

BROWNING

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NEWSLETTER

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.....
 This newsletter contains articles, observations and facts to support our contention that man is significantly influenced by the climate in which he exists.

Our calculations show the climate, over the next term, will cause dramatic changes in our social and economic patterns.

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

Early Winter – As Cold As Predicted

SUMMARY: The cold from the weakened Arctic Oscillation and volcanic cooling has countered the normal warming from a moderate El Niño suggested by many models. Aside from a relatively short warming spell in late January or early February, expect a cold winter for most of North America east of the Rockies.

“I’m dreaming of a white Christmas, just like the ones I used to know.”

It’s obvious that Bing Crosby wasn’t flying home for the holidays. Between the Christmas terrorist (explosives in his underwear – what was the man thinking?) and the terrible weather, this season’s travel was a nightmare, not a dream.

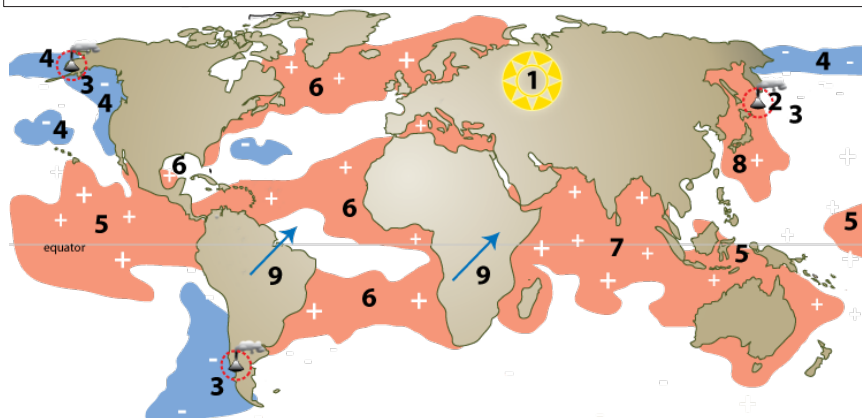
Since early October, the Newsletter has been warning that the East would have a very cold early winter. By early November it was obvious that the normal El Niño warming in the central portions of Canada and the US would not appear. In the past, when volcanic weather and a warm Atlantic combined with a weak-to-moderate El Niño, we have had miserable cold and snowy weather east of the Rockies. Unfortunately, history has repeated itself and we will continue to shiver through early January and again later this winter.

Basically, the factors that cooled this summer and the month of December are still in place. The El Niño has grown from weak to moderate. The Atlantic is still warm. Volcanoes in the North Pacific are still

In this issue

- 1 Early Winter – As Cold as Predicted**
 The current weather is as cold as the Newsletter warned it would be. Will the rest of winter follow the pattern?
- 3 The Climate and Heritage of Modern Iran**
 A look at the climate and cultural forces working within modern Iran.
- 8 NEWS NOTES**

Natural Factors Shaping Winter’s Weather



- 1 The sun is beginning a new solar cycle but it is still very quiet.
- 2 Several Kamchatka volcanoes have been active this month and there have been small to moderate eruptions
- 3 Volcanoes in Russia, Alaska & South America have had medium to large eruptions this past year.
- 4 Cool water off the West Coast.
- 5 A moderate El Niño, but Southeast Asia is unusually warm.
- 6 Most of the Atlantic is unusually warm.
- 7 Most of the Indian Ocean is warmer than average.
- 8 Warm water off most of Asia, but not China..
- 9 The high altitude Quasi Biannual Oscillation (QBO) winds are westerly.

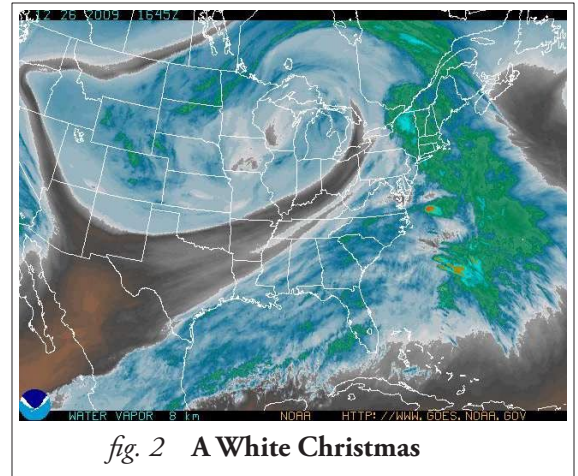
active. The clash of these factors has created cold stormy weather in North America (and Europe too) and will continue to do so.

