

Enabling Data-Driven Climate Action

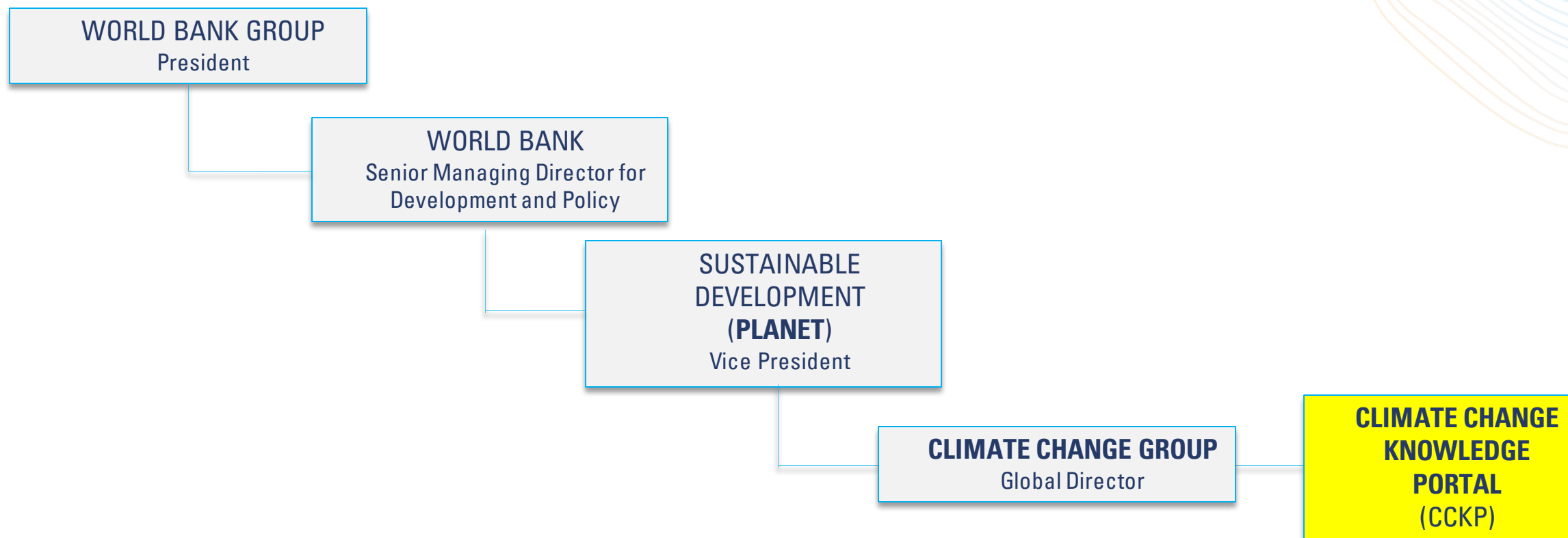
Climate Change Knowledge Portal (CCKP)

Climate Change Group

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The Climate Change Knowledge Portal at a glance

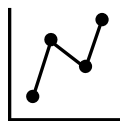


The Climate Change Knowledge Portal at a glance

The CCKP sources and processes climate data for development.



- Global data on historical and future climates, risk, and impacts.
- Gridded data + spatial aggregations at **national, sub-national, watershed, EEZ** scales



- Launched in 2011
- 1 M files, ~45 B individual data entries, ~70+ variables
- Over 75TB of publicly accessible data
- Ranks second to WDI for most visited WBG website. 2.5M visits in FY23

<https://climateknowledgeportal.worldbank.org/>

The CCKP: Why is it important?

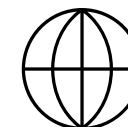
CM

The CCKP sources and processes climate data for development



A global public good

- Development community
- Client countries
- Donor countries
- Firms supporting WB
- Academia
- Recent data requests: MDBs, IFC, UNEP, OECD, ESA



Mission-critical to WBG

- CCDR
- CCB, CI, RRS, Paris Alignment
- CDRS Tool
- Sector-Climate Platforms
- Adaptation and Resilience reports
- Climate Smart Agriculture reports
- Climate Vulnerability and Health A.
- Support to operational design

