

Solar Physics and Terrestrial Effects

A Curriculum Guide for Teachers
Grades 7–12

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National Oceanic and Atmospheric Administration

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Acknowledgments

Solar Physics and Terrestrial Effects is the result of a unique collaboration from 1992-1996 between scientists at the Space Weather Prediction Center (SWPC) in Boulder, CO, and two Boulder Valley School district high school physics teachers. The combination of the knowledge and expertise at SWPC with the personal experience of teachers, allowed for the production of this curriculum that will give students a taste of one of the most spectacular and exciting applications of physics.

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To the Teacher

Solar Physics and Terrestrial Effects is not a step-by-step guide for teachers that will take away from your already over-crowded curriculum. Rather, it is a resource for you to pick and choose from, so that you may enhance your existing course and provide some state-of-the-art applications of physics.

The guide consists of three main parts: a short textbook, a hands-on activity guide, and resource listings.

- The textbook should provide the necessary background in solar physics for teachers. It could also be used by students, but is written largely at an adult level and therefore may not be easily understood by younger students. Problems for more advanced students are included at the end of each of the four sections and answers to the problems are given at the end of this section.
- The activity section offers ideas for hands-on experiences that can be done in the classroom, using materials that are cheap and easily available. Background information is available in the text for the activities. Any materials that are needed for activities can be obtained from a variety of sources.
- The resources and references section contains a wealth of further possibilities for exploring Solar-Terrestrial Physics, including software, telecommunications, books, and supplies. Students who want to pursue research projects may find this to be especially helpful.