

BROWNING

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NEWSLETTER

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 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.

In this issue

1 The Growing La Niña

It's getting bigger and stronger. What will this do for this winter's weather.

4 Busy, Busy, Busy: The Atlantic Hurricanes So Far

The Atlantic is exploding with storm. Why is this happening and how long will it last.

6 Crud in the Sky

NASA has shown some startling and revealing truths about the natural and man-made debris in the sky.

8 NEWS NOTES

THE GROWING LA NIÑA

SUMMARY: The La Niña is getting stronger and will be a major influence on the weather for the next six months. This will create a warm autumn and a very cold mid-winter.

"I call her the little lady with the big dry punch."

Bill Patzert,
 NASA Jet Propulsion Laboratory
 A.K.A. "The Prophet of California Climate"

The little lady is growing up. La Niña (Spanish for "the girl") is getting colder and stronger. North America is downwind from this Pacific weather phenomenon and it's never wise to get on the wrong side of a lady. We are already getting a preview of how cold and dry this winter will be.

The Cooling Pacific

The Tropical Pacific has been cooling since last March. By May, the ocean was showing La Niña conditions, with tropical temperatures 0.5°C (0.9°F) lower than normal. The phenomenon was officially declared a La Niña condition two months later.

Let's take a moment to go over some official definitions.

- La Niña temperatures are when the Tropical Pacific is 0.5°C (0.9°F) cooler than normal. At this point, the temperatures start to alter ocean and air currents that affect tropical weather. **The cooler Pacific has been affecting global weather since late May.**
- Officially a La Niña condition is when a central portion of the tropical Pacific is 0.5°C (0.9°F) below normal for three months running. **We are currently experiencing La Niña conditions.**
- A La Niña episode is when the tropical Pacific has had "5 consecutive overlapping 3-month seasons" with temperatures 0.5°C (0.9°F) below normal. **Historically what we are experiencing now will not be considered an official La Niña unless it lasts through November.**

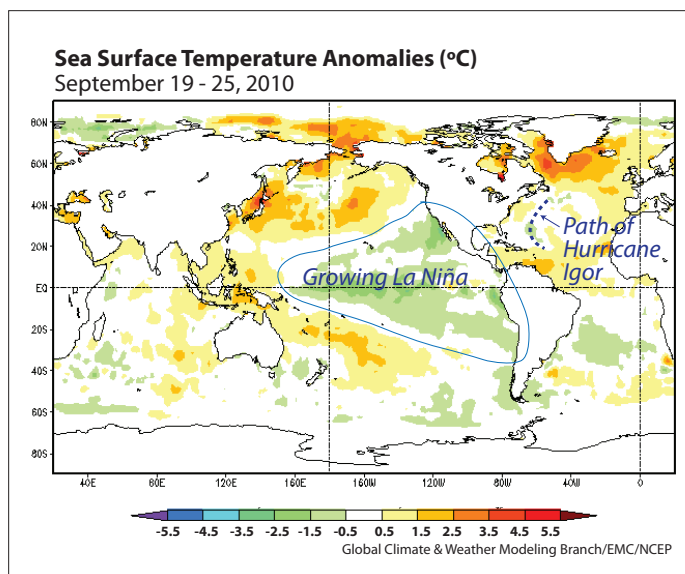


FIG. 1 La Niña is growing in the Pacific
http://www.emc.ncep.noaa.gov/research/cmb/sst_analysis/images/wkanomv2.png

Technically we are only going through a condition. Historically, however, even a condition can really mess up North American weather. If it occurs in autumn, it strengthens the Atlantic Hurricane Season. If it occurs in winter, it brings cold weather to the north and drought to the South. If it occurs in spring, it brings droughts and flooding throughout most of America's croplands.

Recent models suggest that we will be experiencing a complete La Niña episode, with cool conditions lingering in the Tropical Pacific until next April or May.

The current La Niña is moderate with signs of becoming quite strong. We are already seeing La Niña conditions getting stronger. Temperatures dropped sharply in August. The rate of cooling slowed in September. Over the last 4 weeks, these tropical sea surface temperatures were at least 1.0°C below average. East of the International Date Line, they were more than 2.0°C below-normal.

La Niña usually bring another problem that can be as costly as eastern blizzards – southern heat, drought and, in the Southwest - wildfires.

There are dozens of models trying to predict how the La Niña will evolve. The US National Weather Service's Climate Forecast System suggests the phenomenon will strengthen through the winter before beginning to weaken. The majority of US models suggest the La Niña will extend through springtime. It should be noted, not all nations agree with these models. The UK and Europeans show more dramatic cooling and the Japanese and Korean models show a lingering, but milder event. After reviewing global science, it seems

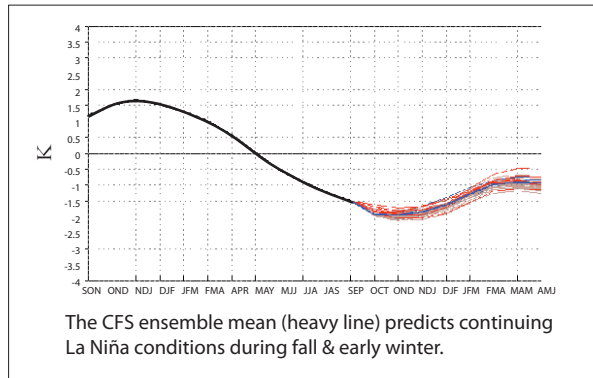


FIG. 2 **La Niña is likely to continue**

National Centers for Environmental Projection ; http://www.cpc.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

most likely that we will have a strong event shaping the North American winter.

