Function description of the Transformation GRF to LNOF

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 .