

SPACEWATCH

the newsletter of the Abingdon Astronomical Society

13th September 2004

Dr David Whitehouse – (BBC)

“Astronomy in the Media”

Welcome back to the new season of speaker talks, beginners' evenings, observing evenings and member's presentations. We have a good range of speakers this year, ranging from TV personalities to society members. Our speakers often travel long distances to visit us, so please support as many of them as you can. And as the Sun sets earlier and earlier every night, there is also more and more opportunity to do some evening observing at a civilised time.

THE NIGHT SKY THIS MONTH

by Bob Dryden

The Planets:

Sun - September 22nd, at 16:30, make a note in your diaries, that is the moment the Sun reaches the autumn equinox and the nights become longer than the days (in theory anyway). More time to use that telescope!

Venus - those of you who rise before 6am will already know Venus is putting on an excellent display in the morning sky. It is a very bright – magnitude -4 – and very obvious high in the east at dawn. If you would like to get out of bed while the sky is still dark, Venus and the open cluster, M44, the Beehive, will have a close meeting on the morning of 14th September, which should be an excellent sight in binoculars. Again, get up early on 3rd October and Venus and Regulus, the bright star in Leo, will be very close together.

Saturn - Saturn is the second (and final) bright planet on view this period. Residing in Gemini, the planet is easy to find just below Castor and Pollux. The rings are still wide open, so the view is fantastic. As with Venus though, the best views are just before dawn because Saturn is at its highest then.

Uranus and Neptune - Both these planets are visible in the late evening sky. Uranus is in Aquarius, while Neptune is in Capricornus. You will need binoculars

to see either of them, as well as a chart to find them. With binoculars they will still appear 'star like', but you will have the thrill of knowing you have seen them. A telescope turns the 'star' of Uranus into a small disc, and the 'star' of Neptune into a smaller disc - do not expect anything more than that.

Jupiter, Mars, and Mercury are all too close to the Sun this period for observation.

Vesta - There is a good apparition of the minor planet number 4 – Vesta – this month in the constellation of Aquarius. Vesta reaches opposition on 17th September and will be a bright magnitude 6.1 so any binoculars will show you it. Obviously, you will need a finder chart to know exactly where to look, but once found, you can watch its movements amongst the stars over the next few weeks.

Comets:

C/2001 Q4 NEAT. This comet gave us a nice display last spring, but most people do not seem to realise it is still quite easily visible with a telescope. It is now about mag. 8.6 in Draco (just above the handle of the Plough) and by mid October it will have moved near to the bowl of Ursa Minor, but faded to about mag. 9.5. This means the comet is visible all night long so you do not have any real reason for not having a go for it.

There is one other comet on view but this one is much fainter, presently at 11th mag. This is comet 78P/Gehrels. It is still brightening, reaching 10.4 by mid October (it will peak at about 10th mag. In November). It will be around the Aries/Taurus border which means it will be on view late in the evening.

Variable Stars:

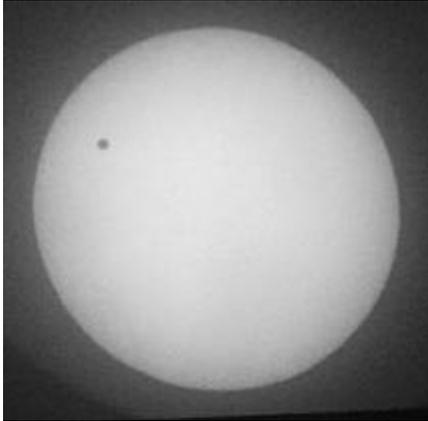
Algol - for those of you who fancy having a go at measuring a variable star, the famous variable Algol in Perseus will fade to magnitude 3.4 (from its usual 2.1 mag) on Sep 20th, 22nd, 25th, and Oct 10th.

MOON PHASES:

Last Qtr: 6th Sept.; New: 14th Sept.; First Qtr: 21st Sept.; Full: 28th Sept.; Last Qtr: 6th Oct.

