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Regards,
Ed Decker

HEAT FLOW AND GENERALIZED GEOLOGY IN EASTERN ARIZONA, THE RIO GRANDE RIFT,
THE SOUTHERN ROCKY MOUNTAINS, AND THE NORTHERN AND CENTRAL ROCKY MOUNTAINS

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A geologic synthesis by Chapin (1971) outlines the Rio Grande Rift as a zone extending from extreme southern New Mexico to the Leadville area in Colorado. More recently, Tweto (1977) implies that the Rift extends well into northern Colorado, and perhaps into southern Wyoming. In our compilation, Chapin's commonly accepted north-south outline of the Rift is followed; consequently, the central part of the Rift is coincident with the Rio Grande River in New Mexico, and the San Luis Basin and northern Arkansas River Valley in Colorado. We defer attempts to delineate a more northerly extension of the Rift, except to note that two unusually high estimated heat flows are consistent with late Tertiary volcanism, faulting and perhaps rifting in the Southern Rocky Mountains in the North Park area near the Colorado-Wyoming border (Tweto, 1977; Blackstone, 1975; Decker and others, 1979).

The map of the Central and Northern Rocky Mountains also shows generalized geology and thermal data for the Southern Rockies in Wyoming because the Laramie Mountains and eastern Wyoming Basin appear to form a province of continuous low to normal heat flow (Decker and others, 1979). Both maps can be used to study the width of the heat flow transition between the Laramie Mountains and the Colorado Front Range.

A similar rationale was followed during compilation of both maps. Briefly, faulting and Cenozoic volcanism are outlined in considerable detail because anomalous flux (high or low) often is associated with extensive faulting,

tectonic extension, and geologically young volcanic or caldera-forming activity. The large outcrops of the Precambrian basement, the Mesozoic batholiths, and the Tertiary intrusions are also depicted since their locations relative to existing heat flow sites can provide information on the distance to bedrock radioactivity samples, and because drilling in many of these areas could lead to a more complete understanding of heat flow and radioactivity. Additionally, many of the heat flow sites in Idaho and Montana are in or near the Idaho and Boulder batholiths, respectively, but in contrast several of those in Arizona, Colorado and New Mexico are in small Tertiary stocks or laccoliths. Finally, to indicate the centers of the major sedimentary basins, the general outlines of the larger areas of Tertiary sediments are indicated on each map.

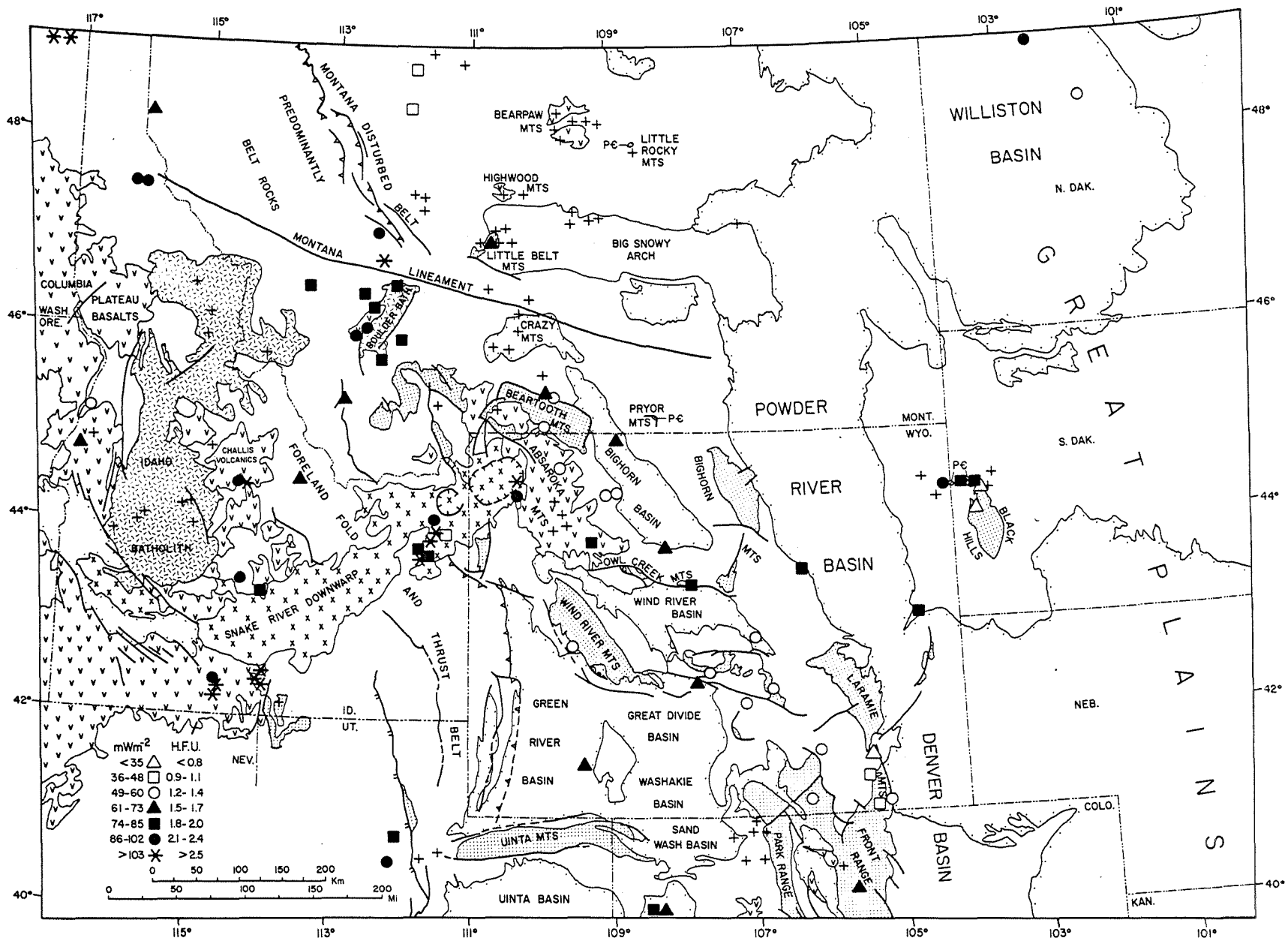
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Caption

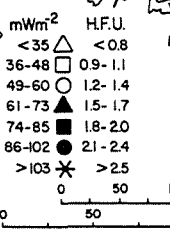
Heat flow and generalized geology for the Central and Northern Rocky Mountains. Generalized geology essentially after King and Beikman (1974).

Compiled by E. R. Decker, H.P. Heasler, and D.L. Blackstone, Jr., Dept. Geology, University of Wyoming, Laramie, Wyoming.



LEGEND

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| QUATERNARY VOLCANIC ROCKS | CRETACEOUS GRANITIC ROCKS (BATHOLITHS) | BOUNDARY OF TERTIARY SEDIMENTS |
| TERTIARY VOLCANIC ROCKS | or PЄ PRECAMBRIAN ROCKS | FAULTS, UNCLASSIFIED |
| TERTIARY INTRUSIVE ROCKS | CALDERAS | THRUST FAULT, TEETH ON THRUST PLATE |
| | | NORMAL FAULT, HACHURES ON DOWNTHROWN SIDE |



Caption

Heat flow and generalized geology for eastern Arizona, the Rio Grande Rift, and the Southern Rocky Mountains. Generalized geology essentially after King and Beikman (1974). Compiled by E. R. Decker, H. P. Heasler, and D.L. Blackstone, Jr., Dept. Geology, University of Wyoming, Laramie, Wyoming.

