



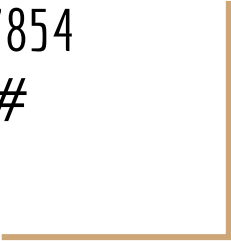
DSCOVR Working Group (DWG) Meeting

September 28, 2021 / 11:15AM / Room 1305

Google Meet: meet.google.com/zgn-hpfa-rwf

Dial In: 1-386-753-7854

PIN: 963 997 771#



Overview

A	B	C	D	E	F
Ref	Item	Category	Occurring Next	Owner	Agenda Item
E	NISTAR Intercomparisons: Short w/Dark Space Cal. (Quarterly on 3rd Wednesday)	4 - Space/Ops	10/20/2021	Raab/Abadia	Agenda Item
F	NISTAR Intercomparisons: Rapid (Quarterly after Mag X-Roll)	4 - Space/Ops	10/8/2021	Raab/Abadia	Scheduled
G	NISTAR Intercomparisons: SD Cycle (Quarterly after Mag X-Roll)	4 - Space/Ops	10/8/2021	Raab/Abadia	Scheduled
H	EPIC Lunar Calibration (Quarterly - Jan/Apr/Jul/Oct)	4 - Space/Ops	10/19/2021	Raab/Abadia	Scheduled
I	ESAMCP Characterization (Quarterly on 3rd Thursday)	4 - Space/Ops	12/16/2021	Raab/Abadia	Scheduled
J	Faraday Cup Calibration (Quarterly on 3rd Friday)	4 - Space/Ops	12/17/2021	Raab/Abadia	Scheduled
K	NISTAR Dark Space Calibration (4th Tuesday)	4 - Space/Ops	10/6/2021	Raab/Abadia	Scheduled
L	Magnetometer X-Axis Roll (Every 4 weeks)	4 - Space/Ops	10/22/2021	Raab/Abadia	Scheduled
M	SEZ Burn Through or Delta-V (Every 10 weeks)	4 - Space/Ops	10/4/2021	Abadia	Scheduled
N	Delta-H (Every 10 weeks)	4 - Space/Ops	10/4/2021	Abadia	Scheduled
O1	ATS Build	5 - All	9/30/2021	Abadia	Agenda Item
O2	ATS Uplink	4 - Space/Ops	10/1/2021	Raab/Abadia	Scheduled
Z	MOC Ground System: Issues and Plans	3 - Ground	NA	Kerry	Agenda Item

Space Operations: Last Week (9/21 - 9/28)

- **9/19-9/28 - TM VxWorks SysMem Partition Average Block Size (TMVAVGBLCK) flagging RL at 2238.**

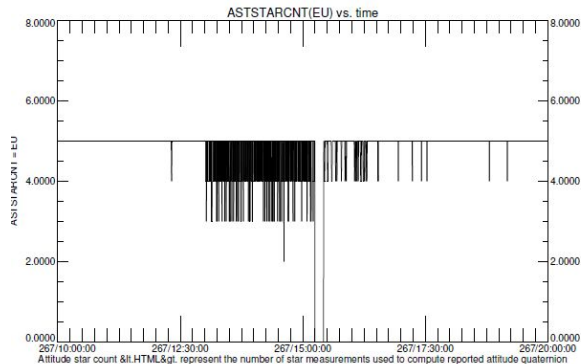
- The current RL limit is 2300. Engineers are working with FSSE to determine a new RL value.
- Ran proc and sent results on 9/27

- **9/22 - 12:30 - 0230z - EPIC Special Flatfield Imaging**

- Nominal; Files sent to DSOC on 9/23.
- EPIC imaging stopped on 264/1200 and no imaging on DOY 266

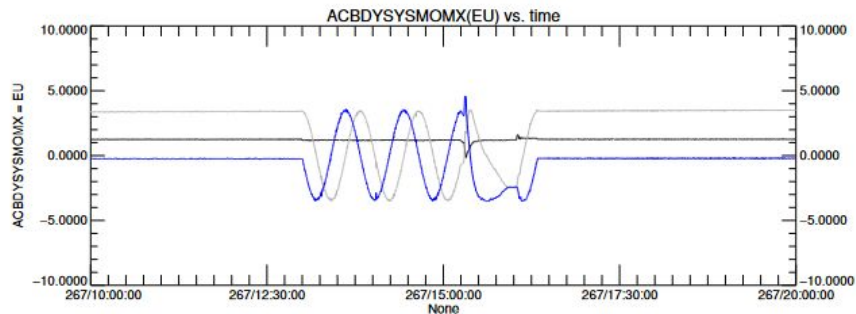
- **9/24 - 13:00 - 18:00z - Magnetometer X-axis Roll - LIS SH Event**

