HELLAS MODIFICATION SEQUENCE



ISIDIS MODIFICATION SEQUENCE



WW VOLCANIC PROCESSES

Fig. 9. (a) Age plot of dated tectonic systems and volcanic episodes around Hellas. Early volcanism comprises Malea Planum and Tyrrhena Patera construction and late volcanism includes final surfacing of Hesperia Planum, Hadriaca Patera, and intercrater plains west and northwest of Malea Planum. Tectonic system ages result from the linear crater count technique. The age of Tempe Fossae, in the Tharsis deformation sequence, is plotted for reference.

(b) Age plot of dated tectonic systems and major geologic units around Isidis. Volcanism includes surface flows of Syrtis Major Planum, plains volcanism to the east, and emplacement of the volcanic cone fields north of Isidis. The fractured plains unit dates the Isidis rim region north of the dichotomy. Tectonic ages result from the linear crater count technique, and the age of Tempe Fossae is again plotted for reference.

the Isidis region assuming a flexural origin for these features. Such elastic flexure of the lithosphere in response to a basin-centered load is the basis for two mechanisms of basin-centered fracture [Melosh, 1976; Solomon and Head, 1979, 1980]. Although parameters chosen, they can be simplified by a judi- of the imposed load, which is poorly constrained for

cious choice of scaling factors and model assumptions [Turcotte, 1979]. First, the simplest model for a basin load is a cylindrical load on a flat lithospheric plate. The basic equations for this load geometry [Brotchie and Silvester, 1969; Solomon and the stresses are a complex function of the model Head, 1979] then depend in part on the magnitude