

Catastrophic Climatic Consequences of Nuclear Conflict- Building links with the Environmental Movement

Outline of PowerPoint Presentation by Steven Starr

Summary of New Research

- 3 large studies done at Rutgers, the Univ. of Colorado-Boulder and UCLA
- The studies employed the same NASA climate model used by the Intergovernmental Panel on Climate Change to study global warming
- Complete range of conflicts modeled; regional to full-scale nuclear war

Primary Findings

- Catastrophic disruptions of global climate and massive levels of ozone depletion will result if less than 1% of the global nuclear arsenal is detonated in large cities
- The climatic consequences of a large nuclear war – or even a pre-emptive nuclear strike – would make the Earth uninhabitable for humans

How does nuclear war cause climate change?

- Nuclear detonations in cities and industrial areas create immense mass fires
- Millions of tons of smoke rise into the stratosphere and remain there for years
- Stratospheric smoke blocks sunlight and acts to destroy protective ozone layer
- Nuclear darkness causes rapid drops in global surface temperatures and leads to significant reductions in global precipitation. These changes last for many years.

How powerful is the global nuclear arsenal?

Largest convention bomb 2008 = 44 tons of high-explosive
Hiroshima-size nuclear weapon = 15,000 tons of TNT
Smallest strategic nuclear weapon = 100,000 tons of TNT

Total explosive power of all bombs detonated during **World War II = 3 MT**
(3 MT = 3 million tons of TNT)

**U.S. and Russian High-alert strategic nuclear weapons = 1185 MT =
395 times larger than World War II**

High-alert weapons can be launched in 3 minutes

Explosive power of **all deployed U.S. and Russian nuclear weapons =
2700 MT = 900 times larger than World War II**

Operational, deployed weapons are available for immediate use

What are the predicted climatic effects of regional nuclear war?

100 Hiroshima-size weapons exploded in “regional” nuclear war between India and Pakistan (total explosive power = 1.5 MT or 1/2 of World War II, or 0.05% of deployed weapons yield)

- 5 million tons of smoke rise above cloud level to block sunlight
- Global temperatures = “Little Ice Age”, causes significant decreases in global precipitation
- Massive ozone loss; up to 40% over populated latitudes, 70% over northerly latitudes
- Shortened growing seasons cause 1 billion (already hungry) people to starve to death

What are the predicted climatic effects of a large nuclear war?

Weapons used = High-Alert weapons + Deployed Arsenal (1667 MT to 5000 MT)

- 50 to 150 million tons of smoke rise above cloud level to stratosphere
- Earth becomes colder than it was 18,000 years ago at the height of the last Ice Age
- Massive destruction of ozone layer. (10 to 30 times more smoke than in regional war)
- 45% reduction in global precipitation; Summer rains no longer fall due to cold temps
- Nightly killing frosts for up to 3 years in large agricultural areas of Northern Hemisphere

How would growing seasons be affected?

- Growing seasons virtually eliminated for many years by any large nuclear war
- Most people and animals would starve to death

Nuclear War and Climate Change

- The most lethal effects of nuclear war appear to be its predicted impact upon global climate. People and living things far from the target zone will all be endangered
- The smoke remains in the stratosphere for many years; 40% still there after a decade
- The Rapidity of Climate Change from nuclear war makes it equally or more dangerous than Climate Change from global warming: there is no time for living things to adapt

Rapid global temperature drops from nuclear war versus global warming

- Global warming since 1880 compared to predicted temperature drops from nuclear war: The speed and size of nuclear-war induced Climate Change would be unprecedented in human history

