

INTERNSHIP ASSIGNMENT

Development of an advanced web portal for water scarcity information

Duration	3 months (February-April 2012)
Coach	Laura (L.M.) Daniele
Location	TNO Enschede, Capitool 10
Education	Computer Science

INTRODUCTION

Water is a precious resource necessary to fulfil the world population needs. An important issue related to the water resource is that the water demand in the world is becoming higher than its availability. This imbalance causes the so called *water scarcity* problem. To give support to this problem from an IT perspective, the GLOWASIS project (www.ecmwf.int/research/EU_projects/GLOWASIS) aims at providing a water scarcity information system in which:

- domain experts and researchers can share high-quality information on water resources in order to study the water scarcity problem and investigate solutions to solve it,
- water managers and authorities can access reliable information on water resources in order to guarantee water availability in the world and take counter measures in critical situations, and
- non-experienced public can use water scarcity information for practical purposes.

ASSIGNMENT

Currently there is availability of plenty of geospatial information on water resources that can be visualised in terms of maps or viewed in terms of raw vector data. However most of the time this information is accessible only by experts, i.e., researchers and sometimes water managers, who are able to make technical queries to retrieve the information they are interested in. This assignment focuses on the development of an advanced web portal that allows different users (not only experts, but also the public) to access and visualise ad hoc water scarcity information depending on their specific needs. The web portal should handle different type of information, such as text, images, movies and large multi dimensional data sets expressed in several formats. Moreover, the portal should offer data provenance functionality to the users, namely the possibility to track the available information back to its source. This functionality provides the researchers with a mechanism to validate the water scarcity information, but it also allows the water managers and the public to better understand the information they are interested in. In order to allow interoperability the portal should also comply with the European INSPIRE directive (<http://inspire.jrc.ec.europa.eu>) and support the Open Geospatial Consortium (OGC) standards (<http://www.opengeospatial.org/standards>). Detailed guidelines on the portal design are available in the GLOWASIS project and should be used as input for the development of the web portal.

We are looking for a creative MSc student with experience in web portal development with content management frameworks such as Drupal, Joomla, or similar. The student should be able to work independently, take own initiatives and search for collaboration with other people in the working environment. The student is expected to perform the following tasks:

- Design the web portal based on the existing GLOWASIS guidelines;
- Choose a suitable solution to handle data from distributed sources expressed in several formats;
- Identify the most suitable way to present search results to different users depending on their specific needs;
- Create a data provenance facility for the portal;
- Guarantee interoperability supporting the INSPIRE directive and OGC standards;
- Choose the most suitable content management framework to develop the portal;
- Implement the web portal with the chosen framework.

The assignment will be carried out at the TNO department in Enschede under the supervision of Laura Daniele. For more information contact Laura at laura.daniele@tno.nl, or 0621134568.