ACG06-23　　　　　　会場:315　　　　　　　　　　　　時間:4 月 29 日 14:45-15:00

The GNSS Ocean Winds and AIS Mission, An Earth Science and Marine Safety Satellite Constellation

Rose Randall[1*] ; GLEASON Scott[1] ; RUF Christopher[2] ; KITAZAWA Yukihito[3] ; TANIMOTO Kazuo[4]
ROSE, Randall[1*] ; GLEASON, Scott[1] ; RUF, Christopher[2] ; KITAZAWA, Yukihito[3] ; TANIMOTO, Kazuo[4]

[1]Southwest Research Institute, [2]University of Michigan, [3]IHI Corporation, [4]Meisei Electric Co., Ltd.
[1]Southwest Research Institute, [2]University of Michigan, [3]IHI Corporation, [4]Meisei Electric Co., Ltd.

Recent developments in electronics and nano-satellite technologies combined with modeling techniques developed over the past 20 years have enabled a new class of remote wave and wind sensing capabilities that offer markedly improved performance over existing observatories while opening avenues to new applications. Most existing space borne ocean wind observatories operate in the C and Ku-bands which obscures key information about the ocean and the global climate. Using GNSS-based bi-static scatterometry performed by a constellation of nano-satellites, ocean wave and wind data can be provided with unprecedented temporal resolution and spatial coverage across the full dynamic range of ocean wind speeds in all precipitating conditions.

The NASA Cyclone Global Navigation Satellite System (CYGNSS) is a space borne mission being developed to study tropical cyclone inner core processes. CYGNSS consists of 8 GPS bi-static radar receivers to be deployed on separate nano-satellites in October 2016. It is anticipated that numerous additional Earth science applications can also benefit from the cost effective high spatial and temporal sampling capabilities of GNSS remote sensing. These applications include monitoring of rough and dangerous sea states, global observations of sea ice cover and extent, meso-scale ocean circulation studies, and near surface soil moisture observations.

The Automatic Identification System (AIS) is a maritime system used for global identification and tracking of ships. It is proposed as part of the GNSS Ocean Winds and AIS (GOWA) nano-satellite constellation concept to combine and improve upon the GNSS remote sensing capability of CYGNSS with a space based AIS system. GOWA will be capable of monitoring both the ocean roughness and the locations of ship traffic at the same time. This will result in both an increase in maritime safety and valuable Earth science measurements of ocean winds, sea ice and land surfaces.

This presentation will present a summary of the CYGNSS mission and plans for future instrument development to increase the number of science observations. The goal of this development is to enable the GOWA mission being proposed for Japanese science and maritime safety applications.

キーワード: GNSS, Earth Science, Remote Sensing, Satellites, GPS
Keywords: GNSS, Earth Science, Remote Sensing, Satellites, GPS