SKUA macro for Focal Mechanisms

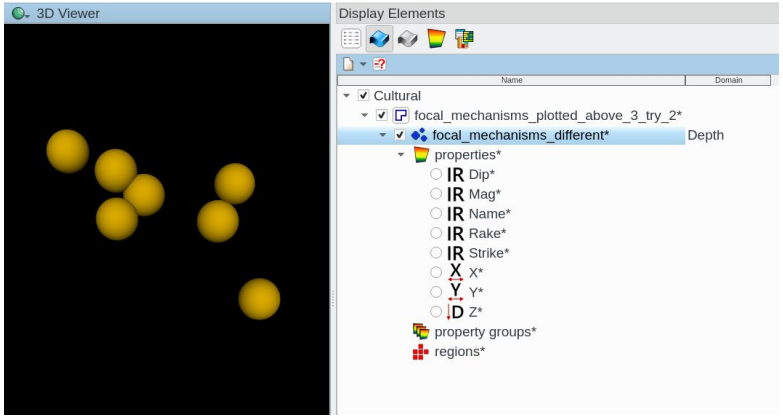
aka "Beachballs" (Andreas Plesch, Harvard University, 2021)

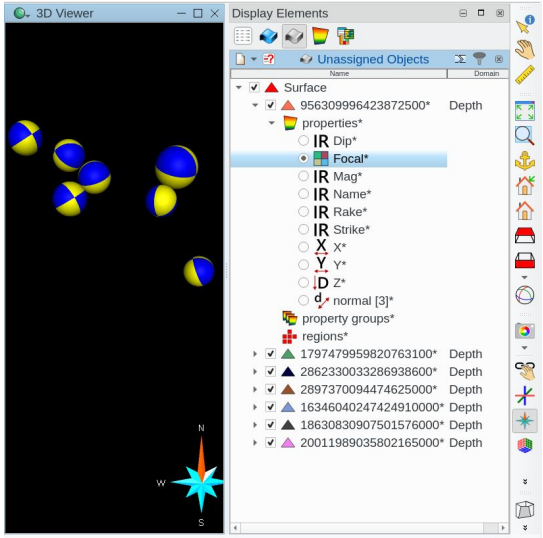
Focal mechanisms

are often represented by a lower hemisphere projection of the two nodal planes and the compressive and tensional quadrants.

In 3d, it is possible to skip the projection and represent as actual spheres with four quadrants. In map view, this style resembles then an **upper** hemisphere projection.

The Skua macro generates such spheres from an input point set.



