**Apply ensemble forecast technique to improve typhoon rainfall potential with satellite data over Taiwan**

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**Abstract:** Typhoons are one of the most disastrous weather systems and frequently bring strong wind and heavy rain to Taiwan in summers. Improve Tropical Rainfall potential (I-TRaP) technique presented by Chen in 2009 is a useful method for typhoon quantitative precipitation estimation. Satellite observations cover almost the entire surface of Earth and provide the atmospheric parameters including open ocean. Therefore, satellite data is a powerful tool for rain-band monitoring before the typhoon hit Taiwan. However, current method only provides single prediction which may pose a difficulty when using single sensor or time segment data. To smooth the random error made by single forecast and quantify the uncertainties in prediction, we try to adopt ensemble forecast to help to provide more reliable forecast in this study. Every initial data can provide an accumulation precipitation amount in a day, the results of each 24-h rainfall estimation will generate by giving certain weighting. The preliminary results suggest a good agreement than I-TRaP, which give us an opportunity that using the ensemble technique for typhoon rainfall predication in the future.

**Keyword:** Tropical cyclone, Typhoon, I-TRaP, Rainfall potential,Ensemble technique