

# PSR®



## Steps to a Nuclear Weapons-Free World

Physicians for Social Responsibility

# The Dangers of Nuclear Weapons Today

## Nuclear War in South Asia

- **India and Pakistan, nuclear weapon states with a history of conflict**
- **20 million deaths** in major cities in India and Pakistan
- **Radioactive contamination** throughout the region
- **Global climate disruption** from smoke and soot

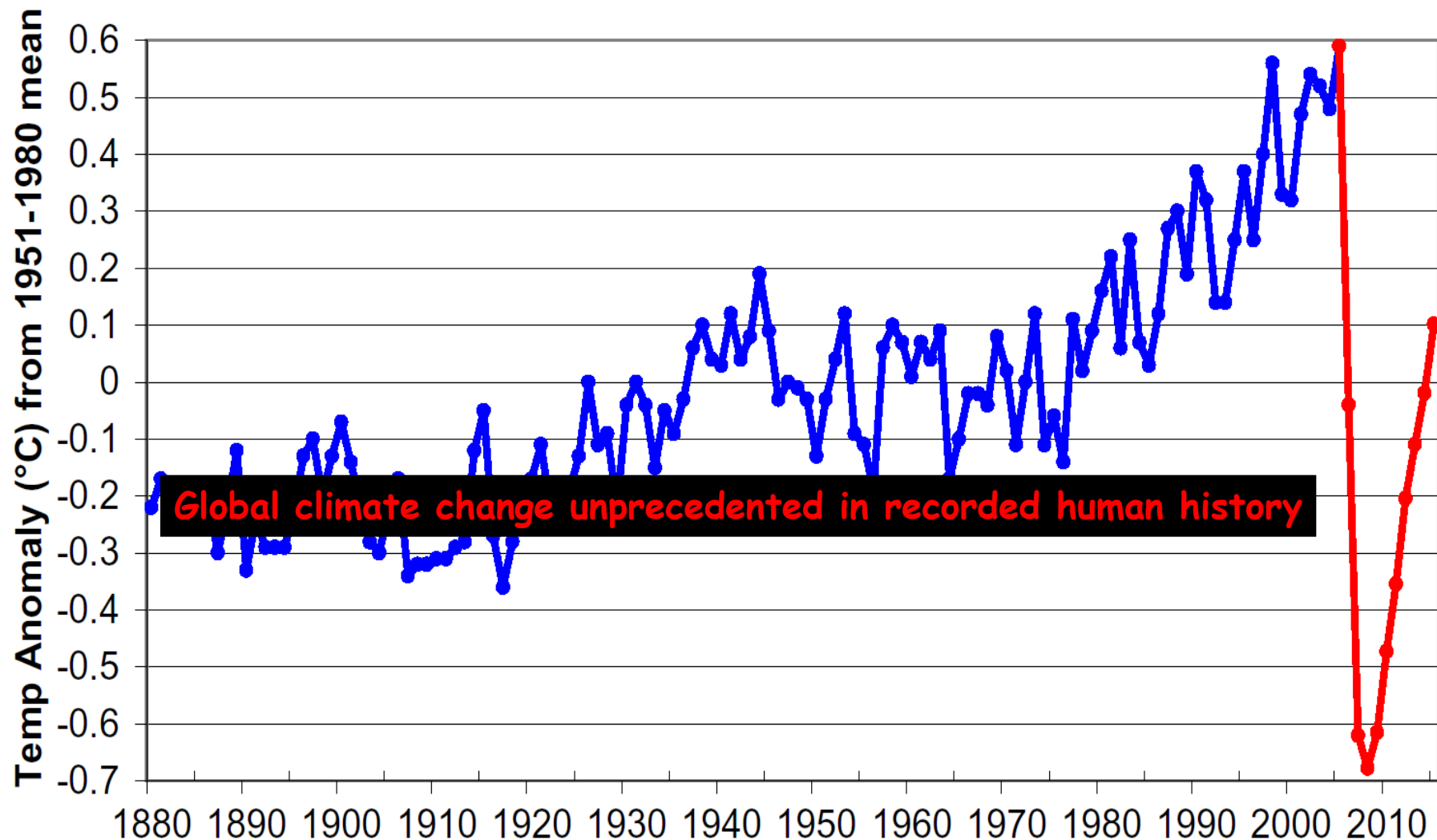
# The Dangers of Nuclear Weapons Today

## Nuclear War in South Asia

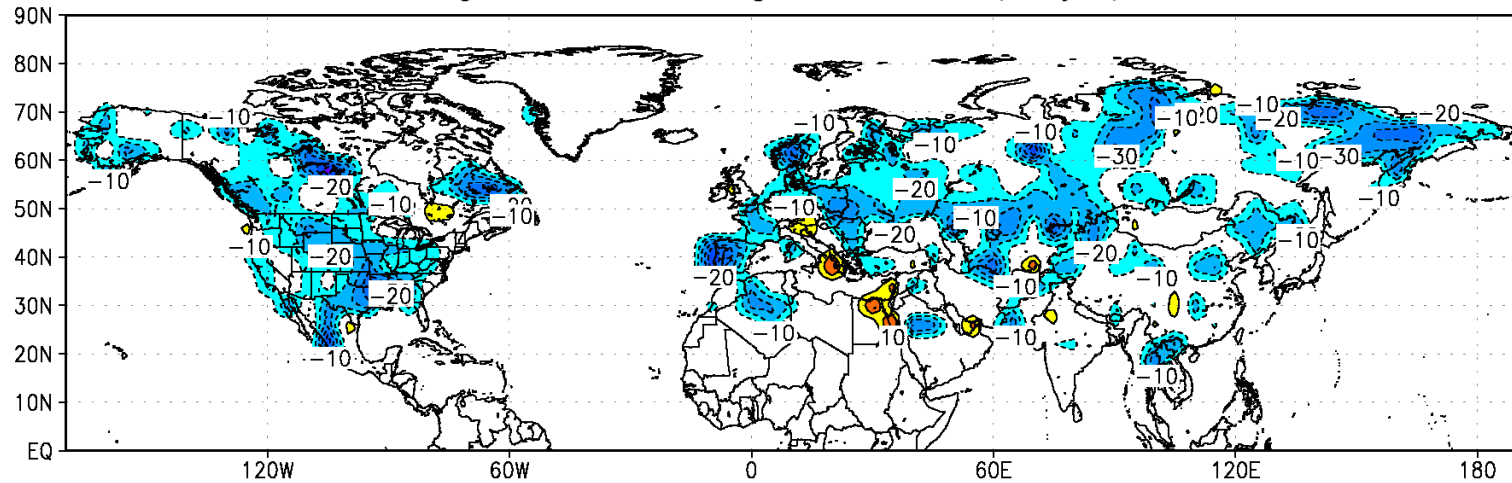
- Nuclear explosions ignite fires that burn whole cities
- Soot lofted high into the atmosphere absorbs incoming sunlight
- Dramatic decrease in amount of light reaching the surface
- Large, rapid drops in surface temperature