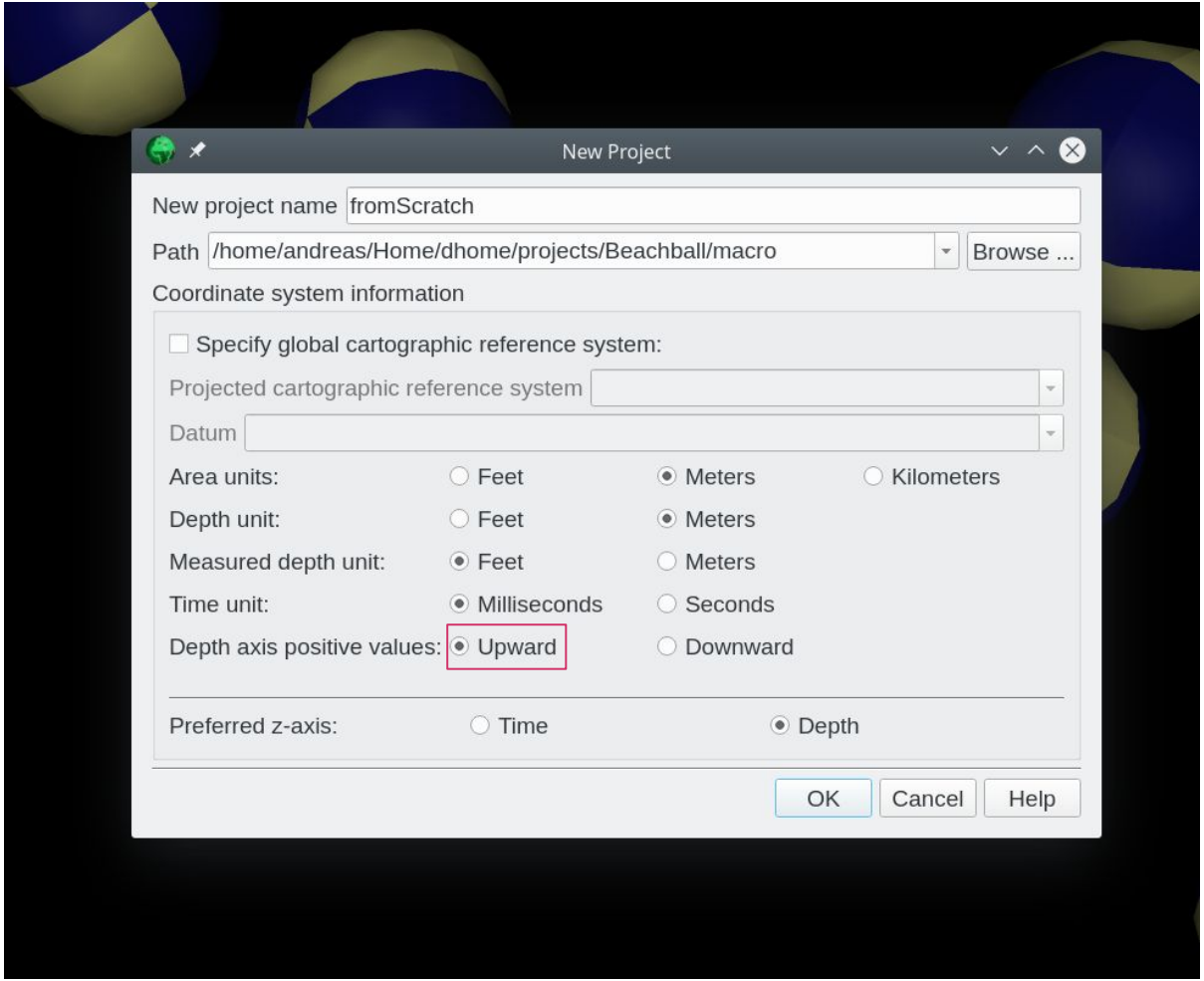


Skua Project

Make sure the Skua project has Depth axis positive values pointing upward.

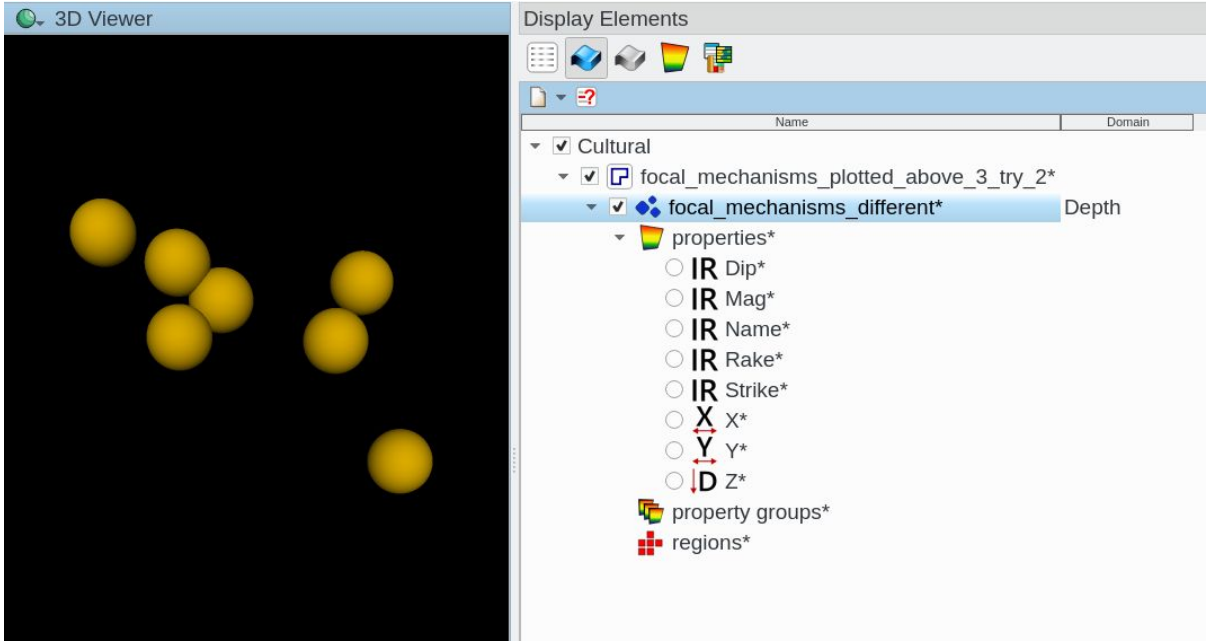
This is necessary to have correct behaviour of the math in the macro.

