NASA STEREO Science Writer’s Workshop

Michael Kaiser, Project Scientist
NASA Goddard

Madhulika Guhathakarta, Program Scientist
NASA Headquarters

Janet Luhmann, IMPACT PI
UC Berkeley

Jim Adams, Deputy Project Manager
NASA Goddard

More information:
Rachel.A.Weintraub@nasa.gov

http://www.nasa.gov/stereo
Introduction to STEREO

STEREO’s Objectives

Understanding start of coronal mass ejections (CMEs)

Explore how CMEs move through the solar system

Understand start of solar energetic particles

Develop a 3-D model of the solar wind

So, why in stereo?
Space Weather

Astronauts can experience radiation exposure in high inclination orbit and outside of Earth’s magnetosphere.

Terrestrial power systems

Spacecraft charging

Airline polar routes
STEREO Instruments

Two Nearly Identical Observatories

SECCHI COR, EUVI, GT

Deployed SWAVES Electric Field Antenna

Deployed IMPACT Boom

IMPACT Magnetometer

IMPACT STE

IMPACT SWEA

PLASTIC Instrument

SECCHI Heliospheric Imager
STEREO's Unique Orbit

Ahead @ +22°/year

Behind @ -22°/year
Launch + 90 days

STEREO Observations
NASA STEREO Science Writer’s Workshop

Michael Kaiser, Project Scientist
NASA Goddard

Madhulika Guhathakarta, Program Scientist
NASA Headquarters

Janet Luhmann, IMPACT PI
UC Berkeley

Jim Adams, Deputy Project Manager
NASA Goddard

More information:
Rachel.A.Weintraub@nasa.gov

http://www.nasa.gov/stereo
The Exploration of the:
• Sun
• Its Effects on the Planets of the Solar System, and
• Space Environmental Conditions and Their Evolution
Why Do We Care?

• Solar variability affects technology, humans in space, and Earth’s climate.

• The sphere of the human environment continues to expand above and beyond Earth.
  - Increasing dependence on space-based systems
  - Permanent presence of humans in Earth orbit and beyond
NASA Short Term Approach:

Research program with existing NASA assets to create space weather prediction capability at the moon and Mars
NASA STEREO Science Writer’s Workshop

Michael Kaiser, Project Scientist
NASA Goddard

Madhulika Guhathakarta, Program Scientist
NASA Headquarters

Janet Luhmann, IMPACT PI
UC Berkeley

Jim Adams, Deputy Project Manager
NASA Goddard

More information:
Rachel.A.Weintraub@nasa.gov

http://www.nasa.gov/stereo
The IMPACT instrument
IMPACT Instruments

IMPACT family portrait ...

SIT- U of Md, Max Planck Inst.

SWEA, STE-CESR, UCB

SEPT- U of Kiel, ESTEC

SWEA, MAG-CESR, GSFC

LET, HET-Caltech, JPL, GSFC
The IMPACT boom

Boom deployment test at UCB

...Ready for shipment to APL
IMPACT Instruments

IMPACT investigation ready to go …

IMPACT Boom Integration

IMPACT SEP suite integration
Unique Public Outreach Activities

Berkeley Audio Project

• Together, musicians and scientists turn solar data into sounds.

• Below: solar wind Iron and Helium fluxes at different energies collected over one month.

• The RGB value of each color in the graph determines the pitch played by the program.

• Above: audio clip plays over a month of changes in the solar corona

http://cse.ssl.berkeley.edu/impact/sounds.html
NASA STEREO Science Writer’s Workshop

Michael Kaiser, Project Scientist
NASA Goddard

Madhulika Guhathakarta, Program Scientist
NASA Headquarters

Janet Luhmann, IMPACT PI
UC Berkeley

Jim Adams, Deputy Project Manager
NASA Goddard

More information:
Rachel.A.Weintraub@nasa.gov

http://www.nasa.gov/stereo
Launch Window
May 26 – June 8
~3:30 pm EDT
Launch Operations

Communicating with STEREO
Getting There …

Mission Timeline (1st opportunity)
Launch: May 26 – June 8, 2006 ~3:30 pm EDT
S1: July 19, 2006
S2: August 25-26, 2006

Launch Specifics
Launch Specifics