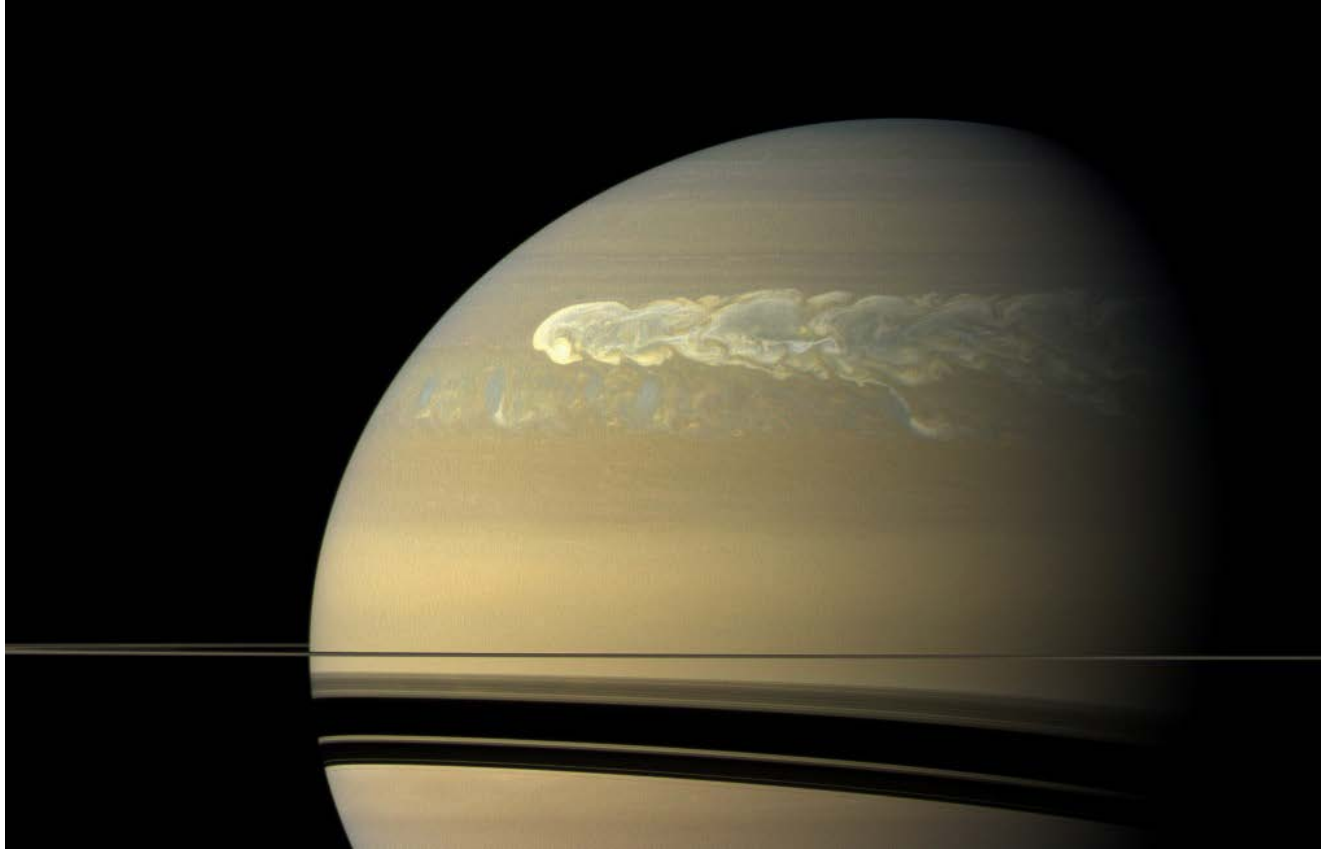
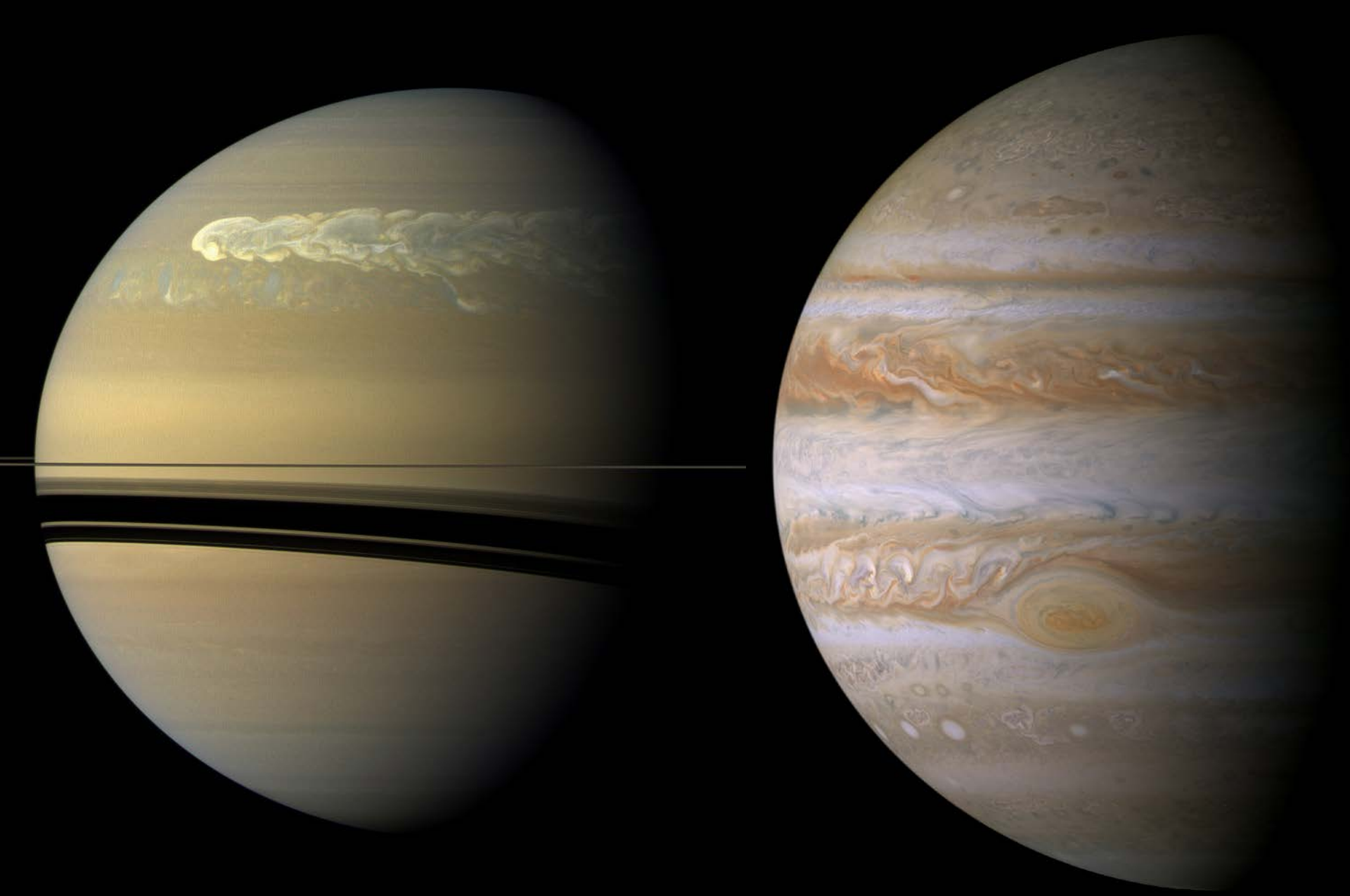


