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Atmospheric Technologies Group Atmospheric Technologies Center
Webpage User's Guide

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Atmospheric Technologies Group

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Chapter 1

Introduction

The Atmospheric Technologies Group Atmospheric Technologies Center Webpage has many features to aid site decision makers in daily activities. The ATC webpage is dynamically updated every five minutes with new images and loops of radar, lightning, and regional surface observations, meteorological data from local on-site and off-site towers, and forecasts produced by ATG Meteorologist. The purpose of this user's guide is to give the user tools for easy navigation of the site, as well as an explanation of the products available for viewing.

Chapter 2

Explanation of Menu Options

The following sections pertain to the menus that can be found along the top and left hand portion of the webpage. These menus remain visible and are always accessible while navigating the within the ATC webpage.

ATC Front Page

The ATC front page contains the current ground-level meteorological conditions at SRS, an up-to-date regional radar image, and links to current conditions and forecasts for cities near other DOE sites throughout the U.S. as well as additional selected cities of interest. Figure 1 is an example of what the ATC front page looks like.

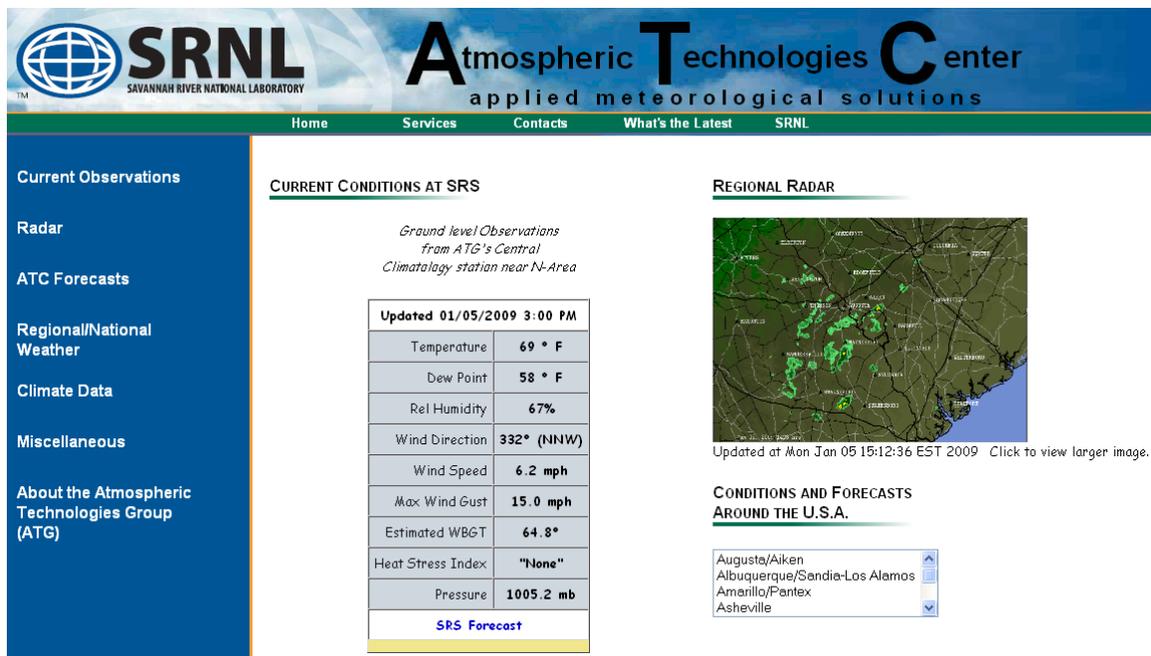


Figure 1. Front page of the ATG weather webpage.

Current Conditions at SRS

Current conditions for SRS are obtained from observations taken at the 4 meter level of the Central Climatology tower near N-Area. Updated every 15 minutes, data includes: current temperature (in °F), dew point (in °F), relative humidity (in percent), wind direction (expressed as the direction **from** which the wind is blowing), wind speed

(average 15-minute wind speed expressed in miles per hour), max wind gust (highest instantaneous wind gust in the previous 15-minutes expressed in miles per hour), estimated WBGT (Wet Bulb Globe Temperature expressed in °F), heat stress index (category of heat stress based on WBGT), wind chill (during the cold season only and expressed in °F), and pressure (expressed in millibars). Under the current conditions table, a link is provided to go straight to the SRS most recent site forecast. This forecast will be described later under the “ATC Forecasts” menu option.

Regional Radar

The regional radar displays the latest five minute radar image. Text is displayed beneath the radar image to inform the user of the last time the image was updated. The image is a “clickable” image and will direct the user to another page where the radar image is displayed as a full page. An example of this page is displayed in Figure 2.

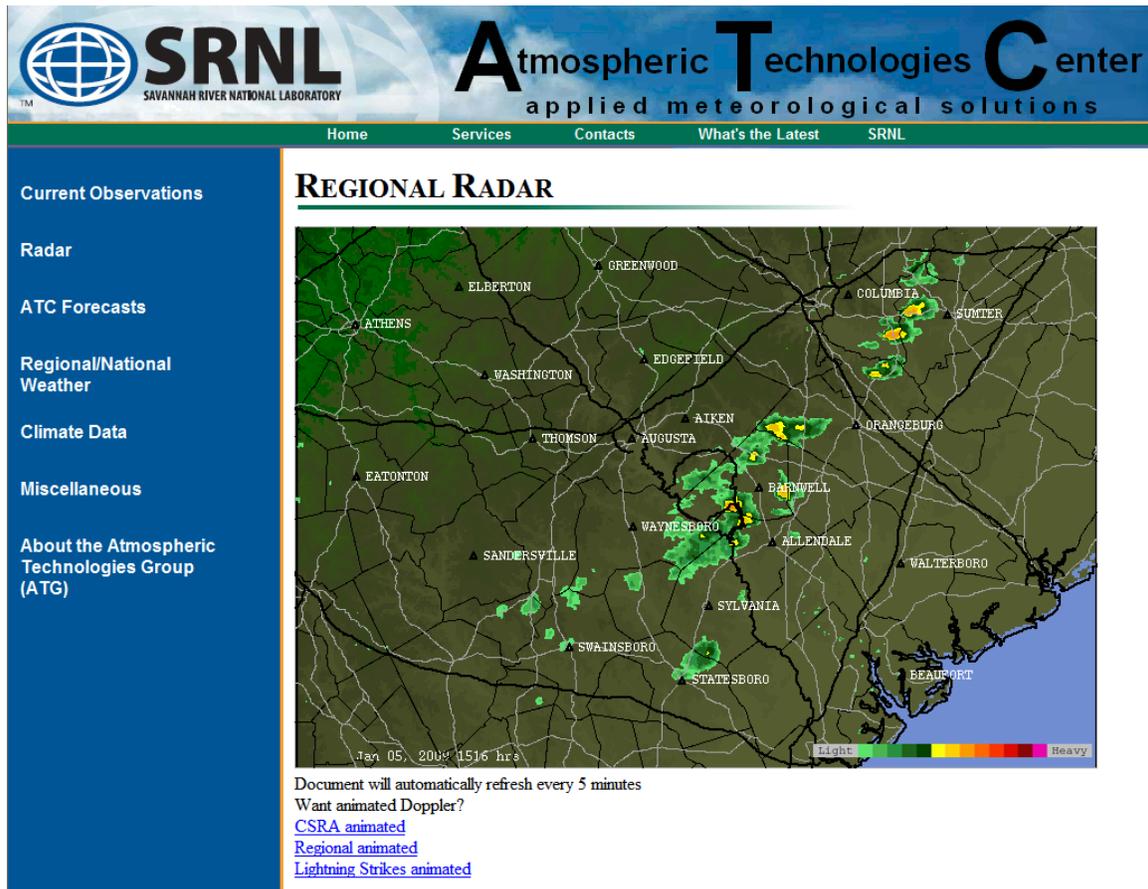


Figure 2. Regional radar page.

The regional radar and its options are explained later under the section “Radar”.

Conditions and Forecasts Around the U.S.A

A list of locations across the United States is provided under this heading. Locations listed are cities near other DOE sites through the U.S. as well as other cities of interest. Figure 3 illustrates what the user would see if they clicked on the Las Vegas/NTS option.



Figure 3. Example of current conditions in the vicinity of the Nevada Test Site after clicking on “Las Vegas/NTS” under current conditions across the U.S.A on the ATG front page.

Top Menu Bar

The top menu bar provides a few easy navigation tools for the user. The top menu options are “home”, “services”, “contacts”, “what’s the latest”, and “srnl”. These menus and their contents are further described below.

Home

The “home” menu option enables the user to click directly back to the ATC Front Page from anywhere within the ATG webpage.

Services

Currently this link does not provide any information however, in the future, ATG hopes to provide customers with a list of services that we provide.

Contacts

This link will direct the user to a new webpage which contains contact information the user can use to contact ATG (Figure 4). The user is given phone numbers for the Atmospheric Technologies Center where their comment or question can be dealt with. The "ATC" link on this page will allow the user to send an e-mail with comments or questions (to the weather center operator [currently Erik Kabela]).



Figure 4. Webpage displayed by clicking on the "contacts" link on the top menu bar.

What's The Latest

This link will direct the user to the latest news or other releases from ATG.

SRNL

This link will direct the user to the external webpage of SRNL.

Left Side Menu

Menu options on the left side of the ATC webpage include: current conditions, radar, ATC forecasts, regional/national weather, climate data, miscellaneous, and about the Atmospheric Technologies Group (ATG). The following is a description of each of the left side menu options and their subsequent submenus and their functionality.

Current Observations

The four submenus under “current observations” is described in the following subsections. The submenus include: SRS and the CSRA current conditions within a table, SRS and the CSRA current conditions in a plot, a southeast U.S. conditions map, and lightning strikes in the previous two hours (Figure 5).

SRNL SAVANNAH RIVER NATIONAL LABORATORY

Atmospheric Technologies Center
applied meteorological solutions

Home Services Contacts What's the Latest SRNL

Current Observations

- Radar
 - SRS and the CSRA (Table)
 - SRS and the CSRA (Plot)
- ATC Forecast
 - Southeast U.S. Map
- Regional/Weather
 - Lightning Strikes (past 2 hours)
- Climate Data
- Miscellaneous
- About the Atmospheric Technologies Group (ATG)

CURRENT CONDITIONS AT SRS

Ground level Observations
from ATG's Central
Climatology station near N-Area

Updated 01/05/2009 3:15 PM

Temperature	69 ° F
Dew Point	57 ° F
Rel Humidity	66%
Wind Direction	331° (NNW)
Wind Speed	6.0 mph
Max Wind Gust	13.1 mph
Estimated WBGT	66.8°
Heat Stress Index	"None"
Pressure	1004.9 mb

[SRS Forecast](#)

REGIONAL RADAR

Updated at Mon Jan 05 15:22:41 EST 2009 Click to view larger image.

CONDITIONS AND FORECASTS AROUND THE U.S.A.

- Augusta/Aiken
- Albuquerque/Sandia-Los Alamos
- Amarillo/Pantex
- Asheville

Figure 5. Display of the “Current Observations” submenu.

SRS and the CSRA (Table)

This page displays the current conditions at the eight SRS meteorological towers as well as the five off-site towers and two National Weather Service (NWS) stations located in Richmond County, GA (Figure 6). All measurements from the SRS towers are taken at 200 feet above ground. All measurements at the Richmond County towers are taken from near ground level except for the Augusta Newsprint tower which takes its measurements from 200 feet. Displayed in the table is: the location of the tower, the current temperature (in °F), relative humidity (in percent), 15 minute average wind speed (in mph), wind direction (direction **from** which the wind is blowing), maximum gust (in mph), and the current atmospheric stability class.

