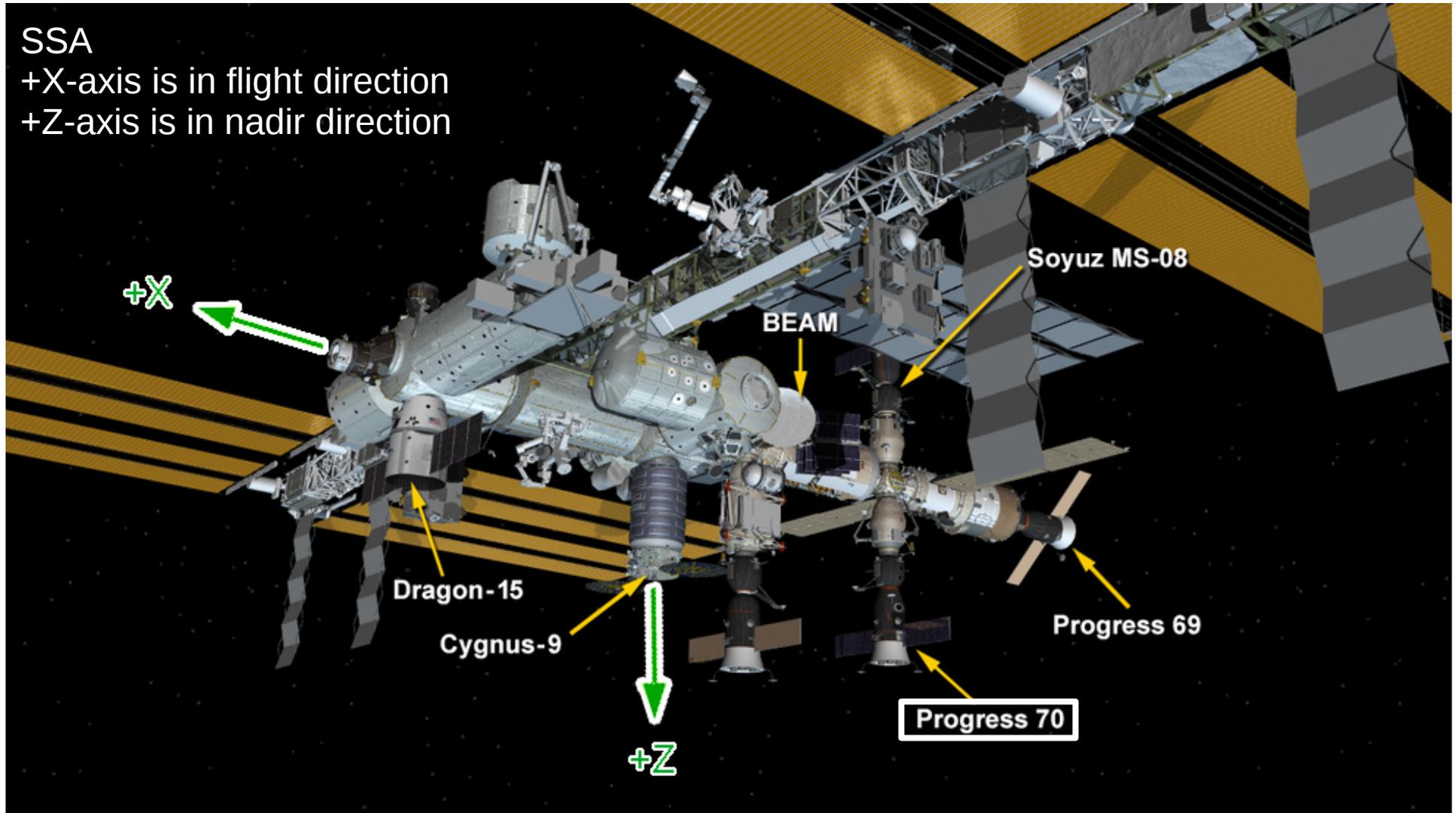


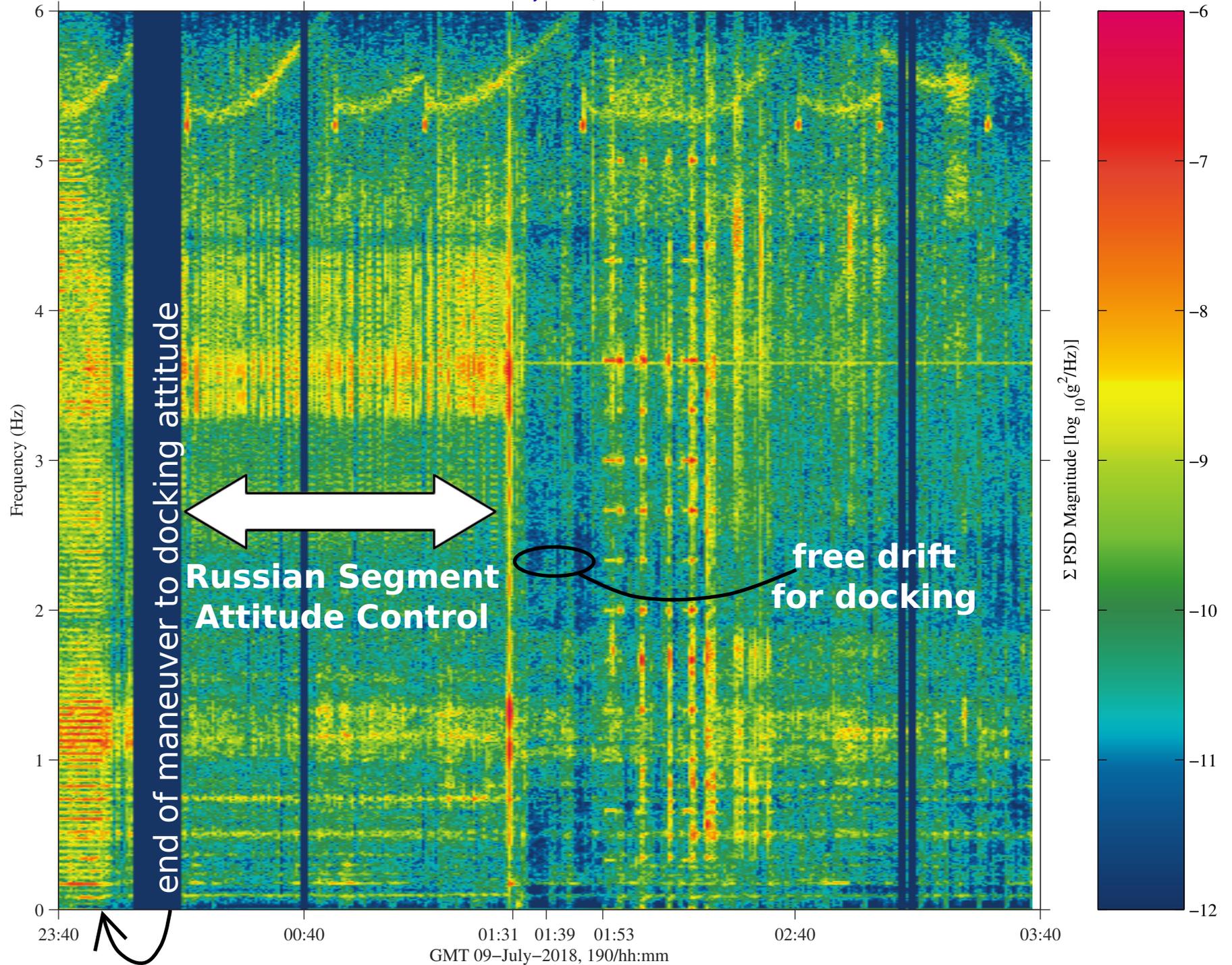
Progress 70P Two-Orbit Docking to DC-1 Nadir

#	Maneuver Start-Stop GMT	S-Band?	Beta Angle	Attitude Name	Ref. Frame	YPR	F/T Cfg.	Event	Remarks
Progress 70P 2-Orbit Docking to DC-1 Nadir (H18_191_A_05.UAF)									07/09/2018
45	190/23:30:00 —	Y	+32	-XVV +ZLV TEA	LVLH	+177.000 +0.500 +0.700	MMT UST	Transition to USTO	
46	190/23:30:00 190/23:53:00	Y	+32	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	UST UST	Mnvr to Docking Attitude	USTO option 1 (smooth mnvr, duration 20 minutes)
47	190/23:59:00 —	Y	+32	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	UST THR	Handover US to RS	
48	191/00:04:00 191/00:09:00	Y	+32	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	THR THR	Quaternion Update	
49	191/01:31:00 191/02:04:12	Y	+33	-ZVV -XLV	LVLH	+180.000 +90.000 +0.000	THR FDO	Free Drift for Docking (Prog on DC-1)	Docking at 01:39:14
50	191/01:54:00 191/02:16:00	Y	+33	-XVV +ZLV TEA	LVLH	+177.000 +359.200 +0.700	THR THR	Mnvr to Post Docking LVLH TEA	
51	191/02:40:00 —	Y	+33	-XVV +ZLV TEA	LVLH	+177.000 +359.200 +0.700	THR MMT	Handover RS to US Momentum Management	TEA for VV#3z_N1nCN2nDzefe , PSARJ Auto, SSARJ Auto

Confirmed with ADCO that this is a typo – should be GMT 191/01:54:00.

Progress 70P Alignment in Space Station Analysis (SSA) Coordinates





Low-Pass Filtered Data Better Shows Some Docking Details

Start GMT 09-July-2018, 190/23:40:00.001

