Suncoast Weather Quarterly

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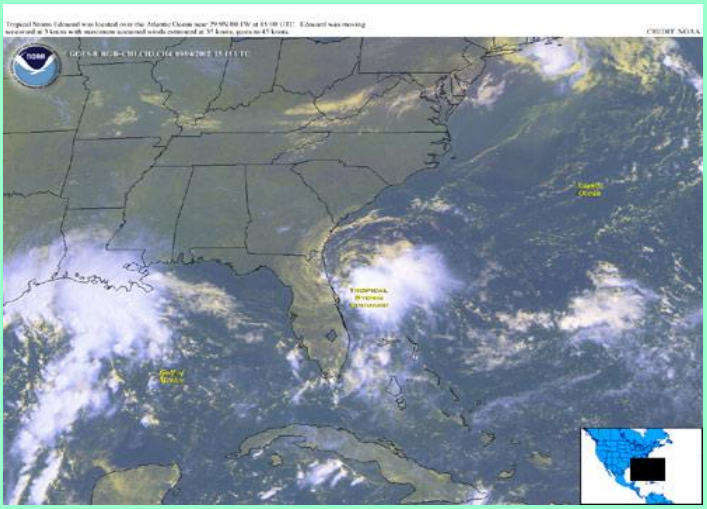
Featured Weather

Florida Tropical Cyclone Review
2002 Season



NOAA GOES-8 imagery for Tropical Storm Edouard just prior to landfall in northeast Florida on September 4th (1515 UTC). Data courtesy of NOAA/NESDIS Operational Significant Event Imagery group.

The Summer of 2002 featured 12 tropical cyclones, four of which reached hurricane status. Two of the hurricanes, Isidore and Lili, reached major (category 3 or higher) status, and both spent time in the Gulf of Mexico. Five of these systems (Edouard, Fay, Hanna, Isidore, and Lili) affected the Gulf in September. However, despite the activity, Florida remained largely unscathed. Overall, only four systems had some impact on Florida; they are discussed below. Some of the information that follows was taken from the September tropical cyclone summary from the National Hurricane Center.

Tropical Storm Edouard (September 1 - 6)

Edouard developed about 110 miles east of Daytona Beach on the 1st. The depression soon strengthened into a tropical storm, and then moved in a clockwise loop off the northeast Florida coast for a few days. Edouard briefly strengthened to a peak intensity of 65 mph on the 3rd, but strong upper-level winds soon weakened the storm as it headed back toward the coast.

Edouard was barely tropical storm strength when it made landfall just north of Daytona beach on the evening of the 4th, and was immediately downgraded to a depression. Tropical Depression Edouard crossed north-central Florida and moved into the northeast Gulf of Mexico on the 5th as a weak cyclone. Strong winds aloft prevented any redevelopment, and Edouard dissipated over the Northeast Gulf on the 6th.

Edouard's impact included well-spaced bands of torrential rain on both sides of it's circulation. One band created nuisance urban flooding in portions of the Tampa Bay area on the 5th.

Tropical Storm Hanna (September 11-14)

Hanna developed out of a broad area of disturbed weather and low pressure in the central Gulf. A tropical depression formed from the disturbance late on the 11th, 240 miles south-southwest of Apalachicola. The depression meandered slowly in the central Gulf...becoming a tropical storm on the 13th about 255 miles south-southwest of Pensacola. Hanna then moved northwest and then north, passing over Louisiana near the mouth of the Mississippi River early on the 14th. Hanna finally made landfall near the Alabama-Mississippi border around noon on the 14th, with 50 mph winds.

Storm impacts were confined generally to the Panhandle. Two persons perished due to rip currents, one at Sea Grove Beach on the 14th; the other at Panama City Beach on the 15th. Southerly flow of deep moisture east of the cyclone center dumped 5 to 10 inches of rain, causing some freshwater flooding. A storm surge of 2 to 4 feet cause minor coastal flooding and beach erosion. Wind gusts of more than 35 mph produced minor tree and power line damage in a few counties. Details are available in a summary from NWS Tallahassee.

Tropical Storm Isidore (September 14-16)

Isidore formed from a westward-moving tropical wave and became a tropical depression as it was approaching the windward islands on September 14th. After a brief period of weakening, Isidore reformed near Jamaica, then gradually strengthened before striking western Cuba as a category 2 hurricane on the 20th.

