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Title : **GOCE L1b Data Quality Control Report
May 2013**

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DOCUMENT CHANGE RECORD

| Issue | Date | Reason for Change | Changed Pages/Paragraphs |
|-------|------------|---|--------------------------|
| 1.0 | 01/07/2013 | First issue | |
| 2.0 | 06/09/2013 | Added the QC information for the rest of the month. | Paragraph 3.3 added |



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1. INTRODUCTION

1.1 Purpose and Scope

This document contains the Quality report for GOCE L1b data for May 2013.

The latest version of this document is available on the GOCE Data Quality portal at:

<http://earth.esa.int/GOCE/> → “Level 1b QC” → “Monthly”

The GOCE Data Quality portal is the principal source for any quality-related information on GOCE products.

<http://earth.esa.int/GOCE/> → “Level 1b QC”.

1.2 Glossary

The following acronyms and abbreviations have been used in this report.

| ABBREVIATION | MEANING |
|--------------|--|
| EGG | Electrostatic Gravity Gradiometer |
| DFACS | Drag Free and Attitude control system |
| SST-I | Satellite-to-satellite tracking instrument |
| CTR | Control Voltages |
| STR | Star Tracker |
| Trace SD | Trace Spectral Density |
| ICM | Inverse Calibration Matrix |
| GAR | Gradiometer Angular Rates |
| FPM | Fine Pointing Mode |
| MBW | Measurement Bandwidth |

2. MAY 2013 OVERVIEW

| | |
|-------------------------------|---|
| 04-May-13 | Beam Out event at UTC 09:51:59 |
| 05-May-13 | ASH1 anomaly |
| 06-May-13 | ASH1 anomaly recovering activities |
| 07-May to 08-May-13 | Instrument Calibration |
| 16-May-13 | Beam Out event at 13:39:28 |
| 20-May-13 | Start of orbit lowering - fallback to FPM (at 04:00) EGG in acquisition mode |
| 21-May-13 to 28-May 13 | S/C in FPM, EGG in Acquisition Mode |

3. MAY 2013 DATA QUALITY ANALYSIS

3.1 Beam Out events

The following Beam Out events occurred during May 2013 reference frame:

| EVENT | UTC TIME |
|------------------|--------------------------------|
| 04-May-13 | Beam Out event at UTC 09:51:59 |
| 16-May-13 | Beam Out event at UTC 13:39:28 |

Table 1 Beam out events

The effects of a Beam Out event are clearly visible in the common mode acceleration, component 14_x, as a sharp peak in the acceleration values. The effect is the same as reported in previous monthly reports.

3.2 EGG ASH1 anomaly

On DoY 125 an anomaly on ASH-1 occurred, similar to the two previous cases (February 2013 and June 2012, ref. GOC_SC-70). Several anomalies related to ASH1 were flagged. Anelectrode reconfiguration to isolate electrode VY1 of ASH-1 was performed. However, afterwards other electrodes of ASH-1 were also saturated, meaning that the EGG could not isolate them anymore. As from that point onwards the status of ASH1 was flagged as NOK in EGG telemetry. The anomaly was recovered successfully on 6th May by rebooting the unit without having to exit drag-free mode.



3.3 Orbit lowering maneuver

Between 20th of May and 28th of May 2013 the final orbit lowering maneuver took place, putting the satellite at an altitude of 229 Km. During the maneuver the EGG was in acquisition mode, so no science operations took place during the following times:

- Start of orbit lowering - fallback to FPM (at 04:00) EGG in acquisition on 20/05
GO_CONS_EGG_NOM_1b_20130520T031618_20130520T044537_0001
- DFM resumed on 09:23 30/05
GO_CONS_EGG_NOM_1b_20130530T083419_20130530T100326_0001

3.4 Instrument calibration

Special Spacecraft Operations for Instrument Calibration were performed on 7th May 2013, from

- 20130507T083709

to

- 20130508T185126

Nominal EGG data are not available between the two times above.