Package 'weathermetrics'

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Type Package

Title Functions to Convert Between Weather Metrics

Version 1.2.2

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Description Functions to convert between weather metrics, including conversions for metrics of temperature, air moisture, wind speed, and precipitation. This package also includes functions to calculate the heat index from air temperature and air moisture.

URL https://github.com/geanders/weathermetrics/

BugReports https://github.com/geanders/weathermetrics/issues

License GPL-2

LazyData true

RoxygenNote 5.0.1

Depends R (>= 2.10)

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

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Contents

`angeles` *Weather in Los Angeles, CA*

Description

Daily values of mean temperature (Kelvin) and mean dew point temperature (Kelvin) for the week of December 19, 2010, in Los Angeles, CA.

Usage

```
angeles
```

Format

A data frame 7 rows and 3 variables:

date Date of weather observation

TemperatureK Daily mean temperature in Kelvin

DewpointK Daily mean dewpoint temperature in Kelvin

Source

Weather Underground

`beijing` *Weather in Beijing, China*

Description

A dataset containing daily values of mean temperature (Fahrenheit) and mean wind speed (in miles per hour, meters per second, feet per seconds, and kilometers per hour) for the week of January 10, 2015, in Beijing, China.

Usage

```
beijing
```

Format

A data frame with 7 rows and 3 variables:

date Date of weather observation

TemperatureF Daily mean temperature in Fahrenheit

MPH Daily mean wind speed in miles per hour

mps Daily mean wind speed in meters per second

ftps Daily mean wind speed in feet per second

kmph Daily mean wind speed in kilometers per hour

Source

Weather Underground

`breck` *Precipitation in Breckenridge, CO*

Description

Daily values of precipitation (inches) for the week of June 28, 2015, in Breckenridge, CO.

Usage

```
breck
```

Format

A data frame 7 rows and 2 variables:

date Date of weather observation

Precip.in Daily precipitation in inches

Source

Weather Underground

`celsius.to.fahrenheit` *Convert from Celsius to Fahrenheit.*

Description

`celsius.to.fahrenheit` creates a numeric vector of temperatures in Fahrenheit from a numeric vector of temperatures in Celsius.

Usage

```
celsius.to.fahrenheit(T.celsius, round = 2)
```

Arguments

`T.celsius`	Numeric vector of temperatures in Celsius.
`round`	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of temperature values in Fahrenheit.

Note

Equations are from the source code for the US National Weather Service's online heat index calculator.

Author(s)

Brooke Anderson <brooke.anderson@colostate.edu>, Roger Peng <rdpeng@gmail.com>

See Also

`fahrenheit.to.celsius`

Examples

```
# Convert from Celsius to Fahrenheit.
data(lyon)
lyon$TemperatureF <- celsius.to.fahrenheit(lyon$TemperatureC)
lyon
```

`celsius.to.kelvin` *Convert from Celsius to Kelvin.*

Description

`celsius.to.kelvin` creates a numeric vector of temperatures in Kelvin from a numeric vector of temperatures in Celsius.

Usage

```
celsius.to.kelvin(T.celsius, round = 2)
```

Arguments

`T.celsius`	Numeric vector of temperatures in Celsius.
`round`	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of temperature values in Kelvin.

Note

Equations are from the source code for the National Oceanic and Atmospheric Association's online temperature converter.

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

See Also

`kelvin.to.celsius`

Examples

```
# Convert from Celsius to Kelvin.
data(lyon)
lyon$TemperatureK <- celsius.to.kelvin(lyon$TemperatureC)
lyon
```

convert_precip *Convert between precipitation metrics*

Description

This function allows you to convert among the following precipitation metrics: inches, millimeters, and centimeters.

Usage

```
convert_precip(precip, old_metric, new_metric, round = 2)
```

Arguments

precip	A numerical vector of precipitation to be converted.
old_metric	The metric from which you want to convert. Possible options are: • inches: Inches • mm: Millimeters • cm: Centimeters
new_metric	The metric to which you want to convert. The same options are possible as for old_metric.
round	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector with precipitation converted to the metric specified by the argument new_metric.

