

THE METEORITE



Happy
Holidays !!!



CLEAR SKIES TO ONE AND ALL.....

Newsletter of the Mahoning Valley Astronomical Society, Inc.

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DECEMBER 2010

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Meteorite Editor: Phil Plante
1982 Mathews Rd. #2
Youngstown OH 44514



NEWS NOTES

Newsletter of the Mahoning Valley Astronomical Society, Inc.

MVAS CALENDAR

- DEC 11** MVAS Christmas Dinner. 6:00 PM. Boardman Park. Annual Business meeting after dinner with Christmas raffle drawing.
- DEC 11** MVAS Officer Elections. Voice vote after dinner.
- DEC 21** Total Lunar eclipse. Begins 2:30 AM. Observing at MVCO for die-hards, if access permits (snow etc.)
- JAN 29** MVAS meeting at YSU. Show starts at 8:00 PM

UPCOMING 2011 NATIONAL EVENTS

- JAN 28-29** **To Teach the Stars**, Held at the Rainwater Observatory & Planetarium- French Camp, MS. A two day workshop, will focus on how to start and/or enhance astronomy classes in schools. <http://www.rainwaterobservatory.org/>
- MAR 2-6** **Orange Blossom Special Star Party**, Dade City, FL at the Withlacoochee River County Park. Conducted by The St. Petersburg Astronomy Club. Registration \$50 <http://stpeteastronomyclub.org/obs2010.php>
- MAR 11-13** **Mid-Atlantic Mirror Making Seminar #11**, Mallard Lodge, 4876 Hay Point Landing Road, Smyrna, DE. Seminar is to introduce proven successful mirror making techniques and practices. Fees: Non Grinding, lodging & meals \$90.00. Mirror-making materials will be furnished for costs (e.g 12" full thickness mirror supplies @ \$600). Expert mirror makers will be available to guide you. <http://www.delmarvastargazers.org>

MVAS BOARD OF TRUSTEES

President	Sam DiRocco
Vice President	Harry Harker
Treasurer	Steve Bartos
Secretary	Phil Plante
Trustee (Appointed)	Bill Pearce
Trustee (Appointed)	Roy McCullough
Trustee (Elected-membership)	Dan Schneider

OBSERVATORY STAFF

Observatory Director	Larry Plante
Librarian	Rosemary Chomos

PUBLICATIONS STAFF

Meteorite Editor	Phil Plante
Assistant Editor	Steve Bartos
MVAS Webmaster	Harry Harker

MVAS REPRESENTATIVES

OTAA Representative	Harry Harker
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MVAS, P.O. BOX 564 NEWTON FALLS, OH 44444-9998
MVAS Homepage- <http://mvobservatory.com>

Real Deal. The Japanese spacecraft *Hayabusa* was launched in 2003. It went to and landed on asteroid Itokawa in 2005, making two touchdowns on it in November of that year. On the surface, a collection chamber was to be filled with asteroid soil. But a failure to fire a pellet to kick-up dust left uncertainty that any had indeed entered the collection chamber. There was a chance the touch-down could have kicked up some samples. After the collection attempts, it left Itokawa for its flight back to Earth. With unknown contents, it returned to the Australian desert on June 13, 2010. Preliminary checks of what was in the chamber showed that an unknown gas and some dust particles made it back. A recent electron microscope analysis of the nearly 1,500 particles that were found revealed that most of them originated from rocks on the asteroid Itokawa. This is according to the Japanese science and technology minister, Yoshiaki Takaki. This is the first time that a specimen of material from an asteroid has been obtained. The Japan Aerospace Exploration Agency (JAXA) plans to examine these particles with the hope of shedding light on the solar system's origin. Itokawa is thought to have maintained its original condition/composition from the time the solar system was created 4.6 billion years ago.

In a Galaxy far, far away. Astronomers using NASA's *Chandra X-ray Observatory* have found evidence for what might be the youngest black hole known to exist in our cosmic neighborhood. This 30-year-old black hole provides a unique opportunity to watch this type of object develop. It is believed to be a remnant of SN 1979C, a supernova in the galaxy M100 which is approximately 50 million light years from Earth. Data from *Chandra*, NASA's *Swift* satellite, the European Space Agency's *XMM-Newton* and the German *ROSAT* observatory revealed a bright source of X-rays that has remained steady during observation from 1995 to 2007. This suggests the object is a black hole being fed either by material falling into it from the supernova or a binary companion.

First discovered by an amateur astronomer in 1979, astronomers think that SN 1979C was formed when a star with about 20 solar masses collapsed. Although the evidence points to a newly formed black hole in SN 1979C, another intriguing possibility is that a young, rapidly spinning neutron star with a powerful wind of high energy particles could be responsible for the X-ray emission. This would make the object in SN 1979C the youngest and brightest example of such a "pulsar wind nebula" and the youngest known neutron star. The Crab pulsar, the best-known example of a bright pulsar wind nebula, is about 950 years old.

Future Fireworks. The binary star system J0923+3028 consists of two white dwarfs: a visible star weighing 23 percent as much as our Sun and about four times the diameter of Earth. Its unseen companion weighs in at 44% of the Sun and about one Earth-diameter in size. The stars are currently separated by about 220,000 miles and orbit each other once per hour. The stars will spiral in toward each other and merge in about 100 million years. When the two white dwarfs merge, their combined mass can exceed a tipping point, causing them to detonate and explode as a Type Ia supernova.

MINUTES OF THE NOVEMBER MEETING

NOVEMBER 18, 2010 at YSU

The planetarium show "Strange Planets" was given by Sharon Shanks. She started with the basics of planet formation, spectrums and Doppler shifts. Next, it was on to detecting these Doppler effects in stellar spectra; effects caused by the presence of large planets in orbit around those stars. The newest technique for finding planets is searching for exoplanets transits. The Kepler spacecraft is currently doing a search. Sharon finished with a brief sky tour. Good job Sharon.

Once the public cleared out, the MVAS assembled for the meeting. President Sam DiRocco called the meeting to order at 9:25 PM. Roll call was answered by 17 members. Guests totaled 5 and included Dominic Cipriano- a regular attendee to planetarium shows this year. Joe and Peggy Ferencak of Cortland. They had once asked for advice on a telescope purchase in 2009. All three guests are potential members. Of course, Virginia and Steven Bartos were on hand.

