

## Inputs

### stress tensor

sigma1, sigma2, sigma3; all in MPa, +ve for compression  
trend and plunge of sigma1; trend of sigma3; all in degrees  
(pore fluid pressure required for opening angle, in MPa)

### poles to specific fractures

ASCII text file, tab-delimited, with one pole per line as 'plunge<tab>plunge direction'; all in degrees

### coefficient of friction & cohesive strength (MPa)

(only for fracture susceptibility calculation)

## Outputs

equal area stereograms (and optional Mohr diagrams) of normalised slip tendency (Ts), dilatation tendency (Td), fracture susceptibility (Sf) and opening angle (degrees) for all directions; plotted as MATLAB figures, and saved as 600 dpi TIFF, in the pattern 'FracTend\_\*.tif'

ASCII tab-delimited text file of poles to input fractures, with specific values of Ts, Td, Sf and OA, one set of values per line; saved as 'PolesWithValues.txt'

## Operation

copy all the files to a folder  
start MATLAB  
set the working folder to the folder with the code files in  
place any input data files in the same folder  
at the MATLAB prompt, type 'guiFracTend' and hit Enter  
use the GUI window to select inputs and outputs  
click Run to generate output plots

please report any/all bugs to [d.healy@abdn.ac.uk](mailto:d.healy@abdn.ac.uk)

## Acknowledgements

We have used the following published code in FracTend:

cmocean.m – uniform colorbars

Thyng, K.M., Greene, C.A., Hetland, R.D., Zimmerle, H.M. and DiMarco, S.F., 2016. True colors of oceanography: Guidelines for effective and accurate colormap selection. Oceanography, 29(3), pp.9-13.

various routines for tensors and coordinate geometry

Allmendinger, R.W., Cardozo, N. and Fisher, D.M., 2011. Structural geology algorithms: Vectors and tensors. Cambridge University Press.