

# OpenStereo: open source, cross-platform software for structural geology analysis

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# Why yet another 'stereonet' software?

- There are several options available for structural geology analysis
  - Free download
    - Stereonet, StereoNett (Stereo32), GeoOrient, T-Tecto, Orient...
  - Comercial licenses
    - Dips, RockWorks
  - Basic tools
    - Plotting poles, great circles, rose diagrams, rotating data
  - More specific tasks
    - Paleostress, Rock slope stability

# Why yet another 'stereonet' software?

- Lots of options, lots of differences
  - Data format for input
    - Text files, spreadsheets
  - Graphical User Interface
    - From very simple to professional
  - Graphics exporting
    - Metafiles (windows only), bitmaps, print screen
  - Operating Systems
    - Most are for Windows, some are for Mac, ~~but~~ none is for \*nix

# Oh, that's why

- Our goal was to create a software that could address these problems
  - Cross platform (run in the same way on Windows, Mac, \*nix)
  - Clean interface
  - Simple data input (text files)
  - Good set of tools
  - Free (as defined by the Free Software Foundation)

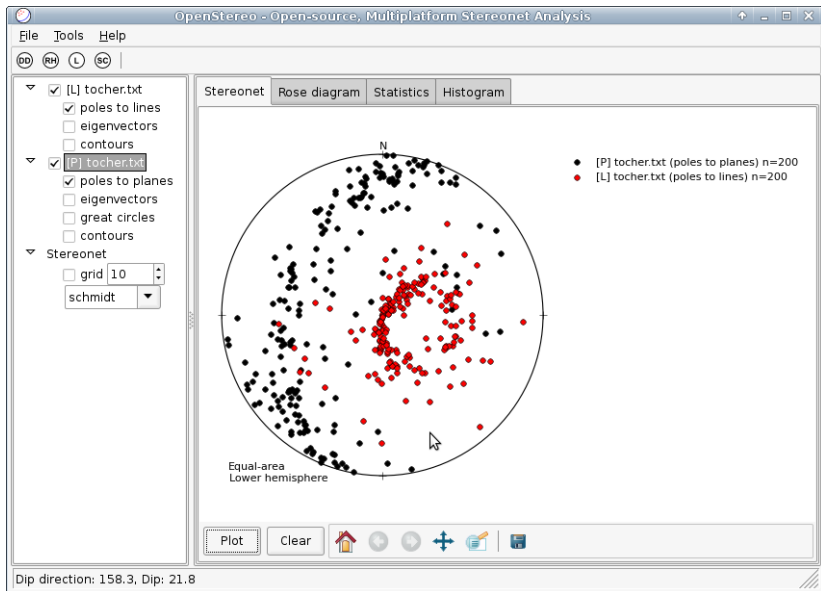
- OpenStereo is
  - Free and Open Source Software (FOSS)
    - Licensed under the General Public License (GPL) v.3.0 or above
  - Written in Python
    - Widely used programming language, easy to learn
  - Uses numpy and matplotlib
    - Good tools for numeric analysis and graphics plotting/exporting
  - GUI is written in wxPython
    - Consistent look-and-feel regardless the OS
- To run it you need
  - Python 2.6, numpy, matplotlib 1.0, wxPython 2.8
  - We recommend the Enthought Python Distribution or PythonXY (Windows or Mac)

# What about data input?

- Simple ASCII files
- Values of Dip Direction and Dip/Plunge separated by spaces, tabs or commas
- Lines starting with a hash (#) are ignored

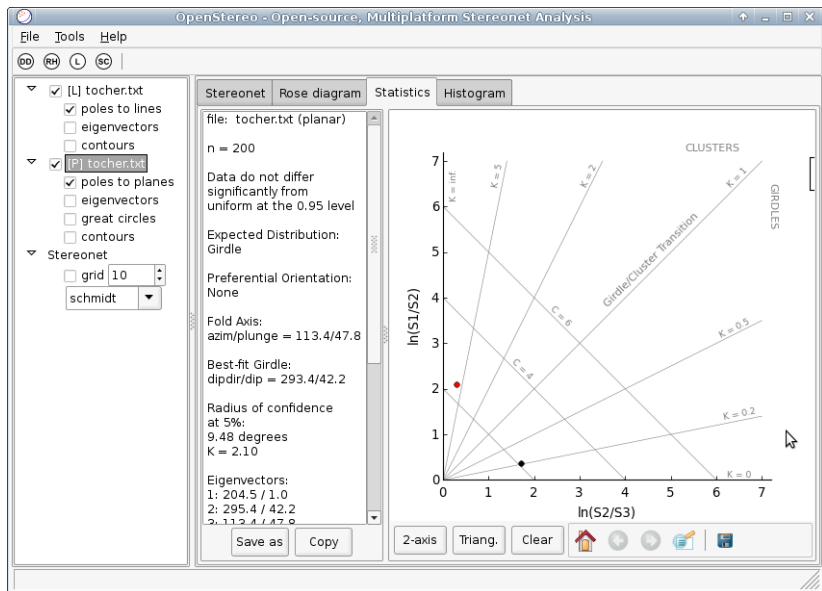
```
147      64
113      50
126      44
185      72
# 117    53
106      50
```

