Club News

December, 2005

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Lisa Brody, Treasurer
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The club observation session of November 5th was held at Walnut Mountain. Ten people attended. Many deep sky objects were observed including the three open clusters in Auriga M36, M37, amd M38. A few double stars were observed including Almach in Andromeda and Mesarthim in Aries. The highlight of the evening was Mars. The sky was steady enough to give a decent view. Dark areas on the the surface of the planet were easily seen. Throughout the evening we also caught a number of meteors. They were apparently part of the Taurid meteor shower.

The observation session scheduled for November 26th was canceled due to poor sky conditions.

The December observation sessions are on the 3rd and the 10th at Walnut Mountain.

Howie Glatter's PST Platform is featured in the January issue of Sky and Telescope magazine as a hot new product for 2006. The platform allows two Coronado PSTs to be mounted side by side so that a hydrogen alpha view of the sun can be seen in stereo. The image below shows the platfrom being used at our September observation session in Livingston Manor. Congratulations to Howie!

Anyone interested in submitting an astronomical observation or photograph for the newsletter, please contact John at kocis@verizon.net.

The club has selection of astronomy books, a Macintosh computer with astronomy software, and a Meade eight inch reflector for members to borrow. Please contact John at 791-5240 or kocis@verizon.net if you are interested in borrowing any of these.

Recently a new book was sent to the club from O'Reilly Publishing. The book is entitiled Astronomy Hacks by Thompson and Thompson. The book is reviewed in the latest Sky and Telescope magazine. Check out the following link for details http://www.oreilly.com/catalog/astronomyhks/

Astronomy News:

Here are some articles from various NASA sources that might be of interest.

Image Advisory: 2005-162 November 9, 2005

Spitzer Captures Cosmic Mountains of Creation

A new image from NASA's Spitzer Space Telescope reveals billowing mountains of dust ablaze with the fires of stellar youth.

Captured by Spitzer's infrared eyes, the majestic image resembles the iconic "Pillars of Creation" picture taken of the Eagle Nebula in visible light by NASA's Hubble Space Telescope in 1995. Both views feature star-forming clouds of cool gas and dust that have been sculpted into pillars by radiation and winds from hot, massive stars.

The Spitzer image, which can be found at http://www.spitzer.caltech.edu/Media, shows the eastern edge of a region known as W5, in the Cassiopeia constellation 7,000 light-years away. This region is dominated by a single massive star, whose location outside the pictured area is "pointed out" by the finger-like pillars. The pillars themselves are colossal, together resembling a mountain range. They are more than 10 times the size of those in the Eagle Nebula.

The largest of the pillars observed by Spitzer entombs hundreds of never-before-seen embryonic stars, and the second largest contains dozens.

"We believe that the star clusters lighting up the tips of the pillars are essentially the offspring of the region's single, massive star," said Dr. Lori Allen, lead investigator of the new observations, from the Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass. "It appears that radiation and winds from the massive star triggered new stars to form."

Spitzer was able to see the stars forming inside the pillars thanks to its infrared vision. Visible-light images of this same region show dark towers outlined by halos of light. The stars inside are cloaked by walls of dust. But infrared light coming from these stars can escape through the dust, providing astronomers with a new view.

"With Spitzer, we can not only see the stars in the pillars, but we can estimate their age and study how they formed," said Dr. Joseph Hora, a co-investigator, also from the Harvard-Smithsonian Center for Astrophysics.

The W5 region and the Eagle Nebula are referred to as high-mass star-forming regions. They start out as thick and turbulent clouds of gas and dust that later give birth to families of stars, some of which are more than 10 times more massive than the sun. Radiation and winds from the massive stars subsequently blast the cloudy material outward, so that only the densest pillar-shaped clumps of material remain. The process is akin to the formation of desert mesas, which are made up of dense rock that resisted water and wind erosion.

According to theories of triggered star formation, the pillars eventually become dense enough to spur the birth of a second generation of stars. Those stars, in turn, might also trigger successive generations.

