

Geotek Infrared Imaging

The fastest, most comprehensive way to find gas hydrate in cores



Thermal imaging for hydrate detection

Thermal imaging using infrared cameras is accepted by the scientific community as the most pragmatic way to determine the overall hydrate distribution in a sediment core.

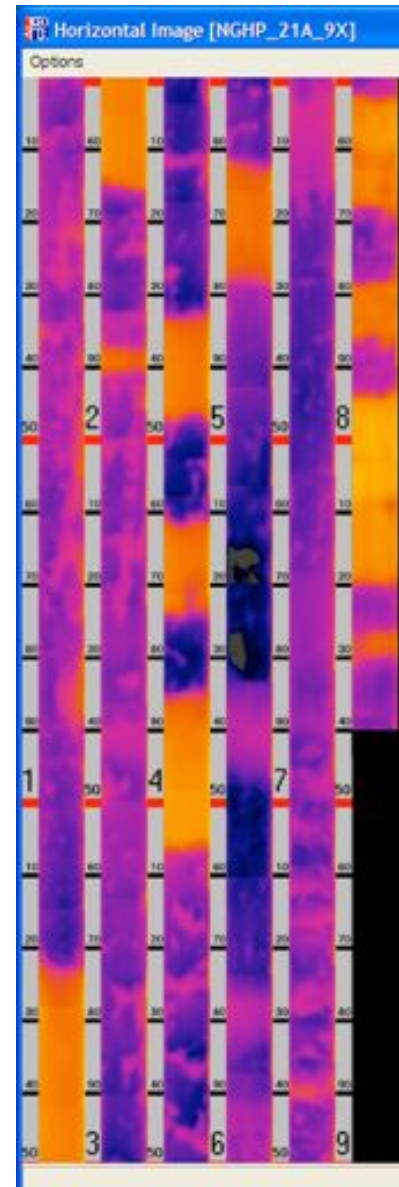
Dissociation/melting of gas hydrate is a strongly endothermic process which not only provides a self-preserving effect on the hydrate itself, but also cools the surrounding sediment and core liner material. Cool spots created by the unstable gas hydrate can therefore be detected on a thermal image of a fresh core that has been recovered quickly from beneath the seafloor.

Infrared imaging track

The Geotek infrared imaging system consists of a computer-controlled infrared camera mounted on a skate that moves incrementally along the core, rapidly capturing thermal images.

The skate maintains accurate positioning of the camera relative to the core as well as providing the necessary shielding for the core from extraneous thermal artifacts. These include sunlight and other heat sources, especially thermal reflections from people.

Depth-registered thermal images of complete cores are obtained within minutes of the core being recovered. Concatenated images appended with an electronic ruler are displayed in real time on monitors distributed along the length of the track.



Immediate results allow smarter sampling

The thermal images allow cold regions to be quickly identified even before the camera has finished moving along the core. The final image remains on the screens, making thermal anomalies easy to locate while the core is marked and sampled. If necessary, the image can be enlarged and manipulated on screen to identify even the smallest details.

Post-collection adjustment and analysis

All images are saved in the FLIR thermal image format (.img), and after collection these images can be individually examined in FLIR software or manipulated en masse using the Geotek Infrared Imaging software. Concatenated full-core images are exported in JPEG format for ease of use and a companion temperature matrix for the entire core is available as an ASCII file.

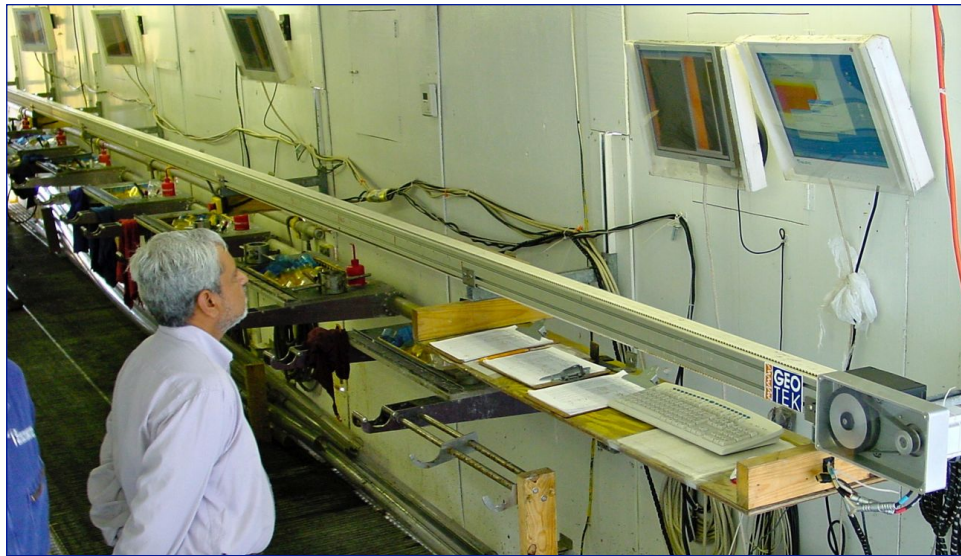


Infrared imaging system specifications

- **Cameras:** FLIR A40 thermal imaging camera; AVT Marlin visual camera
- **Core accepted:** Length: up to 950 cm; Diameter: up to 15 cm
- **Camera motion:** Fully automated motion. Linear precision: 1 mm
- **Images output:** FLIR thermal image files (.img), individual bitmap images (.bmp) and concatenated JPEGs
- **Dimensions:** Variable depending on core length

Core processing speed

The normal scan speed for standard infrared imaging is three metres/minute.



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