

SKA

- ▶ One observatory
- ▶ Two telescopes
 - SKA1-LOW (50-350 MHz)
 - SKA1-MID (350-15 GHz)

Members



Observers



SKA1 LOW - the SKA's low-frequency instrument

The Square Kilometer Array (SKA) will be the world's largest radio telescope, revolutionising our understanding of the Universe. The SKA will be built in two phases - SKA1 and SKA2 - starting in 2015, with SKA1 representing a fraction of the full SKA. SKA1 will include two instruments - SKA1 MID and SKA1 LOW - observing the Universe at different frequencies.

Location: Australia

Frequency range: 50 MHz to 350 MHz

~130,000 antennas spread between 500 stations

Total collecting area: 0.4km²

Maximum distance between stations: 65km

Total raw data output: 157 terabytes per second / 4.9 zettabytes per year

SKA1 LOW

Enough to fill up **35,000 DVDs** every second

5x the estimated global internet traffic in 2015 (source: Cisco)

Compared to LOFAR Netherlands, the current best similar instrument in the world:

25% better resolution, **8x** more sensitive, **135x** the survey speed

SKA1 MID - the SKA's mid-frequency instrument

The Square Kilometer Array (SKA) will be the world's largest radio telescope, revolutionising our understanding of the Universe. The SKA will be built in two phases - SKA1 and SKA2 - starting in 2015, with SKA1 representing a fraction of the full SKA. SKA1 will include two instruments - SKA1 MID and SKA1 LOW - observing the Universe at different frequencies.

Location: South Africa

Frequency range: 350 MHz to 14 GHz

~200 dishes (including 64 MeerKAT dishes)

Total collecting area: 33,000m² or 126 tennis courts

Maximum distance between dishes: 150km

Total raw data output: 2 terabytes per second / 62 exabytes per year

SKA1 MID

Enough to fill **340,000** average laptops with content every day

Compared to the JVLA, the current best similar instrument in the world:

4x the resolution, **5x** more sensitive, **60x** the survey speed

SKA

- ▶ One observatory
- ▶ Two telescopes
 - SKA1-LOW (50-350 MHz)
 - SKA1-MID (350-15 GHz)

Members



Observers



SKA-France

<http://ska-france.oca.eu>

National coordination of scientific, technical and industrial activities preparatory to the SKA project in France

Set in place jointly by:



SKA-France Connexion | Contact |

Accueil SKA Événements Actualités Intranet

« First SKA French Industry Day »
(10 Décembre 2015, Nice)

Agenda

- Bulletins
- Prospectus industriel
- Documents en ligne

Accueil

SKA-France est une coordination nationale des activités scientifiques, techniques et industrielles préparatoires au projet SKA en France, mise en place conjointement par l'Institut National des Sciences de l'Univers (CNRS/INSU), l'Observatoire de Paris, l'Observatoire de la Côte d'Azur, l'Université de Bordeaux et l'Université d'Orléans.

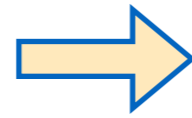
Pour vous inscrire à la liste de diffusion SKA-France, merci de cliquer sur

Brèves

- Présentation sur SKA à l'atelier "High-redshift (proto)clusters"
- Premier Atelier SKA-France Énergie
- Première lumière du radiotélescope MeerKAT
- C. Ferrari nommée coordinatrice de SKA-France
- Deuxième Atelier SKA-France HPC

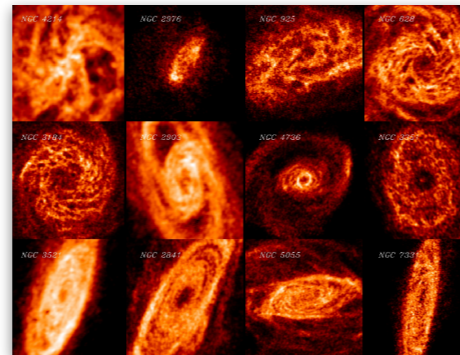
SKA science

Observables

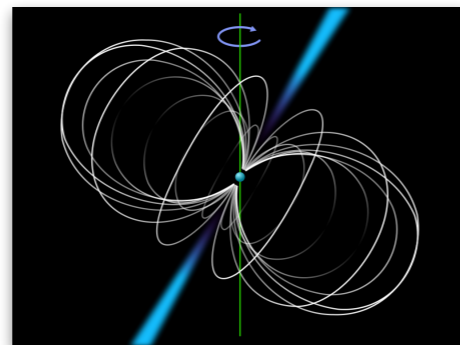


Scientific questions

▶ The HI 21cm line



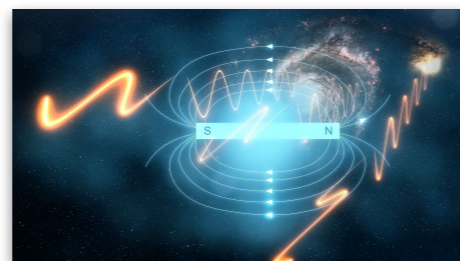
▶ Coherent radio emission



▶ Incoherent radio emission



▶ Faraday rotation



▶ Epoch of reionisation

▶ Expansion history and geometry of the Universe

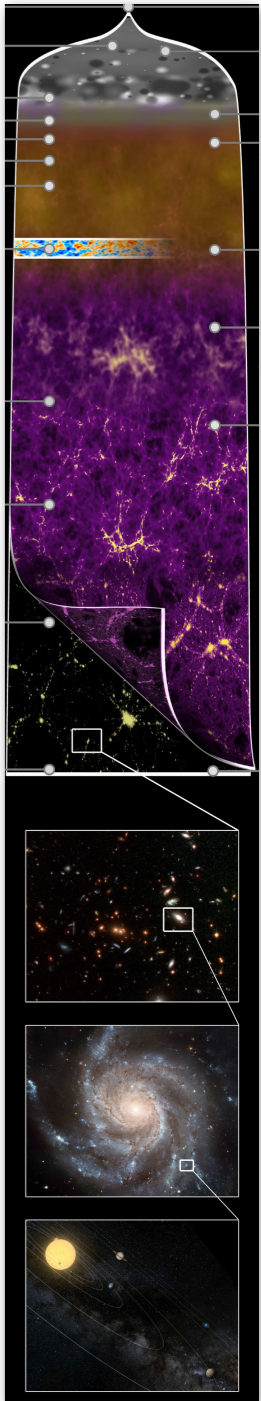
▶ Growth of cosmic structures

▶ Galaxy evolution

▶ Cosmic magnetism

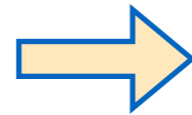
▶ Fundamental physics

▶ Formation of stars and planets



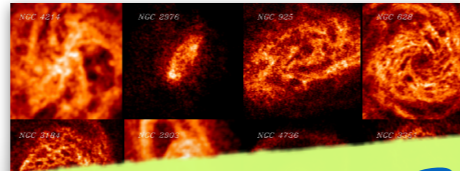
SKA science

Observables



Scientific questions

► The HI 21cm line



► Epoch of reionisation

Support PNCG (2014-2016)

► Coherent radio emission



► Incoherent radio emission

Vers le SKA: première science avec ses précurseurs et préparation au plus grand radiotélescope du monde

► Faraday rotation

[OCA, Obs. Paris, IAP, AIM, OAS, IAS, USN, LAL]

► Formation of stars and planets

