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SWARM SPACECRAFT ANOMALIES AND MANOEUVRES HISTORY (till 31 August 2017)



ANOMALIES HISTORY IN PHASE E2

Note: degradations (ACC continuous signal degradation caused by various interferences, EFI-TII image degradation after mid-2014, Langmuir Probes limitations, STR pointing variations, magnetic disturbance field, etc.) are not reported.

Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
03/04/14	A	ACC	EDAC SEF	Y	SWARM-SC-8	Manual power recycle
09/04/14	C	ACC	EDAC SEF	Y	SWARM-SC-8	Manual power recycle
12/04/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Manual power recycle
13/04/14	A	ASM	TC's no longer processed	Y	SWARM-SC-18	Manual power recycle
14/04/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Manual power recycle
16/04/14	C	OBC	MMU stuck bit	Y	SWARM-SC-23	Manual power recycle
20/04/14	B	GPSR	LEON Cache Data Error Counter incremented from 0 to 1			Counter reset back to 0 by ground on 22/04/14
25/04/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
27/04/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
28/04/14	C	AOCS	Attitude cross-check status flag triggered	Y	SWARM-SC-31	
20/05/14	A	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
24/05/14	A	GPSR/OBC	Temporary loss of time synchronisation	N	SW_PERF-6	Auto-resynchronisation after xx s
01/06/14	A	OBC	MMU SEFI	Y	SWARM-SC-23	Soft MMU re-initialisation
08/06/14	A	OBC	MMU SEFI	Y	SWARM-SC-23	Soft MMU re-initialisation
09/06/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
10/06/14	C	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation after 11s
25/06/14	B	VFM	70pT noise in y-measurement since 14/03/14	N		Manual power recycle
30/06/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
30/06/14	C	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
02/07/14	A	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
09/07/14	B	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
09/07/14	C	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
31/07/14	A	OBC	MMU stuck bit	Y	SWARM-SC-23	Manual power recycle
06/08/14	A	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
06/08/14	B	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
06/08/14	C	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
13/08/14	A	ACC	2x EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
23/08/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
24/08/14	C	STR	STR spurious reboot	N	SWARM-SC-33	
25/08/14	C	VFM	VFM loss of HKTM	N	SWARM-SC-32	
28/08/14	C	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
05/09/14	A	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
05/09/14	B	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
08/09/14	C	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
14/09/14	B	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
15/09/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
19/09/14	C	EFI TII	Image degradation	Y	SW-PERF-1	HV ramped-down manually
23/09/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation after 11s
25/09/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation after 11s
29/09/14	A	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
12/10/14	A	STR	Spurious re-boot	Y	SWARM-SC-33	
19/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
20/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
23/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
23/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
23/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
23/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
24/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
24/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
24/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation

Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
25/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
25/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
26/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
26/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
26/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
28/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
29/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
29/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
29/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
29/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
29/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
30/10/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
30/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
30/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
30/10/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
01/11/14	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
01/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
01/11/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
02/11/14	A	GPSR	3x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
02/11/14	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
03/11/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
03/11/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
05/11/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
05/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
05/11/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
05/11/14	C	ASM	ASM switched off by FDIR	N	SWARM-SC-34	Remains failed
06/11/14	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
06/11/14	C	GPSR	4x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/11/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/11/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
08/11/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
08/11/14	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
09/11/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
10/11/14	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
10/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
10/11/14	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
10/11/14	C	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
11/11/14	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
11/11/14	B	OBC	MMU SEFI	Y	SWARM-SC-23	
12/11/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
12/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
12/11/14	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
13/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
14/11/14	C	STR	STRE spurious re-boot	Y	SWARM-SC-33	Spacecraft in SAA
15/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
15/11/14	C	OBC	MMU SEFI	Y	SWARM-SC-23	
17/11/14	B	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
18/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
19/11/14	A	EFI	EDAC error	N		
19/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
22/11/14	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
28/11/14	C	OBC	MMU SEFI	Y	SWARM_SC-23	
02/12/14	B	ACC	Loss of TM	N	SWARM-SC-35	



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
04/12/14	A	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
17/12/14	B	ACC	EDAC SEF	Y	SWARM-SC-8	Automatic power recycle (OBCP)
30/12/14	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
30/12/14	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
06/01/15	B	OBC	MMU SEFI 2x	Y	SW_PERF-8	
10/01/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Soft reset executed on 11/01/15
10/01/15	B	VFM	VFM science packets corrupted.	N	SWARM_SC-36	Cured by power cycle
12/01/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
12/01/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
17/01/15	B	OBC	MMU SEFI	Y	SW_PERF-8	
18/01/15	A	EFI	EDAC error	Y		
18/01/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
29/01/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
05/02/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
11/02/15	A	OBC	2x MMU SEFI	Y	SW_PERF-8	
15/02/15	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
19/02/15	B	GPSR	LEON data cache tag error counter increased to 3	Y		Counter reset to 0 by Ground on 19/02/15
24/02/15	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
25/02/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
25/02/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
26/02/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/02/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
02/03/15	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
03/03/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
03/03/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
04/03/15	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
05/03/15	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
05/03/15	C	GPSR	3x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
06/03/15	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
06/03/15	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/03/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/03/15	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
08/03/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
09/03/15	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
09/03/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
09/03/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
10/03/15	C	GPSR	3x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
11/03/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
11/03/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
12/03/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
12/03/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
12/03/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
13/03/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
13/03/15	B	STR	STR invalid data for more than 5s	N	SW_SC-55	Lasted 10s
14/03/15	A	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
14/03/15	C	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
15/03/15	C	GPSR	4x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
17/03/15	A	GPSR	3x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
17/03/15	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
17/03/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
20/03/15	A	GPSR	4x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
20/03/15	C	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
25/03/15	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
28/03/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
28/03/15	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
01/04/15	A	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
03/04/15	B	GPSR	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
04/04/15	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
07/04/15	B	GPSR	2xTemporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/04/15	B	OBC	MMU SEFI	Y	SW_PERF-8	
08/04/15	B	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
14/04/15	B	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
18/04/15	A	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
18/04/15	B	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
28/04/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
28/04/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
06/05/15	A	GPSR	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
13/05/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
14/05/15	C	OBC	MMU SEFI	Y	SW_PERF-8	
15/05/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
17/05/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
20/05/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
21/05/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
23/05/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
24/05/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
02/06/15	C	OBC	MMU SEFI	Y	SW_PERF-8	
03/06/15	A	OBC	MMU SEFI	Y	SW_PERF-8	
06/06/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
05/06/15	C	OBC	MMU SEFI	Y	SW_PERF-8	
10/06/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
12/06/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
14/06/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
16/06/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
24/06/15	A	GPSR/OBC	2x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/06/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
08/07/15	B	STR	Spurious re-boot	Y	SWARM-SC-33	
14/07/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
18/07/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
20/07/15	A	OBC	MMU SEFI	Y	SW_PERF-8	
25/07/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
26/07/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
27/07/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
28/07/15	A	STR	Spurious re-boot	Y	SWARM-SC-33	
04/08/15	B	GPSR	LEON data cache tag error counter increased to 2	Y		Counter reset to 0 by Ground
08/08/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
13/08/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
13/08/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
14/08/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
21/08/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
25/08/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
25/08/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
28/08/15	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
28/08/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
29/08/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
29/08/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
05/09/15	C	OBC	MMU SEFI	Y	SW_PERF-8	
07/09/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
09/09/15	C	OBC	MMU SEFI	Y	SW_PERF-8	
11/09/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
15/09/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
20/09/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
21/09/15	A	GPSR/OBC	5x Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
25/09/15	A	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
01/10/15	C	OBC	MMU SEFI	Y	SW_PERF-8	
02/10/15	C	OBC	2x MMU SEFI	Y	SW_PERF-8	
05/10/15	A	GPSR/OBC	Temporary loss of time synchronisation	Y	SW_PERF-6	Auto-resynchronisation



