ATS 421/521 Homework 5 due Monday, May 13th

Log into the PCMDI web site http://pcmdi9.llnl.gov/esgf-web-fe/ and download the following variables: (1) near surface air temperature (tas), (2) evaporation (evspsbl), and (3) precipitation (pr) from the piControl simulation of your favorite model. Under the "Search Categories" menu click on "Model" and select your favorite. Now click on "Experiments" and select "piControl". Click on "Time Frequency" and select "mon" (monthly). Click on "Realm" and select "atmos". Now click on "Variable" and select the variables mentioned above. Choose one particular ensemble member (e.g. r1i1p1) if more than one exist. Now click "add to cart". Click on the "Data Cart" tab and download the file. Copy the file to your CEOAS student account and use FERRET for the following calculations.

1. Calculate and plot the average over the last 100 years of the simulation. Plot latitude-longitude maps of near surface air temperature, evaporation (E), precipitation (P). (3)
2. Plot zonally averaged values for the three variables. (3)
3. Calculate the difference E-P and plot a latitude-longitude map as well as a figure showing the zonal average. (2)
4. Calculate and plot the meridional water flux in the atmosphere by integrating E-P from the South Pole northward. (2)

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5. Produce the same plots as in (1)-(4) using the NCEP reanalysis data and compare them to your model results. (5)