

# BROWNING

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NEWSLETTER

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Vol. 36, No. 11

## IT'S OFFICIAL – A COLD LA NIÑA WINTER!

### IN THIS ISSUE

- The developing La Niña will have the impact of a strong event – creating cold weather in the Northern tier of states, heavy precipitation in the Pacific Northwest and drought in Texas and the South.
- The government warns that the Arctic Oscillation, which allows cold Arctic air to plunge into the US, will be winter's "Wild Card." This year's volcanic eruptions in the polar air mass guarantee the wild card will hit and create a very cold mid-winter in Southeast Canada, the Midwest and Eastern US.
- This winter will present many of the same problems as last winter.
- The return of La Niña last September is causing flooding in Southeast Asia and will cause heavy rains in Indonesia, Malaysia and the Philippines later this year.
- The combination of La Niña and a negative Pacific Decadal Oscillation will create a very cold winter in Asia and strong dry season monsoons in Northern and Central China.

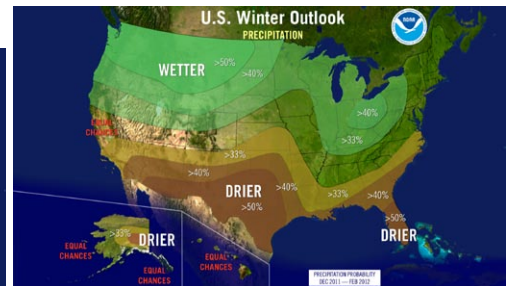
### SUMMARY

The new La Niña that is developing in the Pacific will have the impact of a strong event. We will see frequent negative Arctic Oscillations. Expect North America to have another cold winter.

You've seen the headlines. The Northeast was hit by a Nor'easter snowstorm that affected 60 million people. Over three million were left without power and the outages may last for days. New York City received its earliest inch of snow since the Civil War. Pennsylvania, Washington DC and the entire Northeast were buried in as much as two feet of snow and then hit by freezing weather.

The Northeast is not the only cold area. Even Texas, drought-stricken Texas, had snow this month in Amarillo. The Rocky Mountains, including my home 300 miles from the Mexican border, has been buried in white stuff two times in October. Sunny California started the month with heavy rain in the Fresno valley (hammering the drying raisin crop) and snow for the ski resorts in the Sierra Nevadas. And it is all due to hot water and cold, cold air.

We are being hit by a La Niña and a "wild card". Welcome to the early beginning of the winter of 2011/2012.



figs.1-2 NOAA's outlook for temperature (left) and precipitation this winter

[http://www.noaa.gov/stories/2011/images/winterOutlook\\_Temperature.png](http://www.noaa.gov/stories/2011/images/winterOutlook_Temperature.png) and [http://www.noaa.gov/stories/2011/images/winterOutlook\\_Precipitation.png](http://www.noaa.gov/stories/2011/images/winterOutlook_Precipitation.png)

### CONTENTS

#### 1 It's Official – A Cold La Niña Winter!

The government has forecast a cold La Niña winter. What factors are they overlooking? What will the winter be like beyond US borders?

#### 6 Winter in Asia: The PDO, Part 2

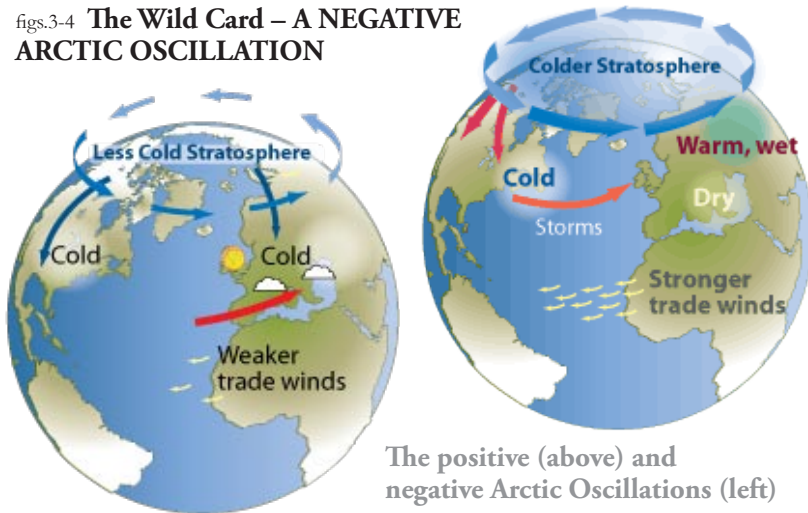
The same forces shaping North America will be hitting Europe and Asia. What will this do for the winter weather in the Northern Hemisphere?

#### 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.

figs.3-4 **The Wild Card – A NEGATIVE ARCTIC OSCILLATION**



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## The Official Forecast

On October 20, the U.S. Climate Prediction Center issued its outlook for the winter of 2011/2012. It focused on the recent arrival of a new La Niña in the tropical Pacific and the impact of that phenomenon on American weather. However, it warned that the frozen polar air of the Arctic Oscillation could be a “wild card”. Let’s look at this prediction.

