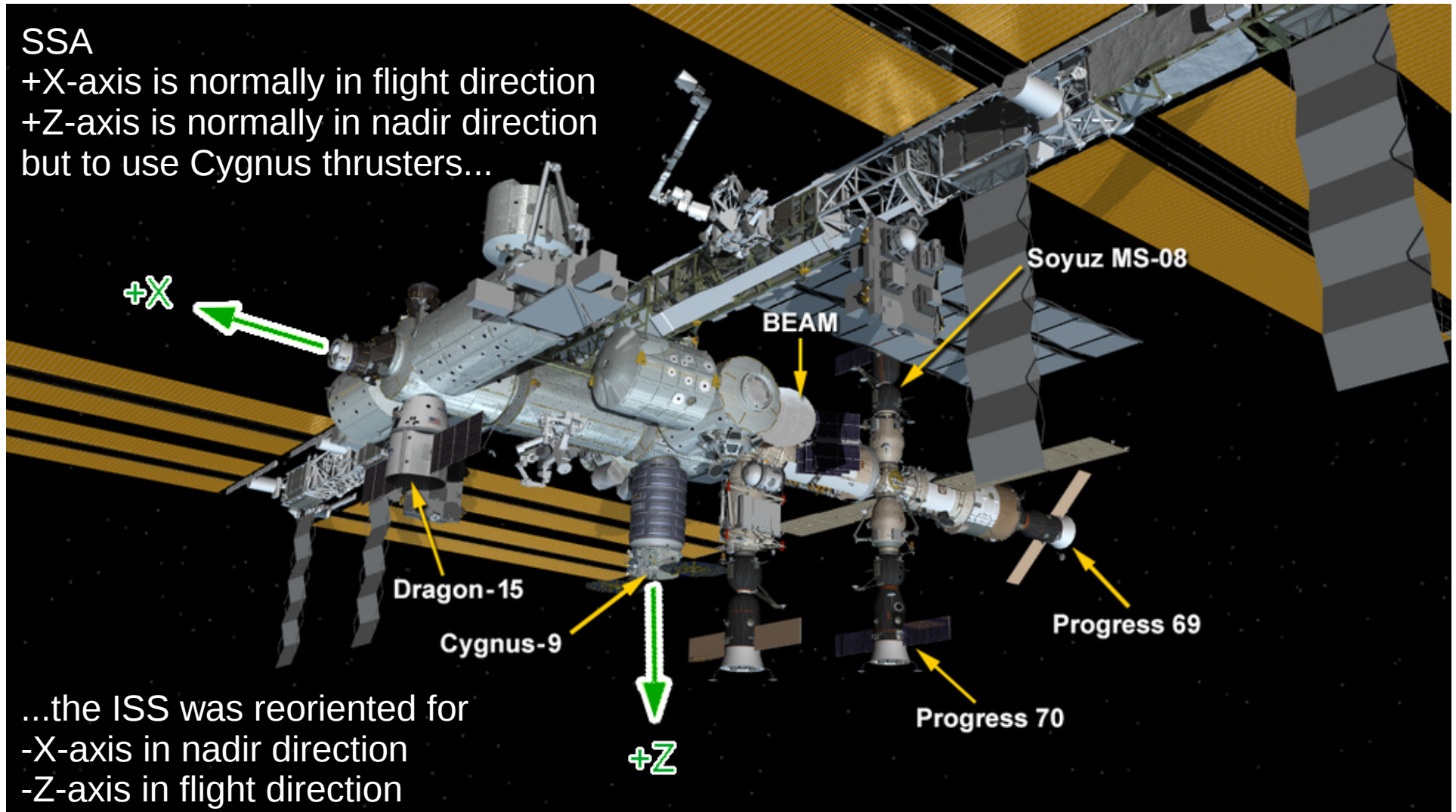


Cygnus OA-9 Reboost on 2018-07-10

Cygnus Reboost DTO (M18_191_B_07.UAF)									07/10/2018
54	191/19:25:00 —	Y	+36	-XVV +ZLV TEA	LVLH	+177.000 +359.200 +0.700	MMT UST	Transition to USTO	
55	191/19:25:01 191/19:45:00	Y	+36	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	UST UST	Mnvr to Cygnus Reboost Attitude	USTO option 1 (smooth mnvr, duration 20 minutes)
