

# Principle of GNSS-R technique for TRITON mission to measure the ocean surface wind speed

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## Abstract

With the advent of GNSS technique, the application of GNSS to explore the Earth environment becomes possible. The technique of space based GNSS applications are GNSS radio occultation (RO) and GNSS reflectometry (GNSS-R). GNSS-RO technique developed from the end of 20 century. The most famous two GNSS-RO missions are FORMOSAT-3/COSMIC and FORMOSAT-7/COSMIC-2. GNSS-R technique developed from 2010s and the most famous mission is Cyclone GNSS (CYGNSS). In the end of 2023, the Taiwan built satellite mission, TRITON, was launched for GNSS-R. The mission for TRITON is to measure the ocean surface wind speed and expect to improve the accuracy of weather prediction. The ocean surface wind speed is retrieved from the product, delay-Doppler map (DDM), of the GNSS ocean surface reflected signal receiver, which is the mission payload of TRITON. In this study, the principle of GNSS-R and DDM will be introduced. Furthermore, the retrieval process of ocean surface wind speed by using DDM will also be mentioned.

Key words : TRITON, GNSS-R, DDM