

# MGL\_QuickView User's manual (vers. 2022.12)



## Quickview of Micro-g LaCoste "g" files of absolute gravity measurements

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## SUMMARY

**MGL\_QuickView** is a stand-alone JAVA / Linux application enabling quick view of FG5 or A10 absolute gravity data acquisition results acquired through the MGL (Micro-g LaCoste) "g" software (<u>http://www.microglacoste.com</u>). This application has been developed at Institut de Recherche pour le Développement (IRD) and BGI for facilitating the analysis and validation of absolute gravity data.

**MGL\_QuickView** was initially developed as a script, then in 2013 we initiated its development in a Java environment. Since May 2020, MGL\_QuickView is available on Windows NT platforms but only with GMT 6 (see later).

**MGL\_QuickView** reads the standard MGL "g"output Ascii files (project, set and drop files) and uses the standard graphical and mathematical Generic Mapping Tools (GMT) free library to generate a PostScript© plot file displaying in a synthetic way the main information related to the data acquisition. The information displayed from the original MGL project file on the results and the parameters of the data acquisition contains:

- General information on site and project (site and project name, geographic coordinates, elevation, local gravity gradient and polar motion parameters corresponding to the data acquisition period)
- Instrument data parameters (meter type and serial number, Rb frequency, factory height)
- Acquisition setting parameters (number of drops per set, Drop and sequence intervals, Instrumental setup height)
- Processing results parameters (number of collected and processed sets, number of accepted and rejected drops, transfer height)
- Plots of time series of measurements (reduced absolute gravity values and their standard deviation) and environmental or instrumental monitored parameters (temperature and atmospheric pressure, Ion pump and laser voltages)

The graphical Java interface also enables updating the standard produced Postscript plot file with customized graphic parameters as well as selecting specific data sets.

**Citation** : G. Gabalda and S. Bonvalot (2022). MGL\_Quickview of Micro-g LaCoste "g" files of absolute gravity measurements. Bureau Gravimetrique International. BGI Software. DOI :XXX

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## **DISCLAIMER OF WARRANTY**

**MGL\_QuickView** is provides "AS IS", with no warranty. The authors and their belonging institutions (IRD, Institut de Recherche pour le Développement and BGI, Bureau Gravimétrique International) assume no responsibility. **MGL\_QuickView** is provided as free software to the scientific community. Distribution of **MGL\_QuickView** is submitted to the permission of the authors.

## PREREQUISITES

In order to use *MGL\_QuickView* it is necessary to install Java, GMT (the graphical and mathematical "Generic Mapping Tool" free library, available from the web), and initialize environment variables:

- **\$PSVIEWER** (PostScript© viewer). *Variable isn't used with GMT6.*
- **\$GMT\_VERSION** : GMT4, GMT5 or GMT6 (*default*)
- (Option)
  - Linux environment

Possibility to use a desktop launcher (with the MGLqvi.jpg icon) with the command : java –jar <archive\_jar\_full\_path>

#### • Windows NT environment

Double-click the JAR file or using a shortcut (with MGLqvi.ico) on your desktop.

 $MGL_QuickView$  uses the output files "txt" created by the software « g » :

- Project file
- *Set* file
- Drop file (optional)

#### 1. Project file

The project file is a "snapshot" of the acquisition and data processing. It serve as the primary resource for archiving absolute gravity data. The most relevant information is included in the output graphic : project name, site (*name, code, coordinates*), instrument data, processing results, acquisition settings, corrections and uncertainties.

```
Micro-q Solutions q Processing Report
File Created: 03/08/12, 19:13:24
Project Name: AR_ZOND_2006172_a
g Acquisition Version: 4.041600
g Processing Version: 8.090227
Company/Institution: IRD
Operator: S. BONVALOT / C. LURO
Station Data
Name: ARGENTINA Zonda
Site Code: ZOND
Lat: -31.54580 Long: -68.67860 Elev: 740.00 m
Setup Height: 8.65 cm
Transfer Height: 0.00 cm
Actual Height: 80.65 cm
Gradient: -3.086 µGal/cm
Nominal Air Pressure: 927.45 mBar
Barometric Admittance Factor: 0.30
Polar Motion Coord: 0.1237 " 0.3244 "
Earth Tide (ETGTAB) Selected
Potential Filename: C:\gWavefiles\ETCPOT.dat
Delta Factor Filename: D:\OceanLoad-ARGENTINA Zonda-ARGENTINA Zonda.dff
Delta Factors
                    Amplitude
    Start Stop
                                Phase Term
  0.000000 0.002427 1.000000 0.0000 DC
  0.002428 0.249951 1.160000 0.0000 Long
  0.721500 0.906315 1.154250 0.0000 Q1
  0.921941 0.974188 1.154240 0.0000 01
  0.989049 0.998028 1.149150 0.0000 P1
  0.999853 1.216397 1.134890 0.0000 K1
  1.719381 1.906462 1.161720 0.0000 N2
  1.923766 1.976926 1.161720 0.0000 M2
  1.991787 2.002885 1.161720 0.0000 S2
 2.003032 2.182843 1.161720 0.0000 K2
 2.753244 3.081254
                                0.0000 M3
                     1.07338
  3.791964 3.937897
                     1.03900
                                0.0000 M4
.../....
```

#### 2. Set file

After an header of four lines, the set file contains set by set information.

