

Living in the Path of Danger ... by Choice or by Chance?

AP Human Geography

1) If you could live any place in the United States other than the place you currently live, where would it be and why? Identify your top 3 choices.



AP Human Geography

II. Population

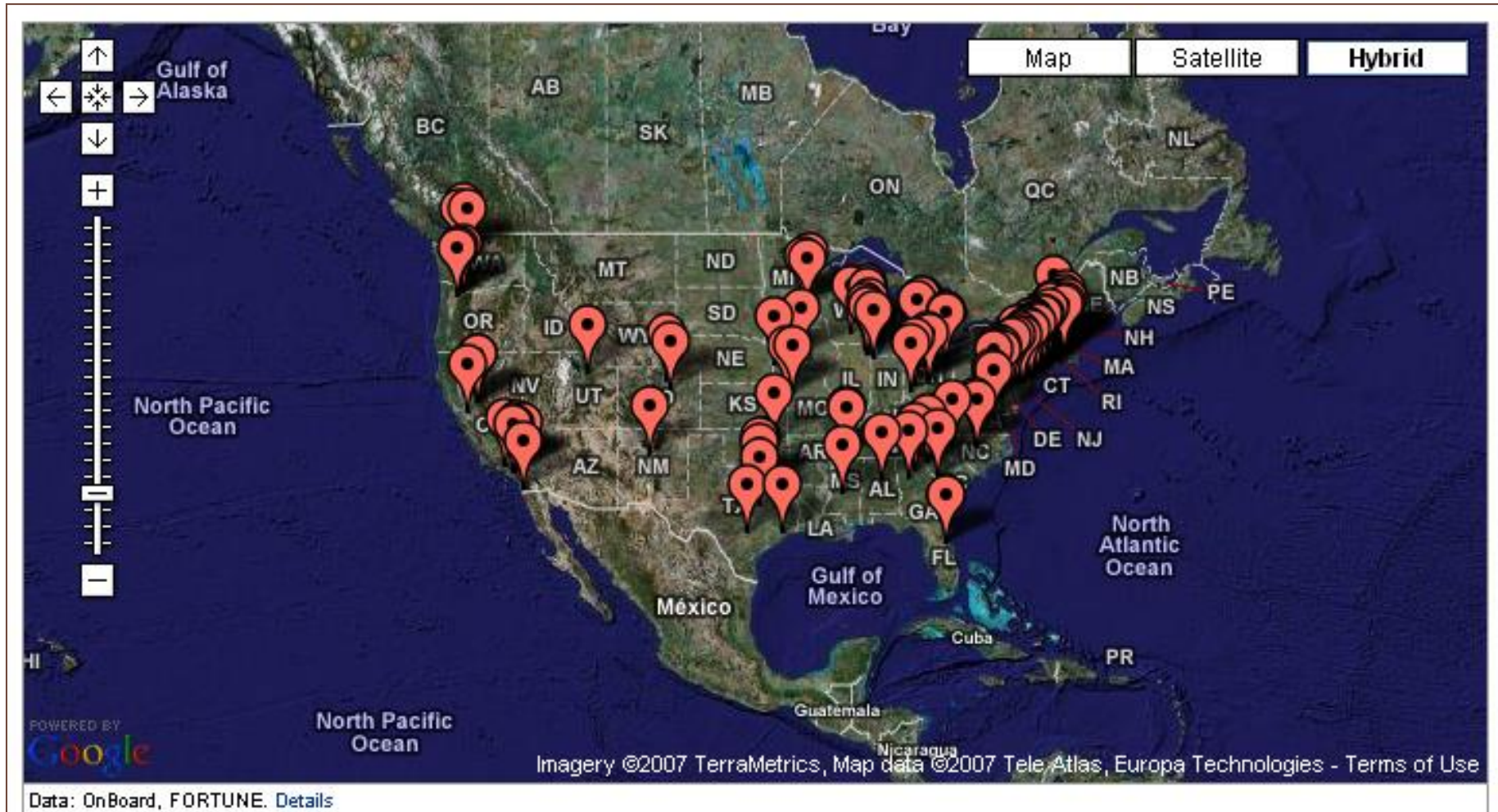
A. Geographical analysis of population

1. Density, distribution, and scale
2. Consequences of various densities and distributions
3. Patterns of composition: age, sex, race, and ethnicity
4. Population and natural hazards: past, present, and future

Best Places to Live – 2007 – Money Magazine

2) What makes these the best places to live?

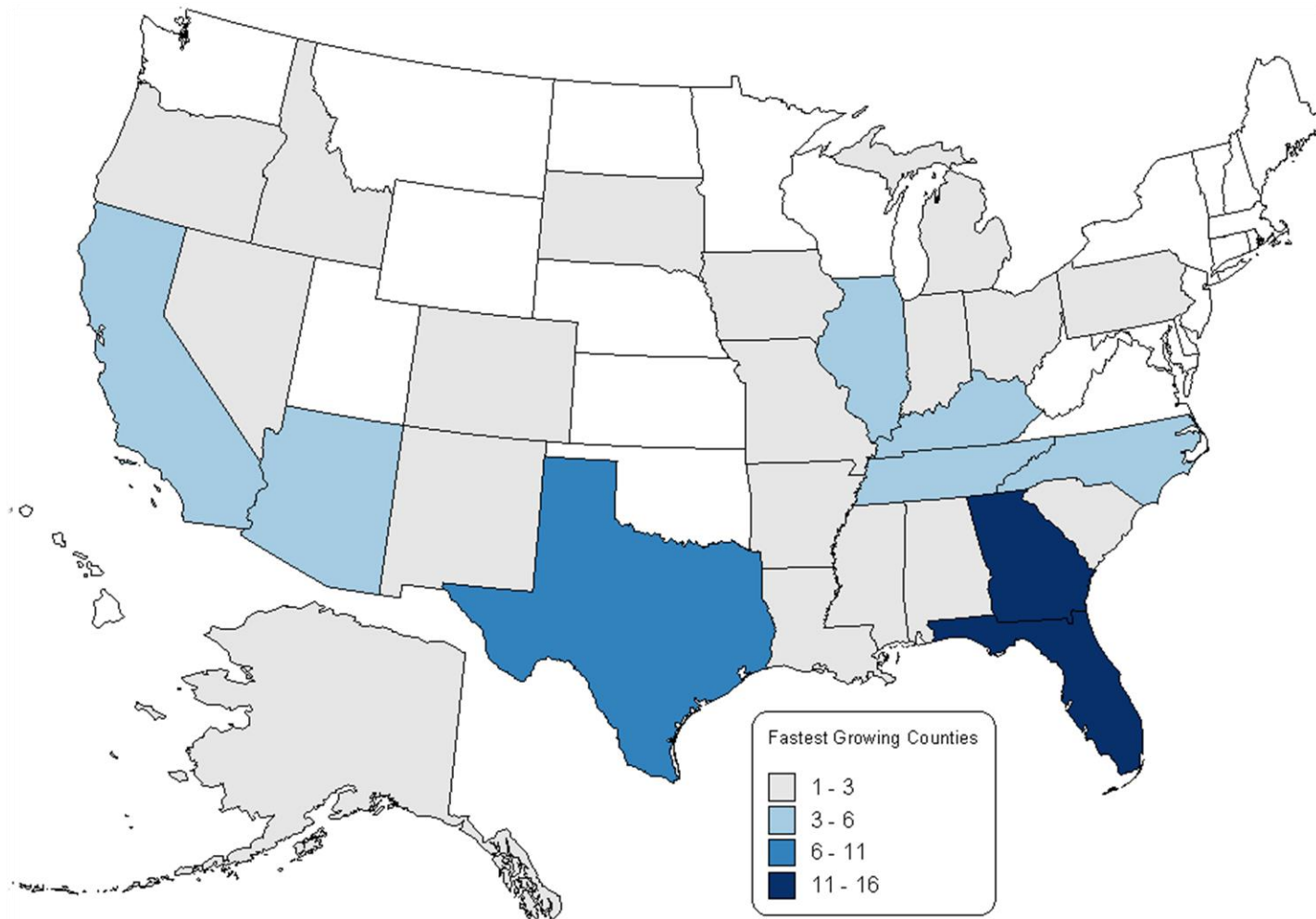
- economic opportunity, good schools, safe streets, things to do and a sense of community



