



**FRAC'TAL**  
FUTURE RESILIENCE FOR AFRICAN CITIES AND LANDS



# Climate risk narratives and climate information for Lusaka: Lusaka climate training Session 7

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## ***Narrative #1: Much warmer, drier***

It's the year 2040, and all parts of Lusaka and surrounding regions are now much warmer than they used to be, posing risks to health, agriculture and water supply. Temperatures are up to 3°C higher on average than experienced 2-3 decades ago, with extremely hot days and widespread heat waves becoming much more frequent.

Drier rainfall seasons are now much more common



## ***Narrative #2: Warmer, no rainfall change***

It's the year 2040, and all parts of Lusaka and surrounding regions are now warmer than they used to be, posing risks to health, agriculture and water supply. Temperatures are up to 1.5°C higher on average than experienced 2-3 decades ago, with extremely hot days and widespread heat waves becoming more frequent.

Lusaka continues to experience both wet and dry rainfall seasons, with associated risks in both large-scale flooding and drought remaining at a consistent level for the last ~25 years. Localised heavy rainfall events, however, are now more frequent and intense.



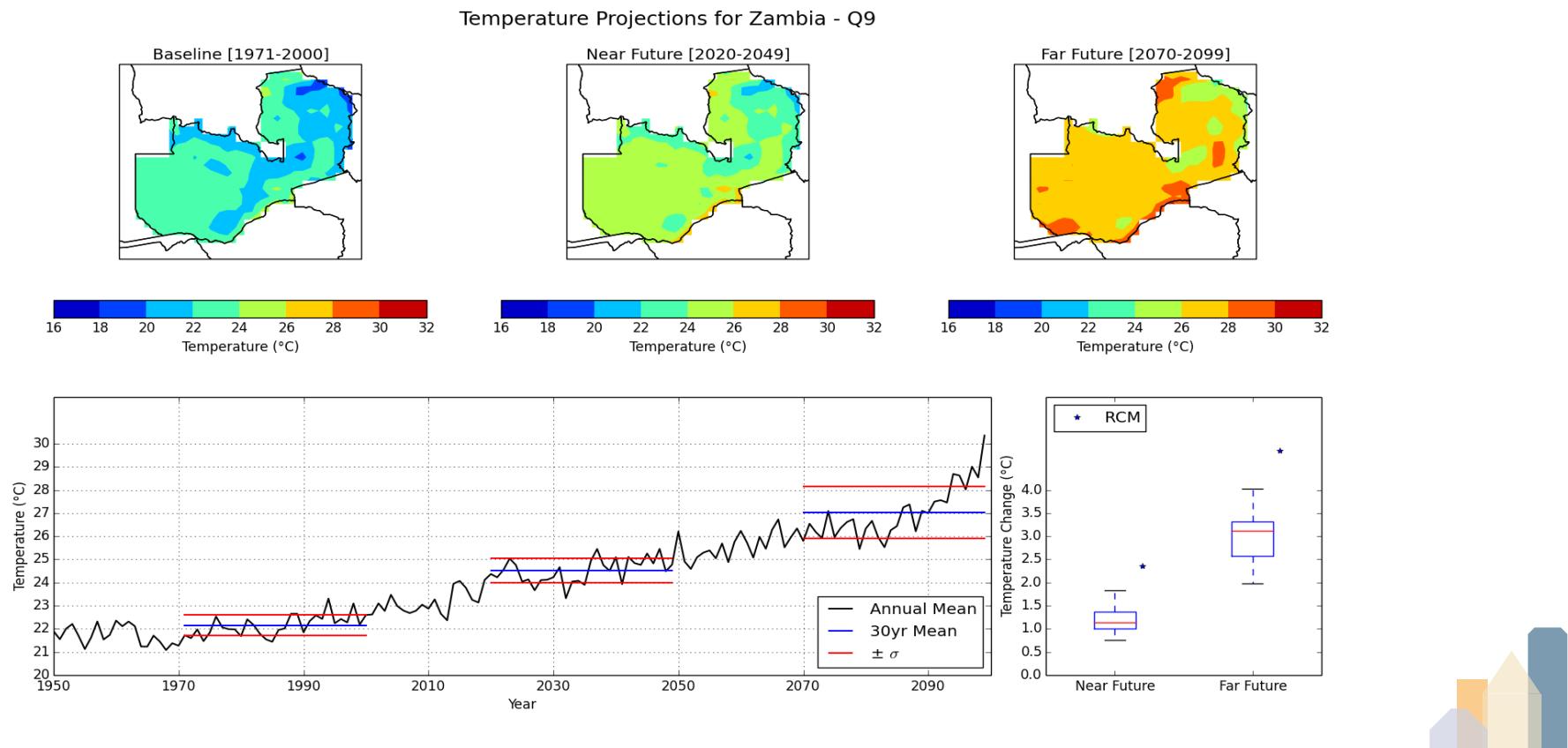
## ***Narrative #3: Warmer, mixed rainfall change***

It's the year 2040, and all parts of Lusaka and surrounding regions are now warmer than they used to be, posing risks to health, agriculture and water supply. Temperatures are up to 2°C higher on average than experienced 2-3 decades ago, with extremely hot days and widespread heat waves becoming much more frequent.

