

FAS Newsletter

Federation of Astronomical Societies

<http://www.fedastro.org.uk>

FAS Future

Dr Paul Daniels
FAS President



The FAS was formed in 1974 with the goal of uniting the purpose of the UK's astronomical societies in providing astronomy to their members, encouraging the teaching and outreach aspects of astronomy and providing societies with practical help and advice.

Now, some 43 years later, we have a membership of 219 societies representing over 12,000 (mostly) amateur astronomers. Almost all of our members are on the UK mainland with the remainder in Northern Ireland, the Isle of Man, the Channel Islands, Gibraltar and Spain.

And yet, over time and despite that growth in numbers, the FAS has become complacent. The ready availability of information on the internet from both professional and amateur sources means that the *major* reason most societies have remained members of the FAS is the provision of low-cost PLI – we have lapsed from being a body with worthy goals to becoming indirect insurance brokers!

Certainly, the FAS have produced some *very* useful publications over the years: the handbook, the newsletters, the astrocalendar and booklets offering practical advice – but their original usefulness has been matched, if not overtaken, by the ubiquity of a well-indexed internet with rich content, easy communication by email and widespread use of social media. In short, the FAS hasn't moved with the times and needs to review and change what it provides to its members: a deep re-think rather than just a cosmetic re-branding. The need to change what the FAS *is* and what it offers you is driven by that reality.

So, how do we change the FAS to make it more relevant to modern astronomical societies?

One of the great frustrations for many of those managing astronomical societies is the effort expended just keeping up with the pace of legislation and best practise. It takes up the precious time, freely given, of those who have volunteered to help run their society. In addition, people have become more litigious and more prone to take offence (even if none was intended) and, with social media, there are now more channels where perceived offence *could* be caused. In the event of a problem, the lack of status as a legal entity for most societies means that those on the managing committee of a society are exposed directly to the risk and financial implications of a legal challenge.

A very productive 'brainstorming' Council meeting held in October last year came up with a number of possible changes to address the burdens of bureaucracy. Some of the changes are to the FAS itself and others to the relationship we have with our members and the services we offer: the discussion below describes the latter.

Our proposals have focussed on directly helping societies *provide* astronomy by supplying the necessary advice on legislation in a plain English form and specifically tailored to amateur astronomical societies, by offering templates for best practise and so freeing organisers to grow and develop their societies and what they offer to *their* members. In summary these are:

- Advice on the *pros* and *cons* of becoming a charity or other legal Entity
- Advice on tax and the relationship with HMRC
- Advice on (and options for) creating an effective constitution
- Guidance on Code of Conduct and Diversity
- Health & Safety advice, including laser pointers and the protection of vulnerable children and adults
- Advice on data protection and the new GDPR regulations
- Advice on fund raising

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- Templates for assessment of risk at outreach events

These are to help societies run in a safe and legal manner and are presented in three broad categories:

1. Some of the advice we'll be producing will simply be passing on, in a relevant and digestible form, the details of things that are required by UK or local law, *e.g.* Tax issues & GDPR. In this case, it's not for the FAS to mandate *how* these things should be implemented by societies – it's the law that requires compliance.
2. Some of the documents will be advising on best practise, *e.g.* H&S and Code of Conduct. It is in this category that we shall need to determine which shall be a *requirement* of FAS membership and which shall simply be *recommended*.
3. Lastly, some of the documents will just be advisory, *e.g.* charitable status and fund raising. Some of the advice we'll be producing will simply be passing on, in a relevant and digestible form, the details of things that are required by UK or local law, *e.g.* Tax issues & GDPR. In this case, it's not for the FAS to mandate *how* these things should be implemented by societies – it's the law that requires compliance.

