



SKA Organisation Bulletin

25th Issue, September – October 2017

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From the Desk of the Director-General

It is with great pleasure that I welcome the election by the SKA Board of [Dr Catherine Cesarsky as the independent Chair of the Board](#). Catherine has already started in the role and spent three days at SKA HQ last week, attending the Science and Engineering Advisory Committee (SEAC) meeting and meeting senior staff. I would like to express my strongest thanks and appreciation to Prof Lars Börjesson, who stepped in as interim Board Chair at a difficult time following Nanni Bignami's untimely passing. It was a pleasure working with Lars.

Following a global search, I have appointed Dr Joe McMullin as SKA Programme Director; Joe will start in his new post on 8th January 2018. His role will be to take over from Alistair McPherson (who will be remaining as Deputy D-G through 2018) and lead the engineering team into SKA1 construction. Joe is a radio astronomer by training and has worked at NRAO for several years on aips++, CASA, ALMA and the EVLA; for the past 6 years he has been the project manager for the [construction of DKIST](#), the \$344M optical solar telescope nearing completion on Haleakala, Hawaii. I am sure you all join me in welcoming Joe to the team.

Earlier last week, we hosted a two-day (30-31 October) face-to-face meeting of SEAC. SEAC is ably chaired by Prof Andrea Ferrara of SNS, Pisa, Italy. We had found that we were not necessarily utilising the skills of the wide range of people on SEAC as effectively as we might and so, in conjunction with Andrea and his vice-Chair, Dr Marco de Vos of ASTRON, we tried a different approach. Rather than have SEAC work to a set of formal charges, they will adopt more of a rolling review of the key issues facing the project. The key issues at this meeting were: the current status of SKA1 construction and operations costing; the impact of the current deployment baseline on high-priority science; the preparations for CDR season; the integrated project schedule and the early planning for, and possible science impact of, the staged High-Performance Computing deployment; finally, SEAC briefly discussed the early planning for the interaction between the SKA Observatory and the SKA regional Centres. All in all, it was an excellent and productive meeting.

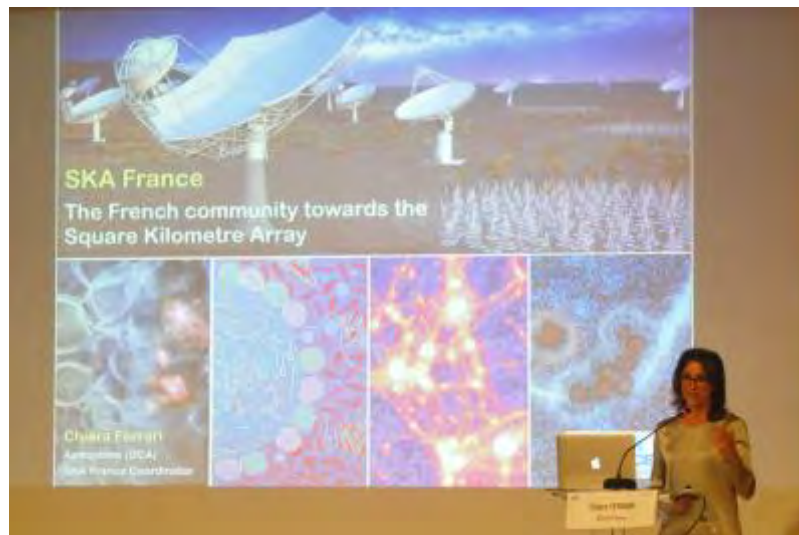
I am very pleased to see the release of the SKA1 Science Performance memo – see Robert Braun's report below. As Robert says, this is a living document, and so will be updated as new information becomes available. You, the community, should regard it as an excellent representation of the capabilities of SKA1 – it will be truly transformational.

I am very pleased to report on some considerable milestones for two of SKA's precursor and partner projects. In South Africa, I congratulate the MeerKAT team on the lift of the 64th and final dish, which occurred on 18th October. In addition, and of major significance to the SKA, the South African National Research Foundation have now completed the purchase of almost 139,000 hectares of land for the core of SKA1-mid. Across the Indian Ocean, in Western Australia, it is also a pleasure to see that the Murchison Radio Observatory's 1.6 MW solar/battery power station, will be fully commissioned and providing power on 10th November. Five years ago, the possibility of using a large-scale lithium ion battery to provide night-time power at the MRO, was nothing more than a pipe-dream; now it is a reality and also presages well for the SKA.

