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dBSD

EBSD ANALYSIS OF STEEL ALLOYS

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OVERVIEW

Installation>>

- Install MTEX
- Unzip dbsd file
- Open Matlab
- Double Click on dBSDsteel.fig

Capabilities>>

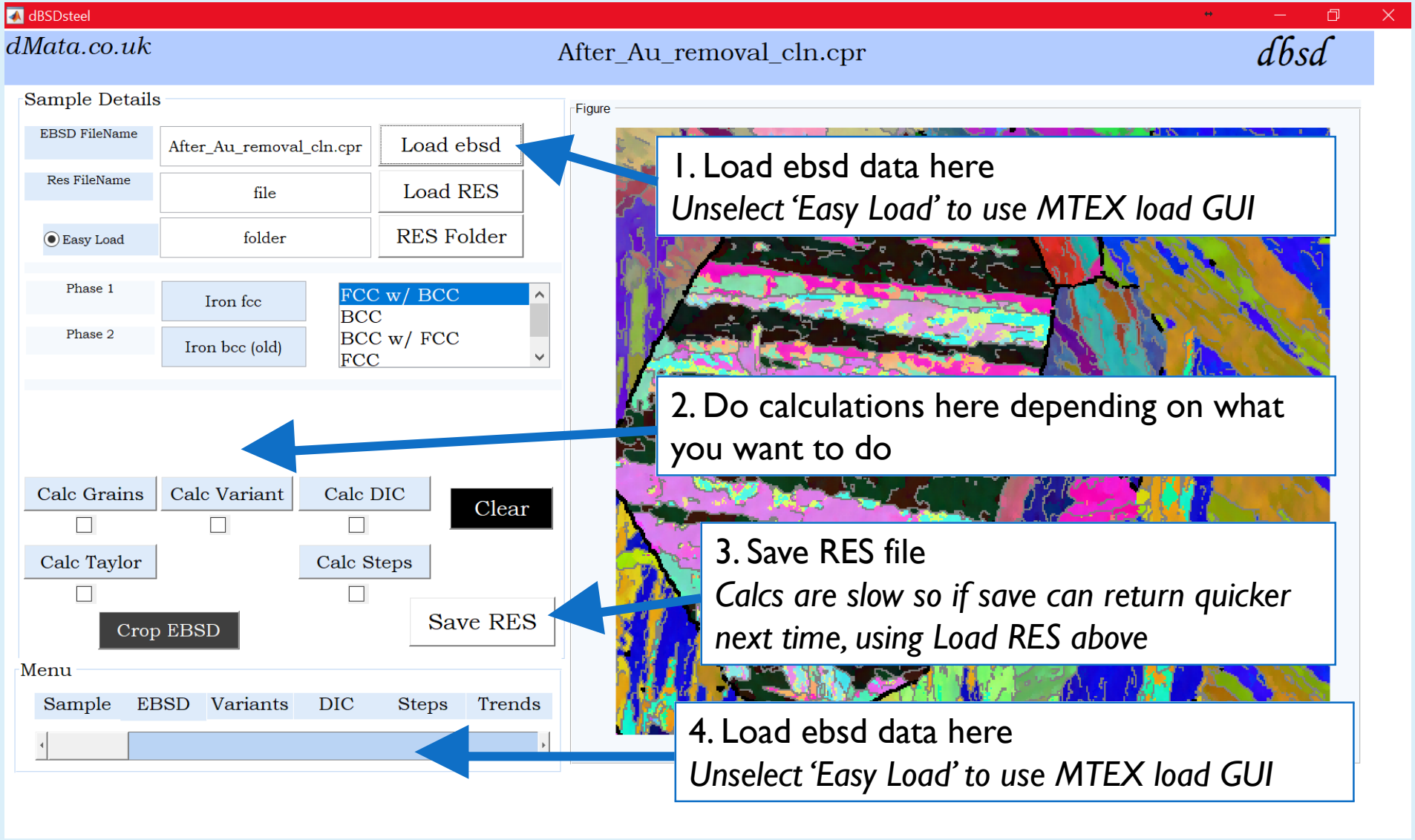
- General EBSD plots
- Calculate martensite variants using KS relationship
- Calculations using Taylor and Schmid
- Compare two maps of same area after deformation or phase change
- DIC and Trends, in next upgrade