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
07/10/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
10/10/15	B	OBC	MMU SEFI	Y	SW_PERF-8	
11/10/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
13/10/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
21/10/15	C	OBC	MMU SEFI	Y	SW_PERF-8	
24/10/15	B	OBC	MMU SEFI + automatic scrubber re-start failure	Y	SW_PERF-8	Stuck bit
26/10/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
02/11/15	B	EFI	Not reaching READY state after gain map patch	N	SWARM_SC-40	Cured after new power reset
04/11/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
04/11/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
08/11/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
09/11/15	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
12/11/15	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
12/11/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
16/11/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
19/11/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
21/11/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
24/11/15	B	VFM	ADC SEU	N	SWARM_SC-41	Cured by power cycling on 25/11
25/11/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
02/12/15	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
02/12/15	C	EFI-LP	Probes gain swap	N	SWARM_SC-42	Cured commanding default configuration
07/12/15	A	OBC	MMU SEFI	Y	SW_PERF-8	
12/12/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
15/12/15	B	ACC	2x EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
20/12/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
20/12/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
21/12/15	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
24/12/15	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
30/12/15	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
30/12/15	C	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
02/01/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
06/01/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
10/01/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
12/01/16	B	GPSR	LEON data cache tag error counter increased to 1	Y		Counter reset to 0 by Ground on 12/01/16
18/01/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
19/01/16	B	OBC	MMU SEFI	Y	SW_PERF-8	
26/01/16	A	GPSR	Temporary loss of time synchronisation caused by GPS	N	SWARM_SC-43	Auto-resynchronisation with good GPS SV
26/01/16	B	GPSR	Temporary loss of time synchronisation caused by GPS	N	SWARM_SC-43	Auto-resynchronisation with good GPS SV
26/01/16	C	GPSR	Temporary loss of time synchronisation caused by GPS	N	SWARM_SC-43	Auto-resynchronisation with good GPS SV
28/01/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
01/02/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
02/02/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
03/02/16	C	OBC	MMU SEFI	Y	SW_PERF-8	
05/02/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
09/02/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
10/02/16	C	VFM	FPGA SEU	N	SWARM_SC-44	Cured by power cycling on 10/02
17/02/16	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
17/02/16	C	STR	Spurious re-boot	Y	SWARM-SC-33	
24/02/16	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
26/02/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
28/02/16	C	OBC	MMU SEFI	Y	SW_PERF-8	
02/03/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
03/03/16	C	OBC	MMU SEFI	Y	SW_PERF-8	
07/03/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
08/03/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
25/03/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
26/03/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
02/04/16	A	STR	Spurious one-pixel shift in CHU-C image	N		Spontaneous recovery after 6 hours



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
06/04/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
17/04/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
19/04/16	A	ACC	ACC switched off by FDIR (due to loss of TM)	N	SWARM_SC-46	Operation resumed on the same day
19/04/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
26/04/16	B	VFM	Erratic time stamps in data packets	N	SWARM_SC-47	Cured by power cycling
26/04/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
27/04/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
30/04/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
02/05/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
04/05/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
07/05/16	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
08/05/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
13/05/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
17/05/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
19/05/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
21/05/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
25/05/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
28/05/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
01/06/16	A	GPSR	Increased LEON data cache tag error counter	Y		Counter reset to 0 by Ground
01/06/16	B	GPSR	Increased LEON data cache tag error counter	Y		Counter reset to 0 by Ground
07/06/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
10/06/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
11/06/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
16/06/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
22/06/16	C	GPSR	LEON data cache tag error counter increased to 1	Y		Counter reset to 0 by Ground
22/06/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
23/06/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Loss of data
26/06/16	B	STR	Spurious re-boot	Y	SWARM-SC-33	~20s performance interruption
02/07/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
05/07/16	A	OBC	MMU SEFI	Y	SW_PERF-8	
07/07/16	B	OBC	MMU SEFI	Y	SW_PERF-8	
11/07/16	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
13/07/16	A	OBC	MMU SEFI	Y	SW_PERF-8	
17/07/16	A	STR	Spurious re-boot	Y	SWARM-SC-33	~20s performance interruption
19/07/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
20/07/16	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
26/07/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
28/07/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
28/07/16	C	STR	Spurious re-boot	Y	SWARM-SC-33	~20s performance interruption
31/07/16	C	OBC	MMU SEFI	Y	SW_PERF-8	
01/08/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
02/08/16	C	STR	Spurious re-boot	Y	SWARM-SC-33	
05/08/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
05/08/16	A	GPSR	LEON data cache tag error counter found equal to 3	Y		Counter reset to 0 the next day by Ground
07/08/16	C	GPSR	LEON data cache tag error counter found equal to 1	Y		Counter reset to 0 the next day by Ground
13/08/16	C	OBC	MMU SEFI	Y	SW_PERF-8	
18/08/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
23/08/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
23/08/16	B	EFI	Transition from SafeHold mode to Normal mode failed	Y	SWARM_SC-50	Cured the next day by power cycling
26/08/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
27/08/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
31/08/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
04/09/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
04/09/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
07/09/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
09/09/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
17/09/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
20/09/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
20/09/16	A	OBC	MMU SEFI	Y	SW_PERF-8	
21/09/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
26/09/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
26/09/16	B	GPSR	LEON data cache tag error counter found equal to 1	Y		Counter reset to 0 the same day by Ground
30/09/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
01/10/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
03/10/16	B	OBC	MMU SEFI	Y	SW_PERF-8	
04/10/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
07/10/16	B	OBC	MMU SEFI	Y	SW_PERF-8	
08/10/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
11/10/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
13/10/16	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
29/10/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
07/11/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
08/11/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
11/11/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
15/11/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
19/11/16	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
20/11/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
20/11/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
24/11/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
28/11/16	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
28/11/16	A	OBC	MMU SEFI	Y	SW_PERF-8	
30/11/16	B	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground
02/12/16	A	OBC	MMU SEFI	Y	SW_PERF-8	
07/12/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
15/12/16	B	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground
18/12/16	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
22/12/16	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
22/12/16	B	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground
01/01/17	C	GPSR	LEON data cache tag error counter incremented	Y		Counter reset to 0 by Ground
01/01/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
01/01/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
02/01/17	B	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground
05/01/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
05/01/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
06/01/17	B	OBC	MMU SEFI	Y	SW_PERF-8	
10/01/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
14/01/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
18/01/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
19/01/17	B	OBC	MMU SEFI	Y	SW_PERF-8	
21/01/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
27/01/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
27/01/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
28/01/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
30/01/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
30/01/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
01/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
03/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
04/02/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
04/02/17	A	OBC	2x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
06/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
08/02/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
11/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
12/02/17	A	COMMS	10 small data gaps due to poor VC4 reception	Y		Gaps between 11/02 22:12 & 12/02 01:28
12/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
13/02/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit

Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
14/02/17	B	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
16/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
17/02/17	B	OBC	MMU SEFI	Y	SW_PERF-8	Stuck bit
18/02/17	C	OBC	MMU SEFI	Y	SW_PERF-8	
20/02/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
26/02/17	B	OBC	MMU SEFI	Y	SW_PERF-8	
02/03/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
06/03/17	A	OBC	3x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
06/03/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
06/03/17	B	STR	Spurious re-boot	Y	SWARM-SC-33	
07/03/17	B	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground
08/03/17	B	OBC	MMU SEFI	Y	SW_PERF-8	
13/03/17	B	S-band	12 small data gaps between 14:14:10 and 15:26:01 UTC	Y		Gaps duration less than 5 mn
16/03/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
16/03/17	C	S-band	43 small data gaps between 01:21:34 and 01:25:09 UTC	Y		Gaps duration less than 5 mn
17/03/17	C	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
18/03/17	A	STR	Spurious re-boot	Y	SWARM-SC-33	
18/03/17	C	OBC	MMU SEFI	Y	SW_PERF-8	
20/03/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
20/03/17	B	S-band	Small data gap between 01:51:23 and 01:51:24 UTC	Y		
21/03/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
31/03/17	A	OBC	3x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
02/04/17	A	OBC	2x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
02/04/17	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
05/04/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
03/04/17	A	OBC	4x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
04/04/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/04/17	B	S-band	1 small data gap at 10:20 UTC generation time	Y		Gaps duration less than 5 mn
12/04/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
15/04/17	A	OBC	3x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
15/04/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
16/04/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
19/04/17	A	OBC	3x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
20/04/17	A	OBC	5x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
21/04/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
24/04/17	A	OBC	3x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/04/17	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
29/04/17	A	OBC	3x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
29/04/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
29/04/17	A	VFM	Corrupted 50Hz measurement data packets	N	SWARM_SC-53	Cured by power cycling on 01/05/17
03/05/17	A	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground on 04/05/17
03/05/17	A	OBC	MMU SEFI	Y	SW_PERF-8	
03/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
06/05/17	C	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground
08/05/17	C	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground on 08/05/17
08/05/17	A	OBC	MMU SEFI	Y	SW_PERF-8	
08/05/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
13/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
19/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
20/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
21/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
22/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
22/05/17	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
23/05/17	A	OBC	2x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
24/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
26/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/05/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/05/17	A	OBC	MMU SEFI	Y	SW_PERF-8	



Date	SC	Subsys	Description	Repeat	ARTS reference	Comment
03/06/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
04/06/17	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
11/06/17	A	OBC	4x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
14/06/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
16/06/17	C	GPSR	LEON data cache tag error counter increased	Y		Counter reset to 0 by Ground on 17/06/17
17/06/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
19/06/17	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
20/06/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
21/06/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
26/06/17	C	OBC	MMU SEFI	Y	SW_PERF-8	
27/06/17	A	OBC	2x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
27/06/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
28/06/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
02/07/17	C	STR	STR invalid data for more than 5s	Y	SW_SC-55	Lasted 6s
03/07/17	C	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
03/07/17	C	STR	STR invalid data for more than 5s	Y	SW_SC-55	Lasted 35s
05/07/17	C	OBC	MMU SEFI	Y	SW_PERF-8	
06/07/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
11/07/17	A	OBC	4x Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
16/07/17	C	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
22/07/17	A	OBC	MMU SEFI	Y	SW_PERF-8	
24/07/17	C	OBC	MMU SEFI	Y	SW_PERF-8	
05/08/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
06/08/17	A	OBC	Temporary loss of GPS time synchronisation	Y	SW_PERF-6	Auto-resynchronisation
07/08/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
09/08/17	B	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)
27/08/17	A	GPSR	LEON data cache tag error counter increased	Y		Counter reset by Ground on 28/08/17
31/08/17	A	ACC	EDAC SEF	Y	SW_PERF-2	Automatic power recycle (OBCP)



