

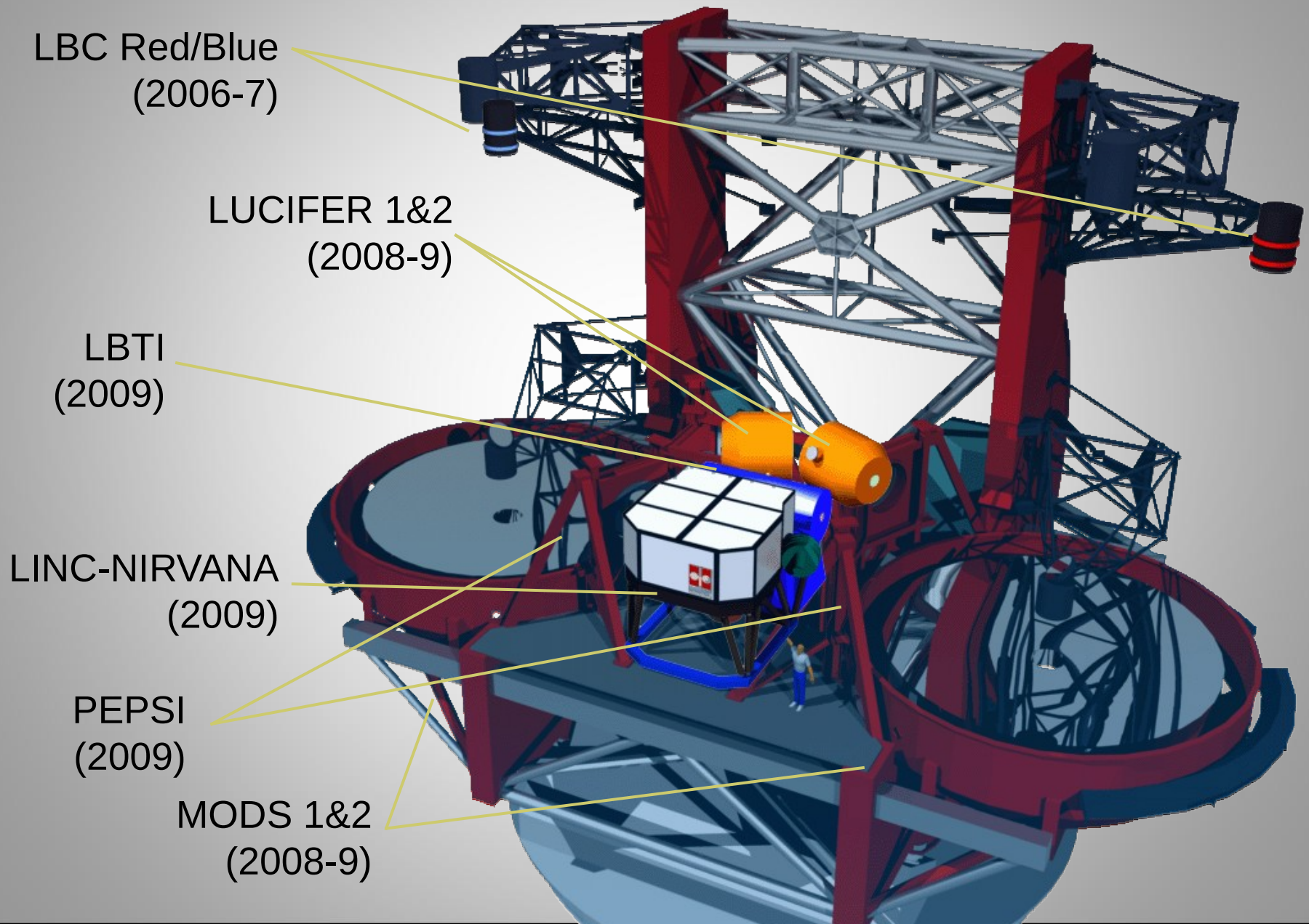
Reconstruction of post-adaptive images of Io observed with LBTI and KECK