# GISS Global Average Temperature Anomaly

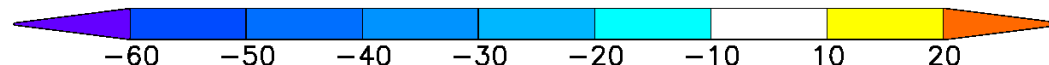
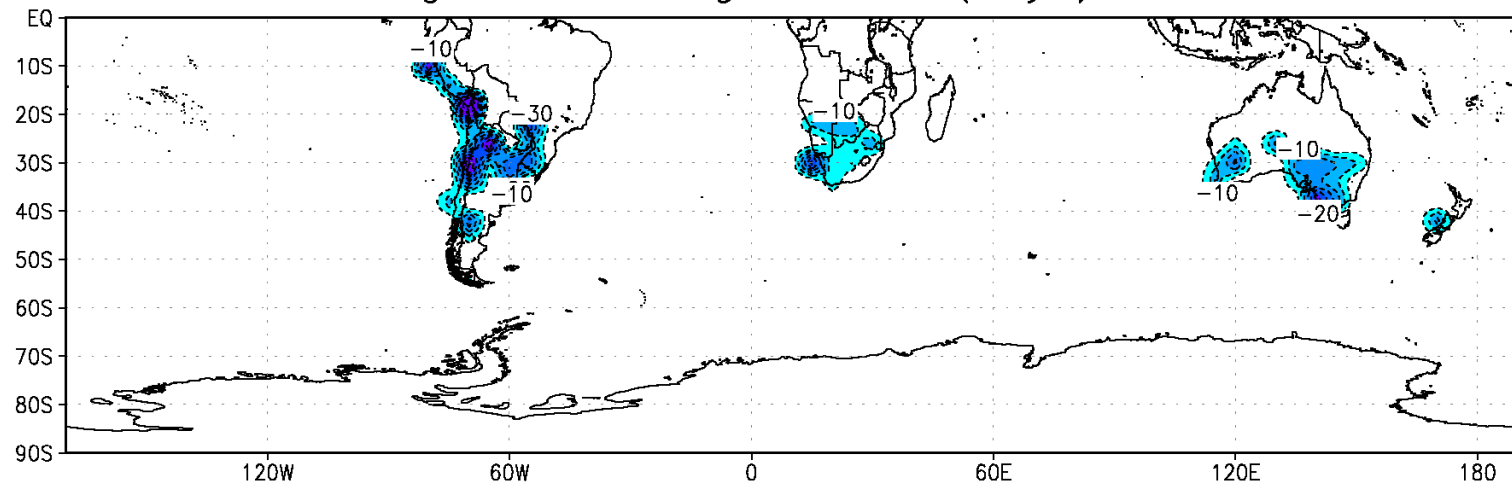
## + 5 Tg smoke in 2006



