

# Regional/Local Experimental Seasonal Forecast Product Description Document

## Part I - Mission Connection

NOAA's **Strategic Plan for FY 2003 – FY 2008 and Beyond**, subtitled “**New Priorities for the 21<sup>st</sup> Century**” brings the issue of climate to the forefront of the NWS mission. Regional/Local Experimental Seasonal Forecast Products deal with the assessment, prediction and interpretation of short-term climate variability and specifically address the issues raised in Mission Goal 2 (*Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond*) of the NOAA Strategic Plan. In particular, these products address the stated need for an “*Increased number, accuracy, and regional specificity of U.S. climate, water, and coastal resource products.*”

### **a. Product Description**

Regional/Local Experimental Seasonal Forecasts may be textual or graphical. They typically consist of experimental short-term climate variability forecasts and monitoring data, and meteorological/hydrological interpretation and assessment of societal impact on a web page. These experimental web pages will normally provide educational material to help users understand the experimental forecast methodology and reliability to better aid preparedness and mitigation efforts. The web page will typically assimilate a wide variety of information on short-term climate variability for the forecast area such as links to official NOAA/NWS forecasts and experimental, locally/regionally produced graphical/textual monitoring products. The area covered by the forecast may be a commonly accepted political or geographical location such as a state, county or region, or it may be a uniquely defined in which case the area will be made explicitly clear on a map on the web page.

An example of such an experimental seasonal forecast product suite is the “Florida EL Nino - Southern Oscillation (ENSO) Home Page Featuring: 2002-2003 Experimental Dry Season Forecast for Florida (Valid for period November 1st 2003 through April 30th 2004)” produced by WFO Melbourne, Florida and available on the Internet at: <http://www.srh.noaa.gov/mlb/enso/mlbnino.html>.

### **b. Purpose and Intended Use**

Regional/Local Experimental Seasonal Forecast Products specifically relate to the NWS goal to “Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond”. The products are intended to provide additional information at the regional and local scale beyond that provided by the Climate Prediction Center to enable and increase the application of climate information for health and safety, environmental, economic, and community planning, especially for freshwater supply, water quality, coastal impacts, and mitigation of extreme hazardous events. Assessing and forecasting the impacts of short-term climate variability and

emphasizing enhanced risks of weather-related extreme events will help mitigate losses and maximize economic gains and protect life and property.

Each Regional/Local Experimental Seasonal Forecast will contain a statement of intended purpose and goals. An example of such a statement for the Experimental Florida Dry Season Forecast is at <http://www.srh.noaa.gov/mlb/enso/mlbnino.html> under “about this page”.

### **c. Audience**

The target audience for the *Regional/Local Seasonal Forecast Product* includes the general public, federal, state and local emergency management agencies, mitigation and risk management specialists in all sectors of society, and the media. This product is intended for anyone requiring a better understanding of the climate dynamics of their area of interest and how short-term climate variability can impact them. This product specifically deals with a need to better communicate regional/local climate variability relationships to society.

### **d. Presentation Form**

Due to the diversity of the possibilities for experimental seasonal forecast products, a wide variety of presentation forms are possible. The Regional/Local Experimental Seasonal Forecast products can take the form of textual discussions or graphical maps produced at a Weather Forecast Office or Regional Office that interpret and refine Climate Prediction Center (CPC) forecasts for the local/regional area. They could also be textual discussions and/or graphical presentations of the societal impacts of a national (CPC), regional or local forecast of short-term climate variability, and/or regionally/locally produced graphics of observed climate variability. These experimental seasonal forecasts are at the cutting edge of the science. In the early stages of product development, it is advantageous to experiment with a number of methods to present the information and get feedback from users.

An example of a presentation of such experimental seasonal forecast products is the Melbourne, Florida Experimental Dry Season Forecast for Florida (<http://www.srh.noaa.gov/mlb/enso/mlbnino.html>). A bar graph of forecast El Nino/La Nina (ENSO) conditions and conditional probabilities that dry season storminess and rainfall will fall within defined ranges relative to normal is the primary product. It is supported by textual forecast discussions on the likely ENSO state based on guidance from the Climate Prediction Center, and discussions interpreting the experimental seasonal storminess and rainfall forecasts and assessing their likely impacts. Graphical products depicting the actual observations of accumulated seasonal rainfall, storminess and jet stream strength as well as displays of their intraseasonal variability are also presented. Extensive educational material on how to understand, use and interpret all of this information is also provided as part of the experimental seasonal forecast package.

