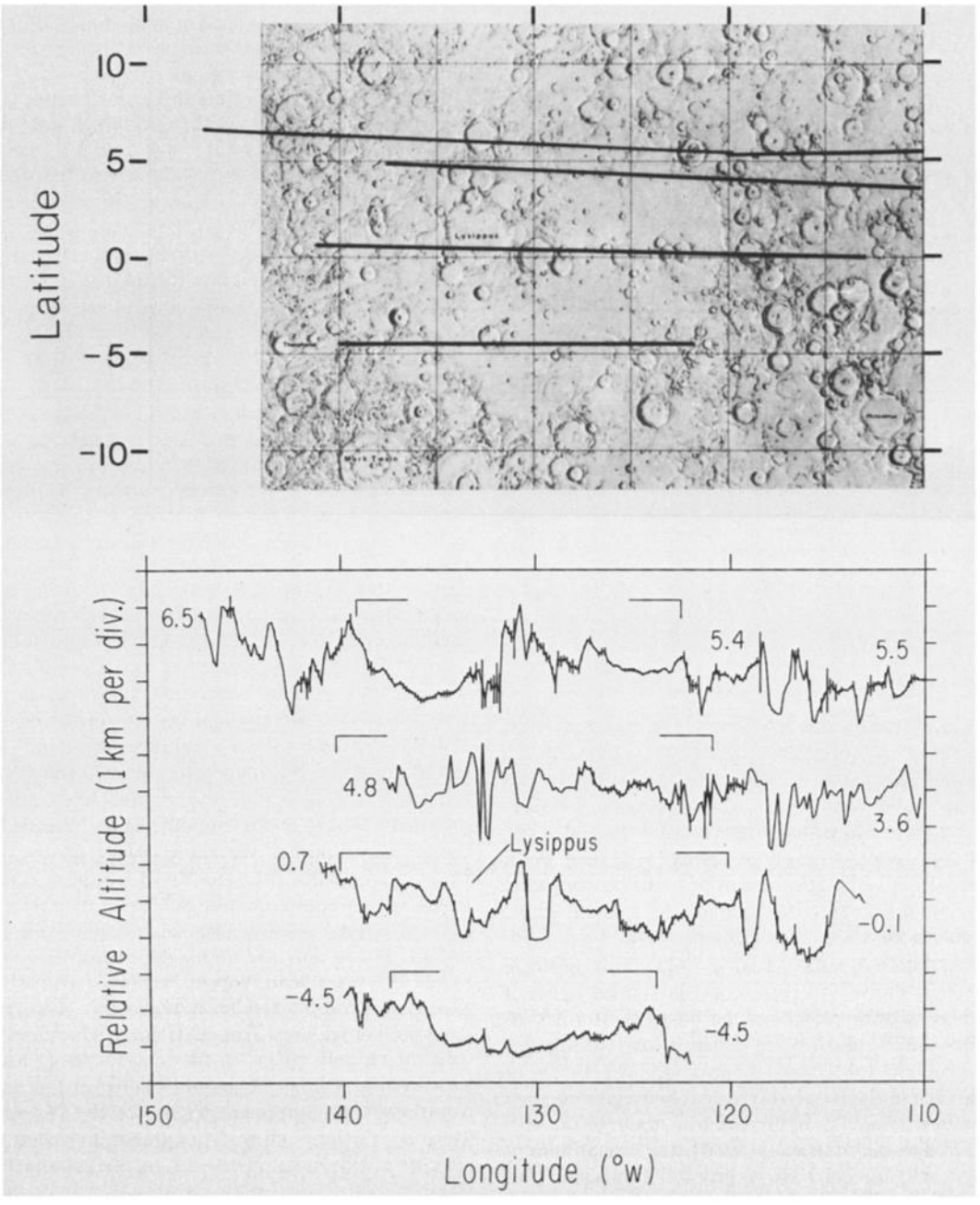

Fig. 5. Altitude profiles selected from the H-7 quadrangle (see Figure 2*b*) showing topography across the large basin centered at 130°W, 1.8°N [*Schaber et al.*, 1977]. Vertical bars indicate the ±1 standard deviation altitude errors. Brackets denote the approximate locations of the basin rim as given by the USGS shaded-relief map and *Schaber et al.* [1977]. See text for discussion. The subradar tracks for these profiles are shown on the USGS shaded-relief map at the top.

features in the altimetry may correspond to remnant ring structures associated with these basins, no such identifications could be made unambiguously. We stress, however, that our radar data, with its limited coverage and resolution, is inferior to images for the identification of remnant ring structures associated with highly degraded basins.

The largest prominent impact structure on Mercury is Caloris Basin. The southern edge of the basin (Caloris Montes) extends down to 14°N latitude, 5° north of the nearest subradar track. Although the Arecibo profiles do not cross the basin proper, the profiles in the southern environs of Caloris are very distinctive and probably reflect topographic structure related to the event that formed Caloris and to postimpact processes. Radar profiles in this region (see Figures 2*c* and 6) provide strong evidence for a large expanse of downwarped smooth plains extending well into the unimaged hemisphere; this may, in fact, be part of an irregular annulus of smooth plains entirely surrounding Caloris Basin (see section 5). The radar data also show that the region south of Caloris is one of the highest regions in the equatorial zone of Mercury in terms of absolute altitude (see section 7). The photoclinometry results of *Hapke et al.* [1975] suggest that the center of Caloris is at least 7 km below the eastern edge of the basin. Thus it is likely that the inner edge of the smooth plains annulus is higher than the center of Caloris. Clearly, the distinctive radar signature of a basin like Caloris would be easily recognized if such a basin lay within roughly 45° of the equator in the unimaged portion of the planet.