

Package ‘RoME’

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Type Package

Title R Code to Perform Multiple Checks on MEDITS Survey Data

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Description In order to unify the checks that are made independently over the MEDITS data by the 18 GSAs (Geographical Sub-Area) participating to MEDITS Survey, an R code performing all the main checks on exchange MEDITS data tables was developed. The first version of RoME has been presented for the first time in the MEDITS Coordination meeting held in Nantes (March 2011). The use of RoME by experts belonging to different GSAs participating to MEDITS Programme brought to the implementation of several adjustments of the functions. The package does not correct the data, but it detects the errors, warning the user that there is the possibility of one or more errors, specifying the type of the error and easing the data correction. The check is performed simultaneously on the files that can contain also data of more than one year.

Depends R (>= 4.0), timeDate, stringr, ggplot2, rnaturalearth, rnaturalearthdata, zip

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 assTL

TL association between categories and sub-categories

Description

List of the allowed association between categories and subcategories in litter data table (TL)

Usage

```
data("assTL")
```

Format

A data frame with 42 observations on the following 2 variables.

LITTER_CATEGORY List of litter categories

‘LITTER_SUB-CATEGORY’ List of litter sub-categories

Details

The table is used to check the correctness of the categories/sub-categories associations in litter data tables (TL).

Source

Anonymus (2017) "MEDITS-Handbook. Version n. 9. MEDITS Working Group" <http://www.sibm.it/MEDITS2011/principaledownload.htm>

References

Anonymus (2017) "MEDITS-Handbook. Version n. 9. MEDITS Working Group" <http://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
data(assTL)
str(assTL)
```

checkHeader	<i>Function to check the correctness of the headers.</i>
-------------	--

Description

Function to check the correctness of the headers for haul data (TA), catch data (TB), biological data (TC), individual data (TE), litter data (TL) tables.

Usage

```
checkHeader(dataframe, template, wd, suffix)
```

Arguments

dataframe	Table to check
template	Template used for the check.
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

This function produce an error, stopping the check procedure to avoid cascade errors.

Value

The function returns TRUE if no error occurs, while FALSE is returned when there is more than one valide hauls. In the logfile and in the console is reported the list of all the records in which the inconsistency is detected.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
checkHeader(RoME::TA,"TA",wd,suffix)
checkHeader(RoME::TB,"TB",wd,suffix)
checkHeader(RoME::TC,"TC",wd,suffix)
```

check_0_fieldsTA	<i>Checks the presence of 0 fields in TA</i>
------------------	--

Description

The function checks the presence of 0 fields in the following haul data table (TA, according to MEDITS protocol) fields: WING_OPENING, WARP_DIAMETER and VERTICAL_OPENING

Usage

```
check_0_fieldsTA(DataTA,wd,suffix,year)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
wd	working directory path defined by the user
suffix	Suffix string of the Logfile
year	reference year for the analysis

Value

The function returns a boolean value. It is FALSE in case 0 values are detected in the TA table's fields

Author(s)

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References

Anonymus (2017) "MEDITS-Handbook. Version n. 9. MEDITS Working Group" http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
check_0_fieldsTA(RoME::TA,wd,suffix, year=2007)
```

check_area	<i>Check if TX files have the same area</i>
------------	---

Description

The function works with data of a single year of survey and checks if TX files have the same area code.

Usage

```
check_area(DataTA, DataTB, DataTC, DataTE=NA, DataTL=NA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
DataTB	Catch data table according to MEDITS protocol (TB)
DataTC	Biological data table according to MEDITS protocol (TC)
DataTE	Individual biological data table according to MEDITS protocol (TE)
DataTL	Litter data table according to MEDITS protocol (TL)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

TA, TB and TC tables are mandatory while TE and TL could be used where available.

Value

The function returns TRUE if no error occurs, while FALSE is returned when there are differences in the AREA code among the TX tables.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTA = RoME::TA
DataTB = RoME::TB
DataTC = RoME::TC
DataTE = RoME::TE
DataTL = RoME::TL
check_area(DataTA, DataTB,DataTC,DataTE=NA,DataTL=NA,year=2012, wd, suffix)
```

`check_associations_category_TL`*Check correctness of TL categories*

Description

Check correctness of association between category and sub-category in TL consistent according to INSTRUCTION MANUAL VERSION 9

