

Hydro-Climate Projections in the Cordex Mena Domain Using the Weather Research Forecast Model with Focus on the Eastern Nile Basin

Mahmoud A. Soliman

Affiliation: MS Student, Teaching and Research assistant at Faculty of Engineering, Cairo University

Reference: McDowell RJ, CA Pruitt, RA Bahn (eds.), *Proceedings of the 2015 Georgia Water Resources Conference*, April 28-29, 2015, University of Georgia, Athens.

Abstract. Assessment of the future climate in the Eastern Nile Basin (ENB) is still lacking and the level of understanding of future climate behaviour is not yet clear to the different stakeholders in the ENB. This is mainly because of the complexity of the carrying representative climate studies, the wide range of uncertainties in the different General Circulation Models (GCM) results that cause the decision makers and stakeholders do not buy into the climate projections, the lack of established climate datasets in the basin and on top of that the scarcity of the qualified human resources with capacity to carry out climate studies. This study provides steps towards enhancing the understanding of the interactions between the climate and hydrology systems in the EN basin using WRFv3.5 as a numerical model to assess the impacts of climate change on the basin's water resources using ERA interim reanalysis data as boundary conditions. The output climatic fields may be used to force the calibrated Nile basin water balance model to assess the future impacts of the different emissions scenarios on the water resources in the basin. The objective is to improve the consideration of climate implications on the Nile Basin through building a dynamic climate downscaling model for the Nile using the state of the art regional climate models. The outcomes of the climate modeling will be used for the assessment of the impacts on the basin's water balance under climate change scenarios.