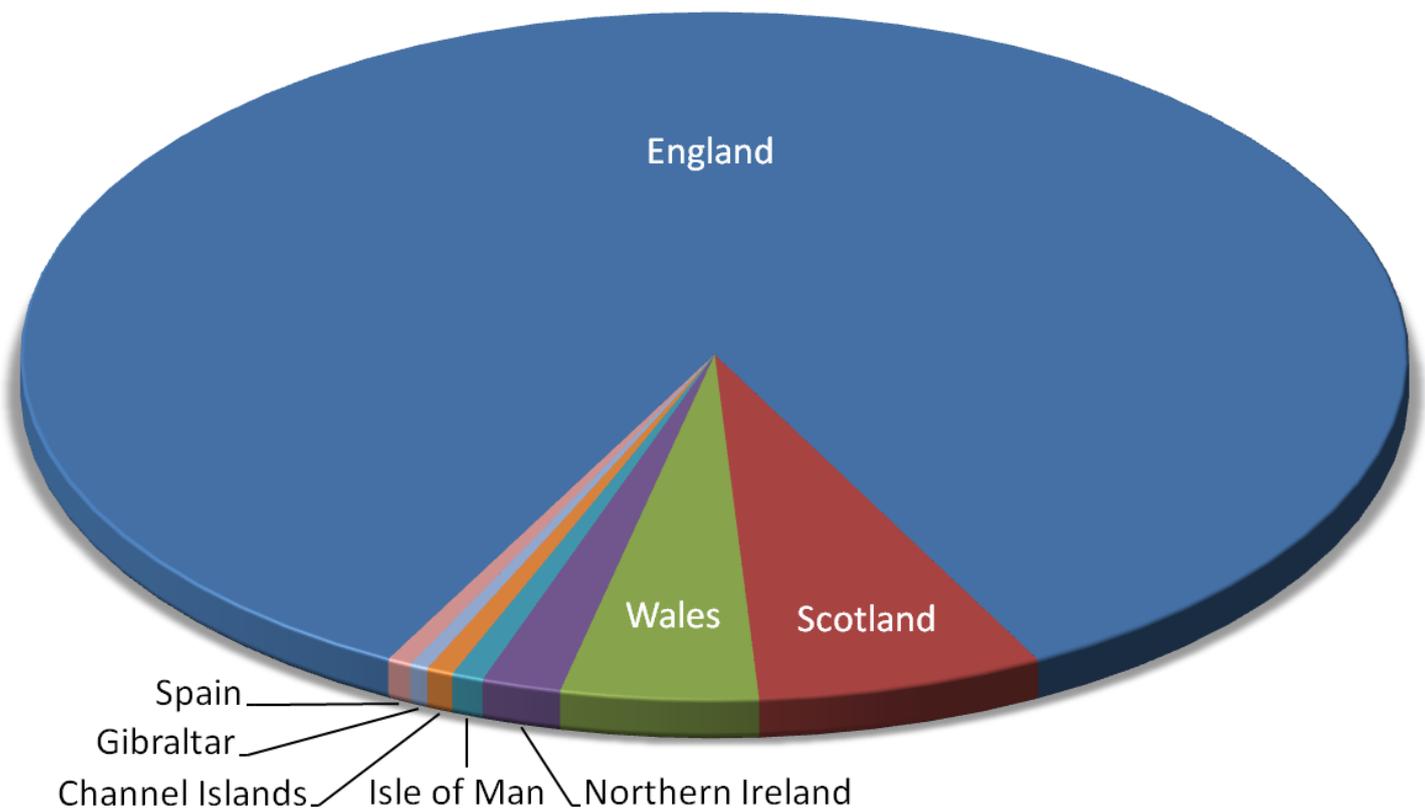
Some things, such as the template for a constitution, may contain parts that the FAS could require to be present (2 above) and some parts that could be omitted or tweaked to suit local circumstances (3 above).

About 10% of the member societies responded to a request for comment on the above and there has been fairly broad agreement but with varying degrees of support for making some of the proposals mandatory.

The Council feel that, to make membership of the FAS more meaningful, some mandatory aspects are necessary. If everything is left open to societies to ignore then being an FAS member that adopts the safe and legal practises we promote carries no distinction over those societies that might choose to operate in a risk-prone or non-compliant manner. Instead, requiring all safety aspects of amateur astronomy to be mandatory, for example, means that anyone wishing to join a local society or contact a society with a request for outreach will have more confidence in a society displaying the FAS logo on their website knowing that safety and compliance are *not* optional!

These discussions are still ongoing on the FAS Council and there *will* be consultation with member societies – a process of matching aspiration to practicality!

The Council are currently busy doing the research and writing the draft advice documents. We hope you will all support our moves to improve and make more consistent the ways in which astronomy is provided to your members and the public and agree that together, as a Federation, the future looks promising!



Graphic illustrating the distribution of FAS member Societies

Editorial

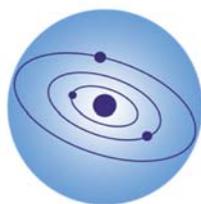
I apologise for the delay in getting a newsletter out but with all the issues surrounding the FAS and where we wanted to be it has been an interesting time—as the old Chinese proverb says. As such, in order to get something out I have decided to go with a short issue this time for timeliness but I will try and get a longer issue out for the summer when the convention details are finalised. The FAS is looking at itself and what it can offer to its members and as noted in Paul Daniel's piece we are looking to provide much more organizational information to members in particular around things like GDPR and Laser pointers etc. We are also currently looking for a location and date for the next AGM. It is likely that this will be held much further north than previously in order to allow all members to benefit from FAS activities.

This has been a tough couple of years for the FAS but hopefully we have now turned a corner and can move forward. As always if you think of something that we should be doing (or something we shouldn't) then please contact the president. However remember the FAS is a co-ordinating body and as such will not be directly involved with activities such as Outreach in its present guise.. I also apologise for not using some of the material sent in but that will feature in the next Newsletter.

