

Package: iemiscdata (via r-universe)

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Title Irucka Embry's Miscellaneous Data Collection

Version 1.0.4

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Depends R (>= 3.5.0)

Imports tools, sjmisc, stringi, anytime, data.table (>= 1.10.2), rio,
openxlsx2 (>= 1.27)

Suggests install.load, iemisc (>= 1.0.1), rivr, rvest, ggplot2 (>= 3.3.4), qdap, lubridate, knitr, snakecase, quarto, USA.state.boundaries (>= 1.0.1), sfheaders, sf, dplyr, spelling, pander, units, round, anytime, mgsub, chem.databases, kableExtra, flextable, formatR, xopen, DescTools

Description Miscellaneous data sets [Chemistry, Engineering Economics, Environmental/Water Resources Engineering, Nuclear Accidents, US Presidential Elections, and US Continental Congress Presidents]. There is also a single function for checking the validity of latitude and longitude file in TDEC ETW files.

URL <https://gitlab.com/iembry/iemiscdata>,
<https://iembry.r-universe.dev/iemiscdata>

BugReports <https://gitlab.com/iembry/iemiscdata/-/issues>

License GPL (>= 3)

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c_agricultural	<i>Table 2: Values of Runoff Coefficient C in Agricultural Areas</i>
----------------	--

Description

A table containing the C values for agricultural areas.

Usage

c_agricultural

Format

A data.table data frame with 14 rows and 4 variables:

- Topography and Vegetation** Site topography
- Open Sandy Loam - Runoff Coefficient C** C value for sandy loam soil
- Clay and Silt Loam - Runoff Coefficient C** C value for clay and silt loam soil
- Tight Clay – Runoff Coefficient C** C value for tight clay soil

Source

United States Department of Agriculture Natural Resources Conservation Service, "Hydrology Training Series: Module 206 D - Peak Discharge (Other Methods) Study Guide", Page 16 of the PDF document, 'https://web.archive.org/web/20211018222532/https://www.nrcs.usda.gov/Internet/FSE_DOCU

c_urban

*Table 1: Values of Runoff Coefficient C in Urban Areas***Description**

A table containing the C values for urban areas.

Usage

c_urban

Format

A data.table data frame with 33 rows and 5 variables:

Type of drainage area Drainage area type

Minimum Runoff Coefficient C Minimum C value

Average Runoff Coefficient C Average C value

Maximum Runoff Coefficient C Maximum C value

Runoff coefficient C Range of C values

Source

United States Department of Agriculture Natural Resources Conservation Service, "Hydrology Training Series: Module 206 D - Peak Discharge (Other Methods) Study Guide", Page 16 of the PDF document, 'https://web.archive.org/web/20211018222532/https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs14367.pdf'

cell_salts

*33 Human Cell Salts Table***Description**

A table containing the 33 inorganic substances, known as cell salts, found in Human Beings. This data set contains 2 of the 4 columns created for the "Table of 33 Cell Salts/Tissue Remedies for Human Beings".

Usage

cell_salts

Format

A data.table data frame with 33 rows and 2 variables:

Cell Salt The cell salt English names as used in homeopathy

Molecular Formula The molecular formula of the cell salt

Source

Irucka Ajani Embry, "Table of 33 Cell Salts/Tissue Remedies for Human Beings", *Tuning to the Soiled Seed Vibrations For Our Collective Health*, Nashville, Tennessee: Questioning the Universe Publishing, 2024, Page 13. See '<https://www.qup.quest/soiled-seeds.html>'.

cell_salts_atoms_final	<i>Total Number of Atoms of Elements From the 33 Human Cell Salts Table</i>
------------------------	---

Description

A table containing the total number of atoms of the 24 chemical elements in the 33 inorganic substances, known as cell salts, found in Human Beings.

Usage

cell_salts_atoms_final

Format

A data.table data frame with 24 rows and 3 variables:

Element Name The chemical element name

Element Symbol The chemical element symbol

Number of Atoms The total number of atoms contained within all 33 cell salts for this particular element

Source

Kim S, Chen J, Cheng T, Gindulyte A, He J, He S, Li Q, Shoemaker BA, Thiessen PA, Yu B, Zaslavsky L, Zhang J, Bolton EE. PubChem 2023 update. *Nucleic Acids Res.* 2023 Jan 6;51(D1):D1373-D1380. doi:10.1093/nar/gkac956. PMID: 36305812, '<https://pubchem.ncbi.nlm.nih.gov/>'.
Stack Overflow. Question: "R - Total sum of all named items in list elements", '<https://stackoverflow.com/questions/76824400/r-total-sum-of-all-named-items-in-list-elements>'.

check_tn_etw	<i>Check Validity of Latitude and Longitude Values in ETW</i>
--------------	---

Description

This function determines if the latitude (From Lat and To Lat columns) and longitude (From Long and To Long columns) values in the Tennessee Department of Environment and Conservation (TDEC) Division of Water Resources (DWR) Exceptional Tennessee Waters and Outstanding National Resource Waters data set are valid values or not. If the values are not valid, a spreadsheet is created to show all values in one tab and another tab with the invalid row(s) only.

Usage

```
check_tn_etw(
  fileimport,
  fileexport = NULL,
  overwrite = c(TRUE, FALSE),
  exportfile = c(TRUE, FALSE)
)
```

Arguments

<code>fileimport</code>	character vector with the input file path (can be in the following file formats: ODS, XLS(X), CSV, JSON, or XML)
<code>fileexport</code>	character vector with the output file path. If no file path is provided, the filename is <code>tdec_etw_errors.xlsx</code> and it will be saved in your current working directory.
<code>overwrite</code>	logical vector of either TRUE (overwrite the existing fileexport file) or FALSE (do not overwrite the existing fileexport file). The default is TRUE.
<code>exportfile</code>	logical vector of either TRUE (export a spreadsheet) or FALSE (return a data.table). The default is TRUE.

Value

Either a message denoting that all values are valid or a a message denoting that (a) value(s) is (are) invalid and a spreadsheet (.XLSX file format) with a tab with all values with the invalid row(s) highlighted and a second tab with only the invalid row(s) or a data.table with the invalid row(s) only.

Author(s)

Irucka Embry

Source

1. Stack Overflow: twitter - How to handle example data in R Package that has UTF-8 marked strings answered by Shixiang Wang on Mar 24, 2021. See <https://stackoverflow.com/questions/29043932/how>
2. r - data.table set add number to certain j values only answered by answered by chinsoon12 on May 16 2018. See <https://stackoverflow.com/questions/50361168/r-data-table-set-add-number-to-cer>

civilian_nuclear_accidents_wiki

Civilian nuclear accidents (Wikipedia)

Description

A table containing the civilian nuclear accidents.

Usage

civilian_nuclear_accidents_wiki

Format

A data.table data frame with 28 rows and 5 variables:

Date Date of the accident

Location Location of the accident

INES Level INES level

Type Type of accident

Description Description of accident or incident

Source

Wikimedia Foundation, Inc. Wikipedia, 3 September 2023, "List of civilian nuclear accidents", 'https://en.wikipedia.org/wiki/List_of_civilian_nuclear_accidents'.

cn_agricultural

Table 2-2b: Runoff curve numbers for cultivated agricultural lands

Description

A table containing curve numbers for cultivated, agricultural areas.

Usage

cn_agricultural

Format

A data.table data frame with 36 rows and 7 variables:

Cover type Type of agricultural ground cover

Treatment *2 Agricultural land treatment

Hydrologic condition *3 Hydrologic condition

Curve numbers for hydrologic soil group A Curve numbers for soil group A

Curve numbers for hydrologic soil group B Curve numbers for soil group B

Curve numbers for hydrologic soil group C Curve numbers for soil group C

Curve numbers for hydrologic soil group D Curve numbers for soil group D

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=20230810204711' [Recovered with the Internet Archive: Wayback Machine]

cn_agricultural_notes	<i>Notes for Table 2-2b: Runoff curve numbers for cultivated agricultural lands</i>
-----------------------	---

Description

A table containing the notes for the curve numbers for cultivated, agricultural areas.

Usage

cn_agricultural_notes

Format

A data.table data frame with 5 rows and 2 variables:

Note Number (*) The note numbers

Notes The notes

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?cid=USDA_NRCS_55 [Recovered with the Internet Archive: Wayback Machine]

cn_arid_semiarid	<i>Table 2-2d: Runoff curve numbers for arid and semiarid rangelands</i>
------------------	--

Description

A table containing curve numbers for arid and semiarid areas.

Usage

cn_arid_semiarid

Format

A data.table data frame with 19 rows and 6 variables:

Cover type Type of agricultural ground cover

Hydrologic condition *2 Hydrologic condition

Curve numbers for hydrologic soil group A *3 Curve numbers for soil group A

Curve numbers for hydrologic soil group B Curve numbers for soil group B

Curve numbers for hydrologic soil group C Curve numbers for soil group C

Curve numbers for hydrologic soil group D Curve numbers for soil group D

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=20230810204711' [Recovered with the Internet Archive: Wayback Machine]

cn_arid_semiarid_notes
Notes for Table 2-2d: Runoff curve numbers for arid and semiarid rangelands

Description

A table containing the notes for the curve numbers for arid and semiarid areas.