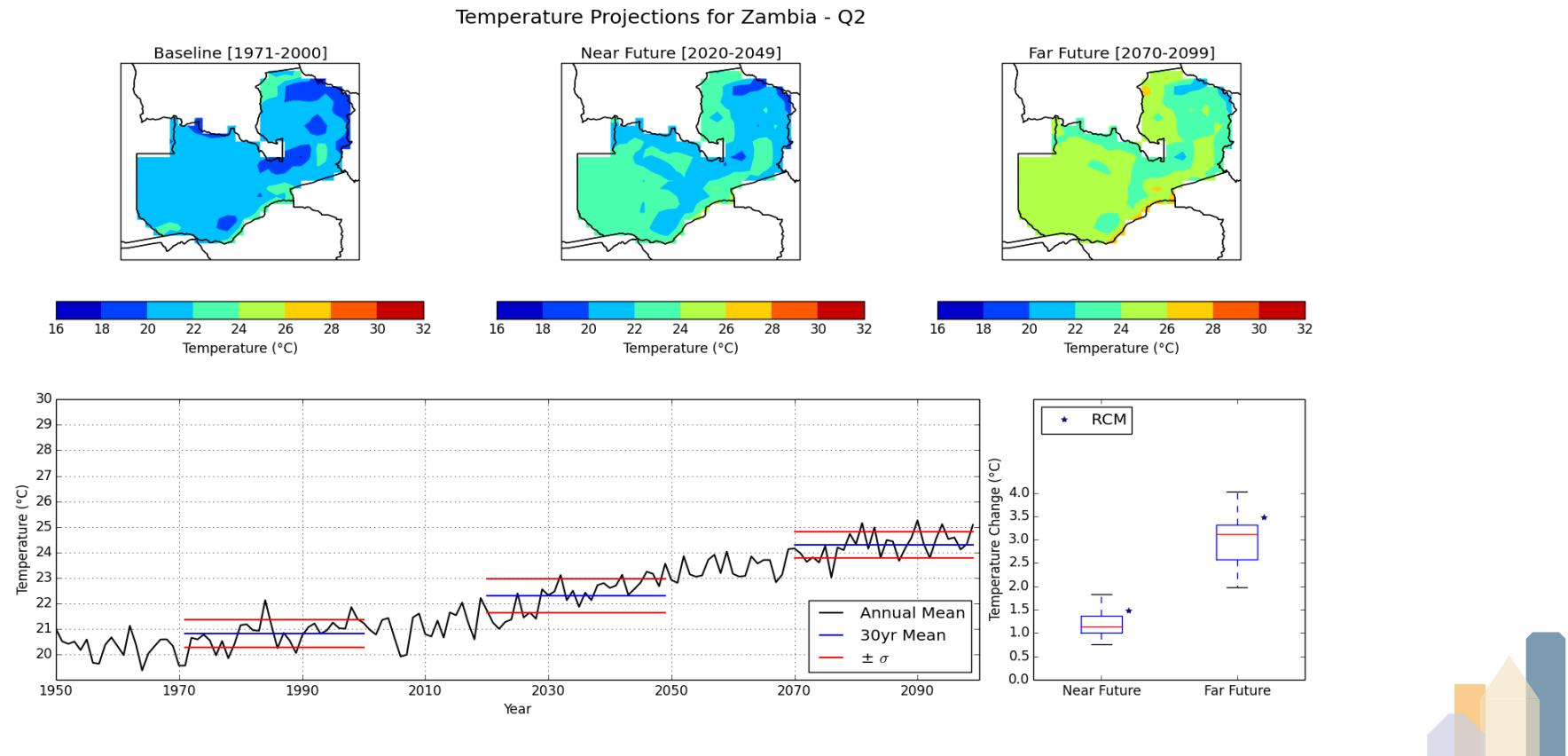
Lusaka continues to experience both wet and dry rainfall seasons, but with a tendency towards more prolonged drought conditions and more intense heavy rainfall when dry and wet seasons occur, respectively.