56	191/19:59:00 —	Y	+36	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	UST THR	Handover US to RS	
57	191/20:05:00 191/20:10:00	Y	+36	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	THR THR	Quaternion Update for Cygnus Reboost DTO	TIG 20:25:00 DUR 01:00
58	191/20:45:00 —	Y	+36	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	THR UST	Handover from RS to US into USTO	
59	191/20:45:01 191/21:05:00	Y	+36	-XVV +ZLV TEA	LVLH	+177.000 +359.200 +0.700	UST UST	Mnvr to -XVV TEA	USTO option 1 (smooth mnvr, duration 20 minutes)
60	191/21:17:00 —	Y	+36	-XVV +ZLV TEA	LVLH	+177.000 +359.200 +0.700	UST MMT	Transition to Momentum Management using USTO	TEA for VV#3z N1nCN2nDzefe, PSARJ Auto, SSARJ Auto

Cygnus Alignment in Space Station Analysis (SSA) Coordinates



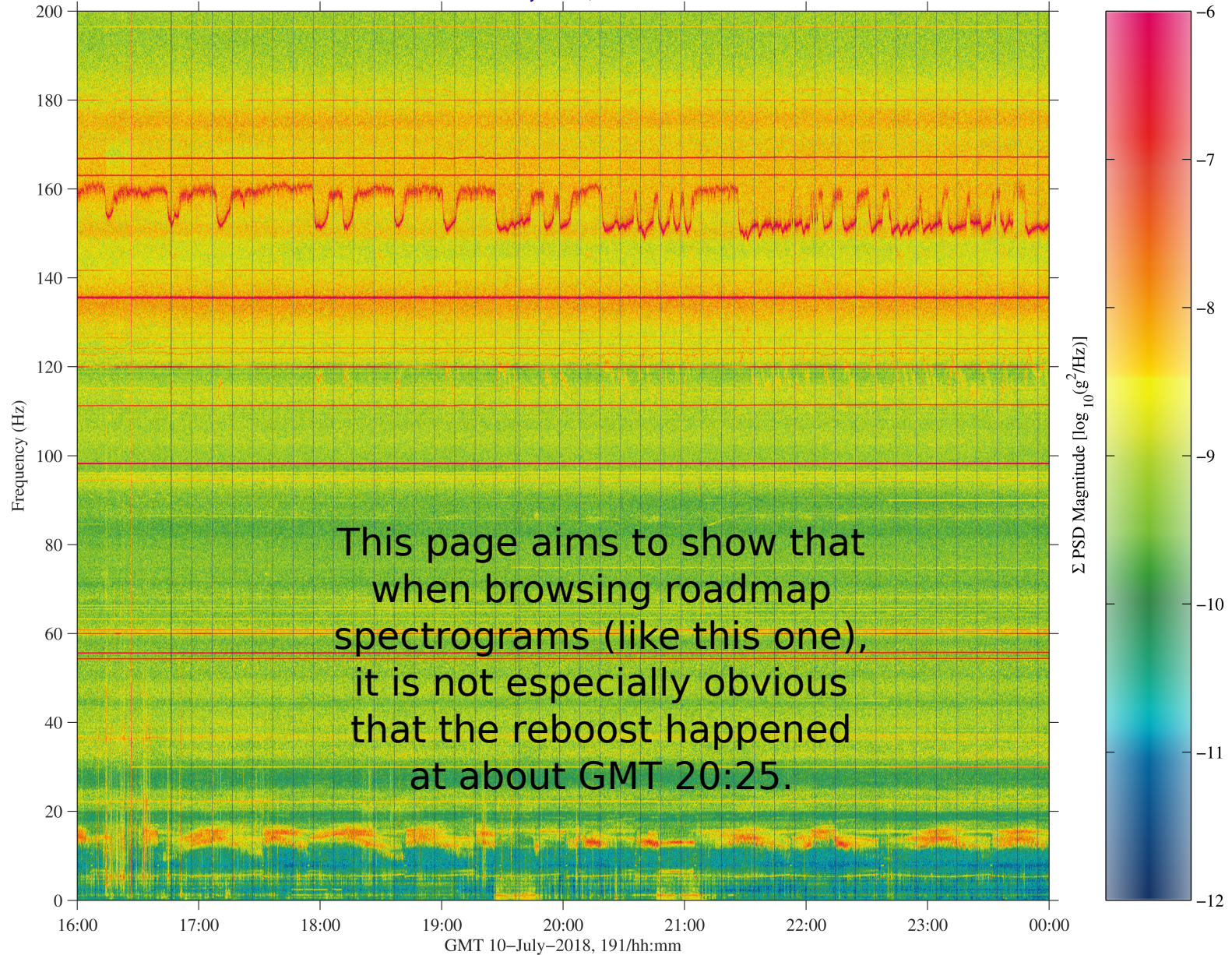
200 Hz Spectrogram (Roadmap) of Cygnus Reboost

