

Two Observatories (and a robot)

John Parejko
Drexel University

14 May 2008



UNIVERSITY

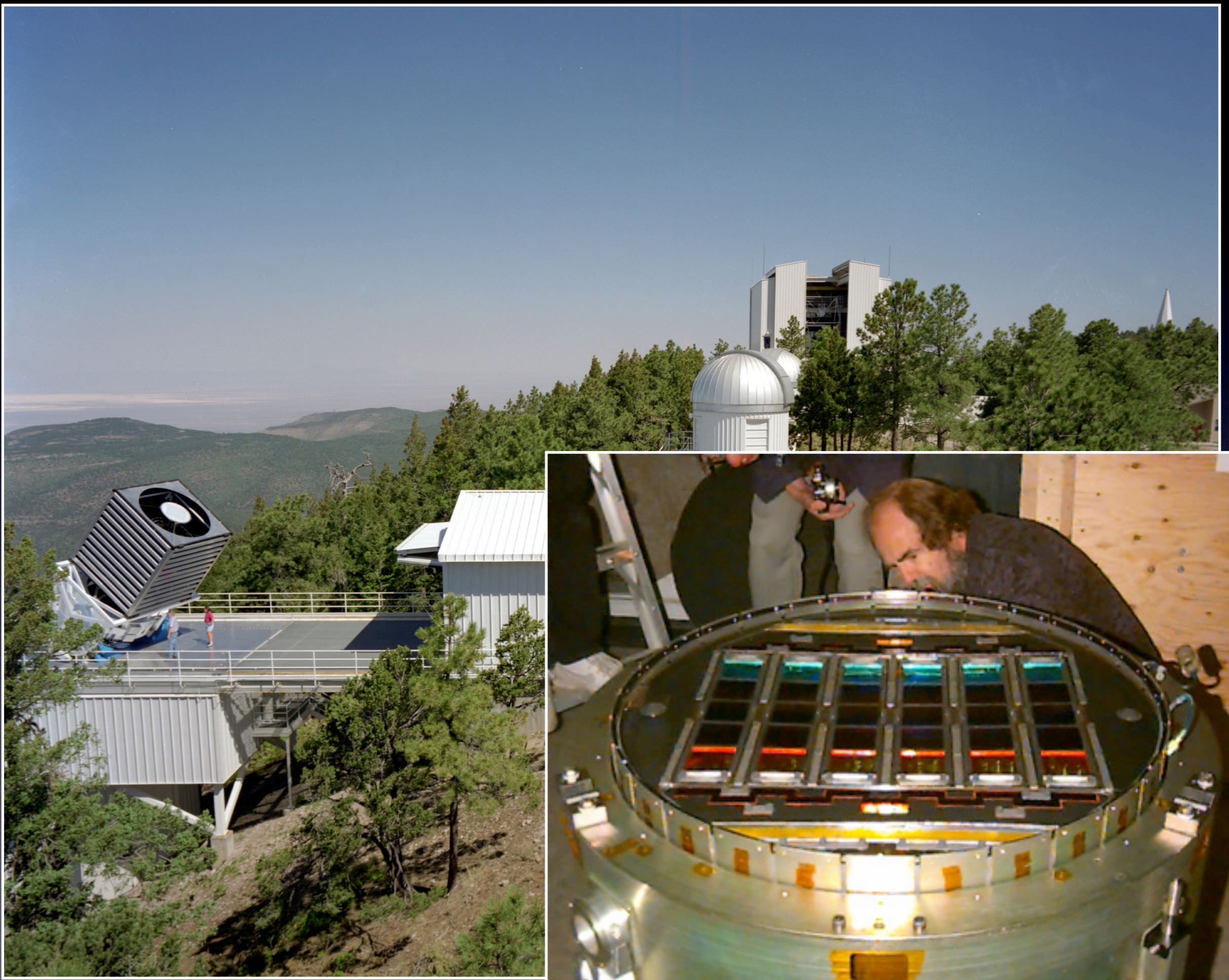
The Sloan Digital Sky Survey (SDSS)

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What I should be working on right now.



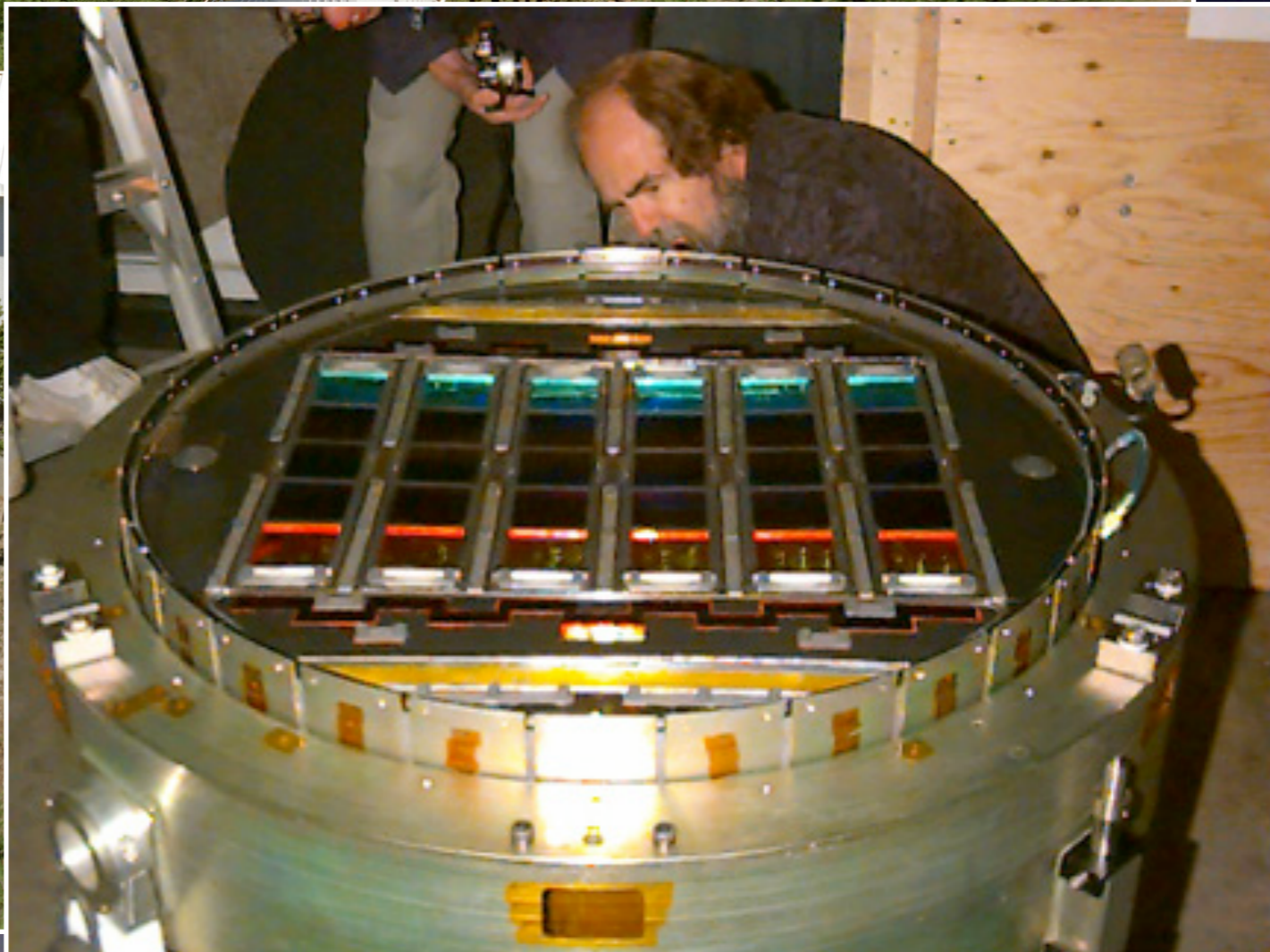
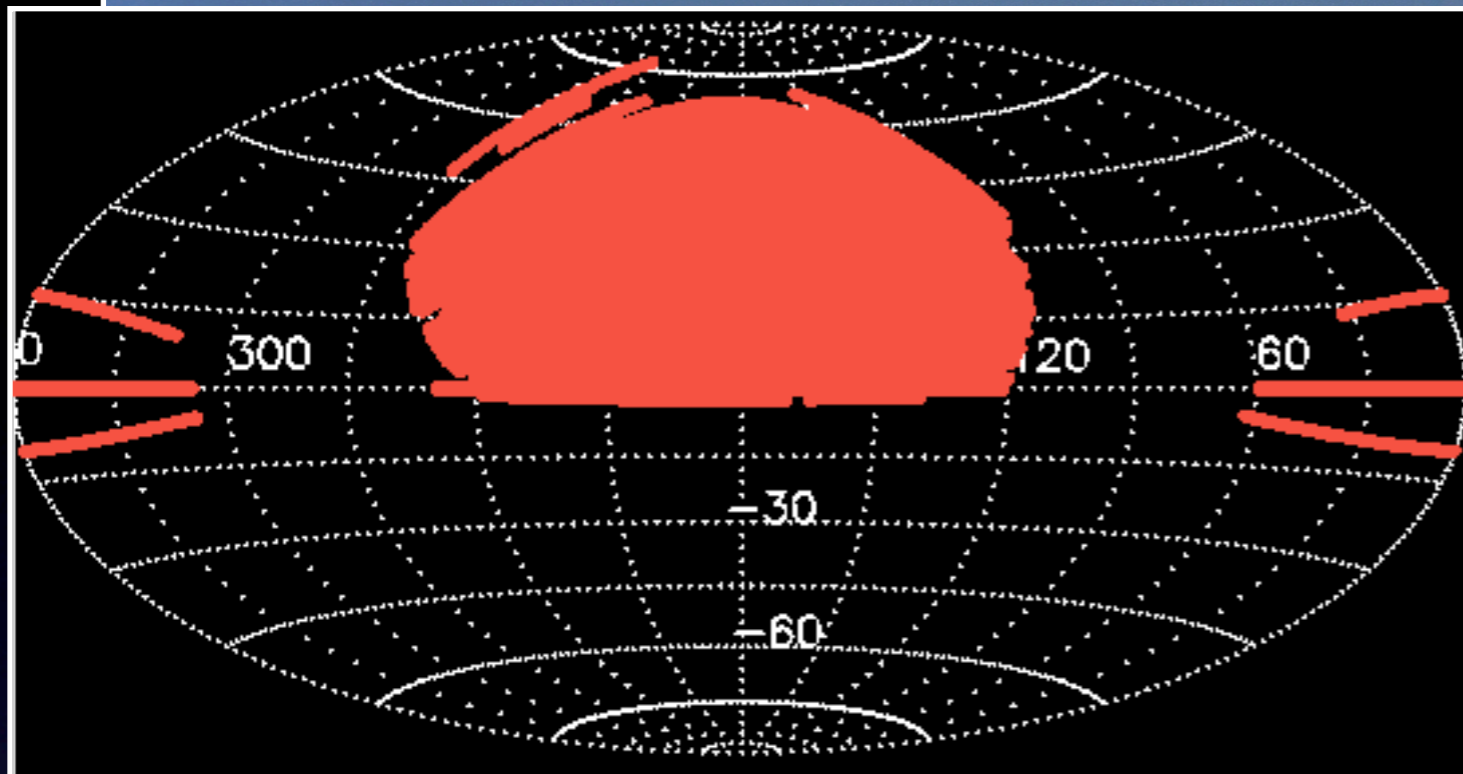
Apache Point observatory in Sunspot New Mexico.
The Camera: 30 2k x 2k CCDs cooled to -80C in 5 colors, 3° FOV
First Light image stripe with builders.
DR6 imaging coverage ($\sim 20\%$ of the whole sky)
Fitting the plug plates (bottom end attaches to telescope)



