ÉCOLE DE L'AIR & DE L'ESPACE
SALON-DE-PROVENCE

# SPACE WEAPONIZATION

CREA


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**Security, Defence and Outer Space International Conference**
**Institute of Space Law & Policy**
**Budapest – May 9th, 2023**

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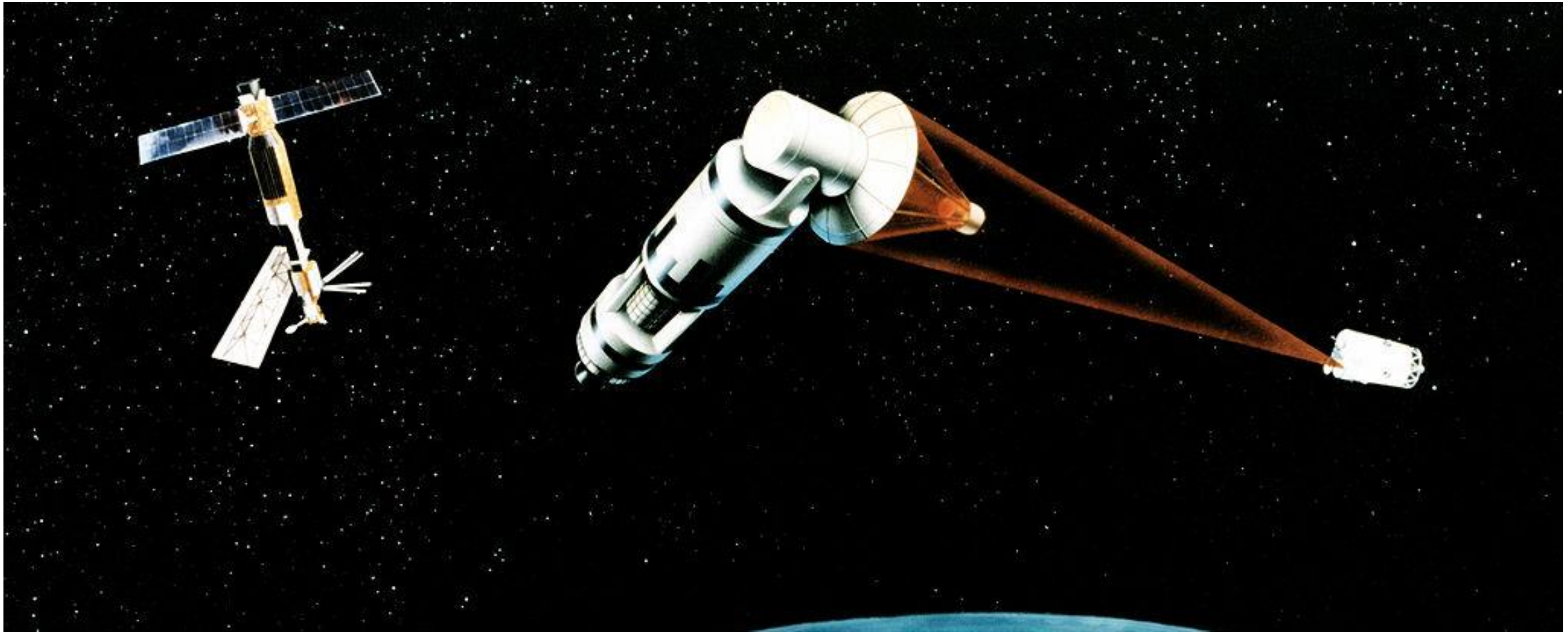

« The potential weaponization of space presents a serious geostrategic challenge to the international community. The growing number of space-faring players has resulted in an increasingly complex and competitive geopolitical situation in which the needs of countries to protect their national interests, pride and security may ultimately lead them to introduce weapons into space. If countries such as the United States, Russia or China decide to use their space presence as a sign of their control over this realm, the result could be a global space arms race."

Nayef R.F. Al-Rodhan, *Meta-Geopolitics of Outer Space. An Analysis of Space Power, Security and Governance*, Palgrave Macmillan, Basingstoke, 2012, p. 3.

