

# THE METEORITE



*The Mahoning  
Valley Observatory*

Day of the 1996 OTAA meeting.



Newsletter of the Mahoning Valley Astronomical Society, Inc.

**APRIL 2011**

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*“It's MVCO Season again!”*

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



APRIL 2011

NEWS NOTES

Newsletter of the Mahoning Valley Astronomical Society, Inc.

**MVAS CALENDAR**

- APR 16 Chili Cook-off at the MVCO. 7:00 PM
- APR 30 Business meeting at the MVCO. 8:00 PM
- MAY 7 OTAA-Stargaze at Scenic Vista. 1:00 PM rockets
- MAY 28 Business meeting at the MVCO. 8:00 PM

**NATIONAL & REGIONAL EVENTS**

**MAY 26-29 Cherry Springs Star Party.** Held at Cherry Springs State Park, Route 44, Potter County Coudersport, PA 16915. Registration is now open.

<http://www.astrohbg.org/CSSP/Information.html>

**JUN 2-5 Spacefest III.** To be held at the J.W. Marriott Starr Pass Resort & Spa, 3800 W. Starr Pass Boulevard, Tucson, Southwest, AZ 85745. The premiere event for all space enthusiasts. Held this year at Starr Pass, a luxury resort in the Tucson Mountains. Apollo Astronauts, Astronomy. Admission fee is \$35 adult. Various ticket package plans offered: \$299 to \$695 (sold out).

<http://www.spacefest.info/III>

**OTAA SCHEDULE FOR 2011**

- MAY 7 OTAA Scenic Vista Stargaze. Near Lisbon, OH
- JUN 4 Chagrin Valley Astronomical Society. IHO
- JUL 30 Cuyahoga Astronomical Association. Letha House
- AUG 27 Mahoning Valley Astronomical Society. At MVCO
- SEP 3 Black River Astronomical Society. Birmingham, OH

**MVAS BOARD OF TRUSTEES**

|                                 |               |
|---------------------------------|---------------|
| President                       | Sam DiRocco   |
| Vice President                  | Harry Harker  |
| Treasurer                       | Steve Bartos  |
| Secretary                       | Phil Plante   |
| Appointed Trustee (2011 & 2012) | Bob Danko     |
| Appointed Trustee (2010 & 2011) | Bill Pearce   |
| Elected Trustee (2011)          | Dan Schneider |

**OBSERVATORY STAFF**

|                                |                 |
|--------------------------------|-----------------|
| Observatory Director           | Larry Plante    |
| Assistant Observatory Director | Dave Ruck       |
| Librarian                      | Rosemary Chomos |

**PUBLICATIONS STAFF**

|                  |              |
|------------------|--------------|
| Meteorite Editor | Phil Plante  |
| Assistant Editor | Steve Bartos |
| MVAS Webmaster   | Harry Harker |
| MVAS Webmaster   | Bill Pearce  |

**MVAS REPRESENTATIVES**

|                     |              |
|---------------------|--------------|
| OTAA Representative | Harry Harker |
|---------------------|--------------|

MVAS, P.O. BOX 564 NEWTON FALLS, OH 44444-9998  
 MVAS Homepage- <http://mvoobservatory.com>

**Orbital shots.** The MESSENGER spacecraft finally entered orbit around Mercury at 5:20 AM EDT March 17, 2011. On March 29, it delivered its first image from orbit. The shot was taken at 5:20 am EDT by the Mercury Dual Imaging System as the spacecraft flew high above Mercury's south pole. This provided a partial glimpse of Mercury's surface that has not yet been seen by any spacecraft. The image was acquired as part of the orbital phase of the MESSENGER mission. Continuous global mapping of Mercury was to begin on April 4.

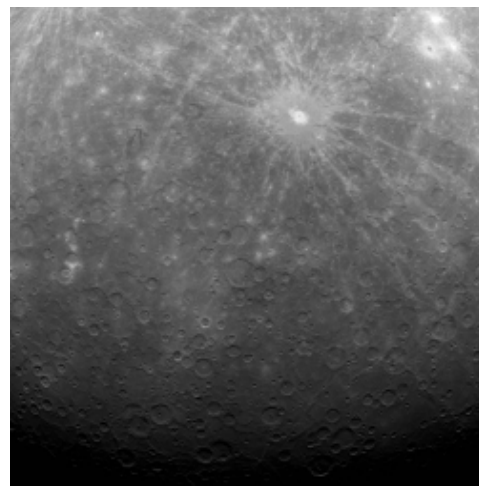
"The entire MESSENGER team is thrilled that spacecraft and instrument checkout has been proceeding according to plan," says MESSENGER Principal Investigator Sean Solomon, of the Carnegie Institution of Washington. "The first images from orbit and the first measurements from MESSENGER's other payload instruments are only the opening trickle of the flood of new information that we can expect over the coming year. The orbital exploration of the Solar System's innermost planet has begun."

Several other images became available on April 1st, in conjunction with a media teleconference at 2 p.m. EDT to discuss the initial orbital images taken from the first spacecraft to orbit Mercury.

This historical image of Mercury was acquired 37 years to the day after Mariner 10's historic first flyby of the planet.

*Debussy* is the bright, rayed crater upper center. The year-long primary science phase of the mission began on April 4.

The orbital observations plan on obtaining 75,000 additional images in support of MESSENGER's science goals.



*Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution of Washington*

**With Open Eyes.** On March 21, 2011 after a hibernation of about six months, the framing cameras on board NASA's *Dawn* spacecraft have been turned on to look at the stars. The spacecraft also powered up its visible and infrared mapping spectrometer, which investigates surface mineralogy, and the gamma ray and neutron detector, which detects elemental composition. The reactivation prepares the instruments for the May approach and July arrival at asteroid Vesta, Dawn's first port of call in the asteroid belt. Scientists are now debating whether Vesta should even be called an asteroid. It is so much bigger than all the rest; its 330 miles wide compared to 60 mi. on average for main belt asteroids. It has evolved and is differentiated like a planet with a core, mantle and crust. The detection of basalt indicates it must have once melted.

## MINUTES OF THE MARCH MEETING

MARCH 26, 2011 at YSU

Due to the fact that many members had seen the planetarium show "Bad Astronomy" just prior to the meeting, it was decided to skip the show and have the meeting in the classroom across the hall. This would shorten the evening for all, especially Sharon Shanks who usually has to wait for the MVAS social hour to end. The meeting came to order at 8:01 PM with President Sam DiRocco presiding. Roll Call was answered by 18 members. Ed and Sheila decided to catch the show but gave the secretary passwords in any case. That would have brought the count to 20 had they stayed. Brian delivered food (host duties) but was under the weather and unable to stay. Regulars of the Bartos family and planetarium devotee Dominic, attended the meeting as well. Ed Mahoney was an invited guest and expressed an interest in membership.

