

## Climate Psychology 101

- What's wrong with the IPCC approach.
  - Not making the case for nonscientists.
- *Trends (fire, flood, windstorm, drought, ice melt) are much easier to communicate to nonscientists.*
  - Not sudden enough and so have proven easy for the public to ignore.
  - But people are not very good at focusing on multiple causation and, when confused, they often decide *not to decide*.

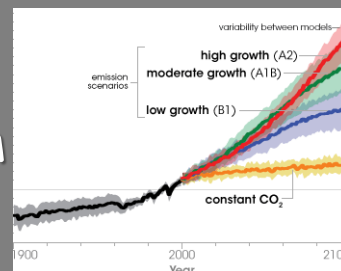
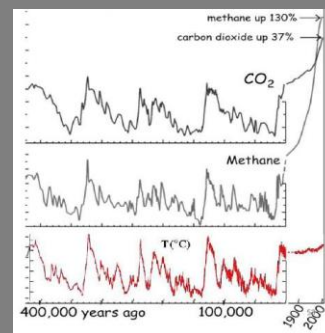
## Climate Psychology 101

- Which aspect of climate change can best serve to organize action because
  1. it is simple (cause and effect are obvious)
  2. it is sudden enough
  3. it has the necessary emotional resonance and dread
  4. and it points toward actions that would be effective at reversing the climate pathology?
- EXAMPLE: Burning off the Amazon.

The global warming story is usually told via our high-tech triumphs

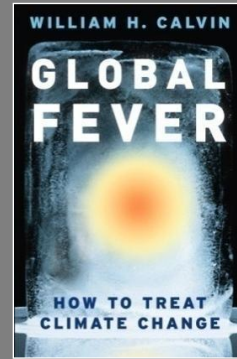
- *CO<sub>2</sub> levels*
- *temperature*
- *forecast models*

But I think this framing of the problem is a serious mistake.



Why is this a tactical mistake?

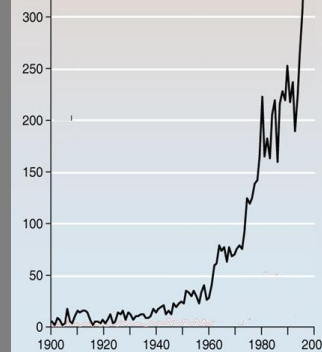
- People love to complain about the accuracy of **weather** forecasts and assume that **climate** forecasts deserve similar witticisms.
- The problem has been framed as “warming,” but the numbers seem small.
- But heat waves are going to be the least of our problems. This is **fever** and its fatal **complications**.
- It’s something we must *cure*, not just live with.



But we don't need a thermometer to see the large climate changes since 1950 in:

- High winds
- Major floods
- Wildfires
- Drought

Extreme weather events in a year (U.S. only)



Their trends *alone* make it clear that we will soon be in deep trouble unless we respond immediately.



113 mph gusts in northern Utah  
More high winds are  
predicted for  
global warming.

Utah I-15 wind 4/23/99 Credit: Marta Storwick/Standard-Examiner via Associated Press



Blown-over garbage truck, near Bill Gates' house in 1999

If wind speed increases 20%, from 50 mph to 60 mph, the damage goes up not 20% but 500%.

[6X insurance claims]

Something blown loose from one building may hit another building if it doesn't hit the ground first, giving a cascade of damage.

## Nonlinearity



## Heavy Weather

The heavens opened  
(US government photo)



