/sec (200.00 Hz)
 $\Delta f = 0.122$ Hz, Nfft = 4096
 Temp. Res. = 8.192 sec, No = 0

sams2, 121f05

Start GMT 05-March-2016, 065/00:00:00.000



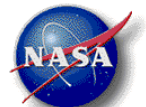
from: /misc/yoda/pub/pad_pims_07-Mar-2016.075857.844

Description	
Sensor	SAMS 121f05 500.0 sa/sec, 200.0 Hz
Location	COL, Starboard Endcone, Adapter Bracket
Plot Type	Spectrogram

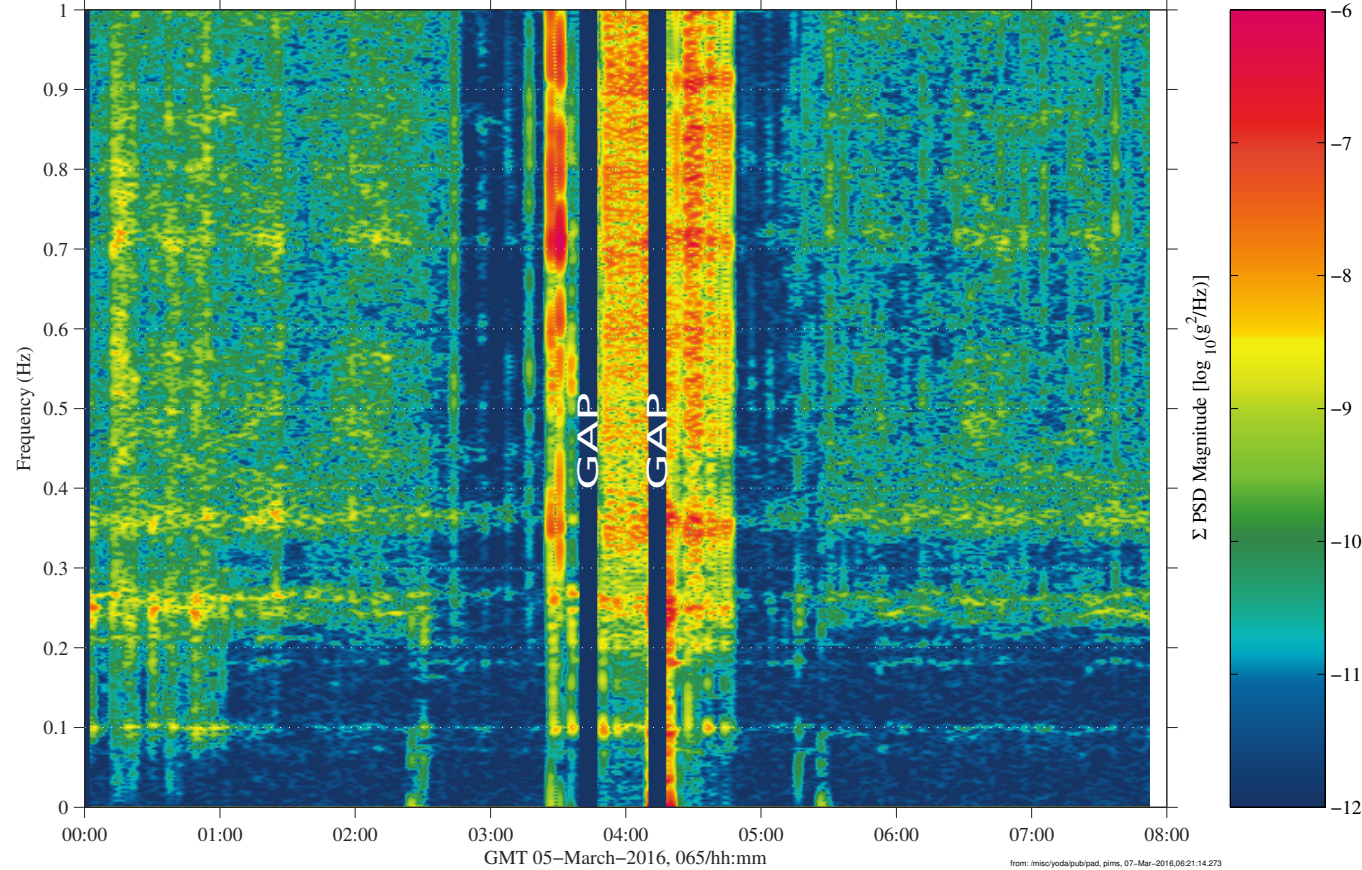
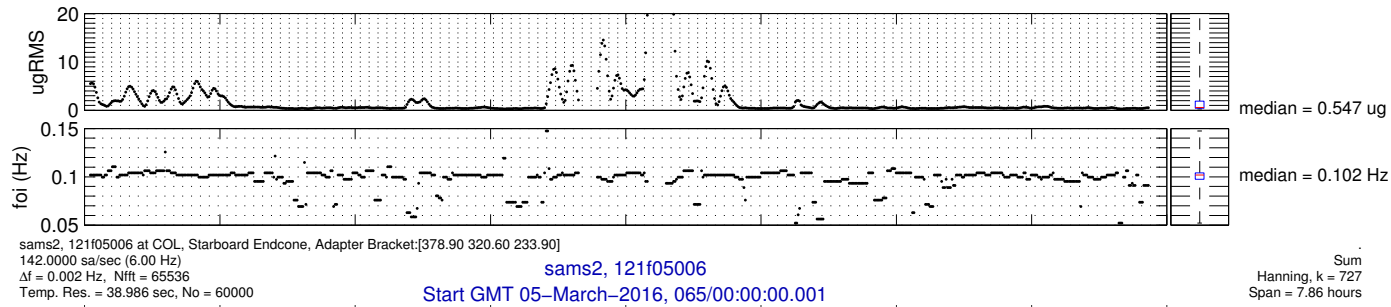
Notes:

- This color spectrogram shows time and frequency context for an 8-hour period around the Progress 61P reboost event.
- Note the main feature is the excitation you see below about 5 Hz between about 03:30 and about 05:00.
- During this ~90-minute span, the reboost event itself plus Russian Segment (RS) attitude control were the primary disturbers with impulsive accelerations driving structural excitation below 5 Hz.

Regime:	Quasi-Steady
Category:	Vehicle
Source:	Progress 61P Reboost 2016-03-05



Progress 61P Reboost 2016-03-05 Quantify

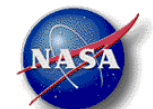


Description	
Sensor	SAMS 121f05 500.0 sa/sec, 200.0 Hz
Location	COL, Starboard Endcone, Adapter Bracket
Plot Type	Spectrogram

Notes:

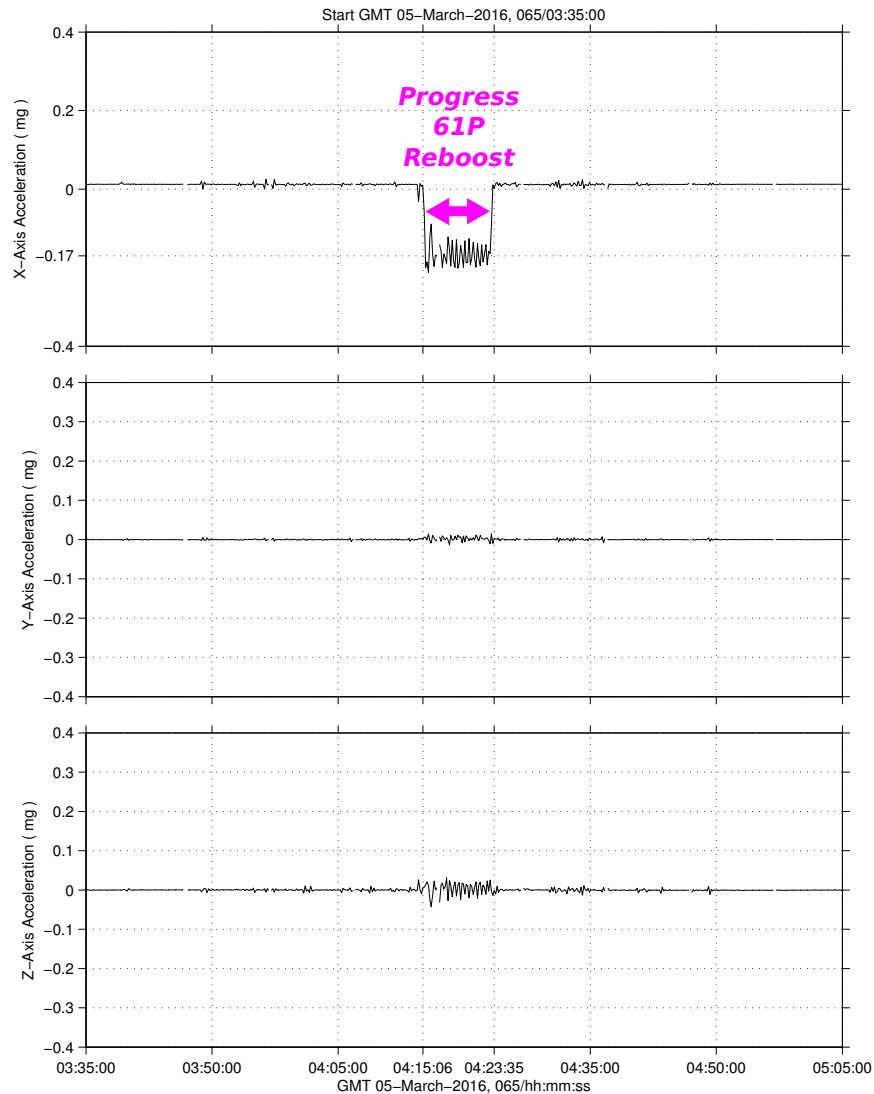
- This color spectrogram focuses on the acceleration spectrum below 1 Hz during the same 8-hour period as on the previous page and for the same SAMS sensor.
- This plot shows more clearly the structural vibrations below 1 Hz (actually, we'd see similar up to about 5 Hz or so).
- Note that the top 2 subplots in this figure are intended to quantify structural vibrations of the main truss of the ISS near 0.1 Hz, so-called "mode one" of the station.
- During the quiet periods before and after the reboost and RS attitude control, the baseline for "mode one" is about 0.5 ugRMS at 0.102 Hz.
- During the reboost event and the thruster firings associated with RS attitude control, we see "mode one" peak at well over 10 ugRMS.

Regime:	Quasi-Steady
Category:	Vehicle
Source:	Progress 61P Reboost 2016-03-05



Progress 61P Reboost 2016-03-05 Quantify

sams2, 121f05 at COL, Starboard Endcone, Adapter Bracket:[378.90 320.60 233.90]
0.1000 sa/sec (200.00 Hz) SAMS2, 121f05, COL, Starboard Endcone, Adapter Bracket, 200.0 Hz (500.0 s/sec) SSAnalysis[0.0 0.0 0.0]
Interval Average
Size: 10.00, Step: 10.00 sec.



Description	
Sensor	SAMS 121f05 500.0 sa/sec, 200.0 Hz
Location	COL, Starboard Endcone, Adapter Bracket
Plot Type	Int. Avg. Accel. vs. Time

Notes:

