China Expands Gaofen Earth Observing Satellite Constellation

OE Watch Commentary: In early October, China launched the Gaofen-10 earth observing satellite, as part of the Gaofen [高分; lit. "high-resolution"] constellation. The recently launched Gaofen-10 joins 12 other Gaofen satellites in orbit. While Gaofen-10 is capable of sub-meter resolution series, satellites follow different configurations, typically with a mix of multi-spectral optical and radar sensors. Some have synthetic-aperture radar (SAR) imaging capability.

Gaofen satellites are part of the China High-resolution Earth Observation System (CHEOS) and one of the major programs under China's national medium- and long-term science and technology development plan (2006-2020). The Gaofen program is administered under China's State Administration of Science, Technology and Industry for National Defense [SASTIND; 国家国防科技工业局]—the government body in charge of China's defense companies—and China's National Space Administration (CNSA).

Imagery and data collected by the constellation are intended to eventually function like the USGS Landsat program, providing a significant boost to a host of commercial sectors. According to the accompanying article, Gaofen data "can be applied in monitoring natural and agricultural disasters, estimating crop yields and surveys of forest and wetland resources." However, as noted by the article, the system is also intended to provide data support to defense modernization of Belt and Road countries—those that are part of China's trans-Eurasian Silk Road Economic Belt and the 21st Century Maritime Silk Road.

China has other similar satellite constellations including the Yaogan [遥感; lit. "remote sensing"], which public sources suggest include military application earth-observing and electronic signals intelligence (ELINT) satellites. Online catalogs of satellites currently in orbit list 59 of this series.

The rapid growth and modernization of these satellite constellations—as well as the supporting positioning, navigation, and timing (PNT) and communication satellite networks, are testament to the priority China gives to improving its space infrastructure. **End OE Watch Commentary (Wood)**

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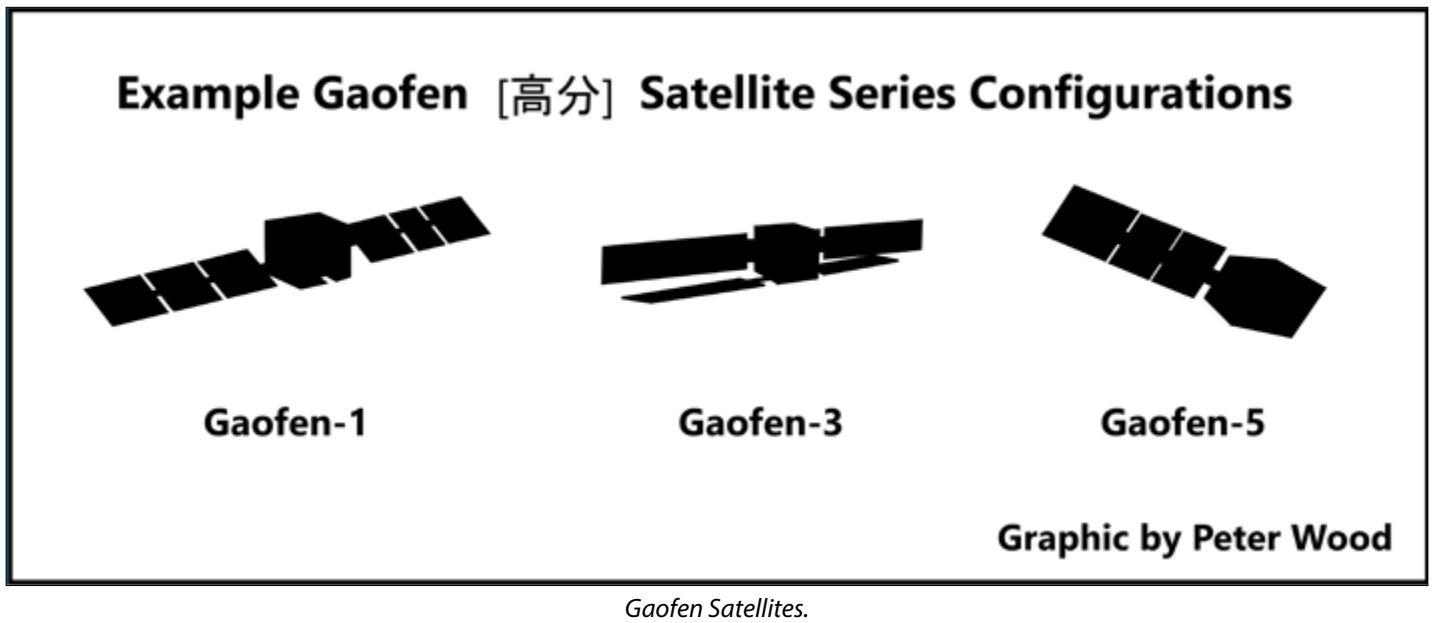

Gaofen Satellites.
Image by Peter Wood

Source: "我国成功发射高分十号卫星 (China Successfully Launches Gaofen-10 Satellite)," *Xinhua*, 5 October 2019. www.xinhuanet.com/mil/2019-10/05/c_1210301460.htm

On 5 October, at 2:51 a.m., China successfully launched the Gaofen 10 satellite using a Long March IVC carrier rocket from the Taiyuan Satellite Launch Center [太原卫星发射中心]. *The satellite successfully entered its intended orbit and the mission was judged a complete success. The Gaofen 10 is a high-resolution Earth Observation system and microwave remote sensing satellite national scientific and technological major special arrangements of, It has sub-meter resolution and will mainly be used in land census, urban planning, property rights, road network design, crop estimation, disaster prevention, and mitigation and other fields. The system can be used by "Belt and Road" countries to provide data support for major national strategies and national defense modernization. Both the Long March IV C carrier rocket and the Gaofen 10 satellite were developed by the Shanghai Academy of Spaceflight Technology (SAST) Shanghai Aerospace Technology Research Institute* [上海航天技术研究院], *part of China Aerospace Science and Technology Corporation (CASC)* [中国航天科技集团公司].

The mission marked the Long March launch vehicle series' 314th flight.