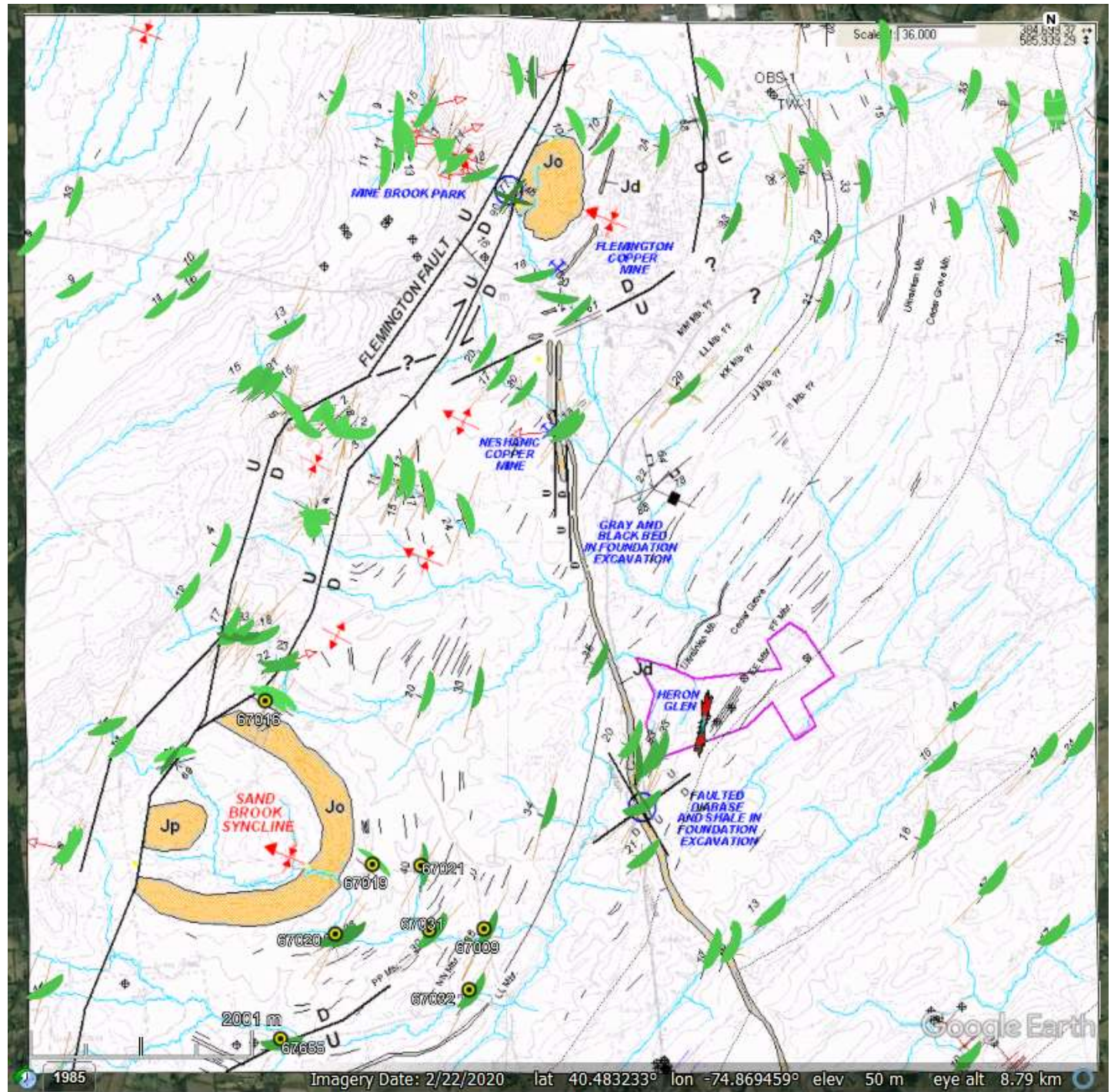


Sand Brook Syncline Exercise

Structural data for this exercise are from eight field stations in the syncline, highlighted on the map with field stations and labels. The structural data from these stations are summarized on the next page.

