

BROWNING

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NEWSLETTER

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Battle of the Titans

IN THIS ISSUE

- The changing climate factors that are causing the record-breaking cold and storms of the Northern Hemisphere – the La Niña and the Arctic Oscillation.
- The cold stormy North American weather will continue through spring.
- The South from Texas through the Carolinas is being hit by drought that will get more severe through the summer.
- The changing climate factors that causing the floods and droughts in the Southern Hemisphere are La Niña, the Pacific Decadal Oscillation, the Atlantic Multidecadal Oscillation and the Indian Ocean Dipole.
- The flooding danger has peaked in Australia, but the flood risk will continue for the next four months with a long-term outlook of a couple of decades of a wetter climate and less “Big Dry.”
- The drought is lessening for Argentina but the crop will be less than last year. Brazil has had ideal rain for agriculture but it is causing landslides in mountainous regions.
- Southern Africa is experiencing crop-killing floods. The severe drought in East and North Africa are causing food shortages, increasing food prices and causing social unrest, both rioting and increased piracy.

SUMMARY

The unusually strong La Niña and the extremely negative Arctic Oscillation have combined to create stormy cold mid-winter weather. They should both continue through springtime, creating a cold late winter and spring in North America.]

It’s February, the month when Americans like to sit back, eat pizza, and watch an epic conflict. For most people, this means the Superbowl Sunday football parties. For weather geeks, it’s watching the La Niña and the Arctic Oscillation struggle for the control of North American weather. As large as Cowboy Stadium is, the arena for the weather battle is much greater and will produce a lot more losers. Just ask New York City, which has had the snowiest January since record-keeping began.

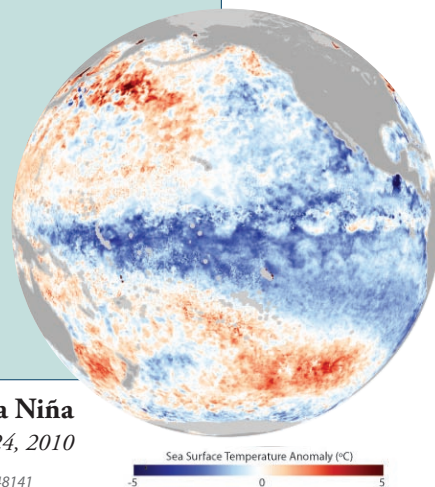


FIG. 1 **The Strong La Niña**
December 24, 2010

<http://earthobservatory.nasa.gov/IOTD/view.php?id=48141>

The Favorite – La Niña

Entering from the right is that formidable weather entity – the La Niña. This is a Pacific Ocean water and atmospheric event that alters weather around the world.

Even a moderate La Niña is a huge phenomenon. The surface waters of the central and eastern Tropical Pacific become abnormally cool. At the same time, the western portions of the Tropical Pacific around Australia, Southeast Asia and Southern China become warmer than normal.

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1 Battle of the Titans Which giant force will win the battle for North America – the extremely negative Arctic Oscillation or the strong La Niña?

4 The View from the South Africa, Australia and South America are awash with floods. Why is this happening? What does this mean for food prices?

8 NEWS NOTES

This newsletter contains articles, observations and facts to support our contention that man is significantly influenced by the climate in which he exists. Our calculations show the climate, over the next term, will cause dramatic changes in our social and economic patterns.

We feel that the reader, attuned to the changes that are occurring, may develop a competitive edge; and, by understanding his now and future environment, can use the momentum of change to his advantage.