Source: <http://money.cnn.com/magazines/moneymag/bplive/2007/top100/>

States with Fastest Growing Counties

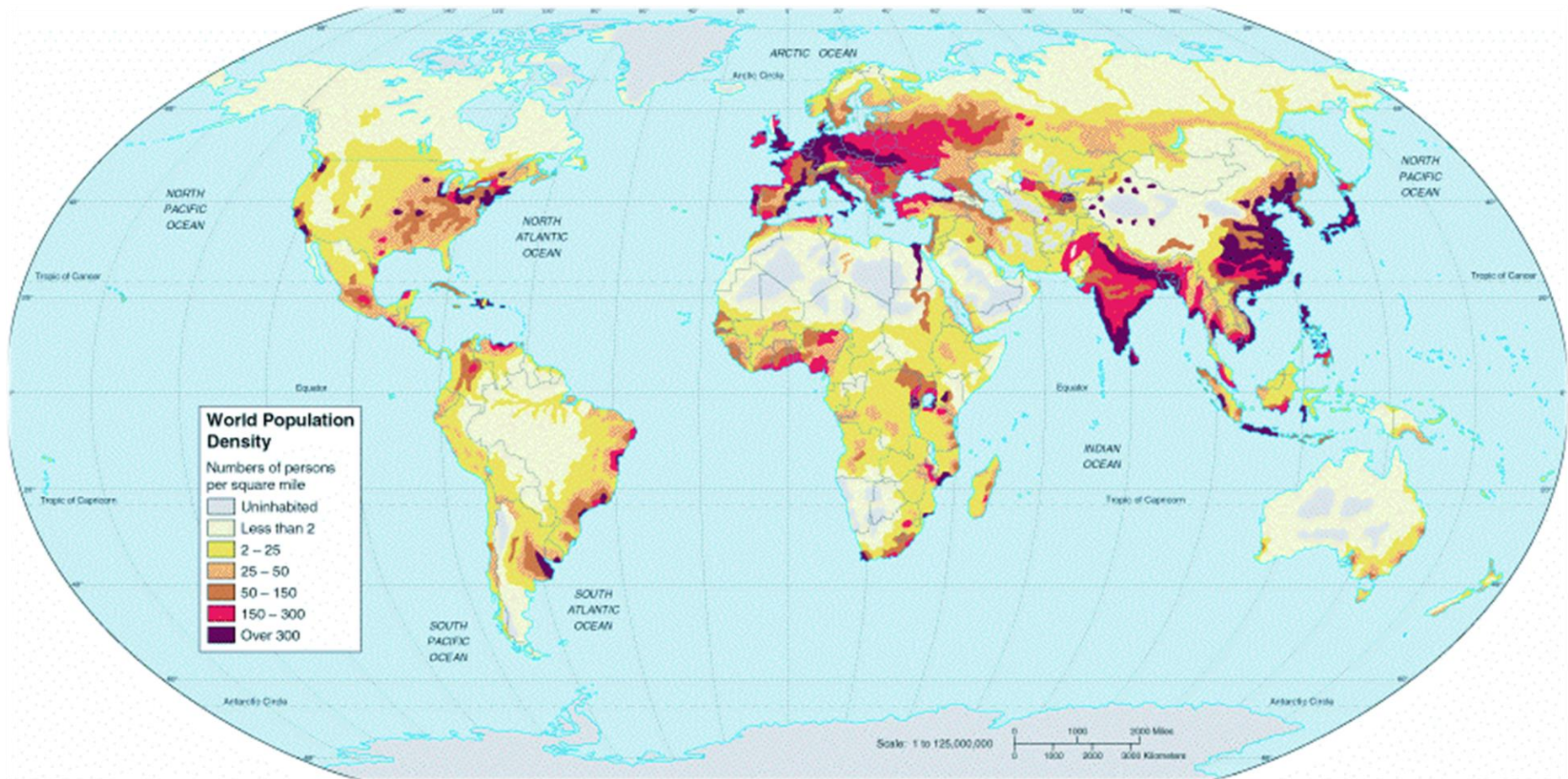
July 1, 2004 – July 1, 2005



Source: US Census Bureau

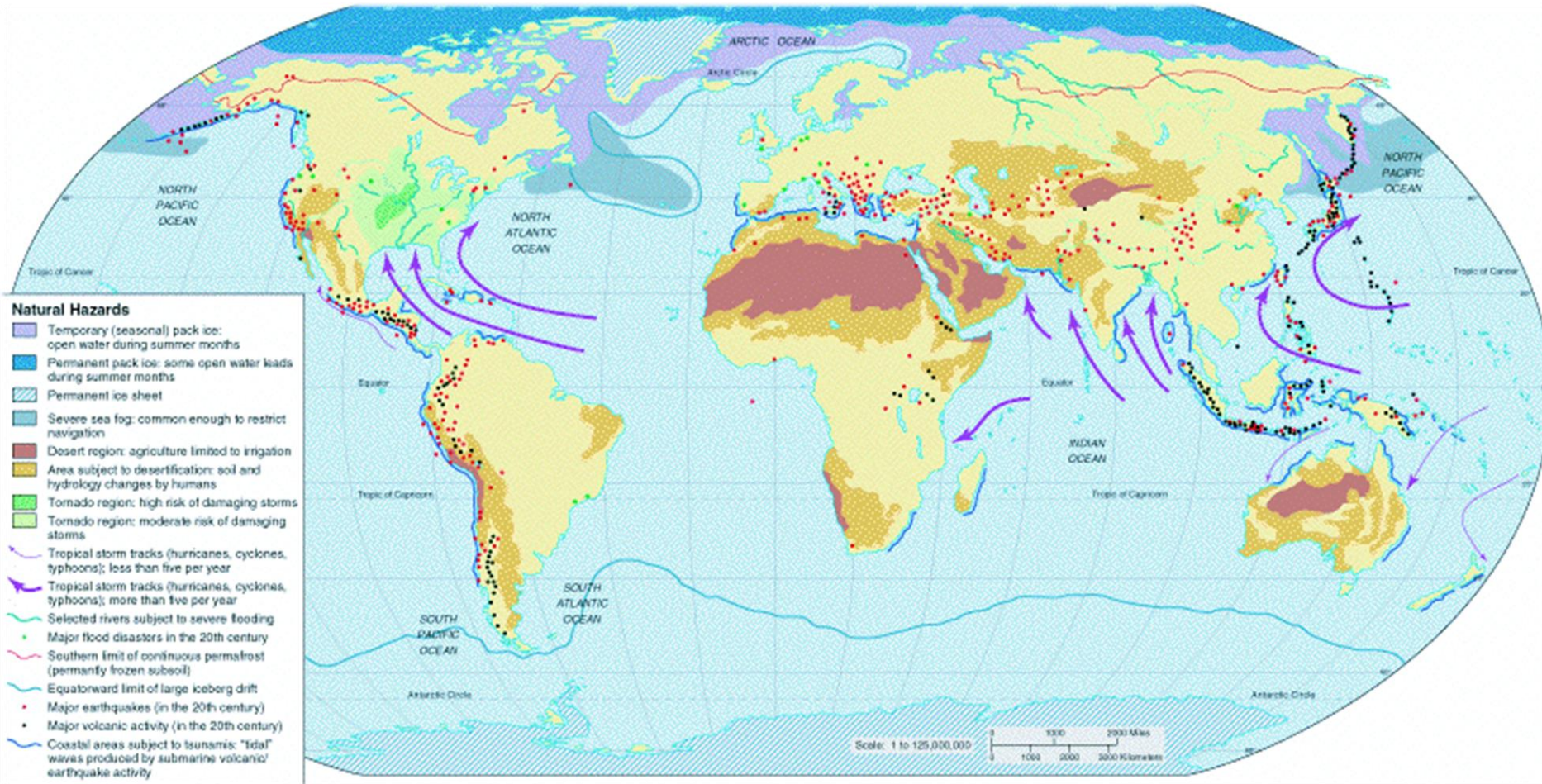
Based on 100 fastest growing counties (% increase)

World Population Density



World Natural Hazards

Red dots-Earthquake Activity; Black dots-Volcanic Activity; Purple arrows-Tropical storms;
Red/Orange shade-drought areas; Green shade-tornado zones; Blue lines-Tsunami, Light Blue line-
River flooding



Some Basic Facts

- Approximately 20% of Earth's land surface is exposed to at least one natural hazard
- 160 countries have >25% of their population in areas of high mortality risk from one or more hazards
- More than 90 countries have >10% of their population in areas of high mortality risk from two or more hazards
- In 35 countries, more than 1 in 20 residents lives at relatively high mortality risk from 3 or more hazards
- > 90% of the populations in Bangladesh, Nepal the Dominican Republic, Burundi, Haiti, Taiwan, Malawi, El Salvador, and Honduras live in areas at high relative risk of death from two or more hazards.