Raising awareness of the Astronomy and Astrophysics Olympiad competitions

Charles Barclay

Vice President of the RAS and Head of
Astronomy teaching at Marlborough
College.



BAAO
British Astronomy and
Astrophysics Olympiad

A new UK venture in Astronomy education at Secondary level - an inspirational aim for our brightest and best young astronomers. Astronomical Societies can play an important role in identifying talent and making parents and pupils aware of the possibilities that exist.

The International Olympiad on Astronomy and Astrophysics (IOAA) is now well established; initiated in the Far-East, it now has a growing membership (in 2017 45 countries). The Olympiad lasts for 10 days and consists of 3 exams; a 5 hour theory paper, 4 hour data analysis and 3 hour observational task. A great deal is made of the publicity locally (in contrast to within the UK where the PR and media coverage has been very limited) with local or national government involvement in the Opening and Closing/medal ceremonies. The host country makes all the arrangements and bears the costs of local travel and accommodation and organises setting and marking of the papers. The Competition is highly valued in many countries,

some selecting from a vast number of initial entrants (as many as 20000+) and having training programmes throughout their school system. The Competition itself is highly demanding and requires training.

Though the idea of competing in IOAA had been considered, it was not until in 2014 that there was the idea of sending an observer to see what was involved. In the end we managed to prepare and send a trial team of 3 pupils to the 9th Olympiad held in central Java in Summer 2015; surprisingly we gained 2 silver medals, with UK ranked 10th of the 42 countries competing. Following this success we put together a selection mechanism: a BAAO Challenge paper is taken in September/October of year 12 or 13 (this need not be under exam conditions). Pupils then must sit the British Physics Olympiad Round 1 paper in November under supervision* with marking done centrally in Oxford. We then invite the top 50 Gold medalists from Round 1 to sit a BAAO selection paper in January (supervised* and centrally marked), from which 12 are invited to a training camp in Oxford in April (in some years these pupils need to be selected from the BPhO AS paper sat in March), which selects the team of 5 and one reserve. Further training camps and question practice then continues until the IOAA competition. (* The BAAO office can help to arrange a local Centre for this if needed)

To give a flavour of questions asked (not only is the level high but the time pressure extreme and very fast processing is needed), here are some initial Multiple Choice questions: (True/False)

- a) In a photograph of the clear sky on a Full Moon night, with sufficiently long exposure, the colour of the sky would appear blue as in daytime.
- b) An astronomer in Athens marks the position of the Sun on the sky at 05:00 UT every day of the year. If the Earth's axis was perpendicular to its orbital plane, these positions would trace out the arc of a great circle
- c) The centre of mass of the solar system is inside the Sun at all times
- d) A photon is moving in free space. As the Universe expands its momentum decreases.

In the longer questions some of the topics included Early Universe - density parameter, Shadow lengths - latitude variation, Cepheid pulsations - modelling, Telescope optics - Barlow lenses, Mars orbiter mission - orbit boosts, Gravitational lenses - mass distribution, Gravitational waves - merging candidates, Exoplanet detection - transit curves with star spots and limb darkening

For the UK to be competitive we need to reach out across the Country via parents, teachers and directly to pupils to identify our brightest pupils, who might not otherwise have any experience or school access to the Olympiad papers and entry mechanism (indeed some may be home taught). We need to have a diverse entry and importantly there is no cost involved (except for Independent schools who pay £18 per pupils for the Round 1 Physics paper) The cost of participation is entirely born at present by the Physics Olympiad organization and it is important for us to maintain a 'needs blind' participation.

If you want more information, the past papers can be accessed at <http://www.physics.ox.ac.uk/olympiad/BAAOPastPapers.html> and the competition dates can be accessed through the BPhO website <http://www.bpho.org.uk/> or please

Meetings Calendar

There are unfortunately a lot of meetings and it is difficult to fit them all in the calendar. This also applies to Star parties as well.

Below are some of the major events for the Summer/Autumn of 2018. If people are holding conventions/star parties and wish to include these then please let me know information and dates and I can try and publicise them. I understand that many people are not into the observing side of astronomy but this is what I have.

Webb Society AGM 2nd June at IOA details at <https://www.webbdeepsky.com/>

SHA Summer Picnic 30th June Norwich Seething Observatory - details at <https://societyforthehistoryofastronomy.com/meetings/>

SouthWest Astronomy Fair 11th August 2018 Details at <http://www.southwestastrofair.com/>

Kelling Autumn Equinox Star party main weekend 8th September 2018 details at <http://las-skycamp.org/index.php>

Galloway Star Party 3rd-8th October 2018 see StarGazers Lounge forum for more information.

