
High-energy irradiances of Sun-like stars

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Abstract

Research on exoplanetary atmospheres has developed an increasing interest. Astrobiology has put its eyes on the effects that stellar irradiance may have on the atmosphere of planets, and on the early development of life. The high energy (XUV and UV) part of the spectrum is of special interest for this purpose. Part of this spectral range, the EUV is of no access to current telescopes, hampering the studies that intend to model planetary atmospheres. A program was developed to to circumvent this problem, and to provide with spectral energy distributions of stars hosting exoplanets (X-exoplanets) in the XUV range. We present here a work in which we develop further this program to create a semiempirical grid of models of emission of Sun-like stars, based on real data and coronal models, covering the XUV and UV ranges. These models will represent a great improvement with respect to currently used models of the solar irradiance at different ages, and intend to be the reference for the years to come. These models will be of special interest to reproduce the conditions of the Earth and solar system planets during different stages of the evolution, and can be safely exported to exoplanets orbiting Sun-like stars.

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