This week (8-9 November), the SKA Board meets in Bologna, hosted by our Italian colleagues at INAF. We have a full agenda, which will be reported on in the 'Notes from the Chair' a few days after the meeting ends.

Finally, I'd like to end my contribution to this bulletin by reporting on the SKA France Day, which I attended in Paris on 16th October. This was an excellent event with over 120 attendees from academia, industry and, vitally, government. The day was an essential step in French plans to participate in SKA at the earliest opportunity.

Philip Diamond
Director-General



Photos of the SKA France Day, held in Paris on 16 October



Project

By Alistair McPherson, Head of Project

The last few months has included a feeling of getting back to the core work after spending time on the Cost Control Project. That said, the Cost Control Project was extremely successful. It gave the Board a clear approach on what we could build for the available funding, the Deployment Baseline, whilst setting our clear ambition on the Design Baseline. That is the baseline which delivers the full set of Level 1 Requirements. This did lead to a revision of the Level 1 Requirements as some of the decisions affected them, but in reality, only 15 requirements were affected by the decisions.

Since the July Board meeting, the Office has begun to focus again on the preparations for the Critical Design Reviews (CDRs). To this end, we have planned a Pre-CDR Review which will test the baselines, budgets, and assumptions that the CDRs will be tested against. This review will ensure that we have a coherent set of baseline documents to allow us to proceed in a disciplined way.

In DSH Consortium, we have a new Consortium Leader. Mr. Wang Feng from JLRAT, China, has assumed the role after a decision by the DSH Consortium Board. The vacancy was created by Australia withdrawing from the consortium and the subsequent loss of Roger Franzen as Consortium Leader and Susan Stopford as Consortium Project Manager. I would like to pass my thanks to both for their efforts and welcome Wang Feng into his new role.

I have noted that work within the consortia has now well and truly focussed on preparations for CDR. This has been evident from the discussions with the Consortia and their decisions to be very selective on what tasks they undertake. This has affected the smooth handling of Engineering Change Proposals (ECPs) as some consortia have chosen to avoid any which do not directly give them an advantage.

One key workstream has been in the SKA-low antenna optimisation. This has resulted in the selection of the SKALA4 design as the preferred option and development is now taking place with great vigour. Planning on catching up the SKALA2 development by deploying SKALA4 on site is proceeding.

One workstream that I have been directly leading is the Bridging from Pre-Construction to Construction. We have produced a draft plan which will be discussed with the Board this week. The wider consultation will then take place.

Finally, I would like to welcome Joe McMullin, who will take over my responsibilities as Head of Project in January next year when he takes up his appointment of Director of Programme. I will retain my responsibilities as Deputy Director General. This should allow a fairly painless handover with no opportunity for losing knowledge.

Project Management

by Andrea Casson, Head of Project Management

Work continues towards the System Pre-CDR in November 2017 and Element CDRs in 2018. The first 2 consortia to submit their CDR packs, SaDT and TM, both due in January, will try out the recently revised CDR process which sees a more robust Review Readiness Go/No Go decision gate being applied 6 weeks prior to submission. The aim of this is to reduce the likelihood of delta CDRs occurring. The Engineering Project Managers are working closely with their Office colleagues and counterparts in the consortia to devise element-specific review plans based on this new process.



Updated SKA1 Construction cost estimates were received from all consortia in early October. These costs, against the Design Baseline, showed an overall decrease compared to previous estimates though there is still work to do in making further reductions prior to CDR.

A construction schedule workshop took place early October with all consortia represented. The first day saw high-level assumptions and constraints being explored whilst the 2nd and 3rd days comprised walk-throughs of the Mid and Low roll-out plans, element by element, noting dependencies and cross-checking assumptions. This was extremely useful and is now informing updates to the roll-out plans, consortia construction schedule deliverables for CDR, Board papers and the Work Breakdown Structure (WBS).

Work on the Construction Plan suite of documents has also continued with a focus on the update of the WBS enabled by our new secondee, Clare Sullivan, who has joined us for 6 months from the UK's Civil Service. This document is required for the second round of the (non-binding) Expression of Interest process being planned for Q1/2018 as well as feeding the development of the construction schedule.