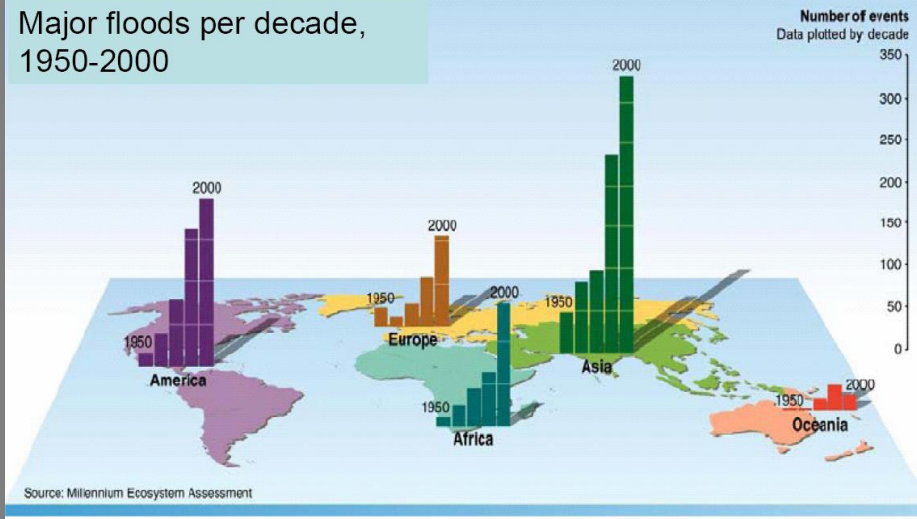
# Logged hillside collapse

Chehalis WA flood 2007



So it is a global climate change,  
not merely local trouble that moves around.

Major floods per decade,  
1950-2000



Floods have been increasing for 50 years.

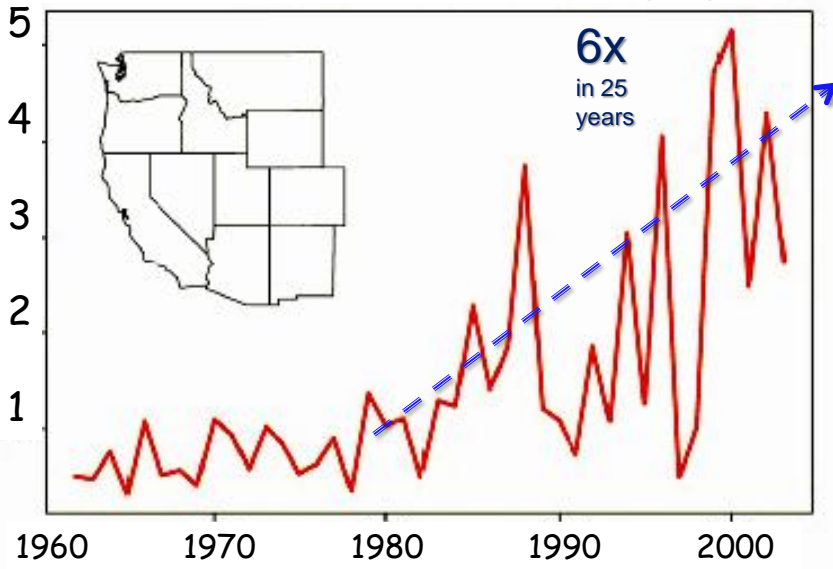
### Fire managers predict bad year for blazes

Sat May 10, 2008 2:37pm EDT



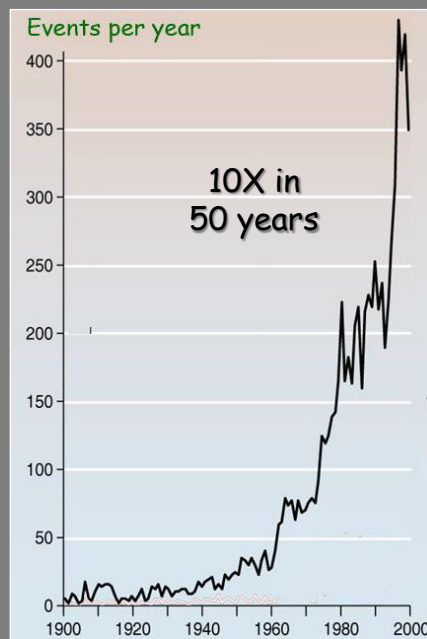
David S. Roberts, San Diego County 2007

### Wildfires in US West: millions of acres per year



## Harm is already occurring (continued)

Major wildfires by decade, 1950-2000



"All disasters" includes

- Drought\*
- Earthquake
- Heat waves\*
- Famine\*
- Flood\*
- Infestations\*
- Land slides\*
- Volcanic eruptions
- Storm surge\*
- Wild fires\*
- High winds\*

