



EPHEMERIS

The official newsletter of the Prescott Astronomy Club (PAC)
e-phem-er-is: a time-based listing of future positions of solar system objects

JUNE 2016

UPCOMING EVENTS



Wednesday, June 1 - Regular PAC meeting @ 6:30 PM in Rm 107, Bldg 74, Embry-Riddle Aeronautical University. Club president Jeff Stillman will present "The Evolution of Astrophotography". He will reveal the continuing evolution of his skills as an astrophotographer. He will relate the major events that contributed to the improvement of his imaging techniques and illustrate these improvements through a series of images taken over the span of his experience as an astrophotographer.

Saturday, June 4 though Saturday, June 11 - The Grand Canyon Star Party on both the South and North Rims in Grand Canyon National Park.

Wednesday, June 8 - METASIG @ 5:00 PM at a local restaurant. Sign up at meeting on June 1.

Saturday, June 11 - Sunny Days & Starry Nights @ 5:30 to 10:30 PM at Pronghorn Park in Prescott Valley. This event will require solar scopes as well as the usual night scopes. Sign up at meeting on June 1.

Wednesday, June 15 - Board Meeting @ 6:30 PM.

Thursday, June 16 - Third Thursday Presentation @ 6:00 PM in the Founder's Suite, Prescott Public Library. Steve R. Coe, Professor - retired, will present "Deep-Sky Observing: The Astronomical Tourist". He will share his 40 years of accumulated knowledge, observations, hints and tips to help every deep sky observer regardless of experience.

Friday, June 24 - Dewey/Humboldt Library @ 7:45 PM, a presentation by John Carter followed by a star party at 8:30 PM. Sign up at meeting on June 1.

Saturday, June 25 - Worldwide Solstice Day, all-day public solar observing at the Bluegrass Festival on the Prescott Courthouse Square. Sign up at meeting on June 1.

OBSERVING MINI-MARATHONS

A proposal has been made that PAC conduct a couple of observing mini-marathons. The first mini-marathon, focusing on double stars, has been postponed to Saturday, July 9, 8:00 PM to 12:00 midnight at Jeff Stillman's home in Chino Valley, pending organizing and agreement of interested individuals. A second mini-marathon, focusing on deep-sky objects, would be held in September. Details about this proposal will be described and discussed at the June 1 general club meeting.



NOAA'S JOINT POLAR SATELLITE SYSTEM (JPSS) TO REVOLUTIONIZE EARTH-WATCHING

By Ethan Siegel

If you want to collect data with a variety of instruments over an entire planet as quickly as possible, there are two trade-offs you have to consider: how far away you are from the world in question, and what orientation and direction you choose to orbit it. For a single satellite, the best of all worlds comes from a low-Earth polar orbit, which does all of the following:



- orbits the Earth very quickly: once every 101 minutes,
- is close enough at 824 km high to take incredibly high-resolution imagery,
- has five separate instruments each probing various weather and climate phenomena,
- and is capable of obtaining full-planet coverage every 12 hours.

The type of data this new satellite – the Joint Polar Satellite System-1 (JPSS-1) -- will take will be essential to extreme weather prediction and in early warning systems, which could have severely mitigated the impact of natural disasters like Hurricane Katrina. Each of the five instruments on board are fundamentally different and complementary to one another. They are:

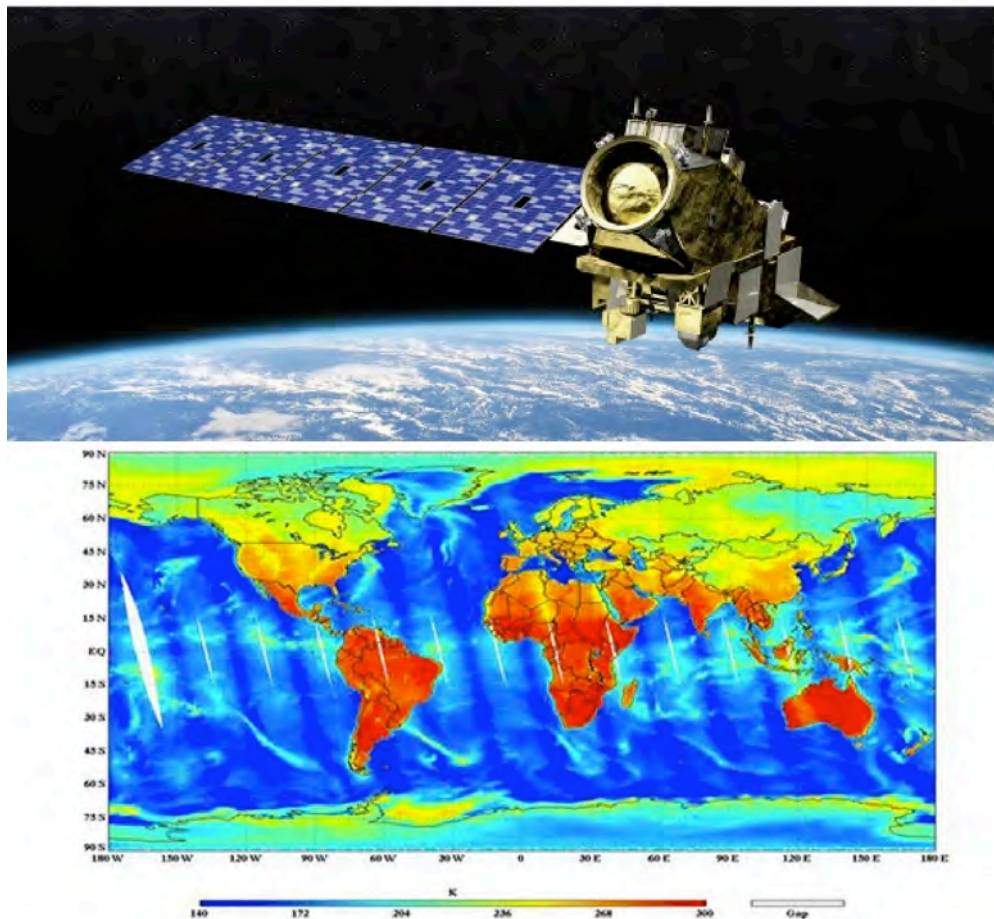
1. The Cross-track Infrared Sounder (CrIS), which will measure the 3D structure of the atmosphere, water vapor and temperature in over 1,000 infrared spectral channels. This instrument is vital for weather forecasting up to seven days in advance of major weather events.
2. The Advanced Technology Microwave Sounder (ATMS), which assists CrIS by adding 22 microwave channels to improve temperature and moisture readings down to 1 Kelvin accuracy for tropospheric layers.
3. The Visible Infrared Imaging Radiometer Suite (VIIRS) instrument, which takes visible and

infrared pictures at a resolution of just 400 meters (1312 feet), enables us to track not just weather patterns but fires, sea temperatures, nighttime light pollution as well as ocean-color observations.

4. The Ozone Mapping and Profiler Suite (OMPS), which measures how the ozone concentration varies with altitude and in time over every location on Earth's surface. This instrument is a vital tool for understanding how effectively ultraviolet light penetrates the atmosphere.

5. Finally, the Clouds and the Earth's Radiant System (CERES) will help understand the effect of clouds on Earth's energy balance, presently one of the largest sources of uncertainty in climate modeling.

The JPSS-1 satellite is a sophisticated weather monitoring tool, and paves the way for its' sister satellites JPSS-2, 3 and 4. It promises to not only provide early and detailed warnings for disasters like hurricanes, volcanoes and storms, but for longer-term effects like droughts and climate changes. Emergency responders, airline pilots, cargo ships, farmers and coastal residents all rely on NOAA and the National Weather Service for informative short-and-long-term data. The JPSS constellation of satellites will extend and enhance our monitoring capabilities far into the future.



Images credit: an artist's concept of the JPSS-2 Satellite for NOAA and NASA by Orbital ATK (top); complete temperature map of the world from NOAA's National Weather Service (bottom).

PAC MEMBER SPOTLIGHT

PAC member Pam Shivak has been selected as a NASA/JPL Solar System Ambassador.



The Solar System Ambassadors Program (SSA) is a public outreach program designed to work with motivated volunteers across the nation. These volunteers communicate the excitement of JPL's space exploration missions and information about recent discoveries to people in their local communities. <http://solarsystem.nasa.gov/ssa/home.cfm>



IF IT'S CLEAR

By Fulton Wright, Jr., PAC

Celestial events (from Sky & Telescope magazine, Astronomy magazine and anywhere else I can find information) customized for Prescott, Arizona. Remember, the Moon is 1/2 degree or 30 arcminutes in diameter. All times are Mountain Standard Time.