Flemington2012a.KMZ



ID	STATION		TYPE	STRIKE	DIP	DIR	DIP	DIPAZM
1	67009	JTRP	B	030	36	N	36	300
2	67016	JTRP	B	120	17	S	17	210
3	67019	JTRP	B	049	27	N	27	319
4	67020	JTRP	B	065	35	N	35	335
5	67021	JTRP	B	001	40	W	40	271
6	67031	JTRP	B	039	30	N	30	309
7	67032	JTRP	B	037	27	N	27	307
8	67655	TRL	B	085	27	N	27	355
ID	STATION	FORMATION	TYPE	STRIKE	DIP	DIR	DIP	DIPAZM
1	67009	JTRP	F	28	50	S	50	118
2	67009	JTRP	F	85	85	N	85	355
3	67016	JTRP	F	35	66	N	66	305
4	67016	JTRP	F	110	70	N	70	20
5	67016	JTRP	F	18	80	S	80	108
6	67019	JTRP	F	51	59	N	59	321
7	67020	JTRP	F	166	76	N	76	76
8	67020	JTRP	F	28	26	S	26	118
9	67020	JTRP	F	40	42	S	42	130
10	67020	JTRP	F	62	72	S	72	152
11	67021	JTRP	F	30	35	S	35	120
12	67021	JTRP	F	4	15	E	15	94
13	67021	JTRP	F	95	76	N	76	5
14	67021	JTRP	F	137	77	S	77	227
15	67031	JTRP	F	92	87	S	87	182
16	67031	JTRP	F	44	67	S	67	134
17	67031	JTRP	F	44	44	S	44	134
18	67031	JTRP	F	130	88	E	88	40
19	67032	JTRP	F	29	69	S	69	119
20	67032	JTRP	F	29	69	S	69	119
21	67055	TRL	F	72	83	N	83	342
22	67055	TRL	F	86	86	N	86	356
23	67055	TRL	F	5	87	E	87	95
24	67055	TRL	F	9	77	W	77	279

There are 8 bedding readings and 24 fracture readings in this tabular data set.

Copy and past the DIP and DIPAZM data into Notepad if you using windows or a text editor using a Mac. Save the files for input into a separate text file to open in the stereonet software .

The goal is to generate graphic images of the bedding and fracture statistics and fold axes using circular histograms and equal-area stereonet projections.

Variations in plot style include cyclographic and circular-histogram plots of the bedding and fractures as demonstrated on the following pages.

Showing cyclographic plot and circular histogram of dip azimuth

- [illegible]

Sand Brook Syncline Beds

Showing cyclographic plot and circular histogram of dip azimuth

- 1) Start with a blank plot.
- 2) <File><Import Text File>
- 3) Parse Text Data for
<Planes> and <Assign
Columns> for Dip Dir (1)
and Dip (2). And Press
<Okay>.

Parse Text Data

Stereonet does not recognize the format of this text file. The file has been parsed into rows and columns.

Row #	1	2	3
☒ 1	300	36	
☒ 2	210	17	
☒ 3	319	27	
☒ 4	335	35	
☒ 5	271	40	
☒ 6	309	30	
☒ 7	307	27	
☒ 8	355	27	

Data type: **Planes** Decimal pt: **.** 1st row with data: **2**

☐ Strike, Dip ☒ Dip Dir, Dip

Assign Columns

Dip Direction: **1** Longitude: Longitude: Time: Time:
Dip: **2** Latitude: Latitude: Day: Day:
Elevation: Elevation: Month: Month:
Notes: Notes: Year: Year:

if your entire date is in a single column (e.g., 6/21/17), assign that column to "Year"

