



SKA Organisation Bulletin

22nd Issue, March – April 2017

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From the Desk of the Director-General

Welcome to the new edition of the SKAO Bulletin; as a reminder to you all, this bulletin is aimed at providing an update on activities within the SKA Office to project members and other interested parties; the [SKA eNews](#), which was recently published, has the wider goal of informing the SKA community and beyond of activities across the entire global project.

Most of the contributions below from the SKAO senior team focus on the cost control activities. I will leave you to read their words but will only say that, due to the immense efforts of people from all partners within the project, we have identified options which will allow us to build a transformational SKA1 within the cost cap. These options largely build upon the intrinsic scalability of an interferometer and so also allow us to identify routes to restore capability when additional funding is made available.

About 10 days ago I attended the two-day Breakthrough Discuss meeting, organised at Stanford University by the Breakthrough Foundation. This was a fascinating meeting, attended by ~200 people from around the globe. To quote the meeting organisers: *Breakthrough Discuss is a gathering to engage with the most novel of ideas in space exploration. The theme of this year's galactic discourse will concern the 2016 discovery of Proxima Centauri b, orbiting the red dwarf star Proxima Centauri, the closest star to our Sun.*

About half of the meeting focused on the latest discoveries in exoplanet studies, with Proxima Centauri and the recent Trappist-1 system featuring heavily. I was most impressed with the current state of this exciting and burgeoning field, which will explode when JWST is launched and the new generation of large optical telescopes are constructed. SETI, through the Breakthrough Listen activity, was also discussed. This new generation of SETI observations has just begun, but they pave the way for potential future SKA involvement, which was part of my motivation for being there.

However, for me, the most thrilling part of the meeting was that on Breakthrough Starshot. I have been a sci-fi buff, indeed addict, since I was a child, and there I was, sitting in a packed lecture room, at Stanford, listening to young engineers talk about the technologies required to use a light-sail, powered by a GW phased-array laser, to deliver human technology to Proxima Centauri. For me, this was a real 'wow' moment.

Coming down to earth, literally, I was very pleased last Friday to participate in the ground-breaking ceremony for the new SKA HQ building. The construction of this £16.5M extension to the current HQ building has already begun; it is funded jointly by the UK's Department of Business, Energy and Industrial Strategy, the Science and Technology Facilities Council, the University of Manchester and Cheshire East Council. The ground-breaking event was organised by the University, since they are the project leaders, assisted very ably by the SKAO Communications team. It is my clear vision, that once the building is complete, in June 2018, the SKA HQ at Jodrell Bank will be a nexus for radio astronomy for the coming decades.



The ground-breaking ceremony for the new SKA HQ took place on 28 April (Credit: SKA Organisation)

Philip Diamond
Director-General

Project

By Alistair McPherson, Head of Project

The focus on the Office for the past period has again been the Cost Control Project, where we have managed to identify cost savings, with the assistance of consortium members, which should take the cost of construction for the project down to the required Cost Cap. This led to me making a report to the Board of Directors in late March giving possible scenarios that could be chosen. The Board have directed the office to take two of these scenarios into a Design Space that can be further developed into logical savings, which minimises the science and schedule impact of the work.

We are now working through a series of individual options, as well as some potential technology choices, to further develop the suggestions put forward. As I write, the final plan is in the process of being agreed with the Executive Committee of the Board, but the work will involve looking closely at the re-use of technologies and solutions used in the Precursors as well as looking at ways in which we can reduce construction costs whilst being able to reinstate capability when further funding becomes available.

To assist this process, we are running a series of Science Assessments using experts from the community and have scheduled an SKA Science Town Hall Meeting on 18-19 May near the SKA Office. In addition, a technical assessment of Low Frequency Beamforming is underway now through a largely external Resolution Team. Technical assessments of some other options are being pursued via normal project processes.



Within the office, we have been recruiting staff and have increased the size of the SKA Computing and Software Team under Nick Rees. We are also progressing with the recruitment of the SKA-mid Telescope Engineer, the SKA-low Systems Engineer, the Verification Engineer and the Project Manager (PM) for SDP/TM. Hopefully, these will conclude over the next few weeks. In addition, we are very keen to host any secondees from members. So, if you wish to work at the office for a few days or a few months or longer, please contact us.

