The use of remote sensing to characterise hydromorphological properties of European rivers (Bizzi et al. 2016) [1]

Remote sensing (RS) technology offers unparalleled opportunities to explore river systems using RADAR, multispectral, hyper spectral, and LiDAR data. The accuracy reached by these technologies recently has started to satisfy the spatial and spectral resolutions required to properly analyse the hydromorphological character of river systems at multiple scales. Using the River Hierarchical Framework (RHF) as a reference we describe the state-of-the-art RS technologies that can be implemented to quantify hydromorphological characteristics at each of the spatial scales incorporated in the RHF (i.e. catchment, landscape unit, river segment, river reach, sub-reach—geomorphic and hydraulic units).

We also report the results of a survey on RS data availability in EU member states that shows the current potential to derive RHF hydromorphological indicators from high-resolution multispectral images and topographic LiDAR at the national scale across Europe. This paper shows that many of the assessment indicators proposed by the RHF can be derived by different RS sources and existing methodologies, and that EU countries have sufficient RS data at present to already begin their incorporation into hydromorphological assessment and monitoring, as mandated by WFD. With cooperation and planning, RS data can form a fundamental component of hydromorphological assessment and monitoring in the future to help support the effective and sustainable management of rivers, and this would be done most effectively through the establishment of multi-purpose RS acquisition campaigns and the development of shared and standardized hydromorphological RS databases updated regularly through planned resurveyed campaigns.

Keywords: Fluvial geomorphology River remote sensing River characterisation Water framework directive

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http://dx.doi.org/10.1007/s00027-015-0430-7 [2]

Links
[1] https://reformrivers.eu/use-remote-sensing-characterise-hydromorphological-properties-european-rivers-bizzi-et-al-2016
[2] http://dx.doi.org/10.1007/s00027-015-0430-7

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