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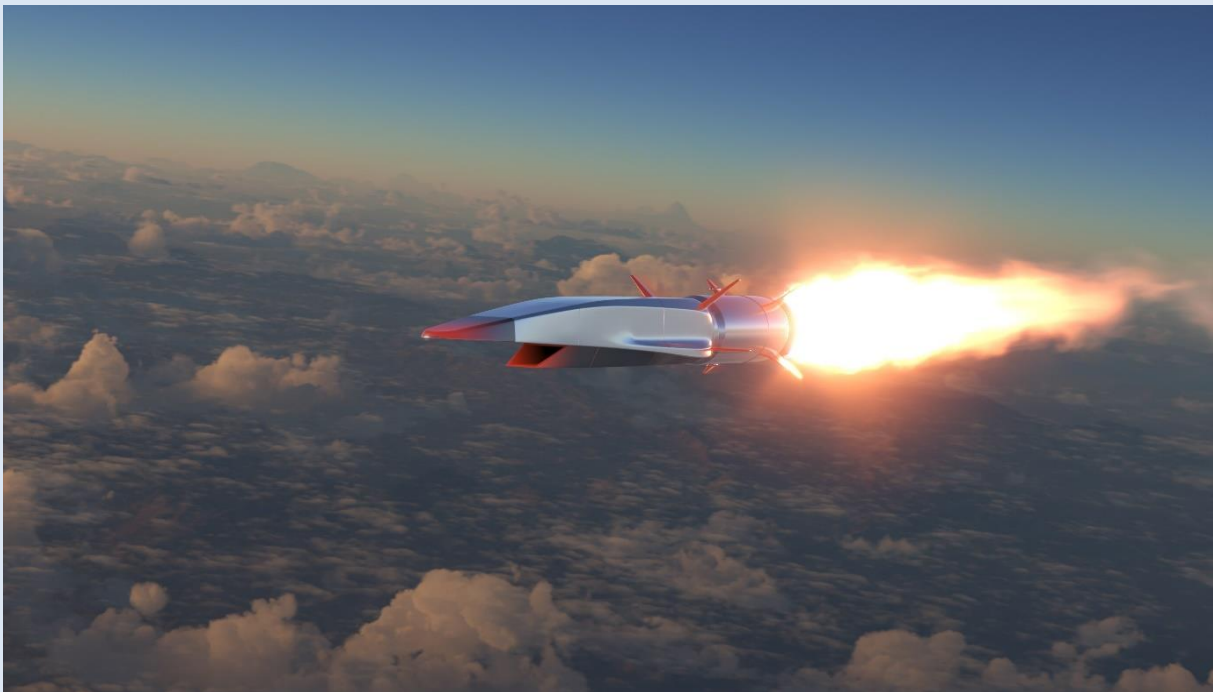
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## China's New 'Near-Space Command': Implication for India

Dr Joshy M Paul

Research Fellow, Centre for Air Power Studies



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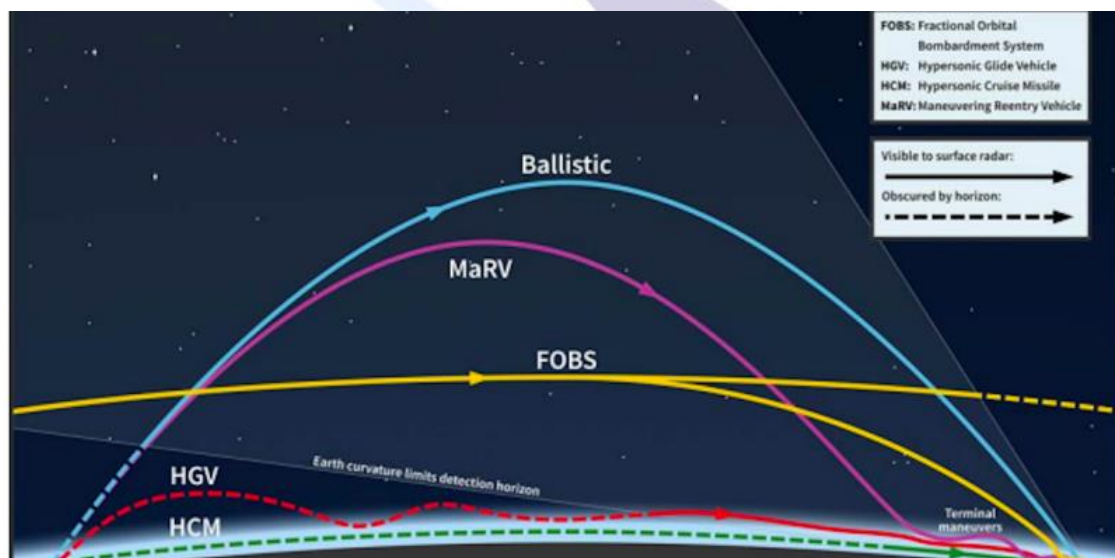
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China has recently formed its fifth command, Near-Space Command, under the Central Military Commission, alongside the Army, Navy, Air Force, and Rocket Force of the People's Liberation Army (PLA).<sup>1</sup> The Near-Space Command will be responsible for 'defending the country against attacks that utilise the lower boundary of space at altitudes between 20 and 100 kilometres—higher than most airliners but lower than the heights achieved by Intercontinental Ballistic Missiles (ICBMs) (Figure-1). The Near-Space Command will use solar-powered drones, robotics, and spy balloons for high-latitude surveillance and intelligence gathering. China had already sent a high-altitude balloon to the US territory in February this year for surveillance, only to have it shot down by the US authorities before entering the US airspace near North Carolina.<sup>2</sup> The US has accused China of sending spy balloons multiple times to the US bases in Guam and Hawaii in the Pacific.<sup>3</sup>