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# Definitions

## ➢ Militarization

Passive use of Outer Space enhancing the military forces on Earth via Space assets

## ➢ Weaponization

Active use of Outer Space by deploying weapons systems or by the incorporation of defence capabilities onto a satellite

# Kinetic Anti-Satellite Weapons

**Anti-satellite devices (ASATs) : co-orbital capabilities , direct ascent capabilities , and directed energy weapons (DEW)**

**Space To Earth Weapons (STEWs)**

**Ballistic Missile Defense (BMD).**

# Use of kinetic force against satellites

- 1962 : the USA exploded a 1,4-megaton hydrogen bomb at an altitude of 248 miles (*Starfish Prime*), and disabled at least 6 satellites (including a Soviet one)
- 1985 : the USA tested an aircraft-launched interceptor rocket against a US satellite
- 2007 : China launched an ASAT missile to destroy an aging Chinese weather satellite
- 2008 : the USA used asea-launched ASAT to destroy a malfunctioning US that was de-orbiting
- 2019 : India destroyed one of its own satellite in an ASAT-test
- 2021 : Russia destroyed with a land-launched ASAT one of its inoperative satellites

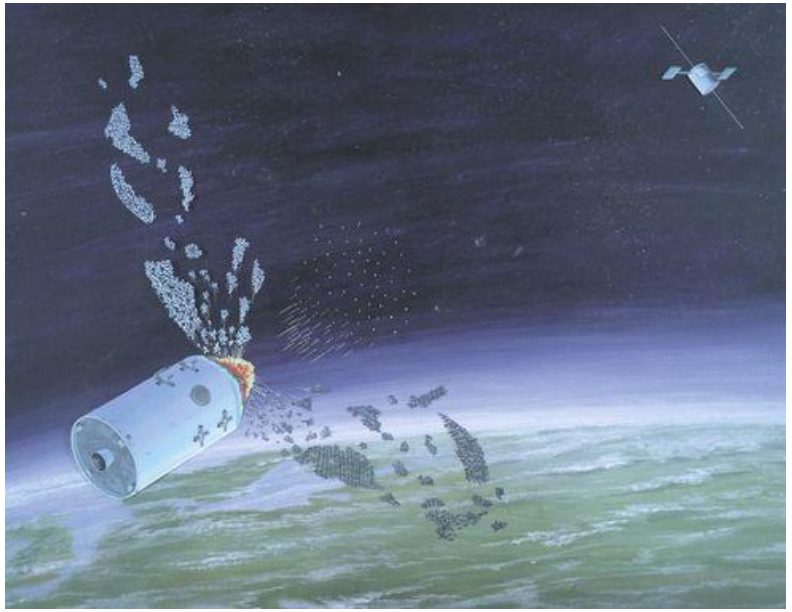
# “Soft Killing”