- Event Times/Recovery - next slide
- Outages
 - Faraday Cup/ESA/NISTAR outage times: 1 hour, 13 minutes
 - EPIC outage time: 8 hours, 45 minutes



Space Operations: This Week/Next Week (9/28-10/10)

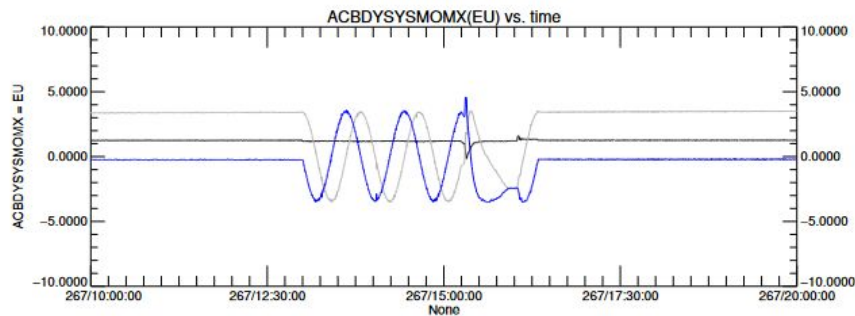
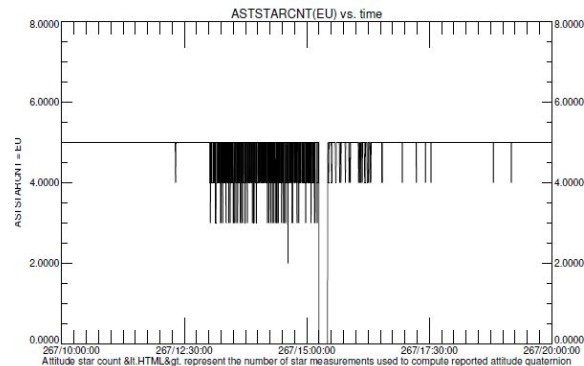
- 10/4 - SEZ-BT-I-C maneuver (timeline on next slide)
- 10/6 - 00:28 - 0338z - Monthly Dark Space Calibration
- 10/8 - 21:30 - 21:50z - NISTAR Rapid IC
- 10/8 - 22:30 - 22:45 - NISTAR Photodiode SD Cycle



Mag X-Roll LIS Event - 2021/267

- **9/24 - 13:00 - 18:00z - Magnetometer X-axis Roll - LIS SH Event**

- 15:14:41 - ST tracking 4 stars
- 15:14:46z - Dropped down to 0 stars
- 15:17:57z - Went to SAFEHOLD
- 15:25:46z - ST tracking 5 stars
- Recovery Timeline
 - 15:15 - 15:55z - WCDAS uplink issues
 - 15:56- successful snoop
 - 15:57 - Transitioned to Sunacq
 - 16:01 - Transitioned to Science
 - 16:04 - Switched to HGA
 - 16:27 - debug set to wrap
 - 16:28 - Switched to 138k
 - 16:29 - Closed the ISO valve
 - 16:38 - Loaded STDR table



