

BROWNING

©Evelyn Browning Garriss

NEWSLETTER

A FRASER MANAGEMENT PUBLICATION

Vol. 36, No 3

Battle of the Titans

IN THIS ISSUE

- A rare combination of 4 climate factors that create colder weather created this extreme winter.
- The past 3 months have been particularly expensive for local governments, transportation, energy, agriculture and the insurance industry.
- Two of the 4 climate factors are fading and should be gone by mid-summer.
- Expect a stormy spring with delayed planting in Canada and the Midwest and drought in the South.
- World crops should be better this summer.
- The La Niña will probably return next winter.
- The long-term AMO is shifting the Sahara heat and drought north causing drought in North Africa and the Middle East and frequent heat waves in Europe.
- This AMO shift is creating food shortages, high prices and desperation in the area that produces the largest portion of the world's oil.

SUMMARY

Two of the factors that shaped a very stormy and expensive winter are fading. Expect a stormy springtime with drought in the South and delayed planting in Canada and the Midwest.

Picture this. You are in San Francisco – the city built on 47 hills. It actually prides itself on having “The crookedest street in the world” – Lombard Street – with 8 hair-pin turns on a hill with a 27% grade! Now, add snow and get those roads nice and slick. That is just what happened to San Francisco for the first time in 35 years. The streets of San Francisco became bobsled tracks!



fig. 1 **Lombard Street –just add snow**
<http://en.wikipedia.org/wiki/File:LombardStreet.jpg>

Of course, people in the East are not impressed. They know snow. Californians complaining about the skim of ice and snow on their roads should see what New Englanders have been dealing with. New York City had the snowiest January in history. For Chicago, it was February that buried them in record breaking snow. It has been a brutal winter.

The Factors That Shaped a Harsh Winter

What has been so peculiar about this winter is how unexpected it was. There has been snow in cities that don't expect snowfall, like San Francisco, Dallas and Atlanta. Areas that did expect snow didn't expect giant blizzards. Los Angeles got six months' worth of rain in three weeks, causing some of the worst flooding in the state's history. The New York metropolitan area had an unprecedented blizzard the day after Christmas and a month later got almost the same, breaking historical records.

Yes, the authorities understood that there was a La Niña, a cool tropical Pacific event that usually brings nippy weather. But this year the La Niña, the weather went beyond nippy to appalling.

CONTENTS

1 Enter Spring

This winter's weather has been stormy, destructive and expensive. What will happen this spring?

5 Weather and Social Turmoil: Africa and the Middle East

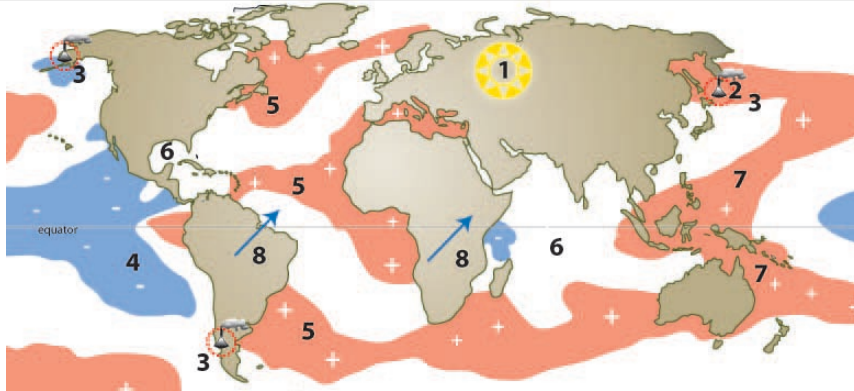
– You know the political reason for the unrest. Is there a weather element as well?

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.

Natural Factors Shaping Spring's Weather



- 1 The sun is beginning a new solar cycle.
- 2 Large volcanic eruptions put climate changing debris in the stratosphere in 2009 and 2010.
- 3 Several volcanoes continue to have small and medium-sized eruptions.
- 4 A strong La Niña that has passed its peak.
- 5 Most of the Atlantic is unusually warm (a positive AMO).
- 6 The Indian Ocean Dipole is neutral.
- 7 The waters off of East Asia and Australia are warming (a cool PDO/IPO).
- 8 The high altitude Quasi Biannual Oscillation (QBO) winds are westerly.

fig. 2

© Browning Newsletter

Most experts blamed this on the fact that the La Niña was a very strong event. Located in the Tropical Pacific, this wind-and-water phenomenon affects tropical weather around the world. If it is a moderate to strong La Niña, it affects global weather across all climate zones. This year has been a very strong event.

Most reports focus on water temperatures. A weak La Niña, according to official definitions, is when the waters in the central Tropical Pacific are 0.5° - 1.0°C (0.9° - 1.8°F) below normal. A moderate to strong event is even cooler. At its peak in late December and early January the current La Niña had water temperatures 1.4° - 1.6°C (2.5° - 2.9°F) cooler than normal with some areas more than 2°C (3.6°F) colder. These

cool waters stretch from Alaska's Aleutian Islands to the southernmost tip of South America.