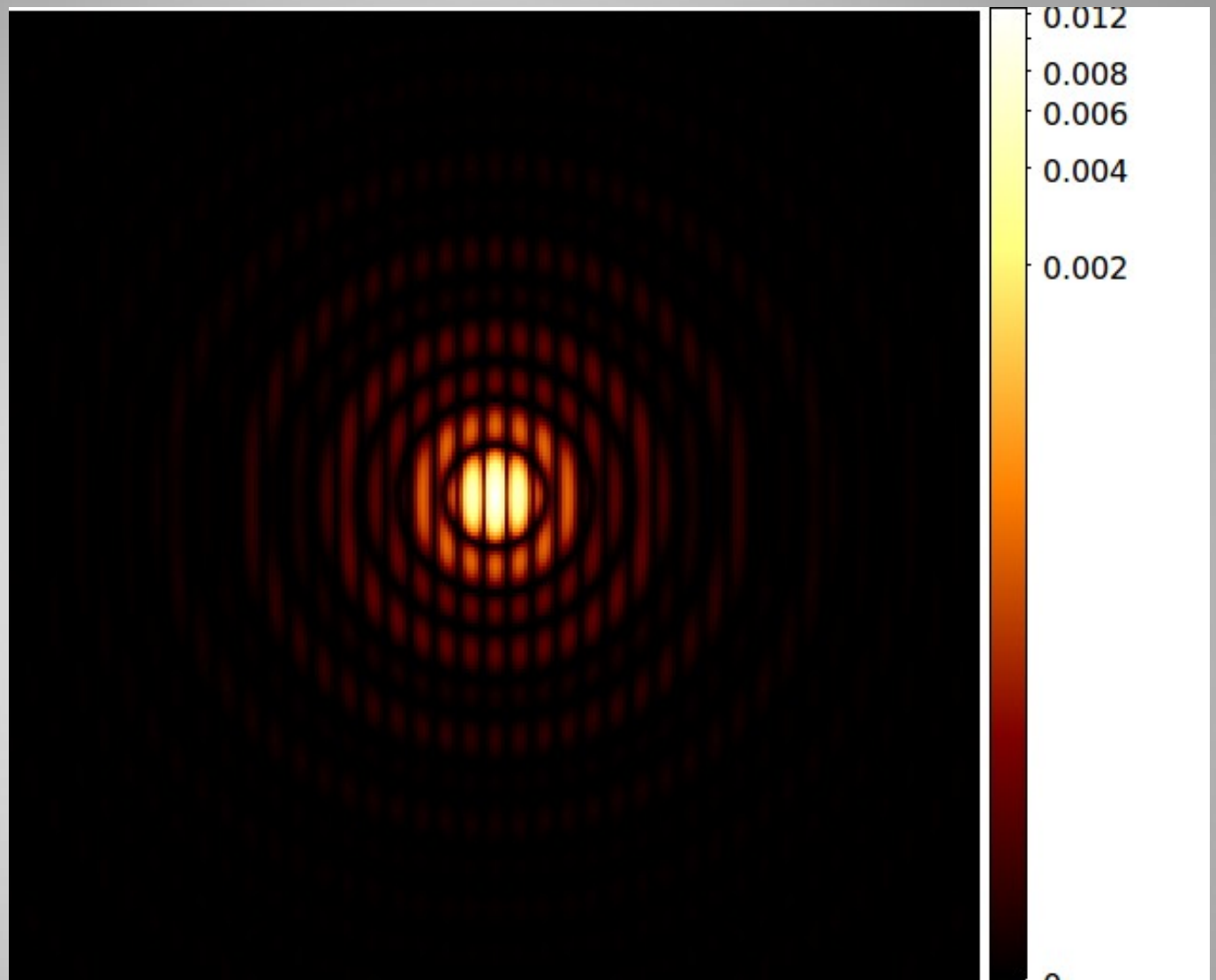
M. Bertero. P. Boccacci e A. La Camera

DIBRIS, Università di Genova

ADONI2016 - Firenze 12-14 Marzo 2016

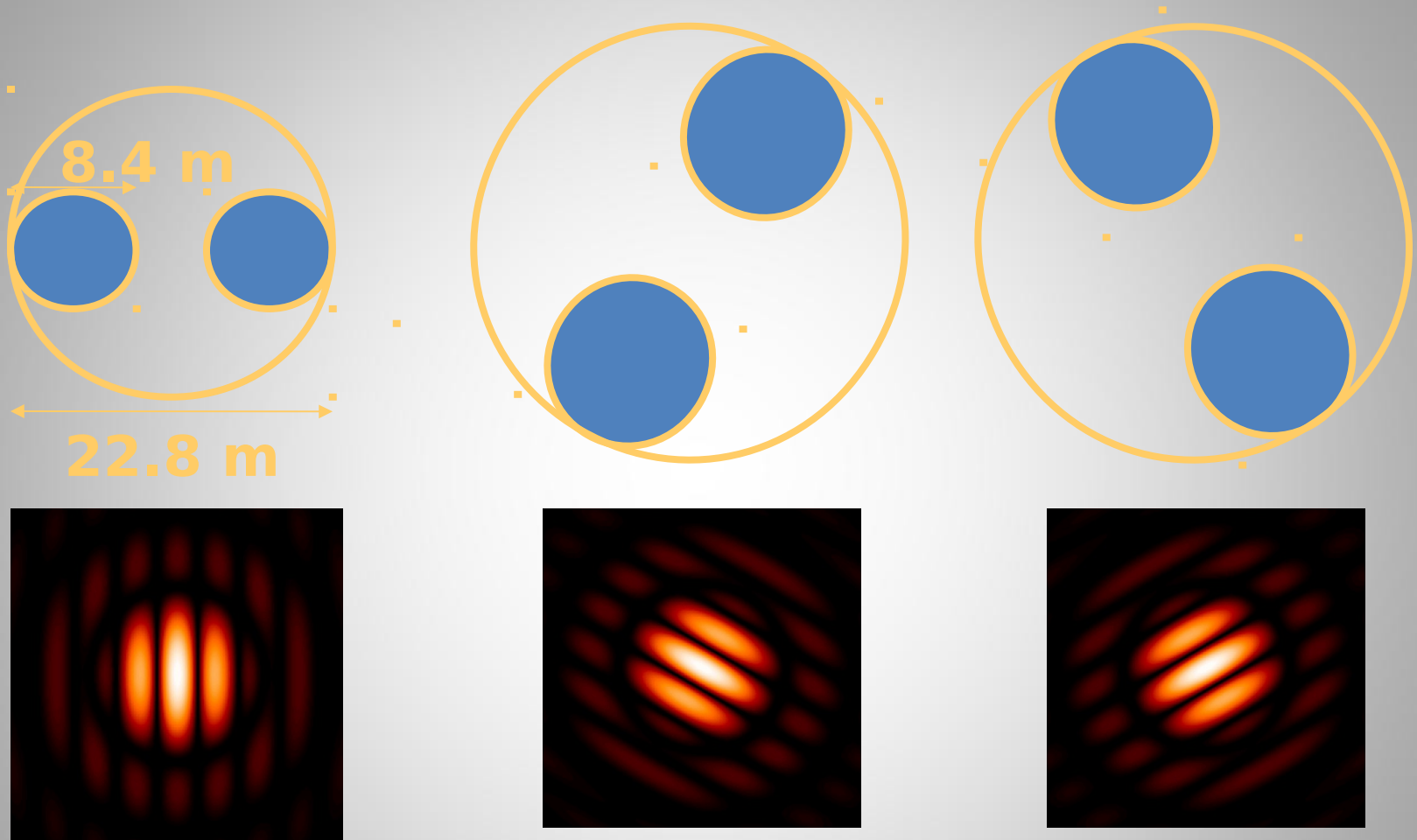
Strumentazione prevista



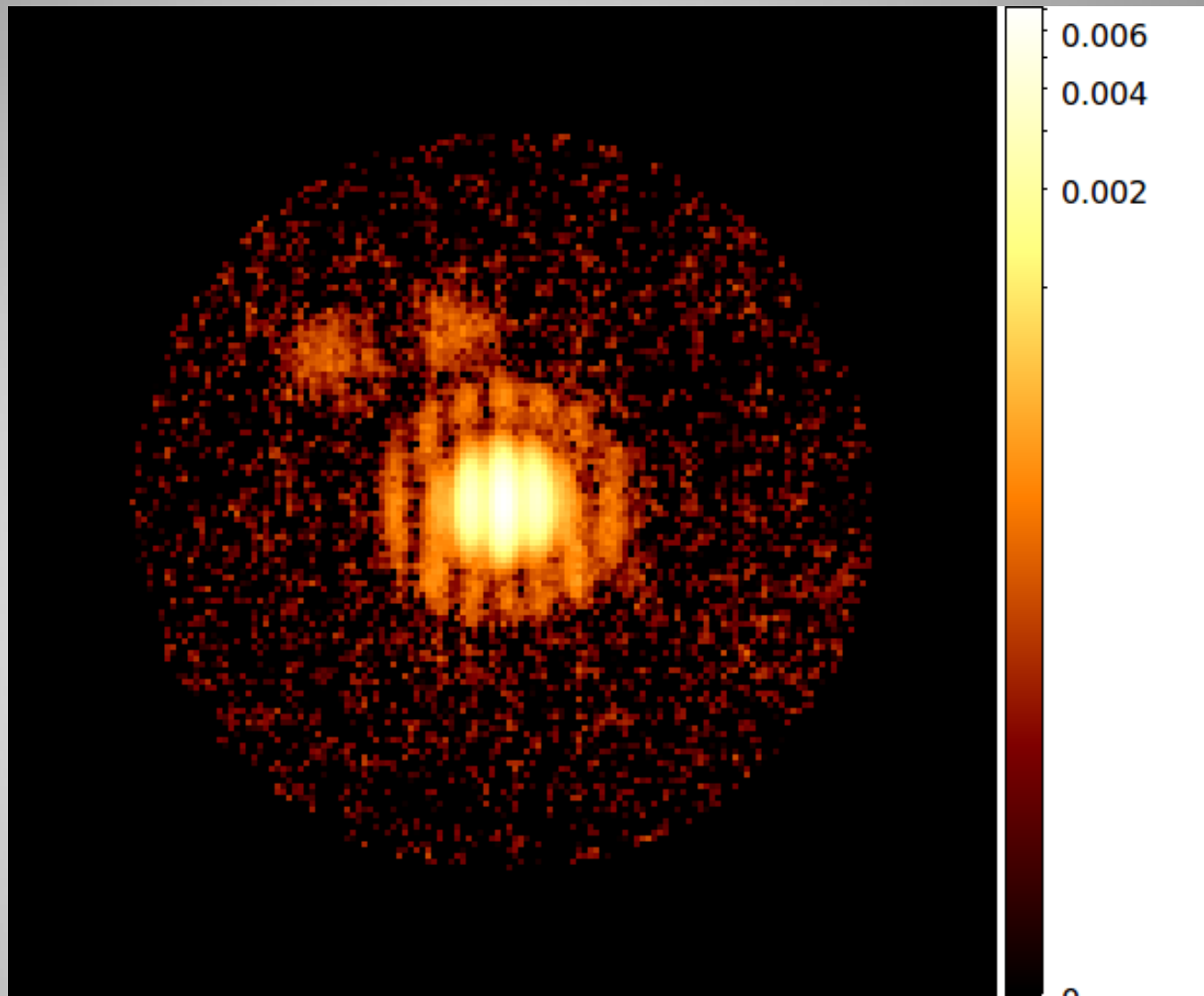


Ideal Fizeau interferometric PSF

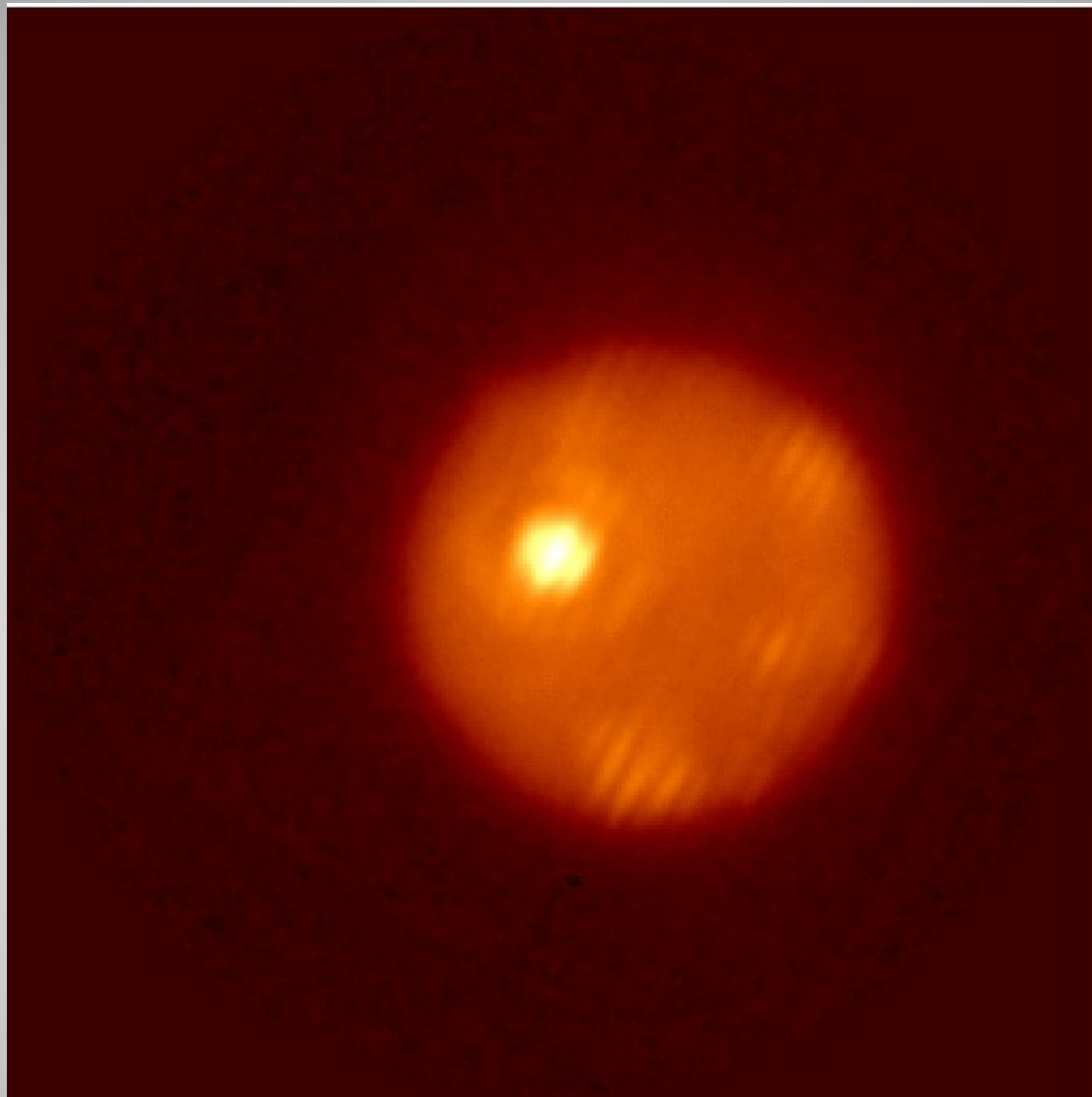
Observations at different angles are required



