Research on Outer-Planet Atmospheres at SSEC

Science Team: Larry Sromovsky and Pat Fry

Planets: Jupiter, Neptune, Uranus

Research:
- Atmospheric circulation
- Seasonal response
- Dynamics of circulation features
- Vertical cloud structure and composition

Techniques:
- Spectroscopy, Imaging, in situ observations, cloud tracking, radiation transfer modeling

Sources:
- Hubble Space Telescope, Cassini, New Horizons
- Ground based telescopes (Keck and IRTF).
- Archived data from Voyager & Galileo missions.
2008: A Year of Planetary Proposal Success

Planetary Astronomy Program (3-year grant, accepted, top rated)
Planetary Atmospheres Program (3-year grant, accepted)
Jupiter Data Analysis Program (3-year grant, accepted)
Hubble Space Telescope Cycle 17 Program (1-year grant, after May 09 HST repair)
NASA IRTF observing time (spectroscopic observations completed)

SSEC is the leading Wisconsin center for Hubble observing:

In the last three observing cycles, 12 HST proposals were submitted from Wisconsin investigators (all institutions).

Only 3 were awarded HST observing time, all from the SSEC Outer Planet Team (100% approval rate, 100% of Wisconsin-led HST observing).
SSEC 2009 Outer Planet Publications:


Publications in preparation:


New Images Yield Clues To Season

ITHACA, N.Y. - With an 84-year orbit around the Sun, it is not often that planetary scientists have an opportunity to observe the change of seasons on Uranus, a planet some 19 times farther from the Sun than Earth.

But in 2007, the planet reached equinox, the point in time where the Sun is directly over the planet's equator and what little sunlight the planet gets is distributed evenly over its northern and southern hemispheres. This allowed scientists their best opportunity to probe the seasonal dynamics of the ringed planet.

New images yield clues to seasons of Uranus

Scientists seized their chance in 2007 to capture the first detailed images of the planet's features, provided by the Div. of Planetary Sciences.

The 40th annual meeting of the Division for Planetary Sciences of the American Astronomical Society is going on in Ithaca, New York, until October 15. Visit Astronomy.com/News for regular updates like this one from the conference.

2008 Press release on Uranus equinox observations.
Keck observations of Uranus