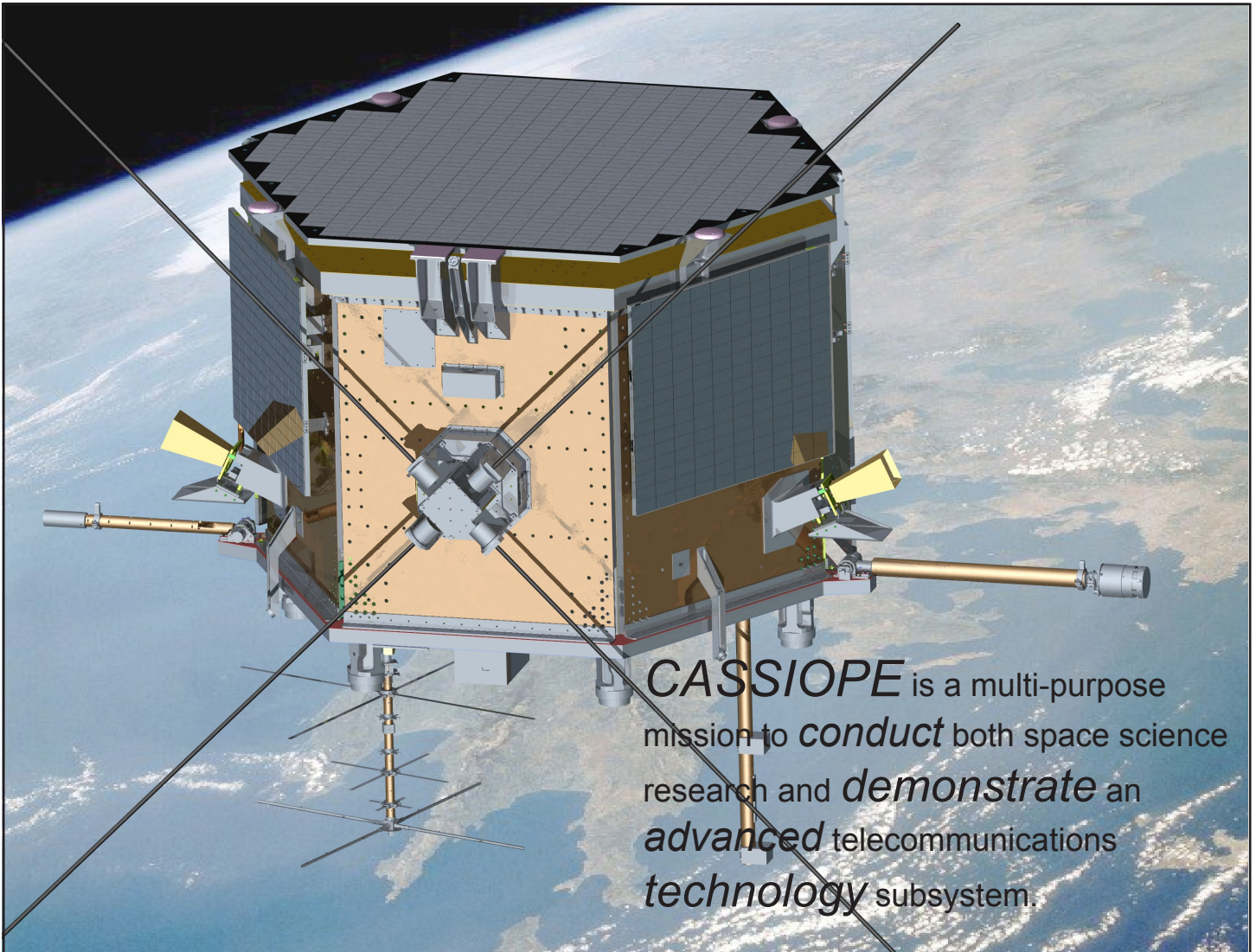


CASSIOPE SPACECRAFT BUS DESIGN, MANUFACTURE, AND DELIVERY



FLEXIBLE ARCHITECTURE • HIGH RELIABILITY • QUALIFIED DESIGN



HERITAGE



50 *Years of Experience in Space*

147 *Sub-Orbital Payloads*

5 *Satellites*

2 *Space Station Experiments*

5 *Space Shuttle Experiments*



KEY CHALLENGES

The CASSIOPE spacecraft design marks an important milestone for Canada. CASSIOPE is Canada's first, fully redundant, scientific small satellite. The performance and science return available from CASSIOPE was previously thought by many in the space industry to be unobtainable in a spacecraft of this class. Every aspect of the spacecraft design from the hardware to the software and especially the on-board spacecraft computer subsystem, was tailored to keep the size, mass and cost within requirements. The success of CASSIOPE contributed to Magellan securing the bus contract for the RADARSAT Constellation Mission (also based on the MAC-200 bus).

CASSIOPE's complement of nine different instruments makes it a tremendously useful scientific and engineering instrument, but also made it an extraordinarily challenging spacecraft to design. Each instrument has its own field of view, pointing requirements and power demands, which had to be compatible with all other payloads and bus systems. Many of the payloads require deployment sequences which change the spacecraft mass properties, thus complicating the attitude control modes. Any one of CASSIOPE's nine instruments (including the Cascade demonstration) would have been a challenge for a single small satellite bus to accommodate. Magellan's ability to accommodate all nine on a single, fully redundant spacecraft is a significant achievement.

ABOUT MAGELLAN AEROSPACE

Magellan Aerospace (TSX: MAL) is a global company that provides products and solutions to the aviation, defense and space markets, with facilities in Canada, the United States, Europe, and India. The company's Space and Rocket business has over fifty years of flight heritage on NASA and CSA missions, including Black Brant sounding rockets, sub-orbital payloads, Shuttle and ISS experiments, and satellite missions. Magellan's space solutions include the microsatellite-class MAC-100 bus and the smallsat-class MAC-200 bus, as well as command and data handling (C&DH) and power control unit (PCU) subsystems.

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