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

Examples

```
data(breck)
breck$Precip.mm <- convert_precip(breck$Precip.in,
   old_metric = "inches", new_metric = "mm", round = 2)
breck

data(loveland)
loveland$Precip.in <- convert_precip(loveland$Precip.mm,
   old_metric = "mm", new_metric = "inches", round = NULL)
loveland$Precip.cm <- convert_precip(loveland$Precip.mm,
   old_metric = "mm", new_metric = "cm", round = 3)
loveland
```

convert_temperature *Convert from one temperature metric to another*

Description

This function allows you to convert a vector of temperature values between Fahrenheit, Celsius, and degrees Kelvin.

Usage

```
convert_temperature(temperature, old_metric, new_metric, round = 2)
```

Arguments

temperature	A numeric vector of temperatures to be converted.
old_metric	The metric from which you want to convert. Possible options are: • fahrenheit, f • kelvin, k • celsius, c
new_metric	The metric to which you want to convert. The same options are possible as for old_metric.
round	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector with temperature converted to the metric specified by the argument new_metric.

Author(s)

#' Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

Examples

```
data(lyon)
lyon$TemperatureF <- convert_temperature(lyon$TemperatureC,
   old_metric = "c", new_metric = "f")
lyon

data(norfolk)
norfolk$TempC <- convert_temperature(norfolk$TemperatureF,
   old_metric = "f", new_metric = "c")
norfolk

data(angeles)
angeles$TemperatureC <- convert_temperature(angeles$TemperatureK,
   old_metric = "kelvin", new_metric = "celsius")
angeles
```

convert_wind_speed *Convert between wind speed metrics*

Description

This function allows you to convert among the following wind speed metrics: knots, miles per hour, meters per second, feet per second, and kilometers per hour.

Usage

```
convert_wind_speed(wind_speed, old_metric, new_metric, round = 1)
```

Arguments

wind_speed	A numerical vector of wind speeds to be converted.
old_metric	The metric from which you want to convert. Possible options are: • knots: Knots • mph: Miles per hour • mps: Meters per second • ftps: Feet per second • kmph: Kilometers per hour
new_metric	The metric to which you want to convert. The same options are possible as for old_metric.
round	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector with wind speed converted to the metric specified by the argument new_metric.

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

Examples

```
data(beijing)
beijing$knots <- convert_wind_speed(beijing$kmph,
   old_metric = "kmph", new_metric = "knots")
beijing

data(foco)
foco$mph <- convert_wind_speed(foco$knots, old_metric = "knots",
   new_metric = "mph", round = 0)
foco$mph <- convert_wind_speed(foco$knots, old_metric = "knots",
   new_metric = "mps", round = NULL)
foco$kmph <- convert_wind_speed(foco$mph, old_metric = "mph",
   new_metric = "kmph")
```

foco

---

dewpoint.to.humidity *Calculate relative humidity.*

Description

dewpoint.to.humidity creates a numeric vector of relative humidity from numerical vectors of air temperature and dew point temperature.

Usage

```
dewpoint.to.humidity(dp = NA, t = NA, temperature.metric = "fahrenheit")
```

Arguments

dp	Numeric vector of dew point temperatures.
t	Numeric vector of air temperatures.
temperature.metric	Character string indicating the temperature metric of air temperature and dew point temperature. Possible values are fahrenheit or celsius.

Details

Dew point temperature and temperature must be in the same metric (i.e., either both in Celsius or both in Fahrenheit). If necessary, use convert_temperature to convert before using this function.

Value

A numeric vector of relative humidity (in %)

Note

Equations are from the source code for the US National Weather Service's online heat index calculator.

Author(s)

Brooke Anderson <brooke.anderson@colostate.edu>, Roger Peng <rdpeng@gmail.com>

References

National Weather Service Hydrometeorological Prediction Center Web Team. Heat Index Calculator. 30 Jan 2015. http://www.wpc.ncep.noaa.gov/html/heatindex.shtml. Accessed 18 Dec 2015.

See Also

humidity.to.dewpoint, fahrenheit.to.celsius, celsius.to.fahrenheit, convert_temperature

Examples

```
# Calculate relative humidity from air temperature and
# dew point temperature.

data(lyon)
lyon$RH <- dewpoint.to.humidity(t = lyon$TemperatureC,
                                dp = lyon$DewpointC,
                                temperature.metric = 'celsius')
lyon
```

---

fahrenheit.to.celsius *Convert from Fahrenheit to Celsius.*

Description

fahrenheit.to.celsius creates a numeric vector of temperatures in Celsius from a numeric vector of temperatures in Fahrenheit.

