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Search for solar neutrons during the maximum activity of solar cycle 24

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During the second period of maximum solar activity (October 2013 through October 2014) of the current solar cycle we have searched for solar neutron events.

When a solar flare occurs, ions are sometimes accelerated. Those ions interact with the solar atmosphere and produce solar neutrons. We examined recent data from five stations of the International Network of Solar Neutron Telescopes (Gornergrat, Switzerland; Mauna Kea, USA; Mt. Chacaltaya, Bolivia; Mt. Norikura, Japan; Mt. Sierra Negra, Mexico). Our result did not produce any statistically significant event. Therefore, we calculated the upper limit of the neutron fluxes at the Sun based on a statistical analysis and considering impulsive emission. We report that our upper limits are consistent with the solar neutron flux calculated for the 2005 September 7th solar neutron event associated with an X17 class solar flare.

Collaboration

– not specified –

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Primary author: Mr LOPEZ, Diego (Solar-Terrestrial Environment Laboratory, Nagoya University)

Co-authors: Dr SAKO, Takashi (Solar-Terrestrial Environment Laboratory, Nagoya University); Dr MURAKI, Yasushi (Solar-Terrestrial Environment Laboratory, Nagoya University); Dr MATSUBARA, Yutaka (Solar-Terrestrial Environment Laboratory, Nagoya University)

Presenter: Dr MATSUBARA, Yutaka (Solar-Terrestrial Environment Laboratory, Nagoya University)

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