# Main interface / Stereonet tab

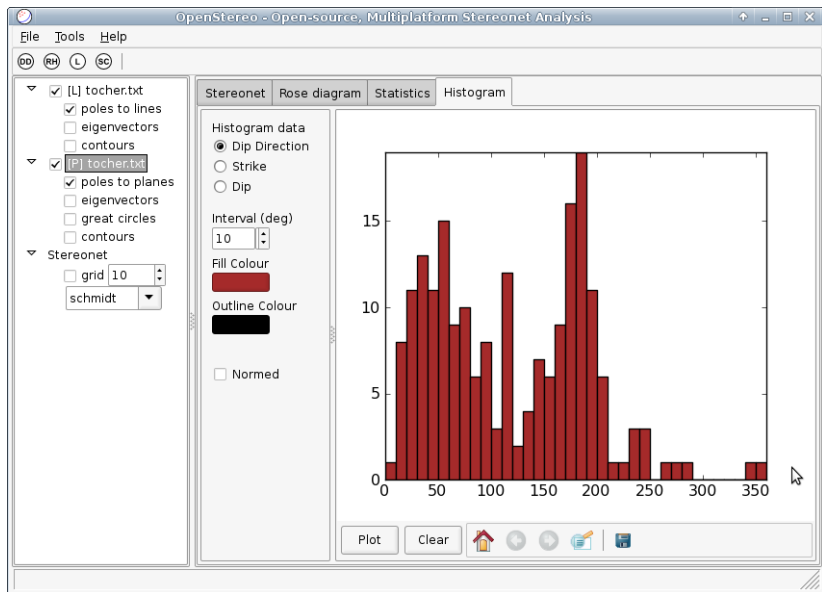




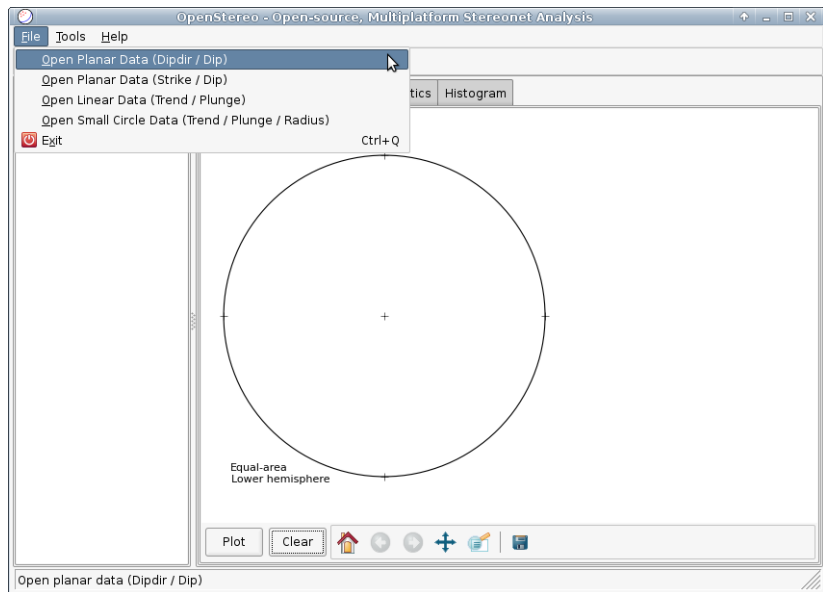




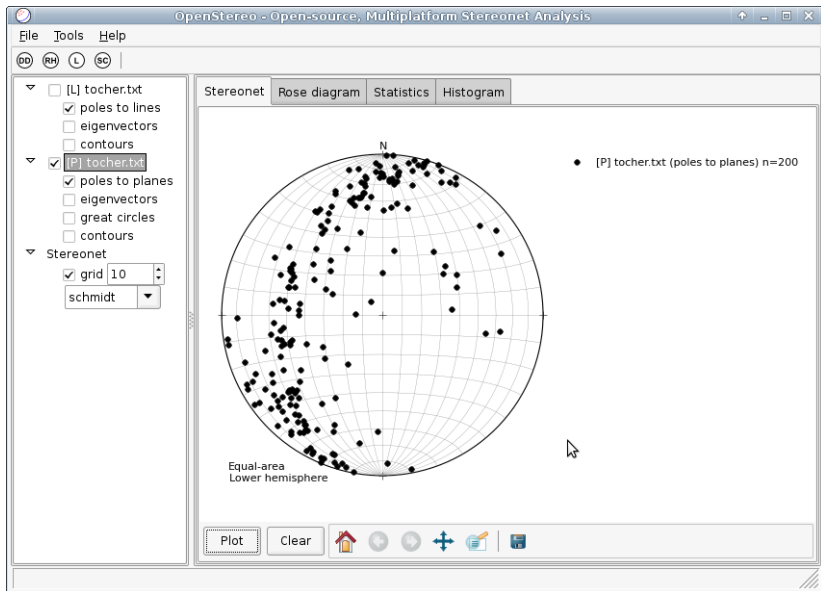
# Histogram tab



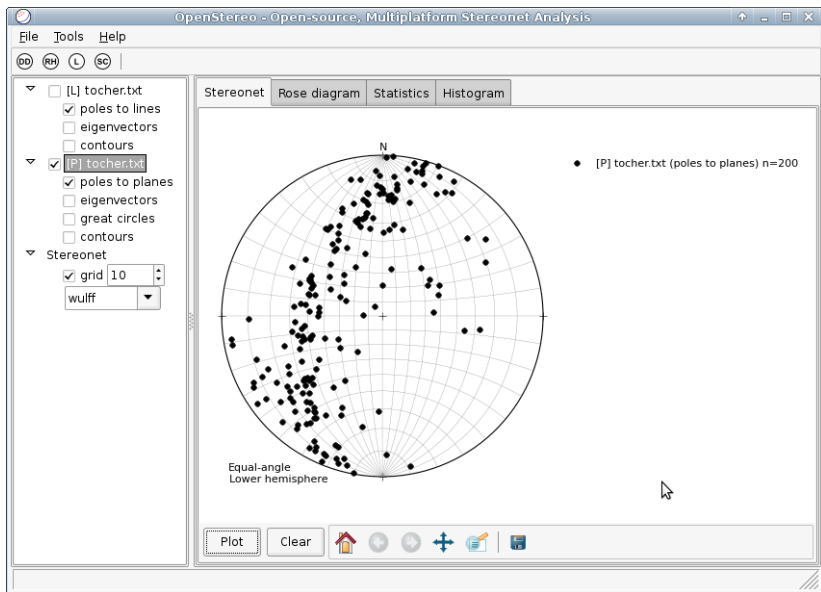
# Open file by type: Planar, Linear, Small Circle