**Use of telecommunications interference (jamming or altering communications)**

**Blinding by ground-based or in orbit lasers**

**Cyber-attacks**

**Destruction of ground segments by conventional systems**

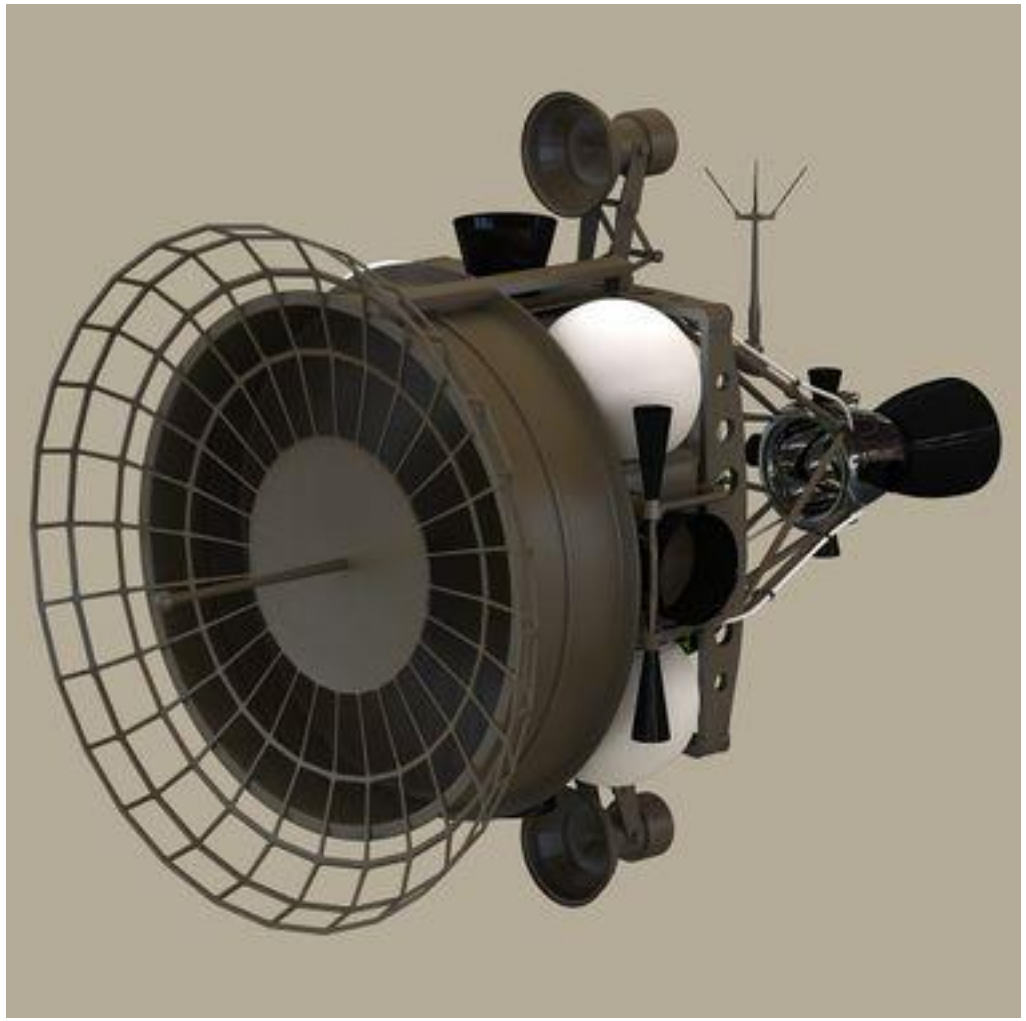


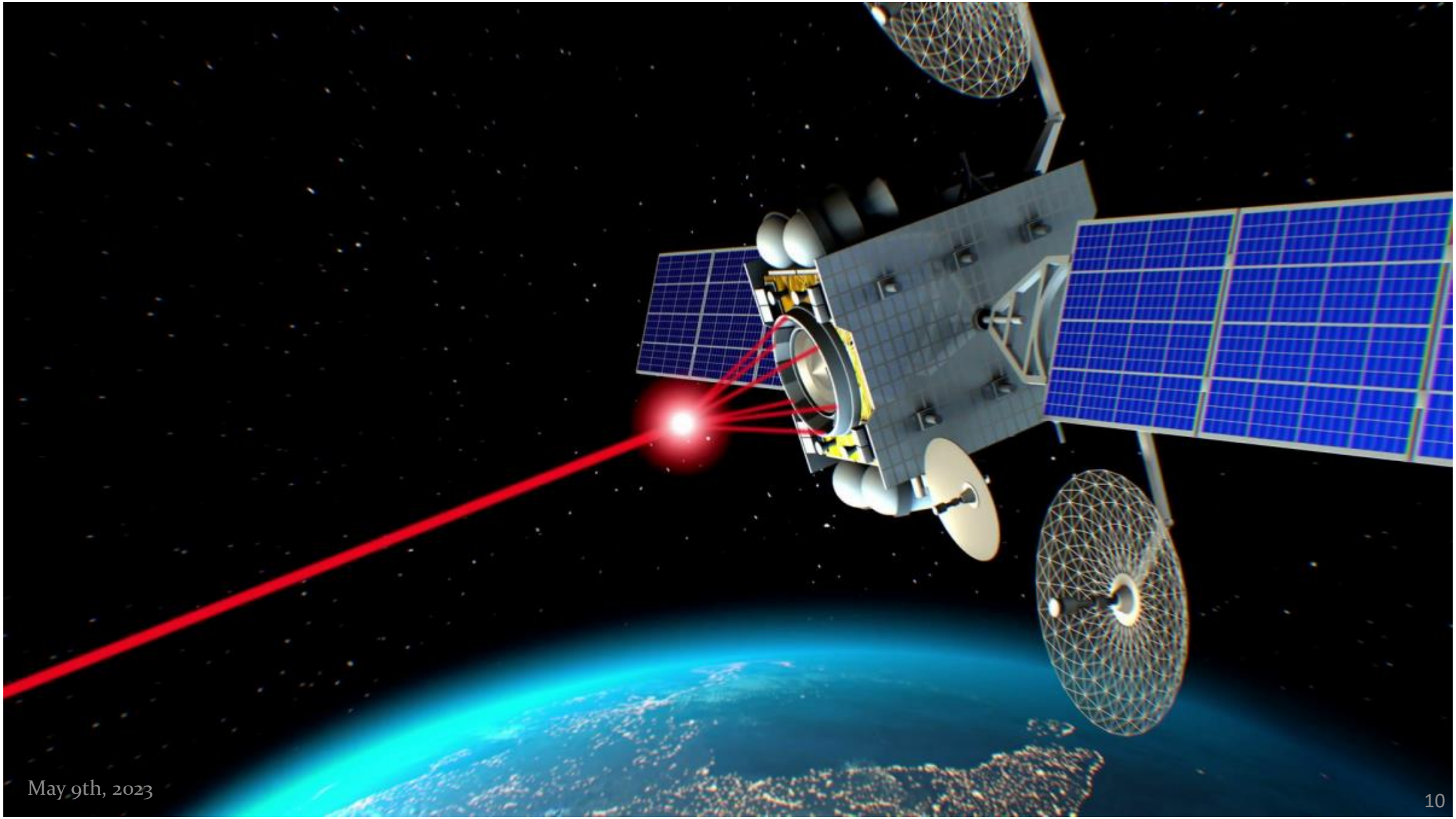
# Defensive measures

**Encryption of messages through navigation satellites or the presence of onboard cameras on the satellites to guarantee a preliminary degree of self-protection**

**On-Board Self-protective weapons**

**“Watchdog” satellites**





# Legal framework (*Corpus juris spatialis*)

- **- Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 19 December 1966, entered into force 10 October 1967 → *Outer Space Treaty*.**
- **- Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, 19 December 1967, entered into force 3 December 1968.**
- **- Convention on International Liability for Damage Caused by Space Objects, 29 November1971, entered into force 1 September 1972.**
- **- Convention on Registration of Objects Launched into Outer Space, 12 November 1974, entered into force 15 September 1976.**
- **- Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 5 December 1979, entered into force 11 July 1984.**

