



First Light

The Newsletter of the Cape Cod Astronomical Society



April, 2007

Vol. 18 No. 4

Executive Corner

As you may have guessed, this new item will be a monthly regular. It will contain information on items discussed and actions taken at the previous Executive Committee meeting. After a few months, you will come to realize that these sessions are nut and bolts working meetings.

Astro Trivia: One item covered at each ExecCom meeting is the selection of the Astro Trivia question for the next monthly meeting. That question for April is: **“What is the first point of Aries; and, why is this term a misnomer?”**

The most important item for an ExecCom meeting is usually the planning of programs for the Society’s future monthly meetings. At the March 12th meeting (these meetings are held on the second Monday of each month), it was decided to have four programs each year on the topic of observing the skies of that season.

Thus, the program for the April meeting will be “Observing the Spring Skies”. President Jon Greenberg and Secretary Betsy Young will be making that presentation. Vice President Mike Hunter will be presenting a program on “Observing the Summer Skies”. Who would like to do “Observing the Fall Skies” in September, “Observing the Winter Skies” in December, etc.?

On March 18, Jim Carlson resigned from the Cape Cod Astronomical Foundation Board of Directors, the position of Director of the Werner Schmidt Observatory, and the membership of the Cape Cod Astronomical Society. As an/the original and most active of the Society’s members, Jim’s presence will be sorely missed.

Since Jim sat on the ExecCom as a “member at large” of the Society, a special meeting of the ExecCom was held on Monday, March 26 to fill the member at large position and make other adjustments to Jim’s departure.

Foundation News

The Board of Directors of the Cape Cod Astronomical Foundation held a special meeting on March 26 for the purpose of selecting a new Director of the Werner Schmidt Observatory. Board appointed Mike Hunter, the Society’s Vice President, was appointed to the position of Observatory Director.

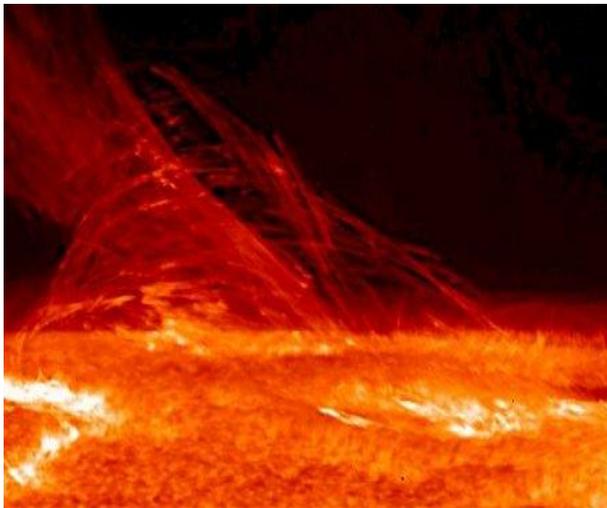
March 5th Meeting

The program for the March meeting of the Cape Cod Astronomical Society will be on **“Observing the Spring Skies”**. The speakers for

the evening will be CCAS President Jon Greenberg and Secretary Betsy Young. The meeting will begin at 7:30 in the Dennis-Yarmouth Regional High School library.

NASA News

March 21, 2007: It's enough to make you leap out of your seat: A magnetic vortex almost as big as Earth races across your computer screen, twisting, turning, finally erupting in a powerful solar flare. Japan's Hinode spacecraft recorded just such a blast on Jan. 12, 2007.



A solar flare in the chromosphere, recorded by JAXA's Hinode spacecraft on Jan. 12, 2007..

"I managed to stay in my seat," says solar physicist John Davis of the Marshall Space Flight Center, "but just barely."

Davis is NASA's project scientist for Hinode, Japanese for *Sunrise*. The spacecraft was launched in Sept. 2006 from the Uchinoura Space Center in

Japan on a mission to study sunspots and solar flares. Hinode's Solar Optical Telescope, which some astronomers liken to "a Hubble for the Sun," produces crystal-clear images with 0.2 arc-second resolution. (Comparison: 0.2 arc-second is a tiny angle approximately equal to the width of a human hair held about 100 meters away.) "We're getting movies like these all the time now," he says.

This particular movie is visually stunning, but the most amazing thing about it, notes Davis, is where the scene unfolded--in the sun's chromosphere. "We used to think the chromosphere was a fairly uneventful place, but Hinode is shattering those misconceptions."

Chromosphere means "sphere of color." It's the name astronomers of the 19th century gave to a narrow and very red layer of the sun's atmosphere they saw peeking over the edge of the Moon during solar eclipses. The color comes from the chromosphere's abundant hydrogen which emits light at a wavelength of 6563 Angstroms, also known as "hydrogen alpha" light. Hinode's telescope is equipped with filters tuned to this specific color.



The chromosphere, viewed the old-fashioned way during a solar eclipse. Photo credit: Vic and Jen Winter.]

The view from space is impressive. Visually, the chromosphere resembles a [shag carpet](#) with threads of magnetism jutting up from the floor below. Hinode's movies show the threads swaying back and forth as if blown by a gentle breeze. There is nothing gentle, however, about "spicules" shooting into the chromosphere from the underlying photosphere. "These are jets of gas as big as Texas," says Davis. "They rise and fall on time scales of 10 minutes."

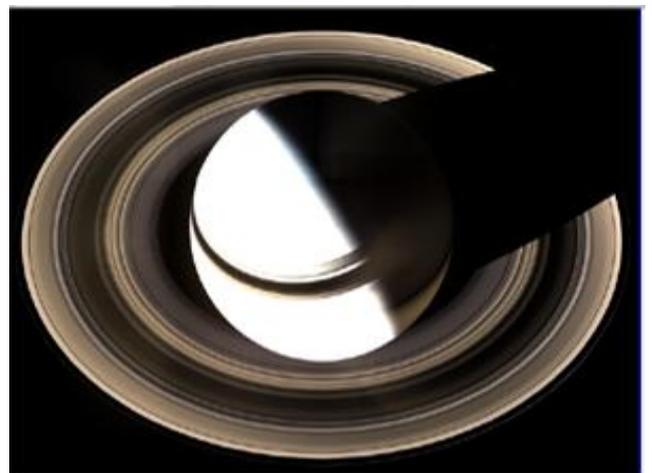
And then there are the explosions. "The fact that Hinode is able to observe solar flares taking place in the chromosphere is very important," he says.

The origin of solar flares is a mystery. Researchers have long known that flares develop from magnetic instabilities near sunspots, but even after centuries of studying sunspots, no one can predict exactly when a flare is about to happen. This is a problem for NASA because astronauts in space are vulnerable to intense radiation and high-energy particles produced by the explosions. An accurate system of forecasting would help explorers stay out of harm's way.

Hinode may be looking right into the genesis zone of flares. If so, "it could teach us how flares work and improve our ability to predict them."



A Blue Crescent Moon from Space
Credit: [Expedition 13 Crew](#), [International Space Station](#), [NASA](#)



Saturn from Above
Credit: [Cassini Imaging Team](#), [SSI](#), [JPL](#), [ESA](#), [NASA](#)

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Secretary	Betsy Young	508-255-8448
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Yarmouth, Massachusetts. Meetings are open to the public. Membership dues are \$30 for adults, \$15 for students in two year colleges, no charge for students in K-12 schools.

Cape Cod Astronomical Foundation

Chairman	Werner Schmidt	508-362-9301
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Director R&D	Bill McDonough	508-394-5919
Secretary		
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The **Cape Cod Astronomical Society** meets at 7:30 pm on the first Thursday of every month in the library of the Dennis-Yarmouth Regional High School in