OVERVIEW 2

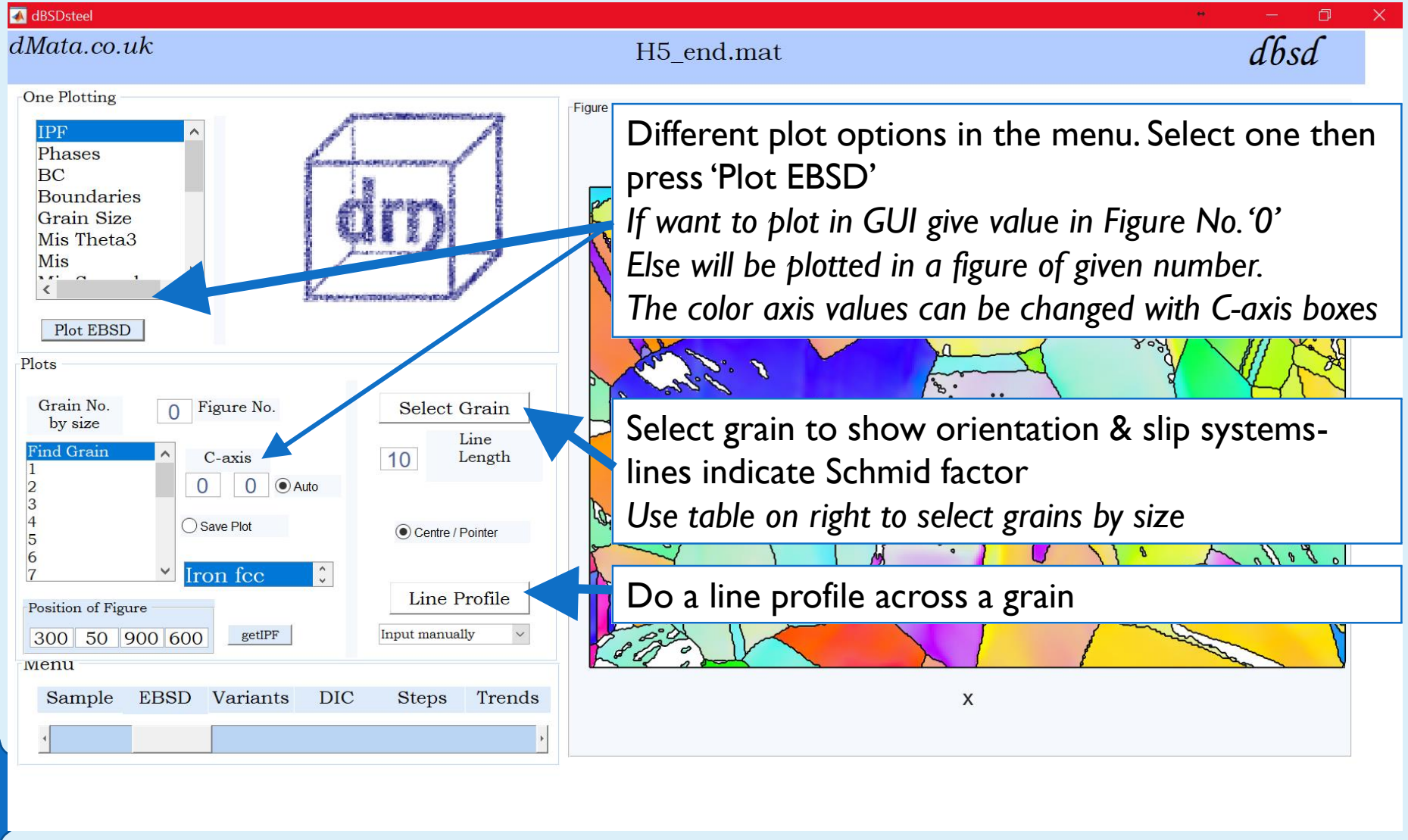
- **General>>**
  - The code is slow. Don't press loads of buttons, there may be stuff calculating. Look for Calculating in top right or check Matlab command window (hit retrun and see if it says 'busy')
  - The code is still in development and has not been fully debugged
  - Additional functions to extract the data need implementation. Some exist as external functions which will be added when ready.

