

SWG co-chairs meeting notes 17 September 2024

Attending:

Co-chairs: Tessa Vernstrom, Bhal Chandra Joshi, Catherine Hale, Eleonora Bianchi, Jacco van Loon, Jack Radcliffe, Jennifer West, Joe Callingham, Katie Mulrey, Ke Wang, Marta Spinelli, Neeraj Gupta, Patrick Woudt, Stijn Buitink

SKAO: Philippa Hartley, Wendy Williams, Robert Braun, Anna Bonaldi (notes)

Apologies: Marc Audard, Betsy Adams

Construction

Robert: AA* vs AA4: 70-80% of the dishes/stations, with reduced sensitivity and max baseline, and reduced computational capacity. The goal is still to deliver the full design baseline AA4 but the timescale will be determined by the availability of funds. Commissioning timeline: science verification to start in AA2 in 2027. Targets for observations will be suggested by you and data will be public afterwards. This is just a few years away!

In terms of construction, we shared last time the images of the "Big Lift" of the first Mid dish. Preparations are ongoing for the installation of two more dishes, the 4th is still in China where it is easy to test for specific things as needed. For Low, we had the first fringes detected last week during the SEAC meeting that happened in Perth, which is wonderful news. The SEAC meeting included a visit to the site of the Low construction, it was very impressive to see the progress. The infrastructure is there for all the southern arm cables, and many station locations are fitted with the ground screen where antennas are mounted.

Science meeting 2025

Philippa:

Meeting in June next year, in person with virtual attendance supported for all sessions. It will feature presentations from the book. At the meeting we will focus the program more on AA* capabilities, although the book will focus on AA4. There will be sessions on "Observing with SKA" led by the science operations team. Plenary sessions organised in broad science categories, mirroring the book structure. 1.5 days of splinter sessions, with some SWG grouped together to fit 8 rooms. To arrange that, we are looking at overlap of members between groups. We will also ask participants at registration which splinter sessions they would like to attend. If a talk is not allocated, there will be the opportunity for posters and brief "lightning talks" early in the week. In terms of current status; next SOC meeting is next week. There was a recon trip to the venues. This visit went well and will help us prepare.

Joe: can you clarify why the different focus AA* vs AA4 for conference and book?

Robert: Council made commitment to find the money to build AA4, and the book on AA4 is part of what's needed to show that community support is still there to make that happen. On the other hand, AA* is what SKA will be in the first few

observing cycles, and the community needs to prepare for observing with AA* in the first instance. So, it makes sense that the conference has that focus.

Where do we get the AA* and AA4 specifications?

Robert: The sensitivity calculators allow to select the Array Assembly. Additionally, the science team have updated the Scientific Performance document to include AA* and this will be released in a couple of weeks.

Bhal Chadra: when will pulsar mode be available in the sensitivity calculator?

Philippa: we need to check with the science operations to answer this.

Science Book

Philippa: Update the existing science book with full baseline design, SWG-coordinated chapters both new and updated, and an opportunity for new members and new content to be added. In some cases, not much update will be needed, in this case the articles can be resubmitted with minimal modifications. Each chapter is to contain a description of a science application with focus on AA4, and as a supplementary focus looking at the early science (AA*), enhancements beyond AA4 as well as synergies with other instruments. Sci-Ops will share guidance on commensal observing.

SWG chairs to join editorial board of the book. There will be a set of SWG intro chapters with high-level overview on the activity of the SWG and how the chapters represent it. The chapters themselves will be organised in broad sections. This differs from the 2015 book where each SWG had a section. The sections we are proposing are:

- Planetary Systems,
- Sun and Stars,
- Galaxies,
- the Cosmos,
- the Extreme Universe.

Some SWG match to essentially one section but others match to multiple ones depending on the article. In the slide I suggest some possible groupings, but this is just my first attempt.

Jack: Are the themes now finalised? It would be useful for the VLBI group to know.

Bhal Chadra: This organisation is different than the previous book, which means that revision of chapters is affected. It would be good to have a bit of time to consider and give feedback.

Robert: Need not be one-to-one match between SWG and categories. SWG goals can cut across themes and the resulting papers can be placed in many themes.

Bhal Chadra: Interstellar Medium and Galactic centre are not explicitly listed, but they should be there. We would like an opportunity to iterate on those once we get submissions.

Philippa: We would like to try to stick with 5 sections, but titles and descriptions can be improved to include what's missing. I will send out for comments on the current proposal.

Philippa: In terms of coordination, there are internal calls and external calls. The first one is led by you as SWG chairs, the second come through to us but we will involve the relevant SWG chairs to check the collated abstracts see if there are gaps or repetitions.

Marta: Do internal chapters also need to be sent as an abstract by the 30th Sept?

Philippa: The deadline is more for the external chapters. It is at the SWG chairs' discretion if you want to put an internal deadline.

Neeraj: An internal deadline would be good so that we could see a full list of chapters a bit in advance. Also, how much revision of the chapters is expected to happen after the conference?

Philippa: Advanced drafts to be submitted by January, but there will be revision afterwards.

Robert: Last time around we found that leaving everything for after the conference is not optimal for getting things finished. Having some preliminary work done ahead facilitates a speedy resolution.

Neeraj: Regarding chapter page limits: 8 pages seems too short, 15-16 seems more appropriate.

Philippa: In the last book 8 pages this was the typical length, although there were longer chapter. Maybe the answer is not to be too prescriptive.

Tessa: Considering that we might need to add more material for example for AA*, the refreshed chapters could be longer than they were before. Do you expect all the old chapters to be re-submitted, or would it be appropriate to condense some of the content?

Philippa: Absolutely OK to condense, it is your call. We just would like that the new chapters are representative of the current SWG science cases.

Deadlines.

Philippa: we can discuss an internal deadline for the articles with a poll. End Oct/Mid Nov probably.

Catherine: The advance draft deadline of 30 Jan is tight for Southern Hemisphere as there is a summer holiday that's typically longer than the Xmas break the Norther Hemisphere has.

Philippa: The current deadline is motivated by the coupling with the conference program. We want to be able to confirm talks in plenty of time for people to arrange travel/get visas etc. I will talk about it to the SOC again to see if there is any more room for manoeuvre.