Usage

cn_arid_semiarid_notes

Format

A data.table data frame with 5 rows and 2 variables:

- Note Number (*) The note numbers
- Notes The notes

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=20230810204711' [Recovered with the Internet Archive: Wayback Machine]

cn_other_agricultural	Table 2-2c: Runoff curve numbers for other agricultural lands
-----------------------	---

Description

A table containing curve numbers for other agricultural areas.

Usage

cn_other_agricultural

Format

A data.table data frame with 19 rows and 7 variables:

- Cover type** Type of agricultural ground cover
- Hydrologic condition *3** Hydrologic condition
- Curve numbers for hydrologic soil group A** Curve numbers for soil group A
- Notes** Any notes for soil group A
- Curve numbers for hydrologic soil group B** Curve numbers for soil group B
- Curve numbers for hydrologic soil group C** Curve numbers for soil group C
- Curve numbers for hydrologic soil group D** Curve numbers for soil group D

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?cid=32611' [Recovered with the Internet Archive: Wayback Machine]

cn_other_agricultural_notes	<i>Notes for Table 2-2c: Runoff curve numbers for other agricultural lands</i>
-----------------------------	--

Description

A table containing the notes for the curve numbers for other agricultural areas.

Usage

cn_other_agricultural_notes

Format

A data.table data frame with 11 rows and 2 variables:

- Note Number (*)** The note numbers
- Notes** The notes

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?cid=32611' [Recovered with the Internet Archive: Wayback Machine]

cn_urban

*Table 2-2a: Runoff curve numbers for urban areas***Description**

A table containing curve numbers for urban areas.

Usage

cn_urban

Format

A data.table data frame with 34 rows and 6 variables:

Cover type and hydrologic condition Urban cover type and the hydrologic condition

Average percent impervious area *2 The average impervious area percent, if any

Curve numbers for hydrologic soil group A Curve numbers for soil group A

Curve numbers for hydrologic soil group B Curve numbers for soil group B

Curve numbers for hydrologic soil group C Curve numbers for soil group C

Curve numbers for hydrologic soil group D Curve numbers for soil group D

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, <https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?ContentID=10> [Recovered with the Internet Archive: Wayback Machine]

cn_urban_notes

*Notes for Table 2-2a: Runoff curve numbers for urban areas***Description**

A table containing the notes for the curve numbers for urban areas.

Usage

cn_urban_notes

Format

A data.table data frame with 5 rows and 2 variables:

Note Number (*) The note numbers

Notes The notes

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, '<https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=2845>' [Recovered with the Internet Archive: Wayback Machine]

common_gases

Common Gaseous Elements and Compounds

Description

A table containing common substances that are gases at 25 degrees C and 1.0 atm. The elements and compounds are in separate columns.

Usage

common_gases

Format

A data.table data frame with 23 rows and 4 variables:

Element_Formula Molecular formula of the element

Element_Name Name of the element

Compound_Formula Molecular formula of the compound

Compound_Name Name of the compound

Source

1. Chemistry LibreTexts, "Chapter 10.1: Gaseous Elements and Compounds", 'https://chem.libretexts.org/LibreTexts/Book%3AChemistry_LibreTexts/Chapter_10%3AGases/Chapter_10.1%3AGaseous_Elements_and_Compounds'
2. Gaseous composition of dry air, '<https://web.archive.org/web/20161222023409/https://eesc.columbia.edu/research/aircomposition/>' Retrieved thanks to the Internet Archive: Wayback Machine. Original data source: Mackenzie, F.T. and J.A. Mackenzie (1995) *Our changing planet*. Prentice-Hall, Upper Saddle River, NJ, p 288-307. (After Warneck, 1988; Anderson, 1989; Wayne, 1991.)

 common_gases_simp

Common Gaseous Elements and Compounds Simplified

Description

A table containing common substances that are gases at 25 degrees C and 1.0 atm. This is the simplified table with the elements and compounds combined in a column.

Usage

```
common_gases_simp
```

Format

A data.table data frame with 35 rows and 2 variables:

Name Name of the element or compound

Formula Molecular formula of the element or compound

Source

1. Chemistry LibreTexts, "Chapter 10.1: Gaseous Elements and Compounds", '[https://chem.libretexts.org/LibreTexts/Bookshelves/General_Chemistry/Book%3A_General_Chemistry_\(LibreTexts\)/Chapter_10%3A_Gases/10.1%3A_Gaseous_Elements_and_Compounds](https://chem.libretexts.org/LibreTexts/Bookshelves/General_Chemistry/Book%3A_General_Chemistry_(LibreTexts)/Chapter_10%3A_Gases/10.1%3A_Gaseous_Elements_and_Compounds)
2. Gaseous composition of dry air, '<https://web.archive.org/web/20161222023409/https://eesc.columbia.edu/aircomposition/>' Retrieved thanks to the Internet Archive: Wayback Machine. Original data source: Mackenzie, F.T. and J.A. Mackenzie (1995) *Our changing planet*. Prentice-Hall, Upper Saddle River, NJ, p 288-307. (After Warneck, 1988; Anderson, 1989; Wayne, 1991.)

 dry_air

Gaseous Composition of Dry Air

Description

A table containing the gaseous composition of dry air by mole percent.

Usage

```
dry_air
```

Format

A data.table data frame with 16 rows and 3 variables:

Name Name of the gas

Formula Chemical formula of the gas

Mole percent Fraction mole percent of the gas in dry air

Source

Gaseous composition of dry air, '<https://web.archive.org/web/20161222023409/https://eesc.columbia.edu/cour>
Retrieved thanks to the Internet Archive: Wayback Machine. Original data source: Mackenzie, F.T.
and J.A. Mackenzie (1995) *Our changing planet*. Prentice-Hall, Upper Saddle River, NJ, p 288-307.
(After Warneck, 1988; Anderson, 1989; Wayne, 1991.)

duh_gamma

*Table 16-5 Relationship of m and PRF for DUH developed from a
Gamma equation*

Description

A table containing the relationship between m and PRF for the distributed unit hydrograph (DUH)
developed from a Gamma equation.

Usage

duh_gamma

Format

A data.table data frame with 7 rows and 2 variables:

m "gamma equation shape factor"

PRF "peak rate factor (PRF)"

Source

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS),
National Engineering Handbook, "Part 630 Hydrology Chapter 16 Hydrographs", Pages 16-4, 16-9,
16-15, '<https://web.archive.org/web/20230615195809/https://directives.sc.egov.usda.gov/OpenNonWebCont>
[Recovered with the Internet Archive: Wayback Machine]

elements

Period Table of the Elements (PubChem & Wikipedia)

Description

A table containing the combined periodic table of the elements from PubChem and Wikipedia.

Usage

elements

Format

A data.table data frame with 118 rows and 30 variables:

Name Name of the element

Atomic Number (Z) Atomic number of the element

Formula Chemical formula of the element

Standard Atomic weight (Da) Element atomic mass in Dalton unit

Atomic Mass (u) Element atomic mass in the unified atomic mass unit (u)

Atomic Radius (pm) Element atomic radius in pm

Electron Configuration Element electron configuration

Electronegativity Element electronegativity from Wikipedia

Electronegativity [PubChem] Element electronegativity from PubChem

Electron Affinity (eV) Element electron affinity

Ionization Energy (eV) Element ionization energy

Oxidation States Element oxidation states

Period Period number of the element

Group Group number of the element

Group Name Name of the element group

Group Block Group block name of the element

Standard State at Room Temperature (Wikipedia) Standard state of the element at room temperature

Standard State Standard state of the element at standard temperature and pressure (STP)

Density (g/cm³) Element density in grams / cubic centimeters

Density (g/cm³) [PubChem] Element density in grams / cubic centimeters using PubChem data

Melting Point (K) Element melting point in Kelvin

Melting Point (K) [PubChem] Element melting point in Kelvin using PubChem data

Boiling Point (K) Element boiling point in Kelvin

Boiling Point (K) [PubChem] Element boiling point in Kelvin using PubChem data

Specific Heat Capacity (J/g K) Specific heat capacity of the element in Joules / grams Kelvin

Abundance in Earth's crust (mg/kg) Amount present in the Earth's crust

CPK Hex Color Corey-Pauling-Koltun Hex color for each element

Origin Origin of the element

Origin of name Origin of the element name

Year Discovered Year the element was discovered

Source

1. PubChem [Internet]. Bethesda (MD): National Library of Medicine (US), National Center for Biotechnology Information; 2004-. Periodic Table of Elements; [cited 2023 May 12]. Available from: '<https://pubchem.ncbi.nlm.nih.gov/periodic-table/>'.
2. Wikimedia Foundation, Inc. Wikipedia, 18 September 2023, "List of chemical elements", 'https://en.wikipedia.org/wiki/List_of_chemical_elements'.

elements_pubchem	<i>Period Table of the Elements (PubChem)</i>
------------------	---

Description

A table containing the periodic table of the elements from PubChem.