After generation, it is possible to save the beachballs as tsurf objects and import them into positive Downward project.



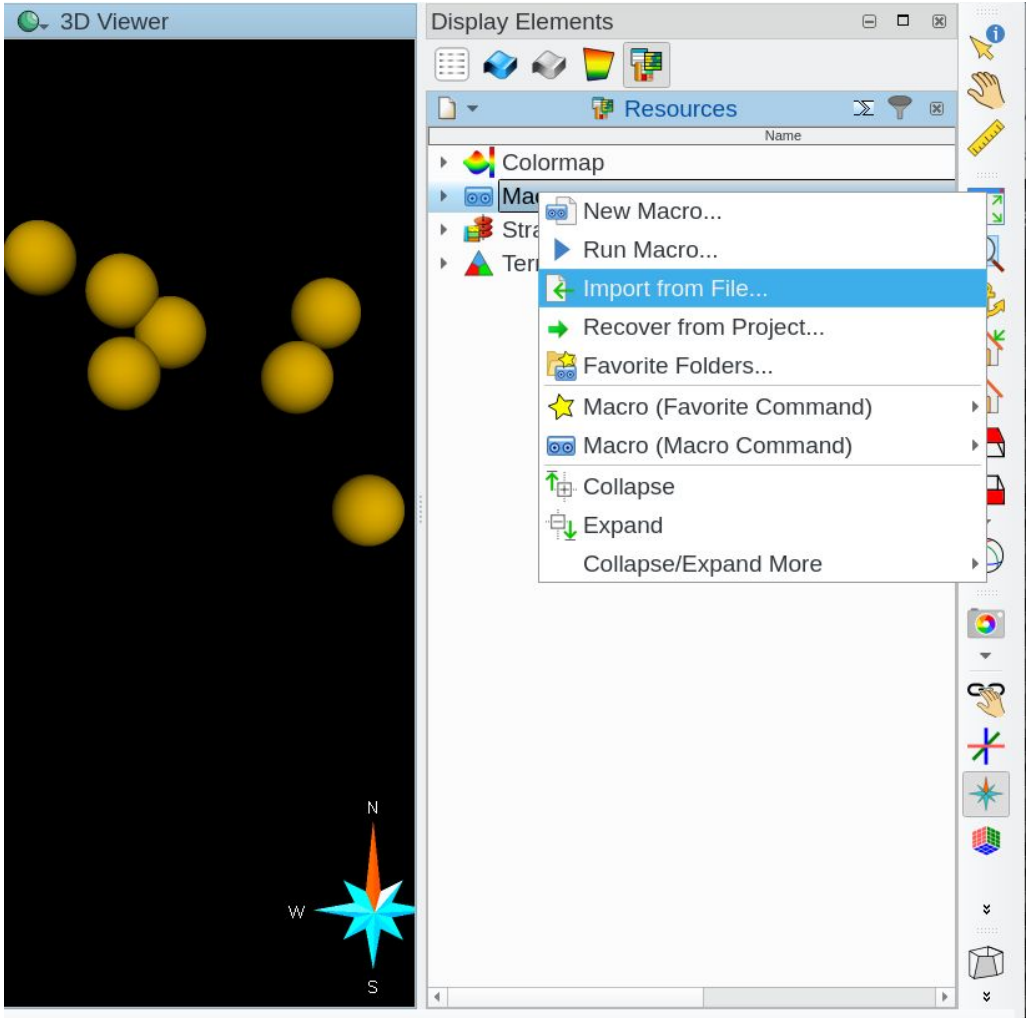
Input Points

The macro accepts a Pointset as input which has