

# Sky News

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## SUMMER LAUNCHES

NASA is launching the *Gamma-Ray Large Area Space Telescope (GLAST)* no earlier than June 3<sup>rd</sup>. *GLAST* is an observatory that will study gamma rays, the highest-energy form of light in the electromagnetic spectrum. The gamma ray sky is very different from the sky seen in visual light. *GLAST*'s main mission objectives are: to understand the mechanisms of particle acceleration in active galactic nuclei (AGNs), neutron stars, and supernova remnants (SNRs); resolve the gamma-ray sky by characterizing unidentified sources and diffusing emissions; determine the high-energy behavior of gamma-ray bursts (GRBs) and variable sources; probe dark matter and the early universe. *GLAST* will help scientists study supermassive black hole systems, pulsars, and the origin of cosmic rays. *GLAST* will search for signatures of new physics. *GLAST* is called the "Mission to Explore the Extreme Universe". *GLAST* is a combined effort between NASA and the U.S. Department of Energy, along with important contributions from academic institutions in France, Germany, Italy, Japan, Sweden, and the United States.

On June 15<sup>th</sup>, NASA plans to launch the *JPL OSTM/Jason-2* spacecraft from Vandenberg Air Force Base in California using a United Launch Alliance Delta II 7320 rocket. *Jason-2* will follow the same orbital path as *Jason*. For 3 years, the *Jason-2* will study oceanic surface topography measurements and determine the variability of ocean circulation. *Jason-2* data will improve the measurements of time-averaged ocean circulation, global sea-level change, and open ocean tide models. *Jason-2* has many sophisticated sensors to complete its many functions. Its orbit will cover 95% of ice-free oceans every 10 days. It will keep in constant communication using the NOAA Tracking Stations in Alaska and Wallops Island, Virginia with a EUMETSAT Station in Usingen, Germany.

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## SUMMER PLANETS

*Mercury* can be seen rising before dawn the last week of June in the eastern sky. Mercury reaches its highest point on July 1<sup>st</sup>. Mercury disappears in the sun's glare in mid-July. Mercury will reappear in the western sky after sunset the last week of August. Mercury looks like a small, white star.

*Mars* can be seen for a few hours after sunset in the western sky as it leaves the constellation (Cancer the Crab) and enters Leo (the Lion) by the end of June. Mars passes Regulus (the Heart of the Lion) on June 30<sup>th</sup> and passes Saturn on July 11<sup>th</sup>. Mars stays visible very low in the western sky throughout the summer. Mars looks like a dull, ruddy-colored star.

*Saturn* can be seen after sunset in the western sky in the constellation Leo (the Lion) left (east) of the bright star Regulus (the Heart of the Lion). Saturn is great to view with the rings on a good angle. Saturn stays low in the west and disappears in the sun's glare by mid-August. Saturn looks like an amber-colored star.

*Jupiter* can be seen rising after sunset in the southeastern sky in the constellation of Sagittarius (the Archer) just left (east) of the "teapot". Jupiter rises when the sun sets on July 9<sup>th</sup>. Jupiter is very bright and great to view all summer as it passes low through the southern sky. Jupiter sets in the southwest before dawn by mid-July. Jupiter looks like a bright, yellow-colored star.

*Venus* can't be seen as it passes behind the sun in June. Venus returns in mid-August as the "Evening Star" and appears very low in the western sky after sunset. Venus looks like a very bright white star.