# Applicability of international law to Space Weaponization

- **UNGA Resolution 110, 1947 November 3rd : « *Taking account of United Nations General Assembly resolution 110 (II) of 3 November 1947, which condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression, and considering that the aforementioned resolution is applicable to outer space* »**

- **Art. III, Outer Space Treaty, 1967 : « *States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding.* »**

# Art. IV OST: Prohibition of WMD

*« States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.*

*The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited. »*

# Responsibilty for damages to other states

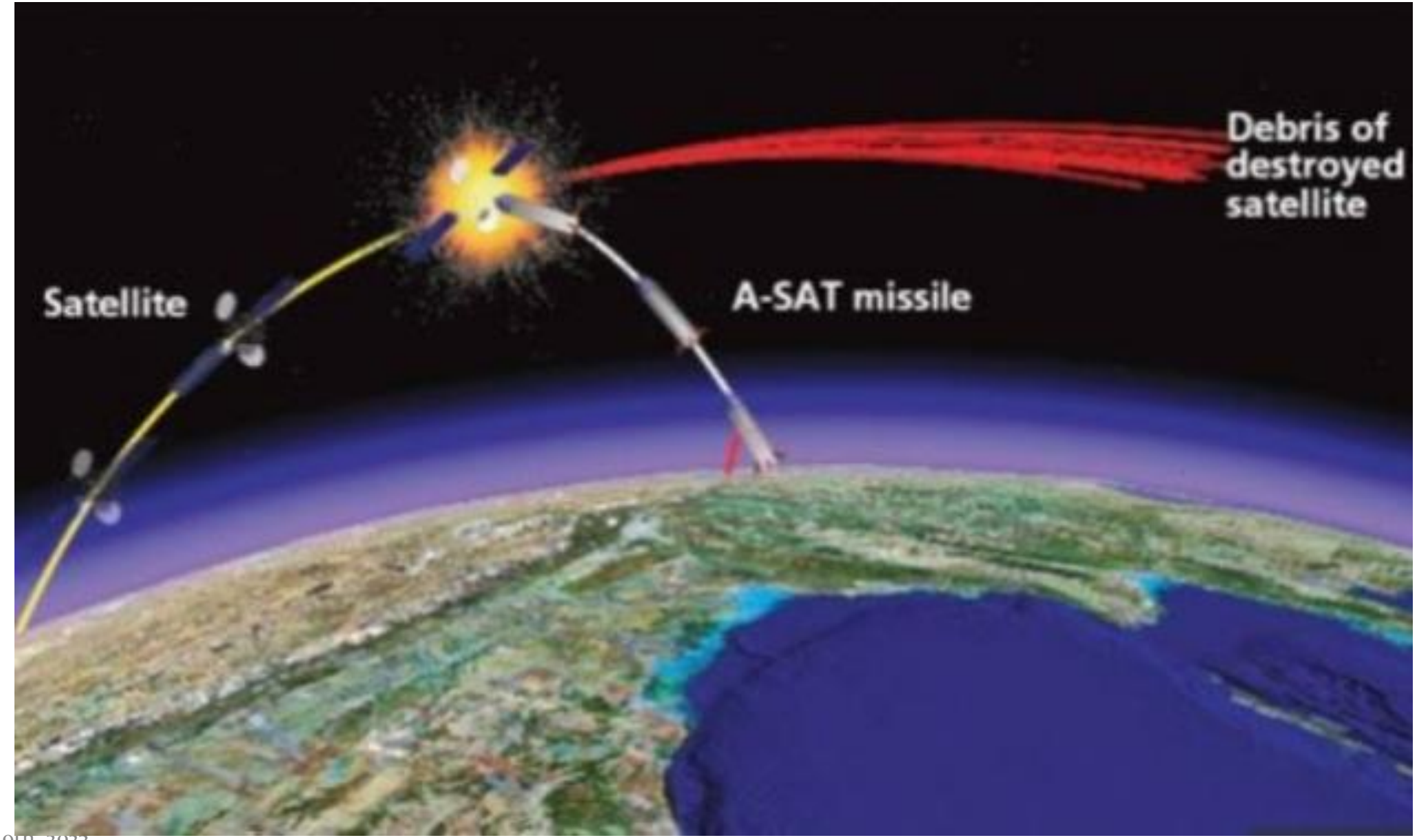
- **Article VI, OST:** ***" States Parties to the Treaty shall bear international responsibility for national activities in Outer Space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. "***
- **Article VII, OST:** ***" Each State Party to the Treaty that launches or procures the launching of an object into Outer Space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in Outer Space, including the moon and other celestial bodies. "***

