

1. Record Nr.	UNINA9910953850503321
Titolo	Space science in the twenty-first century : imperatives for the decades 1995 to 2015 : report of the study steering group // Space Science Board, Commission on Physical Sciences, Mathematics, and Resources, National Research Council
Pubbl/distr/stampa	Washington, D.C., : National Academy Press, 1988
ISBN	1-280-21485-6 9786610214853 0-309-59474-X 0-585-08584-6
Edizione	[1st ed.]
Descrizione fisica	1 online resource (149 p.)
Disciplina	520
Soggetti	Space sciences Astronomy Cosmic physics Space biology Planets - Exploration Relativity (Physics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Support for this project was provided by Contract NASW-3482 between the National Academy of Sciences and the National Aeronautics and Space Administration.
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Sommario/riassunto

From the interior of the Sun, to the upper atmosphere and near-space environment of Earth, and outward to a region far beyond Pluto where the Sun's influence wanes, advances during the past decade in space physics and solar physics--the disciplines NASA refers to as heliophysics--have yielded spectacular insights into the phenomena that affect our home in space. Solar and Space Physics , from the National Research Council's (NRC's) Committee for a Decadal Strategy in Solar and Space Physics, is the second NRC decadal survey in heliophysics. Building on the research accomplishments realized during the past decade, the report presents a program of basic and applied research for the period 2013-2022 that will improve scientific understanding of the mechanisms that drive the Sun's activity and the fundamental physical processes underlying near-Earth plasma dynamics, determine the physical interactions of Earth's atmospheric layers in the context of the connected Sun-Earth system, and enhance greatly the capability to provide realistic and specific forecasts of Earth's space environment that will better serve the needs of society. Although the recommended program is directed primarily at NASA and the National Science Foundation for action, the report also recommends actions by other federal agencies, especially the parts of the National Oceanic and Atmospheric Administration charged with the day-to-day (operational) forecast of space weather. In addition to the recommendations included in this summary, related recommendations are presented in this report.
