Global Climate Change
&
Water Resources in Central Asia

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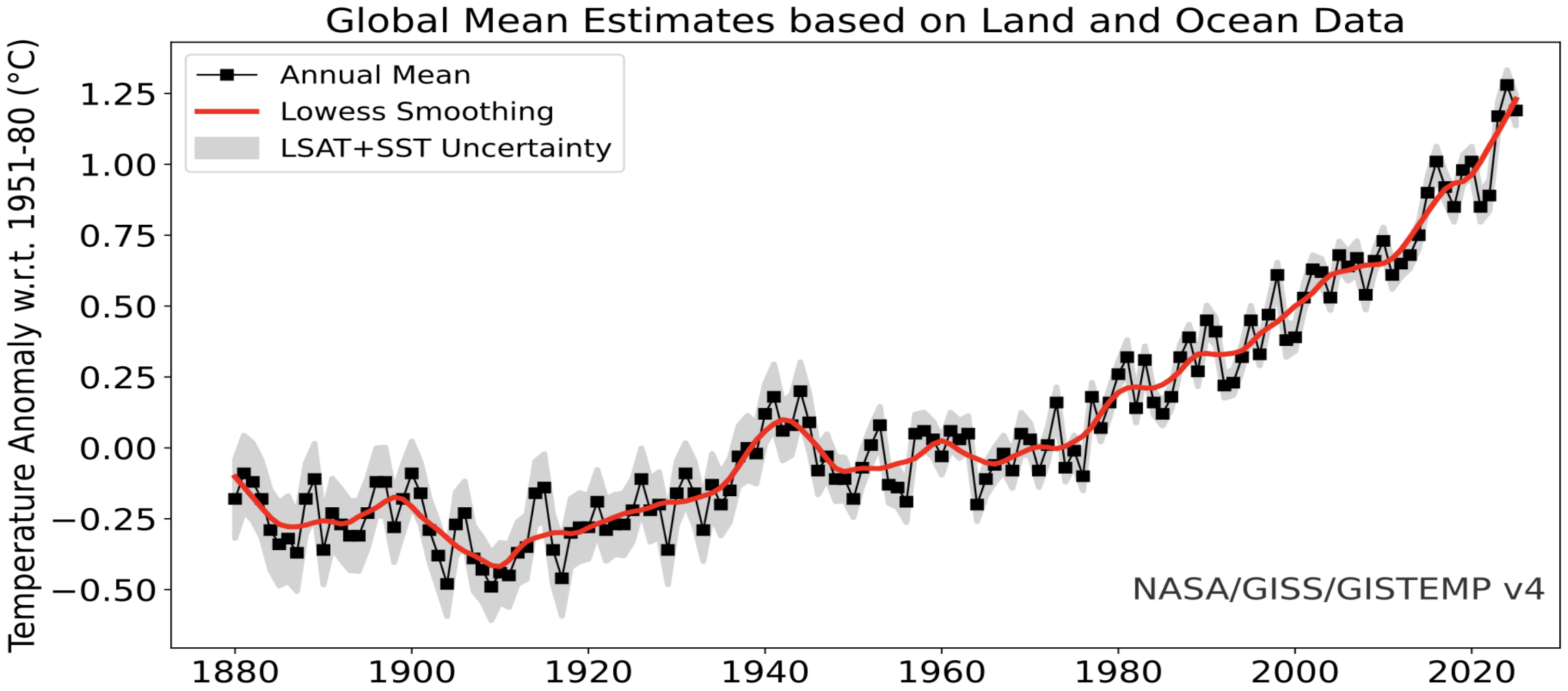
Climate Adaptation

- Future of water availability is one of the key if not the most important issue in adapting to climate change in Central Asia
- How can our research help with this issue?

- So a very quick review of the situation

Global Annual Average Temperature

https://data.giss.nasa.gov/gistemp/graphs_v4/
1880 to present, with base period 1951-1980



