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Original Papers – Historical Perspectives

BROWNING™

WORLD CLIMATE BULLETIN

IN THIS ISSUE

- The El Niño has been cooling since its peak in November, but a warm MJO in the Western Pacific will warm it again and make the event linger until May or June.
- The event is causing heavy storms on the East, West and Gulf Coast, as well as warmer Canadian and northern tier temperatures. It will shape a difficult planting season, then a good early growing season.
- A strong chance for a dry La Niña developing in August or early autumn could affect late planted crops, especially soybeans.
- The Paris Agreement has made certain legally binding agreements that would penalize participants if they do not comply. Nations are to submit a carbon reduction plan by November this year and be subject to penalties if they do not follow through.
- The energy and forestry sectors are the main targets of the agreement with agriculture having, probably, five years before it has compliance initiatives.

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Looking Towards Spring in North America

Summary – El Niño should continue to dominate winter and spring, setting up conditions for a difficult planting but good early growing season. There may be problems, since there is a good probability of a drought-inducing La Niña starting before the season is over.

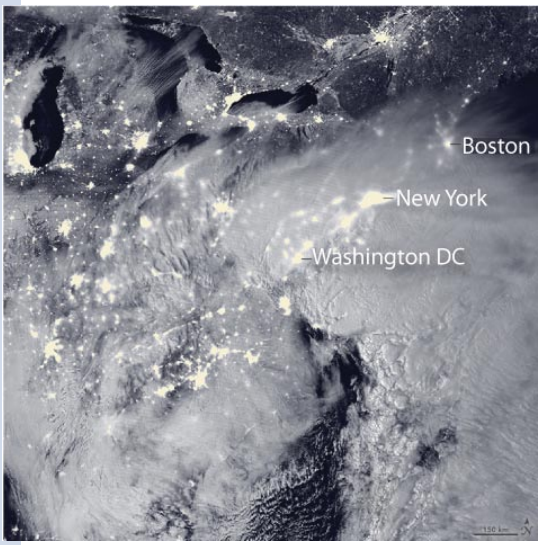


figure. 1 Portrait of a storm
http://earthobservatory.nasa.gov/NaturalHazards/view php?id=87385&src=twitter-nh

The El Niño reached its peak and is now beginning to fade. As January's parallel storms along the East Coast and in California showed, this is a stormy process.

Recent headlines were dominated by these storms. Snowzilla or Winter Storm Jonas (take your pick of names) focused its fury on the New York – Washington Corridor and was hyped as the coming apocalypse. (Indeed, given that a single inch of snow paralyzed the US capital the day before the storm, the doomsday forecasts were not that improbable.) As the blizzard hit, snowfall records fell and southern New Jersey was slammed by tides and flooding worse than Hurricane Sandy. In the end, 48 people died, mostly in traffic accidents, more than 250,000 lost power and 13,000 flights were cancelled.

Financially, it was no apocalypse. The storm hit over the weekend, lessening lost business revenues for most sectors of the economy. Estimates are still coming in on the overall impact, but between flooding, wind damage and ruptured pipes, insured and damage losses are estimated to be between $500 million and $1 billion, putting it slightly less than the $1.7 billion in losses from the 2014 Polar Vortex event. Beyond that is the overall economic impact, which a team of researchers at Moody's Analytics has estimated, in terms of output, will likely end up totaling between $2.5 billion and $3 billion, primarily in transportation and retail.

As the *Washington Post* nickname Snowzilla suggests, the blizzard was spawned by the "Godzilla" El Niño in the Pacific combined with the incredibly hot waters of the off-shore Atlantic. The El Niño directs the Pacific jetstream through the southern tier of the US. Atmospheric conditions trapped one of the southern storms along the East Coast, where it was fed increasing moisture from the hot Gulf and Atlantic waters. This is typical of El Niño and, as early as August, weather services were warning the Washington area of the high probability of record snow and ice problems this winter.

At the same time that El Niño was burying the East Coast, it was hitting California. After a relatively dry December, a convoy of storms have marched through the state. They dumped 3 feet (91 cm.) of snow in the all-important Sierra Nevada Mountains' snowpack, 113 – 124% of normal. Despite this, the state's reservoir system is still at less than half of capacity, up to 49% from their October levels of 47%. Federal officials have warned hundreds of farms in the San Joaquin Valley — the nation's most productive agricultural region -- not to expect any surface water this year.

Our research shows that climate, over the next term, will cause dramatic changes in our social and economic patterns. We feel that readers, attuned to the changes that are occurring, may develop a competitive edge; and, by understanding their current and future environment, can use the momentum of change to their advantage.

