Package 'folio'

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Title Datasets for Teaching Archaeology and Paleontology

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Description Datasets for teaching quantitative approaches and modeling in archaeology and paleontology. This package provides several types of data related to broad topics (cultural evolution, radiocarbon dating, paleoenvironments, etc.), which can be used to illustrate statistical methods in the classroom (multivariate data analysis, compositional data analysis, diversity measurement, etc.).

License GPL (>= 3)

URL https://packages.tesselle.org/folio/, https://github.com/tesselle/folio

BugReports https://github.com/tesselle/folio/issues

Depends R (>= 2.10)

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NeedsCompilation no

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R topics documented:

`arnold1949` *Arnold and Libby's Curve of Knowns*

Description

"The agreement between prediction and observation is seen to be satisfactory."

Usage

```
arnold1949
```

Format

A `data.frame` with 6 observations and 8 variables:

sample Sample name.

age_expected Expected age (year BP).

age_expected_error Error on `age_expected` (year BP).

age_found Measured age (year BP).

age_found_error Error on `age_found` (year BP).

activity_expected Expected specific activity (cpm/g of carbon).

activity_found Measured specific activity (cpm/g of carbon).

activity_found_error Error on `activity_found` (cpm/g of carbon).

Source

Arnold, J. R. and Libby, W. F. (1949). Age Determinations by Radiocarbon Content: Checks with Samples of Known Age. *Science*, 110(2869), 678-80. doi:10.1126/science.110.2869.678

See Also

Other radiocarbon dating: `intcal09`, `intcal13`, `intcal20`

`birds` *European Birds*

Description

A dataset of birds species abundance in remote European woodlands.

Usage

```
birds
```

Format

A `data.frame` with 35 rows (species) and 3 variables (woodlands).

Source

Magurran, A. E. (1988). *Ecological Diversity and its Measurement*. Princeton, NJ: Princeton University Press. doi:10.1007/9789401573580.

See Also

Other count data: `boves`, `chevelon`, `compiegne`, `loire`, `merzbach`, `mississippi`, `zuni`

`boves` *Boves Ceramics*

Description

A dataset containing the ceramic counts from the castle site of Boves (Somme, France). The data are grouped into eight periods ranging from the 10th to the 18th century and thirteen ceramic types.

Usage

```
boves
```

Format

A data.frame with 8 rows and 13 variables (ceramic types):

I

IIa

IIb

IIc

IIIa

IIIb

IIIc

IVa

IVb

Va

Vb

VI

VII

Source

Racinet P. (2002). Le site castral et prioral de Boves du Xe au XVIIe siècle. Bilan des recherches 1996-2000. *Revue archéologique de Picardie*. Numéro spécial 20, 123 p.

See Also

Other count data: birds, chevelon, compiegne, loire, merzbach, mississippi, zuni

---

chevelon *Chevelon Ground Stone*

Description

A dataset of ground stone artifact counts from the Cholla project (USA).

Usage

```
chevelon
```

Format

A data.frame with 12 rows and 10 variables (ground stone types):

BMe Basin metate.

SMe Slab metate.

TMe Trough metate.

IMe Indeterminate metate.

UMa Unifacial mano.

BMa Bifacial mano.

MUHa Modified unifacial handstone.

MBHa Modified bifacial handstone.

UUHa Unmodified unifacial handstone.

UBHa Unmodified bifacial handstone.

Source

Reid, J. J. (ed.) (1982). *Cholla Project Archaeology*. Vol. 2. Archaeological Series 161. Tucson: University of Arizona. doi:10.6067/XCV8435710

See Also

Other count data: birds, boves, compiegne, loire, merzbach, mississippi, zuni

---

compiegne *Compiègne Ceramics*

Description

A dataset containing the ceramic counts from the Place des Hallettes in Compiègne (Oise, France). The data are grouped into five periods of about a century, ranging from the 9th to the 14th century, and sixteen ceramic types.

