
What Makes Good Climates Go Bad? ... and ... “Why Care?”

Michael Glantz, NCAR, CCB

USAEE/IAEE, Colorado, Sept 19, 2005

www.ccb.ucar.edu

www.fragileecologies.com

Where I stand on climate

- **I am not a climate reductionist**
 - **Climate information has value**
 - **Societies influence climate**
 - **Demographic changes influence climate impacts**
-

Where I stand on global warming

- **Hawks**

- **Doves**

- **Owls**

Ostriches

21st Century

TIME

Could the
21st Century
Become
"The Climate Century"

?

What affects climate?

■ **Natural Factors**

- ❑ Solar activity, earth's orbit, volcanoes, topography, geography, El Nino, etc.

■ **Societal Factors**

- ❑ Economic development
 - ❑ **GHG emissions, tropical deforestation, land-use**
 - ❑ **Increased pressure on marginal lands**

Perceived climate types

- **Good**
- **Bad**
- **Tolerable**
- **Changing**

Perceptions rule the day

Perceptions of Climate Processes

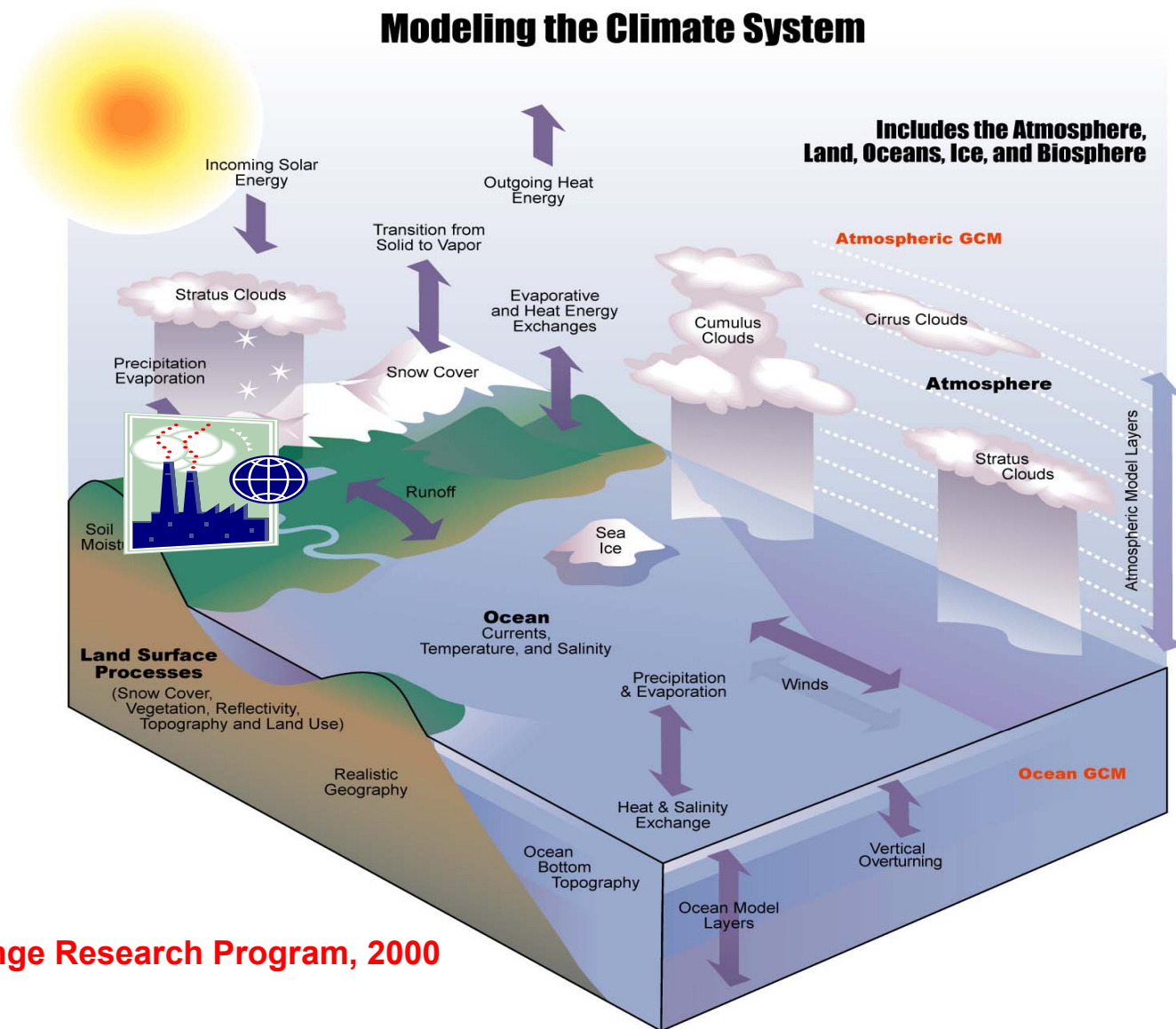
- Climate as a hazard
- Climate as a constraint
- Climate as a resource

