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Title : **GOCE L1b Data Quality Control Report
June 2010**

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DOCUMENT CHANGE RECORD

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1. INTRODUCTION

1.1 Purpose and Scope

This document contains the Quality report for GOCE L1b data for June 2010.

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

2. DATA QUALITY OVERVIEW

2.1 Instruments Quality summary tables

Jun 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Table 1 June 2010 EGG QC Status

Jun 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Table 2 June 2010 SST QC Status

	GAP (details within Monthly Report)
	NOT USABLE
	Special Event
	Nominal
	Calibration
	EGG in Acquisition Mode
	Not yet released

2.2 EGG data – Available baselines

Baseline	EGG Processor	SST processor
Baseline D	EGG v5 (> 5.06) installed 31/03/2012	V02.18 Patch B Installed 20/01/2011
Baseline A	EGG v4 (<4.8) Installed 18/05/2010	V02.18 Patch B Installed 20/01/2011

Baseline may be verified by reading out the <Creator_Version> tag in the file header, e.g:

<Creator_Version>05.06</Creator_Version>

(for the latest baseline)

- EGG v5 reprocessed baseline is available through the GOCE Virtual On-line Archive
 → <http://eo-virtual-archive1.esa.int/Index.html>
- EGG v4 is the older baseline. Products are still accessible through the GOCE Virtual On-line Archive

3. EGG DATA QUALITY: SPACECRAFT AND ENVIRONMENT RELATED EVENTS

3.1 Summary

For the reference period, the following events are highlighted:

- Four Beam Out events on 14th, 15th, 22nd and 30th June.
- Spacecraft anomaly on 30th June with the fallback to Fine Pointing Mode (FPM).

3.2 Beam Out events

Four Beam Outs events occurred at the following UTC times:

EVENT NUMBER	UTC TIME
1	2010-06-14T03:13:39
2	2010-06-15T22:30:29
3	2010-06-22T17:39:39
4	2010-06-30T04:57:45

Table 3 Beam out events

Below, the effects of the Beam Out in the common mode acceleration, component 14_x, are displayed, for the two events.

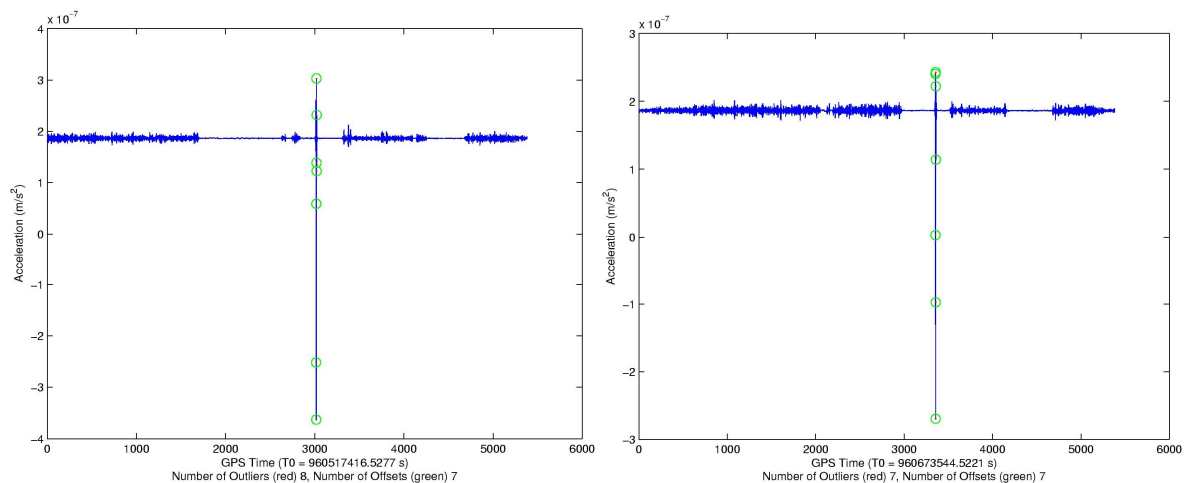


Figure 1 Beam out event on 14th June (left) and on 15th June (right)