Usage

```
compiegne
```

Format

A data.frame with 5 rows (chronological periods, numbered from the oldest to the most recent from 1 to 5) and 16 variables (ceramic types):

A Red to white ceramics with fine sized inclusions.

B Red to white ceramics with medium sized inclusions.

C Dark ceramics with fine sized inclusions.

D Dark ceramics with medium sized inclusions.

E Ceramics close to those of groups B or D, with similarities to group F.

F Black, red or beige ceramics with coarse inclusions.

G Red polished ceramics with fine to medium sized inclusions.

H Black polished ceramics with fine sized inclusions.

I Black polished ceramics with medium sized inclusions.

J Polished and painted ceramics with fine to medium sized inclusions.

K Painted ceramics, similar to those of group A.

L Painted ceramics, similar to those of group B.

M Painted ceramics with coarse inclusions.

N Glazed ceramics.

O Stamped ceramics.

P Coated ceramics.

Source

Lacroix, M. C. (1997). La céramique médiévale du site des Hallettes à Compiègne (Oise). *Revue archéologique de Picardie*. Numéro spécial, 13(1), 135-168. doi:10.3406/pica.1997.1945

See Also

Other count data: `birds`, `boves`, `chevelon`, `loire`, `merzbach`, `mississippi`, `zuni`

`epica2008` *EPICA Dome C*

Description

EPICA Dome C 800-ka composite CO_2 data.

Usage

```
epica2008
```

Format

A `data.frame` with 2 variables:

age Year BP.

CO2 CO_2 (ppmv).

Source

https://www.ncei.noaa.gov/access/paleo-search/study/6091

References

Lüthi, D., Le Floch, M., Bereiter, B., Blunier, T., Barnola, J.-M., Siegenthaler, U., Raynaud, D., Jouzel, J., Fischer, H., Kawamura, K. and Stocker, T. F. (2008). High-resolution carbon dioxide concentration record 650,000-800,000 years before present. *Nature*, 453, 379-382. doi:10.1038/nature06949

Monnin, E., Indermuhle, A., Dallenbach, A., Fluckiger, J., Stauffer, B., Stocker, T. F., Raynaud, D. and Barnola, J.-M. (2001). Atmospheric CO2 concentrations over the last glacial termination. *Science*, 291, 112-114. doi:10.1126/science.291.5501.112

Petit, J. R., Jouzel, J., Raynaud, D., Barkov, N. I., Barnola, J.-M., Basile, I., Benders, M., Chappellaz, J., Davis, M., Delayque, G., Delmotte, M., Kotlyakov, V. M., Legrand, M., Lipenkov, V. Y., Lorius, C., Pepin, L., Ritz, C., Saltzman, E. and Stievenard, M. (1999). Climate and atmospheric history of the past 420,000 years from the Vostok ice core, Antarctica. *Nature*, 399, 429-436. doi:10.1038/20859

Siegenthaler, U., Stocker, T. F., Monnin, E., Luthi, D., Schwander, J., Stauffer, B., Raynaud, D., Barnola, J.-M., Fischer, H., Masson-Delmotte, V., Jouzel, J. (2005). Stable Carbon Cycle-Climate Relationship During the Late Pleistocene. *Science*, 310, 1313-1317. doi:10.1126/science.1120130

See Also

Other palaeoenvironment data: `law2006`, `lisiecki2005`, `ngrip2004`, `ngrip2010`, `spratt2016`

Examples

```
plot(
  x = epica2008$age / 1000,
  y = epica2008$CO2,
  type = "l",
  xlim = c(800, 0),
  xlab = "kilo year BP",
  ylab = expression("CO"[2]~"(ppmv)")
)
```

`intcal09` *IntCal09*

Description

The IntCal series of radiocarbon calibration curves.

Usage

```
intcal09
```

Format

A `data.frame` with 5 variables:

calBP Calendar (calibrated) age (year BP).

age Radiocarbon age (year BP).

error Radiocarbon error (year BP).

delta Isotopic ratio $\Delta^{14}C$ (per mil).

sigma Error on `delta` (per mil).

