

# SPACEWATCH

the newsletter of the Abingdon Astronomical Society

11<sup>th</sup> May 2009

**Annual General Meeting, followed by:  
Bob Dryden (AAS), 'The Southern Skies'**

Yes, it's AGM time again – your chance to have a say in the running of your society. There are committee positions available so if you'd like to volunteer, please see any existing committee member before the meeting starts.

After the AGM, Bob will be giving us a review of his recent trip to New Zealand, where he experienced the southern skies for the first time, as well as the wonderful darkness of this part of the world, where the Milky Way is always clearly visible on clear nights.

## THE NIGHT SKY THIS MONTH

by Bob Dryden

**Saturn:** After all the excitement of Mercury in the evening sky last month, this session is fairly quiet regarding evening planets. Saturn is the only planet on view in the evening sky at the moment. Still in southern Leo, it is quite easy to find at a magnitude of +0.9. However, the planet is slowly moving towards the twilight so this session is probably the last one for good telescopic views. The rings are starting to narrow again now, reaching a paltry 3.8° by mid June so do not expect to see them in all their glory just yet.

**Jupiter:** As Jupiter is crossing Capricornus, it is only observable in the early morning. By mid June it will be due south, about 25° above the horizon at sunrise, so it is very slowly gaining altitude but it will be a few years yet before it will be at its best. However, that does not mean it's not worth looking at. A telescope will easily show you the cloud belts and the ever changing satellites that circle the planet. On the morning of 17<sup>th</sup> May, a last quarter Moon, Neptune, and Jupiter will all be very close together. While on the morning of 28<sup>th</sup> May, Jupiter and Neptune will be just ½° apart. You will need binoculars, or better still, a telescope, to see Neptune, but it is rare for these two planets to get this close so try to make the effort to observe the event. They will be about 15° high in the south east at sunrise so the observation may be a bit tricky.

**Venus:** Venus is the other easily found morning planet. Although it remains very low, shining at magnitude -4.3 means that it is very bright. The planet is about 15° above the eastern horizon at sunrise for most of this session. Its phase increases to 0.5% by June. This actually means that it will be at half phase, an event known as dichotomy. However, Venus exhibits a strange effect whereby it does not reach dichotomy on the date it should. When in the morning sky, dichotomy is usually a few days late, and when in the evening sky, a few

days early. Predicted date for dichotomy is 6<sup>th</sup> June, but when exactly do you see Venus at half phase – a observing challenge for you. On the morning of 21<sup>st</sup> May, Venus, Mars and a crescent Moon will all be close together. Unfortunately they will be low down, but it's an observation well worth attempting.

**Mars:** While definitely not spectacular, Mars is never the less visible, just to the left of Venus. At a rather low magnitude of +1.2, it will probably require binoculars to find it most of the time. Telescopic views will be very poor as the planets diameter is very small, and it is low in the poor atmospheric seeing.

**Mercury:** Moving quickly into the morning sky, Mercury remains extremely low down all session and is virtually unobservable this apparition.

**Meteors:** There are no major meteor showers this session. The only shower of note is the Eta Aquarids, but even this one is past maximum so it is unlikely you will see more than just a few meteors from it.

**Asteroids:** Yet again, the only major asteroid worth mentioning is 1 Ceres, but even this one is fading. It reaches magnitude +8.5 by June as it moves very slowly across Leo.

**Comets:** Three comets are predicted to be bright enough for observations this session.

Comet 22P Kopff continues to get brighter as it crosses Aquarius, Capricornus, and Aquila. Hopefully it will reach magnitude +9 by mid June, although it is not going to get much brighter than that (just +8.9 by the end of June). As a guide, in the last few days of May, and the first few days of June, the comet will be just above Jupiter.

Comet C2008 T2 Cardinal should be about magnitude +8 low in the west, crossing Gemini and Canis Minor. Observations will be difficult though due to the low altitude.

A new comet, comet C/2009 F6 Yi-Swan will be moving through Perseus and Auriga so should be on view in the evening sky. However, it will be only about 8<sup>th</sup> or 9<sup>th</sup> magnitude so might be quite hard to track down.

## MOON PHASES:

Full: 9<sup>th</sup> May; Last Qtr: 17<sup>th</sup> May; New: 24<sup>th</sup> May; First Qtr: 31<sup>st</sup> May; Full: 7<sup>th</sup> June.

