Solar Dynamics Observatory Mission

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*SDO Mission Concept Level Objectives

- Understand how magnetic fields appear, distribute, and disappear from their origin in the solar interior to 18 solar radii from the solar surface

- Understand the magnetic topologies that give rise to rapid high-energy release processes that occur on scales from a thousand to many hundreds of thousand kilometers

- Study and gauge the dynamic processes which influence space weather phenomena

- Study the variations in irradiance and solar structure which occur on short time scales as well as over the solar cycle

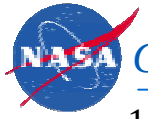
*Note: SDO Science Definition Team established to address science objectives.

SDO Mission Characteristics

- **Schedule:**
  - **Release instrument AO Summer 2001**
  - **Mission Authorization 2003**
  - **Launch from Eastern Range in Dec, 2006**
- **Mission Life: 5-year mission design life**
- **Orbit: Geo-synchronous orbit with 28.5° inclination**
- **Launch Vehicle: Medium-class**
- **Instruments: Four (+/-) solar-pointed instrument packages selected through the AO process**
- **Spacecraft Bus: GEO bus from RSDO catalog**

General Spacecraft Bus Characteristics
(Specific parameters to be outlined in RSDO study)

- **Single three-axis stabilized GEO bus**
- **Selective redundancy and system upgrades as appropriate**
- **Launch vehicle: Medium class interface**
- **Propulsion: Orbit circularization, station-keeping, and disposal**
- **Life: 5-year mission design life (up to 5 year extension)**
- **Optical instruments: high pointing accuracy and low jitter**
- **Large capacity image handling system**
- **Continuous down-link of high-rate telemetry**
- **One primary ground station**
- **One standard observing mode for simplicity of operations**



Spacecraft Bus Study Plan

- SDO Core Team established to develop instrument AO
- Plan to release instrument AO Summer 2001
- Performance trades being initiated to acquire interface level information for AO
  - Spacecraft Bus
  - Ground Systems
- Studies to be completed mid-March 2001 to allow generic interface information to be inserted into AO
- Ron Miller, GSFC RSDO, leading effort to initiate study
- SDO Core Team to follow study through completion