There was a call for the reading of the Minutes. On a motion by Greg Higgins and second from Bill Pearce, a voice vote suspended the reading and accepted the Minutes as published.

TREASURER'S REPORT: The Report was read by Steve Bartos. He noted that the actual amount needed for the check for the Lumicon filter was unavailable at the time the report was written. Sam gave him the exact cost after he read this report (\$188.76) and this will be reflected in the next Treasurer's Report. On a motion by Larry Plante and a second by Dan Schneider the report was accepted as read, by voice vote.

General Fund 10/1 thru 10/31 2010

OPENING BALANCE:	\$ 6,933.28
CLOSING BALANCE:	\$ 6,614.70
AVAILABLE FUNDS:	\$ 6,364.70

INCOME:

INTEREST		\$ 0.62
TOTAL INCOME	\$	0.62

EXPENSES:

CK# 2738 GIVEN TO S. DIROCCO FOR FILTER	\$	XXX.00
2739 16 COPIES OF RASC HANDBOOKS		319.20
TOTAL EXPENSES	\$	319.20

Reserved Funds

KEY DEPOSITS	\$ 250.00
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CORRESPONDENCE: A poster from JPL/NASA arrived at the P.O. Box. No other mail received or noted.

COMMITTEE/OFFICER REPORTS: ELECTION COMMITTEE: Rosemary Chomos reported (during Old Business) that the four officers were un-opposed for this election. No one had any interest. There were two members interested in serving as a Trustee. Bob Danko and Dan Schneider were the two. It was to be determined who would be appointed by the Board for the 2 year term and who would be voted on by the membership at the January meeting.

OBSERVATORY DIRECTOR'S REPORT: Larry Plante reports that the well has been shut down as of November 6th. He and Steve Bartos were there recently to replace the tool shed skylight with a piece of Lexan. They had to modify the mounting arrangement to get the lexan sheet in place. Lexan is very strong (hammer resistant) stuff. There is a piece left over and it's in the tool shed should anyone need it. Meanwhile, Larry will

attempt to use some type of resin to repair the original skylight so that we have a usable back-up. Greg Higgins asked where the paperwork for this build was. All seemed to agree It is somewhere at the MVCO. We could use it to find part numbers, etc. In the end, it will probably be best (and least expensive) to just stay with the Lexan repair. Rosemary added to the O.D. Report that the refrigerators have been cleaned out. Some sodas and snacks are still in the orange ice barrel. These will be brought to the Christmas Party. She had several bottles of beer that had to be taken home by whom ever they belonged to. These can't be taken to the Party.

OLD BUSINESS: Regarding the 50" sale, Bill Pearce tells us that the person buying the blank was diagnosed with cancer recently and was obviously having a difficult time. He was told he could get his \$500 deposit back but he insisted he still wants this mirror. He had advised bill that he could get \$2,500 to the MVAS in a few weeks. He would bring the check up to the MVCO and look over the mirror to see what was involved in getting it back to Columbus. There was a discussion of the fact that the membership had voted to end this contract at the end of November. Various scenarios were reviewed. There was a motion by Greg Higgins and a second by Bob Danko to extend the deal until the May 2011 meeting, at which time the payment was to have been paid in full. It was also preferred that this second payment of \$2500 was get to the MVAS by the end of the year. Dan Schneider thought this was too long of an extension. Others considered that the coming winter months as a time when nothing could get done in moving the mirror. Phil noted that we can't keep extending the sale indefinitely. A deal is a deal. Others wondered why someone with health issues would still want to take on such a project. By voice vote the motion passed 16 ayes with one abstention.

Phil once again reminded the membership to get those raffle tickets sold (or bought). He has more tickets if you need them. Just drop him a note and he'll mail them out a.s.a.p. There are still (14) 2011 Astronomy Calendars for sale. Make Dinner reservation with Phil or Steve by December 4th. \$10/person.

NEW BUSINESS: Steve had received the 2011 RASC Handbook shipment and had 16 of them at this meeting. Sharon said there would be another telescope seminar at YSU this coming January 15, 2011. Called "So You Got A telescope For A Gift?". YSU and MVAS experts are to be at the planetarium to help people with their new telescopes. The planetarium has a new web address at wbplanetarium.org.

Regarding the upcoming election, there was an issue with absentee ballots. Greg Higgins pointed out that there is nothing in the MVAS Constitution that says absentee ballots were permitted, insisting that only those at a meeting, that formed a quorum, could conduct business such as voting. Harry countered that the quorum sets a minimum level of physical presence of the membership that is needed before any business can be conducted. If this is met, then absentee ballots could be counted (as being business on the table). This is common corporate practice. Since all office positions were un-contested as of the deadline, ballot voting would be superfluous and not needed. The four candidates would be elected by default. Phil Plante moved that In lieu of any ballots, a voice vote would be taken at the December meeting, to accept the slate of officers by unanimous consent. This would satisfy membership voting requirements. Rosemary seconded this motion. By voice vote all were in favor. The issue of absentee ballots remains on the table for discussion. The Board will review the trustee positions.

Observer's Notes....

GOOD OF THE SOCIETY: Nothing reported.

VISUAL REPORTS: Bob Danko has observed Jupiter and Uranus, Larry and Steve observed them as well at the MVCO. Jodi and Roy managed to see a few Leonids. Phil got 25 variables so far in November.

ADJOURNMENT: Adjournment came at 10:13 PM. We thank our host Bill Pearce for the rice and pepper dish with snacks including oatmeal pie. Harry and Sam supplied the drinks. The next meeting will be at the Christmas Party in Boardman Park on Dec. 11, 2010. Meeting begins after the dinner. Meeting 8:30 PM. Dinner is hosted by Tony Mehle. **PASSWORD:** Give us your best ho ho ho. ... *-minutes by Phil Plante*

MVAS REMINDERS

RAFFLE: Everyone needs to get their Christmas Raffle ticket stubs and money turned in before the Christmas Party, if you are not attending. You may of course turn these in to Phil at the party before the dinner is over. Send your returns to Phil Plante, 1982 Mathews Rd. # 2, Youngstown, OH 44514 (same as the return address on the *Meteorite*). Thank you for your support, it is very much appreciated.

DINNER: Members will need to make dinner reservations before December 4th. It is \$10 per person. Send to Phil Plante or Steve Bartos. The food is excellent. We need someone to make the coffee and we need a few people to bring some soft drinks as well.