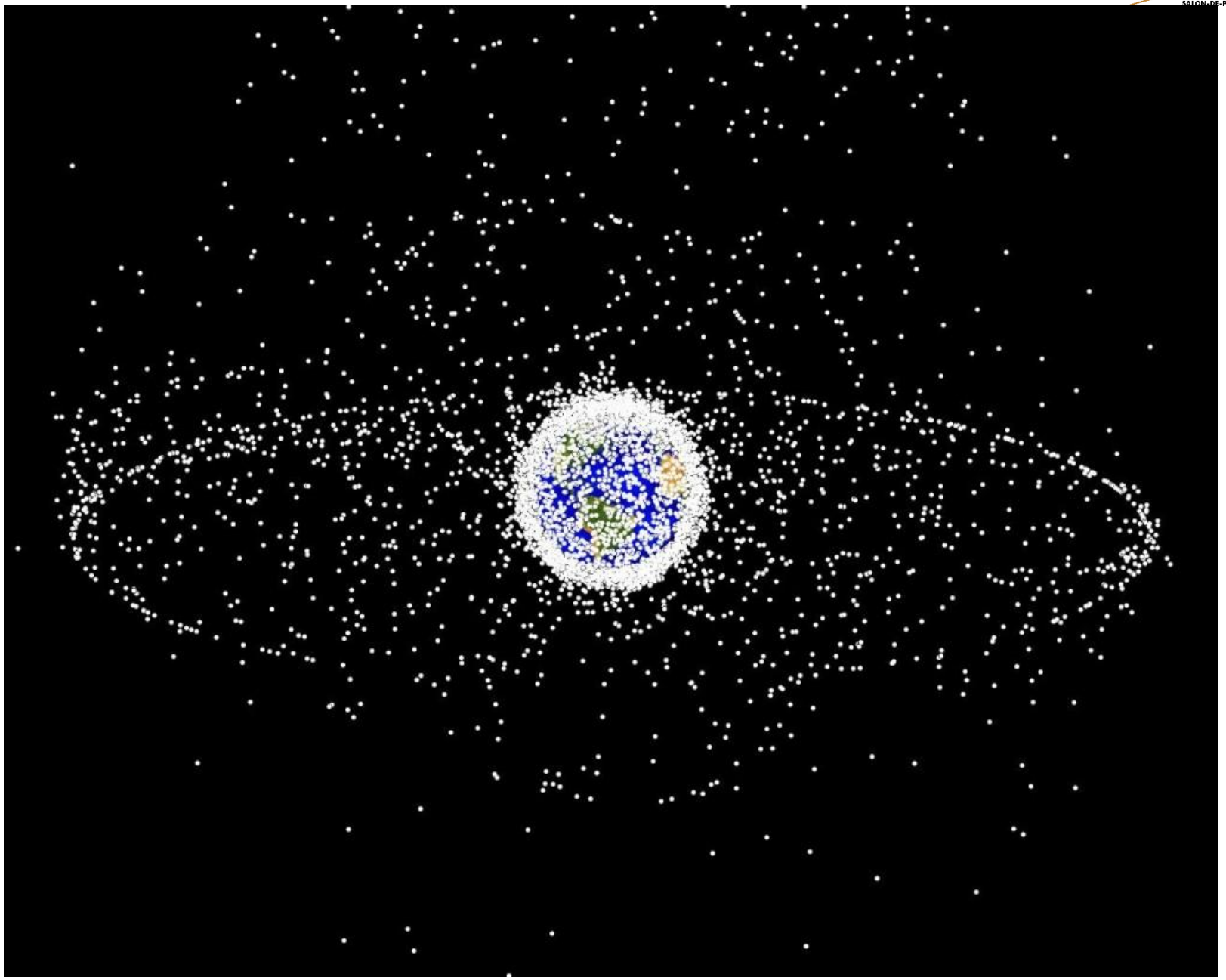
# Space debris
# Principles of the Outer Space Treaty