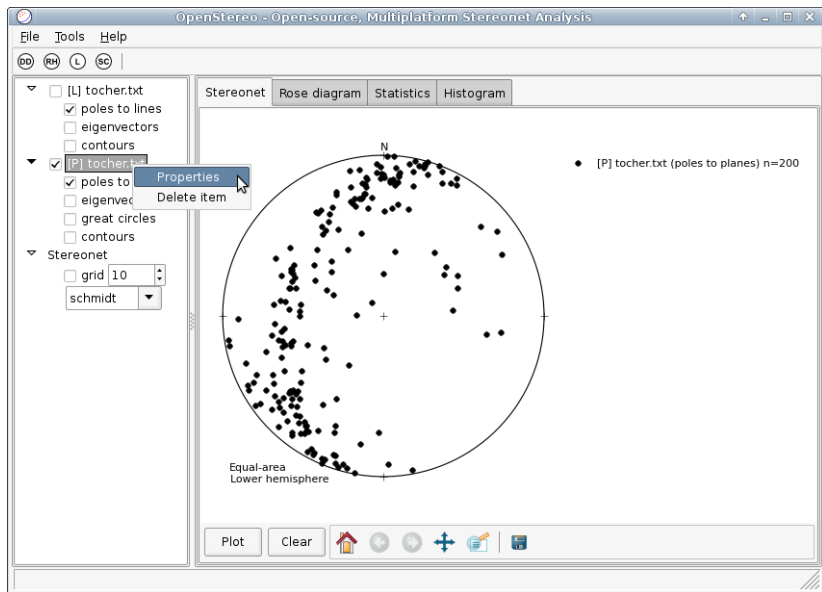
# Grid / Schmidt projection



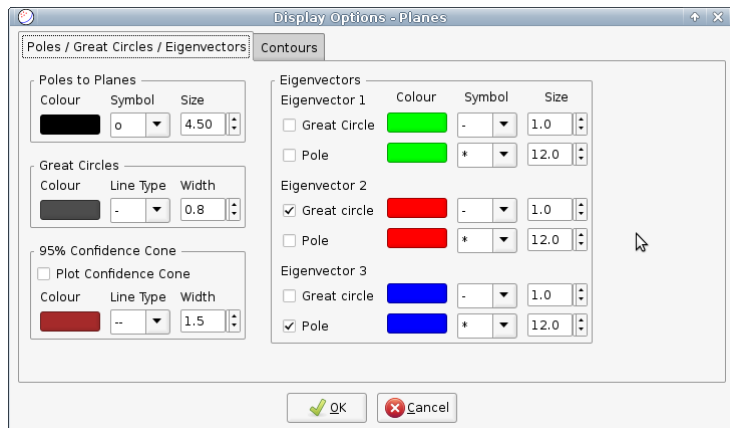
# Grid / Wulff projection



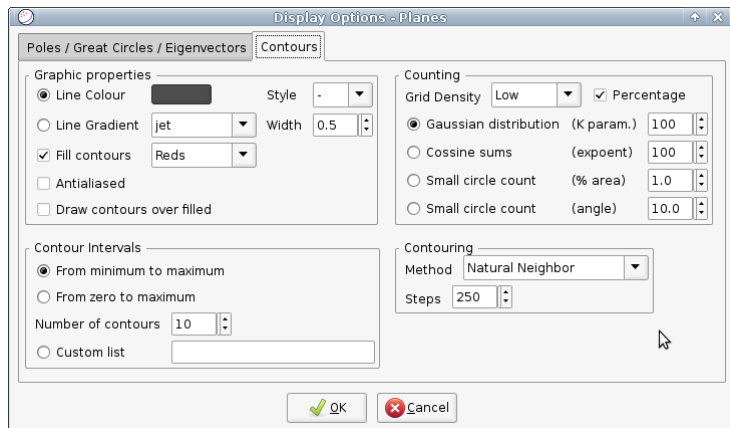
# Right-click: Properties / Delete item



# Display Options - Poles, G.Circles, Eigenvectors

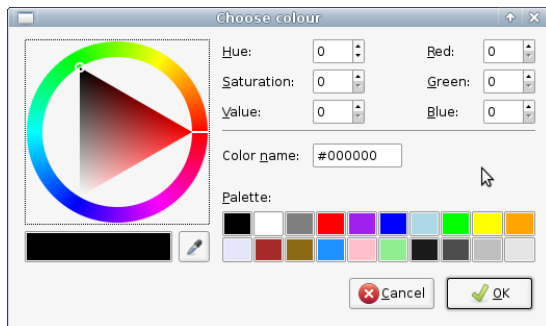


# Display Options - Contours

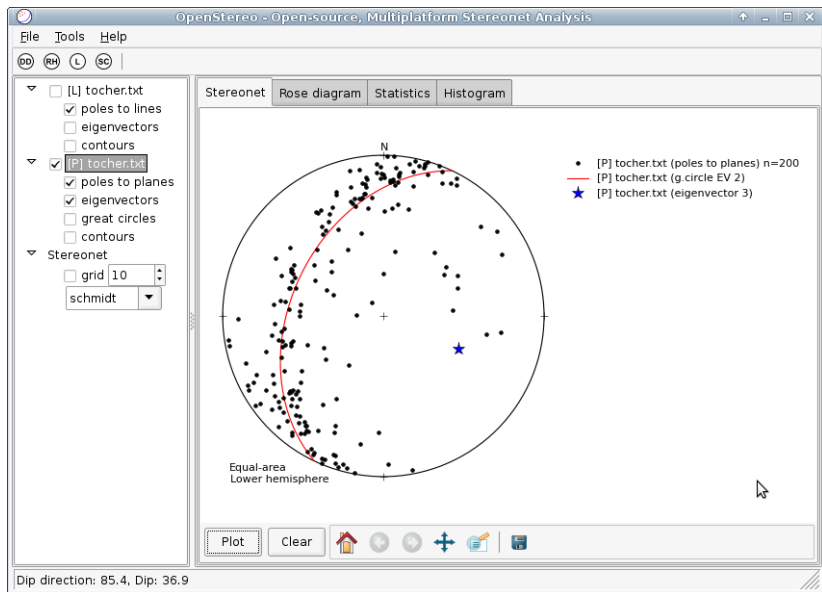




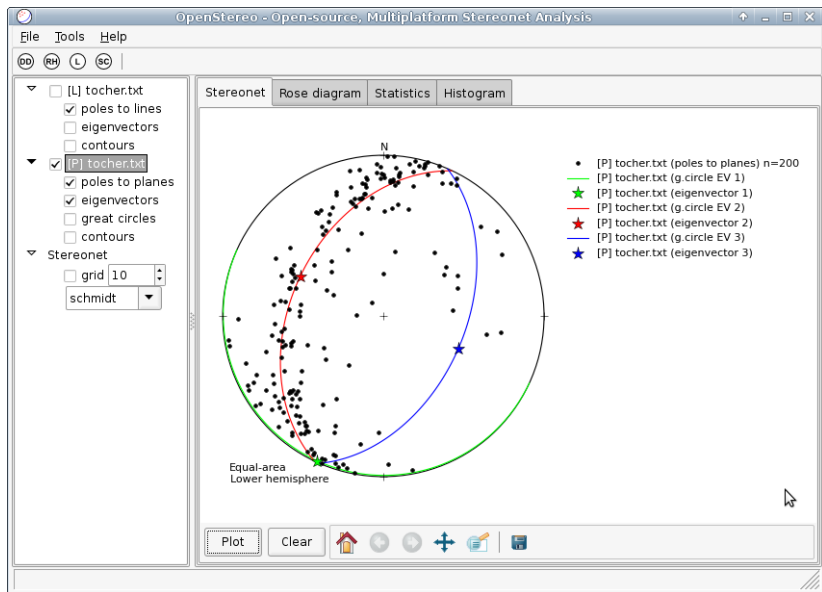
# Display Options - Color Chooser Dialog