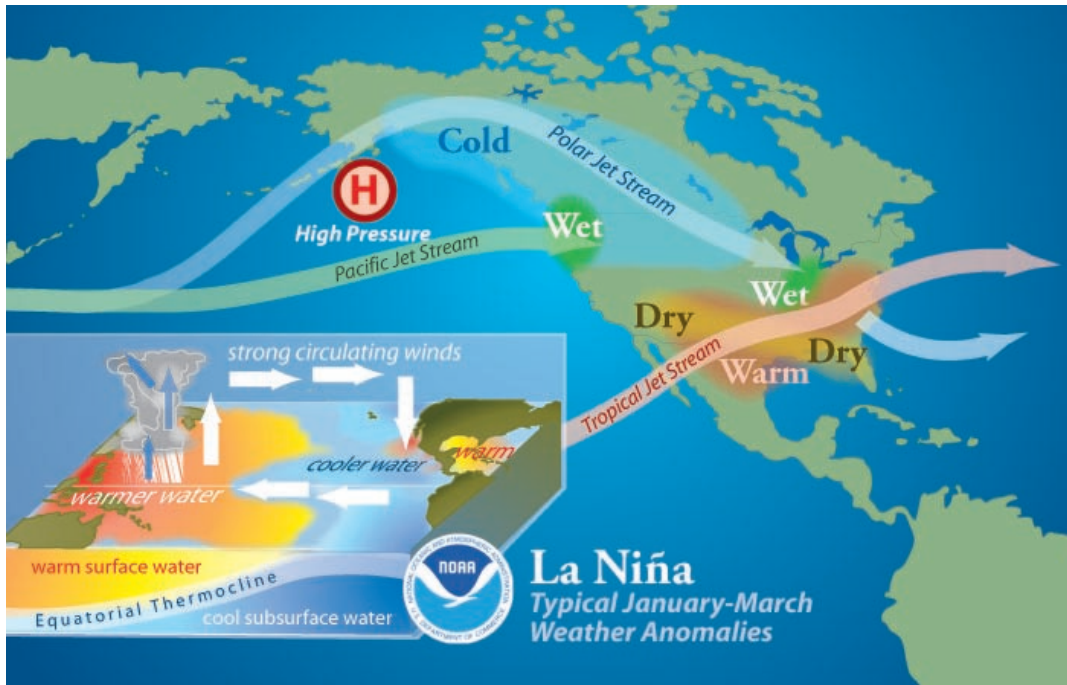


FIG. 2 source: NOAA

Don't let the name La Niña, Spanish for "Little Girl", deceive you. This is a powerful event that cools several million square miles of the ocean. The impact of this cooling spreads beyond the waters of the Pacific Basin. The waters cool the air above them. This alters the atmospheric pressure and changes the prevailing wind patterns. A phenomenon this huge affects wind and weather patterns all over the globe.

Although the water cooling starts in the Tropical Pacific, it doesn't end there. The cool pool of water drifts eastward until it

abuts the west coast of South America, off of Peru and Ecuador. As the size of the pool increases, it begins to expand north and south along the coastline. Currently the colder waters extend from southern Alaska to Tierra del Fuego on the tip of South America.

Altering air temperatures not only affects air pressures and winds, it also affects the humidity of the air masses. The cooler marine air off the coasts of the Americas holds less water. The warmer air swirling around Asia and Australia holds more. Argentina

is experiencing drought while Australia is flooding.

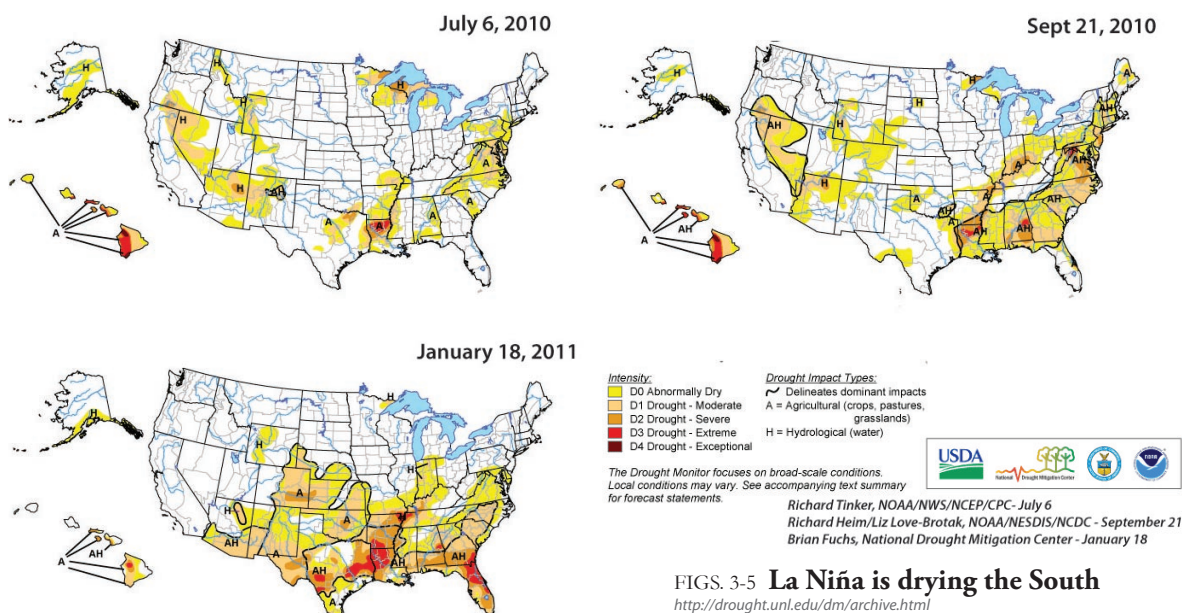
The most affected areas tend to be the regions right next to the phenomenon or downwind from it. Lucky North America is downwind from the cold waters and air patterns that have spread northward. Typically, even a moderate La Niña can have a profound impact on US, Canadian and Mexican weather.

Scientists have been studying the Pacific Ocean's warm El Niños and cool La Niñas for over a century. They have been studying its impact on North America for decades. By using tree

rings, they have hundreds of years of data.

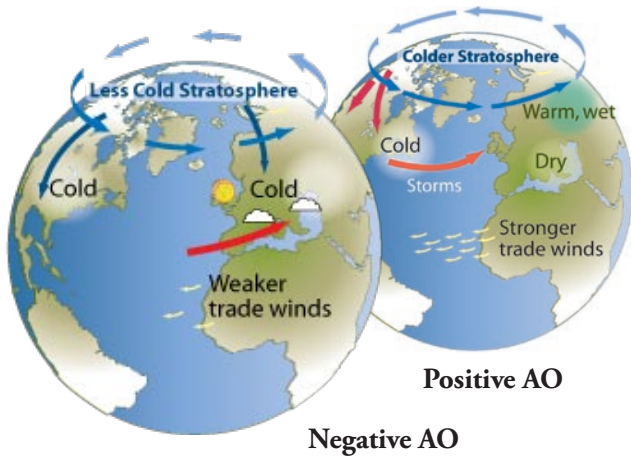
Here is a summary of what the data shows should happen to North America during a La Niña winter.

