



ARSET

Applied Remote Sensing Training

<http://arset.gsfc.nasa.gov>

 @NASAARSET

Using Satellite Data to Enhance Evidence Based Public Health Efforts at the Local Level

Tabassum Insaf –New York State Department of Health

tabassum.insaf@health.ny.gov

William Crosson -Universities Space Research Association

bill.crosson@nasa.gov

Mohammad Al-Hamdan -Universities Space Research Association

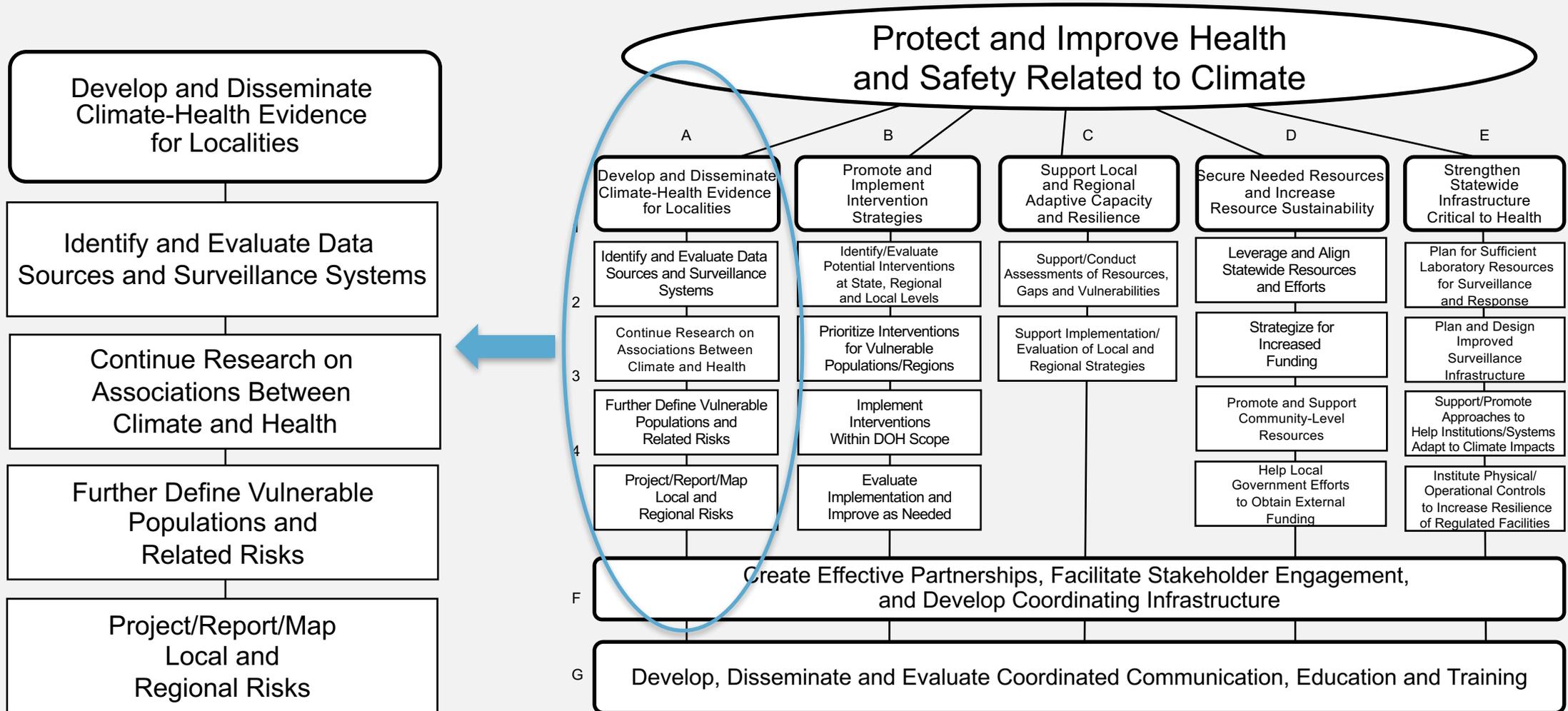
mohammad.alhamdan@nasa.gov

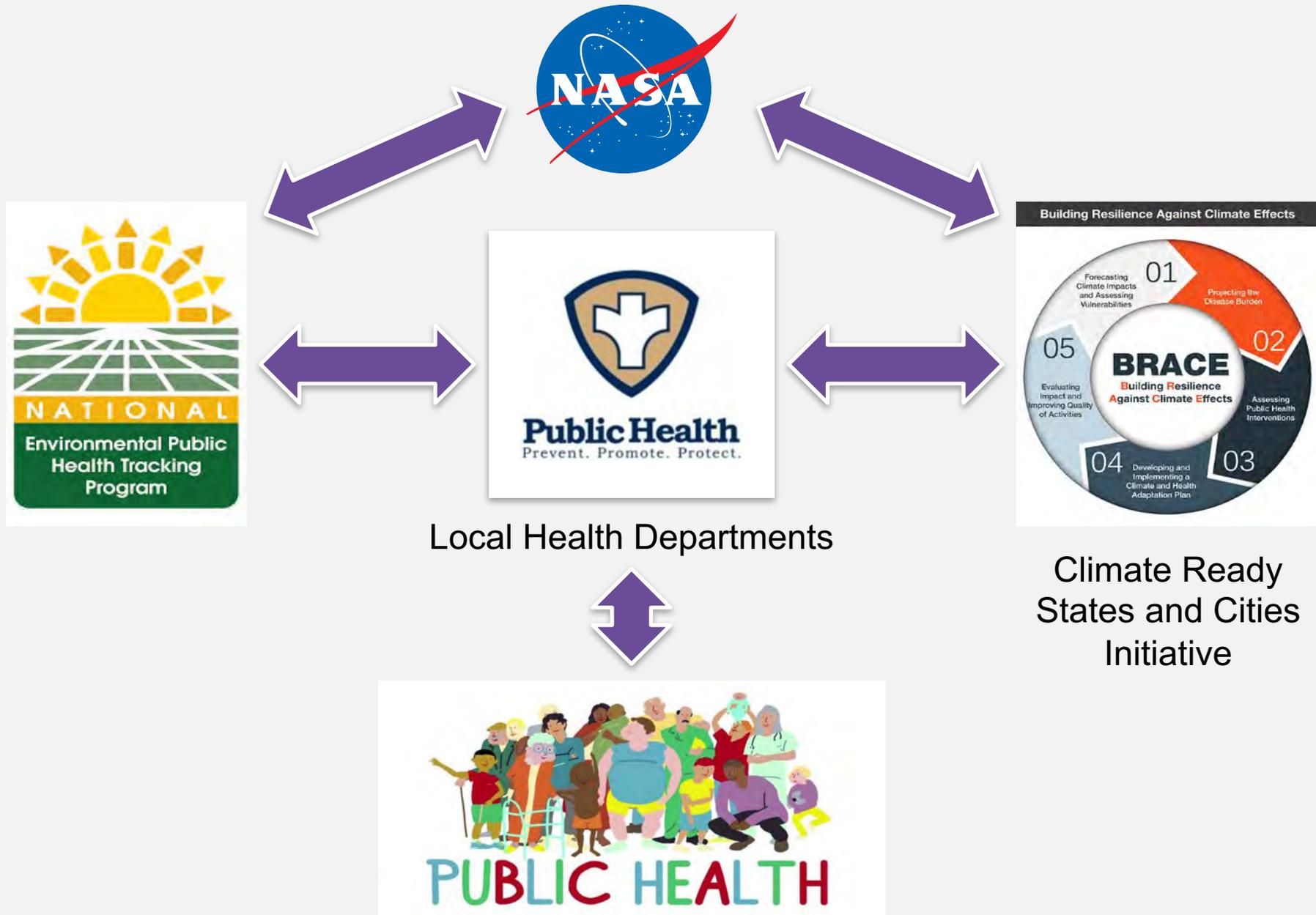


Integration of Satellite Data in State and Local Public Health Efforts

New York State Department of Health

Climate Adaptation and Mitigation Strategic Map: 2016-2021



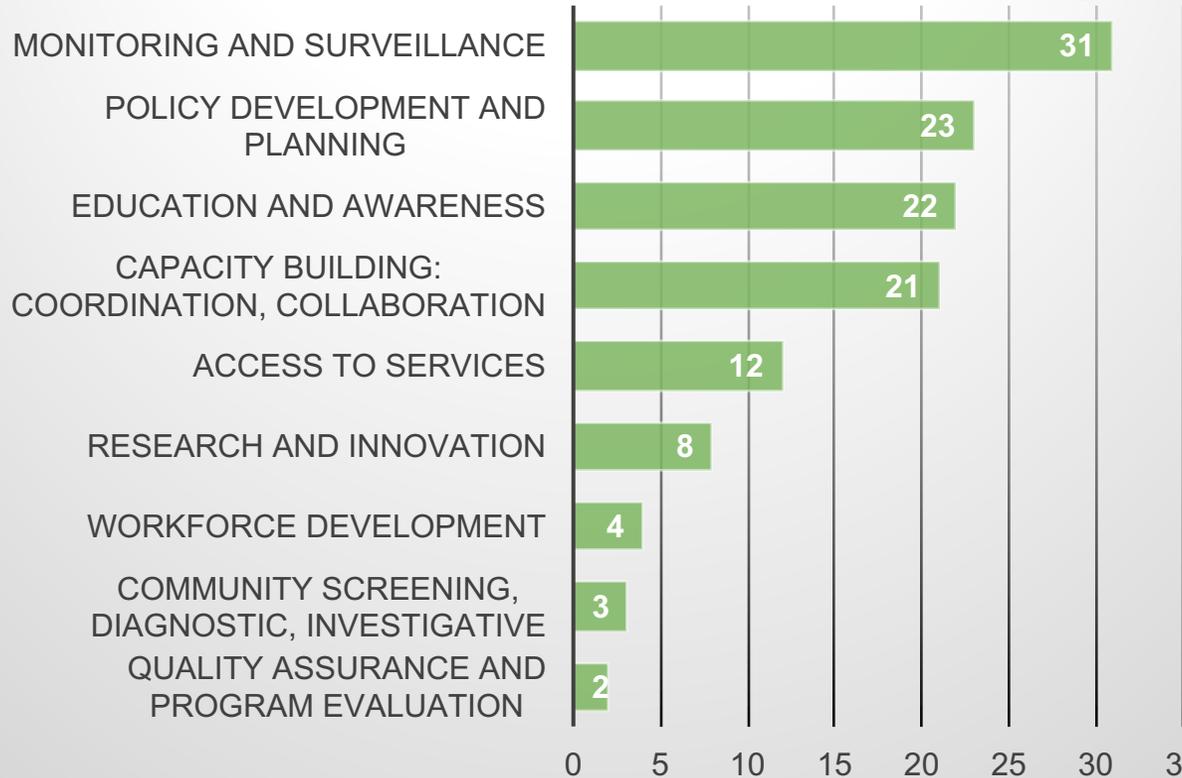


NYS Environmental Public Health Tracking Decision-Support Tool

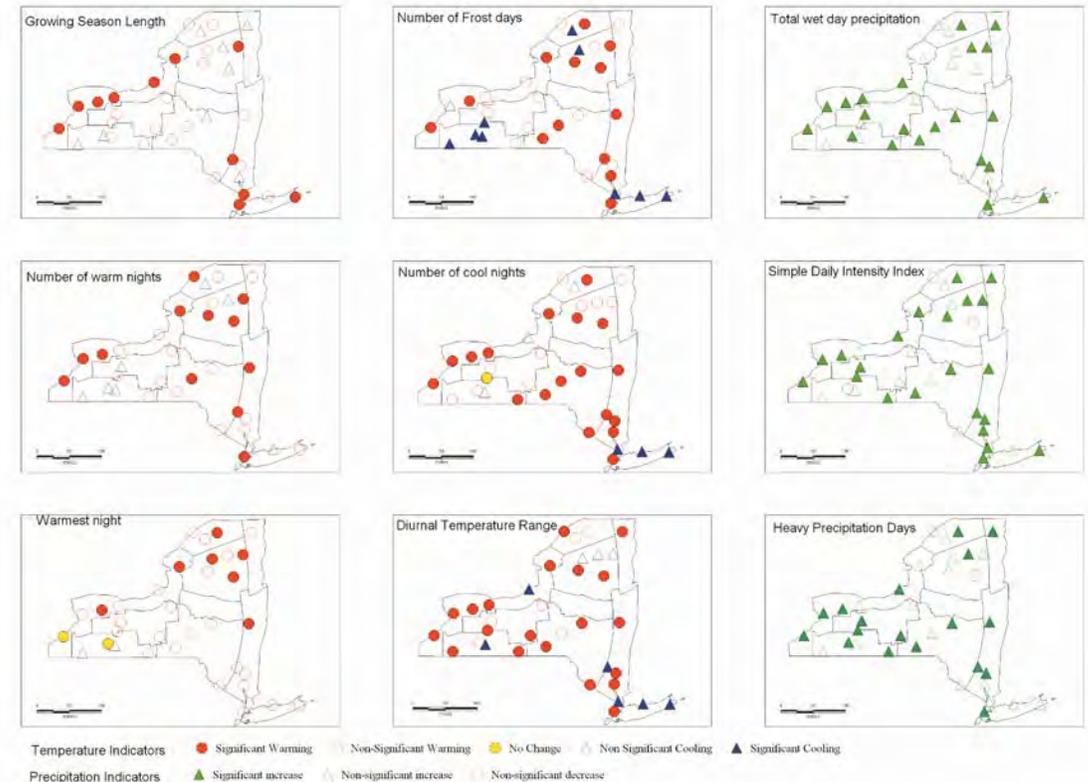
	Features	Access	Purpose
Tier 1	<ul style="list-style-type: none"> Individual level data Statistical tools Mapping tools 	Researchers and project staff in Center for Environmental Health	Research and Surveillance
Tier 2	<ul style="list-style-type: none"> Finer geographic resolution at sub-county level Data query tools Query based data displays including map and charts 	Role based access to public health professionals Access determined by program areas/data owners	Surveillance
Tier 3	<ul style="list-style-type: none"> County level data and display Simple data queries, maps, charts, and tables Public health message 	Open access	Outreach

Establishing a Baseline

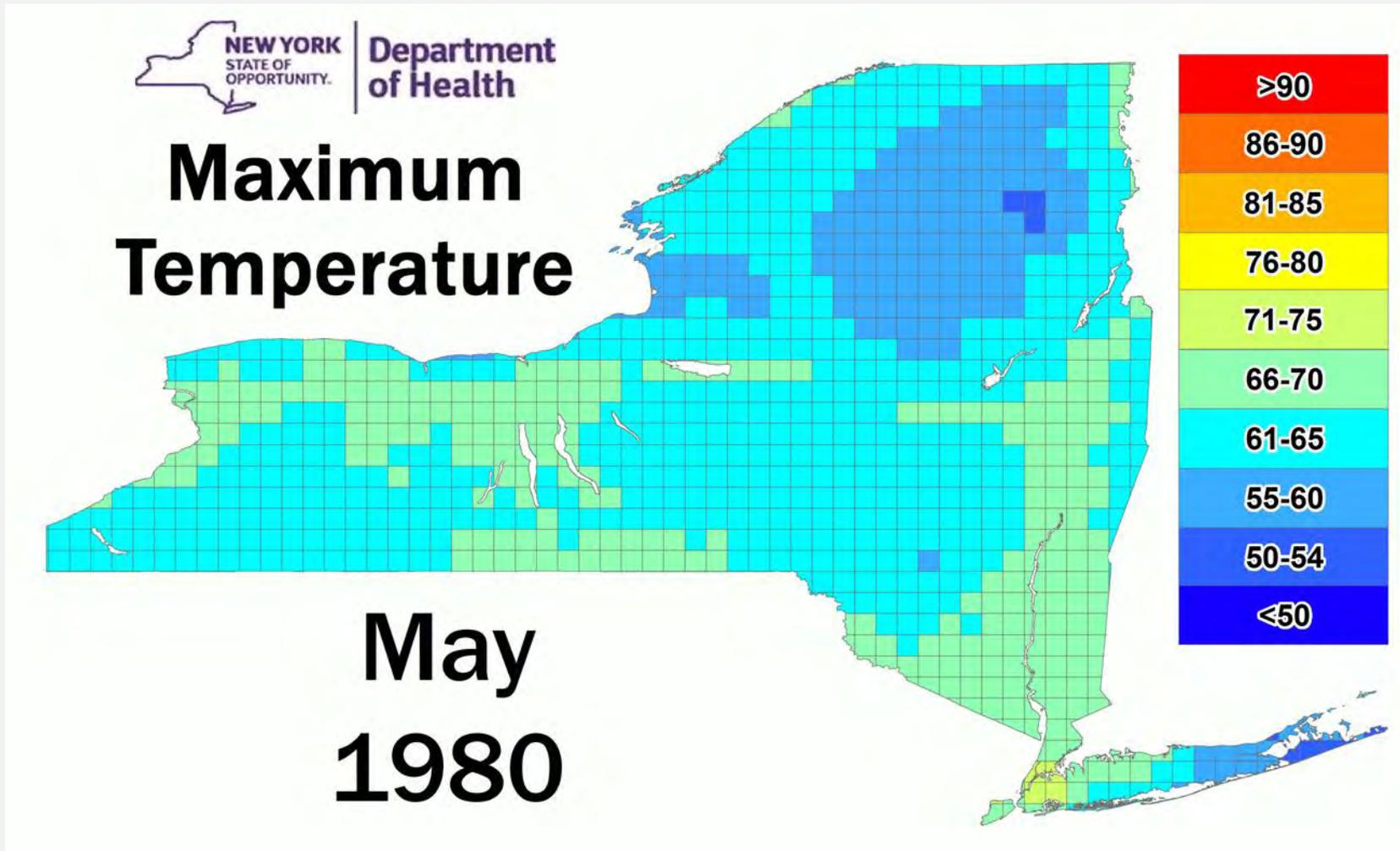
New York State Stakeholder Survey



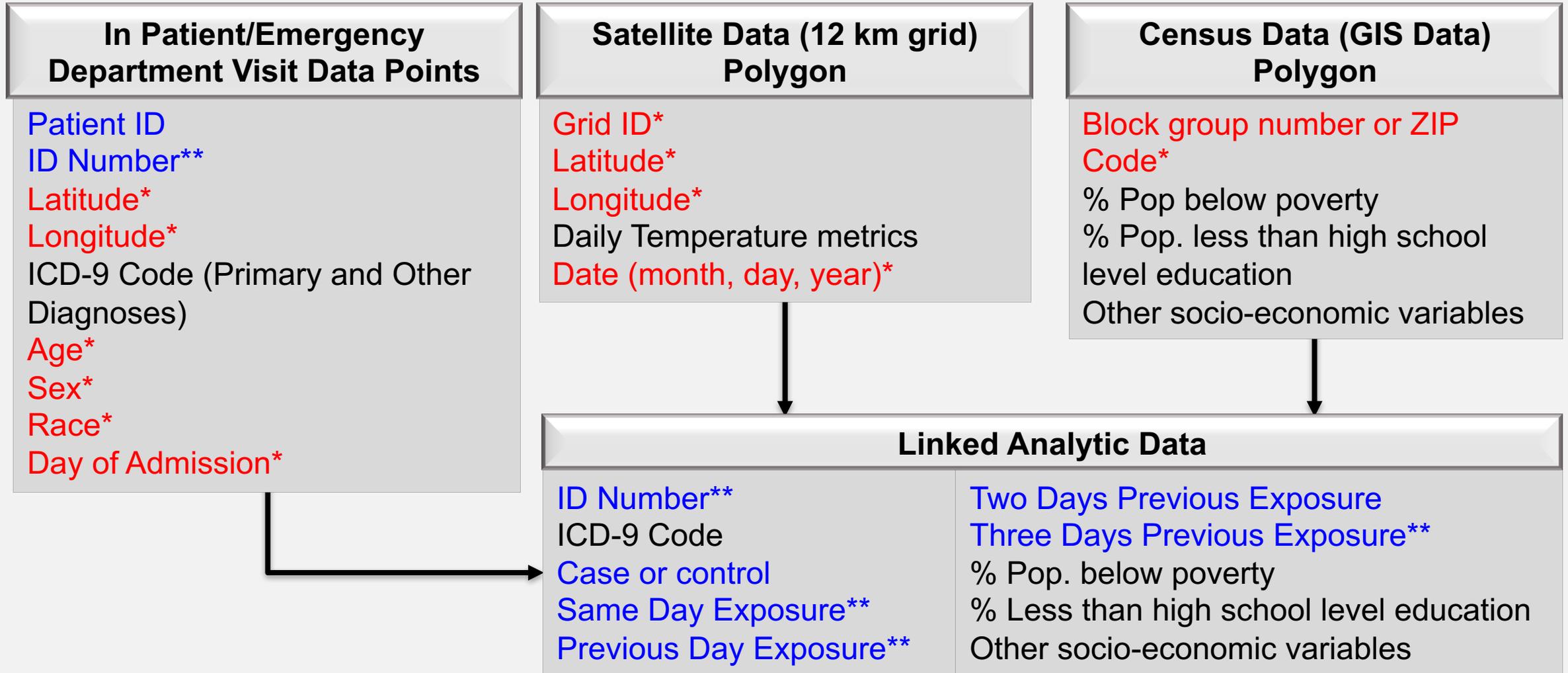
Climate trends in indices for temperature and precipitation across New York State, 1948–2008 -Insaf et al. 2013