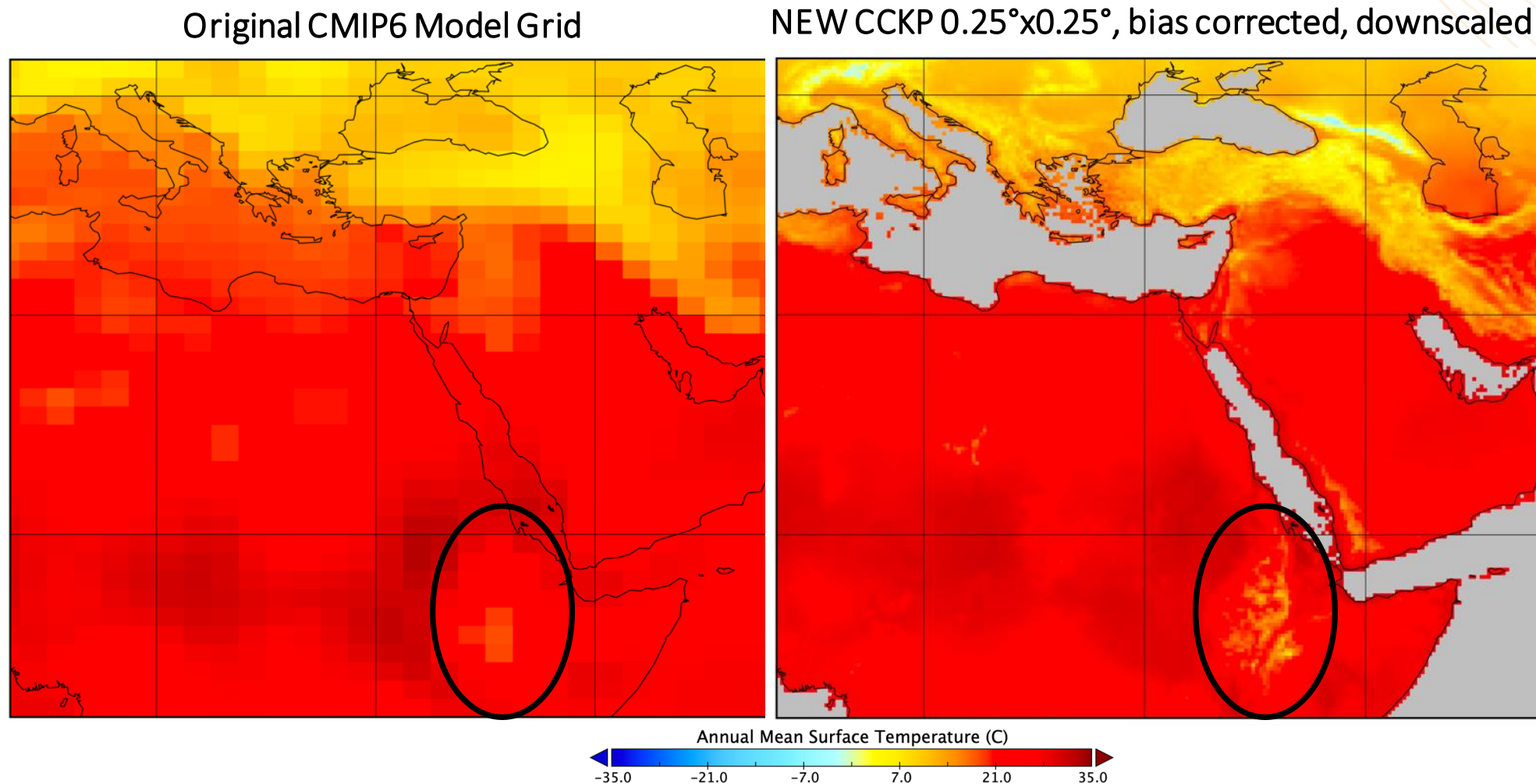
Applications of CCKP data

Understanding rising temperature implications on health in Ethiopia

- Potential for increased transference of Malaria as temperatures rise in higher elevations, Addis Ababa and Tigray Region
- Increased extreme heat conditions (night temperatures and daily max) in Harra and Somali Region

Recent Releases

1. CMIP6 0.25-degree global dataset



0.25-degree implications for SIDS

Climate analysis for Small Island Developing States has always been challenging, due in part to:

- Limited observational data
- Limits of scientific understanding of local and regional phenomena
- Challenging to properly understand ocean-land dynamics for small islands in models
- Coarse resolution of climate models ($\sim 1^\circ$) ill-suited for small land areas

CCKP 0.25° data used in key WB Climate Assessments

- Pacific Islands
- Marshall Islands
- Comoros (CCDR)
- Seychelles (CCDR)
- Panama