Finally, the planning for the [Engineering meeting](#) is progressing. The De Doelen Conference Centre in Rotterdam will be the venue from 12-16 June. Prior to this, ASTRON are looking to host a short meeting for the 3 Advanced Instrumentation Programme (AIP) consortia on the 1-2 June. I would remind everyone, who hasn't yet, to book into the conference. There will be poster sessions, so if you wish to present an aspect of your work feel free to contact the [Events Organising Committee](#).

Project Management

by Andrea Casson, Head of Project Management

March saw the completion of the consortia cost reviews, which began in February, and the submission of papers for the Board of Directors meeting, which took place at the end of the month. PM-related Board papers included the Engineering Report, Construction Cost Update, Risk Report and Pre-Construction Schedule paper, and the PM team also contributed to the scenario analysis for the Cost Control Project Report. Following the Board's decision, based on the Director-General's recommendation, to combine two of the scenarios into a "Design Space" and to require further analysis on the options within this, in April the PMs have been progressing on several fronts: 1) validating the programmatic assessments of the options with affected consortia via Engineering Change Proposals (ECPs); 2) co-ordinating technical assessment teams for the options with alternative design proposals; and 3) discussing with consortia their preferred strategies in dealing with changes caused by the Cost Control Project in such close proximity to their planned CDR dates. These assessments will feed into an updated Cost Control Project Report to be submitted by the Office to the May Board of Directors meeting in the expectation that a clear way forward can be agreed and the Project's schedule re-set accordingly.

Work has also started on planning the agenda for the 2017 Engineering Meeting to be held in Rotterdam from 12th to 16th June.

Mission Assurance

by Tim Stevenson, Head of Mission Assurance

The Mission Assurance group continues to support the Cost Control activities reported elsewhere in this Bulletin. In particular, Susan Nel, our Configuration Manager, is now managing most of the cost reduction options as Engineering Change Proposals (ECPs) as the evaluation process is suited to our near-term objectives. This involves formally polling the Consortia regarding each proposed change and eliciting their analyses of impact. The ECP process will progress, including Change Review Board activity, up to the point where a decision can be made on implementing the selected options as part of an overall cost reduction package. This recognition that our Change Management procedure is fit for this purpose is critical to maintaining discipline in the Project; that is Cost Control measures are no different from any other forms of



change.

We will be joined shortly by our new System Engineer (Verification) who will report to me as part of the Verification remit of Mission Assurance. His role will cover the high-level design qualification activities as well as the final testing of telescope systems. The remit covers the all-important Integrated Test Facility functions. His experience will be used to ensure that, during a period when time will be of the essence, testing will be structured and disciplined. The full-time support of this role is long overdue.

Readers interested in the status of Engineering Change Proposals should visit the relevant pages of the SKA's collaboration space [here](#).

Project Engineering

by Luca Stringhetti, SKA Project Engineer

In the last months, the main activity in the SKA Telescope Engineering Office was devoted to prepare the engineering assessment for the Cost Control Project as reported by my colleagues elsewhere in this Bulletin. This work was done with the highest priority in the office. The whole team, in coordination with the PM office and the consortia, worked very hard to prepare a report to describe the effort. This phase was completed describing nearly 50 different workstreams. Some of those have been collected in two different scenarios that with different approaches and assumptions can reduce the cost of the project to the cost cap. The two scenarios have been presented to the March Board and we have now entered a second phase where the selected themes will be studied and analysed in more detail.

At the same time we started to work on ICDs in order to complete the open actions from the System PDR. Early feedback on compliance matrixes is underway in order to prepare successful element CDRs and System CDR next year.

In the engineering Office we started to plan for the engineering meeting in Rotterdam. The meetings in which Telescope Engineering Office is involved cover different topics from the requirement forum, to ICDs, to EMC and Signal Chain.

