Package 'htdp'

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Type Package

Title Horizontal Time Dependent Positioning

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Description Provides bindings to the National Geodetic Survey (NGS) Horizontal Time Dependent Positioning (HTDP) utility, v3.2.5, written by Richard Snay, Chris Pearson, and Jarir Saleh of NGS. HTDP is a utility that allows users to transform positional coordinates across time and between spatial reference frames. See <https://www.ngs.noaa.gov/TOOLS/Htdp/Htdp.shtml> for more information.

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LazyData TRUE

Imports Rcpp (>= 0.12.5)

LinkingTo Rcpp

URL https://github.com/jbuonagurio/RHTDP

BugReports https://github.com/jbuonagurio/RHTDP/issues

NeedsCompilation yes

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Repository CRAN

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R topics documented:

`displace` *Estimate horizontal displacement and velocity between two dates*

Description

Returns an R `data.frame` containing the crustal displacement in meters and velocity in mm/yr at a specified location from time t1 to time t2. The estimated displacement equals the velocity at this location multiplied by the time difference (t2 - t1) plus all coseismic and postseismic motion that has occurred between these two times.

Usage

```
displace(xy, t0, t1, iopt)
```

Arguments

`xy`	A matrix of longitude and latitude coordinates in decimal degrees
`t0`	The starting date
`t1`	The ending date
`iopt`	The key identifying the reference frame for the input values. See `iopt` for a list of supported values.

Value

A `data.frame` with 6 columns:

`de`	Eastward displacement (meters)
`dn`	Northward displacement (meters)
`du`	Upward displacement (meters)
`ve`	Eastward velocity (mm/yr)
`vn`	Northward velocity (mm/yr)
`vu`	Upward velocity (mm/yr)

See Also

`iopt`

Examples

```
beta <- matrix(data=c(-121.7722, 36.6698), nrow=1)
t0 <- as.Date("1989-10-16")
t1 <- as.Date("1989-10-18")
displace(beta, t0, t1, 1)
```

iopt *List reference frames recognized by HTDP*

Description

Returns an R `data.frame` containing a list of reference frames recognized by HTDP. See Table 4 in the HTDP User's Guide for more information.

Usage

```
iopt()
```

Value

A `data.frame` with 2 columns:

`key`	The number that the HTDP software uses to identify a particular reference frame. Some reference frames share the same key.
`value`	The description of the reference frame.

See Also

`displace`

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