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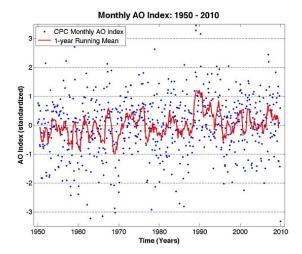
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January 4, 2010, 5:39 pm

Cold Arctic Pressure Pattern Nearly Off Chart

By ANDREW C. REVKIN



A big driver of the <u>outbreaks of record cold and snow</u> in many spots around the Northern Hemisphere is the little blue dot at the lower right-hand corner of the graph above, just above the year 2010. The chart (generated by <u>Ignatius Rigor</u> for Dot Earth) shows the state of the <u>Arctic Oscillation</u>, a pattern of atmospheric pressure that has two phases, positive and negative (somewhat like the more familiar <u>cycle of El Niño and La Niña</u> in the Pacific). A strong negative or positive condition can powerfully influence weather around the northern half of the globe and the behavior of sea ice on the Arctic Ocean.

The blue dot shows an extraordinary negative plunge of the index in December, taking it below any such reading since at least 1950. (I ran a preliminary version of the chart in a recent post on sea ice trends, but now it's been updated with the <u>full month's readings of atmospheric pressures</u>.)

The contribution of this pattern to current weather hasn't been highlighted much by most of those drawing attention to the chilly conditions of late, though. Instead, "Availability entrepreneurs" appear to be out in force, extracting all kinds of meanings or inferences from the frigid conditions. The head of the Beijing Meteorological Bureau asserted that global warming was behind unusual atmospheric patterns (a heap of climate scientists I queried saw no such link). Blogs of those variously called climate realists/skeptics/deniers are hammering on the chilly conditions, presumably in hopes of fending off a new push to close out the climate bill in the Senate.

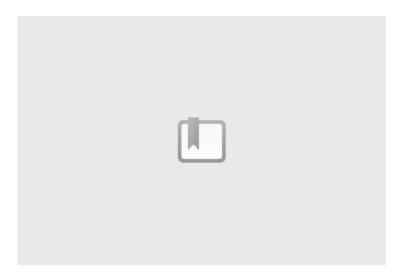
John Michael Wallace of the University of Washington, one of the climate scientists who first identified the seesaw patterns of pressure around the North Pole and northern mid-latitudes, told me that the steep drop at the

moment is likely to be transitory rather than a sign of a new trend in the Northern Hemisphere pressure cycle.

Overall, federal forecasters have said that the warming influence of a persistent El Niño warming of the tropical Pacific Ocean is likely to be a bigger driver of conditions through the full course of this winter. When it's freezing where you sit, it's hard to keep in mind that it may be <u>extraordinarily warm elsewhere</u>, as Joe Romm pointed out today.

Michelle L'Heureux, a meteorologist at the National Oceanic and Atmospheric Administration's Climate Prediction Center, told me there's simply no explanation for what drives such extremes in the Arctic Oscillation, which she described as both a potent driver of northern latitude conditions and one of the least predictable, and understood, patterns in the atmosphere.

Here's the earlier post that explains the relationship between the negative phase of the Arctic Oscillation and cold conditions over North America and western Europe — as well as sea ice on the Arctic Ocean:



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1.

HIGHLIGHT (what's this?)

Brian M.

Colorado

January 4th, 2010

5:02 pm

How is it possible for scientists to have "simply no explanation for what drives such extremes in the Arctic Oscillation", but at the same time have certainty that "the steep drop at the moment is likely to be transitory rather than a sign of a new trend in the Northern Hemisphere pressure cycle."

In other words: "We don't know how to explain this, so we're going to ignore it and stand behind our AGW models."

I would expect true scientists to say, "Wow, this is something we haven't accounted for in our models. I wonder how many other variables we've missed, and how big of an effect they have on seasonal cooling and warming."

Recommended by 19 Readers

e

Andy Revkin

Dot Earth blogger

January 4th, 2010

5:02 pm

I think it's pretty clear that the answer lies in the 1950-onward graph? Extreme variability but around a very consistent midpoint with a slight trend. Happy to be disabused of that idea, but sure looks self evident.

<u>2</u> .

coddington.morton

New Hampshire

January 4th, 2010

5:03 pm

- If it is a warm event, it must be climate, an omen of a hot future.
- If it is a cold event, let's bear any burden, or, save that, put up a 467 word article to explain why the cold is just weather.

