

Developer's Tips

Use of DXF files in *Dips 5.0*

In this column I'll be dealing with the new added functionality of exporting Autocad DXF files from Dips. To get this functionality you must download the latest Dips update from our website. There is no cost for people that have purchased version 5 of Dips.

Autodesk's Autocad product has become the standard for CAD in both the civil and mining engineering communities. Most companies now store the excavation geometry of a project electronically in the form of CAD drawing files. Autocad has long had the ability to import and export geometry to and from other sources through an ASCII text file format called DXF. The DXF file format has become an industry standard in such a way that all CAD packages support it. In recognizing Autocad's leading role in the CAD industry, Rocscience has long maintained the ability to import and export DXF files and has modeled its own CAD interface after Autocad. This makes the transition of geometry to Rocscience products both quick and easy.

The most common technical support question we received when we released version 5 of Dips was: Where has the Autocad DXF export gone? Our intent with version 5 was to discontinue support for the DXF file format and use Microsoft's built in metafile format for transferring stereonet plots between Dips and Autodesk's Autocad product. Unfortunately, the metafile format and its integration in Autocad were far from perfect. This made the transition of data from Dips to Autocad extremely cumbersome, error prone, and not nearly as simple as version 4 of Dips. This resulted in a number of customers asking for the reinstatement of the DXF support provided in version 4 of Dips.

Rocscience often uses customer feedback as way to improve and add to the functionality of its software products. In working closely with industry leaders we are able to provide the functionality that people ask for. All customer requests for functionality are taken seriously with the majority being implemented in future product upgrades. We strongly encourage customers to email us with any suggestions or criticisms they have concerning our software.

So why would anyone want to export a Dips stereonet to Autocad? The one disadvantage of the joint orientation data visualized in a stereonet is its lack of geometric location. The joint orientation data is often measured along a traverse or within a location window but where you are measuring the data is not displayed in the stereonet. In order to display the orientation data with its geographical location it becomes convenient to import the stereonet into your CAD drawings. Another equally important reason is that the stereonet is stored with the CAD drawings providing a convenient storage mechanism.

As an example, figure 1 depicts a level plan drawing, in Autocad 2000, of an underground mine in Ontario, Canada. The drift (tunnel) network is depicted in black while the five stereonet depicting joint measurements in certain drifts are outlined in red.