Usage

```
elements_pubchem
```

Format

A data.table data frame with 118 rows and 17 variables:

Name Name of the element

Atomic Number (Z) Atomic number of the element

Formula Chemical formula of the element

Atomic Mass (u) Element atomic mass in the unified atomic mass unit (u)

CPK Hex Color Corey-Pauling-Koltun Hex color for each element)

Electron Configuration Element electron configuration

Electronegativity Element electronegativity

Atomic Radius (pm) Element atomic radius

Ionization Energy (eV) Element ionization energy

Electron Affinity (eV) Element electron affinity

Oxidation States Element oxidation states

Standard State Standard state of the element at standard temperature and pressure (STP)

Melting Point (K) Element melting point in Kelvin

Boiling Point (K) Element boiling point in Kelvin

Density (g/cm³) Element density in grams / cubic centimeters

Group Name Name of the element group

Year Discovered Year the element was discovered

Source

PubChem [Internet]. Bethesda (MD): National Library of Medicine (US), National Center for Biotechnology Information; 2004-. Periodic Table of Elements; [cited 2023 May 12]. Available from: '<https://pubchem.ncbi.nlm.nih.gov/periodic-table/>'.

elements_wiki*Period Table of the Elements (Wikipedia)*

Description

A table containing the periodic table of the elements from Wikipedia.

Usage

elements_wiki

Format

A data.table data frame with 118 rows and 16 variables:

Name Name of the element

Atomic Number (Z) Atomic number of the element

Formula Chemical formula of the element

Standard Atomic weight (Da) Element atomic mass in Dalton unit

Origin of name Origin of the element name

Group Group number of the element

Group Block Group block name of the element

Period Period number of the element

Density (g/cm³) Element density in grams / cubic centimeters

Melting Point (K) Element melting point in Kelvin

Boiling Point (K) Element boiling point in Kelvin

Specific Heat Capacity (J/g K) Specific heat capacity of the element in Joules / grams Kelvin

Electronegativity Element electronegativity

Abundance in Earth's crust (mg/kg) Amount present in the Earth's crust

Origin Origin of the element

Standard State at Room Temperature Standard state of the element at room temperature

Source

Wikimedia Foundation, Inc. Wikipedia, 1 March 2025, "List of chemical elements", https://en.wikipedia.org/wiki/List_of_chemical_elements

exceptional_tn_waters	<i>Known Exceptional Tennessee Waters and Outstanding National Resource Waters</i>
-----------------------	--

Description

A table containing the exceptional or outstanding national resource waters in Tennessee.

Usage

exceptional_tn_waters

Format

A data.table data frame with 3,011 rows and 12 variables:

- HUC** HUC number
- Watershed Name** Name of the watershed
- Waterbody** Name of the waterbody
- County** Name of the Tennessee county
- Description** Description of the waterbody
- Basis for Inclusion** Reason for exceptional water status
- From_Lat** Begin latitude
- To_Lat** End latitude
- From_Long** Begin longitude
- To_Long** End longitude
- Inclusion Date** Date of inclusion
- Revision Date** Date of revision, if any

Source

Tennessee Department of Environment and Conservation (TDEC) Division of Water Resources (DWR), Accessed 5 July 2024, The Known Exceptional Tennessee Waters and Outstanding National Resource Waters. 'https://www.tn.gov/environment/about-tdec/tdec-dataviewers.html'

exceptional_tn_waters_abbrev
<i>Abbreviations Used in the Known Exceptional Tennessee Waters and Outstanding National Resource Waters</i>

Description

A table containing the abbreviations used in the exceptional or outstanding national resource waters in Tennessee table.

Usage

exceptional_tn_waters_abbrev

Format

A data.table data frame with 17 rows and 2 variables:

Abbreviation Abbreviation used in the Known Exceptional Tennessee Waters and Outstanding National Resource Waters table

Full Name Full name for the abbreviation

Source

Tennessee Department of Environment and Conservation (TDEC) Division of Water Resources (DWR), Accessed 5 July 2024, The Known Exceptional Tennessee Waters and Outstanding National Resource Waters. ‘<https://www.tn.gov/environment/about-tdec/tdec-dataviewers.html>’

Fp	<i>Table 4-2: Adjustment factor (Fp) for pond and swamp areas that are spread throughout the watershed</i>
----	--

Description

A table containing the adjustment factor for percent of pond and swamp areas.

Usage

Fp

Format

A data.table data frame with 5 rows and 2 variables:

Percentage of pond and swamp areas Percent of pond and swamp areas

Fp Adjustment factor

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, '<https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=1145>' [Recovered with the Internet Archive: Wayback Machine]

Fukushima_2011_FieldMeasurements_5

US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Field Team Radiological Measurements

Description

A table containing data after the radiation leaks from the nuclear power plants in Japan.

Usage

Fukushima_2011_FieldMeasurements_5

Format

A data.table data frame with 4,335 rows and 16 variables:

ID Identification

Measurement Date Date of measurement

Latitude Latitude for the sample location

Longitude Longitude for the sample location

Fixed? Is the location fixed?

Distance(miles) Distance in miles

Bearing Bearing for the location

Direction Direction for the location

Type Type of radiation

Derived? Derived radiation value

Value Value for the radiation

Unit Unit of measurement for radiation value

Source Source of data

Description Description

Meter Name of meter used

Probe Name of probe used

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA), "US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Field Team Radiological Measurements", '<https://web.archive.org/web/20160617002257/https://catalog.data.gov/dataset/us-doe-nnsa-response-to-2011-fukushima-incident-field-team-radiological-measurements>' Retrieved thanks to the Internet Archive: Wayback Machine

Fukushima_2011_FieldMeasurements_5_Metadata

US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Field Team Radiological Measurements Metadata

Description

A list containing the metadata for US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Field Team Radiological Measurements.

Usage

Fukushima_2011_FieldMeasurements_5_Metadata

Format

A list with 21 objects

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA), "US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Field Team Radiological Measurements", <https://web.archive.org/web/20160617002257/https://catalog.data.gov/dataset/us-doe-nnsa-a> Retrieved thanks to the Internet Archive: Wayback Machine

Fukushima_2011_FieldSampleAirResults_2

US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Air Samples

Description

A table containing data after the radiation leaks from the nuclear power plants in Japan.

Usage

Fukushima_2011_FieldSampleAirResults_2

Format

A data.table data frame with 8,378 rows and 23 variables:

Analysis Id Identification for the analysis

Sample Id Identification for the sample

Sample# Sample number

Type Source of sample
Fixed? Is the type fixed?
Latitude Latitude for the sample location
Longitude Longitude for the sample location
Distance(miles) Distance in miles
Bearing Bearing for the location
Direction Direction for the location
Collection Date Date of collection
Source Source
Description Description
Filter Type Filter type
Volume Volume
Volume Unit Unit of measurement for volume
Uncertainty% Percent of uncertainty
MDA MDA
Method Code Method code
Moisture% Moisture percent
Nuclide Nuclide
Result Result
Unit Unit for the result

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA),
 "US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Air Samples",
 'https://web.archive.org/web/20201108073914/https://catalog.data.gov/dataset/us-doe-nnsa-and-dod-res-
 Retrieved thanks to the Internet Archive: Wayback Machine

Fukushima_2011_FieldSampleAirResults_2_Metadata

*US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Ra-
diological Air Samples Metadata*

Description

A list containing the metadata for US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Air Samples.

Usage

Fukushima_2011_FieldSampleAirResults_2_Metadata

Format

A list with 20 objects

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA),
 "US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Air Samples",
 'https://web.archive.org/web/20201108073914/https://catalog.data.gov/dataset/us-doe-nnsa-and-dod-res-
 Retrieved thanks to the Internet Archive: Wayback Machine

Fukushima_2011_FieldSampleInstrumentResults

*US DOE/NNSA Response to 2011 Fukushima Incident: Instrument
 Samples (InSitu Measurements)*

Description

A table containing data after the radiation leaks from the nuclear power plants in Japan.

Usage

Fukushima_2011_FieldSampleInstrumentResults

Format

A data.table data frame with 2,581 rows and 24 variables:

Analysis Id Identification for the analysis

Sample Id Identification for the sample

Sample# Sample number

Type Source of sample

Fixed? Is the type fixed?

