ilk_inv MANUAL

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HOW TO RUN

Computer Code Availability

Name of the code/library: ilk_inv

Contact: ilkin.ozsoz@mta.gov.tr

Program language: MATLAB

Software required: MATLAB 2019a or above / MATLAB Runtime 2019a

Program size: 31 kb

The source codes are available for download at the link:

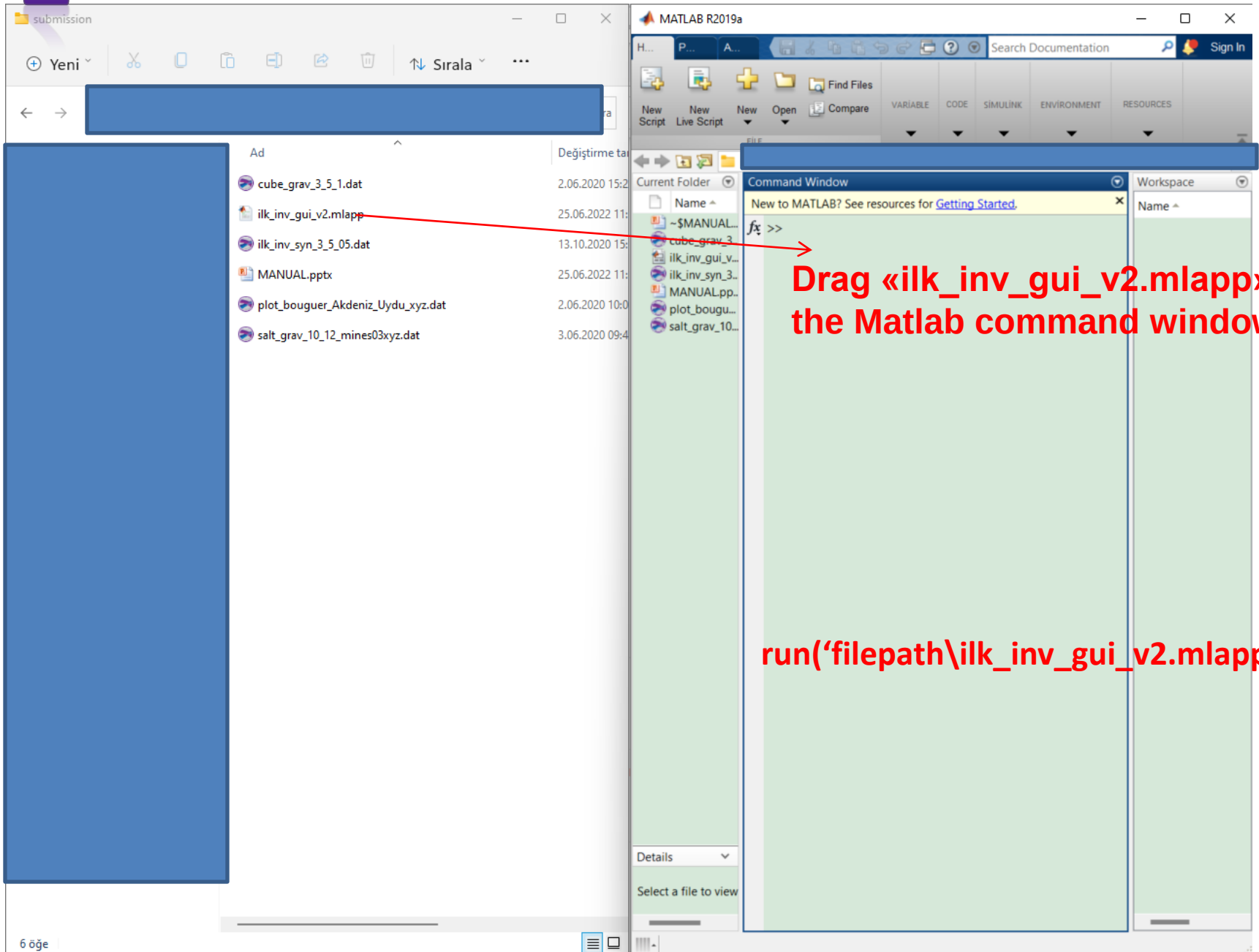
https://github.com/ikzsz/ilk_inv

HOW TO RUN

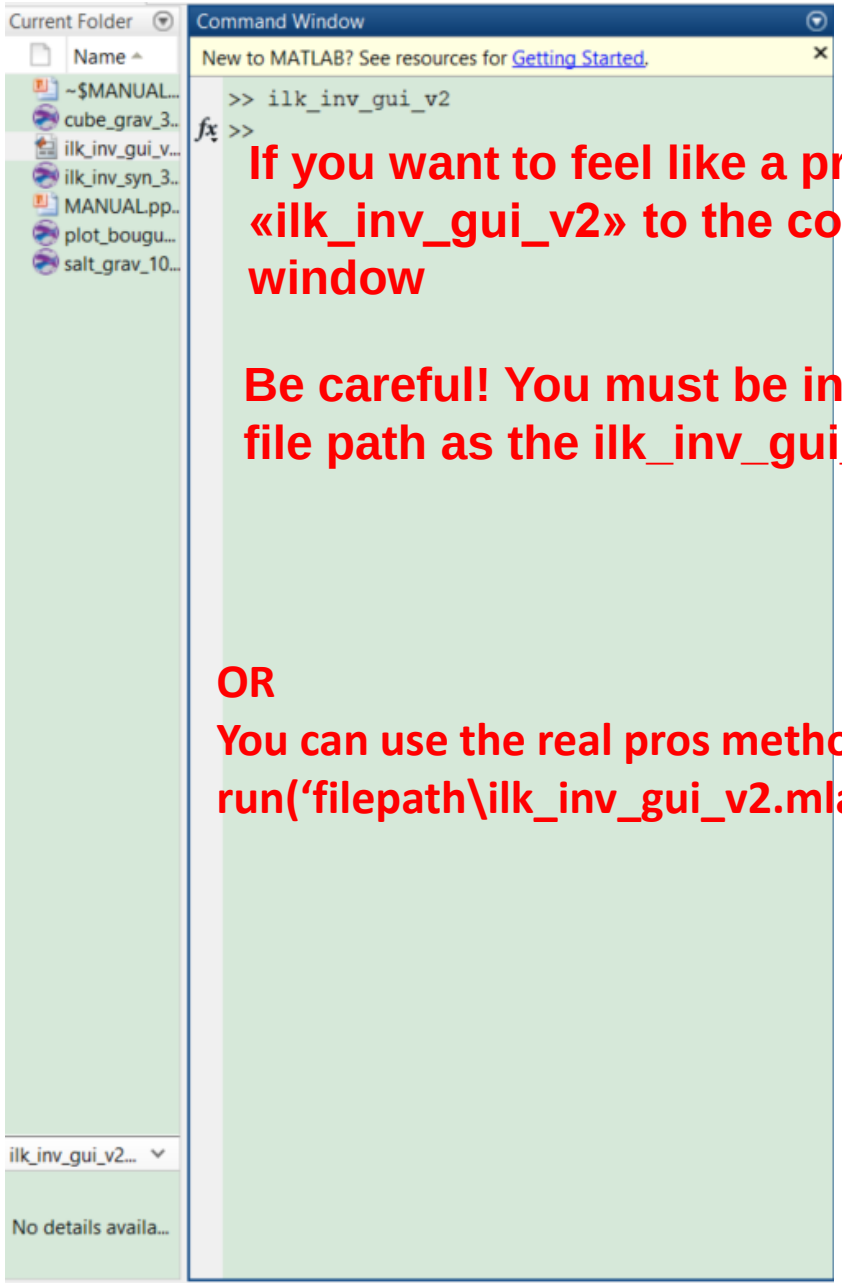
There are 3 ways only choose one of them. Do not try to apply all of them