Isidore intensified into a strong category 3 hurricane after emerging into the southern Gulf, then shifted due south, hitting the rural northern Yucatan (Mexico) Peninsula on the 22nd. While meandering over the peninsula, Isidore weakened significantly. By the 24th, an upper level trough dropping into the middle of the U.S. pulled the weak system north. After emerging back into the Gulf, Isidore accelerated toward the northern Gulf coast. A small core of strong winds redeveloped around the exposed center of the cyclone, bringing it back to a 70 mph tropical storm just prior to landfall near Grand Isle, Louisiana, on the 26th.

Isidore, a compact cyclone prior to landfall in the Yucatan, stretched into a system whose girth covered the entire Gulf while moving northward toward the U.S. The girth of the system, combined with the duration of time spent near or in the Gulf, produced high seas and large

swells. Buoys in the eastern Gulf reported seas over 20 feet shortly before landfall.

The greatest impacts in Florida were once again felt across the Panhandle. Monetary damage was the highest in any storm of 2002, well into the millions of dollars. Most of the damage was due to moderate coastal flooding and substantial beach erosion, courtesy of a storm surge of between 4 and 7 feet. Other damage came from several outer band tornadoes, as well as frequent wind gusts above 40 mph. Details are available in a summary from NWS Tallahassee.

Tides along the Suncoast were 1 foot above normal beginning on the 22nd, and peaked at more than 2 feet above normal at low tide on the 25th. Rough waves and heavy surf were observed on the 25th and 26th.

Tropical Depression Kyle (September 20 - October 12)

Kyle was the storm that wouldn't die. Lasting nearly 4 weeks, the system became one of the most persistent on record. Fortunately Kyle, which briefly became a strong category 1 hurricane well east of Bermuda early in it's life, weakened to a minor depression prior to tracking toward's Florida's northeast coast. Upper winds steered Kyle parallel to northeast Florida on October 10th. Convection briefly flared north of the center as it approached the Carolina Coast on the 11th, briefly returning the system to a tropical storm.

Affects on Florida were limited to high seas, locally rough surf, slightly above normal tides, and a few minor rain bands, all between Cape Canaveral and Jacksonville.

Incident Meteorologists: Busy Under Fire in 2002

By Rick Davis, Forecaster

Across the nation, this wildfire season has been a record-breaker. Approximately 61,000 fires have burned 6.6 million acres nationally, which more than triples the previous 10-year average of 2 million acres, and far surpasses the previous record-setting fire season of 2000. Luckily, the state of Florida was spared from an active fire year, approximately 2,500 fires have burned around 40,000 acres.

The NWS has a small group of experienced fire weather forecasters , more than 50 certified nationwide, known as Incident Meteorologists (IMET). The IMETs were sent to remote locations throughout the U.S. to support wildfire operations.

The IMETS are equipped with an Advanced Technology Mobile Unit (ATMU), laptop computer, and a portable weather station known as a MICRO-REMS. An IMET deployment to an incident can vary from a few days to two weeks. IMET duties include daily forecast coordination and compositions, spot forecasts as requested, daily weather briefings, weather observations, weather records, maintaining the weather equipment and producing daily logs.

As an IMET, I was assigned to three large wildfires this spring and summer. The closest to home was on the Okefenokee National Wildlife Refuge, in Southeast Georgia, where over 100,000 acres burned this spring.

My other two dispatches were to remote areas in the state of Utah, this summer. While on these fires, I was impressed with the commitment, dedication, and willingness of the entire fire fighting team, while

IMETs are there for fire crew safety and tactical support to the fire management team.

They provide weather forecasts to the land management fire behavior analysts. The IMETs receive special training in microscale forecasting, fire behavior and fire operations, which makes these fire weather forecasters a key member of the fire management team.

accomplishing the overall goal, contain the fire and protect life and property. This year, the NWS responded to more than 150 IMET dispatch requests for wildfire support. These efforts show we are committed to working together to save lives.

Rick standing beside an ATMU, including portable weather station and laptop, during IMET duty for the Sanford Fire on Mt. Dutton, Utah, in July, 2002.

