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Title : **GOCE L1b Data Quality Control Report
September 2012**

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DOCUMENT CHANGE RECORD

Issue	Date	Reason for Change	Changed Pages/Paragraphs
1.0	21/12/2012	First issue	
2.0	15/01/2013	Gaps in EGG data	Added 3.6



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1. INTRODUCTION

1.1 Purpose and Scope

This document contains the Quality report for GOCE L1b data for September 2012.

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. SEPTEMBER 2012 OVERVIEW

<p>05-Sep-12</p> <p>11-Sep to 12-Sep-12</p> <p>13-Sep-12</p> <p>23-Sep-12</p> <p>24-Sep-12</p> <p>29-Sep-12</p> <p>30-Sep-12</p>	<p>Anomalous oscillations found in EGG data at UTCs 12:49:48 and 12:51:33</p> <p>Instrument calibration</p> <p>03:30:00 Outlier in Gradients Uyy, Uzz</p> <p>23:22:55 Outlier in Gradients and IAQ with impacts on trace</p> <p>A spurious EGG Validation_Failed event due to coherency failure on ASH2 and ASH5 occurred at UTC 22:01:51 visible in CM and gradients DS with impacts on trace. No long term impacts recognized.</p> <p>Beam Out event at UTC 09:02:28</p> <p>Incomplete GGT/IAQ datasets into products: GO_CONS_EGG_NOM_1b_20120930T235318_20121001T012251_0001</p> <p>due to bad STR_VC2/3 measures caused by Bbo flag.</p>
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3. SEPTEMBER 2012 DATA QUALITY ANALYSIS

3.1 Gradients oscillations on 05th of September

The trace is out of spec on 5th September due to two oscillations found in gradients and CTR DS at UTCs 12:49:48 and 12:51:33 as reported below:

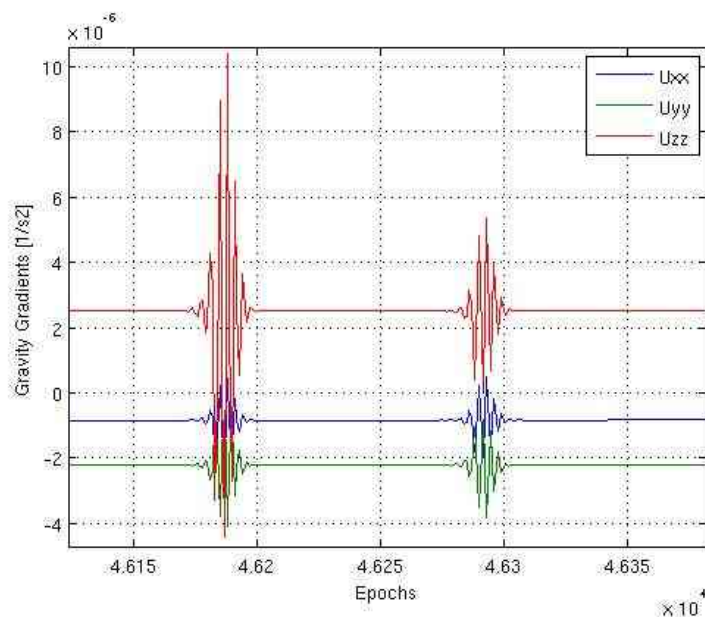


Figure 1 Gradients anomalies on 5th September

3.2 Uyy and Uzz anomaly on 13th September

An anomalous event occurred on 13th September at UTC 03:00 with impacts on trace. The event is displayed below for the Uyy and Uzz gradients:

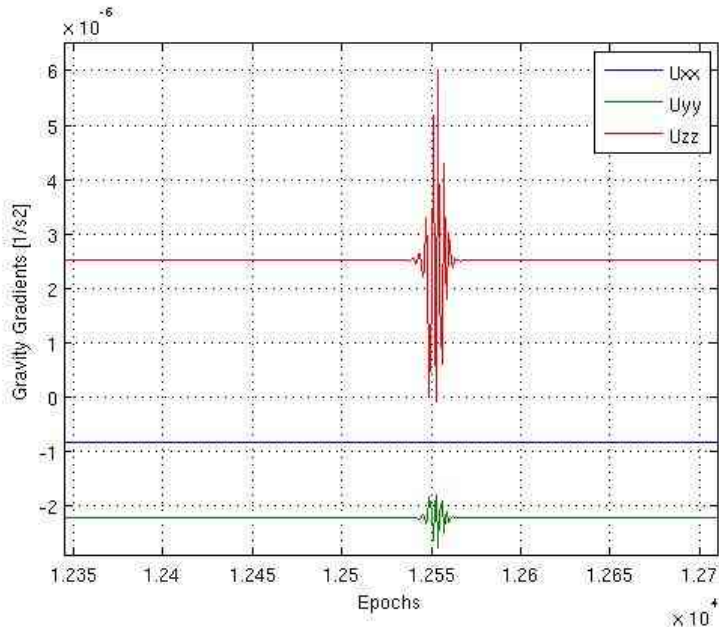


Figure 2 Uyy (left) and Uzz (right) anomaly

3.3 Gradients anomalies on 23rd and 24th September

Two oscillations affect the gradients time series at the following UTC times:

- 23rd September 23:22:25
- 24th September 22:01:51 due to coherency failure event occurrence on ASH2 and ASH5.