### **e. Feedback Method**

Feedback will be obtained during WFO outreach opportunities, conferences and workshops, emergency management meetings, SKYWARN training sessions, and customer/partner workshops. Continuous feedback will also be available via an e-mail link to the product developers on the web page (<http://www.srh.noaa.gov/mlb/enso/mlbnino.html>) as well as a link to the generic NWS Headquarters Customer Survey. The experimental feedback period will begin on October 1st 2003 and end on April 30th 2004.

Contact information including mailing and e-mail addresses for policy and technical questions and comments will be provided for each experimental product on the web. For the WFO Melbourne "Florida EL Nino - Southern Oscillation (ENSO) Home Page Featuring: 2002-2003 Experimental Dry Season Forecast for Florida" the contact information would be:

National Weather Service  
Attn: Bart Hagemeyer  
Meteorologist in Charge  
421 Croton Road  
Melbourne, Florida 32935

Or e-mail questions and comments to: [bart.hagemeyer@noaa.gov](mailto:bart.hagemeyer@noaa.gov)

## **Part II - Technical Description**

### **a. Format and Science Basis**

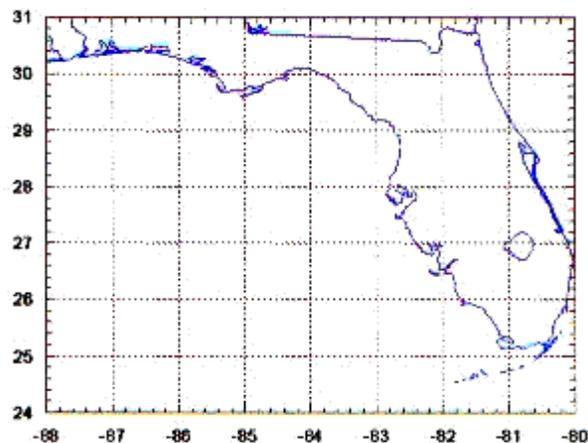
These experimental products are intended to address the need for increased number, accuracy, and regional specificity of U.S. climate, water, and coastal resource products as outlined in the **NOAA Strategic Plan**. By their nature, the development of these products is highly experimental, complicated, and not easily transferred nationally as they depend on extensive local research and expertise and are likely to undergo continuous development. They may be a very specific product such as a monthly or seasonal outlook of one climate variable for a given area or they may be a suite of inter-related products that as a whole aid in interpreting and understanding short-term climate variability.