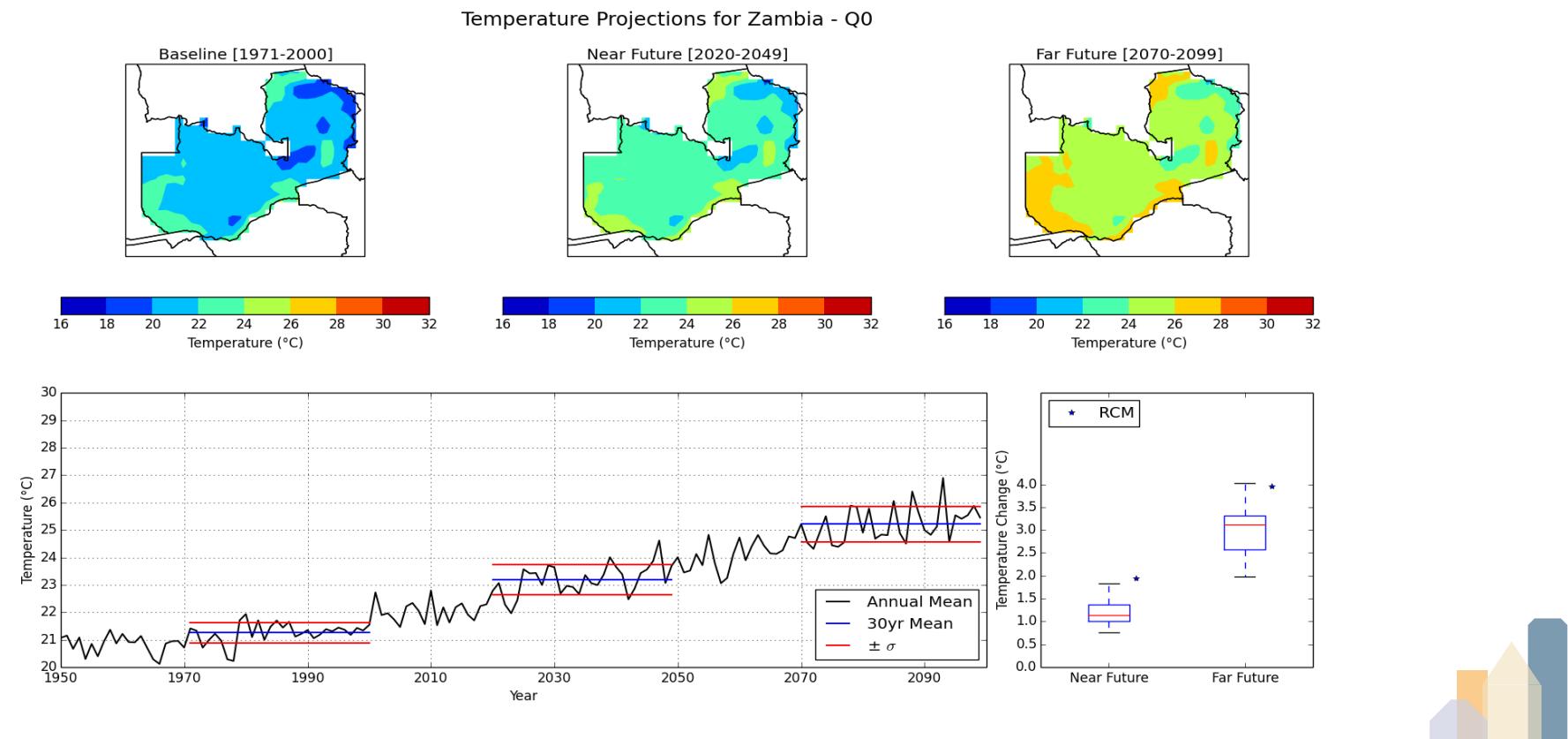
# Figure 1: Annually averaged temperature projections for an RCM projection over Zambia. Used in Narrative #1.



