With this letter, we would like to express how the SKA is a key element of our future plans. In particular, it will be of great importance regarding our efforts to develop models of variable compact objects or galaxy formation during the Reionization, to understand the formation of stars in young galaxies and for the CDS activities. These interests are detailed below, followed by a list of the people involved on the various aspects.

The Galaxy-IGM connection during the EoR

Since 2010, the Observatory has developed cosmological simulation codes to investigate the Epoch of Reionization. The SKA will be able to constrain our models by providing e.g. the evolving tomography of the neutral gas distribution at z>6. The ability of our models to reproduce the Reionization of the IGM as seen by the SKA while simultaneously satisfying the observed properties of high-z galaxies (by the next generation of IR observatories, like JWST or EELT) will be strongly tested. Our participation to the SKA Science Working Group 'Epoch of Reionization' (D. Aubert & P. Ocvirk) is aimed at preparing our models to the advent of the instrument.

Star formation in young galaxies.

The SKA will enable the radio detection of star formation sites at high spatial resolution in young galaxies at z=2. By providing an access to the early stages of the evolution of stellar populations, the SKA would lead to a better understanding of the current populations in the Milky Way or the Magellanic clouds. Thanks to models and simulations of star forming regions used in Strasbourg, we aim at improving our understanding of the dynamics, the evolutionary tracks or the star formation efficiency of these objects. It should be achieved by modeling the 8 billion years evolution that separate the initial populations that will be observed at z=2 from the one seen today at very low z.

Understanding Radio Pulsars:

The instrument is also highly relevant for the theoretical models on compact objects developed at the Observatory. The SKA performances will allow the detection of tens of thousands new pulsars, increasing therefore by an order of magnitude the known number of radio pulsars. The timings of the variability of such objects will test the physics in the strong gravitational field regime and will lead to better constraints on the magnetosphere processes.

CDS and the SKA

The CDS has also a strong interest in the SKA along the following lines.

i) The continuing role of CDS as a reference data centre in the era of SKA including:
- The use of CDS services in support of the SKA, and the hosting of appropriate reference data generated by the SKA.
- The application of the CDS HiPS technologies as a 'hierarchical approach to big data' for the publishing, visualisation and analysis of SKA science-ready data. The

benefits of using HiPS and CDS Aladin Lite in major observational infrastructures have been demonstrated for example by their use in the ESA archive interface ESAsky.
- The application of CDS fast catalogue cross-matching technologies to catalogues generated by SKA

ii) Interoperability of SKA data with other astronomy infrastructures and the Virtual Observatory framework.
- CDS is a leader in developing the global astronomy data infrastructure, and this includes ensuring that the requirements and challenges of SKA are taken into account. CDS currently leads the 'Data Access, Discovery and Interoperability' DADI work package of the H2020 ASTERICS project to address the common challenges of ESFRI projects including SKA.
- CDS will also participate in the H2020 AENEAS project design study of a European Science Data Centre for SKA, in particular to contribute high level expertise on the development of interoperable systems for astronomical data services and the use of the Virtual Observatory framework.

These SKA related-activities would involve the following members of the Observatory scientific staff:

Dominique Aubert (Galaxy Team)
Pierre Ocvirk (CDS)
Christian Boily (Galaxy Team)
Jerome Petri (High Energy Team)
Mark Allen (CDS director)
Francoise Genova (CDS)
Bernd Vollmer (CDS radio Astronomer)

Also, CDS software engineers would be involved in the development of systems relevant to interoperability of SKA data:
Pierre Fernique (Developer of the Aladin sky atlas and portal, and lead developer of HiPS)
Thomas Boch (Developer of Aladin Lite)
Francois-Xavier Pineau (Developer of the CDS X-Match service for matching of the largest astronomical catalogues)
André Schaaff (CDS R&D lead for Big Data systems)
VizieR staff for topics relevant to catalogues

In summary, the SKA will be a key element of the science and activities of the Observatory for the years to come. Conversely, we argue that the local expertise described in this letter could benefit to the contribution and the visibility of the French teams within the SKA community. We believe that the range of activities and the number of people that would be impacted by the instrument is quite significant and they provide a clear testimony of the strong interest of the Observatory in the SKA.