Latitude Latitude for the sample location

Longitude Longitude for the sample location

Distance(miles) Distance in miles

Bearing Bearing for the location

Direction Direction for the location

Collection Date Date of collection

Source Source

Description Description

Spectra File Spectra file

Sampling Time Time of the sampling

Live Time Live time
Instrument Height Instrument height
Uncertainty% Percent of uncertainty
MDA MDA
Method Code Method code
Moisture% Moisture percent
Nuclide Nuclide
Result Result
Unit Unit for the result

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA), "US DOE/NNSA Response to 2011 Fukushima Incident: Instrument Samples (InSitu Measurements)", <https://web.archive.org/web/20160630225626/https://catalog.data.gov/dataset/us-doe-nnsa-resp>
Retrieved thanks to the Internet Archive: Wayback Machine

Fukushima_2011_FieldSampleInstrumentResults_Metadata

*US DOE/NNSA Response to 2011 Fukushima Incident: Instrument
Samples (InSitu Measurements) Metadata*

Description

A list containing the metadata for US DOE/NNSA Response to 2011 Fukushima Incident: Instrument Samples (InSitu Measurements).

Usage

Fukushima_2011_FieldSampleInstrumentResults_Metadata

Format

A list with 20 objects

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA), "US DOE/NNSA Response to 2011 Fukushima Incident: Instrument Samples (InSitu Measurements)", <https://web.archive.org/web/20160630225626/https://catalog.data.gov/dataset/us-doe-nnsa-resp>
Retrieved thanks to the Internet Archive: Wayback Machine

Fukushima_2011_FieldSampleSoilResults_2

US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Soil Samples

Description

A table containing data after the radiation leaks from the nuclear power plants in Japan.

Usage

Fukushima_2011_FieldSampleSoilResults_2

Format

A data.table data frame with 2,032 rows and 25 variables:

Analysis Id Identification for the analysis

Sample Id Identification for the sample

Sample# Sample number

Type Source of sample

Fixed? Is the type fixed?

Latitude Latitude for the sample location

Longitude Longitude for the sample location

Distance(miles) Distance in miles

Bearing Bearing for the location

Direction Direction for the location

Collection Date Date of collection

Source Source

Description Description

Weight Filter type

Weight Unit Volume

Depth Unit of measurement for volume

Surface Area(cm2) Volume

Shape Unit of measurement for volume

Uncertainty% Percent of uncertainty

MDA MDA

Method Code Method code

Moisture% Moisture percent

Nuclide Nuclide

Result Result

Unit Unit for the result

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA),
"US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Soil Samples",
'<https://web.archive.org/web/20160617000359/https://catalog.data.gov/dataset/us-doe-nnsa-and-dod-res>
Retrieved thanks to the Internet Archive: Wayback Machine

Fukushima_2011_FieldSampleSoilResults_2_Metadata

US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Soil Samples Metadata

Description

A list containing the metadata for US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Soil Samples.

Usage

Fukushima_2011_FieldSampleSoilResults_2_Metadata

Format

A list with 20 objects

Source

United States (US) Department of Energy (DOE)/National Nuclear Security Administration (NNSA),
"US DOE/NNSA and DoD Response to 2011 Fukushima Incident: Radiological Soil Samples",
'<https://web.archive.org/web/20160617000359/https://catalog.data.gov/dataset/us-doe-nnsa-and-dod-res>
Retrieved thanks to the Internet Archive: Wayback Machine

gas_constant

Gas Constant in Various Units

Description

A table containing the gas constant with various units.

Usage

gas_constant

Format

A data.table data frame with 16 rows and 4 variables:

R Values Gas constant (R) values

Units Unit for the R value

R Values Units R values with units

Plain Units raw Unit for the R value

Source

Wikimedia Foundation, Inc. Wikipedia, 9 August 2024, "Gas constant", [‘https://en.wikipedia.org/wiki/Gas_constant’](https://en.wikipedia.org/wiki/Gas_constant)

gases	<i>Gases at Standard Temperature and Pressure (STP) – Wikipedia</i>
-------	---

Description

A table containing gases at standard conditions.

Usage

gases

Format

A data.table data frame with 543 rows and 7 variables:

Name Name of the gas

Formula Chemical formula of the gas

Formula (Additional) Chemical formula of the gas – additional formula, as needed

Boiling pt (\u00b0C) Boiling point of the gas in degrees Celsius

Melting pt (\u00b0C) Melting point of the gas in degrees Celsius

Molecular weight Molecular weight of the gas

CAS CAS number

Source

Wikimedia Foundation, Inc. Wikipedia, 31 January 2025, "List of gases", [‘https://en.wikipedia.org/wiki/List_of_gases’](https://en.wikipedia.org/wiki/List_of_gases)

gases_plain	<i>Gases at Standard Temperature and Pressure (STP) – Wikipedia – Plain</i>
-------------	---

Description

A table containing gases at standard conditions without the brackets next to the gas name in the Name column.

Usage

```
gases_plain
```

Format

A data.table data frame with 543 rows and 7 variables:

Name Name of the gas

Formula Chemical formula of the gas

Formula (Additional) Chemical formula of the gas – additional formula, as needed

Boiling pt (\u00b0C) Boiling point of the gas in degrees Celsius

Melting pt (\u00b0C) Melting point of the gas in degrees Celsius

Molecular weight Molecular weight of the gas

CAS CAS number

Source

Wikimedia Foundation, Inc. Wikipedia, 31 January 2025, "List of gases", https://en.wikipedia.org/wiki/List_of_gases

gases_plainer	<i>Gases at Standard Temperature and Pressure (STP) – Wikipedia – Plainer</i>
---------------	---

Description

A table containing gases at standard conditions as plain as possible. This data set was created for use in the ideal_gas function in the iemisc package.

Usage

```
gases_plainer
```

Format

A data.table data frame with 543 rows and 9 variables:

Name Name of the gas

Formula Chemical formula of the gas

Formula (Additional) Chemical formula of the gas – additional formula, as needed

Boiling pt (\u00b0C) Boiling point of the gas in degrees Celsius

Melting pt (\u00b0C) Melting point of the gas in degrees Celsius

Molecular weight Molecular weight of the gas

Mass Calculated molecular weight of the gas using the CHNOSZ package

Atoms Number of total atoms of each element calculated using the CHNOSZ package

CAS CAS number

Source

Wikimedia Foundation, Inc. Wikipedia, 31 January 2025, "List of gases", https://en.wikipedia.org/wiki/List_of_gases

gases_table

Gaseous Elements and Compounds

Description

A table containing gases at standard conditions. This table is derived from dry_air, gases_plain, and common_gases_simp.

Usage

gases_table

Format

A data.table data frame with 538 rows and 4 variables:

Name Name of the gas

Formula Chemical formula of the gas

Molecular weight Molecular weight of the gas

CAS CAS number

Source

1. Chemistry LibreTexts, "Chapter 10.1: Gaseous Elements and Compounds", [https://chem.libretexts.org/LibreTexts/Chemistry/General_Chemistry/Chapter_10.1: Gaseous Elements and Compounds](https://chem.libretexts.org/LibreTexts/Chemistry/General_Chemistry/Chapter_10%3A_Gases/10.1%3A_Gaseous_Elements_and_Compounds)
2. Gaseous composition of dry air, <https://web.archive.org/web/20161222023409/https://eesc.columbia.edu/research/air-quality/gaseous-composition-of-dry-air> Retrieved thanks to the Internet Archive: Wayback Machine. Original data source: Mackenzie, F.T. and J.A. Mackenzie (1995) *Our changing planet*. Prentice-Hall, Upper Saddle River, NJ, p 288-307. (After Warneck, 1988; Anderson, 1989; Wayne, 1991.)
3. Wikimedia Foundation, Inc. Wikipedia, 26 August 2023, "List of gases", https://en.wikipedia.org/wiki/List_of_gases

greenhouse_gases_cloudy_notes_wikipedia

*Greenhouse Gases – Percent Contribution to Total Greenhouse Effect
Notes (Wikipedia)*

Description

A table containing the notes associated with the greenhouse gas contribution table.

Usage

greenhouse_gases_cloudy_notes_wikipedia

Format

A data.table data frame with 3 rows and 2 variables:

Note Number (*) The note numbers

Notes The notes

Source

Wikimedia Foundation, Inc. Wikipedia, 25 August 2023, "Greenhouse gas", https://en.wikipedia.org/wiki/Greenhouse_gas

greenhouse_gases_cloudy_sky

*Clear and cloudy sky radiative forcing ($W\ m^{-2}$) and the contribution
of individual absorbers to this total*

Description

A table containing the "clear and cloudy sky radiative forcing".

