

Envisat Measuring Africa's and Latin America's Rivers and Lakes Level in Near Real Time

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A new web-based pilot demonstration makes Envisat-derived radar altimetry data for African and Latin American inland water freely available in near-real time. Envisat's Radar Altimeter-2 data are processed in Near real time by a sophisticated algorithm developed by De Montfort University (DMU) in Leicester under ESA contract. Until now reliable information has been difficult to access because of the high cost in equipment, manpower and communications, and because it is problematical to obtain hydrological data from many countries.

However heights of inland water can now be measured directly from space in near real time using radar altimeters, currently carried on several satellites and originally designed to measure ocean height. The new system identifies that part of each surface echo originating from inland water, enabling measurement of much smaller targets than has previously been possible. This, combined with the Envisat radar altimeter's capability to return good data even in rough terrain, means that we can provide much more accurate and up-to-date water level information than has ever been possible before.

African and Latin American River and Lake levels are released using a web-based delivery service hosted at ESRIN, within three days of being measured by Envisat. The System will subsequently be upgraded to cover the whole world. The system can be pushed further to deliver water levels in less than six hours, using near-real time data from the precise orbit determination system aboard the satellite, DORIS, in order to better satisfy the actual needs of users.

Supported as part of the European Space Agency's Earth Observation Data User Element, the River and Lake project is aimed at developing, demonstrating and assessing an information service based on inland water altimetry, both in near real time and for analysing long time series.