Usage

```
fahrenheit.to.celsius(T.fahrenheit, round = 2)
```

Arguments

T.fahrenheit	Numeric vector of temperatures in Fahrenheit.
round	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of temperature values in Celsius.

Note

Equations are from the source code for the US National Weather Service's online heat index calculator.

Author(s)

Brooke Anderson <brooke.anderson@colostate.edu>, Roger Peng <rdpeng@gmail.com>

See Also

celsius.to.fahrenheit

Examples

```
# Convert from Fahrenheit to Celsius.
data(norfolk)
norfolk$TempC <- fahrenheit.to.celsius(norfolk$TemperatureF)
norfolk
```

`fahrenheit.to.kelvin` *Convert from Fahrenheit to Kelvin.*

Description

`fahrenheit.to.kelvin` creates a numeric vector of temperatures in Kelvin from a numeric vector of temperatures in Fahrenheit.

Usage

```
fahrenheit.to.kelvin(T.fahrenheit, round = 2)
```

Arguments

`T.fahrenheit`	Numeric vector of temperatures in Fahrenheit.
`round`	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of temperature values in Kelvin.

Note

Equations are from the source code for the National Oceanic and Atmospheric Association's online temperature converter.

Author(s)

#' Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

See Also

`kelvin.to.fahrenheit`

Examples

```
# Convert from Fahrenheit to Kelvin.
data(norfolk)
norfolk$TempuratureK <- fahrenheit.to.kelvin(norfolk$TemperatureF)
norfolk
```

foco *Weather in Fort Collins, CO*

Description

A dataset containing daily values of mean temperature (Fahrenheit) and mean wind speed (in knots) for the week of October 11, 2015, in Fort Collins, CO.

Usage

```
foco
```

Format

A data frame with 7 rows and 3 variables:

date Date of weather observation

TemperatureF Daily mean temperature in Fahrenheit

knots Daily mean wind speed in knots

Source

Weather Underground

heat.index *Calculate heat index.*

Description

`heat.index` creates a numeric vector of heat index values from numeric vectors of air temperature and either relative humidity or dew point temperature.

Usage

```
heat.index(t = NA, dp = c(), rh = c(),
  temperature.metric = "fahrenheit", output.metric = NULL, round = 0)
```

Arguments

`t`	Numeric vector of air temperatures.
`dp`	Numeric vector of dew point temperatures.
`rh`	Numeric vector of relative humidity (in %).
`temperature.metric`	Character string indicating the temperature metric of air temperature and dew point temperature. Possible values are 'fahrenheit' or 'celsius'.
`output.metric`	Character string indicating the metric into which heat index should be calculated. Possible values are 'fahrenheit' or 'celsius'.
`round`	Integer indicating the number of decimal places to round converted value.

Details

Include air temperature (t) and either dew point temperature (dp) or relative humdity (rh). You cannot specify both dew point temperature and relative humidity– this will return an error. Heat index is calculated as NA when impossible values of dew point temperature or humidity are input (e.g., humidity above 100% or below 0%, dew point temperature above air temperature).

Value

A numeric vector of heat index values in the metric specified by output.metric. (If output.metric is not specified, heat index will be returned in the same metric in which air temperature was input, specified by temperature.metric.)

Note

Equations are from the source code for the US National Weather Service's online heat index calculator.

Author(s)

Brooke Anderson <brooke.anderson@colostate.edu>, Roger Peng <rdpeng@gmail.com>

References

Anderson GB, Bell ML, Peng RD. 2013. Methods to calculate the heat index as an exposure metric in environmental health research. Environmental Health Perspectives 121(10):1111-1119.

National Weather Service Hydrometeorological Prediction Center Web Team. Heat Index Calculator. 30 Jan 2015. http://www.wpc.ncep.noaa.gov/html/heatindex.shtml. Accessed 18 Dec 2015.

Rothfusz L. 1990. The heat index (or, more than you ever wanted to know about heat index) (Technical Attachment SR 90-23). Fort Worth: Scientific Services Division, National Weather Service.