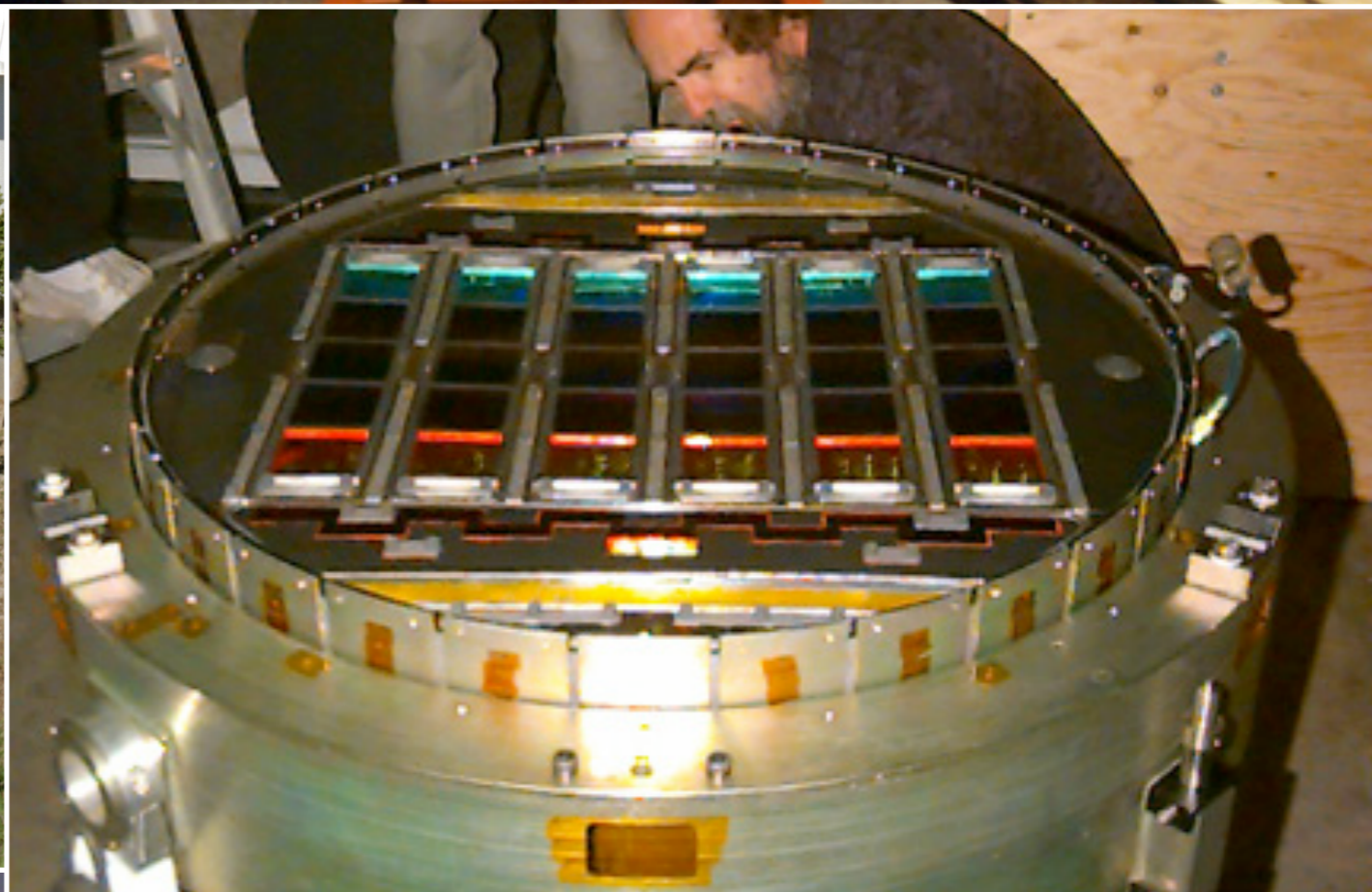
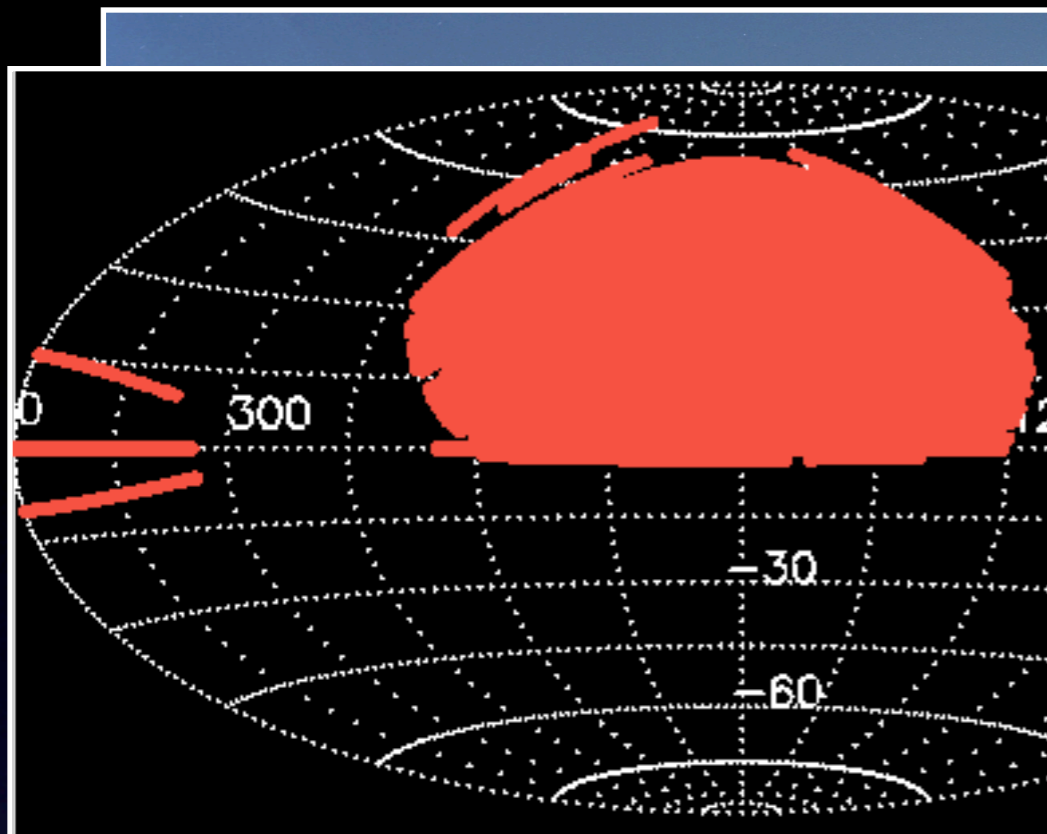
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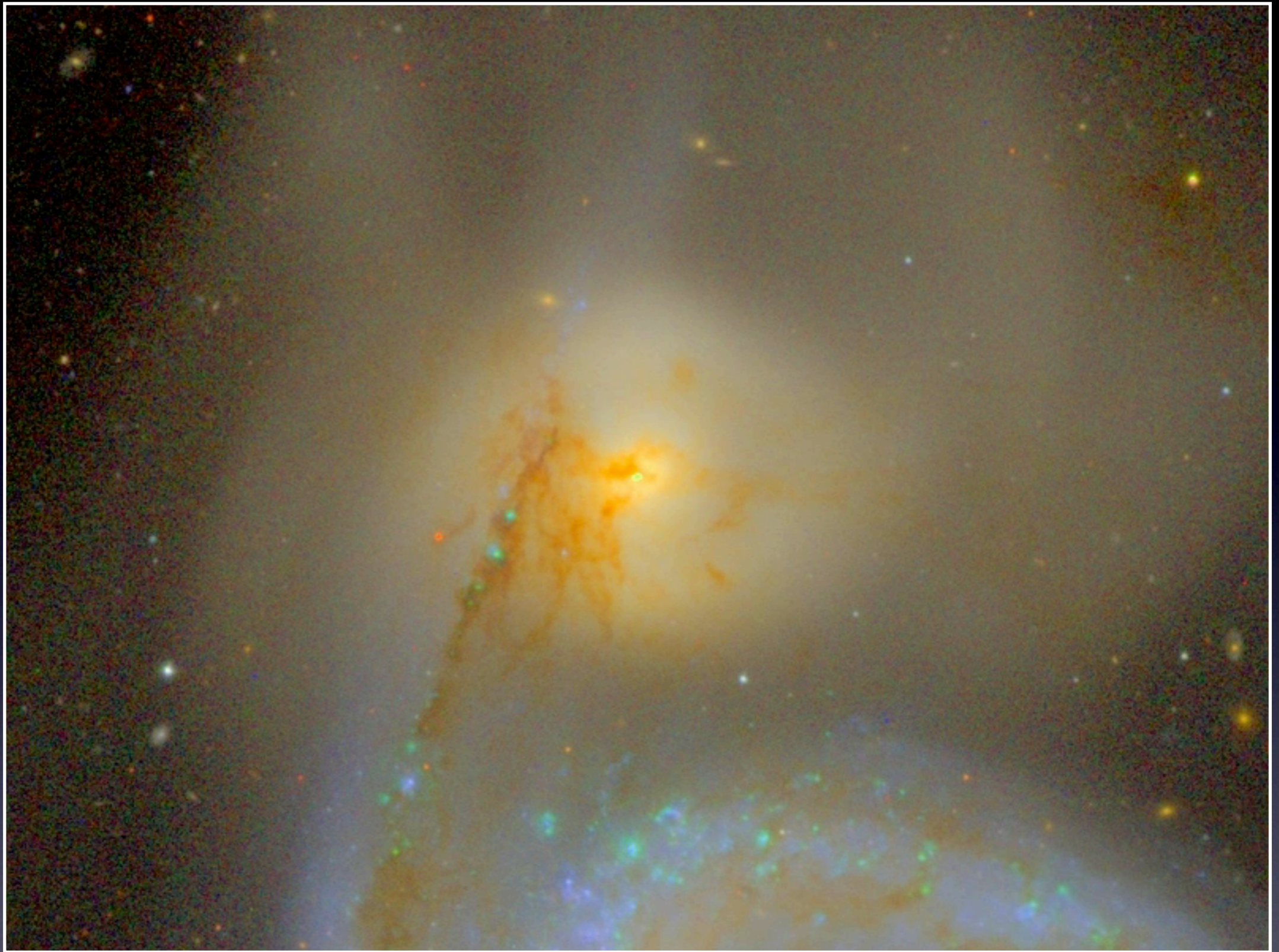
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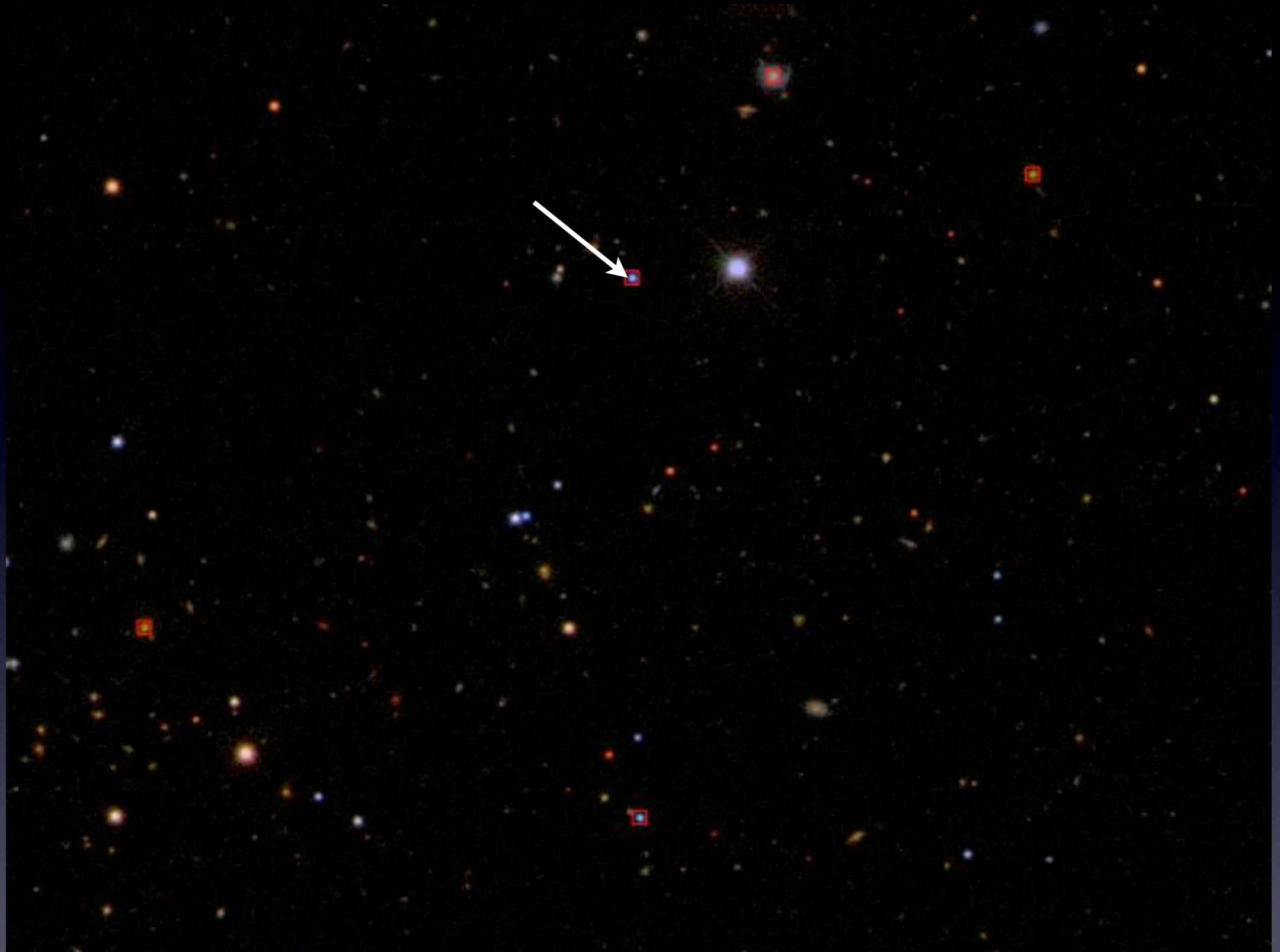
The scale of the SDSS

Zoom out from M51 to the whole SDSS sky.



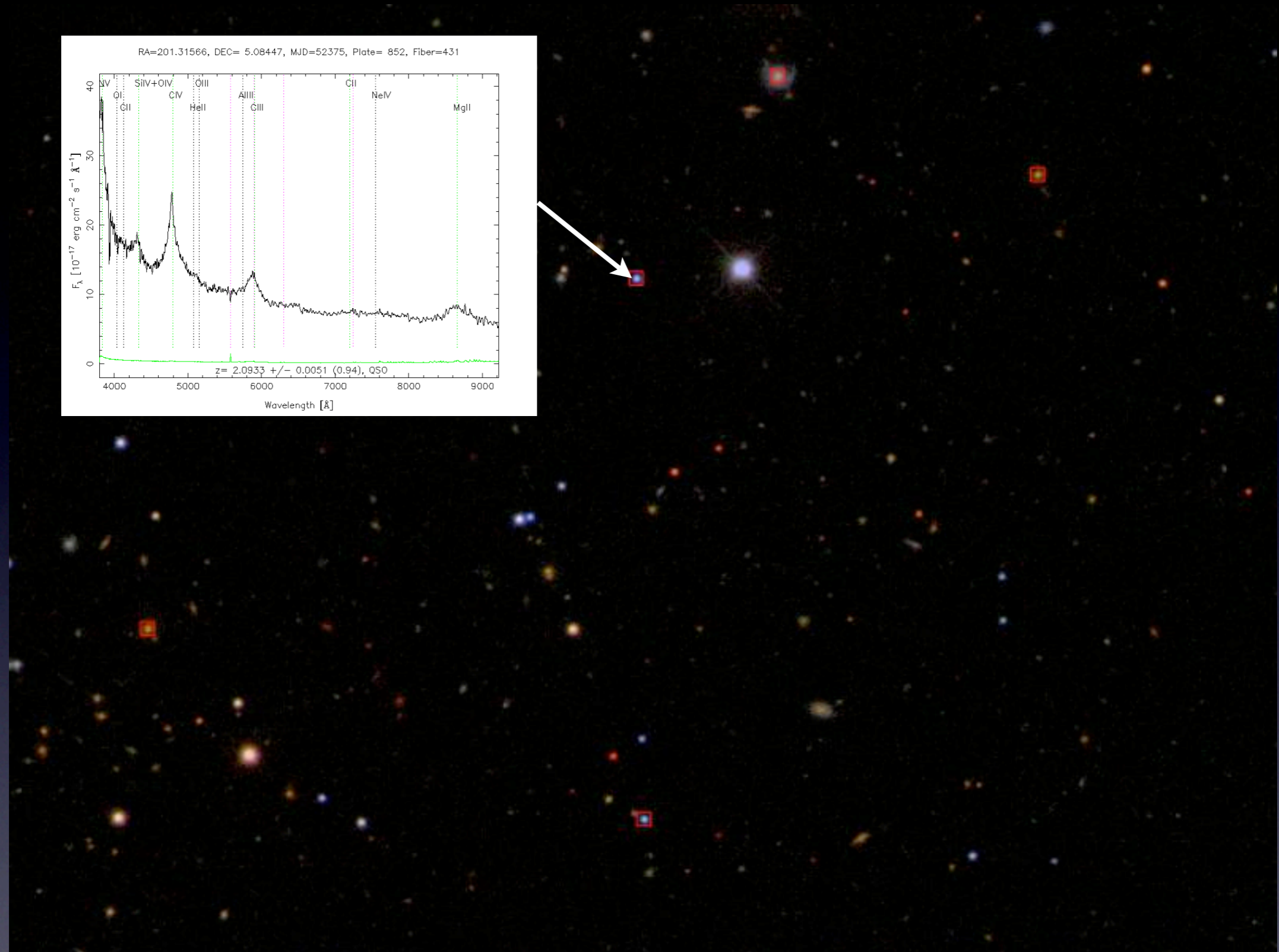
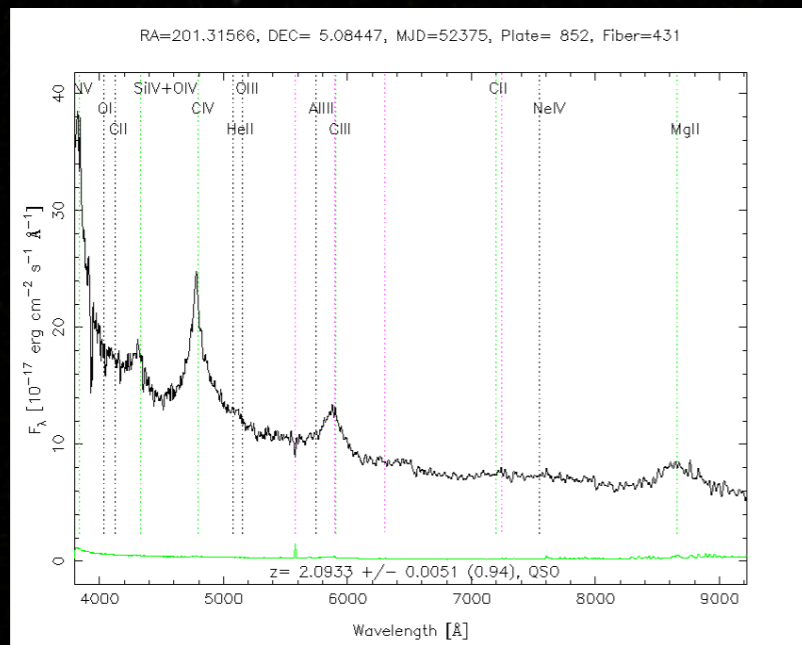
Identifying Active Galaxies

1. $z \sim 2.1$ quasar – ~ 10 Gy ago
2. $z \sim 0.35$ quasar – ~ 3 Gy ago
3. $z \sim 0.4$ passive galaxy (in a cluster?)
4. $z \sim 0.14$ star forming galaxy (spiral!)



