

E2F Simple Operation Manual

We briefly explain the test of E2F in toc2me

[STEP 0] run E2F_v1.m

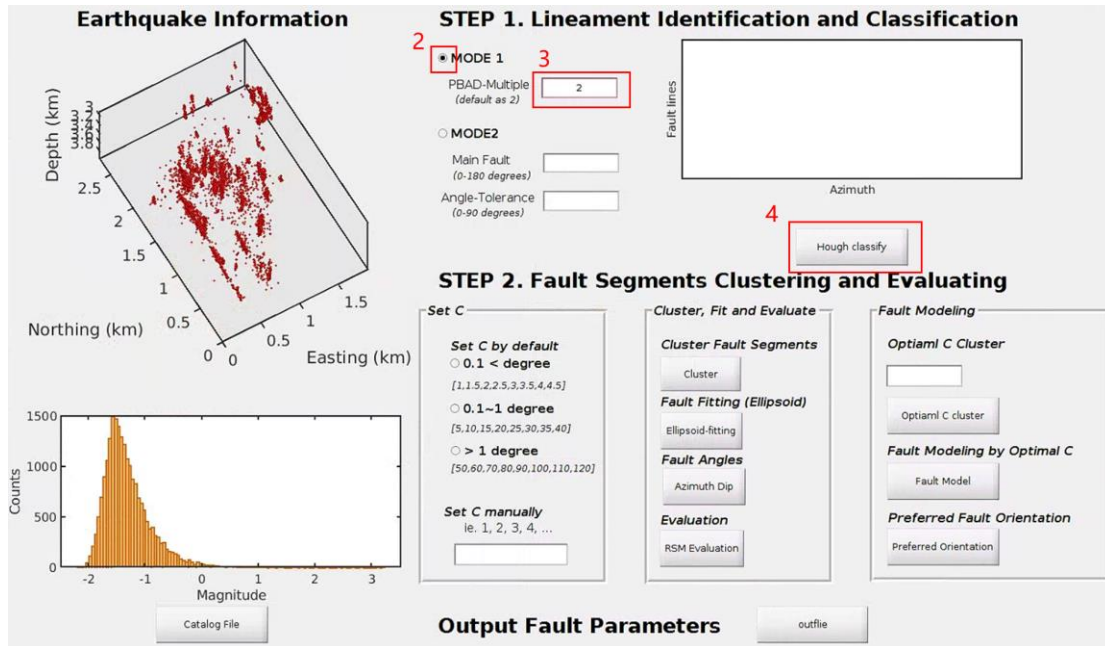
The screenshot displays the E2F software interface. On the left, under 'Earthquake Information', there is a 3D plot with axes for Depth (km) from 0 to 1, Northing (km), and Easting (km). Below the plot is a 'Counts' vs 'Magnitude' plot. A 'Catalog File' button is at the bottom left. The main area is titled 'STEP 1. Lineament Identification and Classification'. It features two modes: 'MODE 1' with 'PBAD-Multiple (default as 2)' and 'MODE2' with 'Main Fault (0-180 degrees)' and 'Angle-Tolerance (0-90 degrees)'. A 'Hough classify' button is present. To the right is a 'Fault lines' plot with 'Azimuth' on the x-axis. Below this is 'STEP 2. Fault Segments Clustering and Evaluating'. It includes a 'Set C' section with 'Set C by default' (0.1 < degree, 0.1~1 degree, > 1 degree) and 'Set C manually' (ie. 1, 2, 3, 4, ...). The 'Cluster, Fit and Evaluate' section has buttons for 'Cluster Fault Segments' (Cluster), 'Fault Fitting (Ellipsoid)' (Ellipsoid-fitting), 'Fault Angles' (Azimuth Dip), and 'Evaluation' (RSM Evaluation). The 'Fault Modeling' section has buttons for 'Optimal C Cluster' (Optimal C cluster), 'Fault Modeling by Optimal C' (Fault Model), and 'Preferred Fault Orientation' (Preferred Orientation). An 'Output Fault Parameters' section at the bottom has an 'outfile' button.

[STEP 1] load earthquake catalog

This screenshot is identical to the previous one, showing the E2F software interface. The 'Catalog File' button in the 'Earthquake Information' section is highlighted with a red rectangle and a red number '1' next to it, indicating the first step in the process.

