

## Case study regions in Asia

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### Climate change implications in irrigated Asian regions

The aim is to understand the regional implications of climate change in two main irrigated regions in Asia – the Mahanadi River Basin in India and the Aral Region in Central Asia, including Aral Sea and its drainage basin.



Fig. 1. Regional location map of Mahanadi River Basin (MRB) and Aral Region (Source: Google Map, edited to illustrate basin boundaries, the major rivers – Mahanadi River in MRB and Amu Darya and Syr Darya Rivers in Aral Region – and the percentage irrigated area within the drainage basins)

### CMIP3 → CMIP5

Here we compare the Coupled Model Intercomparison Project, Phase 3 (CMIP3) Global Climate Model outputs of Precipitation and Temperature with the latest, phase 5 Global Climate Model ensemble, CMIP5, for both the case study regions.

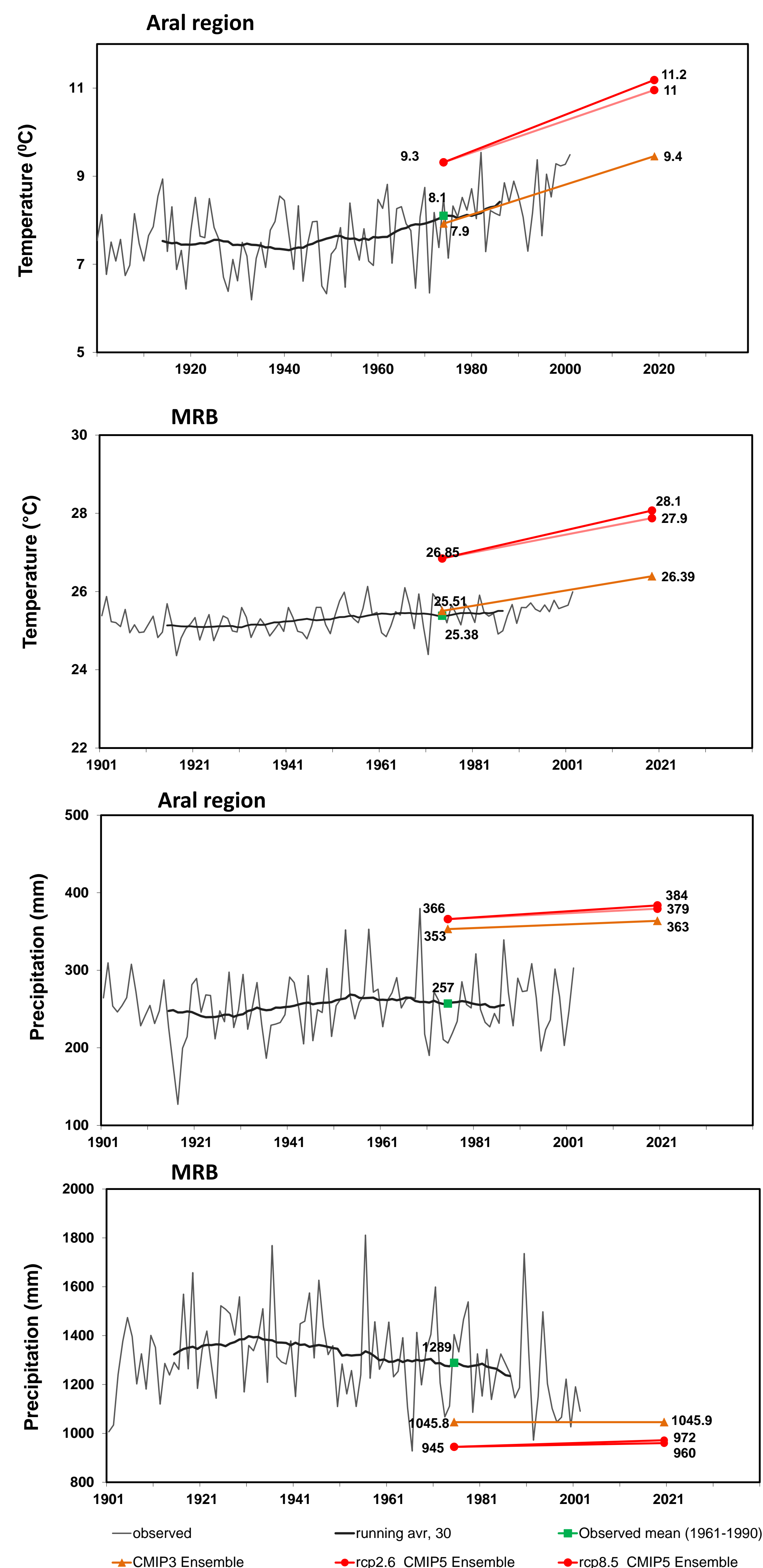


Fig. 2. CMIP3 and CMIP5 climate model outputs Vs Observation data on T and P

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### Water balance: CMIP5 ensemble climate model Vs Observations/Observation based data

