

From the Geosphere to the Cosmos: ASPERA Workshop

Abstract&CV

ARGO-YBJ/LHAASO:A Straightforward Approach for Space Weather Forecasting

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Curriculum Vitae :

Educations:

1990 to 1994

Institute of High Energy Physics, Beijing, China
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Research Experiences:

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Associate Research Professor, University of Utah

Feb. 1998 to Feb. 2003

Research Associate, University of Utah

Oct. 1994 to Jan. 1998

Research Associate, University of Oregon

Jan. 1994 to Sept. 1994

Research Associate, Institute of High Energy Physics, Beijing, China

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Abstract:

The ARGO-YBJ experiment and the future project LHAASO at Tibet site are dedicated to gamma ray astronomy above 1TeV and cosmic ray physics above 10TeV up to 1EeV. In many ways, the two experiments will conduct researches associated with the environment issues from the Qing-Zang plateau to the space between the Sun and the Earth. In this talk, I will present a monitoring of the interplanetary magnetic field (IMF) by using the very energetic cosmic rays and the shadow of the sun in the rays. If there were interplanetary coronal mass ejections (ICME, magnetic cloud) toward the earth, the IMF passed by the cosmic rays is enhanced and induces unexpected displacements and deductions of the sun shadow observed by using the ground based experiments. Since the rays are propagating with a speed of light which is much faster than ICME, one can foresee a magnetic storm on the earth before it arrives. This is demonstrated using the ARGO-YBJ data. Forecasting of such space storms using the LHAASO detector in the future is simulated using historic data recorded at space ship at Lagrangian point. More environment related researches using the ARGO-YBJ experiment and LHAASO prototype experiment at Tibet site are also presented in this talk.