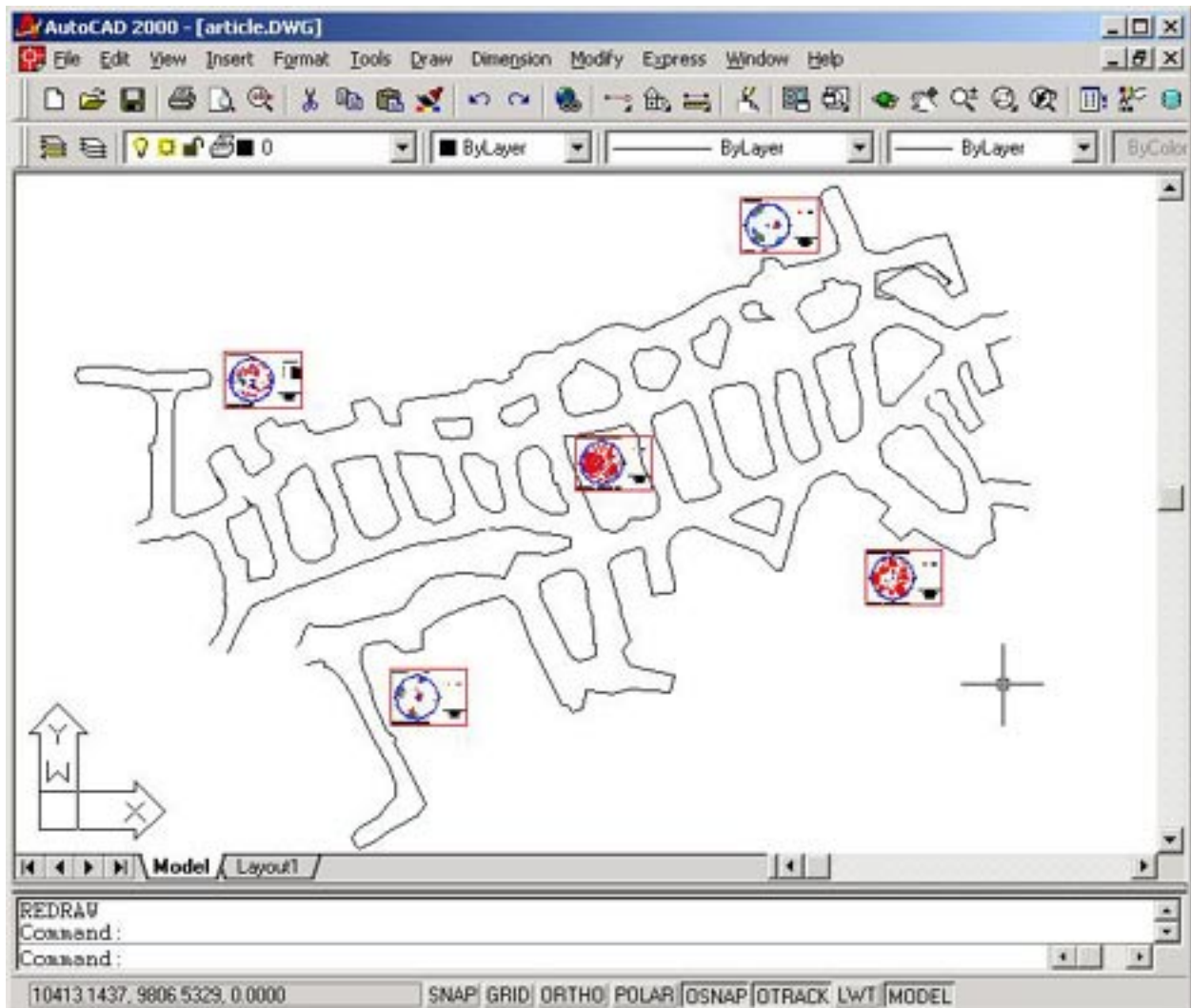


Figure 1

Notice how easy it is to see where the joint measurements were made and how convenient it is to access all the orientation data for a certain location of the mine.

To view the joint distribution at later time, simply load the CAD drawing file of the level that you are interested in, and zoom in on the stereonet that is closest to the region of interest (figure 2).

