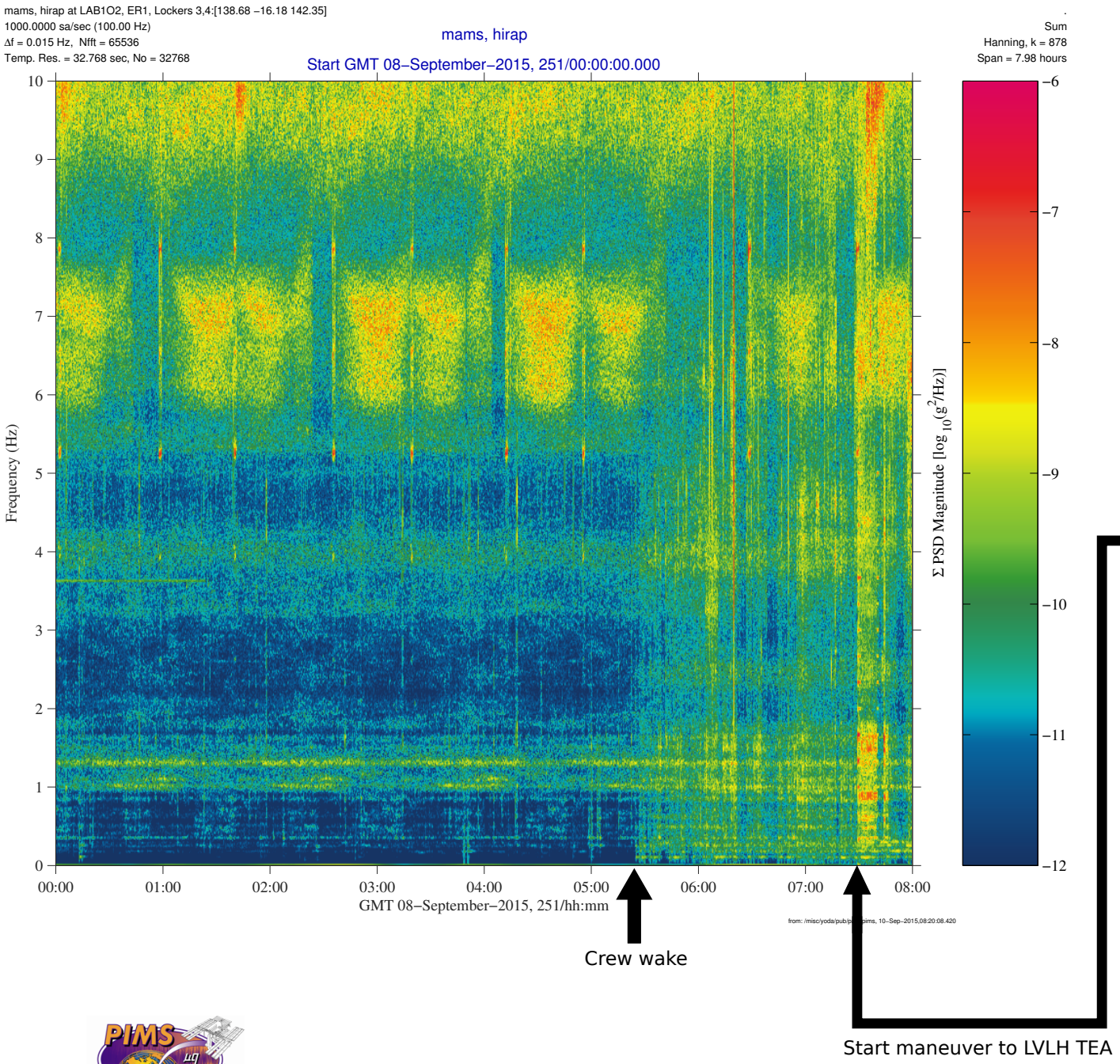
Soyuz 42S Thruster Test 2015-09-08
Qualify