Natural Hazards Cause Human Misery



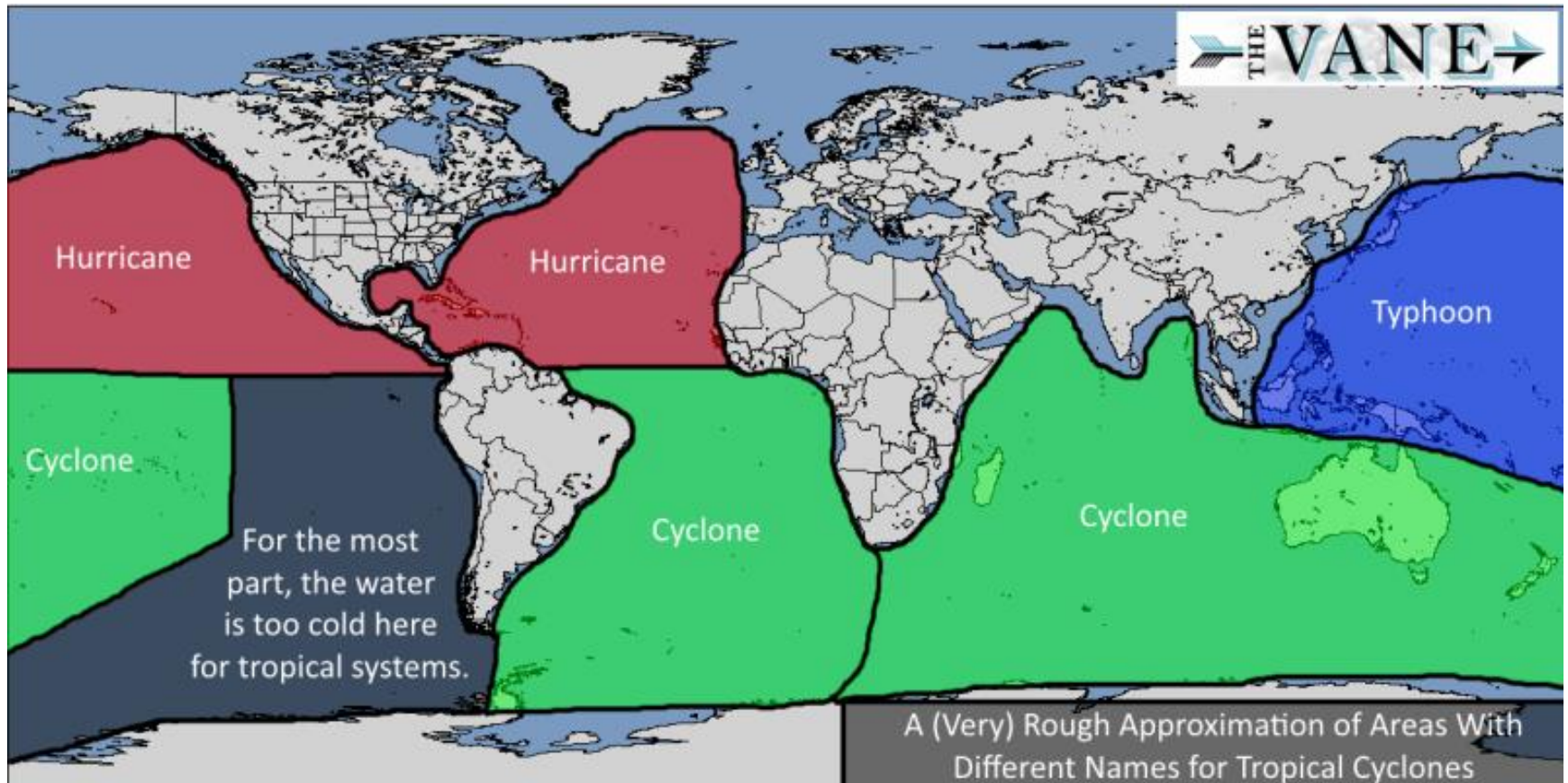
Most Deadly Natural Hazards

Four natural hazard types are responsible for 94 percent of all deaths triggered by natural disaster

- tropical hurricanes, cyclones, typhoons
- earthquakes
- floods
- droughts

In the last two decades, more than 1.5 million people have been killed by natural disasters.

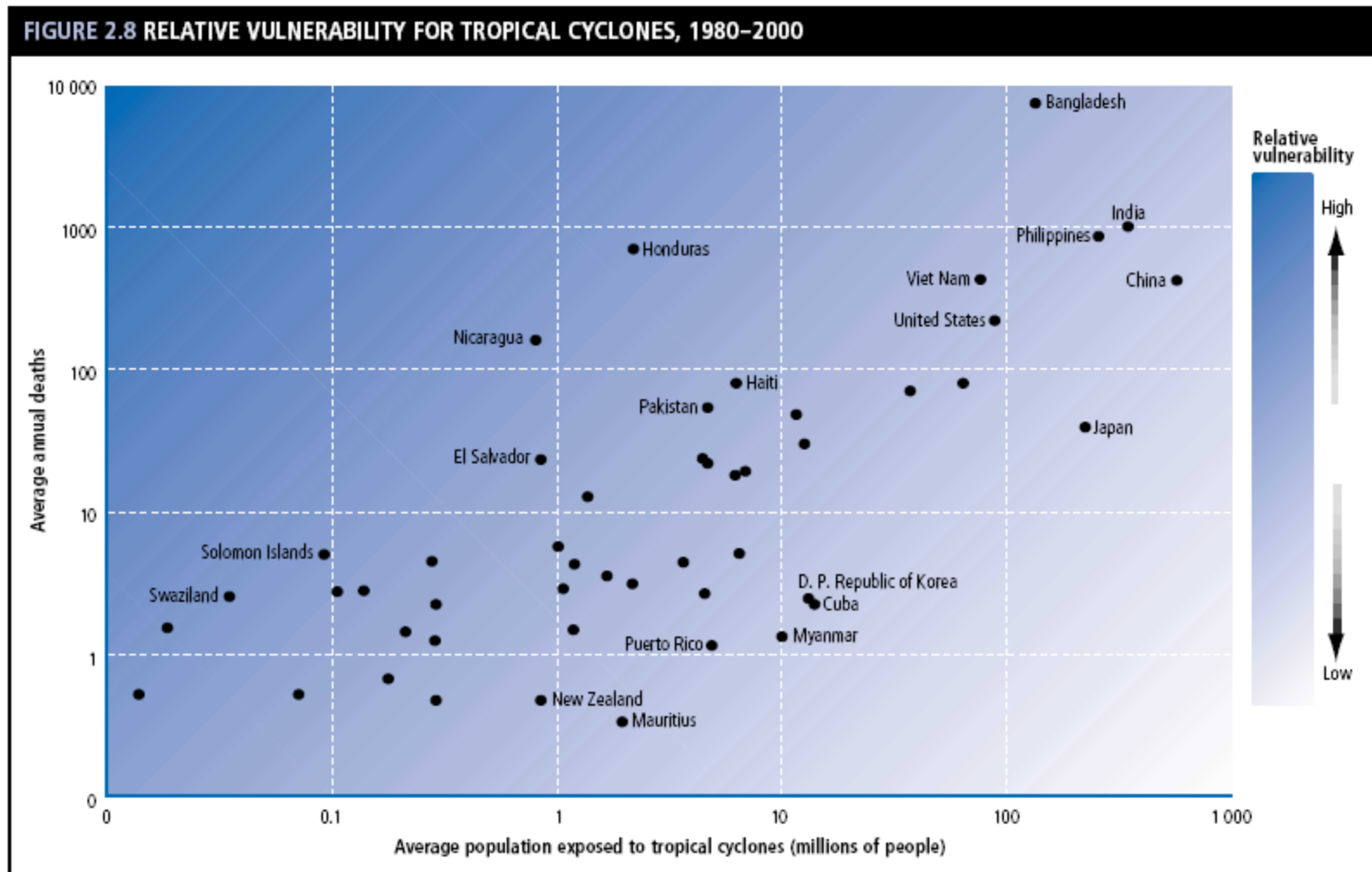
Hurricane, Cyclone, Typhoon



Tropical Cyclones

- 119 million people are exposed on average every year to tropical cyclone hazard
- Some people experience an average of more than four events each year
- Bangladesh, Haiti, Honduras, and Nicaragua have high vulnerability
- Populations on the coastal plains of India, Philippines, and Viet Nam are highly vulnerable

Vulnerability for Tropical Cyclones, 1980–2000



Source: The EM-DAT OFDA/CRED International Disaster Database and UNEP/GRID-Geneva

Hurricane Felix



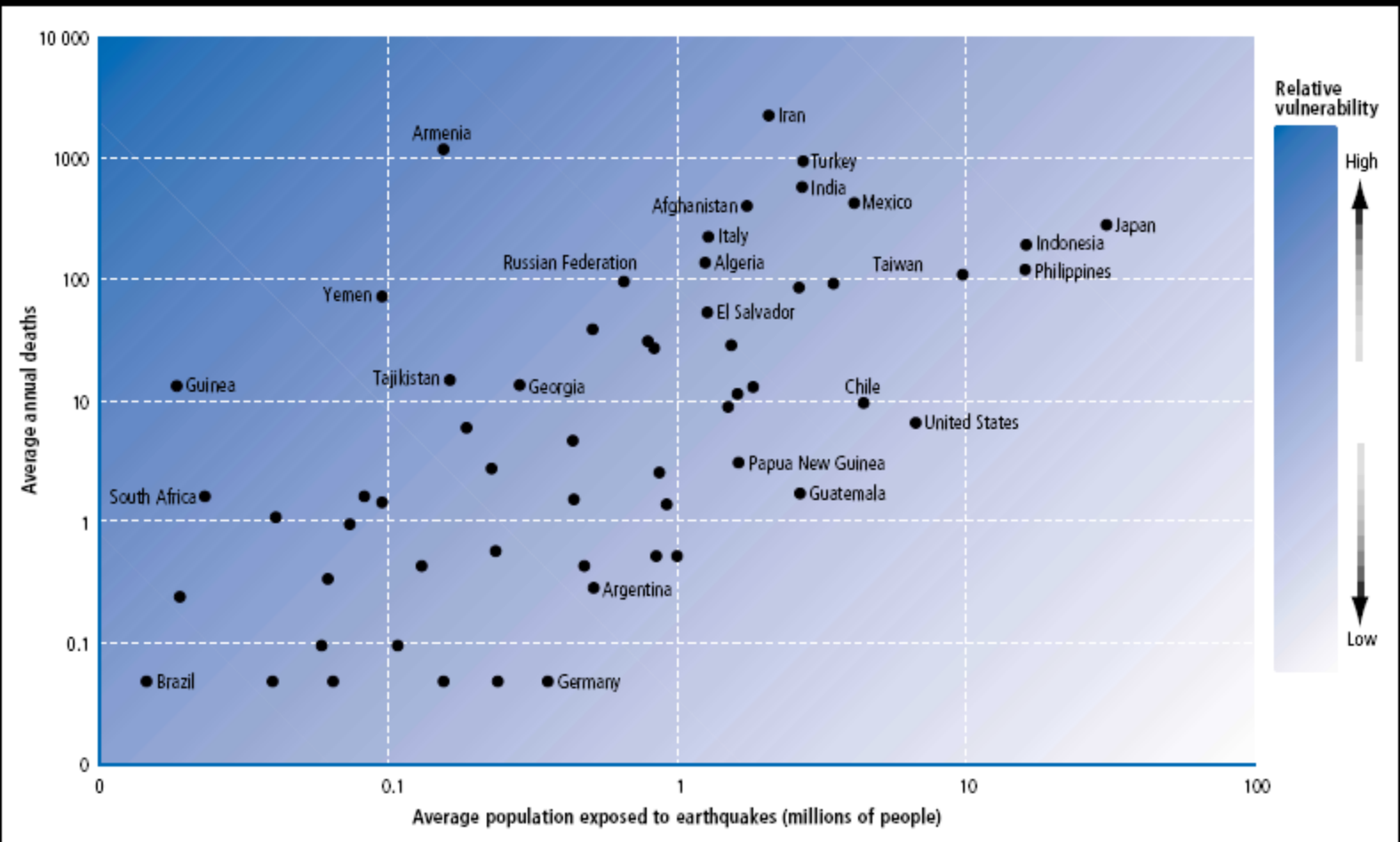
Source: http://earthobservatory.nasa.gov/NaturalHazards/natural_hazards_v2.php3?img_id=14483