Every society exhibits is a mix of all three, but proportions vary.

How scientists see climate (as data)

- **Climate variability**
 - **Climate change**
 - **Deep climate change**
 - **Extreme meteorological events**
 - **Seasonality**
-

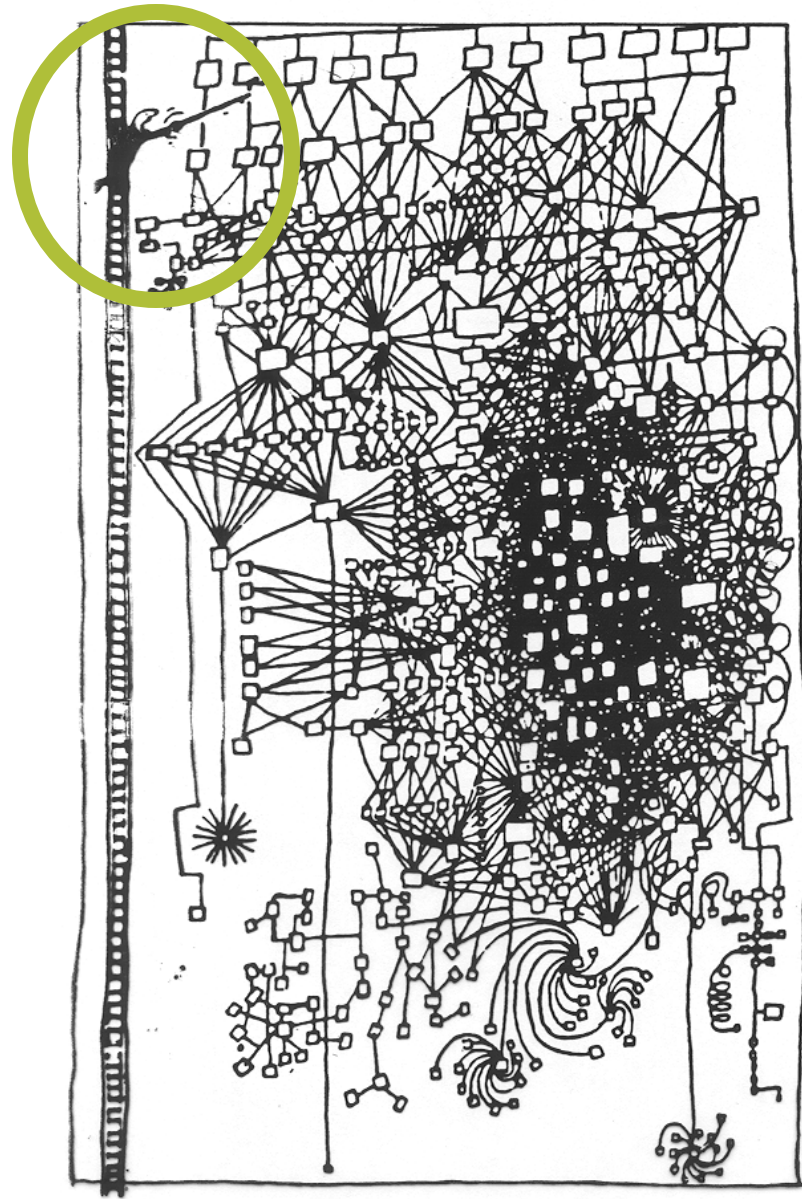
How scientists see the climate system



US Global Change Research Program, 2000

Climate Science

- Understand the climate system
- Understand its components
- Society is now a component



