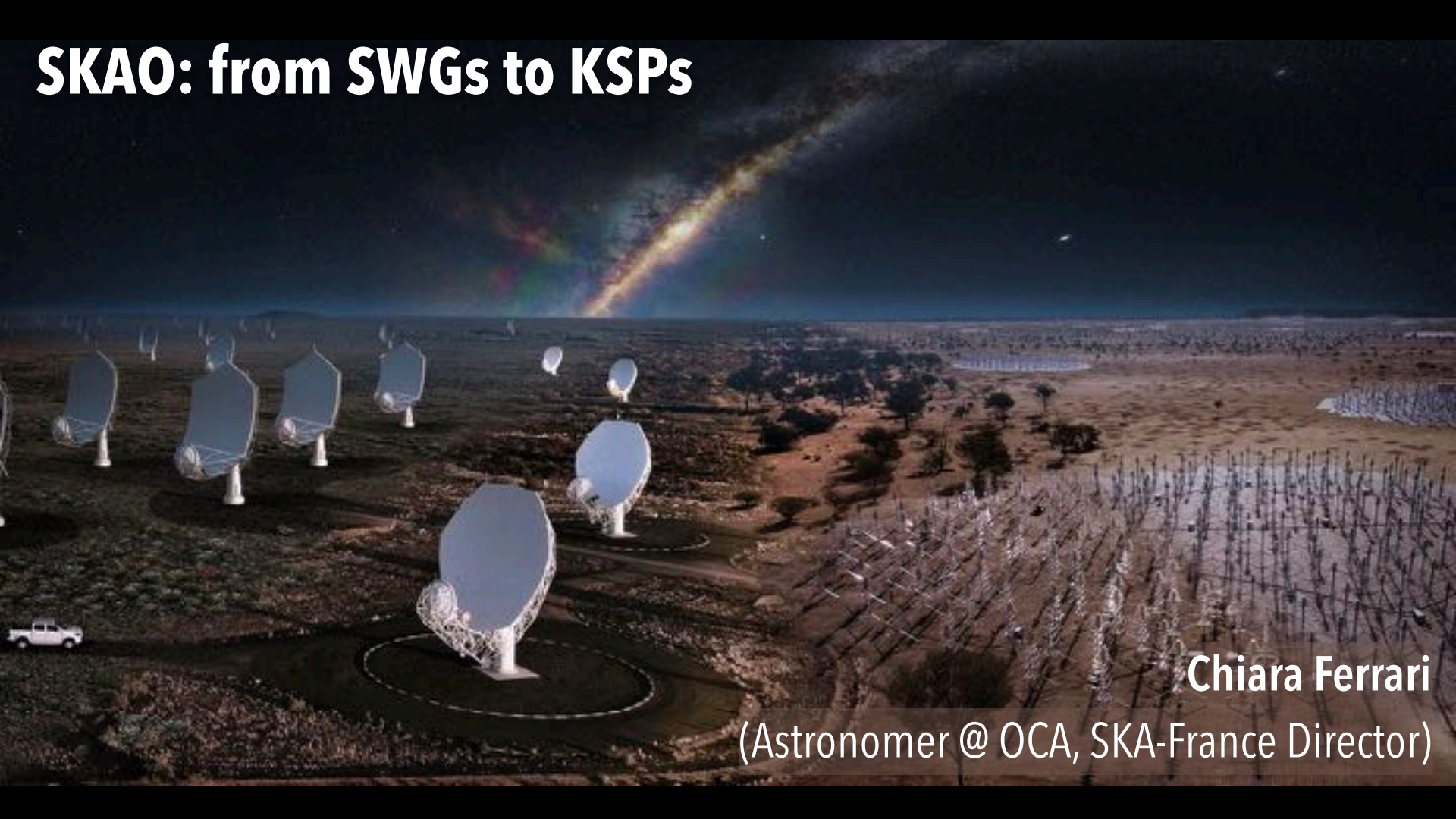


SKAO: from SWGs to KSPs



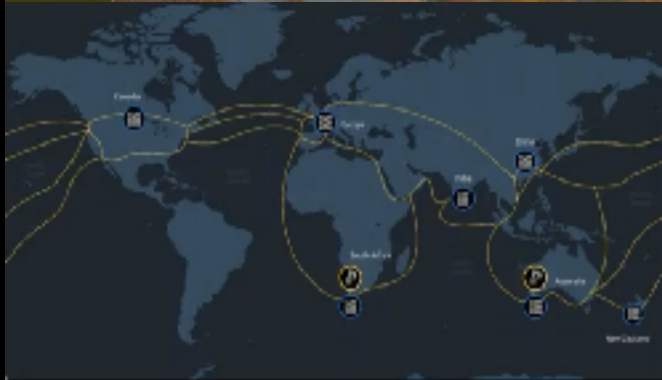
Chiara Ferrari

(Astronomer @ OCA, SKA-France Director)