The weather has been very different from most long range forecasts. Normally a large and moderately warm El Niño in the Pacific distorts global weather patterns creating warm weather in North America. However this year volcanoes in the North Pacific have been very active and most weather models do not include the impact of high latitude volcanoes in their projections.

The dust and debris from large eruptions is shot high into the stratosphere, blocking incoming sunlight. The ash and chemicals mingle with the water in the air and eventually precipitate out in unusually heavy rains and snowfalls. If the eruptions are large enough, (over 10 miles or 16 km. high) the debris can linger in the atmosphere for months, even years. If they are moderate (3 – 10 miles or 4.8 – 16 km.)

cloud covered to know exactly what has happened but experts report that seismic readings from December 11 – 21 indicate at least one explosion over 3.4 miles (5.5 km.) high. Much of the cold and snow that have swept over North America toward the end of December contain debris from these eruptions.

The ash and debris in the polar air mass may be having another impact that has increased the misery of this early winter. The Arctic air mass has polar winds that, if they are strong, trap most of the cold air in the high latitudes. This is called a positive Arctic Oscillation (AO). Unfortunately, the volcanic pollution may have weakened the winds. What we are seeing is a negative AO, where the winds are so weak that the cold air is surging extremely far south.



courtesy: GOES/NOAA

Texas to Canada and heavy ice and rains through the major population centers of the East Coast.

The conditions that created the holiday storms will continue into early and (probably) mid-January.

These storms have had some major consequences:

- At least 5% of the nation's corn crop and 6% of its cotton was never harvested. Much of what has been harvested late in the season is saturated or damaged and is of poor quality.
- It is estimated that the pre-Christmas snowfall resulted in a \$2 billion loss of retail sales.
- The cost of snow removal is straining already cash-strapped state budgets in the East and Midwest. Maryland, for example, has already spent \$27 million on snow removal and only had \$26 million budgeted for the entire winter. Many other states and cities are likely in similar bad shape.
- There have already been thousands of power outages and hundreds of thousands of customers left without electricity.
- Travel, by air, road and train has been disrupted over the busiest season of the year.
- The timing of the storms, both here and later, as the storms moved east, in Europe, couldn't have been more

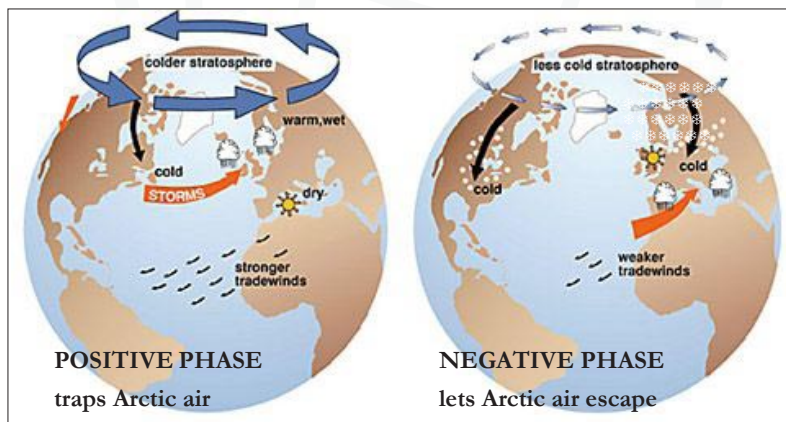
GYRE

gyre: a circular or spiral movement or path, often referring to oceanic or atmospheric currents.

in height, they cool the next weather front and precipitate out downwind.

