

# Humanitarian problems from the use of nuclear weapons

- and some solutions?

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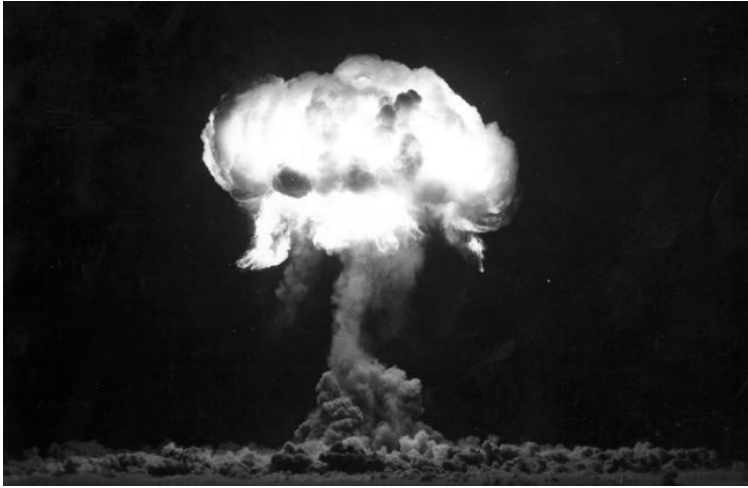
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# The Context:

- A new initiative by civil society – starting with a conference in Oslo hosted by the Norwegian government in March 2013.
- This has built on success in other campaigns eg the International Campaign to Ban Landmines and the Cluster Munitions Coalition (ICBL-CMC), the Campaign to Stop Killer Robots. Many new organisations outside peace movement participating. Eg Red Cross.
- A new process within the UN
- A series of official UN statements gradually garnering more state support – UNGA 68 – 125 signatories (91 more than in 2012)
- Next conference to be hosted by Mexico in February 2014
- SGR's vital role has been to calculate the scale and impact of the use of nuclear weapons.