MVAS ELECTIONS: We will have a voice vote at the December meeting to elect MVAS officers. Positions to fill are: President, Vice president, Treasurer, and Secretary. The election Committee could find no other candidates to oppose the current officers, and they all indicated they would run again. The deadline for candidacy was the November meeting. Therefore, the slate of candidates is the current office holders- President: Sam DiRocco, Vice President: Harry Harker, Treasurer: Steve Bartos, Secretary: Phil Plante. All are encouraged to attend the December meeting to cast a voice vote to ratify this slate of officers. Please attend the meeting even if you can't make it for the dinner. It is always good to have more than a quorum of 10 voting for such elections. **PROXY VOTE:** There will be no ballots of any form this time around. We hope to resolve this issue before the next election in 2012.

HOST LIST: A host list for 2011 meetings will be passed around for you to sign-up on. Please consider hosting a meeting (get someone to help share the costs with you).

MVAS SALES: Calendars are still available. The RASC Handbooks will also be available at the Party. Limited number of handbooks, so first come first served.

MVAS ACTIVITIES

Clouds and moonlight have hindered most observing this November. With winter looming ahead, we can only hope that we'll have a few clear nights, standing in the snow. It's the time of the year when binocular observing is very convenient to do. Use your binoculars on some of winters favorite M-objects. Look at Jupiter and its moons too. In December we have the Geminid meteor shower on the 14th and a lunar eclipse on the 21th. at around 3AM. Good luck. Do your homework! Stay warm!

DECEMBER'S LUNAR ECLIPSE

On the morning of December 21, 2010 the moon will experience a total eclipse. The first umbral contact (U1) occurs at 1:32 AM EST with the Moon 66° high in the south west. That's when you'll see the first notch of hazy blackness as a dimple on the lunar limb. Look at the lower left limb at about the 8 o'clock position. At 2:40 AM, the total phase begins (U2). The Moon is now entirely within the umbra of the Earth's shadow. The Moon passes just north of the shadow's center which is the darkest part. This means the lunar face will be darkest at the bottom (south limb) with a subtle increase in brightness and color towards the north limb. The color and darkness will depend on the atmospheric conditions around the edge of Earth. Sunlight passes through this region of sunset and sunrise and gets refracted (bent) into the shadow. The amount of clouds and/or volcanic particles determines how much sunlight is blocked. Lunar eclipses can vary from nearly invisible blackness to a bright copper orange. You'll just have to see for yourself.

Totality ends at 3:53 AM. Look at the 10 o'clock position for the first speck of bright lunar surface. The umbral eclipse ends at 5:01 AM with the Moon 30° up in the west. Totality will last for 73 minutes which is enough time to make naked eye Danjon estimates, take a few photos and still take warm-up breaks. With a telescope you can make crater timings- when the shadow edge crosses the center of certain craters. For big craters such as Copernicus and Plato, note the time the shadow touches the first crater rim and then the opposite rim. Use the average of these times for the center of the crater. Look in the *2010 RASC Handbook* for a more complete list of craters. Actual times depend on the atmospheric conditions. Listed below are three easy to identify craters and times, for your enjoyment. Use the famous Danjon scale to make naked eye estimates of eclipse darkness. During totality make estimates every 15 minutes and if needed, for different parts of the surface (whole, north, south, etc.). Use the Homework page to enter your estimates, crater timings and occultations. Digital cameras and camcorders make imaging easy. Adjust exposure as needed. Practicing on the moon beforehand is a good strategy. Use these tables to plan and carry-out your eclipse program.

DANJON SCALE

- L=0 Very dark- almost invisible
- L=1 Dark, grey or brown color. Details difficult to make out.
- L=2 Deep red or rust color. Center umbra dark, outer brighter.
- L=3 Brick red color. Shadow has a bright or yellow rim.
- L=4 Very bright copper-red or orange. Bluish or bright limb

CRATER TIMINGS

<u>Immersion</u>		<u>Emersion</u>	
Kepler	1:52 AM	Kepler	4:11 AM
Copernicus	2:01 AM	Plato	4:14 AM
Plato	2:23 AM	Copernicus	4:19 AM

CIRCUMSTANCES (AM-EST) at MVCO

<i>Event</i>	<i>time</i>	<i>Alt.</i>	<i>Azm.</i>	<i>Pos. Angle</i>
U1 (partial starts)	1:06:18 AM	66.3°	227.4°	114.0°
U2 (totality starts)	2:40:18	55.6	249.9	319.3
U3 (totality ends)	3:53:36	42.5	264.9	51.6
U4 (partial ends)	5:01:36	30.0	275.6	256.9

MVAS CHRISTMAS DINNER

CHRISTMAS DINNER MENU

At Boardman Park, in the Larricia Community Center. We will use the Stambaugh Room. Same as last year.

(Food will be catered by Larricia's which is near the Park)

Event Schedule:

- 6:00 PM-- Doors open. Social hour and MVAS business activities. Turn in tickets, pay dues, buy calendar or handbook, etc.
- 6:15 PM -- Hors d'oeuvres served.
- 7:00 PM -- Dinner time, till 8:00 PM.
- 8:00 PM -- Break for last minute transactions, etc.
- 8:30 PM -- Annual meeting; for a brief business, raffle drawing, and election vote.
- 9:15 PM -- Any entertainment program must be 30 minutes or less.
- 10:00 PM -- Must clean-up and be ready to vacate the room at this time.

- Snack trays:** Veggie & dip tray, cheese & pepperoni tray. Will be available during the social hour.
- Mike's Salad:** Salad with bleu cheese crumbles, walnuts, raspberry balsamic dressing on the side.
- Chicken Galore:** Marinated, grilled skinless boneless chicken breast with peppers & onions & mozzarella cheese in a light Marsala sauce.
- Beef Tenderloin:** Sliced filet of beef in mushroom wine sauce.
- Sausage:** With peppers, and Onions. Very mildly hot.
- Cavatelli and Meatballs with Sauce.**
- Sides:** Parsley Potatoes & Green Bean Casserole.
- Dessert:** Mocha House Cheesecakes.