SKA Phase 1

- SKA-LOW (50-350 MHz) : 131072 log periodic antennas, spread across 512 stations
Maximum distance between stations: 74 km
- SKA-MID (350 MHz – 15.4 GHz) : 197 fully steerable dishes, including the existing 64 MeerKAT dishes
Maximum distance between dishes: 150 km
- SKA-HQ : SKAO headquarters located on the UNESCO World Heritage Site of Jodrell Bank
- SRC-Net (SKA Regional Center Network) : a world wide network of data/computing centers

50 MHz ————— 350 MHz ————— ... ————— 15 GHz →



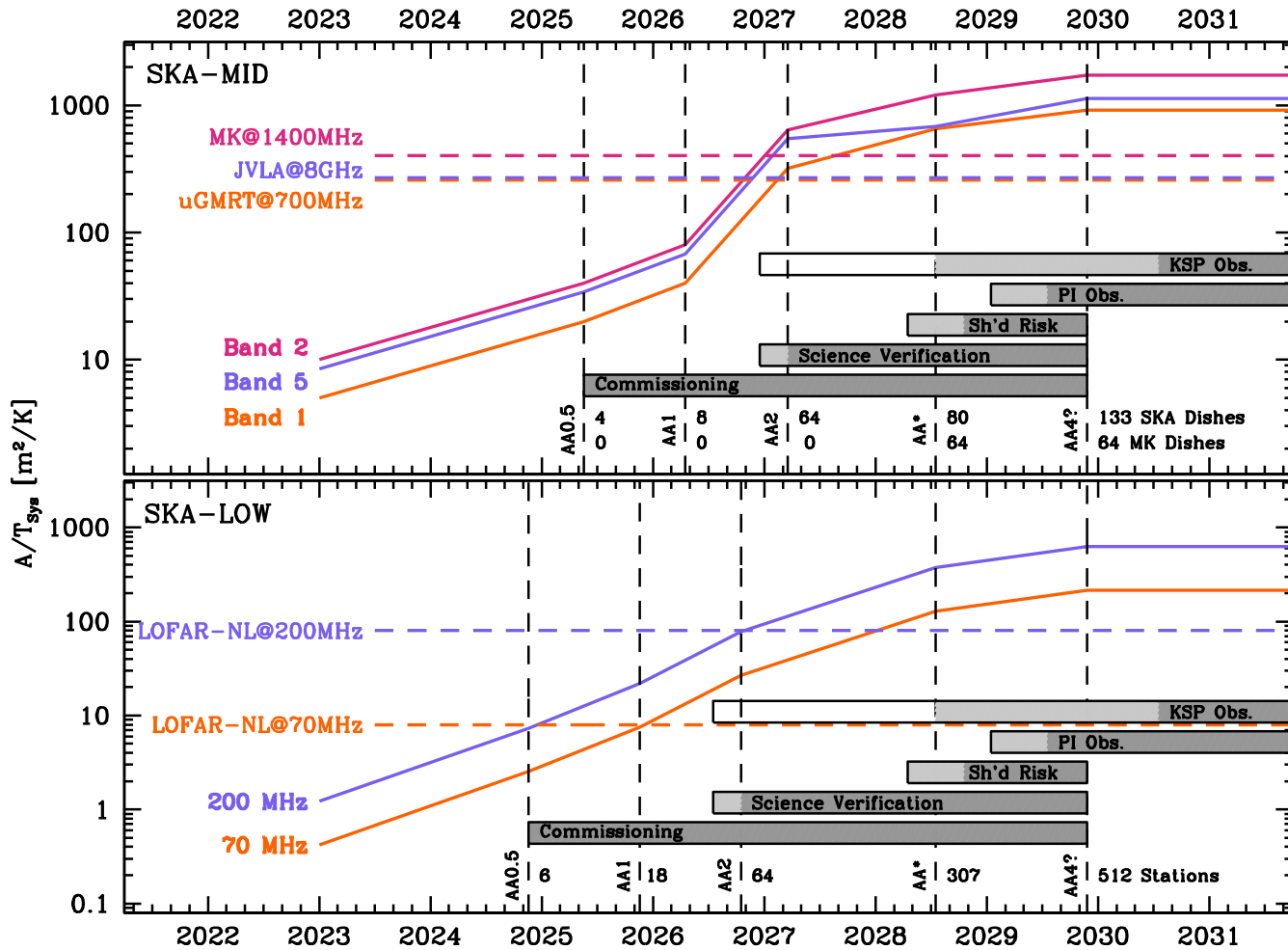
Construction strategy

- Target: build the SKA Baseline Design (AA4)
- Not all funding yet secured, therefore following Staged Delivery Plan (AA*)
- Develop the earliest possible working demonstration of the architecture and supply chain (AA0.5)
- Then maintain a continuously working and expanding facility that demonstrates the full performance capabilities of the SKA Design
- At the end of 2026, SKAO becomes the most powerful radio observatory on Earth

Milestone Event (earliest)		SKA-Mid (date)	SKA-Low (date)
AA0.5	4 dishes 6 stations	2024 Dec	2024 Aug
AA1	8 dishes 18 stations	2025 Nov	2025 Oct
AA2	64 dishes 64 stations	2026 Oct	2026 Sept
AA*	144 dishes 307 stations	2027 Aug	2028 Jan
Operations Readiness Review		2027 Nov	2028 Apr
End of Staged Delivery Programme		2028 Jul	2028 Jul