sams2, 121f04 at LAB1P2, ER7, Cold Atom Lab Front Panel:[156.60 -46.08 207.32]
500.0000 sa/sec (200.00 Hz)
 $\Delta f = 0.122$ Hz, Nfft = 4096
Temp. Res. = 8.192 sec, No = 0

sams2, 121f04

Start GMT 10-July-2018, 191/16:00:00.001

Sum
Hanning, k = 3515
Span = 8.00 hours



40 Hz Spectrogram of Cygnus Reboost

sams2, 121f04 at LAB1P2, ER7, Cold Atom Lab Front Panel:[156.60 -46.08 207.32]

500.0000 sa/sec (200.00 Hz)

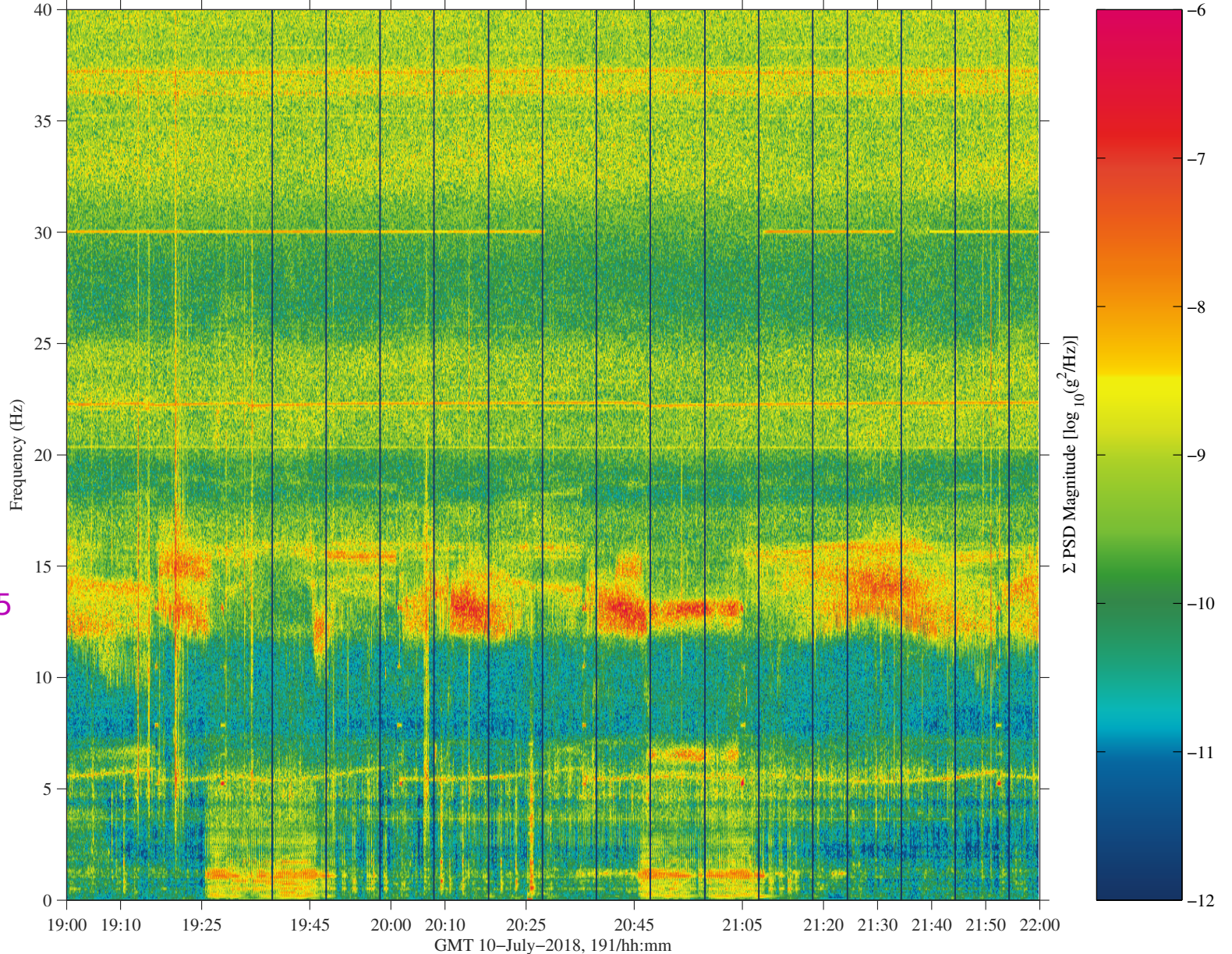
$\Delta f = 0.061$ Hz, Nfft = 8192

Temp. Res. = 8.192 sec, No = 4096

SAMS2, 121f04, LAB1P2, ER7, Cold Atom Lab Front Panel, 200.0 Hz (500.0 s/sec)