Mission Assurance

by Tim Stevenson, Head of Mission Assurance

Mission Assurance, in the form it takes in the SKA, includes Product Assurance (PA). PA is the discipline whereby procurement, manufacturing, assembly, testing and operations are carried out in such a way as to guarantee the conformity and quality of products. The focus is on the production of things (including software) rather than general business processes or indeed scientific processes, which are covered by the more general term Quality Assurance.

For now, an effort is being expended in establishing a PA regime for the components of the telescopes. The SKA Observatory, as a new organisation, does not have a well-tried-and-tested PA standards regime, and the mix of technologies is different from an optical observatory, particle accelerator, etc so that simply adopting ESO or CERN practices would not suffice. The eventual PA framework will have to meet our needs without unnecessary burdens and without asking industry to do anything unusual if this is not required.

The starting point has been to consult with industry that is already engaged with the SKA and involved in the design and prototyping projects. As part of that initiative, I, together with Wang Qiming, visited China to meet with CETC 38, CETC 54 and MTM partners, all currently involved in SKA design activities. Along the way, I visited a potential CETC54 subcontractor, namely the Shijiazhuang Keyi Reducer Company. All organisations provided us with extensive information regarding their quality standards and the manufacturing processes involved in their SKA contributions.

These visits constitute a very good start to shaping a Product Assurance regime for SKA-1. It is expected that further industry visits will follow with various partners around the world.

Project Engineering

by Luca Stringhetti, SKA Project Engineer

The preparation of the pre-CDR was the main work during the last few months in the engineering office. This work includes the conclusions of the actions we got during the system PDR process: ICD consolidation, Signal Chain, System Budgets, and L1 compliance matrix. In relation to the pre-CDR, the telescope project engineering



team worked in many different tasks including the update of the Baseline Design document, that will be ready for System CDR; it is intended that it will be the most accessible representation of the observatory design.

The system CDR will be held in the SKAO HQ and will involve basically the complete engineering group here in SKA HQ for three full days of meeting starting the 21st of November. The whole team, including SW, Operations, Mission Assurance, and the project management office, are working to produce a data package for the system CDR that currently amounts to nearly 160 documents; one of the objectives of the pre-CDR is to take a picture of the status of this data package preparation.

The pre-CDR conclusions will be prepared by an internal review panel and distributed before the 7th December face to face meeting with Consortia leaders in SKAO HQ. The review panel includes Nick Whyborn (ALMA System Engineer) as an external reviewer.

In parallel, the work for the preparation of the element CDRs is continuing, therefore much attention in the office has been devoted to ICDs and L2 requirement reviews. The reviews have been completed and reports will be attached to the Pre-CDR final report.

In mid-September, the Antenna review panel concluded its work and recommended to continue with the analysis of the next generation of SKALA. The SKALA4 was a joint effort among Cambridge, UK, INAF, Italy, and Curtin University, Australia, over the last 4 months, and the results presented look extremely encouraging. Currently, the SKAO is supporting the LFAA consortium to plan all the activities that are needed to be carried on up to the CDR.

On staffing, in September, Gerhard Swart started as MID telescope Engineer and he is working hard to get up to speed as soon as possible. We are also advertising a new position for a junior system engineer that will work with the SKA senior system Engineer.

Computing and Software

by Nick Rees, Head of Computing and Software

Since the last bulletin, the main work has been divided between progress towards CDR and defining the impact of the adoption of the Scaled Agile Framework (SAFe®) for construction. As we are approaching CDR we have been very busy doing some interim reviews for the TM and SDP consortia and also helping with a major update to the baseline design document, which has lacked some information on software in the past. We hope the new version, in time for the system pre-CDR review in November, will be substantially better in this area.

With SAFe®, we had a very successful workshop in the office on the 2nd October, and the workshop materials are available on the program page on Indico

https://indico.skatelescope.org/event/454/timetable/#20171002_detailed.

Our consultant, Ian Spence started by a general presentation on SAFe®, and this was followed by the office and the consortia representatives (from AIV, SDP, TM, CSP, LFAA, Dish and SaDT) outlining how they saw the impact in their areas. Overall, the consensus was very positive, but there were some important concerns that need to be addressed and in some areas, this can only happen after CDR as we truly begin preparing for construction. In the meantime, we are developing a Software Engineering Management Plan for construction, which will appear in very draft form at the system pre-CDR, and are capturing all our decisions and ideas in there.

