Package ‘dcv’
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Type Package
Title Conventional Cross-validation statistics for climate-growth model
Version 0.1.1
Date 2010-12-05
Author Zongshan Li with contributions from Jinlong Zhang
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Description This package performs several conventional Cross-validation statistical methods for climate-growth model in the climate reconstruction from tree rings, including Sign Test statistic, Reduction of Error statistic, Product Mean Test, Durbin-Watson statistic etc. This package is at its primary stage, the functions have not been tested exhaustively and more functions would be added in the coming days.
Depends lmtest
License GPL-2
LazyLoad yes
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**dcv-package**  
*Conventionally Cross-validation statistics for climate-growth model*

**Description**

Several conventional Cross-validation statistics for climate-growth model.

**Details**

- **Package:** dcv
- **Type:** Package
- **Version:** 0.1.1
- **Date:** 2010-12-06
- **License:** GPL-2
- **LazyLoad:** yes

**Author(s)**

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**References**


**Examples**

```r
## Product Mean Test(PMT)
data(val)
test.PMT(val[,1],val[,2])
```

**print.LM**

*Utility functions for printing.*

**Description**

Users are not encouraged to call these internal functions directly.
test.DW

Usage

```r
## S3 method for class 'LM'
print(x, ...)

## S3 method for class 'PMT'
print(x, ...)

## S3 method for class 'RE'
print(x, ...)
```

Arguments

- `x`: Object in class "LM", "PMT" or "RE"
- `...`: Further arguments to be passed to plot

Details

Internal functions for package dcv.

Author(s)

Jinlong Zhang <jinlongzhang01@gmail.com>

Examples

```r
data(val)
test.RE(val[,1], val[,2])
```

durbinWatson

Description

Perform the Durbin-Watson statistic of actual and reconstructed climate variables over the common duration

Usage

```r
test.DW(x, y)
```

Arguments

- `x`: actual climate variable
- `y`: reconstructed climate variable
Details

perform the Durbin-Watson statistic of actual and reconstructed climate variables over the common duration

Value

The value of Durbin-Watson statistic

Author(s)

Zongshan Li <zsli_st@rcees.ac.cn>

References


See Also

lm

Examples

data(val)
test.DW(val[,1],val[,2])

test.LM

Description

Multiple R-squared and Adjusted R-squared caculated by a linear model

Usage

test.LM(x)

Arguments

x
dataframe of actual and reconstructed climate variables

Details

Multiple R-squared and Adjusted R-squared caculated by a linear model for actual and reconstructed climate data

Value

result of linear model
test.PMT

Note
none

Author(s)
Zongshan Li <zsli_st@rcees.ac.cn>

References


See Also
summary.lm for summaries and anova.lm for the ANOVA table; aov for a different interface.

Examples
data(val)
test.lm(val)

test.PMT    Product Mean Test

Description
Performs Product Mean Test(PMT) on vectors of data.

Usage
test.PMT(x, y)

Arguments
x  actual climate data
y  reconstructed climate data

Details
Performs Product Mean Test(PMT) on vectors of data.

Value
the value of the t-statistic of Performs Product Mean Test(PMT)
**Author(s)**

Zongshan Li <zsli_st@rcees.ac.cn>

**References**


**See Also**

test.ST

**Examples**

data(val)
test.PMT(val[,1],val[,2])

test.RE

*Reduction of Error statistic*

**Description**

Performs Reduction of Error(RE) statistic on vectors of data.

**Usage**

test.RE(x, y)

**Arguments**

x  
a vector indicating actual climate data

y  
a vector indicating reconstructed climate data

**Details**

Performs Reduction of Error(RE) statistic on vectors of data.

**Value**

RE: Reduction of Error(RE)  
MSE: Mean squared error of validation  
RMSE: Root mean squared error of validation

**Author(s)**

Zongshan Li <zsli_st@rcees.ac.cn>
References


See Also

test.ST, test.PMT

Examples

data(val)
test.RE(val[,1],val[,2])

test.ST Sign Test statistic

Description

Performs Sign Test(ST) statistic on vectors of data.

Usage

test.ST(x, y)

Arguments

x actual climate data
y reconstructed climate data

Details

Performs Sign Test(ST) statistic on vectors of data.

Value

Sign Test(ST) statistic

Author(s)

Zongshan Li <zsli_st@rcees.ac.cn>

References


See Also

test.PMT, test.RE, test.DW
Examples

```r
data(val)
test.ST(val[,1], val[,2])
```

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val | **Data used in Exercise**
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**Description**

A validation data of climate-growth model in Gaoligong Mountains in Hengduan Mountains.

**Usage**

```r
data(val)
```

**Format**

A data frame with 55 observations on the following 2 variables.

- **actual**: a numeric vector
- **recons**: a numeric vector

**Details**

A validation dataset of climate-growth model in Gaoligong Mountains in Hengduan Mountains.

**References**


**Examples**

```r
data(val)
```
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