MANOEUVRES HISTORY IN PHASE E2

Swarm-A			
Date	Start Time, UTC	Activity	Comment
06/05/2014	13:50	~4s single thruster firing	Failed ACC scale factor calibration test; EFI off
13/05 - 14/05/2014	Start: 00:49 End: 05:32	4 x 90° yaw slew manoeuvres	For VFM-ASM Residual investigation
04/06/2014	Start: 14:15:00 End: 15:05:10	Torquer correction MTQ	EFI in normal mode (rather than cal mode as during Commissioning)
12/06/2014	04:49:41	Orbit maintenance	
15/10/2014	11:38:40 & 12:25:32	Orbit maintenance	
26/11/2014	12:13:28	Orbit maintenance	
15/01/2015	11:44:59.9 & 12:31:59.9	Orbit maintenance	
19/03/2015	11.59.59 & 12.51.59	Orbit maintenance	
05/05/2015	Start: 10:50 End: 14:20	40° yaw manoeuvre	EFI-TII image anomaly investigation
12/05/2015	OCM start: 13:58 14:18:50 & 14:19:20 & 14:19:50 & 14:20:20 FPM return: 15:16	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
25/06/2015		Orbit maintenance	Two burns of 18,1 s each
10&11/08/2015	Along-track: 06:24 on 10/08 Across-track: 15:46 on 10/08 05:49 on 11/08 Radial: 15:11 on 11/08	ACC scale factors calibration	Firing ACT thrusters in different combinations (twice for across-track factor with respectively two and one thrusters)



Swarm-A			
Date	Start Time, UTC	Activity	Comment
15/10/2015	07:26:42	Orbit maintenance	
10/12/2015	14:59:59 & 15:46:44	Orbit maintenance	
03/03/2016	OCM start: 13:07:25 13:37:25 & 14:23:55 FPM return: 14:48:16	Orbit maintenance	EFI switched off from 08:19 to 16:09, back to measurement at 16:59
01/04/2016	OCM start: 11:07:19 FPM return: 13:32:52	Collision avoidance manoeuvre	Anti-flight (increasing radial debris separation by 50m) + slew + backward flight (returning from 50m) + slew EFI switched off from 11:00 to 14:00
16/06/2016	OCM start: 11.43.12 FPM return: 12:34:28	Orbit maintenance	31 second firing starting at 12.13.12.995 EFI in READY state from 09:06 to TBD
19/01/2017	OCM start: TBD FPM return: TBD	Orbit maintenance	14 second firing starting at 09:53:59 (UTC) EFI in READY state
13/07/2017	OCM start: 13.47.02 FPM return: 14:41:54	Orbit maintenance	8 second firing starting at 14:17:55.9 (UTC) EFI in READY state

Swarm-B			
Date	Start Time, UTC	Activity	Comment
08/05 – 09/05/2014	Start 05:50 End: 07:35	4 x 90° yaw slew manoeuvres	For VFM-ASM Residual investigation; EFI off
05/06/2014	Start: 15:35:00 End: 16:23:09	Torquer correction MTQ	EFI in normal mode (rather than cal mode as during Commissioning)
04&06/08/2015	Along-track: 06:16 on 04/08 Across-track: 09:25 on 04/08 05:41 on 06/08 Radial: 08:50 on 06/08	ACC scale factors calibration	Firing ACT thrusters in different combinations (twice for across-track factor with respectively two and one thrusters)
10/12/2015	Start: 02:31:53 End: 02:34:07	Collision avoidance manoeuvre	Anti-flight (increasing radial debris separation by 100m)



Swarm-B			
Date	Start Time, UTC	Activity	Comment
23/08/2016	OCM start: 11:30 FPM return: 12:29	Collision avoidance manoeuvre	In-flight (increasing radial debris separation by raising orbit) EFI switched off
16/05/2017	OCM start: 00:21 FPM return: 01:16	Collision avoidance manoeuvre	Anti-flight, no slew (increasing radial debris separation) EFI in READY state

Swarm-C			
Date	Start Time, UTC	Activity	Comment
08/04 – 09/04/2014	Start: 20:00 End: 23:48	Orbit Manoeuvre Batch-3a	
11/04/2014	02:23 until 12:06	Orbit Manoeuvre Batch-3b	
15/04/2014	performed between 03:42 and 05:06	Drift Stop manoeuvres 1	2 manoeuvres (each 10minutes)
17/04/2014	performed between 04:20 and 05:37	Drift Stop manoeuvres 2	2 manoeuvres (each 10minutes)
13/05 – 14/05/2014	Start: 05:38 End: 10:16	4 x 90° yaw slew manoeuvres	For VFM-ASM Residual investigation
05/05/2015	Start: 10:50 End: 14:10	40° yaw manoeuvre	EFI-TII image anomaly investigation
11/05/2015	OCM start: 12:58 13:18:50 & 13:19:20 & 13:19:50 & 13:20:20 FPM return: 14:15	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
12&13/08/2015	Along-track: 06:47 on 12/08 Across-track: 13:02 on 12/08 07:46 on 13/08 Radial: 14:00 on 13/08	ACC scale factors calibration	Firing ACT thrusters in different combinations (twice for across-track factor with respectively two and one thrusters)



Swarm-C			
Date	Start Time, UTC	Activity	Comment
08/12/2015	OCM start: 13:11:05 FPM return: 15:13:40	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
13/01/2016	OCM start: TBD Firing start: 10:56:28 FPM return: 12:13	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
10/02/2016	OCM start: TBD Firing start: 12:49:28 FPM return: 13:53	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
15/03/2016	OCM start: 10:30 Firing start: 10:50:28 FPM return: 11:54	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
14/04/2016	OCM start: 07:47 Firing start: 08:07:28 FPM return: 09:03	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
10/05/2016	OCM start: 11:30:05 Firing start: 11:50:28 FPM return command: 13:27	ACC along-track scale factor calibration	Firing twice each ACT thruster pair A5/A7 and A6/A8 during 10 sec.
25/08/2016	OCM start: 06:52:00 FPM return: 07:45	Orbit maintenance	15 seconds firing starting at 07:22:59 EFI in READY state

MANOEUVRES HISTORY IN PHASE E1

Swarm-A				
Activity	Date	Start Time, UTC	Comment	IOV Task
Torquer correction MTQ-1	17/12/2013	16:16	EFI in LP TSM.	3320



Torquer correction MTQ-2	17/12/2013	21:15	EFI in LP TSM.	3320
Torquer correction MTQ-3	17/12/2013	08:39	EFI in LP TSM.	3320
Precise datation	18/12/2013	17:19		3330
Yaw slew	19/12/2013	Start: 14:00 End: 02:00 (next morning)		3310
Fall-back to CPM	04/01/2014	10:49	Caused by STR's anomaly	n.a.
Yaw slew	09/01/2014	16:29	For EFI TII gain calibration, but improper TII commanding	2324
Pitch slew	09/01/2014	18:14	For EFI TII gain calibration, but improper TII commanding	2324
Pitch slew	10/01/2014	16:07	For EFI TII gain calibration	2324
Yaw slew	10/01/2014	17:51	For EFI TII gain calibration	2324
Orbital manoeuvre test	15/01/2014	11:51	Actuation of the orbit control thrusters (OCT) for 60 seconds. Satellite in nominal attitude.	n.a.
Torquer correction MTQ-1	16/01/2014	15:02	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320-modified
Torquer correction MTQ-2	16/01/2014	18:25	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320-modified
Torquer correction MTQ-3	16/01/2014	05:48	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320-modified
EFI TII datation verification	21/01/2014	14:55	Specific MTQ pattern (MTQ-3 ok?)	2350
Orbit Manoeuver Test batches	22/01/2014	12:02 until ~15:00	OCT actuations for ca. 20 mn at ascending and descending node for two consecutive orbits. For these manoeuvres the attitude was slewed with certain yaw offset angles	n.a
Precise datation	23/01/2014	13:55	Repeat of 18-Dec manoeuvre after STR SW patch	3330



-180° yaw bias for 12h	23/01/2014	17:55	For ACC offset calibration	3350
Orbit Manoeuvre Batch-1	28/01 – 29/01/2014	28/01/2014 @ 04:43 until 29/01/2014 @ 17:54	Yaw angle at ascending node: -62° Yaw angle at descending node: -33° At 17:54 the satellite stayed at -33° yaw (not planned). Manoeuvre batch aborted at 22:35.	n.a
Orbit Manoeuvre Batch-2	04/02 – 06/02/2014	04/02/2014 @ 08:34 until 06/02/2014 @ 01:08	Yaw angle at ascending node: -62° Yaw angle at descending node: +58° NOTE: following the abort during the first batch, the approach has been changed by using only the A1 and A2 OCTs. This required the yaw angle at the descending node to be significantly changed	n.a
Orbit Manoeuvre Batch-3	18/02 – 19/02/2014	18/02/2014 @ 03:34 until 19/02/2014 @ 04:10	Yaw angle at ascending node: -80° Yaw angle at descending node: -12°	n.a

Swarm-B				
Activity	Date	Time, UTC	Comment	IOV Task
Safe mode (fall-back to CPM)	26/11/2013	15:24	Caused by MTL anomaly	n.a.
Transition to CPM (to load new STR SW on one unit)	05/12/2013	09:05	25° pitch threshold exceeded	n.a.
Yaw Manoeuvre (-62°)	16/12/2013	Start: 14:00 End: 02:00 (next morning)	STR COI Phase Delay was not updated before this manoeuvre. STR not synchronised to PPS.	3310
Yaw slew	19/12/2013	08:10	For EFI TII gain calibration	2324
Pitch slew	19/12/2013	12:56	For EFI TII gain calibration	2324
Fall-back to CPM	01/01/2014	09:17	Caused by STR anomaly	n.a.