Saturn's Wild Weather 2011-2012

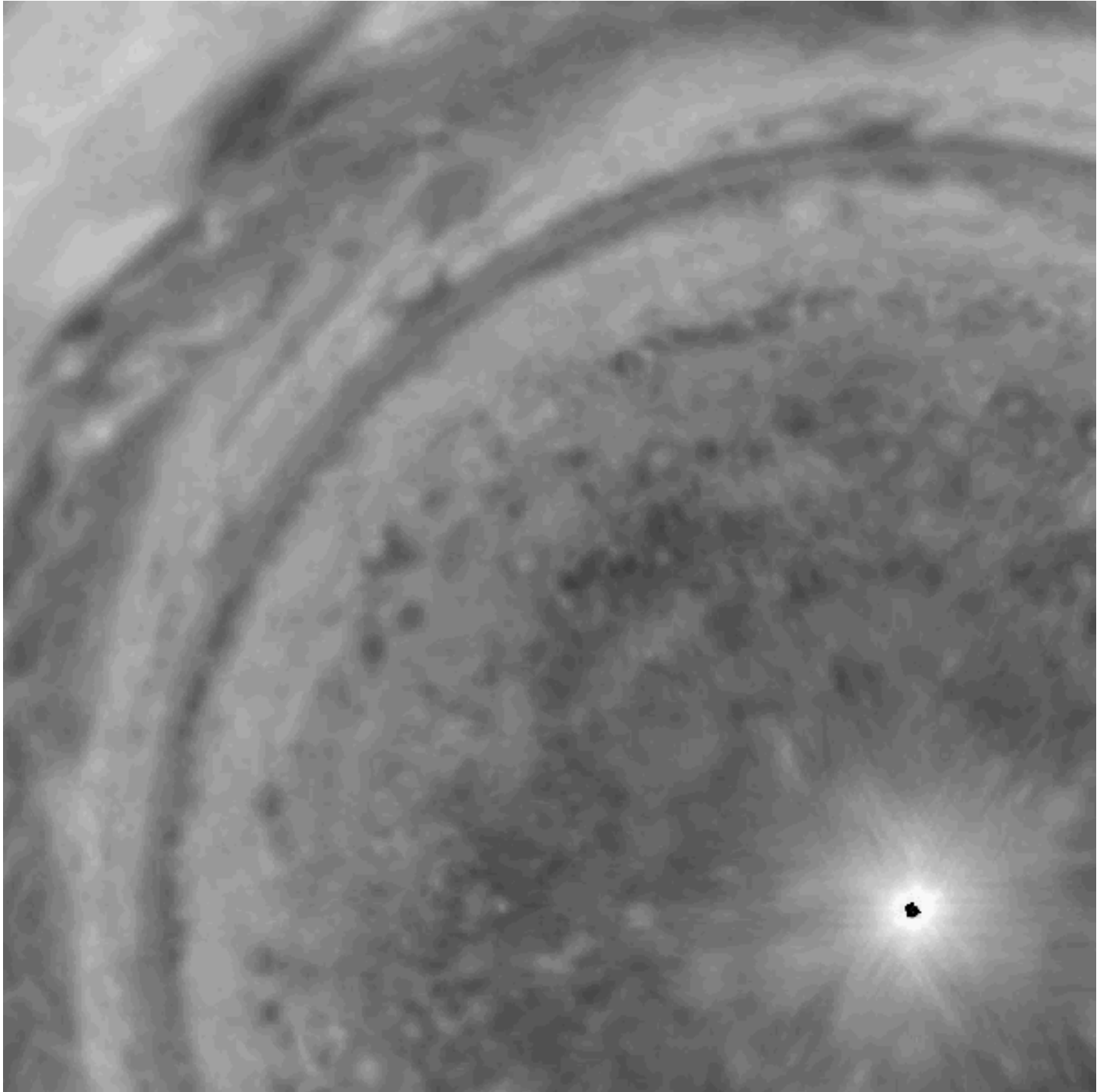
CHARM telecon

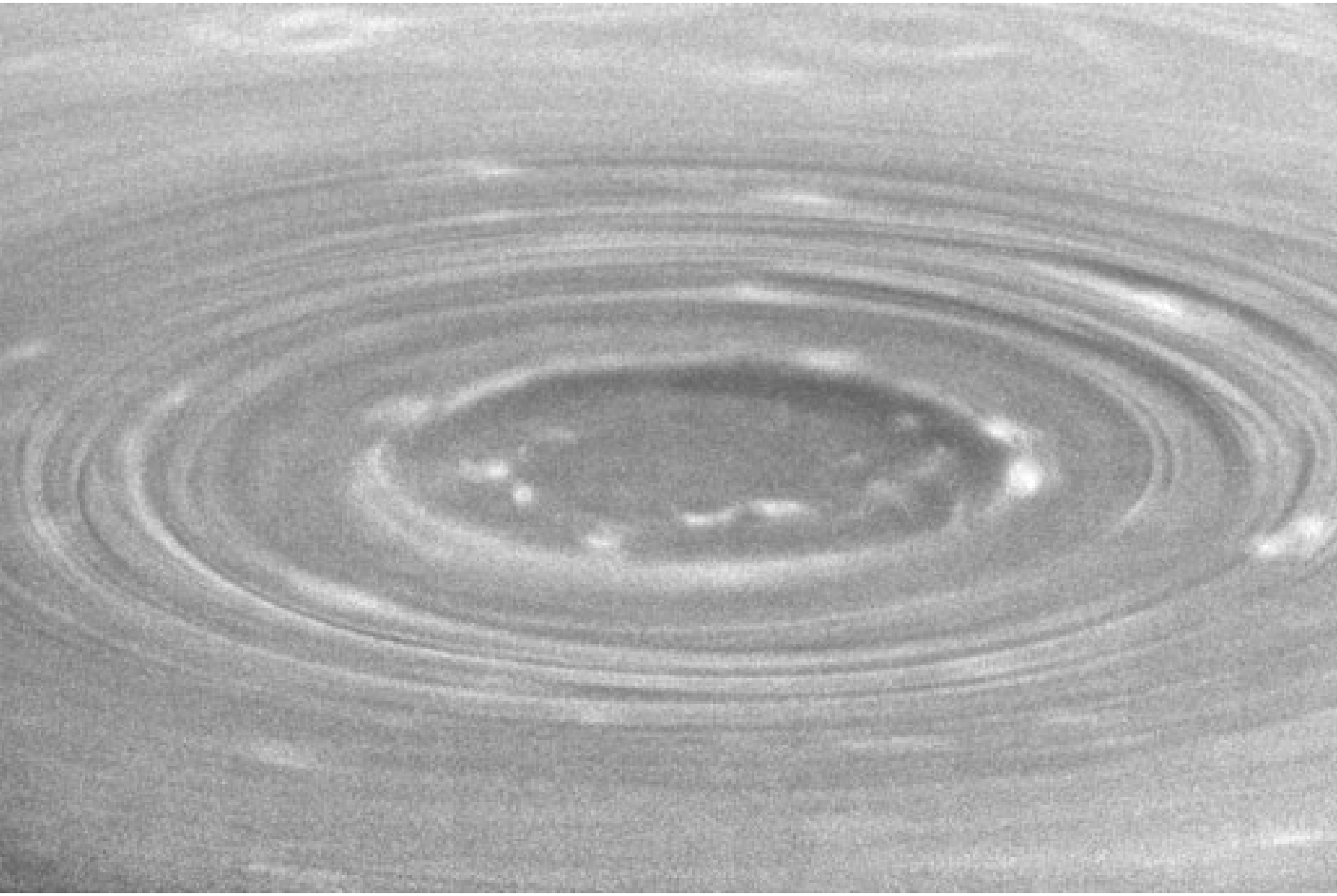
Sept 25, 2012

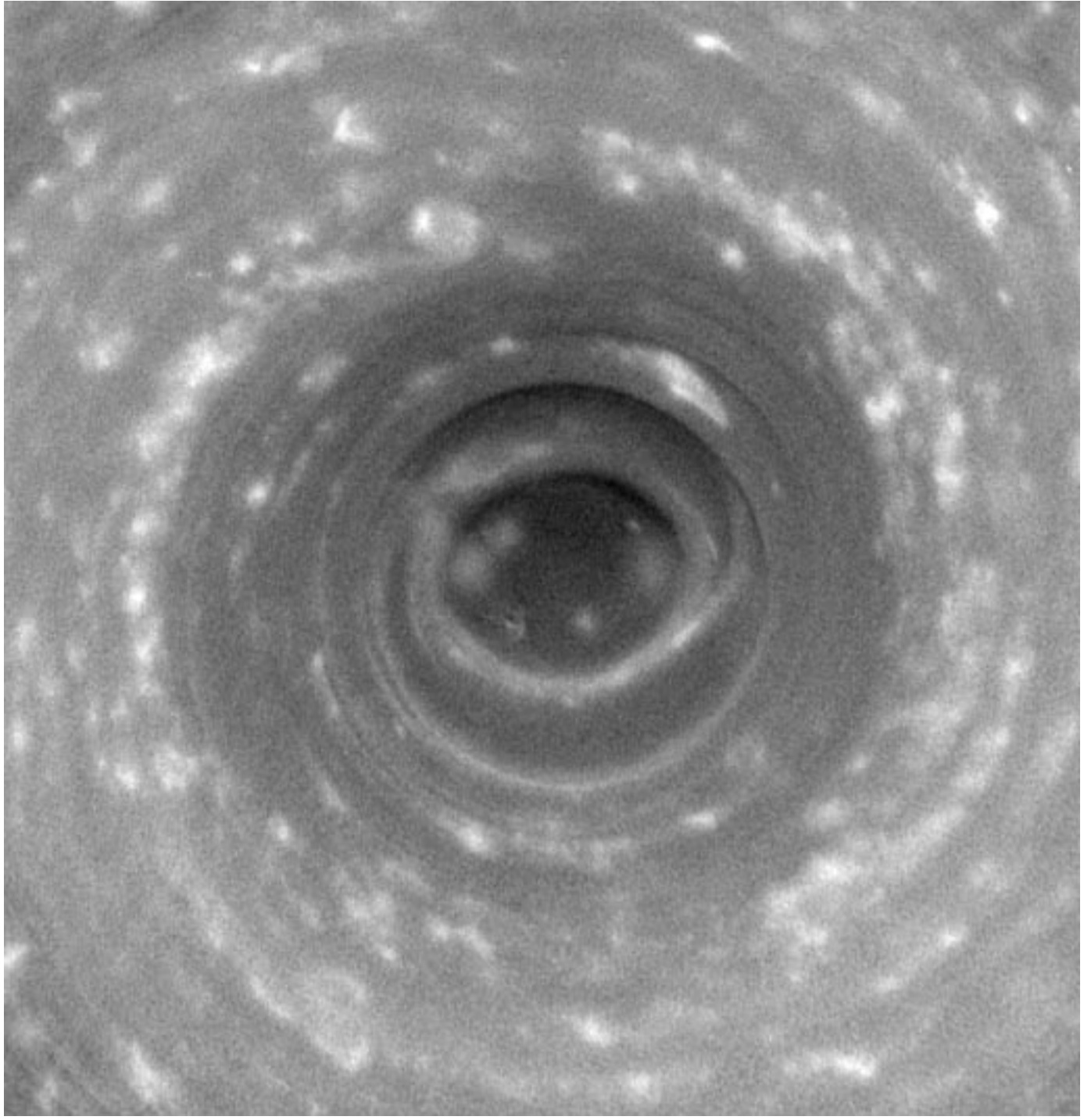
