Package ‘kehra’

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Type Package
Title Collect, Assemble and Model Air Pollution, Weather and Health Data
Version 0.1
Date 2016-06-09
Author Claudia Vitolo [aut, cre], Allan Tucker [aut], Andrew Russell [aut]
Maintainer Claudia Vitolo <cvitolodev@gmail.com>
URL https://github.com/kehraProject/r_kehra
BugReports https://github.com/kehraProject/r_kehra/issues
Description Collection of utility functions used in the KEHRA project (see http://www.brunel.ac.uk/ife/britishcouncil). It refers to the multidimensional analysis of air pollution, weather and health data.
Depends R (>= 2.14.0)
Imports Hmisc, raster, reshape2, stringr, sp, xts, zoo
License GPL-3
Repository CRAN
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Description

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Details

The DESCRIPTION file:

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- fillMissingValues: Fill missing values
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- kehra-package: Collect, Assemble and Model Air Pollution, Weather and Health Data
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- windDirection: Wind Direction
- windSpeed: Wind Speed

Collection of utility functions used in the KEHRA project

Author(s)

Claudia Vitolo [aut, cre], Allan Tucker [aut], Andrew Russell [aut] Maintainer: Claudia Vitolo <cvitolodev@gmail.com>
**fillMissingValues**

*Fill missing values*

**Description**

Fill missing values

**Usage**

```r
fillMissingValues(ids, df, maxgap = 12, parallel = FALSE,
                  formatDT = "%Y-%m-%d %H:%M")
```

**Arguments**

- `ids`: site identification codes
- `df`: dataframe containing the timeseries in columns separated by ID (header must follow this convention: column 1 = "datetime", column 2 = "SiteID", column 3 = "variable name"). `df` can be the result of `GetDataFromECMWF()`.
- `maxgap`: maximum gap to interpolate (e.g. 6 hours)
- `parallel`: Boolean, if TRUE parallel jobs are allowed
- `formatDT`: format of the datetime variable

**Value**

updated df with infilled values

**Examples**

```r
# fillMissingValues(clima)
```

---

**getSeason**

*Get season a date belongs to*

**Description**

Get season a date belongs to. This function was taken from the following stackoverflow post: http://stackoverflow.com/questions/9500114/find-which-season-a-particular-date-belongs-to.

**Usage**

```r
getSeason(DATES)
```

**Arguments**

- `DATES`: a date.
Value

returns the name of the season (e.g. "Fall")

Examples

```r
# my.dates <- as.Date("2011-12-01", format = "%Y-%m-%d") + 0:60
# getSeason(my.dates)
```

pointInspection

Get data from ECMWF ERA_Interim

Description

Get data from ECMWF ERA_Interim

Usage

```r
pointInspection(years, points, var, prefix = "", path = "~", parallel = FALSE)
```

Arguments

- **years**: years to retrieve data for
- **points**: are lat/lon coordinates of points (e.g. stations)
- **var**: variable to retrieve
- **prefix**: string starting netcdf file name
- **path**: folder path where netcdf files are stored
- **parallel**: Boolean, if TRUE parallel jobs are allowed

Details

Possible variables names are: "t2m" (2m temperature, in K), "u10" (10 metres wind U component, in m/s), "v10" (10 metres wind V component, in m/s), "tp" (total precipitation, in m), "blh" (boundary layer height, in m), "ssr" (surface net solar radiation, in W/m2s).

Value

- time series variable

Examples

```r
# pointInspection(years = 1981:2014, points, var = "t2m")
```
windDirection  

**Description**  
Calculate wind direction in degrees from u & v components

**Usage**  
windDirection(u, v)

**Arguments**  
- u  
  first component of wind speed  
- v  
  second component of wind speed

**Value**  
direction in degrees from u & v components

**Examples**  
# windDirection(u, v)

---

windSpeed  

**Description**  
Calculate wind speed in m/s from u & v components

**Usage**  
windSpeed(u, v)

**Arguments**  
- u  
  first component of wind speed  
- v  
  second component of wind speed

**Value**  
Speed in m/s

**Examples**  
# windSpeed(u, v)
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