

Mountaineer Skies

Volume 3, Issue 8

<http://www.as.wvu.edu/~planet/index.html>

August 2003

From The Editor's Desk

Mars will be very, very close to Earth this month, as close as it has been for more than 60,000 years. See the article **About: Mars** on page two for more details, as well as the enclosure which shows you how to find **Mars** on the evening of August 27, 2003.

By the end of January - February 2004, if all goes well, there should be 7 space craft, orbiters or landers, around or on Mars. The United States has two there now, the **2001 Mars Odyssey** and the **Mars Global Surveyor**. This year we will send two **Mars Exploration Rovers** to the red planet. The first **MER** which departed on June 10, 2003, named **Spirit**, is scheduled to land on the **Gusev crater** on January 4, 2004, and the other **MER** named **Opportunity** was finally launched on July 7, 2003, and should arrive in late January, 2004, landing in **Meridiani Planum**.

In December, 2003, the European Space Agency's (ESA) **Mars Express** will enter orbit around Mars and deploy a lander called **Beagle 2**. And finally the Japanese spacecraft **Nozomi**, aka Planet-B, will rendezvous with the red planet in January, 2004, after a five year voyage.

- 1 In The Sky This Month
- 2 **About: Mars**
- 3 Planetarium Show Schedule
- 3 Selected Sunrise/Sunset, Moon Rise/Moon Set Times
- 4 Monthly Sky Chart

In The Sky This Month

Visible Planets in the Night Sky

Beginning of August, 2003

	Const	Rise	Transit	Set	Mag
Sun		6:16	13:26	20:36	- 26.8
Mercury	Leo	8:22	15:01	21:43	0.0
Venus	Cnc	5:52	13:08	20:25	- 3.9
Mars	Aqr	22:14	3:34	8:53	- 2.4
Jupiter	Leo	7:31	14:28	21:22	- 1.7
Saturn	Gem	3:43	11:09	18:39	2.4

Middle of August, 2003

	Const	Rise	Transit	Set	Mag
Sun		6:29	13:24	20:20	- 26.8
Mercury	Leo	8:52	15:04	21:17	0.4
Venus	Leo	6:25	13:23	20:22	- 3.9
Mars	Aqr	21:17	2:32	7:47	- 2.7
Jupiter	Leo	6:52	13:45	20:35	- 1.7
Saturn	Gem	2:55	10:21	17:50	2.4

End of Aug, 2003

	Const	Rise	Transit	Set	Mag
Sun		6:44	13:20	19:56	- 26.8
Mercury	Leo	8:17	14:19	20:17	1.8
Venus	Leo	7:02	13:36	20:10	- 3.9
Mars	Aqr	20:03	1:14	6:24	- 2.9
Jupiter	Leo	6:06	12:55	19:41	- 1.7
Saturn	Gem	1:59	9:25	16:54	2.4

Leo	Leo, The Lion
Cnc	Cancer, The Crab
Aqr	Aquarius, The Water Bearer
Gem	Gemini, The Twins

About: Mars

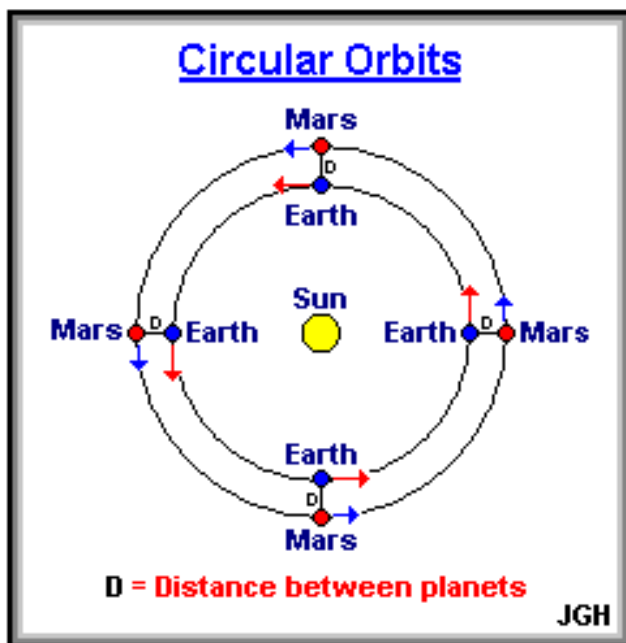
Why is Mars closer to the Earth sometimes and farther away at other times?

First, remember that the planets go around the Sun in ellipses (flattened circles) not true circles.

