

HYDRA: Monitoring water courses with TerraSAR-X and Rapideye satellite imagery in support of the EU Water Framework Directive

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BACKGROUND

- The EU Water Framework Directive requires regular mapping and monitoring of water courses according to common standards.
- In most countries, this is done by labour-intensive field surveys along the rivers. Approaches to reduce cost, efforts and subjective judgements by surveyors are reasonable.
- Reporting obligations of the member states regarding performed re-naturation and re-vitalisation measures to the EU require effective controlling instruments.

PROJECT PURPOSE

- Test and develop methods for satellite-based support of existing mapping and monitoring systems for structural ecological mapping of water courses
- Evaluate quality of products, possibilities and limitations (e.g. regarding scale and topography) as well as cost efficiency of the methodologies
- Develop effective change detection methods for action control regarding re-naturation
- Utilize the synergies of SAR and multi-spectral imagery, in particular by integrating data of new high-resolution sensors Rapideye and TerraSAR-X

MAPPING PARAMETERS



1: Development of water course
(shape)



2: Longitudinal profile
(transverse structures, superstructure, backwater)



3: Transverse profile
(type, variability, passage/ bridge, constriction/cavity)

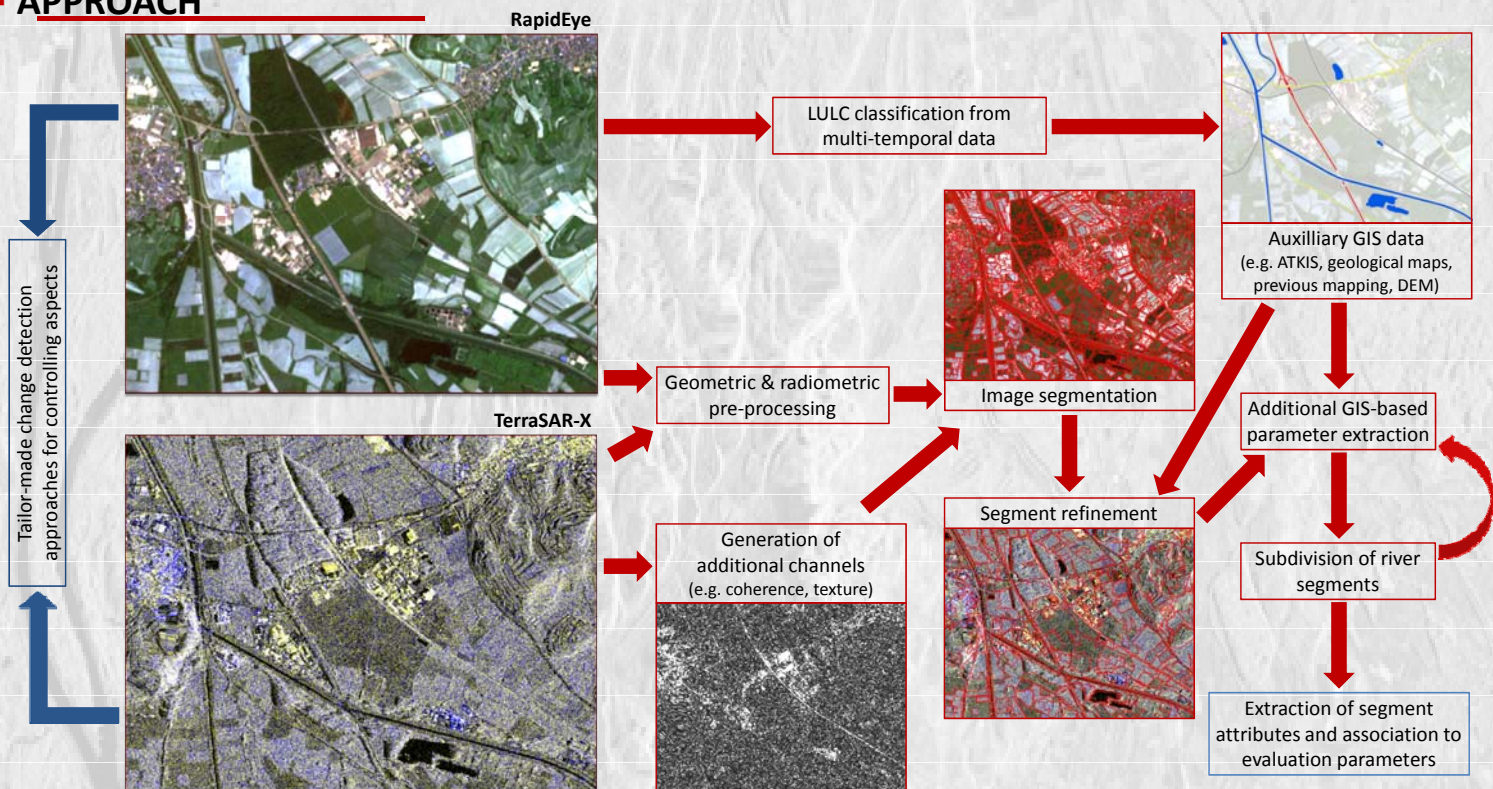


4: Bank structure
(plant cover: wood & shrubs, bank fixation)



5: Surroundings
(land cover/use, riparian strip, spec. surrounding structures, deleterious surrounding)

APPROACH



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