Andrew Ingersoll, Cassini Scientist

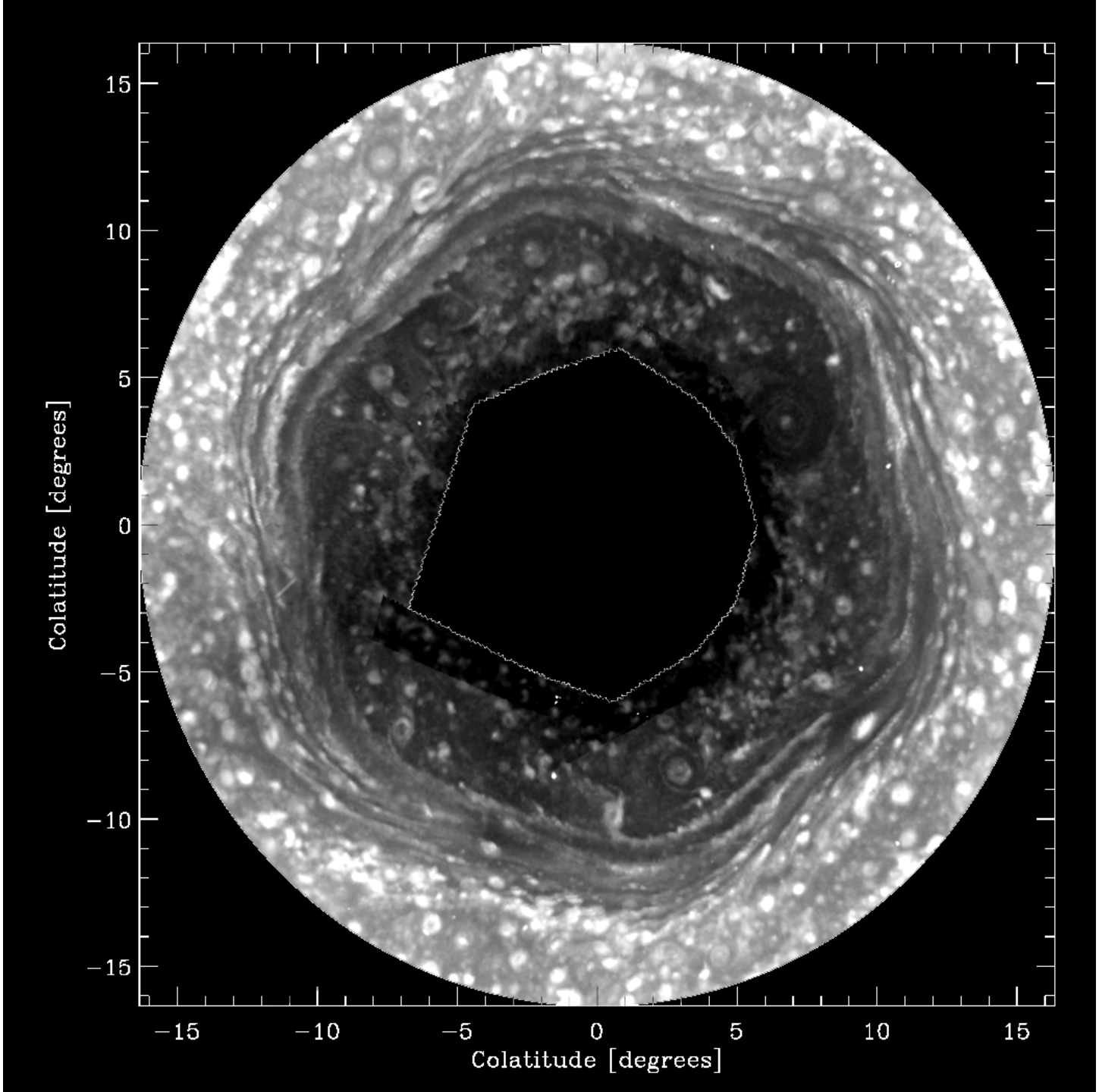


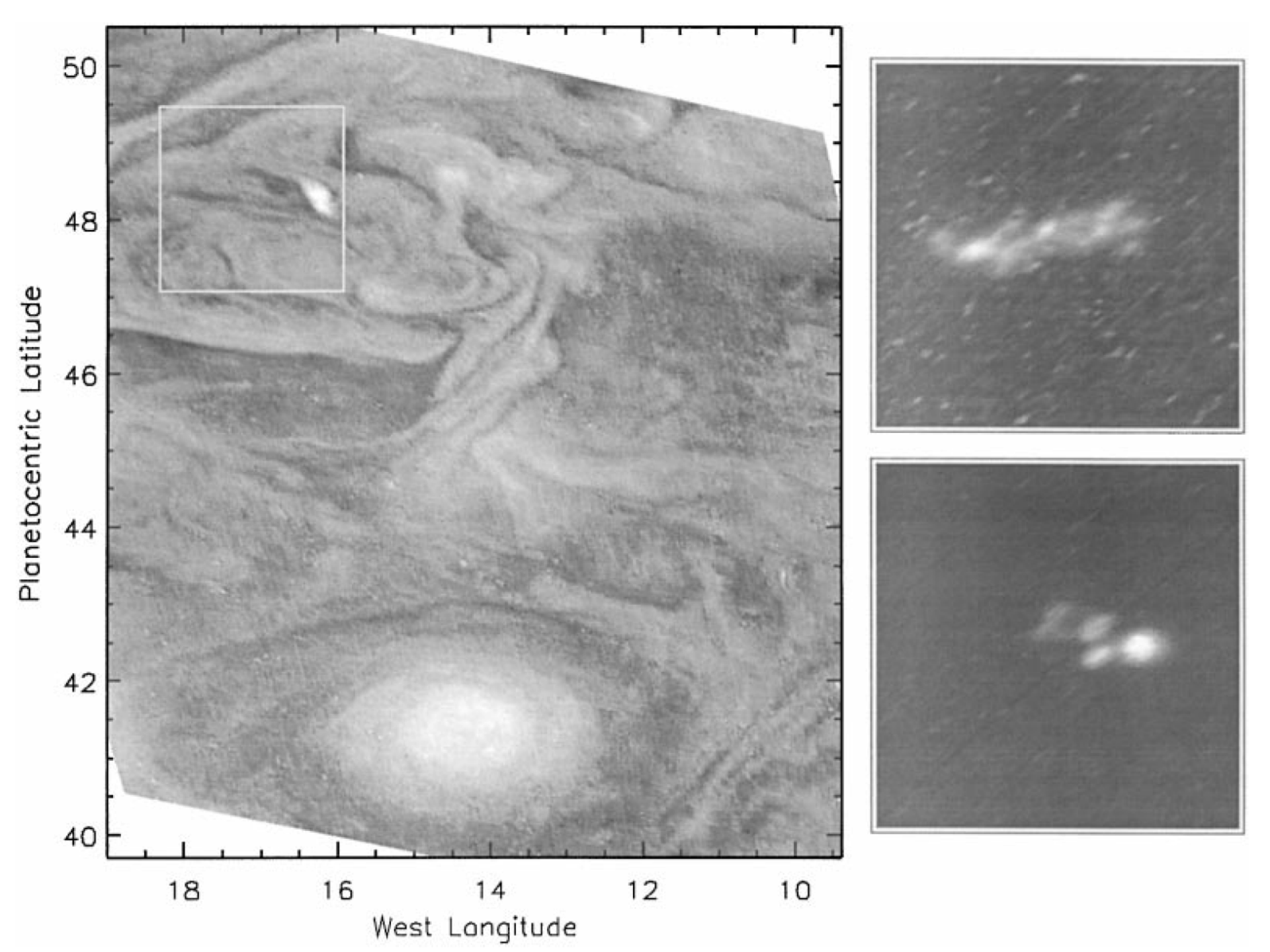
Cassini Images of Saturn in February 2012 (left) and Jupiter in December 2000 (right)

