

the least-weighted set of lineations, despite the elimination of obvious noise patterns. This interpretation is supported by the correlation at zero lag between Mariner 6 and 7 unrectified images. In contrast, the frequency-azimuth distributions of the highest-weighted lineations generally produced marginal improvements in the cross correlations of rectified pairs.

Cross correlations of 6N13-6N09 and 6N11-6N19 (*w1* lineations), however, showed improvements in rectified pairs over the filtered unrectified pairs at zero lag. Although cross correlations of 6N07-6N13 and 6N13-6N11 did not exhibit marked improvements in the rectified pairs, secondary peaks occurred at zero lag. These exceptions may reflect a regional dependence of preferred lineation trends since the above image pairs are in either the same or similar photometrically distinct provinces. Further discussion of this possibility is presented below. Such exceptions indicate that not all the least-weighted lineations are artificial and therefore should not be eliminated completely from the final analysis.

Figure 8 shows the frequency-azimuth distribution of lineations in Meridiani Sinus,

Margaritifer Sinus, which for this study includes Eos, and Deucalionis Regio, which for this study includes Aram. These data are summarized in Figure 9. The less significant *w1* lineations only approximately reflect the trends for the better-defined *w3-w2* lineations. Comparison of the most significant lineations from Margaritifer Sinus (Figure 5c) and Meridiani Sinus (Figure 5d) reveals six common trends within 3° of N40°W, N16°W, N08°E, N33°E, N51°E, and N68°E. Three preferred trends for *w3-w2* lineations in Deucalionis Regio (Figure 5e) correspond to the matching trends in the other two provinces, but these three trends are among eight possibly significant peaks in the frequency-azimuth distribution.

The most prominent trends of crater wall segments (Figures 6 and 9) generally reflect trends found in the lineation data for their respective photometric provinces. In contrast, the trends of crater chains do not coincide consistently with the trends from *w3-w2* lineations. Both Margaritifer Sinus and Meridiani Sinus display a prominent crater chain trend near N56°W, which may be associated with the large basin Hellas. Margaritifer Sinus also in-

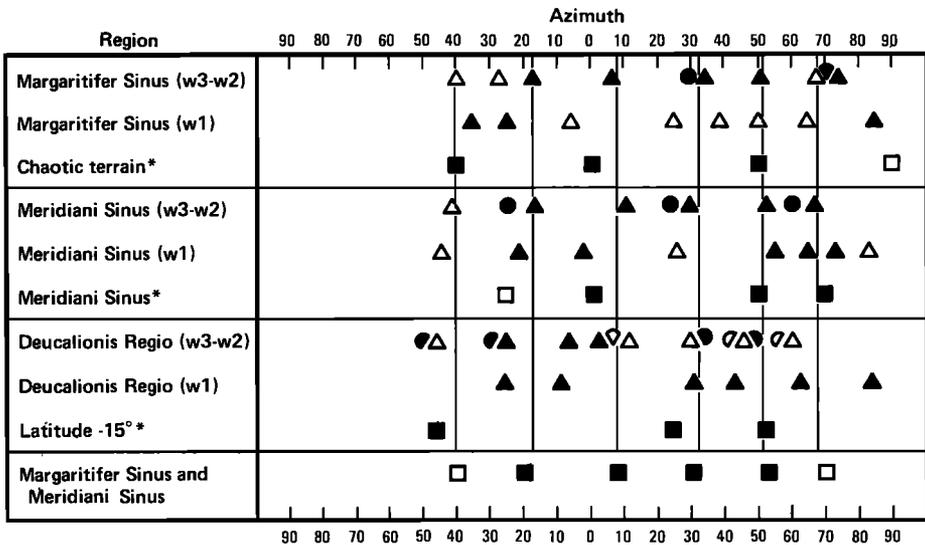


Fig. 9. Summary of preferred trends from lineations (solid triangles) and straight segments of crater walls (solid circles) grouped into photometric provinces. The vertical bars indicate the six common trends for *w3-w2* lineations between Margaritifer Sinus and Meridiani Sinus. The trends from this study are compared with trends from *Binder and McCarthy [1972]*. The last listing shows the combination (solid squares) of *w3-w2* lineations and crater wall trends displayed in Margaritifer Sinus and Meridiani Sinus. Open symbols indicate less prominent trends.