Cape Fear Skies

The Official Newsletter of the
Cape Fear Astronomical Society
Wilmington, North Carolina

A Member Society of the Astronomical League

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www.capefearastro.org

CAPE FEAR ASTRONOMICAL SOCIETY
WILMINGTON, NORTH CAROLINA

This Month's Meeting –
Sunday, September 9, 2007
Unitarian Universalist Fellowship of Wilmington
4313 Lake Avenue
The business meeting of
the Cape Fear Astronomical Society
will begin at 7:00 pm.
The general meeting will begin at 7:45 pm.

Gastronomy!

Please join us for dinner before the meeting at Flaming Amy's, 4002 Oleander, at 5:15pm!

CAPE FEAR SKIES
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CAPE FEAR ASTRONOMICAL SOCIETY
WILMINGTON, NORTH CAROLINA

Cape Fear Astronomical Society

No meeting in August

Event Calendar for September 2007

September 1	Aurigid meteor outburst, 7:00 am
September 3	Last quarter Moon, 10:32 pm
	Moon passes 1.2º north of Pleiades, 4 am
September 4	Moon passes 6º north of Mars, 10 am
September 7/8	**CFAS Group Viewing Sessions**
September 9	**CFAS September Meeting 7:00 pm**
September 11	New Moon, 8:44 am, partial solar eclipse
Sept 14/15	**CFAS Group Viewing Sessions**
September 15	Moon at apogee, 5 pm, 252,054 miles
September 19	"Seeing in the Dark", 8 pm on PBS
	First quarter Moon, 12:48 pm
September 23	Autumnal equinox occurs, 5:51 am
September 25	Moon passes 1.9º north of Uranus, 5 pm
September 26	Full Moon, 3:45 pm
September 27	Moon at perigee, 9:54 pm, 223,332 miles

All times are EDT unless otherwise noted

News Cluster

► The next meeting of the Cape Fear Astronomical Society is September 9 starting at 7:00 pm. The meeting will be held at the Unitarian Universalist Fellowship of Wilmington (UUFW for short).

► Mid Atlantic Star Party 2007 will be held near Robbins NC from October 8 through Oct 14. Pre-registration is open until September 15. For more info and directions visit www.masp.org. Let's try for another good CFAS turnout!

► Don't miss "Seeing in the Dark", a 60-minute, state-of-the-art, high-definition (HDTV) documentary by Timothy Ferris that premieres on PBS September 19, 2007 at 8:00 p.m. The film, Ferris' third, is based on his book, *Seeing in the Dark* (2002), named by The New York Times as one of the ten best books of the year.

► The current CFAS Editor is announcing his retirement from the duties of CFAS Editor at the end of 2007. After two years, its time to pass this privilege on to another. I will continue to publish the Newsletter through December and will help the next Editor with publishing set up.

News from Our Sister Society Down Under

Astronomical Society of Albury - Wodonga

For the latest news from down under, check out our sister society's web site at www.asaw.org.au.

Astronomical History During the Month of September

Date	Milestone
Sept 1, 1977	Launch of NASA's Voyager 1 mission to Jupiter and Saturn
Sept 10, 1967	Soft landing on the Moon by NASA's Surveyor probe, which took pictures and made the first analysis of lunar soil
Sept 12, 1997	Entry into orbit around Mars of NASA's Mars Global Surveyor
Sept 14, 1712	Giovanni Domenico Cassini, planetary astronomer that discovered the division in Saturn's rings, dies
Sep 23, 1877	Urbain Le Verrier, French astronomer who predicated the position of the planet Neptune, dies

Planets in September 2007

Planet	Sep	Elong.	Mag.	Dia.	Illum.	Dist.
Mercury	1st	14º Ev	-0.5	5.1"	90%	1.324
	11th	21º Ev	-0.2	5.4"	82%	1.238
	21st	25º Ev	+0.0	6.0"	72%	1.117
	30st	26º Ev	+0.0	6.8"	59%	0.981
Venus	1st	22º Mo	-4.4	53.1"	7%	0.314
	11th	32º Mo	-4.7	46.4"	16%	0.360
	21st	39º Mo	-4.8	39.8"	25%	0.420
	30st	42º Mo	-4.7	34.7"	32%	0.481
Mars	1st	83º Mo	+0.3	8.1"	86%	1.150
	16th	89º Mo	+0.1	8.8"	86%	1.060
	30st	96º Mo	-0.1	9.6"	87%	0.972
Jupiter	1st	93º Ev	-2.2	38.3"	99%	5.147
	30st	68º Ev	-2.0	35.3"	99%	5.580
Saturn	1st	8º Mo	+0.6	16.2"	100%	10.232
	30st	33º Mo	+0.7	16.5"	100%	10.065
Uranus	16th	174º Ev	+5.7	3.7"	100%	19.094
Neptune	16th	147º Ev	+7.8	2.3"	100%	29.196
Pluto	16th	94º Ev	+14.0	0.1"	100%	31.265

