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The use of OPeNDAP in web based climate and weather analysis tools.

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The volume of gridded climate data is fast becoming too vast for researchers' institutions to store locally. Yet, scientists need access to the data. Remote access protocols such as OPeNDAP may help in reducing the amount of data needed to be stored locally. But, protocols such as OPeNDAP generally rely on the users knowing the how the data is set up in files. They also require that the users be familiar with netCDF format in order to read and analyze the data. Such assumptions are true for some scientists though not all. And, scientists in disciplines other than climate science or more general users of climate data might not be expected to be able to easily process the files. Many institutions make available simple interactive plots of their datasets so users do not have to download data and run their own code in order to view some of the data. These plots are good but do not go much beyond basic maps. What we propose to do at NOAA/ESR PSD is to make available climate analysis webpages that do more than simple plots which use the OPeNDAP protocol to pull the data from other institutions. These web tools will be similar to that we provide now for our gridded climate data and will include composite analysis, correlations and time series extraction. We will use NCL (NCAR Command Language) and similar applications to read and process the data as these languages are extremely flexible in handling different types of input files and metadata. We will discuss issues in setting up our webpages, in securely allowing for OPeNDAP access FROM other institutions, in handling the file metadata and structures of data sets stored at other sites, speed issue, time/variable aggregation among other access issues. Sites we plan to use data from include NCDC, PMEL, NOAA/IRI and NASA.