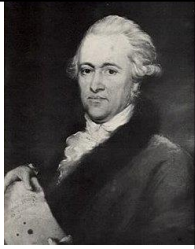


# Uranus



William Herschel - 1781  
Visible to the naked eye (barely)  
Visited by Voyager II - 1986



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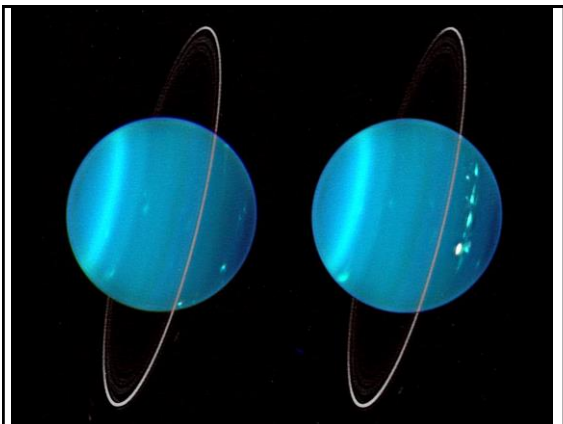
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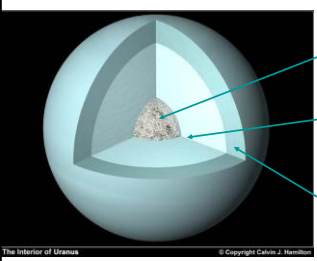
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**Rock**

**Compressed water, methane, ammonia ocean**

**Liquid H, He**

The Interior of Uranus © Copyright Calvin J. Hamilton

**Magnetic field is tilted and off axis**



**MAGNETIC FIELD OF URANUS**

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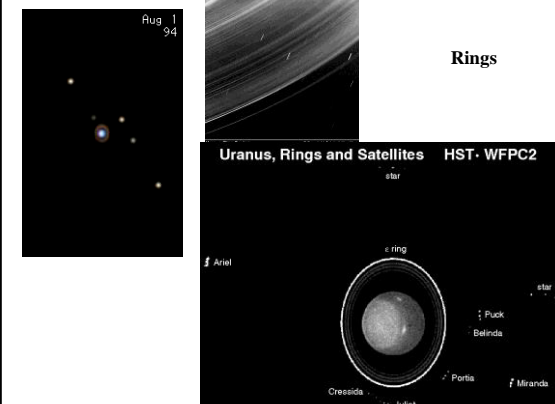
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**Rings**

**Uranus, Rings and Satellites HST-WFPC2**

Aug 1 94

Ariel

ring

star

Puck

Belinda

Portia

Miranda

Cressida

Juliet

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**Uranus' Satellites - 27**



Uranian System © Copyright Calvin J. Hamilton

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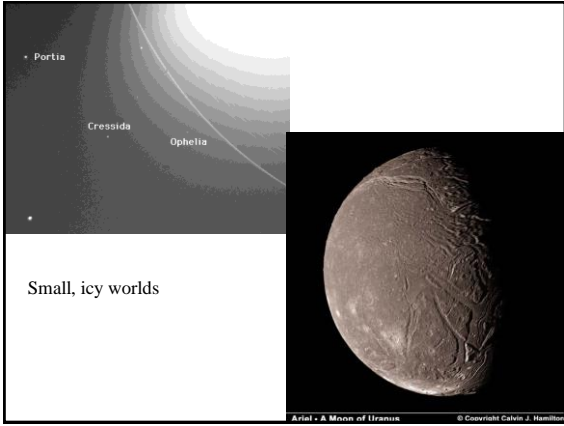
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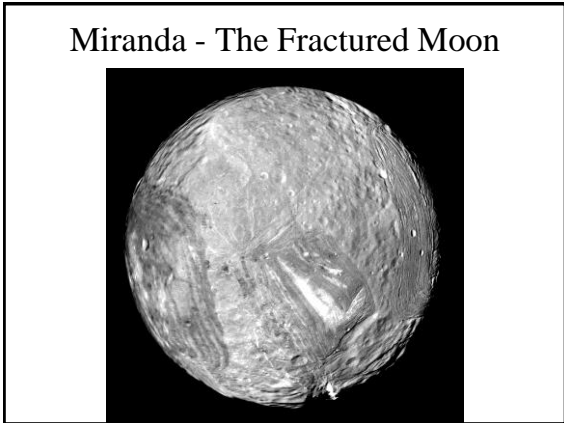
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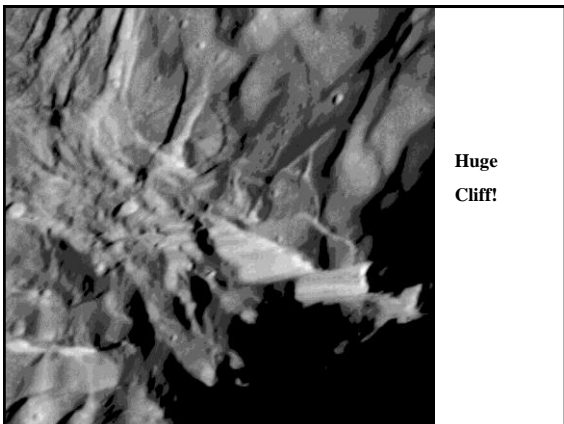
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Strange patterns  
Discoloration  
Why?