Stability classification is based on the Pasquill-Gifford stability class (A-G) which provides a measure of the atmosphere’s ability to disperse airborne contaminants. A class “A” stability equals good dispersion while a “G” stability equals poor dispersion.

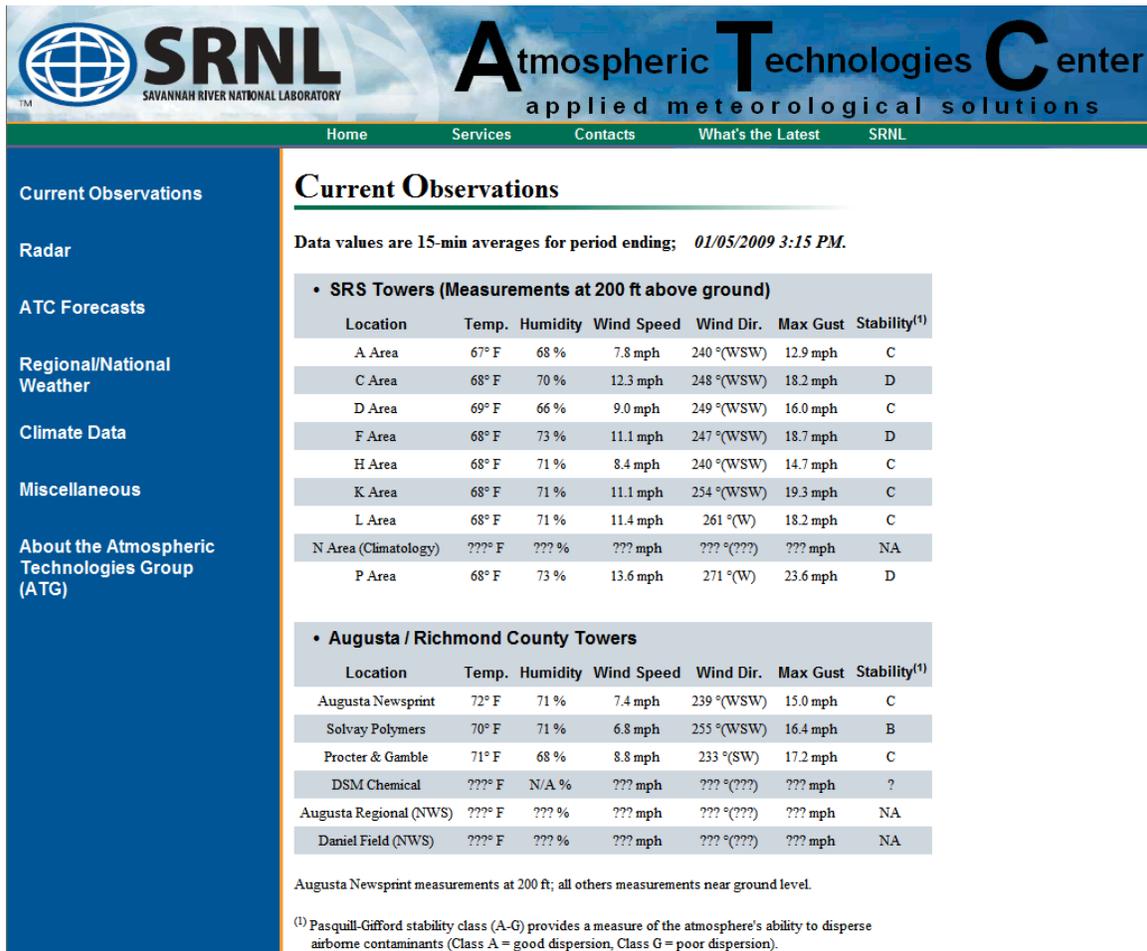


Figure 6. Webpage with current conditions in table format.

A question mark (or three question marks in a row [??]) represent data either being bad or not being reported. An example of this is in Figure 6 in the observations for DSM Chemical.

SRS and the CSRA (Plot)

Upon clicking this submenu, a new window will pop up separate from the weather webpage. This pop up provides a graphical representation of the current wind speed and direction from the 13 area towers (Figure 7a). By clicking the “Show Key” button on the graphic, a key will show the user what the tails and arrow represent (Figure 7b).

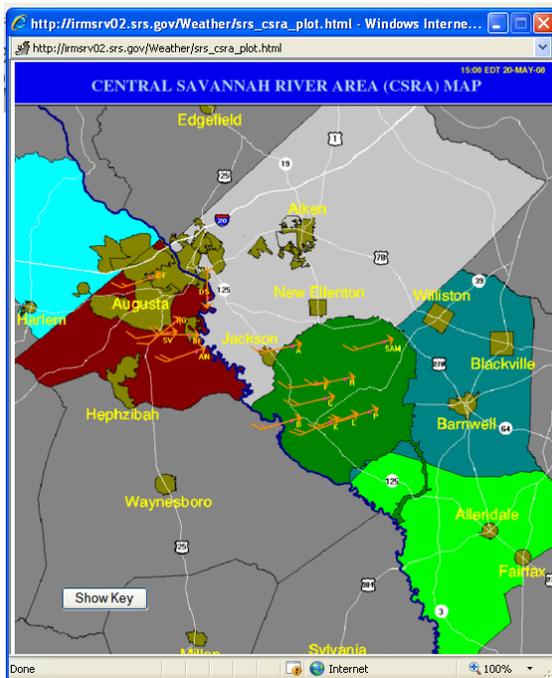


Figure 7a. Graphical representation of wind speed and direction.

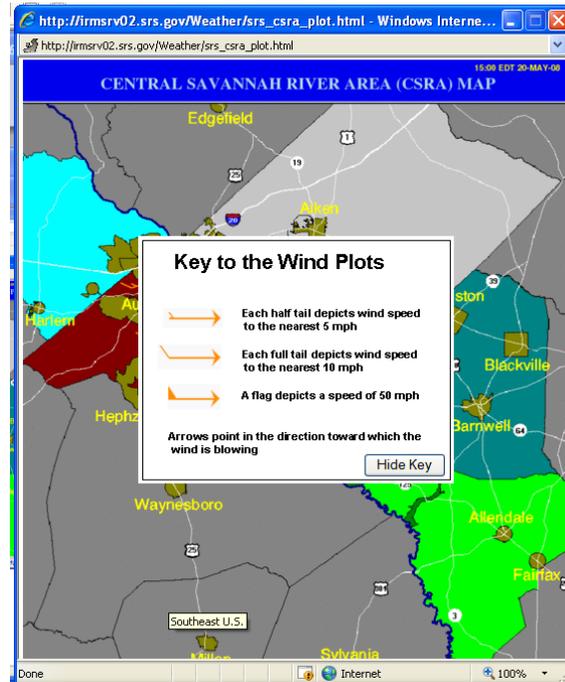


Figure 7b. Display of the key to Figure 8a.

The arrow points in the direction **toward** which the wind is blowing while the tail points from the direction in which the wind is coming **from**.

Southeast U.S. Map

Upon clicking this submenu, a new window will pop up separate from the weather webpage. This pop up provides a graphical representation of the current wind speed and direction, temperature and dew point, sky conditions, and the current weather for various weather stations across the Southeast (Figure 8a). By clicking the “Show Key” button on the graphic, a key will show the user what the weather station plot represents (Figure 8b).

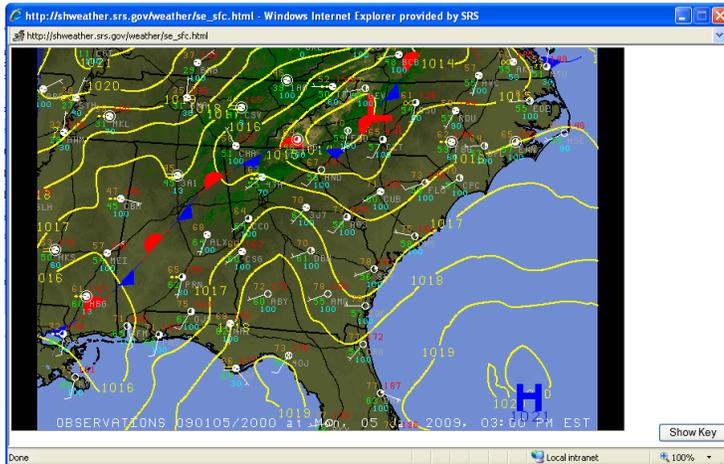


Figure 8a. Station plots for the current weather across the Southeast Region.



Figure 8b. Display of the key for Figure 9a.

Yellow lines on the plots are contours of equal pressure (isobars). Fronts are also depicted: a blue line with triangles attached () represent a cold front. The triangles point in the direction in which the front is moving. A red line with half circles () represents a warm front. The half circles point in the direction in which the warm front is moving. Lastly, a line with alternating blue triangles and red half circles () represents a stationary front.

Lightning Strikes (Past 2 Hours)

When clicking this menu option, a new window will appear to the user. This window will loop through the previous two hours worth of lightning strikes on a map of the SRS and CSRA (Figure 9a). If a cloud to ground lightning strike has occurred in the last two hours, a little dot will be shown on the map (Figure 9b). The color of the dot indicates how new (or old) the lightning strike is. Bright pink dots indicate new lightning strikes within the last 10 minutes as where pale blue (almost white) dots represent lightning strikes that are at least 1 hour old (Figure 9c).

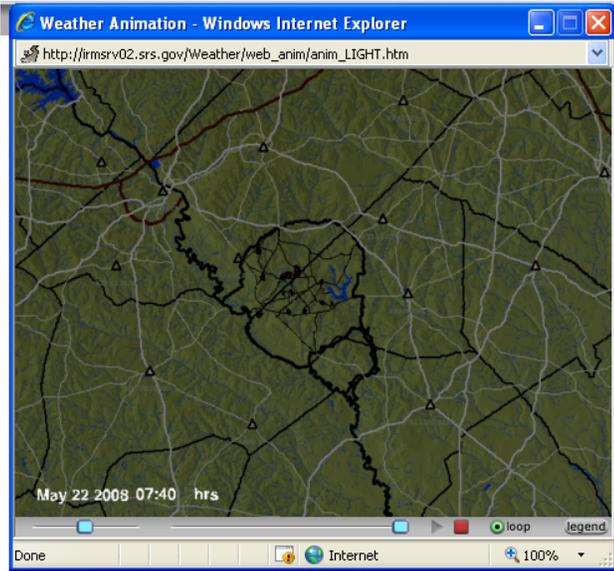


Figure 9a. Pop-up window with a loop of the previous two hours' lightning strikes.

