Weather sensor fault detection in Meteorological masts

Franco Piergallini Guida, Maximo Iaconis, Filippo Visco-Comandini,

Universidad de Palermo,

Mario Bravo 1050, CABA, 1425(?), Argentina

[fvisco@palermo.edu](mailto:fvisco@palermo.edu)

**Abstract**:

Wind power has become the world’s fastest growing renewable technology. The world-wide wind power installed capacity has exceeded 518 GW, and the new installations during the last three years was an average of 50 GW per year. A major issue with wind power system and with meteorological masts is the relatively high cost of operation and maintenance (OM). Wind turbines and sensor towers are hard-to-access structures, and they are often located in remote areas. That’s why continuous monitoring of wind turbine health using automated failure detection algorithms can improve turbine reliability and reduce maintenance costs by detecting failures before they reach a catastrophic stage and by eliminating unnecessary scheduled maintenance.

Most of the wind turbines and meteorological masts have supervisory control and data acquisition (SCADA) system and it rapidly became the standard. SCADA has been used in other industries for accurate and timely detection, diagnostics and prognostics of failures and performance problems.

In the present work, mathematical methods are proposed for sensor fault detection for meteorological masts through the analysis of the SCADA data. The idea is to compare and analyze measurements coming from the various sensors located in the same tower and different heights. We used a number of measurements to develop anomaly detection algorithms and investigated classification techniques using manual check and model parameter tuning.

These methods are tested on wind masts situated in Argentina.

Information from Mexico WindPower 2020.

Annex: Abstract Format Requirement Paper Topic（Times New Roman, Font size 14） Paper Author Company, city, postal code email address

Abstract: （Times New Roman, Font size 11, less than 400 words）

Key words:（Times New Roman, Font size 11, less than 5 words）

(Text)

1. Page margins：2.5cm;

2. Times New Roman, Font size 11, less than 6 pages;

3. Unit of measurement：SI units;

4. References should be listed alphabetically or numbered consecutively at the end of the paper;

5. The abstract and the paper should be submitted in Word format.