Usage

```
check_associations_category_TL(DataTL, assTL, year, wd, suffix)
```

Arguments

DataTL	Litter data table (TL) according to MEDITS protocol.
assTL	data frame with the association between TL (litter table) categories and sub-categories
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The package uses a table of association between TL categories and sub-categories that is resident in the data folder of the package as assTL.rda file.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTL = RoME::TL
check_associations_category_TL(DataTL, assTL, year=2012, wd, suffix)
```

check_bridles_length *check of bridles length correctness*

Description

The function performs consistency checks of the values in the "BRIDLES_LENGTH" field of the hauls data table (TA).

Usage

```
check_bridles_length(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
wd	working directory path defined by the user
suffix	Suffix string of the Logfile
year	reference year for the analysis

Details

The field BRIDLES_LENGTH can assume value 100 between 10-200 m of depth or 150 between 200-800 m. The function highlights also that MEDITS handbook recommends to increase the bridle length to 200 m in depths deeper than 500 m, reporting a warning in the logfile. Empty (NA) records in "BRIDLES_LENGTH" will be eliminated being the presence of empty fields already checked by check_no_empty_fields

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
check_bridles_length(RoME::TA, year=2012, wd, suffix)
```

check_class	<i>Check of field's class</i>
-------------	-------------------------------

Description

The function checks the class of the fields included in the selected table TX using the dictionary table reported in the class data frame.

Usage

```
check_class(data, tab, suffix, wd)
```

Arguments

data	one of the different data tables defined by the MEDITS protocol (TX)
tab	character string defining the type of table used in the analysis. Allowed values: "TA", "TB", "TC", "TE" and "TL".
suffix	Suffix string of the Logfile
wd	working directory path defined by the user

Value

The function returns TRUE if no error are detected, while FALSE value is returned if any of the checked fields in the selected table has a not expected class of data.

Author(s)

W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd = tempdir()
check_class(data=RoME::TA, "TA", wd=wd,suffix="test_file")
check_class(data=RoME::TB, "TB", wd=wd,suffix="test_file")
check_class(data=RoME::TC, "TC", wd=wd,suffix="test_file")
check_class(data=RoME::TE, "TE", wd=wd,suffix="test_file")
check_class(data=RoME::TL, "TL", wd=wd,suffix="test_file")
```

`check_consistencyTA_distance`*Consistency check of distance in TA*

Description

The function checks whether the distances reported in the haul data (TA) are consistent with the hauls duration.

Usage

```
check_consistencyTA_distance(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

Check between duration of the haul and distance (tolerance of 15%). The function does not check the presence of NA values in the DISTANCE field that are removed from the analysis. The eventual presence of empty records in the DISTANCE field is checked by the `check_no_empty_fields` function.

Value

The function generates warning messages in the logfile and returns always TRUE.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd=tempdir()
suffix="2020-03-05_time_h17m44s55"
check_consistencyTA_distance(RoME::TA,year=2012,wd,suffix)
```

`check_consistencyTA_duration`*Consistency check of hauls duration in TA*

Description

The function checks whether the durations reported in the haul data (TA) are consistent with the differences between HAULING_TIME and SHOOTING_TIME.

Usage

```
check_consistencyTA_duration(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The DURATION, SHOOTING_TIME and HAULING_TIME fields have to be consistent

Value

The function returns a boolean value. It is FALSE in case one or more durations in the TA table are not consistent with the differences between HAULING_TIME and SHOOTING_TIME.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
check_consistencyTA_duration(RoME::TA,year=2012,wd,suffix)
```

check_date_haul	<i>Check of date consistency</i>
-----------------	----------------------------------

Description

Check if in TB, TC and TE the date by haul is the same of the one reported in TA

Usage

```
check_date_haul(DataTA, Data, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
Data	Data frame of one of the following TX table: TB, TC, TE, TL
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function check whethe in one of the TX file allowed in Data argument there are date consistent with the one reported in the haul data table (TA).

Value

The function returns TRUE if no error occurs, while FALSE is returned when in the Date data frame there is one or more date not included in the TA tables.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.
[http://www.sibm.it/MEDITS 2011/principaledownload.htm](http://www.sibm.it/MEDITS%2011/principaledownload.htm)

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTA = RoME::TA
Data = RoME::TB
year=2009
check_date_haul(DataTA, Data, year, wd, suffix)
```

check_depth	<i>Check between start depth and end depth</i>
-------------	--

Description

Check if that difference between start depth and end depth is not greater than 20%

Usage

```
check_depth(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The difference between start depth and end depth should be not greater than 20%.

Value

The function returns always TRUE because the outcome of the function is a warning that does not block the execution of the 'RoME' checks. The presence of inconsistencies between start depth and end depth is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
check_depth(RoME::TA, year=2007,wd,suffix)
```

check_dictionary *Check of the dictionary of specific fields*

Description

The function checks whether the values contained in specific fields are consistent with the allowed values of the dictionaries.