Earthquakes

- On average, about 130 million people are exposed to earthquake risk each year
- High vulnerability is found in countries such as Iran, Afghanistan, India, Turkey, Russia, and Armenia

Earthquake Vulnerability, 1980–2000

FIGURE 2.4 RELATIVE VULNERABILITY FOR EARTHQUAKES, 1980–2000



Source: The EM-DAT OFDA/CRED International Disaster Database and UNEP/GRID-Geneva

Earthquake –Indonesia, 2006



Source: <http://www.hobotraveler.com/blogphotos/196-26-indonesia-earthquake-bantul.jpg>

Floods

- On average. About 196 million people in more than 90 countries are exposed to catastrophic flooding each year
- Many more people are exposed to minor or localized flood hazards that do not result in major human losses
- Vulnerability to flood hazards is likely to be aggravated by global climate change

Vulnerability for Floods, 1980-2000



Source: The EM-DAT OFDA/CRED International Disaster Database and UNEP/GRID-Geneva

Flood – Somalia, 2006



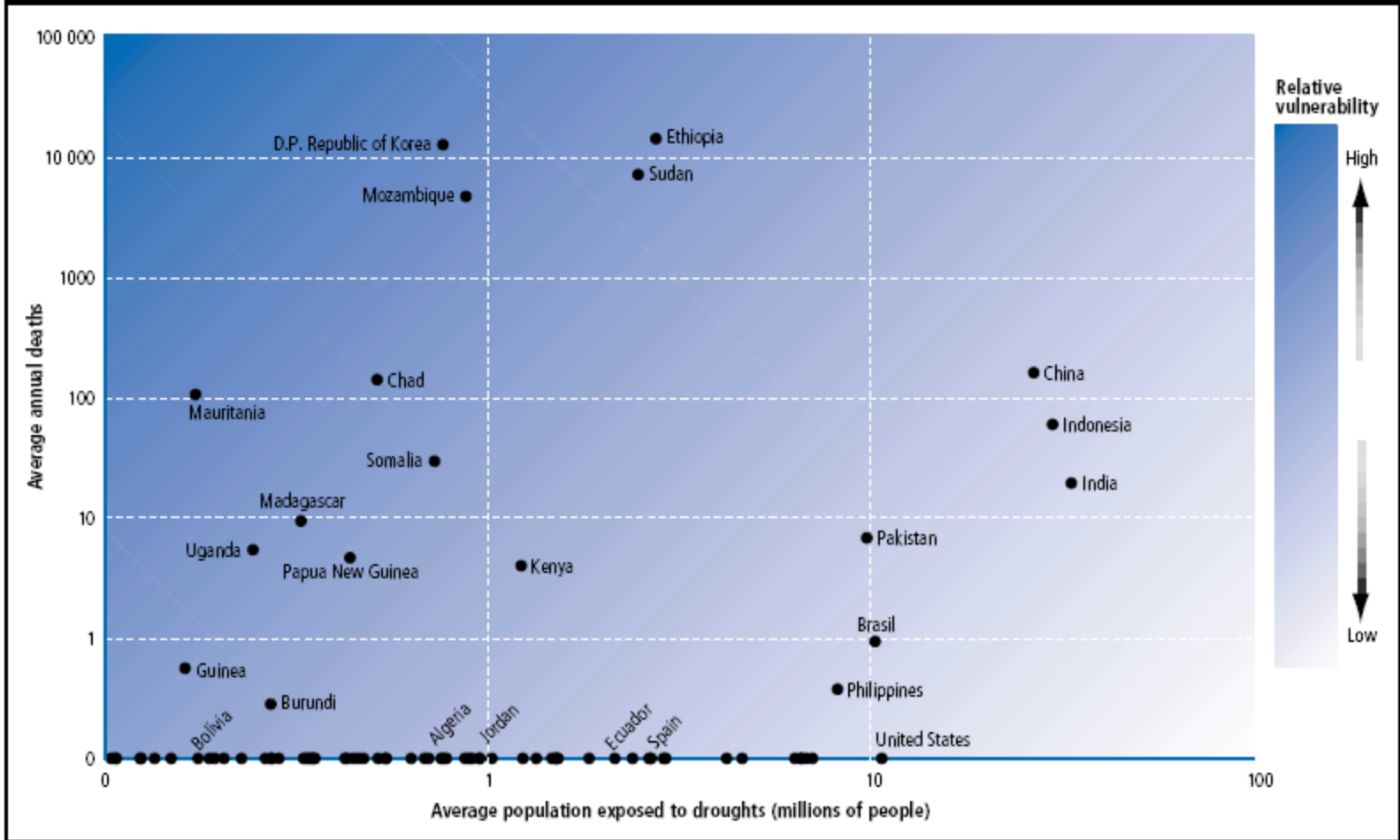
Source: <http://www.nytimes.com/2006/12/12/world/africa/12flood.html>

Drought and Famine

- About 220 million people are exposed to drought each year
- African countries have the highest vulnerability to drought
- Drought frequently translates to famine
- Famine resulting from drought is often compounded by armed conflict, internal displacement, HIV / AIDS, poor governance, and economic crisis

Vulnerability for Drought, 1980-2000

FIGURE 2.24 RELATIVE VULNERABILITY FOR DROUGHTS, 1980-2000



Source: The EM-DAT OFDA/CRED International Disaster Database and UNEP/GRID-Geneva

Drought – Corn Crop Lost



Source: http://staffwww.fullcoll.edu/tmorris/elements_of_ecology/images/drought_corn.jpg

6) What is the difference between a natural Earth process or event and a natural hazard?

- Tectonic or climatic events have been a part of Earth's dynamic development throughout history
- Destructive Earth events are a natural part of the process of change that constantly reshapes Earth's surface
- Natural hazards are natural processes that pose damaging effects on human life or activities

7) When does a natural Earth process or event become a natural hazard?

Natural Earth processes or events become hazardous only

- When they intersect with human activities

OR

- When people place themselves in the path of danger

Are natural hazards really natural or are they a result of human actions or decisions?

- Natural Earth events become hazards only when people find themselves or their property in the path of destruction.

Why do people put themselves in the path of danger?

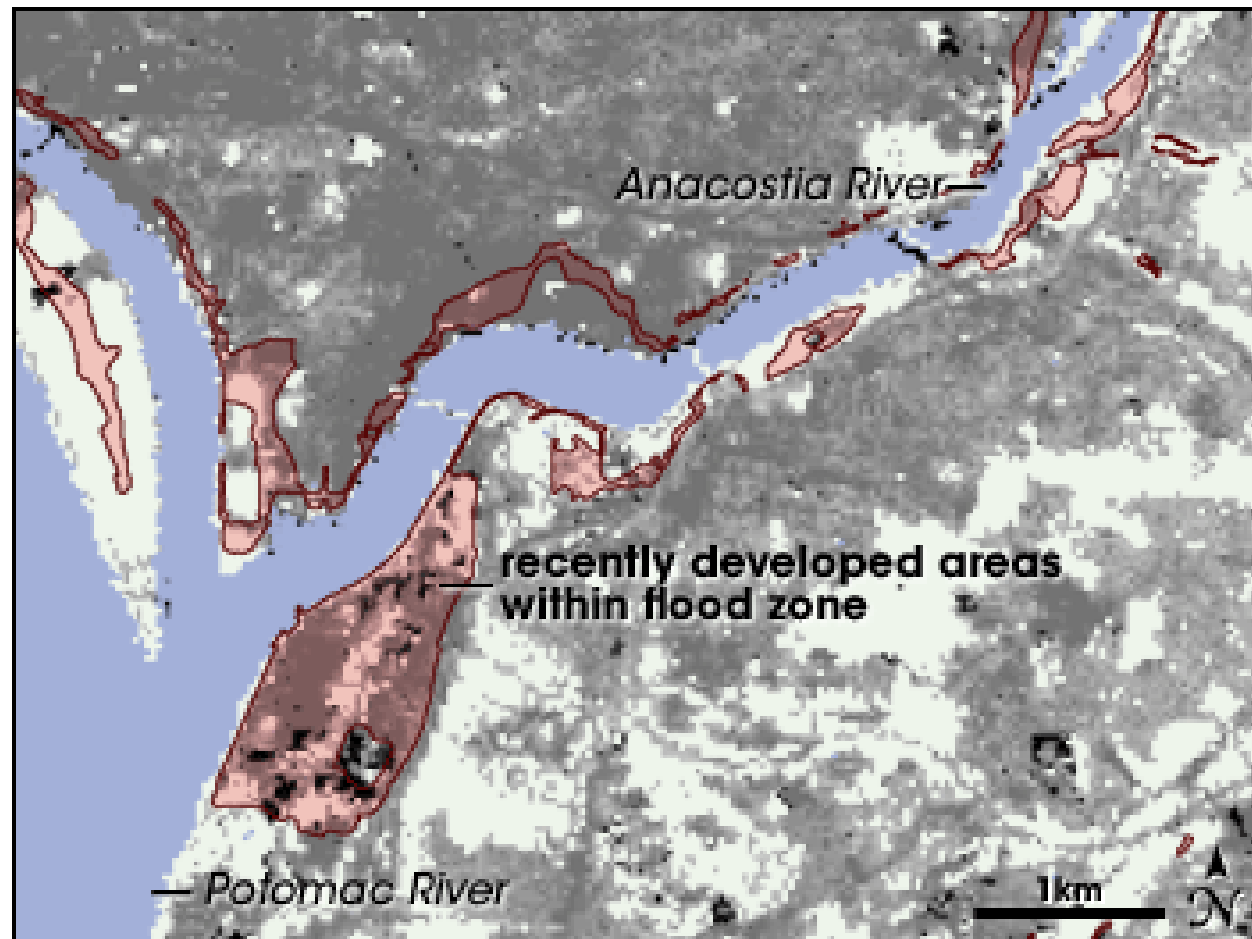
- “In the United States, we have a perception that we can adapt and that the risk is not immediate ... we have developed the ability to provide early warning for disasters ... it’s possible that the risk of living in a disaster-prone area doesn’t seem as significant to people as the benefits. We know it’s a risk, but we [believe we] can deal with it.”

