RPC-LAP
OPERATIONS REPORT
CRUISE 2 MISSION PHASE

April 5, 2005 - July 28, 2006

IRFU-ROS-OPR-CR2
Version 1.0
31 Aug 2019

Anders Eriksson, Erik Johansson
Swedish Institute of Space Physics, Uppsala

IRF **Swedish Institute of Space Physics**
Uppsala

Contents

Document history

Revision	Date	Comment
1.0	2019-08-31	Initial release

1 Introduction

This is the report from the operations of RPC-LAP in the Cruise 2 (CR2) phase of the Rosetta mission, covering the period April 5, 2005 - July 28, 2006. This included the following operational slots for LAP:

- June 1, 2005: RPC OBCP update
- June 16, 2005: LAP s/w patch
- June 16-19, 2005: Solar wind monitoring for comet P/2005 JQ5 (Catalina)
- October 3, 2005: Periodic payload checkout 1 (PC1)
- March 7, 2006: Periodic payload checkout 1 (PC2)
- July 4-8, 2006: Solar wind monitoring for comet 45P/Honda-Mrkos-Pajdusakova (Honda)

2 Operations overview

In June 1, 2005, LAP was as part of the verification of an update of an RPC on-board control procedure (OBCP).

The second (and last) LAP flight software patching during the mission was performed around noon in June 16, 2005, to correct an issue discovered in PC0 with the start of execution of a macro possibly being delayed by a time of order minutes. This operation produced no science data.

Extended solar wind monitoring was originally planned for the commissioning phase (see the corresponding report for mission phase CVP1) but this was cut short by the RPC power supply anomaly. A suitable slot for such extended monitoring, useful for understanding instrument data, occurred in June 16-19, 2005, when Rosetta would possibly cross the ion tail of comet P/2005 JQ5 (Catalina). The RPC particle instruments ICA and IES were not turned on due to problems with syncing with wheel offloading operations on the s/c, but LAP, MAG and MIP were on for this time.

Payload checkout (PC) operations occured regularly during the pre-comet phases of the mission. For LAP, the minimum PC operations consisted of offset determination and probe bias voltage sweeps for photoemission determination. LAP was activated in October 3, 2005 for PC1 and again in March 7, 2006, for PC2.

Another suitable slot for extended solar wind monitoring occurred in July 4-8, 2006. The slot was again selected to coincide with a possible comet ion tail crossing, this time with comet 45P/Honda-Mrkos-Pajdusakova. As for the Catalina operation (see above), LAP, MAG and MIP were active but ICA and IES stayed off.

All operations worked as planned.

3 Operations list

Below is a list of all LAP operations blocks during this mission phase. A LAP operations block is defined as a continuous run of an instrument macro, though as the archive is organized by calendar days, blocks are defined to break at midnight even if the instrument operation is continuous over

this artificial border. If you find operations blocks running the same macros on both sides of midnight, this is likely to actually be a continuous operation. The list is based on the science data stream are included, so pure maintenance operations or periods with LAP idle between macro runs are not shown.

The macro concept is described in the EAICD, and the macro definitions are tabulated in the macro table, both available in the documents directory of the LAP archives in the ESA Planetary Science Archive (PSA). A LAP macro defines all aspects of the instrument operations, though particularly when a probe is in electric field mode, the probe bias (current in the case of electric field mode, otherwise bias voltage) may often be tuned by manual commands.

Block start	Block end	Macro	Notes
OBCP change			
2005-06-01T12:47:58.767	2005-06-01T12:52:46.767	202	
2005-06-01T15:21:58.769	2005-06-01T16:13:42.769	212	
Catalina			
2005-06-16T10:11:26.981	2005-06-16T23:59:42.990	212	
2005-06-17T00:03:26.990	2005-06-17T23:59:11.004	212	
2005-06-18T00:02:55.004	2005-06-18T23:59:43.019	212	
2005-06-19T00:03:27.019	2005-06-19T21:53:51.032	212	
2005-06-19T22:02:23.032	2005-06-19T22:26:55.033	104	
2005-06-19T22:32:15.033	2005-06-19T22:55:11.033	105	
PC1			
2005-10-03T16:54:48.522	2005-10-03T17:19:20.522	104	
2005-10-03T17:24:40.522	2005-10-03T17:39:36.522	105	
2005-10-03T17:44:24.522	2005-10-03T18:40:24.523	204	
2005-10-03T18:44:40.523	2005-10-03T18:59:04.523	104	
2005-10-03T19:04:24.523	2005-10-03T19:16:40.523	105	
PC2			
2006-03-07T05:12:49.687	2006-03-07T05:37:21.688	104	
2006-03-07T05:42:41.688	2006-03-07T05:57:37.688	105	
2006-03-07T06:02:25.688	2006-03-07T06:59:29.688	204	
2006-03-07T07:02:41.688	2006-03-07T07:17:05.689	104	
2006-03-07T07:22:25.689	2006-03-07T07:34:41.689	105	
Honda			
2006-07-04T00:12:51.412	2006-07-04T00:32:35.412	104	
2006-07-04T00:37:23.412	2006-07-04T01:03:31.413	600	
2006-07-04T01:12:35.958	2006-07-04T23:59:31.972	404	
2006-07-05T00:00:03.972	2006-07-05T23:59:31.986	404	
2006-07-06T00:00:03.986	2006-07-06T23:59:32.001	404	
2006-07-07T00:00:04.001	2006-07-07T23:59:32.016	404	
2006-07-08T00:00:04.016	2006-07-08T23:38:44.030	404	