Package ‘solarPos’

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Type Package
Title Solar Position Algorithm for Solar Radiation Applications
Version 1.0
Date 2016-01-07
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Description Calculation of solar zenith and azimuth angles.
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solarpos-package Solar Position Algorithm for Solar Radiation Applications

Description

Details

Package: solarPos
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References


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**julianday**

Julian Day

Description

Computes Julian Day from year, month, day and time of day.

Usage

```
julianday(year, month, day, hour = 12, min = 0, sec = 0, tz = 0, dut1 = 0)
```

Arguments

- **year**: Year
- **month**: Month (1-12)
- **day**: Day (1-12)
- **hour**: Hour (0-23)
- **min**: Minute (0-59)
- **sec**: Second (0-59)
- **tz**: Time zone (negative to the west)
- **dut1**: Correction term (0-1)
solarPosition

Details
Astronomical year numbering is used, i.e., 0 is used for 1 BC, -1 for 2 BC, and so on.
Time is expressed as Coordinated Universal Time (UTC), or Local Standard Time (LST) if the tz argument is used. The argument dut1 is expressed as a fraction of a second and used to correct UTC to Universal Time (UT)

Value
Julian Day

Author(s)
Jasper Van doninck

Examples
julianDay(2000,1,1,12,0,0)
julianDay(2010,5,10,16,30,0,tz=-7)
julianDay(2015,1:12,1,0,0,0)

solarPosition | Solar zenith and azimuth angles

Description
Computes the solar zenith and azimuth for a place on Earth for a given date and time.

Usage
solarPosition(jd, lon, lat, delta_t = 32.184, elev = 0, temp = 16, pres = 1013.25)

Arguments
jd Julian day, with decimal fraction.
lon Longitude, in decimal degrees.
lat Latitude, in decimal degrees.
delta_t Difference between the Earth rotation time and the Terrestrial Time (TT), in seconds.
elev Elevation, in meters.
temp Temperature, in degrees Celsius.
pres Pressure, in hPa.
Details

Solar zenith and azimuth angle are give in degrees, azimuth is measured eastward from north.

Value

Matrix of solar zenith and azimuth angles.

Author(s)

Jasper Van doninck

Examples

## Julian day

jd <- julianday(2003,10,17,12,30,30,tz=-7)

## Solar angles

solarPosition(jd,-105.1786,39.742476,delta_t=67,elev=1830.14,temp=11,pres=820)
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