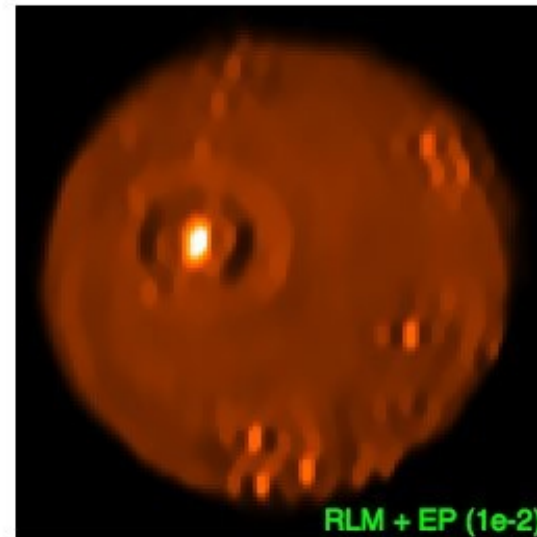
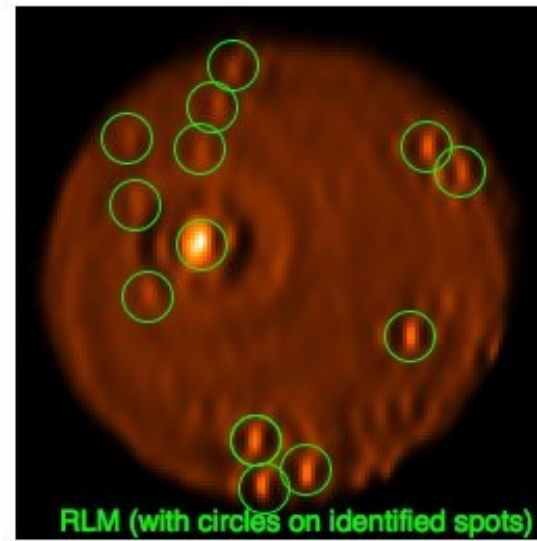
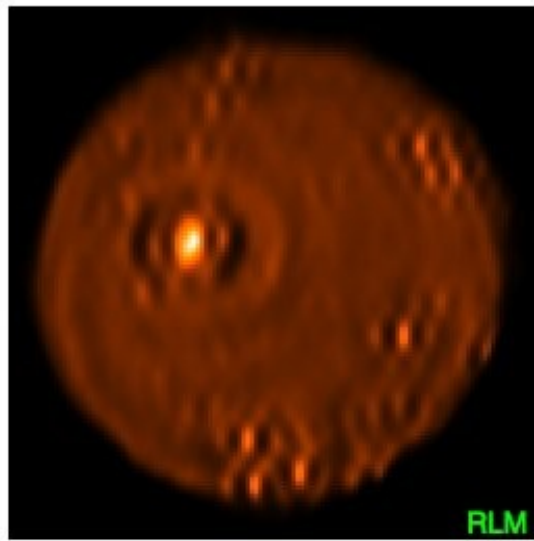
for obtaining, by means of suitable algorithms, a unique image with a uniform resolution of a 22.8m mirror



The PSF derived from an image of the star HD-78141

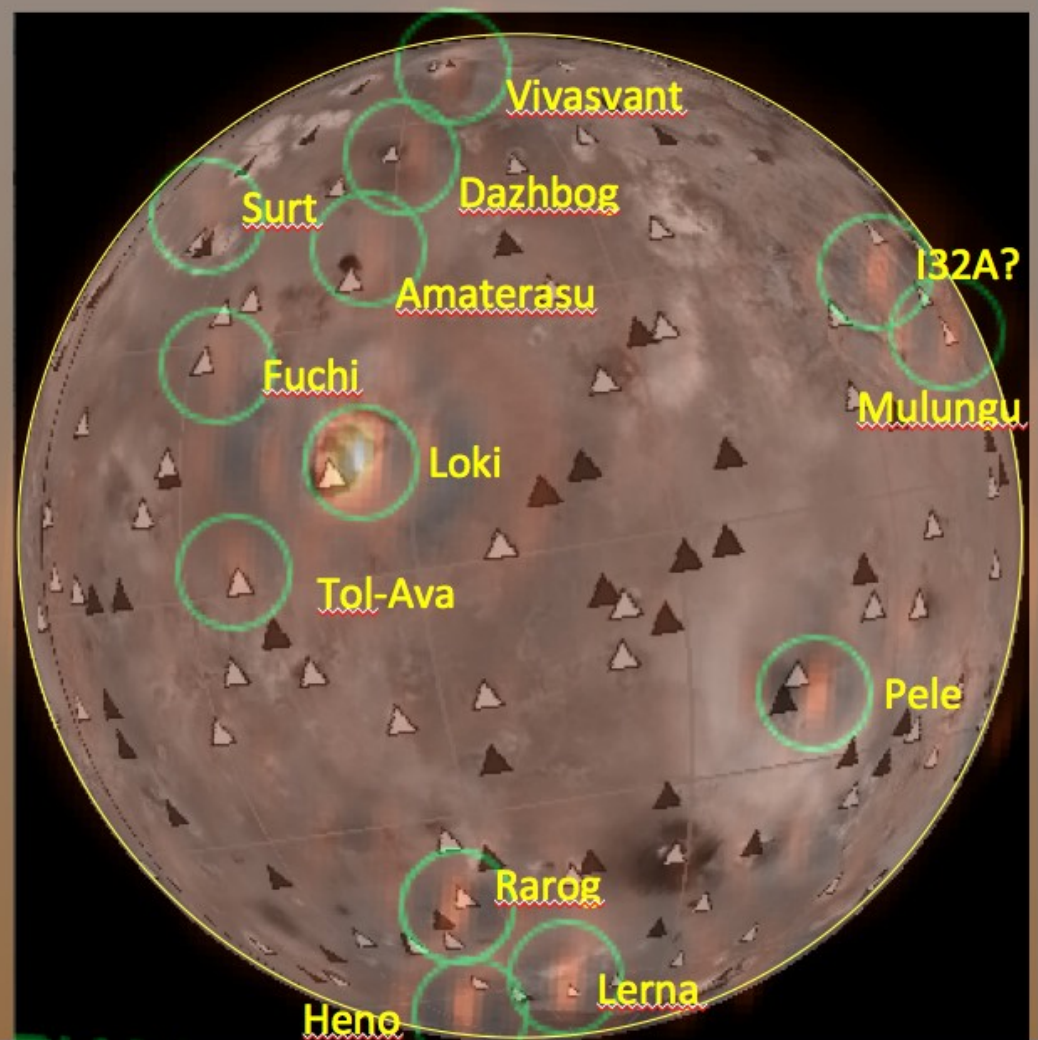
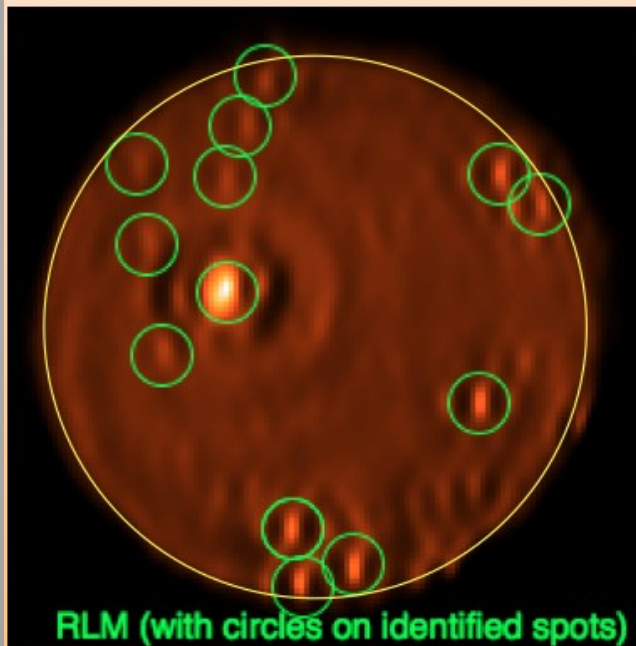