Blame it on the Russians? We have had large eruptions in both Alaska and Russia this year and this month we had two moderate eruptions on Russia's Kamchatka Peninsula. Mt. Bezymianny exploded on December 17, with ash going 6.2 miles (10 km.) high. Mt. Sheveluch has been too

This negative AO is common when the Atlantic is as warm as it has been this year. However, it is very rare for the AO to be as extremely negative as it is now. Vast amounts of polar air have escaped, leaving the Arctic itself unusually warm and North America freezing. An enormous and remarkable gyre of weather came upon a Christmas Eve, bringing blizzards from



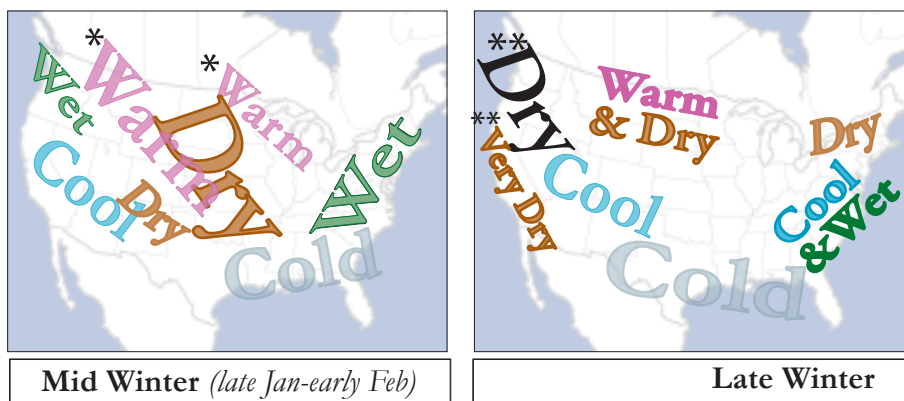
figs. 3-4 This winter has had strong negative phases of the Arctic Oscillation

courtesy J.Wallace, University of Washington, source: NSIDC

politically awkward for the Copenhagen global warming conference. While the storms were not responsible for the conference's failure, they did make the participants look ridiculous. (A tip - Next time schedule these types of meetings for the tropics during the humid monsoon season!)

The one benevolent impact of the recent weather, however, has been that it has brought some relief for California's and Arizona's droughts. Even though historically the cold water along the West Coast, produces dry weather in the Golden State, it has been saved by the series of small eruptions in Kamchatka. History shows the extra dust and debris from these smaller eruptions tend to precipitate out in the West while the debris from larger eruptions usually precipitate out east of the Rockies.

Most El Niño winters have a pattern of a cold beginning – warm mid-season – cold ending, followed by a cool spring. Typically the longer the cold beginning lasts, the briefer the warm mid-season will be. Expect this cool to last, barring any



Mid Winter (late Jan-early Feb) **Late Winter**
 *If the North Pacific volcanoes continue to be active, these regions will be cool.
 **If the North Pacific volcanoes continue to be active, these regions will have normal precipitation.

Cool 2°C or more lower than normal temp.	Warm 2-4°C or more higher than normal temps.	Cold 5°C or more lower than normal temps.	Wet 125% or more of normal moisture	Dry 75% or less of normal moisture
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figs. 5-6
 © Browning maps

more eruptions in the North Pacific, until mid- January. The warmth should last only a few weeks in late January/ early February, followed by more cold and stormy weather for the rest of this winter. These are the ideal conditions for Nor'easters to roar up from the Gulf to the East Coast.

Overall, expect this to be a cold winter that breaks some historical records for cold temperatures and snowfall. However, in the West, while the years of drought won't be totally broken, there should be more snow-pack for the reservoirs.

The Climate And Heritage Of Modern Iran

SUMMARY: *Iran, a land with very limited water and arable land resources is undergoing some very severe and stressful long-term climate changes. The leaders are reacting aggressively and their history and culture should show us what to expect.*

On December 18, 2009, Iranian forces entered Iraq and seized one of its oil wells.

This was not the first time.

The Iranians captured Well Number 4 in the giant al-Fakkah oil field. This field, with an estimated 2.5 billion barrels in reserves, is claimed by both nations. It is one of five Iraqi oil fields that are within several hundred yards of the Iranian border

or straddle the line. Last year, according to the Iraqi Oil Ministry, Iran stole oil from al-Fakkah and illegally seized and capped off wells in a second Iraqi field. These incidents have become more common since Iraq began selling development rights to the fields near the Iranian border, including al-Fakkah.