Roger-Mark De Souza
former Technical Director, PRB

8) Is it possible that people are contributing to the increase in natural hazards?

- Existing records, which can be traced back to 1900, show a relentless upward movement in the number of disasters and their human and economic impacts.
- More people are affected by natural disasters today because there are more people in the world to be affected.
- The concentration of more than half the world's population in urban areas creates new and greater levels of risk.
- More people and businesses are located in hazardous areas.
- Landscape changes may make some disasters more severe.
- The poor, often living on marginal land, are especially vulnerable to hazardous events.

Construction in Floodplains



undeveloped land floodplain water

impervious surfaces: low-density high-density developed since 1986

Removal of Natural Vegetation

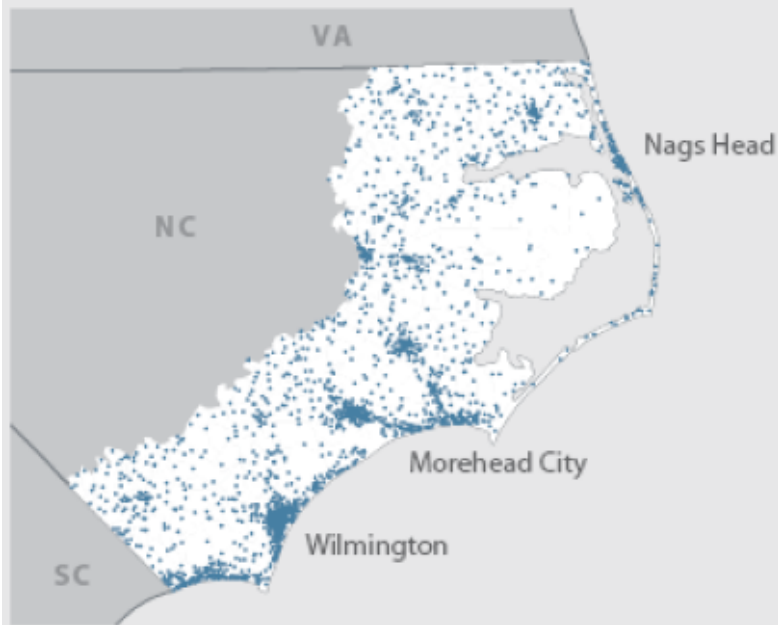


Settlement in Hazard-prone Coastal Areas

North Carolina's 50-mile Coastal Zone

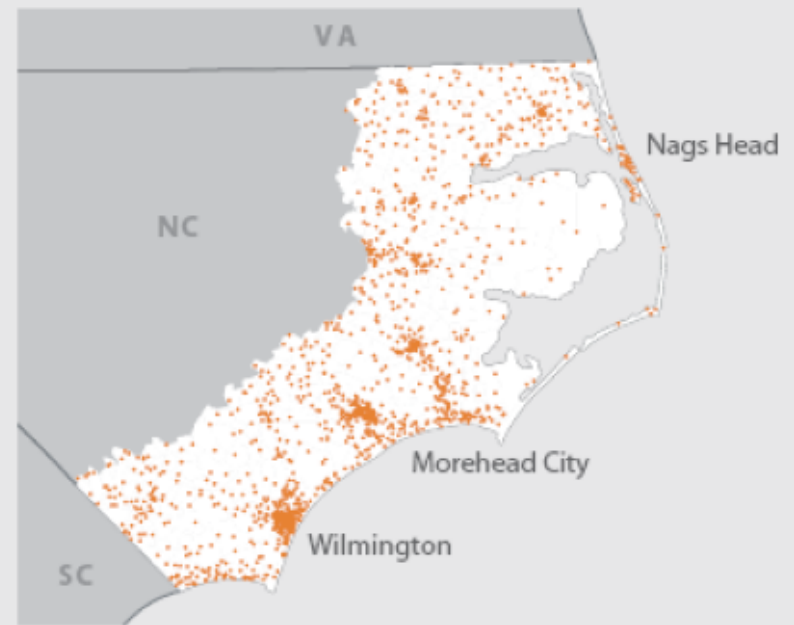
Housing Units: 2000

1 dot = 250 housing units



Population: 2000

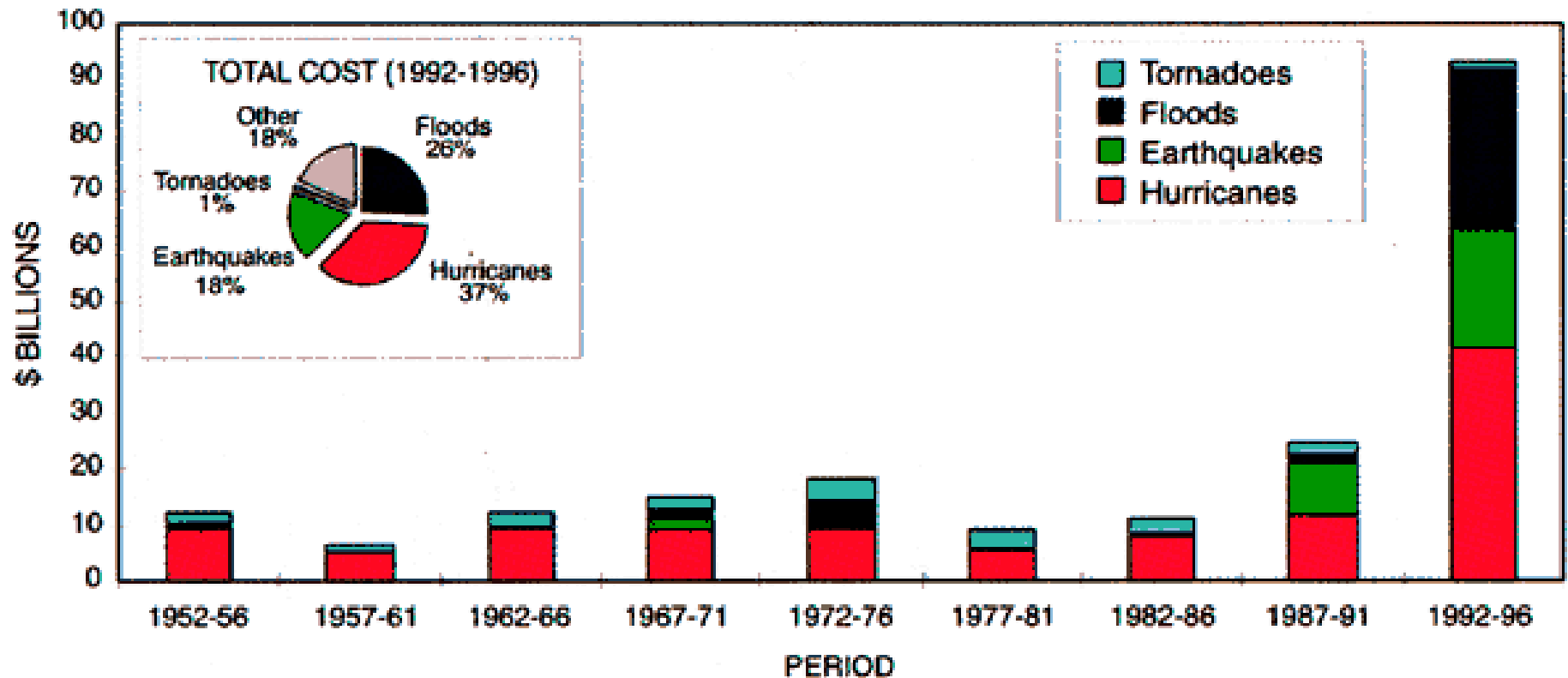
1 dot = 750 people



Natural Hazards in the United States

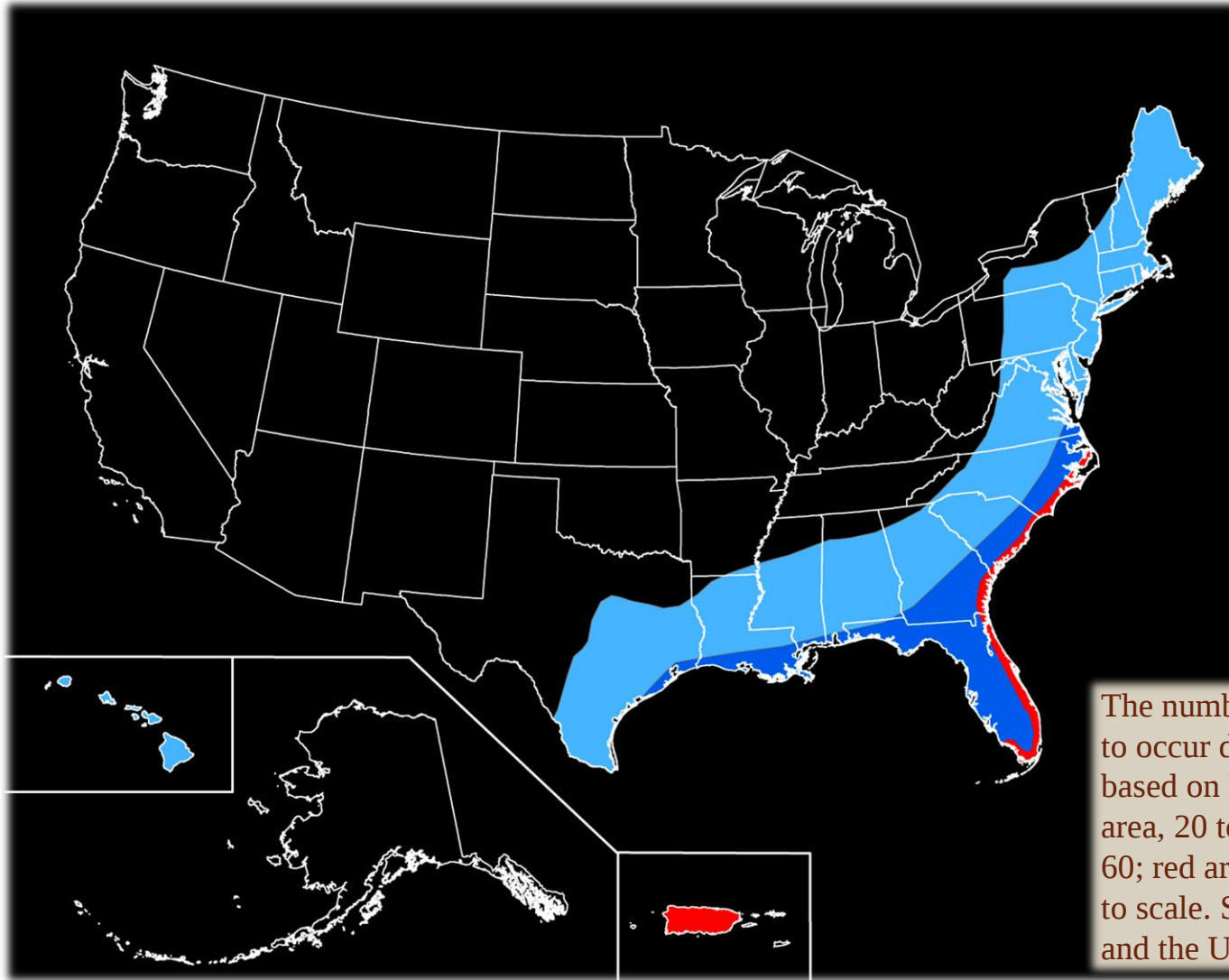