# Weapons Effects



# Nuclear weapons effects

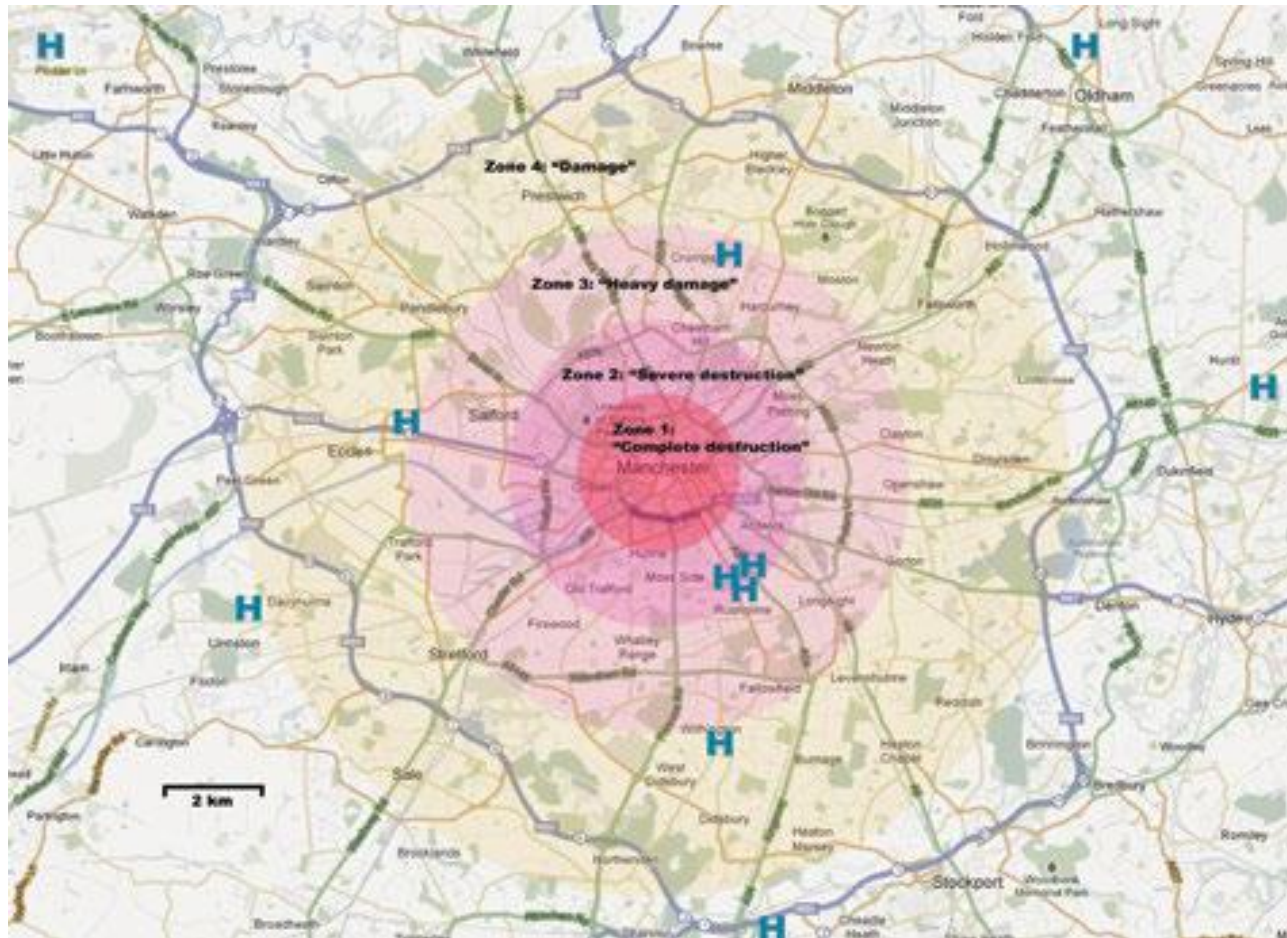
- **Electro-magnetic pulse**
- **Immediate radiation**
- **Intense blinding flash & flash burns**
- **Intense and rapidly rising fireball**
- **Long duration supersonic blast wave**
- **Fires, possible firestorm**
- **Delayed radiation (fallout)**
- **Complex damage to infrastructure**
- **Complex health effects**
- **Climatic and unknown ecological effects**

# Catastrophic Humanitarian Consequences

- In the remainder of this presentation I present information that has been presented in Oslo in March 2013, presented to all state delegates and discussed by large numbers of civil campaigners.
- The original piece or work was to work out the impacts of one nuclear detonation over a medium-sized city – Manchester - using a ‘typical’ 100kT nuclear weapon.
- I also reworked the article about Trident destabilising the global climate. This was also circulated along with articles exploring the legal and UN process.

# What could *one* 100kT warhead do?

- with reference to a medium-sized city - Manchester



In less than one minute of devastation: 81,000 dead, 212,000 injured  
Loss of 40% hospitals, 50% police, 25% fire, 30% ambulance services

