Scientific Proceedings of the Nuclear War Fallout From the Dark Dust and Stopping the Earth

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Abstract.

Nuclear war is clearly a global catastrophic risk, but it is not an existential risk as is sometimes carelessly claimed. Unfortunately, the consequence and likelihood components of the risk of nuclear war are both highly uncertain. In particular, for nuclear wars that include targeting of multiple cities, nuclear winter may result in more fatalities across the globe than the better-understood effects of blast, prompt radiation, and fallout. Electromagnetic pulse effects, which could range from minor electrical disturbances to the complete collapse of the electric grid, are similarly highly uncertain. Nuclear war likelihood assessments are largely based on intuition, and they span the spectrum from zero to certainty. Notwithstanding these profound uncertainties, we must manage the risk of nuclear war with the knowledge we have. Benefit-cost analysis and other structured analytic methods applied to evaluate risk mitigation measures must acknowledge that we often do not even know whether many proposed approaches (e.g., reducing nuclear arsenals) will have a net positive or negative effect. Multidisciplinary studies are needed to better understand the consequences and likelihood of nuclear war and the complex relationship between these two components of risk, and to predict both the direction and magnitude of risk mitigation approaches.

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INTRODUCTION

Regarding consequences, does unconstrained nu- clear war pose an existential risk to humanity? The consequences of existential risks are truly incalcu- lable, including the lives not only of all human be- ings currently living but also of all those yet to come; involving not only Homo sapiens but all spe- cies that may descend from it. At the opposite end of the spectrum of consequences lies the domain of "limited" nuclear wars. Are these also properly con- sidered global catastrophes? After all, while the only nuclear war that has ever occurred devastated Hiroshima and Nagasaki, it was also instrumental in bringing about the end of the Pacific War, there- by saving lives that would have been lost in the planned invasion of Japan. Indeed, some scholars similarly argue that many lives have been saved over the nearly three-fourths of a century since the advent of nuclear weapons because those weapons have prevented the large conventional wars that otherwise would likely have occurred between the major powers. This is perhaps the most significant consequence of the attacks that devastated the two Japanese cities.

Notwithstanding our limited understanding ofboth the likelihood and consequences of nuclearwar, there is no shortage of ideas about what todo about nuclear risk. The three pillars of US policyare(1) nonproliferation to reduce the threat from an ever-increasing number of nuclear states, (2) counter terrorism to prevent non state organizations from acquiring nuclear materials and weapons, and (3) deterrence to prevent attack from hostile nuclear states. I will briefly address the first two of these, and then discussing r eater depth the role of the nuclear balance and arsenal size in underwriting deterrence strategy. My main point is that there are large uncertainties and a lack of consensus regarding the benefits of alternative policies proposed to manage nuclear risk. I do not address a multitude of other ideas, such as reducing dependency on launch on warning, increasing (or decreasing) missile defenses, moving toward anuclear-free world, and formulating policies thatreflect the complex relationships among strategicnuclear weapons, tactical nuclear weapons, andconventional, cyber, and space capabilities. These approaches are also fraught with uncertainties and lack consensus.

It might seem obvious that the fewer the numberof nuclear states, the safer we are, and indeed that appears to be the consensus view in the nationalsecurity community. The main argument is thatwithfewernuclearstates,therearefewerpath waysto nuclear war. This may be true, but it is not thewhole story. The United States benefits from boththeBritishandFrenchnucleararsenalsindeter ringRussiafromnuclearandlargeconventionalatta cksin Europe. This is not primarily because of our allies' arsenals themselves, but because they provide It is not entirely clear why the development andpossession of nuclear weapons by Japan or South Korea, for example, would not similarly contribute to international security, especially because further prolife ration in north east Asia is unlikely to be provoked. More generally, Kenneth Waltzhas argued that the more states that have nuclear weapons, the safer the world will be from nuclear war.[34] His argument is consistent with the historical experience that demonstrates that nuclear weapon states have show ngreat for be arancein engaging indirect combat with each other.