TRANSIT OF VENUS

Society member Martin Cresdee took these photographs of the recent transit of Venus across the face of the Sun (on 8th June this year), using a 2" refracting telescope projecting the image on to a sheet of white card.



The transit in mid-flow.



Egress.

THIS MONTH'S DEEP SKY OBJECT

"Summer Bugs"

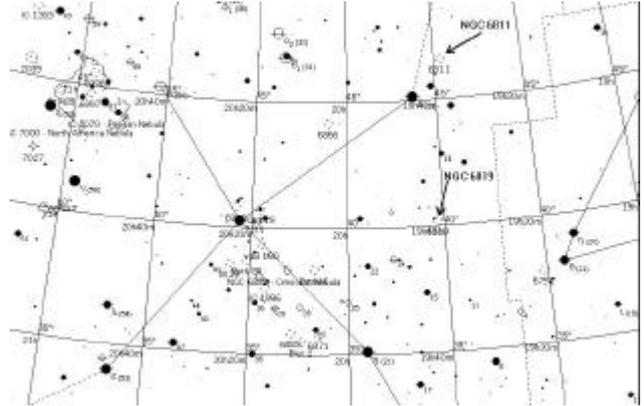
by Paul Warren

One of the advantages of summer time observing is that you don't have to wrap up, as the summer nights are usually warm. However, it is necessary to cover up, in order to protect yourself against insect bites. I once abandoned an observing session after only 10 minutes and 3 mosquito bites!

Cygnus is a good constellation to observe over the summer, as it is directly overhead. What Deep Sky Objects do you associate with Cygnus? North America Nebula? Veil Nebula? Ok, what about the open clusters, which ones spring to mind then? I suspect that most observers would answer M29 and

M39. However, there are better open clusters than the two that Charles Messier recorded, and I shall describe two of them in this edition.

The two clusters are NGC6811 and NGC6819. If you refer to the finder chart, you'll see that they're seemingly not too difficult to find. However, be warned, because the Milky Way runs right through Cygnus, and this makes star hopping that much more difficult. Of course, if you are using a GoTo scope, then you don't have to worry about this aspect.



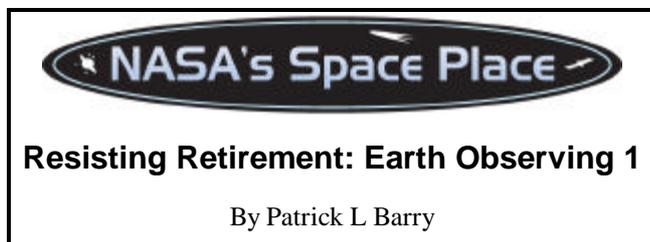
NGC6811 is the bigger and brighter of the two clusters. It is a coarse cluster and an eight inch scope will reveal around 50 members in it, spanning an area of 20 arc-minutes. The cluster has several chains, and this is where my brain has fun in joining up the dots. Whereas some observers see these chains forming a square shape, I see the outline of a big spider!



Open Cluster NGC 6811

NGC6819 is a much more compact cluster. It looks very nice because it so obviously looks like a cluster, contrasting against the background of the Milky Way. This cluster is so rich that my mind doesn't try to join up the dots, but instead sees a cosmic moth or butterfly.

So, the next time that you go out observing, do take a look at these open clusters in Cygnus. I do assure you, that with an eight inch scope you will not be disappointed and that some bugs are really very nice indeed!



The Hubble Space Telescope isn't the only satellite that scientists have fought to keep alive beyond its scheduled retirement. Scientists also went to bat for a satellite called EO-1, short for Earth Observing 1, back in 2001 when the end of its one-year mission was looming.

The motivation in both cases was similar: like Hubble, EO-1 represents a "quantum leap" over its predecessors. Losing EO-1 would have been a great loss for the scientific community. EO-1, which gazes back at Earth's surface instead of out at the stars, provides about 20 times more detail about the spectrum of light reflecting from the landscape below than other Earth-watching satellites, such as Landsat 7.

