Report on 90-day Weather Projection for the Northern Half of New Mexico

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Introduction:

This 90-day weather forecast is for the northern half of New Mexico. The forecast area is bounded by the state borders on the north, west, and east, and Interstate 40 on the south.

The report contains a summary weather outlook for December through February (directly below), a review of the current El Nino Southern Oscillation (ENSO) condition, which is rapidly becoming an official El Nino, and an overview of current weather trends along with outlook maps for the next 90 days.

Also, I have an important discussion about global warming, especially regarding the recent controversy regarding the recent evidence that scientific evidence about effect of human activity upon global warming was suppressed and hidden. If true, it is a severe breech of scientific ethics and could cast a very different light on the whole global warming picture.

Summary, Ninety-day weather outlook for forecast area:

- *The El Nino is official.*
- The majority of long-range computer models agree that an El Nino condition will persist through the middle of Spring of 2010. The computer models continue to predict average precipitation levels for the forecast area. However, the full effect of this El Nino is expected to be reflected in the forecast area later in the winter.
- Precipitation throughout the forecast area during the past four weeks has been about average, but we have had some unusually cold weather and some significant snows. It still appears, at least to me, that conditions are developing for a wetter than normal winter season.

Review of Current El Nino Southern Oscillation Situation and Discussion:

The latest historic Oceanic Nino Index, which is the official metric from which a La Nina or El Nino is declared, is now at 1.2C, 33% greater than last month. *An official El Nino now exists* and continues to grow stronger.

The majority of the of the 22 international computer models used to predict El Nino events suggest that it will last through middle of spring. Most of the models predict a moderate to strong event.

Last 30 days. Generally precipitation in the forecast area was slightly below normal in November. A winter weather pattern has clearly shaped up over the region, with a combination of polar outbreaks of arctic air flowing into the area from the north (i.e., cold fonts) and low-pressure cyclonic activity traversing the area from the northwest (i.e., storms).

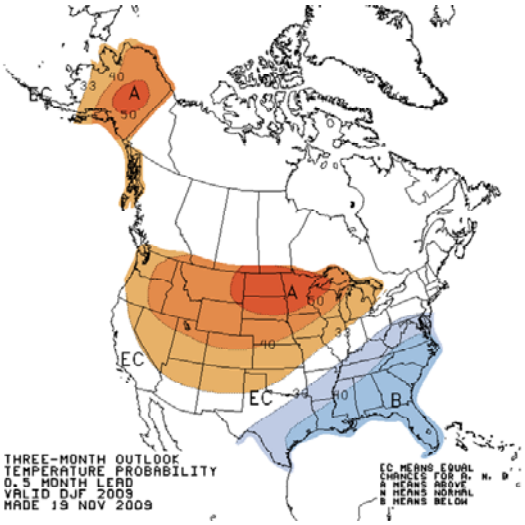
Based on historical trends of El Nino conditions along with last month's prediction for precipitation, about normal precipitation was expected. However, climatologists from the NOAA's Climate Prediction Center are now saying that they expect the full impact from the El Nino will increasingly impact the forecast area as winter progresses.

Next 90 days.

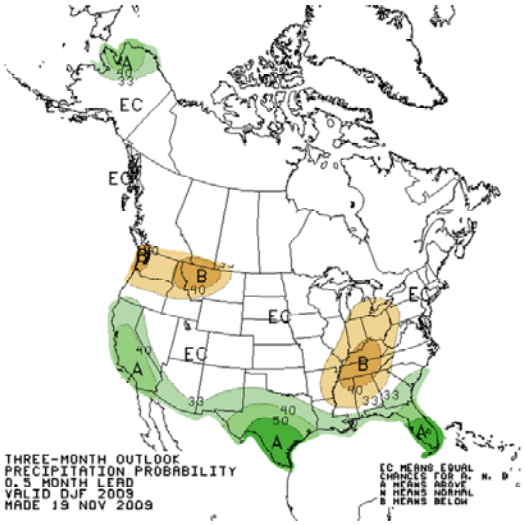
The prediction for the next 90 days, which can be seen below in the graphic from the National Climate Prediction Center, is consistent with this predication.

Outlook for Dec Through Feb 09

Temperature



Precipitation



Recent Weather Trends

The recent cold spell was caused by a combination of a very cold air mass (a cold front) coupled with a reasonably powerful storm system. Some areas received beneficial snowfall, and all areas experienced near-record cold conditions. More is expected in the coming couple of weeks. I believe that we are seeing a weather pattern that will be conducive to increased precipitation and cold air, at least in the near term. This should be good news to most winter sports enthusiasts, but not necessarily to late-season hunters. I am certainly glad that I did not draw a high-altitude elk hunt for this last weekend.

Global Warming and the Recent Controversy.