Recent Releases

2. Compounded Heat Risk Categorization and Risk Indices

CATEGORIZATION

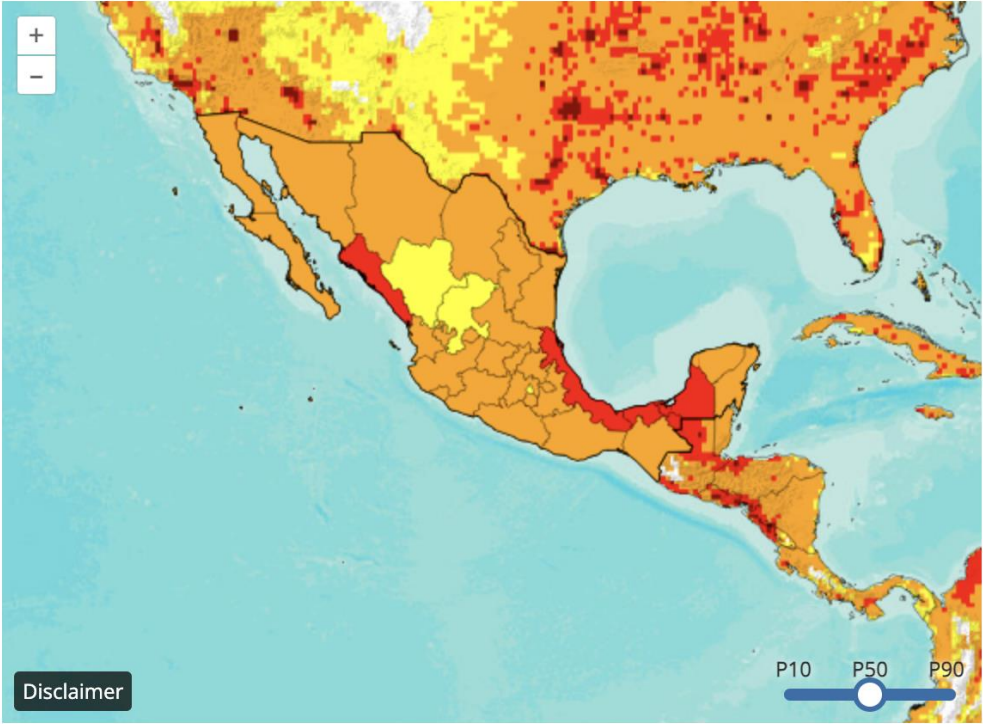
Temperature-Based Heat + Population Risk Categorization

SCENARIO

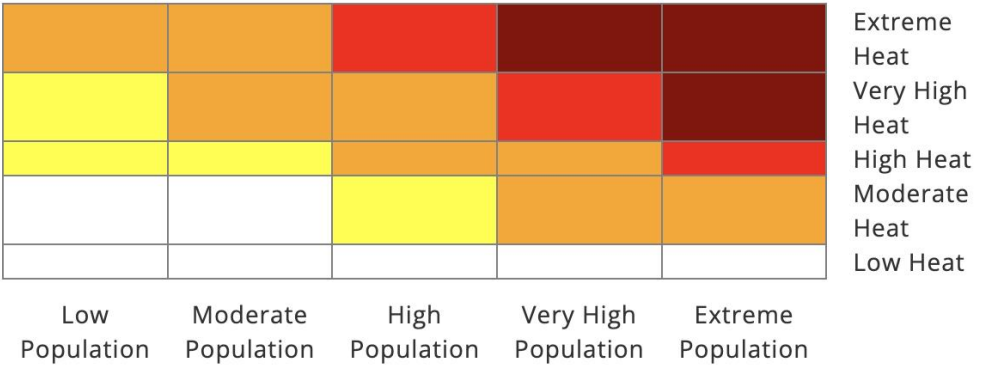
SSP3-7.0

TIME PERIOD

2060-2079



RISK FACTOR CATEGORIZATION



Recent Releases

3. Full CCKP Data Archive (~75 TB): a) spatially aggregated

✓ Select Scope

Country

Subnationals

Watersheds

Global - Watersheds

Global - Countries and Subnationals

Global - Countries

Regional - Countries and Subnationals

East Asia & Pacific

Europe & Central Asia

Latin America & Caribbean

Middle East & North Africa

North America

South Asia

Sub-Saharan Africa

SPATIALLY AGGREGATED DATA

RASTER FILE ACCESS API STRUCTURE

DATA DICTIONARY TERMS OF USE

► AREA
OF
FOCUS

Users have three options for accessing data:

Global. A global selection will provide data for all country units (including subnationals) or watersheds but allow only 1 aggregation, 1 type, 1 scenario and 1 variable to be selected.

More than 3 countries, less than Global. Selection will provide data for selected country units (including subnationals) or watersheds but allow only only 1 aggregation, 1 type, 1 scenario and 1 variable to be selected.

1-3 countries selected. The following options will allow for a maximum of 3 variables to be selected.

