Galloway Forest Astronomical Society

Newsletter #54, July 2024: Sunspot special

Some sunshine at long last on July 27th!

We've been trying to hold a public Sunspot observation meeting since early June, but we've been hindered by clouds and rain every day we've arranged one, until today. Not that the weather forecast for today was great, but we decided to chance it, went to the venue with three solar telescopes and kept our fingers crossed. The sun soon appeared from behind the clouds and we got some good views of both sunspots and coronal prominences and many passers-by joined in.

Here we are setting up in the small car park of the Belted Galloway Visitor Centre in Newton Stewart. The three telescopes, from left to right, are a Skywatcher Equinox 80 with a solar filter for the barrel, a Coronado PST (Personal Solar Telescope) with a Hydrogen-alpha filter and a Altair Astro 89mm tracking refractor with a Herschel wedge and a 13mm eyepiece in white light. There was heavy cloud while we were setting up, so all we could do was hope for an improvement.

After the sun broke through we began to get visitors coming along. Most of them didn't know about sunspots, coronal flares and so on and weren't aware that the sun is near its 11-year activity maximum, or the connection between that and the many aurora displays we've been seeing since the spring, so our visitors had a very informative morning.

We gave everyone an outline map of the sun to sketch the positions of the sunspots they saw, and they all did very well.

This is a photo of the team and some of the visitors near the end of the event. There was a lot of discussion going on and a lot of observing happening, which was good to see after such an unpromising start to the morning. Some old friends and some young folk dropped in during the morning as well, making the meeting overall about as good a public engagement event as we could have hoped for.

We weren't set up for astrophotography today, but one of our members took some hand-held shots of the results with a smart phone and the results, which you can see on page 2, were surprisingly good and revealed details that some of our visitors missed from their naked-eye viewing. If we see the sun again this summer we should set a camera up on the Coronado and try to get good images of solar prominences around the sun's rim. They must have been there today.

GFAS Membership

We always welcome new and returning members, especially juniors who join for free. Subs remain at £15.00 Adult, £25.00 Family, £0.00 Juniors or Students in full-time education. Just email **members@gf-astro.org** for a form.

Galloway Forest Astronomical Society

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Sunspot event July 27th

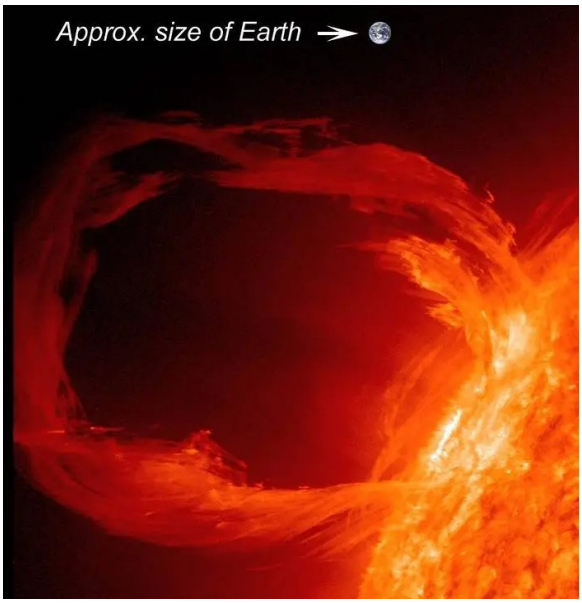
This is one of the smartphone images taken during the event. All our visitors sketched the three big sunspots in the bottom right quarter of the Sun, and most at least indicated the positions of the smaller groups of spots centre-left and lower-right.

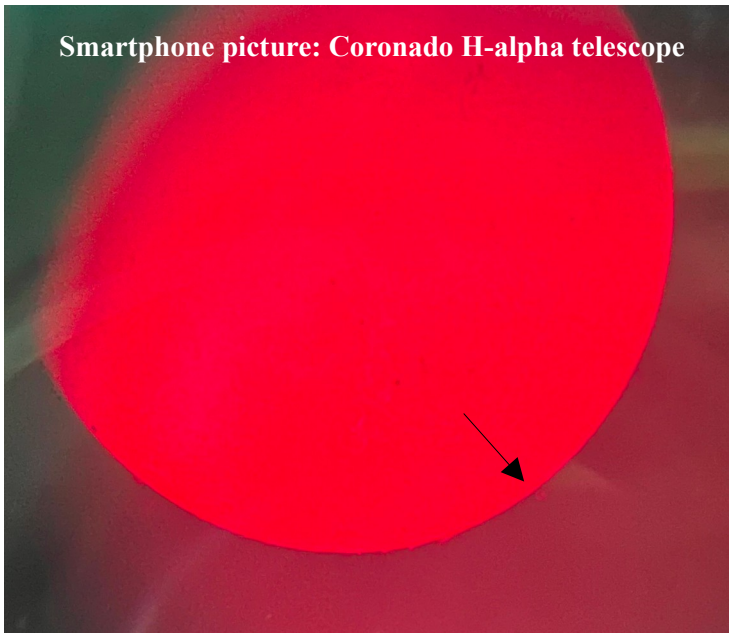
We measured this image to get a rough size for the biggest spot, arrowed. It is about 26,450 km wide. Planet Earth is about 12,740 km wide, so we could fit two earths inside that sunspot with room to spare! By contrast sunspot 484, one of the biggest ever seen, was about the size of planet Jupiter.

This picture was taken from the Altair Astro 89mm tracking refractor in white light.

It was much trickier to get a good image from the Coronado PST, but here below is the best we got. The Coronado has an H-alpha bypass filter which makes solar prominences more visible. There are hints of prominences around the visible parts of the sun's rim in this photo and there is one very large one, arrowed, at the bottom right.

Prominences are huge loops of plasma erupting from the sun's surface. Here is a much more detailed image of one, taken from the NASA website in 2010. Earth is shown at the top for scale.





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