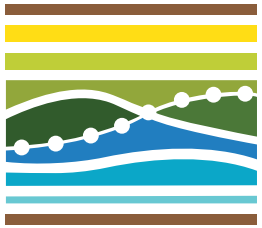
R Programming For Natural Resource Professionals

Week 2: Data Structures, Data Types, Finding Help, Coding Etiquette

lterdatasampler package



NATIONAL SCIENCE FOUNDATION
LTER NETWORK
LONG TERM ECOLOGICAL RESEARCH

```
library(lterdatasampler)
```

A series of data sets from the Long Term Ecological Research project network disseminated for classroom instruction.

- `ntl_airtemp:` Daily average air temperature data for Madison, Wisconsin (1869 - 2019)
- `ntl_icecover:` Ice freeze and thaw dates for Madison, Wisconsin Area lakes (1853 – 2019
- `knz_bison:` Konza Prairie, Kansas annual summary of bison herd structure, end-of-season weights of individual animals, and maternal parentage of individual bison.

LTER data set package

`ntl_icecover:`

- Lake name, dates of freeze-up and thaw, and duration of ice cover of lakes in the Madison, WI area.
- Ice cover duration is the number of days that a lake is frozen, excluding periods where the lake thaws before refreezing again.

Basic subsetting

Subsetting data: isolating certain values and/or variables

Subsetting a column:

```
> dat <- data.frame(var1, var2)
> dat$var1
```

Subsetting a column, row, or single value

```
> dat[1,] #First slot is for complete rows
> dat[,1] #Second slot is for complete columns
> dat[1,2] #Combining them gives a single value
> dat[1] #No comma gives values in column as vector
> dat[1:3,] #Colons indicate ranges
```

Basic summary statistics

```
> sum(dat$var1)
> min(dat$var2)
> max(dat$var1)
> sd(dat$var2) #Standard deviation
```