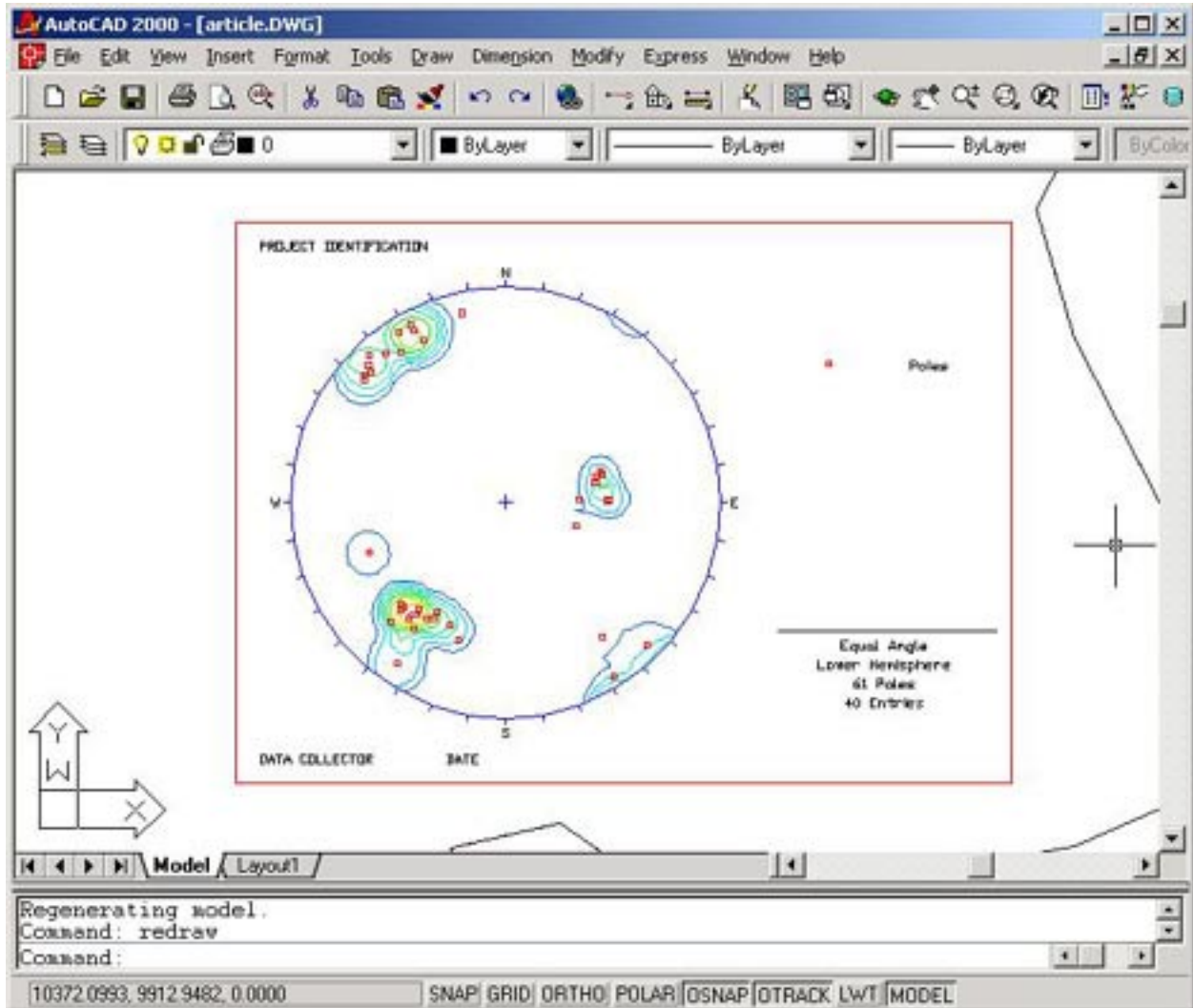


Figure 2

Please note that in some cases you might have to use the Regen or Redraw command to redraw the stereonet with the proper precision. As can be seen in figure 1, many stereonets can clutter the drawing. To address this problem, the DXF files generated by Dips are given the default layer name “Dips”. Using the layer control dialog (figure 3) or the layer combo box on the toolbar, it is easy matter to make the Dips layer invisible (figure 4).

