

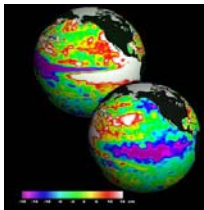
Climate and Crop Specific Outlooks Available on AgClimate.org

David F. Zierden

*Center for Ocean-Atmospheric Prediction Studies
The Florida State University
Tallahassee, FL*

Climate Prediction and Application Science Workshop
March 21-24, 2006
Tuscon, AZ





SECC

Partners



Florida State Univeristy – climate studies, coupled modeling, climate forecasts, forestry

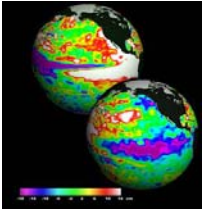
University of Florida – extension, crop modeling, decision support tools

University of Miami – climate, economics, water resources, assessment

University of Georgia – climate, extension, crop modeling

University of Auburn – extension, economics, insurance

University of Alabama Huntsville – climate, water resources



Making Decisions

Weather
Climate?

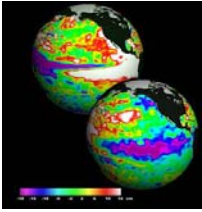
Agronomics

Markets

What? ENSO
Phase?



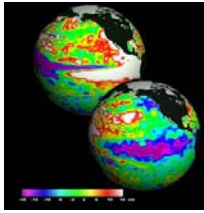
Requires the understanding of a wide range of scientific and technical information!



First Lessons Learned

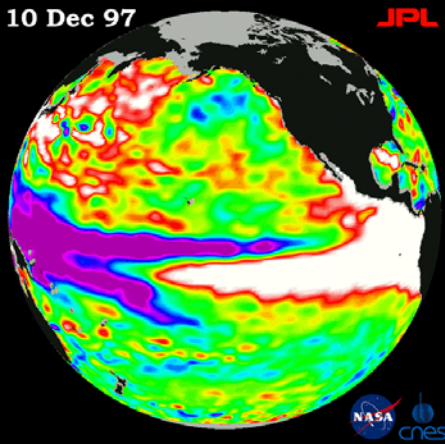
- Concise information
- Simple and easy to understand
- Timely and up to date
- Local information (county scale)
- Comes from a trusted source - partnership with extension
- Historical context





10 Dec 97

JPL



www.agclimate.org

AgClimate

http://www.agclimate.org/Development/apps/agClimate/controller/ | Google

Apple .Mac Amazon eBay Yahoo! News

SOUTHEAST CLIMATE CONSORTIUM

AgClimate

Map for county selection: [AL](#) | [FL](#) | [GA](#)

Customized Info. Enter county and state: [AL](#)

Current Climate Phase: [La Niña](#)

Home Help Contact

AgClimate Tools

Forecasts

Crops

Forestry

Pasture

Livestock

Climate & El Niño

Your Feedback

About

Welcome to AgClimate

A Service of the Southeast Climate Consortium

Why...

Climate is a major factor in virtually all aspects of food, feed, and fiber production and marketing.

What...

AgClimate gives the latest forecasts showing how El Niño and La Niña could affect agricultural production and natural resources in the Southeast.

How...

AgClimate provides important new tools to help producers understand and plan for climatic conditions.

Seasonal Outlooks NEW!

[Winter/Spring Climate Outlook](#) [Peanut Outlook](#)

updated for La Niña

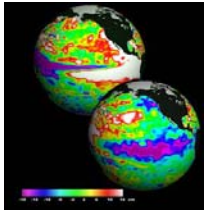
[Flint River Drought Protection Act 2006 Announcement](#)

GA Department of Natural Resources

Consortium Members

Supporting Organizations

Weather Networks



SOUTHEAST CLIMATE CONSORTIUM
AgClimate

Map for county selection: [AL](#) | [FL](#) | [GA](#)

Customized Info. Enter county and state: JACKSON, FL

Home Help Contact

Current Climate Phase: **La Nina**

Forecasts / [Regional Forecasts](#)

- Avg./Deviation
- Freq. Prob.
- Prob. of Exceed.
- Last 5 Years
- Prob. Shifts

Latest Climate Forecast

Current Climate Phase:
La Nina

Location (State & County)

Alabama

Florida

Georgia



County
 JACKSON

Climate Variables

Tot. Rain (in.)

Extreme Min T

Avg. Min T

Extreme Max T

Avg. Max T

Heating DD

Cooling DD

Analyze based on El Nino Phases

Neutral

La Nina

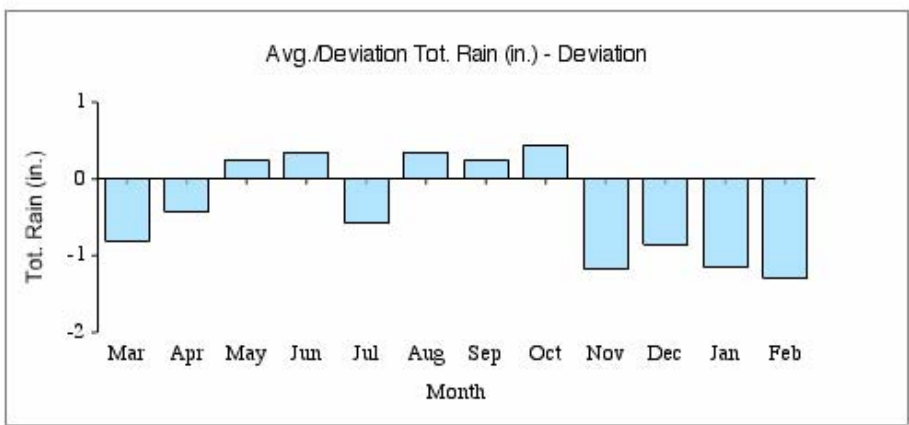
El Nino

All Years

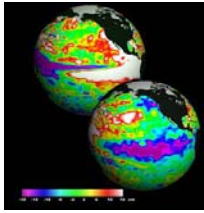
Tot. Rain (in.) - Avg./Deviation - JACKSON COUNTY, FL for La Nina