Fall-back to CPM	05/01/2014	19:40	Caused by STR anomaly	n.a.
Torquer correction MTQ-1 (15s interval)	09/01/2014	14:22	EFI in LP TSM.	3320
Torquer correction MTQ-2 (15s interval)	09/01/2014	19:19	EFI in LP TSM.	3320
Torquer correction MTQ-3 (15s interval)	10/01/2014	06:21	EFI in LP TSM.	3320
Orbital manoeuvre test	14/01/2014	13:48	Actuation of the orbit control thrusters (OCT) for 60 seconds. Satellite in nominal attitude.	n.a.
Precise datation	15/01/2014	13:43		3330
Torquer correction MTQ-2	15/01/2014	18:36	EFI in LP TSM. Torquer actuations every 2 s for 8mn	3320-modified
Torquer correction MTQ-1	16/01/2014	15:00	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320-modified
Torquer correction MTQ-3	17/01/2014	05:25	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320-modified
EFI TII datation verification	21/01/2014	11:25	Specific MTQ pattern (MTQ-3 ok?)	2350
-180° yaw bias for 12h	22/01/2014	Start: 14:20 End: 02:20 (next day)	For ACC offset calibration	3350
Orbit Manoeuver Batch-1	25/02 – 27/02/2014	25/02/2014 @ 06:02 until 27/02/2014 @ 15:59		n.a
Orbit Manoeuver Batch-2	11/03 - 13/03/2014	11/03/2014 @ 09:39 until 13/03/2014 @ 09:55		n.a

Swarm-C				
Activity	Date	Time, UTC	Comment	IOV Task
Yaw slew	19/12/2013	16:01	For EFI TII gain calibration ASM in Scalar w/o Motor mode	2324
Pitch slew	19/12/2013	19:14	For EFI TII gain calibration	2324
Yaw slew (-62°)	09/01/2014	Start: 11:58 End: 23:58	For VFM calibration	3310
Torquer correction MTQ-1	13/01/2014	13:00	EFI in LP TSM. 15s between change of actuation sign	3320
Torquer correction MTQ-2	13/01/2014	17:57	EFI in LP TSM. 15s between change of actuation sign	3320
Torquer correction MTQ-3	14/01/2014	06:34	EFI in LP TSM. 15s between change of actuation sign	3320
Precise datation	15/01/2014	15:15		3330
Orbital manoeuvre test	16/01/2014	14:46	Actuation of the orbit control thrusters (OCT) for 60 seconds. Satellite in nominal attitude.	n.a.
-180° yaw bias for 12h	21/01/2014	Start: 06:00 End: 18:00	For ACC offset calibration	3350
Torquer correction MTQ-3	22/01/2014	05:17	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320- modified
Torquer correction MTQ-1	22/01/2014	12:56	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320- modified
Torquer correction MTQ-2	22/01/2014	17:53	EFI in LP TSM. Torquer actuations every 2s for 8mn	3320- modified



Orbit Manoeuver Test batches	23/01/2014	13:19 until ~15:11	OCT actuations for ca. 20mn at ascending and descending node for two consecutive orbits. For these manoeuvres the attitude was slewed with certain yaw offset angles	n.a
EFI TII datation verification	29/01/2014	18:20		2350
CESS calibration (6 hours forward + 6 hours backward flying)	27/02 - 28/02/2014	Start: 18:00		
Fall-back to CPM	28/02/2014	06:52	Upon slewing back to forward flying at end of CESS calibration	n.a.
Orbit Manoeuver Batch-1	04/03 - 05/03/2014	04/03/2014 @ 05:06 until 05/03/2014 @ 16:51		n.a
Orbit Manoeuver Batch-2	25/03 - 26/03/2014	25/03/2014 @ 03:53 until 26/03/2014 @ 14:20		n.a

DETAILS OF SOME MANOEUVRES BURNS

Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
15/01/2014	11:51:51.9	60	0.011	-0.011	0	0
22/01/2014	12:02:28.6	1065.3	0.202	-0.09	0.181	0.001
22/01/2014	12:49:34.5	1067.1	0.202	-0.09	-0.18	-0.001
22/01/2014	13:37:02.4	1065.2	0.203	-0.09	0.182	0.001
22/01/2014	14:24:08.1	1067.1	0.202	-0.09	-0.181	-0.001
28/01/2014	05:07:56.4	1097.4	0.219	-0.1	0.195	0.002
28/01/2014	05:55:13.6	1197.6	0.238	-0.131	-0.199	-0.001
28/01/2014	06:42:29.2	1097.2	0.219	-0.1	0.195	0.002
28/01/2014	07:29:46.1	1197.5	0.238	-0.131	-0.199	-0.001
28/01/2014	08:17:01.4	1097.1	0.219	-0.101	0.195	0.002
28/01/2014	09:04:18.0	1197.4	0.238	-0.131	-0.199	-0.001
28/01/2014	09:51:33.1	1097	0.22	-0.101	0.195	0.002
28/01/2014	10:38:49.4	1197.3	0.239	-0.131	-0.199	-0.001
28/01/2014	11:26:04.2	1097	0.22	-0.101	0.195	0.002
28/01/2014	12:13:20.3	1197.1	0.239	-0.131	-0.2	-0.001
28/01/2014	13:00:34.9	1096.9	0.22	-0.101	0.196	0.002
28/01/2014	13:47:50.7	1197.1	0.239	-0.131	-0.2	-0.001



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
28/01/2014	14:35:05.1	1096.8	0.22	-0.101	0.196	0.002
28/01/2014	15:22:20.7	1197	0.239	-0.131	-0.2	-0.001
28/01/2014	16:09:34.9	1096.6	0.22	-0.101	0.196	0.002
28/01/2014	16:56:50.1	1196.9	0.239	-0.131	-0.2	-0.001
28/01/2014	17:44:04.1	1096.5	0.221	-0.101	0.196	0.002
28/01/2014	18:31:19.0	1196.8	0.24	-0.132	-0.2	-0.001
28/01/2014	19:18:32.7	1096.4	0.221	-0.101	0.196	0.002
28/01/2014	20:05:47.3	1196.7	0.24	-0.132	-0.201	-0.001
28/01/2014	20:53:00.7	1096.3	0.221	-0.101	0.196	0.002
28/01/2014	21:40:15.0	1196.6	0.24	-0.132	-0.201	-0.001
28/01/2014	22:27:28.2	1096.2	0.221	-0.101	0.197	0.002
28/01/2014	23:14:42.3	1196.5	0.24	-0.132	-0.201	-0.001
29/01/2014	00:01:55.2	1096.1	0.221	-0.102	0.197	0.002
29/01/2014	00:49:09.0	1196.4	0.241	-0.132	-0.201	-0.001
29/01/2014	01:36:21.7	1096	0.222	-0.102	0.197	0.002
29/01/2014	02:23:35.3	1196.3	0.241	-0.132	-0.201	-0.001
29/01/2014	03:10:47.8	1095.8	0.222	-0.102	0.197	0.002
29/01/2014	03:58:01.1	1196.3	0.241	-0.132	-0.202	-0.001
29/01/2014	04:45:13.4	1095.7	0.222	-0.102	0.197	0.002



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
29/01/2014	05:32:26.3	1196.2	0.241	-0.132	-0.202	-0.001
29/01/2014	06:19:38.4	1095.5	0.222	-0.102	0.198	0.002
29/01/2014	07:06:51.0	1196.1	0.242	-0.133	-0.202	-0.001
29/01/2014	07:54:02.8	1095.4	0.222	-0.102	0.198	0.002
29/01/2014	08:41:15.1	1196	0.242	-0.133	-0.202	-0.001
29/01/2014	09:28:26.7	1095.3	0.223	-0.102	0.198	0.002
29/01/2014	10:15:38.6	1195.8	0.242	-0.133	-0.202	-0.001
29/01/2014	11:02:50.0	1095.2	0.223	-0.102	0.198	0.002
29/01/2014	11:50:01.7	1195.7	0.242	-0.133	-0.203	-0.001
29/01/2014	12:37:12.8	1095.2	0.223	-0.102	0.198	0.002
29/01/2014	13:24:24.3	1195.6	0.242	-0.133	-0.203	-0.001
29/01/2014	14:11:35.2	1095	0.223	-0.102	0.198	0.002
29/01/2014	14:58:46.4	1195.6	0.243	-0.133	-0.203	-0.001
29/01/2014	15:45:57.1	1094.9	0.224	-0.102	0.199	0.002
29/01/2014	16:33:08.0	1195.5	0.243	-0.133	-0.203	-0.001
29/01/2014	17:20:18.5	1094.7	0.224	-0.103	0.199	0.002
04/02/2014	08:34:09.6	1102	0.226	-0.091	0.207	-0.004
04/02/2014	09:19:29.3	1261.6	0.259	-0.138	-0.219	0.004
04/02/2014	10:08:29.8	1101.9	0.226	-0.091	0.207	-0.004



