

**Sagdeev, a band of brothers,
Gorbachev and the End of the Cold War**

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Marriott Conference Center at the University of Maryland
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The band of brothers: Committee of Soviet Scientists Against the Nuclear Threat

Formed after Ronald Reagan's March 1983 "Star Wars" speech.

Wrote to Federation of American Scientists:

You helped convince us that ballistic-missile defense would be ineffective and counterproductive. Have you changed your minds?

We wrote back that we had not changed our minds and were invited for brainstorming to Moscow and Tblisi over Thanksgiving, 1983.

Chairman was **Evgenyi Velikhov**. Vice chairs were:

- **Roald Sagdeev**, who later succeeded Velikhov;
- **Sergei Kapitza**, physicist son of Pyotr, Russia's Carl Sagan, publisher of Russian edition of *Scientific American*; and
- **Andrei Kokoshin**, from a military family, Deputy Director of the USA-Canada Institute.

Each took the lead on a different issue.



Nuclear Winter (1983)

Sergei Kapitza
1928-2012

The Committee of Soviet Scientists embraced the thesis that nuclear war could have global effects and sponsored its own one-dimensional calculations of the effects of smoke on surface temperatures.

Kapitza, who led the effort, was a member of the Russian intelligentsia. In discussions of nuclear winter, he quoted Lord Byron's extraordinary poem "Darkness" (1816), inspired by the "year without a summer" that followed the eruption of Mount Tambora.

Jeremy Stone got Senator Ted Kennedy to invite Kapitza and Velikhov to Washington to testify on nuclear winter in December 1983.

The “asymmetric response” to Star Wars (1985)

Sagdeev and colleagues advised Gorbachev before he came to power and helped convince him not to launch a Soviet version of Star Wars.

Without Soviet respect and subject to devastating public criticism in the U.S. by Richard Garwin and others, Star Wars withered.

- Later, Gorbachev was convinced to allow nuclear arms reductions to go forward even though the U.S. did not formally abandon Star Wars.

The ultimate result was the Intermediate Nuclear Forces and Strategic Arms Reduction Treaties, which eliminated one large class of nuclear weapons and cut the second class in half.

Unilateral nuclear test moratorium (1985-87)

Gorbachev became General Secretary on 11 March 1985 and launched a unilateral nuclear test moratorium on 6 August 1985.

The US did not reciprocate, but he sustained moratorium for 19 months.

The Reagan Administration said, *they are probably cheating*.

In response to Velikhov's suggestion, Gorbachev allowed in-country seismic monitoring, organized by Tom Cochran of the NRDC, around the Soviet test site in Kazakhstan, starting in July 1986.

This ended Soviet opposition to in-country verification.

It also triggered, on 8 August 1986, a US House of Representatives vote for a reciprocal US test moratorium.

Thus began the march toward the Comprehensive Nuclear Test Ban that was signed by the five NPT nuclear weapon states in 1996.



