An Early Warning System for Estimating Damages Due to Cyclones over the Bay of Bengal

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It is well known that loss in terms of human lives and livelihoods are enormous in association with cyclones and other hydro-meteorological hazards. Estimation of such damages of hazards will serve as early warning information to help in reducing the impact of future hazards by taking appropriate mitigation activities.

In this paper, damages of cyclones Nargis (Myanmar) and Sidr (Bangladesh) have been correlated at different affected locations by the help of NWP model outputs and available damage indices from various sources. Based on the correlation, statistical regression models for damage index of the above mentioned cyclones have been developed by making use of wind speed and rainfall forecasts of WRF model as predictors. The statistical model has also been verified against the data of cyclone Aila (Bangladesh and India).

The results show that the amount of loss is proportional to the wind speed as compared to the rainfall in both the cases of Nargis and Sidr. The model output also indicates that the model coefficients will vary from place to place due to several factors such as population density, land usage pattern, demography etc.