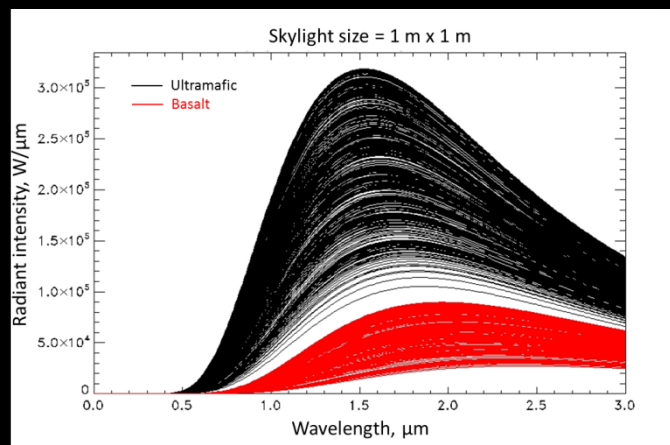


Lava tube skylights light the way to determining Io lava eruption temperatures



Lava tube skylight, Hawai'i (photo: USGS)



Different compositions yield different spectra

For Io, the insanely volcanic moon of Jupiter, the biggest question in the wake of NASA's *Galileo* mission is what is the composition of Io's lavas? Knowing this would constrain Io's interior state. One way to do this is to measure the temperature of Io's lava, which varies with composition, as it erupts. However, this is not an easy thing to do from a spacecraft!

Now, a likely common volcanic feature on Io has been identified which provides the best target for a future mission. Lava tube skylights reveal incandescent lava at temperatures close to eruption temperature.

A newly-published model of the expected thermal emission from skylights has quantified the differences expected at the extreme ends of the likely range of lavas. We now have the definitive thermal signatures which can be used to measure lava temperature.

This, once again, shows how Io is a laboratory for understanding volcanic activity on a massive scale, and a key to the hidden history of Earth.