Strike, Dip, Rake, Magnitude and optionally Name properties. The properties can be named arbitrarily.



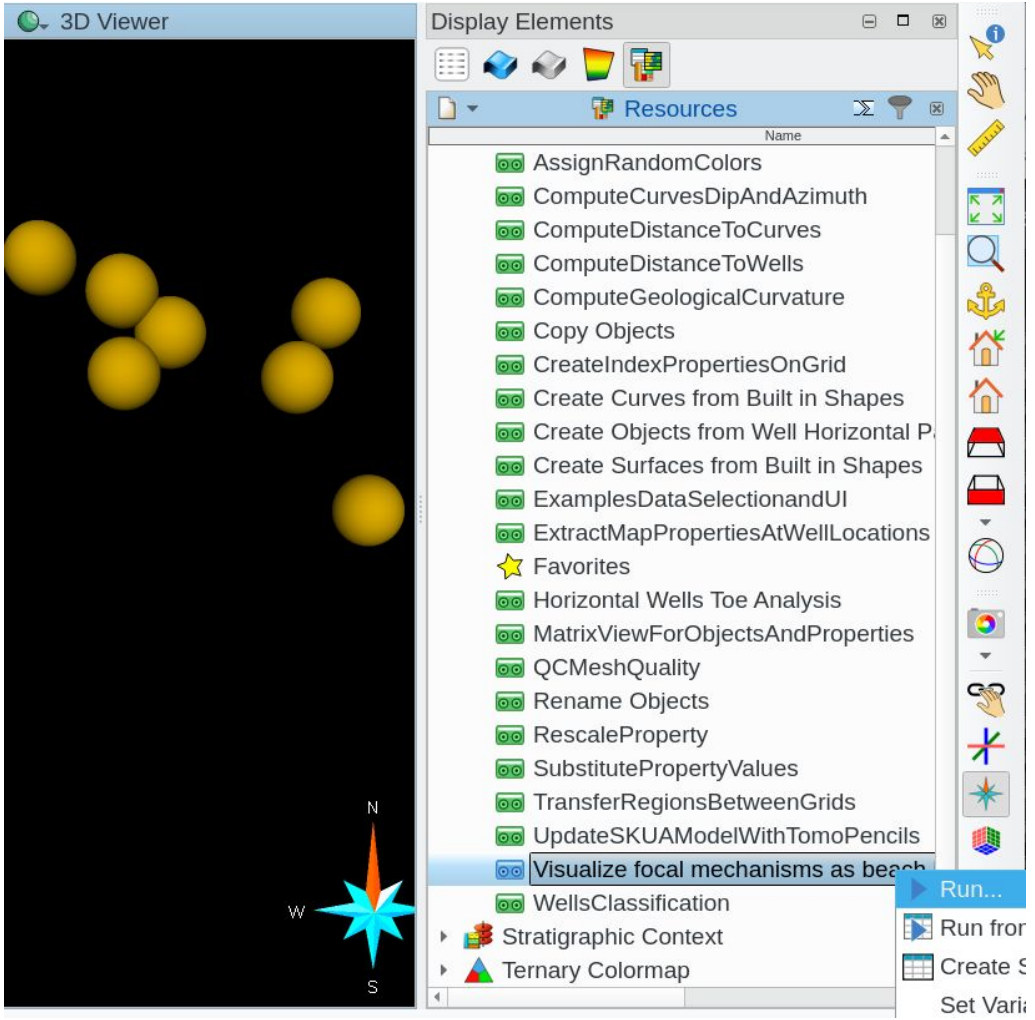
Load Macro

Find the Resources - Macro section and import the .xml file by right clicking.



