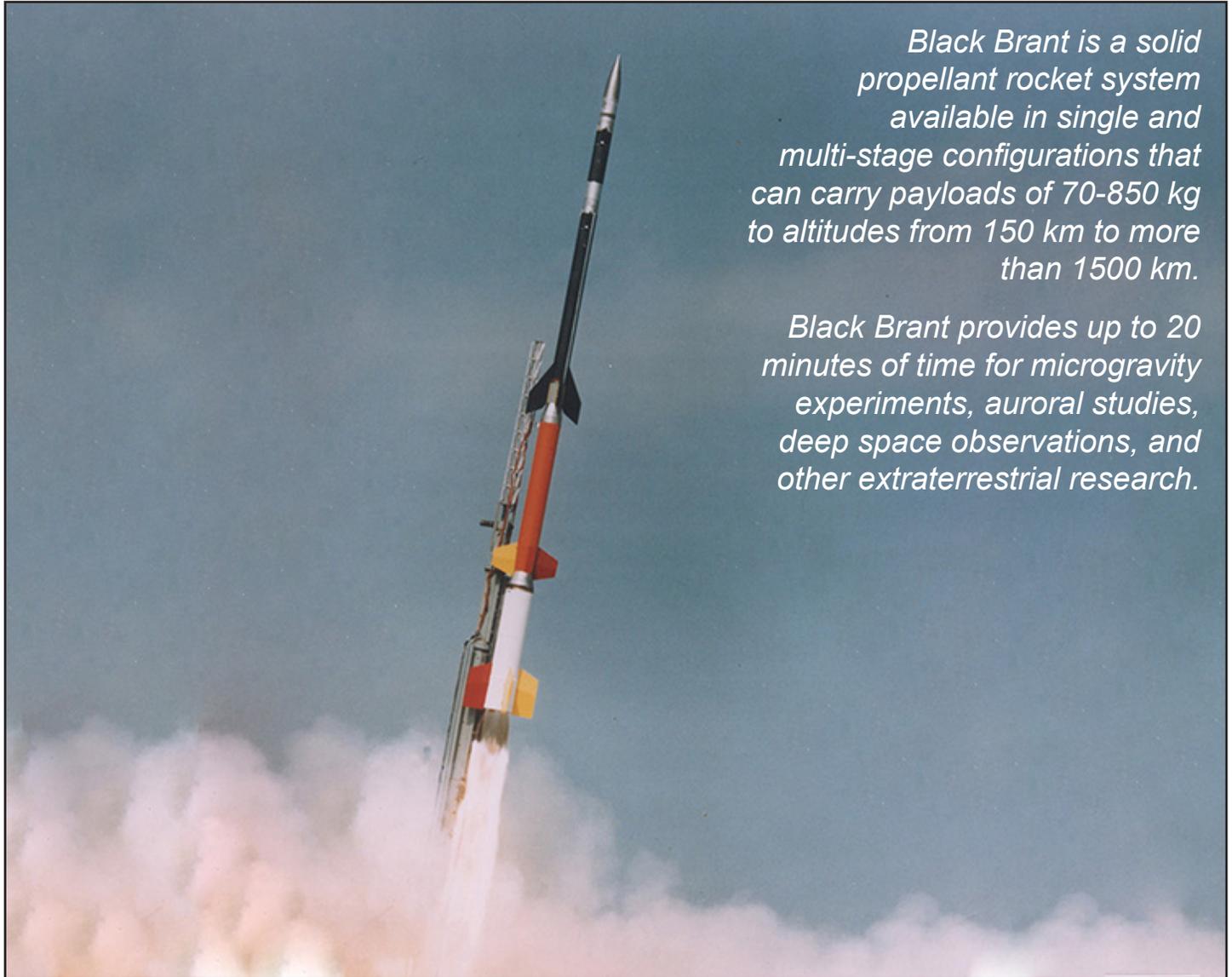


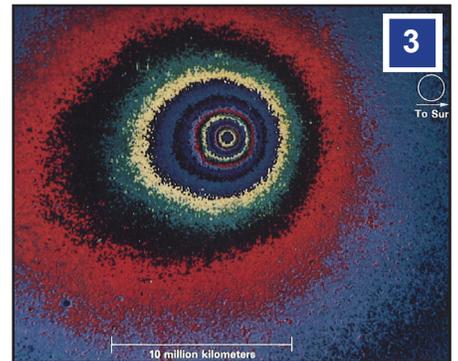
# BLACK BRANT ROCKETS



*Black Brant is a solid propellant rocket system available in single and multi-stage configurations that can carry payloads of 70-850 kg to altitudes from 150 km to more than 1500 km.*