Elong. – elongation from the Sun: morning (Mo) and evening (Ev)
Dist. – distance from Earth in astronomical units

Water Vapor Seen 'Raining Down' On Young Star System

August 29, 2007 (www.jpl.nasa.gov)

NASA's Spitzer Space Telescope has detected enough water vapor to fill the oceans on Earth five times inside the collapsing nest of a forming star system. Astronomers say the water vapor is pouring down from the system's natal cloud and smacking into a dusty disk where planets are thought to form.

The observations provide the first direct look at how water, an essential ingredient for life as we know it, begins to make its way into planets, possibly even rocky ones like our own.

"For the first time, we are seeing water being delivered to the region where planets will most likely form," said Dan Watson of the University of Rochester, N.Y. Watson is the lead author of a paper about this "steamy" young star system, appearing in the Aug. 30 issue of Nature.

The star system, called NGC 1333-IRAS 4B, is still growing inside a cool cocoon of gas and dust. Within this cocoon, circling around the embryonic star, is a burgeoning, warm disk of planet-forming materials. The new Spitzer data indicate that ice from the stellar embryo's outer cocoon is falling toward the forming star and vaporizing as it hits the disk.

"On Earth, water arrived in the form of icy asteroids and comets. Water also exists mostly as ice in the dense clouds that form stars," said Watson. "Now we've seen that water, falling as ice from a young star system's envelope to its disk, actually vaporizes on arrival. This water vapor will later freeze again into asteroids and comets."

Water is abundant throughout our universe. It has been detected in the form of ice or gas around various types of stars, in the space between stars, and recently Spitzer picked up the first clear signature of water vapor on a hot, gas planet outside our solar system, named HD 189733b.

In the new Spitzer study, water also serves as an important tool for studying long-sought details of the planet formation process. By analyzing what's happening to the water in NGC 1333-IRAS 4B, the astronomers are learning about its disk. For example, they calculated the disk's density (at least 10 billion hydrogen molecules per cubic centimeter or 160 billion hydrogen molecules per cubic inch); its dimensions (a radius bigger than the average distance between Earth and Pluto); and its temperature (170 Kelvin, or minus 154 degrees Fahrenheit).

"Water is easier to detect than other molecules, so we can use it as a probe to look at more brand-new disks and study their physics and chemistry," said Watson. "This will teach us a lot about how planets form."

Watson and his colleagues studied 30 of the youngest known stellar embryos using Spitzer's infrared spectrograph, an instrument that splits infrared light open into a rainbow of wavelengths, revealing "fingerprints" of molecules. Of the 30 stellar embryos, they found only one, NGC 1333-IRAS 4B, with a whopping signature of water vapor. This vapor is readily detectable by Spitzer, because as ice hits the stellar embryo's planet-forming disk, it heats up very rapidly and glows with infrared light.

Why did only one stellar embryo of 30 show signs of water? The astronomers say this is most likely because NGC 1333-IRAS 4B is in just the right orientation for Spitzer to view its dense core. Also, this particular watery phase of a star's life is short-lived and hard to catch.

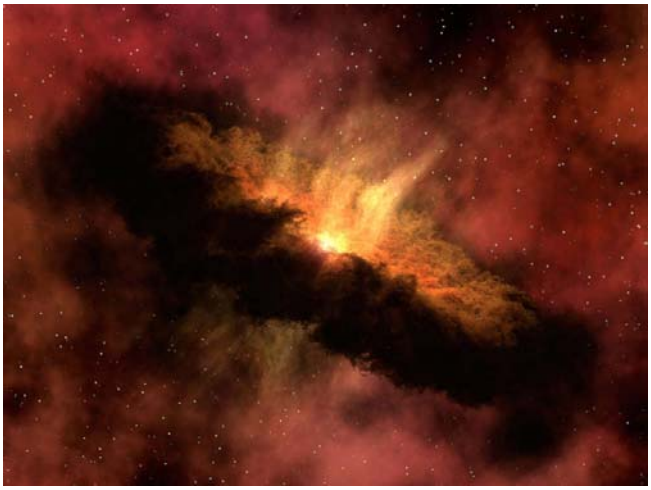
"We have captured a unique phase of a young star's evolution, when the stuff of life is moving dynamically into an environment where planets could form," said Michael Werner, project scientist for the Spitzer mission at NASA's Jet Propulsion Laboratory, Pasadena, Calif.

