From the Sun to climate: solar activity over the last 9000 years

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Place: 健雄館(科四館) S4-811 教室

Abstract:
The Sun is the main external energy source to the Earth, and hence is responsible for the climate system. Although the mechanisms of this influence are not yet fully understood, solar total and spectral irradiance are considered to be among the main determinants. Solar total irradiance is the total flux of solar radiative energy entering Earth’s upper atmosphere, whereas the spectral irradiance describes this energy is distributed over the spectrum. Solar irradiance in the UV band is of special importance since it governs chemical processes in the middle and upper atmosphere. On timescales of the 11-year solar cycle and shorter, solar irradiance is well monitored by space-based instruments while models and indirect proxies are needed to reconstruct solar irradiance on longer timescale. A review of the solar irradiance reconstruction will be given, where we will also be focusing on the solar irradiance models, SATIRE (Spectral And Total Irradiance Reconstruction), different proxies, and the applications.