



# SKA Organisation Monthly Bulletin

*7<sup>th</sup> Issue, October 2014*

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## From the Desk of the Director-General

Following the successful all-hands engineering meeting in Perth my focus turned to the SKA Board meeting to be held in Guiyang in southwest China on 15-16 October. It was an excellent meeting, with significant project progress achieved. As I write this, the [‘Notes from the Chair’](#) have just been released so I will not comment on the substantive issues. What I will do is thank the China SKA Office for their excellent organisation and support.

I would also like to thank the National Astronomical Observatory of China (NAOC) and the FAST team for a superb visit to the Five Hundred Metre Aperture Spherical Telescope. Driving to FAST was, in itself an achievement. I was blown away by the scale of the civil infrastructure work we saw on the bus journey to the site. It is clear that there are major highways being built in Guizhou Province, and significant work also being done on upgrading roads, buildings etc in the many towns along the route. The FAST site itself is a revelation. The Board picture below doesn’t do justice to the scale of the engineering, so I attach an image taken by Alistair McPherson that shows the 500m diameter support ring, plus some of the six ~100m tall towers now in place. The towers were built without cranes, since it was extremely difficult to bring the required equipment onto the site; so they were built the old-fashioned way using a technique known as pull-rod lifting. I believe the ancient Egyptians may have been familiar with it!

Our Chinese colleagues should be immensely proud of what they are building in Guizhou. Once complete, in less than 700 days, it will be a fantastic instrument and will undertake science complementary to that to be done with the SKA.



*FAST under construction, October 2014*

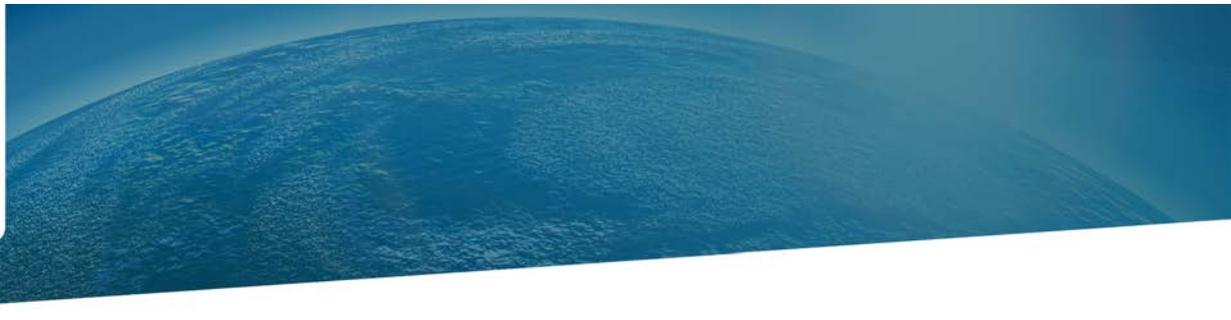
The week after the Board meeting I was invited to attend the Spanish SKA Day in Granada, organised by Lourdes Verdes-Montenegro of the Institute for Astrophysics in Andalucía. It was a very positive event; the IAA (Instituto de Astrofísica de Andalucía) lecture theatre was full with 80 scientists and industry representatives. Spain already has a strong engagement in SKA, with ~€2M of resources committed to the current design effort.



This event was designed to make it clear to the Spanish government that the Spanish community wishes for stronger engagement. The SKA Organisation would welcome this. I was impressed with the breadth of SKA-related science in which the Spanish community is participating, and also with the excellent processes they have established to link science and industry for these large infrastructure projects.

On my return from Granada my priority was to arrange for my car to be serviced. This mundane task is quite difficult when one is travelling so much :)