SEZ BT Insertion Burn Correction: Activity Timeline

● 8/30 - SEZ Burn Through Insertion Correction Maneuver - 1145-1500z

- *DSN AOS - 1140z*
- Suspend Catbed Safing Script - 1100z
- Enable Primary Heaters (1-8) - 1101z
- Enable Primary Heaters (9-10) - 1102z
- Instrument Safing
 - EPIC - 1145z
 - NISTAR - 1147z
 - ESA - 1150z
 - FC - 1205z
- Load Special DS Table Filter 6 - 1216z
- Increase ACS Packets - 1217z
- *Switch to 1k / Switch to Omni / Slew to Target - 1230z - 1250z*
- Enable Thrusters (All) - 1255z
- SEZ Burn Start (via acs_deltav) - 1300z (estimated times after this)
- SEZ-BT-I End - 1330z
- Disable Thrusters (All) - 1331z
- AutoTarget - 1333z - 1340z
- Switch to HGA - 1342z | Switch to 138k - 1344z
- Reset Counters - 1350z
- Enable Thrusters (1-8) - 1355z
- Delta-H Maneuver - 1400-1430z
- Disable Thrusters (1-8) - 1431z
- Heaters Off (All) - 1433z
- Restore Default FSW Table 6 - 1435z
- Reset Counters - 1437z
- Start File Queue - 1439z
- Dump VC1 (Eng Only) - 1441z
- Instrument Recovery
 - NISTAR - 1505z
 - FC - 1535z
 - ESA - 1545-1605z
- Pause File Queue - 1731z
- Re-enable Safing Script - TBD
- *DSN LOS - 1741z / WCDAS AOS - 1751z*

Current ATS and ICS Build

Today's Date	Today's Week #	Next Week's Week Number
09/28/21	39	40

The content in this area is for next week's ATS and ICS build.

bMOC Use Schedule: Current Week Build

bMOC	Week #	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
bMOC	40	N	N	N	N	N	N	N

Input Request Coordination: Current ATS Build

Week #	ATS Start DOY	ATS End DOY	Task Name	Task DOY	Task Date	Task Start Time	Task End Time	Timeline	Timeline(s) Ready	Activity	Activity Time	CMDs Needed	Command	Command Time	Note
40	277	283	Daily EPIC Imaging	All		00:01		E2021001ATS01	<input checked="" type="checkbox"/>			<input type="checkbox"/>			
40	277	283	SEZ Burn Through Insertion Correction Burn	277	10/04/21	13:00	19:00	A20212771ATS00	<input type="checkbox"/>			<input type="checkbox"/>			
40	277	283	Suspend Catbed Safing Script	242	08/30/21	11:00	11:00	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	SCSUSPEND SLOT=8	11:00	
40	277	283	Enable Primary heaters (1-8)	242	08/30/21	11:01	11:01	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	ACAT18PRMEN	11:01	
40	277	283	Enable Primary Heaters (9-10)	242	08/30/21	11:02	11:02	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	ACAT910PRMEN	11:02	
40	277	283	Load Special DS Filter Table 6	242	08/30/21	12:16	12:16	N/A	<input type="checkbox"/>	PreDVDSFilterTbl	12:16	<input type="checkbox"/>			
40	277	283	Increase ACS Packets (DSFILTER)	242	08/30/21	12:17	12:17	N/A	<input type="checkbox"/>	PreDVACSDSpkFilter	12:17	<input type="checkbox"/>			
40	277	283	Increase ACS Packets to max rate for 28 (DSFILTER)	242	08/30/21	12:17:02	12:17:02	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	DSSETFILTER APID=28, VALUE=1	12:17:02	
40	277	283	Increase ACS Packets to max rate for 29 (DSFILTER)	242	08/30/21	12:17:04	12:17:04	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	DSSETFILTER APID=29, VALUE=1	12:17:04	
40	277	283	Increase ACS Packets to max rate for 30 (DSFILTER)	242	08/30/21	12:17:06	12:17:06	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	DSSETFILTER APID=30, VALUE=1	12:17:06	
40	277	283	Increase ACS Packets to max rate for 52 (DSFILTER)	242	08/30/21	12:17:08	12:17:08	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	DSSETFILTER APID=52, VALUE=1	12:17:08	
40	277	283	Change Tim Rate to 1kbps	242	08/30/21	12:32	12:32	N/A	<input type="checkbox"/>	AOS1k	12:32	<input type="checkbox"/>			
40	277	283	Switch to Omni Antennas	242	08/30/21	12:33	12:33	N/A	<input type="checkbox"/>	SWITCHtoOMNI (EXPAND MPS)	12:33	<input type="checkbox"/>			
40	277	283	Slew To Target	242	08/30/21	12:37:06	12:50	A2021277ATS00	<input checked="" type="checkbox"/>			<input type="checkbox"/>			
40	277	283	Enable Thrusters 1-10	242	08/30/21	12:55	12:55	N/A	<input type="checkbox"/>	ThrusterEnable	12:55	<input type="checkbox"/>			
40	277	283	AutoTarget (Fallsafe)	242	08/30/21	17:40	17:40	N/A	<input type="checkbox"/>			<input checked="" type="checkbox"/>	AAUTOTARG	17:40	
40	277	283	NISTAR Dark Space Calibration: Winter	279	10/06/21	00:28	3:38	N2021001ATS01 A2021279ATS00	<input type="checkbox"/>			<input type="checkbox"/>			
40	277	283	NISTAR SD PhotoDiode Shutter Cycle	281	10/08/21	22:30	22:45	N2020001ATS00	<input checked="" type="checkbox"/>	NISTARSDShutterCycle	22:30	<input type="checkbox"/>			N/A
40	277	283	NISTAR Rapid IC	281	10/08/21	23:30	23:50	N2020001ATS00	<input checked="" type="checkbox"/>	NISTARrapidInterComp	23:30	<input type="checkbox"/>			N/A

