XXXVIII IAH Congress

Groundwater Quality Sustainability
Krakow, 12–17 September 2010

Extended Abstracts

Editors:
Andrzej Zuber
Jarosław Kania
Ewa Kmiecik

University of Silesia Press 2010

abstract id: **147**

topic: **6**
General hydrogeological problems

6.2
Hydrogeology of karst

title: **Evaluation of climate change impact in pollution vulnerability of Mesozoic karst aquifers in Burgos province (Spain)**

author(s): **Luis Antonio Marcos**
University of Burgos, Spain, qplamn@ubu.es

Laila Louajdi
University of Burgos, Spain, louajdi_laila@yahoo.es

Silvino Castaño
Geological Survey of Spain (IGME), Spain, s.castano@igme.es

Monica Vazquez
University of Burgos, Spain, movazm@gmail.com

María Jesús Contreras
Burgos Council, Spain, mjcontreras@aytoburgos.es

keywords: karst aquifers, pollution vulnerability, hydrogeochemistry, climate change

This study presents a methodological approach for the assessment of the Climate Change Impact in the vulnerability to chemical contamination of karst aquifers of Mesozoic age, located in Tierra de Lara (West of the Sierra de la Demanda, northeast of the Duero river basin) in the province of Burgos (Castilla y Leon, Spain). There are very different methodologies to assess vulnerability to contamination of an aquifer. The vulnerability of karst aquifers to contamination, both chemical and microbiological, is extreme, especially in high rainfall and a strong growth of the net movement of groundwater. Methods for determining the vulnerability to contamination of aquifers used different techniques, which are grouped into hydrogeologic methods, parametric or model-based simulation.

In this project we study the evaluation of climate change impact, below several hydrological hypotheses, on the quantity and quality of these groundwater. The results are presented in the form of thematic maps using a system Geographic information (GIS) in order to identify areas of greater or lesser susceptibility to contamination. It also identifies areas of highest risk of pollution from chemicals.

Hydrogeochemistry and Isotopes of Mesozoic Karst Aquifers are also studied, and different hydrochemistry zones are showed in relation to groundwater flow, recharge and discharge areas. Hypothetical evolution of their hydrochemistry is also studied.

International Association of Hydrogeologists

AGH University of Science and Technology

2-vol. set + CD
ISSN 0208-6336
ISBN 978-83-226-1979-0