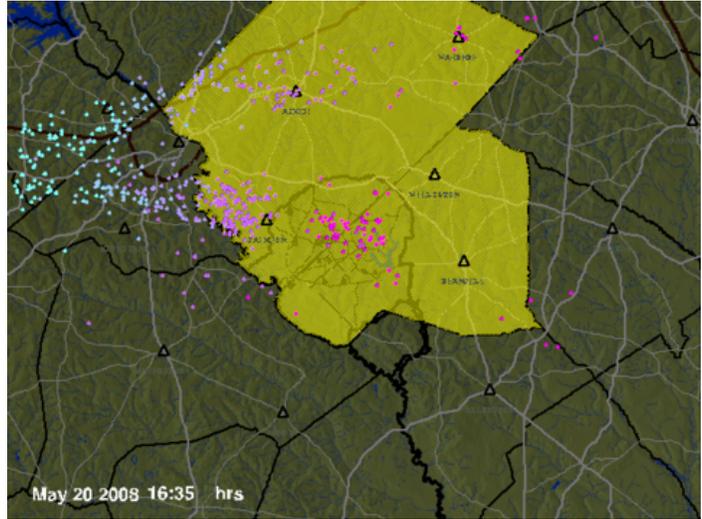


Figure 9b. Display of lightning strikes indicated by color aging. The yellow shading indicates a severe thunderstorm warning.



Figure 9c. Lightning legend for determining old lightning strikes from new lightning strikes.

Radar

The three submenus under “radar” is described in the following subsections. The submenus include: local doppler radar, CSRA animated radar, and a regional animated radar (Figure 10).

SRNL SAVANNAH RIVER NATIONAL LABORATORY

Atmospheric Technologies Center
applied meteorological solutions

Home Services Contacts What's the Latest SRNL

Current Observations

- Radar
- ATC Forecast
 - Local Doppler
 - CSRA (Animated)
- Regional/National Weather
 - Regional (Animated)
- Climate Data
- Miscellaneous
- About the Atmospheric Technologies Group (ATG)

CURRENT CONDITIONS AT SRS

Ground level Observations from ATG's Central Climatology station near N-Area

Updated 01/05/2009 3:15 PM

Temperature	69 ° F
Dew Point	57 ° F
Rel Humidity	66%
Wind Direction	331° (NNW)
Wind Speed	6.0 mph
Max Wind Gust	13.1 mph
Estimated WBGT	66.8°
Heat Stress Index	"None"
Pressure	1004.9 mb

[SRS Forecast](#)

REGIONAL RADAR

Updated at Mon Jan 05 15:27:57 EST 2009 [Click to view larger image.](#)

CONDITIONS AND FORECASTS AROUND THE U.S.A.

- Augusta/Aiken
- Albuquerque/Sandia-Los Alamos
- Amarillo/Pantex
- Asheville

Figure 10. Display of the ATG webpage with the “radar” submenu highlighted.

Local Doppler

By clicking on the “Local Doppler” link the user is directed to a full page version of the regional radar displayed on the ATC front page and displayed in Figure 2.

CSRA (Animated)

This pop-up will animate the local radar (Figure 11a) over the past 90 minutes. The user can control the speed at which the images loop by adjusting the left slide bar. By clicking on the “legend” button, the user can display the radar legend (Figure 11b). Light showers will appear light green on display; where heavy rainfall from (most likely severe) thunderstorms will appear as reds and purple.

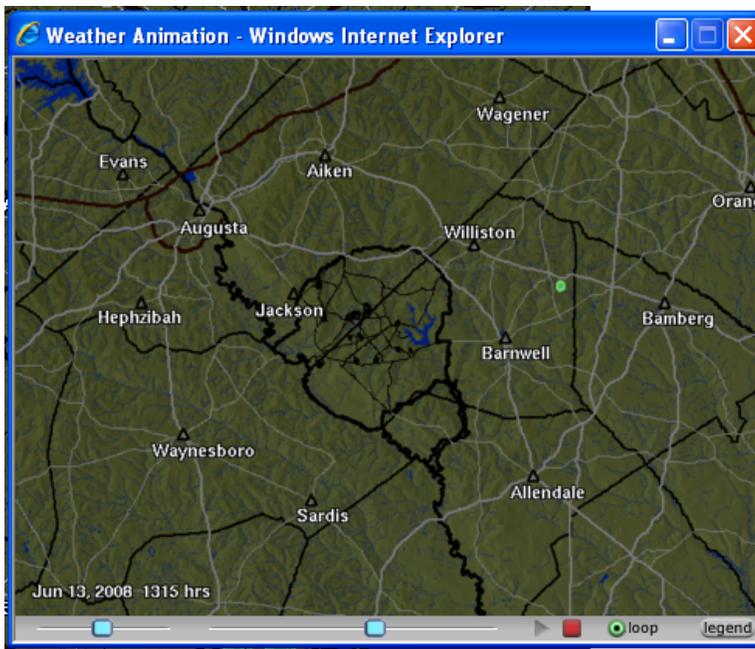


Figure 11a. Pop-up window displaying the CSRA radar loop.



Figure 11b. Pop-up after the user clicks on the “legend” button on the radar pop-up.

Regional (Animated)

The “Regional animated” link will provide a pop-up window for the user to display the regional radar loop (Figure 12). This loop is very similar to the CSRA loop, however a wider view of the region is displayed. The same buttons and functionality of the CSRA loop pop-up window are found in the regional radar loop pop-up.



Figure 12. Pop-up window displaying the Regional radar loop.

ATC Forecasts

This submenu will take the user to the forecasts and a few forecast products generated by the ATG. The options for the user to choose from include: SRS Forecast, Operations Forecast, Forecast Meteogram, and 6 Hour RAMS Winds Forecast (Figure 13).

SRNL SAVANNAH RIVER NATIONAL LABORATORY

Atmospheric Technologies Center
applied meteorological solutions

Home Services Contacts What's the Latest SRNL

Current Observations

Radar

ATC Forecasts

- SRS Forecast
- Operations Forecast
- Forecast Meteogram
- 6 Hour RAMS Winds Forecast

Regional Weather

Climate Data

Miscellaneous

About the Atmospheric Technologies Group (ATG)

CURRENT CONDITIONS AT SRS

Ground level Observations
from ATG's Central
Climatology station near N-Area

Updated 01/05/2009 3:15 PM

Temperature	69 ° F
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Rel Humidity	66%
Wind Direction	331° (NNW)
Wind Speed	6.0 mph
Max Wind Gust	13.1 mph
Estimated WBGT	66.8°
Heat Stress Index	"None"
Pressure	1004.9 mb

[SRS Forecast](#)

REGIONAL RADAR

Updated at Mon Jan 05 15:27:37 EST 2009 Click to view larger image.

CONDITIONS AND FORECASTS AROUND THE U.S.A.

- Augusta/Aiken
- Albuquerque/Sandia-Los Alamos
- Amarillo/Pantex
- Asheville

Figure 13. Display of the submenu options under ATC Forecasts.

SRS Forecast

The SRS Forecast is more commonly known as the “general site” forecast. Each morning before 7:30 am Monday through Friday (except holidays). The forecast consists of a brief weather discussion of the important aspects of the forecast over the next few days. Then the forecast will contain each of the following elements:

- 1) Brief synopsis of sky conditions, chances of precipitation, and timing of onset of precipitation.
- 2) High temperature (in degrees F).
- 3) Wind forecast including direction, speed, wind gust, and if a change in direction is anticipated during the period.
- 4) Heat stress category forecast when appropriate. The heat stress categories will be covered in a later section.

The forecast displayed below is the typical detailed three day forecast given by ATG. At the end of the forecast, a quick three day snap shot forecast beyond the current three days is given to include trends in temperature and precipitation. The forecaster's initials and telephone number are displayed at the end of the forecast sheet incase more information is required from the on duty forecaster.

SRSFORECAST

High pressure will remain over South Carolina today, but a cold front will approach from the west on Saturday and Sunday.

Fri, Jun 13, 2008	Partly cloudy. High 93F. Wind east 3-5 mph with gusts to 16 mph becoming southeasterly. Heat Stress 0830-1030 Cat I-II 1030-1200 Cat II-III 1200-1700 Cat III-IV with periods of Cat V possible 1700-1800 Cat III-II 1800-2000 Cat I or less
Tonight	Partly cloudy. Low 70F. Wind southeast 1-3 mph.
Sat, Jun 14, 2008	Partly cloudy with a 20% chance of a late day shower or thunderstorm. Rain chances increase to 50% during the overnight hours Saturday night into early Sunday morning. High 94F. Wind southwest 3-6 mph with gusts to 14 mph.

	<p>Heat Stress 0830-1030 Cat I-II 1030-1200 Cat II-III 1200-1700 Cat III-IV with periods of Cat V possible 1700-1800 Cat III-II 1800-2000 Cat I or less</p>
<p>Sun, Jun 15, 2008</p>	<p>Partly to mostly cloudy with a 50% chance of showers and thunderstorms. AM low 70F, PM high 90F. Wind southeast 3-6 mph with gusts to 14 mph except strong and gusty near thunderstorms.</p> <p>Heat Stress 0900-1100 Cat I-II 1100-1200 Cat II-III 1200-1700 Cat III with periods of Cat IV possible 1700-1900 Cat III-II 1900-2000 Cat I or less</p>
<p>Mon-Wed</p>	<p>Partly cloudy through the period with a slight chance of a shower or thunderstorm on Monday. Highs in the lower 90s Monday, and in the upper 80s Tuesday and Wednesday, lows in the upper 60s Monday and in the mid 60s Tuesday and Wednesday.</p>

*Forecast conditions valid for ground level.

Updated June 13, 2008 7:12

MJP/Atmospheric Technologies Group.

Phone 5-2805 .

Weather Center Phone: 5-1182

See [NWS forecast](#) during off hours.

Operations Forecast

Once the user clicks on the “Operations Forecast” link in the ATC Forecasts submenu, they are directed to another webpage which allows the user to view either the AM or the PM forecast produced for the US Forest Service – Savannah River. The AM forecast is posted each workday by 7 am and the PM forecast is posted each workday by 4 pm.

The AM forecast contains the following elements for “Today”, “Tonight”, and “Tomorrow”:

- 1) Brief forecast discussion
- 2) Special conditions of note for the next couple of days
- 3) Sky conditions
- 4) Maximum or minimum temperature (in degrees F)
- 5) First 6 hours wind direction, speed, and gust
- 6) Second 6 hours wind direction, speed, and gust
- 7) Relative humidity (in %) minimum for the day and maximum for the night
- 8) Pasquill-Gifford Stability class (A-G)

- 9) Boundary-layer mixing height (in feet)
- 10) Boundary-layer transport wind direction and speed
- 11) Chances for precipitation
- 12) Precipitation start and stop time
- 13) Precipitation type
- 14) Estimated precipitation amount (in inches)
- 15) Fog Potential

The PM forecast is much the same as the AM forecast, however a three day forecast beyond the initial 36 hours is given and contains the same elements listed above.

Below are examples of the AM and the PM forecasts.

AM

SRNL Weather Center Fire Weather Forecast

Date: Fri Jun 13 06:53:48 EDT 2008
Forecast Period: 8:00 AM June 13 through 8:00 PM June 14, 2008

Discussion:

High pressure will remain over South Carolina today, but a cold front will approach from the west on Saturday and Sunday.

Special Conditions:

Transport winds will be weak today and Saturday.

