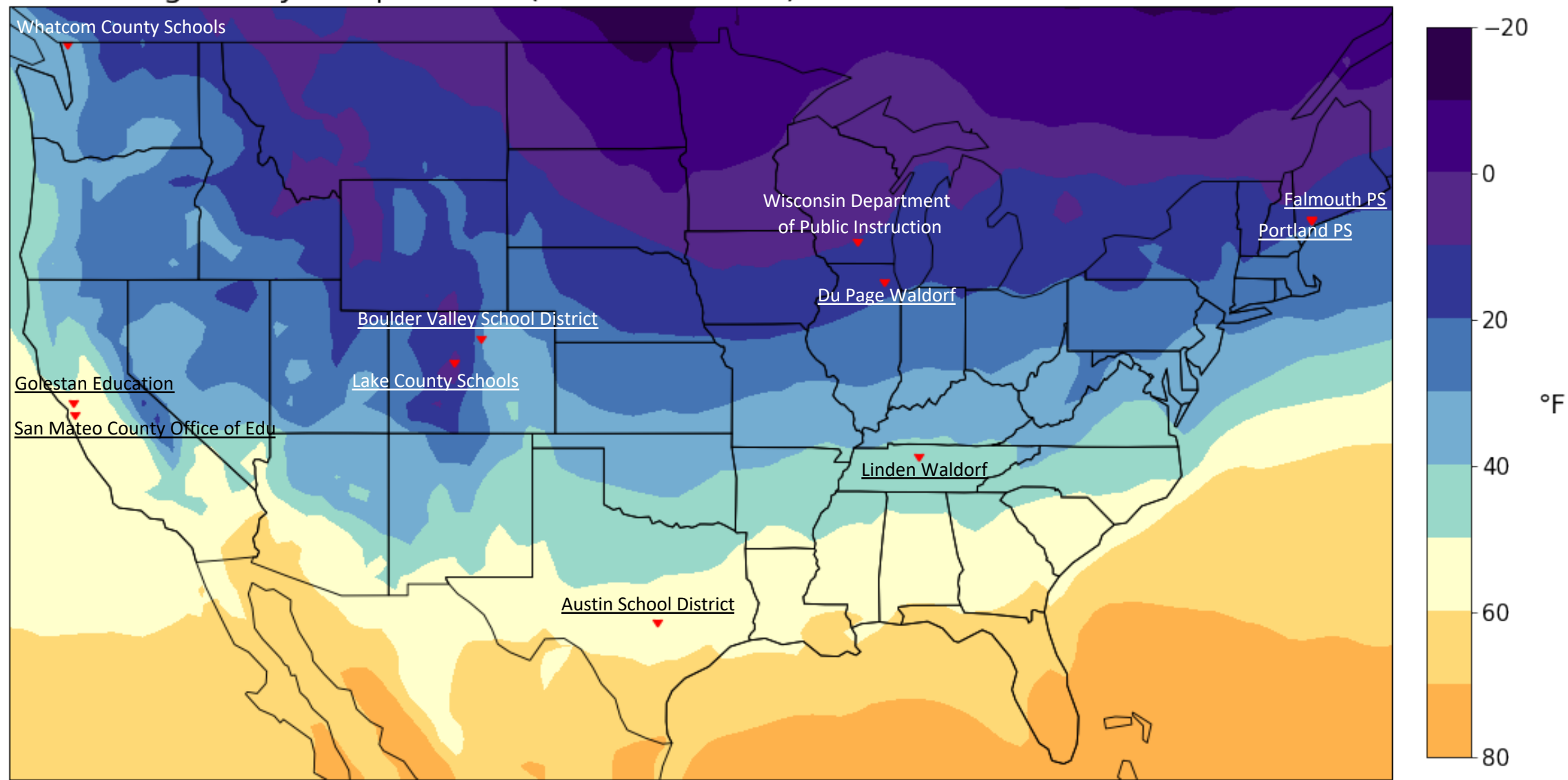
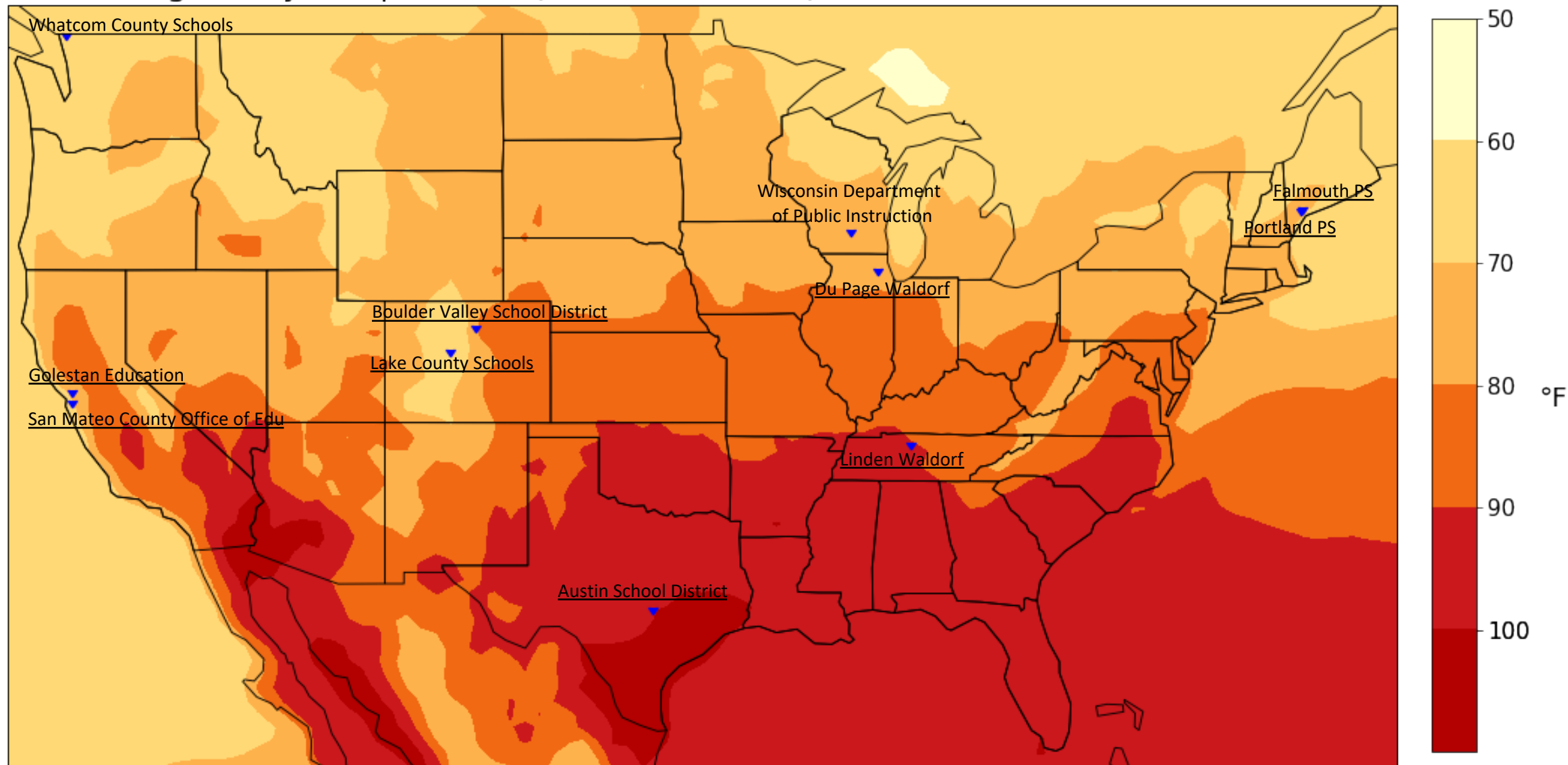


