

## Astronomy Forum: Notes from April 2014

This meeting of the [Astronomy Forum](#) was held on Tuesday 8 April 2014 in the lecture theatre of the Royal Astronomical Society (RAS) at Burlington House, London.

In attendance:

David Southwood (RAS President, Astronomy Forum Chair), John Womersley (STFC CEO), Colin Vincent (Head of Astronomy, STFC), Kim Burchell (Astronomy Grants manager, STFC), Sharon Bonfield (new head of Astronomy facilities, STFC), Matthew Johnson (Head of SKA Project Office, STFC), Terry O'Connor (STFC Head of Communications), Chris Castelli (UK Space Agency Acting Director of Programmes), who left after item 3, Matt Griffin (Univ. Cardiff and Chair of STFC Science Board), Daniel Brown (UCLan and Deputy Chair of STFC Astronomy Grants Panel), Keith Smith (RAS, minutes), Robert Massey (RAS Deputy Executive Secretary), approximately 25-30 Forum members from UK universities and research establishments.

Apologies for absence: Ian Smail (Durham and Chair of STFC Astronomy Grants Panel).

### 1. Welcome

The Chair welcomed the participants and brought the meeting to order at 14:00

### 2. Contact with MPs and other policy makers

The Chair updated the members on the engagements he and Robert Massey (RAS) have had with politicians since the previous Forum meeting. Discussions and face-to-face meetings have been held with:

- David Willetts MP (Conservative, Minister of State for Universities and Science)
- Andrew Miller, chairman of the House of Commons Science and Technology Committee.
- Liam Byrne MP (Labour, newly appointed Shadow Minister for Universities and Science)
- Anne Glover (Chief Scientific Adviser to the President of the European Commission)

The Chair encouraged the members to contact their local MPs, particularly as the next general election was just over a year away.

Discussion:

- Andrew Miller (Chair of the Science and Technology Select Committee of the House of Commons) is retiring at the 2015 election. The other members of the Select Committee are still planning to stand in the election.
- Liam Byrne's son has expressed an interest in taking astrophysics at university, and will be applying soon. Byrne has stated that he opposes 'announcement based' policies, which contrasts with Willetts' approach.
  - It was pointed out from the floor that representatives of the present government made similar assurances before taking office.

### 3. UK Space Agency and ESA activities

Chris Castelli (UKSA Acting Director of Programmes) presented [an update](#) on the astronomy activities of the UK Space Agency and European Space Agency.

Castelli began his talk by paying tribute to George Fraser (Univ. Leicester) who passed away recently.

Discussion:

- UKSA's funding plan seems secure to the end of the current CSR, but falls off after that. What happens next? Will you be bidding for the same funding level?
  - Castelli: Yes, we will be filling that gap with new programmes. There will be funding pressures, but we need to make the argument for investment to politicians at the next funding review.
- The apparent immediate planned overspend in the graph of the ESA funding envelope looks scary. How did that happen?
  - Castelli: The short term over-planning is normal and not a real concern as programmes slip – but one does not know in advance which. However, the Council of Ministers decision not to compensate inflation makes longer term planning problematic. ESA has not yet established expected funding envelopes for the new missions (L2 and M3). There have been some discussions about how to retain balance with a flat cash envelope e.g. delay M4 or make it bilateral. I wouldn't be too alarmed, but it does need looking at.
  - Southwood (in response to a question about a specific feature of the budget planning graph): ESA moved to a new accounting system, which charges more to the science budget. There is a 5-year transitional arrangement, ending in 2015.
  - Castelli: The plot shown assumes a flat annual purchasing power from 2015. That is worrying as the plan is flat cash where there is no compensation for inflation. There is a large uncommitted element as a contingency available from 2015 onwards.
- Will there need to be another contribution from the science programme towards ExoMars?
  - Castelli: No, we do not expect any further transfer of funds from the science budget to ExoMars.
  - Floor: Initiating new contact with Russia is difficult, because of this week's political events (sanctions resulting from the Ukraine crisis), but continuing with existing investments should be fine.
  - Castelli: Exactly.
- Southwood: If you look where space is expected to contribute to economic growth, it is not so much in making spacecraft but downstream in dealing with data and analysis. Astronomy has a lot of interest in these areas today e.g. *Gaia* data mining. Do we need to make sure that trained PhD scientists can transfer their skills to these new growth areas?
  - Womersley: I don't think this is a problem – most people can make that transition. But there is a large expectation problem, both among students and academics. In the next spending review, we should argue that funding PhD students is more about training them, rather than their research contributions.
  - Womersley: Most universities could absorb twice as many PhD students as at present without hurting their training systems.
  - Floor: If there is going to be a large expansion in PhD student training, we need to get industry involved right from the start.

