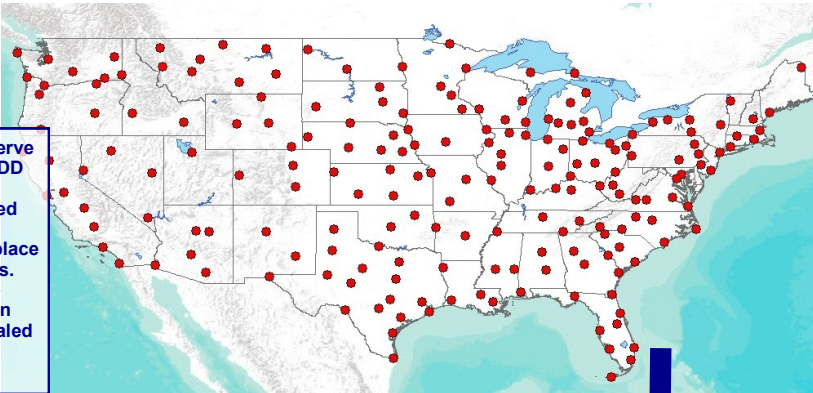


# US WDD Index Creation

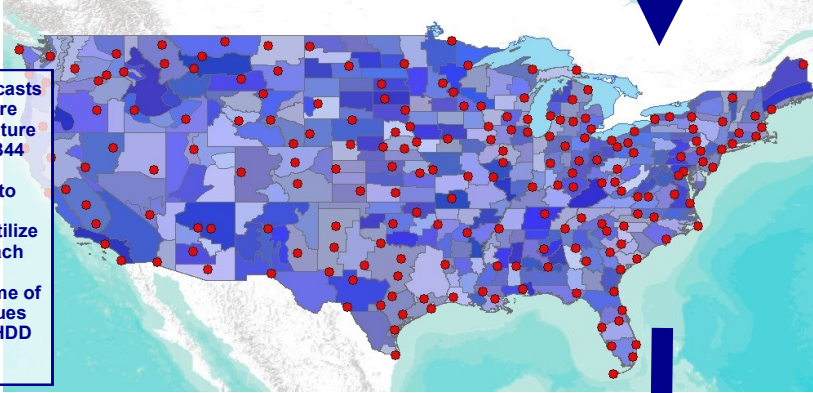
Speedwell WDD indexes are based on the NOAA weighted degree day methodology\*. They are used to model demand for gas arising from space heating and are often used to anticipate the EIA storage numbers. Observations and forecasts are published each day at 5:40am Eastern time. Historical index values are available from January 1, 1975 to present.

198 weather stations (red dots)



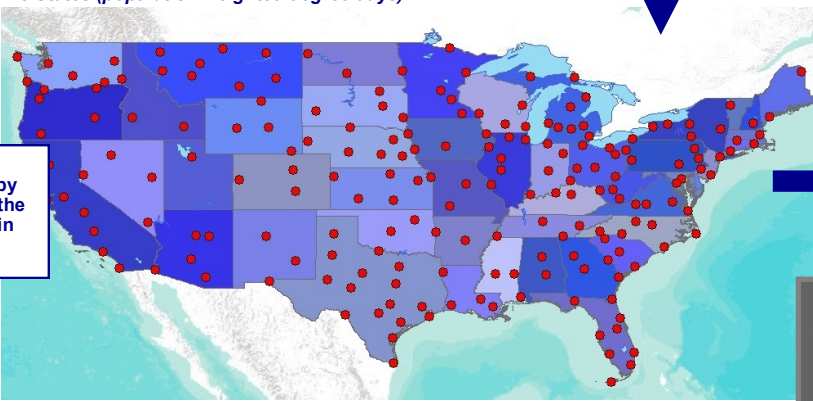
198 weather stations serve as the input into the WDD calculation. Data from these stations is cleaned on a daily basis to fill missing values and replace erroneous observations. Forecasts for the same stations are based upon the Speedwell downscaled 00Z ECMWF ensemble product.