Usage

```
check_dictionary(ResultData, Field, Values, year, wd, suffix)
```

Arguments

ResultData	Haul data table according to MEDITS protocol (TA)
Field	Name of the specific field of the selected TX table
Values	Vector of the allowed values for the field to be checked
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks the consistence of the contained in specific fields with the relative allowed values. The check is performed on the hauls data table (TA), the catch data table (TB), the biological data table (TC) and the individual biological data (TE).

Value

The function returns TRUE if no error occurs, while FALSE is returned when there are differences between the field values and the reference dictionaries. In the logfile is reported the list of all the records in which the inconsistency is detected.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
Field = "COURSE"
Values = c("R", "N")
DataTA = RoME::TA
year = 2007
check_dictionary(ResultData = DataTA, Field, Values, year, wd, suffix)
```

check_distance	<i>Check of distance consistency</i>
----------------	--------------------------------------

Description

The function checks whether there are inconsistencies between the DISTANCE field values and the computed distance.

Usage

```
check_distance(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The comparison between distance in TA and computed distance is performed with a tolerance of 30%. The formula used to compute the distance from the start and end coordinates is:

$$d = \left| 60 \cdot \frac{lat_{end} - lat_{start}}{\cos(N_3)} \right| \cdot 1852$$

where:

$$N_3 = \arctan \left(\frac{\pi \cdot (long_{end} - long_{start})}{180 \cdot (\ln(\tan(N_2)) - \ln(\tan(N_1)))} \right)$$

and

$$N_1 = \frac{\left(\frac{lat_{start}}{2} + 45 \right) \cdot \pi}{180}$$

$$N_2 = \frac{\left(\frac{lat_{end}}{2} + 45 \right) \cdot \pi}{180}$$

All the coordinates involved in the formulas above are in decimal degrees; the routine converts automatically the coordinates listed in TA using the package 'MEDITS'.

Value

The function returns always TRUE because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies between DISTANCE field and computed distance is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory. For the hauls with a computed distance quite different from the distance recorded in TA a plot is produced and stored in Graphs directory to allow an easier correction.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
year=2007
check_distance(RoME::TA,year,wd,suffix)
```

check_dm	<i>Check of "WING_OPENING" and "VERTICAL_OPENING" fields</i>
----------	--

Description

The function checks the values in "WING_OPENING" and "VERTICAL_OPENING" field are in the allowed ranges (see INSTRUCTION MANUAL VERSION 9 MEDITS 2017).

Usage

```
check_dm(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The value ranges defined in the INSTRUCTION MANUAL VERSION 9 MEDITS (2017) for wing and vertical opening expressed in dm are respectively 50 - 250 and 10 - 100.

Value

The function returns an error in case wing values are out of the allowed ranges, while it returns warnings in case vertical opening values are out of the allowed ranges and in case wing opening and vertical opening values are not integer numbers.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd=tempdir()
suffix="2020-12-16_time_h10m52s55"
check_dm(RoME::TA,year=2007,wd,suffix)
```

 check_G1_G2

Check of length measurements for G1 and G2 species

Description

Check if for G1 and G2 species the length measurements are present in TC

Usage

```
check_G1_G2(DataTC, year, wd, suffix)
```

Arguments

DataTC	Biological data table according to MEDITS protocol (TC)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

This check uses a new support table (list_g1_g2) containing the list of MEDITS G1 and G2 species and verify if the length has been collected for the selected species for each haul. If the length is lacking for any species in any haul, a warning message is given in the logfile.

Value

The function returns always TRUE because the outcome of the function is a warning that does not block the execution of the 'RoME' checks. If the length is lacking for any species in any haul, a warning message is given in the logfile.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
check_G1_G2(RoME: :TC, year=2007, wd, suffix)
```

check_hauls_TATB	<i>Check of TA hauls in TB</i>
------------------	--------------------------------

Description

The function check the presence of the TA (haul data table) hauls in the TB (catch data table)

