

Package: ArchaeoCal (via r-universe)

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Title An R Interface to 'OxCal'

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Description What the package does (one paragraph).

License GPL (>= 3)

URL <https://archaeostat.github.io/archaeocal/>

BugReports <https://github.com/ArchaeoStat/ArchaeoCal/issues>

Imports arkhe, utils, V8

Suggests ArchaeoData, tinytest

Additional_repositories <https://archaeostat.r-universe.dev>

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as.data.frame.OxCalResults

*Coerce to a Data Frame***Description**

Coerce to a Data Frame

Usage

```
## S3 method for class 'OxCalResults'
as.data.frame(x, row.names = NULL, optional = FALSE, ...)
```

Arguments

x	A list returned by oxcal_parse() .
row.names	A character vector giving the row names for the data frame description, or NULL.
optional	A logical scalar. If FALSE then the names of the variables in the data frame are checked to ensure that they are syntactically valid variable names and are not duplicated.
...	Currently not used.

Value

A [data.frame](#) with the following columns:

name

operation

type

date

error

agreement

convergence

like_range A list giving the confidence intervals of the likelihood.

like_density A list giving the likelihood.

post_range A list giving the confidence intervals of the posterior probability.

post_density A list giving the posterior probability.

oxcal_calibrate	<i>14C Calibration with OxCal</i>
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Description

14C Calibration with OxCal

Usage

```
oxcal_calibrate(names, dates, errors, curve = "IntCal20")
```

Arguments

names	A character vector specifying the names of the dates (e.g. laboratory codes).
dates	A numeric vector giving the BP dates to be calibrated.
errors	A numeric vector giving the standard deviation of the dates to be calibrated.
curve	A character string specifying the calibration curve to be used.

Value

A [list](#) with class OxCalResults (see [oxcal_parse\(\)](#)).

Author(s)

N. Frerebeau

See Also

[oxcal_execute\(\)](#)

Examples

```
## Not run:
## Download OxCal
oxcal_configure()

## Calibrate 14C dates
cal <- oxcal_calibrate(
  names = c("X", "Y"),
  dates = c(5000, 4500),
  errors = c(45, 35)
)

as.data.frame(cal)

## End(Not run)
```

oxcal_configure	<i>Configure OxCal</i>
-----------------	------------------------

Description

Configure OxCal

Usage

```
oxcal_configure(
  path = oxcal_path(),
  os = NULL,
  install = TRUE,
  ask = interactive(),
  force = FALSE,
  verbose = getOption("ArchaeoCal.verbose"),
  ...
)
```

Arguments

path	A character string specifying the path to the OxCal directory.
os	A character string specifying the operating system of the workstation. It must be one of "Linux", "Windows" or "Darwin". If NULL (the default), the operating system will be determined automatically (see Sys.info()).
install	A logical scalar: if OxCal binary is not found, should it be downloaded and installed?
ask	A logical scalar: if OxCal is not installed, should the user be asked before downloading it?
force	A logical scalar: if OxCal is already installed, should reinstallation be forced?
verbose	A logical scalar: should R report extra information on progress?
...	Further arguments to be passed to oxcal_install() .

Details

Downloads the latest version of Oxcal (if needed) and sets the executable path correctly.

Value

oxcal_configure() is called for its side-effect. Invisibly returns the path to the OxCal executable.

Author(s)

N. Frerebeau

Examples

```
## Not run:
## Download OxCal
oxcal_configure()

## Custom script
scr <- 'Plot()
{
  Sequence("Sequence1")
  {
    Boundary("Begin");
    Phase("Phase1")
    {
      R_Date("Lab-1",5000,25);
      R_Date("Lab-2",4900,37);
    };
    Boundary("Between");
    Phase("Phase2")
    {
      R_Date("Lab-3",4800,43);
    };
    Boundary("End");
  };
};'
out <- oxcal_execute(scr)
res <- oxcal_parse(out)

as.data.frame(res)

## End(Not run)
```

oxcal_execute

*Execute an Oxcal Script***Description**

Execute an Oxcal Script

Usage

```
oxcal_execute(
  script,
  file,
  path = oxcal_path(),
  mcmc = NULL,
  verbose = getOption("ArchaeoCal.verbose"),
  ...
)
```

Arguments

script	A character string of instructions for OxCal.
file	A character string naming a file (without extension) to write script to. Output files will be named after file and written to the same directory.
path	A character string giving the path to OxCal executable.
mcmc	A character string giving the name of the output file for the MCMC samples (without extension). It must match the Name argument of OxCal's MCMC_Sample() function. Only used if script contains the MCMC_Sample() command.
verbose	A logical scalar: should R report extra information on progress?
...	Further parameters to be passed to system2() .