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
04/02/2014	10:53:49.2	1261.5	0.259	-0.138	-0.219	0.004
04/02/2014	11:42:49.4	1101.9	0.227	-0.092	0.207	-0.004
04/02/2014	12:28:08.7	1261.4	0.26	-0.138	-0.22	0.004
04/02/2014	13:17:08.7	1101.8	0.227	-0.092	0.208	-0.004
04/02/2014	14:02:27.7	1261.3	0.26	-0.139	-0.22	0.004
04/02/2014	14:51:27.5	1101.6	0.227	-0.092	0.208	-0.004
04/02/2014	15:36:46.2	1261.3	0.26	-0.139	-0.22	0.004
04/02/2014	16:25:45.8	1101.4	0.227	-0.092	0.208	-0.004
04/02/2014	17:11:04.2	1261.2	0.26	-0.139	-0.22	0.004
04/02/2014	18:00:03.5	1101.3	0.228	-0.092	0.208	-0.004
04/02/2014	18:45:21.6	1261.1	0.261	-0.139	-0.22	0.004
04/02/2014	19:34:20.6	1101.2	0.228	-0.092	0.208	-0.004
04/02/2014	20:19:38.4	1260.9	0.261	-0.139	-0.221	0.004
04/02/2014	21:08:37.1	1101.1	0.228	-0.092	0.209	-0.004
04/02/2014	21:53:54.7	1260.8	0.261	-0.139	-0.221	0.004
04/02/2014	22:42:53.1	1101	0.228	-0.092	0.209	-0.004
04/02/2014	23:28:10.5	1260.7	0.261	-0.139	-0.221	0.004
05/02/2014	00:17:08.7	1100.9	0.228	-0.092	0.209	-0.004
05/02/2014	01:02:25.9	1260.7	0.262	-0.14	-0.221	0.004



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
05/02/2014	01:51:23.9	1100.8	0.229	-0.092	0.209	-0.004
05/02/2014	02:36:40.8	1260.6	0.262	-0.14	-0.222	0.004
05/02/2014	03:25:38.5	1100.6	0.229	-0.092	0.209	-0.004
05/02/2014	04:10:55.1	1260.6	0.262	-0.14	-0.222	0.004
05/02/2014	04:59:52.7	1100.4	0.229	-0.093	0.21	-0.004
05/02/2014	05:45:08.9	1260.5	0.263	-0.14	-0.222	0.004
05/02/2014	06:34:06.2	1100.3	0.229	-0.093	0.21	-0.004
05/02/2014	07:19:22.1	1260.4	0.263	-0.14	-0.222	0.004
05/02/2014	08:08:19.2	1100.2	0.23	-0.093	0.21	-0.004
05/02/2014	08:53:34.8	1260.2	0.263	-0.14	-0.223	0.004
05/02/2014	09:42:31.6	1100.1	0.23	-0.093	0.21	-0.004
05/02/2014	10:27:47.0	1260.1	0.263	-0.14	-0.223	0.004
05/02/2014	11:16:43.5	1100	0.23	-0.093	0.21	-0.004
05/02/2014	12:01:58.7	1260	0.264	-0.141	-0.223	0.004
05/02/2014	12:50:54.9	1099.9	0.23	-0.093	0.211	-0.004
05/02/2014	13:36:09.9	1260	0.264	-0.141	-0.223	0.004
05/02/2014	14:25:06.0	1099.8	0.23	-0.093	0.211	-0.004
05/02/2014	15:10:20.7	1259.9	0.264	-0.141	-0.223	0.004
05/02/2014	15:59:16.5	1099.6	0.231	-0.093	0.211	-0.004



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
05/02/2014	16:44:30.8	1259.8	0.264	-0.141	-0.224	0.004
05/02/2014	17:33:26.4	1099.5	0.231	-0.093	0.211	-0.004
05/02/2014	18:18:40.4	1259.7	0.265	-0.141	-0.224	0.004
05/02/2014	19:07:35.7	1099.3	0.231	-0.093	0.211	-0.004
05/02/2014	19:52:49.5	1259.6	0.265	-0.141	-0.224	0.004
05/02/2014	20:41:44.4	1099.2	0.231	-0.093	0.212	-0.004
05/02/2014	21:26:58.0	1259.5	0.265	-0.141	-0.224	0.005
05/02/2014	22:15:52.7	1099.1	0.232	-0.094	0.212	-0.004
05/02/2014	23:01:06.0	1259.3	0.266	-0.142	-0.225	0.005
05/02/2014	23:50:00.4	1099.1	0.232	-0.094	0.212	-0.004
06/02/2014	00:35:13.5	1259.3	0.266	-0.142	-0.225	0.005
18/02/2014	03:34:06.1	1124.6	0.238	-0.036	0.235	-0.014
18/02/2014	04:19:19.3	1209.5	0.255	-0.054	-0.249	0.015
18/02/2014	05:08:12.3	1124.5	0.239	-0.036	0.235	-0.014
18/02/2014	05:53:25.3	1209.5	0.255	-0.054	-0.249	0.015
18/02/2014	06:42:18.2	1124.5	0.239	-0.036	0.236	-0.014
18/02/2014	07:27:31.2	1209.4	0.256	-0.055	-0.249	0.015
18/02/2014	08:16:24.0	1124.5	0.239	-0.037	0.236	-0.014
18/02/2014	09:01:36.8	1209.3	0.256	-0.055	-0.25	0.015



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
18/02/2014	09:50:29.4	1124.5	0.239	-0.037	0.236	-0.014
18/02/2014	10:35:42.3	1209.3	0.256	-0.055	-0.25	0.015
18/02/2014	11:24:34.8	1124.4	0.24	-0.037	0.236	-0.014
18/02/2014	12:09:47.6	1209.3	0.257	-0.055	-0.25	0.015
18/02/2014	12:58:40.0	1124.4	0.24	-0.037	0.237	-0.014
18/02/2014	13:43:52.7	1209.3	0.257	-0.055	-0.25	0.015
18/02/2014	14:32:45.1	1124.3	0.24	-0.037	0.237	-0.014
18/02/2014	15:17:57.6	1209.3	0.257	-0.055	-0.251	0.015
18/02/2014	16:06:49.9	1124.2	0.24	-0.037	0.237	-0.014
18/02/2014	16:52:02.3	1209.2	0.257	-0.055	-0.251	0.015
18/02/2014	17:40:54.4	1124.1	0.241	-0.037	0.237	-0.014
18/02/2014	18:26:06.7	1209.2	0.258	-0.055	-0.251	0.015
18/02/2014	19:14:58.7	1124.1	0.241	-0.037	0.238	-0.014
18/02/2014	20:00:10.9	1209.1	0.258	-0.055	-0.252	0.015
18/02/2014	20:49:02.7	1124.1	0.241	-0.037	0.238	-0.014
18/02/2014	21:34:14.9	1209	0.258	-0.055	-0.252	0.015
18/02/2014	22:23:06.6	1124.1	0.241	-0.037	0.238	-0.014
18/02/2014	23:08:18.7	1209	0.258	-0.055	-0.252	0.015
18/02/2014	23:57:10.4	1124	0.242	-0.037	0.238	-0.014



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
19/02/2014	00:42:22.4	1209	0.259	-0.055	-0.252	0.015
19/02/2014	01:31:14.0	1123.9	0.242	-0.037	0.239	-0.015
19/02/2014	02:16:25.9	1209	0.259	-0.055	-0.253	0.015
19/02/2014	03:05:17.4	1123.8	0.242	-0.037	0.239	-0.015
19/02/2014	03:50:29.1	1209	0.259	-0.055	-0.253	0.015
6/02/2014	13:50:00.1	4	-	-	-	-
12/06/2014	04:49:41.4	37	0.008	-0.008	0	0
15/10/2014	11:38:40.6	28	0.006	-0.006	0	0
15/10/2014	12:25:32.0	28	0.006	-0.006	0	0
26/11/2014	12:13:30.0	22	-	-	-	-
15/01/2015	11:44:59.9	25	0.005	-0.005	0	0
15/01/2015	12:31:59.9	25	0.005	-0.005	0	0
19/03/2015	11:59:59	22	0.005	-0.005	0	0
19/03/2015	12:51:59	22	0.005	-0.005	0	0
25/06/2015	09:59:57.9	18.1	0.004	-0.004	0	0
25/06/2015	10:46:47.9	18.1	0.004	-0.004	0	0
15/10/2015	07:26:42.0	42	0,009	-0,009	0	0
10/12/2015	14:59:59	15	0,003	-0,003	0	0
10/12/2015	15:46:44	15	0,003	-0,003	0	0



