



The spatial distribution and seasonal evolution of cryptic region

J. J. Jian (1,2), W. H. Ip (1)

(1) Institute of Astronomy, National Central University, Taiwan (2) National Museum of Nature Science, Taiwan

The Martian polar caps are the most activity area on Mars. The polar regions include seasonal CO₂ frost caps which will stretch to mid latitudes in the winter and residual frost deposits close to the pole will remain in the summer. The south pole of Mars is characterized by an asymmetric residual ice cap, on the opposite side of the residual cap, there exists an area called cryptic region where is relatively free of ice during summertime. In the cryptic region, many fan and spider shaped km-scale structures apparently caused by a wind-blown system of dust-laden gas jets occurred following the sublimation of the CO₂ frost layer. These surface features are repeatable event that almost occupy the same area from year to year. In this study we have examined the general physical environment of the cryptic region and have also counted the appearance of fans and spiders at different Ls statistically, we found that the fans features appear at the early spring and the spider-shape features appear at the late spring. We have also examined the relationship between the surface features and elevation changes which calculated by the surface topography observed by MOLA on MGS and HRSC on Mars Express.