

IO – August 2004

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www.eugeneastro.org

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Io (EYE-oh) is nearest to Jupiter and fastest orbiting of the four Galilean moons

Monday- August 2, 2004 MEETING EUGENE ASTRONOMICAL SOCIETY At The Science Factory Planetarium

The meeting will begin at **7:00 PM** in the Planetarium, with a presentation sure to please everyone from novice to seasoned amateur. Come early and help others learn about their scopes. Those of you, who are new or not sure about your equipment, show up early and some of our members will assist you in understanding your equipment better. If you are planning on getting a scope please come out and ask questions, we're glad to assist you in making a good solid choice to maximize your viewing pleasure.

The Science Factory is at 2300 Leo Harris Parkway, behind Autzen Stadium.



Passing of a Friend



EAS has lost a longtime and devoted member, Dr. John Bishop passed away the first part of July. Dr. John Bishop was a longtime, devoted member of EAS, he will surely be missed at our meetings and club functions. John lived near College Hill Reservoir and many a night was shared with him by fellow astronomers. He loved Astronomy and sharing the night skies. The next time you're at College Hill Reservoir enjoying the night sky, take a moment and remember John. He's probably looking down from the stars at you. We'll miss you John.

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Astronomical League Observing Clubs

The **Observing Clubs** offer encouragement and certificates of accomplishment for demonstrating observing skills with a variety of instruments and objects. These include the Messier Club; Binocular Messier Club and the Herschel 400 Club, the Deep Sky Binocular Club, the Southern Skies Binocular Club, the Meteor Club, the Double Star Club, and the newly formed Lunar Club.

Each Club offers a certificate based upon achieving certain observing goals. These are usually in the form of a specific number of objects of a specific group with a given type of instrument. Occasionally there are multiple levels of accomplishment within the club. There is no time limit for completing the required observing, but good record keeping is required.

When you have reached the requisite number of objects, your observing logs are examined by the appropriate authority and you will receive a certificate and pin to proclaim to all that you have reached your goal. Many local astronomical societies even post lists of those who have obtained their certificates.

Visit their web site and explore all the League has to offer. Get started now on one of the club certificates that will help you learn the night sky.

<http://www.astroleague.org/>

John Dobson Night

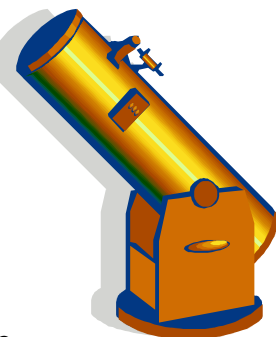
Many people braved the record - breaking heat wave to hear and meet John Dobson. EAS members brought scopes and lots of enthusiasm to meet with the public and share the night skies. U of O students had many quality built "Dobson" telescope out. They had assembled these instruments as part of a class project at the University of Oregon. This amateur-made scope gave nice pleasing views of distance objects despite the surrounding light pollution. John Dobson's simplistic design of a Newtonian telescope on a simple yet very functional plywood mount, has made it easier for many to enjoy the treasures of night skies through medium to large aperture telescopes.

The Dobsonian Telescope is an excellent Scope for the beginner and seasoned observer.

This is evident by all the Dobsonian scopes that were on hand Friday night. Many EAS

members have built their own instruments as of late, including the making of their own mirrors, under the expert guidance of Mel Bartels.

This was a fun event. We had a clear balmy evening sky, an excellent time to view and converse with fellow astronomers. There were many opportunities, to and introduce new people to the world of amateur astronomy. Many folks enjoyed views of the moon and a glimpse or two of Jupiter before it faded from view in the West. Thanks to all of you that took part in making this happen. It was a great event.



Dark Sky Outing



July 16, was a Dark Moon night and many EAS members found a way to meet under dark skies. The evening grew dark with clear skies, lots of friendly faces and the prospects of a really good night for viewing. There must have been half a dozen or more scopes and over a dozen members sharing the sky. Some of us were just star hopping. While others tried to expose some celluloid, in hopes of capturing some faint stellar scenes. The clouds kept coming in and out.

Lots of large sucker holes began to develop. It seemed that the sky was full of satellites, airplanes and wandering bands of clouds. All to the dismay of Richard and myself, trying to capture a clear image of some faint object. We all enjoyed some bright Iridium Flares and many meteors. Of course our shutters were always closed whenever these events occurred.