Usage

```
check_hauls_TATB(DataTA,DataTB,year,wd,suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
DataTB	Catch data table according to MEDITS protocol (TB)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function check the presence of the TA (haul data table) hauls in the TB (catch data table)

Value

The function returns TRUE if no error occurs, while FALSE is returned when an inconsistency is detected between haul and catch tables.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTA <- RoME::TA
DataTB <- RoME::TB
year = 2008
check_hauls_TATB(DataTA,DataTB,year,wd,suffix)
```

check_hauls_TATL	<i>Check presence of TA hauls in TL</i>
------------------	---

Description

Check if the hauls in TA are present in TL

Usage

```
check_hauls_TATL(DataTA, DataTL, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
DataTL	Litter data table according to MEDITS protocol (TL)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks whether all the hauls present in hauls data table (TA) are included in the litter data table (TL).

Value

The function returns always TRUE because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The list of the hauls not present in the TL table is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTA = RoME::TA
DataTL = RoME::TL
year=2008
check_hauls_TATL(DataTA,DataTL,year,wd,suffix)
```

check_hauls_TBTA	<i>Check of TB hauls in TA</i>
------------------	--------------------------------

Description

The function check the presence of the TB (catch data table) hauls in the TA (haul data table)

Usage

```
check_hauls_TBTA(DataTA, DataTB, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
DataTB	Catch data table according to MEDITS protocol (TB)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function check the presence of the TB (catch data table) hauls in the TA (haul data table)

Value

The function returns TRUE if no error occurs, while FALSE is returned when an inconsistency is detected between haul and catch tables.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTA <- RoME::TA
DataTB <- RoME::TB
check_hauls_TBTA(DataTA,DataTB,year=2008,wd,suffix)
```

check_hauls_TLTA	<i>Check presence of TL hauls in TA</i>
------------------	---

Description

Check if the hauls in TL are present in TA

Usage

```
check_hauls_TLTA(DataTA,DataTL,year,wd,suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
DataTL	Litter data table according to MEDITS protocol (TL)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks whether all the hauls present in litter data table (TL) are included in the haul data table (TA).

Value

The function returns TRUE if no error occurs, while FALSE is returned when there are missing hauls in the TA table.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTA = RoME::TA
DataTL = RoME::TL
year=2008
check_hauls_TLTA(DataTA,DataTL,year,wd,suffix)
```

`check_haul_species_TCTB`*Check species of TC in TB*

Description

The function checks whether all the species present in TC (biological data table) must be listed in TB (catch data table)

Usage

```
check_haul_species_TCTB(DataTB, DataTC, year, wd, suffix)
```

Arguments

DataTB	catch data table according to MEDITS protocol (TB)
DataTC	Biological data table according to MEDITS protocol (TC)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function returns a warning message in the logfile.

Value

If a species present in the TC table (biological data table) is not reported in the TB (catch data table) an error message is reported in the logfile and a "Critical_errors" file is saved in the working directory reporting details on the errors.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
year=2008
check_haul_species_TCTB(RoME::TB, RoME::TC, year, wd, suffix)
```

`check_identical_records`*Check of identical records in TX tables*

Description

The function checks whether there is one or more identical records in the selected type of table (TX).

Usage

```
check_identical_records(Data, year, wd, suffix)
```

Arguments

<code>Data</code>	one of the different data tables defined by the MEDITS protocol (TX)
<code>year</code>	reference year for the analysis
<code>wd</code>	working directory path defined by the user
<code>suffix</code>	Suffix string of the Logfile

Details

The routine uses all the table format (TX) defined by the MEDITS protocol.

Value

The function returns TRUE if no error occurs, while FALSE is returned when there is one or more identical record in the given TX table.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
Data = RoME::TA
check_identical_records(Data, year=2007, wd, suffix)
```

 check_individual_weightTC

Check of observed and estimated total weight in the haul

Description

The function compares the observed

Usage

```
check_individual_weightTC(DataTC,LW=NA,year,wd,suffix,verbose=FALSE)
```

Arguments

DataTC	Biological data table according to MEDITS protocol (TC)
LW	data frame of the a and b parameters by species, area and sex
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile
verbose	boolean parameter, if TRUE returns messages about the progress of the elaboration

Details

The warning is given when difference between the sum of estimated individual weights (by haul, species and sub-samples) and the WEIGHT_OF_THE_SAMPLE_MEASURED is greater than 50% for at least one record. This check is based on the table LW contained in package, where the length-weight relationship coefficients are reported by species, area and sex.