A Call for the Reading of the Minutes was made by the President. A motion to suspend the reading was made by Bob Danko, with a second from Greg Higgins. By voice vote the motion was adopted. With no questions or corrections requested, the minutes stand accepted as published.

**TREASURER'S REPORT:** The Report was read by Steve Bartos. No questions were forthcoming and a motion to accept the Report was made by Larry Plante. Greg Higgins seconded the motion. By voice vote, the Report was accepted.

### General Fund 2/1 thru 2/28 2011

|   |    |          |
|---|----|----------|
| OPENING BALANCE:                              | \$ | 7,981.53 |
| CLOSING BALANCE:                              | \$ | 8,431.84 |
| AVAILABLE FUNDS (NON-RESERVED):               | \$ | 8,181.84 |
| ACCOUNT GAIN/LOSS FOR THIS PERIOD:            | \$ | 450.31   |
| <u>INCOME:</u>                                |    |          |
| DUES  | \$ | 280.00   |
| RASC HANDBOOKS                                | \$ | 40.00    |
| ASTRONOMY RENEWAL                             |    | 34.00    |
| ASTRONOMY CALENDARS                           |    | 20.00    |
| DONATIONS (\$100- D. DURBIN, \$10- S. SHANKS) | \$ | 110.00   |
| INTEREST                                      | \$ | 0.31     |
| TOTAL INCOME                                  | \$ | 484.31   |

### EXPENSES:

|                            |    |       |
|----------------------------|----|-------|
| CK# 2748 ASTRONOMY RENEWAL | \$ | 34.00 |
| TOTAL EXPENSES             | \$ | 34.00 |

### Reserved Funds

|              |    |        |
|--------------|----|--------|
| KEY DEPOSITS | \$ | 250.00 |
|--------------|----|--------|

**CORRESPONDENCE:** The annual request from Scenic Vista park for donations was received. By a unanimous voice vote, the Treasurer was authorized to donate the standard \$50 gift as it has been done in past years. We received the standard poster material from NASA/JPL's Nightwatch Program. Steve received a fund raising letter from Hospice of the Valley, asking for donations. This meet with unfavorable sentiment, in general. No motions were made or actions taken, there of.

**COMMITTEE/OFFICER REPORTS:** *Imaging Committee:* Jodi and Roy were not on hand, however several M-object photos have been received and have been mounted in a large multi-photo picture frame. *Visual Committee:* Phil had on page nearly filled out. No one else had anything to turn in.

**OBSERVATORY DIRECTOR'S REPORT:** Larry Plante had not been to the MVCO all month. Rosemary had made a quick

check earlier in the month, reporting nothing out of the ordinary. She did have trouble with her key for the 12" building. Greg also stopped in once with the same report adding the 12" door lock seems to work okay now that the weather has warmed. Bob Danko has replaced the gate lock twice this winter. His first replacement had started to rust not more than two weeks after installation. The second lock seems to be holding up. It uses the same gate lock combination as the original. Bob will cover the expenses, even after an off of reimbursement. Bill Pearce has borrowed the dovetail plate on the 10" to evaluate a scope at his home. It will be returned when his dovetail arrives from the vendor (on backorder). The refrigerators will be turned on at the Galaxy Quest, if need be. Otherwise this should happen at the Chili Cook-off. This should also hold for the well system.

**OLD BUSINESS:** We have received a second deposit of \$3,000 from the gentleman buying the 50" mirror blank. The remaining \$1,500 will be turned over when he arrives to pick-up the mirror. This could happen in early to mid May, as weather permits. Greg noted that the plastic cover over the blank has all but disintegrated. We will need someone to remove the "50 inch building" when the time comes. (pictures too!) Harry noted that the Trustees had a meeting prior to this one, and discussed the prospects of acquiring land, now that we will have the funds from the mirror sale. It had been voted on, as part of the mirror sale, that the proceeds be allocated for land purchase. We should have around \$8,300.00 to start with. With this, Harry will begin the process of finding potential sites, with the help of his sister who is a realtor. It was generally presumed the site would be a southern location such as in Columbiana County. This has the advantage of getting away from lake-effect clouds and haze.

Greg pointed out that other sites in northern or western Mahoning might serve as well, but offer better access (improved roads, etc). Others noted that darkest skies should be a top priority. Other than Lisbon area sites, sites like Western Reserve reservoir or in the Deerfield area might maintain dark skies well into the future. Especially in Deerfield, were at first glance, it may not be a place ready for fast development. There was a brief discussion about mineral rights, but Harry has looked into this and said that mineral rights usually remain with the original land owner. It could happen, but it is unlikely MVAS could have mineral rights and the income earned from these. Mike Boyer and Greg Higgins do get around as part of their job and will keep an eye out for some good locations. It's a start.

The Trustees are also working on some main raffle prizes. Sam will try to put together a 3 or 4 eyepiece set (Plossl?). Phil will look into obtaining a single premium eyepiece (Nagler or Panoptic). All will be 1-1/4" barrel size. Harry is considering a 6" mirror making kit from Newport Glass. That is three main prizes; but we need many more door prizes of modest expense. Start collecting items soon as you can! A speaker for the OTAA is in the works. It could be from NASA, YSU, or both! Stay tuned.

All were reminded of the upcoming Galaxy Quest and Chili Cook-off. It was suggested we combine these events next year.

**NEW BUSINESS:** Phil noted that Black River will have their OTAA a week after ours and also on a Scenic Vista night. There are plenty of members to attend Black River and others to work the public night. The Scenic Vista date had been called in already and there were no good options to change in any case. We are dealing with a full moon (10th), our business meeting (17th) and AstroBlast on September (24th), leaves us with what we have. There is a possibility we will have food at the Scenic Vista events, if the program director can get the ladies to run the

"lunch stand" as they did a few years ago. They were famous for their home made pies (elderberry!!!).

**GOOD OF THE SOCIETY:** Visitor Ed Mahoney introduced himself. From Struthers, OH, he owns a Meade LX50 8". He was interested in membership. Larry Plante nominated Ed and Bob Danko seconded this nomination. By unanimous voice vote, Ed was accepted as a member of the MVAS. Welcome to the MVAS Ed. Harry will begin asking members to give a talk at meetings. This was done at meetings in the early years of MVAS and there was a push to do this a few years ago. Talks (essays) should be 15-20 minutes long and on any astronomy topic you study up on, equipment, observations you wish to share. We are trying to get astronomy back into the mix.

First, a thank you is extended to Jodi and Roy for giving us the heads-up on the Tyson lecture. On Thursday March 24, about 10 members made it to Mt. Union University for the Neil deGrasse Tyson lecture, "Ten Things To Know About the Universe". Harry recalled the talk, which by most accounts was very entertaining and interesting. Geared more for the general public, MVAS folk would know most of the material. It was refreshing, however, to hear a different and often humorous presentation. Afterward, the McCullough's took us up to the Clark Observatory showing us the modern slide-off roof observatory with two SCTs mounted on piers. Next door was the 8" Saegmuller refractor under a dome. Members spent about half an hour inspecting this scope and discussing its history and the repair work that is needed. Greg noted that he was asked in 2006 to look at it but declined after hearing how such a venture turned out for Jerry Jackson at Hiram's observatory. After restoration, Jerry was locked out and not allowed to use the scope. Still, Jodi would like this mount repaired. Private discussions would follow this meeting.