The incident ended quietly two days later. The Iranian forces took down their flag and retreated 80 meters (262 feet). They are still inside Iraq. Now Iraqi and Iranian forces are dug in on either side of the disputed well but no shots have been fired. In all, it was a minor incident. However, this event combined with the devastatingly cold winter temperatures in Europe and North America and a US shortfall of oil have caused global petroleum prices to climb.

Energy demands have surged over the past decade. Meanwhile, the Energy Policy Research Foundation has reported that war and resource nationalism have lowered potential global petroleum output by between 2.5 million and 4.5 million barrels per day. In this scenario, according to Liam Denning of the Wall Street Journal, Iraq is the wild card. Its petroleum industry has been devastated by war and mismanagement. However, the foreign oil firms that have recently won licensing agreements plan to quickly boost output from five fields 12-fold to 8.5 million barrels per day. In Denning's words:

“ . . . even if production increased by a more conservative 1.5 million barrels per day by 2015, it could pressure oil prices through unsettling the organization Iraq helped found 39 years ago: the Organization of Petroleum Exporting Countries.”



fig:7 Iran

© Browning Maps

Now, according to Reuters:

“The mere threat of future incursions or border feuds puts more risk onto the 10 oilfield deals the Iraqi government did secure this year, some of which are near the Iran-Iraq border.”

Aref Mohammed, *“Iraqi and Iranian forces Stand-off in Oil Well Row”*, Dec 26, 2009

In short, with a few inexpensive military raids on its weakened neighbor, Iran can negate the wild card. But will they? In order to determine that, one has to understand Iran. It is not a land of religious bigots led by a crazy man. Nor, despite the current riots, is it a nation that will dissolve in chaos and vanish from the world scene. **Iran is a proud and ancient culture undergoing some major climatic stress. It has coped with similar stress repeatedly**

over thousands of years. To understand what it will do, one must understand what it always does in times of trouble.

Iran and Climate Change

Iran is a high, dry nation. Basically it is a series of arid, high-altitude basins surrounded by rugged mountains. It has no major rivers and only one river that can be even be navigated. Most of the land averages only 9.8 inches (25 cm.) of rain and snow. Only the coastal plains along the Caspian Sea and the valleys in the Zagros Mountains, a range that stretches along the nation’s western border, have good precipitation. West of the Zagros, the marshy Khuzestan plains stretch to the Tigris River and the nation’s border with Iraq.

Geographically, the nation consists of valleys and basins which usually have a single large city surrounded by peasant farmers

and migratory pastoralists. Historically the regions have been isolated, but now roads and railroads tie the nation together. As travel has become more convenient, the population has moved to the cities. Iran now has one of the world’s highest urban growth rates. Over 68% of Iranians live in cities and experts expect the numbers to grow to 80% over the next 20 years.

Due to poor soil and widespread problems with water availability, only 12% of the land is under cultivation. In 2007, the government announced that Iran had attained 96% self-sufficiency in essential agricultural products. The following year, drought forced the nation to import food. **With 70 million people and only a relatively small area producing food, Iran is very vulnerable to even minor changes in precipitation.**

Unfortunately, that is exactly what the nation is experiencing – some major long-term changes in precipitation. Northern Iran is getting less rainfall. In 1995, the flow of the Atlantic Thermohaline Current, which carries warm tropical waters north, sped up. The North Atlantic warmed. The rise in temperatures caused rainfall patterns in the northern hemisphere to shift. A short-term weather pattern, the North Atlantic Oscillation, became negative far more frequently, a pattern that changes precipitation in the Middle East. More rain fell in the “Fertile Crescent” of Iraq, Turkey and the Eastern Mediterranean, and less fell in Iran. Since this warm Atlantic is a long-term climate pattern (called the positive phase of the Atlantic Multi-Decadal Oscillation or AMO), we can expect this precipitation pattern to continue for the next 15 to 20 years. This situation creates long term droughts.

