Interactive comment on “Stimulated infrared emission from rocks: assessing a stress indicator” by F. T. Freund et al.

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The paper by Dr. F. Freund et al. is of great theoretical and practical importance. Over the years infrared radiation as earthquake precursor has not been verified theoretically or experimentally. The well-designed experiments conducted by Dr. F. Freund et al. prove that rocks under pressure do emit infrared radiation, which is a huge progress toward our understanding of infrared radiation as earthquake precursors.

Numerous observations have proved that isolated earth surface temperature increase occurs before an earthquake and the zone of temperature abnormality moves toward the epicenter. As Prof. Dr. M. Wyss, chairman of the International Committee of Earthquake Prediction has pointed out, earthquake precursors must enable seismologists to pinpoint the three fundamental elements of an earthquake: epicenter, time, and mag-
nitude. 1 However, what puzzles earth scientists and earthquake prediction experts always is the fact that many of the so-called precursors could not provide the means by which the epicenter of a future earthquake could be determined.

Since 1990, the research group led by Dr. Zuji Qiang has utilized Meteorological satellite high-time-resolution infrared images to predict earthquakes. 2,3,4,5,6,7 More recently, the thesis by Chunying Wang of Taiwan National Institute of Geography, Environment and Resources Research reported that abnormal surface temperature increase had been observed for 13 shallow-focus earthquakes of magnitude $\leq 5.9$ during the period from 1999 to 2002. All these facts prove that infrared radiation does occur when rocks in the crust under forces, and an earthquake happens afterwards.

Question:

How do the conditions under which the experiment was conducted compare to the real world of an earthquake? What are the influences of the environments of an earthquake (depth, pressure, stress, and temperature) on the infrared radiation emitted?

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