# One detonation over Manchester

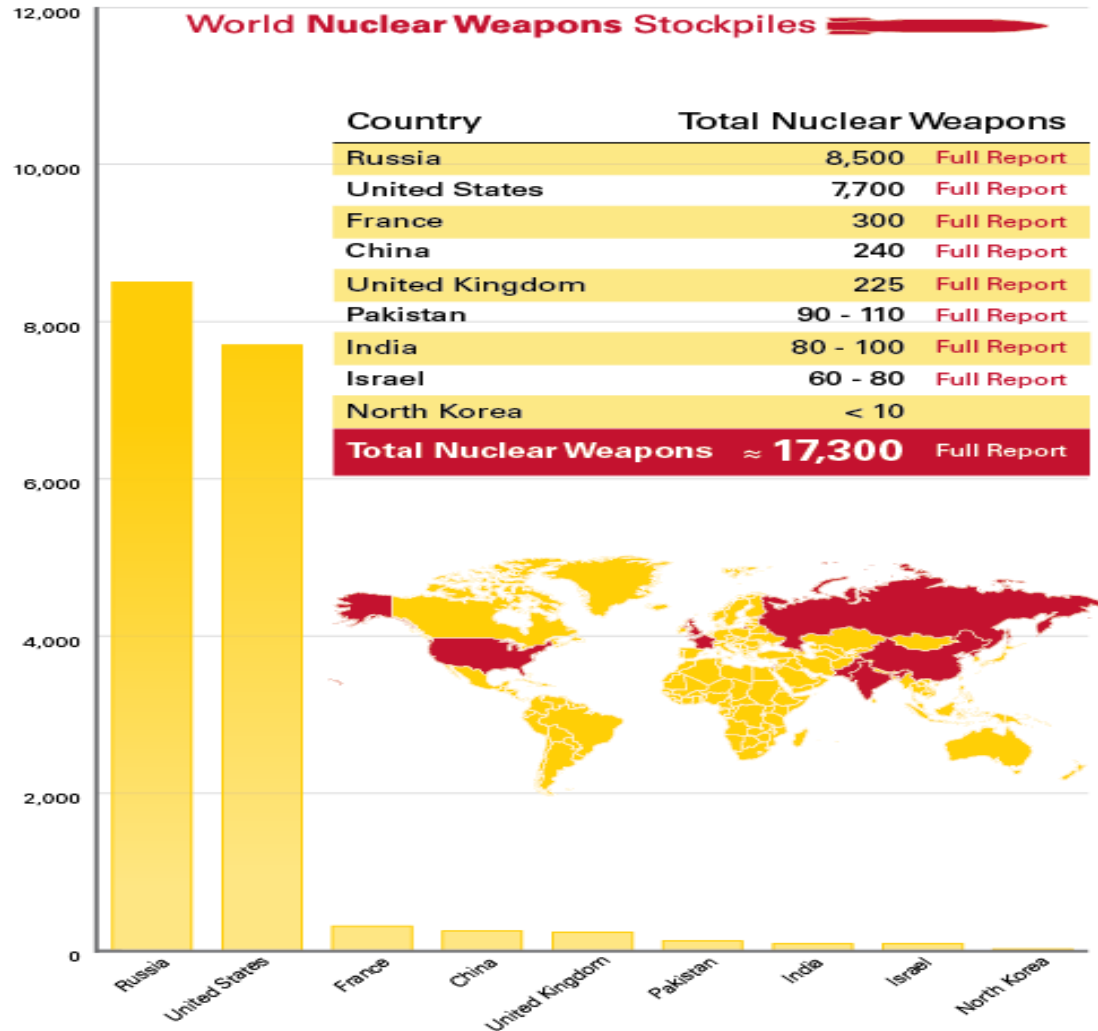
- 2km radius zone of complete destruction – 39,000 dead
- 3 km radius – to Cheetham Hill, Old Trafford Rusholme, 50%: 34,000 people dead, 27,000 injured.
- Blunt trauma, burns, crush injuries, severe burns
- Roads blocked, cars set alight
- 5km radius – heavy damage - to Salford, Crumpsall, Lonsight, Fallowfield, Whalley Range. 900 dead, 85,000 injured
- Severe cuts, burns injuries, flying debris (glass, masonry) Complex health effects
- 8km radius, Eccles, Didsbury, Stretford, Sale, broken windows, damaged roofs,
- 10km - depending on wind direction – lethal fallout and another 40,000 delayed casualties over 2-3 weeks. Nausea, vomiting and diarrhoea. Blood loss.
- Children, the elderly, those with medical conditions most vulnerable
- Loss of 1420 hospital beds, 8 ambulance stations, 3 fire stations, 17 fire engines, fire service HQ, 5 police division HQ, 588,000 people in severely – heavily damaged homes, 600,000 displaced persons.
- Loss of main railway stations, bus stations, tram termini, Trafford Park World freight centre. Obstructions to M60.
- Man U and City Football stadiums, Media City, Trafford centre destroyed / badly damaged.
- Fallout danger in central areas for over a year afterwards

# **But in reality there won't be one explosion**

- **Despite considerable reductions in the numbers of nuclear weapons since the heights (or is it lows) of the Cold War in the 1980's there are still large nuclear arsenals**
- **Nuclear weapons are held by a large number of countries**
- **Many more than you might think**