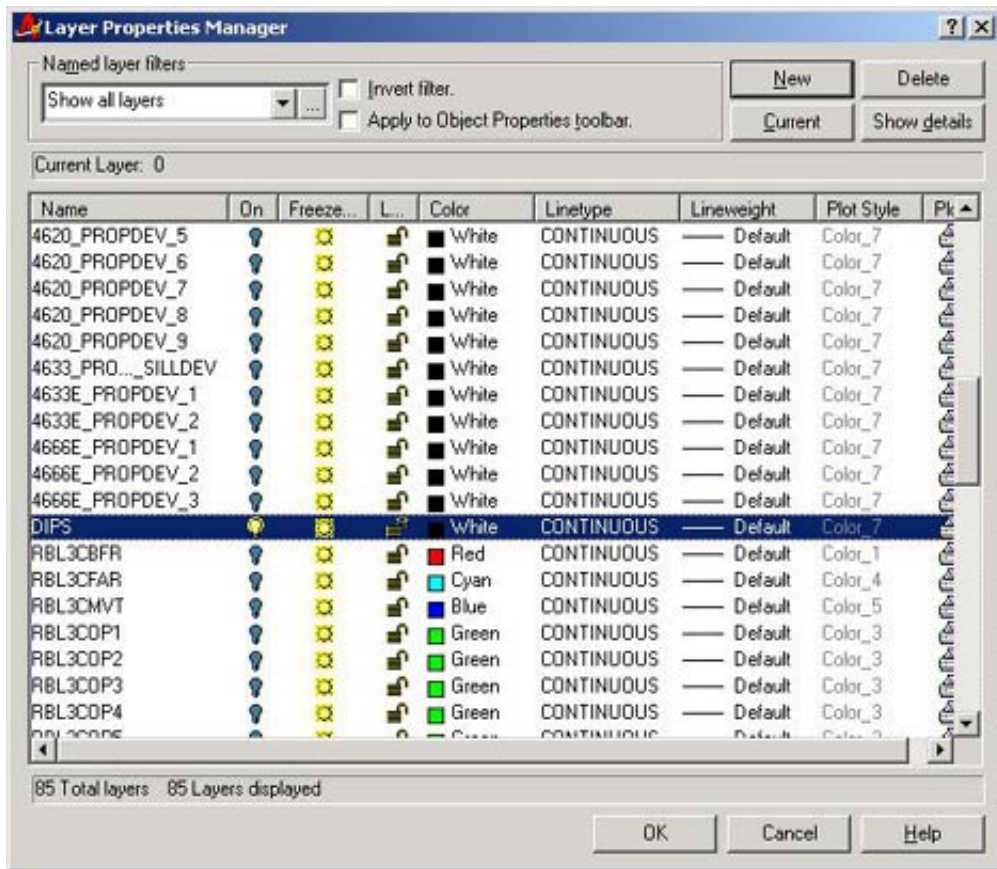


Figure 3

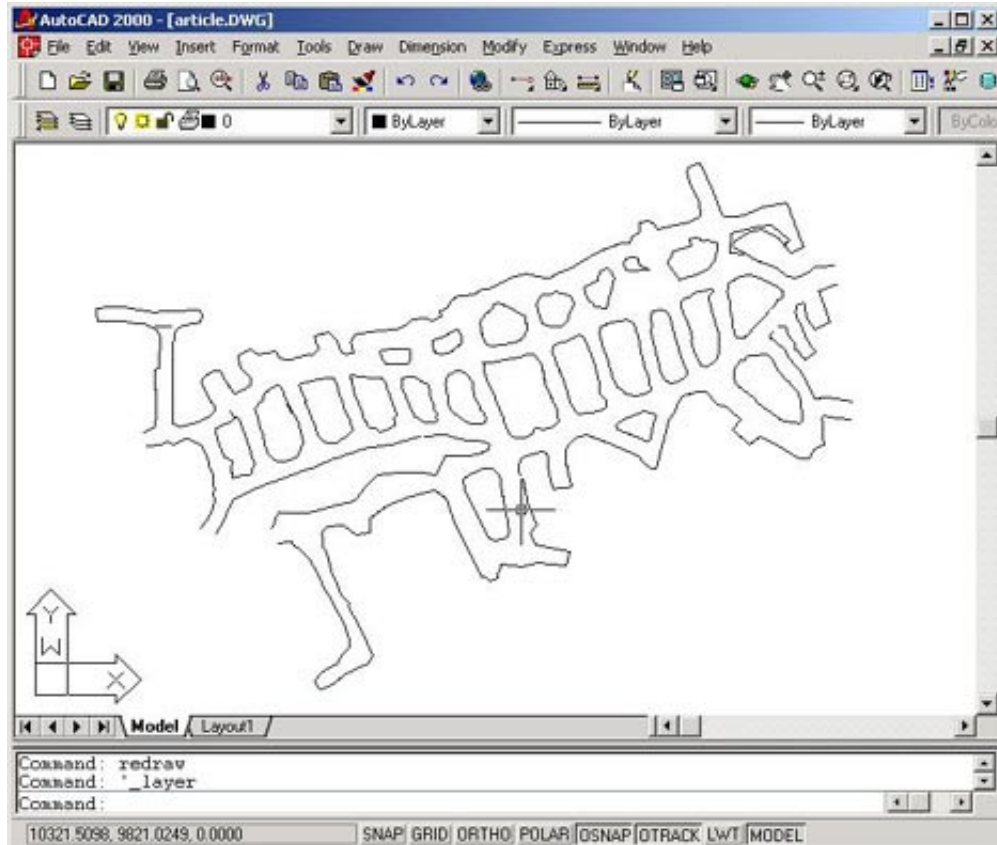


Figure 4

Implementation

To export a DXF file from Dips is very simple and much easier than in the version 4 implementation. To export a DXF file of a stereonet view, simply set up the view the way you want (figure 5). The DXF export supports all the plot types including pole, scatter, contour, major planes and rosette plots. It also supports sets, planes, overlays, grids, cones, confidence intervals, and all the annotation tools such as arrows and text.