The 7 images of Io observed with LBTI, December 24, 2015

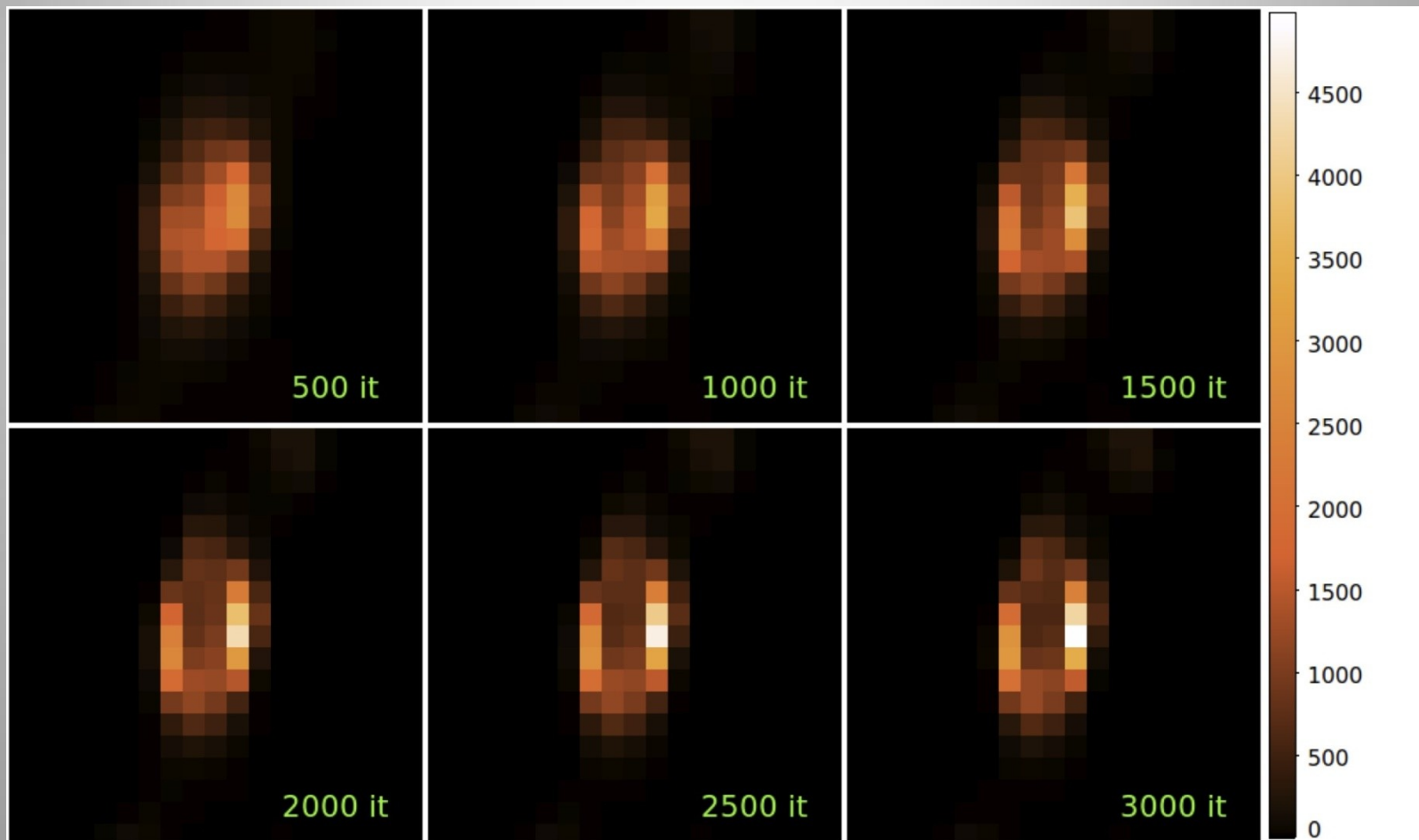
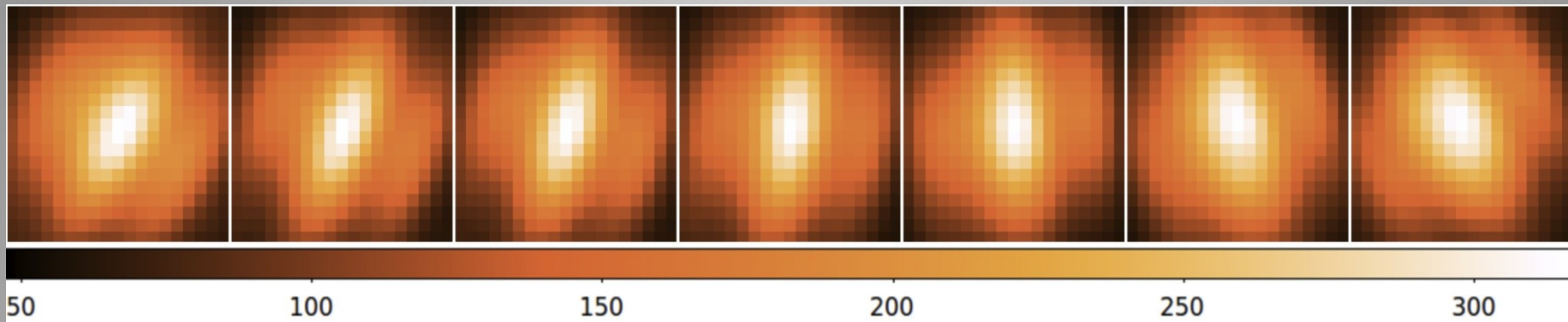