Ice, cups, plates and utensils will be provided. Bring a beverage (non alcohol) to share. We will need a person to make the coffee (should be in the works)

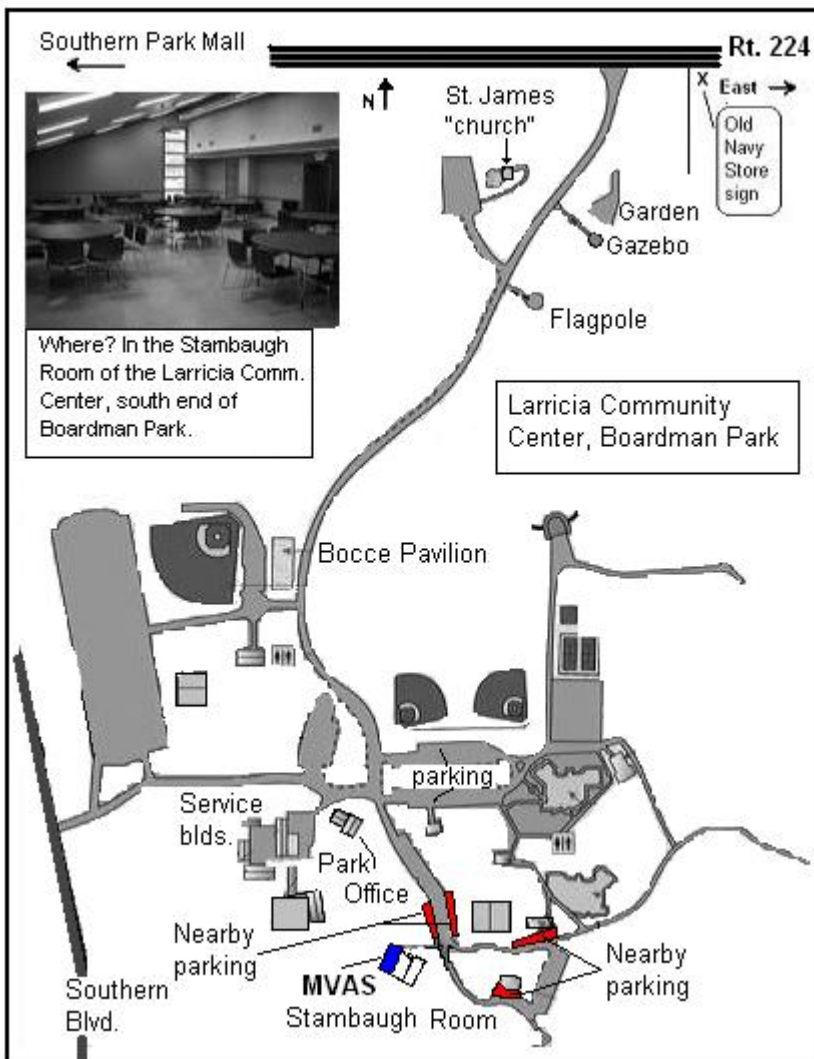
Please try to be on time. Dress is casual- family restaurant style. You are free to go formal if you like.

Sign in when you get there. Bring your ticket returns, turn them in to Phil. There will be a host list for the 2011 meetings to fill up. Please consider this duty as the list is passed around. We thank you in advance.

There are limited parking spots right in front of the building with handi-cap spaces for anyone that requires one. Other spots are near by, and only a short walk away. Farther away are spots near the baseball fields and a bigger one across from the park office. We held a Mars watch event there in 2005.

The best way in is from Southern Boulevard (to the west). There is a main entrance on Rt. 224 near an Old Navy store sign. You can see the old white church from Rt. 224 as you approach the entrance. The room is in the back end of the park. Hope to see you there.

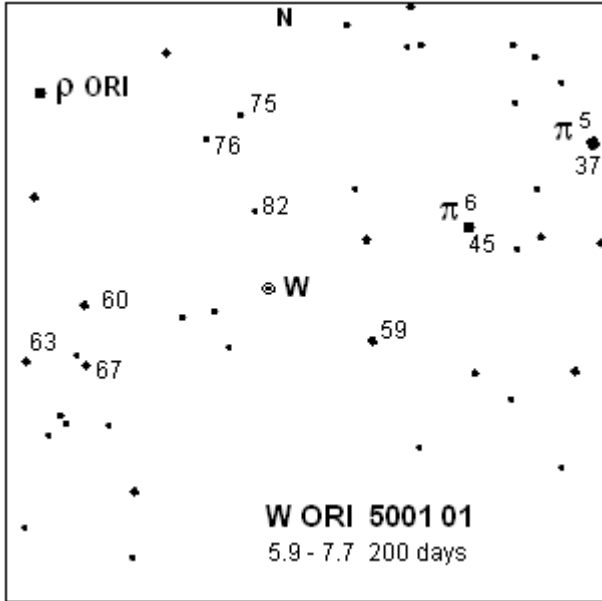
Please make your reservations and preferably a payment, with Phil, by Dec 4th. **The meal is \$10 per person.** Call him at 330-757-4037, any day after 4:30 PM. Give it a shot anyway! You may contact him via the MVAS email group as well.



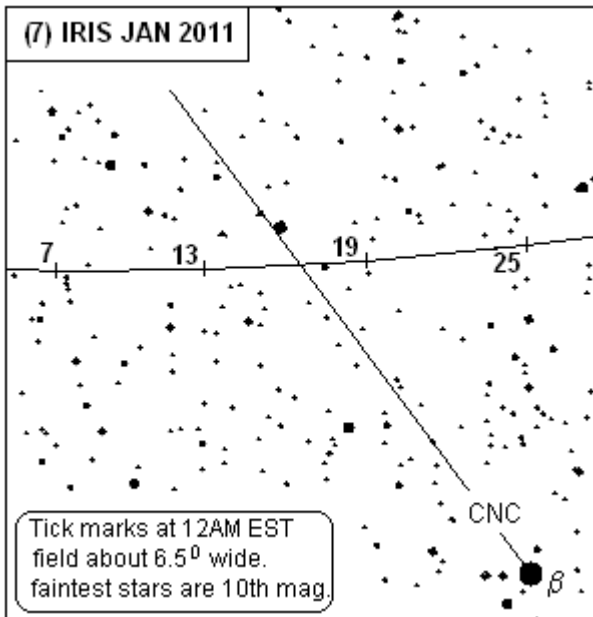
MVAS OBSERVER CHARTS

MVAS OBSERVATIONS - DUE JANUARY 2011

Variable star of the month: **W Orionis** (*abbrev:* W Ori). W Ori is an easy binocular variable found between the western end of Orion's belt and east of the bottom star π^6 of Orion's Shield. Being a carbon star you can spot it by its deep orange to reddish color. The hue, depending on its brightness. What color do you see? Make an estimate but use quick looks. Reddish stars appear to get brighter the longer you stare at them. An eyeball thing (Purkenje Effect). Check it every time you go out.

