Package ‘WindCurves’

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Title Tool to Fit Wind Turbine Power Curves
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Author Neeraj Bokde, Andres Feijoo
Maintainer Neeraj Bokde <neerajdhanraj@gmail.com>
Description Provides a tool to fit and compare the wind turbine power curves with successful curve fitting techniques. Facilitates to examine and compare the performance of a user-defined power curve fitting techniques. Also, provide features to generate power curve discrete points from a graphical power curves. Data on the power curves of the wind turbine from major manufacturers are provided.

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R topics documented:

  fitcurve ................................................................. 2
  img2points ............................................................ 2
  pcurves .................................................................. 3
  plot.fitcurve ............................................................ 4
  validate.curve ......................................................... 4
fitcurve

*Description*

Fits the power curve with Weibull CDF, Logistic and user defined techniques

*Usage*

```r
g(x, MethodPath, MethodName)
```

*Arguments*

- `data` as input data.frame with two columns, i.e., wind speed and wind power
- `MethodPath` as path of a code for user defined curve fitting technique
- `MethodName` as name of the user defined curve fitting technique

*Value*

fitted curves and corresponding discrete fitted values

*Examples*

```r
data(pcurves)
s <- pcurves$Speed
p <- pcurves$'Nordex N90'
da <- data.frame(s,p)
fitcurve(da)
```

#### img2points

*A function to capture Speed Vs Power discrete points from power curve image*

*Description*

A function to capture Speed Vs Power discrete points from power curve image

*Usage*

```r
ing2points(imagePath, n)
```

*Arguments*

- `imagePath` as Path of a power curve image
- `n` as number of points to be captured from the curve image (default value is 15)
pcurves

Value

data.frame with two columns, i.e., wind speed and wind power

Examples

## Not run:
# to import image from system 'extdata' folder.
# user can directly specify the path of the image in 'img2points()'.
imagePath <- system.file("extdata","powercurve.jpeg", package="WindCurves")
img2points(imagePath)
## End(Not run)

Description

Data on the power curves of wind turbine from four major manufacturers: Siemens, Vestas, RE-power and Nordex. Represents wind turbine power output in 'kW' against wind speed in 'metres per second'.

Usage

data(pcurves)

Format

An object of class data.frame with 25 rows and 7 columns.

Source

https://goo.gl/tD2JW6

References


Examples

data(pcurves)
v <- pcurves$'Vestad V80'
plot.fitcurve  A function to plot the curves fitted with fitcurve() function

Description

A function to plot the curves fitted with fitcurve() function

Usage

## S3 method for class 'fitcurve'
plot(x, ...)

Arguments

x  is object returned by fitcurve() function
...
  Additional graphical parameters given to plot function.

Value

Plot the curves fitted with fitcurve() function

Examples

s <- pcurves$Speed
p <- pcurves$'Nordex N90'
da <- data.frame(s,p)
x <- fitcurve(da)
plot(x)

validate.curve  A Validate.curve function

Description

Compares the performance of curve fitting techniques fitted in fitcurve() function

Usage

validate.curve(x, MethodPath, MethodName)

Arguments

x  is object returned by fitcurve() function
MethodPath  as path of a code for user defined error measure technique
MethodName  as name of the user defined error measure technique
validate.curve

Value

A comparison matrix in terms of various error measures.

Examples

```r
s <- pcurves$Speed
p <- pcurves$'Nordex N90`
da <- data.frame(s,p)
x <- fitcurve(da)
validate.curve(x)
```
Index

* curves
  pcurves, 3
* power
  pcurves, 3
fitcurve, 2
img2points, 2
pcurves, 3
plot.fitcurve, 4
validate.curve, 4