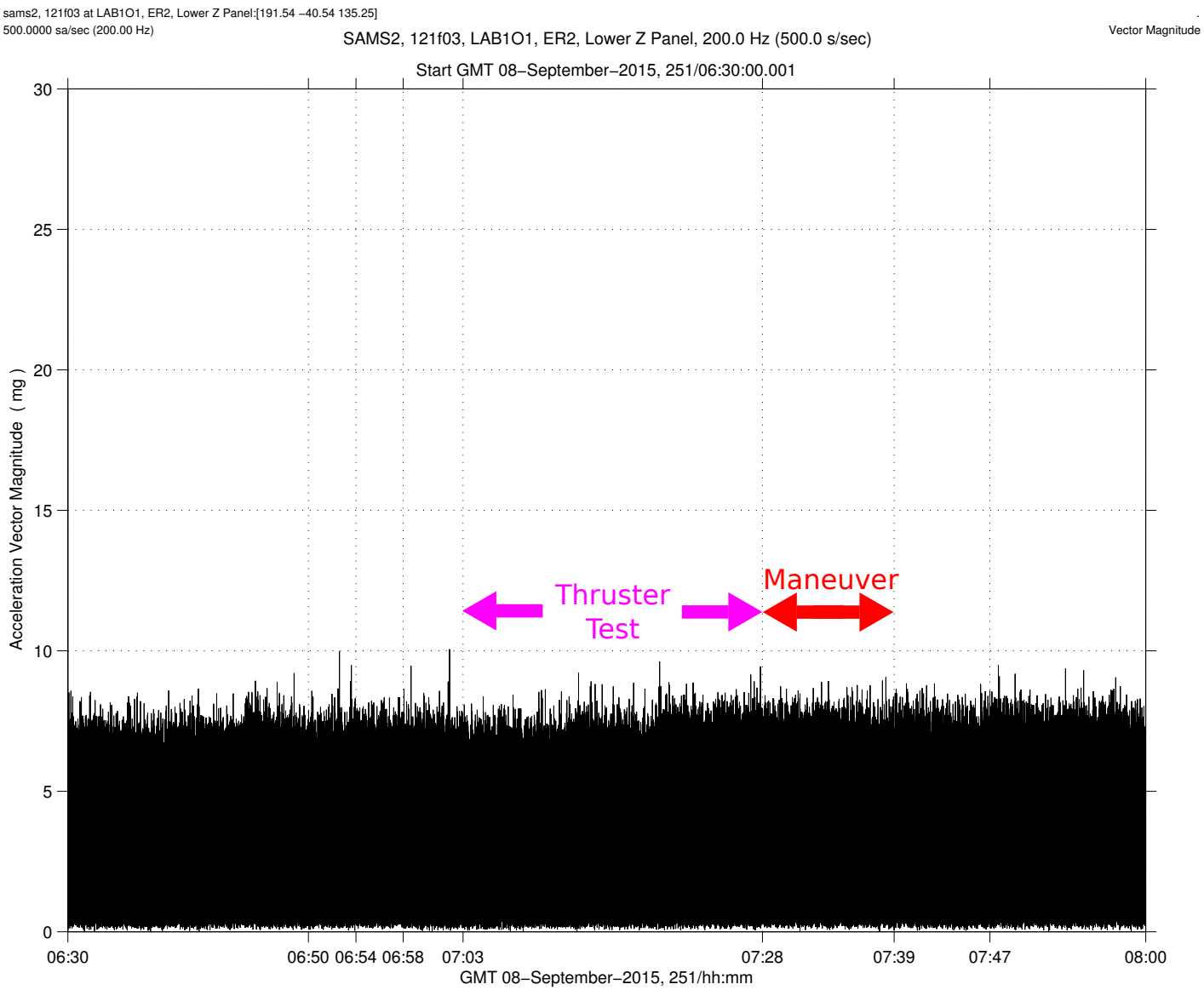
Description	
Sensor	MAMS hirap 1000.0 sa/sec, 100.0 Hz
Location	LAB1O2, ER1, Lockers 3,4
Plot Type	Spectrogram

Notes:

- This color spectrogram shows an 8-hour period leading up to the Soyuz 42S Thruster Test events that took place on GMT 08-Sep-2015.
- The data plotted here were measured by the MAMS HiRAP sensor in LAB1O2 (ER1).
- At 06:58, there was flight control handover to the Russian Segment.
- The Soyuz thruster test took place from 07:03 to 07:28.
- A maneuver to nominal LVLH TEA took place from 07:28 to 07:39.
- Finally, at 07:47 there was flight control handover from the Russian Segment back to US momentum management.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Quantify



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

Notes:

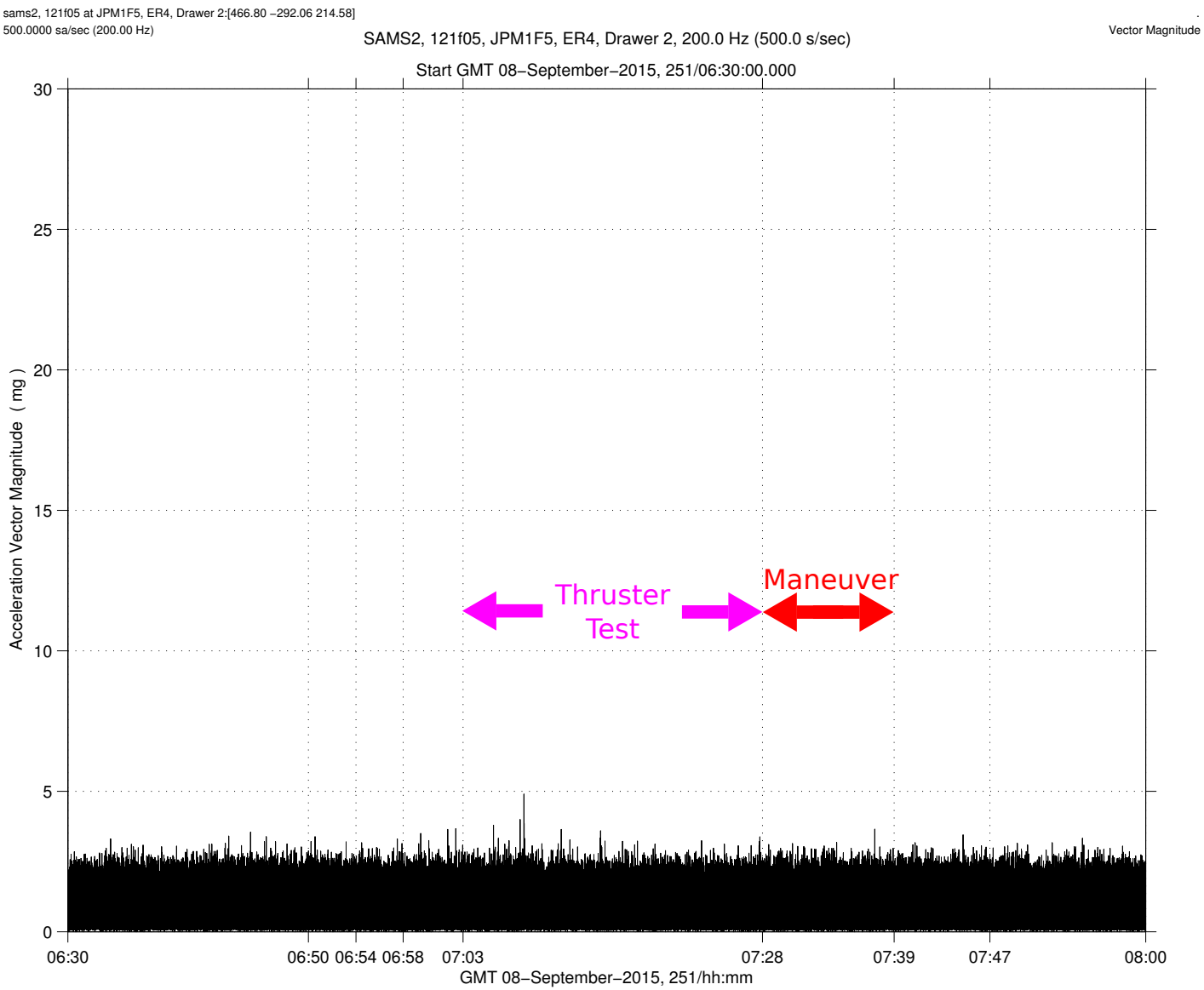
- In order to quantify some of the events associated with this Soyuz thruster test, we show here the acceleration vector magnitude versus time from a SAMS sensor mounted on LAB1O1 (ER2) in the US Lab.
- The GMT span here is from 06:30 to 08:00, and this corresponds to the last 90 minutes of the spectrogram on the previous page.
- Note there are occasional acceleration spikes, but none that are emerge as distinctive in terms of magnitude here.

