



Usgs Polar Temperature Logging System, Description and Measurement Uncertainties (Paperback)

By United States Geological Survey (Usgs)

Bibliogov, United States, 2012. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.This paper provides an updated technical description of the USGS Polar Temperature Logging System (PTLS) and a complete assessment of the measurement uncertainties. This measurement system is used to acquire subsurface temperature data for climate-change detection in the polar regions and for reconstructing past climate changes using the borehole paleothermometry inverse method. Specifically designed for polar conditions, the PTLS can measure temperatures as low as -60 degrees Celsius with a sensitivity ranging from 0.02 to 0.19 millikelvin (mK). A modular design allows the PTLS to reach depths as great as 4.5 kilometers with a skid-mounted winch unit or 650 meters with a small helicopter-transportable unit. The standard uncertainty (uT) of the ITS-90 temperature measurements obtained with the current PTLS range from 3.0 mK at -60 degrees Celsius to 3.3 mK at 0 degrees Celsius. Relative temperature measurements used for borehole paleothermometry have a standard uncertainty (urT) whose upper limit ranges from 1.6 mK at -60 degrees Celsius to 2.0 mK at 0 degrees Celsius. The uncertainty of a temperature sensor s depth during a log depends on specific...



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