For those of you who have not been following the recent events, let me brief you. A couple of weeks ago, on the eve of a major international global climate change conference in Copenhagen, numerous email correspondences among scientists were exposed. The emails were hacked from computers at the University of East Anglia, a leading climate research institution in the UK.

The prima fascia case from the email disclosures appears to suggest that climate change advocates deliberately prevented the discussion of scientific theories from qualified scientists—albeit minority views—who were suggesting that human behavior has less impact on climate change than is widely believed. Apparently, some of these studies were inappropriately denied publication in peer-reviewed journals.

Let me make a few clarifying points. There is excellent agreement that the earth is warming. We can measure it. There a little disagreement about exactly how much it is warming. *The principal controversy is to what degree human activity may be affecting the observed warming.*

All the facts have not been brought to light and it is possibly that the hacked emails may have been taken out of context. The issue is very politically polarized and there is an incentive for

climate change opponents to convolute the facts, exaggerate minor points, and perhaps even fabricate information. The UN has launched an investigation and more will be known soon.

The stakes are extremely high. If human activity is not the principal cause or even a major contributor to global warming, then much of the proposed mitigation efforts, some of which are beginning to take on barn-burner urgency, not only will have no effect, but would be hugely wasteful of limited resources. The costs for implementing some of the proposed mitigation strategies through 2050 could be near five trillion dollars ($5,000,000,000,000) in today's dollars, a sizable investment and one that could prove draining on the world economy.

Suppression of scientific discourse is completely contrary to the fundamental premise of science, which is dependent on full disclosure and open dialogue. Inhibition of debate or data manipulation can lead to false and sometimes devastating conclusions, as well as hinder the development of knowledge. For trained researchers like me, this situation has all the horrifying features of the Catholic Church's infamous persecution of Galileo for publishing his observations about the earth's position in the solar system.

Researchers operate by the creed that the data should guide our conclusions. If those data don't fit our hypothesis, then we need to consider changing the hypothesis. We never change or suppress contrary data. It is often embarrassing for researchers to admit that their ideas are wrong (I know of this personally), but it is the right thing to do.

Let me reiterate that we don't yet have all the facts in this case.

In my November 2008 weather report I presented a perspective on global warming. I outlined the case for the human connection to the warming, but I also discussed some confounding factors, many of which I have always felt were not adequately explained. Since I am not a professional contributor to the field of Climatology (Undergrad work in Climatology and graduate work in Engineering and Technology Development), my opinions count little. But I think the flaws are obvious, especially regarding the question as to why there have been numerous previous geological warming events when there were no humans present.

Outline below is the section of my Nov 2008 report on this subject.

> <u>Climate Connection to Global Warming</u>
>
> Many people, including scientists, are quick to point to global warming as the instigator for less than desirable weather patterns, particularly droughts. But the connection between observed weather patterns and global warming is not as clear as many proclaim. We simply do not understand yet how much the earth is warming (but it is indeed warming) and we know even less about how that temperature increase will affect climate.
>
> We must also be cautious about garnering information and drawing conclusion too quickly. For example, there have been reports about the polar ice caps *growing* in recent years. They have been accompanied by pictures that seem to confirm the assertion. In fact, pictures are no proof due to the ease of digital alteration. Even untouched photos can sometimes be misleading if they were taken with certain filters. The trends of the past decade, confirmed by climatic experts such as those in NOAA, are of shrinking ice caps and no confirmation of a counter-trend is yet to be substantiated.
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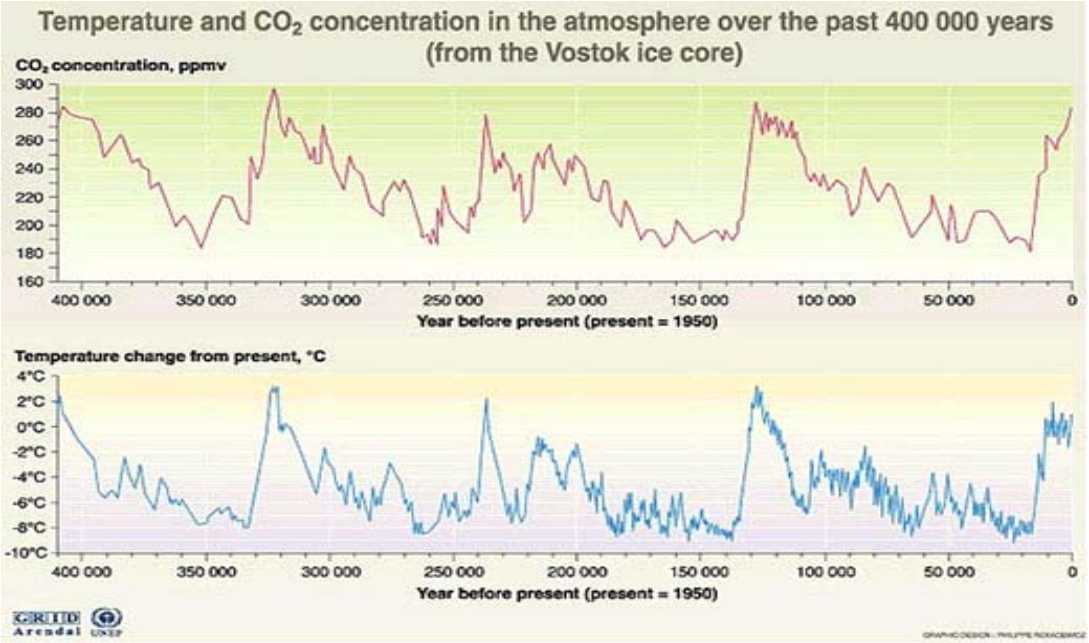
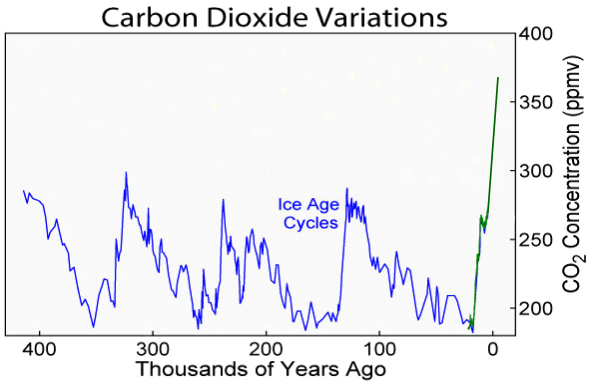
> We do, however, have some historical information that will put global warming in perspective. The graphs below show the earth's historic temperature and carbon dioxide levels—all estimated based on ice-core data (graphs supplied by the National Forest Service Climatic Change Center).