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This edition of the  
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was written by  
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**SKY DATES**

June

- 3 - Moon at perigee (closest point to Earth) at 221,986 miles at 2:00 a.m.
- New moon at 2:24 a.m.
- 7 - Calumet Astronomical Society hosts a FREE Open House at Conway Observatory
- Mercury in inferior conjunction (between the sun and Earth) at 10:00 a.m.
- 8 - Venus in superior conjunction (behind the sun as seen from Earth) at 11:00 p.m.
- 10 - First quarter moon at 10:03 a.m.
- 16 - Moon at apogee (farthest point from Earth) at 252,419 miles at 1:00 p.m.
- 18 - Full moon called Rose or Strawberry Moon at 12:31 p.m.
- 20 - Summer solstice at 5:59 p.m.
- Pluto in opposition at 3:00 p.m.
- 26 - Last quarter moon at 7:11 a.m.
- 28 - CAS hosts Dunes Public Outing at Indiana Dunes State Park from 9:00 to 11:00 p.m.
- Uranus is stationary

July

- 1 - Mercury reaches greatest western elongation at 21.18° at 1:00 p.m.
- Moon at perigee (closest point to Earth) at 223,391 miles at 5:00 p.m.
- 2 - New moon at 9:19 p.m.
- 4 - Earth at aphelion (farthest point from sun) at 94,513,144 miles at 3:00 a.m.
- 5 - CAS hosts FREE Open House at Conway Observatory from 8:00 to 11:00 p.m.
- 9 - Jupiter at opposition (opposite the sun as seen from Earth) at 3:00 a.m.
- First quarter moon at 11:35 p.m.
- 13 - Moon at apogee (farthest point from Earth) at 251,936 miles at 11:00 p.m.
- 18 - Mercury at its greatest illuminated extent
- Full moon called Summer, Hay, Buck, or Thunder Moon at 3:00 a.m.
- 25 - Last quarter moon at 1:43 p.m.
- 27 - Delta Aquarid meteor shower peaks
- 29 - Moon at perigee (closest point to Earth) at 226,107 miles at 6:00 p.m.
- Mercury in superior conjunction (behind the sun as seen from Earth) at 3:00 p.m.

August

- 1 - New moon at 5:14 a.m.

- Total solar eclipse seen from the Arctic, Siberia, and China
- 2 - CAS hosts FREE Open House at Conway Observatory in Lowell at 8:00 p.m.
- 8 - First quarter moon at 3:21 p.m.
- 8/9 - CAS hosts FREE Summer Public Outing “Craters of the Moon” at 9:00 p.m. at the Conway Observatory in Lowell
- 10 - Moon at apogee (farthest point from Earth) at 251,380 miles at 3:00 p.m.
- 12 - Perseid meteor shower peaks after sunset
- 15 - Neptune in opposition at 3:00 a.m.
- 16 - Full moon called Green Corn, Grain, Sturgeon, or Dog Day’s Moon at 4:18 p.m.
- Partial lunar eclipse from 2:36 to 5:45 p.m.
- 23 - Last quarter moon at 6:51 p.m.
- 25 - Moon at perigee (closest point to Earth) at 229,097 miles at 11:00 p.m.
- 30 - New moon at 5:13 a.m.

**JUNE SUNRISE AND SUNSET  
(times are for mid-month)**

sunrise: 5:15 a.m.  
 sunset: 8:25 p.m.  
 length of daylight: 15 hours, 10 minutes  
 length of darkness: 8 hours, 50 minutes

**JULY SUNRISE AND SUNSET  
(times are for mid-month)**

sunrise: 5:28 a.m.  
 sunset: 8:22 p.m.  
 length of daylight: 14 hours, 54 minutes  
 length of darkness: 9 hours, 6 minutes

**AUGUST SUNRISE AND SUNSET  
(times are for mid-month)**

sunrise: 5:58 a.m.  
 sunset: 7:49 p.m.  
 length of daylight: 13 hours, 51 minutes  
 length of darkness: 10 hours, 9 minutes

The following sources were used  
 for this issue of *Sky News*:

*Abrams Sky Calendar,*  
[www.jpl.nasa.gov](http://www.jpl.nasa.gov), [www.astroleague.org](http://www.astroleague.org),  
[www.physics.valpo.edu](http://www.physics.valpo.edu), [www.casonline.org](http://www.casonline.org),  
*Astronomy, and Sky and Telescope*