A Strong La Niña Winter

So what does it mean to have a moderate-to-strong La Niña winter? While there are a variety of potential weather events, for most years there is:

- Cold weather throughout Western Canada and the Northwest tier of states.
- Heavy coastal precipitation from British Columbia to Northern California. This frequently includes heavy flooding along the US/Canadian border.
- Drought in the southern tier of states from the Southern California to the South.
- Warmer than average weather along

the East Coast, the Gulf States and the Southern Plains.

- Heavy snow in the Midwest.

Overall, La Niñas frequently form a strong high-pressure area in the Northern Pacific that steers the polar and Pacific jet stream north for much of the winter. However, in mid-winter, the polar jet stream occasionally veers south creating the infamous “Alberta Clipper”. When this happens and the two jet streams collide, the result can be an Alberta Clipper hitting the East with winds averaging as much as 40 – 60 miles per hour. Often the Clippers are followed by bitter outbreaks of polar air, known as the Siberian Express, which continues for days after the low has moved off. Strong northerly winds and bitterly cold temperatures leave behind dangerous wind chills, ground blizzards, and days of white-out conditions where surface visibility is nearly zero.

In other words, the East, Midwest and Eastern Canada may experience periods of intense, stormy cold, but frequently the overall winter averages warmer than the historical mean. **A typical La Niña winter, begins warm, has an intense cold spell in the Northeast, Midwest and Eastern Canada and a warm late winter.**

La Niña usually bring another problem that can be as costly as eastern blizzards – southern heat, drought and, in the Southwest - wildfires. As noted, the southern tier of the US usually experiences intensely dry weather. In the West, this frequently results in more wildfires, particularly in Texas and

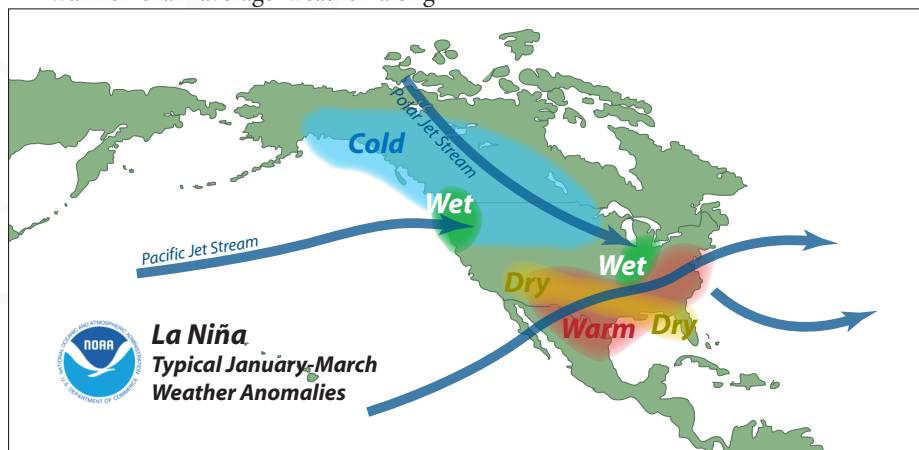
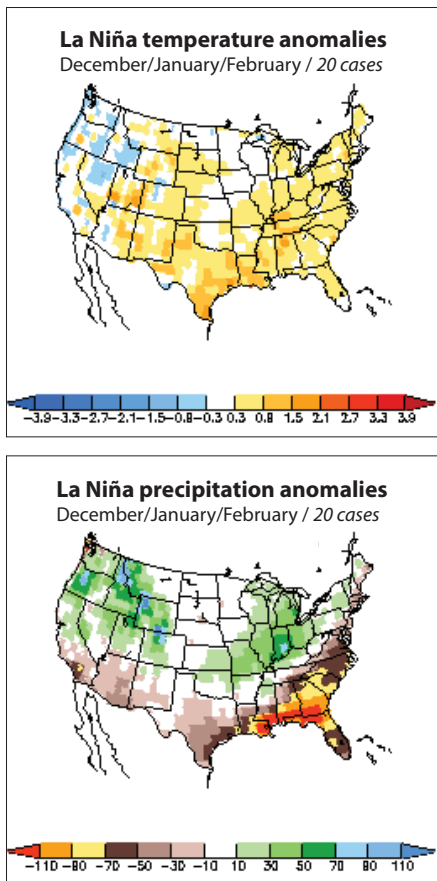


FIG. 3 source: National Centers for Environmental Projection ; http://www.cpc.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf



FIGS. 4-5 A typical La Niña winter

<http://www.cpc.noaa.gov/products/precip/CWlink/ENSO/composites/lanina.djf.temp.gi> & <http://www.cpc.noaa.gov/products/precip/CWlink/ENSO/composites/lanina.djf.precip.gi>

California. In California, these fires are linked to dry, hot Santa Ana winds.