But a La Niña is more than water. The water cools the air above it. This lowers the atmospheric pressure. Atmospheric pressure affects winds and the tropical trade winds blow even faster. The winds blow away the sun-warmed surface waters, revealing the cooler waters below. This cools the water even more. It is a cycle. Frequently, when referring to this combination of ocean and atmospheric patterns, scientists call the phenomenon El Niño/Southern Oscillation or ENSO

The problem this year was that there was a lot more going on than just a cool ENSO.

In the Pacific, for example, there are multiple wind-and-water cycles some very local and short-lived and some huge. One of the largest is the Pacific Decadal Oscillation, a cycle as big (according to some scientists) as the entire Pacific. The PDO recently entered a cool stage. This meant that the overall ocean is cooler in the tropical and eastern Pacific and warmer than normal in the western and Polar Regions. This phase strengthens and weakens but tends to last for twenty-five to thirty years. When added to this winter's La Niña, it enlarged and strengthened the event.

Air pressures matter. These two cooling factors were joined by a third. There have been a number of volcanoes erupting in the Northern Pacific. The larger explosions put ash and chemicals high into the atmosphere, high enough for them to block out some of the incoming sunlight. This cooled the Arctic air and altered air pressure patterns. The changed air pressure weakened circumpolar winds, allowing the freezing air masses to escape south.

At the same time, the Atlantic was unusually warm. This warmed the marine air overhead, which also changed air pressures and wind patterns. It created a weather pattern called a negative North Atlantic Oscillation. This pattern also encourages polar air to plunge deep into North America.

Your local weather commentator may be blaming the nasty winter weather on La Niña, but the lady had a lot of help. Four separate climate factors teamed together to slam North America. If the winter cold was unexpected, if cold weather froze fruit in Florida and killed as much as 16% of Mexico's corn crop – it was due to a rare combination of climate factors.

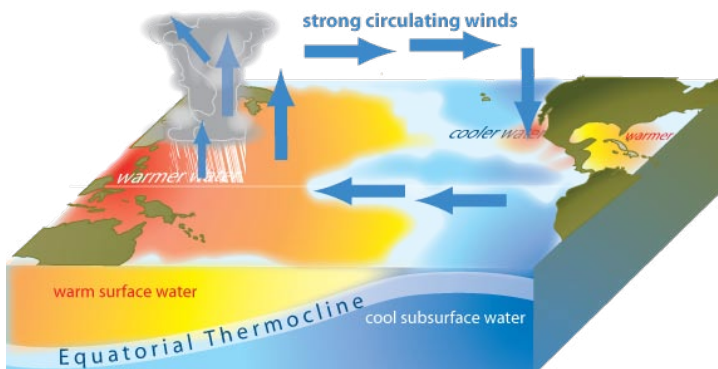


fig. 3 **La Niña conditions in the Pacific** ©Browning Newsletter
source: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/lanina_schem.shtml

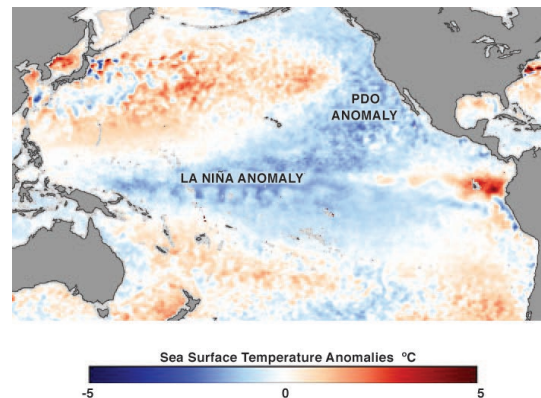


fig. 4 **A cool PDO strengthens the impact of a La Niña** http://en.wikipedia.org/wiki/File:La_Niña_and_Pacific_Decadal_Anomalies_-_April_2008.png

The Economic Impact

Winter isn't over, but economists are already beginning to examine the disastrous price of an unexpected and costly winter. In a year with a struggling economy, no one or government was prepared for the added expenses of this season's unending blizzards. Increasingly we are discovering that these weather related disasters cascade across a number of economic sectors.

It is state and local governments that have borne the brunt of dealing with this winter's weather related problems. They finance most of the infrastructure repair and maintenance costs. Many cities and states, especially in the South exceeded their snow removal budgets. For some, it is the second year in a row. Ironically, some of the very problems that require governments to intervene deprive them of the resources to adequately respond. The snow that kept piling up through January also caused deficits to pile up in snow removal budgets, leaving state and local officials scrambling to come up with the money to pay for their response to the next blast of severe winter weather. They are being forced to make cuts elsewhere. Missouri, for example, will have to take the money from its road-repair funds. At the same time, the snow-filled roads and disabled transportation systems brought commerce to a halt, reducing local revenues. According to an analysis by the National Association of State Budget Officers, for example, the late December storm that dumped 20 inches of snow on New York City closed the airports and cost the city \$1 million for every inch of snow.

