

peace overtures, and doggedly pursued the path of war, bloodshed, and destruction.

The U.S. and NATO have violently opposed democratic self-determination for the Russian-speaking peoples of the Donbass along the border of Russia. When Elon Musk proposed UN-supervised elections to determine whether Russian-speaking regions would join Russia or return to Ukraine, Zelensky was furious; he

knows that given a choice, the people of those regions would, once again, vote overwhelmingly to join Russia.

Americans must come to understand that it is our government, and not Russia, that insists on continuing the war. We must come to grips with the mortal danger that the Ukraine War and our NATO alliances pose for the U.S. and for the world.

Thank you.

Steven Starr What Would Happen If a Nuclear War Started in the Black Sea?

Steven Starr is Assistant Clinical Professor and former Clinical Laboratory Science Program Director at the University of Missouri. He's an associate member of the Nuclear Age Peace Foundation, and a leading expert on nuclear warfare, whose articles have appeared in publications such as the Bulletin of the Atomic Scientists.

This is the edited transcript of his presentation to Panel 1, "Stopping the Doomsday Clock—The Common Good of the One Humanity," of the Schiller Institute's Nov. 22 conference, "For World Peace—Stop the Danger of Nuclear War: Third Seminar of Political and Social Leaders of the World." The full proceedings of the conference are [available](#) at the Schiller Institute website.

Thank you for having me at this event, it's an honor to be here with everyone. I teach a class on nuclear weapons at the University of Missouri, and I found that very few of the students understand what a nuclear weapon is, because the American public schools don't teach about this subject.

Let me begin by discussing what a nuclear weapon is, and how much different it is than what we consider conventional weapons.

The largest weapon that is currently in the U.S. non-nuclear arsenal is called the "mother of all bombs." It has 11 tons of TNT explosive power. Given that a ton is 2,000 pounds, that's 22,000 pounds of TNT. When converted to kilotons (1,000 tons), the measurement



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unit used with nuclear weapons, that's 0.01 of a kiloton. It's a pretty big weapon but compared to the 15 kiloton Hiroshima bomb, it's about 1,000 times *smaller*. Fifteen kilotons is 15,000 tons of TNT; that's the equivalent of 30 million pounds of TNT.

Explosive power is only one way to describe the difference between conventional and nuclear weapons. The nuclear weapon is like a piece of the Sun. When it explodes, the surface of the fireball it creates is hotter than the surface of the Sun, so anyone close to it is going to be vaporized, and it will ignite fires over large distances.

Look at what Hiroshima looked like before the bomb went off and what it looked like afterward. About 4–5 square miles of Hiroshima were ignited into a giant nuclear firestorm, and it burned everything. These firestorms actually release more energy than the nuclear weapon does.

We've gone a long way from atomic bombs. But the U.S. still has atomic bombs called "tactical nuclear weapons," although that's not a very precise definition. The U.S. B61 Nuclear Gravity Bomb (100 of which are at NATO bases) has a variable range of explosive power. They call it a dial-a-yield weapon; the pilot can set the explosive anywhere from three-tenths of a kiloton to 50 kilotons. Now, three-tenths of a kiloton is 50 times smaller than the Hiroshima bomb: it's equal to 300 tons of TNT. They developed this [dial-a-yield] because the military wanted a *usable* nuclear weapon. They said that these bombs are too big, we want one we can use.



Hiroshima Peace Memorial Museum/Shigeo Hayashi



Hiroshima, Japan, before and after it was destroyed Aug. 6, 1945 by a nuclear weapon, which ignited a giant firestorm, transforming everything within a 4-5 square mile area into barren wasteland.

What this does is it blurs the distinction between nuclear and conventional. And it's very dangerous, because field commanders are going to be a lot more likely to use a weapon like this in a situation where war breaks out and they're losing. The U.S. has about 100 B61s at NATO bases right now.

U.S. Nuclear Weapons in Europe

The red dots on the map of "U.S. Nuclear Weapons in Europe, 2022" shows where they're located right now. There are five nations: Belgium, Germany, Italy, Netherlands, and Turkey. The black squares show where the planes are that can carry them. It's actually a violation of the spirit of the Nuclear Non-Proliferation Treaty (NPT) to share nuclear weapons with other nations, but the U.S. uses a technicality to get around that.

