



Three-quarter Moon - Ben Tardiff

**Next Meeting:** **March 18, 2010, 7:30 pm**, at the *All Saints Episcopal Church, 1322 Kimball, Richland, WA.*

## Club News

Club officer elections were held during the February Club Meeting. Paul Rittmann volunteered and was elected Club President. Thom Ahl volunteered and was elected Club Vice President. Gary Maupin was coerced into volunteering and was elected Club Secretary. Mark Bryant (suspiciously) volunteered and was re-elected as Club Treasurer. Congratulations Club Officers!

The club would like to welcome Steve Hitchman as the newest member.

Dues are due! Once again the annual dues are \$30 per person or family. If you haven't already paid dues for this year, submit them to Mark Bryant at the next club meeting or mail them to:

**Tri-City Astronomy Club**  
**P.O. Box 651**  
**Richland, WA 99352**

### Upcoming Club Events:

- Thursday, March 11: Judging for the annual TCAC award at the Mid-Columbia Regional Science and Engineering Fair. Thom and Mark volunteered to pick a winner.
- Thursday, March 11: An astronomy focused event at Sunset View Elementary school. Usual start time is around 6:30 pm. Expect to be done by 8 pm.
- Saturday, March 13th: The annual TCAC Messier Marathon! Once again Paul and Bobbie will facilitate the event at the Rattlesnake Mountain Shooting Range, up at the 1,000 yard range. Directions to the event are available on the Club website.
- Friday, March 26th: The first Lynnwood Loop public viewing session of 2010.

# Astronomy News

## Flipping the Lights on Cosmic Darkness

Exploring the universe is a bit like groping around a dark room. Aside from the occasional pinprick of starlight, most objects lurk in pitch darkness. But with the recent launch of the largest-ever infrared space telescope, it's like someone walked into the room and flipped on the lights.

Suddenly, those dark spaces between stars don't appear quite so empty. Reflected in the Herschel Space Observatory's 3.5-meter primary mirror, astronomers can now see colder, darker celestial objects than ever before—from the faint outer arms of distant galaxies to the stealthy “dark asteroids” of our own solar system.

Many celestial objects are too cold to emit visible light, but they do shine at much longer infrared wavelengths. And Herschel can observe much longer infrared wavelengths than any space telescope before (up to 672 microns). Herschel also has 16 times the collecting area, and hence 16 times better resolution, than previous infrared space telescopes. That lets it resolve details with unprecedented clarity. Together, these abilities open a new window onto the universe.



*The Herschel Space Observatory has 3.5-meter primary mirror, allowing astronomers to see colder, darker celestial objects than ever before.*

“The sky looks much more crowded when you look in infrared wavelengths,” says George Helou, director of the NASA Herschel Science Center at Caltech. “We can't observe the infrared universe from the ground because our atmosphere blocks infrared light, and emits infrared itself. Once you get above the atmosphere, all of this goes away and suddenly you can look without obstruction.”

Herschel launched in May from the Guiana Space Centre in French Guiana aboard a European Space Agency Ariane 5 rocket. Since then, it has expanded the number of distant galaxies observed at far infrared wavelengths from a few hundred to more than 28,000. And with the instrument testing and system check-out phases finally completed, the discoveries are only now beginning.

Beyond simply imaging these dark objects, Herschel can identify the presence of chemicals such as carbon monoxide and water based on their spectral fingerprints. “We will be able to decipher the chemistry of what's going on during the beginnings of star formation, in the discs of dust and gas that form planets, and in the lingering aftermath of stellar explosions,” Helou says.

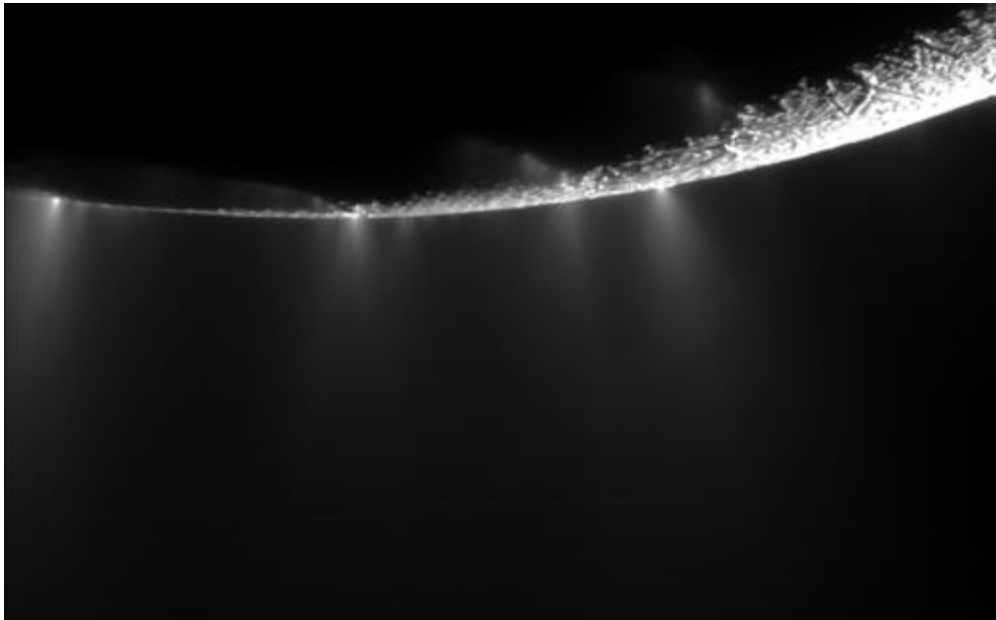
And those are just the expected things. Who knows what *unexpected* discoveries may come from “flipping on the lights?” Helou says “we can't wait to find out.”