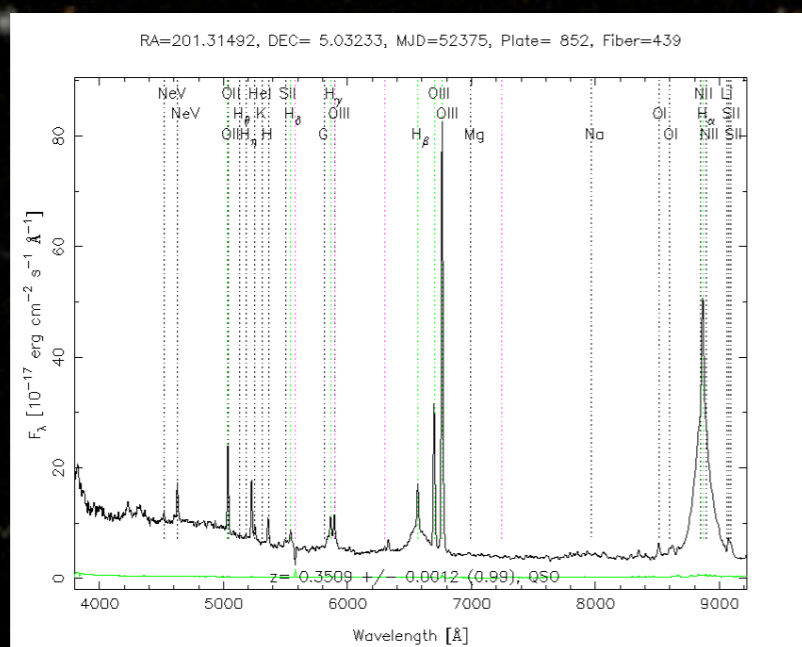
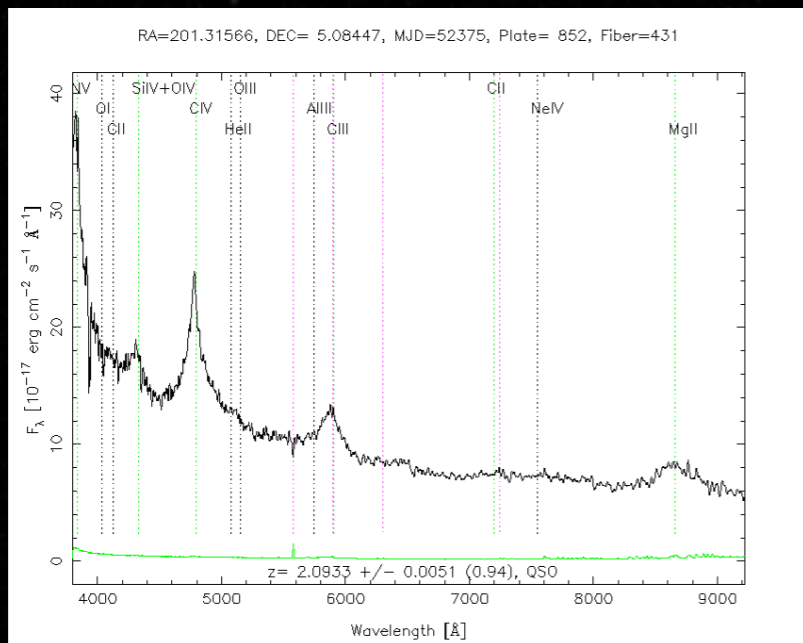
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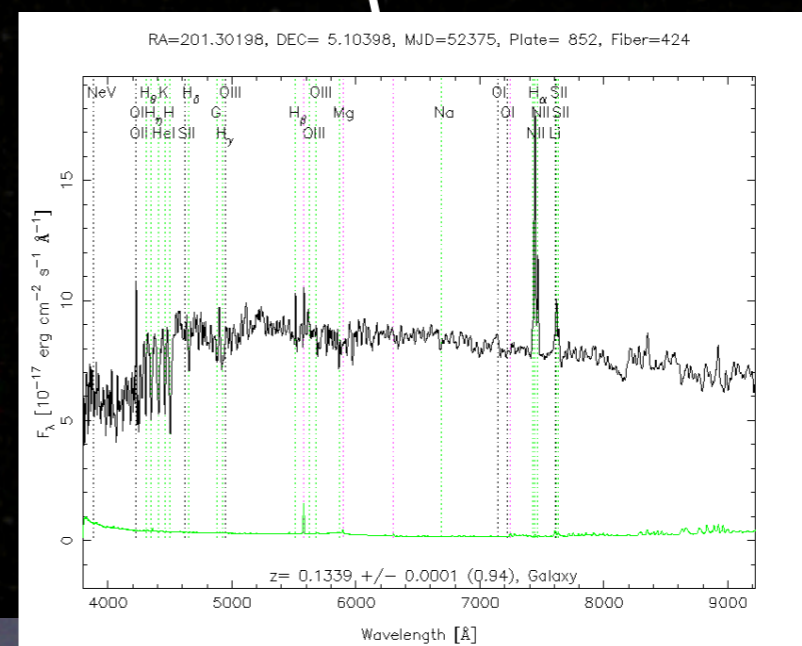
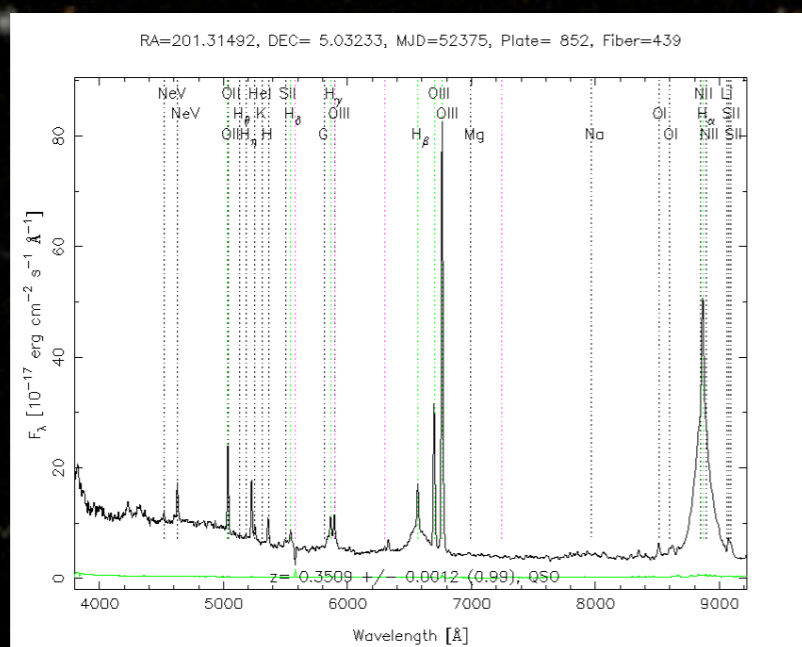
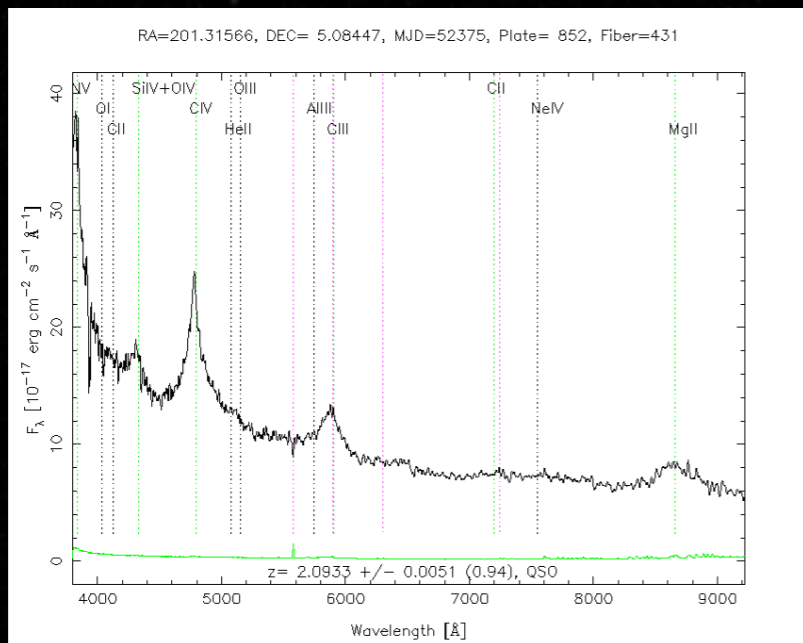
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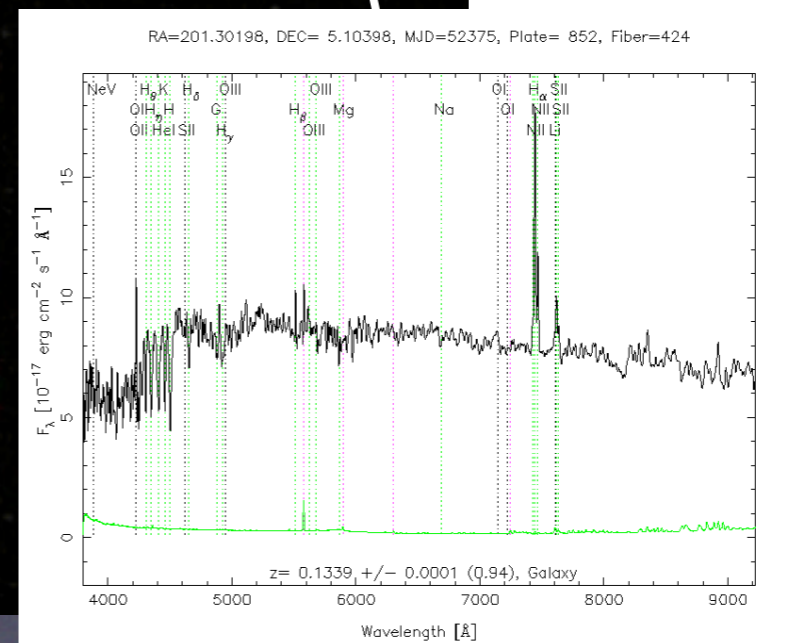
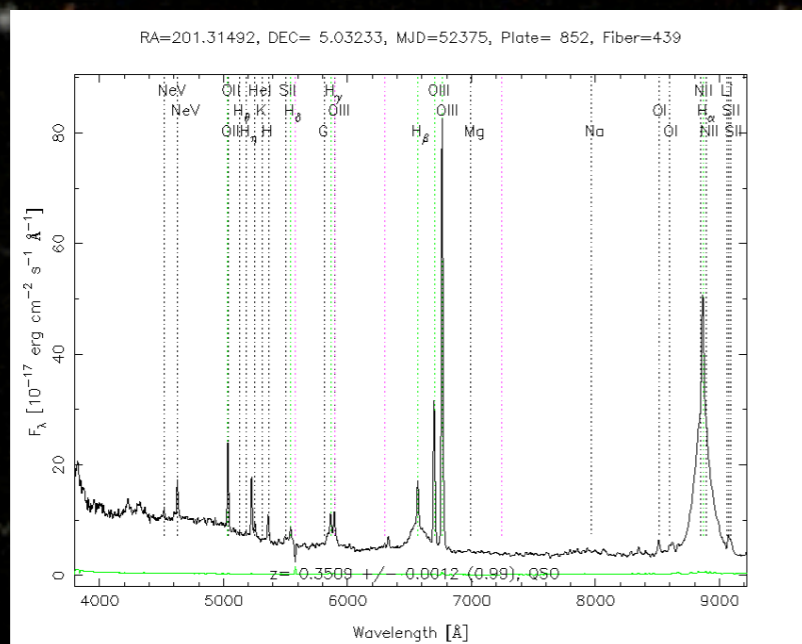
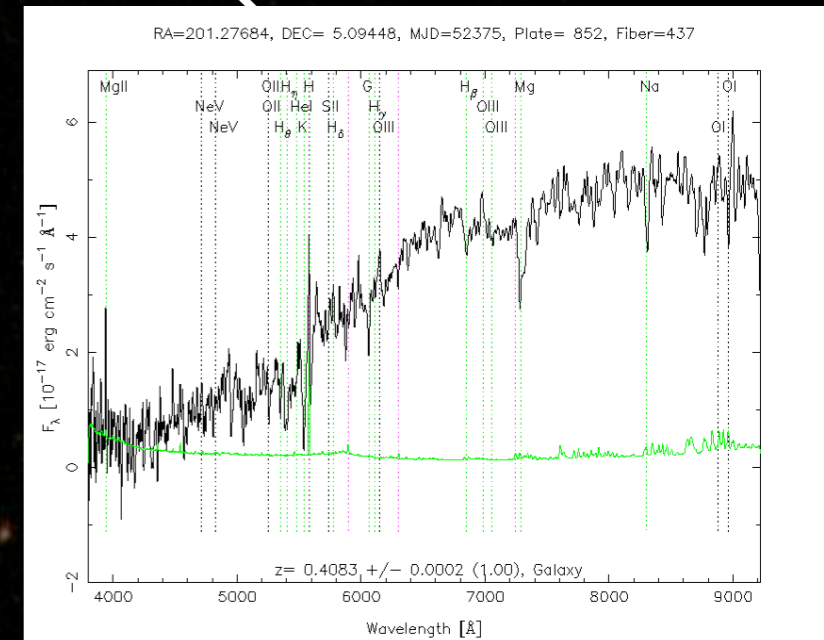
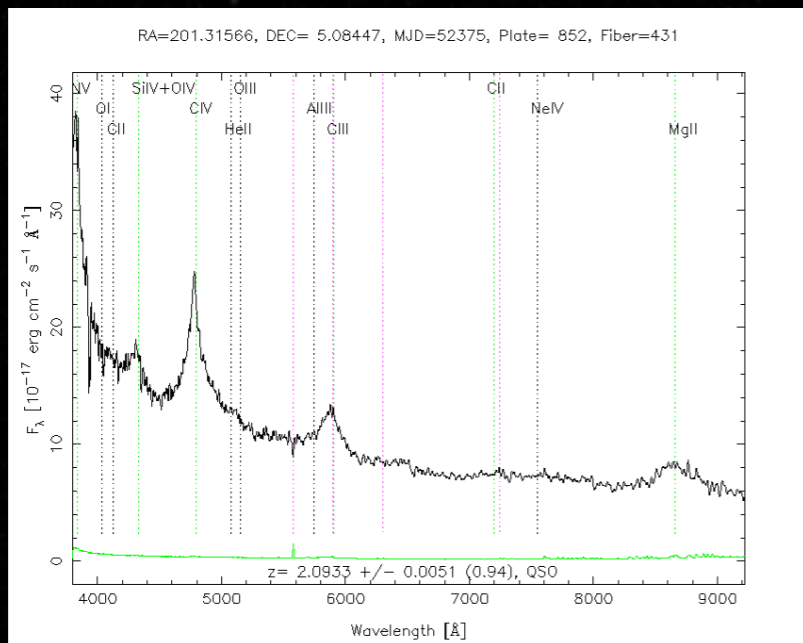
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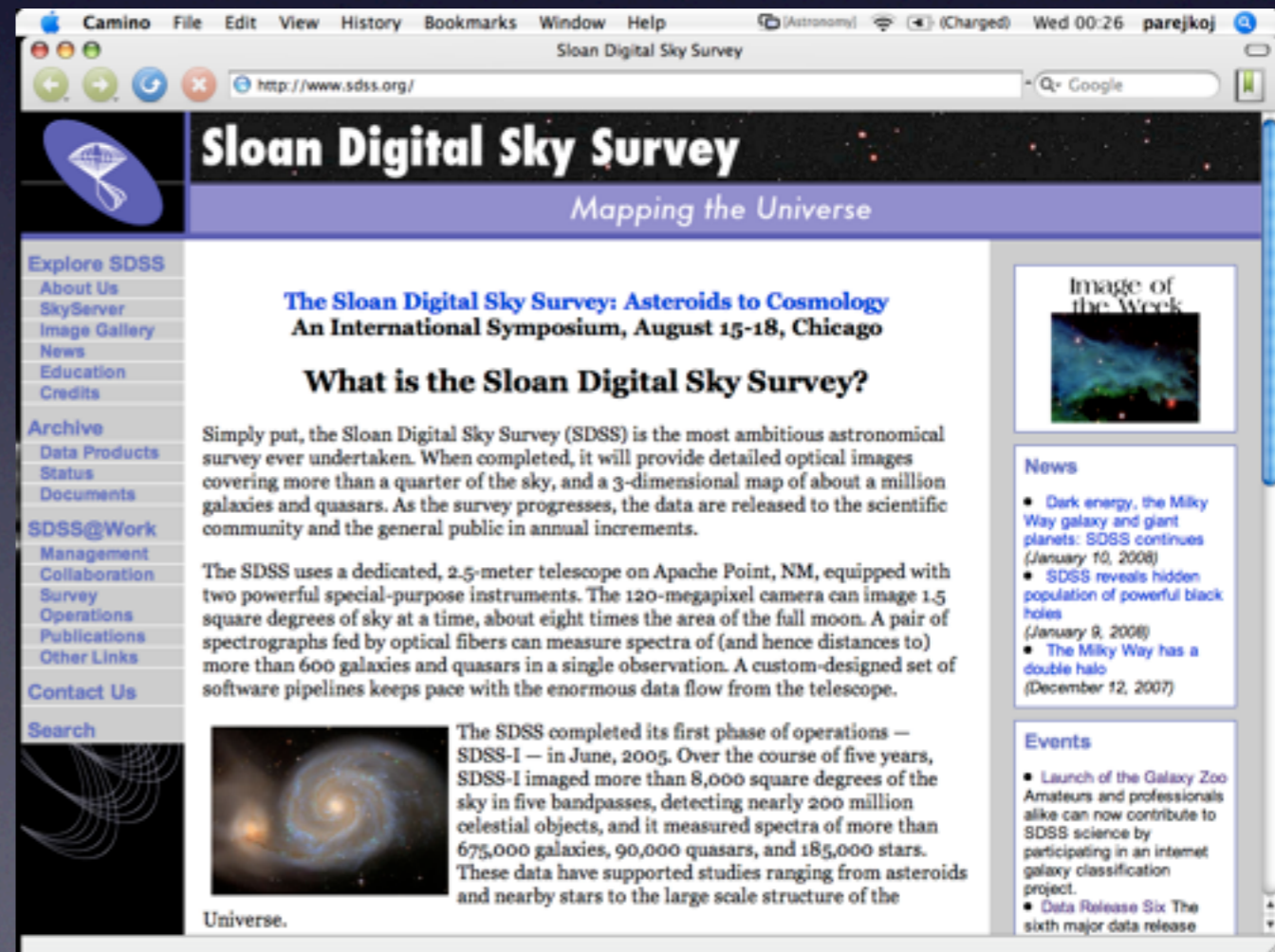
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For more information



SDSS website: educational projects

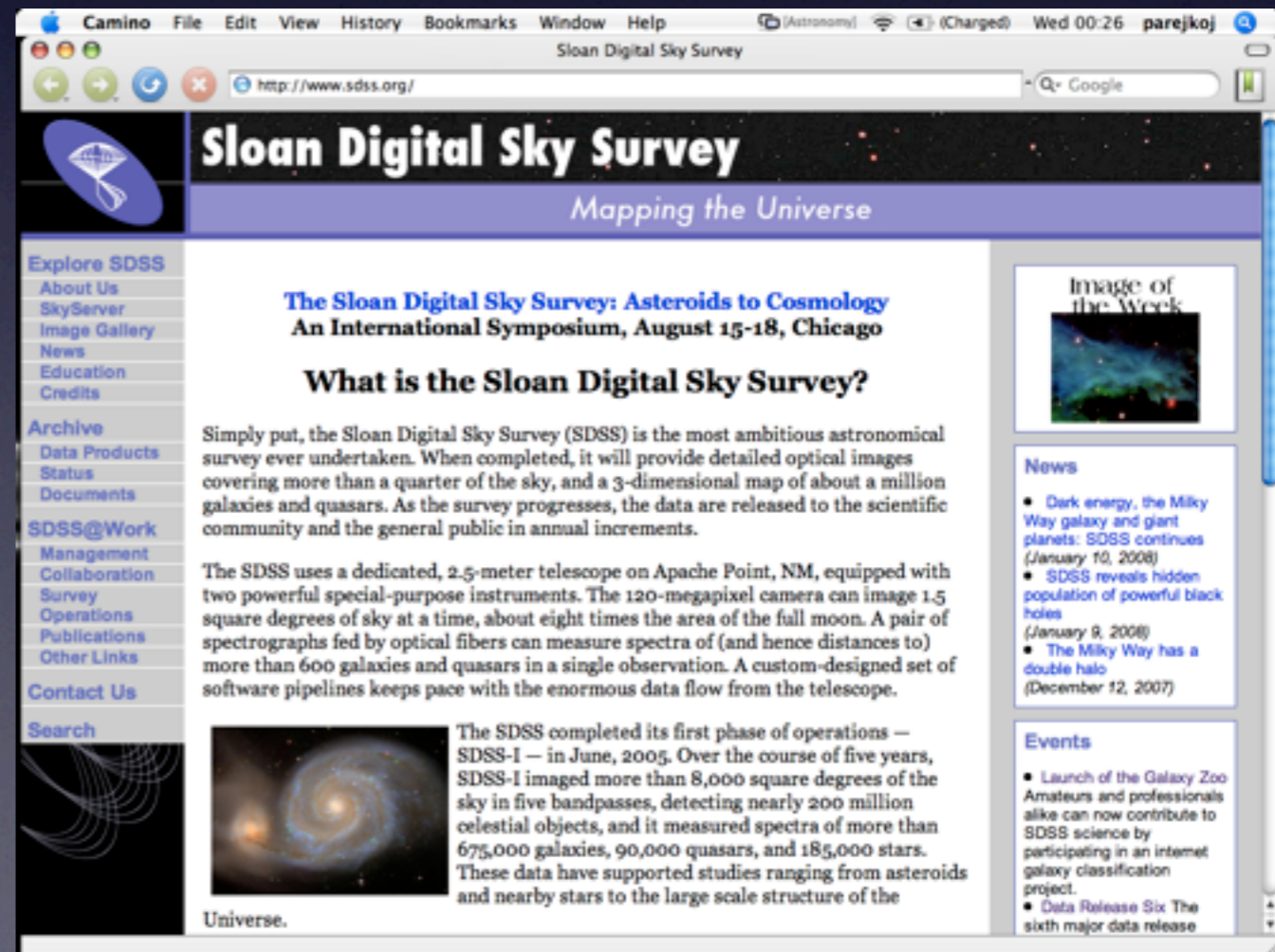
Sky in Google Earth

Google Sky online

galaxyzoo.org: citizen science – need help with mergers!