Philip Diamond  
SKAO Director-General



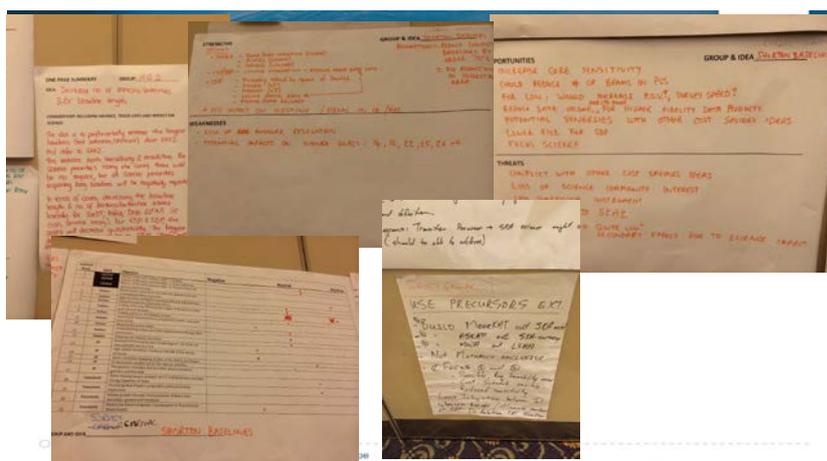
## Project

*By Alistair McPherson, Head of Project*

It seems some time since the Engineering Meeting in Fremantle, but even so, some reflections are useful. I thought it was a really good meeting which demonstrated to me and many others the amount of work being achieved and the momentum that is now clearly evident within the consortia. The updates were extremely useful for everyone. I suspect it is really key when you are working in one consortia to understand the progress within the others. It helps to see where you are and what your priorities should be. The discussions with the consortia on the Re-Baselining Submissions was useful as were the ICD meetings.

The Re-Baselining is progressing. Following the receipt of the submissions and the clarification meetings, we had the workshop in Fremantle. I suspect there are as many views on the success, or otherwise, of the workshop, but I can give my reflection. When I planned the workshop, I realise that this could either be a great success or an absolute failure. When people are exposed to a discussion that they are passionate about, then the behaviour and the outcome can be quite emotionally charged. In Fremantle, I was pleased that, although emotion was demonstrated, it was demonstrated and controlled in an effective way. It was used to force issues but not to derail the process. The result was several partially developed options from each group along with a full set of ideas, many of which had to be discarded by the teams. I have, personally, to thank the team of facilitators and all of you for supporting the day.

One key piece of advice I received from the facilitators was that I must demonstrate to those taking part that their ideas have progressed into the re-baselining process and did not end up in a dustbin in Fremantle. I can assure you that your ideas are all in my office and that the team here has been through all of your suggestions, including the undeveloped ones, and captured them as input to the procedure in the office. Including these suggestions the team has started the procedure with some 240 suggestions on how we can save money. These suggestions are now going through an assessment process, which, naturally, will lead to some being rejected, some accepted and developed further, some parked as good practice that should be included within the workflow and many other categories.



*Some of the output from Fremantle*

Since Fremantle, and a few days off, I had the pleasure of attending the Board Meeting in China followed by a most stimulating visit to FAST. This is an incredible project mounting a 500m diameter radio telescope in a karst depression in China. One of the truly great engineering projects.

On return to Jodrell Bank, as well as managing the re-baselining process, I am now turning my attention towards the Preliminary Design Reviews and making sure that we are ready for the work that will soon arrive.

I would invite you all, if you have any questions on PDR submissions, to ask for advice as early as possible. We are very happy to help. For your information, I attach below the PDR schedule as it currently stands.

| Meeting Order | Element   | Meeting             |
|---------------|-----------|---------------------|
| 1             | CSP       | 17-18 December 2014 |
| 2             | TM        | 7-8 January 2015    |
| 3             | SaDT      | 14-15 January 2015  |
| 4             | LFAA      | 26-27 January 2015  |
| 5             | DSH       | 9-10 February 2015  |
| 6             | INFRA SA  | 16-17 February 2015 |
| 7             | INFRA AUS | 18-19 February 2015 |
| 8             | AIV       | 23-24 February 2015 |
| 9             | SDP       | 18-19 March 2015    |

## System Engineering

*by Tim Stevenson, SKA Chief System Engineer*

The Engineering Meeting in Fremantle progressed a common understanding of four aspects of the System Engineering of the SKA, namely (top level) Architecture, inter Element Interfaces, Configuration Management and Integrated Logistics Support planning. At this early stage of the design, it is traditionally hard to address system level aspects where the approach at working level is still very much bottom up and solution orientated. However, these four aspects, with Architecture led by the Architecture Group, received a good airing and there are signs of acceptance and most importantly, action based on improved clarity.

We are now entering PDR season, with differing levels of readiness and maturity in the Consortia. Some fundamental misunderstandings remain regarding the purpose and criticality of these reviews, and the Element System Engineers are doing their best to make these clear. It is particularly encouraging that considerable progress has been made in one aspect of system design, namely the preliminary agreements on interface requirements and specifications. All involved in engineering at these interfaces are to be commended for their efforts. Unfortunately in one or two areas Interface definition has taken place in advance of architectural definition – a problem which will be corrected immediately after PDR.



## Architecture

*by Tim Cornwell, SKA Architect*

The Architecture Group is working the analysis of the re-baselining submissions received from the design consortia, specifically extracting options for re-baselining, costing those options and assessing the technical and schedule risks and the scientific impact of the options.