- The United States is becoming more vulnerable to natural hazards because of changes in the concentration of population and wealth.
- More than one-third of the U.S. population lives in hazard-prone areas, but only 1% of the land area ranks in the in the highest rated disaster-related mortality risk category
- States most affected by hurricanes and earthquakes show the largest increase in both population and revenue.
- The direct costs for damage repairs average about \$20 billion per year.

Rising Cost of Natural Disasters in the United States



Source: http://www.agu.org/sci_soc/articles/eisvink.html

Hurricane Risk in the United States



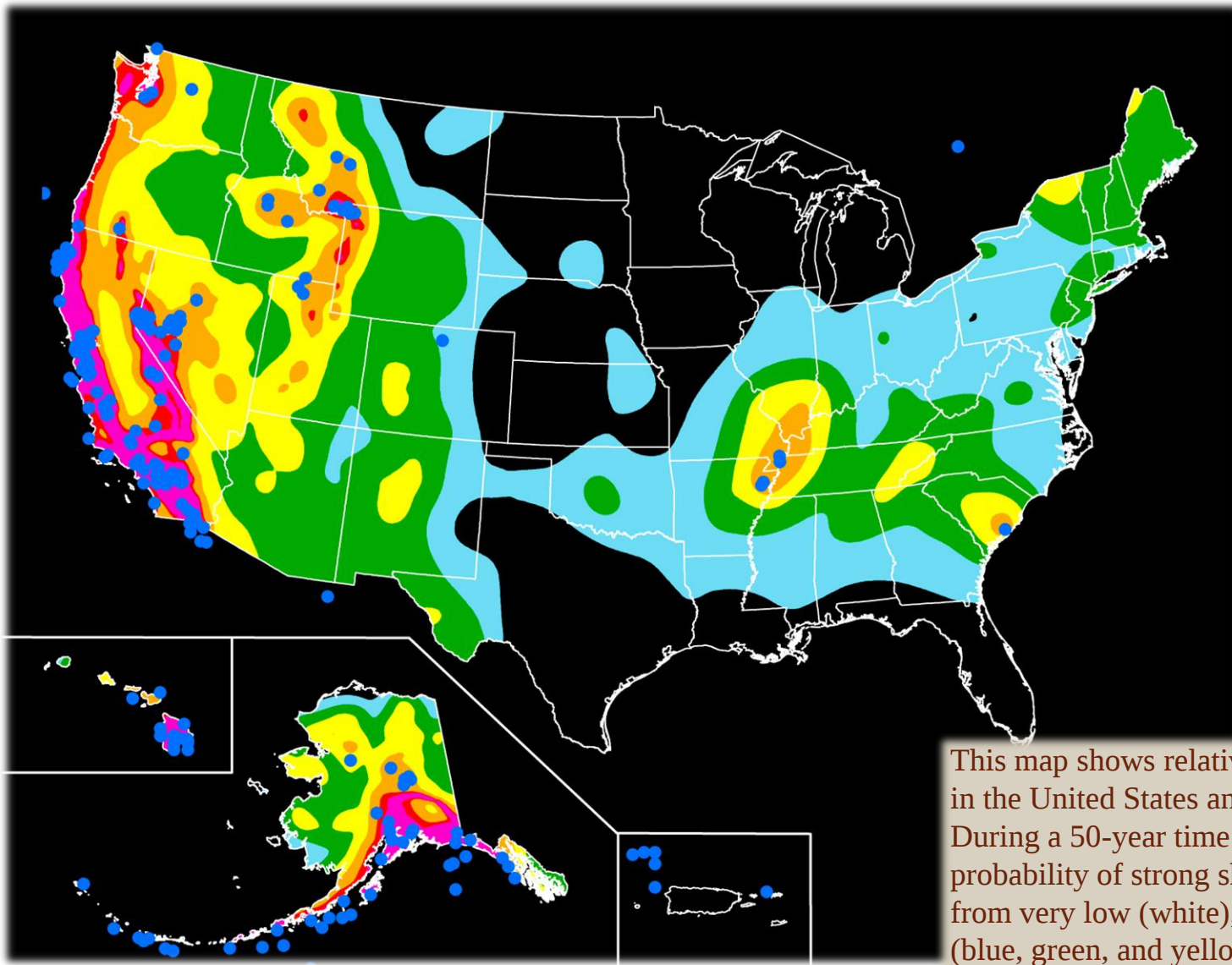
The number of hurricanes expected to occur during a 100-year period based on historical data—light blue area, 20 to 40; dark blue area, 40 to 60; red area, more than 60. Map not to scale. Source: the National Atlas and the USGS.

Hurricane Isabel – 2003



Source: <http://earthobservatory.nasa.gov/Study/RisingCost/printall.php>

Shaking Hazards in the United States



This map shows relative shaking hazards in the United States and Puerto Rico. During a 50-year time period, the probability of strong shaking increases from very low (white), to moderate (blue, green, and yellow), to high (orange, pink, and red). Map not to scale.

