

SKA-France

Monthly bulletin

July 2019

SKA-France

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News from Maison SKA-France

30th SKA Board Meeting



*Members of the SKA Board of Directors at the 30th Board meeting.
Image courtesy: SKAO*

The 30th meeting of the SKA Board of Directors was held on July 10 and 11, 2019 at the SKA Global Headquarters (UK), following a two-day face-to-face meeting (July 8 and 9) of the SKA Observatory Council Preparatory Task Force (CPTF).

After the early July announcement of New Zealand winding down its involvement in the SKA by the end of 2020, on July 11, 2019, the SKAO Board members had the pleasure to note that Spain's Ministry of Science, Innovation and Universities applied to upgrade from Associate Member to **Special Member of SKA Organisation**, this status providing to Spain a greater access to the Company's decision-making processes.

In addition to the usual updates on progresses related to **governance, science, engineering, operation and procurement matters**, a **review of the SKA Brand** was presented by W. Garnier (Director of Communications



Official opening of the SKA Global Headquarters

On July 10, 2019, more than 200 guests had the pleasure to attend the ceremony for the official opening of the SKA Global Headquarters (HQs), located on the grounds of the historic Jodrell Bank Observatory and funded by the UK Government, Cheshire East Council and The University of Manchester.

Very nicely, the ceremony happened three days after the announcement of Jodrell Bank Observatory becoming one of the UNESCO World Heritage Site.

The SKA Board members were invited to the event and had also the privilege to participate to a dedication ceremony, held in honour of the former SKA Board Chair (Prof. G. Bignami, 1944-2017), during which his widow (Dr. P. Caravero) named the SKA HQs auditorium "The Giovanni Fabrizio Bignami Council Chamber".

Outreach and Education). The Board discussions saw also a **policy session**, including a report on the outcomes of recent CPTF meetings by the Council Chair (P. Kelly); the SKA Organisation Board was informed that the SKA Observatory Convention is likely to enter into force by mid-2020. In the same session, progresses to develop a partnership model for operations of SKA-Mid in South Africa and SKA-Low in Australia, as well plans for the transition between the SKA Organisation and the SKA Observatory, were presented by S. Berry (Director of Strategy) and T. Devaney (Head of Business Development and Change), respectively.

Quick progresses are on-going on all sides of the project. P. Diamond (SKAO DG) reported that, from the human resources point of view, **34 new roles have been advertised in the last year**, attracting nearly one thousand candidates. The full implementation of a new **Enterprise Resource Planning (ERP)** has started and will need to take place in the next 18 months, before the establishment of the SKA Observatory. To be recalled that new jobs are regularly updated at the [SKAO Recruitment Portal](#). Prof. Diamond also informed the Board that the SKAO is fully engaged in initiatives lead by the International Telecommunication Union (ITU) in order to ensure that **new generations of constellations of low Earth orbit satellites will not compromise future SKA scientific results**.

R. Braun (SKA Science Director) gave an overview of recent activities of his team, with particular emphasis on the good participation of the community to the last [SKA Science meeting](#) and on the [publication of the results of the First Science Data Challenge](#). This was the first of a series of challenges and was intended to test source finding and classification tools on nine different images, sampling three different frequencies - 0.56, 1.4 and 9.2 GHz - and three different exposure times - 8, 100 and 1000 hours.

J. McMullin (Programme Director) provided an update of the **pre-construction missions**, consisting in delivering a Construction Proposal and an Operations Plan. Key dates are related to the