\* increased by  
global fever

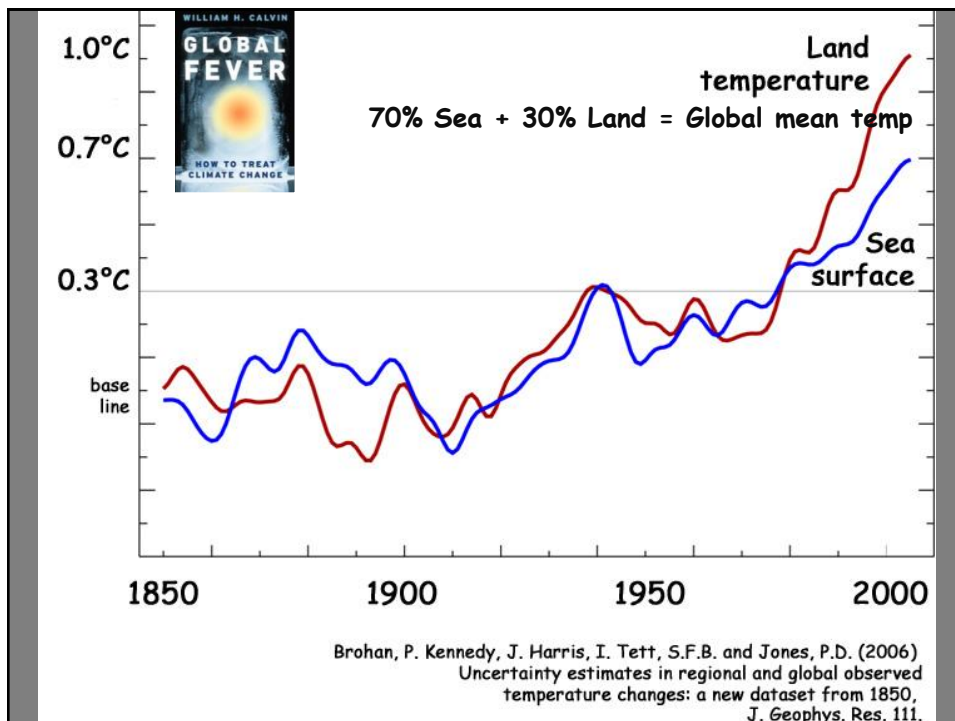
[http://en.wikipedia.org/wiki/Image:Trends\\_in\\_natural\\_disasters.jpg](http://en.wikipedia.org/wiki/Image:Trends_in_natural_disasters.jpg)

## *A half-century of global climate change*

1. High winds (up 40%)
2. Heavy weather floods (up 10x)
3. Wildfires (up 10x)
4. Drought (abrupt doubling in 1983)
5. Ice melting (Arctic sea ice down 40%, Greenland melt area up 67%)

*Those who aren't alarmed yet haven't been paying attention.*

(Some try to re-frame the issues so narrowly as to avoid mentioning those 5.)