Source

Reimer, P. J., Baillie, M. G. L., Bard, E., Bayliss, A., Beck, J. W., Blackwell, P. G., Bronk Ramsey, C. *et al.* (2009). IntCal09 and Marine09 Radiocarbon age Calibration Curves, 0-50,000 Years Cal BP. *Radiocarbon*, 51(4): 1111-50. doi:10.1017/S0033822200034202.

See Also

Other radiocarbon dating: `arnold1949`, `intcal13`, `intcal20`

`intcal13` *IntCal13*

Description

The IntCal series of radiocarbon calibration curves.

Usage

```
intcal13
```

Format

A `data.frame` with 5 variables:

calBP Calendar (calibrated) age (year BP).

age Radiocarbon age (year BP).

error Radiocarbon error (year BP).

delta Isotopic ratio $\Delta^{14}C$ (per mil).

sigma Error on `delta` (per mil).

Source

Reimer, P. J., Bard, E. Bayliss, A., Beck, J. W., Blackwell, P. G., Bronk Ramsey, C., Buck, C. E. *et al.* (2013). IntCal13 and Marine13 Radiocarbon age Calibration Curves 0-50,000 Years cal BP. *Radiocarbon*, 55(4): 1869-87. doi:10.2458/azu_js_rc.55.16947.

See Also

Other radiocarbon dating: arnold1949, intcal09, intcal20

`intcal20` *IntCal20*

Description

The IntCal series of radiocarbon calibration curves.

Usage

```
intcal20
```

Format

A data.frame with 5 variables:

calBP Calendar (calibrated) age (year BP).

age Radiocarbon age (year BP).

error Radiocarbon error (year BP).

delta Isotopic ratio $\Delta^{14}C$ (per mil).

sigma Error on `delta` (per mil).

Source

Reimer, P. J., Austin, W. E. N., Bard, E., Bayliss, A., Blackwell, P. G., Bronk Ramsey, C., Butzin, M. *et al.* (2020). The IntCal20 Northern Hemisphere Radiocarbon âge Calibration Curve (0-55 Cal KBP). *Radiocarbon*, 62(4), 725-757. doi:10.1017/RDC.2020.41.

See Also

Other radiocarbon dating: arnold1949, intcal09, intcal13

kommos *Transport Jars from Kommos (Crete).*

Description

Chemical analysis (neutron activation analysis) of 88 Late Bronze Age transport jars found in excavations at Kommos, Crete.

Usage

```
kommos
```

Format

A data.frame with 22 variables (chemical elements):

type CJ: Canaanite jar; EJ: Egyptian jar; TSJ: transport stirrup jar; SNA: short-necked amphora.

date Chronology (period).

Sm Sm content (ppm).

Lu Lu content (ppm).

U U content (ppm).

Yb Yb content (ppm).

As As content (ppm).

Sb Sb content (ppm).

Ca Ca content (ppm).

Na Na content (ppm).

La La content (ppm).

Ce Ce content (ppm).

Th Th content (ppm).

Cr Cr content (ppm).

Hf Hf content (ppm).

Cs Cs content (ppm).

Sc Sc content (ppm).

Rb Rb content (ppm).

Fe Fe content (ppm).

Ta Ta content (ppm).

Co Co content (ppm).

Eu Eu content (ppm).

References

Day, P. M., Quinn, P. S., Rutter, J. B. & Kilikoglou, V. (2011). A World of Goods: Transport Jars and Commodity Exchange at the Late Bronze Age Harbor of Kommos, Crete. *Hesperia*, 80, 511-558. doi:10.2972/hesperia.80.4.0511

See Also

Other chemical data: `verre`

`law2006` *Law Dome Ice Core*

Description

Law Dome Ice Core 2000-year CH_4, CO_2 and N_2O data.

Usage

```
law2006
```

Format

A `data.frame` with 2004 observations and 8 variables:

year Year AD.

NOAA04 NOAA04 CH_4 scale.

CH4_spl CH_4 spline (ppb).