The U.S. also has ballistic missile launching sites in Poland and Romania. It's called Aegis Ashore. The Aegis system had been designed for use on ships, but the Aegis Ashore land-based installations are only 800–1,000 miles away from Moscow, so Russia considers them quite a danger. If the U.S. had Russian missile sites, 800 miles away from Washington, D.C., I think we would be worried about it, here. Aegis Ashore uses an MK41 missile launcher. It's a dual-use launcher. It can also launch Tomahawk cruise missiles.

The Lockheed Martin sales brochure lists the Tomahawk missile under Strike Warfare. For ballistic missile defense, there's an SM-3. That's supposed to be an interceptor missile, although I think it's possible you could substitute a nuclear warhead on there.

In the [MK41 Vertical Launch System](#), the missiles are loaded in closed containers, and Russia is unable to verify the missile type. It was actually a violation

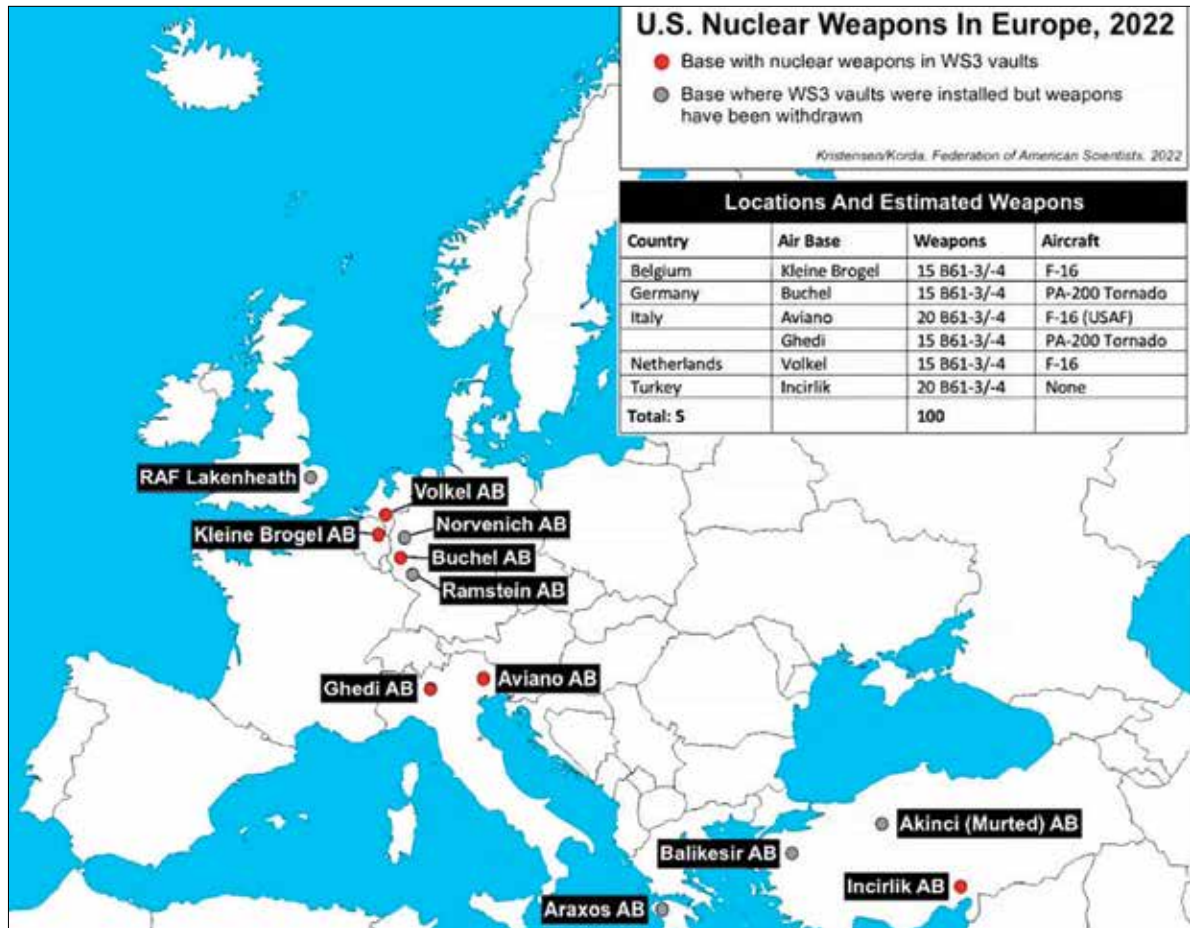
of the Intermediate-Range Nuclear Forces Treaty [INF Treaty] to put these in Poland and Romania, but the U.S. has abrogated that treaty now.