We have a four phase process for shortlisting re-baselining options. The list of options being considered have not only been taken from the re-baselining submissions, but also from the re-baselining workshop held at the all-hands engineering meeting in Fremantle. All engineering and science staff at SKA Office are involved in the four-stage process to shortlist re-baselining options. The process is being very well documented and is following the principles of transparency, credibility and timeliness.

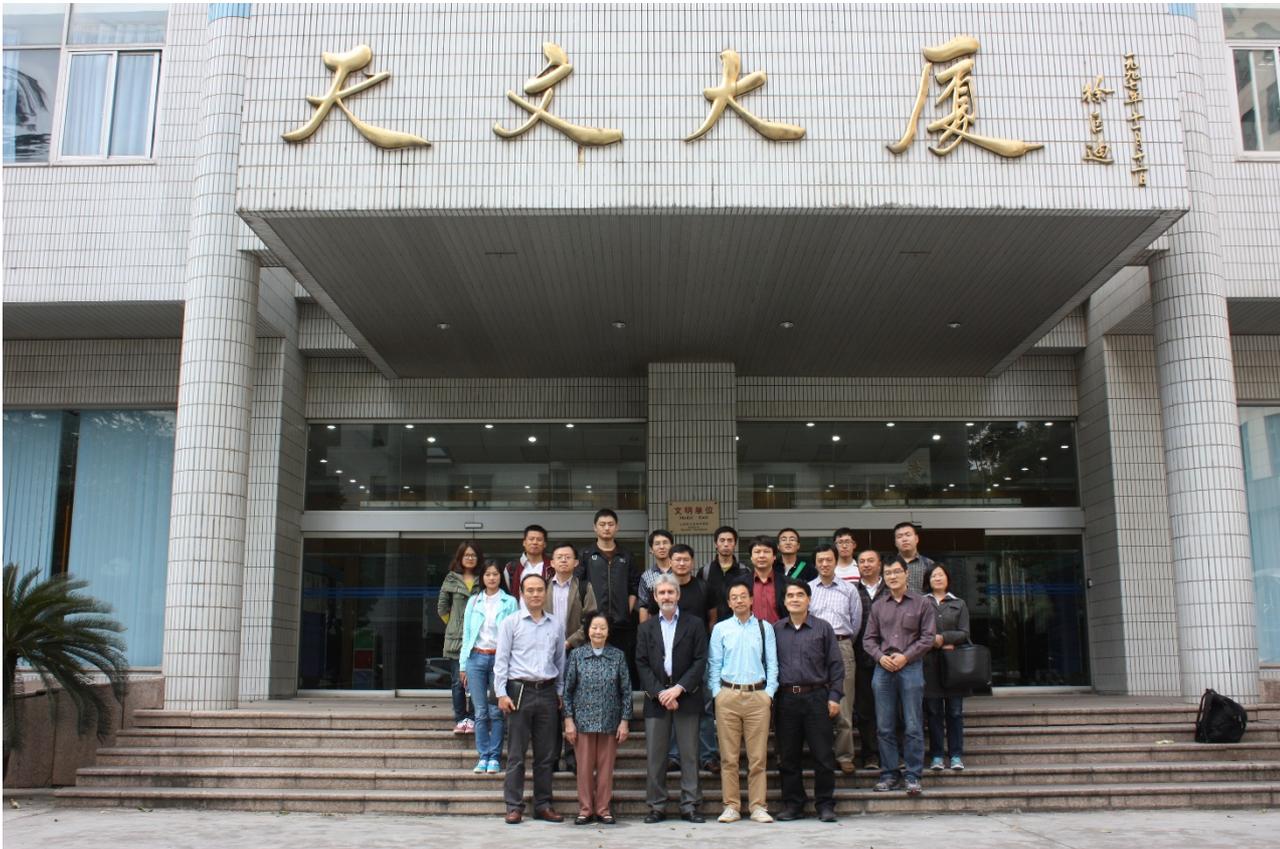
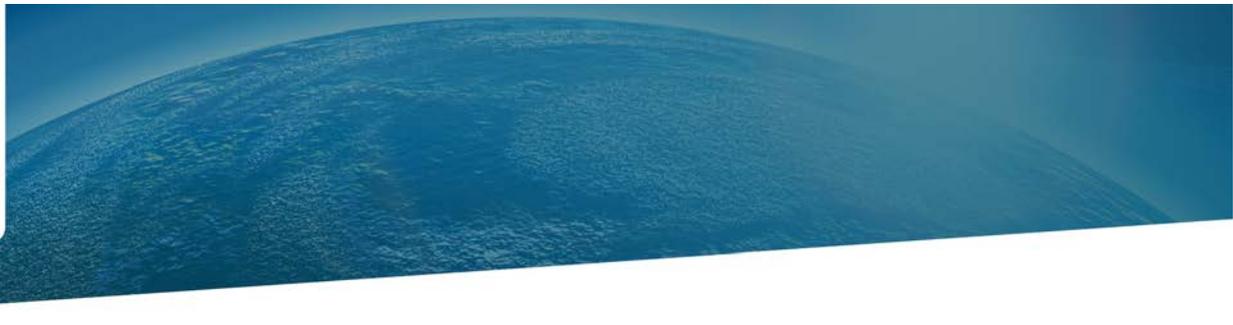
As part of the re-baselining review process, the process and options will be presented to the Science Review Panel (SRP), the SKA Science and Engineering Advisory Committee (SEAC) and an external cost review panel for discussion and review before the Director-General presents the options and a recommendation to the SKA Board in March 2015.

