



# UK Space Agency Annual Report and Accounts 2012-13

**UK Space Agency  
Annual Report and Accounts  
2012-13**

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2000

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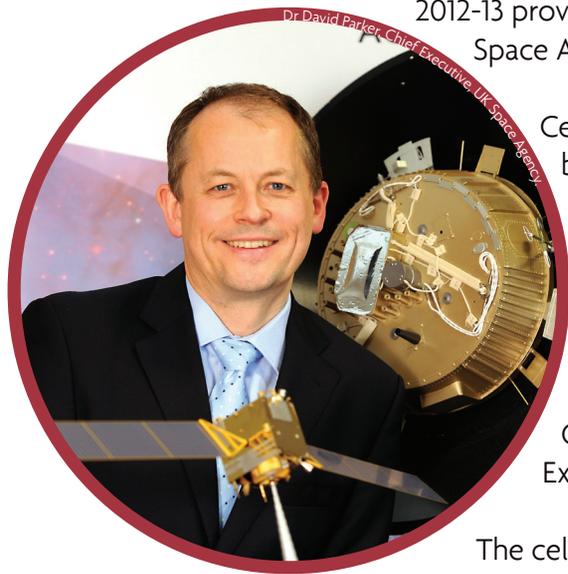
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## Chapter 1: Introduction and overview by the Chief Executive



2012-13 proved to be an extraordinary year for the UK space sector, and for the UK Space Agency.

Celebrating the 50th anniversary of the UK in space, the UK Space Agency brought the community together to tell the story of Ariel-1, the first British science satellite. Two days at the Science Museum in London saw presentations from the scientists and engineers who had designed the scientific instruments for the mission in the early 1960s and a keynote address from Vince Cable, Secretary of State for Business, Innovation and Skills. At the event, Astrium was also awarded the €300 million prime contract for the Solar Orbiter mission by Alvaro Gimenez, European Space Agency Director for Science and Robotic Exploration.

The celebrations continued throughout the year, marked with a hugely successful Agency effort in the Space Zone at the Farnborough International Airshow in July. The Space Day at FIA2012 brought together the heads of international space agencies, including ESA and Roscosmos, with David Willetts, UK Minister for Universities and Science for a plenary on the role of the UK in the global space sector.

During the plenary, David Willetts announced the UK's new Civil Space Strategy, setting out six Pathways to Growth for the space sector to achieve its ambitions for capturing 10% of the global market. This Civil Space Strategy will be the compass for the UK Government's engagement with space to 2016, helping to set the right direction of travel for the UK Space Agency and its public sector partners.

In November, following months of preparation and negotiation by the Agency and stakeholders, the Chancellor announced the government's intention to commit an average contribution of £240 million annually at the European Space Agency's Council of Ministers. Over the five year period, this represents a £1.2 billion commitment to ESA programmes.

The UK's increased investment at the 2012 ESA Ministerial will strengthen the UK role in a number of areas, including telecommunications and Earth observation satellites, and will put the UK in a leadership role for several major ESA projects. That will ensure that UK industry continues to win lucrative space contracts over the next 5 to 10 years, building on the momentum of the UK's flourishing space sector. Industry has already identified projects to the value of £1 billion that should follow on from this funding.

Off the back of the UK's investment at the ESA Ministerial, the announcement of the new European Centre for Space Applications and Telecommunications (ECSAT) – based at Harwell – ensures that ESA will have an enduring presence in the UK, building on the heritage of ESA's excellent European Space research and Technology Centre (ESTEC) facility in the Netherlands. We are confident this site will grow to form part of the strong network of ESA sites around Europe, and bring ESA technology and expertise closer to the growing market in the UK.

With the UK's commitments at the ESA Ministerial in November, we have focused on those areas that will deliver the best possible economic return for UK businesses. The UK is traditionally strong in Earth observation technology in the UK, and investment in Advanced Research in Telecommunications Systems (ARTES) has yielded ground-breaking satellites, like HYLAS-1 for Avanti's broadband business and Inmarsat's AlphaSat, the largest telecommunications satellite ever built in Europe.

The Agency is also now investing in microgravity research through the European Life and Physical Sciences (ELIPS) programme, creating opportunities for industry to undertake cutting-edge research in orbit.

This will lead to critical advances in diverse fields including healthcare and advanced manufacturing: improving lives and delivering more efficient, cleaner technologies. That is paired with a one-off investment in ESA's International Space Station programme, which will secure contracts for UK businesses in providing hardware for the station or ESA's contribution to the Orion Multipurpose Crew Vehicle (MPCV).

Through it all, the UK Space Agency continues to grow and adapt as an organisation. Chief Executive Dr. David Williams left in November to take up a post at Australia's Commonwealth Scientific and Industrial Research Organisation. Through an externally led exercise, I was appointed as the new Chief Executive in January 2013. Prior to this I was the Agency's Director for Technology, Science and Exploration.

In January, we began a review of our corporate structure and ways of working, in an effort to make sure that the organisation is effective, efficient and fit for the task ahead. This review has grown into the Agency's new 'Arrow Programme', ensuring that the momentum for change continues. It will be rolled out over 2013-14.

Though this year has been a watershed year for the UK in space, the next year will be just as influential in the long-term success of the sector, as we work hard to deliver the Agency's objectives and the real growth that is required.

## Highlights

### CryoSat's first seasonal variation map

**25 April 2012**

After nearly a year and a half of operations, CryoSat yielded its first seasonal variation map of Arctic sea-ice thickness. Results from ESA's ice mission were presented at the Royal Society in London as part of the celebrations of 50 Years of the UK in Space.

### 50 years of the UK in space

**26 April 2012**

On 26 April 1962 Ariel-1, the first satellite to be designed and operated by the UK, was launched. The Agency held a conference to celebrate on the 50th anniversary of the UK in space at the Science Museum in London. Delegates were joined by the Secretary of State for Business, Innovation and Skills, Vince Cable, as well as members of the team who originally developed Ariel-1. As part of the celebrations Astrium signed a €300 million contract having been selected by the European Space Agency as the prime contractor for the Solar Orbiter mission.

### Mission X international closing event

**26-28 April 2012**

The UK Space Agency hosted budding astronauts from across the world for the closing event of Mission X: Train Like an Astronaut in London. Over three days, the international visitors took part in space, fitness and nutrition educational activities.

### MIRI, the first instrument for the JWST, is completed and handed over to NASA

**9 May 2012**

After more than ten years of work by more than 200 engineers, the Mid InfraRed Instrument (MIRI) was delivered for integration into the James Webb Space Telescope. The instrument was developed by a consortium, led by Britain, of European institutes in partnership with NASA's Jet Propulsion Laboratory. The MIRI Optical System allows astronomers to explore the formation of planets around distant stars.



### Space Zone at the Farnborough International Airshow

**9-15 July 2012**

The space and aerospace community and the public turned out in force to the Space Zone at the Farnborough International Airshow 2012. In a speech to an audience of over 200 invited industry guests at the Space Conference, David Willetts, Minister for Universities and Science, launched the 'Civil Space Strategy'. This document sets out the direction for the UK space sector over the next four years.

### Universal access to the International Charter 'Space and Major Disasters'

**20 September 2012**

The International Charter 'Space and Major Disasters' is now providing universal access to the Charter during natural emergencies – a move that was initiated when the UK was leading the Charter in 2011. Any country, regardless of whether they are a Charter member, is now able to draw upon the data provided by this international network of satellites.

## Successful launch of Galileo navigation satellites

**12 October 2012**

Europe's second pair of fully operational Galileo satellites was successfully launched from the European spaceport in French Guiana. The satellites' payloads were designed, manufactured and tested in the UK by Astrium. UK company SSTL is building the navigation payloads for the next 22 satellites which will form the operational constellation.

## UK Space Agency issues 'Size & Health of the UK Space Sector'

**12 October 2012**

The UK Space Agency published the latest report on the progress of the UK space industry. Figures from the report 'The Size and Health of the UK Space Sector' reveal that the industry continues to soar and that its total contribution to the UK economy in 2010-11 was £9.1 billion.

## ESA Council of Ministers

**21 November 2012**

The UK Space Agency is set to invest £1.2 billion in some of Europe's biggest and most lucrative space projects, providing the UK with increased leadership in a rapidly growing global sector. The increase was agreed by the Minister for Universities and Science, David Willetts, at the ESA Ministerial Council in Naples. The investment will secure around £1 billion of orders per year from British businesses and lay the foundations for the UK to deliver its ambition to have a £30 billion space industry by 2030.

## European Space Solutions Conference and European Space Expo

**3–9 December 2012**

The UK Space Agency hosted the biggest EU space event of 2012, the European Space Solutions Conference. The event brought together business and the public-sector with users and developers of space-based solutions to explore how space can make a real difference to the lives, and livelihoods, of people across Europe. Running in parallel to the conference, the Space Expo on Horse Guards Parade was visited by over 11,000 people. The travelling exhibition highlighted the critical role of the EU in space and space-based technologies.

## Forward look

Looking forward, the Agency has a wide range of long and short term objectives to deliver. Our Civil Space Strategy sets out pathways to growth and our Corporate Plan defines our key outcomes and how we will achieve them. These documents are made publicly available on our website. Progress against the six pathways to growth in 2012-13 is included within the management commentary of this report. Under our Corporate Plan 2013-16, the six primary outcomes to help make the UK space sector a success; are:

- We will have clear and effective space policies and positions
- UK space policies and positions will be effectively represented at a national and international level
- UK investment in space is effective, targeted and delivers tangible economic benefit
- The UK will maintain and grow its national capability in space
- The UK public understands and values the contribution of the space sector
- The UK Space Agency will have the operations, capacity and culture to deliver the UK Space Agency Civil Space Strategy 2012-16

Our staff and resources enable the delivery of outcomes one to five and our approach to achieving these outcomes is underpinned by the sixth outcome. The Corporate Plan details Key Performance Indicators (KPIs) that will enable us to manage performance and demonstrate progress made.



## Chapter 2: Management Commentary

The following sections of background highlight different areas where the government is making a difference in the UK space sector and around the world.

### Policy and regulation

The Farnborough Airshow in July 2012 was the launch pad for two publications of particular significance to the UK Space Agency's growth agenda.

In addition to the Civil Space Strategy 2012-16, the latest report on the 'Size and Health of the UK Space Sector' was published. The 2012 Size & Health report, produced by Oxford Economics, showed that in spite of the challenging economic climate the space sector continued to grow at an average of 7.5% per year and contributed £9.1 billion to the UK economy in 2010-11.

To maintain and improve on this growth, the UK Space Agency needs to have the right structure in place to support delivery. This includes a robust and comprehensive engagement process with its partners, working with the rest of the sector to identify and capitalise on opportunities on the horizon.

### Advisory structure and governance

The Agency has built its advisory structure around experts from government and stakeholder groups. The Steering Board and Audit Committee are the key advisory bodies for the Agency. They meet regularly throughout the year and provide advice to the Executive Board on the Agency's performance, operations, budget control and risk management.

The chair of the Steering Board is also a member of the Space Leadership Council. Chaired jointly by the Minister for Universities and Science, and President of UKspace, the Council is tasked to provide independent advice to the Minister and the UK Space Agency CEO on current priorities and future opportunities for space activity in which the UK should participate, both at a national and international level. The membership of the Council is drawn from across government, industry and the academic sector and provides a broad perspective on space activities. This was particularly important during 2012 in the lead up to the ESA Ministerial meeting in Naples which set the agenda for the European space programme over the next few years.

### Regulation

With responsibility for the government's civil space sector, a large part of the UK Space Agency's work is focused on getting the regulatory framework right for the UK.

In the UK, the Outer Space Act 1986 (OSA) is the legal basis for the regulation of activities in outer space. The OSA applies to organisations or individuals established in the UK or one of its Crown Dependencies or Overseas Territories intending to launch or procure the launch of a space object, or operate a space object. The aim of the OSA is to ensure compliance with the UK's obligations under international treaties and principles covering the use of outer space.

The UK Space Agency is responsible for the licensing regime under the OSA. This helps to ensure, through a series of assessments, that the proposed activity does not pose risks to public health and safety or UK national security. It also allows the UK government to offset some of the unlimited liability that falls to it, through a requirement on licensees to obtain third party liability insurance. During the financial year 2012-13 the UK Space Agency issued 13 OSA licenses.

The UK is at the forefront of balancing its regulatory responsibilities with promotion of sustainable exploitation of space, and development of the associated market opportunities. This is conducted against a background of an increasingly congested, contested and competed space environment, most notably the

growing threat posed to satellites by orbital debris. The OSA ensures that UK licensees comply with those measures agreed at international level to reduce debris proliferation, such as collision monitoring and removal of satellites at end of life.

Although the regulation of UK space activities is important, economic growth and reducing the regulatory burden, where appropriate, have remained a high priority. In its Growth Review 2011, the Government set out a commitment to reform the Outer Space Act in order to level the playing field for UK companies when competing for international business. Towards this aim, a public consultation was completed during the financial year 2012-13 seeking stakeholder views on proposed reform measures. During the financial year 2013-14 a government response to the consultation is expected to be published detailing how any reforms would be undertaken.

The Agency is responsible for managing UK interests in international space regulations, including legal issues around the uses of outer space. The region of space around the Earth is a unique and limited resource and we need to ensure this area remains sustainable for generations to come. Space debris presents a real and increasing hazard to space operations, which needs to be addressed from a scientific, technological, legal and political standpoint. The UK is at the forefront of this work internationally and the UK Space Agency is a respected member of the Inter-Agency Space Debris coordination Committee (IADC). The IADC is an international government forum for the worldwide coordination of activities related to the issue of space debris.

## Communications

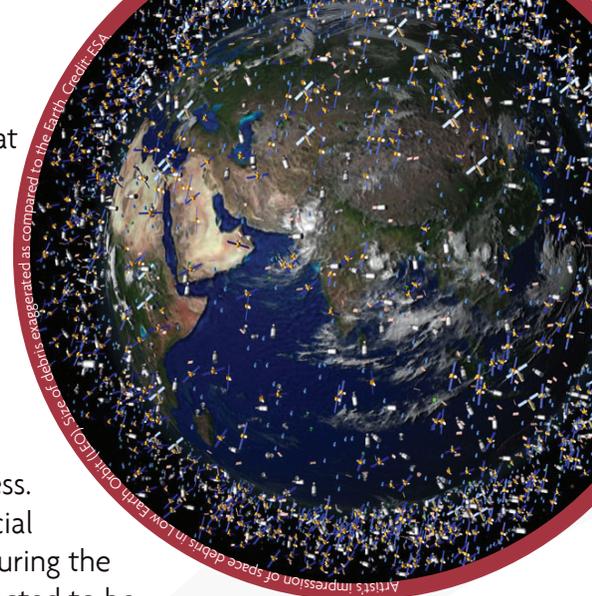
The Agency website continues to be a major outlet for news and is growing into a nexus for space sector information of all types, from major news stories to job vacancies and education opportunities. With over 850 pages to manage, this is a demanding work-stream but the Communications team has worked hard over the last year to promote the site and encourage people to use it for information and learning resources. Over the last twelve months there have been around 20,000 visitors to the site each month and around 603,000 separate page views across the whole year.

Social media is another important means of direct communication with the Agency's audiences. During the last twelve months, the number of Twitter followers has increased to almost 34,000. The Agency has also received the critical Twitter blue tick of verification which is awarded by Twitter to users who provide high-quality sources of information from a legitimate source.

## Correspondence

In the second full year of operations, government and public interest has continued to increase steadily and the UK Space Agency receives a high number of parliamentary and ministerial cases to handle as well as a significant volume of public queries. Content is wide-ranging and covers issues from space policy to requests for careers advice. Over the last year there were:

- 77 ministerial cases, of which 98% were answered within deadline (in 2011-12 there were 86 ministerial cases, of which 98% were answered within deadline);
- 50 parliamentary questions and 100% were answered on time (in 2011-12 there were 22 parliamentary questions and 100% were answered on time);
- 525 public queries and the average response time was 3 days (in 2011-12 there were 450 public queries and the average response time was 3 days);
- 9 Freedom of Information cases of which 100% were answered within deadline (in 2011-12 this was twelve out of thirteen).



## Delivering growth

The Civil Space Strategy 2012-16 set out six Pathways to Growth for the sector, providing the principles by which the UK Space Agency's activities would be structured. In the following six sections, examples are presented of actions driving progress along the pathways.

The six pathways are:

- Growth through new opportunities
- Growth from export and international relations
- Innovation supporting growth
- Science to underpin growth
- Education for growth
- Growth through smarter government

### Growth through new opportunities

The success of the Integrated Applications Promotion (IAP) programme in the UK has led to an increase in UK subscription to the programme from €10 million to €30 million at the 2012 ESA Council at Ministerial Level (CMIN). This increase in subscription has been justified by the alignment of the IAP programme with UK ambitions for growth in the applications sector and success of UK companies engaging in this programme.

The ESA programme office of the IAP has also made good progress in its move to the UK and the Harwell Campus. Maturity in the programme, founded in 2008, is being reached as more projects move from the feasibility phase through to demonstration and commercial success.

#### European Programme for Life and Physical Sciences in Space (ELIPS)

At the ESA Council of Ministers in November 2012, the UK took the decision to subscribe to the European Life and Physical Sciences programme for the first time, at a total level of €16 million, €4 million per year for four years. This unique, cross-disciplinary programme includes experiments in a range of research areas which use the effects of microgravity and other aspects of the space environment, such as radiation, isolation and exposure. ELIPS differs from other ESA programmes in that it offers space as an environment to complement traditionally ground-based sciences – the research does not have a space or planetary focus, nor does it use space as a platform for Earth observation. Rather, the physical properties of space and space-analogue platforms offer new ways of addressing 'terrestrial' problems.

The focus of the programme is the International Space Station (ISS), which provides an ideal platform for long duration experiments, utilising ESA's Columbus laboratory. In addition to the ISS, ELIPS provides access to sounding rockets, drop towers, bedrest facilities and parabolic flights.

The UK's renowned science base means that a significant degree of scientific exploitation from UK-based researchers is expected. The principal areas targeted for UK involvement are materials science and



biomedicine, where there is already significant UK capacity. The UK is also heavily involved in the ACES experiment (Atomic Clocks Ensemble in Space) with The National Physical Laboratory (NPL) providing a ground station linked to their caesium fountain atomic clock. This groundbreaking experiment will allow scientists to test Einstein's general relativity and perform space-to-ground and ground-to-ground comparisons of best available atomic frequency standards, among many other commercial applications, including in the financial and defence sectors.

### **International Space Innovations Centre and Satellite Applications Catapult transition**

The Satellite Applications Catapult is part of a new network of seven physical centres being established and overseen by the Technology Strategy Board, designed to advance innovation in their respective fields.

The Satellite Applications Catapult opened in April 2013. This date also marked the completion of the integration with the International Space Innovations Centre (ISIC) with all facilities and projects being adopted and merged into the Catapult centre. The Catapult will build upon ISIC's significant achievements, sharing a vision to become the catalyst for growth in the space sector.

The Satellite Applications Catapult brings invaluable resources, including expertise and new facilities, to enable the best businesses, researchers and end-users to work together and with the Catapult to develop new satellite-based products, services and applications. The Catapult works with businesses of all sizes and complexities, academia and end-users, providing an accessible collaborative environment to help realise the UK space sector's recognised growth potential. It also provides a unique European capability with state-of-the-art facilities, including the Climate and Environmental Monitoring from Space (CEMS) facility, an Operations Centre, Security and Resilience Centre, Visualisation Suite and demonstration and laboratory space.

The UK Space Agency has been instrumental in bringing these two organisations together and continues to be involved in the Satellite Applications Catapult through formal relationships, which include a Non-Executive Director to the Catapult board and membership of the formal advisory group. The Agency also continues to ensure alignment of programmes within the Catapult with the broader space policy.

### **Harwell Space Cluster**

With the recent launch of the Satellite Applications Catapult and the announcement of ESA's telecoms satellite headquarters transferring to its site in the UK, the Harwell Science, Innovation and Business Campus has become a hub of space activity and now has its very own space cluster.

The Harwell Space Cluster is made up of the European Centre for Space Applications and Telecommunications (ECSAT), The Satellite Applications Catapult, RAL Space and ESA's Business Incubation Centre. These organisations are working closely together to maximise the growth of the UK's space sector, helping the country to realise its ambition of a £30 billion space industry by 2030.