RAIN	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Rainfall	5.19	3.86	4.42	5.88	6.21	6.13	5.11	3.27	2.4	3.32	3.82	3.41
Deviatric	-0.8	-0.43	0.25	0.35	-0.58	0.35	0.24	0.44	-1.17	-0.85	-1.15	-1.29

Deviation = Difference from forecasted conditions and averages for historical data records since 1950



Select a row in the table to visualize forecast averages and deviations from long term averages



SOUTHEAST CLIMATE CONSORTIUM
AgClimate

Map for county selection: [AL](#) | [FL](#) | [GA](#)

Customized Info. Enter county and state: JACKSON, FL

Home Help Contact

Current Climate Phase: [La Niña](#)

Forecasts / [Regional Forecasts](#)

Current Climate Phase:
La Niña

Location (State & County)

Alabama
 Florida
 Georgia



County
 JACKSON

Climate Variables

Tot. Rain (in.) Extreme Min T
 Avg. Min T Extreme Max T
 Avg. Max T Heating DD
 Cooling DD

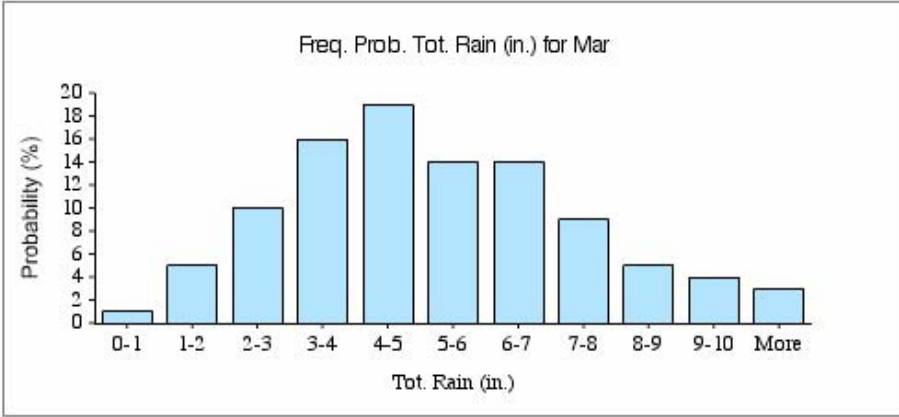
Analyze based on El Niño Phases

Neutral La Niña
 El Niño All Years

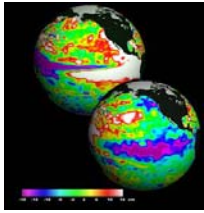
Tot. Rain (in.) - Freq. Prob. - JACKSON COUNTY, FL for La Niña

RAIN	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
0-1	1	7	5	0	0	0	3	10	19	4	4	4
1-2	5	17	11	4	2	4	8	15	35	16	21	14
2-3	10	23	18	9	5	11	16	19	27	25	25	20
3-4	16	19	20	12	13	15	19	18	14	21	22	22
4-5	19	15	15	16	15	17	16	14	5	16	12	21

Each column represents the frequency probabilities for the selected climate variables in a month of a year, from Jan. to Dec.



Select a column in the table to visualize results for the correspondent month



SOUTHEAST CLIMATE CONSORTIUM
AgClimate

Map for county selection: [AL](#) | [FL](#) | [GA](#)

County/State: MITCHELL, GA

Home Help Contact

Current Climate Phase: **La Nina**

AgClimate Tools / Yield Risk

Yield Prob.
 Yield Prob. of Exceeding
 Nitro. Leaching Prob.
 Avg. and Derivation

Latest Climate Forecast

Current Climate Phase:
La Nina

Crop: PEANUT Variety: Georgia Green

State: GA County: MITCHELL
 Soil: Norfolk Loamy Sand

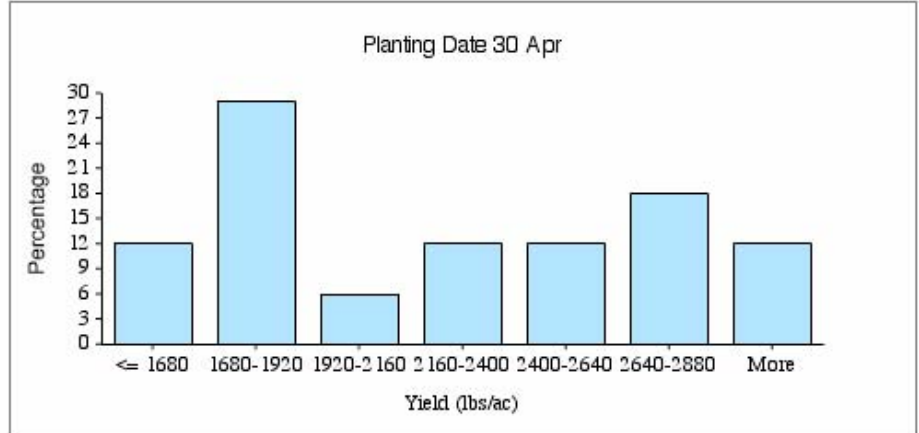
Management Variables
 Irrigated: N Nitrogen: 0 lbs/ac Avg Yield (lbs/ac): 2400

