

# CONSTELLATION

An Official Publication of the Bucks-Mont Astronomical Association, Inc.

VOLUME 22, Issue No. 4.	October/November/December 2007	Chris Sommers and Scott Petersen, Editors
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## BMAA News

It has been a busy fall for BMAAers. In September we had another FANTASTIC Stella-Della Valley. We may not have the best night skies, but we put on a pretty good show for all of our guests. See the article by Dwight Dulsky in this issue. Bernie Kosher has been busy teaching basic astronomy and observing at Church Valley Nature Center. Ed Radomski, Chris Sommers, and Dwight Dulsky attended the opening ceremony (An Evening Under the Stars) for the Montgomery County Community College's Advanced Technology Center along with members of DVAA, ChesMont Astronomical Association, with our scopes, and provided "observing pleasure" for over 500 guests. BMAA's relationship with MCCC is continuing to grow, as we are mutually exchanging web links for our respective programs, and will be holding and helping with Star Watches at MCCC in 2008. Chris and Ed are members of the Observatory's Community Advisory Board. We had our elections in November, with Dwight Dulsky taking over as president, while Bernie Kosher has taken the Vice-President's position. Of course we have all spent a bunch of time observing Comet 17/P Holmes.

Capricornus Over Lake Nockamixon-By Dwight Dulsky



## BMAA Gophers

Position	Name
President	Dwight Dulsky
Vice President	Bernie Kosher
Treasurer	Ed Radomski
Secretary	Herb Borteck
Star Watch Coordinator	George Reagan
Constellation Editors	Chris Sommers and Scott Petersen
Webmaster	Jim Moyer

For More Information About BMAA Go to [www.bma2.org](http://www.bma2.org).

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## Stella Della Valley 2007

➤ By Dwight Dulsky, BMAA

The New Moon weekend of October 12-14<sup>th</sup> was once again host to another BMAA Stella Della Valley StarParty. Club members pulled together to make SDV 2007 a fun filled three day affair for amateur astronomers from the Mid-Atlantic region. As usual the club received many positive comments about the event from our guests.

A mid-week storm system just before SDV luckily pulled away before Friday. Clearing and cool skies greeted our attendees by Friday afternoon. Camps were set up, bunk beds claimed and the event was on. Mays Munchables pulled in with their 24 hour food service to fill our bellies with hot food and drink to get us through a long night of star gazing. In the early evening, we got a nice fire going in the Dining Hall to warm up cold hands and feet. Then at 8 PM we played the documentary DVD "Comet Collision" to a small crowd of appreciative folks.

On Saturday morning the sun illuminated frosty tents and scopes. Our Swap meet began shortly after 7 AM with a number of participants snapping up some good bargains. Owl Services arrived with lots of great eyepieces and equipment. The Stella Della kids kept busy at our craft table making all sorts of fun little projects centered around a space theme.

At noon, Chris Sommers kicked off our speakers program by introducing Dr. Kelli Spangler of Montgomery County Community College. Dr. Spangler gave us a great overview of the new [science center](#) and observatory at MC<sup>3</sup>. The new observatory facility is very well equipped with a 16" Meade, and a number of other scopes plus about 20 PST's for student use. Surrounding the dome is a very large deck that is perfect for observing with a class of students. Dr. Spangler hopes to involve her students with a number of authentic astronomical research projects to farther enhance their education. Kudos to MC<sup>3</sup> for making visual observing a big part of their science program.

Roger Gordon took the floor at 1 PM with a talk about historical albedo variations on Mars and Martian climate changes. This was certainly an interesting topic with Mars much in the news these days.

At 2 PM, BMAA's Chris Sommers began his talk titled "From Earth to the Moon. Extremophiles and the Transfer of Life from the Earth to Europa" Dr. Sommers detailed how resistant some of these little critters are to intense radiation and their uncanny ability to survive very harsh environments. Chris stressed the care that must be taken with probes from Earth being as sterile as possible so as not to contaminate another world.

Our speakers program wrapped up with Dr. Ken Kremer, a NASA JPL Solar System Ambassador and member of the [Planetary Society](#). Dr. Kremer took us on a 3-D tour (complete with 3-D glasses-see below) of a trip to Mars. His presentation, "Exploring Mars, the Search for Life and journey in 3-D" highlighted the very successful robotic mission of Spirit and Opportunity. For current information, visit the [JPL](#) website.