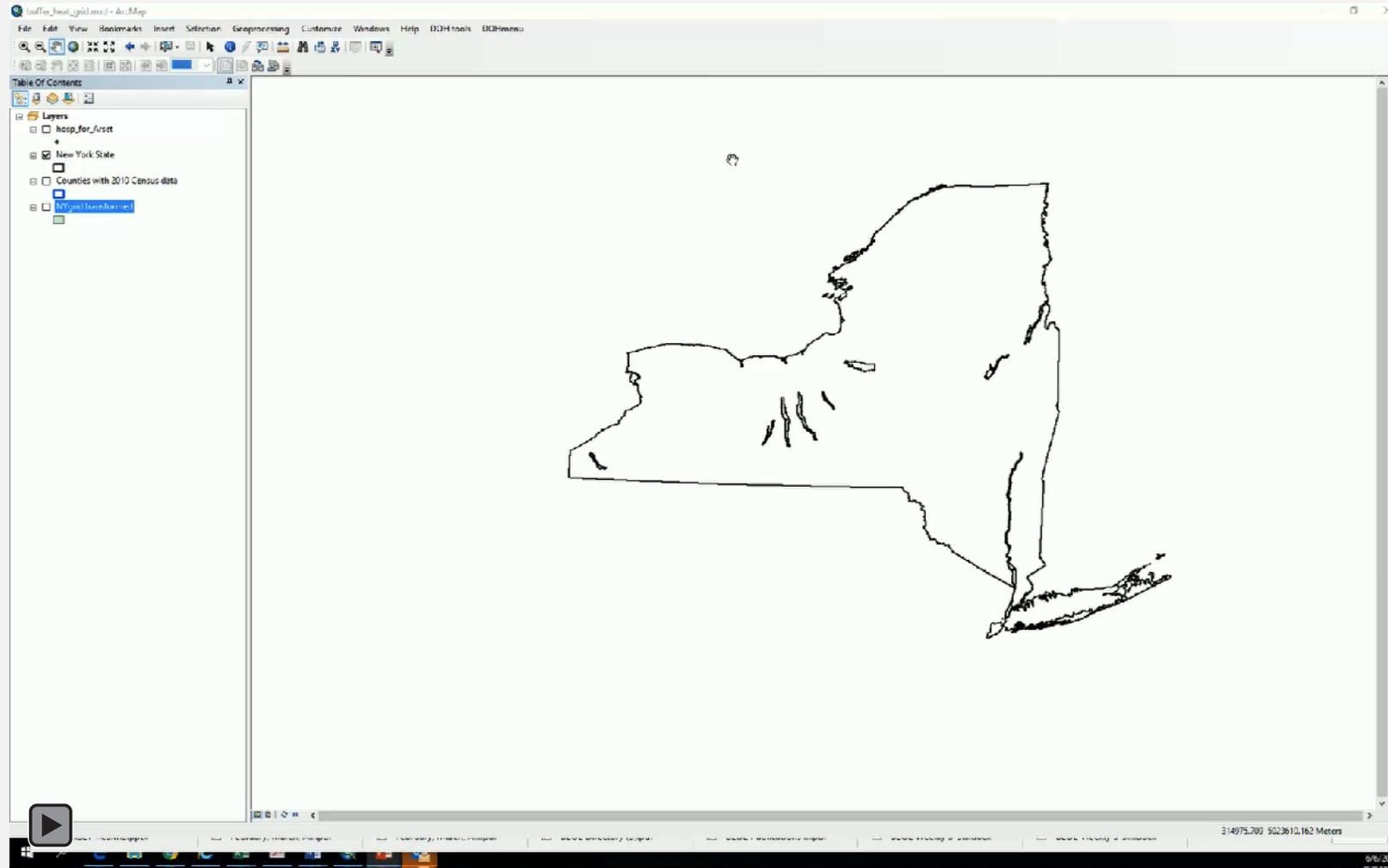
Using Satellite Data for Public Health: NLDAS 12 km Grid



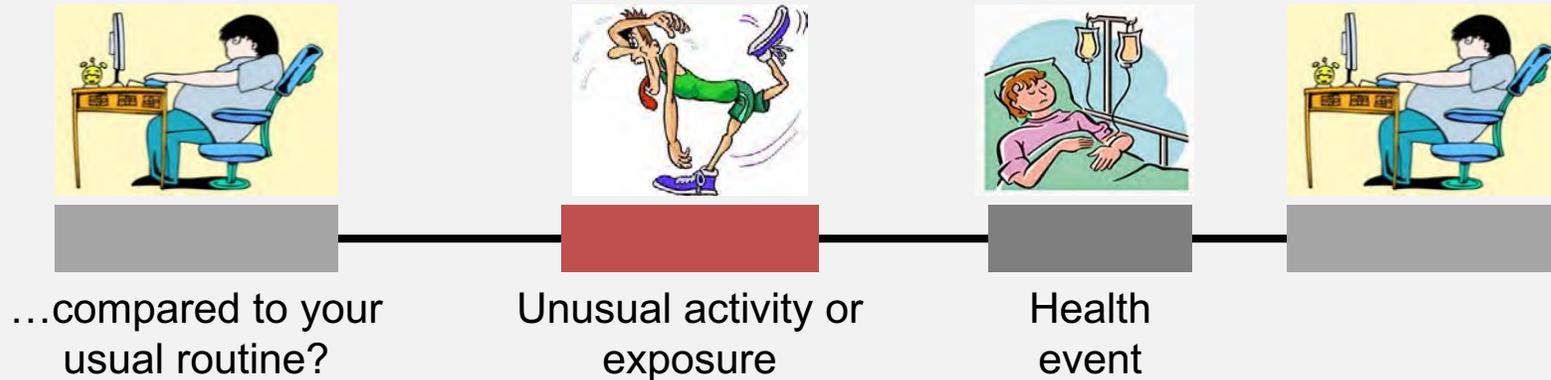
Schema for Linkage of Analytic Datasets



Linking Health and Environmental Data in ArcMap

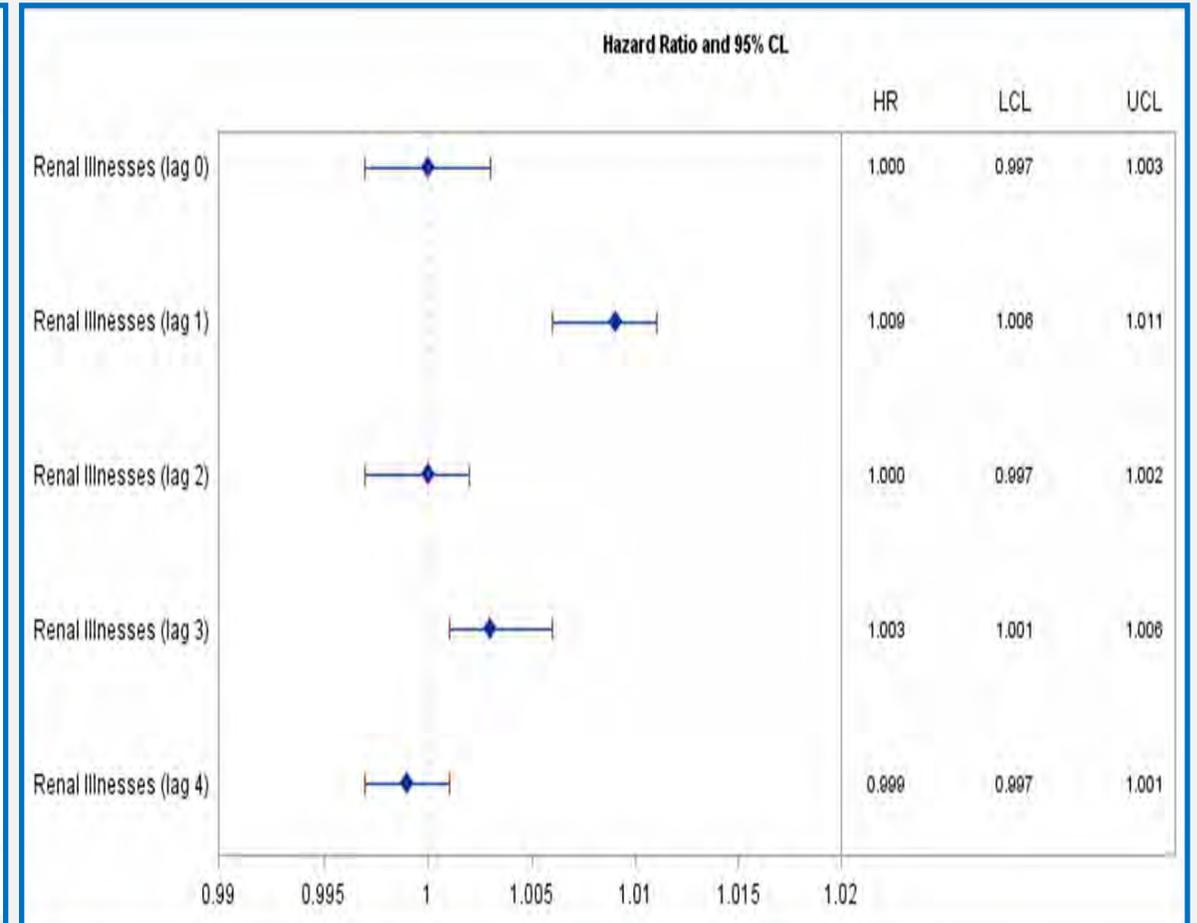
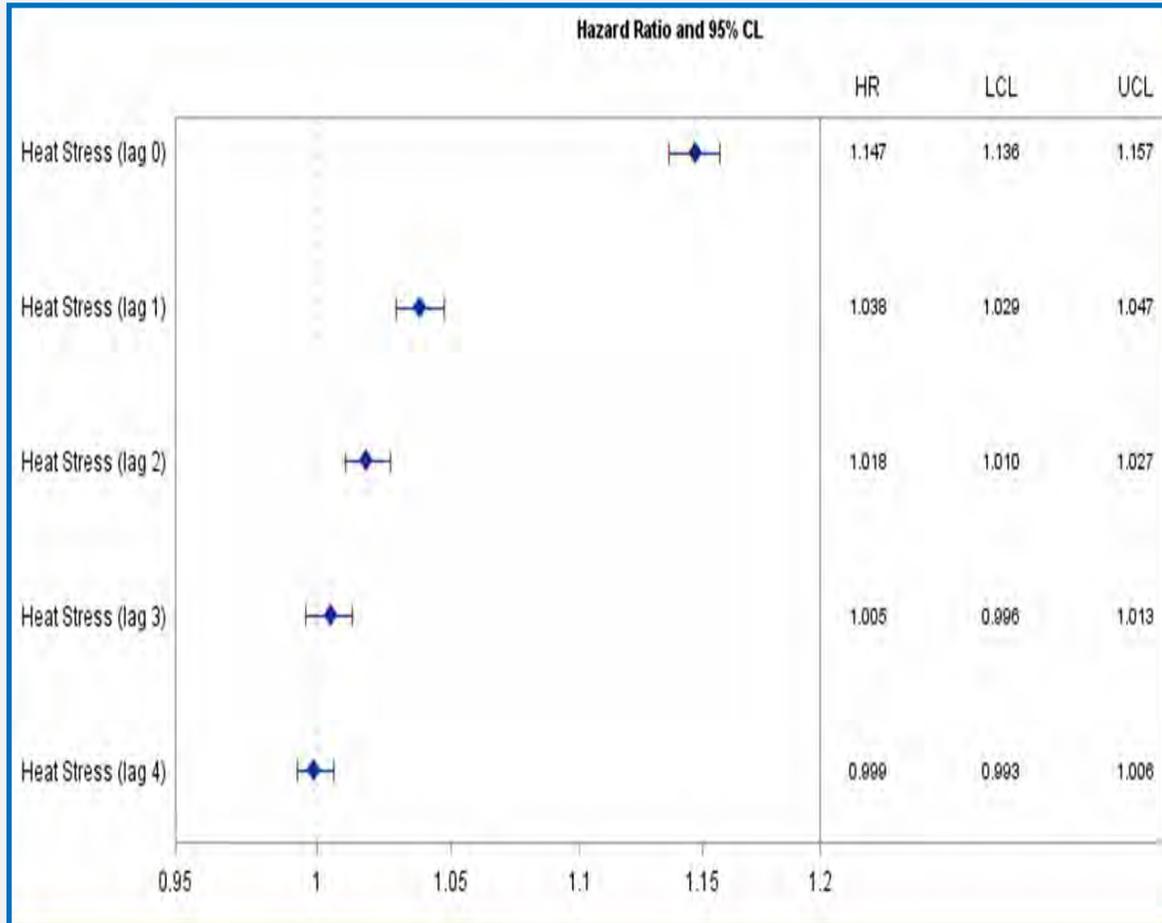


Case-Crossover Study

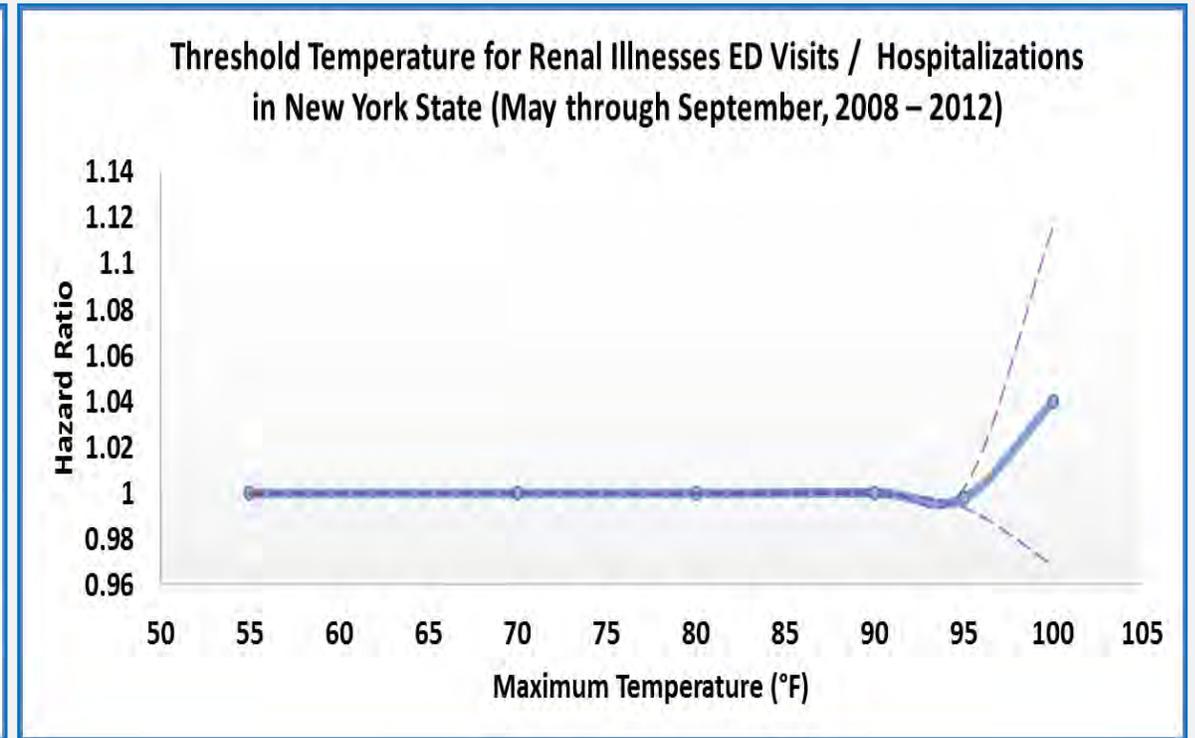
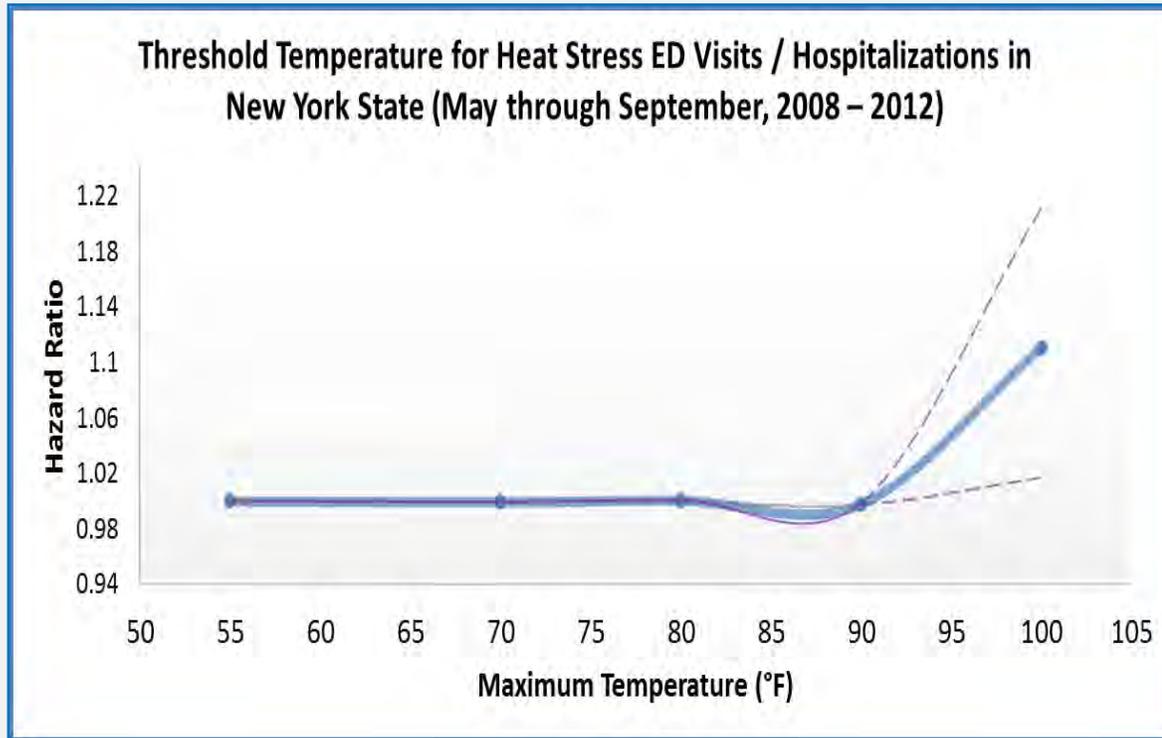


- Study of “triggers” within an individual
- “Case” and “control” component, but information of both components will come from the same individual
- “Case component” = hazard period which is the time period right before the disease or event onset
- “Control component” = control period which is a specified time interval other than the hazard period