Usage

greenhouse_gases_cloudy_sky

Format

A data.table data frame with 7 rows and 6 variables:

Gas Gas Name

Individual contribution ($W\ m^{-2}$) Individual contribution in $W\ m^{-2}$ with a clear sky

Individual contribution - Cloudy sky ($W\ m^{-2}$) Individual contribution in $W\ m^{-2}$ with a cloudy sky

Combined with overlap effects (W m⁻²) Combined with overlap effects in W m⁻² with a clear sky

Combined with overlap effects - Cloudy sky (W m⁻²) Combined with overlap effects in W m⁻² with a cloudy sky

Percent contribution clear sky (W m⁻²) Percent contribution clear sky in W m⁻²

Source

"Earth's Annual Global Mean Energy Budget" By J. T. Kiehl and Kevin E. Trenberth, *Bulletin of the American Meteorological Society*, Vol. 78, No. 2, February 1997, Pages 197-208, 'https://web.archive.org/web/200603/Retrieved thanks to the Internet Archive: Wayback Machine. Table 3. Clear and cloudy sky radiative forcing (W m⁻²) and the contribution of individual absorbers to this total. Cloudy sky results are in parentheses from the Reference

greenhouse_gases_cloudy_wikipedia

Greenhouse Gases – Percent Contribution to Total Greenhouse Effect (Wikipedia)

Description

A table containing the greenhouse gas contribution table.

Usage

greenhouse_gases_cloudy_wikipedia

Format

A data.table data frame with 6 rows and 5 variables:

Contributor Greenhouse gas contributor name

K&T (1997) – Clear Sky Greenhouse gas individual contribution with a clear sky according to K&T

K&T (1997) – With Clouds Greenhouse gas individual contribution with a cloudy sky according to K&T

Schmidt (2010) – Clear Sky Greenhouse gas individual contribution with a clear sky according to Schmidt

Schmidt (2010) – With Clouds Greenhouse gas individual contribution with a cloudy sky according to Schmidt

Source

Wikimedia Foundation, Inc. Wikipedia, 25 August 2023, "Greenhouse gas", 'https://en.wikipedia.org/wiki/Greenhou

greenhouse_gases_contributions

*Greenhouse Gases – Percent Contribution to Total Greenhouse Effect
(NASA)*

Description

A table containing the percent contribution to the total greenhouse effect.

Usage

```
greenhouse_gases_contributions
```

Format

A data.table data frame with 4 rows and 3 variables:

Gas_Name Name of the gas

Gas_Formula Chemical formula of the gas

Greenhouse Gas Contributions (approximate percent values) Individual greenhouse contribution by percent

Source

NASA Goddard Space Flight Center: EOS Project Science Office: Earth Observatory. Jun 16, 2011, "Effects of Changing the Carbon Cycle", https://web.archive.org/web/20240328160004/https://earthobservatory.gov/2011/06/16/effects_of_changing_the_carbon_cycle/ [Recovered with the Internet Archive: Wayback Machine]

hsg

Table from Appendix A: Hydrologic Soil Groups (HSGs)

Description

A table containing the hydrologic soil groups.

Usage

```
hsg
```

Format

A data.table data frame with 4 rows and 2 variables:

Hydrologic Soil Group (HSG) Hydrologic soil group

Soil textures Texture of soil

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=2835' [Recovered with the Internet Archive: Wayback Machine]

hsg_definitions	Table from Appendix A: Definitions of Hydrologic Soil Groups (HSGs)
-----------------	---

Description

A table containing the definitions of the hydrologic soil groups.

Usage

hsg_definitions

Format

A data.table data frame with 4 rows and 2 variables:

Definitions Definition of the hydrologic soil groups

Drainage Drainage information for the hydrologic soil groups, if any

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=2835' [Recovered with the Internet Archive: Wayback Machine]

i_25	1/4 Percent Effective Interest Table (Engineering Economy)
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Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i_25

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i_50

1/2 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i_50

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value
A/P Annual value given present value
P/G Present value given gradient
A/G Annual value given gradient
n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i_75

3/4 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i_75

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"
F/P Future value given present value
P/F Present value given future value
F/A Future value given annual value
P/A Present value given annual value
A/F Annual value given future value
A/P Annual value given present value
P/G Present value given gradient
A/G Annual value given gradient
n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i1

*1 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i1

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i1_50

*1 1/2 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i1_50

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i10

*10 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i10

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i12

*12 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i12

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i15

*15 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i15

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i18

*18 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i18

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i2

2 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i2

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i20

*20 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i20

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i25

*25 Percent Effective Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i25

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i3

3 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i3

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i4

4 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i4

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i5

5 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i5

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i6

6 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i6

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i7

7 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i7

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i8

8 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i8

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

i9

9 Percent Effective Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "effective interest rate" and period.

Usage

i9

Format

A data.table data frame with 34 rows and 10 variables:

n The "number of interest periods"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

A/F Annual value given future value

A/P Annual value given present value

P/G Present value given gradient

A/G Annual value given gradient

n The "number of interest periods"

Source

1. William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.
2. Masoud Olia, Ph.D., P.E. and Contributing Authors, *Barron's FE (Fundamentals of Engineering Exam)*, 3rd Edition, Hauppauge, New York: Barron's Educational Series, Inc., 2015, Page 178-187.

Ia *Table 4-1: Ia values for runoff Curve number*

Description

A table containing curve numbers for initial abstraction.

Usage

Ia

Format

A data.table data frame with 59 rows and 2 variables:

Curve number Runoff curve number

Ia (in) Initial abstraction in inches

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, <https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=2825> [Recovered with the Internet Archive: Wayback Machine]

LETRA	Uppercase Spanish and Catalan Letters
-------	---------------------------------------

Description

A character vector with the combined Spanish and Catalan letters (uppercase).

Usage

LETRA

Format

A vector of length of 36.

Source

1. Wikimedia Foundation, Inc. Wikipedia, 29 December 2024, "Catalan orthography", https://en.wikipedia.org/wiki/Catalan_orthography.
2. Wikimedia Foundation, Inc. Wikipedia, 10 November 2024, "Spanish orthography", https://en.wikipedia.org/wiki/Spanish_orthography.

letras	<i>Lowercase Spanish and Catalan Letters</i>
--------	--

Description

A character vector with the combined Spanish and Catalan letters (lowercase).

Usage

letras

Format

A vector of length of 36.

Source

- 1. Wikimedia Foundation, Inc. Wikipedia, 29 December 2024, "Catalan orthography", ‘https://en.wikipedia.org/wiki/Catalan_orthography’.
- 2. Wikimedia Foundation, Inc. Wikipedia, 10 November 2024, "Spanish orthography", ‘https://en.wikipedia.org/wiki/Spanish_orthography’.

military_nuclear_accidents_wiki	<i>Military nuclear accidents (Wikipedia)</i>
---------------------------------	---

Description

A table containing the military nuclear accidents.

Usage

military_nuclear_accidents_wiki

Format

A data.table data frame with 76 rows and 4 variables:

- Date** Date of the accident
- Location** Location of the accident
- Type** Type of accident
- Description** Description of accident or incident

Source

Wikimedia Foundation, Inc. Wikipedia, 15 September 2023, "List of military nuclear accidents", ‘https://en.wikipedia.org/wiki/List_of_military_nuclear_accidents’.

nchannel	<i>Manning's n for Channels</i>
----------	---------------------------------

Description

A table containing the type of channel and description along with the minimum, normal, and maximum value of n , if it exists. n is the "Gauckler- Manning coefficient (commonly called Manning's n)" and it's dimensionless. Source: Manning formula.

Usage

```
nchannel
```

Format

A data.table data frame with 97 rows and 4 variables:

Type of Channel and Description Type of channel name and any descriptive information

Minimum n Minimum n value

Normal n Normal n value

Maximum n Maximum n value

Source

1. This data is from FishXing Version 3.0 Beta (2006) by Michael Furniss, Michael Love, Susan Firor, Kathleen Moynan, Antonio Llanos, Jeff Guntle, and Robert Gubernick. See 'https://www.fsl.orst.edu/geowater/FX3/help/8_Hydraulic_Reference/Mannings_n_Tables.htm'. The original data source is Ven Te Chow, *Open-Channel Hydraulics*, New York City, York: McGraw-Hill, 1959.
2. Wikimedia Foundation, Inc. Wikipedia, 26 November 2015, "Manning formula", 'https://en.wikipedia.org/wiki/Manning_formula'.

nmetalpipe	<i>Manning's n for Corrugated Metal Pipe</i>
------------	--

Description

A table containing the type of channel and description along with the minimum, normal, and maximum value of n , if it exists. n is the "Gauckler- Manning coefficient (commonly called Manning's n)" and it's dimensionless. Source: Manning formula.

Usage

```
nmetalpipe
```

Format

A data.table data frame with 25 rows and 2 variables:

Type of Pipe and Diameter and Corrugation Dimension Name of the type of conduit and any descriptive information

n Manning's n

Source

1. This data is from FishXing Version 3.0 Beta (2006) by Michael Furniss, Michael Love, Susan Firor, Kathleen Moynan, Antonio Llanos, Jeff Guntle, and Robert Gubernick. See 'https://www.fsl.orst.edu/geowater/FX3/help/8_Hydraulic_Reference/Mannings_n_Tables.htm'. The original data source is Ven Te Chow, *Open-Channel Hydraulics*, New York City, York: McGraw-Hill, 1959.
2. Wikimedia Foundation, Inc. Wikipedia, 26 November 2015, "Manning formula", '<https://en.wikipedia.org/wiki/>

norfolk_southern_epoh *United States EPA East Palestine, Ohio Norfolk Southern Train 32N Cargo List*

Description

A table containing the cargo list for Norfolk Southern Train 32N.

