Akatsuki IR1 camera awakens

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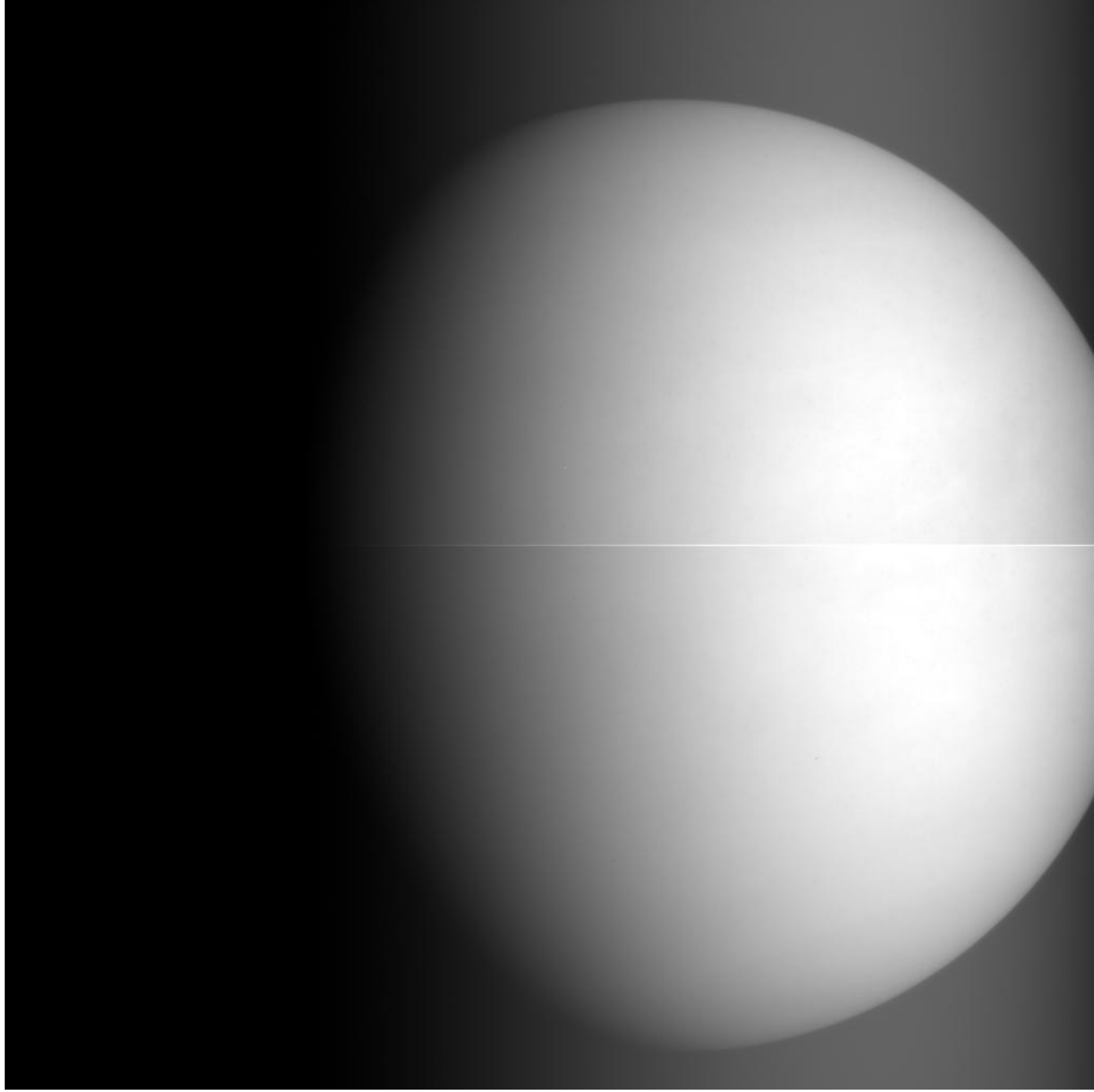
Abstract

IR1 camera on AKATSUKI awoke without serious damage after 4-years sleep. The dayside image shows a smooth appearance as expected. The nightside image seem to show surface information such as Aphrodite Continent.

