

Package ‘dragon’

December 8, 2020

Title Deep Time Redox Analysis of the Geobiology Ontology Network

Version 1.1.0

Description Create, visualize, manipulate, and analyze bipartite mineral-chemistry networks for set of focal element(s) across deep-time on Earth. The method is described in Spielman and Moore (2020) <doi:10.3389/feart.2020.585087>.

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Imports config, golem (>= 0.2.1), shiny, DT (>= 0.14), ggplot2 (>= 3.3.2), readr, openxlsx, dplyr (>= 1.0.0), RColorBrewer, stringr, tidyr (>= 1.0.0), purrr, tibble, broom (>= 0.5.6), cowplot (>= 1.0.0), ggforce, magrittr, shinydashboard, shinyWidgets, colourpicker (>= 1.0), colorspace (>= 1.4), visNetwork (>= 2.0.9), igraph (>= 0.4), rlang, htmltools, stats, promises, future, lubridate, xml2, rvest, curl, tidyselect

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

Suggests testthat (>= 2.1.0), processx, knitr, zip, rmarkdown

VignetteBuilder knitr

URL <https://github.com/sjspielman/dragon>

BugReports <https://github.com/sjspielman/dragon/issues>

Depends R (>= 3.5.0)

Collate 'utils_definitions.R' 'utils_globals.R' 'utils_names.R'
'utils_style-network.R' 'utils_ui-choices.R'
'fct_prepare-med-data.R' 'fct_build-legend.R'
'fct_build-linear-models.R' 'fct_build-network.R'
'fct_build-shiny-tables.R' 'fct_calculate-network-info.R'
'fct_export-network.R' 'fct_style-network.R' 'fct_timeline.R'
'mod_choose-color-palette.R'
'mod_choose-custom-element-colors.R' 'app_config.R'
'app_server.R' 'app_ui.R' 'run_app.R'

NeedsCompilation no

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|--------------------|--|
| initialize_network | <i>Initialize a mineral-chemistry network as stand-alone network rather than for embedding into the Shiny App.</i> |
|--------------------|--|

Description

Initialize a mineral-chemistry network as stand-alone network rather than for embedding into the Shiny App.

Usage

```
initialize_network(
  elements_of_interest,
  force_all_elements = FALSE,
  elements_by_redox = FALSE,
  restrict_to_elements = FALSE,
  ignore_na_redox = FALSE,
  age_range = c(0, 5),
  max_age_type = "Maximum",
  cluster_algorithm = "Louvain",
  use_data_cache = TRUE
)
```

Arguments

elements_of_interest
An array of specified elements whose minerals should be included in the network. For all elements, specify "all".

force_all_elements
A logical. If FALSE (default), minerals containing any of 'elements_of_interest' will be included in network. If TRUE, only minerals with full intersection of all specified elements will be included in network.

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|----------------------|--|
| elements_by_redox | A logical. If FALSE (default), element nodes will be constructed regardless of redox state. If TRUE, creates separate node for each element's redox state, e.g. Fe ²⁺ and Fe ³⁺ would be separate nodes. |
| restrict_to_elements | A logical. If FALSE (default), constructed network will <i>only</i> contain the specified focal element(s) |
| ignore_na_redox | A logical. If TRUE and elements_by_redox is TRUE, element nodes without redox states will be removed from the network. |
| age_range | A array of two numbers giving inclusive range of mineral ages in Ga to include in network. |
| max_age_type | A string indicating how mineral ages should be assessed. If "Maximum" (default), filters minerals using maximum known ages at localities. If "Minimum", filters minerals using minimum known ages at localities. |
| cluster_algorithm | A string giving community clustering algorithm, one of "Louvain" (default) or "Leading eigenvector". |
| use_data_cache | A logical. If TRUE (default) cached Mineral Evolution Database will be used to build the network. If FALSE, data will be fetched from MED here. CAUTION: Requires internet connection and will take several minutes to update. |

Value

Named list containing an igraph-formatted network ('network'), an igraph::communities object giving node cluster memberships ('clustering'), a tibble of nodes associated metadata ('nodes'), and a tibble of edges and associated metadata ('edges'), and a tibble of mineral locality information ('locality_info')

Examples

```
## Not run:
# Include all Iron minerals whose maximum known age is between 1-2 Gya, and apply
# Louvain community clustering
initialize_network("Fe", age_range = c(1,2))

# Include all minerals containing either Iron and Oxygen whose maximum known age
# is between 1-2 Gya
initialize_network(c("Fe", "O"), age_range = c(1,2))

# Include all minerals containing both Iron and Oxygen whose maximum known age is
# between 1-2 Gya
initialize_network(c("Fe", "O"), force_all_elements = TRUE, age_range = c(1,2))

# Build the full mineral network
initialize_network("all")

## End(Not run)
```

`run_app`*Run the "dragon" Shiny Application*

Description

Run the "dragon" Shiny Application

Usage

```
run_app()
```

Examples

```
## Not run:  
library(dragon)  
dragon::run_app()  
  
## End(Not run)
```

`run_dragon`*Run the "dragon" Shiny Application. Wrapper for dragon::run_app().*

Description

Run the "dragon" Shiny Application. Wrapper for dragon::run_app().

Usage

```
run_dragon()
```

Examples

```
## Not run:  
library(dragon)  
dragon::run_dragon()  
  
## End(Not run)
```

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