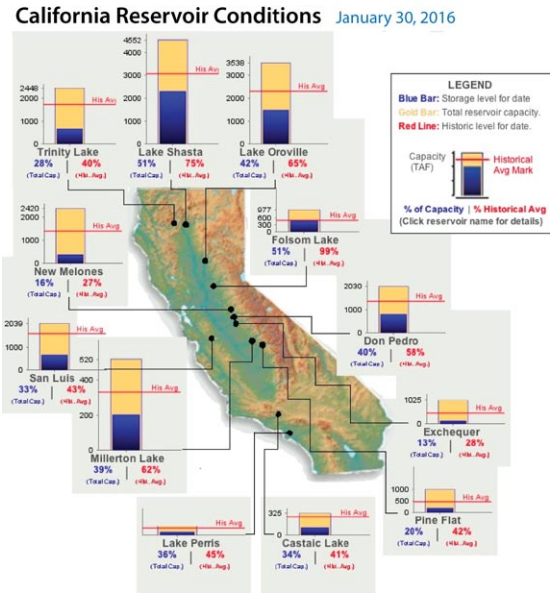


figure 2 California reservoirs are still at low levels
http://cdec.water.ca.gov/cdecapp/resapp/getResGraphsMain.action

El Niño – Timing is Everything

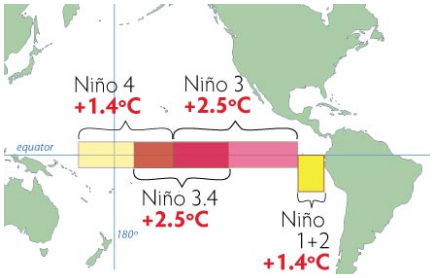
The good news for North America is that the El Niño has reached its peak. The central portion of the warm water, an area called El Niño 3.4, has averaged 2.3°C (4.1°F) above normal for roughly 5 months. This is as strong as the giant El Niño of 1997 – 1998.

Actually, the large pool of warm water in the Central and Eastern Tropical Pacific has begun to cool. In mid-November, the El Niño 3.4 area temporarily was more than 3.0°C (5.4°F) hotter than normal. This peak was short-lived and by the end of January, the area had dropped by half a degree Celsius (0.9°F).

What is happening is that the currents in the Pacific are complex. There are a series of small, swift moving water and ocean currents, called Madden Julian Oscillations (MJO) that flow around the equator and through the tropical El Niño/La Niña zone. They are regions of quieter or stormier weather, flowing like weather fronts, that disturb the surface of the ocean. The stormy oscillations cool the tropical waters and the quiet zones allow the undisturbed ocean beneath to grow sunbaked and warm. The warmer water is called a Kelvin wave.

These MJOs flow from west to east around the equator. Since November, two windy and cooler MJOs flowed through the warm El Niño, cooling its waters. However, in the far western Pacific, around Indonesia, a warm MJO has appeared. It will flow into the El Niño warmth during February and probably reheat some of the area. Scientists measuring water temperatures will probably say that the current El Niño has two peaks, one last November and one in February. Even if it doesn't cause a major rise in El Niño temperatures, it should stop or slow the cooling, allowing it to remain a strong event for the rest of winter.

This is important. The MJO prolonging the life of the El Niño event increases the likelihood that it will linger through springtime. For months, the majority of scientists have estimated that it will be strong through winter and moderate in springtime, ending around May or June.



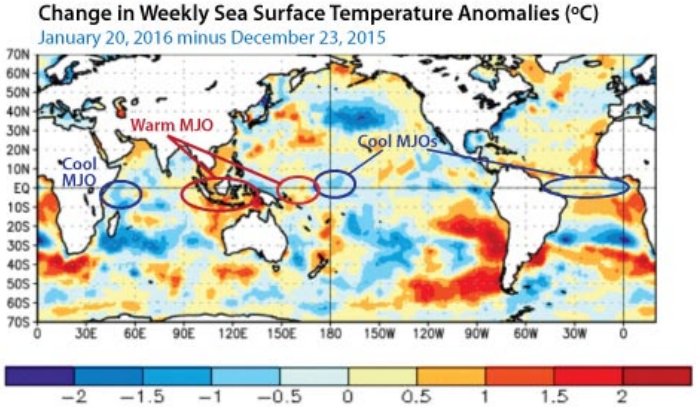
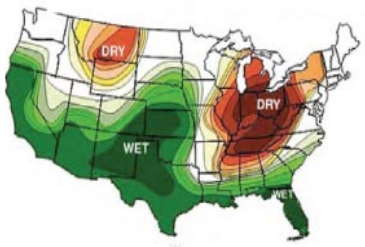


figure 3A-B

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

El Niño Precipitation Anomalies
January February / March



El Niño Temperature Anomalies
January February / March

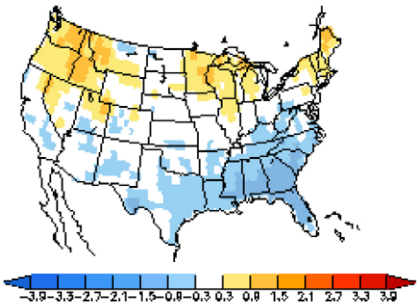
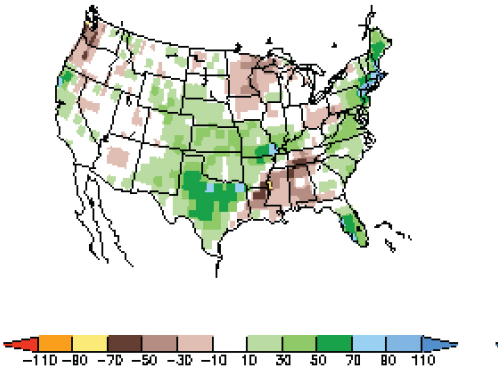


figure 4 A-B El Niño Winter anomalies
http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/elnino.jfm.precip.gif