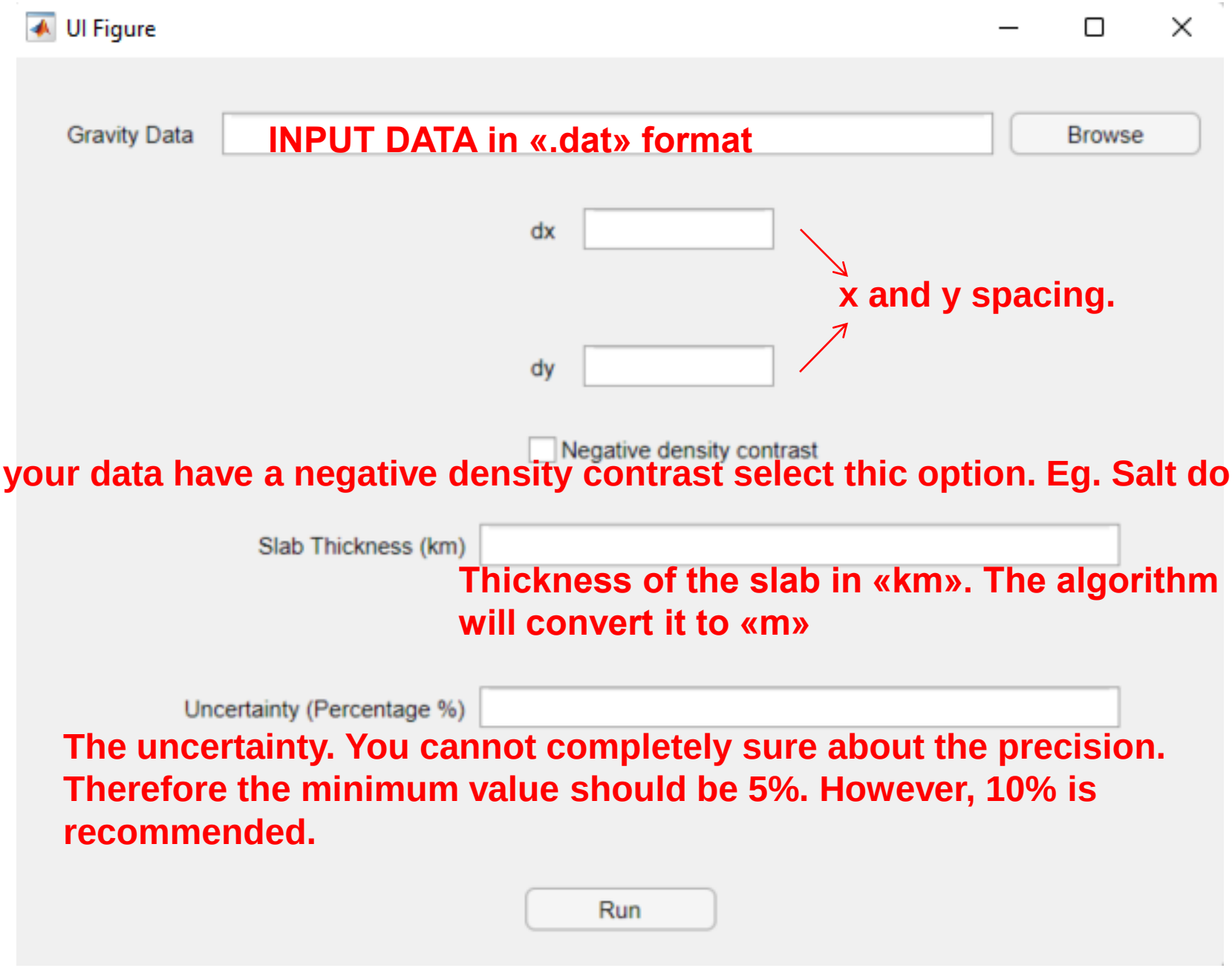
1

2 HOW TO RUN

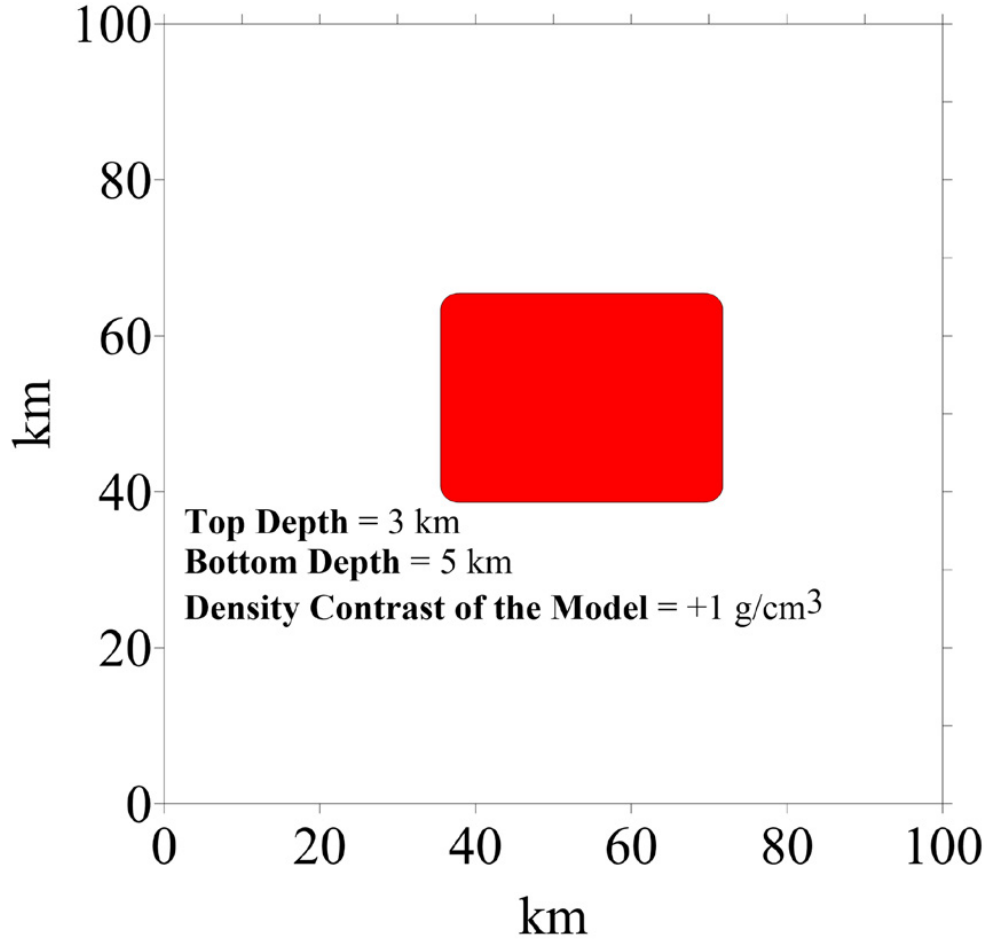

submission
Yeni
Sırala
Ad
cube_grav_3_5_1.dat
ilk_inv_gui_v2.mlapp
ilk_inv_syn_3_5_05.dat
MANUAL.pptx
plot_bouguer_Akdeniz_Uydu_xyz.dat
salt_grav_10_12_mines03xyz.dat
6 öğe
MATLAB R2019a
Search Documentation
Sign In
New Script
New Live Script
New
Open
Find Files
Compare
Current Folder
Name
Command Window
New to MATLAB? See resources for Getting Started.
Workspace
Details
Select a file to view
Drag «ilk_inv_gui_v2.mlapp» to the Matlab command window.
run('filepath\ilk_inv_gui_v2.mlapp')