Cancel Okay

Sand Brook Syncline Beds

Showing cyclographic plot and circular histogram of dip azimuth

- 1) Start with a blank plot.
- 2) <File><Import Text File>
- 3) Parse Text Data for
<Planes> and <Assign
Columns> for Dip Dir (1)
and Dip (2). And Press
<Okay>.
- 4) <Plot> <Rose Diagram>
<imported Planes>
- 5) Enlarge the histogram
bins by checking <scale
by area> in the <View>
<Inspector>

Inspector

Stereonet Datasets Analyses Contours

Bingham Axes

Size: 6 Color:

Eigenvectors to plot: All vectors

Mean Vector

Size: 6 Color:

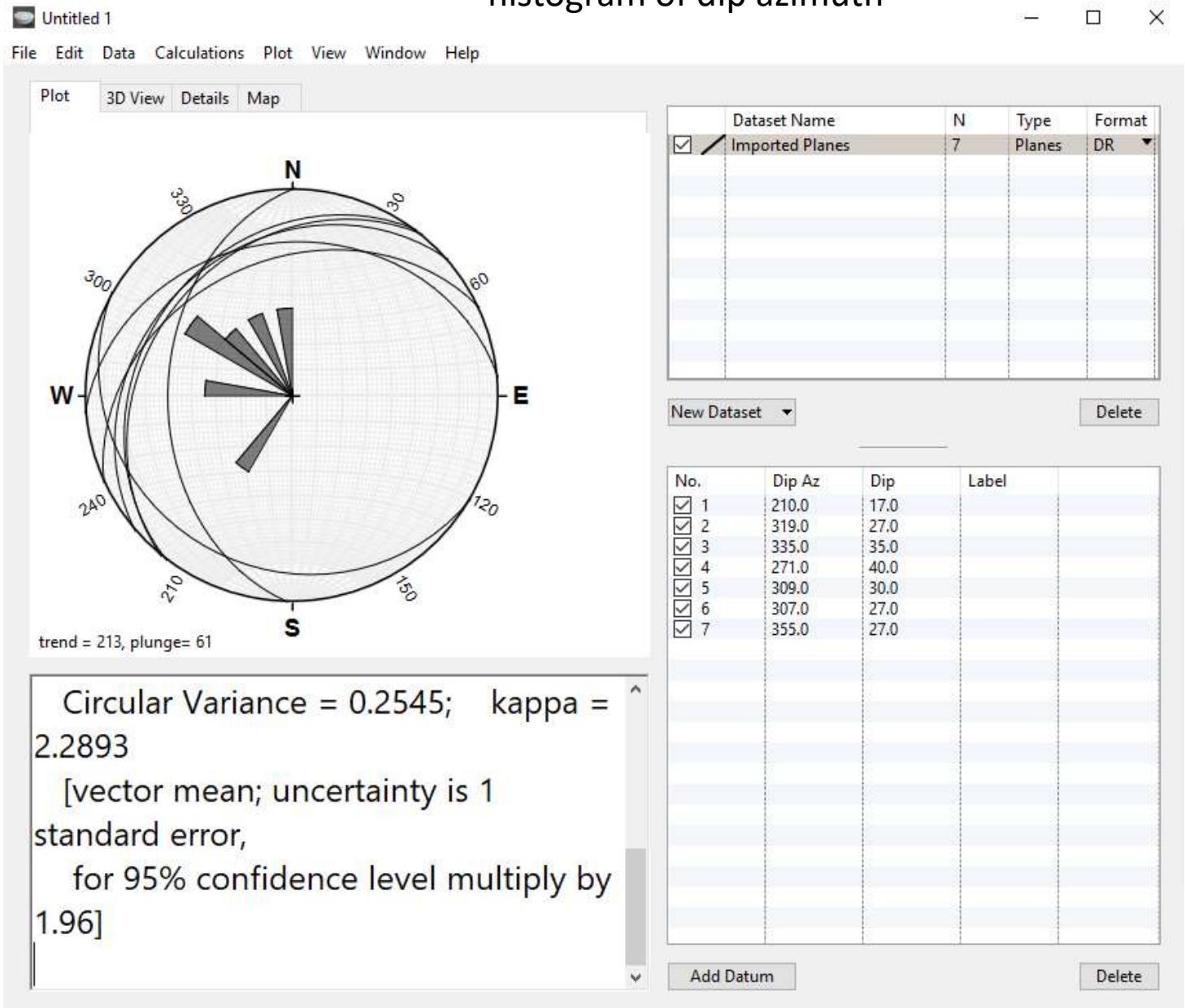
☐ plot negative & positive plunges separately
☒ negative mean vector in lower hemisphere