**VISUAL REPORTS:** Bob Danko spotted Mercury twice in March. Dominic saw Jupiter in the evening sky. Phil Plante got 10 variables done and a nearly complete Visual Committee Report filled out. He also got word that Chris Stephan has surpassed 38,000 variable star estimates- lifetime for the AAVSO. Good job Chris and congratulations!

**ADJOURNMENT:** Adjournment came at 8:53 PM. We thank our hosts Lisa and Rich Mattuissi. Lisa set-out a meal fit for royalty. The tortellini soup was out of this world. Chicken salad sandwiches and potato salad took it over the top. Brian Hoffman, being dedicated, supplied the tasty pizzas to make it an official feast. There was a fruit pie floating around for dessert...?... too full to chase it. The next meeting will be at the MVCO on April 30, 2011. Meeting begins at 8:00 PM. Scheduled host is Mike Boyer. **PASSWORD:** Give the "proper" name or nick-name of a galaxy. Please- no numbers or use of "Milky Way".  
- Minutes by Phil Plante

### MVAS REMINDERS

The Chili Cook-off is April 16th at the MVCO. Try to get there by 7:00 PM. Prize for the chili with most votes gets a copy of *The Observer's Sky Atlas* by Eric Karkoschka. (About the size of the *RASC Handbook*). It has charts, images and information on 250 objects. This year, we will vote for two separate chili's. No need to pick which you like best. All valid votes will be tallied for grand totals on each brew. The most overall votes will be winner. Ties of 2 or more will be decided by elimination coin toss (alphabetical order, last names paired, A to Z).

## The 6th OTAA SCENIC VISTA STARGAZE

May 7, 2011

The OTAA Scenic Vista Stargaze is held at Scenic Vista Park, just west of Lisbon, OH. Use below for Google Maps, etc:

11000 Wayne Bridge Rd. Lisbon, Ohio 44432  
GPS Coordinates: 40° 44.152, 80° 48.988

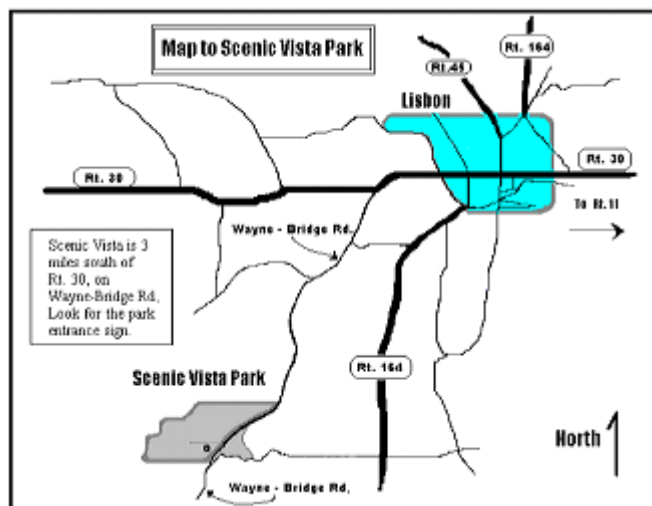
This event is held in conjunction with an MVAS public star party. All OTAA members are invited. This is an excellent opportunity for OTAA clubs to announce their club events for 2011. Feel free to bring your own snacks and drinks for the night. If you arrive after dark please use parking lights when possible. **Cancellations:** If predictions call for totally cloudy skies in the Lisbon area that night, obviously no event will take place. But with nighttime partial clouds or clearing skies soon after sunset, the local public event will still be on. Distant OTAA members are welcome to give it a try under these conditions. Please monitor Internet or broadcast sources that cover the Columbiana County weather, before you decide on this trip. Below is a link to the Clear Sky Chart website for Scenic Vista Park. It may be helpful to follow it a day or two beforehand.

<http://cleardarksky.com/c/ScnVstPkOHkey.html>

### SCHEDULE OF ACTIVITIES

- 1:00 PM** Rockets, model plane flying and solar observing this afternoon. You may set-up scopes and/or tents at this time. (no camp fires). No RV connections. A Port-a-John is on site. No fees, raffles, or pot-luck picnic. Just observing.
- 6:00 PM** Informal welcome for OTAA members at the pavilion. Your club may pass along event dates, newsletters and contact info at this time.
- 8:30 PM** Sunset is at 8:28 PM. Star party begins. Use the pavilion for breaks. The coffee pot should be on, so help your self. For a safe drive home, consider a nap in your vehicle. Someone from MVAS will be there to keep watch.

**11:00 AM** May 8.....Official End of Stargaze



## MVAS ACTIVITIES

The Tyson lecture on March 24th set the stage for a fantastic evening. Perhaps as many as 2,000 people filled the Timken Gymnasium at Mt. Union University. The talk explored the scale of numbers in the universe and on to other things like how the Universe and Earth are trying to kill us. In the end, the message to take home was that the universe is not separated from us. We are in it and a part of it, while striving to understand it. A sentiment similar to the concept woven into Carl Sagan's *Cosmos* series of the 1980s. The visit to the 8" refractor in the Clark Observatory was a special encounter. This scope was used by the noted astronomer, John Mellish while he served as the Observatory Director at the Harrold Observatory. (Leetonia, OH - circa 1917-1920). At that time MVAS founder Jack Draper was in communication with Mellish, learning how to make telescope mirrors. It is easy to imagine Draper making a trip to Leetonia and using this telescope. The scope was eventually donated to Mt. Union in 1920. In 1939, Walter Haas, a young mathematics student from New Waterford, OH, honed his observing skills on this same telescope. He observed the Moon and planets and by 1948 he founded the Association of Lunar and Planetary Observers-- better known as A.L.P.O. It is now an international organization with 500 members. So this is a special historical telescope worthy of maintaining.

Jodi and Roy have started to fill up picture frames of Messier images as the Imaging Committee (IC) has made its initial run at the winter M-objects. Some clusters still need to be covered. Check the MVAS homepage to see the IC images posted thus far. Find some object that's missing and go for it!

## Observer's Notes.....

### Gliese 581 (RA 15hr 19' 26", Dec. -07° 43' 20")

Tucked away in northern Libra is a faint 10th magnitude star called Gliese 581. (a.k.a. variable star HO Lib) "Gleise" looks like it should rhyme with "grease," but it is actually pronounced as a two-syllable word; "Glee-zuh". The name comes from the German astronomer Wilhelm Gliese, who catalogued the star as part of a survey in 1957. It is one of our closest neighbors being only 20.5 light years away. Gliese 581 is a red dwarf with less than half of the Sun's mass and ¼ its diameter. It most likely radiates predominately in infrared light. It appears to be a fairly inactive star with a rotational period of about 94 days.