CH4_grw CH_4 growth Rate (ppb/yr).

CO2_spl CO_2 spline (ppb).

CO2_grw CO_2 growth Rate (ppb/yr).

N2O_spl N_2O spline (ppb).

N2O_grw N_2O growth Rate (ppb/yr).

Source

https://www.ncei.noaa.gov/access/paleo-search/study/9959

References

MacFarling Meure, C., Etheridge, D., Trudinger, C., Steele, P., Langenfelds, R., van Ommen, T., Smith, A. and Elkins, J. (2006). The Law Dome CO2, CH4 and N2O Ice Core Records Extended to 2000 years BP. *Geophysical Research Letters*, 33(14), L14810. doi:10.1029/2006GL026152.

See Also

Other palaeoenvironment data: `epica2008`, `lisiecki2005`, `ngrip2004`, `ngrip2010`, `spratt2016`

Examples

```
plot(
  x = law2006$year,
  y = law2006$CO2_spl,
  type = "l",
  xlab = "Year AD",
  ylab = expression("CO"[2]~"(ppm)")
)
```

`lisiecki2005` *Global Benthic δ^18O Stack*

Description

A global Pliocene-Pleistocene benthic $\delta^{18}O$ stack.

Usage

```
lisiecki2005
```

Format

A `data.frame` with 3 variables:

age Calendar age (kilo year cal BP).

delta Benthic $\delta^{18}O$ (per mil).

error Standard error (per mil).

Details

The LR04 stack spans 5.3 Myr and is an average of 57 globally distributed benthic $\delta^{18}O$ records (which measure global ice volume and deep ocean temperature) collected from the scientific literature.

Source

https://www.ncei.noaa.gov/access/paleo-search/study/5847

References

Lisiecki, L. E. and Raymo, M. E. (2005). A Pliocene-Pleistocene stack of 57 globally distributed benthic d18O records. *Paleoceanography*, 20, PA1003. doi:10.1029/2004PA001071

See Also

Other palaeoenvironment data: `epica2008`, `law2006`, `ngrip2004`, `ngrip2010`, `spratt2016`

Other isotopic data: `ngrip2004`, `ngrip2010`, `nydal1996`, `spratt2016`

Examples

```
plot(
  x = lisiecki2005$age,
  y = lisiecki2005$delta,
  type = "l",
  xlim = c(500, 0),
  xlab = "kilo year BP",
  ylab = expression(delta^{18}*"O")
)
```

`loire` *Medieval Ceramics from the Loire Basin*

Description

A dataset containing the ceramic counts from the Loire Basin (France).

Usage

```
loire
```

Format

A `data.frame` with 332 rows (archaeological assemblages) and 331 variables. The first five columns provide background information, the next columns give the MNI of each ceramic types:

site Name of the archaeological site.

city City.

area Geographical area.

lower Lower bound of the temporal range.

upper Upper bound of the temporal range.

Source

https://ceramedvaldeloire.huma-num.fr/editions/suppl79racf2022/accueil

References

Husi, P. (dir.). (2022). *La céramique médiévale et moderne du bassin de la Loire moyenne, chrono-typologie et transformation des aires culturelles dans la longue durée (6e-19e s.)*. Suppléments à la revue Archéologique du Centre de la France, 79.

See Also

Other count data: `birds`, `boves`, `chevelon`, `compiegne`, `merzbach`, `mississippi`, `zuni`

merzbach *Merzbach Ceramics*

Description

A dataset containing the ceramic counts from the Merzbach assemblage (Germany). The data are grouped into eight phases.

Usage

```
merzbach
```

Format

A `data.frame` with 8 rows (phases, numbered from VII to XIV) and 36 variables (pottery motifs).

Source

Crema, E. R. (2016). Sample codes and data for "Revealing patterns of cultural transmission from frequency data: equilibrium and non-equilibrium assumptions". *Zenodo*, v1.0. doi:10.5281/zenodo.187558.