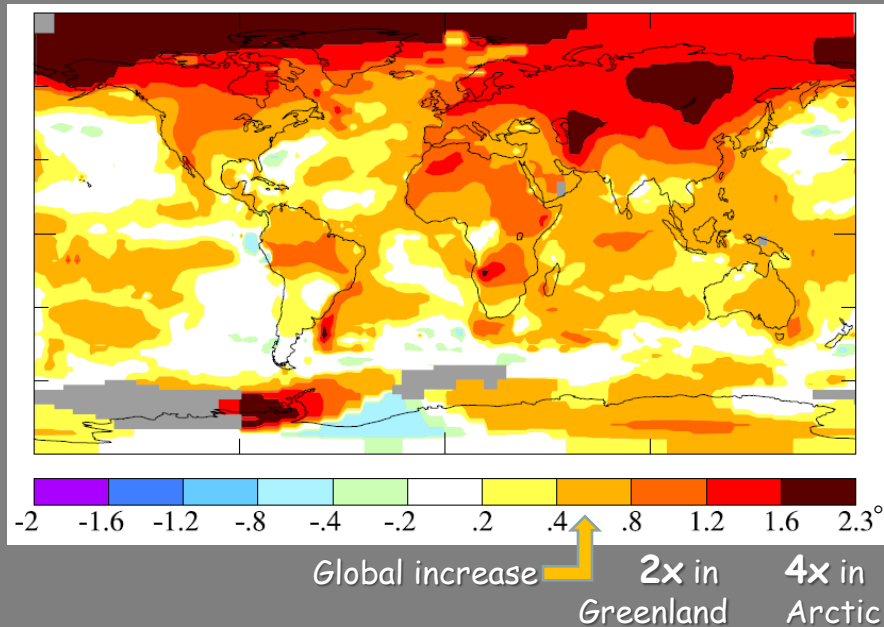


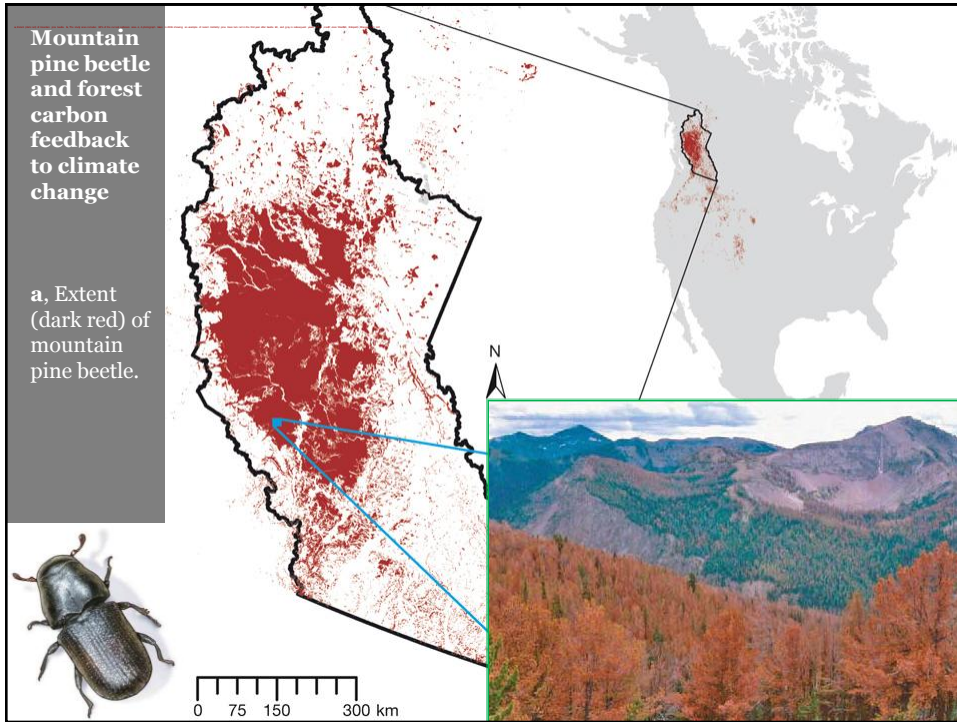
The 2003 heat wave in Europe  
killed 35,000 people.



