

The French path towards the SKAO

An aerial photograph of the SKA radio telescope array in a desert landscape. The foreground shows several large, white, parabolic radio dishes on circular concrete bases. A white pickup truck is parked on a road in the lower-left corner. The middle ground is filled with a vast field of smaller radio dishes stretching towards the horizon. The background is a dark, starry night sky with a prominent, colorful galaxy or nebula visible in the upper half. The overall scene is illuminated by the ambient light of the night sky.

Chiara Ferrari
Astronomer @ OCA, SKA-France Director, Chair of European SKA Forum

Why SKA-France ?

Adequacy with the "Big Questions" of the community



2014-2015

[Link to the full document](#)

Priorités pour de nouveaux moyens d'observation

Instrumentation E-ELT	L'E-ELT demeure la première priorité de la communauté. La participation au niveau co-instrument de première lumière CAM et IFU, au niveau PI à l'instrument MOS, ainsi que la participation à l'instrument suivant METIS, sont une priorité. Priorité P0 : MOS (niveau PI) Priorité P1 : HIRES Projet à murir : PCS
Infrastructures de type TGR	NOEMA reste un projet prioritaire de la communauté dans la catégorie des méso-équipements Priorité P0 : CTA Priorité P0 : ticket d'entrée dans SKA
Participation à des infrastructures multilatérales	Priorité P1 : LSST Priorité P1 : CCAT
Nouvelle instrumentation sur infrastructures existantes	Priorité P0 : WEAVE Priorité P1 : NenuFAR Priorité P2 : 4MOST
Projets à plus long terme dont il faut soutenir la préparation	Priorité P0 : MSE Priorité P1 : EST

Why SKA-France ?

Adequacy with the "Big Questions" of the community



2014-2015

Quelle est l'histoire cosmique des baryons?

Epoch of Reionisation &
Cosmic Dawn

Dans quel univers vivons-nous? Quelle est la nature de la matière noire?

Cosmology

Génération des champs magnétiques et impact sur l'évolution des structures

Cosmic magnetism

Quelle est l'histoire cosmique des baryons? Quels processus physiques régissent l'évolution des galaxies et leur cycle de matière?

Galaxy evolution

Comment explosent les astres? Quelle est l'influence des objets compacts sur leur environnement?

The transient sky

Quel ciel nous révélera l'astronomie des ondes gravitationnelles? L'hypothèse d'équivalence d'Einstein est-elle un principe exact de la physique? La relativité générale est-elle la bonne théorie métrique de la gravitation?

Fundamental physics &
Compact Objects

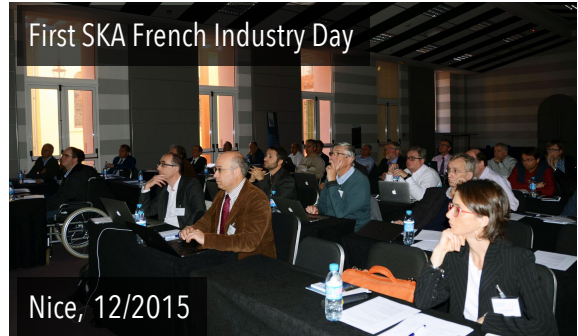
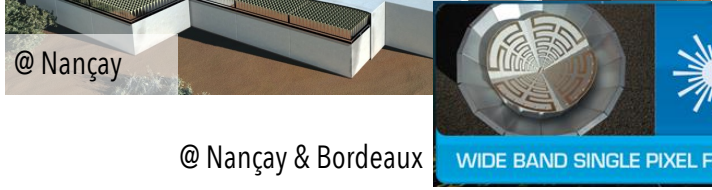
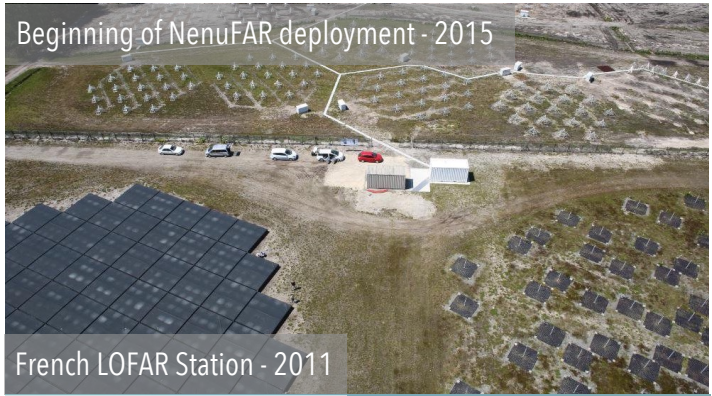
Comment se forment les étoiles et les planètes? Molécules organiques complexes dans les régions de formation stellaire.