R. Steadman, 1979. The assessment of sultriness. Part I: A temperature-humidity index based on human physiology and clothing science. Journal of Applied Meteorology, 18(7):861–873.

Examples

```
# Calculate heat index from temperature (in Fahrenheit)
# and relative humidity.

data(suffolk)
suffolk$heat.index <- heat.index(t = suffolk$TemperatureF,
                                 rh = suffolk$Relative.Humidity)
suffolk

# Calculate heat index (in Celsius) from temperature (in
# Celsius) and dew point temperature (in Celsius).

data(lyon)
lyon$heat.index <- heat.index(t = lyon$TemperatureC,
```

```
                              dp = lyon$DewpointC,
                              temperature.metric = 'celsius',
                              output.metric = 'celsius')
lyon
```

`heat.index.algorithm` *Algorithm for heat.index function.*

Description

`heat.index.algorithm` converts a numeric scalar of temperature (in Fahrenheit) and a numeric scalar of relative humidity (in %) to heat index (in Fahrenheit). This function is not meant to be used outside of the `heat.index` function.

Usage

```
heat.index.algorithm(t = NA, rh = NA)
```

Arguments

`t`	Numeric scalar of air temperature, in Fahrenheit.
`rh`	Numeric scalar of relative humidity, in %.

Details

If an impossible value of relative humidity is given (below 0% or above 100%), heat index is returned as `NA`.

Value

A numeric scalar of heat index, in Fahrenheit.

Note

Equations are from the source code for the US National Weather Service's online heat index calculator.

Author(s)

Brooke Anderson <brooke.anderson@colostate.edu>, Roger Peng <rdpeng@gmail.com>

References

Anderson GB, Bell ML, Peng RD. 2013. Methods to calculate the heat index as an exposure Metric in environmental health research. Environmental Health Perspectives 121(10):1111-1119.

National Weather Service Hydrometeorological Prediction Center Web Team. Heat Index Calculator. 30 Jan 2015. http://www.wpc.ncep.noaa.gov/html/heatindex.shtml. Accessed 18 Dec 2015.

Rothfusz L. 1990. The heat index (or, more than you ever wanted to know about heat index) (Technical Attachment SR 90-23). Fort Worth: Scientific Services Division, National Weather Service.

R. Steadman, 1979. The assessment of sultriness. Part I: A temperature-humidity index based on human physiology and clothing science. Journal of Applied Meteorology, 18(7):861–873.

See Also

heat.index

---

humidity.to.dewpoint *Calculate dew point temperature.*

Description

humidity.to.dewpoint creates a numeric vector of dew point temperature from numeric vectors of air temperature and relative humidity.

Usage

```
humidity.to.dewpoint(rh = NA, t = NA, temperature.metric = "fahrenheit")
```

Arguments

rh	Numeric vector of relative humidity (in %).
t	Numeric vector of air temperatures.
temperature.metric	Character string indicating the temperature metric of air temperature. Possible values are fahrenheit or celsius.

Details

Dew point temperature will be calculated in the same metric as the temperature vector (as specified by the temperature.metric option). If you'd like dew point temperature in a different metric, use the function celsius.to.fahrenheit or fahrenheit.to.celsius on the output from this function.

Value

A numeric vector of dew point temperature, in the same metric as the temperature vector (as specified by the temperature.metric option).

Note

Equations are from the source code for the US National Weather Service's online heat index calculator.

Author(s)

Brooke Anderson <brooke.anderson@colostate.edu>, Roger Peng <rdpeng@gmail.com>

References

National Weather Service Hydrometeorological Prediction Center Web Team. Heat Index Calculator. 30 Jan 2015. http://www.wpc.ncep.noaa.gov/html/heatindex.shtml. Accessed 18 Dec 2015.

See Also

dewpoint.to.humidity, fahrenheit.to.celsius, celsius.to.fahrenheit

Examples

```
# Calculate dew point temperature from relative humidity and
# air temperature.

data(newhaven)
newhaven$DP <- humidity.to.dewpoint(t = newhaven$TemperatureF,
                                    rh = newhaven$Relative.Humidity,
                                    temperature.metric = 'fahrenheit')
newhaven
```

---

inches_to_metric *Convert from inches to standard metric units of measure for precipitation*

Description

inches_to_metric creates a numeric vector of precipitation in common metric units (millimeters or centimeters) from a numeric vector of precipitation in inches.