Like all stars, Gliese 581 has an Earth-like habitable zone, sometimes called the "Goldilocks Zone". It's the distance away from the star where a planet's temperature is just right, allowing liquid water to exist on its surface, under an atmosphere. Not too hot, not too cold. For 581, it's much narrower and closer-in to the star, compared to our Sun's zone. Gliese 581 was the first star to purportedly host an Earth-sized planet within its habitable zone. It has at least 6 planets believed to range from Earth to Jupiter-sized. The first planet (581b) was announced as a Neptune sized planet, back in November 2005. Other planets were announced in 2007 and in 2009. Then on September 29th, 2010 astronomers announced "super-Earth" sized 581g- the most Earth-like planet within a habitable zone. Also the most promising for life. (larger 581f was also announced.) 581g has the characteristics of a rocky body rather than gaseous or icy.

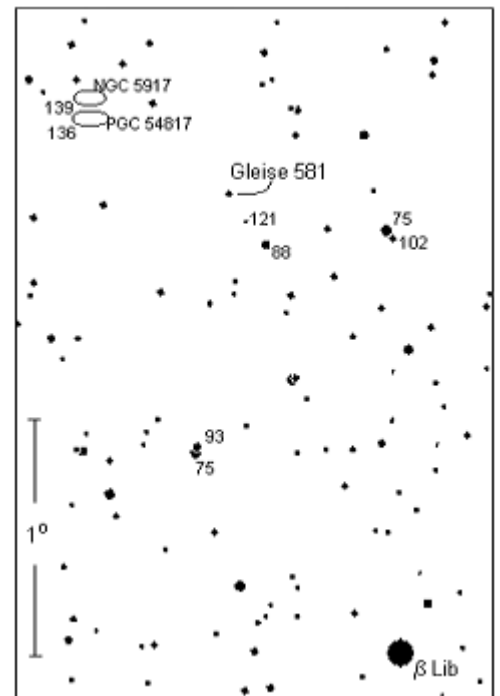
Gliese 581g was discovered by a method known as Doppler Spectroscopy- which is based on the Doppler Effect. This is the wavelength changing principle that makes a siren sound different depending on whether it is moving towards or away

from us. The amount of shift in the star's spectrum, to either the blue or red end of the spectrum, tells us the exact wobble of the star, which is induced by the gravitational tug of an orbiting planet. This provides data on the mass and distance of any planets. Calculations place the habitable zone around Gliese 581 as between 0.11 and 0.28 AU's. Astronomers believe that 581g is tidally locked to the star. One side always faces the star (perpetual daylight) while the other side is in perpetual darkness. Actual surface temperatures could range from around 71 °C to a very cold -34 °C night side temperature.

Since 581g's discovery, the *Kepler* spacecraft's first report came out, announcing the discovery of over 1,200 new exoplanets (Feb, 2011). At least 68 of these are Earth-sized bodies, about 5 are in habitable zones. Peer reviews on the 581g data were also announced in February 2011. Some doubt has been cast on the existence of 581g and 581f as a result. But co-discoverers Steven Vogt and Paul Butler say that their data contains "unambiguous and statistically defensible evidence" for both 581f and 581g. Meanwhile other reviews are saying they have evidence that support the existence of g and f.

Since Libra is our Constellation of the Month, we can stop at Gliese 581 for spell. Use some imagination while looking at this other "solar system". No evidence yet of an atmosphere, let alone water on 581g. But if there was ever the slightest, real,

chance that some alien being might be looking back at you- this just might be it! If we assume they exist, the aliens could spot our own Sun as a star in their sky without requiring any telescopes or binoculars. If the alien astronomers had our current level of technology, they would be also able to easily detect Neptune, and possibly Jupiter and Saturn. Use the chart above to star-hop from beta Librae.



Magnitudes of a few stars & galaxies are shown, decimal point omitted.

Here is a snapshot of the 581 system, going outward:

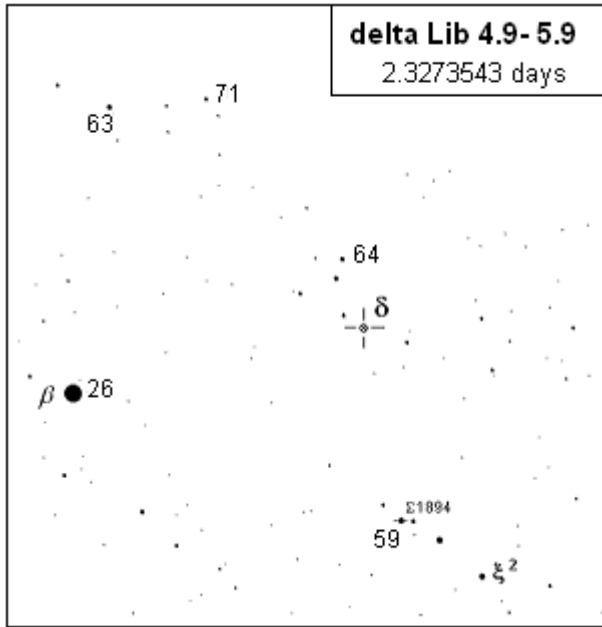
| Planet | distance | mass (Earth-1) | orbital period |
|--------|----------|----------------|----------------|
| 581e   | 0.033 AU | 1.4x           | 3.15 days      |
| 581b   | 0.041 AU | 16x            | 5.4 days       |
| 581c   | 0.073 AU | ~5x            | 15 days        |
| 581g   | 0.146 AU | 3-4x           | 37 days        |
| 581d   | 0.220 AU | 7-8x           | 67 days        |
| 581f   | 0.758AU  | 7x             | 433 days       |

Internet Sources: Space.com, Astronomy Newsroom, others.

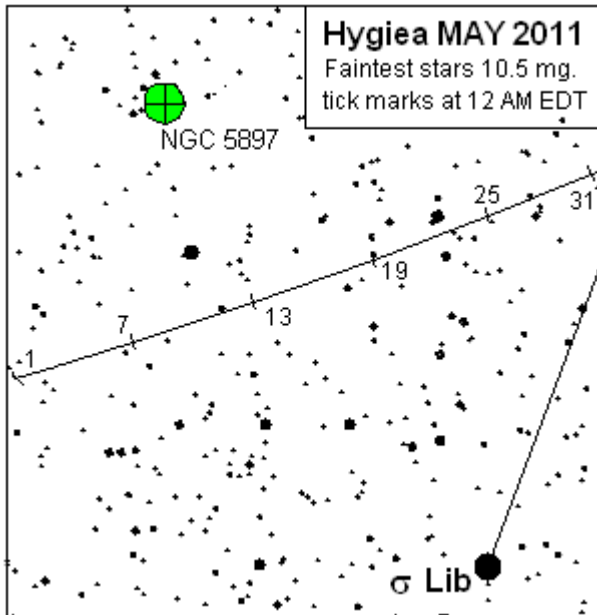
**MVAS OBSERVER CHARTS**

**MVAS OBSERVATIONS - DUE JUNE 2011**

Variable star of the month: **delta Librae** (*abbrev.*: delta Lib). West of  $\beta$  Lib is the Algol type eclipsing variable  $\delta$  Librae. Easy to find and follow with binoculars. The eclipse lasts about 12 hours. Eastern US observers, look for it at minimum light on May 2 (8pm), May 9 (10pm), May 12 (12am), May 18 (11pm), May 25 (11pm). On these nights, watch it rise or fall in brightness for a few hours. Compare the brightness at these times to when it's at max light. Be sure to note the exact times of observation. Do one every 30 minutes if you so dare!

