Function description of the RSs Transformations tab

GravLab Team

Contents

load_GGs_GRF

Description:
load_GGs_GRF loads the user's gravity gradients in GRF for their transformation to LNOF.

Syntax:
[GG_GRF_data,l] = load_GGs_GRF()

Input variables:

Variable name	Size	Description
-	19x1	Data in GRF for loading in.mat. It contains info about latitude, longitude, altitude, UTC time, Vij in GRF and quaternions.

Output variables:

Variable name	Size	Description
GG_GRF_data	19x1	Loaded data in GRF.
l	1 x 1	Counter/ is needed for checks in the GUI.

gradients_to_irf

Description:
gradients_to_irf transforms the loaded gravity gradients from GRF to IRF.

Syntax:
[VIRFgradients] = gradients_to_irf(datagrftolnof1)

Input variables:

Variable name	Size	Description
datagrftolnof1	19x1	Contains info about latitude, longitude, altitude, UTC, the Vij in GRF and quaternions.

Output variables:

Variable name	Size	Description
VIRFgradients	19x1	Contains info about latitude, longitude, altitude, UTC, the transformed Vij in IRF and quaternions.

gradients_to_efrf

Description:
gradients_to_efrf transforms the gravity gradients from IRF to EFRF.

Syntax:
[VEFRFgradients] = gradients_to_efrf(datagrftolnof2)

Input variables:

Variable name	Size	Description
datagrftolnof2	19x1	Contains info about latitude, longitude, altitude, UTC, the Vij in IRF and quaternions.

Output variables:

Variable name	Size	Description
VEFRFgradients	11x1	Contains info about latitude, longitude, altitude, UTC and the transformed Vij in EFRF.

gradients_to_lnof

Description:
gradients_to_lnoft transforms the gravity gradients from EFRF to LNOF and saves them in a .mat file with a corresponding report in the RSs Transformations - to LNOF folder.

Syntax:
[VLNOF_gradients] = gradients_to_lnof(datagrftolnof3)

Input variables:

Variable name	Size	Description
datagrftolnof3	11x1	Contains info about latitude, longitude, , altitude, UTC and the Vij in EFRF.

Output variables:

Variable name	Size	Description
VLNOF_gradients.mat	11x1	Contains info about latitude, longitude, altitude, UTC and the transformed Vij in LNOF.
VLNOF_gradients_Report.txt	-	Report regarding to the file format .

plot_GG_LNOF

Description:
plot_GG_LNOF plots the gravity gradients in LNOF in the directory RSs Transformations - to LNOF/ Gravity Gradients in LNOF in .jpeg and .fig format.

Syntax:
[w] = plot_GG_LNOF(VLNOF_gradients)

Input variables:

Variable name	Size	Description
VLNOF_gradients	11x1	The transformed Vij in LNOF.

Output variables:

Variable name	Size	Description
w	1x1	Counter/ is needed for checks in the GUI
GG_LNOF_date. jpeg	-	A figure in .jpeg is saved in the folder RSs Transformations - to LNOF\Gravity Gradients in LNOF.
GG_LNOF_date.fig	-	A figure in .fig is saved in the folder RSs Transformations - to LNOF\Gravity Gradients in LNOF.

stats_GGs_2_LNOF

Description:
stats_GGs_2_LNOF saves the statistics (min,max,mean,std,rms) of the gravity gradients in a .mat file in the directory RSs Transformations - to LNOF/ Statistics_GGs_in_LNOF.

Syntax:
[stats_GGs_transf_LNOF]=stats_GGs_2_LNOF(VLNOF_gradients,currentFolder)

Input variables:

Variable name	Size	Description
VLNOF_gradients	11x1	It contains info about latitude, longitude, altitude, UTC and the transformed Vij in LNOF.
currentFolder	-	The RSs Transformations - to LNOF folder.

Output variables:

Variable name	Size	Description
stats_GGs_transf_ LNOF.mat	nx6	Statistics of the transformed Vij in LNOF
stats_GGs_transf_ LNOF_Report.txt	-	Report regarding to the file format .

load_GGs_LNOF

Description:
load_GGs_LNOF loads the user's gravity gradients in LNOF.

Syntax:
[GG_LNOF_data,m] = load_GGs_LNOF()

Input variables:

Variable name	Size	Description
-	19x1	Data in LNOF for loading in.mat. It contains info about latitude, longitude, altitude, UTC time, Vij in LNOF and quaternions.

Output variables:

Variable name	Size	Description
GG_LNOF_data	19 x 1	Loaded data in LNOF.
m	1 x 1	Counter/ is needed for checks in the GUI.

GGs_Transformation_LNOF_2_GRF

Description:
GGs_Transformation_LNOF_2_GRF transforms the gravity gradients from LNOF to GRF and saves them in a .mat file format along with a report file in the RSs Transformations - to GRF folder.

Syntax:
[VGRF_gradients] = GGs_Transformation_LNOF_2_GRF(datalnoftogrf)

Input variables:

Variable name	Size	Description
datalnoftogrf	19x1	Contains info about latitude, longitude, altitude, UTC, the Vij in LNOF and quaternions.

Output variables:

Variable name	Size	Description
VGRF_gradients.mat	11x1	Contains info about latitude, longitude, altitude, UTC and the transformed Vij in GRF.
VGRF_gradients_Report.txt	-	Report regarding to the file format .

plot_GG_GRF

Description:
plot_GG_GRF plots the gravity gradients in GRF and saves them in the directory RSs Transformations - to GRF/ Gravity Gradients in GRF in .jpeg and .fig format.

Syntax:
[w] = plot_GG_GRF(VGRF_gradients)

Input variables:

Variable name	Size	Description
VGRF_gradients	11x1	The transformed Vij in GRF.

Output variables:

Variable name	Size	Description
w	1x1	Counter/ is needed for checks in the GUI
GG_GRF_date.jpeg	-	A figure in .jpeg is saved in the folder RSs Transformations - to GRF\Gravity Gradients in GRF
GG_ GRF _date.fig	-	A figure in .fig is saved in the folder RSs Transformations - to GRF\Gravity Gradients in GRF

stats_GGs_2_GRF

Description:
stats_GGs_2_GRF computes the statistics (min,max,mean,std,rms) of the gravity gradients in GRF and saves them in the directory RSs Transformations - to GRF/ Statistics_GGs_in_GRF.

Syntax:
[stats_GGs_transf_GRF]=stats_GGs_2_GRF(VGRF_gradients,currentFolder)

Input variables:

Variable name	Size	Description
VGRF_gradients	11x1	It contains info about latitude, longitude, altitude, UTC and the transformed Vij in GRF.
currentFolder	-	The RSs Transformations - to GRF folder.

Output variables:

Variable name	Size	Description
stats_GGs_transf_ GRF.mat	nx6	Statistics of the transformed Vij in GRF.
stats_GGs_transf _GRF_Report.txt	-	Report regarding to the file format .