That spectral information is important, because as sunlight reflects off forests and crops and waterways, the caldron of chemicals within these objects leave their "fingerprints" in the light's spectrum of colors. Analyzing that spectrum is a powerful way for scientists to study the environment and assess its health, whether it's measuring nitrate fertilizers polluting a lake or a calcium deficiency stressing acres of wheat fields.

Landsat 7 measures only 8 points along the spectrum; in contrast, EO-1 measures 220 points (with wavelengths between 0.4 to 2.5 μm) thanks to the prototype Hyperion "hyperspectral" sensor onboard. That means that EO-1 can detect much more subtle fingerprints than Landsat and reveal a more complete picture of the chemicals that comprise the environment.

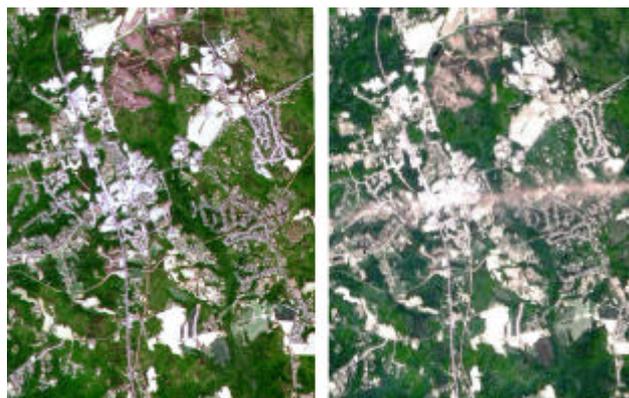
As a NASA New Millennium Program mission, the original purpose for EO-1 was just to "test drive" this next-generation Hyperion sensor and other cutting-edge satellite technologies, so that future satellites could use the technologies without the risk of flying them for the first time. It was never meant to be a science data-gathering mission.

But it has become one. "We were the only hyperspectral sensor flying in space, so it was advantageous to keep us up there," says Dr. Thomas Brakke, EO-1 Mission Deputy Scientist at NASA's Goddard Space Flight Center.

Now, almost three years after it was scheduled to be de-orbited, EO-1 is still collecting valuable data about our planet's natural ecosystems. Scientists have begun more than a dozen environmental studies to take advantage of EO-1's extended mission. Topics range from mapping harmful invasive plant species to documenting the impacts of cattle grazing in Argentina to monitoring bush fires in Australia.

Not bad for a satellite in retirement.

Read about EO1 at eo1.gsfc.nasa.gov. See sample EO-1 images at <http://eo1.usgs.gov/samples.php>. Budding young astronomers can learn more at http://spaceplace.nasa.gov/eo1_1.htm.



These images, made from EO-1 data, are of La Plata, Maryland, before and after a tornado swept through May 1, 2002.

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

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.

To view the messages on the web go to: <http://www.smartgroups.com/groups/abastro>.

To subscribe to the list either go to this web page and click on "Join the Group" or send an email to abastro-subscribe@smartgroups.com. You will then receive all e-mails sent to the list. To post e-mails on the list: send an

email to abastro@smartgroups.com . To unsubscribe: send an email to abastro-unsubscribe@smartgroups.com

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

which now has a new webmaster: Chris Warwick. Chris will no doubt be 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

