



## **ESA's Operational Ocean Mission: The Sentinel 3 Payload**

**U. Klein, B. Berruti, J. Frerick, C. Mavrocordatos, J. Nieke, J. Stroede**

European Space Agency, ESTEC, Keplerlaan 1, 2200AG Noordwijk ZH, The Netherlands

Sentinel 3 is the ocean component of the Europe's Global Monitoring of the Environment and Safety (GMES) program. The first satellite of the mission will carry optical and infra-red instruments and a topography package. It will operationally continue the successful observations of similar predecessor instruments onboard ENVISAT from 2012 onwards. The Ocean and Land Colour Instrument (OLCI) is based on the ENVISAT Medium Resolution Imaging Spectrometer Instrument (MERIS) instrument. It fulfils ocean-colour and land-cover objectives with a larger swath and additional spectral bands. The Sea and Land Surface Temperature radiometer (SLST) is based on ENVISAT's Advanced Along Track Scanning Radiometer (AATSR). Unlike AATSR SLST has a double-scanning mechanism, yielding a wider swath and a large overlap with OLCI. This enables the continuation of the highly accurate sea surface temperature observations and provides extra information in on vegetation state. The sea-surface topography mission has the primary objective of providing accurate, closely spaced altimetry measurements from a high-inclination orbit with a long repeat cycle. It will complement the Jason ocean altimeter series monitoring mid-scale circulation and sea levels by measuring ocean topography. The single-antenna radar altimeter will be operated in two different modes, a low resolution mode for continuity of ENVISAT RA-2 data and an aperture synthesis mode for increased along-track resolution and improved performance. Accompanying the altimeter will be a Precise Orbit Determination (POD) system and microwave radiometer (MWR) for removing the errors related to the altimeter signals being delayed by water vapour in the atmosphere. The altimeter will track over a variety of surfaces: Open ocean, coastal zones, sea ice and inland waters. The conceptual designs of the major instruments and their basic per-

formance parameters will be introduced together with the expected accuracies of the main data products.