## Growth from export and international relations

### International collaboration

The UK Space Agency has signed three Memoranda of Understanding (MoU) since April 2012. The first of these was signed by the Foreign Secretary, William Hague, with the Minister for Space Policy and Minister for Foreign Affairs of Japan in Tokyo, April 2012. This was followed up by discussions between the respective space agencies' officials in December 2012, meetings with Japanese industry in February 2013, and a series of meetings in Tokyo in March 2013 involving the Agency's Chief Executive with both Japanese Government and industry.

A second MoU was signed in August 2012 between the UK Space Agency and the Russian space agency, Roscosmos. This was a significant step in developing cooperation with Russia in the field of exploration and in the use of outer space. This was followed by successful negotiations to launch TechDemoSat-1 and UKube-1 as auxiliary passengers on a

Russian vehicle later this year. The MoU also secured confirmation that space technologies imported into Russia from the UK were exempt from customs duties and taxes.

The UK Space Agency Chief Executive also signed an MoU with Kazakhstan at the House of Commons in March 2013. This agreement was signed against the backdrop of the burgeoning trade relationship that the UK is developing with Kazakhstan, not only in the field of space but more widely across industry. Kazakhstan personnel are already based in the UK and receiving training in the field of satellite engineering and operations of a satellite developed by UK space company, SSTL.

A fourth MoU has just been signed with the Mexican space agency, AEM. The Mexican Space Policy Roadmap leading up to 2027 is designed to transform Mexico into a producer rather than simply a buyer of complex satellite capabilities. AEM has programmes in the pipeline for Earth observation and telecommunications development and, due to support from other Mexican government departments, offers great potential for several new missions with opportunities for the UK.

The UK Space Agency is pursuing a number of other opportunities for international collaboration.

Within Europe, discussions are ongoing with both France and Italy with the aspiration to identify partnerships on research and development across mutually beneficial technologies. Similarly the Agency is conducting ongoing dialogue with the Nigerian space agency to establish a formal international legal relationship, as well as with the Algerian Space Agency to update the text of an already-existing agreement.

In September 2012, the UK and China agreed to convene an annual space working group to discuss trade and export opportunities. The first of these working group meetings will take place in July 2013, building on the existing UK/China trade relationship. Early indications are that UK industry has identified a number of Chinese opportunities, such as in December 2011, when SSTL signed a deal with Chinese company 21AT to lease satellite imagery data capacity inside China while retaining ownership of the satellites. The deal is for £110 million and will be ready for launch in 2015.

## **Inter-governmental organisations**

In recognition of its significant expertise and experience in the field, the UK Space Agency is represented on the fifteen member Group of Governmental Experts (GGE) appointed by the United Nations to examine transparency and confidence building measures to address the security of outer space. The UK Space Agency is coordinating across UK Government and reflecting its national interests and those of allies in building a stable and predictable environment for all users of space to exploit the critical contribution that space can deliver to everyday challenges and opportunities faced by society. This GGE work, along with the United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS), provides the UK with a comprehensive ability to influence the broader governance of the space domain.

UNCOPUOS produced the Outer Space Treaty, and subsequent Treaties, Conventions and Principles, which are the founding tenets of international space law. The associated obligations and responsibilities of states are reflected through the UK's Outer Space Act to regulate the activities in outer space of UK entities. The security and predictability offered by a stable and transparent regulatory environment have been recognised as major reasons why the UK is home to a leading commercial space industry and an attractive home for internal investment/start-ups by foreign operators.

The UK Space Agency leads the UK delegations to the UNCOPUOS and to the Inter-Agency Debris coordination Committee (IADC). The IADC is the forum wherein space-faring nations develop and evaluate regulatory initiatives to promote and ensure the long term viability of the outer space environment through sustainable operational practices. A recent initiative that the UK has played a leading role on, through academic partners such as the University of Southampton, is agreement over the need to actively manage the orbital population of satellites, through processes of both mitigation (modified operational design and practices to limit debris proliferation) and remediation (retrieval of defunct satellites from orbit). Both UNCOPUOS and IADC are examining new measures to improve the safety and security of the orbital regime and the UK is providing significant direction based on the expertise and experience of its industrial and academic players, with the aim of ensuring a competitive and level playing field for UK players in the space domain.

## Innovation supporting growth

### National Space Technology Programme

The Agency's National Space Technology Programme (NSTP) is the national capability-building programme for the space sector.

From the initial round of NSTP funding, 95% of funds have been allocated and most projects were completed by the end of financial year 2012-13.

Despite the need for private co-funding, all calls from the first round of the NSTP were oversubscribed, sometimes by a factor of five or more. Including co-funding with industry, EPSRC, DSTL, TSB and STFC, the £10 million programme has directly created a programme of total volume of £27 million.

A second round of the NSTP is now being pushed forward with additional funding announced in January 2013. Working hand-in-hand with other UK Space Agency programmes, as well as academic, industry and public sector partners, the goal of NSTP is to advance UK technologies to higher technology readiness levels (TRLs). This will support UK industry's ability to accelerate innovation, expand sales in the commercial space market and reinforce the UK position as a stronger player in future international space programmes, including those of ESA.

### General Support Technology Programme (GSTP)

In a dramatic ramp-up in early technology investment, the £28 million committed by the UK to the General Support Technology Programme will help keep UK industry ahead of the pack in competing for tomorrow's opportunities.

Taking early phase space technology R&D across the TRL 'valley of death' into practical application, this programme is particularly important for SMEs and equipment suppliers who can work with European partners and benefit from the recognised quality of ESA technical management. The programme goals extend to offering opportunities for flight demonstration, thus overcoming a key barrier to commercial take-up.

### Advanced Research in Telecommunications Systems (ARTES)

Satellite telecommunications is at the heart of the UK space industry, with the previous round of ARTES generating £750 million of private investment and sales. By the end of 2013, every UK satellite TV channel will be delivered via UK-built spacecraft. Future opportunities include using satellites for air traffic control and monitoring of shipping security and novel commercial applications that fuse data from multiple sources. Alongside a UK investment of £161 million in ARTES, a 60% increase in UK funding, ESA has committed to developing its presence at Harwell in Oxfordshire, creating over 100 new high-tech jobs at the European Centre for Space Applications and Telecommunications (ECSAT).

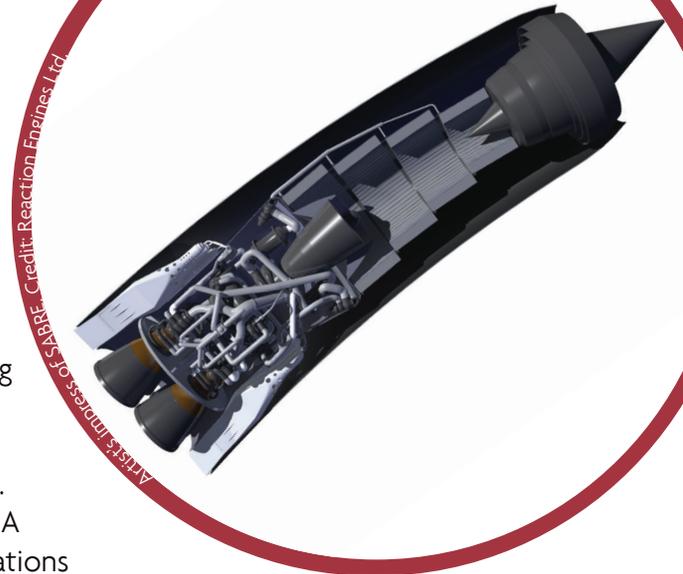
Financial year 2012-13 will see the launch of AlphaSat, the largest mobile telecommunications satellite ever built in Europe. In this public-private partnership, the European Space Agency teams up with Inmarsat, a key UK industry partner, creating new services and jobs. Alphasat finished its thermal testing in February 2013 and is scheduled for launch in July 2013 from Kourou on an Ariane 5.



### Synergetic Air-Breathing Rocket Engine (SABRE)

At the Farnborough International Airshow, Reaction Engines, supported by the UK Space Agency, announced the successful completion of critical tests on the SABRE engine.

Well over 100 test runs, undertaken at their facility in Oxfordshire, integrated the ground-breaking flight-weight cooling technology and frost control system with a jet engine and a novel helium cooling loop, demonstrating the new technologies in the SABRE engine that drive its efficient thermodynamic cycle. This success confirms the work that the UK Space Agency and ESA commissioned in 2010, gauging the SABRE technology demonstrations undertaken by the company including contra-rotating turbines, combustion chambers, rocket nozzles and air intakes, and marks a major advance towards the creation of vehicles like SKYLON – a new type of reusable space vehicle that will be powered by SABRE engines, designed primarily to transport satellites and cargo into space.



### Collaborative Research in Exploration Systems and Technology (CREST-2)

A second round of the Collaborative Research in Exploration Systems and Technology (CREST) award scheme was announced in March 2013 as part of the UK Space Agency's Exploration programme. A funding mechanism to support preliminary technology development in order to position the UK space industry and academia for involvement in future space missions, this scheme encourages partnerships between industry and academia.

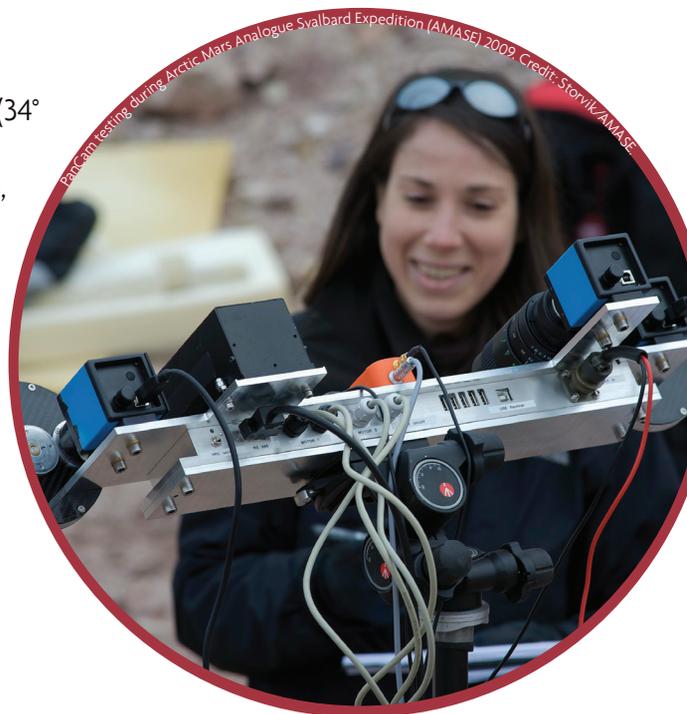
Past projects include the Life Marker Chip at Leicester University and PanCam, the University College London wide-angle camera for ESA's ExoMars programme.

### Panoramic Camera (PanCam)

PanCam will support the scientific measurements and navigation of ESA's ExoMars Rover – set to traverse the Martian surface in 2018. It will capture high-resolution images of locations that are difficult to access, such as craters or rock walls. It will monitor samples from the rover's drill before they are ingested and crushed for a detailed chemical, physical, and spectral analysis.

PanCam is composed of:

- (1) Two Wide Angle Cameras (WACs), for panoramic imaging (34° field of view, fixed focus) – both “eyes” are equipped with a 12-position filter wheel each covering a different wavelength, thus enabling multispectral observations;
- (2) One High Resolution Camera (HRC), for high-resolution colour imaging (5° field of view, with an autofocus mechanism);
- (3) The PanCam Interface Unit (PIU), the “brain” of the instrument communicating with the Rover. These three elements are grouped on an optical bench arranged on top of the ExoMars rover mast assembly.



## **Centre for Earth Observation Instrumentation (CEOI)**

Responsibility for the Centre for Earth Observation Instrumentation (CEOI) transferred to the Agency in April 2011 when the Agency was formed. Prior to this, the Natural Environment Research Council (NERC), Department of Trade and Industry (DTI) and then Technology Strategy Board (TSB) embarked in April 2007 on a modest EO technology programme, managed through the CEOI which brought together academia and industry in developing the next generation technologies required for future missions.

Over the last six years, the CEOI has placed about £6 million worth of EO instrument development contracts including an industrial contribution of £1.5 million. This has funded more than 35 projects, both large mainstream developments and smaller seedcorn studies, across a wide range of EO technologies, with most projects being delivered by academic-industrial partnerships. The developments have leveraged £5.5 million in additional development funding and spin-out into non-space applications. For example, the CityScan Air Quality Monitor being developed by the University of Leicester is derived from the CompAQS optical design. Major contracts with ESA have resulted from early developments in CEOI, such as the Sentinel 5P SWIR instrument, with a number of other ESA instrument contracts also possible in the future.

The CEOI has run a series of challenge workshops to identify promising future EO missions and technologies, with more than 280 experts from 120 organisations attending these events. CEOI Annual Conferences have been held since 2009, with the 2011 and 2012 national EO conferences held jointly with the National Centre for Earth Observation (NCEO).

The UK recognises that in order to maximise opportunities and return from its investments at ESA, a national technology programme is required not only to prepare its community for opportunities that arise but also to ultimately influence the direction of EO technology programmes at ESA and beyond. The current contract ends in 2013 and the Agency is exploring ways of continuing this underpinning activity as part of its National Space Technology Programme (NSTP) with the vision to deliver space qualified technologies and instruments in the longer term.

## **Centre for Earth Observation Instrumentation Case Studies**

### **Innovative Ice Cloud Imager.**

SEA Ltd investigated alternative designs for sub mm radiometers to reduce the cost and complexity of such instruments. The key simplifications identified are to reduce the number of bands observed and to simplify the rotating part of the instrument. The study found no fundamental problems in conically scanning radiometers with only passive rotating elements.

### **Airborne version of the CompAQS instrument (University of Leicester)**

An airborne version of the CompAQS instrument to measure air quality was flown over the east midlands area and mapped NO<sub>2</sub> at 20 x 20m resolution. This has demonstrated key concepts of source identification and exposure mapping and was also the first flight of CEOI developed instrument technology. The team also investigated the possibility of using discrete wavelength retrievals of NO<sub>2</sub>, using an artificial neural network. They showed that an ultra compact instrument is capable of retrieving atmospheric nitrogen dioxide (NO<sub>2</sub>) from a space borne platform.

### **Fully Integrated Hollow Waveguide Laser Heterodyne Radiometer (STFC RAL)**

This instrument is developing the capability to machine complex ceramic structures with a few microns dimensional tolerance and has the expertise to integrate other Laser Heterodyne Radiometer components, including a quantum cascade laser, beam combiner, polariser and detector into the ceramic substrate. This has resulted in the design of a fully integrated LHR, miniaturized down to a foot print of 15x9 cm<sup>2</sup>.

## Science to underpin growth

Innovation is a key driver of economic growth and the UK's world-leading science base underpins this innovation. The Earth observation, space science and exploration missions the UK leads and participates in demonstrate great technical and scientific ambition, increasing our understanding of the Universe – from the geography and geology of neighbouring planets to fundamental physics and the origins of our Universe – while driving technological advances, with significant spin-out into terrestrial industries.

Space acts as a beacon to attract a new generation of engineers, scientists and entrepreneurs into activities that are vital in solving the challenges faced by society and in generating the economic activity needed to drive sustainable growth. Government investment in space over many years has been carefully targeted to support existing UK competences and develop into new areas where the UK can lead. UK industrial and academic research competes and wins on a global stage; the Agency seeks to ensure that this continues by leveraging activities through strong involvement in ESA and other bilateral and multilateral science missions, projects and agreements.

### Solar Orbiter

Solar Orbiter is ESA's mission to the Sun due for launch in 2017 in collaboration with NASA. Its journey will take it closer to the Sun than any previous spacecraft and the suite of instruments onboard will provide unique data and images of the Sun's activity. The instruments will carry out in situ and remote sensing experiments to address the core question: how does the Sun create and control the heliosphere ie the immense magnetic bubble that originates from the Sun and contains our Solar system. The speed and orbit of the spacecraft will uniquely enable the instruments to track activities on the Sun for the longer periods that can be done from Earth.

The UK is playing a leading role in the mission. In April 2012 EADS Astrium in Stevenage was awarded a €300 million contract as the spacecraft prime contractor. The prime contractor is tasked with designing a spacecraft capable of accommodating and protecting the large suite of sensitive instruments whilst operating close to the Sun. The UK is also investing £11.7M in the build of four of the science experiments with lead roles in two of them. Researchers from Mullard Space Science Laboratory (MSSL) of University College London are leading the Solar Wind Analyser instrument suite and Imperial College London is building the Magnetometer instrument. MSSL is also contributing to the build of the Extreme-Ultraviolet Imager and STFC's Rutherford Appleton Laboratory has been awarded a contract from ESA to build the SPICE instrument, a high resolution imaging spectrometer, with the UK Space Agency supporting the build of the detectors and read-out electronics.

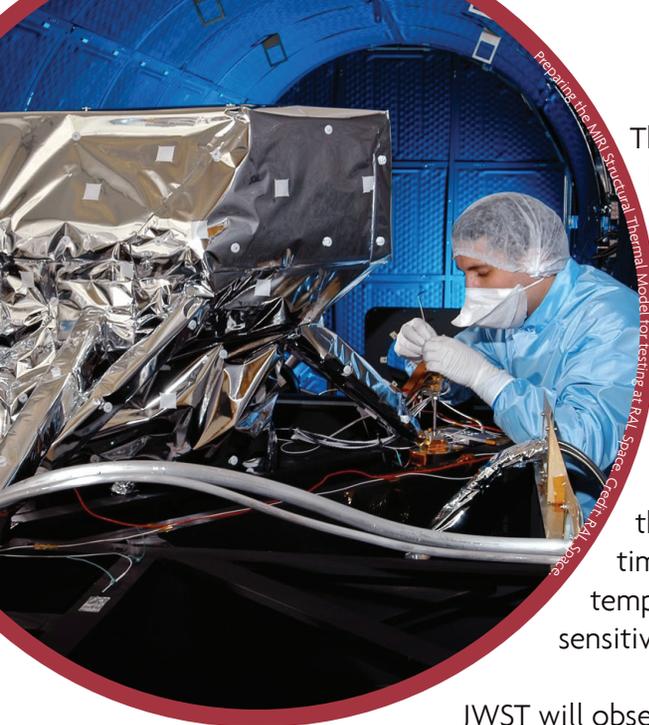
### ExoMars

ESA's ExoMars mission has three main science objectives:

- to search for signs of past and present life on Mars;
- to investigate the water/geochemical environment and;
- to study Martian atmospheric trace gases and their sources.

The mission has two major elements; the first an orbiter to be launched in 2016. This will study the origin and distribution of methane and other trace gases in the atmosphere. The orbiter will serve as a high performance data-relay satellite for subsequent missions. The second element is the 2018 mission, which will land the ExoMars rover. The rover will carry out experiments analysing soil samples from depths of up to two metres, where the chances of finding organic compounds that indicate past or present life are greatest. At £165 million, the UK is the second largest European contributor to this programme and leads the development of the ExoMars rover vehicle.





The past year has seen Russia become an official partner on the ExoMars mission, with an agreement for Roscosmos, the Russian Space Agency, to provide the launchers, the 2018 descent system and some science instrumentation.

### **James Webb Space Telescope Mid InfraRed Instrument (MIRI)**

Due for launch in 2018, the James Webb Space Telescope (JWST) is a joint mission between NASA, ESA and the Canadian Space Agency. It is a space-based observatory optimised for infrared wavelengths that will study a wide range of celestial objects. As the successor to the Hubble Space Telescope, it will be almost three times the size, with a six metre mirror, and operate at much colder temperatures than any previous telescope, allowing for unprecedented sensitivity.

JWST will observe objects at a variety of distances using four instruments; MIRI (Mid InfraRed Instrument) is the tool that will enable the study of the Universe's most distant, first generation of stars, with the aim of clarifying the processes at work during their formation and lifecycles. MIRI is essential for studying all four of the JWST science themes: Detection of the First Light, Assembly of Galaxies, Birth of Stars and Protoplanetary Systems, and Evolution of Planetary Systems and Conditions for Life.

The UK Astronomy Centre's (UK ATC) Professor Gillian Wright is the MIRI Principal Investigator, successfully leading a consortium partnership with teams across Europe to design, build, integrate and test the MIRI instrument. The UK has contributed £20 million to the instrument development over a ten year period. On 28 May 2012 the flight instrument was formally delivered to NASA's Goddard Space Flight Centre from STFC's Rutherford Appleton Laboratory (RAL). MIRI is the first of the four JWST instruments to have been completed and is currently undergoing integration onto the spacecraft at NASA.

