



Imaging X-ray Polarimetry Explorer

Imaging X-ray Polarimetry Explorer (IXPE) Introduction & Overview



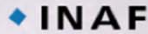











Science Collaboration Meeting
November 7, 2018
Rome, Italy

Martin C. Weisskopf, PI
NASA Marshall Space Flight Center

OUTLINE

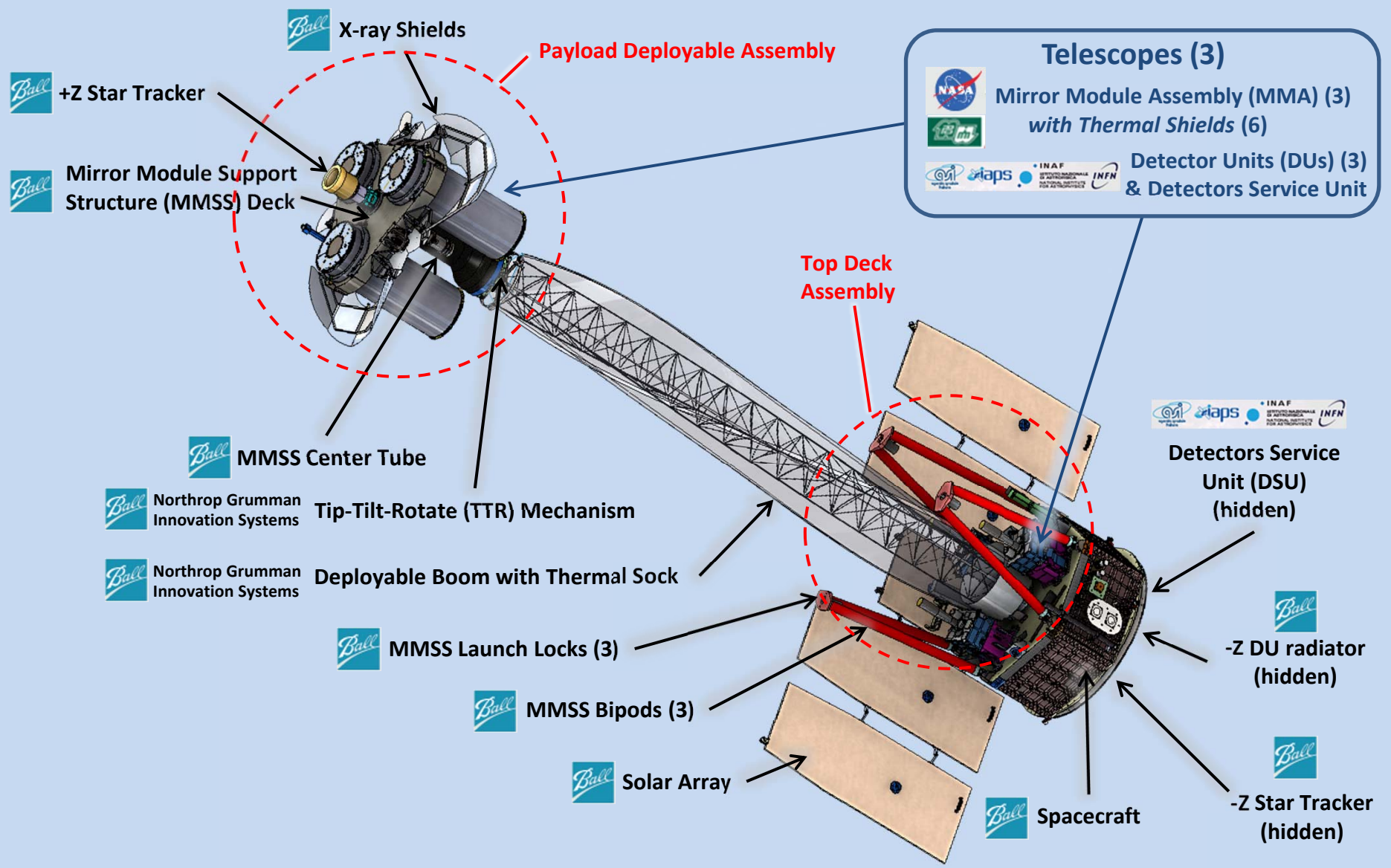
- Introduction and overview — Weisskopf
- Mirror Module Assemblies (MMAs) — Ramsey
- Instrument = Detectors (DUs) + Detector Service Unit (DSU) — Soffita

