Geophysical Research Abstracts, Vol. 9, 01929, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-01929


# Transferring knowledge on water stress from well-monitored to ungauged drainage sub-basins

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Many regions in Europe experience water stress: it happens when the functions of water in the system do not reach the standards (of policies) or perceptions (of the population) on an appropriate quantity or quality, at an appropriate scale and the adaptability of reaching those is not given. This definition is used in the framework of the EC-project AquaStress, which main focus is to mitigate water stress problems by developing interdisciplinary methodologies and tools. An important issue in this project is how to optimize the reuse of knowledge on water stress and mitigation options from well-monitored drainage sub-basins to poorly monitored ones. For this purpose a Case Based Reasoning (CBR) approach has been adopted. Each drainage sub-basin is considered as a case and described using a series of indicators. This series is related to the following issues: water availability and quality in a drainage sub-basin, demands and the use of water by different sectors (agricultural, industrial, domestic, tourism, environment) and the methods used to combat a particular water stress in the sub-basin. The indicators are clustered in three categories: natural potential, water stress and mitigation options. The focus of this paper is on the first category. Concerning the third category, it turns out that indicators on mitigation options cannot be well addressed due to lack of digitally available, European information.

The natural conditions primarily determine the initial volume and quality of water in a drainage sub-basin (making up a “case”). To allow for a sound comparison between different drainage sub-basins in Europe and to tackle the problem of availability of suitable pan-European data, the indicators must be chosen with care. Accordingly, two kinds of indicators are distinguished; the direct and the proxy indicators. A direct indicator is considered as an optimal indicator for describing an aspect of the natural

conditions. The proxy indicator is a result of a combination of digitally available data at a pan-European scale, providing information on the quantity and quality of water in regions where no direct indicators are available. For example, a combination of data on climate, evaporation, runoff, soil and geology delivers a proxy for the total renewable, exploitable groundwater in a region. The methodology used to select direct indicators and calculate proxy indicators, will be presented in the session together with an overview of the indicators and a CBR knowledge base prototype. We will show that - based on the natural conditions - a selection of comparable drainage sub-basins in Europe can be carried out, enabling the transfer of knowledge from well-monitored to ungauged drainage sub-basins.