

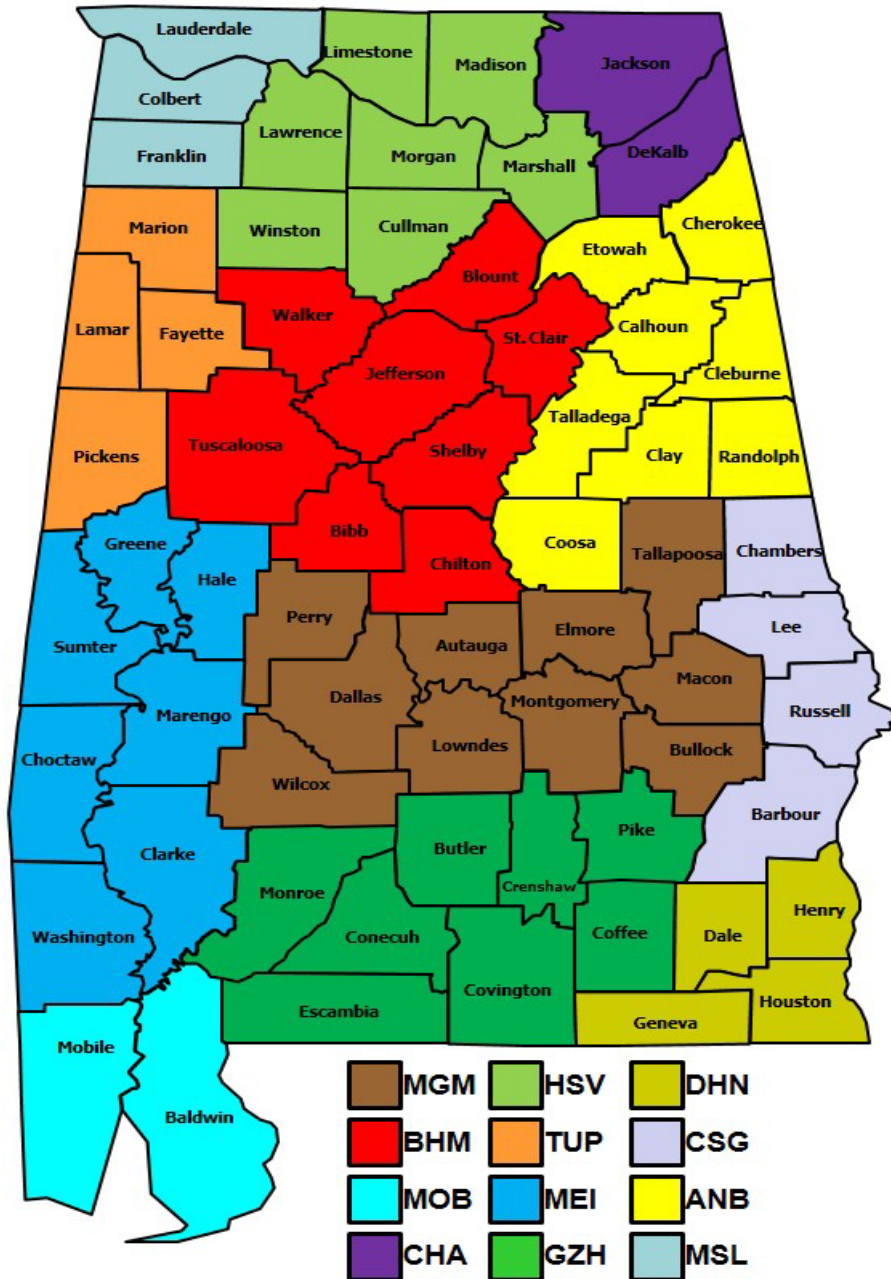
Appendix B. ADEM Meteorological Justification

ADEM has developed pre-processed meteorological data for each county for use in Prevention of Significant Deterioration (PSD) air dispersion modeling applications. ADEM developed these datasets based on both meteorology and the effect the surface characteristics have on the lower layers of the atmosphere. The dataset utilized for air dispersion modeling analyses at the Lowman facility has historically been used to characterize modeling for this facility since the 1980's. The following section of information is from ADEM's guidance document that addresses representativeness⁶:

There have not been any geographical changes in the area that would deem this NWS site unrepresentative. There are no other new datasets nearby that would better represent this location. NWS surface and upper air sites are limited in this area. Furthermore the data map below has been used to determine meteorological data for use in PSD analyses for decades. Use the following Meteorological PSD Data Map to identify the area of the State in which the proposed new source or modified source will be located to determine which National Weather Service (NWS) station data to use in the modeling. The station identification numbers are also indicated:

⁶ <http://www.adem.state.al.us/programs/air/emissionsModeling.cnt>

METEOROLOGICAL PSD DATA



The map of Alabama modeling domains was broken out into 12 sections. These sections were determined by average monthly precipitation, average monthly mean temperature and topography. In each county, a COOP weather station was chosen and a 30 year (some stations less than 30) monthly average rainfall and monthly mean temperature was compared to the 12 surrounding NWS stations monthly data. The NWS station that correlated the closest to the COOP station was linked to that county. Once all the counties were looked at, they were grouped together by NWS station. The regions were adjusted to account for the various topographical differences across the state of Alabama.

AREA	NWS SURFACE STATION	ID #	PROFILE BASE (M)	NWS UPPER AIR STATION	ID #
HSV	Huntsville, Alabama	723230	196	Nashville, Tennessee	13897
CHA	Chattanooga, Tennessee	723240	210	Nashville, Tennessee	13897
TUP	Tupelo, Mississippi	723320	110	Alabaster, Alabama	53823
BHM	Birmingham, Alabama	722280	192	Alabaster, Alabama	53823
CSG	Columbus, Georgia	722255	124	Alabaster, Alabama	53823
MEI	Meridian, Mississippi	722340	94	Alabaster, Alabama	53823
MGM	Montgomery, Alabama	722260	62	Alabaster, Alabama	53823
MOB	Mobile, Alabama	722230	67	Slidell, Louisiana	53813
ANB	Anniston, Alabama	722287	183	Alabaster, Alabama	53823
DHN	Dothan, Alabama	722268	108	Tallahassee, Florida	93805
GZH	Evergreen, Alabama	53820	79	Alabaster, Alabama	53823
MSL	Muscle Shoals, Alabama	723235	171	Nashville, Tennessee	13897