El Niño Precipitation Anomalies
March / April / May



El Niño Temperature Anomalies
March / April / May

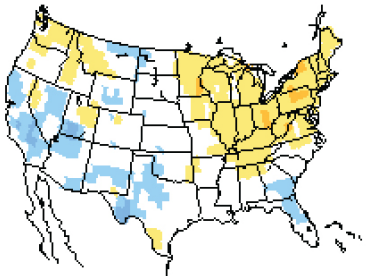


figure 4C-D El Niño Springtime anomalies
http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/elnino.jfm.precip.gif

Cool MJOs get whipped across the ocean, so La Niñas are established quickly.

El Niño year	Strength	Time until La Niña conditions	Month La Niña started
2015-2016	2.3	?	?
1997-98	2.3	2 months	July
1982-83	2.1	4 months	October
1972-73	2.0	3 months	June
1965-66	1.8	20 months	December
1957-58	1.7	5 years	May
1991-92	1.6	6 years	August

figure 5 La Niñas often follow soon after a strong El Niño.
© Evelyn Browning Garriss

If this is true, then there are normally somewhat predictable weather patterns during the end of the heating season and throughout the North American planting season. This is good news for the US and Eastern Canadian corn crop.

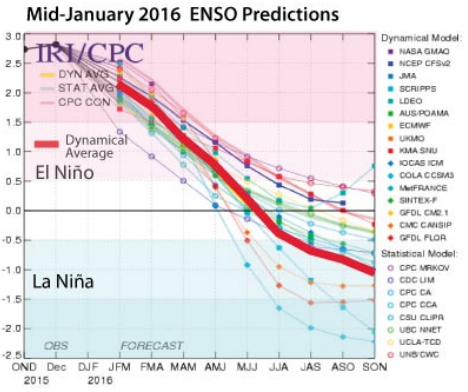


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 12 January 2016).

figure 6 *courtesy IRI*

Historically, strong El Niños like the current events are quickly followed by a La Niña, usually within 2 – 4 months. This creates very dry conditions throughout most of the Central and Southern Great Plains, most of the Midwest, the Great Lakes region of Ontario as well as the Western US. When the Atlantic is hot, the dry weather is worsened by high temperatures. (The last time we saw a summertime La Niña and hot Atlantic was 2012, not a good year for North American crops.)

If the drier conditions wait until fall as they did in 1982-83... drought conditions would hit in autumn during the harvest season.

The problem is that strong El Niños are caused by the rapid eastward flow of warm waters from the western to the eastern Pacific. Historically, when the water finally cools, it does not slow down quickly. Cool MJOs get whipped across the ocean, so La Niñas are established quickly.

Fortunately, the El Niño is expected to linger until May, so early summer will be a period of transition with relatively normal growing conditions. The major issue to observe is whether 2016 will be a repeat of the equally large1997 – 98 El Niño. That year the La Niña started in July, creating hot dry weather during part of the corn silking season and reducing the number of kernels on the cobs. If it comes slightly slower, then the drier weather would hit in August, a key month for soybean development. If, on the other hand, the drier conditions wait until fall, as they did in 1982 – 83, the summer may be slightly drier but the drought conditions would hit in autumn during the harvest season.

It would also mean a return to the dry winter season with reduced snowfall for California and the Central and Southern Rockies.

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

figure 7A-C ‡ A moderate Russian volcanic eruption will make this region colder. *If El Niño conditions continue. *© Evelyn Browning Garriss/Browning Media*

The Outlook for Springtime

When the current developments in the Tropical Pacific are added to the warm Atlantic and the impact of the eruption of Iceland's Bárðarbunga volcano, the result has been a winter with similar temperatures as the 1997 – 1998 El Niño and a very different, wetter rainfall pattern in the Midwest. The high temperatures in the Atlantic in December created extremely wet conditions in the Midwest, which would normally be dry. Moreover, the moisture has fallen in extreme events, so that while most of January has been near average, most people will remember the month as cold because of the "Snowzilla" storm. The biggest difference between the two large El Niños, however, is that while the earlier event was quite dry for the Pacific Northwest in midwinter and didn't start getting precipitation until February, this year saw good mountain snow for Western Canada and the Northwest all winter long.

This means that in all probability, late winter should continue the trend

of warmer weather throughout most of Canada and the northern tier of the US while the southern tier of states is cooled by a continuing stream of storms. There remains an 80% chance of heavy precipitation in the South and along the Western Canadian and Pacific Northwest coast as well as through Northern California. There is only a 60% chance that the moisture will penetrate further south into Southern California and the Southern Rockies. There remains a 60% chance that the Ohio Valley and Central Mississippi regions will be drier than normal.

Much of this pattern should linger into early springtime, particularly the pattern of northern warmth and southern cool temperatures. In 60% of similar years the cooler weather extends to the Central Plains and Rockies. This historically has led to a great late skiing season for Colorado and Utah and, in 40% of similar years, there have been late cold without sufficient snow in Kansas and Oklahoma leading to winterkill damage of the winter wheat crop. In 60% of similar years, particularly those with a second peak of warmth in the El Niño, there has been a "Miracle March" heavy rain throughout the West Coast, which would provide good relief, but not a cure, for the California drought.