Society sees climate through extremes & impacts

- **Droughts, Floods, Fires, Famines**
 - **Infectious disease outbreaks**
 - **Severe storms (tornadoes & winter)**
 - **Hurricanes, typhoons, cyclones**
-

Climate has a ‘bright’ side

- ❑ **Most people have access to food and water**
 - ❑ **Climate is “tolerable” in most places**
 - ❑ **Societies have developed ways to cope**
-

Climate as a Resource

185,460 readers a week

The Big Rural Weekly

THE LAND

lo. 3888

Phone (02) 4570 4444

116 pages plus Country Life

Thursday, OCTOBER 9, 1997

\$2.30

THE GREAT WOOL TAX DEBATE, p7

Cattle prices look good for 1998, p6

Boggabilla's dressage 'wonder' Country Life

'\$1 BILLION RAINS'



Another soaking for El Nino

By ALAN DICK

GOOD rains this week have given a \$1 billion boost to farmers in NSW, but in some cases have caused grain prices to soften.

The \$1 billion figure is a "guesstimate" from the office of NSW Agriculture Minister, Richard Amery, and is based on the overall impact on winter cereal yields, pasture growth and summer crop planting prospects. Mr Amery said rainfall between 30 and 50 millimetres over the grain belt



Bradford family

Climate also has a 'dark' side

- **Climate and weather reports are often negative**
 - **Doom and gloom**
 - **Death, destruction, misery**
 - **Climate reports focus on uncertainties**
 - **Forecasts are imperfect**
 - **And ... Global warming is on the horizon**
-

Hurricane Mitch refugees (Oct.-Nov. 1998)

LATIN AMERICA

By TIM MCGIRK

FLOODED OUT OF HER HONDURAN HOME in October 1998 by fearsome Hurricane Mitch, Marita Fonseca and her six children have been living ever since in the El Trebol refugee camp on a bulldozed hilltop in Tegucigalpa, between two highway off-ramps. Garbage fires smolder in

ENVIRONMENTAL REFUGEES

Millions of Latin Americans are being displaced, not by poverty or civil strife, but by the devastating effects of nature. The numbers will keep growing



Photograph by Paul Howell—Liaison

WAKE-UP CALL
Hurricane Mitch displaced some 1.2 million people, like these in Nicaragua