There has been another long-term climate shift. The Pacific Decadal Oscillation has entered its cool phase. This is a less steady change, due to occasional interruptions by warm El Niños. It began to become cool in 1998 and according to some, has been in the cool phase starting in 2006. There is no scientific analysis of tree-ring records to show what the impact is on Iranian climate. History seems to indicate that this phase brings drier weather to western, central and southern Iran, including the normally fertile Zagros mountain valleys. This is especially true for La Niña years like

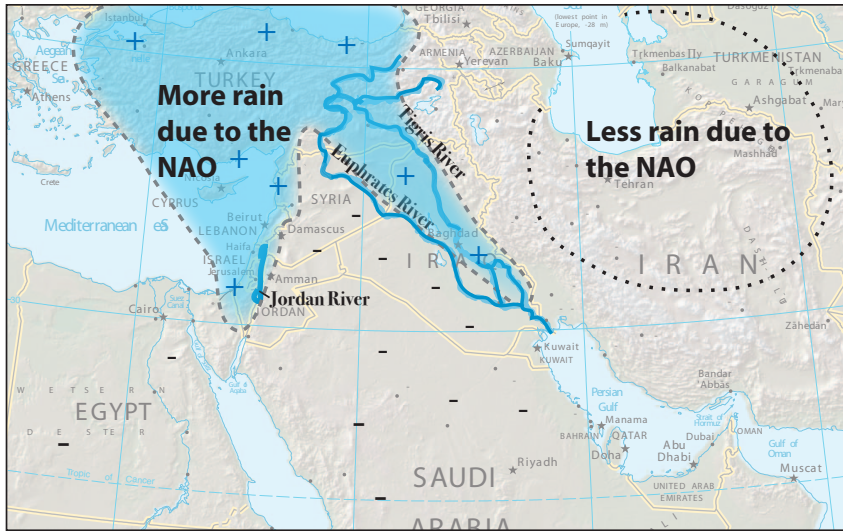


fig. 8 The positive AMO creates more frequent negative NAOs for decades which redistributes the scarce water in the Middle east

2008. Iran has always had drought problems during La Niñas, but this phase of the PDO exacerbates the droughts.

During 2009 and 2006, warm El Niño years, rainfall was ample and crops were good. Unfortunately, with this phase of the PDO, good years are less frequent.

In short, since 1995, Iran has had increasing problems with rainfall. This is one of the factors behind the rapid population movements away from farming. Due to the brouhaha surrounding Copenhagen and curious e-mails, do not expect to read very much about weather patterns influencing events in Iran or other places. But you cannot understand what is happening in the Middle East without realizing that all of Iran is enduring frequent and devastating droughts – a historical rarity. It is also behind much of the current unrest against President Ahmadinejad's administration. 2008 was a very tough year for Iran, with wide-spread food-shortages and massive hardship. The suffering and resentment affected the June 2009 election and forced the government to engage in widespread fraud to retain power. Since then, there have been a series of demonstrations against the current regime.

How the Past is Shaping Current Middle Eastern Events

Three thousand years of Iranian history can be summed up in one sentence – “Invaders (conquerors and refugees) flow into Iran from the east and become Persian/Iranian.” Again and again, drought and war have driven people out of Central Asia into the Iranian homelands. There the populations settled and acquired the rich

Persian culture. Indeed, Iran officially demanded that the West stop calling the nation Persia in recognition that its population has a multitude of ethnic groups. The majority are Farsi-speaking Persians but they are all bound together by the Aryan or Iranian culture.

This influx from the east is still happening. Since 1979, Iran has hosted the largest refugee population in the world – 4.5 million people, most from Afghanistan. This is huge strain on a nation that is also dealing with frequent droughts. The flow of history is continuing and shaping modern events.

Centuries of history teach us some important lessons about the Iranians.

1. Historically, the Persians and/or their culture have dominated the Middle East for three thousand years. The leaders of Iran know this and regard the current borders as artificial, imposed by foreign imperialists. From the ancient Persian Empire to the late Shah, most of the Middle East was under direct Persian control or influence.