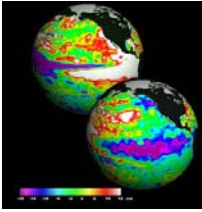
Analyze based on El Nino Phases
 Neutral La Nina
 El Nino All Years

Yield (lbs/ac) for PEANUT (Georgia Green) - La Nina - MITCHELL, GA

lbs/ac	15 Apr	22 Apr	30 Apr	7 May	14 May	21 May	28 May
<= 1680	18	18	12	18	24	18	18
1680-1920	24	29	29	24	18	24	41
1920-2160	12	6	6	6	24	29	6
2160-2400	6	6	12	18	6	0	6
2400-2640	12	6	12	6	0	0	0

Each column represents a planting date. It is important to analyze planting dates not only in terms of yielding well but also looking at the probabilities (risk) of obtaining low yields.

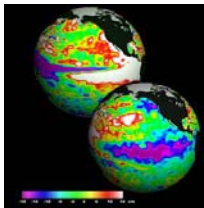




More Lessons Learned

- Traditional climate variables not always meaningful
- Return rate low
- Repeat exposure aids understanding
- Users unable to make quick conclusions
- Information needs to be interpreted
- No real entry or starting point





SECC Spring Climate Outlook

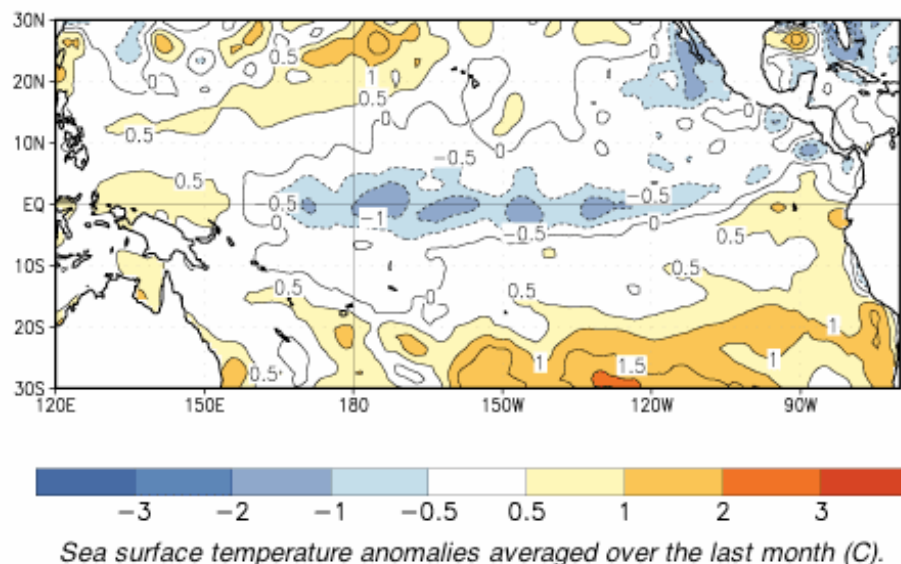
Date Issued: March 10, 2006

Climate Outlooks

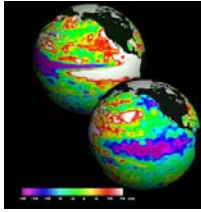
- Quarterly, focus on next 3-6 months
- Simple language
- “No forecast” does not mean “no information”
- Highlights seasonal issues or threats
- No more that 2 pages

Return of La Niña - After nearly two years of near normal sea surface temperatures in the tropical Pacific (Neutral conditions), cooling began to take place in the far eastern Pacific near the coast of South America during October. Initially, the cooler waters were confined to this region, but have since spread westward to the international date line. The pattern of unusually cold sea surface temperatures is now taking the classic La Niña configuration. This La Niña event is unique in the sense that it is highly unusual for a cold (or warm event, for that matter) to form so late in the season. Historically, formation usually begins by late summer or fall, and the event approaches maturity by the early winter months. For more information on conditions in the Pacific Ocean, please refer to our La Niña discussion: [El Niño/La Niña Discussion](#)

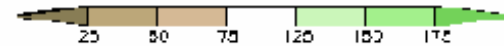
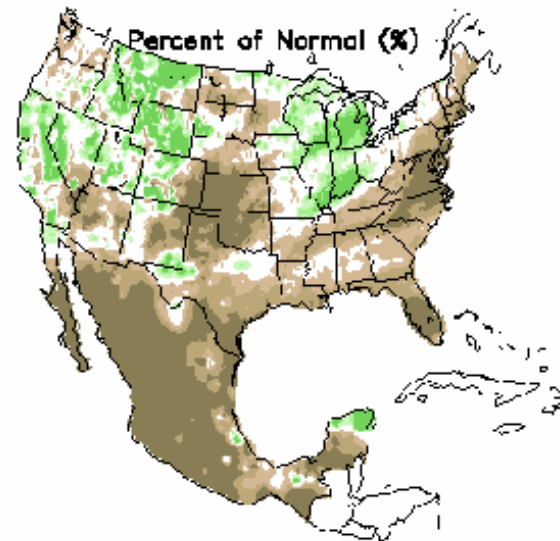
Average SST Anomalies
5 FEB – 4 MAR 2006