The government forecasters see a schizophrenic winter. According to the annual Winter Outlook released by NOAA the

Southern Plains will continue to be warmer and drier than normal, while the Pacific Northwest will be colder and wetter than average. From December through February, the entire southern tier of states will have below normal precipitation, while the northern states will have above normal snow from the Pacific through the Great Lakes. The same northern region and the West Coast will have below normal temperatures. Meanwhile, the Mid-Atlantic States and the Northeast will be near-normal. After last winter’s blizzards, the forecast will be a relief to New York and Pennsylvania.

The forecast warns that the major “wild card” in this projection is the Arctic Oscillation. In the NOAA’s words:

“The Arctic Oscillation is always present and fluctuates between positive and negative phases. The negative phase of the Arctic Oscillation pushes cold air into the U.S. from Canada. The Arctic Oscillation went strongly negative at times the last two winters, causing outbreaks of cold and snowy conditions in the U.S. such as the “Snowmageddon” storm of 2009. Strong Arctic Oscillation episodes typically last a few weeks and are difficult to predict more than one to two weeks in advance.”

The Browning Newsletter agrees with much of this analysis. The La Niña in the Tropical Pacific will be a dominant factor shaping this winter’s weather. However, we routinely include other factors, some of which will trigger the “Wild Card” Arctic Oscillation to plunge abnormally far south for a third year in a row.

## The La Niña Factor

Last year, one of the major factors that created last year’s cold winter in North America was a strong La Niña.

### This year’s La Niña will be stronger!

A La Niña is when the Tropical Pacific is 0.5°C (0.9°F) cooler than normal. A moderate La Niña is around 1.0°C (1.8°F) and a strong event is 1.5°C (2.7°F) cooler than average. Last year the La Niña hovered between 1.5° and 2.0°C (2.7° – 3.6°F) all winter long. It began to weaken in January and was officially gone by June.

The Tropical Pacific began to cool again in late August and by mid-September, officials declared a La Niña condition.

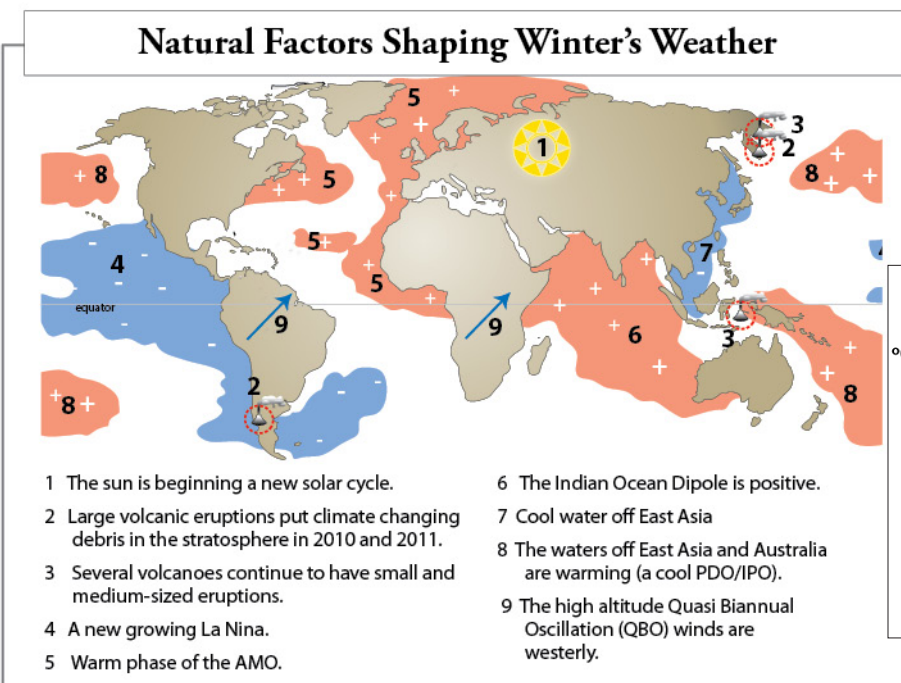


fig.5

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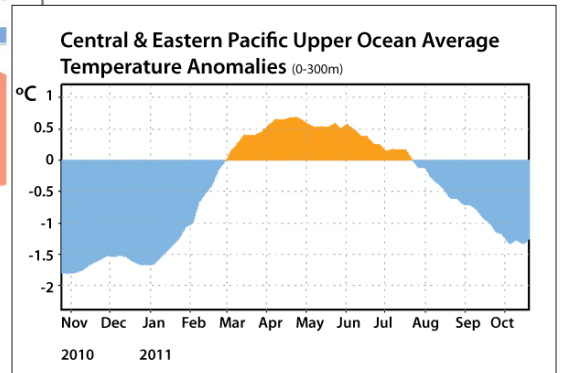


fig.6 [http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/lanina/enso\\_evolution-status-fcsts-web.pdf](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf)