Value

The file Comparison_estimated_observed_weight_in_TC.csv is automatically saved in the working directory in order to easily detect the samples with this differences in total weight. For all the records the percentage difference between observed and estimated weight is reported.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
TC = RoME::TC[1:20,]
check_individual_weightTC(DataTC=TC,year=2007, wd=wd, suffix=suffix)
```

check_individual_weightTE

Consistency of individual weights (according to length-weight relationship)

Description

The function checks the difference between observed and estimated individual weight in percentage.

Usage

```
check_individual_weightTE(DataTE,LW,year, wd, suffix,verbose=FALSE)
```

Arguments

DataTE	Individual biological data table according to MEDITS protocol (TE)
LW	data frame of the length-weight parameters by species, area and sex
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile
verbose	boolean parameter, if TRUE returns messages about the progress of the elaboration

Details

For each individual is calculated the estimated weight according to length-weight relationship coefficient stored in LW table and the difference between observed and estimated individual weight in percentage. Moreover, this function checks if for G1 species has been collected the weight or if has been entered the value ND, that is not allowed.

Value

If for at least one record the difference between observed and estimated individual weight is greater than 20% a warning is given in Logfile.dat and a table named TE_with_estimated_weights.csv is automatically produced in order to allow the user to easily eventually detect the errors. For all the records the percentage difference between observed and estimated weight is reported.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTE = RoME::TE[1:6,]
check_individual_weightTE(DataTE,year=2012, wd=wd, suffix=suffix,verbose=TRUE)
```

check_length	<i>Check of length classes in TC</i>
--------------	--------------------------------------

Description

The function checks the consistency of length classes in TC.

Usage

```
check_length(DataTC,DataSpecies=NA,year,wd,suffix)
```

Arguments

DataTC	Biological data table according to MEDITS protocol (TC)
DataSpecies	Information related to target species
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks whether the length classes by species are included in the range reported in the DataSpecies dataset. When DataSpecies is NA the DataTargetSpecies dataset (included in the package) is used by default.

Value

The function returns TRUE (warning message in logfile) in case of LENGTH_CLASS value out of the allowed range. If the length classes in TC table (biological data table) are not consistent with DataSpecies dataset (or DataTargetSpecies if DataSpecies is NA) a warning message is given in the logfile. Furthermore, the function returns FALSE in case the value in the LENGTH_CLASS field is empty, exiting with an error message.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
DataTC <- RoME::TC[1:20,]
DataSpecies=NA
suffix= "2020-03-05_time_h17m44s55"
check_length(DataTC,DataSpecies=NA,year=2007,wd,suffix)
```

check_length_class_codeTC

Consistency check of LENGTH_CLASS

Description

The function checks the consistency of field LENGTH_CLASSES_CODE in TC

Usage

```
check_length_class_codeTC(DataTC, Specieslist=RoME::TM_list, year, wd, suffix)
```

Arguments

DataTC	Biological data table according to MEDITS protocol (TC)
Specieslist	Information related to target species as reported in the TM list
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks whether the LENGTH_CLASS_CODE by species are consistent with those reported in the Specieslist dataset. When Specieslist is NA the TM_list dataset (included in the package) is used by default.

Value

If the LENGTH_CLASS_CODE in TC table (biological data table) are not consistent with COD-LON field in Specieslist dataset (or TM_list if Specieslist is NA) an error is returned. In case a LENGTH_CLASS_CODE is not reported for the given species no check is done and the function returns a warning message.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
## Not run:
DataTC <- RoME::TC
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
check_length_class_codeTC(DataTC,Specieslist=NA,year=2007,wd,suffix)

## End(Not run)
```

check_mat_stages	<i>Consistency of maturity stages</i>
------------------	---------------------------------------

Description

Consistency check of maturity stages, according to the faunistic category and sex

Usage

```
check_mat_stages(Data, year, wd, suffix, stages = RoME::mat_stages)
```

Arguments

Data	Biological data table (TC) or individual biological data table (TE) according to MEDITS protocol
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile
stages	data frame with the list of allowed maturity stages for faunistic category as defined by the mat_stages dataset included in the package

Details

The check on maturity stage is performed for the species included in the new TM list, where selachians and bony fish are distinguished. The check is applied to the following faunistic categories: Ao, Ae, B, C and Bst.

Value

The function always returns TRUE generating a warning message when inconsistencies in the maturity stages are detected, being difficult to define for all GSAs the year in which occurred the switch from the "old" MEDITS maturity scale to the current MEDITS scale.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
DataTC <- RoME::TC
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
check_mat_stages(DataTC,year=2007, wd, suffix)
```

check_nbtotTB	<i>Check total number of individuals in TB</i>
---------------	--

Description

The function checks that the total number of individuals is consistent with the sum of the individuals per sex

Usage

