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Assignment 1

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Atmospheric Sciences 529

Useful Data Source

For the first assignment of the class we were tasked with the goal to find a useful data source that can be widely used for the class. A data set that I have been using for the past couple of months is the National Oceanic and Atmospheric Administration's (NOAA) Earth System Research Laboratory (ESRL) Physical Science Division's Reanalysis data sets. From the site you have the option to retrieve data from many Reanalysis data sets including the NCEP/NCAR Reanalysis I, the NCEP/DOE Reanalysis II, the North American Regional Reanalysis (NARR) compiled by NCEP and finally the 20th Century Reanalysis (V2). From these data sets a person would be able to find many atmospheric variables to help accomplish research in the related areas. A brief overview of the NARR data is that it is a very high resolution combined model for the Northern Hemisphere Lambert Conformal Conic grid. The data set incorporates readings 8 times a day at 29 different levels. Within the NARR data, it contains most of the atmospheric variables needed to solve any problem or aid in an investigation within the field of atmospheric sciences. The time scale of the data runs from January 1, 1979 to almost present. It is continually updated, but needs some time to compile data for day to day readings. The site has the ability to create simple anomalies, day to day mean values along with long term mean values in graphical format for people that have less experience compiling the large data sets via computer programming. For others who are more experienced with computer programming the files are available for download in which a person can manipulate them from there.

From the site I have used the NARR data to obtain features that have led to flooding within river basins in Arizona. From the use of precipitable water (PW), vector wind profiles, soil moisture data and other variables, anomalies have been created to aid forecasters in predicting flooding events based on past events. With the comparison of day to day values from flooding events in the past, anomalies were created to show how much higher the values were compared to normal. From this data, a forecaster will get a sense of the atmospheric conditions for past flooding events and be able to compare them to present conditions which will allow them to pass the word to the public about a potentially dangerous situation involving flooding. I feel this data site will be very useful in the class along with research completed by many of the students outside of the class.

Website Link:

<http://www.esrl.noaa.gov/psd/data/gridded/reanalysis/>