



Impact of climate change on the flow in five watershed of the Northwest of Algeria

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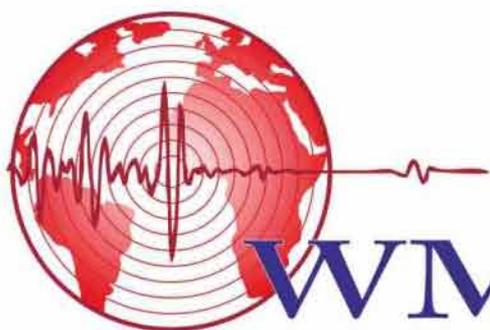
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ABSTRACT

The climate change matter set in at the forefront of the news and public opinions' concerns for a long time. These climate changes have negatively affected the water reserves which necessary for any social and economic development. In Algeria, the deficit of this blue gold becomes worrying, confirming various expertise starting from assumptions and using different methodologies which all have concluded that our country will be confronted to this shortage in the next coming years. To better work out the importance of those impacts, we have analysed the average water flows of five basins of Algerian northwest, in the Central Maghreb, over the reference period (1970-200) and we have compared them to those that could result from the changes in the main climatic stress (temperature and rains). The methodology used rests on the model GR2M in order to make simulations on the flows of five basins of the Central and West of Algeria in view of the climate changes by the years 2025 and 2050. The results obtained show a coming decrease in the flows, of the order of 15%, from January to April for the basins of the Central and Chélif, and which will exceed 25% for the basins of the West. For the first months of the warm season, the aforementioned decrease, for 2050 and for the pessimistic scenario, will be more than 40%. The decrease in surface water resources will be significant within the context of climate changes, despite uncertainties we can quantify with accuracy on the degree of those changes. The aforementioned changes and their impacts are already visible and quantifiable as regards water resources for instance. This situation combined with the population increase will generate important social, economic and environmental problems. The inflows drop will directly impact dams' filling, which was already recorded for instance during 2006 and 2007 years. The natural recharge of water tables for the region will suffer from this drop, which will give rise to a lowering of piezometric levels. This established fact will favour surface and ground water pollution. We must act now to limit the damage whilst obviously considering the uncertainty range on the climatic forecasts.

Key words: Climate change; flows; model; five watershed; Northwest of Algeria.

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September 5-9
2016
Prague, Czech Republic

WMESS 2016

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WMESS 2016

5-9 September, 2016

Prague (Czech Republic)

ISBN: 978-80-270-0316-7



Preface

This Abstract Collection consists of the abstracts of papers presented in the "World Multidisciplinary Earth Sciences Symposium" in the city of romance Prague (Czech Republic) during 5-9 September 2016. The World Multidisciplinary Earth Sciences Symposium (WMESS) aims to provide a forum for discussion of the latest findings and technologies in different fields of Earth Sciences, to give opportunities for future collaborations. WMESS wants to be a platform for sharing knowledge and experiences in the fields of Earth Sciences, to lead for providing a forum for early career researchers for presentation of their work and discussion of their ideas with experts in different fields of Earth Sciences such as; Tectonics & Structural Geology; Engineering Geology; Geotechnics; Hydro-Hydrogeological Sciences; Natural Hazards; Geomorphology; Geochemistry, Mineralogy, Petrology & Volcanology; Stratigraphy, Sedimentology & Palaeontology; Geophysics & Seismology; Geodesy, Photogrammetry & Cartography; Informatics, Geoinformatics & Remote Sensing; Mining Engineering; Mineral Processing; Blasting & New Technologies; Natural Resources; Environmental Sciences; Energy, Resources & Pollution & the Environment; Environmental Legislation; Biogeosciences; Geological Heritage & Geoparks; Urban Planning; Atmospheric Sciences – Climate; Modelling and Soft Computing Techniques in Earth Sciences; Medical Geology; Occupational Health and Safety.

WMESS 2016 will be the 2nd of the Annual series and the main mission of the "World Multidisciplinary Earth Sciences Symposium - WMESS" is to lead to contribute in multidisciplinary studies related with atmosphere, biosphere, hydrosphere, lithosphere and pedosphere of the Earth and interaction of the human with them. As another mission, it provides a forum for this diverse range of studies, which report very latest results and document emerging understanding of the Earth's system and our place in it. The Scientific Committee and Institutional Scientific Partners of WMESS was completed by paying strict attention, and all members were selected from well-known, very much appreciated, productive and representatives of the different countries. We are deeply grateful to the members of the scientific committee and institutional scientific partners (International Association for Engineering Geology & the Environment – **IAEG**, International Union of Soil Sciences – **IUSS**, International Geographical Union – **IGU**, The International Association of Hydrogeologists – **IAH**, Geological Sciences of Italy – **SGI**, Czech Soil Science Society – **CSSS**, Arabian Geosciences Union – **ArabGU**, The Society of Economic Geology of Romania – **SEGR**, World Meteorological Organization – **WMO**, International Medical Geology Association – **IMGA**, Russian Mineralogical Society – **RMS**, University of Petrosani) of WMESS.

We would like to express our sincere gratitude to all participants of WMESS 2016 from 50+ different countries all over the world for their interests and contributions in WMESS 2016. We wish you enjoy the World Multidisciplinary Earth Sciences Symposium – WMESS 2016 and have a pleasant stay in the city of romance Prague. We hope to see you again during next event WMESS 2017 which will be held in Prague (Czech Republic) approximately in the similar period.

Prof.Dr. Işık YILMAZ

President of WMESS – Chair of WMESS 2016