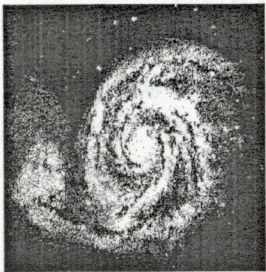
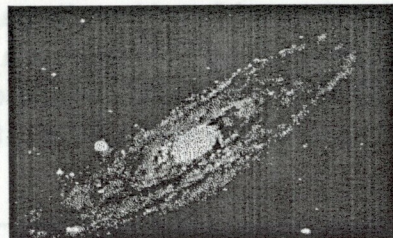


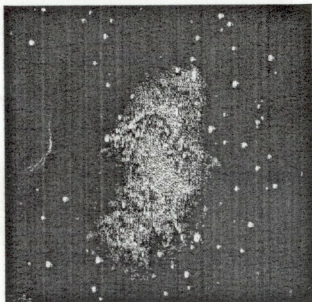
Answers to GIF Questions



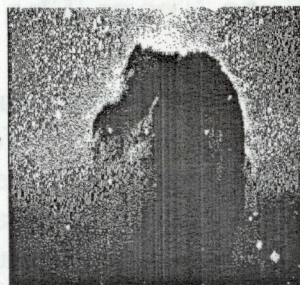
M51



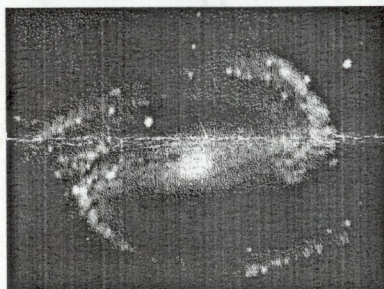
M31
M32
M110



M1



IC434



NGC1300

NOTE: Curt Roelle dropped me a note and correctly identified all of the GIF's. That wins him the special 'SuperAstronomer' Gold Star!!!

The Prairie Astronomer

c/o The Prairie Astronomy Club, Inc.

P.O. Box 80553

Lincoln, NE 68501

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The Prairie Astronomer

Moon Landing + 20 years: A Giant Leap for Space Data

by Alan J. Ryan
Computerworld Magazine

Pasadena, California--Twenty years ago this week, man took his first tentative steps on the moon and gathered more data than he could analyze. Today, the Magellan space probe is on its way to Venus, where it will generate more data than all previous space missions combined.

Unlike other missions, the data gathered by Magellan will not hit the storage vaults to sit undigested, according to Leslie Pieri, team chief for the data management and archive team at the Jet Propulsion Laboratory here.

The laboratory is overseeing the Magellan project for the National Aeronautics and Space Administration.

Although much of the hardware being used by the mission's control team is based on older technology, several things will be done differently with Magellan than with other space missions to help scientists use the data more effectively and efficiently, Pieri said.

More than three terabytes of information will be collected during the Magellan mission. The use of optical disks and a single-source catalog located in a central database, from which scientists can retrieve the massive quantity of data, will give scientists faster access to the data, she added.

When data is being generated, it is cataloged by different parameters, such as product, orbit or time, Pieri said. They are put

into a relational database where they can be accessed by the scientists working on the Magellan project.

When scientists want to access the information, the JPL can distribute it via an optical disk. "We're keeping an archive of magnetic tape," Pieri said, "but our working copy and the one that the investigators and the scientists will be doing their immediate research on and distribution of will be optical disk." Magellan, launched May 4 from the space shuttle Atlantis and expected to reach Venus in August 1990, was sent on its mission to gain a better understanding of the geology and history of Venus, according to Franklin O'Donnell at the JPL. Venus is interesting because of its similarities to Earth, including its size and distance from the sun. There are also stunning differences, however, such as the fact that the surface of Venus is 900 degrees Fahrenheit, he said.

Each of Magellan's 1,852 orbits will find it looking at a 10-to 17-mile swath of the planet, said Jim Doyle at the JPL. Swaths will eventually be pieced together in mosaics that will be made into maps of the surface.

"There will be someone analyzing each of the individual strips for data control to check on the initial findings," Pieri said. An initial report will be readied 45 days after the mapping phase of the mission begins in August 1990, while a final report will be put together once the mission has been completed. Furthermore, scientist around the world will continue to be able to access the information after that, she said.