Below the effect on the gradients (visible on Uyy and Uzz) and CM accelerations of the 24th September event is shown:

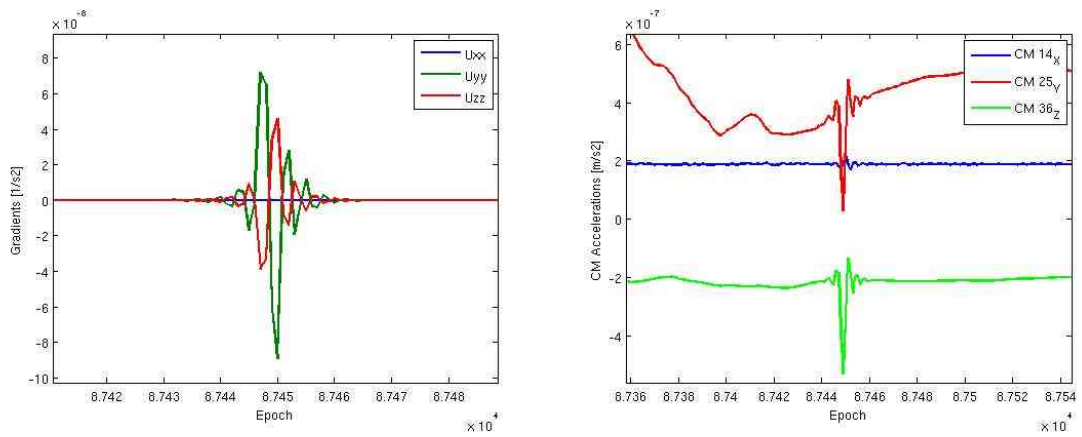


Figure 3 The S/C anomaly on 24th September affecting gradients data (left) and CM data (right)

The two anomalies do not have long term impacts on performance. The trace after the events occurrence is nominal as reported below:

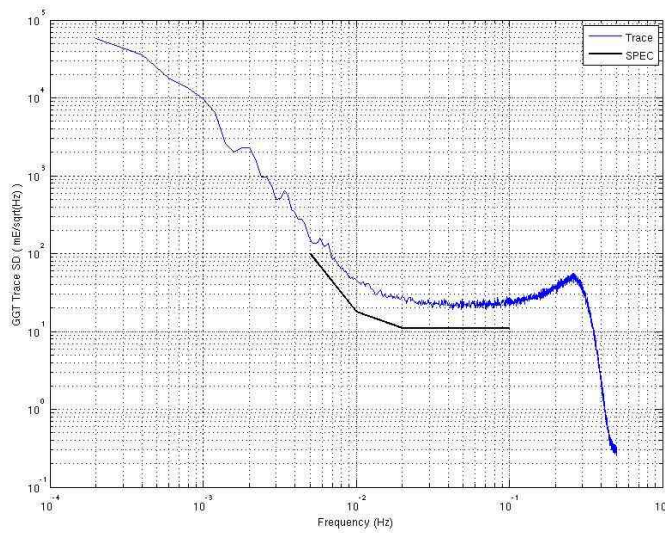


Figure 4 Trace SD after the anomalous events

The CM components PSD are reported below. The CM components are not nominal at high frequencies due to the two anomalies occurred.

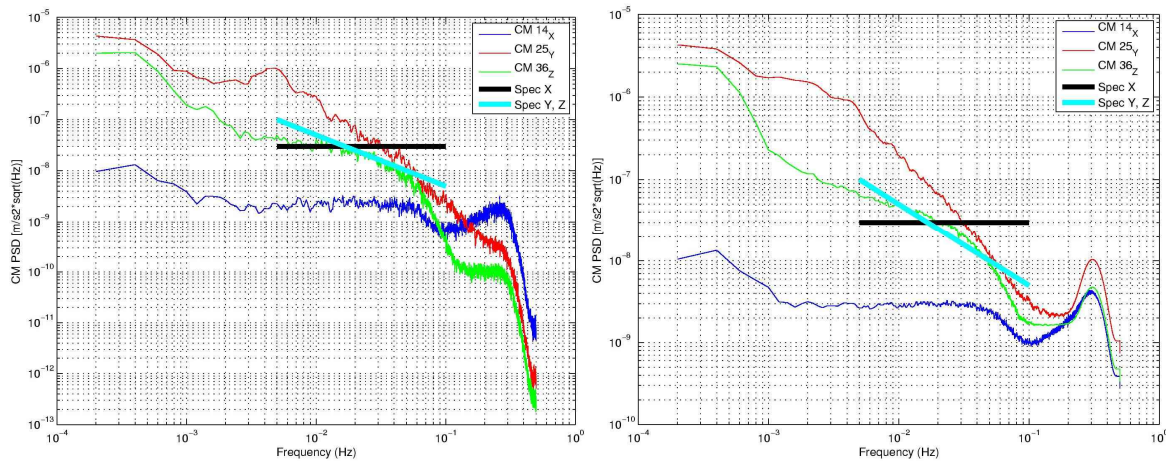


Figure 5 Current CM PSDs (right) and during the previous reference period (left)

3.4 Instrument calibration

Special Spacecraft Operations for Instrument Calibration were performed on 11th September 2012, from

- 20120911T064523
- to
- 20120912T063812

EGG_NOM_1b data are unavailable during this period, i.e. between products:

- GO_CONS_EGG_NOM_1b_20120911T051550_20120911T064523
- and
- GO_CONS_EGG_NOM_1b_20120912T063812_20120912T080745

3.5 Beam Out events

The following Beam Out events occurred during September 2012 reference frame:

EVENT	UTC TIME
29-Sep-12	Beam Out event at UTC 09:02:28

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.

The Beam Out event enters in the gradients time series notably in the Uxx component without any relevant impacts on performance.



3.6 Incomplete EGG data

Due to bad STR_VC2/3 measurements the following EGG_NOM_1b product has incomplete gradients, angular rates and IAQ datasets:

GO_CONS_EGG_NOM_1b_20120930T235318_20121001T012251_0001

This is a nominal behavior of the EGG L1 processor.