Alicia was busy with her new Dob, star hopping and finding faint objects, while keeping an excellent record of her endeavors. It is so easy in the city to locate certain star formations, at a dark sky site, there are so many stars that some star groups get lost. At least for me, it takes a moment or two to locate some of these star groupings. Maybe its just my eyes are not as sharp as they use to be. That is why my telescope seems to weigh so much more now, then when I bought it.

Frank had his monster out, “sighs” and “Oh My Gosh” continually interrupted the silent darkness. He was using bino-viewers and Naglers, which gave spectacular three-dimensional views. The views through his twenty inches of aperture are the best I’ve seen.

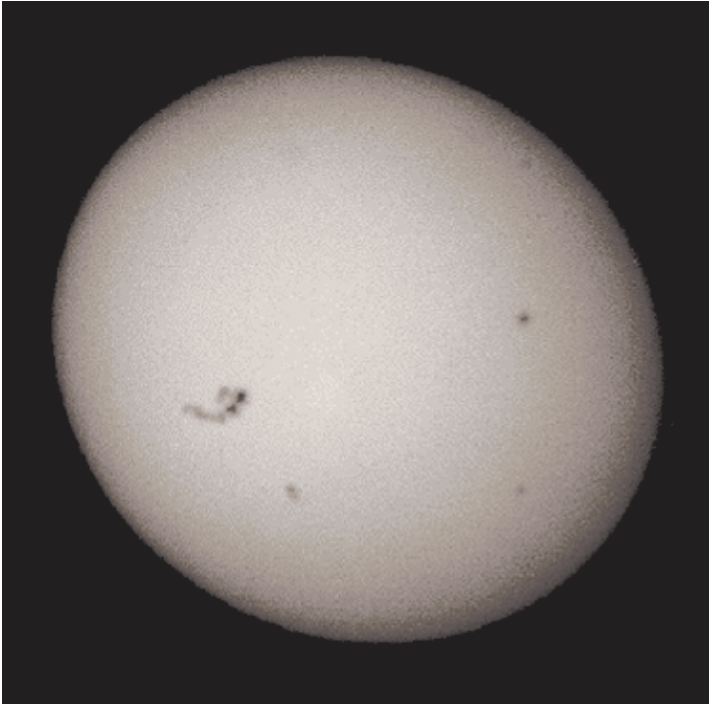
Many others made it up to visit and view, what a really pleasant night. The die-hards, of course stayed till nearly dawn when the clouds drowned out all the stars, it was time to pack up, even if we had half a roll or more to go. I hope that others will join us next time, for a really wonderful night under the stars.



Perseids Meteor Shower

This year will be an excellent one to watch for the Perseids, partly because bright moonlight will not interfere as in past years, and also because Earth might encounter a heavier concentration of meteoric debris, astronomers predict, leading to better than normal meteor activity. Perseid meteors are bits of debris -- typically no larger than sand grains but sometimes up to marble size -- left behind during repeated passes of comet Swift-Tuttle. The comet crosses the inner solar system once every 128 years as part of its elongated orbit around the Sun. Active 7/17-8/24 Peak 8/12

Huge Sunspot



Alicia McGraw was able to capture this great image of a huge sunspot around the 20th of July. (Is that why it got so hot here in Eugene?) Alicia managed to get a photo of the sunspots the other day (which fired a CME toward earth!) using the telescope projection. Here's is a black and white, scaled down, rotated and flipped version of the image. (Of course the picture is blurrier than what I could see by eye.) Sunspot 652 (mentioned below) which fired the CME, is the super dark double spot you can see to the left in the image.

Don't forget to use the proper methods like above or use factory made filters and strictly follow the directions. It only takes a fraction of a second to lose and eye. Also remember large aperture scopes may require a mask to cut down the amount of light (HEAT) that may be generated. One of our members fried and eyepiece, to much heat!

The Bartels Tri-Dob

Mel Bartels, fellow EAS member, and Master telescope maker/designer, has come up with a new design for Dobsonian telescopes. As quoted from Sky & Telescope Magazine (August 2004 Issue), "This innovative telescope takes Dobsonian evolution in an exciting new direction".

