



## **CHINA'S FIRST HYPERSONIC VEHICLE GLIDES TO SUCCESS**

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Presenting a tough challenge to the United States hypersonic capabilities, China has successfully tested its first hypersonic missile delivery vehicle, which is capable of penetrating any existing defence system with nuclear warheads.<sup>i</sup> According to media reports, US defence officials confirmed 9 January 2014 as the date of testing of the Hypersonic Glide Vehicle (HGV) by China. Meanwhile, on 15 January 2014 the Chinese defense ministry, in a two-sentence statement confirmed that the test was successfully done.<sup>ii</sup>

According to the statement issued by the Chinese defence ministry, "Our planned scientific research tests conducted in our territory are normal." While clarifying its usage against any country, the ministry said that, "These tests are not targeted at any country and at any specific goals."<sup>iii</sup> While giving the details about the latest test, a Pentagon official told the *Washington Free Beacon*, an online newspaper, "The hypersonic glide vehicle (HGV), dubbed the "Wu-14" by the United States, was detected flying at 10 times the speed of sound during a test flight over China."<sup>iv</sup> While elaborating further on the Wu-14 testing, the Pentagon officials said, "the hypersonic craft appears designed to be launched atop of intercontinental ballistic missiles." The latest test has made China the second country after the US to conduct experimental flights with hypersonic vehicles, a technology that could allow armies to rapidly strike distant targets anywhere around the world.<sup>v</sup>



Source: Internet

Now a word on hypersonic speed, vehicle and flight. In simple words, **Hypersonic Speed** refers to the speed which is of Mach 5 and above or speed five or more times that of sound in air. It is the speed which is highly supersonic. The first known use of the term dates back to 1946 and has its origin in International Scientific Vocabulary.<sup>vi</sup> A **Hypersonic Vehicle** is a vehicle that travels at least 4 times faster than the speed-of-sound, or greater than Mach 4. A hypersonic vehicle can be an airplane, missile, or spacecraft. Some hypersonic vehicles have a special type of jet engine called a Supersonic Combustion Ramjet or scramjet to fly through the atmosphere. Sometimes, a hypersonic plane uses a rocket engine. A Re-entry Vehicle is another type of Hypersonic Vehicle. A Re-entry Vehicle is a spacecraft that travels through space and re-enters the atmosphere of a planet, and most of the time, does not have an engine.<sup>vii</sup> **Hypersonic flight** is generally defined as anything that reaches speeds above Mach 5 (3,805 mph, or 6,124 kph, at sea level), or five times the speed of sound. (The speed of sound at sea level is about 762 mph, or 1,226 km/h.).<sup>viii</sup>

The U.S. military has been studying hypersonic flight in order to develop new weapons capable of striking targets anywhere on Earth within an hour.<sup>ix</sup> In 2013 with the success of X-51A Wave Rider, an experimental unmanned aircraft developed by the US Air Force; the US achieved the breakthrough in scramjet technology that can be used to deliver strikes around the globe within minutes. The Wave Rider can reach speeds of Mach 6 or above, six times the speed of sound and fast enough to cross the Atlantic Ocean and strike a target in Europe in less than an hour.<sup>x</sup> Also US have been designing the hypersonic delivery vehicles, which are in experimental stages that can accelerate to the speed of Mach 20 with nuclear warheads. In case of the recent launch, the media reports indicate that the Chinese Wu-14 can speed up to Mach 10.

US dominance in this area can be dubbed as one of the concerns for the Chinese to conduct this experiment which was already under veils of secrecy. While speaking to the state-run China Central Television (CCTV), this reason was echoed by the Chinese military expert Chen Hu, "The US is designing various Hypersonic vehicles, including the X-51 and HTV-2, and China must have similar weapon systems to ensure its national security and maintain the balance of power in East Asia. Since a weapon system with a speed up to Mach 10 is impossible to intercept, the only way to prevent the United States from using its hypersonic vehicles against China is to develop its own."<sup>xi</sup>