Integrated Contact Schedule Management

View Periods for Next Week

Week #	Site	DOY	Start Date	End Date	Start Time	End Time

Current Week Build NEN and WCDAS Request Report

Primary	Week #	Monday	Tuesday	Wednesday	Thursday	Friday	Sunday	Current Week Check
								<input type="checkbox"/>

References

Current Week Reports

DSN Passes for Next Week

Week #	Site	DOY (Start)	Start Date	Start Time	End Date	End Time	SOE Code	Oct 4
40	54	277	10/04/21	11:40:00	10/04/21	17:40:00	W	M T W T F S S M T W T F 11:40:00
40	24	281	10/08/21	20:10:00	10/08/21	21:10:00	B	20:10:00

NEN Passes for Next Week

Week #	Site	DOY (Start)	Start Date	Start Time	End Date	End Time	TR Code	Sep 27
								M T W T F S S M T W T F

Spacecraft Issues

- **Priority 1 - DSCO-22 - Data Storage Task Anomaly** - DSCOVR encountered a major anomaly with a number of active FSW tasks during the scheduled execution of a VC1 ENG/SCI packet data dump on 20 Jul 2020 (20/202)
- **Priority 2 - DSCO-23 - LIS Safe Holds during Magnetometer X-Axis Calibrations** - Spacecraft does not maintain Star Tracker lock during X-Axis Calibration rolls, at both 4 deg/sec and 7 deg/sec rates.
 - Calibrations are required to maintain long-term instrument functionality.
 - **Short rolls attempted to test ST patches; regular rolls resume every 4 weeks starting July 30**
- **ON HOLD - DSCO-13 - Faraday Cup Abnormal Solar Wind Speed Measurements** - The instrument is not meeting mission requirements. At solar wind speeds at around 300 km/s, which are within specified bounds of operation [200-1250 km/s], the instrument is not operating consistently.
 - Modified Patch installed August 26, 2020; more work still needed
 - **ON HOLD Jun 28 - No changes expected in immediate future**

(All Risks/Issues Archived: <https://goo.gl/O8zff5>)

Maneuver Planning Dashboard

Burn Parameters for Next Station Keeping Maneuver

Activity Date	Activity Name	Week #	DOY	DV Duration	DV Size	Fuel Use	Bur Tim
10/04/21	SEZ BT-I Correction Burn	40	277	62.557	0.5292	0.1589	12

Upcoming Maneuvers

Activity Date	Activity Name	Week #	DOY	Confirm Start Time	Confirm End Time
10/04/21	SEZ BT-I Correction Burn	40	277	11:40	17:40
10/15/21	SEZ BT-I Correction Burn (Contingency)	41	288	11:00	17:00
11/08/21	SK##/DH##	45	312	13:00	16:00
12/13/21	SK##/DH## (Backup)	50	347		
01/17/22	SK##/DH##	3	17		
02/21/22	SK##/DH## (Backup)	8	52		
03/28/22	SK##/DH##	13	87		
05/02/22	SK##/DH## (Backup)	18	122		
06/06/22	SK##/DH##	23	157		
07/11/22	SK##/DH## (Backup)	28	192		

Future Maneuver Predictions Report

Year	Proj. Cumulative	% Used	Remaining (kg)	% Remaining	SK (kg)	SEZ Contr (kg)
2020	60.3	41.61491	84.6	58.38509	0.5	
2021	73.9	51.00069	71	48.99931	0.5	
2022	74.8	51.62181	70.1	48.37819	0.5	
2023	75.7	52.24293	69.2	47.75707	0.5	
2024	76.6	52.86404	68.3	47.13596	0.5	
2025	77.5	53.48516	67.4	46.51484	0.5	
2026	78.4	54.10628	66.5	45.89372	0.5	

