

Recent years have seen a series of changes that have had a major impact on astronomy and geophysics research in the UK: the merging of two research councils to form STFC, changes in funding levels, and the announcement of the formation of the UK Space Agency (UKSA). At a time when many feel uncertain about the future, the formation of UKSA has the potential to provide coherent leadership in the UK's space sector and provide opportunities in the European Space Agency and other agencies around the world.

The decision to dissolve the British National Space Centre (BNSC) and create UKSA has been welcomed, and is thought by many to be long overdue. Its creation was crystallized after a recommendation by the Space Innovation and Growth Strategy (IGS), as part of its 20-year vision. The Space IGS is a joint government, industry and academia initiative and has laid out a roadmap of how to ensure space maximizes its impact on the UK economy. Space is a recession-busting industry and we have the opportunity not only to be a major contributor to an economy emerging from recession, but also to provide social benefits and raise the profile of the UK's role in global space science.

Before UKSA comes fully into being in 2011, the Space Leadership Council has been established as one of the outcomes of the IGS. The recommendation was for this to be a joint industry and government partnership and its 27 members include Chief Scientific Advisors to the Departments of Energy and Climate Change; Transport; Business, Innovation and Skills; and to the Foreign and Commonwealth Office. Also sitting on the Council are three academics, a Director at Environment, Food and Rural Affairs, and the Deputy Chief Scientific Advisor to the Department for International Development.

I spoke to the Minister for Universities and Science David Willetts to find out the current status and plans for the future.

#### **In your role as co-chair of the Space Leadership Council, could you give an update on progress?**

I am co-chair with Andy Green [CEO of Logica] so that industry is represented right at the top of the Space Leadership Council. I have co-chaired two meetings since becoming the Science Minister [in May]. The body has a good mix of industry, research community and public sector and one of the main aims is to deliver a good transition towards the full UKSA operating as a full executive agency from April 2011. Now, we do other things on the Leadership Council like looking to implement the innovation and growth strategy, a report prepared for the previous government. I have made it clear that I won't wilfully tear up good ideas from the previous government – we stand ready to try to honour them. The IGS is a really useful docu-



## Interview: David Willetts MP

**The Minister of State for Universities and Science talks to Lucie Green of Mullard Space Science Laboratory about the new UK Space Agency.**

ment. However, some of the recommendations like doubling public expenditure are a bit hard to achieve in times like this. But on the Leadership Council we do try to review where we are going on the IGS as well. These are the two big immediate operational items.

Between 1997 and 2007, the UK's space sector grew by an average of 9% a year. The recommendations in the IGS are designed to grow the UK's share of the global space market from 6% (2007 figure) to 10% over the next 20 years. This is estimated to see the UK space sector grow from £6bn to £40bn a year.

#### **Which issues from the IGS do you think are top of the agenda?**

The attempt to create coherent hubs of space activity, like the ISIC [International Space Innovation Centre] at Harwell Science and Innovation Campus, is a big prize. At Farnborough I announced the go-ahead for building the new Earth observation satellite centre at Harwell. Building up sites like Harwell as clear collaborative hubs is very important. Secondly, international collaboration is very important. We recently signed a Memorandum of Understanding with Russia, which replaced the old

agreement that dated from 1987 with the old USSR. We have tried to breathe some new life into collaborations with Russia. I have had a first set of meetings with the head of NASA and signed a new Statement of Intent with them, and I am trying to find practical areas where we can do international cooperation with NASA and where we have technologies in Britain that can help their requirements.

To give a practical example, visiting Surrey Satellite Technology Ltd I learned about Cube Sail – the Americans are very worried about space debris. So we have agreed that I will follow up by writing to them with examples of technologies that we are developing in Britain that can help meet NASA's objectives. And I understood that dealing with them on a public sector to public sector relationship might be a good way of ensuring better access to the US market for UK technologies even if the technologies are developed commercially.

There are 16 recommendations in the IGS, grouped into eight themes to ensure a successful delivery. Creation of UKSA will see the transfer of some of STFC's responsibilities to UKSA; research will stay with STFC but the missions programme will move to UKSA.