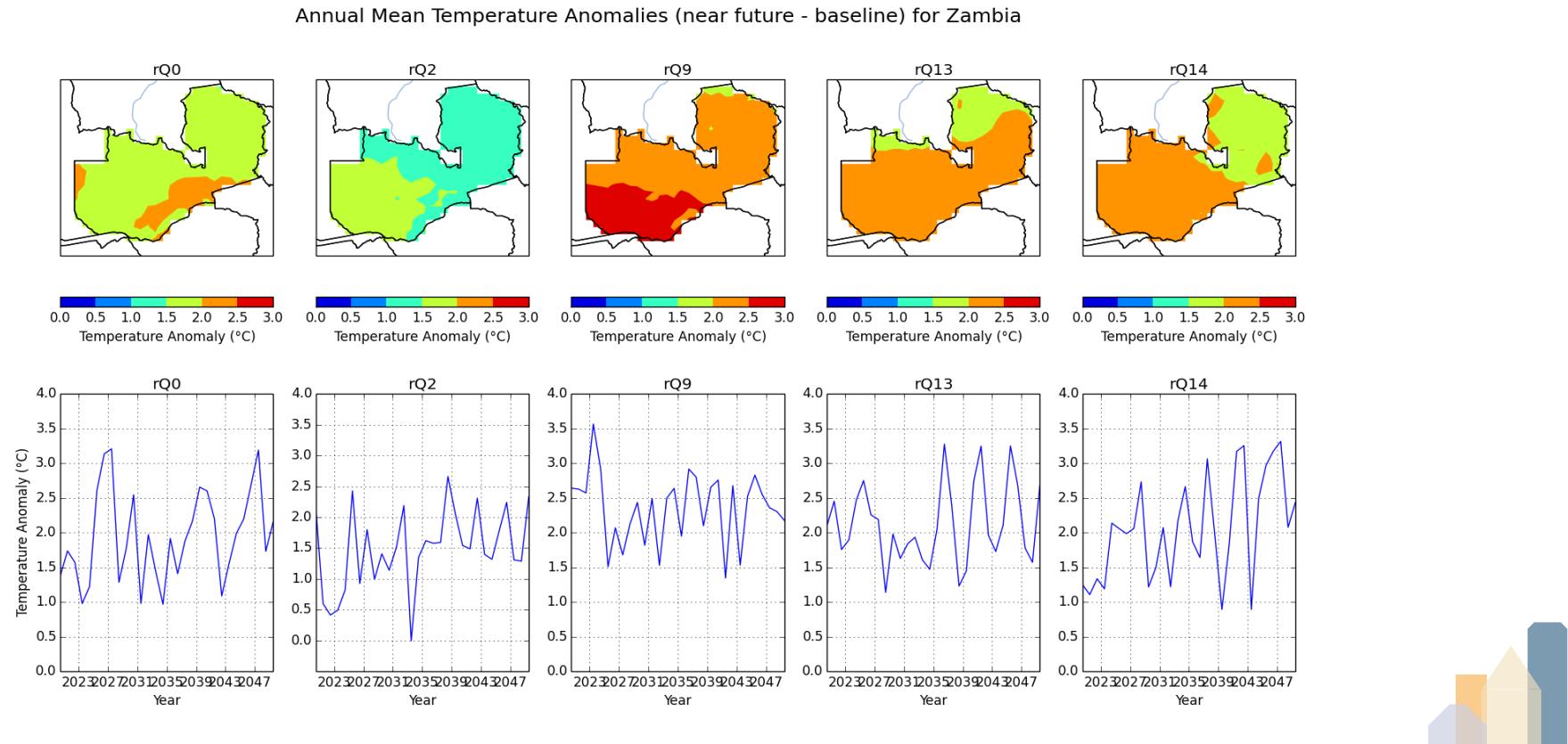
## Figure 2: Annually averaged temperature projections for an RCM projection over Zambia. Used in Narrative #2.



