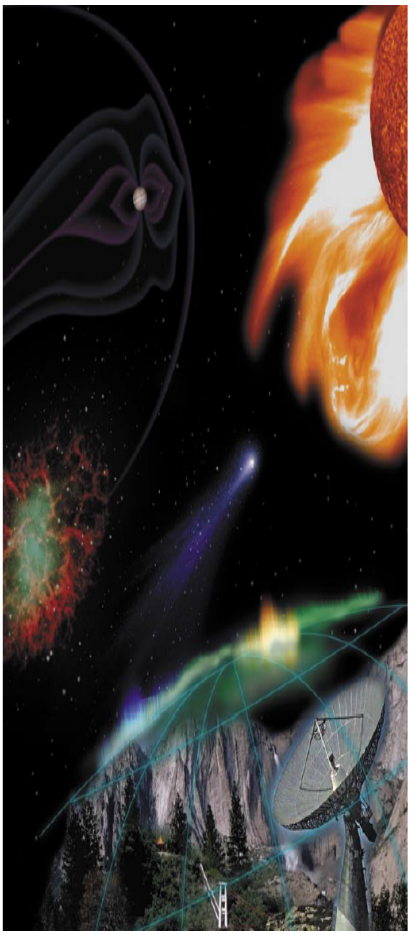
WHO ARE WE? – The Solar Physics Division of the American Astronomical Society.

WHAT DO WE DO? – Study the Sun as a star, its variability, the physical processes that govern its behavior, and its impact on the Earth and the Solar System.

WHY IS IT IMPORTANT? – The Sun is critical for all life on Earth. It constantly emits particle and electromagnetic radiation that defines the space environment of the Earth and is the source of severe magnetic storms (*Space Weather*) that wreak havoc on the space- and ground-based infrastructure that is critical to our technological society. The Sun is the only star that we can actually study in detail therefore offering the perfect laboratory for understanding the fundamental physics that pervade the Universe.

IMPACT OF OUR SCIENCE –Solar physics is the discipline which seeks to understand the star we call the Sun, to bring new instruments, models, and theories to bear on the problems of predicting Space Weather, the Sun's role in Earth's climate, and the fundamental workings of all Sun-like stars in the Universe. Understanding and predicting Space Weather in particular will enable the protection of our critical technical infrastructure, such as reconnaissance and communications satellites, power grids, and oil and gas pipelines. More broadly, as we discover increasing numbers of Earth-like planets around other stars, an understanding of the Sun's interactions with the Earth is critical in determining whether such planets have the ability to harbor life.



EDUCATIONAL IMPACT – Studying the Sun-Earth system provides a wealth of educational opportunities that tap directly into the STEM disciplines, engaging students of all ages in the excitement of astronomical exploration while learning the rudiments of science and engineering.

PURPOSE – The scientific priorities for our science are proscribed through a community-driven decadal survey process led by the National Academy of Sciences and funded by NASA and NSF. The 2013–2022 DECADAL SURVEY, *Solar and Space Physics: A Science for a Technological Society* was released in August 2012. **The American Astronomical Society and the Solar Physics Division strongly support the recommendations and scientific direction detailed in that report.**

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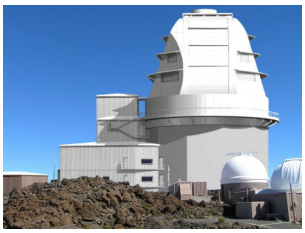
SURVEY RECOMMENDATIONS FOR SOLAR PHYSICS

Continuing advances in solar and space physics yield spectacular insights into the phenomena that affect our home in space. An integrated program of basic and applied research that exploits both ground- and space-based assets will advance scientific understanding of the Sun, the Sun-Earth connection and the origins of Space Weather, and the interactions of the Sun with other bodies in the solar system. **The American Astronomical Society and Solar Physics Division fully endorses the recommendations and priorities identified in the Solar and Space Physics Decadal Survey report.**

Success in this endeavor requires a program that fully exploits key observations, theoretical developments, data analysis, and modeling, supported by a complementary suite of innovative ground based facilities and space based missions, that are tightly integrated with education and training opportunities.

The completion of the current NASA and NSF Programs, coupled to a robust Research & Analysis effort and a vibrant Explorer Program, is key to future success. In the solar arena, this includes the Advanced Technology Solar Telescope (ATST), Solar Orbiter and Solar Probe Plus.



The ATST is strongly endorsed as a major facility in the recently released NSF Astronomy Portfolio Review. It will provide trans-formational technical capability to perform breakthrough solar science and maintain the long-term leadership of the US in solar physics.

To enable ground based priorities to move forward this decade, it is strongly recommended that the NSF implement a mid-scale budget line. Examples of priority facilities are the Frequency Agile Solar Radio Telescope (FASR), a solar imager operating at radio wavelengths, and the Coronal Solar Magnetism Observatory (COSMO). These two innovative and unique facilities are highly complementary to the ATST and the recommended space based program.

A priority for space-based measurements that is of particular importance to the solar community is NASA's participation in the Japanese Solar-C mission. The Solar-C mission provides the exciting frontier science of a large-scale mission at relatively modest cost to NASA while also enhancing international cooperation. NASA has a long and successful partnership with Japan in an array of solar space missions and cooperation on Solar-C will engender similar success.

The SPD also strongly endorses the implementation of the DRIVE Initiative which encompasses the strength and vitality of solar physics and provides a strong platform for future success.

DRIVE Initiative

- **D**iversify observing platforms with microsatellites and ground-based assets
- **R**ealize scientific potential by sufficiently funding operations and data analysis
- **I**ntegrate observing platforms and strengthen ties between agency disciplines
- **V**enture forward with science centers and instrument and technology development
- **E**ducate, empower and inspire the next generation of space researchers