

# Application of an Ice-Alarm in the OTLM System

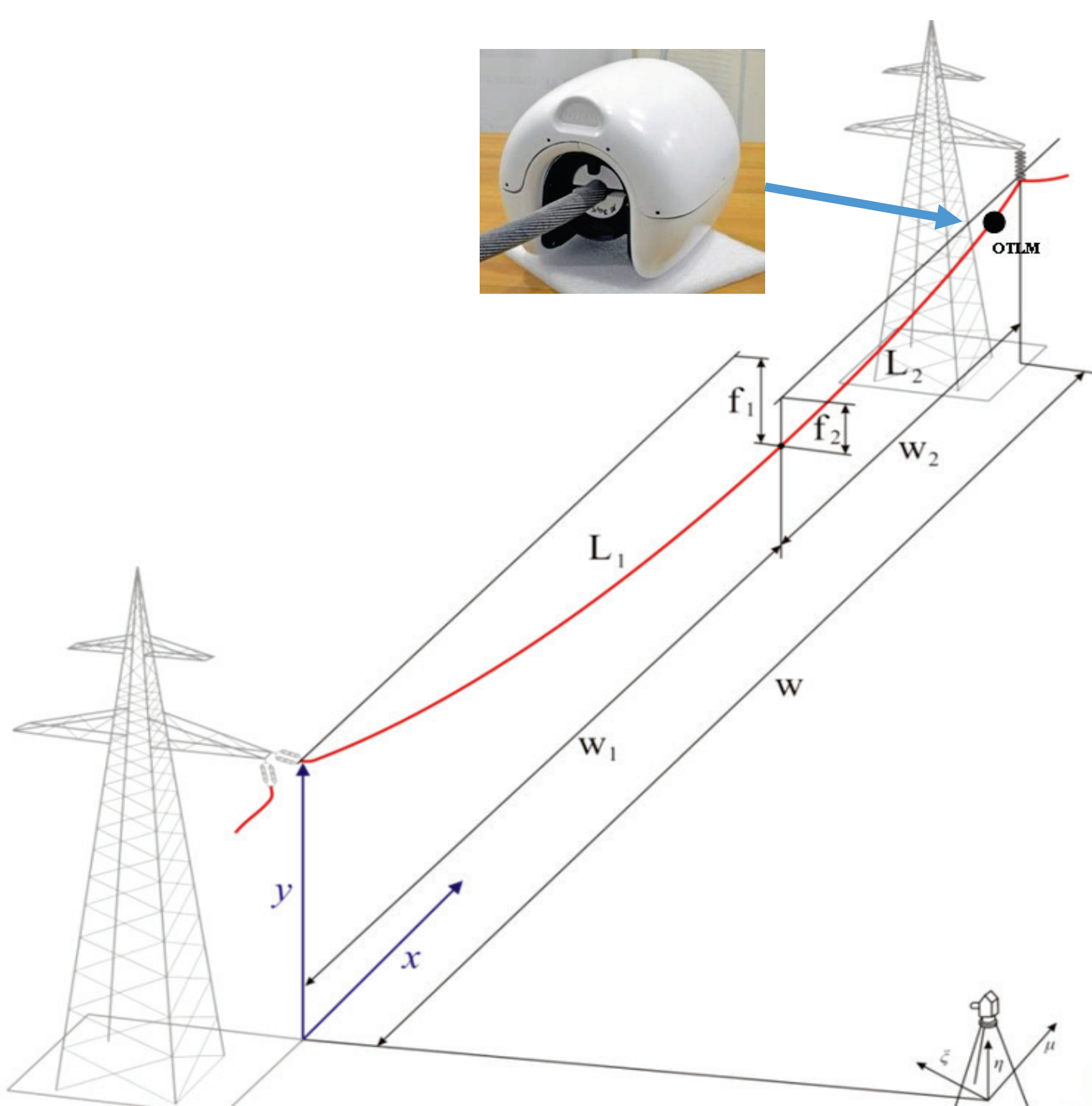
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**OTLM (Overhead Transmission Line Monitoring)** is a system solution for monitoring and rating of existing and new overhead lines (OHL) based on real-time monitoring of conductor temperature, sag, load, and weather conditions in order to ensure save maximum utilization of transmission line ampacity. Additionally, the measured temperature and the angle can be used by software application to detect conductor elongation by ice overload or a fallen tree.