3


Current Folder
Name
~$MANUAL...
cube_grav_3...
ilk_inv_gui_v...
ilk_inv_syn_3...
MANUAL.pp...
plot_bougu...
salt_grav_10...
ilk_inv_gui_v2...
No details availa...
Command Window
New to MATLAB? See resources for Getting Started.
>> ilk_inv_gui_v2
>>
If you want to feel like a pro, type «ilk_inv_gui_v2» to the command window
Be careful! You must be in the same file path as the ilk_inv_gui_v2.mlapp.
OR
You can use the real pros method:
run('filepath\ilk_inv_gui_v2.mlapp')

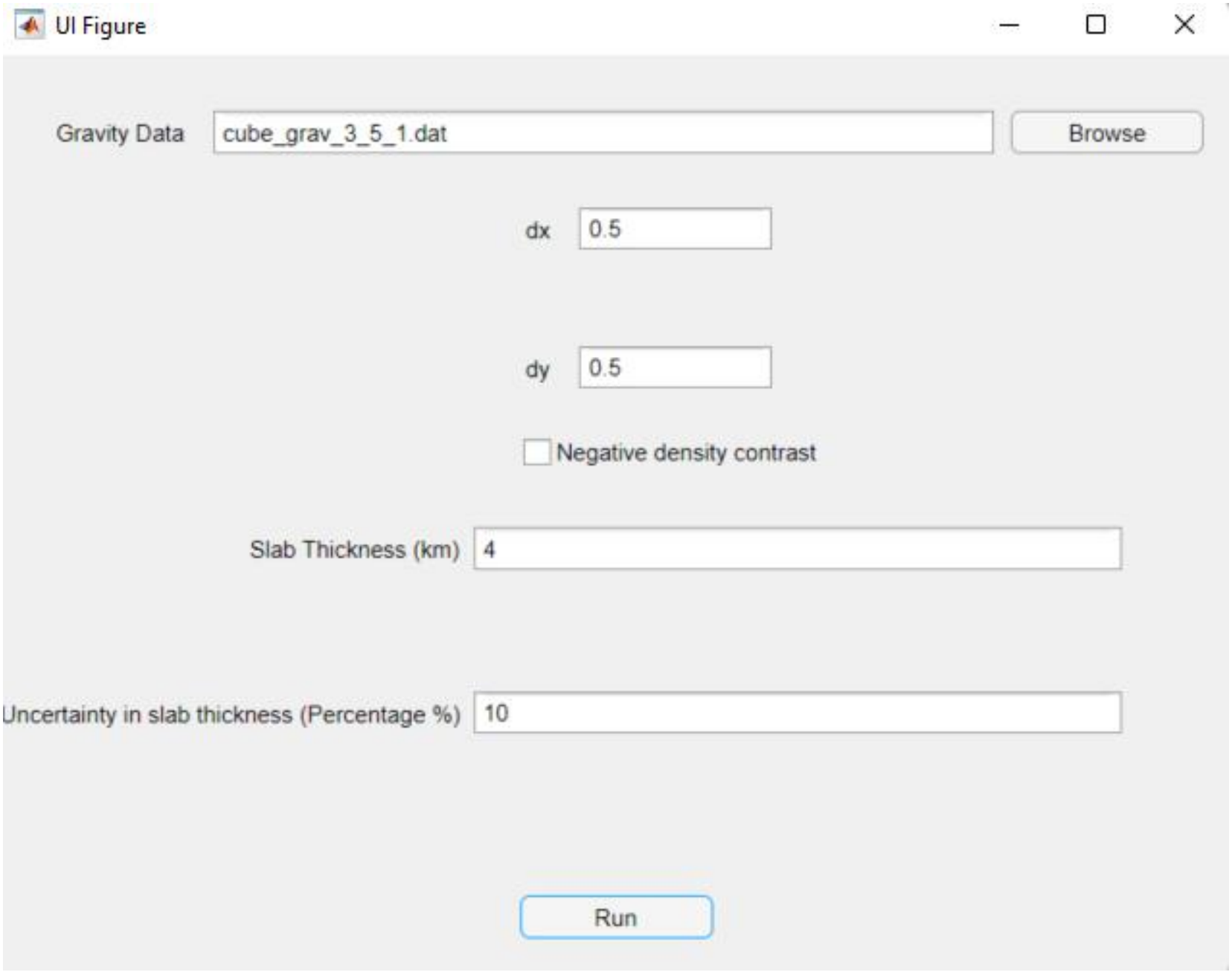

UI Figure
Gravity Data
INPUT DATA in «.dat» format
Browse
dx
dy
x and y spacing.
Negative density contrast
if your data have a negative density contrast select thic option. Eg. Salt domes
Slab Thickness (km)
Thickness of the slab in «km». The algorithm will convert it to «m»
Uncertainty (Percentage %)
The uncertainty. You cannot completely sure about the precision. Therefore the minimum value should be 5%. However, 10% is recommended.
Run