- Wind patterns are distorted and fluctuate more. Through much of the year, this means all three strong jet stream winds, the polar, the Pacific and the tropical, unusually far north. This allows tropical warmth to rise farther north in the western states.
- The cold offshore waters have less moisture. The prevailing winds which blow



FIGS. 3-5 La Niña is drying the South

<http://drought.unl.edu/dm/archive.html>



FIGS. 6-7 **Negative Arctic Oscillations will be more common this year**
courtesy J. Wallace, University of Washington, source: NSIDC

from west to east (**westerlies**) bring less moisture inland. Typically this causes drier conditions in the Southwestern states and western Mexico.

- Cooler offshore waters usually mean cooler than average temperatures hit by the Pacific jet stream. This usually affects western Canada, the Pacific Northwest, the Canadian/US border region and, by mid-winter, the Great Lakes and Midwest. In strong La Niñas, like the current event, the East also has abnormal cold temperatures in mid-winter.
- Frequently the Pacific jet stream carries in warmer air from the western Pacific. When this warm, wet air meets the cool waters off the West Coast, it causes heavy precipitation. Then the wind carries the marine air inland where it collides with the even colder continental air. This usually causes heavy rains, flooding and snowfall along the Oregon, Washington and British Columbian coastal regions.
- The warm tropical jet stream flows through the northern Mexican deserts, then carries this hot, dry air into Texas and the Southeast. This usually causes drought and warmer temperatures, especially in late winter and early spring.

We have certainly seen this last tendency. The La Niña started in July. Since then

we have seen an almost steady drying trend throughout the southern states, from Arizona to Georgia, as far north as Oklahoma, Kentucky and Virginia.

Normally a La Niña, particularly one as huge as the current event, would completely shape North American weather. However La Niña is not the only large weather phenomenon in the continental arena.

The Wildcard – The Negative Arctic Oscillation

A number of climate experts have been startled by this winter’s weather. Indeed, England’s Met Office, the United Kingdom’s government weather service, had predicted a warm winter. What almost no one expected was a polar weather pattern going berserk. However, that is what has happened.

The weather pattern is the Arctic Oscillation (**AO**) a climate **teleconnection** (huge weather pattern) caused by the circumpolar winds. These winds blow from west to east, and their strength oscillated from very strong (**a positive AO**) to extremely weak (**a negative AO**). When the AO is positive, the winds are strong and trap the Arctic air mass north of 55°N. That’s north of Edinburgh, Moscow and Ketchikan, Alaska. This means the Polar Regions remain very cold and, in general, the Arctic sea ice is compressed together. The almost solid sheet of ice tends to reflect incoming sunlight back into space before it can do much warming. As a result, the North Pole tends to be very cold and the regions south of 55°N are relatively warm. Over the past few decades, the AO was usually positive.

This winter the AO is negative and the winds are weak. The frozen polar air escaped south. This winter, the AO has been *very* negative. The Arctic air mass has pushed the Pineapple Express flooding event from Seattle to San Diego. It has frozen fruit in Florida. Europe shivered with record cold as the polar jet stream blasted through

North Africa. People died in Northern India while New Delhi, suffered its coldest weather in over 20 years. Heavy snows since the beginning of the year disrupted traffic and cut water and power supplies in China less than a week before 700 million people begin their annual return to their home villages for Spring Festival.

While stormy weather is devastating more southerly regions, the Polar Regions are warmer. The southward wind blows Arctic sea ice further into the warmer waters of the Pacific and Atlantic where it melts. The waters between the blocks of scattered sea ice absorb the sunlight and grow warmer. The Arctic heats and Canadian temperatures have risen.

The Battle for North America

The clash of these two giant teleconnections has shaped the wretched winter of 2010 – 2011. Initially, autumn, through November, was a typical La Niña season, cold in the West and warm in the East, stormy in the Midwest and drying out in the South. Then December arrived and the AO turned sharply negative.

Normally in a La Niña, the East would not be unusually cold until mid-winter. Thanks to the AO, the East has been cold again and again throughout this winter. The warm Southeast that was supposed to materialize this winter has been frozen by Arctic air.

At the same time that the AO was cooling the South over the La Niña’s generalized warming trend, it was muting the La Niña’s tendency to bring drought to California. The cold Arctic air pushed the flooding Pineapple Express south from its usual location by the Canadian border all the way to the Mexican border. For a couple of weeks, California received double its average precipitation and Southern California through the Central Rockies had 800% more. Despite the problems of flooding and landslides, the event proved to be a blessing for a state that had endured 3 years of drought. It is good news that all but two of California’s major reservoirs have been refilled to normal or above normal levels.

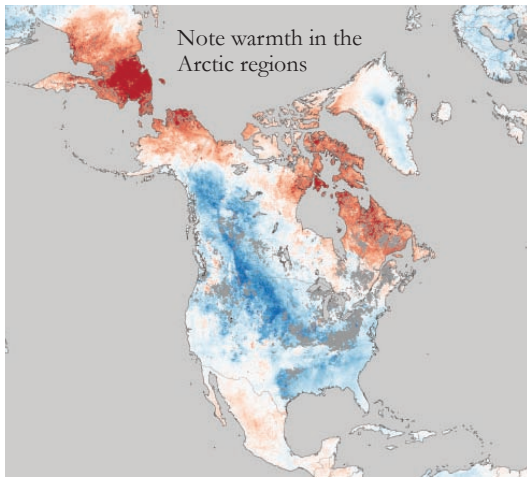


FIG. 8 **North American temperatures**
www.pecad.fas.usda.gov/cropexplorer

Against all predictions, the negative Arctic Oscillation overwhelmed the weather effects of the La Niña. Only the precipitation in the Southern states, the growing drought, is more typical of a La Niña than a negative AO.

