Harvard Forest Schoolyard LTER

Data I Workshop
Harvard Forest
14 Nov 2013

Emery R. Boose

Photos contributed by program staff & teachers
Data I Workshop

Introduction to data management
How to use the online system
Data Management Goals

Make data available to other scientists and the public
Preserve data for use by future generations
Phenology of Woody Species

Harvard Forest Data Archive HF003

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Real Time Data Graphs

Air Temperature

Wind Speed

Solar Radiation

Daily Precipitation
Metadata

*Metadata* provide the information needed to locate, access, and correctly interpret a dataset

“First, they do an on-line search.”

source: The New Yorker
Data & Metadata

METADATA

DateTime = Date and time at end of sampling period (YYYY-MM-DDThh:mm)
Jul = Julian day (DDD)
AirT = Air temperature. Average of 1-second measurements. (celsius)
Rh = Relative humidity. Average of 1-second measurements. (percent)
DewP = Dew point. Average of 1-second values calculated from air temperature and relative humidity. (celsius)
Prec = Precipitation. Includes water equivalent of snow. Total value for 15-minute period. Measured in increments of 0.01 inch. (millimeter)

DATA

DateTime, Jul, AirT, Rh, DewP, Prec
2005-01-01T00:15, 1, 5.1, 84, 2.5, 0.0
2005-01-01T00:30, 1, 5.0, 84, 2.5, 0.0
2005-01-01T00:45, 1, 4.9, 85, 2.6, 0.0
2005-01-01T01:00, 1, 4.7, 86, 2.6, 0.0

source: The New Yorker
Schoolyard LTER Database

Back End
Database on HF Server
(MySQL)

Front End
Web page in your browser
(Firefox, etc)

Programs
Data (PHP)
Graphs (R)
Missing Values

PROBLEM

• No universal standard for representing missing values
• Different software packages handle missing values differently
• Never use zero. Zero could be a measured value (0 degrees) or a code (0 = dead)

SCHOOLYARD DATABASE

• When entering data, leave text box empty or select “Missing Data” from pull-down list
• Missing value code in MySQL database = NULL
• Missing value code when downloading data = NA

OTHER SOFTWARE

• Missing value code in R = NA
• Missing value code in Excel = #N/A

source: sendaiben.org
Schoolyard LTER Database

Athol-Royalston Middle School

Drumlin Farm Mass. Audubon

Athol-Royalston Middle School

Gardner High School

Plot 1 Survey 1 (2013)
Looking at Data Workshop

9 Jan 2014

Graphs from Betsy Colburn & David Orwig