



**Food and Agriculture
Organization of the
United Nations**



CAVA Analytics

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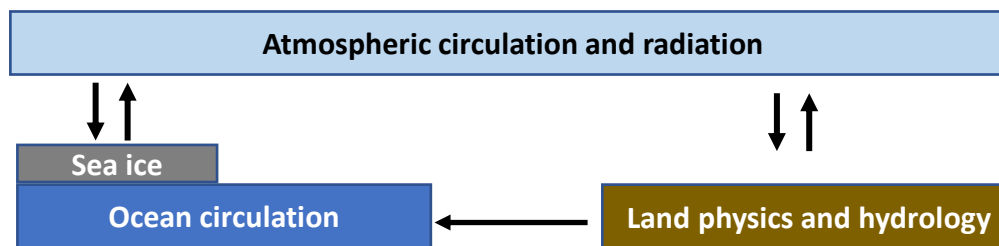
March 2023



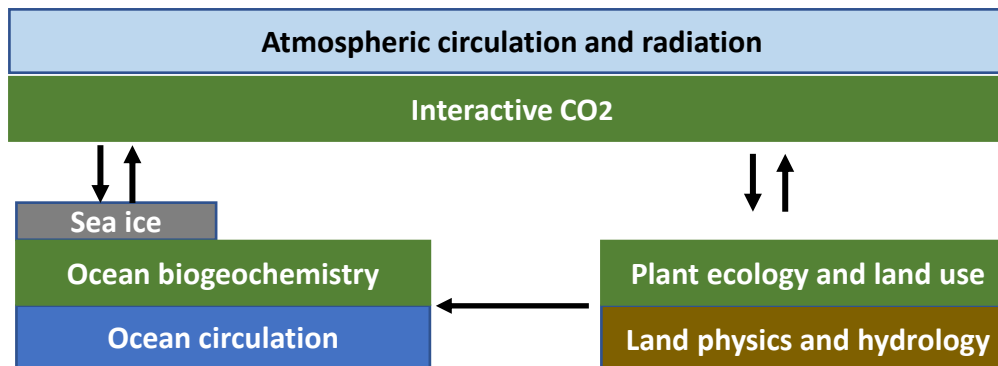
1. Brief recap on climate models
2. What data is available from the HUB
3. Introduction to the core functions of CAVA Analytics
4. Conclusion

- GCM and ESM are the most advanced tools used to simulate the effect of increasing greenhouse gas concentrations on the global climate system
- ESMs differ from GCMs because GCMs do not account for carbon movement through the earth system

