Automatic Detection of Spurious Differential Phase

*Biao Geng[1], Masaki Katsumata[1]

1. Japan Agency for Marine-Earth Science and Technology

Differential phase is one of the important parameters measured by a polarimetric radar. It has been widely used in attenuation correction and quantitative precipitation estimation (QPE). Unfortunately, however, the differential phase is often contaminated by noises and the QPE may be significantly spoiled by spurious differential phases. Therefore, a quality control of data of the differential phase is mandatory.

A simple algorithm has been developed to automatically detect spurious differential phases. The algorithm utilizes the relationship between radar reflectivity and specific differential phase. The ability of the algorithm is tested by using the data from the measurements of the polarimetric radar on board the research vessel Mirai. It is found that the algorithm can effectively ascertain the data quality of differential phases. The possible application of the algorithm for the quality control of polarimetric radar measurements is discussed.

Keywords: Mirai, polarimetric radar, quality control