Last year we saw the extremely negative AO completely overwhelm the warm El Niño, bringing frigid weather into what was supposed to be a relatively mild winter. This winter, the cooling La Niña is being equally overwhelmed and the result is and will be the coldest winter in decades.

Looking Ahead

How long will this chilly pattern last? The La Niña is somewhat predictable. The Arctic Oscillation remains, as it always has been, a wildcard.

The current La Niña is strong and not likely to disappear quickly. Indeed, according to NASA's award-winning climatologist Bill Patzert "This La Niña has strengthened for the past seven months, and is one of the most intense events of the past half century."

Almost all computer models around the world predict that the event will linger through spring. The debate is whether it will continue even longer. The majority of international models have it fading out and the Pacific Ocean becoming neutral during

this summer and fall. In contrast, the US NCEP's Climate Forecast System model expects the event to weaken but continue through the summer.

Whichever model is correct, it is important for planners to consider the potential consequences of a La Niña spring and its potential impact on planting, livestock and fuel consumption.

Then there is the wildcard – the troublesome Arctic Oscillation. Scientists and their models have tried to forecast how strongly negative the phenomenon will be and it keeps ignoring the prediction. Part of the problem seems to be that normally the AO has a fairly good correlation with the North Atlantic Oscillation. This year, however, the AO's behavior has been drastically disrupted by volcanic activity in the North Pacific.

Russia is creating a "cold war"? Russia's Kamchatka Peninsula has 29 active volcanoes, with six of them currently steaming and erupting. Mt. Kizimen has been especially active this January and some of its debris has entered the stratosphere, where it can linger for months even years. Meanwhile, other Kamchatka volcanoes, particularly Sheveluch, have had frequent small and medium sized eruptions.

The debris from these eruptions and previous events are still lingering in the Arctic atmosphere, blocking out incoming sunlight. This cools the air which, in turn, modifies the air pressure. Changing air pressures alters winds, and this year it has

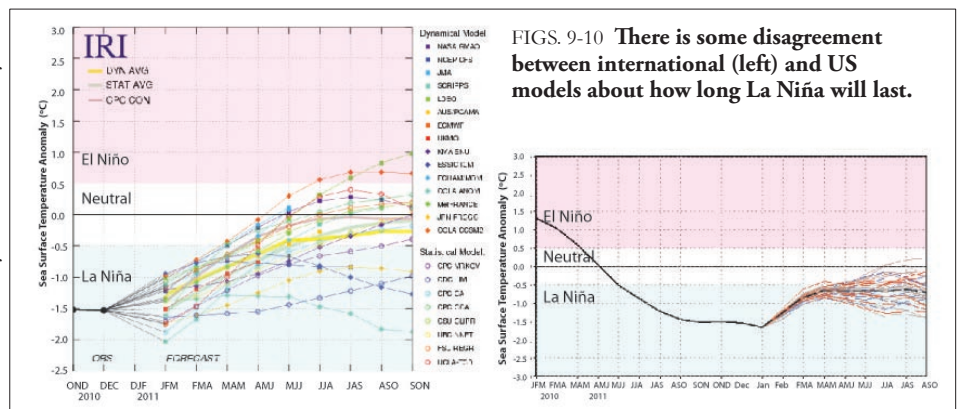
meant weakening the circumpolar winds and making the AO negative. With this much volcanic ash and chemicals in the air, it is probable that the AO will frequently be negative for the next few months.

In other words, it looks like the same battle of the elements that made this such a cold and miserable mid-winter will continue through spring.

If the future resembles the past (and it usually does), we can expect the following weather over the next three to four months.

LATE WINTER – Expect the current midwinter weather – the bitter cold and repeating storms to continue at least 2 more weeks and possibly through February. Typically late La Niña winters have more warmth in the South and along the East Coast, but with an event this strong, the warm spell may be fairly brief, just two or three weeks in late February and early March. The Central Rockies and much of the winter wheat region in the Central Plains typically get very cold weather and heavy snowfall.

SPRING – Springtime looks stormy. While the northern tier states will stay cold, the more southern states should enjoy "average temperatures." Unfortunately average means vacillating temperatures – a combination of severe cold fronts followed by unusual warmth. The Central Plains, Midwest, Great Lakes, Northeast, Southern Quebec and the Atlantic Provinces have been extremely wet and stormy in 80% of similar years. This has frequently led to delayed plantings for corn and soybeans.