DSN Maneuver Passes: Confirmed

Week #	Site	DOY (Start)	Start Date	Start Time	End Time	Activity	Oct 3								
							S	M	T	W	T	F	S	M	
40	54	277	10/04/21	11:40:00	17:40:00	L3 SEZ AV									
45	54	312	11/08/21	13:00:00	16:00:00	L3 T/P SK									
47	24	330	11/26/21	11:25:00	17:25:00	SEZ BT INS									
50	24	347	12/13/21	17:00:00	20:00:00	L3 T/P SK									

Fuel Tracking

Activity	Start Date	Start Time	End Fuel Mass (kg)
Delta-H 079	09/17/21	13:25:09	70.76699
Delta-H 078	08/30/21	15:38:06	70.79717
SEZ-BT-I	08/30/21	14:46:46	70.82255
Delta-H 077	07/21/21	04:16:27	71.07115
SEZ-BT-D	07/20/21	10:08:28	71.09303
Delta-H 076	06/16/21	14:53:58	80.75243
Delta-H 075	05/10/21	14:34:23	80.78613
SEZ3a-C	05/10/21	13:30:33	80.80575
Delta-H 074	04/12/21	19:00:02	80.84585
SEZ3a	04/12/21	15:29:18	80.87075
Delta-H 073	03/17/21	15:25:39	82.64886
Delta-H 072	02/15/21	16:50:32	82.68328
SEZ2B-C	02/15/21	16:01:20	82.69931
Delta-H 071	01/20/21	20:06:32	82.74201
SEZ2B	01/20/21	16:31:48	82.76742
Delta-H 070	12/28/20	15:18:25	84.58362
Delta-H 069	11/23/20	17:58:14	84.62139
SEZ2A-c	11/23/20	17:29:02	84.64035
Delta-H 068	11/04/20	16:49:24	84.69295
SEZ2A	10/21/20	02:01:59	84.71868
Delta-H 067	10/01/20	17:02:56	86.78068

SEV Angles: Past

SEV Angle	Date	DOY
11.879	07/19/21	200
11.83	07/18/21	199
11.773	07/17/21	198
11.711	07/16/21	197
11.643	07/15/21	196
11.57	07/14/21	195
11.49	07/13/21	194
11.403	07/12/21	193
11.308	07/11/21	192
11.205	07/10/21	191
11.091	07/09/21	190
10.967	07/08/21	189
10.831	07/07/21	188
10.682	07/06/21	187
10.519	07/05/21	186
10.342	07/04/21	185
10.15	07/03/21	184
9.943	07/02/21	183
9.72	07/01/21	182
9.481	06/30/21	181