*Black Brant provides up to 20 minutes of time for microgravity experiments, auroral studies, deep space observations, and other extraterrestrial research.*

FLIGHT HERITAGE • HIGH RELIABILITY • HIGH PERFORMANCE



# OVERVIEW

Magellan Aerospace, Winnipeg, a division of Magellan Aerospace Limited, offers a comprehensive range of services including vehicle/payload design, fabrication, and worldwide launch support.

Since 1962, more than 1,000 Black Brants were launched, with a vehicle success rate of over 98%.

Black Brant is more cost-effective than any other sounding rocket of comparable performance. Whether studying the upper atmosphere or conducting microgravity research, the Black Brant is the most reliable, cost-effective, and available sounding rocket to carry experiments to the fringes of space.

Magellan Aerospace offers a full range of turn-key services and support to experimenters:

- Mission feasibility and definition
- Payload/hardware design and fabrication
- Experiment integration
- Environmental testing
- Launch services and range crew support
- Mission analysis
- Project management

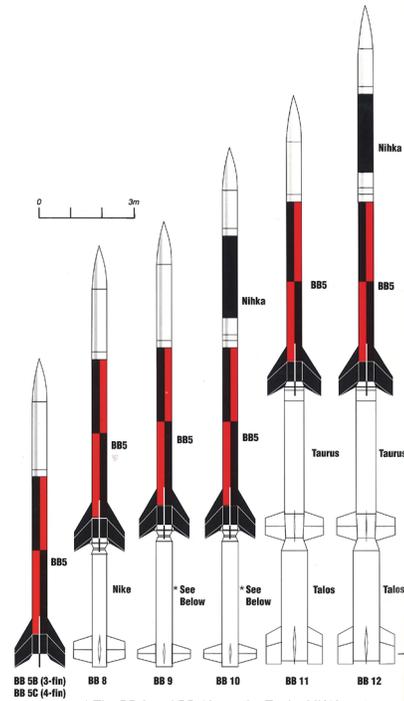
# WORLDWIDE LAUNCH SUPPORT

Magellan Aerospace has provided comprehensive range support services for launches from five continents. Magellan can supply portable payload checkout equipment, and back-up telemetry monitoring systems for scientific missions from remote locations.

# KEY TO IMAGES (FACING PAGE)

- 1** *Trajectory of a Black Brant four-stage rocket launched from Alaska to an altitude of 958 km to carry out auroral research. This half-hour exposure also shows the glow from two barium charges released following third-stage burn to reveal the orientation of the earth's magnetic field.*
- 2** *BB10 launched from Andoya Rocket Range, Norway.*
- 3** *Far-ultraviolet images of Comet Halley taken from a BB9, one of two Black Brants used by NASA to loft observation cameras and telescopes and aim them at Comet Halley. To observe the comet without the contamination of sunlight, the launch occurred just before dawn so that the comet would be above the horizon, and the sun below, when the rocket reached apogee.*

# BLACK BRANT SOUNDING ROCKETS



\* The BB 9 and BB 10 use the Terrier MK12 motor.  
The BB 9 Mod 1 and BB 10 Mod 1 use the TX-664-5 motor.

# ABOUT MAGELLAN AEROSPACE

Magellan Aerospace is a global aerospace company that provides complex assemblies and systems solutions to aircraft and engine manufacturers, and defence and space agencies worldwide. Magellan designs and manufactures aeroengine and aerostructure assemblies and components for aerospace markets, advanced proprietary products for military and space markets, and provides engine and component repair and overhaul services worldwide. Magellan is a public company whose shares trade on the Toronto Stock Exchange (TSX: MAL), with operating units throughout North America, Europe, and India.

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