United Nations Economic Commission for Africa

Climate Research for Development in Africa

ICPAC

CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security CCAFS

Procedures To Generate Seasonal Forecasts Using Ensemble Regression

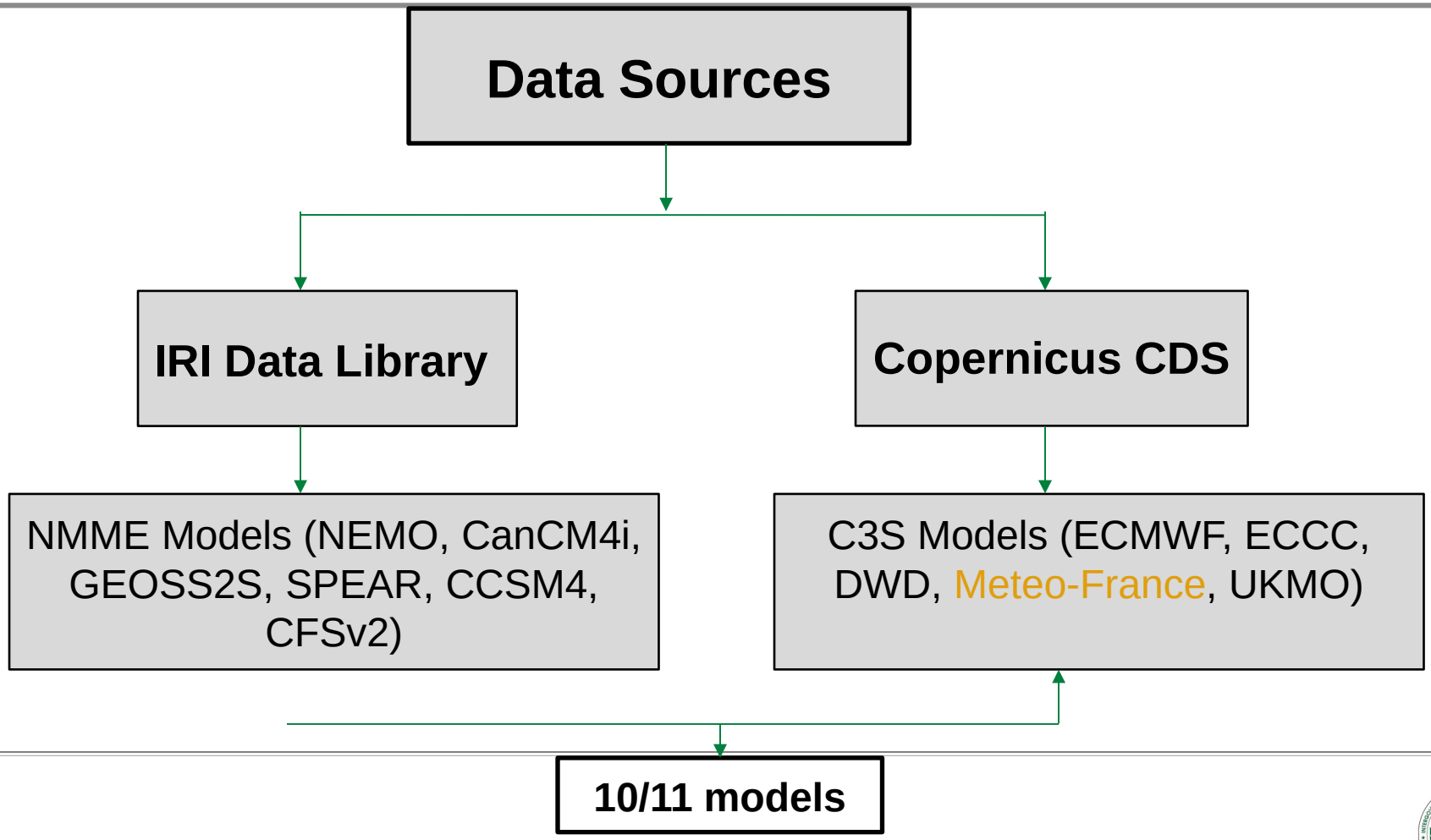
Institutional Linkages, South-South Partnerships and Capacity Building Hands-on Workshops on Objective Climate Forecasts for Agriculture and Food Security Sector in Eastern and Southern Africa