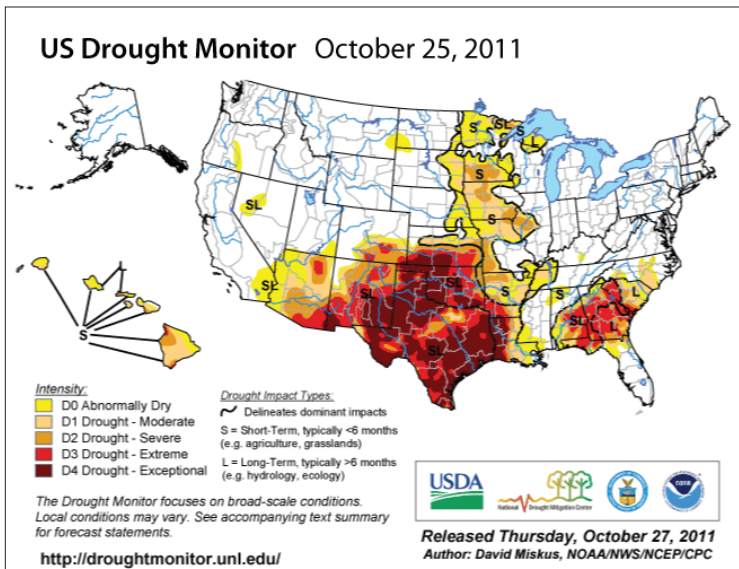


fig. 7

It will have to continue for 5 weeks in a row to officially be declared a La Niña event. As Figure 6 shows, water temperatures can flicker into warm El Niño or cool La Niña territory. However if it doesn't last for multiple months, then there is no long-term significant impact on climate.

What is the impact of the current La Niña?

- The strong La Niña traditionally strengthens the South Asian monsoon. This has caused the massive flooding in Thailand. The event both strengthened and prolonged the nation's wet season, causing the worst flooding in 50 years.

These floods are going to have a major global economic impact. Southeast Asia is the main source of rice exports. According to the October 25 Wall Street Journal, Thailand has had 12.5% of its total rice farmlands damaged in Thailand alone. In Cambodia, 12% of paddy fields have been destroyed, with another 7.5% in Laos and 6% in the Philippines.

Additionally, Thailand manufactures one-fourth of the world's hard drives and half of the HDD for PCs. The floods have shut down more than 14,000 factories and forced at least 660,000 people out of work.

- Closer to home, the return of La Niña has prolonged the drought in the Southern US. 100% of Texas, more than 85% of the South Central states and more than 53% of the Southeastern states are in drought. Ranchers are cutting back their herds across the Southern Plains. While in the short run this will reduce beef prices, it will take years for the herds to recover. Prepare for the price of your hamburger to rise.
- The combination of a hot Atlantic and cold La Niña waters in the East Pacific coastline, sets up a pattern of winds that tend to steer tropical Atlantic storms straight into Mexico/Central America or up the middle of the Atlantic. This steers the storms away from the US oil and gas production fields in the Gulf of Mexico. During the short intermission between the last La Niña and this one, Irene ripped up the Atlantic Coast and

TS Lee shut down more than 60% of the Gulf's oil production and 40% of gas production.

- Going back to Asia – the summer disappearance of La Niña allowed Northern China to have an excellent corn crop. The reappearance of La Niña is creating wet harvest conditions for huge areas of the crop. Since China lacks an efficient, nationwide cold storage transportation network, the result will be high spoilage rates and poor quality for those goods finding their way to market. Last year's autumn La Niña created some of the same difficulties including disease and vomitoxin in feed, have still not fully been resolved. China is still catching up on grain supplies. This return of the phenomenon will increase the nation's problem, and we will see the problem become more severe through winter into spring.

Currently scientists are divided on how strong this event will grow. There is a consensus that this episode will last into spring. Initially most models projected a weak event but the majority now forecast a moderate event. Figure 8 shows the wide diversity of international opinions while Figure 9 shows NOAA's Climate Forecast system's models which have one of the best forecast records. Notice, the CFS model thinks the upcoming La Niña will be stronger than the one last year!

Here's the main point. El Niños and La Niñas are the water temperatures. The associated air/weather pattern is called the Southern Oscillation. The severity of the water change and the associated weather usually go hand-in-hand, but not always. Two events are going to enhance the

