

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

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EXPLORATION STRATEGIES ENABLED BY COMMERCIAL SPACE ARCHITECTURES

Abstract

The paradigm of what it takes to fly a lunar mission has begun to shift. Launch costs are rapidly decreasing with emerging commercial launch providers. Commercial operators can reduce the cost of orbiters and landers by re-using designs and by innovating in ways that national space agencies are not mandated to do.

The MX spacecraft architecture from Moon Express supports multiple applications, including delivery of scientific and commercial payloads to the Moon at low cost using a rideshare model, or charter science expeditions to distant worlds. Designed for Scout Class exploration capabilities starting from low Earth orbit, MX-1 delivers flexibility and performance to revolutionize access to the Moon and cis-lunar space.

Dual stage flexibility drives more payload to the lunar surface or extends the reach to deep space. Compatible with existing and emergent launch vehicles, the MX-2 delivers Scout Class possibilities for exploration and commerce at low cost.

Designed as a workhorse that can deliver 150kg to low lunar orbit from low Earth orbit, with a range of configurations to support lunar landing and cis-lunar operations, the MX-5 can also be outfitted with MX-1 or MX-2 staged systems that can bring the entire solar system within reach. Available in orbiter, lander, deep space probe and sample return configurations.

Designed for Frontier Class exploration capabilities, MX-9 will support robust lunar sample return operations. Like its MX-5 little brother, the MX-9 can also be outfitted with MX-1 or MX-2 staged systems that can deliver over 10kms V and extend its reach to span the solar system, and beyond.

Our first expedition will utilize our MX-1E robotic explorer to deliver a diverse manifest of scientific and commercial payloads to the lunar surface. Our customers for this mission include the International Lunar Observatory Association, the University of Maryland, The National Laboratories of Frascati, Celestis and Google.

Following our initial "Lunar Scout" expedition next year, we will offer payload accommodations on future voyages, planned at the rate of one per year. But we can also scale up and increase the frequency of our lunar flights to meet market demand and opportunity.