



Simulating the water budget of the Caspian Sea basin and the corresponding changes in its sea level during 1950-1990

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The Caspian Sea covers almost 400,000 km² and is the largest enclosed body of water on earth. Because the sea has no outlets and is large enough to filter high frequency fluctuations in the water budget, change in its sea level is a good indicator of climate change. Throughout its history the Caspian has undergone major fluctuations in its sea level which are linked to climate variations, however, the causes of these climate changes are still not fully understood. These sudden changes in the sea level have had adverse environmental and economic consequences in the surrounding regions.

In this study we use a regional climate model (RegCM) to study the climate regime and variations of the Caspian Sea basin. We performed a 40-year simulation for the period 1950-1990, during which time the Caspian's sea level experienced a sudden reversal in its decreasing trend and consequently rose almost 2 meters over the next couple of decades. In this preliminary analysis we validate several of the simulated variables with ground-based observations as well as assess the model's ability to accurately simulate the water budget of the basin and corresponding changes in the sea level. As our next step, we will use the model as a tool for future climate change studies involving the prediction of the Caspian's sea level.