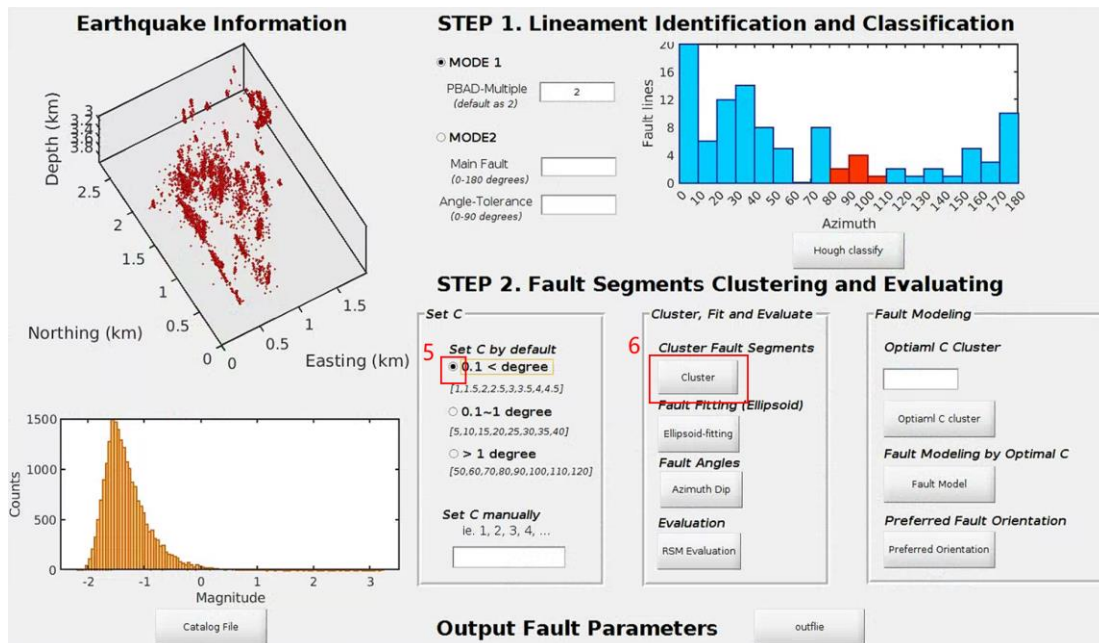
[STEP 2] Select Mode 1 and set PBAD-Multiple as 2 and run Hough classify

(Herein, for a simple demonstration of E2F testing in toc2me, we use mode 1. When dealing with complex fault distributions such as conjugate faults, mode 2 can be selected to input the dominant direction and uncertainty range)

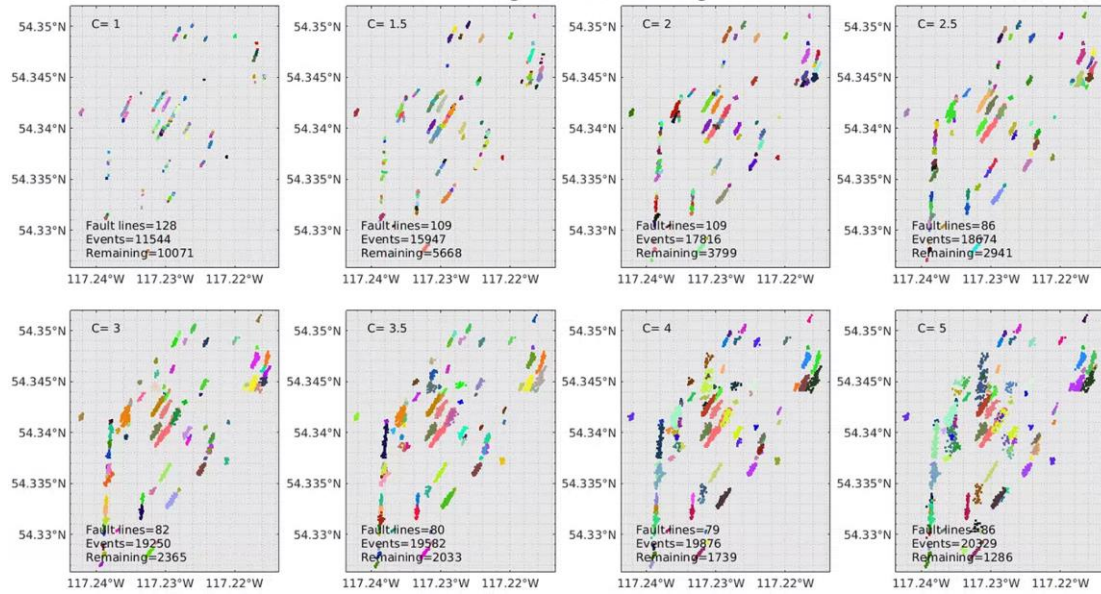


[STEP 3] Select C and run Cluster and Ellipsoid fitting

(The input for C is divided into two parts, 1 being the three scales provided by default, and 2 being the manual input)



Fault Segment Clustering



Earthquake Information

Catalog File

STEP 1. Lineament Identification and Classification

MODE 1
PBAD-Multiple (default as 2)

MODE2
Main Fault (0-180 degrees)
Angle-Tolerance (0-90 degrees)

Hough classify

STEP 2. Fault Segments Clustering and Evaluating

Set C

Set C by default
☒ 0.1 < degree [1,1.5,2.2,5,3,3.5,4,4.5]
☐ 0.1~1 degree [5,10,15,20,25,30,35,40]
☐ > 1 degree [50,60,70,80,90,100,110,120]

Set C manually
ie. 1, 2, 3, 4, ...