# World Nuclear Weapons Stockpiles



Russia - 1800 deployed  
 USA – 2150 operational

Typical warhead size  
 100 – 300 kT

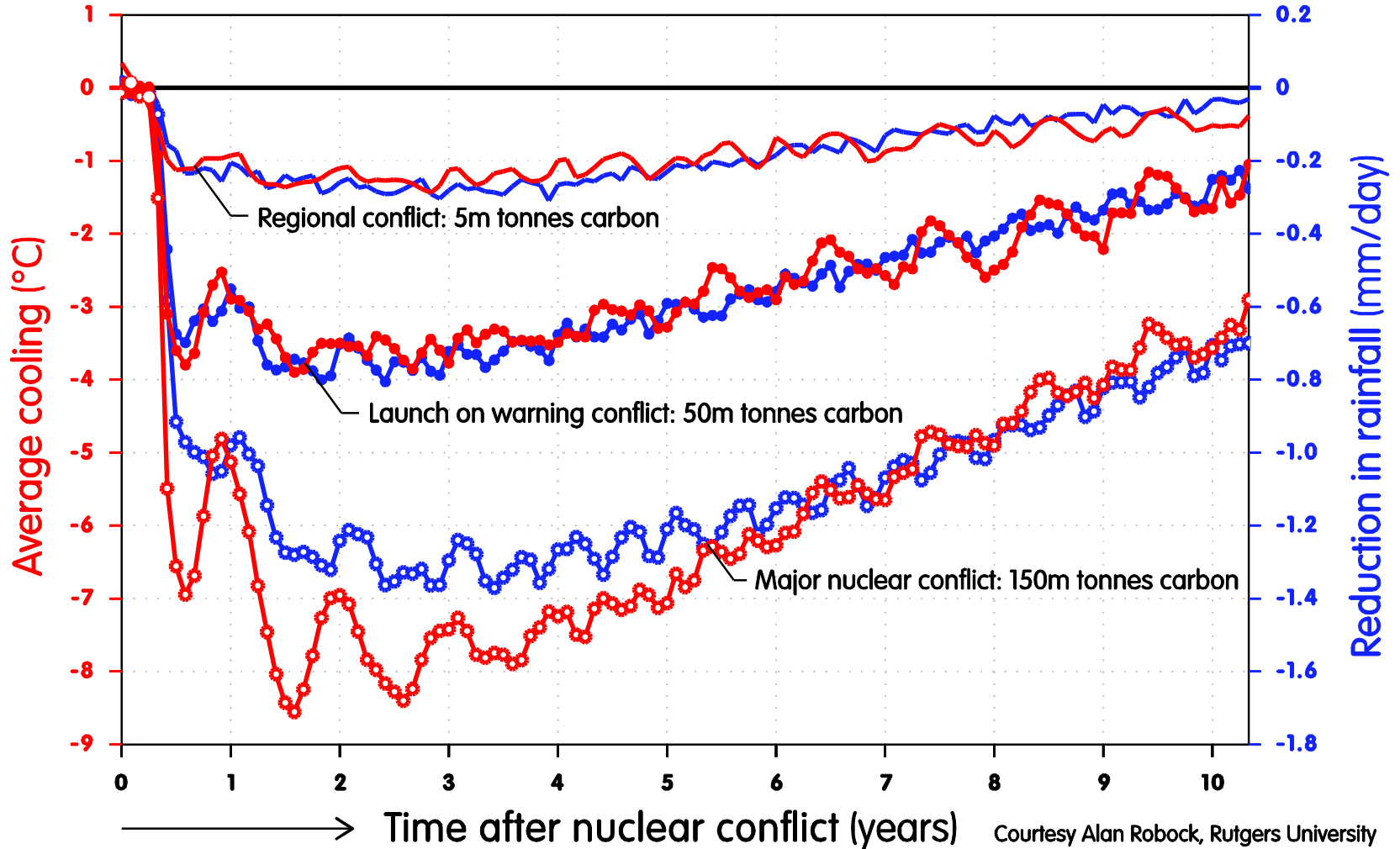
# So who did I miss out?

