



CRUCIAL: Cryosat-2 Success over Inland Water and Land: Full Bit Rate Altimetric Heights and Validation

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CRUCIAL is an ESA/STSE funded project investigating innovative land and inland water applications from Cryosat-2 with a forward-look component to the future Sentinel-3 and Jason-CS/Sentinel-6 missions. The high along-track sampling and resolution of Cryosat-2 altimeter in SAR mode (18 KHz) offers the opportunity to recover high frequency signals over much of the Earth's land surface, enhancing the inland water height retrieval capability. To perform this study we use the samples of SAR Full Bit Rate (FBR) data from Cryosat-2 acquired over a few of these land surfaces; however, for Sentinel-3 the SAR mode will be deployed widely over land. This paper will summarise the CRUCIAL aims and objectives and present the theoretical approach to analysis of the FBR L1A Doppler beams to form a product using ground cell gridding, beam steering and beam stacking from which inland water heights are derivable from the retracked Cryosat-2 altimetric waveforms. Results over the Amazon will use the along-track rms as a measure of consistency across the river with further validation against in situ and other satellite data where possible.