

# TAURANGA ASTRONOMICAL SOCIETY NEWSLETTER

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## Dr. Jeff Tallon at the August public meeting of the Tauranga Astronomical Society.



Dr Tallon, PhD, DSc, FRSNZ, has many feathers to his cap. He currently has positions as Professor of Physics, Victoria University, and Distinguished Scientist at Industrial Research Ltd., Lower Hutt.

He was also awarded the Rutherford Medal in 2002.

Dr. Tallon's main area of research has been into high temperature superconductivity, discovering the only commercially practical ceramic superconductor - ie - one which conducts electricity without resistance at the "high" temperature of liquid Nitrogen, and which most importantly can be extruded into fine wire without fracturing.

He has had a personal interest in Astronomy and Astrophysics for many years, and this was evident by the talk he gave to the Society. The discussion centred around the calculations of astronomical events which were evident from the readings of the Bible, and apparently Newton spent more time on biblical correlations than on his experiments.

The Jewish calendar was approached as a starting point, as various discrepancies were discovered with what we know in modern science, pointing out particular noted events such as Passover, the astrodo campaign during the time of King Hezekiah and how the story of the taking of Judah was inscribed on Taylor's prism, which is on display at the Oriental museum of Chicago. Correlations of the timings of various eclipses spanning the years when it is commonly believed Christ was born were also discussed.

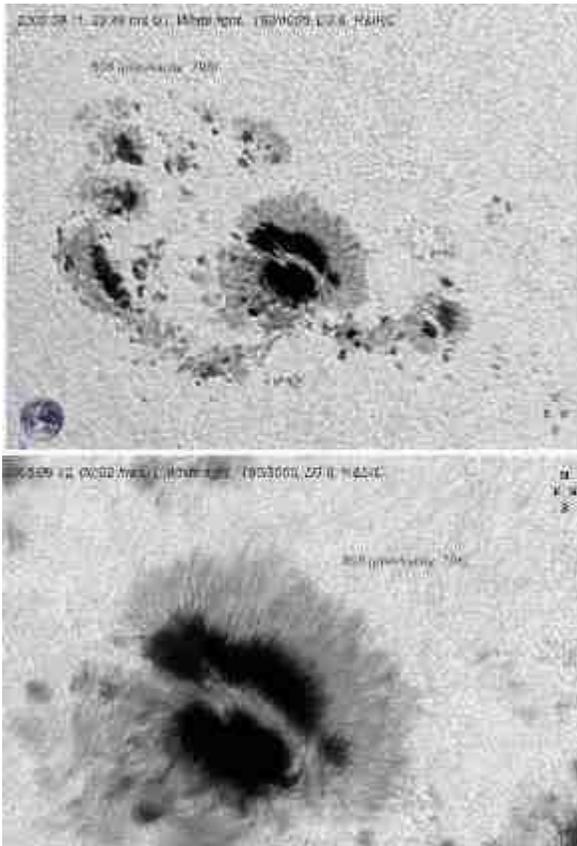
We hope to hear Dr. Tallon again some time in the future.

## Sunspots and aurora

### Ever seen an aurora ?? What is an aurora?

I feel compelled to mention this subject again as we have been getting extreme X-class flares from the Sun recently. Many people have been treated to auroral sights both in Australia and New Zealand.

An aurora is looks like curtains of light in the sky which are more commonly visible over higher latitudes. They are caused by particles from the Sun hitting the earth's atmosphere and causing



some of the gases to glow – sometimes with spectacularly colourful results.

The northern lights are known as the aurora borealis, and the southern lights as aurora australis.

Various members of the New Zealand astronomical community are particularly interested in this field, and over the past few weeks there has been an increase in auroral activity, and several aurora alerts going out.

There is a correlation between sunspot activity, solar flares, and aurora. Andy Dodson of New Plymouth is a solar observer and has been following some particularly large spots, as shown in the photograph.

A solar flare is an explosion on the Sun that happens when energy stored in magnetic fields is suddenly released. Flares produce a burst of radiation across the electromagnetic spectrum, from radio waves to x-rays and gamma-rays.

Scientists classify solar flares according to their x-ray brightness in the wavelength range 1 to 8 Angstroms. There are 3 categories: X-class flares are big; they are major events that can trigger planet-wide radio blackouts and long-lasting radiation storms. M-class flares are medium-sized; they can cause brief radio blackouts that affect Earth's polar regions. Minor radiation storms sometimes follow an M-class flare. Compared to X- and M-class events, C-class flares are small with few noticeable consequences here on Earth. (Excerpt from SpaceWeather.com site)

During the past 4 weeks we have had a number of X-class flares. Some radio communications have been affected in the northern hemisphere, and satellite downlinks may also be affected.



Auroral activity is heightened during these periods, and if you are lucky enough to be taking an overnight flight somewhere, you may spot some.

