SPACEWATCH

the newsletter of the Abingdon Astronomical Society

10th November 2003

Adrian Jones (Reading Astro. Soc.) "Astronomy with Webcams and Security Cameras"

The Night Sky this Month

By Bob Dryden and Andrew Ramsey

Comet - Probably (and hopefully), the highlight of this period will be the appearance of Comet 2P/Encke. It has been gradually brightening as it approached Earth for the last few weeks and now it is about to pass us on its way around the Sun. Up to now it has been below 10th magnitude but brightens considerably over the next fortnight.

You need the Moon to be out of the way to see a comet at its best, so the optimum time to see Comet Encke will be from 13th November to the 27th November. After that the Moon will interfere again and by the time we get a dark sky again, the comet will be gone.

So, where will Encke be? Crossing Cygnus, Aquila and Ophiuchius is the answer so it is ideally placed. Closest approach to Earth is 17th November and the comet will be in the Cygnus/Vulpecula region, ie: high overhead, and should be about 6th magnitude. Be warned though, predicting comet magnitudes is not an exact science so Encke could be fainter, or better still, brighter, than this. It should be easily visible in binoculars even if it is fainter than predicted.

Moon

Generally due to gravitational tidal effects the Moon generally keeps the same face turned towards the Earth at all times. However, due to libration effects, the Moon wobbles slightly and actually shows us, at differing times of course, 59% of its surface. During the period from November 14th to 19th, if you get up early, you will have a rare chance to glimpse the Mare Orientalis on the western edge of the Moon. Below is a photograph of this large basin taken from Lunar Orbiter in 1967. The dark crater in the top right of the image is called Grimaldi:

The view you will see from Earth is shown left. Look for the crater Grimaldi (arrowed) and to the left you will see the dark stripes of the lava lakes making up the Mare (marked with brackets)

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Did anyone see the total lunar eclipse early on Sunday morning? There was patchy cloud over Oxfordshire which thickened as the eclipse progressed, allowing most people only glimpses of the reddened, darkened Moon.

Planets

Saturn has returned to the evening sky, albeit not rising until after 10.00pm. By the early hours it is very high overhead and an excellent sight. If you don't fancy waiting
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until after midnight for a good view, by Christmas it will be higher, earlier.

Venus is still very hard to find, very low in the south west immediately after sunset.

Mercury Close by Venus for a short period will be Mercury. However, just as Venus is hard to see, Mercury is even harder to find as it is nowhere near as bright. Mars is still on view of course in the evening but it is noticeably fainter now and definitely smaller in the telescope. This is the last month the planet will be large enough in a telescope to see any detail on the disc. After that, Mars will have dropped too far behind the Earth for you to see anything really.

Jupiter is still in the morning sky in Leo. As it doesn't get light until quite late in the morning now, many of you have the chance to step outside when you get up and look east. The bright 'star' quite high up is Jupiter.

Meteors

The only major meteor shower this period is the Leonids. They are active between 15th November and 20th November. Maximum is 18th November at 03 hr UT. Over the past few years everyone has been very excited about the Leonids because of the possibility of a meteor storm (which did occur as predicted, but as usual, we in the UK were often clouded out). This year is different. No storm is predicted, and even worse, a big bright Moon resides right in Leo on the night of the maximum. This means that we will probably see very little indeed. But who knows - there might be an unexpected good display, so to find out you will have to have a look.

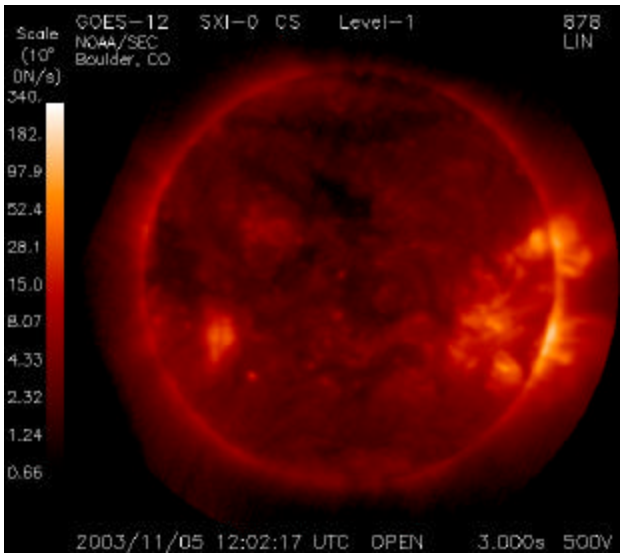
Solar eclipse

There is a total solar eclipse on the 23rd November, but don't get too excited about it as the event is only visible from Antarctica.

