

Climate in Context: Climate Analysis Methodology

Assess current state of climate knowledge



The **IPCC reports** are used to provide an overview of the state of scientific, technical and socio-economic knowledge on climate change, its impacts and future risks.

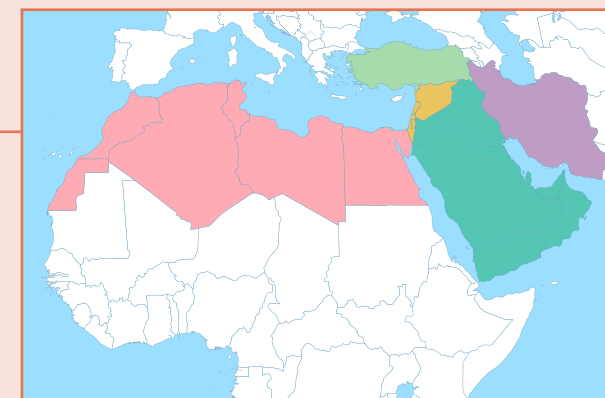


The **IPCC Interactive Atlas** provides maps and time series of current climate, observed trends and projected changes for a range of datasets and variables in broad climatological regions.

These IPCC resources are used to support the bespoke sub-regional data analysis and literature review of more complex metrics.

Bespoke climate data analysis

The region is divided into sub-regional analysis zones, defined by expert judgement using a combination of climatology, climate classifications, country boundaries, and river basins. The current climate and future climate change is characterised within these zones using reanalysis data and climate model projections from the CMIP5, CMIP6 and CORDEX ensembles.



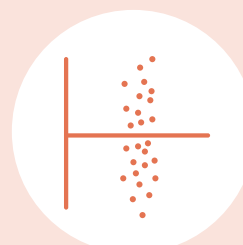
Example zones in a region.



- **Maps** show spatial patterns and changes in annual and seasonal means of temperature and rainfall.
- Similar patterns across multiple models give confidence in the results, and differences indicate where more than one change scenario should be considered.
- Experts consider where detailed geographical features, such as mountains, coastlines and cities, might not be well represented due to the resolution of the climate data.



- **Annual cycles** show how temperature and rainfall vary throughout the year and from year-to-year in each zone, allowing experts to see any changes in seasonality over time.
- Changes in magnitude can indicate that conditions are becoming more extreme, and changes in variability can indicate changes in the length and timing of seasons.
- Considering multiple models supports the assessment of uncertainty in future projections, with a large spread indicating that careful interpretation is needed.

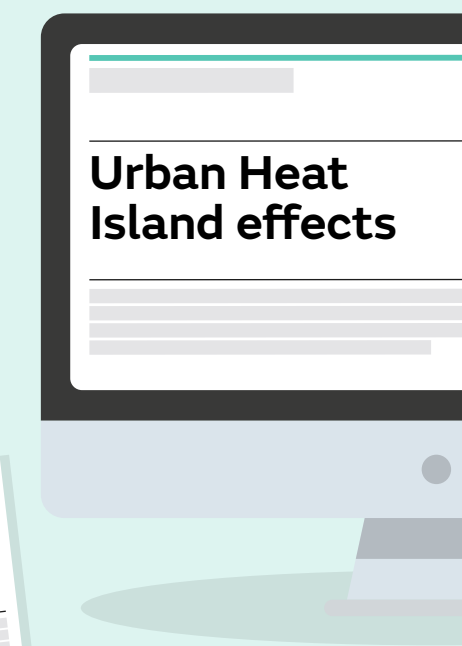


- **Scatter plots** enable comparisons of projections from multiple models by showing the direction and scale of projected changes in temperature and rainfall for each model.
- The clustering of the models reveals to experts the range and likelihood of plausible future climates.
- These plots are assessed for changes in annual and seasonal means for each zone. Large clusters can indicate high likelihood future scenarios. Outliers can indicate low likelihood but potentially high climate-impact future scenarios.

Literature review



The review draws upon multiple sources of information and is guided by the regional development context and socio-economic thematic analysis. Results from scientific literature are used to understand the physical climate change and further detail on relevant metrics requiring complex analysis. Context specific insights are drawn from reports published by NGOs and other regional development actors. Climate attribution studies are used to understand the current climate-related risk profile.



Expert judgement to bring together multiple sources of information during project writeshops



To enable the identification of climate-related risks relevant to the priority socio-economic themes in the region of interest, the risk report writing team requires tailored climate information. The climate experts bring the bespoke climate data analysis together with the current state of climate knowledge to develop their understanding of plausible climate futures. They do this by considering the potential impact and likelihood of various climate futures by integrating the multiple sources of climate information using their expert judgement. This information is then used in the writeshop process to examine how climate interacts with vulnerability in different contexts and provide new insights for development actions.