Usage

norfolk_southern_epoh

Format

A data.table data frame with 52 rows and 9 variables:

Line # Car line number on the train

Train Car ID Train car identification

Load/Empty Loaded or empty car

Car Type Type of car

Commodity Commodity in the car

Tank Car Specification Tank car specification

UN ID UN identification

Hazardous Class Class of hazardous material

Status of Car Status of the car after the derailment

Source

US Environmental Protection Agency (EPA), "TRAIN 32N cargo list", '<https://web.archive.org/web/20230828020903/>
Used the Internet Archive: Wayback Machine archived version for acceptance into CRAN.

npartfull

*Manning's n for Closed Conduits Flowing Partly Full***Description**

A table containing the type of channel and description along with the minimum, normal, and maximum value of n , if it exists. n is the "Gauckler- Manning coefficient (commonly called Manning's n)" and it's dimensionless. Source: Manning formula.

Usage

npartfull

Format

A data.table data frame with 38 rows and 4 variables:

Type of Conduit and Description Type of conduit name and any descriptive information

Minimum n Minimum n value

Normal n Normal n value

Maximum n Maximum n value

Source

1. This data is from FishXing Version 3.0 Beta (2006) by Michael Furniss, Michael Love, Susan Firor, Kathleen Moynan, Antonio Llanos, Jeff Guntle, and Robert Gubernick. See 'https://www.fsl.orst.edu/geowater/FX3/help/8_Hydraulic_Reference/Mannings_n_Tables.htm'. The original data source is Ven Te Chow, *Open-Channel Hydraulics*, New York City, York: McGraw-Hill, 1959.
2. Wikimedia Foundation, Inc. Wikipedia, 26 November 2015, "Manning formula", 'https://en.wikipedia.org/wiki/Manning_formula'.

nsheetflow

*Table 3-1: Roughness coefficients (Manning's n) for sheet flow***Description**

A table containing Manning's roughness coefficient for sheet flow.

Usage

nsheetflow

Format

A data.table data frame with 12 rows and 2 variables:

Surface description Description of the surface
"n *1 Manning’s roughness coefficient

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, Page 3-3, ‘<https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNon>’ [Recovered with the Internet Archive: Wayback Machine]

nsheetflow_notes	<i>Notes for Table 16-2 Computation of coordinates for unit hydrograph for use in example 16-1</i>
------------------	--

Description

A table containing the notes for Manning’s roughness coefficient for sheet flow.

Usage

nsheetflow_notes

Format

A data.table data frame with 3 rows and 2 variables:

Note Number (*) The note numbers
Notes The notes

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, Page 3-3, ‘<https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNon>’ [Recovered with the Internet Archive: Wayback Machine]

nuclear_accidents	<i>Nuclear & Radiation Accidents and incidents (The Guardian)</i>
-------------------	---

Description

A table containing nuclear & radiation accidents and incidents since 1952.

Usage

```
nuclear_accidents
```

Format

A data.table data frame with 33 rows and 6 variables:

Date Year of the accident

Incident Name of the incident

INES rating INES level

Country Country where the accident took place

Location Location of the accident

IAEA description IAEA description of accident or incident

Source

The Guardian, "Nuclear power plant accidents: listed and ranked since 1952: How many nuclear power plants have had accidents and incidents?", <https://www.theguardian.com/news/datablog/2011/mar/14/nuclear>

nuclear_accidents_ranked	<i>Ranked Nuclear & Radiation Accidents and incidents (The Guardian)</i>
--------------------------	--

Description

A table containing the military nuclear accidents.

Usage

```
nuclear_accidents_ranked
```

Format

A data.table data frame with 7 rows and 6 variables:

Level Ranked level of severity of the accident

Definition Definition associated with each level

People and environment Any harm to Human Beings and/or the surrounding environment

Radiological barriers & control Any radiological barriers and/or controls

Defence in depth Defensive barriers described

Example An example of an accident or incident at the given level

Source

The Guardian, "Nuclear power plant accidents: listed and ranked since 1952: How many nuclear power plants have had accidents and incidents?", <https://www.theguardian.com/news/datablog/2011/mar/14/nuclear>

nuclear_accidents_wiki

Nuclear and radiation accidents and incidents (Wikipedia)

Description

A table containing nuclear and radiation accidents and incidents.

Usage

nuclear_accidents_wiki

Format

A data.table data frame with 28 rows and 6 variables:

Date Date of the accident

Location Location of the accident

Description Description of accident or incident

Fatalities Number of people that died

Cost (in millions 2006 US\$) Cost in millions of 2006 US dollars

INES rating) INES level

Source

Wikimedia Foundation, Inc. Wikipedia, 5 September 2023, "Nuclear and radiation accidents and incidents", https://en.wikipedia.org/wiki/Nuclear_and_radiation_accidents_and_incidents'.

nuclear_power_accidents_country_wiki	<i>Nuclear power accidents by country (Wikipedia)</i>
--------------------------------------	---

Description

A table containing the nuclear power accidents by country.

Usage

nuclear_power_accidents_country_wiki

Format

A data.table data frame with 133 rows and 9 variables:

- Date** Date of the accident
- Country** Country where the accident took place
- Location** Location of the accident
- Description** Description of accident or incident
- INES rating** INES level
- Fatalities** Number of people that died
- Victims** Number of people that had adverse health effects, but did not die
- Cost (in millions 2006 US\$)** Cost in millions of 2006 US dollars
- Cost** Cost

Source

Wikimedia Foundation, Inc. Wikipedia, 24 June 2024, "List of nuclear power accidents by country", 'https://en.wikipedia.org/wiki/List_of_nuclear_power_accidents_by_country'.

plant_essentials	<i>Table of Plant Nutrients</i>
------------------	---------------------------------

Description

A table containing the plant macro- and micro-nutrients as chemical elements. This data set contains the content of "Table of Plant Nutrients" without the element oxidation states.

Usage

plant_essentials

Format

A data.table data frame with 11 rows and 2 variables:

Elemental Macronutrients The plant macronutrients

Elemental Micronutrients The plant micronutrients

Source

Irucka Ajani Embry, "Table of Plant Nutrients", *Tuning to the Soil-ed Seed Vibrations For Our Collective Health*, Nashville, Tennessee: Questioning the Universe Publishing, 2024, Page 15. See '<https://www.qup.quest/soiled-seeds.html>'.

pres_cont_congress	<i>United States President of the Continental Congress</i>
--------------------	--

Description

A table containing the US Presidents of the Continental Congress.

Usage

```
pres_cont_congress
```

Format

A data.table data frame with 16 rows and 9 variables:

Name The name of the President

Year Born The year the President was born

Year Died The year the President died

State/colony The State/Colony where the President resided

Term Begin Beginning date of the term

Term End Ending date of the term

Term Beginning to ending date of the term

Length Length of the term

Previous position Previous position prior to being President

Source

Wikimedia Foundation, Inc. Wikipedia, 18 August 2023, "President of the Continental Congress", 'https://en.wikipedia.org/wiki/President_of_the_Continental_Congress'.

pres_elect

*Wikipedia Table of the United States of America Presidential Elections***Description**

A table containing the results of the US Presidential Elections.

Usage

```
pres_elect
```

Format

A data.table data frame with 220 rows and 8 variables:

Year Year of the election

Party Political party

Presidential candidate Presidential Candidate for the Political Party

Vice presidential candidate Vice Presidential Candidate for the Political Party, if any

Popular vote Number of popular votes

Popular vote % % of popular votes

Electoral votes Number of electoral votes

Notes Any notes – refer to the Reference for the notes

Source

Wikimedia Foundation, Inc. Wikipedia, Accessed on 17 May 2023, United States presidential election. https://en.wikipedia.org/wiki/United_States_presidential_election. This Page was last edited on 15 May 2023

r10

*10 Percent Nominal Interest Table (Engineering Economy)***Description**

A table containing the number of periods and the corresponding engineering economic value given the "nominal annual interest rate, compounded continuously" and period.

Usage

```
r10
```

Format

A data.table data frame with 44 rows and 6 variables:

n The "number of periods (years)"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

n The "number of periods (years)"

Source

William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.

r20

20 Percent Nominal Interest Table (Engineering Economy)

Description

A table containing the number of periods and the corresponding engineering economic value given the "nominal annual interest rate, compounded continuously" and period.

Usage

r20

Format

A data.table data frame with 44 rows and 6 variables:

n The "number of periods (years)"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

n The "number of periods (years)"

Source

William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.

r8	<i>8 Percent Nominal Interest Table (Engineering Economy)</i>
----	---

Description

A table containing the number of periods and the corresponding engineering economic value given the "nominal annual interest rate, compounded continuously" and period.