Probably the most ironic example of the revenue dilemma was in Washington, D.C. By February, the Washington Metropolitan Area Transit Authority is running a \$175 million budget deficit. It didn't have enough funds to clear the snow after the "Groundhog Day" blizzard, so the city Metro was closed and most

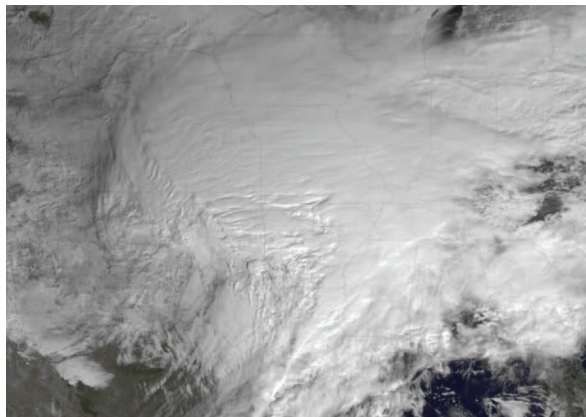


fig. 5 **The February 2 "Groundhog's Day" Blizzard buries the USA**

www.nvvl.noaa.gov/MediaDetail.php?MediaID=640&MediaTypeID=1

of the roads went unplowed.

As a result, the federal government was closed through Monday and Tuesday in D.C. even though snow had stopped falling on Saturday. The nation's business stopped. Tax dollars were wasted as hundreds of thousands of government workers sat idle because there wasn't enough money to remove snow. A local problem became a national problem.

The unexpected costs have extended to the private sector as well. Typically transportation and power have been extremely vulnerable to winter storms. This December's storms cost Delta an estimated \$45 million and the entire airlines industry is believed to have lost \$150 million from the Christmas storms. That was for only one month.

The problems have cascaded even further. The news reported that Texas was hit with ice and freezing weather over Super-bowl Sunday. Some even noted that the cold temperatures closed down 8% of the state's generators, causing rolling blackouts. This also affected the operation of natural gas pipelines, reducing deliveries throughout Texas and neighboring New Mexico. Entire New Mexican towns and villages were left without heat for a week. Governor Susanna Martinez had to declare a state of emergency, call out the National Guard and

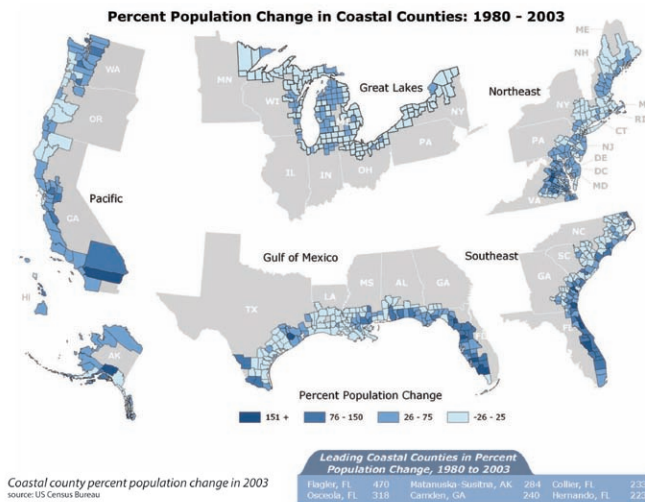


fig. 6 http://oceanservice.noaa.gov/programs/mb/pdfs/coastal_pop_trends_complete.pdf

close schools and government buildings. Ski resort communities were closed down in the peak of their earning season.

And those were problems too minor to get national attention. Imagine the costs of problems that actually made the news.

It is a particularly tough time to be in the U.S. property insurance business. Storms are happening in places they never have happened before, at intensities they have never reached before and at times of year when they didn't used to happen. What once were regarded as hundred-year storms are now at risk of happening repeatedly.

As a Special Report by Reuter's Ben Berkowitz noted, "Worldwide, insurers suffered at least \$36 billion in catastrophe losses in 2010 -- the fourth-highest total of the last, decade, and the highest if years with major hurricane landfalls are excluded. But this year, as with last year and the year before, what insurers are seeing is the unexpected."

It appears that climate has reached some sort of tipping point and is now behaving in ways that governments, industries and insurers cannot predict. With the incredible flooding in Australia and North American blizzards, as well as the recent earthquakes in New Zealand, it is apparent that the global insurance industry is facing a fourth year of unexpected, and inadequately prepared for, disasters.

This may be due to the change in the giant Pacific Decadal Oscillation. It started changing from its benign warm phase at