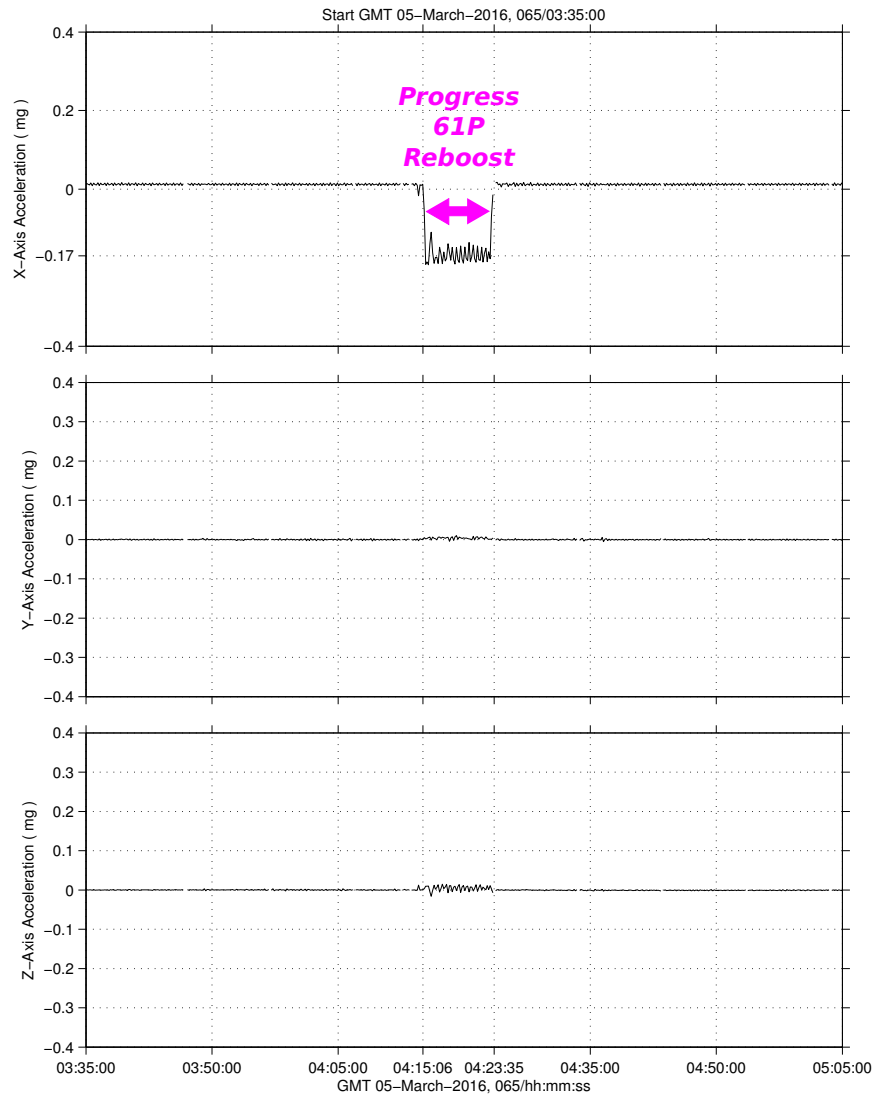
- These 3 subplots show SAMS measurements that have been interval averaged (10-second average every 10 seconds) over a 90-minute span surrounding the reboost event.
- A reboost is an acceleration in the +XA-direction, the flight direction, to increase tangential velocity and thereby increase the orbital altitude.
- This plot shows a step in the negative XA direction owing to the inverted polarity of SAMS sensors.

Regime:	Quasi-Steady
Category:	Vehicle
Source:	Progress 61P Reboost 2016-03-05



Progress 61P Reboost 2016-03-05 Quantify

sams2, 121f03 at LAB1O1, ER2, Lower Z Panel:[191.54 -40.54 135.25]
0.1000 sa/sec (200.00 Hz) SAMS2, 121f03, LAB1O1, ER2, Lower Z Panel, 200.0 Hz (500.0 s/sec) SSAnalysis[0.0 0.0 0.0]
Interval Average
Size: 10.00, Step: 10.00 sec.

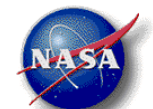


Description	
Sensor	SAMS 121f03 500.0 sa/sec, 200.0 Hz
Location	LAB1O1, ER2, Lower Z Panel
Plot Type	Int. Avg. Accel. vs. Time

Notes:

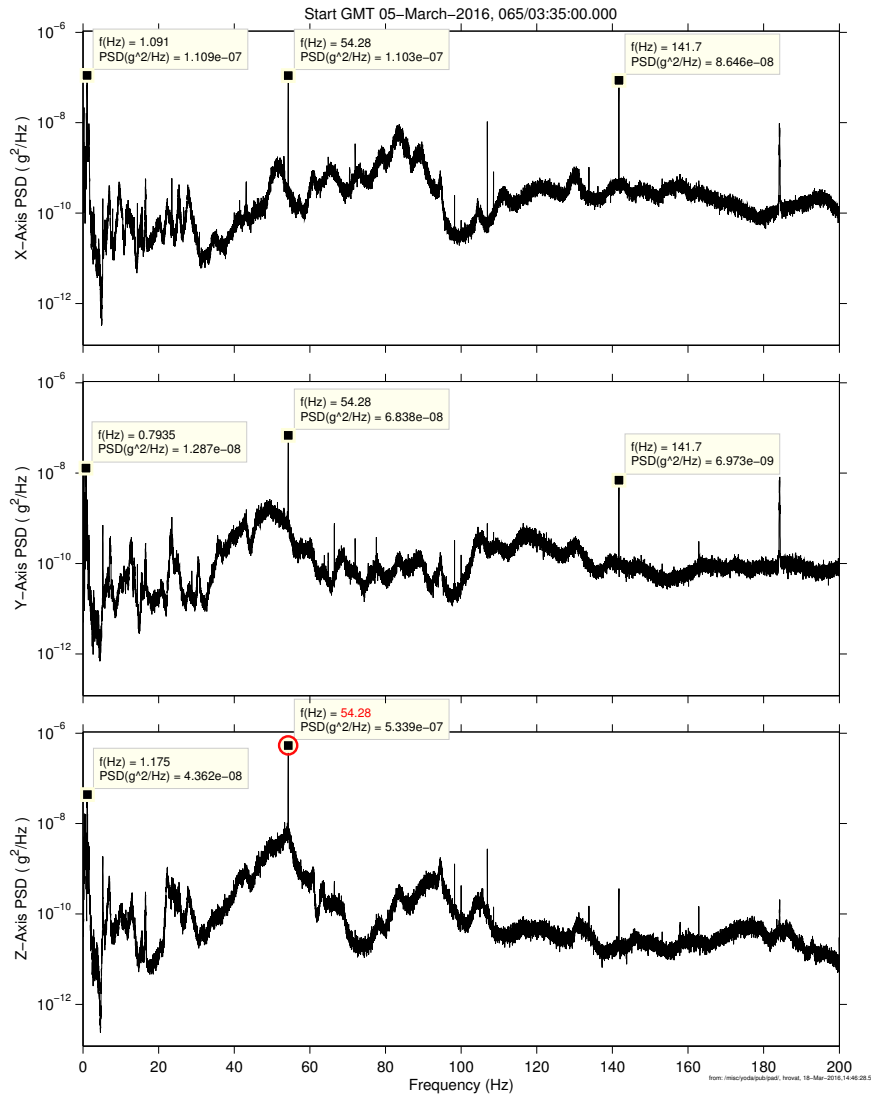
- This plot is identical to that on the previous page except here we show data from a SAMS sensor (121f03) mounted on EXPRESS rack 2 in the US Lab.
- The previous page used data from a SAMS sensor mounted on the Columbus Starboard Endcone.
- At these relatively low-frequencies, the data from the 2 sensors look quite similar.

Regime:	Quasi-Steady
Category:	Vehicle
Source:	Progress 61P Reboost 2016-03-05



Progress 61P Reboost 2016-03-05 Quantify

sams2, 121f05 at COL, Starboard Endcone, Adapter Bracket:[378.90 320.60 233.90]
 500.0000 sa/sec (200.00 Hz) SSAnalysis[0.0 0.0 0.0]
 $\Delta f = 0.008$ Hz, Nfft = 65536 SAMS2, 121f05, COL, Starboard Endcone, Adapter Bracket, 200.0 Hz (500.0 s/sec) Hanning, k = 33
 P = 0.0%, No = 0 Span = 5400.00 sec.

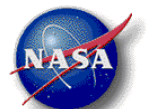


Description	
Sensor	SAMS 121f05 500.0 sa/sec, 200.0 Hz
Location	COL, Starboard Endcone, Adapter Bracket
Plot Type	XYZ Power Spectral Density

Notes:

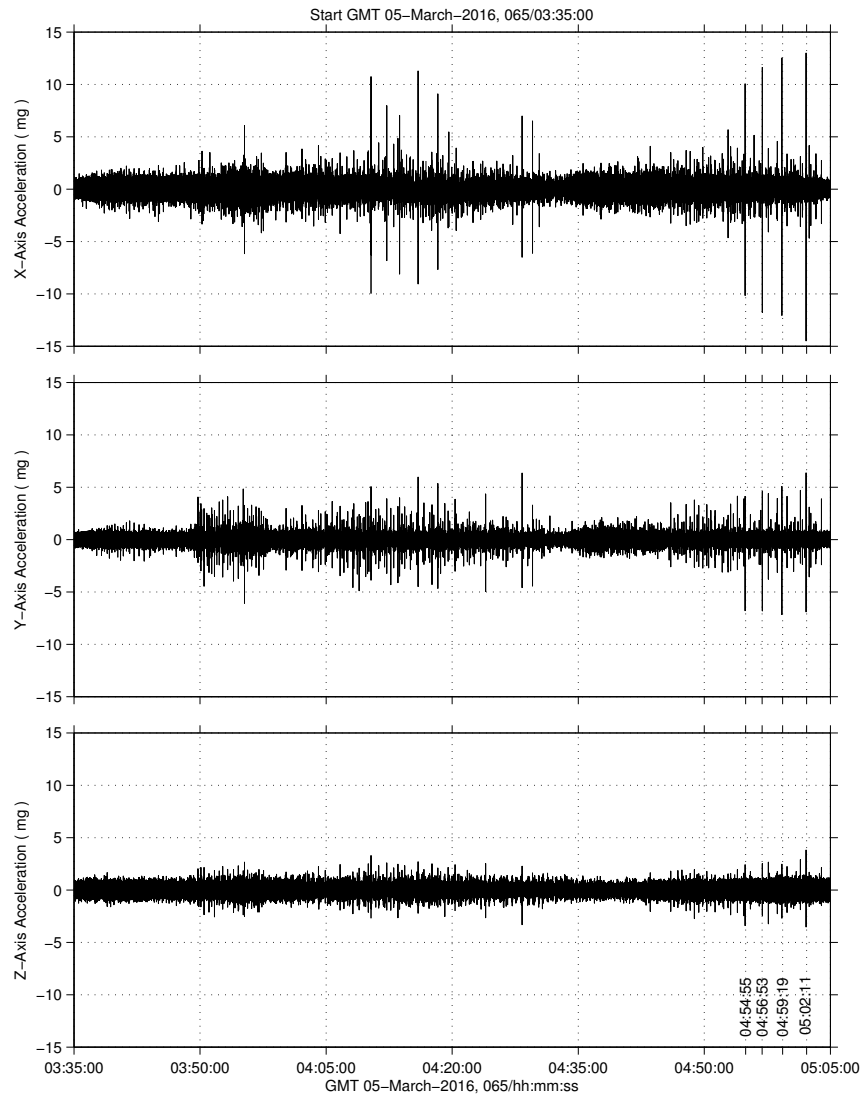
- These plots shows power spectral density plots for the 3 orthogonal Space Station Analysis (SSA) axes.
- These data were measured on the Columbus Starboard Endcone by a SAMS sensor mounted there.
- The dominant spectral component during the 90-minute period from 03:35 to 05:05 (covered by this plot) was at about 54 Hz on the ZA-axis.

Regime:	Quasi-Steady
Category:	Vehicle
Source:	Progress 61P Reboost 2016-03-05



Progress 61P Reboost 2016-03-05 Quantify

sams2, 121f05 at COL, Starboard Endcone, Adapter Bracket:[378.90 320.60 233.90]
500.0000 sa/sec (200.00 Hz) SAMS2, 121f05, COL, Starboard Endcone, Adapter Bracket, 200.0 Hz (500.0 s/sec) SSAnalysis[0.0 0.0 0.0]



Description	
Sensor	SAMS 121f05 500.0 sa/sec, 200.0 Hz
Location	COL, Starboard Endcone, Adapter Bracket
Plot Type	XYZ Accel. vs. Time

Notes:

- This 3-panel plot of acceleration versus time at the SAMS SE-F05 sensor location shows the reboost period is dominated by relatively high-frequency vibrations.
- Several, sporadic impulsive accelerations appear as seen, for example, indicated by the time tick marks between 04:54:55 and 05:02:11.

Regime:	Quasi-Steady
Category:	Vehicle
Source:	Progress 61P Reboost 2016-03-05