Empire after empire controlled modern day Iran, Iraq, the Persian Gulf and large regions of the Caucasus and Central Asia. Even when Arabs, Turks and Mongols ruled the Middle East, their top advisers and bureaucrats were usually Persian. It was only in 1639, after 150 years of war, that Persia lost control of Iraq to the Ottoman Empire. In the following centuries, Imperial Russia and the British Empire stripped



fig. 9 The mighty Persian Empire founded by Cyrus the Great

http://en.wikipedia.org/wiki/File:Map_achaemenid_empire_en.png

After 200 years of Western meddling in its affairs, Iran is not likely to honor any agreement, including border agreements, that it feels were imposed by "imperialists."

Iran of half of its territories. By the 1900s, Russian, British and, later, US agents were actively manipulating Iran's government. They even deposed and elevated shahs. When the Iranians finally overthrew the Shah in 1979, Western powers insisted that Iran's considerable influence over the Middle East be diminished. The US and Europe even helped Iraq during the bloody Iran-Iraq War.

In the past, when rainfall was short in the Zagros Mountains, the Iranian population flowed west to the Tigris River valley. However, international borders now hinder this movement. After 200 years of Western meddling in its affairs, Iran is bitter. It is not likely to honor any agreement, including border agreements, that it feels were imposed by "imperialists."

2. Historically, the Persians have used religion to bind their peoples and empires together. Before Islam, the Persian rulers promoted the Zoroastrian faith. After Mohammed and the spread of Islam, Iran fell into numerous principalities. A few centuries later the Safavid Empire re-united the lands under the Twelver Shia sect of Islam. This trend has continued to the present day. The 1979 revolution against the Shah was led by Shia religious leaders. Indeed, one of main reasons that President Ahmadinejad's administration has remained in power is that the Supreme Leader, Grand Ayatollah Khamenei, has declared the protests illegal.

It is important to appreciate the complex role of religion in Iran to understand current events. President Ahmadinejad is the head of the conservative movement, so many see him as allied with the hard-line clerics. However he is the Islamic Republic's first non-clerical president, and has exploited the traditional Iranian belief that mullahs are corrupt. (This tradition has been intensified since the Islamic Revolution as the mullahs acquired more power.)

He has attacked clerical corruption, replacing mullahs with the military and Basij volunteers. According to some observers, such as Nation's Robert Dreyfuss, "The clergy-run, quasi-democratic Iranian state has been replaced by something that looks a lot more like a military dictatorship."

As a result, there is a growing coalition of moderate and reform clerics combined with hard-liners who resent the removal of mullahs and members of their families from government. One of the behind-the-scene leaders of this clerical coalition is ex-president Rafsanjani. Rafsanjani is also the chairman of the Assembly of Experts. This is the religious board that selects and can dismiss the Supreme Leader. The current Supreme Leader Khamenei owes his office to this Assembly.

The initial Iranian unrest in June was largely by students and the Westernized elite. It ultimately was as unsupported by the general population as the Tiananmen Square uprising in China. The current unrest began with the December 20 death of the 87-year-old Grand Ayatollah Hossein Ali Montazeri, a harsh critic of Iran's

leaders. Violence and unrest grew during the sacred martyr's holiday of Ashura. **The dissent has received broader support, including clerical support. While it is probably not strong enough to unseat Ahmadinejad, the President is as vulnerable as the former Shah, if the clergy unites against him.**

3. Many Shiite beliefs and traditions shape the Iranian national behavior. Basically the split between Sunnis and Shiites is that the Sunni faith focuses on just the Koran and sayings of the Prophet Mohammed. The Shia follow the teachings of the Prophet and his direct descents through his adopted son/cousin/first follower/son-in-law Ali. For 11 generations, Ali and his family were revered religious imams, and according to tradition each one was martyred by the reigning caliphs. Only the last direct descendant, al-Mahdi, disappeared and the Twelver Shiites believe he will return on the Day of Judgment.