Rose Diagram

Bin size: 10° Color:

Value (in % of total) of perimeter: 80

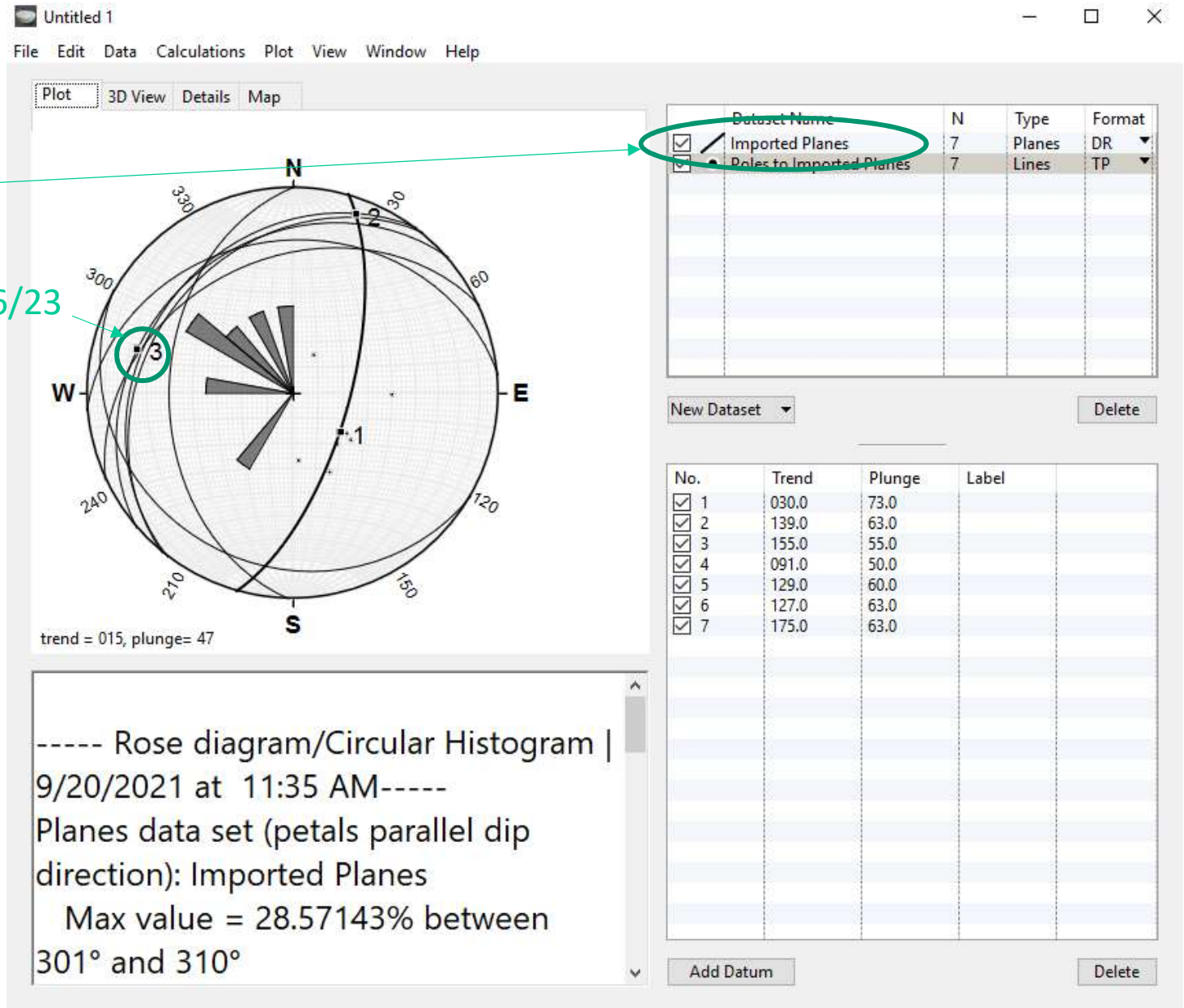
☐ center bin on zero
☐ show mean vector
☐ treat data as axes
☐ half circle rose
☒ scale by area