It is important that the header line containing the names of the various parameters is filled in correctly. If this is not the case then edit the file and add the missing information.

The GRAVITY, SIGMA, TEMP and PRESS parameters are directly read in the file.

Only the parameters used by *MGL\_QuickView* are displayed below :

```
Source Data Filename: AR ZOND 2006172 a
g Acquisition Version: 4.041600
g Processing Version: 8.090227
 Set
       Time DOY Year
                            Gravity
                                     Sigma Error
                                                    Uncert
                                                             Temp
                                                                      Pres Accept Reject
   1 14:57:43 173 2006 979141671.819 60.489 6.079
                                                    12.373 20.786 930.872
                                                                               99
                                                                                        1
   2 15:00:44 173 2006 979141772.172 33.198 3.337
                                                    11.281
                                                           20.859
                                                                   930.767
                                                                               99
                                                                                        1
   3 15:03:43 173 2006 979141671.506 33.636 3.451
                                                    11.315 20.970 930.714
                                                                               95
                                                                                        5
   4 15:06:44 173 2006 979141776.961 40.515 4.072
                                                    11.520 21.008 930.610
                                                                               99
                                                                                        1
   5 15:09:44 173 2006 979141670.364 37.461 3.784
                                                    11.421 21.029 930.591
                                                                               98
                                                                                        2
   6 15:12:44 173 2006 979141775.367 46.887 4.712
                                                    11.761 21.005 930.558
                                                                               99
                                                                                        1
   7 15:15:43 173 2006 979141669.407 34.205 3.455
                                                    11.316 21.084
                                                                               98
                                                                                        2
                                                                   930.580
   8 15:18:43 173 2006 979141771.901 30.618 3.077
                                                    11.207 21.159 930.431
                                                                               99
                                                                                        1
   9 15:21:43 173 2006 979141669.567 39.046 3.924
                                                    11.468 21.253 930.448
                                                                               99
                                                                                        1
  10 15:24:44 173 2006 979141767.838 38.811 3.901
                                                                               99
                                                    11.460 21.336
                                                                   930.443
                                                                                        1
  11 15:27:43 173 2006 979141670.168 43.443 4.411
                                                    11.644 21.431
                                                                   930.351
                                                                               97
                                                                                        3
  12 15:30:44 173 2006 979141769.268 42.658 4.309
                                                                               98
                                                                                        2
                                                    11.606 21.496 930.345
  13 15:33:44 173 2006 979141666.249 30.765 3.076
                                                    11.206 21.555 930.345
                                                                              100
                                                                                        0
  14 15:36:44 173 2006 979141771.682 40.076 4.048
                                                   11.511 21.592 930.237
                                                                               98
                                                                                        2
.../...
```

#### 3. Drop file

After an header of four lines, the drop file contains drop by drop information.

As before, It is important that the header line containing the names of the various parameters is filled in correctly. If this is not the case then edit the file and add the missing information.

The use of this file is optional and it must be explicitly requested when selecting input files.

The data in this file is required for PUMP and LASER plots as well as the calculation of laser blocking levels (FG5 data only).

Only the parameters used by **MGL\_QuickView** are displayed below :

Source Data Filename: AR_ZOND_2006172_a_TEST g Acquisition Version: 4.041600													
g Pr	g Processing Version: 8.090227												
Set	Dr	p Time	DOY	Year	r Gravity	Sigma	Error	Temp	Ion	Laser	Pres	LaserLock	Accept
1	1	14:56:54	173	2006	979141694.930	0.000	0.272	20.782	4.036	0.618	930.894	В	0
1	2	14:56:55	173	2006	979141743.373	0.000	0.245	20.776	4.039	0.615	930.902	В	0
1	3	14:56:56	173	2006	979141675.405	0.000	0.261	20.771	4.040	0.620	930.902	В	0
1	4	14:56:57	173	2006	979141659.191	0.000	0.241	20.771	4.040	0.620	930.889	В	0
/													
2	1	14:59:54	173	2006	979141822.948	0.000	0.324	20.838	4.042	0.670	930.776	R	0
2	2	14:59:55	173	2006	979141760.362	0.000	0.339	20.838	4.044	0.256	930.770	R	0
2	3	14:59:56	173	2006	979141760.111	0.000	0.310	20.839	4.045	0.500	930.767	R	0
2	4	14:59:57	173	2006	979141772.532	0.000	0.353	20.829	4.047	0.556	930.772	R	0
/													

#### 1. Starting

You need to run the **MGLqv** script (if it exists) or double-click on the launcher (*Linux*) or the shortcut (*Windows*).

