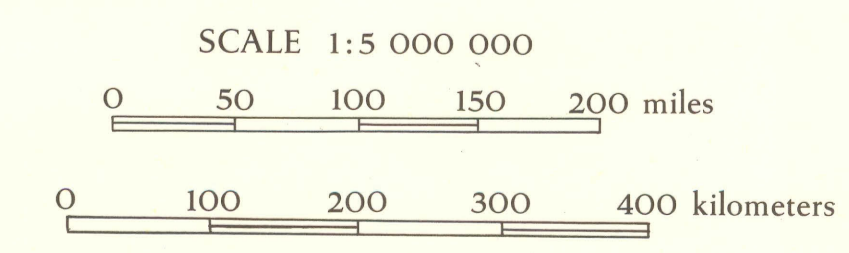


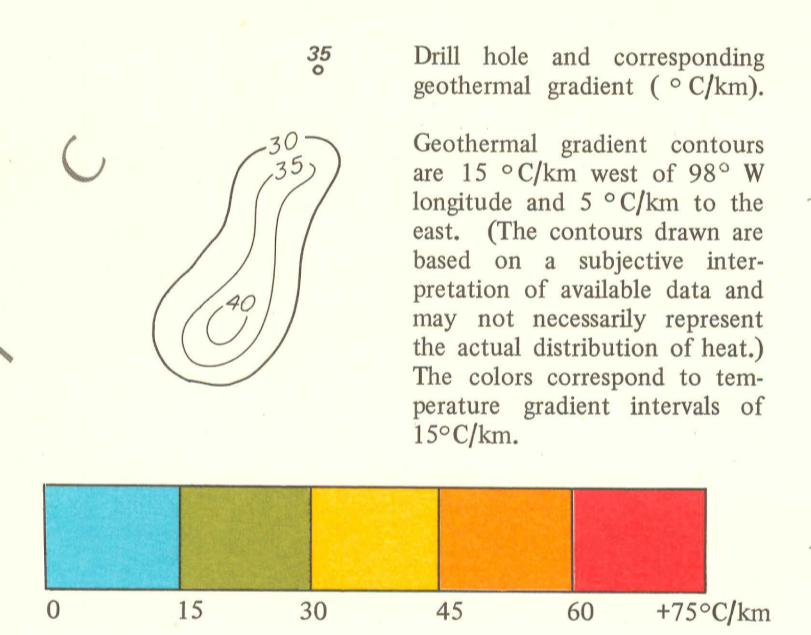
GEOHERMAL GRADIENT MAP OF THE CONTERMINOUS UNITED STATES

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EXPLANATION



As part of the Hot Dry Rock (HDR) Geothermal Program of the Department of Energy, a geothermal gradient map of the U.S. is to be published annually. This map is necessary as a "tool" for the evaluation and development of a HDR geothermal resource.

Determining the Geothermal Gradient

All gradients are calculated from temperatures measured at regular intervals down the hole. Gradient plots that meet the following criteria are considered to represent the regional conductive gradient of an area, and for the most part, are not affected by local ground water and hydro-thermal circulation.

- (1) If the actual temperature log of a well was available, the data were plotted on a depth vs temperature diagram, and gradients were calculated for straight line segments using a least-squares fit for each line.
 - a. If the calculated gradient was consistent for the bottom 200 m of the hole, the bottom gradient was usually plotted.
 - b. If the gradients varied slightly (± 10 °C/km) down the hole (probably as a result of lithologic and conductivity changes) then a weighted average of the gradients for each straight-line segment over the entire hole was calculated and plotted.
 - c. Gradients measured for the upper 50 m of a well were generally not used when calculating a weighted average, since this interval is commonly affected by ground water flow and climatic variations.
 - d. If the gradient was negative or highly irregular, it was not used.
- (2) If gradients were listed for different depth intervals within a well (and actual plots were not available), a weighted average over the hole (except for the upper 50 m) was calculated and plotted; however, if the bottom interval was at least 200 m and the hole a few hundred meters deep, then this bottom interval was plotted.
- (3) Only gradients from A and B quality published heat flow holes were used. (A = measurements are thought to be within $\pm 10\%$ error; B = measurements are within $\pm 20\%$ error). These criteria are similar to those used by many investigators, e.g. Reiter et al. (1975).
- (4) Wells less than 50 m deep were not used because of climatic and hydrologic conditions.