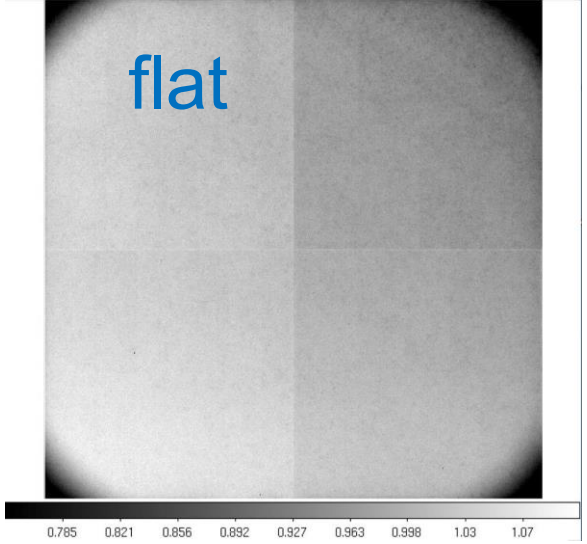
Episode 7
IR1 awakens

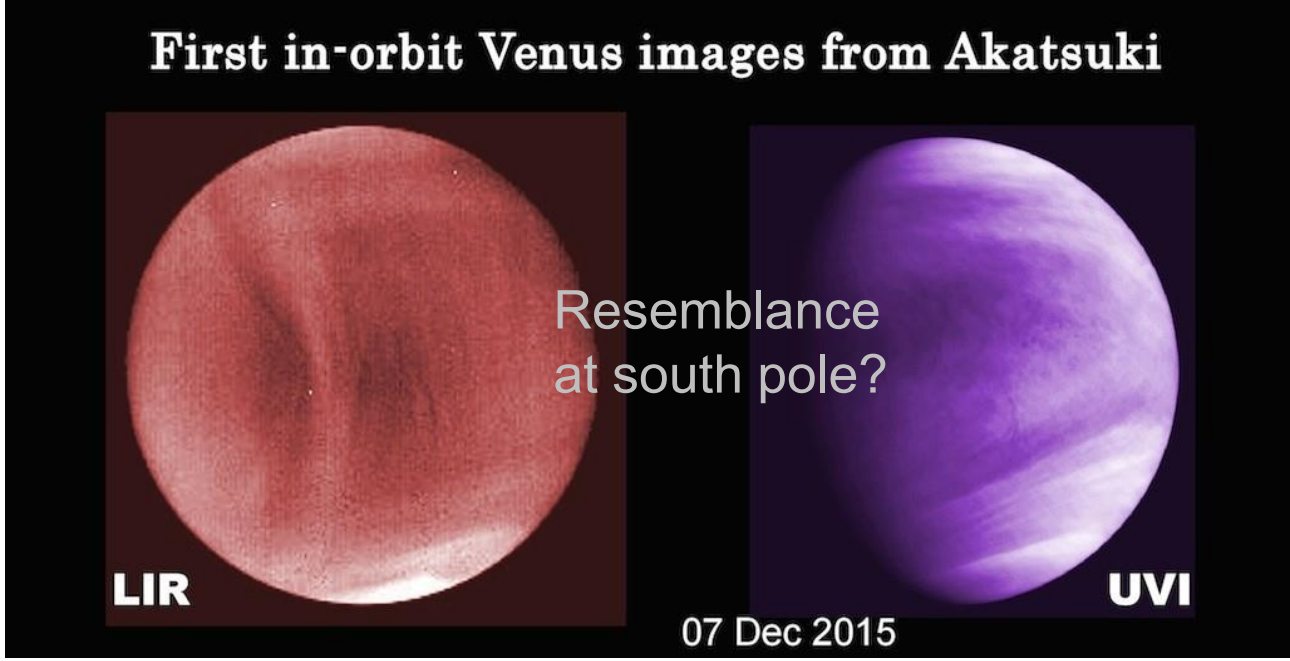
0.9 μm dayside raw image taken
5 hours after VOI 68,000 km away
Almost no dead pixel found
Happy!



Episode 7b
cooking

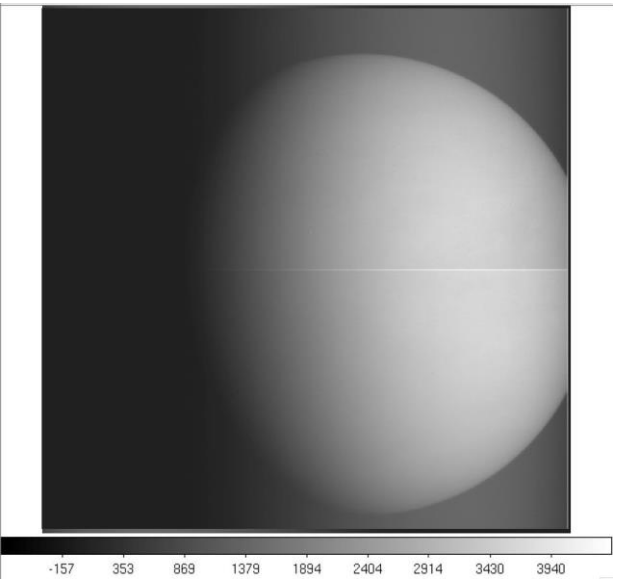
flat



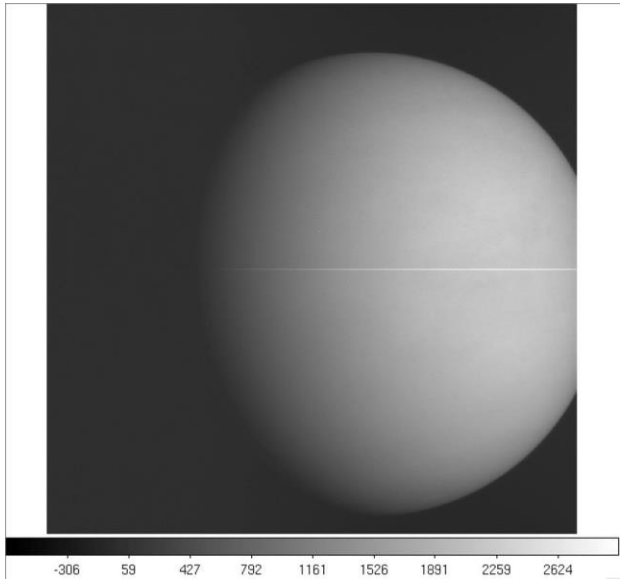


Resemblance
at south pole?