Short Term Forecast

	Today (June 13)	Tonight	Saturday (June 14)
Sky condition	Partly cloudy	Partly cloudy	Partly cloudy
Max/min Temp (F)	93	70	94
1 st period Wind Direction/Speed (mph)	E 2-5, gusts to 10, then ESE	SE 2-4, gusts to 8	SW 2-4, gusts to 8
2 nd period Wind Direction/Speed (mph)	SE 5-8, gusts to 16	SSE 1-3	SW 3-6, gusts to 14
Humidity % (min/max)	40	98	40
Stability	A	E	A
Mixing Height (ft)	7500	Weak inversion 830p-7a	8000
Transport Direction/Speed (mph)	SE 7	NA	SW 7
Precipitation chance (%)	0	<10	20
Precip start-stop	NA	Mainly before midnight	Mainly after 4pm
Precip type	NA	Isolated shower or thunderstorm	Shower or thunderstorm
Precip. amount (in)	NA	<0.10	0.02 - 0.25

Fog Potential	none after early AM	Patchy fog possible	none after early AM
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MJP/Atmospheric Technologies Group. Phone 5-2805 . Weather Center Phone: 5-1182

PM

SRNL Weather Center Fire Weather Forecast

Date: Fri Jun 13 15:02:58 EDT 2008

Forecast Period: 8:00 PM June 13 through 8:00 AM June 15, 2008

Discussion:

A weak cold front will move from west to east into South Carolina by late Saturday. This front will stall on Sunday and then depart to the east by early Monday.

Special Conditions:

Some thunderstorms may produce locally gusty winds and/or heavy rainfall on Saturday, Saturday night, and Sunday.

Short Term Forecast

	Tonight	Saturday (June 14)	Saturday Night
Sky condition	Partly cloudy	Partly cloudy	Mostly cloudy
Max/min Temp (F)	69	93	70
1 st period Wind Direction/Speed (mph)	SE 2-4, gusts to 8	SW 2-4, gusts to 8	S 2-4, gusts to 8
2 nd period Wind Direction/Speed (mph)	SSE 1-3	SW 3-6, gusts to 14	S 2-4, gusts to 8
Humidity % (min/max)	95	40	98
Stability	E	A	D
Mixing Height (ft)	Weak inversion 830p-7a	8000	800
Transport Direction/ Speed (mph)	NA	SW 7	S 8
Precipitation chance (%)	<10	20	50
Precip start-stop	Mainly before midnight	Mainly after 4pm	continuing
Precip type	Isolated shower or thunderstorm	Shower or thunderstorm	Showers and thunderstorms
Precip. amount (in)	<0.10	0.02 - 0.25	0.10 - 0.75
Fog Potential	Patchy fog possible	none after early AM	Patchy fog possible

Extended Forecast for June 15 - 17

	Sunday (June 15)	Monday (June 16)	Tuesday (June 17)
State of the Weather	Mostly cloudy	Partly to mostly cloudy	Partly cloudy

Maximum Temp (F)	87	91	89
Minimum Temp (F)	70	69	68
Surface Wind Direction/Speed(mph)	SE 3-6, gusts to 14	SW 3-6, gusts to 14	NW 5-9, gusts to 18
Humidity	moderate to high	moderate	moderate
Dispersion potential	fair	fair	good
Precipitation chance %	50	20	20 (AM)
Precipitation type	Showers and thunderstorms	Shower or thunderstorm	Shower or thunderstorm

MJP/Atmospheric Technologies Group.
Phone 5-2805 .
Weather Center Phone: 5-1182

Forecast Meteorogram

Upon clicking this option, a new pop-up window will appear to the user. This figure displays forecast surface temperature, dew point, relative humidity, barometric pressure, and multilevel wind speed and direction for the next 36 hours from the Regional Atmospheric Modeling System (RAMS) model run operationally by ATG (Figure 14).

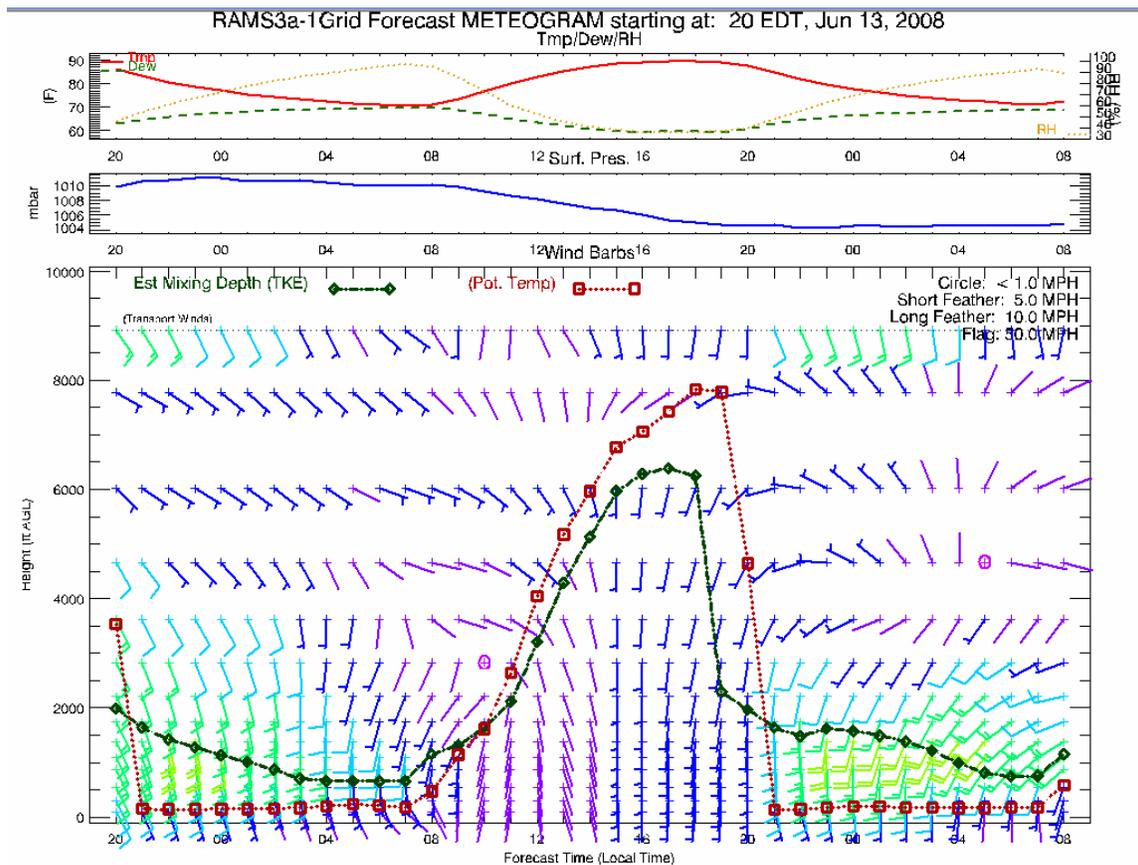


Figure 14. Forecast meteorogram.

Also displayed in Figure 14 are two estimates of the boundary-layer mixing height. Over the next 36 hours, RAMS bases boundary-layer height on potential temperature gradient and the other on the magnitude of turbulent kinetic energy. Within the wind display, the user can also view model estimates of transport wind. This is found on the top line of the wind field display.

6 Hour RAMS Winds Forecast

The last option on the ATC Forecasts submenu is a display of the forecasted six hour surface wind speed and direction over the CSRA. Upon clicking this option a new pop-up menu will appear and play a loop of the six hour wind forecast (Figure 15). A legend for what each colored arrow means can be found on the right side of the image.

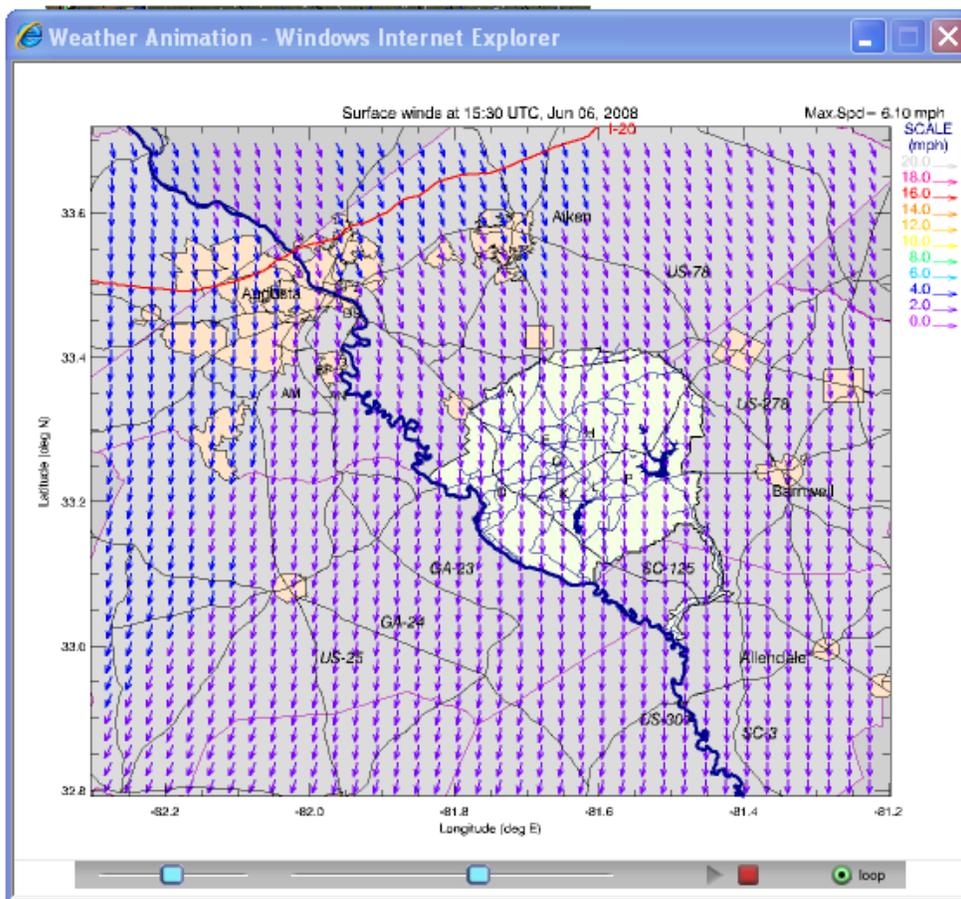


Figure 15. RAMS 6-hour wind forecast animation.

Regional/National Weather

The Regional/National Weather submenu provides the user the current watches, warnings, and advisories from the National Weather Service, the latest visible and infrared satellite images, regional and national radar from the National Weather Service

as well as radar estimated precipitation amounts, and the latest monthly and seasonal forecast by ATG (Figure 16).

The screenshot shows the SRNL Atmospheric Technologies Center website. The header includes the SRNL logo and the text "Atmospheric Technologies Center applied meteorological solutions". A navigation bar contains links for Home, Services, Contacts, What's the Latest, and SRNL. On the left is a blue sidebar menu with options: Current Observations, Radar, ATC Forecasts, Regional/National Weather (highlighted), Climate Data, Miscellaneous, and About the Atmospheric Technologies Center (ATG). The "Regional/National Weather" sub-menu is open, showing options: Severe Weather Advisories, Satellite: Infrared, Satellite: Visible, National / Regional Radar, National / Regional Precipitation, and Monthly / Seasonal Forecast. The main content area is titled "CURRENT CONDITIONS AT SRS" and displays "Ground level Observations from ATG's Central Climatology station near N-Area". A table shows data updated on 01/05/2009 at 3:30 PM: Temperature 70° F, Dew Point 58° F, Rel Humidity 66%, Wind Direction 313° (NW), Wind Speed 5.1 mph, Max Wind Gust 11.0 mph, Estimated WBGT 67.6°, Heat Stress Index "None", and Pressure 1004.7 mb. To the right is a "REGIONAL RADAR" map and a "CONDITIONS AND FORECASTS AROUND THE U.S.A." section with a dropdown menu listing cities like Augusta/Aiken, Albuquerque/Sandia-Los Alamos, Amarillo/Pantex, and Asheville.