EVENTS TIMELINE:

- At 06:58, there was flight control handover to the Russian Segment.
- The Soyuz thruster test took place from 07:03 to 07:28.
- A maneuver to nominal LVLH TEA took place from 07:28 to 07:39.
- Finally, at 07:47 there was flight control handover from the Russian Segment back to US momentum management.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Quantify



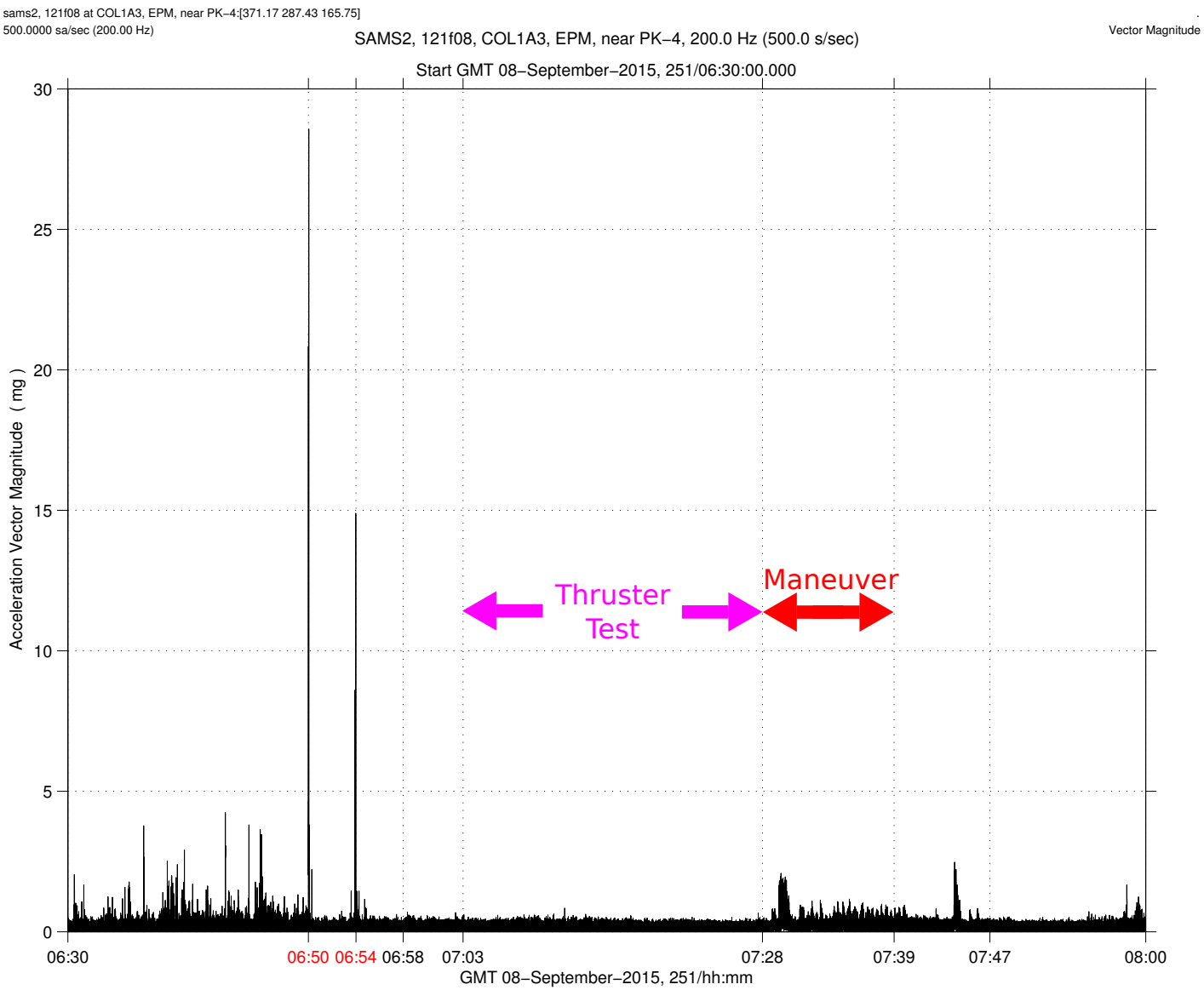
Description	
Sensor	SAMS 121f05 500.0 sa/sec, 200.0 Hz
Location	JPM1F5, ER4, Drawer 2
Plot Type	Accel. Vector Mag. vs. Time