All four presentations were excellent and well attended. Thanks to Chris for spearheading our speaker's program again this year. Following a brief intermission, Chris picked up the mic again and was the MC for the ever popular door prize raffle. Thanks to the generous donations of our sponsors, we were able to make over 25 prizes available to our guests. In addition to both national and local vendors, several BMAA members made terrific donations as

well. There was quite a mix of items ranging from telescopes, accessories and eyepieces to books, software and meteorites. The lucky winners all walked away with smiles and some new astronomical gadgets to enjoy. The rest of us then enjoyed a huge all you can eat pizza buffet. You name it, pepperoni, sausage, anchovy, green pepper, onion, mushrooms – if you can put it on a pizza we had it. Washing it all down with soda and Philly TastyKakes for dessert we were set with enough calories to keep us warm through another night of observing.

Sunday arrived with the winter constellations making their appearance over the eastern horizon. With dawn breaking one could hear the early risers packing up equipment and preparing for the journey home. By noon, Camp Onas was vacated and ready for a long rest until next year's Stella Della. Thanks to all the BMAA members who helped pull off another great star party – you're awesome!

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## **2008 Winter Highlights**

### **January 2008**

The Quadrantid meteor shower peaks on January 4<sup>th</sup>.

Mars reaches opposition on December 24<sup>th</sup> should put on a good show in January. The red planet, which will reach to within 20° of zenith, will shine at magnitude -1.6 near Gemini, Auriga, and Taurus. At its closest approach the God of War will be 55 million miles away from Earth, as opposed to the 33 million miles away in 2003.

While Comet 17/P Holmes has been spectacular, there will be a new arrival in January, Comet 8P/Tuttle. This comet was discovered by Horace Tuttle on January 4<sup>th</sup>, 1858. Look for 8P Tuttle near M33 from December 29<sup>th</sup> through January 2<sup>nd</sup>. It is predicted to shine at magnitude 6, There is a nice graphic of the comet's path on page 111 in the December issue of Astronomy magazine.

On January 19<sup>th</sup> the Moon will pass approximately 1.1" north of Mars (approximately 7 pm EST).

### **February 2008**

On February 4<sup>th</sup> Venus will pass 0.6° north of Jupiter (8 am EST).

In February we will be presented with the third lunar eclipse in one year. On the night of February 21<sup>st</sup> the eclipsing moon will lie within the Constellation Leo, with Saturn just 4° away to the south-west. The eclipse is predicted to start at approximately 8:43 pm (EST), with totality occurring at approximately 10:00 pm.

Saturn will reach opposition on February 24<sup>th</sup>. The rings of Saturn will begin to appear thinner as the Earth and Saturn tilt towards each other. The rings will appear edge on in 2009.

On February 25<sup>th</sup> Mars will pass 1.3° north of Venus (8 pm EST).

On February 28<sup>th</sup> the Moon will pass 0.6° south of Antares (10 pm EST).

### **March 2008**

On March 2<sup>nd</sup> the Moon will pass 0.2° south of Mercury (9 am EST).

On March 8<sup>th</sup> Mercury passes 0.9" south of Neptune (10 pm EST).

March 20<sup>th</sup>-Northern Spring Equinox (YES!!!!!!).

On March 19<sup>th</sup> the Moon passes 0.8° south of Regulus (4 am EST).

On March 27<sup>th</sup> the Moon will pass 0.5° south of Antares (6 am EST)