The new scope is unlike a traditional Dobson in several ways. The traditional Dob uses a rocker box and a flat ground board, which the rocker box sits atop of and rides on Teflon strips. This new design utilizes a rigid base ring with a low profile "flex-rocker" which rides on Teflon pads. The low profile base utilizes four track rollers to keep it from moving laterally. The base/rocker uses only three, instead of the normal four Teflon pads. This is new design is lighter in weight easier to set up and transport.

This is a very brief and rough description of this new ingenious design. You've got to read the August issue of Sky & Telescope, to learn more about this new Tri-Dob.

Visit Mel's web site:

<http://members.efn.org/~mbartels>

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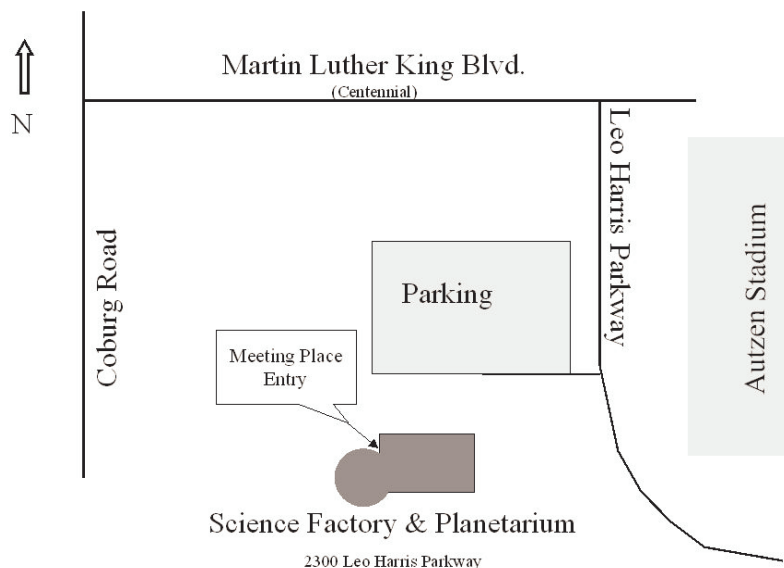
What's Out Tonight?

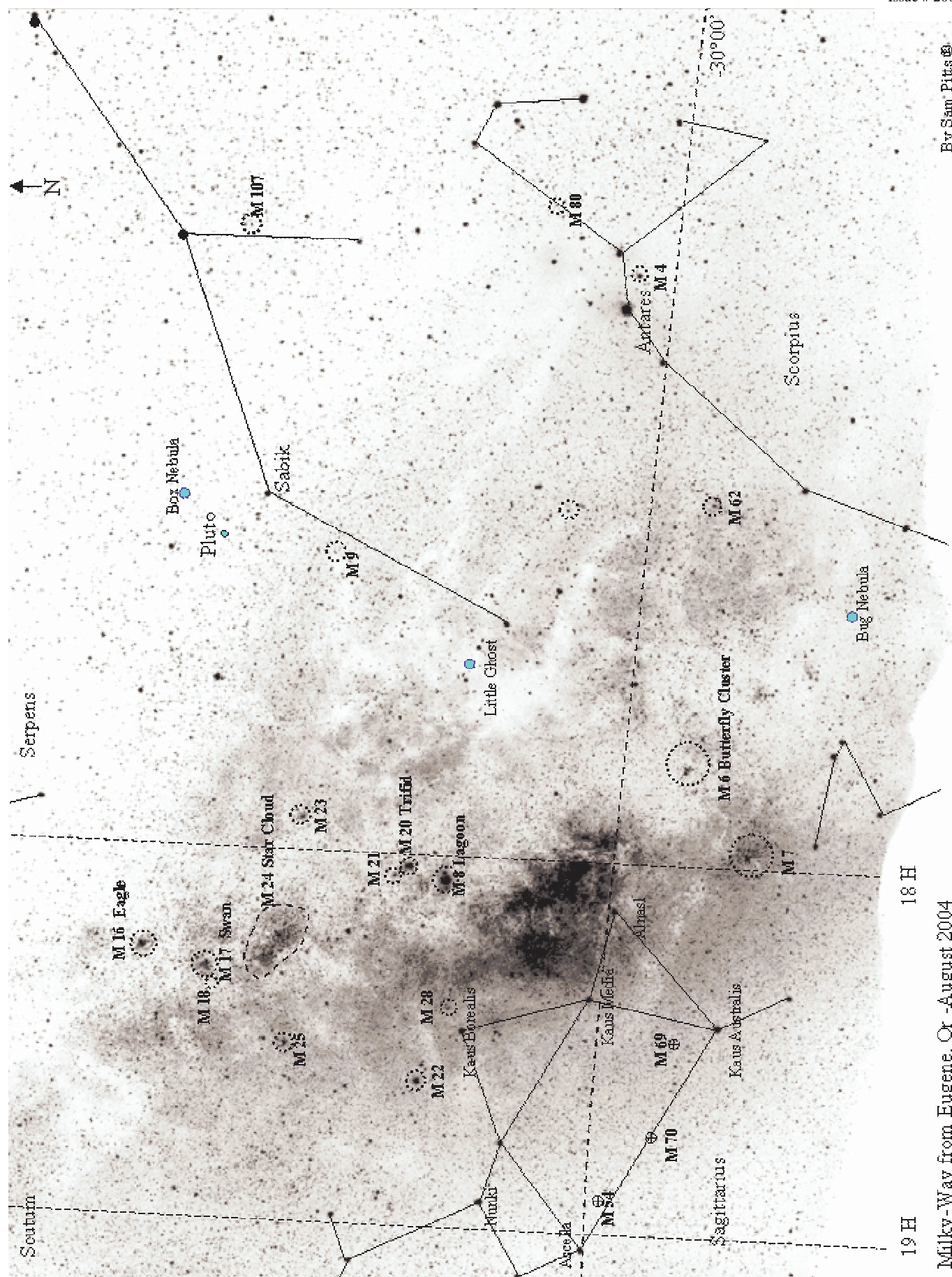
The following pages have the sunrise and sunset's specific for the Eugene, Oregon's longitude & Latitude to help plan future outings. The 6th page has a map of the Southern portion of the Milky Way as seen from the Eugene area. Page 7 has some finder maps/stars fields to help locate and identify Pluto, Neptune & Uranus.