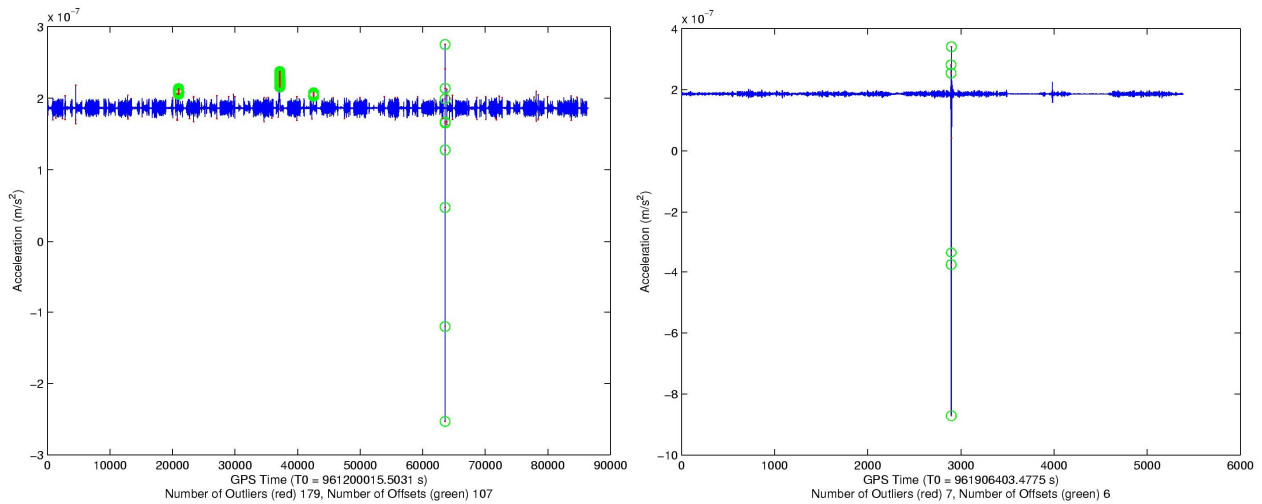


Figure 2 Beam out event on 22nd June (left) and on 30th June (right)

This oscillation enters the gradients time series notably in the Uxx component.

This effect may be seen in the Gradients PSD graphs below:

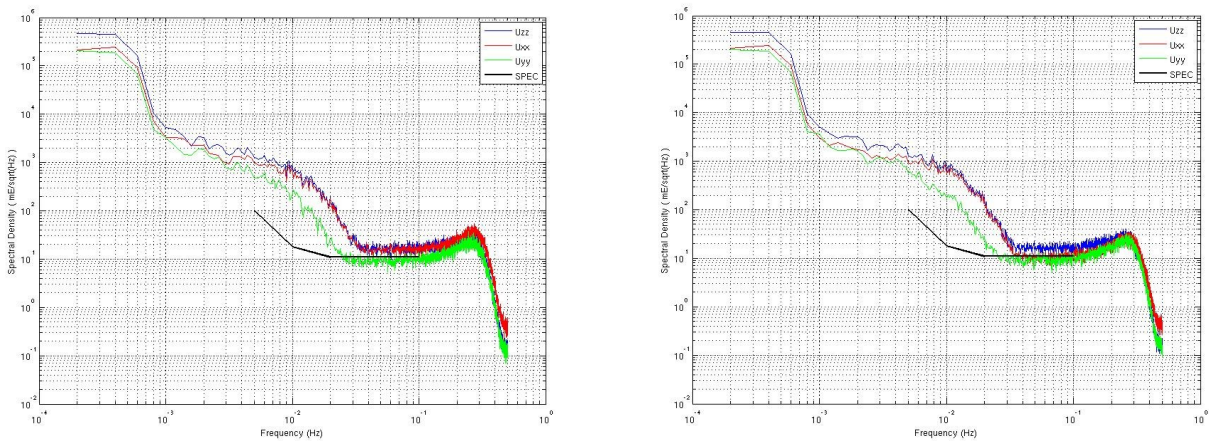


Figure 3 Gradients PSD considering the Beam Out event (left), gradients PSD not considering the Beam Out event (right)

Uxx (red in the plots) has a higher value in the PSD above, when the beam-out is included in the time interval 06/14 02:30 to 06/14 04:00 (only the trace and gradients PSD for 14th of June are reported, plots for the other Beam Out events showing similar behavior).