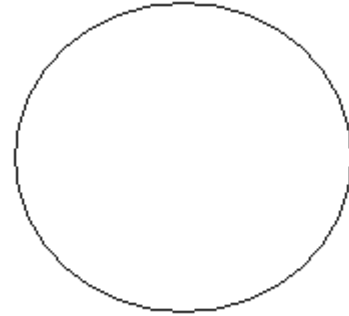


Asteroid of the month: **(7) Iris**. Look over in the eastern sky to find the constellation of Cancer on the rise. Iris passes north of β Cancr. By the 25th of January, it will be near the variable R Cnc. But that's a different story...You should pick Iris up in smaller telescopes- at the least.



OBSERVER _____

Featured object: **Orion Nebula (M-42)**. Please try a sketch.



M-42 Observation:

Date: _____ Time(EDT) _____ Scope _____

W Ori magnitude estimates:

Date: _____ Time: _____ estimate: _____ Instrument: _____

_____	_____	_____	_____
_____	_____	_____	_____

(7) Iris Observation:

Date: _____ Time: _____ Instrument: _____ magnification: _____

_____	_____	_____	_____
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Other Objects in Orion to observe

Object	Date	Scope	Object	Date	Scope	Split?
M- 78	_____	_____	λ Ori	_____	_____	SEP. 4.3" Y / N
IC- 434	_____	_____	σ Ori	_____	_____	11.9" Y / N
N- 2194	_____	_____	ι Ori	_____	_____	41.5" Y / N

December 21st Lunar Eclipse Crater Timings

Immersion	Pred. your time	Emersion	Pred. your time
Kepler	1:52 AM _____	Kepler	4:11 AM _____
Copernicus	2:01 _____	Plato	4:14 _____
Plato	2:23 _____	Copernicus	4:19 _____

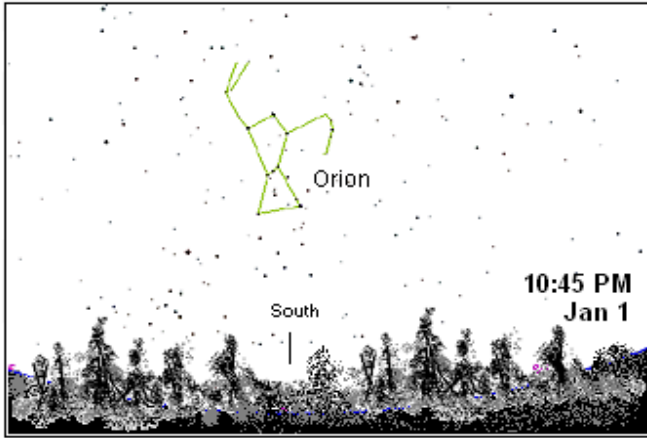
December 21st Lunar Eclipse Observations

Occultations	Prediction	Your Time	Scope	magx
8.3 mg. star Dis.	at 1:51:01AM	_____	_____	_____x
8.9 mg. star Dis.	at 2:27:41AM	_____	_____	_____x
9.5 mg. star Dis.	at 3:25:19 AM	_____	_____	_____x

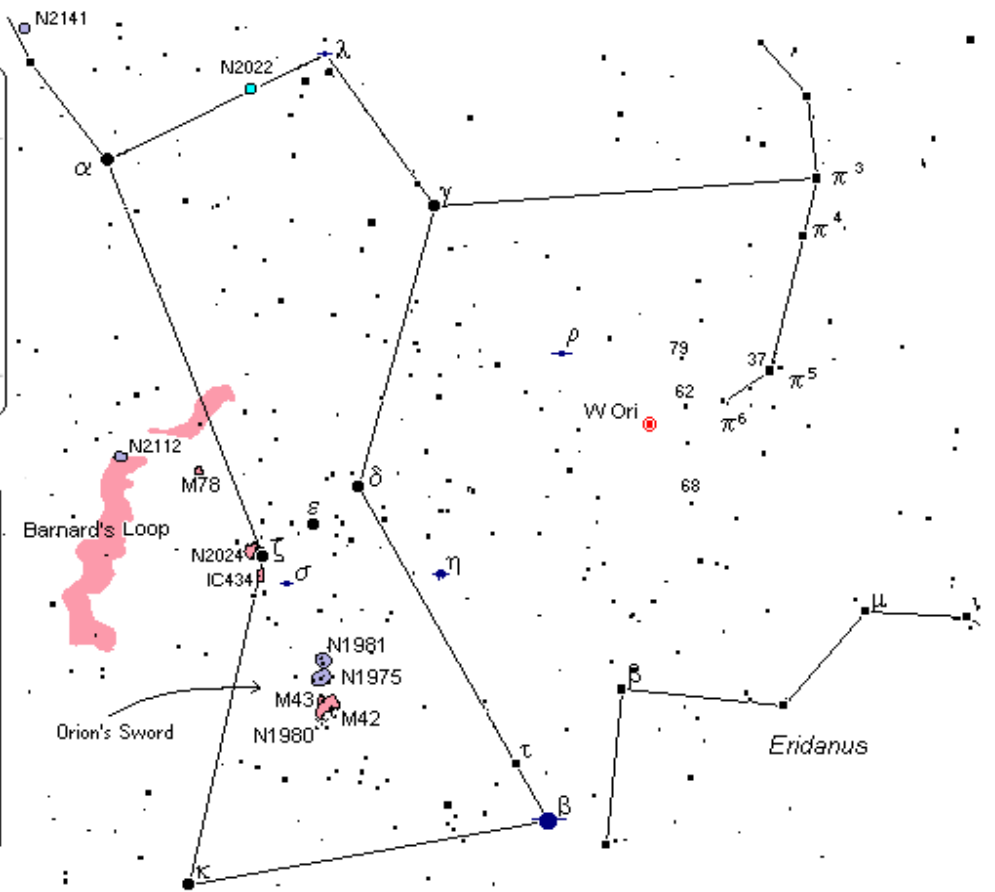
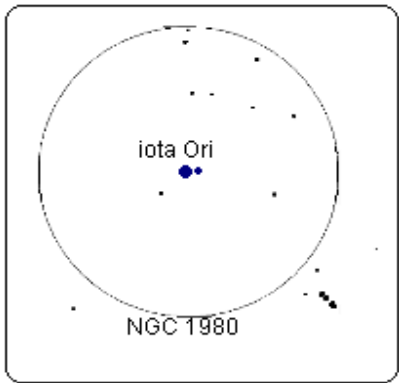
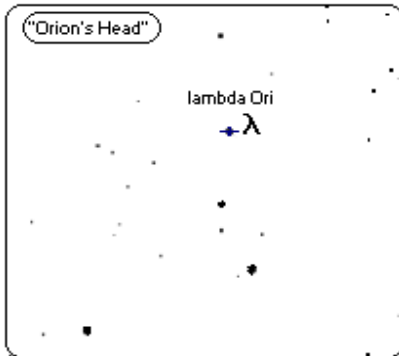
DANJON ESTIMATES (circle lunar sector observed during Totality)