344 Climate Divisions (degree days)



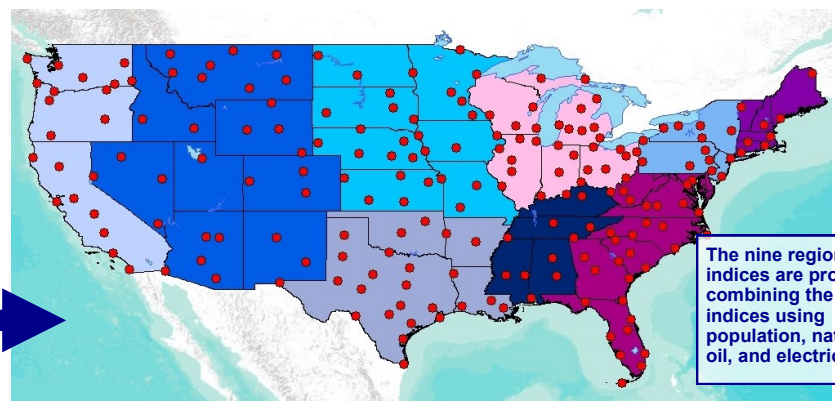
Observations and forecasts from the 198 stations are used to create temperature values for each of the 344 climate divisions. The NOAA equations used to compute the climate division temperature utilize 1-4 weather stations each weighted differently dependent upon the time of year. Temperature values are then converted to HDD and CDD.

48 States (population weighted degree days)



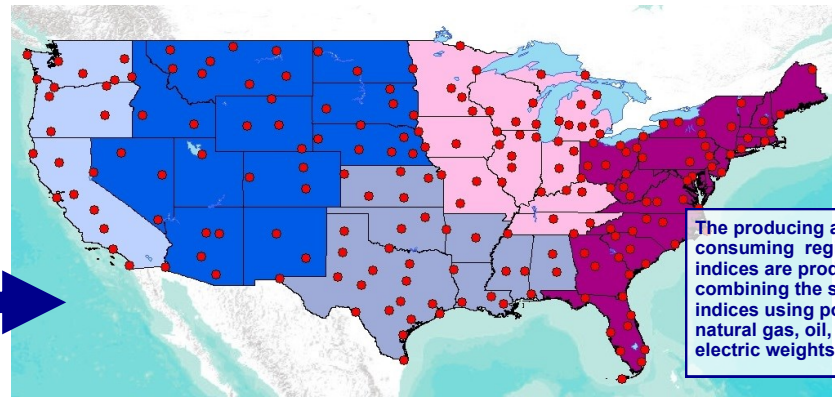
State HDD and CDD values are computed by population weighting the climate divisions within each state.

9 Regional Indices (population, natural gas, oil and electric weighted degree days)



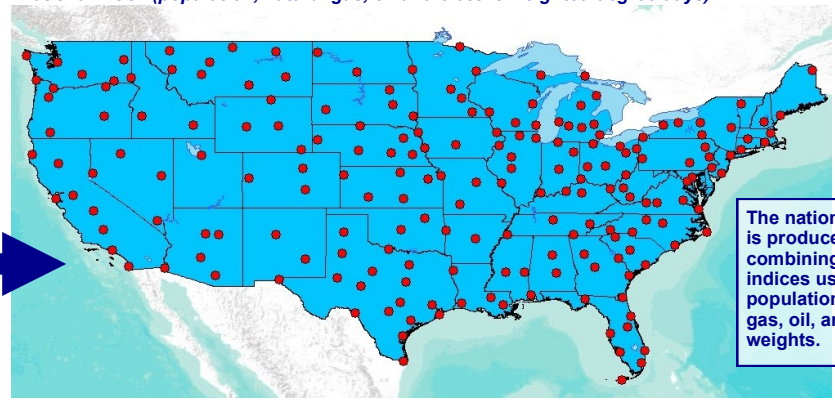
The nine regional indices are produced by combining the state indices using population, natural gas, oil, and electric weights.

Producing / Consuming Regions (population, natural gas, oil and electric weighted degree days)



The producing and consuming regional indices are produced by combining the state indices using population, natural gas, oil, and electric weights.

National Index (population, natural gas, oil and electric weighted degree days)



The national index is produced by combining the state indices using population, natural gas, oil, and electric weights.

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\* NOAA methodology is based upon the 2000-2014 algorithms