For more information

- <http://www.sdss.org>



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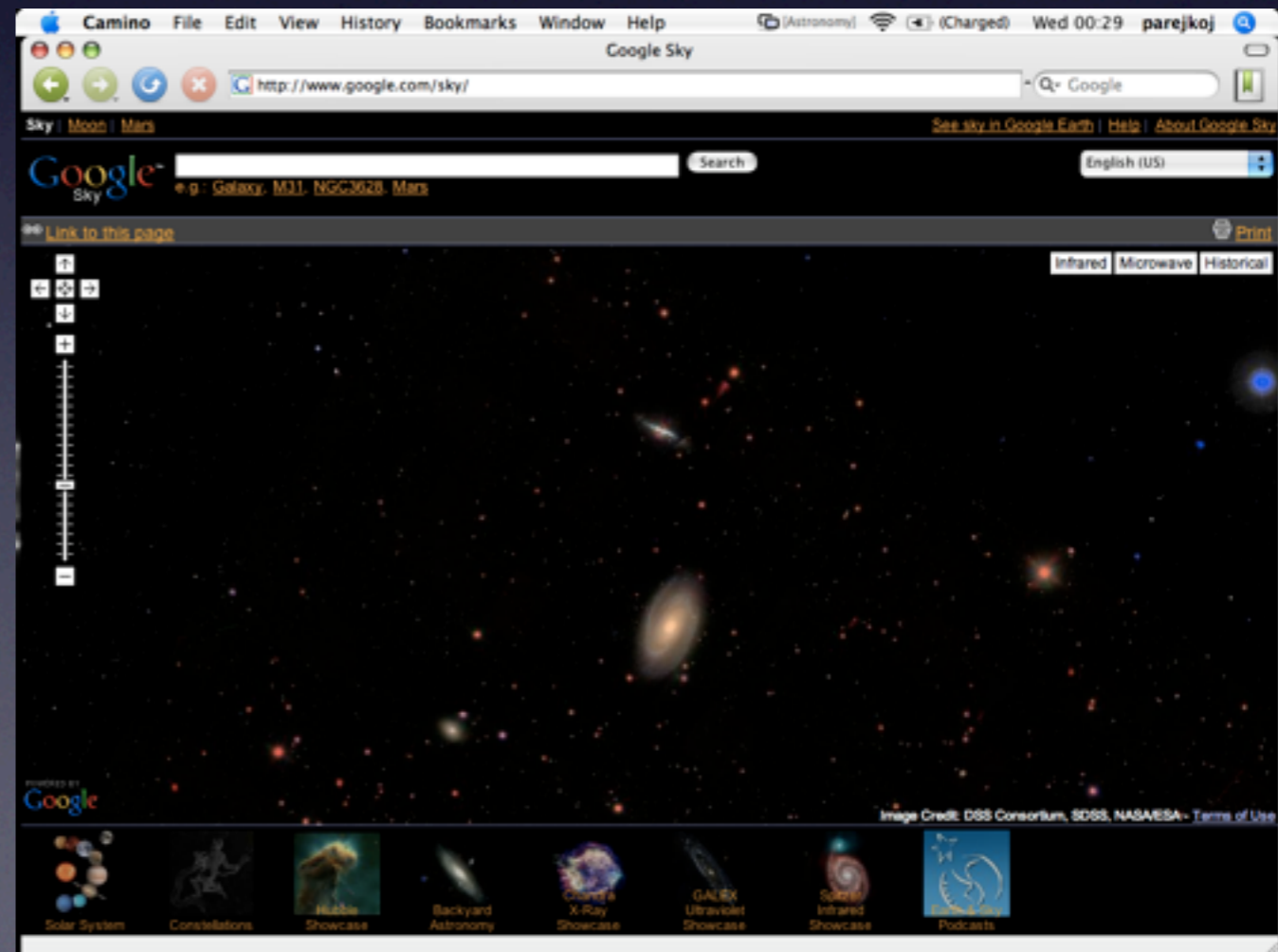
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The Joseph R. Lynch Observatory

The Joseph R. Lynch Observatory

Where I'd like to spend more time at night.

First Wednesday of each month



<http://www.physics.drexel.edu/observatory>

2 April 2008 open house
Roof of main building.

Drexel University Messier Project



The “Dumbbell” planetary nebula
M27 R band, 6x10seconds

Drexel University Messier Project



open cluster M67 - 5R, 7G, 12B (3s each)

Goal: submit data to the AAVSO for bright stars.

Our Equipment

- 16" Meade LX200GPS
- SBIG ST9 CCD w/ UBVRI filters
- Coronado Solar Max 60mm
- 10" Orion Dobsonian
- Edmund Scientific Astroscan
- 5" Celestron Nextstar SCT

Cassini/Huygens

Cassini/Huygens

Yes, there is life before grad school.



Look for the arrows!
1/3 mockup of Cassini/Huygens



Me!

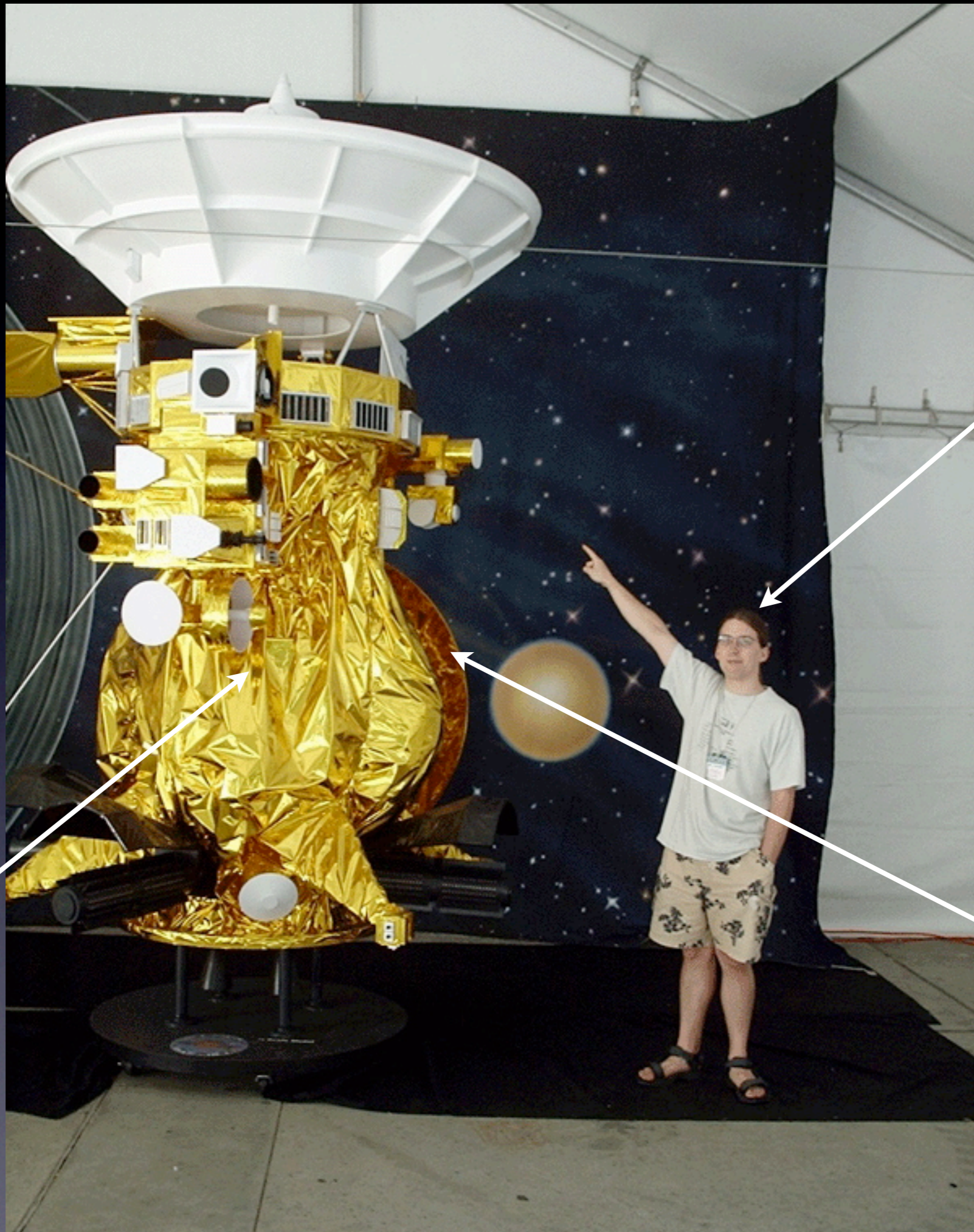
Look for the arrows!
1/3 mockup of Cassini/Huygens



Cassini
It's just a
model!

Me!

Look for the arrows!
1/3 mockup of Cassini/Huygens



Cassini

It's just a
model!

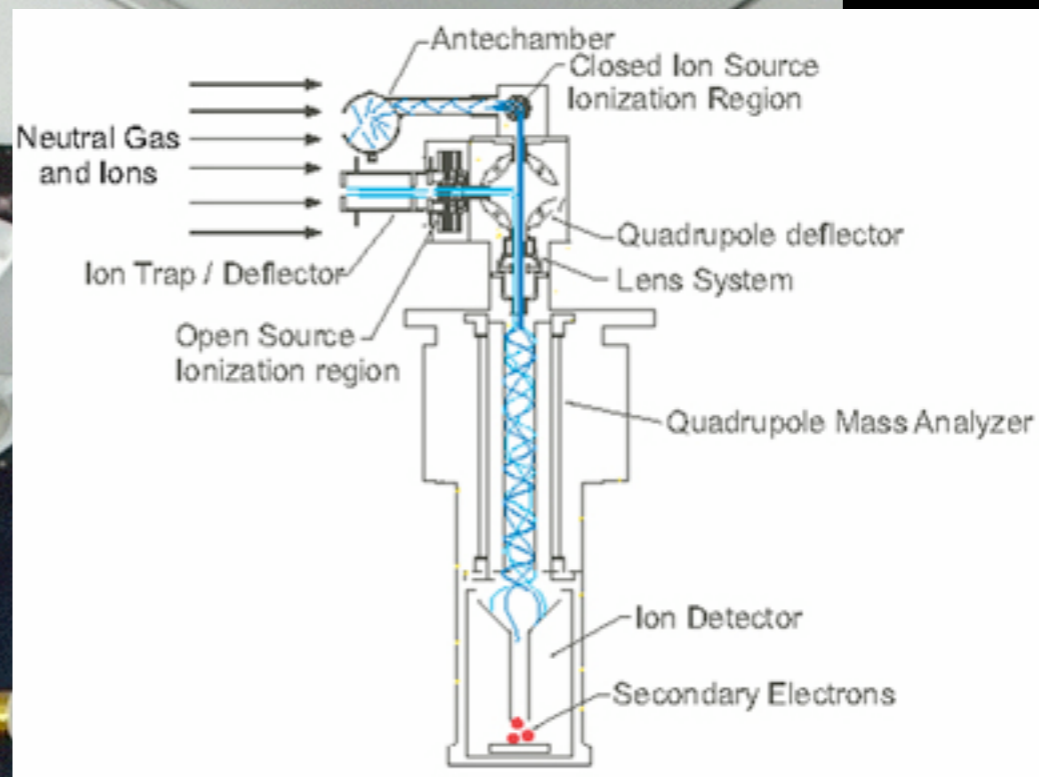
Me!

Huygens

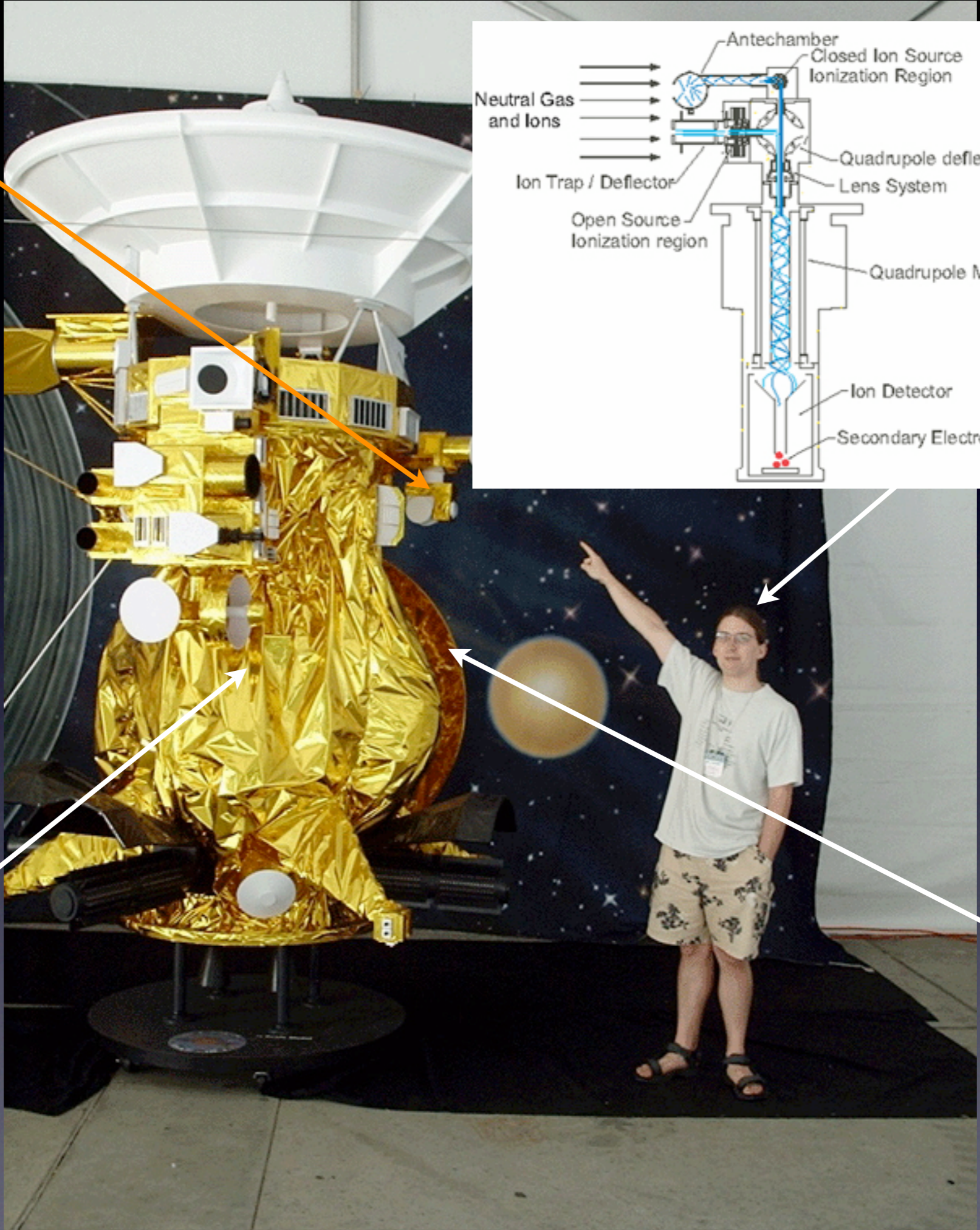
Now on
Titan

Look for the arrows!
1/3 mockup of Cassini/Huygens

INMS
Cassini's
nose



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It's just a
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Huygens
Now on
Titan

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INMS

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**Imaging
Sub-
System**

Who cares
about stupid
pictures
anyway?