Aurorae

Did anyone see the wonderful auroral display visible from much of northern latitudes a couple of weeks ago, except of course cloudy Britain. Those in the east of Britain were treated to a spectacular show as this picture taken from Dover illustrates.

Anyone observing sunspots would have seen two giant groups on the surface of the Sun. One of those gave rise to one of the largest coronal mass ejections ever seen. And it headed roughly towards the Earth. Fortunately its magnetic field was such that it didn't interact too much with the Earth's magnetic field so it didn't do too much damage to power grids and satellites. Also, this time we had prior warning of the coming coronal matter and were able to take preventative action such as shutting down some of the satellites' vulnerable circuitry. Those sunspot groups have now rotated off the surface of the Sun. Here is the view from the SOHO solar observatory in X-rays on 5th Nov. clearly showing that these sunspots were very active:



Watch out for aurorae when they return as the Sun rotates around in roughly 23 days. Whether they will still be active then is anyone's guess.

Moon Phases:

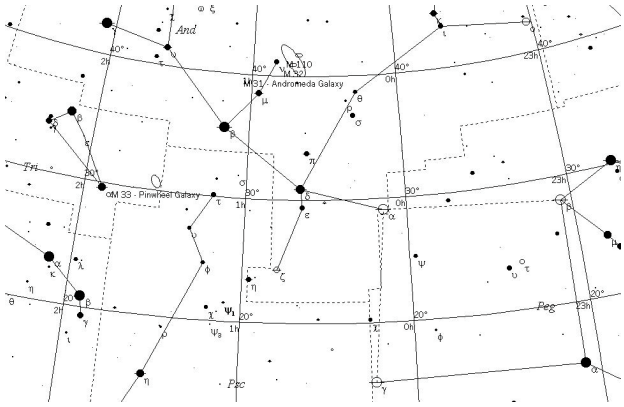
Full: 9th Nov.; Last Qtr: 17th Nov.; New: 23rd Nov.; 1st Qtr: 30th Nov.; Full: 8th Dec.

This month's Deep Sky Object

By Paul Warren

This month's Deep Sky Object is The Pinwheel Galaxy, M33. Note that this nickname for M33 is not unique, as M101 is also sometimes known by this name.

M33 lies in the constellation of Triangulum, a constellation that actually resembles its name! To find M33, go about a third of the way along an imaginary line from ? *Tri* to ? *And*, and M33 is very close to that area.



You have to be careful with this galaxy, because although its magnitude is listed at 5.7, it has a very low surface area brightness. If there's any sort of moon around, don't even try to look for it! Needless to say, you want as dark a sky as you can get. Having said all of this, it shows up quite easily in binoculars under reasonably good conditions.

Through my 8-inch telescope, I can see quite a large fuzzy area. With dark-adapted eyes, hints of its spiral structure come across. Because of its low surface area brightness, it doesn't show up well under high power, with best results coming from low to medium magnifications.

M33 belongs to the local group of galaxies, and is about 2.3 million light years away. With a diameter of 50,000 light years, you could easily fit three M33s in the disk of the Andromeda Galaxy (M31).

What I like most about this galaxy is that you can see a huge nebula in it (NGC604). Through the telescope, this bright blur looks as though it lies outside the galaxy (it lies right beside a 10th magnitude star) but it is actually on the outer part of a spiral arm. The reason why it can be seen is that it is so vast – it is believed to be at least 10 times the size of our Orion Nebula.

NASA's Space Place

Hurricane Team Work

By Tony Phillips

On a gray breezy day last month thousands of people got in their cars and reluctantly left home. U.S. east coast highways were thick with traffic. Schools were closed. Businesses shut down.

Perfect!