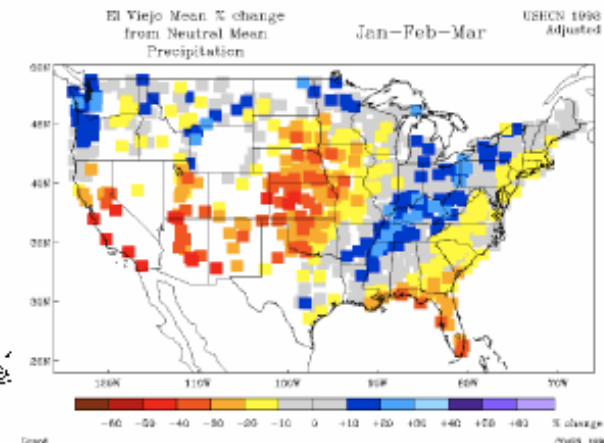
General Climate Outlook for the Spring - The classic La Niña climate pattern in the Southeast U.S. corresponds to Fall, Winter, and Spring seasons that are generally warmer and 20% to 40% drier than normal. La Niña is also known to bring an active wildfire season to Florida and the coastal plains of Alabama and Georgia. Because of the mild nature of La Niña winters, the risk of damaging freezes is reduced.



Current Conditions - As stated above, the climate impacts from the developing La Niña have been inconsistent so far this Winter. December brought cooler than normal temperatures to the eastern U.S. and regular rainfall in Florida and the Southeast, a very atypical climate given a La Niña. January, on the other hand, saw warm temperatures over the east and midsection of the U.S. with record warmth in the midwest. January also brought a drying trend in the Southeast and desert Southwest, consistent with known La Niña climate patterns. This pattern has broken down in the first two weeks of February with a series of storms and cold fronts sweeping through the Southeast, but the last 30-40 days have seen the return of more typical La Niña climate patterns. For more information on recent weather conditions in the Southeast, see the following links:



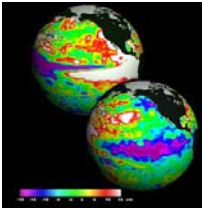
Rainfall over the last 30 days expressed as percent of normal.



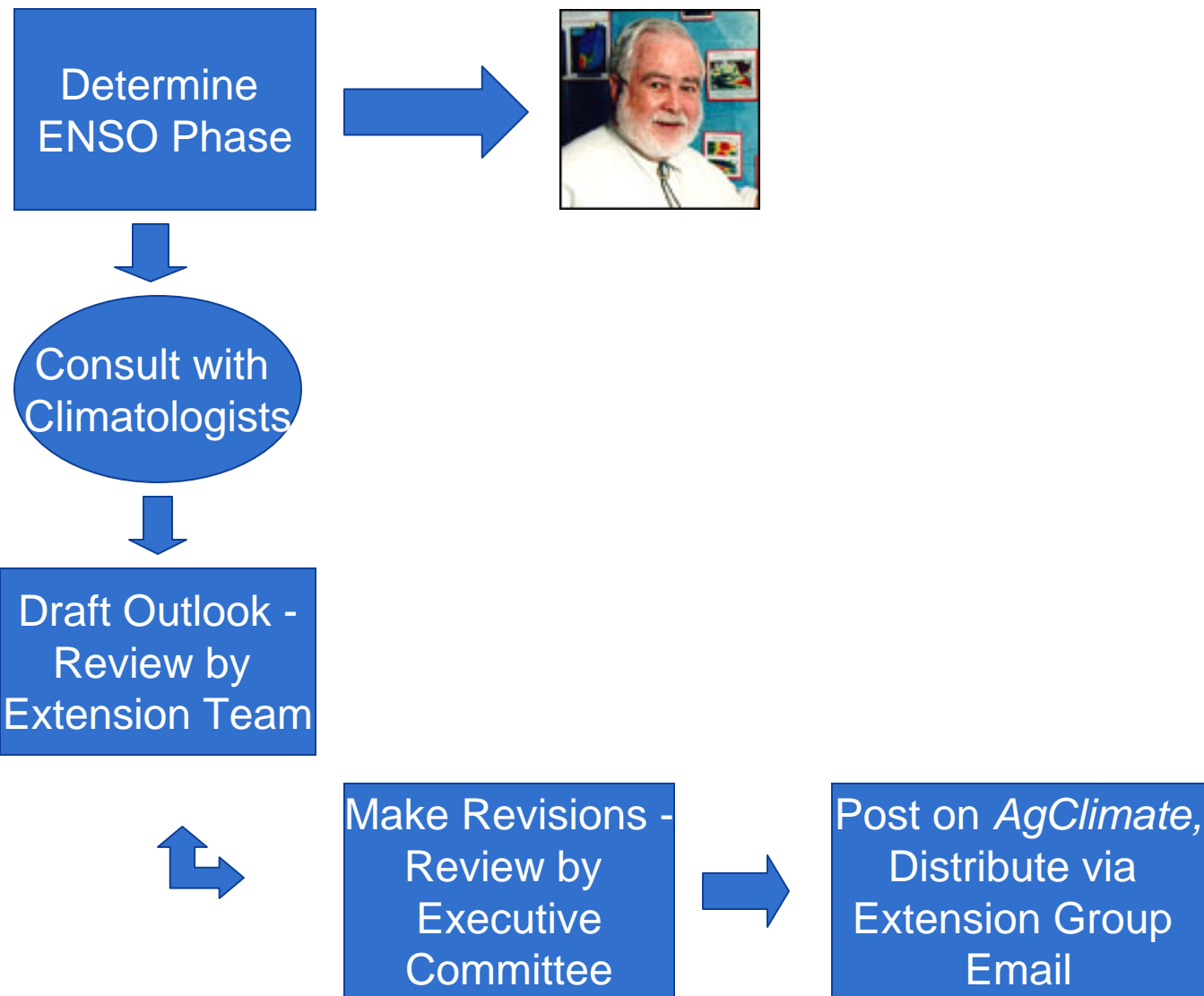
Typical Jan.-Mar. rainfall during La Niña.

