Ridge, a zone of compressional tec-
tonic east of Tuxila Gutierrez, and the
elsewhere, the Tuxila Gutierrez fault zones.
It is suggested that
depositional processes are a result of the interaction between the
Cocos and North American plates along the
portion of the Middle American trench boundary created by the migration of the North American-Caribbean
tripole junction. Anomalous high
elastic strain within the eastern segment of
the Middle American trench and the extension of the Rotogua fault. Sourses of
eastern strain in this area are major earthquakes occur in this region.

T 19
TECNOLOGY AND VOLCANIC ELEMENTS AT EASTERN GALAPAGOS RIDGE - 87NO2 TRANSFORM
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W. Rynn (Lantron-Geol. Geol. Ohio.)
The eastern end of the Galapagos Rift and its
termination with the 85°30'W transform fault was
investigated by the interdisciplinary ALVIN and remote
camera team. The dominant structural and volcanoc-
fenic features are: 1) a large seamount; 2) linear reverse
photographic and visual observations include:
(1) crustal structure and subaerial.
(2) major tectonic features: (1) ponded lava flows (3) small vol-
canoic cones and (5) normal faults. The recently
active fissure of the eastern
rift in the study area between 80°W and the
rift's termination with the 85°30'W. On the eastern
end of the study area, along a volcanic ridge jutting out from the
idea of active spreading center a single extension fissure was
cracked from the rift zone, is divided into 2 to
3 m between 2 to 3 m.
In some cases, individual
split into more than half. Near the eastern
end, a large fissure detected a 20
meter high volcanic cone. Between this area and the
the eastern termination of the rift area a variety of
eastern cones were mapped, including those:
recently active fissures and on normal faults. Several local areas of
collapsed ponded lavas were observed. In the
western area these lava flows are young, with
numerous glassy surfaces. In the eastern area they are
covered with debris in which the collapse tracks penetrate. The
transitions between the new spreading and the N-S transform fault
fissuring occurs over less than 0.5 km. The
transform is marked by a series of dip-slip nor-
mal faults through massive exhalative basaltic
these faults are downthrown to the
northeast and have 20 to 40
positions. The faces of
these faults are often separated from the
by well enough to be seen during a
geophysical survey. We intend to document these
observations with still photos, slicks, and video.

T 20
TECNOLOGY OF THE GUATEMALA BASIN
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Geopravctery, Santa Fe, NM 87502, and Dept.
of Geological Sciences, Columbia Univ.)
Michael A. Hocket
Maryon G. Langen
Detailed geophysical surveys were carried out in the
eastern Guatemala Basin aboard R/V Ende-
avour in February 1980 and aboard R/V Robert D.
CONOR in April 1979. These surveys have been
combined with existing data and used as a guide in interpreting the
geophysical data of the Guatemala Basin. The tectonic fabric of the basin is
complex, and is defined by the gravity values found in the area.
Basement ridges and scarps trending NW-SSW form a significant part of the
morphology. Previously only SNE-WSE trending ridges along
fracture zones had been identified. Several
Tectonic fabric trends identified from tracks of
possibility are in fact associated with
ridge crests and to the fracture zones. The fracture zone scarps can be
usually identified by magnetic anomalies of several hundred
megagauss, which are due to the effects of adjacent crustal blocks of
differing polarity. The magnetic anomalies are associated with these.
The WN ridge are associated with
DNW-NNE track over the area covered by thick sediments (1000 m). The
magnetic anomalies are associated with the same
eastern scarps and are at the same
eastern scarps are related to the jaws
driving the spreading system. The size of the scarps is somewhat larger here. Seismic profiler

and 3.5 kHz echosounder records provide
clear evidence for local decreases in sedimentation
rates along the basins, but no mass wasting
was observed.

T 21
PLATE TECTONICS IN THE PAN-AFRICAN:
THE DAMARA MOBILE BELT, NAMIBIA.
Sarah-Jane Barnes (Dept. Geology, Univ.
Toronto, Toronto, M5S 1A1, Ontario.)
W. L. Campell (Dept. Geol. Univ. Toronto)
(Sponsoring I.N. Campbell)
Pan-African mobile belts have been up to
heights of about 1000 m, perpendicular and the same.
The 600 km long NE trending Damara Mobile Belt strikes across central
Namibia. Three features of this belt are
incompatible with a simple model of:
a) An asymmetric deformation pattern,
b) Three structural zones characterized by:
shallow internally dipping slabs,
v) Vertical strain: diapiric structures and
gratulations; deformation from north to
c) Metamorphosed rocks are also
found.

T 22
TECTONIC INTERPRETATION OF FISSION TRACK AGES FROM THE LESSER HIMALAYAS,
NORTHERN PAKISTAN
K. N. Nias (Dept. of Earth Sciences, Dartmouth
College, Hanover, NH 03755),
M. R. Tahirkhel (Geological Survey of Pakistan,
C. M. Kasner (USGS Denver,
C. M. Kasner (USGS Denver,
N. K. Nias (Dept. of Earth Sciences, Dartmouth
College, Hanover, NH.)
Fission track ages of zircons, sico-
and apatite from rocks collected along the
Swat Valley and the Swat Valley are
separates regions of markedly differing uplift.
Ages ranging from 50 to 55
n.s. for zircons, 35 to
n.s. for micro-
ones which were
remained from the
The fault.
the Swat Valley. The recent
The distribution of ages indicates that
the older ages of the region and that
the age range from 20 to
25 m.y.
the same
The ages on both sides of the
ual ages on both sides of the
my.
20-25 m.y.
the same
The ages on both sides of the
my.
20-25 m.y.
my.


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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, Lakhap 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.)