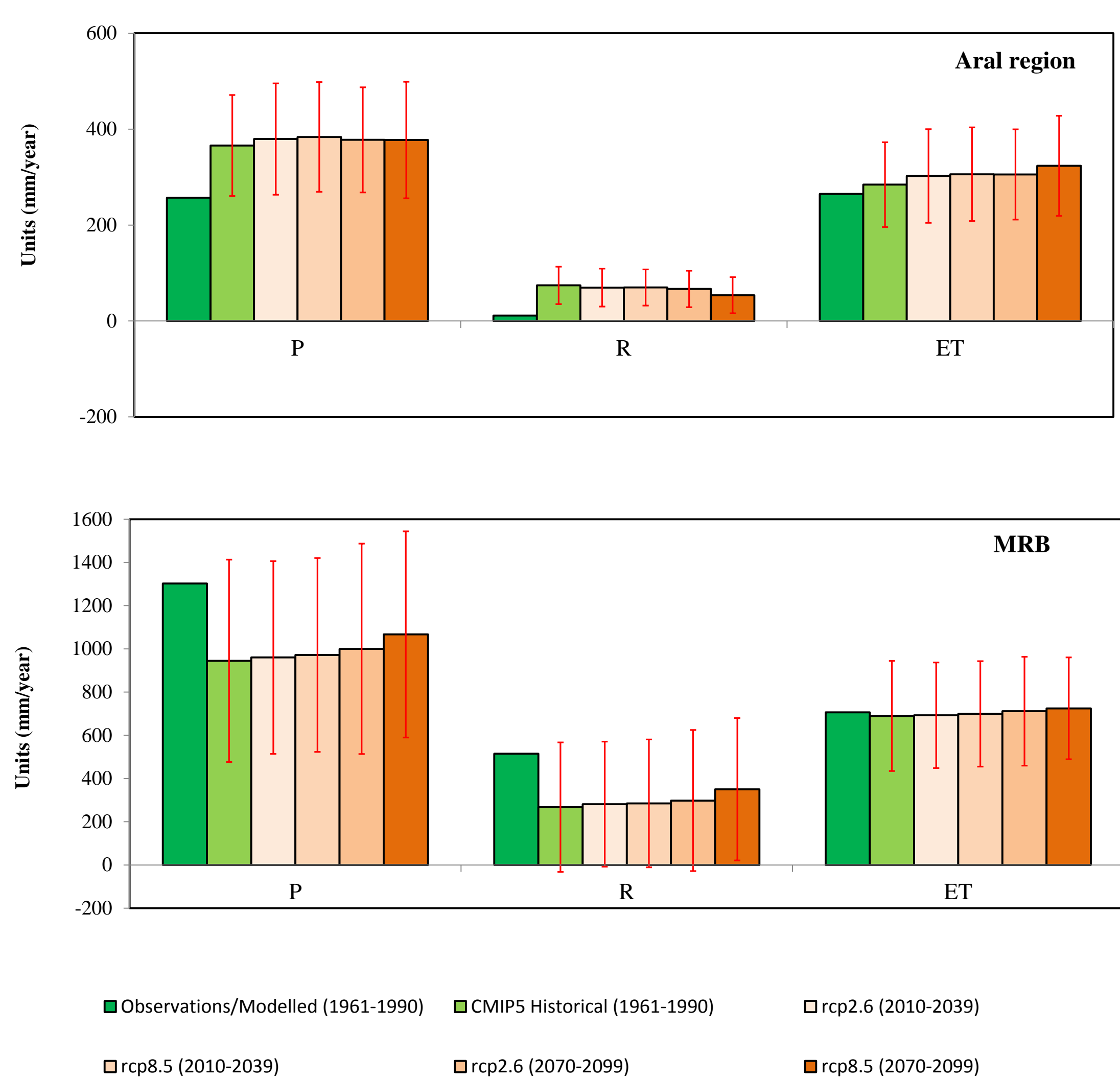


Fig. 3. Water balance components Precipitation, Runoff and Evapotranspiration for the historical (1961-1990), near (2010-2039) and distant (2070-2099) future for Aral Region and MRB from the CMIP5 simulations compared with observation data for the historical period.