



Comet Tails

January 2005

MESSIER MARATHON MARCH CAMPING

Often in the past, members of TCAS have discussed a club camping trip and so one was organized by Allen (thanks Allen) in March 2005 for the Messier Marathon weekend! Sadly, we only have seven people who have registered so far. Please make plans to register (a registration form is at the end of the newsletter) and join us for this fun weekend. It would be great if we could make this an annual trip.

The skies at Kissimmee Prairie are wonderfully dark and the viewing there is grand! There are bathrooms there with hot and cold water and CLEAN showers. During the early morning hours, the wildlife is wonderful to watch.

Please plan to join us, even if you can come for only one night. Lets try and make this a success! Call David, 772-878-6233, or Patty, 772-971-0159, if you have any questions

Florida Tech to Have States Largest Telescope

MELBOURNE, FLA. – A \$150,000 gift by an anonymous Brevard County donor will enable Florida Institute of Technology to construct the state's largest telescope on top of the recently completed F.W. Olin Physical Sciences Building. Construction on the 32-inch telescope will begin in 2005 and is expected to take 18 months to complete.

Florida Tech President Anthony J. Catanese said the new telescope is an indicator of Florida Tech's continuing maturation as a nationally renowned research university.

Now, with the largest telescope in the state of Florida, our leadership position in the Southern Astronomy Research Association, resources at Kitt Peak National Observatory in Arizona, Florida Tech is uniquely positioned as a national leader in astronomy and space sciences. As a university founded by scientists in America's space program, it's important that our faculty and students continue to focus their attention on the stars."

“It almost goes without saying that the generosity of this donor has opened new worlds to our students and to the greater Brevard community,” said Terry Oswald, Associate Dean for Research in the College of Science and Liberal Arts

Oswald, who also serves as a professor of space sciences, said that the original telescope would have been 24 inches, but the donation makes possible an increase of eight inches in diameter. In the case of telescopes, bigger really is better. “The additional eight inches will allow us to collect nearly twice the amount of light,” said Matt Wood, professor of space sciences. Wood added that “the increased size will allow faculty and students access to twice the number of objects in space as a 24-inch telescope.”

Thomas Fox, Senior Vice President of Advancement at Florida Tech, said the actions of the anonymous donor show how Brevard residents can make a difference in the life of their university.

Florida Tech’s undergraduate astronomy program is among the largest in the nation. The university has 80 astronomy majors, split evenly between men and women. The university also offers masters and doctoral degrees in space sciences.

FROM THE PRESIDENT’S UNIVERSE

David Brown

Hi to all. Hope everyone had a nice Christmas and great New Year.

Monthly Star Party at Bluefield this Saturday night, January 8, 2005. It is a great new site and has DARKER skies and wonderful horizons!! Tonight, Comet Machholz is right next to the Pleiades and is wonderful sight.

Spacy Stuff Russia is planning a return to Mars. It will be a robotic mission to Phobos. 2009 is the target date. Shuttle Discovery now has a planned launch, possibly May 12, 2005. Voyager 1, after 27 years of space flight, is now 8.8 billion miles from the Sun. It is the most distant human object ever made. Voyager 2 is 7 billion miles away. Saturn’s rings are tilted such that the views of the ringed planet are as good as it can get.

January trivia:

- 1) Which president announced the development of the Space shuttle:
- 2) Who discovered Io, Callisto, and Europa?
- 3) Name the vehicles that had the first triple docking in space.
- 4) Name the 2 spacecraft that had the 2 manned docking.
- 5) Name the 3 astronauts who died in 1967 aboard Apollo 1.

Answer on page 6

EDITOR'S STUFF

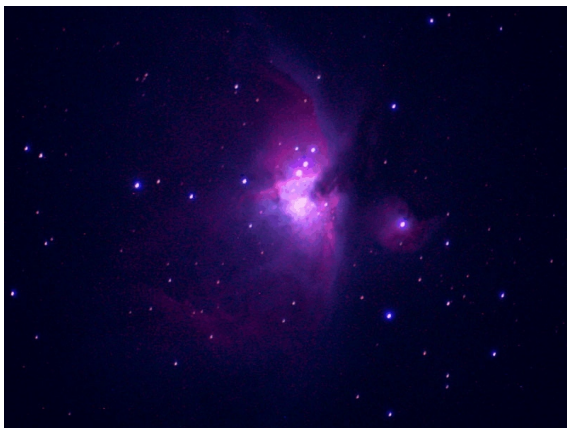
Patty Mayer

ASTRONOMY DAY is almost here! We will meet on Friday, February 11, 2005, at 6:00 p.m. to set up. We started doing this last year and it worked so well, we will do it again this year. Please bring any posters we can display and any old astronomy related magazines you have for the hand out table, to the January meeting or to the set up night. We have a speaker from NASA coming that is supposed to be a great speaker as well as our club members!