Miranda • 'Chevron' Grooves © Copyright Calvin J. Hamilton

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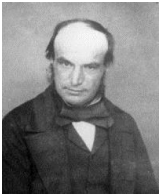
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## Neptune ♆

1846 - An Englishman, a Frenchman and a German walked into a bar and...



John Couch Adams



Urbain Le Verrier



Johann Galle

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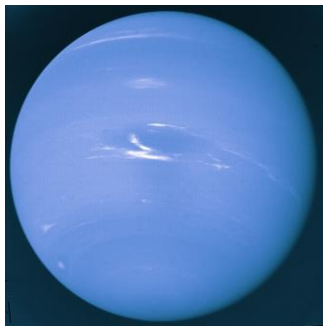
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Similar to Uranus  
Composition  
Mass, radius  
Cloud structures  
Magnetic fields  
More active atmosphere




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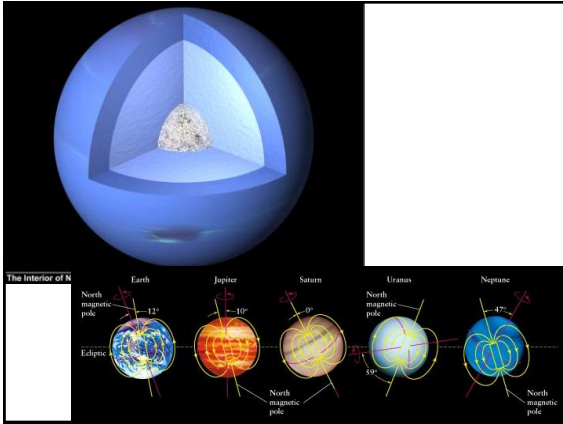
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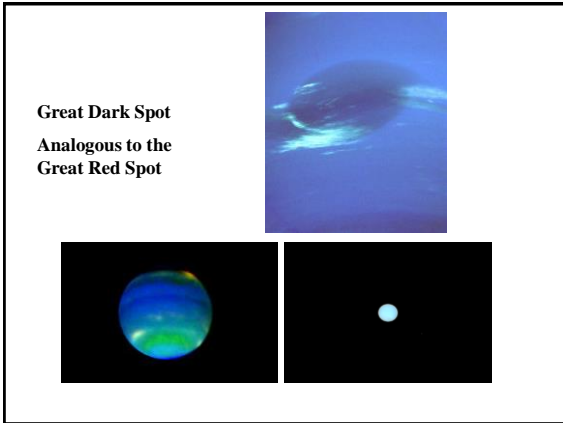
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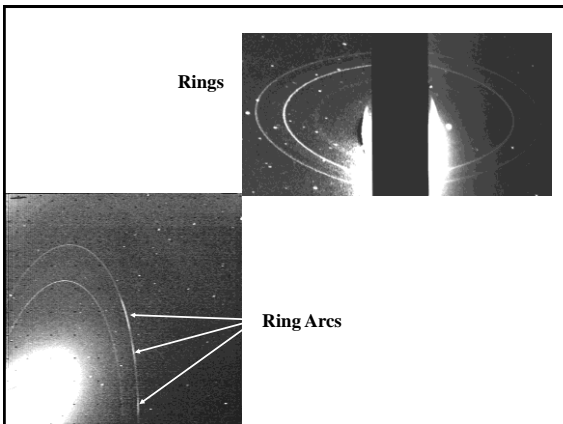
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### Neptune's Moons

- 13 known satellites
- Small icy worlds
- Heavily cratered



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### Triton - The Geyser World



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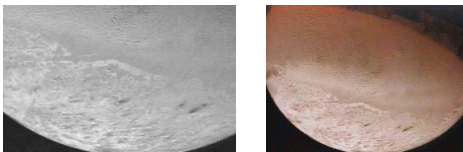
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**Geysers erupt gas (nitrogen and methane) and methane ice**  
**Triton's unusual orbit - tidal heated**

