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## **Overview of GNSS-R Research Program for Ocean Observations at Japan**

Kaoru Ichikawa (1), Takuji Ebinuma (2), Hiroaki Akiyama (3), Yukihito Kitazawa (4), and the Japan's GNSS-R Research Team

(1) Kyushu University, Fukuoka, Japan (ichikawa@riam.kyushu-u.ac.jp), (2) Tokyo University of Marine Science and Technology, (3) Wakayama University, (4) IHI Corporation (kitazawa@planeta.sci.isas.jaxa.jp)

GNSS-R is a new remote-sensing method which uses reflected GNSS signals. Since no transmitters are required, it is suitable for small satellites. Constellations of GNSS-R small satellites have abilities on revolutionary progress on "all-time observable" remote-sensing methods .

We have started a research program for GNSS-R applications on oceanographic observations under a contract with MEXT (Ministry of Education Culture, Sports, Science and Technology, JAPAN) as a "Space science research base formation program". The duration of research program is 3 years (2015-2017).

The one of important focuses of this program is creation of a new community to merge space engineering and marine science through establishment on application plans of GNSS-R.

Actual GNSS-R data acquisition experiments using multi-copters, ships, and/or towers are planned, together with in-situ sea truth data such as wave spectrum, wind speed profiles and sea surface height. These data are compared to determine the accuracy and resolution of the estimates based on GNSS-R observations. Meanwhile, preparation of a ground station for receiving GNSS-R satellite data will be also established. Whole those data obtained in this project will be distributed for public.

This paper introduces the overview of research plan..