No relevant differences in terms of trace PSD are recognized, as reported in figure 4:

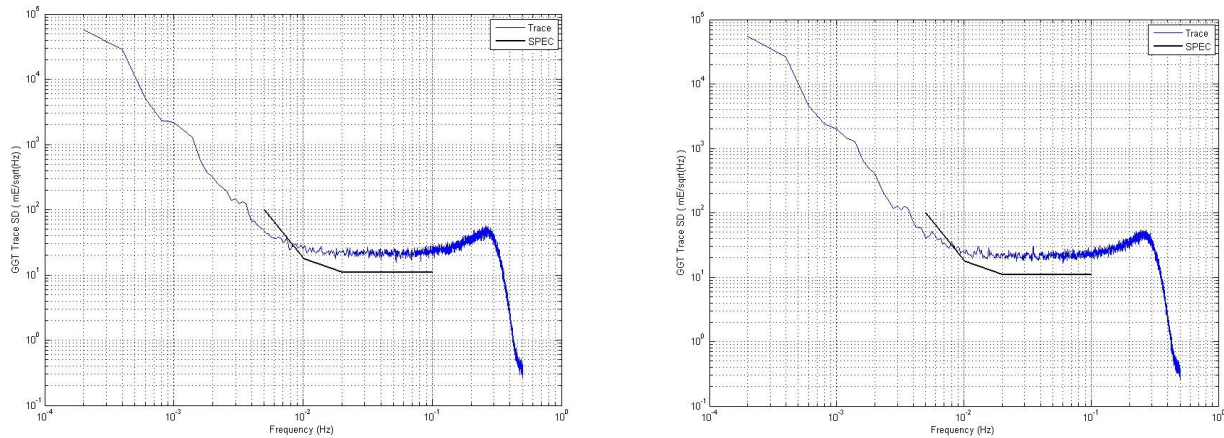


Figure 4 Trace PSD considering the Beam out event (left), trace PSD not considering the Beam out event (right)

3.3 Fallback to Fine Pointing Mode

Due to the GOCE anomaly occurred on 30th of June, regarding the sudden interruption of the communication between IPCU and CDMU, the DFACS mode transition was brought from Drag Free Mode (DFM_FINE) to Fine Pointing Mode (FPM). This forced the fallback of the EGG mode from Science do Acquisition mode as well.

The effect of this transition is evident in all datasets like for example the CTR, as reported below:

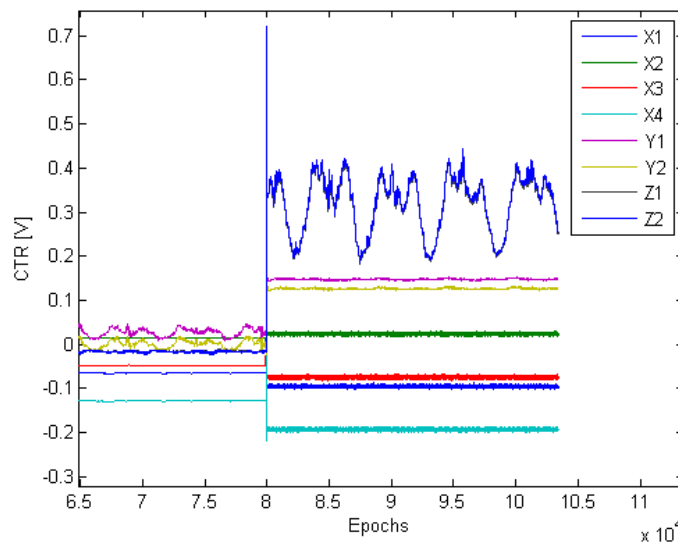


Figure 5 A1 CTR components in the transition from EGG Science to Acquisition mode at UTC 30/06 21:05

The following EGG product is affected by this transition:

GO_CONS_EGG_NOM_1b_20100630T204009_20100630T220952