References

Crema, E. R., Kandler, A. & Shennan, S. (2016). Revealing Patterns of Cultural Transmission from Frequency Data: Equilibrium and Non-Equilibrium Assumptions. *Scientific Reports*, 6(1). doi:10.1038/srep39122.

See Also

Other count data: `birds`, `boves`, `chevelon`, `compiegne`, `loire`, `mississippi`, `zuni`

mississippi *Mississippi Ceramics*

Description

A dataset containing ceramic counts from the Mississippi region.

Usage

```
mississippi
```

Format

A data.frame with 20 rows and 10 variables (ceramic types):

ParkinPunctate

BartonKentMPI

Painted

FortuneNoded

RanchIncised

WallsEngraved

WallaceIncised

RhodesIncised

VernonPaulApplique

HullEngraved

Source

Lipo, C. P., Madsen, M. E. & Dunnell, R. C. (2015). A Theoretically-Sufficient and Computationally-Practical Technique for Deterministic Frequency Seriation. *PLOS ONE*, 10(4), e0124942. doi:10.1371/journal.pone.0124942.

See Also

Other count data: birds, boves, chevelon, compiegne, loire, merzbach, zuni

---

munsingen *Münsingen Cemetery*

Description

A dataset of data set of artifact presence/absence for the Celtic Münsingen-Rain cemetery (Switzerland).

Usage

```
munsingen
```

Format

A data.frame with 59 rows (graves) and 70 variables (artifacts).

References

Hodson, F. R. (1968). *The La Tene Cemetery at Münsingen-Rain*. Stämpfli, Bern.

Kendall, D. G. (1971). Seriation from abundance matrices. In Hodson, F. R., Kendall, D. G. and Tautu, P. (eds), *Mathematics in the Archaeological and Historical Sciences*. Edinburgh University Press, Edinburgh, 215-232.

See Also

Other artefact data: shipwrecks

Examples

```
heatmap(
  x = as.matrix(munsingen),
  Rowv = NA,
  Colv = NA,
  scale = "none",
  col = c("white", "black")
)
```

---

ngrip2004 *NGRIP 50-year Average*

Description

50-year averaged oxygen isotope data from the North Greenland Ice Core Project (ss09sea time scale).

Usage

```
ngrip2004
```

Format

A data.frame with 2 variables:

age Calendar age (years before 2000 AD), ss09sea time scale.

delta $\delta^{18}O$ (per mil).

Source

https://www.ncei.noaa.gov/access/paleo-search/study/2481

References

North Greenland Ice Core Project members (2004). High-resolution record of Northern Hemisphere climate extending into the last interglacial period. *Nature*, 431(7005), 147-151. doi:10.1038/nature02805

See Also

Other palaeoenvironment data: epica2008, law2006, lisiecki2005, ngrip2010, spratt2016

Other isotopic data: lisiecki2005, ngrip2010, nydal1996, spratt2016

Examples

```
plot(
  x = ngrip2004$age / 1000,
  y = ngrip2004$delta,
  type = "l",
  xlim = c(120, 0),
  xlab = "ss09sea (ka b2k)",
  ylab = expression(delta^{18}*"O")
)
```

`ngrip2010` *NGRIP 20-year Average*

Description

20-year averaged oxygen isotope data from the North Greenland Ice Core Project (GICC05 time scale).

Usage

```
ngrip2010
```

Format

A `data.frame` with 4 variables:

age Calendar age (years before 2000 AD), GICC05 time scale (or GICC05modelext when going beyond 60 ka b2k).

depth (meters).

delta $\delta^{18}O$ (per mil).

MCE Maximum counting error (years).

Note

Use the labels GICC05 (or GICC05modelext when going beyond 60 ka b2k) on graphs.

Source

https://www.iceandclimate.nbi.ku.dk/data/

References

Vinther, B. M., Clausen, H. B., Johnsen, S. J., Rasmussen, S. O., Andersen, K. K., Buchardt, S. L., Dahl-Jensen, D., Seierstad, I. K., Siggaard-Andersen, M.-L., Steffensen, J. P., Svensson, A. M., Olsen, J. & Heinemeier, J. (2006). A synchronized dating of three Greenland ice cores throughout the Holocene. *Journal of Geophysical Research*, 111, D13102. doi:10.1029/2005JD006921.