NASA is hosting the Winter 2005 Science Academy on January 11, 2005, and the focus will be "Deep Impact- First Look Inside a Comet." I have registered to attend and am looking forward to it! It is being held at Kennedy Space Center and when I return, I will let you now all about it!

Thanks to Don Deppen, who is an FIT alumni, for brining the article about FIT's new LARGE telescope to my attention! This may be a great field trip for the club!

PLEASE REGISTER FOR THE MARCH MESSIER MARATHON CAMPING TRIP!



The first 2005 photo of Orion,
taken 1 January 2005 at 1:06:17 a.m.
by Dave Holko

Fraser Cain is the Publisher of Universe Today on the web. Dr. Jean-Pierre Lebreton, the Huygens Project Scientist and Mission Manager from the European Space Agency, agreed to answer a few questions from the readers of Universe Today. Fraser and his Community Support Team chose several questions for Dr. Lebreton and the following article is the result of the many questions sent in. Thank you to Fraser for letting me share the article.

Your Interview with Dr. Jean-Pierre Lebreton
Dec 31, 2004

Just how dense is Titan's atmosphere expected to be, and how did that influence the design of the probe? - Kepesk



The atmosphere of Titan is denser and thicker than that of the Earth. The surface pressure is 1.5 times that on Earth (1500 mbar). But because Titan gravity is 1/6 of Earth's, the atmosphere

is much more expanded. Huygens will brake at about 300 km altitude, while Earth re-entry vehicles brake at about 60 km altitude.

The probe was designed to brake as high as possible for allowing in-situ sampling of the atmosphere as high as possible (about 165 km). It required a large heat-shield.

The heat-shield design was influenced by the presence of methane in the atmosphere. Methane and nitrogen break apart in the shock layer that forms in front of the probe during the hypersonic entry and form the CN radical which is a strong emitter of violet radiation (during the entry, Huygens radiates as much as 1000 sun for about 30 sec). CN radiates a lot of heat on the heat-shield. The amount of radiation (heat flux) on Huygens heat shield is 3 to 4 times higher than if we would enter in a pure nitrogen atmosphere.

How did Titan "collect" so much organic material and get such a dense atmosphere? Did Titan "collect" the stuff or was the moon lucky and manage not to lose it? - baselle

This is a fundamental question. Answering it is a major scientific objective of the Cassini-Huygens mission. Most (if not all) of the organic matter in Titan's atmosphere and on the surface comes from the chemical processing of methane. The origin of methane is one of the big mysteries that Huygens should help to solve.

What design considerations were made on the probe to help ensure it would survive a trip to Saturn that took it on flybys to a few other planets along the way? - dave_f

The main design considerations for Huygens long trip to Saturn were to ensure that the temperature of its batteries would be kept cool enough. Huygens is protected by a multi-layer insulation thermal blanket and protected from the sun by the orbiter high-gain antenna until we reached Jupiter. Regular (bi-annual) activations of Huygens during a few hours were designed to monitor its health and calibration and to activate movable instrument mechanisms for their maintenance.

Survived landing will be a bonus, not the goal, with this in mind, was there anything other than timing and synchronicity with the orbiter considered when choosing a "landing" site? - tiderider

Huygens is not a lander. So I prefer to talk about impact or touchdown site. The impact site was not specifically chosen. The main drivers were: i) the entry angle in the atmosphere, ii) the need to descend in the sunlit side of Titan, iii) a low to medium latitude descent, but away from the equator for best wind measurements, and iv) an optimized geometry for the radio link with the orbiter.

Supposing that remarkable observations were recorded by Huygens, how could such observations contribute to our understanding of the solar system evolution? - Keemah

The detailed in-situ measurements by Huygens will be combined with the several-year global observations by the Cassini orbiter during its planned 45+ (more if the mission is extended) Titan flybys in order to better understand the weather on Titan, the chemical composition of the atmosphere, the origin and fate of the methane. In-situ isotopic measurements are a key for understanding the origin and evolution of Titan's atmosphere. Understanding why Titan has a thick atmosphere (the only moon in the solar system to have a substantial atmosphere) will allow testing theories of planetary formation and evolution.