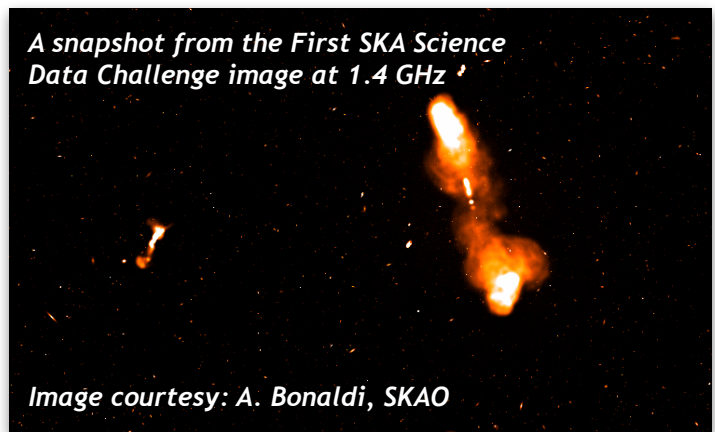
Adoption Design Review (ADR) meetings during **July and very early August** (which will establish the complete set of documents detailing requirements, design, interfaces and plans) and, above all, to the **System Critical Design Review (CDR)**. The full publication of its documentation is expected by **mid-October 2019**, for a **System CDR meeting** taking place from **December 9 to 12, 2019**. This very tight and ambitious schedule is intended to force to have a **Construction Proposal ready** to be submitted to the first SKA Observatory Council meeting, in **mid-June 2020**. Meanwhile, **element CDRs are progressing** (with the SDP consortium having formally closed out actions and the AIV consortium having recently [announced to have completed its planning work](#)) and, as reported by the Interim Director of Operations (A. Chrysostomou), **operation workshops** were held in Cape Town and Perth between February and March 2019. Very importantly, an updated version of the **SKA cost book and work breakdown structure** were presented to the Board by J. McMullin, while I. Hastings (Head of Procurement Services) presented an update of the **“Hybrid Procurement Model”**, consisting in a flexible approach, partly allocative and partly competitive.

A. Russell (ESO), member of the **Science And Engineering Advisory Committee (SEAC)**, presented the recommendation coming from the last face-to-face meeting (June 24-25, 2019) of this very important SKAO body, providing comments and useful inputs on the project status, the CDR developments (with particular attention the to SKA1-LOW telescope), the operation plan, and the SKA Regional Centers (SRC) organisation work.

As detailed in the previous page, the Board was nicely invited to the two ceremonies in honour of Prof. G. Bignami and for the official opening of the SKA HQs. For a more complete overview of the meeting discussions, we refer the reader to the [notes from the Chair of the Board \(C. Cesarsky\)](#), which are published [on-line](#) at the SKA Organisation web-page.



Ceremonial key of the HQs Opening. Made from the original surface of the Lovell Telescope hosted at Jodrell Bank (in the background of the Board picture at page 1), it shows radio observations of the first ever pulsar detected and has a length of 21.1 cm (a key number for radio-astronomers: it is the wavelength of electromagnetic radiation emitted by neutral hydrogen atoms)



A snapshot from the First SKA Science Data Challenge image at 1.4 GHz

Image courtesy: A. Bonaldi, SKAO

Activities

SKA related PhD project funded by Île-de-France Region

A team of partners and collaborators of Maison SKA-France, including researchers from the CNRS (INS2I, INSIS) Laboratory L2S, Paris Observatory and the company ATOS-Bull, has recently got one of the competitive PhD grants of the funding program “Paris Region PhD²” of Île-de-France Region, whose call for projects was announced in the [March 2019 issue of the SKA-France bulletin](#).

The project (“ExaSKA: Parallelisation on a supercomputing server for the exa-scale radio telescope SKA”) is lead by N. Gac (L2S) and will finance the PhD of N. Monnier, who already worked with the SKA-France team firstly for his Master internship and then as a research engineer of ATOS-Bull. N. Monnier will keep collaborate with this important private member of Maison SKA-France during his PhD, and in particular with E. Raffin and D. Guibert from the ATOS-Bull Applications and Performance team, as well as with C. Tasse and M. Caillat (OBSPM).

Announcements

Second Announcement of the 2019 SKA Shanghai Meeting

25-28 November 2019, Shanghai, People's Republic of China

The SKA community is gearing up for one of the biggest events in this year's project's calendar: the **2019 SKA Meeting in Shanghai** (“Concluding our Past, Realising our Future - The SKA System Design, Operations & Plans”).

Registration is open for the meeting, which will bring together hundreds of engineers, data scientists, astronomers and other experts from within the SKA community and beyond. The focus will be on the immediate and long-term future of the SKA telescopes, from procurement to commissioning and operations.

The SKA Organisation will present the full design of the two telescopes, finally unifying the years of work carried out by the SKA's design consortia. This first look at the detailed elements as a cohesive whole will set the scene for the overall System Critical Design Review, taking place at SKA Global HQ just two weeks later. For the past 18 months, critical design reviews have been taking place for nine of the SKA's international engineering design consortia, each focusing on a key element of the telescopes' design. The System CDR will ensure these individual pieces can operate as one and meet the exacting system requirements for the SKA to achieve its science goals.