Astronomers do not know if the sun, which formed about five billion years ago, was originally a member of this type of extended stellar family.

Allen and her colleagues believe they have found evidence for triggered star formation in the new Spitzer image. Though it is possible the clusters of stars in the pillars are siblings of the single massive star, the astronomers say the stars are more likely its children.

Luis Chavarria is also a member of the investigating team at the Harvard-Smithsonian Center for Astrophysics. This research was originally led by Dr. Lynne Deutsch of the Center for Astrophysics, who passed away April 2, 2004.

For graphics and more information about Spitzer, visit http://www.spitzer.caltech.edu/spitzer/ . To view or download Hubble's Pillars of Creation image, visit http://hubblesite.org/newscenter/newsdesk/archive/releases/1995/44/image/a . For more information about NASA and agency programs on the Web, visit http://www.nasa.gov/home/ .

The image is also available in a NASA TV video file that airs beginning at 9 a.m. Eastern time. NASA TV's Public, Education and Media channels are available on an MPEG-2 digital C-band signal accessed via satellite AMC-6, at 72 degrees west longitude, transponder 17C, 4040 MHz, vertical polarization. In Alaska and Hawaii, they're on AMC-7 at 137 degrees west longitude, transponder 18C, at 4060 MHz, horizontal polarization. A Digital Video Broadcast compliant Integrated Receiver Decoder is required for reception. For digital downlink information for each NASA TV channel and access to NASA TV's Public Channel on the Web, visit http://www.nasa.gov/ntv .

NASA's Jet Propulsion Laboratory, Pasadena, Calif., manages the Spitzer mission for NASA's Science Mission Directorate. Science operations are conducted at the Spitzer Science Center at the California Institute of Technology in Pasadena. JPL is a division of Caltech. NASA's Goddard Space Flight Center, Greenbelt, Md., built Spitzer's infrared array camera, which took the observations. The instrument's principal investigator is Dr. Giovanni Fazio of the Harvard-Smithsonian Center for Astrophysics.

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News Release: 2005-164 November 18, 2005

Mars-Bound Nasa Craft Tweaks Course, Passes Halfway Point

NASA's Mars Reconnaissance Orbiter successfully fired six engines for about 20 seconds today to adjust its flight path in advance of its March 10, 2006, arrival at the red planet.

Since its Aug. 12 launch, the multipurpose spacecraft has covered about 60 percent of the distance for its trip from Earth to Mars. It will fly about 40-million kilometers (25-million miles) farther before it enters orbit around Mars. It will spend half a year gradually adjusting the shape of its orbit, then begin its science phase. During that phase, it will return more data about Mars than all previous missions combined. The spacecraft has already set a record transmission rate for an interplanetary mission, successfully returning data at 6 megabits per second, fast enough to fill a CD-ROM every 16 minutes.

"Today’s maneuver mainly increases the speed to bring us to the target point at just the right moment," said Tung-hanYou, chief of the Mars Reconnaissance Orbiter navigation team at NASA's Jet Propulsion Laboratory, Pasadena, Calif. The intended nudge in velocity is 75 centimeters per second (less than 2 miles per hour). The spacecraft's speed relative to the sun is about 27 kilometers per second (61,000 miles per hour).

Four opportunities for course adjustments were planned into the schedule before launch. Today's, the second, used only the trajectory-correction engines. Each engine produces about 18 newtons (4 pounds) of thrust. The first course adjustment, on Aug. 27, doubled as a test of the six main engines, which produce nearly eight times as much thrust. Those main engines will have the big job of slowing the spacecraft enough to be captured into orbit when it reaches Mars. The next scheduled trajectory adjustment, on Feb. 1, 2006, and another one 10 days before arrival will be used, if necessary, for fine tuning, said JPL's Allen Halsell, the mission's deputy navigation chief.