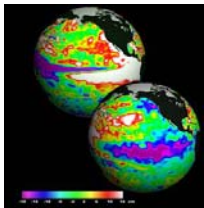
- [Florida Automated Weather Network](#)
- [Georgia Automated Environmental Monitoring Network](#)
- [Alabama Office of the State Climatologist](#)
- [Southeast Regional Climate Center](#)

Wildfire Outlook - Because of the prolonged warm and dry conditions that La Niña brings to the Southeast in the Winter and Spring months, it usually sets the stage for a very active wildfire season. On average, twice the normal acreage is burned in Florida alone during La Niña wildfire seasons. While the recent heavy rains in the first week of February has eased the wildfire danger for the time being, we expect the threat to ramp up in the Spring if the usual La Niña climate patterns establish themselves. Please reference our wildfire risk forecast, based on the Keetch-



Process of Developing Climate Outlooks

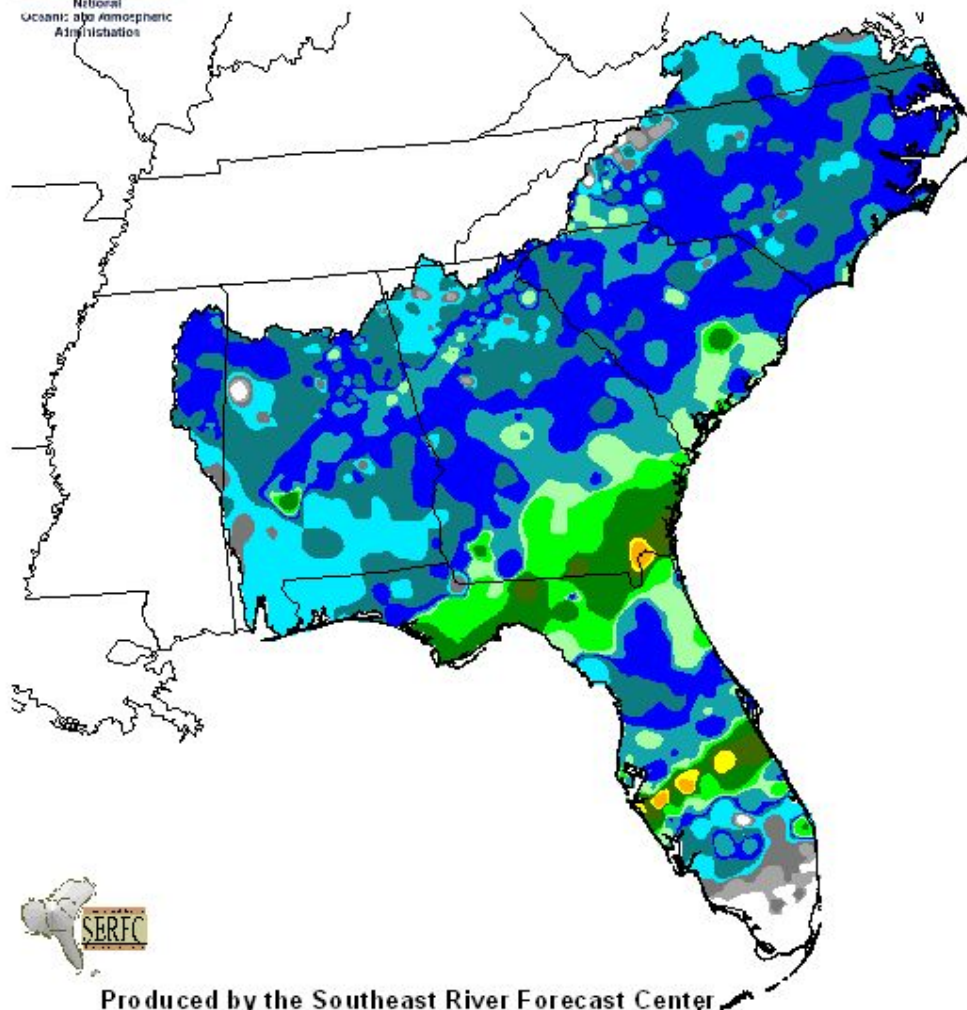




National
Oceanic and Atmospheric
Administration

24-Hour Precipitation Ending 7AM EST, 2/28/2005

Preliminary Precipitation Analysis

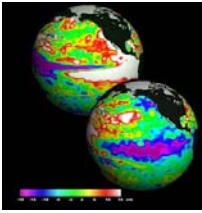


Precipitation (Inches)

	< 0.01
	0.01 - 0.10
	0.10 - 0.25
	0.25 - 0.50
	0.50 - 0.74
	0.75 - 1.00
	1.00 - 1.25
	1.25 - 1.50
	1.50 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 7.00
	7.00 - 9.00
	9.00 - 11.00
	11.00 +
	No Data



Produced by the Southeast River Forecast Center



Success of Climate Outlooks

- Media ready
- All or parts can be pasted into extension newsletters
- *AgClimate* hit rates spike on release of the outlooks
- Provide natural link for our partners at FAWN and GAEMN
- Great feedback from growers, agents, and extension specialists

Climate experts say warm, dry spring is ahead

http://news-reporter.com/news/2006/0302/NEWS/084.html

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News March 2, 2006

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Climate experts say warm, dry spring is ahead
By SHARON OMAHEN University of Georgia

Most Georgians probably don't care much about weather patterns in the Pacific Ocean. But an unusually cold ocean surface there should bring warmer, drier weather here this spring.

