Introduction to 7 issues:

- Russia
- North Korea
- Israel and Neighbors
- Pakistan / India
- Mr. Trump’s ignorance and disdain
- China
- Iran, Saudi Arabia, etc. (see 3 & 4)
Russia

Modernizing

ISKANDER mobile missile. A “SRBM” range ~ 500 km can carry both conventional and nuclear warheads.
Russia
Modernizing

Russian SSC-8 land-based cruise missile that is alleged to exceed INF limits with a range of up to 2,000 miles. Can probably carry both conventional and nuclear warheads.
“Satan 2” or Sarmat, Russian ICBM is now replacing the old SS-18 Satans that carried just ten, 1-megaton warheads. ~3 million MN dead in minutes. The Sarmat’s are rumored to be more powerful, swifter and shiftier.

Our equivalent was called the MX, but we scrapped that long ago because our little, old Minuteman III’s can still wipe out the northern hemisphere just fine. Then there are the bombers and the subs. You can only blow up civilization once, really, before the rubble bounces.
Just one of these old Satans could, and still can kill about 3 million Minnesotans in minutes.

The US and Russia still have over 90% of the world’s known nuclear weapons, so we remain the main existential threats to each other.

Therefore we two are Number 1 … in …
Here are 2 nuclear laydown maps

SS-18 attack on Minnesota

Ten, 1-megaton warheads

Radiation Plumes From SS-18 Nuclear Detonations

Attack on the Twin Cities
Actually, Everyone is Modernizing

Thus dies Article 6 of the NPT
North Korea
the crazy* factor, or 3GD dynamics, or why the “rational actor” assumption matters to “MAD”
North Korea

Which Kim will prevail?

Only his shadow knows!

He knows Libya’s Gadaffi died, and Saddam Hussein died, when they did NOT have nukes.
Kim’s first nuclear tests were low-yield fizzlers and his missiles broke or blew up as often as they flew far. Guidance was so bad the Japanese and South Koreans used to call them big bottle rockets.

But no one is laughing anymore because every test brings them closer to being able to kill tens of thousands of innocents in minutes.
Israel & Neighbors
[Turkey, Iran, Saudi Arabia, Iraq, etc.]
80 – 2/600 nuclear warheads, with air, sea and IRBM delivery systems.

- Does the difference between 80, 200 or 600 nukes mean anything, really, in this context?
- Does anyone think that **ALL** of Israel’s many neighbors will decide not to build nuclear warheads of their own **forever**? And accept condemning their children to risk of instant annihilation at the hands of a foreign power?
Selected Israeli Delivery Systems:

The Jericho III IRBM missile, alleged range at least 3-4,000 miles, although the US - CRS estimated a maximum range of 11,000 km (~6800 miles).
Selected Israeli Delivery Systems:

The German Dolphin II Class, diesel Submarine (that can launch nuclear cruise missiles)  AIP variant

Secret Weapon
German submarines for Israel

Dolphin II Class
One submarine is still under construction, a second is undergoing tests and a third was recently ordered. With a length of 68 meters, this class is significantly longer than its predecessor. It includes an additional section to house a fuel cell propulsion system that allows the vessel to stay under water for several weeks at a time.

Dolphin Class
Length: 57.3 m (188 feet)  
Breadth: 6.8 m.  
Height: 12.7 m. (with tower)  
Three submarines of this type were delivered to Israel between 1999 and 2000, powered by a conventional diesel-electric propulsion system.

Fuel cells for direct generation of electricity from hydrogen and oxygen

Periscopes and antennas

Hydrogen and oxygen tanks

Drive shaft  Electric motor

Diesel motors and generators

Technology control center, engine control room

Command center

Crew rooms, galley, mess hall, showers, toilets

Batteries

Storage area for torpedoes, cruise missiles and mines

Ton torpedo tubes (six with a caliber of 533 mm, four of 650 mm). Rather than using compressed air, torpedoes and missiles are launched with a hydraulic system, rendering the launch largely silent.
These Armies do NOT like each other.

Pakistan lost 3 large wars with India (and a very large chunk of territory now called Bangladesh) and one small war in 1999 over a disputed territory called Kashmir. India is much bigger.

When India went nuclear on May 11 and 13 of 1998, Pakistan followed testing it’s first device on May 28. The world went nuts, although the South Asians could hardly have been surprised. Today, both nations have over 120 warheads each, with Pakistan building more faster than India which is also building more.

The point is that their arsenals alone might trigger nuclear winter.
Mr. Trump’s ignorance and disdain

How does one quantify something like that?
Here is a new Chinese DF-41, 3 MIRV ICBM just for us if Taiwan goes rogue.
China

The Dongfeng-41 can also carry 10 MIRV’d warheads if desired, like “Satan”

Everyone wants to “assure destruction” … if someone else fires first. Or maybe …

And solid fueled engines are much easier to move
Iran, Saudi Arabia, S. Korea, Japan, et cetera. Knowledge ‘leaks.’
And Fear is Contageous!

Some radical terrorists are not ‘deterred’ by fear. How long before they get WMDs for their fights?
What do laws of low probability Imply?

1. If you wait long enough, rare events often occur. Statistics can provide estimates on how long it may take for the rare event to occur based on assumptions or measurements.

2. Earthquakes provide a ready model for another process like this. $P(gnW) \rightarrow hlife(Hciv)$.

3. Therefore, if present trends continue and if nuclear weapons continue to proliferate, then they will almost certainly be used again.
The Bulletin of the Atomic Scientists Recently Moved the Dial of it’s “Doomsday Clock.” To 2.5!

Reduced by the Board of the Bulletin of the Atomic Scientists on Jan. 25, 2017. Statement explaining why at:
http://thebulletin.org/sites/default/files/Final%202017%20Clock%20Statement.pdf

IT IS TWO AND A HALF MINUTES TO MIDNIGHT®

### Global nuclear warhead inventory, 2016

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<th></th>
<th>Deployed</th>
<th>Reserve</th>
<th>Retired</th>
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*ATLAS | Data: Federation of American Scientists*
The Caterpillar Hypothesis:
(Maybe everything is going to Hell because we are being Transformed)

“What looks like hell to the caterpillar, The master calls a butterfly.”

Richard Bach, 1970 or 1977
We pray this stimulates some excellent questions.

Who would you rather work with?

Thanks very much for your time and attention.
Michael Andregg in St. Paul, Minnesota, USA