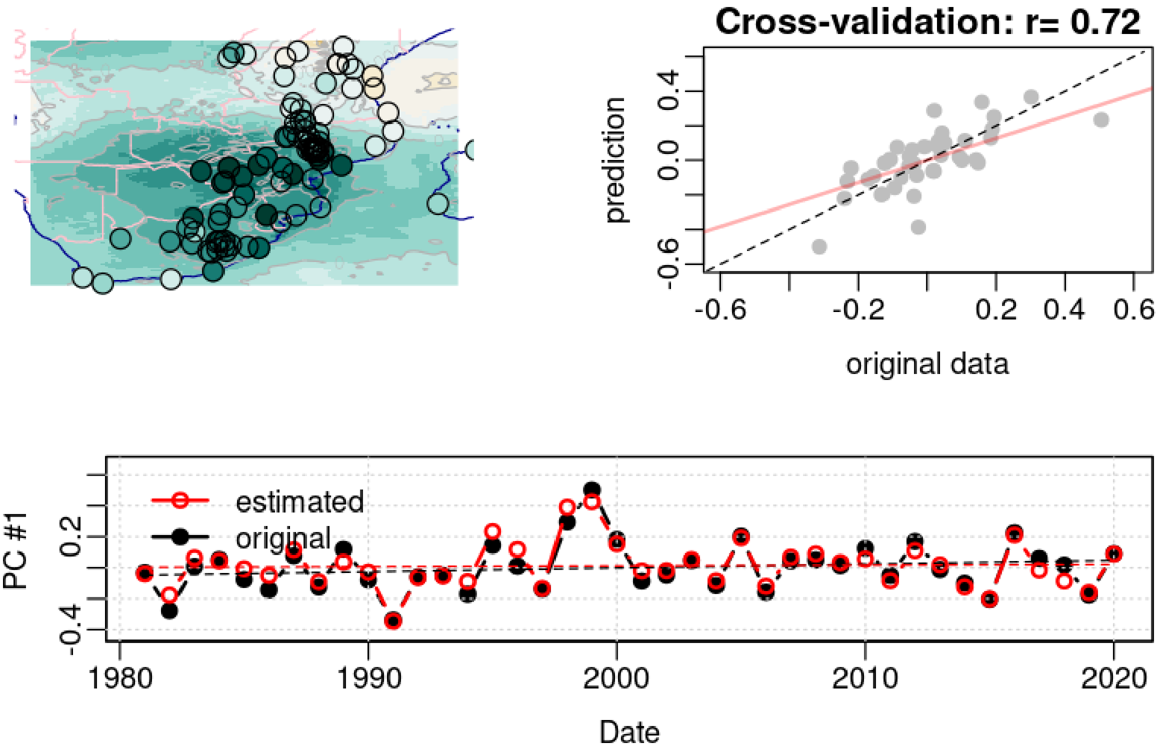
Annual Report 2024 for Flagship Pilot Study Southeast Africa

Status and progress during the year including scientific highlights (and images if possible), end to end perspective and participants engaged in the project

The activities have mainly been centred around writing a science paper on evaluating daily rain gauge data from Mozambique, South Africa, Zimbabwe, Tanzania, Malawi, Madagascar, Kenya, Rwanda and Burundi. The work was coordinated through 6 teleconferences with the partners of the FPS. A workshop was planned for hands-on training on empirical-statistical downscaling (ESD) for southeast Africa in Maputo, but it had to be postponed due to political unrest after the most recent election. The FPS has incorporated additional rain gauge data and the science paper on the data evaluation is a preparation for the ESD and evaluation of available regional climate models (RCMs) for the region. Preliminary results (to be published) suggest a general agreement on the annual rainfall and the ERA5 reanalysis (including ERA5-land) and other sources (CHIRPS and GHCND). The web page for the workshop is https://sites.google.com/met.no/cordexmaputoworkshop2024/home.



The figure shows how ESD can be used for evaluating a group of rain gauge series, and the top left panel shows the geographical weights of the leading principal component analysis (PCA) of the annual rainfall (the predictand). The map behind shows the corresponding weights of the ERA5 reanalysis for the same variable and estimated through multiple regression (predictor). When the two match, they are expected to show similar geographical distribution in their weights. Top right panel presents the results of traditional cross-validation, and the bottom panel presents the reproduction of the leading principal component when using detrended data for the full data set for calibration and adding the trend for the prediction, suggesting that the long-term trends are well-reproduced.

Summary of each workshop/activity held during the year

Title, date, short description, location, website, links	Responsible person/-s	Funder
Telecon, April 30, Zoom meeting	Bernardino/Rasmus	N/A
Telecon, May 29, Zoom meeting	Bernardino/Rasmus	N/A
Telecon, Jul 1, Zoom meeting	Bernardino/Rasmus	N/A
Telecon, Aug 15, Zoom meeting	Bernardino/Rasmus	N/A
Telecon, Sep 19, Zoom meeting	Bernardino/Rasmus	N/A

Telecon, Dec 13, Zoom meeting	Bernardino/Rasmus	N/A

Related publications during the year

Title, journal and link to publication	Author/-s	Date
https://doi.org/10.5194/hess-29-45-2025		

Planned activities for next year

The plan is to have the workshop in the first week of March and submit the science paper on the evaluation of daily rain gauge data from southeastern Africa. The FPS will use the planned workshop as a vehicle for writing a new science paper on downscaling rainfall in southeastern Africa using both ESD and available results from RCMs.

Any other positive news or stories within your FPS during the year

The FPS has fostered a regional network, regional sharing of in-situ rain gauge data, and collaborations on climate analysis. Such networks are very valuable as they build trust and understanding and provide scientific progress.

Contact person/-s

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Please remember to inform IPOC about news, calls, activities or other information that can be shared with the community during the year! We want to show your work on the website and on social media.

If more space is needed just add rows in the table.
The report is due on the 15th of February each year and should be sent to ipoc@cordex.org.