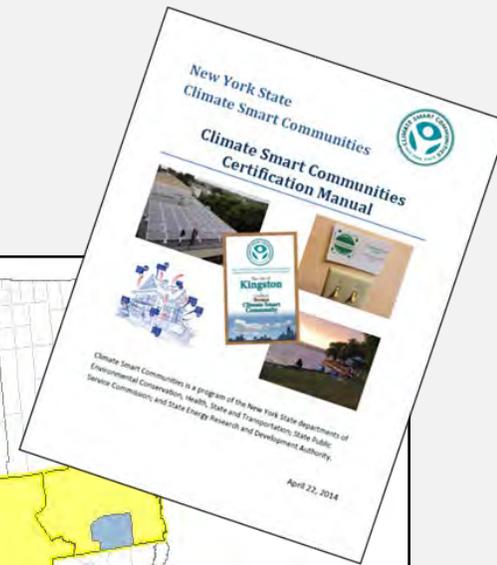
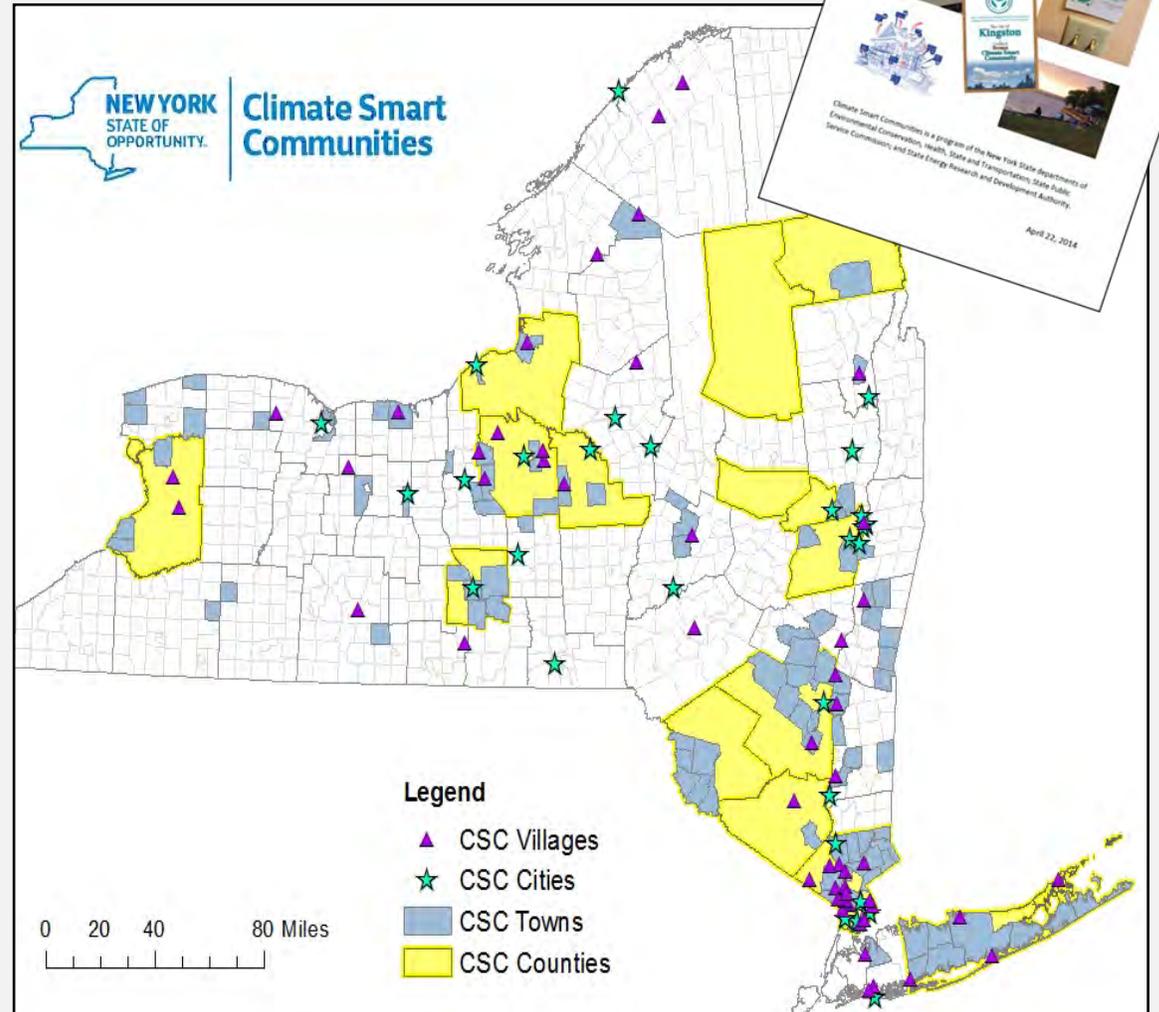
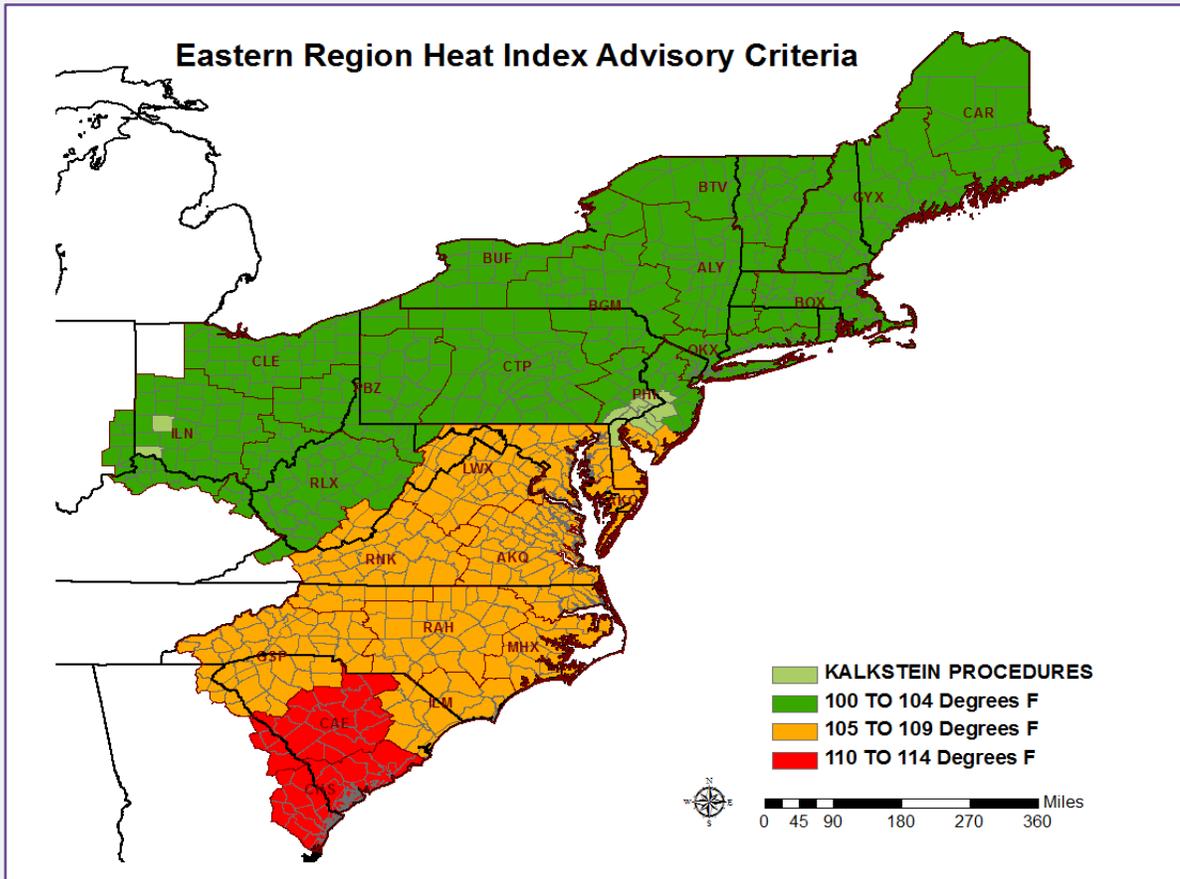
Association Between Heat Stress, Renal Illness, and Temperature



Threshold Analysis for Health Effects of Heat Events



Engaging Stakeholders



NYSDOH County-Heat Health Profiles

http://www.health.ny.gov/environmental/public_health_tracking/

Department of Health
 Services | News | Government | Local

County Heat profiles
 Home | About County Heat Profiles | About Heat Stress | About temperature data | About Heat-Vulnerability Index | Contact Us

Learn More About Tracking
 Tracking Home | About Environmental Health, Tracking and Exposure | Data | Publications | Tracking Program | Glossary | Frequently Asked Questions

Interactive Tool
 Environmental Public Health Tracker
 Use this tool to view maps, graphs and tables of select environmental health data.

County Heat-Health Profiles - Rensselaer, NY
 These county heat-health profiles have been created by the NYSDOH to assist county agencies to help identify their vulnerable populations and regions within their counties to improve or supplement their heat-adaptation efforts toward reducing the impact of heat on health.

Click on a County on the map to view/ Download/ Print the County Heat-Health Profile

Click here to download census tract level temperature data for a county

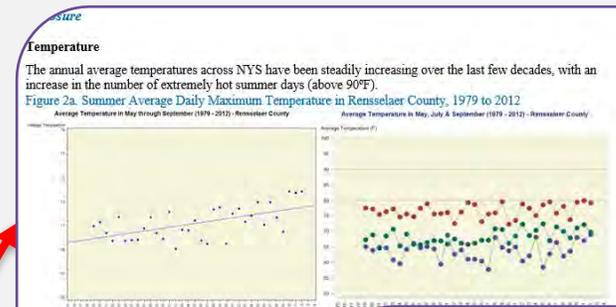
Heat-Health Vulnerability Assessment

Rensselaer County

January 2017

New York State Department of Health
 Bureau of Environmental Health

Vulnerability Index for Rensselaer County



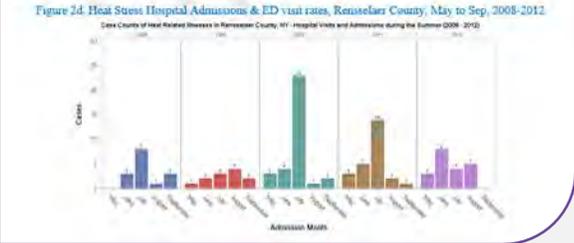
Rensselaer County has seen an increase in average temperature in overall average summer maximum temperature in Rensselaer county, summer daily maximum temperature to 90.60 °F in 2012. Variations and sudden spikes in temperature who may need time to adapt to the rising temperatures.

Heat Impacted Health Outcomes

How heat impacts health can depend on an individual's health status. The presence of existing health conditions predisposes a person to the effects of extreme heat by causing or worsening health conditions.

Heat-related illnesses or Heat Stress

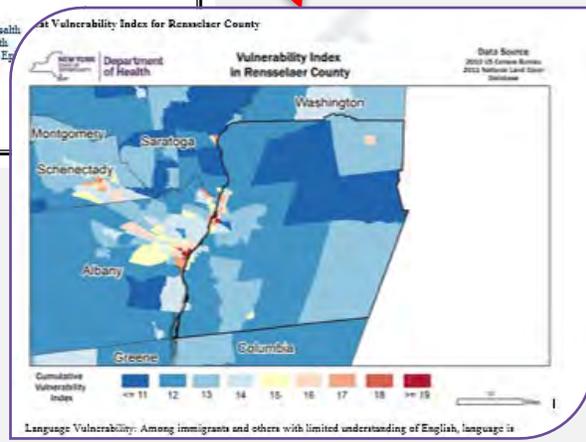
Heat stress although largely preventable, occurs during hot days and extreme heat events when the body is unable to dissipate heat by natural mechanisms. Other factors like high humidity, direct sun exposure, as well as excessive loss of fluid or salt via sweating and dehydration and physical exertion can also result in heat related illness.¹⁰⁻¹² Heat stress includes hospital admissions and emergency department (ED) visits for outcomes including heat edema, heat stroke, heat cramps, heat stress, and dehydration. The chart (Figure 2d) shows the heat stress hospital and ED visit count across Rensselaer County between 2008 and 2012.



Includes information on temperature exposure, heat impacted health and heat vulnerability in each county

Downloadable data at census tract level

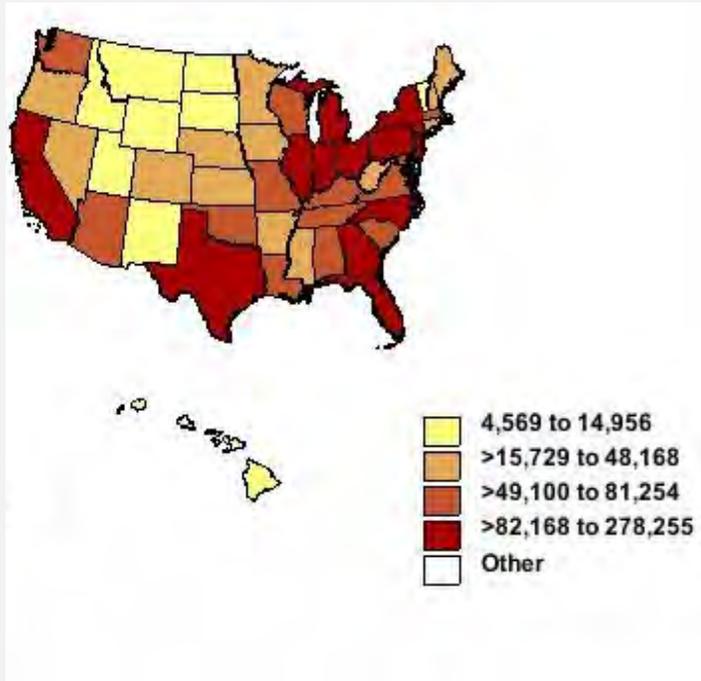
date	index	ID	COUNTYFP1	month	year	context	indicator	measure	subgroup	subgroup_cat	count
1979-05-01	121	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	53
1979-05-02	122	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	52.2
1979-05-03	123	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	52.1
1979-05-04	124	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	58.5
1979-05-05	125	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	47.1
1979-05-06	126	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	52.2
1979-05-07	127	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	62.7
1979-05-08	128	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	75.9
1979-05-09	129	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	83
1979-05-10	130	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	81.7
1979-05-11	131	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	75.4
1979-05-12	132	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	70.3
1979-05-13	133	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	71
1979-05-14	134	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	61.6
1979-05-15	135	001014001	001	5	1979	heat	Max Temperature	degrees	Temperate above 90	0	70



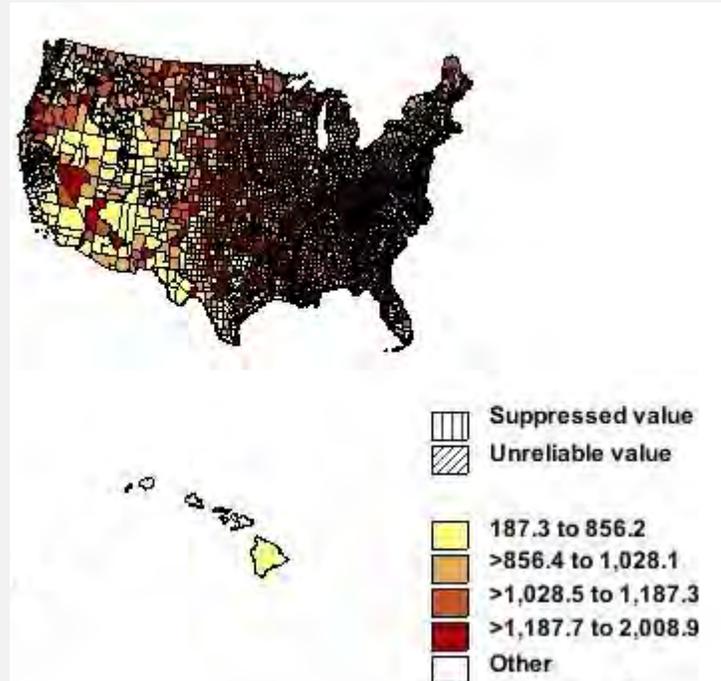
CDC WONDER: <http://wonder.cdc.gov/>

The screenshot shows the CDC WONDER website. At the top left is the CDC logo with the text "Centers for Disease Control and Prevention" and "CDC 24/7. Saving Lives. Protecting People™". To the right is a search bar with the word "SEARCH" and a magnifying glass icon. Below the logo is a dark blue navigation bar with "CDC WONDER" and links for "FAQ", "Help", "Contact Us", and "WONDER Search". A "CDC A-Z INDEX" dropdown menu is also visible. On the left side, there is a "WONDER Search" box with a search input field and a "Search" button. Below that is a "Topics" sidebar with a list of links: "About CDC WONDER", "What is WONDER?", "Frequently Asked Questions", "Data Use Restrictions", "Data Collections", "Citations", "Republishing WONDER Data", and "What's New?". The main content area features social media icons for Facebook, Twitter, and a plus sign. A paragraph states: "WONDER online databases utilize a rich ad-hoc query system for the analysis of public health data. Reports and other query systems are also available." Below this are three tabs: "WONDER Systems", "Topics", and "A-Z Index". The "Topics" tab is active, showing three sections: "WONDER Online Databases" with links for "AIDS Public Use Data", "Births", and "Cancer Statistics"; "Environment" with links for "Heat Wave Days May-September", "Daily Air Temperatures & Heat Index", "Daily Land Surface Temperatures", "Daily Fine Particulate Matter", "Daily Sunlight", and "Daily Precipitation"; and "Mortality" with sub-sections for "Underlying Cause of Death" (including "Detailed Mortality" and "Compressed Mortality"), "Multiple cause of death (Detailed Mortality)", and "Infant Deaths (Linked Birth/Infant Death Records)". There are also links for "Online Tuberculosis Information System" and "Population" (including "Bridged-Race Population (from NCHS)", "Population Projections (from Census)", "Sexually Transmitted Disease Morbidity", and "Vaccine Adverse Event Reporting"). A note at the bottom of the list says "Denotes numerical data available to query or download". To the right of the "WONDER Online Databases" section are "Reports and References" (including "Prevention Guidelines (Archive)" and "Scientific Data and Documentation (Archive)") and "Other Query Systems" (including "Healthy People 2010", "MMWR Morbidity Tables", and "MMWR Mortality Tables"). At the bottom of the page, it says "This page last reviewed: Thursday, March 16, 2017".

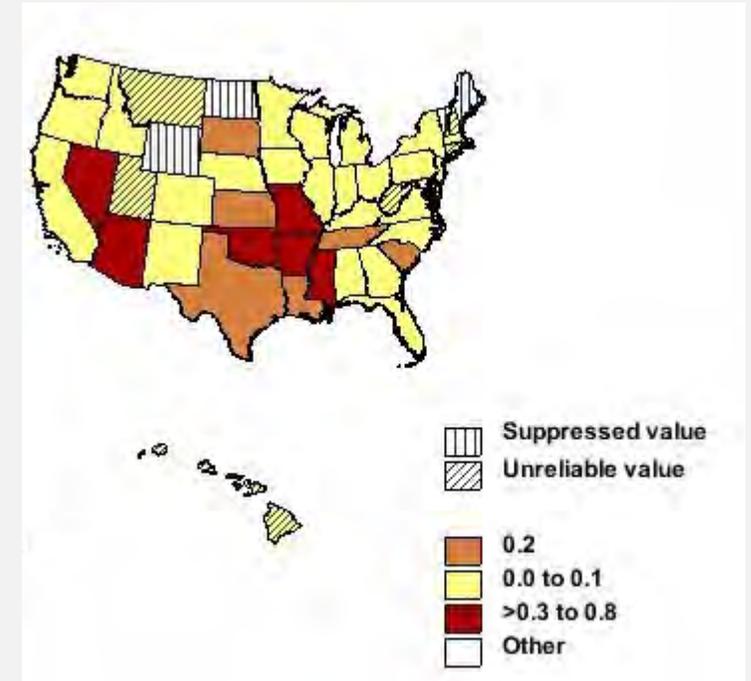
Health Outcome Datasets Available Through CDC WONDER



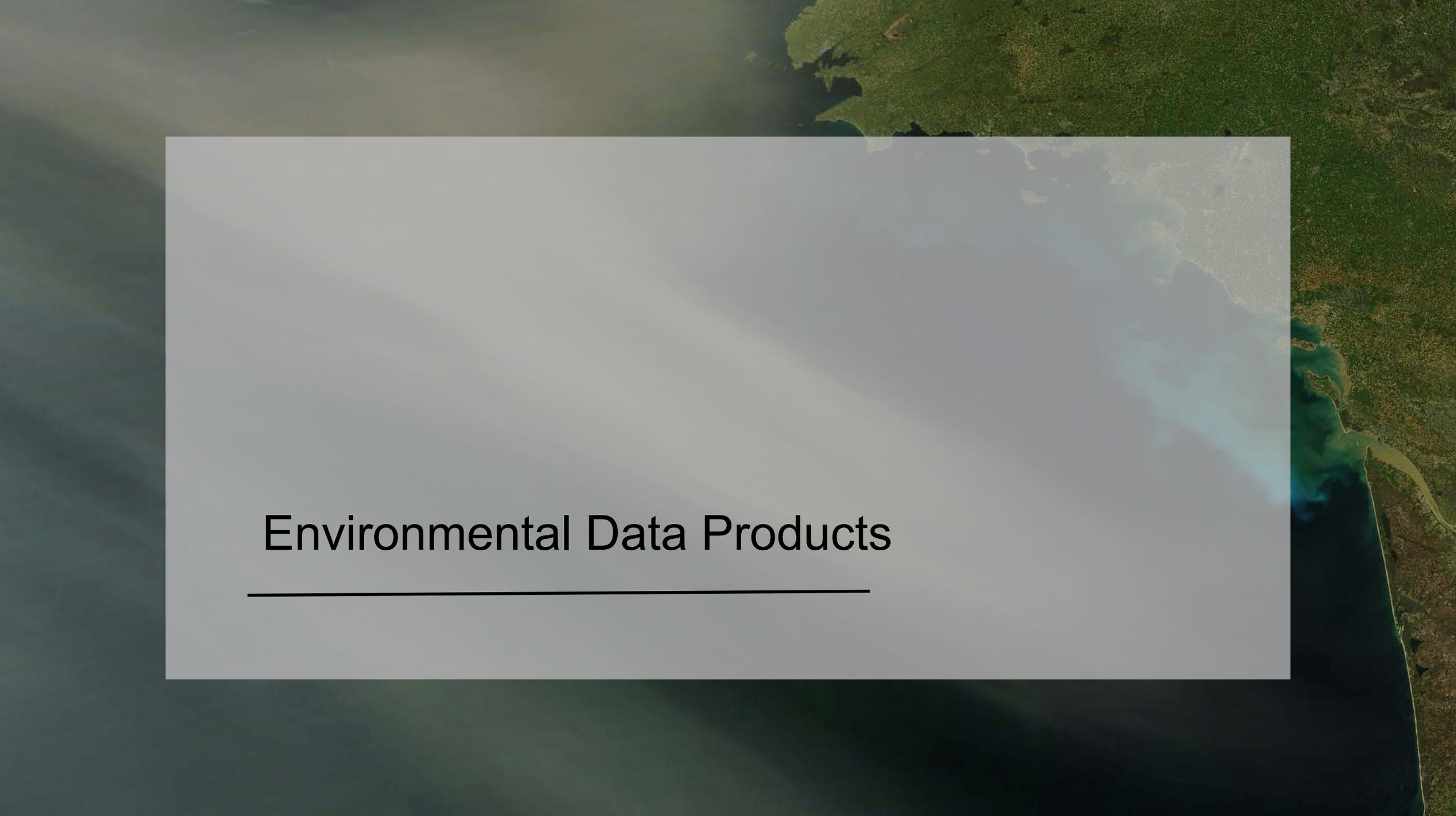
Respiratory Cancers
by State
1999-2013



All Causes Mortality
by County
1999-2015



Heat-Related Mortality
by State
1999-2015

An aerial photograph of a coastline, showing a dark blue sea on the left and a green, vegetated landmass on the right. A semi-transparent white rectangular box is overlaid on the image, covering most of the frame. The text 'Environmental Data Products' is centered within this box.

