



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

MAY 2017

UPCOMING EVENTS



Wednesday, May 3 - Regular PAC meeting @ 6:30 PM in Rm. 107, Bldg. 74, Embry-Riddle Aeronautical University. Club member Jerry Shaw will present "How to Photograph the Sun: A Simple Method".

Saturday, May 6 - Camp Wamatochick @ 8:00 PM for Kiwanis Kids Kamp. Sign up at meetings on May 3.

Wednesday, May 10 - METASIG @ 5:00 PM at local restaurant. Sign up at May 3 meeting.

Saturday, May 13 - Camp Wamatochick @ 8:00 PM for Kiwanis Kids Kamp. Sign up at meetings on May 3.

Wednesday, May 17 - Board meeting @ 6:30 PM.

Thursday, May 18 - Third Thursday Presentation @ 6:00 PM in the Founder's Suite, Prescott Public Library. Steve Coe, Professor - Retired, will present "My Favorite Comet Stories". Comets may be defined as a "celestial body moving around the Sun," but they are so much more. Steve will present images and observations of the brightest and most interesting comets of the past 35 years. He will include comets Halley, Hale-Bopp and Holmes and lots of other comets that do not start with the letter "H."

Saturday, May 20 - Starry Nights @ 8:30 PM at Embry-Riddle Aeronautical University. Sign up at May 3 meeting.

DONATION TO NAU SPACE GRANT PROGRAM

The Prescott Astronomy Club is a partner of the Northern Arizona University Space Grant Program. The PAC board of directors has approved a donation of \$250 to the program. PAC members need to give final approval of the donation at the regular meeting on May 3.

VOLUNTEERS NEEDED

Volunteers are needed for two club activities: refreshment coordinator and PAC Store Sales coordinator. If you would like to help and need additional information, please contact Jeff Stillman (jstillman50@cableone.net).

NOAA'S JOINT POLAR SATELLITE SYSTEM (JPSS) TO MONITOR EARTH AS NEVER BEFORE

By Ethan Siegel

Later this year, an ambitious new Earth-monitoring satellite will launch into a polar orbit around our planet. The new satellite—called JPSS-1—is a collaboration between NASA and NOAA. It is part of a mission called the Joint Polar Satellite System, or JPSS.

At a destination altitude of only 824 km, it will complete an orbit around Earth in just 101 minutes, collecting extraordinarily high-resolution imagery of our surface, oceans and atmosphere. It will obtain full-planet coverage every 12 hours using five separate, independent instruments. This approach enables near-continuous monitoring of a huge variety of weather and climate phenomena.



JPSS-1 will improve the prediction of severe weather events and will help advance early warning systems. It will also be indispensable for long-term climate monitoring, as it will track global rainfall, drought conditions and ocean properties.

The five independent instruments on board are the main assets of this mission:

- The Cross-track Infrared Sounder (CrIS) will detail the atmosphere's 3D structure, measuring water vapor and temperature in over 1,000 infrared spectral channels. It will enable accurate weather forecasting up to seven days in advance of any major weather events.
- The Advanced Technology Microwave Sounder (ATMS) adds 22 microwave channels to CrIS's measurements, improving temperature and moisture readings.
- Taking visible and infrared images of Earth's surface at 750 meter resolution, the Visible Infrared Imaging Radiometer Suite (VIIRS) instrument will enable monitoring of weather patterns, fires, sea temperatures, light pollution, and ocean color observations at unprecedented resolutions.

- The Ozone Mapping and Profiler Suite (OMPS) will measure how ozone concentration varies with altitude and in time over every location on Earth's surface. This can help us understand how UV light penetrates the various layers of Earth's atmosphere.
- The Clouds and the Earth's Radiant System (CERES) instrument will quantify the effect of clouds on Earth's energy balance, measuring solar reflectance and Earth's radiance. It will greatly reduce one of the largest sources of uncertainty in climate modeling.

The information from this satellite will be important for emergency responders, airline pilots, cargo ships, farmers and coastal residents, and many others. Long and short term weather monitoring will be greatly enhanced by JPSS-1 and the rest of the upcoming satellites in the JPSS system.



Ball and Raytheon technicians integrate the VIIRS Optical and Electrical Modules onto the JPSS-1 spacecraft in 2015. The spacecraft will be ready for launch later this year. Image Credit: Ball Aerospace & Technologies Corp.

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.



Comet hunters, check out Sky & Telescope, May 2017, p. 50 for information about comets this month.