## Science

*by Robert Braun, SKA Science Director*

The focus this month, has been continued activity on the SKA Science Book and preparation for the SKA Board meeting. The outcome of the science prioritisation was presented to the Board in addition to a proposed policy for Key Science Projects for SKA-1. The Board welcomed the proposed policy and asked the SKA Science Team to develop the policy further to become part of the SKA Key Document Set. The Key Document Set will be presented to the Board for approval in March 2015.

Prior to the Board meeting, Robert Braun visited Shanghai Astronomical Observatory on Monday 13<sup>th</sup> October 2014, and gave a seminar '[The Square Kilometre Array: Science Update and Opportunities for Maximising Scientific Return](#)'. Robert gave an update on SKA science activities, the recent science prioritisation and outlined opportunities for potential involvement in SKA Key Science Projects for SKA-1.



*Robert Braun with staff members from Shanghai Astronomical Observatory*

On 18<sup>th</sup> September, Dr Jimi Green gave a talk at ASTRON: “*The power of maser Zeeman splitting: today and in the era of the SKA*”

On 2<sup>nd</sup> October, Dr Tyler Bourke gave a seminar ‘The Square Kilometre Array: Science Drivers and Status Update’ at Swinburne University in Australia. He also gave a presentation as part of the ‘Meet the Expert’ event at Jodrell Bank Observatory during the half-term school holiday.

## **Policy Development**

*by Simon Berry, SKA Director of Policy Development*

As with other teams in the SKAO, the Board meeting in Guiyang has been the main focus of attention in recent weeks. Following up on various meetings that took place in late September, various aspects of our work, ranging from the core governance structure in the future, through to the procurement processes that the future organisation will operate under were presented to the Board for discussion and approval. Through the StratCom, we will be taking all these issues forward and as with other areas of the project, the Board meeting next March will be critical for approving a number of critical items we will need to move the project towards its next stage.

One specific item of note is that building on discussions that are underway already in SKA Member countries, we will be planning a dedicated procurement workshop in the coming period to test our thinking and proposals against real-world experience. More news on that to come. We are also thinking in more detail about how the overall SKA ‘Business Case’ should be developed, and learning what will be required in each Member country to

make a compelling case. As mentioned in a previous Monthly Bulletin, we are interested to hear concrete examples of 'impact' from SKA and radio astronomy more broadly that will be relevant to this. In addition, supported by the EU's GO-SKA project (led by Patricia Vogel, one of the Board Directors from The Netherlands) an expert workshop to discuss the future impact potential of SKA is being planned for early December. All of these initiatives should help us construct the strongest possible case for when we will need it.

## SKA Board Matters and Administration

*by Colin Greenwood, SKA Head of Administration and Legal*

### Board of Directors

The SKA Board of Directors held its latest meeting in Guiyang, China on 15<sup>th</sup> -16<sup>th</sup> October, hosted by the SKA China Office. Further details of the outcomes of the Board meeting are available on the [SKA website](#).

Following the meeting, on 17<sup>th</sup> October a group of directors and SKA Office staff visited the Five Hundred Metre Aperture Spherical Telescope (FAST) in Pingtang County, Qiannan. The visit was hosted by Professor Rendong Nan who provided an update on telescope progress before giving a tour of the construction site. This was followed by a visit to the Kapu Manaoan Minority Village and finally a banquet at Lui Caotan, Pingtang, hosted by the Governor of Pingtang County.

A selection of photos are available on a [dropbox folder](#).