Remember, Mars was at opposition last month, so it will appear to shrink in size as the month progresses. You won't have to wait so long for it to be fairly high as it moves into the evening sky. Jupiter and Saturn are also well placed for observation this month.

On the night of Thursday, June 2, Saturn is at opposition and is visible all night.

On Saturday, June 4, it is new Moon and you have all night to hunt for faint fuzzies.

On Wednesday, June 8, after about 8:00 PM, you can observe Mare Crisium on the Moon at its best. Look for the Moon 35 degrees above the west horizon after the Sun has set. Libration tips the round mare near the limb of the Moon toward us.

On Saturday, June 11, the Moon is at first quarter phase and sets at 12:45 AM (Sunday).

On Monday, June 13, at 9:34 PM Ganymede goes behind Jupiter. 11 minutes later, Io does the same thing.

On Tuesday, June 14, from 8:10 PM to 10:21 PM, Io's shadow is on Jupiter.

On Sunday, June 19, at 7:07 PM (39 minutes before sunset), the full Moon rises, spoiling any chance of seeing faint fuzzies for the night.

On Monday, June 20, it is the summer solstice and the nights will slowly get longer.

On Friday, June 24, from 8:34 PM to 11:34 PM, Ganymede's shadow is on Jupiter.

On Saturday, June 25, from 8:41 PM to 11:20 PM, Europa's shadow is on Jupiter. Also, Pluto will be passing by 3rd magnitude Pi Sagittarii. It will be less than 3 arc-minutes from it. If you would like to find Pluto, you might look the night before and the night after, and look for the 14th magnitude dot which moves from night to night.

On Monday, June 27, the Moon is at last quarter phase and rises at 12:51 AM (Tuesday).

FOR SALE

Please visit the Classified Ads section of the club website to view the items posted there for sale:

<http://prescottastronomyclub.org/classified-ads/>

New items are added now and then, so don't miss out on something that you would like to get for yourself...or a friend.

TeleGizmo 365 Series telescope cover T3R5 for 4 to 5-inch refractors

The 365 series covers are ruggedly designed to protect equipment for 24/7 365-day outdoor exposure. Very lightly used. Original cost: \$150; For sale: \$50

Contact David Viscio, pkmist@gmail.com



PAC MENTORS

If you need advise on the purchase of astronomy equipment, setting up equipment, astrophotography, etc., contact a PAC mentor.

John R. Carter Sr. - General - 928-458-0570

Jeff Stillman - Astrophotography - 928-379-7088

David Viscio - General - 928-775-2918

Greg Lutes - Visual Observing - 928-445-4430



OBSERVING LISTS

Observing lists are available on the PAC website to provide guidance and goals for visual and astrophotography programs. Current lists are:

Astroleague Lunar 100

Bright Nebulae

Dunlop 100

Globular Clusters

Herschel II

Messier

Planet Maps

Royal Astronomical Society of Canada Finest NGC

Saguaro Astronomy Club Best NGC

Telescope Showpieces

Binocular Showpieces

Caldwell

Face-On Spiral Galaxies

Herschel 400

Hidden Treasures

Open Clusters

Planetary Nebulae

S&T Lunar 100

The Secret Deep



The lists are in PDF format and can be downloaded and printed for use.

PAC WEBSITE & YAHOO GROUPS

Website: <http://www.prescottastronomyclub.org>

E-mail: <mailto:pacinfo@prescottastronomyclub.org>



General PAC user group:

<https://groups.yahoo.com/neo/groups/Prescott-Astronomy-Club/info>

Astrophotography special interest group:

<https://groups.yahoo.com/neo/groups/pacastrophotography/info>

BOARD OF DIRECTORS

President: Jeff Stillman

Vice President: David Viscio

Secretary: Doug Tilley

Treasurer: Stephen Eubanks

At Large: Joel Cohen

At Large: Dick Lewis

At Large: Fred Arndt

At Large: John Baesemann



PAC COORDINATORS

Astronomical League Coordinator: Pat Birck

Facebook: John Carter & Pam Shivak

Highland Center Coordinator: David Viscio

Hospitality: Corinne Shaw & Dick Lewis

Magazine Subscriptions: Stephen Eubanks

METASIG: Marilyn Unruh

PAC Affiliate Partner w/ NAU Space Grant Program – Jerry & Corinne Shaw

PAC Store Sales: Dick Felgenhour

Property Records: Fred Arndt

Schools & Camps Outreach: Pat Birck

Third Thursday Coordinator: Corinne Shaw & Pat Birck

Webmaster: Russell Chappell

Membership: Stephen Eubanks

Newsletter: David Viscio

Refreshments: Janie Thompson

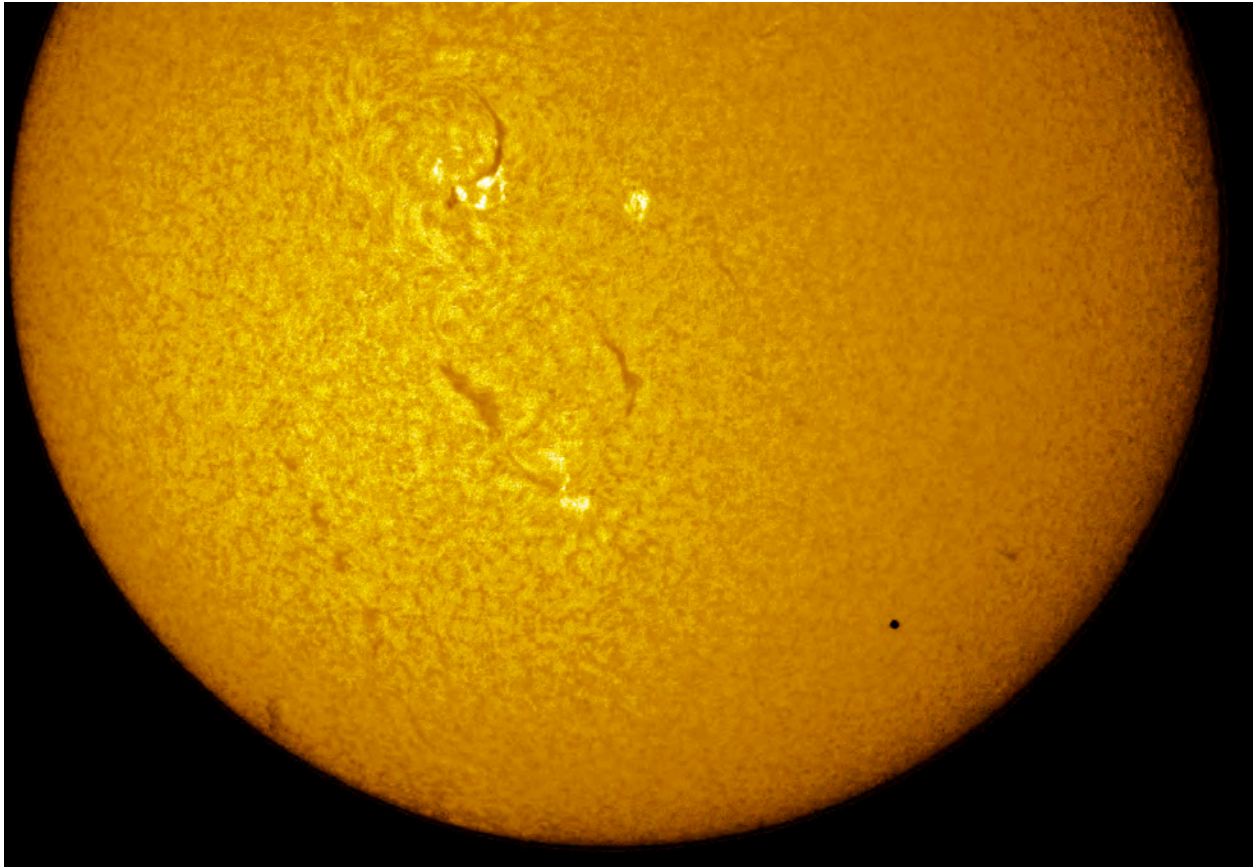
Publicity Coordinator: John Carter

Starry Nights Coordinator: Open



MERCURY TRANSIT IN HYDROGEN ALPHA

Joel Cohen



Single exposure using:

Coronado SolarMax 60 + Coronado BF-30 Blocking Filter

TeleVue 76 f/6.3 OTA

Meade Variable Polarizer 1.25" Filter

MallinCam SkyRaider SLP (Solar System CCD Camera)

Celestron SkyProdigy StarSense mount