Notes of the Solid-Earth Geophysics Forum held on 19 December 2013 at the Royal Astronomical Society, Burlington House, Piccadilly

Attendees:

Barry Parsons (Oxford, Chair); Brian Baptie (Bristol), Jon Bull (Southampton), Jenny Collier (Imperial), Huw Davies (Cardiff), Arwen Deuss (Cambridge), Richard England (Leicester), Andy Hooper (Leeds; alternate for Graham Stuart), Tom Jordan (BAS; alternate for Fausto Ferraccioli), Stephen Jones (Birmingham), Mike Kendall (Bristol), Ian Main (Edinburgh; alternate for Andrew Curtis), Tony Morris (Plymouth), Sheila Peacock (AWE Blacknest), Andreas Rietbrock (Liverpool); Chris Franklin (NERC), John Ludden (BGS), Robert Massey (RAS), Edmund Nickless (Geological Society), Duncan Wingham (NERC), Valerie Dennis (RAS) (notes secretary)

Apologies received:

Jason Morgan (Royal Holloway), Christine Peirce (Durham), Peter Styles (Keele), Vincent Tong (Birkbeck)

Welcome & Introductions

The Chair reminded the Forum of its purpose and history. The RAS President and Executive Secretary consulted the Geological Society and other societies and agreed to create two geophysics forums, as the range of interests was too large to put into one body. The main reason for setting up the solid-Earth Geophysics Forum is to be pro-active in matters concerning UK SE geophysics and to set up a line of communication with bodies such as NERC.

Members of the Forum introduced themselves.

Funding Directions & 2015/16 Spending Review (Duncan Wingham, CEO, NERC)

Duncan Wingham gave an update on funding directions and the capital landscape.

The Chancellor had revealed that the capital budget for science would be increased to £1.1 billion in 2015-16 and maintained in real terms until 2020. However, at the time of the meeting the spending review settlement was still unknown. He thought that science could retain its 'flat cash' resources budget, something supported by the Science Minister, David Willetts. In recent years, other areas of government expenditure have incurred cuts of up to 40%.

The investment in the capital budget is welcome, but nonetheless requires careful management. To give an example, approximately half of NERC's current budget is spent maintaining ships and planes. Making a commitment to new capital projects should only happen if the research council can manage the additional resource expenditure required to support them.

Prof Wingham then explained the tender process for capital bids could be split into two areas: on the one hand, those handled by HEFCE and the Research Councils and, on the other, very large items approved by Ministers. He explained that it was essential to ensure that infrastructure such as laboratories, industry training and preparation for innovation was maintained. Consultation on the government's Science and Innovation Strategy would open early in the New Year. The Minister is very keen to consult on this and pro-vice-chancellors will be asked to respond. Prof Wingham urged

members of the forum to respond to the consultation and the forum as a group could assist the community to shape its response.

On a more general point, he commented that BIS are very effective at clawing back underspends but give very short notice of new funds available. NERC is not yet as effective as other research councils at creating a similar network to prioritise capital expenditure. The Solid Earth Geophysics community are seen as less cohesive and cooperative than other groups and this doesn't help them to make their case.

NERC's New Strategy (Duncan Wingham, CEO, NERC)

The new NERC strategy, "The Business of the Environment", can be downloaded from http://www.nerc.ac.uk/publications/strategicplan/business.asp

The strategy has a simple message: to recognise that humans are the largest source of change on the planet and that the Natural Environment is denaturing. This is central to funding sources in the future. The growth of environmental science is global and not just a UK response to this threat. For example, Chinese science is expanding rapidly and contacts from the science community in China should be nurtured.

Strategically, NERC has only part of the picture at the moment. It needs to get better at engaging with engineering and agriculture and do more across the Research Councils as a whole. Excellent science creates innovation and NERC needs to make this case in order to maintain funding. 6% (trending to 8%) of the current budget is spent on translational activity of this type. One of the strengths however of UK science is that it is bottom-up and shaped by the scientific community, in contrast to the top-down models elsewhere (e.g. in the US).

