

## *The Looking Glass*

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# Unpacking China's FOBS test

## Hypersonics or Not?

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### Background

In a move many have likened to the opening gambit of a technothriller or science fiction novel, the People's Republic of China (PRC) [reportedly tested](#) a Gliding Fractional Orbital Bombardment System (G-FOBS) in August 2021.

The purpose of FOBS is to place a large payload – usually a nuclear one – into a low Earth orbit, which can then be used to attack targets from space. China's test has even been referred to by some commentators as a '[Sputnik moment](#)' for the United States.

Is this a game-changing development for the US-China relationship and for strategic stability in the Indo-Pacific? What are its likely impacts on deterrence and arms races? In this brief we unpack these questions, providing an assessment of the scope of the new Chinese capability and its importance for regional security.

### A game changer? The history of FOBS

FOBS are not a new technology. They were first [developed](#) in the 1960s in the USSR by the Soviet rocket engineer Sergei Korolev and were [deployed](#) in the 1970s. For the USSR the main advantages of a FOBS system were:

- Virtually unlimited range
- The capacity to conceal the target in orbit after separation of the launch vehicle
- The ability to evade missile defence systems

Soviet FOBS systems were not in violation of the 1967 Outer Space Treaty because they only placed nuclear weapons into a fractional orbit. The [SALT II agreement](#) of 1979 expressly prohibited FOBS, and although it was never ratified by the US Senate the USSR had dismantled its FOBS capabilities by 1983. However, there is no treaty between the US and China explicitly [regulating](#) the deployment of space-based weapons and China has been known to have been [pursuing](#) such a capability for nearly a decade.



Whereas Soviet FOBS were simple designs, China's test also featured a hypersonic glider similar to the newly deployed Russian [Avengard](#) system. It is reported that the object completed a full Earth orbit rather than being fired on a shorter trajectory like a conventional FOBS.

China has [denied](#) that it was testing a FOBS, claiming instead that it was evaluating a reusable space vehicle.

### **How does a Chinese FOBS capability affect nuclear deterrence?**

There are two schools of thought on this. The [first](#) suggests that since it is a deliberate attempt to bypass missile defence systems, it undermines the capacity of the US to blunt nuclear attacks by rival powers. This view also sees a Chinese FOBS capability as an escalation because it weaponizes space and potentially provides the PRC with a new offensive first strike capability.

The [second](#) school of thought argues that deterrence overall is strengthened by such systems. Its proponents point out that the US is already vulnerable to nuclear attack by the PRC, and that America's rivals would inevitably seek new ways to prevent their nuclear deterrent capabilities being neutralised by US missile defences. They also note that US-PRC deterrence is only undermined if the US had in fact been intending to destroy China's nuclear arsenal in a decapitating first strike.

### **What is the effect on arms races?**

There is general agreement that a Chinese FOBS test will accelerate the arms race between the US and PRC, especially if Beijing goes on to deploy the missile and a highly manoeuvrable glide vehicles in significant numbers. Some may see it as a [cost imposition](#) gambit by China to compel the United States to funnel more time and investment into BMD systems that may be of [little utility](#) in defending against FOBS, especially if China masters the [hypersonic glider](#).

It is also possible to argue that a Chinese FOBS capability can be seen as a [predictable](#) response to American post-Cold War efforts to ensure its [nuclear primacy](#), including via the development of [BMD capabilities](#).

### **What effect does it have on regional security?**

Arms racing dynamics tend to be self-reinforcing. As [demonstrated](#) in the Cold War, the advent of ICBM capabilities propelled both Moscow and Washington to pursue anti-ballistic missile (ABM) technology and systems, which in turn spurred development of multiple independently targetable re-entry vehicles (MIRV).



Given the heightened security dilemma perceived by both parties, a repeat of such a scenario appears likely. US Indo-Pacific Command (INDOPACOM) [plans](#) to deploy new capabilities – such as [Long-range Hypersonic Weapon](#) (LRHW) - in “highly survivable, precision-strike networks along the First Island Chain”. While some American allies have in the recent past been [hesitant](#) to host them, China’s FOBS test will likely contribute towards changing that calculus.

Additionally, a Chinese FOBS capability will [reinforce](#) the efforts of US allies such as Japan, South Korea and Taiwan to develop their own indigenous conventional missile capabilities, and contribute to greater interest in accessing US BMD technology and systems, which the US is likely to encourage. However, as noted above, there remain questions about the effectiveness of BMD to counter hypersonic glide capabilities. Hence there is also likely to be an emphasis by the US and its allies on research and development efforts in an attempt to develop new ways to target FOBS.

## Takeaways

China’s FOBS test suggests the following initial conclusions:

- Its effect on deterrence is unclear, and requires more analysis of capabilities and intentions with respect to both China and the US.
- A Chinese FOBS capability is likely to exacerbate arms racing, which will also require the US to invest more heavily in missile defence.
- It is likely that China’s FOBS test will prompt the US to encourage its allies to acquire missile defence systems, and to participate in joint BMD research and development activities.

## Further reading

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