Salvador Dalí *The Persistence of Memory*. 1931

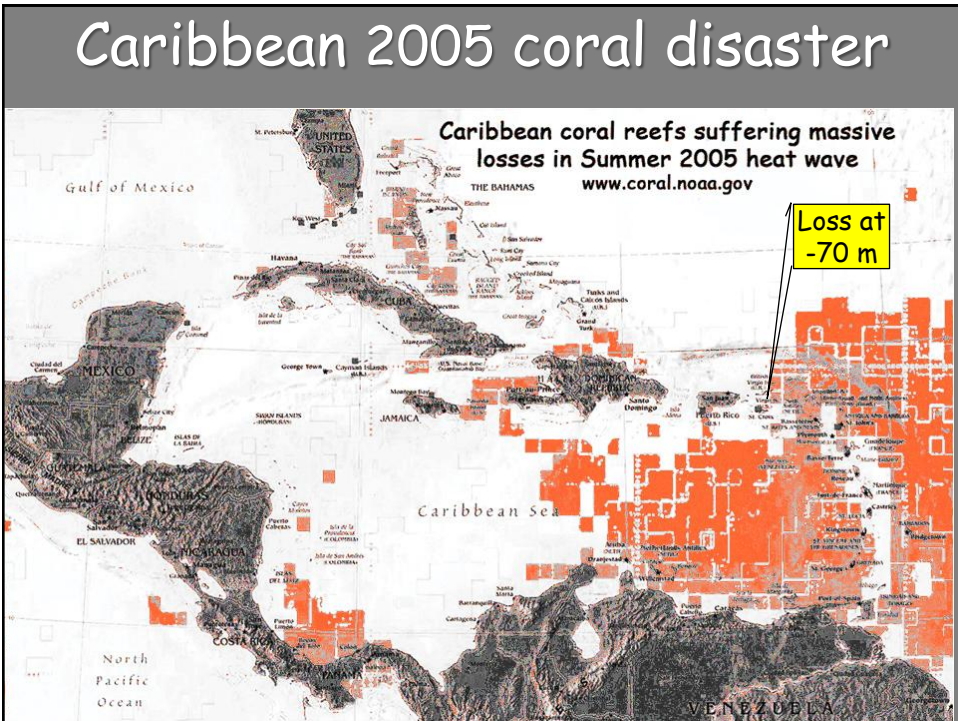
2001-2007 Mean Surface Temperature Increase ( $^{\circ}\text{C}$ )  
Base Period = 1951-80, Global mean rise =  $0.54^{\circ}\text{C}$





Heat waves also kill coral.



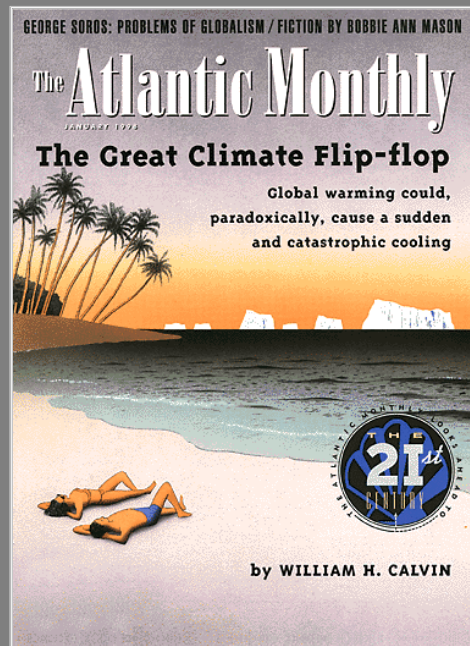


Since NOAA's last report in 2005, the Caribbean region has lost at least **50 percent of its corals**, largely because **sea temperatures have risen**, said Timothy Keeney, NOAA's deputy assistant secretary for oceans and atmosphere, and **25 percent of all marine species need coral reefs** to live and grow, while **40 percent of the fish caught commercially** use reefs to breed.



(NOAA press release, July 2008)

## Abrupt Changes in Climate



*The people who study the abrupt climate shifts of the past have an aphorism:*

Climate is like a drunk:

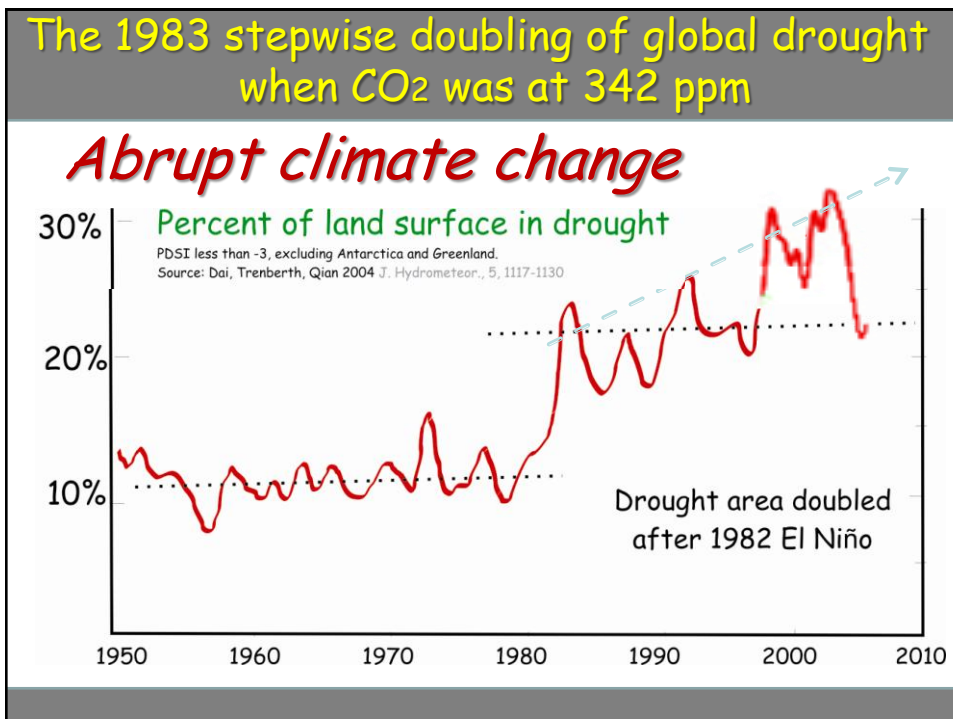
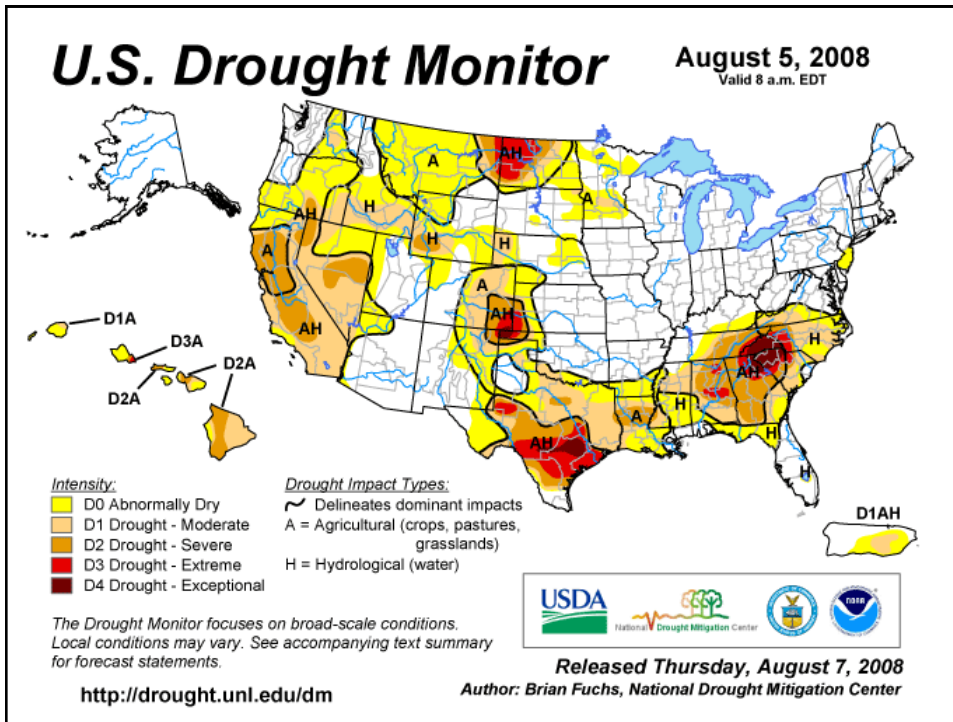
*Left alone, it sits.*