Planetology &
Cradle of Life

Exoplanètes. Soleil et magnétosphère planétaire

Why SKA-France ?

Challenges motivating French innovation



@ Nançay

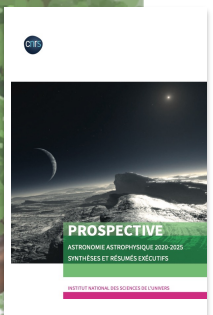
@ Nançay & Bordeaux



Milestones of SKA-France

November 2019

Two new partners of Maison SKA-France & New INSU/AA Prospective



July 18, 2018

CNRS becomes member of SKA Organisation



May 17, 2018

SKA inscribed as a project in the French Roadmap for Research Infrastructures published by MESRI



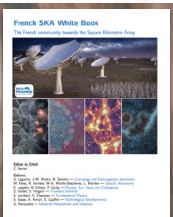
February 1st, 2018

Launch of Maison SKA-France



October 16, 2017

First SKA-France Day



July 1st, 2016

SKA-France Coordination



"Prospective INSU AA" published in 2019



Priorité	Justification	Thématiques cibles	Missions spatiales engagées en synergie avec le moyen sol
INFRASTRUCTURES DE TYPE TGIR			
P0: SKA	Apport d'un saut technologique (sensibilité, champ de vue instantané, multiplexage, etc.) permettant des avancées considérables sur un ensemble de thématiques très variées et d'intérêt majeur pour la communauté.	Aube cosmique, réionisation, évolution des galaxies et grandes structures, milieu interstellaire, disques protoplanétaires, formation stellaire, champs magnétiques, objets compacts, ciel transitoire, physique fondamentale, ondes gravitationnelles via les pulsars	JWST, Euclid, LISA, SWOM, Athena

[Link to the full document](#)

France & SKAO

April 11, 2022

French government signs the accession agreement with the SKAO



March 7, 2022

Collaboration Agreement signed between SKAO and CNRS



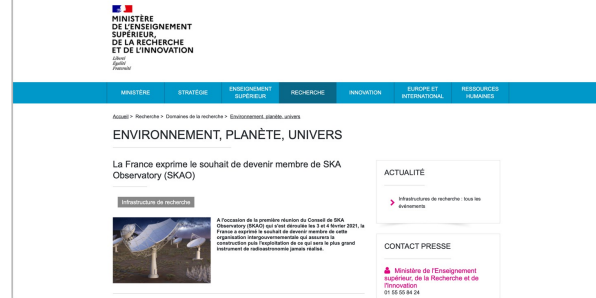
May 28, 2021

Announcement of France's accession to the SKA Observatory - after SKAO Council approval - made by the French President Emmanuel Macron



February 4, 2021

France expresses its wish to become a member of SKA Observatory

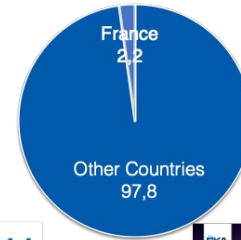
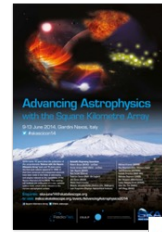


Decision of the French Government to enter SKAO

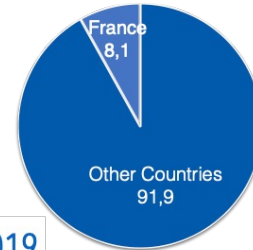


French participation in the SKAO Science

- A continuously growing scientific community preparing for the start of SKAO observations
 - Active exploitation of SKA pathfinders and precursors (NenuFAR, LOFAR, MeerKAT, ASKAP, FAST, ...)
 - Participation to all SKA Science Working Groups
 - Wide and recognised methodological expertise in data processing and analysis
 - The SKAO challenges interests a wider community of researchers, not only astronomers