Two (or even three) windows are displayed on the screen :

- ✤ A dialog box for entering input information
- ✤ A "view" with messages (information, errors, processing...)
- ✤ Warning boxes if environment variables are not defined

MGL_Q	uickView - jv2022.12 (07/12/2022) - Absolute Gravity Data - BGI	- 🗆 😣
Project Inform	ations	
Project File		Chooser
Set File		
Drop File		Yes
Result File		✓ Yes
	ОК	

MGL_QuickView messages	-	×
MGL_QuickView : OS Name = linux (Default / OS Undefined)		
MGL_QuickView : GMTversion = GMT 6.x		



#### 2. Loading a « project »

Click the **<Chooser>** button and select a project. Only the files with «*project.txt* » extension are visible.

	Open	8
Look <u>I</u> n: 🗖 A	10	- A A C 88 5
다 ori CL_TIGO_20	11_284_b_PP.project.txt	
File <u>N</u> ame:	CL_TIG0_2011_284_b_PP.project.t>	đ
Files of <u>T</u> ype:	Project Files ( *.project.txt )	
		Open Cancel

If the project file is correct then the dialog box is updated.

MGL_	QuickView - jv2022.12 (07/12/2022) - Absolute Gravity Data - BGI	_ 0	×
Project Infor	mations		
Project File	da/Z_SOFTS/gravi_MGLqv/data/A10/CL_TIG0_2011_284_b_PP.project.txt	Choose	r
Set File	abalda/Z_SOFTS/gravi_MGLqv/data/A10/CL_TIG0_2011_284_b_PP.set.txt		
Drop File	alda/Z_SOFTS/gravi_MGLqv/data/A10/CL_TIG0_2011_284_b_PP.drop.txt	🖌 Yes	5
Result File	alda/Z_SOFTS/gravi_MGLqv/data/A10/CL_TIG0_2011_284_b_PP.result.txt	🖌 Yes	5
	ок		

#### Some remarks about the default values :

- If the expected « *drop* file » is present in the « *Project File* » directory then the name is displayed and by default it will be use. Uncheck <**Yes**> if you don't want to use it.
- By default, a report is created in the «*Project File* » directory with the «*result.txt* » extension. Uncheck <**Yes**> if you don't want create this file. As long as another project will not be loaded, this report file will be updated.

#### 3. Reading a « project »

Validate the information by clicking **<OK>** button.

If all is correct, the dialog box is updated and news information appears :

- ✤ The main information of the « project file » (some are editable).
- ✤ The output files names (*editable*).
- ✤ The options with default values (*editable*).
- The graphic parameters (editable)

MGL_QuickView - jv2022.12 (07/12/2022) - Absolute Gravity Data - BGI – 🛛 🛛 🛛										
Project Informations										
Project Fi	ile nome/gab	balda/Z_SOFTS/	aravi MGL	αv/data/Al	)/CL TIGO 201	1 284 b PP	project.txt Ch	ooser		
Set File	/home/a	abalda/Z_SOFTS	/aravi MG	av/data/A		11 284 h P	P set tyt			
Deep File	ile //heme/gebelde/7_SOFTC/gravi_NCLgv/dete/A10/CL_TCO_2011_204_b_RB_drep tot									
Drop File										
Result Fil	le /home/ga	abalda/Z_SOFTS	/gravi_MG	iLqv/data/A	LO/CL_TIGO_20	)11_284_b_P	P.result.txt	✓ Yes		
OK										
Site N	ame	(00)	ode	Project N	lame	Comp	any/Institution			
	Chile - TIGO (	402)	TIGO	CL_TIGO_	2011_284_b_H	P	IRD			
۲L	atitude	Longitude	Eleva	tion	Gradient	Polar	Motion			
	-36.84372	-73.02566	180	.00 m	-3.44 uGal/o	m 0.186	3 " 0.3612 "			
Instrument Dat	ta		Acquisi	tion Settin	ngs	Proce	ssing Results			
Meter Type	Al	0-S/N#014	Number	of Drops by	Set 1	00 Numbe	r of Set Collected	d 66		
Rubidium	10000	000.00000 Hz	Drop Inte	erval	2 s	ec Numbe	r of Set Processe	ed 66		
Blue Lock	632.9	99092510 nm	Sequenc	e Interval	30 n	nin Total D	rops Accepted	6588		
Red Lock	632.	99192870 nm	Rea/Blue	e Interval sight	4 n	nin <i>Total D</i>	rops Rejected	12		
ractory neight		71.0 cm	Setup In	signe	0.05	in nansie	a neight	0.0 cm		
Plot File CL_TIGO_2011_284_b_PP.plot.ps   Temp. Files tmp_MGLqv.CL_TIGO_2011_284_b_PP   Options   Site information:   Site information:   @ Code   Name   Other   Map information:   @ Company   Other   @ Gravity Error bars   @ Error   Uncertainty   Average of Red and Blue sets   Sets to be excluded:							d			
Limit		Avia Jahol E	rama tid	ke and Cal	or chooser					
т	IME Min	2011-28/172	2t Max	2011-29	5T15t Label	2H Tick	1.6			
G	RAVITY Min:	-20.0	0 Max:	2011-20	20.00 Label:	5 Tick	1			
S	IGMA Min:	0.0	00 Max:	1	10.00 Label:	20 Tick	: 10 🔜			
Т	EMP Min:	19.0	00 Max:		25.00 Label:	1 Tick	: 0.5			
P	UMP Min:	0.23	34 Max:	-	0.300 Label:	0.02 Tick	. 0.01			
P	ASER Mine	994.0	2 Max:	9	98.00 Label: 0.871 Label:	1 lick	. 0.01			
	AJEN PHILI:	0.55	2 Max		0.071 Label:	0.05 11CK	0.01			
				PLOT						
								-		

