[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

# [M-IS19]Atmospheric electricity

convener:Yasuhide Hobara(Graduate School of Information and Engineering Department of Communication Engineering and Informatics, The University of Electro-Communications), Masashi Kamogawa(Department of Physics, Tokyo Gakugei University)
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
All aspects of research area on Atmospheric Electricity will be discussed in this session, including global circuit, ion and fair weather electricity, thunderstorm electrification, lightning physics, lightning and meteorology, electrical effects of thunderstorms on the middle and upper atmosphere such as transient luminous events and high energy phenomena, lightning protection, terrestrial electromagnetic environment and so on.

# [MIS19-P03]Results of rocket-triggered lightning experiments in winter 2017

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Keywords:rocket-triggered lightning, winter thunderstorm, lightning current, EM observations

Rocket-triggered lightning is the most effective technique for artificial triggering lightning. It involves launching a small rocket trailing a thin grounded wire toward an overhead charged cloud. This technique is incredibly favorable for various lightning observations for example earth currents, leader developments, related electromagnetic and high-energy radiations etc. because a lightning strike is induced at the desired location. In Japan, a number of rocket-triggered lightning experiments were succeeded in winter thunderstorm seasons.

During the winter of 2017-18, the authors conducted a rocket-triggered lightning experiment in Noto Peninsula, facing to the Sea of Japan in Ishikawa Prefecture. A conductive wire was connected to the rocket and launched at as fast as 200 m/s. A rope was also connected to prevent the rocket from rising above an altitude of 200 m. The rod-type ground electrode with a diameter of 1 cm was buried at a depth of 1 m.

We were successful in triggering lightning stroke at 1352:28h December 29, 2017. The two types of Rogowski coils to measure lightning current, hi-speed video cameras, RF antennas in VHF and LF bands were equipped around the striking point. The corona current and e-field were measured at about the distance of 50 m from the point. The measured lightning current was reached to -12 kA and continued for 290 ms. The recorded images with high time resolutions against recoded RF radiations and the current will be demonstrated in this talk.