Climatic trends to extremes employing regional modeling and statistical interpretation over the Eastern Mediterranean

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Regional climate models were run and analyzed for the Eastern Mediterranean. It was found that the average temperature over the Mediterranean area has increased by 1.5-4ºC in the last 100 years. The temperature in the years 2071-2100 according to the A2 and B2 scenarios are predicted to increase by about 4ºC and 6ºC respectively over Northern Israel in comparison with the control run for 1961-1990.

The precipitation above most of Mediterranean shows a dominant negative trend in the last 50 years. A large negative trend in the A2 scenario was found over Northern Israel, while B2 scenario shows no significant trend. There is a tendency toward extreme events. It was found that the extreme precipitation over Northern Israel shows significant increasing trends for the A2 and B2 scenarios with respect to the present climate. Also, the standard deviation of the average annual precipitation is higher in the A2 and B2 scenarios showing a trend toward both drier as well as wetter years in the future.

Over Israel the tendency to more extreme years can be related to the increase of the specific "Red-Sea trough" synoptic system whose frequency has doubled in recent 50 years.