If these words are not in the dogma, they should be.

Recommended by 17 Readers

<u>3</u>.

Mark

Dallas Tx

January 4th, 2010

5:03 pm

Has the one year running mean line been updated too?

Recommended by 0 Readers

4.

Billybob

Arkansas

January 4th, 2010

5:03 pm

I sure hope global warming is just left wing wishful thinking. It's a nice thing for socialists to think about because it gives them an excuse to control corporations, grow government ever larger, and try to socially engineer a more "enlightened" carbon free world. If global warming weren't real then it's so alluring to socialists that they would have certainly invented it. I sure hope this subsequent ten year period shows temperatures dropping. It's been theorized that the position of our continents makes a tropical globally warmed planet an impossibility and that we are just in an interglacial. We may just luck out on this one and perhaps become a little more humble in our faith based religions such as global warming.

Recommended by 5 Readers

<u>5</u> .

wmar

usa

January 4th, 2010

5:03 pm

Let me get this straight. No explanation for what drives the AO but as soon as the Arctic warms we are certain that it is because of AGW? So one way we know because the IPCC says so but offers no proof, the other way is a mystery, because it doesn't suit the agenda?

Kind of like the PDO, the AMO and to totality of the various solar effects. One way is a surety (the way the IPCC, et al prefers - keeps the billions flowing and the power centering and the statism increasing), the other way is a mystery.

AGW science is a curious thing, isn't it?

Wow!

Best Wishes

Recommended by 16 Readers

6.

Irritated

Oregon

January 4th, 2010

5:04 pm

This pressure pattern certainly isn't benefitting the Pacific NW. Our snow pack sucks. We had a temporary bout of clear cold weather and then wave after wave of tropical moisture with freezing levels in the ozone. Although our ski areas have opened, it's been touch and go, with snow 60-70 inches below normal. Last week it was 41 degrees at the 7000 ft level of Mt. Hood and while this isn't completely unprecedented, it seems like this is happening more and more often.

Recommended by 2 Readers

7.

Ochsucker

Times Square

January 4th, 2010

5:04 pm

Face value, if a low blue dot represents "cold weather", then the 60 year red-line trend indicates "hot-weather" is increasing. Is this the cause, or the effect, of global warming? Or does it just mean the big tilt is about to occur and we can all party-on.

Recommended by 0 Readers

8.

David B. Benson

Pullman

January 4th, 2010

5:04 pm

So its just random. Certainly looks that way to me.

Recommended by 1 Readers

9.

Mike M.

Comstock Park, Mi.

January 4th, 2010

5:08 pm

Let us remember that Anthony Watts always prefaces posts like that with the phrase "from the weather is not climate department." As for me, I cherish each new cold and snowfall record. It increases the gap between the way normal people feel about global warming and the way the Alarmists do. After all, the name of the game is not to solve the mysteries of global climate but to prevent them from doing harm with their insane legislative proposals. AGW is not the threat, it's the people who believe in it who are.

Why do you keep trolling theses same waters, Andy? How about a piece on the Singularity and how it might make the whole problem of world over-population moot? How about something about the Polywell fusion work?

believe in AGW

Recommended by 5 Readers

<u>10</u>.

Sere

NYC

January 4th, 2010

5:08 pm

Here's a big problem: when I look at various "charts" purporting to "measure" some aspect of "climate," I am *perpetually struck* at the almost *laughably small spans of time* from which we are supposed to draw some kind of conclusion. These 60 or 30 or 150 year blips are simply not very edifying if our goal is to use them for a quantitative theory about "climate," an intractably complex phenomenon which has been churning away, for, ahem, *considerably longer.*

This basic point is not a trivial point. Let's listen to a rare moment of sense from your quoted expert:

"Michelle L'Heureux, a meteorologist at the National Oceanic and Atmospheric Administration's Climate Prediction Center, told me **there's simply no explanation** for what drives such extremes in the Arctic Oscillation, which she described as both a potent driver of northern latitude conditions and **one of the least predictable, and understood, patterns in the atmosphere.**

Let me ask a question to my fellow philosophers of science. If Ms. L'Heureux's *appropriately modest statement* of the state of knowledge regarding this particular pattern is correct, how can anyone possibly lend the least credence to "climate models," which purport to give a predictive theory of the *entire climate,* something which is all-too-obviously far beyond the scope of our admittedly drastic ignorance?