2014



2019

M-A. Miville-Deschênes's talk



France 2030 : 600 M€ pour 13 nouveaux programmes de recherche exploratoires

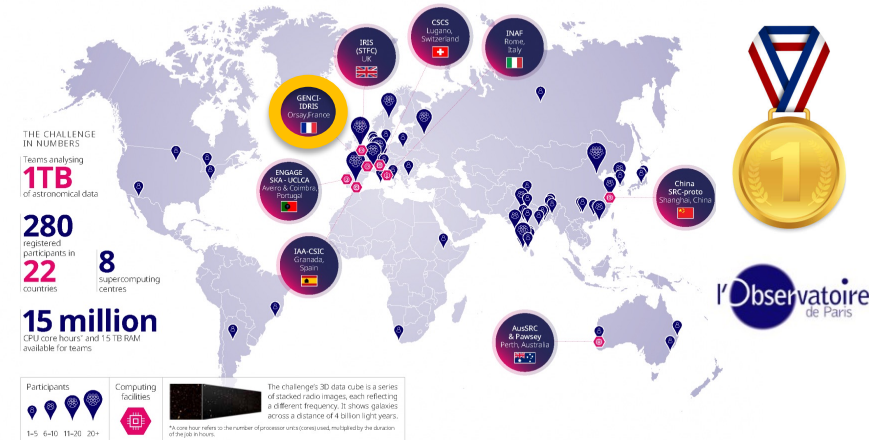
D. Gratadour's & J.-P. Vilotte's talks

NumPex | Numérique Hautes Performances pour l'Exascale

- Pilot(s) institution(s) : CEA, CNRS, INRIA
- Scientific director(s) : Jean-Yves Berthou (INRIA), Jérôme Bobin (CEA), Michel Dayde (CNRS)
- FINANCEMENT ACCORDE 40,80 M€

SKAO Science Data Challenge 2

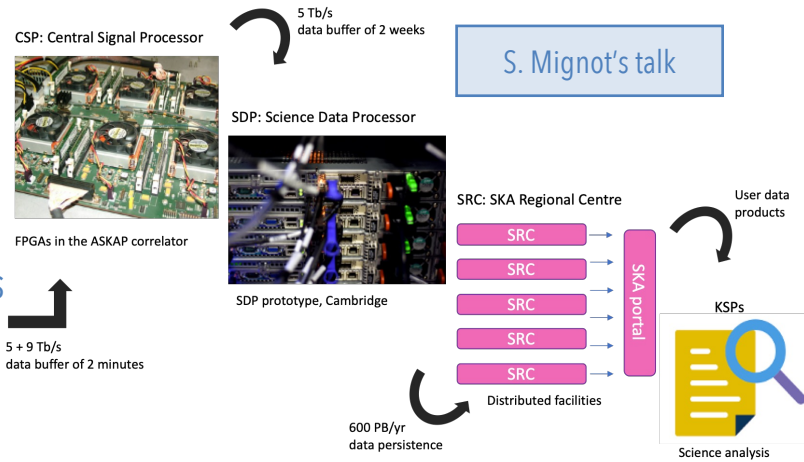
MAP OF WORLDWIDE PARTICIPATION



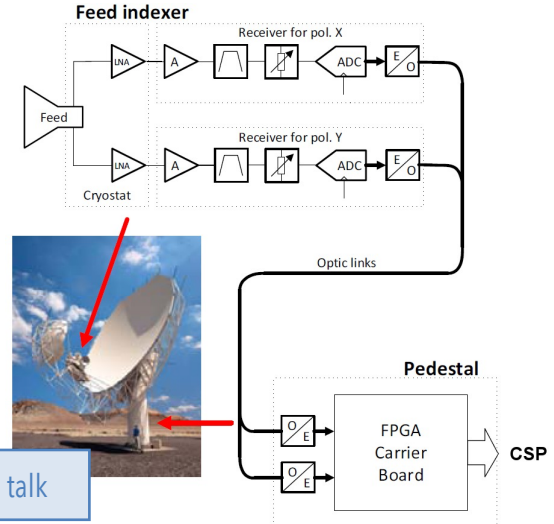
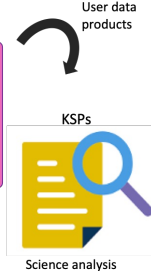
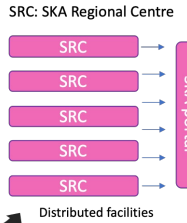
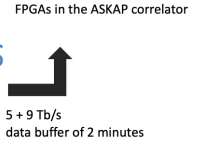
French participation in the SKAO

Construction & Operations

- Construction
 - Co-design & Equipment of the two sub-exascale computing centres of the Observatory
 - Supply of digital electronics for high-frequency receivers
- Strategic objectives for SKA-France
 - Environmental sustainability of the project
 - Efforts made by France in the design of future SKAO computing centres with low environmental impact
 - Study of energy solutions for SKA-MID funded in 2019
 - SKA: fundamental research as a driver for strategic innovation and collaboration between academia and industry
 - SKA Regional Centre Network (SRC-Net): a new model of End-to-End partnership
 - Governance
 - Design
 - Implementation