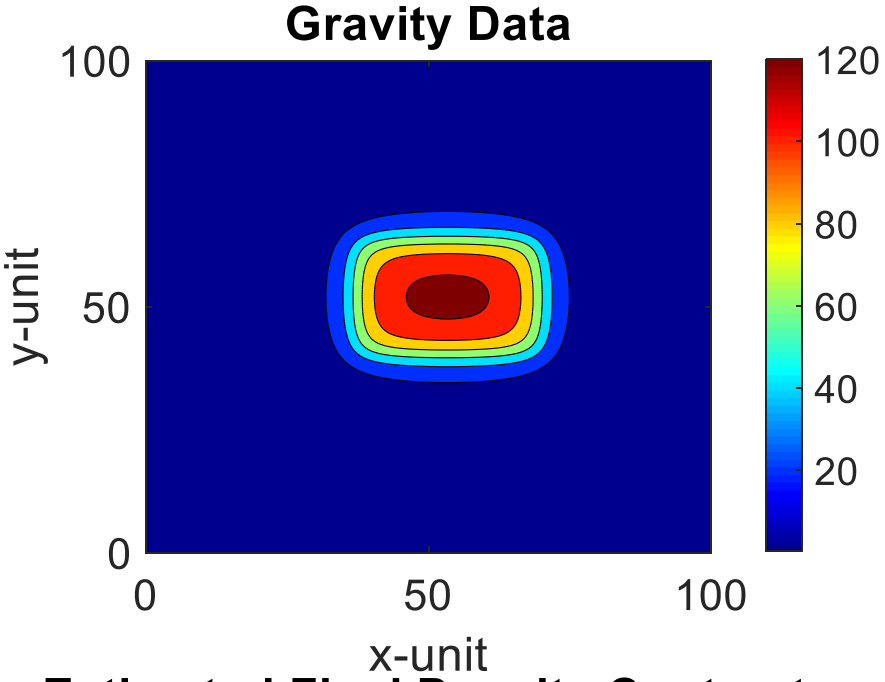
CASE 1

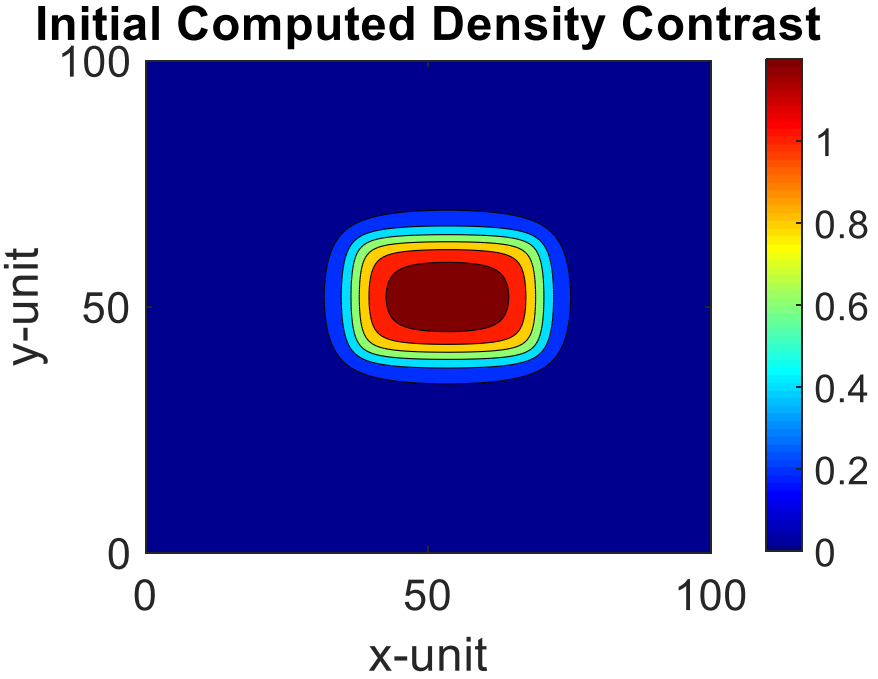


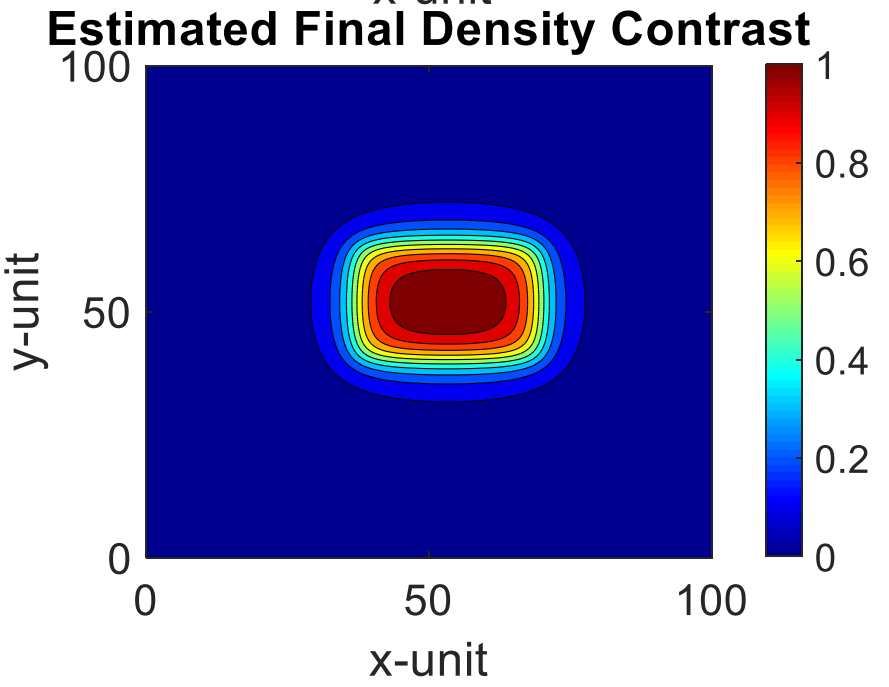
From: ***Ilk_inv: a Matlab based algorithm for rapid computation of pseudo-3D density contrast distribution by using Bouguer gravity data***

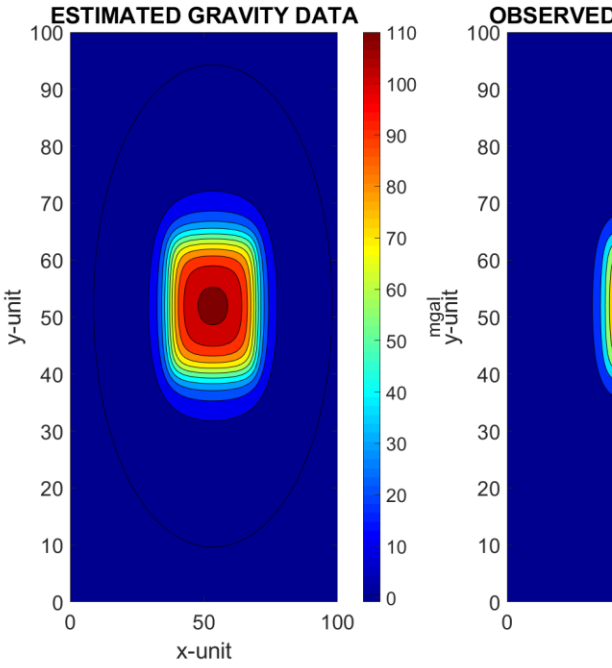
Filename: cube_grav_3_5_1.dat

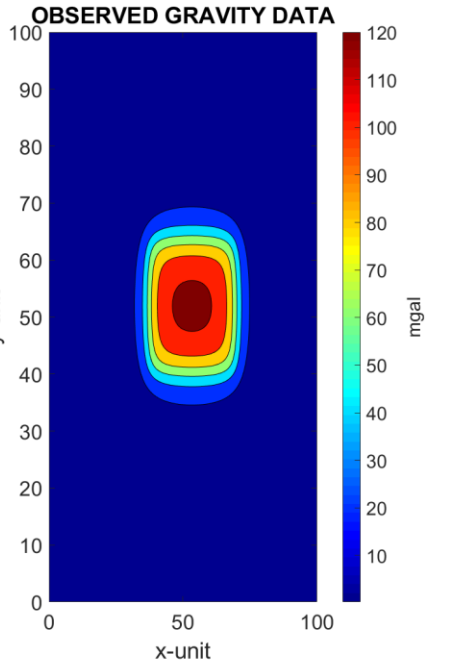

UI Figure
Gravity Data
cube_grav_3_5_1.dat
Browse
dx
0.5
dy
0.5
Negative density contrast
Slab Thickness (km)
4
Uncertainty in slab thickness (Percentage %)
10
Run