Figure 16. Regional and National Weather submenu.

Severe Weather Advisories

Upon clicking this menu option, a new pop-up browser will appear. The pop-up browser is directed to the National Weather Service main website which displays the current watches, warnings, and advisories (Figure 17). The user can then click on any section of the map to read the text of the watch, warning, or advisory.

The screenshot shows a pop-up browser window displaying the National Weather Service website. The browser title is "http://www.weather.gov/ NOAA's National Weather Service - Windows Internet Explorer". The page header includes the NOAA logo and "National Oceanic and Atmospheric Administration's National Weather Service". A search bar and navigation links are visible. The main content area features a map of the United States with various colored regions indicating weather alerts. A sidebar on the left contains a navigation menu with options like Local forecast by City, State, Warnings, Current, By State/County, Radar, Satellite, Surface Weather, Observed Precip, Forecasts, Local, Graphical, Aviation, Marine, Hurricanes, Severe Weather, Fire Weather, Text Messages, By State, By Message Type, and National. A news article snippet is visible at the top, discussing food safety during weather emergencies.

Figure 17. Pop-up browser with the latest watches, warnings, and advisories from the National Weather Service.

Satellite: Infrared

This submenu option will display a pop-up browser showing the latest infrared satellite image for the entire United States (Figure 18). The dark gray color on the map indicates areas where no clouds are present. As the color moves from dark gray to white, the user can visualize where clouds are.

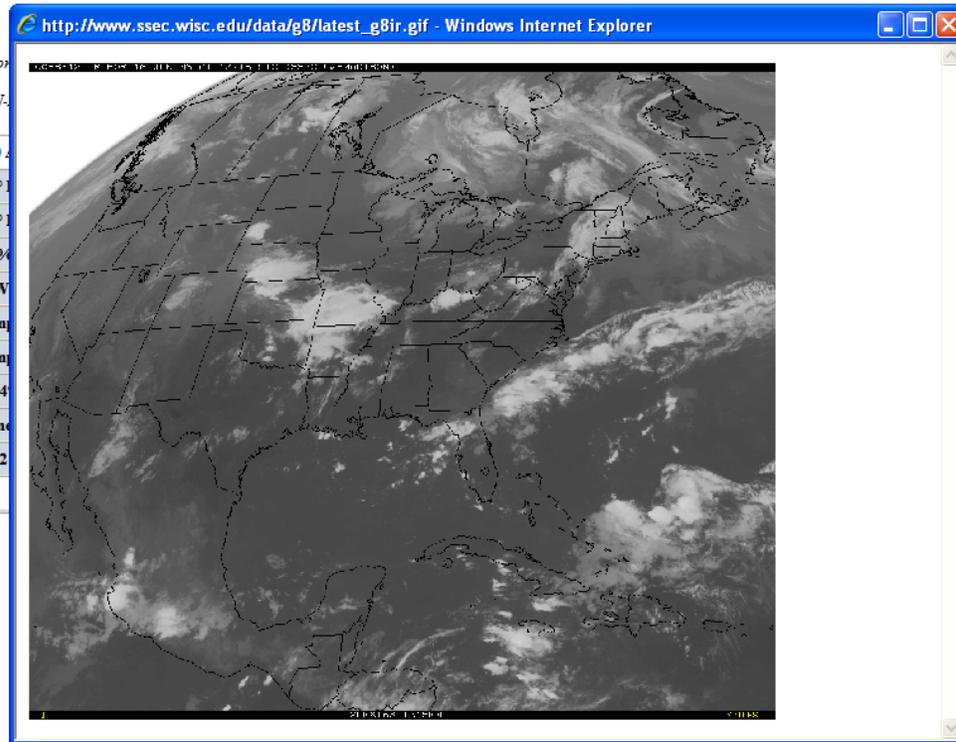


Figure 18. Pop-up browser window displaying the current infrared satellite image.

Satellite: Visible

This submenu option will display a pop-up browser showing the latest visible satellite image for the entire United States (Figure 19). The dark gray color on the map indicates areas where no clouds are present. As the color moves from dark gray to white, the user can visualize where clouds are.

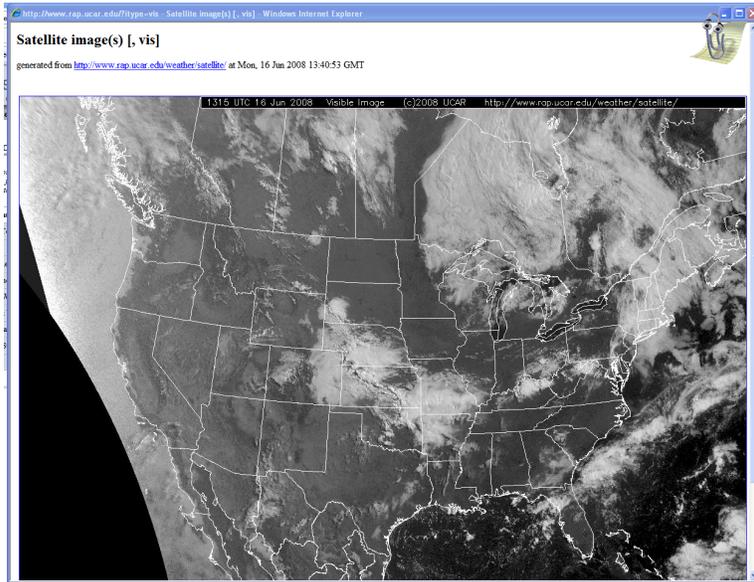


Figure 19. Pop-up browser window displaying the current visible satellite image.

National/Regional Radar

Upon clicking this submenu option, a new pop-up browser window will appear to the user which displays the current base reflectivity radar mosaic from the National Weather Service for the entire United States (Figure 20).

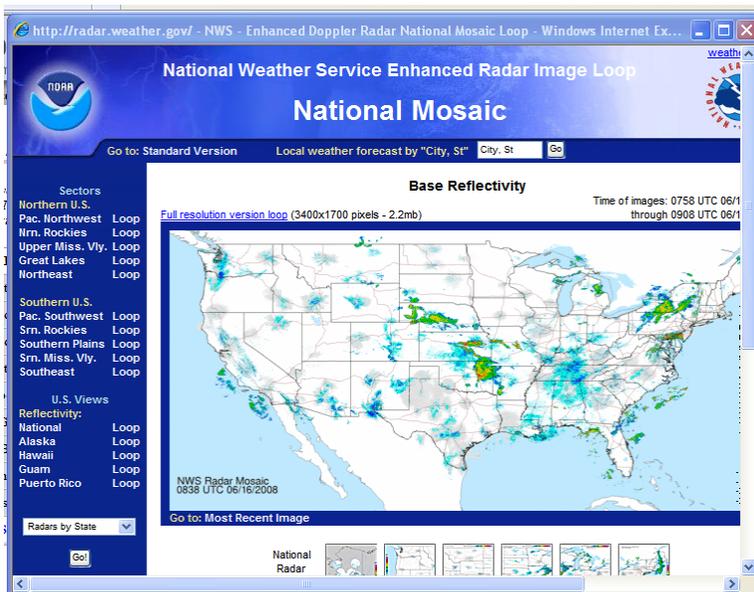


Figure 20. Pop-up browser window displaying the current base reflectivity radar mosaic from the National Weather Service for the entire United States.

From this site, the user can click anywhere in the United States to zoom to a regional radar for an area of interest.

National/Regional Precipitation

Upon clicking this submenu option, a new pop-up browser window will appear to the user which displays the latest 1-day observed precipitation for the entire United States (Figure 21).

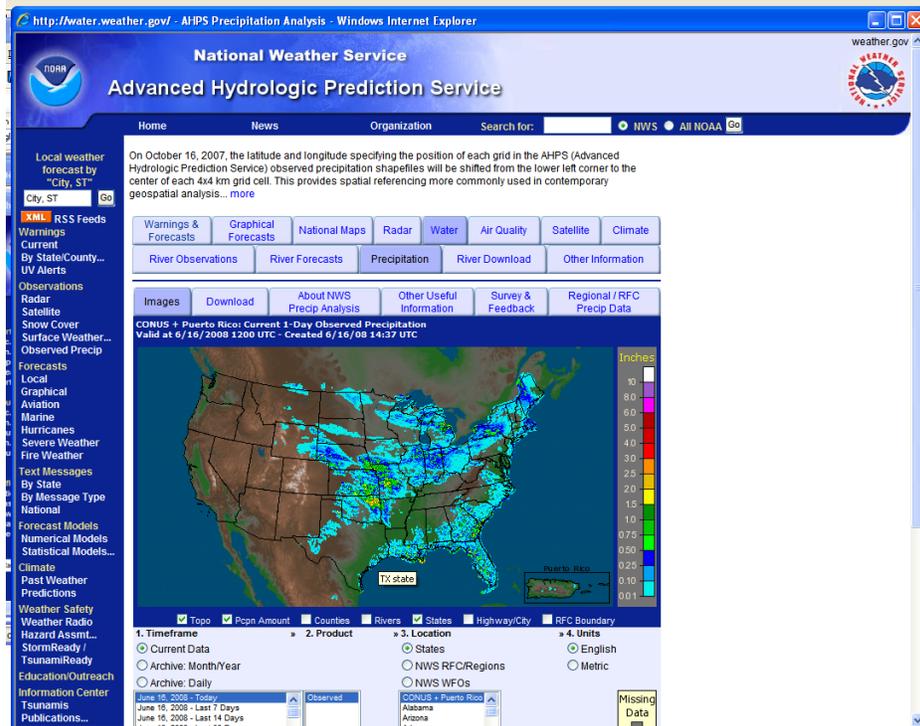


Figure 21. Pop-up browser window displaying the 1-day observed precipitation from the National Weather Service for the entire United States.

One of the many features of this site is the user can not only display the last 24 hours worth of precipitation amounts derived from radar, but the user can also look up to 1 year back from the current day and determine how far above/below normal any location in the United States is. A full description of the precipitation webpage and its features can be found on the webpage itself.

Monthly/Seasonal Forecast

After clicking this submenu option, a new webpage is opened to the user which displays the Monthly and Seasonal Forecast (Figure 22). The graphics on the page are derived from the National Oceanic and Atmospheric Administration's Climate Forecast Systems Model. It displays for the user the likelihood monthly temperature and precipitation will be above, near, or below normal over the next several months. Each month new graphics are created and displayed on this webpage which include the outlook for the current month as well as the next eight months.

