EARTH OBSERVATION SYMPOSIUM (B1)
International Cooperation in Earth Observation Missions (1)

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CHINA'S HIGH-RESOLUTION EARTH OBSERVATION SATELLITE SYSTEM: OPPORTUNITIES FOR AND CHALLENGES TO INTERNATIONAL COOPERATION

Abstract

China's High-Resolution Earth Observation Satellite System, also known as the Gaofen system, is the largest constellation of its kind under construction worldwide. At completion, the system may comprise as many as 60 satellites and airborne platforms circling the globe and collecting images.

This system offers promising opportunities for international cooperation on global challenges, but it may also elevate international tensions.

This large and capable Earth-observation system could provide valuable new data to scientists, policymakers, and commercial users worldwide. Gaofen satellites have already begun to launch and the constellation is likely to be complete by 2030, faster than any major new alternative system. Sharing the data from Gaofen could enhance global efforts at weather forecasting, environmental monitoring, and disaster mitigation. Widely shared, Gaofen data could be applied to climate modeling, urban planning, and precision agriculture in diverse locations. This new data source could also spur on the burgeoning commercial Earth imagery-utilization sector, to the benefit of industrial users and consumers worldwide.

At the same time, Gaofen's features and context make it a likely source of international tensions. Gaofen is under dual civil and military control within China's space establishment, which already draws security concerns from foreign parties. Moreover, Chinese policymakers intend for this constellation to serve their country's wholescale military modernization. For China's defense planners, building a military enabled by space-derived data is a priority. Gaofen represents an important step toward enhancing Chinese military and intelligence users' access to and utilization of space data. As Chinese-government satellites collect high-resolution images of the rest of the world, foreign governments will grow concerned about the security vulnerabilities to result from their new exposure.

Will China's entry into the Earth-observation arena as a major civil, military, and commercial player support or disrupt international cooperation? Will Gaofen realize its potential to contribute to cooperation on global challenges, such as climate modeling and disaster monitoring, or will security and trade tensions stymie the opportunities it presents? What mechanisms exist to foster data-sharing and cooperation between China and other stakeholders in this segment of the space sector? What existing mechanisms to manage international frictions over the collection and distribution of sensitive data by governments are applicable to this situation?

This paper explores these fundamental questions through an examination of the Gaofen program to date, its strategic context, and existing practices in Earth observation. It is based on original Chinese-language sources translated by the author.