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Towards a long-term Science Exploitation Plan for the Sea and Land Surface Temperature Radiometer on Sentinel-3 and the Along-Track Scanning Radiometers

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The Sea and Land Surface Temperature Radiometer (SLSTR) on Sentinel-3 is the latest satellite instrument in a series of dual-angle optical and thermal sensors, the Along-Track Scanning Radiometers (ATSRs). Operating on Sentinel-3, the SLSTR has a number of significant improvements compared to the original ATSRs including wider swaths for nadir and dual angles, emphasis on all surface temperature domains, dedicated fire channels and additional cloud channels. The SLSTR therefore provides some excellent opportunities to extend science undertaken with the ATSRs whilst also providing long-term data sets to investigate climate change.

The European Space Agency, together with the Department of Energy and Climate Change, sponsored the production of an Exploitation Plan for the ATSRs. In the last year, this been extended to cover the SLSTR also. The plan enables UK and European member states to plan activities related to SLSTR in a long-term context. Covering climate change, oceanography, land surface, atmosphere and cryosphere science, particular attention is paid to the exploitation of long-term data sets. In the case of SLSTR, relevant products include sea, land, lake and ice surface temperatures; aerosols and clouds; fires and gas flares; land surface reflectances.

In this presentation, the SLSTR and ATSR science Exploitation Plan will be outlined with emphasis on SLSTR science opportunities, on appropriate co-ordinating mechanisms and on example implementation plans. Particular attention will be paid to the challenges of linking ATSR records with SLSTR to provide consistent long-term data sets, and on the international context of such data sets. The exploitation plan approach to science may prove relevant and useful for other Sentinel instruments.