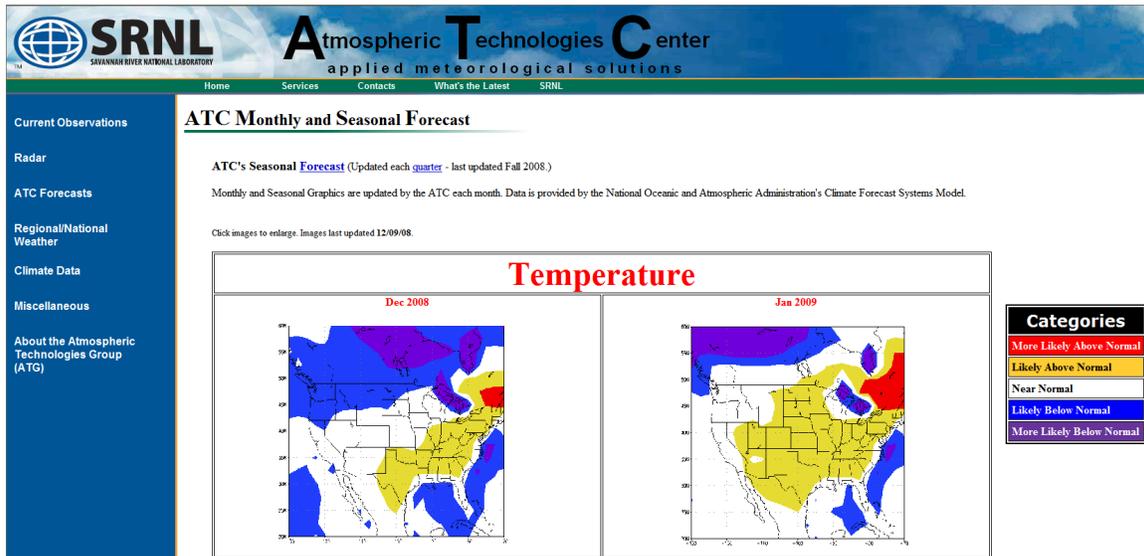


Figure 22. Display of the Monthly and Seasonal Forecast webpage.

Also, each season, forecasters from ATG will provide a synopsis/discussion on the upcoming trend in temperature and precipitation for the next season. For example, a seasonal outlook updated in the spring will be an outlook on the temperature and precipitation for the spring and summer seasons and may stretch into a discussion of the fall months if the forecaster deems it appropriate. The user can view the .pdf document by clicking on the word “Forecast” in the “ATC’s Seasonal Forecast” displayed near the top of the page. When the user click’s on “Forecast” the .pdf file will open directly in the webpage. An example of the text from this forecast is shown below.

Weather Center Seasonal Forecast

Spring through early Summer 2008

Near-normal rainfall over the last four months has brought limited drought relief to the SRS, but normal to drier than normal conditions are still likely throughout spring. Average temperatures are expected to be normal to higher than normal for the same period.

An active weather pattern over the last four months has provided the SRS with approximately 90 percent of the normal amount of rainfall typically seen during the period. As of the date of this publication, the SRS is approximately 1.2 inches below normal for the year (normal = 14.84”, rain received to date = 13.63”). Standard climate indices indicate that Aiken and Barnwell Counties have recovered somewhat over the “severe” to “extreme” drought conditions observed over much of the latter part of 2007 and into early 2008. The long-term Palmer Drought Index indicates the SRS is in near normal conditions with the short-term U.S. Drought Monitor indicating the SRS is in a state of abnormally dry conditions.

The cooler than normal (La Niña) sea surface temperatures (SSTs) in the tropical Pacific Ocean continue to be observed. This pattern is expected to weaken as summer approaches. There is a large spread in the forecasts regarding La Niña. Half of the models indicate a continuation of at least a weak La Niña into the fall with the other half indicating La Niña may become neutral by the middle to end of the summer. NOTE: The graphical forecasts on the ATG webpage are based on NOAA’s Climate Forecast System which has a cold bias for SSTs. Therefore, these monthly prognostications do not accurately reflect the conditions described above as winter moves into spring and beyond.

Through late April, a drying pattern appears to set in which is consistent with the climatology of the SRS. This is also consistent with the effects of La Niña during the spring months over the Southeastern United States. As long as the La Niña pattern holds through early summer (or even as La Niña weakens), monthly precipitation totals are likely to remain at or below normal through early summer. Similarly, average temperatures will likely be near-normal through early summer. Periodic rainfall may provide temporary relief from dry periods over the next month or two. There is still concern that if significant rainfall deficits materialize heading into the warmer months of the year, drought conditions may worsen again.

SRNL's Atmospheric Technologies Group issues seasonal forecasts on a quarterly basis (weather bulletins are issued on an as-needed basis). Questions or comments are always welcome. Please contact the forecasters below if additional information is required.

Erik D. Kabela
803-725-7590, pager 10253

Matthew J. Parker
803-725-2805, pager 14009

Climate Data

The Climate Data submenu contains six elements to aid the user in gathering climate data for the site. These six elements are yesterday's climate summary, a 24 hour summary plot from Central Climatology, a 24 hour lightning summary plot, a 24 hour summary of data from P-Area, a weekly summary of data from P-Area, and a place to request recent historical data (Figure 23).

The screenshot shows the SRNL Atmospheric Technologies Center website. The header includes the SRNL logo and the text "Atmospheric Technologies Center applied meteorological solutions". Navigation links include Home, Services, Contacts, What's the Latest, and SRNL. A left sidebar contains a menu with "Climate Data" highlighted, and a dropdown menu showing options: "Yesterday's Climate Summary", "24-hr Summary Plot (Central Climatology)", "24-hr Lightning Summary", "Daily P-Area Plot", "Weekly P-Area Plot", and "Recent Historical Data". The main content area is divided into three sections: "CURRENT CONDITIONS AT SRS" with a table of ground level observations, "REGIONAL RADAR" with a radar map, and "CONDITIONS AND FORECASTS AROUND THE U.S.A." with a location selection dropdown.

Updated 01/05/2009 3:30 PM	
Temperature	70 ° F
Dew Point	58 ° F
Rel Humidity	66%
Wind Direction	313° (NW)
Wind Speed	5.1 mph
Max Wind Gust	11.0 mph
Estimated WBGT	67.6°
Heat Stress Index	"None"
Pressure	1004.7 mb
SRS Forecast	

Updated at Mon Jan 05 15:37:36 EST 2009 Click to view larger image.

Augusta/Aiken
Albuquerque/Sandia-Los Alamos
Amarillo/Pantex
Asheville

Figure 23. Display with the three options available under the Climate Data submenu.

Yesterday's Climate Summary

Each morning at 8:00 AM this webpage will update to display a summary of the previous 24 hours of data (Figure 24). The table is broken into four separate categories of temperature, rainfall, wind speed, and barometric pressure. Within the temperature portion of the table the fields displayed are yesterday's high, the overnight low, the highest temperature this current month, the lowest temperature this current month, the highest temperature of the year and its date, and the lowest temperature of the year and its date.



Figure 24. Display of the webpage with a recap of the previous 24 hours of data, updated each morning at 8.

Within rainfall in the table, the following are updated: 24-hour rainfall ending at 8am today, total rainfall this current month, the average rainfall expected for the current month, the total rainfall to date, the average rainfall expected to date, and the annual average rainfall expected. The wind speed portion of the table displays the previous day's highest sustained (15 minute average) wind speed, the highest instantaneous gust, the highest sustained wind speed in the current month, and the highest wind gust for the

current month. Lastly, the previous day's minimum and maximum barometric pressure is displayed. Temperature is measured in degrees Fahrenheit, rainfall is measured in inches, wind speed is measured in miles per hour, and barometric pressure is measured in inches of mercury.

24-hr Summary Plot

When the user clicks this option, a new webpage graphically displays the previous 24 hours of data collected at the Central Climatology tower near N-Area (Figure 25). The top graph displays observed 15-minute values of temperature, dew point, and relative humidity. The second graph displays observed barometric pressure. The third graph displays 5 minute rainfall (as well as a total in the upper left corner of the graph), and the heat stress category designated by a 1, 2, 3, 4, or 5 on the graph.

The fourth graph displays the measured wind speed at specific levels throughout the day. Measured heights are 13, 59, 118, and 200 feet above ground and are denoted in the upper right hand corner of the graph. The last graph displays similar data to the fourth graph, but displays it in wind barb format. Wind barbs point in the direction **from** which the wind is blowing. A key on the right side of the graph provides the user with a description of what the flag on the end of the wind barb is showing.

At the very bottom of this page, the user will find two links to separate pages where daily and weekly data from P-Area is displayed. Similar data to that described above is shown on these two pages. The only additional piece of information displayed is a daily and weekly plot of soil moisture (as a percentage) from two probes near the P-Area tower.

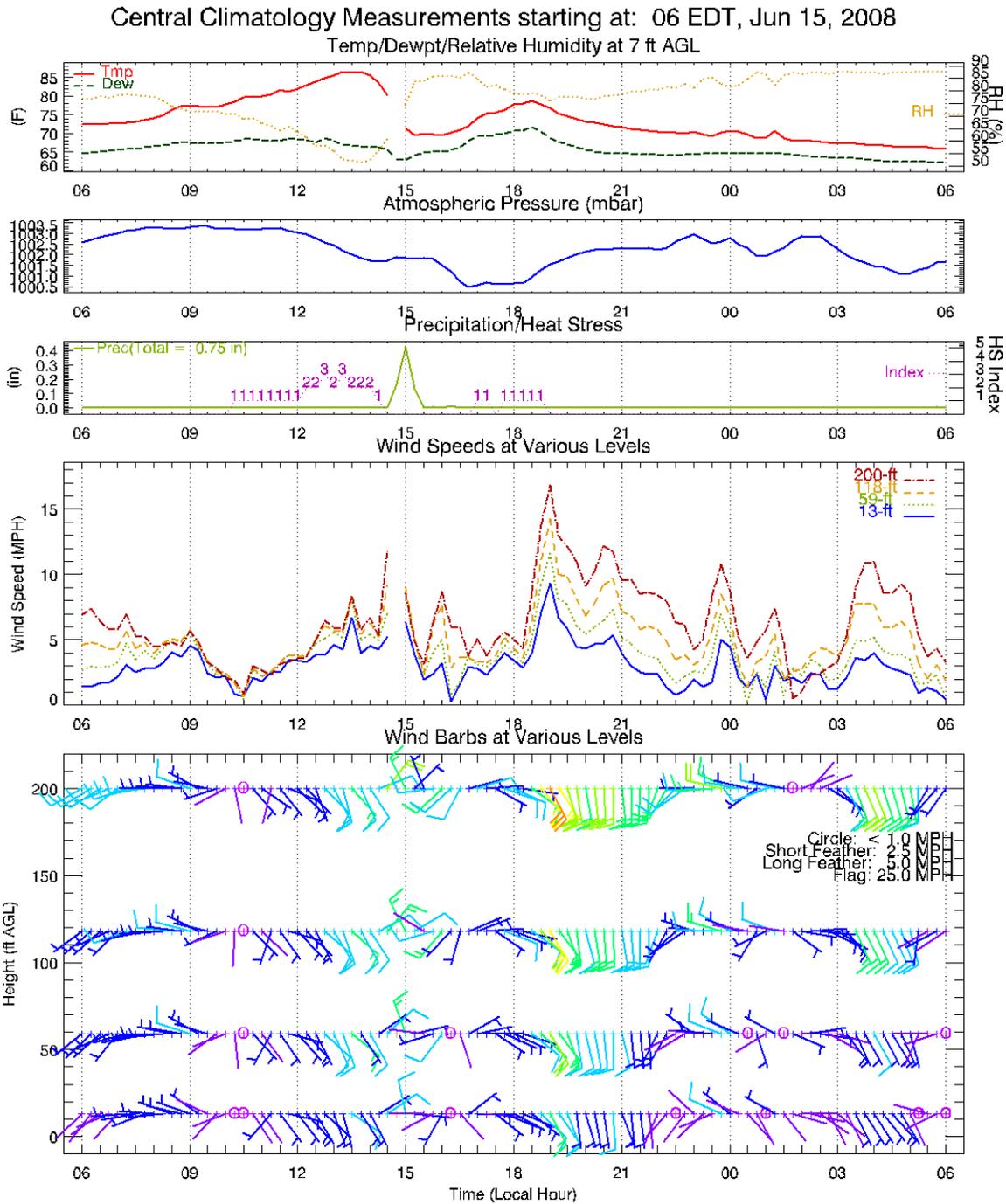


Figure 25. Graphic display of temperature, dew point, relative humidity, precipitation, heat stress category, and wind speed and direction at 13, 59, 118, and 200 feet above ground level.