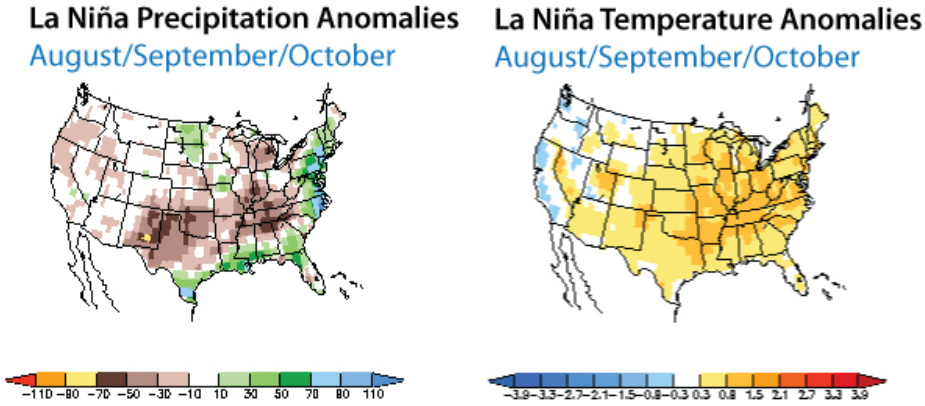


figure 8A-B If La Niña in late summerand fall mean dry conditions and more heat. for the Eastern Corn Belt and South.
http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/elnino.aso.precip.gif

Mid-spring is a time of tremendous volatility. The only patterns that consistently reoccurred 80% of the time were warmth in the Prairie Provinces and Northern Great Plains and heavy rain and snow in Northern California and the lower Cascade Mountains. Roughly 60% of similar years saw flooding in parts of the Ohio and Central Mississippi River Valleys.

Looking beyond, farmers and ranchers need to think about a potential late summer combination of heat and dry weather. The consensus of early January international models sees it as a 40% possibility, while some experts see it as a 60 – 70% possibility to create problems for late planted soybeans as well as early autumn hay and pasturelands. The *Browning Bulletin* will continue to monitor the evolution of the Tropical Pacific, as well as the Atlantic heat and issue more precise warnings in spring.

The Paris Agreement

Summary – The Paris Agreement has made certain legally binding agreements that would subject participants to penalties if they do not comply. It has targeted certain sectors of the economy and not others. The Browning Bulletin will explain what was agreed to and what some of the opportunities and problems associated with the agreement.

From November 30th through December 11th, the United Nations Framework Convention on Climate Change (UNFCCC) held their 21st annual conference. The conference ended with the unanimous adoption of the "Paris Agreement" (*https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf)* , by all 196 members of the council. Within the 31-page document are 29 articles, 140 adopted points and a myriad of sub-points. This agreement is perhaps the biggest step in the UNFCCC major underlying objective:

To "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

While previous agreements, primarily the Kyoto Protocol were considered to be far too small a step in the reduction of carbon use, this agreement is considered to be much stronger and legally binding.

This article is meant to analyze what the Paris agreement means legally for a variety of industries that are affected by climate. It is not an analysis of whether the agreement, policies and policy makers are good or bad, right or wrong. As we have explained in the past, there is good science on both sides of the climate change argument that is too often misquoted and cherry-picked in order to support a specific argument. Browning Media focuses on natural climate change and how that change affects our global infrastructure. These natural factors have helped lead to the continually growing belief of man's impact on global climate change. That belief led to the unanimous creation and signing of the Paris Agreement. Aspects of this agreement are legally binding while others parts will be imposed on a country to country basis.

There is good science on both sides of the climate change argument that is too often misquoted and cherry-picked.

How This Came About

The UN-FCCC has been considered an inefficient organization lacking the authority to create solid change in global greenhouse emission reduction. While it was able to create metrics to measure and quantify how much greenhouse gas each country produces, the Kyoto Protocol and the Cancún Agreement, two of the organizations strongest creations, lacked the power to reduce global emissions. Because of this, the December 2015 Paris Conference was designed to create a new agreement that had teeth.

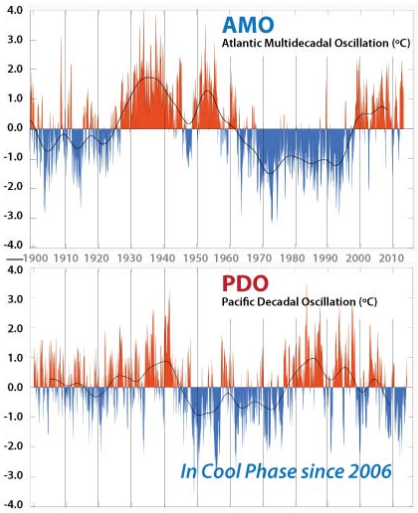


figure 9A-B Long Term Phases of the AMO and PDO *https://en.wikipedia.org/wiki/Pacific_decadal_oscillation#/media/File:PDO.svg*