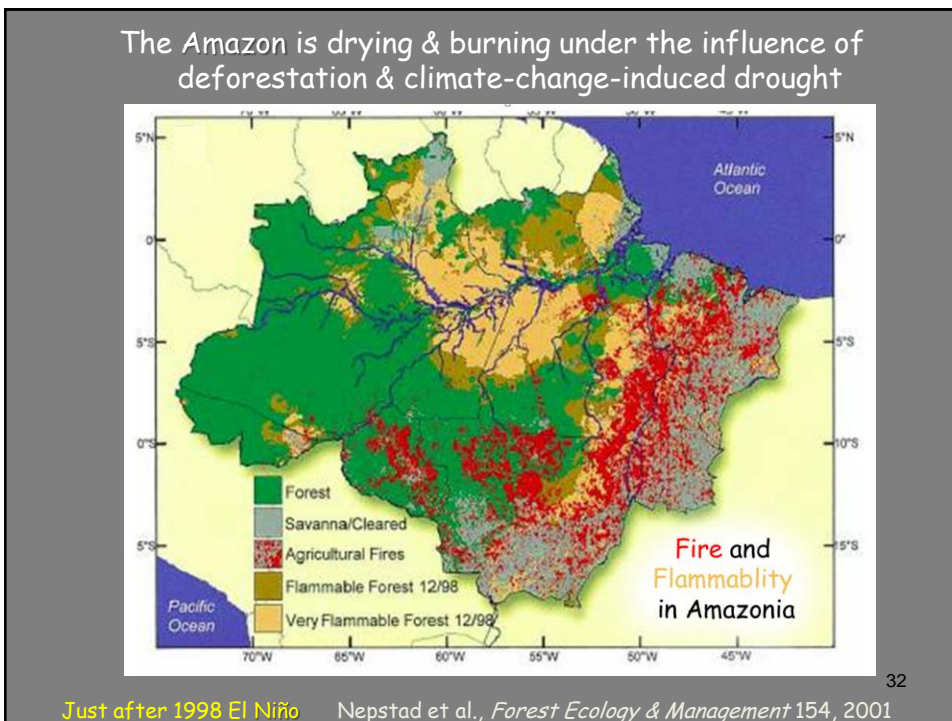
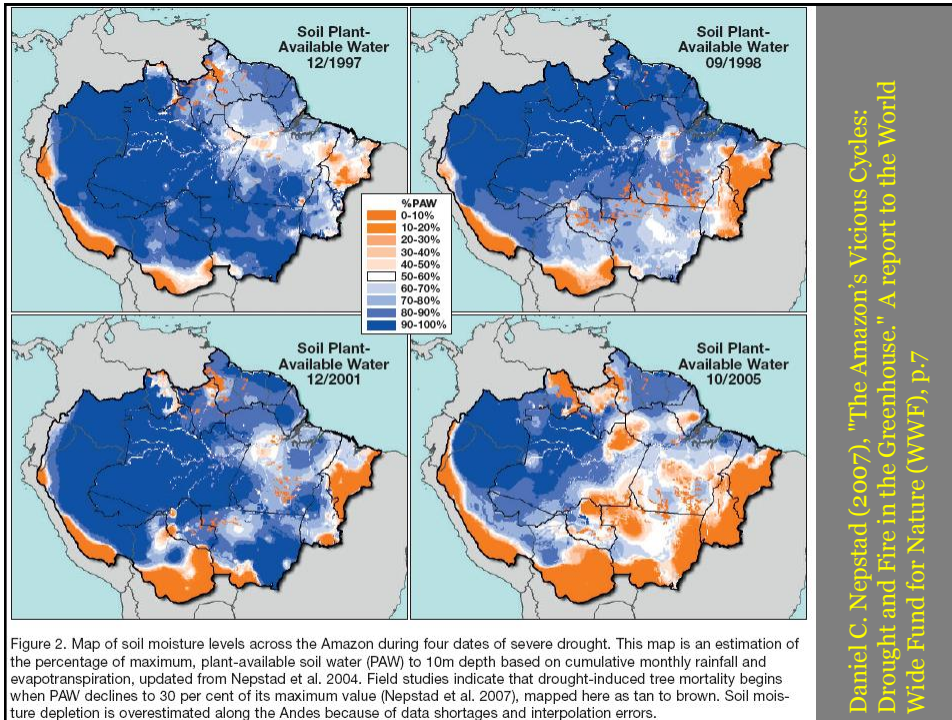
*Forced to move, it staggers.*