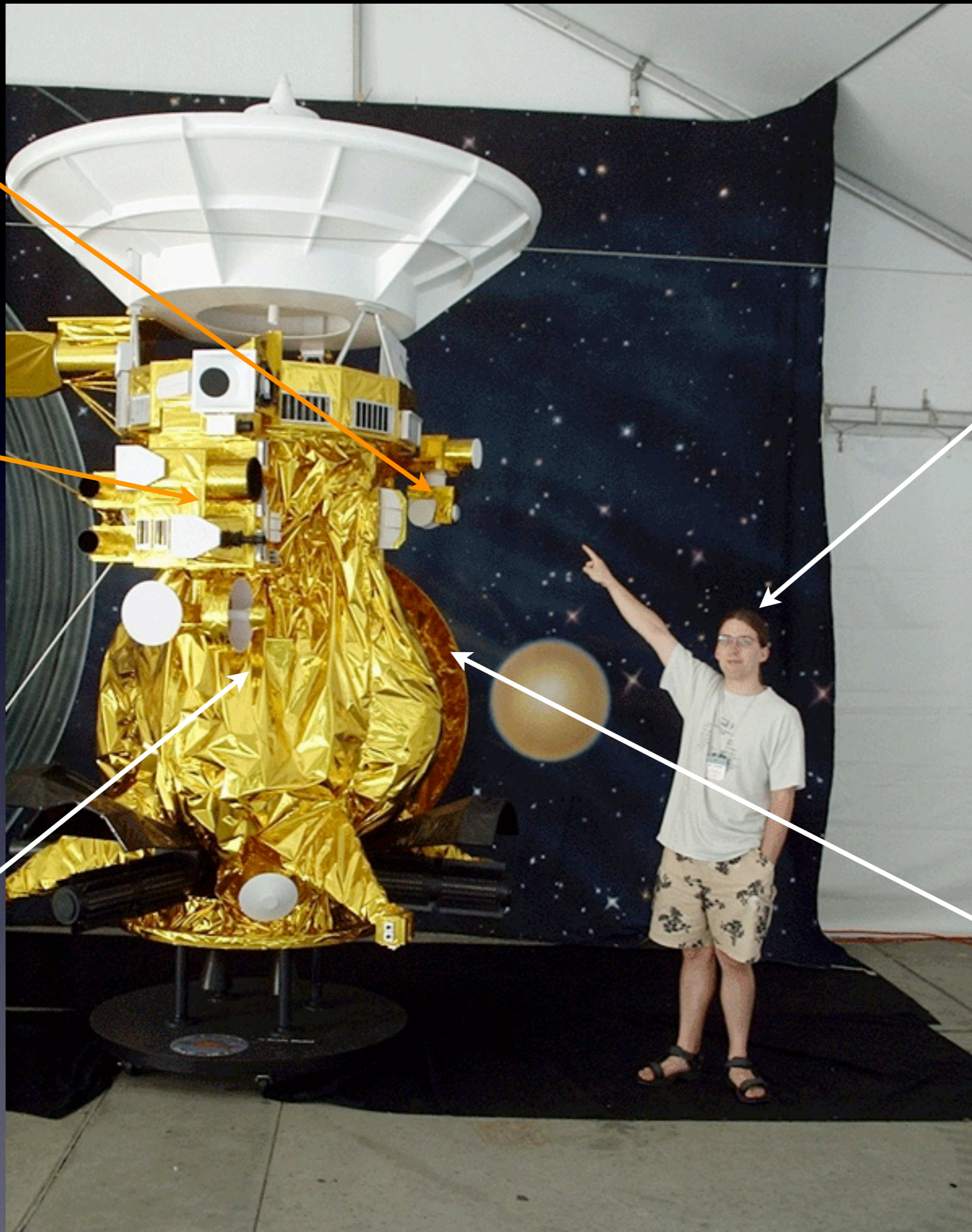
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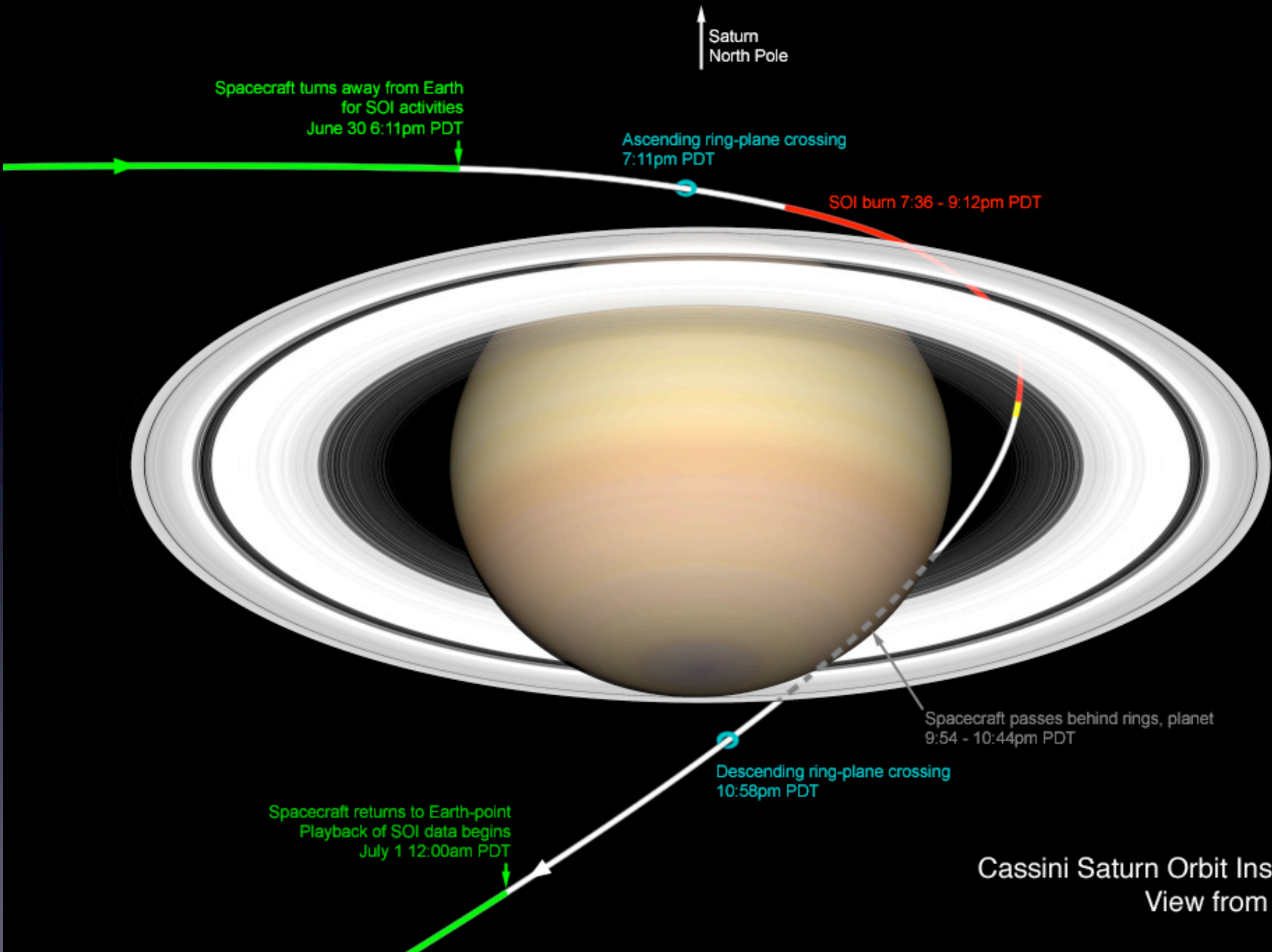


Supersize
it!

Schoolbus sized.
In the clean room, prepping for launch.
Launched on 15 October 1997.

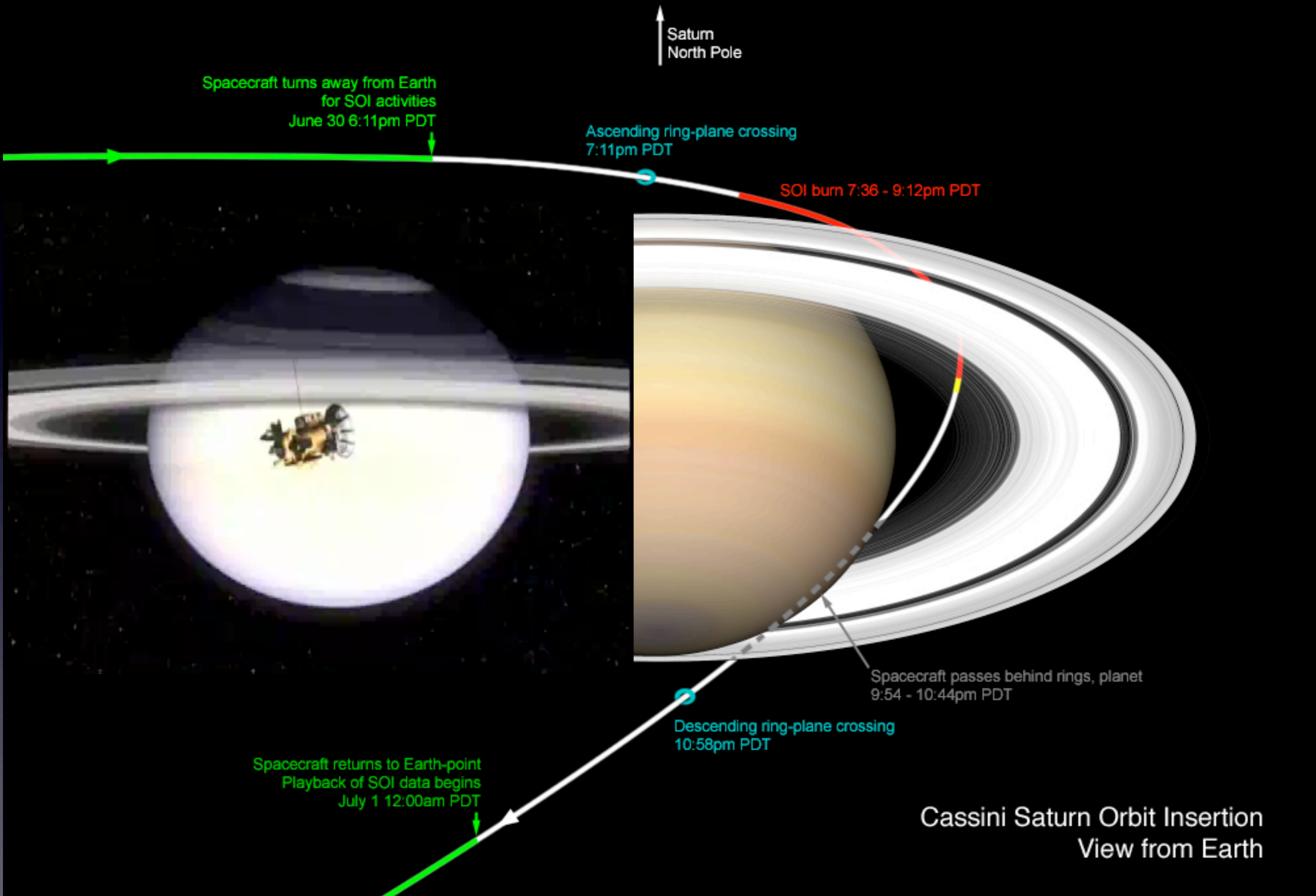




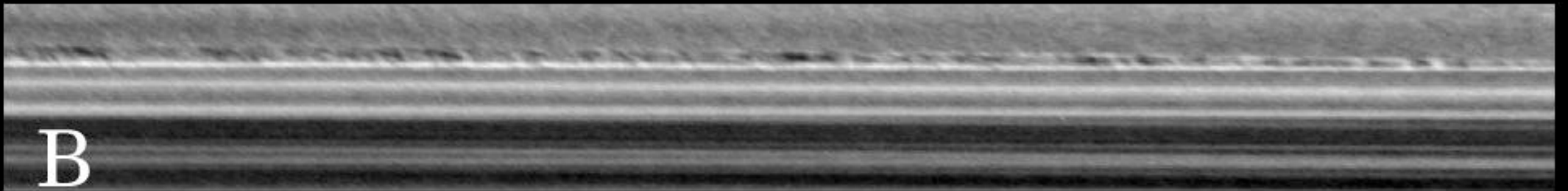
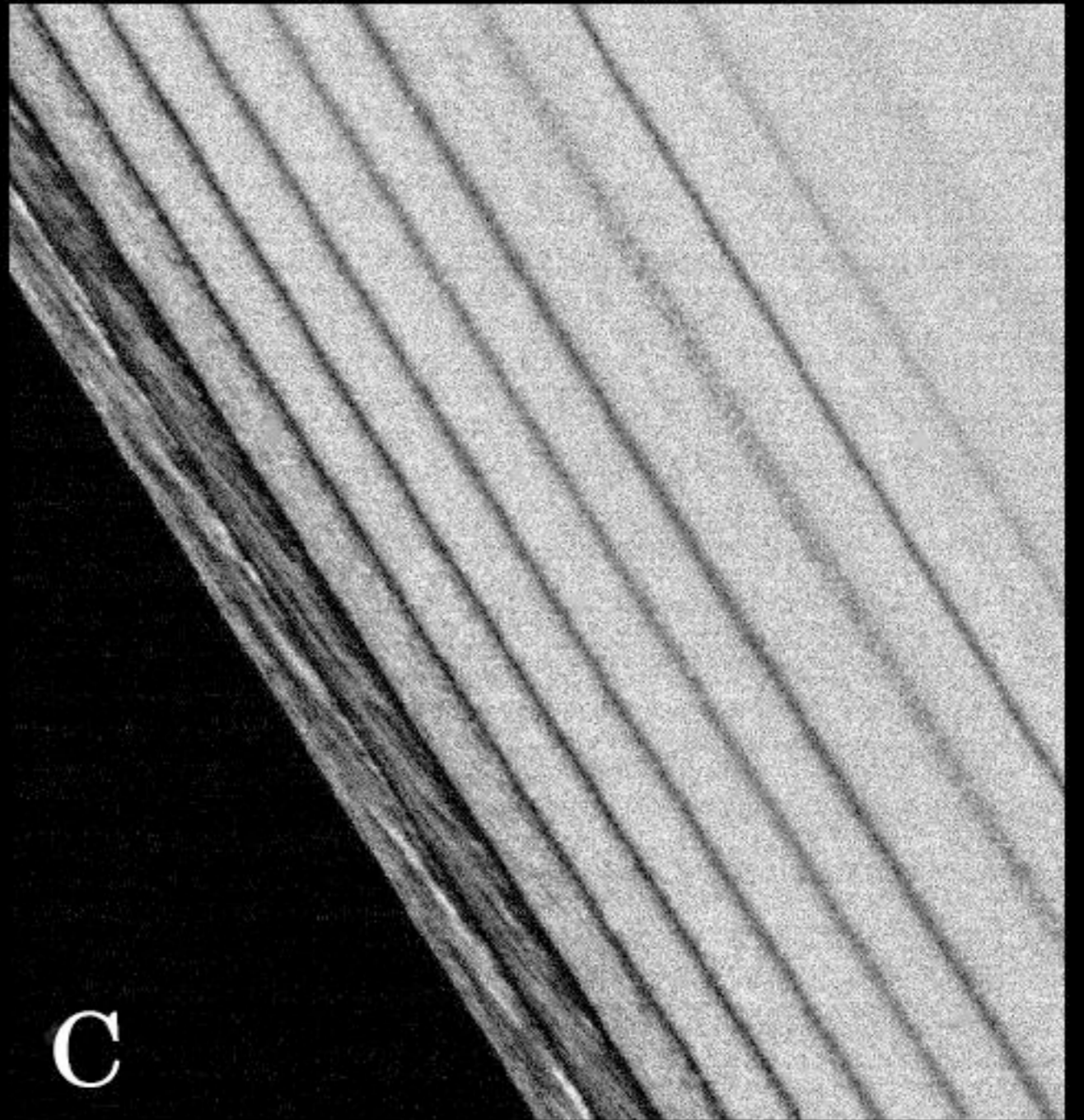
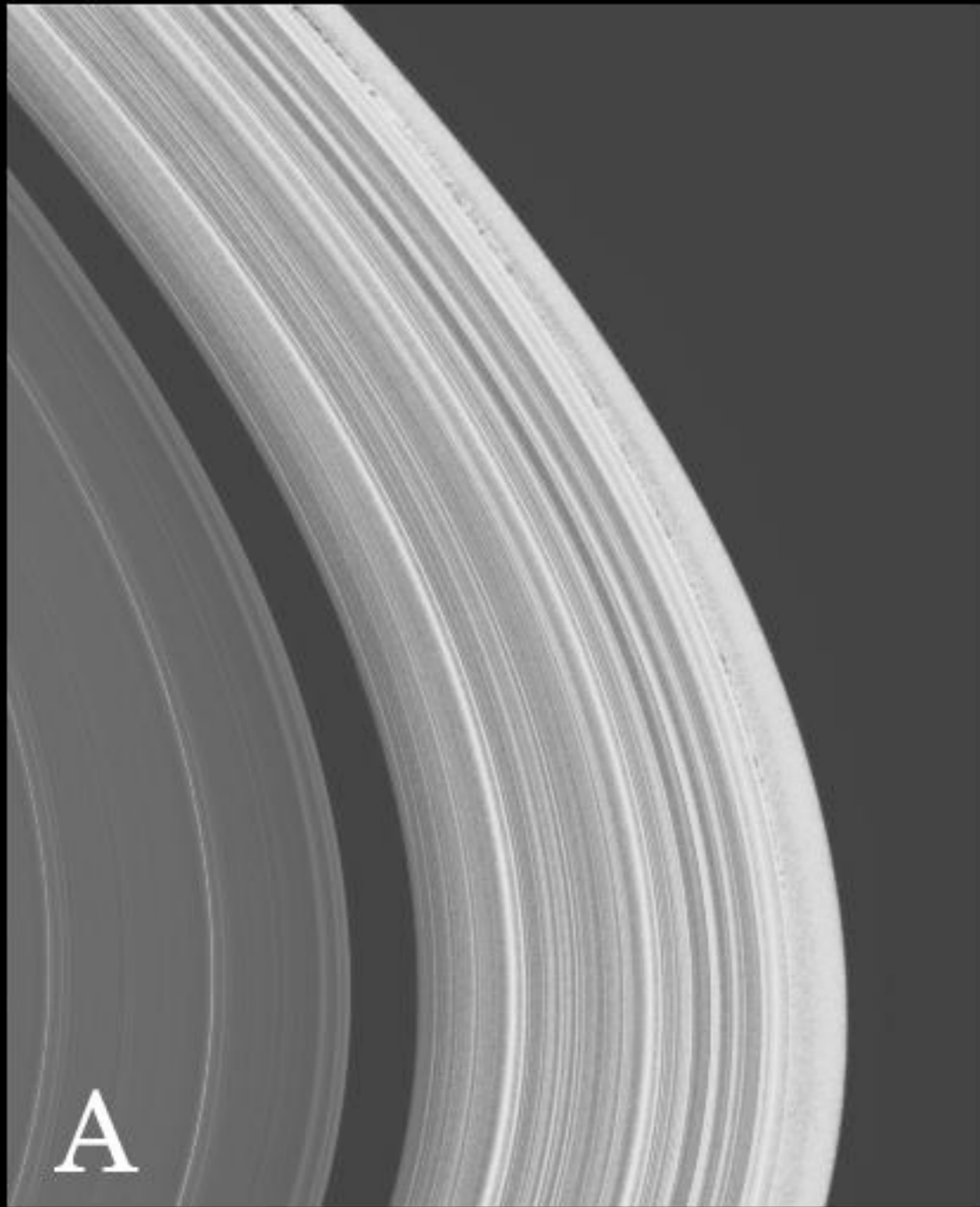