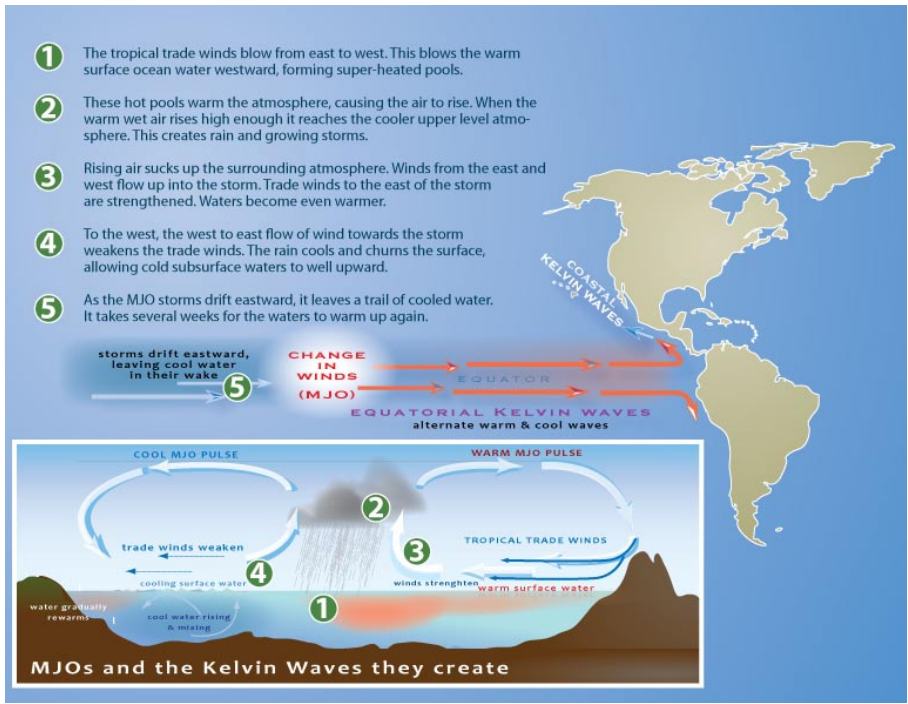


fig. 7 © Browning Newsletter

the turn of this century and was firmly in its cool phase by 2006. We are now seeing weather patterns we have not seen since the last time it was in the cool phase – the late 1940s through the early 1970s.

Also, there is has been an enormous population change since the previous PDO cycle. Americans have moved into high risk territories. Now over half of the American population lives within 50 miles of the coast, regions that historically have been more susceptible to severe storms. Coastal counties, which constitute only 17% of the total U.S. land area (not including Alaska), now account for 53% of the total population.

Ben Berkowitz’s special report quoted an important observation by Julie Rochman, chief executive of the Institute for Building and Home Safety. “One thing we as a society don’t really do anymore is build for where we live. We build for how we want to live . . . There’s a wonderful ability to be living in denial and where disaster happened a long time ago we get disaster amnesia.” We are seeing weather patterns that we haven’t seen in decades and our society is not prepared for it. This winter we are paying a high price for this lack of foresight and preparation.

Looking Ahead Towards Springtime

Winter is finally drawing to a close. Storms are slamming the Northwest, burying some areas in feet of snow. Arctic air is plunging toward the Midwest and the Northern Plains. A line of thunderstorms has just marched through the South. Southern California was hit by the first snow in some areas (technically it was graupel, soft hail) for the first time since the 1940s. Midwest rivers are forecast to flood.

Will the fun ever end?

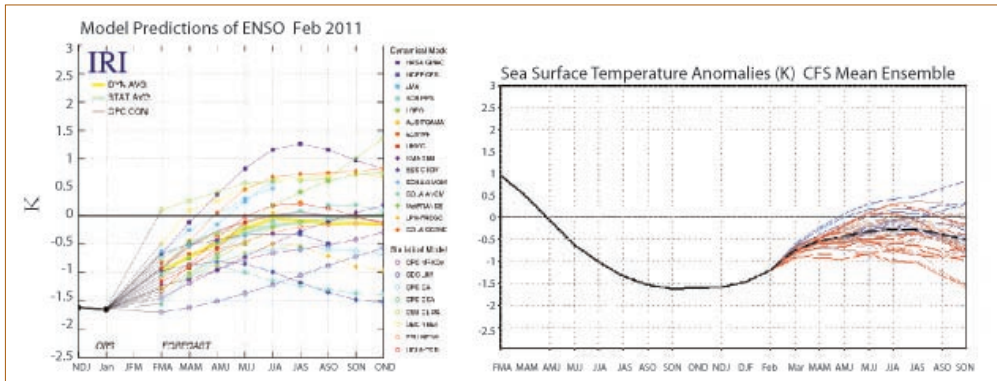
Here’s the good news – the La Niña is finally beginning to fade.

It is still strong, with most of its waters 1.0°C (1.8°F) below average. However since January the waters off the coast of South America have been warming fairly rapidly. Indeed, some coastal waters are now near-average. On the other side of the Pacific, the warm waters that had pooled around Southeast Asia are finally beginning to shift back east.

Scientists are observing the warming carefully. The warming has been due to yet another oscillation in the Pacific, the Madden Julian Oscillation (MJO). These are small, localized surges of warm water, followed by equally small cool surges. They bob across the Indian and Pacific Oceans, changing localized conditions for a few weeks, then flowing east. Scientists are still debating whether the Pacific warming is just a MJO sailing across the Pacific or if the La Niña is finally breaking.

This debate is shaping the scattered forecast models around the world. Most of the international models agree that the La Niña will be neutralized by May or June. Then they scatter, some forecasting a returning La Niña, some favoring neutral waters and some even forecasting a warm El Niño. NOAA’s Climate Forecasting system models favor a cooler Pacific. The models show scattered results, but the majority indicate a return to neutral, but slightly cooler than normal temperatures by June.