```
check_nbtotTB(DataTB, year, wd, suffix)
```

Arguments

DataTB	Catch data table according to MEDITS protocol (TB)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks that the total number of individuals is consistent with the sum of the individuals per sex

Value

The function returns TRUE if no error occurs, FALSE if one or more inconsistencies in the individuals number is detected.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTB = RoME::TB
year=2007
check_nbtotTB(DataTB,year, wd, suffix)
```

check_nb_per_sexTC *Consistency check of number of individuals*

Description

The function checks the consistency of the number of individuals by sex measured (NO_OF_INDIVIDUAL_OF_THE_A field in the biological data table, TC) with the sum of the individuals by sex, length class and maturity stage (NUMBER_OF_INDIVIDUALS_IN_THE_LENGTH_CLASS_AND_MATURITY_STAGE field in TC)

Usage

```
check_nb_per_sexTC(DataTC, year, wd, suffix)
```

Arguments

DataTC	Biological data table according to MEDITS protocol (TC)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks the consistency of the number of individuals by sex measured (NO_OF_INDIVIDUAL_OF_THE_A field in the biological data table, TC) with the sum of the individuals by sex, length class and maturity stage (NUMBER_OF_INDIVIDUALS_IN_THE_LENGTH_CLASS_AND_MATURITY_STAGE field in TC)

Value

The function returns TRUE if no error occurs, while FALSE is returned when there inconsistencies between the following biological data table (TC): NO_OF_INDIVIDUAL_OF_THE_ABOVE_SEX_MEASURED and NUMBER_OF_INDIVIDUALS_IN_THE_LENGTH_CLASS_AND_MATURITY_STAGE. If the field number per sex is found completely empty, the routine will stop and will produce automatically a .csv file (TC_file_with_computed_nb_per_sex.csv) with the nb per sex column filled in. The user will have to copy and paste the column in the original file and run again the code.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTC = RoME::TC
year=2007
check_nb_per_sexTC(DataTC,year,wd,suffix)
```

check_nb_TE	<i>Consistency of number of individuals sampled for weight and ageing in TE</i>
-------------	---

Description

The function checks the consistency of number of individuals sampled for weight and ageing in TE

Usage

```
check_nb_TE(DataTE, year, wd, suffix)
```

Arguments

DataTE	Individual biological data table according to MEDITS protocol (TE)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

this function verify the consistency of the check-fields:

- NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_OTOLITH
- NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_WEIGHT
- NO_PER_SEX_MEASURED_IN_SUBSAMPLE_FOR_AGEING

These fields are compared to the number of records present in TE by sex, length class and haul.

Value

The function returns FALSE in case incosistances are detected in the individual biological data table (TE)

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTE = RoME::TE
year=2012
check_nb_TE(DataTE,year, wd, suffix)
```

check_nm_TB

*Check of consistency in number per sex set "not mandatory" in TB***Description**

Check if in TB there are the total number, number of females, males and undetermined for species G1

Usage

```
check_nm_TB(DataTB, year, wd, suffix)
```

Arguments

DataTB	Catch data table according to MEDITS protocol (TB)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

for the species G1 are not allowed that the fields related to total number, number of females, number of males and number of undetermined are simultaneously null, according to MEDITS manual version 9 of 2017.

Value

The function returns TRUE if no error occurs, FALSE if one or more inconsistencies in the individuals number per sex in TB is detected.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTB = RoME::TB
year=2007
check_nm_TB(DataTB, year, wd, suffix)
```

check_no_empty_fields *Check empty fields in TA, TB, TC, TE and TL*

Description

All the fields, except to HYDROLOGICAL_STATION and OBSERVATIONS, must be not empty for valid hauls

Usage

```
check_no_empty_fields(Data, year, wd, suffix)
```

Arguments

Data	one of the different data tables defined by the MEDITS protocol (TX)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The routine uses all the table format (TX) defined by the MEDITS protocol.

Value

The function returns TRUE if no error occurs, while FALSE is returned when there is one or more empty record in the given TX table.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
Data = RoME::TA
year=2007
check_no_empty_fields(Data, year, wd, suffix)
```

check_numeric_range *Check of the values range in specific fields*

Description

The function checks whether the values contained in specific fields are consistent within the allowed range of values.

Usage

```
check_numeric_range(Data, Field, Values, year, wd, suffix)
```

Arguments

Data	data table according to MEDITS protocol (TX)
Field	Name of the specific field of the selected TX table
Values	Vector of the allowed values for the field to be checked. The first two values are mandatory and indicate the extreme values of the range. The other optional values are single numerical exceptions to the field allowed values.
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function checks the consistence of the values contained in specific fields with the relative allowed range of values. The function allows to include exceptions to the allowed range of values for specific values. The check is performed on any of the "TX" data tables.

Value

The function returns TRUE if no error occurs, while FALSE is returned when inconsistencies are detected. The list of all the records in which the inconsistency is detected is reported in the logfile.

