

SKA: Overview of the Data Processing Challenges and Development of the Science Data Processor

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Radio-telescopes fundamentally rely on massive data processing to form observables after the radio waves have been digitized. For the SKA telescopes, the number of antennas and of frequency channels lead to considerable amounts of raw data which first need to be combined to form beams or visibilities so that temporal or spatial data reduction can be carried out to form data products that scientists can ultimately analyse. The design for the SKA relies on a number of processing facilities in the field, at a national scale and worldwide with specific requirements in terms of data flow, power, diversity of tasks and accessibility. This talk will describe SKA's overall computing design and then focus on the Science Data Processors where data reduction occurs in the light of delivering high performance computing at an unprecedented scale and in a context which is not that of an HPC project.

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