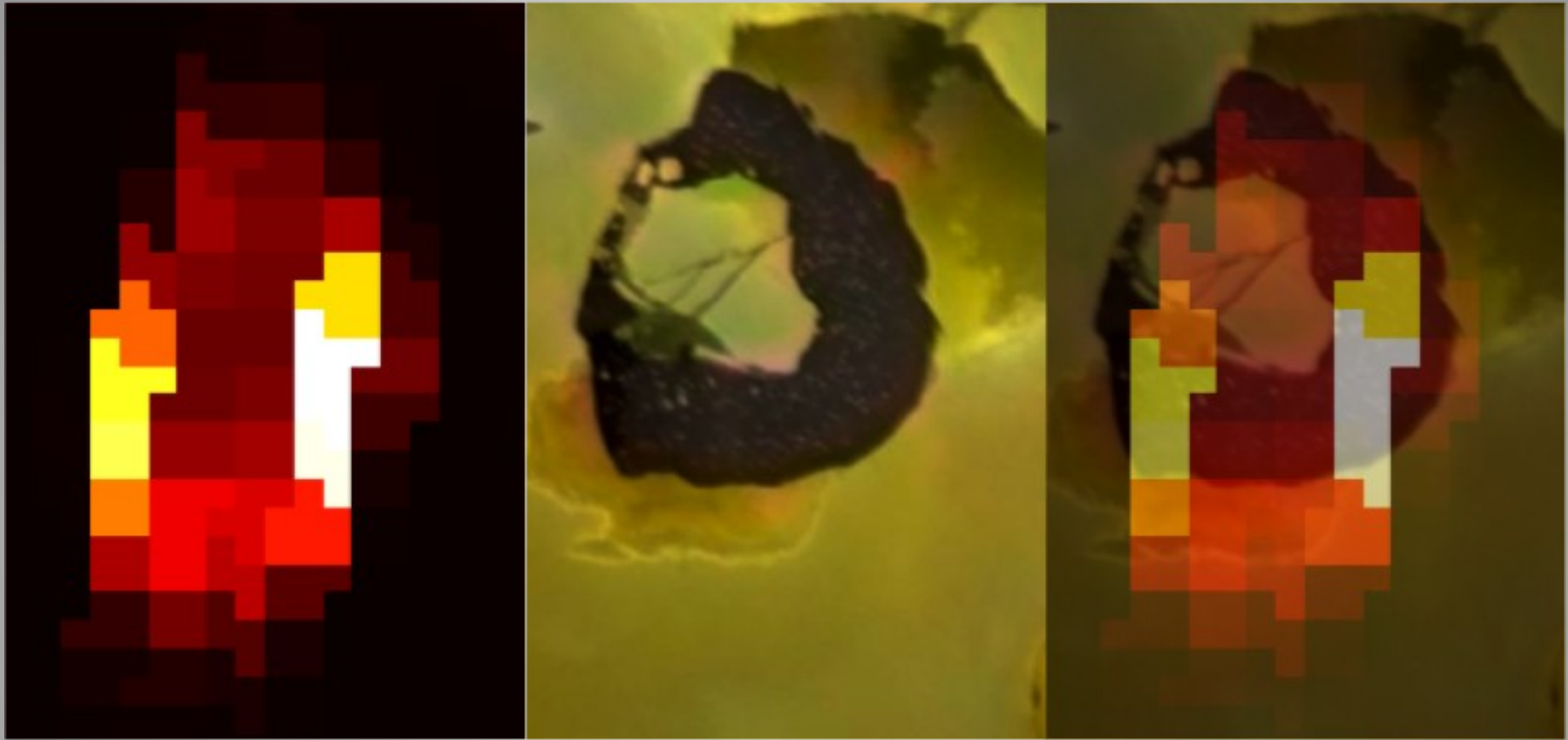
**First reconstructions sent on May 5, 2014
A quick reply by John Spencer, Boulder,**

December 24th, 8 UT,
Io with celestial north up,
compared to LBT
image rotated for best visual
match

