

Cosmic Vision 2015-2025

Solar System Community Vision

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Interests shown by Community

➤ SSWG received 59 Solar System Themes

| SSWG Subfield (some Themes cover 2-3) | Themes |
|--|--------|
| Outer Planets & Moons | 17 |
| Minor Bodies | 14 |
| Mars Exploration | 10 |
| Traces of Life | 9 |
| Heliosphere & Planetary Magnetospheres | 9 |
| Earth's Magnetosphere | 7 |
| Inner Planets & Moons | 7 |
| Sun | 6 |

Messages sent by Community

- **Go Outward!** Explore the outer Solar System
(Jupiter, Europa, and beyond)
- **Look at Small Scales!** Understand Space Plasmas
(Magnetospheres, Heliosphere & Solar magnetic fields)
- **Seek Ground Truth!** Land on NEOs, Moons, Planets
(Look below surface and return samples)
- **Look for Life!** Everywhere in Solar System
(Any possible evidence)

Proposals evaluated by SSWG

➤ Rated for Scientific Excellence & Vision

| SSWG Subfield | 15 Best | 30 Best | Submitted |
|---------------------------|---------|---------|-----------|
| Outer Planets & Moons | 5 | 10 | 17 |
| Earth's Magnetosphere | 4 | 5 | 7 |
| Heliosph. & Planet. M'sph | 4 | 5 | 9 |
| Sun | 3 | 4 | 6 |
| Minor Bodies | 2 | 3 | 14 |
| Mars Exploration | 1 | 6 | 10 |
| Inner Planets & Moons | - | 3 | 7 |
| Traces of Life | - | 3 | 9 |

Themes identified by SSWG

- On the basis of 30 best-rated proposals, SSWG identified 3 themes, each with 3 topics + 1 outlook
 - ❶ From Sun to Earth and Beyond: the Plasma Universe
 - ❷ Tracing the Origin of the Solar System
 - ❸ Life and Habitability in the Solar System and Beyond

Cross – Theme Connections

➤ Community's cross-theme favorites, within SSWG: :

- ① Multi-satellite missions for multi-spatial scales
- ② Outer planets – Jupiter, Europa, and beyond
- ③ Sample return
- ④ Subsurface exploration

...and with AWG

- ⑤ Extra-solar habitable planets

Theme 1: Space Plasmas

From Sun to Earth and beyond: the Plasma Universe

- Coupling from electron to interplanetary scales
- Solar magnetic fields and solar particle acceleration
- Dynamics of non-terrestrial magnetospheres
- ➤ ➤ ➤ Heliospheric boundaries and ISM

Theme 2: Outer Solar System

Tracing the Origin of the Solar System

- Formation and dynamics of giant planets
 - Structure and evolution of icy satellites
 - Composition and structure of minor bodies
- ➤ ➤ ➤ Solar System beyond Saturn

Theme 3: Life & Habitability

Life and habitability in the Solar System and beyond

- Evolution of Solar System environments
- Traces of life in the solar system
- Comparison with extra-solar habitable worlds
- ➤ ➤ ➤ Look deep below surfaces (Mars, Europa)