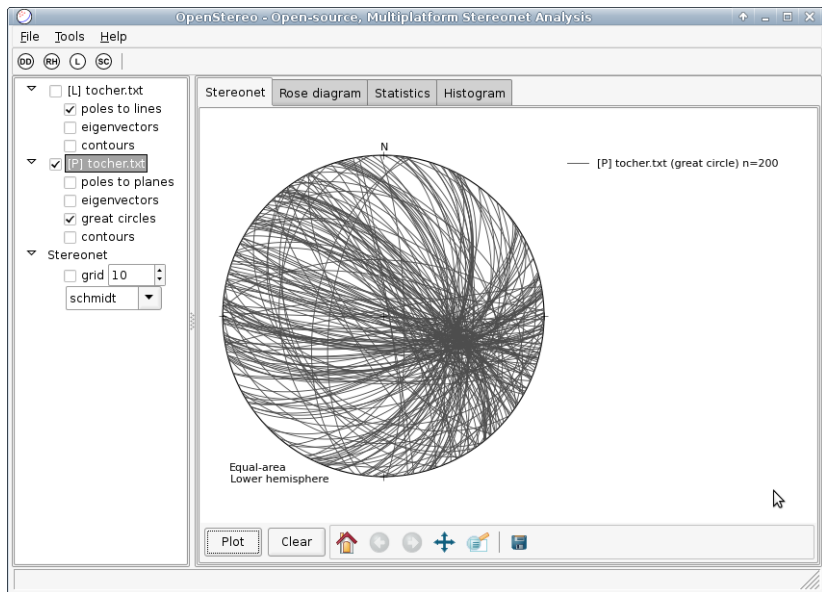
# Plotting - Poles + Girdle



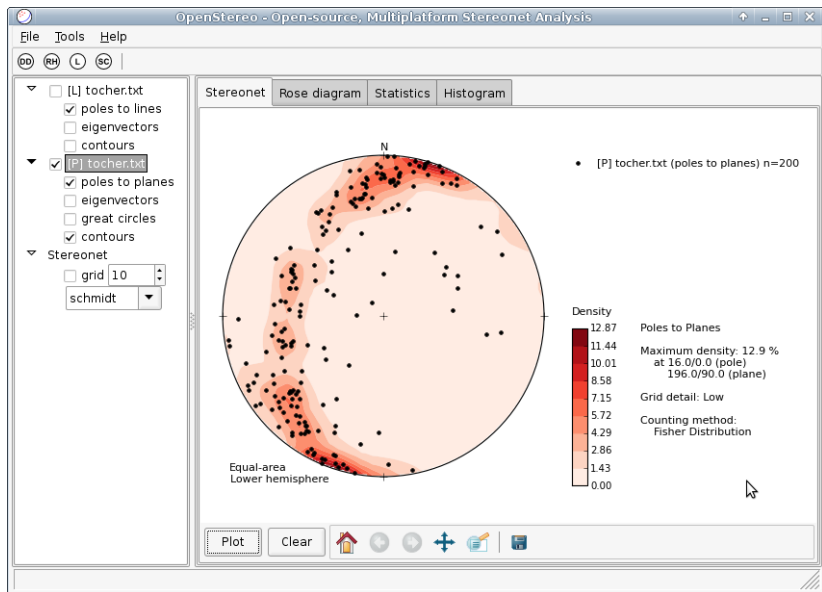
# Plotting - Poles + Eigenvectors



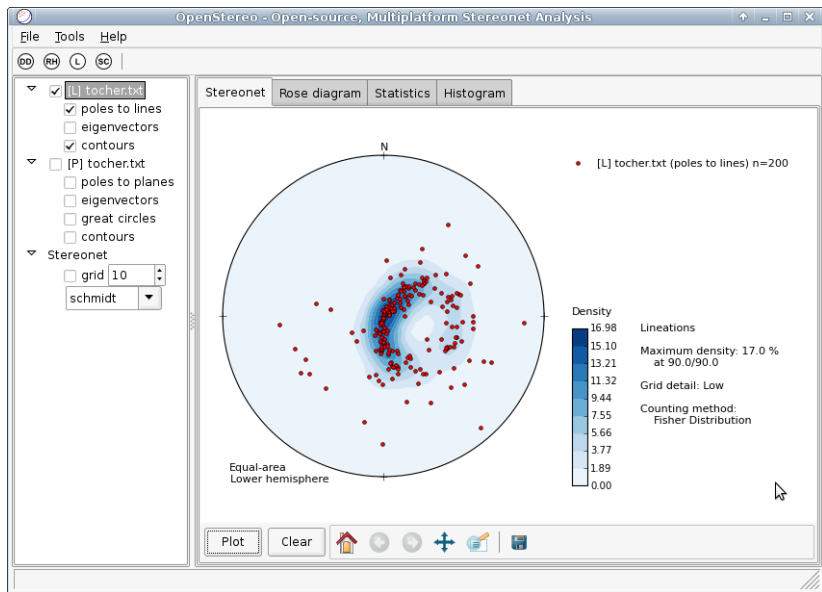
# Plotting - Great Circles



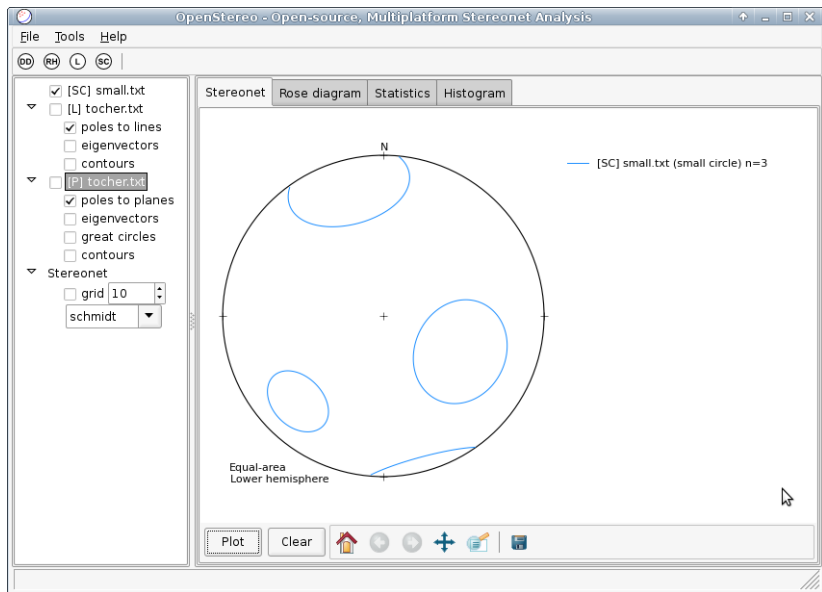