Because the surface of Venus is obscured by carbon dioxide clouds that are tens of miles thick, Doyle said, it would be pointless to use traditional optical-scanning equipment on the

corded the sun in H-alpha with a camcorder and the view was fantastic. You will probably want to use at least a four inch telescope for getting good video results on the moon. And be careful viewing the sun! I accidentally put my camera down with the lens facing the sun and I burned out a small portion of the phosphor! A CCD might be ruined completely, so watch out. In any case, enjoy yourself and save a little astronomy for rainy day viewing.

A Note From The Editor:

By now most of you have probably noticed that there was no newsletter in the mail for you. Well, er, it so happens that my car broke down on the interstate... ah, no, I mean that I got caught in a ground blizzard in Grand Island..., or was it a flood in North Platte? Ok, what really happened was that my special service certificate from the "Space, the Final Frontier" club came in the mail and to prove my worthiness as top club member... well, you get the point. (I was on vacation for 2 weeks and totally forgot the newsletter!)

Anyway, my deepest apology for the oversight. To make it up to you I'm planning a special edition of the Prairie Astronomer in the next few months that I think you will find interesting.

On the business side of things, Ron Veys has a new address and phone number.

Ron Veys
3320 Willow Wood Cr.
Lincoln, NE 68506
486-1449

(I sure hope that wasn't an unlisted number and private address that Ron gave me!)

The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc., and is free to all club members. Membership status and expiration date are listed on the mailing label. Membership dues are: Junior Members and Newsletter Only Subscribers...\$10/yr; Regular Members...\$24/yr; Family Members...\$27/yr; Address all new memberships, renewals, or questions to THE PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE 68501. For other club information contact one of the following officers: Ron Debus (Pres)435-5688, Dave Knisely (V.Pres)223-3968, Kim Ellen Owen (Sec)423-7440, Lee Thomas(Tres)483-5639, Jack Dunn (2nd V.Pres)475-3013. All newsletter comments and articles should be sent to Newsletter Editor JOHN LORTZ, 9255 CADY AVE. #14, OMAHA, NE 68134 no later than 7 days before monthly club meetings. Club meetings are held the last Tuesday of each month at Hyde Observatory in Lincoln, NE.

Observing Chairman's Report

by Dave Krisely

THE NEXT SCHEDULED STAR PARTIES ARE SEPTEMBER 1ST AND 29TH AT THE ATLAS SITE. Early fall skies offer a number of interesting objects for the patient observer. A faint but interesting globular cluster is M55, located about seven degrees west and one degree south of Zeta Sagittarii. Although it is visible in a 2.4 inch refractor, this cluster requires at least a six inch to show even a few of its component stars. An eight inch partially resolves it and a ten inch makes it beautiful under good observing conditions. Farther to the east is the globular M30, located about half a degree west and slightly north of 41 Capricorni. Small telescopes will show it at low power, but it takes an eight inch to resolve it at all. A ten inch aperture will begin to resolve it at only 60x, and higher power reveals three star chains coming out of the center and running to the south. In Vulpecula is the naked eye cluster Collinder 399, more commonly known as the "Coathanger" due to its appearance in binoculars. It consists of a row of stars running east and west with a "hook" of stars on the south side. The brightest stars are 4, 5, and 7 Vulpeculae. There is a small dim open cluster, NGC 6802, on the east edge just east of 7 Vulpeculae. It is visible in a six inch as a small fuzzy elongated patch of haze that looks a bit granular. An eight or ten inch will resolve it into several sub-clusters of very faint stars.

Farther north in Cygnus are several famous nebulae. The Veil Nebula is a large but very faint supernova remnant which lies near the star 52 Cygni. It has been reported seen in a pair of 10x50 binoculars, but usually a larger instrument is required for a good view. Large rich-field instruments equipped with nebular filters generally give the best views. The west half of the Veil runs through 52 Cygni and can be seen in a six inch as a very faint streak of light. An eight or ten inch with Lumicon's

UHC or OIII filter make the object appear as a narrow claw with extensive filamentary detail which is over a degree in length. The east half of the Veil is the portion which is generally seen in binoculars and lies about two degrees east and a half north of 52 Cygni. Again, the use of nebular filters greatly enhances the view, making the nebula look like a gigantic irregular arc over a degree in length with extensive fine detail. Observers with ten inch instruments will often see nebulosity between the two main arcs of the Veil.