Sand Brook Syncline Beds

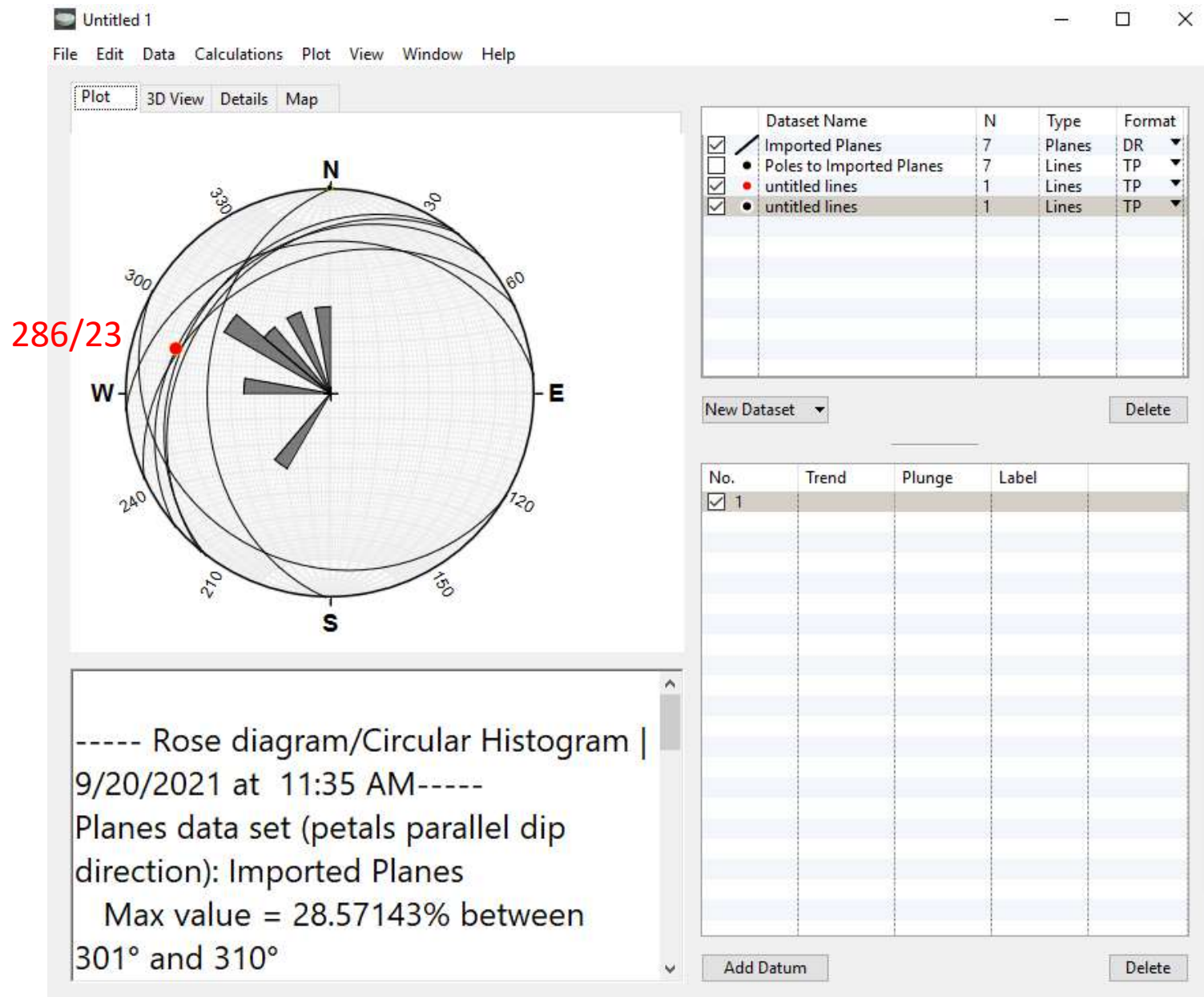
Showing a fold-axis solution .