Sunrise * Sunset for Eugene, Oregon

Add one hour for daylight savings time

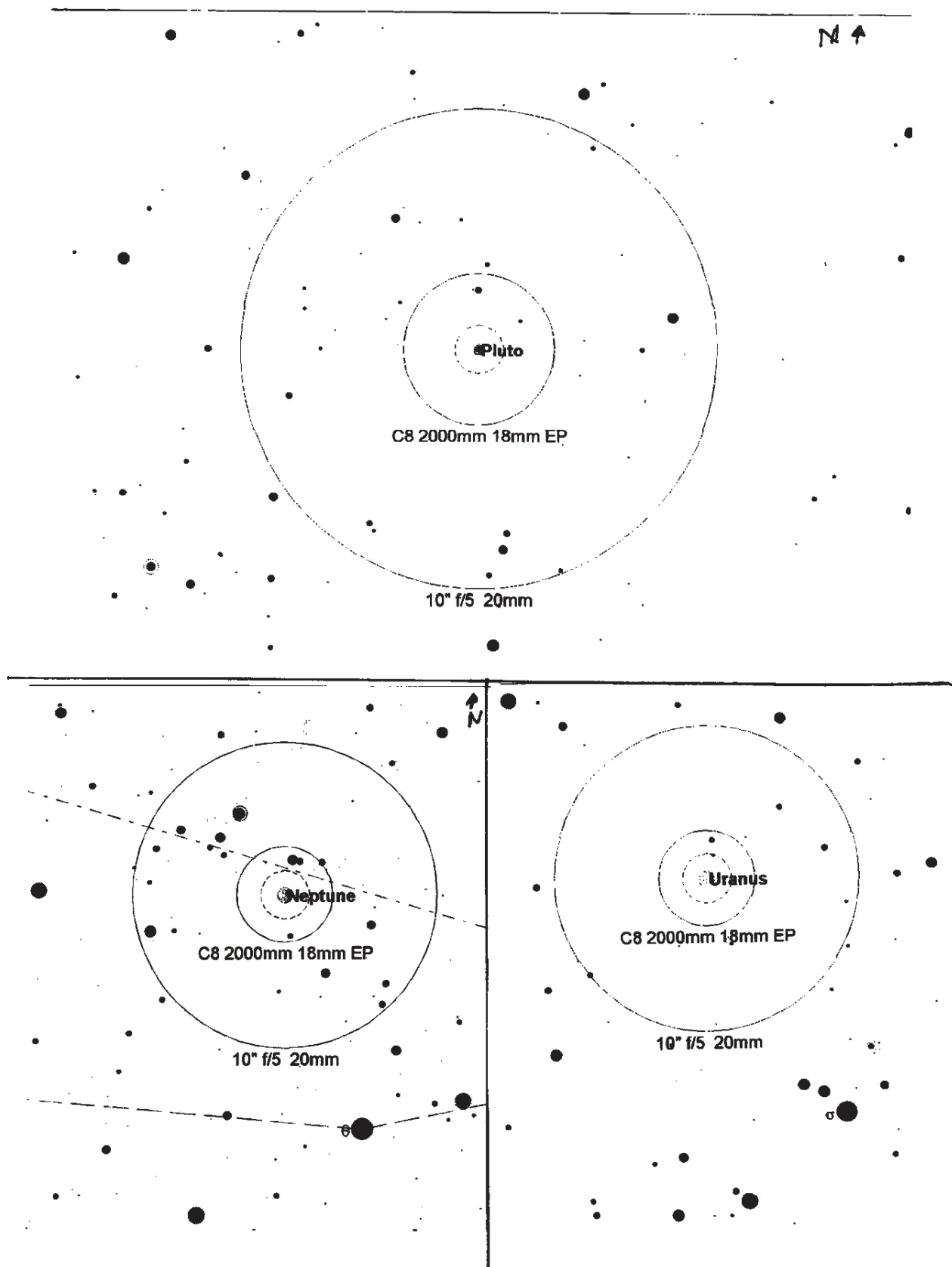
	August	September	October	November	December
Day	Rise Set hm hm	Rise Set hm hm	Rise Set hm hm	Rise Set hm hm	Rise Set hm hm
1	0501 1936	0536 1847	0611 1752	0650 1702	0728 1635
2	0502 1934	0537 1846	0612 1750	0651 1700	0729 1635
3	0503 1933	0538 1844	0613 1749	0652 1659	0730 1635
4	0504 1932	0540 1842	0614 1747	0654 1658	0731 1635
5	0505 1930	0541 1840	0615 1745	0655 1657	0732 1634
6	0507 1929	0542 1838	0617 1743	0656 1655	0733 1634
7	0508 1928	0543 1837	0618 1741	0658 1654	0734 1634
8	0509 1926	0544 1835	0619 1740	0659 1653	0735 1634
9	0510 1925	0545 1833	0620 1738	0700 1652	0736 1634
10	0511 1923	0546 1831	0622 1736	0702 1651	0737 1634
11	0512 1922	0548 1829	0623 1734	0703 1650	0738 1634
12	0513 1920	0549 1827	0624 1733	0704 1649	0739 1634
13	0514 1919	0550 1825	0625 1731	0706 1648	0739 1634