FIGS. 9-10 **There is some disagreement between international (left) and US models about how long La Niña will last.**

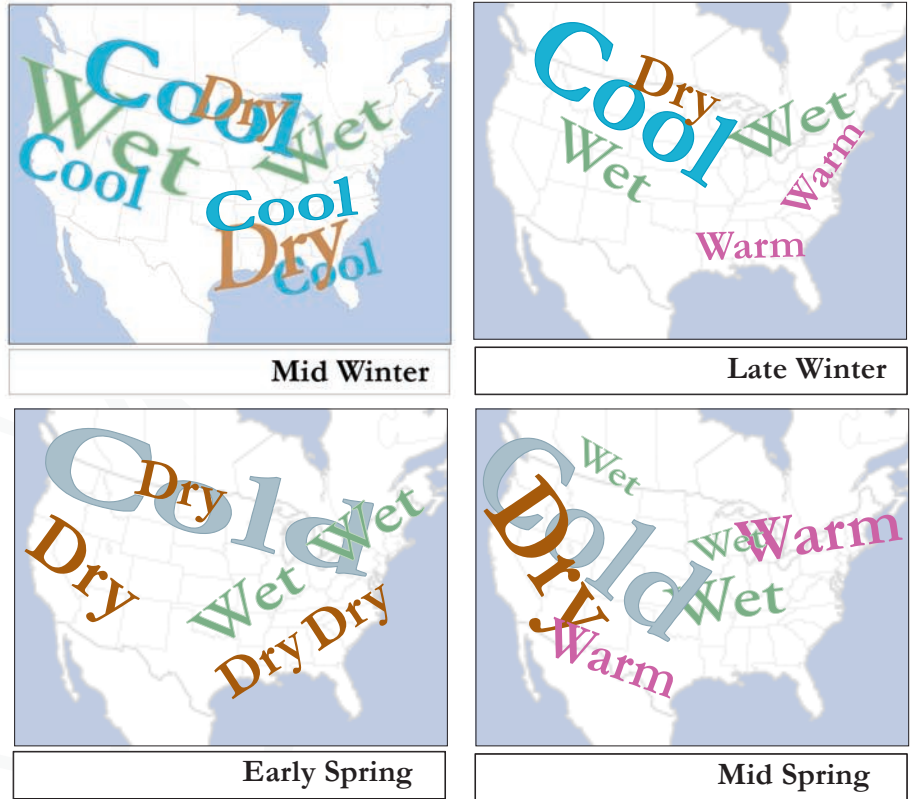
www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

La Niñas usually bring dry springtime weather to the West and South. In 60% of similar years the South received normal rainfall by mid-season; it is not enough to refill the reservoirs. The last time the South faced these conditions, there was a legal water war involving Georgia, Alabama and Florida. California also faces a dry spring but its current reservoir levels were restored by this winter's Pineapple Express.

The La Niña is still considered the favorite to dominate the weather this spring. Watch out for the wildcard, however. If the Kamchatka volcanoes continue to affect the Arctic Oscillation, there will be more unexpected surges of very cold weather storming through the North American arena. And, yes Virginia, Washington, New York and Boston, there will be more snowstorms.

Cool	Warm	Dry	Wet
2°C or more lower than normal temp.	2-4°C or more higher than normal temps.	75% or less of normal moisture	125% or more of normal moisture

figs. 11-14 © Browning maps



The View from the South

SUMMARY

The current and future climate conditions in the Southern Hemisphere will result in reduced crops with higher food, fuel prices, and civil unrest in some places.

As we shiver in this winter's bitter cold, it's nice to dream of warmer climates. We may be freezing, but it's summertime in the Southern Hemisphere. We are buried in snow while the Aussies are working on their tans. The South Americans are drinking sangrias (probably with some of Chile's excellent wine) on their sunny verandas. South Africans are basking on Capetown's golden beaches.

Ooops! Not this year. This year's summer season in the Southern Hemisphere is filled with disasters. Australia's tragic floods are topping the international news. Argentina is suffering from drought while Brazil is having horrendous rains and deadly landslides. Southern Africa flounders with floods, eastern Africa lands watch their fields wither in a deadly drought and Northern Africans are literally rioting in the streets.

What is happening? Why is it happening?

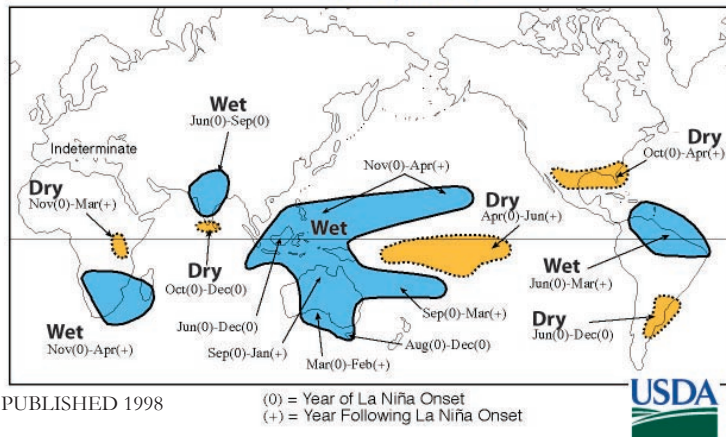
The Natural Factors Shaping the South

The standard explanation that most people hear is "blame the La Niña." As noted in the first article, it is being described as

"One of the most intense events of the past half century." It is incredibly strong and is distorting weather all around the globe.

When one looks at the standard La Niña weather site, the impact of the phenomenon seems too mild to be totally responsible for the problems of the southern hemisphere. However scientists have been studying the global impact of La Niña

Potential Rainfall Impacts from La Niña Events (Cold Episodes)



PUBLISHED 1998

(0) = Year of La Niña Onset
(+) = Year Following La Niña Onset



FIG. 15

www.ccb.ucar.edu/lanina/gfx/summ5.gif

for decades and NOAA's George Kiladis produced a map for a La Niña summit back in 1998 that shows the patterns of rainfall that we are seeing today.

