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The Applications of Lightning-Rainfall Prediction on Transmission Line Disaster Prevention

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Abstract

In this paper, we merged the major lightning data of Total Lightning Detection System-TLDS with data of pot Doppler Radar Network and the satellite-sensed infer-red cloud top temperatures to   investigate the amount of precipitable water associated with the thunder clouds, we also converted lightning data to rainfall information directly, and traced the lightning route. The result have been implemented as Taiwan Area Lightning-Rainfall Prediction and Application System-TALPAS, which is an on-line display systems, to display real time lightning and rainfall distribution and variation over Taiwan area. The result of study can be used as a dispatch reference by the power system operator, such that they can obtain pre-warning information of heavy rain and thunder in advance to increase the power generation of hydro power plant and mitigate transmission line lightning fault.