The IXPE Team

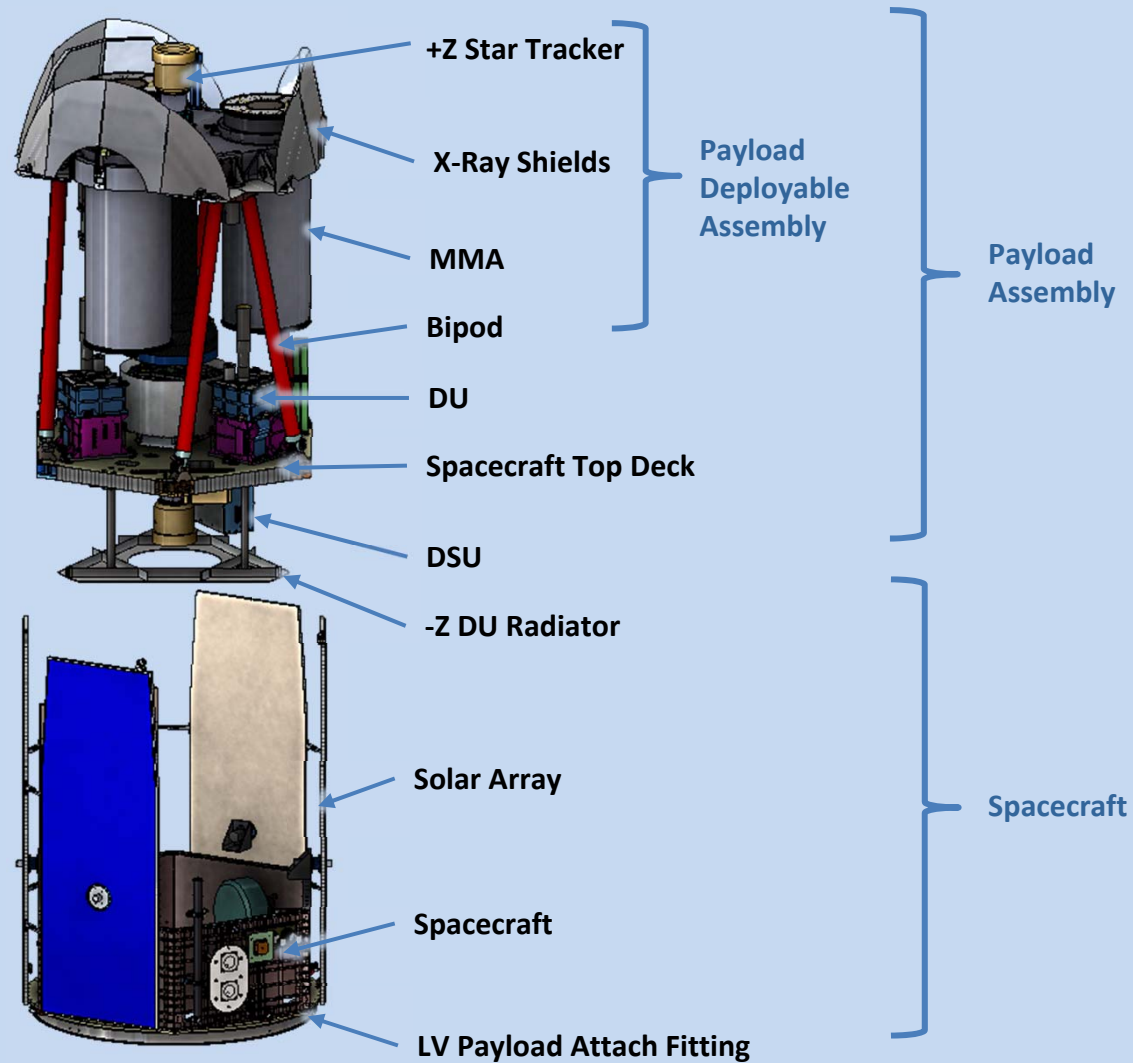
 <p>Marshall Space Flight Center</p> <p>PI team, project management, SE and S&MA oversight, mirror module fabrication, X-ray calibration, science operations, and data analysis and archiving</p>	  <p>ISTITUTO NAZIONALE DI ASTROFISICA NATIONAL INSTITUTE FOR ASTROPHYSICS</p>    <p>Polarization-sensitive imaging detector systems</p>
 <p>Detector system funding, ground station</p>	  <p>Mission operations</p>
 <p>Spacecraft, payload structure, payload, observatory I&T</p>	  <p>Stanford University Scientific theory</p>
	 <p>McGill Co-Investigator</p>
	 <p>Massachusetts Institute of Technology Co-Investigator</p>