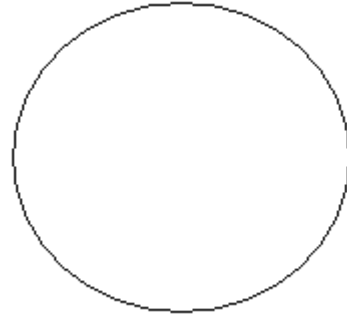


Asteroid of the month: **(10) Hygiea**. This is a very dark colored asteroid which rarely gets as bright as it will this May. It is making an approach to Earth about as close as it can get. It stays around the 9.5 magnitude range during this period. Best to use a small grab-n-go scope on this one. NGC5897 is an 8.6 mag. globular that you may hop over to for quick homework.



OBSERVER \_\_\_\_\_

**Featured object: alpha Libra or NGC 5897.** Alpha is a 2.8-5.2 binary star separated by 231". Its colors are said to be white and yellow. Indicate the field orientation (north, west, etc.) then draw the stars in proper relation to each other, as seen in your instrument. Note their colors next to them. If you want a better challenge, try globular cluster NGC 5897 instead.



**alpha Libra or NGC 5897 Observation:**

Date: \_\_\_\_\_ Time(EDT) \_\_\_\_\_ Scope \_\_\_\_\_

**delta Libra magnitude estimates:**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ estimate: \_\_\_\_\_ Instrument: \_\_\_\_\_

|       |       |       |       |
|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

**(10) Hygiea Observations:**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Instrument: \_\_\_\_\_ magnification: \_\_\_\_\_

|       |       |       |       |
|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

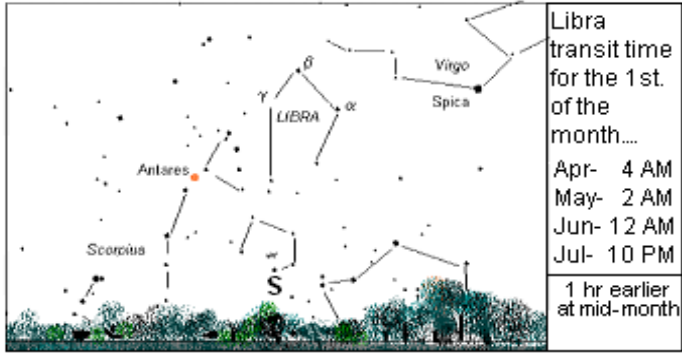
**Other Objects in Libra to observe**

| D. Sky  | Date  | Scope | Dbl.          | Date  | Scope | SEP   | MAG       | SPLIT? |
|---------|-------|-------|---------------|-------|-------|-------|-----------|--------|
| N- 5812 | _____ | _____ | $\mu$ Lib     | _____ | _____ | 1.9"  | 5.6 - 6.6 | Y / N  |
| N- 5885 | _____ | _____ | $\Sigma$ 1962 | _____ | _____ | 11.6" | 6.4 - 6.5 | Y / N  |
| N- 5897 | _____ | _____ | $\Sigma$ 1894 | _____ | _____ | 25.1" | 5.9 - 8.2 | Y / N  |

**Lunar Occultations (see Sky Almanac):**

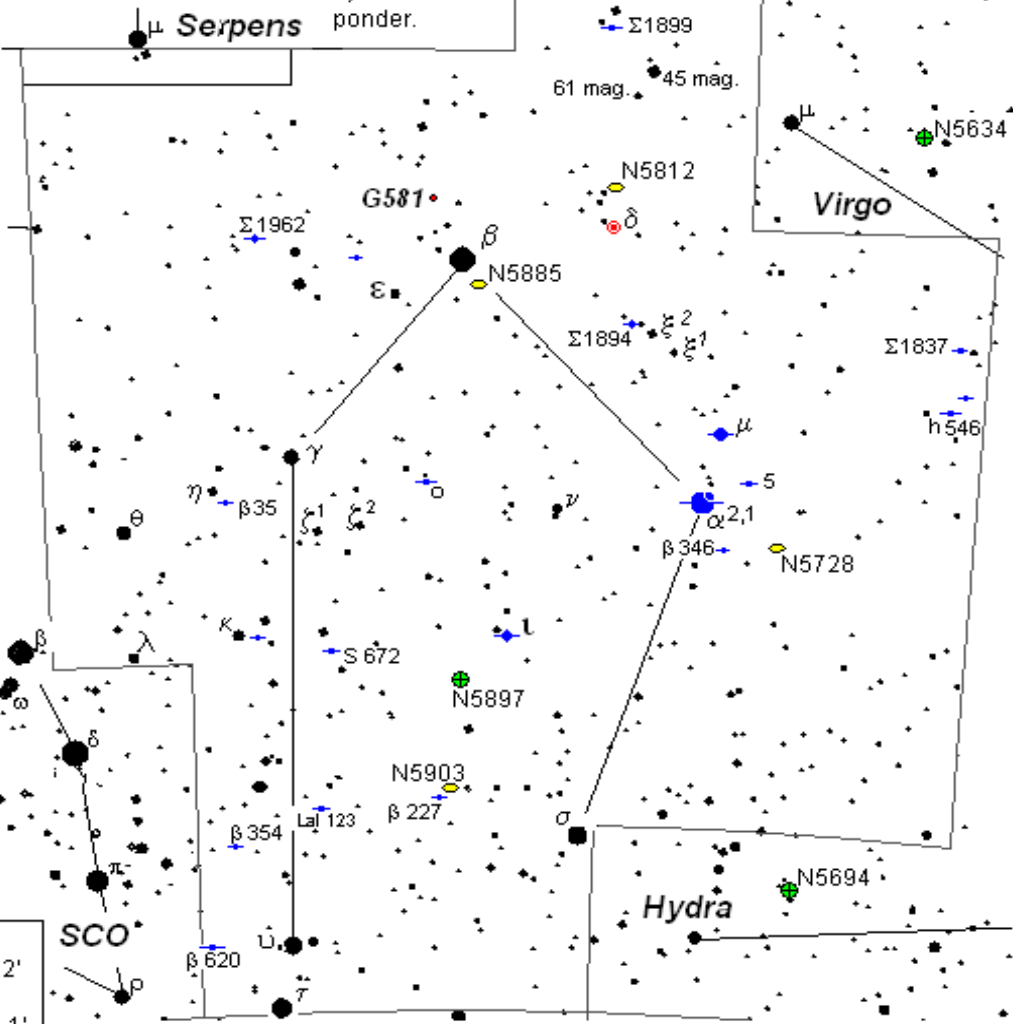
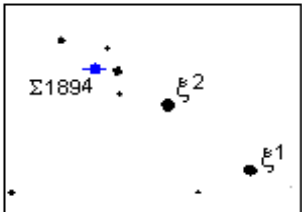
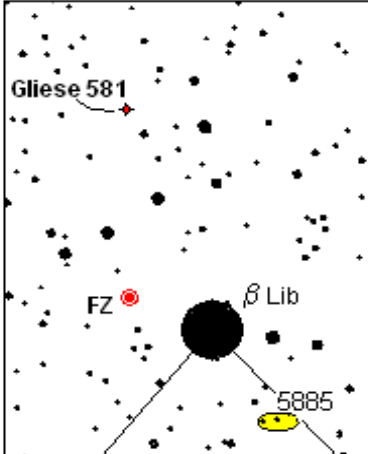
| Star  | (UT) Date | Time  | Scope | magx.  | Event(circle) |
|-------|-----------|-------|-------|--------|---------------|
| _____ | _____     | _____ | _____ | _____x | R D           |
| _____ | _____     | _____ | _____ | _____x | R D           |
| _____ | _____     | _____ | _____ | _____x | R D           |
| _____ | _____     | _____ | _____ | _____x | R D           |