World Glacial Monitoring Service

https://wgms.ch/global-glacier-state/

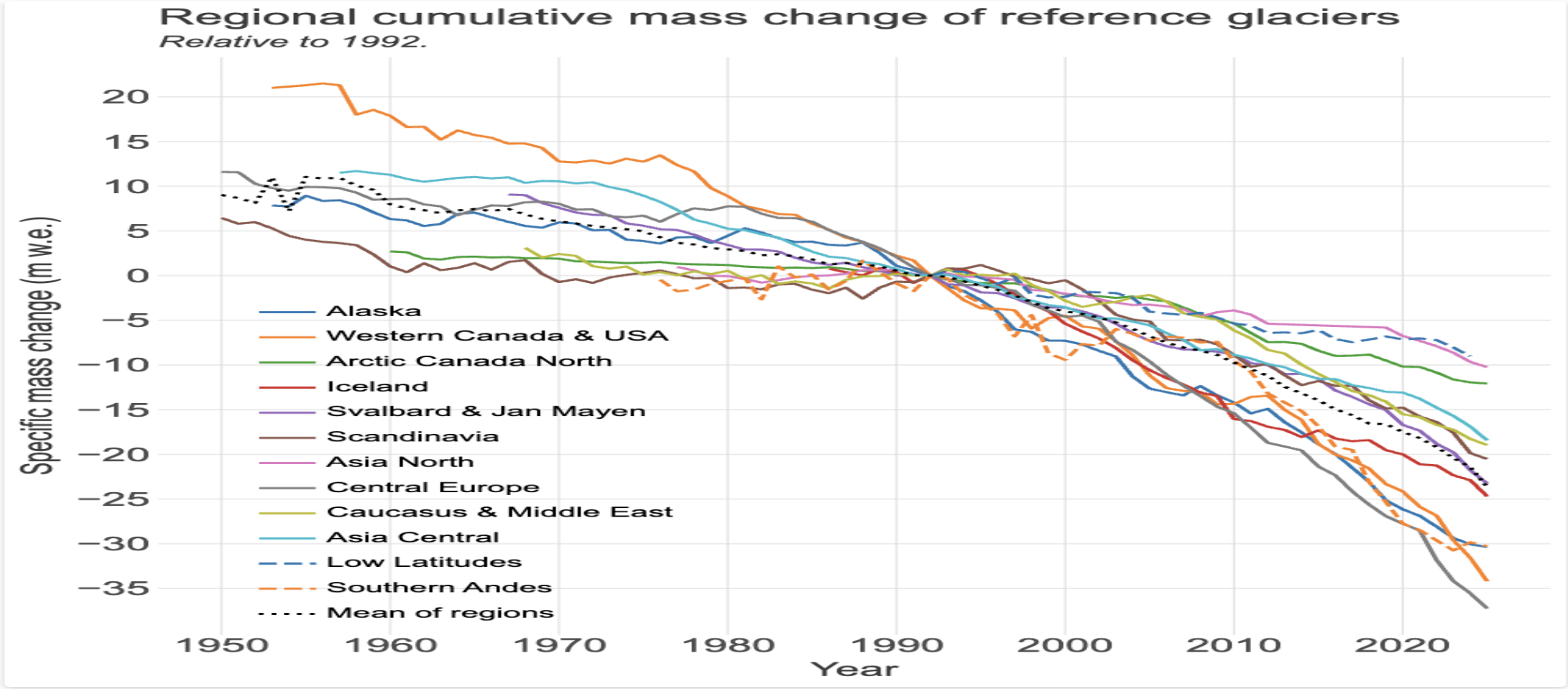
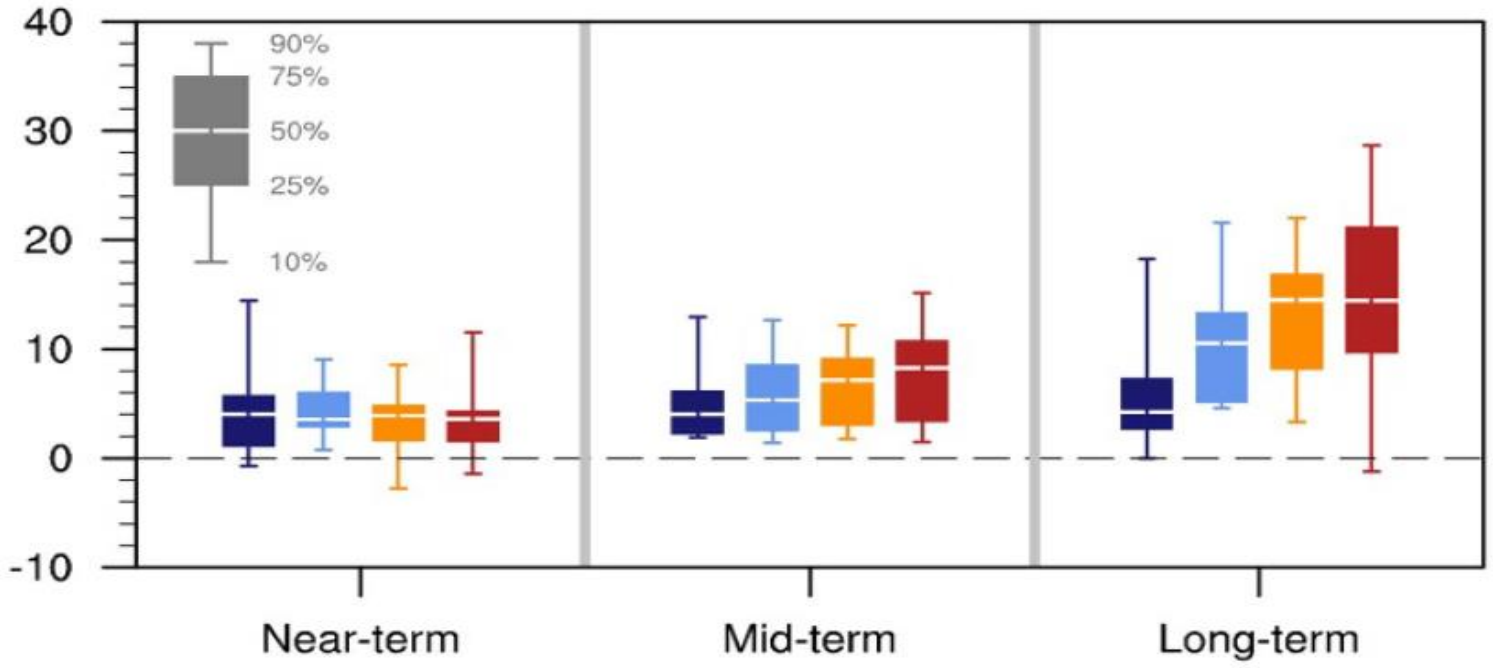