Usage

r8

Format

A data.table data frame with 44 rows and 6 variables:

n The "number of periods (years)"

F/P Future value given present value

P/F Present value given future value

F/A Future value given annual value

P/A Present value given annual value

n The "number of periods (years)"

Source

William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, *Engineering Economy*, Fourteenth Edition, Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009, Page 625-647.

raddata_US_Fukushima_2011

US EPA Envirofacts RadNet (Radiation in the US)

Description

A table containing data after the radiation leaks from the nuclear power plants in Japan.

Usage

raddata_US_Fukushima_2011

Format

A data.table data frame with 2,963 rows and 13 variables:

Analyte ID Identification for the analyte

Analyte Name Analyte name

Result Amount Amount of the analyte

Result Unit Unit of measurement for the amount

Collect End End date for the collection

Result Date Date of the results

Mat Desc Description of the material

Samp Size Sample size

Samp Unit Unit of measurement for the sample

Location 1 (City) Location 1 city name

Location 1 (State) Location 1 State/Commonwealth name

Location 1 (Latitude) Location 1 latitude

Location 1 (Longitude) Location 1 longitude

Source

United States (US) Environmental Protection Agency (EPA), "EPA Envirofacts RadNet Customized Search All RADIATION DATA in the USA: All data returning above zero from march 11 2011. Until the EPA halted public reporting. Doh!", <https://web.archive.org/web/20111114010540/https://opendata.socrata.com/dataset/epa-envirofacts-radnet-customized-search-all-radiation-data-in-the-usa-all-data-returning-above-zero-from-march-11-2011-until-the-epa-halted-public-reporting-doh!>, Retrieved thanks to the Internet Archive: Wayback Machine

raddata_usa_territories_Fukushima_2011

United States EPA Radiation Readings from 1 March 2011 to 22 April 2011

Description

A table containing data after the radiation leaks from the nuclear power plants in Japan.

Usage

raddata_usa_territories_Fukushima_2011

Format

A data.table data frame with 3,223 rows and 41 variables:

State Abbreviation Nation State or US State/Commonwealth abbreviation

City Name Name of the city

Analyte Name Name of the analyte

Analyte ID Identification for the analyte

Result Amount Amount of the analyte

Result Unit Unit of measurement for the amount

Media Description Description of the medium

Collection Start Date Start date for the collection

Collection Ending Date End date for the collection

Result Date Date of the results

Surface Water Source Source of the surface water

Half Life Half-life of the analyte

Half Life Time Unit Unit of measurement for the half-life

Location Number-2 Location number

Project Number-2 Project number-2

Combined Standard Uncertainty Combined standard uncertainty

Minimum Detection Concentration Minimum detectable concentration

Analysis Number-2 Analysis number

Analyte Type Type of analyte

Ana Proc Name Analytical procedure name

Matrix ID Matrix identification

Project Number-3 Project number-3

Location Number Location number

Sample ID Sample identification

Sample Size Sample size

Sample Unit Unit of measurement for the sample

Analysis Number Analysis number

Analysis Size Analysis size

Analysis Unit Unit of measurement for the analysis

Analysis Size 2 Analysis size-2

Analysis Unit 2 Unit of measurement for the analysis-2

Analysis Proc Number Analysis procedure number

Proc Type ID Identification of the procedure type

Run Number Run number

Detection Number Detection number

Run Start Start of the run
Duration Duration of the run
Project Number Project number
Study Number Study number
Project ID Identification of the project
Study Name Name of the study

Source

United States (US) Environmental Protection Agency (EPA), "Radiation Data from EPA RadNet Radiation Alert Network 03/01/2011 - 04/22/2011: Based on Radiation Data from EPA RadNet Radiation Alert Network: Medium : Equal to , Air-Charcoal, Air-Filter, Drinking Water, Pasteurized Milk, Precipitation, Surface Water", 'https://web.archive.org/web/20110820090335/http://opendata.socrata.com Retrieved thanks to the Internet Archive: Wayback Machine

rainfall_distribution_equation_coefficients
<i>Table F-2 Coefficients for the equation used to generate figure 6-1</i>

Description

A table containing the coefficients to generate Figure 6-1.

Usage

rainfall_distribution_equation_coefficients

Format

A data.table data frame with 4 rows and 5 variables:

- Rainfall distribution** Rainfall distribution type
- C0** Coefficient value
- C1** Coefficient value
- C2** Coefficient value
- C3** Coefficient value

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, 'https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?ContentID=10000' [Recovered with the Internet Archive: Wayback Machine]

rainfall_type_equation_coefficients

Table F-1 Coefficients for the equation used to generate exhibits 4-I through 4-III

Description

A table containing the coefficients to generate exhibits 4-1 to 4-III.

Usage

rainfall_type_equation_coefficients

Format

A data.table data frame with 28 rows and 5 variables:

Rainfall type Rainfall distribution type

Ia/P "Initial abstraction" over Rainfall ratio

C0 Coefficient value

C1 Coefficient value

C2 Coefficient value

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, <https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?ContentID=22> [Recovered with the Internet Archive: Wayback Machine]

riprap_table_ft

Tennessee Department of Transportation (TDOT) Machined riprap Table (feet)

Description

A table containing the sizes of TDOT machined riprap in feet.

Usage

riprap_table_ft

Format

A data.table data frame with 5 rows and 4 variables:

Machined riprap Class TDOT class of machined riprap

Minimum Diameter Size [ft] Minimum diameter size of riprap

Average Diameter Size [ft] Average diameter size of riprap

Maximum Diameter Size [ft] Maximum diameter size of riprap

Source

1. Tennessee Department of Transportation (TDOT) 2015 Standard Specifications, '<https://www.tn.gov/content/tn/t>
2. Tennessee Department of Transportation (TDOT) Standard Specifications for Road and Bridge Construction, 'https://www.tn.gov/content/dam/tn/tdot/construction/old_web_page/TDOT_2015_Spec_Boo
3. City of Knoxville BMP Manual Erosion & Sediment – ACTIVITY: Riprap ES–23, May 2003
'https://cdns5-hosted.civiclive.com/UserFiles/Servers/Server_109478/File/Engineering/BMPManual

riprap_table_in	<i>Tennessee Department of Transportation (TDOT) Machined riprap Table (inches)</i>
-----------------	---

Description

A table containing the sizes of TDOT machined riprap in inches.

Usage

riprap_table_in

Format

A data.table data frame with 5 rows and 4 variables:

Machined riprap Class Description of the surface

Minimum Diameter Size [in] Minimum diameter size of riprap

Average Diameter Size [in] Minimum diameter size of riprap

Maximum Diameter Size [in] Minimum diameter size of riprap

Source

1. Tennessee Department of Transportation (TDOT) 2015 Standard Specifications, '<https://www.tn.gov/content/tn/t>
2. Tennessee Department of Transportation (TDOT) Standard Specifications for Road and Bridge Construction, 'https://www.tn.gov/content/dam/tn/tdot/construction/old_web_page/TDOT_2015_Spec_Boo
3. City of Knoxville BMP Manual Erosion & Sediment – ACTIVITY: Riprap ES–23, May 2003
'https://cdns5-hosted.civiclive.com/UserFiles/Servers/Server_109478/File/Engineering/BMPManual

riprap_table_mm	<i>Tennessee Department of Transportation (TDOT) Machined riprap Table (millimeters)</i>
-----------------	--

Description

A table containing the sizes of TDOT machined riprap in millimeters.

Usage

```
riprap_table_mm
```

Format

A data.table data frame with 5 rows and 4 variables:

Machined riprap Class Description of the surface

Minimum Diameter Size [mm] Minimum diameter size of riprap

Average Diameter Size [mm] Minimum diameter size of riprap

Maximum Diameter Size [mm] Minimum diameter size of riprap

Source

1. Tennessee Department of Transportation (TDOT) 2015 Standard Specifications, '<https://www.tn.gov/content/tn/t>
2. Tennessee Department of Transportation (TDOT) Standard Specifications for Road and Bridge Construction, 'https://www.tn.gov/content/dam/tn/tdot/construction/old_web_page/TDOT_2015_Spec_Boo
3. City of Knoxville BMP Manual Erosion & Sediment – ACTIVITY: Riprap ES–23, May 2003
'https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server_109478/File/Engineering/BMPManual

riprap_table_yd	<i>Tennessee Department of Transportation (TDOT) Machined riprap Table (yards)</i>
-----------------	--

Description

A table containing the sizes of TDOT machined riprap in yards.