NGC 1333-IRAS 4B is located in a pretty star-forming region approximately 1,000 light-years away in the constellation Perseus. Its central stellar embryo is still "feeding" off the material collapsing around it and growing in size. At this early stage, astronomers cannot tell how large the star will ultimately become.

Other authors of the Nature paper include: Chris Bohac, Chat Hull, Bill Forrest, Ben Sargent, Joel Green and Kyoung Hee Kim of the University of Rochester; Elise Furlan of the University of California at Los Angeles; Joan Najita of the National Optical Astronomy Observatory; Nuria Calvet and Lee Hartmann of the University of Michigan, Ann Arbor; Paola d'Alessio of the National Autonomous University of Mexico; and Jim Houck of Cornell University, Ithaca, N.Y.

JPL manages the Spitzer Space Telescope mission for NASA's Science Mission Directorate, Washington. Science operations are conducted at the Spitzer Science Center at the California Institute of Technology in Pasadena. Caltech manages JPL for NASA. Spitzer's infrared spectrograph was built by Cornell University. Its development was led by co-author Houck. Watson and Forrest are also members of the team that built the spectrograph.

For graphics and more information about Spitzer, visit http://www.spitzer.caltech.edu/spitzer and http://www.nasa.gov/spitzer. More information about extrasolar planets and NASA's planet-finding program is at http://planetquest.jpl.nasa.gov.



Spitzer observed a fledgling solar system like the one depicted in this artist's concept, and discovered deep within it enough water vapor to fill the oceans on Earth five times. Image credit: NASA/JPL-Caltech

Meetings of the CFAS are held on the first Sunday of The month (if holiday weekend or special event, second Sunday) at