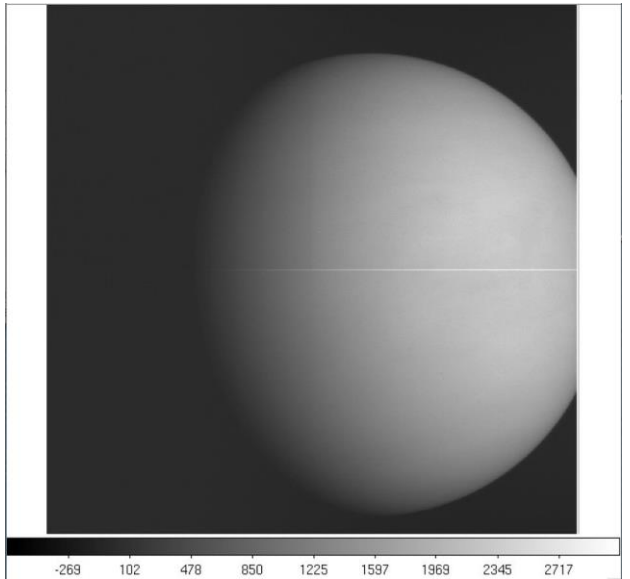
raw



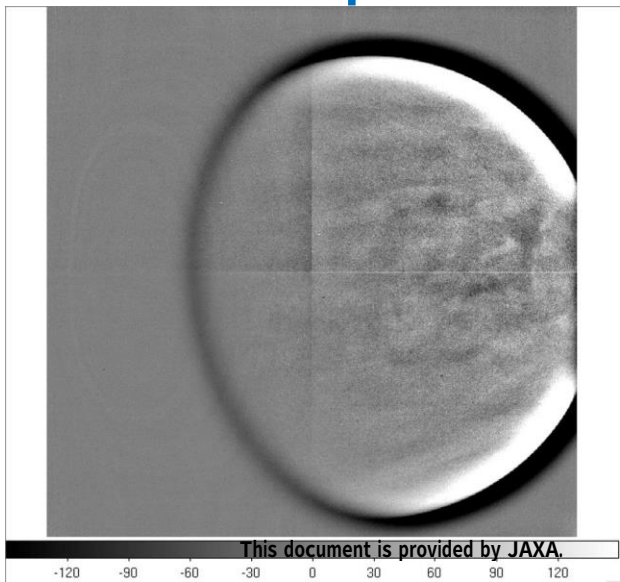
blooming
corrected



after flat

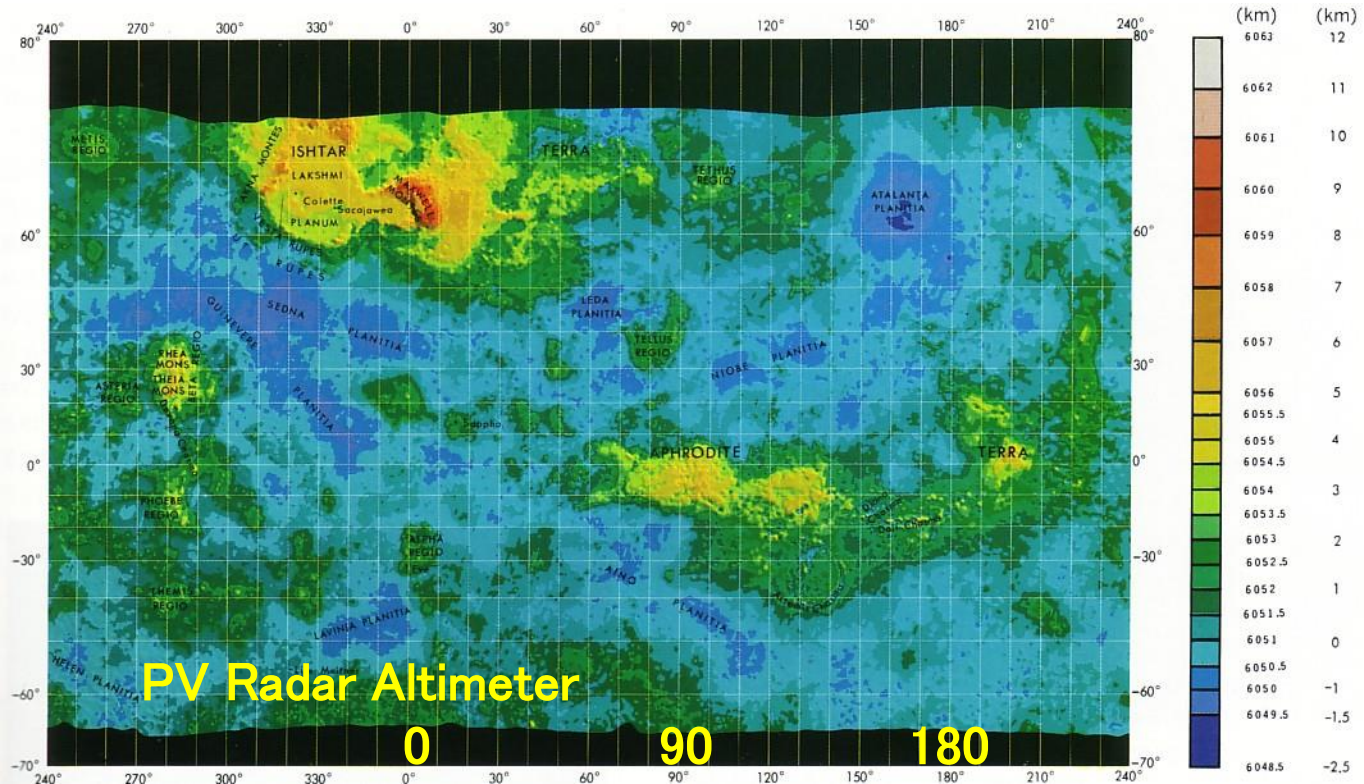


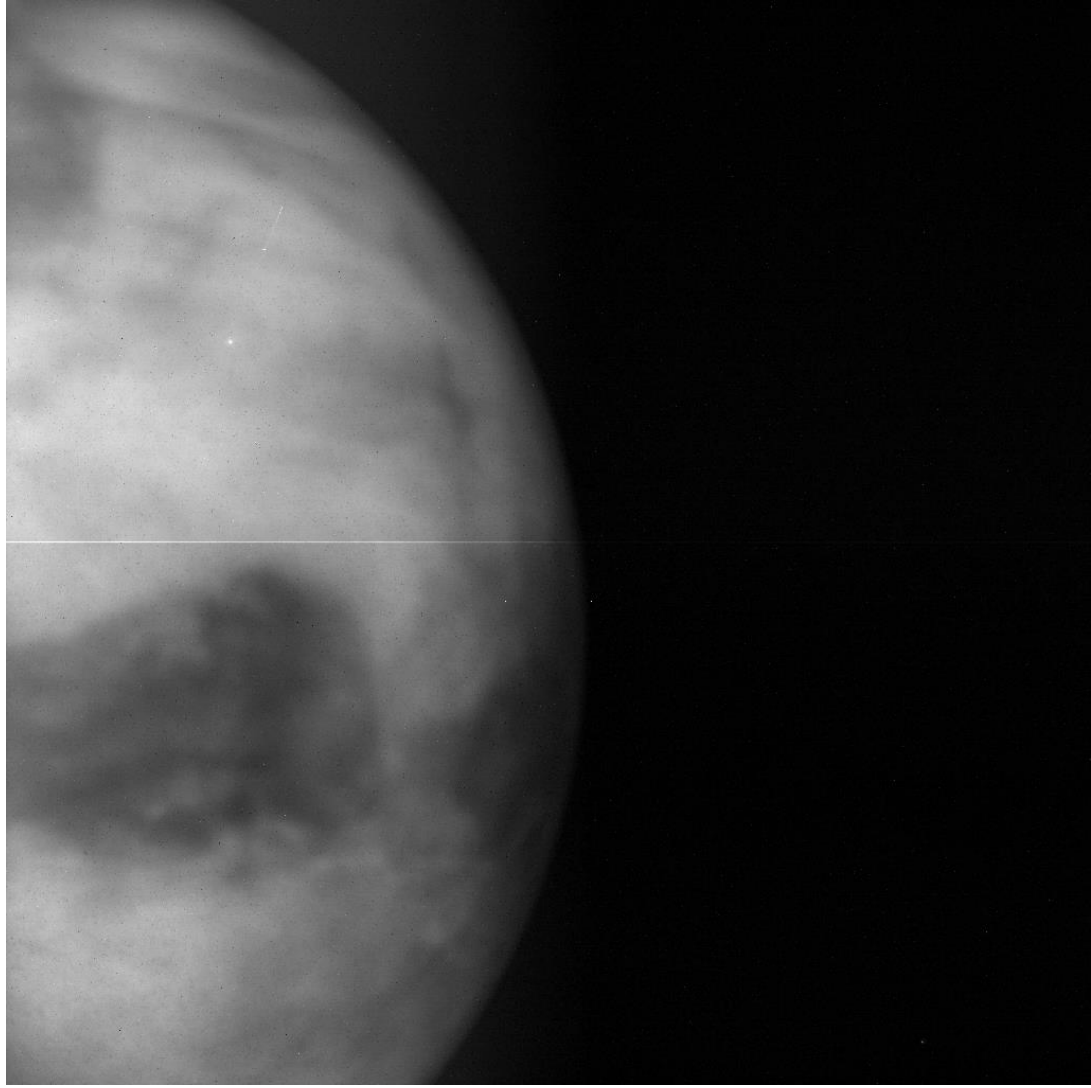
after hi-pass



Episode 8

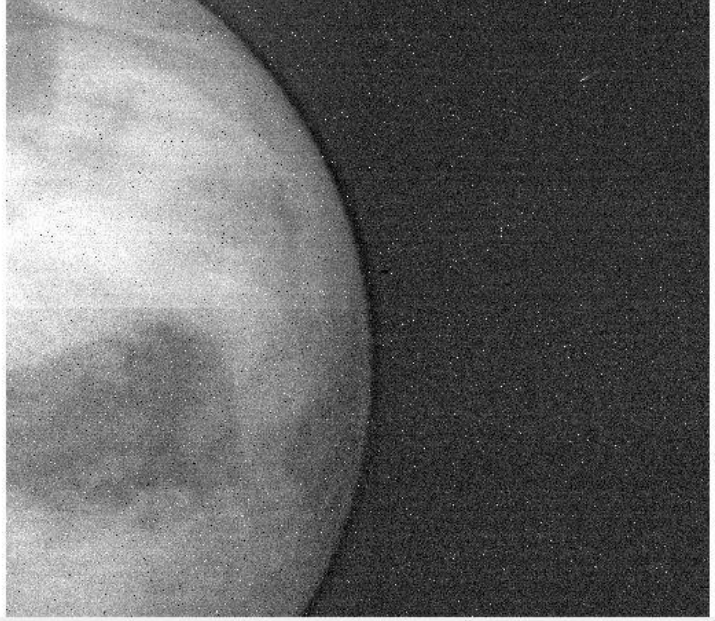