There is little spare funding until the end of the 2015/16 spending round at the earliest so proposals for programmes (not projects) could be submitted towards the end of 2014. NERC will operate a level cash approach to its infrastructure. As a result NERC will need to adopt a strategic plan for its large infrastructure items, such as planes and ships so that these items would remain free at the point of use.

Co-funding for infrastructure items such as charter arrangements and industrial funding for co-use might be sought for part of the year depending on the item's use but it would be dependent upon the items location at a particular time. This could however lead to significant savings in terms of crew and fuel.

An example of this is the FAAM aircraft owned by the BGS, where for example oil and gas companies may be interested in using it to investigate the levels of atmospheric pollutants.

NERC council also agree that there is a need for more doctoral training centres and there will be a bid by Research Councils for more government funding of fellowships.

Q: Is there any truth in the rumour that research councils may be forced to merge?

A: The triennial review seems likely to maintain the current number of Research Councils. BIS is nonetheless keen to reduce the non-ring-fenced administration budgets by as much as 25%. It may for example be impossible to finance seven separate doctoral training programme schemes.

Q: If co-use is implemented, how will this be balanced against peer-review?

A: This should not be difficult, given the cost constrained operation, effective utilisation of assets and shared capabilities. This is not about reducing excellence, but there is no real term protection of the budget.

Q: Back office sharing (e.g. the Shared Services Centre) between Research Councils has been bad in the past.

A: There is limited scope for the integration of finance, legal depts., HR etc. We need to look at commonality between research councils, in areas like public engagement, innovation funding, and knowledge exchange.

Q: The Science and Innovation Strategy (SIS) announced in the Autumn Statement - how can the community contribute?

A: This is an important document as it influences the text of the Spending Review, but not everything NERC does has to be aligned with it.

Q: The Strategic Programme Advisory Group (SPAG) is a good starting point for proposals (see http://www.nerc.ac.uk/research/spag/index.asp)

A: Delegates agreed that it was important that the geophysical community has input to SPAG and the Forum should be used for developing ideas.

NERC Ownership and Governance project (Duncan Wingham, CEO, NERC)

See http://www.nerc.ac.uk/about/news/governance.asp

The project is considering the ownership and governance arrangements for the wholly-owned NERC centres; the British Geological Survey (BGS); National Oceanography Centre (NOC) and Centre for Ecology & Hydrology (CEH). The National Centre for Atmospheric Science (NCAS) may also be given a separate identity. NERC Council has agreed to proceed to the next stage of this review.

While these institutions remain in the public sector there are restrictions on expenditure, salaries and pensions. The review is considering whether the centres would be more effective if they were independent of NERC.

At present NERC holds 100% of the risk but only funds 50% of BGS activities. Prof Wingham argued that the NERC risk should be proportional to its investment. There should of course be open and transparent access to the infrastructure and access to services and facilities provided by the centres would continue to be funded. Prof Wingham asked the Forum not to confuse ownership with funding.

Q: What is your preferred model for centre ownership?

A: There is not a 'one size fits all' answer to this question. Whatever the model, the entity will carry a risk.

Following a question re privatisation of NERC he replied that whatever the entity, that entity would hold risk. Forum members can be reassured that any owned asset that requires a curatorial service for data will continue to be funded. Changes in the centres will be seen in terms of long-term salary levels, cash reserves etc. Private need not mean "for-profit", as demonstrated by universities.

Q: Europe sees the UK as being non-participators in terms of infrastructure sharing.

A: There is an over-capacity worldwide in terms of scientific vessels and the forum needs to challenge the marine community to work with NERC for better shared governance and a European fleet.

BGS and the Geophysical Community (John Ludden)

Prof John Ludden, Executive Director of the British Geological Survey (BGS), gave a presentation on the work of and plans for BGS and its infrastructure.

As well as examples of BGS programmes in the UK and around the world, Prof Ludden included examples of partnerships with many external organisations. He believes that BIS is unlikely to fund a big geophysics project at present.