- 1) To derive a fold-axis solution, first
 <Calculations> <Poles>
 making sure that the
Imported Planes Dataset is
 selected and highlighted.
- 2) Next, find a solution to the
 fold axis with
 <Calculations> <Axial Plane
 Finder...>. Make sure that
 the **Poles to Imported
 Planes** Dataset is active and
 highlighted.
- 3) Turn off (uncheck) the
Poles Dataset
- 4) Add the Fold axis by itself
 to unclutter the plot:
 <Data> <New Dataset>
 <Lines> <New Datum
 Entry> and type in the
 value 286/23.
- 5) Use the <View>
 <Inspector> to change the
 size and color of the point.



Sand Brook Syncline Beds

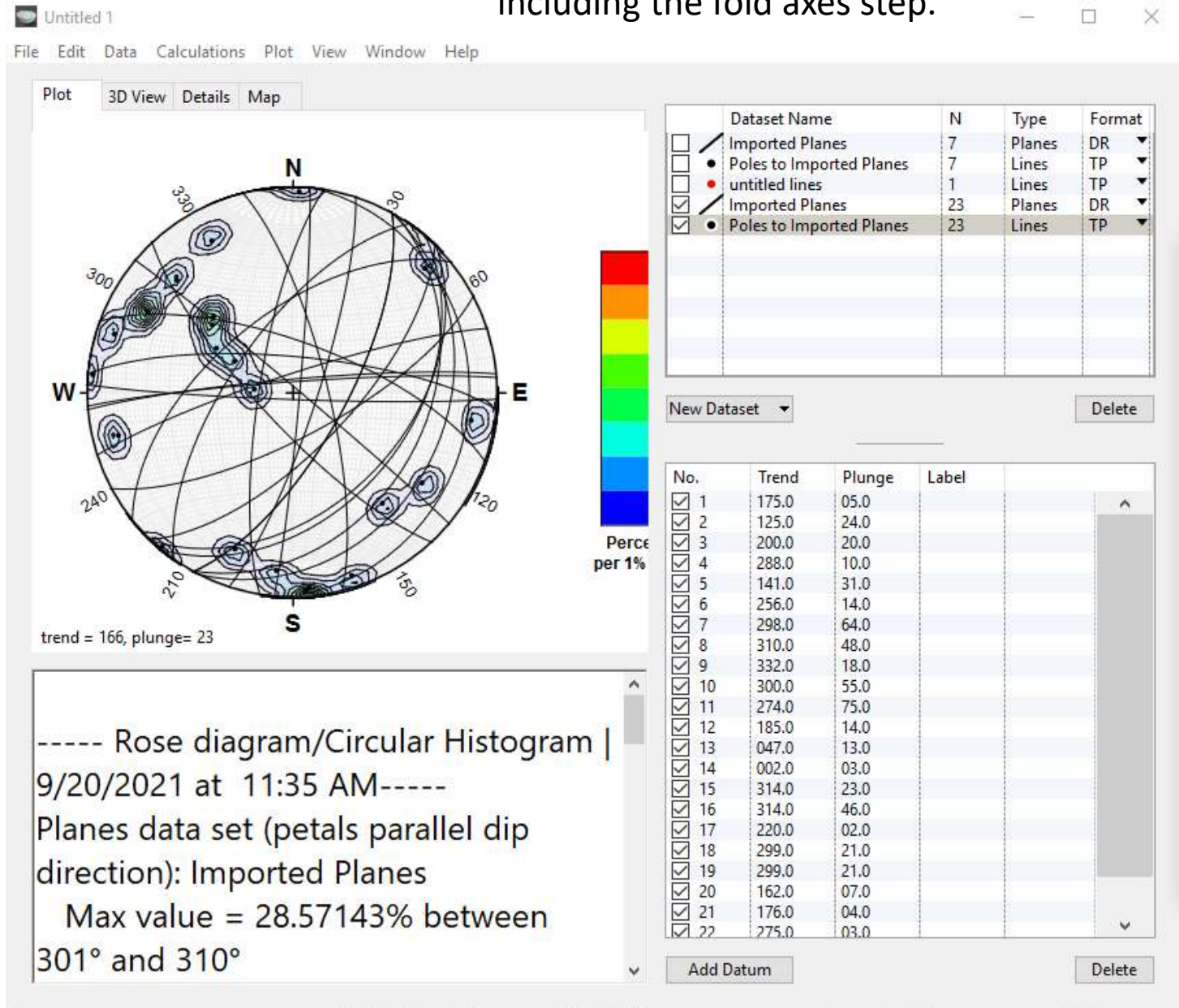
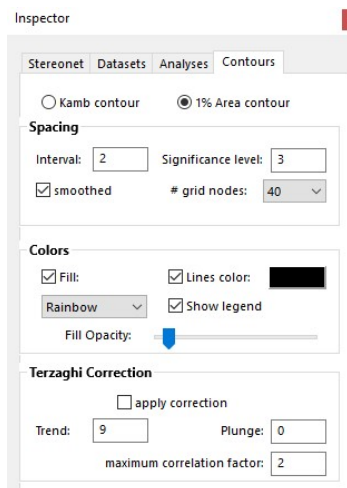
Showing a 'cleaned-up' fold-axis solution



Sand Brook Syncline Fractures

Repeat the process for fractures, but not including the fold axes step.