1.01μm nightside raw image
21 Jan 2016　44,000km
sub sol lat=−1° lon=−80°
sub s/c lat=+3° lon=+67°

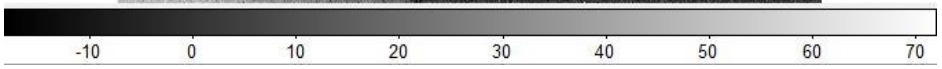




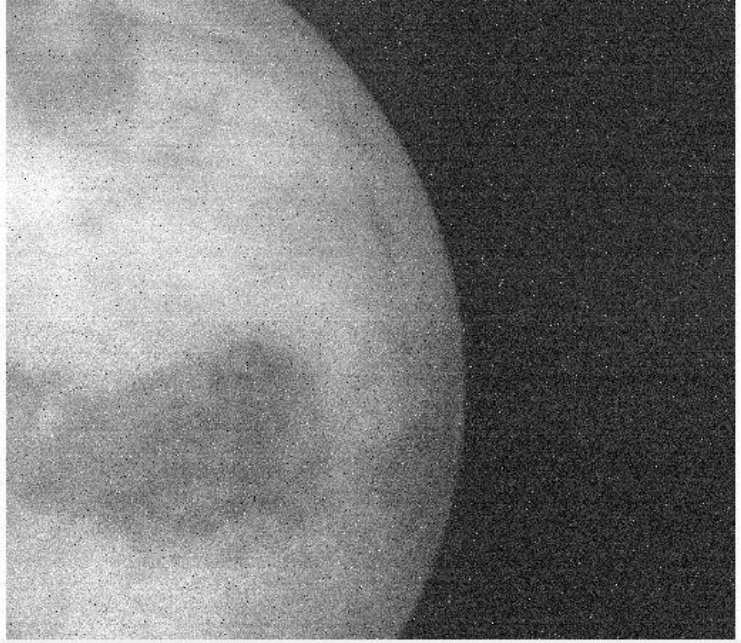
The large dark spot on the lower left seems to be Aphrodite Continent showing lower temp.