24-hour Lightning Summary

When the user clicks on the 24-hour lightning summary, a map appears with SRS at the center. Each morning at 6:00 am EDT/EST, the image will update displaying lightning strikes with occurred in the CSRA over the previous 24-hours. If a lightning strike occurred, it will displays as a bright white dot on the map. The user can click on the image to zoom in. Figure 26 illustrates the map.

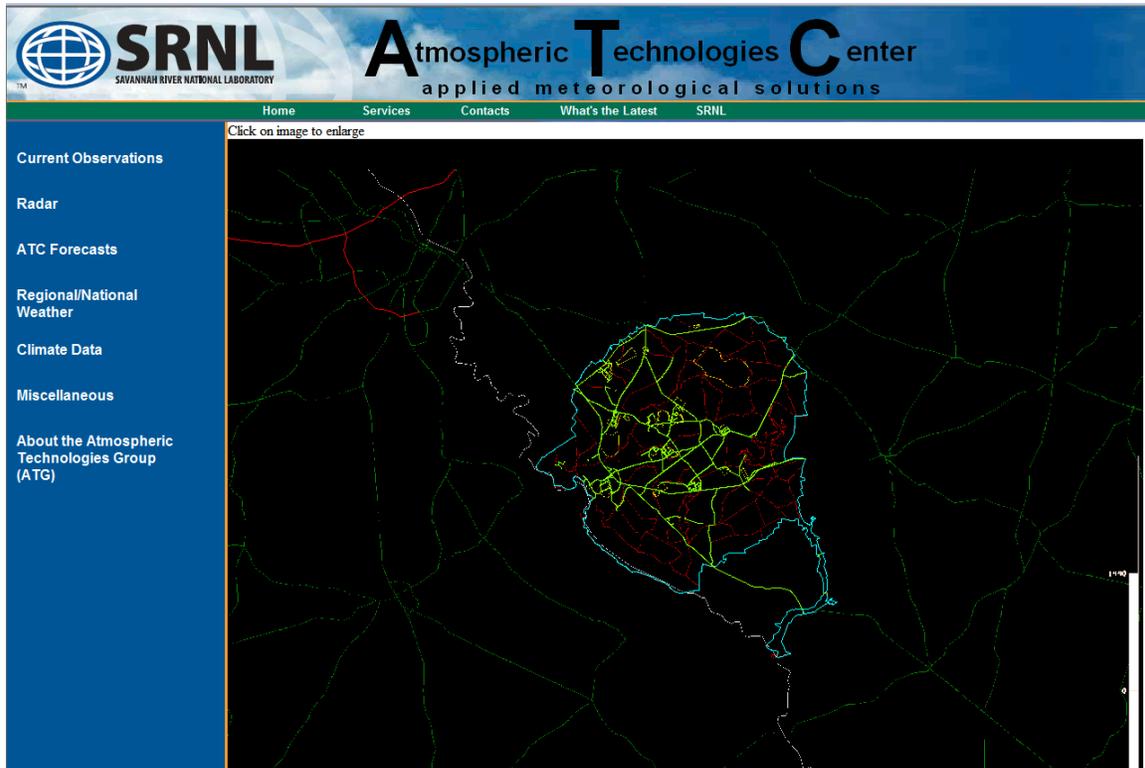


Figure 26. Image of the 24-hour lightning summary.

Daily P-Area Plot

When the user clicks on the daily P-Area plot, a graph appears displaying 24 hours of data from 8:00 am to 8:00 am. Each morning at 8:00 am EDT/EST, the graph will update displaying temperature, relative humidity, wind speed and direction, precipitation, and soil moisture over the previous 24-hours. Figure 27 illustrates the graph.

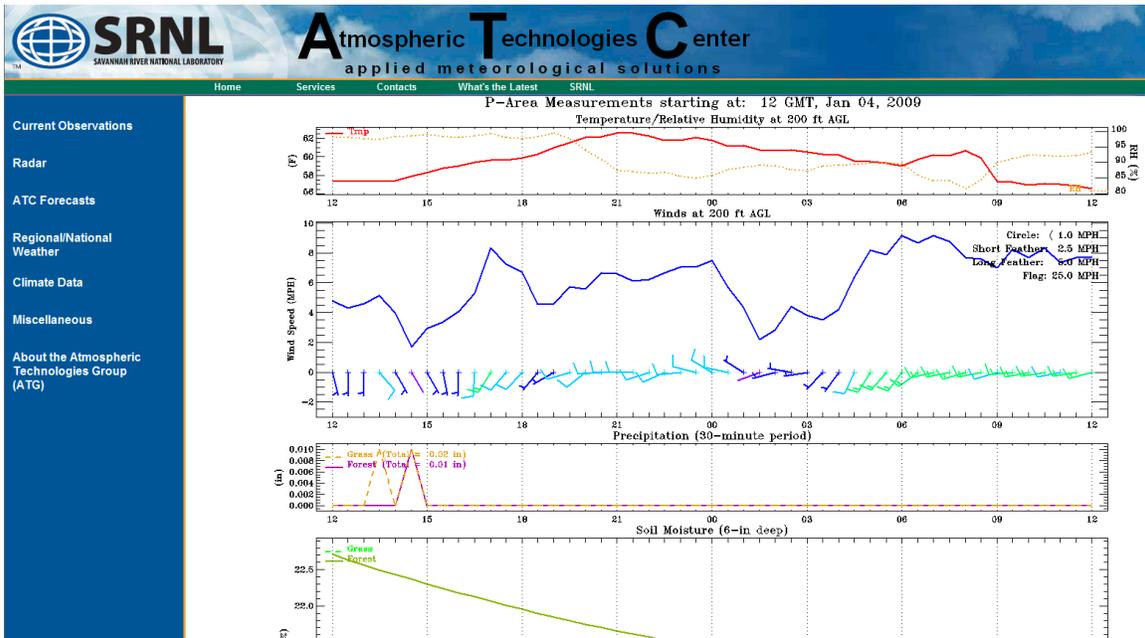


Figure 27. Plot with 24-hour summary of data from P-Area.

Weekly P-Area Plot

When the user clicks on the weekly P-Area plot, a graph appears displaying seven days of data from 8:00 am to 8:00 am. Each morning at 8:00 am EDT/EST, the graph will update displaying temperature, relative humidity, wind speed and direction, precipitation, and soil moisture over the previous seven days. Figure 28 illustrates the graph.

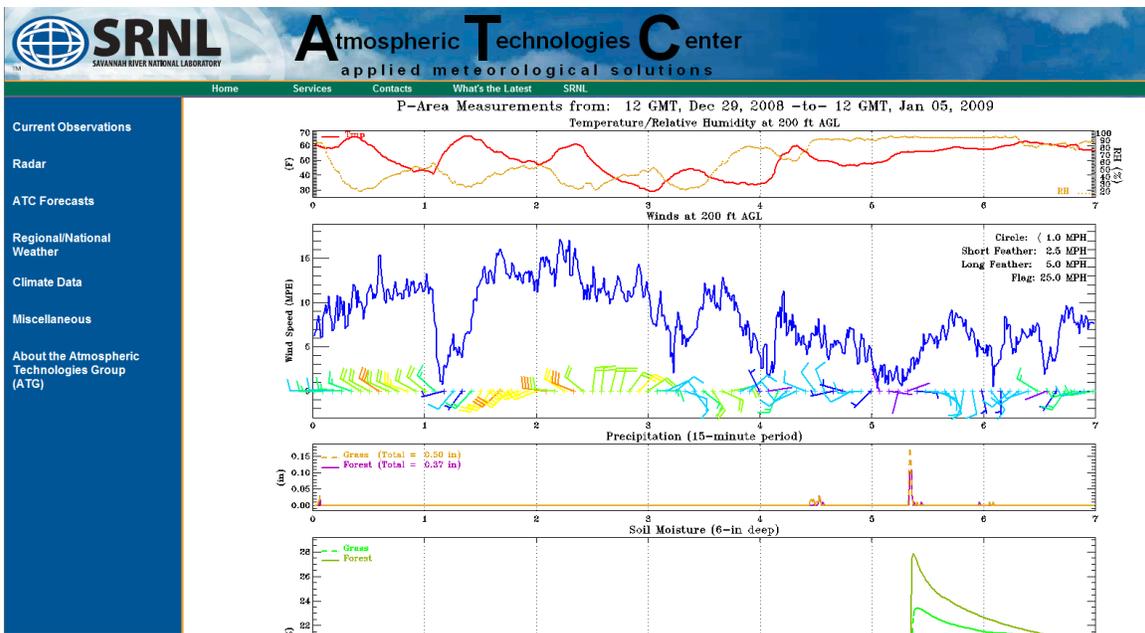


Figure 28. Plot with seven day summary of data from P-Area.

Recent Historical Data

This page provides the user with a multitude of historical data (Figure 29). The user can choose to read monthly weather reports from the previous year or yearly climatological reports going back to 1997. The user can also download 24 hour rainfall totals (6 am through 6 am) or daily minimum and maximum temperatures going back to 1964. Manual temperature data recorded in A-Area and manual rain gauge readings from across the site can be downloaded by the user.

SRNL SAVANNAH RIVER NATIONAL LABORATORY

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Home Services Contacts What's the Latest SRNL

CLIMATE DATA

MONTHLY/ YEARLY REPORTS

ATG routinely issues monthly and annual reports containing summaries of basic meteorological data. Electronic versions of recent reports are available.

Select the month you would like to review from the past year:

Please select a year to review annual information:

For hardcopy versions of past monthly or annual reports, call Brian Antonicelli at 5-3214 or Linda Randolph at 5-3185

DOWNLOAD DATA

Custom datasets of daily rainfall and temperature can be requested by completing the following information. The rainfall database includes information for 12 gage locations across the SRS. All users please note that these data have not been subject to a rigorous quality control review and, therefore, should be used with some caution. Please call the Weather Center if your need to request temperature or rainfall data with full quality assurance.

Enter your User ID:

Select the report start and end date

Start Date

End Date

Query Output Options

Excel

Comma-Delimited File

Rainfall-24 hr totals (6am-6am) since 1964

Figure 29. Display of the “Recent Historical Data” page.

To download data (we’ll use temperature in this case), the user needs to enter their site user ID into the appropriate blank. Then place the cursor of the mouse in the “Start Date” blank and a calendar will pop-up on the screen (Figure 30). The user should select the date they want to begin looking at temperature data. The user then clicks the cursor of their mouse on the “End Date” blank line and the same calendar will pop-up. The user then needs to pick an end date to look at the temperature data.

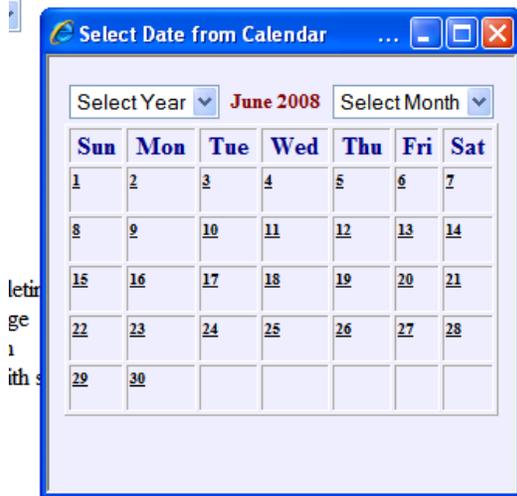


Figure 30. Calendar pop-up that appears to a user when selecting the start and end data of a data set they want to create.