*SKA Board of Director's visit to the FAST Telescope*



## SKA Headquarters

A Call for Proposals to host the SKA Organisation Headquarters for the construction phase of the project onwards was released on 28<sup>th</sup> October 2014. The deadline for receipt of proposals is 1<sup>st</sup> February 2015 and the SKA Board of Directors will be asked to approve the location of the Headquarters at the SKA-BD-17 meeting (3<sup>rd</sup>-5<sup>th</sup> March 2015).

## Staff Update

Daniel Hayden joined SKA Organisation as a Graduate System Engineer on 13<sup>th</sup> October 2014

Dr. Xiaoxuan Zhu took up her role as System Engineer (Modelling) on 31<sup>st</sup> October 2014 on secondment from the Ministry of Science and Technology in China. Dr Zhu will be working as part of the Systems Engineering team on a one year assignment.

## SKA Document Access and Use Policy

A Document and Use Policy (DAUP) was approved by the SKA Board in October 2013 for incorporation into the Memorandum of Understanding between the design consortium and SKA Organisation. The policy provides the framework for establishing the confidentiality, classification and security requirements for SKA Project documentation. The DAUP notification form has been released to Consortium Leaders and the SKA Office welcomes requests for classification of consortium documentation in line with the policy.

## IT

A reminder that if you would like to try out Vidyo videoconference software in preparation for meetings with the SKA Office, please contact the IT department ([skao-it@skatelescope.org](mailto:skao-it@skatelescope.org)) at SKA HQ to arrange a test.

## Communications and Outreach

by William Garnier, SKA Communications and Outreach Manager

### Shared Sky art/astronomy exhibition

Following a successful launch on 30<sup>th</sup> September, the *Shared Sky* exhibition was on display at the John Curtin Gallery in Perth, Australia for a month. Several floor talks were organised around the exhibition, which attracted a large number of visitors. The exhibition was also visited by high-level officials, including the US Consul General in Perth Cynthia Griffin and the newly appointed Governor in Western Australia, Kerry Sanderson.

*“She was very impressed with the exhibition, reported Chris Malcolm, Shared Sky Curator and Director of the John Curtin Gallery, after the Governor’s visit. She was also very pleased to see it was so compelling having been involved with SKA in some ways for several years in her capacity both as ICRAR Board member and Agent General for Western Australia in UK and Europe 2008–2011, recalling the earliest conversations conceptualising the Shared Sky project.”*



*Her Excellency the Honourable Kerry Sanderson AO, the new Governor of Western Australia is pictured here on left with Chris Malcolm, Director of John Curtin Gallery and Professor Jill Downie, Deputy Vice-Chancellor, Education at Curtin University.*

*Shared Sky* is now being packed and our eyes are already on Cape Town in South Africa, where the exhibition will be displayed starting in February on the next leg of its international tour.

In the meantime, we have published [a news item](#) on the inauguration night with quotes from many members of the SKA family who were gathered at the event.



You'll find images of the exhibition launch [here](#), as well as several photos and insights on the exhibition on the [John Curtin Gallery Facebook page](#). We also invite you to tweet about the exhibition using the hashtag #sharedsky.

#### Visit to CSIRO Marsfield

Following the Engineering Meeting, Mathieu Isidro, Deputy Communications and Outreach Manager, visited the CSIRO Marsfield offices where he was led on a tour of the PAF production facility. The visit also provided an excellent opportunity to discuss ongoing outreach activities and future plans for 2015.

#### SKA relevant events

Ensuring a high-level visibility at major international and national events is one of the top priorities of the SKA communications strategy. We've updated the [events page](#) on the SKA website listing major science, engineering, policy, communications conferences around the world for 2015 and strongly encourage members of the SKA community to let us know which ones they plan to attend and whether some relevant gatherings are missing from the list. In addition to providing outsiders the big picture of conferences of relevance for the SKA around the globe, the main objective of this page is to allow a good coordination within the SKA community with regards to which conferences we want to target and how. We are of course more than happy to provide material (brochures, leaflets, conference stands, posters, etc.) to partners planning to exhibit at and/or attend these events.

#### News coverage

A selection of articles this month:

From New Zealand, [Helping with radio telescope project](#) in the Otago Daily Times

From the US, [How big data in fueling a new age in space exploration](#) on VentureBeat (shared over 1500 times!).

From Australia, [ASKAP telescope takes shape in WA outback](#) on ABC news

From Germany (In German) [Keine deutsche Beteiligung am Riesenteleskop](#)

From China (in Chinese) [多国在黔共商合建最大合成孔径射电望远镜](#)

As usual, a selection of media articles of interest is featured on the [press coverage page of the SKA website](#).

#### **Connect with us**

For any enquiries, requests or feedback please write to [ska-outreach@skatelescope.org](mailto:ska-outreach@skatelescope.org)

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