Author(s)

W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
Field = "SHOOTING_DEPTH"
Values = c(10,800,0)
Data = RoME::TA
year <- unique(Data$YEAR)[1]
check_numeric_range(Data, Field, Values, year, wd, suffix)
```

check_position	<i>Plot of haul positions</i>
----------------	-------------------------------

Description

The function generate three different plots, haul start position, haul end position and start and end positions together.

Usage

```
check_position(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The haul position maps are saved in the Graph directory allocated in the user defined wd directory.

Value

The function generate three maps of the haul position that are stored in the Graph folder allocated in the user defined wd directory

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
year=2007
check_position(RoME::TA,year,wd,suffix)
```

check_position_in_Med *Check of haul position in Mediterranean Sea*

Description

The function checks whether the position of the haul is in the Mediterranean Sea area or falls on the land.

Usage

```
check_position_in_Med(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function uses the haul_at_sea() function to check whether the position of the haul is in the Mediterranean Sea area or falls on the land.

Value

The function returns a boolean value. It is FALSE in case one or more haul positions fall out of the Mediterranean Sea area defined by the shapefileMedSea included in the package.

Author(s)

I. Bitetto, W. Zupa

References

Anonymous. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
wd <- tempdir()
suffix="2020-03-05_time h17m44s55"
DataTA = RoME::TA
year=2007
check_position_in_Med(DataTA, year, wd, suffix)
```

check_quadrant	<i>Check start and end quadrant for each haul</i>
----------------	---

Description

Function checking that the shooting quadrant and the hauling quadrant are the same.

Usage

```
check_quadrant(ResultDataTA, year, wd, suffix)
```

Arguments

ResultDataTA	Haul data table according to MEDITS protocol (TA).
year	reference year for the analysis
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

The function returns a warning if shooting and hauling quadrant are not the same.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

For the definition of the quadrants, please refer to: Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
TA <- RoME::TA
year=2007
check_quadrant(TA, year, wd, suffix)
```

`check_quasiidentical_records`*Function checking the presence of quasi-identical records.*

Description

Two or more "quasi-identical records" occurred when all the fields are respectively equal, except: TYPE_OF_FILE, AREA, GEAR, VESSEL, YEAR, RIGGING, DOORS, for TA table; TYPE_OF_FILE, AREA, VESSEL, YEAR for TB and TC tables. These specific fields are allowed to be identical.

Usage

```
check_quasiidentical_records(Result,year,wd,suffix)
```

Arguments

Result	Haul data table according to MEDITS protocol (TA), or Catch data table (TB) or Biological data table (TC).
year	reference year for the analysis
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

The checks always returns TRUES generating warning messages in the logfile if any quasi-identical record was found. In a given survey the following fields (of TA table) should be identical: 'TYPE_OF_FILE', 'AREA', 'VESSEL', 'GEAR', 'RIGGING', 'DOORS' and 'YEAR'. The function checks whether any differences occur in these fields in each yearly survey. The same think is done for all the other tables where these fields occur.

Value

The function always returns TRUE reporting the presence of quasi-identical records in the logfile.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
year=2007
# example using TA table
TA <- RoME::TA
check_quasiidentical_records(TA,year,wd,suffix)
```

```
# example using TB table
TB <- RoME::TB
check_quasiidentical_records(TB,year,wd,suffix)

# example using TC table
TC <- RoME::TC
check_quasiidentical_records(TC,year,wd,suffix)
```

check_raising	<i>Function checking if, in case of sub-sampling in TC, the Total number and the number per sex in TB is raised correctly</i>
---------------	---

Description

This function takes into account also the possibility of a "differentiated" sampling, according to the MEDITS protocol. The word "Fraction" means any sub-group of individual from the total catch of a species (males, females, large sized individuals, small individuals, juveniles, etc.) on which it could be proceed to a sub-sample. For example: total weight = 1000 g which is divided into 100g of big individuals and 900 g of small. The big individuals will be entirely measured (PFRAC = 100; PECHAN = 100). The small ones will be sub -sampled with a ratio of 1/10 (PFRAC = 900; PECHAN = 90). In the check check_raising the comparison between the number in TB and the raised number in TC has been not taking into account decimals, but comparing the integer numbers.

Usage

```
check_raising(ResultDataTB,ResultDataTC,year,wd,suffix)
```

Arguments

ResultDataTB	Catch data table (TB) .
ResultDataTC	Biological data table (TC).
year	reference year for the analysis
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

The check must be executed year by year. The checks execution is stopped if any mismatching record was found.

Value

The function returns TRUE if no error occurs, FALSE if some error record was found.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
year=2007
check_raising(RoME::TB,RoME::TC,year,wd,suffix)
```

check_rubincode	<i>Function checking the correctness of species MEDITS code and faunistic category according to TM reference list</i>
-----------------	---

Description

The TM list contained in the INSTRUCTION MANUAL VERSION 9 MEDITS 2017 is taken as reference to check the correctness of species code and category. The function is applied to catch data table (TB), Biological data table (TC) and Individual data table (TE).

