Study of the trend of climate change on the Sea-level of the Caspian Sea based on scenarios CMIP6 -until 2040

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Abstract:

Climate change has unpredictable and costly effects on water resources in various basins. The impact of atmospheric phenomena on human life and the environment has reached such a level that only considering the knowledge and science of management can reduce the losses and consequences of their consequences. In this research, using different CMIP6 models and micro-scale exponential data of general circulation model of the atmosphere, with monthly precipitation, average temperature, evaporation, and runoff of the Volga Basin, based on CMIP6 scenarios including ssp.585 and ssp.126 series. We have a long-term simulation of data up to 2040 AD. We also deal with long-term forecasting of climatic parameters of the Caspian Sea coast and its impact on sea level.

The results obtained from the study of Caspian fluctuations show that its oscillation amplitude has different intensities in time scales. But overall, it shows a declining trend in recent years.

Also, the total rainfall in the Caspian coastal cities based on the ssp.585 scenario shows an increasing trend in all models, but the ssp.126 model scenario shows a decreasing trend. The temperature in all scenarios increases upwards by about 0.5 ° C. Will have.

Keywords: CMIP6 scenarios, climate change, general atmospheric circulation models, Caspian Sea-level.