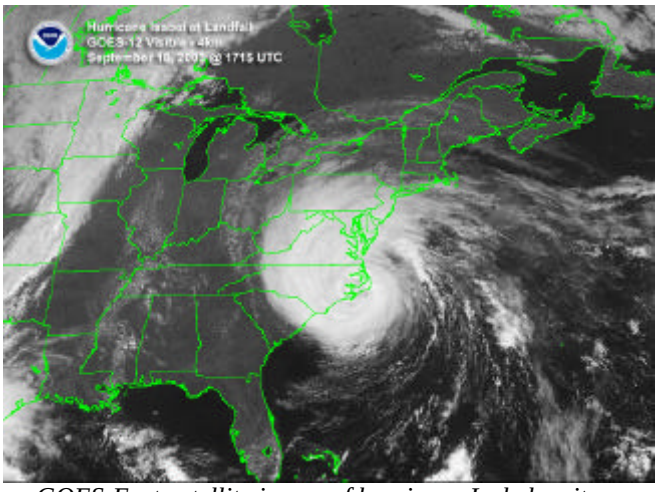
When powerful Hurricane Isabel arrived some 38 hours later nearly everyone in the storm's path had fled to safety.

Days later Vice Admiral Lautenbacher, in a briefing to President Bush, praised the National Atmospheric and Oceanic Administration (NOAA): "Without NOAA's excellent track forecasts, hurricane Isabel's toll on lives and property would have been even more devastating. This is NOAA's first year of providing 5-day forecasts-and the 5-day forecast for Isabel was as good as our 2-day forecasts have been over the last decade."

Many people in NOAA played a role. A team of pilots, for instance, flew Gulfstream-IV High Altitude Surveillance jets right up to the approaching hurricane, logging 25,000 miles in the days before landfall. Their jets deployed devices called

dropsondes-little weather stations that fall toward the sea, measuring pressure, humidity, temperature and wind velocity as they plummet. The data were radioed back to the aircraft and transmitted to forecasters on shore.

While two Gulfstream-IV crews flew night and day around the storm, a NOAA satellite named GOES-EAST monitored Isabel from above. (GOES is short for Geostationary Operational Environmental Satellite.)



GOES-East satellite image of hurricane Isabel as it makes landfall on September 18, 2003 at 1715 UTC.

From an orbit 22,300 miles above the Atlantic Ocean, GOES-EAST had a unique view. "It could see the entire hurricane at once," says Ron Gird of NOAA. "Scientists used infrared spectrometers onboard the satellite to estimate the height of the storm clouds, their temperature and water content. GOES can also measure the temperature of the ocean surface-the source of power for hurricanes."

Constant streams of data from GOES and the Gulfstream aircraft were fed to supercomputers at NOAA's Environmental Modeling Center in Maryland where sophisticated programs, developed over the years by meteorologists and programmers, calculated the storm's most likely path.

Supercomputers. Satellites. Jet airplanes. Scientists. Programmers. Pilots. It took a big team using a lot of tools to predict where Isabel would go-accurately and with time to spare.

Says Vice Admiral Lautenbacher: "I hope everyone at NOAA shares the pride of being part of a team effort that so effectively warned the public of impending danger and enabled citizens to take action to protect themselves and their loved ones."

Well done, indeed.

To learn more about the GOES, see www.oso.noaa.gov/goes/ . For kids, the SciJinks Weather Laboratory at scijinks.nasa.gov has lots of fun activities and fascinating facts about the wild world of weather.

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

NOTICES

Members who receive our e-mail messages from Topica might want to check they are still subscribed. There has been a problem somewhere along the line and several members have been deleted from the list. So, if you haven't received any messages in the last couple of weeks you need to re-subscribe yourself.

FURTHER DISCUSSION

The society's e-mailing list is used by members to comment on all things astronomical, as well as other related and not-so-related subjects. The list is also used to publicise "first-clear-night" observing evenings and for alerting members to hot observing news.

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Don't forget theSociety's web site:
www.abingdonastro.org.uk

Our webmaster, Chris Holt is always on the look-out for members photographs to put on there. Don't forget you can read back copies of Spacewatch on the web site too.

DATES FOR YOUR DIARY

17th to 19th Nov. (FCN): 8pm. Observing Evening, Bury Down.

1st Dec.: 8pm. Beginners' Meeting in the Perry Room.

8th Dec.: 8pm. Talk by Dr Andrew Coates (MSSL) "Mars Express & Beagle 2"

The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your help and contributions. Please send any news, observations, photos, etc. to:
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