What happened this year was, among other things, the La Niña was reinforced by other weather events. In the Southern Hemisphere, these reinforcing factors were:

- **THE NEGATIVE PACIFIC DECADEAL OSCILLATION (PDO)**

– Like La Niña, the PDO is an oscillation of warm and cold waters in the Pacific. Unlike the tropical La Niña, the PDO lasts (like the name implies) for decades and it affects the entire Pacific. It is a 50-to-70-year cycle. The cycle is relatively a new discovery and a subject of intense debate and research. Indeed, some scientists insist that there is a separate Interdecadal Pacific Oscillation (IPO or ID) that affects both the North and South Pacific and that the PDO is merely a northern phenomenon. Confusing, isn't it?

Basically, however, the PDO goes through positive and negative phases. In 1976 the ocean entered to its positive phase, which shifted warmer waters to the tropics and East Pacific. The western and temperate latitudes were cooler. Now the Pacific has appeared to have entered a negative phase. (Again, this issue is fiercely debated – some claim the shift started in 1998 and others say it was 2006.) This means the waters around Asia and Australia are warmer and those in the tropics and off the American shores are cooler.

What this means is that this year's negative PDO is reinforcing the strength of the La Niña – making the impact of the event even stronger.

- **THE WARM PHASE OF THE ATLANTIC MULTIDECADAL OSCILLATION (AMO)**

– The Atlantic Multidecadal Oscillation is, like the PDO, a long-term oscillation of warm and cold water temperatures. Specifically it is the flow of the giant Atlantic Thermohaline Current from the southern hemisphere to the northern Atlantic. When it flows rapidly, the waters in the Atlantic are warmer. When it flows slowly, the ocean cools.

This rapid flow heats not only the northern Atlantic, but the southern waters

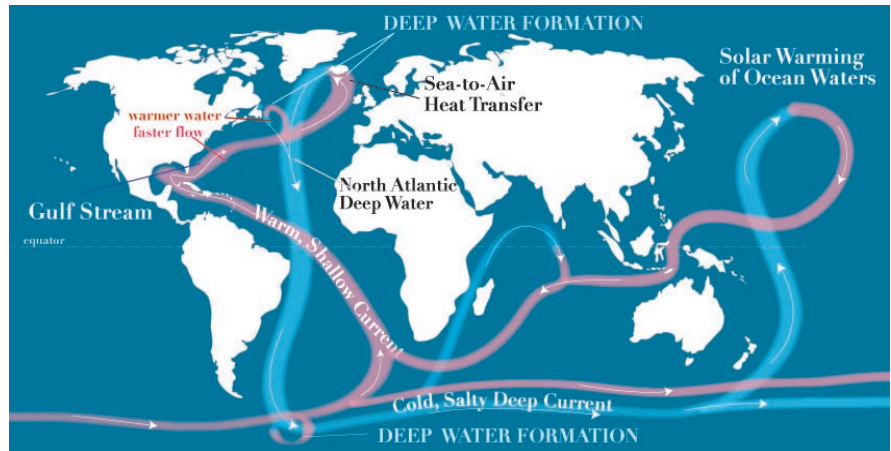


FIG. 16 **Atlantic Thermohaline Current**

© Browning Newsletter

as well. The Southern Atlantic is part of a world-wide ocean circulation, sometimes called “The Great Conveyor Belt.” The water flows from the tropical Indian Ocean around the tip of Africa into the South Atlantic. The faster the flow, the less time the tropical waters have to cool south of Africa. This year, the flow is especially rapid and the waters around Africa and South America are between 1° to 3°C (1.8° - 5.4°F) warmer than normal.

- **THE NEGATIVE INDIAN OCEAN DIPOLE (IOD)**

– The last big ocean oscillation that is shaping the climate of the Southern Hemisphere is the Indian Ocean Dipole (IOD) which was negative in late 2010 and finally faded to neutral in January. This climate pattern oscillates the strength of the monsoons from one side of the Indian Ocean to the other. In a positive IOD, the monsoons are heaviest in Africa and India. When the Dipole is negative, Australia, Southeast Asia and Eastern Asia have heavier monsoons and parts of Africa endure drought.

The good news for the nations around the Indian Ocean is that the Negative IOD subsided this month. This is too late for East African crops but it may begin to ease some of the tropical cyclone activity in the western portions of Australia.

These three forces have joined with the La Niña to shape a disastrous summer in the Southern Hemisphere.

The extreme weather they have produced has killed people, livestock and crops. Food prices all over the world will be higher because of this season's weather disasters.

Australia, the Land Down Under – Water

Australia has been slammed by a negative Indian Ocean Dipole (which brings heavy rain to its northern and western states) and a strong La Niña (which brings heavy rain to its northern and eastern states) reinforced by a negative Pacific Decadal Oscillation. Imagine a rugby player being hit by three huge tacklers – he's going down. Australia never had a chance.