As well as the design preview and talks by colleagues at precursor, pathfinder and peer projects, there will be sessions on the latest developments towards the network of SKA Science Regional Centres (SRCs). These SRCs will be supercomputing facilities dotted around the globe that will be processing and hosting hundreds of petabytes of data, acting as the final interface with the end users, namely the scientists and astronomers.

To remind the assembled delegates, who will be mostly engineers and managers, of the true significance of their endeavours, each day will commence with a science talk, addressing major topics in the SKA's science case, delivered by astronomers in those respective fields.

Co-hosted by the SKA Organisation and China's Ministry of Science and Technology, the Shanghai Meeting will provide an opportunity for the SKA Chinese partners to celebrate the significant contribution of Chinese institutions to the SKA to date. Attendees will have the chance to visit China's flagship radio astronomy project, the Five-hundred metre Aperture Spherical Telescope (FAST), which is the world's largest filled aperture radio telescope. This mega-science endeavour, constructed in just five years in a natural basin in China's southwest Guizhou province, can offer numerous lessons for the SKA as it heads into procurement and construction.

All information at the [meeting website](#).

Important dates before the meeting:

- * February 28, 2019: Initial announcement
- * July 10, 2019: Registration and call for abstracts open
- * October 18, 2019: Registration and abstract submission deadline

2019 SKA Shanghai Meeting: Concluding our Past, Realising our Future

25-28 November 2019
Asia/Shanghai timezone

Overview

- Important Dates
- Call for Abstracts
- Registration
- Programme
- Conference Payment
- Invitation Letter and Visa
- Welcome Reception and Conference Dinner
- Transport
- Venue and Accommodation
- Local Information and Activities
- Site Visits
- Signposting in Shanghai
- Organising Committee
- SKA Organisation Code of Conduct for Meetings

Support

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Second Announcement

The SKA System Design, Operations & Plans

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Radio transients workshop

24 September 2019, Paris, France

The [Action Spécifique SKA-LOFAR](#) (AS SKA-LOFAR) and SKA-France organise a one-day workshop focused on the study of the transient sky with SKA and precursors (MeerKAT, ASKAP, NenuFAR, ...). Transient sources include accreting binary systems, ultra-bright X-ray sources, gamma-ray and fast-radio bursts, events associated to gravitational waves, supernovae, ... During the workshop, special attention will be paid to synergies with high-energy observatories (such as SVOM, CTA, ATHENA), and multi-messenger instruments. In this regard, two related meetings will also be held in Paris during the same week, namely the [THESEUS-France Workshop](#) on September 23, 2019, and the third edition of the [Transient Sky 2020 Workshop](#) (TS2020) on September 25 and 26, 2019 (see also below).

Our understanding of the radio transient population has increased dramatically in recent years thanks to the new generation of radio telescopes. The objective of this one-day workshop will be to review the knowledge about these phenomena, to get a complete overview of the possibilities opened by radio observatories and to evaluate the current and expected French contributions in this research field.

The workshop (organised thanks to the financial support of the [Programme National Hautes Energies](#), of the AS SKA-LOFAR, and of Paris Observatory through the funding programs [RT21](#) and [CIAS](#)) will be open and free of fees for all interested participants, who are however **requested to fill a [registration form](#)** for logistic reasons. It will take place on the campus of Paris-Diderot University, in the Pierre-Gilles de Gennes Amphitheater of Condorcet building, which will also host the TS2020 workshop.

Meeting website: <https://sites.google.com/view/atelier-ska-2019/accueil>

Third edition of the Transient Sky 2020 Workshop

25-26 September 2019, Paris, France

The next decade will see the beginning of operations of new ground and space-based instruments that will enable unparalleled multi-wavelength and multi-messenger study of the variable and transient sky. Among those projects that see an important French involvement, we can mention CTA, SVOM, LSST, SKA, LIGO / Virgo, KM3NET, ... Astronomical studies of transient and variable sources are related to a large number of scientific topics at the interface between different domains, such as high energy phenomena, cosmology, galaxy evolution, stellar physics. If the scientific potential of this research field is exceptional, as illustrated by the tremendous observation campaign that followed the first detection of gravitational waves from a coalescence of two neutron stars (GW170817), its challenges are also not negligible, and in particular related to the need to react very quickly and effectively to unpredictable alerts.