- Southwood: Most employment opportunities are in Small and Medium Enterprises (SMEs), not the big companies. It can be difficult to get them involved.
- Floor: It should be practical to get SMEs to sponsor individual students.
- Floor: Some of our PhD students recently visited several space sector employers. They came back very disillusioned – they found that their skills were not popular with employers, who actually wanted engineers.
- Southwood: This is a communications problem. We need to educate employers on what PhD students can do.
- Castelli: Data analysis and data mining are key growth areas. PhD students learn to manage large amounts of data, which is a useful skill in other career paths.
- Massey: The RAS has [publications](#) that include a lot of case studies of this kind of career. These could be used as examples to show to employers and the space industry. Specifics are helpful.
- O'Connor: Case studies are very valuable for making funding arguments to government. Work in advice and consultancy is also valuable as case studies, as well as full career moves.

The agenda included discussion of possible Scottish independence as part of item 5. That discussion was instead held here, so Chris Castelli could contribute.

- Southwood: Do you have advice for handling changes related to possible Scottish independence?
  - Castelli: It is a complex issue.
  - Southwood: you might have until 2017 to work this out, but we need to make sure we don't shut down past major UK investment because it has been on the 'wrong' side of the border. Some long-term contingency planning and risk management is required. The current grants round will be hiring people who may end up working in another country.
  - Castelli: I've had discussions about how Scotland can better access ESA, but those weren't explicitly related to independence.
  - Southwood: Some non-EU countries are included in the Horizon 2020 programme and non-ESA countries can take part in some ESA activities. Maybe similar arrangements should be thought of for Scotland if it becomes independent.
  - Womersley: Most of these discussions are taken at levels many political steps above research councils. This is potentially very serious.
  - Floor: Is it not inappropriate for STFC or UKSA to comment on this political issue?
  - Floor: Both are parts of the UK government. Academics should be more vocal about the difficulties independence would cause for them.
  - Southwood: Regardless of what we want people to do, we need to be prepared.
  - Massey: Be careful about saying 'we can deal with Scottish independence', because supporters of independence will spin that as a political statement.
  - Floor: Surely a much bigger issue is the possibility of the UK leaving the EU. Losing access to the European Research Council (ERC) would be utterly disastrous.
  - Floor: in practical terms, how will current grants be treated?
  - Womersley: For the moment, we plan on the status quo. Grants will be handled on the assumption that the current political system will continue; we will not disfavour Scottish institutions just because they might leave the UK. Even if there is a 'no' vote,

there are still possible issues if more powers are transferred to the devolved government e.g. a new Scottish research council.

- Southwood: This isn't a long way off. The referendum will be held around the time of the next Astronomy Forum.

#### **4. STFC activities and reviews**

Three speakers from STFC gave presentations; there was then a joint discussion session after all three talks.

##### **4a. Spending review outcome**

John Womersley (STFC Chief Executive) [updated the Forum](#) on the budget allocations from the recent government Spending Review.

##### **4b. Details of the STFC Programmatic Review**

Matt Griffin (Univ. Cardiff and Chair of STFC Science Board) [gave details of the latest STFC Programmatic Review](#), including spending priorities, for the coming years.

##### **4c. Consolidated grants**

Ian Smail (Durham and Chair of the STFC Astronomy Grants Panel - AGP) was unable to attend the meeting. In his absence, Daniel Brown (UCLan and Deputy Chair of AGP) updated the Forum on the current review of the consolidated grants scheme. The presentation was oral only, so there are no slides.