### **InSight SEIS-SP**

InSight is a NASA mission to Mars, due to launch on March 2016 and touch down on Mars' equator in September that year. The Lander will be equipped with a geophysics station and a 'Heat Flow and Physical Properties Package', and will measure tremors below the surface with the Seismic Experiment for Interior Structure (SEIS) instrument package. The UK Space Agency is investing £2.5 million to support a UK consortium, led by Imperial College London, developing a microseismometer (SEIS-SP) for this package.

On Earth, scientists determine what the planet's interior consists of by measuring how tremors or seismic waves travel through rocks following earthquakes. Seismic waves travel at differing speeds through different types of rock and scientists can measure these differences using seismometers. Researchers from Imperial College London, University of Oxford, STFC, University of Bristol and University College London aim to carry out the same measurements on Mars using the SEIS instruments, which will sit on the surface and detect seismic waves that are generated by meteorite impacts and any movements of the Martian crust. The SEIS will also measure seismic activity caused by rocks cooling inside the planet. By comparing Martian and Earth seismic data, the researchers aim to build up a picture of Mars' internal structure – the first time such an extensive and accurate survey has been undertaken.

### **Bepi Colombo MIXS**

UK space scientists, led by the University of Leicester, are developing one of the key instruments on board BepiColombo, a joint venture between ESA and JAXA, the Japanese Aerospace Exploration Agency, to Mercury. The MIXS (Mercury Imaging X-ray Spectrometer) instrument will be used to help determine the composition of the planet's surface and thus how the planet formed during the early history of the Solar System.

MIXS will measure fluorescent X-rays that originate from the Sun and are reflected off the planet's surface. Fluorescent X-ray measurements can be used to identify chemical elements while measurements at infrared wavelengths can be used to determine mineral composition.

The UK Space Agency has invested approximately £6.8 million into the MIXS instrument to date. BepiColombo is due for launch in 2016 and will reach Mercury in 2022.

### Gaia Data Processing and Analysis

ESA's Gaia mission will examine the Milky Way in unprecedented 3-D detail. The spacecraft will survey more than one billion stars to make the largest, most precise map of our galaxy to date. The UK Space Agency has made a £12.3 million contribution to the development of the pan-European Data Processing and Analysis Consortium (DPAC) project led by Cambridge University.

Ahead of Gaia's planned launch in late 2013, DPAC activity is now focussed on operations rehearsals in which full mission levels of data density are processed through the consortium's infrastructure and analysed before a full readiness assessment. Planning for Gaia commissioning and DPAC initialization phases will happen in parallel with workshops planned to prepare for the precise operations of the software systems.

### Hinode 6

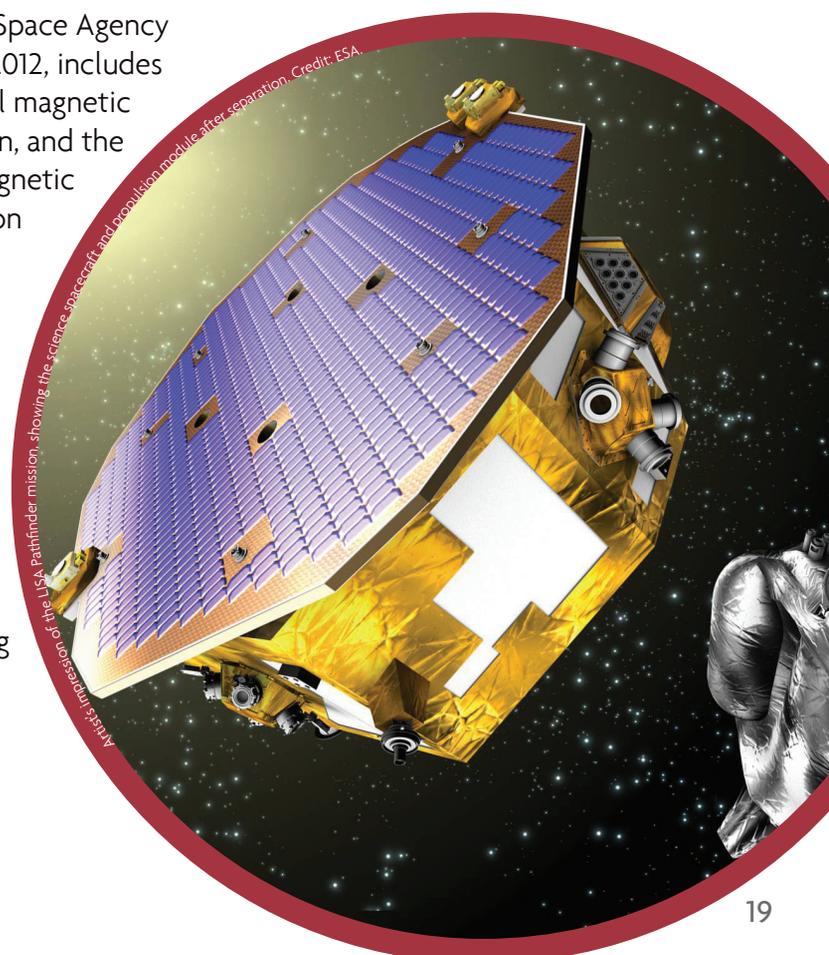
Launched in 2006, Hinode is a mission led by the Japanese Aerospace Exploration Agency (JAXA) in collaboration with the UK, USA and ESA. The UK Space Agency funds the operation of the Extreme ultraviolet Imaging Spectrometer (EIS) – a UK-led instrument, building on the UK's long history of pioneering work in Solar ultraviolet spectroscopy. The Mullard Space Science Laboratory (MSSL) is the lead institute for EIS, and the STFC's Rutherford Appleton Laboratory provided the calibration and observing software. The UK has invested £7.5 million in the EIS instrument and operations.

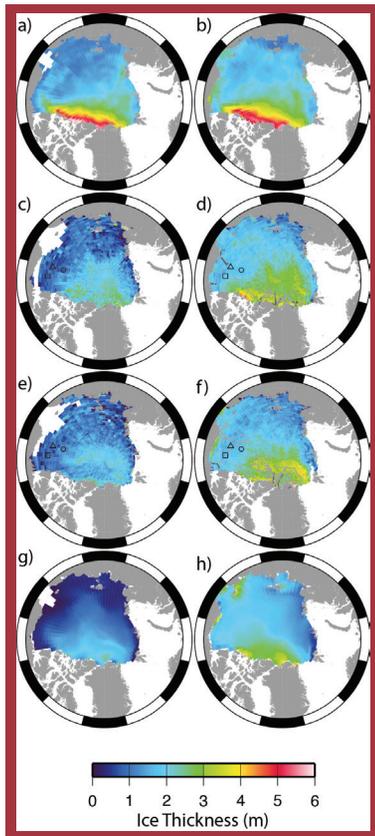
Solar flares and associated coronal mass ejections have a wide range of effects on technology infrastructure and our day-to-day lives, potentially disturbing the Earth's magnetic field, knocking out orbiting satellites and disrupting satellite signals. The Hinode spacecraft is studying the solar magnetic field at scales smaller than ever before and revealing new information about these colossal explosions in the Sun's atmosphere.

The latest mission data, Hinode 6, presented at a UK Space Agency supported event at St Andrews University in August 2012, includes new information on the structure of the Sun's coronal magnetic field, obtained whilst studying a violent solar eruption, and the observation of an unusual asymmetry in our star's magnetic field – a finding that could have a significant impact on the behaviour and prediction of the next solar cycle.

### LISA Pathfinder LTP

LISA (Laser Interferometer Space Antenna) Pathfinder is a technology demonstration mission to pave the way for a proposed gravitational wave experiment in space, which would test Einstein's Theory of General Relativity and open up a completely new 'view' of the Universe. Gravitational waves are ripples in space and time, thought to be generated by some of the most violent astrophysical events – such as exploding stars and collisions of black holes at the centres of galaxies.





Sea ice thickness. Credit: K. Giles et al.

LISA Pathfinder must prove the ultra-high precision technology needed to make two test masses float in almost perfect gravitational free fall in space, so that any effects on their trajectory can only be the result of external gravitational forces. The UK hardware contributions to the Technology Package include the phasemeter, optical bench and charge management system, being led by the Universities of Birmingham, Glasgow and Imperial College London respectively, at a total cost of £6 million. Deliveries are due to be completed during 2013, ahead of the planned launch date in 2015.

### CryoSat reveals major loss of Arctic sea ice

At the ESA Ministerial in November 2012, the UK made the second biggest European contribution to the Earth Observation Envelope Programme (EOEP). The programme supports the development of leading edge science and technology missions and their operations. One such mission, CryoSat, has recently confirmed major loss of Arctic sea ice through its measurements. An international team of scientists has discovered that the volume of Arctic sea ice has declined by 36% during autumn, and 9% during winter between 2003 and 2012.

Satellite records show a constant downward trend in the area covered by Arctic sea ice during all seasons, but in particular in summer. The past six years have seen the lowest summer ice extent in three decades, reaching the lowest last September at about 3.61 million sq km.

A team of scientists led by University College London has now generated estimates of the sea-ice volume for the 2010-11 and 2011-12 winters over the Arctic basin using data from ESA's CryoSat satellite. This study has confirmed, for the first time, that the decline in sea ice coverage in the polar region has been accompanied by a substantial decline in ice volume. The new CryoSat dataset shows the volume's continuing decline observed from 2003 to 2008 by NASA's ICESat satellite.

## Education for growth

The Education, Skills and Outreach programmes have continued this year to fulfil the twin aims of using education for space – addressing the need for skilled graduates and technicians in the space sector – and space for education – using the exciting context of space to inspire an interest in science, technology, engineering and mathematics (STEM).

Two reports published during 2012 have addressed the skills gap in the space sector – one from the University of Reading on graduate skills needs and the other from Kings College London on technicians in the space sector. The Agency is working with partners in industry and academia to find solutions to the needs of the sector, partly through dedicated working groups and partly through the Innovation Growth Strategy (IGS) “re-stack” exercise.

### European Space Education Resource Office (ESERO-UK)

The Agency has continued to work closely with ESERO-UK, which is establishing itself as the main UK source of teaching resources using the context of space to inspire students. The UK office has worked with 5,000 teachers since its formation and 1,911 teachers took part in CPD events during 2012. In 2012-13, 1,840 schools subscribed to the ESERO-UK e-newsletter and ESERO-UK added 57 new teaching resources to its eLibrary. The ESERO-UK Conference 2013 will be held in July with the theme of ‘Space and other exciting contexts for teaching science’. The bulk of the funding for ESERO-UK comes from ESA and DfE, but the Agency has agreed to provide £40,000 of funding for the financial year 2013-14.

### National Space Academy

The Agency has continued to fund the Academy this year and is actively involved through its Steering Group. The three-year pilot Space Academy programme has proved successful in boosting student attainment, teacher effectiveness and influencing course choices at A-level. This is done through a combination of teacher CPD and master classes for A-level students. Led by the National Space Centre, the programme is funded by the UK Space Agency, ESA, the STFC and industrial/academic partners from the UK space sector. In March 2013 the Academy launched its Higher Apprenticeship Framework for Space Engineering, which will provide a more vocational route for students into the space sector.

### Space for All community funding scheme

The Space for All competitive grant scheme offers small grants of up to £5,000 to groups who can present the UK space programme and stimulate the use of space for inspiration and learning. For the 2012-13 funding round the scheme received a record 36 applications totalling £142,000. £35,000 was available for these grants and 14 applications were chosen for funding, including an astrobiology summer school, a museum exhibition comparing space fact to space fiction, a workshop and portable exhibit about Mars, a school magazine about the Sun, and a high altitude balloon launch for experiments designed by school children. In total these grant proposals aim to target an audience of over 10,000 people.

A review of the last three rounds of Space for All funding found that for a cost of just £66,000, an estimated 124,000 people have been reached by the programme (or roughly 50p per person). Some of the projects have generated valuable new teaching resources that will be hosted on the ESERO-UK site for use by teachers across the UK. Others have enabled academics to go into classrooms or work with students. A wide range of space topics have been covered, from remote sensing to Mars exploration and from space engineering to satellite navigation applications.



## International Space University (ISU) competitive scholarship scheme

The Agency supports UK students attending the ISU for both the Space Studies Programme and the Masters programmes, both in Space Studies and in Space Management. There were 12 applicants in total in 2013 for UK funding, double that of 2012, and seven students were successful in winning scholarships. The Agency provides a total of £30,000 to be shared between successful candidates to contribute towards their course fees. This year, as a pilot, the UK Space Agency, in partnership with Inmarsat, organised a meeting for UK ISU students, prior to them starting their courses at the ISU. This meeting included a briefing on the UK space sector and an opportunity for them to meet their peers and previous ISU students.

## Mission X: Train Like an Astronaut programme

Uptake of the Mission X: Train Like an Astronaut programme in the UK has met its target of doubling in size for a second year running. Mission X is an international educational programme designed by NASA, supported by ESA and led in the UK by the UK Space Agency. It aims to inspire interest in science, nutrition and fitness in school students aged 8-12 yrs by using astronaut training as a context. This year over 120 school teams have registered in the UK, up from 44 in 2012, equating to a total of 6,780 pupils nationwide, up from 3,700 in 2012. Several new regions have become involved in Mission X, with registrations from new schools in the North West of England and Scotland. The programme also grew internationally with a total of 22 countries now involved, up from 16 last year, providing more opportunities for UK schools to network globally – with the UK now fielding the largest number of students.



In February 2013, as part of Mission X, the Agency organised a visit by British ESA astronaut, Tim Peake, to schools in the North West and, working with the Royal Aeronautical Society, to schools in London. Schools were also involved in other activities such as planet-watching at Cambridge University and visits from experts in space and medicine. In January, Mission X activities formed the basis of the Agency's contribution to the regional BBC Stargazing Live events in Newbury, Greenwich and Canterbury, also involving space physiology experts from Kings College London's Centre of Human and Aerospace

Physiological Sciences and British Long Jumper JJ Jegede. In June, the UK Space Agency organised a National Closing Event for Mission X at the QinetiQ long-arm human-rated centrifuge allowing school children to find out more about the science and technology behind preparing astronauts for the effects of space on their physiology. The UK Space Agency, along with a group of Mission X school children, will be representing the UK at the Mission X International Closing Event at ESTEC, The Netherlands, in July.

## Scout Association

The UK Space Agency has sponsored a UK-wide Scout Astronautics badge for 2012-13 in order to use informal space education to inspire a large potential audience of young people just beginning to think about their future career choices. The Agency has worked with the Scout Association to update the materials that support the badge and Scouting publications have advertised this partnership and provided information for Scout leaders. The Agency has also contributed feedback on the badge criteria for implementation in 2015.

## **Outreach Events**

The European Space Solutions Conference, a major European space conference to encourage uptake of space applications, took place in London in December 2012. The Agency worked with the Nottingham Geospatial Institute to run two hour, hands on sessions for schools (14 to 16 yrs) around St James Park and in the large exhibition dome on Horseguards Parade. These sessions explained the many uses of global navigation satellite systems (GNSS) and introduced students to the Galileo and EGNOS programmes.

The UK Space Agency is also leading the organisation of the 2013 UK Space Conference, working closely with several key stakeholder groups within the space community. The conference will focus on realising the UK's ambitions in space - including making a global impact with science and research, contributing to the UK's economic growth by developing new commercial applications and businesses and developing the interactions between these activities.

Strathclyde University is coordinating the education and outreach programme and ESERO-UK is running an education providers' conference.

## Growth through smarter government

### National Space Applications Programme (NSAP)

The public sector is a major user of data and information acquired via space; communications, navigation information, and earth observation images and data.

The rapidly increasing quantity and types of data, information and images being created and delivered by satellites have the potential to enable new applications to help manage the challenges faced by central and local government, and other public bodies.

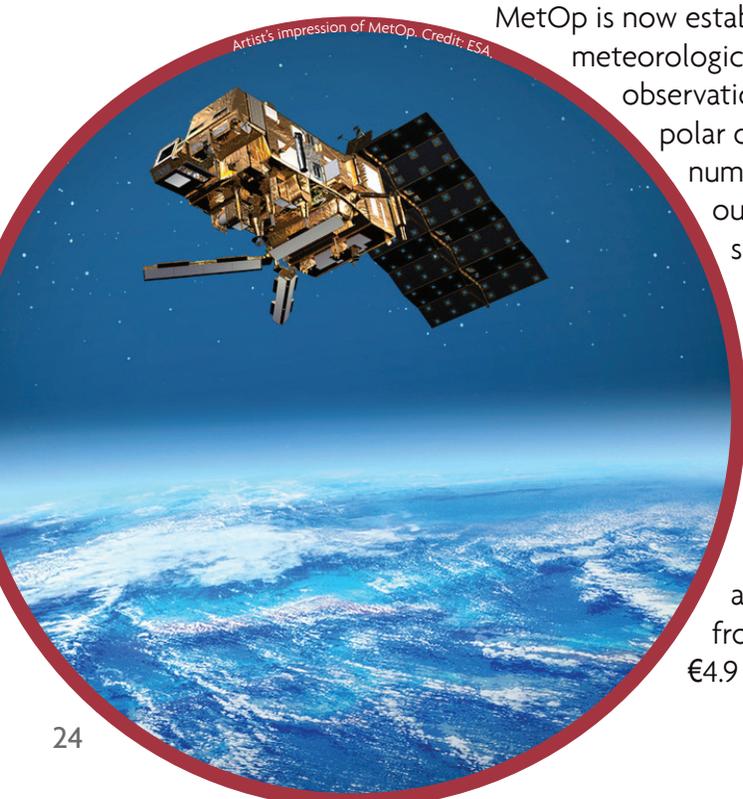
The UK space agency is currently developing a UK National Space Applications Programme (NSAP), to be operational in 2013. Once operational, NSAP will act as a trusted first port of call for advice to those in government, academia or industry on how to access data and advice on how to get the most from data that is available. Crucially it will also be able to collate issues or technical challenges faced by the public sector in the use of space applications. NSAP will focus particularly on leading government to government talks to enable neutral identification of public sector requirements. NSAP will therefore have a particular role to play in the neutral brokerage of ideas between users (especially those in the public sector) and suppliers of space products and services.

NSAP will identify potential public sector users and requirements and set priority areas of focus. These needs will be linked with data suppliers and application developers in cooperation with the Satellite Applications Catapult and ESA programmes, identifying and facilitating appropriate funding.

### Launch of MetOp-B

The UK Space Agency works in close partnership with the UK Met Office in planning UK contributions to European meteorological missions, with ESA doing the research and development for the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT).

The EUMETSAT Polar System (EPS) MetOp mission series provides continuous, long-term data for operational meteorological and environmental forecasting and global climate monitoring. The EPS programme consists of a series of three polar-orbiting MetOp satellites, to be flown successively for more than 16 years, from 2006, together with the relevant ground facilities. The second of the EPS series, MetOp-B, was launched in September 2012 from Baikonur, Kazakhstan. MetOp-B carries the same instruments as the 'A' platform and ensures there is continuity of observations.



MetOp is now established as a cornerstone of the global network of meteorological satellites and provides the most detailed operational observations of the atmosphere, oceans and clouds available from polar orbit. These data from MetOp are essential input to today's numerical weather prediction models, which sit at the heart of our ability to forecast the weather. The mission also monitors sea surface temperature, snow and ice cover, and the state of land vegetation. It has even found important roles in watching for fires on the ground and the spread of volcanic ash in the air.

Data from MetOp contributes to the public weather service, weather services for security and defence; aviation; national hazard and resilience management; and climate monitoring and prediction. The resultant estimated annual benefits of the current EPS/MetOp satellites range from a minimum of €1.24 billion to a more likely figure of €4.9 billion.

Historically the UK has gained a substantial return from previous investments in technologies and expertise from the first generation MetOp satellites, in particular, the supply of Microwave Sounding instruments. In addition the UK has also secured significant contracts on EUMETSAT ground segment activities and is well positioned to continue in these roles from the activities directly procured by EUMETSAT.