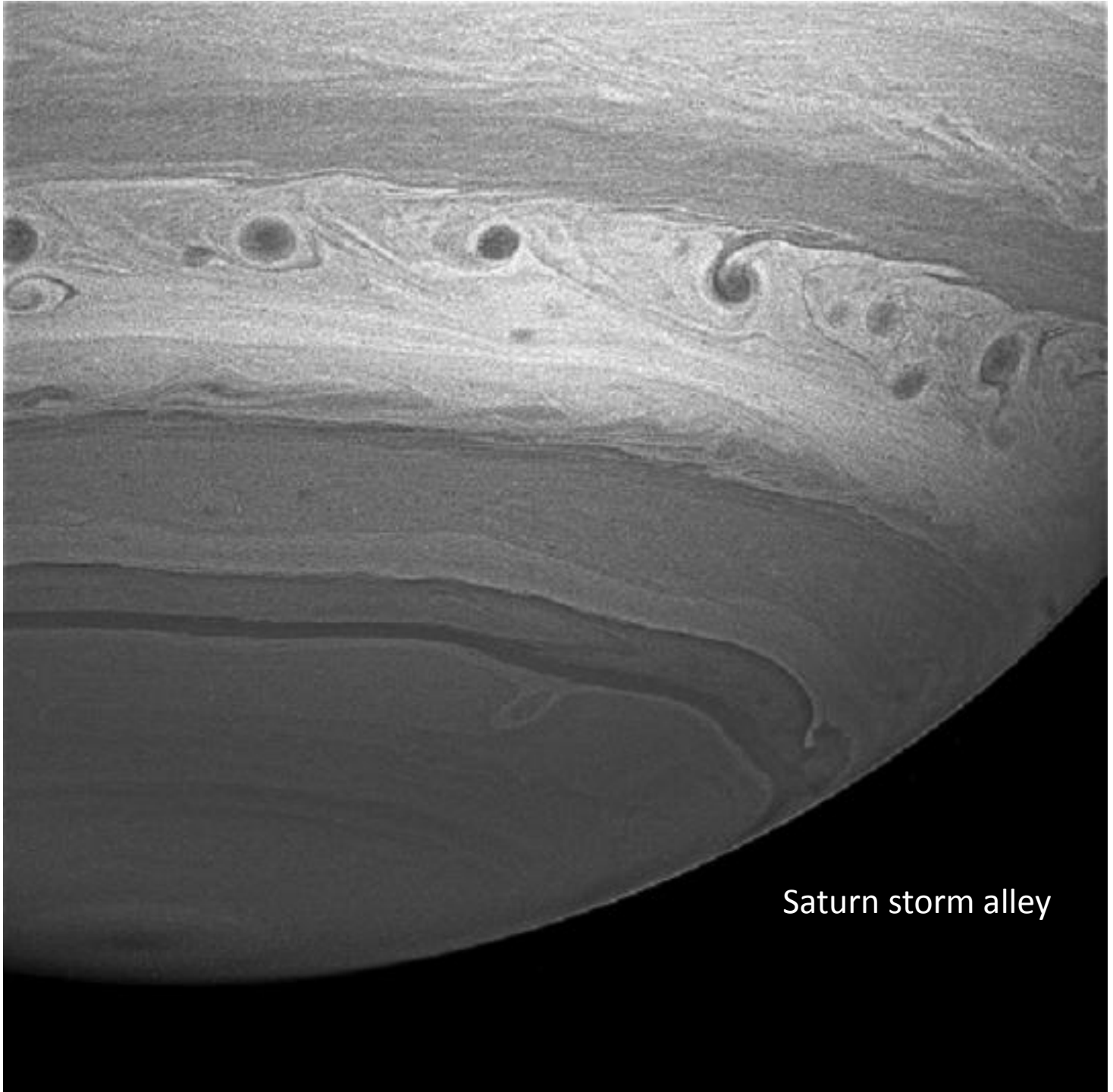


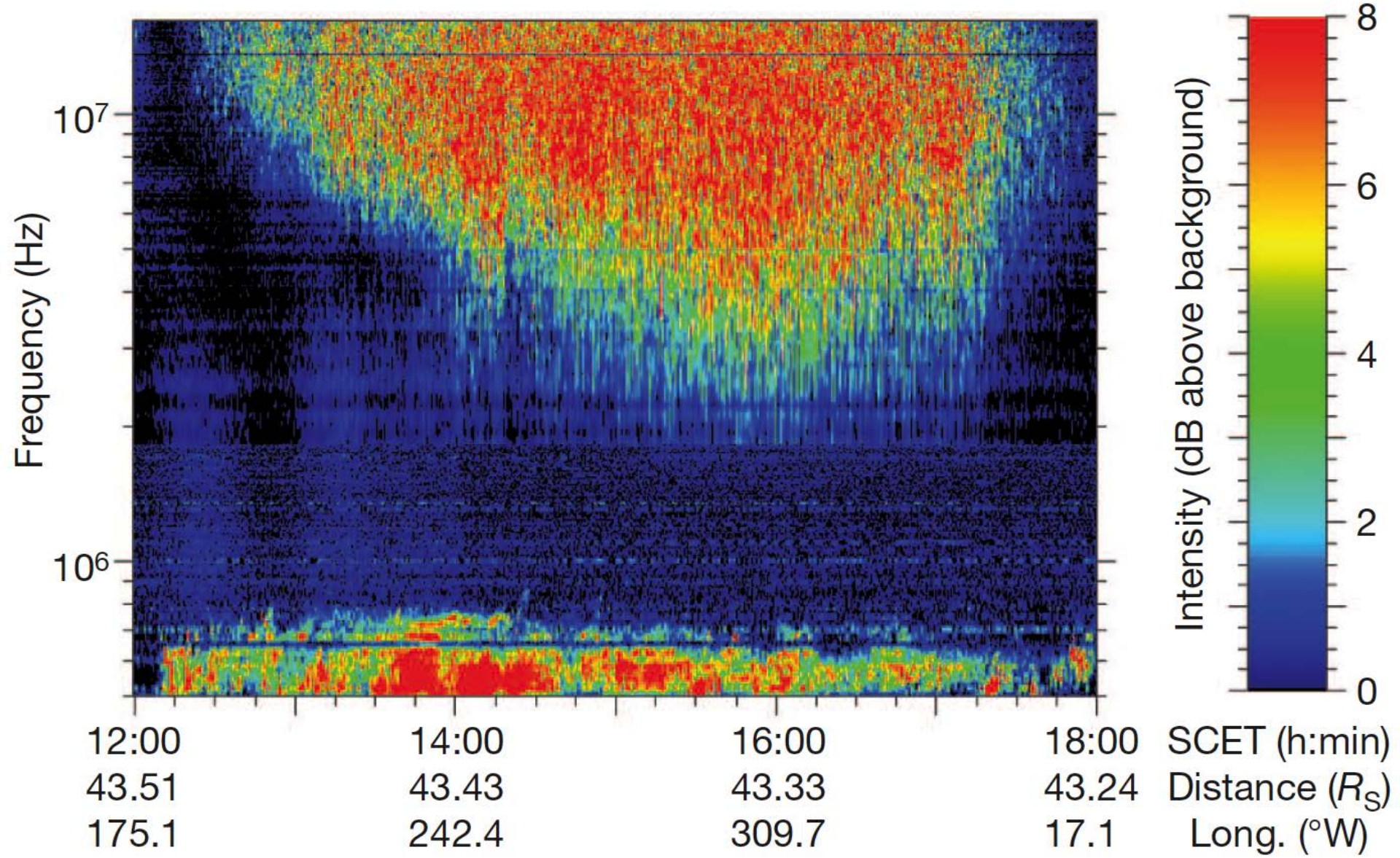




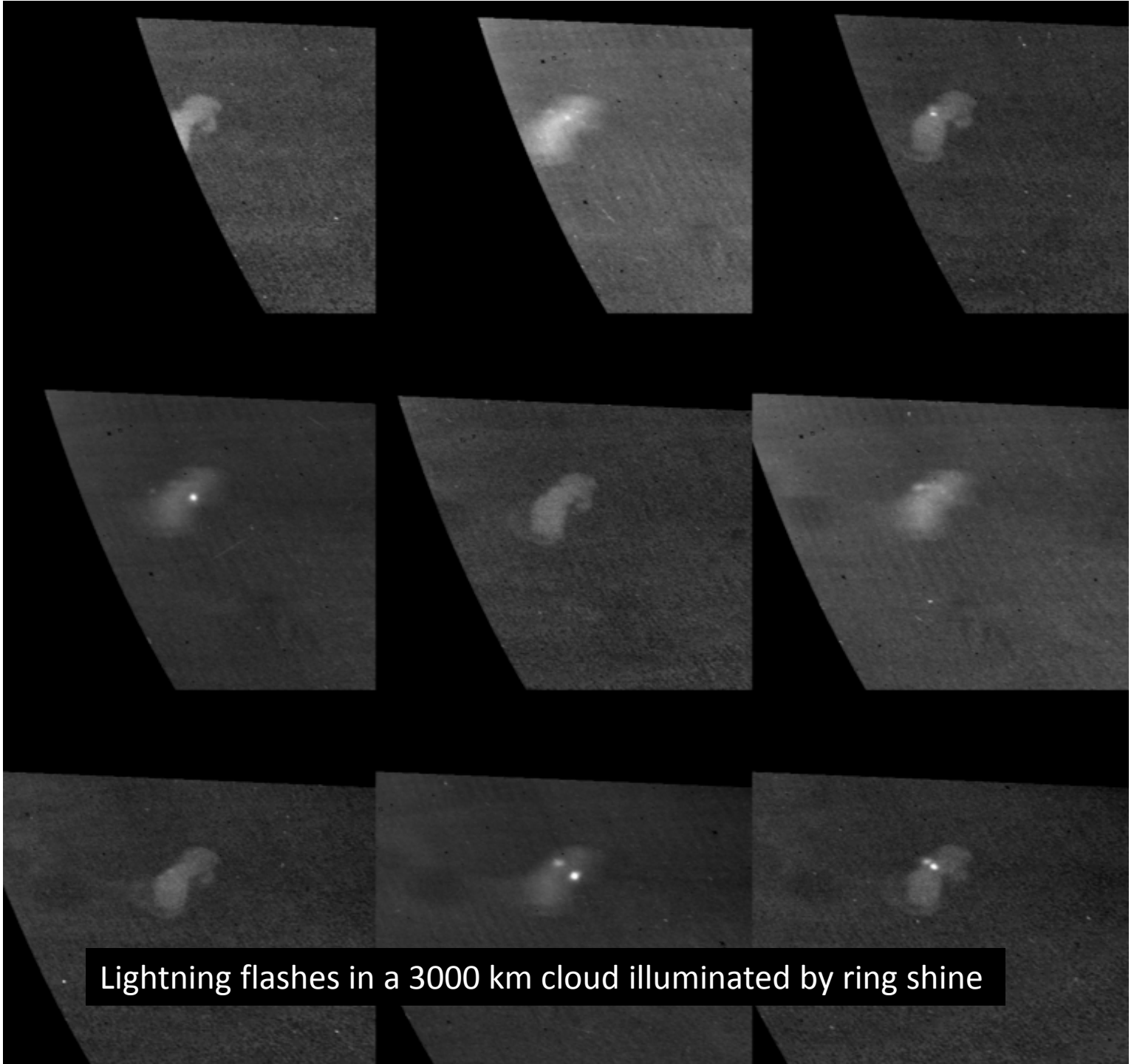

15
10
5
0
−5
−10
−15
Colatitude [degrees]
−15
−10
−5
0
5
10
15
Colatitude [degrees]