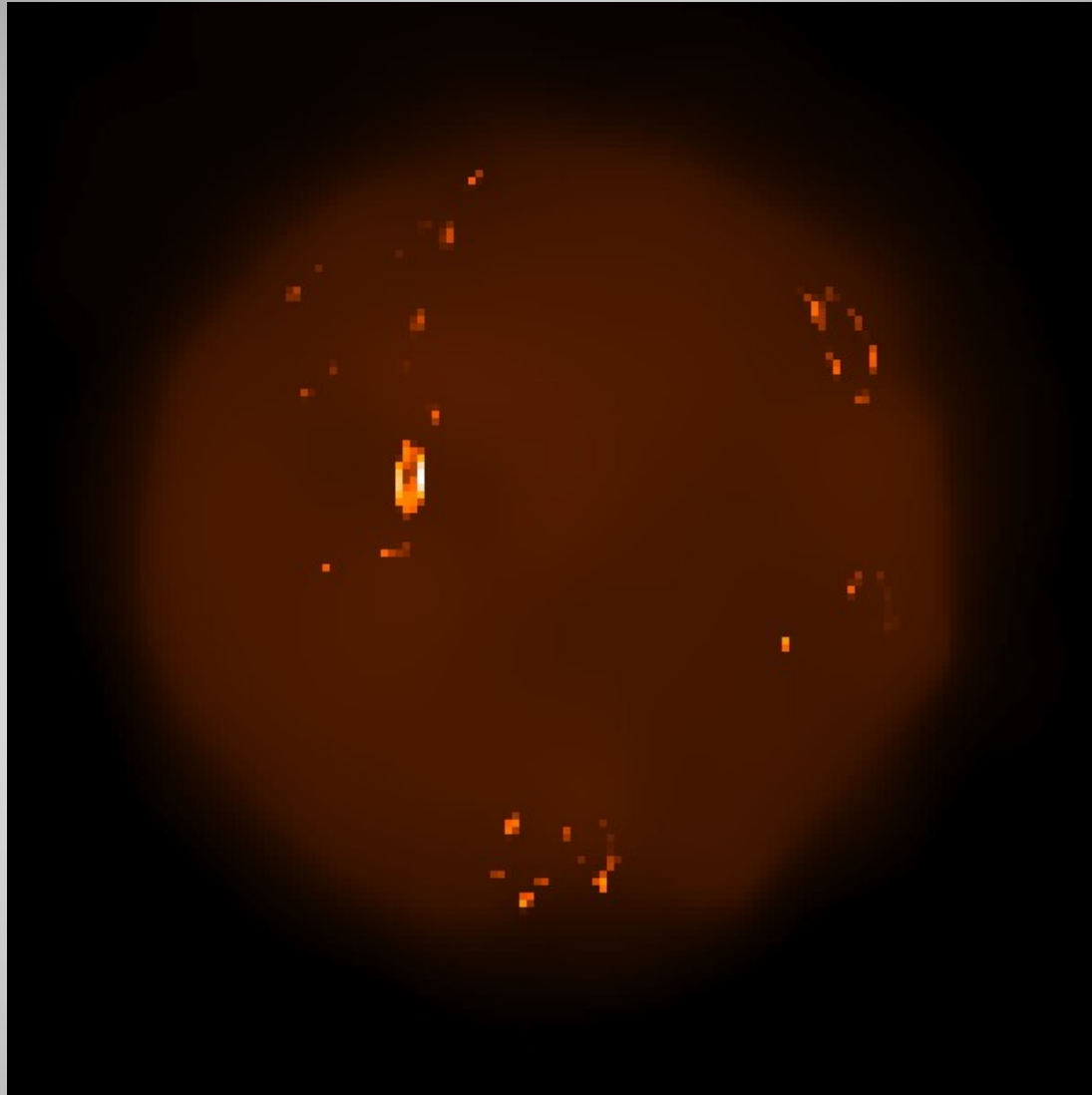


All circles correspond to existing volcanos...plus one

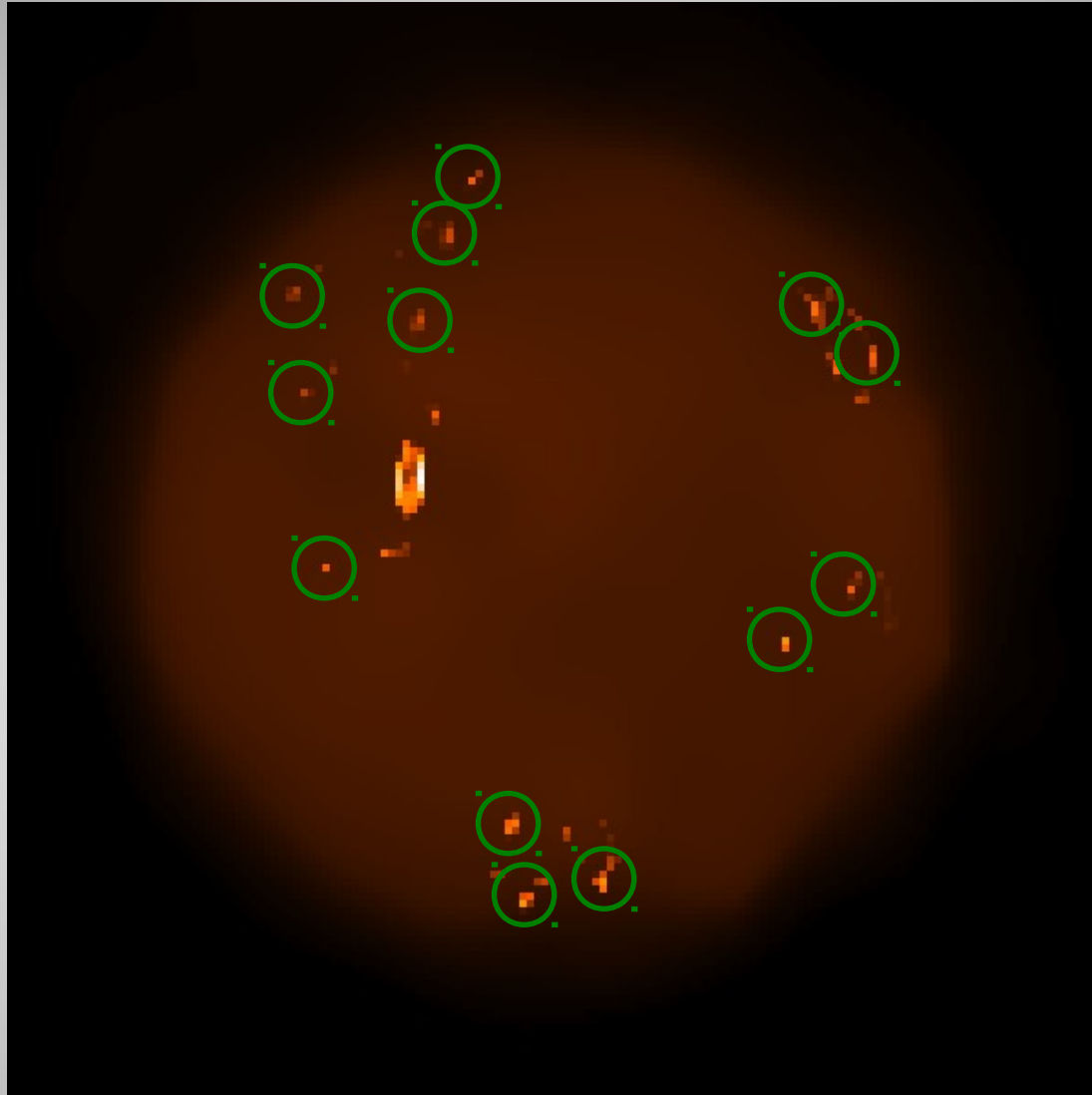




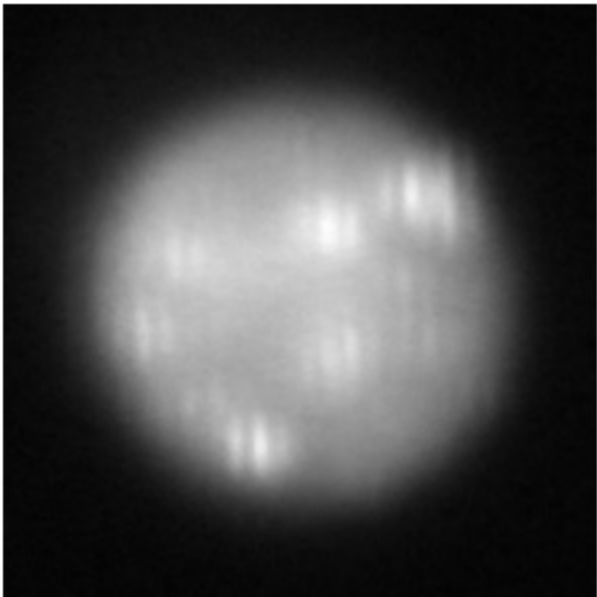
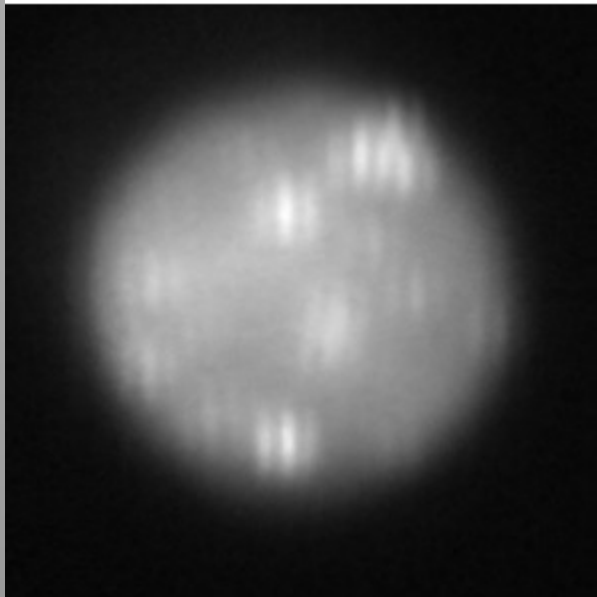
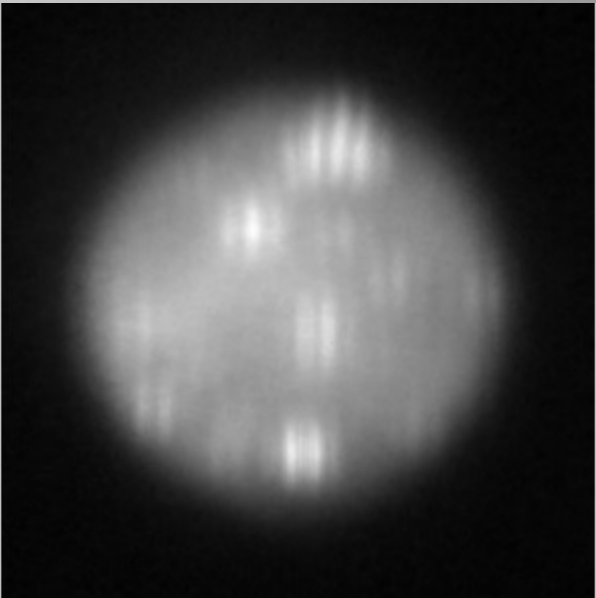
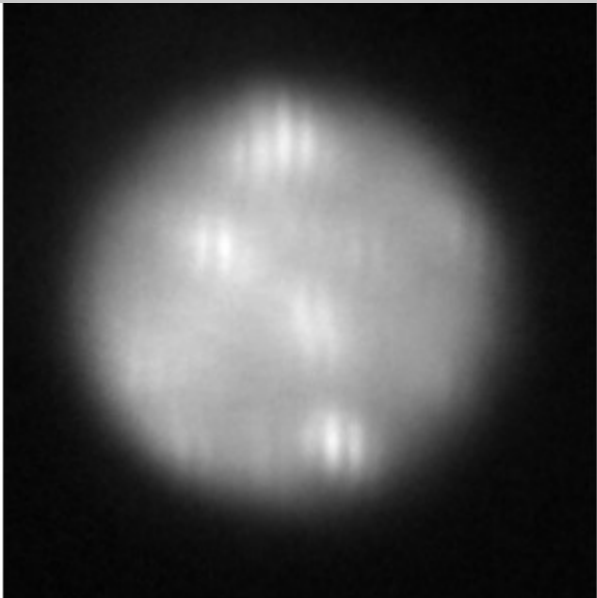
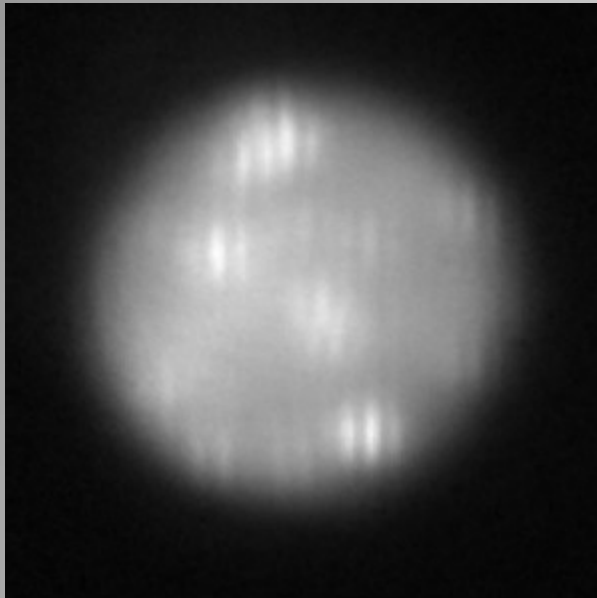
Projection on the lat-long plane of both the local reconstruction and the Voyager image of Loki and their superposition; due hot spots, presumably one permanent and the other due to a “resurfacing” process.



