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TERRESTRIAL HEAT FLOW STUDIES IN ARIZONA

QUARTERLY TECHNICAL PROGRESS REPORT
FOR PERIOD 1 AUGUST 1978 TO 31 OCTOBER 1978

MASTER

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PREPARED FOR THE
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DIVISION OF GEOTHERMAL ENERGY
UNDER CONTRACT ET-76-S-04-3721

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Abstract

During this quarterly reporting period, more than 100 lithologic samples were prepared for thermal conductivity measurements. A preliminary heat-flow value of 3 HFU has been determined for a location in southeastern Arizona. A second preliminary heat-flow value of about 2 HFU has been determined for a location about 20 km northeast of Duncan, Arizona.

Introduction

This report presents the work performed under U. S. Department of Energy Contract ET-76-S-04-3721 from 1 August 1978 to 31 October 1978. A summary of the work is presented and future work is outlined.

Summary of Work

More than 100 lithologic samples have been prepared for thermal conductivity measurements. This number represents almost half of the samples obtained from the drill holes that were logged for temperature gradients earlier in the project.

Thermal conductivity measurements have been made on some of the prepared samples and the results have allowed the calculation of preliminary heat-flow values for two locations. A heat-flow value of 3 HFU is indicated for a site in southeastern Arizona. This location is in the Galiuro Mountains near Klondyke, Arizona, in Graham county. The drill hole at this site was logged to a depth greater than 1000 feet and the temperature gradients were $65^{\circ}\text{C}/\text{km}$ to $70^{\circ}\text{C}/\text{km}$. The surface rocks in the area have been mapped as thick sections of Tertiary andesites and overlying Tertiary rhyolites.

The second preliminary heat-flow value is 2 HFU and is for a site about 20 km northeast of Duncan, Arizona.

A resurgence of hardware failures has occurred in the analyzer system of the gamma-ray spectrometer. A redesigned circuit has just been completed and the analyzer is presently being reassembled.

Projected Work

Thermal conductivity measurements will be made almost continuously during the next period of the project. Thus a regional analysis of the heat-flow data can be carried out. A trip to Arizona is planned in the next few weeks to obtain lithologic samples for a number of drill holes logged earlier this year.

DOE Contract ET-76-S-04-3721

Project expenditures from 1 August 1978 to 31 October 1978

A. Personnel

Principal Investigator	\$ 708.75
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Graduate Student	1866.54
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B. Fringe Benefits	135.75
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C. Laboratory Supplies	437.07
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D. Student Travel to Meeting	391.75
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E. Indirect Costs

Overhead	<u>1322.50</u>
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Total	\$4862.36
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Abstract

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