David Willetts (left) and NASA Administrator Charles F Bolden Jr agreed a statement of intent for potential cooperation in civil space activities on 21 July this year. (BIS)

**What is the relationship between the roles of UKSA and STFC? UKSA says that it will “support academic research”, but what does this actually mean?**

One of my aims on the Leadership Council is to get better integration between the commercial sector and academic researchers and the public sector. We are trying to consolidate several budgets into the single UKSA budget, but the STFC research budget will not be one of them. What I hope is that through devices like the Space Leadership Council, which is attended by Keith Mason [Chief Executive of STFC], the research community and the commercial sector have better levels of communication than they have had in the past.

The heads of STFC and NERC are represented on the Space Leadership Council. They meet regularly with David Williams [Acting Chief Executive of UKSA] to make sure that priorities of all are aligned and to make sure the way the funding is used is appropriate.

**How will space science benefit from having UKSA? Will we be more streamlined, have a better economic return? Are there some key areas you would like to see grown through UKSA?**

The UK clearly has a comparative advantage in being a flexible and decentralized system and I don't want to destroy that. But it's clear that in dealing with NASA and ESA we will be helped by having UKSA as it provides a much better counter-party for them to deal with, which in turn means we will be better at influencing them and understanding their agenda. Secondly, within government, it will give us a degree of

flexibility in how we deploy the overall space budget. That is still an aspiration though, rather than reality, as transferring budgets will not happen until April 2011. It will enable UKSA to pool resources and be a procurement body to better link up space applications across government.

**Having UKSA and a strategy will hopefully mean that the UK will be more effective within ESA. How will we get better leadership or advantage in ESA?**

The Lisbon Treaty means that the European Commission will take on greater responsibility for space, then, in turn, there are intricate relationships between ESA and the European

Commission's space responsibilities. We haven't done a good job in the past in getting British technologies funding via ESA to deliver ESA objectives – UKSA will help us with that. When we have a good means of achieving an ESA objective, we will make it clear what we have got and how it can help them achieve their objectives to get a better chance of being commissioned to do work.

Bilateral missions will enable the UK to develop instrumentation and have greater control over the science agenda, directing it to suit our needs. Outside ESA we have a strong heritage of bilateral cooperation and the Leadership Council is considering how bilateral projects can be used to allow leadership for our science.

To give a good example of that, I was on the Prime Minister's visit to India, where we do of course already have a Memorandum of Understanding with the Indian government. I don't think, sadly, we have been able to follow up as much as we would have liked. When I met the

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Indian minister for science, one of the issues I specifically raised was putting new life into collaborations on satellite and space issues. I hope when I go back in November to come forward on areas where we can collaborate. India has a precious thing – a launch system – and it's possible that we could put some British/Indian collaborative research projects up on an Indian launcher. India is a natural partner and David Cameron has put, rightly, importance on our relationship with India. They are trying to create 1000 new universities and have space science as one of their priorities. I would encourage British scientists, when they are looking for collaboration, to consider if there is scope for collaboration with India.

**You are not a scientist by training, you read Philosophy, Politics and Economics at Oxford. What are your views about fostering creativity in science?**

I am a layman in this, but when you look at our Nobel prize winners, often they have had some shock or shift in their careers, for example moving country or moving disciplines, or some traumatic personal event that has led them to change their research agenda. Creativity can come when you move outside a single discipline, for example – as a minimum, being able to communicate with people outside of a single discipline. This is why if you can get clusters like Harwell going you need to get a sufficient range of different disciplines there that people start talking and comparing notes. Quite often the most important room in a research centre is the coffee room!

Another way to overcome discipline boundaries is through public engagement/science communication. I would like to add also that space is a great way of exciting young people – note the Apollo effect! I saw this first hand in Portsmouth, where thousands of kids attended an event with NASA shuttle astronauts on their British tour. The astronauts were very inspirational; they mixed practical skills with the scientific skills.

**Clearly human spaceflight has the power to inspire; is UKSA discussing funding this?**

When money is tight it is hard to see that as a priority. Of course, each nation has its comparative advantage. You could argue that it was the UK's decision not to get into manned spaceflight in the 1980s which has instead given us strength in completely different technologies like small satellites, and it hasn't affected our ability to be world leaders in astronomy. It would be a nice thing to do but we're not there yet. I think that the Virgin Galactic project and future lower cost entry into space is where we may have some historic strength. There are some serious regulatory and practical problems, but I would love to see Virgin Galactic launching from Scotland in the future. ●