The Mars Reconnaissance Orbiter mission will examine Mars in unprecedented detail from low orbit. Its instrument payload will study water distribution -- including ice, vapor or liquid -- as well as geologic features and minerals. The orbiter will also support future missions to Mars by examining potential landing sites and by providing a high-data-rate relay for communications back to Earth.

The mission is managed by JPL, a division of the California Institute of Technology, Pasadena, for the NASA Science Mission Directorate. Lockheed Martin Space Systems, Denver, is the prime contractor for the project and built the spacecraft.

For information about the Mars Reconnaissance Orbiter on the Web, visit http://www.nasa.gov/mro . For information about NASA and agency programs on the Web, visit http://www.nasa.gov/home/index.html .

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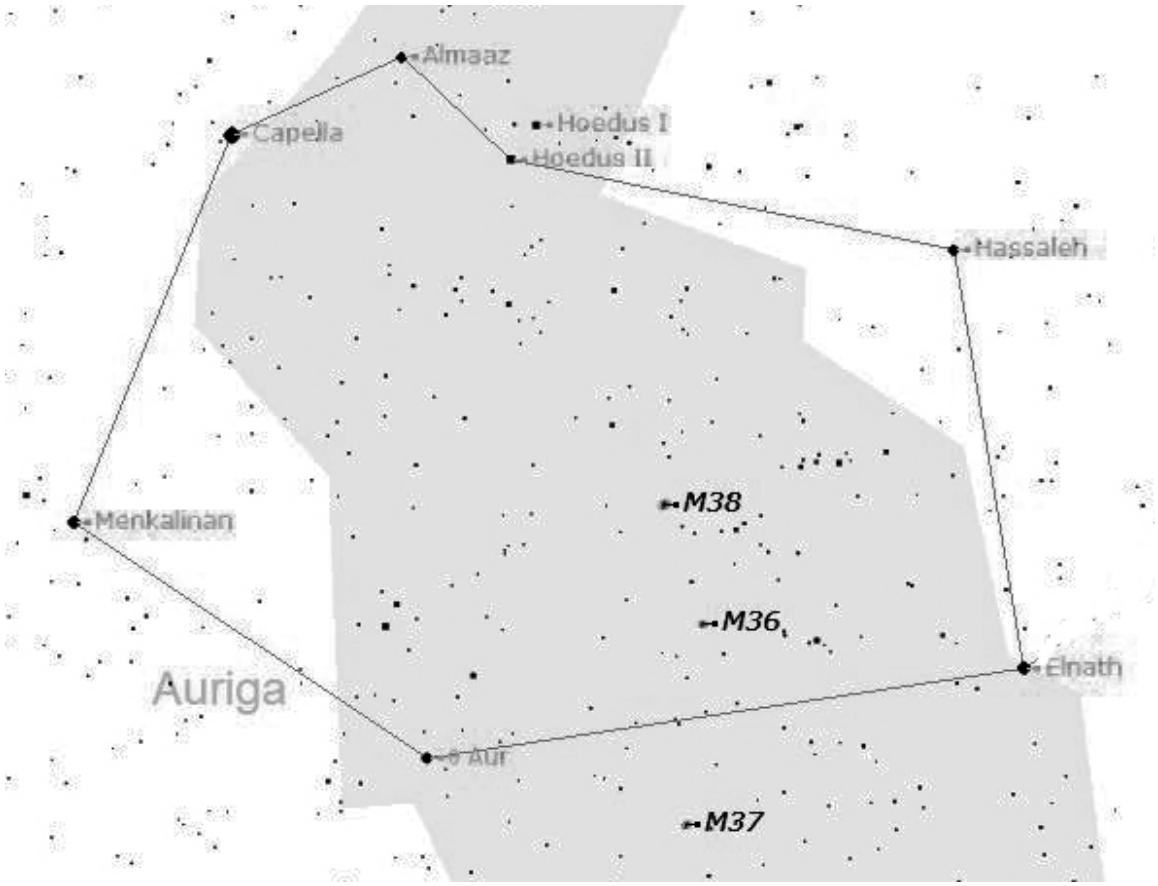
Mid Evening Observing Highlights for December