Are there some atmospheric (or even surface) conditions expected to disturb data transmission from Huygens to Cassini? - Lamahe

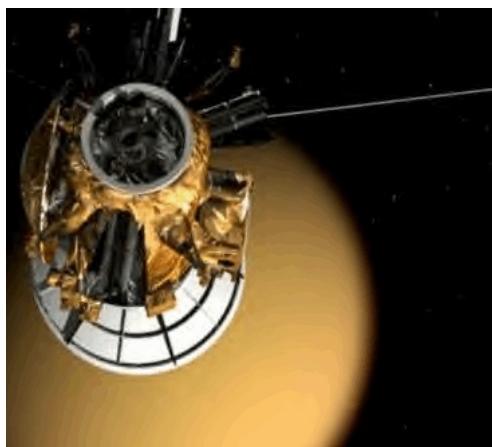
The atmosphere is transparent to radio communication between Huygens and Cassini (at 2 GHz). Too large a swing under the parachute may disturb the communication for a few seconds but Huygens will transmit on two radio channels. Key data are transmitted on the two channels but delayed by 6 sec on one of the two channels. This delay will allow all important data to be recovered if the link is interrupted for a short time.

If all goes well, how soon will detailed information about what did the probe observe be made available to the public? Is there a period when certain scientists have exclusive access? - antoniseb

Information will be made available to the public within hours after the data are received on earth on 14th January. Scientists will make every effort to make as much information as possible to the public. But scientists will also publish their research results in scientific literature within months. All Huygens data will be made available to the wide scientific community and to the public at large through ESA and NASA Planetary data archives in 2006.

What advice would you give someone who's willing to work in space research? - Ola D.

You need to get a good education in mathematics, physics and chemistry, but also in literature and history of sciences in order to be able to communicate your research results to the public. You also need to be motivated to embrace a research career as jobs are difficult to get and not always well paid. If you want to undertake planetary research you need patience and to be unselfish. It took more than twenty years to get to Saturn from mission idea to the arrival. It will take years and decades to analyze all the data that will be returned by Cassini-Huygens. A mission such as Cassini-Huygens goes across generations. Cassini-like missions to Uranus and Neptune will take longer. But it is so exciting to be involved in such voyages that I would encourage all school boys and girls to study sciences and take a chance. It's worth it. One more piece of advice. Cassini-Huygens is a true example of highly successful international collaboration. Learn a few languages as it will help to enjoy your trips abroad and best appreciate the multi-cultural environment you will work in as I am convinced that planetary exploration must be undertaken through multi-national collaborations.



WEB LINK HIGHLIGHT JOHN BIONDO

This web site has so much information on it for you to use. Astronomy Web Guide has links for children, parents, teachers, you can find astronomy clubs, how to make telescopes and where to find planetariums- even Hallstrom! Kathy <http://astronomywebguide.com/index.htm>

UPCOMING CELESTIAL AND TERRESTRIAL EVENTS

January Meeting

??? will be our guest speaker this month and the topic will be ???. Please be there and bring a friend!

EVENTS

Comet Machholz reaches maximum brightness, first week of January

January 12 - Deep Impact Mission to Launch

January 14 - Huygens rendezvous with Titan

January 14, 15 - Planetarium Show *Night of the Hunter*

January 22 - *Campfire Under the Stars* - viewing for special needs children in PSL

January 28 - Oxbow Eco-Friday night

January 30 - Astronomy Day meeting - Applebee's, US1 and PSL Blvd., 1:00

February 12, 2005 - Astronomy Day 12:00 through 9:00

March 11 - 13, 2005 - TCAS's first annual Messier Marathon camping weekend!

NEXT NEW MOON IS JANUARY 10

NEXT OFFICIAL STAR PARTY WILL BE JANUARY 8 and possibly 15

HALLSTROM PLANETARIUM

Jon U. Bell, Planetarium Director

The 2004-2005 Season is here! Jon hosts a new show each month on Friday, 7:00 and 8:00 p.m. and on Saturday, 2:00 and 3:00 p.m. TCAS members, please try to come out on Friday nights so you can share a view through your telescope with the public.

You can listen to Jon U. Bell every Monday through Friday on "Skywatch" on WQCS 88.9 FM radio at 7:20 a.m. and 1:00 p.m. for daily sky updates.

www.ircc.edu/atircc/commout/planetarium/planet.html

Trivia answers:

- 1) Nixon in 1972.
- 2) Galileo.