Fig. 3: Cumulative mass change relative to 1992 for regional and global means based on data from reference glaciers. Cumulative values are given on the y-axis in the unit meter water equivalent (m w.e.).

Projected Changes (%) in Precipitation Over Central Asia

(CMIP6 Projections)

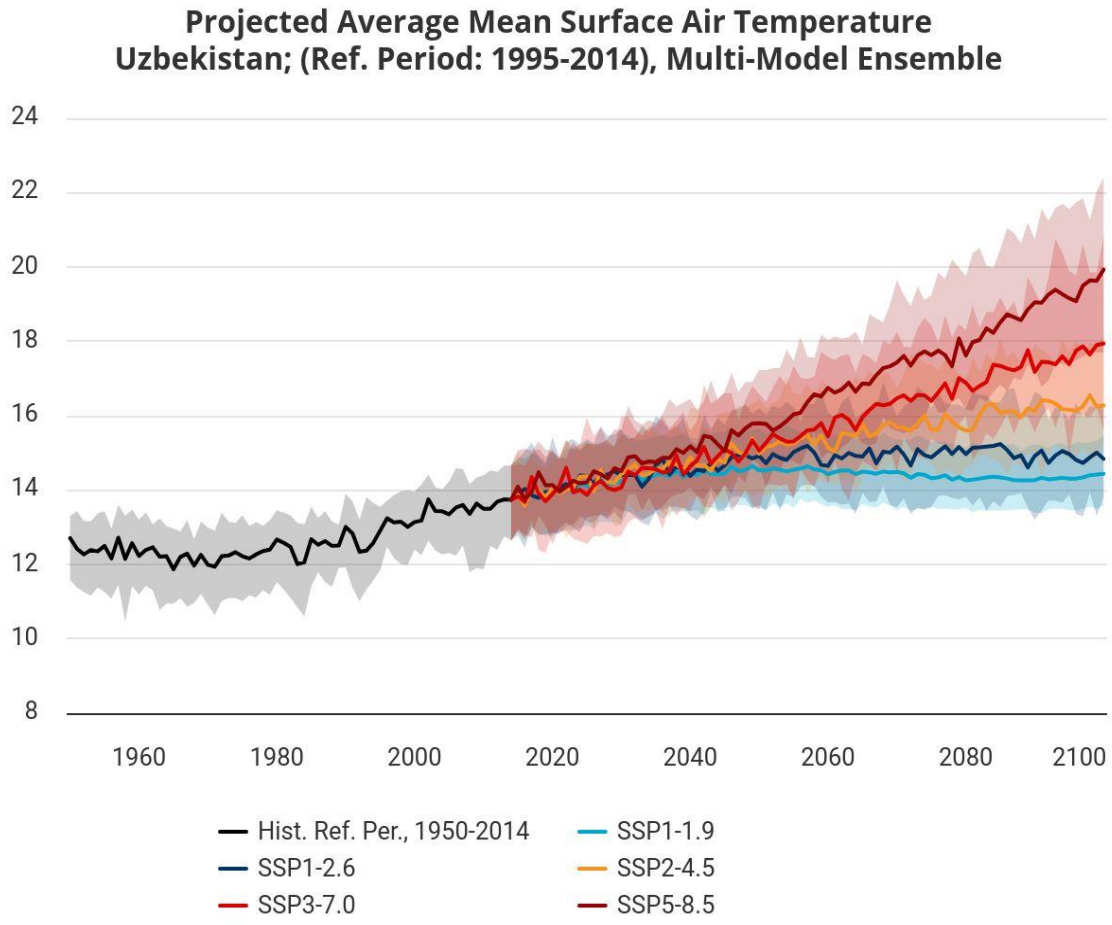
Jiang et al., Environ. Res. Lett. 15 (2020)

