[JJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-TT Technology &Techniques

[A-TT32]Brand-new geoscientific observations by GNSS-Reflectometry

convener:Kaoru Ichikawa(Research Institute for Applied Mechanics, Kyushu University), Kosuke Heki(Department of Earth and Planetary Sciences, Faculty of Science, Hokkaido University)
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GNSS-Reflectometry (GNSS-R) dares to use indirect GNSS signals reflected by an object, which cause multi-path errors in the positioning system, and extracts status information of the reflecting surface itself. It requires low-power and light-weight GNSS receivers alone, so that any platform can be adopted, including microsatellites or UAVs. This session will present various observations using GNSS-R, such as sea surface wind speeds, waves, sea surface height, soil moisture and ice detection.
In addition, possible scientific impacts are discussed with unprecedentedly frequent global observations by multiple satellites, such as NASA's eight-microsatellite CYGNSS GNSS-R mission.

[ATT32-P04]Fog retrieval on the Korean Peninsula Based on GOCI and Microwave Link

*KyungHun Lee[1], Byung Hyuk Kwon[2], Min-Seong Kim[3], Park Sa Kim[3], Sang Jin Kim[1], Won Gi Jo[1] (1.Dept. of Earth Environmental System Sciences, Pukyong National University, Busan, Korea, 2.Major of Environmental and Atmospheric Sciences, Pukyong National University, Busan, Korea , 3.Geo-Sciences Institute, Pukyong National University, Busan, Korea)
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The sea fog is frequently observed over the Yellow Sea and south-eastern part of the Korean Peninsula from April to August. Although many studies have been carried out on the sea fog of the west coast where airport, port and bridges are situated, there is still a lack of useful information to identify the see fog. We tested an algorithm to detect the sea fog based on geostationary ocean color imager (GOCI) data. The differences of Rayleigh corrected reflectance between the bands classifies the fog and the lower stratus. The microwave (8 – 11 μm) for the communication networks is attenuated by water or vapour within low level atmosphere above sea level. The attenuation intensity can be estimated into the sea fog density or the rain rate. In general, the visibility is used to validate the sea fog detected by satellites, however it is difficult to find visibility meters installed over offshore region. Therefore, the inflow of the sea fog detected by the GOCI was verified not only by the visibility system but also by the five microwave link data. In the case of 100 cars crash on the Yeongjong Bridge under the visibility less than 1 km, the GOCI detection algorithm visualized correctly the inflowing deep sea fog which was confirmed by the attenuation of the microwave around the accident area.