Notice, the US models seem to indicate a return to weak La Niña conditions by fall. Both the Beijing Climate Center and the Japan Agency for Marine-Earth Science and Technology also forecast La Niña for next winter. When three of the greatest Pacific powers agree, it indicates a strong possibility that the fun may return next winter.



figs. 8 & 9 International Models predicting La Niña’s development and (left) prediction courtesy IRI and US Models (right) www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/ens0_evolution-status-fcsts-web.pdf

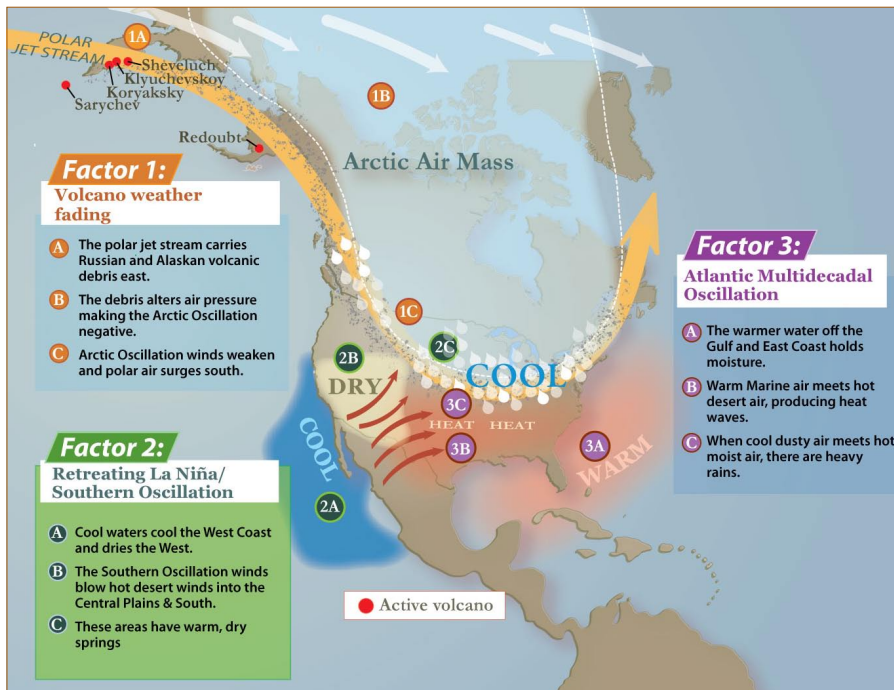


fig. 10 Weather factors shaping spring

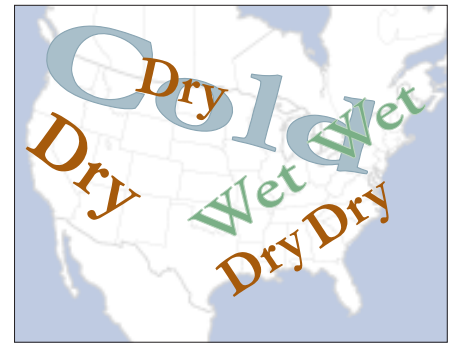
©Browning Newsletter

The La Niña may be fading, but it will not be the only factor shaping this spring and summer. The volcanoes in the Pacific Northwest have been unusually active for the past two years. Alaska's Mt. Redoubt and Russia's Sarychev Peak had large eruptions in 2009. Since then at least six volcanoes on Russia's Kamchatka Peninsula have had a long series of moderate and small eruptions. Volcanoes are wild cards, but the region appears to be quieting down. There is still a strong possibility of moderate eruptions, but not at the almost weekly rate we occasionally saw in 2010.

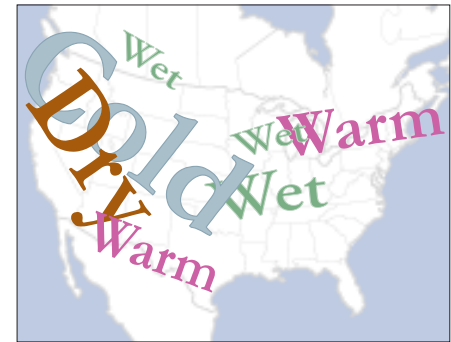
What is lasting is the warm AMO. The Gulf Stream and other tropical Atlantic currents are still shifting warm tropical waters north. Since this is a very long and slow climate pattern, the Atlantic should remain warmer than normal for years. This warmth and the fading La Niña will probably combine, as they have in the past, to create a very dry spring in the South.

