Package 'kriging'

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Description An implementation of a simple and highly optimized ordinary kriging algorithm to plot geographical data.

Title Ordinary Kriging

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Suggests maps

NeedsCompilation yes

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Contents

`image.kriging` *Map kriged data*

Description

Create maps using the coordinates and predicted values in objects of class `kriging`.

Usage

```
  ## S3 method for class 'kriging'
image(x, main = NULL, xlab = "", ylab = "", col = heat.colors(100), ...)
```

Arguments

x	object of class kriging.
main	See par.
xlab	See par.
ylab	See par.
col	See par.
...	arguments, passed to image.default.

Author(s)

Omar E. Olmedo

See Also

kriging.

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kriging *Ordinary Kriging*

Description

Simple and highly optimized ordinary kriging algorithm to plot geographical data

Usage

```
kriging(x, y, response, model = "spherical", lags = 10, pixels = 100, polygons = NULL)
```

Arguments

x	vector of x-axis spatial points.
y	vector of y-axis spatial points.
response	vector of observed values.
model	specification of the variogram model. Choices are "spherical", "exponential" or "gaussian". Defaults to "spherical".
lags	number of lags. Defaults to 10.
pixels	maximum number of points along either axis. Defaults to 100.
polygons	list of polygons used to grid predicted values on to. The default value of NULL automatically generates an evenly spaced out rectangular grid of points spanning the range of the data.

Details

The kriging algorithm assumes a minimum number of observations in order to fit the variogram model.

Value

An object of class `kriging` that inherits from `list` and is composed of:

`model`	character; variogram model.
`nugget`	numeric; value of nugget parameter.
`range`	numeric; value of range parameter.
`sill`	numeric; value of sill parameter.
`map`	data.frame; contains the predicted values along with the coordinate covariates.
`semivariogram`	data.frame; contains the distance and semivariance values.

Author(s)

Omar E. Olmedo

See Also

`image.kriging`, `plot.kriging`.

Examples

```
# Krige random data for a specified area using a list of polygons
library(maps)
usa <- map("usa", "main", plot = FALSE)
p <- list(data.frame(usa$x, usa$y))

# Create some random data
x <- runif(50, min(p[[1]][,1]), max(p[[1]][,1]))
y <- runif(50, min(p[[1]][,2]), max(p[[1]][,2]))
z <- rnorm(50)

# Krige and create the map
kriged <- kriging(x, y, z, polygons=p, pixels=300)
image(kriged, xlim = extendrange(x), ylim = extendrange(y))
```

`plot.kriging` *Plot Semivariogram*

Description

Plots distance versus semivariance with a fitted curve indicating the model used.

Usage

```
## S3 method for class 'kriging'
plot(x, main = "Semivariogram", xlab = "Distance", ylab = "Semivariance", ...)
```

Arguments

x	object of class kriging.
main	See par.
xlab	See par.
ylab	See par.
...	arguments, passed to plot.default.

Author(s)

Omar E. Olmedo

See Also

kriging.

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