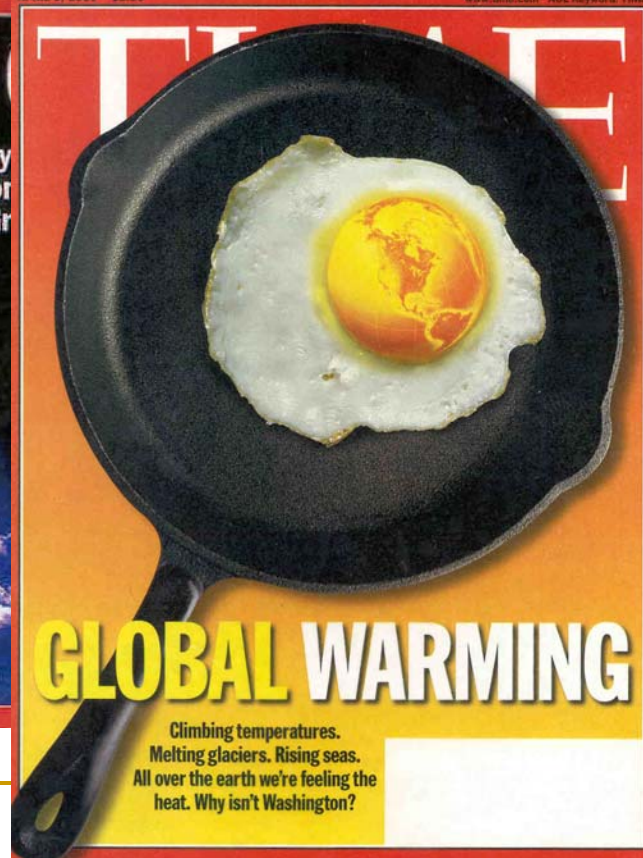


Hurricane Katrina

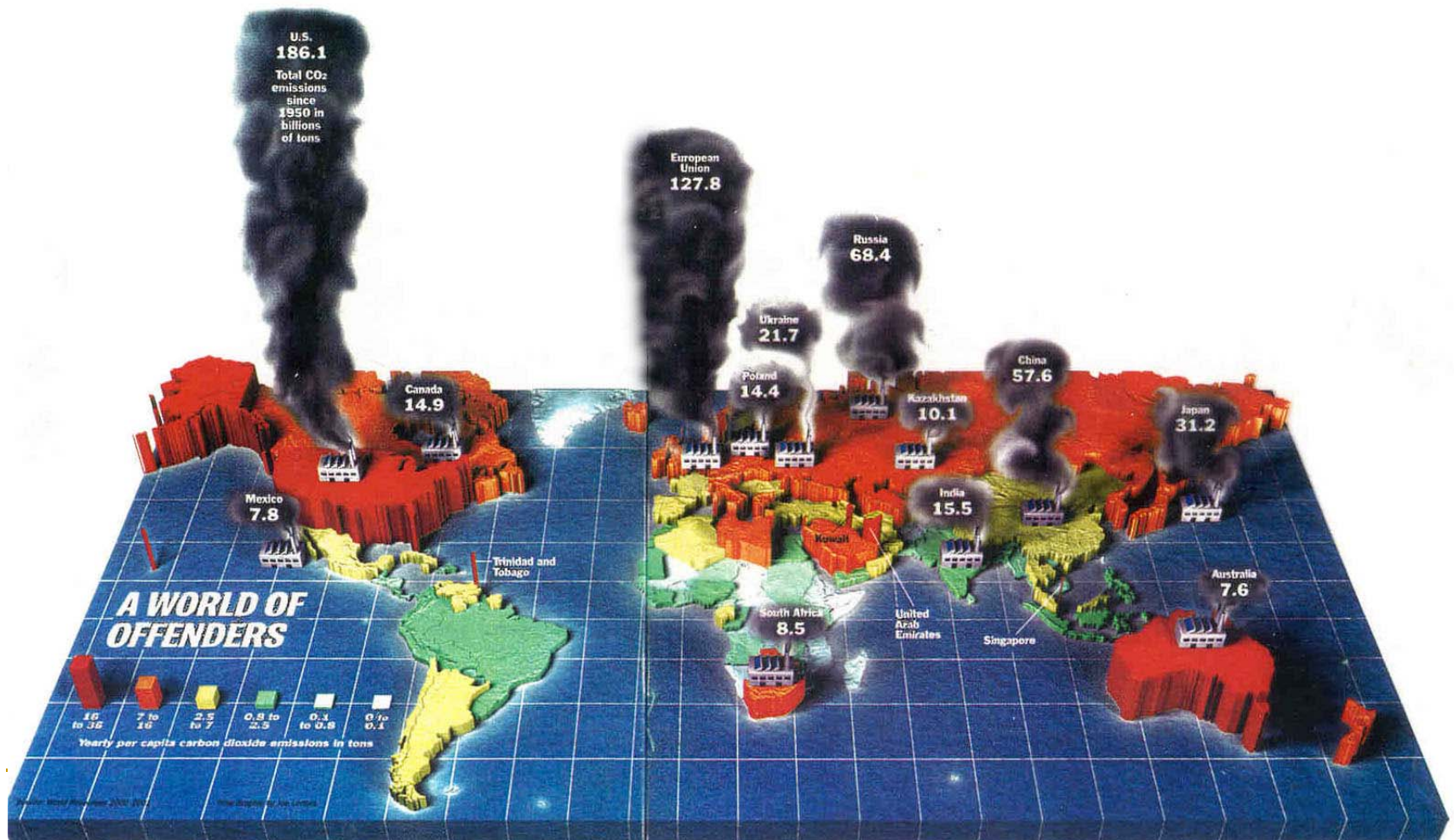
Refugees crowd the Ernest Morial Convention Center. August 31, 2005

Staff photo by Ted Jackson

Growing Concern About ... Global Warming and the Weather



Where CO₂ emissions come from (total emissions since 1950 billions of tons)



“Is Global Warming Fueling Katrina?” (TIME)

Aug. 29, '05

- “**Warm ocean currents** are a **key ingredient** for monster hurricanes”
 - “Some scientists believe that global warming is **exacerbating our storm troubles**”
 - “As mean temperatures rise worldwide, it’s **hard not to make a connection** between the two”
-

