

Hosting Data Packages via 'drat': A Case Study with Hurricane Exposure Data

Data reproducibility session, UseR! 2017

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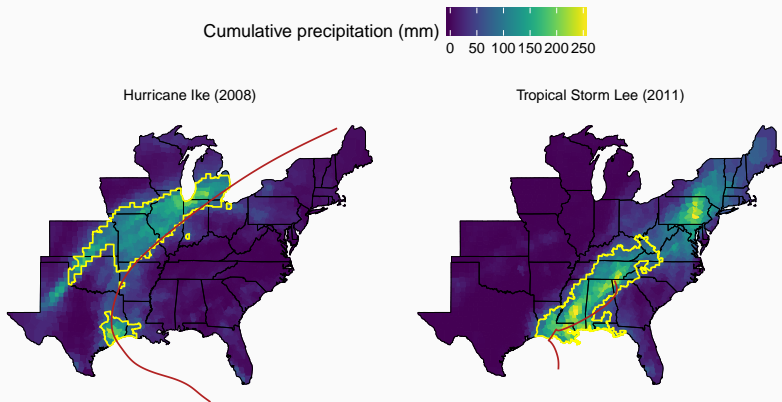
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🌐: www.github.com/eddebuettel

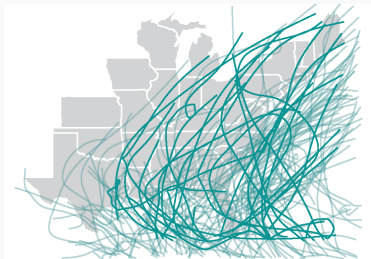
Motivation



Goal: Create a publicly-accessible package with historical data (1988–present) on county-level exposure to Atlantic basin tropical storms in the United States (with exposure based on distance to storm track, rain, wind, floods, or tornadoes).

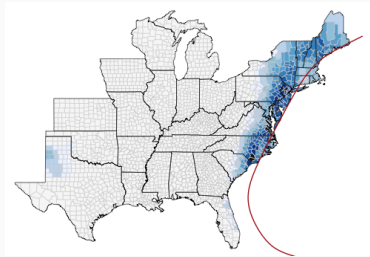
Motivation

"Data" package



`hurricaneexposuredata`
Host with `drat`.

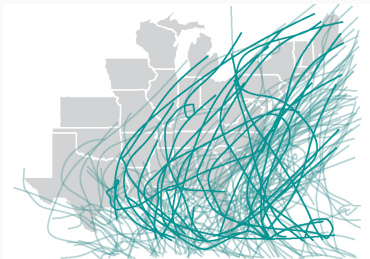
"Code" package



`hurricaneexposure`
Available through CRAN.

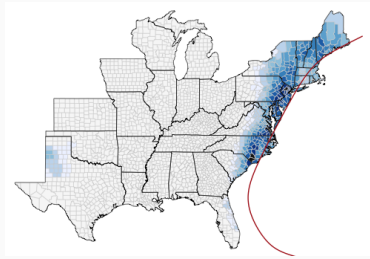
Motivation

“Data” package



`hurricaneexposuredata`
Host with drat.

“Code” package



`hurricaneexposure`
Available through CRAN.

Challenges

1. Host a package with drat.
2. Connect a CRAN package with a package hosted with drat.

Hosting a package with drat

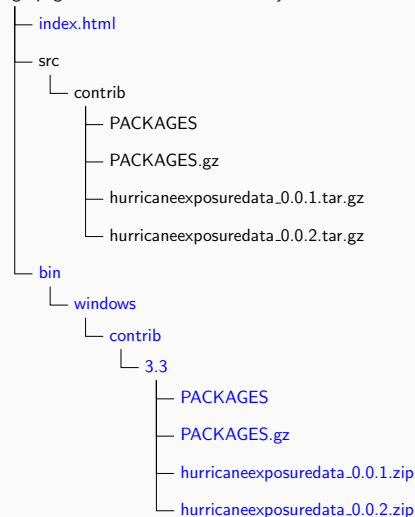
drat creates R repositories

Provides functions to create and managed repositories for use by `install.packages()`, `update.packages()` etc

Extensive resources

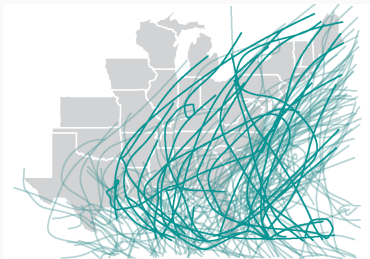
- [Drat Basics for Package Users](#)
- [Drat Basics for Package Authors](#)
- [Drat FAQs](#)

"gh-pages" branch of "drat" directory



Coding a CRAN package to use a drat package

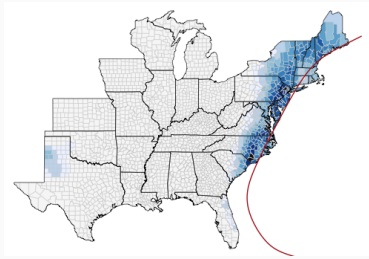
"Data" package



'hurricaneexposedata'

Host with *drat*.