Well, today, we don't just have atomic bombs, we have strategic nuclear weapons, and they are usually 7–87 times more powerful than the Hiroshima atomic bomb.

There are weapons even larger than that now. Russia has a Poseidon Nuclear Drone Torpedo which was announced initially as carrying a 100-Megaton warhead. The U.S. has said it's 2 Megatons. (But I know for a fact that there were 100-Megaton warheads back in the Cold War.) This drone torpedo can go 115 mph. It has basically unlimited range, because it has a nuclear reactor for a power source. It can travel 1,000 feet below the surface. If it's detonated on land, it would create a firestorm covering 1,200 sq. miles. If detonated underneath the ocean, it will vaporize a huge amount of water. It would create a tidal wave, and if you salt it with Cobalt, you can make the tidal wave radioactive. That tidal wave could reach 1,000 feet high, travelling hundreds of miles an hour. It would inundate coastal areas for miles inland.

The Destructive Power

A one-minute [video](#) of a 15-Megaton bomb nuclear weapons test the U.S. carried out in the South Pacific, opens with an image taken from 50 miles away. It then cuts to Palm trees being ignited from the heat from the fireball. The trees are far enough away that the blast wave hasn't hit them yet. The nuclear blast is a lot bigger than the atomic weapon at Hiroshima. The blast wave spreads outward in circles in the ocean. The trees are burning as the blast wave approaches and as it strikes, the video shows the trees being blown apart. The blast wave travels at hundreds of miles an hour.



Federation of American Scientists/Kristensen/Korda/2022

The red dots on the map show U.S. bases with nuclear weapons vaults in five European nations. The black rectangles name the bases where the planes that can carry those nuclear weapons are located.

These are the thermonuclear weapons that we're worried about now, attacking the United States. In 5–15 minutes, the U.S. and Russia can each launch 800–1,000 of these types of strategic nuclear warheads. The intercontinental ballistic missiles (ICBMs) could take 30 minutes time to go from the U.S. to Russia and Russia to the U.S. If you park a submarine off the coast of Russia or the U.S., it can hit a target in as little as 7–10 minutes. Well, that doesn't give you very much time to make decisions. If you see one of those coming in on radar, it takes 2–3 minutes to detect the attack with Early Warning Systems. As little as 30 seconds to decide what to do, and 5 minutes to launch. This is the sequence that would be used in the United States: 3 minutes to detect and confirm attack. NORAD is supposed to do that, that's their requirement. There's a 30-second conference call with the President. It could be longer, possibly with intercontinental ballistic missiles, but it could be as short as 30 seconds. The President orders a nuclear attack; 2–3 minutes to give and transmit the

launch order. And it takes 2 minutes for ICBM launch to occur. For submarines it would take 15 minutes. If the warning of attack was false, it would start a nuclear war.

Currently the U.S. and Russia have huge nuclear arsenals. They have reduced them quite a bit from the 1980s, but currently Russia has about 6,200 nuclear weapons. As for operationally deployed weapons, Russia has about 1,600 operationally deployed nuclear weapons. The U.S. has about 5,650 nuclear weapons in total, 1,700 of which are deployed and operational. In total, the U.S. and Russia have 11,900 nuclear weapons. The other nuclear weapons states combined have 798 nuclear weapons. Nuclear disarmament has always had to start with the U.S. and Russia.

Both the U.S. and Russia employ a Launch on Warning policy. So, a retaliatory nuclear strike is launched when Early Warning Systems detect an enemy nuclear attack. The retaliatory strike is launched while the enemy missiles are still in the air and before any nuclear detonation occurs. A false warning of attack, believed to be



Courtesy of Steven Starr

This animated graphic (click on the link in the text, this page) sequences a scenario of how a U.S.-Russia nuclear war might begin, resulting in a mass extinction event.

true, would make the “retaliatory strike” a nuclear first strike. The U.S. and Russia are always watching. At the NORAD command center, all the screens display images searching for missiles coming in. Russia has a similar command center in Krasnoznamensk always on alert. *Once missiles are launched, they cannot be recalled.*

A Nuclear War This Winter

We developed a short, [animated graphic](#) of a scenario, beginning sometime later this winter. NATO intervenes in Ukraine and war between the United States and Russia begins.