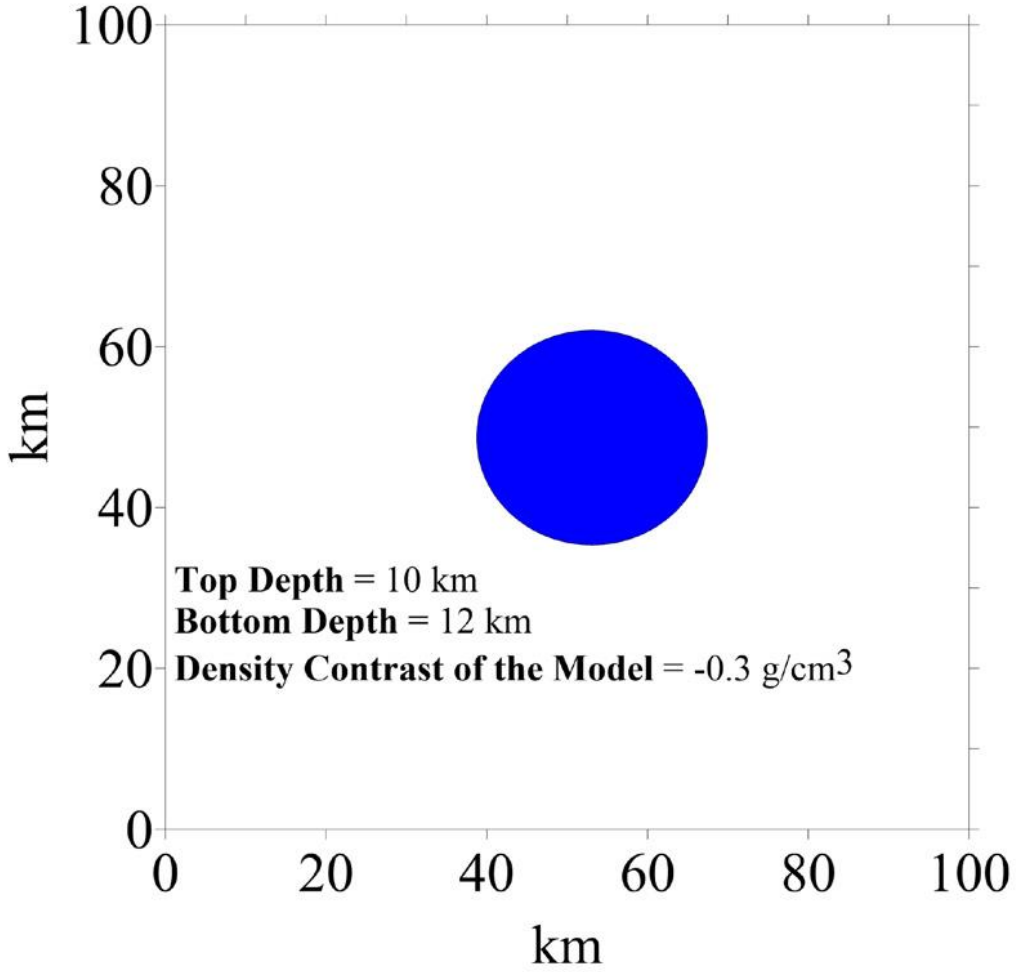






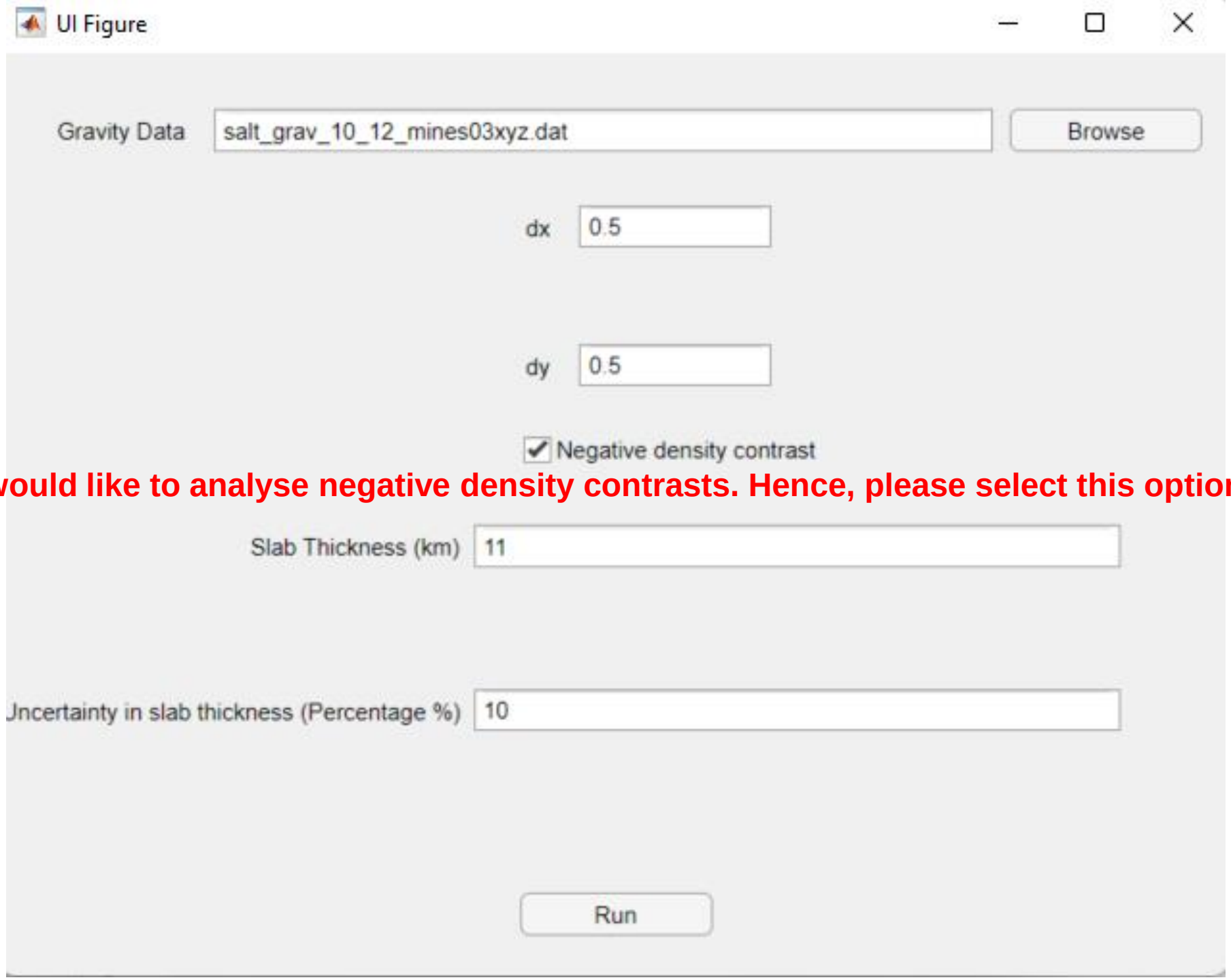
Correct value, which is 1 g/cc is obtained