Environmental Data Products

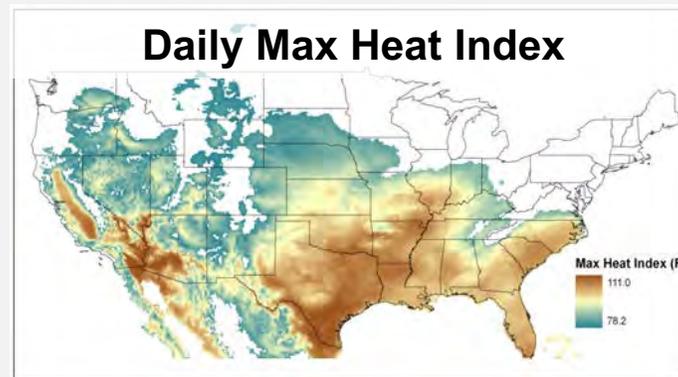
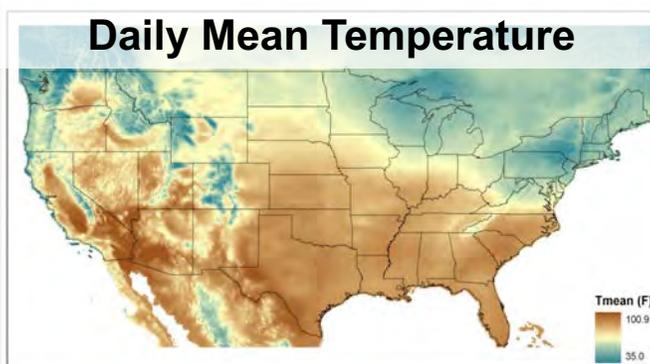
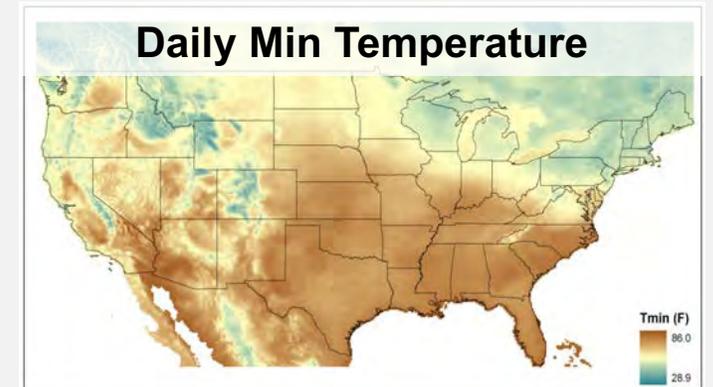
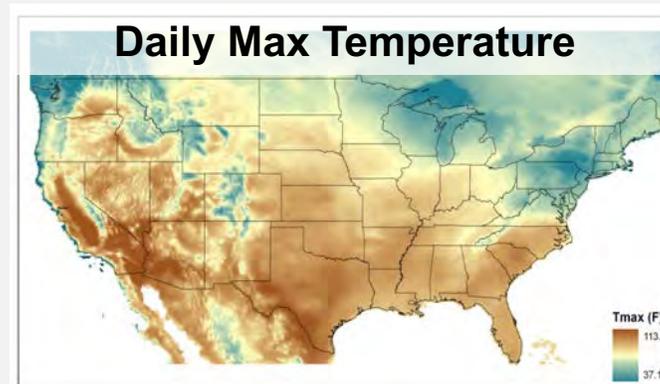
Introduction to NLDAS

- North American Land Data Assimilation System (NLDAS) provides gridded meteorological data for the contiguous United States and parts of Mexico & Canada.
 - Combines three types of data:
 - Ground observations (National Weather Service stations)
 - Numerical weather model output
 - Satellite observations (GOES shortwave radiation) and radar/rain gauge rainfall
 - 1/8th degree latitude/longitude spatial grid (about 12 km)
 - NLDAS data are interpolated spatially and temporally from the North American Regional Reanalysis (NARR), which are at a 32 km spatial resolution and 3-hourly temporal frequency.
 - In creating NLDAS from NARR, air temperature, specific humidity and surface air pressure are adjusted to account for terrain height.
 - Hourly data are available from 1979-present.
- NLDAS data are available from <http://www.emc.ncep.noaa.gov/mmb/nldas/>

NLDAS-Derived Heat Metrics

From hourly NLDAS data, we developed a set of daily heat metrics: daily maximum, minimum, and mean air temperature, daily maximum Heat Index (a measure of the combined effect of heat and humidity), and a newly-defined measure called Net Daily Heat Stress (NDHS).

Examples of meteorological products derived from NLDAS
July 1, 1986



Downscaling ('Disaggregating') Air Temperatures

- Rationale:
 - The NLDAS meteorological re-analysis provides hourly air temperature and other variables on a ~12 km CONUS grid. The resolution is in fact coarser since NLDAS is derived via spatial interpolation from the 32 km NARR. At this resolution, small-scale features such as the Urban Heat Island and near-coastal temperature gradients are not captured.
 - 1 km MODIS Land Surface Temperature (LST) data can be used to down-scale NLDAS daily maximum and minimum air temperatures.
 - Our approach is to use long-term means of MODIS Aqua LST (1:30 PM/AM local time) to capture the fine-scale (1 km) spatial pattern of daily maximum/minimum air temperature, and impose this pattern on 12 km NLDAS daily maximum/minimum air temperatures.

Downscaling Assumptions

- Except in cases of the passage of a warm or cold front, air temperature is driven primarily by the temperature of the surface, thus the spatial patterns of air temperature mimic the patterns of LST in a relative sense (although the magnitude of air temperature spatial variability is much lower than that of LST).
- Spatial patterns of air temperature at the sub-NLDAS scale (< 12 km) are nearly constant from day to day within the respective season, as these patterns are driven mostly by land use.
- Daily maximum (minimum) air temperatures occur during the early-mid afternoon (early morning), aligning well with the PM (AM) Aqua overpass.

These assumptions are met much more frequently during the warm season.

Downscaling Algorithm

1. Calculate standardized LST departures, Z_{HR} , from recent MODIS 8-day composite LST grids, in which the spatial means and standard deviations are calculated within a local neighborhood or 'moving window', the size of which can be varied. The standardized departures are calculated according to:

$$Z_{HR} = (T_{HR} - T_{HR,mean})/\sigma_{HR}$$

where T_{HR} = high-resolution (MODIS) LST, and $T_{HR,mean}$ and σ_{HR} are the mean and standard deviation, respectively, of high-resolution (MODIS) LST over the neighborhood.

- Z_{HR} is calculated separately for daytime maximum and nighttime minimum temperatures.

Downscaling Algorithm

2. Compute the down-scaled daily maximum (or minimum) air temperatures for each day, T_{DIS} , based on the standardized MODIS daytime (or nighttime) LST departures:

$$T_{DIS} = T_{LR} + Z_{HR} \cdot \sigma_{LR} = T_{LR} + (T_{HR} - T_{HR,mean}) \cdot (\sigma_{LR} / \sigma_{HR})$$

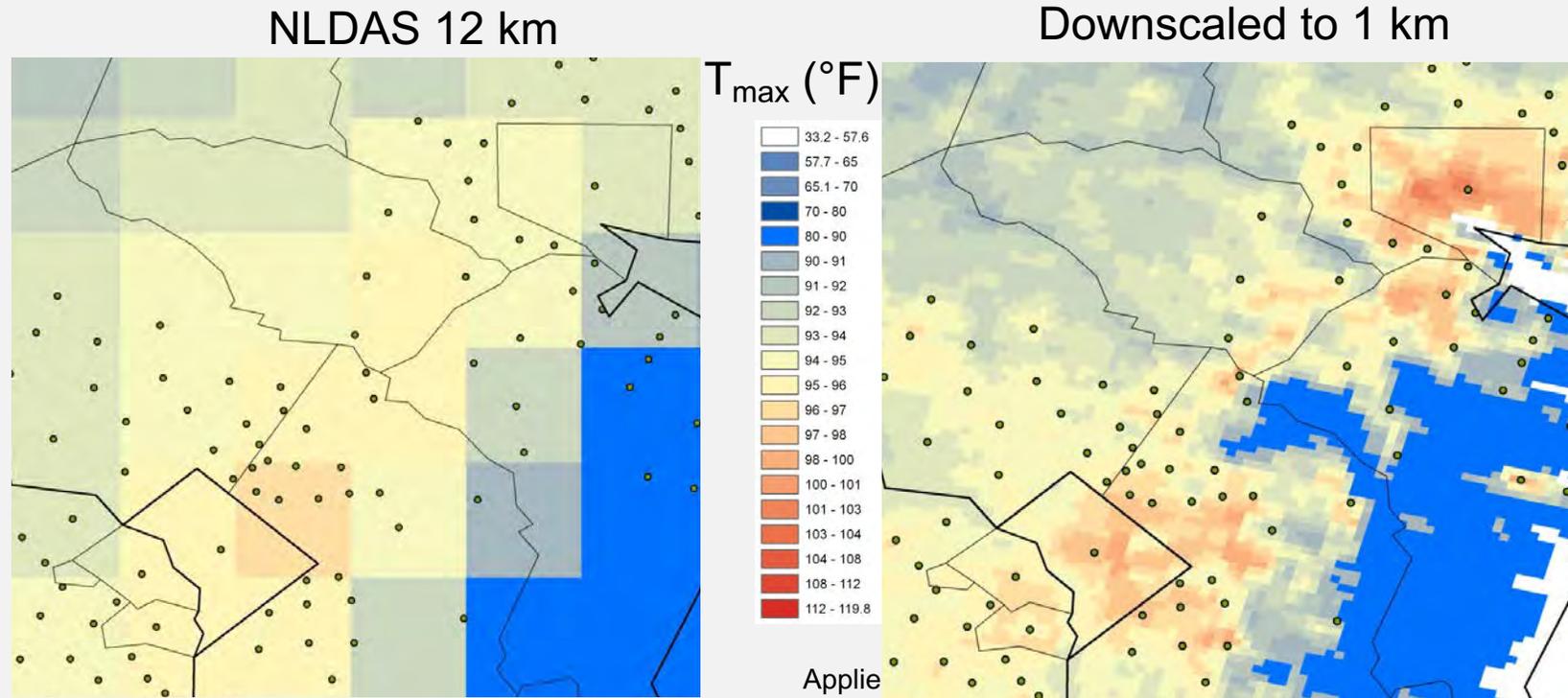
where T_{LR} and σ_{LR} are the mean and standard deviation, respectively, of low-resolution (NLDAS) daily air temperatures over the neighborhood.

Downscaled Air Temperature

Results from application of the downscaling algorithm are illustrated below, which shows NLDAS daily maximum air temperatures, downscaled to a 1 km grid using MODIS LST data, for the Washington-Baltimore metropolitan area. Urban areas, which are not apparent warm anomalies in the NLDAS temperature image, are evident in the downscaled temperature image.

Daily Maximum Air Temperature from NLDAS, and downscaled to 1 km using MODIS LST for the Washington-Baltimore Metropolitan Area

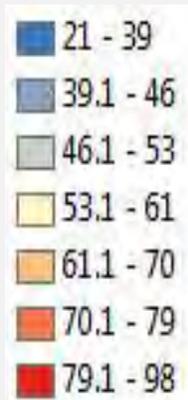
Green circles indicate urban centers



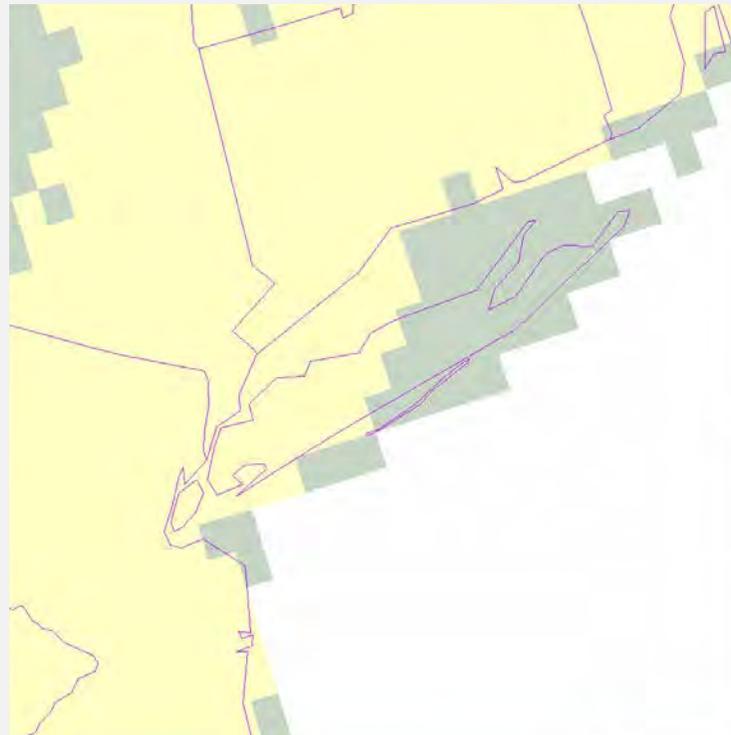
Downscaled Air Temperature

Daily Maximum Air Temperature from NLDAS, and downscaled to 1 km using MODIS LST for the New York City Metropolitan Area for May 2, 2005

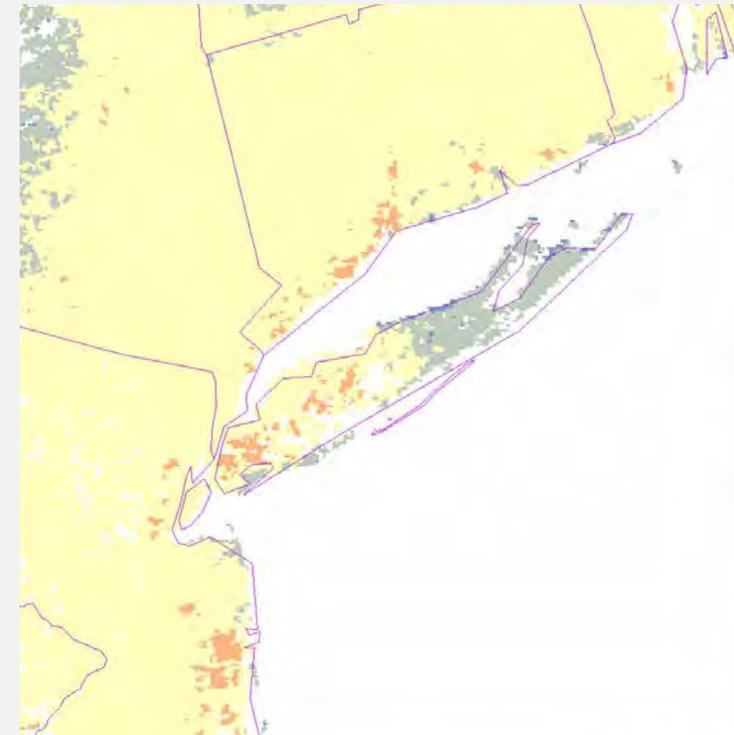
T_{\max} (°F)
May 2, 2005



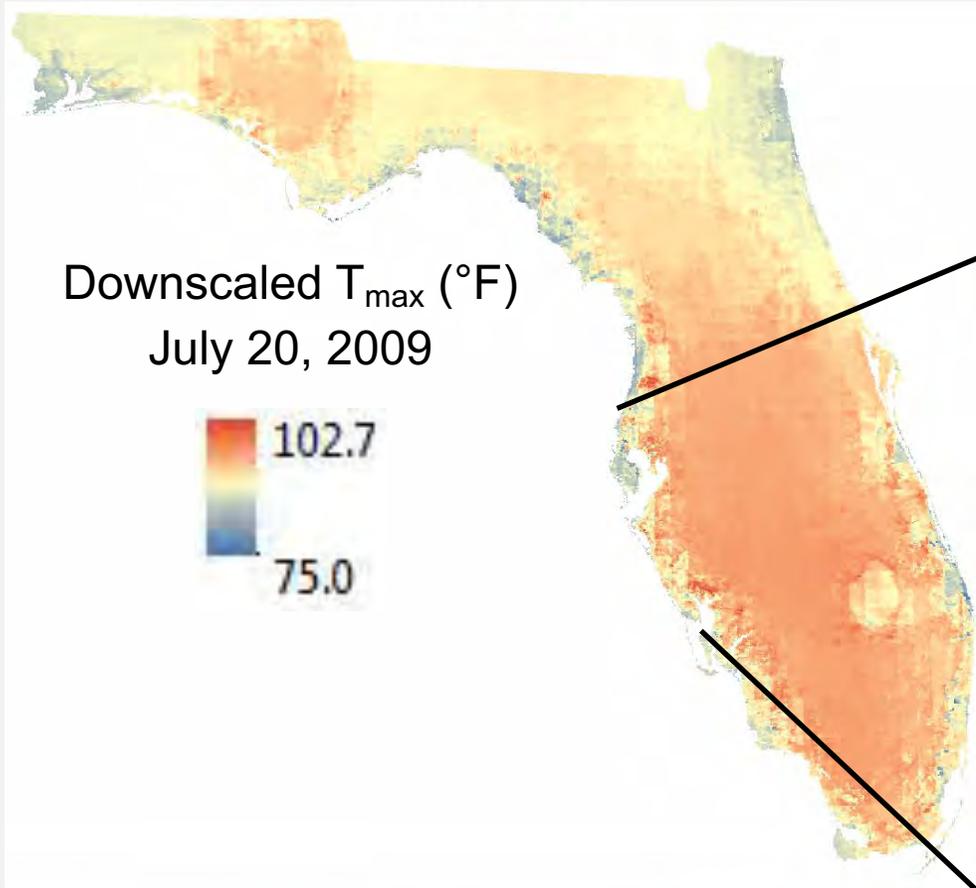
NLDAS 12 km



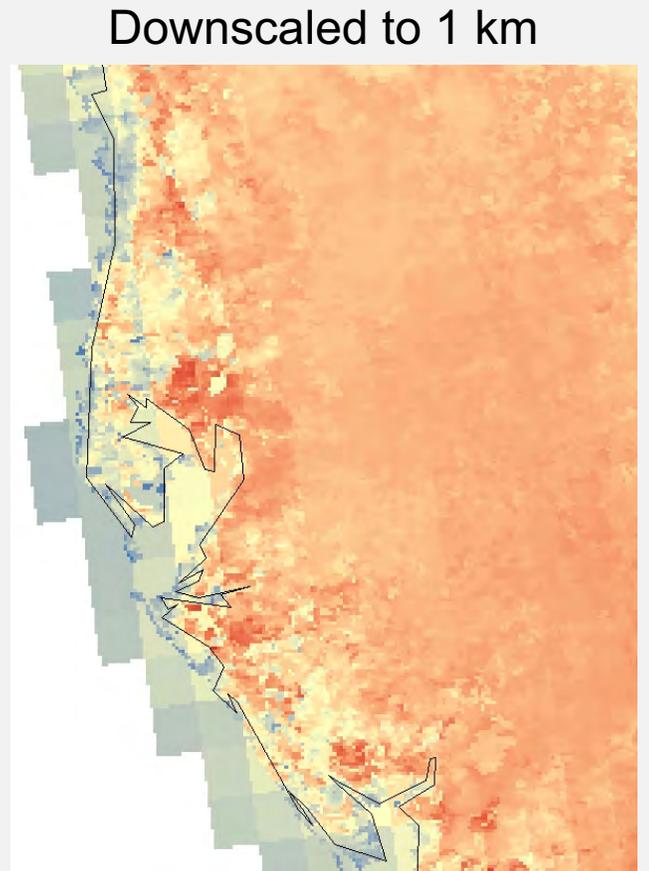
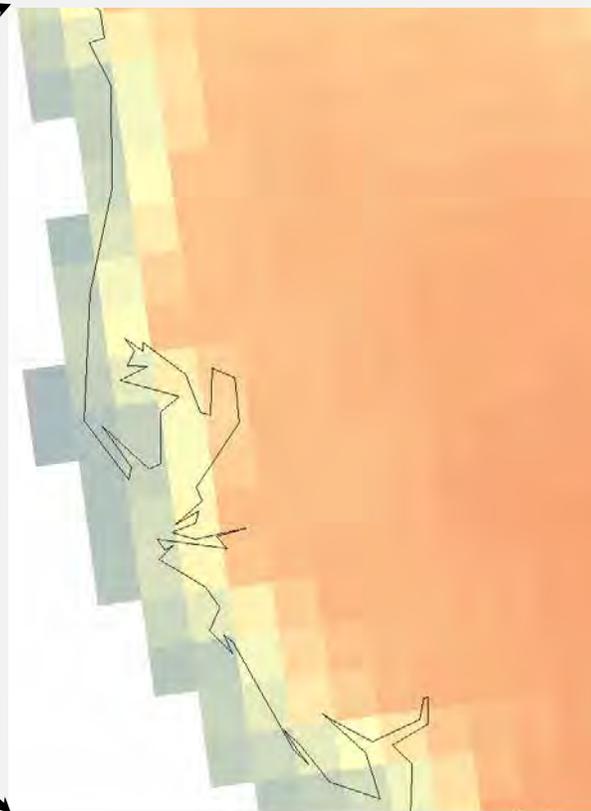
Downscaled to 1 km