Usage

```
riprap_table_yd
```

Format

A data.table data frame with 5 rows and 4 variables:

Machined riprap Class Description of the surface

Minimum Diameter Size [yd] Minimum diameter size of riprap

Average Diameter Size [yd] Minimum diameter size of riprap

Maximum Diameter Size [yd] Minimum diameter size of riprap

Source

1. Tennessee Department of Transportation (TDOT) 2015 Standard Specifications, '<https://www.tn.gov/content/tn/t>
2. Tennessee Department of Transportation (TDOT) Standard Specifications for Road and Bridge Construction, 'https://www.tn.gov/content/dam/tn/tdot/construction/old_web_page/TDOT_2015_Spec_Boo
3. City of Knoxville BMP Manual Erosion & Sediment – ACTIVITY: Riprap ES–23, May 2003
'https://cdns5-hosted.civiclive.com/UserFiles/Servers/Server_109478/File/Engineering/BMPManual

runoff_depth

Table 2-1: Runoff depth for selected CN's and rainfall amounts

Description

A table containing certain Curve Numbers and the rainfall amounts.

Usage

runoff_depth

Format

A data.table data frame with 22 rows and 14 variables:

Rainfall (in) Amount of rainfall in inches

Runoff depth (in) for curve number of 40 Runoff depth in inches for a curve number of 40

Runoff depth (in) for curve number of 45 Runoff depth in inches for a curve number of 45

Runoff depth (in) for curve number of 50 Runoff depth in inches for a curve number of 50

Runoff depth (in) for curve number of 55 Runoff depth in inches for a curve number of 55

Runoff depth (in) for curve number of 60 Runoff depth in inches for a curve number of 60

Runoff depth (in) for curve number of 65 Runoff depth in inches for a curve number of 65

Runoff depth (in) for curve number of 70 Runoff depth in inches for a curve number of 70

Runoff depth (in) for curve number of 75 Runoff depth in inches for a curve number of 75

Runoff depth (in) for curve number of 80 Runoff depth in inches for a curve number of 80

Runoff depth (in) for curve number of 85 Runoff depth in inches for a curve number of 85

Runoff depth (in) for curve number of 90 Runoff depth in inches for a curve number of 90

Runoff depth (in) for curve number of 95 Runoff depth in inches for a curve number of 95

Runoff depth (in) for curve number of 98 Runoff depth in inches for a curve number of 98

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, <https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?ContentID=24> [Recovered with the Internet Archive: Wayback Machine]

runoff_depth_notes	<i>Notes for Table 2-1: Runoff depth for selected CN's and rainfall amounts</i>
--------------------	---

Description

A table containing the notes for the runoff depth table.

Usage

runoff_depth_notes

Format

A data.table data frame with 1 rows and 2 variables:

Note Number (*) The note numbers

Notes The notes

Source

United States Department of Agriculture Natural Resources Conservation Service Conservation Engineering Division, "Urban Hydrology for Small Watersheds Technical Release 55 (TR-55)", June 1986, <https://web.archive.org/web/20230810204711/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?ContentID=24> [Recovered with the Internet Archive: Wayback Machine]

uh_ratios	<i>Table 16-2 Computation of coordinates for unit hydrograph for use in example 16-1</i>
-----------	--

Description

A table containing the coordinates for a unit hydrograph. Developed for use in Example 16-1.

Usage

uh_ratios

Format

A data.table data frame with 51 rows and 2 variables:

Time ratios (t/Tp) "ratio of the time of DUH coordinate to time to peak of the DUH"

Discharge ratios (q/qp) "ratio of discharge at a certain time to the peak discharge of the unit hydrograph (UH)"

Source

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), *National Engineering Handbook*, "Part 630 Hydrology Chapter 16 Hydrographs", Pages 16-4, 16-9, 16-15, '<https://web.archive.org/web/20230615195809/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=1147>' [Recovered with the Internet Archive: Wayback Machine]

uh_ratios_masscurve	<i>Table 16-1: Ratios for dimensionless unit hydrograph and mass curve</i>
---------------------	--

Description

A table containing the time, discharge, and mass curve ratios.

Usage

```
uh_ratios_masscurve
```

Format

A data.table data frame with 33 rows and 3 variables:

Time ratios (t/Tp) "ratio of the time of DUH coordinate to time to peak of the DUH"

Discharge ratios (q/qp) "ratio of discharge at a certain time to the peak discharge of the unit hydrograph (UH)"

Mass curve ratios (Qa/Q) ratio of "accumulated volume at time" to the "total volume"

Source

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), *National Engineering Handbook*, "Part 630 Hydrology Chapter 16 Hydrographs", Pages 16-4, 16-9, 16-15, '<https://web.archive.org/web/20230615195809/https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?id=1147>' [Recovered with the Internet Archive: Wayback Machine]

 USA_primary_water_contaminants

US EPA National Primary Drinking Water Regulations Contaminants

Description

A table containing the primary drinking water pollutants.

Usage

USA_primary_water_contaminants

Format

A data.table data frame with 87 rows and 5 variables:

Contaminant The name of the contaminant

MCLG1 (mg/L)2 Maximum Contaminant Level Goal (MCLG) in mg/L

MCL or TT1 (mg/L)2 Maximum Contaminant Level (MCL) in mg/L

Potential Health Effects from Long-Term Exposure Above the MCL (unless specified as short-term)

Potential adverse health effects

Sources of Contaminant in Drinking Water What is the source of the contaminant

Source

United States (US) Environmental Protection Agency (EPA): "National Primary Drinking Water

Regulations", '<https://web.archive.org/web/20230801024443/https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>

Used the Internet Archive: Wayback Machine archived version for acceptance into CRAN.

 USA_primary_water_contaminants_notes

*US EPA National Primary Drinking Water Regulations Contaminants
Notes*

Description

A table of notes for the primary drinking water pollutants table.

Usage

USA_primary_water_contaminants_notes

Format

A data.table data frame with 29 rows and 2 variables:

Note Number (*) The note numbers

Notes The notes

Source

United States (US) Environmental Protection Agency (EPA): "National Primary Drinking Water Regulations", '<https://web.archive.org/web/20230801024443/https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>',
Used the Internet Archive: Wayback Machine archived version for acceptance into CRAN.

USA_secondary_water_contaminants

US EPA Secondary Drinking Water Standards

Description

A table containing the secondary drinking water pollutants.

Usage

USA_secondary_water_contaminants

Format

A data.table data frame with 15 rows and 3 variables:

Contaminant The name of the contaminant

Secondary MCL Maximum Contaminant Level (MCL)

Noticeable Effects above the Secondary MCL What are the noticeable effects above the secondary MCL

Source

United States (US) Environmental Protection Agency (EPA): "Secondary Drinking Water Standards: Guidance for Nuisance Chemicals", '<https://web.archive.org/web/20230903054648/https://www.epa.gov/secondary-drinking-water-standards-guidance-for-nuisance-chemicals>',
Used the Internet Archive: Wayback Machine archived version for acceptance into CRAN.

USA_secondary_water_contaminants_notes

US EPA Secondary Drinking Water Standards Notes

Description

A table of notes for the secondary drinking water pollutants table.

Usage

USA_secondary_water_contaminants_notes

Format

A data.table data frame with 1 rows and 2 variables:

Note Number (*) The note numbers

Notes The notes

Source

United States (US) Environmental Protection Agency (EPA): "Secondary Drinking Water Standards: Guidance for Nuisance Chemicals", <https://web.archive.org/web/20230903054648/https://www.epa.gov/s>

Used the Internet Archive: Wayback Machine archived version for acceptance into CRAN.

USAEC_facilities_nuclear_accidents

Criticality Accidents in USAEC Facilities, 1945-1970 (Trinity Atomic Web Site)

Description

A table containing the critical accidents in United States Atomic Energy Commission (USAEC) facilities.

Usage

USAEC_facilities_nuclear_accidents

Format

A data.table data frame with 26 rows and 8 variables:

Date Date of the accident

Location Location of the accident

Active Material Active materials released

Geometry Geometric description

Total Fissions Total number of fissions

Cause Cause of the accident

Physical Damage Physical damage from the accident

\$ Loss Monetary loss in US dollars

Source

Trinity Atomic Web Site: Criticality Accidents in USAEC Facilities, 1945-1970 (from "Operational Accidents and Radiation Exposure Experience Within the United States Atomic Energy Commission, 1943-1970," (WASH 1192), U. S. Government Printing Office, Washington, D.C., 1971.), *Bulletin of the American Meteorological Society*, Vol. 78, No. 2, February 1997, Pages 197-208, 'https://www.abomb1.org/accident/crittabl.html'.

water_vapour_pressure *Vapour Pressure of Water (Wikipedia)*

Description

A table containing the vapor pressure of water at different temperatures & pressures.

Usage

water_vapour_pressure

Format

A data.table data frame with 21 rows and 5 variables:

T, degrees C Temperature in degrees Celsius

T, degrees F Temperature in degrees Fahrenheit

P, kPa Pressure in kilo Pascals

P, torr Pressure in Torricelli

P, atm Pressure in atmospheres

Source

Wikimedia Foundation, Inc. Wikipedia, 6 September 2023, "Vapour pressure of water", 'https://en.wikipedia.org/wiki

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