

# *Stargazey Pie!*

*A slice of Highlands astronomical life!*

Tues 7<sup>th</sup> June 2011

## INTRODUCTION

June – the supposed onset of alleged “summer” is upon us once again. There was a surprisingly large turnout to the meeting this month, considering the time of year and the fact that a lot of people go off on holiday round about now. I can only assume the harbours and ports were all frozen and the airport runways snowed over. Those who attended got to enjoy a fascinating talk on aurora – particularly relevant just now as the Sun is approaching its maximum level of activity!

- **Bronze Messier Certificate Winner!** Congratulations to Niamh, one of our younger members, on observing all 12 deep sky objects and thereby earning her bronze Messier certificate. She is the first Youngstar and Junior member to do so.
- **2011-12 Programme Update.** The following events have been announced for our participation through the coming season:
  - Culloden Academy Games Evening Tuesday 21<sup>st</sup> June at the school. We will have a stand there.
  - SOAKE Friday 1<sup>st</sup> July (see 6 below).
  - Astronomy Fun Day for youngsters Saturday 30<sup>th</sup> July 10:00 to 16:00 at The Highland Archive Centre. More details in the July notices.
  - Open Doors Day Saturday 3<sup>rd</sup> September at the Observatory from 13:00 to 22:00.
  - HAS Outreach Day at the Eastgate Centre 10:00 to 16:00 with viewing at the observatory in the evening.

**Volunteers will be needed for most of these events. Please contact Pat Escott.**

- **Observing Sessions – JSL Solar Observing.** Solar Saturdays have been back for a while now, allowing observing in the warm with toes unchilled. The Observatory will be open, weather permitting, on Saturdays 14:00 – 16:00 when a supervisor is available. Please check the website for the most up to date information. If you are interested in training as a solar Squaddie please contact Sergeants Gerry or Rhona.
- **Have a SOAKE this summer.** SIGMA has kindly invited us to their **Solar Outdoor Astronomical Kitchen Event (SOAKE** – Stan Barber has an aversion to the B.. word) on Fri. 1<sup>st</sup> July at 19:00. Look at the Sun and eat burgers and hot dogs (well away from the equipment I hope – Ant) prepared in the kitchen. This takes place at the Lhanbryde Community Centre, Robertson Road, Moray IV30 8QQ. If you are planning on attending please let Pat Escott, HAS Events Secretary, know.
- **Stargazey Pie.** The May issue of the *Pie*, written in (allegedly) distinctive and humorous style by Antony, was sent to all members who were unable to attend the monthly meeting. If you did not receive your copy by e-mail or by post please inform Pat Williams.

- **HAS Subscriptions.** Thank you to all members who have paid their membership fees. You should have received a receipt from Paul, a letter from the Chairman, a copy of the amended constitution and will retain your voting rights. If you have not yet paid your subscription please do so as membership lapses after the July meeting and you will be cast into a Black Hole as soon as one passes by.
- **HAS Exhibition.** Please visit The Scottish Archive Centre at the Bught where HAS have staged an exhibition on the first floor. Thank you to all who contributed to this.
- **Break-Out!** Help is requested to organise these. Gordon McKenna will take on this role, but as he is away on business some of the time he is asking for a member to assist him! If you're interested in volunteering and saving us from a future of never-ending DVD's, please contact Pat Williams or Gordon.
- **May.** 50 people attended the May Meeting. The raffle raised £33.50. Many thanks to Arthur and Lorna who organise it each month, to Pat Escott and Samantha who sell the tickets and to all of you who buy tickets and donate prizes.

### **Shooting Stars: Other Important Club News!**

Paul took the floor to open the meeting and read out some selected notices. He requested that we heed the call for volunteers who will be needed to man the various public events in the coming months, and to help start reorganising the Breakout groups again.

Chairman Arthur Milnes was absent from the meeting as he was attending the TT races on the Isle of Mann, but his leadership has survived his absence and no coups or rebellions were evident. Yet...

Paul also pointed out that some of the very recent new members might not have received all the documentation that they could expect. If you are a new member you should have received a letter from the Chairman, a copy of the latest version of the Constitution and a copy of the programme for 2011-12. If you are missing any of these please contact Pat Williams to receive your copies.

### ***The Main Event: 'Aurora' by Ken Kennedy***

Ken Kennedy Joined Dundee Astronomical Society in 1958 and currently holds the post of Director of Observations. He Became noctilucent cloud co-ordinator of the Aurora Section of the BAA in 2006 and is now the director of the Aurora Section since the retirement of Dave Gavine at the start of this year.