- Netherlands, Belgium, Germany, Italy, Turkey?
- Air force pilots all trained to drop 180 US 'hosted' B-61 drop bombs from dual capable F-16s and Tornados
- B-61 undergoing a \$10bn mod-12 'upgrade'
- To give the bombs another 30 years of (more 'accurate') 'life'
- Or should we count ALL of NATO?
- *All* NATO's 28 countries signed a DDPR- Deterrence and Defence Posture Review in May 2012.
- nuclear use is seen as 'extremely remote' but a 'supreme guarantee'
- SNOWCAT: Supporting Nuclear Operations Weapons with Conventional Air Tactics - enables other countries to be part of the nuclear threat through air refuelling of nuclear armed aircraft and target identification for nuclear strike.

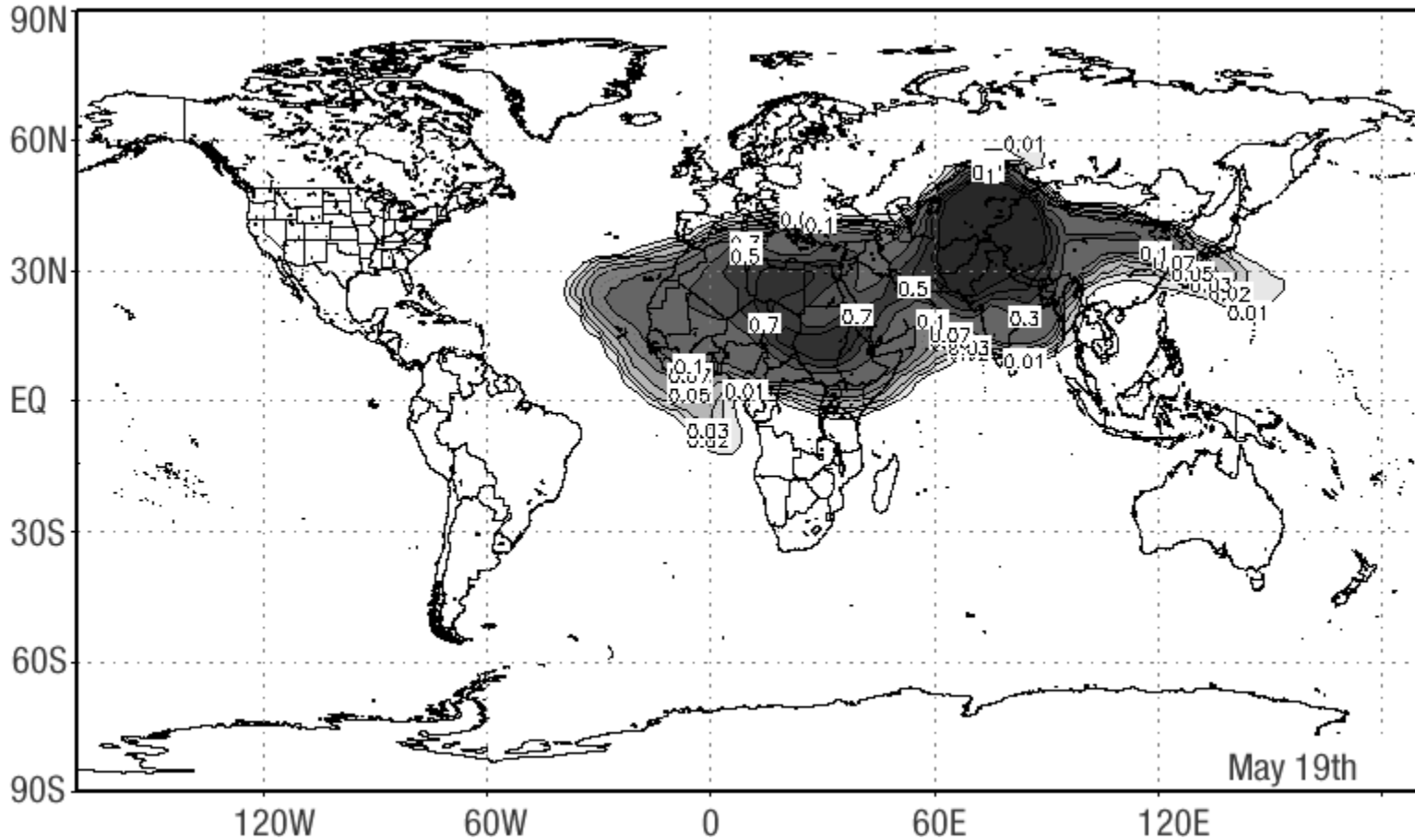
# The impact of more realistic nuclear scenarios?

