



SKA SWG Update

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SKA Science Update

- Proposal Planning (last month's slides again, since we ran out of time for discussion)
- Topics for future monthly meetings
- Science Meetings
- AOB



SKA Time Allocation Process: Access, Proposals, Review, & Allocation

- Principles of Access to SKA Resources
- Proposal Types
 - KSPs ...
- Telescope Access
- Proposal submission & review
- Extras
 - Policy/regulation documents
 - Definitions
 - Member share accounting
 - Road to science (indicative timeline)



Guiding Principles

- Access is proportional to Member share
- Allocation is based on science merit and technical feasibility
- Access and allocation of SKA “Schedulable Resources”
 - Schedulable Resources include:
 - Telescope time on sky (traditional resource)
 - Computing resources needed to process the data, for example the Science Data Processor (SDP), Pulsar Search (PSS), Pulsar Timing (PST)
 - Network bandwidth to transmit data products to SRC Network



Access to SKA Resources

- SKAO resources are made available to scientists from Member and non-Member states
 - For members, allocation is proportion to their share in the project
 - For non-members, allocation is capped at a percentage defined as Open Time
 - Time allocation for all is based on scientific merit and technical feasibility, evaluated by a common proposal review process
- Calibrated data will be automatically generated by SKAO, these are called Observatory Data Products (ODPs) **X Raw Data, ✓ See next page**
- Scientists will access ODPs via SKA Regional Centres (SRCs)
 - may require further processing (e.g., co-adding) to produce Advanced Data Products (ADPs) for analysis



SKA Observatory Data Products

- Currently foreseen Data Products that can be produced by SDP at both single observation and project level

Data Product Type	Explanation
Image Cubes	Calibrated restored images, residuals, etc
uv Grids	Calibrated gridded visibilities
Calibrated Visibilities	With time and frequency averaging
LSM Catalogue	Sky Model of FoV
Imaging Transient Source Catalogue	Alerts from fast imaging pipeline
Pulsar Timing Solutions	ToA and timing model residuals
Transient Buffer Data	Voltage data following trigger
Pulsar and Transient Candidates	Output of search pipeline
Science Alerts Catalogue	Searchable IVOA record of alerts
Science Product Catalogue	Searchable record of data products



Proposal Types

Key Science Projects (KSPs)

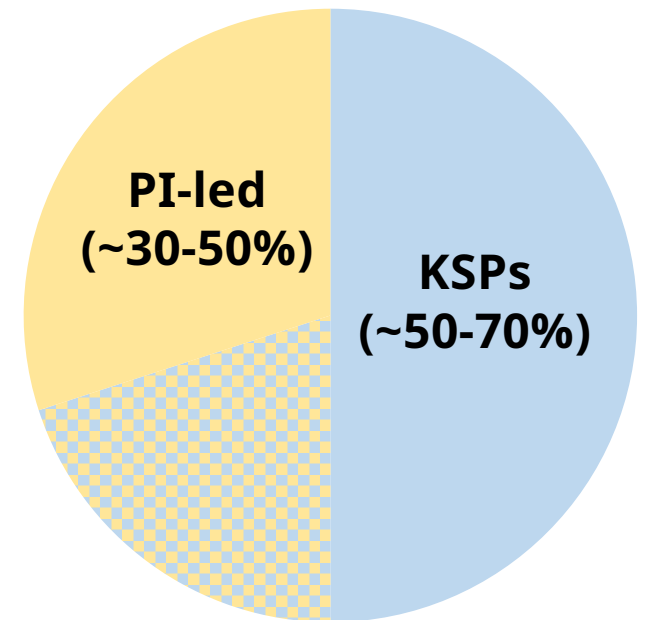
- Large programs that require the allocation of significant observing time (more than a few x 100h ? - TBC) and resources, performed over multiple cycles (nominally 1 cycle = 1 year)
- PI & leadership team from SKA-member countries; co-Is from any country (latter may be limited)
- Expected to provide added-value data products and tools back to SKAO
- Regular reviews to track progress toward goals

Principal Investigator (PI) Projects

- Smaller programs (< KSP limit) performed within a single cycle

Director-General's Discretionary Time

- Time allocated by the D-G outside of the normal TAC process



Indicative allocation split over first 5 years of normal operations



Possible Proposal Attributes

Target of Opportunity (ToO)

