

Fig. 9a. Distribution of 41 orbit-pole points for Class 1 and 2 craters. Plots show contours from a fine-grid (1058 counting centers) net on an equal area stereographic projection centered at 90°W. Percentages for each 1% counting area are indicated in the legend. The relatively small sample results in an anomalously large value of the maximum percentage that cannot be compared directly with results from larger samples. Young grazing impacts are predominately in an east-west direction resulting in orbit-pole points near the present geographic pole of Mars.

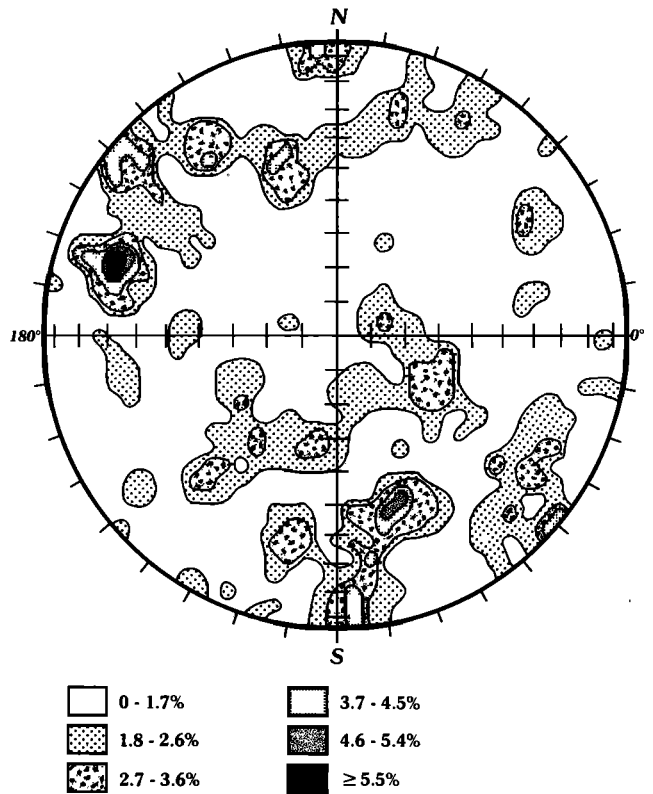


Fig. 9b. Orbit-pole points for 109 Class 3 craters and Class 4 and 5 craters smaller than 20 km using the same projection and technique illustrated in Figure 9a. Orbit-pole points cluster in regions away from the present geographic pole with the principal concentration occurring near the equator at 180°W.

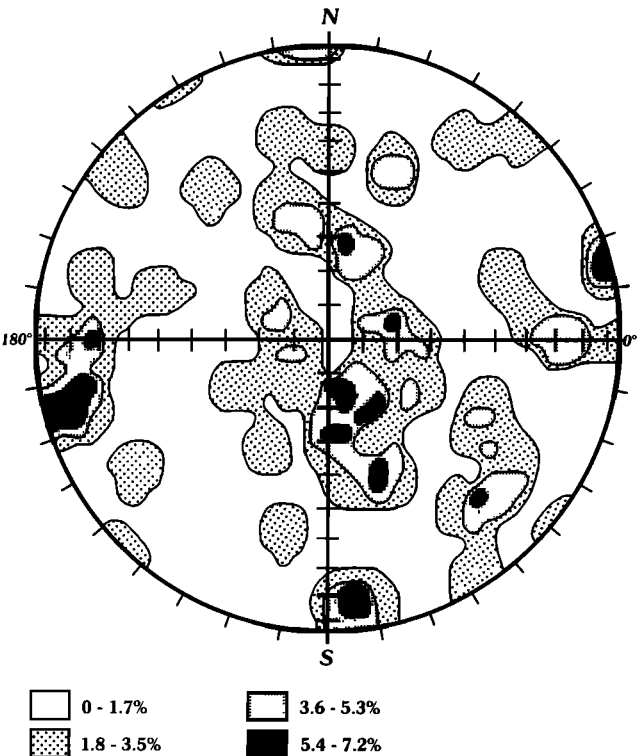


Fig. 9c. Orbit-pole points of 26 Class 4 and 5 craters larger than 20 km (see Figure 9a for explanation). Grazing impacts occurred in northerly directions with clusters of orbit-poles centered near Solis Planum, or equivalently Utopia Planitia. The very small sample for this data set results in the anomalously large maximum percentage value that cannot be compared directly with values in Figures 9b and 9d.

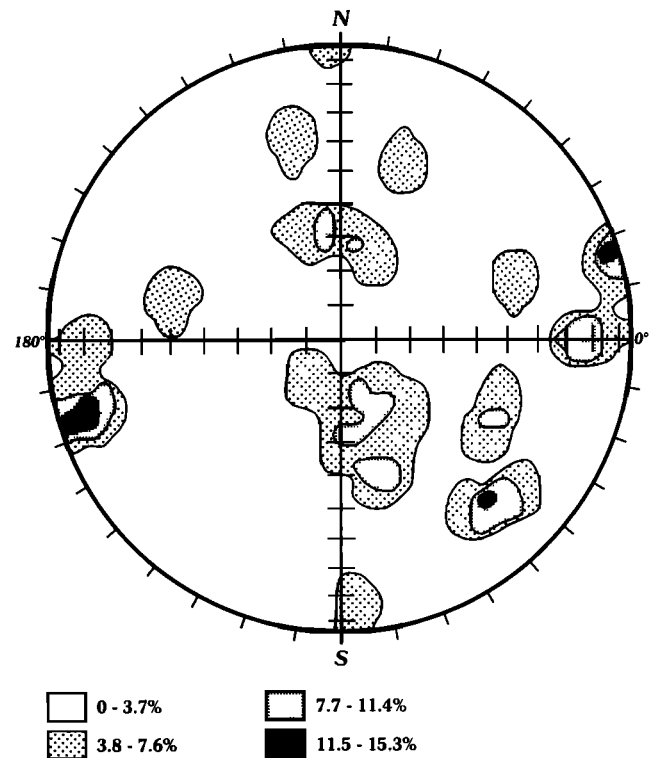


Fig. 9d. Orbit-pole points of 55 Class 4 and 5 craters of all sizes. The Solis-Planum/Utopia-Planitia concentration becomes more pronounced with a secondary concentration near the equator at 180°W.