Rasmussen, S. O., Andersen, K. K., Svensson, A. M., Steffensen, J. P., Vinther, B. M., Clausen, H. B., Siggaard-Andersen, M.-L., Johnsen, S. J., Larsen, L. B., Dahl-Jensen, D., Bigler, M., Röthlisberger, R., Fischer, H., Goto-Azuma, K., Hansson, M. E. & Ruth, U. (2006). A new Greenland ice core chronology for the last glacial termination. *Journal of Geophysical Research*, 111, D06102. doi:10.1029/2005JD006079.

Andersen, K. K., Svensson, A., Johnsen, S. J., Rasmussen, S. O., Bigler, M., Röthlisberger, R., Ruth, U., Siggaard-Andersen, M.-L., Steffensen, J. P., Dahl-Jensen, D., Vinther, B. M. & Clausen, H.B. (2005). The Greenland Ice Core Chronology 2005, 15-42 ka. Part 1: Constructing the time scale. *Quaternary Science Reviews*, 25(23-24):3246-3257. doi:10.1016/j.quascirev.2006.08.002.

Svensson, A., Andersen, K. K., Bigler, M., Clausen, H. B., Dahl-Jensen, D., Davies, S. M., Johnsen, S. J., Muscheler, R., Rasmussen, S. O., Röthlisberger, R., Seierstad, I., Steffensen, J. P. & Vinther, B. M. (2008). A 60,000 year Greenland stratigraphic ice core chronology. *Climate of the Past*, 4:47–57. doi:10.5194/cp4472008.

Wolff, E. W., Chappellaz, J., Blunier, T., Rasmussen, S. O. & Svensson, A. (2010). Millennial-scale variability during the last glacial: The ice core record. *Quaternary Science Reviews*, 29:2828-2838. doi:10.1016/j.quascirev.2009.10.013.

See Also

Other palaeoenvironment data: `epica2008`, `law2006`, `lisiecki2005`, `ngrip2004`, `spratt2016`

Other isotopic data: `lisiecki2005`, `ngrip2004`, `nydal1996`, `spratt2016`

Examples

```
plot(
  x = ngrip2010$age / 1000,
  y = ngrip2010$delta,
  type = "l",
  xlim = c(120, 0),
  xlab = "GICC05",
  ylab = expression(delta^{18}*"O")
)
```

`nydal1996` *ˆ14C Measurements in Atmospheric CO_2*

Description

Corrected ^{14}C measurements from air samples collected at five Norwegian sites from 1962-1993.

Usage

```
nydal1996
```

Format

A data.frame with 5 variables:

site Sampling station.

start Beginning date of the sampling period.

end Ending date of the sampling period.

delta Isotopic ratio $\Delta^{14}C$ (per mil).

sigma Error on delta (per mil).

Source

Nydal, R. and Lövseth, K. (1996). *Carbon-14 Measurements in Atmospheric CO2 from Northern and Southern Hemisphere Sites, 1962-1993*. ORNL/CDIAC-93; NDP-057. Washington, DC: USDOE Office of Energy Research. doi:10.2172/461185

See Also

Other isotopic data: lisiecki2005, ngrip2004, ngrip2010, spratt2016

Examples

```
plot(
  x = nydal1996$start,
  y = nydal1996$delta,
  type = "p",
  xlab = "Date",
  ylab = expression(Delta^{14}*"C")
)
```

---

shipwrecks *Mediterranean Shipwrecks*

Description

A dataset of mediterranean shipwrecks.

Usage

```
shipwrecks
```

Format

A data.frame with 1784 rows and 13 variables:

name Wreck name.

sea Region of the sea where the wreck was discovered.

country Country where the wreck was discovered.

region Region where the wreck was discovered.

depth_min Minimum depth of the wreck (m).

depth_max Maximum depth of the wreck (m).

depth Depth of the wreck (m).

period Period.

dating Dating.

date_early Earliest date.

date_late Latest date.

origin Place of origin.

destination Place of destination.