## NH Change in Growing Season (days) Year 1



## SH Change in Growing Season (days) Year 1-2



*Chart courtesy of Alan Robock*

# Change in Precipitation (%) JJA Year 1

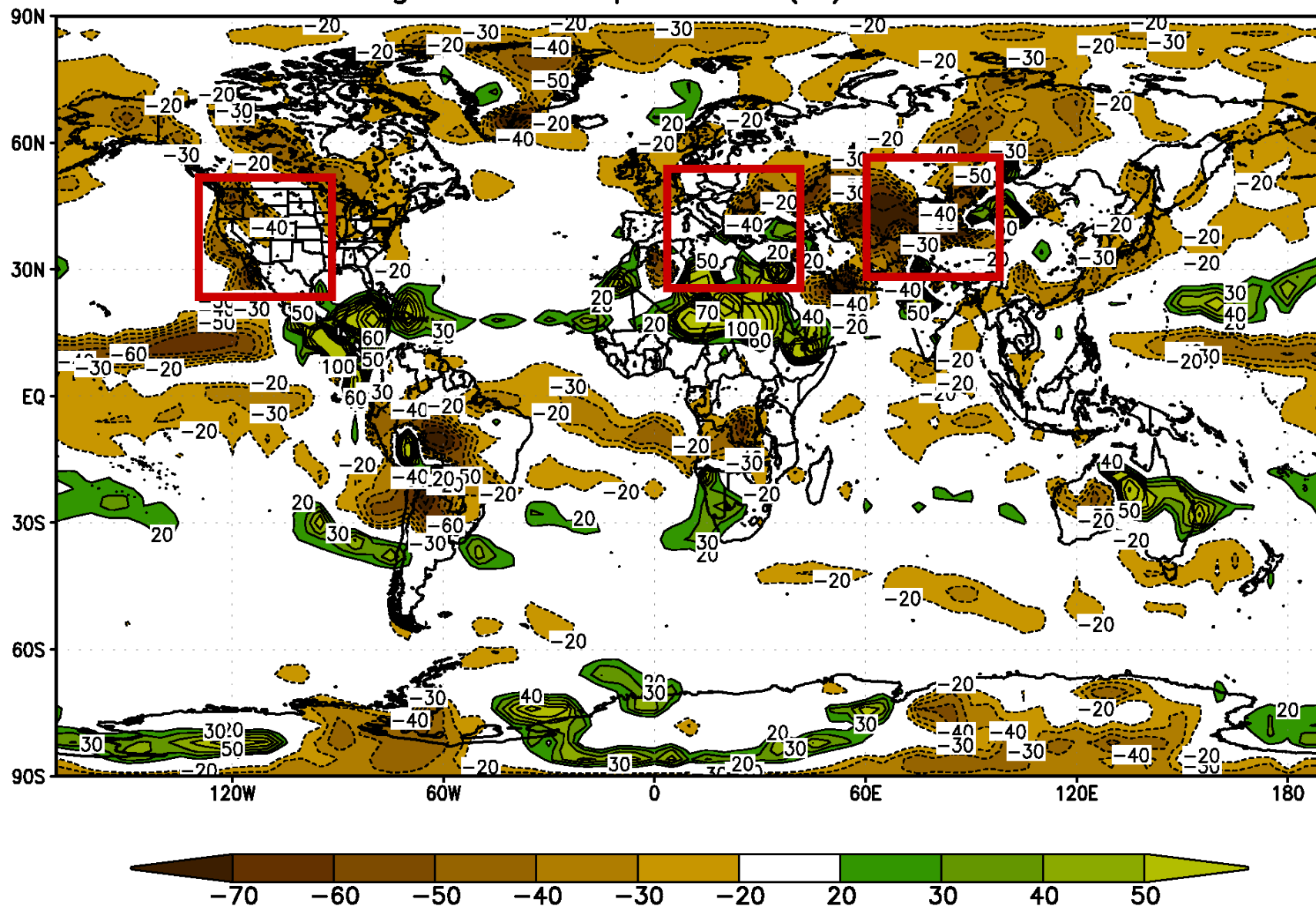


Chart courtesy of Alan Robock



## **Tambora Volcano**

- Erupted April 1815
- -0.7 degrees C temperature drop
- Dramatic shortening of growing season

# Nuclear War: The Impact on Agriculture

- **Sudden cooling**, decreased sunlight, less rainfall shortens growing seasons; reduces crop yields
- Stratospheric **ozone depletion** damages crops sensitive to UV-B
- Disruption of petroleum supplies affects use of farm machinery and fertilizer and pesticide production
- **Radioactive and toxic contamination** takes farmland out of production
- Collapse of distribution system







# Chronic Malnutrition Today

- 1,800-2,200 calories
- minimum daily requirement
- 800 million people at or below
  - this level of daily intake



# Great Bengal Famine of 1943

- Food production declined only 5%
  - Actually 13% higher than 1941
  - when there was no famine
  - 3 million people died