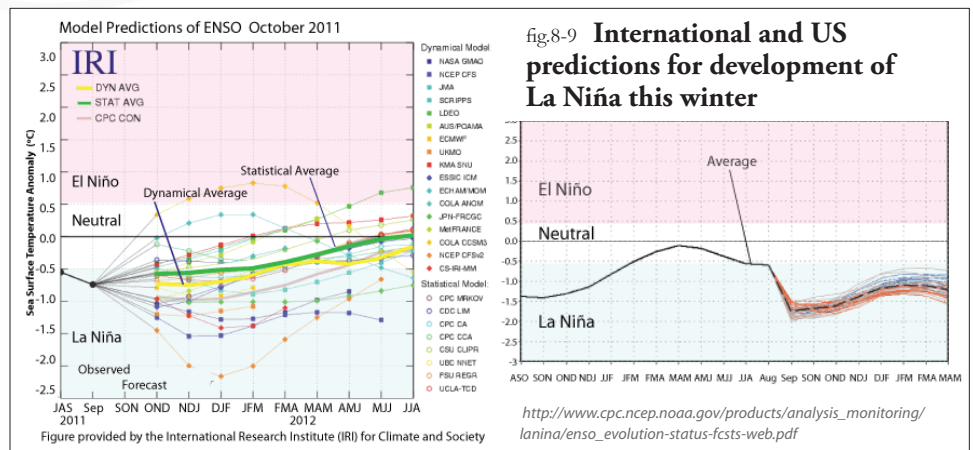


fig-8-9 International and US predictions for development of La Niña this winter

[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/lanina/ens0\\_evolution-status-fcsts-web.pdf](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/ens0_evolution-status-fcsts-web.pdf)

strength of the Southern Oscillation. The first is that the Northern Pacific is undergoing a cool phase of the Pacific Decadal Oscillation. This PDO will be discussed more in the next article, but it magnifies the weather impact of La Niña. The other event is that we will be having “volcano weather”, increased winter cooling from the effects of two Arctic volcano explosions this year.

**In short, even if the La Niña is only moderate, it will have the global impact of a strong event!**

## Taming a “Wild Card”

So what is a weather “wild card” and are they really that unpredictable?

The US National Oceanic and Atmospheric Administration tends to use the term “wild card” to describe any climate pattern that strongly affects the weather and cannot be predicted more than one or two weeks in advance. This winter there are three patterns that are “wild cards”. They all allow the Arctic air mass to plunge deeply south. They are:

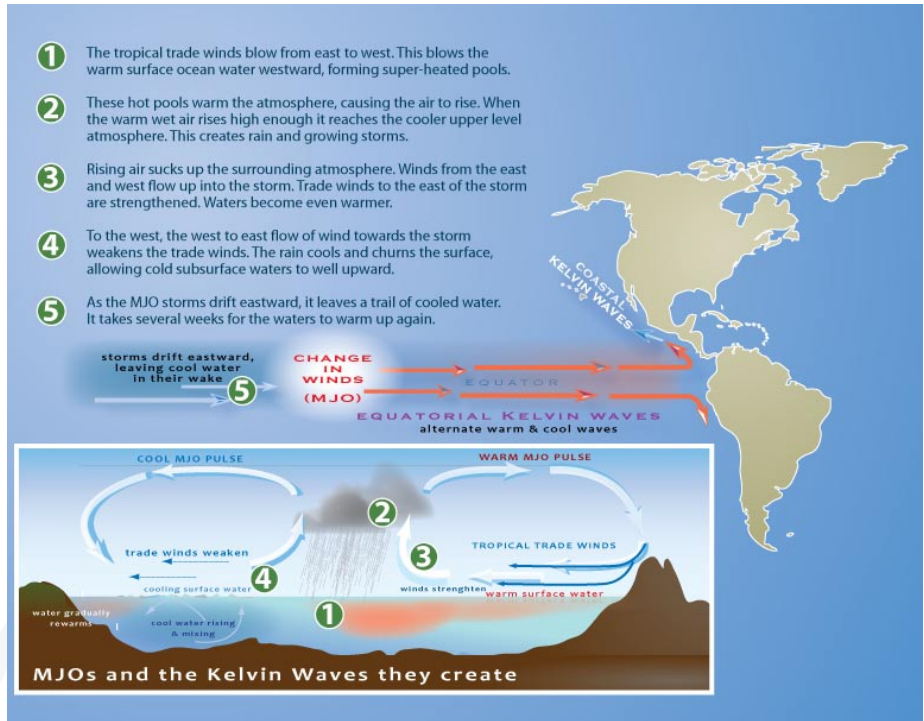


fig. 12

© Browning Maps

1. **The Arctic Oscillation (AO)** – The circumpolar winds that blow around the Arctic can be weak or strong. A positive AO has strong winds and traps the air north. A negative AO has weak winds and the air escapes south and plunges deep into the middle of the continent. (Typically this means Central/Eastern Europe, Siberia in Asia and the Canadian Prairies here in North America.) The front then moves east freezing Russia, China and the East.

Negative Arctic Oscillation conditions tend to be more frequent for the one or two years immediately following a large Arctic volcano eruption. This year we had two volcanoes, Iceland’s Mt. Grimsvötn and Mt. Sheveluch on Russia’s Kamchatka peninsula that have had eruptions that poured ash and debris into the stratosphere. The debris cools the air, changes air pressure and weakens the circumpolar winds. This allows Arctic air to escape south.