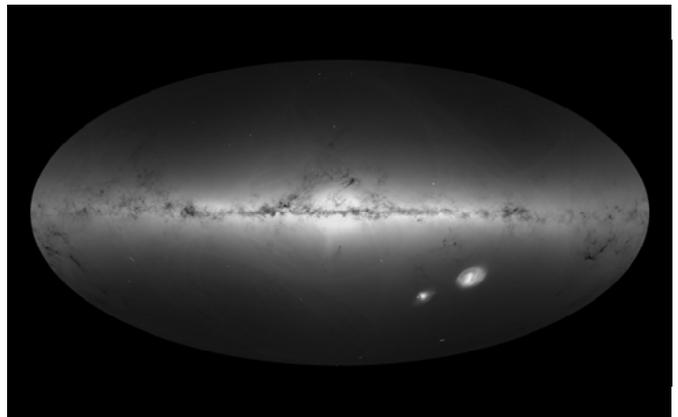
International Astronomy Show 12-13th October. Details at <https://www.ukastroshow.com/>

Kielder Autumn Star party 10th-15th October 2018 see <http://www.sunderlandastro.com/star-camp/> for more information

WinterFest Astro Star Party 8th-13th November 2018 – Birmingham Astronomical Society/Kelling Heath details at <http://www.winterfestastro.co.uk/>

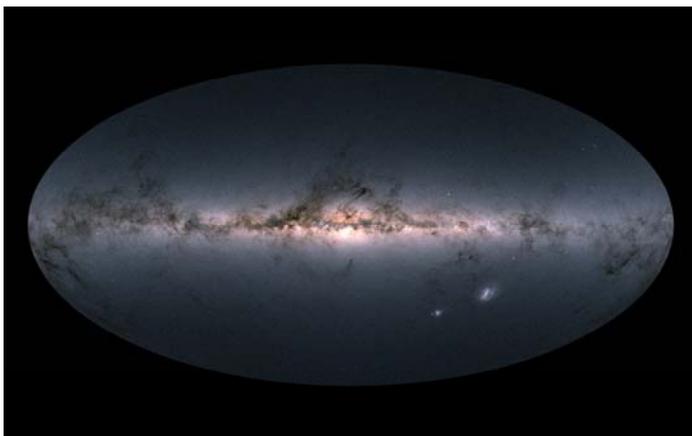
There is a new astronomy show on the 9th March 2019 which is a one day event called the practical astronomy show. Details at <http://practicalastroshow.com/>

bright stars, while darker regions correspond to patches of the sky where fewer bright stars are observed. The colour representation is obtained by combining the total amount of light with the amount of blue and red light recorded by Gaia in each patch of the sky. The bright horizontal structure that dominates the image is the Galactic plane, the flattened disc that hosts most of the stars in our home Galaxy. In the middle of the image, the Galactic centre appears vivid and teeming with stars. Darker regions across the Galactic plane correspond to foreground clouds of interstellar gas and dust, which absorb the light of stars located further away, behind the clouds. Many of these conceal stellar nurseries where new generations of stars are being born. Sprinkled across the image are also many globular and open clusters – groupings of stars held together by their mutual gravity, as well as entire galaxies beyond our own. The two bright objects in the lower right of the image are the Large and Small Magellanic Clouds, two dwarf galaxies orbiting the Milky Way. In small areas of the image where no colour information was available – to the lower left of the Galactic centre, to the upper left of the Small Magellanic Cloud, and in the top portion of the map – an equivalent greyscale value was assigned. The second Gaia data release was made public on 25 April 2018 and includes the position and brightness of almost 1.7 billion stars, and the parallax, proper motion and colour of more than 1.3 billion stars. It also includes the radial velocity of more than seven million stars, the surface temperature of more than 100 million stars, and the



GAIA DR2 redefines galaxy distance scale

Gaia's all-sky view of our Milky Way Galaxy and neighbouring galaxies, based on measurements of nearly 1.7 billion stars. The map shows the total brightness and colour of stars observed by the ESA satellite in each portion of the sky between July 2014 and May 2016.. Brighter regions indicate denser concentrations of especially



FAS Council 2018

As noted in the last newsletter the FAS has had some issues getting volunteers to run the organization. At the Last AGM we managed to get a full suite of officers. Unfortunately since that time four of them have had to resign for personal issues so the current Council is :-

Paul Daniels – President
Graham Bryant – Vice President
Peter Cooke – Treasurer
Roger Steer – Publications officer
Owen Brazell – Newsletter editor
Marc Coyles – Webmaster
Shaun O'Dell – Secretary
Phillip John – Publicity officer
Tony Questa – PLI Secretary
William Bottaci – Membership secretary

Other members of council

Paul Hackett