



## SKA Organisation

Jodrell Bank Observatory  
Lower Withington  
Macclesfield  
Cheshire, SK11 9DL.  
UK

t: +44 (0)161 306 9600  
e: [enquiries@skatelescope.org](mailto:enquiries@skatelescope.org)  
w: [www.skatelescope.org](http://www.skatelescope.org)

## Notes from the Chair of the SKA Board

### 24<sup>th</sup> Meeting of the Board of Directors of SKA Organisation Held at Netherlands Organisation for Scientific Research 18-19 July 2017

#### Introduction

Professor Lars Börjesson (Chair of the Meeting) welcomed directors and invited guests from ASTRON (Netherlands), CNRS (France), CSIRO (Australia), European Commission, MPG (Germany), MPIfR (Germany), NAOJ (Japan), NWO (Netherlands), Science and Technology Facilities Council (UK), SERI (Switzerland), SKA China Office, SKA Finance Committee, SKA Science and Engineering Advisory Committee and SKA Office.

The Board approved the following appointments to the Board since its previous meeting, held in March 2017. It was noted that:

- On 12 April 2017, Prof. Carole Jackson was appointed as Science Director for the Netherlands, replacing Dr. Marco de Vos;
- On 21 April 2017, Ms Jane Urquhart was appointed as Voting Director for Australia, replacing Ms. Patricia Kelly;
- On 4 May 2017, Dr Brian Bowsher was appointed as Voting Director for the United Kingdom, replacing Dr. Adam Baker;
- On 5 July 2017, Dr. Filippo Zerbi was appointed as Science Director for Italy, replacing Prof. Steven Tingay;
- On 17 July 2017, Dr. Christa Hooijer was appointed as Voting Director for the Netherlands, replacing Ms. Patricia Vogel.

The Board also approved the appointments of Dr Thomas Auf der Heyde as Alternate Voting Director (ZA) in place of Dr Phil Mjwara; Mr Adam Baker as Alternate Voting Director (UK) in place of Dr Brian Bowsher on 18<sup>th</sup> July 2017 and Dr. Filippo Zerbi as Alternative Voting Director (IT) in place of Prof. Nicolo D'Amico.

#### Director-General's Report

Professor Philip Diamond (Director-General, SKA Organisation) presented an overview of the major activities within the SKA Office and the wider SKA Project since the last SKA Board meeting which included an update on interactions with potential new member countries and engagement with diplomatic missions. He also provided an update on the collaboration agreement with CERN, which was signed on 13 July 2017.

#### Finance Committee

Dr Colin Vincent (Chair of SKA Finance Committee) presented the report of the Finance Committee's eighth meeting, held on 21 June 2017. The SKA Board noted the Finance Committee Report.



The Board approved the SKA Organisation Report and Financial Statements for the period ending 31 December 2016 and authorised the Company Secretary and a Director to sign off the Report and Financial Statements. The Board also approved revisions to the SKA Organisation Financial Policies and Regulations and the SKA Organisation Schedule of Delegations and Authorisations.

### Engineering Report

Mr Alistair McPherson (Head of Project and Deputy Director-General, SKA Organisation) presented the Engineering Report on design and development in the pre-construction phase of the SKA Project, which included an update on the overall progress of the project and the twelve element design consortia. The Board noted the Engineering Report. The Board discussed concerns from SKA management about the risk to the project momentum and solutions were suggested.

### SKA Science and Engineering Advisory Committee (SEAC) Report

Dr. Marco de Vos (Vice-Chair of the SKA SEAC) presented the SEAC report from its meeting held on 23 June 2017. The main business of the meeting was to discuss the Cost Control Update provided by SKA Office including the preliminary science assessment of the Cost Control Plan. The SEAC also discussed the development of the SKA Observatory Roadmap. The Board noted that the SEAC had not yet reviewed the full Cost Control Project documentation due to the timing of its meeting; however, it was able to provide comment on some specific issues. Mr Alistair McPherson presented the SKA Office's response to the SEAC report. The SKA Board noted the SEAC report and the SKA Office's response to the report.

### Cost Update

Mr McPherson and Professor Gary Davis (Director of Operations Planning, SKA Organisation) provided the regular update to the Board on construction and operations costs for the SKA-1 baseline design. The Board welcomed a revised construction cost estimate of €806M and the revised estimate of operations costs of €88.7M per year. The Board noted the update on costs and welcome the reduction to both estimates since the last Board meeting.

### Cost Control Project

The Board acknowledged the excellent work undertaken as part of the Cost Control Project (CCP), initiated at the November 2016 meeting (BD-22), in bringing the cost of the SKA1 Design Baseline down. The Design Baseline, set in March 2015, remains the long-term ambition of the SKA1 project and the focus of the design consortia as they progress their work towards the Critical Design Reviews.