Periodic warming or cooling of tropical Pacific Ocean surfaces, known as El Niño or La Niña, can affect U.S. weather patterns. El Niño brings more winter rains. La Niña has the opposite effect.

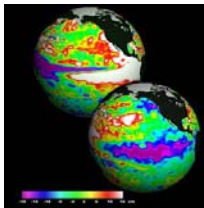
"The temperatures in the Pacific Ocean affect the mainland U.S. because they affect the jet stream patterns," said Joel Paz, an Extension agrometeorologist with the University of Georgia College of Agricultural and Environmental Sciences.

Paz said these ocean temperatures were normal for nearly two years. But then "the far eastern Pacific, near the coast of South America, began to cool in October," Paz said.

"The cooling water has since spread westward to the

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LEE CONNELL, Manager

Spring Up Your Internet!



Peanut Outlook
Date Issued: March 10, 2006



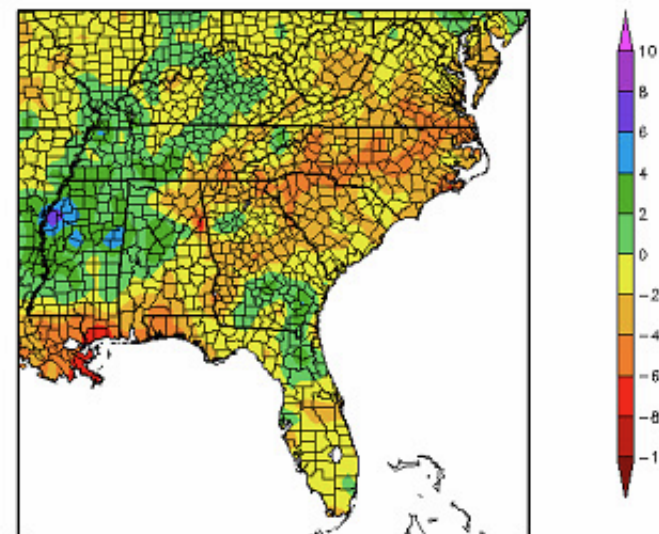
Crop-specific Outlooks

- Released at critical times for the given commodity
- Direct input from extension specialists
- Gives management options, not recommendations

The outlook for Spring 2006 indicate an increased likelihood of warmer and drier-than normal conditions for planting peanuts in Alabama, Florida, and Georgia.

The climate forecast from the Southeast Climate Consortium indicates that the region will be dominated by the effects of the La Niña conditions in the Pacific Ocean in the next 3 to 6 months. La Niña is characterized by unusually cold ocean temperature, as compared to El Niño, which is characterized by unusually warm ocean temperatures. For detailed rainfall and temperature predictions for individual counties, you can use the climate risk tool developed by the SECC at the AgClimate web site (www.agclimate.org).

Departure from Normal Precipitation (in)
1/1/2006 – 3/1/2006



Departure from normal precipitation for January 1 to March 1, 2006. (Image courtesy of SERCC).

Peanut Planting Date

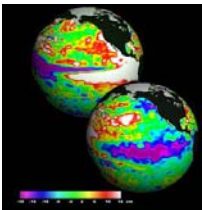
The increased likelihood of warmer- and drier-than normal spring may encourage growers to plant early. However, growers must consider other factors such as risk of tomato spotted wilt virus (TSWV) and soil temperature in any planting date decision. Studies show a dramatic increase in tomato spotted wilt virus (TSWV) for peanuts planted in early to mid April. There is also a risk of increased TSWV on peanuts in mid-to late-April. If you decide to plant earlier, consider planting varieties with good resistance to TSWV such as AP-3, C-99R, or Georgia 02C. For more information check the University of Georgia Peanut Disease Risk Index or the University of Florida EDIS publication SS-AGR-13 at <http://edis.ifas.ufl.edu/AG247>

Warm spring and counties in lower latitude may allow for earlier plantings if soil temperatures and moisture conditions are conducive to uniform germination and emergence of seed. It is recommended to plant after the 4-inch soil temperature has reached 65 oF for three consecutive days or longer. The [Florida Automated Weather Network](#) and [Georgia Automated Environmental Monitoring Network](#) monitor soil temperature data at several locations in Florida and Georgia, respectively.

Conservation Tillage

Growers practicing conservation tillage peanut production with cover crops and strip till may consider killing cover crops earlier this year to avoid further depletion of soil moisture. More information about conservation tillage can be found in the University of Florida EDIS publication SS-AGR-185 at <http://edis.ifas.ufl.edu/AG187>

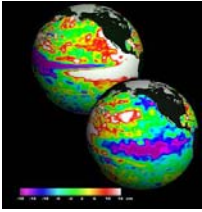
Peanut	Sept. 05, Mar. 06	Ed Jowers, John Beasley, William Birdsong
Citrus	Sept. 05	John Jackson
Winter Pasture	Sept. 05	Doug Mayo



Success of Crop-Specific Outlooks

- Participation by extension specialists fosters ownership
- Widely included in county or area newsletters
- Continued engagement keep climate issues in the forefront