Another large faint nebula is the North American Nebula, located about three degrees east and one south of Deneb. It can be seen with the naked eye under good conditions, but is best in rich-field instruments equipped with filters. The continental shape can be seen easily in a four inch RFT with Lumicon's OIII filter. Larger instruments will generally not have enough field to show it all, but they will show the "Gulf of Mexico" and "Florida" features. A small but interesting open star cluster is the often overlooked NGC 6939, located 1.25 degrees south and almost two degrees west of Eta Cephei. Visible in a four inch as a small hazy triangle, the cluster resolves well in instruments larger than six inches. In eight or ten inch apertures, the cluster shows several neat rows of stars that make it look like a set of stadium lights. p73 Nearby is the faint but interesting spiral galaxy, NGC 6946, which is about 1.5 degrees west and 1.5 degrees south of Eta Cephei. It appears as a moderate sized faint fuzzy area in a six inch. An eight inch shows a brighter center and some patchiness in the outer haze, while a twelve inch will show a broken spiral structure, making it look like M33 does in an eight inch.

As a final target, try the bright planetary nebula NGC 7009, located 1.3 degrees west on Nu Aquarii. Its ninth magnitude brightness makes it easy to see in small instruments, but it shows little detail in anything under a six inch aperture. An eight inch will give it an oval form, as well as a striking greenish color, while a ten inch will show the spikes on each as well as hinting at some detail in the interior.

Adventures in Video Astronomy

by Dave Knisely

Most of us have looked through a telescope, and a few of us may have dabbled in astrophotography. However, very few have attempted to view the heavens via the video camera. Its low sensitivity and bulky form made video rather difficult to use on a telescope, at least for astronomy. Now, with the advent of small vidicon and CCD cameras, some of us are now taking the plunge. Recently, I purchased a black-and-white home security camera in hopes of using it to view and record the sun through my Hydrogen-Alpha filter. The camera is lightweight and only about six inches long, plus it is rather sensitive for a vidicon camera. Using a piece of PVC pipe as an adapter, I coupled the camera to the end of my T-scanner, and low and behold, it worked! The contrast was low and the image was tough to see in sunlight, but I did manage to see some interesting detail. The real surprise came when I used the camera and my 10" Newtonian on the moon. The view was beautiful to say the least, with tremendous detail being visible. It turned out to be an ideal way to show my family and the neighbors the wonders of the lunar surface without having to get anyone up to the eyepiece. I could easily name and point out to them the various craters by just pointing to them on the screen. A cheap VCR will become my album, recording the stark lunar landscape for future viewing. I even succeeded in viewing Saturn's rings, although the view was not much to brag about. Several bright double stars like Mizar A and B, and Alberio were easily seen, although stars fainter than seventh magnitude were visible.

Those of you with color CCD video camcorders may have better results than I did. The CCD (charged coupled device) is a bit more sensitive and has a better dynamic range than the vidicon I used, plus, the view will be in color. Rick Johnson has re-

Magellan. Magellan will collect information by using synthetic aperture radar (SAR), a technique that involves directing the radar energy in the form of short pulses with a highly directional antenna to the side. The energy is sent out in pulses, and the echoes are recorded on Magellan to map the planet's surface without actually seeing it.

The information will then be stored on-board the probe on two multitrack digital recorders for playback. The storage capacity of the recorders is approximately 1.8 billion bits. Once they are full, the data will be transmitted to computers on Earth, which will then store the information.

On Earth, the main radar processing-control computer is based on the older technology of the Digital Equipment Corp. VAX-11/785 with I/O handled by an Aptec Computer Systems, Inc. IOC 2400. There is other custom hardware and temporary storage on magnetic disks and tapes as well, O'Donnell said.

Extended work on the radar images will be carried out in a system that is basically a VAX cluster environment with two VAX 8650'S and two VAX 11-750S, a Microvax II and an Alliant Computer Systems Corp. computer that will have 12 tape drives and more than 17G bytes of magnetic disk space, O'Donnell said. The storage system-with write-once read-many optical disks, six stand-alone single-platter drives that can access 1G byte of data without operator intervention and two optical-disk jukeboxes that can access 32G bytes without being changed-will store the contents gathered during the mission.

