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Near real time water levels on rivers from ENVISAT altimetry

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In the recent years, we have developed the HYDROWEB data base (http://www.legos.obs-mip.fr/soa/hydrologie/hydroweb/) which provides offline water level time series on rivers, lakes and floodplains based on altimetry data from several satellites (Topex/Poseidon, ERS, Jason-1, GFO and ENVISAT). For a number of applications (e.g., flood prediction, fluvial navigation, etc.), Near Real Time (NRT) water levels are required. For that purpose, we have implemented an experimental process to compute NRT water levels on rivers from ENVISAT satellite altimetry data. We use Interim Geophysical Data Records (IGDRs) at 20Hz, available about 48 h after the satellite flyby over the river. The IGDRs are processed through an automatic procedure with almost similar quality control as for offline GDRs. All valid 20 Hz IGDRs data of a single satellite-river crossing are further averaged to provide a mean river water level at the time of the satellite crossing. The NRT water level products can be made available on the HYDROWEB data base within two days of IGDRs reception, i.e., at most four days after data acquisition by the satellite. Validation tests have been conducted on the Congo River. NRT and offline water levels have been compared, showing that NRT products precision is not significantly different from offline products precision, a result of the high quality of the DORIS-based orbit computed onboard. Future prospects are presented. These include quasi global implementation in HYDROWEB of NRT hydrological products on rivers and lakes, and future use of Jason-2 data.