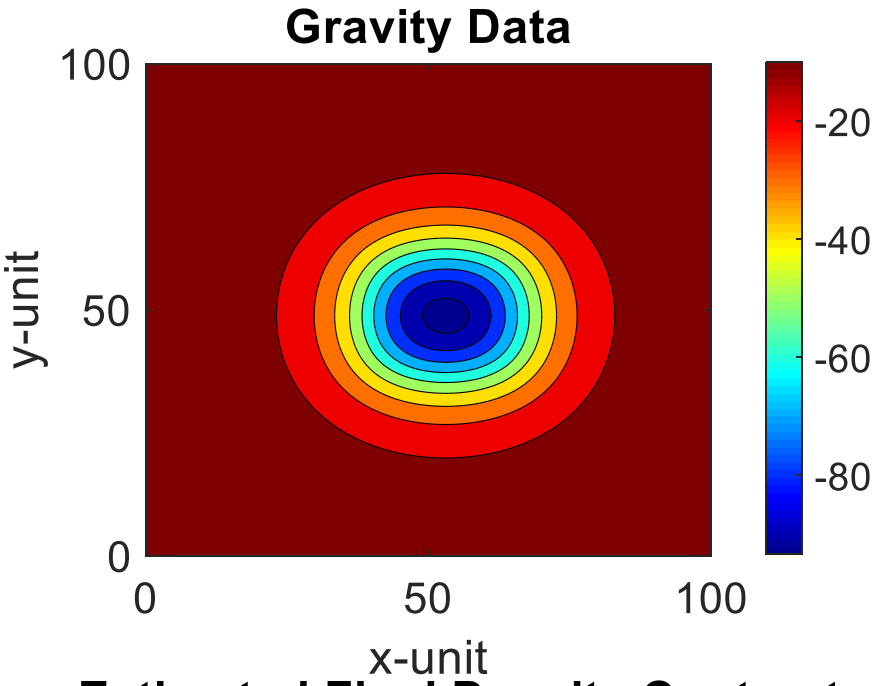
CASE 2

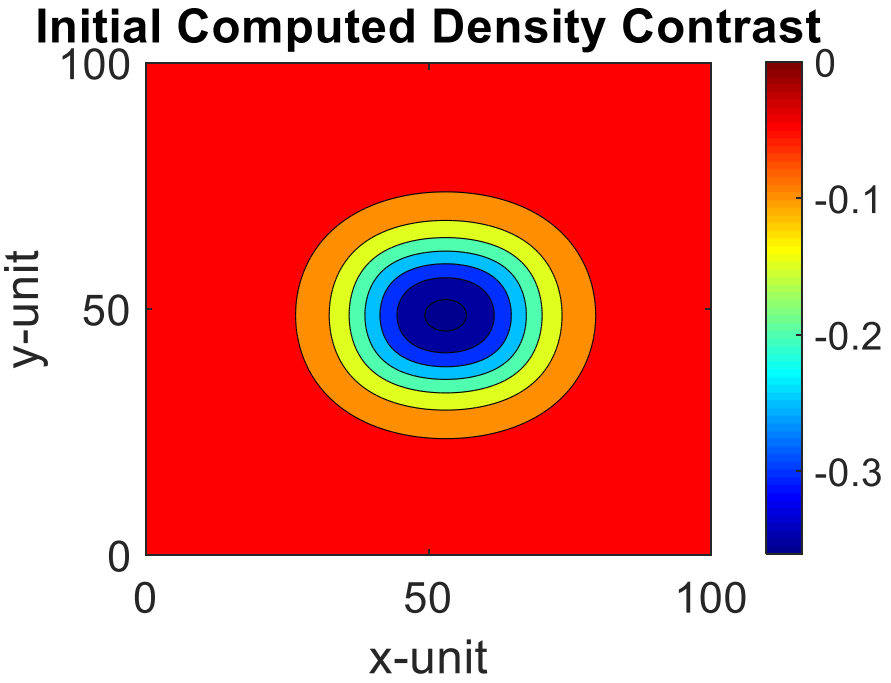


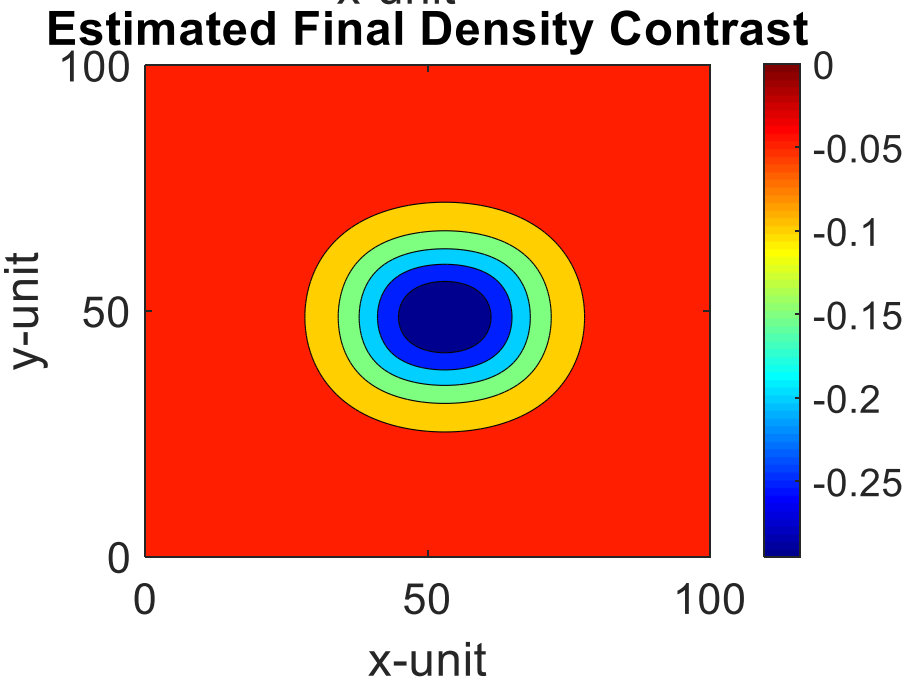
From: ***Ilk_inv: a Matlab based algorithm for rapid computation of pseudo-3D density contrast distribution by using Bouguer gravity data***

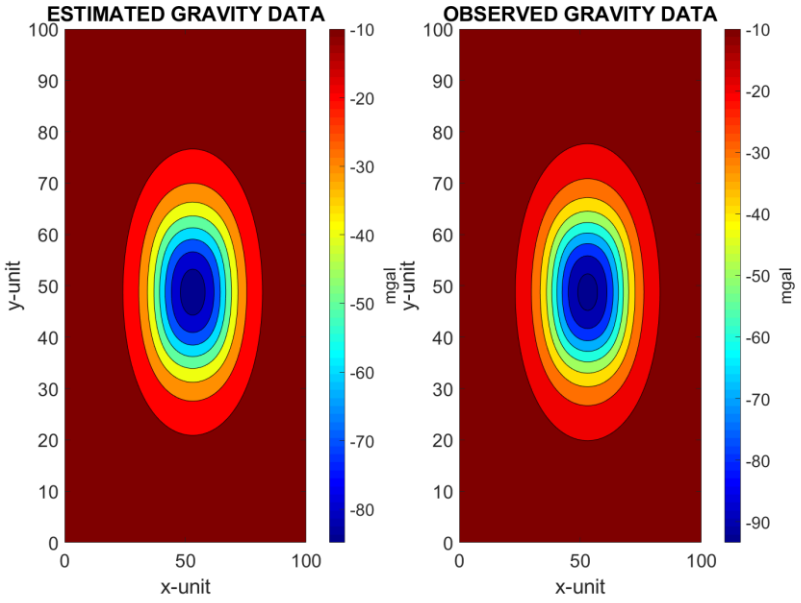
Filename: salt_grav_10_12_mines03xyz.dat


UI Figure
Gravity Data
salt_grav_10_12_mines03xyz.dat
Browse
dx
0.5
dy
0.5
Negative density contrast
I would like to analyse negative density contrasts. Hence, please select this option
Slab Thickness (km)
11
Uncertainty in slab thickness (Percentage %)
10
Run