Santa Anas are intense, dry offshore winds that affect Southern California in late fall and early winter. The normal La Niña weather pattern steers the Pacific jet stream north. This diverts winter moisture from Southern California. The coastal northwest, particularly Washington State and Vancouver frequently experience flooding and there are heavy snows. (This is wonderful news if you want to ski British Columbia's new Olympic facilities.)

These bigger, more frequent storms in the Northwest are usually followed by large areas of high pressure which tend to drift south towards the Great Basin and Mojave Desert regions. This funnels winds to the southwest through mountain passes. The hot, dry winds are, at best, miserable

and at worse, deadly as they whip wildfires through the dry, heavily populated California hills.

Already we have seen this pattern of winds heating Southern California during the last week of September. On 12:50 September 27, Los Angeles hit 113°F (45°C) – making it the hottest day in Los Angeles history. Fortunately, the Santa Ana wind season does not officially begin until October 1. Mild southwest winds from the deserts created record-breaking heat – wait until the hard Santa Ana's begin.

While the impact of La Niñas in the US is well documented, the data is more confusing for our northern neighbor. Canada used to have a comprehensive El Niño/La Niña site that showed in maps how La Niñas affected Canada. They showed that over recent years the US/Canada border tended to be warmer than normal. Quebec and the Atlantic Provinces were usually drier than normal. Oddly enough, Environment Canada no longer shows this data on the internet.

The Outlook for This Fall and Winter

Typically, strong El Niños/La Niñas are the dominant features that shape global weather. However, as last winter showed, other forces can have huge local impacts. Last winter's El Niño warmed global weather, but the US and Europe, as well as parts of Asia, experienced cold, stormy, miserable winters. This winter, like last winter, the warm Atlantic and volcanic ash will be interacting with events in the Pacific to shape the weather.

THE WARM ATLANTIC - Most weather experts claim that last winter's cold was shaped by the interaction of the El Niño with an unusually strong North Atlantic Oscillation pattern. When this wind pattern is negative, which is more frequent when the Atlantic is warm, it drives cool northern air masses deep into the Midwestern and Northeastern US and Europe.

The Atlantic is currently 0.5° - 3.5°C (0.9° - 6.3°F) warmer than normal, with the greatest anomalies in the northern waters. Due to long-term heavier than normal flow of the Atlantic's tropical currents,

we can expect the warmth to continue and the NAO to encourage cool Arctic air to drop into Eastern Canada and the US. At the same time, the marine winds off of the Gulf and Atlantic should warm the Gulf and Eastern states. This will set up a relatively warm winter that will have sharp, wet, stormy cold spells when the negative NAO lets the frigid "Siberian Express" drop into the US.

THE VOLCANOES OF THE NORTH PACIFIC - It has been months since these volcanoes have had any large or large/medium eruptions. However, some of the ash from previous eruptions that entered the stratosphere is still lingering and Russian volcanoes on Kamchatka are continuing to have smaller biweekly eruptions.

Volcanic debris blocks incoming sunlight, alters air pressures and wind patterns and ultimately falls out in heavier than average precipitation. These constant eruptions are one of the factors that have left the West Coast and parts of Western Canada cooler than normal. If this pattern continues, the ash and chemicals will continue to lower temperatures, adding to the already cooling impact of the Pacific La Niña.

Based on the weather of the five most similar years, the most likely pattern for the next 3 months will be:

MID-AUTUMN - So far, the East has been troubled by dry weather. Expect coastal storms and tropical moisture to break the drought. Indeed, the tropics will bring not only storms but some extreme heat to the eastern states and warm weather to eastern Canada. Meanwhile, classic La Niña weather patterns will bake the Southwest. The biggest unknown in this scenario is in western Canada and the Northwest. If the current level of volcanic activity continues, the Northwest coast will be cool and southwestern Canada, the Northwest, Northern Rockies and Central Plains as well as parts of the Midwest will have ample rain. Indeed, in 40% of similar years, the rainfall slowed down the harvest.

LATE AUTUMN -- The heat will continue to dominate North America as autumn ends. Temperatures will continue to be warmer than normal in the southern tier of states and the center of the continent. The Northwest and western Canada should experience an early onset of winter with cool, stormy weather. Meanwhile, in 60% of similar years, the Northeast has a cool late fall.

