CONSTELLATION

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NEWS FLASH ! Mystery "Z" Star Explodes...

- by Alan Pasicznyk

A new class of star has recently been discovered in the constellation Pyxis. Named because it emits the very rare and elusive "z" particle, the brown dwarf star's unexpected explosion was detected by the emission of a massive amount of z particles at both the Okinawa and Bradsford subatomic particle detector arrays. When questioned about the unknown mechanism of nuclear degeneration causing the instability and resulting explosion, French astrophysicist Marcel Latrek commented, "Oh vell, zat is zee end of z star". Also, in Cologne Germany renowned psychiatrist Ikbin Klugmann has found that the rare particle is very practical in curing insomnia.

Considering the latest developments in cosmology; a runaway inflationary universe, dark matter, dark energy, quark stars, the above story is just crazy enough to be true, but isn't, at least not yet. What is crazy enough to be true is that we are fast approaching our 17th Stella Della Valley campout convention starparty! The "Whole Shebang" takes place on the weekend of October 24,25,26.

Bob Black has taken on the arduous, onerous, and awesome task of being chairman of SDV. He has done an outstanding job of keeping costs down, profit margins and prizes up, and we have been well ahead of schedule on every front. Along with Ed Radomski, Antoine Pharamond, Jeannie Stebner, Wayne Adams, George Reagan, Gary Walkowski, and Gene Nolan, all working behind the scenes, I would like to ask for your help in running this event on-site.

IF I'VE SAID IT ONCE, I'VE SAID IT A BILLION TIMES: THE MORE PEOPLE THAT HELP OUT, THE LESS THAT EACH PERSON HAS TO DO! Just a little bit of your time and effort will insure that we have as great a time this year as we did last year.

I will begin filling slots for the various positions at the October meeting, and also calling the rest by phone, but if you're really smart you'll pick your favorite position from the list below as soon as possible rather than being asked to fill one later. Besides, SDV attendees usually rather enjoy pitching in when they see everyone else helping out, so come and join the team! Hope to see you all there.

Think Clear skies!

Alan Pasicznyk, On-Site Coordinator
Stella Della Valley XVII
215-348-2385

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‘NASA Space Place’ column inside on page three

Wednesday, October 1 at 8:00p - BMAA General Meeting at Peace Valley
Wednesday, October 15 at 8:00p - BMAA Business Meeting at Peace Valley
The next BMAA General Meeting is scheduled for Wednesday, November 5 at 8:00p

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BMAA MESSAGELINE - 215/579-9973

email: ***info@bma2.org***
website: ***www.bma2.org***

Bucks-Mont Astronomical Association, Inc

2003 Calendar of Events

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StarWatch@bma2.org

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Submission deadline for articles is the 15th of the month prior to publication.

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NASA Space Place

(un)Fasten your Seatbelts

- by Patrick Barry and Tony Phillips

The "fasten seatbelts" light turns off, and you get up to ask the stewardess for a pillow; it's going to be a long flight. Only a kilometer ahead in the cloudless sky, a downward draft of sheering winds looms. When the plane hits these winds, the "turbulence" will shake the cabin violently and you could be seriously hurt.

You don't know about those winds, of course, and neither does the pilot. Today's weather satellites can't see winds in clear skies: they rely on the motion of clouds to infer which way the winds are blowing.

"Believe it or not, their best indication of wind sheer right now is warnings from aircraft that have gone through it ahead of them," says Bill Smith of NASA's Langley Research Center.

But a new satellite technology being pioneered by NASA and NOAA could improve this shaky situation. It's called GIFTS, short for Geosynchronous Imaging Fourier Transform Spectrometer. GIFTS is an infra-red sensor that can detect winds in cloudless skies by watching the motions of atmospheric water vapor. Water vapor is mostly invisible to the human eye, but it reveals itself to GIFTS by the infra-red radiation it absorbs.

Smith is the lead scientist for EO-3, a satellite designed to test out this new technology. Slated for launch in 2005 or 2006, EO-3 will carry GIFTS to Earth orbit where it can produce 3-dimensional movies of winds in the atmosphere below.

These wind data will not only improve safety, but also help the airlines save money. Knowing the winds along a flight route allows airlines to adjust the plane's fuel load accordingly, thus reducing the weight that the engines must lift. Saved fuel means saved money and less pollution.

GIFTS can help planes avoid another potentially lethal problem, too: Ice forming on their wings. If a cloud contains "supercooled" water droplets whose temperature is below freezing, those droplets will form ice on the wings of planes that pass through it. By looking at about 1700 different frequencies of the light coming from clouds, GIFTS can measure the temperature of the cloud top and determine whether it contains water droplets that could cause aircraft icing. With information from GIFTS in hand, pilots can simply avoid clouds that appear dangerous.

