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CHINA'S SPACE DEVELOPMENT HISTORY: A COMPARISON OF THE ROCKET AND  
SATELLITE SECTORS

**Abstract**

China is the most recent great power to emerge in aerospace. It has become the first developing nation to achieve some measure of aerospace production capability across the board. Outside the developed aerospace powers, only China has demonstrated competence concerning all aspects of a world-class aerospace industry: production of advanced rockets, satellites, and aircraft and of their supporting engineering, materials, and systems. Still limited in resources, technology access, and capabilities, and thereby facing difficult choices and constraints, China as an emerging great power during the Cold War achieved increasing, but uneven technological levels in different aerospace sub-sectors. Explaining this variance can elucidate challenges and opportunities confronting developing nations sharing limitations that previously constrained China. Rockets and satellites were two areas of early achievement for China, and represent this paper's two in-depth case studies. Early in the Cold War, great power status hinged on atomic development. China devoted much of its limited technical resources to producing nuclear weapons in order to "prevent nuclear blackmail," "break the superpowers' monopoly," and thereby secure great power status. Beijing's second strategic priority was to develop reliable ballistic missiles to credibly deliver warheads, thereby supporting nuclear deterrence. Under Mao Zedong's direction and Qian Xuesen's guidance, missile development became China's top aerospace priority. Satellites were also prioritized because they could not be purchased from abroad following the Sino-Soviet split. Thanks in part to this early progress, China tested the DF-2A medium-range ballistic missile in 1964 and deployed it in 1966. In 1970, using the LM-1 SLV, China became the fifth nation to launch a satellite; DFH-1's mass exceeded that of the of the four previous countries' first satellites combined. In 1971, China launched the experimental satellite SJ-1. The DF-5 ICBM was test-flown in 1971, and tested for its full-range of 9,300 km over water in 1980. In 1984, China launched the CZ-3 geostationary communications satellite. In 1988, China test-launched the JL-1 submarine-launched ballistic missile from a Type 092 submarine. The paper will examine the decision-making, organization, and technological development that made such progress possible. It will consider the following competing explanations for the exceptional pace and degree of development of China's rockets and satellites during the Cold War: path-dependency in sequence of aerospace sectors' technological development, degree of national-level prioritization, degree of access to foreign products and technology, effectiveness of scientific and technological leadership and organizations, degree of strategic threat faced by China, and state-market relations.