



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

AUGUST 2017

UPCOMING EVENTS

Wednesday, August 2 - Regular PAC meeting @ 6:30 PM in Rm. 107, Bldg. 74, Embry-Riddle Aeronautical University.

Wednesday, August 9 - METASIG @ 5:00 PM at local restaurant. Sign up at August 2 meeting.

Wednesday, August 16 - Board meeting @ 6:30 PM.

Monday, August 21 - Total solar eclipse in North America.



SOLAR ECLIPSE CELEBRATION - PRESCOTT VALLEY - AUGUST 21

Club member Adam England is coordinating a Solar Eclipse Celebration with the Prescott Valley Public Library for the eclipse on Monday, August 21 - see flier in Appendix. We are seeking club members who can bring solar scopes, talk about astronomy and show the partial eclipse to the public. The town of PV has offered their large outdoor screen to stream NASA coverage of the eclipse from around the country. There will also be displays from the local photography club on how to safely photograph the sun and educational crafts like homemade eclipse viewers. Adam is contacting science educators from the community to share their knowledge with students, attending the event as a field trip, and the general public. If you would like to help or need additional information, contact Adam at:



Adam M. England
Direct Dial: 928-227-9001 ext. 09213
Cell Phone: 928-642-0073
Email: adam.England@libertymutual.com

PAC MEMBER AWARDS PROPOSAL

By Jeff Stillman

The PAC board is finalizing plans for presenting awards to PAC members annually at each PAC Christmas dinner event. In order to purchase the appropriate quality awards, the PAC board is requesting an annual expenditure of \$325.00 to be used for the purchase of awards. Award purchases will be made during the 4th quarter of each year. The vote by club members required to approve this expenditure will be conducted at the August 2 general meeting.

As President, I'm excited to announce that we will finally be able to recognize PAC members who have contributed so much of their time and talent to our club. Once all of the details are finalized we will make an announcement at an upcoming general meeting.

VOLUNTEERS NEEDED

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

TWENTY YEARS AGO ON MARS...

By Linda Hermans-Killiam

On July 4, 1997, NASA's Mars Pathfinder landed on the surface of Mars. It landed in an ancient flood plain that is now dry and covered with rocks. Pathfinder's mission was to study the Martian climate, atmosphere and geology. At the same time, the mission was also testing lots of new technologies.



For example, the Pathfinder mission tried a brand-new way of landing on Mars. After speeding into the Martian atmosphere, Pathfinder used a parachute to slow down and drift toward the surface of the Red Planet. Before landing, Pathfinder inflated huge airbags around itself. The spacecraft released its parachute and dropped to the ground, bouncing on its airbags about 15 times. After Pathfinder came to a stop, the airbags deflated.

Before Pathfinder, spacecraft had to use lots of fuel to slow down for a safe landing on another planet. Pathfinder's airbags allowed engineers to use and store less fuel for the landing. This made the mission less expensive. After seeing the successful Pathfinder landing, future missions used this airbag technique, too!

Pathfinder had two parts: a lander that stayed in one place, and a wheeled rover that could move around. The Pathfinder lander had special instruments to study Martian weather. These instruments measured air temperature, pressure and winds. The measurements helped us better understand the climate of Mars.

The lander also had a camera for taking images of the Martian landscape. The lander sent back more than 16,000 pictures of Mars. Its last signal was sent to Earth on Sept. 27, 1997. The Pathfinder lander was renamed the Carl Sagan Memorial Station. Carl Sagan was a well-known astronomer and science educator.

Pathfinder also carried the very first rover to Mars. This remotely-controlled rover was about the size of a microwave oven and was called Sojourner. It was named to honor Sojourner Truth, who fought for African-American and women's rights. Two days after Pathfinder landed, Sojourner rolled onto the surface of Mars. Sojourner gathered data on Martian rocks and soil. The rover also carried cameras. In the three months that Sojourner operated on Mars, the rover took more than 550 photos!