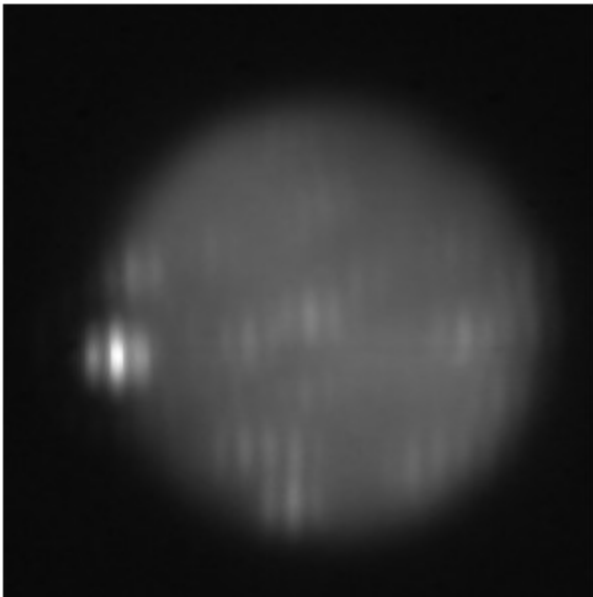
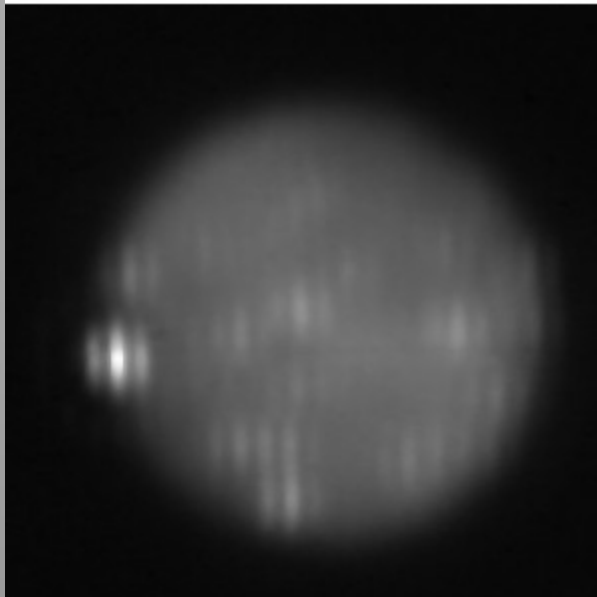
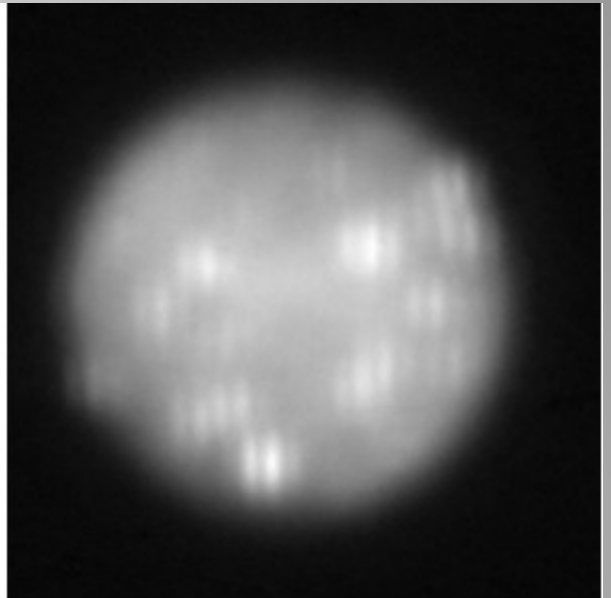
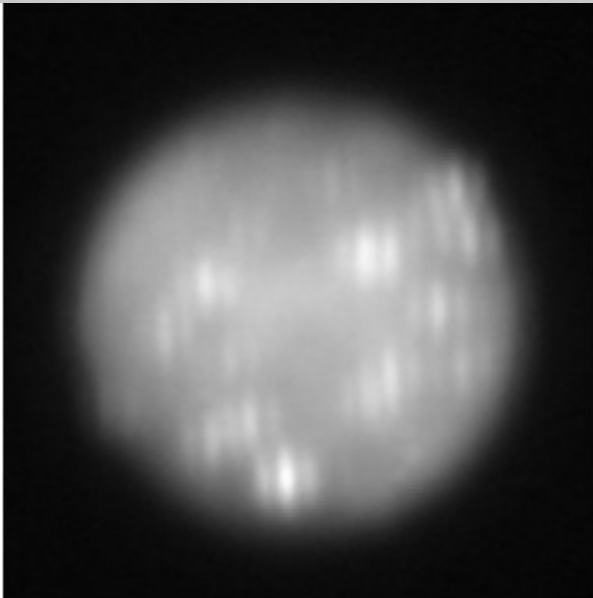
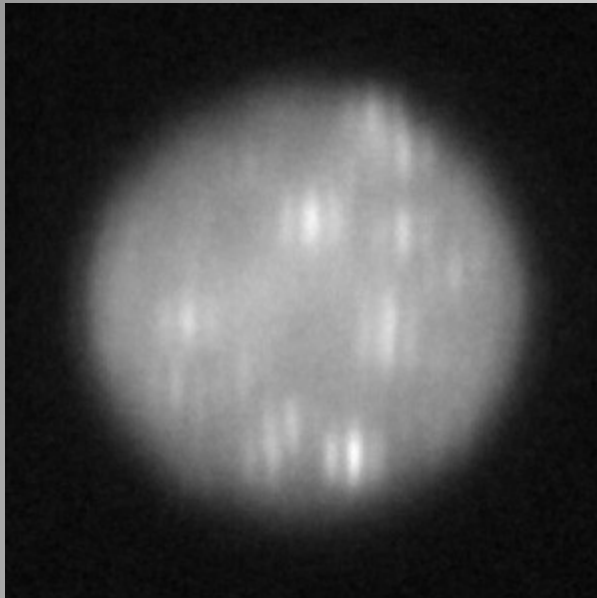
Improved reconstruction obtained with a multi-step approach



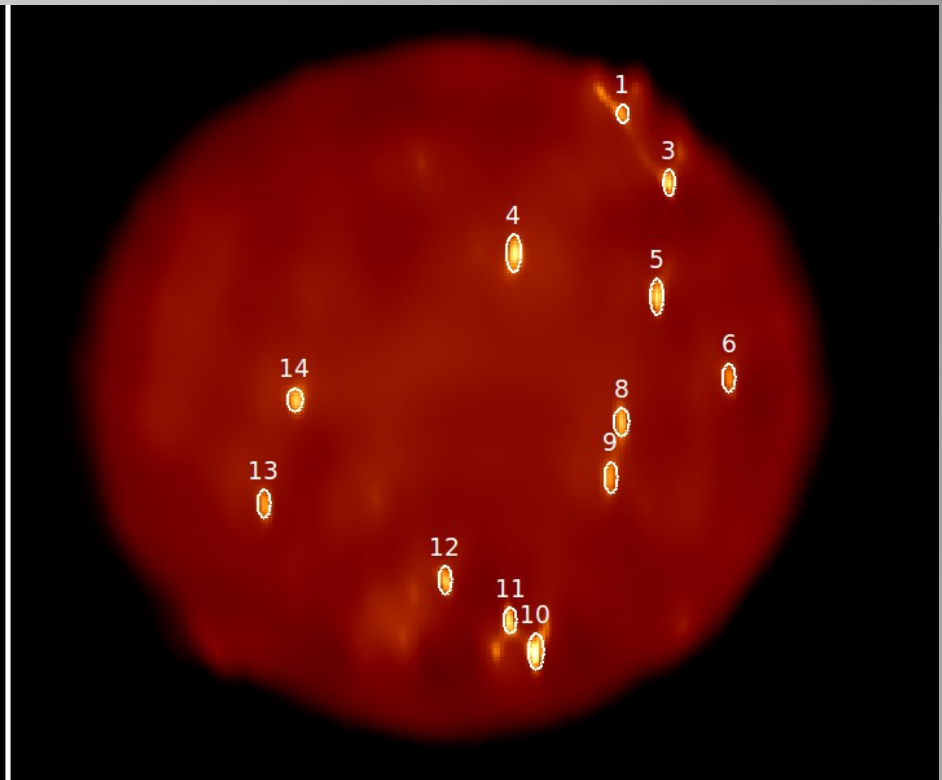
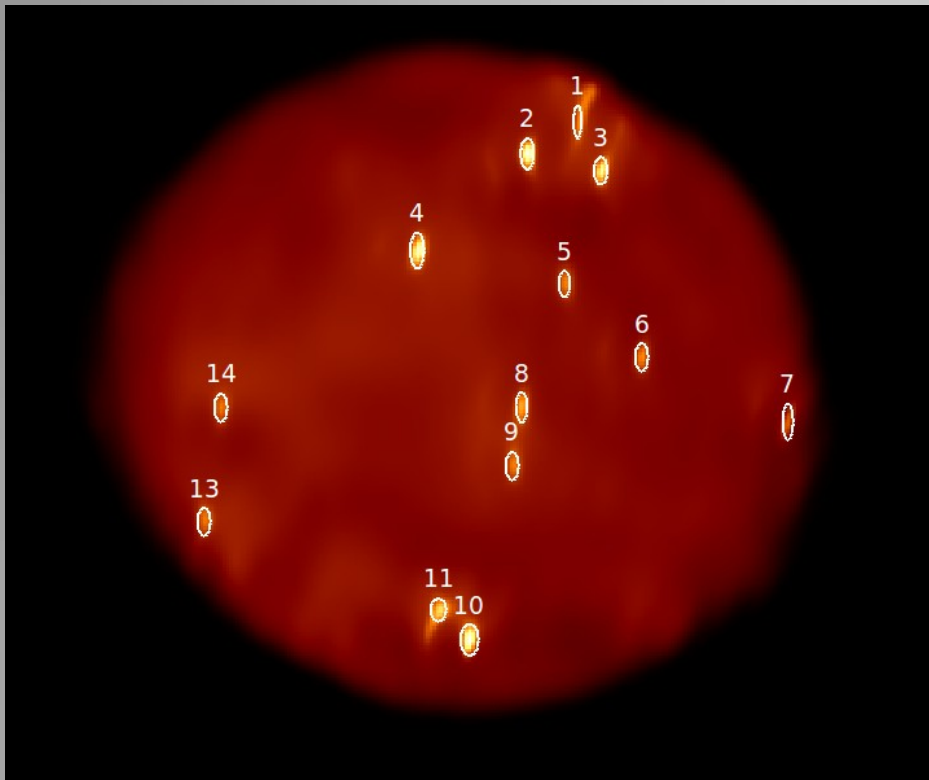
Identified volcanos and artifacts