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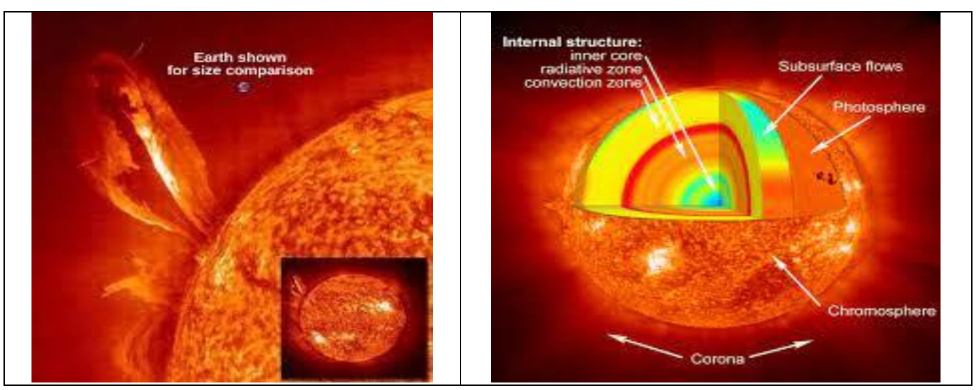

Figure 1

With this foundation, I now turn to assessments of the risk of nuclear war, first addressing likelihood and then consequences.

MATERIAL AND METHODS

Nuclear war is a global catastrophic risk that will be with us for the foreseeable future. Unlike most other global catastrophic risks, there is an interplay between consequences and likelihood that forces us to question just how much we should try to reduce either component of risk.

Our understanding of the risk of nuclear war is highly uncertain, both for likelihood and consequences. But steps can be taken to improve this situation. Regarding likelihood assessments, the first important step is to develop a more refined sense of humility about whatever intuition is informing our judgments. We can and should also undertake more disciplined analytic studies. These should be multidisciplinary because no single analytic approach has proven to be satisfactory. We can learn something from historical case studies, expert elicitation, probabilistic risk assessment, complex systems theory, and other disciplines. Regarding consequence assessments, the Defense Threat Reduction Agency needs explicit direction to focus on less understood nuclear effects, particularly EMP and nuclear winter. Even absent further nuclear testing, there are no fundamental barriers to obtaining a better understanding of these important phenomena.

It is also apparent that the optimal strategy for reducing nuclear risk is also uncertain. This suggests a cautionary and balanced approach. Extremes, such as global zero or replacing nuclear deterrence with widely deployed missile defenses, are untested gambles and either politically or technologically prohibitive. Some combination of measured and slowly implemented reductions, while maintaining parity with our largest adversary, seems prudent.

Figure 2

Because the stakes are so high, nuclear deterrence (like liberty) requires eternal vigilance. The good news is that we can afford whatever we decide we need to underwrite nuclear deterrence. As remarked by Secretary of Defense James N. Mattis, "America can afford survival."44 But spending money is the easy part. The challenge is to decide wisely what we need to spend it on.

Figure 3

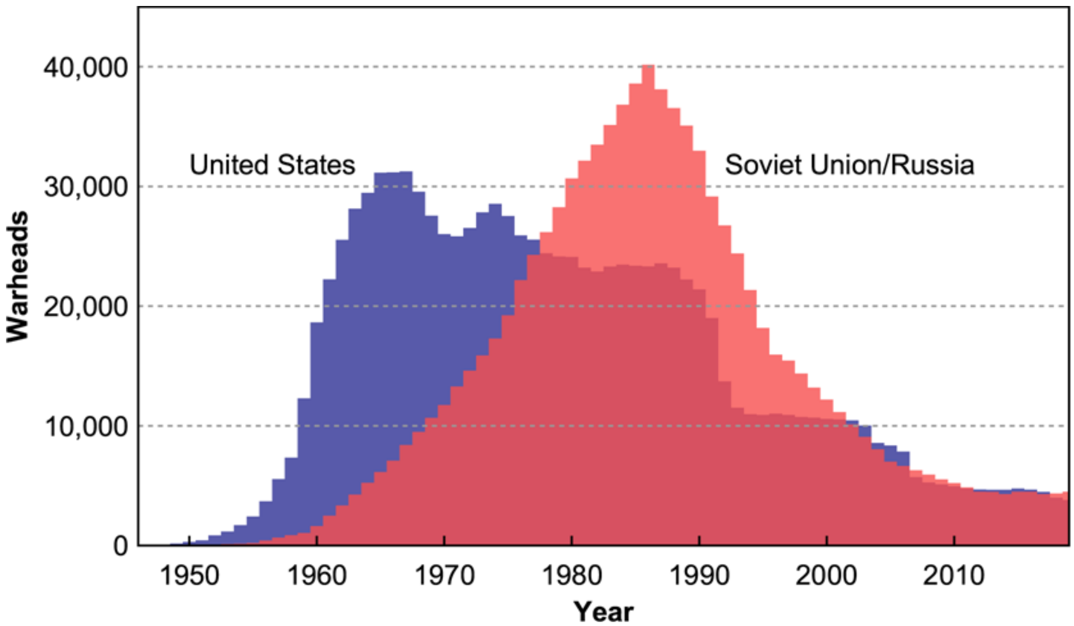

Figure4.USandSoviet/RussianNuclearArsenalsoverTime

RESULTS AND DISCUSSION

It is clear that we cannot reduce nuclear risk to zero unless we eliminate all nuclear weapons from the earth, and perhaps not even then. And while President Obama was a strong advocate for "global zero" as a long-term objective, no other nuclear state seems to have seriously embraced this vision.

