**Data Article**

**Title**: Assessing the predictive power of machine learning models for wind speed prediction under different weather conditions

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**Abstract**

The article highlights the significance of using advanced machine learning models, specifically comparing artificial neural networks and convolutional neural networks, in predicting wind speed accurately across different geographical locations and weather patterns. The data were obtained from the Wind Atlas South Africa website: http://wasadata.csir.co.za/wasa1/WASAData . The data are stored in an Excel files.

**Specifications Table**

| | |
|---|---|
| Subject area | *Renewable Energy Modelling* |
| More specific subject area | *Wind energy* |
| Type of data | *Excel file* |
| How data was acquired | *Provided and from the internet* http://wasadata.csir.co.za/wasa1/WASAData |
| Data format | *Filtered and analysed.* |
| Experimental factors | *N/A* |
| Experimental features | *N/A* |
| Data source location | *Wind Atlas South Africa* |
| Data accessibility | *Data is hosted on GitHub https://github.com/csigauke* |
| Related research article | *The relevant research article is:* Assessing the predictive power of machine learning models for wind speed prediction under different weather conditions. |

**Value of the Data**

- The data is used to predict wind speed, which is an important ingredient for wind energy.
- Failure to predict the wind speed accurately can disrupt the power supply.

**Data**

The data comprises average wind speed data measured at 10-minute intervals at a height of 62m. The data are stored in Excel files. The research study investigates three unique locations, each with distinct characteristics. The first location to be examined is Napier station, which can be found in the Western Cape. The second and third locations, Noupoort and Upington are in the Northern Cape. These locations

have varying weather conditions; Napier is in a coastal area, Noupoort is inland, and Upington is in a dry region. The information for these three places is sourced from the WASA database, accessible at http://wasadata.csir.co.za/wasa1/WASAData

**Experimental Design, Materials, and Methods**

Data used in the study is from WASA.

**Acknowledgements**

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**References**

Wind Atlas South Africa website http://wasadata.csir.co.za/wasa1/WASAData (Accessed on 23 March 2023).