

Package: `piamPlotComparison` (via `r-universe`)

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Type Package

Title Create comparison plots for your model results

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Description A frameworks to create comparison plots for your model results.

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URL <https://github.com/pik-piam/piamPlotComparison>

Imports dplyr, jsonlite, kableExtra, knitr, magclass, mip (>= 0.148.11), piamutils, quitte, rlang, rmarkdown, tidyr, yaml, ymlthis

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Repository <https://pik-piam.r-universe.dev>

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calcTimeSeriesStats *Calculate Statistics of Time Series*

Description

Take a quitte object and calculate given summary statistics of the time series of given variables in the quitte object. Return the result for each model, scenario, region, variable, and statistic in a data frame.

Usage

```
calcTimeSeriesStats(data, var, stats, from = -Inf, to = Inf)
```

Arguments

data	A quitte object.
var	character(n). The names of the variables to calculate the statistics on.
stats	A named list of functions with two arguments. Each function will be called with the vector of values as the first argument and the vector of corresponding periods as the second argument.
from, to	Optional variables to filter the time series by period.

Value

A data frame with columns model, scenario, region, variable, value, statistic, unit. "value" contains the calculated statistics. "statistic" is name of the statistics, i.e., the name of the function in the argument stats. The "unit" is the unit of the original variable and not necessarily the correct unit for the calculated statistics.

Examples

```
## Not run:
calcTimeSeriesStats(
  data, \
  "Emi|CO2",
  stats = list("Net 0 Period" = function(v, p) p[which(v <= 0)[1]])
## End(Not run)
```

compareScenarios	<i>Render CompareScenarios</i>
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Description

Renders the *.Rmd-files associated to CompareScenarios. In the Rmds, scenario- and historical .mif-files are loaded. Then plots are created from this data. The result may be rendered to PDF or HTML. Alternatively one can choose Rmd as output format and obtain a copy of the *.Rmd-files.

Usage

```
compareScenarios(
  projectLibrary = NULL,
  mifScen,
  mifHist,
  outputDir = getwd(),
  outputFile = "CompareScenarios",
  outputFormat = "PDF",
  envir = new.env(),
  quiet = FALSE,
  ...
)
```

Arguments

projectLibrary	NULL or character(n). Default: NULL. An R reporting library containing Rmd files to be included. You can further filter the sections to be rendered using the sections YAML parameter. The Rmd files must be placed in a folder inst/compareScenarios. Files must have the format cs_NN_XXXX.Rmd to be considered. If the folder contains a file preprocessing.Rmd, it will be executed before rendering the sections.
mifScen	character(n), optionally named. Paths to scenario mifs. If the vector has names, those are used to refer to the scenarios in the output file.
mifHist	character(1). Path to historical mif.
outputDir	character(1). The directory where the output document and intermediary files are created.
outputFile	character(1). File name (without extension) of the output document to be created.
outputFormat	character(1), not case-sensitive. "html", "pdf", or "rmd".
envir	environment. The environment in which the code chunks are to be evaluated. See the argument of the same name in <code>rmarkdown::render()</code> . Set this to <code>globalenv()</code> and sections to NULL to load an preprocess data in your global environment during development.
quiet	logical(1). Suppress printing during rendering?
...	YAML parameters, see below.

Value

The value returned by `rmarkdown::render()`.

YAML Parameters

`cfgScen` character(n) or NULL. Paths to config.Rdata files containing the `cfg` object for each scenario. The paths must be provided in the same order as `mifScen`. If provided, some information gathered from these files is shown at the beginning of the output document.

`docTitle` character(n) or NULL. Title of the document. Defaults to 'Compare Scenarios'

`yearsScen` numeric(n). Default: `c(seq(2005, 2060, 5), seq(2070, 2100, 10))`. Years to show for scenario data.

`yearsHist` numeric(n). Default: `c(seq(1960, 2020, 1), seq(2025, 2100, 5))`. Years to show for historical data.

`yearsBarPlot` numeric(n). Default: `c(2010, 2030, 2050, 2100)`. Years to show in bar plots of scenario data.

