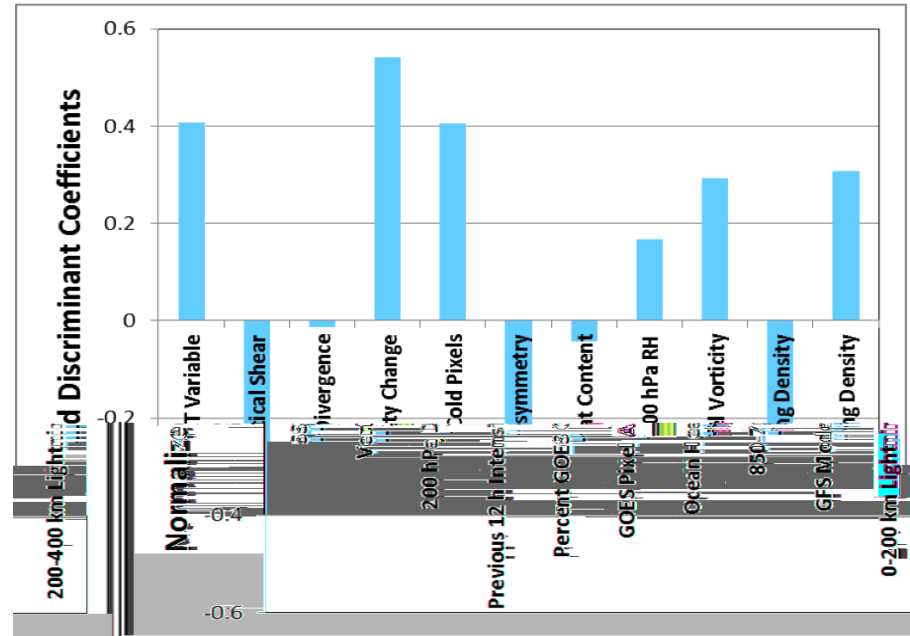




Using total lightning data from GLM/GOES-R to improve real-time tropical cyclone genesis and intensity forecasts



- Dr. DeMaria and his research group at CIRA/CSU have developed an experimental algorithm that includes WWLLN lightning flash density predictors in the Rapid Intensification Index (RII) within SHIPS
- WWLLN, however, primarily detects cloud-to-ground flashes, which were shown to be weakly correlated with convective strength. Recent work by Fierro showed that eyewall intracloud (ICs) bursts indicated the presence of vortical hot towers during/prior to RI.
- The plan/goal is to upgrade the RII using total lightning data from ENTLN and through explicit, cloud resolving ($\leq 500\text{m}$) simulation of the electrification within TCs using the WRF lightning model developed by Fierro and his team at NSSL.



Normalized discriminant function weights for the Atlantic version of the experimental RII. The magnitude of the coefficient is proportional to the importance of that variable in the estimate of the probability of rapid intensification.

Development of new version of RII by FY16 and potential real-time demonstration by FY17.

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