_____ AM	L= _____ s n whole	_____ AM	L= _____ s n whole
_____ AM	L= _____ s n whole	_____ AM	L= _____ s n whole

Constellation of the Month — Orion



In late December-early January, around 9:00 PM, you can find Orion high in the southeast. The belt stars are perhaps the most easily recognized asterism. Take binoculars out on those cold evenings for a quick scan of the belt area. It is breathtaking. You will see the great nebula M42 as a bright glowing cloud of light. It's not likely you'll see Barnard's Loop but this is a good "deep" target for imagers. The famed Horsehead nebula needs a big and fast scope with an H-beta filter in place. This might bring you success. Binoculars are all you need for the variable W Ori but you'll need a telescope to split the double stars, spot M78 and the other hidden treasures of Orion. This is the showcase constellation of the winter sky. Enjoy your own celestial hunt that is offered by Orion, the Hunter.



DEEP SKY	STARS	Check list	Instruments used
M42 emission nebula	Doubles:	<input type="checkbox"/> M42	<input type="checkbox"/> on _____
M43 emission nebula	lambda 3.7, 10.7 mag. 29" sep.	<input type="checkbox"/> M43	<input type="checkbox"/> on _____
M78 reflection nebula	sigma 3.7, 8.8 mag. 11" sep.	<input type="checkbox"/> M78	<input type="checkbox"/> on _____
NGC 1975 reflection nebula	iota 2.8, 6.9 mag. 49" sep.	<input type="checkbox"/> N1975	<input type="checkbox"/> on _____
NGC 1980 open cluster	rho 4.5, 8.3 mag. 7.0" sep.	<input type="checkbox"/> N1980	<input type="checkbox"/> on _____
NGC 1981 open cluster	eta 3.8, 4.8 mag. 1.5" sep.	<input type="checkbox"/> N1981	<input type="checkbox"/> on _____
NGC 2022 planetary nebula (12.5 mag.)	beta 0.1, 6.8 mag. 9.5" sep.	<input type="checkbox"/> N2022	<input type="checkbox"/> on _____
NGC 2024 emission neb. (Flame Nebula)	Variable stars:	<input type="checkbox"/> N2024	<input type="checkbox"/> on _____
NGC 2112 open cluster	W Orionis 5.9 - 7.7 mag. range, 200 days	<input type="checkbox"/> N2112	<input type="checkbox"/> on _____
NGC 2141 open cluster		<input type="checkbox"/> N2141	<input type="checkbox"/> on _____
IC 434 emission nebula		<input type="checkbox"/> IC434	<input type="checkbox"/> on _____
		<input type="checkbox"/> lambda	<input type="checkbox"/> on _____
		<input type="checkbox"/> sigma	<input type="checkbox"/> on _____
		<input type="checkbox"/> iota	<input type="checkbox"/> on _____
		<input type="checkbox"/> rho	<input type="checkbox"/> on _____
		<input type="checkbox"/> eta	<input type="checkbox"/> on _____
		<input type="checkbox"/> beta	<input type="checkbox"/> on _____
		<input type="checkbox"/> W Ori	<input type="checkbox"/> mag on _____
		<input type="checkbox"/> W Ori	<input type="checkbox"/> mag on _____

2011 JANUARY SKY ALMANAC

Solar and Lunar (EST).

Date	Sunset	Moonrise	Moonset
1	5 : 05	5 : 22A	x : xx
5	5 : 09	x : xx	6 : 44P
9	5 : 13	x : xx	10 : 46P
13	5 : 17	x : xx	1 : 44A
17	5 : 22	x : xx	5 : 47A
21	5 : 27	8 : 03P	x : xx
25	5 : 31	24th 11 : 45P	x : xx
29	5 : 36	4 : 16A	x : xx

PLANET WATCH

JUPITER	SATURN	VENUS
Sets	Rises	Rises
10:11P	11:27P	4:29A
9:59P	11:12P	4:35A
9:47P	10:56P	4:39A
9:36P	10:40P	4:44A
9:24P	10:23P	4:48A
9:13P	10:07P	4:52A
9:01P	9:51P	4:56A
8:50P	9:34P	4:58A

January 2011

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Asteroid for January 2011 (7) Iris

Date	Rises	RA Dec.		Alt.	Azm	Magnitude
		hr.	min deg.			
		<i>topocentric</i>				
1	7 : 33 PM	08	: 42.1 +12.2	47°	122°	8.3
7	7 : 05 PM	08	: 36.8 +12.2	52	131	8.2
13	6 : 35 PM	08	: 30.7 +12.2	55	141	8.0
19	6 : 04 PM	08	: 24.1 +12.3	59	153	7.9
25	5 : 33 PM	08	: 17.4 +12.4	61	168	7.9
31	5 : 03 PM	08	: 11.1 +12.6	61	183	8.0
	EST	<i>(midnight EST)</i>		<i>(at midnight EST)</i>		

Date UT hr **Celestial Highlights**

4	9.0	NEW MOON
8	18	Venus greatest W. 47°
12	11.5	FIRST QUARTER MOON
15	8.0	Moon 3.5° W. of Pleiades
18	0.5	Moon 2.0° E of M35
18	5.0	Moon occults mu Gem
19	21.4	FULL MOON
26	13.0	LAST QUARTER MOON
30	11.0	Cr. Moon 6° E. of Venus