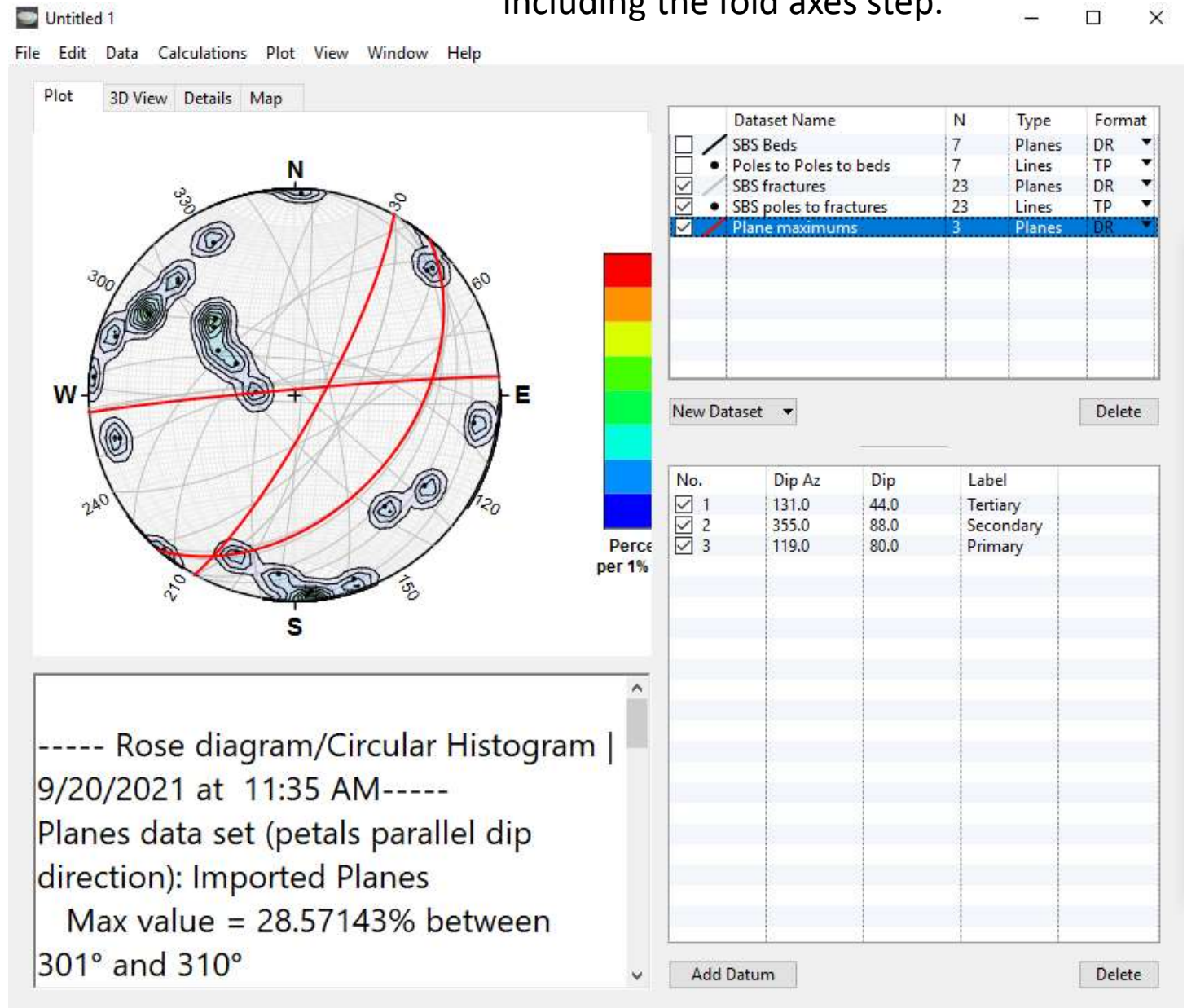
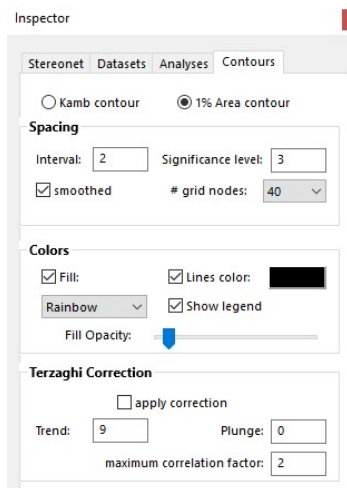
- 1) Repeat first to generate the cyclographic plot and the poles to the planes.
- 2) Derive maximum contours and manually pick out the three most common planes having the highest-percentage contours:
<Plot> <Contours> <Poles to imported planes>
- 3) Make sure that within the <View> <Inspector> <Contours> Tab that the <1% Area contours> radio button is chosen.



Sand Brook Syncline Fractures

Repeat the process for fractures, but not including the fold axes step.

- 1) Use the <Inspector> to change the cyclographic plot to light gray and then extract three of the most common, representative planes determined using the contours.
- 2) Remember that the center of each contour cluster is the pole to the plane, and therefore you must take the supplement to the extracted plunge ($xxx - 180 < 360$) and the compliment of the dip ($xx - 90 > 90$)



- This is a representative final graphic with annotation added using MSPP

Some Sand Brook Syncline Beds and Fractures