Cluster, Fit and Evaluate

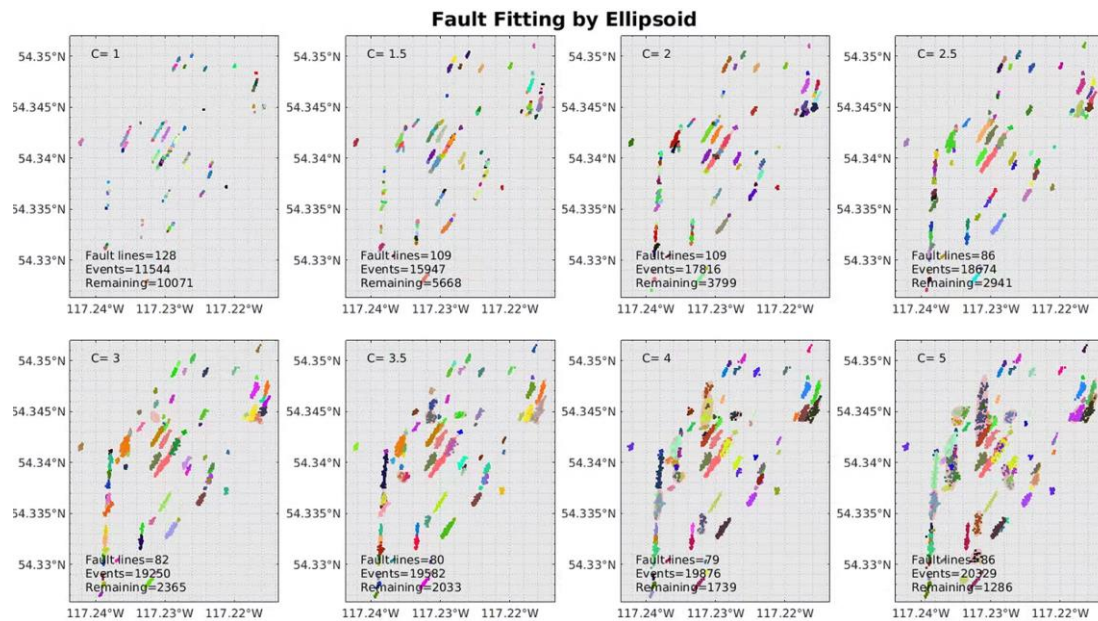
Cluster Fault Segments
Cluster
7 **Fault Fitting (Ellipsoid)**
Ellipsoid-fitting
Fault Angles
Azimuth Dip
Evaluation
RSM Evaluation

Fault Modeling

Optimal C Cluster

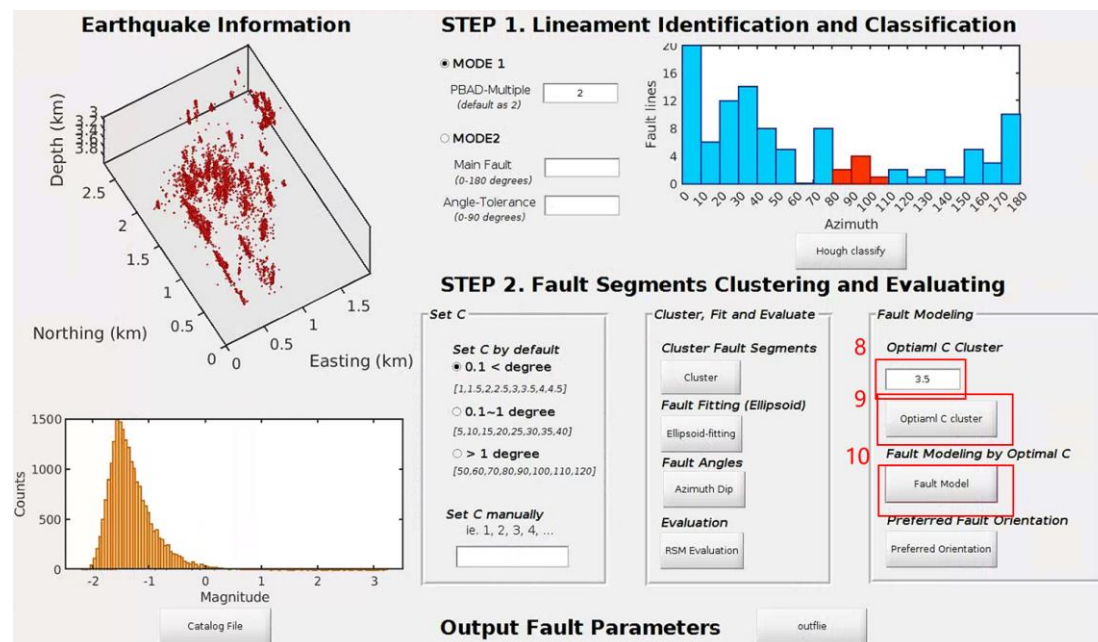
Optimal C cluster
Fault Modeling by Optimal C
Fault Model
Preferred Fault Orientation
Preferred Orientation

Output Fault Parameters



[STEP 4] Select an optimal C from the series of C and run Optimal C cluster and Fault Model

(When clicking **Fault Model**, you need to click **Optimal C Cluster** and the corresponding **Ellipsoid fitting** for optimal C)



Fault Structure Modeling