Over the next few months we look forward to a very busy period as CDR barrels down upon us and we work with the consortia to help them prepare their submissions. We are also working with Alistair to firm up the plans for the CDR to construction transition period because it is clear that we need to maintain momentum during this period.

Architecture

by Peter Dewdney, SKA Architect

The project architect has moved into a phase where the main activities are:

- Examining aspects of the emerging work from consortia and looking at it from a technical system performance perspective. The outcomes from this activity may affect CDRs from the different consortia, but more likely affect ICDs and/or post CDR work that is perceived to be needed to ensure a fully functioning telescope.
- Achieving this perspective requires support from others in the SKAO, and that support is freely provided. Of course, care must be taken not to slow down progress.
 - Several aspects related to digital signal processing have been examined, partly to ensure that the SKAO has a full understanding of the design details. Although this is too complex to describe in detail here, the capability of the telescope in all its concurrent modes (imaging, pulsar search/timing, VLBI, transients) depends very much on these details. This work continues; no show-stoppers so far.
 - Another area that has received attention is the multiple interfaces between the synchronisation, the timing, the dish receiver, correlator and telescope-management systems. There are four different consortia involved in this, and again, there are details still to be ironed out. Several SKAO persons are working on this.
 - Timing, synchronisation & delay calibration: application of standard and new astronomical techniques to the SKA. This involves coordinate systems, array reference points, time and time transfer, synchronisation, delay compensation, delay calibration, and error analysis in these areas. Currently, this is background work.

Specific items of note for SKA1-low are:

- Antenna Element design: As the previous design was viewed to be very sub-optimal, the architect played an initiating role in revising the antenna design for Low, particularly in describing the available design space. The follow-up work, coordination and technical guidance, was done by the SKAO engineering staff. As a result of working closely with the original antenna designer, the prospects for an acceptable antenna design now look very good.
- Station Calibration: This area will be of increasing priority. The architect has proposed some approaches that to some extent build on what the LFAA Consortium has proposed. This is being carried forward in the SKAO by the engineering group in conjunction with the consortium. There is a potential requirement for an analytical approach as well as for simulations. Ultimately the proposed method will have to be verified 'on the sky'.
- Tile Processing Modules: These are fairly complex bespoke 'products' that will be manufactured in relatively large numbers, and represent a significant fraction of the total cost. In conjunction with the Product Assurance group and the engineering group, the architect will play a role in ensuring due diligence in performance testing, robustness, and design-for-manufacture, all of which will play a role in the selection of the most suitable product.

Baseline Design Document: A new version of this document is being written to reflect what is expected to be the actual design of the telescopes when it is ultimately complete (i.e., the Design Baseline, not the Deployment



Baseline). It is directed at diverse readership: informed agency persons, Board members, potential science users, engineering staff in consortia, and potential organisations looking to join the SKA. Nevertheless, it will also contain a significant level of design detail and will form one of the main documents for the system review. Because the individual participants in the SKA project will change over time, it is important to record what has been achieved in the whole as the System CDR approaches.

To encompass the wide readership, it will have an overview section (more than an executive summary, but much less than a detailed description). This will be followed by technical sections: descriptions of aspects for which the design philosophy and approach is common to both telescopes (e.g. Telescope Management and some parts of Science Data Processing); a section on SKA1-mid; a section on SKA1-low; Appendices, etc. The telescope descriptions aim to be a reference for persons in the future to be able to 'find their way' through the design, and as such will include many references to design documentation provided by the consortia.

The authors of the document will be primarily SKAO staff. Other persons with a unique background, likely drawn from consortia, may be asked to contribute. The Architect will write some parts and integrate/edit contributions to target an appropriate level.

A side benefit of this work, especially as it is meant to be done alongside CDRs, is that gaps in knowledge, design or documentation will be exposed – what can't be explained probably won't work. Plans will have to be made to fill the gaps at some stage.

The goal is to complete this for the System CDR.

Operations Planning

by Gary Davis, Director of Operations Planning

I type this column having just finished off two reports for the Board, which meets early November in Bologna. One of the reports is my regular estimate of the operations budget for the Observatory. This is based in part on the estimates submitted by the consortia, and the current estimate for steady-state operations is €89M/yr for the Design Baseline and €77M/yr for the Deployment Baseline. Despite numerous changes in detail, these numbers are unchanged since the previous Board meeting in July.