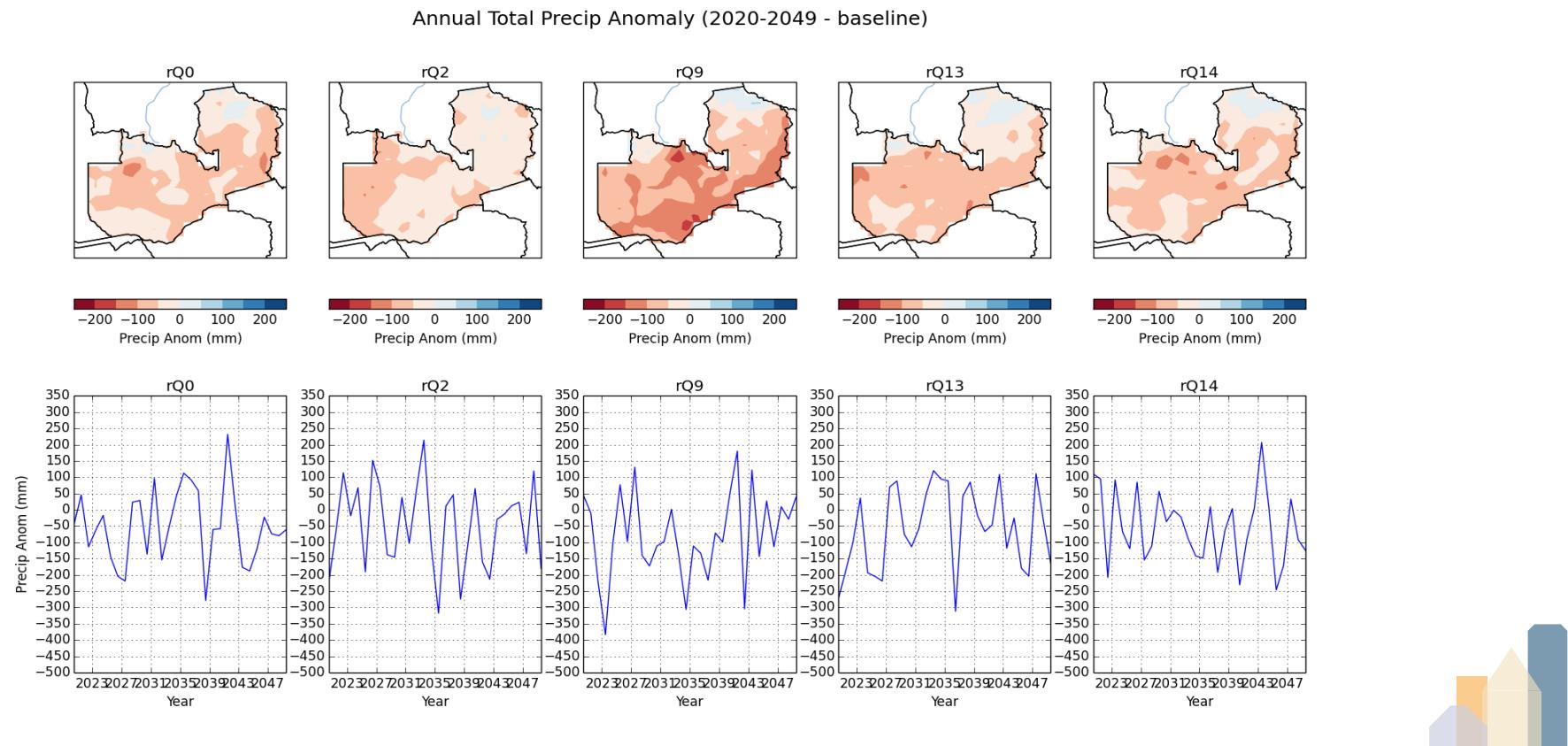
## Figure 3: Annually averaged temperature projections for an RCM projection over Zambia. Used in Narrative #3.



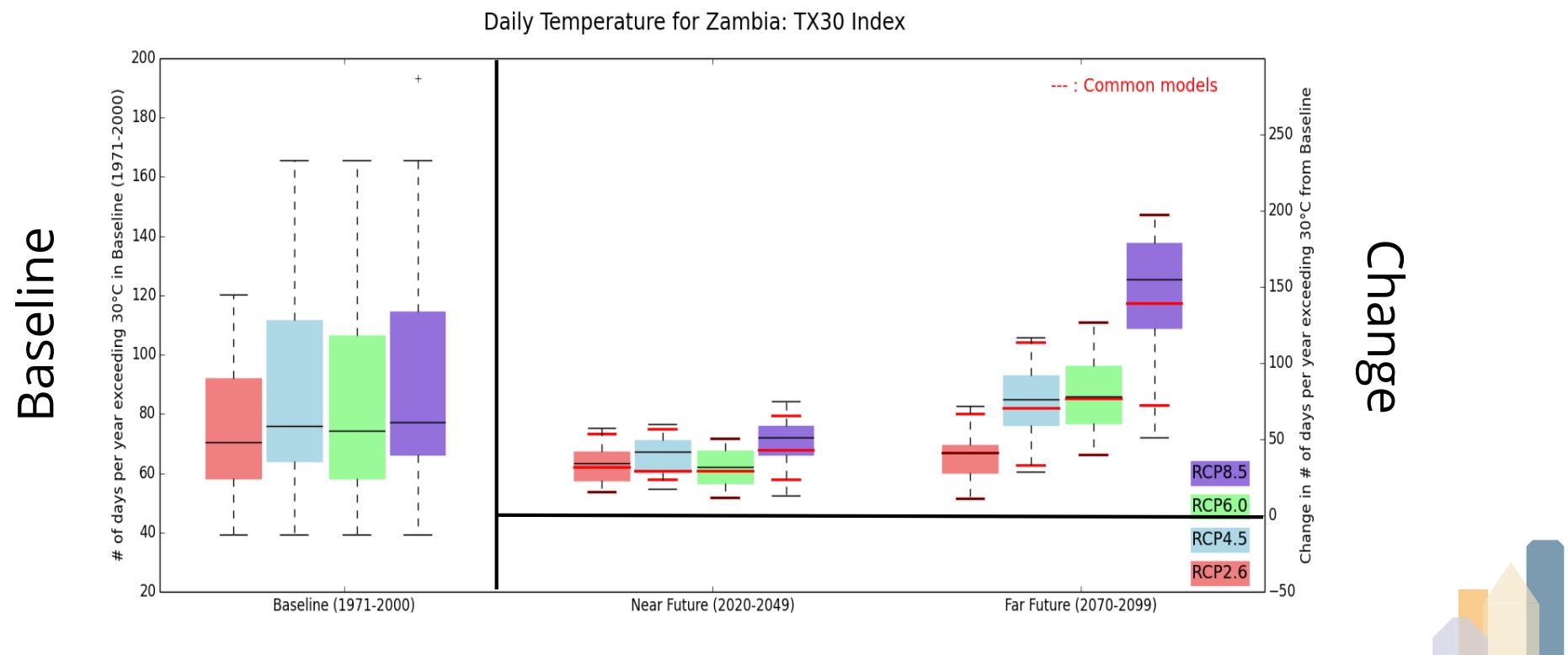
## Figure 4: Annual mean temperature anomalies for 2020-2049. Used to identify temperature changes in all narratives.