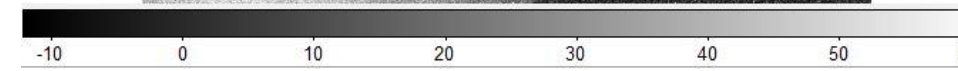
00:37
0.97μm





00:43
0.90μm





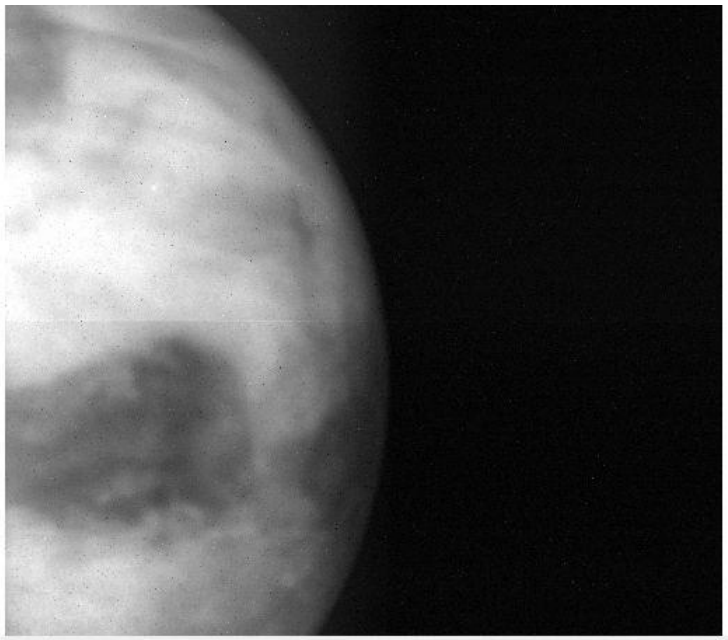
Episode8b

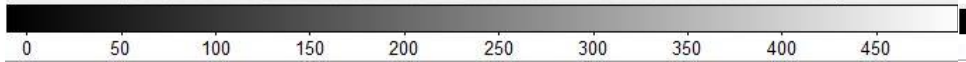
Nightside images

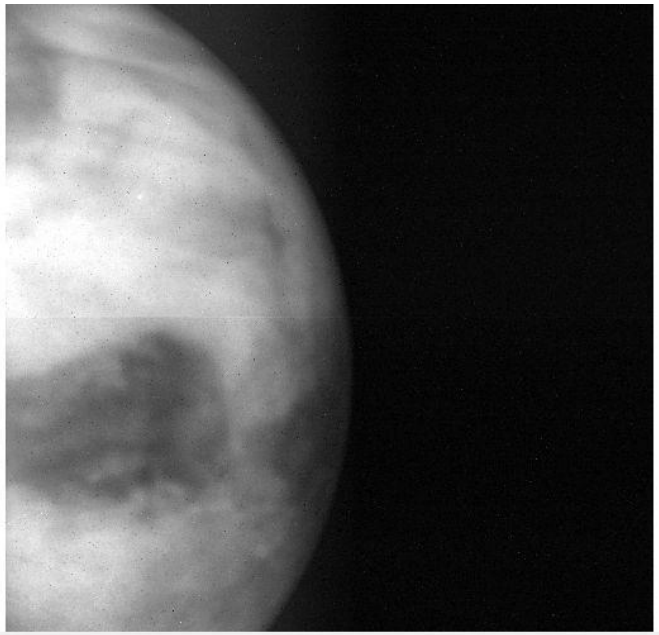
21Jan 2016

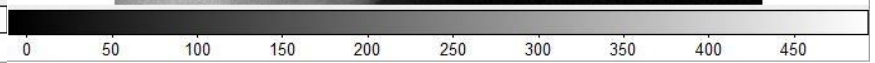
44,000km

00:38
0.97μm









00:38
1.01μm
Almost
same as
0.97μm?

Episode 8c

0.9 μm nightside

raw images

31Jan 2016

Aphrodite again?