Usage

```
inches_to_metric(inches, unit, round = 2)
```

Arguments

inches	Numeric vector of precipitation (in inches)
unit	Character specifying the metric precipitation unit besides inches. Possible values are: • mm: Millimeters • cm: Centimeters
round	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of precipitation (in specified metric unit)

Note

Equations are from the source code for the National Weather Service Forecast Office http://www.srh.noaa.gov/ama/?n=conversions

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

References

http://www.srh.noaa.gov/ama/?n=conversions

See Also

metric_to_inches

Examples

```
data(breck)
breck$Precip.mm <- inches_to_metric(breck$Precip.in,
                                    unit = "mm",
                                    round = 2)
breck
```

---

kelvin.to.celsius *Convert from Kelvin to Celsius.*

Description

kelvin.to.celsius creates a numeric vector of temperatures in Celsius from a numeric vector of temperatures in Kelvin.

Usage

```
kelvin.to.celsius(T.kelvin, round = 2)
```

Arguments

T.kelvin	Numeric vector of temperatures in Kelvin.
round	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of temperature values in Celsius.

Note

Equations are from the source code for the National Oceanic and Atmospheric Association's online temperature converter.

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

See Also

celsius.to.kelvin

Examples

```
# Convert from Kelvin to Celsius.
data(angeles)
angeles$TemperatureC <- kelvin.to.celsius(angeles$TemperatureK)
angeles
```

---

kelvin.to.fahrenheit *Convert from Kelvin to Fahrenheit.*

Description

kelvin.to.fahrenheit creates a numeric vector of temperatures in Fahrenheit from a numeric vector of temperatures in Kelvin.

Usage

```
kelvin.to.fahrenheit(T.kelvin, round = 2)
```

Arguments

T.kelvin	Numeric vector of temperatures in Kelvin.
round	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of temperature values in Fahrenheit.

Note

Equations are from the source code for the National Oceanic and Atmospheric Association's online temperature converter.

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

See Also

fahrenheit.to.kelvin

Examples

```
# Convert from Kelvin to Fahrenheit.
data(angeles)
angeles$TemperatureF <- kelvin.to.fahrenheit(angeles$TemperatureK)
angeles
```

---

knots_to_speed *Convert from knots to standard units of wind speed*

Description

knots_to_speed creates a numeric vector of speed, in units specified by unit, from a numeric vector of speed in knots.

Usage

```
knots_to_speed(knots, unit, round = 1)
```

Arguments

knots	Numeric vector of speeds in knots
unit	Character specifying the speed unit other than knots. Possible values are: • mph: Miles per hour • mps: Meters per second • ftps: Feet per second • kmph: Kilometers per hour
round	An integer indicating the number of decimal places to round the converted value.

Details

Output will be in the speed units specified by `unit`.

Value

A numeric vector of speeds (in the specified unit)

Note

Equations are from the source code for the National Oceanic and and Atmospheric Administration's online wind speed converter

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

References

http://www.srh.noaa.gov/epz/?n=wxcalc_windconvert

See Also

speed_to_knots

Examples

```
data(foco)
foco$mph <- knots_to_speed(foco$knots, unit = "mph", round = 0)
foco$mps <- knots_to_speed(foco$knots, unit = "mps", round = NULL)
foco$ftps <- knots_to_speed(foco$knots, unit = "ftps")
foco$kmph <- knots_to_speed(foco$knots, unit = "kmph")
foco
```

---

loveland *Precipitation in Loveland, CO*

Description

Daily values of precipitation (millimeters) for the week of September 8, 2013, in Loveland, CO.

Usage

```
loveland
```

Format

A data frame 7 rows and 2 variables:

date Date of weather observation

Precip.mm Daily precipitation in millimeters

Source

Weather Underground

`lyon` *Weather in Lyon, France*

Description

Daily values of mean temperature (Celsius) and mean dew point temperature (Celsius) for the week of June 18, 2000, in Lyon, France.