Computing and Software

by Nick Rees, Head of Computing and Software

Over the past few months work in computing and software, like the rest of the project, has been dominated by the cost control project. The other main news is that the two new staff mentioned in the last bulletin, Miles Deegan (an internal transfer) and Lorenzo Pivetta, have now started working in the team. Lorenzo started after Easter and has immediately started looking at the overall system control architecture and supporting the consortia, particularly Telescope Manager, in system level issues. Miles started with the software group in early April (and was ably back-filled in the Project Management Group by Peter Shephard) and he is working at developing ways to manage the risk of the heavy data processing areas of the project, particularly SDP. He will be working closely with the consortia as they build up to CDR.

On the IT front, we are working on a few projects to improve the IT systems that support the office. We

installed new UPSs and re-wired the server room to ensure that it is more robust, and we are looking at upgrading the video facilities in the Rawlings room, in preparation for a wider upgrade if this proves successful. In the longer term we are working to arrange a more resilient, higher performance network connection for the site, but this is not likely to happen until next year.

Finally, I spent 4 weeks away from the office in late March and Early April, in which I visited CASS in Sydney and Perth, the SKA-low site at MRO, ICRAR at UWA and Curtin, the PST team in Swinburne in Melbourne and attended the SKA-low workshop in Perth and the Eridanus workshop in Shanghai. I would like to take this opportunity to thank all the people who extended their hospitality and explained to me how things really worked. I am hoping to take these lessons forward into planning for the future.

Architecture

by Peter Dewdney, SKA Architect

My main preoccupation has also been support the Cost Control planning exercise, carried out by everyone in the Office, mainly analysing the potential impact of a huge number of proposed cost-cutting and cost-saving measures. All of the proposals required refinement and interpretation, including documentation of the refined versions in a standardised format. Of course most of the effort was placed on proposals that could potentially make large savings, but also have a large impact on performance or large changes in architecture. Large changes in architecture are not a problem in themselves, except for the impact on readiness to build. Obviously this favours measures that are simple to execute (minimal impact on schedule), do not make major changes in design direction and are reversible in future. The final list now contains mostly these 'survivors', based on a joint effort of many people discussing combinations of options.

Operations Planning

by Gary Davis, Director of Operations Planning

Like the rest of the Office, the Operations Planning group has been focussed on the Cost Control Project in the period since the last bulletin. The headlines emerging from this work are (a) that we can deliver a transformational SKA1 within the construction cost cap, and (b) that the measures necessary to bring the capital cost down to the cap carry with them some operational cost savings in addition. Although there is more work to be done, the project appears to be heading for a successful conclusion.

Whilst in Perth at the end of March for the SKA Board meeting, I took the opportunity to arrange several other meetings in connection with the operation of SKA1-low: (a) at ICRAR (UWA) to discuss the hosting of the Science Operations Centre, whether there or elsewhere in Perth; (b) at the Pawsey Centre to discuss the potential hosting of SDP; and (c) at the ARRC to discuss with CSIRO the proposed outsourcing of site and engineering operations. In parallel, I am also in regular discussion with Ant Schinckel (CSIRO) around the Engineering Operations Centre, to be built in Geraldton next to the Murchison Support Facility.

A revised RAM Allocation document is in the final stages of preparation and will be issued imminently. This key document captures the allocation of inherent availability to the elements; this revision does not change the allocations, but reflects the evolution of the detailed design.



The SKA Regional Centre Coordination Group (SRCCG), chaired by Antonio Chrysostomou, continues to meet monthly. A “Background and Framework” document has recently been issued, describing how the envisaged alliance of SKA Regional Centres will function. The Group is working on the development of a detailed set of requirements, and is looking at the arrangements for international networking. The SEAC is monitoring this area of work, and at their meeting in March they recommended the development of a risk register and a timeline; these excellent suggestions are both being acted upon.