- “regional nuclear conflict: India vs Pakistan – about 100 Hiroshima sized weapons
- Nuclear weapons on high alert – launch on warning – several hundred larger 100kT plus sized weapons
- The full “strategic exchange” – thousands of nuclear weapons

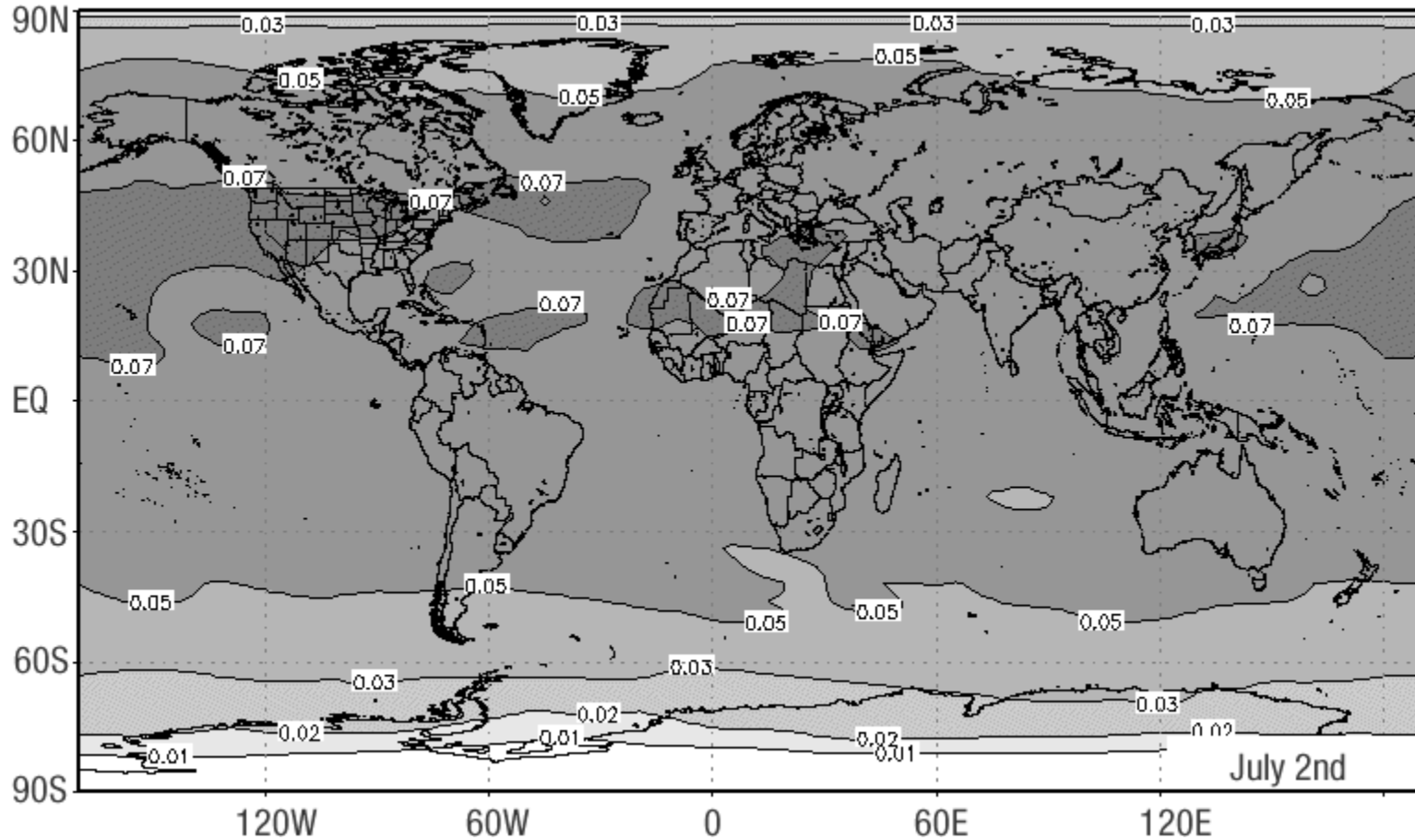
# Climatic changes caused by nuclear conflict



