Directions for accessing output from the CESM Large Ensemble Project on Earth System Grid

To start, go to http://www.cesm.ucar.edu/projects/community-projects/LENS/data-sets.html

The first table on the page "ESG Data Sets" contains direct links to the Earth System Grid (ESG). Variable names and their descriptions (e.g. long names, units) are provided in the second table "List of output time-series variable and brief descriptions:"

Returning to the first table labeled "ESG Data Sets", click on the model component and temporal resolution you are interested in. For example, "Atmosphere (Monthly)" or "Ocean (Annual)". This will give you a listing of files, one for each variable that was saved for that model component and temporal resolution.

Next, find the variable you are interested in and click on it to visit the ESG page. For example, if you want sea level pressure from the "Atmosphere (Monthly)" list, click the "Atmosphere (Monthly)" button, then search for "PSL" by performing a browser search on that page and clicking on the result.

Next, under the "Summary" tab, click on "Download Options" near the bottom. You will then be asked to login (and register if you are a new user). You will then see a listing of data files for the 40-member ensemble and the 3 control runs.

40-member Large Ensemble files are named:
b.e11.B20TRC5CNBDRD.f09_g16.ZZZ ZZZ = 001-035, 101-105 for the 20th century portion, and
b.e11.BRCP85C5CNBDRD.f09_g16.ZZZ for the RCP8.5 portion (the latter may be further sub- divided into years 2006-2080 and 2081-2100)

The fully-coupled control run is named:
b.e11.B1850C5CN.f09_g16.005. Years 400-2200 are available, subdivided by century. For example, the monthly PSL file for years 400-499 is named b.e11.B1850C5CN.f09_g16.005.cam.h0.040001-049912.nc

The slab-ocean control run is named:
e.e11.E1850C5CN.f09_g16.001. Years 1-1000 are available, subdivided by century.

The atmosphere-only control run is named:
f.e11.F1850C5CN.f09_f09.001. Years 1-2600 are available, subdivided by century.

Select all the files that you want to download by selecting the checkbox next to them, and then click on the "Download Options for Selections" button at the top right corner to proceed.

For monthly timeseries files note that the time variable is off by one month. For example, if one were to read the fully-coupled control file referenced above (b.e11.B1850C5CN.f09_g16.005.cam.h0.040001- 049912.nc), the converted time variable would show that it starts in 40002 (February year 400) and ends in 50001 (January year 500). This is incorrect, in that the file starts in January year 400 and ends in December 499. The times indicated in the file name are correct. If in doubt, consult the time_bnds variable within each file that indicates the beginning and ending dates for the averaging period.

To find a listing of CESM1 variable names and their acronyms, visit the link below:
http://www.cesm.ucar.edu/projects/community-projects/LENS/data-sets.html

For more information about the CESM1 Large Ensemble Community Project, visit the link below:
http://www.cesm.ucar.edu/projects/community-projects/LENS/