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

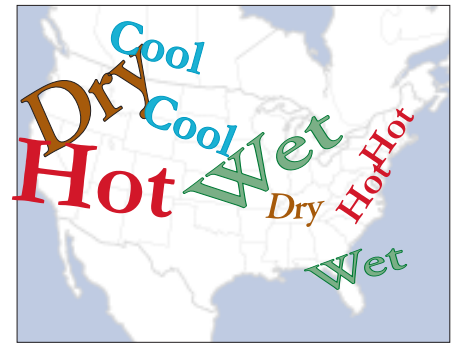
figs. 11-13 ©Browning maps



Early Spring



Mid Spring



Summer

Weather and Social Turmoil: Africa and the Middle East

SUMMARY

– A large source of the current social unrest in North Africa and the Middle East is due to drought. The AMO is strengthening monsoons and driving Sahara desert heat and drought north into lands that supply most of the world's oil.

“Now is the winter of our discontent . . .”

When story tellers describe the unrest and revolutions of 2011, this will be the legend they tell. On December 17, 2010, in a city in Tunisia a simple man, Mohamed Bouazizi, had his vegetable cart confiscated by a corrupt official. The police woman slapped Mohamed and had her assistants beat him as well as taking away his only source of supporting his family. Humiliated, he tried to protest at the provincial headquarters but they turned him away.

He returned with flammable liquid and set himself on fire. In the process he set the entire Arab world aflame.

Ten days later, President Zine El Abidine was forced to flee the country. Less than a month later, the Egyptians drove out their dictator, Hosni Mubarak. Protests have spread across the Middle East – Libya, Yemen, Bahrain, and Algeria and unrest from Morocco to Iraq, Gabon to Albania, Iran, Kazakhstan, and China.

It's a powerful legend.

But history is filled with martyrs. North Africa and the Middle East have had tyrants for millennia. There has been high unemployment and great injustice for a generation.

Why now? What set this winter apart?

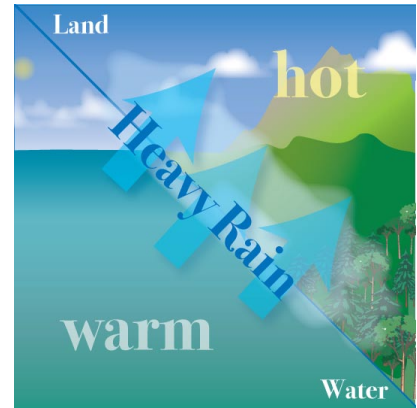
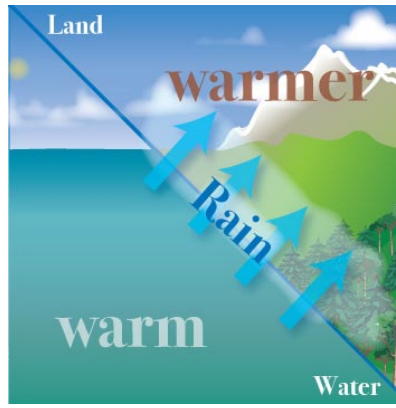
The Climate of Discontent

It is easy for Western societies to ignore climate or discuss it in terms of a far-off global warming cataclysm. The harsh Middle East climate has no such luxury.

Northern Africa and the Middle East are in the middle of a drought. The drought in the Middle East has lasted for three years. People have watched their crops and their herds die. They have moved in ever increasing numbers to cities. Now the price of food is soaring. A number of people, especially the literate who tweet to the world or talk to reporters in English, are protesting to reform their society. However much of the population are desperate people who don't know if they can continue to feed their families.

This year's turmoil in Northern Africa is probably the most dramatic example of climate change affecting society. Basically African climate is almost entirely shaped by the Atlantic and Indian Oceans and both oceans are in a long-term warming trend. Droughts persist and deserts migrate.

The warming Atlantic is due to a 70 year, ocean-wide climate cycle – the Atlantic Multidecadal Oscillation (AMO). It changes from warm to cold and back again, each phase lasting 30 – 40 years. The AMO was in its cool phase from the early 1960s to 1995. Since 1995, it has been in the warm phase and temperatures are expected to peak somewhere between 2020 and 2040.



figs.14 & 15 **Monsoons in summer (left) and this summer (right)** © Browning Newsletter

This increasing warmth for both East and West Africa has had a major impact on the continent, particularly on its rainfall patterns. Most of Africa's climate is tropical, with rainforest, flanked by monsoon lands (the savannahs and Sahel). North of the monsoon lands of the Sahel is the Sahara. The populations of Morocco, Tunisia, Algeria, Libya cling to the rim of the Mediterranean north of the arid desert sands.

With the warming Atlantic, there is a growth of these tropical climate regions. In particular, the monsoon lands are expanding dramatically.

Monsoons are seasonal wind patterns. It is the difference between the land and water temperatures that causes these patterns. In summertime the winds blow from the sea to the land, producing the "wet season". In wintertime, the winds blow from land to water. Typically the winds during the "dry season" are not as constant, allowing some moisture from other sources.