#### Some remarks:

If the « *drop* file » is missing and the <Yes> button checked then the following messages are displayed. The <Yes> button is automatically unchecked and the dialog box updated (check the <OK> button to continue).



➢ If a required file (« project » or « set ») is missing then the following messages are displayed (check the <OK> button to continue).



If the report « *Result File* » exist then the following dialog box appears. Check the <**Yes**> button to continue and overwrite the previous report.

10 <b>7</b>	Output Informations	×
?	Result File exist and will be deleted Do you want to continue ?	!
	Yes <u>N</u> o	

➢ If the graphic « *Plot File* » exist then the following dialog box appears. Check the <**Yes**> button to continue and overwrite the previous plot.



#### 4. Modifiable parameters

- ✤ Gradient : Vertical Gravity Gradient (µGal/cm)
- Polar Motion : Motion of the earth's rotational axis (arc-second)
- Setup Height : Height of the gravimeter above the site (cm)
- **Transfert Height** : This is the height that the gravity value is reported at (cm)



The parameters modified in the dialog box are only taken *into account for the calculation and are not save in the « project File »*.

#### 5. The output files

✤ Directory :

By default the graphic file is created in the *«Project File »* directory. Use the **<Chooser>** button or modify the field if you want change it.

Plot File :

By default the name of the graphic file is created with the project name and the correct extension. This name can be changed in the dialog box.

Only the following format are available: ps, jpg, png and pdf.

Temp. File :

MGL\_QuickView creates two temporary files used for the graphic file creation :

\_tmp\_MGLqv.<*Project File (without extension)*>.DAT : Data

\_tmp\_MGLqv.<Project File (without extension)>.<type> : Script or command file

type = \$GMT\_VERSION (Linux) or bat (Windows\_NT)

This two files are created in the directory defined by the « **Directory** » field. Unless otherwise specified by the user (**Saved**> button checked), both files are overwritten at each new drawing and deleted at program exit.

#### 6. Software options

- \* *Site information* : Information about the site
  - Code : « Site Code » parameter of the « *Project File* » (<u>default</u>)
  - Name : « Name » parameter of the « Project File »
  - Other : user choice

#### \* *Map information* : Localization of the site on a map

- Radius : Limits (degrees) of the geographical area around the site (360° by default)
- Land : Color of the "dry" areas (*light brown* by default)
- Sea : Color of the "wet" areas (*light blue* by default)

#### \* *Footer information* : Page footer information

- Company : « Company/Institution» parameter of the « Project File » (default)
- Other : user choice

- ✤ Gravity Error bars : To draw error bars and type of error
  - Gravity Error bars : To draw error bars (default)
  - Error : To display the « Error » parameter of the « Set File » (default)
  - Uncertainty : To display the « Uncert » parameter of the « Set File »
- \* Average of Red and Blue sets : Averaging of consecutive Red/Blue pairs

This option allows to average consecutive R/B sets. Use with caution when sets are excluded !

- Sets to be excluded : To eliminated set on the processing
  - Sets to be excluded : When you check this option, you can enter the « sets » numbers to exclude separated by spaces. It's possible to exclude a set of "sets" : -6 to exclude the first six sets, 11-14 to exclude the sets 11 12 13 14 and finally 25- to exclude the set 25 and all the following ones.
- \* Institution's logo : To insert a logo (no by default)
  - Chooser : Button to select the « image » file
  - Width/Height : Image size (3.2/1.6 by default)

#### 7. Visualization

Click the **<PLOT**> button to create the graphic file.

