

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Vehicles in Service or in Development (1)

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BRIEFINGS ON CHINA'S NEW-GENERATION OF COMMERCIAL SPACE TRANSPORTATION
SYSTEMS BASED ON LIQUID OXYGEN AND LIQUID-METHANE (LOX+LCH₄) PROPELLANT

Abstract

Traditional Chinese space transportation systems are designed and built based on toxic propellants. Typical projects are the Long March series of launch vehicles and the relevant three satellite launch centers located in Jiuquan, Xichang and Taiyuan cities. Since the beginning of the 21st century, the new generation of China's space transportation system and launch site system adopt green or eco-friendly propellants, mainly liquid oxygen/kerosene and liquid oxygen /liquid hydrogen. Representative projects include the Long March 5/6/7 and Wenchang Satellite Launch Center. The new generation of space transportation system and launch site system have laid a solid foundation for the three steps planning of China's Manned Space-flight Mission and that of China's Lunar Exploration Project. With the advancement of science and technology development in China and abroad, as well as the business development, China has generated technical power for space transportation system supported by liquid oxygen/liquid methane (LOX+LCH₄) as a propellant combination. The typical representative project is the ZhuQue series of launchers and LOX+LCH₄ Launch Complex project. Other Chinese commercial aerospace companies are also conducting related technical research and development, as well as the project constructions. This article gives the briefings and discusses the design, manufacture, construction, operation, implementation, risks, as a beneficial supplement of state-owned space transportation systems in China, based on LOX+LCH₄ propellant combination.