50
48
46
44
42
40
Planetocentric Latitude
18
16
14
12
10
West Longitude

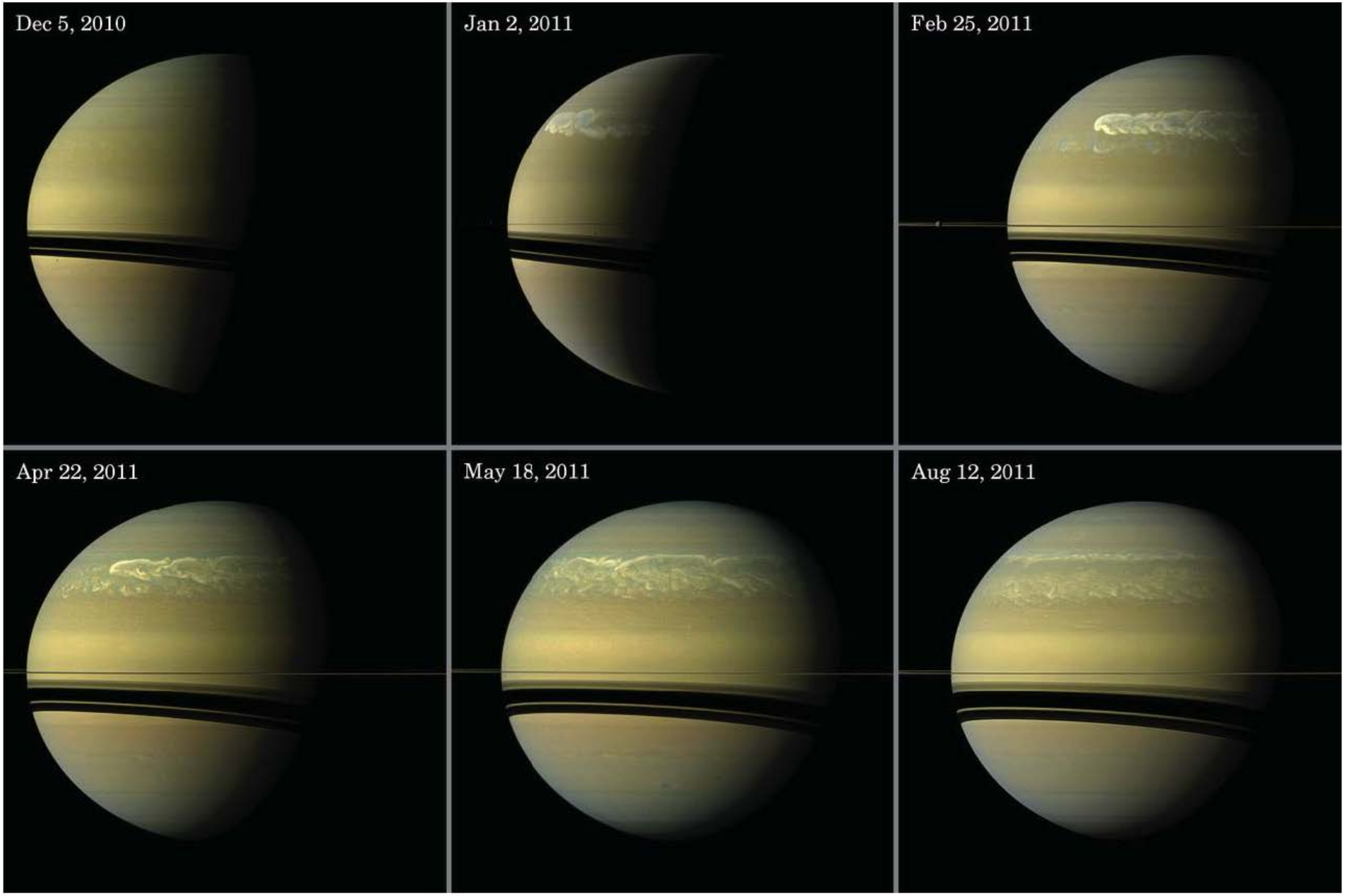

Saturn storm alley

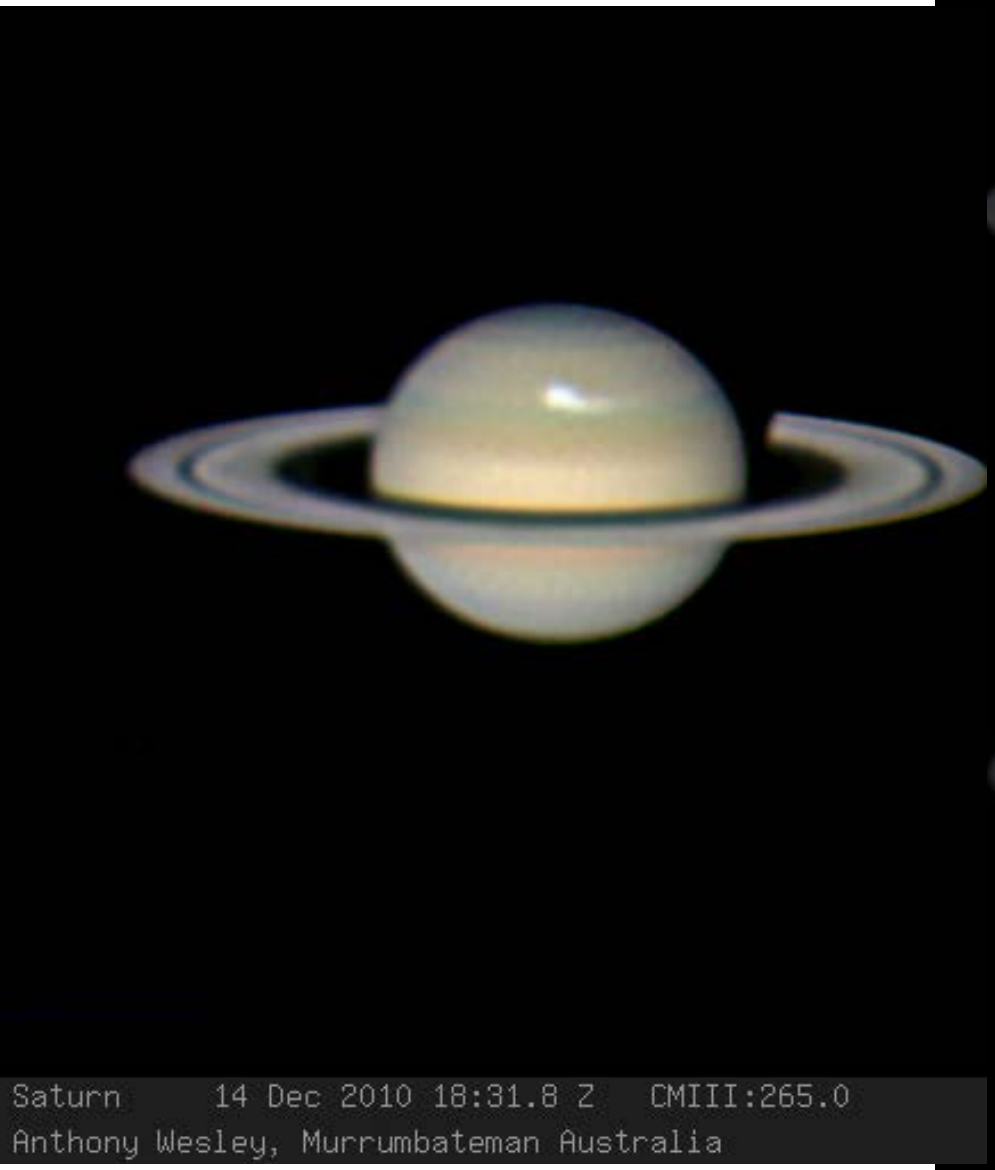


Six hours on your AM radio and slightly higher frequencies during a lightning storm