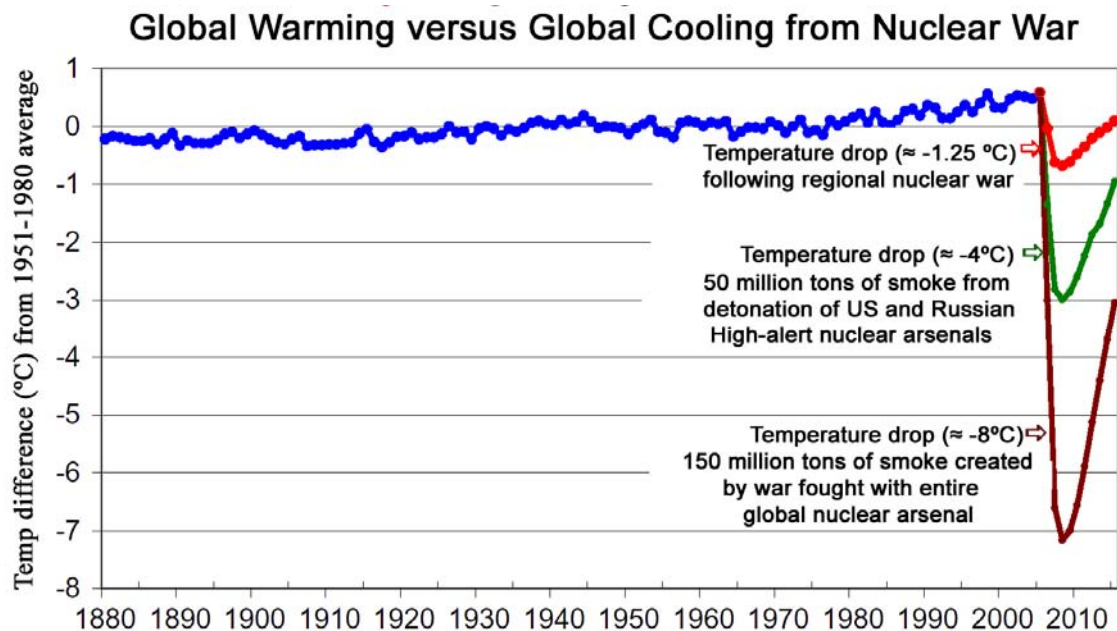


Figure: Average global surface temperatures since 1880 (global warming) compared with temperature drops predicted by NASA climate models in three different nuclear war scenarios

First talking point with Environmentalists:

Nuclear war is a Climate Change issue

- All progress made on ending global warming will be made meaningless by nuclear war
- Rapidly of Climate Change from nuclear war makes it equally or more dangerous than Climate Change from global warming: living things cannot adapt quickly enough to survive
- The same NASA computer model used by the Intergovernmental Panel on Climate Change to model global warming were used to predict global cooling from nuclear war

Second talking point with Environmentalists:

Nuclear war is an Environmental issue

- Even a 'regional' nuclear war would have huge impacts upon terrestrial and marine life from Climate Change and massive ozone destruction
- A large nuclear war would completely devastate Earth's already-stressed ecosystems
- Massive radioactive fallout, huge quantities of toxic industrial chemicals, and enormous ground-hugging clouds of toxic smoke (pyrotoxins) would also be released into the environment. Targeting nuclear reactors would increase fallout by a factor of ten.
- Extreme Climate Change from nuclear war would produce Ice Age conditions, collapse the food chains and cause mass extinctions

Educational Goals

- Make nuclear war a primary environmental issue as it was during the 1980s
- Get environmentalists to understand and publicly acknowledge the certainty of deadly Climate Change from nuclear conflict
- Climate Change discussions and education must include the dangers of global cooling from nuclear war.
- Utilize the last ten years of public education and acceptance of the dangers of Climate Change to reawaken the anti-nuclear weapons movement

Political Goals

- Immediately remove all nuclear weapons from high-alert, launch-ready status
- End dangerous policies for the use of nuclear weapons; No-LoW, No First Use
- Honor NPT obligations to act "in good faith" to eliminate nuclear weapons
- Adopt the Model Nuclear Weapons Convention as a pathway to abolition
- Redirect the resources devoted to nuclear arsenals to address basic human needs

Tell our Leaders:

Suicide Is Not a Defense