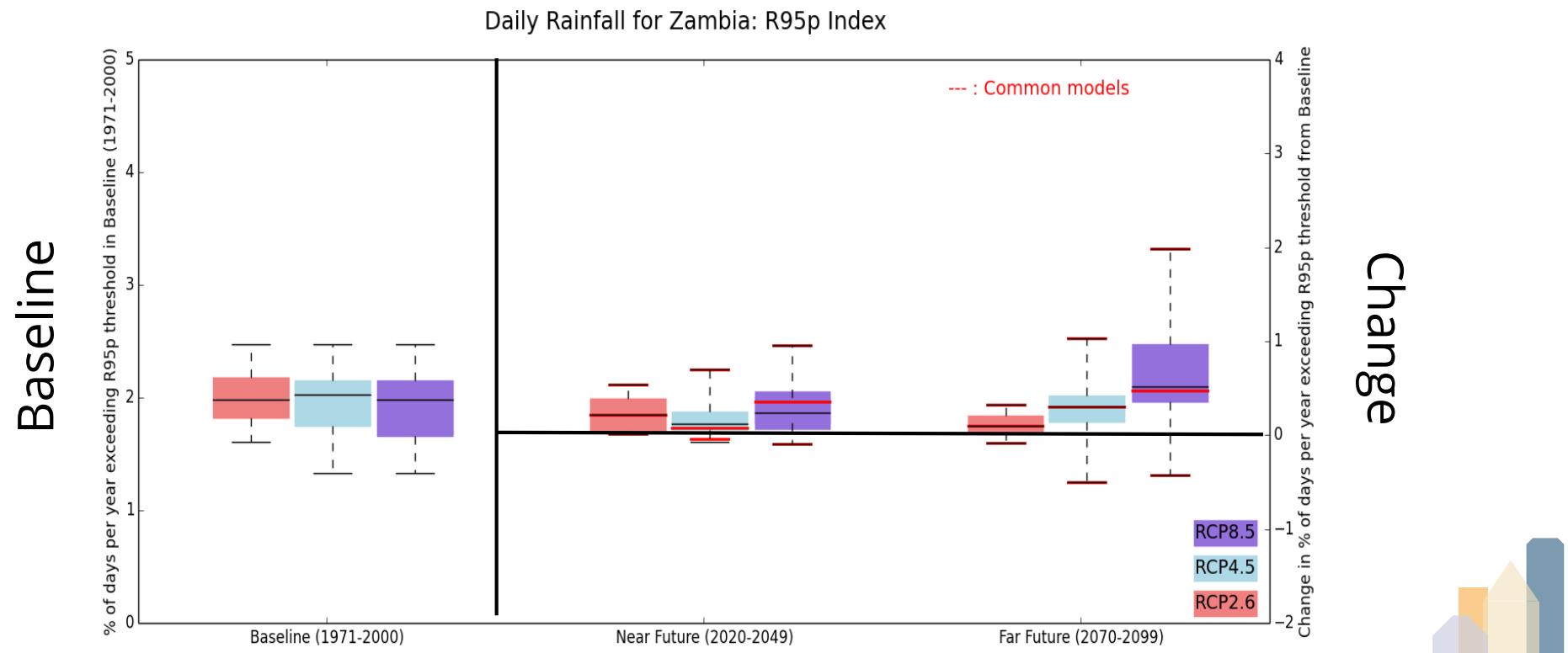
**Figure 5: Annual total precipitation anomalies for 2020-2049. Used to identify precipitation changes in narratives #1 and #2.**