30th August to 04th September 2021

Victoria Falls, Zimbabwe

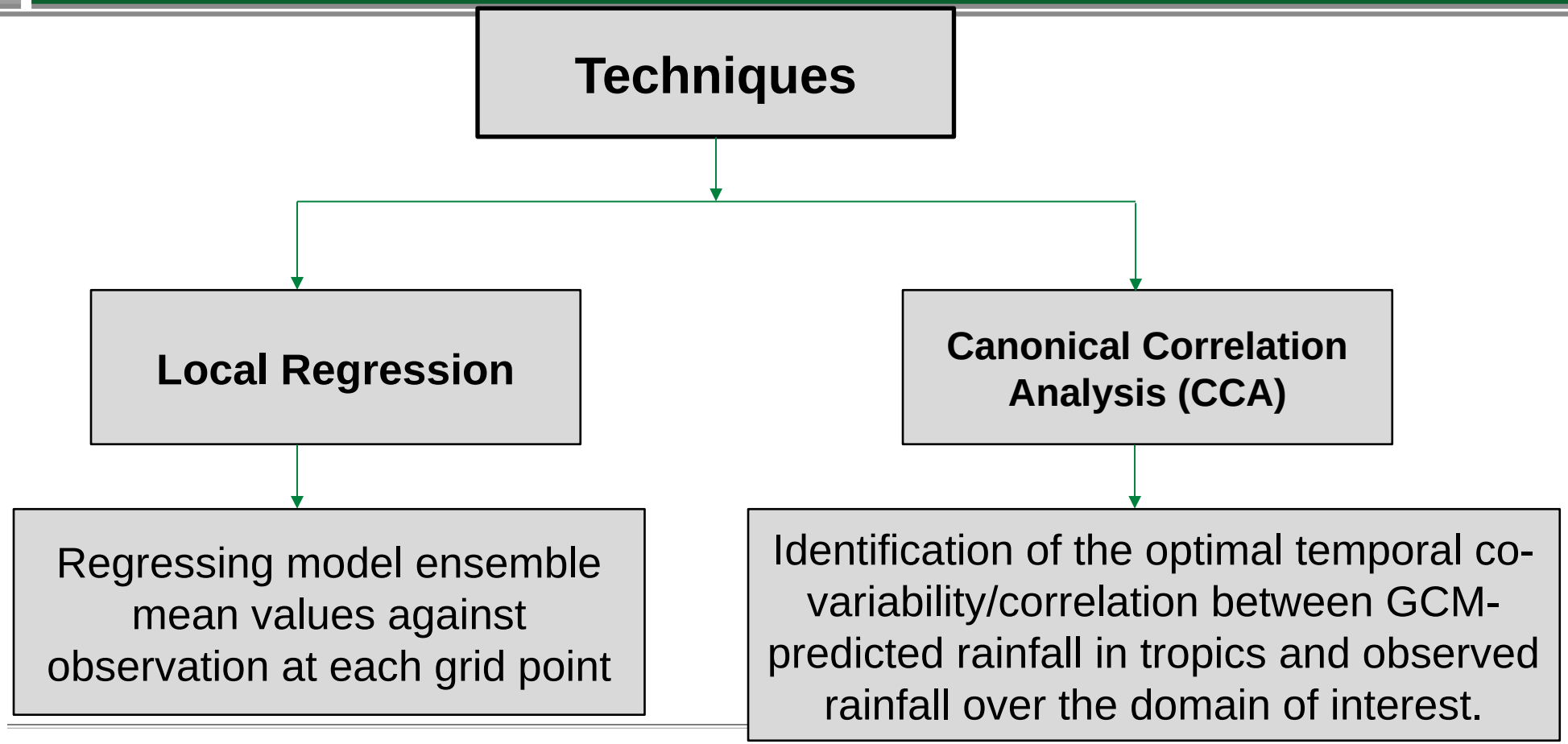
PEACE, PROSPERITY AND REGIONAL INTEGRATION

