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# **SKA : chercheurs et industriels se rencontrent à Nice (10 décembre 2015)**

Date de mise en ligne : jeudi 14 janvier 2016

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**Station de Radioastronomie de Nançay**

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The Paris, Nice and Bordeaux Observatories together with CNRS organized the first SKA French Industry meeting in Nice on the 10th of December, with a strong support and participation from SKAO. The attendance of about 40 included representatives from companies in the electronics, information technology, high tech manufacturing and energy domains, both from major and small size companies, many of them with extensive experience already in the construction of large research infrastructures and with a wide international network. On the institutional side high rank representatives from CNRS and from the Observatories involved in the development of SKA participated in the meeting, along with scientists and engineers from these institutes. Most attendees made the trip to Nice and could enjoy the fabulous sight over the Baie des Anges from the meeting location, under a pure blue sky and dazzling sun, while a few of them followed the meeting through video-conference.

The meeting comprised of 4 sessions extending over the whole day. After the welcome address by the hosting Observatory Director, Thierry Lanz, who emphasised the goals of the meeting, the general introductory session was opened with a detailed overview of the SKA project by Alistair McPherson, SKAO Deputy Director-General and Head of Project. A summary of the European and national roadmaps for large research infrastructures, and a statement of the current French government and institutional perspectives towards the engagement of France into the SKA project was then given by Denis Mourard, Deputy Director of CNRS for Astronomy and Astrophysics. Stéphane Corbel, coordinator of the French scientific SKA communities, gave a dense overview of the major scientific objectives of SKA and a summary of the current participations in France to both the scientific and technical preparation of SKA. The session ended with an outline of the overall organisation of the SKA project, and of the expectations for the procurement of the SKA Observatory, presented by Simon Berry, Director of Policy Development at SKAO.

This general introductory session raised many questions. The overall organisation of the design effort, during the pre-construction phase, has been widely distributed and not centrally controlled, at the likely expense of efficiency, but with the major advantages of facilitating the engagement and funding of efforts worldwide, and with the benefit of increased visibility upon potential technical and financial solutions to the already major enterprise that building Phase 1 of the SKA telescope will represent. The necessity of engaging industry now is a decisive push for France to join the ongoing negotiations towards the future SKA Observatory. It was stressed by participants that the extreme conditions for a scientific project like SKA, in which challenging technology must be implemented, are a strong motivation for the participation and investment of high-tech companies.

The introductory session was followed by 3 successive technical sessions, covering the major areas of "Control, Computing and Data Management", "Telescopes, Receivers and Signal Processing" and "Energy Provision" (in this order due to organisation constraints). Each of these sessions was introduced by an overview of the corresponding workpackages by SKAO, with Alistair McPherson giving the computing and telescope overviews, and Adriaan Schutte, SKAO Power Engineer, discussing the overview of the energy provision challenges. French participants then presented various fields of experience pertaining to these different workpackages.

In the area of "Control, Computing and Data Management" François Mignard, from Nice Observatory, Chair of the GAIA Data Processing and Analysis Consortium (DPAC), gave an enlightening presentation of the huge and very successful international effort that has been dedicated to the development and operation of the global processing of this ESA Mission data. Although far from being as demanding in terms of capacity as SKA data processing will be (though with the additional difficulty of being a space-mission), GAIA offers quite the challenges and lessons to be learnt.

In the "Telescopes, Receivers and Signal Processing" session, short summaries were presented of advanced electronics developments both from labs and companies. Although French labs dedicated most of their efforts in the past to technologies that will be further developed but not implemented during Phase1 construction, namely wideband feeds and phased aperture arrays, some developments are also directly relevant for the Phase1

instruments, including the 5-15 GHz wideband receiver, as well as the technology of the NenuFAR telescope being built in Nançay.

Last, in the "Energy Provision" session, which closed the meeting, Gabriel Marquette, Industry Liaison Officer at CNRS/INSU, gave an enthusiastic overview of current developments in the area of renewable low-carbon energy, and opened quite convincing perspectives for future engagement.

The presentations were followed by vivid comments and discussions. A widely shared question was how companies can approach and possibly join the pre-construction consortia. In addition to connections to labs already participating to one of the design consortia, and to connections established by a few companies through current member states of SKAO, the effort will be coordinated by working groups that CNRS commits to setup shortly after the meeting. As a starting point a summary of the meeting will be posted, along with the slides of the presentations given, and specialised meetings will be organised in the fields of interest during the first months of 2016, involving interested companies, scientists and engineers from academic labs, representatives of CNRS and CEA, and members of SKAO when deemed appropriate.

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