Notes:

- This plot corresponds to the same time frame as the previous page, but were measured by a SAMS sensor in the Japanese pressurized module (JPM).
- The vibratory acceleration magnitudes here are notably lower than those from the US Lab, but again no remarkable spikes.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Quantify



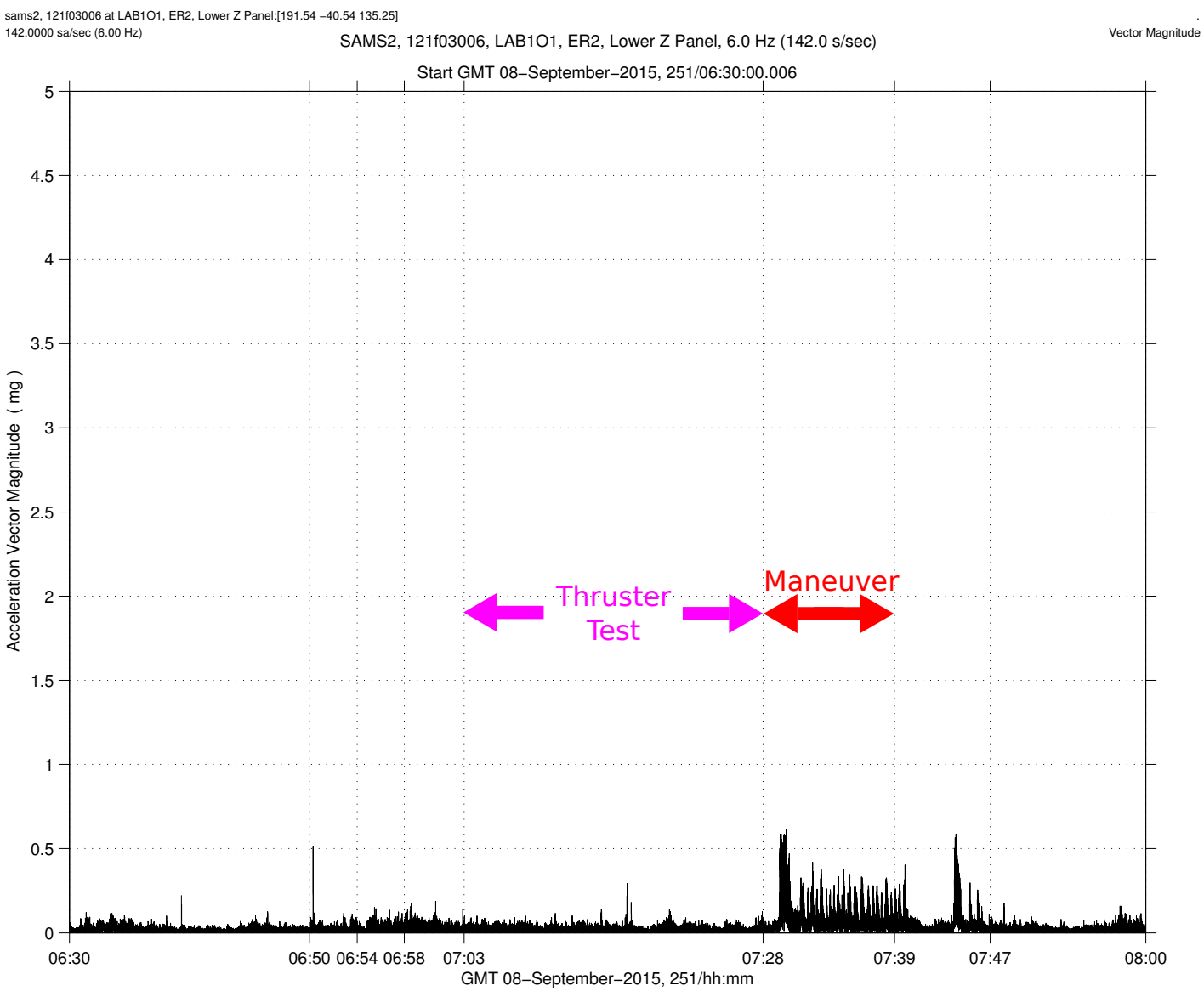
Description	
Sensor	SAMS 121f08 500.0 sa/sec, 200.0 Hz
Location	COL1A3, EPM, near PK-4
Plot Type	Accel. Vector Mag. vs. Time

Notes:

- This acceleration magnitude versus time plot shows SAMS measurements from a sensor in the Columbus module.
- Baseline vibratory acceleration magnitudes are lowest at this sensor location, but there are 2 large spikes that occur at 06:50 and at 06:54, annotated in red.
- These large spikes occur well before the thruster test and we would speculatively attribute to crew activity in the Columbus module.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Quantify



Description	
Sensor	SAMS 121f03 142.0 sa/sec, 6.0 Hz
Location	LAB1O1, ER2, Lower Z Panel
Plot Type	Accel. Vector Mag. vs. Time

Notes:

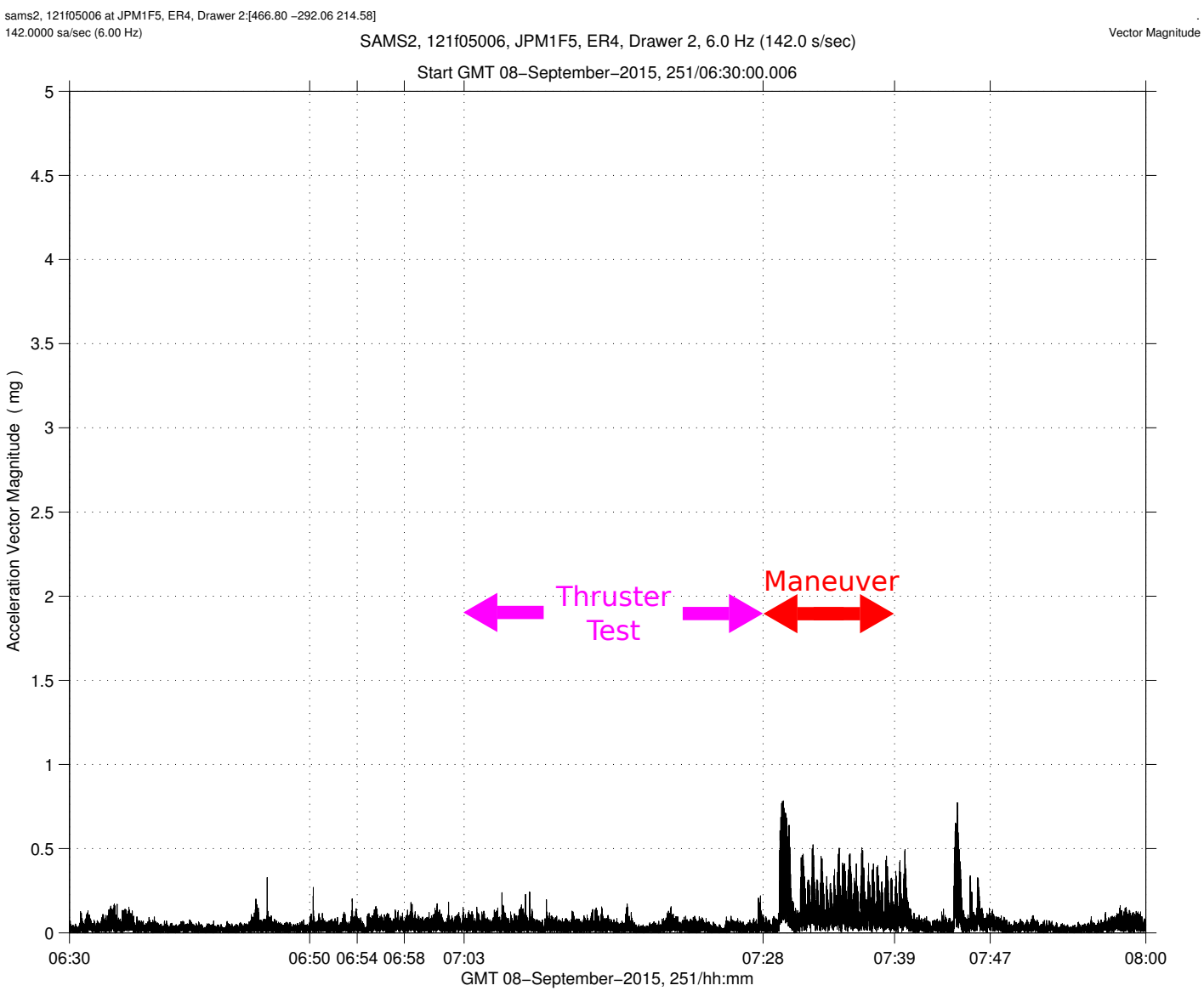
- In order to clearly see some features of the thruster test without measurements dominated by higher-frequency vibrations, we show a plot here of acceleration vector magnitude versus time for the SAMS sensor in the US Lab after low-pass filtering at 6 Hz.
- The most notable feature comes from the maneuver that took place after the thruster test between 07:28 and 07:39.

EVENTS TIMELINE:

- At 06:58, there was flight control handover to the Russian Segment.
- The Soyuz thruster test took place from 07:03 to 07:28.
- A maneuver to nominal LVLH TEA took place from 07:28 to 07:39.
- Finally, at 07:47 there was flight control handover from the Russian Segment back to US momentum management.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Quantify