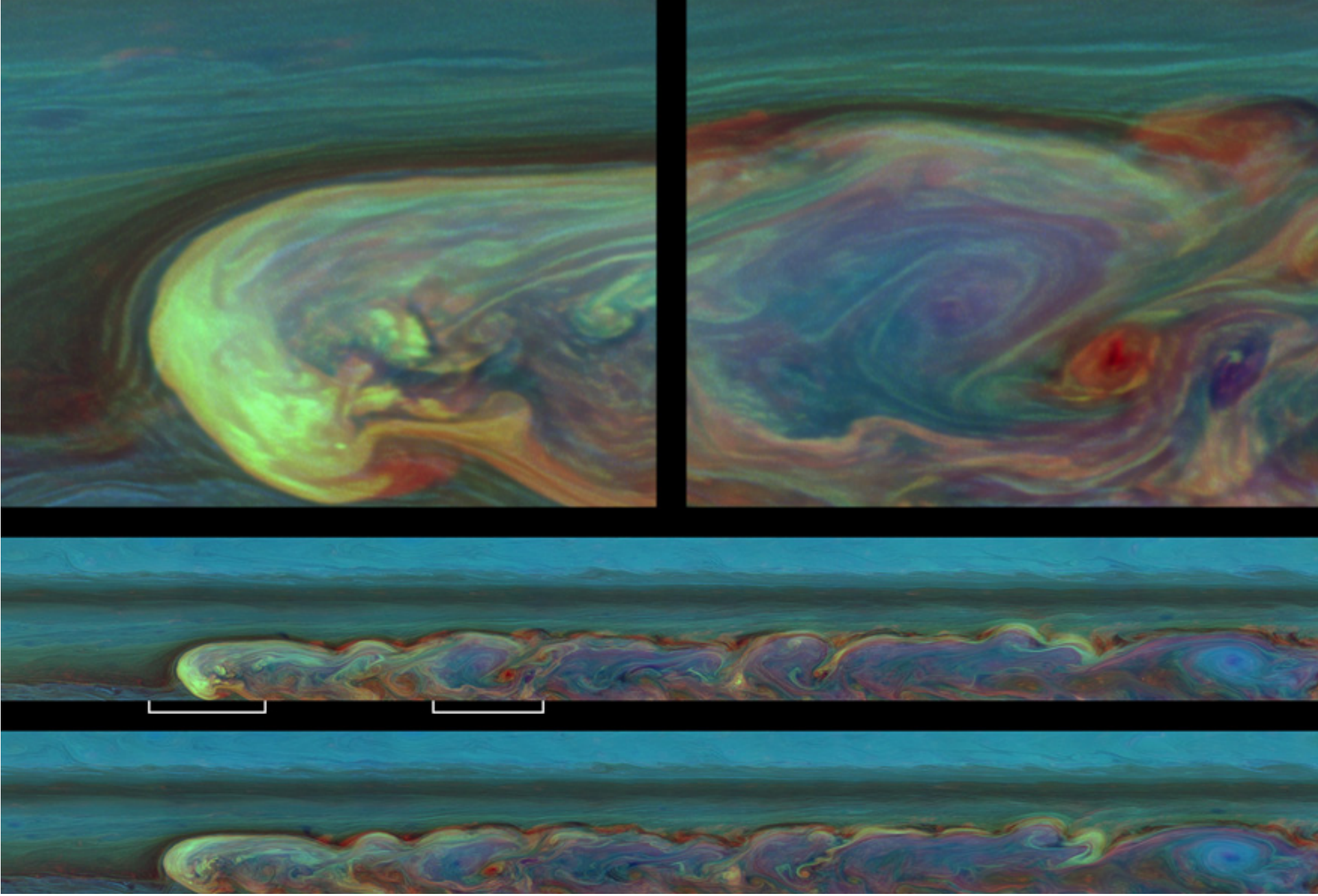


Lightning flashes in a 3000 km cloud illuminated by ring shine

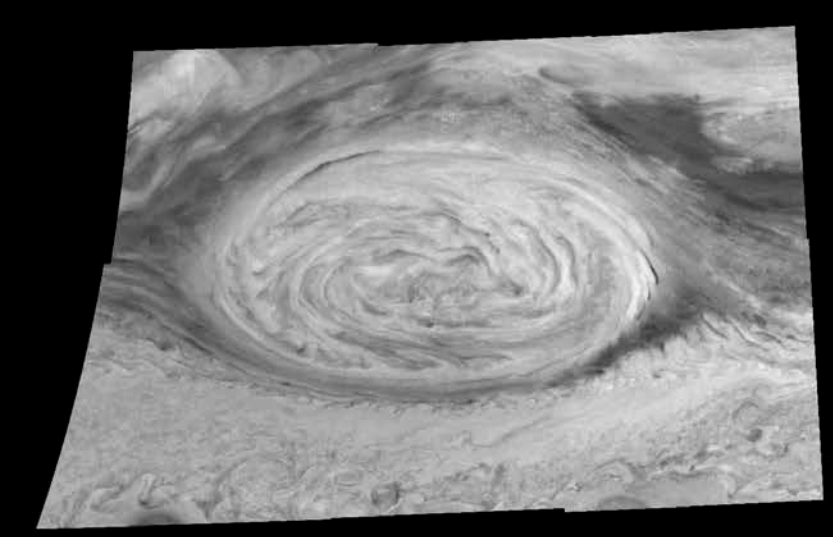

Dec 5, 2010
Jan 2, 2011
Feb 25, 2011
Apr 22, 2011
May 18, 2011
Aug 12, 2011

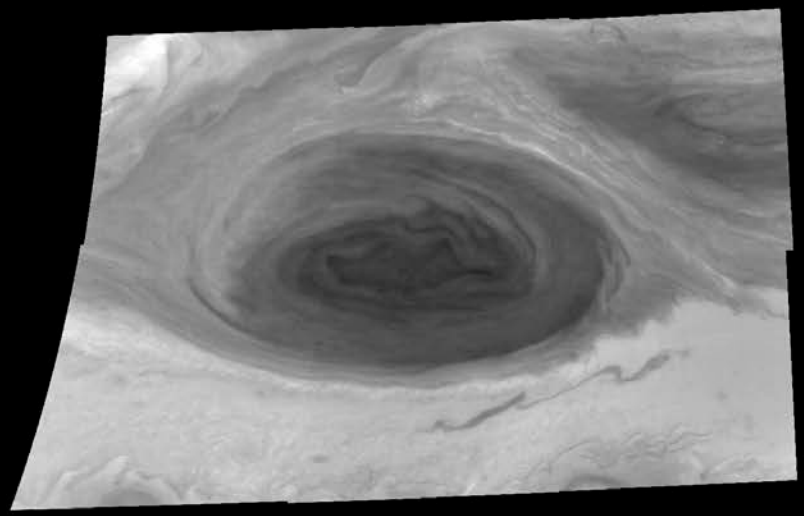


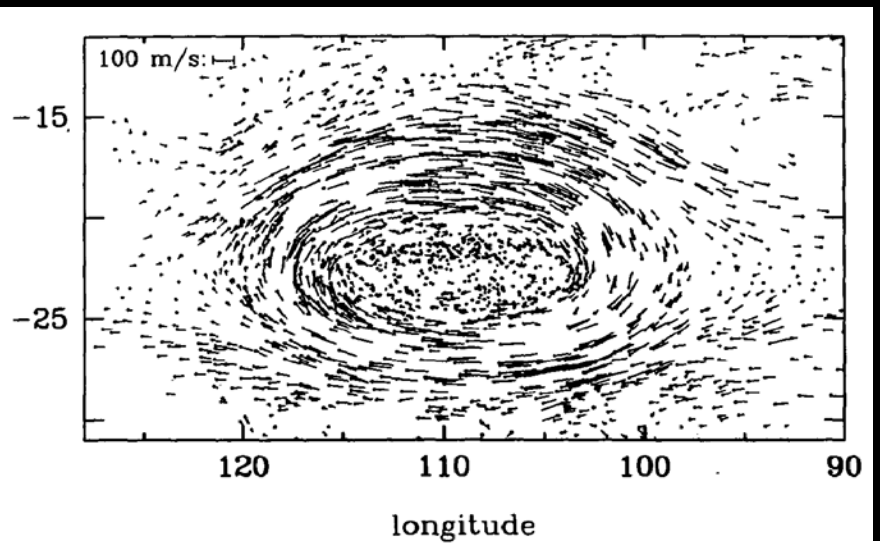
Images by amateur astronomers

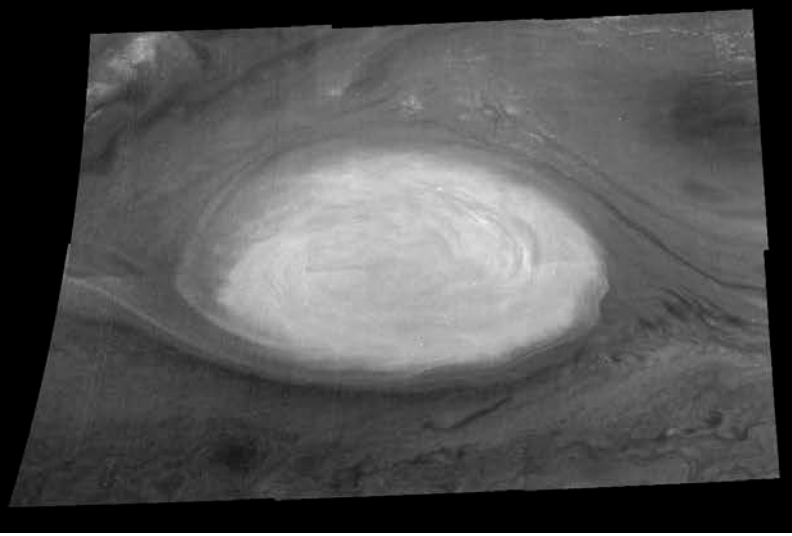


Red = 756 nm (window), Green = 727 nm (weak methane), Blue = 889 nm (strong methane).
White = high thick clouds, Blue = high thin clouds, Red = deep clouds only



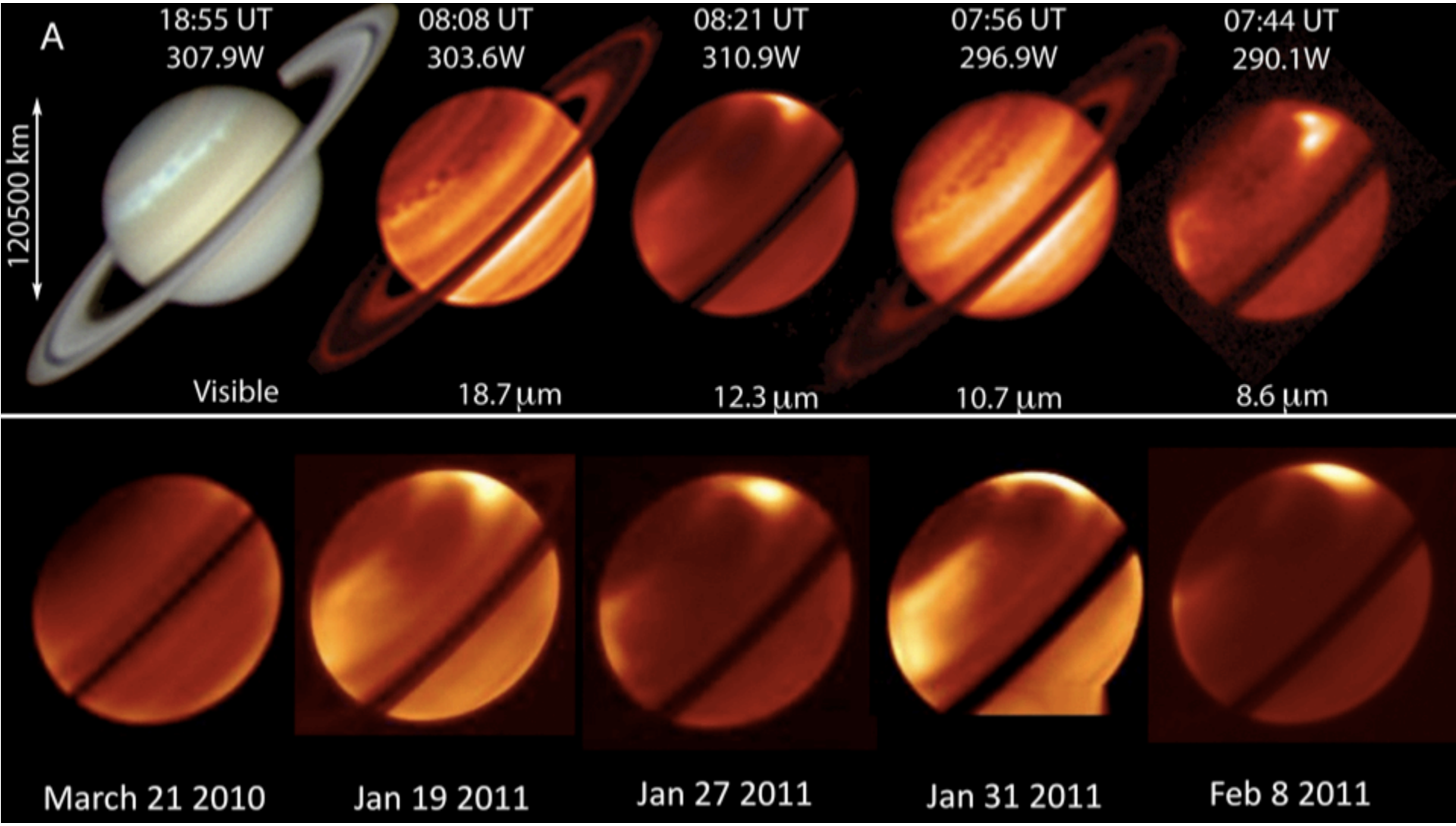






Jupiter's Great Red Spot

Violet (~ blue)	Near-IR (~ red)
CCW Winds	Methane absorption

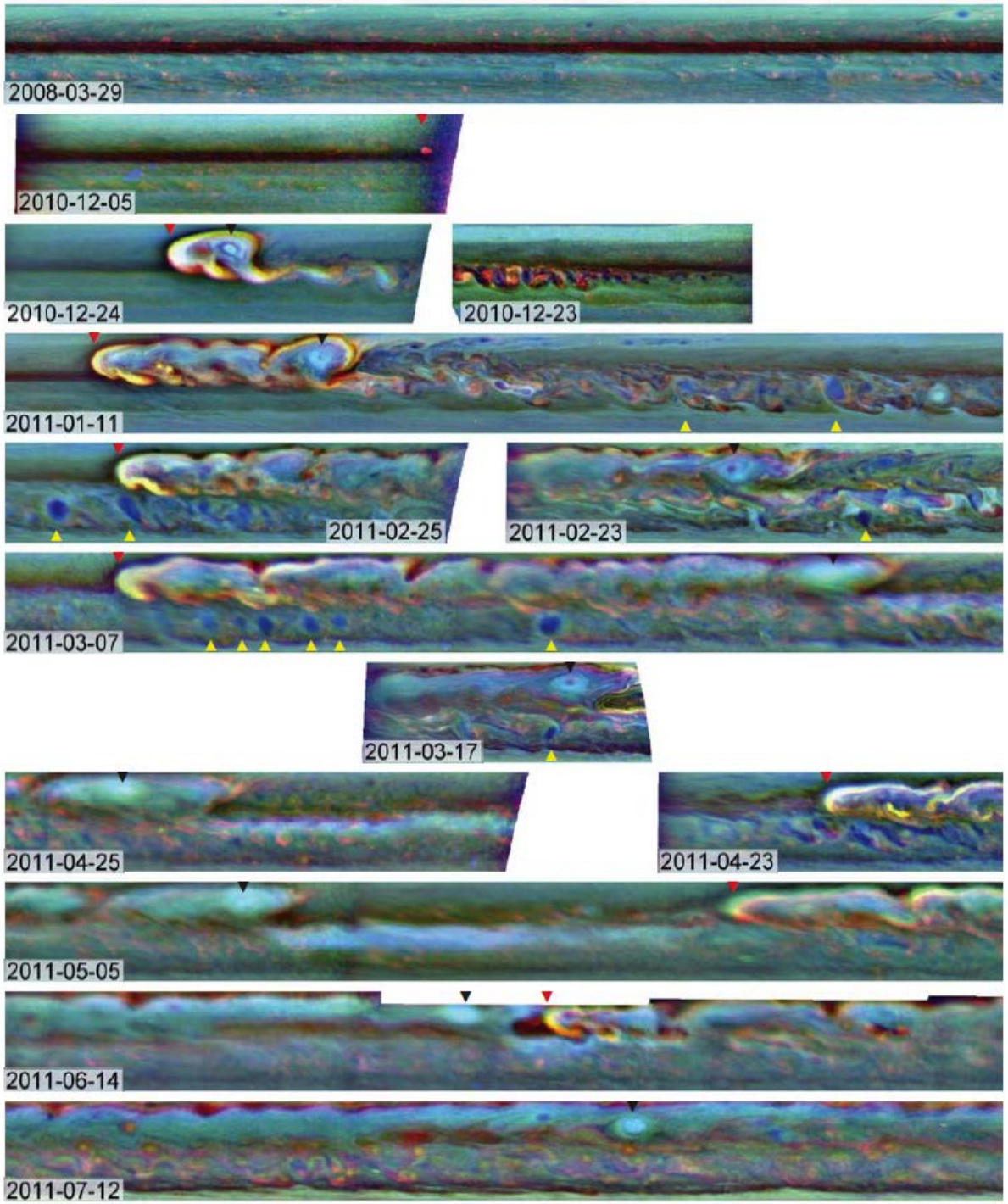


Infrared emission from the stratosphere (P ~ 1 mbar) during the storm. The bright regions are ~50 K hotter than the surroundings