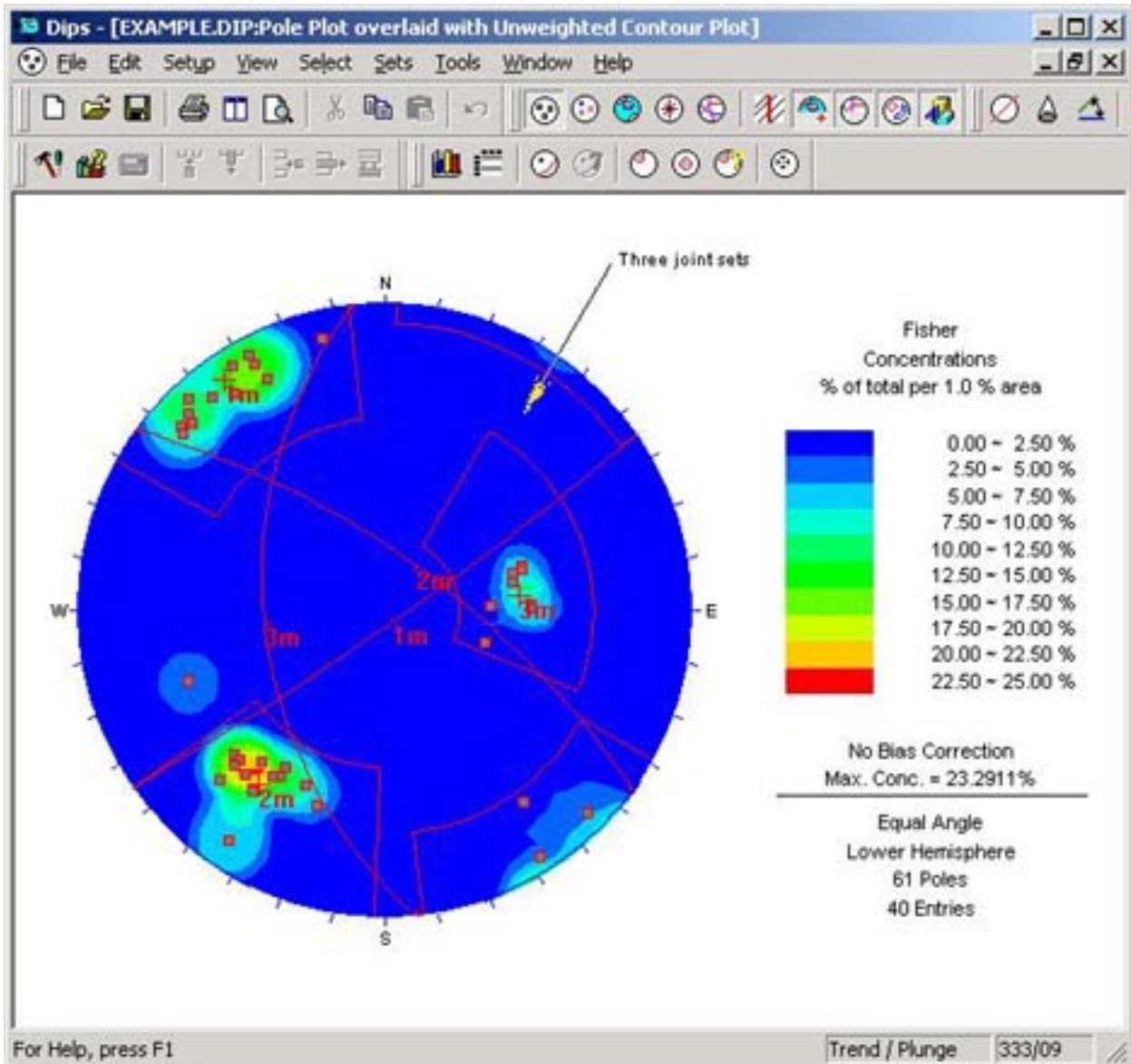


Figure 5

Once you have the stereonet view the way you want, choose the Export Image File option from the file menu (figure 6).