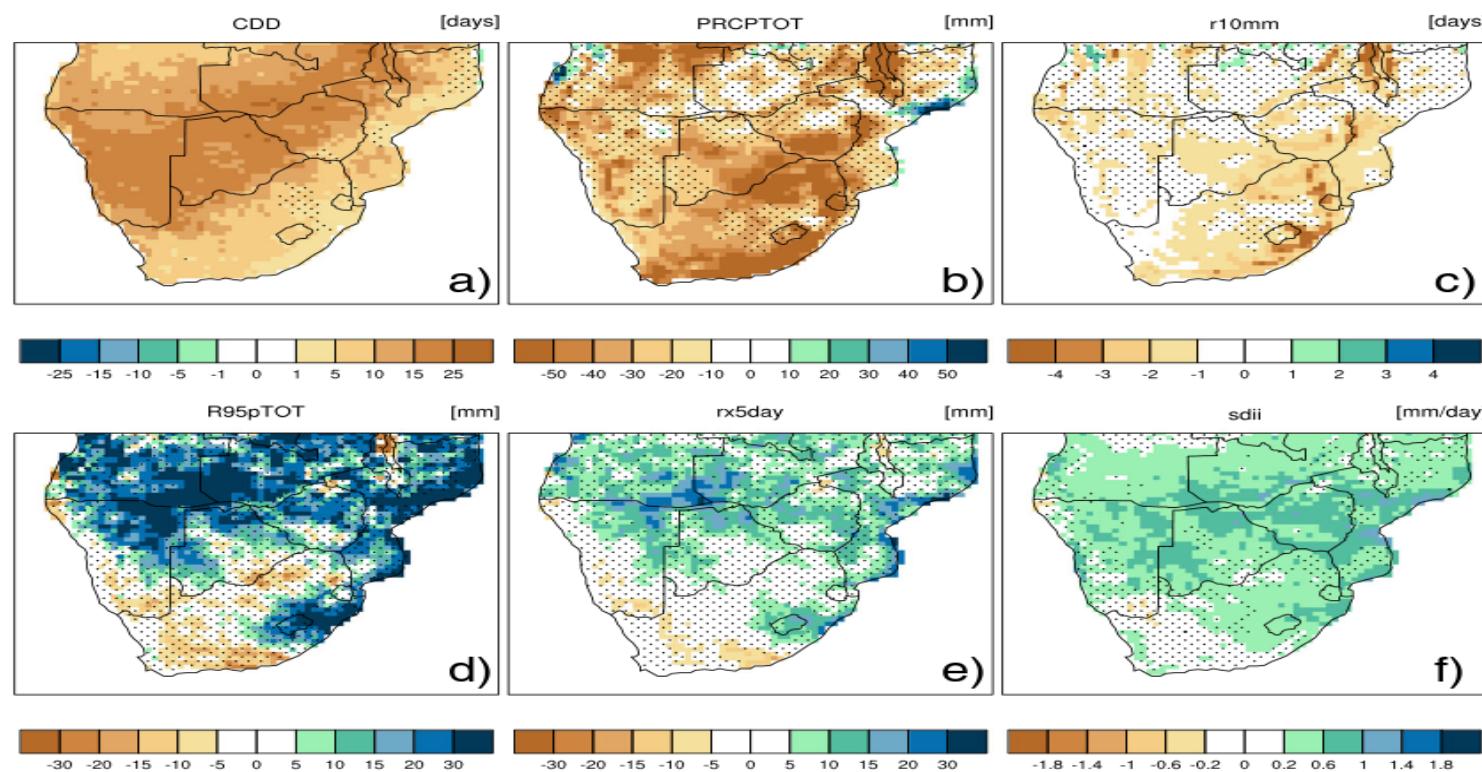
**Figure 6: Number of days where temperature exceeds 30°C for Zambia, using CMIP5 data for all available RCPs.  
Used in all narratives.**



**Figure 7: Percentage of days a year where rainfall exceeds the 95th percentile of rainfall during 1971-2000.  
Used in all narratives.**



**Figure 8: Indicates longer droughts (CDD) and increased extreme rainfall (R95pTOT) by the end of the century using RCP4.5.**  
**Used in Narrative #3.**

