Climate change in the Mediterranean Basin: A critical comparative study of IPCC model projections regarding future drying

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This award will support a one-semester visit of Dr. Baruch Ziv of the Open University of Israel to conduct research in support of ongoing work at the LDEO Division of Ocean and Climate Physics regarding the future of the Mediterranean climate. Dr. Baruch Ziv is an expert on the synoptic climatology of the Mediterranean Basin. His expertise fills an important niche in the research elements needed to evaluate the dyer projections regarding the future drying of that region.

Description of the research project: The area surrounding the Mediterranean Basin is one of the primary subtropical regions expected to experience a serious drop in precipitation (10-20%) by the end of the 21st Century. This expectation is based on coupled GCM projections used in the IPCC Fourth Assessment. The severe implications of this future projection are related to the sensitivity of that region to water shortage. It is imperative to determine the robustness of this projection and the intensity and horizontal distribution of the impact within and around the Basin. The clues seem to lie in the degree of the models' ability to correctly simulate the regional synoptic activity and to reliably determine its future distribution. Dr. Ziv has recently conducted a collaborative study with Dr. Christoph Raible from the University of Bern with similar goals and This work examined the output of a single IPCC model (ECHAM 5). The surprising result is that the response to global warming is not spread uniformly over the Mediterranean Basin. It is stronger in the west (e.g., Spain, Italy and Tunisia) than in the east (the Levant – Lebanon, Syria, Israel and Jordan). These findings are crucial to decision makers and we need to evaluate their physical cause and their reliability in terms of the degree of agreement between models and consistency with observations in the last few decades. In visiting LDEO, Dr. Ziv will be able to apply his research methodology to other IPCC models and interact with the LDEO Climate Modeling Group members to interpret the results.