I can only chuckle at the extremes of delusion that must accompany any attempts to reconcile our obvious and

basic ignorance with our magical ability to predict outcomes far into the future.

Really, the *arrogance and stupidity* I encounter in this discourse is *an outrage.* Recommended by 15 Readers

<u>11</u> TQ

Commonwealth of Virginia

January 4th, 2010

5:12 pm

Odd that none of the experts interviewed for this article mentioned the stratospheric warming event during late NOV and early DEC as the forcing for the current state of the AO.

These warmings weaken the cyclonic polar vortex such that the flow reverses allowing HIGH pressure to build over the north pole and form a blocking pattern that can persist for weeks. This allows arctic air masses to 'drain' from high latitudes into lower latitudes...conditions currently observed around the globe.

Recommended by 6 Readers



Andy Revkin

Dot Earth blogger January 4th, 2010

5:12 pm

Matthew Barlow of the Univ. of Massachusetts, Lowell, actually did touch on stratospheric conditions in an email related to this (you'll need to wade through some acronyms below):

I will note that the Jan-Mar AO has been roughly trending back downward over the last twenty years or so, along with a dynamically-consistent increase in antecedent Dec wave activity flux from the troposphere to the stratosphere, and a warming of Jan polar stratospheric temperatures. So I'm not too surprised to see a very low AO value. (Whether the last twenty years of JFM AO behavior are best described as a downward trend, a return to near-average conditions, or a decadal variation is up for discussion.)

Also in association with this downturn in the AO, JFM extratropical NH surface temperatures have actually decreased slightly over the last decade, in contrast to the continuing warming trend evident in all other seasons.

On a much more speculative note, this set of relationships suggests that the recent tendency for a cool late winter in the NH may, somewhat paradoxically, actually be the result of global warming (warming changes Eurasian surface conditions underlying the primary area of vertical wave flux in late fall; which, by way of the stratosphere, eventually influences the AO in winter; which influences NH winter surface temperatures).

All of this is discussed in Cohen et al. (2009):

Cohen, J., M. Barlow, and K. Saito, 2009: Decadal Fluctuations in Planetary Wave Forcing Modulate Global Warming in Late Boreal Winter. J. Climate, 22, 4418–4426.

(NB: The AO curve (green) in Fig. 2A has had its sign flipped, for ease of comparison.)

Cheers,

Matt

12.

Paul

Albany, NY January 4th, 2010

7:23 pm

As expected, the AGW-deniers are making a big fuss over this story. Bur looking at the chart, I notice that this "extreme" reading was nearly duplicated on a couple of occasions during the 1960s and 1970s. So it is not unprecedented, but appears to be rarer than it used to be.

And the "unknown" aspect relates only to this particular local polar phenomenon, not to the broader patterns of overall global warming.

Recommended Recommended by 1 Readers

13.

David B. Benson

Pullman

January 4th, 2010

7:23 pm

Climate requires at least 30 years of data, not just seasonal weather in particular regions. (Rather too warm for winter here, by the way.) Look at the general trend, hmmm?

Recommended by 1 Readers

14.

Tom M

Reno NV

January 4th, 2010

7:23 pm

Extremely cold weather anomalies are very much in keeping with climate change. Add more energy to the atmosphere and you get more extremes, especially with the jet stream. Think of how the jet stream circling the globe is a wave with ridges and troughs, corresponding to low and high pressure systems. When you hold a string on two ends and apply energy you can cause waves along the string - the more energy you apply the higher the amplitude of the waves. I think this is similar to what happens to the jet stream which means that cold air may occasionally plunge further south (a warm air further north).

Speaking of which, Alaska has been recently warm while the east 2/3rds of the lower 48 cold.

As for not explaining the pressure phenomena, there are many relatively local weather phenomena not well understood. Climate change models are off a much larger scale, both temporal and spatial, to include small phenomena like this. There's a difference in modeling long-term trends, which they've hit pretty well, and shorter-term weather as i a noticed last week when i shoveled 3 inches of partly cloudy from my driveway.

Recommended by 0 Readers

<u>15</u>.

<u>wmar</u>

usa

January 4th, 2010

7:23 pm

Andy ...

"I think it's pretty clear that the answer lies in the 1950-onward graph? Extreme variability but around a very consistent midpoint with a slight trend. Happy to be disabused of that idea, but sure looks self evident."

Please have another look at the graph, using the running mean, 1950 through the mid 1970's is down, the mid 1970's onwards is up, until now as it begins a hard dip.