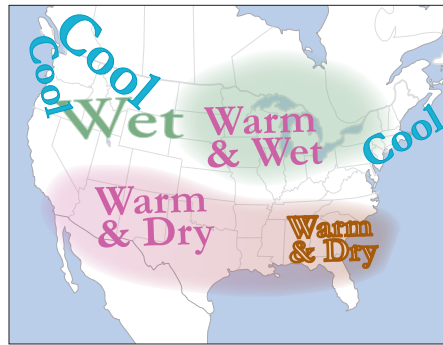
WINTER – Expect warmth in the southern states, cool weather in western Canada and the Northwest and a freezing mid-winter in the Northeast. Southern California will be feeling “the little lady’s big dry punch.” In 80% of similar years – skiers had a wonderful season in Colorado, Utah, British Columbia and, mid-winter, in the Northeast.

The wild card in this forecast will be the volcanoes in the Northwest Pacific. Last year they chilled what would be a normally warm El Niño. If they continue with their current activity, their cooling will pile on the normal cold of a La Niña creating truly frigid mid-winter in the East.

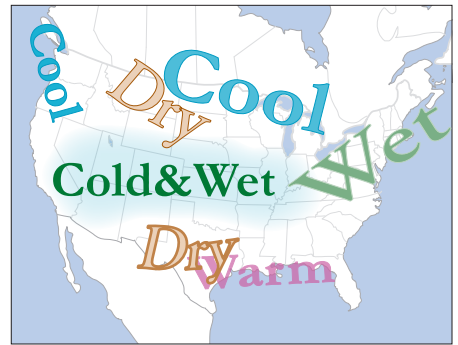
In other words, if the volcanic eruptions continue, the “little lady” will chill out. And so will we.



Mid Autumn



Late Autumn



Winter

© Browning maps

FIGS.6-7-8 **If the North Pacific Volcanoes continue erupting**

Cool 2°C or more lower than normal temp.	Hot 5°C or more higher than normal temps	Wet 125% or more of normal moisture
Warm 2-4°C or more higher than normal temps.		Dry 75% or less of normal moisture

BUSY, BUSY, BUSY: THE ATLANTIC HURRICANES SO FAR

SUMMARY: *The current conditions in the Atlantic and Pacific are ideal for creating an extraordinarily busy hurricane season. Expect these ideal conditions to last through October.*

“El Nino is the blessing for hurricane country and La Nina is the curse.”

Bill Patzert,
NASA Jet Propulsion Laboratory
A.K.A. “The Prophet of
California Climate”

Hurricane country – consider yourself cursed. The La Niña, a Pacific weather phenomenon that alters high tropical winds around the globe, is growing stronger.

Last month, The Browning Newsletter noted that the last week of August saw a change in the Pacific that developed perfect conditions for creating hurricanes in the Atlantic.

“All three Pacific oscillations are positioned to create high-altitude winds over the Atlantic that will encourage the growth of tropical storms and hurricanes. What this means is that the peak of the Atlantic Hurricane Season will have ideal water temperatures and winds for storm growth.

The Browning Newsletter,
September 1, 2010

We have certainly seen the result of these ideal conditions. The day the article was published, Hurricane Earl, Tropical

Storm Fiona and Tropical Storm Gaston were blasting through the Atlantic at the same time. Two weeks later, it was Hurricanes Igor, Julia and Karl.

Triple Headers are a rare occurrence. The US has been tracking hurricanes since 1851 and the only other years that this has occurred are 1893, 1926, 1950, 1961, 1967, 1980, 1995, and 1998. Hopefully, this season won’t break the record set in 1998, when four hurricanes swirled through the Atlantic at the same time.

As noted in the first article, the Atlantic has been warmer than average this year; 0.5° - 3.5°C (0.9° – 6.3°F) warmer than normal. Typically eastern Atlantic waters are at their warmest during the seven weeks between mid-August through the first week in October. Tropical storm

development runs off heat and this year the Atlantic waters are high-octane fuel.

Warm ocean waters in September are normal, but what has made this month so unusual are the tropical winds.

Scientists have known for years that the activity of the Atlantic Hurricane Season depends on the activity of the West African Monsoon and the Pacific's El Niño/La Niña cycle. The former generates storms that enter the Atlantic and can develop into hurricanes. The latter shapes high altitude winds that can stop or encourage storm growth.

The West African Monsoon is poorly understood and very hard to predict. According to scientists, it seems to have two separate episodes, one in late spring and early summer and a second, more powerful episode that begins in late July.

- The early season is shaped by the contrast of the hot African landmass and the cooler coastal waters off the Gulf of Guinea. It typically hits coastal areas but does not extend all the way to the Sahara.
- The second episode is more powerful and penetrates much deeper into Africa. The moist air comes from more distant Atlantic waters. The turbulence creates a wind pattern, the West African Wave or West African Jet that sweeps storms westward out of the continent into the ocean. The stronger the monsoon, the more storms enter the Atlantic.
- Typically if the early episode of the monsoon is strong, the second episode is weak and vice versa.

This year, the early episode of the monsoon was a disaster. It was so weak that most of West Africa experienced drought. Millions faced food shortages, particularly in Niger and Nigeria.

Then second episode was a powerful monster. It dove deep into Africa, bringing huge rains and floods. Dams in Nigeria had to be opened to avoid collapse and over 2 million people were left homeless.