- rapid response triggered internally or externally
- may override currently executed observations
- may be awarded by normal review process, or by D-G as a DDT proposal outside of this process

Long Term Projects (LTP)

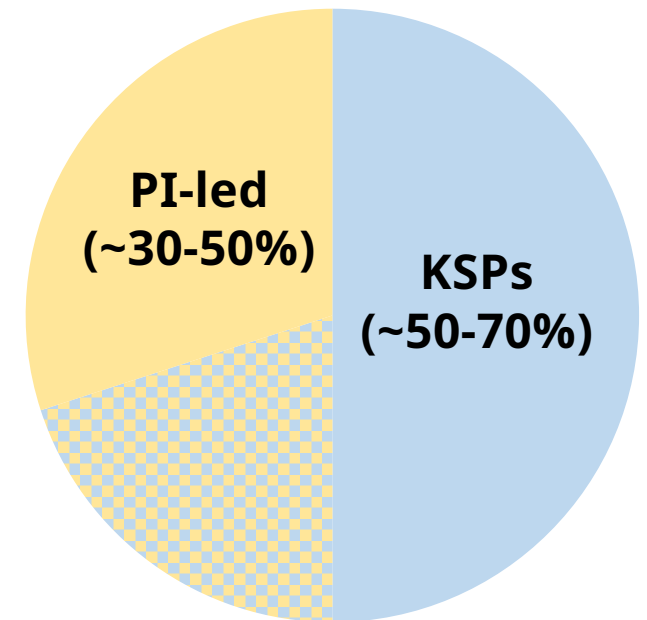
- requires more than one proposal cycle, but don't qualify as a KSPs

Joint SKA Project (JSP)

- requires both SKA-Mid and SKA-Low, and may require simultaneous observations (or very near in time)

Coordinated Project

- of SKA observations with other facilities (ground or space based). Example is VLBI

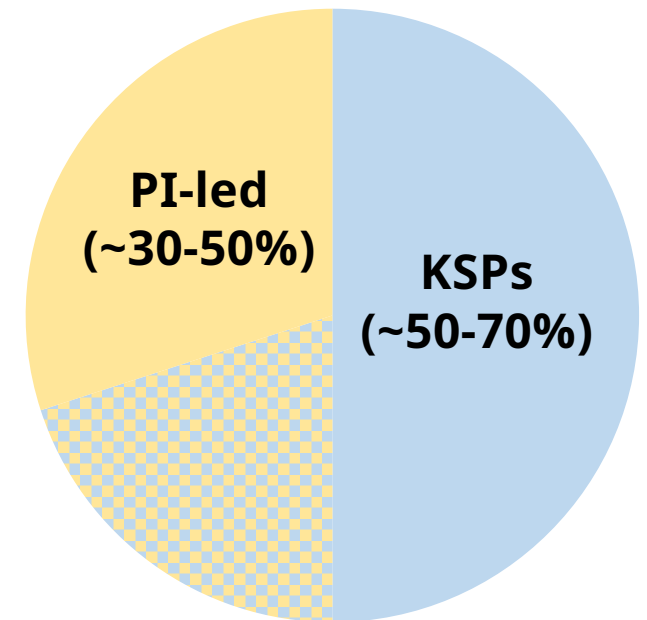


Indicative allocation split over first 5 years of normal operations



Key Science Projects (KSPs)

- must demonstrate they address **extremely compelling science questions**
- may take up to 5 proposal cycles to complete (nominally 1 cycle = 1 year)
- requires a **Leadership Team** to oversee the delivery of the scientific outcomes
- Leadership Team will normally be no more than 10 individuals (one member will be the main contact for communications with SKAO, in place of a PI)
- Leadership roles are only **open to scientists from Member countries**; co-Investigators may come from any country
- Progress will be reviewed regularly by an expert panel; if the science goals are unlikely to be achieved the D-G may terminate or reduce the project