South Florida Offices Put on a "Crystal Face"

By Russell Henes, Hydrometeorological Technician

From July 3 through July 28, 2002, NWS Tampa Bay participated in a research project designed to measure upper atmospheric weather data across central and south Florida. In addition to the Tampa Bay office, the weather offices located in Miami and Key West also joined in the effort, along with NASA who sponsored the project.

The study was named the Cirrus Regional Study of Tropical Anvils and Cirrus Layers (CRYSTAL) - Florida Area Cirrus Experiment (FACE). Its purpose was to enable scientists to better understand the cirrus cloud formations relative to thunderstorms and associated lightning occurrences. Additional information is available from the NOAA Environmental Technology Laboratory website.

The upper air soundings were conducted, sometimes as often as every 6 hours, for the duration of the project, while NOAA aircraft flew data collection flights into cirrus cloud formations across Florida and the

eastern Gulf of Mexico.

Kudos for the Ruskin office are in order as they completed the project without missing a single flight and provided NASA with valuable data!

Karl Loeper, NWS Tampa Bay Hydrometeorological Technician,
preparing a radiosonde for the CRYSTAL-FACE project in July.

From the WCM

Florida Counties Get "StormReady!"

Pinellas County, FL, is StormReady!
From left, WCM Daniel Noah, Emergency Coordinator David Casto, Area 4 Emergency Manager Ken Rudnicki, and Pinellas Commission Chairperson Barbara Sheen Todd.

Americans live in the most severe weather prone country on Earth. Each year, U.S. citizens cope with an average of 10,000 thunderstorms, 2,500 floods, 1,000 tornadoes, as well as several land falling tropical cyclones. Hazardous weather impacts every American.Communities can now rely on the National Weather Service's StormReady program to help them guard against the ravages of Mother Nature. Some 90% of all presidentially declared disasters are weather related, including around 500 deaths and nearly $14 billion in damage annually.

StormReady helps arm America's citizens with the communication and safety skills necessary to save lives and property - before, during, and after the event. StormReady helps community leaders and emergency managers strengthen local safety programs. StormReady communities are better prepared to save lives and protect property from the onslaught of severe weather through better planning, education, and awareness. No community is storm proof, but StormReady can help communities mitigate against potentially deadly weather hazards.

Pinellas County Recognized as "StormReady"

Pinellas county was recognized as "StormReady" by the NWS on August 27, 2002, during the County Commission meeting. StormReady is a program sponsored by NWS to recognize those counties that enhance their weather action plan and demonstrate "readiness" before, during, and after severe weather events.

The Pinellas county office of Emergency Management has fine-tuned their action plan for training, weather monitoring, warning reception, and local warning dissemination. These factors, among others, define a StormReady community in the NWS program.

Since its inception, there have been 428 communities and counties recognized as "StormReady" in 42 states. As of this writing, StormReady counties on the Suncoast include Citrus, Sarasota, De Soto, Charlotte, Lee, and now Pinellas. And, all other Florida counties will be coming on board over the next few

years, due to cooperation between state, local, and federal emergency managers and the NWS. More details on Florida's StormReady plan will be coming soon!

Forecaster's Corner

Graphical Forecasts: Pictures are Worth a Thousand Words

The NWS is taking advantage of 21st century technology to convert most of our routine text forecasts into a suite of graphical, gridded, and text products that will satisfy all of our partners, including the general public, emergency management agencies, the broadcast media, private weather organizations, and the research community.

For years, we have issued quality text forecasts - those which were broadcast by conventional radio, NOAA Weather Radio, and The Weather Channel, to name a few. However, the advent of rapid graphics technology (such as high speed Internet and satellite television) dictates that NWS provide forecasts not only as text products but digitally through a grid-to-graphics interface.

A Graphical Forecast Editor (GFE), included within an Interactive Forecast Processing System (IFPS), will be used by NWS operational staff to produce the entire suite of forecasts.

