Package 'fracARMA'

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Type Package

Title Fractionally Integrated ARMA Model

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Description Implements fractional differencing with Autoregressive Moving Average models to analyse long-memory time series data. Traditional ARIMA models typically use integer values for differencing, which are suitable for time series with short memory or anti-persistent behaviour. In contrast, the Fractional ARIMA model allows fractional differencing, enabling it to effectively capture long memory characteristics in time series data. The 'fracARMA' package is user-friendly and allows users to manually input the fractional differencing parameter, which can be obtained using various estimators such as the GPH estimator, Sperio method, or Wavelet method and many. Additionally, the package enables users to directly feed the time series data, AR order, MA order, fractional differencing parameter, and the proportion of training data as a split ratio, all in a single command. The package is based on the reference from the paper of Irshad and others (2024, <doi:10.22271/maths.2024.v9.i6b.1906>).

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License GPL-3

Imports forecast, fracdiff

NeedsCompilation no

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Contents

`fracARMA` *Fractionally Integrated ARMA Model*

Description

This function applies fractional differencing and fits an ARMA model to time series data.

Usage

```
fracARMA(ts, p, d, q, s)
```

Arguments

`ts`	A time series object (class 'ts').
`p`	The AR order.
`d`	The degree of fractional differencing.
`q`	The MA order.
`s`	The proportion of the data to be used for training.

Value

A list containing the model summary, fitted values, and forecasted results.

References

The 'forecast' and 'fracdiff' packages are used for model fitting and fractional differencing.

Examples

```
ts_data <- ts(rnorm(100))
result <- fracARMA(ts_data, p = 1, d = 0.3, q = 1, s = 0.8)
```

Index