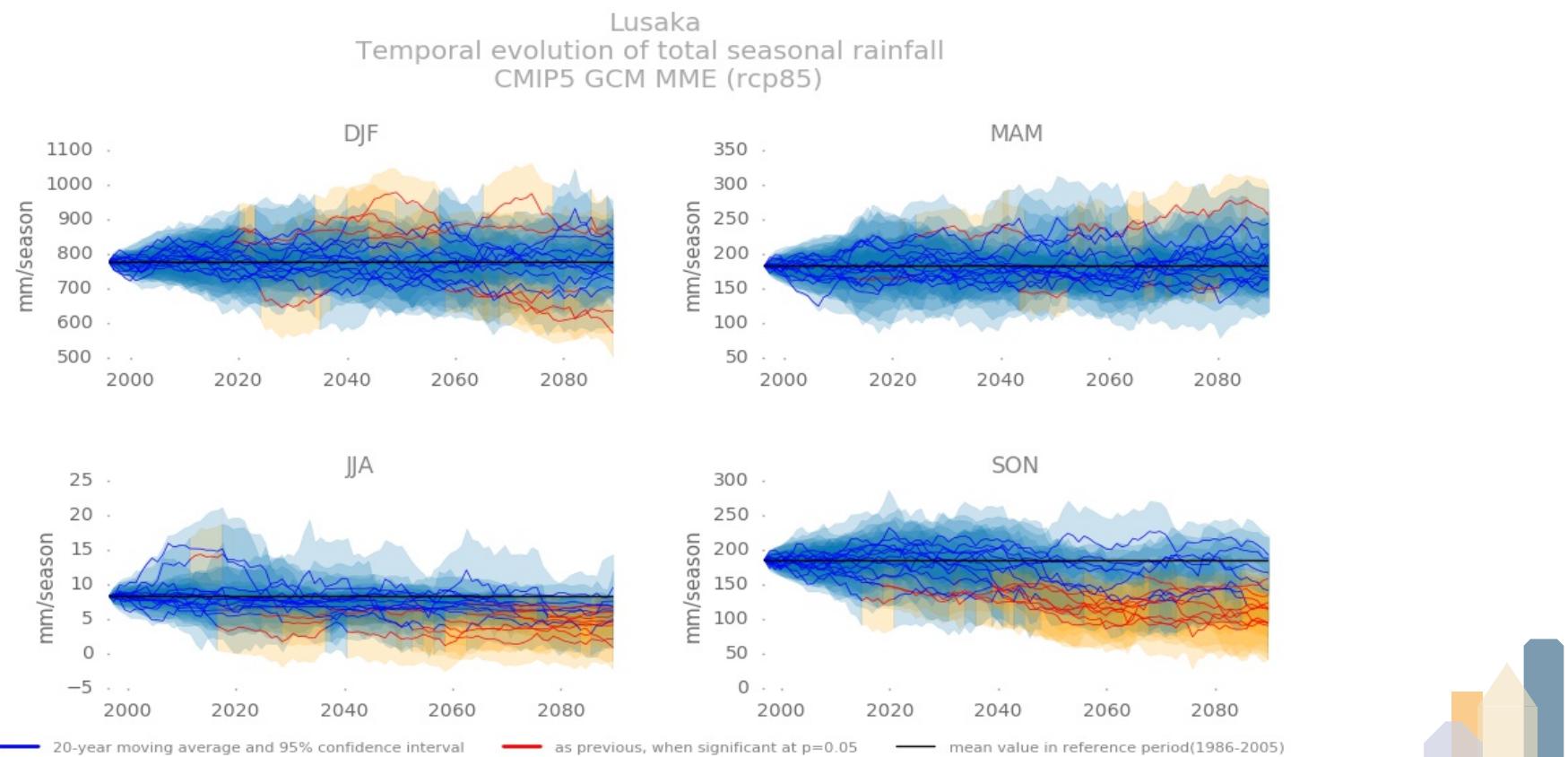


**Fig. 3** Projected multi-model mean changes in moderate extreme events for the period of 2069–2098 under RCP4.5 emission scenario, relative to the reference period 1976–2005. Stippling indicates grid points with changes that are not significant (5 % significance level using *t*-test)

From Pinto  
et al., 2016  
<http://doi.org/10.1007/s10584-015-1573-1>



**Figure 9: Total seasonal rainfall for Lusaka across the CMIP5 ensemble for the RCP8.5 scenario. Used in narrative #3.**



## Figure 10: As in Figure 9, but for number of rainy days. Used in narrative #3.