AA4	197 dishes 512 stations	TBD	TBD

Credits:

SKAO



Credits:
Mark Sargent

A lot more of information at SKAO webpage

SKAO

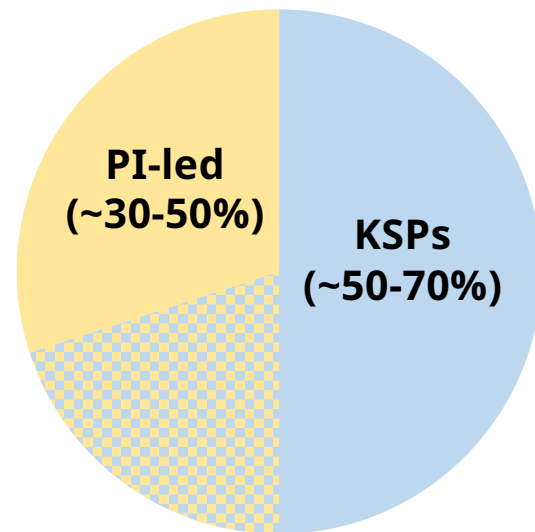
Plans for SKA Commissioning and Science Verification

Robert Laing
SWG, March 21 2023

[Link](#)

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



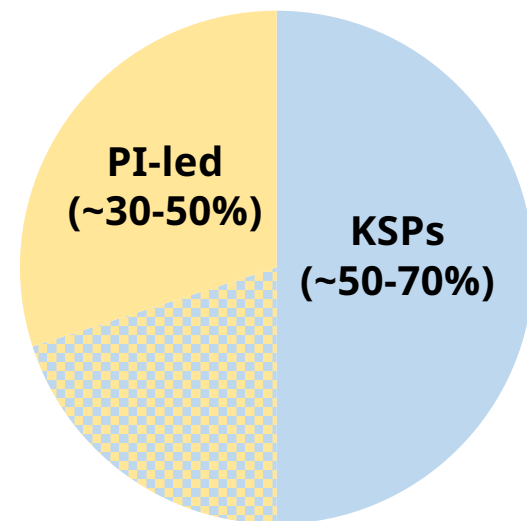
Indicative allocation split over first 5 years of normal operations



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.



And much more

- Commissioning
 - Commissioning Scientist
 - Support Assumptions
 - Community Involvement
- Science Verification
 - Science Verification Process
 - Stages
- SKA Time Allocation Process
 - Guiding Principles
 - Access to SKA Resources
 - SKA Observatory Data Products
 - Proposal Types & Attributes

(Science) Commissioning

- **Commissioning**
 - *All activities necessary to arrive at a working end-to-end system that can be used to perform system verification.*
- **Science Commissioning**
 - *The subset of commissioning which requires specification, execution and analysis of astronomical observations.*

Science Verification

All activities that are executed to verify the Telescope system against its Level-0 Requirements, i.e. to ensure that the Telescope system meets the needs of the science and operational users.