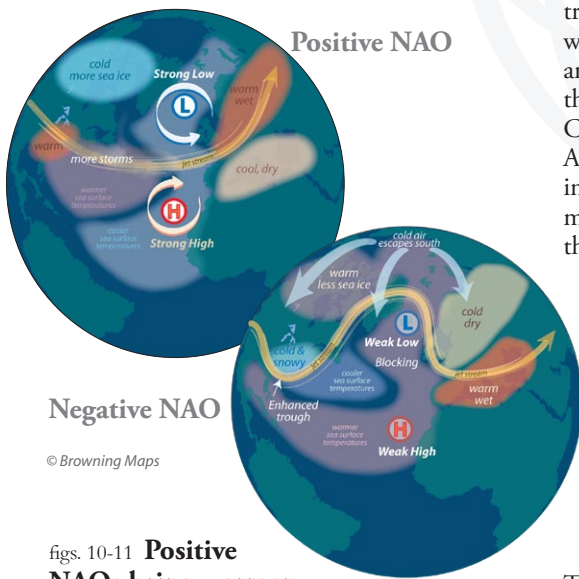
2. **The North American Oscillation (NAO)** – This phenomenon also affects the polar jet stream, especially during winter. When it is positive, the jet stream flows laterally across

the North Atlantic. When it is negative, the jet stream and cold air plunge deeply into the lands on either side of the Atlantic. The East Coast and Western Europe freeze. Remember the Florida freeze and the paralyzed Christmas air flights last winter. That was a negative NAO.

Research has shown that when the Atlantic is in a long-term warming trend, these negative NAO patterns are usually more frequent. For the past 15 years we have been in a long-term warming trend and (as the hurricane season has shown) the Northern Atlantic has been unusually hot.

3. **The Madden Julian Oscillation (MJO)** – This is a small ripple in the Tropical Pacific. It is a moving area of weak trade winds over warm water followed by an area of strong winds over cool water. These pulses flow east and affect any one area from four to eight weeks. It creates positive “mini-El Niño” and negative “mini-La Niña” weather which will cause the cold Arctic air to plunge deeply south on either side of the Pacific into China and the Western US and Canada.

We are currently seeing a warm MJO in the Pacific, which is why the cooling of the La Niña in the Pacific is leveling off.



figs. 10-11 **Positive NAOs bring warmer wetter winter from the Atlantic** More common before 1995.

**Negative NAOs bring colder, drier winters from the Arctic** More common after 1995.

In a few weeks, as it is followed by the cool pulse, the Tropical Pacific temperatures will drop again. The cool MJO will reinforce and strengthen the cooling of the La Niña.

None of these events can be predicted more than a couple of weeks ahead of time. Last winter we had all three, a negative AO, NAO and cool MJO, hit at once during a cold La Niña and we had record cold and snow over 49 of the 50 US states.

**While we can't make a long-term projection when a cold negative AO, NAO, or MJO will hit, we can predict that there will be more of these than usual next winter. This means frequent surges of Arctic air throughout the Northern Hemisphere. We have already seen this happen and we are feeling the snow.**

## The Outlook for Winter

Consider this early, record-breaking snowfall a warning. This will be a winter of Nor'easters. It will be a winter of blizzards. There is a lot of volcanic dust in the polar air mass and the "wild card" negative Arctic Oscillation will carry it south. It will collect moisture and fall out in blizzards.

There have been very few years like this year, but the most similar years had the following weather patterns:

**LATE AUTUMN** -- The cool weather will continue to dominate the West Coast as autumn ends. 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, wet late autumn. Temperatures will be warmer than normal in the center of the continent.

**EARLY WINTER** – Early winter is when the weather really starts to get chaotic. Cool western weather will crash into warm Southeastern weather and the Central Plains, Midwest and Northeast will endure storm after storm. Meanwhile in 80% of similar years, Western Canada and the Pacific Northwest have heavy snows and coastal rains. In 60% of similar years, the storm track surges further south, leaving large portions of Canada warmer than normal.

**MID-WINTER** – Mid winter can be described in three words – cold and stormy. Normally the South is dry, but the larger this winter's La Niña is, the more likely it will be that there will be rain in the central and western Gulf States. Unfortunately in

all 5 similar years, Texas, Georgia and parts of the Southeast suffered severe drought.

The outlook for this winter can be summed up in one phrase – Every natural factor that shaped the last year's cold winter is back. Winter will not be an exact duplicate, but typically years with extremely similar factors have a roughly 70% similarity. Think what you should have done last winter and do it now.