Run Macro

The loaded macro is listed in the Resources section, and in the main menu Macro header.



Provide data

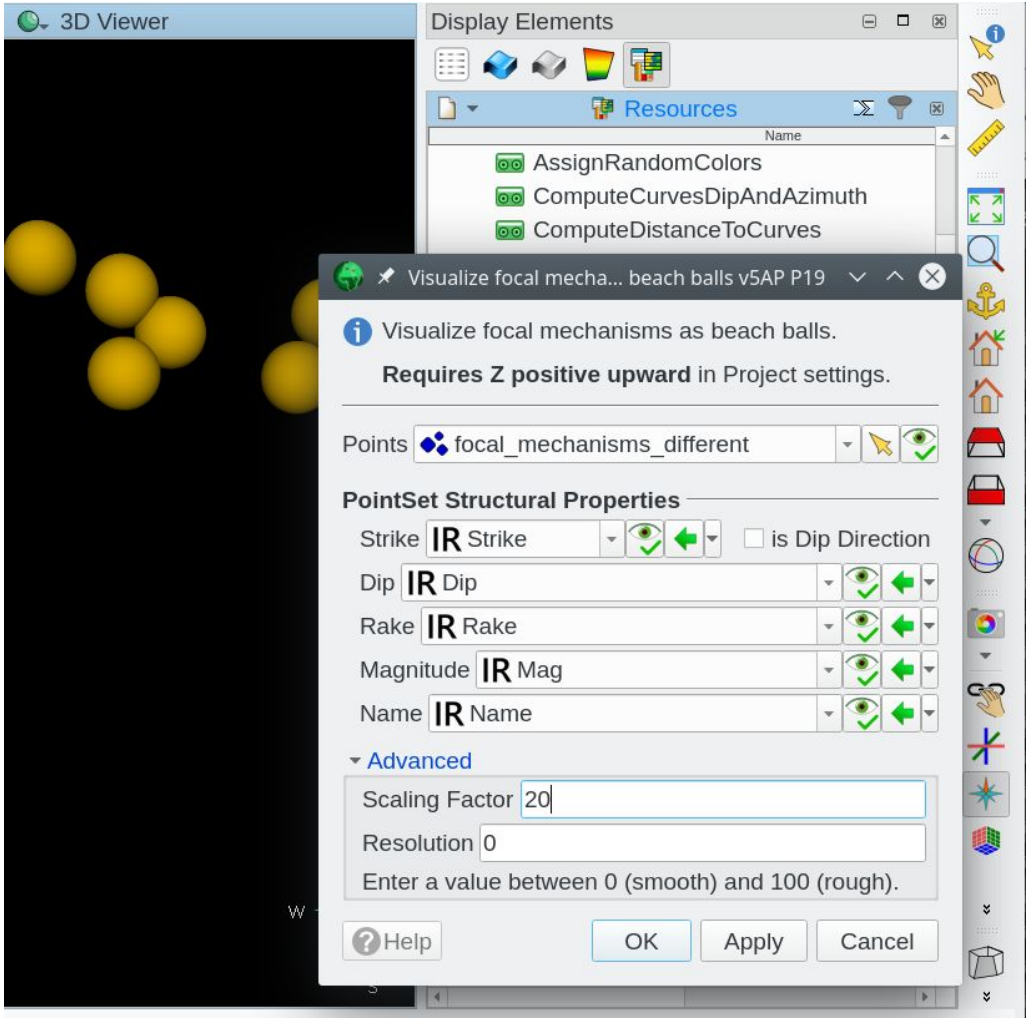
Provide the Pointset, and assign the properties to Focal Mechanism parameters.