Start GMT 10-July-2018, 191/19:00:00

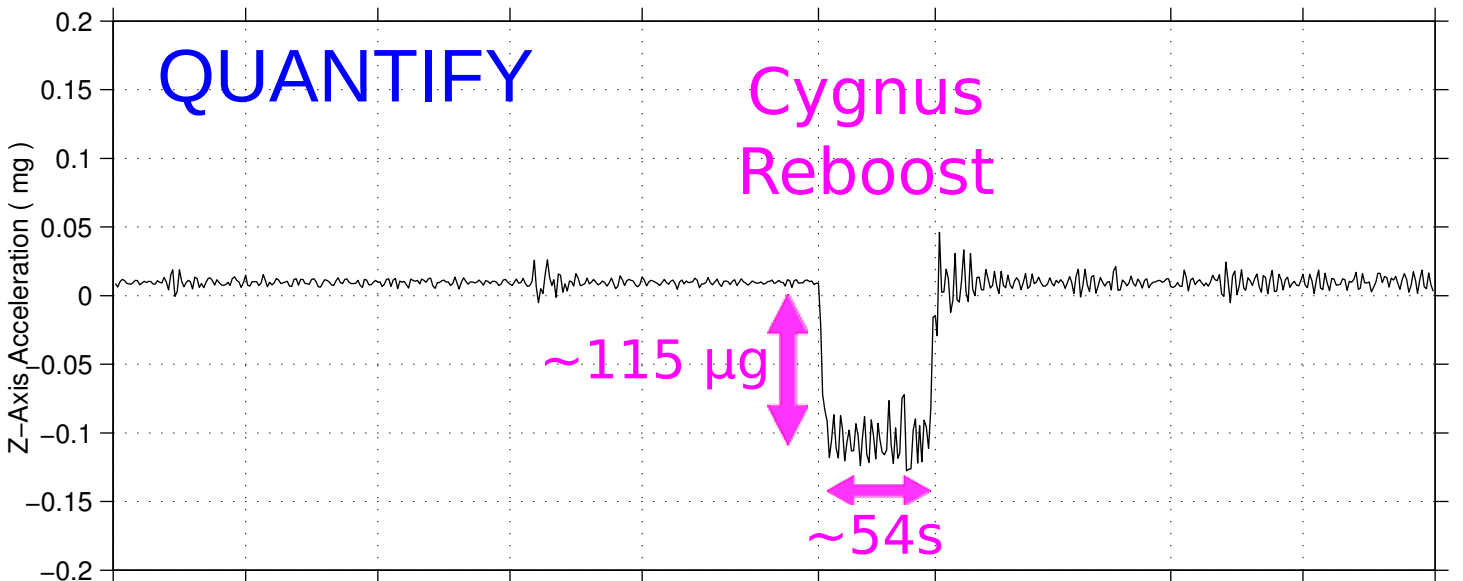
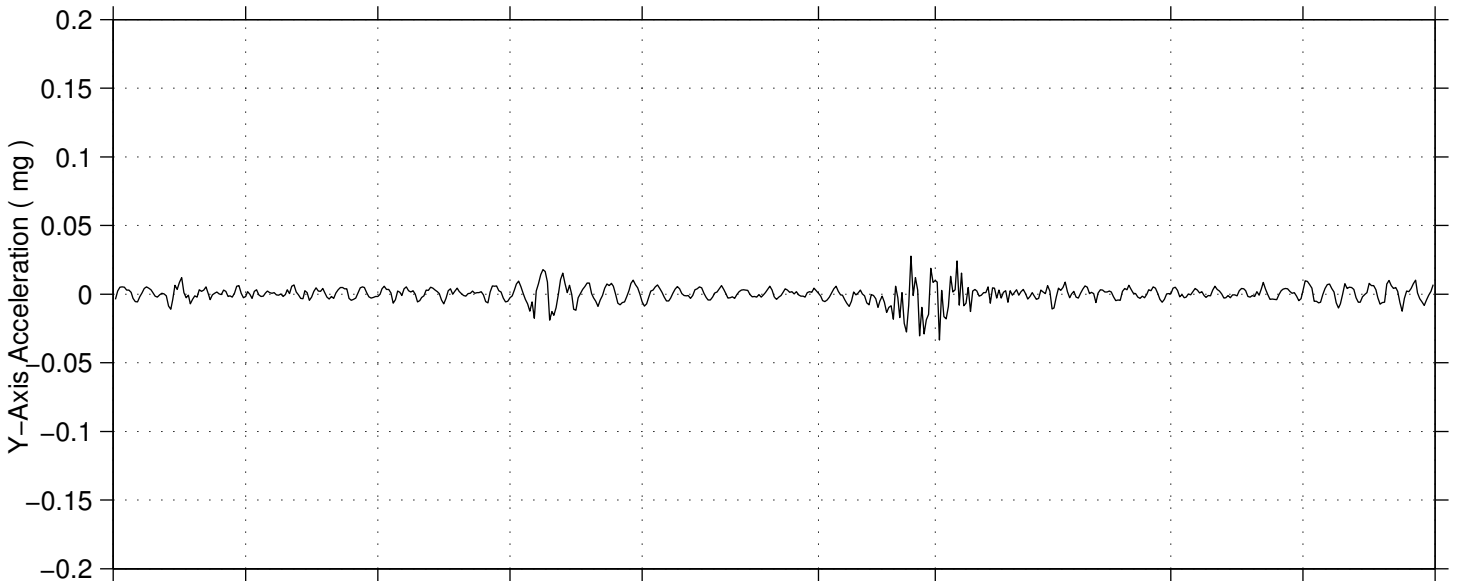
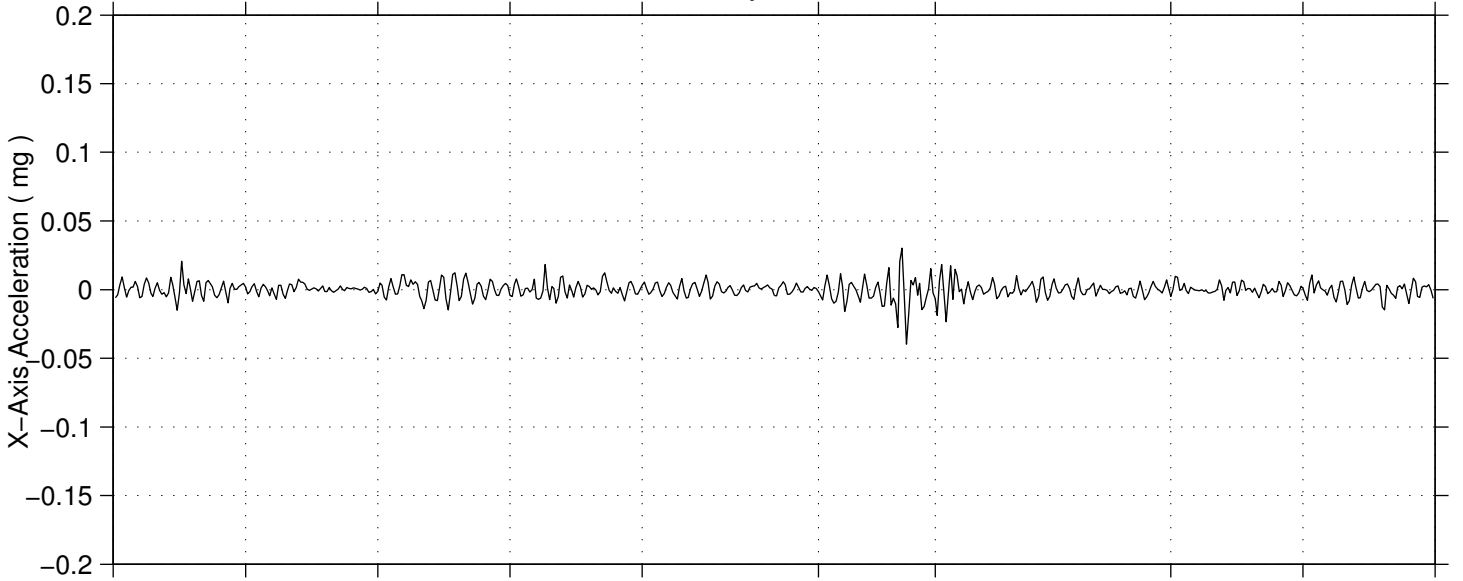
Sum
Hanning, k = 1317
Span = 179.68 minutes



QUALIFY

This spectrogram zooms in on both the time and the frequency axis to better show the impulse at time of ignition near GMT 20:25. This also clearly shows the impact of the maneuver to the reboost attitude between GMT 19:25 and 19:45 plus the maneuver to -XVV TEA after the reboost, which happens between GMT 20:45 and 21:05.

Start GMT 10-July-2018, 191/20:20:00



20:20:00 20:21:00 20:22:00 20:23:00 20:24:00 20:25:20 20:26:13 20:28:00 20:29:00 20:30:00

GMT 10-July-2018, 191/hh:mm:ss