**Figure 1: An illustration of the Trajectories of Ballistic and Hypersonic Glide Vehicle (HGV) and Hypersonic Cruise Missile (HCM)**



Source: Patrick Tucker, "China Wants to Own the Hypersonic 'Domain,' DOD Official Says", *Defence One*, February 7, 2022, <https://www.defenseone.com/technology/2022/02/china-wants-own-hypersonic-domain-dod-official-says/361703/>.

Besides, the Near-Space Command will have full control of China's hypersonic weapons, including those in the inventory of the other four branches of the military during the war.<sup>4</sup> Moving through the near-space medium where the air is thin, "hypersonic weapons are extremely difficult to detect and counter given the weapons' speed and manoeuvrability, low flight paths and

unpredictable trajectories" <sup>5</sup>. Reports suggest that it can take down the US Air Force's latest stealth bomber, the B-21 Rider. <sup>6</sup>

The near-space combat force is in the evolutionary process of development, and "relevant units are not yet mature, and combat operations have not been standardised," and also "the understanding of near-space combat command needs to be deepened," said the researchers from the National University of Defence Technology, who provided information about the new command to the South China Morning Post. <sup>7</sup> China might use the near-space medium extensively for military applications as it is an uncharted territory and there is less competition by other major military powers so far. In fact, China seeks to exploit unused domains for military applications that provide it a lead in power rivalry. China is the first country to develop Anti-satellite Missiles (ASAT) and Hypersonic Glide Vehicles (HGV). Beijing has identified space and cyber domains as the new territory to establish its dominance in the early part of this century, when the US has reduced its efforts to seek military dominance in all domains in the unipolar era.

Putting hypersonic weapons with the Near-Space Command is a strategic move by the PLA. During the first flight test of the hypersonic vehicle in July 2021, the vehicle encountered a technical problem: a plasma bubble formed around the hull of the vehicle for at least ten minutes due to friction with the air. This caused a communication blackout during the re-entry stage, as the vehicle was travelling beyond Mach 5 or hypersonic speed. <sup>8</sup> The ten minutes communication gap between the vehicle and the command centre meant that the hypersonic vehicle was approaching its potential target without any control whatsoever.

On the other hand, China has conceptualised hypersonic weapons as 'a double-edged sword – designed to hit a target anywhere on Earth with unstoppable speed and manoeuvring capabilities'. It is the new 'fist' weapon in China's inventory to gain decisive advantages on the battlefield over its superior enemy. It can also be used for pre-emptive strikes against US military assets in East Asia and the Pacific.

China, in February this year, tested a new intermediate-range ballistic missile (IRBM) equipped with an HGV called DF-27, which can fly as far as Hawaii from China, and China also wants to develop hypersonic cruise missiles. <sup>9</sup> However, the plasma bubble or 'black barrier' prevents control of the manoeuvring capabilities of the hypersonic weapons, potentially defeating the objectives of the weapon. To overcome the 'black barrier', China had sought to develop 6G technology based on electromagnetic waves for communication, but the program is moving slowly due to stringent restrictions by the US on China's access to critical technologies and components to

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be used for PLA's military program.<sup>10</sup> It remains unclear whether the weapon can be controlled from the ground-based command system, indicating uncertainty about whether China has overcome the 'black barrier' problem.