Note

This dataset contains typos and needs to be normalized.

Source

Strauss, J. (2013). *Shipwrecks Database*. Version 1.0. Accessed 2022-08-13. URL: http://oxrep.classics.ox.ac.uk/databases/shipwrecks_database/

References

Parker, A. J. (1992). *Ancient Shipwrecks of the Mediterranean and the Roman Provinces*. British Archaeological Reports International Series 580. Oxford.

Strauss, E. J. (2007). *Roman Cargoes: Underwater Evidence from the Eastern Mediterranean*. Doctoral thesis, University College London. URL: https://discovery.ucl.ac.uk/id/eprint/1349806.

See Also

Other artefact data: munsingen

spratt2016 *Late Pleistocene Sea Level Stack*

Description

A Late Pleistocene sea level stack based on marine sediment core data (foraminiferal carbonate $\delta^{18}O$).

Usage

```
spratt2016
```

Format

A `data.frame` with 9 variables:

age_calkaBP Age (calendar kilo year BP).

SeaLev_shortPC1 Sea Level (meters above present day), climate reconstructions (scaled first principal component of seven sea level reconstructions (0-430 ka)).

SeaLev_shortPC1_err_sig Sea Level standard deviation from bootstrap (meters), climate reconstructions (scaled first principal component of seven sea level reconstructions (0-430 ka)).

SeaLev_shortPC1_err_lo Sea Level 95% confidence interval lower bound (meters), climate reconstructions (scaled first principal component of seven sea level reconstructions (0-430 ka)).

SeaLev_shortPC1_err_up Sea Level 95% confidence interval upper bound (meters), climate reconstructions (scaled first principal component of seven sea level reconstructions (0-430 ka)).

SeaLev_longPC1 Sea Level (meters above present day), climate reconstructions (scaled first principal component of five sea level reconstructions (0-798 ka)).

SeaLev_longPC1_err_sig Sea Level standard deviation from bootstrap (meters), climate reconstructions (scaled first principal component of five sea level reconstructions (0-798 ka)).

SeaLev_longPC1_err_lo Sea Level 95% confidence interval lower bound (meters), climate reconstructions (scaled first principal component of five sea level reconstructions (0-798 ka)).

SeaLev_longPC1_err_up Sea Level 95% confidence interval upper bound (meters), climate reconstructions (scaled first principal component of five sea level reconstructions (0-798 ka)).

Source

https://www.ncei.noaa.gov/access/paleo-search/study/19982

References

Spratt, R. M. and Lisiecki, L. E. (2016). A Late Pleistocene sea level stack. *Climate of the Past*, 12, 1079-1092. doi:10.5194/cp1210792016

See Also

Other palaeoenvironment data: epica2008, law2006, lisiecki2005, ngrip2004, ngrip2010

Other isotopic data: lisiecki2005, ngrip2004, ngrip2010, nydal1996

Examples

```
plot(
  x = spratt2016$age_calkaBP,
  y = spratt2016$SeaLev_longPC1,
  type = "l",
  xlim = c(500, 0),
  xlab = "kilo year BP",
  ylab = "Sea level (meters above present)"
)
```

---

stratigraphy *Chronostratigraphic Chart*

Description

The ICS international chronostratigraphic chart (v2022/2).

Usage

```
stratigraphy
```

Format

A data.frame with 5 variables:

type Unit type ("eon", "era", "period", "series" or "stage"). Precambrian and Hadean are informal units.

name Unit name.

age Numerical age (Ma).

error Error on numerical age (Ma).

parent Parent unit.