# Plotting - Contours



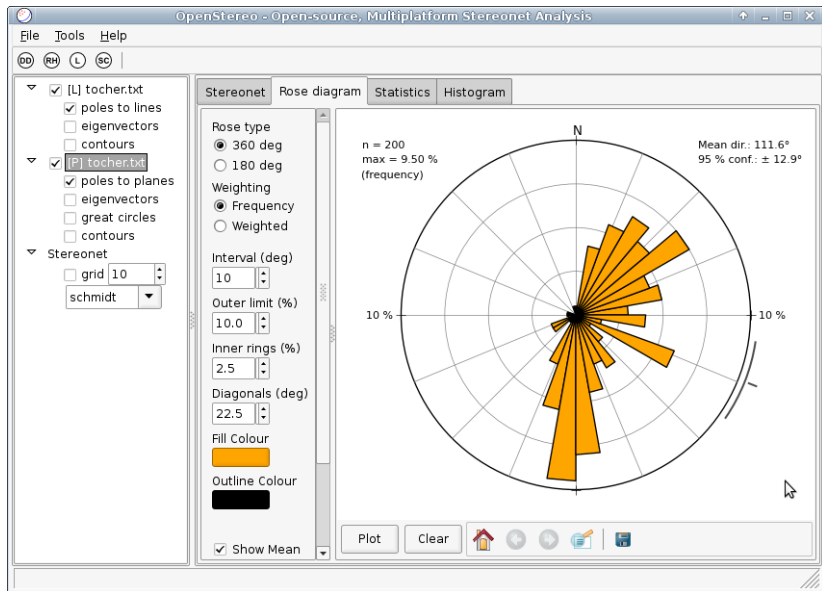
# Plotting - Contours



# Plotting - Small Circles

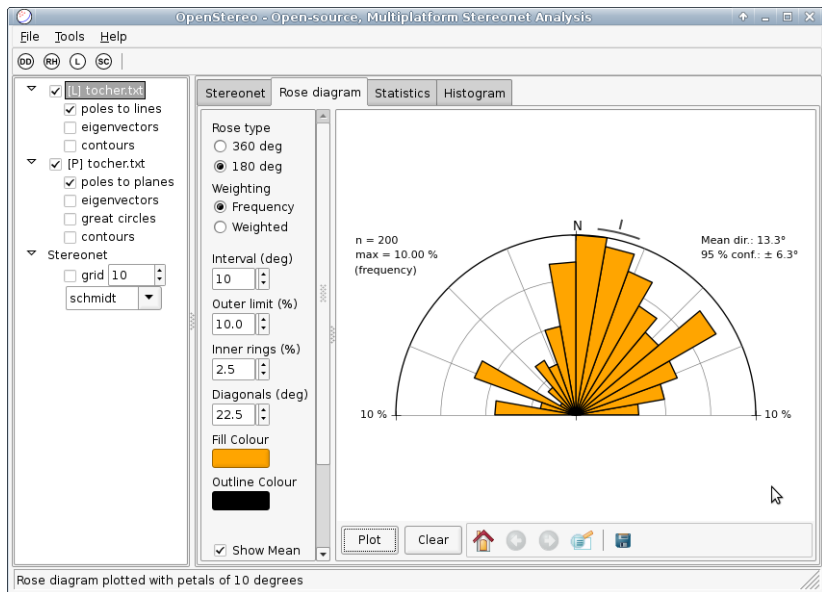


# Rose Diagram - Full Rose

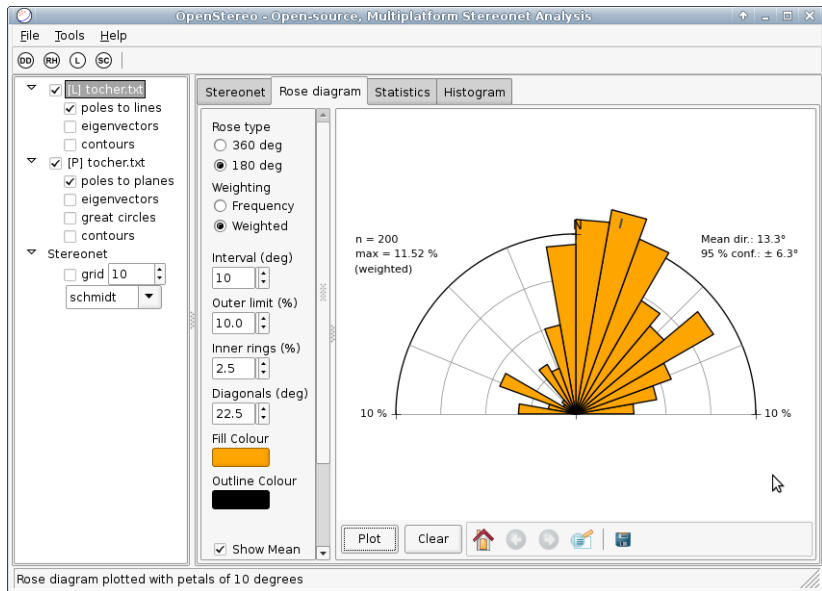




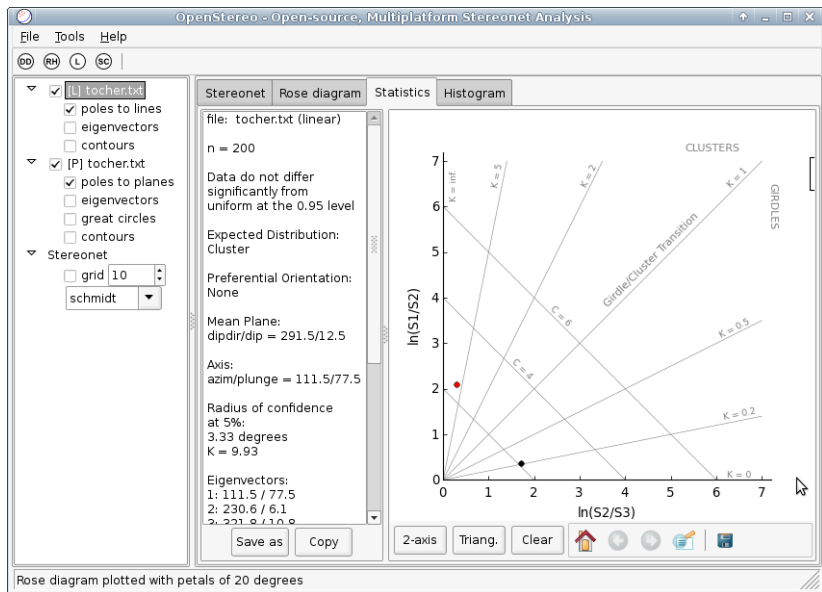
# Rose Diagram - Half Rose



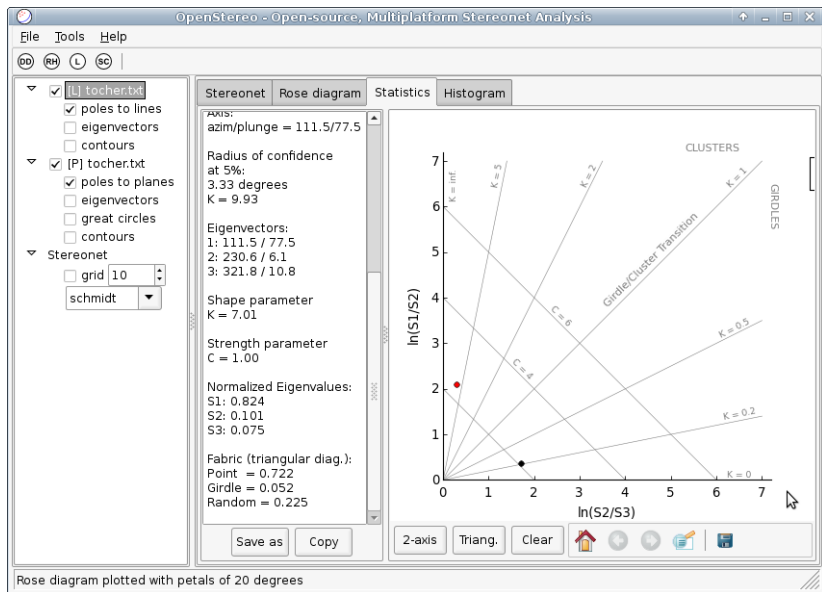