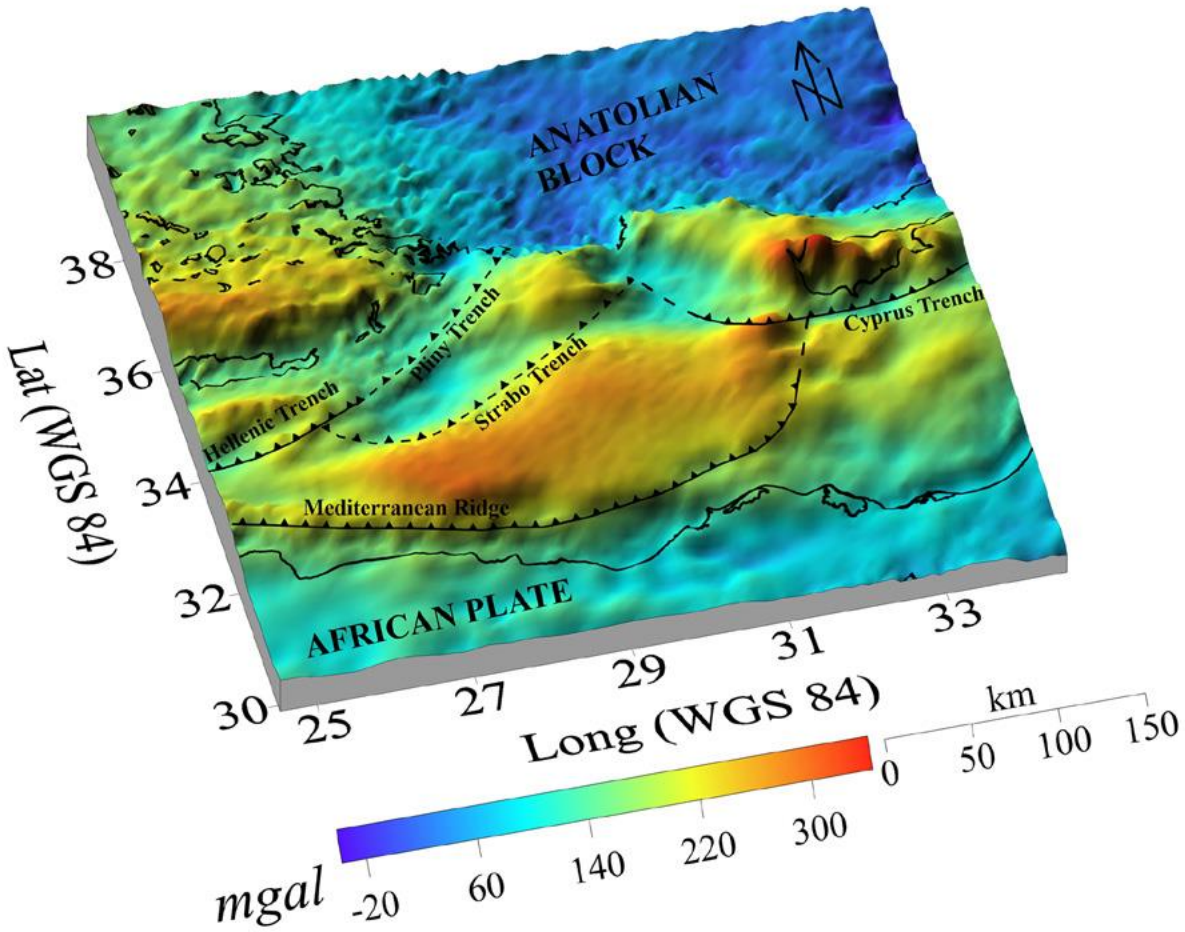






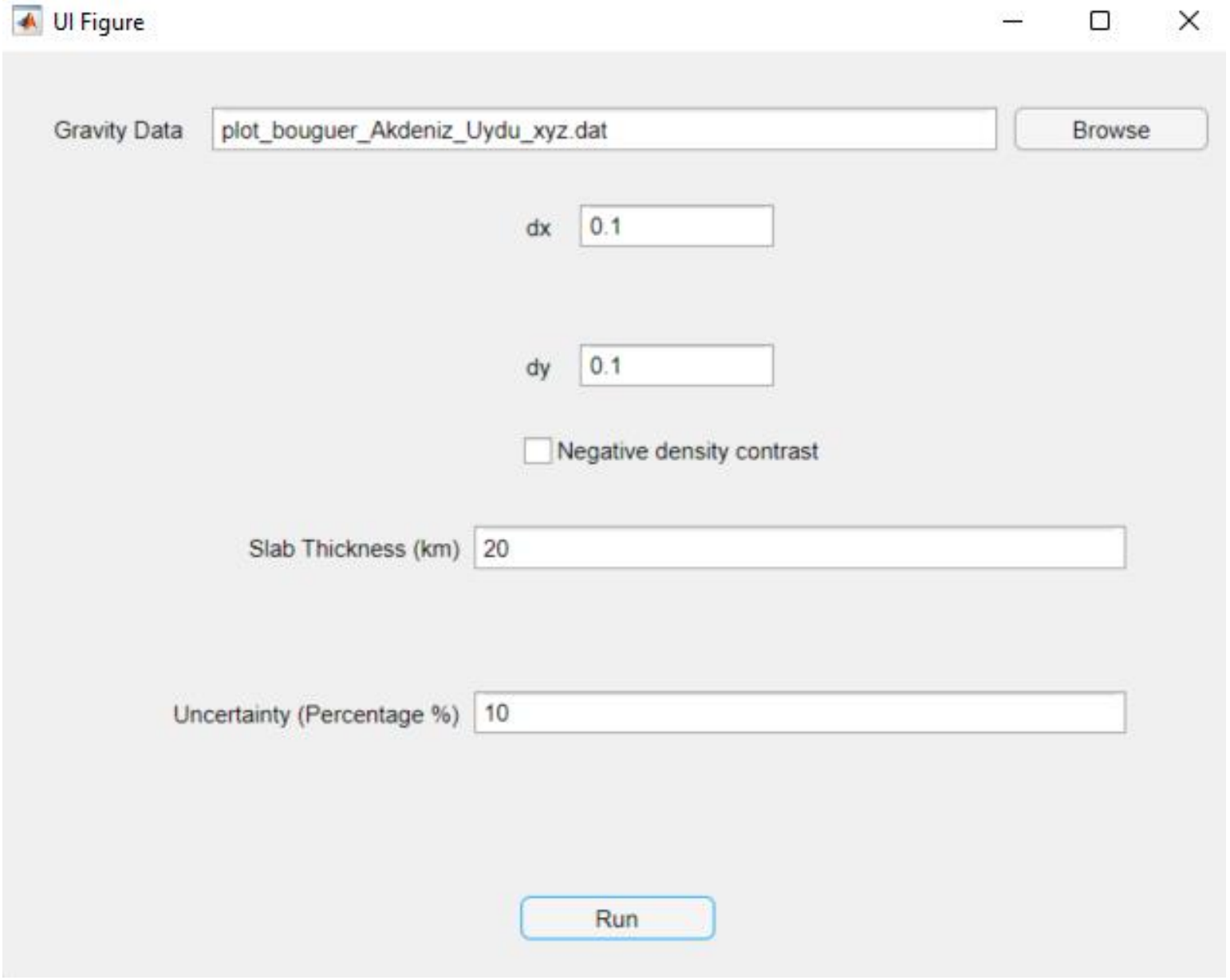
Correct value, which is -0.3 g/cc is obtained