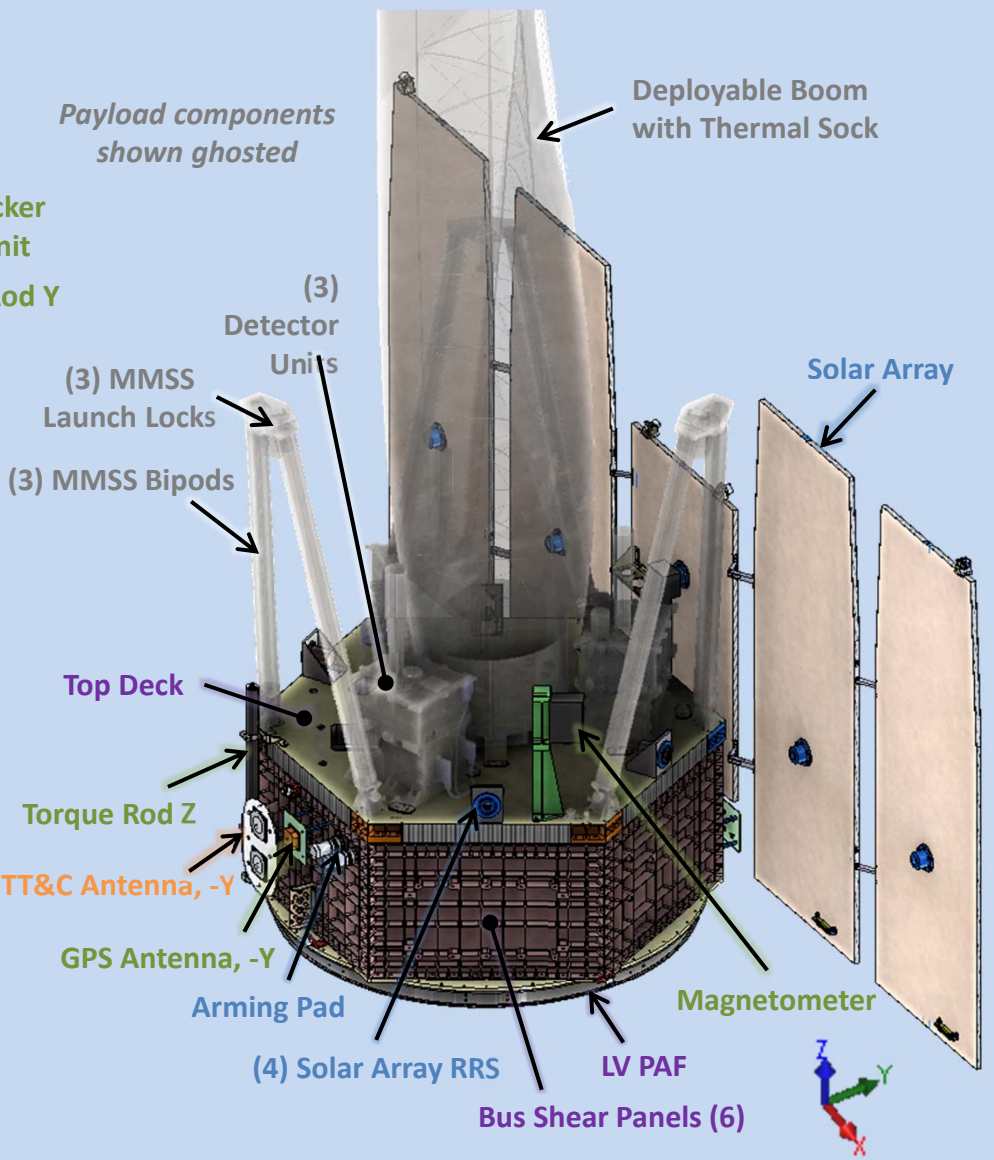