# Constellation of the Month — Libra



Libra  
transit time  
for the 1st.  
of the  
month....  
Apr- 4 AM  
May- 2 AM  
Jun- 12 AM  
Jul- 10 PM  
  
1 hr earlier  
at mid-month

Late spring and early summer provide opportunities to view an often neglected constellation, Libra. It has no 1st magnitude stars or M-objects and this may be the reason. It fills the sky between Spica and Antares. Binocular users can check out the alpha star- a fine double star. Or keep track of variable star delta Librae. Scopes work well on all the nice doubles and globular cluster NGC5897. Several galaxies weigh-in on the scales (Libra). But larger apertures will be needed. All are fainter than 11th magnitude. The low altitude will increase the challenge. Check in on Gliese 581 too. It is red dwarf with a mini-solar system to ponder.



| DEEP SKY  |           |             |  |
|-----------|-----------|-------------|--|
| N5792 gal | 11.3 mag. | 8.0' x 2'   |  |
| N5812 gal | 11.2 mag. | 2.4'        |  |
| N5728 gal | 11.4 mag. | 2.8' x 1'   |  |
| N5885 gal | 11.8 mag. | 3.0' x 3.2' |  |
| N5897 glo | 8.6 mag.  | 12.6'       |  |
| N5903 gal | 11.2 mag. | 2.0'        |  |

| DOUBLE STARS |           |       |                 |
|--------------|-----------|-------|-----------------|
| α Lib        | 2.7, 5.2  | 231"  | yellow, white   |
| μ Lib        | 5.6, 6.6  | 1.9"  | yellow, bl. grn |
| ι Lib        | 4.5, 10.9 | 57.3" | white, yellow   |
| ο Lib        | 6.2, 8.4  | 44"   |                 |
| 5 Lib        | 6.4, 10.1 | 3.1"  | orange, white   |
| β 35         | 7.3, 8.7  | 1.8"  | both yellow     |
| β 227        | 7.5, 8.6  | 1.8"  |                 |
| β 346        | 7.5, 7.9  | 2.5"  | both yellow     |

|        |           |       |                  |
|--------|-----------|-------|------------------|
| β 354  | 7.3, 9.3  | 5.7"  |                  |
| β 620  | 7.0, 6.6  | 50.6" |                  |
| Σ1837  | 6.9, 8.8  | 1.2"  | both yellowish   |
| Σ1962  | 6.4, 6.5  | 11.6" | both gloss white |
| Σ1894  | 5.9, 8.2  | 25.1" | silver, orange   |
| Σ1899  | 6.7, 10.2 | 28.6" | orange, white    |
| h 546  | 6.6, 10.0 | 40.0" |                  |
| S 672  | 6.3, 8.9  | 11.4" | yellow, brown    |
| Lal123 | 6.9, 7.0  | 9.0"  |                  |

Gliese 581 10.5 exo-planetary sys.  
δ Lib-Algol type variable, 2.327d. 4.9-5.9mag.

| Check list | 5 Lib | Instrument: | date used: |
|------------|-------|-------------|------------|
| 5792       | β 35  | _____       | _____      |
| 5812       | β 227 | _____       | _____      |
| 5728       | β 346 | _____       | _____      |
| 5885       | β 354 | _____       | _____      |
| 5897       | β 620 | _____       | _____      |
| 5903       | Σ1837 | _____       | _____      |
| α Lib      | Σ1962 | _____       | _____      |
| μ Lib      | Σ1894 | _____       | _____      |
| ι Lib      | Σ1899 | _____       | _____      |
| ο Lib      | h 546 | _____       | _____      |

|            |                |
|------------|----------------|
| S 672      | _____          |
| Lal123     | _____          |
| Gliese 581 | _____          |
| δ Lib      | _____          |
| mag. on    | ____/____/____ |
| mag. on    | ____/____/____ |

**Solar and Lunar (EDT).**

| Date | Sunset | Moonrise | Moonset  |
|------|--------|----------|----------|
| 1    | 8 : 21 | 5 : 11a  | x : xx   |
| 5    | 8 : 25 | x : xx   | 11 : 04p |
| 9    | 8 : 29 | x : xx   | 1 : 18a  |
| 13   | 8 : 33 | x : xx   | 3 : 23a  |
| 17   | 8 : 37 | 9 : 20p  | x : xx   |
| 21   | 8 : 41 | 12 : 02a | x : xx   |
| 25   | 8 : 45 | 2 : 01a  | x : xx   |
| 29   | 8 : 48 | 3 : 41a  | x : xx   |

**PLANET WATCH**

| Saturn<br>Transits | Neptune<br>Rises | Venus<br>Rises |
|--------------------|------------------|----------------|
| 11:33 PM           | 3:39 AM          | 5:21 AM        |
| 11:16 PM           | 3:23 AM          | 5:17 AM        |
| 11:00 PM           | 3:08 AM          | 5:13 AM        |
| 10:43 PM           | 2:52 AM          | 5:09 AM        |
| 10:27 PM           | 2:36 AM          | 5:05 AM        |
| 10:11 PM           | 2:21 AM          | 5:01 AM        |
| 9:54 PM            | 2:05 AM          | 4:58 AM        |
| 9:38 PM            | 1:49 AM          | 4:56 AM        |

