

StatCast (RD-ANN)

Source code

- [StatCast-RDANN_160313.zip](#)

Model Identifier and version number

- StatCast
- Version 1.0

Citation Information

- Title
 - DOE Solar StatCast (RD-ANN)
- Abstract
 - This regime dependent artificial neural network (RD-ANN) system classifies cloud regimes with a k-means algorithm based on a combination of surface weather observations, irradiance observations and GOES-East satellite data. The ANNs are then trained on each cloud regime to predict the clearness index.
- Author(s)
 - Tyler McCandless, Tom Brummet, Sue Dettling, Sue Haupt
- Point of Contact
 - Tom Brummet
- Creation Date
 - September 27, 2016
- Modification Date
- Identifier Code
 - DOE Solar Technology Transfer
- Use Constraints
 - None

Distribution Information

- Distributor
 - "UCAR/NCAR - RAL - WSAP"
- Code URL
 - [StatCast \(RD-ANN\)](#)
- Info URL
 - [StatCast \(RD-ANN\)](#)

Model description

- This regime dependent artificial neural network (RD-ANN) system classifies cloud regimes with a k-means algorithm based on a combination of surface weather observations, irradiance observations and GOES-East satellite data. The ANNs are then trained on each cloud regime to predict the clearness index.

Intended use

- To produce irradiance forecasts using previous irradiance values, along with weather variables.

Key assumptions

- Requires solar irradiance observations at the location of interest and nearby weather observations taken at the surface and satellite based observations in order to produce irradiance forecast. Requires solar irradiance observations at the location of interest and nearby weather forecasts in order to produce irradiance forecast.

Documentation and References

- Processing documentation including hardware and software requirements
 - [RDANN_DataPreprocessingSteps.docx](#)
 - [readme_RDANN.doc](#)
- Technical notes and papers
 - [RDANN_JAMC.docx](#)
 - [McCandless+etal_2016_RE.pdf](#)
 - McCandless, T.C., Young, G.S., Haupt S.E., and L.M. Hinkelman, 2016: Regime Dependent Solar Irradiance Forecasting. *Journal of Applied Meteorology and Climatology*, Accepted in final form March 2016.