The other report is an update across the Operations Planning activity. One item I will be taking to the Board for discussion is the envisaged capabilities of the SKA Science Archive. This is an important element in planning for the full scientific exploitation of the Observatory.

We plan to hold two SKA Operations Workshops in early 2018, one each for SKA1-low and -mid. This will be our first opportunity to engage in detail with the relevant consortia and with precursor telescopes on the two sites. Details will be forthcoming as plans for these workshops develop.

In the previous Bulletin, the D-G alluded to the Collaboration Agreement he had signed with CERN. The kickoff meeting took place on 9–10 October. The immediate priority for this collaboration is the development of a white paper that will outline the data infrastructure needs of CERN and the SKA over the next decade. A number of other collaborative projects are planned in the longer term.



Kick-off meeting of the SKA-CERN collaboration on exascale supercomputing, held at SKAO HQ on 9-10 October

Science

by Robert Braun, SKA Science Director

Over the past months, the SKA Science Team have prepared a document entitled “Anticipated SKA1 Science Performance” that can be found at the link below.

http://astronomers.skatelescope.org/wp-content/uploads/2017/10/SKA-TEL-SKO-0000818-01_SKA1_Science_Perform.pdf

This incorporates several important developments at both low and high frequencies relative to previous performance projections, new imaging simulations, as well as additional figures of merit that are of relevance for non-imaging applications. It is meant to be a “living document” that is kept up-to-date with improvements in our understanding of the instrumental performance and extended with other simulations and tools that the user community finds useful. Please have a look and pass along your suggestions for improvements and extensions.

Other activities of the Science Team have included participation in international Science Meetings in, Sardinia (4 – 8 September), Manchester (4 – 8 September), Croatia (2 – 6 October), Trento (9 – 13 October), as well as national Radio Astronomy Meetings held in the UK, in Edinburgh on 7 September as well as in Canada, in Montreal on 13 and 14 September.

Policy Development

By Simon Berry, Director of Corporate Strategy

The Board's Strategy and Business Development Committee (StratCom) met for two days at the end of September. Over the course of two intense days of discussion, the group examined a range of issues covering the development of the SKA IGO (more on that below) the process of transitioning from the company to the eventual IGO, and a number of topics associated with the timeline of establishing the IGO around preparing the engineering timeline for construction of SKA1. Many of these themes were picked up in the associated meeting of the 'Convention Task Force', which is supervising the last steps needed to move to signature of the Convention. Here, delegations made good progress on the remaining issues. We hope that the Italian Presidency will be able to convene the 'initialling' of the Convention documents in the coming weeks, and move towards the defining step of ministerial signing in February 2018.



Meeting of the Convention Task Force at the Rutherford Appleton Laboratory, UK

SKA Board Matters and Administration

by Colin Greenwood, SKA Head of Administration

SKA Governance

Effective 6 October 2017, Dr Sarah Pearce stepped down as the Australian Government's Department of Industry, Innovation & Science Second Representative (Member) and Science Representative (Board); she was

replaced in these positions by Dr Douglas Bock with effect from this date.

Effective 10 October 2017, Mr CAI Jianing stepped down as the Chinese Government's Ministry of Science and Technology Voting Representative (Board); he was replaced in this position by Mr CHEN Linhao with effect from this date.

The 25th meeting of the SKA Board of Directors (SKA-BD-25) will be held in Bologna, Italy on 8-9 November 2017. The main topics for discussion are the SKA Organisation's budget for 2018, construction and operations costing, and an Integrated Schedule covering the policy/engineering construction/observatory and science commissioning. In addition, the activities and resources required to bridge the period between the end of pre-construction and the start of construction.

SKA HQ

Construction of the new global SKA HQ at Jodrell Bank continues. Sir Robert McAlpine, the Principal Contractor, has completed the foundations, concrete slab, and superstructure of the building, with the roof approaching completion and external cladding well advanced. Internal fit out of the building and earthworks for an attenuation pond in the new central courtyard are about to begin. Construction of the new building is on target to be completed by 2018Q2.

News and progress can be monitored on the SKA HQ web page at <https://www.skatelescope.org/skahq>



Construction of new HQ extension continues

Human Resources

by Fiona Davenport, Head of Human Resources

I started as the new Head of HR at the beginning of September and can report on an incredibly busy first 7 weeks! My focus to date has been on fact-finding, identifying and addressing priorities and defining the longer-

term HR roadmap against the following key areas:

Growth and Transition

Working closely with the transition team, the HR team is focused on developing and delivering against a detailed HR Transition plan that is fit for purpose and meets the strategic needs of the future IGO. Our ability to attract, recruit, develop, motivate and retain the people we need in the future is critical and our HR approach must enable this.