Science

by Robert Braun, SKA Science Director

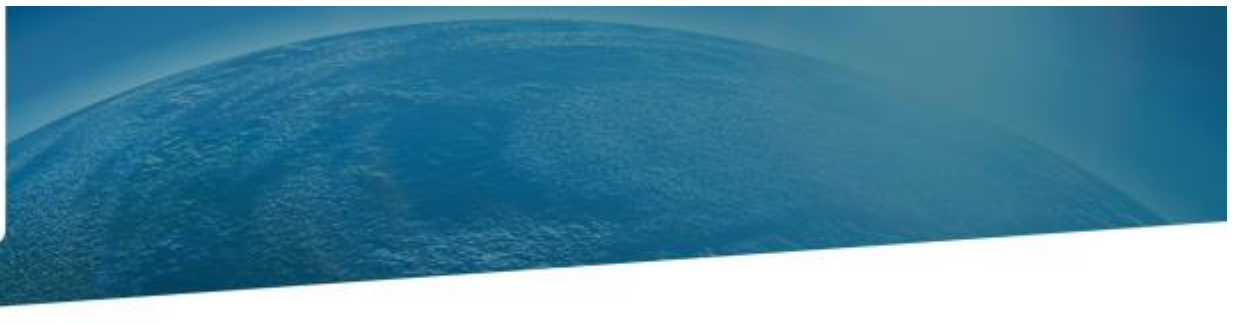
Since February, the Science Team have continued their support of the Cost Control Process. This process has now converged on a preliminary ordered list of specific cost savings measures that allow delivery of an Observatory within the constraints of the SKA construction cost cap. While some scientific objectives will require longer integrations times to be addressed, all of the most fundamental capabilities needed to achieve the “High Priority Science Objectives” of the Observatory have been retained. The cost savings measures have also been ordered by the degree to which they are straightforward to reinstate with the availability of additional funds. In the event that further cost reductions can be realised within the on-going engineering design process, or additional construction funds can be identified, then it would be possible to recover a higher observing efficiency.

In order to provide greater clarity on the cost control measures and have broader discussion of their implications, we have organised an “SKA Science Town Hall” meeting that will take place on the 18th and 19th of May. Please go to [this link below for more details of the meeting and how to register](#).

The scientific programme of the Town Hall Meeting will consist of reports from three Science Assessment teams that are currently exploring specific science issues, as well as each of the Science Working Groups and Focus Groups, who will be providing their preliminary assessments of the cost reduction options. Live video streaming and a capacity for submission of e-mail questions will be provided for those who are unable to attend in person. Connection details will be distributed in the week prior to the event.

A recent Science activity has been the [“SKA-Athena Synergy Workshop”](#) that took place at the SKAO on the 24th and 25th of April. Some 30 international participants took part in this event that was organised to begin documentation of the most compelling science areas in which these two upcoming observatories can jointly enable transformational results.

The four members of the “SKA-Athena Synergy Team”: Rossella Cassano (INAF/IRA, Chair), Chiara Ferrari (OCA), Rob Fender (Oxford) and Andrea Merloni (MPE) will be compiling the inputs of the workshop participants and preparing a White Paper to publish the results.



Participants of the “SKA-Athena Synergy Workshop

Policy Development

by Simon Berry, SKA Director of Corporate Strategy

As anticipated in the last Bulletin, February ended with a week of meetings in The Hague; first up was a two-day meeting of the Board’s StratCom advisory committee, which reviewed progress in a range of areas around the development of the new organisation, interactions with potential new members of SKA Organisation, and other topics such as how to best engage with industry and measure the ‘impact’ of the project. Following that, and a changeover of people, the focus moved to procurement, and discussions towards the development of the IGO’s procurement processes.

Outputs from the latter meeting were critically important for the IGO negotiation process, which after a further major teleconference is now preparing what are hopefully the final steps towards concluding negotiations, and then signing of the Convention. We can be cautiously optimistic of the process wrapping up in the coming month or so, and ‘signing’ as soon as possible thereafter.

The target for the StratCom discussions was of course the Board meeting in Perth, reported extensively elsewhere. In the policy area, the focus was on setting the next steps as we plan the legal approach to the transition of the SKA Organisation company, to the IGO. The Board had a useful discussion on the issues and we have our marching orders for the coming period leading into May, June, and detailed plan for presentation to the Board in July.



SKA Board Matters and Administration

by Colin Greenwood, SKA Head of Administration

SKA Governance

The 23rd meeting of the SKA Board of Directors (SKA-BD-23) was held at Curtin University, Perth, WA, Australia on 29-30 March 2017. The main topics for discussion were project costs and transition planning to establish the SKA Observatory as an Inter-Governmental Organisation (IGO).

