

Sun-Earth Connection Science Infrastructure

Sun

Heliosphere

Solar Wind Input

Dayside Magnetosphere

Inner Magnetosphere

Geosynchronous

Ionosphere

Nightside Magnetosphere

Magnetotail

ACE
Solar Isotopes and Ions

Wind
Type I, II, III, IV radio bursts

Yohkoh
High Energy Solar Observations

TRACE
Solar Atmosphere Magnetic Field Photosphere

SOHO
Comprehensive deep core to outer corona

IMP-8
Cosmic Rays
3D Heliosphere

Geotail
near-Earth seasonal
Cosmic Rays, SEPs
3D Heliosphere Waves, Pickup ions

ACE
Cosmic Rays
3D Heliosphere

Wind
SEPs
3D Heliosphere Waves, Pickup ions

Ulysses
SEPs
3D Heliosphere

Voyager
Distant Heliosphere Termination Shock

SOHO
3D Heliosphere

IMP-8
near-Earth
SW Plasma

Geotail
near-Earth seasonal
IMF/SW Plasma Plasma Waves

ACE
L1 - real time
IMF/SW Plasma

Wind
IMF/SW Plasma Plasma Waves

Cluster
near-Earth seasonal
3D Structure IMF/SW Plasma Plasma Waves Electron Foreshock

IMAGE
Remote sensing
Solar Wind Neutrals Interplanetary Neutrals

SOHO
L1
IMF/SW Plasma

FAST
Cusp Dynamics
Reconnection Consequences

Geotail
Energy/Mass Transfer Particle Circulation Boundary Layers

Polar
Energy/Mass Transfer Particle Circulation Boundary Layers Cusp Dynamics

Wind
Energy/Mass Transfer Particle Circulation Boundary Layers

Cluster
periodic
3D Boundary Structure Energy/Mass Transfer Particle Circulation Turbulence Cusp Dynamics

FAST
Storm Dynamics

SAMPEX
SEPs ACRs Radiation Belts Particle Precipitation

Polar
Radiation Belts Storm Dynamics Particle Precipitation

Cluster
Ion & Electron Outflow Particle Precipitation

IMAGE
Remote sensing
Plasmasphere Storm Dynamics Geocorona Magnetic field mapping

FAST
Ion Outflow Particle Precipitation Electrodynamics

Geotail
Particle Injections Acceleration Plasma Waves

Polar
Ion Outflow Particle Precipitation Multiwavelength Aurora

DMSP
plasma Drifts Particle Precipitation

IMAGE
Remote sensing
Ion Outflow Proton/Electron Aurora

FAST
Particle Injections Instabilities Substorms

Geotail
Particle Injections Instabilities Substorms

Polar
Particle Injections Instabilities Thermal Ions Substorms

Wind
Boundary Layers

Cluster
periodic
3D Structure Particle Injections Substorms

Wind
Deep Magnetotail Boundary Layers

Cluster
periodic
3D Structure Acceleration NENL

Geotail
Plasmoids Instabilities NENL

collaborative collaborative NASA This Proposal

Senior Review

Contemporary and future Sun-Earth System Science is enabled by a synergistic suite of space missions of which FAST is an essential component.

This chart developed in collaboration with:
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