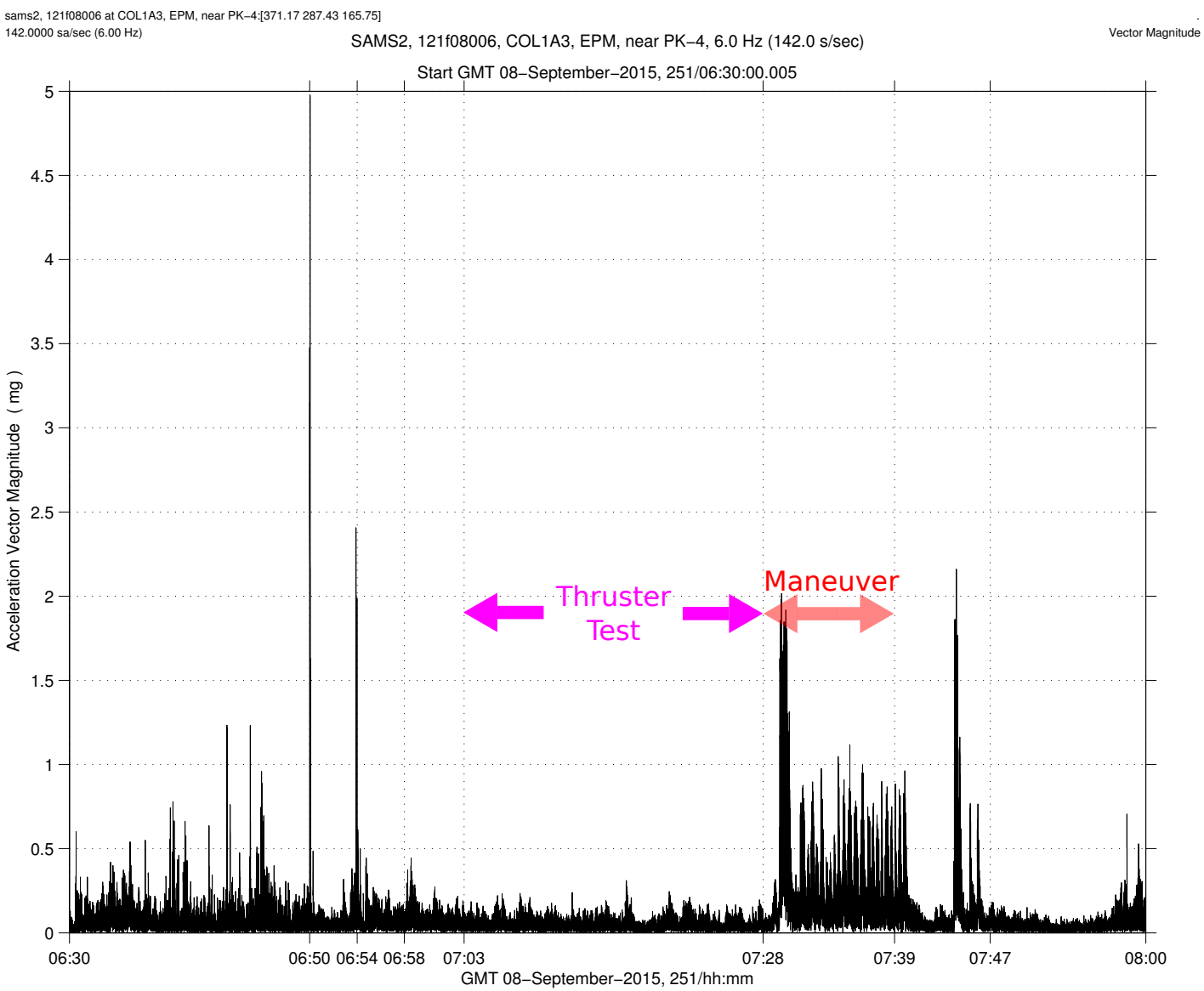
Description	
Sensor	SAMS 121f05 142.0 sa/sec, 6.0 Hz
Location	JPM1F5, ER4, Drawer 2
Plot Type	Accel. Vector Mag. vs. Time

Notes:

- In order to clearly see some features of the thruster test without measurements dominated by higher-frequency vibrations, we show a plot here of acceleration vector magnitude versus time for the SAMS sensor in the Japanese module after low-pass filtering at 6 Hz.
- The most notable feature comes from the maneuver that took place after the thruster test between 07:28 and 07:39.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Quantify



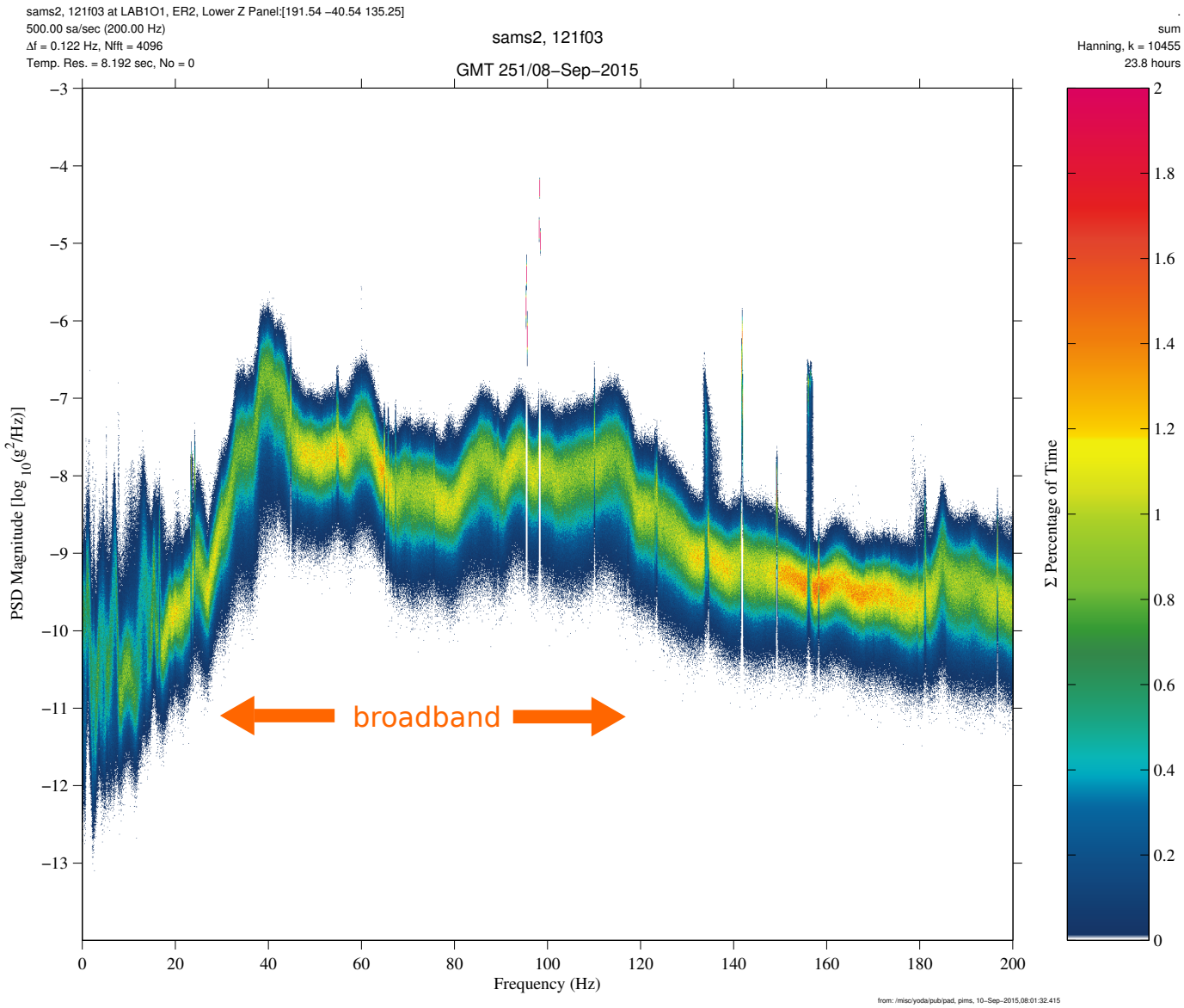
Description	
Sensor	SAMS 121f08 142.0 sa/sec, 6.0 Hz
Location	COL1A3, EPM, near PK-4
Plot Type	Accel. Vector Mag. vs. Time