When the AMO was cooling from its warm peak in the 1950s, the amount of monsoon rainfall began to decline and the Sahara shifted south. More than 5 million people were affected by this change of rainfall, and more than 80% of their livestock died. There was massive social upheaval as

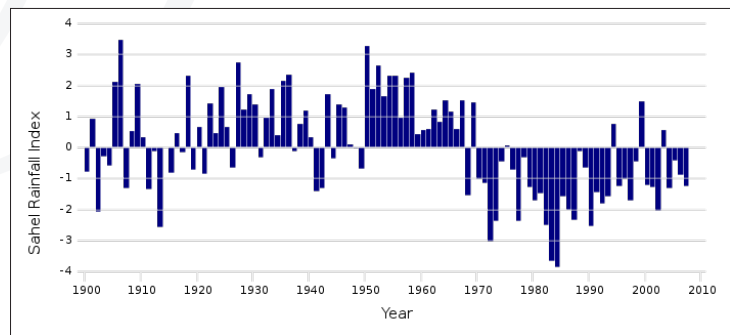


fig.16 **Rainfall in the Sahel Region of Africa 1900-2010**

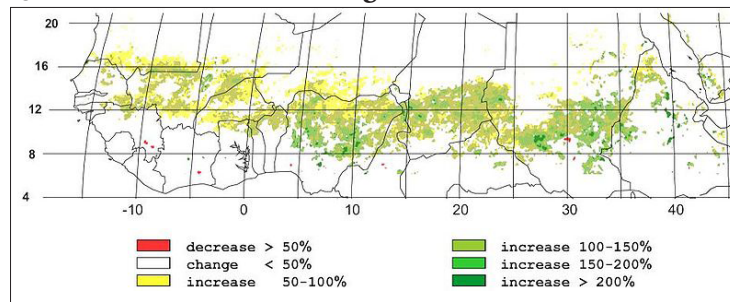


fig. 17 **Sub-Saharan Africa's rains are returning**

top: http://en.wikipedia.org/wiki/File:Sahel_rainfall_timeseries_en.svg
bottom: http://en.wikipedia.org/wiki/File:Greening_Sahel_1982-1999.jpg

tribesmen had to leave their lands and migrate to overcrowded cities. Throughout the 1960s, the boundary of the monsoons moved further and further south, by 1973, it was 3° latitude from where the moisture used to reach.

The cool phase of the AMO peaked in the early 1980s and now the rainfall is coming back. Sub-Saharan Africa is experiencing stronger monsoons and a long-term greening trend. Unfortunately as the monsoon rains expand north into the Sahel, the Sahara and its dry heat is shifting north as well. Sub-Sahara Africa is greener, but Northern Africa is experiencing more extreme heat and dry weather.

The lands along the northern shores [of North Africa] where the people live have less than 50% of their normal rain. Any hopes of local farms or gardens supplying more food are withering.

Over the past year the monsoons have been particularly strong. The monsoon rains caused massive flooding and more than ten million Africans faced famine.

Just as the nations south of the Sahara experienced flooding, lands north were engulfed by desert heat. Normally the high atmospheric pressure that brings heat and drought (high and dry) would have been over Africa. But conditions weren't normal in Africa in 2010. Just as in 2003 and 2006, when the African monsoons were unusually heavy, the air pressure high that marked the northern border of the monsoon rainfall also moved north.

The warm AMO is bringing more rainfall for Africans, but this means that the Saharan high pressure, and the heat and

dry weather associated with it, occasionally surges north into Europe. It was over Western Europe in 2003 and 2006 and Russia in 2010. Thousands of Russians died and their crops were devastated.

If Russia was hot and dry, the situation in North Africa was unbelievable. The region experienced deep drought. Egypt, blessed by the Nile, which had its headwaters deep in the monsoon region, was able to irrigate its wheat. It had a decent harvest, but Algeria, Tunisia and Morocco had severely reduced crops and livestock herds.

None of these nations, even Egypt, is self supporting. All of these nations depend on wheat imports, typically from Russia. Ironically, the same condition killed their crops stopped imports from their chief source of grain. The cost of food has gone up sharply. Food shortages and high prices are not the sole cause of unrest in Northern Africa, especially in Egypt, but they are a major factor.

There is no relief in sight. This winter has continued the North African drought. While the seasonal rain map shows a 200% increase of rainfall over the barren sands,

those lands normally have almost no rain in winter. Double the amount and it is still next to nothing. Meanwhile the lands along the northern shores, where the people live have less than 50% of their normal rain. Any hopes of local farms or gardens supplying more food are withering.

Further east, the Middle East is enduring its third year of drought. The warm AMO historically reduced rainfall in the region, especially for Iran. Like North Africa, a large portion of the population is desperate. Like North Africa, the population is restless.

Political scientists call it the “misery index”; an aggregation of unemployment and inflation long seen as a warning of protest and instability. In most countries, the so-called “misery index” is pushing higher but in North Africa, it is soaring. Unfortunately, the climate phenomenon that is creating this problem is long-term and will linger for a decade or more. Expect higher food prices, more desperation and higher energy prices from the unsettled lands that supply most of the world's oil.