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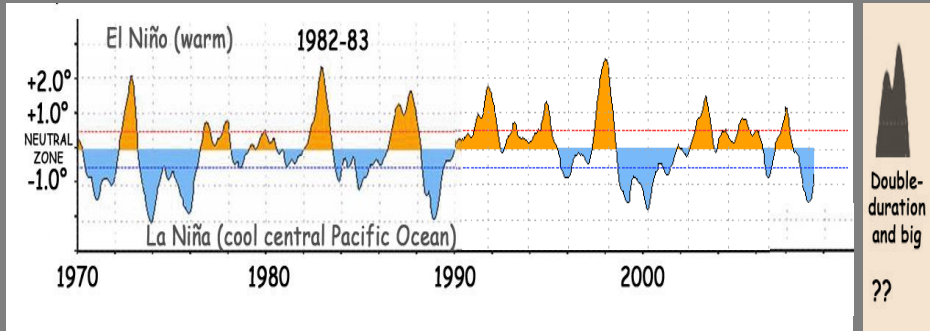
- The IPCC reports treat climate as if it moved in a stately manner like a tortoise.
- They all assume that the Hare conveniently takes a long nap.
- *That is not a safe assumption.*



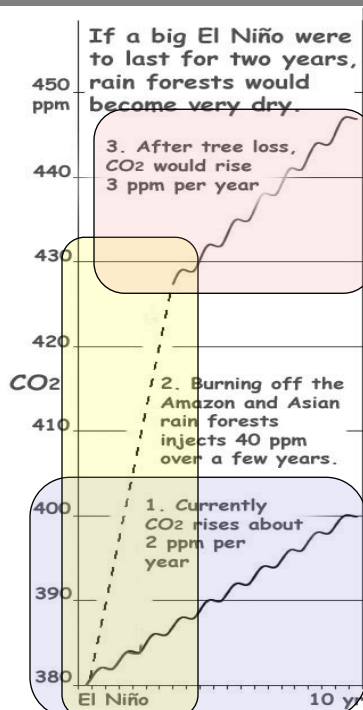




# How to rearrange atmospheric circulation in only a few months All it takes is a big El Niño.



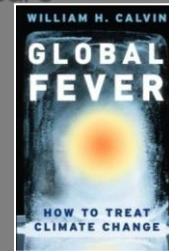
If a big one lasted two years instead of one....



## Burn locally, crash globally

On top of that, a 50% increase in the rate of CO<sub>2</sub> growth thereafter, due to loss of carbon sinks.

50% increase in excess CO<sub>2</sub> within a few years



We could lose our maneuvering room and go into a tailspin.



Matt Collins in *Scientific American* 2008

The Big Burn also causes a mass extinction event: *about half of all Amazon species will go extinct.*



Three of the six species of apes live in SE Asia forests.

Here, orangutan and siamang.



## The "Burn Locally, Crash Globally" Amazon Catastrophe

1. Could happen with the next El Niño
2. Affects everyone everywhere as CO<sub>2</sub> excess jumps 50% in a few years.
3. Mass extinction with poster pictures
4. Dread of becoming helpless.



CREDIT: IVO VAN DER ENT

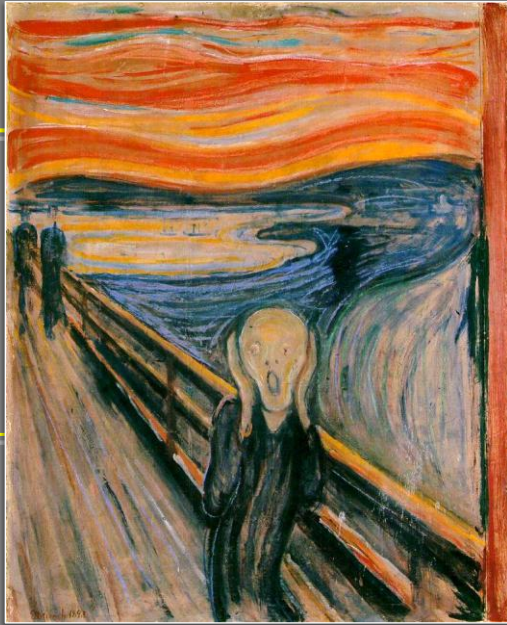
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# The End

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My books and talks  
may be found at:

*WilliamCalvin.org*



Edvard Munch, *The Scream*  
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