### **Second Generation Meteorological Satellites**

The meteorological community is developing the follow-on programme, the EPS Second Generation, to be ready by 2020. Member States agreed to start the development activities of the next generation of MetOp satellites, and the UK has committed €101 million to the MetOp Second Generation programme. MetOp-SG will fly as a pair of satellites, and will provide continuation from the first generation MetOp satellites, which contribute more than any other source of data to near-term Numerical Weather Prediction (NWP) forecasts.

Instruments on the second generation of MetOp satellites will greatly enhance the National Meteorological Services' (NMS) ability to provide global and regional NWP models with realistic information on temperature and moisture. The UK is well placed to provide this instrument based on long standing heritage and leadership in the related technologies, from predecessor instruments flying on the current series of MetOp satellites. MetOp-SG will contribute to the monitoring of 19 of the GCOS Essential Climate Variables, fundamentally important to the monitoring of climate change and validation of climate models.

The mandatory EUMETSAT EPS-SG programme, to be approved in 2014, will fund the procurement of two more pairs of recurring satellites and instruments. The ground segment will be developed and operated by EUMETSAT and will provide the necessary mission management, spacecraft monitoring and control, payload data acquisition, level 1 and 2 processing, archiving and dissemination, and associated user services over the next 21 years.

### **Jason**

The Jason 2 and 3 programmes are international collaborative programmes between Europe and the US, implemented through EUMETSAT. The UK also participates in the implementation of Jason 3 which is planned to be launched towards the end of 2014 and expected to provide observations until 2019-20. The total contribution is €10.4 million over nine years. This is currently co-funded three quarters by the UK Space Agency (responsibility transferred from the Department for Environment, Food and Rural Affairs (DEFRA)) and one quarter by the Department for Energy and Climate Change (DECC).

The Jason series provides a unique capability to measure sea level changes over the global ocean to a high accuracy. These measurements are the key input to deriving the 'Sea Level' key Essential Climate Variable (ECV) as described by the Global Climate Observing System (GCOS). Jason data are therefore critical to inform our understanding of the role the ocean plays in climate from seasonal to centennial time scales, plan our response to sea level rise, better understand ocean circulation and the effect of ocean-atmospheric interactions that produce extreme weather events such as hurricanes.

The primary requirement is for climate research, prediction and verification; altimeter data continue to play a central role in documenting and verifying models of global warming and the accelerating rate of sea level rise.

## Financial review

### Background

The Financial Statements have been prepared in accordance with a Direction issued by the Secretary of State for Business, Innovation and Skills (BIS) in pursuance of Section 7(2) of the Government Resources and Accounts Act 2000. The Financial Statements have been prepared in accordance with International Financial Reporting Standards (IFRS) and the accounting and financial reporting standards issued or adopted by the International Accounting Standards Board as interpreted for Government use by the Financial Reporting Manual (FRM).

The UK Space Agency is an Executive Agency and partner organisation of BIS and does not own or control any other bodies. The Agency is required to remain within its specific budgeted limits agreed with BIS, under the governance of Resource Accounting and Budgeting (RAB), the regime by which HM Treasury, on behalf of central government, ensures Public Sector spending is satisfactorily controlled. In compliance with this regime, the Agency was required throughout the year to advise BIS of its total forecast net expenditure for the year end, based on the requirement from HM Treasury to adhere as closely as possible to the forecast. Adherence to this forecast required detailed and robust financial management, both in forecasting the annual outturn and ensuring rapid responses to the changing circumstances of the Agency's substantial programme.

### Performance

The Agency's final 2012-13 net expenditure was £237.4 million. This was a managed under-spend of £1.9 million (0.8% of Departmental Expenditure Limit (DEL)) against our formally delegated allocation of £239.3 million, primarily made up of programme and capital DEL. This variance is within the BIS best practice tolerance levels of 1% of DEL and should therefore be seen as a significant achievement in terms of financial management.

In delivering our second Annual Report and Accounts, the Agency has continued to fulfil all the BIS Clear Line of Sight requirements as part of a project across the BIS family to produce and publish consolidated accounts.

Net expenditure for the year decreased by £19.0 million from £256.5 million to £237.4 million; this was primarily due to a decrease in international expenditure as the Agency progressed to the end of the European Space Agency (ESA) spending round, initially set out at the ESA Council of Ministers 2008. The ESA Council of Ministers in November 2012 saw all ESA Member States renegotiate and commit to a portfolio of programmes for the next five years. For the UK this will see a significant increase to the ESA subscriptions, totalling approximately £1.2 billion cumulatively over this period. It should be noted that in making such long-term commitments it was necessary to secure separate approval from HM Treasury.

The UK Space Agency was created in April 2011 and in establishing the Agency's budgets several Machinery of Government transfers took place; these formed the 2011-12 opening balances and are therefore within the comparative figures presented in the 2012-13 accounts. Any debtors or creditors brought forward into 2012-13 have now been cleared. The Agency therefore has no reason to believe any further adjustments are required; however, should subsequent obligations to or from the precursor organisations arise, these will need to be resolved at departmental level.

The second year of operation saw the Agency meet its £2.6 million administrative DEL. This included one-off, supplementary funding of £500k enabling the Agency to fund its full operational costs as it moved to a more mature operational model. This additional funding provided the necessary flexibility to recruit the nine vacant posts previously carried by the Agency in 2011-12; taking the average complement up to a headcount of 40.3 full time equivalents and increasing staff costs accordingly. Significant areas of increase in non-salary administrative expenditure were principally in Travel & Subsistence, higher due to the additional work and international meetings associated with an ESA Ministerial year; and in the BIS recharges for back

office support systems and Shared Services where the Agency is now utilising all services available under BIS central framework contracts, thus delivering greater efficiency for BIS as a whole.

Net assets increased by £5.7 million – from £13.3 million to £19.0 million – the movement mainly being a decrease in trade payables.

Financial instruments are in the form of forward exchange contracts (commonly called Hedging Contracts) to purchase fixed amounts of Euro currency on specific dates in the future. The Agency re-values the forward exchange contracts it has established at the end of each financial year; the Bank of England supply the Ask Price on which these valuations are based. The UK Space Agency has applied a consistent methodology of valuation within the accounts produced to date and, therefore, any alteration in the value of the derivative financial instruments is a direct result of currency market movements. BIS has developed a draft central Hedging Policy, the UK Space Agency will ensure that its existing policy aligns with this and thus provide a harmonised approach for the consolidated BIS accounts.

Currency fluctuations in GBP to Euro remain the primary risk to the Agency's ability to manage expenditure against the annual delegated Departmental Expenditure Limits. These forward exchange contracts were established as a mitigating measure to control international spend over the period of the Comprehensive Spending Review 2010, thus reducing the Agency's exposure to exchange rate fluctuations. Note 7 of the Financial Statements shows that these have been effective in terms of the technical requirements set out in International Accounting Standard (IAS) 39. The Agency's Executive Board is responsible for risk appetite; it is therefore this Board, with advice from the Steering Board, Audit Committee and the finance team, which will decide the optimal conditions upon which to establish new forward exchange contracts. Consideration has been given to the ongoing volatility of the market, in order to meet commitments and maximise value for money where possible.

As at 1 April 2012 the Agency held cash reserves of £10.3 million; these have subsequently risen marginally to £12.7 million as at 31 March 2013. Cash forecasting is closely managed and balanced against individual budget profiles in order to maintain appropriate cash reserves. All cash reserves are held within the Government Banking Service accounts. The UK Space Agency does not hold any commercial bank accounts.

## **Other finance and operational issues**

### **Sustainability**

The UK Space Agency falls inside the exemption limits for sustainability reporting and as a result has not included a Sustainability Report.

### **Going concern**

The UK Space Agency is an Executive Agency of BIS and the Department's estimates and forward plans include provision for its continuation. It has therefore been considered appropriate to prepare these accounts on a going concern basis.

### **Auditors**

The Comptroller and Auditor General has been appointed under statute to perform the statutory audit and report to Parliament. A notional charge of £39,000 has been made in the 2012-13 accounts, compared to £44,000 in 2011-12, in respect of this.

### **Disclosure of relevant audit information**

There is no relevant audit information of which UK Space Agency's auditors are unaware and the Agency has taken all the steps that it ought to have taken to make itself aware of any relevant audit information and to establish that UK Space Agency's auditors are aware of that information.

## **Creditors payment, policy and performance**

UK Space Agency settles its own accounts with 99.7% of invoices paid within thirty days of receipt of invoice. In line with BIS and cross government payment reporting guidelines 94.8% of UK Space Agency invoices were paid in five working days.

In November 1998, the Late Payment of Commercial Debts (Interest) Act came into force, providing small businesses with a statutory right to claim interest from large businesses (and all public sector bodies) on payments that are more than thirty days overdue. Amended legislation (the Late Payment of Commercial Debts Regulations 2002) came into force on 7 August 2002 providing all businesses, irrespective of size, with the right to claim statutory interest for the late payment of commercial debts. No interest has been paid to trade creditors under this Act during 2012-13.

## **Freedom of Information**

The UK Space Agency is required to comply with the Freedom of Information Act 2000. During 2012-13 the UK Space Agency received nine requests for information under the Freedom of Information Act 2000, of which all were answered within the prescribed 20-day deadline; for 2011-12 this was twelve out of thirteen requests.

## **Forward look**

The ESA Council of Ministers in November 2012 was a great success for the Agency and saw a significant long term commitment from the UK Government to invest in the space sector.

Building on this success, further work has already begun in preparation for the next spending period(s). A long-term national capital investment plan is in place and supportive business cases have been submitted to BIS economists for assessment. However, financial risk remains with a challenging uncertain economic climate, new savings targets will need to be delivered and budgets reprioritised in line with Government and Cabinet Office directives.

The Agency Corporate Plan is in place and sets out how we will meet our ambitions for UK growth and drive innovation and economic impact within this climate.

The Agency has undertaken a considerable amount of planning, development and change management in its first two years of operation and remains on target to move to the next levels of maturity. This was demonstrated in the commissioning of a one off, six month review of the organisation. The results of this independent, evidence based project were recognised by BIS who have granted an additional £1.7 million funding toward the administration baseline budget for 2013-14. An implementation plan will see the Agency move to a fully sustainable model.

The Agency now has the solid core of a finance team in place, providing assurance to the Accounting Officer and developing new tools to support and enable the three directorates of the Agency to better manage its budgets. The finance team work with increasing transparency with BIS Business Partners to deliver successful results for both parties.

Due to the transfer of staff (under TUPE regulations) on creation of the UK Space Agency there are a range of Terms and Conditions in operation across the employees of the Agency. A change management project is underway which aims to have an aligned, equitable position by January 2014.

The Agency currently relies on BIS central support systems to provide several of its back office functions; 2012-13 saw the initial migration of some of these services to the Shared Business Services Ltd. However, it will not be until the full transition to the Shared Service platform, scheduled for Autumn 2013, that UK Space Agency will see the full benefit of these systems. In the meantime, operational issues associated with non-integrated, and/or legacy IT systems continue to be managed from within the Agency.

As mentioned in the performance review of 2012-13, volatility of the Euro exchange rate remains an ongoing risk for the UK Space Agency. The Agency will continue to proactively manage this area by means of a variety of measures, including the possible creation of forward exchange contracts, as determined by the Executive Board.

## **Other information**

### **Staff**

The UK Space Agency involves all members of staff in the delivery of the objectives set out in the Corporate Plan. The main channels of internal communication include feedback from the Executive Board meetings, Directorate meetings and all-staff meetings. Staff are helped to realise their potential through training, opportunities to make site visits to industry stakeholders and attending certain national and international meetings as observers.

The UK Space Agency is fully committed to providing equal opportunity for all staff. The Agency follows the Civil Service guidelines, ensuring that all eligible people have equality of opportunity for employment and advancement on the basis of their suitability for the work, with no discrimination on the basis of age, disability, gender, part-time workers, marital status, sexual orientation, race, colour, nationality, ethnic or national origin or religious belief.

The UK Space Agency's consultative mechanisms provide an opportunity for staff to have an input into issues that concern them, to offer a staff view on new initiatives, and to make suggestions for improvements where appropriate.

The Agency ensures that recruitment is carried out on the basis of fair and open competition and that selection is on merit in accordance with the Office of the Civil Service Commission (OCSC) Principles. The Agency works closely with its parent department, the Department for Business, Innovation and Skills (BIS) to ensure these principles are adhered to.

Throughout the year there were no posts filled via external recruitment; however, due to the nature of the post the vacant Chief Executive position was opened up to the external market.

### **Days lost due to absence**

The UK Space Agency encourages a culture where good attendance is expected and valued. However, it recognises that from time to time absences for medical reasons may be unavoidable. The Agency aims to treat its staff who are ill with sympathy and fairness and where possible to provide them with support which will enable them to recover their health and attend work regularly.

In 2012-13, the average number of working days lost was 1.5 days per annum per employee. This average has been distorted by an instance of long term sickness, without which the average would be 0.8 days. This has increased from the 2011-12 average number of working days lost which was 0.4 days per annum per employee.

### **Data and physical security**

The UK Space Agency had no protected personal data related incidents during 2012-13. The UK Space Agency Senior Information Risk Owner (SIRO) and Information Assurance Coordinator (IAC), together with the Information Asset Owners (IAO), oversee the protection of datasets owned by the Agency. Bi-annual reports are provided to BIS on risk and security incidents. The UK Space Agency will continue to assess these information risks in order to identify any weaknesses and ensure continuous improvement of its systems.

## Chapter 3: Remuneration Report

The remuneration of Senior Civil Servants is set by the Prime Minister following independent advice from the Review Body on Senior Salaries. In reaching its recommendations, the Review Body is to have regard to the following considerations:

- the need to recruit, retain and motivate suitably able and qualified people to exercise their different responsibilities;
- regional and local variations in labour markets and their effects on the recruitment and retention of staff;
- Government policies for improving the public services including the requirement on Departments to meet the output targets for the delivery of departmental services;
- the funds available to Departments as set out in the Government's Departmental Expenditure Limits;
- the Government's inflation target.

The Review Body takes account of the evidence it receives about wider economic considerations and the affordability of its recommendations. Further information about the work of the Review Body can be found on the website of the Office of Manpower Economics: [www.ome.uk.com](http://www.ome.uk.com).

For all other staff members, their remuneration is determined as agreed with HR Business Partners in our parent Department.

In the prior financial year, 2011-12, several Machinery of Government Transfers (MoG) were completed; these included the transfer of staff (under TUPE) from the Science and Technology and Facilities Council and the Natural Environmental Research Council. Those staff therefore retained the benefits held from their former organisation and will have the opportunity to adopt an aligned benefits package when this becomes available to all UK Space Agency employees.

### Service Contracts

The Constitutional Reform and Governance Act 2010 requires Civil Service appointments to be made on merit on the basis of fair and open competition. The Recruitment Principles published by the Civil Service Commission also specify the circumstances when appointments may be made otherwise.

Unless otherwise stated, the officials covered by this report hold appointments which are open-ended. Early termination, other than for misconduct, would result in the individual receiving compensation as set out in the Civil Service Compensation Scheme. Further information about the work of the Civil Service Commission can be found at: [www.civilservicecommission.org.uk](http://www.civilservicecommission.org.uk)

The notice period for all Senior Civil Servants covered by this report is in line with the Civil Service terms and conditions.

### Salary

Salary includes gross salary; overtime; reserved rights to London weighting or London allowances; recruitment and retention allowances; private office allowances and any other allowance to the extent that it is subject to UK taxation.

This report is based on accrued payments made by the Agency and thus recorded in these accounts. An accrual has been made within the accounts to reflect the value of the outstanding leave entitlement accumulated by the employees at 31 March 2013.

### Benefits in kind

The monetary value of benefits in kind covers any benefits provided by the Agency and treated by HM Revenue and Customs as a taxable emolument.

## Bonuses

Bonuses are based on performance levels attained and are made as part of the appraisal process. Bonuses relate to the performance in the year in which they become payable to the individual. In line with Cabinet Office austerity measures, there were no bonuses reported in 2012-13 (based on performance assessments for 2011-12).

## Audited Information

### Remuneration (including salary) and pension entitlements of senior employees

The following sections provide details of the remuneration and pension interests of the most senior employees who were members of the UK Space Agency Executive Board during the year.

Throughout the year, the Executive Board comprised of the following members:

David Parker	Chief Executive <sup>(i)</sup>
David Williams	Chief Executive <sup>(ii)</sup>
Emma Lord	Director of Policy and Operations
Catherine Mealing-Jones	Director of Growth, Applications and European Union Programmes
Chris Castelli	Acting Director of Technology, Science and Exploration <sup>(iii)</sup>

Notes:

<sup>(i)</sup> David Parker was officially appointed as Chief Executive with effect from 17 January 2013 following an external recruitment exercise. He was promoted to Acting Chief Executive from 23 November 2012. He previously held the position of Director of Technology Science and Exploration from 1 April 2011 to 22 November 2012.

<sup>(ii)</sup> David Williams resigned as Chief Executive with effect from 30 November 2012 (on annual leave from 23 November 2012).

<sup>(iii)</sup> Chris Castelli was promoted to Acting Director with effect from 23 November 2012.

**Table 1: Remuneration (salary and payments in kind) of senior employees (2012-13)**

Name	2012-13			2011-12		
	Salary	Bonus Payments	Benefits in kind	Salary	Bonus Payments	Benefits in kind
	£000s	£000s	Nearest £100			
David Parker <sup>(i)</sup>	<b>90-95</b>	-	-	65-70	-	-
David Williams <sup>(ii)</sup>	<b>115-120</b>	-	-	115-120	-	-
Emma Lord	<b>55-60</b>	-	-	55-60	-	-
Catherine Mealing-Jones	<b>65-70</b>	-	-	65-70	-	-
Chris Castell <sup>(iii)</sup>	<b>60-65</b>	-	-	60-65	-	-
Salary band of highest paid Director at 31 March <sup>(iv)</sup>	<b>90-95</b>			115-120		
Median total remuneration <sup>(v)</sup>	<b>43</b>			41		
Median total remuneration ratio	<b>2.10</b>			2.89		

**Notes:**

<sup>(i)</sup> In post as Chief Executive from 23 November 2012. The salary has been annualised.

<sup>(ii)</sup> In post as Chief Executive from 1 April 2012 to 30 November 2012. The salary has been annualised.

<sup>(iii)</sup> In post from 23 November 2012. The salary has been annualised.

<sup>(iv)</sup> This represents the per annum salary of David Parker as at 31 March 2013.

<sup>(v)</sup> Remuneration is the total annual salary per employee as at 31 March 2013 and adjusted for Full Time Equivalent (FTE).

In 2012-13, no employee received remuneration in excess of the highest-paid Director.

Total remuneration includes salary, non-consolidated performance-related pay, benefits-in-kind as well as severance payments. It does not include employer pension contributions and the cash equivalent transfer value of pensions.

## Pension Benefits

### Civil Service Pensions

Pension benefits are provided through the Civil Service pension arrangements. From 20 July 2007, civil servants may be in one of four defined benefit schemes: either a final salary scheme (Classic, Premium or Classic Plus); or the average career scheme (Nuvos). These statutory arrangements are unfunded, with the cost of benefits met by monies voted by Parliament each year. Pensions payable under Classic, Premium, Classic Plus and Nuvos are increased annually in line with Pensions Increase Legislation.

Members joining from October 2002 may opt for either the appropriate defined benefit arrangement or a 'money purchase' stakeholder pension with an employer contribution (partnership pension account).

Employee contributions are set at the rate of 1.5% of pensionable earnings for Classic and 3.5% for Premium, Classic Plus and Nuvos. From 1 April 2013 these rates will be increased.

Benefits in Classic accrue at the rate of 1/80th of final pensionable earnings for each year of service. In addition, a lump sum equivalent to three years' initial pension is payable on retirement.

For Premium, benefits accrue at the rate of 1/60th of final pensionable earnings for each year of service. Unlike Classic, there is no automatic lump sum. Classic Plus is essentially a hybrid, with benefits for service before 1 October 2002 calculated broadly as per Classic and benefits for service from October 2002 worked out as in Premium.

In Nuvos a member builds up a pension based on their pensionable earnings during their period of scheme membership. At the end of the scheme year (31 March) the member’s earned pension account is credited with 2.3% of their pensionable earnings in that scheme year and the accrued pension is uprated in line with Pensions Increase Legislation. In all cases members may opt to give up (commute) pension for a lump sum up to the limits set by the Finance Act 2004.