Data Sources and Models to Produce the Seasonal Forecast



PEACE, PROSPERITY AND REGIONAL INTEGRATION

Techniques for Producing the Seasonal Forecast



Login to Training Account

1. Logging into the ICPAC cluster using the country access credentials and go to your working directory

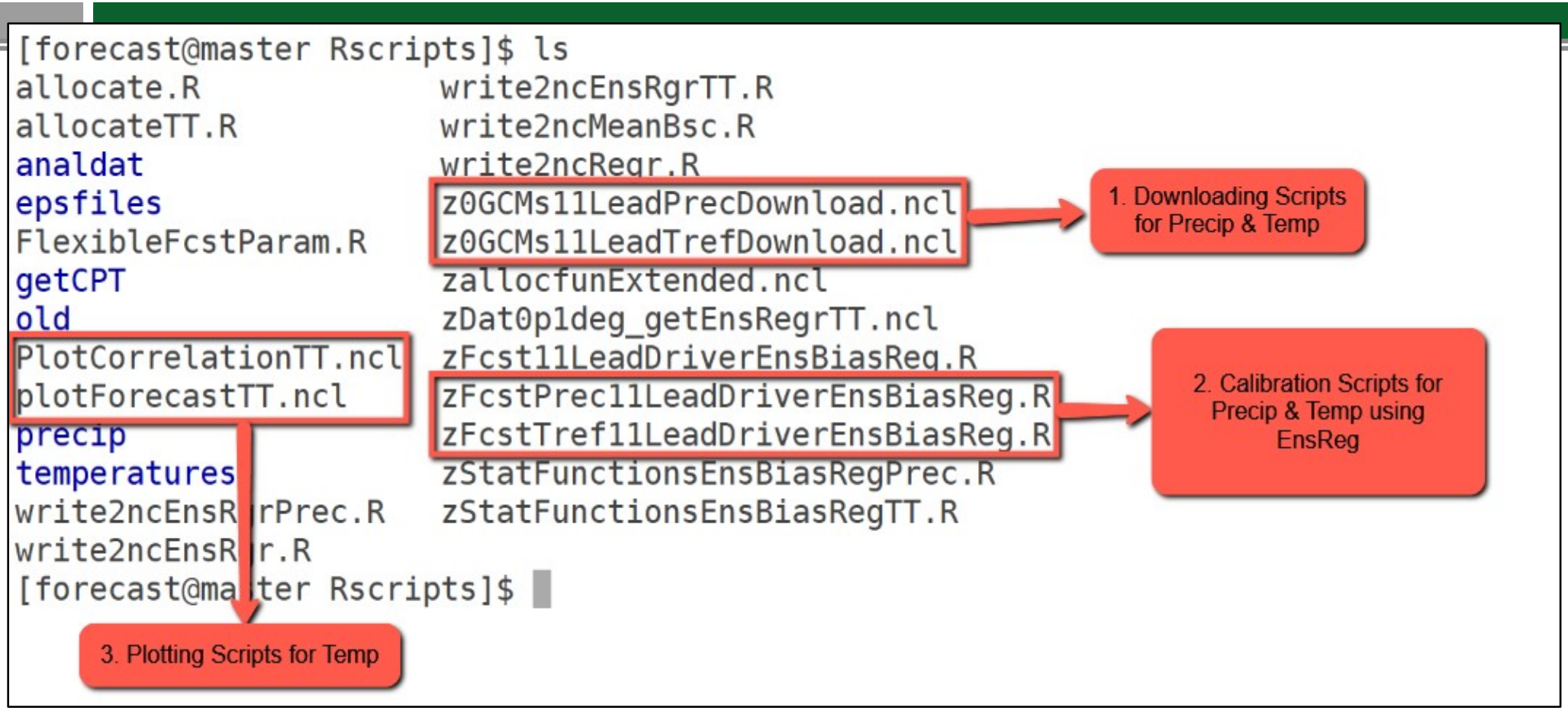
i. Login to training account

ssh -X training@197.254.1.14

ii. Go to /gcm/Aug2021/Rscripts

cd name/gcm/Aug2021/Rscripts

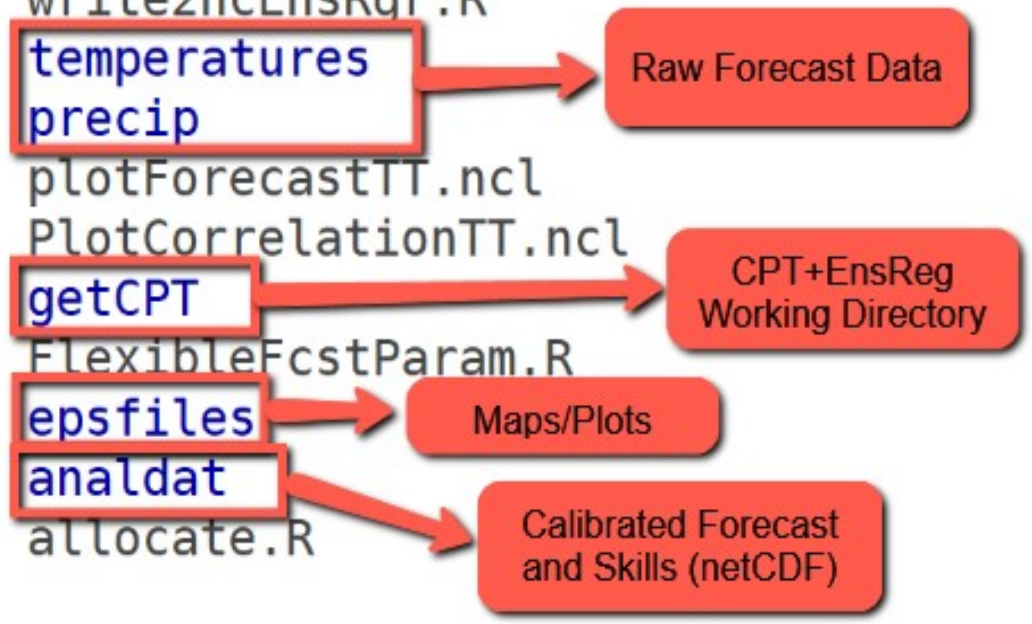
Main Scripts and Functions



Main Scripts and Functions

```
[ghacof@master Rscripts]$ ls -r
zStatFunctionsEnsBiasRegTT.R
zStatFunctionsEnsBiasRegPrec.R
zFcstTref11LeadDriverEnsBiasReg.R
zFcstPrec11LeadDriverEnsBiasReg.R
zDat0p1deg_getEnsRegrTT.ncl
zallocfunExtended.ncl
z0GCMs11LeadTrefDownload.ncl
z0GCMs11LeadPrecDownload.ncl
write2ncRegr.R
write2ncMeanBsc.R
[ghacof@master Rscripts]$
```

```
write2ncEnsRgr.R
temperatures
precip
plotForecastTT.ncl
PlotCorrelationTT.ncl
getCPT
FlexibleFcstParam.R
epsfiles
analdat
allocate.R
```



Download precipitation forecast data

i. Open **z0GCMs11LeadPrecDownload.ncl** and check the **Initial Month (XXX)** and **available model data,** then run the ncl script

vi z0GCMs11LeadPrecDownload.ncl

ncl z0GCMs11LeadPrecDownload.ncl

Run the precipitation R-scripts to get the calibrated (or bias corrected) forecast

i. Open **zFcstPrec11LeadDriverEnsBiasReg.R** using the vi editor and check the **Initial Month** and **Model Names** (among others) are correctly set

vi zFcstPrec11LeadDriverEnsBiasReg.R

ii. Run R-script on screen mode (This will take sometime):

screen

Rscript zFcstPrec11LeadDriverEnsBiasReg.R

ctrl-A and D To detach the screen

screen -r [ID] To resume your screen session

screen -ls To find the session ID list

screen -X -S [ID] kill To kill a detached screen

Process the CPT and EnsReg outputs under getCPT directory by editing three shell scripts

i. Change to the getCPT directory

cd getCPT

ii. Open getdata.sh and check the specified variables up to line 27

vi getdata.sh

iii. Open plotFcst.sh and check the specified variables up to line 82

vi plotFcst.sh

iv. Open plotSkill.sh and check the specified variables up to line 61

vi plotSkill.sh

v) Check plotAllForecast.csh. Run the code to run the above 3 codes

./plotAllForecast.csh