**1 billion dead  
from starvation  
alone?**

# Epidemic Disease

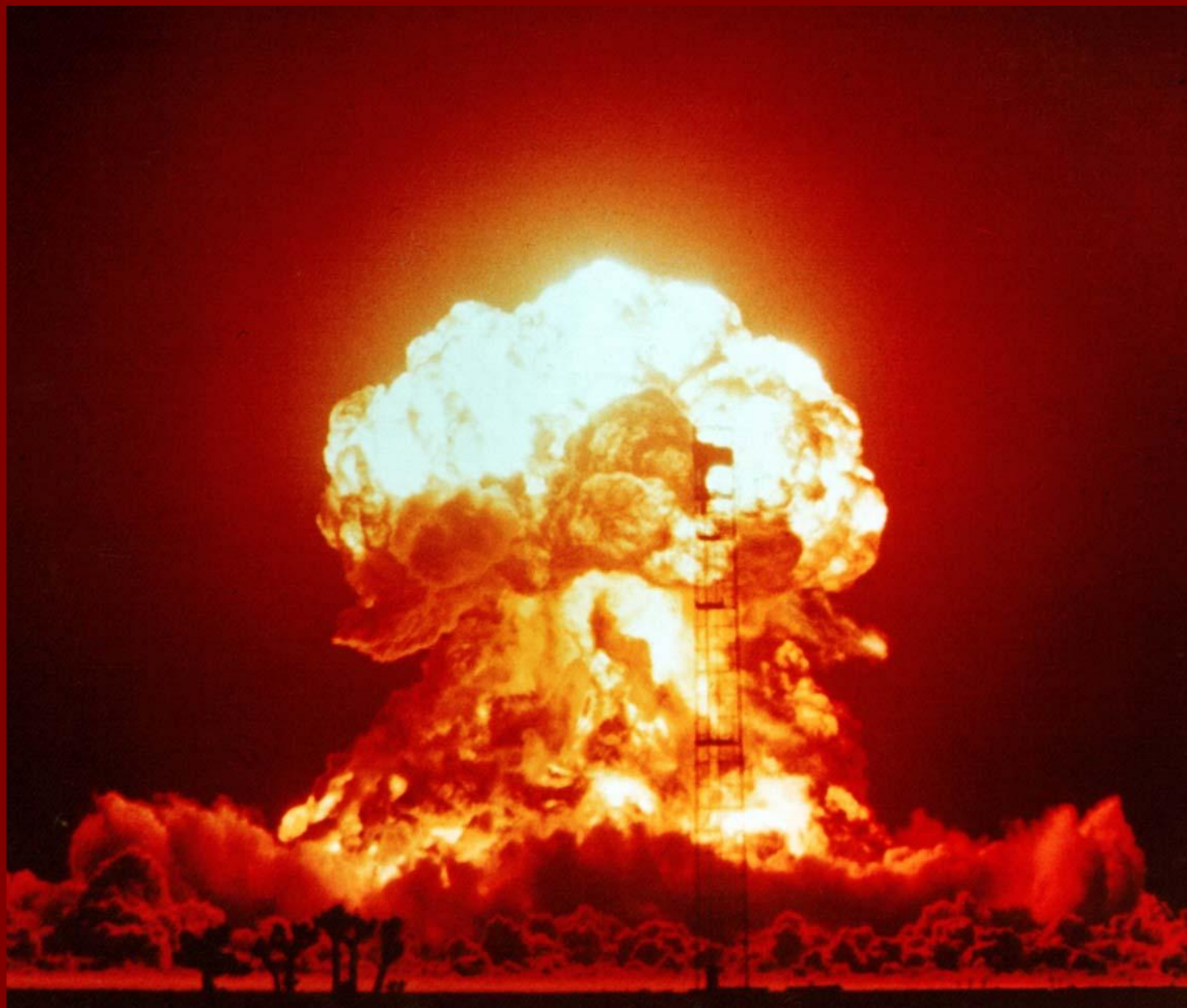
- Plague
- Cholera
- Malaria
- Typhus







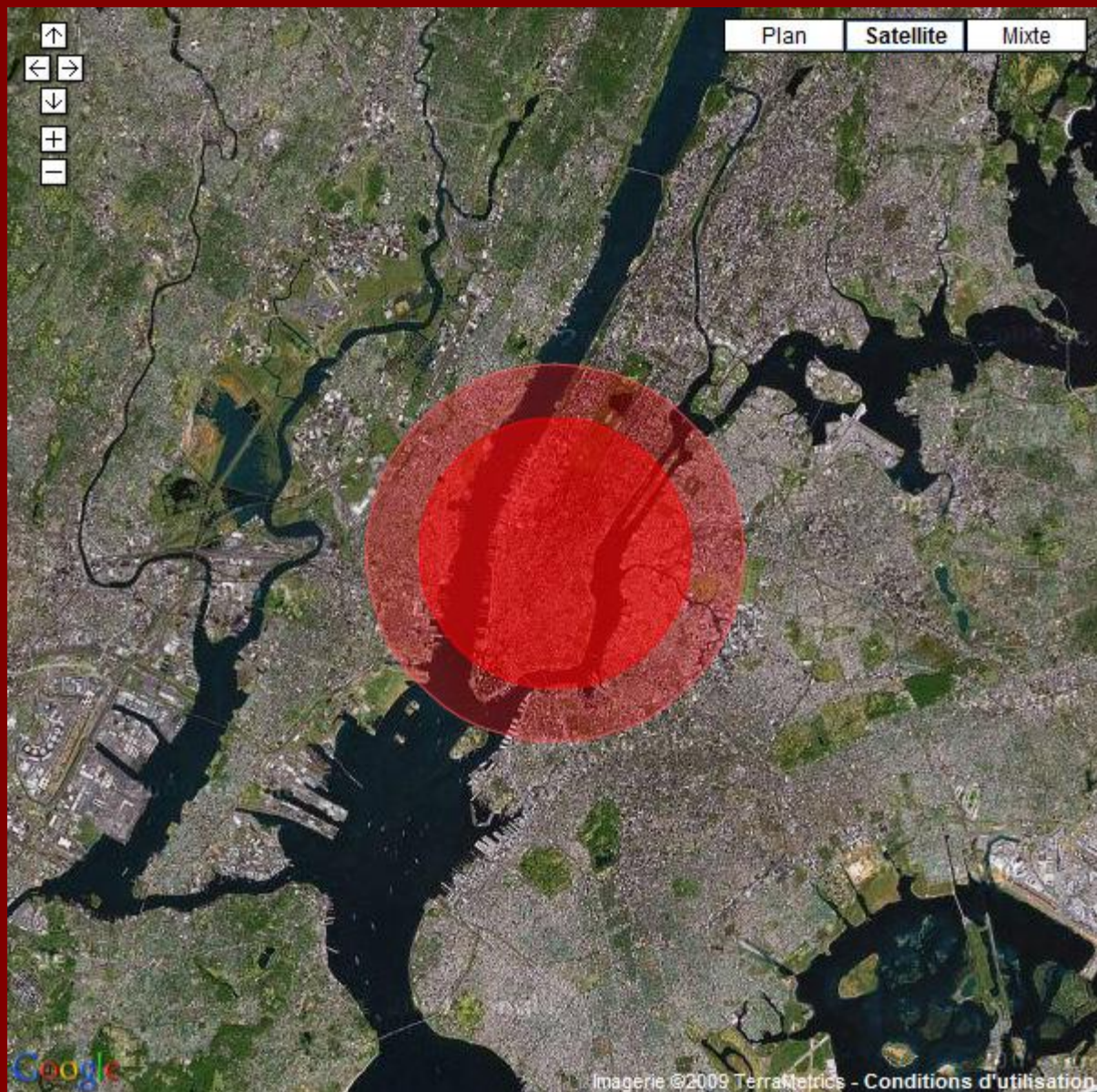
...further use of nuclear weapons?