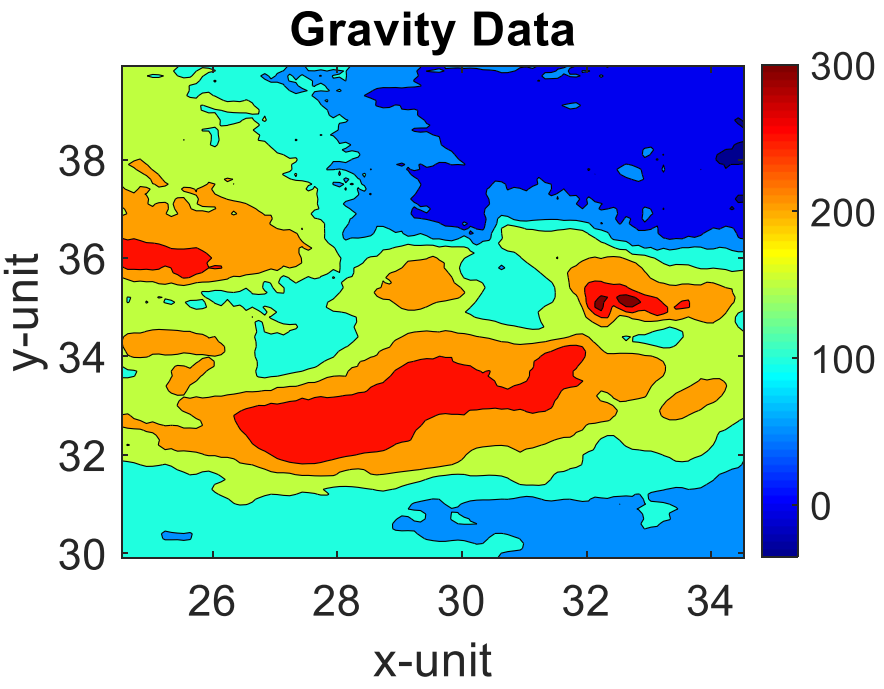
CASE 3

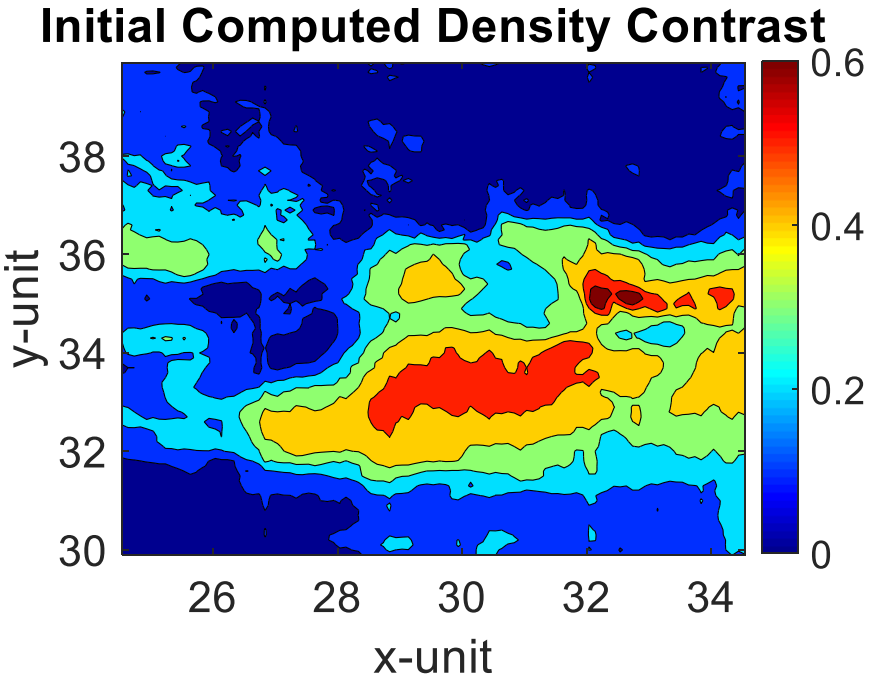


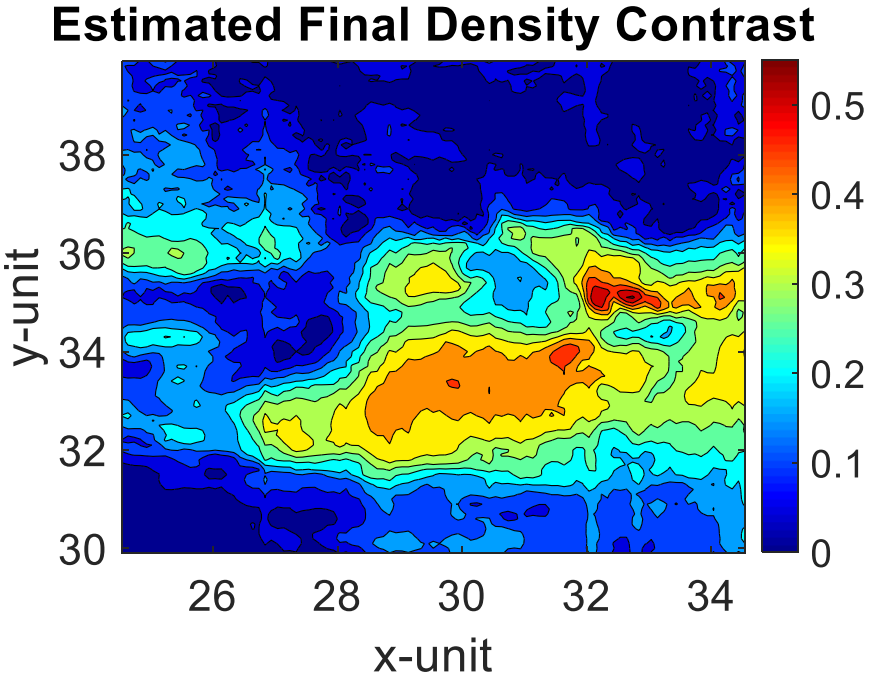
From: ***Ilk_inv: a Matlab based algorithm for rapid computation of pseudo-3D density contrast distribution by using Bouguer gravity data***

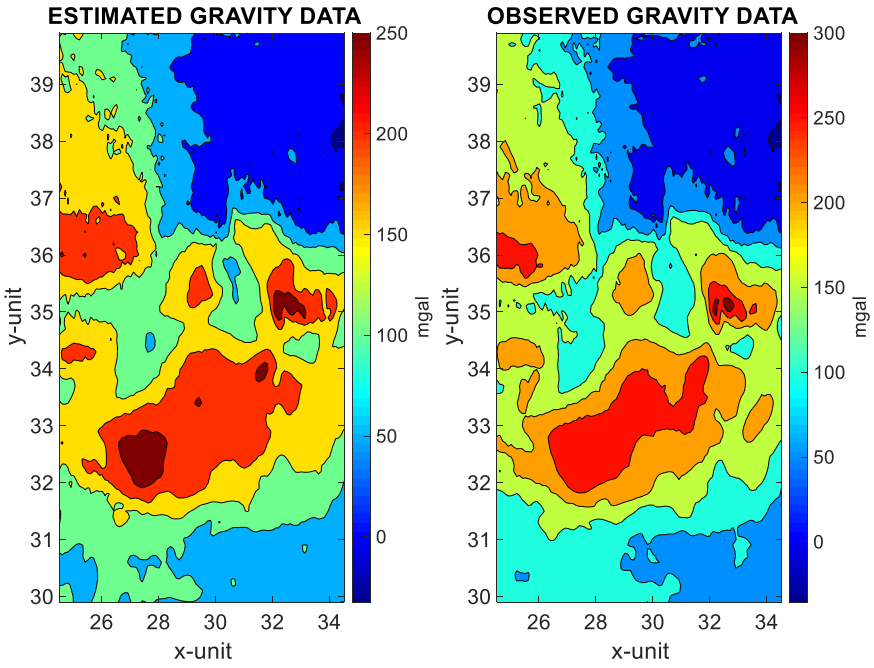
Filename: plot_bouguer_Akdeniz_Uydu_xyz.dat


UI Figure
Gravity Data
plot_bouguer_Akdeniz_Uydu_xyz.dat
Browse
dx
0.1
dy
0.1
Negative density contrast
Slab Thickness (km)
20
Uncertainty (Percentage %)
10
Run


Gravity Data
y-unit
x-unit
38
36
34
32
30
26
28
30
32
34
300
200
100
0


Initial Computed Density Contrast
y-unit
x-unit
38
36
34
32
30
26
28
30
32
34
0.6
0.4
0.2
0


Estimated Final Density Contrast
y-unit
x-unit
38
36
34
32
30
26
28
30
32
34
0.5
0.4
0.3
0.2
0.1
0


ESTIMATED GRAVITY DATA
OBSERVED GRAVITY DATA
y-unit
x-unit
mgal
39
38
37
36
35
34
33
32
31
30
26
28
30
32
34
250
200
150
100
50
0
300

NOTES

- The uncertainty value should be higher than 0. If it is selected «0», the algorithm will not run.
- In general 10% uncertainty produces the best result.
- If you have further questions and recommendations, feel free to contact.

Contact: ilkin.ozsoz@mta.gov.tr