The Partnership pension account is a stakeholder pension arrangement. The employer makes a basic contribution of between 3% and 12.5% (depending on the age of the member) into a stakeholder pension product chosen by the employee from a panel of three providers. The employee does not have to contribute, but where they do make contributions, the employer will match these up to a limit of 3% of pensionable salary (in addition to the employer’s basic contribution). Employers also contribute a further 0.8% of pensionable salary to cover the cost of centrally-provided risk benefit cover (death in service and ill health retirement).

The accrued pension quoted is the pension the member is entitled to receive when they reach pension age, or immediately on ceasing to be an active member of the scheme if they are already at or over pension age. Pension age is 60 for members of Classic, Premium and Classic Plus and 65 for members of Nuvos; however this is under review.

Further details about the Civil Service pension arrangements can be found at the website: [www.civilservice.gov.uk/my-civil-service/pensions/index.aspx](http://www.civilservice.gov.uk/my-civil-service/pensions/index.aspx).

**Table 2: Pension benefits of senior employees (2012-13)**

	<b>Pension increase in real terms and (if applicable) related lump sum at retirement age in bands of £2,500</b>	<b>Accrued pension at retirement age as at 31/3/2013 and (if applicable) related lump sum in bands of £5,000</b>	<b>CETVat 31/3/2012 to the nearest £1,000</b>	<b>Real increase in the CETV as funded by the employer, to the nearest £1,000</b>	<b>CETV at 31/3/2013 to the nearest £1,000</b>	<b>Partnership pension account, the employer’s contribution, to the nearest £100</b>
	<b>£000</b>	<b>£000</b>	<b>£000</b>	<b>£000</b>	<b>£000</b>	<b>Nearest £100</b>
David Parker	0-2.5	0-5	7	14	25	-
David Williams	0-2.5 plus lump sum 0-2.5	25-30 plus lump sum 40-45	549	40	594	-
Emma Lord	0-2.5 plus lump sum 0-2.5	10-15 plus lump sum 35-40	138	5	151	-
Catherine Mealing-Jones	0-2.5 plus lump sum 0-2.5	20-25 plus lump sum 60-65	287	10	313	-
Chris Castelli <sup>(i)</sup>	0-2.5	0-5	5	10	19	-

**Table 3: Pension benefits of senior employees (2011-12)**

Name	Pension increase in real terms and (if applicable) lump sum at retirement age in bands of £2,500 £000	Accrued pension at retirement age as at 31/3/2012 and (if applicable) related lump sum in bands of £5,000 £000	CETV at 31/3/2011 to the nearest £1,000 <sup>(i)</sup> £000	Real increase in the CETV as funded by the employer, to the nearest £1,000 £000	CETV at 31/3/2012 to the nearest £1,000 <sup>(i)</sup> £000	Partnership pension account, the employer's contribution, to the nearest £100 Nearest £100
David Parker	0-2.5	0-5	-	6	7	-
David Williams	0-2.5 plus lump sum 0-2.5	25-30 plus lump sum 40-45	483	28	549	-
Emma Lord	0-2.5 plus lump sum 0-2.5	10-15 plus lump sum 30-35	120	7	138	-
Catherine Mealing-Jones	0-2.5 plus lump sum 0-2.5	15-20 plus lump sum 55-60	284	-	287	-
Chris Castelli <sup>(ii)</sup>	-	-	-	-	-	-

Notes:

- <sup>(i)</sup> The actuarial factors used to calculate Cash Equivalent Transfer Value (CETV) were changed in 2011-12. The CETVs have been calculated using the new factors for consistency.
- <sup>(ii)</sup> Chris Castelli was appointed as Acting Director in 2012-13, therefore there is no comparator available for the 2011-12 pension benefit table.

**Cash Equivalent Transfer Values**

A Cash Equivalent Transfer Value (CETV) is the actuarially-assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's pension payable from the scheme. A CETV is a payment made by a pension scheme or arrangement to secure pension benefits in another pension scheme or arrangement when the member leaves a scheme and chooses to transfer the benefits accrued in their former scheme. The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity to which disclosure applies.

The figures include the value of any pension benefit in another scheme or arrangement which the member has transferred to the Civil Service pension arrangements. They also include any additional pension benefit accrued to the member as a result of their buying additional pension benefits at their own cost. CETVs are worked out within the guidelines and framework prescribed by the Institute and Faculty of Actuaries and do not take account of any actual or potential reduction to benefits resulting from Lifetime Allowance Tax, which may be due when pension benefits are taken.

### **Real increase in CETV**

This reflects the increase in CETV that is funded by the employer. It does not include the increase in accrued pension due to inflation, contributions paid by the employee (including the value of any benefits transferred from another pension scheme or arrangement), and uses common market valuation factors for the start and end of the period.

### **Remuneration of Steering Board and Audit Committee Non-Executive Directors**

The Non-Executive Directors were voluntary and drew no remuneration for their services during the year 2012-13 (2011-12: NIL). Members were reimbursed for any reasonable expenses incurred on behalf of the Agency.

David Parker  
26 June 2013  
Chief Executive and Accounting Officer

## Chapter 4: Accounts

### The Statement of Accounting Officer's responsibilities with respect to the Financial Statements

Under the Government Resources and Accounts Act 2000, the Secretary of State with the consent of HM Treasury has directed the UK Space Agency to prepare for each financial year a statement of accounts in the form and on the basis set out in the Accounts Direction. The accounts are prepared on an accruals basis and must give a true and fair view of the state of affairs of the UK Space Agency and of its income and expenditure, changes in taxpayers' equity and cash flows for the financial year.

In preparing the accounts, the Accounting Officer is required to comply with the requirements of the Government Financial Reporting Manual and in particular to:

- observe the Accounts Direction issued by HM Treasury, including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis;
- make judgments and estimates on a reasonable basis;
- state whether applicable accounting standards as set out in the Government Financial Reporting Manual have been followed, and disclose and explain any material departures in the accounts; and
- prepare the accounts on a going concern basis.

The Accounting Officer of the Department for Business, Innovation and Skills has designated the Chief Executive as Accounting Officer of UK Space Agency. The responsibilities of an Accounting Officer, including responsibility for the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping proper records and for safeguarding the UK Space Agency's assets, are set out in Managing Public Money published by HM Treasury.

## Annual Governance Statement

### Scope of responsibility

As Accounting Officer, I have responsibility for maintaining a sound system of internal control that supports the achievement of the UK Space Agency policies, aims and objectives, whilst safeguarding the public funds and departmental assets for which I am personally accountable. This is done in accordance with the responsibilities assigned to me in 'Managing Public Money', and the requirements set out in my appointment as the UK Space Agency Accounting Officer, and the delegation of financial authority from the Department for Business, Innovation and Skills (BIS).

The Executive Board has been established to support me in discharging my responsibilities. I may delegate responsibilities for implementation of UK Space Agency activities to Agency Directors but may not assign any of the responsibilities absolutely to any other person. I am also supported by an Advisory Steering Board, and an Audit Committee, whose members are appointed by BIS.

So far as I am aware there is no relevant audit information of which the NAO are unaware. I have taken all the steps that I ought to have taken to make myself aware of any relevant audit information and to establish that NAO are aware of that information.

### Governance structure

The UK Space Agency is an Executive Agency of the Department for Business, Innovation and Skills (BIS). The UK Space Agency is accountable to the public through BIS and to Parliament for the funds it expends. Parliament monitors and influences the UK Space Agency through its Select Committees and the Parliamentary Ombudsman.

The UK Space Agency's working relationship and lines of accountability with its sponsor department, BIS, are defined through the UK Space Agency Framework Document, Corporate Plan and letter(s) of Delegated Authority which are subject to periodic review.

The Executive Board is chaired by the Chief Executive (CE). The Steering Board and Audit Committee advise the Chief Executive.

### Legal status

The UK Space Agency is an Executive Agency of BIS and does not have a separate legal status outside of BIS; therefore, in order to enter into contracts, delegated powers are conferred on the Agency by the Secretary of State. In the event of a contract being entered into, the UK Space Agency is a 'Contracting Authority' on behalf of the Secretary of State for BIS, which is the 'Authority'.

### Executive Board

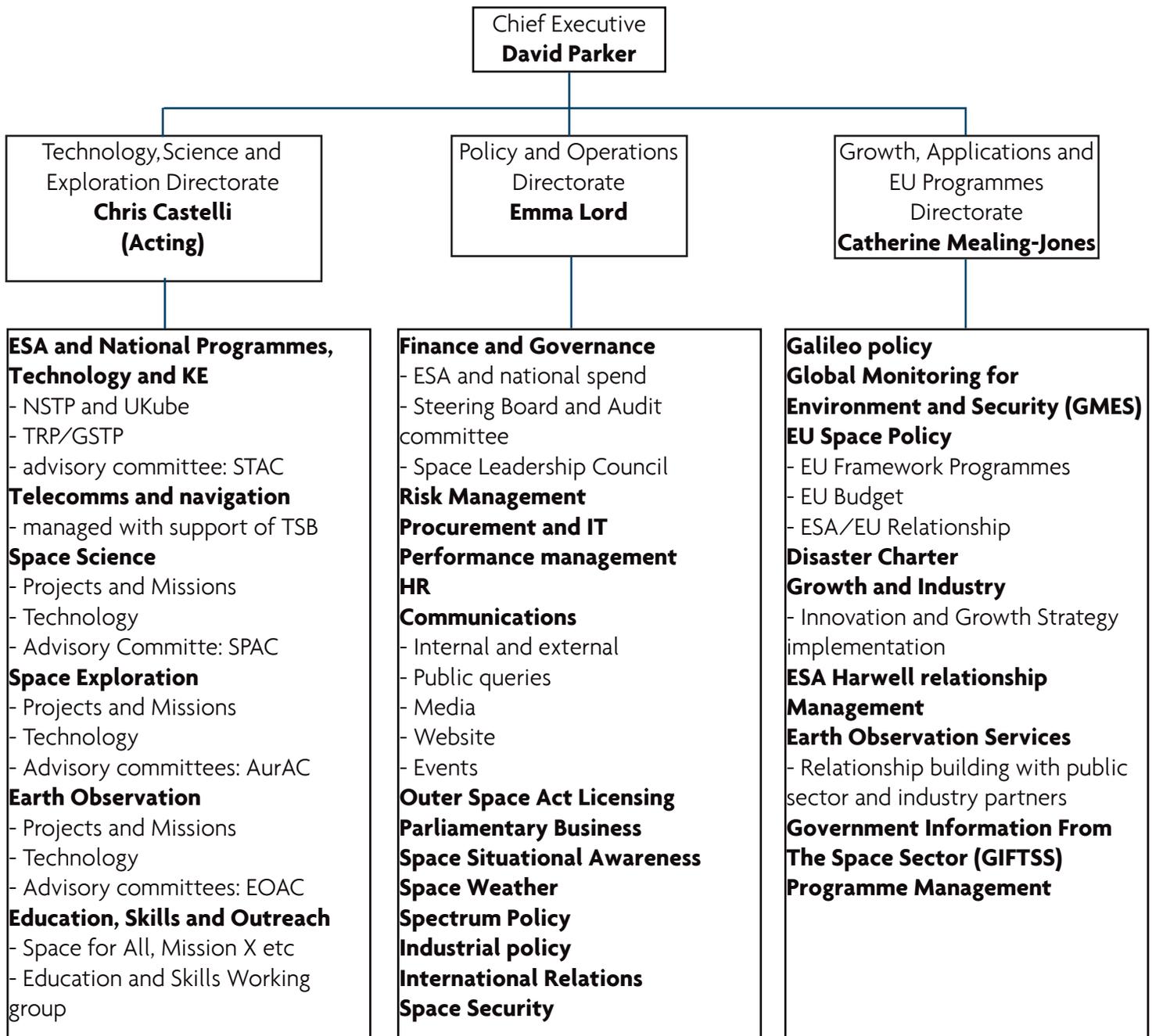
The Executive Board manages the day-to-day operations and activity of the UK Space Agency, including the provision of policy advice to BIS Ministers. The formal Accounting Officer role lies with the Chief Executive.

The responsibilities of the Executive Board are to:

- deliver the UK Space Agency mission as detailed in its Corporate Plan by deciding overall programme priorities and resource allocation;
- develop and maintain the mid-to-long term strategic direction and provide policy advice to ministers regarding civil space activities;
- approve and implement effective financial planning (including Comprehensive Spending Review and subsequent estimates);
- have responsibility for the investment appraisal regime, including approving capital and revenue commitments under a threshold amount approved by BIS;
- approve and implement robust and effective governance, including financial policies/procedures;



**UK Space Agency organisation chart**



## Steering Board

The Steering Board provides advice and guidance to the Chief Executive. In accordance with the HMG guidelines the Steering Board was appointed for an initial term in office of three years and, subject to a satisfactory assessment of performance, can be extended for a further three years. There are four Non-Executive Directors who are independent; the remainder of the Board is made up of the Chief Executive (with Accounting Officer responsibilities), the Senior Information Risk Officer for the UK Space Agency and Jeremy Clayton who is a BIS internal appointment.

All external interests are listed in the Register of Members' Interests and in the Related Party Transactions laid out within notes to the annual accounts. The register of UK Space Agency Members' private, professional and commercial interests is maintained by the UK Space Agency which is reviewed for accuracy prior to each Steering Board meeting. This register, the Terms of Reference and summary of the Board meetings are available on the UK Space Agency website: [www.bis.gov.uk/ukspaceagency](http://www.bis.gov.uk/ukspaceagency).

During 2012-13 the Non-Executive Directors worked on a voluntary basis and drew no remuneration. Members were reimbursed for any reasonable expenses incurred on behalf of the UK Space Agency. From 1 April 2013 the Steering Board Non-Executive Directors will receive remuneration in line with guidance from, and approved by, BIS.

In addition to the Steering Board Members, the remainder of the Executive Board and the Head of Finance and Corporate Services may attend as required.

## Steering Board (and Attendance 2012-13)

The Steering Board was established in November 2011 and generally meets on a bi-monthly basis.

	No. meetings attended	No. meetings held
Robert Douglas CBE – Chairman	6	6
David Parker – Chief Executive <sup>(i)</sup>	2	2
<b>Members</b>		
David Southwood – Non-Executive	6	6
Jeremy Clayton – BIS	6	6
Sally Cantello – Non-Executive	5	6
Baljit Dhillon – Non-Executive	5	6
Emma Lord - Senior Information Risk Owner (SIRO) for the Agency	6	6

Note:

<sup>(i)</sup> The number of meetings attended by David Parker are recorded from the date he became a member of the Board, following his appointment as Chief Executive.

## Audit Committee

The Audit Committee is a sub-committee of the Steering Board and provides guidance and assurance to the Chief Executive to assist in fulfilling the Accounting Officer responsibilities. The Chairman of the Audit Committee reports to the Steering Board.

External appointments are in line with HMG guidelines for an initial term of office of three years and, subject to a satisfactory assessment of performance, can be extended for a further three years. All Non-Executive Directors are independent and all external interests are listed in the Register of Members' Interests and in the Related Party Transactions laid in the notes to the annual accounts. A register of UK Space Agency Members' private, professional and commercial interests is maintained by the UK Space Agency. This register, the Terms of Reference and summary of the Committee's meetings are available on the UK Space Agency website: [www.bis.gov.uk/ukspaceagency](http://www.bis.gov.uk/ukspaceagency).

In addition to the Audit Committee members and internal and external audit representatives as ex-officio members, the remainder of the Executive Board and the Head of Finance and Corporate Services attend.

### Audit Committee (and Attendance 2012-13)

The Audit Committee generally meets on a quarterly basis but can meet more frequently to deal with exceptional matters.

	No. meetings attended	No. of meetings held
Baljit Dhillon – Chairman	4	4
David Parker – Chief Executive <sup>(i)</sup>	2	2
<b>Members</b>		
Sally Cantello – Non-Executive (from March 2012)	4	4
Emma Lord - Senior Information Risk Owner (SIRO) for the Agency	3	4
<b>Meetings attended by internal and external auditors<sup>(ii)</sup>:</b>		
NAO <sup>(iii)</sup>	4	4
AASG <sup>(iv)</sup>	4	4

**Notes:**

- <sup>(i)</sup> The number of meetings attended by David Parker are recorded from the date he became a member of the Committee, following his appointment as Chief Executive.
- <sup>(ii)</sup> In attending the Committee, auditors have laid various reports presenting risks and recommendations identified in reviews of the UK Space Agency. Both NAO and AASG have standing agenda items whereupon UK Space Agency members have provided updates on the implementation of those recommendations.
- <sup>(iii)</sup> NAO – National Audit Office
- <sup>(iv)</sup> AASG – Audit and Assurance Services Group

### European Space Agency

A significant percentage of UK Space Agency funds are committed to the European Space Agency (ESA). This body has its own legal identity, and produces its own audited accounts. The internal audit group of ESA is staffed by nominees of National Member State Audit committees. In addition, ESA business is overseen by a Council and subordinate bodies, each of which has a formal delegate from each Member State. These bodies oversee ESA programmes and make decisions on funding and programme changes that are binding on the ESA executive. Given the above, together with the UK Space Agency governance structure, I am confident that the necessary controls are in place to ensure the safeguarding of public money.

## **Internal control and support systems**

The system of internal control is a key component of the Governance Statement and is designed to manage risk to a reasonable level rather than to eliminate all risks, and thus provides a reasonable but not absolute assurance of effectiveness. The system of internal control is based on an ongoing process designed to identify and prioritise the risks to the achievement of UK Space Agency policies, aims and objectives, to evaluate the likelihood and impact should the risks be realised, and to manage them efficiently, effectively and economically.

The second year of the UK Space Agency as a body managing its own budgets has been one of growing maturity and progress, most notably the work carried out which enabled a significant long term commitment to the European Space Agency (ESA) at the ESA Council of Ministers 2012.

In 2012-13 the UK Space Agency used BIS central services to support a number of its back-office activities. These include aspects of finance, legal advice, the enquiry unit, HR online services and HR support, security clearances, and ICT. For each of these services, the UK Space Agency has worked on the basis that BIS provide assurance on reliability of internal control for these services. In 2013-14 some of these services are scheduled to move to the Shared Business Services centre.

In utilising the BIS corporate services for back-office support, cost efficiencies have been achieved. Unfortunately, in the case of IT, these have been at the detriment of optimal performance. Over the last two years the Agency has, and continues to face, operational challenges due to IT system inefficiencies and cross system incompatibility. The legacy IT systems need to be replaced because the existing IT support contract is due to terminate. A modernisation programme is underway across BIS with delivery expected by March 2014.

The Agency continues to outsource the operations of the national grants system which will continue to be supported by STFC until the UK Space Agency fully migrates its key operational systems into the platforms of Shared Business Services Ltd. (SBS). In the interim the UK Space Agency places reliance on STFC's internal control mechanisms for these services.

During 2012-13 Payroll and Procurement functions migrated to SBS Ltd. However, the key migration of Finance and HR functions to SBS Oracle platforms has once again been delayed. The revised date of transition is currently Autumn 2013. It is only at this point that the Agency will see a complex integration between the back office systems. The Agency continues to engage with, but is heavily reliant on, BIS and SBS Ltd project teams, to deliver the final product.

To aid my assessment of internal controls, the Agency has developed a structured Risk Management Framework and begun to embed this across the organisation. The Steering Board and Audit Committee have been instrumental to the oversight of this risk management methodology.

The UK Space Agency appointed the Audit and Assurance Services Group (AASG), formerly Research Council Internal Audit Service (RCIAS), as its internal auditors and, through their offices, six audit reviews have taken place with plans in place to implement the agreed recommendations.

Anti-fraud policies have been established and made available to all staff. I can confirm that all staff completed the mandatory Fraud and Corruption and Protecting Information training this year.

I am therefore confident that, overall, I have the assurance necessary to manage our business, consistent with my responsibilities as the Accounting Officer; and that the accounts for the year ended 31 March 2013 are a true and fair reflection of the organisation, and accord with Treasury guidance.

## **The risk and control framework**

The UK Space Agency defines risk as an event or set of events that, should it occur, will have an effect on the achievement of the Agency's business objectives and therefore influences its strategies. The objective of risk and control management is to systematically and proactively identify and treat risks which either threaten the organisation in any way or cause beneficial opportunities to be missed.

The Chief Executive and Executive Board promote the need to manage risks rather than avoid them, and recognise that reasonable risk-taking is considered to be an acceptable practice. The need to take risks is inherently driven by the need to meet objectives, and the risk management framework enables us to:

- prioritise - dealing with the most serious risks first;
- recognise factors that could delay, reduce or even stop the achievement of our objectives; and
- evaluate different ways of meeting an objective, balancing the possibility of a better result against increased cost.

