

**T27H-05 1430h**

The Relationship Between Leucogenites and the STDs in the Rongbuk Valley, Southern Tibet

Michael Murphy1 (1-201-784-5360; michael.murphy@mos.com)
T. M. Harrison1 (3-1203-8280)

1UCLA, Department of Earth and Space Sciences, Los Angeles, CA 90095-1567, United States

The Southern Tibet Detachment System (STDs) consists of a series of gently dipping normal faults that can be traced along much of the length of the Himalayas. In Rongbuk Valley, immediately north of Mt. Everest, the STDs is represented by the Qomolangma detachment. Considerable attention has focused upon leucogenites exposed in the Qomolangma detachment. Faults within the Rongbuk Valley because of the potential significance their employment ages have for the slip history of the STDs. The map relationship between the leucogenites and the STDs is the key to the generation of the Rongbuk detachment which is considered the fault of the STDs. The fact that the Rongbuk detachment is faulted against the STDs because of the potential significance their employment ages have for the slip history of the STDs. The map relationship between the leucogenites and the STDs is the key to the generation of the Rongbuk Valley.

**T27H-07 1520h INVITED**

Xenoliths from the North-Central Tibetan Plateau

Bradley R. Hacker (805 993 7552; hacker@geo.ucsb.edu)
Wendy Bohlen

Department of Geology 301

1University of California, Santa Barbara, CA 93106, United States
2University of Bern, CH-3012, Switzerland

During a geologic transect across the Qiangtang terrane, INDEEP III geologists discovered xenoliths, the first reported from the Tibetan plateau, at three separate localities in the area of 74°N, 80°E (32°E) in 1990. The xenoliths are interlayered with basaltic flows. The relatively fresh trachytic to trachybasaltic rocks are characterized by high K2O (K2O/Na2O=1-2) and therefore belong to the tholeiitic series. Phenocrysts include plagioclase, olivine, pyroxene, and amphibole. In addition, olivine and spinel mantle fragments are common. Whole-rock Sr and Nd isotopic compositions are in keeping with metamorphic xenoliths, and these observations are consistent with an origin from a depleted mantle source. The xenoliths represent a range of petrogenetic and tectonic settings in the Qiangtang terrane, including subduction, oceanic spreading, and active continental margin settings. The xenoliths provide important constraints on the tectonic evolution of the Qiangtang terrane and the Tibetan plateau as a whole.

**T27H-09 1550h**

Initial Results of INDEEP III Magnetotelluric Survey

Mary J. Lear et al.

1-206-446-6900; m.j.lear@u.washington.edu

1University of Washington, Seattle, WA, 98195, United States

2Geological Survey of Canada 615 Booth St., Room 208, Ottawa, ON K1A 0A6, Canada

We report initial results of the INDEEP III magnetotelluric survey of the North-Central Tibetan Plateau. In July and August 1998 Long Period (LP) MT data were collected as part of the INDEEP III survey in Central Tibet. Long period MT data were collected at 26 sites on a 400 km profile extending from Nam Tso to Longqi Tang with the goal of imaging crustal and mantle structure. Broadband MT data were also collected to image shallow structure by the China University of Geosciences. In this paper we will present initial results based on the long period data, since the broadband and long period data have yet to be merged. Preliminary inversions of the long period MT data show the following features:

(1) In the south of the profile a strong conductor is observed at a depth of 15 km. This is at a similar depth to the conductor observed beneath the Tazhagang graben during INDEEP-I in 1995. This conductor terminates at 50 km north of the Tazhagang graben.

(2) Further north, where the shallow conductor is absent, a deeper conductor is imaged at a depth of 50-60 km. This conductor continues to the north west of the profile at the same depth as the low velocity zone imaged by seismic observations. It may represent the asthenosphere beneath a 50-60 km crust.

**T27H-10 1605h**

Structure of the Altyn Tagh and Chang Ma Fault Belt in Ganuz Province, China from Magnetotelluric Measurements

Paul A. Intrare1 (206-564-2460; Paul@phy.washington.edu)
Mary J. Lear1 (206-564-6900; m.j.lear@u.washington.edu)

1University of Washington, Seattle, WA 98195, United States
2Geophysical Program, AK-00, University of Washington, Seattle, WA 98195, United States

We present initial results of 2D magnetotelluric data collected in 1994. Broadband magnetotelluric data (10 Hz - 200 s) were collected on 13 lines with a site spacing of 3 km. Several fault-crust profiles have been analyzed along with potential electrical conductivity sections. Following the completion of the project, the geologic and tectonic setting of the eastern segment of the eastern margin of the Qomolangma detachment is currently being studied.

