

SWG Chairs Telecon 16-June-2020

Notes: Evan Keane

Participants: SWGs: Natasha Hurley-Walker, Abhirup Datta, Adriano Ingallinera, Andrei Mesinger, Anna Nelles, Diva Oberoi, Fernando Camilo, George Heald, Izsaskun Jimenez-Serra, Jason Hessels, Jeff, Josep Girart, Laura Wolz, Laurent Lamy, Philippa, Phil Edwards, Stefano Camero, Tao An, Stijn Buitink

Apologies: Paolo Serra, Valentina Vacca, Françoise Combes, Alvis Raccanelli, Eduard Kontar, Mark Sargent

SKAO: Robert Braun, Jeff Wagg, Tyler Bourke, Anna Bonaldi, Philippa Hartley, Evan Keane

Science Data Challenge (SDC) Update - Anna

Science team + Operations team in SKAO working together on SDCs.

SDC1 is now being wrapped up. Paper with all the involved teams just submitted to MNRAS, describing the challenge, attempts, scoring, framework, etc. Now a more professional python package for SDC scoring. General scoring engine applies to future SDCs

For SDC2 there is a scale up. Not just preparing datasets, much more 'supported'. Driven by the data volume necessitating it. HPC facilities sourced from various partner facilities (like an SRC network), supporting website, SDC2 scoring code available from the beginning.

SDC2 dataset is a Hi cube and a continuum cube. There is imperfect continuum subtraction applied. Currently sharing some of the data cube (beta testing) with a few SWG contacts, before final release. This testing by the black belts essential before full release. Testing happening over the next ~month.

Processing platforms that will be available - ongoing negotiating and enthusiasm from several HPC facilities, especially in Shanghai and in Portugal. Other nodes will be available too.

Jason Hessels - is there a process for HPC centres to apply to host the processing?

Anna - just contact Anna, Philippa, Robert directly (see full Team on slide #2)

Very broad and supportive web pages, a step up from SDC1.

Described the python scoring package

Natasha Hurley-Walker - what containerisation will be supported?

Anna - probably different per HPC system. We will not mandate that it has to be docker or anything else for example.

Philippa - aiming to have diversity in these platforms so teams can match to whatever they are used to.

Natasha - Is the idea to improve on the continuum subtraction or try to see what can be done with the imperfect version?

Anna - The latter

Robert - With what we are providing it won't be possible to reverse engineer the imperfect subtraction as that would make it too simple.

Round-table SWG updates

Jason, **Transients** - no news

Natasha, **Continuum** - The passing of J-P Macquart has been the major, sad, event of recent times.

Jason – Many, many messages of condolences and appreciation of JP being prepared in NL right now.

Tao An, **VLBI** - VLBI group coordinating SRCCG efforts, and user interaction with these groups.

SKA-VLBI is being integrated in the SKA operational model, with help from some SWG members, and the Jumping JIVE project has submitted a deliverable to the EC regarding the future possible operational model for SKA-VLBI.

SKA Regional Centre Steering Committee (SRCSC) is organizing several working groups (WGs). One of the WGs is WG6 “Science User Engagement”, chaired by Andrea Possenti and Hans-Rainer Kloeckner. WG6 calls on contribution and help from SKA SWGs. VLBI SWG has sent 3 names of representatives to SRCSC. Encourage every SWG to deeply involve in the SRC working group and prototyping.

Scientific highlights (some are ‘old’ news:

1. The cosmic cow explained - radio signals point to an explosion and a newborn magnetar. High resolution 5 GHz EVN images of AT2018cow indicating an unresolved radio structure (Figure 1 from Mohan, An, Yang, 2020, ApJL, 888, L24). The monitoring lasts several months and shows a fading trend of the source with time. <https://www.jive.eu/cosmic-cow-explained-radio-signals-point-explosion-and-newborn-magnetar>
2. A jet speed record in supercritical accretion systems. The EVN observations have recently revealed a two-sided jet with an intrinsic speed of at least half of the light speed in the optically luminous quasar IRAS F11119+3257. This speed represents a new record in the systems of supermassive black holes accreting mass at a rate very close to or above the Eddington limit (Yang et al. 2020, MNRAS, 494, 1744). <https://phys.org/news/2020-04-quasar-iras-f111193257-high-velocity.html>
3. Expansion of the methanol maser ring. The EVN plays a role in cosmic maser studies due to its sensitivity and high angular resolution. In 2004, using eight antennas, the authors discovered the ring-like methanol maser structure at the 6.7 GHz transition towards G23.657-00.127, a high-mass star forming region (Bartkiewicz et al. A&A, 2005, 442, L61). (Bartkiewicz, A., et al., 2020, A&A, 637, A15)
4. New Distance Measurements Bolster Challenge to Basic Model of Universe. A new set of precision distance measurements made with an international collection of radio telescopes have greatly increased the likelihood that theorists need to revise the “standard model” that describes the fundamental nature of the Universe. The new distance measurements allowed astronomers to refine their calculation of the Hubble Constant, the expansion rate of the Universe, a value important for testing the theoretical model describing the composition and evolution of the Universe. (D. W. Pesce, 2020, ApJL, 891, L1) <https://public.nrao.edu/news/challenge-model-of-universe/>

More details can be found at :

<http://old.jive.nl/jivewiki/lib/exe/fetch.php?media=evnnews:evn-newsletter-56.pdf>

Adriano, **Our Galaxy** - no news

Robert - introduced Josep Miquel Girart and Laurent Lamy, the 2 new co-chairs of the **Cradle of Life SWG**. Expressed thanks to the outgoing chairs, Doug Johnstone and Izaskun Jimenez-Serra, for their efforts in the past years. Izaskun will continue to provide some support to ease the transition.

Josep - works mostly in star formation, most interested in mid and highest frequencies of SKA

Laurent - mostly interesting in low frequency science and exoplanets so complementary to Josep

Fernando, **SARAO** - hopefully on July 1st there will be a MeerKAT call for proposals. We plan to offer at least 1000 hours of time for imaging projects. NIP will be for the `_next_` proposal, nominally Jan 1st next year.

StefanoC, **Cosmology** - no news

PhilE, **ASKAP** - Considering a second round of pilot surveys later this year.

Divya, **SHI** - MWA recently had an interesting result. Impulsive non-thermal emission from the sun. Nanoflares proposed a long time ago, as smoking guns for coronal heating. These seem to be about right for that, after a lot of false dawn detections on this regime. ~mSFU level. ~0.5-second timescale events. That's the resolution limit.

GeorgeH, **Magnetism** - paper submitted from SWG on SKA magnetism science now published. SWG Slack now set up.

StijnB, AnnaN, **Cosmic Rays** - revisiting science case in next few weeks

AndreiM, Abhirup – **EoR**, monthly SWG meetings will be starting up soon, and new data challenges being set up. Have sent our reps for User Engagement with SRC. Was curious about the SKA science meeting?

Anna - recently had a LOC meeting. Currently investigating platforms for the remote meeting. We will be fixing then March dates. Another SOC Telecon upcoming. How to spread the conference over the day, given the spread of time zones. Maybe more shorter days.

StefanoC - based on remote Euclid consortium meeting decided only to have it in the 2pm-6pm window. Worked but very tiring.

Izaskun – **CoL** new results being prepared, report-able by end of summer. Have had a rotation of SWG Chairs. Also restructuring sub-groups within the SWG. Creating ways to interact and collaborate.

Robert described engagement re: RFI. Satellites, SpaceX etc. Meeting scheduled for tomorrow. Izaskun and others have provided a lot of input for this. Document will be circulated when finished, probably in ~2 weeks time.

AOB - none