# Rose Diagram - Weighting



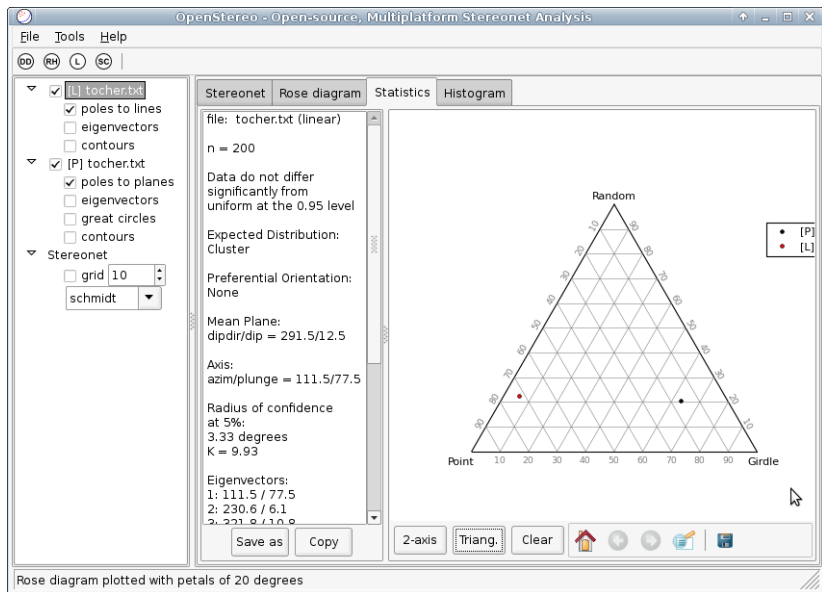
# Statistics 1 + Flinn Plot



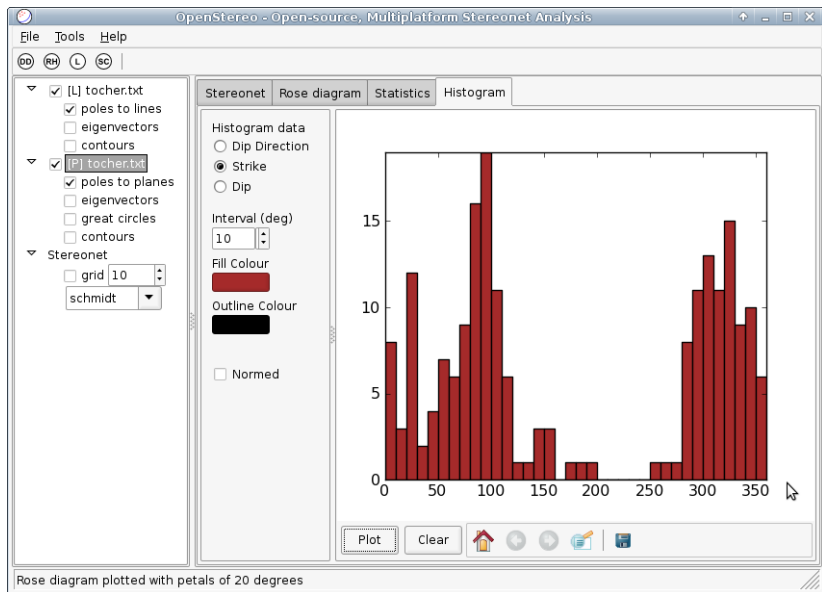
# Statistics 2 + Flinn Plot



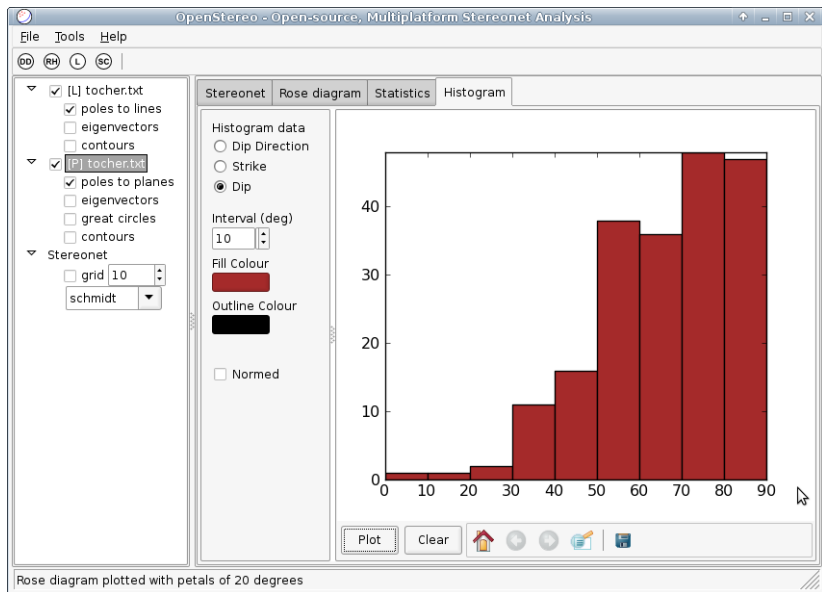
# Statistics + Vollmer Plot



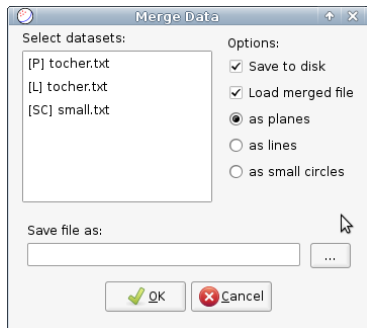