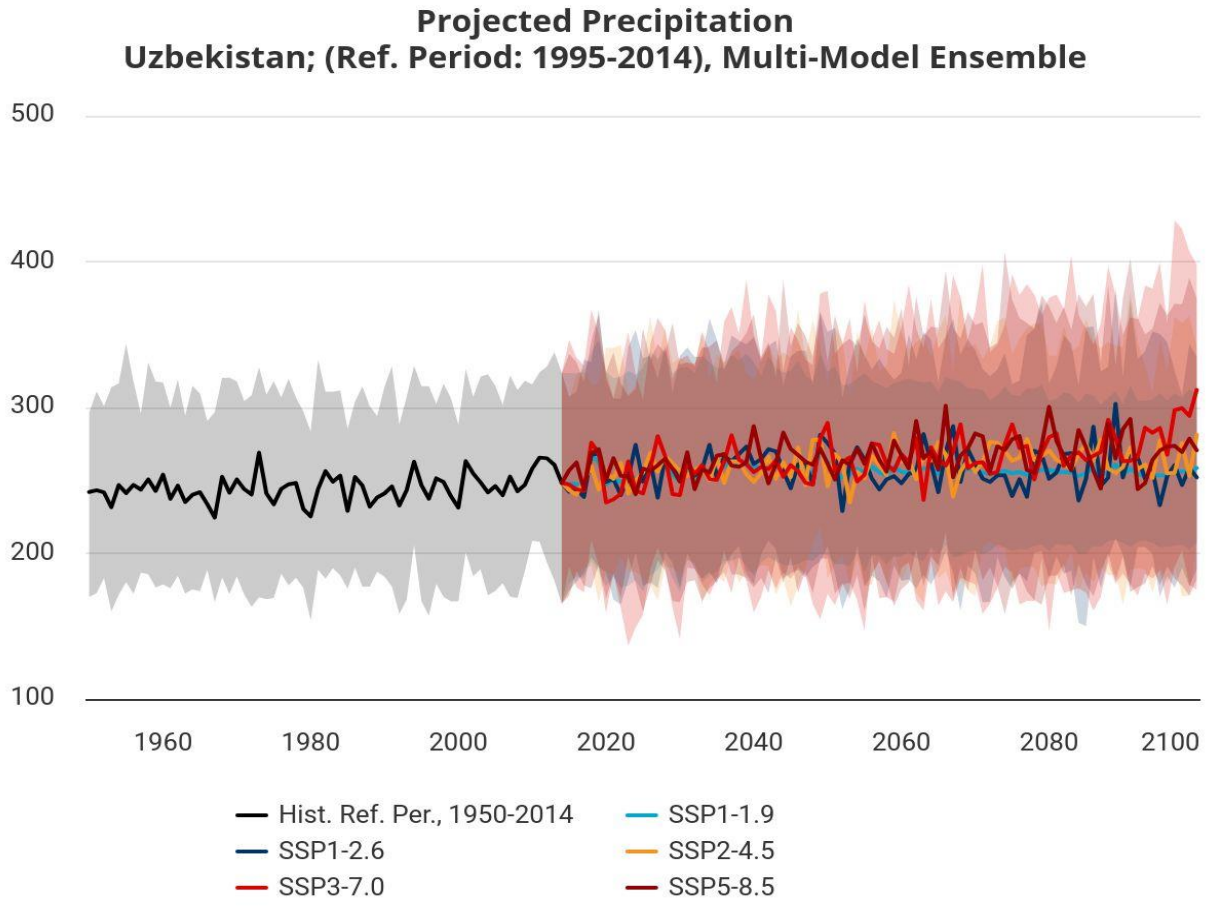


Near-term (2021–2040), mid-term (2041–2060) & long-term (2081–2100) relative to average (1995–2014) in under SSP1-2.6 (dark blue), SSP2-4.5 (light blue), SSP3-7.0 (yellow), and SSP5-8.5 (red) scenarios. Bow-whisker plots show the 10th, 25th, 50th, 75th and 90th percentiles.

Climate Projections in Uzbekistan (CMIP6)

https://climateknowledgeportal.worldbank.org/country/uzbekistan/climate-data-projections





The Critical Questions about Water

- How much new water infrastructure – particularly storage will have to be built?
- Where will it need to be built?
- When does it need to be built?
- How much will it cost?

- How can our analyses reduce uncertainty so we can better answer these questions