11:36 91,000km

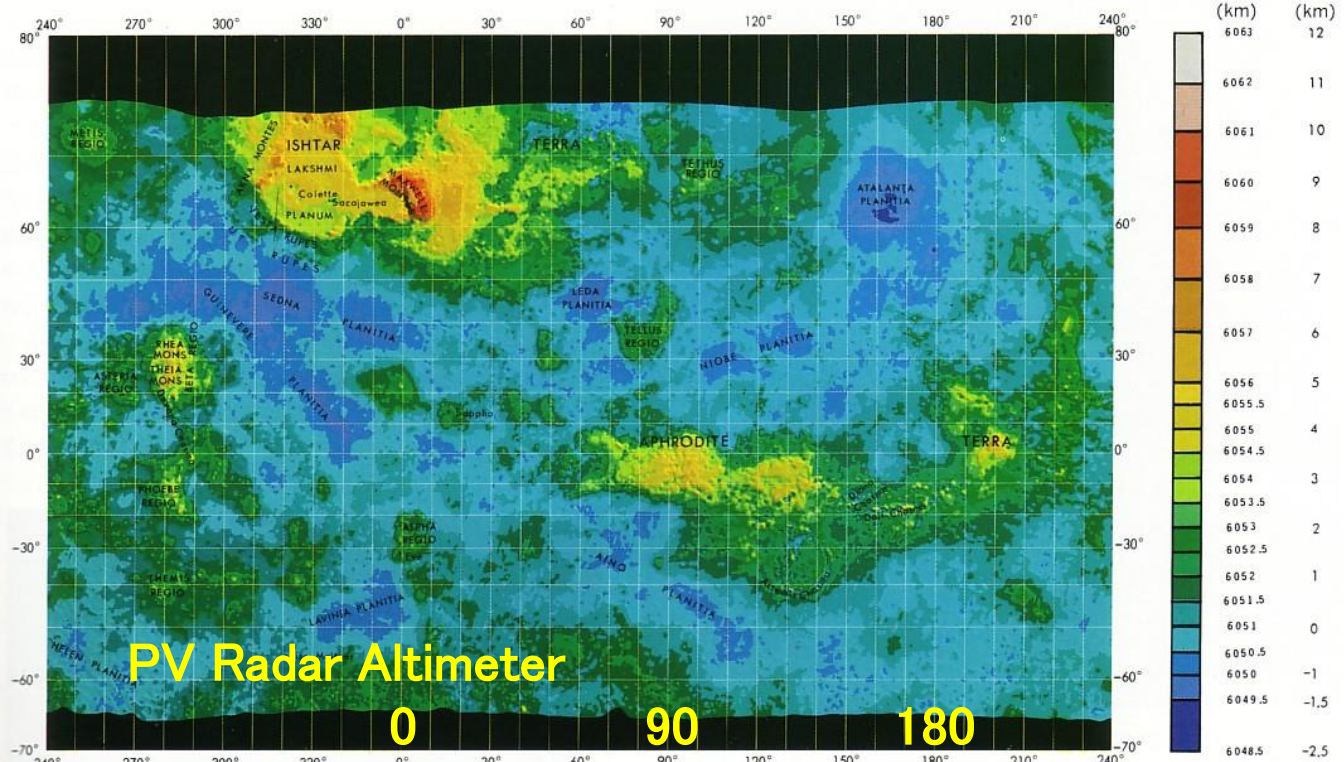
sub sol lat=−0.19° lon=−47.55°

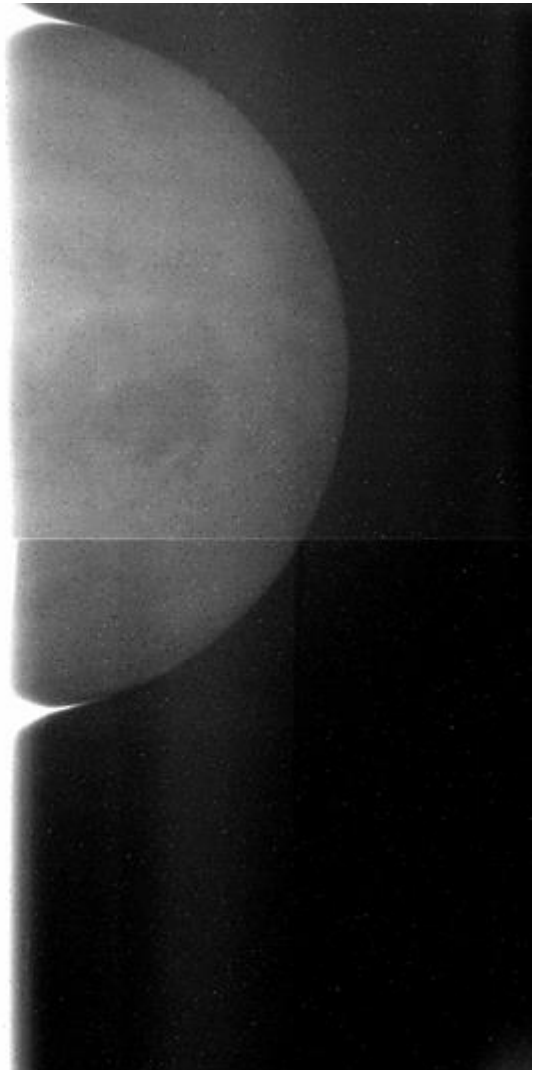
sub s/c lat=+0.70° lon=+102.06°

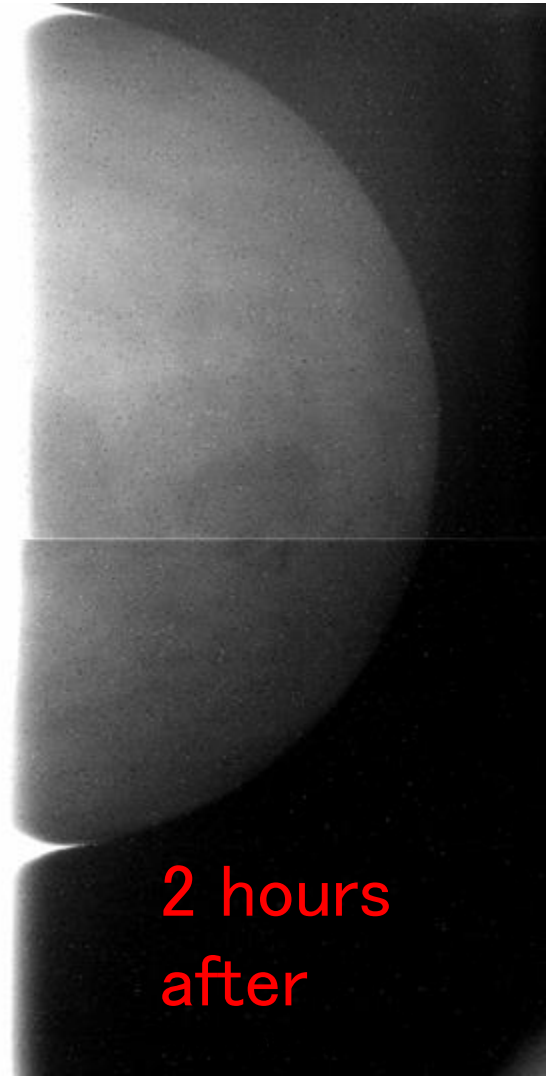
13:36 76,000km

sub sol lat=−0.18° lon=−47.29°

sub s/c lat=+1.48° lon=+96.33°







Episode 1
Filters

Dayside

scattered sunlight

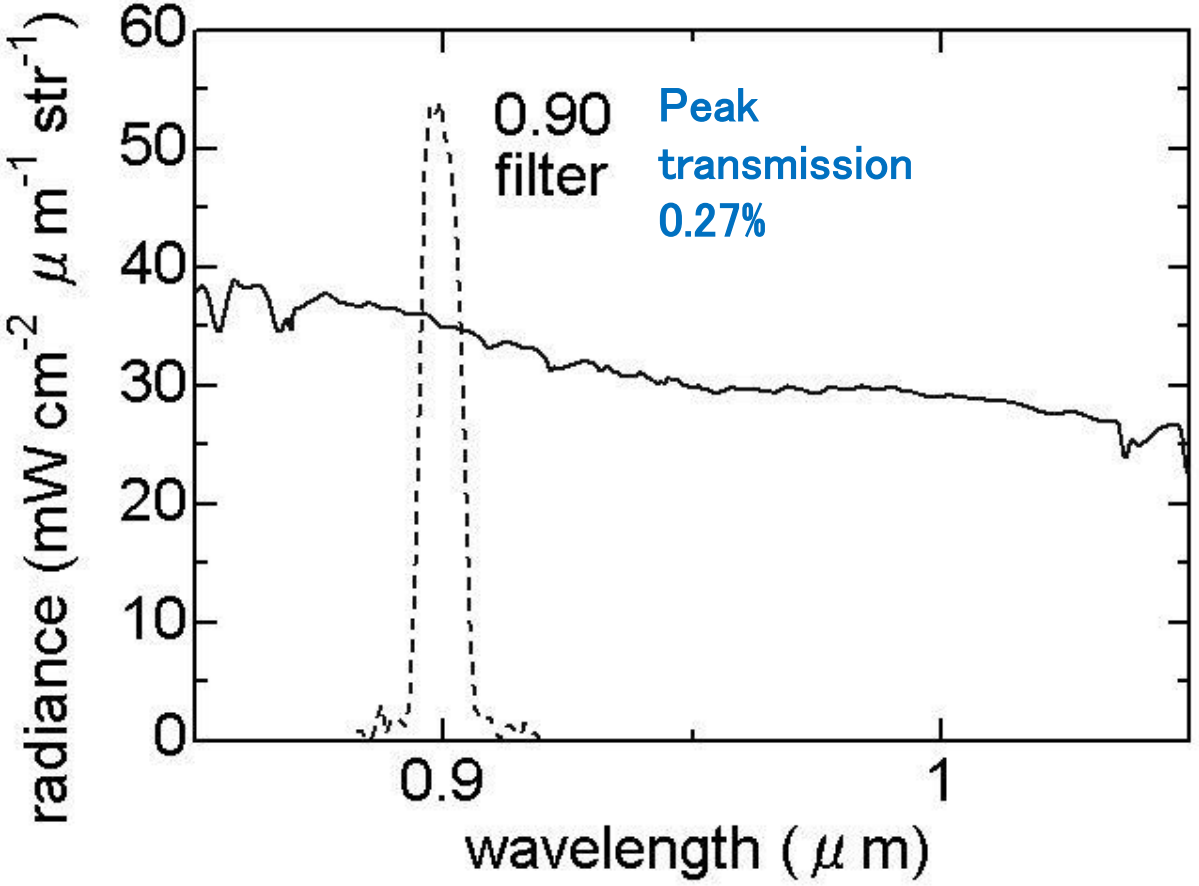
cloud tracking

