outheast sector of the cauldron block and its volcanic cover were
atruded by the Casto pluton during the development of the caldera. One
f several stocks clustered near the cauldron edge was emplaced about
8 m.y. ago, and myriad dikes of uncertain age intruded the volcanic
nd plutonic terrane.

GEOPHYSICAL STUDIES IN THE ISLAND PARK CALDERA, IDAHO

Long, C. L., Theoretical & Applied Geophysics Branch, Building 85, U.S. Geological Survey, Denver, Colorado 80225; O'Donnell, J. E., Theoretical & Applied Geophysics Branch, Building 85, U. S. Geological Survey, Denver, Colorado 80225; Smith, B. D., Theoretical & Applied Geophysics Branch, Building 85, U.S. Geological Survey, Denver, Colorado 80225

Audio-magnetotelluric (AMT) and telluric current soundings were made in a study of the Island Park Caldera during the summer of 1974. Because of the recent volcanic activity, less than a million years, and the proximity to Yellowstone Park, considerable interest exists in possible geothermal systems in the caldera. Previously published gravity and aeromagnetic maps cover the area of this survey.

The electrical soundings cover an area of approximately 2,000 sq km, with 56 AMT and 55 telluric current stations at approximately 6 km spacings.

The AMT method used natural electromagnetic fields from 7.5 Hz to 6.7 KHz (10 frequencies) with two VLF radio stations at 10.2 KHz and 18.6 KHz, while the telluric method utilized micropulsation data band limited from 0.02 Hz to 0.1 Hz. Maps compiled using both methods outlined major high and low resistivity areas. The major low-resistivity area is outside the caldera to the northwest. The AMT apparent resistivity maps, the telluric ratio map, and the gravity survey define coincident lows. The regional aeromagnetic map defines a magnetic high corresponding to the lows on the other data sets. Within the caldera the major high apparent resistivity, gravity high, and an aeromagnetic low all appear to correlate with a boundary of an older and younger caldera. Resistivities of the 25 ohmmeter low (approximately 200 sq km) outside and the 1,000 ohmmeter high (approximately 300 sq km) inside the caldera, extend to depths of 1 and 5 km respectively.

The gravity field over the Island Park area is transitional between the gravity high in the Snake River Plain and the gravity low in the Yellowstone Park area.

STROMATOLITES OF THE EOCENE GREEN RIVER FORMATION, SOUTHWESTERN WYOMING AND NORTHWESTERN COLORADO

Lundell, Leslie L. and Surdam, Ronald C., Department of Geology University of Wyoming, Laramie, Wyoming 82071

Stromatolites formed in Eocene Lakes Gosiute and Uinta are similar both in external morphology and internal fabric to those presently forming at Shark Bay, Australia. Stromatolites from the Green River Formation range from domal structures to algal laminated sediments.

Stromatolites are associated with shore line and desiccation features in the Green River Formation. Sedimentary features associated with stromatolites indicating periods of desiccation include mud cracks and flat pebble conglomerates. Ripple marks, oolites and coated ostracode grains, and pisolites are shore line features associated with the stromatolites. Coated-grain and oolite layers surrounding the stromatolites are often cross-bedded, indicative of traction transport.

Lateral variations observed within stromatolite layers indicate