

Solar-terrestrial paleo-environmental science

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We suggest to start 'Solar-terrestrial paleo-environmental science' as one of CAWSES projects of SCOSTEP.

Solar-terrestrial paleo-environmental science is to study how the variability of solar activity affect the earth, emphasizing the long term change of climate and environment in the terrestrial archives.

Since the solar activity and geomagnetism control the flux of cosmic rays reaching the earth's surface, the change of environmental factors, such as the solar activity, geomagnetism, climate and so on, can be clarified by measuring the production rate of cosmogenic isotopes in earth's atmosphere. We aim to understand how these environmental factors change and influence each other from measurements of concentrations of cosmogenic isotopes in samples preserved over a long time in archives such as tree rings, ice cores, lake or marine sediments. It is important to analyze nuclides with a variety of life-times and chemical and physical characteristics (C-14, Be-10, Al-26, Cl-36 and so on) as well as information on climate obtained from stable isotopes (O-18).

In this presentation, we will introduce the current status of antarctic ice cores of NIPR, lake sediments of NIES/Tokyo Univ., and Yaku cedar tree rings and review the world wide trends of research. The future plans including the second ice core of Dome Fuji will be discussed.