Notes:

- In order to clearly see some features of the thruster test without measurements dominated by higher-frequency vibrations, we show a plot here of acceleration vector magnitude versus time for the SAMS sensor in the European Columbus module after low-pass filtering at 6 Hz.
- The most notable feature around the thruster test comes from the maneuver that took place after the thruster test between 07:28 and 07:39, and the two large spikes at 06:50 and 06:54.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Qualify



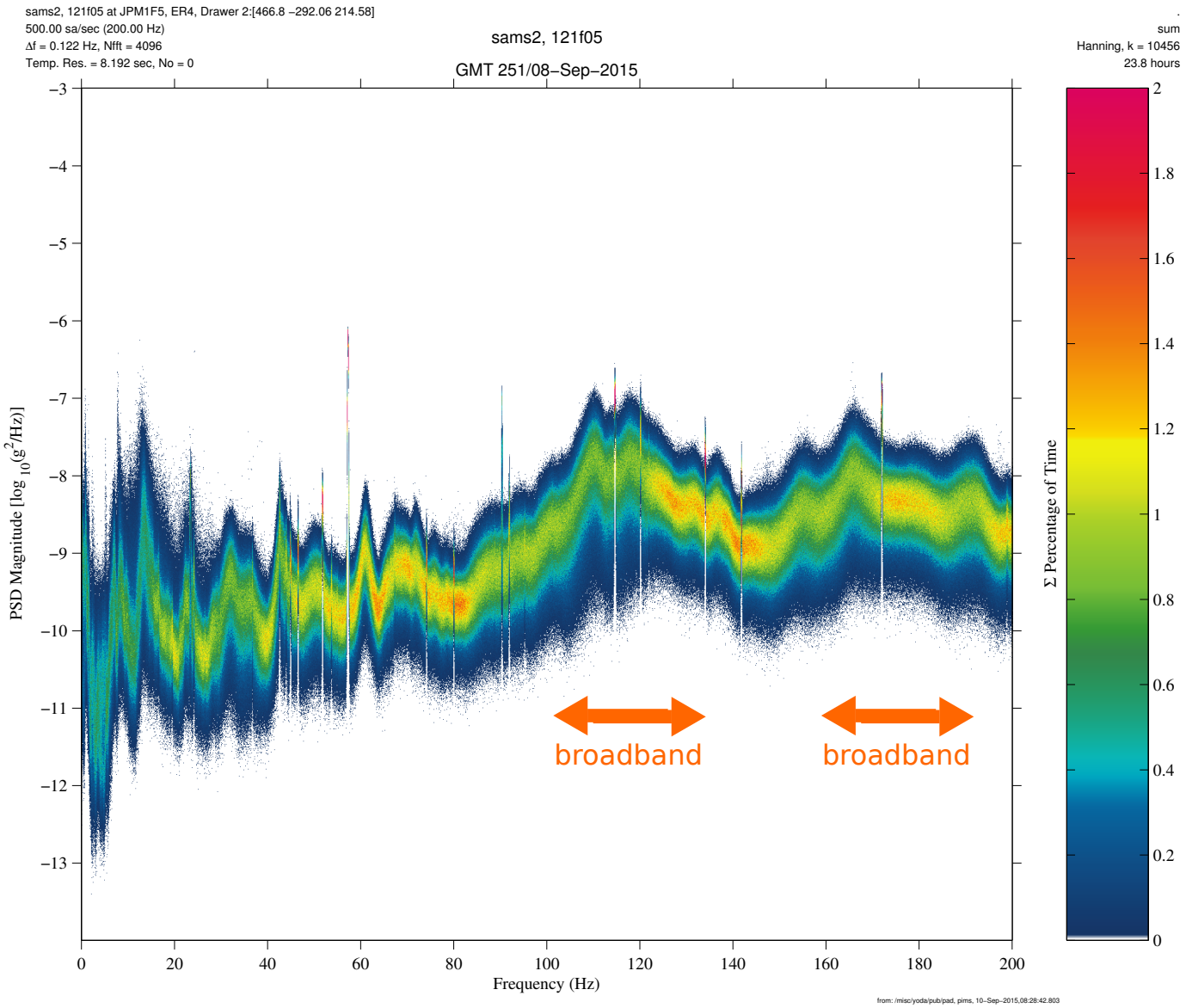
Description	
Sensor	SAMS 121f03 500.0 sa/sec, 200.0 Hz
Location	LAB1O1, ER2, Lower Z Panel
Plot Type	PSD/Time Histogram