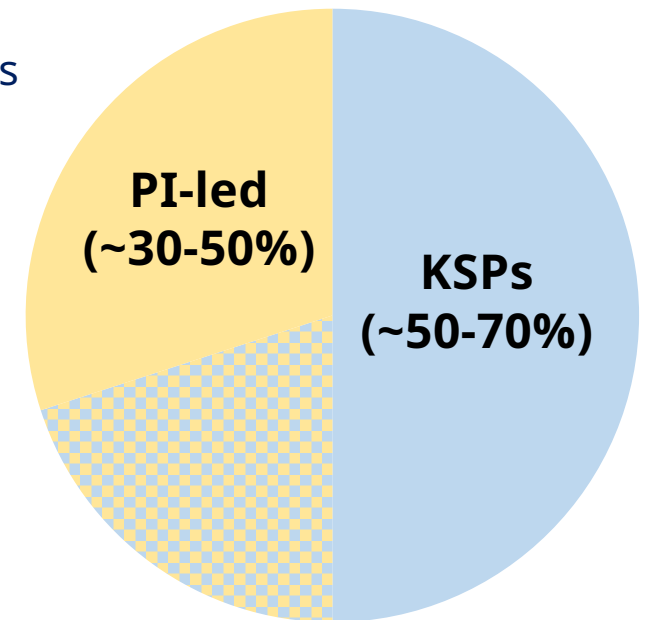
Indicative allocation split over first 5 years of normal operations



Key Science Projects (KSPs)

Each KSP proposal will be required to include:

- A detailed management plan describing the roles and responsibilities of each member of the KSP Leadership Team and the qualities they bring to the proposed science
- A plan for the reduction and analysis of Observatory Data Products (giving details of any secured resources at SRCs)
- A plan for the dissemination of scientific results to emerge from the project
- A justification for any investigators on the KSP proposal from non-Member countries¹
- A plan for the submission of ADPs into the SKAO Science Archive.



Indicative allocation split over first 5 years of normal operations

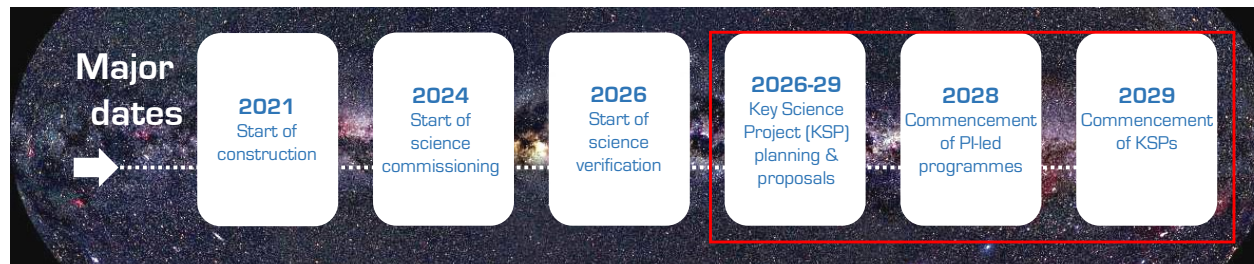
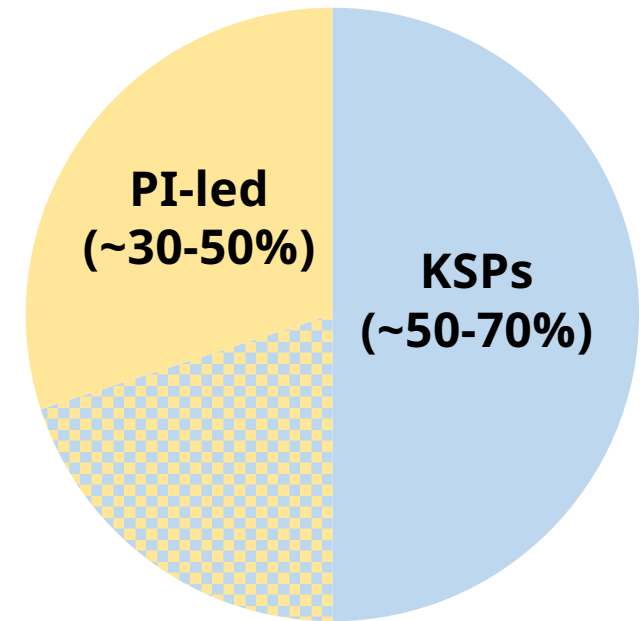
¹a limit may be set on the fraction of investigators from non-Member countries.