The natural factors of climate change have helped. Since the organization was started in 1992 we have had a dramatic shift in both the Atlantic Multidecadal Oscillation **(AMO)** and the Pacific Decadal Oscillation **(PDO).**

Timing is everything. The 1997 Kyoto Protocol was created only two years after the AMO waters became hotter and eight years before the PDO shifted from hot to cold. The goals of the agreement were never met and climate continued to become more extreme. Many concluded that these damaging changes must be the fault of man. Since many policy-makers live in cities and experience the high-energy urban heat island effect, it only helped to reinforce this belief. So, after the past 10 years of increased floods, hurricanes, volcanic activity and droughts, (climate effects that normally come with a positive AMO and negative PDO) the UNFCCC wanted to make sure that the new agreement would do what the Kyoto agreement hadn't. Their goal was to ensure that parts, if not the entire new agreement could be legally enforced.

What's In The Agreement

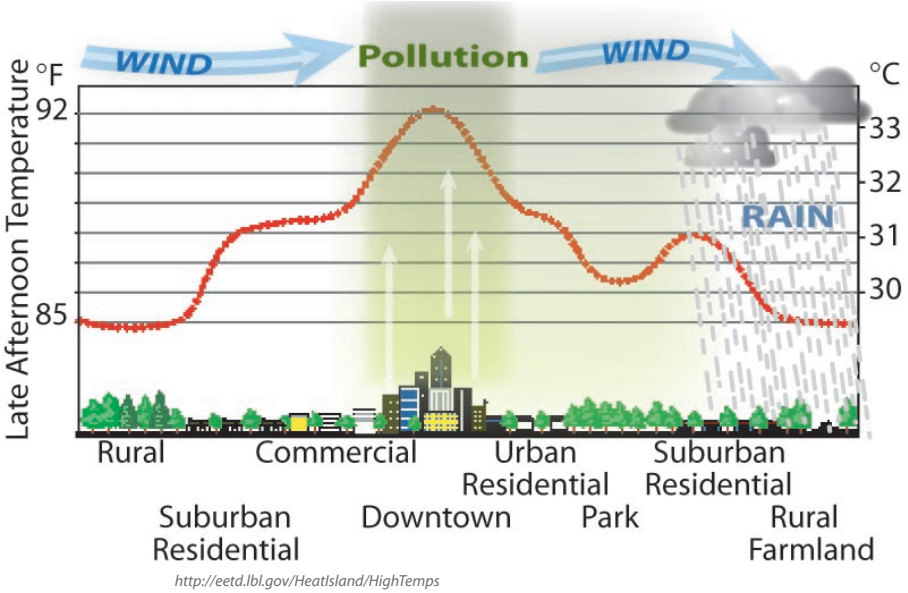
The biggest takeaway from the agreement is that all 196 countries of the UNFCCC agreed that by 2020 they must begin reducing carbon emissions. This is legally binding with the possibility of global penalties for countries that do not make the attempt to create carbon reduction. In most countries, including the US, the agreement does not have to go through the legislative advice and consent process. The overall goal is to keep global heating down to less than 2°C (3.6°F) by 2050 and have zero carbon emissions by 2100 akin to the 2010 Cancún Agreement. Additionally, the agreement creates these non-legally binding resolutions.

- Each country must draw up an emission reduction plan by the 22nd annual Conference of Parties that will take place on November 17th 2016 in Morocco.
- Developed countries have pledged to combined pay $100 billion/year to help developing countries adapt to these new changes starting in 2020.
- Every 5 years a meeting will take place to determine how countries are doing and what new rules, changes and punishments/rewards need to be handed out.
- These changes are expected to take place through 2030.
    - o Incidentally, 2030 is around the time that the AMO and PDO will both change into a more positive climate outlook for a larger portion of the world.
    - o It can be expected that if the general plans of this agreement are met, then the better climate will be shown as proof for the positive effect of the Paris Agreement.

Those are the general takeaways from the agreement. The US was one of the strongest promotors of a legally binding agreement, but blocked the implementation of financial penalties on countries with past environmental discretions. China currently has the most comprehensive emission reduction plan and will likely be a template for other developed nations to follow.

Interestingly enough, countries that in past UN climate conferences have been considered developing economies were considered developed under the Paris agreement. Included were China, India and Saudi Arabia among others. This means that these countries like other developed countries will be expected to produce a part of the $100 billion dollars a year to help developing countries become environmentally friendly while still allowing for economic growth. While the sweeping general takeaways from the agreement are groundbreaking, several industries were also targeted through a variety of resolutions and amendments.

All 196 countries of the UNFCCC agreed that by 2020 they must begin reducing carbon emissions.



http://eetd.lbl.gov/HeatIsland/HighTemps

figure 10 Most policy makers live in urban heat islands, where concentrated man-made energy and pollution exaggerate heat and extreme storms.

The Impact by Economic Sector

Agriculture – Agriculture was not specifically mentioned in any of the binding measures. Instead it was hinted at through concepts like food security and food safety. Additionally, whenever food was mentioned, gender equality was also brought up. This is due in large part to the fact that in most developing countries, the majority of farmers are women.This means that when agriculture is scrutinized in future UNFCCC events, women's rights will be mentioned alongside agricultural change.