Please if you will, have a look at the larger oscillations using those same time frames:

http://icecap.us...

What you will note is that the AO 'agrees' with the larger natural forces and cycles I have been discussing, all of which never 'obey' the carbon.

As no natural cycles show any evidence of following the rise in carbon, perhaps it is time for you to examine if you might be open to reconsidering your position as the data disabuses you from your view.

Best Wishes

Recommended by 2 Readers

<u>16</u>.

HCG

Cincinnati

January 4th, 2010

7:24 pm

Never fail to be amazed how quickly critics of AGW pontificate without doing any homework, as in the Cohen, Barlow and Saito piece that Andrew references. Ignorance is always blissful.

Recommended by 1 Readers

17.

Bob

NYC

January 4th, 2010

7:24 pm

#4 "I sure hope global warming is just left wing wishful thinking."

The way I see it, it shouldn't matter if the issue was helping the environment without having to destroy everything else to get there. Things like nuclear power that can replace filthy, poisonous coal, is a common sense item, you don't even have to worry whether AGW is true or not.

It becomes a Leftist tool when they try to use it to redo the country and the world. If an idea doesn't permanently screw up what took since the founding of our country to build, they don't like it.

And sending money to the Maldives and the rest of the third world. I don't understand that these Lefties can be so naive and arrogant to think that they can get support sending hundreds of billions that we don't even have, while the economy is hitting new lows.

Recommended by 1 Readers

18.

Brian M.

Colorado

January 4th, 2010

7:27 pm

Andy, regarding your reply to #1:

You and the scientists are assuming the rate will quickly return to "normal" based on what has happened in the past 60 years. In other words, you're using a past trend to predict the future.

I understand how it's easy to fall into that trap, but frankly it's a paradigm that has been proven wrong time after time. Whether it was the notion that the stock market would forever rise, housing prices would continually increase, banks would remain stable and solvent, the Colorado River would always deliver water to Lake Mead, the Soviets would forever amass nuclear weapons, terrorists wouldn't use planes as weapons, etc., etc.

Each time we assumed the trend would be the same as it had been in recent decades. And these were systems that are relatively simple, and semi-well understood. It's shocking that you're willing to do the same trend analysis with a topic that everyone agrees is a complete mystery.

This issue is a microcosm of one of the biggest problems we skeptics have with AGW theory--any complexity not understood is ignored in the models, and predictions boil down to simply continuing a trend line from the past 3-8 decades.

Surely we remember, "Look how much Enron stock increased last year--I'm going to buy some because it's got to

continue that trend!"

Recommended by 2 Readers

ê

Andy Revkin

Dot Earth blogger

January 4th, 2010

7:27 pm

Who said anything about "assuming" that the outlier was a temporary stray? Dr. Wallace said it was "likely" that the longstanding trend would endure, not that it's a sure thing.

19.

Brian M.

Colorado

January 4th, 2010

7:27 pm

Matt Barlow (#11.b) writes that "cool late winter in the NH may, somewhat paradoxically, actually be the result of global warming (warming changes Eurasian surface conditions underlying the primary area of vertical wave flux in late fall; which, by way of the stratosphere, eventually influences the AO in winter; which influences NH winter surface temperatures)."

And apparently misses the forest for the trees--if a seasonal, regional warming causes seasonal cooling in some other region--it's not "global" warming, is it?

In fact, it seems to indicate an amazing ability for the Earth's climate to adjust and stay stable. And further illustrates my contention that it's remarkably ridiculous to measure global temperature by averaging a couple hundred monthly temperatures (already themselves themselves from hour to day to month (and concentrated in the U.S. & Europe) to come up with The One Number That Rules Them All.

Recommend Recommended by 2 Readers

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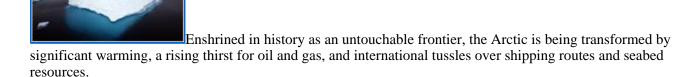
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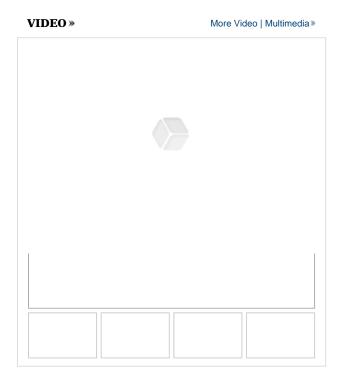
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