Sunspots are the main sources of solar activity: Sunspot magnetic fields become unstable and explode. The explosion produces a flash of electromagnetic radiation--a solar flare. It can also hurl a billion-ton cloud of magnetized gas into space--a coronal mass ejection or "CME." When the CME reaches Earth, it sparks a geomagnetic storm and we see auroras. CMEs can also propel protons toward Earth, producing a radiation storm

dangerous to astronauts and satellites.

(X-ray flare image, September 9<sup>th</sup>, Birgit Kremer, Spain).

Chris Picking created a moving image gallery of auroral activity from Sunday September 11<sup>th</sup>. There was a burst of activity which lasted about 15 minutes starting about 8:20pm.

This can be seen on his website; [www.starrynightphotos.com/aurora/sept\\_11\\_2005.htm](http://www.starrynightphotos.com/aurora/sept_11_2005.htm)

## So, what can we see from Tauranga??

Being able to see the Aurora depends mainly on two factors, geomagnetic activity (the degree of disturbance of the earth's magnetic field at the time) and your geographic location. Further considerations are the weather at your location, and light pollution from city lights, full moon and so forth.

When geomagnetic activity is low, the aurora typically is located, in the hours around midnight, at about 67 degrees magnetic latitude. As activity increases, the region of aurora expands toward the equator. When geomagnetic activity is very high, the aurora may be seen at mid and low latitude locations around the earth that would otherwise rarely experience the polar lights.

Tauranga is roughly at 38 degrees latitude, and our chances here are rather small, however, you could always book a holiday to Invercargill which coincides with periods of intense solar activity. Some activity has been seen from Hamilton and Auckland, but these occurrences are quite rare.

Bob Evans has information on the aurora website

[http://homepages.ihug.co.nz/~Sbevans/Aurora\\_Sun/aurun.htm](http://homepages.ihug.co.nz/~Sbevans/Aurora_Sun/aurun.htm)

Also, try this site ;

[http://www.sel.noaa.gov/rt\\_plots/kp\\_3d.html](http://www.sel.noaa.gov/rt_plots/kp_3d.html)

## Telescope viewing for Otumoetai Playcentre



Earlier in the winter Les and Jim took the two telescopes down to the Otumoetai Playcentre where a group of older sisters and brothers of Playcentre children and their parents spent an interesting evening looking through the telescopes. Everyone saw Saturn and Jupiter and a few other clusters etc. but before the moon appeared the cloud rolled over, so we told them we would be back later to show them the craters of the moon. We added to that evening with a brief talk on astronomy so all ended well.

Quite a bit later on August 18th we returned again with the two telescopes and this time we were successful although ideally they should have viewed it several days earlier as it was virtually a full moon. Nevertheless they saw the moon's surface in great detail with enough craters to satisfy their curious minds along with Jupiter again.

This evening concluded with a demonstration of an anti gravity device you can't fool all kids as some were quick enough to suggest magnetism (like poles repel each other). All in all we feel we have shown these children and their parents quite a lot in the way of astronomy and now it's time for us to renew contacts with other schools.

## Further Society Information

### **Notices:**

*Following the message sent out to all those interested in astronomy at the beginning of September, please note that we will discontinue sending the newsletter unless you confirm otherwise by 15<sup>th</sup> October 2005. Confirm with the secretary – details at the bottom of this page. Current financial members are automatically on the mailing list.*

### **FOR SALE – telescopes**

1. Meade ETX90RA Maksutov: 90mm, f13.8. Good optics, smooth drive base, 2 years old and in excellent condition. This is compact and good for a beginner. \$400.
2. 8" f6 Newtonian . \$300.

**Please contact Andrew Walker on 07 573 8550.**

### **Upcoming Public Meetings of Tauranga Astronomical Society.....**

28<sup>h</sup> September 2005                      26<sup>th</sup> October 2005

### **Committee meetings;**

5<sup>th</sup> October 2005                      2<sup>nd</sup> November 2005

### **TROG.....Tauranga Roaming Observers Group**

This is a phone/email list which you can put your name down for if you are interested in 'spur of the moment' observing. This has normally been down at Fergusson Park in Matua, Tauranga, but other sites are being checked out constantly. Contact Ursula or Jim if you are interested in joining the observing group. This has not been very active recently unfortunately – we did get a good couple of week's observing night last month, but lots of people seemed too busy to get out there !! Andrew Walker has agreed to help man this list too, so you could co-ordinate a time/place with him if you are keen to go out. Andrew's phone no. is 07 573 8550.

### **NOTE: Public Meeting Visitors;**

Casual visitors to public meeting nights will be able to come along free of charge for two public meetings or viewing nights, thereafter a charge of \$5 per meeting or viewing night if the person does not pay the annual subscription.

Contributions to newsletter most welcome !  
email Ursula on [ursa.minor@clear.net.nz](mailto:ursa.minor@clear.net.nz)