There has now been an entire cycle of the new grants system, so every department is now on the consolidated grants scheme. It is therefore a good time to review the new arrangements, and STFC have started a review process chaired by Alan Heavens (Imperial College London). The review will ask four basic questions:

- Have the recommendations for the new scheme made in 2010 been implemented?
- Have differences arisen between the different communities? If so, are these justified? Does each community support these differences / care about them?
- Have there been unexpected or adverse consequences?
- Can improvements be made whilst maintaining the purpose of consolidated grants?

Regarding the last question, should the restriction of one grant per institution be removed and should a greater emphasis be put on thematically based proposals in the peer review process?

The review panel has sought community input on these questions and will report to Science Board in July.

Discussion:

All three STFC speakers took questions together.

- Is it STFC strategy to tell government that flat cash will require moving money from impact into other areas?
  - Womersley: That is a dangerous argument to make. It would be better to argue that if the UK wants to remain competitive it needs to support science funding. The

community has done very well at maintaining quality during a crisis, but now we need to think about where investments can be made.

- Griffin: The impact that STFC generates is all derived from science and technology research. The two cannot be de-coupled – if science is in decline, then so is impact.
- Womersley: We are close to the cliff edge. If we model flat cash for a few more years, there are major projects which would have to be cut.
- Floor: That's not what I got from the Programmatic Review document.
- Floor: You say that astronomy has maintained capacity despite cuts, but we don't know if we've weathered the storm, because projects take years to produce papers. We might now be seeing the results of the cuts that were made several years ago. [Several participants indicated their agreement with this point.]
- You asked if all the recommendations of the 2010 grants review have been implemented as set out in the report. The answer is 'no'. Why not?
  - Womersley: The system was too strained. The 2010 review identified the old system of standard grants as a problem – they were seen as buying lots of lottery tickets and the rolling grants as tying up resources for too long. The review could not move everyone onto the old rolling grants system, because of finance rules, even if it wanted to. So consolidation was a compromise.
  - Floor: The 2010 review came up with sensible plans to make things that behaved like rolling grants, but instead what we've got is a scheme that is effectively a huge number of standard grants being submitted at the same time.
  - Brown: At the time it felt to me that standard grants had a volume issue, but were easy to do, whilst the rolling grants were causing the real problem.
  - Womersley: EPSRC over-committed funding in some years, so had one year with almost no grants awarded. We wanted to avoid that.
- The algorithm for assigning funding for astronomy students has caused problems. Should we carry on with the existing algorithm, or move student funding into the AGP?
  - Brown: The panel has discussed this. It is obvious to us that the algorithm doesn't fit with the consolidated grants scheme.
  - Womersley: The algorithm magnifies differences between the panels in each STFC subject area. The Education and Training Committee is looking at possible changes to the algorithm.
  - Floor: Particle Physics seems to spread students and associated full economic costs (FECs) more evenly amongst its community, whilst it is perceived that astronomy is concentrated in a smaller number of departments, due to differences in grants allocations.
  - Womersley: Astronomy allocates according to the ranked list provided by peer review and supports a much larger and more diverse community than Particle Physics.
- Has any feedback been received on consortium grants?
  - Brown: We have an anecdotal view. The consortium grants have mostly been used by small groups trying to join together to gain critical mass. We will probably have a better view by this autumn. I don't think consortium grants have been exploited as well as they could be.
  - Floor: We tried to put together a consortium grant, but because different departments are assigned to different consolidated grant years it turned out to be impossible.