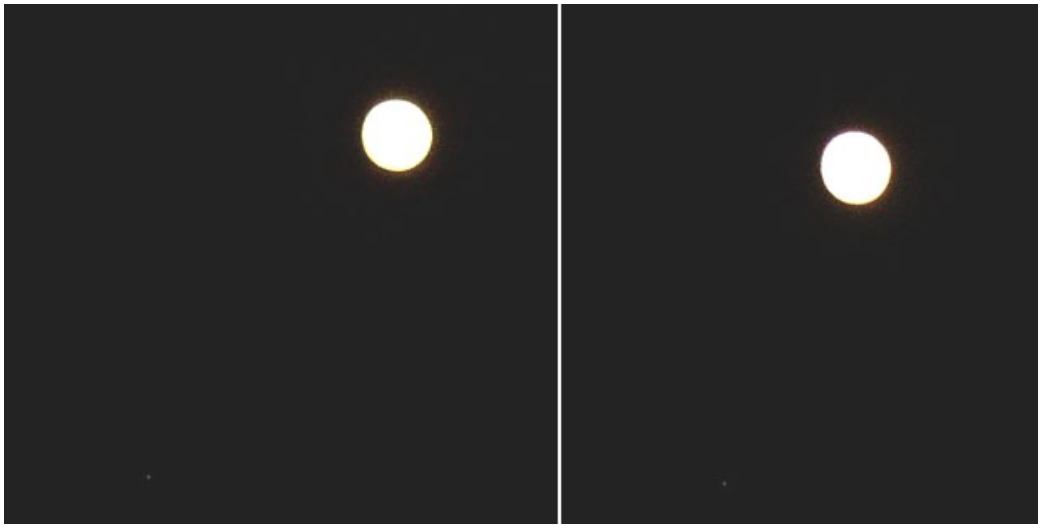
Orion and Gemini are rising in the east. Auriga and Taurus are higher in the eastern sky. Auriga contains the open clusters M36, M37, and M38. The open cluster M34 can be found in the northeastern sky between Andromeda and Perseus. The Double Cluster is high in the northern sky between Cassiopiea and Perseus. The open cluster M35 can be found in Gemini. The bright star Aldebaran can be found in Taurus. The Andromeda Galaxy is almost directly overhead. The Great Square is moving into the western sky. The Milky Way stretches from the east to west. Cygnus is setting in the western sky. Mars can still be seen in high in the eastern sky. Full moon is on December 15th and new moon is on December 1st. The Geminid meteor shower will peak on the evening of the 13th. An almost full moon will make viewing the meteors unfavorable. Look toward the eastern sky around the constellation Gemini to see them. The image below shows the locations of the open clusters in Auriga.



Observations and Photographs

The following images were taken on the night of November 14th by John Kocijanski using an Olympus

digital camera on a fixed tripod. The images shows the change in the position of the moon relative to Mars. The first images was taken around 6:00 and the second around 7:30.



BARLOW BOB'S CORNER

Barlow Bob is a member of the Rockland Astronomy Club.

This was written by Ralph Marantino, a fellow member of the Amateur Astronomers Association of Princeton in NJ,. Ralph is the "Exalted Grand Poobah" of amateur solar astronomy. He has drawn the Sun daily for many years. Ralph will be at the 2006 NEAF Solar Star Party.