Value

A **list** with class OxCalOutput containing the following elements:

oxcal A **character** string giving the path to the .oxcal file.
 js A **character** string giving the path to the .js file.
 log A **character** string giving the path to the .log file.
 txt A **character** string giving the path to the .txt file.
 csv A **character** string giving the path to the .csv file.

Author(s)

N. Frerebeau

References

https://c14.arch.ox.ac.uk/oxcalhelp/hlp_analysis_file.html

Examples

```
## Not run:
## Download OxCal
oxcal_configure()

## Custom script
scr <- 'Plot()
{
  Sequence("Sequence1")
  {
    Boundary("Begin");
    Phase("Phase1")
    {
      R_Date("Lab-1", 5000, 25);
      R_Date("Lab-2", 4900, 37);
    };
    Boundary("Between");
    Phase("Phase2")
  }
}
```

```

    {
      R_Date("Lab-3",4800,43);
    };
    Boundary("End");
  };
};'
out <- oxcal_execute(scr)
res <- oxcal_parse(out)

as.data.frame(res)

## End(Not run)

```

oxcal_install

Download and Install OxCal

Description

Download and Install OxCal

Usage

```

oxcal_install(
  target,
  source = "https://c14.arch.ox.ac.uk/OxCalDistribution.zip",
  verbose = getOption("ArchaeoCal.verbose"),
  ...
)

```

Arguments

target	A character string specifying the directory to extract OxCal files to. It will be created if necessary (see utils::unzip()).
source	A character string specifying the url from which OxCal could be installed.
verbose	A logical scalar: should R report extra information on progress?
...	Currently not used.

Value

oxcal_install() is called for its side-effect. Invisibly returns the path to the OxCal directory.

Author(s)

N. Frerebeau

Examples

```
## Not run:
## Download OxCal
oxcal_configure()

## Custom script
scr <- 'Plot()
{
  Sequence("Sequence1")
  {
    Boundary("Begin");
    Phase("Phase1")
    {
      R_Date("Lab-1",5000,25);
      R_Date("Lab-2",4900,37);
    };
    Boundary("Between");
    Phase("Phase2")
    {
      R_Date("Lab-3",4800,43);
    };
    Boundary("End");
  };
};'
out <- oxcal_execute(scr)
res <- oxcal_parse(out)

as.data.frame(res)

## End(Not run)
```

oxcal_parse

Read and Parse OxCal Output

Description

Read and Parse OxCal Output

Usage

```
oxcal_parse(path)
```

```
## S3 method for class 'OxCalOutput'
oxcal_parse(path)
```

Arguments

path A [character](#) string naming a JavaScript file which the data are to be read from (or a list returned by [oxcal_execute\(\)](#)).

Value

A **list** with class `OxCalResults` containing the following elements:

`ocd` A **list** of OxCal data which holds the ranges, probability distributions, etc. for each parameter.

`model` A **list** of information about the model.

`calib` A **list** of information about the calibration curve.

Author(s)

N. Frerebeau

References

https://c14.arch.ox.ac.uk/oxcalhelp/hlp_analysis_file.html

Examples

```
## Not run:
## Download OxCal
oxcal_configure()

## Custom script
scr <- 'Plot()
{
  Sequence("Sequence1")
  {
    Boundary("Begin");
    Phase("Phase1")
    {
      R_Date("Lab-1",5000,25);
      R_Date("Lab-2",4900,37);
    };
    Boundary("Between");
    Phase("Phase2")
    {
      R_Date("Lab-3",4800,43);
    };
    Boundary("End");
  };
};'
out <- oxcal_execute(scr)
res <- oxcal_parse(out)

as.data.frame(res)

## End(Not run)
```

oxcal_path	<i>Get OxCal Executable Path</i>
------------	----------------------------------

Description

Get OxCal Executable Path

Usage

```
oxcal_path(...)
```

Arguments

... Currently not used.

Details

Defaults to the R user directory.

Value

A [character](#) string giving the path to OxCal executable.

Author(s)

N. Frerebeau

See Also

[tools::R_user_dir\(\)](#)

Examples

```
## Not run:
## Download OxCal
oxcal_configure()

## Custom script
scr <- 'Plot()'
{
  Sequence("Sequence1")
  {
    Boundary("Begin");
    Phase("Phase1")
    {
      R_Date("Lab-1",5000,25);
      R_Date("Lab-2",4900,37);
    };
    Boundary("Between");
```

```
Phase("Phase2")
{
  R_Date("Lab-3",4800,43);
};
Boundary("End");
};'
out <- oxcal_execute(scr)
res <- oxcal_parse(out)

as.data.frame(res)

## End(Not run)
```

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