Herschel is a European Space Agency mission, with science instruments provided by a consortium of European-led institutes and with important participation by NASA. See the ESA Herschel site at <http://sci.esa.int/science-e/www/area/index.cfm?fareaid=16>. Also, see the NASA sites at <http://herschel.jpl.nasa.gov/>, <http://www.herschel.caltech.edu/>, and [http://www.nasa.gov/mission\\_pages/herschel/](http://www.nasa.gov/mission_pages/herschel/). Kids can learn about infrared light by browsing through the Infrared Photo Album at The Space Place, [http://spaceplace.nasa.gov/en/kids/sirtf1/sirtf\\_action.shtml](http://spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml).

*This article was provided courtesy of the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

### **Bursting at the Seams**

Dramatic plumes, both large and small, spray water ice out from many locations along the famed "tiger stripes" near the south pole of Saturn's moon Enceladus. The tiger stripes are fissures that spray icy particles, water vapor and organic compounds.



More than 30 individual jets of different sizes can be seen in this image and more than 20 of them had not been identified before. At least one jet spouting prominently in previous images now appears less powerful.

This mosaic was created from two high-resolution images that were captured by the narrow-angle camera when NASA's Cassini spacecraft flew past Enceladus and through the jets on November 21, 2009. (For other images captured during the same flyby, see [Enceladan Tectonics](#) and [Baghdad Sulcus in 3-D](#).) Imaging the jets over time will allow Cassini scientists to study the consistency of their activity.

The south pole of the moon lies near the limb in the top left quadrant of the mosaic, near the large jet that is second from left. Lit terrain seen here is on the leading hemisphere of Enceladus (504 kilometers, 313 miles across).

Cassini scientists continue to study the question of whether reservoirs of liquid water exist beneath the surface of the moon. See [Baghdad and Cairo Sulci on Enceladus](#) and [Jet Blue](#) to learn more.

The view was obtained at a distance of approximately 14,000 kilometers (9,000 miles) from Enceladus and at a sun-Enceladus-spacecraft, or phase, angle of 145 degrees. Image scale is 81 meters (267 feet) per pixel.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate in Washington. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging team is based at the Space Science Institute, Boulder, Colo.

For more information about the Cassini-Huygens mission visit <http://www.nasa.gov/cassini> and <http://saturn.jpl.nasa.gov>. The Cassini imaging team homepage is at <http://ciclops.org>.

*Credit: NASA/JPL/SSI*

## Club Info

**Club Meetings:** on the 3<sup>rd</sup> Thursday of each month. 7:30pm – 9:00 pm, at All Saints Episcopal Church, 1322 Kimball, Richland, WA. You do not have to be a member to attend.

Tri-City Astronomy Club  
P.O. Box 651  
Richland, WA 99352

[www.tricityastronomyclub.org](http://www.tricityastronomyclub.org)

<b>President: Paul Rittmann</b> <a href="mailto:paulrittmann@gmail.com">paulrittmann@gmail.com</a>	<b>Vice-President: Thom Ahl</b> <a href="mailto:thomahl@msn.com">thomahl@msn.com</a>
<b>Secretary: Gary Maupin</b> <a href="mailto:garymaupin@aol.com">garymaupin@aol.com</a>	<b>Treasurer: Mark Bryant</b> <a href="mailto:mw.bryant@hotmail.com">mw.bryant@hotmail.com</a>
<b>Program Coordinator: Thom Ahl</b> <a href="mailto:thomahl@msn.com">thomahl@msn.com</a>	<b>Web Master/Prime Focus Editor: Art Stithem</b> <a href="mailto:webmaster@tricityastronomyclub.org">webmaster@tricityastronomyclub.org</a>
<b>Refreshments: Barbara Rittmann</b>	<b>Scholastic Programs: Wayne (#1) Richey</b> 375-0533

# TCAC Sky Events Calendar

## March 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	1 Venus 11.8° E	2	3	4	5	6 Moon-Antares 17:32
 7 Last Quarter 07:42 Moon S Dec 13:18	8	9	10 Moon A Node 00:07	11	12 Moon Apogee 02:07	13 <a href="#">Messier Marathon</a>
14 Daylight Savings Time begins Mercury Super 06:05	 15 New Moon 14:01	16 Uranus Sun 23:23	17	18 <a href="#">Club Meeting</a>	19	20 Spring Eq 10:32 Moon-Pleiades 17:08
21 Saturn Opp 16:54	22 Moon N Dec 05:15	 23 First Quarter 04:00	24 Moon D Node 06:05	25 Moon-Mars 06:57 Moon-Beehive 16:06	26 <a href="#">Lynnwood Loop Park</a>	27 Moon Perigee 21:56
28	 29 Full Moon 19:25	30	31	1	2	3

Sky Events Calendar by Fred Espenak and Sumit Dutta (NASA's GSFC)

*All event times are given for Pacific Standard Time/Pacific Daylight Time (UTC -8:00/-7:00).*

On the Website Calendar of Events, all dates for 1<sup>st</sup> Quarter Moon will be held at Lynnwood Loop Park from March until October. Other public viewing events maybe also scheduled at LIGO. New moon dates will be announced at monthly club meetings and locations are optional as we have several to choose from.