- **Using>>**
  - Use 'Load ebsd' to load EBSD files
  - Use 'Calc grains' to clean data and calculate grains
  - Use 'Calc Taylor' to calculate Taylor model & Schmid factors
  - Use 'Calc Variant' to calculate details about martensite variants
  - Use 'Calc Steps' if have two maps of the same area after some change, e.g. deformation. Will need to load the saved RES files
  - When calculated, use 'Save RES' to save time later
  - Go to different tabs for different plots

GRAPHICAL USER INTERFACE (GUI)



EBSD TAB



Different plot options in the menu. Select one then press 'Plot EBSD'

If want to plot in GUI give value in Figure No. '0'

Else will be plotted in a figure of given number.

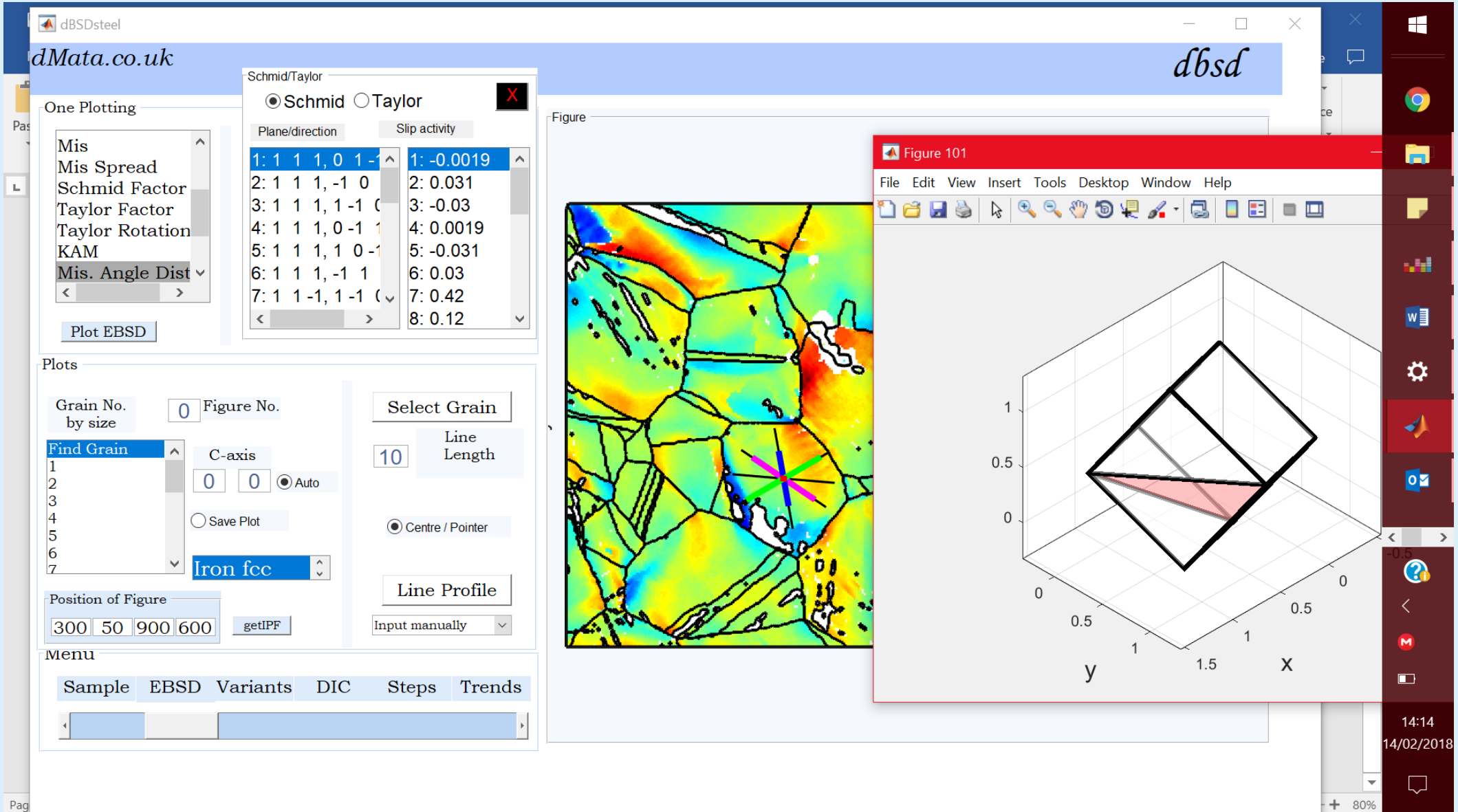
The color axis values can be changed with C-axis boxes