One of the major objections to the Paris Agreement is that agriculture was left out of the debate, since many believe that it, along with ranching, is one of the leading causes of greenhouse gas emission. As the call for low carbon services and technologies grows, it can be expected that agriculture will be pushed to reduce their emissions dramatically. Because it is not happening yet, it gives time for larger farms to focus on creating an agricultural plan to reduce greenhouse gas, polluted air and water usage. These are expenses that can be shifted over a long period of time as opposed to the short time that is usually given when new regulations are implemented. While farmers know how important agriculture is, for many farming is reinforced in a negative light much like the image below.

A large amount of the $100 billion a year is to be invested in teaching developing country farmers more environmentally friendly methods of farming as well as giving them the technology needed to achieve that goal. The agreement expects the UN to give them low carbon technologies such as bio-fuel tractors while teaching them how to farm without slash and burn agriculture rather than pay developed farming businesses to institute low-carbon technologies.

FORESTRY – The goal of the Paris Agreement is to increase forest cover by 25% by 2030 while decreasing deforestation by that same amount. This is likely to become even more heavily emphasized after the Brazilian Olympics where it is believed the Amazon Rain Forest will play a huge part in the opening ceremonies as well as the time-filling human interest pieces. As the current climate conditions have created hotter and drier summers throughout many of the more densely forested areas, there will likely be an increase in forest fires in areas such as Canada, California, China and Venezuela.

Additionally, when El Niños occur, we can expect increased forest fires in Indonesian and Brazil. Both forests had several naturally made forest fires in 2015 that emitted more pollutants than Europe and the US combined. However, the fires were blamed on man-made global climate change and not denser, drier forestry due to an El Niño and the current AMO and PDO. This can lead non-logging products to increase in value and availability. Already hemp is being considered a solid alternative despite the fact that it's a high water usage crop.

OIL AND ENERGY – Oil and fossil fuel were perhaps the key target in the Paris Agreement. With clean and sustainable energy mentioned several times throughout the various resolutions, the removal of oil and fossil fuel usage is a long-term goal of this multi-national understanding. Over the next 15 years there will be an emphasis on removing investments in "dirty" energy and instead investing in "low-carbon environmentally-friendly" technology and services within the energy industry. Some believe that by 2030 there may be over one trillion dollars in global heavy carbon assets owned by gas, oil and energy industries. One need only look at what happened to the coal industry within this past year to see what problems other energy companies may be looking at if they don't take action now.

Due to natural factors, the next 15 years will continue to have more extreme droughts and storms. This will likely lead to a demand for heating and cooling, but it will be expected that policymakers create environmentally friendly answers for those needs. We already see major difficulties in the gas and oil markets. With politicians around the world hoping that these trends continue, the energy market will continue to be pressured to change their business structures to become more environmentally conscious. This is especially true in countries that have or are considering imposing a carbon tax.

INVESTMENTS – While Browning Media does not offer investment advice, we do recognize that there are opportunities when sweeping global agreements are made. It should once again be noted that for the next 15 years the type of climate that has created more extreme storms, billion-dollar insurance losses, multi-year droughts and record breaking temperatures will persist. We as a culture will likely adapt, but much of that adaptation will be structured by the actions taken during conferences such as the Paris Summit.

Eventually our climate will naturally improve. Until then, we have 15 more years that will continue to fuel the belief of man's impact on climate. As such there is close to two trillion dollars' worth of investment capital and opportunity for

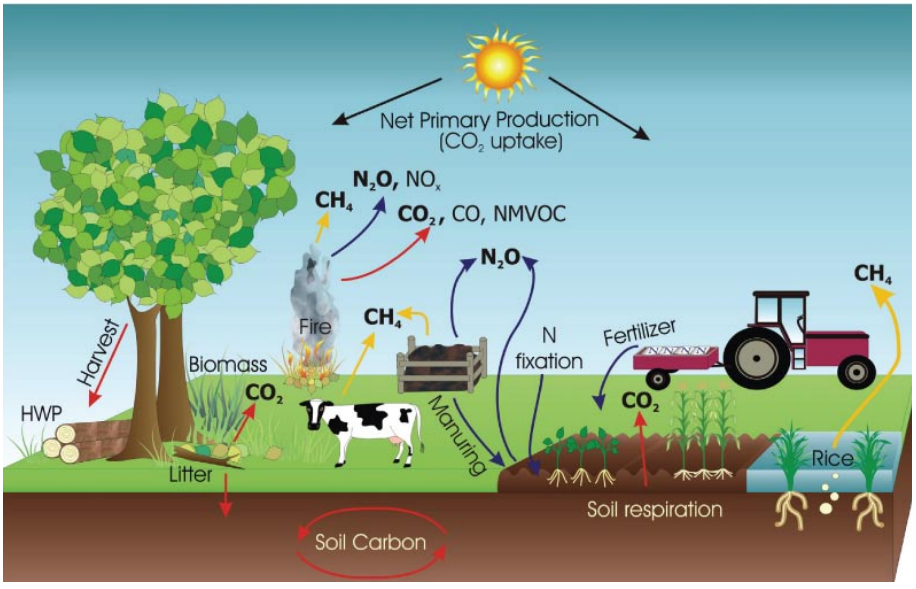


figure 11 Notice every attribute in farming is shown in a negative environmental light in this IPCC report illustration. *courtesy IPCC*