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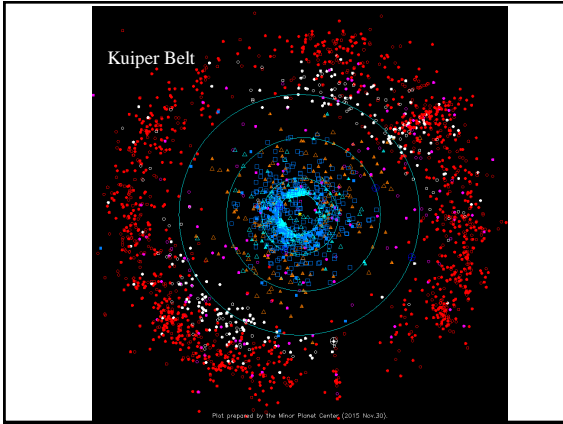
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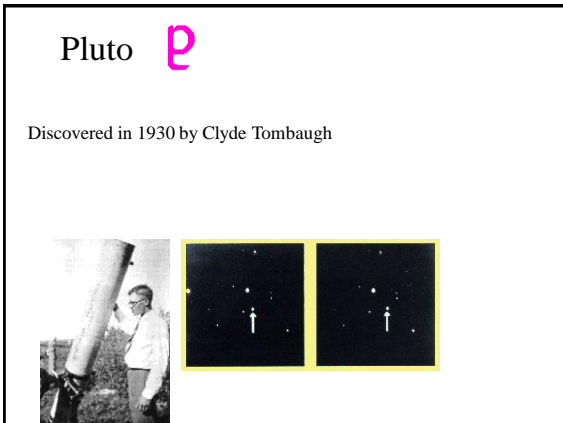
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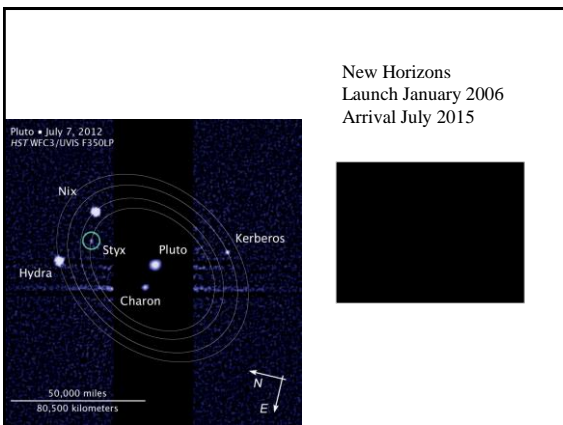
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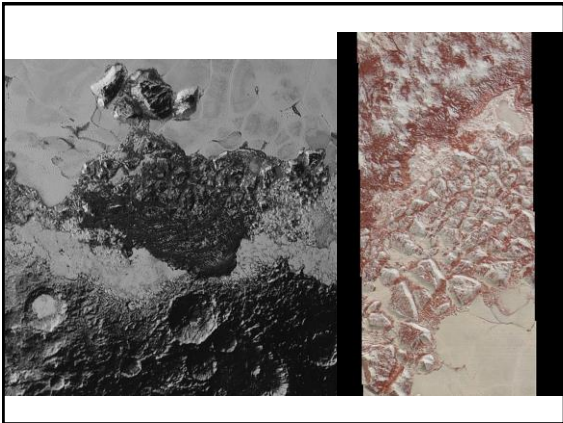
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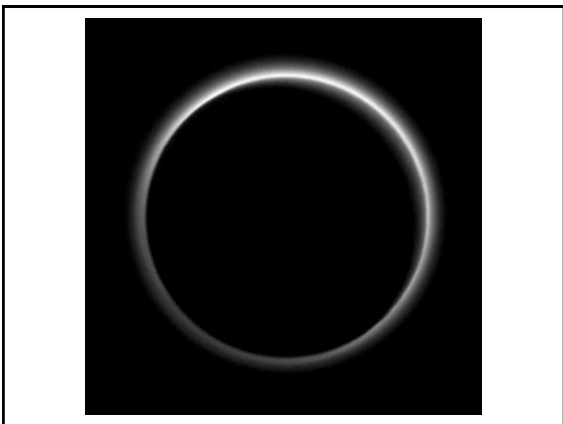
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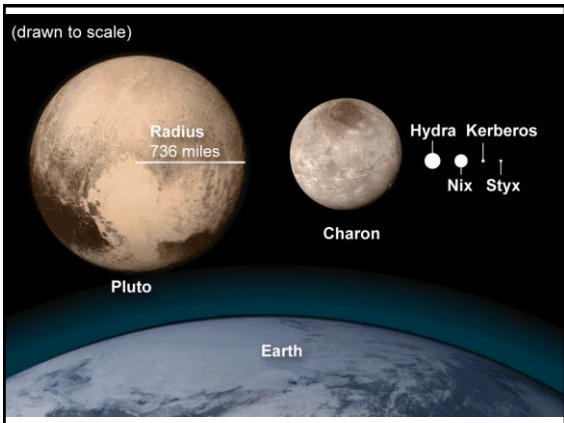
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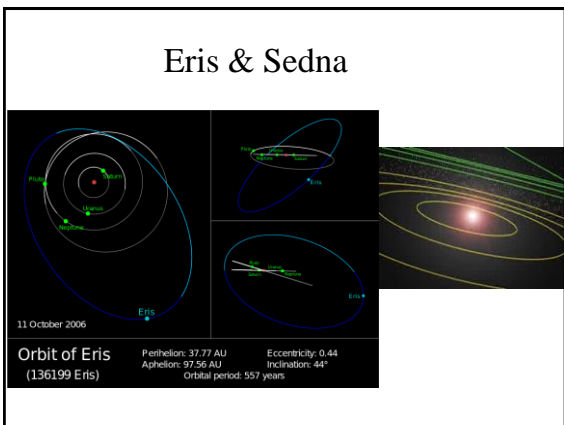
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Are these planets?

**Largest known trans-Neptunian objects (TNOs)**



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