The UK Space Agency has established Risk Registers to manage its risks at corporate and directorate level. This provides a template to set out the initial risk statement, the existing control mechanisms in place, the proposed mitigation strategies, and an assessment of the likelihood and impact of the risk crystallising (made at the inherent current and residual risk level). These registers are reviewed and updated on a regular basis at the Executive Board and as part of the UK Space Agency management work.

The Executive Board, along with the Audit Committee and Steering Board, are responsible for reviewing risks associated with UK Space Agency activities and deciding appropriate response actions. At each meeting of the Audit Committee and Steering Board there is a standing agenda item to consider the risk profile of the UK Space Agency. Risk appetite is endorsed by the Agency Steering Board and Audit Committee.

## **Capacity to handle risk**

Risk management is embedded in our activities, notably through the Delegation of Authority, which makes Directors responsible for identification, assessment and recording of material risks, particularly within their sphere of responsibilities. Directors draw on outputs from a range of sources including internal audit reports, Directorate risk registers (inclusive of project management), and regular discussions with stakeholders. As appropriate, Directors escalate risks to the Executive Board (via the Corporate Risk Manager) to consider for inclusion at the corporate level.

Over the year the Executive Board have managed the corporate risk profile; this includes "super risks" that overarch the UK Space Agency. These super risks do not necessarily relate to one particular area but, if left unmanaged, have the capacity to jeopardise the existence of the Agency. For example, the Executive Board identified a risk based around the various exposures faced by the Agency due to being under resourced in staff and administration allocation. Mitigation strategies were implemented which included the commissioning of a six month, independent, organisational review. As a result of this project the Agency has been granted a £1.7m increase to its 2013-14 baseline administrative allocation. A formal implementation plan is in place which will see the organisation reach a position that will enable the delivery of all the objectives set out in the Corporate Plan.

Other mitigation strategies which have been adopted to reduce corporate risk exposures include the reassignment of budgets; the setting up of project boards; to carry out intensive work and engagement with key stakeholders; the development of clear policy lines and the establishment of long term strategies.

## **Key financial risks**

Whilst the UK Space Agency allocation for the 2010 Spending Review period (covering 2010-14) was favourable, and over the four years sufficient to cover known commitments, there remains an ongoing need for the Agency to control annual spend by actively managing multi-year budgets in line with activity.

At the 2012 ESA Ministerial meeting the UK committed to a portfolio of programmes to ESA over the next five years which saw a major increase in UK space investment. A complication in making these commitments was that the 3-5 year ESA funding cycle does not align with the UK Government spending periods; such long term commitment consequently required exceptional approval from HM Treasury.

Due to various complexities with the negotiations in preparation for this meeting, and within the business case itself, the Agency finds itself with fiscal pressures, namely:

- Two years of the national programme were omitted from the final settlement with HM Treasury for 2013-14 and 2014-15. This has enhanced the short term pressures on the Agency's financial position; the Agency continues to work with BIS partners to mitigate these pressures;
- The key risk exposure which is outside our control is the volatile GB Pound to the Euro exchange rate. The Agency Executive Board actively balances a need for financial stability (e.g. the purchase of forward contracts) whilst also maximising value for money.

### **Review of effectiveness**

I was appointed as CE and Accounting Officer with effect from 17 January 2013, following an external recruitment exercise, having previously accepted the Acting CE role (with Accounting Officer responsibilities) from 23 November 2012 to ensure there was no break in Accounting Officer responsibilities. I can confirm that I have completed all necessary Accounting Officer training and I have been advised of my new responsibilities and accountabilities.

I have attended all of the Executive Boards, Steering Boards and Audit Committee meetings during the period in which I have been Accounting Officer. I also attend BIS Knowledge and Innovation Group Directors' meetings on a regular basis, and have six monthly reviews with the BIS Director General for Knowledge and Innovation.

Throughout the year the Steering Board and Audit Committee have advised me in respect of the effectiveness of the system of internal control. A plan is in place to ensure continuous development and improvement of processes which is outlined within the Corporate Plan 2013-16.

I am not aware of any departures from the "Corporate governance in central government departments: Code of good practice".

### **Internal and External Audits**

My review is informed by the annual internal audit work programme, the Directors who apply the internal control framework, and going forward the 2012-13 NAO management letter and other reports.

The internal audit review programme is managed by the Audit and Assurance Services Group (AASG), and developed annually in consultation with the Audit Committee and Directors to audit specific aspects of UK Space Agency business. The outcomes of these reviews and corrective actions are discussed by the Audit Committee, and as appropriate by the Steering Board. In this second year the AASG covered six components, namely Corporate Governance; Readiness for transition to Shared Services; Performance Management and Staffing; GPC and Expenses Investigation; Information Security and Assurance; and, the follow up of previous recommendations. The outcome of these showed that whilst there was work still to do, as expected with any organisation, there are no serious deficiencies in our working practices in these areas. However, a GPC and Expenses audit has highlighted an area of weakness which is currently under investigation. Measures have already been put in place to bring control in-house to strengthen the scrutiny of this area (from 1 April 2013).

Sufficient internal audit work has been undertaken during the year to allow the Director of Internal Audit to provide a positively stated and reasonable assurance opinion on the overall accuracy and effectiveness of the Agency's system of internal control. The overall opinion for 2012-13 is limited assurance based on the

results of six individual assurance engagements completed in 2012-13. For the period 2011-12, the Agency received a rating of Substantial assurance on its internal control framework. A summary of the work that supports the overall opinion is provided below.

### Audit and Assurance Services Group (AASG) annual programme 2012-13

No.	Area	Assignment	Assurance Opinion
1	Core	Follow up of previous recommendations	Follow up
2	Core	Corporate governance	Substantial
4	Core	Readiness for transition to RCUK SSC.	Substantial
5	Core	Performance management and staffing	Limited
6	Core	GPC and expenses investigation	Investigation
7	CCA <sup>(i)</sup>	Information security and assurance	Substantial

Note:

<sup>(i)</sup> CCA stands for cross-client assurance.

A great deal of confidence can be taken from the reviews of the NAO in their audit work. Within their 2011-12 (and draft 2012-13) management letter no significant matters were identified, which is a considerable achievement given this was our first year of operation. I am pleased to record that the Agency Finance team have addressed all the issues which were identified through the work of the NAO. The recommendations reinforced the improvement plan of the finance team. A solid core of a team is now in place which provides me with confidence that sufficient analysis of budgets and expenditure has been carried out.

In summary, the outcomes of the internal and external audit programmes taken together contribute to providing me with the necessary confidence and assurances required.

### Grant assurance

Within AASG the Assurance Unit acts on behalf of the Agency (and the Research Councils), to review regularity of expenditure at research organisations in receipt of grants from the Agency. In 2012-13 the UK Space Agency national grants were reviewed by the Assurance Unit. Assurance activities focus on the control environment and its effectiveness in ensuring compliance with the UK Space Agency terms and conditions for grant funding. Taking into account the generally positive nature of findings from the actual visits made, the programme has provided me with a satisfactory level of assurance. Relevant considerations include the good level of inherited assurance available from work in previous years undertaken by STFC, and the fact that the 5-year rolling plan of visits is derived from a risk and assurance map.

A further strand of work scrutinises the costing methodology used in UK Research Organisations which, for Universities, is the Transparent Approach to Costing (TRAC). The programme is an important element of the assurance framework, with an annual report produced which details activities undertaken in the year as well as proposed activities for the following year.

Taking the above, together with our internal arrangements for the scrutiny of grant awards, I am confident that the necessary controls are in place to ensure the safeguarding of public money.

### Data Protection

The UK Space Agency has most of its back-office support functions such as IT provided by BIS. Reliance is therefore placed on BIS that data protection requirements, including adequate security of data and IT systems, are robustly and properly managed and safeguarded. In addition, all staff comply with IT security guidance provided by BIS's IT department, which covers the use of mobile technology such as laptops and smartphones.

I am not aware of any breaches of personal data or IT security, including loss of IT equipment, during the reporting period.

### **Conclusions two years in**

In building on the first year of operations as a full Executive Agency of BIS, the UK Space Agency has continued to establish itself both in its operational practices and its governance in a way that gives me confidence in my role as the Accounting Officer that the Agency is meeting the necessary requirements for appropriate management of public expenditure. Against this background of increasing maturity, at the ESA Council Ministerial, the Agency delivered a fundamental project, engaging with BIS and HM Treasury, to deliver a hugely successful outcome for UK space investment and growth.

Nonetheless I recognise that the Agency has a number of important goals to achieve as it matures to a fully professional level of operation which will ensure all processes are fully documented and transparent to stakeholders. In addition, the Agency faces a new challenge to integrate key services into the Shared Business Services Centre, before the majority of other BIS Partner Organisations migrate, thus increasing the risk exposure to the Agency. The AASG and NAO audits demonstrate that a good foundation is in place and provides a good template to address the key issues I have agreed to take forward. These include:

- ensuring timely issue of delegated authority letters;
- embedding risk management further into the organisation including the finalisation of the risk policy;
- a business continuity plan;
- alignment of staff terms and conditions;
- ensuring transparency and accessibility of agency information.

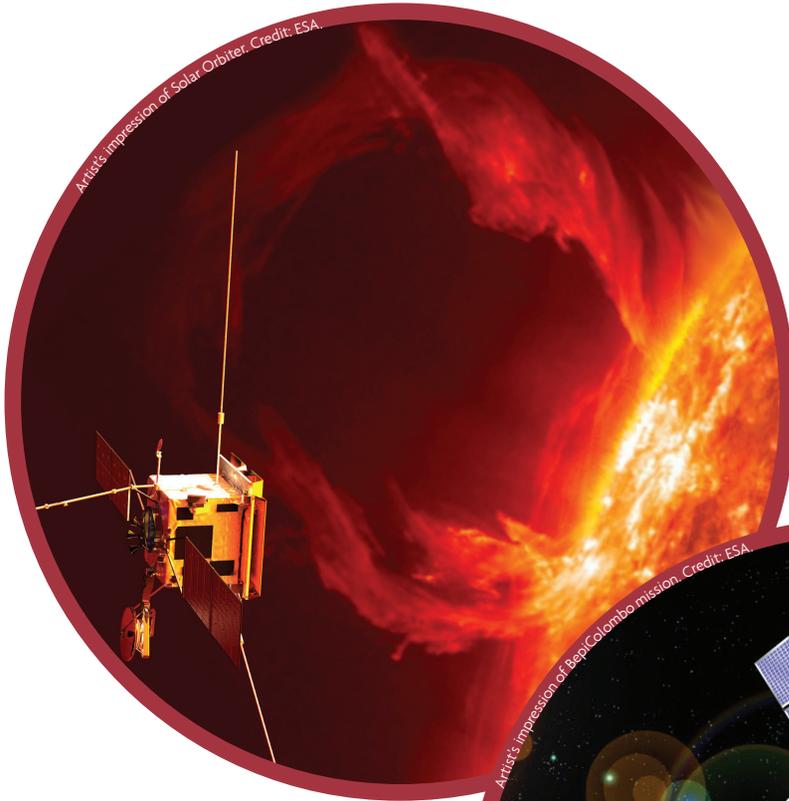
In addition, the UK Space Agency commissioned a full, independent six month review of the overall staff complement and operational requirements of the Agency. As a result I now have a clear view of what level of resources will enable the Agency to deliver our Corporate Plan. This has been endorsed by BIS who have granted an additional £1.7m to our £2m administration baseline allocation for 2013-14. Over the next year an implementation project will embed the recommendations from the organisational review to take the Agency to a sustainable operating model.

The UK Space Agency has a funding base from Government that recognises the positive impact space can make in terms of science, the economy, and delivering public policies. Nevertheless, the Agency faces tough challenges and choices to deliver its strategy in terms of all three of these impacts.

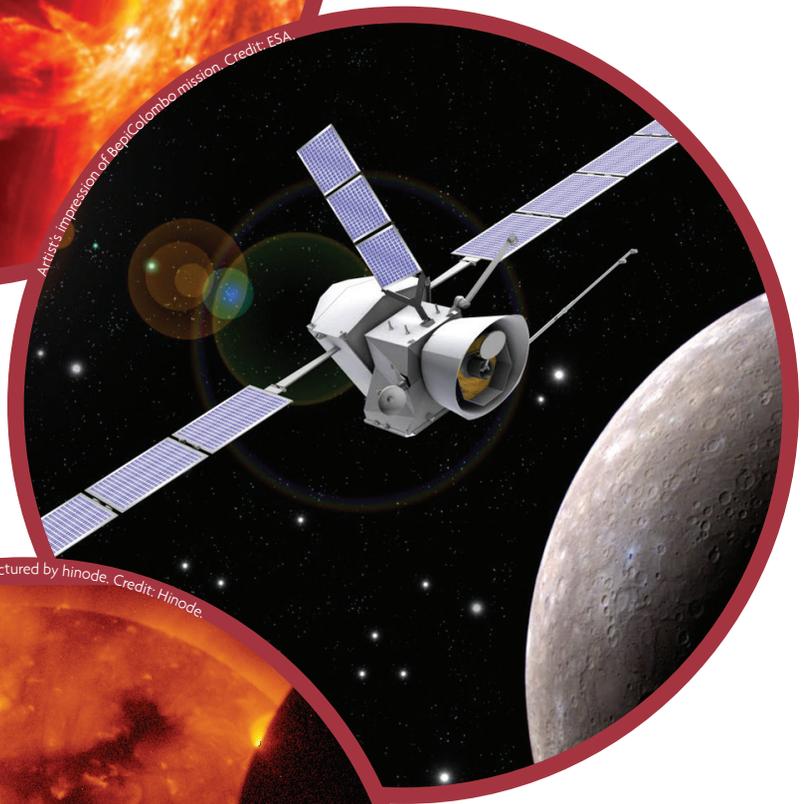
I am pleased that the Agency has been compliant with the requirements of the new Clear Line of Sight consolidated accounts project of the BIS family and at the same time managed to lay our first set of accounts to Parliament on schedule before the summer recess in the first two years of operation.

An annual review of the internal governance bodies has indicated them to be effective. Taking this, together with, the work of the internal and external audit in totality, provides me with the necessary confidence and assurance that I have fulfilled my responsibilities as accounting officer.

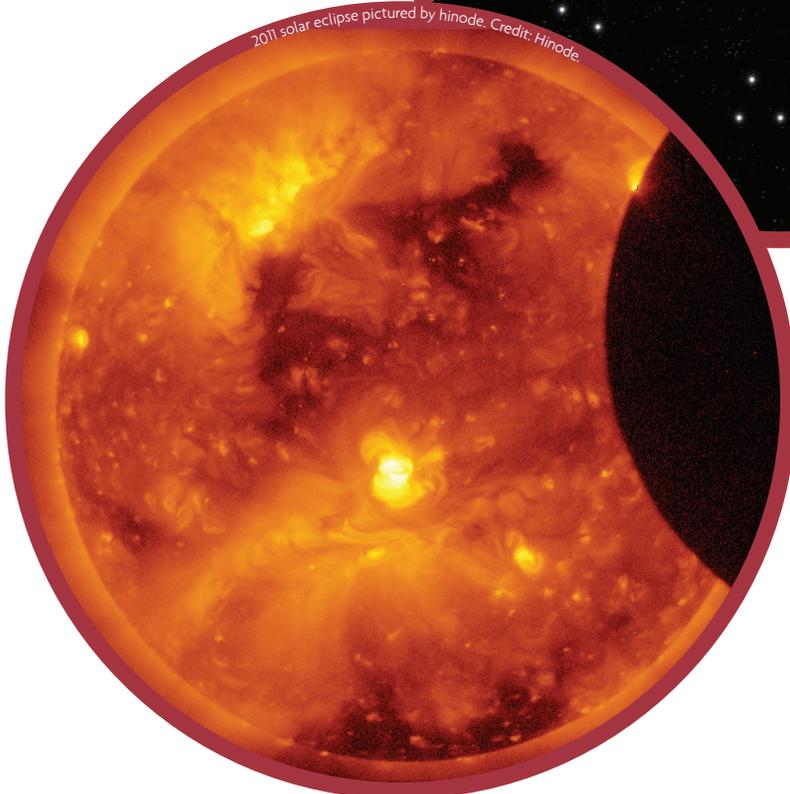
David Parker  
26 June 2013  
Chief Executive and Accounting Officer



Artist's impression of Solar Orbiter. Credit: ESA.



Artist's impression of BepiColombo mission. Credit: ESA.



2011 solar eclipse pictured by Hinode. Credit: Hinode.

# THE CERTIFICATE AND REPORT OF THE COMPTROLLER AND AUDITOR GENERAL TO THE HOUSES OF PARLIAMENT

I certify that I have audited the financial statements of the UK Space Agency for the year ended 31 March 2013 under the Government Resources and Accounts Act 2000. The financial statements comprise: the Statements of Comprehensive Net Expenditure, Financial Position, Cash Flows, Changes in Taxpayers' Equity; and the related notes. These financial statements have been prepared under the accounting policies set out within them. I have also audited the information in the Remuneration Report that is described in that report as having been audited.

## Respective responsibilities of the Chief Executive and auditor

As explained more fully in the Statement of Accounting Officer's Responsibilities, the Chief Executive as Accounting Officer is responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view. My responsibility is to audit, certify and report on the financial statements in accordance with the Government Resources and Accounts Act 2000. I conducted my audit in accordance with International Standards on Auditing (UK and Ireland). Those standards require me and my staff to comply with the Auditing Practices Board's Ethical Standards for Auditors.

## Scope of the audit of the financial statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of: whether the accounting policies are appropriate to the UK Space Agency's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by the UK Space Agency; and the overall presentation of the financial statements. In addition I read all the financial and non-financial information in the Annual Report and Accounts to identify material inconsistencies with the audited financial statements. If I become aware of any apparent material misstatements or inconsistencies I consider the implications for my certificate.

I am required to obtain evidence sufficient to give reasonable assurance that the expenditure and income recorded in the financial statements have been applied to the purposes intended by Parliament and the financial transactions recorded in the financial statements conform to the authorities which govern them.

## Opinion on regularity

In my opinion, in all material respects the expenditure and income recorded in the financial statements have been applied to the purposes intended by Parliament and the financial transactions recorded in the financial statements conform to the authorities which govern them.

## Opinion on financial statements

In my opinion:

- the financial statements give a true and fair view of the state of the UK Space Agency's affairs as at 31 March 2013 and of the net expenditure for the year then ended; and
- the financial statements have been properly prepared in accordance with the Government Resources and Accounts Act 2000 and HM Treasury directions issued thereunder.

## Opinion on other matters

In my opinion:

- the part of the Remuneration Report to be audited has been properly prepared in accordance with HM Treasury directions made under the Government Resources and Accounts Act 2000; and
- the information given in the Introduction by the Chief Executive and the Management Commentary sections of the Annual Report for the financial year for which the financial statements are prepared is consistent with the financial statements.

### **Matters on which I report by exception**

I have nothing to report in respect of the following matters which I report to you if, in my opinion:

- adequate accounting records have not been kept or returns adequate for my audit have not been received from branches not visited by my staff; or
- the financial statements and the part of the Remuneration Report to be audited are not in agreement with the accounting records and returns; or
- I have not received all of the information and explanations I require for my audit; or
- the Governance Statement does not reflect compliance with HM Treasury's guidance.

### **Report**

I have no observations to make on these financial statements.