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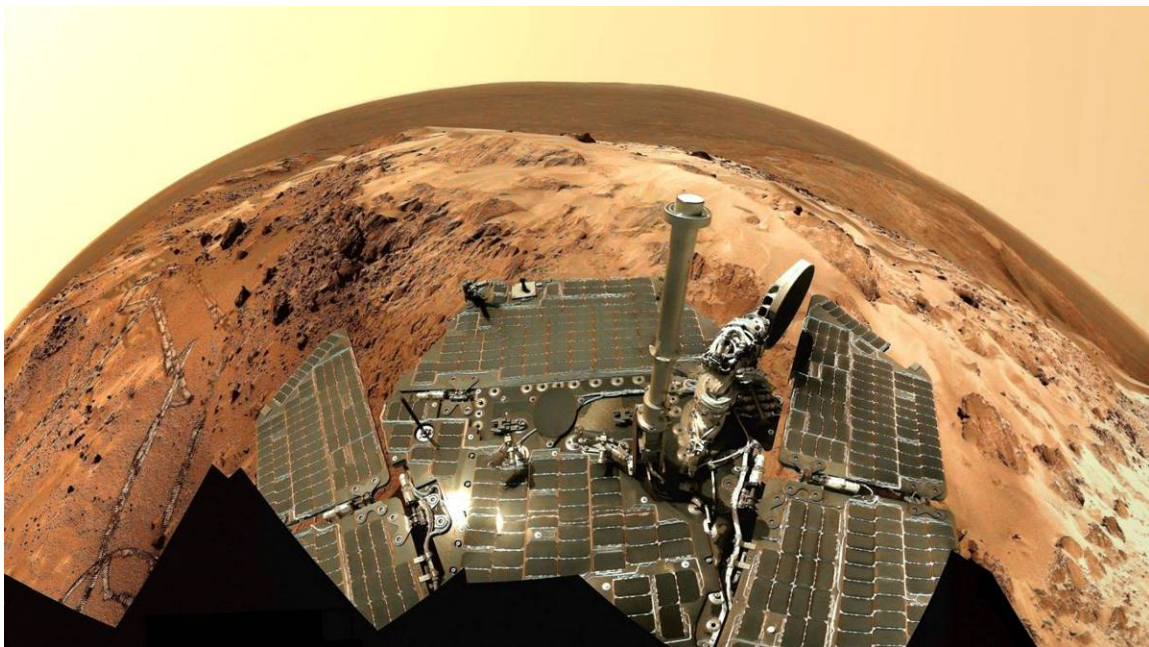
## **Exploring Mars (and Asteroids), the Search for Life, and a Journey in 3-D** by

**Dr. Ken Kremer, NASA JPL Solar System Ambassador and The Planetary Society.**

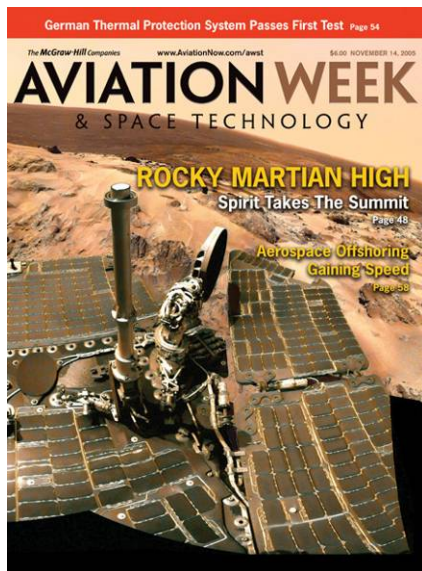
At the Stella Della Valley 2007 Star Party on 13 Oct 2007, I was pleased to present the keynote lecture about the ongoing NASA Rover Mission to Mars covering the explorations and adventures of Spirit and Opportunity from launch to the latest news, as these amazing robots have journeyed many miles across the surface of the Red Planet. My presentation included a display of the RAT science drill searching for past water on Mars, 3-D images from Mars orbit and surface and an update on the launch of the exotic DAWN Asteroid Orbiter.

Learn more about DAWN in my reports as Guest Blogger for The Planetary Society Weblog from Sep 22 to Oct 2, 2007; starting with <http://planetary.org/blog/article/00001154>

Pictured below are shots from my talk and accompanying display as well as Mars images which I have published in magazines and numerous other media as part of an international team of astronomy enthusiasts. The "Spirit" panorama appeared on the cover of the 14 November 2005 issue of Aviation Week and Space Technology magazine and the April 2006 issue of Spaceflight Magazine (British Interplanetary Society). "Opportunity" panoramas from the Duck Bay entry point into the giant ½ mile wide Victoria Crater appeared in Aviation Week and Space Technology Magazine in 2006 and 2007 and the cover of Spaceflight Magazine in January 2008.



