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Mobile and static sensors in a citizen-based observatory of water

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Understanding and forecasting water resources and components of the water cycle require spatially and temporally resolved observations of numerous water-related variables. Such observations are often obtained from wireless networks of automated weather stations. The "WeSenseIt" project develops a citizen- and community-based observatory of water to improve the water and risk management at the catchment scale and to support decision-making of stakeholders. It is implemented in three case studies addressing various questions related to flood, drought, water resource management, water quality and pollution. Citizens become potential observers and may transmit water-related measurements and information. Combining the use of recent technologies (wireless communication, internet, smartphone) with the development of innovative low cost sensors enables the implementation of heterogeneous observatories, which (a) empower citizens and (b) expand and complement traditional operational sensing networks. With the goal of increasing spatial coverage of observations and decreasing cost for sensors, this study presents the examples of measuring (a) flow velocity in streams using smartphones and (b) sensible heat flux using simple sensors at the nodes of wireless sensor networks.