Exercise: Averaging

AIM: To introduce you the cdutil package and its averaging functions.

Issues covered:

- The cdutil package
- Spatial averaging
- Temporal averaging
- User-defined seasons

Instructions

1. Open the file "~/my_cdat_files/data/unknown.xml".
2. Extract the "cp" variable.
3. Calculate the average of the variable (by default along the first axis="time").
4. Calculate a set of zonal means for March 2000.

Extract the time step and then average over all longitudes.

5. Check the shape of the variable is "(181,)", i.e. zonal means only.
6. Calculate an area average for Great Britain (60N, 10W, 49N, 2E).
7. Plot the result using VCS.
8. Create your own winter season called 'mywinter' - made up of Jan-April using the cdutil.times.Seasons class.
9. Calculate the average for that season.
10. Calculate the March/April/May average with a requirement that 75% of the values must exist (i.e. must not be missing).
11. Calculate the annual average using cdutil.YEAR().