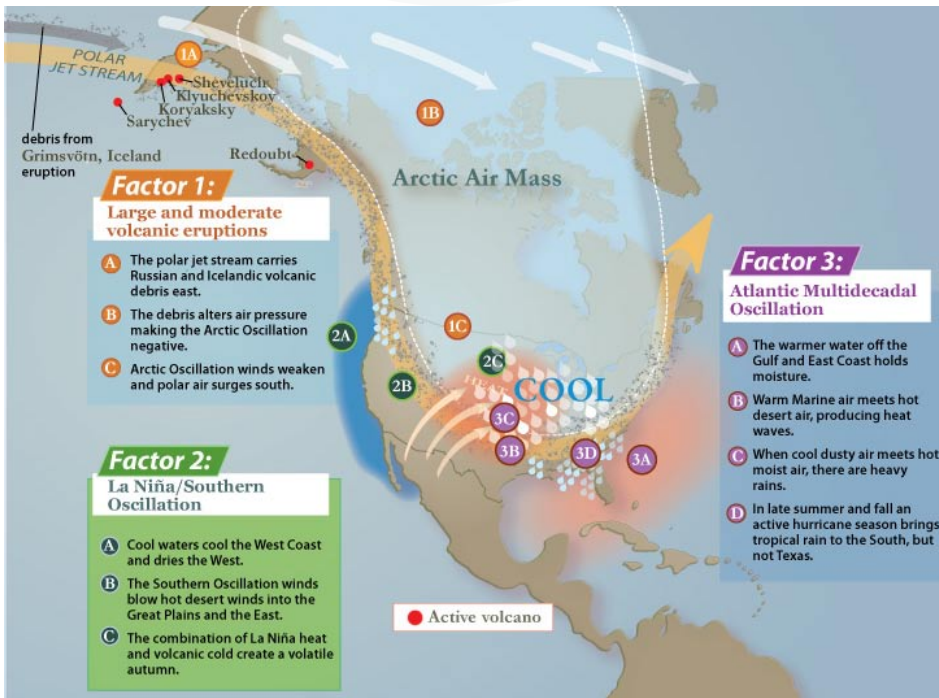
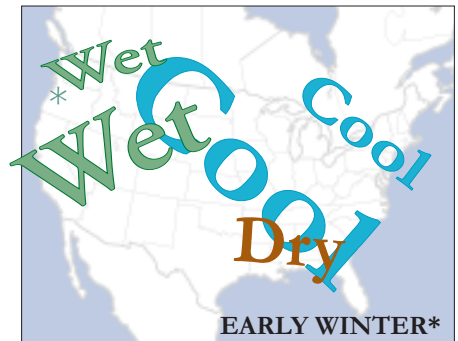
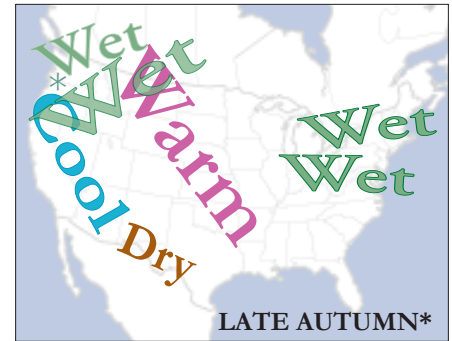


fig. 13 "Triple Whammy" of factors driving autumn and early winter's weather © Browning Newsletter



<b>Cool</b> 2°C or more lower than normal temps.	<b>Hot</b> 5°C or more higher than normal temps.	<b>Warm</b> 2-4°C or more higher than normal temps.	<b>Dry</b> 75% or less of normal moisture	<b>Wet</b> 125% or more of normal moisture
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figs. 14-16 \* Moderate eruptions in the Pacific Northwest will bring more moisture to the west. © Browning maps

# WINTER IN ASIA: The PDO (Part 2)

## SUMMARY

China, Asia, and Japan. The combination of the La Niña, a wildly fluctuating polar jet stream and a strongly negative Pacific Decadal Oscillation will bring a cold winter to China and Japan, wet weather to Southeast Asia and a strong, dry season monsoon to both India and Northern China.

Last winter, North America was not the only continent that endured extreme weather. The factors that shaped the extraordinary weather of Canada and the US pummeled Europe and Asia as well.

The same major factors that shaped last winter's weather have returned. They will pummel the entire Northern Hemisphere.

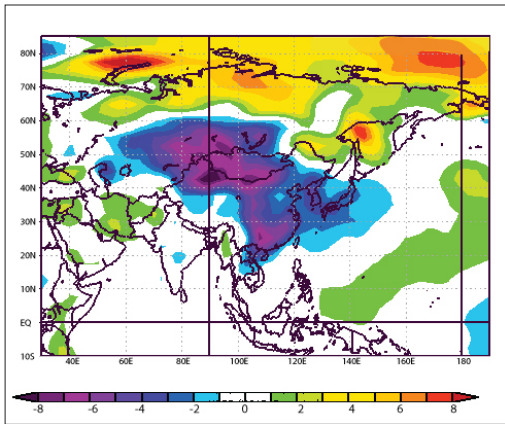


fig. 17 The same conditions that buried North America in snow produced dry, freezing monsoons in Asia.

[www.ncdc.noaa.gov/pub/data/cmb/hazards/2010/12/asia-temp-anom-20101201-16.gif](http://www.ncdc.noaa.gov/pub/data/cmb/hazards/2010/12/asia-temp-anom-20101201-16.gif)

## The Asian Outlook – The Influence of the Negative PDO

What does this mean for Asia?

Part of the meaning is obvious – Asia will have a severely cold mid-winter. Last year's weather became so cold that people died from cold in India and China's winter

wheat crop was endangered. In monsoon regions, the dry season will be altered, stronger in some regions and weaker in others.

We have already seen the impact of the return of the La Niña in Southeast Asia. The event typically strengthens the South Asian monsoon. This late in the season, the monsoon is in retreat from India and, as usual, bringing rain to Southeast Asia. (Notice in Figure 17, the pattern of winds flowing from India into Southeast Asia.) The La Niña has turned this flow into a deluge.

