SWG co-chairs meeting notes 21 November 2023

Attending:

Co-chairs: Jan Forbrich, Divya Oberoi, Jack Radcliffe, Pietro Zucca, Stefano Camera, Francoise Combes, Rohit Sharma, Jacco van Loon, Marta Spinelli, Mark Sargent, Betsey Adams, Tessa Vernstrom, Sebastien Muller, Jason Hessels, Andrei Mesinger, Aris Karastergiou, Abhirup Datta, Phil Edwards

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

Apologies: Viviana Casasola, Natasha Hurley-Walker, Valentina Vacca, Barbara Catinella

Welcome to those joining for the first time today!

Data Challenges

AB:
We have just concluded data challengeSDC3a, which was an EoR 'foregrounds' cleaning exercise. We will next run part b, which is an inference exercise, involving deriving the ionisation history of the Universe.

We would like to acknowledge the generous support of our international computing centre partners. This challenge involved a 7.5 TB dataset.

We would like to congratulate the winning team, HIMALAYA, from China. Several teams performed similarly very well. 17 teams in total with 20 submissions. We will now follow up with some more analysis, which will be prepared as a paper.

Looking at the results of the winning team, from the 2-dimernsional power spectra we can see that foreground contamination has been removed largely very well. The error estimation was also taken into account in the scoring metric. Residual plots (slide 7) show that the winning team's error estimation was generally within 3-6 sigma.

Reproducibility badges are designed to acknowledge the time and effort taken by teams to prepare their software pipelines in a way that can be reproduced and reused by others. The badges will be awarded to all SDC3a teams who follow the 'six steps to reproducibility' as set out by the Software Sustainability Institute.

Challenge 3b, 'EoR Inference', will take place next year. We will use a new realisation of the universe simulation. Expecting to see teams with different expertise taking part in this part of the challenge. Stay tuned!

Mark S: After doing three science data challenges, have we noticed whether there is an overlap of teams taking part in different challenges?

Robert: For the most part we have seen different teams taking part in different challenges.

Science Data Challenge 4

We have been testing our models that contain emission and rotation measure across local and high redshift universe. Franco Vazza has developed a sky model for us.

Slide 10 shows the collapsed version of the rotation measure sky. Been constructed from 100 Mpc slices. Tiled together after being given a random orientation and offset. A -750 to +2000 RM asymmetry is not unexpected for a given realisation of the Universe. We have determined that there does not appear to be much periodicity, which we wanted to avoid.

Looks like we will be developing the simulation in the image plane, as a visibility plane approach would be very computationally intensive (1000x the processing using in SDC3a).

After performing some tests, we have some confidence that we will be able to embody some realistic residual calibration errors.

Tessa V: Do you have an updated timeline?

Robert: Hoping to schedule for middle of 2024.

Tessa: Might it overlap with EoR inference challenge?

Robert: It may; we are now considering a longer run time of 9 months for the EoR Inference challenge, after taking advice.

Co-chairs refresh

We would like to welcome some of our incoming chairs today. This process is currently underway, with a staggered rotation for some pairs of chairs.

We are extremely grateful to you all for your dedication in this role, and for serving with distinction.

Betsey A: We are also working on co-chair rotation in the HI SWG, to replace Barbara. Thanks for your email to all SWG members on this.

Science Meetings

Recently had the East Asia SKA workshop held on Jeju Island in South Korea. Good discussions and involvement of early career researchers. South Korea—SKAO cooperation agreement potential very positive.

Cosmology in the Alps with take place in March. Abstract submission closing at the end of November. Having a mix of contributed and invited talks. Focus of the meeting will be radio cosmology.

Mark S: We recognise the expense of coming to Switzerland. Working hard to secure fellowships to support earlier career researchers to attend.

Andrei M: There is very high interest from EoR SWG in attending. Is the 80-100 limit a hard cap? Not aware of an invitation to HERA member to present.

Anna B: Yes, it is a cap. Let me follow up about the HERA invitation. If this meeting is a success, we would like to make it a regular feature.

Francoise C: Will it be possible to attend by video?

Anna: Unfortunately, it will not be possible. Decision made due to logistics but also due to aim to provide the networking opportunity. I will see whether talks could be recorded.

Andrei: Perhaps for the next meeting, could have a 'rolling' conference: blocking a longer time and focussing different topics at different times in that time period.

Jacco v L: Feel it should be fairly standard now to make conferences hybrid at least in a passive way.

Robert B: Agreed.

Marta S: Wanted to mention that the name 'SKAO Cosmology in the Alps' might clash with the Cosmology SKAO Science Working Group meeting which will take place in Porto in (January?).

Anna: Agreed, we intended to use the name 'SKACH Cosmology in the Alps' and will change the name on the slides.

Divya: Wanted to share the good news that we have just published our first piece of work using MeerKAT to look at the Sun. Also, wanted to thank Robert and the entire SKAO staff, plus my co-chair, for the support over this time.

Robert: On the solar observing with MeerKAT, were attenuators required?

DIvya: Yes, 25 dB attenuation used.

Aris: Would like again to ask about the possibility of hosting the slack projects centrally?

Anna: We do have a little bit of extra capacity in the SKAO licence, but not enough to cover all working group members. We would want to support all groups equally, of course, so at this point we will not be able to support this, unfortunately. We might be able to come up with a different solution.

Aris: Slack support for SWGs would be very beneficial.

Jacco: One slack for all working groups and channels for each working group?

Anna: I think it's on a per user basis, but might also depend on how much use?

Aris: One of the main purposes of the SWG is to maintain and develop the science cases. A repository for these things is essential.

Robert: Agreed. Idea behind a wiki space was to meet this need. Wiki not always populated though?

Betsy: HI and extragalactic spectral line meeting is coming up soon. An example of where a common platform would be very useful.

Francoise: Prefer a wiki very much to slack.

Betsey: Wiki a repository of information and slack a place for discussion.

Robert: Thanks everyone and thanks again to DIvya and Francoise for your great service.