

AE13B-2721: Atmospheric electric field variation during fair weather and thunderstorms at different altitudes

Monday, 10 December 2018

13:40 - 18:00

 *Convention Ctr - Hall A-C (Poster Hall)*

Climate change and natural hazardous phenomena are one of the most important and crucial topics nowadays; in particular, special attention should be paid to the phenomena related to thunderstorms and atmospheric electric field measurements. As it was shown in the past, thunderstorm activity is related to the fair weather through global electric circuit. It is already well known that fluctuations of atmospheric vertical electric field during fair weather are local effects related to the increased turbulence during the morning hours. And, constantly continuous measurements of electric field have proven that there is not only an annual but also a daily variation of thunderstorm activities.

Ground-based measurements during fair weather and thunderstorms were obtained from research stations of Cosmic Ray Division (CRD) of the Yerevan Physics Institute (YerPhI). It has 3 stations which are located at different altitudes in Armenia. The goal of this work is to present the variations of near surface electric field during fair weather and thunderstorms for the same seasons from 3 different locations: Aragats, Nor-Amberd, Yerevan. The first station is located near large Ice Lake Kari at 3200 m altitude (latitude: 40.47N; longitude: 44.18E). Aragats station site is built up on solid rock foundation of volcanic origin. The other two stations are located at different altitudes: Yerevan CRD headquarters (latitude: 40.205N; longitude: 44.486E, 1090 m a.s.l.) and Nor-Amberd Research station (latitude: 40.37N; longitude: 44.26E, 2000m a.s.l.).

Mean values of near surface electric field have taken from 2012-2018. Unique data from different altitudes shows impact of geographical location on near surface measurements and reveals their connection to the global electric circuit and thunderstorm activities.

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