DSN Maneuver Planning Requests: Detailed View

DSN Passes:
<https://spsweb.fltops.jpl.nasa.gov/rest/ops/info/activity/DSCO/>

Week #	Activity Name	DV Durati...	DV Size	Fuel Use	Burn Time	DSN Pass Need...	Backup Pass	DOY	Activity Date	Activity Start Time	Activity End Time	Pass Req...	Req... Start Time	Re... End Time	Ant...	Pass Confir...	Confirm... Start Time	Confirmed End Time
40	SEZ BT-I Correction Burn	62.557	0.5292	0.1589	1210	<input checked="" type="checkbox"/>	<input type="checkbox"/>	277	10/04/21	11:40	17:40	<input checked="" type="checkbox"/>	11:30	17:30	54	<input checked="" type="checkbox"/>	11:40	17:40
41	SEZ BT-I Correction Burn (Contingency)					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	288	10/15/21	11:00	17:00	<input checked="" type="checkbox"/>	11:00	17:00	54	<input checked="" type="checkbox"/>	11:00	17:00
45	SK##/DH##					<input checked="" type="checkbox"/>	<input type="checkbox"/>	312	11/08/21	13:00	16:00	<input checked="" type="checkbox"/>	13:00	16:00	54	<input checked="" type="checkbox"/>	13:00	16:00
47	SEZ BT Insertion (Contingency)					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	330	11/26/21	13:00	19:00	<input checked="" type="checkbox"/>	13:00	19:00	24	<input checked="" type="checkbox"/>	14:25	17:25
50	SK##/DH## (Backup)					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	347	12/13/21	13:00	16:00	<input checked="" type="checkbox"/>	13:00	16:00	24	<input type="checkbox"/>		
3	SK##/DH##					<input checked="" type="checkbox"/>	<input type="checkbox"/>	17	01/17/22	13:00	16:00	<input checked="" type="checkbox"/>	16:30	19:30	24	<input type="checkbox"/>		
8	SK##/DH## (Backup)					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	52	02/21/22	13:00	16:00	<input checked="" type="checkbox"/>	14:15	17:15	54	<input type="checkbox"/>		
13	SK##/DH##					<input checked="" type="checkbox"/>	<input type="checkbox"/>	87	03/28/22	13:00	16:00	<input type="checkbox"/>				<input type="checkbox"/>		
18	SK##/DH## (Backup)					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	122	05/02/22	13:00	16:00	<input type="checkbox"/>				<input type="checkbox"/>		
23	SK##/DH##					<input checked="" type="checkbox"/>	<input type="checkbox"/>	157	06/06/22	13:00	16:00	<input type="checkbox"/>				<input type="checkbox"/>		
28	SK##/DH## (Backup)					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	192	07/11/22	13:00	16:00	<input type="checkbox"/>				<input type="checkbox"/>		

Ground Operations: Last Week (9/21 - 9/28)

- ONGOING - BMOC tape library is having issues starting full and incremental backups
- ONGOING - Poor ranging results from the WCDAS 18m
 - Monthly average is 55.42% Useability, last two ranges were 99%.
- ONGOING - bmocitps2 offline at WCDAS
- ONGOING - DSNAOS Script Start command being sent before server bind is complete
 - DSN is looking deeper at the logs but think it may have been using the wrong "blue book version"

Ground Operations: This Week / Next Week (9/28 - 10/10)

- 9/27 - 10/28 - WCDAS Terrestar RFI
- TBD - FCDAS 21m Ranging Tests
- 10/1 - OSPO X drive migration completion
- 10/4 - OSPO G drive will be read only

Tech Refresh Operations: Last Week (9/21 - 9/28)

- Ongoing - BMOC-OPS-CMD1 - failed power supply reported (dual power supply, down to 1)
 - Ticket Open with DELL
- Ongoing - Scheduling TLM and CMD tests with NEN
- Ongoing - Scheduling CMD and Data Flow tests with DSN
- Ongoing - Getting approval for CCR to move refresh workstations to SOCC
- Ongoing - OMS SAT Artifact Collection / SAT action items
- Ongoing - Testing SWPC SFTP connections

Tech Refresh Operations: This Week/Next Week (9/28 - 10/10)

- TBD - Schedule Refresh System Patching Cycle
- TBD - Test SWPC data flow connections

Ground System Issues

- **Priority 1 - Poor Ranging at WCDAS / Scheduling WS1 or Hawaii in the interim**
 - Investigating why ranging is sometimes 0% useable with FDF
- **Priority 2 - DSN MOC Connection Down / Firewall Rule Deletion**
 - Connectivity to DSN sites from MOC is down; only bMOC connections are working
 - Connections needed in the event of an emergency, or for maneuvers; otherwise, need to fail to bMOC to connect
 - NASCOM found MOC firewall rule was deleted after it had been expired for many months.
 - Connection restored, Working to meet with NASCOM to discuss review process and to update POCs
 - Trying to establish NOAA access to NASA system. Separating firewall rules from DSOC
- **Priority 3 - GMSEC HB Inconsistency**
 - Issues with GMSEC timing of HB. GMSEC reports no HB for internal components, when they are visible in event analyzer
 - Issues occasionally with apache activemq, which leads to some servers unable to connect to GMSEC.
- **Priority 4 - Tape Library Monitoring**
 - MOC Tape Library is working nominally, need to apply steps to BMOC tape library again. Second try did not reset to default configuration.
- **Priority 5 - WCDAS Telemetry Interruptions due to NASA Flight Tests**
- **Priority 6 - Fileserver Monitoring Script**
 - Waiting on clarification for windows audible scripts; may add file storage commands to logs, as MOC & BMOC have little storage left.