The drawing is automatically displayed with the viewer associated at the environment variable **PSVIEWER** (GMT4 and GMT5) or according the graphic file format (GMT6) :

- Main information of the « project file »
- Gravity value, set scatter and the total uncertainty ( $\mu$ Gal)
- GRAVITY (μGal): All the « sets » with the associated errors (the color of the error bar depends of the type of laser: Red or Blue). Also the type of error displayed are indicated and the gap of the two lasers.
- SIGMA ( $\mu$ Gal): Standard deviation of each « set ». Also the maximum and the mean values are displayed.
- ✤ TEMP (°C) : Exterior temperature
- PUMP (V): Ion pump (only if the *« drop » file is used*)
- PRESS (mBar) : Pressure
- LASER (V): Laser (only if the « drop » file is used)



#### 8. An example with the modification of the default parameters

Below the list of the modifications (red *circles in the dialog box*) :

- ✤ Map information : 25 degrees around the site
- ✤ Footer information : « Chile 2011 »
- Sets to be excluded : Exclusion of the 2 first and the 8 last « set »
- Institution's logo : IRD logo is displayed
- **TIME** : Changing the viewing period (October 11 22:30 / October 12 12:30)
- **PRESS** : Pressure curve in red
- \* Change (limits, labels and ticks) : SIGMA, TEMP, PUMP, LASER

	MGL_QuickView - jv	/2022.12 (07/12/2	2022) - Absolute Gi	ravity Data - BGI -	- 0 🔇						
Project Infor	mations										
Project File	ome/gabalda/Z_SOFTS/	/gravi MGLgv/data/	A10/CL TIGO 2011 2	84 b PP.project.txt Chooser	1						
Set File	/home/gahalda/7_SOETS/gravi_MGI gv/data/A10/CL_TIG0_2011_284_h_PP_set_txt										
Deep File	/home/gabalda/2_SOFT										
Drop File	/home/gabaida/2_SUFT	nome/gabaida/2_SUFIS/gravI_MGLqV/data/AIU/CL_IIGU_2011_284_b_PP.drop.txt Yes									
Result File	Result File         /home/gabalda/Z_SOFTS/gravi_MGLqv/data/A10/CL_TIG0_2011_284_b_PP.result.txt         Ves										
		ок									
Site Nam		Code Projec	ct Name	Company/Institution							
Ch	lie - 1160 (402)		30_2011_284_D_PP	IRD							
-Lati -36	tude         Longitude           5.84372         -73.02566	Elevation 180.00 m	Gradient -3.440 uGal/cm	Polar Motion 0.1863 " 0.3612 "							
Instrument Data		Acquisition Set	ttings	Processing Results							
Meter Type	A10 - S/N # 014	Number of Drops	by Set 100	Number of Set Collected	66						
Rubidium	1000000.00000 Hz	Drop Interval	2 sec	Number of Set Processed	56 *						
Blue Lock	632.99092510 nm	Sequence Interv	al 30 min	Total Drops Accepted	5591 *						
Red Lock	632.991928/0 nm	Red/Blue Interva	/ 4 min	Total Drops Rejected	9 *						
Temp. F Options	iles <u>tmp_MGLqv.CL_TI</u>	G0_2011_284_b_P	O Other	Saved							
Map inform Footer info	ation: Radius (deg	rees) 25	Land Sea								
🖌 Gravity	Error bars	Error	0 U	ncertainty							
Average	of Red and Blue sets	1.250									
V sets to be excluded: 12 39-											
LIMILS, AXI	s scale, Axis label, Fra	Max: 2011 28	STI 2:20t J holy	OH Tick, 1b							
GRA	VITY Min: -20.	00 Max: 2011-28	20.00 Label:	5 Tick: 1							
SIGN	A Min: 0.	00 Max:	80.00 abel:	20 Tick: 10							
TEM	P Min: 19.	00 Max:	25.00 Label:	1 Tick: 0.5							
PUM	IP Min: 0.	26 Max:	0.300 Label:	0.01 Jck: 0.01							
LAS	ER Min: 994.	.84 Max:	0.88 habel:	0.01 Tick: 0.01							
CHOI	<u> </u>										
		PLO	т								

<u>**Remark**</u>: In the frame « Processing Results » the asterisks indicate that the data have been exclude during the processing (blue circle). In this case, it is the consequence of the exclusion of the  $10 \ll \text{sets}$  ».