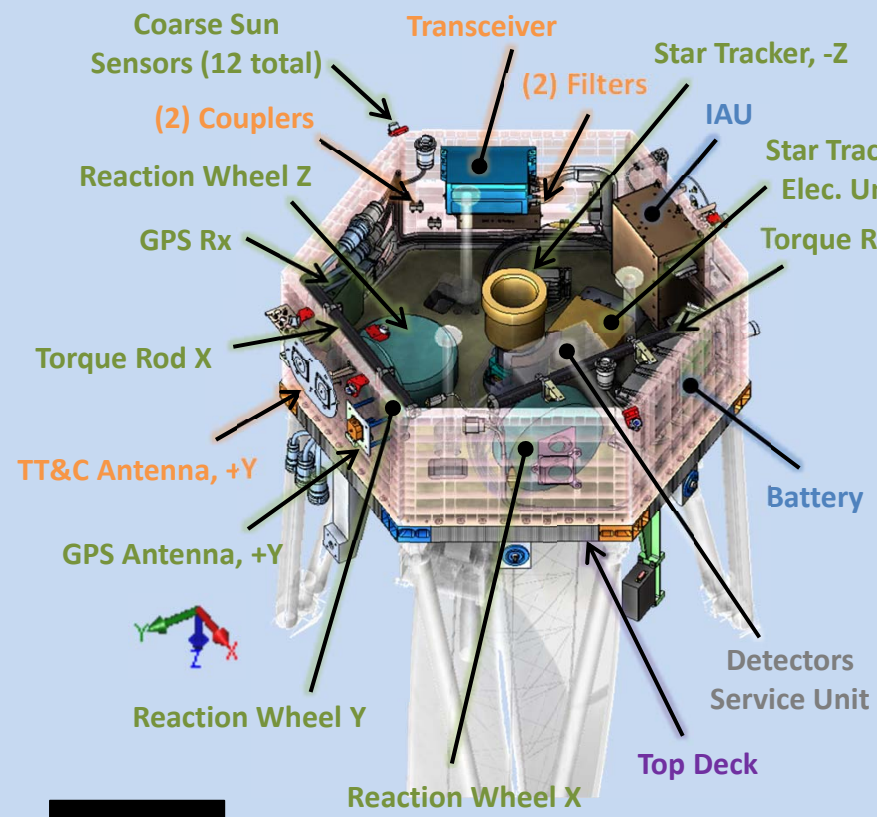
OBSERVATORY DEPLOYED