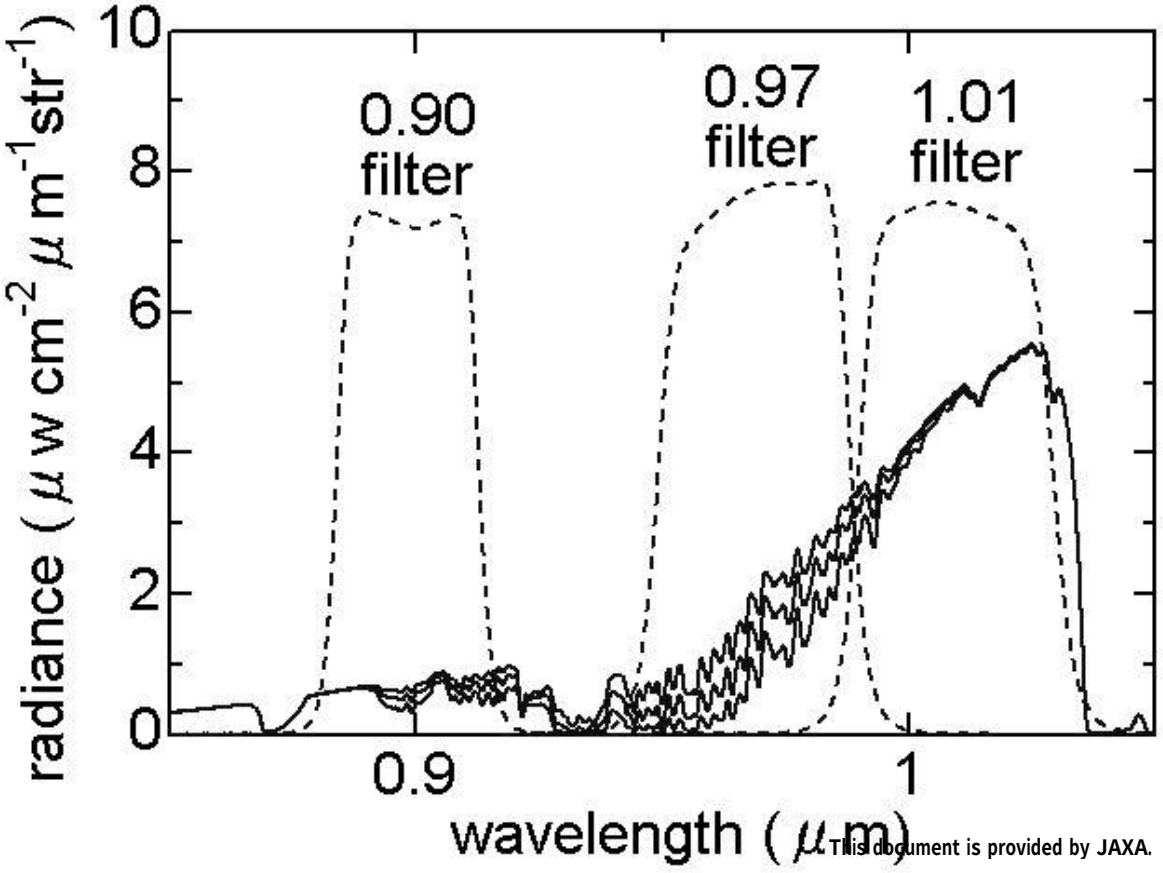
Nightside

thermal radiation

volcano quest

H_2O surface



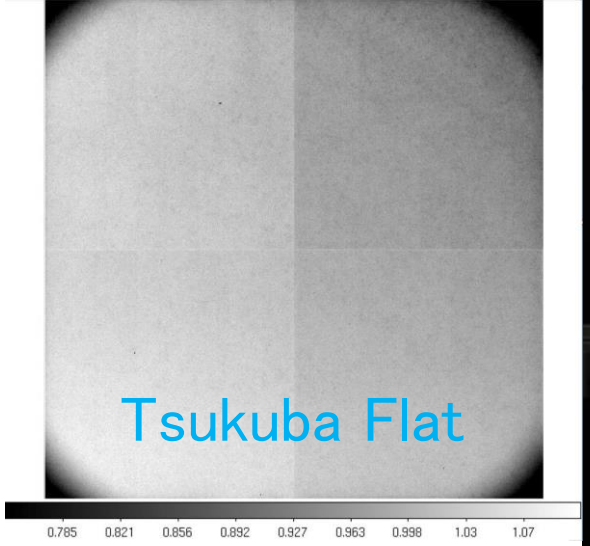


Episode 2

Sensitivity & flat by Tsukuba

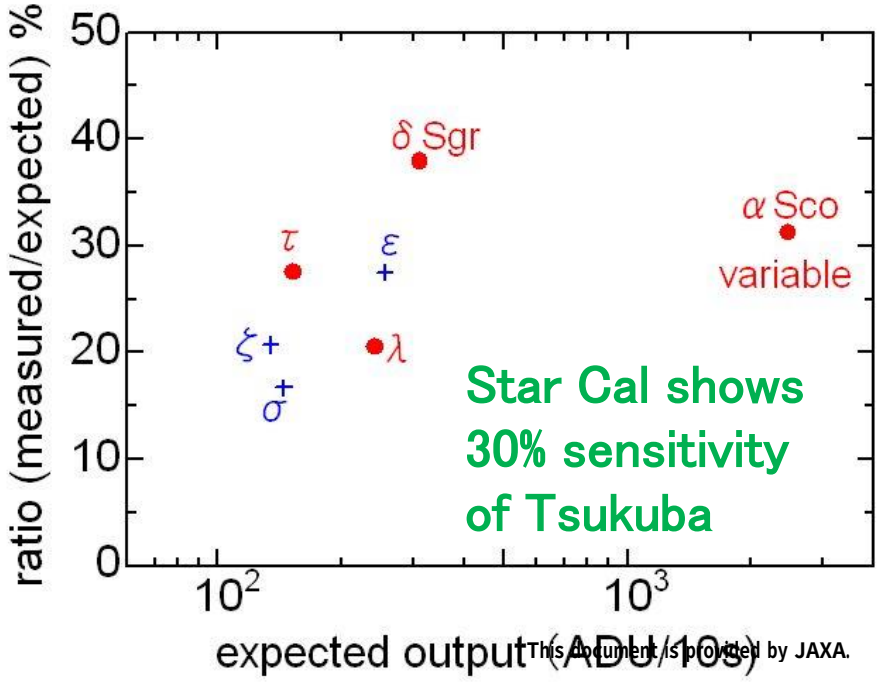
1m integration sphere.

But, does not agree with stars



Tsukuba Cal ver0.0

0.90μmDay	1ADU/s =	58.5 μW/cm²/μm/sr
0.90μmNight	1ADU/s =	97.3 nW/cm²/μm/sr