Cassini Saturn Orbit Insertion
View from Earth

SOI burn: 90 minutes



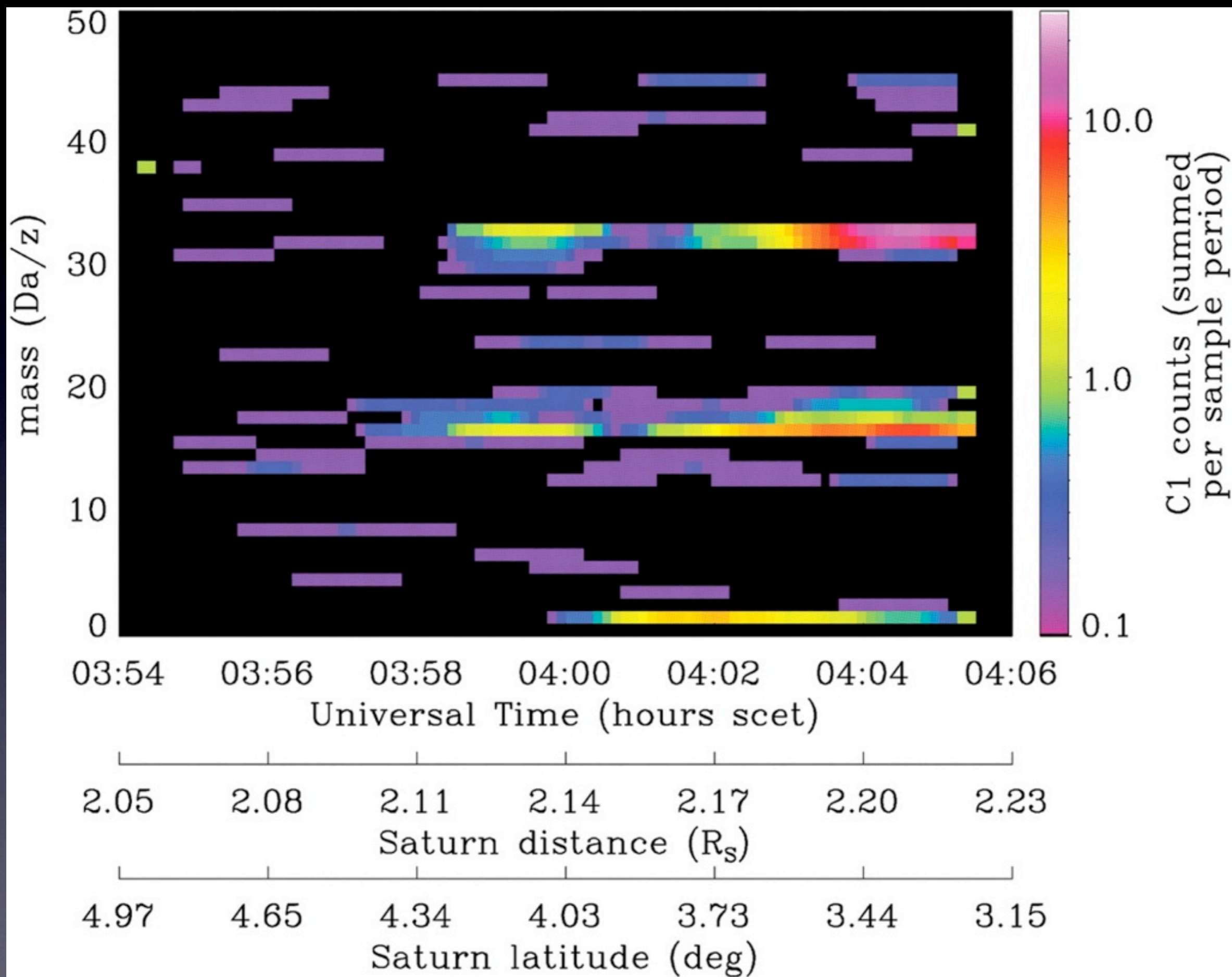
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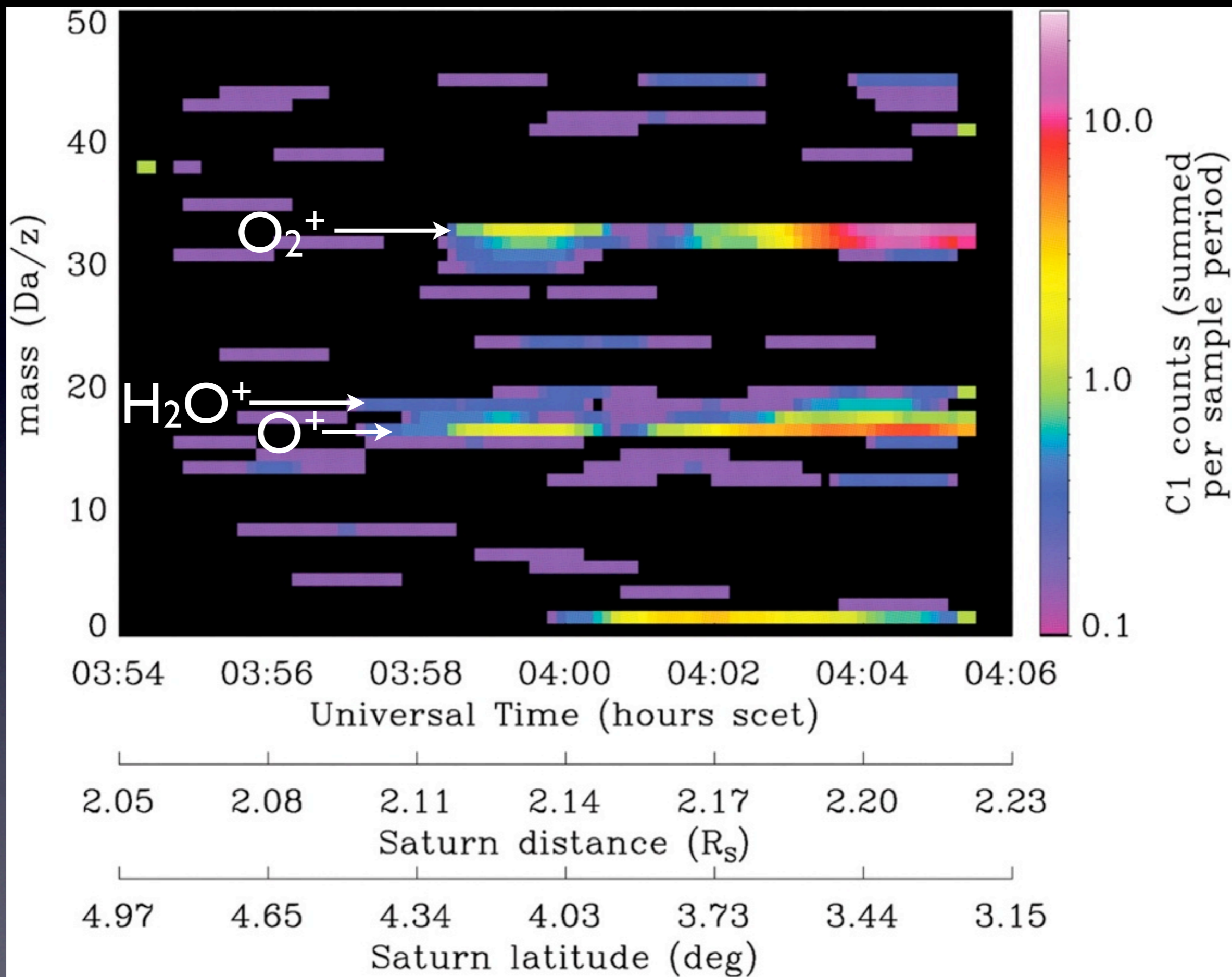


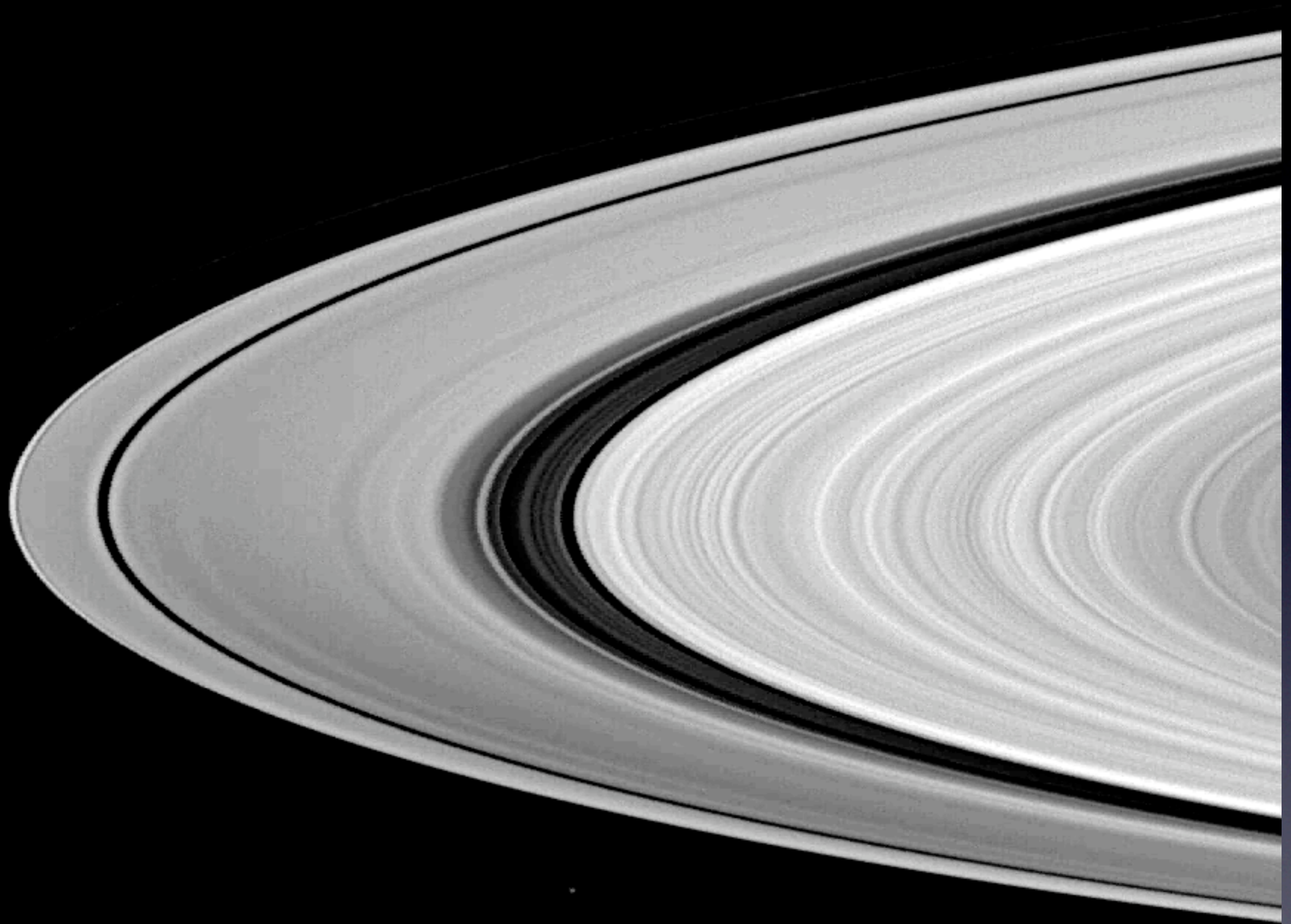
A: fine structure (much finer than Voyager had seen).

B: braids.

C: braids and density waves.