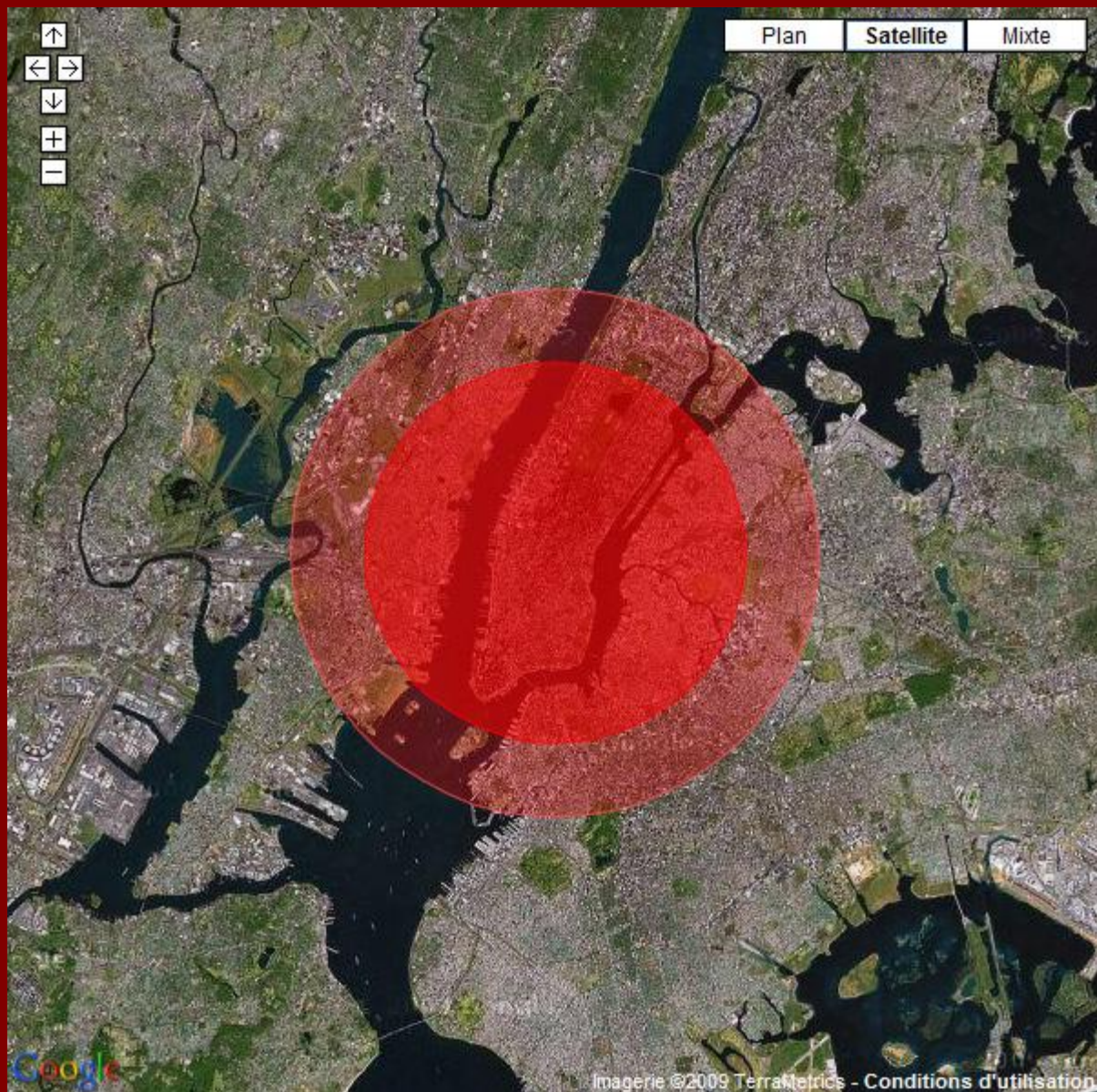




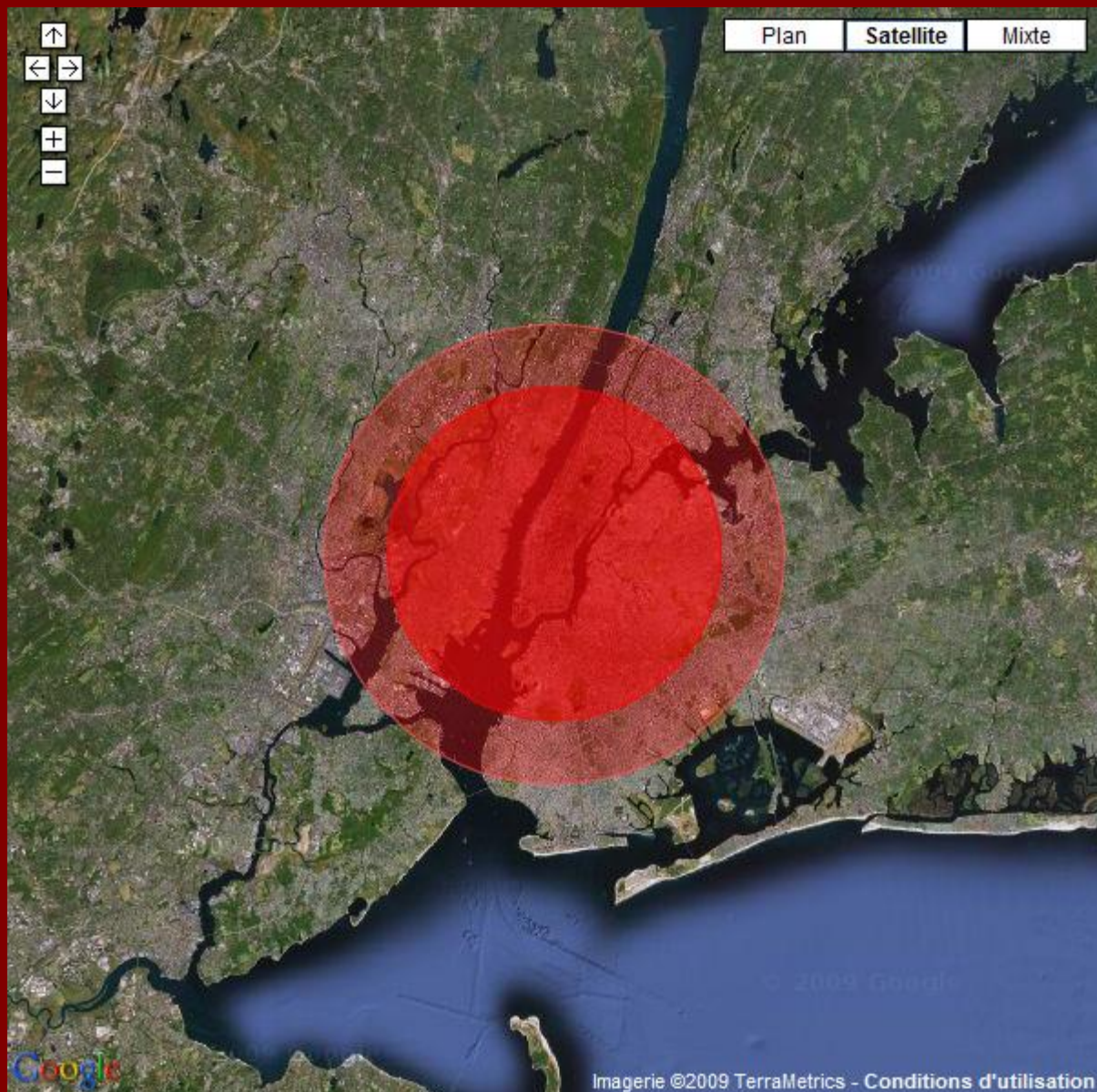


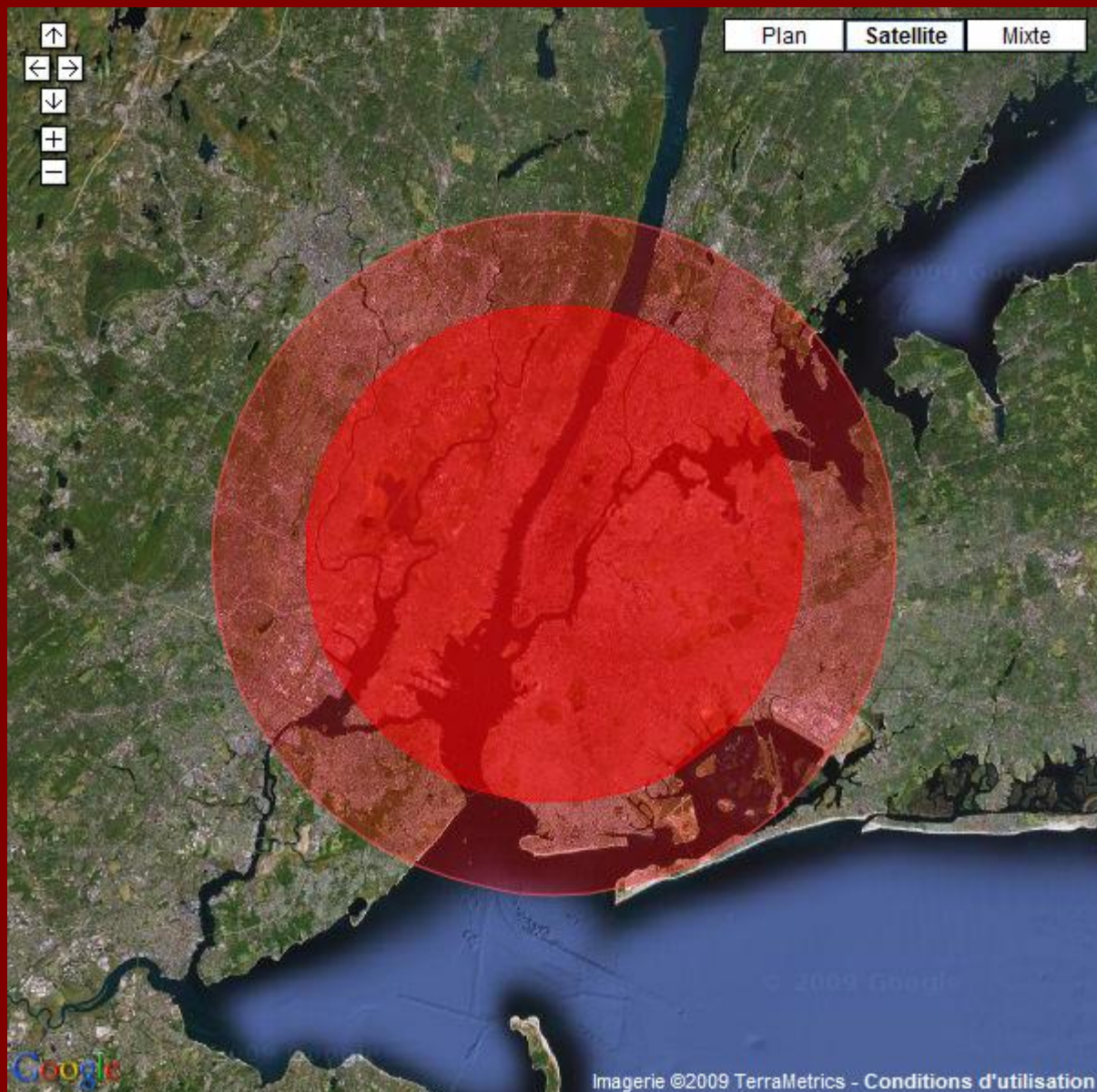




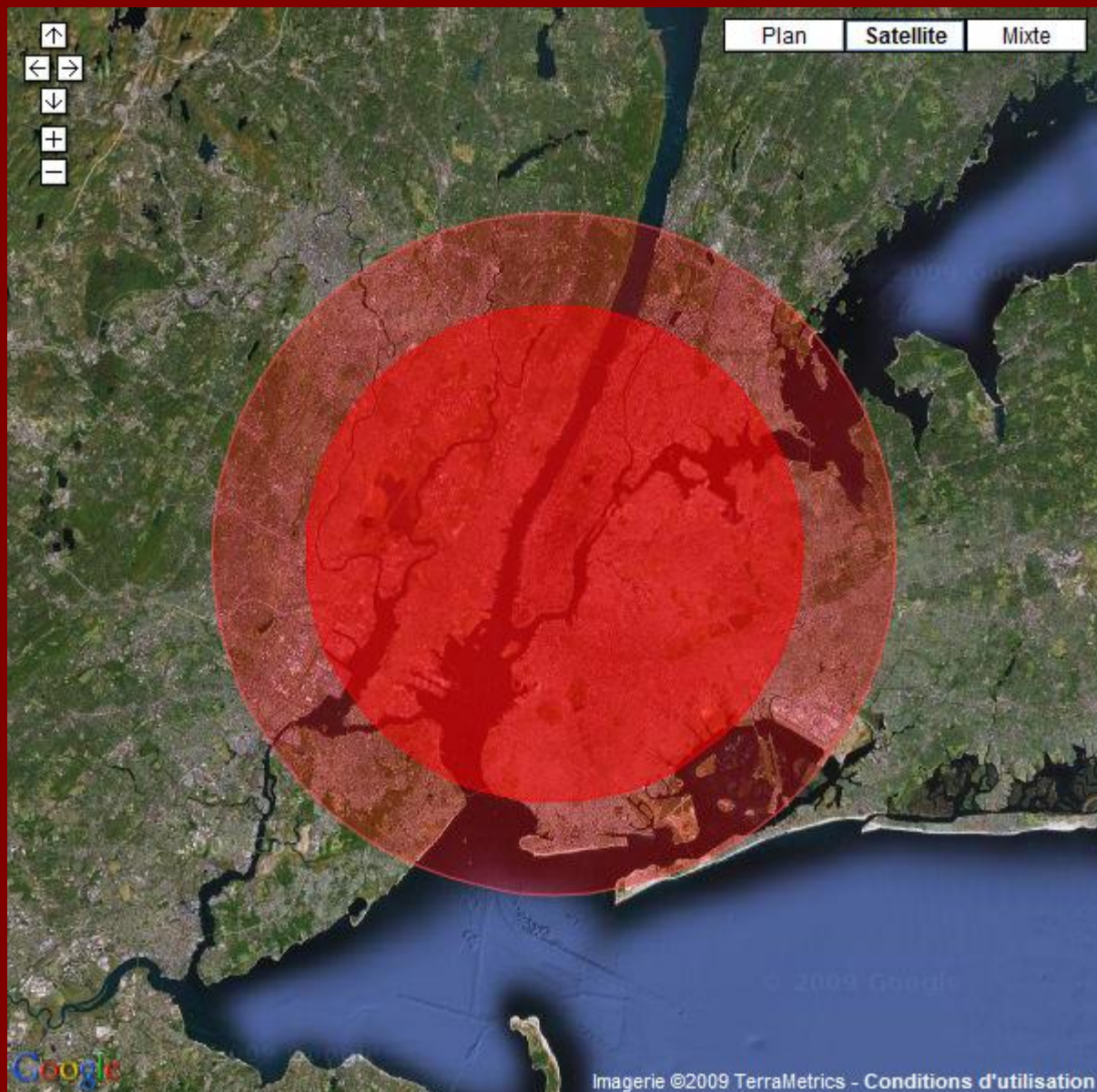