In retaliation for a U.S. cruise missile strike against Russian forces, Russia fires a missile and sinks a U.S. guided missile cruiser in the Black Sea. Two U.S. aircraft take off, carrying B61 nuclear gravity bombs. Nuclear detonations sink Russian ships in the Black Sea. Russia retaliates by hitting NATO targets throughout Europe with nuclear weapons. The U.S. launches a massive nuclear strike against Russia. Russian Early Warning Systems detect the U.S. launch, and Russia launches a massive nuclear strike against the U.S. and Europe. More

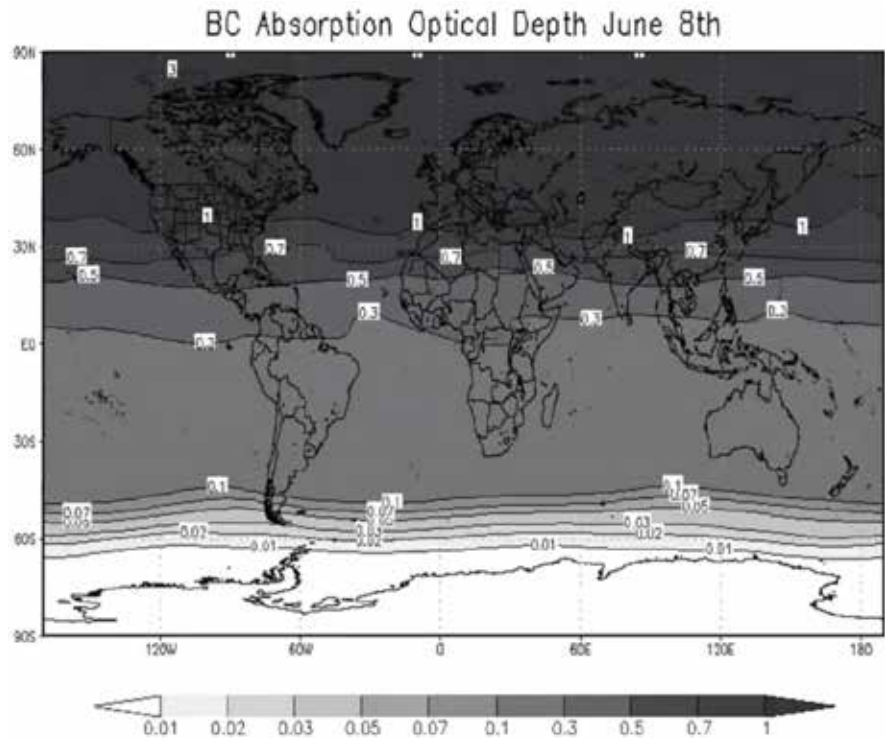
than 3,000 nuclear detonations occur in one hour.

Nuclear firestorms incinerate all the major cities of Europe, the United States, and Russia. The massive nuclear firestorms cover hundreds of thousands of square miles. Everything remotely flammable burns in the fire zones.

One hundred and fifty million tons of soot and smoke, created by the firestorms, rapidly rise above the cloud level into the stratosphere. The smoke spreads around the Earth and forms a global stratospheric smoke layer. The smoke will block warming sunlight from reaching the Earth’s surface.

Seventy percent of sunlight is blocked in the Northern Hemisphere and 35% is blocked in the Southern Hemisphere. Because it can’t be rained out in the stratosphere, the smoke layer will remain there for at least 10 years. The loss of warming sunlight creates Ice Age weather conditions around the Earth. The temperatures fall below freezing every day for the next 3 years. Ice Age weather prevents food crops from being grown for 10 years. Most humans and other animals will starve to death: *This is a mass extinction event.*

So, who won this war?



Courtesy of Steven Starr

Steven Starr presented an animation showing the worldwide spread of stratospheric ash after an all-out nuclear war that, being above the clouds, will not rain out, and will block out sunlight for 10 years. Crops will die in the sub-freezing temperatures. Most humans and animals will starve to death.