The result has been the worst floods in the nation's history. Two months of torrential rains have affected more than 3 million people and left 30 dead. The greatest

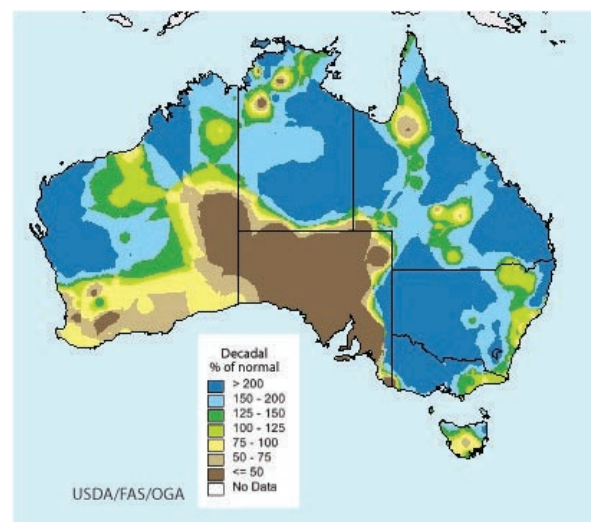


FIG. 17 **Australian Precipitation Anomalies**

Nov. 1-Jan 20, 2011 www.pecad.fas.usda.gov/cropexplorer/imageview2.cfm?ftypeid=23&attributeid=8&stypeid=&sattributeid=&startdate=2011-01-11%20

impact is in Queensland, which accounts for a fifth of Australia's gross domestic product. Separately, flood waters have covered 27% of Victoria. The floods have devastated crops, drowned livestock, cut roads and railroads and shut down coal mines.

Economists have estimated that it may take as much as A\$20 billion (\$19.8 billion) to rebuild the nation. Australian Prime Minister Julia Gillard has announced a new "one-off" tax and a slash in government spending to help pay for restoring the flood-affected states.

Looking ahead – Most international climate agencies expect the La Niña to weaken but continue for at least another three to four months. The US, British and Koreans currently expect it to continue six months and at least one Japanese agency expects it to linger all year. This means that the heavy rains in northern and eastern Australia will continue through May, if not at the same deadly levels.

If it continues through into the Australian winter, it usually means continued heavy rains in Victoria and Tasmania and a mild winter through the eastern states. Because of the current moisture, the underbrush will be bountiful, increasing the danger of winter wildfires when dryness reappears.

In the long-term, the change of the PDO indicates that Australia is probably facing a couple of decades of increased rainfall. This

phase of the Pacific diminishes El Niños and increases the strength of potentially flooding La Niñas. (There is a reason that some of Queensland's older houses were built on stilts.) Ask any farming bloke or stockman from Oz – leaving the "Big Dry" behind and having more rain is "Ace".

South America

While Australia has been fighting floods, South America has had more variety – floods and drought. In particular, the floods and landslides in Brazil

Between the strong cold La Niña and the abnormally warm Atlantic waters stretching north from Buenos Aires province, this winter's rainfall has been distorted into a pattern of extremes. Argentina has suffered huge droughts through most of its prime growing season while Brazil has had heavy rainfall. This has been almost ideal for Brazil's crops, particularly soybeans, but has caused massive landslides in more mountainous regions. Portions of Rio de Janeiro province received more rainfall in 48 hours than what is expected for the entire month of January. At least 845 people were killed and entire villages were buried by landslides in what some are claiming is the worst weather-related natural disaster in Brazilian history.

The big question, in terms of global food supplies, is whether the La Niña will continue to slam Argentina with dry weather.

The good and bad news is that the same small Madden Julian Oscillation (MJO) (a 4-6 week period of wetter weather followed by a return to dry conditions) that triggered the heavy Brazilian rains also weakened the eastern La Niña around South America. The waters next to the continent warmed as much as 1.5°C (2.7°F). Even if this weakening is only temporary, due to the MJO, it has arrived at a key time, right during the critical pod-setting stage of the soybean crop. Ironically, the same MJO has brought harvest-delaying rains to the Brazilian crop.

The worst may be over for Argentina, but the La Niña and its drying impact will continue through the rest of South America's summer and fall. The crop won't be a disaster, but it won't be a repeat of last year's banner harvest.

Africa

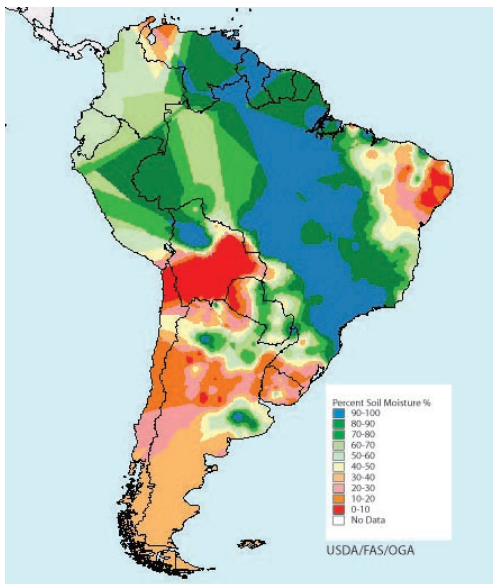
Africa straddles the equator. Its climate will be covered in two parts: here and in next month's issue as well. Trapped between a warming Atlantic and a negative Indian Ocean Dipole, Africa has had a disastrous season.