Thailand is suffering the worst floods in half a century. Bangkok is almost entirely surrounded by floods. Tens of thousands are fleeing the metropolis of nine million people and two of the city's districts are already submerged. Unfortunately, the worst is not over as water from the flooded north is flowing south and expected to reach the nation's capital at the same time as the seasonal high tides. One third of the entire nation is flooded, killing more than 373 people and costing billions of dollars in damage. It is estimated that Thailand, the world's largest rice exporter, will lose a quarter of its crop.

The floods are not limited to Thailand. Myanmar, Cambodia and Vietnam have also been hit by floods and in Vietnam, the world's second largest rice exporter, the waters destroyed at least 16,000 acres (6,500 hectares) of farmland.

As winter continues, expect the La Niña to continue to bring heavy rains to Southeast Asia. Even moderate events bring wet conditions to Indonesia, Malaysia, and the Philippines and there are already indications that this event may be strong.

Notice, Figure 17 shows the impact of La Niñas on Southeast Asia and Japan, but not China. That is because historically China has had very mixed results from La Niñas. The impact of the phenomenon varies.

This is because most of China is in the middle latitudes. La Niña is a tropical event that typically warms the West Pacific and cools the East and Central Pacific. We see this in the tropics with hot water around Southeast Asia and cool water off of Peru. Its impact on the middle latitudes is filtered through the Pacific Decadal Oscillation (PDO), a North Pacific phenomenon. The PDO is currently in its negative phase, warming the West Pacific and cooling the East Pacific. In other words, the negative PDO is magnifying the impact of the La Niña.

The negative PDO minimizes the impact of warm tropical El Niños and enhances the impact of even moderate cool tropical La Niñas.

Monsoons are caused by the difference in temperatures between land and water. Winds flow from cold to hot. In summer, the land heats up quicker than the water so the winds flow from the warm ocean to the hot land. This causes the rainy season. In winter, the land cools quicker than the water and winds flow from cold land to a



figs. 18-19 The three monsoons of Asian are part of a larger system

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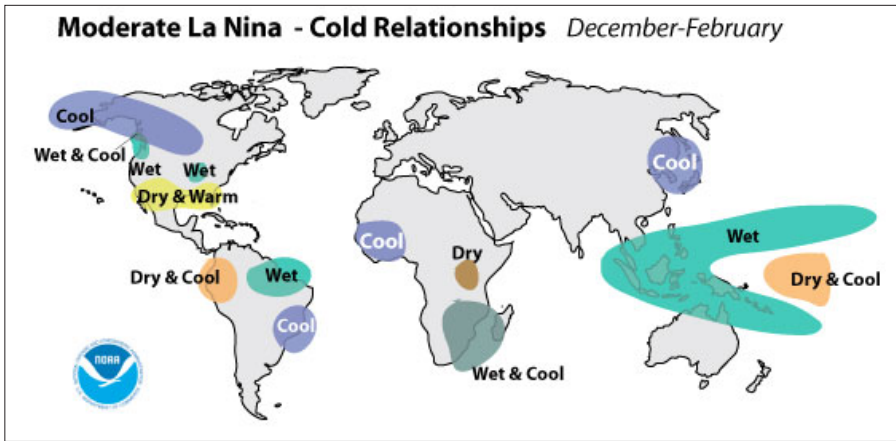


fig. 20 **La Niñas affect global weather**  
courtesy: NOAA

*With the impact of La Niña, expect another winter of dry cold weather in North and Central China with heavy mid-winter snows*

cool ocean. This produces the dry season. If the land is as far north as Northern and Central China, Korea or Japan, this produces a very cold dry season.

By changing ocean temperatures, the PDO changes Asia's monsoons. When the negative PDO is joined by a cool La Niña, the changes are dramatic.

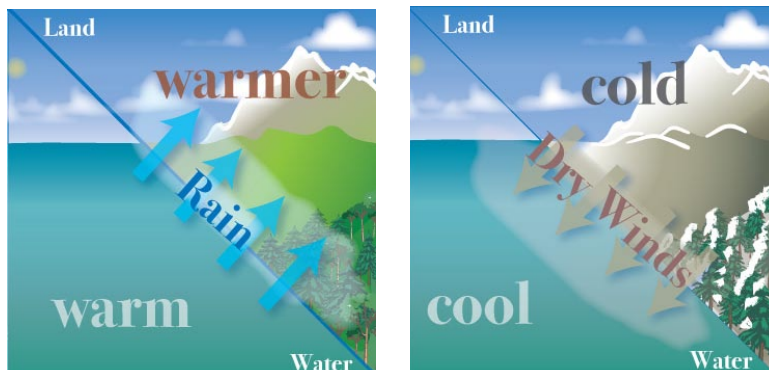
The problem for China, however, is that it is not just the La Niña that brings drought. The cool PDO also changes the impact of the warm El Niño. As noted by

Japanese scientists, there are two types of pools of warm tropical water in the Pacific – the El Niño and the El Niño Modoki. The Modoki is further west than the traditional El Niño. Because it is closer to Asia, it has a different impact on Asian weather. It has become more common recently, perhaps because of the shift in the PDO. (This is new research and the issue is not settled.)

