1116-62-232 **Ranil Weerackoon*** (raniljw@yahoo.com) and **Michelle Hartono** (misschelle8@gmail.com).
Development of Clustering Algorithms for Ensemble Weather Forecasts.

Large amounts of data are required to predict future atmospheric and weather conditions. Ensemble prediction techniques can be utilized to provide objective estimations by generating a range of weather predictions. Since ensemble forecasts contain data in 4-dimensional fields, we perform cluster analysis to group similar ensembles together while differentiating between different ensemble members. However, various cluster analyses produce different results and thus it can be difficult to ascertain which members are meant to be grouped together. We propose various techniques for measuring the robustness of the clustering methods by calculating the similarity that exists between the different cluster analyses to best determine how to cluster the ensembles. We also suggest ways for measuring the accuracy the ensembles maintain over time in order to ascertain the validity of a weather forecast and we conclude that better initial conditions regarding the atmosphere do not necessarily yield better predictions. (Received August 15, 2015)