# Histogram - Strike



# Histogram - Dip

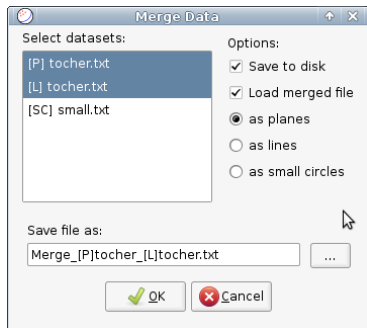


# Tools - Merge Data

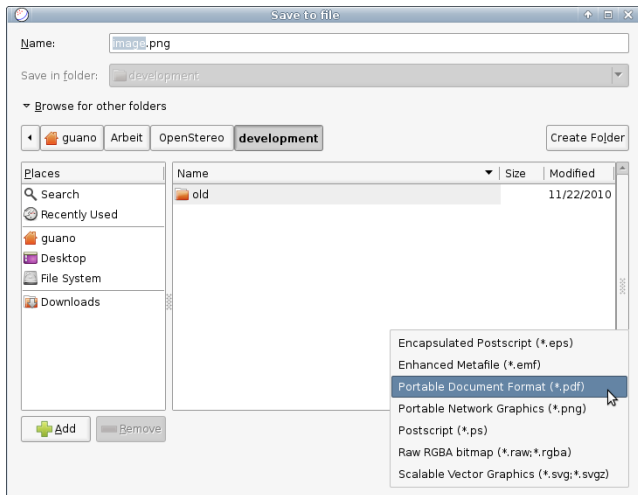




# Tools - Merge Data



# Save Plot - PNG, EPS, PDF (vector)



# Where can I get it?

- <http://www.igc.usp.br/openstereo>