Once EO-3 demonstrates the accuracy of GIFTS, airlines will be able to capitalize on this potential to make flying a cheaper and safer experience.

EO-3, carrying the GIFTS instrument, will be in a geosynchronous orbit for extended monitoring of large regions of our planet and enabling observation of weather patterns at higher resolution than possible with existing geostationary satellites.

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Learn more about the GIFTS instrument and other advanced technologies being tested on the EO-3 mission at *nmp.jpl.nasa.gov/eo3*. Kids can go to The Space Place to play a data compression game related to EO-3 at *spaceplace.nasa.gov/eo3_compression.htm*.

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

Observing Tips

Mars: Understanding the changing scene

- by Bernie Kosher

Mars is currently past opposition, and will continue to shrink in apparent size from night to night. It will shift its position in the sky and present a slightly different face each night. The phase effect will become greater until it reaches its maximum extent about the time of quadrature.

So what is opposition? Being a 'superior' planet, i.e. further from the Sun than the Earth, Mars will, at some time, be on a straight line from the center of the Sun through the Earth, through the center of Mars. Strictly speaking, this is not true due to the orbital inclination of Mars, but the difference is very slight. Actually, at this opposition, Mars was not at its closest to the Earth at the time of opposition due to this tilt.

Time of opposition is determined by heliocentric (sun-centered) coordinates of Earth and Mars matching in longitude.

Mars is currently in 'retrograde' motion. This means that, while the planets normally move along the ecliptic from west to east, Mars is currently moving westward against the background of the fixed stars. Since Earth has a higher orbital speed than Mars it is overtaking it and Mars appears to move 'backward',

This is not to be confused with the motion of Mars and the stars during the course of the evening. This is a result of the Earth rotating on its axis. Due to Earth's rotation the stars seem to move to the west, and therefore drift through the field of our scopes toward the west.

Mars rotates in about 24 hours 37 minutes. Therefore, if we observe Mars at ten o'clock local time tonight, and observe a feature right on the meridian of Mars (the center line north/south) the same feature will be slightly shifted if viewed the nest night. The direction of shift will be eastward, since it takes 37 minutes longer to reach the same position. Therefore, if watch Mars the same time every night for a bit less than 40 days, the entire visible surface of Mars will be seen.

Currently Mars has its south pole tilted towards us. Like the Earth, Mars rotation axis is tilted, although not aimed at the same point in the sky. Thus, we cannot see portions of the north polar region as they are aimed away from us.

Earth is revolving around the sun in about 365 days. This motion causes the stars to rise about 4 minutes a day earlier.

So let's sum up all these motions.

Mars will rise earlier every evening due to the Earth's revolution around the sun. It will shift to the west in respect to the stars. The central meridian (call it the sub-earth point) will be delayed by about 37 minutes a night. The features seen on Mars will drift from east to west as we watch due to it's rotation. Mars will drift through the field due to the Earth's rotation. Slight variances will be seen over the course of several weeks time as the inclination changes in respect to our line of sight.

The motion of the features on the planet's disk will move in the same direction as the drift through the field.

Mars has a more egg shaped (elliptical) orbit than the Earth. Due to this, the size of Mars from Earth will vary from one opposition to the next. About every 26 months Earth catches up to Mars, resulting in it's nearest approach for that period of time. The Earth catches up to Mars at different points in it's orbit, varying from a distance, at closest approach, of about 35 million miles to about 65 million miles and the apparent size of Mars therefore varies from its current maximum of 25 seconds of arc, down to about 13 seconds at an unfavorable opposition. Naturally, its size will be far smaller when at other points in its orbit.

The time frame for favorable oppositions is about 15 to 17 years. During this time we experience oppositions wherein Mars is nearer the Sun (periarion) to its furthest (aparion). Obviously, the nearer Mars is to the sun, the closer we will approach it. The orbit of the Earth is only slightly eccentric and has a basically negligible effect on the apparent size.

Since the closest oppositions occur in August, it follows that the furthest occur six months later, that is in February. so, every 26 months or so we will have an opposition, but some are far more favorable than others.

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- Tips, continued -

The current opposition was so very favorable because Mars was nearly at its closest approach to the sun. However, the favorable oppositions occurring every 15 years or so are not all that inferior. Because the orbits of Earth and Mars are not commensurate (fractions of each other) these extremely favorable oppositions don't occur very often, as in the current case where conditions won't reoccur for 50,000 years.