**“Spirit’s Soar” Summit Panorama:** The Mars Rover Spirit, high on a Martian mountaintop 50 million miles from Earth, takes a Navcam self-portrait along with mosaic of the summit terrain and the sides of Husband Hill sloping to the distant Gusev crater floor. Spirit drove for 3 miles and two years across the distant plains at rear, to reach and climb the mountain. She took this mosaic on Sol 618 (September 28, 2005) and is remarkably free of dust with the sun glistening on the solar arrays. The image was derived by an international team of Mars enthusiasts (author included). Credit: NASA/JPL monochromatic Navcam imagery merged and color-coded by Marco Di Lorenzo, Douglas Ellison, Bernhard Braun and Kenneth Kremer using JPL/Cornell Pancam data. Reprinted by permission of Aviation Week and Space Technology magazine (14 November 2005 issue). This picture was featured on the popular Astronomy Picture of the Day (APOD) website on 28 November 2005 and can be downloaded in hi resolution.



“SPIRIT’S SOAR” self portrait at the summit of Husband Hill was the cover image for the 14 November 2005 issue of Aviation Week and Space Technology magazine (reprinted by permission). The image was derived by an international team of Mars enthusiasts. Credit: Marco Di Lorenzo, Douglas Ellison, Bernhard Braun and Kenneth Kremer (left).



**Victoria Crater in 3-D.** Astronomy enthusiasts peer deep into Victoria Crater in 3-D shortly after entry and descent by Opportunity Mars Rover (upper right).

**Mars in 3-D.** Professor Kelli Spangler of Montgomery County Community College’s Advanced Technology Center enjoys some of Ken Kremer’s 3-D Posters (lower right).



Please contact Ken for more info on science outreach presentations. His upcoming Astronomy talks include:

**Astronomical Society of Long Island (ASLI):** Old Westbury, LI, NY, Wed, Mar 26, 8:30 PM.

“Exploring Mars and Asteroids (in 3-D)”. Website: <http://www.asliclub.org>

**Raritan Valley Community College Planetarium:** Somerville, NJ, Wed, Apr 2, 7:30 PM. “Launching DAWN (and Phoenix): From Behind the Scenes at Kennedy Space Center”. Website: <http://www.raritanval.edu/planetarium>

**Washington Crossing Nature Center:** Titusville, NJ, April 12, 1 PM. “Mars, Saturn, Asteroids and Beyond (in 3-D)”.

**NorthEast Astronomy Forum (NEAF):** Suffern, NY, April 26 & 27. “Launching DAWN” and “Exploring Mars (in 3-D)”.



Dr. Ken Kremer Email: [kremerken@yahoo.com](mailto:kremerken@yahoo.com)

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## The NASA Space Place-The Red (Hot?) Planet

➤ by Patrick L. Barry

Don't let Mars's cold, quiet demeanor fool you. For much of its history, the Red Planet has been a fiery world.

Dozens of volcanoes that dot the planet's surface stand as monuments to the eruptions that once reddened Mars's skies with plumes of glowing lava. But the planet has settled down in its old age, and these volcanoes have been dormant for hundreds of millions of years.

Or have they? Some evidence indicates that lava may have flowed on Mars much more recently. Images of the Martian surface taken by orbiting probes show regions of solidified lava with surprisingly few impact craters, suggesting that the volcanic rock is perhaps only a million years old.

If so, could molten lava still occasionally flow on the surface of Mars today?

With the help of some artificial intelligence software, a heat-sensing instrument currently orbiting Mars aboard NASA's Mars Odyssey spacecraft could be just the tool for finding active lava flows.

"Discovering such flows would be a phenomenally exciting scientific finding," says Steve Chien, supervisor of the Artificial Intelligence Group at JPL. For example, volcanic activity could provide a source of heat, thus making it more likely that Martian microbes might be living in the frosty soil.

The instrument, called THEMIS (for Thermal Emission Imaging System), can "see" the heat emissions of the Martian surface in high resolution—each pixel in a THEMIS image represents only 100 meters on the ground. But THEMIS produces about five times more data than it can transmit back to Earth.