The CCP has identified a route for delivering two transformational telescopes within the set cost cap of €674M (2016 euros). The Board approved the definition of a 'Deployment Baseline', corresponding to the telescopes currently deliverable at that funding level. The Deployment Baseline takes advantage of the scalable nature of interferometers.

The current deployment baseline is set out in the table below. This has been defined following an analysis from the SKA Office in collaboration with the engineering design consortia and in consultation with the science community. The Board now looks to the science community, and particularly to the SKA Science and Engineering Advisory Committee, to regularly review the deployment baseline to confirm its ability to deliver transformational science.



The Board agreed to wrap up the Cost Control Project as a separate project. However, it challenges the SKA Office and consortia to continue reducing project construction and operations costs as a high priority, while maintaining the project's intent to deliver the world's best radio telescopes.

The Board is confident that the project is now in a position to transition the SKA Organisation to formal intergovernmental status.

The current deployment baseline, compared to the design baseline, is:

	<b>Design Baseline</b>	<b>Deployment Baseline</b>
<b>SKA1-Mid</b>		
No. dishes	133	130
Max. Baseline	150 km	120 km
Band 1 Feeds	133	130
Band 2 Feeds	133	130
Band 5 Feeds	133	67
Pulsar Search (PSS)	500 nodes	375 nodes
<b>SKA1-Low</b>		
No. stations	512	476
Max. Baseline	65 km	40 km
Pulsar Search	167 nodes	125 nodes
<b>Common</b>		
Compute Power	260 PFLOPs	50 PFLOPs

Note: The Board has taken note of recent science advice on the maximum baseline length of the SKA Low configuration and looks forward to further advice on this issue.

**Deployment baseline:**

'The final Deployment Baseline of SKA-1 shall be defined in the Construction Proposal. It will include as much of the Design Baseline as can be afforded at that time. The current deployment baseline is formulated on the assumption that €674M (2016 Euros) will be available. Scientific assessment of the current deployment baseline demonstrates that the SKA Observatory will deliver transformational science capabilities. Re-instatement of the omitted capabilities, up to the full restoration of the Design Baseline, is planned, either during or after the construction phase, should additional funding become available.'

Engineering Plan to Construction

Mr McPherson presented the Engineering Plan to Construction, which had been developed from the outline construction plan presented to the SKA Board in July 2016 to define the structure of the SKA-1 Construction Plan and Construction Proposal. The Board approved the Engineering Plan to Construction as an acceptable plan for obtaining construction approval for SKA-1.

Site Reports

The SKA Board noted site reports from Australia and South Africa. Dr Rob Adam reported that MeerKAT remains on track to have a 64 antenna array ready to start doing science at the beginning of April 2018. Dr Sarah Pearce reported that the Australian Square Kilometre Array Pathfinder (ASKAP) has detected its first four fast radio bursts.



### Invited Guests

The invited guests from France, Germany, Japan, Spain, Switzerland, Spain (through email correspondence) and the European Commission provided brief reports on activities and engagement within their science communities and governments. The Board welcomed these reports.

### StratCom Report

Dr Simon Berry (Director of Corporate Strategy, SKA Organisation) presented the report from the Strategy and Business Development Committee (StratCom) meeting held on 26-27 June 2016, which was noted by the Board. The Board discussed StratCom feedback on several policy and project issues and approved the revised StratCom membership.

### Transition Planning and IGO Update

Ms Theresa Devaney (Transition Coordinator, SKA Organisation) presented a report on transition planning from the current SKA Organisation towards the future SKA Observatory Intergovernmental Organisation (IGO). The Board noted the governance structure for transition and the role of the Board and its supporting entities. The Board endorsed the proposed approach and timeline for developing a business case approach to transition, supported by a gated review process. The Board also endorsed the outcomes from the recent StratCom meeting with regard to the scope and timing of the transition to the SKA Organisation IGO.

### Items for Noting

The Board noted the report from the SKA Science Director and updates on planning for operations, project and corporate risks, SKA Headquarters and site hosting agreements, the construction of the new SKA Headquarters, which is proceeding to plan, and the Board forward workplan for 2017-18.

### Future SKA Board Meetings

The Board discussed future SKA Board meeting dates and the following was agreed:

- SKA-BD-26 Meeting: 8-9 November 2017 (Bologna, Italy)
- SKA-BD-27 Meeting: 11-12 April 2018 (Sweden)
- SKA-BD-28 Meeting: 10-11 July 2018 (South Africa)

Lars Börjesson  
Chair of the Meeting and vice-Chair, Board of Directors  
SKA Organisation  
24 July 2017