Switch off "is Dip Direction" if strike of nodal plane is provided.

The size of the beachballs is linearly scaled by magnitude.

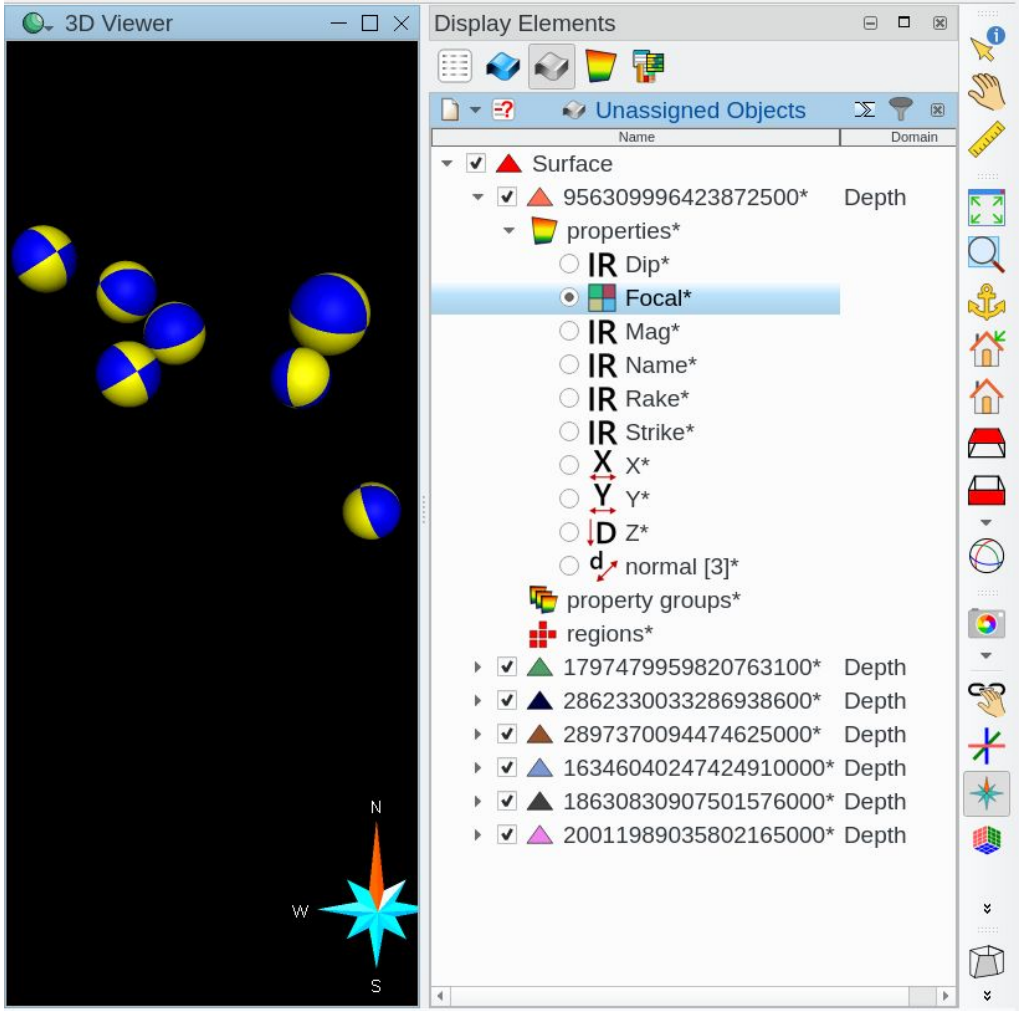
If Name is not provided, the bachballs are given numbered names.

The scaling factor is another scale factor to control the overall size.



Beachballs

The generated beachballs have a new Focal property which contains the polarity of a quadrant. Other Pointset properties are copied from the source.



Quadrant colors

In the Resources section, find the Focal Rock Classification to edit the colors of the quadrants. The compressive quadrants should have a darker color than the tensile quadrants.