

CONSTELLATION

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Scott Petersen, Editor

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President's View

StarWatches

Well, StarWatch season is upon us. I forgot, during the winter months, how rewarding it is to share this hobby with kids and grown-ups alike. We recently had our first StarWatch of the year at Peace Valley with a group of cub scouts and their parents. The evening started with a great ISS pass. Everyone waved to the astronauts. Then we took a tour of the constellations and bright stars. Some of those kids really know their stuff! Then there were questions about telescopes, galaxies, planets and all kinds of things. Finally, we trained the scopes on Jupiter and Saturn. And this is the rewarding part. Most kids look in the eyepiece, say "cool" and move on. But then there's the occasional one that gets stuck on the eyepiece. When you finally suggest that someone else might want a turn, he or she runs off asking all their friends, "did you see that?" Then, before you know it, they're back again. They're the ones I'm talking about. It's a great feeling to have brightened a child's day.

The only problem we had that night was that we only had two scopes and probably 50 people. I just thought I'd mention that. Perhaps there are some BMAA'ers out there who would join us in the fun once in a while. Even once or twice a year - it's worth experiencing.

Sweatshirts

Are you ready for some BMAA paraphernalia? Jeanne Stebner has been working hard to organize a sweatshirt order. These are perfect for observing - warm, hooded, and with a hand-warmer/eyepiece-holder pocket. Stay tuned for details!

Clear Skies...

Antoine Pharamond
President, BMAA

'NASA Space Place' column inside on page four

Wednesday, April 2 at 8:00p - BMAA General Meeting at Peace Valley

Wednesday, April 16 at 8:00p - BMAA Business Meeting at Peace Valley

The next BMAA General Meeting is scheduled for Wednesday, May 7 at 8:00p

BMAA MESSAGELINE - 215/579-9973

website: www.bma2.org

email: info@bma2.org

Bucks-Mont Astronomical Association, Inc

2003 Calendar of Events

**StarWatch Chairman: George Reagan, 215/741-3701 StarWatch@bma2.org
Information Line - 215/579-9973**

For directions, visit the BMAA website <http://www.bma2.org> or contact George Reagan.
Please call the information line at 215/579-9973 before you leave for any event.

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Musical Satellites

- by *Tony Phillips*

If light were sound, then chemicals would play chords.

Water: C major. Cyanide: A minor. Chlorophyll: G diminished 7th. (Please note that the choice of chords here is only for the sake of illustration, and not meant to reflect the actual spectra of these chemicals.)

It's a loose metaphor, but an apt one. Musical chords are combinations of frequencies of sound (notes), while chemicals leave unique combinations of dips in the frequency spectrum of reflected light, like keys pressed on a piano. Spectrographs, machines that recognize chemicals from "chords of light," are among the most powerful tools of modern chemistry.

Most earth-watching satellites, like the highly successful Landsat series, carry spectrographs onboard. These sensors measure the spectra of light reflected from forests, crops, cities, and lakes, yielding valuable information about our natural environment. Current satellites do this in a fairly limited way; their sensors can "hear" only a few meager notes amid the symphony of information emanating from the planet.

EO-1 could change that. Short for "Earth Observing 1," EO-1 is an experimental NASA satellite in orbit since 2000. It's testing out a more advanced "spectrometer in the sky"-the Hyperion hyperspectral imager. How good is it? If Landsat were "chopsticks," EO-1 is Gershwin's "Rhapsody in Blue."

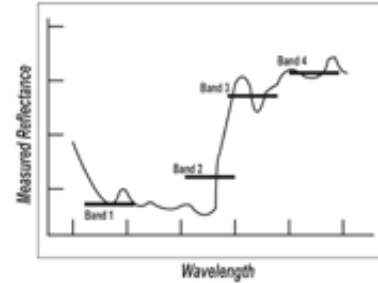
The Hyperion sensor looks at 220 frequencies in the spectrum of visible and infrared light (0.4 to 2.5 microns) reflecting off Earth's surface. Landsat, in contrast, measures only 10. Bryant Cramer, who manages the EO-1 project at the Goddard Space Flight Center, puts these numbers in perspective. "If we flew Landsat over the northeastern United States, it could readily identify a hardwood forest. Using hyperspectral techniques, you probably can . . . tell the oak trees from the maple trees."

Future earth-watching satellites may use Hyperion-like instruments to vastly improve the environmental data they provide. EO-1 is paving the way for these future missions by taking on the risk of flight-testing the sensor for the first time.

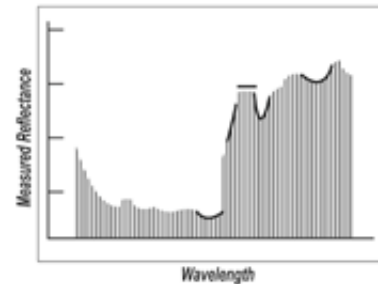
For farmers, foresters, and many others, this new remote sensing technology will surely be music to the ears.

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Read about EO1 at "<http://eo1.gsfc.nasa.gov>". Budding young astronomers can go to "http://spaceplace.nasa.gov/eo1_1.htm"



**Multispectral Imaging
(few bands)**



**Hyperspectral Imaging
(hundreds of bands)**

Hyperion instrument distinguishes hundreds of wavelength bands, while current Landsat instrument images only a few.

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