14	0516 1917	0551 1824	0626 1729	0707 1647	0740 1635
15	0517 1916	0552 1822	0628 1728	0708 1646	0741 1635
16	0518 1914	0553 1820	0629 1726	0710 1645	0742 1635
17	0519 1913	0554 1818	0630 1724	0711 1644	0742 1636
18	0520 1911	0556 1816	0632 1723	0712 1643	0743 1636
19	0521 1910	0557 1814	0633 1721	0713 1642	0743 1636
20	0522 1908	0558 1812	0634 1719	0715 1641	0744 1637
21	0524 1906	0559 1811	0635 1718	0716 1641	0744 1637
22	0525 1905	0600 1809	0637 1716	0717 1640	0745 1638
23	0526 1903	0601 1807	0638 1715	0718 1639	0745 1638
24	0527 1901	0602 1805	0639 1713	0720 1639	0746 1639
25	0528 1900	0604 1803	0641 1712	0721 1638	0746 1640
26	0529 1858	0605 1801	0642 1710	0722 1637	0746 1640
27	0530 1856	0606 1800	0643 1709	0723 1637	0747 1641
28	0532 1854	0607 1758	0644 1707	0724 1636	0747 1642
29	0533 1853	0608 1756	0646 1706	0726 1636	0747 1643
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By Sam Pitts