Pathfinder helped us learn how to better design missions to Mars. It gave us valuable new information on the Martian climate and surface. Together, these things helped lay the groundwork for future missions to Mars.

Learn more about the Sojourner rover at the NASA Space Place: <https://spaceplace.nasa.gov/mars-sojourner>



The Mars Pathfinder lander took this photo of its small rover, called Sojourner. Here, Sojourner is investigating a rock on Mars. Image credit: NASA/JPL-Caltech

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.



On Tuesday, August 1, it is a good time to look at the lunar crater, Clavius, as libration has tipped that part of the Moon toward us. It is a big crater, located in the southern part of the Moon, near the terminator and has an arc for decreasing sized craters in it.

On Monday, August 7, at 7:33 PM the full Moon rises spoiling any chance of hunting for faint fuzzies for the night.

On Tuesday, August 15, the Moon is at third quarter phase and rises at 12:41 AM (Wednesday).

On Sunday, August 20, before midnight, three of Saturn's brightest moons are all on the celestial west of the planet. They are (starting with the furthest) Titan (magnitude 9.2), Rhea (magnitude 10.4), and Dione (magnitude 11.2).

On Monday, August 21, it is new Moon and you have all night to hunt for faint fuzzies. At 9:12 AM a partial eclipse of the Sun begins in Prescott. It is maximum about 10:30 AM (about magnitude .75). The show is over at 11:59 AM. For a total eclipse, you need to travel. The path of totality starts in Oregon and exits in South Carolina. I expect many Americans (and some foreigners) to crowd into the path. I plan to be in Rexburg, ID hoping for clear skies. Sky and Telescope, and Astronomy have articles about the eclipse this month. Your favorite search engine will produce more sites than you need. Many companies will sell you eye protection which you will need for the partial phases. It is already too late to get reservations in the eclipse path, but you might get some in driving distance of the path. Remember: you will need eye protection when any part of the photosphere (the bright part of the Sun) is showing unless you use a pin hole camera to project an image of the Sun. I use a #14 welder's filter. You must not use a filter during totality if you want to see anything (and you will want to see something).

On Monday, August 28, at 11:31 PM, the first quarter Moon sets.

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

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PAC COORDINATORS



Astronomical League Coordinator: Pat Birck

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Highland Center Coordinator: David Viscio

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Magazine Subscriptions: Stephen Eubanks

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

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Webmaster: Russell Chappell

ASTRONOMY PICTURE OF THE DAY: JULY 3, 2017

THE SUMMER TRIANGLE OVER THE GREAT WALL

Image Credit & Copyright: Steed Yu & NightChina.net



Have you ever seen the Summer Triangle? The bright stars Vega, Deneb and Altair form a large triangle on the sky that can be seen rising in the northern spring during the morning and rising in the northern fall during the evening. During summer months, the triangle can be found nearly overhead near midnight as three of the brightest stars in the sky. Featured here, along with the arch of the central band of our Milky Way Galaxy, the Summer Triangle asterism was captured this spring over the Great Wall of China. This part of the Great Wall, a World Culture Heritage Site, was built during the 6th century on the Yan Mountains. At the summit is Wangjinglou Tower from which, on a clear night, the lights of Beijing are visible in the distance.

THE PRESCOTT VALLEY PUBLIC LIBRARY AND
THE PRESCOTT ASTRONOMY CLUB PRESENT...



SOLAR ECLIPSE CELEBRATION

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MONDAY AUGUST 21

9AM-12PM

PV CIVIC CENTER AMPHITHEATER

CALL 928-759-6188 WITH QUESTIONS

ON THIS DAY, A TOTAL ECLIPSE OF THE SUN WILL BE
VISIBLE IN THE UNITED STATES FOR THE FIRST TIME IN
ALMOST 40 YEARS! JOIN US TO LEARN WHY THIS
HAPPENS AND SAFELY EXPERIENCE THIS MAGICAL
EVENT. ACTIVITIES FOR ALL AGES!