The faith has given Iran several traditions:

- The faith emphasizes *extreme* patience in gaining your objectives.
- The faith also glorifies martyrdom. Eleven of its greatest leaders were martyred. Its primary religious holiday is Ashura, to commemorate the massacre of Mohammed's grandson, the Imam Hussein. Ashura is a day of mourning, charity, chest beating and even



map data sources: CIA World Factbook; Adherents.com
 fig. 10 Shiites in the Middle East

flagellation. This religious respect for martyrdom allowed the Revolutionary Iranian government to recruit hundreds of thousands of young men (the Basij) to march into minefields as “human waves” so that the more experienced soldiers could advance against the enemy. This martyrdom gained so much respect that Basij are allowed to become public enforcers of morality. They are currently a major force in brutalizing Iranian protestors against the current regime.

- In a study by Shmuel Bar for the Institute of Policy and Strategy, he notes that “identification with . . . Ali, who was usurped as Caliph and his sons Hussein and Hassan who were tricked, defeated and killed”, has reinforced images of “being oppressed, conquered and humiliated by outside forces and identification with the downtrodden and with self-sacrifice.”

4. Traditional Iranian and Shiite beliefs emphasize the chasm between the purity of the inside (*baten*) and the corruption of the external (*zاهر*). Iran has traditionally used religious uniformity to bind its various ethnicities together. However, there has always been a division between what goes on inside the house and family and what appears on the outside. Recently the division has grown even greater. Iran’s young urban population is growing more educated and sophisticated. Meanwhile, the Basij and Iranian Security forces are imposing an increasingly puritanical code of behavior on people, particularly women, outside the homes. Inside the home, *baten*, women can have enormous persuasive influence and families encourage their daughters to become educated. Outside the house, women can be arrested or beaten for wearing make-up or showing their hair. (The best-seller *Persepolis* by Marjane Satrapi accurately illustrates this striking cultural dichotomy and the brutality of current conditions.) Recent violence has shown the people’s growing impatience with the random violence of the self-appointed purity squads. **So few Westerners, who regard**

protests as a right, realize that very public demonstrations by normally publicly conformist Iranians are really a sign of extreme desperation.

At the same time, this division between inward honor and a need to cope with the corrupt outside has led to a culture of shrewd manipulation. One can be completely moral to oneself while being hypocritical to outsiders. This has led to a history of brilliant diplomacy and manipulation of conquerors and stronger neighbors. It is no coincident that during the centuries of Western imperialism, Iran was one of the very few Asian nations that remained independent. Indeed, there is evidence that much of the intelligence that led to the US overthrowing Saddam Hussein and installing a majority Shiite government in Iraq, came from Iran and Iranian agents.

Conclusions

Between climate change, huge population movements and massive refugee populations, Iran is under enormous stress. The government is responding to the stress. Part of its current aggressiveness is defensive, trying to turn popular discontent outward, towards the West, rather than inward towards the government. Indeed, the government is blaming the current unrest on Israel, Britain and America.

The Iranians believe that they have the historical right to be the dominant power in the Middle East. The rulers and clergy blame Western imperialism for their current weakened status.

Iranian leaders believe that atomic power and weapons will help make their nation a dominant world power. Their neighbor to the east, Pakistan, has one and they believe they are as great or greater than Pakistan. Any attempt to thwart this drive is seen as continued Western imperialism.

Iran’s current borders are regarded as one more imposition by evil imperi-

alists. The Iranians are currently in border disputes with Iraq, the UAE, Azerbaijan and Turkmenistan over areas that once belonged to Persia. All of these disputes involve land with gas and oil reserves.

Since Iran is depending on Russia for support in its nuclear battle with the West, it is less active in its Caspian Sea disputes. This leaves the nation able to concentrate on expanding its power in Iraq and the Persian Gulf area. In particular, it is interested in expanding its rights to the Tigris, the Shatt al-Arab Delta and the Strait of Hormuz, which would effectively control Middle Eastern oil exports.


The dissent against Ahmadinejad in Iran will not succeed unless or until it gains united clerical support. The widespread denunciation of the clergy by the current protestors guarantees failure. While the President’s policy has antagonized many of the mullahs, he still has support among many of the hard-liners and the Basij.


With the Iranian regard for martyrs, expect widespread broadcasting of the deaths and persecution that the dissenters experience. Iran may be controlling the official press, but the Iranians themselves will send bloody pictures through the internet. The government is seizing the bodies of victims and forbidding funerals, but it cannot control the images. Iranians love a tragic tale of martyrdom and will be spreading these stories far and wide.