Red triangle is the head

Black triangle is the anticyclonic vortex

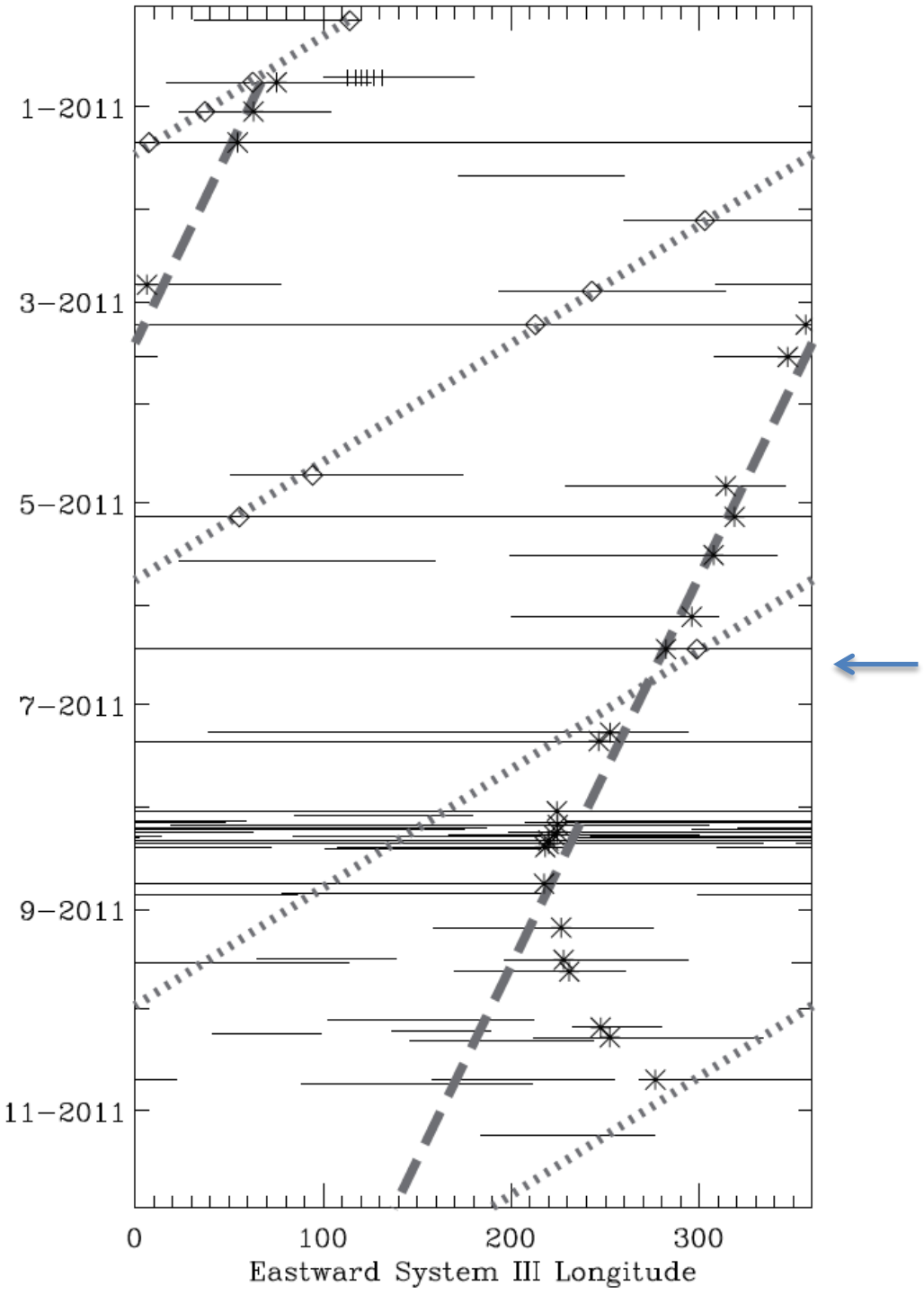
Yellow triangles are the dark ovals

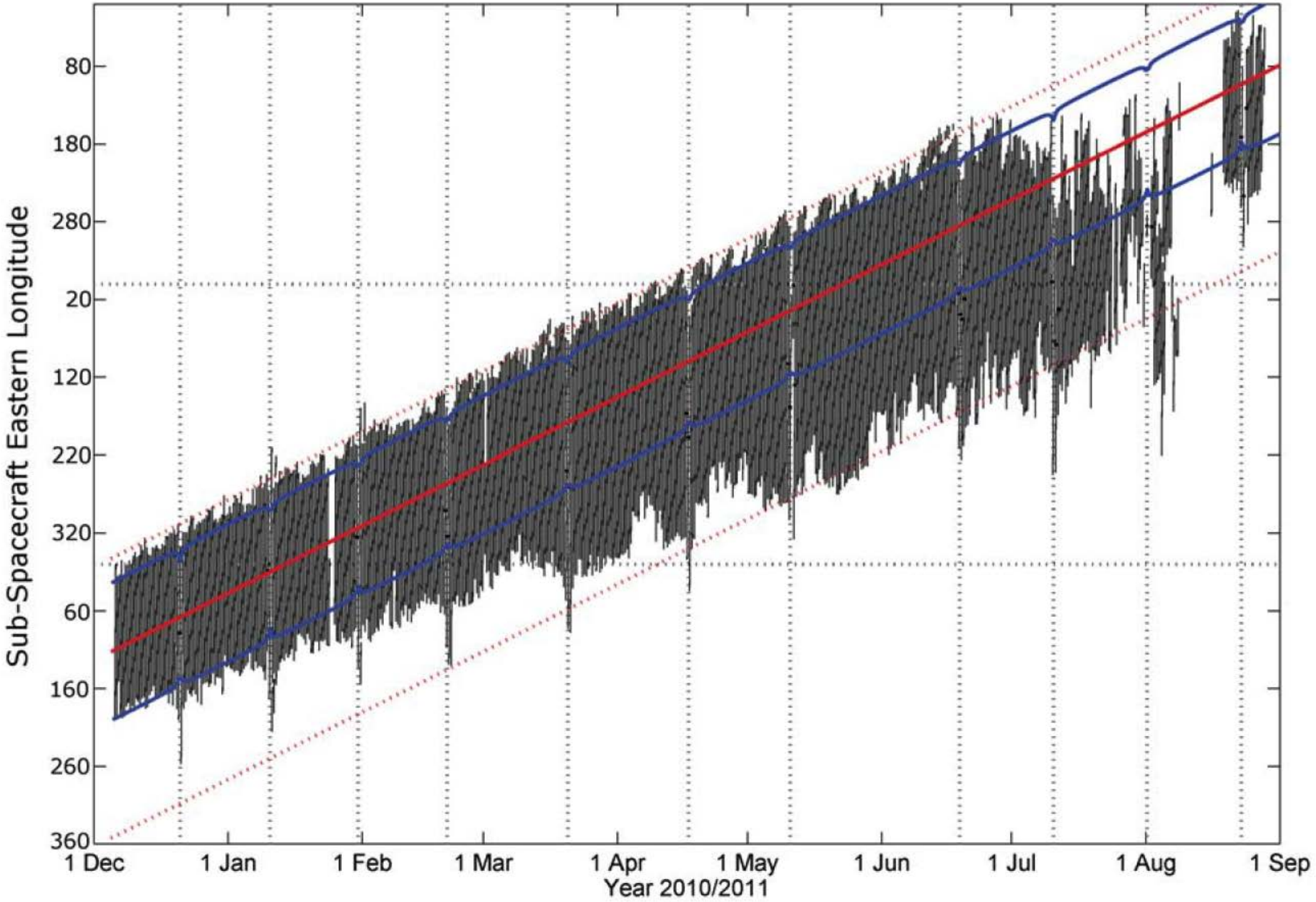


Head of storm
(squares and dots)

Anticyclonic vortex
(stars and dashes)

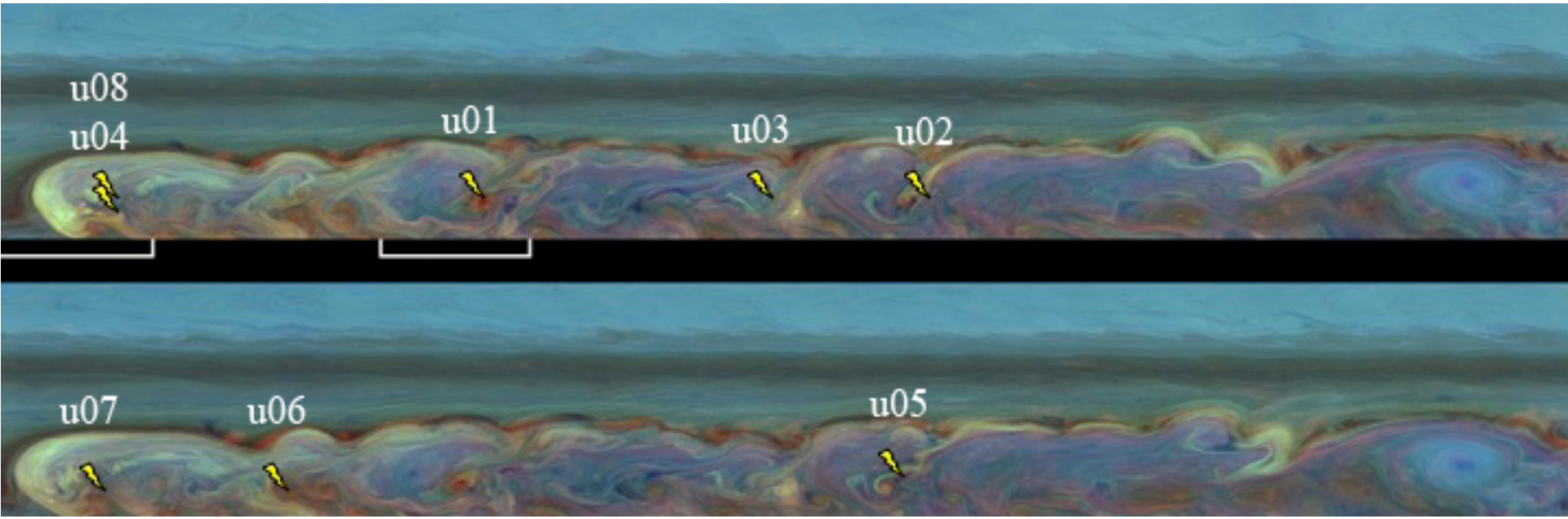
The head disappeared
in mid-June 2011 when
the head met the tail