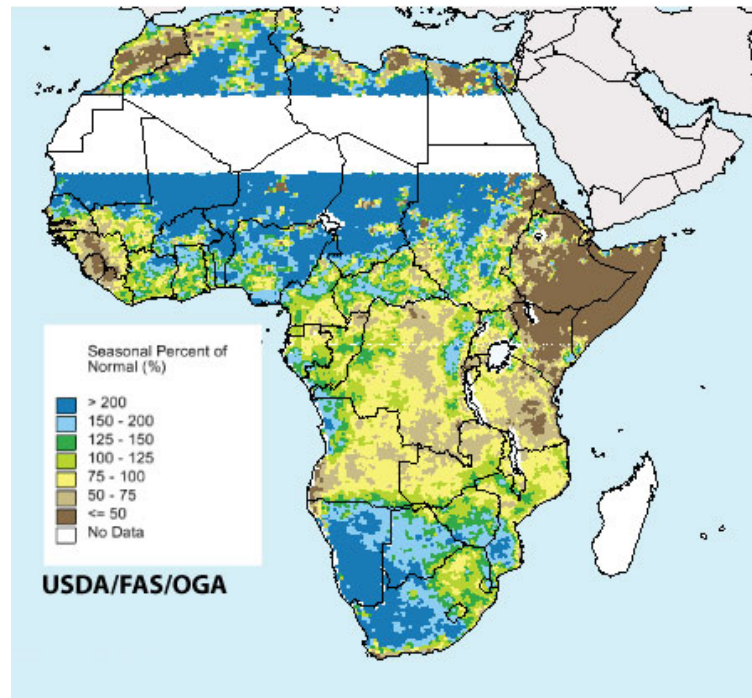



fig. 18 **The heavily inhabited regions of North Africa had drought and civil unrest. CMORPH seasonal percent of normal precipitation**
www.pecad.fas.usda.gov/cropexplorer/

News Notes

 Just in time for the spring flood season – The latest report from the Association of State Dam Safety Officials warns that 4,400 of just the nation’s 85,000 dams are “susceptible to failure.” At a time when the nation’s economy is struggling, the potential repair costs are staggering. A 2009 report by the state dam safety officials’ group put the cost of fixing the most critical dams — where failure could cause loss of life — at \$16 billion over 12 years. The total cost of rehabilitating all dams was estimated at \$51 billion. (Unfortunately inflation has sharply increased these costs.) These cost estimates did not include the 3,000 dams owned by the federal government.

The question is who would pay for these costs. The recent stimulus/infrastructure bill did not budget for these repairs. Two-thirds of all dams are private, and financially struggling state and local governments own most of the remainder. It is difficult to predict how needed repairs to these dams will be financed; legislation to provide federal money to help has languished in Congress. Meanwhile, the number of high-risk dams is rising as structures age, downstream development increases and we are facing a very stormy spring.



 It looks as if Texas and the Southeast will not have to worry about floods or risky dams. The wildfire season has already begun. High winds and dry weather is sparking fires across north, central and west Texas. Roughly 15,000 acres and numerous homes went up in smoke as wind gusts of up to 69 miles an hour blew through parts of the state.



fig. 19


www.predictiveservices.nifc.gov/outlooks/monthly_seasonal_outlook.pdf

Unfortunately, it looks like the entire region faces high temperatures and a dry spring and early summer. If the northern states have had to struggle with rising snow removal costs, southern states face some battles of their own paying for this year’s firefighting.

 Sunny weather is ahead – Yikes! Scientists warn that the sun is becoming more active and that means more solar flares and stormy space weather. We already had a powerful solar eruption in February that was mostly deflected by Earth’s magnetic shield. (It interfered with Chinese radio and gave the Canadians some dazzling Northern Lights.)

When the sun reaches its peak, the giant flares of ionized gas have the potential to disrupt electrical power grids, radio and satellite communication. A 2009 report by NASA titled “Severe Space Weather Events -- Understanding Societal and Economic Impacts” warned that a large event, like we had in 1921 could cost the United States alone up to two trillion dollars in repairs in the first year -- and it could take up to 10 years to fully recover.

In short, big solar storms can eliminate GPS, silence cell phones and cause blackouts. Without electricity, pipelines can’t deliver gas or water. If the sun has a major tantrum, we couldn’t even flush our toilets! Compared to that, earthbound snow flurries are enjoyable inconveniences.

 A rather pleasant last note – the Monarch butterflies apparently enjoyed their winter vacation in Mexico and their numbers have recovered from last year’s severe die off. Fans and conservationists worried when last year’s harsh weather devastated the population of this spectacular insect. However, the Monarch made its yearly 2,000 mile journey to Michoacan state in Mexico and thrived. Even though the region has had rising drug violence, both sides of the law have protected the Mariposa Monarca Biosphere Reserve sanctuaries. The larger numbers will return back to the US this summer. Plant some milkweed or lilacs in your garden to welcome them.

The **BROWNING NEWSLETTER** is published by

Fraser Management Associates

a Registered Investment Advisor.

For more information or an informational brochure call 1-802-658-0322 or e-mail us at alex@fraser.com

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

The **BROWNING NEWSLETTER** is published monthly at an annual subscription rate of \$250 for print OR email version, \$270 for both formats. Subscriptions should be directed to:

The BROWNING NEWSLETTER
PO Box 1777
Burlington, VT 05402

phone: 1-802-658-0322
e-mail: alex@fraser.com

Check out our new website
www.BrowningNewsletter.com