Select grain to show orientation & slip systems- lines indicate Schmid factor

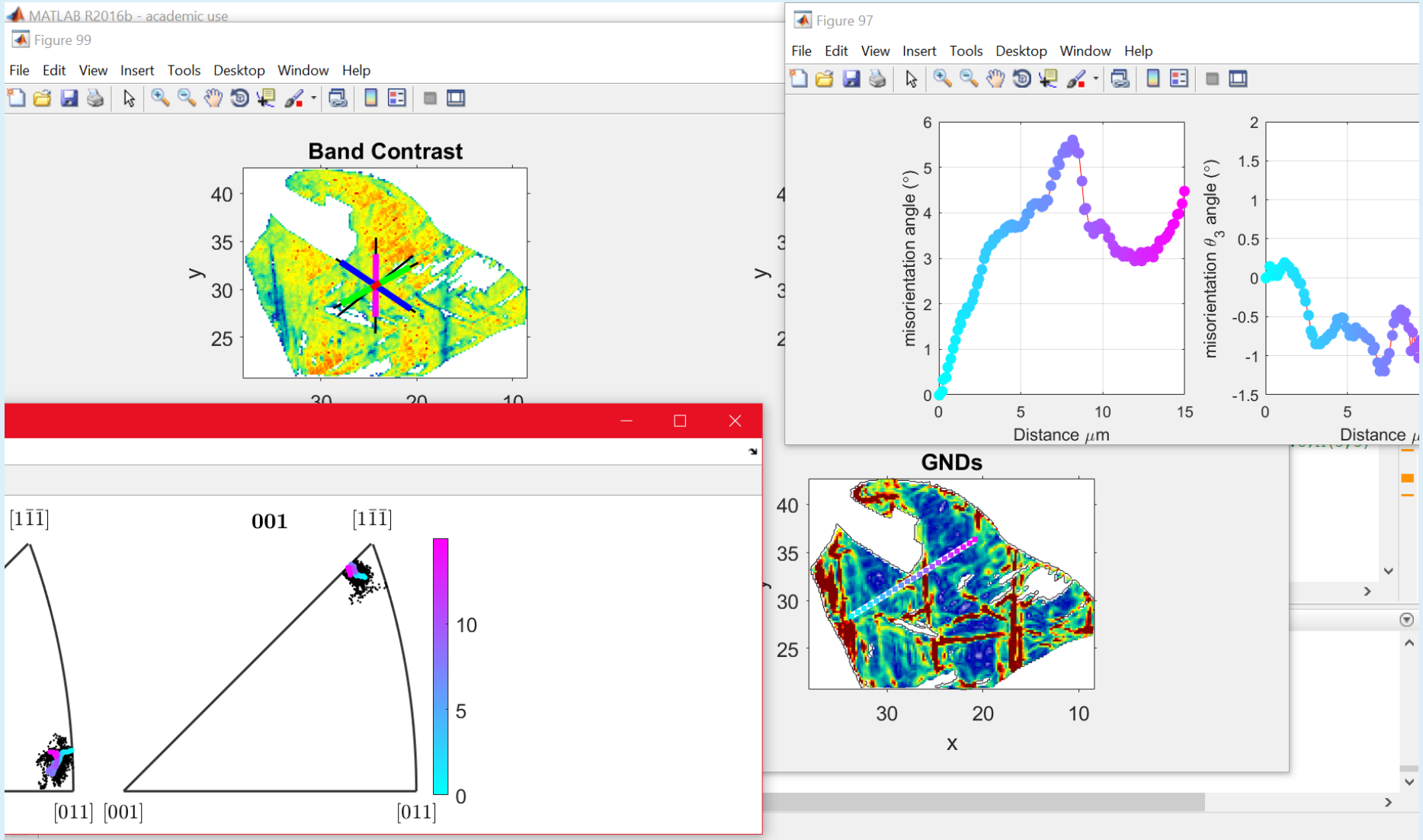
Use table on right to select grains by size