Amyas C E Morse  
Comptroller and Auditor General  
National Audit Office  
157-197 Buckingham Palace Road  
Victoria  
London, SW1W 9SP

Date: 27 June 2013

## Financial Statements

### Statement of Comprehensive Net Expenditure for the year ended 31 March 2013

		2012-13		2011-12
	Note	Staff costs	Other costs	Income
		£000	£000	£000
<b>Administration costs:</b>				
Staff costs	3	1,341		922
Other administration costs	4		1,244	602
Operating income				-
<b>Programme costs:</b>				
Staff costs	3	1,141		810
Programme costs	5		233,802	255,171
Income	6			(85)
<b>Total</b>		<b>2,482</b>	<b>235,046</b>	<b>(85)</b>
Net expenditure				<b>237,443</b>
				256,467
	<b>Note</b>			<b>£000</b>
Net (gain)/loss on revaluation of available for sales financial assets	7			<b>(1,044)</b>
				14,559
<b>Total other comprehensive expenditure for the year ended 31 March 2013</b>				<b>(1,044)</b>
				14,559
<b>Total comprehensive expenditure for the year ended 31 March 2013</b>				<b>236,399</b>
				271,026

## Statement of Financial Position for the year ended 31 March 2013

	Note	31 March 2013 £000	31 March 2012 £000
<b>Non-current assets</b>			
Other financial assets	7	176	-
<b>Total non-current assets</b>		<b>176</b>	<b>-</b>
<b>Current assets</b>			
Trade and other receivables	8	11,673	18,899
Other financial assets	7	331	-
Cash and cash equivalents	9	12,711	10,272
<b>Total current assets</b>		<b>24,715</b>	<b>29,171</b>
<b>Current liabilities</b>			
Trade and other payables	10	5,880	14,809
Other financial liabilities	7	-	523
<b>Total current liabilities</b>		<b>5,880</b>	<b>15,332</b>
<b>Non-current liabilities</b>			
Other financial liabilities	7	-	538
<b>Total non-current liabilities</b>		<b>-</b>	<b>538</b>
<b>Assets less liabilities</b>		<b>19,011</b>	<b>13,301</b>
<b>Taxpayers' equity</b>			
General fund		18,504	14,362
Revaluation reserve		507	(1,061)
<b>Total taxpayers' equity</b>		<b>19,011</b>	<b>13,301</b>

The notes on pages 54 to 71 form part of these financial statements.

David Parker  
26 June 2013  
Chief Executive and Accounting Officer

## Statement of Cash Flows for the year ended 31 March 2013

	Note	2012-13 £000	2011-12 £000
<b>Cash flows from operating activities</b>			
Net operating cost		<b>(237,443)</b>	(256,467)
Adjustments for non cash transactions		<b>39</b>	44
Decrease/(Increase) in trade and other receivables		<b>7,226</b>	(1,174)
(Decrease)/Increase in trade payables		<b>(8,929)</b>	8,575
<b>Net cash outflow from operating activities</b>		<b>(239,107)</b>	(249,022)
<b>Cash flows from investing activities</b>			
<b>Net cash inflow/(outflow) from investing activities</b>		-	-
<b>Cash flows from financing activities</b>			
Funding from BIS		<b>241,546</b>	259,294
<b>Net financing</b>		<b>241,546</b>	259,294
<b>Net increase in cash and cash equivalents in the period</b>			
Cash and cash equivalents at the beginning of the period	9	<b>10,272</b>	-
Cash and cash equivalents at the end of the period	9	<b>12,711</b>	10,272

The notes on pages 54 to 71 form part of these financial statements.

## Statement of Changes in Taxpayers' Equity for the year ended 31 March 2013

2012-13			
	General fund <sup>(i)</sup>	Revaluation reserve <sup>(ii)</sup>	Total
	£000	£000	£000
<b>Balance at 1 April 2012</b>	<b>14,362</b>	<b>(1,061)</b>	<b>13,301</b>
Funding from BIS – drawn down	241,546	-	241,546
Comprehensive expenditure for the Year	(237,443)	-	(237,443)
Non-cash adjustments:			
Non-cash charges - auditors remuneration	39	-	39
Movements in reserves:			
Disposals	-	524	524
Recognised in Statement of Comprehensive Expenditure	-	1,044	1,044
<b>Balance at 31 March 2013</b>	<b>18,504</b>	<b>507</b>	<b>19,011</b>

2011-12			
	General fund <sup>(i)</sup>	Revaluation reserve <sup>(ii)</sup>	Total
	£000	£000	£000
<b>Balance at 1 April 2011</b>	11,491	21,645	33,136
Funding from BIS – drawn down	259,294	-	259,294
Comprehensive expenditure for the year	(256,467)	-	(256,467)
Non-cash adjustments:			-
Non-cash charges - auditors remuneration	44	-	44
Movements in reserves:			-
Disposals	-	(8,147)	(8,147)
Recognised in Statement of Comprehensive Expenditure	-	(14,559)	(14,559)
<b>Balance at 31 March 2012</b>	<b>14,362</b>	<b>(1,061)</b>	<b>13,301</b>

Notes:

- (i) The general fund is used to support the on-going operations of the Agency and represents the investment made by the Agency or parent Department
- (ii) The revaluation reserve represents the increase of value of financial derivatives in relation to the cashflow hedge instruments.

The notes on pages 54 to 71 form part of these financial statements.

## Notes to the Financial Statements for the year ended 31 March 2013

### 1. Statement of Accounting Policies

#### 1.1 Basis of accounting

These financial statements have been prepared in accordance with the 2012-13 Government Financial Reporting Manual (FReM) issued by HM Treasury, as set out in a statutory Accounts Direction issued pursuant to section 7(2) of the Government Resources and Accounts Act 2000.

The accounting policies contained in the FReM apply International Financial Reporting Standards (IFRS) as adapted or interpreted for the public sector. Where the FReM permits a choice of accounting policy, the accounting policy which has been judged to be most appropriate to the particular circumstances of the UK Space Agency for the purpose of giving a true and fair view has been selected. The particular policies adopted by the UK Space Agency are described below. They have been consistently applied in dealing with items considered material in relation to the accounts.

#### 1.2 Going concern

The UK Space Agency is an Executive Agency of BIS, and the Department's estimates and forward plans include provision for its continuation. It has therefore been considered appropriate to prepare these accounts on a going concern basis.

#### 1.3 Accounting convention

These accounts have been prepared under the historical cost convention modified to account for the revaluation of non-current assets and financial assets and financial liabilities.

#### 1.4 Presentational currency

The financial statements are presented in pounds sterling and all values are rounded to the nearest thousand pounds (£'000). The functional currency of the Agency is pounds sterling.

#### 1.5 Non-current assets held for sale

Non-current assets are classified as held for sale if their carrying value amount will be recovered through a sale transaction rather than through continuing use. This condition is regarded as met only when the sale is highly probable, the asset is available for immediate sale in its present condition, management are committed to the sale, and completion is expected within one year from the date of classification.

Non-current assets held for sale are stated at the lower of the carrying amount and fair value less costs to sell.

#### 1.6 Financial instruments

The UK Space Agency recognises and measures financial instruments in accordance with IAS 39 Financial Instruments: Recognition and Measurement as interpreted by the FReM.

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. Financial assets and financial liabilities are recognised in the Statement of Financial Position when the UK Space Agency becomes a party to the contractual provisions of an instrument.

Financial assets and liabilities are initially measured at fair value plus transaction costs, unless they are carried at fair value through Statement of Comprehensive Net Expenditure, in which case transaction costs are charged to operating costs.

The fair value of financial instruments is determined by reference to quoted market prices where an active market exists for the trade of these instruments. The fair value of financial instruments which are not traded in an active market is determined using generally accepted valuation techniques, including estimated discounted cash flows.

Financial assets are de-recognised when the rights to receive future cash flows have expired or are transferred and the UK Space Agency has transferred substantially all the risks and rewards of ownership.

Financial liabilities are de-recognised when the obligation is discharged, cancelled or expires.

## **1.7 Derivative financial instruments under IAS 39 Financial Instruments: Recognition and Measurement**

Derivative financial instruments comprise financial instruments held to hedge foreign currency risk exposures and embedded derivatives in host contracts. Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently re-measured at their fair value. The method of recognising the resulting gain or loss depends on whether the derivative is designed as a hedging instrument.

The resulting gain or loss is recognised in the Statement of Comprehensive Net Expenditure immediately unless the derivative is designated and effective as a hedging instrument, in which event the timing of the recognition in the Statement of Comprehensive Net Expenditure depends on the nature of the hedge relationship. The UK Space Agency designates certain derivatives as hedges of highly probable forecast transactions such as cash flow hedges.

The UK Space Agency uses derivative financial instruments to manage its exposure to foreign currency exchange and interest rate risks. The UK Space Agency does not hold or issue derivative financial instruments for trading purposes; however if derivatives do not qualify for hedge accounting, they are accounted for as such.

The UK Space Agency operate cash flow hedges to mitigate the risk of foreign exchange rate movements on the annual subscription payments payable in foreign currency at set points throughout the year.

Financial instruments held to hedge foreign currency risk exposures are designated as cash flow hedges if the criteria for applying hedge accounting under IAS 39 are met. The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognised in equity. The gain or loss relating to the ineffective portion is recognised immediately in the Statement of Comprehensive Net Expenditure. Amounts accumulated in equity are recycled in the Statement of Comprehensive Net Expenditure in the periods when the hedged item affects net operating costs.

When a hedging instrument expires or is sold, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in equity and is recognised when the forecast transaction is ultimately recognised in the Statement of Comprehensive Net Expenditure. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in taxpayer's equity is immediately transferred to the Statement of Comprehensive Net Expenditure.

If the criteria for applying hedge accounting are not met, the gain or loss on derivative financial instruments is credited or charged to the Statement of Comprehensive Net Expenditure instead of being deferred in taxpayer's equity.

### **1.7.1 Financial assets**

The UK Space Agency classifies financial assets into the following categories:

- financial assets at fair value through Statement of Comprehensive Net Expenditure;
- held-to-maturity investments;
- loans and receivables;
- available-for-sale assets.

The classification depends on the purpose for which the financial asset is held or acquired. The UK Space Agency determines the classification of financial assets at initial recognition and currently only holds financial assets at fair value through Statement of Comprehensive Net Expenditure.

Gains and losses in fair value are recognised directly to equity except for impairment losses. Impairment losses are recognised in the Statement of Comprehensive Net Expenditure. On de-recognition, the cumulative gain or loss previously recognised in equity is recognised in the Statement of Comprehensive Net Expenditure.

### **1.7.2 Financial liabilities**

The UK Space Agency classifies financial liabilities into the following categories:

- financial liabilities at fair value through Statement of Comprehensive Net Expenditure;
- other financial liabilities.

The classification depends on the purpose for which the financial liability is held or acquired. Management determines the classification of financial liabilities at initial recognition.

## **1.8 Research and development**

Expenditure on research and development is charged to the Statement of Comprehensive Net Expenditure in the year in which it is incurred, unless it meets the criteria set out under IAS 38 Intangible Assets, in which case it is capitalised.

The ownership of any intellectual property arising from a research project is made clear from the outset. Normally this rests with the institution receiving the research grant, unless stated to the contrary. Where there are material returns from the intellectual property rights arising from a research award, the awarding body reserves the right to reclaim up to one third of the total, up to the value of the original award. Recoveries are credited to the Statement of Comprehensive Expenditure when received.

## **1.9 Operating income**

Operating income is income that relates directly to the operating activities of the UK Space Agency and is measured at the fair value of consideration received or receivable and is shown net of trade discounts, value added tax and other taxes. It comprises, principally, fees, co-funding income from other public sector bodies and charges for services provided, on a full cost basis, to external customers and public sector repayment work.

## **1.10 Administration and programme expenditure and income**

The Statement of Comprehensive Net Expenditure is analysed between administration and programme expenditure and income. Administration costs reflect the costs of running the UK Space Agency, as defined under the Administration Cost-Control Regime, together with the associated operating income. Income is analysed in the Notes between that which, under the Regime, is allowed to be offset against gross administration costs in determining the outturn against the Administration Cost Limit, and that operating income which is not. Programme costs reflect non-administration costs, including payments, grants and other disbursements by the UK Space Agency, in support of policy initiatives.

## **1.11 Grants payable and receivable**

Grants payable are recognised in the period in which the grant recipient carries out the activity that creates an entitlement to grant. Recognition of entitlement varies according to the details of individual schemes and the terms of the offers made. Unpaid and unclaimed grants are charged to the Statement of Comprehensive Net Expenditure on the basis of estimates of claims not received and are included in accruals in the Statement of Financial Position.

## **1.12 Ownership of equipment purchased by research grant**

Equipment that has been purchased by an Institution with research grant funds supplied by the UK Space Agency belongs to that Institution. Through the Conditions of Grant applied to funded Institutions, the UK Space Agency reserves the right to determine how such equipment shall be disposed of and how any disposal proceeds are to be utilised. Such equipment is excluded from these financial statements.

## **1.13 Insurance**

As an Executive Agency of the Department for Business, Innovation and Skills (BIS), the UK Space Agency, along with other public bodies of the Departmental group, does not generally insure. Insurance will only be obtained on items which, with the agreement of the Department, require it due to the risks involved. Insurance premiums are charged to the Statement of Comprehensive Net Expenditure. Staff often travel to France for ESA meetings and personal items are to be covered by staff own travel insurance.

## **1.14 Foreign exchange**

Transactions that are denominated in a foreign currency are translated into pound sterling at the rate of exchange ruling on the date of each transaction unless covered by a forward hedge contract. Monetary assets and liabilities denominated in foreign currencies at the Statement of Financial Position date are translated at the rates of exchange ruling at that date. These translation differences are recognised in the Statement of Comprehensive Net Expenditure, except for those revaluations in relation to effective hedge contracts which remain in equity in accordance with IAS 39: Financial Instruments Recognition and Measurement.

## **1.15 Pensions**

UK Space Agency staff are covered by the provisions of the Principal Civil Service Pension Schemes (PCSPS) as described in Note 3, with a consultation process being undertaken with staff to assess whether they wish to transfer existing rights from the precursor pension scheme, namely Research Councils UK Pension Scheme (RCPS) to PCSPS. Both of the defined benefit schemes are unfunded. The UK Space Agency recognise the expected cost of these elements on a systematic and rational basis over the period during which it benefits from employees' services by payment to the PCSPS of amounts calculated on an accruing basis. Liability for payment of future benefits is a charge on the PCSPS. In respect of the defined contribution elements of the Schemes, the UK Space Agency recognises the contributions payable for one year.

Contributions to the defined benefit pension scheme are charged to the Statement of Comprehensive Net Expenditure in accordance with actuarial recommendations so as to spread the cost of the pensions over the employees' expected working lives.

Further details of the pension schemes can be found in the financial statements of PCSPS or at its website at: [www.civilservice.gov.uk](http://www.civilservice.gov.uk).

### **1.16 Employee benefits**

In accordance with IAS 19 Employee Benefits, an entity is required to recognise short-term employee benefits when an employee has rendered service in exchange for those benefits. Included in the financial statements is an accrual for the outstanding employee holiday entitlement at 31 March 2013 on an undiscounted basis.

### **1.17 Taxation**

The UK Space Agency, as an Executive Agency of the Department for Business, Innovation and Skills, is exempt from income and corporation tax by way of its Crown exemption.

Value Added Tax (VAT) is accounted for in the financial statements, in that amounts are shown net of VAT except:

- irrecoverable VAT is charged to the Statement of Comprehensive Net Expenditure, and included under the relevant expenditure heading;
- irrecoverable VAT on the purchase of an asset is included in additions.

The net amount due to, or from, HM Revenue and Customs in respect of VAT is included within other receivables and payables in the Statement of Financial Position.

### **1.18 Inter-Departmental transfers of functions**

Machinery of Government changes, which involve the merger or the transfer of functions or responsibility of one part of the public service sector to another, are accounted for using merger accounting in accordance with the FReM. They are outside the scope of IFRS 3 Business Combinations, as central Government bodies are deemed to be under common control. Merger accounting is used for such transfers.

The Machinery of Government changes, included in the UK Space Agency 2011-12 accounts, related to transferring functions from the core department, Natural Environment Research Council, Science and Technology Facilities Council and Technology Strategy Board. See note 12 for further details.

### **1.19 Contingent liabilities**

The UK Space Agency discloses contingent liabilities in accordance with IAS 37 Provisions, Contingent Liabilities and Contingent Assets. In the event that a contingent liability crystallises, it is expected that the parent department, BIS, will fund this liability. See note 14 for further details.

### **1.20 Reporting by operating segment**

Under HM Treasury guidance in the FReM, the UK Space Agency is expected to meet the requirements of IFRS 8 to report information concerning operating segments where the criteria under IFRS 8 are met.

Although the Agency considers that its activities contribute to an overall mission within the same business environment, nevertheless, there are separable operating segments on a geographical basis, namely National and International.

## **1.21 Estimation techniques used and key judgements**

The preparation of the UK Space Agency's financial statements requires management to make judgements, estimates and assumptions that affect the reported amounts of assets and liabilities, income and expenditure. The estimates and associated assumptions are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Uncertainty about these assumptions and estimates could result in outcomes that require an adjustment to the carrying value of the asset or liability. Where applicable these uncertainties are disclosed in the Notes to the Accounts.

In accordance with IAS 8 Accounting Policies, Changes in Accounting Estimates and Accounting Policies, revisions to accounting estimates are recognised in the period in which the estimate is revised, if the revision affects only that period, or in the period of the revision and future periods, if the revision affects both current and future periods.

The estimates and assumptions that have a risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are fluctuations in the fair value of financial assets/liabilities measured using forward market exchange rates (see Note 7).

## **1.22 Changes to International Financial Reporting Standards (IFRS) and 2012-13 Financial Reporting Manual (FReM)**

The UK Space Agency provides disclosure that it has not yet applied a new accounting standard and known or reasonably estimable information relevant to assessing the possible impact that initial application of the new standard will have on the Accounts.

The following new standards will be adopted by the Agency in full, when they are adopted by the FReM, unless the requirements are interpreted or adapted by the FReM.

IFRS 9: Financial instruments, will replace IAS 39 Financial Instruments: Recognition and Measurement in its entirety. The new standard was to be effective for accounting periods beginning on or after 1 January 2013 subject to EU endorsement but is now delayed to 2015. The standard is part of a wider project to replace IAS 39.

## 2. Statement of operating costs by operating segment

The UK Space Agency has two main geographical segments, namely, international and national, and it is on this basis that reportable segments have been identified.

Funding is received by UK Space Agency from BIS to cover the cost of subscriptions to European Space Agency and the remainder of its programme work, namely, the national programme. National programme work includes being responsible for delivering aspects of specific project work on a national basis as well as funding universities and companies to undertake various research and development activities.

The activities within the two segments are reported to Executive Board on a monthly basis using a management accounts format which analyses on an administration and programme basis and is compared against funding allocation. This is further analysed at directorate level enabling full financial control to be maintained.

The segments are separate for decision making purposes and there are no transactions between the activities within each segment.

There have been no changes in segmental identification. There is no significant income generated.

The international segment mainly consists of subscriptions payable to the European Space Agency.

Within the national segment there are many different bodies with which the UK Space Agency transacts.

Statement of Financial Position analysis by segment is not reported to the Executive Board and, therefore, in accordance with IFRS 8 is not disclosed.

	2012-13			2011-12		
	National £000	International £000	Total £000	National £000	International £000	Total £000
<b>Gross Expenditure</b>	<b>47,010</b>	<b>190,518</b>	<b>237,528</b>	28,648	228,857	257,505
<b>Income</b>	<b>(85)</b>	-	<b>(85)</b>	(1,038)	-	(1,038)
<b>Net Expenditure</b>	<b>46,925</b>	<b>190,518</b>	<b>237,443</b>	27,610	228,857	256,467

### Description of segments

The national segment mainly consists of expenditure on work undertaken within the UK either by the means of funding to research institutions or companies or expenditure on major national programmes.

The international segment mainly consists of expenditure with the European Space Agency in the form of subscriptions which are used to fund, along with subscriptions from other international partners, its various space programmes.

Central administrative costs are reported under the national segment reflecting the way they are reported to the Executive Board.

### 3. Staff numbers and related costs

#### Pensions

The Principal Civil Service Pension Scheme (PCSPS) is an unfunded multi-employer defined benefit scheme but UK Space Agency is unable to identify its share of the underlying assets and liabilities. The scheme actuary valued the scheme as at 31 March 2007. You can find details in the resource accounts of the Cabinet Office: Civil Superannuation ([www.civilservice.gov.uk/my-civil-service/pensions](http://www.civilservice.gov.uk/my-civil-service/pensions)).

During 2012-13, employer contributions of £341,930 were payable to the PCSPS (2011-12: £277,959) at one of four rates in the range 16.7% to 24.3% of pensionable pay, based on salary bands. Contributions prepaid at 31 March 2013 were £NIL. The Scheme Actuary reviews employer contributions usually every three years following a full scheme valuation. The contribution rates are set to meet the cost of the benefits accruing during 2012-13 to be paid when the member retires and not the benefits paid during this period to existing pensioners.