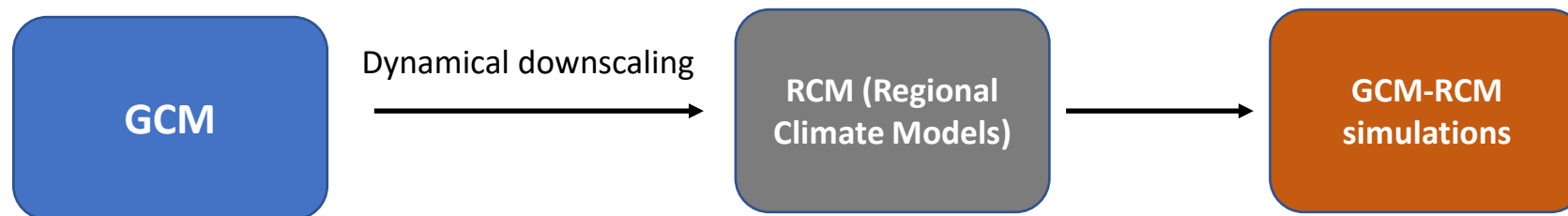
Climate Model



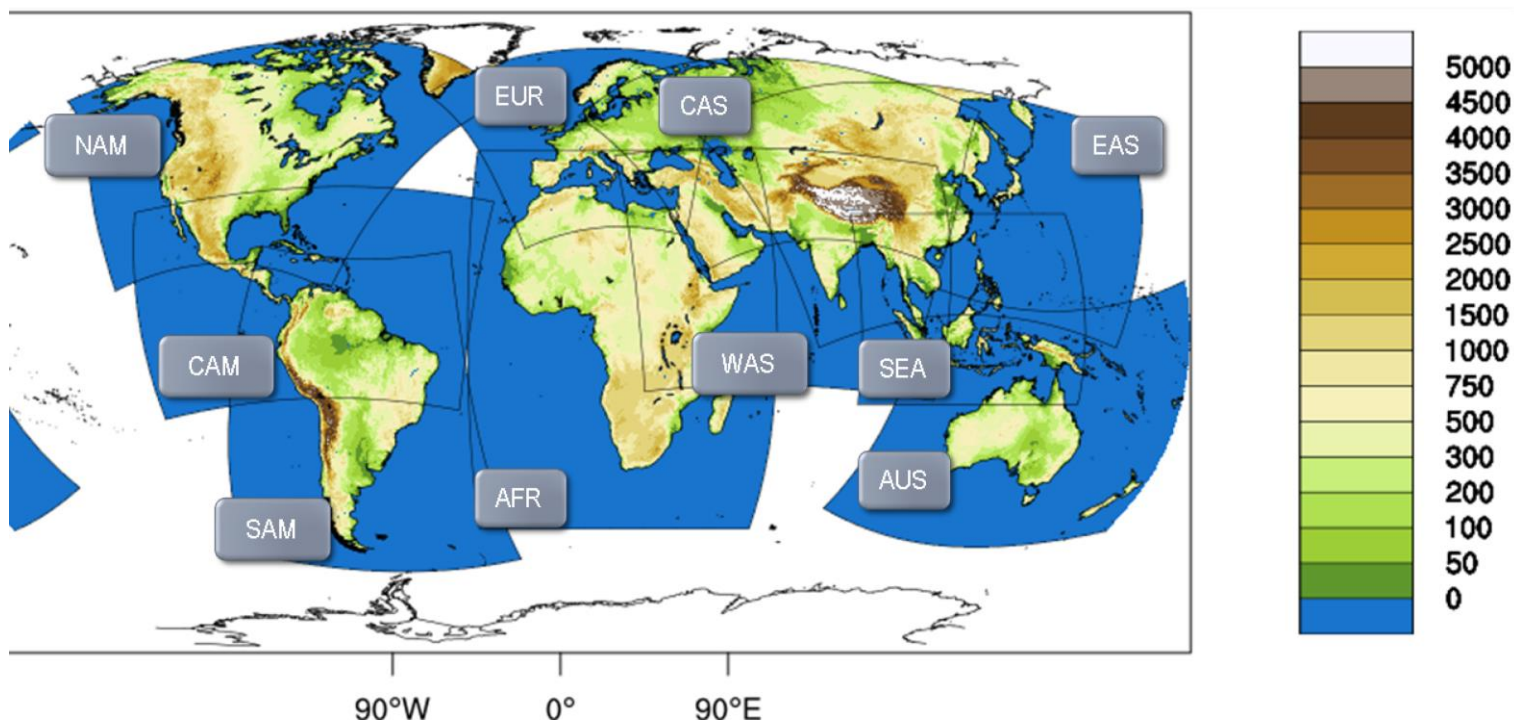
Earth System Model



- CMIP models cover the entire world (GCM) at different spatial resolutions (CMIP5 models were at 1-2°, which corresponds to 100-200Km)
- Not ideal for representing regional climate and supporting adaptation assessment and planning
- The Coordinated Regional Climate Downscaling Experiment (**CORDEX**) provides projections with much greater detail and more accurate representation of localized extreme events (50 km resolution)