Most of the world, however, was distracted by a side effect of the flooding monsoon. It penetrated so deeply, that the atmospheric high that usually forms north of the monsoon was shifted north

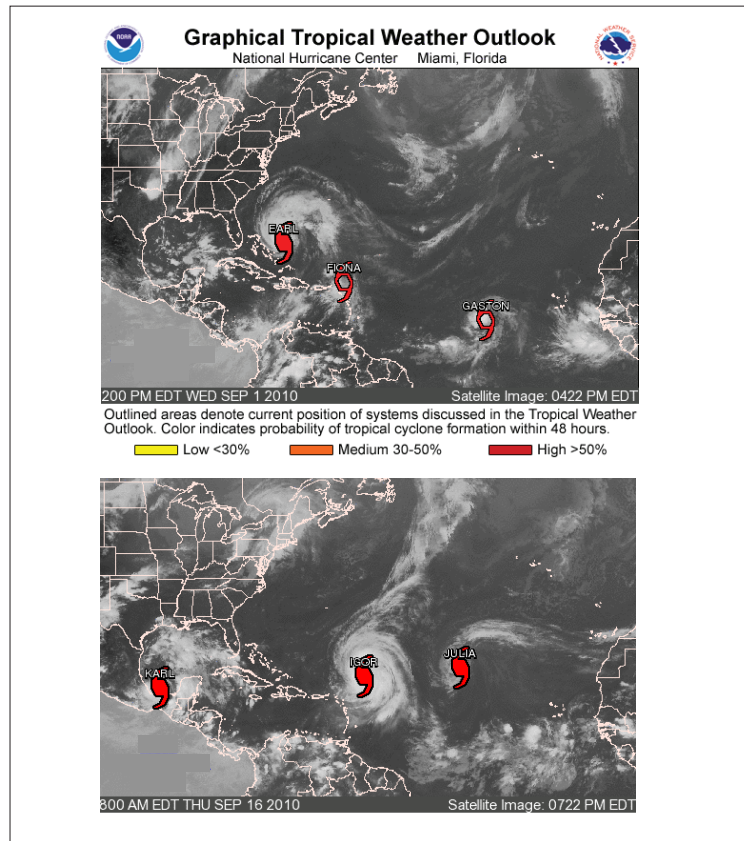


FIG. 9-10 Favorable conditions create triple storm threats twice in one month

both images: NOAA/National Hurricane Center http://www.nhc.noaa.gov/archive/gtowo/at/201009162354/index.php?basin=atl¤t_issuance=201009162354

into Europe. The atmospheric high and its heat entered East Europe and Russia. **The heatwave that destroyed 30% of Russia's grain was not solely caused by the huge second episode of the monsoon, but the monsoonal wind patterns were a big factor.**

Now we are seeing another effect of the huge second episode. It is generating an unusually large number of storms which, when they enter the Atlantic, become tropical waves.

As noted in September's *Browning Newsletter* once the storms enter the Atlantic, conditions are now perfect for them to grow. The three main Pacific weather patterns – the giant, decades-long Pacific Decadal Oscillation, the La Niña and the six-to-eight-week-long Madden-Julian Oscillation (MJO) are all creating high altitude winds that encourage storm development.

The longer weather patterns have been in place all summer. However, the MJO is a mobile pattern of winds and waters that drift eastward around the world. For six to eight weeks it tends to generate favorable winds for hurricanes, and then it drifts away, followed by a wave of less favorable hurricane conditions.

Notice, early in the Atlantic Hurricane Season, the MJO was favorable. Tropical Storm Alex grew into a Category 2 hurricane, the first June hurricane in fifteen years.

A less favorable pattern of the MJO hit the Atlantic by early July and for the next seven weeks the Atlantic was fairly quiet. Then, in late August, the favorable pattern returned. All three Pacific patterns were favorable just as the Atlantic heat and wind conditions reached their peak. Starting August 21, the Atlantic saw 36 days in a row with an active tropical depression, storm and/or hurricane.

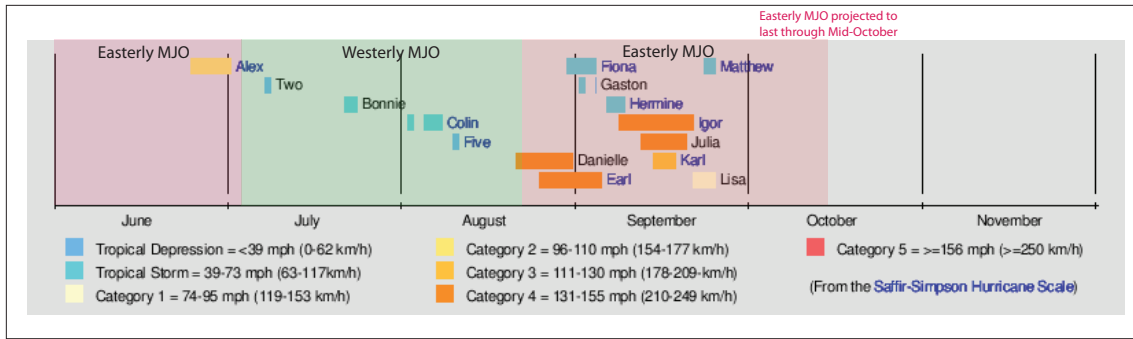


FIG. 11 **The MJO can enhance or squash hurricane formation**
http://en.wikipedia.org/wiki/Timeline_of_the_2010_Atlantic_hurricane_season