Do a line profile across a grain

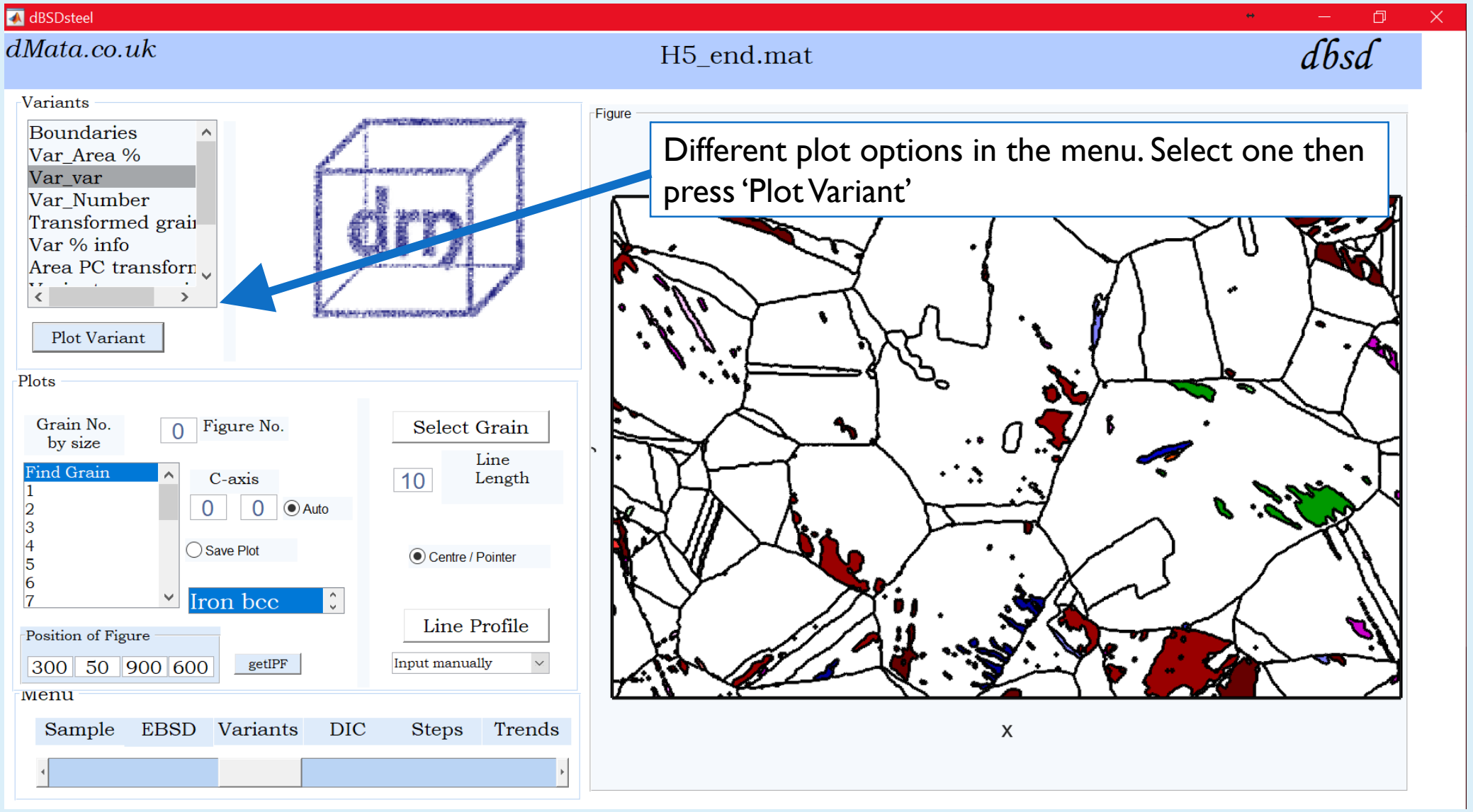
SELECT GRAIN



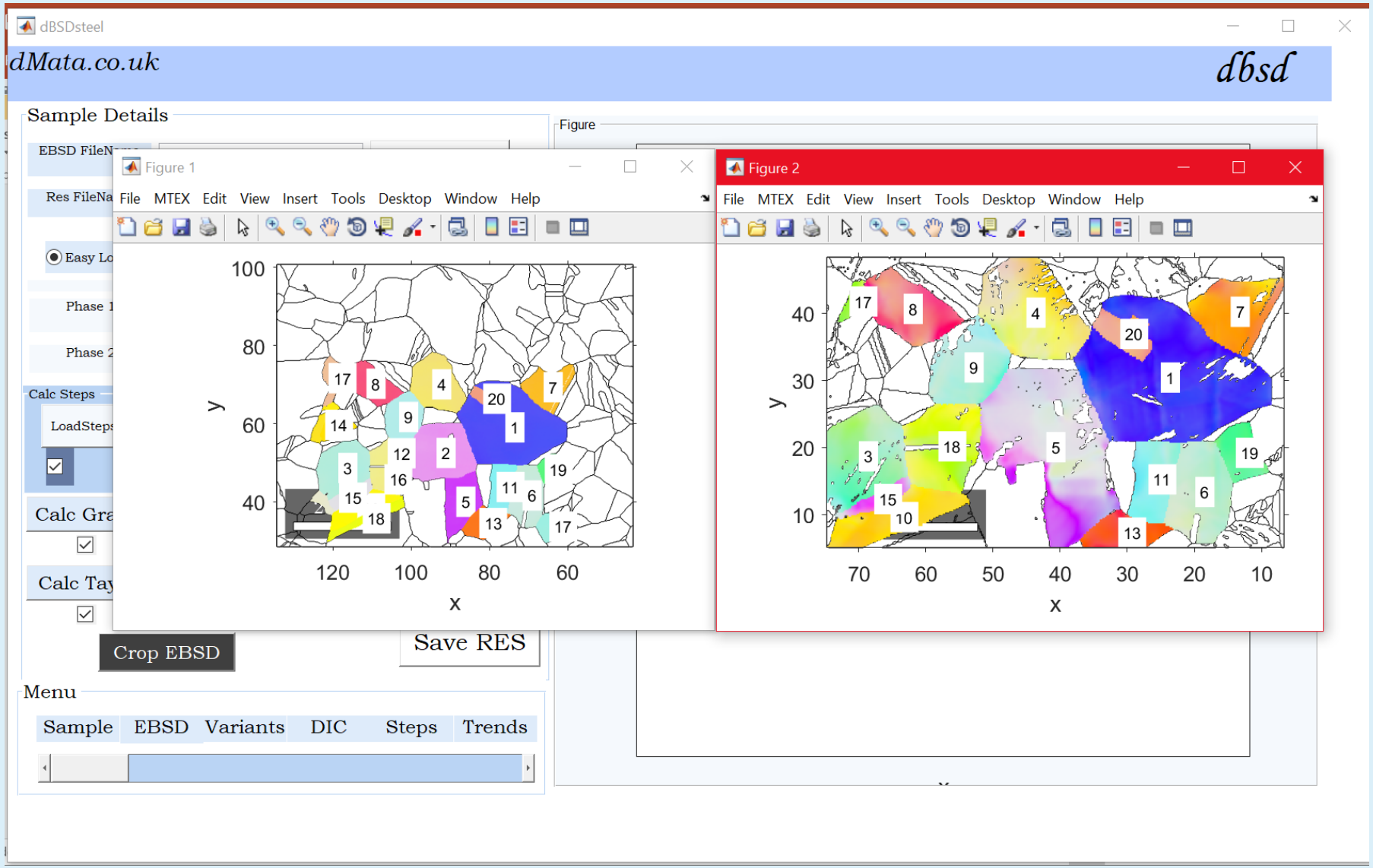
LINE PROFILES



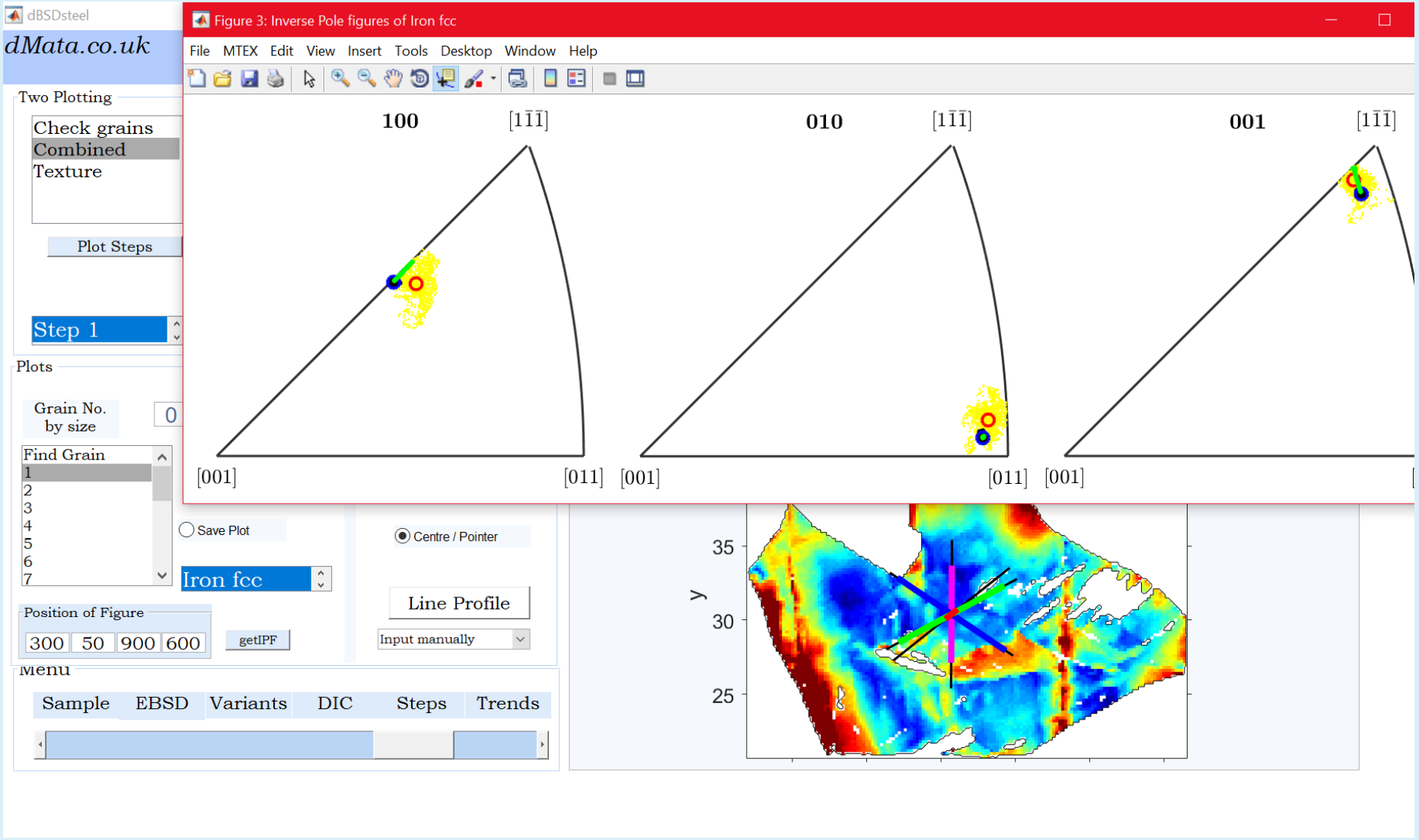
VARIANTS TAB



CREATING STEPS: MAP GRAINS



STEPS TAB


dBSDsteel
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Two Plotting
Check grains
Combined
Texture
Plot Steps
Step 1
Plots
Grain No. by size
0
Find Grain
1
2
3
4
5
6
7
Save Plot
Iron fcc
Position of Figure
300 50 900 600
getIPF
Centre / Pointer
Line Profile
Input manually
Menu
Sample EBSD Variants DIC Steps Trends
Figure 3: Inverse Pole figures of Iron fcc
File MTEX Edit View Insert Tools Desktop Window Help
100 [1$\bar{1}\bar{1}$]
010 [1$\bar{1}\bar{1}$]
001 [1$\bar{1}\bar{1}$]
[001] [011]
[001] [011]
[001]
35
30
25
y