January 4, 2015



February 5, 2015



1 unknown

2 unknown

3 Zal ?

4 Amirani * *

5 Gish Bar patera

6 Tanhaki patera

7 Janus patera

8 Sigurd patera

9 Itzamma patera

10 Dark patera

11 unknown

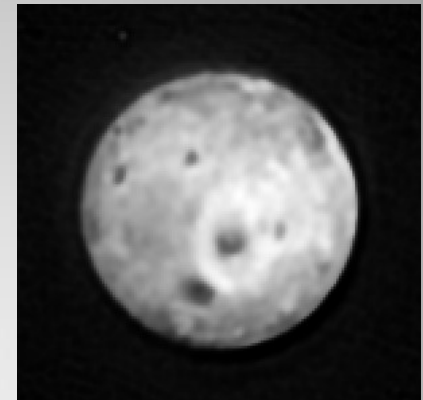
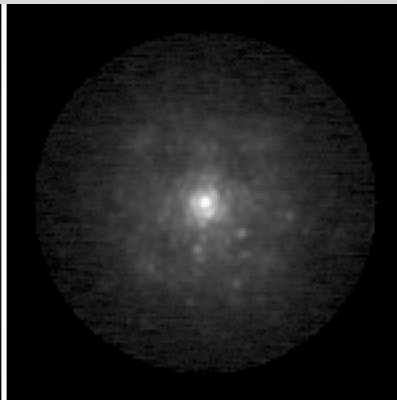
12 Malik patera

13 Culam patera

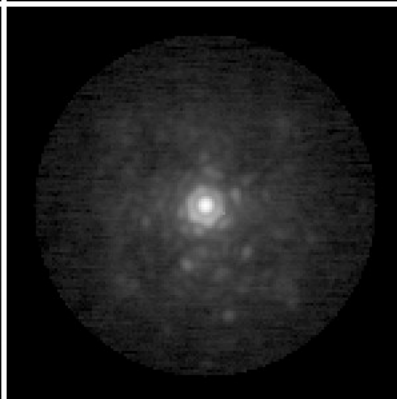
14 Prometheus * *

Io observed with Keck II: Pillan eruption, August 14, 2007

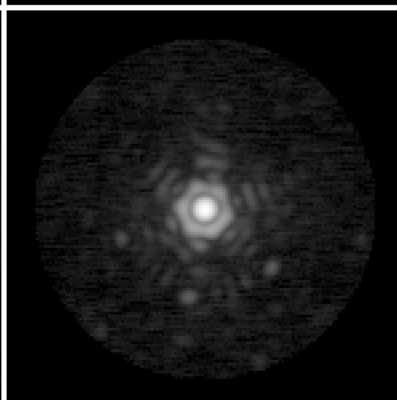
J-band

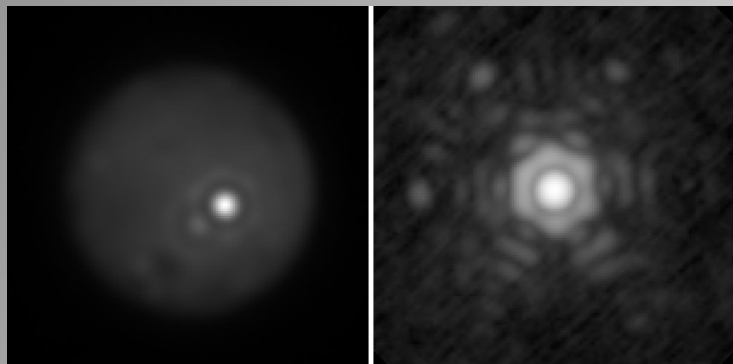


H-band

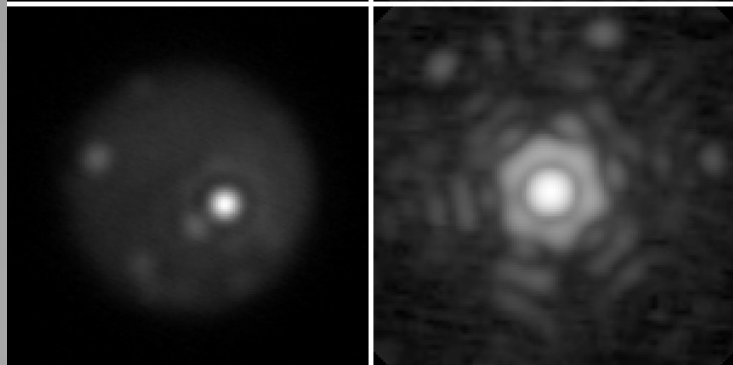


K-band

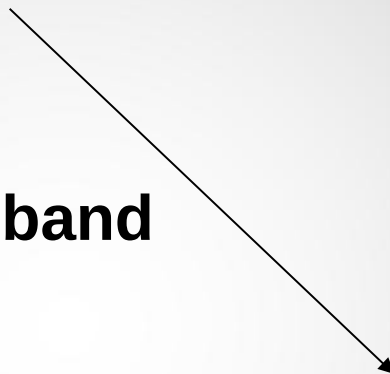




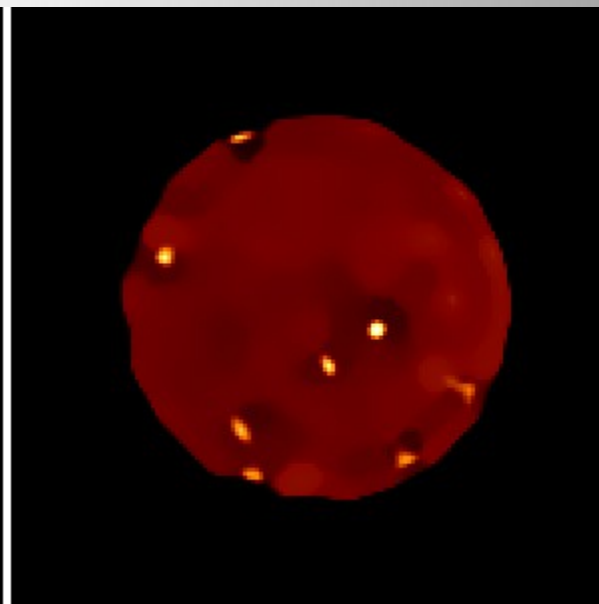
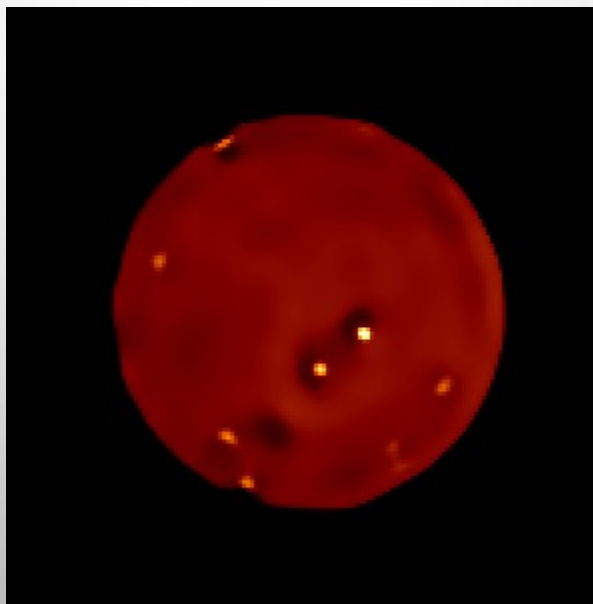
L-band



M-band



**Reconstructions
with the multi-step
approach**



THANK YOU !