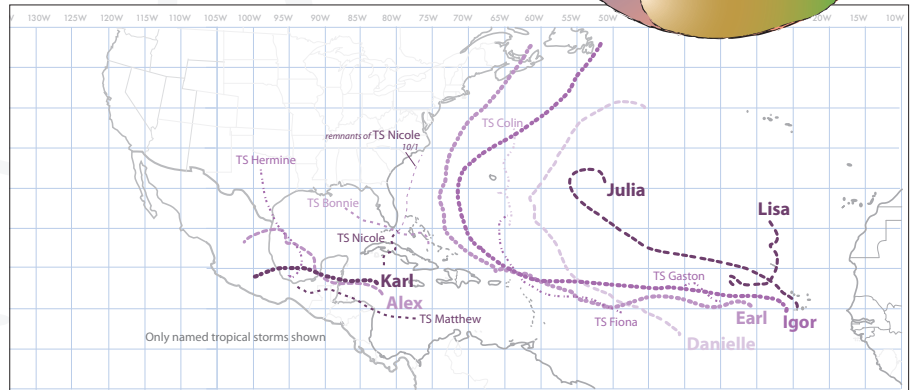
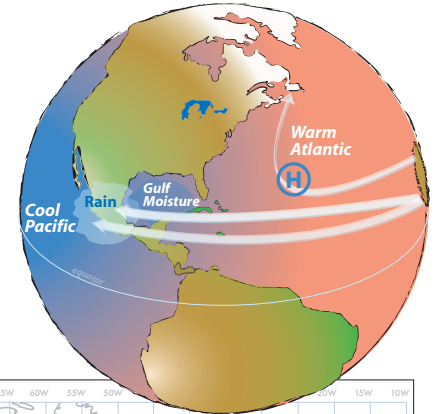
Notice, it has only been six weeks since the favorable MJO began to affect the hurricane season. Expect another 2 to 3 weeks of excitement.

So far, most of the excitement has avoided the United States. Historically, if the Atlantic is extremely warm and the Pacific along the West Coast is cold, it strengthens the tropical trade winds. Storms usually blow straight west, into the western portions of the Gulf and Caribbean. Mexico was hit six times and tiny Belize slammed twice. So far, US gas and oil production has been relatively unscathed but the same cannot be said for Mexico.

Notice, too, the other pattern common in these conditions. Storms that evolve in the eastern Atlantic tend to swerve out to sea. Unfortunately, two were not far enough out to avoid hitting Canada's Atlantic Provinces, but so far they have

only brushed by US shores. In most years at least one usually rolls up the East Coast, and the current outlook is that Tropical Storm Nicole will follow this pattern.

The hurricane season has two more months to go, with probably two more weeks of prime wind and water conditions. Even when the MJO shifts to less favorable conditions, there will be storms. After all, there's a La Niña, so hurricane country is officially cursed!



top & bottom © Browning maps

FIGS. 12-13 **top Prevailing wind patterns when the Atlantic is warm and the Pacific is cold. bottom 2010 Atlantic Hurricane Season - so far**

CRUD IN THE SKY

SUMMARY: – *New satellite technology shows that all levels of development produce pollution - from Western societies, to peasant societies, to bare uninhabited deserts.*

The last thing that anyone expects to see is pretty pollution. However two Canadian scientists, Aaron van Donkelaar and Randall Martin at Dalhousie University, Halifax, Nova Scotia, Canada, have combined

science and satellites to produce stunning images of the pollution that is killing people. They are useful, informative and, yes, pretty.

Scientists and governments are trying to understand the full impact of aerosols, tiny solid and liquid particles in the air, on climate and human health. This is difficult because, while Western nations try to monitor their pollution, many developing nations have no sensors. This makes measuring air pollution difficult, particularly a category of fine particulate matter

(PM2.5) that kills people every year. These particles are 2.5 micrometers or less in diameter, about a tenth the size of human hair. They can get past the body's normal defenses and penetrate deep into the lungs and even enter the bloodstream. Once there, they can spark a whole range of diseases including asthma, cardiovascular disease, and bronchitis. The American Heart Association estimates that in the United States alone, PM2.5 air pollution sparks some 60,000 deaths a year.

Scientists have tried to fill the gap of land based measurements with satellite observation but most satellite instruments can't distinguish particles close to the ground from those high in the atmosphere. In addition, clouds tend to obscure the view and bright land surfaces, such as snow, desert sand, and those found in certain urban areas can mar measurements. However van Donkelaar and Martin's process, involving multiple satellite readings and a new computer model, have yielded the best results yet. They warn that there may be a 25% error, but even with that caveat, the results are startling. It has provided air pollution readings for huge areas of the Earth which have never been measured before.