The results have been as diverse as the continent:

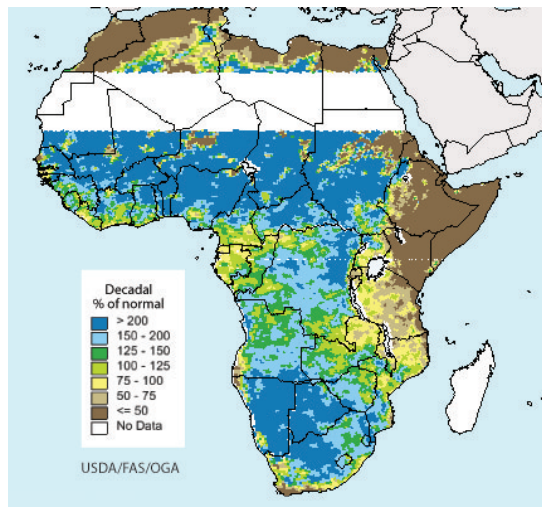
- East Africa from Ethiopia to Kenya was hit by drought. Their rainy season is normally diminished by La Niña weather patterns, but the negative IOD

reinforced the drought. The price of food has soared with wheat rising 50% and potatoes doubling. Historically, piracy from the Horn of Africa rises during food emergencies.

- South Africa, the bread basket of the continent, is awash with floods. So far 120 people have died and \$284 million worth of crops and farm infrastructure have been washed away. The crops most affected by the flooding are corn, sunflowers and grapes. Additionally the nation's rail system is submerged, halting deliveries and exports of coal from the nation's mines. The



left: www.pecad.fas.usda.gov/cropexplorer/continentView.cfm?ftypeid=25&fattributeid=9&stypid=&sattributeid=&startdate=2011-01-11%20
 right: www.pecad.fas.usda.gov/cropexplorer/continentView.cfm?ftypeid=12&fattributeid=8&stypid=&sattributeid=&startdate=2011-01-11%20



FIGS. 18-19 **South American Soil Moisture Percentages (left) Jan 11-20, 2011**
African Precipitation Anomalies (above) Nov. 1-Jan 20, 2011

flooding is spreading north to Mozambique, Namibia, Botswana, Zimbabwe and Zambia. This too is partially due to the global impact of La Niña, but the heated Atlantic is adding to the record precipitation.

- Notice how strange the weather is north of the equator. This is the dry season for the lands south of the Sahara, yet they are experiencing over 200% of their


normal rainfall. Instead, it is the lands north of the desert that are abnormally dry. They are receiving less than 50% of their normal rainfall. Crops and livestock are dying. At a time when global food prices are rising, local sources of food are literally drying up. Refugees are moving to the cities only to find food shortages and skyrocketing prices. Is it any wonder that this region is also being swept by riots?

In short, the intense weather disruption that the northern hemisphere is feeling this season is being shared by our southern neighbors. However, while we are experiencing cold, they are watching floods and drought kill their crops. We ended the Northern Hemisphere growing season with grain shortages and rising food and fuel prices. We will end the Southern Hemisphere's growing season with the situation even more acute.


News Notes

Cold La Niña + Cold Arctic Oscillation + Warm Atlantic = Cold, stormy winter + Misery for 100 million people.

As this goes to press, a new storm is starting, one which forecasters warn will affect one-third of the nation. This is the type of storm to expect in late winter – where the South may have temperatures that reach the 70's (+21°C) and the warm, moist air produces thunderstorms, unusually heavy snowfall and Northeastern ice storms.


 Jack Kerouac may have been pessimistic when he said “Avoid the world, it’s just a lot of dust and drag and means nothing in the end,” but he was right about the dust. The world has a lot of dust – twice as much as it had in the 1800s. This huge increase is affecting climate all over the world.

A recent study led by Natalie Mahowald was the first to trace the fluctuation of a natural (not human-caused) aerosol (particles) around the globe. This study was presented the research at last December’s meeting of the American Geophysical Union. Using data from ice cores, lake sediment and coral around the world, they discovered that the amount of dust floating in the air has doubled since the beginning of the twentieth century. This increases the filtering of incoming sunlight and, according to some can increase droughts and desertification.

 The North Pole is not only getting warmer, it is running away towards Russia! While Chicago and other airports have closed runways due to Arctic air masses, Tampa Bay airport is having to

close its runways due to Arctic magnetic shifts. The Magnet North Pole, where compasses point, is not on the spinning axis of the Earth, it is on Northern Canada’s Ellesmere Island over the axis of Earth’s spinning molten core. The core is wobbling slightly and the magnetic core is shifting north towards Siberia at a rate of 34 to 37 miles (55 to 60 kilometers) a year.

Landing airlines align their compasses with the compasses and Tampa had to close its busiest runway to repaint the proper alignment for pilots. Other airports will have to make similar changes.

 Just in time for Valentine’s Day – the world faces a chocolate ‘drought’! Political unrest in the Ivory Coast, where 40 per cent of the world’s cocoa beans are grown, has made that nation a no-go area for cocoa traders. Back in the 1970s – 1990s, the expanding Sahara send Muslim refugees into the former French colony. Now religious and ethnic differences between the refugee Muslim north and the Christian Ivoirian South. The nation’s 2010 presidential elections ended with both candidates declaring victory and the nation in dangerous political turmoil. Even if the political situation improves, experts estimate it could take three years or more for cocoa farming to return to its former level. As a results, manufacturers are fighting for the rest of the world’s cocoa bean stock and prices are rising. Whoever wins, lovers of chocolate and Valentine sweets are losing.

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Meanwhile, decisions must be based on the best available information and estimates.

This newsletter will **not** contain:

- Analysis of, or recommendations concerning, any investment possibilities.
- Recommendations on any particular course of action.

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