



Nowcasting of Lightning-Related Accidents in Africa

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Tropical Africa is the world capital of thunderstorm activity with the highest density of strikes per square kilometer per year. As a result it is also the continent with perhaps the highest casualties and injuries from direct lightning strikes. This region of the globe also has little lightning protection of rural homes and schools, while many casualties occur during outdoor activities (e.g. farming, fishing, sports, etc.) In this study we investigated two lightning-caused accidents that got wide press coverage: A lightning strike to a Cheetah Center in Namibia which caused a huge fire and great destruction (16 October 2013), and a plane crash in Mali where 116 people died (24 July 2014). Using data from the World Wide Lightning Location Network (WWLLN) we show that the lightning data alone can provide important early warning information that can be used to reduce risks and damages and loss of life from lightning strikes. We have developed a now-casting scheme that allows for early warnings across Africa with a relatively low false alarm rate. To verify the accuracy of our now-cast, we have performed some statistical analysis showing relatively high skill at providing early warnings (lead time of a few hours) based on lightning alone. Furthermore, our analysis can be used in forensic meteorology for determining if such accidents are caused by lightning strikes.