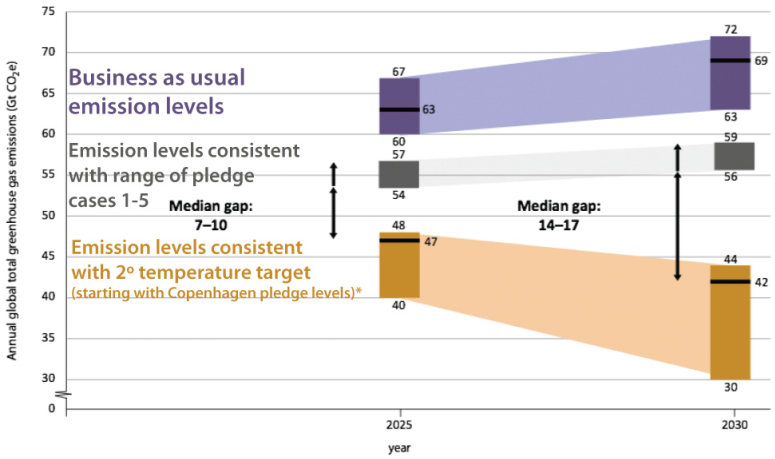
There are opportunities when sweeping global agreements are made.

any and all "environmentally-friendly" services, products and technologies. There are the opportunities in developed countries to become more green, utilizing solar and wind energies while reducing water usage. In developing countries there should be over $100 billion per year starting in 2020 to help those economies grow while keeping greenhouse emissions at a minimal.

Disapproval

Despite the far reaching goals of this agreement, there were some strong disapprovals in the overall agreement.

- According to an analysis by the Climate Action Tracker, if all countries followed through with their Agreement promises the planet would warm by approximately 2.7 degrees Celsius by 2100.
- There is no legally binding carbon-tax, however countries could choose to implement one independently
- There are currently no penalties for countries who do not honor their agreements until 2020.
- There are no repayment penalties based on past greenhouse emissions meaning currently no country has to pay anything for past indiscretions.



Results for the business as usual emission levels and emission levels consistent with 2°C temperature tagets are expressed as median, 20th and 80th percentiles. *Copenhagen Pledge in these scenarios were assumed to result in a range of 52 (50-53) Gt CO_2e total greenhouse gas emissions by 2020. This is lower than the current pledge assessment for 2020.

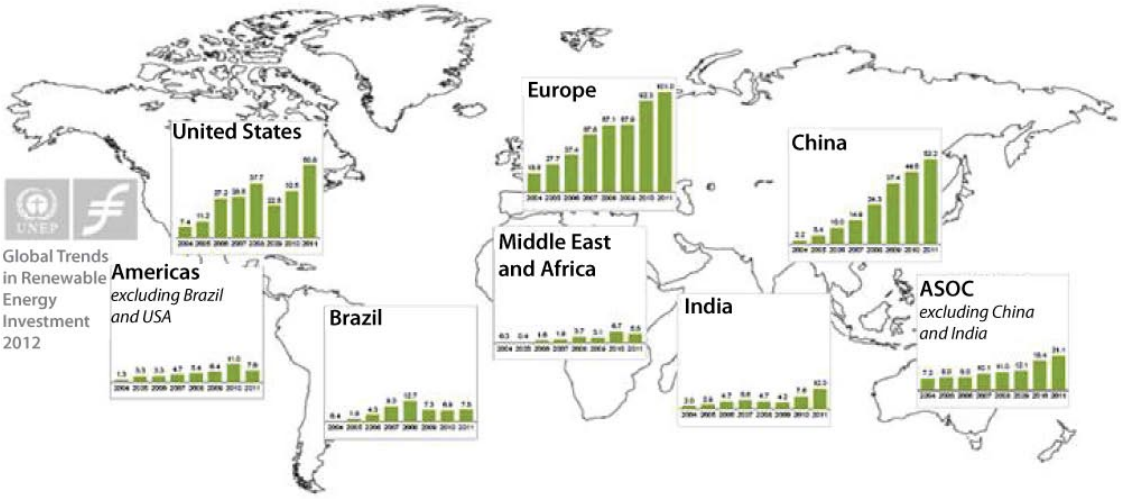
figure 13 Critics believe the current emission reduction goals are not enough. *courtesy UNEP*

- In the US political environment, the agreement is legally binding without going through Congress, meaning future governments would be bound to whatever plans the current Obama executive administration creates and submits to Morocco.

While many of these challenges may be addressed in 2020, when all aspects of the Paris Agreement are to go into effect, political changes may lessen the impact or importance of the various resolutions.

Conclusions

Time will determine how much impact these global changes have on carbon emission standards. While natural factors can't be controlled, they can through man's impact be dealt with. This agreement is one attempt to do that. It will, over the next 15 years, greatly impact a variety of industries and create opportunities for investment and economic growth. It may also hurt current long-standing industries. As with most things, it's all about the adaptation. Most industries will have a few years before these regulations go into effect. Those that handle it well have a good chance of prospering.