#### 9. « Average of Red and Blue sets » option



This option is used to average consecutive Red/Blue sets and should be used with caution when sets are excluded.

t. T	Site	(	CL_	Projec TIGO_2011	Institut de F pour le Dével F R A N C E			
Latitude	Loi	ngitud	le	Elevation	(	Gradient	Polar Motion	
-36.84372	-7:	3.02566	6	180.00 m	-3.44 µGal/cm		0.1863 " 0.3612 "	
Instrur	nent Data		Acquisition Settings			Processing Results		
Meter Type	A10 - S/N	l # 014	Number of Drops by Sets		100	Number of Sets Collected		66
Rubidium Freq.	1000000.00	000 Hz	Drop Interval		2 sec	Number of Sets Processed		56 *
Blue Lock	Blue Lock 632.99092510 nm		Sequence Interval		30 min	Total Drops Accepted		5591 *
Red Lock	632.991928	370 nm Red/E		Red/Blue Interval		Total Drops Rejected		9 *
Factory Height	7	1.8 cm	Setup	Setup Height		Transfer Height		0.0 cm

## 979924073.09 μGal ± 1.64 μGal (± 10.78 μGal)



#### 10. Software exit

At any time the user can exit the program by clicking on the x icon in the banner. The following dialog box opens so that the user can confirm his choice.



#### 11. The report

By default **MGL\_QuickView** creates automatically a report with the most important information followed by a summary of the different steps of the processing :

- ✤ Header: general information
  - Software version
  - Operator and computer uses
  - Date of the processing

#### Input Information :

- o Project File
- o Set File
- o Drop File or the message « No Drop File : Impossible to plot < Pump> and <Laser> values »

#### Project Information : Information from the « Project file »

- o "g" software version
- Project and operator names
- o Site name
- Site coordinates (Latitude, Longitude and altitude)
- Vertical gravity gradient and polar motion
- Instrument information
- Acquisition parameters
- Processing result

#### \* Data Processing 1 (Project Parameters) : Result obtained with default values of the options

- Limits calculated with all the data
- o Standard deviation (mean and maximum) calculated with all the data
- Gravity value calculated with all the data
- o Gravity value calculated for each « laser » and difference between the two values
- **Data Processing 2 (User Parameters) :** Result obtained with the user options
  - o Plot File
  - $\circ$  User options
  - Some results about the processing (only if « set » are excluded)
  - Limits calculated with the "user" data
  - o Standard deviation (mean and maximum) calculated with the "user" data
  - Gravity value calculated with the "user" data
  - o Gravity value calculated for each « laser » and difference between the two values

#### New « Data Processing (User Parameters) » each time the user click the <PLOT> button.

IVIOL_QUICKVIEW - JV2022.12 (0//12/2022) - ADSOIULE GTAVILY DALA - BGI									
Operated by: gabalda in pc-gabalda Mon Dec 12 16:31:49 CET 2022									
INPUT INFORMATIONS - Project File :/home/gabalda/Z_SOFTS/gravi_MGLqv/java_version/data/A10/CL_TIGO_2011_284_b_PP.project.txt - Set File :/home/gabalda/Z_SOFTS/gravi_MGLqv/java_version/data/A10/CL_TIGO_2011_284_b_PP.set.txt - Drop File :/home/gabalda/Z_SOFTS/gravi_MGLqv/java_version/data/A10/CL_TIGO_2011_284_b_PP.drop.txt									
PROJECT INFORMATIONS - g Processing Version: 8.090113									
- Project CL_TIGO_2011_284_b_PP operated by IRD									
- Site: TIGO(Chile - TIGO (402)) - Latitude: -36.84372 / Longitude: -73.02566 / Elevation: 180.00 m - Gradient: -3.44 uGal/cm / Polar Motion: 0.1863 " 0.3612 "									
- Instrument Data Meter Type: A10 - S/N # 014 Rubidium: 10000000.00000 Hz Red Lock: 632.99192870 nm Blue Lock: 632.99092510 nm Factory Height: 71.80 cm									
