

6 frames exhibit six peaks (Figure 6a), of which only two minor trends (N60°E and N70°E) do not have corresponding trends in the $w3-w2$ lineations. Crater chains (121 alignments) exhibit prominent narrow lobes at N53°W and N62°E (Figure 6b). This first trend is absent in the lineation data but is matched in the crater wall data. The N62°E trend, however, corresponds to a major peak in the lineations data and a minor trend in the crater wall data.

In general, cross correlations between distributions of $w1$ lineations from unrectified imagery exhibit relatively sharp peaks near zero lag, whereas the corresponding distributions from rectified imagery yield broader and smaller peaks offset from zero lag (Figure 7). The broadening and reduction of the cross correlation peak are interpreted as effects of geometric stretching of the rectified images. The good cross correlation between unrectified pairs remained after the elimination (filtering) of data in the ranges N90°W–N70°W and N90°E–N70°E, where typically few lineations occur in unrectified versions. Inclusion of these voids in the frequency-azimuth distribution introduces an improved cross correlation that may be meaningless with respect to mapped trends.

Such statistical processing suggests that a significant component of linear artifacts dilutes

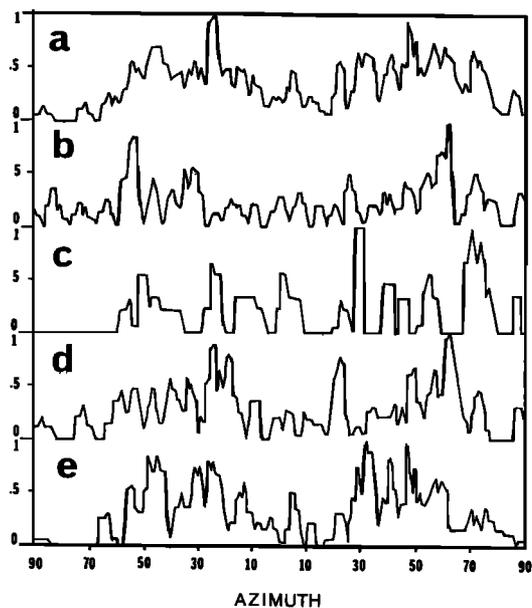


Fig. 6. Frequency-azimuth distributions of (a) 259 trends of crater walls and (b) 121 crater chain alignments from rectified Mariner frames 6N09, 6N11, 6N13, 6N17, 6N19, 6N21, and 6N23. Also shown are (c) 35 trends of crater walls from Margaritifer Sinus, (d) 102 trends from Meridiani Sinus, and (e) 122 trends from Deucalionis Regio. Each crater wall trend and crater chain alignment is weighted subjectively on a scale from 1 to 3. The distributions are normalized to the maximum peak in each data set.

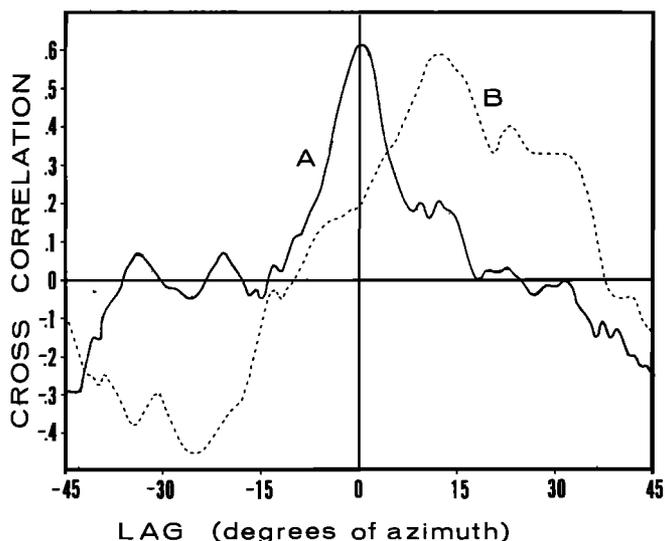


Fig. 7. Cross correlations between frequency-azimuth distributions of $w1$ lineations from unrectified frames 6N09 and 6N17 (curve A) and between distributions of $w1$ lineations from corresponding orthographically projected frames (curve B).