Source

https://stratigraphy.org/ICSchart/ChronostratChart2022-02.pdf

References

Cohen, K. M., Finney, S. C., Gibbard, P. L. and Fan, J.-X. (2013). The ICS International Chronostratigraphic Chart. *Episodes*, 36(3): 199-204. doi:10.18814/epiiugs/2013/v36i3/002

verre *French Medieval Glass Composition*

Description

Chemical analysis (electron probe X-ray micro analysis) of 398 medieval glass vessels found in France.

Usage

```
verre
```

Format

A data.frame with 17 variables:

Site CNL: Cour Napoléon, Louvre; ORL: Orléans; POI: Poitiers; ANG: Angers; OMO: Omonville, Seine Maritime; ROU: Rouen; MEA: Meaux; CHL: Châlons-sur-Marne; PAI: Pairu (Argonne, Ardennes); BER: Bercettes (Argonne, Ardennes); BIN: Binois (Argonne, Ardennes); CHE: Chevrie (Argonne, Ardennes); MIT: Mitte (Argonne, Ardennes); MET: Metz; CHM: Chambaran.

Sample Sample code.

Type Typology.

Age Century.

Periode I: 9th-12th century; II: 13th-first half of the 15th century; III: end of the 15th to end of the 16th century; IV: end of 16th to end of the 17th century.

Tint B: blue; CL: colourless; CLg colourless (greyish tint); PB: pale blue; PGE: pale greenish; PGE-B: pale green-blue or blue-green; PGY-B: pale grey-blue; R: opaque red; W: opaque white; *av: added aventurine spots; *bl: added thread blue or blue spots; *r: added thread opaque red or opaque red spots; *w: added thread opaque white.

Na2O Na2O content (percent).

CaO CaO content (percent).

K2O K2O content (percent).

MgO MgO content (percent).

P2O5 P2O5 content (percent).

SiO2 SiO2 content (percent).

Al2O3 Al2O3 content (percent).

FeO FeO content (percent).

MnO MnO content (percent).

Cl Cl content (percent).

Reference Site reference.

References

Barrera J., Velde B. (1989). A study of french medieval glass composition. *Archéologie médiévale*, 19, 81-130. doi:10.3406/arcme.1989.953.

See Also

Other chemical data: kommos

Examples

```
plot(
  x = verre$Na2O,
  y = verre$CaO / (verre$CaO + verre$K2O),
  type = "p",
  xlab = expression("Na"[2]*"O (%)"),
  ylab = expression("CaO"/"(CaO"+"K"[2]*"O)")
)
```

---

zuni *Zuni Ceramics*

Description

A dataset containing ceramic counts from the Zuni region of the American Southwest.

Usage

```
zuni
```

Format

A data.frame with 420 rows (assemblages) and 18 variables (ceramic types). The numbers in brackets correspond to the date range of each type (in AD years):

LINO Lino Gray (575-875).

KIAT Kiatuthlanna Black-on-white (850-910).

RED Red Mesa Black-on-white (900-1030).

GALL Gallup Black-on-white (1025-1150).

ESC Escavada Black-on-white (1050-1150).

PUBW Puerco Black-on-white (1050-1200).

RES Reserve Black-on-white (1071-1115).

TULA Tularosa Black-on-white (1175-1300).

PINE Pinedale Black-on-white (1275-1325).

PUBR Puerco Black-on-red (1050-1200).

WING Wingate Black-on-red (1070-1200).

WIPO Wingate Polychrome (1150-1250).

SJ St. Johns Black-on-red/Polychrome (1200-1300).

LSJ St. Johns glaze, Techado Polychrome (1275-1300).

SPR Springerville Polychrome (1250-1300).

PINER Pinedale Black-on-red/Polychrome (1275-1325).

HESH Heshotauthla Polychrome (1285-1400).

KWAK Kwakina Polychrome (1285-1400).

Source

Peeples, M. A., & Schachner, G. (2012). Refining correspondence analysis-based ceramic seriation of regional data sets. *Journal of Archaeological Science*, 39(8), 2818-2827. doi:10.1016/j.jas.2012.04.040.

See Also

Other count data: `birds`, `boves`, `chevelon`, `compiegne`, `loire`, `merzbach`, `mississippi`

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