**Art. I :** ***« The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.***

***Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies. […] »***

**Art. IX :** ***« […] States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. […] »***


Debris of destroyed satellite
Satellite
A-SAT missile



# Future Developments

- **MILAMOS Manual (Manual on International Law Applicable to Military Uses of Outer Space) – University McGill**

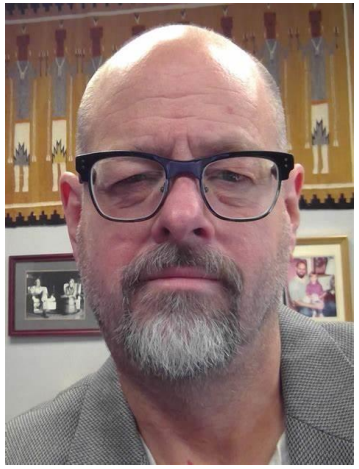
- **Woomera Manual – Nebraska, Adelaide, South West & Exeter universities**

- **Relationship between the UN COPUOS and the Disarmament Conference (Prevention on an Arms Race in Outer Space – PAROS)**

# Space as a new battlefield ?

**A "determinist political theory that manipulates the relationship between state power and outer-space control for the purpose of extending the dominance of a single state over the whole of the Earth". All attempts to regulate weapon use in space are merely "a slick diplomatic maneuver". As long as the world is not democratic, unilateral hegemony in space will remain the sole means to ensure peace and prosperity for all. Thus, the United States should 1) withdraw from the Outer Space Treaty and should get rid of the "global commons approach" in favour of a "free-market sovereignty in space" ; 2) deploy a space-based Ballistic Missile Defence system which would enable the military control of low-Earth orbit ; 3) establish a specialized US space coordination agency.**

E.C. Dolman, *Astropolitik : Classical Geopolitics in the Space Age*, Frank Cass, Portland & London, 2002