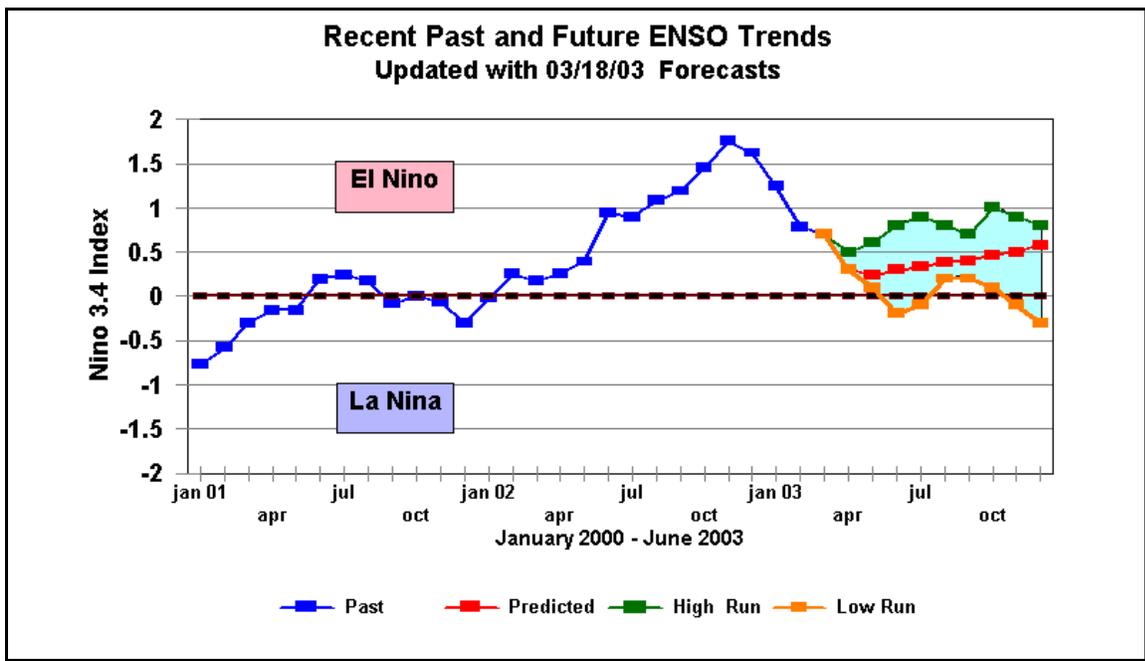
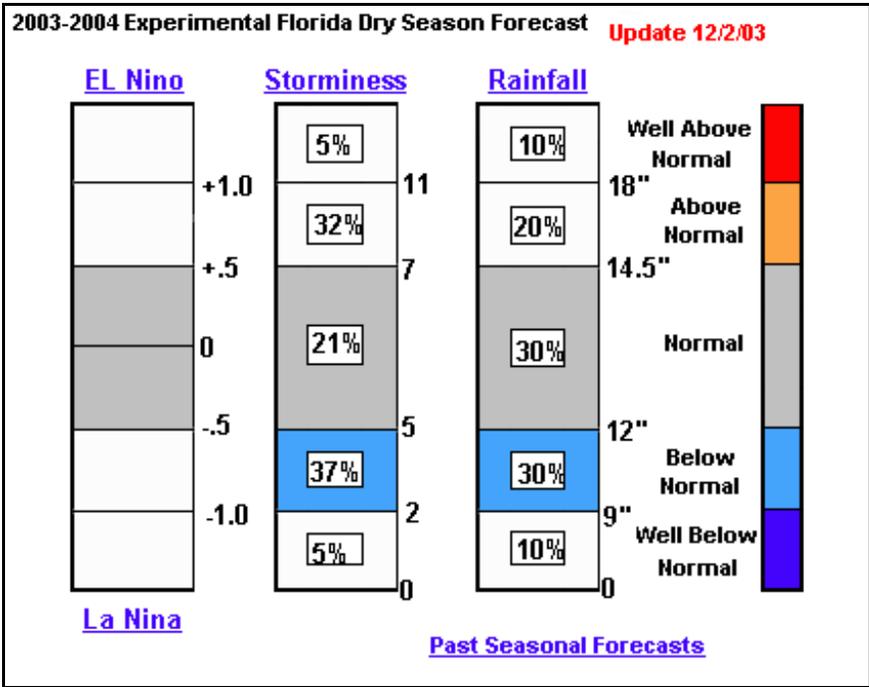
There are two basic avenues to developing these products: 1) development of local studies and expertise that use existing CPC products and data to make an adaptive local/regional experimental seasonal forecast, 2) original local/regional research that results in a new forecast process for local/regional climate variability important to society and decision makers. These products could range from local/regional hurricane forecasts to freeze outlooks to entirely new climate variables (such as seasonal storminess) defined by research and the needs of customers in addition to more familiar forecasts such as temperature and rainfall. Such products are evolutionary and risky by nature, but necessary to advance the understanding of climate

variability, predictability, and communication of such to society. These products may not ultimately be suitable for national implementation, but their development may further agency goals and help build incrementally to future high-value products.

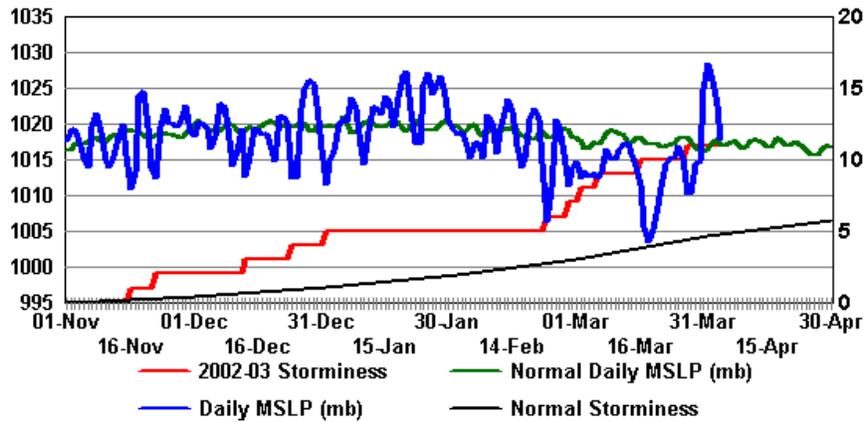
These products will most often result from local/regional research presented at conferences such as those held by the AMS and NWA or user workshops. Publication and presentation at these venues serve to advance the dialogue of the search for improved climate services and would generally serve as the foundation for the development of experimental regional/local seasonal outlooks. Each of these experimental products should have a disclaimer specifically relating to their methods, the product, and intended use.

