Geophysical Research Abstracts
Vol. 14, EGU2012-2942, 2012
EGU General Assembly 2012

An assessment of the water consumption in Tuscany, Italy: hydrological balance simulations with the MOBIDIC model

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The growing attention on the water resources management problem, also in view of the climate change issues, requires a detailed knowledge of the water availability and consumption. Despite the importance covered by this topic, this kind of information is often fragmentary on large regions and inadequate for the purpose of an accurate hydrologic balance that needs data about the consumption for different categories, such as civil, agricultural and industrial. In this work the information collected by different local administrations in Tuscany, central Italy, were processed and used to build a tool for scenarios generation of the water withdrawals in the whole territory in the framework of PRESTIGRIS (PREvisioni STagionali Idrologiche per la Gestione della Risorsa Idrica e della Siccità), a project sponsored by Tuscany Region for the seasonal forecast of the drought and water scarcity states. The available data were integrated with synthetic withdrawals generated basing on the observed statistical characteristics, in order to fill gaps in the local administration registrations. The hydrological model MOBIDIC (MOdello di BIlancio Distribuito e Continuo) was used to perform simulations of the water balance at regional scale (about 23000 km2) with and without the withdrawals scenarios. The period of study was the 2000-2011. A discussion of the results is provided.