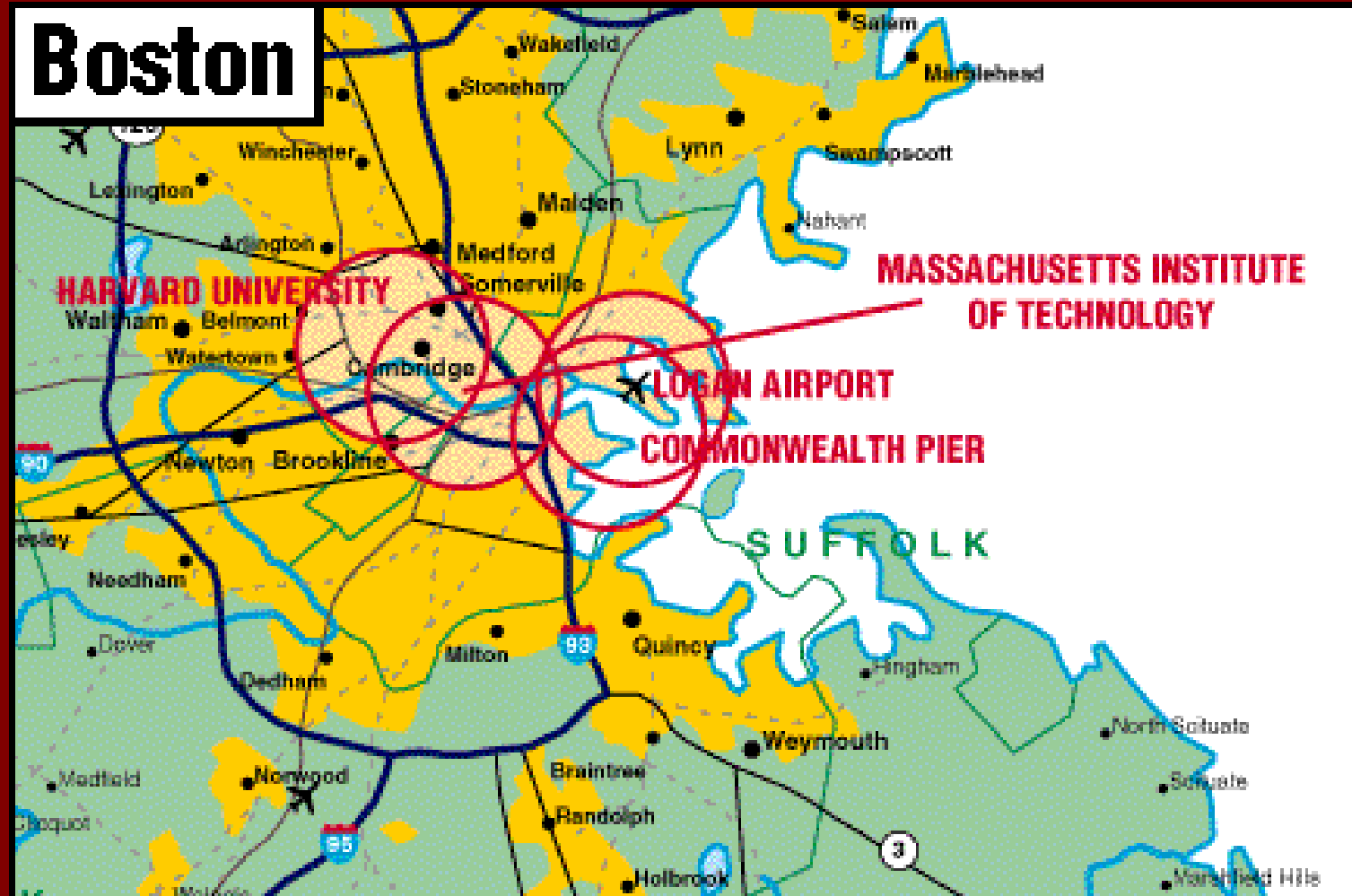








# Boston



Everyone within the red circles would be killed instantly.

# A Human Health Disaster

- Acute Effects of Radiation
  - Burns, “Radiation Sickness,” “Drowning” in Lung Fluids, Skin Lesions, Flashblindness and Retinal Burn, and Death.