# Average Daily Temperature (with Wind Chill) 8:30AM-3:30PM Winter 2018-19



# Average Daily Temperature (with Heat Index) 8:30AM-3:30PM Summer 2019



These are visualizations of mean air temperature at 2 meters (with wind chill and heat index where applicable) during the hours of 8:30AM to 3:30PM in local time during the astronomical winter (12-21-2018 to 03-19-2019) and summer (06-20-19 to 09-20-19). Time zones are approximated with longitude boundaries as follows: (Pacific Time: -125 to -114, Mountain Time: -114 to -102, Central Time: -102 to -85.5, Eastern Time: -85.5 to -65).

Data is from NASA's Modern-Era Retrospective analysis for Research and Applications, Version 2 (MERRA-2) [M2T1NXSLV](#) dataset, an atmospheric analysis using conventional and satellite data sources with time resolution of one hour and spatial resolution of 0.5 ° x 0.625 °.

The data is broken into the four continental US time zones (as defined above) and then subset to include only the hours 8:30AM to 3:30PM in local time.

Air temperature at 2 meters is used for temperature. Where temperatures are at or below 50F and windspeed at 10 meters is at or above 3mph, wind chill is applied. Where temperatures are at or above 80F, relative humidity is calculated using air temperature at 2 meters and dewpoint temperature at 2 meters and then used to estimate heat index. Wind chill, relative humidity and heat index are calculated using python library [MetPy](#)).

Temperatures are then averaged over the entire timespan (8:30AM-3:30PM every day from 12-21-2018 to 03-19-2019 for winter and 06-20-19 to 09-20-19 for summer).

The filled contour map is generated from the point data using the python library matplotlib's function [confourf\(\)](#), binned into 10 degree Fahrenheit intervals.

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### Data citation

Global Modeling and Assimilation Office (GMAO) (2015), MERRA-2 tavg1\_2d\_slv\_Nx: 2d,1-Hourly, Time-Averaged,Single-Level,Assimilation,Single-Level Diagnostics V5.12.4, Greenbelt, MD, USA, Goddard Earth Sciences Data and Information Services Center (GES DISC), Accessed: [2-19-2021], 10.5067/VJAFPLI1CSIV

Locations of early adopter schools and school districts are from Google Maps.

**Map created by Sarah Gill, MPP. 2021.**