Key Science Projects (KSPs)

Planning for KSPs:

- SKAO will run at least one planning workshop and issue a call for Letters of Intent (preliminary co-ordination), starting > 2 years before first KSP observations
- Workshops provide a forum for co-ordination and perhaps collaboration of proposals with similar science goals and technical needs
- Data Challenges, to help the community get used to working with SKA sized data and interaction with (proto-)SRC network



Telescope Access

Commensal Science

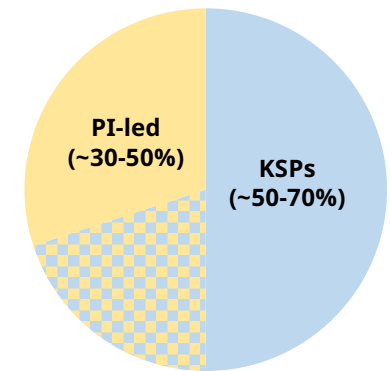
- Maximizes the use of SKA resources
- Commensal science is not "free", will be counted against member share
 - Data: different projects use same data products for different science goals
 - Observing: different projects use same signal/data for different data products (e.g., cont., line)
 - Multiplex: different subarrays observing at the same time

Members (and Associate Members)

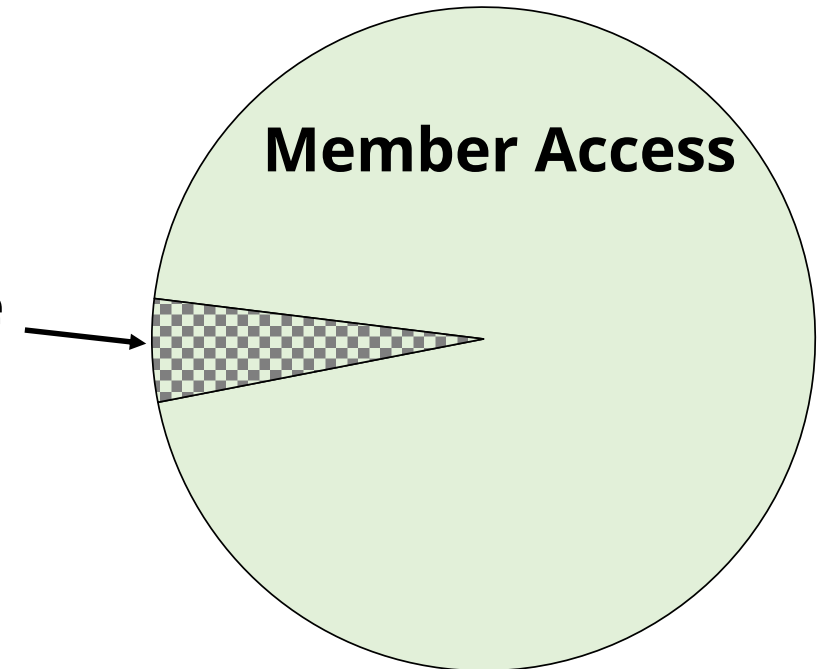
- Can lead any program (KSP, PI)
- Can be part of KSP leadership teams
- Access in proportion to member share

Non-Members

- Can lead PI programs
- Can be team members of KSPs, but not part of leadership team
- Access capped at **5%** ("**Open Time**"; TBC by Council, and may evolve)
- Access to any individual non-member entity may be capped