## LAST MONTH'S TALK

by Gwyneth Hueter

April's talk was given by Dr Nick Hewitt of the Northamptonshire Natural History Society, about the shapes of planetary nebulae.

The name 'planetary nebula' was coined by Sir William Herschel because they resembled Uranus when viewed telescopically.

He took us from the beginning, from M27, the first one catalogued by Messier, to the latest hi-tech photography. The earliest pictures were taken with old hydrogen-sensitive films and even the faintest ones now look bluish with the new digital technology.

Dr Hewitt, who is a GP, gave us a good account of the Sun's future evolution into a planetary nebula in about 10 billion years' time. Stars of up to eight solar masses can become planetaries but the norm is one to four. The Sun will evolve steadily to the red giant stage, with its core contracting and outer layers expanding and cooling and by 12 billion years from now it will be up to 3000 times more luminous than it is now. The waste products in its core will include carbon and oxygen. The outer shells of helium and hydrogen will give unstable thermal pulsations. During these pulsations there will be envelopes of material ejected from the star and these will remain nearby. It is these layers of material that cause the various shapes when the star's core finally collapses and the white dwarf is born. These remaining outer layers of the star snowplough into the existing shells of material and produced the planetary nebula.

There are five main classifications of planetary nebulae: helical, annular, disc, amorphous and stellar.

Dr Hewitt finished with lots of views indicating how amateur and professional photography differ little in quality. He added that observers can see a lot without needing filters and without having to wait for perfect skies.

## MOON VIEWING AT SUNNINGWELL

by Gwyneth Hueter

At the Moonwatch event on the 4<sup>th</sup> April this year, AAS chairman, Ian Smith gave a talk on the history of lunar observations. Here Gwyneth gives a summary of his talk.

Since we are well into the International Year of Astronomy (IYA), celebrating the 400<sup>th</sup> anniversary of the invention of the telescope we are already aware that it wasn't Galileo but Thomas Harriot (1560-1621) who made the first sketches of the Moon through a telescope.

Thanks to firstly Sir Walter Raleigh, who employed him for navigational calculation, and then Henry Percy, he became involved in studying optics. He then observed the comet of 1607 (-later to be named after Halley) and two years later he used his first spyglass to make lunar drawings.

By April of 1611 he had got a stronger telescope and we now see more decent-looking maps.



The first definitive lunar map was made by Johannes Hevelius in his Selenographia of 1645, with the same illumination angle throughout the drawing. We've seen those sketches of his extremely long telescope and I didn't know he was very rich and able to do everything himself!

Ian then came to the present to remind us that the IYA also celebrates the 40<sup>th</sup> anniversary of the first Moon landing.

## SOLAR VIEWING IN ABINGDON

Here are some more photos from the IYA2009 events in Abingdon last month (courtesy of Julian Mole):



*AAS members promoting April's IYA 2009 events in the market square in Abingdon on the morning of April 4<sup>th</sup>.*

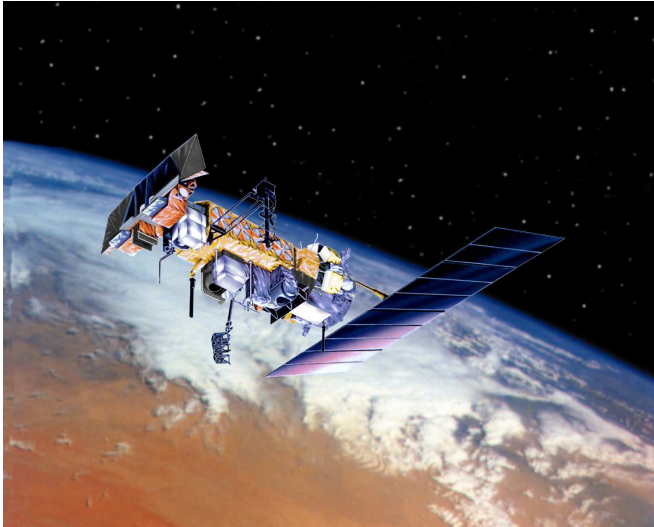


*Solar Viewing session in the afternoon of April 4<sup>th</sup> in Abingdon Market Square.*



## THE SWISS ARMY KNIFE OF WEATHER SATELLITES

Spotting volcanic eruptions, monitoring the health of crops, pinpointing distress signals for search and rescue teams.