Under the Partnership scheme employees have the option of opening a partnership pension account with one of three private sector providers. This is a stakeholder pension with employer contributions which are age related and range from 3% to 12.5% of pensionable pay. Employer contributions also match employee contributions up to 3% of pensionable pay (the maximum possible employer contribution therefore is 15.5%). During 2012-13 contributions of £1,065 were payable to partnership pension providers (2011-12: £NIL). Contributions prepaid at 31 March 2013 were £NIL.

In addition, employer mini-ASLC contributions of £131 (2011-12: £NIL), set at 0.8% of pensionable pay, were payable to the PCSPS for provision of risk benefits to those employees opting for partnership pension arrangements. These contributions cover the cost of the future provision of lump sum benefits on death in service or ill health retirement of these employees.

#### Departure costs

The UK Space Agency follows the provisions of the PCSPS for calculating the cost of redundancy or other departure related costs. There have been no redundancy or other departure costs paid or provided for during the year and therefore a table analysing the costs of such departures is not required.

#### Analysis of staff costs between administrative and programme expenditure

	2012-13	2011-12
	£000	£000
Administration	1,341	922
Programme	1,141	810
<b>Total</b>	<b>2,482</b>	<b>1,732</b>

## Analysis of staff costs

	2012-13			2011-12		
	Permanently employed	Other	Total	Permanently employed	Other	Total
	£000	£000	£000	£000	£000	£000
Wages and Salaries <sup>(i)</sup>	1,837	-	1,837	1,316	-	1,316
Social Security Costs	166	-	166	138	-	138
Other pension costs	343	-	343	278	-	278
<b>Subtotal</b>	<b>2,346</b>	<b>-</b>	<b>2,346</b>	<b>1,732</b>	<b>-</b>	<b>1,732</b>
Add cost of inward secondments	-	136	136	-	-	-
<b>Total staff costs</b>	<b>2,346</b>	<b>136</b>	<b>2,482</b>	<b>1,732</b>	<b>-</b>	<b>1,732</b>

Note:

<sup>(i)</sup> There has been one outward secondment (none in 2011-12) during the last three months of the year as part of the Overseas Attachment Training Scheme (OATS) which is principally a development and training scheme run by another government department. All salary costs of the trainee have been covered by the UK Space Agency as per the terms and conditions of the Scheme.

## Average number of persons employed

The average number of Full Time Equivalent (FTE) persons employed during the year was as follows:

	2012-13			2011-12		
	Permanently employed	Other <sup>(i)</sup>	Total	Permanently employed	Other	Total
	Number	Number	Number	Number	Number	Number
Administration	23.7	0.4	24.1	17.0	-	17.0
Programme	15.1	1.1	16.2	14.3	-	14.3
<b>Total</b>	<b>38.8</b>	<b>1.5</b>	<b>40.3</b>	<b>31.3</b>	<b>-</b>	<b>31.3</b>

Note:

<sup>(i)</sup> In addition to the 1.5 FTE inward secondees recorded in the above table, the UK Space Agency also benefited from an average of 2 FTE inward secondees provided at nil cost by other government departments as part of their staff development programme.

#### 4. Other administration costs

	2012-13	2011-12
	£000	£000
Payments to Shared Services <sup>(i)</sup>	449	275
Outsourced services	150	63
Accommodation	132	12
Travel and subsistence <sup>(ii)</sup>	391	153
Training and other staff costs	19	11
Agency staff costs	18	-
Rentals under operating leases	9	-
Telecommunications services	9	8
Advertising and publicity	2	1
Hire of conference facilities	2	12
Auditors remuneration	39	44
Other	24	23
<b>Total</b>	<b>1,244</b>	<b>602</b>

Notes:

<sup>(i)</sup> Payments to shared services include the costs for services such as information technology, HR, finance, security and general overheads charges.

<sup>(ii)</sup> Significant amount of international travel was undertaken by the Agency staff during the year in order to support the preparatory work for ESA Council of Ministers 2012.

## 5. Programme costs

	2012-13	2011-12
	£000	£000
Advertising and publicity	161	84
Outsourced services	1,167	4,285
International subscriptions	190,518	199,907
Other grants (including capital grants) <sup>(i)</sup>	40,148	49,493
IT costs	41	3
Media and design	39	41
Training and other staff costs	698	682
Travel and subsistence	32	42
Net gain/loss on foreign exchange spot rate (non-hedge)	(13)	203
Legal costs	69	15
Sponsorship	67	61
UK subscriptions	23	166
Other	852	189
<b>Total</b>	<b>233,802</b>	<b>255,171</b>

### Notes:

<sup>(i)</sup> Prior to the creation of the UK Space Agency the responsibility for provision of research grants was undertaken by the Science Technology and Facilities Council (STFC). Since 1 April 2011, such grants are the responsibility of the Agency. Due to the ongoing nature of some of the grants and the expertise that STFC have in this area it has been agreed that STFC would continue to maintain the process and make any necessary payments, recharging the Agency for the costs of such grants. The cost of maintaining and processing these payments is minimal and therefore STFC has agreed to undertake this activity on a nil cost basis. Therefore there is no charge for this activity to the UK Space Agency.

<sup>(ii)</sup> Some of the programme costs have been re-categorised from the presentation adopted in the 2011-12 Annual Report and Accounts.

## 6. Income

	2012-13	2011-12
	£000	£000
Funding from central government <sup>(i)</sup>	-	1,019
Other income <sup>(ii)</sup>	85	19
<b>Total</b>	<b>85</b>	<b>1,038</b>

### Notes:

<sup>(i)</sup> The funding from central government in 2011-12 was received from Department for Transport as part of the Machinery Of Government transfer.

<sup>(ii)</sup> Other income represents Outer Space Act 1986 licence fees.

## 7. Other financial assets/liabilities

The UK Space Agency has a number of cashflow hedge contracts to better plan any currency fluctuation in relation to its international subscriptions to the European Space Agency. These contracts, which are highly effective (as defined in International Accounting Standard 39) in hedging against cashflow fluctuation, are revalued at each year end based on the future forward market rates, as provided by the Bank of England, at that time. Any such revaluations at the year end therefore reflect unrealised gains or losses at that time.

The UK Space Agency uses the cashflow hedge contracts as part of a balanced portfolio taking into account its level of risk appetite. The UK Space Agency does not undertake the contracts for speculative purposes but rather to enable it to plan its future spending.

	<b>2012-13</b>	2011-12
	<b>£000</b>	£000
Balance at 1 April 2012	<b>(1,061)</b>	21,645
Additions	-	-
Disposal (contracts completed in year) <sup>(i)</sup>	<b>524</b>	(8,147)
Revaluation movement <sup>(ii)</sup>	<b>1,044</b>	(14,559)
Transfer to/from current assets <sup>(iii)</sup>	<b>(331)</b>	523
Transfer to/from non-current assets <sup>(iii)</sup>	<b>331</b>	(523)
<b>Balance at 31 March 2013</b>	<b>507</b>	(1,061)
Non-current assets/(liabilities)	<b>176</b>	(538)
Current assets/(liabilities)	<b>331</b>	(523)
<b>Total</b>	<b>507</b>	(1,061)

Notes:

- <sup>(i)</sup> The disposal value arose through the completion of the three contracts (subtotal 2012-13) highlighted in the Contracts outstanding at 31 March 2013 table. The sum of the unrealised gain/(loss) for each of these contracts is the value which was recognised in reserves and is removed on completion.
- <sup>(ii)</sup> Revaluation movement represents the difference in the fair value of the contracts still in place as at 31 March 2012 and 31 March 2013.
- <sup>(iii)</sup> Transfer to/from current and non-current assets is the reclassification of existing contracts at 31 March 2013 between less and more than one year.

## Cashflow hedge contracts

The hedge contract is designed to allow for cash flow planning and enables better budgeting to align with the comprehensive spending reviews which are generally undertaken by the government every three years. The hedge contract is not designed to protect against currency risk which will result in an unrealised gain or loss arising each year end. On completion of the contract there will be either an opportunity gained or lost resulting from the currency movement but as the Agency cannot trade in such instruments there is no underlying budgetary impact.

The disposal is effectively a notional value as this clears the reserve balance when the contract is completed.

### Contracts outstanding at 31 March 2013

	Currency	Date contract placed	Euro to GBP contract rate	Settlement Date	Cost	Euro to GBP rate at 31 March 2013	Fair Value at 31 March 2013	Gain/(loss) to reserves	Unrealised Gain/(Loss)
Footnote	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
Contract	Type	Date	Rate	Date	£000	Rate	£000	£000	£000
1	Euro	15 Dec 10	1.1932	1 Jun 11	54,597	-	-	-	2,926
2	Euro	15 Dec 10	1.1927	3 Oct 11	54,620	-	-	-	2,858
3	Euro	15 Dec 10	1.1918	1 Feb 12	46,853	-	-	-	2,363
<b>Subtotal 2011-12<sup>(ix)(a)</sup></b>									<b>8,147</b>
4	Euro	15 Dec 10	1.1910	1 Jun 12	50,886	-	-	-	(200)
5	Euro	15 Dec 10	1.1901	1 Oct 12	50,929	-	-	-	(158)
6	Euro	15 Dec 10	1.1871	1 Feb 13	43,762	-	-	-	(166)
<b>Subtotal 2012-13<sup>(ix)(a)</sup></b>									<b>(524)</b>
7	Euro	15 Dec 10	1.1851	3 Jun 13	34,076	1.1811	34,193	117	242
8	Euro	15 Dec 10	1.1833	1 Oct 13	34,129	1.1792	34,246	117	235
9	Euro	15 Dec 10	1.1812	03 Feb 14	29,305	1.1773	29,402	97	190
<b>Current assets<sup>(ix)(b)</sup></b>					<b>97,510</b>		<b>97,841</b>	<b>331</b>	<b>667</b>
10	Euro	15 Dec 10	1.1792	2 Jun 14	31,699	1.1758	31,793	94	195
11	Euro	15 Dec 10	1.1773	1 Oct 14	31,751	1.1743	31,833	82	182
<b>Non-current assets<sup>(ix)(b)</sup></b>					<b>63,450</b>		<b>63,626</b>	<b>176</b>	<b>377</b>
<b>Total</b>					<b>160,960</b>		<b>161,467</b>	<b>507</b>	<b>1,044</b>

#### Notes:

- (i) All the forward exchange contracts are in Euro.
- (ii) Date contract placed is the date the forward exchange contracts were created.
- (iii) Euro to GBP contract rate is the translation rate for each contract, agreed on creation of the contract, which will determine how much is paid on settlement of the contract.
- (iv) Settlement date is the date that the contract is completed and paid.
- (v) Cost is the amount paid, in pound sterling, on the settlement date.
- (vi) Euro to GBP rate at 31 March 2013 is the exchange rate at close of trading for the relevant forward exchange contracts settlement dates.
- (vii) Fair value at 31 March 2013 is the fair value of the contract translated at the exchange rate at the close of trading on 31 March 2013.
- (viii) (Loss)/Gain to reserves is the difference between the fair value at 31 March 2013 and the cost to settle the forward exchange contract. This is the total value of the unrealised gain or loss for the outstanding forward exchange contracts.
- (ix) There are 2 sections to this heading. **(a)** For contracts settled in this or previous years, the amount relating to the settlement of contracts in year reflects the amount released via reserves and equates to the "disposal" value. **(b)** In Year Unrealised Gain/(Loss) Revaluation is the difference in fair values of the outstanding contracts at the year end compared to those values of the previous year.

## Contracts outstanding at 31 March 2012

Contract	Currency	Date contract placed	Euro to GBP contract rate	Settlement Date	Cost	Euro to GBP at 31 March 2012	Fair Value at 31 March 2012	(Loss)/Gain to reserves
	Type	Date	Rate	Date	£000	Rate	£000	£000
1	Euro	15 Dec 10	1.1932	1 Jun 11	54,597	-	-	-
2	Euro	15 Dec 10	1.1927	3 Oct 11	54,620	-	-	-
3	Euro	15 Dec 10	1.1918	1 Feb 12	46,853	-	-	-
Subtotal 2011-12					156,070		-	-
4	Euro	15 Dec 10	1.1910	1 Jun 12	50,886	1.1957	50,686	(200)
5	Euro	15 Dec 10	1.1901	1 Oct 12	50,929	1.1937	50,771	(158)
6	Euro	15 Dec 10	1.1871	1 Feb 13	43,762	1.1916	43,596	(166)
7	Euro	15 Dec 10	1.1851	3 Jun 13	34,076	1.1895	33,951	(125)
8	Euro	15 Dec 10	1.1833	1 Oct 13	34,129	1.1874	34,011	(118)
9	Euro	15 Dec 10	1.1822	3 Feb 14	29,305	1.1850	29,212	(93)
10	Euro	15 Dec 10	1.1792	2 Jun 14	31,699	1.1830	31,598	(101)
11	Euro	15 Dec 10	1.1773	1 Oct 14	31,751	1.1811	31,651	(100)
Subtotal 2011-12					306,537		305,476	(1,061)
Total					462,607		305,476	(1,061)

### Credit risk

Credit Risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The UK Space Agency does not issue any loans, apart from staff loans, and does not have any outstanding loans. Any staff loans in issue are not material and do not present any credit risk to the organisation.

### Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities. In common with other government agencies, the future financing of its liabilities is to be met by future funding from the parent department, namely the Department for Business, Innovation and Skills, which receives its funding by means of Supply, voted annually by Parliament. There is no reason to believe that future approvals will not be forthcoming, therefore, on this basis the UK Space Agency is not exposed to liquidity risks.

### Market risk

#### Foreign currency risk

The UK Space Agency's exposure to foreign currency risk during the year was significant, though this was considerably mitigated by the use of cashflow hedge contracts. The expenditure on international subscriptions to the European Space Agency, in Euros, was made in three instalments during the year. The committed expenditure is normally profiled such that 90% of spend is covered by the use of a cashflow hedge thereby fixing the exchange rate to be used. The remaining 10% is translated at the prevailing spot rate.

The only other foreign currency expenditure is for foreign travel and subsistence costs for staff travelling to the international bodies. Such transactions are translated at the prevailing spot rate and the amounts involved are not material.

#### Interest rate risk

The UK Space Agency does not invest or access funds from commercial sources. The UK Space Agency does not have any loans or contracts that are subject to interest rate fluctuation and is not subject to any interest rate risk.

The UK Space Agency does not participate in any market reliant activities and is not subject to market risk.

## 8. Trade receivables and other current assets

### a) Analysis by type

Trade and other receivables less than 1 year	31 March 2013	31 March 2012
	£000	£000
Trade receivables	34	8,827
Other receivables	1	-
Prepayments and accrued income	11,076	9,884
VAT	562	188
<b>Total receivables</b>	<b>11,673</b>	<b>18,899</b>

### b) Intra Government balances

Trade and other receivables less than 1 year	31 March 2013	31 March 2012
	£000	£000
Balances with BIS Group	209	7,741
Balances with other central government bodies	597	1,274
Balances with local authorities	-	-
Balances with NHS trusts	-	-
Balances with public corporations and trading funds	-	-
Balances with bodies external to government <sup>(i)</sup>	10,867	9,884
<b>Total receivables</b>	<b>11,673</b>	<b>18,899</b>

Note:

<sup>(i)</sup> Balances with bodies external to government include a prepayment made to the European Space Agency of £10,867k (2011-12: £9,884k).

## 9. Cash and cash equivalents

	31 March 2013	31 March 2012
	£000	£000
Government banking service	12,711	10,272
<b>Total</b>	<b>12,711</b>	<b>10,272</b>

## 10. Trade payables and other current liabilities

### a) Analysis by type

<b>Trade and other payables less than 1 year</b>	<b>31 March 2013</b>	31 March 2012
	<b>£000</b>	£000
Trade payables	61	9,547
Other payables	770	398
Accruals	5,049	4,864
<b>Total payables</b>	<b>5,880</b>	14,809

### b) Intra Government balances

<b>Trade and other payables less than 1 year</b>	<b>31 March 2013</b>	31 March 2012
	<b>£000</b>	£000
Balances with BIS Group	1,152	1,242
Balances with other central government bodies	189	-
Balances with local authorities	-	-
Balances with NHS trusts	-	-
Balances with public corporations and trading funds	34	-
Balances with bodies external to government	4,505	13,567
<b>Total payables</b>	<b>5,880</b>	14,809

## 11. Capital commitments

There were no capital commitments as at 31 March 2013 (2011-12: £NIL).

## 12. Machinery of Government (MOG) changes

The UK Space Agency was established on 1 April 2011 via a number of Machinery of Government transfers. All transactions and balances relating to the Machinery of Government transfers have been cleared.

## 13. Other financial commitments

The UK Space Agency has entered into non-cancellable contracts (which are not leases or PFI contracts), in connection with a financial instrument for hedging internal subscription payments. The payments to which the Agency is committed, analysed by the period during which the commitment expires, are as follow:

	<b>2012-13</b>	2011-12
	<b>£000</b>	£000
Not later than one year	97,510	145,577
Later than one year and not later that five years	63,450	160,960
<b>Total</b>	<b>160,960</b>	306,537

## 14. Contingent liabilities disclosed under IAS 37

The staff who transferred from Research Councils to UK Space Agency have been consulted on whether to transfer accrued pension rights from the Research Councils' Pension Scheme (RCPS) to the Principal Civil Service Pension Scheme (PCSPS). Although the consultation has now been completed, the actual bulk transfer is yet to be processed. The early indications are that there are no additional employer pension liabilities in relation to the transfer, but this is yet to be officially confirmed by the scheme actuaries after the bulk transfer has been finalised.

The UK Space Agency has a potential liability in regards licence costs under the Outer Space Act 1986. This liability is unquantifiable at time of reporting.

## 15. Operating leases

<b>Lease commitments</b>	<b>2012-13</b>	<b>2011-12</b>
	<b>£000</b>	<b>£000</b>
Not later than one year	6	-
Later than one year and not later that five years	-	-
<b>Total</b>	<b>6</b>	<b>-</b>

The UK Space Agency has two short-term lease agreements with STFC for office accommodation at the Electron Building based within the Harwell Oxford campus. The lease payments are charged to operating costs, together with charges for direct costs such as rates, heating and security.

Both leases were fully paid by 31 March 2013. Rental payments made with respect to periods of occupation falling after 1 April 2013 were treated as prepayments.

## 16. Head Office accommodation

The UK Space Agency operates out of the Research Councils' site in Swindon, which is owned by the Research Councils on a joint tenancy agreement. All relevant costs are charged and recorded against operating costs as incurred. There are no capital commitments.

## 17. Related party transactions

During 2012-13, the UK Space Agency was an Executive Agency of the Department for Business, Innovation and Skills (BIS) and BIS was regarded as a related party with which the Agency had various material transactions. In addition, the back-office function for national grants was outsourced to STFC which was also recognised as a related party.

The UK Space Agency also had various material transactions with other entities for which BIS is regarded as the parent Department: Biotechnology and Biological Sciences Research Council, Engineering and Physical Sciences Research Council, and the Technology Strategy Board.

The following staff and Non-Executive Directors had related party transactions:

Name	Position with related party	Description of transactions	Value of transactions £000
David Parker	Non-Executive Director of International Space Innovation Centre Ltd	Programme expenditure	303
David Williams	Chair of European Space Agency (ESA) Council <sup>(i)</sup>	International subscriptions paid to ESA	147,269
	Trustee for the National Space Centre <sup>(ii)</sup>	Programme expenditure	71
David Southwood	Trustee for the National Space Centre <sup>(ii)</sup>	Programme expenditure	121

Notes:

<sup>(i)</sup> In 2012-13 David Williams' role as the Chair of European Space Agency ceased on 21 November 2012. The UK Space Agency total annual spend with the European Space Agency in 2012-13 was £207,574k. The value recorded above represents the actual expenditure incurred for the duration of chairmanship held in 2012-13.

<sup>(ii)</sup> The UK Space Agency total annual spend with the National Space Centre in 2012-13 was £121k. The value recorded against David Williams represents the actual expenditure incurred during his period of employment with the Agency, which ended on 30 November 2012.

## 18. Losses and special payments

There were no losses or special payments incurred in the year.

## 19. Events after the reporting period

There have been no events between the Statement of Financial Position date and the date the accounts were authorised for issue requiring an adjustment to the financial statements.

The date the accounts were authorised for issue is interpreted as the date of the Certificate and Report of the Comptroller and Auditor General.



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