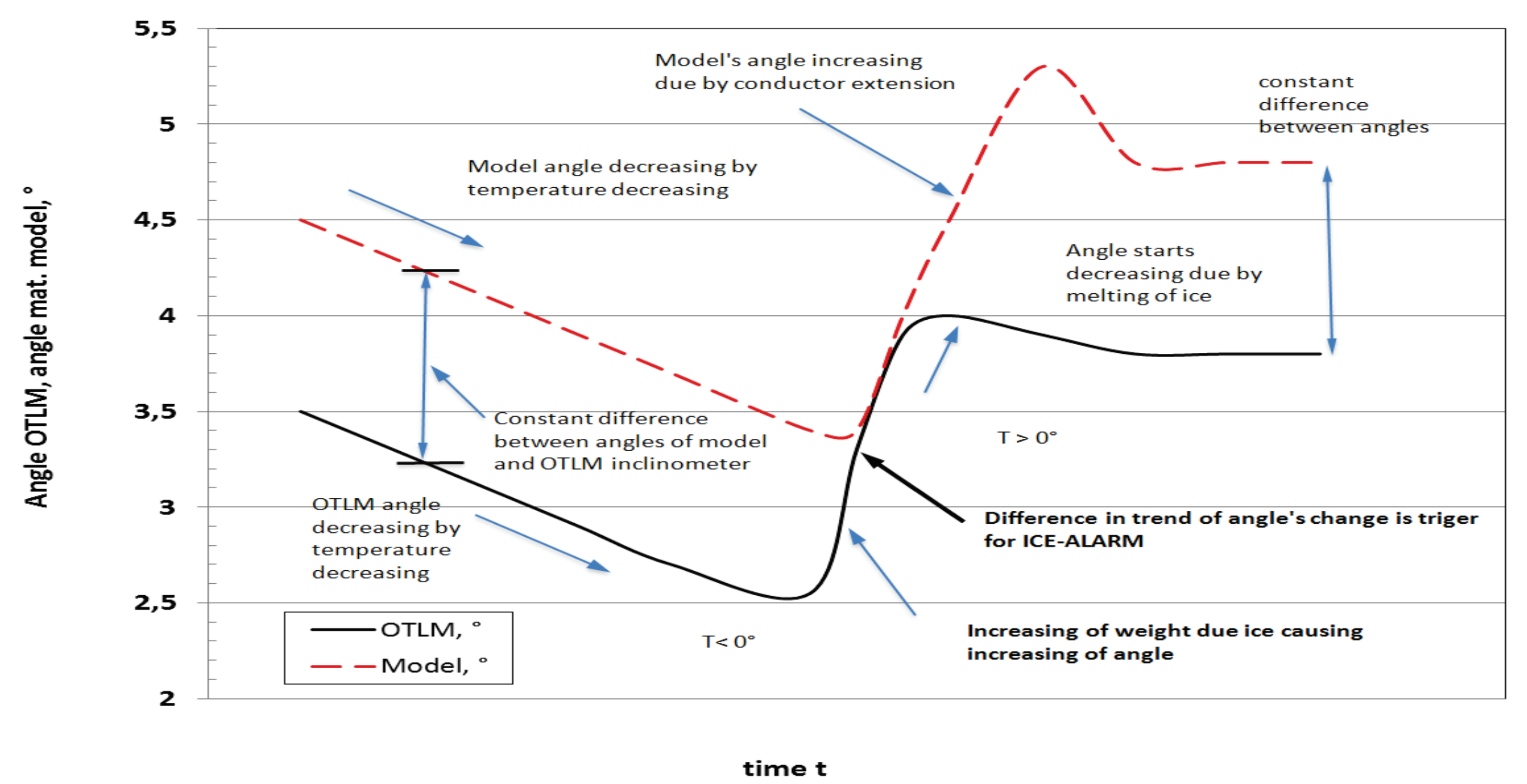
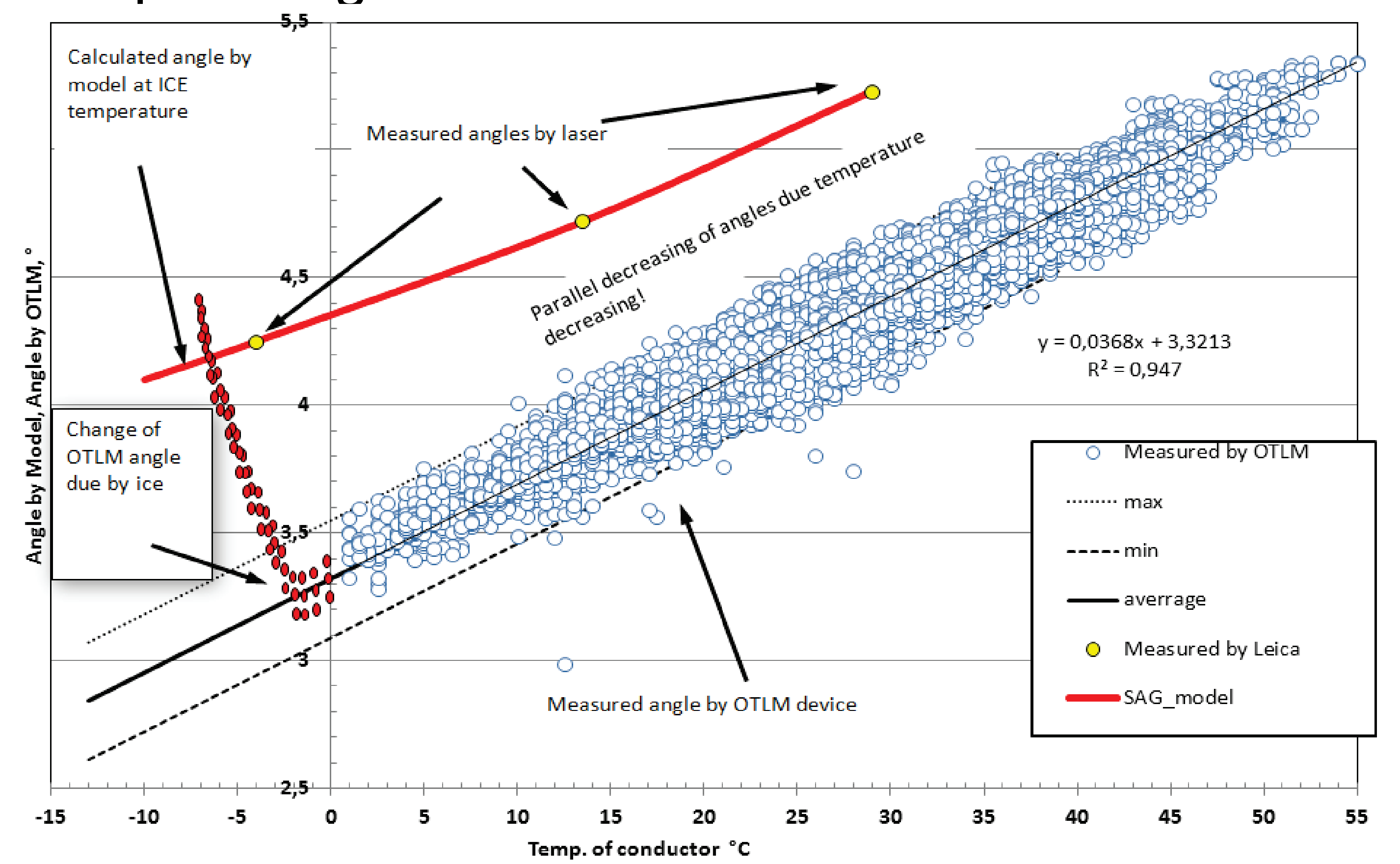
## MATHEMATICAL MODEL

The mathematical relationship between the conductor's tensile force and sag is crucial for the calculation of the conductor's expansion (tension) and final length over a constant span distance.



## ICE – ALARM COMPUTER ALGORITHM

The conductor's catenary parameters at the ambient conditions for the freezing rain represent the initial state of the activation of the ICE-ALARM computer algorithm.



The model monitors the elongation/sag of the conductor and re-calculates accordingly to the change in the measured angle until failure force.