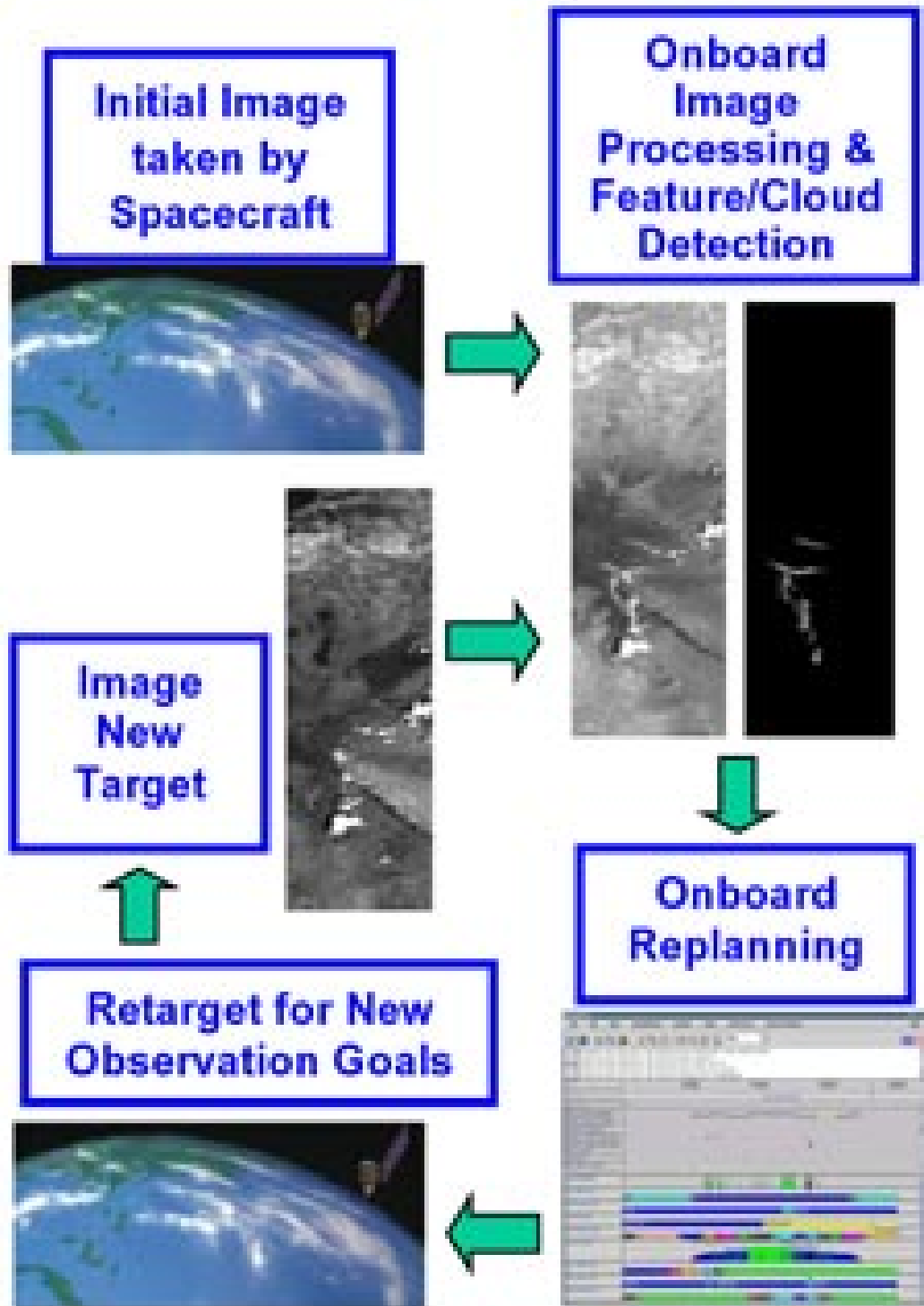
Scientists usually know ahead of time which THEMIS data they want to keep, but they can't plan ahead for unexpected events like lava flows. So Chien and his colleagues are customizing artificial intelligence software called ScienceCraft to empower THEMIS to identify important data on its own.

This decision-making ability of the ScienceCraft software was first tested in Earth orbit aboard a satellite called Earth Observing-1 by NASA's New Millennium Program. Earth Observing-1 had already completed its primary mission, and the ScienceCraft experiment was part of the New Millennium Program's Space Technology 6 mission.

On Odyssey, ScienceCraft will look for anomalous hotspots on the cold, night side of Mars and flag that data as important. "Then the satellite can look at it more closely on the next orbit," Chien explains.

Finding lava is considered a long shot, but since THEMIS is on all the time, "it makes sense to look," Chien says. Or better yet, have ScienceCraft look for you—it's the intelligent thing to do.

To learn more about the Autonomous ScienceCraft software and see an animation of how it works, visit <http://ase.jpl.nasa.gov> .



