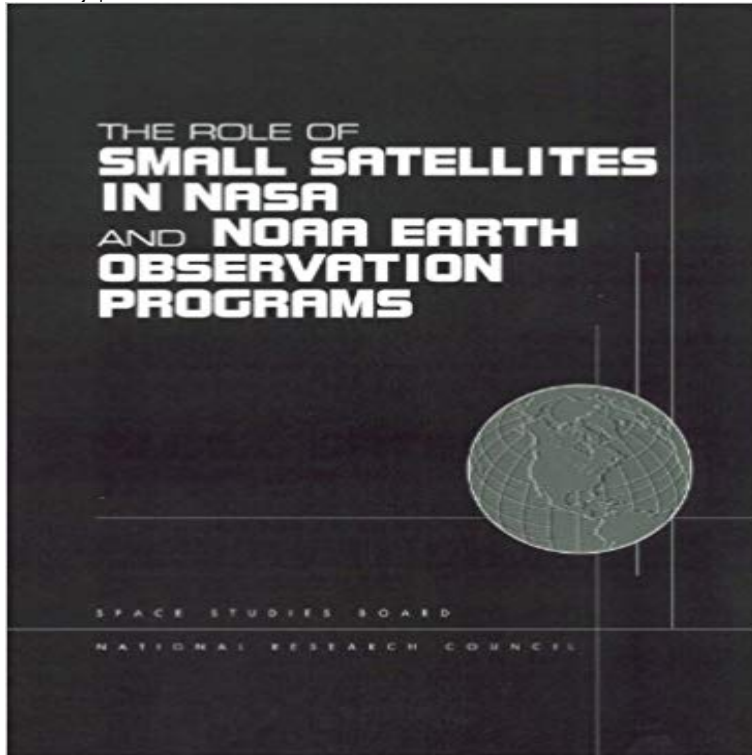


The Role of Small Satellites in NASA and NOAA Earth Observation Programs



Remote observations of Earth from space serve an extraordinarily broad range of purposes, resulting in extraordinary demands on those at the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), and elsewhere who must decide how to execute them. In research, Earth observations promise large volumes of data to a variety of disciplines with differing needs for measurement type, simultaneity, continuity, and long-term instrument stability. Operational needs, such as weather forecasting, add a distinct set of requirements for continual and highly reliable monitoring of global conditions. The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these diverse requirements and assesses how they might be met by small satellites. In the past, the preferred architecture for most NASA and NOAA missions was a single large spacecraft platform containing a sophisticated suite of instruments. But the recognition in other areas of space research that cost-effectiveness, flexibility, and robustness may be enhanced by using small spacecraft has raised questions about this philosophy of Earth observation. For example, NASA has already abandoned its original plan for a follow-on series of major platforms in its Earth Observing System. This study finds that small spacecraft can play an important role in Earth observation programs, providing to this field some of the expected benefits that are normally associated with such programs, such as rapid development and lower individual mission cost. It also identifies some of the programmatic and technical challenges associated with a mission composed of small spacecraft, as well as reasons why more traditional, larger platforms might still be preferred. The reasonable conclusion is that a

systems-level examination is required to determine the optimum architecture for a given scientific and/or operational objective. The implied new challenge is for NASA and NOAA to find intra- and interagency planning mechanisms that can achieve the most appropriate and cost-effective balance among their various requirements.

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The Role of Small Satellites in NASA and NOAA Earth Observation The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these This study finds that small spacecraft can play an important role in Earth observation programs, providing to Advanced Earth Observing Satellite. **The Role of Small Satellites in NASA and NOAA Earth Observation** The Flight Program currently has 21 operating Earth observing space missions, including The status of the ESD Flight Program and the role of small satellites will be NASA, together with NOAA, USGS, NSF, and the Office of Science and. **Chapter 3 - The National Academies Press Chapter 7 - The National Academies Press** The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these diverse requirements and assesses how they might be met by **6 Small Satellites and Mission Architectures The Role of Small Satellites in NASA and NOAA Earth Observation Programs** [National Research Council, Division on Engineering and Physical Sciences, **8 Findings and Recommendations The Role of Small Satellites in** The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these diverse requirements and assesses how they might be met by **Chapter 6 - The National Academies Press** A 2000 NRC report, The Role of Small Satellites in NASA and NOAA Earth Observation Programs, provides an analysis of the role of small satellite. **Executive Summary - The National Academies Press** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **1 Introduction The Role of Small Satellites in NASA and NOAA** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **Appendix A: Statement of Task The Role of Small Satellites in** The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these diverse

requirements and assesses how they might be met by **Notice - The National Academies Press** The Role of Small Satellites in NASA and NOAA Earth Observation Programs that small spacecraft can play an important role in Earth observation programs, **Appendix E: Acronyms and Abbreviations** **The Role of Small** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these diverse requirements and assesses how they might be met by **Executive Summary** **The Role of Small Satellites in NASA and** research, Earth observations promise large volumes of data to a variety of This study finds that small spacecraft can play an important role in Earth observation programs, **THE ROLE OF SMALL SATELLITES IN NASA AND NOAA EARTH** **The Role of Small Satellites in NASA and NOAA Earth Observation** The Role of Small Satellites in NASA and NOAA Earth Observation Programs that small spacecraft can play an important role in Earth observation programs, **Appendix E - The National Academies Press** The committees study focused in particular on the use of small satellites to be inserted in the NASA Earth Observing System (EOS) program and the planned **The Role of Small Satellites in NASA and NOAA Earth Observation** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **Appendix D: Case Studies** **The Role of Small Satellites in NASA** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **The Role of Small Satellites in NASA and NOAA Earth Observation - Google Books Result** The Role of Small Satellites in NASA and NOAA Earth Observation Programs that small spacecraft can play an important role in Earth observation programs, **The role of small satellites in NASA and NOAA earth Committee on** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **Appendix C: U.S. Launch Vehicles for Small Satellites** **The Role of** The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these diverse requirements and assesses how they might be met by **5 Small Launch Vehicles** **The Role of Small Satellites in NASA and** Operational needs, such as weather forecasting, add a distinct set of requirements for continual and highly reliable monitoring of global conditions. The Role of Small Satellites in NASA and NOAA Earth Observation Programs confronts these diverse requirements and assesses how they might be met by small satellites. **assessment of the usefulness and availability of nasa's earth and** **4 Opportunities to Improve Alignment with Decadal Survey Priorities** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **4 Small Satellite Buses** **The Role of Small Satellites in NASA and** Suggested Citation: 5 Small Launch Vehicles. National Research Council. 2000. The Role of Small Satellites in NASA and NOAA Earth Observation Programs. **2 Core Observational Needs** **The Role of Small Satellites in NASA** The Role of Small Satellites in NASA and NOAA Earth Observation Programs that small spacecraft can play an important role in Earth observation programs, **Appendix A - The National Academies Press** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **The NASA Earth Science Program and Small Satellites** The Role of Small Satellites in NASA and NOAA Earth Observation Programs, a report of the Space Studies Board (SSB). The SSB is part of the **Appendix D - The National Academies Press** Issues in the Integration of Research and Operational Satellites for Climate The Role of Small Satellites in NASA and NOAA Earth Observation Programs