The fault-plane solutions of the last decade earthquakes together with all previous focal mechanism studies are used to obtain a better understanding of the tectonics of central and western Iran.

T 24
SEISMOLOGICAL CONSTRAINTS ON THE COMPOSITION OF IRANIAN PLATEAU
Katherine Kellogg-Cody
Michael Biesi (Both at Geological Sciences, Cornell University, Ithaca, NY 14850)

Seismological observations in Iran have placed new constraints on models for continental plateaux below collision zones. The velocities range between 3.6 and 9 km/sec over the Iranian plateau, corresponding to normal mantle values. The uppermost mantle beneath Iran plates propagates efficiently over the plateau except along the northern border where it is strongly asthenospheric. A variety of models have been tested to account for the remarkable elevation of the Tibetan or Iranian plateau. They require the presence of unusually low density material beneath these areas, presumably a shallow asthenosphere (Tehar) or highly thickened crust, or both. Thickened crust could arise from compression (a possible explanation of the compressing of Asia by a second crustal layer (Powell and Camahan). Both models, however, have predicted "continental off-axis" as described by Heuber and Tapponnier. Two empirical models have pointed out changes in the surface geology of Tibet is inconsistent with the 50% shortening required by the crustal thickening model. Our observations of normal velocities and efficient uppermost mantle propagation across a major portion of the Iranian plateau argues against a replacement of the lithospheric mantle by hot asthenospheric. The existence of normal mantle beneath the plateau is consistent with lithospheric underthrusting. The suggestion is that models requiring replacement of Iranian plateau by anomalous upper mantle are no longer viable.

T 25
THE EAST ANATOLIAN TRANSITION FAULT: ITS AGE, OFFSET AND ITS RELATION TO THE TECTONICS OF THE EASTERN MEDITERRANEAN
M.B. HEDBERG (Department of Geological Sciences, State University of New York at Albany, Albany, N.Y. 12222)
A.C. DENZER (same)

The seismicity and seismologically determined fault slip rate extends for 400 km from Karfisia in the east to the Kahraman-,map in the west and marks a southeastern limit of the lateral strike-slip boundary between the Anatolian plate and the Arabian plate. It offsets the northern border near Xyloskalo for 18 km and an unconformity between Neogene and crystalline rocks for 22 km near

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Cover. A topographic map of Venus. The Pioneer Venus radar altimeter has obtained data for more than 80% of the Venusian surface, and these data have been used to generate maps from which the geomorphology and geologic history of the planet can be inferred. The map shown was generated from data taken at 1/2-km intervals.

Three highland areas are recognizable from the topographic data collected to date. The northern region, Ishtar Terra, is the size of Australia. Its western part consists of an extensive high plateau, Lakshmi Planum, which is higher than the Tibetan plateau on earth. Like Tibet, it is rimmed by high mountains, Akna and Freyja Montes to the west and north and Maxwell Montes to the east. The highest point in Maxwell Montes is as high as Everest; it may be a large volcano with a caldera 100 km in diameter offset from the summit. The asymmetric location of the caldera suggests that the northern and eastern parts of the feature have been partially disrupted by faulting.

Aphrodite Terra, an equatorial highland area half the size of Africa, appears to be less topographically distinct than Ishtar. Its degraded appearance may indicate it is older. Three rift valleys with flanking ridges lie south and east of Aphrodite Terra, and mark a tectonically disturbed region. A similarly disrupted zone lies east of Ishtar Terra.

The third highland region, named Beta Regio, contains two great volcanic shields that are thought to be basaltic in composition. This volcanic zone is longer than the Hawaii-Midway region. From ground-based observations, a high region may occur in the area where Pioneer Venus has not yet obtained altimetry data; this gap will be filled in during the spring of 1980.

The most extensive terrain unit on Venus is a rolling upland plains unit that is prominently displayed in the central part of the map. This geological unit includes about 70% of the mapped surface. It contains many near-circular features that probably are impact craters; however, volcanic centers may also occur in this region.

Lowland areas comprise about 20% of the surface; they are located in the northeastern part of the map and form a large x-shaped area centered at 30°N, 30°E. The lowlands are not cratered and may be covered by relatively young basalt flows like the lowlands of the earth, moon, and Mars. (Photo courtesy of H. Masursky and E. Elison, U.S. Geological Survey, and G. Pettengill and P. Ford, M.I.T. An expanded article will appear in an upcoming issue of EOS).