Notes:

- This histogram plot of Power Spectral Density for the entire day on which the thruster test took place shows where the dominant vibratory accelerations reside as a function of frequency (and color to show time). These data were measured by a SAMS sensor in the US Lab.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Qualify



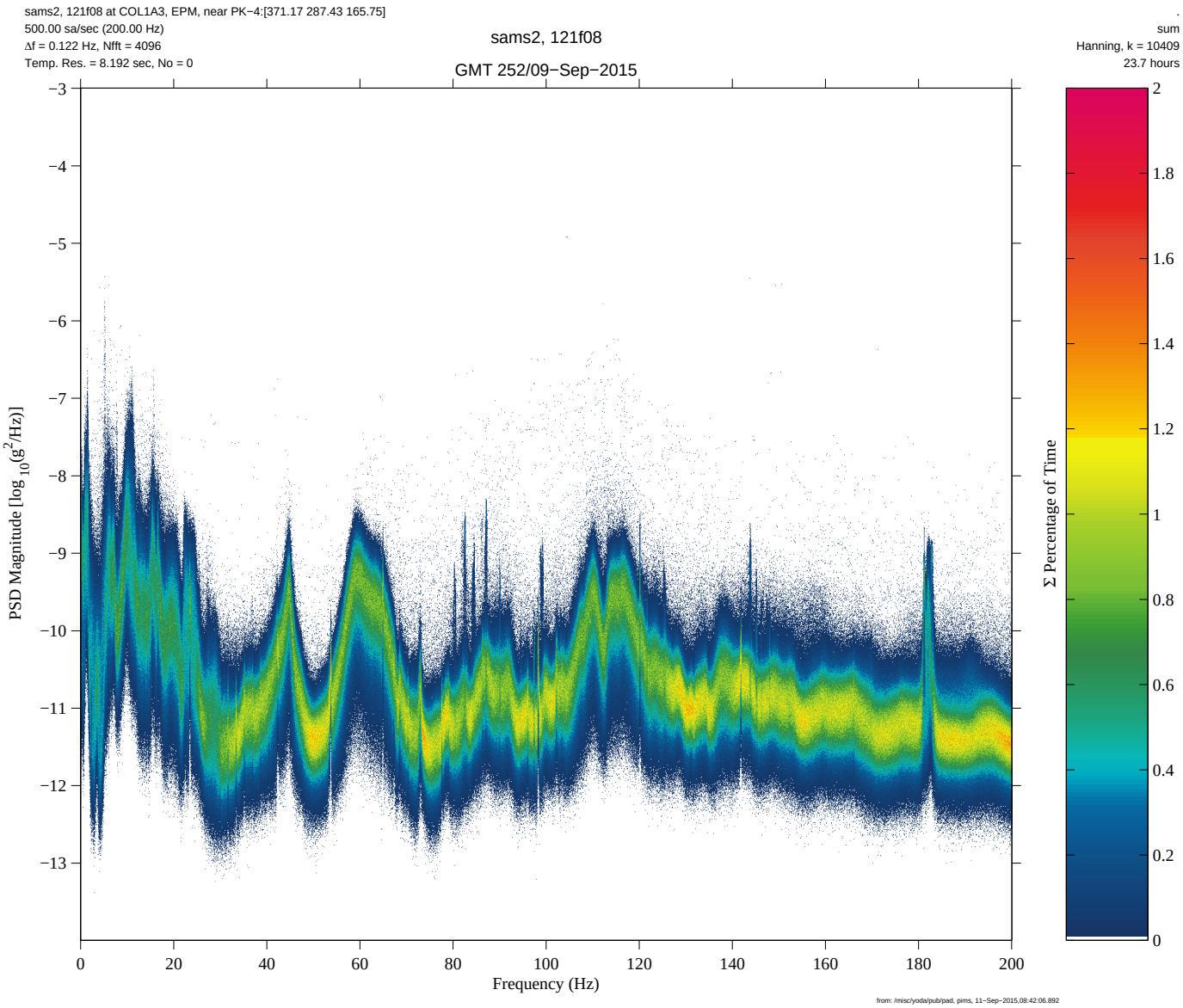
Description	
Sensor	SAMS 121f05 500.0 sa/sec, 200.0 Hz
Location	JPM1F5, ER4, Drawer 2
Plot Type	PSD/Time Histogram

Notes:

- This histogram plot of Power Spectral Density for the entire day on which the thruster test took place shows where the dominant vibratory accelerations reside as a function of frequency (and color to show time). These data were measured by a SAMS sensor in the Japanese Lab.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08

Soyuz 42S Thruster Test 2015-09-08
Qualify



Description	
Sensor	SAMS 121f08 500.0 sa/sec, 200.0 Hz
Location	COL1A3, EPM, near PK-4
Plot Type	PSD/Time Histogram

Notes:

- This histogram plot of Power Spectral Density for the entire day on which the thruster test took place shows where the dominant vibratory accelerations reside as a function of frequency (and color to show time). These data were measured by a SAMS sensor in the European Lab.

Regime:	Vibratory
Category:	Vehicle
Source:	Soyuz 42S Thruster Test 2015-09-08