- Since GCM are dynamically downscaled through RCM, these are region specific
- Several RCMs exist. In CORDEX, no specific requirements for the number of GCM-RCM combinations available in each domain

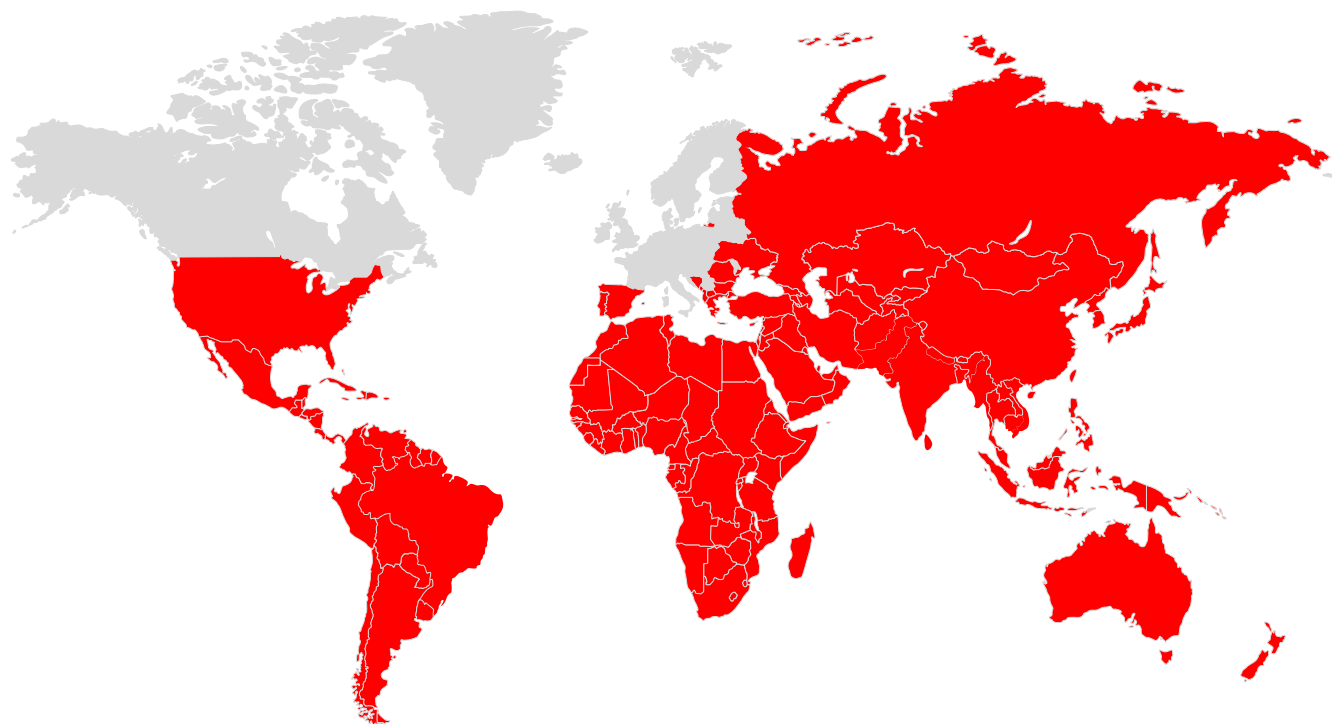




- CORDEX-CORE harmonizes the selection of GCM and RCM across different domains.
- 6 simulations per domain available (3 GCM downscaled with 2 RCM).
- The selection of GCM was based on climate sensitivity (from low to high).
- 25 km spatial resolution.
- CORDEX and CORDEX-CORE are currently only available for CMIP5 models.
- CORDEX CMIP6 will already provide data at 0.25 Km resolution and CORDEX-CORE will cease to exist



Data available in the HUB



Current data available

- Observed climate data (1980-2016). Pr-tasmax-tasmin, tas, wind, hurs
- Two future scenarios (rcp2.6 and rcp8.5) from 2006 to 2100
- 6 GCM-RCM models per domain