Barlow Bob

Well here it is November 23rd and Thanksgiving or Christmas came early to my house.Barlow Bob is here and he brought the new 70mm dedicated SolarMax Calcium K line Solar telescope for first light .We set it up and WOW! I saw as much detail at 393.4 Nanometers as in any photgraph that I have ever previously seen.I am told that with the plastic UV blocking inserts in my eyeballs my eyes are now much more sensitive to the blue end of the spectrum and I am seeing much more than I ever expected.The scope was initially purchased to use with an Adorondak Stellacam video camera and a newly acquired Nikon Coolpix 995 digital camera but I guess that I can just keep on sketching every day.The fit and finish is what you would expect from a $3,000.00 instrument I really like the helical fine focuser.The scope came with a Coronado CEMAX 25mm eyepiece with special h-alpha high transmition coatings.Bob and I have both had much negative experiance with this product on many occasions with many different h-alpha setups but surprise surprise! in the Calcium K Line band there is at least a 30% increase in contrast and detail over a 26mm quality Plossl and many different premium multi-element eyepieces.Bob and I just came in from a lucky one hour clearing of sky condidtions while waiting for our Thanksgiving guests to arrive and it was just as good as yesterday.Bob was so impressed with my sucscess with his new scope that he gave it me to keep and he will take my ordered but not yet deliverd PST CaLK in trade Iwill get a CEMAX eyepiece for Bob for the new PST.Bob allways uses a heavy black cloth to block out extraneos light and that procedure works twice as well with the Calcium scope.The serial number of the scope is #46 and Bob purchased the telescope directly from Coronado as as with his 90mm h-alpha Bob O Scope I believe that the gave him "the pick of the litter".Now with this scope added to my double stacked 40mm .6A PST and my 4 inch APO with APM Herschel wedge I have a "tri-spectra" Solar Observatory.And we said that there was nothing left to buy..

NASA Space Place

Voices from the Cacophony

By Trudy E. Bell and Dr. Tony Phillips

Around 2015, NASA and the European Space Agency plan to launch one of the biggest and most exacting space experiments ever flown: LISA, the Laser Interferometer Space Antenna.

LISA will consist of three spacecraft flying in a triangular formation behind Earth. Each spacecraft will beam a laser at the other two, continuously measuring their mutual separation. The spacecraft will be a mind-boggling 5 million kilometers apart (12 times the Earth-Moon distance) yet they will monitor their mutual separation to one billionth of a centimeter, smaller than an atom's diameter.

LISA's mission is to detect gravitational waves—ripples in space-time caused by the Universe's most violent events: galaxies colliding with other galaxies, supermassive black holes gobbling each other, and even echoes still ricocheting from the Big Bang that created the Universe. By studying the shape, frequency, and timing of gravitational waves, astronomers believe they can learn what's happening deep inside these acts of celestial violence.

The problem is, no one has ever directly detected gravitational waves: they're still a theoretical prediction. So no one truly knows what they "sound" like.

Furthermore, theorists expect the Universe to be booming with thousands of sources of gravitational waves. Unlike a regular telescope that can point to one part of the sky at a time, LISA receives gravitational waves from many directions at once. It's a cacophony. Astronomers must figure how to distinguish one signal from another. An outburst is detected! Was it caused by two neutron stars colliding over here or a pair of supermassive black holes tearing each other apart in colliding galaxies over there?

"It's a profound data-analysis problem that ground-based astronomers don't encounter," says E. Sterl Phinney, professor of theoretical physics at the California Institute of Technology in Pasadena.

Profound, but not hopeless: "We have lots of good ideas and plans that work—in theory," he says. "The goal now is to prove that they actually work under real conditions, and to make sure we haven't forgotten something."

To that end, theorists and instrument-designers have been spending time together brainstorming, testing ideas, scrutinizing plans, figuring out how they'll pluck individual voices from the cacophony. And they're making progress on computer codes to do the job.

Says Bonny Schumaker, a member of the LISA team at the Jet Propulsion Laboratory: "It's a challenge more than a problem, and in fact, when overcome, a gift of information from the universe."

For more info about LISA, see lisa.nasa.gov . Kids can learn about black holes and play the new "Black Hole Rescue!" game on The Space Place Web site at http://spaceplace.nasa.gov/en/kids/blackhole/ .

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

Caption:
LISA will be able to detect gravitational waves from as far back as 10-36 second after the Big Bang, far earlier than any telescope can detect.