Caption: *Just as changing cloud patterns on Earth were identified using Earth Observing-1's Advanced Land Imager along with ScienceCraft software, the THEMIS instrument with ScienceCraft on the Mars Odyssey spacecraft can avoid transmitting useless images.*

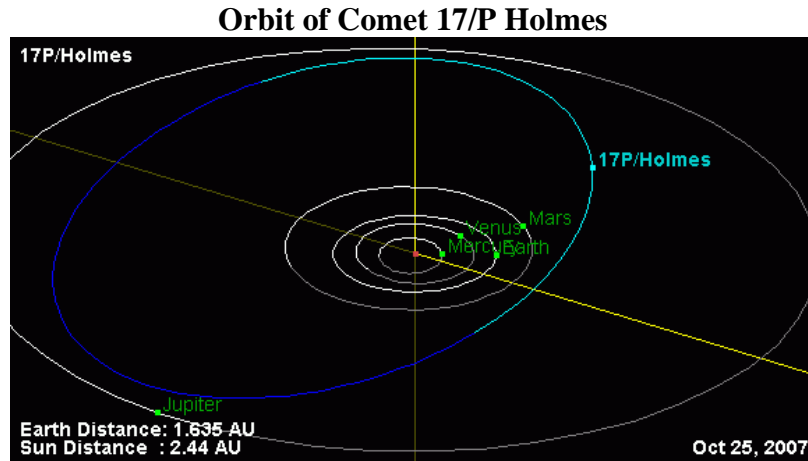
This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

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## Spectacular Comet-17/P Holmes

➤ By Chris Sommers, BMAA

Comet 17/P Holmes was discovered by Edwin Holmes on November 6<sup>th</sup>, 1892 during observations of the Andromeda Galaxy (M31), during which it underwent magnitude changes similar to those witnessed this last October. The elliptical orbit of 17/P Holmes was determined separately by H. Kreutz and G.M. Searle and the orbital period was eventually calculated as 6.9 years. 17/P Holmes was observed in 1899 and 1906, but was lost until July 16<sup>th</sup>, 1964 when it was observed by Dr. Elizabeth Roemer of the U.S. Naval Observatory (GO NAVY!!!!) and with the aid of computer technology all subsequent returns have been observed. In 2007, 17/P Holmes passed through the constellation Perseus, as opposed to Andromeda.



Public Domain-Courtesy of NASA at: <http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=17P:orb=1>

### Images taken by BMAA Members

Courtesy of Dwight Dulsky



Courtesy of Brad Miller



Courtesy of Chris Sommers



Courtesy of Bill Work



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## Quarterly Meeting Minutes

**Bucks-Mont Astronomical Association, Inc.  
General Meeting Minutes Peace Valley Nature  
Center, Doylestown PA  
November 7, 2007**

Officers Present: Bernie Kosher, President; Dwight Dulsky, Vice President; Herb Borteck, Secretary; George Reagan, Star watch Chairman. Attendance: 17 members. There was one new person at the meeting, Gary Sprague. He has been active in astronomy for the last 9 years. We all welcome Gary to the BMAA.

The President called the meeting to order at 8:05 pm. Ed Radomski was not present so we had no treasurers' report. Dwight Dulsky estimated that about 100 astronomers were at the StellaDella. Ed will give us the details when he returns.

George Reagan reported that there would be 4 more star watches. Nov. 09 Fri 7:30pm StarWatch, Covered Bridge Park, New Britain; Nov. 15 Thur. 7:30pm StarWatch, Willard Markey Centennial Park, Perkasio; Nov. 20 Tue. 7:30pm StarWatch, Peace Valley Nature Center. He also mentioned an elementary school but I failed to get the information. Possibly George will send us an e-mail. Sorry George!

On December 5th, we will have our holiday get-together where we will share our refreshments and have a jolly time discussing "what-ever", which happens to be my favorite topic.

A motion was made and carried to accept the nominations for club officers and the nominations were approved by the members present.

As of January, 2008, our officers will be:  
Dwight Dulsky, President  
Bernie Kosher, Vice President  
Ed Radomski, Treasurer  
Herb Borteck, Secretary

The meeting resumed with a discussion of the Comet Holmes. 17P/Holmes is a periodic comet in our solar system, discovered by the British amateur astronomer Edwin Holmes on November 6, 1892. In only 42 hours of October 2007, the comet brightened from magnitude 17 to 2.8. Most of the members had seen it.