As can be seen, there is considerable historical variation in the earth's temperature and carbon dioxide levels over the past 400,000 years. It is also clear that temperature is correlated to carbon dioxide levels, but that is expected because these temperature values are estimated using carbon dioxide as one of the input parameters to the estimating technique.

Based on this graphic, one might conclude that the earth is simply behaving as it always has. But on closer inspection, one can see that the zero year line (i.e., "present") in the graph is for 1950, 58 years ago. Also note that over 400,000 years carbon dioxide concentrations never rose above about 300ppmv.



In the graphic at left (supplied by the Forest Service Climatic Change Center) the green line shows carbon dioxide levels over the past few hundred years. (The past 50 years the Carbon Dioxide concentrations have been directly measured). Carbon dioxide levels are now around 370ppmv, the highest in the knowable atmospheric history of the earth.

It is easy to conclude that carbon dioxide measures are rising to unprecedented heights and temperatures must be quick to follow. A natural reaction is that higher temperatures would be catastrophic to the globe and its inhabitants.

However, the conclusion is not that unambiguous. These records only date to about one-half million years ago, but warm blooded mammals have existed on this planet for at least 300 million years. It is possible that the earth has experienced—and survived—much higher carbon dioxide levels and associated high global temperatures. We are also uncertain about how accurately we can compare the recent direct carbon dioxide measures with the historical estimates. Additionally, we are not sure how much global

temperature rise might be associated with the projected carbon dioxide levels—that relationship is not established with 100% certainty.

Some climatologists suggest that a warmer earth might promote a general improvement in livability and open more land area to habitation. Others believe that an increase in carbon dioxide would benefit farming, producing a boon to food production to fill the world's coffers.

Some of the greatest uncertainty in the global warming situation is its climatic impact. It is difficult to know with certainty about the weather in the distant term. Dynamic models are very accurate up to 72 hours in advance. Some longer-range dynamic models can provide reasonable guidance about the weather to 10 days in advance. Statistical models can project general trends to about a year in advance, but their accuracy is at best good and often they are very wrong. Nobody understands this better than the forecasters who projected that the winter of 2007/2008 would be dry in Northern New Mexico. These time periods are a long way from the 50 or 100 year time horizons that are typically bantered about in news reports involving forecasts about global warming.

However, the data that exist are the only ones available and the best we have. While this author is not a catastrophist, it is probably sensible to conclude that environmental conditions and trends are such that prudent intervention is warranted. We simply cannot risk the future of the earth on the hopes that the data are wrong.

The last couple of sentences summarized my feelings based on the assumption that the data and information connecting human activity to global warming were essentially irrefutable, thus warranting a mammoth human restructuring. If there are quality data and theories to the contrary, I believe we ought to put them on the table, put the climate-change steamroller in low gear, and allow the real debate to begin.

Next Report: Late January, 2010.

Merry Christmas and Happy New Year.