

# **Weapons in Space: The Next Arms Control Challenge**

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# Weapons in Space: Trends

## The United States

### Rumsfeld Commission Report (2001)

“[T]he U.S. must have the capabilities to defend its space assets against hostile acts and to negate the hostile use of space against U.S. interests.”

### Joint Vision 2020

Global domination

“Freedom and security of space operations, plus ability to deny its use to others”

No new arms control constraints are necessary

## China, Russia, and others

“Only a legal ban on deployment of weapons in space ... could prevent the raising threat of arms race in space”

China has long insisted on opening negotiations on a ban on weapons in space

China and Russia just submitted draft language of a treaty to the Conference on Disarmament

# Current treaties

## Limited Test Ban Treaty of 1963

Prohibits nuclear weapons tests or other nuclear explosion in space

## Outer Space Treaty of 1967

“The exploration and use of outer space ... shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development...”

Prohibits deployment in space of weapons of mass destruction in general and nuclear weapons in particular

## ~~ABM Treaty of 1972~~

Prohibited space-based missile defense systems and their components

Radars, interceptors, lasers etc. were prohibited if they were part of an ABM system; Did not ban ASAT as long as it was not tested in ABM role.

Did not ban space-based sensors (early-warning, discrimination, cueing, adjuncts)

## SALT, START treaties (1972–2009)

Bilateral U.S.-Russian. “Each Party undertakes not to interfere with the national technical means of verification of the other Party” as long as they are operating “in a manner consistent with generally recognized principles of international law” (START Treaty, Article IX, 2 and 1).

## CTBT

Multilateral. May never enter into force. The parties “shall not interfere with elements of the verification regime of this Treaty or with national technical means of verification operating” ... “in a manner consistent with generally recognized principles of international law, including that of respect for the sovereignty of States.” (CTBT, Article IV, 7 and 5)

# What kind of space weapons?

## Non-weapons

Early-warning (DSP, SBIRS-High, Oko), discrimination (SBIRS-Low), imagery, navigation, communication, meteorological etc.

May be integral part of a system that includes space weapons (i.e. missile defense)

## Weapons

### Missile defense

Kinetic interceptors, lasers, exotic directed-energy weapons. Allowed as long as it is not nuclear

### Anti-satellite (ASAT)

Everything is allowed as long as it is not nuclear

### Ground-strike weapons

No weapons have been developed yet

Capability to attack targets on the ground or in the atmosphere (planes, cruise missiles, etc.)

Everything is allowed as long as it is not nuclear

# Concerns

## United States: Vulnerability of space assets

Civilian systems may be vulnerable to a terrorist attack

- GPS is widely used for air traffic control
- Communication (cellular networks etc)

Military systems

- Space systems used to support military operations
- Missile defense will include space-based components

## The rest of the world: Threat from space

Missile defense

- May be seen as undermining retaliatory capability

Ground-strike weapons

Domination of space

- U.S. may use missile defense or dedicated ASAT to deny use of space or to disable satellites during a conflict or in peacetime

# Possible incentives to deploy weapons in space

## United States

Missile defense

ASAT

Will not be necessary unless other countries develop space-based infrastructure at least comparable to the current U.S. one

In any event, it is unlikely that space-based ASAT would be more effective than ground-based one

Ground-strike weapons

Unlikely to be sufficiently more efficient than conventionally-based ones (bombers, UAVs, ballistic missiles) to justify deployment

## The rest of the world

ASAT

Terrorist or military attack on key civilian or military satellites

A coordinated attack that would disable significant portion of space force is extremely difficult

Does not have to be space-based

Micro satellites?

Anti-ABM

Attack on key space-based components of missile defense system designed to disable it

Conventional countermeasures should give better chance of success

Ground-strike

Missiles are more effective

# Arms race in space?

## Arms race, maybe, but not in space

### Most targets for are non-weapons

Unlike with offense vs. defense, where targets were nuclear-armed missiles, potential targets for space-based weapons, satellites, are not weapons.

Deploying more GPS satellites is different from deploying more nuclear-armed ICBMs

### No deployment of weapons in space requires symmetric response

Deploying ASAT to attack the adversary's ASAT capabilities in order to protect your own satellites is probably the least effective way of doing so.

### “Conventional” arms race is still possible

Deployment of ICBMs is still the best way to counter missile defense

## No arms race—no arms control?

The United States will be reluctant to agree on limiting weapons in space unless there is a strong challenge

The challenge may not materialize, because weapons in space are very expensive and probably not very effective

The United States is unlikely to deploy weapons in space (other than missile defense)

Weapons in space may become an option that that is neither ruled out nor materialized

# What arms control can do

## Complete ban

No weapons in space

Military satellites are allowed

CD draft language (China, Russia)

“Do not deploy on Earth orbit any objects with any kind of weapons...”

An attempt to get a ban on missile defenses through the back door?

The “arms race” and “space sanctuary” arguments

## Partial ban

No weapons in deep space (higher than ~1000 km)

Weapons are okay on low earth orbits

Legitimizes some weapons in space

## Leave as it is

No explicit limits on missile defense, ASAT or other weapons

May still be better than a partial ban



# Parallel track?

## Defense of space assets

Rely on many smaller satellites, not a few large ones

## Join capabilities across national borders

Commercial satellite imagery

Satellite tracking

NORAD + SKKP?

Global positioning

GPS + GLONASS

Early warning

DSP + Oko?

# Conclusion

## **Complete ban is the best solution**

Success is highly unlikely

Partial ban does not make sense

## **“Arms race” arguments are unlikely to work**

They did not work with the ABM Treaty

## **Weapons in space seem to have little value**

## **Need to separate “weapons in space” from “protecting space assets”**