China considers hypersonic weapons as the first-strike weapon on enemy targets. It can create havoc on the enemy's command and control systems as well as the launching sites of highly secured weapons. The US military strategy against China is premised on a pre-emptive strike on China's command and control facilities established along the east coast of China from allied territories, especially Japan. Such an attack would cripple the PLA's counterattack capabilities, including the second strike options. On the other hand, military operations in the near-space area could help the PLA gather early information about the pre-emptive strike from Japan so China can target the launching sites with hypersonic weapons, thus preventing damage by the US' pre-emptive attack on China.

As the hypersonic weapons fly much higher than slower subsonic missiles but much lower than ICBMs, the existing missile defence systems of the US and allies cannot track the weapon. Instead, to counter the adversarial impact of China's hypersonic weapons in the western Pacific, the US Missile Defence Agency (MDA) has contracted worth US \$20 million each to Raytheon Co., Lockheed Martin Corp., and Northrop Grumman Corp. to develop prototypes of the anti-hypersonic interceptor to destroy the hypersonic projectile in the unpowered glide phase of its trajectory.<sup>11</sup> Besides, the US looks to enhance tracking capabilities with new forms of infrared sensing technology as well as improving the existing space, ground and sea-based radars.<sup>12</sup> Currently, hypersonic missiles can be tracked only at the terminal phase- the latter part of the missile's flight path- by Aegis missile defence-equipped destroyers. Moreover, the US Space Force and the Missile Defense Agency are co-developing hypersonic ballistic tracking from space and expect that space-sensor satellites will demonstrate tracking and targeting to support hypersonic engagements.<sup>13</sup> In August this year, Japan and the US agreed to jointly develop "an interceptor missile to counter hypersonic warheads being developed by China, Russia, and North Korea."<sup>14</sup>

Indeed, the PLA's creation of Near-Space Command is a natural culmination of exploiting the unused territory for military contest in a great power rivalry. The 'Sputnik moment' of 1957 shattered the US confidence in advanced technology over its rival former Soviet Union. After that, the Pentagon pumped massive amounts of money into universities and research institutions for research and development in advanced military technology and its manifold applications, including space. The US launched Strategic Defence Initiative (SDI), popularly known as the 'Star Wars'

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program, in the early 1980s, with a varied estimated cost from US \$100 billion to US \$1trillion to create space-based defence shield against incoming ballistic missiles.<sup>15</sup> However, the US reportedly spent only less than one per cent of the projected cost, but it forced the Soviet Union to begin talks on arms limitation treaties that eventually led to the collapse of the Soviet Union.

## Implications and Options for India

The Near-Space Command will give a strategic advantage to China over India in the Himalayas. The border terrain is mostly at high altitude, and China's major air bases and command and control centres close to India's northern border are also at a high altitude from the sea level, for instance, Hotan air base-1424 meters, Lanzhou air base -1600 meters, Gargunsa air base-4350 meters, Kashgar airport- 1380 meters, and Lhasa Airport 3600 metres. On the other hand, India's major forward airbases are on the low altitude plain areas, so China's ground-based radars under the Western Theatre Command cannot detect incoming Indian aircraft to strike. Also, India has a comparative advantage over China in air operations in the border areas because Indian Air Force's (IAF) fighter aircraft can carry more payload than the PLA Air Force (PLAAF) operating from high-altitude terrain. These are the major challenges for the PLA in military operations against India.

Now, with high-altitude surveillance through drones and balloons, the Near-Space Command can enhance China's Intelligence, Surveillance and Reconnaissance (ISR) capabilities, thus getting early warning information about the operations of the IAF. Also, China can easily target India's air infrastructure established in low-altitude areas with hypersonic weapons. India's Prithvi Air Defence (PAD) system or the Russian-made S-400 anti-ballistic missile defence system cannot detect moving objects in the near-space domain. In this regard, India should think about joining the US-Japan collaboration for developing anti-hypersonic interceptors to deter China's pre-emptive attack with hypersonic weapons against India.

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- <sup>13</sup> Ibid.
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