How society copes with climate

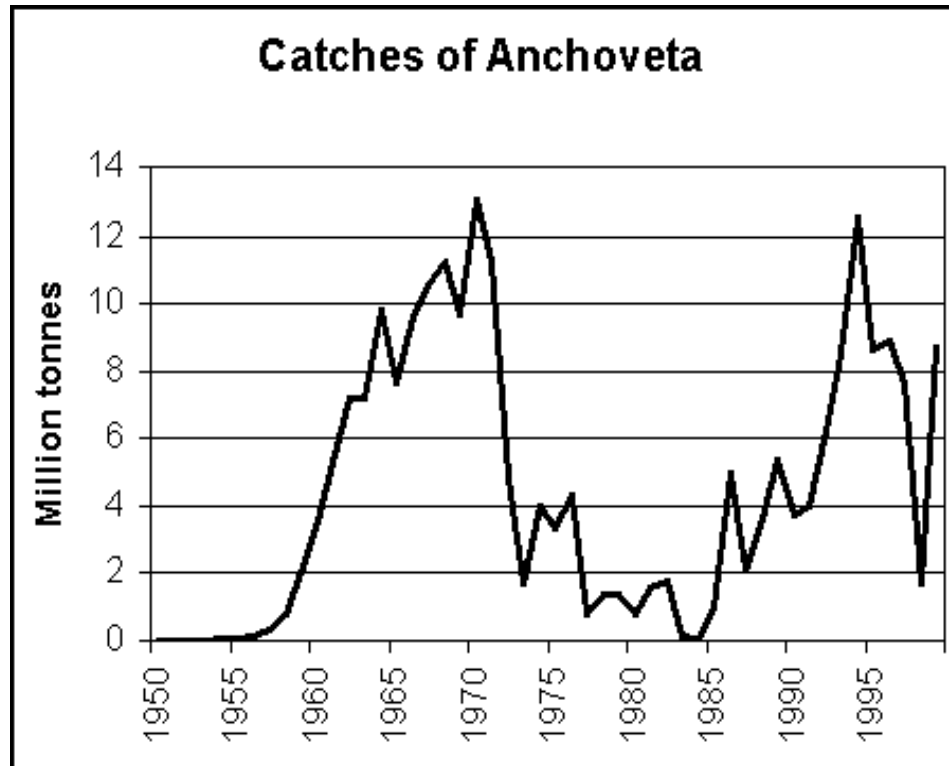
- Science & Education
 - Heat & Cooling
 - Irrigation & Reservoirs
 - Trade
 - Medicine
 - Folk wisdom
 - Clever use of the natural environment
-
- Concepts (as social inventions)
 - Comparative advantage
 - Global change
-

The Challenge:

Riding Variability Curves

- The benefits or losses are determined by how well we 'ride' the variability curve.
- A perfect forecast would allow attentive people to... prepare

Peruvian anchovy fish landings



To many boats exploiting a stressed standing fish stock

With better fisheries management would the curve have been different?

News about El Nino from NASA's JPL

Satellite image shows La Niña weakening
January 27, 1999



La Niña hangs on
March 10, 1999



La Niña begins to fade
April 22, 1999



Entire Pacific is out of whack
May 27, 1999



La Niña barely has a pulse
June 29, 1999



La Niña conditions likely to prevail
October 20, 1999



Mild La Niña conditions developing
November 29, 1999



La Niña's persistence may be part of larger climate pattern
January 18, 2000



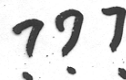
La Niña -- still a "cool" problem child
March 23, 2000



