Monthly Notices of the Everglades Astronomical Society

Naples, FL
June 2009

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Presidents Message

On Thursday, June 25th at 7:00pm we will meet at the Norris Center on the corner of 8th & 8th. Denise Sabatini will speak on Archaeo Astronomy, she always delivers a great program – so don't miss it!

On Friday the 12th, my wife and I drove to the Cape for a shuttle launch. My wife's boss grew up next door and is a good friend to Russell Romanello, Director International Space Station/Spacecraft Processing. The launch was eventually scratched, but we went to dinner with Russell and he agreed to come down and speak to us. I'm thinking next February, what do you think? We could invite the Ft Myers Club and book the auditorium. When the launch is rescheduled, Lori & I might drive the 5 hours and try again. We got back Saturday evening, so I didn't get to the Fakahatchee. Charlie told me viewing had been good, although the bugs are coming back. We will try to go to the Fakahatchee again on Saturday, June 20th. See you at the meeting.

Good skies – clean glass.
Co-President
Rick Piper

Astronomical Trivia Question of the Month

The main mirror of the Hubble Space Telescope has a diameter of:

a. 0.25 meters
b. 1.0 meters
c. 2.4 meters
d. 5.0 meters

Answer on next page.

Next Meeting

June 25, 2009
Time 7:00 – 9 pm
At the Norris Center

Sky Events

June 15 – 3rd Quarter Moon
June 21 – Summer Solstice
June 22 – New Moon
June 29 – 1st Quarter Moon
July 7 – Full Moon
July 15 – 3rd Quarter Moon
July 22 – New Moon

Dates for the "Fack"

Usually the best times to go out to the Fakahatchee Strand viewing site are moonless nights. Below is a list of upcoming Saturday nights that you will often find fellow club members out there enjoying the skies with you (weather permitting).

Date	Moonrise	Moonset
June 20		6:22PM
July 18	5:09PM	

The Cool Chemistry of Alien Life

Alien life on distant worlds. What would it be like? For millennia people could only wonder, but now NASA's Spitzer Space Telescope is producing some hard data. It turns out that life around certain kinds of stars would likely be very different from life as we know it. Using Spitzer, astronomers have discovered the organic chemical acetylene in the planet-forming discs surrounding 17 M-dwarf stars. It's the first time any chemical has been detected around one of these small, cool stars. However, scientists are more intrigued by what was not there: a chemical called hydrogen cyanide (HCN), an important building block for life as we know it. "The fact that we do not detect hydrogen cyanide around cool stars suggests

that that prebiotic chemistry may unfold differently on planets orbiting cool stars," says Ilaria Pascucci, lead scientist for the Spitzer observations and an astrophysicist at Johns Hopkins University in Baltimore, Maryland. That's because HCN is the basic component for making adenine, one of the four information-carrying chemicals in DNA. All known life on Earth is based on DNA, but without adenine available, life in a dwarf-star solar system would have to make do without it. "You cannot make adenine in another way," Pascucci explains. "You need hydrogen cyanide." M-dwarf and brown dwarf stars emit far less ultraviolet light than larger, hotter stars such as our sun. Pascucci thinks this difference could explain the lack of HCN around dwarf stars. For HCN to form, molecules of nitrogen must first be split into individual nitrogen atoms. But the triple bond holding molecular nitrogen together is very strong. High-energy ultraviolet photons can break this bond, but the lower-energy photons from M-dwarf stars cannot. "Other nitrogen-bearing molecules are going to be affected by this same chemistry," Pascucci says, possibly including the precursors to amino acids and thus proteins. To search for HCN, Pascucci's team looked at data from Spitzer, which observes the universe at infrared wavelengths. Planet-forming discs around M-dwarf stars have very faint infrared emissions, but Spitzer is sensitive enough to detect them. HCN's distinctive 14-micron emission band was absent in the infrared spectra of the M-dwarf stars, but Spitzer did detect HCN in the spectra of 44 hotter, sun-like stars. Infrared astronomy will be a powerful tool for studying other prebiotic chemicals in planet-forming discs, says Pascucci, and the Spitzer Space Telescope is at the forefront of the field. Spitzer can't yet draw us a picture of alien life forms, but it's beginning to tell us what they could—and could not—be made of. "That's pretty wonderful, too," says Pascucci.

For news of other discoveries based on Spitzer data, visit www.spitzer.caltech.edu. Kids can learn Spitzer astronomy words and concepts by playing the Spitzer "Sign Here!" game at spaceplace.nasa.gov/en/kids/spitzer/signs.

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Do alien planets around other stars have the right ingredients for a pre-biotic soup?

Answer to Trivia Question

The answer is c 2.4 meters. The most precisely ground mirror in history was ground into the wrong shape. Until a correcting smaller mirror was installed into the light path in 1993 the telescope was not fully operable.