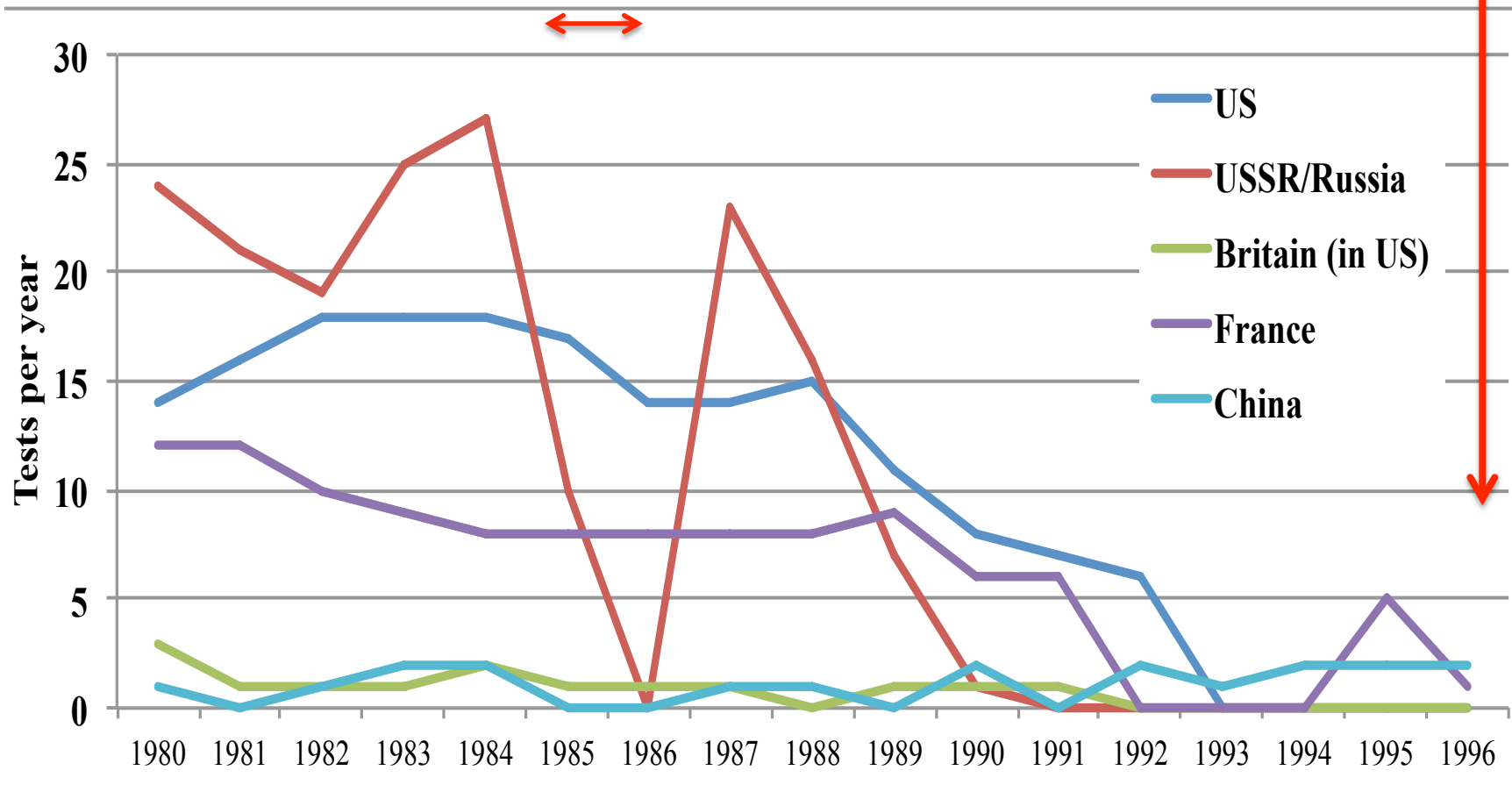
The test moratorium that led to the test ban

**Gorbachev's
Moratorium**

Evgenyi Velikhov

(Aug 1985 – Feb. 1987)

CTBT signed



Seismic monitoring of the Soviet test site in Kazakhstan (1986) ended 30 years of US debate over test ban verifiability.

UC San Diego Seismologists in Kazakstan



Rep. Edward Markey with first seismogram



- No Russian test since 1990
 - No UK test since 1991
 - No U.S. tests since 1992
 - No French or Chinese tests since 1996
- (but CTBT still not ratified by US, China, Israel, India, Pakistan)



Conventional Forces in Europe (1988-1990)

Kokoshin was interested in a West European idea of “defensive defense”. In May 1987, at a workshop on conventional arms control in Moscow, some Americans suggested, as an “ice-breaking” move, that the Soviet Union withdraw 1,000 tanks from Eastern Europe.

In December 1988, at the UN, Gorbachev announced (as clarified later) that the Soviet Union would withdraw 10,000!

This ended the military confrontation along the inter-German border and laid the basis for the 1990 Treaty between NATO and the Warsaw Pact on Conventional Forces in Europe.

Detecting nuclear warheads (1987-1989)

In 1987, at the Washington Summit where Gorbachev and Reagan signed the INF Treaty, Gorbachev argued that nuclear-armed sea-launched cruise missiles should be included in START.

In response to the argument that they could not be distinguished from conventional cruise missiles, Gorbachev argued that they could be.

This led Sagdeev to propose a joint project between the Committee and the Federation to analyze the detectability of nuclear warheads.