*The new NOAA-19 is the last and most capable in the long line of Television Infrared Observation Satellites (TIROS).*

It's not what you might expect from a weather satellite. But these are just a few of the abilities of NOAA's newest polar-orbiting weather satellite, launched by NASA on February 6 and turned over to NOAA for full-time operations on February 26.

Formerly called NOAA-N Prime and now renamed NOAA-19, it is the last in its line of weather satellites that stretches back almost 50 years to the dawn of the Space Age. Over the decades, the abilities of these Television Infrared Observation Satellites (TIROS) have gradually improved and expanded, starting from the grainy, black-and-white images of Earth's cloud cover taken by TIROS-1 and culminating in NOAA-19's amazing array of capabilities.

"This TIROS series has become quite the Swiss army knife of weather satellites, and NOAA-19 is the most capable one yet," says Tom Wrublewski, NOAA-19 Satellite Acquisition Manager at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

The evolution of TIROS began in 1998 with NOAA-K. The satellites have carried microwave sensors that can measure temperature variations as small as 1 degree Celsius between Earth's surface and an altitude of 40 kilometers—even through clouds. Other missions have added the ability to track large icebergs for cargo ships, monitor sea surface temperatures to aid climate change research, measure the

amount of ozone in Earth's protective ozone layer, and even detect hazardous particles from solar flares that can affect communications and endanger satellites, astronauts in orbit, and city power grids.

NOAA-19 marks the end of the TIROS line, and for the next four years it will bridge the gap to a new series of satellites called the National Polar-orbiting Operational Environmental Satellite System. NPOESS will merge civilian and military weather satellites into a single system. Like NOAA-19, NPOESS satellites will orbit Earth from pole to pole, circling the planet roughly every 100 minutes and observing every location at least twice each day.

NPOESS will have yet more capabilities drawn from its military heritage. Dim-light sensors will improve observations of the Earth at night, and the satellites will better monitor winds over the ocean — important information for ships at sea and for weather and climate models.

"A lot more capability is going to come out of NPOESS, improving upon the 161 various environmental data products we already produce today," Wrublewski says.

"Not even a Swiss army knife can do that many things," he points out.

For more on the NPOESS, check out <http://www.npoess.noaa.gov>. Kids can find out about another NOAA satellite capability—tracking endangered migrating species—and play a fun memory game at [http://spaceplace.nasa.gov/en/kids/poes\\_tracking](http://spaceplace.nasa.gov/en/kids/poes_tracking).

*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

If you are not already on our internet mailing list, then why not log on to YahooGroups. The list is called 'abingdonas'. Members use the list to alert each other about celestial events and to chat about amateur astronomy. The list is quite active, with several messages most weeks. To read through previous messages click on:

<http://groups.yahoo.com/group/abingdonas/> .

To join the abastro list, please go to <http://www.yahogroups.com> . You can also unsubscribe from the list here. To post messages to the list, please send them to [abingdonas@yahogroups.com](mailto:abingdonas@yahogroups.com) . Please note that you will need to sign up with a YahooID if you do not already have one. You can do this on the above page.

Further information about the mailing list can be found on the abingdonas webpage at :

<http://groups.yahoo.com/group/abingdonas/> .

Further discussion on astronomy and many other topics takes place at the Spread Eagle pub in Northcourt Road after the meeting. You are most welcome to join us.

