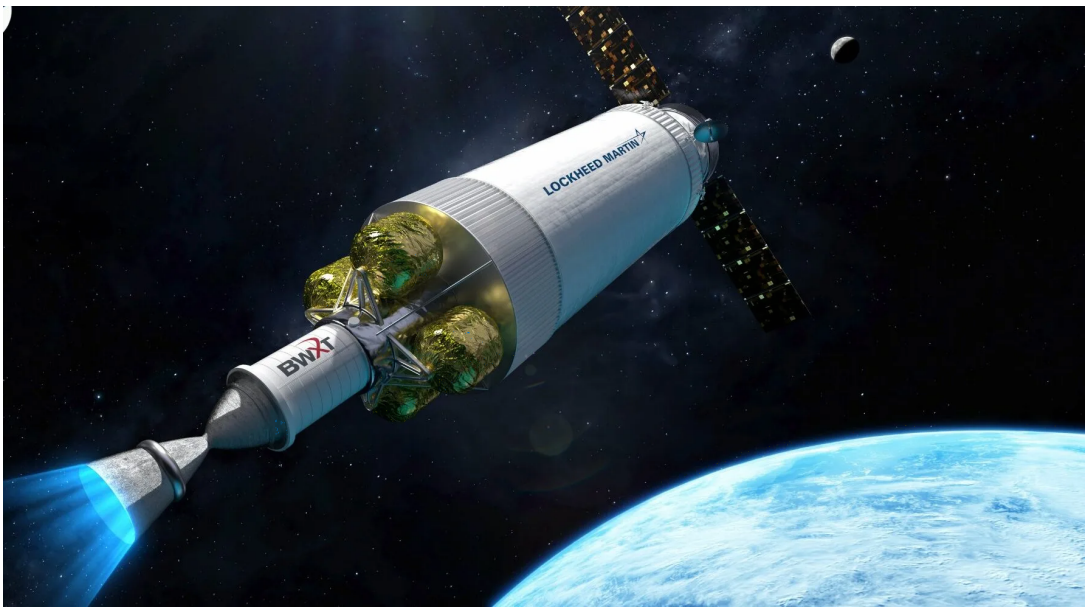

Star Wars: Satellites Under Attack and Secret Weapons in Space

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Space, once a symbol of scientific conquest and international cooperation, is progressively taking on the appearance of a true battlefield. If in 1957 the Soviet Sputnik was hailed as an extraordinary technological feat, **today satellites have become military targets and instruments of hybrid warfare.** With over **10,000 units in orbit**, they represent a vital network for communications, navigation, meteorology, Earth observation, and even the management of energy infrastructures. But this same centrality makes them vulnerable to sabotage, cyberattacks, and even experimental weapons, as demonstrated by the latest tensions between Russia, the United States, and China.

The Fragility of the Orbital System

The exponential increase in the number of satellites in orbit is due to the collapse of launch costs, driven by SpaceX, and the miniaturization of electronic systems. Today, not only major powers but also emerging countries like Ethiopia and Senegal have sent satellites into low orbit

to monitor coasts, borders, and criminal activities. At the same time, Europe has its own strategic systems, such as Galileo for navigation and Copernicus for Earth observation, while China and the United States compete for supremacy in space with ever-larger constellations.

Yet this infrastructure, so widespread and indispensable, proves fragile. A fragment as large as a bolt at 30,000 km/h is enough to destroy a satellite or compromise the International Space Station. **The so-called “space debris” – remnants of collisions, explosions, and missions – is already a constant danger that requires almost daily emergency maneuvers.** Added to this is the growing possibility of non-kinetic attacks: high-power lasers, “hunter” satellites capable of locking onto and neutralizing other systems, and, of course, cyber warfare.

The Lesson from Ukraine

The war in Ukraine has clearly highlighted the new role of space in military operations. In 2022, Russia conducted a cyberattack against the Viasat system, used by the Ukrainian army, causing communication blackouts and serious operational disruptions. The subsequent introduction of Starlink, with thousands of satellites in low orbit, however, turned the situation around: Elon Musk’s system provided fast, resilient, and secure connections, becoming a true “digital weapon” in support of Kiev.

There were also episodes of psychological warfare: on May 9, 2025, Russian hackers managed to sabotage a Ukrainian television satellite, broadcasting the Victory Parade live from Moscow. A clear signal of how space and cyberspace are now fused into a single strategic dimension.

Even more disturbing is the demonstration of how exposed global positioning systems are. Several Russian attacks have altered GPS signals, even forcing civilian aircraft in Northern Europe to make unexpected deviations. A vulnerability that shows how an offensive in space can have immediate repercussions on the daily lives of millions of people.

The Return of the Nuclear Specter

In recent months, rumors have spread that Moscow is developing a weapon capable of “shutting down” entire constellations of satellites. The United States fears **the possibility of a nuclear device placed in low orbit**, a hypothesis that recalls the experiments conducted between

1958 and 1962, when the USA and USSR detonated atomic tests in space. The effects were devastating for electronic systems and led the two superpowers to sign the treaties of 1963 and 1967, which ban **nuclear tests in space.**

A nuclear explosion in orbit would have catastrophic consequences: the electromagnetic wave would destroy hundreds of satellites, while the radiation would render the remaining ones unusable. This would result in the paralysis of GPS, telecommunications, power grids, and global alert systems. A true “return to the digital Middle Ages,” as some analysts have defined it.

However, many experts point out that the actual use of such weapons would be a suicidal act even for Russia itself. As NATO Secretary General Mark Rutte stated, Moscow is lagging in space development and would risk irretrievably losing its capabilities if it pushed towards this escalation. More likely are scenarios of “war of nerves,” similar to those of the Cold War, with announcements and counter-announcements aimed at disorienting public opinion and adversaries.

The Future: The Moon and Beyond

If the present is dominated by cyberattacks and orbiting sabotage, the future looks to the Moon. **The United States and China aim to secure the polar regions, rich in ice and therefore water, a fundamental resource for permanent bases and the production of space fuel.** A contest that could become a new frontier of military competition in the next decade.

From our natural satellite, in fact, launching missiles towards Earth would require six times less energy than from the Earth's surface. This makes the scenario of armed lunar bases a strategically appealing hypothesis, although still distant.

In this context, Europe finds itself in a delicate position. Despite having advanced systems and high-level engineering expertise, **it lacks a unified space defense policy.** Each country proceeds autonomously, fragmenting efforts. The need for a common vision, integrating civilian and military capabilities, is evident to avoid remaining spectators in an arena that defines the future of global security.

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