

How does the variability of the Sun affect the climate on Earth and other conditions in our atmosphere? The 143rd IAU Colloquium, held in Boulder, Colorado, brought together international experts to investigate this connection. This timely volume presents their articles and together these clearly illustrate just how variations in the energy output of the Sun affect the terrestrial climate, radiative environment, and chemistry of the upper atmosphere.

This survey provides a complete and up-to-date review of observations, theoretical interpretations, and empirical and physical models of variations in the energy output of the Sun and solar-type stars. In particular, it shows how this variability is related to magnetic activity on the surface of the star and how long-term modulations are driven by the stellar interior.

Together, these articles clearly demonstrate the link between changes in the radiative output of the Sun and registered climatic anomalies – essential reading for researchers and graduate students.

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