The Board welcomed a revised construction cost estimate of €829M and the revised estimate of operations cost of €93M/yr (plus €20m/yr development costs), both of which have reduced significantly since the last Board meeting. The Board also discussed progress of a highly successful cost control project to identify further potential means of reducing construction costs whilst maintaining the transformational science capability of SKA1. This work has been conducted by the SKA Office and the international design consortia with guidance and advice from the Cost Update Sub-Committee (comprised of the science representatives on the SKA Board) and the SKA Science and Engineering Advisory Committee (SEAC). A related and parallel exercise to bring down the proposed costs of operating the telescope is also in progress. It was noted that two meetings have been scheduled to provide community input into the cost control project: (i) an SKA Town Hall Meeting with the SKA science community to be held near SKA HQ on 18-19 May 2017, and (ii) the SKA Engineering Meeting to be held on 12-16 June 2017 in Rotterdam, whose main focus will be to discuss and address issues related with completing the work required towards CDRs.

The Board was also provided with an update on the transition planning to establish the SKA Observatory IGO and it broadly endorsed continuation of the transition activity based on the current planning assumptions. The proposed transition plan will be presented to the Board at the Board meeting in July 2017. Further details of the outcomes of the SKA-BD-23 meeting are available in the [Notes from the Chair](#).

The 9th Members General Meeting was held at Curtin University, Perth, WA, Australia on 30 March 2017. At this meeting, Members approved the updated business plan for the SKA Organisation, which now covers 2018 and, as a contingency, 2019, until the establishment of the SKA Observatory.

The next members meeting will be held by video-conference on 3 May 2017 to discuss funding contributions to SKA Organisation for 2018-19. The next Board meeting will be held by video-conference on 23 May 2017 to discuss the further progress of the cost control project.

SKA HQ

Construction for the new permanent extension of SKA HQ at Jodrell Bank has now started. Sir Robert McAlpine, the Principal Contractor, has mobilised and has already started advanced work and building services diversions. Earthmoving and foundation works are the next significant operations to be undertaken in the near future. The official ground breaking ceremony was held on 28 April 2017.

The construction of the new building is on target to be completed by 2018Q2. Construction, news and progress can be monitored on the [SKA HQ web page](#).



Construction starts on new HQ extension (Courtesy: Mathieu Isidro)

Staff

On 17 March 2017, LI Shanqing completed his 15-month secondment as a System Engineer (Modelling) from China's Ministry of Science and Technology. Shanqing is thanked for his excellent work and contributions to the project. A [profile of Shanqing is available on the SKA People page](#).

Welcome to the following new staff and secondees:

- Rosie Bolton, SKA Regional Centre Co-ordinator (from 1 February 2017; 50% appointment)
- Shagita Grounden, seconded from SKA South Africa as a Computer Software Engineer (0.5 FTE from 2 May 2017)
- Martin Meyer, seconded from ICRAR to the SKA science team on an Australian SKA Fellowship (from 18 April 2017)
- Lorenzo Pivetta, Control System Software Specialist (from 18 April 2017)
- Attila Popping, seconded from ICRAR to the SKA science team on an Australian SKA Fellowship (from 18 April 2017)
- Nadja Sababa, HR Assistant (from 1 March 2017)
- Faiza Saban, seconded from SKA South Africa as a Transition HR Specialist (from 2 May 2017)
- Claire Taylor, Admin Assistant (from 18 April 2017).

On 3 April 2017, Miles Deegan transferred roles from Engineering Project Manager SDP & TM to HPC Specialist. On 20 April 2017, interviews were held to fill the position of Engineering Project Manager SDP & TM. In addition, interviews were held on 24 April 2017 for the position of System Engineer - Low.

Interviews for the post of Head of HR will be carried out in the first week of May; there were more than 200 applications from 17 countries for this position. [The post of Finance Officer was recently advertised](#), with a deadline for applications of 5 May 2017.



Communications and Outreach

by William Garnier, SKA Director of Communications, Outreach and Education

The breadth of activities has been quite extensive within the SKAO Comms department over the last couple of months, as detailed below.