Florida Results

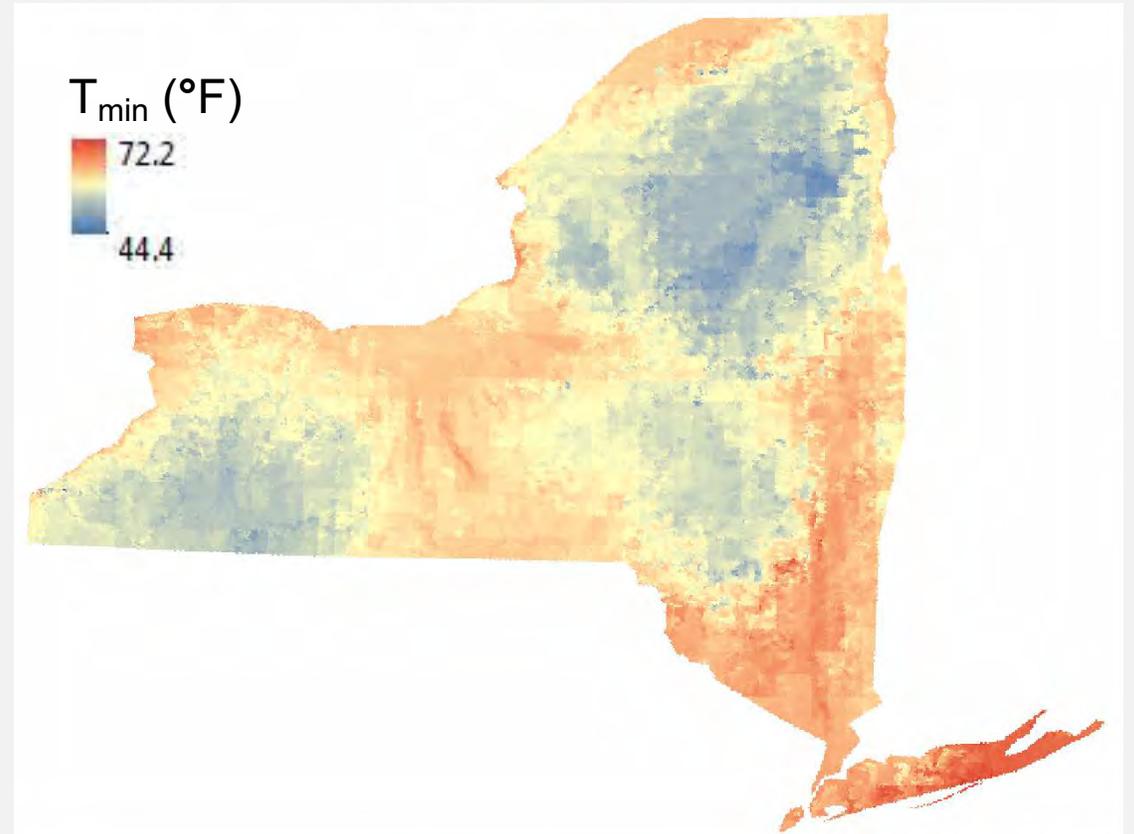
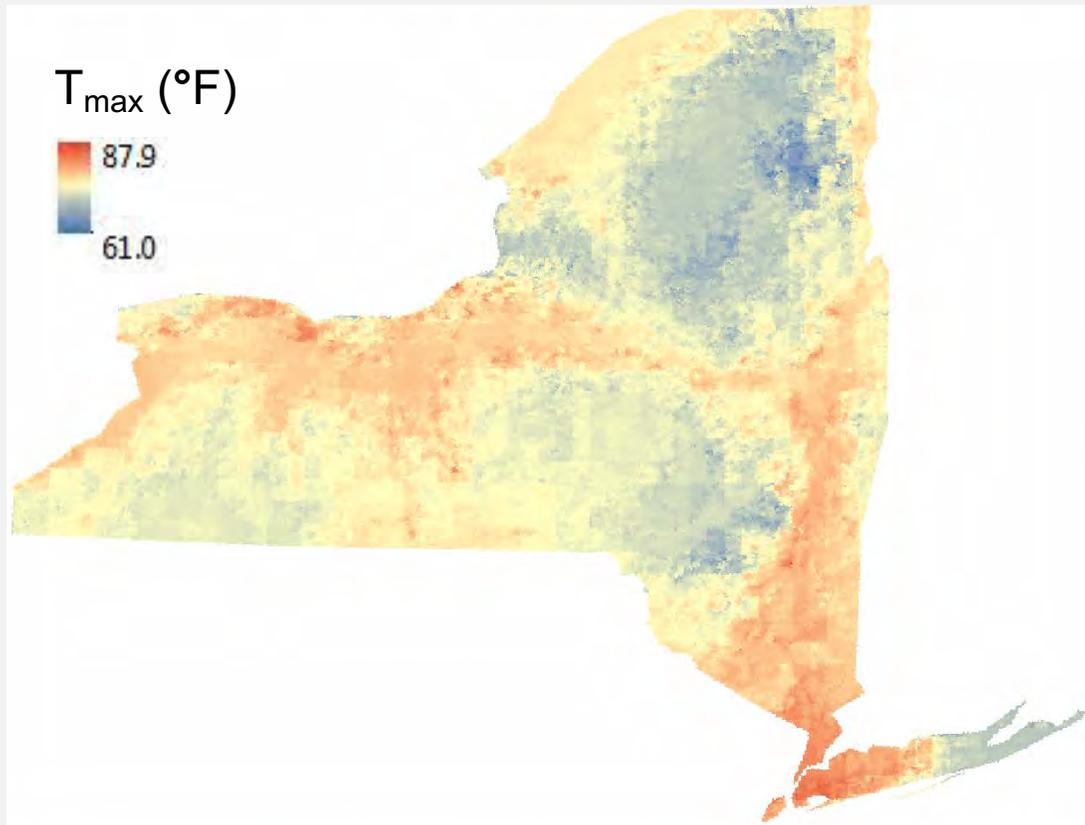


Tampa Bay Area
 T_{\max} - July 12, 2009

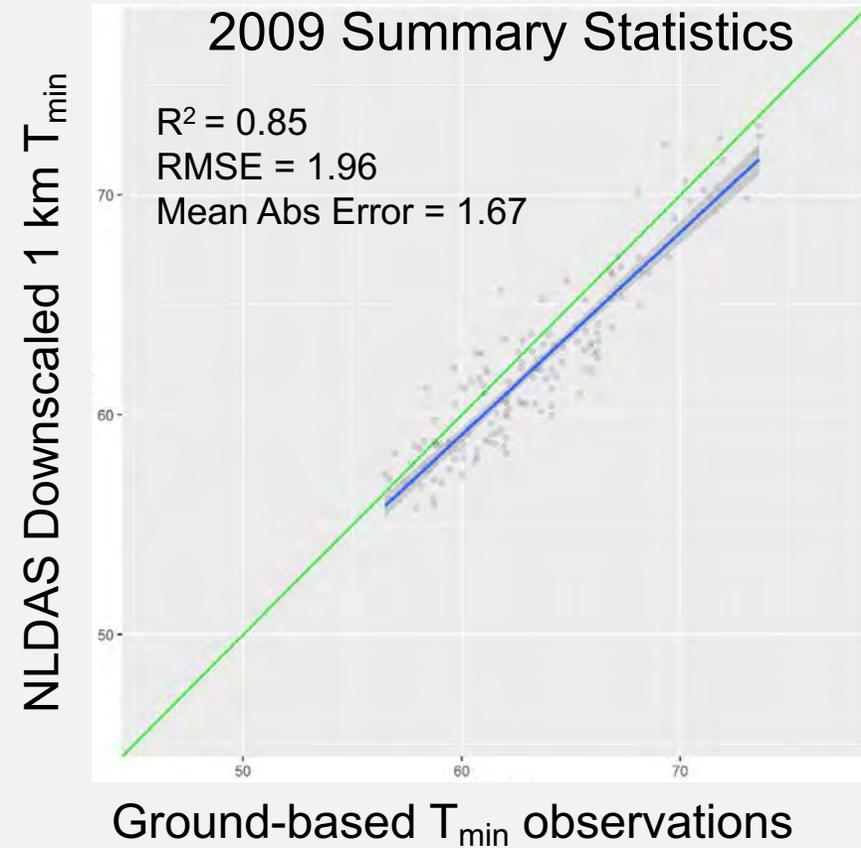
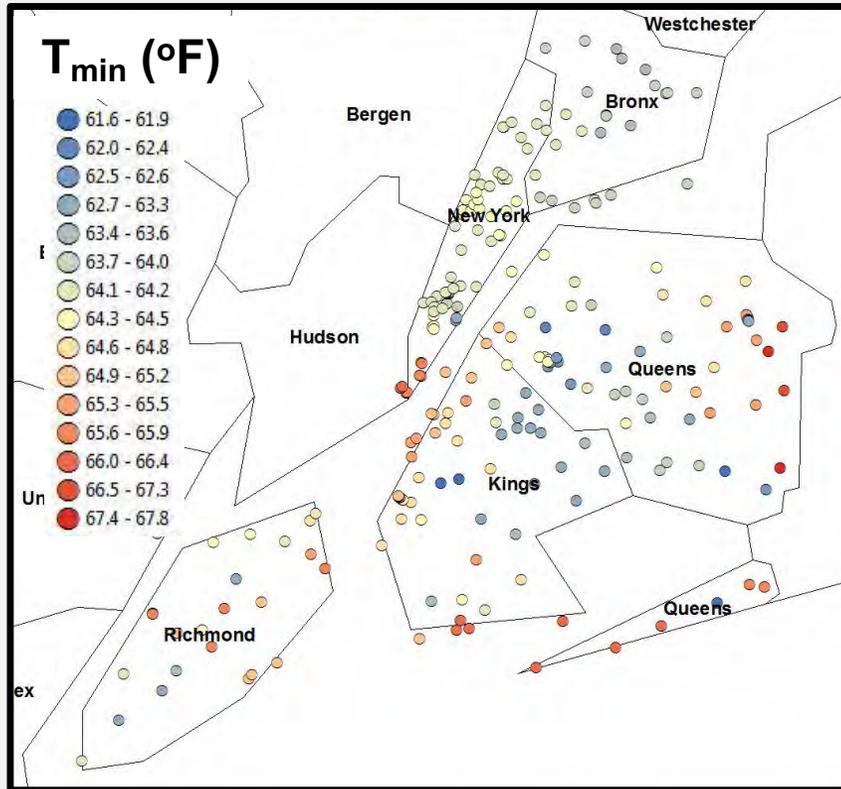


New York State Results

Downscaled T_{\max} , T_{\min}
July 20, 2009



New York City Validation



Downscaled Daily Minimum Temperatures have been linked to the locations of ground-based measurements made through the NYCCAS (New York City Community Air Survey).

There is excellent agreement between the downscaled temperatures and ground-based measurements.

Downloading and Processing NLDAS Data

Downloading Data from Mirador: <http://mirador.gsfc.nasa.gov/>

The screenshot shows the NASA GES DISC Mirador website. At the top, there is a navigation bar with links for "Data Services", "Mission Portals", "Science Portals", and "Info". The main header includes the "GES DISC" logo and the text "Goddard Earth Sciences Data and Information Services Center". A search bar is located in the top right corner. Below the header, there is a prominent yellow banner with an "IMPORTANT MESSAGE Jun 28, 2016" regarding access to GES DISC data via HTTP starting August 1st, 2016. The main content area features a search interface with fields for "Keyword", "Time Span", "To:", and "Location", along with an "Update Map" button and a "Search GES-DISC" button. A world map is displayed below the search fields, showing continents and oceans. The footer contains sections for "What's New", "Available" data products (listing various sensors and datasets), and "Acknowledgements".

Select Dataset, Period, Location

The screenshot displays the GES DISC (Goddard Earth Sciences Data and Information Services Center) website. At the top, there is a navigation bar with links for 'EARTHDATA', 'Data Discovery', 'DAACs', 'Community', and 'Science Disciplines'. The NASA logo and 'National Aeronautics and Space Administration' are also present. A search bar labeled 'Google Custom Search' is located in the top right corner.

Below the navigation bar, there are tabs for 'Data Services', 'Mission Portals', 'Science Portals', and 'Info'. The 'Mirador' logo with the tagline 'Data Access Made Simple' is visible. On the left side, there is a sidebar menu with options: '+ OVERVIEW', '+ HELP CENTER', '+ DATA HOLDINGS', '+ VIEW CART', and 'Additional Features' (including News, Restricted Data, Feedback, and FAQ).

The main content area features a prominent yellow warning box with a triangle icon, stating: 'IMPORTANT MESSAGE Jun 28, 2016 Access to GES DISC data will require all users to be registered with the Earthdata Login system. Starting August 1st, 2016, access to GES DISC data will require all users to be registered with the Earthdata Login system. Data will continue to be free of charge and accessible via HTTP. Access to data via FTP will no longer be available after October 3rd, 2016. Detailed instructions on how to register and receive authorization to access GES DISC data are provided [here](#). GES DISC Users who deploy scripting methods to list and download data in bulk via anonymous FTP are advised to review the [How to Download Data Files from HTTP Service with wget](#) recipe that provides examples of GNU wget commands for listing and downloading data via HTTP. You are here: [Keyword Search](#)'.

Below the warning box, there are search filters: 'Keyword: NLDAS Primary Forcing Data', 'Time Span: 1980-08-15', and 'To: 1980-08-20'. A 'Location: 32.77 -80.07, 145.83 -68.91' field is also present with an 'Update Map' button. A 'Search GES-DISC' button is located to the right of the location field. Below these filters is a map of North America with a black box highlighting the search area. The map includes state and province names and a 'Map' dropdown menu. At the bottom of the map area, there is an 'Advanced Search' dropdown menu.

At the bottom of the page, there is a 'What's New' section with two bullet points: 'Events may be captured in the keyword search field' and 'Several level 3 datasets have newly added sub-setting services'. Below this is an 'Available:' section listing various datasets: 'AIRS, ACOS, Subsets from A-Train Sensors (e.g. MODIS, AIRS, OMI and MIS), GLDAS, GOCART, GPM, HIROLDS, LIMS, LPRM, MEdSURES, MERRA, MERRA-2, MSU, MIS, NEESPI, NEWS, NLDAS, QO2-0, OMI, SORCE, TOTE, TOMS, TRMM, SBUV, SSBV, TOVS, UARS'. An 'Acknowledgements:' section follows, mentioning 'Location Gazetteer data from: National Geospatial Information Agency'.

Selecting Exact Dataset of Interest

The screenshot displays the Mirador 1.65 web interface. At the top, navigation links include Data Services, Mission Portals, Science Portals, and Info. The main header features the Mirador logo and the tagline "Data Access Made Simple". A breadcrumb trail indicates the current location: KeywordSearch » Data sets from NLDAS Primary Forcing Data search » File Listing » Service Selection » Your Cart » Checkout.

On the left side, there is a search bar with the keyword "NLDAS Primary Forcing Data" and a "More Search Options" dropdown. Below the search bar are links for OVERVIEW, HELP CENTER, and DATA HOLDINGS. An "Additional Features" section includes links for News, Restricted Data, Feedback, and FAQ.

The main content area shows search results for "NLDAS Primary Forcing Data (1 seconds)". A note states: "Results 1 - 5 of 5 for NLDAS Primary Forcing Data (1 seconds)". A message informs users that more services (e.g., http download, format conversion, subsets etc) are available for the data sets. Below this, five data sets are listed, each with a checkbox, a link to view files/info/calendar, and details on file count, average size, parameters, spatial resolution, and temporal resolution:

- NLDAS Primary Forcing Data L4 Monthly 0.125 x 0.125 degree V002 (NLDAS_FORA0125_M) - Approx. 1 files found (Avg Size: 1.68 MB) - Parameters: SURFACE PRESSURE, SURFACE TEMPERATURE, EVAPORATION, HUMIDITY, SURFACE WINDS, RAIN, SHORTWAVE RADIATION... - Spatial Resolution: 0.125 degree x 0.125 degree - Temporal Resolution: 1 month
- NLDAS Primary Forcing Data L4 Monthly Climatology 0.125 x 0.125 degree V002 (NLDAS_FORA0125_MC) - Approx. 1 files found (Avg Size: 1.67 MB) - Parameters: SURFACE PRESSURE, LONGWAVE RADIATION, SHORTWAVE RADIATION, SURFACE TEMPERATURE, EVAPORATION, HUMIDITY, LAND SURFACE TEMPERATURE... - Spatial Resolution: 0.125 degree x 0.125 degree - Temporal Resolution: 1 month
- NLDAS Secondary Forcing Data L4 Monthly Climatology 0.125 x 0.125 degree V002 (NLDAS_FORB0125_MC) - Approx. 1 files found (Avg Size: 1.43 MB) - Parameters: GEOPOTENTIAL HEIGHT, SURFACE PRESSURE, SHORTWAVE RADIATION, SURFACE TEMPERATURE, HUMIDITY, CONVECTION, LAND SURFACE TEMPERATURE... - Spatial Resolution: 0.125 degree x 0.125 degree - Temporal Resolution: 1 month
- NLDAS Primary Forcing Data L4 Hourly 0.125 x 0.125 degree V002 (NLDAS_FORA0125_H) - Approx. 30 files found (Avg Size: 1.62 MB) - Parameters: SURFACE PRESSURE, LONGWAVE RADIATION, SHORTWAVE RADIATION, AIR TEMPERATURE, EVAPORATION, HUMIDITY, RAIN... - Spatial Resolution: 0.125 degree x 0.125 degree - Temporal Resolution: 1 hour
- NCA-LDAS Noah-3.3 Land Surface Model L4 Daily 0.125 x 0.125 degree V001 (NCALDAS_NOAH0125_D) - Approx. 7 files found (Avg Size: 12.41 MB) - Parameters: HEAT FLUX, LONGWAVE RADIATION, SHORTWAVE RADIATION, EVAPORATION, EVAPOTRANSPIRATION, RAIN, RUNOFF... - Spatial Resolution: 0.125 degree x 0.125 degree - Temporal Resolution: 1 day

At the bottom of the results list, a note states: "In order to show you only the results which match ALL of your search criteria, we have omitted collections that match your keyword but not your time and space constraints. If you like, you can repeat the search with these omitted collections included." Below this note are buttons for "Select All", "Reset", "List Selected Files By Time", "See Timeline View", and "Add Selected Files To Cart".

The footer of the page includes the NASA logo, "NASA Privacy Policy and Important Notices", and contact information: "+ Contact Us: GES DISC Help Desk" and "+ NASA Official: Long Pham".

Add to Cart

You are here: [Keyword Search](#) » [Data sets from NLDAS_FOR0125_H search](#) » [File Listing of NLDAS Primary Forcing Data](#) » Service Selection » Your Cart » Checkout

Results 1 - 15 for NLDAS Primary Forcing Data (1 second)

NLDAS Primary Forcing Data L4 Hourly 0.125 x 0.125 degree V002 [Info](#)

The following services are available for the data sets(s). Whenever you add files to the shopping cart, you will be presented with options for selecting any of these services if they are cart-enabled.

[Subset Spatially and/or by Parameter](#) [Convert to NetCDF](#)

[Add Selected Files To Cart](#) [Add All Files in All Pages To Cart](#)

<input checked="" type="checkbox"/> Select All in Page	<input type="checkbox"/> File Names/Descriptive File Names	Start Time
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.2300.002.qrb (1.64 MB) One Click Download: NetCDF	1980-08-20 23:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.2200.002.qrb (1.64 MB) One Click Download: NetCDF	1980-08-20 22:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.2100.002.qrb (1.66 MB) One Click Download: NetCDF	1980-08-20 21:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.2000.002.qrb (1.65 MB) One Click Download: NetCDF	1980-08-20 20:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1900.002.qrb (1.65 MB) One Click Download: NetCDF	1980-08-20 19:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1800.002.qrb (1.65 MB) One Click Download: NetCDF	1980-08-20 18:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1700.002.qrb (1.65 MB) One Click Download: NetCDF	1980-08-20 17:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1600.002.qrb (1.65 MB) One Click Download: NetCDF	1980-08-20 16:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1500.002.qrb (1.64 MB) One Click Download: NetCDF	1980-08-20 15:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1400.002.qrb (1.63 MB) One Click Download: NetCDF	1980-08-20 14:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1300.002.qrb (1.63 MB) One Click Download: NetCDF	1980-08-20 13:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1200.002.qrb (1.64 MB) One Click Download: NetCDF	1980-08-20 12:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1100.002.qrb (1.63 MB) One Click Download: NetCDF	1980-08-20 11:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.1000.002.qrb (1.63 MB) One Click Download: NetCDF	1980-08-20 10:00:00 Metadata
<input checked="" type="checkbox"/>	NLDAS_FOR0125_H.A19800820.0900.002.qrb (1.48 MB) One Click Download: NetCDF	1980-08-20 09:00:00 Metadata

[Add Selected Files To Cart](#) [Add All Files in All Pages To Cart](#)

NASA Search Results
Page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#)

Edit/Subset for Parameters of Interest and Format

GES DISC
Goddard Earth Sciences Data and Information Services Center

NASA National Aeronautics and Space Administration

Google Custom Search

Data Services Mission Portals Science Portals Info

Mirador 1.65
Data Access Made Simple

You are here: [Keyword Search](#) » [Data sets from NLDAS_FOR0125_H search](#) » [File Listing of NLDAS Primary Forcing Data](#) » [Service Selection](#) » Your Cart » Checkout

Service Selection Total Number of Files being added to the Cart is **144**

Instructions for Service Selection

- Data set files added to the cart have their corresponding services, and only one service can be selected per data set.
- To enable a service, select the radio button for any of the available services.
- Selecting a service that has subsetting will take you to a Service Options page and then back to this page.
- To change options for a service you have already selected, click on the "Edit" button.
- After choosing your services, click "Continue to Cart" to proceed, or click "Cancel" to return to your search results.

