EDITORIAL

I have been away for a couple of meetings so missed the talks by Carl Horn & Paul Fisher. I have yet to hear any reviews of those talks, so I won't make any further comment. While away I did not do very much astronomy. I did make the pilgrimage to Stonehenge and also managed to spot one of the Perseid meteors at night while I was in the Sawtooth Mountains of Idaho. I call my visit to the Stonehenge on the Salisbury plain in England the "other Stonehenge". That is because here in New Zealand we have Stonehenge Aoteoroa in the Wairapapa. If you have not seen it and do ever make to the town of Carterton try to make time to get to it as it is not far from that town. Meanwhile now that I am back it seems to fall on my shoulders to deliver a talk on some astronomical subject at the September meeting. Sort of odd isn't it how volunteers come forward willing to give a talk only if I am out of town. So this month since I have only been back home for a couple of weeks I had to choose a subject and prepare a preparation with less time than normal. The subject I chose was Exoplanets. I warned people at the June meeting that if I had to do a talk for the September meeting it might be even quicker and dirtier than the one I did in June. The June talk had to be put together in less than normal time because I had just been to Nepal to lay my eyes on Mt. Everest. Still hopefully between the time I finish writing this blurb for the newsletter and next Thursday's meeting I will have something people may find interesting.

For the October meeting we will have a real treat! Nobody will have to prepare a talk because Nelson is on the lecture circuit for the 2nd annual Beatrice Hill Tinsley Memorial Lecture series. We will be privileged to be addressed by a professional astronomer, Dr. Karen Masters of the Institute of Cosmology and Gravitation at the University of Portsmouth in the U.K. She will be talking about the Galaxy Zoo project which enables ordinary folks assist in doing real astronomical research. I will be looking forward to that.

Robert Rea

Herschel Dies

The largest infrared space telescope yet launched has run out of cryogenic coolant, permanently ending its science operations. It operated from 2009 until April of this year. Herschel has been placed in its "disposal" solar orbit.

Contributions

Want to get published? Send your articles, comments etc. to reamash@ihug.co.nz

Any member of the Nelson Science Society can become a member of the Astronomy Section simply by notifying the editor of Canopus. The annual membership subscription for the Nelson Science Society is $20.
September is the month of the Autumn Equinox, when the Sun is directly above the equator. This occurs at 8:44pm on September 23. Canopus, the second brightest star, is near the skyline at dusk. On the opposite horizon is Vega, one of the brightest northern stars. Midway down the southwest sky are 'The Pointers', Beta and Alpha Centauri. Alpha Centauri is the closest naked stars, 4.3 light-years away and it is a binary star. Beta Centauri, along with most of the stars in Crux, is a blue giant star hundreds of light years away. In the west is the tail of the Scorpion which looks like a backward question mark. Marking the heart of the Scorpion is Antares which is expected to explode as a supernova in the next few million years. The Milky Way is brightest and broadest overhead in Scorpius and Sagittarius. To the north the Milky Way crosses Altair, meeting the skyline right of Vega. The thick central hub of the galaxy, 30,000 light years away, is in Sagittarius and high overhead in the evening. The neater dust clouds appear as gaps and slots in the Milky Way. The Large and Small Clouds of Magellan (LMC and SMC) look like two misty patches of light in the south sky. They are galaxies like our Milky Way but much smaller.

Venus appears no higher than it has for the past few months. However, it does brighten from -4.0 to -4.2 during September. Telescopes show its disk growing from 15° to 18°, while the gibbous globe wanes from 74% to 64% sunlit. Saturn stars September 18 degrees to Venus' upper right, but the gap between them closes rapidly. Uranus at magnitude 5.7 in Pisces will reach opposition at the beginning of October so it's best to observe it after midnight. Jupiter rises sooner and sooner and is high by midnight. The new stars fall awkwardly between two tiny patches of light in the south sky. They are galaxies like our Milky Way but much smaller.

SS Cygni - How Far?

New radio observations made using radio telescopes in Australia feed the debate over the true distance to one of the most watched variable stars. SS Cygni is an amateur favourite and a well-known dwarf nova, in which material siphoned off a main-sequence M star occasionally dumps onto a white dwarf companion, fueling an outburst. But in 1999 Hubble Space Telescope observations pushed the binary's distance back, ruining the theoretical match for how bright and voracious the system is. The radio observations resulted in a distance of 370 light-years, more palatable to theorists than the 500-plus from Hubble. But it is unclear why Hubble's measurement would be wrong and whether observing in radio unduly limits what can be detected. Astronomers hope that the ESA's Gaia mission, set to launch in October, will solve the conundrum.

Weather: Uranus & Neptune

Careful analysis of the gravity fields of Uranus and Neptune suggests that weather patterns on these worlds are confined to a layer less than 1000 km deep, far less than the depth of their enormous atmospheres. Both planets display fast winds streaming east and west in their outer atmospheres, much like those on Jupiter and Saturn. The question has been, does the energy to drive these planets' jet streams come from their deep interiors, or is the weather layer skin deep, powered by the weak light of the faraway Sun. By combining Voyager 2 and Hubble observations of the planets' wind patterns with theories of global circulation to predict what the gravitational fields of Neptune and Uranus should look like. The best match between observations and theory came when the dynamic weather layer was restricted to just the outsidesmost 0.15% of Uranus's total mass and 0.2% of Neptune's. The conclusion is at odds with a long-standing notion that the fluid interiors of these planets work like a set of nested cylinders rotating at different rates.