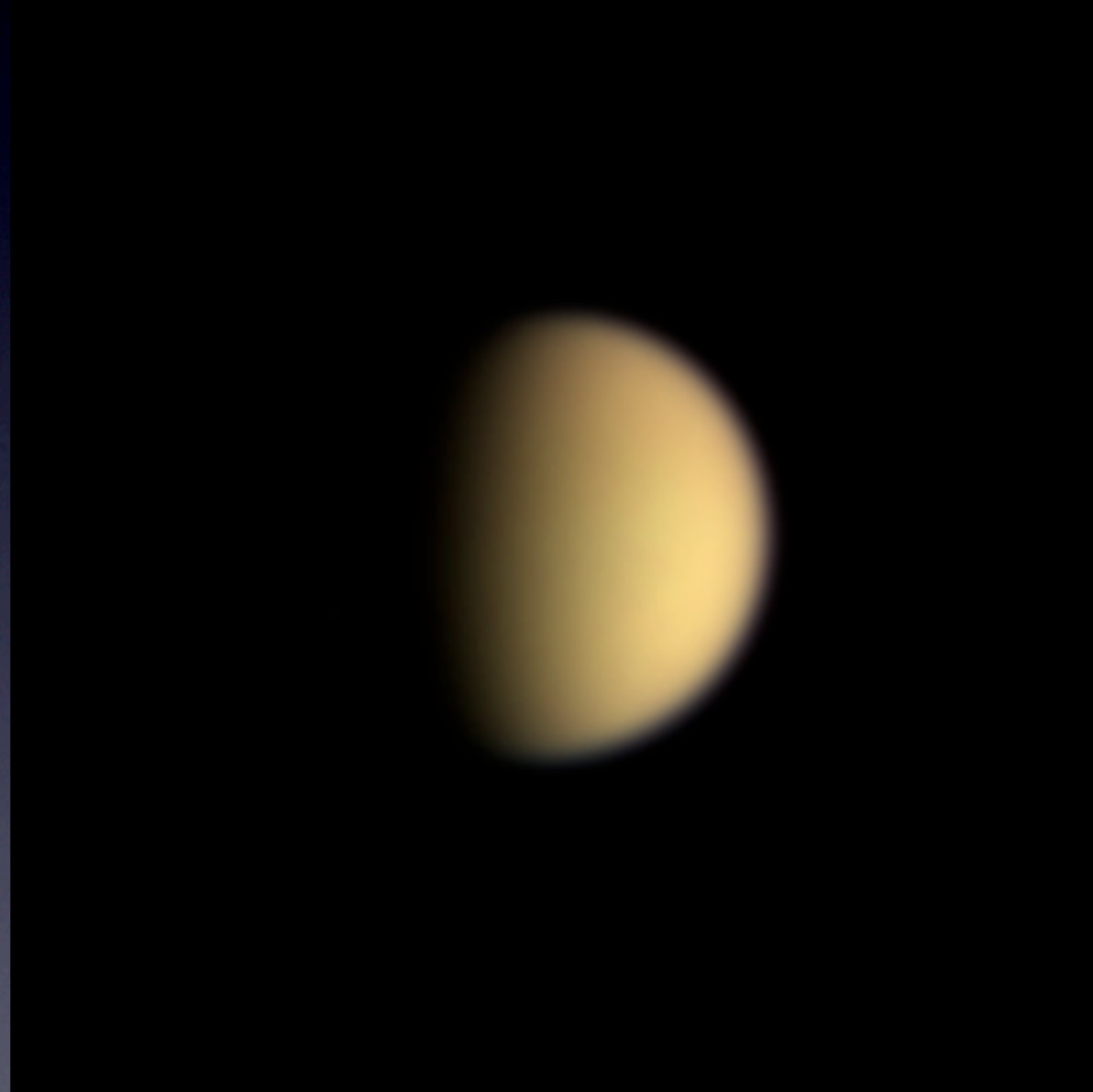




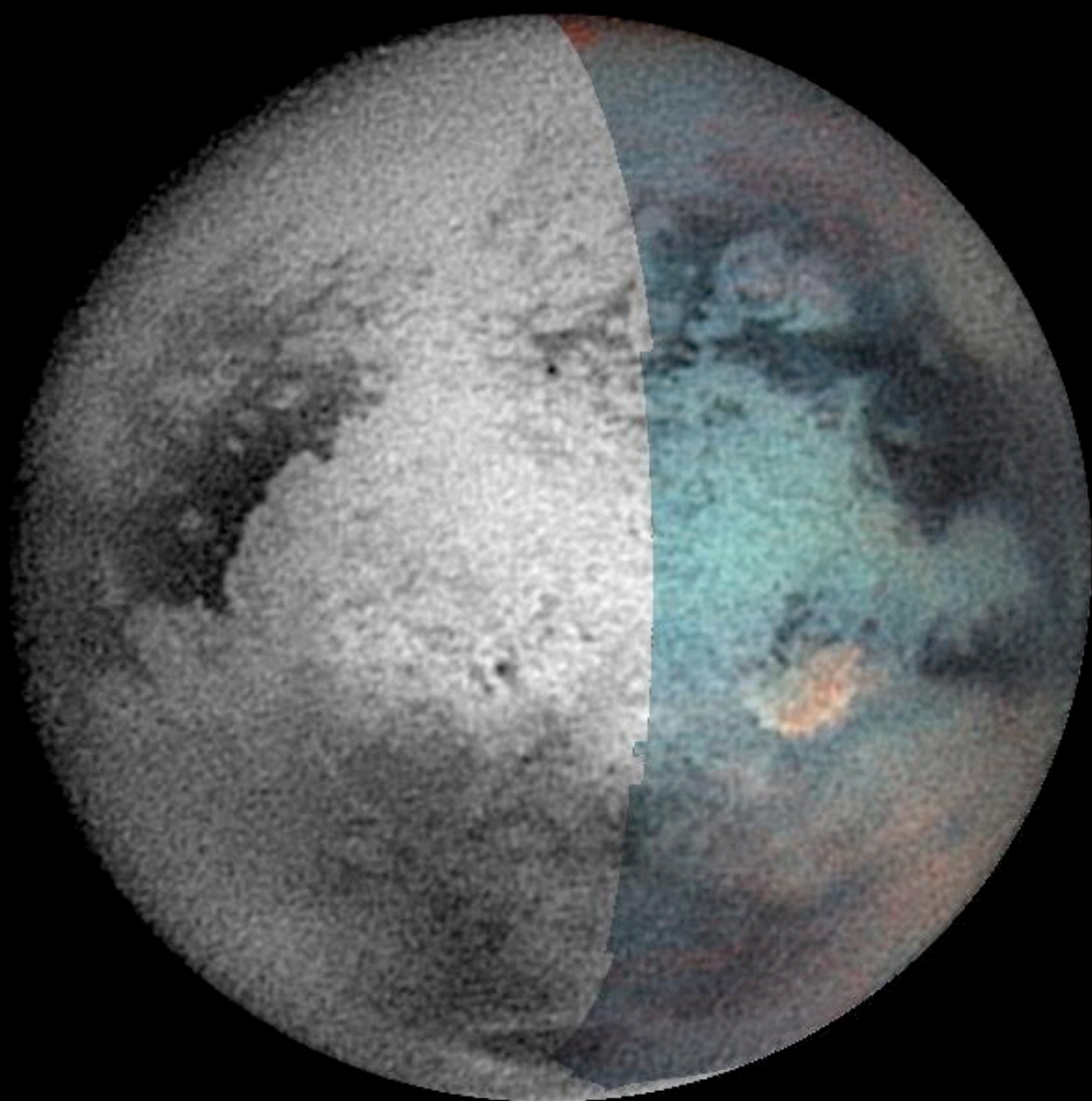
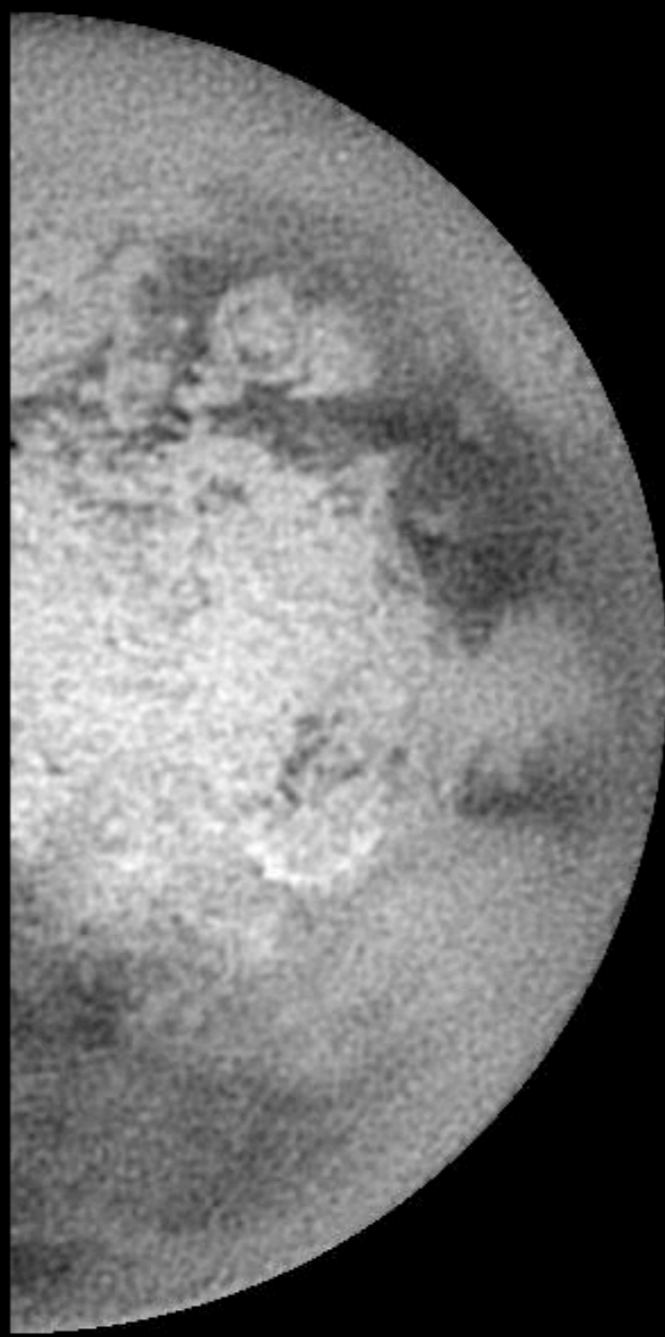
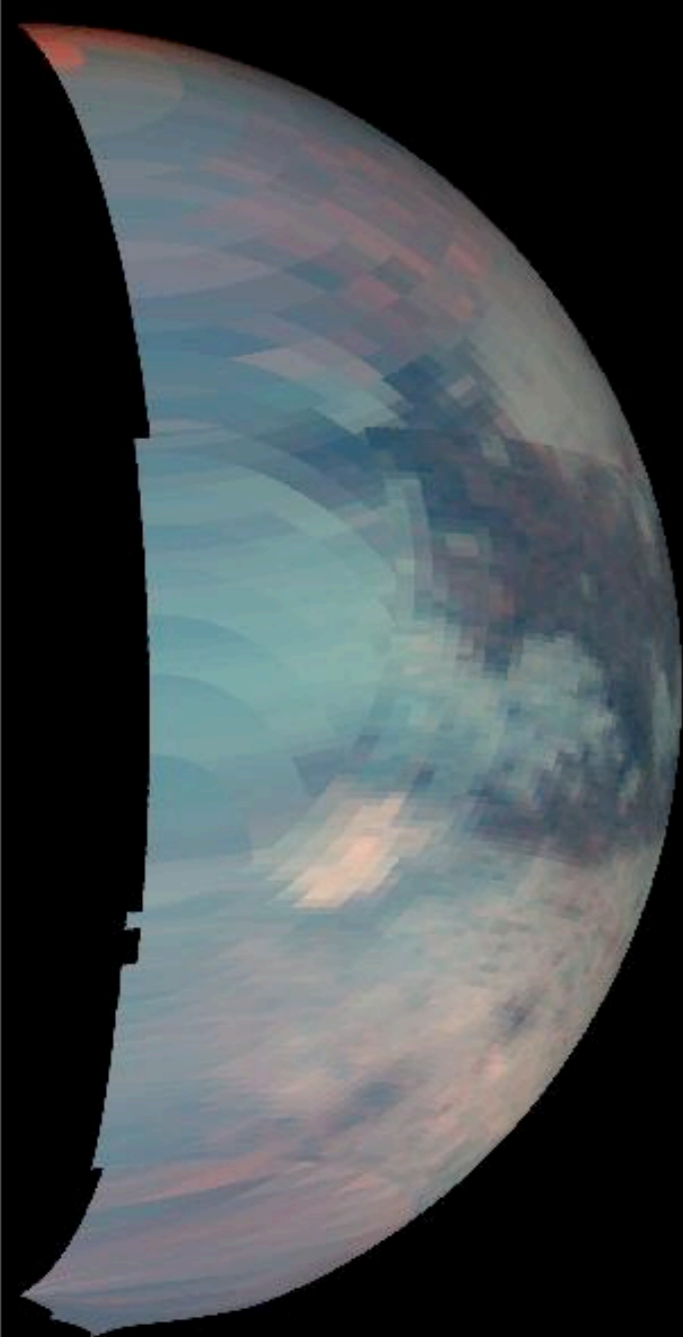


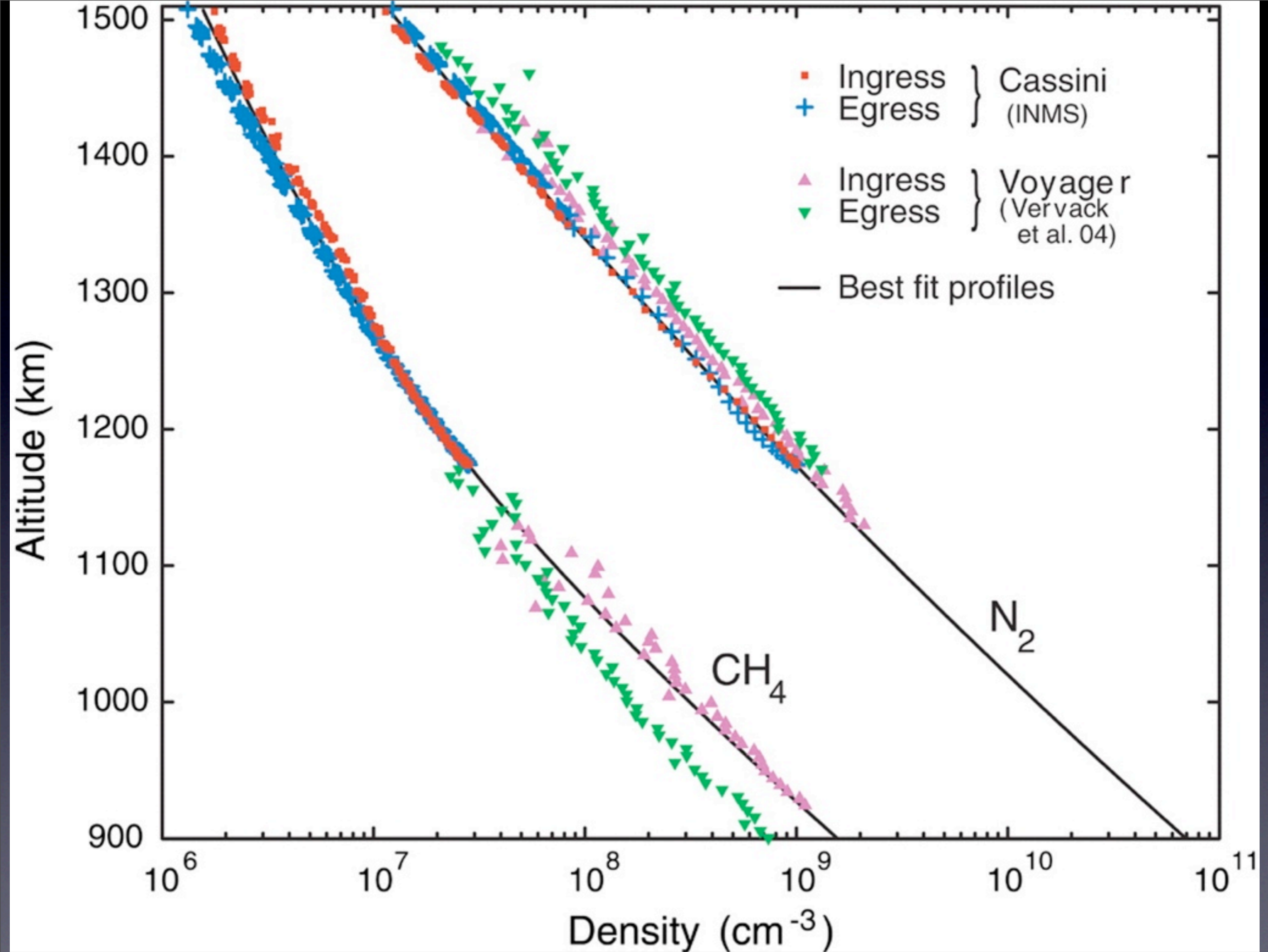


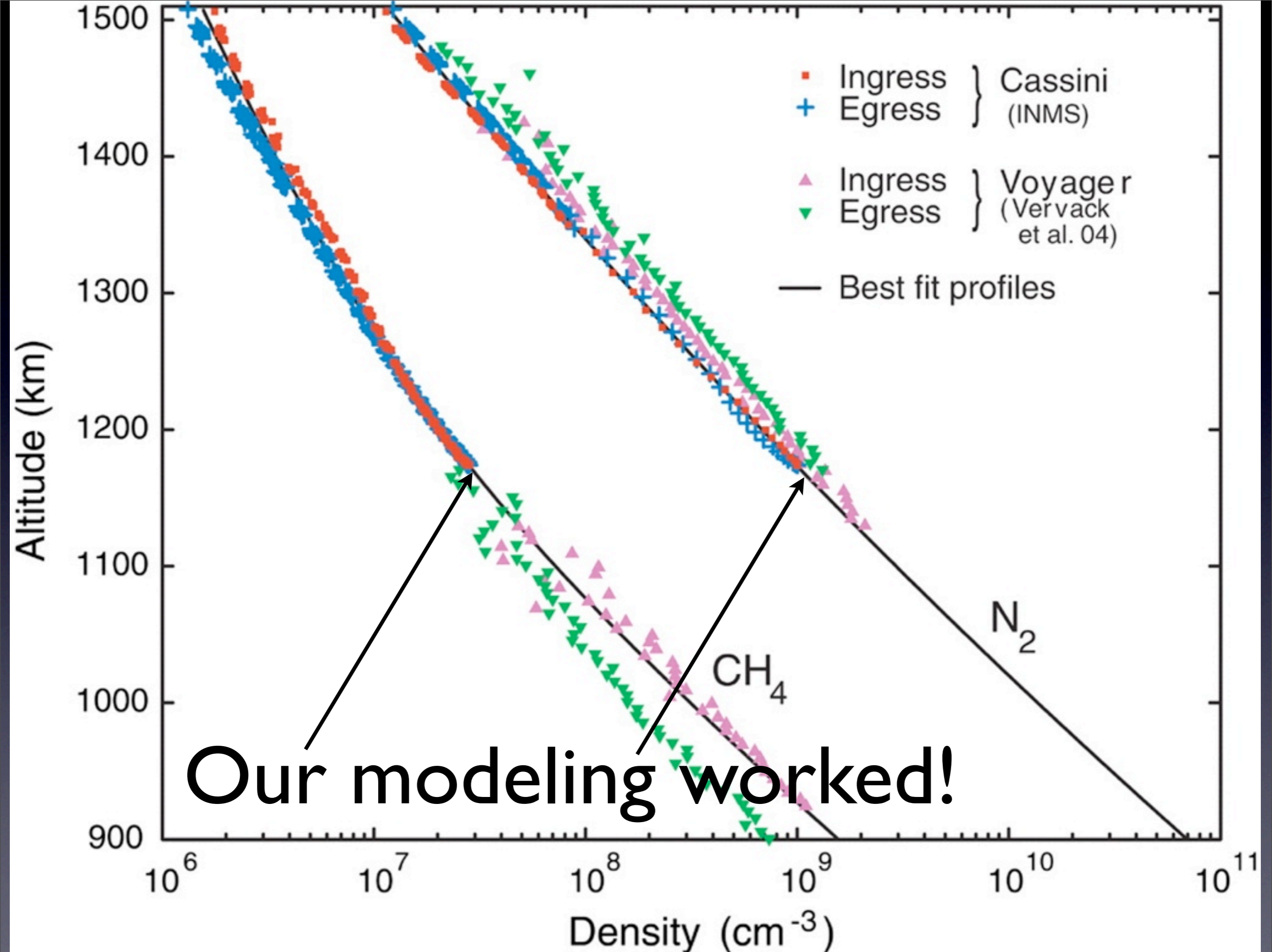
The Mystery Moon



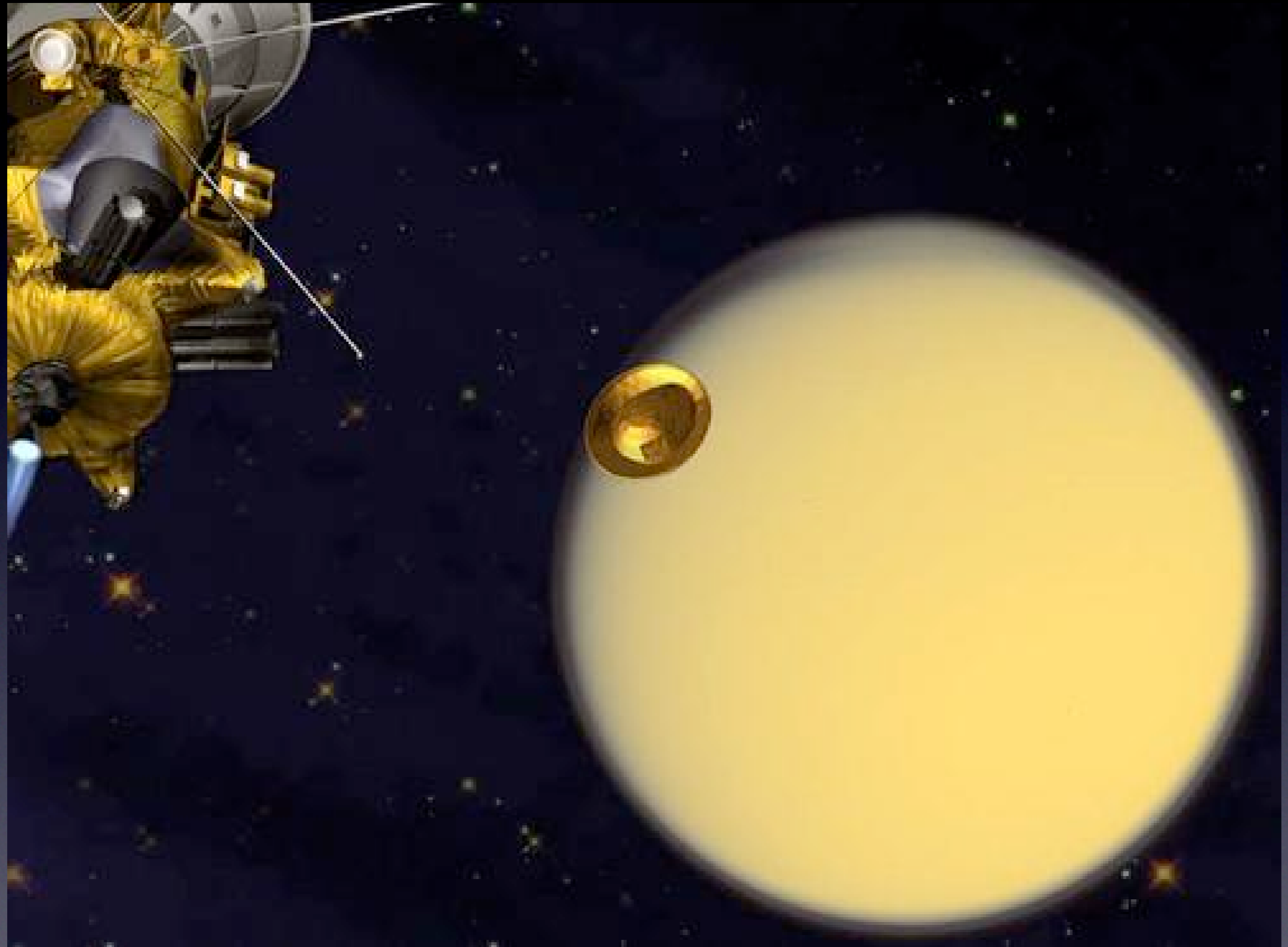
Never seen the surface.



