**PART 1 OF TUTORIAL ON EXTREMES TOOLKIT: EXERCISE**

*Daily weather extremes at Pergamino and Pilar*

(1) Read in data files `extperga.prn` (Pergamino) and `extpilar.prn` (Pilar) into `extremes` (check "common" as file type; check header)

`years` ranges from 1932 to 2003 (with a few years omitted because of missing data)

`max.sumprecip` is highest daily precipitation (mm) over summer (October to March)

`min.sumtmin` is lowest daily minimum temperature (oC) over summer

`max.sumtmax` is highest daily maximum temperature (oC) over summer

`mean.sumenso` is mean ENSO index over summer (based on SST in Region 3)

(2) Fit GEV distribution to maximum daily precipitation at Pilar (`max.sumprecip`)

From fitted model, obtain a 90% confidence interval for the 20-year return level.

(3) Fit GEV distribution to maximum daily temperature at Pergamino (`max.sumtmax`)

From fitted model, obtain a 95% confidence interval for the 50-year return level.

# PART 2 OF TUTORIAL ON EXTREMES TOOLKIT: EXERCISE

*Daily weather extremes at Pergamino and Pilar*

(1) Fit GEV distributions to maximum daily precipitation at Pilar (`max.sumprecip`)

(i) With no covariates (i.e., already obtained in Part 1)

(ii) With trend in location parameter (use `years` minus 1931 as covariate)

(iii) With location parameter depending on ENSO (`mean.sumenso`)

Use likelihood ratio tests to decide on best model

(2) Fit GEV distributions to maximum daily temperature at Pergamino (`max.sumtmax`)

(i) With no covariates (i.e., already obtained in Part 1)

(ii) With trend in location parameter (use `years` minus 1931 as covariate)

(iii) With location parameter depending on ENSO (`mean.sumenso`)

(iv) With location parameter depending on both year and ENSO

Use likelihood ratio tests to decide on best model