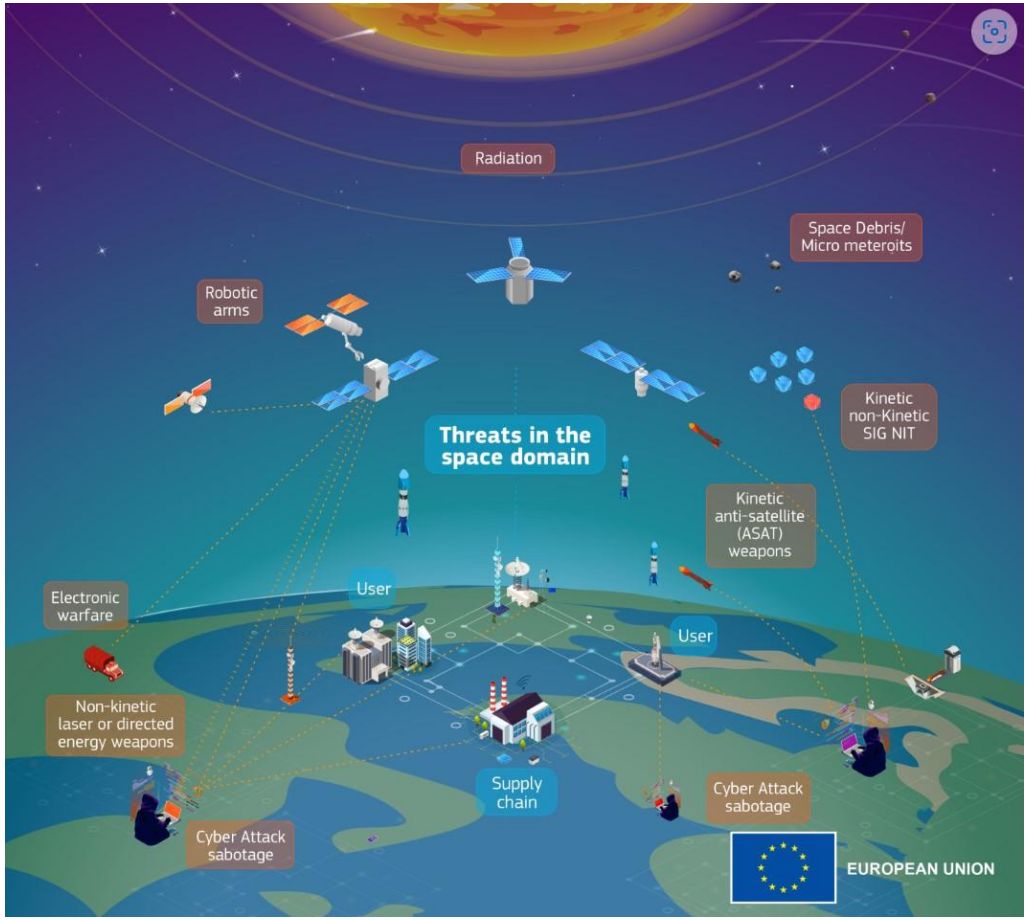


# Any future for the "Province of Mankind"?

**This lofty phrase speaks to the utopian spirit and idealistic culture that animated the Space Age in the postwar period, even if a lack of consensus over its meaning prefigured the fissures that would develop in the international community during the Moon Treaty negotiations.**

**Luca FOLLIS, « The Province and Heritage of Humankind : Space Law's Imaginary of Outer Space, 1967-79 », *in* A.C.T. GEPPEERT (dir.), *Limiting Outer Space. Astroculture after Apollo*, Londres, Palgrave Macmillan, 2018, p. 185.**

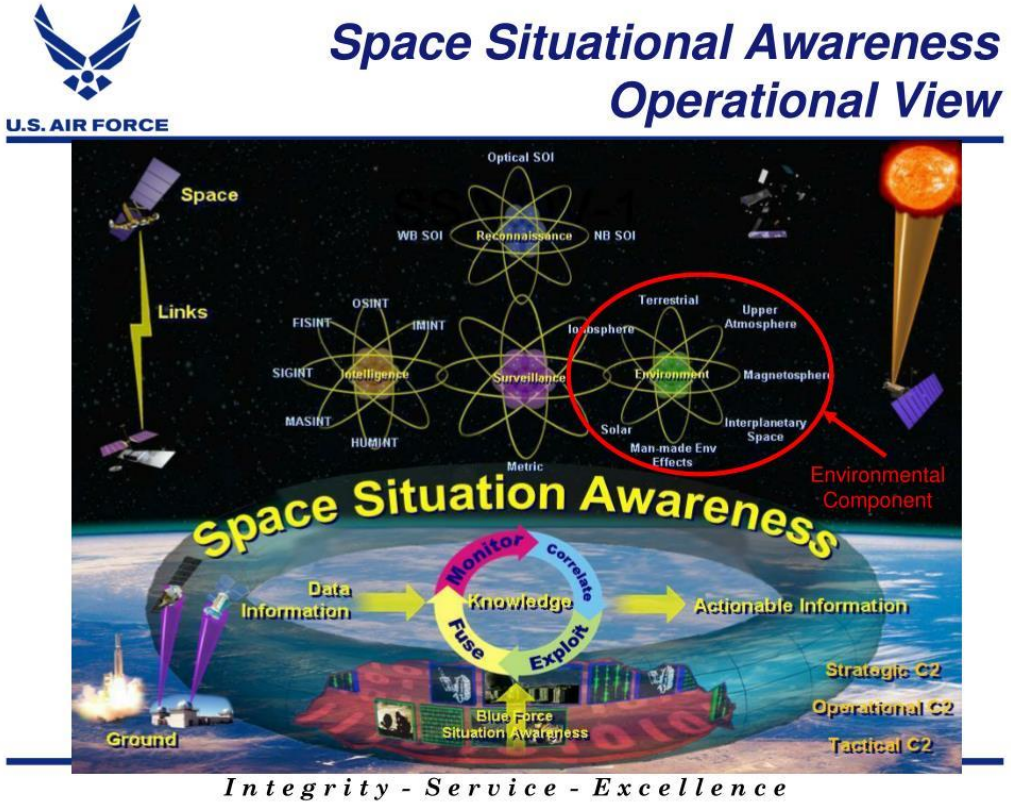
# *Threats in the space domain.* @European Commission (2022)