Swarm-A						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
03/03/2016	13:37:25.0	184	0,04	0,04	0	0
03/03/2016	14:23:55	216	0,047	-0,047	0	0
01/04/2016	11:37:19	70				
01/04/2016	13:10:54	73				
16/06/2016	12:13:12	31	0,007	-0,007	0	0
19/01/2017	09:53:59	14	0,003	-0,003	0	0
13/07/2017	14:17:55	8	0,001	-0,001	0	0

Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
14/01/2014	13:49:20.9	60	0.011	-0.011	0	0
25/02/2014	06:02:41.4	1214.7	0.227	0.102	-0.202	-0.011
25/02/2014	06:51:46.8	1178.4	0.22	0.083	0.203	0.012
25/02/2014	07:37:14.7	1214.8	0.227	0.102	-0.202	-0.012
25/02/2014	08:26:20.3	1178.5	0.221	0.084	0.204	0.012
25/02/2014	09:11:48.4	1214.9	0.227	0.102	-0.203	-0.012
25/02/2014	10:00:54.3	1178.6	0.221	0.084	0.204	0.012



Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
25/02/2014	10:46:22.5	1215	0.227	0.102	-0.203	-0.012
25/02/2014	11:35:28.7	1178.7	0.221	0.084	0.204	0.012
25/02/2014	12:20:57.2	1215.1	0.228	0.102	-0.203	-0.012
25/02/2014	13:10:03.6	1178.9	0.221	0.084	0.204	0.012
25/02/2014	13:55:32.4	1215.1	0.228	0.102	-0.203	-0.012
25/02/2014	14:44:38.9	1179	0.221	0.084	0.205	0.012
25/02/2014	15:30:07.8	1215.1	0.228	0.102	-0.203	-0.012
25/02/2014	16:19:14.6	1179.1	0.222	0.084	0.205	0.012
25/02/2014	17:04:43.6	1215.2	0.228	0.102	-0.204	-0.012
25/02/2014	17:53:50.6	1179.1	0.222	0.084	0.205	0.012
25/02/2014	18:39:19.8	1215.3	0.229	0.103	-0.204	-0.012
25/02/2014	19:28:27.0	1179.2	0.222	0.084	0.205	0.012
25/02/2014	20:13:56.4	1215.4	0.229	0.103	-0.204	-0.012
25/02/2014	21:03:03.8	1179.3	0.222	0.084	0.205	0.012
25/02/2014	21:48:33.4	1215.5	0.229	0.103	-0.204	-0.012
25/02/2014	22:37:41.1	1179.4	0.223	0.084	0.206	0.012
25/02/2014	23:23:10.9	1215.6	0.229	0.103	-0.205	-0.012
26/02/2014	00:12:18.9	1179.5	0.223	0.084	0.206	0.012
26/02/2014	00:57:48.9	1215.6	0.23	0.103	-0.205	-0.012



Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
26/02/2014	01:46:57.1	1179.7	0.223	0.085	0.206	0.012
26/02/2014	02:32:27.4	1215.6	0.23	0.103	-0.205	-0.012
26/02/2014	03:21:35.6	1179.8	0.223	0.085	0.206	0.012
26/02/2014	04:07:06.1	1215.7	0.23	0.103	-0.205	-0.012
26/02/2014	04:56:14.6	1179.9	0.224	0.085	0.207	0.012
26/02/2014	05:41:45.3	1215.8	0.23	0.103	-0.205	-0.012
26/02/2014	06:30:53.9	1179.9	0.224	0.085	0.207	0.012
26/02/2014	07:16:24.8	1215.9	0.231	0.103	-0.206	-0.012
26/02/2014	08:05:33.6	1180	0.224	0.085	0.207	0.012
26/02/2014	08:51:04.7	1216	0.231	0.104	-0.206	-0.012
26/02/2014	09:40:13.9	1180.1	0.224	0.085	0.207	0.012
26/02/2014	10:45:56.5	2	0	0	0	0
26/02/2014	11:14:54.6	1180.4	0.225	0.085	0.208	0.012
26/02/2014	12:00:59.2	1157.6	0.22	0.096	-0.198	-0.012
26/02/2014	12:49:42.6	1170.2	0.223	0.085	0.205	0.012
26/02/2014	13:35:40.4	1157.6	0.22	0.096	-0.198	-0.012
26/02/2014	14:24:23.9	1170.3	0.223	0.086	0.206	0.012
26/02/2014	15:10:21.8	1157.6	0.22	0.096	-0.198	-0.012
26/02/2014	15:59:05.5	1170.4	0.223	0.086	0.206	0.012



Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
26/02/2014	16:45:03.6	1157.7	0.221	0.096	-0.198	-0.012
26/02/2014	17:33:47.5	1170.5	0.224	0.086	0.206	0.012
26/02/2014	18:19:45.8	1157.8	0.221	0.096	-0.199	-0.012
26/02/2014	19:08:29.9	1170.5	0.224	0.086	0.206	0.012
26/02/2014	19:54:28.3	1157.9	0.221	0.096	-0.199	-0.012
26/02/2014	20:43:12.7	1170.6	0.224	0.086	0.207	0.012
26/02/2014	21:29:11.3	1158	0.221	0.096	-0.199	-0.012
26/02/2014	22:17:55.9	1170.7	0.224	0.086	0.207	0.012
26/02/2014	23:03:54.7	1158.1	0.222	0.096	-0.199	-0.012
26/02/2014	23:52:39.6	1170.8	0.225	0.086	0.207	0.013
27/02/2014	00:38:38.7	1158.1	0.222	0.097	-0.199	-0.012
27/02/2014	01:27:23.8	1171	0.225	0.086	0.207	0.013
27/02/2014	02:13:23.0	1158.1	0.222	0.097	-0.2	-0.012
27/02/2014	03:02:08.3	1171.1	0.225	0.086	0.207	0.013
27/02/2014	03:48:07.7	1158.2	0.222	0.097	-0.2	-0.012
27/02/2014	04:36:53.1	1171.2	0.225	0.086	0.208	0.013
27/02/2014	05:22:52.8	1158.3	0.223	0.097	-0.2	-0.012
27/02/2014	06:11:38.4	1171.2	0.225	0.086	0.208	0.013
27/02/2014	06:57:38.2	1158.3	0.223	0.097	-0.2	-0.012



Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
27/02/2014	07:46:24.0	1171.3	0.226	0.087	0.208	0.013
27/02/2014	08:32:24.0	1158.5	0.223	0.097	-0.2	-0.012
27/02/2014	09:21:10.1	1171.3	0.226	0.087	0.208	0.013
27/02/2014	10:07:10.2	1158.6	0.223	0.097	-0.201	-0.012
27/02/2014	10:55:56.6	1171.5	0.226	0.087	0.209	0.013
27/02/2014	11:41:57.0	1158.6	0.224	0.097	-0.201	-0.012
27/02/2014	12:30:43.6	1171.6	0.226	0.087	0.209	0.013
27/02/2014	13:16:44.3	1158.7	0.224	0.097	-0.201	-0.012
27/02/2014	14:05:31.0	1171.7	0.227	0.087	0.209	0.013
27/02/2014	14:51:31.8	1158.7	0.224	0.097	-0.201	-0.012
27/02/2014	15:40:18.8	1171.8	0.227	0.087	0.209	0.013
11/03/2014	09:39:53.8	1041.5	0.209	0.081	-0.193	-0.013
11/03/2014	10:27:45.8	1190.1	0.24	0.109	0.213	0.014
11/03/2014	11:14:41.4	1041.5	0.21	0.081	-0.193	-0.013
11/03/2014	12:02:33.6	1190.2	0.24	0.109	0.213	0.014
11/03/2014	12:49:29.4	1041.6	0.21	0.081	-0.193	-0.013
11/03/2014	13:37:21.9	1190.3	0.24	0.109	0.213	0.014
11/03/2014	14:24:17.8	1041.6	0.21	0.081	-0.193	-0.013
11/03/2014	15:12:10.5	1190.3	0.24	0.109	0.214	0.014



Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
11/03/2014	15:59:06.6	1041.7	0.21	0.081	-0.194	-0.013
11/03/2014	16:46:59.5	1190.4	0.241	0.11	0.214	0.014
11/03/2014	17:33:55.7	1041.8	0.21	0.081	-0.194	-0.013
11/03/2014	18:21:48.9	1190.4	0.241	0.11	0.214	0.014
11/03/2014	19:08:45.2	1041.9	0.211	0.081	-0.194	-0.013
11/03/2014	19:56:38.7	1190.5	0.241	0.11	0.214	0.014
11/03/2014	20:43:35.3	1042.1	0.211	0.081	-0.194	-0.013
11/03/2014	21:31:29.0	1190.6	0.241	0.11	0.215	0.014
11/03/2014	22:18:25.8	1042.1	0.211	0.081	-0.194	-0.013
11/03/2014	23:06:19.8	1190.7	0.242	0.11	0.215	0.014
11/03/2014	23:53:16.8	1042.2	0.211	0.081	-0.195	-0.013
12/03/2014	00:41:11.0	1190.8	0.242	0.11	0.215	0.014
12/03/2014	01:28:08.2	1042.2	0.212	0.081	-0.195	-0.013
12/03/2014	02:16:02.6	1190.9	0.242	0.11	0.215	0.014
12/03/2014	03:03:00.0	1042.3	0.212	0.082	-0.195	-0.013
12/03/2014	03:50:54.6	1190.9	0.242	0.11	0.215	0.014
12/03/2014	04:37:52.1	1042.4	0.212	0.082	-0.195	-0.013
12/03/2014	05:25:47.0	1191	0.243	0.11	0.216	0.014
12/03/2014	06:12:44.7	1042.5	0.212	0.082	-0.195	-0.013



Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
12/03/2014	07:00:39.8	1191	0.243	0.111	0.216	0.014
12/03/2014	07:47:37.7	1042.7	0.213	0.082	-0.196	-0.013
12/03/2014	08:35:33.1	1191.1	0.243	0.111	0.216	0.014
12/03/2014	09:22:31.1	1042.8	0.213	0.082	-0.196	-0.013
12/03/2014	10:10:26.9	1191.2	0.244	0.111	0.216	0.014
12/03/2014	10:57:25.1	1042.9	0.213	0.082	-0.196	-0.013
12/03/2014	11:45:21.1	1191.3	0.244	0.111	0.217	0.014
12/03/2014	12:32:19.6	1042.9	0.213	0.082	-0.196	-0.013
12/03/2014	13:20:15.7	1191.4	0.244	0.111	0.217	0.014
12/03/2014	14:07:14.4	1043	0.213	0.082	-0.197	-0.013
12/03/2014	14:55:10.8	1191.5	0.244	0.111	0.217	0.014
12/03/2014	15:42:09.6	1043.1	0.214	0.082	-0.197	-0.013
12/03/2014	16:30:06.2	1191.5	0.245	0.111	0.217	0.014
12/03/2014	17:17:05.1	1043.2	0.214	0.082	-0.197	-0.013
12/03/2014	18:05:02.1	1191.6	0.245	0.111	0.218	0.014
12/03/2014	18:52:01.1	1043.3	0.214	0.082	-0.197	-0.013
12/03/2014	19:39:58.3	1191.6	0.245	0.112	0.218	0.014
12/03/2014	20:45:00.2	2	0	0	0	0
12/03/2014	21:14:42.3	1218.5	0.251	0.106	0.227	0.011



Swarm-B						
Date	Time, UTC	Duration (s)	DV magnitud (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
12/03/2014	22:02:00.9	1044.6	0.215	0.069	-0.203	-0.011
12/03/2014	22:49:47.7	1175.9	0.242	0.106	0.217	0.012
12/03/2014	23:36:58.2	1044.6	0.215	0.069	-0.203	-0.011
13/03/2014	00:24:45.2	1176	0.243	0.106	0.218	0.012
13/03/2014	01:11:55.8	1044.7	0.215	0.069	-0.204	-0.011
13/03/2014	01:59:42.9	1176.1	0.243	0.107	0.218	0.012
13/03/2014	02:46:53.8	1044.8	0.215	0.069	-0.204	-0.011
13/03/2014	03:34:41.1	1176.1	0.243	0.107	0.218	0.012
13/03/2014	04:21:52.1	1044.9	0.216	0.069	-0.204	-0.011
13/03/2014	05:09:39.6	1176.2	0.243	0.107	0.218	0.012
13/03/2014	05:56:50.7	1045	0.216	0.069	-0.204	-0.011
13/03/2014	06:44:38.5	1176.2	0.244	0.107	0.219	0.012
13/03/2014	07:31:49.8	1045.1	0.216	0.069	-0.204	-0.011
13/03/2014	08:19:37.8	1176.2	0.244	0.107	0.219	0.012
13/03/2014	09:06:49.2	1045.2	0.216	0.07	-0.205	-0.011
13/03/2014	09:54:37.6	1176.3	0.244	0.107	0.219	0.012
10/12/2015	02:31:53.1	133,8	0,029	-0,029	-0,001	0
23/08/2016	12:04:12	95,5	0,02	0,02	0	0
16/05/2017	00:51:12	95,0	0,02	-0,02	0	0



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
16/01/2014	14:46:00.9	60	0.011	-0.011	0	0
23/01/2014	13:19:07.9	1080.3	0.206	-0.089	0.186	0.001
23/01/2014	14:06:30.5	1055.5	0.191	-0.076	-0.176	-0.001
23/01/2014	14:53:42.0	1080.3	0.207	-0.089	0.186	0.001
23/01/2014	15:41:04.3	1055.5	0.192	-0.076	-0.176	-0.001
04/03/2014	05:06:27.7	1199.8	0.23	-0.109	0.202	-0.008
04/03/2014	05:53:18.4	1098.3	0.2	-0.084	-0.181	0.008
04/03/2014	06:40:59.6	1199.7	0.23	-0.109	0.202	-0.008
04/03/2014	07:27:50.1	1098.2	0.2	-0.084	-0.181	0.008
04/03/2014	08:15:31.0	1199.7	0.23	-0.11	0.203	-0.008
04/03/2014	09:02:21.4	1098.1	0.2	-0.084	-0.181	0.008
04/03/2014	09:50:02.1	1199.6	0.231	-0.11	0.203	-0.008
04/03/2014	10:36:52.3	1098	0.2	-0.084	-0.182	0.008
04/03/2014	11:24:33.8	1198.2	0.231	-0.11	0.203	-0.008
04/03/2014	12:15:15.6	630.1	0.115	-0.048	-0.104	0.004
04/03/2014	12:58:58.8	1205.9	0.232	-0.11	0.204	-0.008
04/03/2014	13:45:51.5	1106.5	0.202	-0.085	-0.183	0.007
04/03/2014	14:33:28.8	1205.8	0.232	-0.11	0.204	-0.008



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
04/03/2014	15:20:21.2	1106.4	0.202	-0.086	-0.183	0.007
04/03/2014	16:07:58.2	1205.7	0.233	-0.11	0.205	-0.008
04/03/2014	16:54:50.4	1106.3	0.203	-0.086	-0.183	0.007
04/03/2014	17:42:27.1	1205.6	0.233	-0.111	0.205	-0.008
04/03/2014	18:29:19.1	1106.2	0.203	-0.086	-0.184	0.007
04/03/2014	19:16:55.5	1205.6	0.233	-0.111	0.205	-0.008
04/03/2014	20:03:47.4	1106.1	0.203	-0.086	-0.184	0.007
04/03/2014	20:51:23.6	1205.5	0.233	-0.111	0.205	-0.008
04/03/2014	21:38:15.3	1106	0.203	-0.086	-0.184	0.007
04/03/2014	22:25:51.3	1205.4	0.233	-0.111	0.205	-0.008
04/03/2014	23:12:42.9	1105.9	0.203	-0.086	-0.184	0.007
05/03/2014	00:00:18.6	1205.3	0.234	-0.111	0.206	-0.008
05/03/2014	00:47:10.0	1105.9	0.203	-0.086	-0.184	0.007
05/03/2014	01:34:45.5	1205.2	0.234	-0.111	0.206	-0.008
05/03/2014	02:21:36.6	1105.8	0.204	-0.086	-0.184	0.008
05/03/2014	03:09:11.9	1205.1	0.234	-0.111	0.206	-0.008
05/03/2014	03:56:02.8	1105.7	0.204	-0.086	-0.185	0.008
05/03/2014	04:43:37.8	1205	0.234	-0.111	0.206	-0.008
05/03/2014	05:30:28.4	1105.6	0.204	-0.086	-0.185	0.008
05/03/2014	06:18:03.2	1204.9	0.235	-0.111	0.206	-0.008



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
05/03/2014	07:04:53.6	1105.4	0.204	-0.086	-0.185	0.008
05/03/2014	07:52:28.2	1204.9	0.235	-0.111	0.206	-0.008
05/03/2014	08:39:18.4	1105.3	0.204	-0.086	-0.185	0.008
05/03/2014	09:26:52.7	1204.9	0.235	-0.112	0.207	-0.008
05/03/2014	10:13:42.8	1105.2	0.205	-0.086	-0.185	0.008
05/03/2014	11:01:16.9	1204.8	0.235	-0.112	0.207	-0.008
05/03/2014	11:48:06.8	1105.2	0.205	-0.087	-0.185	0.008
05/03/2014	12:35:40.8	1204.6	0.235	-0.112	0.207	-0.008
05/03/2014	13:22:30.4	1105.1	0.205	-0.087	-0.186	0.008
05/03/2014	14:10:04.1	1204.5	0.236	-0.112	0.207	-0.008
05/03/2014	14:56:53.5	1105	0.205	-0.087	-0.186	0.008
05/03/2014	15:44:26.9	1204.4	0.236	-0.112	0.207	-0.008
05/03/2014	16:31:16.1	1104.9	0.205	-0.087	-0.186	0.008
25/03/2014	04:19:36.2	1217.8	0.247	-0.113	0.22	0.002
25/03/2014	05:08:34.6	1007.5	0.194	-0.058	-0.185	-0.002
25/03/2014	05:53:56.4	1217.8	0.247	-0.113	0.22	0.002
25/03/2014	06:42:54.7	1007.3	0.194	-0.058	-0.185	-0.002
25/03/2014	07:28:16.3	1217.8	0.247	-0.113	0.22	0.002
25/03/2014	08:17:14.5	1007.3	0.194	-0.058	-0.185	-0.002
25/03/2014	09:02:35.9	1217.7	0.248	-0.113	0.22	0.002



