

Professor Andy Lawrence  
University of Edinburgh

April 26<sup>th</sup> 2009

Dear Andy,

**UK-PrepSKA / VOTC:UK**

This letter is to confirm the discussions we have had principally with Nic Walton concerning the proposed collaboration between the UK-PrepSKA team and the VOTC:UK. The SKA is the next generation radio telescope and will deliver un-paralleled sensitivity and survey speed. A major engineering challenge is to establish a costed plan for the data processing and data handling aspects of the telescope as these have a huge impact on the overall telescope design. In particular there are two areas we wish to collaborate with the VOTC:UK in order to take forward this aspect of the SKA design.

1. Data products and data handing. A conservative initial estimate amount of the fully processed data cubes from the SKA is 54 TBytes of data per day. We need to develop an outline plan for the form of the data products that should be produced by the telescope and how this volume of data should be presented to the end-user astronomer. This not only impacts the design of the pipeline system and its costs, but also the operational modes of the telescope which in turn impacts the operations plan for the telescope – one of the non-engineering deliverables of PrepSKA. The VOTC:UK would interact principally with Hans-Rainer Kloeckner (Oxford), Rosie Bolton (Cambridge) and Paul Alexander (Cambridge). Other participants in the SKA task are the University of Groningen, and ASTRON.
2. The pipeline reduction of SKA data from the correlator will have to be pseudo real time. Being an interferometer, the direct data produce from the SKA will be correlated visibility data. To obtain the very best performance from an interferometer currently demands careful analysis of these visibility data to calibrate the instrument and produce final images. For the SKA a very different model will be required where all of these essential steps are undertaken by the pipeline data reduction system. Two crucial questions arise – firstly how will expert astronomers be able to interact with this pipeline system to push the telescope to its limits and secondly how do we train the next generation of interferometry experts in such an environment. We wish to collaborate with you to investigate ways in which we could design a system to meet the various competing requirements. The VOTC:UK will interact with teams led by Steve Rawlings (Oxford), Paul Alexander (Cambridge) and Jan Noordam (ASTRON).



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Nic Walton will provide the core lining role between the VOTC:UK and the SKA project – Nic is a co-I on the PrepSKA-UK project. The UK leads the relevant work packages in the international PrepSKA project and this proposed collaboration will enable us to bring in the expertise existing within VOTC:UK.

Yours

Paul

As PI PrepSKA-UK.