But there is also a possible serious downside to reducing nuclear risk to zero. Citing the absence of great-power wars since 1945, some proponents of nuclear weapons have emphasized their importance

singular analysis of wartime fatalities from the year 1600 to the present. While the original graph of the results of this analysis was circulated in the defense community in the mid-1990s, it has evolved over the decades, with the most recent variant (shown in Figure 7) appearing in the 2018 Nuclear Posture Review report. It indicates that wartime fatalities have been lower in the nuclear era than during any previous time since 1600, implicitly crediting the advent of nuclear weapons for these saved lives.

Ice, Scouras, and Toton42 analyzed this graph and found that it is fatally flawed. In particular, it is irreproducible from information provided by the Department of Defense Historical Office, the cited source of data; it uses dubious analytical methods (among them, concatenation of incompatible databases and erroneous normalization by world population); and it presents results in a profoundly misleading manner, primarily due to varying histogram bin widths.

addition to the accumulation of snow and the almost complete destruction of the infrastructure and human life, in addition to the billions of human victims, and I expect from my side that if the nuclear strikes are continuous, they cause frightening craters to end in increasing rushes and terrifying rebounds towards the core of the earth, and then the earth steps accelerating or slowing down according to the angle of the bombardment, just as There has been a slowdown of part of the degree due to the occurrence of a particular volcano, but ifThe strikes were met with opposite strikes, and the ricochet took place, and the opposite angles of the bombing were equal, then we suggest a stop to the ground. In fact, we did not find before us scientific outputs acceptable to the researchers for such repercussions of this mass destruction. Therefore, I suggested from my side appropriate outputs, which is that we install panels extending over the land of the city under the supervision of experts

They determine its circumference and diameter so that it is stitched with crowded wires, each of which is crowned with LED light, which is characterized by a certain intensity of light and a certain penetration, and is interspersed with X-rays that are characterized by a certain high frequency and a large penetration. Thus, the atomic dust crystals are bombarded by these photons according to this equation $dv / dt = 1/3 \pi (r^2 dh /dt + h2r dr/$

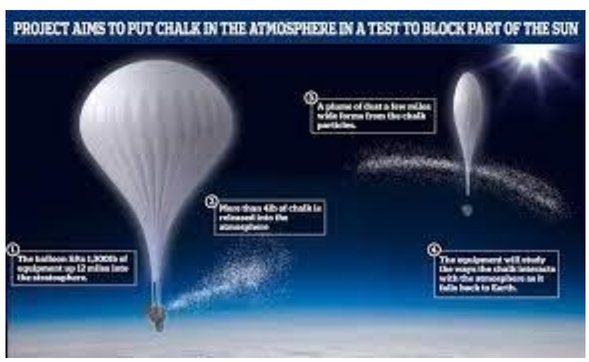

Figure 5

Conclusion

The bombardment is at a rate of several thousand per second, given that the speed of the aforementioned dust is almost static compared to the speed of light, which is 300,000 m s. Here, the crystals begin to disintegrate, as well as some of the layers of crystals that are above them. It is able to penetrate the layers that are higher than the first, and thus, with the continuous movement of the soil, it can penetrate the higher layer after thatThe relative disintegration of the lowest ones, and as a result, such disintegration leads to the dispersal of the dust, to end up in a collision between its parts and to the taming of its movement, and then quantities of dust are deposited due to the gravitational pull that the earth was able to achieve as a result of the slow

movement of the dust. The offer is to install similar panels on its land. It is also better that the missiles be directed to four axes in addition to the center, provided that the timing of the explosion is at a height and timeCertain, with the succession of the missile bursts, the huge air masses represented by the dust begin to rupture gradually sooner or later and turn into pieces that get raging scrambled and then end in cooperation with the activity of the plates to tame so that the earth can exercise increasing clouds waiting for this sunrise and we suggest to move the earth again that we dig A crack under the supervision of experts of various specializations. They are left to determine the length and depth of the crack. It is charged with very large, highly explosive materials.
Provided that the energy liberated from it in the aftermath of the explosion is equal to the total mass of the earth. Thus, when the explosion is directed to the western horizon, the terrifying, mighty reaction that it leaves behind will be like a giant jet that can make the earth move.

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