The Lake Victoria Intense Storm Early Warning System (VIEWS)

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Weather extremes have harmful impacts on communities around Lake Victoria in East Africa. Every year, intense nighttime thunderstorms cause numerous boating accidents on the lake, resulting in thousands of deaths among fishermen. Operational storm warning systems are therefore crucial. Here we complement ongoing early warning efforts based on NWP, by presenting a new satellite data-driven storm prediction system, the prototype Lake Victoria Intense storm Early Warning System (VIEWS). VIEWS derives predictability from the correlation between afternoon land storm activity and nighttime storm intensity on Lake Victoria, and relies on logistic regression techniques to forecast extreme thunderstorms from satellite observations. Evaluation of the statistical model reveals that predictive power is high and independent of the input dataset. We then optimise the configuration and show that also false alarms contain valuable information. Our results suggest that regression-based models that are motivated through process understanding have the potential to reduce the vulnerability of local fishing communities around Lake Victoria. The experimental prediction system is publicly available under the MIT licence at http://github.com/wthiery/VIEWS.