An example of such a product is The *Experimental Florida Dry Season Forecast Product* issued by WFO Melbourne, Florida (<http://www.srh.noaa.gov/mlb/enso/mlbnino.html>). The area covered by the forecast includes a grid encompassing all of the State of Florida. The primary forecast product consists of a bar graph depicting the conditional probability that storminess and rainfall will be above/below normal based on the predicted state of El Niño/La Niña through the dry season from the CPC. Supporting graphics include intraseasonal short-term climate monitoring graphics for storminess, rainfall, jet stream strength, and a time line graphical prediction of the Niño 3.4 index out as far as the CPC provides the forecast data (usually one year). Each of these graphical products are enhanced by textual discussion. A disclaimer for users of this product is provided on the web page via several prominent links to <http://www.srh.noaa.gov/mlb/enso/ENSODisclaimer.html>

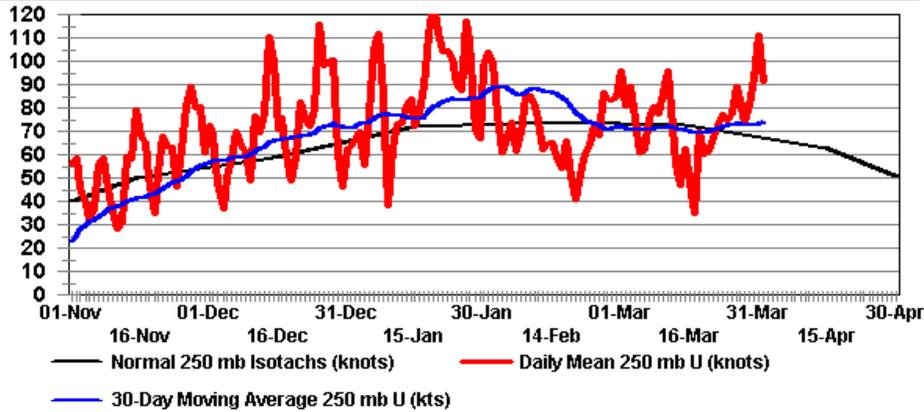




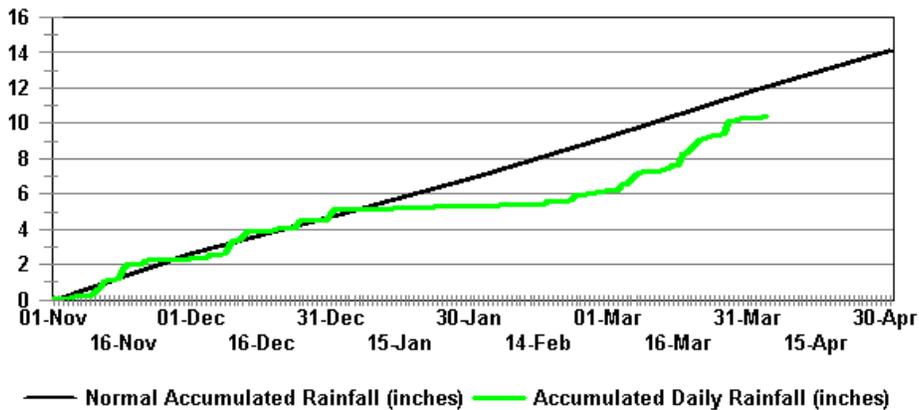
**Florida Region Daily MSLP and Accumulated Storminess for 2002-2003 Dry Season Compared to Normal (thru 04/04/03)**