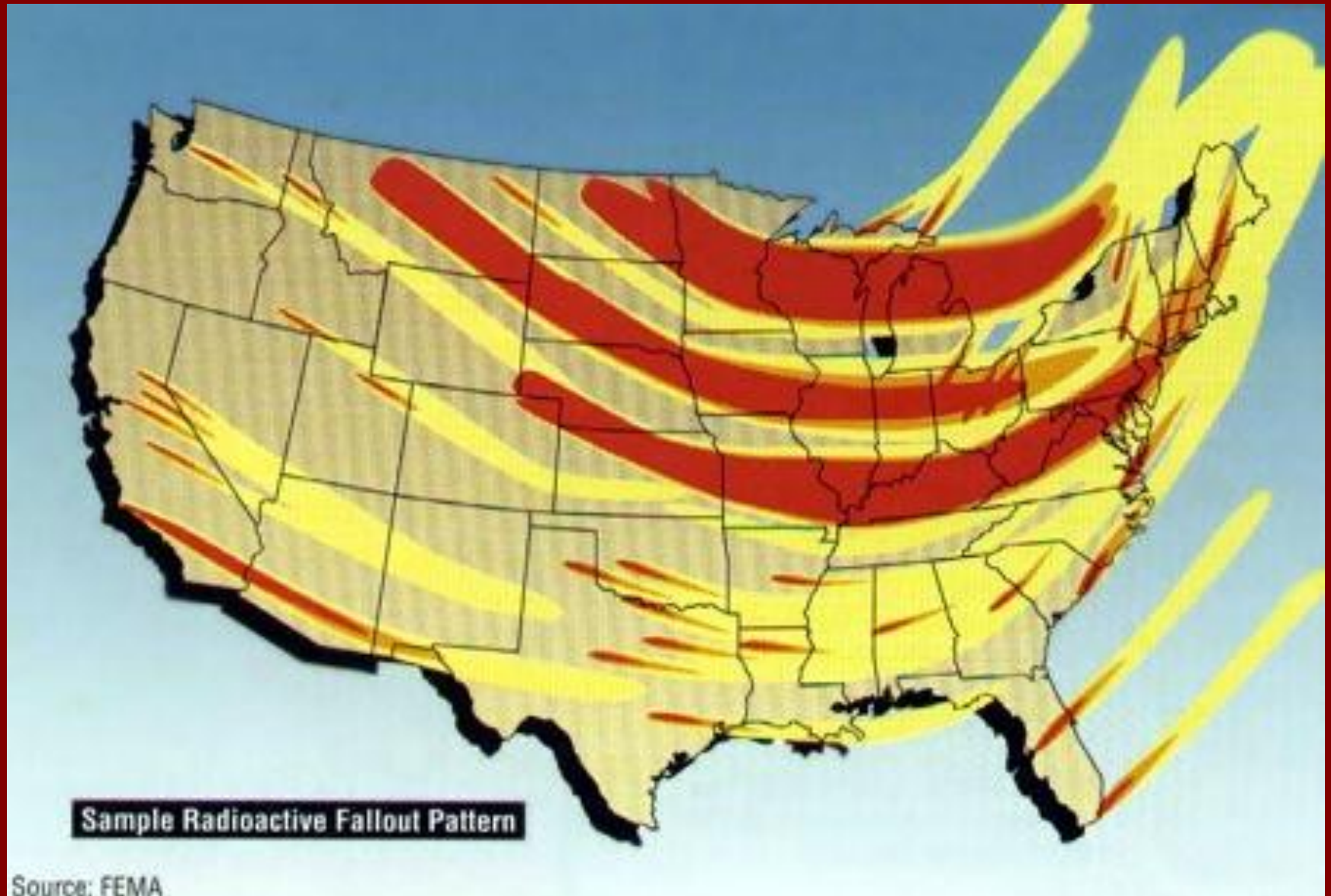




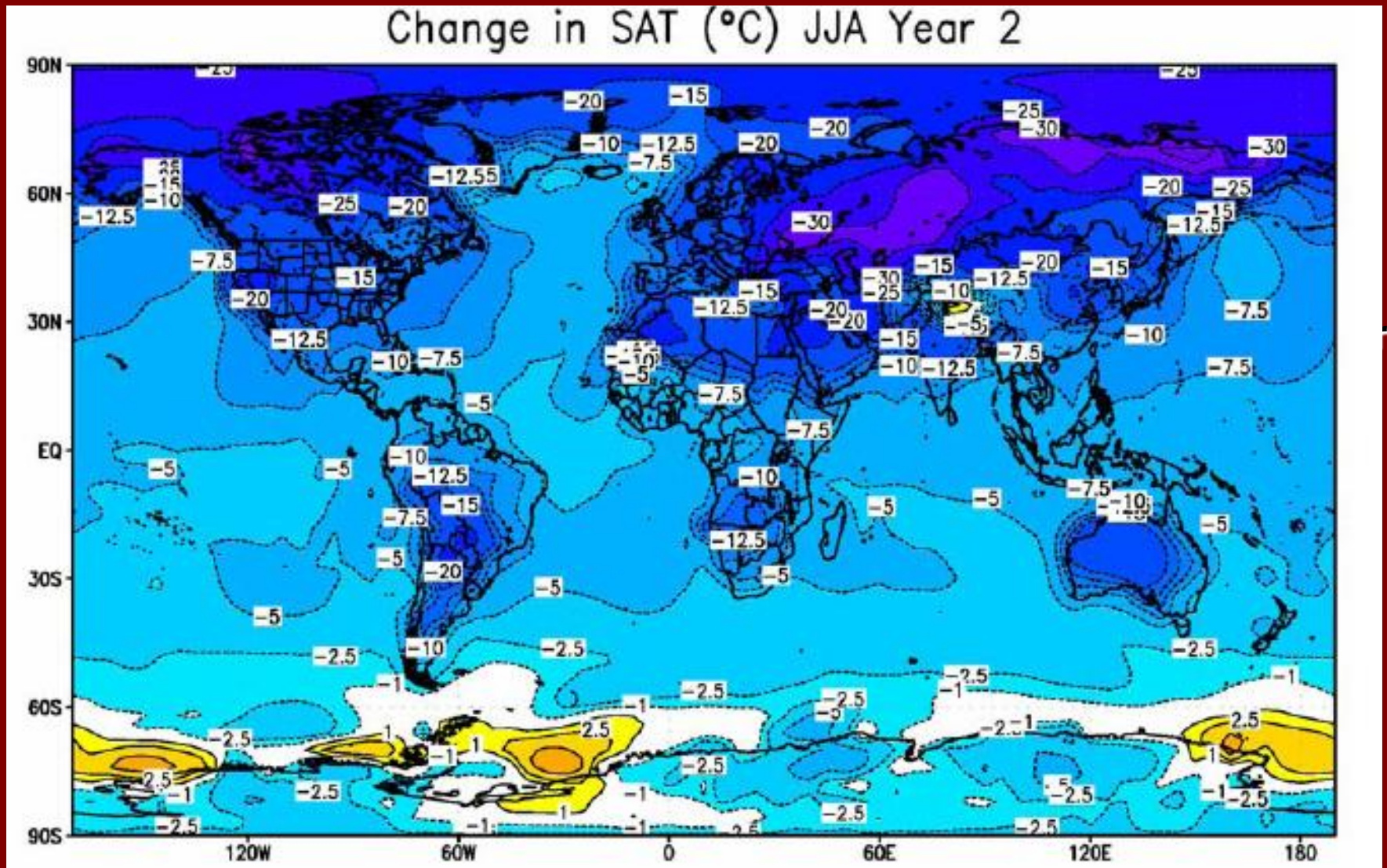




# Predicted Nuclear Fallout Pattern



# Surface Air Temperatures 2 years after 150 million tons of smoke enters stratosphere





# Climate effects of a full-scale nuclear conflict