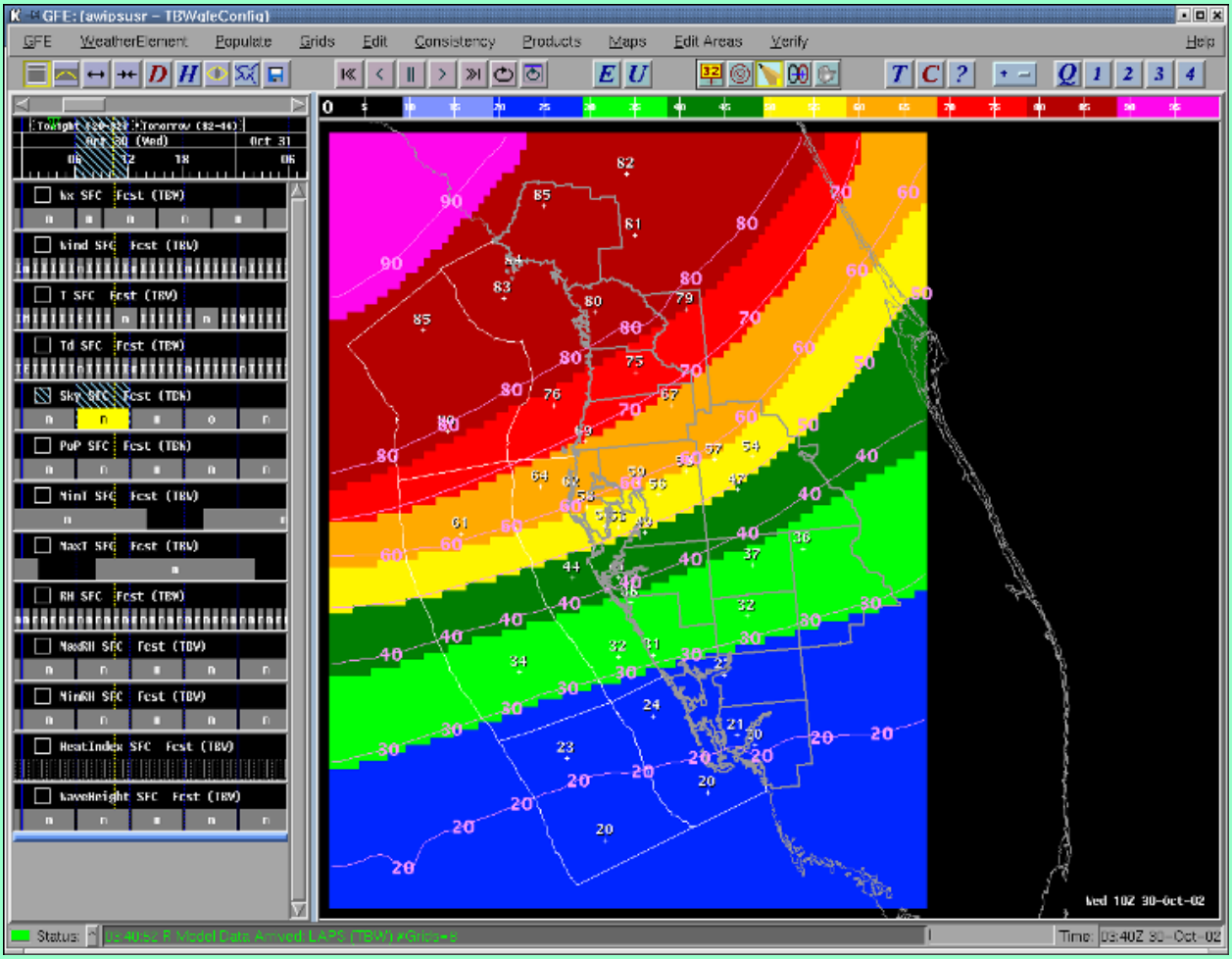


Figure 1. Experimental Graphical Forecast for
Sky Cover along the Suncoast, October 30 (AM), 2002.

