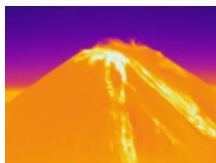


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By: Tudor Vieru, Science Editor



An infrared picture of lava flows inside a volcano
National Geographic

[Predicting Volcanic Eruptions with Infrared Imaging](#)

Thermal infrared technology gives scientists a better view of lava flows

As millions of people throughout the world live underneath or close to a volcano, the necessity of finding a viable way of predicting eruptions has been an imperative to the scientific community for years now. Experts have used every technological means at their disposal the best way they could, and it would seem that now they got their lucky break, as thermal infrared technology became available for interpreting barely-perceptible energy readings given off by volcanoes before they burst.

Satellite imaging, provided by NASA's satellites orbiting our planet, now offer scientists a comprehensive view of lava flows underneath Earth's crust. Michael Ramsey, associate professor of geology at the University of Pittsburgh, has spent more than 12 years studying eruptions, from Indonesia to Russia and the United States.

Modern technology allows him to use a Forward Looking Infrared Radiometer (FLIR) - basically a sophisticated infrared camera - to detect how temperatures inside active volcanoes shift over periods of time. The high stake in this dangerous line of work, which claims the lives of about 10 percent of volcanologists, is devising a way to predict eruptions before they occur, in due time to safely evacuate those living underneath the cones.

Current reading methods allow scientists to announce an eruption a few hours ahead, but that's not nearly enough time to mobilize authorities and prompt evacuation procedures. Using the new infrared technology, changes under Earth's crust can be spotted as early as 4 days before the pressure inside the volcano becomes critical.

A further reason why predicting eruptions is so important is that they often interfere with airplane routes, causing major problems, such as engine stalls and even shut-downs. Over the years, several planes nearly crashed, after pilots mistook ash clouds for regular storm clouds. Rerouting flights costs millions of dollars, in terms of planning and fuel consumption, so the scientific community is looking at stamping that out also.