Package 'geosimilarity'

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Type Package

Title Geographically Optimal Similarity

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Description Spatial prediction can be performed based on the geographical similarity theory. Geographically optimal similarity (GOS) model is a generalized model for accurate and reliable spatial prediction based on the geographical similarity theory.

Imports stats, SecDim

Depends R (>= 4.1.0)

License GPL-2

RoxygenNote 7.1.2

LazyData true

Encoding UTF-8

NeedsCompilation no

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R topics documented:

gos *Geographically optimal similarity*

Description

Function for geographically optimal similarity (GOS) model

Usage

```
gos(formula, data = NULL, newdata = NULL, kappa = 0.25)
```

Arguments

formula	A formula of GOS model
data	A data.frame of observations data
newdata	A data.frame of prediction variables data
kappa	A numeric value of the percentage of observation locations with high similarity to a prediction location. kappa = 1 - tau, where tau is the probability parameter in quantile operator. The default kappa is 0.25, meaning that 25 location are used for modelling.

Value

A list of predictions and uncertainties.

Examples

```
data("zn")
# log-transformation
hist(zn$Zn)
zn$Zn <- log(zn$Zn)
hist(zn$Zn)
# remove outliers
require(SecDim)
k <- rmvoutlier(zn$Zn, coef = 2.5)
dt <- zn[-k,]
# split data for validation
split <- sample(1:nrow(dt), round(nrow(dt)*0.7))
train <- dt[split,]
test <- dt[-split,]
system.time({ # 0.33s
g1 <- gos(Zn ~ Slope + Water + NDVI  + SOC + pH + Road + Mine,
          data = train, newdata = test, kappa = 0.25)
})
test$pred <- g1$pred
plot(test$Zn, test$pred)
cor(test$Zn, test$pred)
```

zn *Spatial datasets of trace element Zn.*

Description

Spatial datasets of trace element Zn.

Usage

```
zn
```

Format

zn: A data frame of trace element Zn with 894 rows and 12 variables

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