Board meeting

For the March SKA Board meeting, I submitted a report on activities undertaken in 2016 on behalf of the SKA Communications and Outreach Network (SKACON), outlining the progress made towards the strategic objectives and highlighting key activities. This included the continuous positioning of the SKA brand in various spheres of influence amongst our key stakeholders and in the public domain; the good performance of the SKA online presence (website and social media) showing a strong follower base and strong engagement with the SKA; the steady growth of international media coverage, logically boosted by news and milestones from within the project, from the design consortia but also from SKA pathfinder and precursor facilities; the high-level of engagement with key stakeholders and influencers through bilateral discussions, SKA-related facilities visit, conferences, public engagement activities, etc.; and the good performance of SKA publications. The report was noted by the Board.

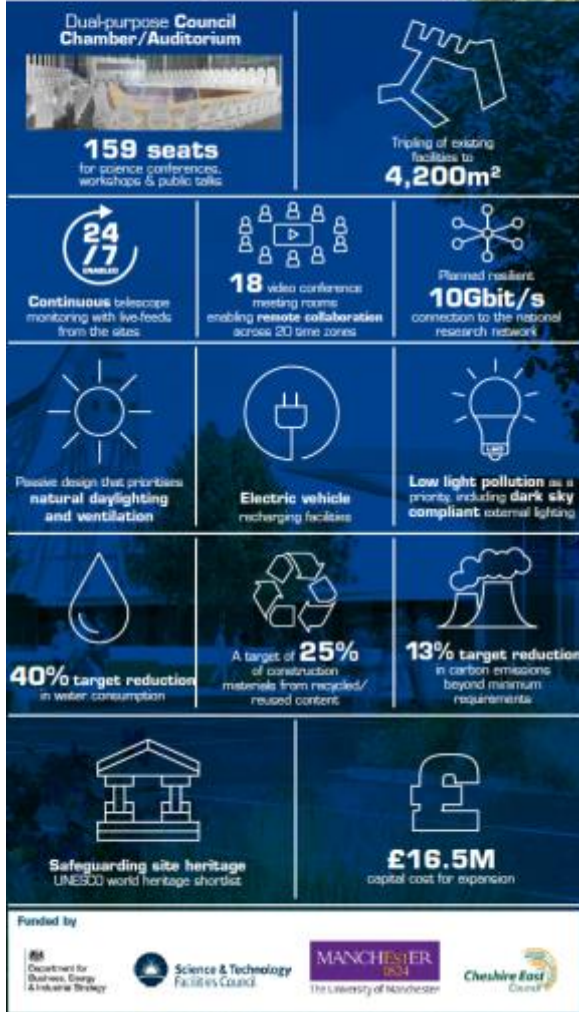
SKA new HQ ground-breaking ceremony

Over the last few weeks, the SKAO Comms team has been busy co-organising the ground-breaking ceremony of the expansion of the Headquarters at Jodrell Bank, that took place on April 28. Around 100 people attended, including staff from the SKA Office, the University of Manchester, STFC, the Cheshire East Council, and other local stakeholders. The official ceremony was complemented by SKA exhibits on display for the guests to get more familiar with the SKA project in general, and the new SKA HQ in particular. Infographics were developed for the occasion, which will also be used for future opportunities, highlighting key facts about the future Global Headquarters as well as its impact at a local, national and international scale. You can keep up with the latest developments on the Headquarters project and see artist impressions & other information here: <http://skatelescope.org/skahq/>