Data Set(s) Being Added to Shopping Cart

NLDAS Primary Forcing Data L4 Hourly 0.125 x 0.125 degree V002 (NLDAS_FORA0125_H.002)
Select Service Option: <input type="radio"/> None <input type="radio"/> Convert to NetCDF <input checked="" type="radio"/> Subset Spatially and/or by Parameters <input type="button" value="Edit"/>
Spatial Subsetting has been pre-selected because you chose the bounding box: (39.91,-80.33),(45.77,-70.49)

+ Contact Us: GES DISC Help Desk
+ NASA Official: Long Pham

NASA Privacy Policy and Important Notices

Edit/Subset for Parameters of Interest and Format

The screenshot displays the NASA GES DISC Mirador 1.65 web interface. The top navigation bar includes 'Data Services', 'Mission Portals', 'Science Portals', and 'Info'. The main content area is titled 'Service Options' and contains a descriptive paragraph: 'This GRIB subsetting service allows you to specify spatial constraints and do variable subsetting. Completion of the form will prepare the URLs in your cart to subset your files when you download them.'

The form includes the following fields and options:

- Buttons: 'Submit Selected Criteria' (top), 'Submit Selected Criteria' (bottom)
- Coordinates: West: -50.07, North: 45.83, East: 68.91, South: 30.77
- Dataset: NLDAS_FORA0125_H.002, Hourly 0.125 degree
- Buttons: 'Variable Names', 'Select All', 'Reset'
- Variable Selection List:
 - Surface pressure
 - 2-m above ground Temperature
 - 10-m above ground Zonal wind speed
 - 10-m above ground Meridional wind speed
 - 2-m above ground Specific humidity
 - Precipitation hourly total
 - Fraction of total precipitation that is convective
 - 180-0 mb above ground Convective Available Potential Energy
 - SW radiation flux downwards
 - LW radiation flux downwards
 - Potential evaporation
- Format: Radio buttons for 'Grib' (selected) and 'NetCDF'

Footer information includes the NASA logo, 'NASA Privacy Policy and Important Notices', and contact details: '+ Contact Us: GES DISC Help Desk' and '+ NASA Official: Long Pham'.

Checkout

The screenshot shows the checkout page of the GES DISC website. The page header includes the GES DISC logo, the text "Goddard Earth Sciences Data and Information Services Center", the NASA logo, and "National Aeronautics and Space Administration". A search bar is located in the top right corner.

The main navigation bar contains links for "Data Services", "Mission Portals", "Science Portals", and "Info". Below this is the "Mirador" logo with the tagline "Data Access Made Simple".

The breadcrumb trail reads: "You are here: Keyword Search » Data sets from NLDAS_FOR0125_H search » File Listing of NLDAS Primary Forcing Data » Service Selection » Your Cart » Checkout".

The left sidebar contains a search box with the keyword "NLDAS Primary Forcing Data" and a "Search GES-DISC" button. Below the search box are links for "OVERVIEW", "HELP CENTER", "DATA HOLDINGS", and "VIEW CART (144)". There is also an "Additional Features" section with links for "News", "Restricted Data", "Feedback", and "FAQ".

The main content area is titled "Shopping Cart - By Data Set Name". It shows "Your cart contains 144 items (0.00 - 231.31 MB)". There is a "Sort by: Data Set" dropdown and a "Continue Searching" button. A prominent green "Checkout" button is visible.

The cart items are listed in a table with columns for "File Name" and "Start Time". Each row includes a "Delete" link. The items are NLDAS FORA0125_H data sets with various time intervals.

File Name	Start Time
NLDAS_FORA0125_H.A19800820.2300.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 23:00:00
NLDAS_FORA0125_H.A19800820.2200.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 22:00:00
NLDAS_FORA0125_H.A19800820.2100.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 21:00:00
NLDAS_FORA0125_H.A19800820.2000.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 20:00:00
NLDAS_FORA0125_H.A19800820.1900.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 19:00:00
NLDAS_FORA0125_H.A19800820.1800.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 18:00:00
NLDAS_FORA0125_H.A19800820.1700.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 17:00:00
NLDAS_FORA0125_H.A19800820.1600.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 16:00:00
NLDAS_FORA0125_H.A19800820.1500.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 15:00:00
NLDAS_FORA0125_H.A19800820.1400.002.2017142215019.pss.qrb (subset size) MB	1980-08-20 14:00:00

At the bottom of the cart, there is a link to "Empty Entire Cart" and a page indicator "Page: 1".

Footer text includes "Contact Us: GES DISC Help Desk" and "NASA Official: Long Pham".

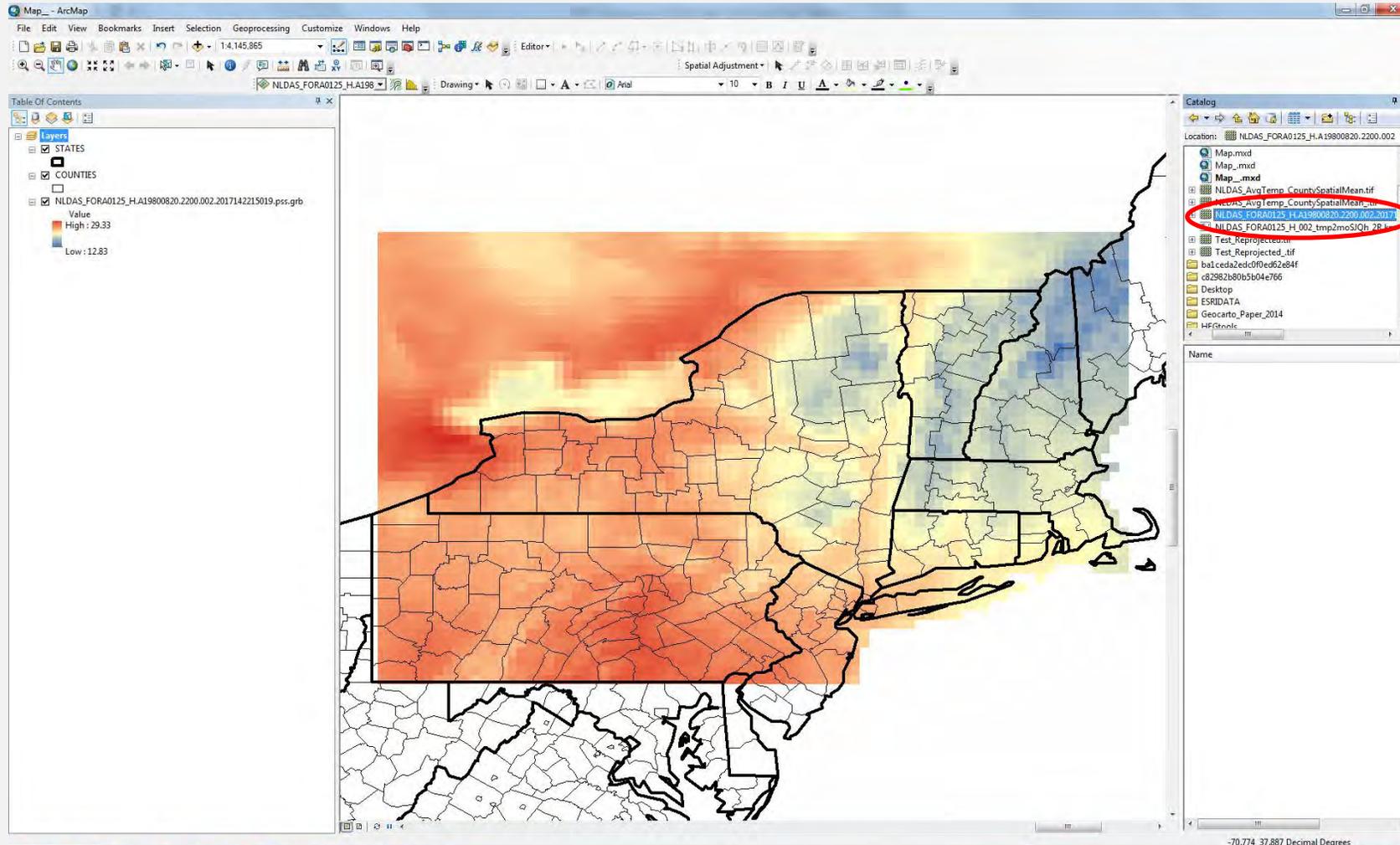
Checkout Options

The screenshot shows the Mirador 1.65 website interface. At the top, there are navigation tabs for Data Services, Mission Portals, Science Portals, and Info. The main header includes the Mirador logo and the tagline "Data Access Made Simple". A breadcrumb trail indicates the user's location: Keyword Search > Data sets from NLDAS_FOR0125_H search > File Listing of NLDAS Primary Forcing Data > Service Selection > Your Cart > Checkout. A yellow message box states, "Your cart is now empty. (But your download options provided below are all still available)".

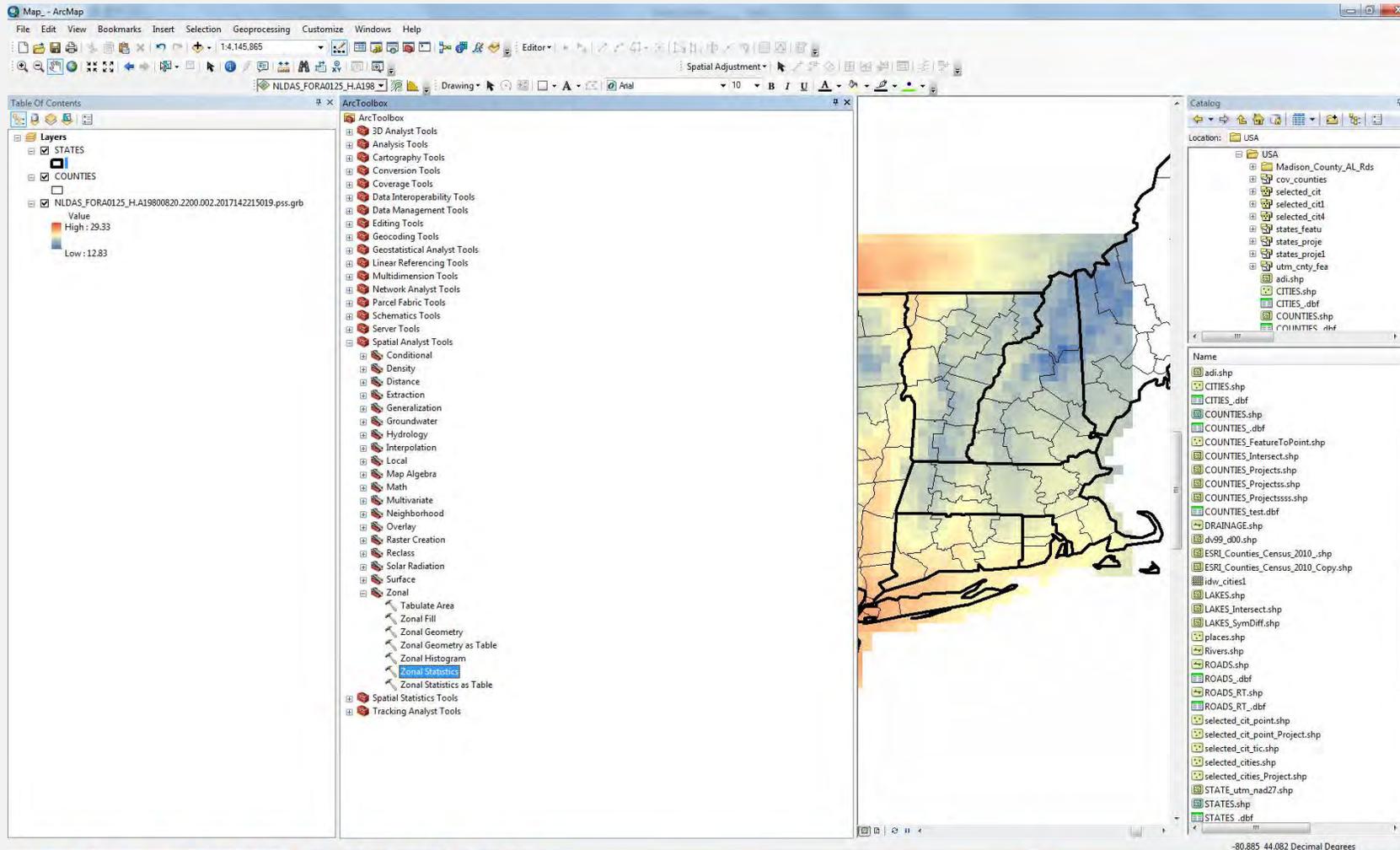
On the left side, there is a search bar with the text "NLDAS Primary Forcing Data" and a "Search GES-DISC" button. Below the search bar are links for "More Search Options" and "Search GES-DISC". A sidebar menu contains links for "OVERVIEW", "HELP CENTER", "DATA HOLDINGS", and "Additional Features" (with sub-links for News, Restricted Data, Feedback, and FAQ).

The main content area is titled "GES DISC Download Manager Option" and includes a "Download" button for a jar file. Below this, there is a section for "Browser-Based Download Manager Option" which lists "FlashGet" and "downTHEMail!" as options. A "URL Listing Page" button is provided. Further down, there are instructions for using "wget" and "curl" for complex download data, including a "UNIX script" and a "Windows script". At the bottom, there are links for "URL List (Data)", "URL List (Metadata)", and "URL List (Data and Metadata)", followed by a list of instructions for using wget.

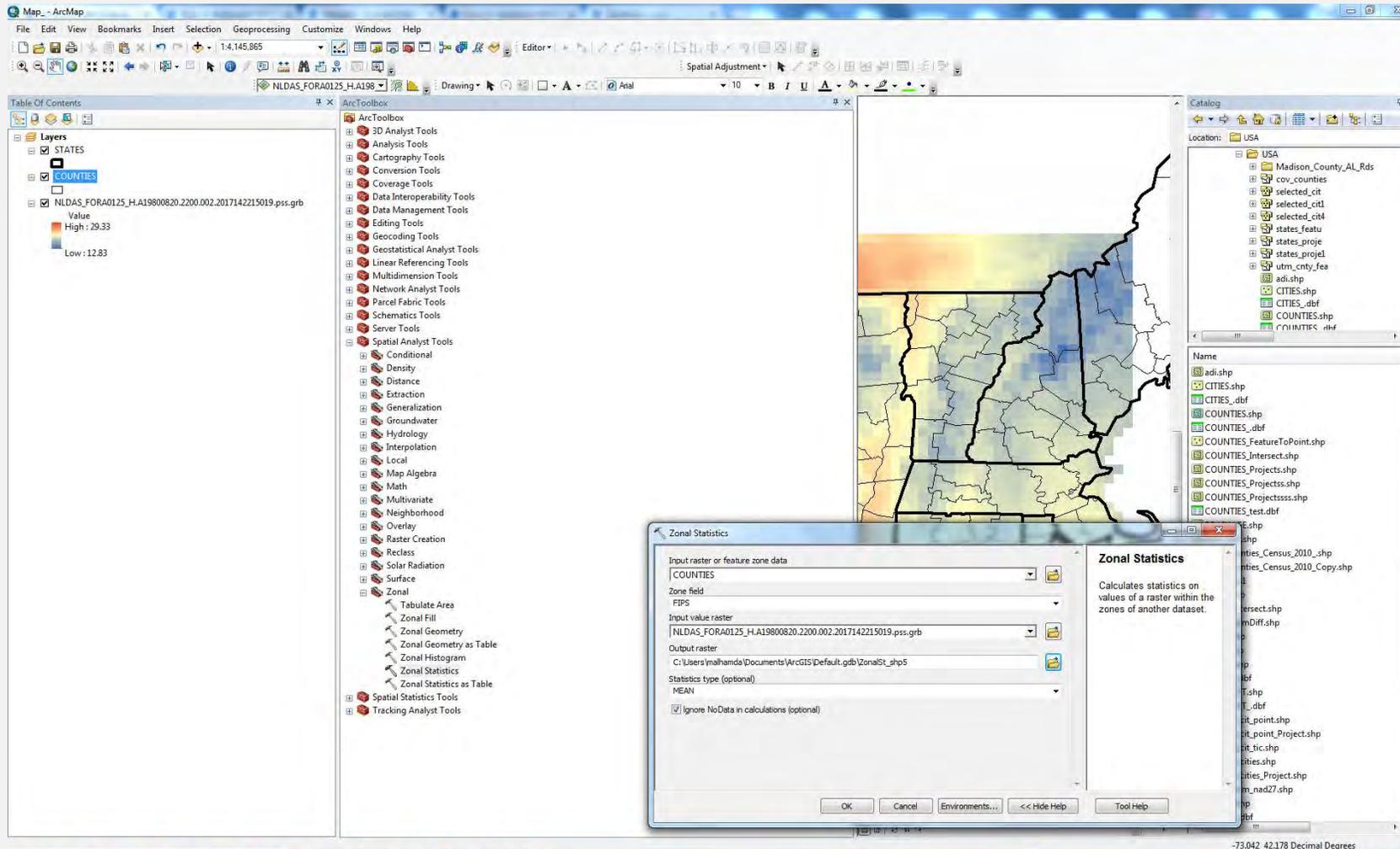
Import into GIS (ArcGIS used below)



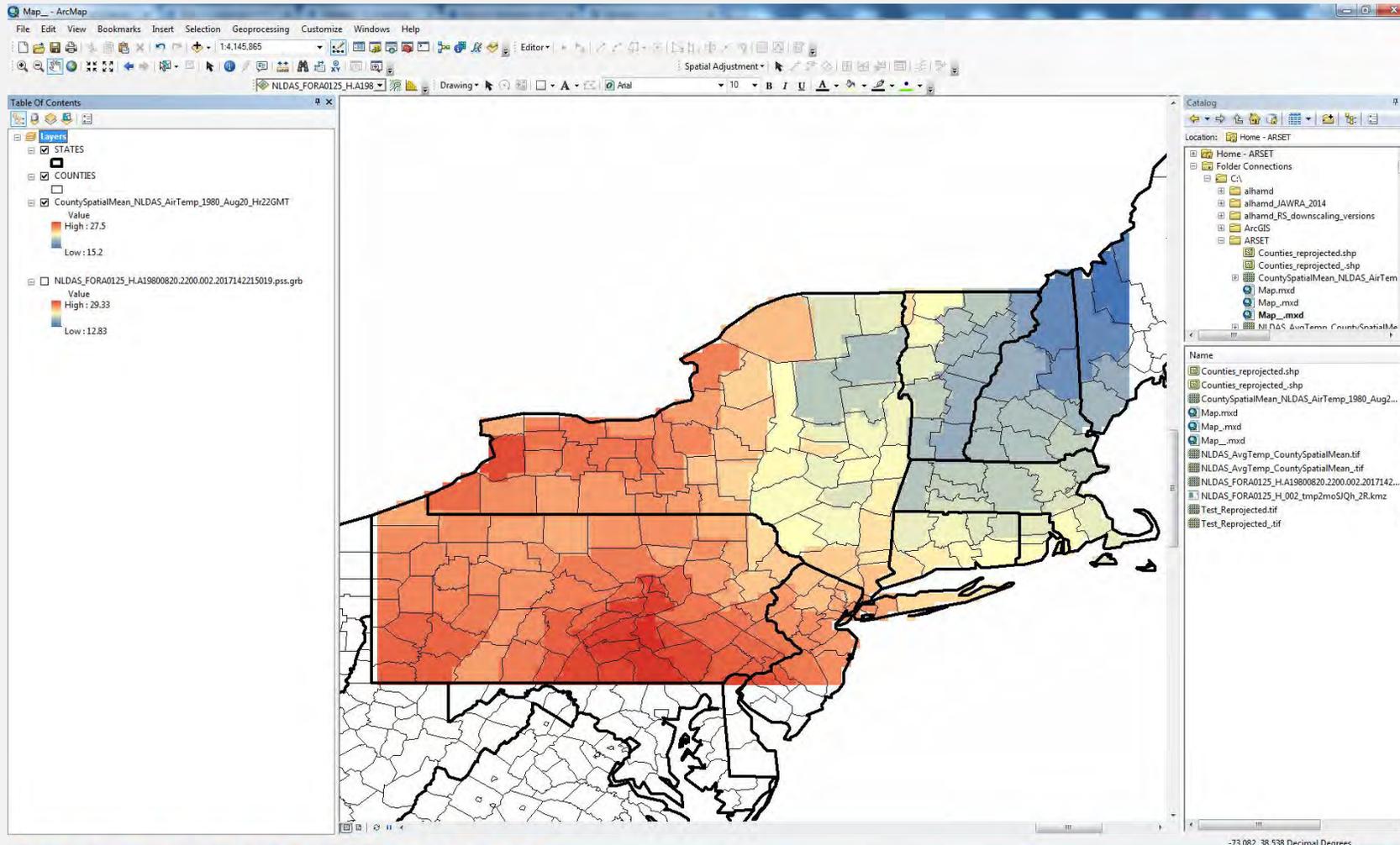
Aggregating Gridded Data to County-Level in ArcGIS



