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Greener, Wetter, Better!

WCR has been the hotbed of good greenhouse news--the reduction in severe storms and related property damage, the likelihood of milder winters, and the greening of the planet from enhanced atmospheric carbon dioxide.

We also reported (WCR, Vol. 2, No. 13) that the United States has experienced an increase in wet conditions but that drought has not changed in the last hundred years. New evidence is now available on global precipitation, and the good news continues. Columbia University's Aiguo Dai and two colleagues developed a revised and updated global terrestrial precipitation dataset in which they corrected for rain-gauge errors, station moves, and so forth.

The record from 1900 to 1988 shows that global precipitation has remained stable over the last century (Figure 1). The wettest periods of the century were the 1950s and 1970s, and drier conditions prevailed during the first 20 years. When these data are subdivided by 20-degree wide latitude bands, the only region showing any detectable drying over the last 50 years is in the tropics north of the equator (from 0° to 20šN). Conversely, the bands north of 40šN show marked overall rainfall increases.

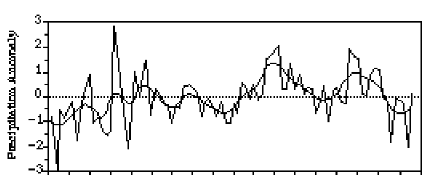

Figure 1. Global precipitation, 1900 to 1988.

In the more-good-news category, Dai and colleagues also examined the aerial extent of extreme wet and dry conditions (Figure 2). Globally, the total area of wet conditions has changed little over the past 100 years. Yet total drought area has declined precipitously since World War II; although drought increased again in the late 1980s, that level is still below values in the early 1900s.

May we remind you once again that it was NASA's James Hansen who in 1988 started this whole furor by claiming that global warming would cause increases in drought by now.

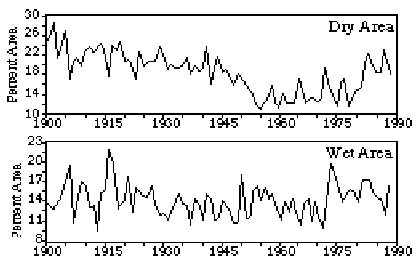

Figure 2. Overall, drought has declined over the past hundred years (top). Wet conditions (bottom) have remained relatively stable.

Dai also teamed up with Kevin Trenberth and Tom Karl, in an AMS meeting paper (see our feature story) in which they studied the relationship between--what else--the dreaded El Niño and the Palmer Drought Severity Index (PDSI). The authors statistically sorted the PDSI into its most likely global patterns from year to year and found that one, which explained 6 percent of total PDSI behavior (that's right, 94 percent remained unexplained!), was related to--ta da!--El Niño.

So now we can say that El Niño causes global-scale disturbances in drought and heavy rainfall, which is what the PDSI tries to measure. Call the newspaper!

WCR readers heard all this long before the current El Hypo started boiling anchovies off Peru (WCR, Vol. 2, No. 14). That analysis, in which we demonstrated that almost none of the variations in global rainfall is linked to El Niño in any predictable fashion, garnered us no end of grief from friend and foe alike. We're heartened to see that international El Niño expert Kevin Trenberth concurs with our analysis.

It's interesting that the correlation between this 6 percent of the PDSI and El Niño is 0.62. Not to belabor theory, but this means that .622, or 38, percent of the 6 percent of the total variation in the Drought Index is statistically related to this measure of El Niño. That's 38 percent times 6 percent, for a grand total of 2.3 percent of the total drought index changes over the last 100 years. Like we said, call the paper!

Reference:

Dai, A., et al., 1997, Surface observed global land precipitation variations during 1900-1988, *Journal of Climate*, **10**, 2943-2962.

Dai, A., et al., 1998, Recent large-scale changes in droughts and floods. 9th Symposium on Global Change Studies, American Meteorological Society, Phoenix, Ariz., 252-253.

What's Wrong with this Picture?

Nary a global warming news update airs that doesn't show smokestacks belching, hurricanes ravaging a "fragile" coastline, parched farmlands choking with dust.

But they've got it all wrong. Most of the stuff you see coming out of smokestacks is particulates (which cool the planet by reflecting away sunlight) and steam (carbon dioxide is invisible). There's no scientific case for more or stronger hurricanes. Drought remains unchanged.

Don't they know these things? Or maybe the press merely prefers to use visuals of what they think global warming *should* look like.

In 1997, we saw plenty of peer-reviewed evidence that midlatitude cyclones (the cold season storms that generate most of the snow, rain, and weather-related damage) have or will become weaker in a greenhouse world. For example, Schiesser and colleagues analyzed 100 years of wind data in Switzerland, concluding conditions have become less windy and storms fewer. Figure 1 shows both the number of winter days with winds greater than 39 mph and those with winds greater than 55 mph at Saentis, Switzerland, a mountain station 7,850 feet above sea level; it's the 55-mph winds that usually cause major structural damage. In both cases, there is a significant decline in the number of windy days when the 1962-1991 period is compared with 1901-1930. Schiesser suggests this could be a global warming signal. Indeed, you'd expect a weakening of the jet stream and a northward shift in storm tracks as the polar regions warm relative to the tropics (as climate models predict).

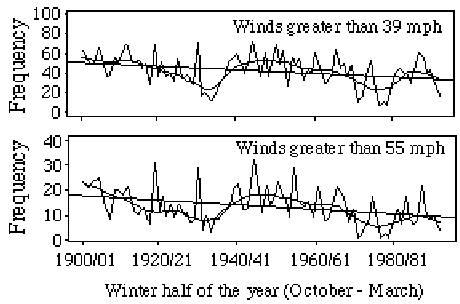

Figure 1. Number of observations during the cold season (October through March) with wids greater than 39 mph (top) and greater than 55 mph (bottom), Saentis, Switzerland.

So next time your local anchor pelts you with images of global warming apocalypse, just close your eyes and imagine a world with mild winters, gentle breezes, abundant plant life, and no carbon tax.

Reference:

Schiesser, H.H., et al., 1997, Winter storms in Switzerland north of the Alps, 1864/1865-1993/1994, *Theoretical and Applied Climatology*, **58**, 1-19.

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