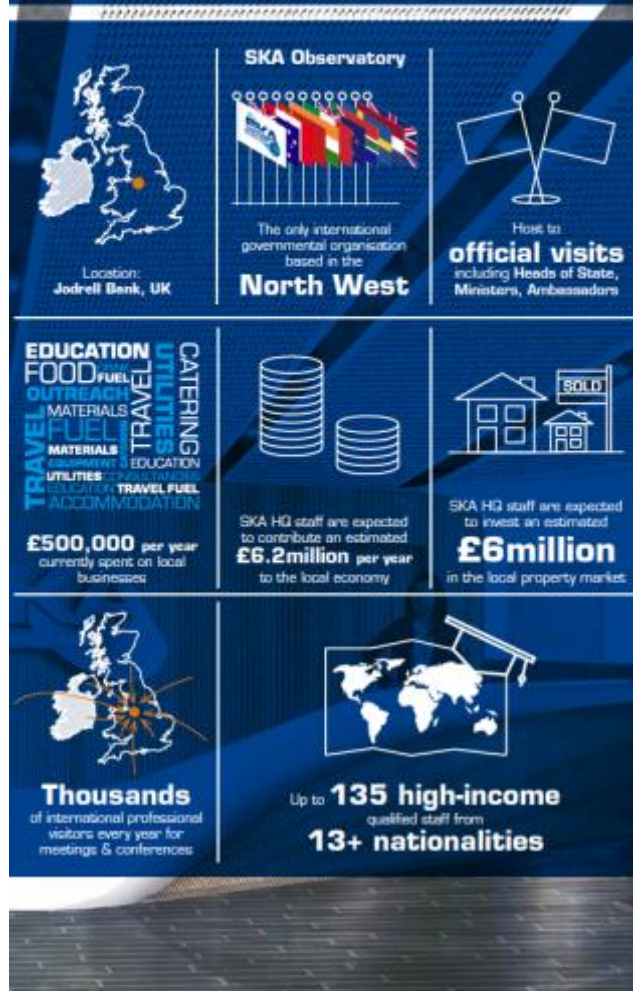
SKA Global Headquarters – A nexus for radio-astronomy

The SKA Global Headquarters will be reflective of one of the most innovative science research organisations in the world. An inspirational building that reflects the science and vision behind the SKA project and that fosters a culture of collaboration and communication.



SKA Global Headquarters – A nexus for radio-astronomy

The SKA Global Headquarters will be the home of the SKA Observatory, the intergovernmental organisation set up to build and operate the Square Kilometre Array, the world's largest radio telescope. It will be tasked with managing the construction and remotely monitoring the operation of the SKA telescope, located in southern Africa and Western Australia.



Infographics on the local impact of the SKA HQ & main building highlights

New SKA VR experience

The ground-breaking ceremony of the new HQ was for us the occasion to launch a new cornerstone project, namely the SKA Universe in Virtual Reality. The whole idea behind this project is to provide an immersive experience to the viewer into the various facets of the SKA world, including the science, engineering, and outreach. Readers of this Bulletin familiar with this emerging technology will appreciate how the experience of watching visuals/photos/videos through VR headsets enhances the wow factor, so using this technology as a vehicle to inform and enthuse the audience about the SKA makes perfect sense. It is also a fantastic way for people around the world to experience the sites remotely. The experience is available [here](#), either in desktop version or in VR mode for people who have a VR headset. This new product will be further developed and as such we encourage all partners to send us 360-degree photos and



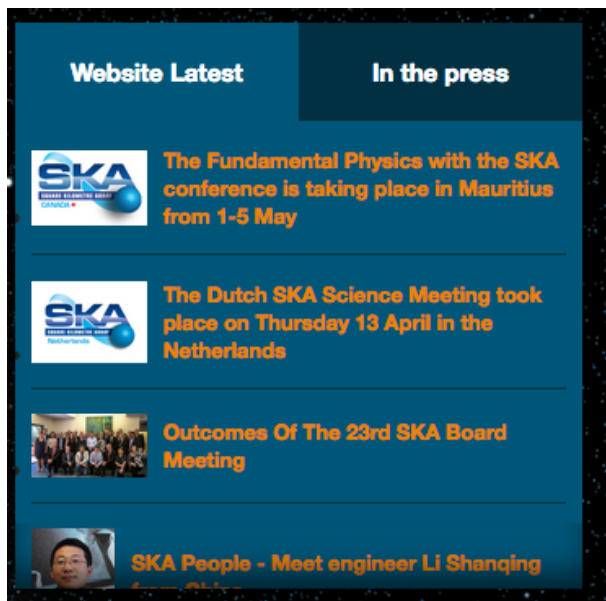
videos that we could use to populate the platform. It will be largely used in upcoming exhibitions and events in which the SKA is taking part and the first extremely positive feedback we got tell us that we can anticipate a great success to this product.



Profs. Grahame Blair (STFC) left, Colin Bailey (University of Manchester) centre, Steve Watts (University of Manchester) behind and Cllr David Brown (Cheshire East) right, experiencing the VR at the HQ ground-breaking ceremony (courtesy: University of Manchester)

SKA website

We are always looking at ways to update and improve the SKAO website, and recently added a new functionality to the homepage. Seen in the image below, we have now added the ability to keep up-to-date with all the latest updates that happen throughout the website, which is under the aptly named “Website Latest”. There is also another tab that allows you to read a selection of global press clippings regarding the SKA and any other news that is of interest to the project. This section is updated weekly.