Secondly, Kepler tells us that the closer to the Sun a planet is, the faster it travels around it. The time it takes a planet to go around the Sun once is called a year. A year on the first planet Mercury is just 88 Earth days, while on the second planet Venus it is 225 Earth days. Earth, the third planet, of course takes 365 days, and the fourth planet, Mars, takes 687 Earth days to go around the Sun. A year on distant Pluto is 90,520 Earth days.

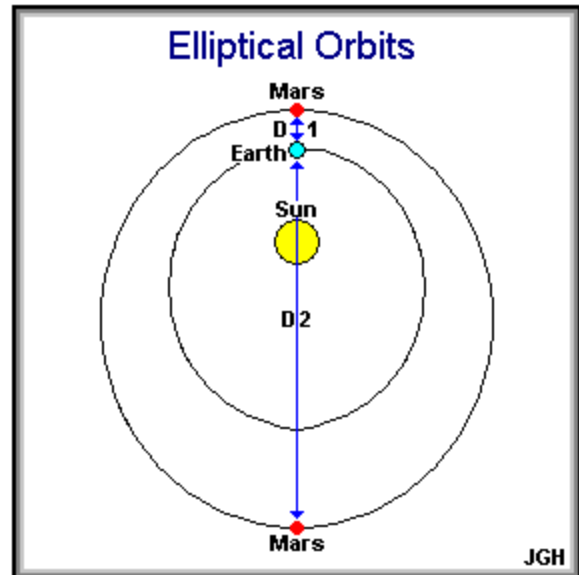
Because the Earth moves faster than Mars, it catches up and passes the red planet from time to time.

If the orbit of Earth and Mars were circular, then every time the Earth passed Mars with respect to the Sun, they would be as close then as they could ever be. When a planet is directly on the opposite side of the Earth from the point of view of the Sun, the planet is said to be **in opposition**.



But the orbits of the planets are elliptical not circular, so the geometry is more complex.

In the diagram below, you will notice that the distances between planets are, for the most part, different. The Earth – Mars alignment or opposition **D1** at the top of the graphic is much closer than the alignment or **conjunction** **D2** at the bottom.



On August 27, 2003, Mars will be less than 55.76 million km (34.65 million miles) from the Earth. This is the closest that the red planet has been to Earth in over 60,000 years.

Where To Find Mars in August 2003

Date	Con	Rise	Transit	Set	Mag
Aug 1	Aqr	10:17 p.m.	3:34 a.m.	8:50 a.m.	- 2.4
Aug 5	Aqr	10:02 p.m.	3:17 a.m.	8:32 a.m.	- 2.5
Aug 10	Aqr	9:42 p.m.	2:55 a.m.	8:09 a.m.	- 2.6
Aug 15	Aqr	9:20 p.m.	2:32 a.m.	7:44 a.m.	- 2.7
Aug 20	Aqr	8:58 p.m.	2:08 a.m.	7:18 a.m.	- 2.8
Aug 25	Aqr	8:35 p.m.	1:44 a.m.	6:52 a.m.	- 2.9
Aug 27	Aqr	8:26 p.m.	1:34 a.m.	6:42 a.m.	- 2.9
Aug 30	Aqr	8:12 p.m.	1:19 a.m.	6:26 a.m.	- 2.9

Aqr = Aquarius, The Water Bearer

2003 – 2004 Planetarium Shows



August 22, 2003 Midnight's Canvas	September 12 & 26, 2003 Midnight's Canvas	October 10 & 24, 2003 Midnight's Canvas
November 14 & 21, 2003 Midnight's Canvas	December 5, 12, & 19, 2003 'tis The Season	January 9 & 23, 2004 Midnight's Canvas
February 13 & 27, 2004 Midnight's Canvas	March 12 & 26, 2004 Midnight's Canvas	April 9 & 23, 2004 Midnight's Canvas
May 14 & 28, 2004 Midnight's Canvas	June 11, 2004 Midnight's Canvas	July, 2004 Closed