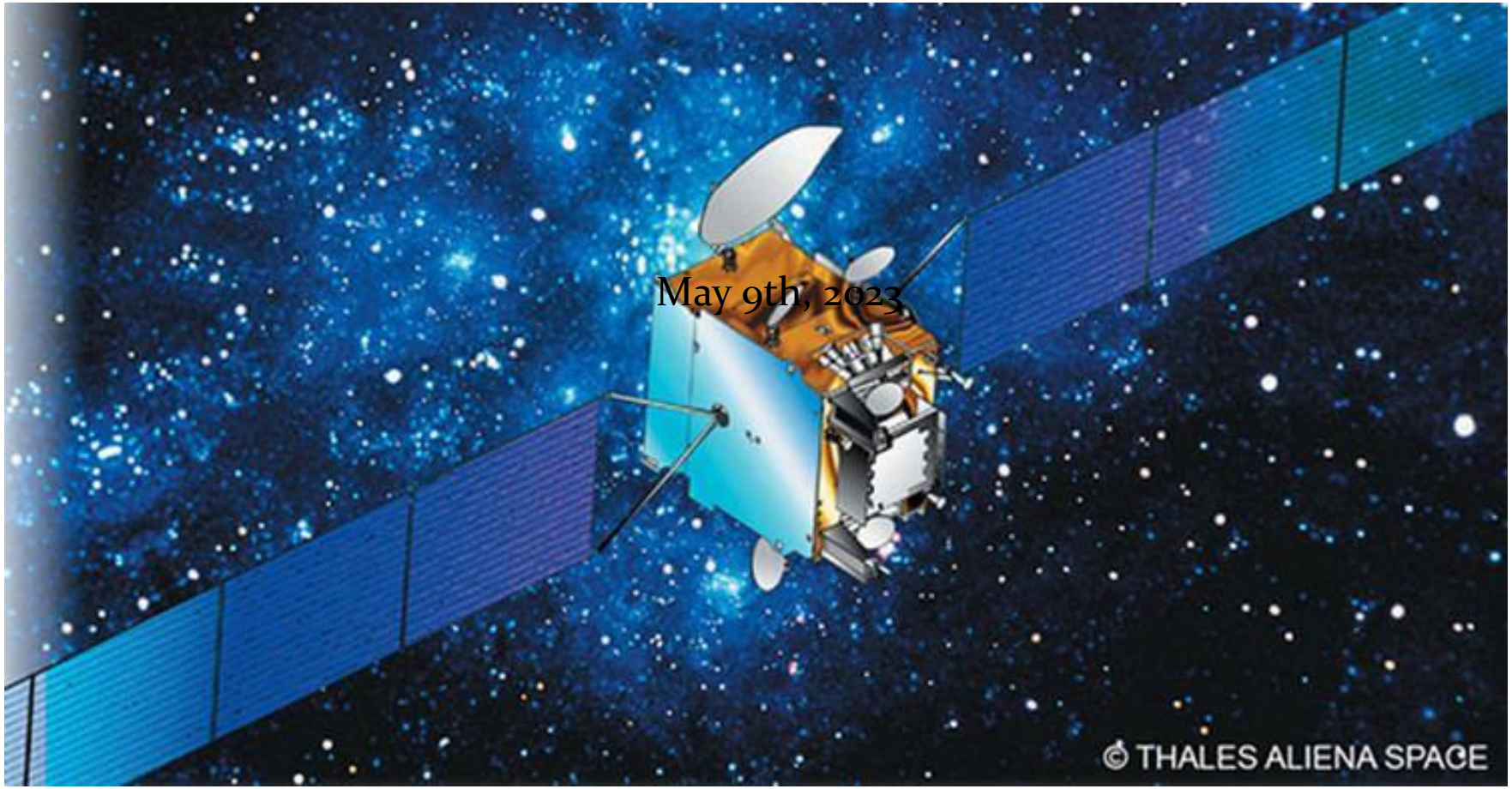
# *Who organizes what: Europe and space.* @EPRS (2019)

| Activities | EU | ESA | EUMETSAT | GSA | Member States | National space agencies | Industry |
|---|---|---|---|---|---|---|---|
| Define space policy | ● | ● | | | ● | | |
| Define and fund space programmes | ● | ● | ● | | ● | | ▪ |
| Develop and implement programmes | | ● | | | | ● | ● |
| Operates space programmes | | ● | ● | ● | | ● | ▪ |
| Fund space R&D activities | ● | ● | | | ● | | ● |
| Perform space R&D activities | | ● | | | | ● | ● |
| Conduct space exploration programmes | | ● | | | | ● | |
| Regulate the space sector | ● | | | | ● | | |

# European dependency on the USA in SSA/SST




# Questions ?



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