Bring a new rose diagram software forward: STD-Rose

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Abstract
Rose diagrams have eyeful usage to estimate and analyze structural data. Data that provides of measuring field, satellite or aerial images, could be includes attitude and length of discontinuity or any lineament, lineation or plane structure. near in all software have heretofore been provided it’s needed to import data manually. Main advantages of "STD-Rose" that provided and bring forward with us is output a structural map from satellite or aerial images directly and see its rose diagram concurrent. Base of diagram could be only on strike (in azimuth format) or strike and length of structural facture (that calculated by software) in ideal interval degrees. You can import a satellite image and draw lineament by mouse displacement and program compute strike and length of this liniment automatically according to image scale. In diagram mode, you can digit petals and in draw style, it is possible to select complete or half of Rose. Provided structural map could be saving and it is possible to export data and diagram too. There are many options and tools to do map or rose.

Introduction
Rose diagrams show the frequency or length average of lineaments or plane structures in a given orientation (Fig. 1). The required data for them to be plotted is the enumeration of directional ranges or in other words numerical orientation (Fig. 2-Right), but in case of having a remarkable length discrepancy, is more applicable to examine the length average in directional grades, Quantitative orientation (Fig. 2). Our software provides the possibility.

The software STD-Rose options

Data from file or keyboard (Fig. 5)

This part is very easy to work with, just choose, and add the desired data in its designated section choose "Draw Style" and "Class Interval" and draw the graph based on Azimuth or Length (Fig 5, 6, 7). After the graph is drawn, clicking on each petal will give all the information about it. (Fig 8) Additionally, it is possible to change the color of each part of the graph. (Fig9)

Data from map or images (Fig10)

This part enables you to draw a simple map of faults or Rose Diagram from satellite images or any areal photos or maps. To use this part, after loading an image or map from “File/Load Picture”, choose Draw from the toolbar. Now it is possible to draw the lineament on the faults in the image. After drawing each line, the information about its length (according to scale) and azimuth is appeared in the worksheet. Also, there are several options and labels in each row of worksheet that enables you to select or delete lineament and make the label of lineament visible, invisible, active or inactive(Fig 11). In the setting case, there are five tabs. The first tab is "ZOOM", the use of this tab depends on the quality of the image (Fig 12). The next tab is “Lineament”; this tab contains the Lineament Mode (Hidden, Normal, Thrust or Strike Slip
Fault), Width, and Line and label colors (Fig14). Scale and Coordinates are the other two tabs in the Setting case, which must be configured (Fig 13). Coordinate, is also needed for drawing the Rose Diagram. The other tab is named Picture, which you can make a picture black and white (Fig 15). Finally, to export the map of drawn faults, you must choose the "Map" from “File/Save” (Fig 16). It is also possible to save the map with the image in the background. This is done by going to “File/Save/Picture” (Fig 17). To draw the Rose Diagram of faults, choosing "Rose" from the toolbar will bring up a page that looks like a Rose environment described above(Figs 18 - 19). You can obtain much other information by reading the Help of software.

References
1- Nazemi, M., (2008), structural geology pamphlet, Islamic Azad University-Tabas branch
(Fig. 5) Screenshot of workplace of Rose diagram

(Fig. 6) The image shows the way to add & remove data

(Fig. 7) Draw mode and style

(Fig 8) petal information

(Fig 9) color and font setting
(Fig. 10) Main of Workplace to get data from Satellite images

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(Fig. 11) worksheet

(Fig. 12) Zoom mode
(Fig. 13) coordinate and scale setting

(Fig. 14) lineament setting

(Fig. 15) it makes image to black and white

(Fig. 16) Simple fault map of Pervadeh area
(Fig. 17) Simple fault map of Pervadeh area with image at background

(Fig. 18) screenshot of rose case

(Fig. 19) Azimuth (left) and Length (right) rose of the fault that drown.