Data available in the HUB

➤ This data is available in the “**shared**” folder

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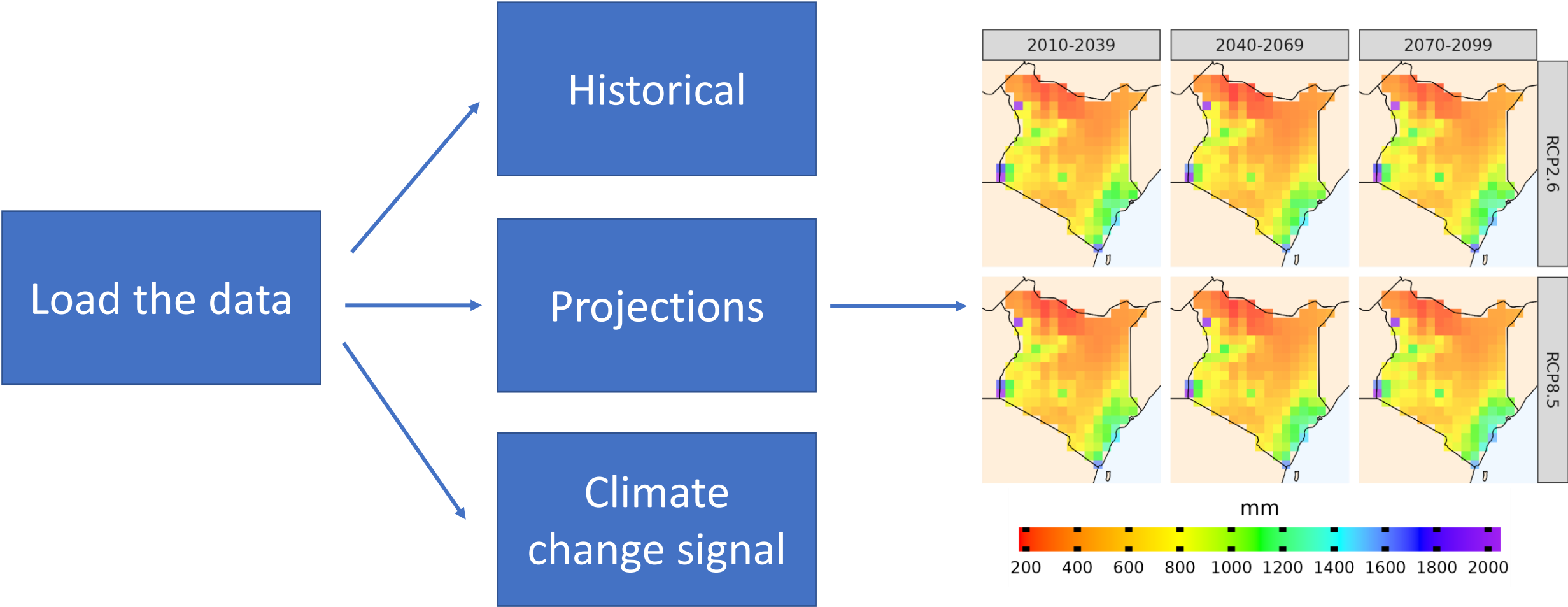
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- Thus, the HUB allows user to access computational resources and data. It is a pre-defined environment that facilitate CORDEX climate models data retrieval for any location in the world. This is already a big achievement.
- However, how can intermediate users work with multiple climate models and visualize results? This is what CAVA Analytics does!
- CAVA Analytics allows user with limited programming skills to load and perform fairly complex climate analyses in the cloud



CAVA Analytics functions





Conclusion

- The HUB is an extremely flexible resource. What you can do mainly depends on your programming skills
- Users can simply use CAVA Analytics or have the freedom to perform their own analysis with the available data

Thank you!

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