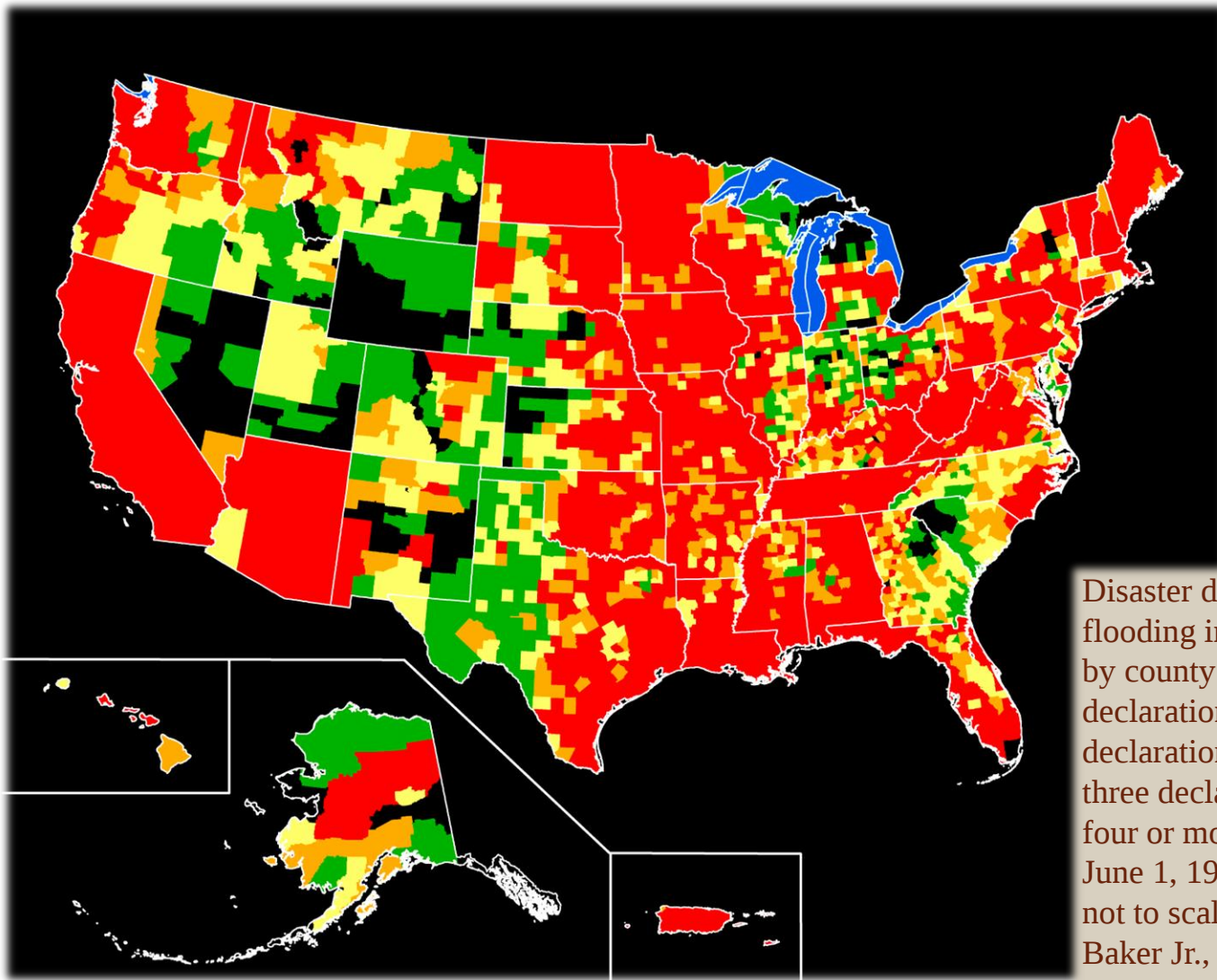
Source: http://www.usgs.gov/hazards/images/maps/earthquake_hires.jpg

Anchorage, Alaska – 1964



Source: <http://www.ngdc.noaa.gov/mgg/image/hazardsimages.html>

Flooding Hazards in the United States



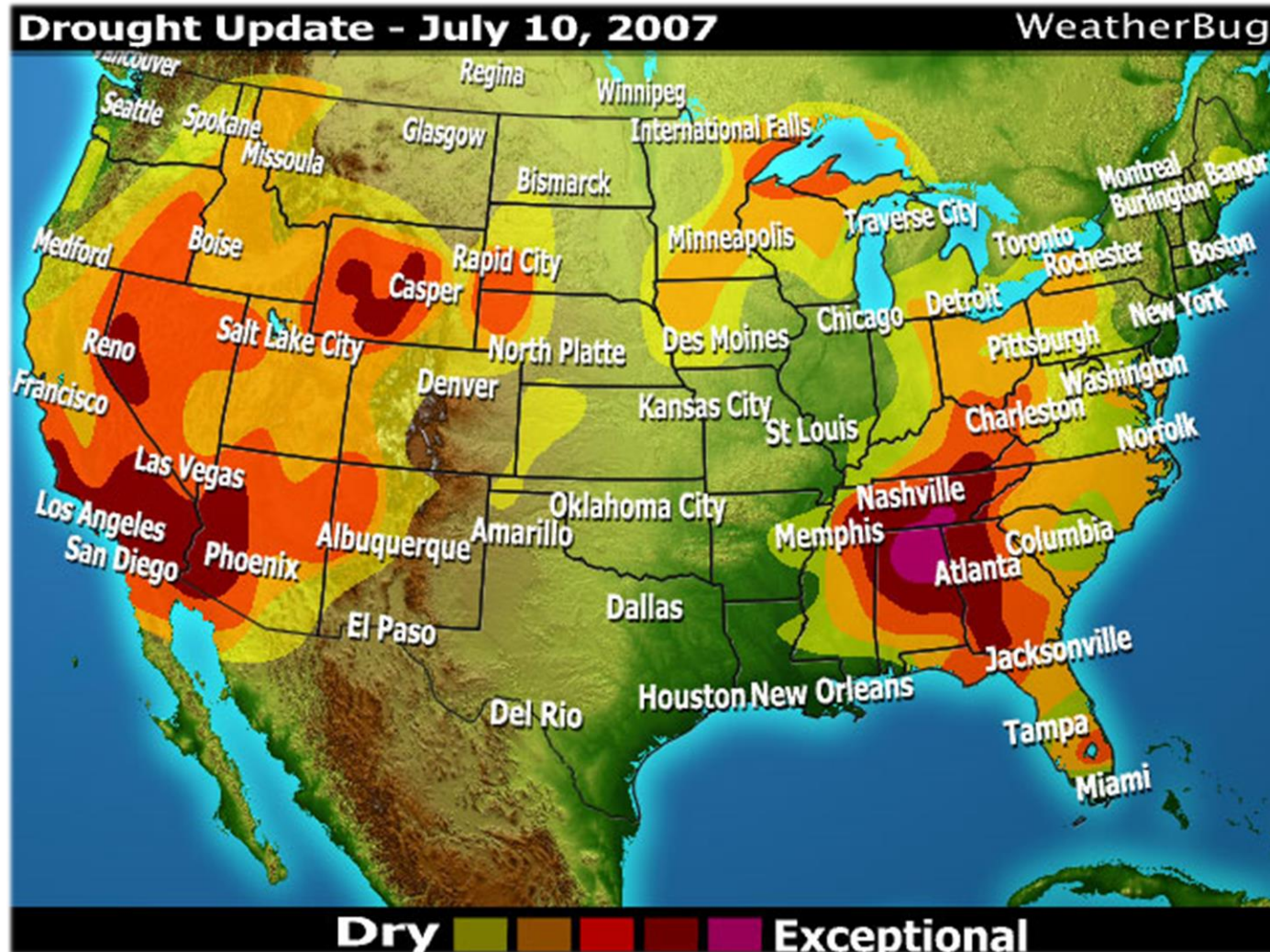
Disaster declarations related to flooding in the United States, shown by county: Green areas represent one declaration; yellow areas represent two declarations; orange areas represent three declarations; red areas represent four or more declarations between June 1, 1965, and June 1, 2003. Map not to scale. Sources: FEMA, Michael Baker Jr., Inc., the National Atlas, and the USGS.



Floods in Kansas and Missouri – 2007

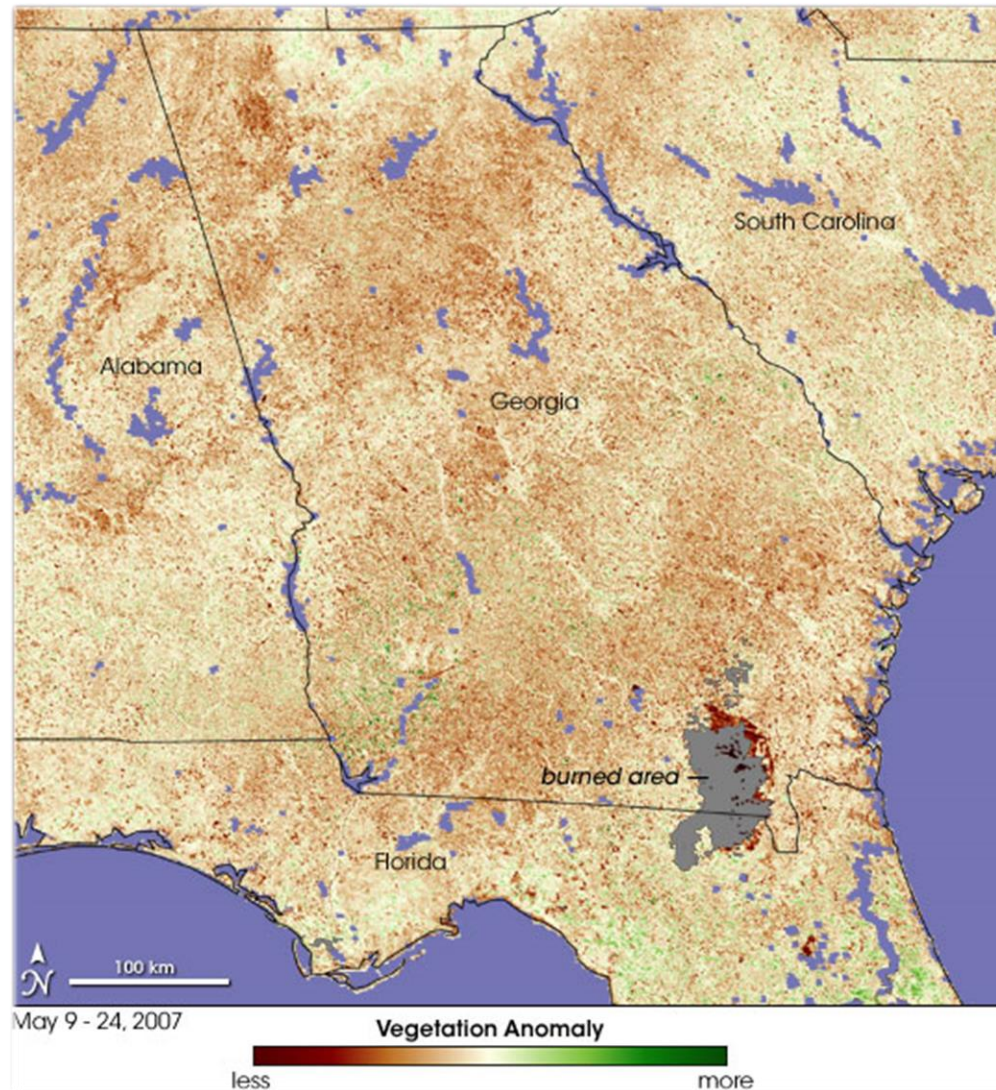
Source: http://earthobservatory.nasa.gov/NaturalHazards/natural_hazards_v2.php3?img_id=14383

