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The REGARD project brings 4 platforms together to assess the state of the Garonne river catchment (France) - integrating remote sensing data with hydrological and human activities modeling

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Abstract : In many watersheds, water resource states depend on human activities and interactions between different hydrological compartments including rivers, aquifers, reservoirs, soil and snow. High human withdrawals may cause difficulties for the management of low water periods. The project REGARD aims at showing how remote sensing data and information on human activity, combined with hydrological modelling, can provide a high spatial (some kilometres) and temporal resolution (daily) view of the water resources dynamics. Formalism of environmental and human activities are implemented into four hydrological modelling platform dealing with different space and time scales in order to simulate interactions between all the hydrological compartments of the water cycle (blue and green water) and

agricultural uses. The 4 platforms being applied to the whole or part of the Garonne catchment (South-West of France, 50 000 km²). The comparison of results allow assessing uncertainties both related to the input data and to the models themselves. The results show the possibility and usefulness to cross-validate the remote sensing data, models input and model outputs. The results also show the importance of the cross-validation between the models themselves. The 4 platforms will be described and can be used for different end-users according to their management purposes.

Key Words: Modelling platforms, green and blue water, remote sensing data, anthropogenic impacts, water resources, Garonne River.