Usage

```
lyon
```

Format

A data frame with columns:

Date Date of weather observation

TemperatureC Daily mean temperature in Celsius

DewpointC Daily mean dewpoint temperature in Celsius

Source

Weather Underground

`metric_to_inches` *Convert between standard metric units of measure for precipitation to inches*

Description

`metric_to_inches` creates a numeric vector of precipitation measures in inches from a numeric vector of precipitation in common metric units (millimeters or centimeters).

Usage

```
metric_to_inches(metric, unit.from, round = 2)
```

Arguments

`metric`	Numeric vector of precipitation (in millimeters or centimeters)
`unit.from`	A character string with the current units of the observations (i.e., the units from which you want to convert)
`round`	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of precipitation in inches.

Note

Equations are from the source code for the National Weather Service Forecast Office http://www.srh.noaa.gov/ama/?n=conversions

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

References

http://www.srh.noaa.gov/ama/?n=conversions

See Also

`inches_to_metric`

Examples

```
data(loveland)
loveland$Precip.in <- metric_to_inches(loveland$Precip.mm,
                                       unit.from = "mm",
                                       round = 2)
loveland
```

newhaven *Weather in New Haven, CT*

Description

Daily values of mean temperature (Fahrenheit) and mean relative humidity (%) for the week of October 19, 2008, in New Haven, CT.

Usage

```
newhaven
```

Format

A data frame with columns:

Date Date of weather observation

TemperatureF Daily mean temperature in Fahrenheit

Relative.Humidity Daily relative humidity in %

Source

Weather Underground

norfolk *Weather in Norfolk, VA*

Description

Daily values of mean temperature (Fahrenheit) and mean dew point temperature (Fahrenheit) for the week of March 12, 2006, in Norfolk, VA.

Usage

```
norfolk
```

Format

A data frame with columns:

Date Date of weather observation

TemperatureF Daily mean temperature in Fahrenheit

DewpointF Daily mean dewpoint temperature in Fahrenheit

Source

Weather Underground

puravida *Weather in San Jose, Costa Rica*

Description

Daily values of mean temperature (Fahrenheit) and mean wind speed (miles per hour) for the week of August 02, 2015, in San Jose, Costa Rica.

Usage

```
puravida
```

Format

A data frame 7 rows and 3 variables:

date Date of weather observation

TemperatureF Daily mean temperature in Fahrenheit

mph Daily mean wind speed in miles per hour

Source

Weather Underground

speed_to_knots *Convert between standard units of measure for wind speed*

Description

`speed_to_knots` creates a numeric vector of speed in knots from a numeric vector of speed in the specified unit.

Usage

```
speed_to_knots(x, unit, round = 1)
```

Arguments

`x`	Numeric vector of wind speeds, in units specified by `unit`
`unit`	Character specifying the speed unit other than knots. Possible values are: • `mph`: Miles per hour • `mps`: Meters per second • `ftps`: Feet per second • `kmph`: Kilometers per hour
`round`	An integer indicating the number of decimal places to round the converted value.

Value

A numeric vector of speeds (in knots)

Note

Equations are from the source code for the National Oceanic and and Atmospheric Administration's online wind speed converter

Author(s)

Joshua Ferreri <joshua.m.ferreri@gmail.com>, Brooke Anderson <brooke.anderson@colostate.edu>

References

http://www.srh.noaa.gov/epz/?n=wxcalc_windconvert

See Also

knots_to_speed

Examples

```
data(beijing)
beijing$knots <- speed_to_knots(beijing$kmph, unit = "kmph", round = 2)
beijing
```

---

suffolk *Weather in Suffolk, VA*

Description

Daily values of mean temperature (Fahrenheit) and mean relative humidity (%) for the week of July 12, 1998, in Suffolk, VA.

Usage

```
suffolk
```

Format

A data frame with columns:

Date Date of weather observation

TemperatureF Daily mean temperature in Fahrenheit

Relative.Humidity Daily relative humidity in %

Source

Weather Underground

`weathermetrics` *weathermetrics: Functions to convert between weather metrics*

Description

The weathermetics package provides functions to convert between Celsius and Fahrenheit, to convert between dew point temperature and relative humidity, and to calculate heat index.

weathermetrics functions

This package includes the following functions to calculate vectors of weather metrics: `celsius.to.fahrenheit`, `fahrenheit.to.celsius`, `dewpoint.to.humidity`, `humidity.to.dewpoint`, and `heat.index`.

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