## DATES FOR YOUR DIARY

**18<sup>th</sup> May.** 8pm. Beginners' Meeting in the Perry Room.

**8<sup>th</sup> June** 8pm Talk by Chris Lintott (Oxford University), '25,000 Eyes, The Latest from Galaxy Zoo'.

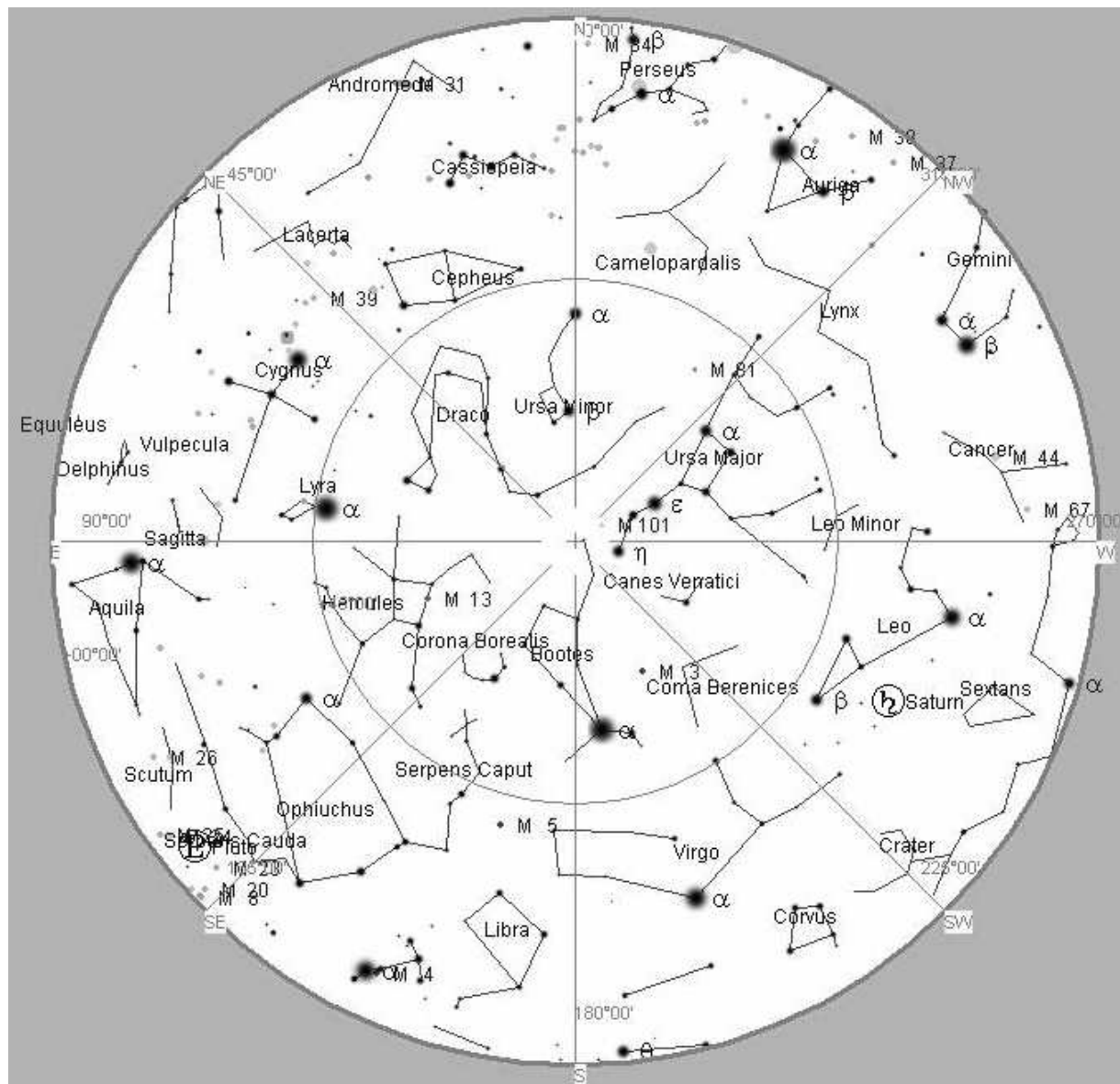
The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your stories & contributions. Please send any news, observations, photos, etc. to:

Mail: A.T.Ramsey, 35 Cope Close, OXFORD, OX2 9AJ.

E-mail: [AbAstro@ATRamsey.com](mailto:AbAstro@ATRamsey.com)

Phone: 01865 245339

## STAR CHART



**The Night Sky at 11:59pm (BST) next Saturday (16<sup>th</sup> May)**

Arcturus, the brightest star in the northern hemisphere dominates the southern aspect. Below and to the right shines Spica, the red star in Virgo. Saturn is in the south-west, just below Leo. The Plough in Ursa Major is virtually overhead, while the "Summer Triangle" of Altair, Vega and Deneb, which will dominate the summer skies is starting to rise higher in the east.