T27H-20 1650h

Structure of the Altyn Tagh Fault in a Fault-Subaerial Fault Study in the Altyn Tagh Fault Belt in Qaidam Basin, China

The Altyn Tagh Fault is a major fault in the Qaidam Basin and a major north-south fault within the Altyn Tagh Fault Belt in the Qaidam Basin. The Altyn Tagh Fault is a major fault in the Qaidam Basin and a major north-south fault within the Altyn Tagh Fault Belt in the Qaidam Basin. The fault is a major north-south fault within the Altyn Tagh Fault Belt in the Qaidam Basin.

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Correlation between fracture permeability and in situ stress to 17 km depth in the KT2b scientific drillhole

Takahashi, H.1 (1-92-217-9234, mtakahashi@sci.tohoku.ac.jp)
2Department of Earth Science, Teikyo University, Iwaki 970-8510, Japan
3Department of Earth Science, Tohoku University, Sendai 980-8577, Japan

1Institute of Fluid Science, Tohoku University, Sendai 980-8577, Japan
2Department of Geophysics Stanford University, Stanford, CA 94305, United States

To better understand the mechanisms that control hydraulic conductivity at depth in the brittle crust, we have examined the relationship between fracture permeability and in situ stress in the German continental scientific drillhole (KT2b). The KT2b main bore reached a final depth of 9.1 km at the end of 1994. Among the data collected were a number of high resolution temperature profiles, the strike and dip of fractures and faults as detected by FMI/FMS and BHVT assessment, and the state of in situ stress (Broody et al., 1997). In the present analy-

sis, we analyze data collected from 3 - 7 km where data quality was uniformly high. We identified normal asseismic regions where the orientation of plane to fracture was determined.

The results show that the fractures associated with the thermal anomalies lie close to the Coulomb failure line for a coefficient of friction μ = 0.65 in the model of finite state stress (effective stresses of -4.7 MPa). The coupling of the two mechanisms is important in that it allows for the possibility of frictional failure on the crust.

T22H-01 1330h

Reconstruction of the Deformed Zone Between India and Asia by Backward Motion of Lithospheric Blocks

Jan Bohrona(1) 1311 44 37 24 39; repruhms@unijus.edu
Francois Tapponier(1)

1Institut de Physique du Globe de Paris, 4 Place Jussieu, Paris 75259, France

ABSTRACT. We explore the possibility that the opening of the Red Sea, the Afar Depression, and the Jordan depression may be due to the rotation of India at its Afar detachment. We then use this motion to constrain the relative motion of Africa and India.

T22H-02 1345h

CENOGEOSEDIMENT MASS BUDGET IN ASIA: IMPLICATIONS FOR THE INDIA ASIA COLLISION

Francisco Metivier(1) (1-92-24-27-31-21; metivier@ppg.jussieu.fr)

1Laboratoire de Tectonique, Institut de Physique du Globe de Paris 4 Place Jussieu, PARIS 75235, France

We report estimates of mass accretion rates in 18, mostly offshore, sedimentary basins of Asia since the beginning of the Cenozoic (56 Ma). The estimates were determined from isopach maps of drill holes or stratigraphic columns, using regional similarity of the strata. Average solid phase volumes and accumulation rates were cal-

culated for nine epochs approximately corresponding to geologic peri-

dods: Paleocene (56-65 Ma), Eocene (65-33 Ma), Oligocene (33-23 Ma), Miocene (23-5 Ma), Pliocene (5-2 Ma), and Quaternary (2 Ma).

These rates showed new light on the tectonic history of Asia since the onset of the collision of India with Asia at about 55 Ma. In general, the rate of sediment accumulation increases from north to south, indicating that it was the southern margin of Asia that received the initial impact of India. This increase in accumulation is associated with the growth of the Himalayan arc. This was followed by a second phase of increased sediment accumulation, which began about 50 Ma, at which time the present-day structures of most of Asia were being elevated to their present levels.

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