`yearRef` numeric(1). Default: 2020. A reference year used to show relative values in Kaya decomposition.

`reg` NULL or character(n). Default: NULL. Regions to show. NULL means all.

`modelsHistExclude` character(n) or NULL. Default: `c()`. Models in historical data to exclude.

`sections` character(n) or numeric(n) or NULL. Default: "all". Names or numbers of sections to include. Use "all" to include all available sections. Use NULL to not include any section (useful in combination with parameter `envir`).

`userSectionPath` NULL or character(n). Default: NULL. Path to a *.Rmd-file that may be included as additional section.

`mainReg` character(1). Default: "World". A region for which larger plots are shown.

`figWidth`, `figHeight` numeric(1). Default: 15 and 10, respectively. Size of plots in inches.

`warning` logical(1). Default: TRUE. Show warnings in output?

Author(s)

Christof Schoetz, Falk Benke

Examples

```
## Not run:
# Simple use. Creates PDF:
compareScenarios(
  projectLibrary = "mylib",
  mifScen = c("path/to/Base.mif", "path/to/NDC.mif"),
  mifHist = "path/to/historical.mif",
  outputFile = "CompareScenariosExample")
# More complex use. Creates folder with Rmds:
compareScenarios(
  projectLibrary = "mylib",
  mifScen = c(ScenarioName1 = "path/to/scen1.mif", ScenarioName2 = "path/to/scen2.mif"),
  mifHist = "path/to/historical.mif",
```

```

cfgScen = c("path/to/scen1/config.RData", "path/to/scen2/config.RData"),
outputDir = "path/to/output",
outputFormat = "Rmd",
outputFile = format(Sys.time(), "compScen_%Y%m%d-%H%M%S"),
warning = FALSE,
sections = c(0, 2, 3, 99),
userSectionPath = "path/to/myPlots.Rmd")
# Use in development. Load data into global environment:
compareScenarios(
  projectLibrary = "mylib",
  mifScen = c("path/to/scen1.mif", "path/to/scen2.mif"),
  mifHist = "path/to/historical.mif",
  outputFile = format(Sys.time(), "cs2_load_%Y%m%d-%H%M%S"),
  sections = NULL,
  envir = globalenv())

## End(Not run)

```

getCs2Profiles

Get the List of cs2 Profiles

Description

A list of arguments to `compareScenarios` is called a (cs2-) profile. This function loads a list of such profiles from a file. The default argument is set such that the default profiles file of REMIND is loaded.

Usage

```
getCs2Profiles(path = "./scripts/cs2/profiles.json")
```

Arguments

`path` character(1). Path to the profiles file.

Value

A named list of profiles. The names are the names of the respective profile. Each profile is a named list. Those names correspond to arguments of `compareScenarios`.

Author(s)

Christof Schoetz

Examples

```

## Not run:
profiles <- getCs2Profiles() # load from default location
profiles <- getCs2Profiles(path = "path/to/profiles.json")

## End(Not run)

```

showStatsTable	<i>Show a Table of a Statistics Data Frame</i>
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Description

Take the output of `calcTimeSeriesStats` (a data frame) and show it as a kable table. Only results from model REMIND are shown. It is assumed that the input argument only contains a single statistic of a single variable (but multiple regions and scenarios). The caption of the resulting table is created from the entries of the columns variable, unit, and statistic in the first row (should be the same in all rows).

Usage

```
showStatsTable(statsData, mainReg = getOption("mip.mainReg"))
```

Arguments

statsData	A data frame with the columns "model", "scenario", "region", "value", "variable", "unit", "statistic".
mainReg	character(1). The main region. Will be shown at the top of the table.

Value

A knitr_kable object. A table with columns region and one column for each scenario.

Examples

```
## Not run:
data %>%
  calculateStatisticsOfTimeSeries(
    "Emi|CO2",
    stats = list("Net 0 Period" = function(v, p) p[which(v <= 0)[1]])
  ) %>%
  showStatsTable()

## End(Not run)
```

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