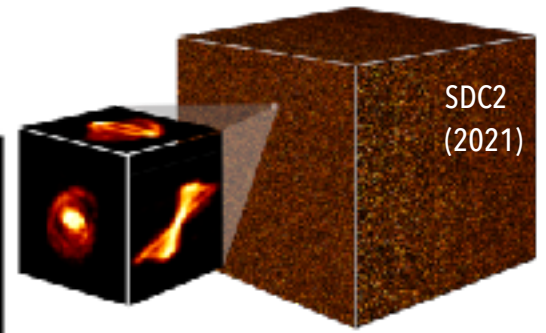
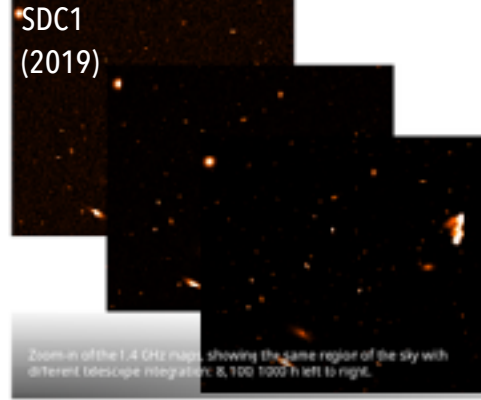
SKA Time Allocation Process: Access, Proposals, Review, & Allocation

- 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)

Meanwhile...

- Data Challenges



SKA SDC3

Science Data Challenge 3

Foregrounds

Contents Challenges

This is a slide from the SKA SDC3 Science Data Challenge 3. The slide has a purple gradient background. It features the SKA SDC3 logo in the top left corner, the title 'Science Data Challenge 3' in the center, and the subtitle 'Foregrounds' below it. In the top right corner, there are two small icons: 'Contents' and 'Challenges'.

Key Science Projects (KSPs)

Each KSP proposal will be required to include:

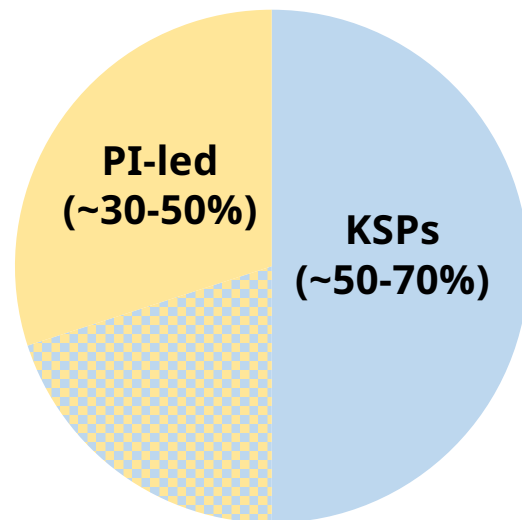
- a detailed management plan describing the roles and responsibilities of each member of the KSP Leadership Team and the qualities they bring to the proposed science

- 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.