- Acquisition Settings Number of Drops by Set: 100 Drops Interval: 2 sec Sequence Interval : 30 min Red/Blue Interval : 4 min Setup Height : 8.65 cm									
<ul> <li>Processing Results</li> <li>Number of Sets Collected: 66</li> <li>Number of Sets Processed: 66</li> <li>Total Drops Accepted: 6588</li> <li>Total Drops Rejected: 12</li> <li>Transfer Height: 0.00 cm</li> </ul>									
DATA PROCESSING 1 (Project Parameters)									
INPUT LIMITS TIME       :       2011-284T22:14:25t       2011-285T14:18:25t         GRAVITY       :       -5.15       5.05         SIGMA       :       34.43       102.77         TEMP       :       19.47       24.97         PRESS       :       994.38       997.18         PUMP       :       0.234       0.300         LASER       :       0.592       0.871									
SIGMA (microGal) : MAX = 103 / MEAN = 48									
GRAVITY (microGal) : 979924073.08 +/- 1.83 - BLUE : 979924052.24 +/- 2.02   - RED : 979924093.92 +/- 1.64   Red/Blue separation = 41									

```
DATA PROCESSING 2 (User Parameters)
PLOT FILE : /home/gabalda/Z SOFTS/gravi MGLqv/java version/data/A10/CL TIGO 2011 284 b PP.plot.ps
PROJECT
- Polar Motion : 0.1863 ^{\prime\prime}~ 0.3612 ^{\prime\prime}~
- Gradient : -3.44 ugal/m
- Setup Height : 8.65 cm
- Transfer Height : 0.0 cm
OPTIONS
- Site Information : Code (TIGO)
- Footer Information : Company/Institution (IRD)
- No set excluded
- Gravity with Error bars
OUTPUT LIMITS TIME : 2011-284T22t 2011-285T15t
      GRAVITY : -20.00
                               20.00
      SIGMA
                  : 0.00
                               110.00
                : 19.00
      TEMP
                             25.00
                 : 994.00
                               998.00
      PRESS
                 : 0.234
      PUMP
                               0.300
                 : 0.592
      LASER
                                0.871
SIGMA (microGal) : MAX = 103 / MEAN = 48
GRAVITY (microGal) : 979924073.08 +/- 1.83
          - BLUE : 979924052.24 +/- 2.02
          - RED
                 : 979924093.92 +/- 1.64
                                           | Red/Blue separation = 41
DATA PROCESSING 3 (User Parameters)
PLOT FILE : /home/gabalda/Z_SOFTS/gravi_MGLqv/java_version/data/A10/CL_TIGO_2011_284_b_PP.plot.ps
PROJECT
- Polar Motion : 0.1863 " 0.3612 "
- Gradient : -3.44 ugal/m
- Setup Height : 8.65 cm
- Transfer Height : 0.0 cm
OPTIONS
- Site Information : Code (TIGO)
- Footer Information : Chile 2011
                      1 2 59-

    Sets excluded

                :
- Gravity with Error bars
PROCESSING RESULTS
- Number of Sets Collected: 66
- Number of Sets Processed: 56
- Total Drops Accepted: 5591
- Total Drops Rejected: 9
OUTPUT LIMITS TIME :
                      2011-284T22:30t 2011-285T12:30t
      GRAVITY : -20.00
                              20.00
      SIGMA
                       0.00
                              80.00
                  :
      TEMP
                  :
                      23.00
                              28.00
                  : 994.00 998.00
      PRESS
      PUMP
                      0.26
                               0.30
                  :
      LASER
                       0.84
                               0.88
                  :
                  : MAX = 65 / MEAN = 46
SIGMA (microGal)
GRAVITY (microGal) : 979924073.09 +/- 1.64
          - BLUE : 979924052.46 +/- 1.82
                                            - RED
                 :
                     979924093.71 +/- 1.46
                                            | Red/Blue separation = 41
```