0.97μmNight	1ADU/s =	105 nW/cm²/μm/sr
1.01μmNight	1ADU/s =	174 nW/cm²/μm/sr



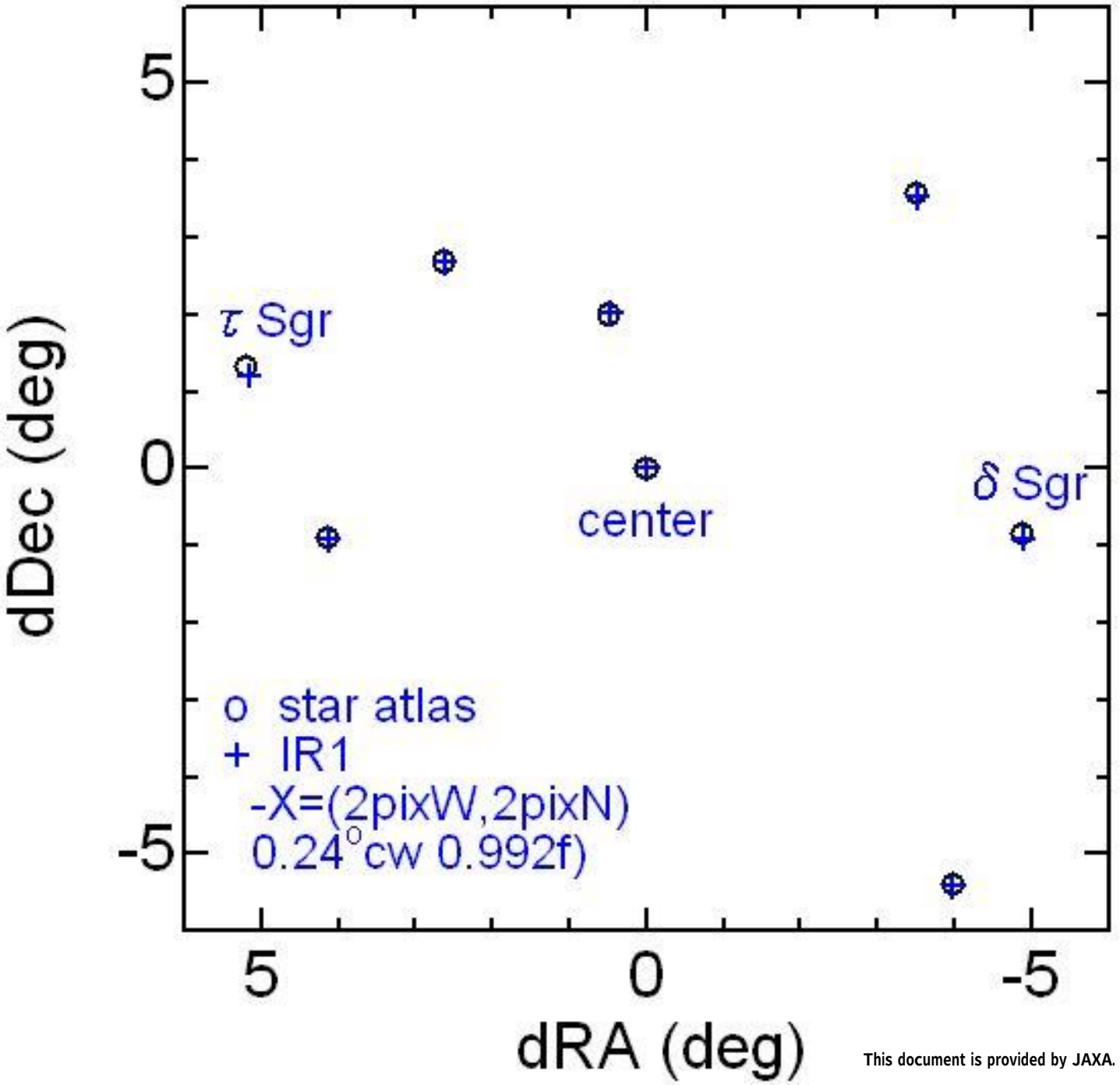
Episode 3

Alignment check by stars

Alignment Error ver0.0

Center:0.023±0.03°E
0.023±0.03°S
Rotation:0.24±0.15°cw
Focal length:99.2±0.4%

However, dirty star images
with FWHM of 3 pix
due to large tracking error
of 0.03°



IR1 camera is now working

END

Thank you for listening