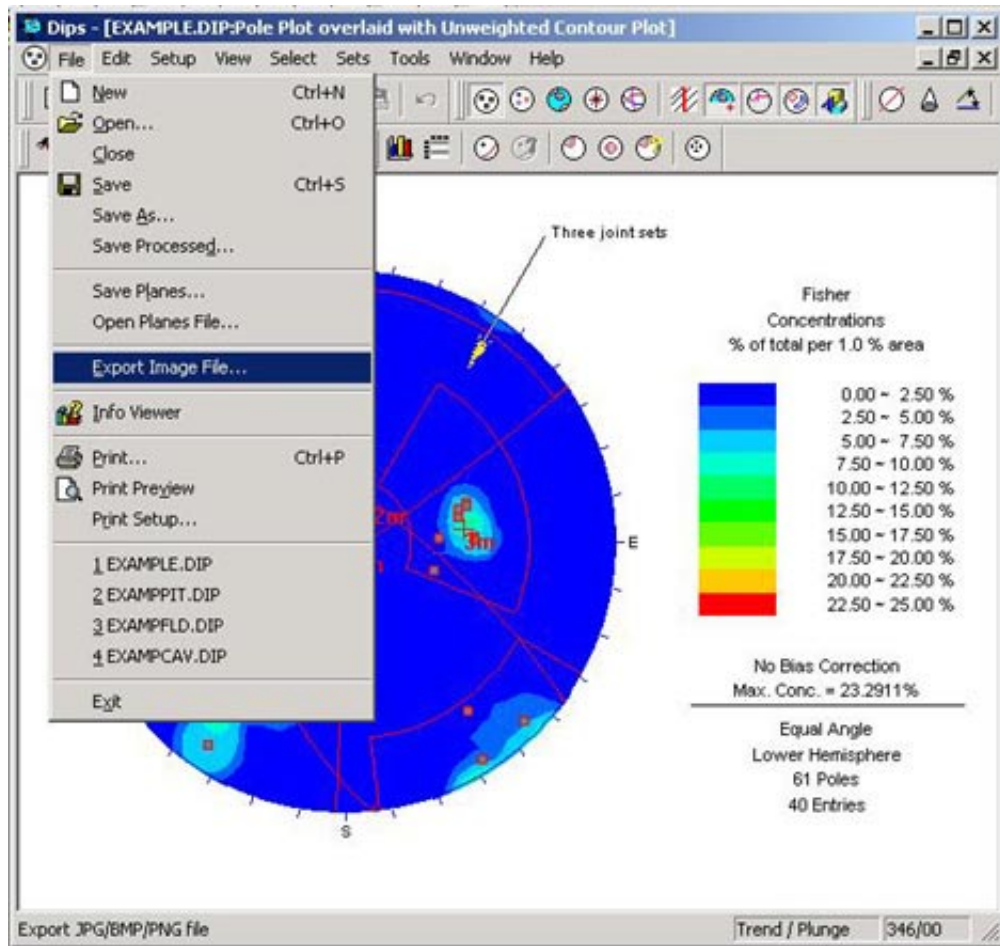


Figure 6

In the File as type combo box choose Autocad DXF (figure 7). Choose the location and the name of the DXF file you wish to save too and press the Save button.

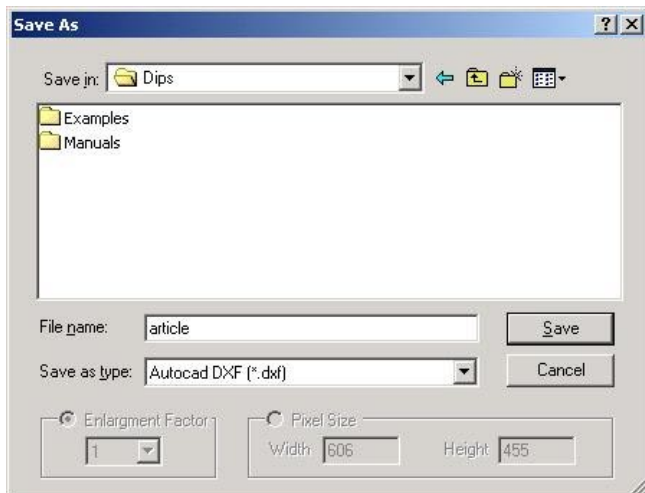


Figure 7

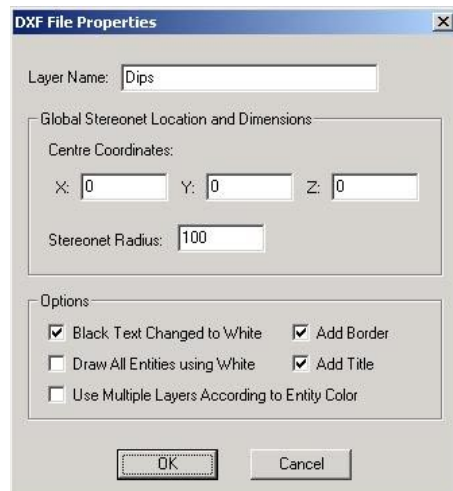


Figure 8

A dialog that allows you to select various options will appear (figure 8). In this dialog you can enter the Cartesian coordinates of the location of the stereonet center and the physical size associated with the stereonet. These would represent the physical location of the joint measurements and would allow you to exactly place the DXF file at the sampling location. The size or stereonet radius parameter lets you scale the stereonet relative to the rest of your CAD drawing so that it looks good. Other options let you adjust colors, add the job title and add a border around the stereonet and legend. Finally, when you import the DXF file into Autocad 2000, simply choose the Block option from the Insert menu and pick the DXF file you wish to insert.