- Brown: Yes, this is a big problem. The panel has discussed this and the solution is to roll in support as consolidated grants end, essentially deferring full support.
- Is there any attempt to move grants around so there's an even number of proposals each year over the 3 year cycle?
  - Brown: Some rebalancing has been performed by funding each round slightly higher or lower depending on the number of applications. Some bridging funding was awarded and will help, so this year should be better.
  - Floor: We know there has been a large increase in the number of grants submitted this year, but no additional money.
  - Brown: This is not true – the resource has been profiled to provide more in the larger grant rounds.
  - Womersley: There has been an influx/movement of staff between departments due to the Research Excellence Framework submissions in 2013, so we need to be careful with the metrics. Funding has to be dynamic.
  - Reducing the number of available PDRAs in this round will hurt, because these are the same departments who experienced the most difficulty when the system changed 3 years ago.
  - Womersley: That is not our policy, but flat cash may force it.
  - The timing will hit the same set of people again.
  - Womersley: Point taken.
  - Vincent: Funding levels have gone up to compensate.
  - Really?
  - Vincent: Yes. We have been working within the office to manage the funding levels and cash flow.
- Griffin: The current algorithm for allocating FEC funding isn't working properly.
  - Womersley: The grants panel has to be consistent, but universities are capable of handling different levels of support.
  - Floor: Cutting the FEC support to zero may harm the career of some academics.
  - Womersley: Even when FEC support first came in, it was never enough to support (then) PPARC science that was being done. Over time the amount of FEC funding has gone down, so this has only been getting worse. We aren't funding enough FEC support, or enough PDRAs, or enough students. But to help one we have to hurt the others, if we have flat cash.
  - There is a problem with naming junior staff on grants which are not successful. This hurts their careers / relationship with their university.
  - Floor: Even a tiny amount of FEC support is enough to show to university administrators to justify that the project is a good one.
  - Floor: Even if STFC doesn't fund an FEC request, they shouldn't tell universities that the project isn't a good one. The wording of the outcome letter is poor.
  - Womersley: Feedback is always good.
  - Floor: FECs are handled differently in particle physics. This is a huge issue in university departments with both astronomy and particle physics groups – astronomy is losing out.
  - Womersley: The particle physics and nuclear physics communities might disagree. The idea with consolidated grants was to move away from a system that was regarded as 'buying lottery tickets', but we need to be careful about the differences it introduced between fields within STFC. Those differences don't look good, I agree.

- When applying for consolidated grants, some applicants already have existing grants from other bodies e.g. the ERC. How does the AGP handle this?
  - Brown: We shouldn't penalise people for being successful elsewhere. However, we want to see that the project is distinct from the one that was already funded. We need to avoid double dipping i.e. funding the same work twice.
  - Womersley: We also want to avoid 'topping up' grants requested to finish previously-funded projects, when this should have been covered by the original grant.
  - This guidance should be public, and stated in the grant application instructions.
  - Womersley: We're trying to make this clearer. It's becoming a bigger issue, especially given the success of the UK in ERC grants.
  - Floor: These are small number statistics, but there appears to be an anti-correlation between ERC grants and AGP funding.
  - Brown: We need to check this. I'm not aware of any discrimination.
- The UK has been very successful at obtaining ERC grants, to the point that they are providing about 30% of postdocs in the UK today. Those grants will end, and if they cannot be renewed then UK astronomy will take a big hit.
  - Womersley: Other countries might get better at obtaining ERC funding, so UK funding from ERC might go down even if the quality of grant proposals is maintained.
- UK astronomy is successful because we attract the best people. The attractiveness of working here is declining already. This is dangerous.
  - Floor: anti-immigration and anti-European rhetoric from politicians, and especially the government, is already hurting us.
  - Womersley: If policy was determined by evidence, this wouldn't be a problem.
- What is the impact of the spending review for STFC administration at Swindon?
  - Womersley: Funding for admin is down 3%, but not everything in STFC is classified as admin. There is a deliberate attempt by government to reduce admin costs across the public sector. We will have to find ways to live with it.
  - Griffin: Science Board believes admin squeeze has gone too far. Any further cuts and peer review will suffer, which makes our overall spend a lot less effective.
  - Womersley: There is a risk that some admin activities will become RCUK-wide. We don't want peer review to be one of those activities. STFC needs to maintain an office which is connected to the community. There are also issues with our outreach activities. Combining things into RCUK is driven more by political desire for central control than by the amount of money saved.
- STFC are interested to see any impact case studies available. They want to hear as many good stories as possible e.g. the REF impact cases.
  - Womersley: We won't use them against you, anonymise them if you like. But STFC does want to see as many examples as possible of astronomy impacting on the rest of the UK. It helps our argument for more funding from government.
- Southwood: At the last astronomy forum STFC discussed the possible merging of research councils. What has happened to that issue?
  - Womersley: We seem to have successfully pushed that back, at least for now. The evidence showed that there were no good reasons for, or savings made by, merging research councils. The proximate threat has receded, but the Cabinet Office still seems to have the feeling that there are too many different research councils. This will probably come up again in future. There is political pressure to share services,