Our results led Tom Cochran of the NRDC to again propose to Velikhov a demonstration project.

The Black Sea Experiment

Gorbachev loaned Velikhov the nuclear-armed cruiser, *Slava*, and the plane of the Chief of the Soviet General Staff for his guests.



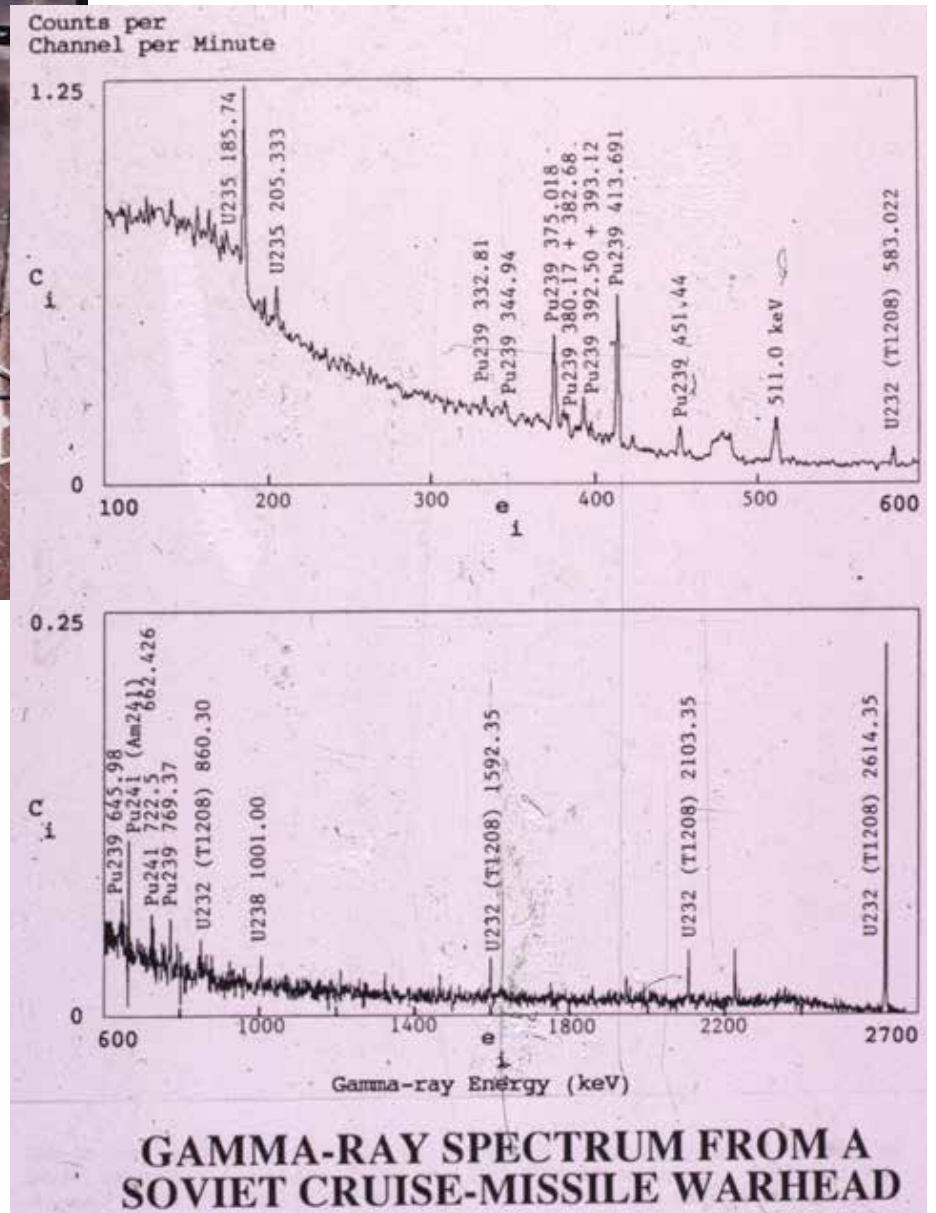
The nuclear warhead





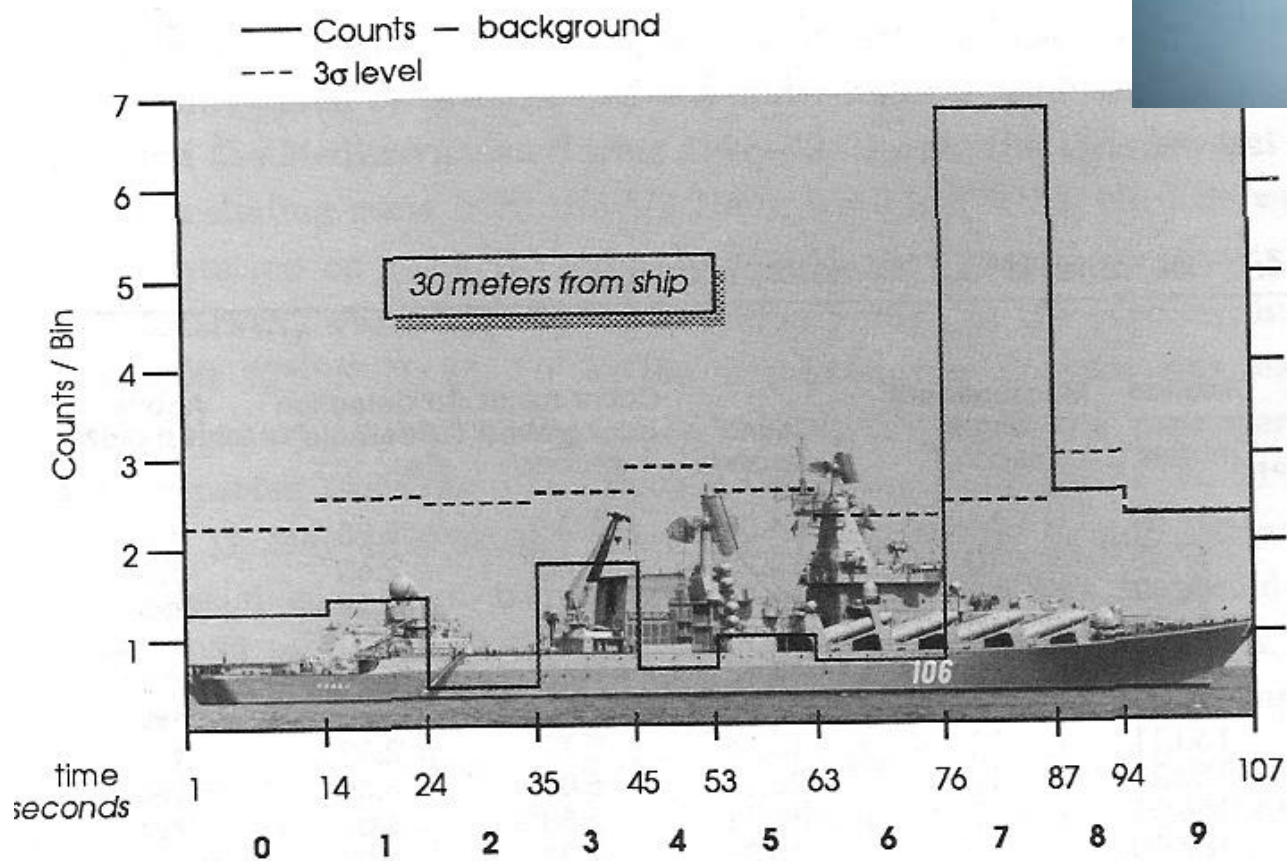


Steve Fetter was the lead analyst and the measurements and his analysis of the gamma spectrum were published in *Science*.



The Soviets demonstrated detection of neutrons from the plutonium in the warhead from a helicopter

4 Soviet Helicopter-borne Neutron Detectors



Science & Global Security (1989-)

Sagdeev gave Gordon & Breach science publishers access to the most important Soviet scientists, who were not able to publish in the West.

He suggested a journal on nuclear arms control, but said that it would have to be US-Soviet journal.

A Gordon & Breach editor met me to discuss it in September 1984.

In June 1985, we started discussions in Moscow with Sagdeev.

The first issue of the journal came out in fall 1989 in both English and Russian.

By that time, the editor and I had been married for two years.

Thanks Roald!