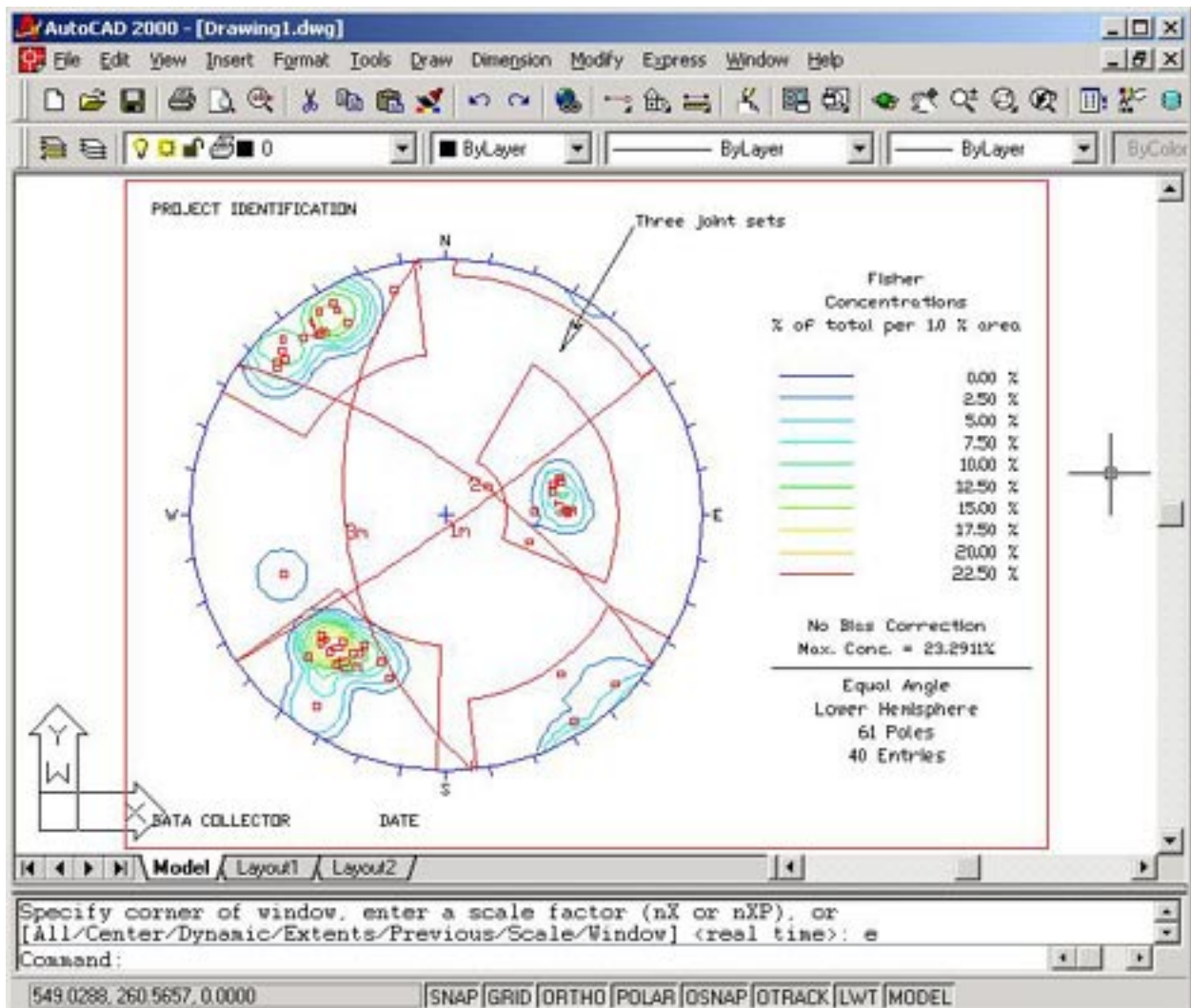


Figure 9

Figure 9 illustrates the imported DXF file in Autocad 2000 associated with the stereonet in Dips (figure 5). Read the help on the Block Insert command in Autocad for all the features you have for placing and scaling the Dips DXF file.