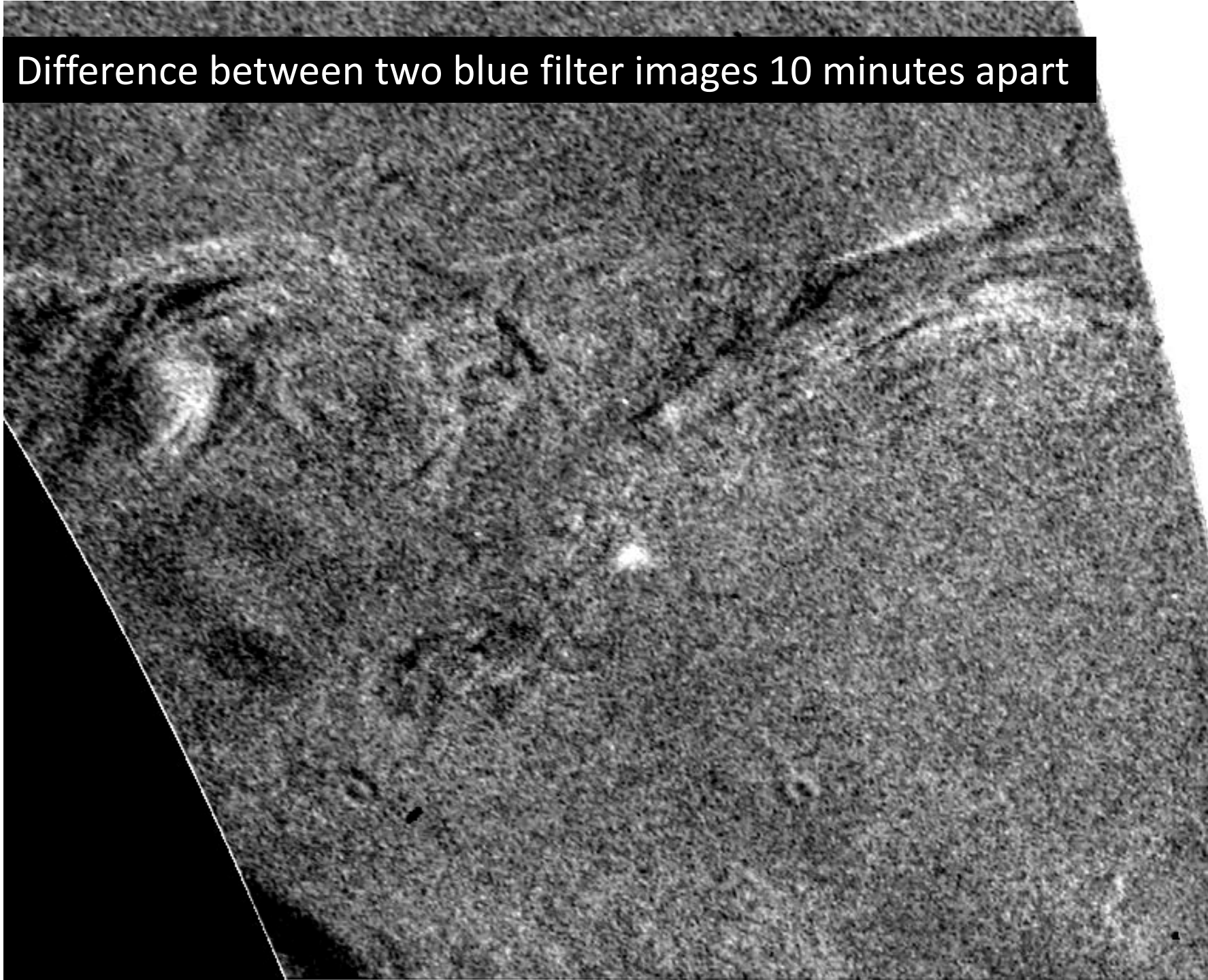


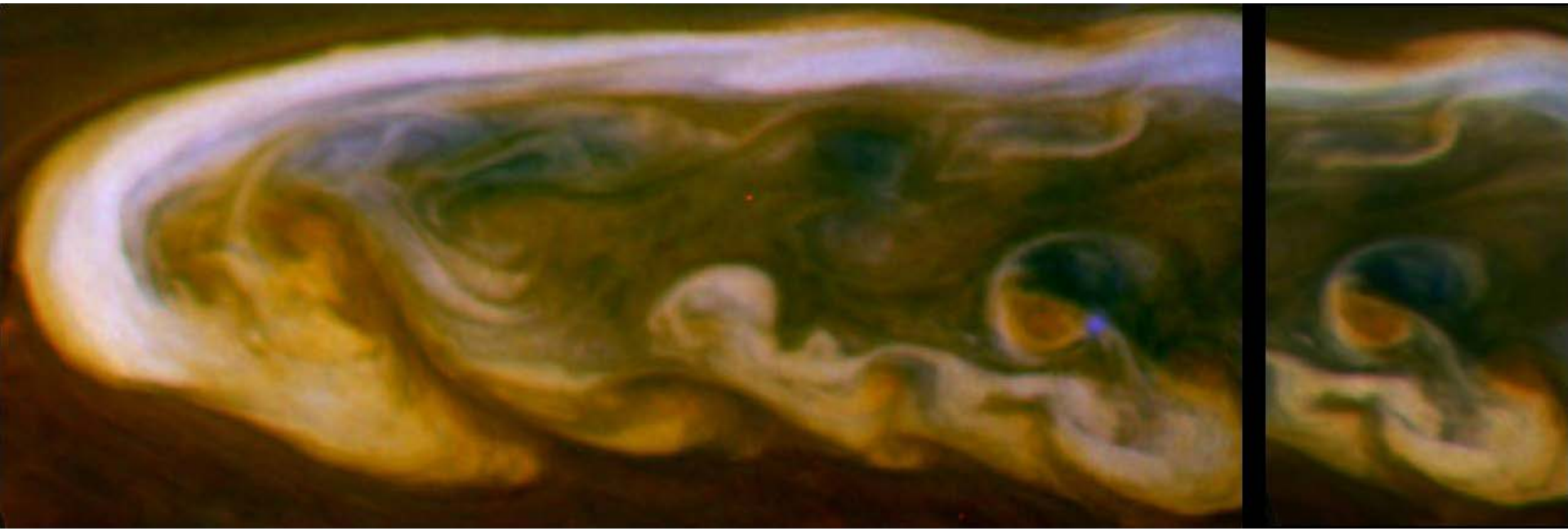


Radio detection of lightning (black) vs sub-spacecraft longitude and time

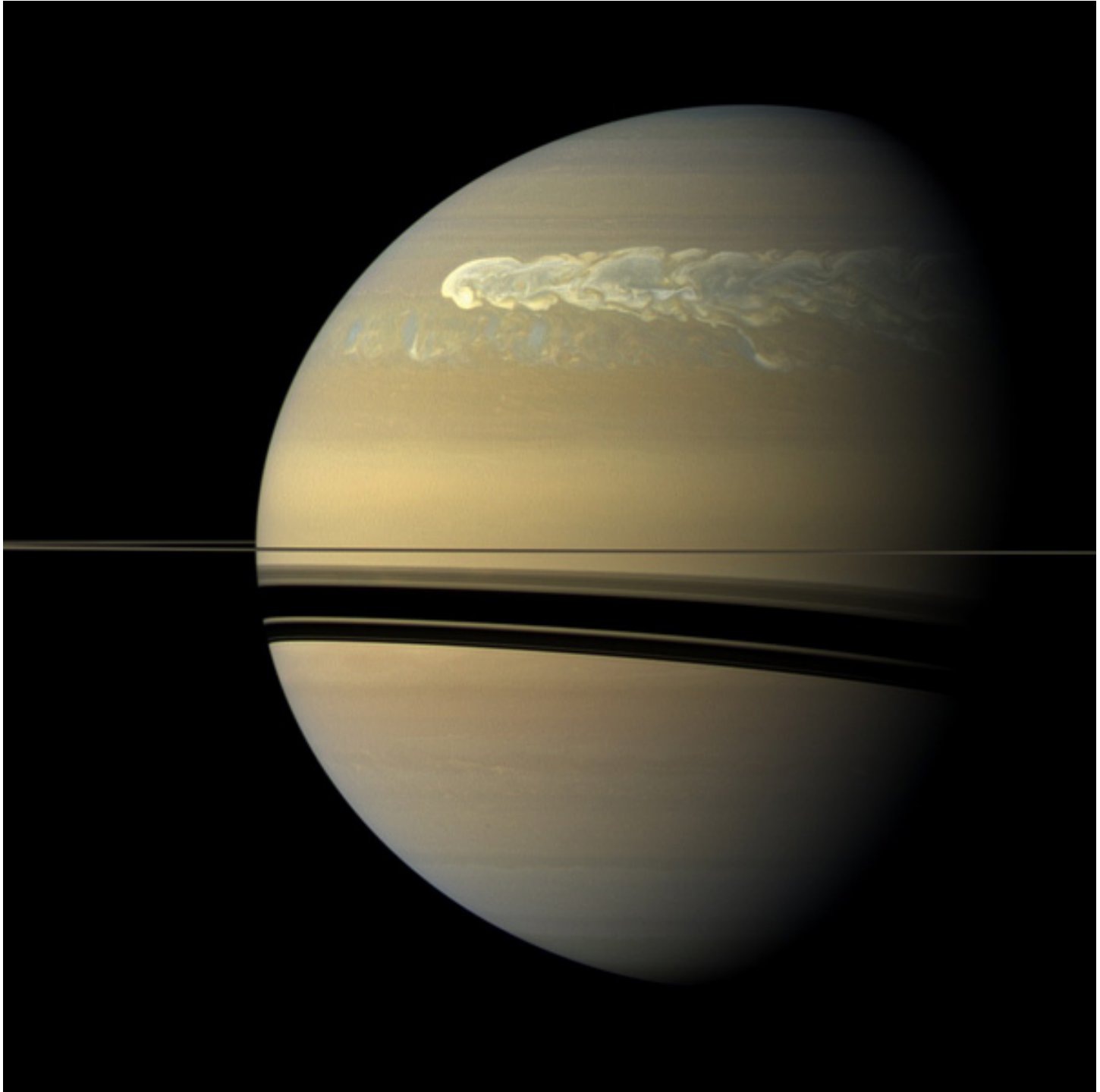
Index of flashes u01 to u08




Difference between two blue filter images 10 minutes apart



Left: head of the storm in exaggerated color (contrast enhanced)
Right: portion of the same region 10 minutes later.
Note the blue lightning in the left image. The scale is 10,000 km from top to bottom of the image.



The End