Recent Releases

- 3. Full CCKP Data Archive (~75 TB):
 - b) raster files (AWS S3 CLI)

NetCDF Browser

<https://wbg-cckp.s3.amazonaws.com> / data /

Last Modified	Size	Key
	0	cmip6-x0.25/
	0	cru-x0.5/
	0	era5-x0.25/
	0	pop-x0.25/

Future Plans

1. Sea Level Rise, Salinity, Ocean Heat Budget
2. Tropical Cyclones
3. Extreme Precipitation
4. Spatial Aggregation at finer Admin levels
5. ...

Thank you! Stay in touch



Telling the story of Climate Change

- [@WBG_Climate](#)
- [Climate Change playlist on YouTube](#)
- [Blogs: Development and a Changing Climate](#)
- [Climate Change topic page](#)
- [Climate Stories](#)
- [Climate Explainer Series](#)
- [Country Climate and Development Reports](#)

Finding Operational Support, Knowledge, Data, and Learning

- Service desk: AskClimate@worldbank.org
- Knowledge base: [AskClimate/](#)
- [Climate Change Knowledge Portal \(CCKP\)](#)



New Data Products

- **Tropical cyclones:** with Columbia Univ: CHAZ-model +IBTrACS, STORM. [Data received, post-processing production in progress; pages designed.](#)
- **Global Change Outlook projections:** alternative to Scenarios. Change fields calculated from global mean temp thresholds, 1.5C, 2C, 4C warming, not from RF W/m² response
- **Expanded Variable production:** to suit specific climate input required for sector modeling in CCDRs. [Ongoing based on demand.](#)
 - Planned productions include – select mean climate indicators looking at extremes in distribution, i.e.: Consecutive Dry Days-max and mean distributions/ max of daily max temperatures-max and mean distributions. [In progress.](#)
 - Addition of Radiation and wind to Essential Climate Variable collection
 - Update of CCKP Extreme Precip Event distribution to CMIP6 0.25-deg. [In progress.](#)
 - WBGT/ WBT [in discussion with Analytics Teams](#)
 - Extreme cold
 - **Sea Level and Ocean Content Pages** Sea Level Rise and contributors ([almost ready for production](#)), sea surface temperature, salinity, SL anomaly, ocean nutrient content (data expected to be received by NASA ~mid Feb); global coastal inundation (data expected to be ready in ~2 months, updated effort to be global, not just 400 cities)
- **New spatial aggregation:** climate regions + pre-defined regional and sub-regional narratives. [Regional shapefiles reviewed/ approved by cartography – processing not yet started.](#)
- **Access to station data /global observational networks:** highlight localized conditions and improved understanding of weather-events; atmospheric moisture records. GHCN, CHIRPS, ERA5-Land, TRMM, Hadex

- **Moisture risks:** water balance (+/-); conditions for ‘flood’; overlay with pop/ poverty, facility, infrastructure
- **Extreme events:** Heat, Drought
- **Data library:** *socio-economic data processed to be on same grid as climate grids = comparable.* [Some datasets incorporated, i.e. population and poverty. Need guidance on what datasets to include.](#)
- **Expanded timescales (Climate)** [This would require some restructuring and re-ordering of site.](#)
 - Now — Alerts/Warnings” (0-5 days)
 - Possible — Watches/Forecasts” (3-10 days)
 - Be Aware — Sub-seasonal Forecasts” (10-30 days)
 - **Prepare** — Seasonal Outlooks” (30-180 days) – *operational*
 - **Plan** — Interannual to Decadal Outlooks” (180 days- 10yrs) – *operational*
 - **Assess** — Climate Change Scenarios” (10-50yrs) – *currently on CCKP*
- **Crop suitability:** varietal response to optimal/ sub-optimal temperature and precipitation bounds for present day and future contexts.
- **Flood products (global):** (other than FATHOM – non-public licensing): [GloFAS](#) (data derived from Copernicus, ECMWF MARS). [Might put on hold, as GFDRR has purchased FATHOM license and WB is pushing teams to use it.](#)
- **Transdisciplinary data presentation:** present changing and emerging risk conditions across space and time in relation to: (1) socio-economic dynamics, (2) pre-computed risk indices, layered hazard maps offering multi-dimensional perspectives, (3) damage functions (standard applications used in CCDRs; global productions)
- **In-depth socio-economic data repository:** country-data driven for expanded risk and additional insight into “does change matter?” “for whom?” and “where/when?”

Data Standards

- **Data Access: APIs;** tailorable bulk data download; on-the-fly Notebook for specific data needs
- **Metadata:** Enhanced standards – WB metadata compliant – for increased discoverability (SDMX)
- **Servers:** Optimization of servers for storage and handling of large data volumes and capability to handle large volume access demands. Alternatively, or additionally, forming partnerships to host data.