Supporting this, resource planning, future organisation design and recruitment will continue to be a key focus and further to the last bulletin update we welcome three new colleagues:

- Vlad Stratula – IT Intern;
- Lauren Pierpoint-Thomas – PA to the Director-General;
- Clare Sullivan – Assistant Project Manager (secondment)

Recent other recruitment activity includes offers made and visas progressed for a number of key roles:

- Programme Director
- RFI/EMC Domain Specialist
- RAM and Logistics Engineer
- Finance Manager

Additionally, work is currently ongoing with SKA Australia to progress fellowship opportunities.

Delivering HR Excellence

As SKA Organisation evolves, HR practice and ways of working must also evolve. The HR strategy is being developed, building a long-term roadmap aligned to transition and the future IGO. Within this, a number of key priorities for the short term have been identified and have actively been progressed. These include:

- The development of new policies – Code of Ethics and Whistleblowing;
- Performance management planning for the completion of the 2017 performance year and objective setting for 2018; and
- Equality and diversity, with plans in place for a submission for an Athena SWAN bronze award in 2018. The Athena SWAN (Scientific Women's Academic Network) charter encourages and recognises commitment to advancing the careers of women in science, technology, engineering, maths (STEM) in higher education and research.

Employee Engagement

The uncertain long-term environment and international nature of SKA Organisation's staff and their families brings a requirement for further engagement. HR focus groups are being planned for this November where other initiatives will be tested.

HR Administration

Work is underway to make it easier for staff to access the HR information they need, when they need it. In addition, a future ERP system is currently being explored and a supplier shortlist has been identified following some pre-tender analysis against requirements.



Communications and Outreach

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

SC17 conference

In the last couple of months, quite a lot of time and resources in the SKAO Comms Team were spent on gearing up towards the [SC17 conference](#), to be held in Denver, CO, USA, on November 12-17. SC (which stands for Super Computing) is a massive and extremely popular conference bringing together High Performance Computing experts from around the world, where most major companies are represented. This year, the SKA was asked to provide the keynote speech of the conference, and our two guest speakers will be our own DG Phil Diamond and SKA Regional Centre Project Scientist Rosie Bolton. Pressure is growing as we get close to the keynote day, also for the Comms team who've been busy drafting the 45-minute script, sourcing compelling visuals and producing new visuals and animations to take full advantage of the impressive 46-metre wide screen that we'll have to play with. The Chair of the conference's vision is to create the most exciting keynote presentation at a scientific conference, no more, no less... A full report and link to new SKA-relevant material will be provided in the next issue of the bulletin.

Internal and Stakeholder Engagement Working Group

As stated in the Board-approved SKA Organisation's Communications Strategy -the master document establishing a strategic direction for SKA communications and stakeholder engagement-, Communication forms a central element of all SKA Organisation's activities, supporting the objectives and priorities of the organisation.

A key element of that strategy is to make sure that communications is effective and well-targeted, with the right, relevant and timely messages being delivered to our various stakeholders –including SKAO personnel- via specific channels or vehicles. In order to fill the gaps in the current communications coverage and to improve the efficiency and effectiveness in SKA Organisation's engagement with some of our stakeholder groups, we have set up an Internal & Stakeholder Engagement Working Group (ISEWG) covering the current period leading up to and during the Construction phase. This group, chaired by the SKAO Director of Communications and comprising a representative from each SKA Organisation department, will officially kick-off mid-November.

The objective of the ISEWG is to elevate the quality of internal communications within the organisation and the quality of stakeholder engagement and embed high-quality, efficient and fluid communication practices in the company's culture. The operational goal of the ISEWG is to develop and implement a plan aimed at improving the efficiency and effectiveness of the relationship and engagement with some of our stakeholder groups for the period leading up to and during the Construction phase. Such a plan will support the current SKA Communications Strategy and its findings will inform the development of the updated SKA Communications and Stakeholder Engagement Strategy covering the period 2018-2020, to be presented to the SKA Board for approval in April 2018.