and not to see the councils as separate bodies, but as a delivery mechanism for the Department for Business, Innovation & Skills.

- Southwood: Concerns have been expressed in government at the cost of e.g. funding non-executive advisors for each council separately.
- Womersley: The cost of a few council members is tiny compared to the cost of the programme. It is better to keep those roles close to the community.
- Womersley: The argument for future funding should be for a science budget which is ring-fenced and tied to GDP. Flat cash was OK for surviving a crisis, but it is not a recipe for success in the future. There is a new-found political appetite for capital spending, but without the resource spending to exploit it we will not make the most of this investment.

## 5. Changing UK political context

The Chair led a discussion on upcoming political changes. The ramifications of possible Scottish independence were already discussed under agenda item 3 above.

- Womersley: All political parties like to support science; they just vary in exactly how much. We need to get all the parties trying to out-do each other on e.g. whether the budgets are sufficient to fund their ambitions. Science funding isn't going to make any noticeable difference to the national debt – but it is an investment for the future and something that has a positive spin for the public.
- Southwood: How is the EU's Horizon 2020 project working?
  - Womersley: European funding for this hasn't grown since the Seventh Framework. It's unlikely that there will be any extra money for e.g. ESO. There might be some funding available for new developments with European aspects. For example, the EU might like to see how other 'European' organisations like CERN and ESO can be used to deliver EU priorities. Support may come for e.g. more interactions between EU nations, but a few million at most. That is welcome, but it will facilitate other existing activities rather than generate new ones.
- Southwood: The RAS has been trying to get the European Astronomical Society (EAS) to engage more with European-wide political and funding issues, but the EAS have previously proven reluctant to do so. A few months ago, the RAS and Astronomische Gesellschaft (AG, German Astronomical Society) decided to produce joint policy positions on European matters. When this was announced at the next EAS meeting, every single one of the other national societies decided that they also wanted to be involved. The EAS may be bypassed. There will hopefully be someone permanently stationed in Brussels to handle this.
- Southwood: There are potentially changes coming in the EU Commission, as all of the commissioners will be reassigned or replaced in November.
  - Womersley: Tell the EU Commission that not all of science is like CERN. They cannot simply turn ESO into the 'CERN of astronomy' and assume that the astronomy community will support that.
- In the past you have advised us not to criticise flat cash because it could have been worse, and others received more painful cuts. Is it now time to start shouting that flat cash isn't enough?
  - Womersley: Yes. We have come through hard times, but flat cash is not a long-term plan. Investment is a long-term plan.
  - Floor: To make that argument, STFC needs the independent advice, e.g. from Science Board, on how bad flat cash would be.



- Southwood: There will be a general election in 2015. Now is the time that we need to engage with politicians, before manifestos are finalised.
  - Womersley: Science is something that all politicians are keen on. Try to get them to see astronomy as something for the UK to be proud of. If they see it as a special interest activity, that won't help obtain funding. The solution is to get politicians out-doing each other in their support of excellent UK science.

## **6. Any other business**

The Chair brought the attention of the Forum to the 'community session' at the upcoming RAS National Astronomy Meeting in Portsmouth (23-26 June 2014, see <http://www.nam2014.org>). This session will involve updates from the RAS and STFC, and community discussion of funding and political issues. The organisers of the session are currently soliciting input on the topics which should be discussed.

The Chair advised the Forum that he will be stepping down as RAS President in May 2014, and would resign as Chair of the Astronomy Forum at the same time. The next RAS President will be Martin Barstow (Leicester).

The Chair thanked everyone for attending and the meeting closed at 16:50.