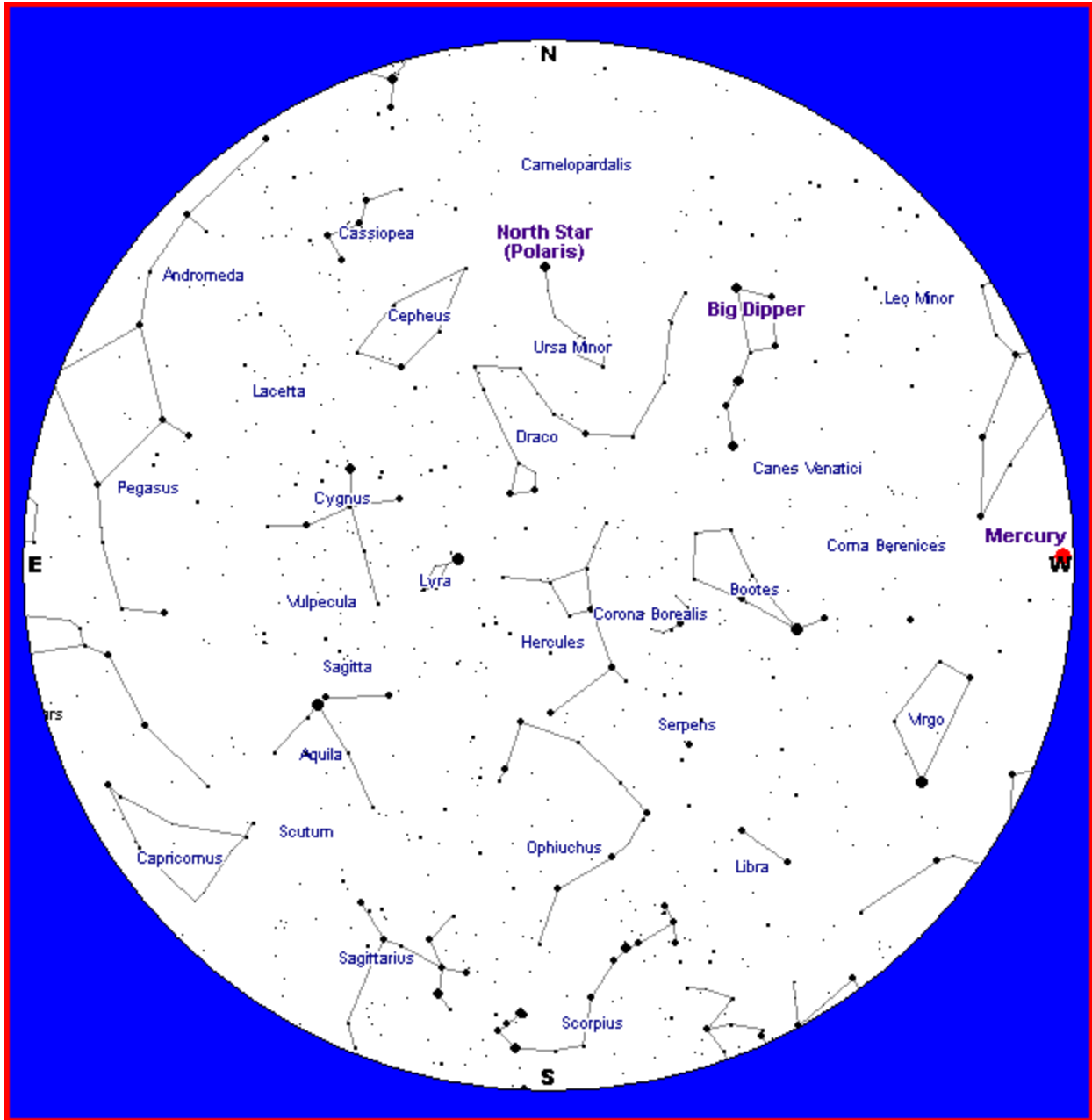
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

For further information or reservations, please call John Hopkins at (304)293-3422, extension 1443 or by email at: jhopkins@mail.wvu.edu

Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Aug 5	6:21 A.M.	8:29 P.M.	2:30 P.M.	12:14 A.M.	First Qtr
Aug 11	6:27 A.M.	8:22 P.M.	8:36 P.M.	5:27 A.M.	Full Moon
Aug 19	6:34 A.M.	8:11 P.M.	None	1:56 P.M.	Last Qtr
Aug 27	6:42 A.M.	8:00 P.M.	6:19 A.M.	8:27 P.M.	New Moon

August 2003 Sky Chart* for:
10:00 P.M at the beginning of the month
9:00 P.M in the middle of the month
8:00 P.M at the end of the month



*Sky Chart used with the kind permission of **Heavens-Above** at <http://www.heavens-above.com/>

The TOMCHIN PLANETARIUM is named in honor of the late Harold Tomchin, of Princeton, W.Va., who made a generous donation to ensure its continuing operation, and whose family continues to support the planetarium for the educational benefit of WVU students, staff, and faculty members, as well as the local community. Contributions can be made in support of the planetarium through the WVU Planetarium Project at the WVU Foundation, Inc., phone (304)284-4000. Thank You.



Edited by John Hopkins
(304)293-3422, extension 1443
jhopkins@mail.wvu.edu