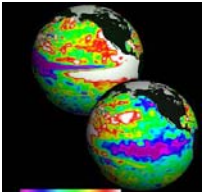
Moral of the Story

- Summaries or interpretations versus detailed information
- Involvement of customers critical
- Information grows stale quickly, moving to monthly climate outlooks

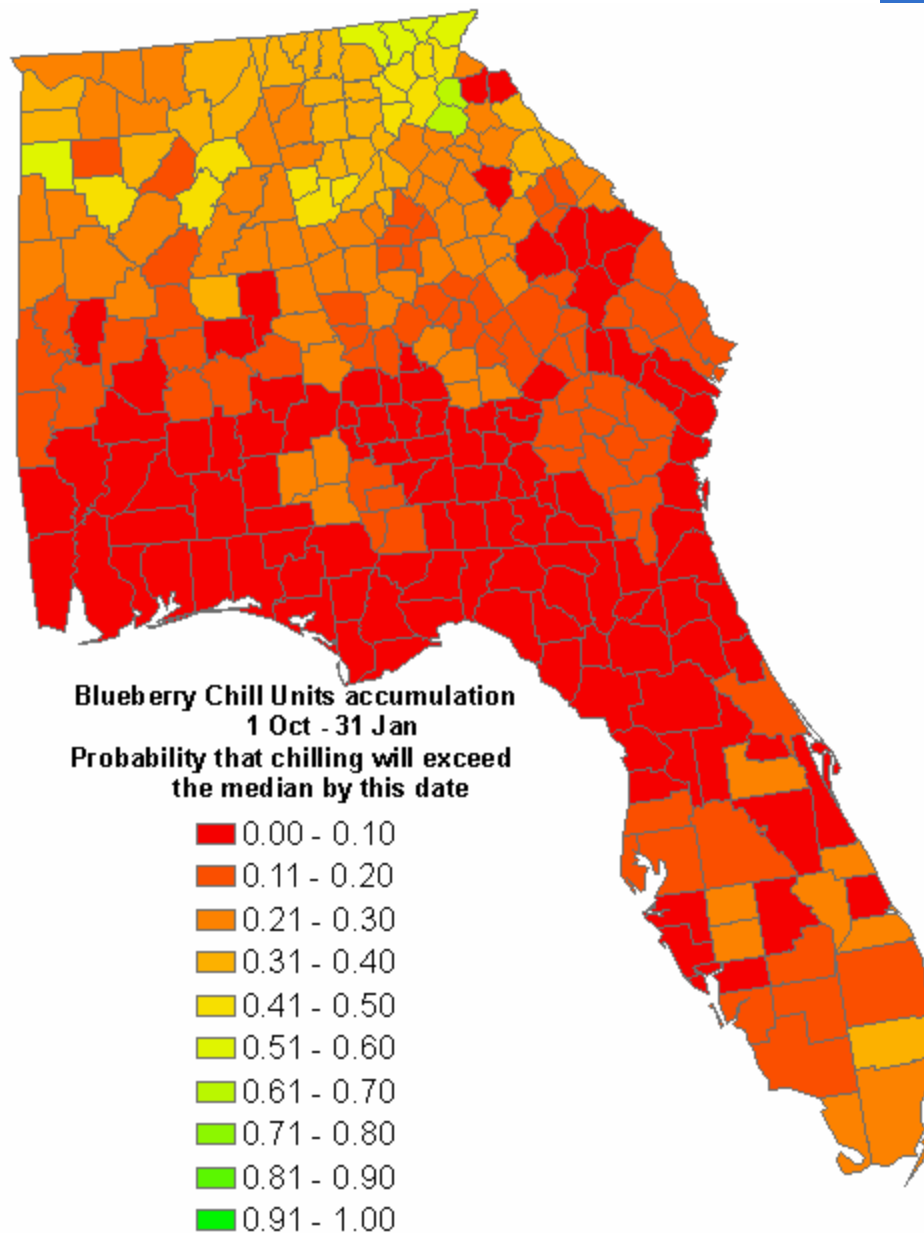
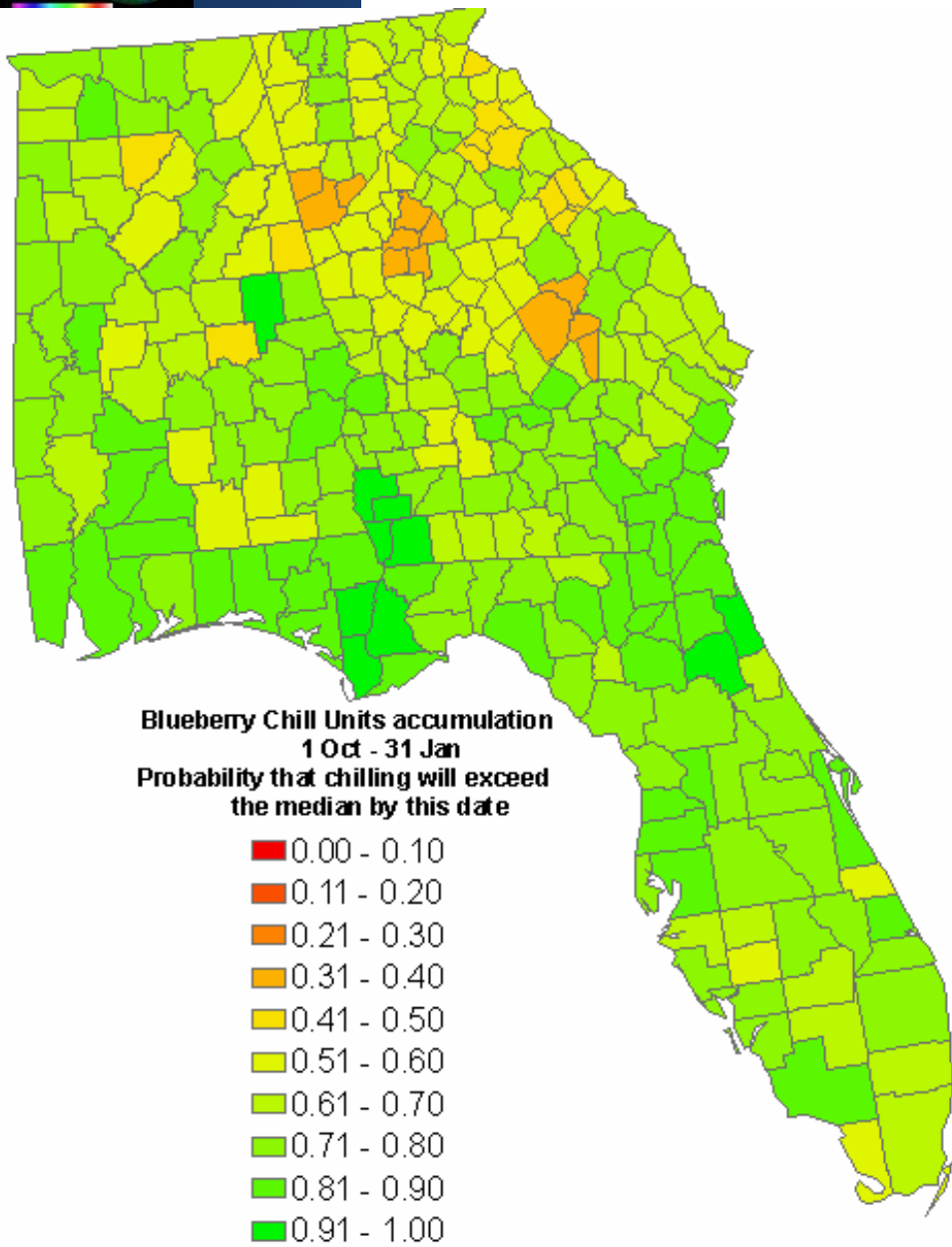
The screenshot shows a web browser window displaying the Jones County News website. The browser's address bar shows the URL: <http://news.mywebpal.com/partners/981/public/news702198.html>. The website header includes the logo for **jcnews.com** and the text "The Jones County News • Gray, Ga.". A date bar indicates "January 12, 1970".

