

Rutland Herald

Article from www.rutlandherald.com Print.

<http://rutlandherald.com/article/20090118/ENVIRONMENT/901180350/>

Article published Jan 18, 2009

Winter reflections, one year on

It has been one year since my first Weekly Planet column in this section, so this is a good time for some reflection.

Like our human world, the weather and climate of this planet are full of unusual events, and our understanding is always incomplete. We can never generalize from a single year, and we tend to notice the extremes!

The northern ice cap didn't melt quite as much in 2008 as in 2007, but clearly it is a bellwether for our warming planet. In the Caribbean, there were five major hurricanes, including an unusually strong one in November – a week after the official end of hurricane season. Cuba was battered by many storms. Here in Vermont we had one of the wettest summers on record, with more than 20 inches of rain over much of the state. Rutland and Montpelier both set new summer rainfall records.

More recently, December brought alternating ice storms, deep snow and rain from a series of powerful storms at the boundaries between very cold air from the north and warm moist air from the oceans to the south and east. What a difference the rain-ice-snow boundary makes to our lives! If it is far south of us, we get light powdery snow, and the ski resorts smile. But if we are near the edge and rain falls from warmer air aloft into cooler air and onto frozen ground, then ice accumulates on roads and on trees until branches break under the weight – and our lives are made difficult. Since our electrical transmission is on above-ground poles, falling trees caused widespread loss of power in December. And now in January, the deep chill of winter is here.

Extremes of weather seem to be increasing as the climate warms, but the details are not yet fully clear. At our northern latitude, stronger temperature gradients from northwest to southeast produce more intense winter storms. In the transition from fall to winter when the sun is lowest in the sky, the land cools much faster than the ocean (the ocean stores much more heat from the summer). And as the climate warms, more water evaporates from the warmer ocean. This transfers extra heat from the ocean to fuel winter storms, when the water condenses in clouds and falls as rain or snow.

It has been a transformative year for the United States, but not at all as anticipated. The year was dominated first by election politics and a speculative bubble in the oil and commodity markets – and then by the financial crash.

The burning of fossil fuels has increased levels of carbon dioxide in the atmosphere by about 35 percent since the industrial revolution. Global emissions of CO₂ slowed in the 1990s but accelerated since then, along with the exuberant growth of global economies. In the United States, debt and leverage on many levels – along with fossil fuels – fueled consumer growth.

Many had argued from studying natural ecosystems that our economic model, based on limitless growth, was unsustainable and dangerous for the planet. But when the crash came in 2008, it didn't come from the collapse of the real economy of goods and services, nor from our dependence on fossil fuels. Instead it came from the unregulated shadow economy. Without information and oversight, we had let this virtual leveraged economy become so large and opaque that its inevitable collapse overwhelmed and paralyzed the banking and credit system. The government is now trying to borrow enough money to rescue the real economy. But it is improbable that a crisis created by borrowing too many trillions of dollars can be solved by borrowing trillions more. We hope that the new government will be willing to think through the consequences with more care.

In computer jargon, the system needs rebooting and we need a new sustainable operating system. This is our task for this winter, while it is snowing outside. Yes, we need to keep warm and consider where our food will come from this year. (Plan a vegetable garden, or support local farms and community-supported-agriculture projects.) But our larger task is to reconstruct a well-regulated, real economy that is less vulnerable to global speculation and in tune with the natural ecosystems of the Earth.

Computers are great for constructing virtual fantasy worlds and idealized models. But we must remember that we live in a real material world, subject to finite resources and real physical laws. We depend on the natural world for food, fresh water and renewable energy supplies – so it is critical that we try to understand the rules that govern the regulation of the natural world.

It is deeply ironic that right-wing economists and politicians criticized the science of global climate modeling by

claiming that the computer models are a poor approximation of the real world. Climate models are only approximate, but they are based on the physical laws governing the atmosphere and oceans. In contrast, the financial models that were the basis of our unregulated economic system contain many unjustified assumptions and much wishful thinking. The collapse of the financial system illustrates the folly of coupling a virtual fantasy world to our real economy.

The beauty of relocalization is that knowing our neighbors and producers, we can once again act responsibly towards each other and our world. The foolishness of our global economy, both real and shadow, is that we cannot see the consequences of our choices; so responsibility is lost. No amount of virtual wealth can compensate if actions become irresponsible, as in the past few years.

So take heart, put doctrine aside and ask if a proposal makes sense in the long term for your community and for the Earth. Every year brings a new dawn. Look for the light that shines through the darkness and reflects in the snow and ice of our winter. Will we care for the poor or bail out the rich? Will we create an economy – "right livelihood" — that employs people? Or will we again allow our wealth to be sucked away into the hands of speculators – in the name of a "free economy"? And will we be prepared for the spring that is coming?

Alan Betts is Vermont's leading climate scientist and the past president of the Vermont Academy of Science and Engineering. He lives in Pittsford and can be reached at akbetts@aol.com.

ON THE NET

Meteorological summer of 2008 : www.erh.noaa.gov/btv/climo/Summer08Rainfall.php

Local communities, global connections : www.relocalize.net/