**Florida Region Daily and 30-Day Moving Averages of 250 mb West Wind (U) for 2002-2003 Dry Season Compared with Monthly Normals (thru 04/04/03)**



**Florida Region Daily Accumulated Rainfall for 2002-2003 Dry Season Compared to Normal Seasonal Accumulation (thru 04/04/03)**



## **b. Product Availability**

Regional/Local Seasonal Forecast Products will be continuously available through a link on the WFO or Regional Home Page. Updates of the products will vary according to their intended purpose and time scale covered. Most will be updated monthly. For example, the *Experimental Dry Season Forecast for Florida* issued by WFO Melbourne, Florida and valid for the period November 1st through April 30<sup>th</sup> of each season is first issued in May of the year preceding the dry season (begins on November 1) and is updated by the 15<sup>th</sup> of each month thereafter.

## **c. Additional Information**

(1) The experimental Florida Dry Season Forecast was created by Bart Hagemeyer and Rebecca Almeida of WFO Melbourne, Florida.

(2) Data used to generate the product include gridded daily MSLP, 250 mb wind, and rainfall data from the CPC and observed and predicted Sea Surface Temperature anomaly data for the NINO 3.4, 3.0, and 1+2 areas from the CPC.

(3) No special software is necessary to display the product. They consist of Internet compatible graphics and text.

(4) References relevant to the development of the experimental Florida Dry Season Forecast with links to the electronic version of the publications where available:

Hagemeyer, B. C., 2000:

[Development of a Low Pressure Index as a Proxy for Dry Season Severe Weather in Florida and its Relationship with ENSO](#). Preprints, 15th Conference on Probability and Statistics. Asheville, NC, Amer. Meteor. Soc., J22-25.

Hagemeyer, B. C., 2000:

[Development of a Low Pressure Index as a Proxy for Dry Season Severe Weather in Florida and its Relationship with ENSO](#). Preprints, 12th Conference on Applied Climatology. Asheville, NC, Amer. Meteor. Soc., J22-25.

Hagemeyer, B. C., 2000:

[Development of a Low Pressure Index as a Proxy for Dry Season Severe Weather in Florida and its Relationship with ENSO](#). Preprints, 20th Conference on Severe Local Storms. Orlando, FL, Amer. Meteor. Soc., 439-442.

Hagemeyer, B. C., 2000: Development of a Low Pressure Index as a Proxy for Dry Season Severe Weather in Florida and its Relationship with ENSO. Presented to National Weather Association 25th Annual Meeting. Gaithersburg, MD (10/00).

Hagemeyer, B. C., 2001:

Communicating experimental Florida dry season forecasts and regionalized climatic information to users via the Internet. Presented to National Weather Association 26th Annual Meeting. Spokane, WA (10/01).

Hagemeyer, B. C., 2001:

Communicating experimental Florida dry season forecasts and regionalized climatic information to users via the Internet. 26th Annual Climate Diagnostics and Prediction Workshop. San Diego, CA (10/01).

Hagemeyer, B. C., and R. A. Almeida, 2002:

[Experimental Forecasting of Dry Season Storminess over Florida and the Southeast United States from the ENSO Signal using Multiple Linear Regression Techniques](#). Preprints, 16th Conference on Probability and Statistics in the Atmospheric Sciences. Orlando, FL, Amer. Meteor. Soc., Paper J3.10.

Hagemeyer, B. C., and R. A. Almeida, 2002:

[Experimental Forecasting of Dry Season Storminess over Florida and the Southeast United States from the ENSO Signal using Multiple Linear Regression Techniques](#). Preprints, 13th Symposium on Global Change and Climate Variations. Orlando, FL, Amer. Meteor. Soc., Paper J3.10.

Hagemeyer, B.C. and R.A. Almeida, 2003:

[Experimental forecasting of dry season storminess over Florida from the ENSO signal: latest results and advancements](#), Preprints, 14th Symposium on Global Change and Climate Variations. Long Beach, CA, Amer. Meteor. Soc. (CD-ROM).

Hagemeyer, B.C. and R.A. Almeida, 2004:

[Extreme Interseasonal and Intraseasonal Variability of Florida Dry Season Storminess and Rainfall and the Role of the MJO, PNA, AND NAO](#), Preprints, 15th Symposium on Global Change and Climate Variations. Seattle, WA, Amer. Meteor. Soc. (CD-ROM).