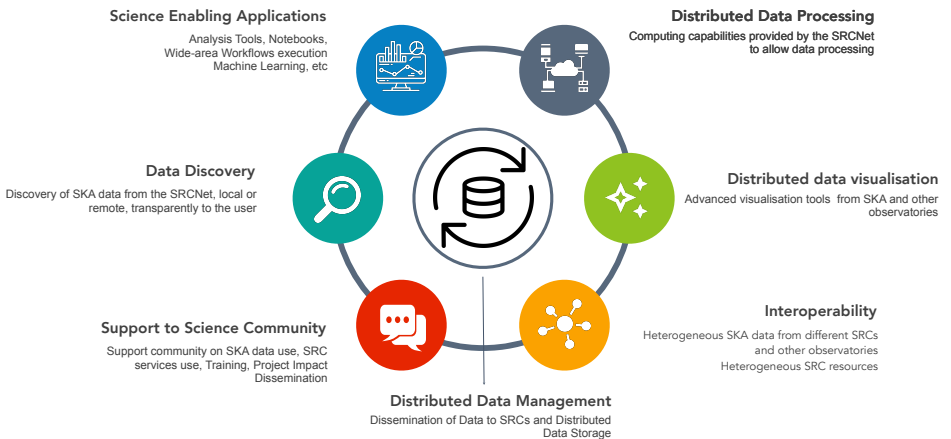
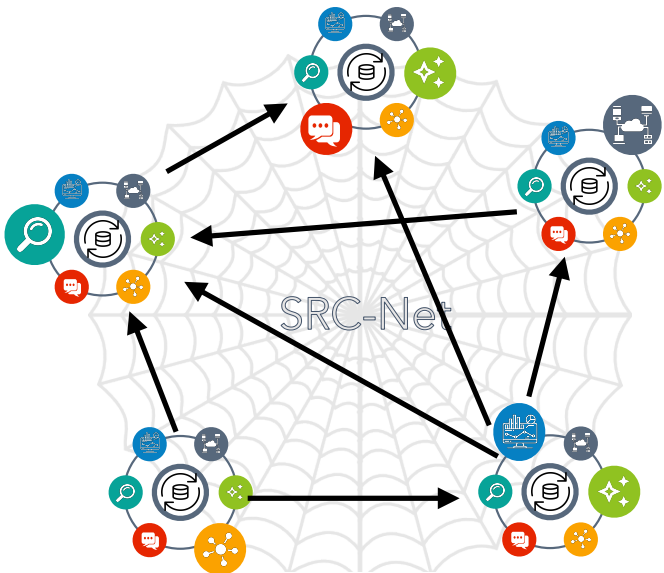
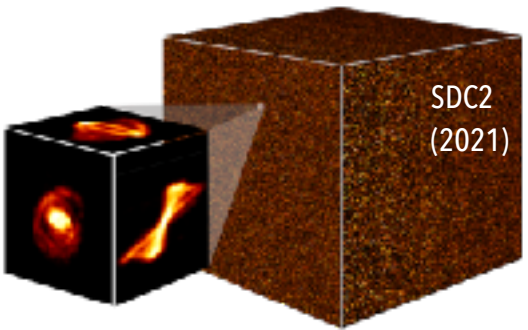
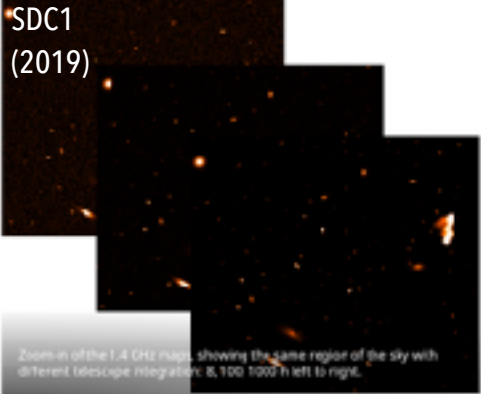
Indicative allocation split over first 5 years of normal operations

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



Meanwhile...

- Data Challenges
- Preparation of SKA Regional Centre Network (SRC-Net) Nodes



Paris, le **25 OCT. 2023**

Le Chef de Service

à

Chiara FERRARI
Directrice SKA-France

Objet : constitution du nœud français du SKA Regional Center européen du Square Kilometer Array Observatory

Madame la Directrice,

La France a décidé le 15 décembre 2020 de devenir membre du Square Kilometer Array Observatory. Cette infrastructure de recherche est en cours de construction. Sa modularité en permet le déploiement progressif d'ici à 2027. Ainsi, de premiers jeux de données sont attendus pour 2024 avec un embryon d'observatoire opérationnel doté d'un petit nombre d'antennes sur les sites sud-africain et australien. SKA requiert de façon parallèle un déploiement progressif des SKA Regional Centers dont la constitution ne figure pas au budget de SKAO. Il relève de la responsabilité des pays membres d'apporter les moyens nécessaires, en coordination avec SKAO et, au minimum, à proportion de leur part dans le budget de SKAO.

Les partenaires de SKA-France disposent de ressources, humaines et matérielles, susceptibles de répondre partiellement ou intégralement à la contribution attendue de la France en stockage, calcul et mise à disposition des données de SKA. Le SSRI, pour le MESR, confie à SKA-France et ses membres le soin de mener une étude dont l'objectif est d'exprimer les besoins nécessaires à cette contribution française. Vous pourrez commencer par faire un état des lieux des contributions possibles dès 2024, puis préciserez les ressources manquantes, en prenant en compte les infrastructures numériques disponibles ou auxquelles vous pourriez avoir accès d'ici à 2028. Cette étude précisera quelle coordination est envisagée avec les autres pays européens participant à SKAO et à ce projet de SRC européen.

Dans l'attente des résultats de cette étude, je vous prie de croire, Madame la Directrice, à mes meilleurs sentiments.

Cyril MOULIN

Chef du Service de la stratégie
de la recherche et de l'innovation