Milky-Way from Eugene, Or -August 2004



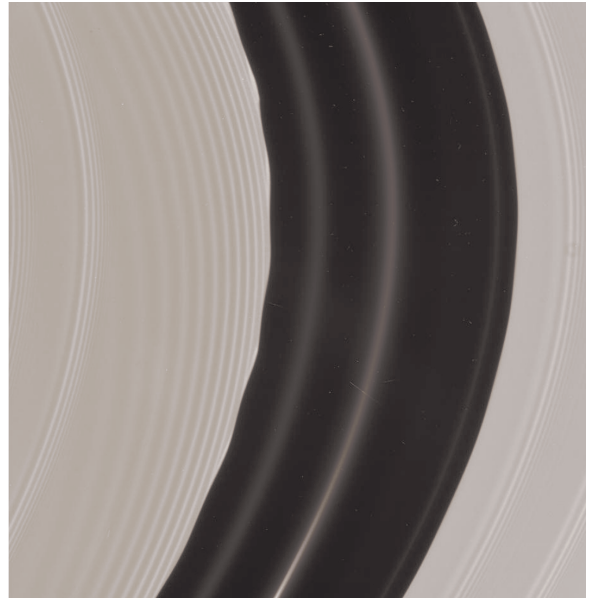
Waiting for Cassini's "Safe Arrival" Call

The evening of June 30, 2004, was nail-biting time at Cassini Mission Control. After a seven-year journey that included gravity assist flybys of Venus, Earth, and Jupiter, Cassini had finally arrived at Saturn. A 96-minute burn of its main engine would slow it down enough to be captured into orbit by Saturn's powerful gravitational field. Too short a burn and Cassini would keep going toward the outer reaches of the solar system. Too long a burn and the orbit would be too close and fuel reserves exhausted.

According to Dave Doody, a Cassini Mission Controller at the Jet Propulsion Laboratory (JPL) in Pasadena, California, there was a good chance the Earth-bound Cassini crew would have to wait hours to learn whether or not the burn was successful. Of the three spacecraft-tracking Deep Space Network (DSN) complexes around the globe, the complex in Canberra, Australia, was in line to receive Cassini's signal shortly after the beginning of the burn. However, winds of up to 90 kilometers per hour had been forecast. In such winds, the DSN's huge dish antennas must be locked into position pointed straight up and cannot be used to track a tiny spacecraft a billion miles away as Earth turns on its axis. "The winds never came," notes Doody.

The DSN complex at Goldstone, California, was tracking the carrier signal from Cassini's low-gain antenna (LGA) when the telltale Doppler shift in the LGA signal was seen, indicating the sudden deceleration of the spacecraft from the successful ignition of the main engine. Soon thereafter, however, Goldstone rotated out of range and Canberra took the watch.

After completion of the burn, Cassini was programmed to make a 20-second "call home" using its high-gain antenna (HGA). Although this HGA signal would contain detailed data on the health of the spacecraft, mission controllers would consider it a bonus if any of that data were actually captured. Mostly, they just wanted to see the increase in signal strength to show the HGA was pointed toward Earth and be able to determine the spacecraft's speed from the Doppler data. If possible, they also wanted to try to lock onto the signal with DSN's closed-loop receiver, a necessary step for extracting engineering data.



Right after entering Saturn orbit, Cassini sent this image of the part of the Encke Gap in Saturn's rings. Image credit NASA/JPL/Space Science Institute.

Normally it takes around one minute to establish a lock on the HGA signal once a DSN station rotates into range. Having only 20 second's worth of signal to work with, the DSN not only established a lock within just a few seconds, but extracted a considerable amount of telemetry during the remaining seconds.

"The DSN people bent over backwards to get a lock on that telemetry signal. And they weren't just depending on the technology. They really know how to get flawless performance out of it. They were awesome," remarks Doody.

Find out more about the DSN from JPL's popular training document for mission controllers, Basics of Space Flight (www.jpl.nasa.gov/basics) and the DSN website at deepspace.jpl.nasa.gov/dsn. For details of the Cassini Saturn orbit insertion, see www.jpl.nasa.gov/basics/soi. Kids can check out The Space Place at spaceplace.nasa.gov/en/kids/dsn_fact1.shtml to learn about the amazing ability of the DSN antennas to detect the tiniest spacecraft signals.

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