Aggregating Gridded Data to County-Level in ArcGIS

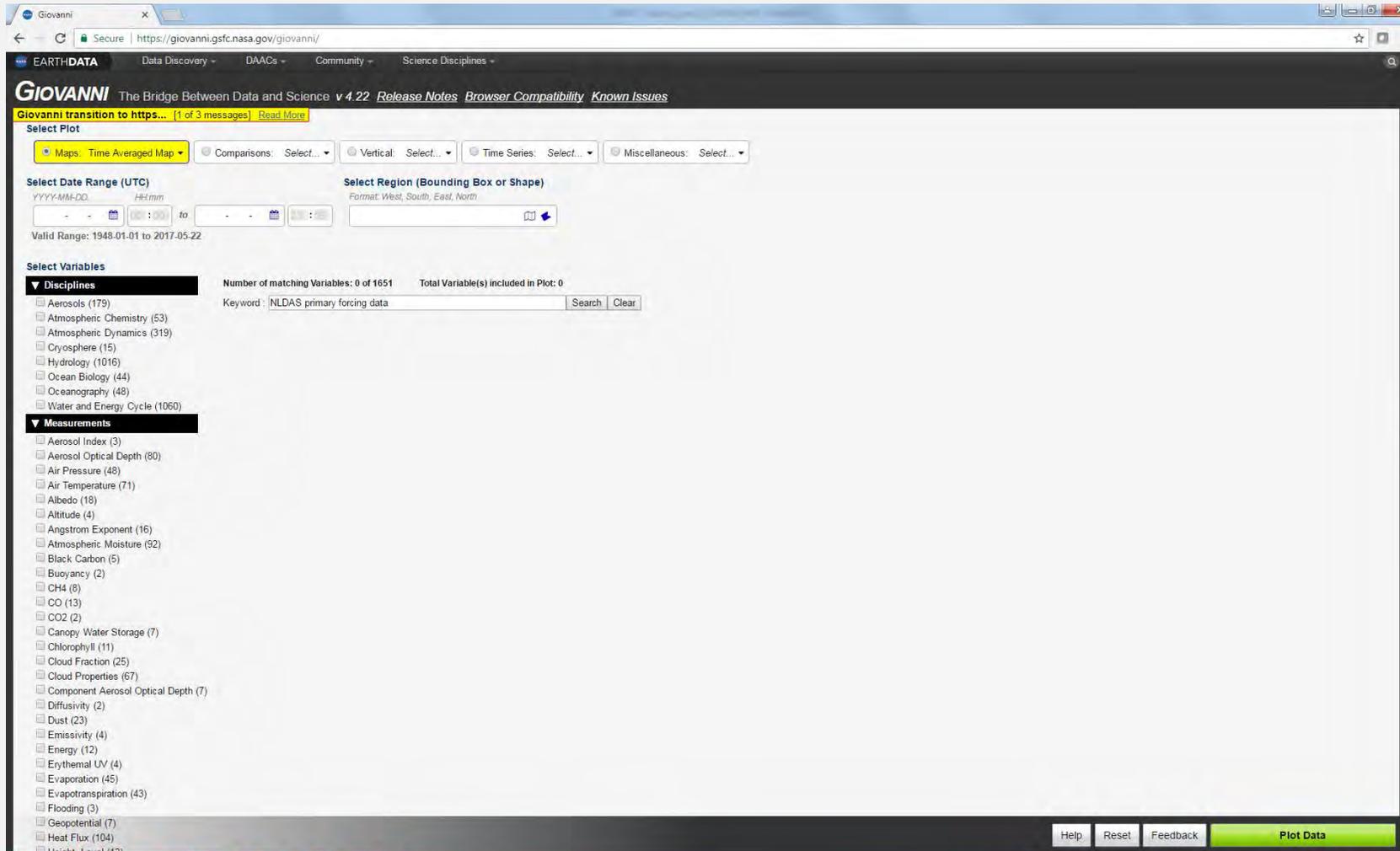


Aggregating Gridded Data to County-Level in ArcGIS (County Mean)



Plotting and Analyzing Gridded Data into Giovanni

<http://giovanni.gsfc.nasa.gov/giovanni/>



Selecting Dataset, Period, and Location

The screenshot shows the GIOVANNI web interface with the following elements:

- Navigation:** EARTHDATA, Data Discovery, DAACs, Community, Science Disciplines.
- Header:** GIOVANNI The Bridge Between Data and Science v 4.22. Links for Release Notes, Browser Compatibility, and Known Issues.
- Alert:** Giovanni transition to https... [1 of 3 messages] Read More
- Select Plot:** Maps: Time Averaged Map, Comparisons, Vertical, Time Series, Miscellaneous.
- Select Date Range (UTC):** YYYY-MM-DD HH:mm to YYYY-MM-DD HH:mm. Valid Range: 1979-01-01 to 2017-05-18.
- Select Region (Bounding Box or Shape):** Format: West, South, East, North.
- Select Variables:**
 - Disciplines: Atmospheric Dynamics (2), Hydrology (14), Water and Energy Cycle (10).
 - Measurements: Air Pressure (1), Air Temperature (1), Atmospheric Moisture (1), Energy (2), Evaporation (1), Incident Radiation (2), Precipitation (4), Radiation, Net (1), Wind (2).
 - Platform / Instrument, Spatial Resolutions, Temporal Resolutions, Portal.
- Search Results:**
 - Number of matching Variables: 14 of 1651. Total Variable(s) included in Plot: 1.
 - Keyword: NLDAS primary forcing data.
 - Table with columns: Variable, Source, Temp. Res., Spat. Res., Begin Date, End Date, Units.
- Footer:** NASA logo, Responsible NASA Official: Long Pham, Web Curator: M. Hagde, Privacy Policy and Important Notices. Powered by: NC, OPeNDAP, ECHO. Contact Us.
- Buttons:** Help, Reset, Feedback, Plot Data.

Variable	Source	Temp. Res.	Spat. Res.	Begin Date	End Date	Units
<input type="checkbox"/> Surface Pressure (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	Pa
<input type="checkbox"/> Potential Evaporation (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	kg/m ²
<input checked="" type="checkbox"/> Air Temperature at 2m (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	K
<input type="checkbox"/> Precipitation Monthly Total (NLDAS_FORA0125_M_v002)	NLDAS Model	Monthly	0.125 °	1979-01-01	2017-03-31	kg/m ²
<input type="checkbox"/> Convective Precipitation Monthly Total (NLDAS_FORA0125_M_v002)	NLDAS Model	Monthly	0.125 °	1979-01-01	2017-03-31	kg/m ²
<input type="checkbox"/> Surface Incident Longwave Radiation Flux (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	W/m ²
<input type="checkbox"/> Specific Humidity at 2m (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	kg/kg
<input type="checkbox"/> Surface Incident Shortwave Radiation Flux (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	W/m ²
<input type="checkbox"/> Precipitation (convective fraction) (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	unitless
<input type="checkbox"/> Wind Speed (10-m above ground Meridional wind) (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	m/s
<input type="checkbox"/> Wind speed (10-m above ground Zonal wind) (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	m/s
<input type="checkbox"/> Precipitation Total (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	kg/m ²
<input type="checkbox"/> Convective Available Potential Energy at 180-0 mb above ground (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	J/kg
<input type="checkbox"/> Convective Available Potential Energy at 180-0 mb above ground (NLDAS_FORA0125_M_v002)	NLDAS Model	Monthly	0.125 °	1979-01-01	2017-03-31	J/kg

Selecting Parameters

EARTHDATA Data Discovery - DAACs - Community - Science Disciplines

GIOVANNI The Bridge Between Data and Science v 4.22 [Release Notes](#) [Browser Compatibility](#) [Known Issues](#)

Giovanni transition to https... [1 of 3 messages] [Read More](#)

Select Plot

Maps: **Time Averaged Map** Comparisons: Select... Vertical: Select... Time Series: Select... Miscellaneous: Select...

Select Date Range (UTC)
 YYYY-MM-DD HH:mm to YYYY-MM-DD HH:mm
 Valid Range: 1979-01-01 to 2017-05-18

Select Region (Bounding Box or Shape)
 Format: West, South, East, North

Please specify a start date.

Select Variables

Number of matching Variables: 14 of 1651 Total Variable(s) included in Plot: 1

Keyword: NLDAS primary forcing data Search Clear

Variable	Source	Temp. Res.	Spat. Res.	Begin Date	End Date	Units
<input type="checkbox"/> Surface Pressure (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	Pa
<input type="checkbox"/> Potential Evaporation (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	kg/m ²
<input checked="" type="checkbox"/> Air Temperature at 2m (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	K
<input type="checkbox"/> Precipitation Monthly Total (NLDAS_FORA0125_M_v002)	NLDAS Model	Monthly	0.125 °	1979-01-01	2017-03-31	kg/m ²
<input type="checkbox"/> Convective Precipitation Monthly Total (NLDAS_FORA0125_M_v002)	NLDAS Model	Monthly	0.125 °	1979-01-01	2017-03-31	kg/m ²
<input type="checkbox"/> Surface Incident Longwave Radiation Flux (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	W/m ²
<input type="checkbox"/> Specific Humidity at 2m (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	kg/kg
<input type="checkbox"/> Surface Incident Shortwave Radiation Flux (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	W/m ²
<input type="checkbox"/> Precipitation (convective fraction) (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	unitless
<input type="checkbox"/> Wind Speed (10-m above ground Meridional wind) (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	m/s
<input type="checkbox"/> Wind speed (10-m above ground Zonal wind) (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	m/s
<input type="checkbox"/> Precipitation Total (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	kg/m ²
<input type="checkbox"/> Convective Available Potential Energy at 180-0 mb above ground (NLDAS_FORA0125_H_v002)	NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	J/kg
<input type="checkbox"/> Convective Available Potential Energy at 180-0 mb above ground (NLDAS_FORA0125_M_v002)	NLDAS Model	Monthly	0.125 °	1979-01-01	2017-03-31	J/kg

Atmospheric Dynamics (2)
 Hydrology (14)
 Water and Energy Cycle (10)

Measurements
 Air Pressure (1)
 Air Temperature (1)
 Atmospheric Moisture (1)
 Energy (2)
 Evaporation (1)
 Incident Radiation (2)
 Precipitation (4)
 Radiation, Net (1)
 Wind (2)

Platform / Instrument
 Spatial Resolutions
 Temporal Resolutions
 Portal

Responsible NASA Official: Long Pham
 Web Curator: M. Hegde
 Privacy Policy and Important Notices

Powered By: NC, OPeNDAP, ECHO

Contact Us

Help Reset Feedback **Plot Data**

Selecting Period and Location

The screenshot shows the GIOVANNI web interface with the following configuration:

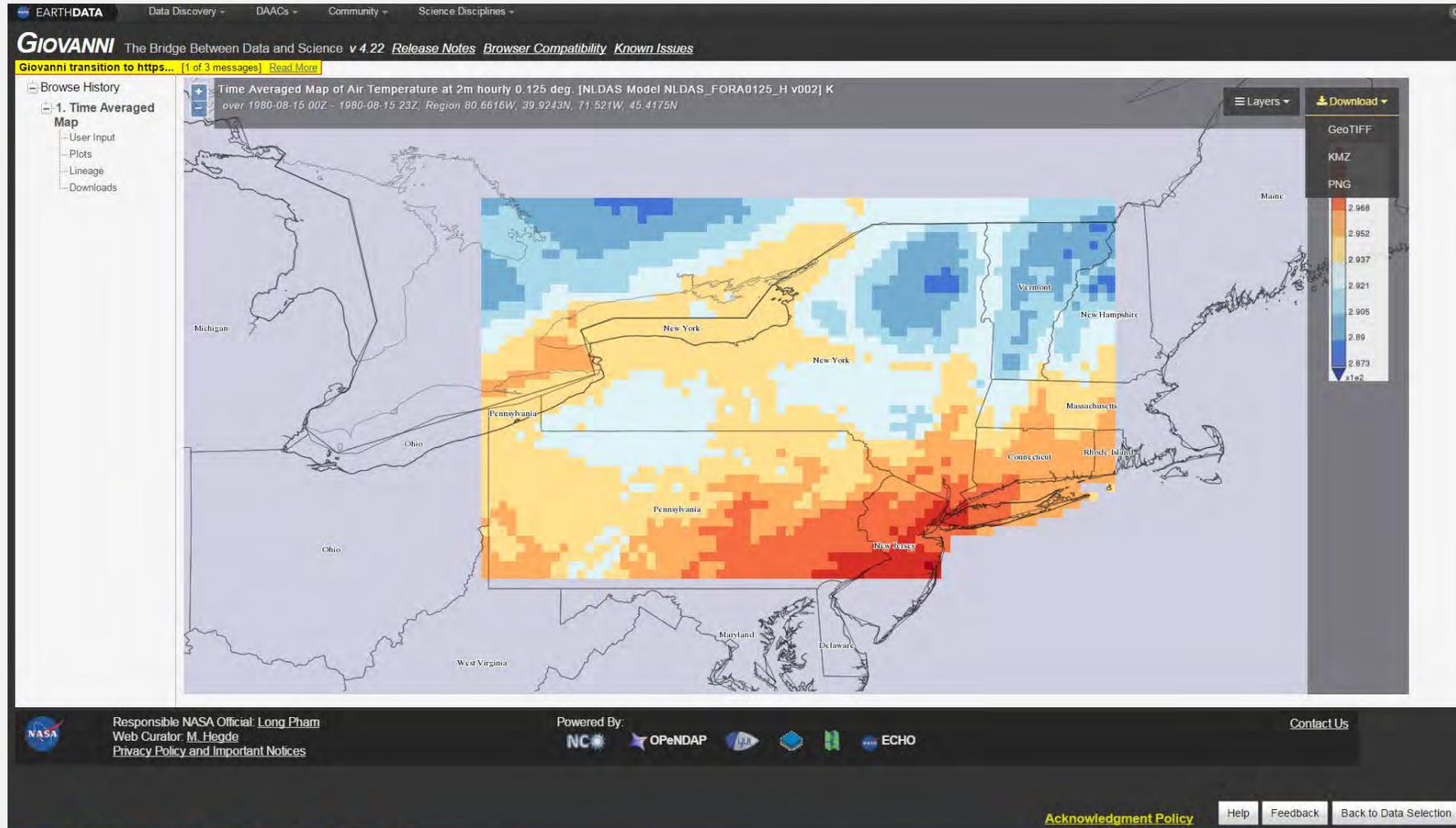
- Select Plot:** Maps: Time Averaged Map
- Select Date Range (UTC):** 1980-08-15 00:00 to 1980-08-15 23:59
- Select Region (Bounding Box or Shape):** -80.6616, 39.9243, -71.521, 45.4175
- Select Variables:**
 - Disciplines:** Aerosols (179), Atmospheric Chemistry (15), Hydrology (101), Ocean Biology, Oceanography, Water and Energy
 - Measurements:** Aerosol Index (1), Aerosol Optical Depth (1), Air Pressure (4), Air Temperature (1), Albedo (18), Altitude (4), Angstrom Exponent (16), Atmospheric Moisture (92), Black Carbon (5), Buoyancy (2), CH4 (8), CO (13), CO2 (2), Canopy Water Storage (7), Chlorophyll II (11), Cloud Fraction (25), Cloud Properties (67), Component Aerosol Optical Depth (7), Diffusivity (2), Dust (23), Emissivity (4), Energy (12), Erythral UV (4), Evaporation (45), Evapotranspiration (43), Flooding (3), Geopotential (7), Heat Flux (104)

A map window is open showing a bounding box over the New York region. A table below the map displays search results:

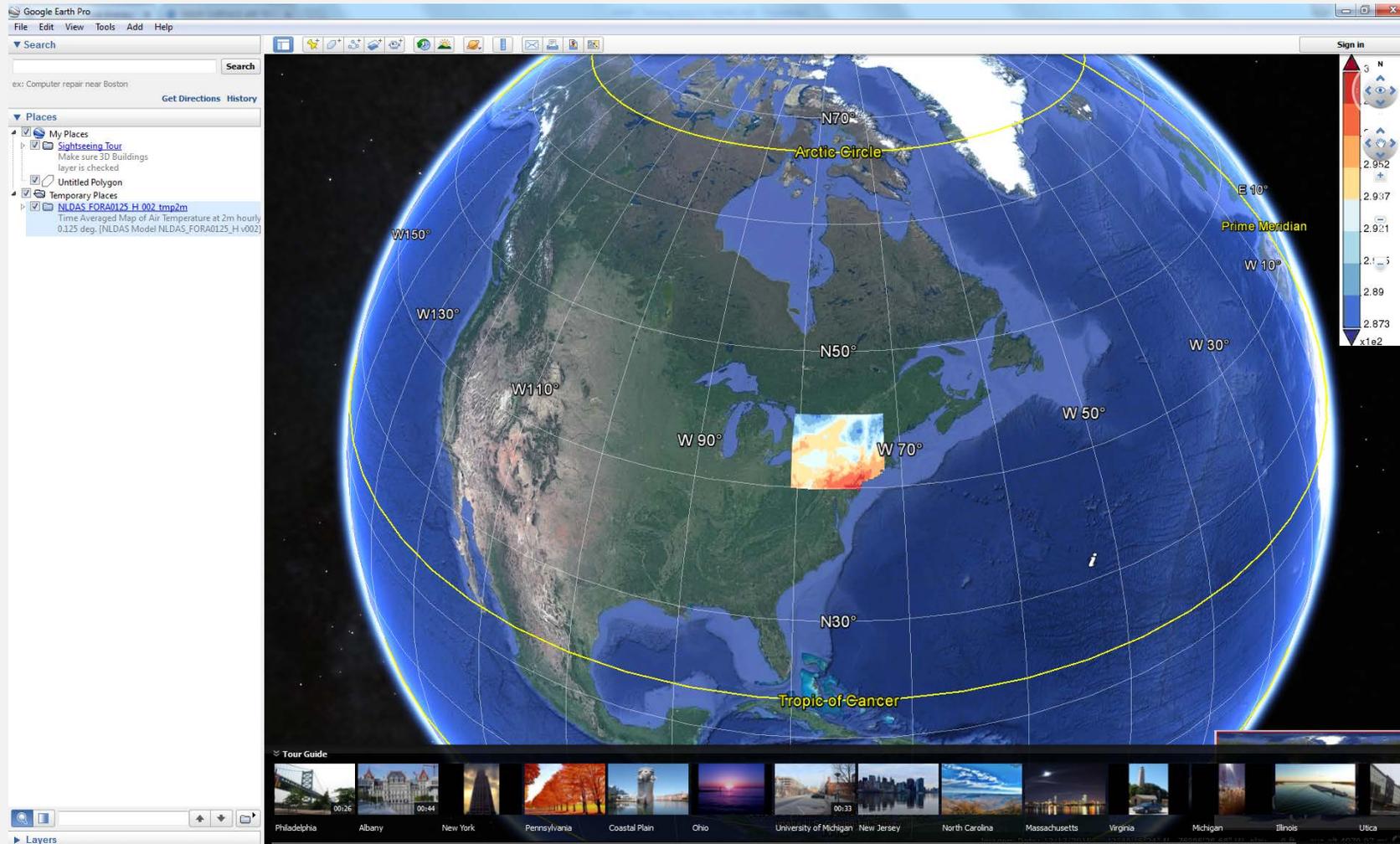
Source	Temp Res	Spat Res	Begin Date	End Date	Units
NLDAS Model	Hourly	0.125 °	1979-01-01	2017-05-18	K

Buttons at the bottom include Help, Reset, Feedback, and Plot Data.

Plotting and Downloading in a Different Format



Plotting and Downloading in a Different Format



CDC WONDER Main Website

<http://wonder.cdc.gov/>

The screenshot shows the CDC WONDER Main Website homepage. At the top left is the CDC logo and the text "Centers for Disease Control and Prevention" with the tagline "CDC 24/7: Saving Lives, Protecting People™". To the right is a search bar with the text "SEARCH" and a magnifying glass icon. Below the logo is a navigation bar with "CDC WONDER", "FAQ", "Help", "Contact Us", and "WONDER Search". A "CDC A-Z INDEX" dropdown menu is also visible. The main content area features a "WONDER Search" box on the left and a central text block stating: "WONDER online databases utilize a rich ad-hoc query system for the analysis of public health data. Reports and other query systems are also available." Below this is a navigation bar with "WONDER Systems", "Topics", and "A-Z Index". The "Topics" section is expanded, showing a list of links: "About CDC WONDER", "What is WONDER?", "Frequently Asked Questions", "Data Use Restrictions", "Data Collections", "Citations", "Republishing WONDER Data", and "What's New?". The main content area is divided into three columns: "WONDER Online Databases" (with links for AIDS Public Use Data, Births, Cancer Statistics, Environment, and Mortality), "Reports and References" (with links for Prevention Guidelines and Scientific Data and Documentation), and "Other Query Systems" (with links for Healthy People 2010, MMWR Morbidity Tables, and MMWR Mortality Tables). A footer note states "This page last reviewed: Thursday, March 16, 2017".

NLDAS-Derived Heat-Related Products on CDC Wonder

Now Available at <http://wonder.cdc.gov/nasa-nldas.html/>

The screenshot shows the CDC Wonder website interface. At the top, there is a search bar and navigation links for 'CDC WONDER', 'FAQ', 'Help', 'Contact Us', and 'WONDER Search'. The main heading is 'North America Land Data Assimilation System (NLDAS) Daily Air Temperatures and Heat Index (1979-2011) Request'. Below this, there are tabs for 'Request Form', 'Results', 'Map', 'Chart', and 'About'. The 'Request Form' tab is active, showing a form with several sections: '1. Organize table layout:', '2. Select location:', '3. Select year, month, day:', '4. Select temperatures:', and '5. Other options:'. The '2. Select location:' section is expanded, showing a 'States' finder tool with a list of states and a 'Currently selected' box containing 'All (The United States)'. The '3. Select year, month, day:' section is also visible, showing date selection options.

