

SKA SWG Update 18 July 2023

Attending

SWG Co-Chairs: Andrei Mesinger, Adriano Ingallinera, Cherry Ng, Fernando Camilo, Francoise Combes, Jan Forbrich, Jason Hessels, Mark Sargent, Stefano Camera, Tessa Vernstrom, Valentina Vacca

SKAO: Robert Braun, Shari Breen, Philippa Hartley (notes), Tyler Bourke, Ailing Wang

Apologies: Betsey Adams, Divya Oberoi, Barbara Catinella, John Ilee, Eduard Kontar, Marta Spinelli, Natasha Hurley-Walker

We are joined again by Shari Breen, who will take us through another couple of Science Operations topics.

Science Operations topics (Shari Breen)

SRC Network

The mission of SKAO is to deliver transformational science. SRC Network is critical in order to deliver on this mission. Enables access by scientists to the data for analysis. The SRC Network will be a collection of nodes. The nodes will vary in specification, but the user experience should be uniform, regardless of a user's geographic location. A lot of work is currently happening leading up to a review on the SRC Network, in addition to prototyping work.

An SRCNet use case document is now nearly ready for circulation. Includes all the uses that the user community envisage. Serves as a reference for design of different parts of the system, and was developed using the results of the user questionnaire conducted last year. The questionnaire was used to develop 'user stories'. The document doesn't form part of the SRCNet review but will be published and referred to during the review. It will be shared, with no restrictions, with the community. Slide 6 gives some examples of what the document will contain.

JH: when should we expect to see this document?

SB: currently being signed, anticipating ready in weeks

JH: Should we share for additional feedback with SWG members?

SB: Yes please, the more feedback the better

SB: This will be the first version of the document, ahead of future versions.

RB: Currently looking at the best location for a 'key document' repository to host documents like this. We will circulate updates as soon as available.

MS: To what extent might future versions grow in scope beyond what users might do with SKAO data? For instance, users may use external catalogue information in addition to SKAO data. Would you encourage us to think about how we will combine different data streams for description in such a document?

SB: This doc already considers other data streams to an extent. The white paper will help inform that.

RB: This is very much in scope; it is a vital part of science extraction to make use of other wavelength data, and feedback on this would be very welcome

SB: Is there a general desire to learn more about the SRC development from the SWG chairs?

Several: Yes

Sensitivity calculators

Essential part of observatory development that will allow the community to plan observations. Important that the community is able to access standardised and available calculators. Almost have both LOW and MID calculator available for continuum and zoom modes. Will be released while we continue to develop the inclusion of other modes, including PSS, PST, VBLL.

The calculator front end will be replaced at some point, to become part of our proposal planning and submission tool (PPT). We encourage the testing and feedback of the calculators, not only to check their performance but also to check for accessibility. We are aiming to keep the calculator as simple and user friendly as possible.

JH: Is there an API for this, so that more advanced users could automate and script this?

SB: Not currently happening but is planned.

FC: Is RFI and weather taken into account?

SB: RFI is included, and can choose options of good, medium and bad weather. Takes into account confusion noise, plus galactic emission 'zone of avoidance'.

RB: We do have some precipitable water stats in a previous paper. As time goes on, our stats estimate will continue to improve and can become incorporated into the calculator.

Feedback indeed welcomed and encouraged.

SB: Important to note that the sensitivity model will be aligned with the operational model, such that its flexibility will match the operational flexibility.

VV: Also planning a visibility (of the sources) calculator?

SB: We will be considering what will be included in full suite of tools. We do not want to overcomplicate the tool, but we can see that it would be useful for some users.

RB: The simulation tool (presented during last month's meeting) could be very useful to get an idea of feasibility for e.g. certain source declinations.

VV: may be needed to identify calibrators?

SB: Could be cases where bespoke calibrators are requested. This will be taken into account during proposal process.

AM: In some WGs (e.g. EoR), we would need the data products at a range of stages with the corresponding tools. Imagining a collaboration with SRCs and SKAO to provide the data in various formats and stages.

SB: We are indeed planning for this; in some instances, visibilities will be available.

RB: In the lead up to the most demanding experiments, there could well be a phase where small, proto observations could be taken to enable calibration strategies to be tested.

AM: We are planning for exactly that.

MS: An HPC calculator could also very important. To what extent could indicative computational resourcing values be provided too?

SB: The proposal process will include a validation step that will ensure your observational request will be feasible.

RB: Feasibility will also include SRC, SDP, network bandwidth and indeed those elements need to be visible to the observing proposers.

SB: This functionality will be included in the PPT, rather than the sensitive calculator.

SB: Re: proposal themselves. For some proposal the answer will be we can 'sometimes' do this on the SKAO, but not all the time, and is dependent on what else is on the telescope. We will sometimes need to wait until we are already in the cycle and see what projects we have.

Meetings

See slide 9 for the list of upcoming science meetings

JH: Could we add 'Science at low frequencies'?

RB: Thanks, we will add this

EAS meeting (Tyler)

Updates from observatories included Phil Diamond speaking at the plenary session 'On the road to SKA' lunchtime session organised by Wendy. Talks from Tyler and Shari on SKAO Science and Operations. Science talks on continuum, galactic science and pulsars. A SKAO Poland engagement event saw ~30 attendees, very good attendance from Polish community. SKAO support from Matthieu Isidro and Thijs Geurts. Great to see several of our SWG chairs in attendance. There is an activate and large community in Poland.

AOB:

JH: Nice pulsar timing array results, looking forward to SKA results, which should be able to confirm and pin down parameter values.

RB: At the last council meeting I presented a couple of slides on the most recent big science news relevant to future SKA observations. Included reporting on the recent coordinated consortia paper, highlighting the successful nature of this coordination, where all teams held results until ready to announce.

Thank you all very much for joining today. We may cancel our August date due to the holiday period in the Northern hemisphere; we'll let you know soon.