A Simple Model Workflow

In [ ]:

```
# Run this cell if you want to follow along
options(warn = -1)
suppressMessages(library(neotoma2))
suppressMessages(library(sf))
suppressMessages(library(geojsonsf))
suppressMessages(library(dplyr))
suppressMessages(library(ggplot2))
suppressMessages(library(leaflet))
```

Goals

1. Geographic search for sites
2. Collect datasets
3. Filter for time/space/etc.
4. Get full download
5. Analyze & plot

Search for Sites

`get_sites()`

- Site names: `sitename='Lait%'`
- Location: `loc=c()`
- Altitude: `altmin`, `altmax`

In [ ]:

```
laitSites <- neotoma2::get_sites(sitename = "%Lait%")
laitSites
```

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laitSites <- neotoma2::get_sites(sitename = "%Lait%")
laitSites
```

In [ ]:

```
neotoma2::plotLeaflet(laitSites)
```

Location `loc=c()`

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In [ ]:

```
czGeoJson <-'{"type": "Polygon",
        "coordinates": [[
            [12.40, 50.14],[14.10, 48.64],[16.95, 48.66],
            [18.91, 49.61],[15.24, 50.99],[12.40, 50.14]]]}'
czGeoJson <- geojsonsf::geojson_sf(czGeoJson)
cz_sites <- neotoma2::get_sites(loc = czGeoJson)
neotoma2::plotLeaflet(cz_sites)
```

In [ ]:

```
czWKT = 'POLYGON ((12.4 50.14,
                           14.1 48.64,
                           16.95 48.66,
                           18.91 49.61,
                           15.24 50.99,
                           12.4 50.14))'
cz_sites <- neotoma2::get_sites(loc = czWKT)
neotoma2::plotLeaflet(cz_sites)
```

In [ ]:

```
czBbox = c(12.4, 48.64, 18.91, 50.99)
cz_sites <- neotoma2::get_sites(loc = czBbox)
neotoma2::plotLeaflet(cz_sites)
```

In [ ]:

```
neotoma2::plotLeaflet(cz_sites) %>%
leaflet::addPolygons(map = .,
                     data = czGeoJson,
                     color = "green")
```

Helper Functions

`summary()`

In [ ]:

```
neotoma2::summary(cz_sites) %>%
  DT::datatable(data = ., rownames = FALSE)
```

Search for Datasets

`get_datasets()`

- Datasettype: `datasettype='Diatom surface sample'`
- Location: `loc=c()`
- Altitude: `altmin`, `altmax`

In [ ]:

```
cz_datasets <- neotoma2::get_datasets(cz_sites, all_data = TRUE, verbose = FALSE)
datasets(cz_datasets) %>%
  as.data.frame() %>%
  DT::datatable(data = .)
```

Helper Functions

`filter()`

Helper Functions

`filter()`

In [ ]:

```
cz_pollen <- cz_datasets %>%
  neotoma2::filter(datasettype == "pollen")
neotoma2::summary(cz_pollen) %>% DT::datatable(data = .)
```

Remember that the order in which packages are loaded makes a difference.

```
Error in UseMethod("filter"):
  no applicable method for 'filter' applied to an object of class "sites"
```

The previous error message means that a different package is trying to run `filter()`

Pulling the Data

`get_downloads()`

- Done after the preliminary filtering

In [ ]:

```
## This line is commented out because we've already run it for you.
## cz_dl <- cz_pollen %>% get_downloads(all_data = TRUE)
cz_dl <- readRDS('data/czDownload.RDS')
```

In [ ]:

```
## This line is commented out because we've already run it for you.
## cz_dl <- cz_pollen %>% get_downloads(all_data = TRUE)
cz_dl <- readRDS('data/czDownload.RDS')
```

In [ ]:

```
allSamp <- samples(cz_dl)
head(allSamp, n = 2)
```

Helper Functions

`taxa()`

In [ ]:

```
neotomatx <- neotoma2::taxa(cz_dl) %>%
  unique()

DT::datatable(data = head(neotomatx, n = 10), rownames = FALSE)
```