Take a deep breath. What the results are showing is that PM2.5 occurs in nature, particularly over deserts, as well as over cities. Results suggest that more than 80% of the world's population breathe polluted air that exceeds the World Health Organization's recommended level. Levels are comparatively low in the United States (except for the urban areas in the Midwest and East) and extremely high in Northern China where heavy industrial pollution mingles with the dust from Central Asian deserts.

Another finding has been the maps showing the global movement of black carbon soot. (dense areas of black carbon are shown in white in fig. 16) This is an aerosol that has a direct impact on climate – absorbing heat and moisture. Northern China has blamed much of its increasing heat and drought on

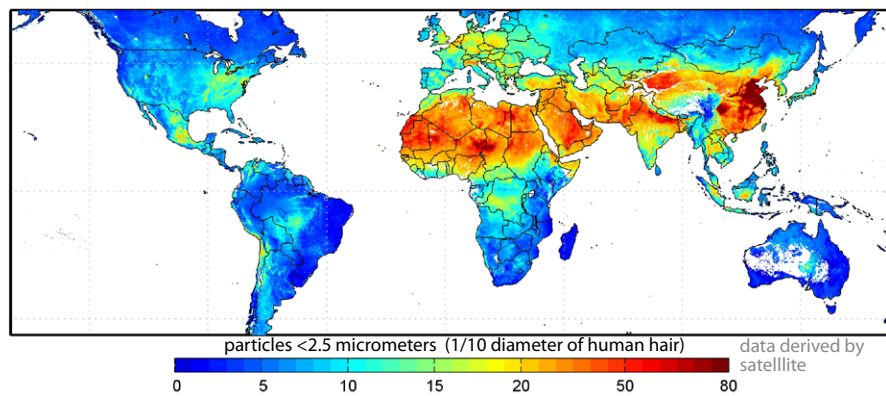
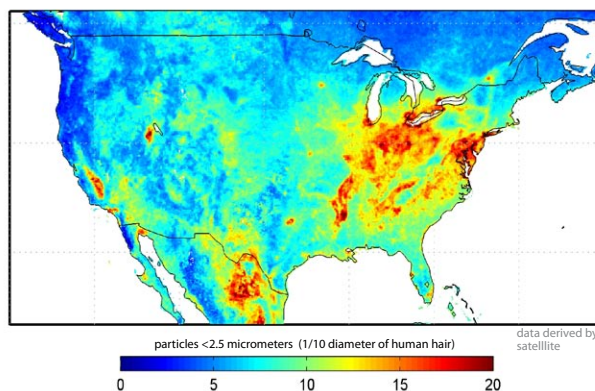


FIG. 14 **Natural & man-made sources of pollution**
http://www.nasa.gov/images/content/483897main_Global-PM2.5-map.JPG

the soot from widespread coal burning. Additionally, environmental advocates warn that soot settling on Arctic is speeding the region's ice melt.

It is startling how much of this soot is generated by developing societies. Scientists knew about the steady stream of sulfate and soot particles from Midwestern, Eastern European, Chinese and northern Indian, power plants and factories that burn coal. They knew about the pollution from motorized transportation. What is surprising is how enormous the output is from tropical slash-and-burn agriculture and natural wild fires. (The photos are from August to December 2009 and show the El Niño's impact, which sparked wide spread fires in Indonesia.)

In the past, only industrialized societies measured their pollution, so all pollution was blamed on them. The amazing aspect of these photos is that they correct the naïve assumption that all pollution is coming from growing industrialization. **Now we are learning that all levels of development produce pollution - from Western societies, to peasant societies, to bare uninhabited deserts.**

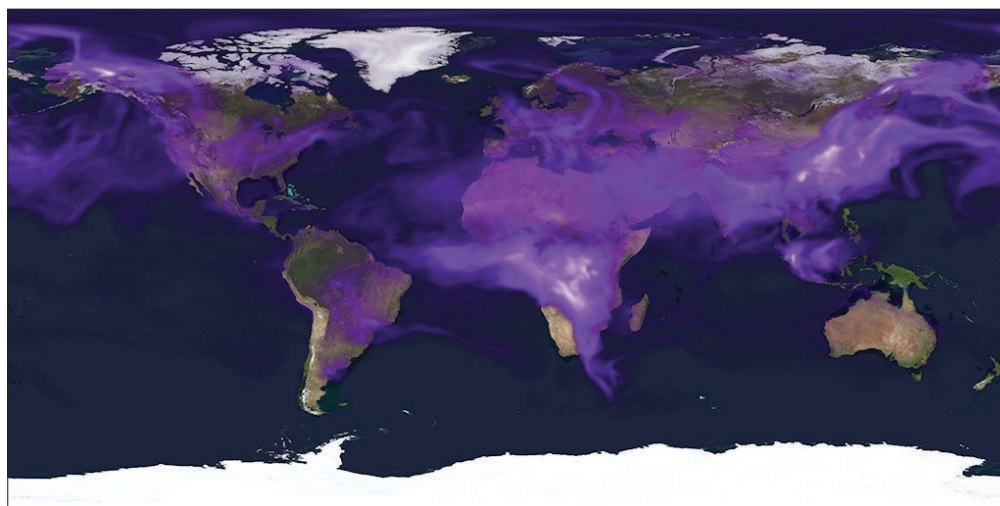


FIGS. 15-16

Small particulate pollution in the US (*top*)