Next, the user needs to choose the output format of the data (either an Excel spreadsheet or a comma-delimited file). Last, the user needs to click the submit button for either the rainfall or temperature (we will use temperature in this case). The user will be asked whether they want to open the file or save it to their computer. We will choose to open the file. Figure 31 shows the output for daily temperature maximum and minimum which was just created.

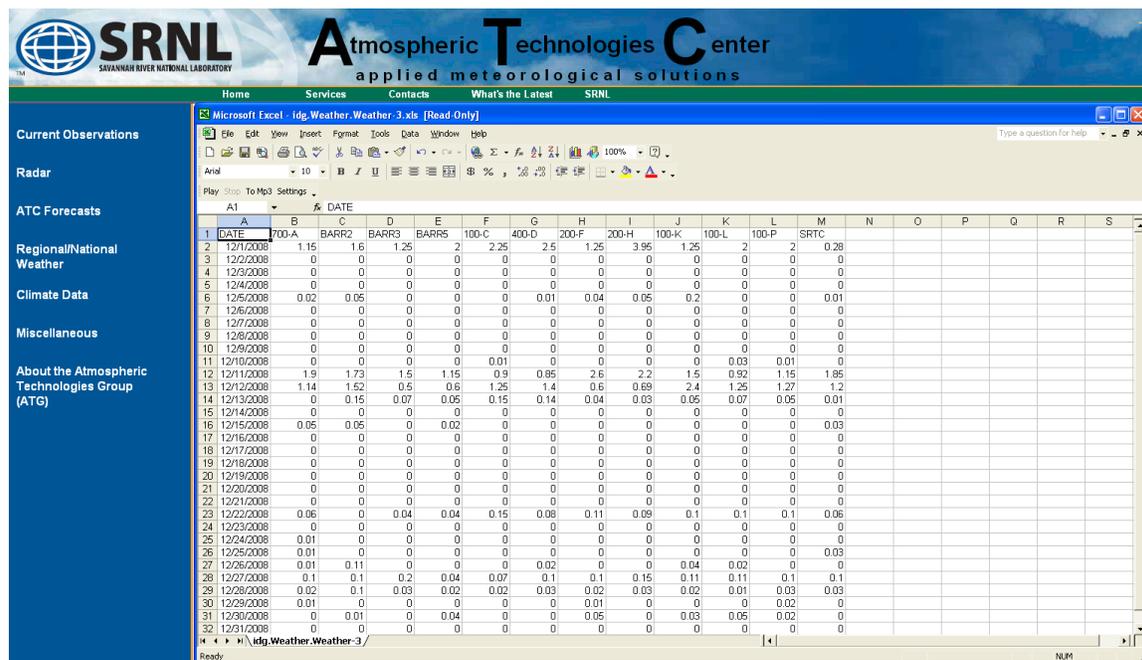


Figure 31. Display of daily maximum and minimum temperatures in an Excel spreadsheet.

Miscellaneous

The next submenu on the ATG webpage is the miscellaneous submenu. Under this submenu are an explanation of how heat stress and wind chill measurements are used onsite, weather safety tips, and also this user's manual (Figure 32).

The screenshot shows the SRNL Atmospheric Technologies Center website. The header includes the SRNL logo and the text "Atmospheric Technologies Center applied meteorological solutions". A navigation bar contains links for Home, Services, Contacts, What's the Latest, and SRNL. On the left, a blue sidebar menu lists various categories, with "Miscellaneous" highlighted. The "Miscellaneous" submenu is open, showing options: "Heat Stress / Wind Chill", "Weather Safety Tips", and "ATC Website User's Guide". The main content area is divided into three sections: "CURRENT CONDITIONS AT SRS" with a table of ground level observations, "REGIONAL RADAR" with a weather map, and "CONDITIONS AND FORECASTS AROUND THE U.S.A." with a dropdown menu of city locations.

Updated 01/05/2009 3:45 PM	
Temperature	69 ° F
Dew Point	57 ° F
Rel Humidity	66%
Wind Direction	305° (NW)
Wind Speed	5.3 mph
Max Wind Gust	11.9 mph
Estimated WBGT	65.3°
Heat Stress Index	"None"
Pressure	1004.6 mb
SRS Forecast	

Figure 32. Display of the miscellaneous submenu.

Heat Stress/Wind Chill

Upon clicking this option, the user is directed to a website which provides heat stress information as well as wind chill information. A table explaining the SRS heat stress index card is the first piece of information displayed (Figure 33a). Here the user of the webpage can determine what actions need to be taken (if any) depending on the "Heat Stress Category" displayed on the ATG front page. The next piece of information the user comes to are the guidelines for using the Mannix Heat Stress Monitor which is commonly used by the National Weather Service to measure the heat index (Figure 33b).

SRS HEAT STRESS INDEX CARD (OSR 4-703, dated 10-27-02)

CATEGORY	WBGT INDEX RANGE(°F)	RECMD WATER INTAKE**	ACCLIMATIZED WORK/REST***	UNACCLIMATIZED ADDITIONAL CONTROLS
I	77.0-81.9	0.5 qt/hr	Continuous	Enforce water intake
II	82.0-83.0	0.5 qt/hr	45 min work, 15 min rest	Enforce water intake; Use buddy system
III	85.1-87.9	1.0 qt/hr	30 min work, 30 min rest	Enforce water intake; Use buddy system; No strenuous work
IV	88.0-89.9	1.0-1.5 qt/hr	15 min work, 45 min rest	Enforce water intake; Use buddy system; Light work only
V	90.0 or above	(Non-Mandatory) For more information on job planning, risk factors and ways to prevent heat stress during Cat V conditions review the Heat Stress Job Aid provided in Procedure 4Q 502, Attachment G		

Figure 33a. Display of the SRS Heat Stress Index Card.

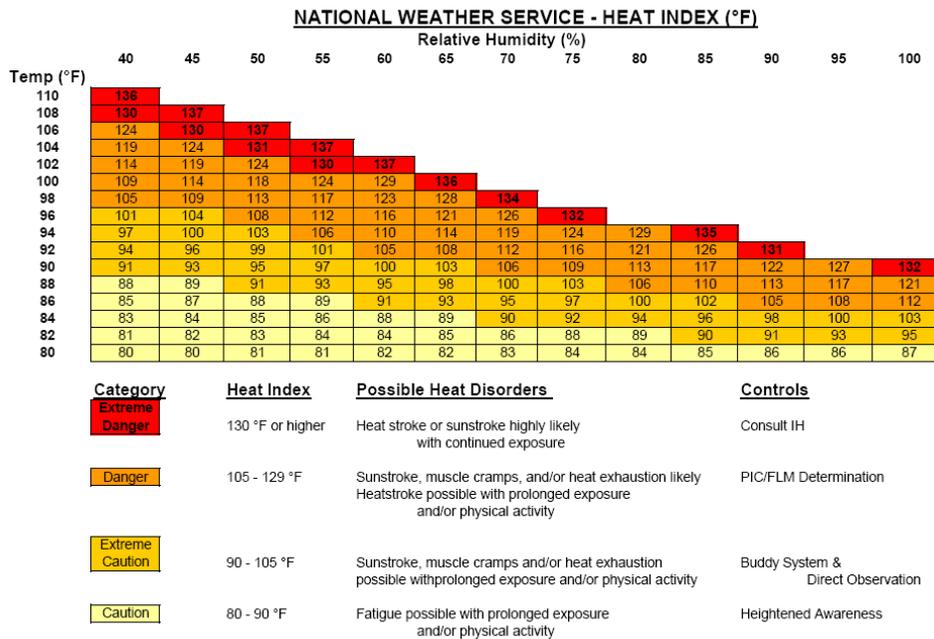


Figure 33b. Display of the Mannix Heat Index table used by the National Weather Service.

The last area of information on this page summarizes wind chill. Figure 33c displays the wind chill chart used by the National Weather Service. The rest of the page contains safety information related to heat stress and wind chill.

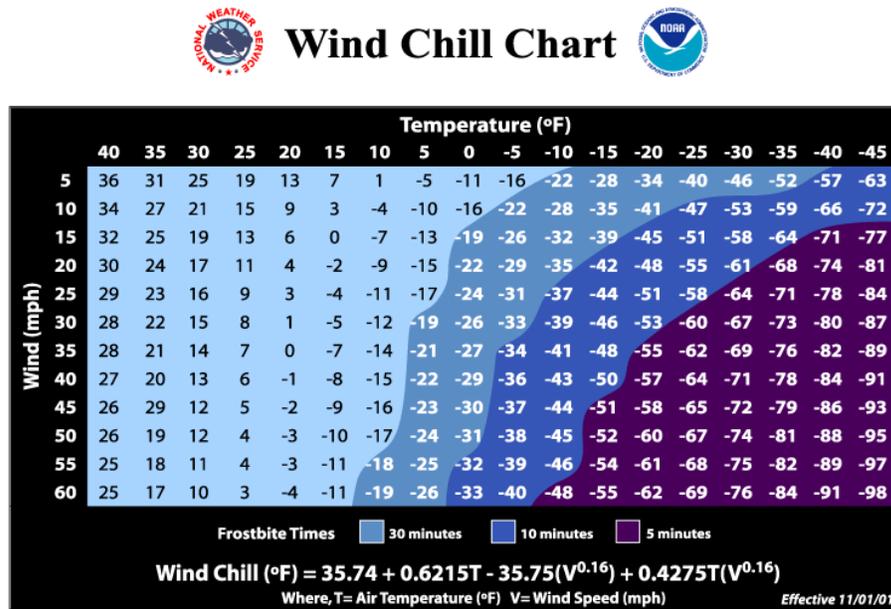


Figure 33c. Display of the wind chill chart from the National Weather Service.

About the Atmospheric Technologies Group (ATG)

This submenu contains seven brochures which highlight several aspects of the ATG from information about the ATG to information on the WINDS System (Figure 34). The user can peruse these brochures at their leisure to gain knowledge of the skills and abilities of the Atmospheric Technologies Group.

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Current Observations

Radar

ATC Forecasts

Regional/National Weather

Climate Data

Miscellaneous

About the Atmospheric Technologies Group (ATG)

- About the ATG
- Atmospheric Technology Center
- Meteorological Measurements
- Advanced Atmospheric Modeling
- Hydrology and Surface Water Modeling
- Weather Information and Display (WIND) System
- Climatology Facility

CURRENT CONDITIONS AT SRS

Ground level Observations from ATG's Central Climatology station near N-Area

Updated 01/05/2009 3:45 PM

Temperature	69 ° F
Dew Point	57 ° F
Rel Humidity	66%
Wind Direction	305° (NW)
Wind Speed	5.3 mph
Max Wind Gust	11.9 mph
Estimated WBGT	65.3°
Heat Stress Index	"None"
Pressure	1004.6 mb

[SRS Forecast](#)

REGIONAL RADAR

Updated at Mon Jan 05 15:57:39 EST 2009 Click to view larger image.

CONDITIONS AND FORECASTS AROUND THE U.S.A.

Augusta/Aiken
Albuquerque/Sandia-Los Alamos
Amarillo/Pantex
Asheville

Figure 34. Display of the options under “About the Atmospheric Technologies Group (ATG)”.