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In response to the recent development, the founder and president of the Center for Security Policy (Washington DC), Frank Gaffney Jr said, “Communist China recently tested a new hypersonic missile vehicle. It’s evidently designed to use extremely high speed flight and maneuverability to defeat U.S. defenses, while delivering nuclear or perhaps advanced conventional weapons to target in this country and elsewhere.”<sup>xii</sup> While emphasizing on the repercussions for US, Frank Gaffney Jr said, “The implications of such a development are ominous...But, one thing’s certain: We must consider Communist China a potentially very dangerous adversary, not a reliable trading partner.”<sup>xiii</sup>

Humanity entered the 19th century at 6 mph, the 20th at 60 mph and the 21st at 600 mph. It is entirely possible, indeed probable, that this trend will continue, and humankind will enter the 22nd century at 6,000 mph, the speed of a hypersonic airliner.<sup>xiv</sup> The recent development makes it more interesting to see that how the superpower will try to balance itself with an upcoming superpower? Also, it will be interesting to see how the influence of technology will rebalance the world order in coming times.

*(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies CAPS)*

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<sup>i</sup> China hails first test of hypersonic nuclear missile carrier.15 January, 2014.URL <http://www.scmp.com/news/china/article/1405784/china-hails-first-test-hypersonic-nuclear-missile-carrier>.URL assessed on 21 January 2014.

<sup>ii</sup> Chinese Defense Ministry confirms hypersonic missile test.16 January 2014.URL <http://www.foxnews.com/politics/2014/01/16/chinese-defense-ministry-confirms-hypersonic-missile-test/>.URL assessed on 21 January 2014.

<sup>iii</sup> Ibid

<sup>iv</sup> Ibid

<sup>v</sup> China tests hypersonic missile vehicle.16 January 2014.URL<http://www.theguardian.com/science/2014/jan/16/china-tests-hypersonic-missile-vehicle>.URL assessed on 21 January 2014.

<sup>vi</sup> Definition of HYPERSONIC.URL <http://www.merriam-webster.com/dictionary/hypersonic>.URL assessed on 21 January 2014.

<sup>vii</sup> What are Hypersonic Vehicles? URL [https://www.aiaa.org/uploadedFiles/Education\\_and\\_Careers/STEM\\_K-12\\_Outreach/Kids\\_Place\\_K-12\\_Activities/Flight\\_Dynamics\\_and\\_Testing/Hypersonic%20Reentry%20Vehicles%205-8\\_rev6.pdf](https://www.aiaa.org/uploadedFiles/Education_and_Careers/STEM_K-12_Outreach/Kids_Place_K-12_Activities/Flight_Dynamics_and_Testing/Hypersonic%20Reentry%20Vehicles%205-8_rev6.pdf).URL assessed on 21 January 2014.

<sup>viii</sup> X-51A Waverider Scramjet Hits Hypersonic Speed Of Mach 5.1 In Final Test Flight, Air Force Says.05March 2013.[http://www.huffingtonpost.com/2013/05/05/waverider-x51a-scramjet-hypersonic-speed-mach-test-flight\\_n\\_3217048.html](http://www.huffingtonpost.com/2013/05/05/waverider-x51a-scramjet-hypersonic-speed-mach-test-flight_n_3217048.html).URL assessed on 21 January 2014.

<sup>ix</sup> Ibid

<sup>x</sup> US Announces “Significant Changes” for Military Policy. 15 November 2013.<http://www.globalresearch.ca/us-announces-significant-changes-for-military-policy/5358233>.URL assessed on 21 Jan 2014

<sup>xi</sup> PLA's hypersonic vehicle could be used against US: expert.20 January 2014 WantChinaTimes.com.URL <http://www.wantchinatimes.com/news-subclass-cnt.aspx?id=20140120000032&cid=1101>.URL assessed on 22 January 2014

<sup>xii</sup> China's WU-14. 14 January 2014. URL <https://www.centerforsecuritypolicy.org/2014/01/14/chinas-wu-14/>.URL assessed on 21 January 2014.

<sup>xiii</sup> Ibid

<sup>xiv</sup> Does the Hypersonic Transport Have a Future?Aviation History.July 2012.Weider History Group.pg42