Worldwide black carbon soot from all sources (*left*)

http://www.nasa.gov/images/content/483902main_Final-US-PM2.5-map.JPG right: http://svs.gsfc.nasa.gov/vis/a000000/a003600/a003668/frames/1024x512_2x1_60p/WithEarth/ebc_0000.png



News Notes



This year's hurricane season has been light for most North Americans, but south of the border has been a different story. Six hurricanes have hit Mexico and two made landfall further south in Central America.

Mexico took direct hits from two of this year's deadliest and most damaging storms, Hurricanes Alex and Karl. Alex killed 33 people and inflicted 1.9 billion dollars worth of damage, as well as temporarily shutting down a fourth of all Mexican oil production. Karl, three months later, was even worse. It affected an estimated 15.8 million people and left between a quarter to half a million homeless. There was widespread flooding that killed 22 people and left \$3.9 billion dollars damage.

Mexico's worst blow yet hit two weeks later, when heavy rains from the remnants of Tropical Storm Matthew triggered a landslide in Mexico's mountainous Oaxaca state that buried as many as 1,000 people. Matthew had hit Nicaragua earlier, but the storm's remains stalled out over the region of Mexico that had already received torrential rains from Hurricane Karl. Satellite estimates of Matthew's rains over southern Mexico show that a foot of rain may have fallen in the landslide area. Previous, smaller landslides have broken so much of the nation's infrastructure that it is almost impossible to get emergency teams to the site.



Australian farmers haven't been the only ones who have delighted in the recent rains brought to them by this year's La Niña. Summertime's warm, wet weather was ideal for locusts, and the nation is now facing its worst plague in 75 years. Conditions for the bugs were so good that three generations of locusts were born, each one up to 150 times larger than the previous generation. Experts predict that South Queensland, New South Wales and Victoria are all going to get hammered. The New South Wales Farmers Association said an area the size of Spain was affected and the Government of Victoria alone forecasts \$2bn (£1.2bn) of damage. Farmers are attempting to fight back with crop sprayers but there is currently a shortage of pilots.

Your sweet tooth will be feeling the effect of this year's heatwave in Russia. Apparently Russia's 4 million ton sugar beet harvest has been reduced to only about 2.8 million. Now the drought has been followed by rainfall, making the harvest even smaller. The beets, normally slightly smaller than a baseball, are more carrot sized and shaped this year.



When combined with the drought that hit Brazil, the world's largest sugar cane producer, world sugar prices have risen to some of their highest levels in 30 years.



Never underestimate the power of a Texas girl especially if she is a cougar. No, this is not a referral to older human ladies – this story is about real Texas cougars. Florida faced a real problem – the U.S. Fish and Wildlife Service was warning that the rare Florida panther was so inbred it was becoming extinct.

In 1995, in desperation, the U.S. government released eight female cougars from a wild Texas population into Florida. The gals took over. The population has tripled. A study by Stephen O'Brien, chief of the Laboratory of Genomic Diversity at the National Cancer Institute in Frederick, Maryland shows the offspring produced were stronger and lived longer. The panther population is still small, but has been expanding. Landowners are donating conservation easements and wild Florida Panthers have been seen as far away as Georgia.



Sometimes peace has unexpected benefits. Since 1987, Uganda has been engaged in a horrendous guerilla war with the Lord's Resistance Army. Millions of people have been victimized. In 2008 the nation drove most of the rebels out.

Now studies are showing that wildlife, especially those in the nation's national parks, has doubled. From elephants and hippos to giraffes and gazelles, the population of animals has soared. The Uganda Wildlife Authority and ecotourism has rewarded local communities that protect wildlife and the results have been heartening. Poaching has fallen dramatically. Humans weren't the only or even the main victims of guerilla war.



Leaflet Alert – Scientists are reporting that this summer and fall's abundant sunlight has produced leaves high in sugars – excellent for a rich, red autumn. However the recent record-breaking heat and warm nights in the Northeast are delaying the color turn. Who knew it was down to a science!

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The opinions expressed are those of the writer, and although they are based on extensive studies of physical data and phenomena, many statements published here are not entitled to be regarded as rigorously proved in a scientific sense. Some decades must pass before these issues are resolved.

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.

VOLCANO UPDATES

Evelyn Garriss now offers an e-mail update service to notify subscribers when eruptions happen, and how they are likely to affect the weather.

For more details, price, and subscribing information: www.BrowningNewsletter.com/contact.html

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