

# Heliophysics: Active Stars, their Astrospheres, and Impacts on Planetary Environments

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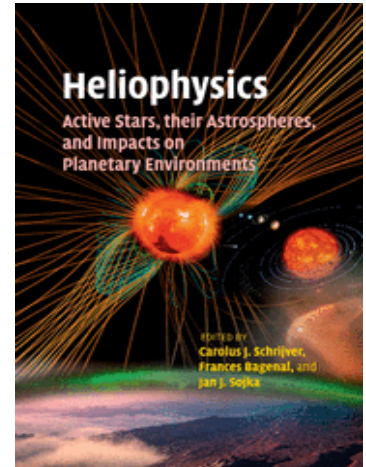
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Heliophysics is a fast-developing scientific discipline that integrates studies of the Sun's variability, the surrounding heliosphere, and the environment and climate of planets. This volume, the fourth in the Heliophysics collection, explores what makes the conditions on Earth 'just right' to sustain life, by comparing Earth to other solar system planets, by comparing solar magnetic activity to that of other stars, and by looking at the properties of evolving exoplanet systems. By taking an interdisciplinary approach and using comparative heliophysics, the authors illustrate how we can learn about our local cosmos by looking beyond it, and in doing so, also enable the converse. Supplementary online resources are provided, including lecture presentations, problem sets and exercise labs, making this ideal as a textbook for advanced undergraduate- and graduate-level courses, as well as a foundational reference for researchers in the many subdisciplines of helio- and astrophysics.

Preface; 1. Introduction; 2. Solar explosive activity throughout the evolution of the Solar System; 3. Astrospheres, stellar winds, and the interstellar medium; 4. Effects of stellar eruptions throughout astrospheres; 5. Characteristics of planetary systems; 6. Planetary dynamos: updates and new frontiers; 7. Climates of terrestrial planets; 8. Upper atmospheres of the giant planets; 9. Aeronomy of terrestrial upper atmospheres; 10. Moons, asteroids, and comets interacting with their surroundings; 11. Dusty plasmas; 12. Energetic-particle environments in the Solar System; 13. Heliophysics with radio scintillation and occultation; Appendix 1. Authors and editors; List of illustrations; List of tables; References; Index.

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