

Issue Date	:	24 October 2012
Issue	:	1.0

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

Author : **GOCE Quality Control Team**

Distribution : **GOCE Users Community**



DOCUMENT CHANGE RECORD

Issue	Date	Reason for Change	Changed Pages/Paragraphs
1.0	24/10/2012	First issue	



TABLE OF CONTENTS

1. INTRODUCTION	4
1.1 Purpose and Scope	4
1.2 Glossary	4
2. MARCH 2012 OVERVIEW.....	5
3. MARCH 2012 DATA QUALITY ANALYSIS	5
3.1 S/C Anomaly from 5 th March to 10 th March.....	5
3.2 Gradients anomaly on 23 rd March.....	5
3.3 Uzz anomaly on 29 th March	6
3.4 Instrument Calibration	7
3.5 Beam Out events.....	7



1. INTRODUCTION

1.1 Purpose and Scope

This document contains the Quality report for GOCE L1b data for March 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

2. MARCH 2012 OVERVIEW

01-Mar-12	Beam Out event at UTC 12:46:56
05-Mar-12 to 10-Mar-12	S/C anomaly and recovery activities.
14-Mar-12	Beam Out event at UTC 19:12:47
15-Mar to 16-Mar-12	Calibration
23-Mar-12	Anomaly in gradients components at UTC 04:30:17 with impacts on trace. The anomaly is found also in the corresponding CTR L0 components.
29-Mar-12	Beam Out event at UTC 05:53:15 Anomalous oscillation found in Uzz gradients component with impacts on trace at UTC 16:00

3. MARCH 2012 DATA QUALITY ANALYSIS

3.1 S/C Anomaly from 5th March to 10th March

A major contingency occurred on 5th March, when safe mode was entered due to a sudden restart of the platform software. The S/C status prior to that was nominal with no special activities ongoing. So far no observables helping to identify the root cause have been found.

The rest of the week was spent recovering the mission. Firing of the ion propulsion system was resumed on 6th March; drag-free mode was entered on 8th March.

Nominal operations were resumed on 10th March.

3.2 Gradients anomaly on 23rd March

An anomalous oscillation occurred on 23rd March at UTC 04:30:17 with impacts on trace as reported below:

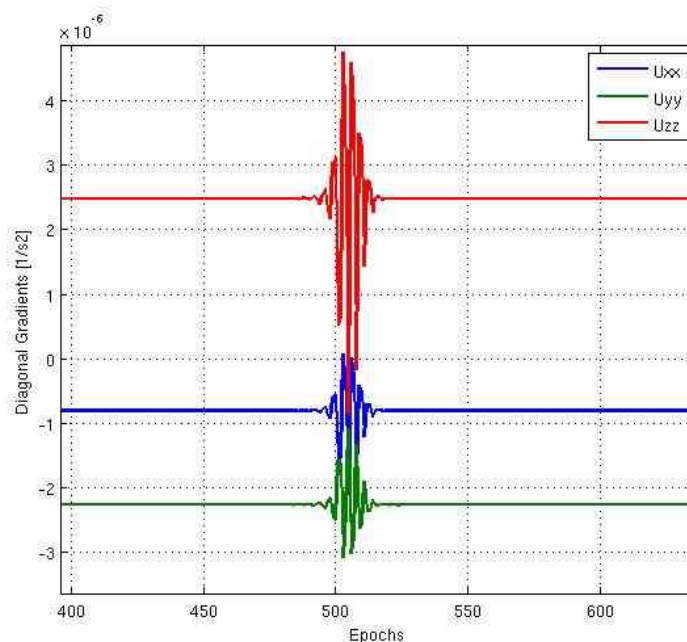


Figure 1 Gradients anomaly

3.3 Uzz anomaly on 29th March

An anomalous oscillation occurred on 29th March at UTC 16:00:00 with impacting Uzz gradients component, as reported below:

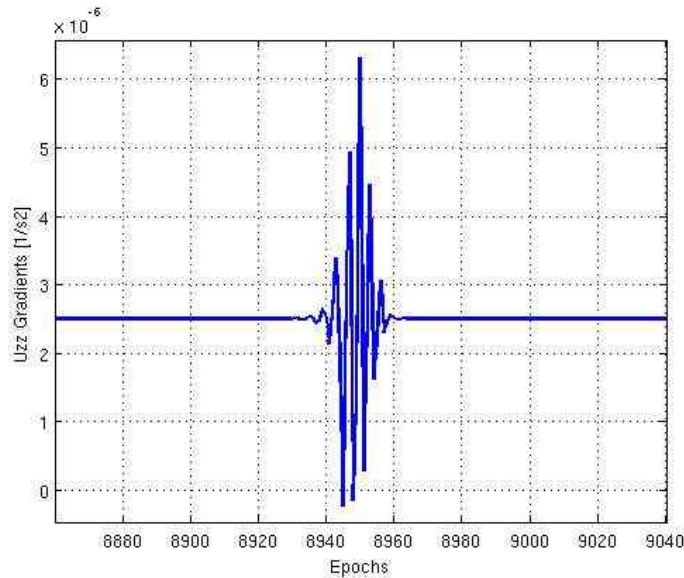


Figure 2 Uzz anomaly

The other two diagonal components are nominal, as reported below:

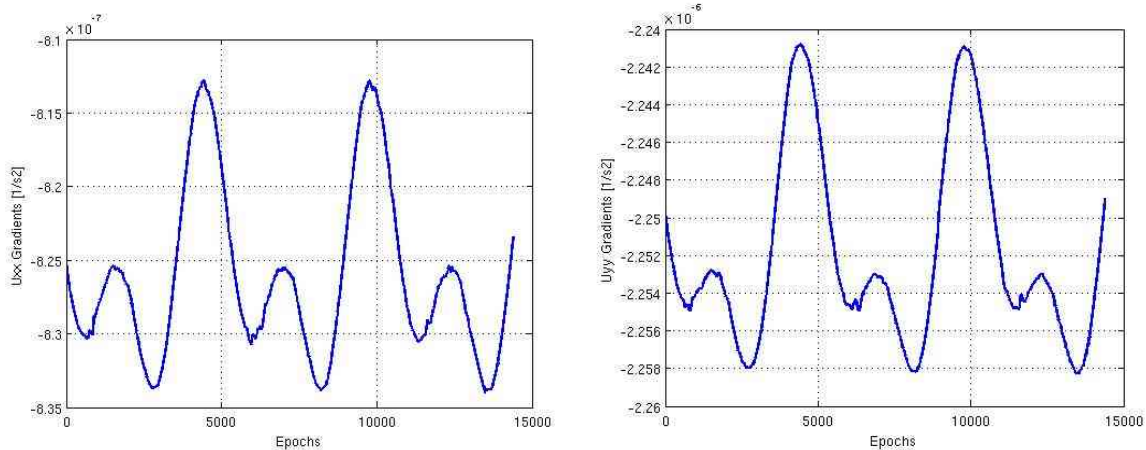


Figure 3 Uxx component (left) and Uyy component (right)

3.4 Instrument Calibration

Special Spacecraft Operations for Instrument Calibration were performed on 15th March 2012, from

- 20120315T103737
- to
- 20120316T090332

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

- GO_CONS_EGG_NOM_1b_20120315T090753_20120315T103737
- and
- GO_CONS_EGG_NOM_1b_20120316T090332_20120316T103315

3.5 Beam Out events

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

EVENT	UTC TIME
01-Mar-12	Beam Out event at UTC 12:46:56
14-Mar-12	Beam Out event at UTC 19:12:47
29-Mar-12	Beam Out event at UTC 05:53:15

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.