An Overview of the Gravity Probe B Program

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Missions Operations Center
Detector Package
SQUID sensor and package
World's roundest spheres
Gyroscope and housing

Launch: 20 April 2004

Vehicle on Booster
645-gallon Dewar

Guide Star tracking telescope

Guide Star IM Pegasi HR8763

PROBE during assembly

Frame Dragging Precession:
39 marc-sec/year in Equatorial plane

Geodetic Precession:
6,606 marc-sec/year in orbital plane

GP-B Team Receives NASA Award, 2005

First results - Geodetic Precession

\[ \dot{\mathbf{u}} = \frac{3GM}{2c^2 R} (\mathbf{R} \times \mathbf{v}) + \frac{GI}{c^2 R^2} \left[ \frac{3R}{R^2} (\dot{\mathbf{u}} \cdot \mathbf{R}) - \ddot{\mathbf{u}} \right] \]

Initial Orbit Checkout (IOC): 128 days
Science Phase: 353 days
Post-experiment tests: 46 days

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First results - Geodetic Precession

642 kilometers (~400 miles)

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