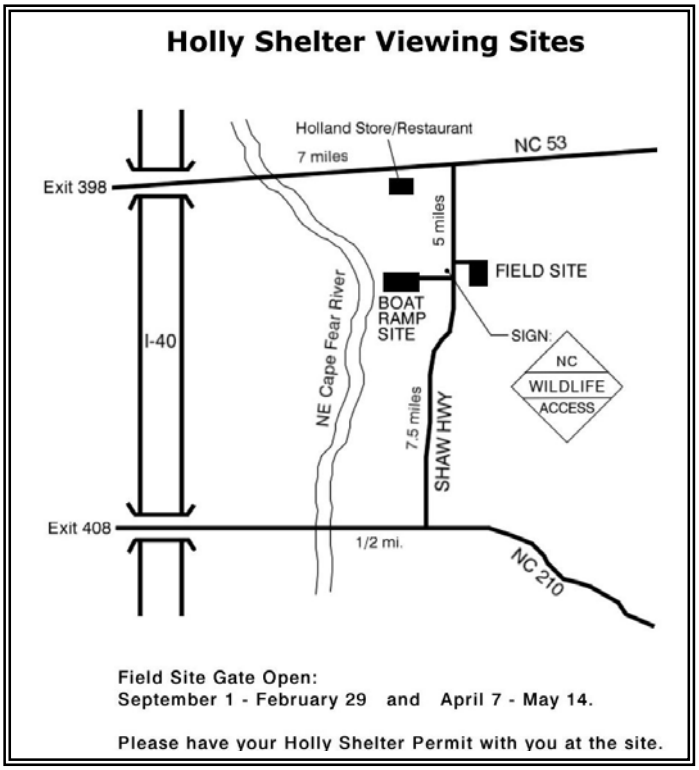
7:00pm – To Be Determined

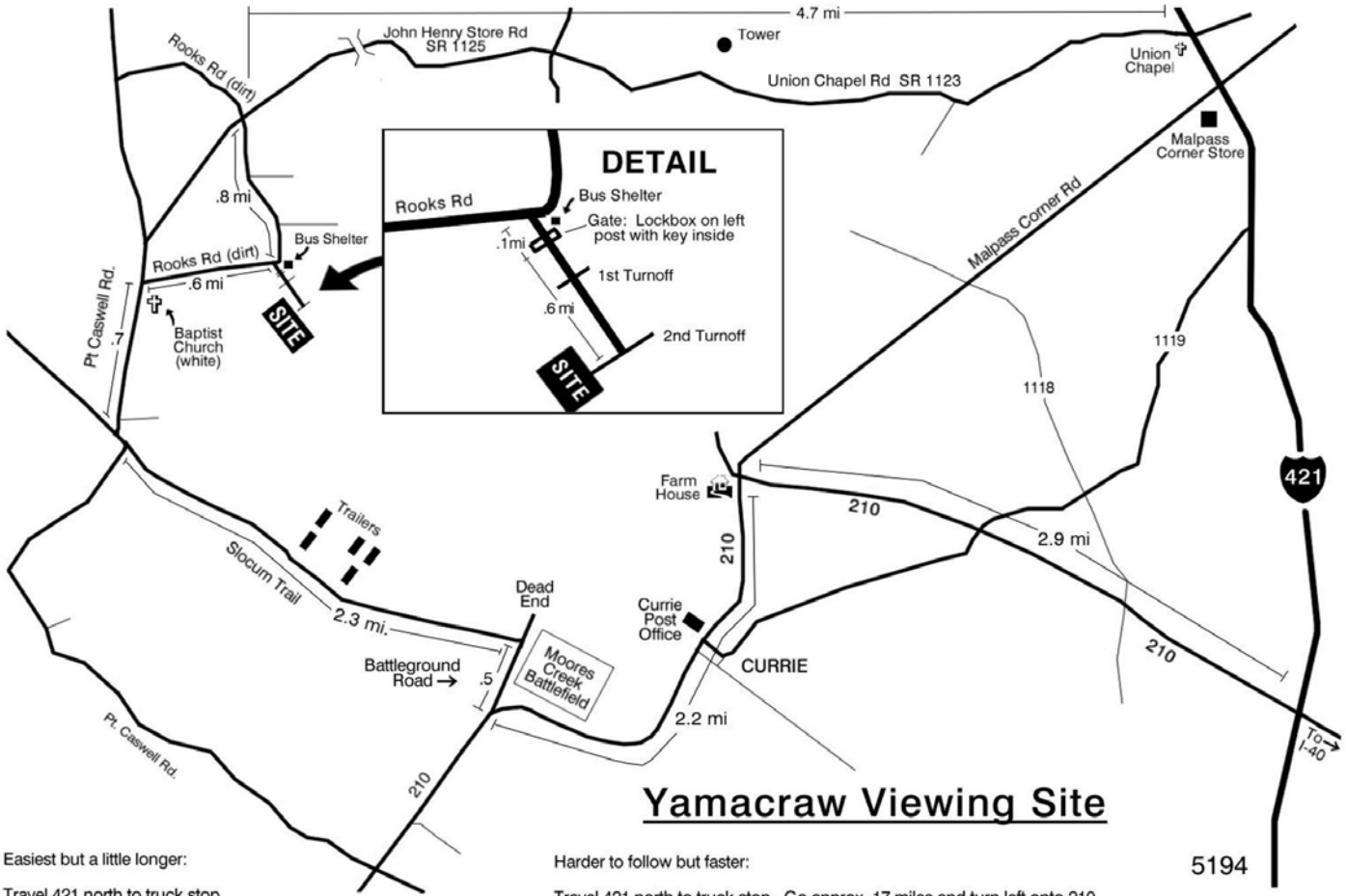
Group Viewing Sessions 5194

Call Ron Hawes at 762-1033 or check our email list to confirm a formal viewing session. Listed below are moonless nights so you can schedule a good viewing. All group viewing sessions will be at the Holly Shelter boat ramp site, unless otherwise specified. Time: Dusk until ?

Friday, September 7	Saturday, September 8
Friday, September 14	Saturday, September 15

Please be cautious of unusual wildlife behavior while observing. A golf club or stick could be useful to keep nearby.





Yamacraw Viewing Site

5194

Easiest but a little longer:

Travel 421 north to truck stop.
Go approx. 20.5 miles and turn left onto Union Chapel Road.
Follow for 4.7 miles (becomes John Henry Store Road) and take left onto Rooks Road (dirt).
Follow Rooks Road .8 miles around curve, pass bus shelter and take left onto our site's road.
Travel .1 mile, unlock/relock gate, travel .6 miles, take 2nd right.

Harder to follow but faster:

Travel 421 north to truck stop. Go approx. 17 miles and turn left onto 210.
Follow 210 for 2.9 miles to intersection (stop sign and big white farm house), turn left onto 210 W.
Follow 210 W past Currie Post Office and Battlefield, turn right onto Battleground Rd.
Follow Battleground Rd .5 miles, take sharp left onto Slocum Rd, follow for 2.3 miles.
Take a right onto Pt. Caswell Rd, follow .7 miles past Church, take right onto Rooks Road (dirt).
Follow Rooks Rd .6 miles, turn right onto our site's road. (If you see the bus shelter, you've gone too far.)
Travel .1 miles, unlock/relock gate, travel .6 miles, take the 2nd road on the right to our site.