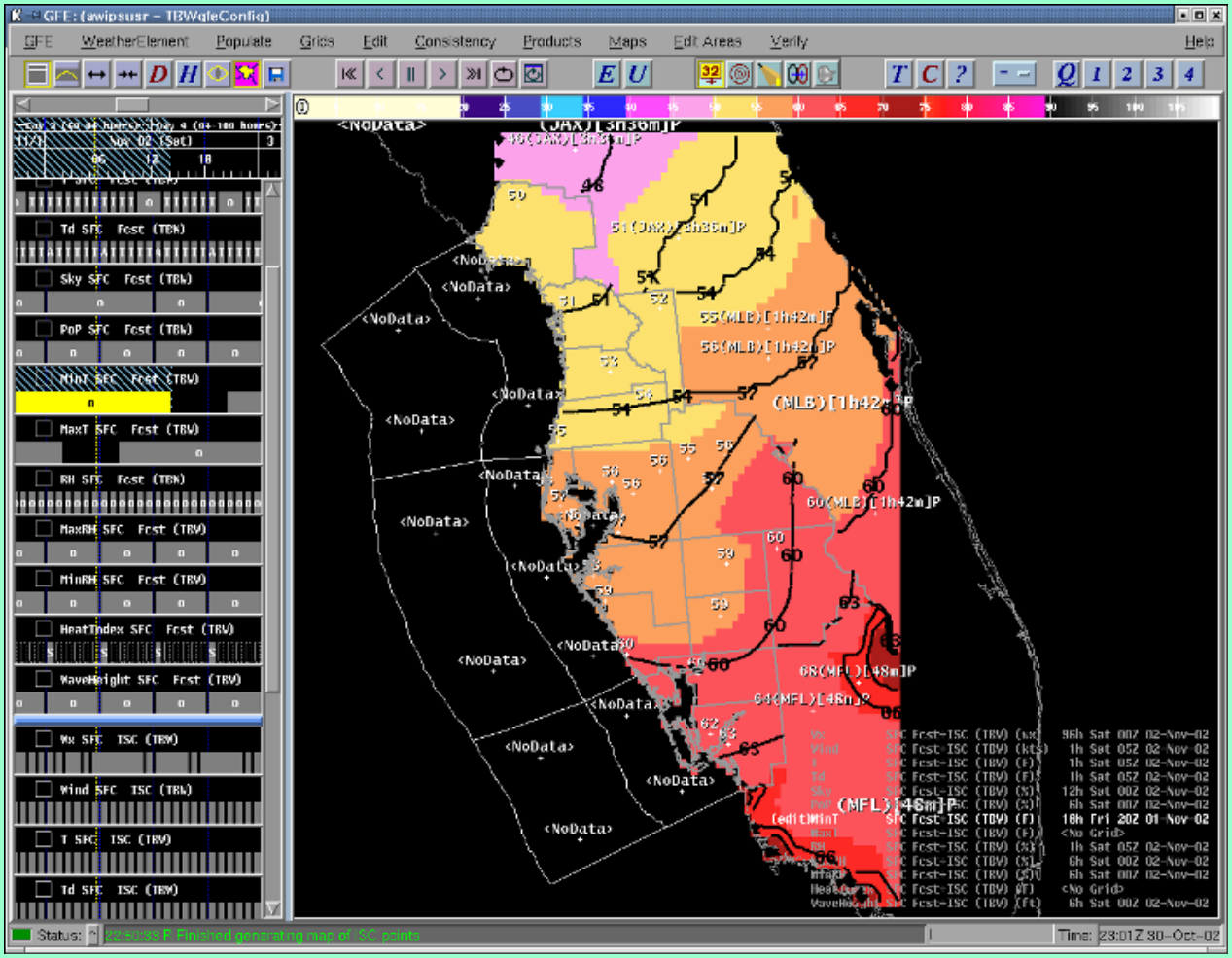


Figure 2. Experimental Intersite Coordination Forecast for Minimum Temperature Across the Florida Peninsula, for November 1, 2002.

How it Will Work

Local forecast teams at each NWS field office will obtain graphical images of weather parameters from numerical models (or statistical guidance from them), and modify them each day to reflect the expected conditions. For example, a contoured sky cover graphic from NWS Tampa Bay, as a frontal zone approaches from the northwest, would show the values in Figure 1 above.

At selected times during the day, the data from all of field offices will be published into a national data set known as the National Digital Forecast Database (NDFD), from which our varied customers can retrieve any forecast data they desire. Built-in word formatters will create text forecast products to be used by customers such as NOAA Weather Radio and local over-the-air broadcasters.

To make the system seamless, a process of inter-office coordination will exist. This process will allow neighboring offices to see preliminary forecast data prior to final publication to the NDFD (Figure 2). At this point, discrepancies will be ironed out through telephone coordination, during which local forecast teams can modify parameters on the fly, then re-publish them so each coordinating office can view the change!

Why It Will Work

For decades, NWS forecast teams have had to convert graphical forecast information into hand-typed text products. While this process becomes routine in time, it does not follow the more logical method of graphical *thinking* to graphical *doing*. Technological advances now allow the NWS to issue routine forecasts with little typing. In quiet or persistent weather patterns, minimal editing will be necessary.

