

# Simulating the climatology of extreme events for the Central Asia domain using the RegCM 4.0 regional climate model

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**Abstract** In this work, future changes in the frequency of the seasonal extreme climate events such as number, frequency, duration and intensity of heat waves (five consecutive temperature days above the maximum temperature calendar day 90th percentiles, number of days per year that is above the same percentiles and greatest number of consecutive days above these percentiles) for the period of 2071-2100 over Central Asia (18.56° – 70.13° East and 7.28° - 142.4° North) with respect to the present period of 1971-2000 were studied in detail. Regional Climate Model RegCM4.0 of Abdus Salam International Center for Theoretical Physics (ICTP) with ECHAM5 forcing data was used for hindcast and forecast projection. This region will very likely be affected by heat waves in winter and spring seasons and heat wave frequency, intensity and duration will increase significantly over the Arabian Peninsula in summer. On the other hand, cold spells will not change as much as heat waves over the region in all seasons.

**Keywords** Extreme climate events, heat wave, cold wave, Central Asia, heavy precipitation