**May 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 May 2011 (10) Hygiea**

| Date | TRANSITS   | RA            |      | Alt.          | Azm  | Magnitude |
|------|------------|---------------|------|---------------|------|-----------|
|      |            | hr.           | min  |               |      |           |
|      |            | Dec. deg.     |      |               |      |           |
|      |            | topocentric   |      |               |      |           |
| 1    | 2 : 13 AM  | 15            | 24.1 | 18°           | 148° | 9.4       |
| 7    | 1 : 44 AM  | 15            | 19.4 | 21            | 154  | 9.2       |
| 13   | 1 : 16 AM  | 15            | 14.5 | 23            | 161  | 9.1       |
| 19   | 00 : 48 AM | 15            | 09.7 | 25            | 168  | 9.2       |
| 25   | 00 : 19 AM | 15            | 05.1 | 27            | 175  | 9.3       |
| 31   | 11 : 47 PM | 15            | 01.0 | 27            | 182  | 9.5       |
|      |            | (at midnight) |      | (at midnight) |      |           |

**Date UT hr Celestial Highlights**

|    |    |                           |
|----|----|---------------------------|
| 3  | 06 | <b>NEW MOON</b>           |
| 6  | 12 | eta Aquarid meteor shw r. |
| 7  | 19 | Mercury greatest 27° W.   |
| 10 | 20 | <b>FIRST QUARTER MOON</b> |
| 11 | 09 | Venus 0.6° S. of Jupiter  |
| 17 | 11 | <b>FULL MOON</b>          |
| 18 | 08 | Mercury -Venus 1.4° apart |
| 20 | 00 | S Uma at max. 7.8 mag.    |
| 22 | 00 | R Leo at max. 5.8 mag.    |
| 24 | 19 | <b>LAST QUARTER MOON</b>  |
| 28 | 00 | R Boo at max. 7.2         |

Variable Star of the Month: **delta Lib** 4.9-5.9mag 2.32735 day period

**LUNAR OCCULTATIONS FOR: MAY 2011**

| Civil (24hr) |    |     | UT  |      |    | Moon Ph | Moon % illum. | Moon alt | Moon azimuth | Star name | Star Mag. | event PA   | dbl./sep. |      |        |
|--------------|----|-----|-----|------|----|---------|---------------|----------|--------------|-----------|-----------|------------|-----------|------|--------|
| date         | hr | min | sec | date | hr |         |               |          |              |           |           |            |           | min  | sec    |
| 4            | 21 | 29  | 27  | 5    | 01 | 29      | 27            | D        | 3+           | 5°        | 295°      | 39 TAU     | 5.9       | 102° | 174"   |
| 6            | 21 | 27  | 53  | 7    | 01 | 27      | 53            | D        | 13+          | 24        | 279       | SAO 77710  | 7.2       | 068° | NA     |
| 11           | 21 | 15  | 22  | 12   | 01 | 15      | 22            | D        | 64+          | 52        | 197       | RX SEX     | 6.7       | 085° | 117.0" |
| 11           | 22 | 14  | 18  | 12   | 02 | 14      | 18            | D        | 64+          | 46        | 218       | SAO 118314 | 7.4       | 114° | 0.39"  |
| 12           | 0  | 51  | 46  | 12   | 04 | 51      | 46            | D        | 65+          | 22        | 254       | ZC 1543    | 6.6       | 135° | NA     |
| 16           | 0  | 48  | 11  | 16   | 04 | 48      | 11            | D        | 98+          | 30        | 192       | ZC 2039    | 5.5       | 044° | NA     |
| 16           | 1  | 34  | 51  | 16   | 05 | 34      | 51            | D        | 98+          | 27        | 203       | ZC 2045    | 6.4       | 104° | 0.70"  |
| 16           | 2  | 28  | 04  | 16   | 06 | 28      | 04            | D        | 98+          | 22        | 216       | CS VIR     | 5.9v      | 106° | NA     |
| 19           | 3  | 10  | 27  | 19   | 07 | 10      | 27            | R        | 95-          | 25        | 182       | 44 OPH     | 4.2       | 271° | .100"  |
| 25           | 3  | 03  | 46  | 25   | 07 | 03      | 46            | R        | 45-          | 11        | 105       | kappa AQR  | 5.5       | 204° | 98.0"  |
| 25           | 5  | 36  | 53  | 25   | 09 | 36      | 53            | R        | 44-          | 35        | 136       | ZC 3326    | 6.4       | 262° | .011"  |

at M/CO

**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°

Occultations computed using Occult v3.6 (I.O.T.A.)

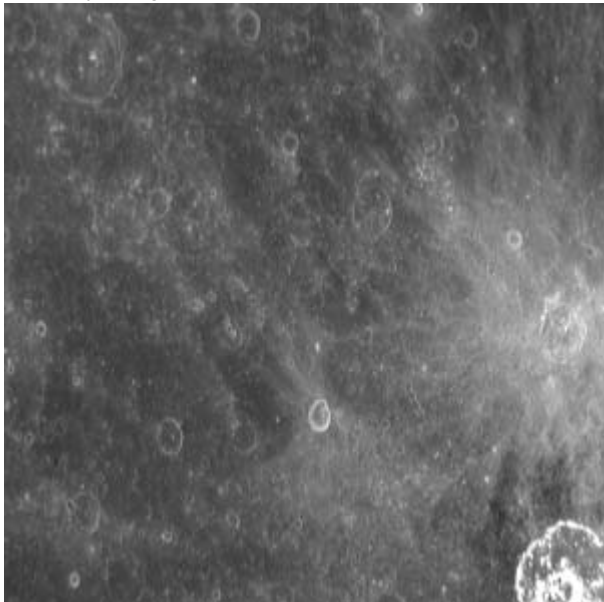
Variable star data from AAVSO. All other data computed with MICA 1800-2050 (Willman-Bell)



# GALLERY.....

## A MESSENGER With Photos!

On March 18, 2011 (UTC), MESSENGER became the first spacecraft ever to orbit the planet Mercury. The mission is currently in the commissioning phase, during which spacecraft and instrument performance are verified through a series of specially designed checkout activities. *(They took pictures! -Ed.)*