#### 1. "FG5" specificity

 $MGL_QuickView$  can also be used to process «FG5 » projects and the only difference concern the «Laser » information.

Indeed, to carry out its measurement, the "A10" gravimeter locks alternately and only on two wavelengths. The user interface and the graph indicate the lengths used (*Blue Lock* and *Red Lock*) as well as the *Red/Blue interval*.

The "**FG5**" gravimeter can use several laser wavelengths in non-fixed proportions. If the « *drop* » file is used then the dialog box (and the draw) displays information on the two most uses wavelengths. If the « drop » file is missing, only the E and D levels (the most commonly used) are shown.

мс	iL_QuickView - jv202	2.12 (07/12/2022) - A	bsolute Gravity	Data - BGI —	• 😣						
Project Infor	mations										
Drojoct Filo	/homo/gabalda/7_50	TS/arovi MGLav/doto/	C5 (TICO 2005 21 9)								
File	/home/gabaida/2_50	TO/gravi_MOLqv/data/	05/11002005218	chooser							
Set File	/home/gabalda/2_SOF	- TS/gravi_MGLqv/data/i	·G5/11G02005218A	A.set.txt							
Drop File	/home/gabalda/Z_SOF	FTS/gravi_MGLqv/data/F	G5/TIG02005218A	.drop.txt 🗹 Yes							
Result File	/home/gabalda/Z_SOF	TS/gravi_MGLqv/data/F	G5/TIG020052184	A.result.txt 🛛 Yes							
	OK										
Site Name	- ( 0	do Project Nam		mpany/Institution							
CHILE Conc	epcion TIG0 T	IGO TIGO200	5218A	IRD/EOST							
Latitude -36.843	Longitude 72 -73.02566	Elevation Gra	dient Po 3.5 uGal/cm	lar Motion 0.007 " 0.422 "	_						
Instrument Data	A	acquisition Settings	Pr	ocessing Results							
Meter Type	FG5 - S/N # 206 N	lumber of Drops by Sei	100 Nu	mber of Set Collected	35						
Rubidium 10	0000000.00000 Hz D	rop Interval	10 sec Nu	mber of Set Processed	35						
IE 88 % 632.9911	19473 nm / -0.37 V 🤰	et Interval	60 min Tot	al Drops Accepted	3446						
ID 09 % 632.9911	17754 nm / -0.04 V		Tot	al Drops Rejected	54						
Factory Height	116.45 cm R	eference Height	14.95 cm Da	tum Height	0.0 cm						
Output Files Directory Plot File Temp. Files	/home/gabalda/Z_S0 TIG02005218A.plot.p _tmp_MGLqv.TIG0200	FTS/gravi_MGLqv/data/ ps 15218A	FG5	Chooser ps Saved							
Options					_						
Site information	n: 🔘 Code	O Name O Oth	or								
Man information	n Badius (dagra)	ac) 260 Land	Eas								
Footor information	ion: © Company		Sea								
	ion. Company	Crear		taiptu							
	udi s	@ Enfor	Uncer	Callicy							
Sets to be estimated as a set of the sets to be estimated as a set of the sets to be estimated as a set of the sets to be estimated as a set of the set of the set of the set of the sets to be estimated as a set of the set of	logo:	_2016_BLOC_FR_CC	UL.png Choose	Width/Height: 3.2/1	.6						
Limite Avie coa	le Avis label Frame	ticks and Color cho	0501								
TIME	Min. 2005-219T02+	Max: 2005.210T1		Tick, 1b							
GRAVITY	Min: 2005-218102t	Max: 2005-21911	0 Label: 5	Tick: 1							
SIGMA	Min: 0.00	Max: 20.0	00 Label: 10	Tick: 5							
TEMP	Min: 17.00	Max: 19.0	00 Label: 1	Tick: 0.5							
PUMP	Min: 0.001	Max: 0.04	10 Label: 0.01	Tick: 0.002							
PRESS	Min: 1000.00	Max: 1013.0	0 Label: 2	Tick: 1							
LASER	Min: -0.612	Max: -0.03	38 <i>Label:</i> 0.1	Tick: 0.05							
		PLOT									



## In the « **DATA PROCESSING** » of the « **FG5** » report, the « **FREQUENCIES** » information contains information about all frequency

- ✤ Frequency code : [DEFGHIJ]
- ✤ Wavelength (nm)
- Voltage (Volt)
- ✤ Rate of use (%)

Operated by: gabalda in pc-gabalda.get.obs-mip.local Fri Dec 09 14:10:55:CET 2022
INPUT INFORMATIONS
<ul> <li>Project File : /home/gabalda/Z_SOFTS/gravi_MGLqv/java_version/data/FG5/TIGO2005218A.project.txt</li> <li>Set File : /home/gabalda/Z_SOFTS/gravi_ MGLqv /java_version/data/FG5/TIGO2005218A.set.txt</li> <li>Drop File : /home/gabalda/Z_SOFTS/gravi_ MGLqv /java_version/Data/FG5/TIGO2005218A.drop.txt</li> </ul>
PROJECT INFORMATIONS
- g Processing Version: 6.060320
- Project TIGO2005218A operated by IRD/EOST
- Site: TIGO (CHILE Concepcion TIGO) - Latitude: -36.84372 / Longitude: -73.02566 / Elevation: 180.00 m - Gradient: -3.50 uGal/cm / Polar Motion: 0.007 " 0.422 "
- Instrument Data Meter Type: FG5 - S/N # 206 Rubidium: 100000000.00000 Hz IE: 632.99119473 nm (-0.37 V) ID: 632.99117754 nm (-0.04 V) Factory Height: 116.45 cm
/
DATA PROCESSING 1 (Project Parameters)
INPUT LIMITS TIME : 2005-218T02:40:17t 2005-219T12:40:17t
GRAVITY : -4.10 4.75
SIGMA : 8.98 16.48
TEMP : 17.07 18.83
PRESS : 1000.19 1012.36
PUMP : 0.001 0.040
LASER : -0.612 -0.038
FREQUENCIES
- E: 632.99119473 nm (-0.37 V) - 87.52 %
- D: 632.99117754 nm (-0.04 V) - 08.88 %
- F: 632.99121259 nm (-0.64 V) - 03.57 %
- G: 632.99123023 nm (-0.90 V) - 00.03 %
- H: 632.99136890 nm (-1.24 V) - 00.00 %
- I: 632.99125119 nm (-1.07 V) - 00.00 %
- J: 632.99142704 nm (-0.91 V) - 00.00 %
SIGMA (microGal) : MAX = 13 / MEAN = 12
GRAVITY (microGal) : 979924098.53 +/- 2.01

- [1] A-10 Portable Gravimeter, Micro-g Solutions Inc., September 2012
- [2] g9 Users Manual, Micro-g Solutions Inc., April 2012
- [3] Wessel, P., W. H. F. Smith, R. Scharroo, J. F. Luis, and F. Wobbe, Generic Mapping Tools: Improved version released, EOS Trans. AGU, 94, 409-410, 2013. doi:10.1002/2013EO450001.