PARGO CHASMA AND ITS RELATIONSHIP TO GLOBAL TECTONICS; R.C.Ghail, Environmental Science Div., Lancaster University, Lancaster LA1 4YQ, U.K.

Pargo Chasma was first identified on Pioneer Venus data as a 10 000 km long lineation extending from Atla Regio (3° north latitude, 200° east longitude) in the north terminating in the plains south of Phoebe Regio (latitude 40° south, longitude 290° east). More recent Magellan data have revealed this feature to be one of the longest chains of coronae so far identified on the planet. Stofan *et al.* [1] have identified 60 coronae and 2 related features associated with this chain; other estimates differ according to the classification scheme adopted, for example Head *et al.* [2] identify only 29 coronae but 43 arachnoids in the same region. This highlights one of the major probems associated with the preliminary mapping of the Magellan data: there has been an emphasis on identifying particular features on Venus without a universally accepted scheme to classify those features. Nevertheless, Pargo Chasma is clearly identified as a major tectonic belt of global significance. Together with the Artemis-Atla-Beta tectonic zone and the Beta-Phoebe rift belt, Pargo Chasma defines a region on Venus with an unusually high concentration of tectonic and volcanic features. Thus an understanding of the processes involved in the formation of Pargo Chasma may lend significant insight into the evolution of the region and the planet as a whole.

I have produced a detailed 1 to 10 million scale map of Pargo Chasma and the surrounding area from preliminary USGS controlled mosaiced image maps of Venus constructed from Magellan data. In view of the problems highlighted above in relation the efforts already made at identifying a particular set of features I have mapped the region purely on the basis of the geomorphology visible in the Magellan data without any attempt at identifying a particular set or class of features. Thus the map produced distinguishes between areas of different brightness and texture. This has the advantage of highlighting the tectonic fabric of Pargo Chasma and clearly illustrates the close inter-relationship between individual coronae and the surrounding tectonic belts. The difficulty faced in attempting to identify individual tectonic features within this belt is apparent. A useful, though much simplified, classification scheme has been identified from the geomorphological map: the ejecta deposits associated with impact craters may be identified by their bright, rough appearance; radiating bright (rough) and dark (smooth) flows locate the presence of volcanic vents, while corona may be identified by their bright lineated annuli.

More detailed mapping of specific areas of Pargo Chasma, along with several neighbouring regions that may or may not be related to it, remains to be done. The initial map has however proved useful for formulating ideas as to how Pargo Chasma formed and evolved. The topographic form, length and the fact that it lies on a great circle has led to the suggestion that the corona chain may be related to upper mantle plumes or circulation patterns akin to that associated with mid-oceanic ridges on Earth but without the significant horizontal plate motion found on Earth. These ideas require further investigation and testing but may provide an insight into the state of the upper mantle of Venus and the tectonic style of the planet.

References

[1] Stofan, E.R., Sharpton, V.L., Schubert, G., Baer, G., Bindschadler, D.L., Janes, D.M. and Squyres, S.W. (1992) J. geophys. Res., 97,13347-13378.

[2] Head, J.W., Crumpler, L.S., Aubele, J.C., Guest, J.E. and Saunders, R.S. (1992) J. geophys. Res, 97, 13153-13197.