Variable Star of the Month: **W ORI** 5.9 - 7.7mag 200 day period

LUNAR OCCULTATIONS FOR JANUARY 2011

Civil (24hr) EST	UT			Moon Ph	Moon % illum.	Moon alt	Moon azimuth	Star name	Star Mag.	event PA	dbl./ sep.				
												date	hr	min sec	
1	6	: 22	: 00	1	11	: 22	: 00	R	9-	8°	132	ZC 2328	6.4	252°	1.70"
8	20	: 13	: 30	9	01	: 13	: 30	D	19+	16	251	ZC 3326	6.4	95°	0.029"
13	23	: 28	: 14	14	04	: 28	: 14	D	66+	34	266	ZC 375	6.8	110°	0.100"
16	20	: 57	: 59	17	01	: 57	: 59	D	90+	69	139	ZC 789	6.9	67°	NA
18	0	: 01	: 43	18	05	: 01	: 43	D	96+	67	221	MU GEM	2.9	151°	73.0"
18	0	: 55	: 31	18	05	: 55	: 31	R	96+	59	242	MU GEM	2.9	239°	73.0"
18	22	: 35	: 46	19	03	: 35	: 46	D	99+	63	135	56 GEM	5.1	67°	NA
20	22	: 50	: 40	21	03	: 50	: 40	R	97-	42	116	ZC 1381	6.4	297°	22.0"
21	6	: 51	: 38	21	11	: 51	: 38	R	96-	18	267	6 LEO	5.1	332°	38.0"
23	2	: 48	: 13	23	07	: 48	: 13	R	84-	46	165	ZC 1629	6.5	293°	NA
27	4	: 18	: 37	27	09	: 18	: 37	R	40-	17	142	ZC 2134	5.9	298°	25.0"

D= disappearance. Good occultation event.

d= disappearance, the star's magnitude approaches the observing limits of 200mm objective

R= reappearance. Good occultation event

r= reappearance, the star's magnitude approaches the observing limits of 200mm objective

All disappearances (D) occur on the eastern limb (left side in the sky). Reappearances (R) always occur on the western limb.

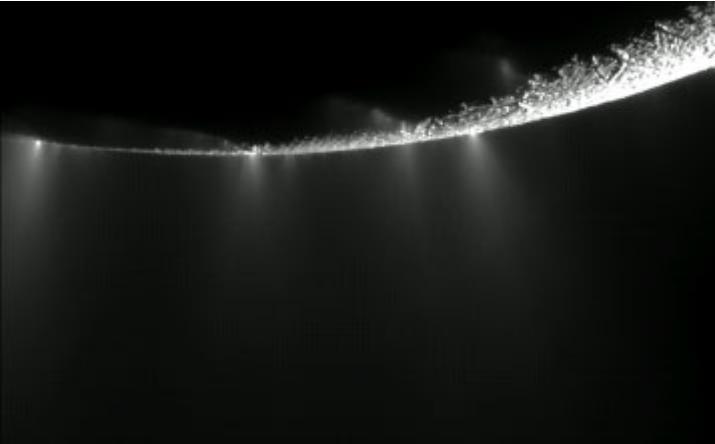
Position Angle (PA): tells where along the west limb to watch for a reappearance.

PA is referenced to celestial north: North=0° East=90° South=180° West=270°

GALLERY.....

SOLAR SYSTEM REVIEWS 2010:

As 2010 come to a close, we can look back at some of the sights captured of our solar system.



SATURN: Dramatic plumes, both large and small, spray water ice out from many locations along the famed "tiger stripes" near the south pole of Saturn's moon Enceladus. The tiger stripes are fissures that spray icy particles, water vapor and organic compounds. This view is from a distance of approximately 9,000 miles from Enceladus. Image scale is 81 meters (267 feet) per pixel. By- NASA's **Cassini Spacecraft** on Feb. 23, 2010

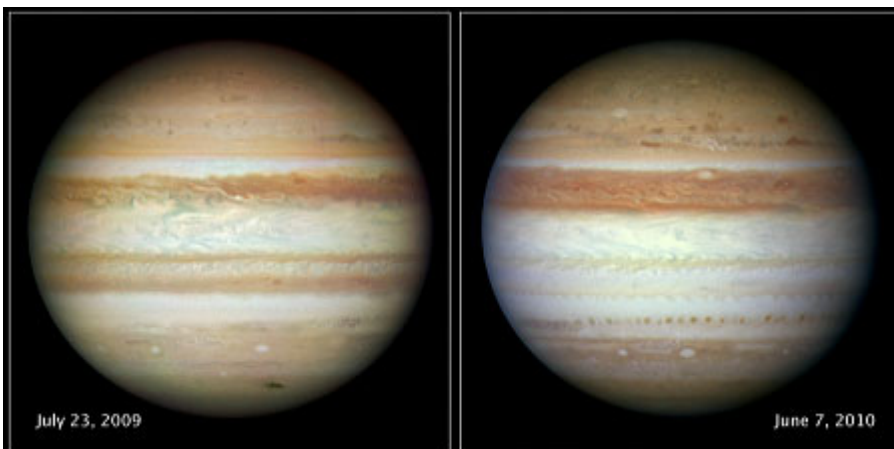
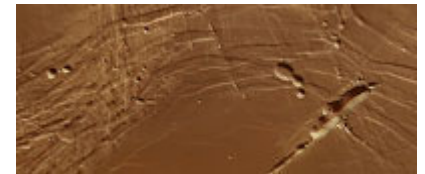


MARS: "Intrepid" crater on Mars carries the name of the lunar module of NASA's Apollo 12 mission, which landed on Earth's moon Nov. 19, 1969. NASA's **Mars Exploration Rover Opportunity** recorded this view of the crater during the 2,417th Martian day, or sol, of the rover's work on Mars (Nov. 11, 2010).