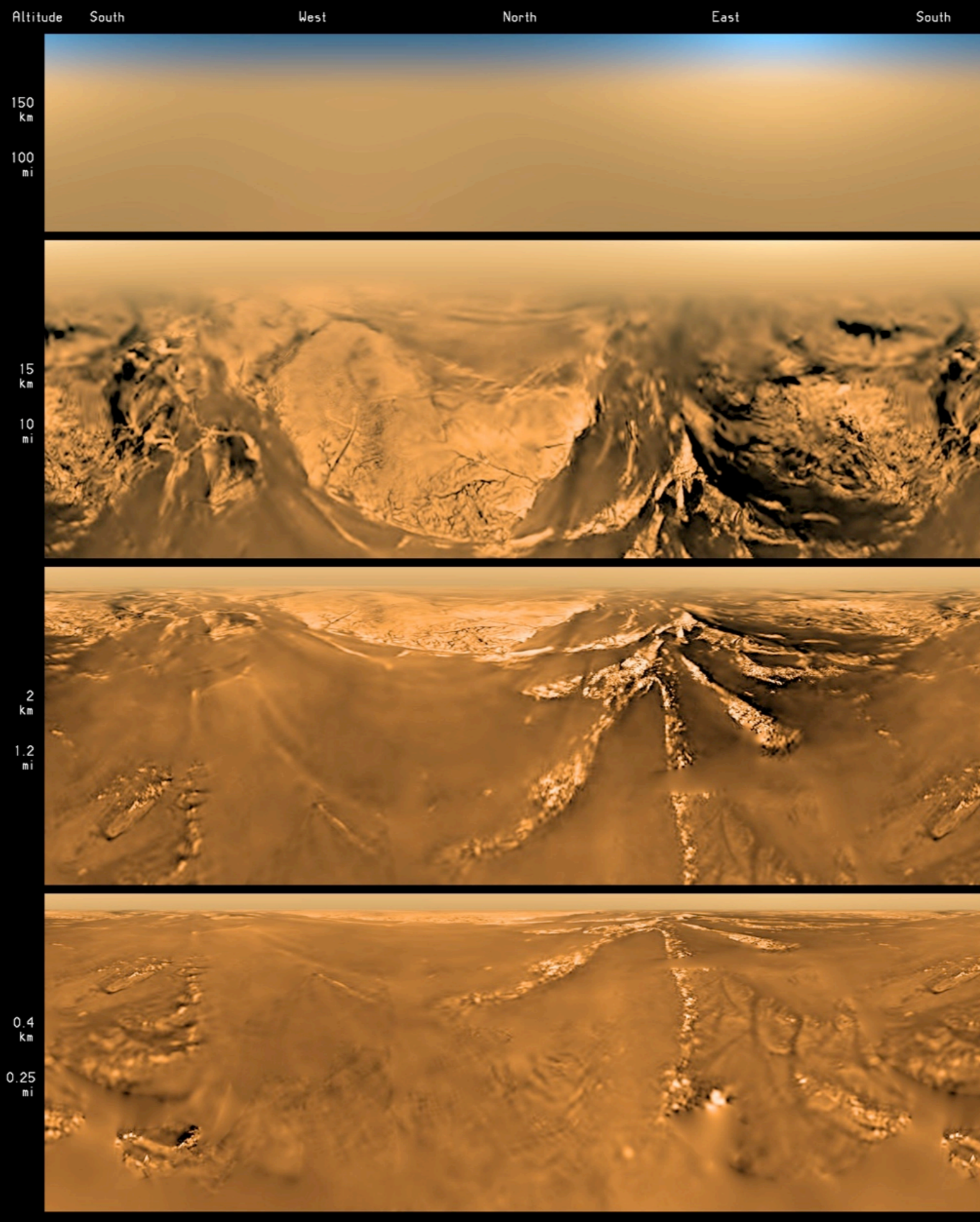


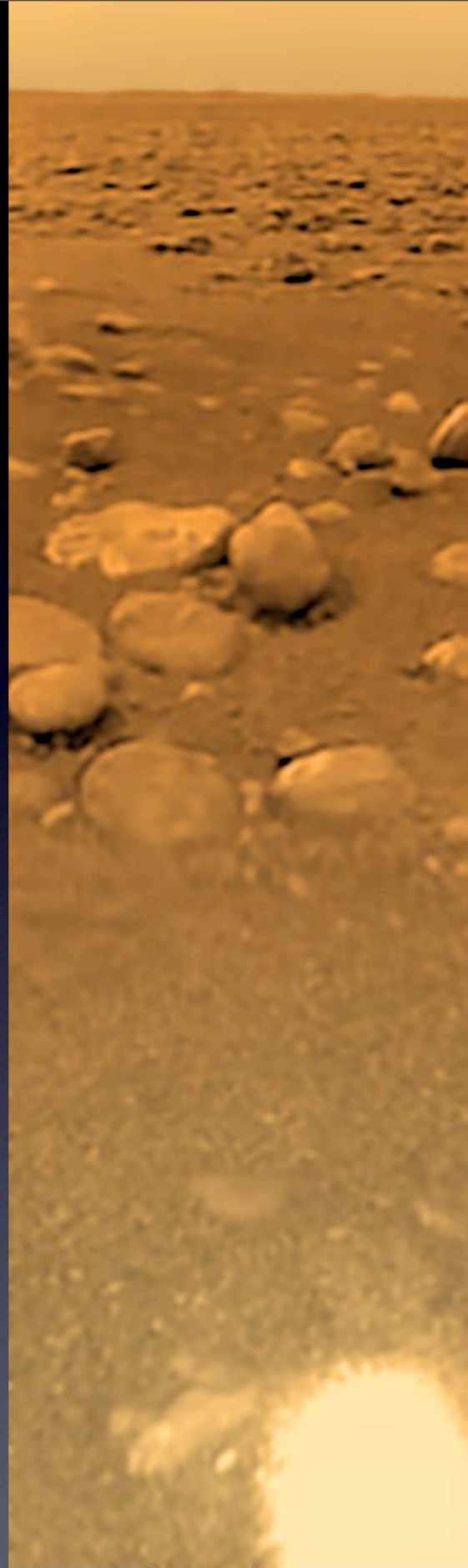




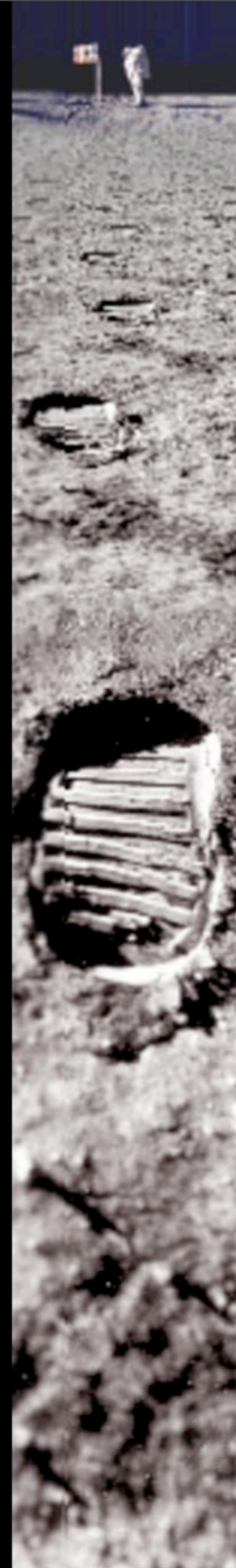


Aerial Views of Titan Around the Huygens Landing Site

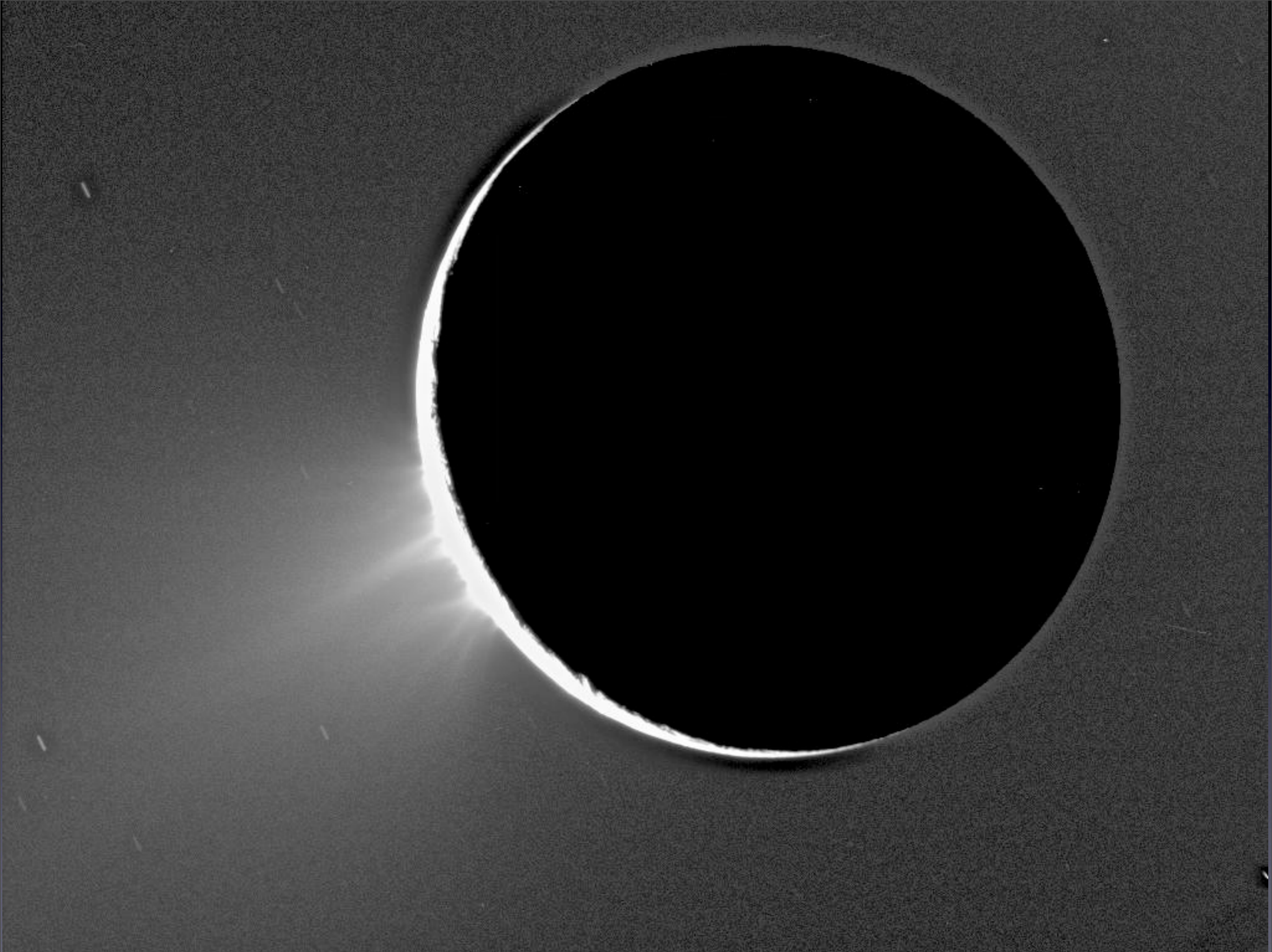




Titan

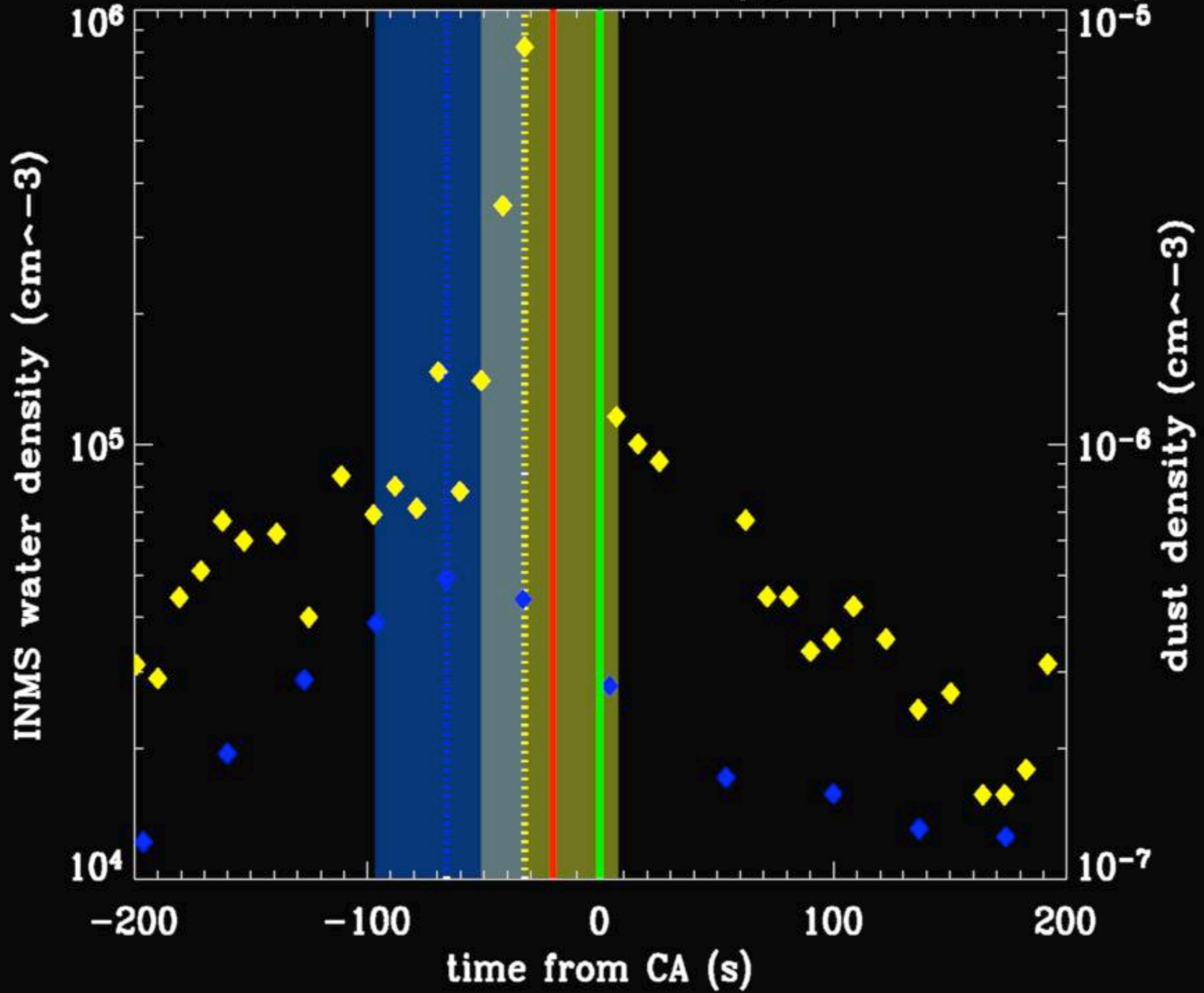


Moon at
Similar
Scale

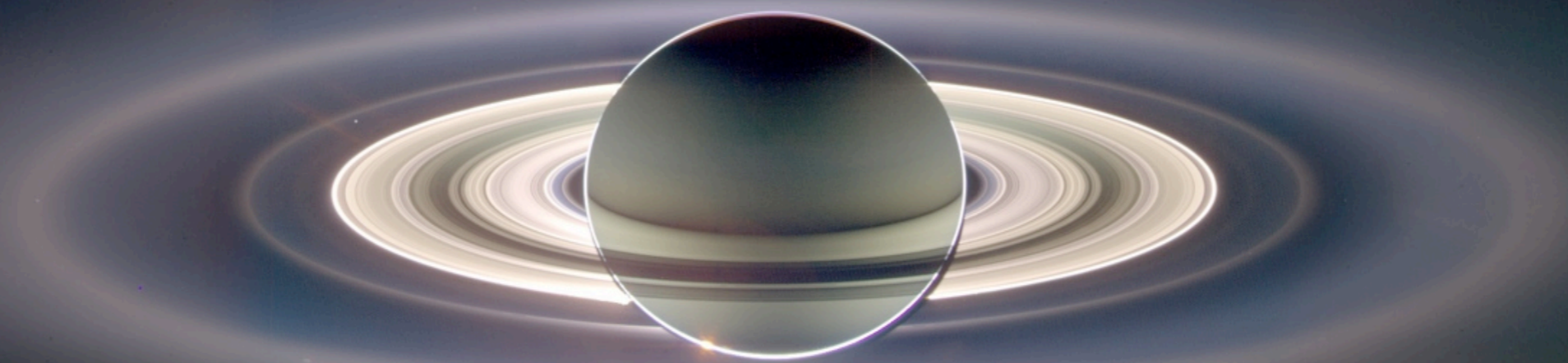


Enceladus plume

Enceladus – Water Density, Dust density



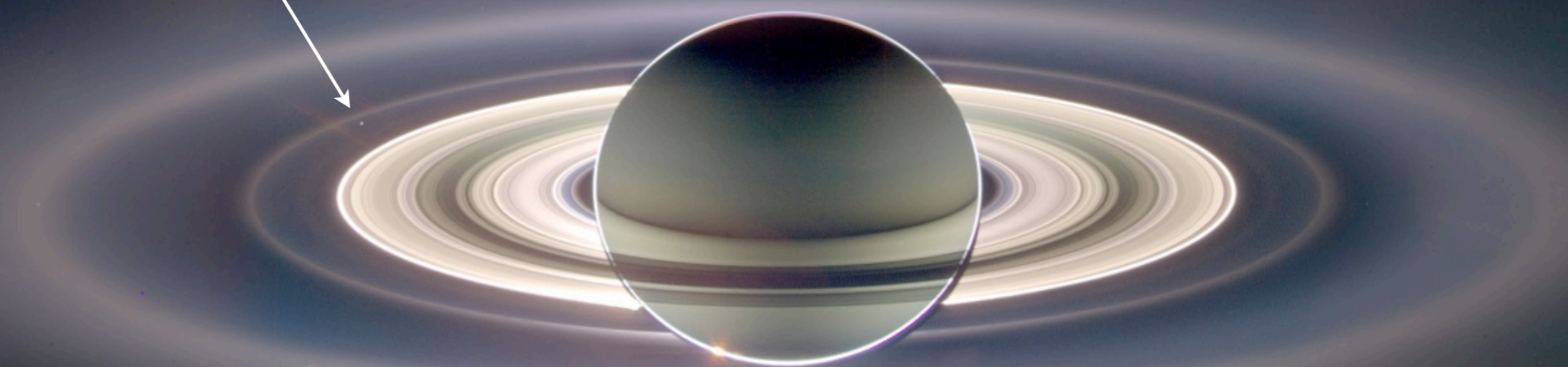
Passing through the plume.



<http://saturn.jpl.nasa.gov>

<http://ciclops.org>

Us!



<http://saturn.jpl.nasa.gov>

Don't forget galaxyzoo.org!

<http://ciclops.org>