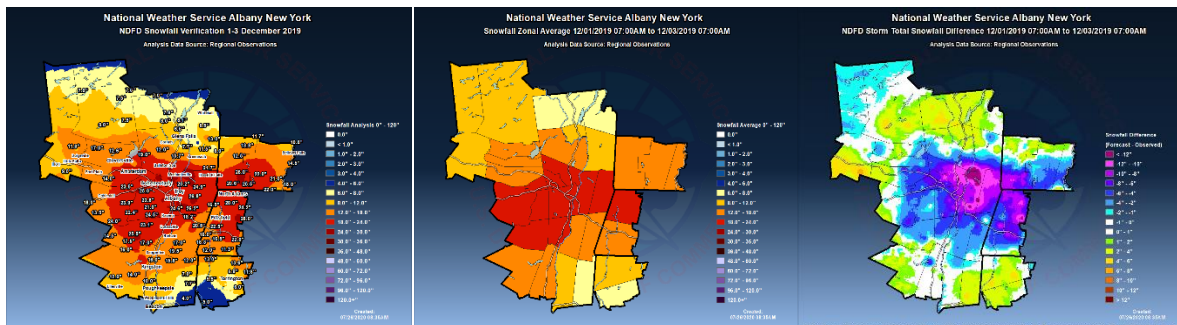


## GAZPACHO (Gridded Automated Zonal Precipitation And Complete Hi-res Output)

### What is GAZPACHO?

GAZPACHO is an automated program that was created to assist WFOs with snowfall verification (rainfall and ice have subsequently been added). GAZPACHO is run on a PC (with ArcGIS 10.8 installed) via a simple GUI. Within a few minutes, GAZPACHO creates maps of observed precipitation (rain, snow, ice or wind), zone and county average precip, forecast rain/snow (NDFD or various forecast models), difference (error) maps of forecast minus observed rain/snow (inches and percentage), and a spreadsheet table of zone and county average statistics. *Example of some output from a snowfall event:*



NAME	MIN	MAX	RANGE	MEAN	STD	SUM
NY033:Hamilton	18.5	34.5	16	27.6	2.9	207371.8
NY040:Montgomery	16.9	30	13	24.8	2.1	42192.4
NY047:Schoharie	22.2	35.8	13.6	28.1	2.4	72060.9
VT013:Bennington	16	35.4	19.4	22.7	3.6	63553.2
CT001:Northern Litchfield	15.3	23.2	7.9	18.7	1.5	45071.5
CT013:Southern Litchfield	13.4	20.6	7.2	16.6	1	23385.3
MA025:Southern Berkshire	13.2	24.3	11.1	18.3	1.5	38873.3

### What programs does GAZPACHO use?

GAZPACHO uses ArcGIS software and Python scripts to create the maps. GAZPACHO is run using a GUI. The package can be downloaded (NWS SCP via VLAB) and installed on any WFO PC that has ArcGIS software. A complete set of installation/user instructions are included with the download package.

### What input data sources are required for GAZPACHO?

There are three main input options in GAZPACHO. The first is a QC'd list of snow/rain/ice reports from the home WFO (preferably with a few from surrounding WFOs too) via a PNS with metadata, issued from ECLAIRS or IRIS (or COOP data acquired through xMACIS). The second option utilizes NOHRSC snowfall or STG4 rainfall analyses as the input source. A blend of NOHRSC/STG4 and PNS/xMACIS data is the third input option. The beginning and ending dates/times of the event are also required to compute difference maps. [Note, during an event there is an option to populate data from real-time sources using either precipitation reports (IRIS) or radar-estimated rainfall (MRMS). RTMA is used for wind.]

### What was the motivation for creating GAZPACHO?

The need for a quick, easy, automated and standardized WFO precipitation verification system that utilizes ArcGIS software and Python scripts for spatial analysis of precipitation.