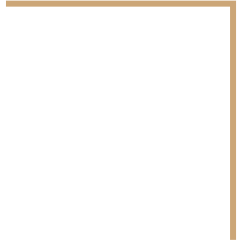
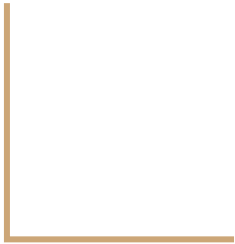
Other Items

- **ON HOLD:**
 - **EPIC Check Script:** Improve check script to check for missing EPIC files after creating a playback.

(All Risks/Issues Archived:
<https://goo.gl/O8zff5>)

- **Meetings:**
 - SAT Test Briefing - Monday - 9:30AM
 - DSOC - Friday - 10AM
 - Programmatic WG - Tuesday - 10AM
- **SWPC Input**
- **DSOC Input**

Backup Slides

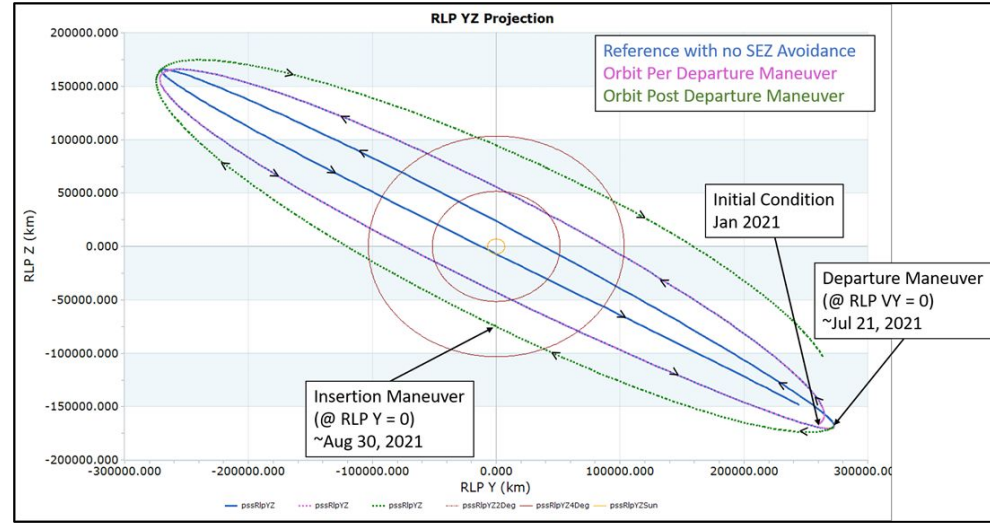


Spacecraft Issues: Completed Items

- **Priority 1 - DSCO-21 - ACS Power Positive FDH LIS Safe Hold** - SC goes LIS then drifts and/or accelerates off-pointing, trips ACS Power Positive FDH
 - **Completed Items**
 - **Modified conditions of calling the Instrument Power Down Script from Safe Hold Script**
 - **Limiting Wheel Momentum**
 - **Evaluation of Star Tracker Performance** - Manufacturer support and/or NASA SME
 - **Modification of Star Field Search Parameter (from 5 to 5.5) - DONE**
 - **Implementation of 2 of the 3 Individual EPOXI Patch Solutions and Possible Degradation Accommodation (due to long-term powered off state): Data examination by FOT engineers suggests CCD sensitivity is reduced by 0.50-0.75**
 - **ACS FSW Wheel Model/Control Updated RWA Parameters**
 - **Reduce Slew Rate**
 - **Automated Return to Science Mode via RTS**

SEZ Burn Through Planning: Background

- If the burn is a single maneuver, FDF thinks resulting delta-v cost will be larger and resulting orbit geometry will deviate from reference, may violate mission requirements.
- To maintain reference orbit, a two maneuver sequence will allow orbit to remain on the same Lissajous but will jump phase from the collapsing phase to the expansion phase.
- Maneuvers modeled as impulsive and assumed that delta-v vector unconstrained.
- FDF believes Engineers will need to perform two maneuvers:
 - **Departure Maneuver** (34 m/s delta-v calculated for Jul 21, 2021 [DOY 202])
 - **Insertion Maneuver** (-2.5 m/s delta-v calculated for Aug 30, 2021 [DOY 242])



First Maneuver - Departure Maneuver

The first maneuver should occur near the minimum RLP velocity magnitude location, see Figure 1 for exact location. This roughly corresponds to the bottom right of the trajectory in the RLP YZ projection where RLP-V_y and RLP-V_z are near zero. This time period is around July 21, 2021. A maneuver at the departure point is applied that results in achieving the target point RLP-X and RLP-Z coordinate at the next RLP-XZ plane crossing (RLP Y = 0) around August 30, 2021. In Figure 1, the orbit after the departure maneuver is applied is in green. There is a significant change in the shape and direction of the trajectory after the departure maneuver (where the green curve starts).