Note: New Investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals.

figure 12 According to the published agreement, every region has had or is having growing investment opportunity in renewable energy services and technologies. *courtesy UNEP*

News Notes

The cool water south of the Bárðarbunga eruption has blocked the flow of the Gulf Stream enough that parts of the Atlantic are extraordinarily hot. As a result, Hurricane Alex, the first hurricane to form in January in the Atlantic since 1935, swirled through the ocean from January 13 – 15. It flowed through the mid-ocean and caused no deaths or damage.

• At the same time, the remnants of the Bárðarbunga eruptions have strengthened the Icelandic low and the Polar jetstream over the Atlantic. This meant the Arctic warmth was pinned north of Western Europe which led to a severely cold winter in Northern Europe and very warm winter (especially in December) in most of Western and Central Europe. It also created dry conditions that hurt Russian wheat planting. We saw the warm European waters energize some late January storms that are creating severe damage.

With the hot Atlantic protecting Europe, the cold Arctic weather has plunged into Asia. Record low temperatures have wreaked havoc in several Asia countries, with 85 people reported dead in Taiwan and tens of thousands stranded at airports because of the unprecedented cold snap. The deadly cold has coincided with the beginning of a 40-day travel rush for Chinese New Year which falls on February 8 this year.

The cold has spread through the Koreas, Japan and as far south as Hong Kong and Taiwan. Japan is experiencing record-breaking snowfall. Parts of central and eastern China were 6 – 8°C (11 – 15°F) lower than the average historical level. China has issued its second highest weather warning as below freezing temperatures have surged as far south as the peaks of Hong Kong. (The cold has been so severe that China now has to ration natural gas.)

Weather issues have been less complex but equally extreme in the Southern Hemisphere. There the weather has been entirely shaped by the El Niño with some mitigation coming from the neutral conditions in the Indian Ocean.

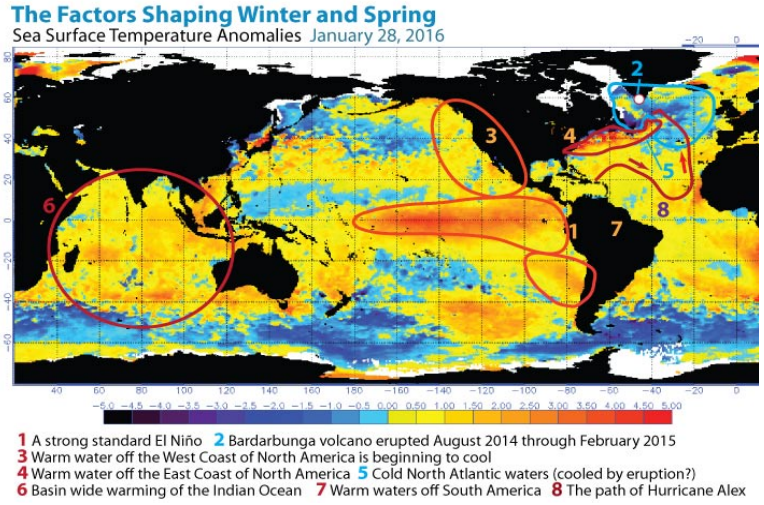
o As we reach the middle of the growing season in South America, the El Nino continues to maintain its current trend of good, but at times flooding, rainfall in the heavy agricultural areas of southern and western Brazil along with northeastern Argentina. Eastern Brazil has received intermittent rainfall that has allowed for some of the land in that region to, if not thrive, at least survive. On the western side of the continent, Chile and Peru have been struggling with very minimal rainfall which does not bode well for the fruit and vegetable industry but may produce a good year for Chilean wine.

o In Australia, a neutral Indian Ocean Dipole (IOD) has offset the normal disastrous effects of a strong El Nino. Western and Northern Australia have gotten relatively good rainfall which has helped to reduce the normal amount of brush fires. Southern Australia has had poor precipitation which has proven difficult for the overall agricultural outlook of the country however the ranching areas are surviving. If the IOD shifts out of its neutral standing, it's likely to turn negative which would bring some much needed late season rainfall.

o Indonesian crops were devastated in their early growing season, especially its rice and palm oil crops. Long term droughts along with a positive IOD were bringing no rainfall. As the IOD shifted, the drying effects of the El Nino were dissipated slightly and have allowed for poor first rice crops for southeastern Asia. This has helped to maintain lower prices reducing the cost of importing the additional food supplies. Should the IOD shift negative, it will help with the late second and third rice crop. Yields will be very low, but not record breaking as was earlier expected.

o Southern Africa has not benefitted nearly as much from a neutral IOD. Droughts have swept most of the southern countries with only a couple southwestern countries able to get even the most minimal amounts of rain. Matters are likely to turn worse if the IOD turns negative as it will bring colder waters and even lower precipitation. Look for a call for global aid to come soon as well as a growing increase in outward migration.

Expect the warm winter weather to affect your fine dining. Unfortunately, the continual warm weather in Georgia has damaged the peach and pecan crop. There goes your dessert and praline snack. On the other hand, the warm Atlantic waters have extended the lobster fishing season, so comfort yourself with another serving of lobster.



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