The presentation can be seen at
http://www.ras.org.uk/images/stories/SE_Geophysics_Forum/BGS_infrastructure_RAS_dec_2014.pdf

Large-scale Geophysical Projects (John Ludden, Brian Baptie and Mike Kendall)

Prof Ludden then gave a presentation on the proposed Energy Test Bed sub-surface monitoring project. He discussed how this could be utilised and the opportunities it presents for co-funding partners.

See http://www.ras.org.uk/images/stories/SE_Geophysics_Forum/Energy_Testbed.pdf for the August 2013 paper by Mike Stephenson on this project.

Brian Baptie and Mike Kendall presented the UK Array plan, consisting of 40 seismometers distributed across the UK to be set up over a period of five years. The array of sensors could have a variety of applications, including ensuring that fracking operators comply with regulatory guidance on causing earthquakes of magnitude 0.5 and above and playing an important role in CO_2 sequestration. Dr Baptie also argued that the UK geophysics community needs to be better organised so that it can react quickly to any funds that do become available.

The presentation and document are available at
http://www.ras.org.uk/images/stories/SE_Geophysics_Forum/ukarray.pdf (Brian Baptie and Mike Kendall)

http://www.ras.org.uk/images/stories/SE_Geophysics_Forum/UKArrayProposalFinal.pdf (Brian Baptie and Mike Kendall)

Q: Can there be an offshore component to the project?

A: There is a limited budget for this project. The energy test bed is centred on shale beds and was proposed in this form because the instrumentation is available. The additional cost of deployment of the array will be put in another proposal.

In discussion, Forum members agreed to look at other ideas for large-scale projects. They also considered how the UK Array could be expanded in the future, acknowledging the high cost of deep water projects.

Some Forum members raised remote marine sensing, in particular systems with a controlled source element. Prof Baptie commented that there were no plans in place for this at present.

In conclusion, Forum members agreed to think big on potential projects and to develop plans for how a sum of say £20 million could be invested. This might be part of a major international collaboration of the type favoured by BIS.

Brief Reports

i. NERC Geophysical Equipment Facilities (Chris Franklin)

The note added post-meeting to the minutes of the last meeting was confirmed, namely that NOC and BGS had discussed the two ocean bottom instrument nodes and decided that they will also be managed through BGS along with the other two GEF nodes. This had been one of the main concerns expressed at the last meeting, and the response was exemplary.

ii. Geophysics Booklet

The Chair and RM gave a brief update on progress of the impact of geophysics booklet since the last Forum. Supported by NERC, the booklet is being put together by Sue Bowler, better known as the Editor of Astronomy and Geophysics. Any comments on the draft text should be forwarded to Sue Bowler by 2 January 2014.

iii. Engagement with MPs (Robert Massey)

RM and RAS President David Southwood have met with Julian Huppert MP (Liberal Democrat, Cambridge), Science Minister David Willetts MP (Conservative, Havant) and Shadow Science Minister Liam Byrne MP (Labour, Birmingham Hodge Hill).

RM asked Forum members to consider arranging meetings and visits with their local MPs, something that has proved valuable for members of the Astronomy Forum.

Edmund Nickless commented that the Geological Society is also very active in political engagement and he will provide a note for the Forum that covers this work.

iv. Policy issues (RM)

RM updated the Forum on the various consultations and policy activities undertaken by the RAS in recent months. A key concern for the astronomy community, though perhaps of less importance to geophysicists, is the implementation of the Gold model for Open Access publishing. The RAS submitted evidence to the BIS Select Committee inquiry into this policy. Committee MPs recommended that the Government review this approach and the response from the Government is expected soon.

v. Geophysics Discussion Meetings (Barry Parsons)

The Chair circulated the RAS programme of discussion meetings for 2014. He reminded the Forum that the RAS offers £2k of support per meeting and the British Geophysical Association (BGA) can provide a further £500.

Meeting proposals for the 2014-15 RAS programme should be submitted by 1 April 2014.

AOB and Next Meeting:

The Chair suggested that Philip England, Chair of SISB, be invited to speak at the next Forum.

Richard England (Leicester) will circulate a questionnaire regarding the UK's future marine geophysics requirements. He urged Forum members to complete it.