Open Time



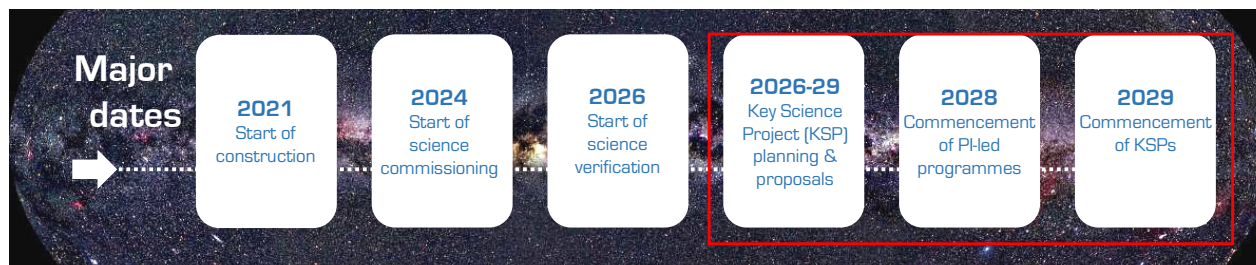
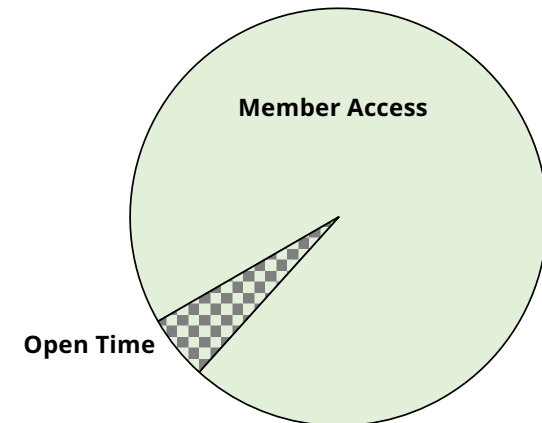
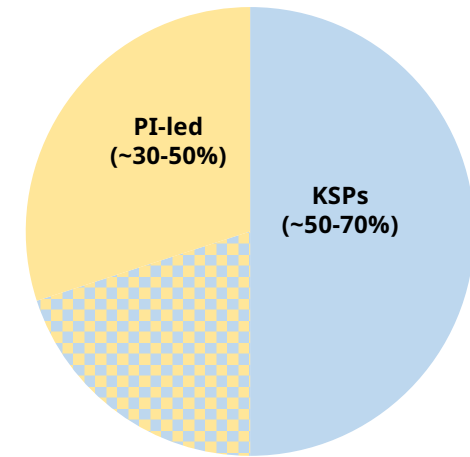
Telescope Access

NO time has been allocated for ANY project

SWGs are NOT proto-KSPs, although they are intended to be a forum for KSP planning

There are NO guaranteed KSPs

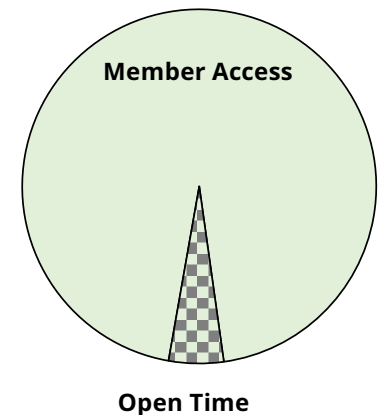
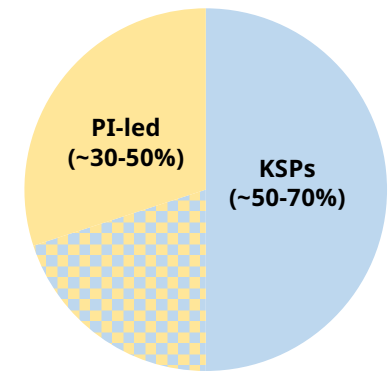
Time allocation will be based on **SCIENTIFIC MERIT** and technical feasibility through a common proposal review process (while accounting for member share)



Proposal Submission & Review

Proposal Review

- All proposed reviewed and assessed by a Time Allocation Committee (TAC)
- SKAO will undertake a technical feasibility review, including evaluation of SRC resources that will be required
- TAC members appointed by D-G with advice from SKAO staff
- Proposal assessment shall be:
 - driven by scientific merit and technical feasibility
 - be fair and transparent, informed by peer review
 - be able to resolve conflicts of interest
- The TAC shall:
 - rank each proposal according to scientific merit and technical feasibility
 - provide a recommendation of telescope time and resources for each proposal
 - present a ranked list of proposals to the D-G
- The SKAO shall construct the science program, considering:
 - sky coverage
 - scheduling feasibility
 - observatory resources
 - opportunities for commensality
 - members' share of the project



Topics for future monthly meetings

- SKA Regional Centre Network development
- Sensitivity Calculator
- Observatory Tools
- SDP Development
- Sub-arrays
- Commensality
- ...



