Io's global average heat flow at 1.85-2.6 W/m$^2$, is much larger than the 0.05-0.09 W/m$^2$ average for Earth, and most of this heat is released by volcanoes, in contrast to the heat loss on Earth in the present epoch. During Earth's earliest epochs, however, volcanism was much more important: Io's extreme heat flow and volcanism may be similar to that of Earth during that period. Unfortunately, despite several spacecraft flybys and the multi-year Galileo observations, several fundamental questions about Io remain:

i) What are the relative contributions of sulfur versus silicate volcanism? Particularly fascinating are reports of ultra-high temperatures (~1800 K), suggestive of rocks with extreme high melting temperatures (komatiites), which were present on Earth only during its early history.

ii) What is the process by which tidal heating is converted into Io's volcanic activity? The tidal heating is induced by the orbital eccentricity forced by Jupiter and the 4:2:1 Laplace resonance between Io, Europa, and Ganymede, but many details are unknown.

To help answer these questions and constrain interior models, we initiated a monitoring program of Io at near-infrared (1-5 micron) wavelengths on the Gemini N telescope, using its Adaptive Optics system. We show here the results from our first epoch of observations (Fall 2010), and compare these with older maps and observations taken with the Keck telescope, and with Galileo maps at visible wavelengths.