Package 'nordklimdata1'

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Type Package

Title Dataset for Climate Analysis with Data from the Nordic Region

Version 1.2

Encoding UTF-8

Description The Nordklim dataset 1.0 is a unique and useful achievement for climate analysis. It includes observations of twelve different climate elements from more than 100 stations in the Nordic region, in time span over 100 years. The project contractors were NORDKLIM/NORDMET on behalf of the National meteorological services in Denmark (DMI), Finland (FMI), Iceland (VI), Norway (DNMI) and Sweden (SMHI).

License GPL (>= 3)

Depends R (>= 2.10)

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nordklimdata1-package   *Nordklim data set 1.0*

Description

The NORDKLIM data set contains close to 70 000 years of monthly data from 114 stations. The station network covers all five Nordic countries, including data from the Faeroe Islands, Jan Mayen, Bjornoya and Svalbard. There are seven monthly climatic elements describing temperature, two on precipitation and one on air pressure, cloud cover and snow cover.

Project contractors: NORDKLIM/NORDMET on behalf of the National meteorological services in Denmark (DMI), Finland (FMI), Iceland (VI), Norway (DNMI) and Sweden (SMHI)

Details

Package:	nordklimdata1
Type:	Package
Version:	1.0
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Author(s)

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Source

http://www.smhi.se/hfa_coord/nordklim

References

Nordklim dataset 1.0 - description and illustrations Norwegian meteorological institute, 08/01 KLIMA, 2001

NordklimData　　　　　*The Nordklim Dataset*

Description

The NORDKLIM data set - monthly data for 7 climatic elements from 114 stations in 5 Nordic countries.

Usage

```
data(NordklimData)
```

Format

A data frame with 71329 observations on the following 16 variables.

NordklimNumber Nordklim number identifier

ClimateElement Climate element identifier

FirstYear First year of the dataset

January Readings for January

February Readings for February

March Readings for March

April Readings for April

May Readings for May

June Readings for June

July Readings for July

August Readings for August

September Readings for September

October Readings for October

November Readings for November

December Readings for December

CountryCode Country code

Details

The NORDKLIM data set has 16 columns, the first three columns are the Nordklim number, climate element number and first year of the dataset, the next 12 columns are twelve months of readings, from January to December and the last column is the country code. Monthly climatic elements in the NORDKLIM data set:

Element number	Climatic element	Unit	Abbreviation
101	Mean temperature	0.1 C	T
111	Mean maximum temperature	0.1 C	Tx

112	Highest maximum temperature	0.1 C	Th
113	Day of Th	date	Thd
121	Mean minimum temperature	0.1 C	Tn
122	Lowest minimum temperature	0.1 C	Tl
123	Day of Tl	date	Tld
401	Mean Pressure	0.1 hPa	P
601	Precipitation Sum	0.1 mm	R
602	Maximum 1-day precipitation	0.1 mm	Rx
701	Number of days with snow cover (> 50% covered)	days	dsc
801	Mean cloud cover	%	N

Source

http://www.smhi.se/hfa_coord/nordklim

References

Nordklim dataset 1.0 - description and illustrations Norwegian meteorological institute, 08/01 KLIMA, 2001