Science Meetings

- Joint SKAO/ngVLA Science Conference, Vancouver, 1 – 5 May 2023, (see next slide), <http://go.nrao.edu/ngVLASKA>
- Timing and Imaging of compact sources with SKA pathfinders and precursors, Kerastari, 12 – 18 June, <https://www.atnf.csiro.au/research/conferences/2023/Kerastari2023/index.html>
- Community of European Solar Radio Astronomers (CESRA) Workshop, 3 – 7 July 2023, <https://star.herts.ac.uk/cesra/>
- EAS 2023, Krakow, 10 – 14 July 2023, SKAO Lunch Session (1.5 hour) approved, now being planned
- URSI GASS 2023, Sapporo, 19 – 26 August, New Facilities session, 41 abstract submissions received



New Eyes on the Universe: SKA & ngVLA Vancouver 1 – 5 May 2023

Important Dates:

Abstracts

Dec 2, 2022 – Abstract submission open

Feb 10, 2023 – Abstract submission deadline (Oral)

Registration

Jan 16, 2023 – Opens

Apr 7, 2023 – Closed, 276 registrants

**** If planning to attend in person, please check if you need a Canadian visa, and the processing time in your country ****

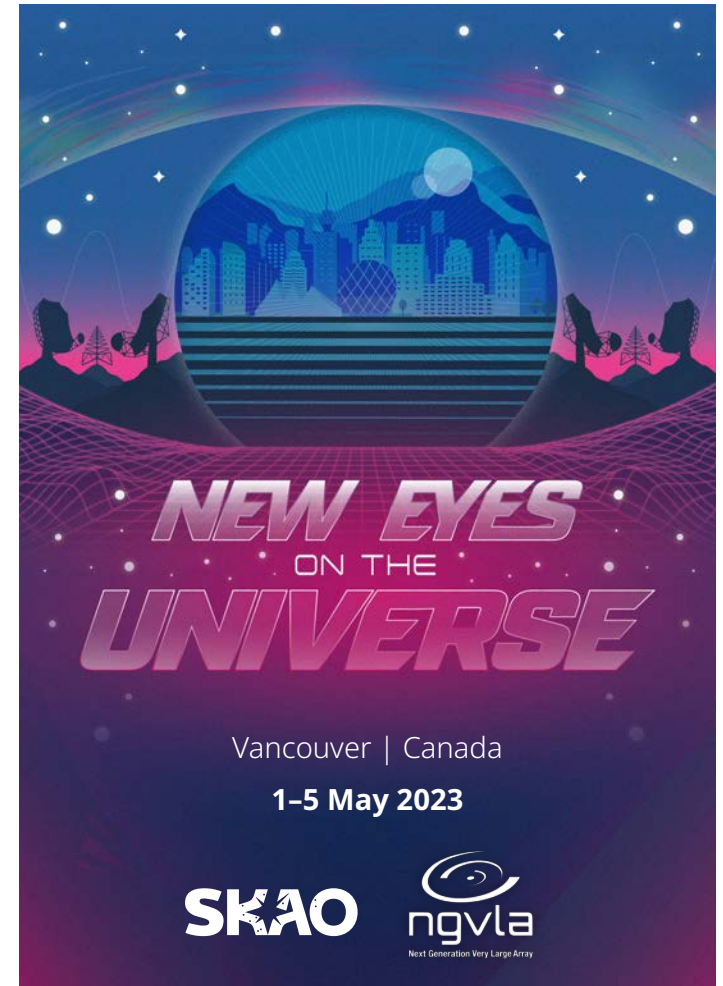
Programme

Mar 13, 2023 – Announced

Hotel

Apr 7, 2023 – cutoff for conference rate. Please stay at the hotel if you can.

<http://go.nrao.edu/ngVLASKA>



Any Other Business

- News from SWG Chairs?
- ...



*We recognise and acknowledge the
Indigenous peoples and cultures that have
traditionally lived on the lands on which
our facilities are located.*

SKAO

www.skao.int