Ken's inspiration for his interest in aurora seems to stem back to his auntie describing them as reflections of the Sun glinting on the icebergs at the North Pole! Interestingly, considered a northern phenomenon, there are many historical records of observations and musings on the aurora from persons of note. These include Aristotle, Seneca and Idatias Episcopus. And Ken's auntie, of course.

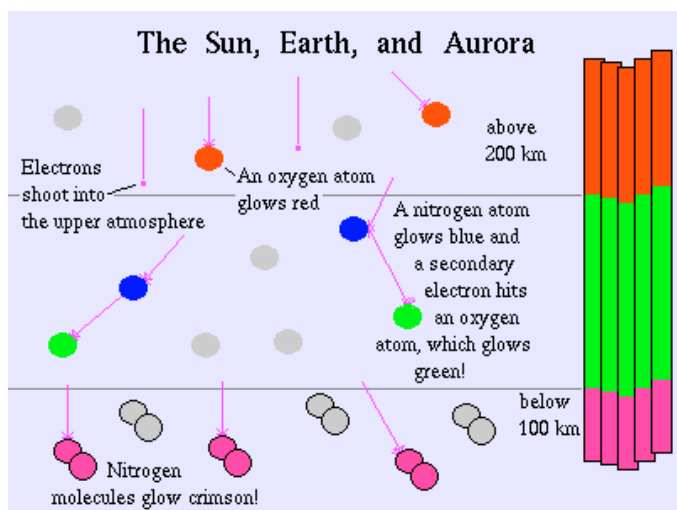
Aurora are linked to solar activity. The number of Sunspots present is a good indicator of the activity level. Anders Celcius noted the connection between aurora and the Earth's magnetic field, when he measured

deflections of a magnetic compass needle when auroral activity was present. The stronger the activity the more the needle was deflected.

Magnetism is the key to aurora. The Sun's magnetic field lines get wound up as the different latitudes rotate at different speeds. Sunspots form, and eventually the field lines snap, with an explosive release of energy in the form of solar material into space. These flares and coronal mass ejections can sometimes occur when they are facing Earth, allowing the energetic particles to approach us. Some of it may be deflected by the magnetosphere, but some will still be caught up in our magnetic field and be drawn down towards the atmosphere, travelling down the magnetic field lines that radiate from the Earth's geomagnetic poles.

As the Earth is not a two-dimensional disc, but rather a three-dimensional sphere, the field lines radiate out in all directions, and so a circle or oval of auroral activity is caused when the charged solar particles interact with the atmosphere. Ken showed some pictures of auroral ovals and explained that they can form around both the north and south poles.

Several more images were shown along with an explanation of the KP Index. This is not a report on the profits or losses of a snack company, but rather an indicator of how strong a disturbance in the Earth's magnetic field has been recorded. It is useful to know the KP Index, as if it is high then there is a strong possibility of an aurora being seen. You can find it at [www.solarham.com](http://www.solarham.com) or [www.spaceweather.com](http://www.spaceweather.com). When trying to find out the KP Index you should remember that our latitude at Inverness should be 56 degrees, not 57, as the Index goes by *geomagnetic* latitude.



The different colours seen in the aurora are as a result of different molecules, at different heights, being ionised. Oxygen shows up as green or red, depending on altitude while nitrogen emits a crimson (or blue, again depending on altitude) colour. The different types of patterns that you see all have different names and classifications, and reports of every auroral display are logged and archived by the Aurora Section at the BAA. You can find out how to submit observations of aurora by visiting [www.britastro.org/aurora](http://www.britastro.org/aurora) or by emailing Ken directly at [kenkennedy42@btinternet.com](mailto:kenkennedy42@btinternet.com).

Ken's enthusiasm for astronomy in general and aurora and noctilucent clouds in particular was very evident in

this talk. It's always enjoyable to hear him discussing the phenomena that he loves to observe and record, so we would like to thank him for another very enjoyable talk.

### **Next Time**

The next meeting takes place on Tuesday 5<sup>th</sup> July at 19:30 with a talk by Paul Jenkins entitled "The Going of Dawn". Who is Dawn and where is she going? Only one way to find out! The Youngstars session will start at 19:00 and run until the start of the main meeting. All the other usual features of a HAS meeting will be there too: the tea and biscuits, the catching up with the latest developments at the observatory and possibly a Breakout group or another DVD.

Until then, don't forget your sunscreen and wellies!

***Antony McEwan***