On Tuesday, May 2, the Moon is at first quarter phase and sets at 1:39 AM (Wednesday). The phase occurs at 7:48 PM (Tuesday). You might want to check how close to half lit the Moon appears at that time.

On Wednesday, May 10, at 7:19 PM, the full Moon rises spoiling any chance of hunting for faint fuzzies for the night.

At 11:20 PM the full Moon occults the 4th magnitude star, Gamma Librae. The star reappears at 12:52 AM (Thursday). This will be a difficult observation because of the glare from the full Moon. Use a big telescope and high power.

On Thursday, May 18, the Moon is at last quarter phase and rises at 1:31 AM (Friday).

From 8:53 PM (Thursday) to 9:38 PM, both Io's and Europa's shadows will be on Jupiter.

On Thursday, May 25, it is new Moon and you have all night to hunt for faint fuzzies.

From 10:47 PM to 12:14 AM (Friday), both Io's and Europa's shadows will be on Jupiter.

On Sunday, May 28, starting about 8:00 PM, you can see Mare Crisium at its best. The phase is good and libration tips that part of the Moon toward us.

On Wednesday, May 31, at 9:28 PM, the nearly first quarter Moon occults the 4th magnitude star, Rho Leonis. The star reappears on the bright limb of the Moon at 10:37 PM. The star may be a very close double star and make its transition in two steps.

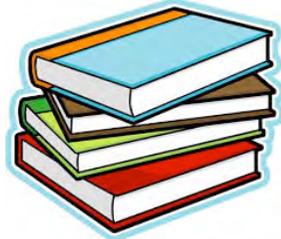
NEED TO KNOW - ASK A MEMBER

A new 15-minute segment is being added to the regular general meetings where members can have their 'burning' questions answered by other knowledgeable members. If you have an

astronomy related question you would like explained, submit the question to Jeff Stillman (jstillman50@cableone.net). You can also bring up the question at the meeting.

BOOKS AND MAGAZINES

Over the years astronomy books have been donated to PAC. Boxes of these books will be available at the regular meetings. For a donation to PAC of \$1 per book, anyone can have a book. Books that are not purchased at a regular meeting will be available at the following Third Thursday programs. Any remaining unsold books will be donated to the Friends of the Prescott Public Library. We also have copies of past Sky and Telescope magazine. These will be available to any member wishing to take them. Unclaimed magazines will be recycled.



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.



PAC MENTORS

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

Jeff Stillman - Astrophotography - (928) 379-7088

David Viscio - General - (928) 775-2918

Greg Lutes - Visual Observing - (928) 445-4430

Joel Cohen - Beginner's Astronomy: Selecting & Using a Telescope - (856) 889-6496



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	Binocular Showpieces
Bright Nebulae	Caldwell
Dunlop 100	Face-On Spiral Galaxies
Globular Clusters	Herschel 400
Herschel II	Hidden Treasures
Messier	Open Clusters
Planet Maps	Planetary Nebulae
Royal Astronomical Society of Canada Finest NGC	
Saguaro Astronomy Club Best NGC	S&T Lunar 100
Telescope Showpieces	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>

Astrophotography special interest group:

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



BOARD OF DIRECTORS

President: Jeff Stillman

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PAC COORDINATORS



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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: Open

Property Records: Doug Tilley

Schools & Camps Outreach: Pat Birck

Third Thursday Coordinator: Corinne Shaw & Pat Birck

Membership: Stephen Eubanks

Newsletter: David Viscio

Refreshments: Janie Thompson

Publicity: Stephen Eubanks

Starry Nights Coordinator: Open

Webmaster: Russell Chappell

APOD APRIL 21, 2017
NGC 4302 and NGC 4298
Image Credit: NASA, ESA, M. Mutchler (STScI)



Seen edge-on, spiral galaxy NGC 4302 (left) lies about 55 million light-years away in the well-groomed constellation Coma Berenices. A member of the large Virgo Galaxy Cluster, it spans some 87,000 light-years, a little smaller than our own Milky Way. Like the Milky Way, NGC 4302's prominent dust lanes cut along the center of the galactic plane, obscuring and reddening the starlight from our perspective. Smaller companion galaxy NGC 4298 is also a dusty spiral. But tilted more nearly face-on to our view, NGC 4298 can show off dust lanes along spiral arms traced by the bluish light of young stars, as well as its bright yellowish core. In celebration of the 27th anniversary of the launch of the Hubble Space Telescope on April 24, 1990, astronomers used the legendary telescope to take this gorgeous visible light portrait of the contrasting galaxy pair.