Second Maneuver - Insertion Maneuver

After the departure maneuver, the spacecraft will achieve the target RLP-X and RLP-Z coordinates at the next RLP-XZ plane crossing (RLP-Y = 0) around August 30, 2021, however, the velocity components of the new trajectory will not quite match the target velocity components. Another maneuver is required when the spacecraft reaches RLP-Y = 0 to adjust the velocity vector to the desired target. After completion of the insertion maneuver, the observatory will be in the same Lissajous reference orbit, but in the expansion phase instead of the collapsing phase. Figure 1 above shows the jump to the expansion phase in the RLP-YZ projection while Figure 4 below shows the jump in terms of the SEV angle.

MOC

- DSCOVER Ground System Setup and Configuration for SOCC Operations
- Workstation Failover
- DSCOVER LAN Password Changes
- DSCOVER Shift Handovers
- DSCOVER Automation System Maintenance
- Manually Configuring DSCOVER at Wallops AOS
- DSCOVER Schedule Monitoring Guidelines
- DSCOVER Home Directory Reconfiguration
- DSCOVER Subsystem Responsible Engineers
- DSCOVER Remote Contingency Operations Overview

Ground Stations

- DSCOVER Ground Station Handover Overview
- DSCOVER Ranging Operations and Monitoring Overview
- DSCOVER Ground Station Proficiency Support (UPDATE NEEDED)
- Ground Station Failovers
- Loss of Telemetry Procedures
- CDAS Loss of Telemetry Procedures
- FEP Workstation Restart Procedure
- DSCOVER Protocols and Procedures for Requesting DSN Emergency Support (UPDATE)
- FCDAS Scheduling for DSCOVER
- WCDAS Failover with FCDAS Unavailable
- CDAS FEP and Antenna Implementation
- WCDAS Terrestrial Interference
- DSCOVER-WCDAS Command Carrier (UPDATE NEEDED)
- CaTT Workstation Restart Procedures (TO BE REPLACED)

Systems

- DSCOVER Routine Real-Time Operations
- DSCOVER Basic Health and Safety Checks
- DSCOVER Absolute Time Sequence (ATS) Weekly Loads
- DSCOVER Relative Time Sequence (RTS) Uploads (UPDATE IN WORKS)
- DSCOVER Safehold Mode Recognition and Response
- DSCOVER Barker Timeout Avoidance Commanding
- DSCOVER Sun Acquisition Mode Recognition and Response

AOCS/GNC/PROP

- Momentum Unloading (Delta-H) Maneuvers
- Stationkeeping (Delta-V) Maneuvers (UPDATE IN WORKS)
- DSCOVER ACS Gyroless Operations Overview

Magnetometer: Magnetometer X-Axis Roll Monthly Calibration

Faraday Cup:

- DSCOVER PlasMag Faraday Cup Monitoring Guidelines
- DSCOVER Faraday Cup Full Scan Management
- DSCOVER Faraday Cup LV Calibration
- PlasMag Operational Patch Overviews

ESA: PlasMag ESA MCP Bias Characterization

EPIC

- EPIC Imaging
- EPIC Lunar Calibration (UPDATE IN WORKS)
- Clearing EPIC EC Counters

NISTAR -

- NISTAR Intercomparisons and SD Cycle Operations
- NISTAR Dark Space Calibration
- NISTAR RC BIT Failure Recovery
- NISTAR PTC Setpoints

Flight Software

- Response to Multi-Bit EDAC Errors

Command and Data Handling

- DSCOVER Data Playback and File Redumps

RF/COMM: No RF Following Antenna Switch

Coordination and Data Continuity

- DSCOVER Critical Space Weather and Data Outage Coordination
- DSCOVER Ground System Anomaly Detection and Notification Procedure