Examples

```
## Not run:
data(NordklimData)
str(NordklimData)
# get all the country codes
countries <- unique(NordklimData$CountryCode)
# earliest and latest year of data collection
minFirstYear<- min(NordklimData$FirstYear)
maxFirstYear<- max(NordklimData$FirstYear)
allyears <- min(NordklimData$FirstYear):max(NordklimData$FirstYear)
# get the yearly average of all records
avgNordk <- cbind(NordklimData[,c('CountryCode','ClimateElement','FirstYear',
'NordklimNumber')],
YrAvg=apply(NordklimData[,c('January','February','March','April','May','June',
'July','August','September', 'October','November','December')],1,function(x)
{x[x==-9999]<-NA;mean(x,na.rm = TRUE)}))
str(avgNordk)
# plot the Danish mean temperatures for its 5 stations (for a quick visual
# inspection, no need for labels or legends)
DanavgNordk <- avgNordk[which(avgNordk$CountryCode=='DK' &
avgNordk$ClimateElement==101),c('FirstYear','YrAvg','NordklimNumber')]
p <- unique(DanavgNordk$NordklimNumber)
for (Dp in p) { plot(DanavgNordk[which(DanavgNordk$NordklimNumber==Dp),
c('FirstYear','YrAvg')],type='l',col=( which(Dp==p)),
xlim=c(min(DanavgNordk$FirstYear), max(DanavgNordk$FirstYear)),
ylim=c(60,120)); if (Dp != p[length(p)]) par(new=T)}
# average each country
avgNordkCountry=aggregate(YrAvg ~ CountryCode+ClimateElement+FirstYear ,
data = avgNordk, function(x) {x[x==-9999]<-NA;mean(x,na.rm = TRUE)})
```

```
str(avgNordkCountry)
# plot the temperatures (mean of all stations) for each country
for (country in countries) { plot(avgNordkCountry[
which(avgNordkCountry$CountryCode==country & avgNordkCountry$ClimateElement==101),
c('FirstYear','YrAvg')],type='l',col=( which(country==countries)),
xlim=c(minFirstYear, maxFirstYear),ylim=c(0,120),
main='Mean of yearly means of all stations for each country',
xlab='Years',ylab='Mean temperature');
if (country != countries[length(countries)]) par(new=T)}
legend('topleft', legend = countries, col=1:5, pch=1, lty=1, merge=TRUE)

## End(Not run)
```

NordklimStationCatalogue

The Nordklim Station Catalogue

Description

Information about the Nordklim stations and climate element numbers.

Usage

```
data(NordklimStationCatalogue)
```

Format

A data frame with 114 observations on the following 31 variables.

Station Station id

Catalogue Catalogue id

Station.name Station name

Height.ASL Height at sea level

Country Country

Nordklim.number Nordklim id

Lat.Long Lat./Long.

X101 Mean temperature

X101E Mean temperature error

X111 Mean maximum temperature

X111E Mean maximum temperature error

X112 Highest maximum temperature

X112E Highest maximum temperature error

X113 Day of Th

X113E Day of Th error

X121 Mean minimum temperature

X121E Mean minimum temperature error

X122 Lowest minimum temperature

X122E Lowest minimum temperature error

X123 Day of Tl

X123E Day of Tl error

X401 Mean Pressure

X401E Mean Pressure error

X601 Precipitation Sum

X601E Precipitation Sum error

X602 Maximum 1-day precipitation

X602E Maximum 1-day precipitation error

X701 Number of days with snow cover (> 50% covered)

X701E Number of days with snow cover (> 50% covered) error

X801 Mean cloud cover

X801E Mean cloud cover error

Details

The station catalogue has five columns with station information (station name, height at sea level, country code, NORDKLIM number and Lat./Long.) followed by 24 columns, two for each climate element number, the first is the first year of the dataset and the second is the last year.

Source

http://www.smhi.se/hfa_coord/nordklim

References

Nordklim dataset 1.0 - description and illustrations Norwegian meteorological institute, 08/01 KLIMA, 2001

Examples

```
## Not run:
data(NordklimStationCatalogue)
str(NordklimStationCatalogue)
# 114 stations
length(NordklimStationCatalogue$Nordklim.number)
# in 5 Nordic countries
length(NordklimStationCatalogue$Country)
# how many stations per country?
table(NordklimStationCatalogue$Country,dnn =
list("Number of stations per country"))
# how many climate elements recorded per station?
climElSta <- rowSums(sign(NordklimStationCatalogue[,c('X101','X111','X112',
```

```
'X113','X121','X122','X123','X401','X601','X602','X701','X801')]),
na.rm = TRUE)
barplot(climElSta,ylab='Climate elements',xlab='Stations',
main='Climate elements recorded per station')
# how many stations per climate element?
staClimEl <- colSums(sign(NordklimStationCatalogue[,c('X101','X111','X112','X113','X121',
'X122','X123','X401','X601','X602','X701','X801')]), na.rm = TRUE)
barplot(staClimEl,xlab='Climate element',ylab='Stations',
main='Stations per climate element')
# how many stations have 1,2,3, ..., 12 climate elements?
# (same as Fig. 2 from Nordklim dataset 1.0 - description and illustrations)
barplot(table(climElSta),xlab='Climate element',ylab='Stations',
main='Number of stations as a function of number of climatic elements')

## End(Not run)
```

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