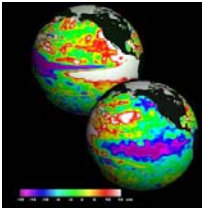
The main article is titled "Warm, dry Spring predicted" and is dated "03/09/06". The author is identified as "Jones County Extension Agent Frank Sears". The article text reads: "I just received some interesting information concerning the weather predictions for the spring and summer ahead and I thought that I would pass it along to you in this week's news column. According to Joel Paz who is an Extension Agrometeorologist with the University of Georgia College of Agricultural & Environmental Sciences, we are headed for what is called a 'La Nina Spring'. What this means is that colder water surface temperatures now occurring in the Pacific Ocean will affect our U.S. Weather patterns and typically this occurrence brings warmer and drier weather to our part of the country. According to Paz, Georgia, Florida, and Alabama will see drier and warmer-than-normal weather for late winter and spring. If this occurs, you may want to plan ahead and consider mulching your landscape plants this spring so that they will not be as stressed during drier weather. Mulching landscape plants helps to prevent rapid losses of soil moisture due to evaporation. As our weather warms and hotter weather arrives, our evaporation rate increases. It's not uncommon through the hot summer months to have an evaporation loss as high as 1/3 inch of water per day. It's also possible if we do see a warm spring that you may be able to get started planting some of your garden vegetables a little early. Don't jump the gun too quick because cool soil..."

The website also features a sidebar with navigation links: Home, About Us, Local News, Sports, In the Garden, Opinions, Obituaries, Legals, Classifieds, Real Estate, Just the Facts, Social Scene (marked as "New!"), School Menus, Service Directory, Out and About, and Crossword Answers. There are also advertisements for "Storage Club" and "Commercial Property" on the right side of the page.



Probabilistic forecasting of county medians





Crop

State

County

BAKER
 BAY
 BRADFORD
 BREVARD

- Neutral
- El Nino
- La Nina
- All Years

Aug and Deviation **Freq. Probab.** **Probability of Exceed.** **Last 5 Years**

Last 5 Years.

Years	Oct		Nov		Dec		Jan		Feb		Mar		Apr	
	1-14	15-31	1-14	15-30	1-14	15-31	1-14	15-31	1-14	15-29	1-14	15-31	1-14	15-30
04-05	0.9	17.2	33.2	96.1	134.8	236.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
03-04	0	13.6	19.2	106.3	180.6	214.1	152.7	197.3	122.1	186.5	83.6	81.4	74	48.9
02-03	0	22	62.1	184.7	170.4	215.6	203.9	212.4	200.2	83.6	25.2	39.5	71.3	14
01-02	18.7	77.3	67.7	23.3	9.3	196.7	200	69.9	160.5	136.1	93.3	43.1	25	0
00-01	43.5	42.6	60.9	171.2	113.7	206.5	171.1	154.8	125.6	41.2	88.8	110.7	21.5	69.9

Colors corresponds to the Year ENSO phase.

County ALACHUA, Years 2002-2003