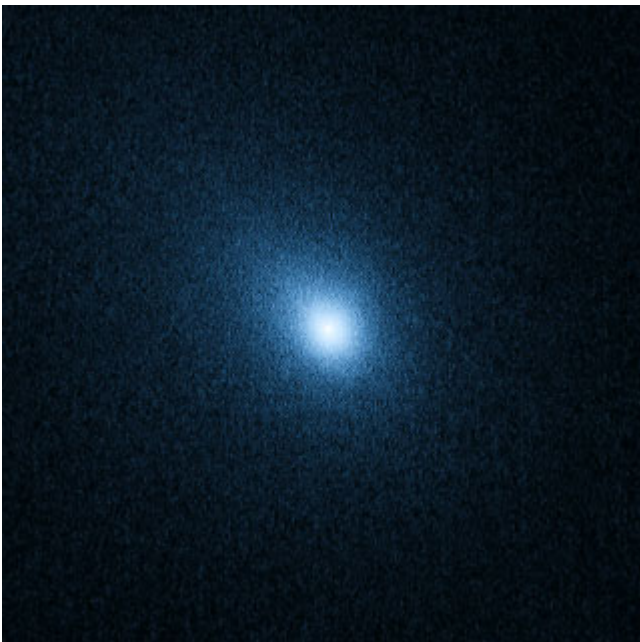


MARS: The High Resolution Stereo Camera (HRSC) onboard the ESA spacecraft **Mars Express** took this image of Phobos using the HRSC nadir channel on 7 March 2010, HRSC Orbit 7915. This image has been enhanced for bringing out features in the less illuminated part.

Below:
Phoenicis Lacus has an area of 8100 sq km (59.5 x 136 km), which corresponds to the size of Corsica. This image was obtained on 31 July 2010 using the High-Resolution Stereo Camera (HRSC) on ESA's **Mars Express** spacecraft.



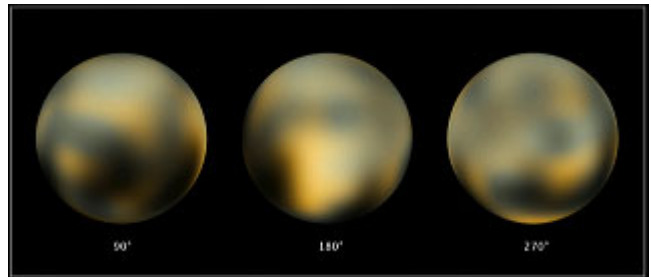
JUPITER: The Southern Equatorial Belt (SEB) vanished early this year. At left is a Hubble picture from July 23, 2009, which captures the planet's normal appearance. Alternating zones of high altitude ammonia ice crystal clouds (white zones) and darker belts of lower altitude material. On the Right is a Hubble picture from June 7, 2010, revealing a slightly higher altitude layer of white ammonia ice crystal clouds that covers the darker belt clouds of the SEB. Hubble also resolved a string of dark spots farther south of the vanished belt. Based on past observations, the Hubble Jupiter team expects to see similar spots appear in the SEB, right before its white clouds clear out. These natural color comparative planet portraits were taken in visible light with Hubble's new Wide Field Camera 3.



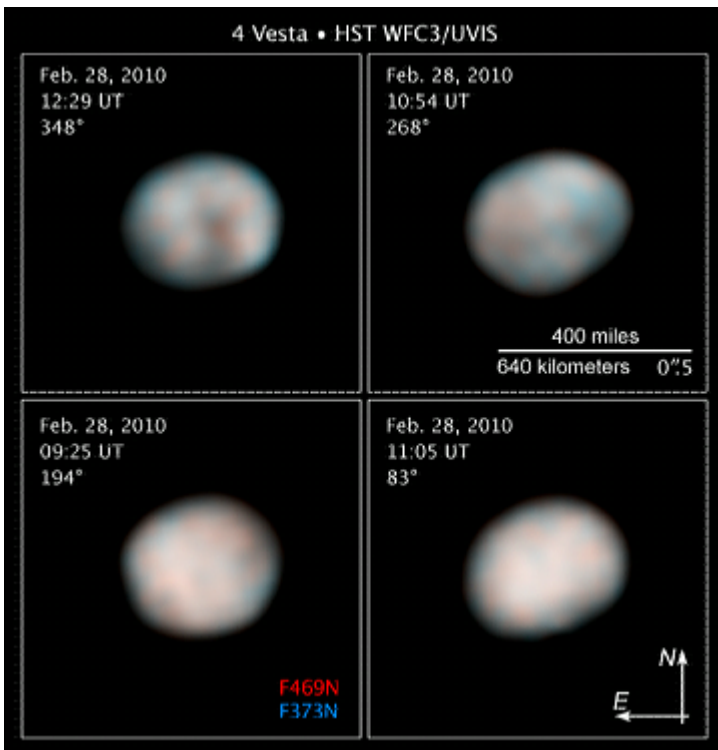
Hubble Space Telescope observations of comet 103P/Hartley 2, taken on September 25, 2010.



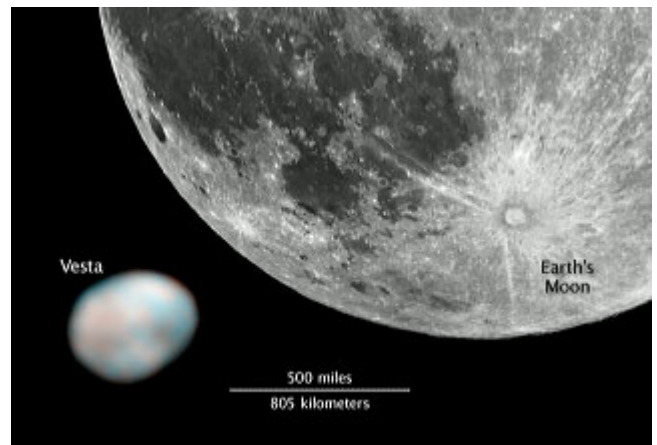
Above: On November 4, 2010, the Deep Impact Scaecraft made a close pass of Hartley 2, revealing an odd shape and many vents in actions.



In February, NASA released the most detailed map of Pluto yet obtained. It was constructed using Hubble Telescope data. This map is proving useful in planning which area seems most interesting for the New Horizons Spacecraft to fly over when it passes by in 2015.



In February, the HST took images of the large asteroid (4) Vesta. This is to help in planning NASA's visit to Vesta in July 2011, by the Dawn Spacecraft. Dawn will orbit Vesta for a year before moving on to (1) Ceres in 2015.



Above is a comparison of Vesta's size with our Moon (Luna).