This is a close-up view of the '3. Select year, month, day:' and '4. Select temperatures:' sections of the CDC Wonder request form. The '3. Select year, month, day:' section includes a 'Send' button circled in red. Below it, there are radio buttons for 'Date Range' (selected), 'Individual Date Fields', and 'Aggregate Date'. The 'Dates' section shows 'From:' as Jan 1 1979 and 'Until:' as Dec 31 2011. The '4. Select temperatures:' section includes a 'Send' button and 'Help' link. It has radio buttons for 'Ranges' (selected) and 'Lists'. Below this, there are three temperature selection fields: 'Daily Max Air Temperature (F)', 'Daily Min Air Temperature (F)', and 'Daily Max Heat Index (F)'. Each field has a range selector with values like (-31) and (120). The '5. Other options:' section includes 'Export Results' (unchecked), 'Show Totals' (checked), 'Show Zero Values' (unchecked), 'Precision' set to 2 decimal places, and 'Data Access Timeout' set to 10 minutes. There are 'Send' and 'Reset' buttons at the bottom.

CDC WONDER Tabular Results

North America Land Data Assimilation System (NLDAS) Daily Air Temperatures and Heat Index (2003-2008) Results

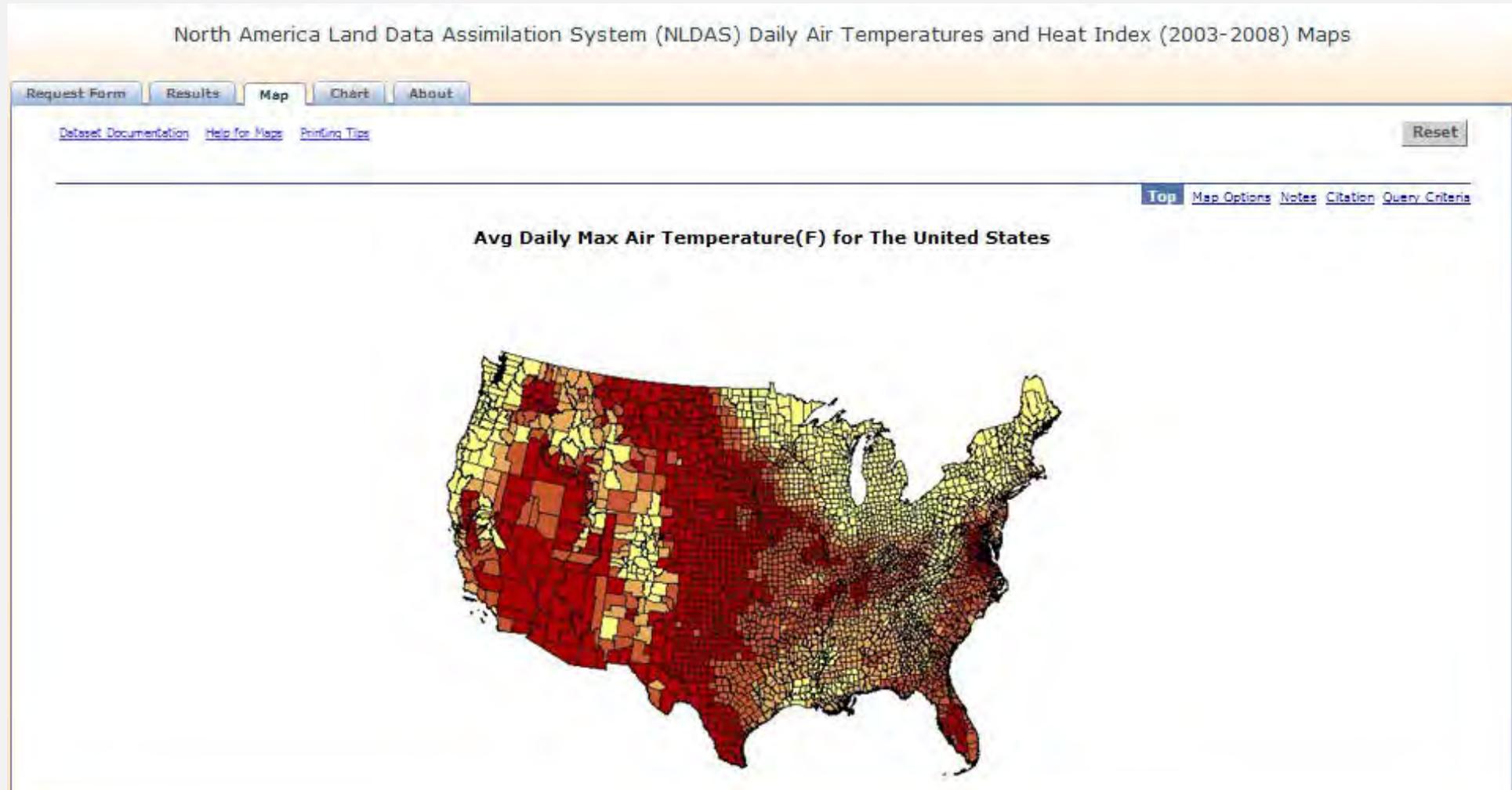
Request Form Results Map Chart About

[Dataset Documentation](#) [Help for Results](#) [Printing Tips](#) [Help with Exports](#) **Export**

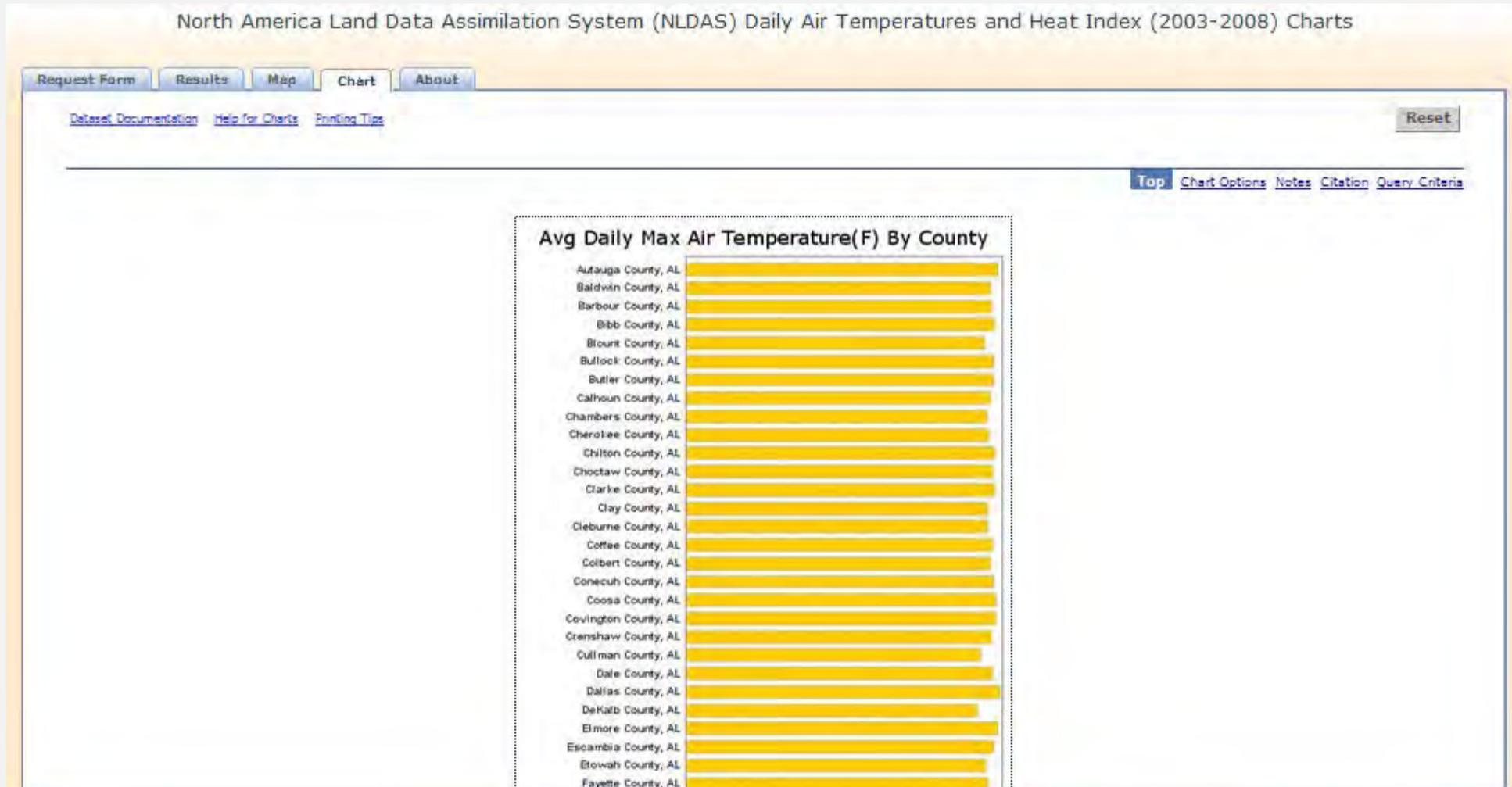
Quick Options More Options [Top](#) [Notes](#) [Citation](#) [Query Criteria](#)

County ↓	Avg Daily Max Air Temperature(F) # of Observations Range Standard Deviation ↑↓
Autauga County, AL (01001)	87.85 11 (87.20 to 88.40) 0.43
Baldwin County, AL (01003)	85.82 26 (84.30 to 87.20) 0.61
Barbour County, AL (01005)	86.04 14 (85.50 to 86.60) 0.37
Bibb County, AL (01007)	86.92 9 (86.40 to 87.50) 0.31
Blount County, AL (01009)	84.20 10 (83.60 to 84.90) 0.43
Bullock County, AL (01011)	86.57 10 (86.10 to 87.30) 0.44

CDC WONDER Map Results



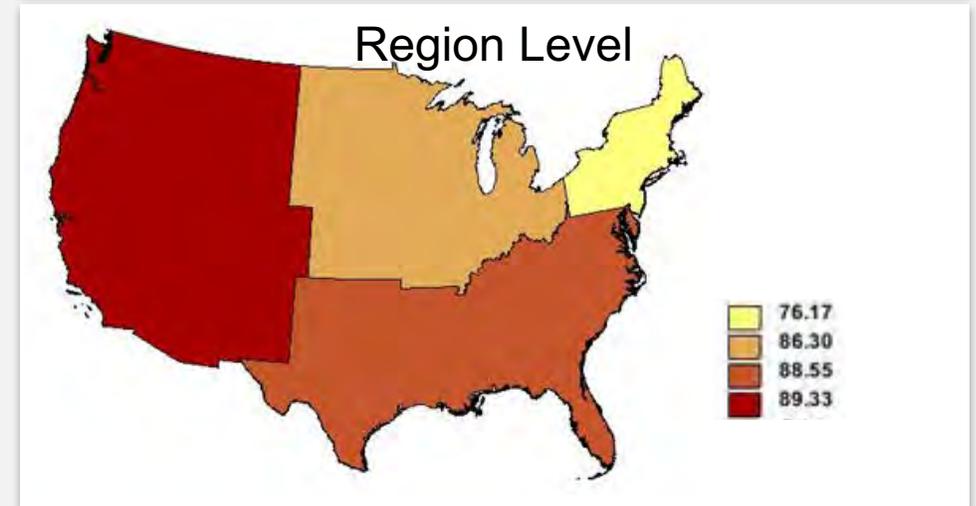
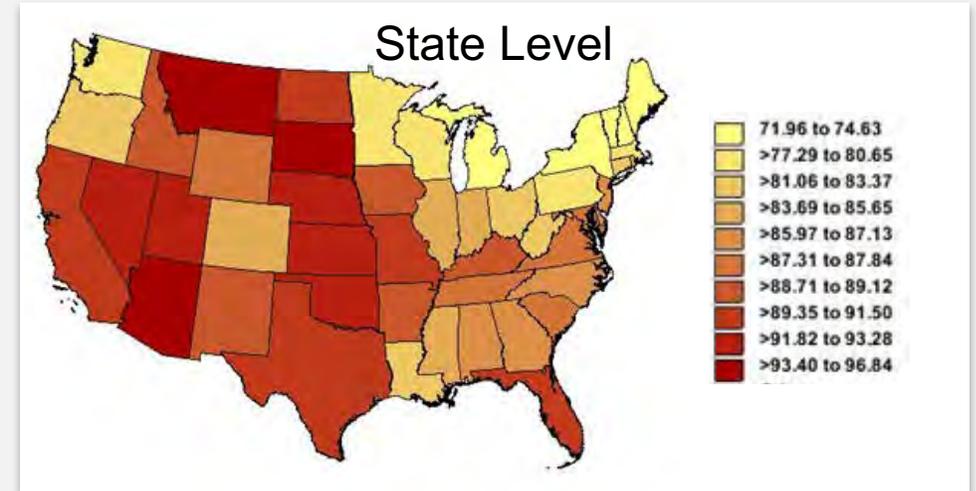
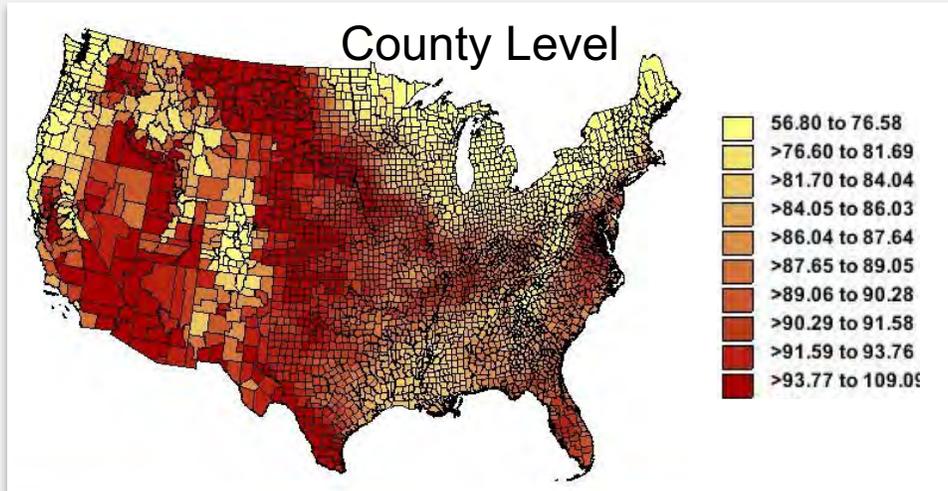
CDC WONDER Chart Results



CDC WONDER Spatial Aggregation

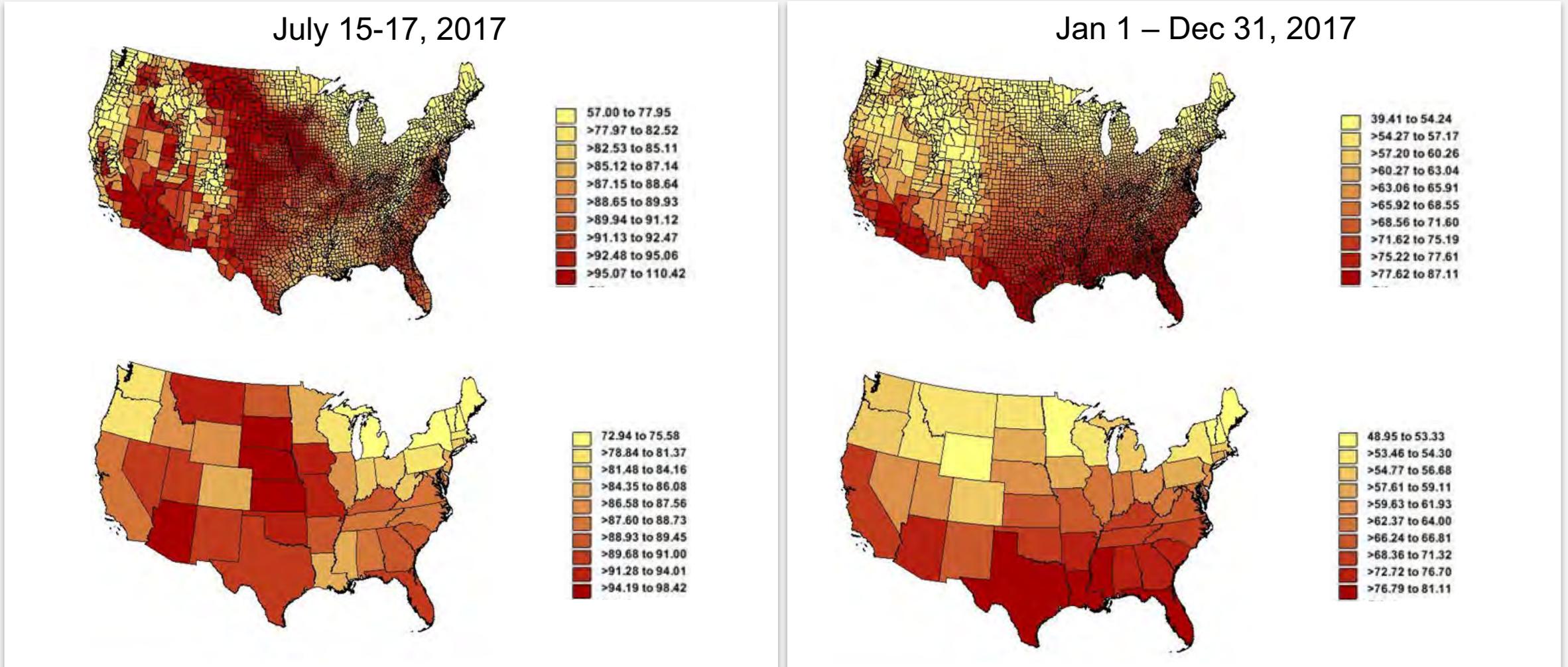
Average Daily Max Temperature (°F) for the United States

July 15, 2007



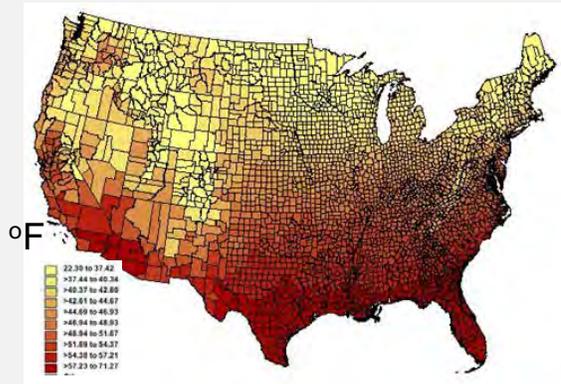
CDC WONDER Spatial/Temporal Aggregation

Average Daily Max Temperature (F) for the United States

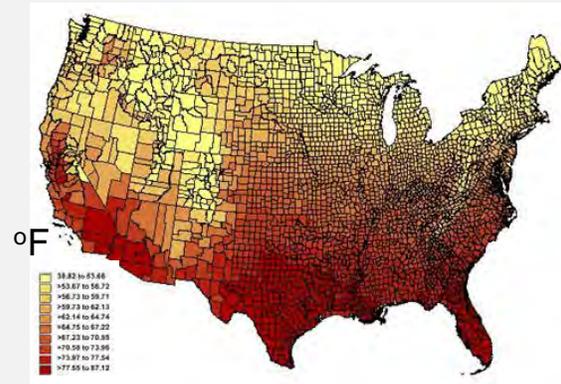


CDC WONDER Environmental Datasets Status

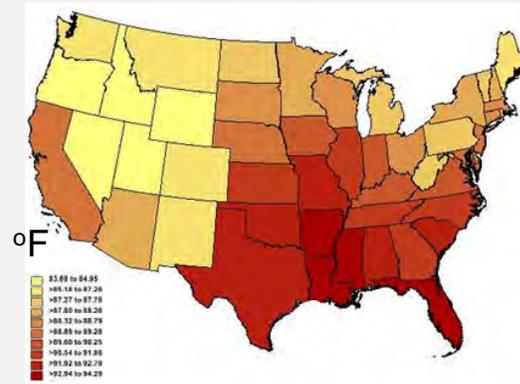
Avg Daily Min Air Temp



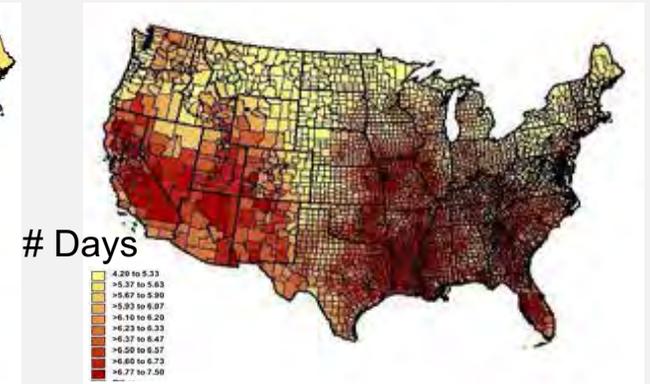
Avg Daily Max Air Temp



Avg Daily Max Heat Index



Avg Heat Wave Days Based on Daily Max. Temp.



Avg Daily Sunlight

