ma source. The range in La/Sm within the source lherzolites and the resultant fractionated or unfractionated partial melts are compatible with computations and observations regarding ocean floor basalts.

V 86

GEOPHYSICAL MEASUREMENTS AT FENTON HILL

P. R. Kintzinger (Los Alamos Scientific Laboratory, University of California, Los Alamos, New Mexico 87545)
(Sponsor: F. G. West)
G. R. Jiracek (Dept. of Geology, University of New Mexico, Albuquerque, New Mexico 87131)

Two active geophysical methods, resistivity and reflection seismics have been used in the vicinity of the Los Alamos Scientific Laboratory's Dry Hot Rock Experiment to better understand the deep geologic structure in the area. In addition, measurements of induced electrical potential were made during a two-hole logging experiment to study the characteristics of hydraulic fractures at various depths in the crystalline basement rocks. Bipole-dipole reconnaissance and dipole-dipole soundings have revealed considerable geoelectric heterogeneity surrounding the Fenton Hill site. The western margin of the Valles Caldera ring-fracture has been distinctly recorded nearer to the drill site than previously inferred. This and a low resistivity trend passing NNE through the drill site may affect the downhole fracturing results if there is deep structural control. A NNE fault has also been interpreted from the reflection seismic results near GT-2. The seismic results indicate that faulting is generally restricted to the Precambrian basement but in some instances younger Paleozoic beds have been offset. Downhole electrical, mise á la masse type, measurements have been used to define the vertical extent of conductive zones formed by hydraulic fracturing.

U 14A INVITED PAPER

AGRICULTURAL PERTURBATIONS OF THE NITROGEN CYCLE AND RELATED IMPACT ON ATMOSPHERIC N_2O AND OZONE

M. B. McElroy
S. C. Wofsy
Y. L. Yung (all at: Center for Earth and Planetary Phsyics, Havard Univ., Cambridge, Mass. 02138)

The available data are employed to identify the fate of agricultural nitrogen in the environment. Best estimates predict denitrification of nearly 50% of fertilizer nitrogen in less than 10 years after application. We also discuss in detail the expected demand curve for agricultural N. If population growth continues at projected levels, between 100 and 200 M tons/yr of agricultural N will be needed by the year 2000. We estimate that as a result, atmospheric N_2O could be more than doubled by 2050, and that perturbations of O_3 at that time could range from 10 to more than 20%. Major uncertainties remain however, and we emphasize the importance of further experimental research into the nitrogen cycle.

OTHER REVISIONS IN ABSTRACTS

(G 2) title should read: 'Core Resonance Effects on the Earth's Angular Momentum Vector and Rotation Axis-A Generalized Model'

(O 68) presenting author will be: 'Robert Sheridan'

(P 59) affiliation should read: Chemistry Division, Argonne National Laboratory, Argonne, Illinois 60439

(T 71) presenting author will be: 'H.M.J. Illfelder'

(T 105) authors name should read: 'David M. Fountain'

(V 86) additional author: George R. Jiracek (Dept. of Geology, Univ. of New Mexico, Albuquergue, N.M.)