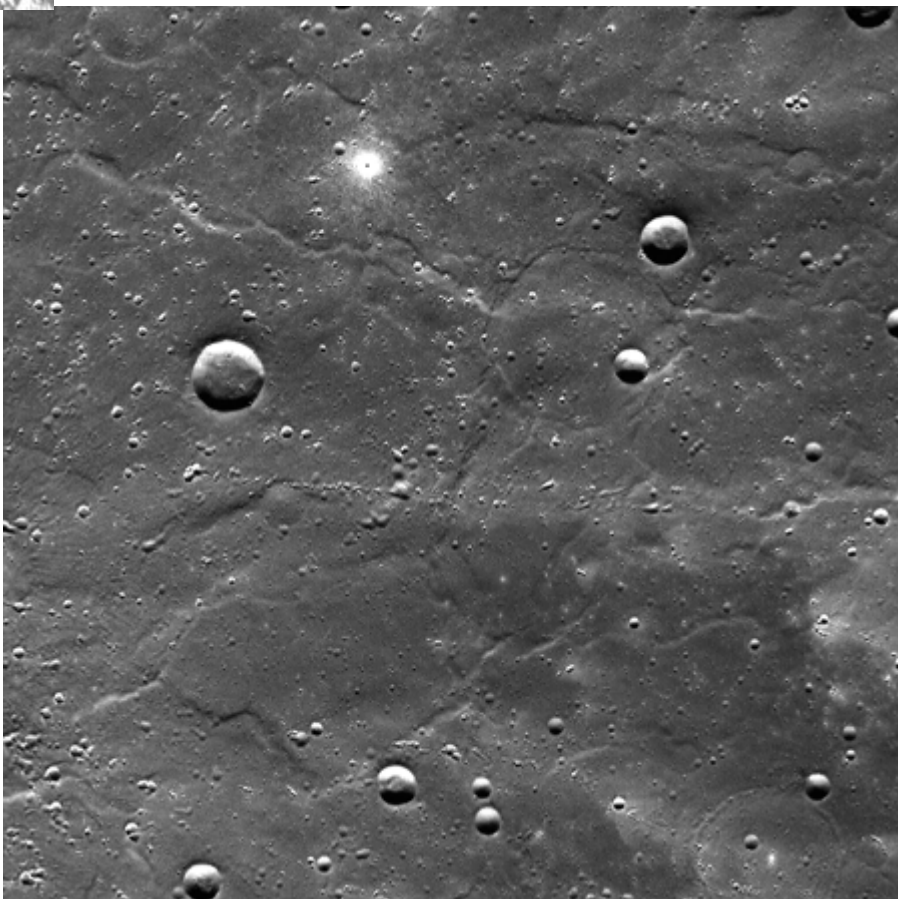
**Above:** This image of a number of unnamed craters was taken with MESSENGER's Narrow Angle Camera (NAC), one of the two cameras that make up the Mercury Dual Imaging System (MDIS). The NAC is an off-axis reflector telescope with a focal length of 550 mm, a field of view of 1.5°. *March 29, 2011*

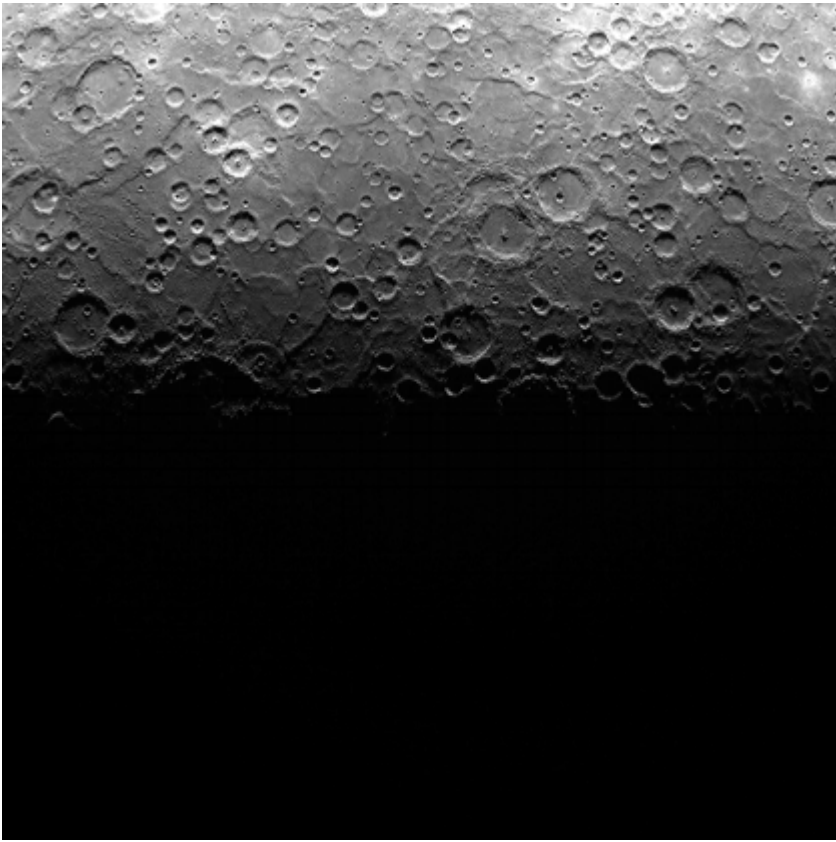
**Right:** This image covers an area of ridged plains to the east of the rim of Hokusai crater on Mercury. The crater's bright rays and ejecta cross the location. The image has higher spatial resolution and a more favorable viewing angle than the coverage of Hokusai from MESSENGER's second flyby. It is just one of many images of this impact crater and its environs that's being collected as part of commissioning activities during MESSENGER's first orbits around Mercury. Here we see chains of small secondary craters that were formed by chunks of debris thrown out of Hokusai during its formation, surrounded by more diffuse high-reflectance rays. A very small, very bright, very fresh (young) primary impact crater and its ejecta blanket light up the top-middle part of the image. North is approximately to the top in this image.

*Date acquired: March 30, 2011*



**Above:** The rayed crater near the bottom of this image is *Hodgkins*, named in July 2009 in honor of the New Zealand painter Frances Hodgkins (1869-1947). In this image, north is approximately toward the upper right corner. Hodgkins has an asymmetric pattern of rays, which about provides information the impact event that formed the crater. *March 31, 2011*





**Left:** The surface footprint of MESSENGER's Wide Angle Camera (WAC) changes markedly as the spacecraft moves along its highly elliptical orbit . Here we see an image that includes Mercury's south pole and terminator, viewed from an altitude of 10,240 km (6363 miles). Approximately half of this image includes portions of Mercury's surface that are not illuminated by the Sun.

*Date acquired: March 31, 2011*

**Right:** The first image acquired by MESSENGER from orbit around Mercury was actually part of an eight-image sequence, for which images were acquired through eight of the WAC's eleven filters. Here we see a color version of that first imaged terrain; in this view the images obtained through the filters with central wavelengths of 1000 nm, 750 nm, and 430 nm are displayed in red, green, and blue, respectively. One of MESSENGER's measurement objectives is to create an eight-color global base map at a resolution of 1 km/pixel (0.6 miles/pixel) to help understand the variations of composition across Mercury's surface. *March 29, 2011*



*All above Messenger Photos and Text , Credit to:*

*NASA/Johns Hopkins University  
Applied Physics  
Laboratory/Carnegie  
Institution of Washington.*