Shared Sky in Adelaide

Thanks to joint efforts with our colleagues from the Australian SKA Office, our indigenous astronomy art exhibition [Shared Sky](#) went on display at the South Australian Museum in Adelaide to coincide with the opening of the International Astronautical Congress in the city at the end of September, and will remain open until the middle of February 2018. Delegates from space agencies and industry were able to visit the exhibition, which has already seen more than 9,000 members of the public and 600 local school children engage with it.



Selection of photos of engagement activities around the SKA Shared Sky exhibition at the South Australian Museum in Adelaide, Australia

Leiden workshop on visitor centres

At the end of September we attended a workshop organised by the National Astronomical Observatory of Japan (NAOJ) and the University of Leiden on [Visitor Experiences in Astronomy Learning Spaces](#) where we shared early lessons learnt from the development of our [new Virtual Reality tool](#) as part of our SKA Communications & Outreach Network Working Group on Visitor Centres.

Educators, graphic designers, and museum managers gathered to share best practice on how to develop engaging content and communicate astronomy.

Many partners including ASTRON, Onsala and of course our colleagues in South Africa and Australia are currently undertaking/considering the development of visitor centres. It is our aim to align these as much as possible when it comes to SKA content.

Astronomy meets Translation

With a diverse membership and many languages, we know the importance of languages at the SKA. This is why SKAO is supporting the work of the IAU's Office for Astronomy Outreach (OAO) to develop a centralised astronomy translation platform where volunteers can contribute translations to help bring educational resources to more countries.

Mathieu Isidro, SKAO Deputy Communications Manager, travelled to Paris to launch a partnership between OAO and his alma mater ISIT, a translation & communication school in Paris. Nine students will be contributing to the development of the platform & providing translation expertise under two research projects, one on translation workflows and one on scientific terminology, as part of their master's degree. You can read more about it [here](#).



Photo of the meeting in Paris

New Scientist Live 2017

On 28th September – 1st October, in a collaborative effort led by SKA Organisation involving SKA-related partners in the UK, the SKA exhibited at the second edition of New Scientist's flagship event; "New Scientist Live", which took place at the ExCeL in London. The show featured five immersive zones covering Humans, Engineering, Technology, Earth and Cosmos.

The overall theme of New Scientist Live was mostly UK-focused, whilst also touching on international collaborations in the scientific world. The international reputation of the hosting body, namely New Scientist, as well as the presence of key stakeholders including media at the event, was the main incentive for us as SKA Organisation to attend and organise this joint presence alongside SKA UK stakeholders. The SKA stand was therefore generously co-funded by the SDP and SaDT consortiums, with additional in-kind support from Imperial University and STFC.

The SKA exhibit stand had a range of activities, giveaways and models for which the public could engage with. STFC had kindly donated their SKA model set, which included the AAVS1 antenna, and a model of the SKA Dish (special thanks to Andy McKinna for arranging all the logistics). However, the main focus of the stand was for the public to engage with the SKA Virtual Reality experience. The experience itself was updated to include content around SDP and SaDT to help expand the SKA VR world, and to allow the user/public grasp a better understanding of the enormity and complexity of the project, and how specific work packages of the SKA is being spearheaded in the UK.



Image of the SaDT virtual reality page



Image of the SDP virtual reality page

The SKA VR experience proved to be highly successful with the public. Throughout the whole event virtual reality was used by over half of the exhibitors attending, however after experiencing some of the products, and

through feedback from the public and general usage, the SKA VR was extremely popular, due to its uniqueness, by offering the public a more immersive and exciting experience of exploring the SKA sites, science and consortia's, whereas the VR products from other exhibitors, all seemed to follow the same interface with basic information and little interaction and/or "wow" moments.



Also during the event, a range of speakers presented talks to the general public. SKA's Rosie Bolton, SKA Regional Centre Project Scientist, was accepted as a speaker and gave a talk titled "The Biggest Eye on Space" which focused on the big data challenges of the project. This talk was very well received with a full audience attending with a series of engaging questions being asked. Rosie also was interviewed by Associated Press following up on the major developments happening within the SKA project.



We would like to thank those who sponsored the event, as well as the volunteers who made the event a success and great example of positive collaboration; Tom Binnie (Imperial), Claude Schmit (Imperial), Josh Greenslade (Imperial), Jennifer Chan (Imperial), Rosie Bolton (SKA), Hilary Kay (STFC) and Jonathan Pritchard (Imperial).



Connect with us

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

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