- 3) Soyuz 26,27 and Salyut 6 in 1978.
- 4) Soyuz 4 and 5.
- 5) White, Chaffee and Grissom.

WEB PAGES

Member pages

TCAS www.treasurecoastastronomy.org
 Dave Holko www.atkmotors.com/defaultx.htm

Other Interesting Pages

Sky & Telescope Magazine www.skypub.com
 Astronomy Magazine www.astronomy.com
 Universe Today www.universetoday.com
 Space news junkie www.space.com
 Satellite tracking www.heavens-above.com
 Free monthly sky map www.Skymaps.com
 International Dark Sky Organization www.darksky.org
 NASA www.NASA.gov
 Jet Propulsion Labratory <http://www.jpl.nasa.gov/>
 Night Sky Network <http://nightsky.jpl.nasa.gov/index.cfm>
 Astronomy Web Guide <http://astronomywebguide.com/index.htm>

Photo of the day art Space.Com

While photographing the recently discovered comet Machholz the other night, Jimmy Westlake's mind wandered back to a mystery that had been bugging him for years. On Jan. 1, 1986, he was photographing another comet, Halley's, through his homemade 8-inch reflecting telescope.

"About one minute into the exposure, I watched a meteor zip through the field of the telescope," said Westlake, a professor of physical sciences at Colorado Mountain College in Steamboat Springs, CO. "I stopped the exposure at two minutes."

That night, when he developed the roll of slide film, he was astounded at what he saw:

"Crossing the tail of Halley's comet was a corkscrew meteor trail with no fewer than 25 twists in it," he said. "I had read of some meteors appearing to have curves or kinks in their trails, but I had never seen a photo of one."

It's the picture above, and Halley's comet is the smudge under the corkscrew.

Years later Westlake ran across an old astronomy book by Camille Flammarion and happened upon a sketch someone had made of a daytime fireball trail that looked almost exactly like his corkscrew meteor, "including the dark-colored inner curls," he said.

Westlake's photo was never published until today. He wonders if there are others out there.

Treasure Coast Astronomical Society's 1st Annual Messier Marathon Weekend

Each registration is \$30.00 per tent or RV, which includes water and electric. Please complete the following registration and mail it along with your check made out to Treasure Coast Astronomical Society to Mr. Allen Como, 2382 Bay Colony Court, Stuart, Florida 34994 or can be hand delivered to Allen at the monthly meeting.

Name: _____

Address: _____

Phone number _____ Alternate number: _____

Email: _____

Names of family members attending with you:

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Tents and/or RVs must register separately even if a family is using both. If you or your family wish to camp near another family or person, please indicate the name below.

I would like to camp near _____

Tent _____ Camper _____

Emergency Contact information: Name: _____

Phone number _____ Alternate phone number _____

For further information, you can contact Patty at 772-971-0159, David at 772-878-6233 or Charlotte at 772-398-9546.

All registrations will be accepted on a first come first served basis. Once the campsites are full, registrations will be put on a reserve list for any possible cancellations.

T-shirts are being designed for the weekend and if you are interested in pre- ordering one, please enclose \$15.00 per shirt. No shirts will be available for sale during the weekend.

Child Large		Medium	
Large		X-Large	
XX-Large		XXX-Large	

Registration \$30.00

Tee Shirts X \$15.00 = \$ _____

TOTAL ENCLOSED \$ _____

MAKE ALL CHECKS PAYABLE TO TREASURE COAST ASTRONOMICAL SOCIETY

PLEASE NOTE!

Pets are not allowed in Kissimmee Prairie Preserve SP and if you bring one, the Ranger's will ask you to pack up and leave.

DIRECTIONS

From Fort Pierce

Travel west out Orange Avenue (Rt. 68) to the end, approximately 15 miles from Kings Highway. Turn right on 441 for approximately 3/4 of a mile. Turn left onto SR 724 (Eagle Island Road). The only stop you will make on SR 724 is a 3 way stop sign, continue past the stop sign and through the sharp right turn in the road. Continue out this road, which is paved until you reach the park, until you reach Kissimmee Prairie Preserve State Park. Once inside the park you will drive about 3 miles on a dirt road, follow the signs to the Star Party.

From the north or south

Take I-95 to the Orange Avenue West exit, then follow the Fort Pierce directions.