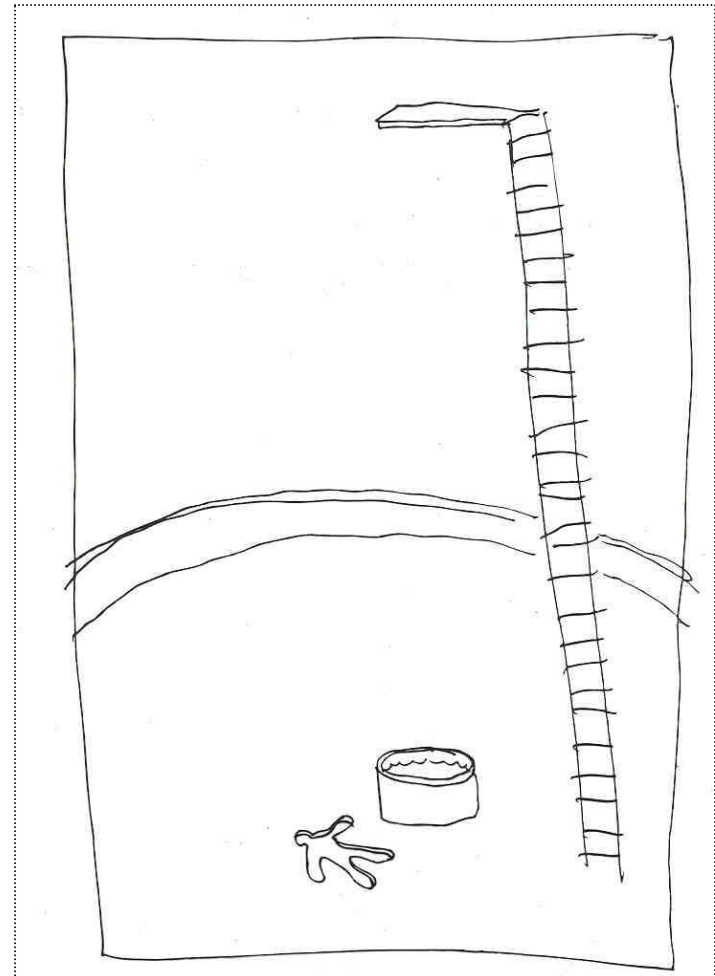
Strong, Long-lasting La Niña just fading away
June 19, 2000



Los Ninos may be gone, but Pacific pattern remains
August 29, 2000

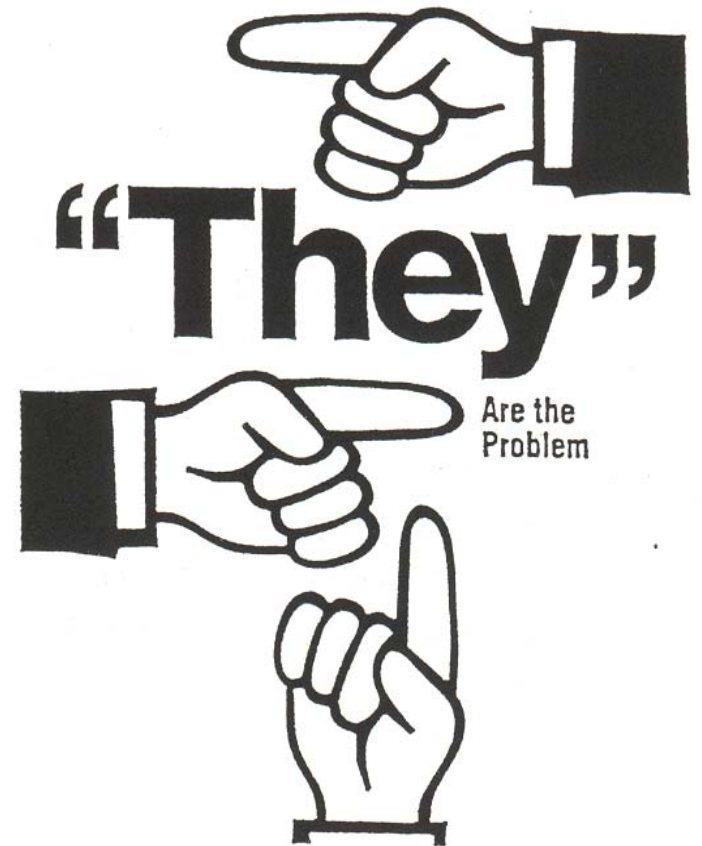


¿What in the heck is going on?



Attributing responsibility in disasters

A new role for climate..
as a scapegoat
for societal problems



Nobody wants to take the blame!

Late Lessons, Early Warnings

- It's not enough to identify lessons
- We need to apply the lessons we've identified
- We need to remove obstacles to using lessons (**“if it ain't broke, don't fix it”**)
- Study lessons learned elsewhere
- **Render unto society ...**

**Climate Knowledge is power.
Sharing climate knowledge
is empowering !!**