SKA eNews

The 34rd edition of the SKAO eNewsletter has now been published, and is available to read on our newsletter minisite [here](#).

The eNewsletter is consistently growing not only in content but also in popularity. It provides the reader with a global overview of the entire project and to also provide information on the status of the project to the SKA Community and other interested people. As it stands now there are over 30 contributors to the eNews, which adds up to a record 27,000 words of SKA! Even as the eNews increases in size, we see a gradual increase in the open rate (which is at 40%, with an industry average of 22.1%) and also click rate (17.8%, with an industry rate of 2.6%). So these statistics themselves show how popular the eNewsletter is becoming for all interested parties.

Science X outreach event

The SKAO comms team with staff from SKAO attended the annual outreach event at the Trafford Centre shopping centre in Manchester, which sees around 70,000 shoppers every weekend. During the weekend of 22-23 April, there was a science theme throughout the centre, named “Science Extravaganza”. The SKA team, together with Jodrell Bank Observatory and the University of Manchester, manned the Astronomy and Space Science section at the Trafford Centre. There were a range of activities on hand, from the interactive SKA model to the popular glow-in-the-dark LED balloon. The reaction from the public was extremely positive, most of whom had heard of the SKA! Many thanks to all our staff who volunteered!



SKA staff Lorenzo Pivetta, Maria-Grazia Labate, Luca Stringhetti and Joe Diamond at the SKA stand / Maria Grazia in action. (credit: SKA Organisation)

Engagement with Large Research Infrastructures

Early April, I attended the “Making the Case” workshop (where I was also an SOC member) at Caltech in Pasadena, CA, alongside other Communications leaders from astronomy and high-energy particle physics facilities including ALMA, TMT, GMT, CERN, Fermilab, LIGO, STFC, etc. In addition to being a formidable networking platform, this three-day workshop offered Workforce, Education, Public Outreach and Communications (WEPOC) experts a candid forum for considering fundamental questions for large, international science projects including: What is the value of WEPOC to the projects and their communities? How, when and where should WEPOC be defined, developed and implemented? What are the barriers and challenges in developing strategic plans and programs? How do you make the case of the value of WEPOC to the international leadership in these projects?

The workshop was fascinating, very informative and fruitful, consisting in presenting case studies, sharing best practices of relevance for the audience, elaborating a set of guiding principles for WEPOC in large international science projects and a set of rationales, with backing evidence, to demonstrate value of WEPOC, and establishing a roadmap for developing a WEPOC plan. The roadmap is still in a draft form and will be further developed in the coming weeks and then officially published and presented to international communications experts from Research Infrastructures at the upcoming [Public Awareness of Research Infrastructures \(PARI\) workshop](#) at the end of May. Further information will be provided in the next issue of this Bulletin.



Participants of the WEPOC workshop in Pasadena, CA

SKA in pop culture

A few months ago we were contacted by the producers of the popular American TV sitcom *The Big Bang Theory* who asked to use some SKA material in the show. We sent them a selection of posters, brochures, and a copy of the SKA science book and are very pleased to say the posters have now made an appearance in the Cafeteria set. That the SKA is now starting to appear in pop culture is an excellent sign that the project is becoming more and more embedded in society. It is our hope that this trend will continue and we will see the SKA appear and be referred to in popular shows, movies, comics, etc.



Photos from the set of The Big Bang Theory (credit: The Big Bang Theory)



Selection of SKA in the News

We read the news for you and are happy to now provide a selection of media articles relevant for the SKA directly on the SKA website. On the right hand-side of the [homepage](#), you'll see a "In the Press" tab, which is updated at least weekly. Note that the appearance of articles in this selection is not synonymous of endorsement by SKA Organisation. Enjoy!

Connect with us

For any enquiries, requests or feedback please write to ska-outreach@skatelescope.org

You can also find the SKA Organisation on [Facebook](#), [Twitter](#), [Google+](#) and [YouTube](#).