A recent article in the *Journal of Geophysical Research*, "Influence of El Niño Modoki on spring rainfall over south China" by Juan Feng and Jianping Li made the following finding about how these phenomena affected Chinese monsoon rains:

- **La Niña** – less spring rain and potential drought in Southern China.
- **El Niño** – more spring rain
- **El Niño Modoki** – less spring rain and potential drought in Southern China.

figs. 21-22 **The wet and dry monsoon seasons are caused by winds blowing from cooler regions toward warmer regions.**  
**Summer (left) and Winter**



© Browning Newsletter

China's crops have experienced – to varying degrees – since 2008, a pattern of alternating drought-inducing La Niñas and drought-inducing El Niño Modokis. For three years, this has hampered the growth of winter crops, including winter wheat and rapeseed, as well as Central Chinese vegetables. With the impact of La Niña, expect another winter of dry cold weather in North and Central China with heavy mid-winter snows (like the ones in New England) in Central China where the cold monsoon air hits the hot Pacific water.


Notice, the cold in China, Korea and Japan will not be consistent. Both the volcanic debris from Grimsvötn and Mt. Sheveluch, and the warm Atlantic will encourage a volatile polar jet stream. Warm temperatures will go unusually far north and cold Arctic temperatures will plunge unusually far south this winter. Currently China (and Western Europe) has enjoyed unusually warm temperatures. (This is similar to Eastern Canada and the Northeast earlier this month.) Like we have seen in the Northeast this Halloween, deep dips of Arctic air will plunge south. When monthly temperatures are compiled in East Asia, they will not reflect the extreme temperature that this part of the world will experience throughout the next five months.


## Conclusions


If the future resembles the past, we will see the following in Asia this winter:

- A very wet late season monsoon in South Asia and Southeast Asia.
- Wet weather and even flooding in Indonesia and parts of Malaysia. More heavy tropical moisture for the Philippines.
- Cold winter temperatures for Japan and Central Asia.
- An unusually strong and cold dry season monsoon for North and Central China.
- Extremely heavy and damaging snow storms in coastal Central China in mid-winter.
- Delayed spring rainfall in Southern China.
- Problems with rice, winter grains, vegetables and oilseed crops.

# News Notes


 When neutral is nasty – Here’s what is so intriguing about the Halloween Nor’easter. Most of last year’s blizzards hit when the Arctic Oscillation or the North Atlantic Oscillation were negative – but this storm hit when the oscillations were positive or neutral. When we get a storm this bad from positive and/or neutral conditions, imagine what the “wild card” negative AO will bring! According to the latest reports, this storm has done more damage than Hurricane Irene!

 The Land Down Under . . . Water? – With another La Niña magnified by a negative PDO, Australia is facing another wet, possibly flooding summer. North Queensland is already reporting record-breaking rainfalls. International models are predicting triple the normal risk of floods. The Indian Ocean has a moderately positive Indian Ocean Dipole, which does reduce the risk of flooding but the giant eruption of the Chilean volcano earlier this year increases the risk of wet “volcano weather”. Overall, the rain is good for crops but the nation’s coal mines are still recovering from last year’s damage. Also, last year’s flooding left some sharks trapped in the Carbrook Golf Club’s lake, giving the Aussies the ultimate water hazard.

 Why your breakfast cereal is doomed – Here at the Browning Newsletter, we joke that we all started because of rotten raisins. Back in the seventies, heavy rains hit Fresno, “the raisin capital of the world”, when all the grapes were drying. The result – over 200,000 tons of soggy raisins. My father was hired by a cereal company to “warn them if this was ever going to happen again.” It was our first contract and the business was born.

Well, it happened again. On October 5, a storm dumped more than an inch of rain on parts of California’s agricultural heartland in less than five hours, flooding streets, uprooting trees and soaking a bumper crop of raisins drying in vineyards. The raisin industry was hammered. An unseasonably cool spring delayed the

harvest and 40 – 50% of the crop was hit by the rain. Even if they dry the grapes now they face a high risk of mold. Alfalfa and cotton also got hit but fortunately for wine lovers, the wine grapes are in fine condition.

 Why your lunch is doomed – The price of peanut butter is expected to soar. This summer’s heat and drought in the South this year was devastating. Additionally, since the price of goober nuts has literally been “peanuts”, many farmers switched to cotton, corn and/or soybeans. As a result the U.S. peanut production was only 3.6 billion pounds this year, down 13% from last year, according to the USDA. Kraft has announced that it will raise prices for its Planters brand peanut butter by 40% starting Oct. 31, while ConAgra expects increases of more than 20% for its Peter Pan brand.


 Not all weather news was bad – On October 21, the space weather was awe inspiring. A solar flare hit the Earth’s magnetic field ionized some of the air’s oxygen and nitrogen. The result was rare red auroras as far south as Arkansas and Missouri. Enjoy!



fig. 23 **A rare red aurora** courtesy: NASA

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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.

## 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.*

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