The current unrest in Iran is not diverting Iran’s leaders from its external goals. It requires very little expense or effort to disrupt neighboring oil fields or kidnap a wandering Westerner.

Iran is an expert in the “Great Game.” Expect many levels of diplomacy both overt and behind the scenes. As it has in the past, it will play one great power against another. It will continue to take steps against lowering international oil prices. **Its ultimate goal is not in pursuit of oil or money, but for power.**


News Notes

 2009 is ending with a flurry of sunspots. After a very quiet and prolonged solar minimum, the sun finally seems to be growing more active. So far this month, the visible disk of the sun has had spots 67% of the time, with one day having 5 sunspots at the same time. What's more, the polarity of all of the December sunspots showed they belonged to the new solar cycle, Cycle 24, rather than being straggling remnants of the previous cycle. Since sunspot activity correlates with overall solar radiation, this means the sun is finally perking up. Some scientists are even projecting that by next year sunspots will become a non-stop daily occurrence. Somehow, in the middle of a cold, snowy winter, a warmer sun sounds like very good news.


 The Christmas blizzard was a pain for travelers but a treat for us crazy weather-watchers. It was not only huge, it was weird. Instead of one storm center it was multiple waves moving around each other in the middle of the main storm system. Winter storms usually blow in, then out, but this time the snow and wind lasted 48 hours. In one day it broke 909 snowfall records and 1219 overall precipitation records.

Of course, many of my weather colleagues are saying that you haven't seen anything yet. The oncoming front is expected to be even colder with hard freezes extending as far south as Orlando Florida. (Look out, you orange growers) and temperatures below zero as far south as central Missouri. In the words of Senior AccuWeather meteorologist Joe Bastardi's AccuWeather premium web site via Brett Anderson's Global warming blog:


"What is facing the major population centers of the northern hemisphere is unlike anything that we have seen since the global warming debate got to the absurd level it is now, . . . For cold of a variety not seen in over 25 years in a large scale is about to engulf the major energy consuming areas of the northern Hemisphere."


 This issue has focused so much on the US storm and the Middle East that it has ignored our northern neighbor which has had its own strange weather. On December 13, Edmonton,

Alberta was not only the coldest place in North America, with its wind-chill, it was the frostiest in the world. Temperatures at the Edmonton International Airport the dropped to -58.4°C (-73.12°F) with the wind chill, outfreezing even the Arctic. The extreme weather was enough to stall some of the airplanes.

 The news has been filled with reports about the eruption of Mt. Mayon in the Philippines. The volcano is active, but basically at this point its activities have been limited to leaking lava and an occasional low-level puff of ash. However, authorities have posted an Alert Level 4 and warned that it could have a huge, potentially climate-changing eruption at any time. Thousands of near-by residents have been evacuated. Meanwhile, as many as 2400 tourists a day flock to the area.

 While the El Niño has brought heavy rains to the southern portions of North America, it has brought disastrous drought to East Africa. This is the sixth successive season of failed rains in East Africa and the area from Kenya to Somalia and Ethiopia is experiencing its worst drought in 20 years. According to experts, some 20 million people face starvation.

 Just in case air travel is not stressful enough, a recent study in the Journal of Geophysical Research reveals that passengers flying near lightning storms could be exposed to harmful levels of radiation. According to the author, Dr. Joe Dwyer, professor of physics and space sciences at Florida Tech, lightning discharges could expose airline passengers to levels of radiation equivalent to 400 chest X-rays if the plane is near the origin point of a lightning discharge.

 One last story that was too strange to pass up. Apparently grey squirrels are ruining Christmas in Fredericton, New Jersey by eating all the festive lights. Town officials say the rodents have developed a taste for the lights that decorate their downtown Christmas tree and nothing seems to stop them! They take their time and eat through the bulbs of every light. Except the red ones. Next year, expect the officials of Fredericton to light the town red!

Happy New Year!

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

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

This newsletter will **not** contain:

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

Volcano updates via e-mail

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

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

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