S. Mignot's talk



S. Gauffres's talk

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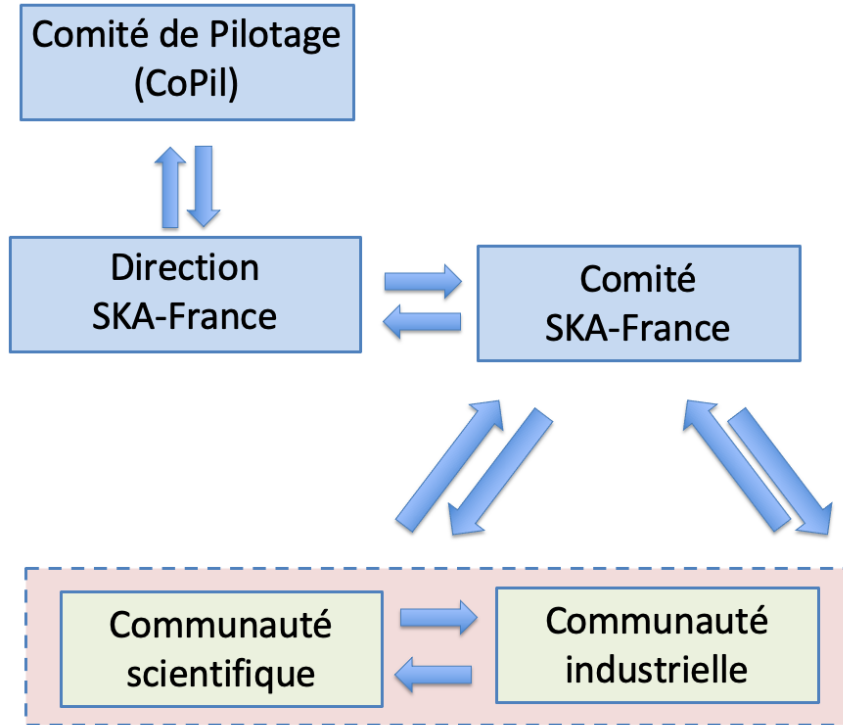
S. Mignot's talk

S. Gauffres's talk

D. Gratadour's
S. Mignot's
L. Jammes'
talks

J.-P. Vilotte's talk

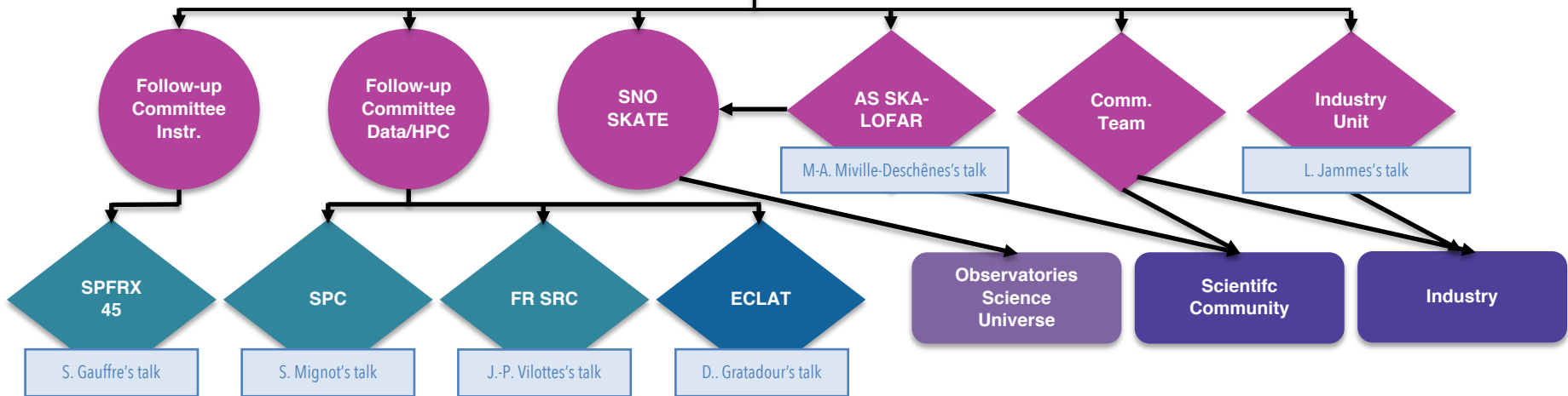
From "Maison SKA-France" ...



Objective

Build a solid scientific, technological and industrial case for France joining SKAO

...to "SKA-France 2.0"



A bright path forward for SKAO and for France in SKAO

A big thank to you all!



Chiara Ferrari
chiara.ferrari@oca.eu