# Smoke clouds from regional conflict

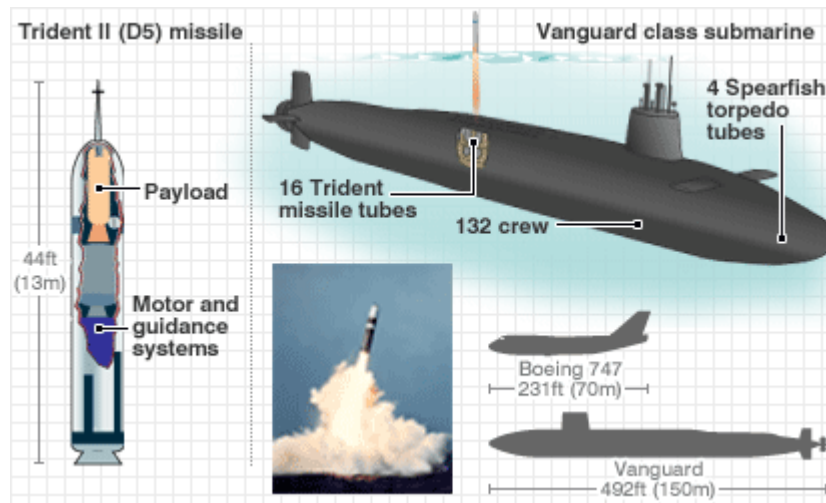


# Smoke from US – Russian conflict



# UK Trident

- 4 x large submarines
- “up to” 8 missiles per sub
- “no more than” 40 warheads per sub
- Firepower in one sub *greater* than WW-2 !!



# Summary city impacts

- **40 x 100kT warheads - one Trident submarine – 2% of US or Russian weapons - could directly kill 10 – 20m people – depending on the targets**
- **Against largest 5 Russian cities – about 10m dead**
- **Against mega cities in Asia – over 20m dead**
- **Huge fires → massive smoke clouds → reduced growing seasons by 10 – 30 days → global famine – 1bn at risk**
- **A capability to destabilise the world's climate is a grossly disproportionate and perhaps suicidal response to uncertain security concerns**
- **Nuclear weapons do not address real and present security issues, e.g. reliable energy & food supplies, terrorism**



# The Implications?

- If the use of Trident or the 180 US or even more so 1800 Russian nuclear weapons in Europe would be suicidal then surely this must undermine the whole concept of deterrence?
- For deterrence to be credible the threat has to be credible
- Alternatively you have to deny the possibility that nuclear use would in fact be counterproductive.
- Which means that the nuclear policies of the nuclear armed states and alliances are delusional, irrational, actively dangerous and need to be abandoned.

# Main Sources

- Based on recent work for:  
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Responsibility, SGR. *Published in Nuclear Monitor, Bulletin of  
Nuclear Scientists, 2007, evidence to US Congress.*
- Weapons effects from US nuclear test data, including  
bombing of Japan and widely accepted US casualty models
- Previous work by Scientists Against Nuclear Arms & MEDACT
- SCOPE study 1983, latest atmospheric models by US and  
Russian scientists published in *Atmospheric Chemistry and  
Physics*.

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# 2013 Reports

- Moyes R, Webber P and Crowther G (2013).
- Humanitarian consequences: Short case study of the direct humanitarian impacts from a single nuclear weapon detonation on Manchester, UK. (Article 36.)
- <http://www.icanw.org/wp-content/uploads/2013/02/Article36-Manchester-Report.pdf>
- Webber P (2013).
- The climatic impacts and humanitarian problems from the use of the UK's nuclear weapons. (Scientists for Global Responsibility.)
- <http://www.sgr.org.uk/publications/climatic-impacts-and-humanitarian-problems-use-uks-nuclear-weapons>

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