Most importantly, the additional free time can be used by operational staff on research projects or local hazardous meteorological studies. Such studies will further improve hazardous weather forecasting, a critical element in the NWS mission of working together to save lives!

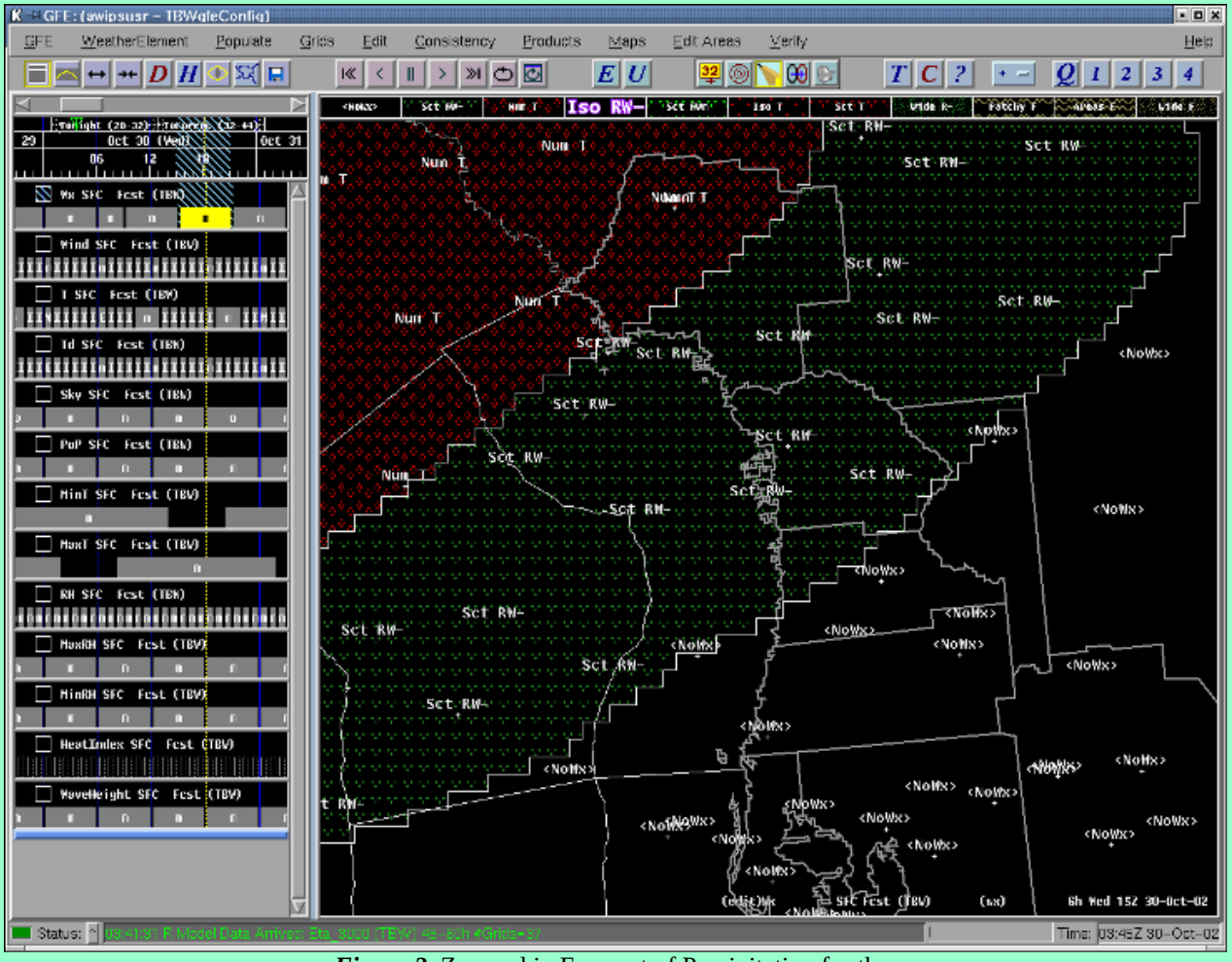


Figure 3. Zoomed in Forecast of Precipitation for the North Suncoast, morning of October 30, 2002.