Since these favorable oppositions occur at the same point in Mars' orbit, we always see the south pole tilted towards us at that time. At distant oppositions (in February) the north pole is aimed more at us. Until the spacecraft took pictures of the surface, we had a much greater knowledge of the south than the north regions.

As Mars moves westward, its phase will change very slightly, but noticeably. At quadrature (at right angles to the Earth/Sun line) the phase effect will be maximum, and the east side of Mars will be shadowed just like the moon appears when almost full.

The times, distances and other facts can be found in many books and herein are only given roughly. I imagine some of this is not exactly right, so if you wish to bicker with me I won't be offended. But that will involve you coming to a meeting.

Oh dear.

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*- BMAA member Bernie Kosher can be reached at **bkhere@optonline.net**. [-ed]*

- SDV, continued -

POSITIONS AVAILABLE:

FRIDAY:

- Assist in Guiding/Parking Cars (A 1 hour shift of doing this, and you're FREE from volunteer work the rest of the weekend!)
- Shifts are 6:30-7:30, 7:30-8:30, 8:30-9:30
- Registration Table: 5:00-6:15, 6:15-7:30, 7:30-8:45, 8:45-9:30
- Post and later remove signs to SDV. This should be someone who is relatively familiar with the area, since the bridge is out.
- Man (or woman) the club 14" Newtonian. Along with Antoine Pharamond and Bob Black, we need two more people to share this duty for FRIDAY night.

SATURDAY:

- 8:00 AM Setup tables in dining hall for Flea Market
- 12:00 PM Setup tables for LECTURES in a configuration such that they will also be suitable for DINNER
- TELESCOPE POLICE - At least two people to alternate shifts to generally overlook the observing field and club scope during dinner and the doorprizes. and YES you will still be eligible for the doorprizes of course!
- Man (or woman) the club 14" Newtonian. Along with Antoine Pharamond and Bob Black, we need two more people to share this duty for SATURDAY night.

SUNDAY:

- Pre-Departure Cleanup (Patrol the observing field for small litter, tidy up dining hall, generally restore the site to original condition).

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AND NOW.... From our home office in Danboro, Pennsylvania...

ALAN'S TOP TEN LIST FOR ATTENDING SDV XVII

10 The crisp, beautiful Fall weather
9 You get to see Bernie Kosher go nuts buying flea market stuff
8 Clear skies, Clear skies, Clear skies !!!
7 The 24 hour food, munchies, and coffee with "May's Munchables"
6 The May's catered super banquet on Saturday night
5 Meeting with old friends you saw last year
4 Meeting with young friends you saw last year
3 Prizes, prizes, and even more mega-prizes!
2 The BMAA club's new 14-inch reflector in action.
1 You get to ask president Antoine Pharamond if the software he wrote to calculate the centroid of planet images really works!

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- BMAA member Alan Pasicznyk coordinates volunteer resources for SDV every year. [-ed]

Bucks-Mont Astronomical Association, Inc
Membership Application

- photocopy as needed -

name and address:

_____

_____

_____

_____

telephone:

home_____

work_____

cell_____

e-mail_____

renewal ( ) new member ( )

Renewal Dues are $24.00 /year and are due starting in November

Dues for new members are:

January	$24.00
February	$22.00
March	$20.00
April	$18.00
May	$16.00
June	$14.00
July	$12.00
August	$10.00
September	$ 8.00
October	$24.00
November	$24.00
December	$24.00

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

Please tell us how you were introduced to BMAA: _____

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The Association saves considerable money each year by offering electronic delivery of the *CONSTELLATION*.
Printed copies will always be available at the meetings.

In order to update our membership list and member preferences with regard to electronic posting and mailing, please answer the following questions:

You will receive the *CONSTELLATION* (BMAA newsletter) by being notified by E-mail when it is available on the website.

( ) Check here if you would like to receive the *CONSTELLATION* by traditional mail.

The BMAA website has a members-only area that is accessible with the proper passcodes, issued to club members only.

I would like the following posted in the members area of the website:

( ) my name.
( ) my address.
( ) my telephone number.
( ) my e-mail address.
( ) do not list any of my information on the website.

By including your name in the e-group you will receive e-mail that is sent to the group address by other members. This will allow you to be aware of current activities and discussions.

( ) do not add my name to the BMAA e-group.

Contact Jim Moyer <**info@bma2.org**> to obtain your passscodes or with any changes to your selections or e-mail address.

Please return this form (or photocopy) with a check payable to "**Bucks-Mont Astronomical Association, Inc**" to:

Ed Radomski
36 Far View Road
Chalfont PA 18914

BMAA website - ***www.bma2.org***