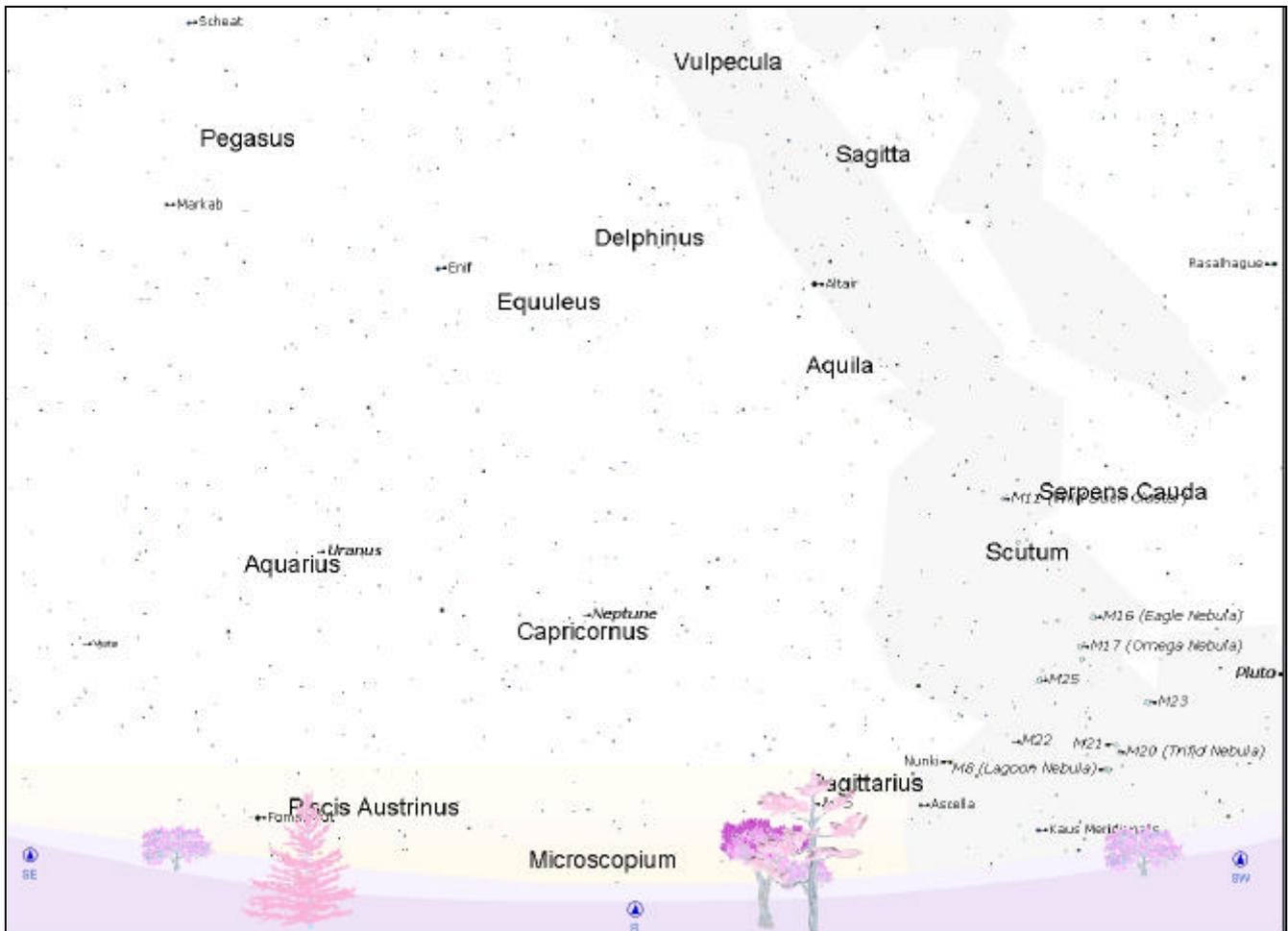
20th Sept.: 8pm. Beginners' Meeting in the Perry Room.

4th-6th Oct. (FCN*): 8pm Observing Evening at Britwell Salome. [FCN = 'first clear night' – ring Bob to confirm before setting out!]

11th Oct.: 8pm. Talk by Judit Brody (author, science historian) "History of Sunspots".

The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your help and contributions. Please send any news, observations, photos, etc. to:
Mail: A.T.Ramsey, 35 Cope Close, OXFORD, OX2 9AJ.
E-mail: AbAstro@ATRamsey.com Phone: 01865 245339

STAR CHART



This is the view you will see if you look south at 10pm next Saturday (18th September).

If you have a pair of binoculars or a small telescope, why not try to look for the planets Uranus and Neptune, or even the minor planet Vesta (lower left). If you look from night to night, you will see all three planets move against the backdrop of the "fixed" stars.

If you have a large telescope, try sweeping the area of Sagittarius. Here you are looking towards the centre of our Galaxy, and there are many star clouds and nebula in this region. You will need a good clear southern horizon though, away from street lights.