Bernie went on to talk about meteors and the difference between a meteor and an asteroid. A meteoroid is a small sand to boulder-sized particle of debris in the solar system. Larger than that, the object is an asteroid; smaller than that, it is interplanetary dust. The current official definition of a meteoroid from the International Astronomical Union is "A solid object moving in interplanetary space, of a size considerably smaller than an asteroid and considerably larger than an atom or molecule." The Royal Astronomical Society has proposed a new definition where a meteoroid is between 100  $\mu$ m and 10 m across. The NEO definition includes larger objects, up to 50 m in diameter, to this category. We also discussed craters and other events caused by meteors. After the discussion we closed the meeting to allow everyone an opportunity to view it through two sets of binoculars that members set up outside.

The meeting ended at 9:02pm.

Respectfully submitted,  
Herb Borteck, Secretary.

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## Constellation-Instructions to Authors

You need to be a BMAA member to submit an article. Articles are typically ½ to 2 pages in length. They can vary in topic from reviews of books, star parties, observing, equipment, issues of general astronomical interest, etc. Go to the BMAA website and take a look at *CONSTELLATION* back issues and you will get the idea. Another good example for articles is on the Cloudy Nights web site (<http://www.cloudynights.com>).

As to the format for articles, please adhere to the following:

Word Processor: MS Word.

Font: Times New Roman

Margins: 1 inch all sides.

Title Font Size: 14 pt

Text Font Size: 10 pt

Spacing: Single Space

Original Figures: Gray scale or color, jpeg format, and please save the file as the size as it would appear in the article (about 2" x 3"). The figures should be original due to copyright issues.

The Editors will modify the article as needed to fit the format.

Email articles to: [constellation@bma2.org](mailto:constellation@bma2.org)

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## Bucks-Mont Astronomical Association Membership Application

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Name and address _____ _____ _____ _____ Telephone Home _____ Cell _____ E-mail _____	Renewal( ) New Member( )  Renewal Dues are \$25.00/year and are due starting in November  Dues for new members are: <table style="width: 100%; border-collapse: collapse;"> <tr><td>January</td><td style="text-align: right;">\$25.00</td></tr> <tr><td>February</td><td style="text-align: right;">\$23.00</td></tr> <tr><td>March</td><td style="text-align: right;">\$21.00</td></tr> <tr><td>April</td><td style="text-align: right;">\$19.00</td></tr> <tr><td>May</td><td style="text-align: right;">\$17.00</td></tr> <tr><td>June</td><td style="text-align: right;">\$15.00</td></tr> <tr><td>July</td><td style="text-align: right;">\$13.00</td></tr> <tr><td>August</td><td style="text-align: right;">\$11.00</td></tr> <tr><td>September</td><td style="text-align: right;">\$9.00</td></tr> <tr><td>October</td><td style="text-align: right;">\$25.00</td></tr> <tr><td>November</td><td style="text-align: right;">\$25.00</td></tr> <tr><td>December</td><td style="text-align: right;">\$25.00</td></tr> </table>	January	\$25.00	February	\$23.00	March	\$21.00	April	\$19.00	May	\$17.00	June	\$15.00	July	\$13.00	August	\$11.00	September	\$9.00	October	\$25.00	November	\$25.00	December	\$25.00
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December	\$25.00																								

Additional members from the same household are 1/2 price.

Your name, city of residence, telephone number and e-mail will be posted in the member's area of the website that can be viewed by using a club issued name and code word. The code is changed periodically and issued to club members only.

( ) Do not list my name or any personal information on the website.

The Association saves considerable money each year through electronic delivery of the Constellation. Printed copies will always be available at the meetings. You will receive the Constellation by being notified by E-mail when it is available on the website.

( ) Check here to receive the Constellation by Traditional mail.

Your e-mail address will be added to the e-group list and you will receive one e-mail a day containing all the mail that is sent to the group address by other members that day. This will allow you to be aware of current activities and discussions, and you may respond to any message by addressing your response to the e-group address. You must be a member to send to or receive messages from the e-group. You may cancel or change this option by contacting Jim Moyer, info@bma2.org.

BMAA Web site - <http://www.bma2.org>

Please return this form, with a check payable to BMAA, to:  
 Ed Radomski  
 36 Far View Rd.  
 Chalfont, PA 18914