

Package: sepkoski (via r-universe)

August 23, 2024

Title Sepkoski's Fossil Marine Animal Genera Compendium

Version 0.0.1.9000

Description Stratigraphic ranges of fossil marine animal genera from Sepkoski's (2002) published compendium. No changes have been made to any taxonomic names. However, first and last appearance intervals have been updated to be consistent with stages of the International Geological Timescale. Functionality for generating a plot of Sepkoski's evolutionary fauna is also included. For specific details on the compendium see: Sepkoski, J. J. (2002). A compendium of fossil marine animal genera. *Bulletins of American Paleontology*, 363, pp. 1–560 (ISBN 0-87710-450-6). Access: <https://www.biodiversitylibrary.org/item/40634#page/5/mode/1up>.

License GPL (>= 3)

Language en-GB

Encoding UTF-8

LazyData true

Depends R (>= 3.5.0)

Roxygen list(markdown = TRUE)

RoxygenNote 7.2.1

Config/testthat/edition 3

URL <https://github.com/LewisAJones/sepkoski>,
<https://lewisajones.github.io/sepkoski/>

BugReports <https://github.com/LewisAJones/sepkoski/issues>

Suggests covr, knitr, testthat (>= 3.0.0), vdiff (>= 1.0.0)

Repository <https://lewisajones.r-universe.dev>

RemoteUrl <https://github.com/lewisajones/sepkoski>

RemoteRef HEAD

RemoteSha aa9088f68512772da54b469d9cf14338374fa524

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interval_table	<i>Interval table for linking and standardising intervals</i>
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Description

This dataset provides the interval table used for updating the intervals in Sepkoski's fossil marine animal genera compendium with the [International Geological Time Scale 2022](#). This table was generated based on published literature and the [GeoWhen Database](#). In the majority of cases, this was a clear conversion. However, in several cases reasonable interpretation was required.

Usage

interval_table

Format

A data.frame with 302 rows and 4 variables:

interval_max A character denoting the oldest international geological stage.

interval_min A character denoting the youngest international geological stage.

code A character denoting the original interval abbreviation.

original_interval A character denoting the original interval.

sepkoski	<i>Sepkoski's marine animal genera compendium</i>
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Description

This dataset is a port of [Sepkoski's \(2002\)](#) published compendium of fossil marine animal genera. This version of the dataset was pulled from Shanan Peters' [online database](#). No changes have been made to any taxonomic names. However, first and last appearance intervals have been updated to stages from the [International Geological Time Scale 2022](#). In updating interval names, some interpretation was required. The [interval_table](#) dataset documents the linked interval names.

Usage

sepkoski

Format

A data.frame with 35826 rows and 9 variables:

phylum A character denoting the phylum of the taxon.

class A character denoting the class of the taxon.

order A character denoting the order of the taxon.

genus A character denoting the genus of the taxon.

fauna A character denoting the great evolutionary fauna type of the taxon.

interval_max A character denoting the interval of first occurrence.

interval_min A character denoting the interval of last occurrence.

max_ma A numeric denoting the interval age of first occurrence.

min_ma A numeric denoting the interval age of last occurrence.

References

Sepkoski, J. J. (2002). A compendium of fossil marine animal genera. *Bulletins of American Paleontology*, 363, pp. 1–560.

Source

Shanan Peter's 'Sepkoski's Online Genus Database': <http://strata.geology.wisc.edu/jack/>.

sepkoski_curve

Plot Sepkoski's evolutionary fauna

Description

This function plots Sepkoski's evolutionary fauna (Sepkoski, 1981), using the Sepkoski (2002) fossil marine animal genera compendium (i.e. the included `sepkoski` dataset). No changes have been made to any taxonomic names in this dataset. However, first and last appearance intervals have been updated to stages from the **International Geological Time Scale 2022**. As such, minor differences may be observed to previously published plots.

Usage

```
sepkoski_curve(  
  title = NULL,  
  height = 0.05,  
  cols = NULL,  
  int_lab = TRUE,  
  int_size = 1,  
  fill = FALSE,  
  legend = TRUE,  
  legend_size = 1  
)
```

Arguments

title	character. Title of the plot. Defaults to NULL.
height	numeric. Height of the Geological Time Scale relative to the plot area. Defaults to 0.05.
cols	character. The colours of the polygons in the plot area.
int_lab	logical. Should interval labels be added? Defaults to TRUE.
int_size	numeric. The size of the interval labels. Defaults to 1.
fill	logical. Should interval boxes be plotted with the ICS colour scheme? Defaults to FALSE.
legend	logical. Should a legend be added to the plot? Defaults to TRUE.
legend_size	numeric. The size of the legend. Defaults to 1.

Details

Taxa are assigned to evolutionary fauna (EF) categories as follows:

- Cambrian EF: Trilobita, Polychaeta, Tergomya ("Monoplacophora"), Inarticulata, and Hyolithomorpha.
- Paleozoic EF: Anthozoa, Articulata, Asteroidea, Cephalopoda, Crinoidea, Ostracoda, Ophiuroidea, Somasteroidea, and Stenolaemata.
- Modern EF: Bivalvia, Chondrichthyes, Demospongia, Echinoidea, Gastropoda, Gymnolaemata, Malacostraca, and Osteichthyes.

Value

No return value. Function is used to plot Sepkoski's curve with user-defined arguments.

References

Sepkoski, J. J. (1981). A factor analytic description of the Phanerozoic marine fossil record. *Paleobiology*, 7(1), pp. 36–53.

Sepkoski, J. J. (2002). A compendium of fossil marine animal genera. *Bulletins of American Paleontology*, 363, pp. 1–560.

Examples

```
# Plot curve with default arguments
sepkoski_curve()

# Plot curve with user-defined arguments
sepkoski_curve(title = "Sepkoski's curve",
               col = "black",
               fill = TRUE,
               legend = FALSE)
```

sepkoski_raw

Sepkoski's marine animal genera compendium (raw)

Description

This dataset is a port of [Sepkoski's \(2002\)](#) published compendium of fossil marine animal genera. This version of the dataset was pulled from Shanan Peters' [online database](#). No changes have been made to any taxonomic names or first and last appearance data. The definitions of stage/period abbreviations are provided in [Sepkoski's \(2002\)](#), or can be accessed via the included [interval_table](#) for convenience.

Usage

sepkoski_raw

Format

A data.frame with 35826 rows and 8 variables:

phylum A character denoting the phylum of the taxon.

class A character denoting the class of the taxon.

order A character denoting the order of the taxon.

genus A character denoting the genus of the taxon.

FOP A character denoting the geological period of first occurrence.

FOS A character denoting the geological stage of last occurrence.

LOP A character denoting the geological period of first occurrence.

LOS A character denoting the geological stage of last occurrence.

References

Sepkoski, J. J. (2002). A compendium of fossil marine animal genera. *Bulletins of American Paleontology*, 363, pp. 1–560.

Source

Shanan Peter's 'Sepkoski's Online Genus Database': <http://strata.geology.wisc.edu/jack/>.

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