A series of interdisciplinary national workshops on the study of the transient and variable sky began in 2017, with the aim of bringing together researchers involved in that research field, discussing possible links between major international collaborations, presenting the underlying main scientific questions, discussing about existing methods for the monitoring, analysis, and interpretation of transient events. The first two workshops of the series brought together about fifty people for three days in [spring 2017](#) (Orsay) and [summer 2018](#) (Montpellier).

The **third edition of TS2020 will be held in Paris** (Paris-Diderot University, Pierre-Gilles de Gennes Amphitheater of Condorcet building). It will offer an opportunity to update the panorama of French activities in the field: all contributions are welcome, both on astrophysical questions and on technical aspects. The workshop is open to all interested participants without registration fees. The lunches of the two days will be offered. **Financial support is possible** (with the highest priority given to young researchers) by making the **request via the [registration form](#)**.

Meeting website: <https://indico.in2p3.fr/event/19471/>

News from the SKA Science Team

In the last weeks, **newly launched SKA working groups have been announced by R. Braun and his team**. This reflects the continuous growing of the SKA community (with, today, more than 800 members being part of SKA Science Working Groups, SWGs), which requires a continuous evolution in the organisation of the scientific preparation to the SKA. The SWG number has grown by about a factor of two (from 8 to 14) in the past five years.

A **new SWG, with a particular focus on Gravitational Wave (GW) Science** enabled both by stand-alone SKA surveys and by synergetic studies in conjunction with GW interferometers, has been formed. Researchers interested to this newly formed SWG can feel free to nominate themselves for membership by contacting the co-chairs of the team (S. Nissanke from University of Amsterdam, and A. Racanelli from CERN).

As of a few weeks ago, a new topical focus group ("ISM & IGM - Structure Formation and Energy Balance") of the Extragalactic Continuum SWG has been announced. Its aim is to investigate the physics and energetics of the medium where galactic structures, on various scales, are formed. Scientists interested to participate are invited to sign up by adding their names to the list at the top of the [focus group web-page](#) and by contacting its coordinator, [F. Tabatabaei](#).

Finally, after the beginning of operations of the SKA Regional Centre Steering Committee (SRCSC), the SRCSC, together with SKAO and the SWG co-chairs, felt it was timely to appoint SWG contact points to serve as conduits between the SRCSC and SWG teams. These contact persons will work with the SRCSC to extend and update the processing plans for surveys and typical observations that will be made by each SWG. This could include clarifying the specific data products and data rates and volumes for surveys, commenting on what SRC pipelines and tools would be valuable, or thinking about how data would be managed and stored from observing down to science. Researchers involved in SWGs and interested to become a contact person with the SRCSC team are asked to candidate by contacting the co-chairs of the SWG of interest.

The Atos Joseph Fourier Award 2019 to a French team working on SKA preparation

On July 4, 2019, the ATOS company, together with GENCI (Grand Équipement National de Calcul Intensif), announced the winners of its scientific competition, the [ATOS Joseph Fourier Award 2019](#), which aims at accelerating research and innovation by rewarding projects in the fields of numerical simulation and Artificial Intelligence (AI).

We are happy to announce that **D. Aubert** and **P. Ocvirk** from **Strasbourg University** got, together with their team, the 2nd prize of this prestigious award (consisting in 200,000 hours of machine time on a GENCI supercomputer) for their GARLHYC project (Galaxies and Reionization simuLations using HYbrid Computing). By using some of the most powerful supercomputers that exist today, the team works on simulations of the first billion years of the universe, and in particular, of the formation of the first massive sources of light. This is one of the hottest scientific topics that the SKA will be able to address, by allowing astronomers to map the neutral hydrogen gas clouds that, by obeying the influence of gravity, collapsed into the very first stars and galaxies during the so-called "Cosmic Dawn". Important to mention that **D. Aubert** and **P. Ocvirk** significantly contributed to Chapter 2 ("Early Universe, cosmology and large scale structures") of the [French SKA White Book](#).



Congratulations to them and to the other winners of this prestigious awards!

Chiara Ferrari
for the [Maison SKA-France](#)