OBSERVATORY STOWED



SPACECRAFT



Key:	
ADCS	Structure
CDH & ES	Structure
Telecom	Structure
Payload	Structure

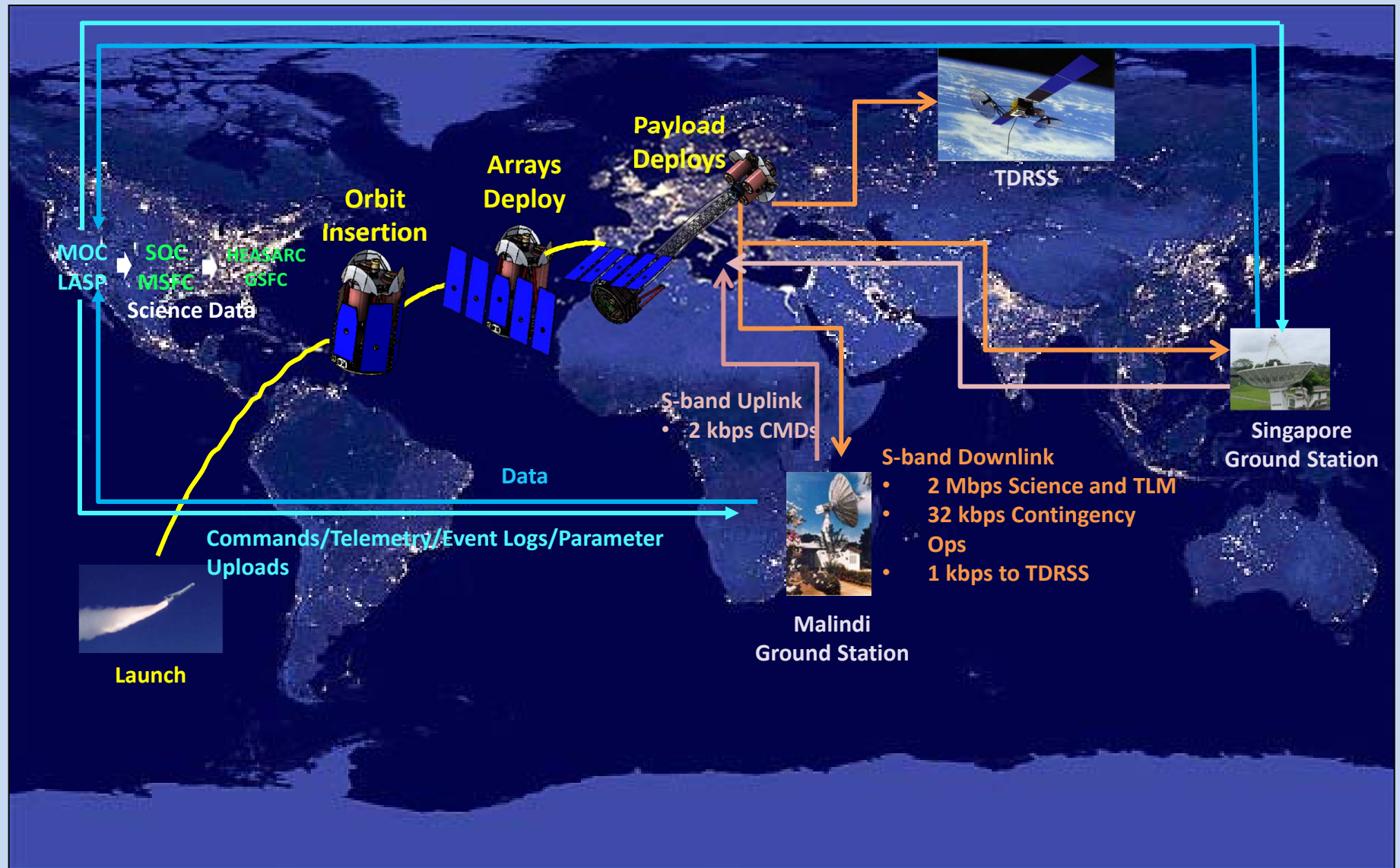
Thermal not shown
 Star Tracker +z not shown
 CSS on post not shown



MISSION DESCRIPTION

Parameter	Value
Launch Planning (Pegasus XL baselined)	21 day launch period Can launch on any day on or after 04/20/2021 Launch Dispersions: ± 10 km insertion apse; ± 80 km non-insertion apse
Mission Duration	25 months including 1 month commissioning/payload verification
Initial Orbit State (based on nominal launch vehicle performance)	Low Earth orbit (LEO) Altitude = 540 km, circular Semi-major axis = 6900 km Eccentricity = 0 Inclination = 0 degrees
Critical Events	Launch phase including separation from launch vehicle Autonomous solar array deployment Commanded payload boom deployment
Ground Stations	Malindi, Kenya (primary station) Singapore NEN station (backup) TDRSS (early mission operations, contingency operations)
Communications	2.0 Mbps downlink via S-band LGA (to ground) 32 kbps downlink via S-band LGA (to ground) 1 kbps downlink via S-band LGA (to TDRS) 2 kbps uplink via S-band LGA (from ground)
Fault Management	Autonomously places Observatory in a safe configuration Ground control used for recovery process

GROUND SYSTEM SUMMARY



UPCOMING MILESTONES

Date	Description
April 2019	Critical Design Review
July 2019	MMA fabrication complete
August 2019	Detector calibrations complete
January 2020	End-to-end (Telescope) calibration complete
March 2020	Ship to Ball Aerospace
April 2021	LAUNCH!!!!!!