"Code" package



'hurricaneexposure'

Available through CRAN.

Challenges

1. Host a package with *drat*.
2. Connect a CRAN package with a package hosted with *drat*.

“Unfortunately it is out of our area of expertise to do deep level troubleshooting on an individual’s computer to find the cause of the issue. In this case I would recommend using a colleague’s computer and see if that is successful in creating a submission.”

– Example of recent non-R technical support

Technical support experience, R

1.



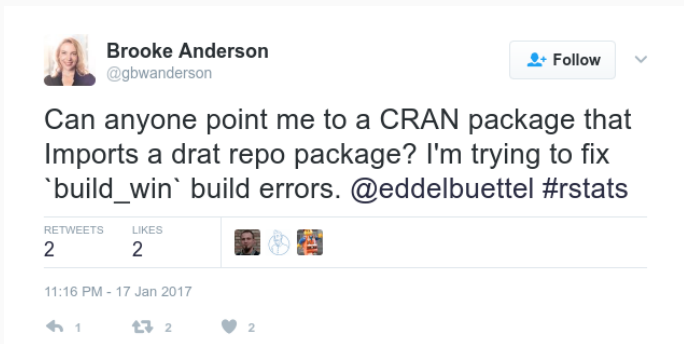
Search GitHub

Technical support experience, R

1.



2.



Technical support experience, R

1.



2.



3.

Hosting Data Packages via drat: A Case Study with Hurricane Exposure Data

by G. Brooke Anderson, Dirk Eddebuettel

What do you need in a CRAN package to use drat?

- “Not much”, really.
- Tell R about the additional repository via
 - `repos` argument directly in `install.packages()` et al, or
 - setting another `repos` field in `options()`,
 - using drat helper functions `addRepo()` or `drat:::add()`
- Full details about `repos` in `help(download.packages)`

What is this thing about GitHub?

- Hosting on github particularly easy because
 - every github repo has an (optional) web presence
 - a github username plus 'drat' is a unique URL
- So if we assume drat as the (github) repository name
- Then we only need username: `addRepo("geanders")`

Making use of R packaging infrastructure

- The DESCRIPTION file has field `Additional_Repositories`
- Optional packages can reside on `Additional_Repositories`
 - Mandatory packages (`Imports:`, `Depends:`, `LinkingTo:`) cannot
 - But `Suggests:` can point there – feature we use
- Good use case for drat repo as `Additional_Repositories`
- **But** also ensure you test for presence of optional package

How do we test for optional package?

```
.pkgenv <- new.env(parent=emptyenv()) #1

.onLoad <- function(libname, pkgname) { #2
  has_data <- requireNamespace("hurricaneexposedata", quietly = TRUE) #3
  .pkgenv[["has_data"]] <- has_data #4
}

.onAttach <- function(libname, pkgname) { #5
  if (!.pkgenv$has_data) { #6
    msg <- paste("To use this package, you must install the",
                 "hurricaneexposedata package. To install that ",
                 "package, run `install.packages('hurricaneexposedata',",
                 "repos='https://geanders.github.io/drat/', type='source')`.",
                 "See the `hurricaneexposure` vignette for more details.")
    msg <- paste(strwrap(msg), collapse="\n")
    packageStartupMessage(msg)
  }
}

hasData <- function(has_data = .pkgenv$has_data) { #7
  if (!has_data) {
    msg <- paste("To use this function, you must have the",
                 "`hurricaneexposedata` package installed. See the",
                 "`hurricaneexposure` package vignette for more details.")
    msg <- paste(strwrap(msg), collapse="\n")
    message(msg)
    return(invisible(NULL))
  }
}
```

Article in The R Journal

Anderson and Eddelbuettel. 2017. Hosting Data Packages via drat: A Case Study with Hurricane Exposure Data. *The R Journal*. 9(1):486–497.

drat documentation

- Drat Basics for Package Users
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Acknowledgments