Drought Hazards in the United States



Source: http://www.weatherbug.com/images/bugtoday/drought_071307.jpg

Record-Setting Drought in Georgia – 2007



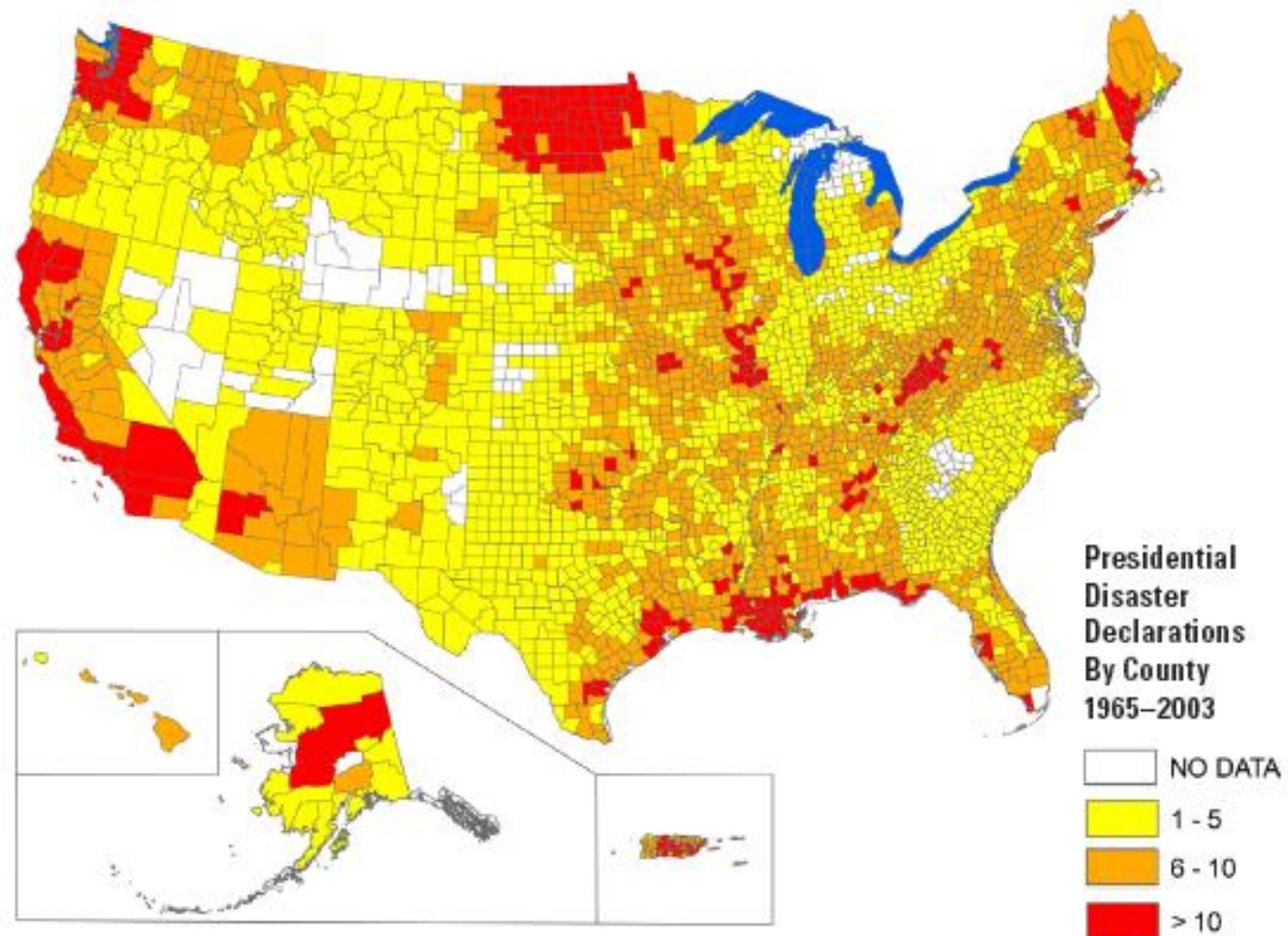
Source: http://earthobservatory.nasa.gov/NaturalHazards/natural_hazards_v2.php3?img_id=14307

11) Other Hazards Affecting the United States not already mentioned...

- Tornadoes
- Wildfires
- Volcanoes
- Landslides
- Tsunamis

Disaster Declarations – 1965-2003

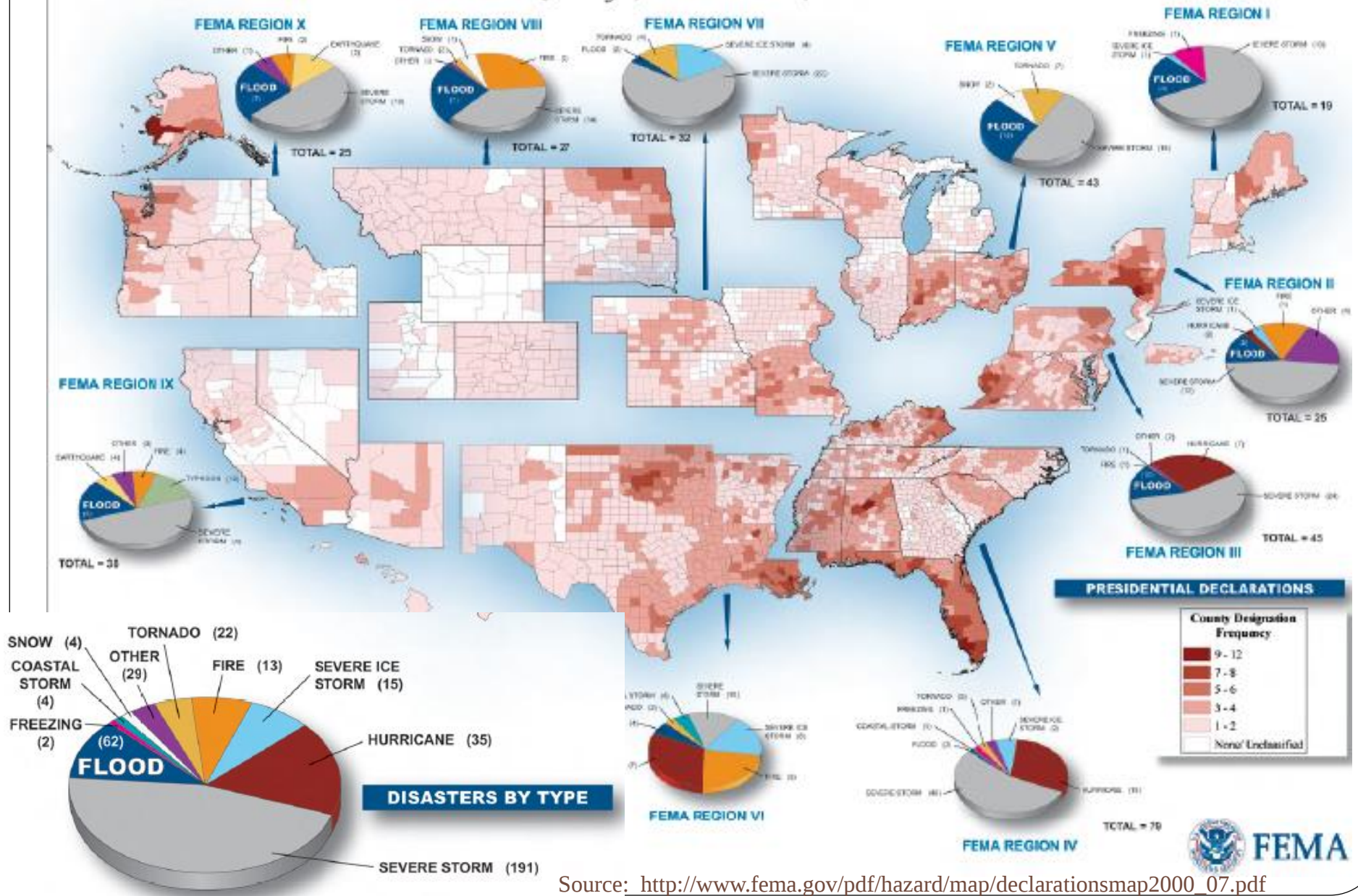
12) Which states or regions are most vulnerable to natural hazards?



Presidential Disaster Declarations in the United States and Territories by county from 1965–2003 reflect the broad geographic distribution and human impacts of earthquakes, floods, hurricanes, landslides, tsunamis, volcanoes and wildfires. (Map not to Scale. Source: FEMA)

PRESIDENTIAL DISASTER DECLARATIONS

January 3, 2000 to March 3, 2007



Source: http://www.fema.gov/pdf/hazard/map/declarationsmap2000_07.pdf

More Questions to Ponder ...

Examine a map of recent natural disasters in the United States.

- Which states or regions are most vulnerable to natural hazards?
- Compare population growth trends to predictable patterns of natural hazards.
- What is the vulnerability to natural hazards of the state/county in which you live?
- Evaluate the effectiveness of disaster preparedness plans in your state/county.
- Why do people in your state/county live in the path of danger? Is it by chance or by choice?

Living in the Path of Danger

- *We are becoming more vulnerable to natural disasters because of the trends of our society rather than those of nature.*
- *We are placing more people and more property in harm's way.*
- 13) Why do people in your state/county live in the path of danger? Is it by chance or by choice?