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
25/03/2014	09:51:34.0	1007.2	0.194	-0.058	-0.185	-0.002
25/03/2014	10:36:55.2	1217.6	0.248	-0.113	0.22	0.002
25/03/2014	11:25:53.0	1007.1	0.194	-0.058	-0.186	-0.002
25/03/2014	12:11:14.1	1217.5	0.248	-0.113	0.221	0.002
25/03/2014	13:00:11.7	1007	0.195	-0.058	-0.186	-0.002
25/03/2014	13:45:32.5	1217.5	0.248	-0.113	0.221	0.002
25/03/2014	14:34:29.9	1006.9	0.195	-0.058	-0.186	-0.002
25/03/2014	15:19:50.4	1217.4	0.248	-0.113	0.221	0.002
25/03/2014	16:08:47.8	1006.8	0.195	-0.058	-0.186	-0.002
25/03/2014	16:53:59.7	1213.1	0.248	-0.112	0.221	0.002
25/03/2014	17:59:27.5	1.7	0	0	0	0
25/03/2014	18:29:03.6	1189.7	0.243	-0.113	0.216	0.003
25/03/2014	19:18:11.7	981.3	0.19	-0.06	-0.181	-0.002
25/03/2014	20:03:20.6	1189.6	0.243	-0.113	0.216	0.003
25/03/2014	20:52:28.5	981.2	0.191	-0.06	-0.181	-0.002
25/03/2014	21:37:37.3	1189.5	0.244	-0.113	0.216	0.003
25/03/2014	22:26:45.1	981.2	0.191	-0.06	-0.181	-0.002
25/03/2014	23:11:53.6	1189.4	0.244	-0.113	0.216	0.003
26/03/2014	00:01:01.2	981.1	0.191	-0.06	-0.181	-0.002
26/03/2014	00:46:09.5	1189.3	0.244	-0.113	0.216	0.003



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
26/03/2014	01:35:16.8	981	0.191	-0.06	-0.181	-0.002
26/03/2014	02:20:25.0	1189.3	0.244	-0.113	0.217	0.003
26/03/2014	03:09:32.0	980.9	0.191	-0.06	-0.181	-0.002
26/03/2014	03:54:40.0	1189.2	0.244	-0.113	0.217	0.003
26/03/2014	04:43:46.9	980.8	0.191	-0.06	-0.182	-0.002
26/03/2014	05:28:54.6	1189.2	0.245	-0.113	0.217	0.003
26/03/2014	06:18:01.3	980.7	0.191	-0.06	-0.182	-0.002
26/03/2014	07:03:08.7	1189.2	0.245	-0.113	0.217	0.003
26/03/2014	07:52:15.4	980.6	0.192	-0.06	-0.182	-0.002
26/03/2014	08:37:22.7	1189.2	0.245	-0.113	0.217	0.003
26/03/2014	09:26:29.1	980.5	0.192	-0.06	-0.182	-0.002
26/03/2014	10:11:36.3	1189.1	0.245	-0.114	0.218	0.003
26/03/2014	11:00:42.5	980.4	0.192	-0.061	-0.182	-0.002
26/03/2014	11:45:49.5	1189	0.246	-0.114	0.218	0.003
26/03/2014	12:34:55.5	980.4	0.192	-0.061	-0.182	-0.002
26/03/2014	13:20:02.2	1188.9	0.246	-0.114	0.218	0.003
26/03/2014	14:09:08.1	980.2	0.192	-0.061	-0.183	-0.002
08/04/2014	20:00:55.0	1179.3	0.245	-0.118	0.214	0.013
08/04/2014	20:49:26.0	1152.8	0.227	-0.094	-0.206	-0.012
08/04/2014	21:35:05.9	1179.1	0.245	-0.118	0.215	0.013



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
08/04/2014	22:23:36.6	1152.7	0.228	-0.094	-0.207	-0.012
08/04/2014	23:09:16.2	1179	0.245	-0.118	0.215	0.013
08/04/2014	23:57:46.6	1152.6	0.228	-0.094	-0.207	-0.012
09/04/2014	00:43:26.0	1178.9	0.246	-0.118	0.215	0.013
09/04/2014	01:31:56.1	1152.5	0.228	-0.095	-0.207	-0.012
09/04/2014	02:17:35.3	1178.8	0.246	-0.118	0.215	0.013
09/04/2014	03:06:05.1	1152.4	0.228	-0.095	-0.207	-0.012
09/04/2014	03:51:44.0	1178.8	0.246	-0.118	0.215	0.013
09/04/2014	04:40:13.6	1152.2	0.228	-0.095	-0.207	-0.012
09/04/2014	05:25:52.3	1178.7	0.246	-0.118	0.216	0.013
09/04/2014	06:14:21.7	1152.1	0.229	-0.095	-0.208	-0.012
09/04/2014	07:00:00.1	1178.7	0.247	-0.119	0.216	0.013
09/04/2014	07:48:29.3	1152	0.229	-0.095	-0.208	-0.012
09/04/2014	08:34:07.6	1178.6	0.247	-0.119	0.216	0.013
09/04/2014	09:22:36.6	1151.9	0.229	-0.095	-0.208	-0.012
09/04/2014	10:08:14.7	1178.4	0.247	-0.119	0.216	0.013
09/04/2014	10:56:43.3	1151.8	0.229	-0.095	-0.208	-0.012
09/04/2014	11:42:21.2	1178.3	0.247	-0.119	0.217	0.013
09/04/2014	12:30:49.5	1151.7	0.229	-0.095	-0.208	-0.012
09/04/2014	13:16:27.1	1178.2	0.248	-0.119	0.217	0.014



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
09/04/2014	14:04:55.2	1151.6	0.23	-0.095	-0.209	-0.012
09/04/2014	14:50:32.5	1178.2	0.248	-0.119	0.217	0.014
09/04/2014	15:39:00.4	1151.4	0.23	-0.095	-0.209	-0.012
09/04/2014	16:24:37.4	1178.1	0.248	-0.119	0.217	0.014
09/04/2014	17:13:05.1	1151.3	0.23	-0.095	-0.209	-0.012
09/04/2014	17:58:41.9	1178.1	0.248	-0.119	0.217	0.014
09/04/2014	18:47:09.3	1151.2	0.23	-0.096	-0.209	-0.012
09/04/2014	19:32:46.0	1178	0.249	-0.119	0.218	0.014
09/04/2014	20:21:13.2	1151.2	0.231	-0.096	-0.209	-0.012
09/04/2014	21:06:42.6	1178.4	0.249	-0.119	0.218	0.013
09/04/2014	22:13:36.1	1.6	0	0	0	0
09/04/2014	22:40:45.9	1178.3	0.249	-0.119	0.218	0.013
09/04/2014	23:29:11.7	1149.6	0.231	-0.094	-0.21	-0.012
11/04/2014	02:53:05.8	1045.8	0.222	-0.062	0.213	0
11/04/2014	03:40:06.0	933.5	0.188	-0.043	-0.183	0
11/04/2014	04:27:07.8	1045.8	0.222	-0.062	0.213	0
11/04/2014	05:14:07.9	933.4	0.188	-0.044	-0.183	0
11/04/2014	06:01:09.5	1045.8	0.222	-0.062	0.214	0
11/04/2014	06:48:09.7	933.4	0.188	-0.044	-0.183	0
11/04/2014	07:35:11.2	1045.8	0.222	-0.062	0.214	0



Swarm-C						
Date	Time, UTC	Duration (s)	DV magnitude (m/s)	DV along (m/s)	DV cross (m/s)	DV radial (m/s)
11/04/2014	08:22:11.2	933.3	0.188	-0.044	-0.183	0
11/04/2014	09:09:12.7	1045.7	0.223	-0.062	0.214	0
11/04/2014	09:56:12.6	933.3	0.189	-0.044	-0.183	0
11/04/2014	10:43:13.9	1045.7	0.223	-0.062	0.214	0
11/04/2014	11:30:13.6	933.3	0.189	-0.044	-0.184	0
15/04/2014	04:02:17.0	672.1	0.143	-0.143	0	0
15/04/2014	04:56:01.4	652.4	0.139	-0.139	0	0
17/04/2014	04:40:29.3	582.2	0.126	-0.126	0	0
17/04/2014	05:27:29.0	569.8	0.123	-0.123	0	0
25/08/2016	07:22:59	15	0,003	-0,003	0	0

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