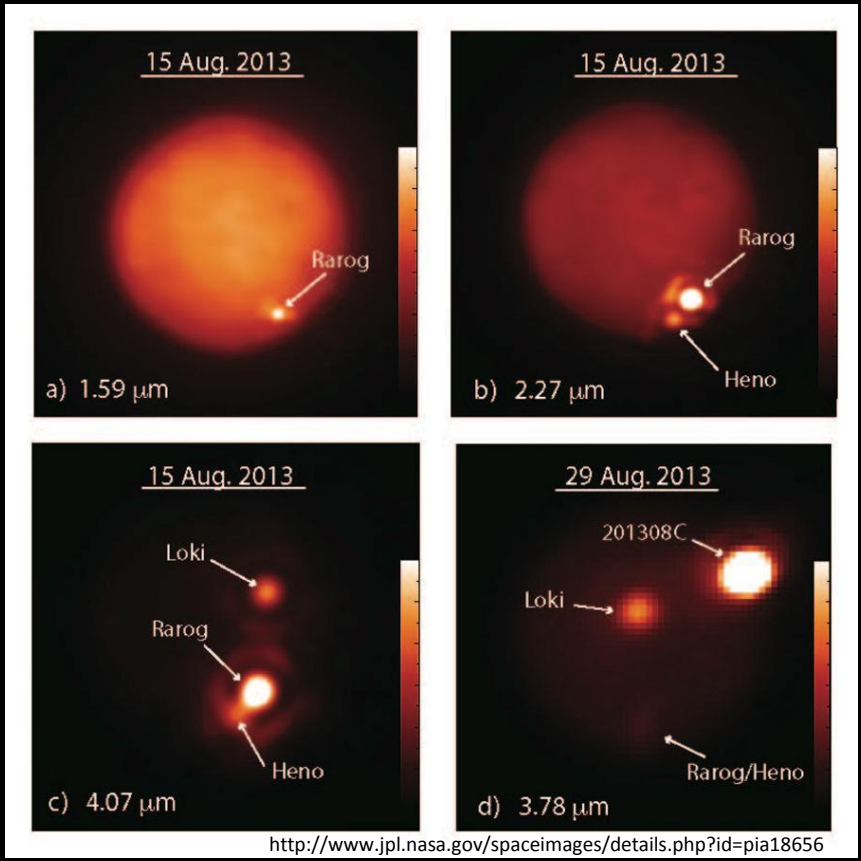
Massive lava flows on Io reveal how it was done on ancient Earth, Mars, Venus…



http://www.jpl.nasa.gov/spaceimages/details.php?id=pia18656

Massive flood basalt lava flows helped shape the surfaces of the terrestrial planets but how fast the lava was erupted and how long the eruptions lasted is unknown… until now. Such eruptions have been seen and quantified on Io.

Data obtained in August 2013 using the Keck, Gemini and IRTF telescopes showed three immensely powerful, high-volume, high-temperature, short-duration eruptions that created lava flows that rapidly spread across Io's surface.

At the peak of the eruption at Heno Patera, lava erupted at about 10^5 m^3/s. This is 100 times greater than the peak eruption rate of Mauna Loa, Hawai'i, in 1984, one of Earth's greatest effusive eruptions of recent times.

We now have a better understanding on how these important eruptions behaved. 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.

de Pater et al. (2014) *Icarus*, in press, DOI: 10.1016/j.icarus.2014.06.016.
de Kleer et al. (2014) *Icarus*, in press, DOI: 10.1016/j.icarus.2014.06.006.