Usage

```
check_rubincode(ResultData,year,TMlist,wd,suffix)
```

Arguments

ResultData	alternatively: Catch data table (TB), Biological data table (TC) and Individual data table (TE).
year	reference year for the analysis
TMlist	TM_list reference list
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

The checks execution is stopped if any mismatching record was found.

Value

The function returns always TRUE if used to check TB tables, indicating in the logfile the species codes not present in TM list. If unexpected rubin codes are detected in both TC and TE tables an error (FALSE value) is reported in the logfile, interrupting the function running.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
year=2007

# example using TB table
TB <- RoME::TB
check_rubincode(TB,year, TM_list,wd,suffix)

# example using TC table
TC <- RoME::TC
check_rubincode(TC,year, TM_list,wd,suffix)
```

check_smallest_mature *Function to verify the consistency of maturity information respect to the smallest mature individual observed in literature.*

Description

In this check mature individuals with length smaller than size of the smallest mature individuals reported in literature are detected

Usage

```
check_smallest_mature(ResultData,year,MaturityParameters,TargetSpecies,wd,suffix)
```

Arguments

ResultData	alternatively: Biological data table (TC) and Individual data table (TE).
year	reference year for the analysis
MaturityParameters	Information related to sex and maturity from literature or other sources.
TargetSpecies	Information related to target species.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

In these checks are involved the information stored in Maturity_parameters data frame.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
TC=RoME::TC
year=2007
check_smallest_mature(TC,year,RoME::Maturity_parameters,RoME::DataTargetSpecies,wd,suffix)
```

check_spawning_period *Function to check the consistency of the maturity stages according to the spawning period.*

Description

The mature individuals caught outside the spawning are detected; moreover, the mature individuals caught outside the spawning with size smaller than the size of smallest mature individual in bibliography and the immature individuals caught during the reproductive period, but with size greater than maximum $L50 + 0.2 * L50$ are detected.

Usage

```
check_spawning_period(ResultDataTA,ResultDataTC,year,
Maturity_parameters,DataTargetSpecies,wd,suffix)
```

Arguments

ResultDataTA	Haul data table(TA).
ResultDataTC	alternatively: Biological data table (TC) and Individual data table (TE).
year	reference year for the analysis
Maturity_parameters	Information related to sex and maturity from literature or other sources.
DataTargetSpecies	Information related to reference species.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

In this checks are involved the information stored in Maturity_parameters data.frame about the L50 and spawning period is used.)

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
year=2007
TA <- RoME::TA
TC <- RoME::TC
check_spawning_period(TA,TC,year,Maturity_parameters,DataTargetSpecies,wd,suffix)
```

check_species_TBTC	<i>Function checking if all the target species in the catch data table (TB) are in Biological data table (TC)</i>
--------------------	---

Description

This function verifies the presence of the target species (that is a subset of the all the species caught, reported in TB), in the TC table, where additional information (apart from number and weight) are collected.

Usage

```
check_species_TBTC(ResultTB,ResultTC,year,DataSpecies,wd,suffix)
```

Arguments

ResultTB	Catch data table(TB).
ResultTC	Biological data table (TC).
year	reference year for the analysis
DataSpecies	Information related to target species.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

This function gives a warning message, thus the execution is not stopped when some target species are lacking in TC; the user is informed in the Logfile.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix = "2020-03-05_time_h17m44s55"
year=2007
ResultTB=RoME::TB
ResultTC=RoME::TC
check_species_TBTC(ResultTB,ResultTC,year,RoME::DataTargetSpecies,wd,suffix)
```

check_step_length_distr

The function verifies that in TC the length measures are reported with the correct precision.

Description

Fishes and cephalopods length classes must have full or half step (in case of LENGTH_CLASSES_CODE=1 only full). All the measures , must be integer numbers.

Usage

```
check_step_length_distr(ResultData,year,wd,suffix)
```

Arguments

ResultData	alternatively: Biological data table (TC) and Individual data table (TE).
year	reference year for the analysis
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

According to the MEDITS protocol, Fishes and cephalopods length measurement must collected full or half step and all the measures, must be integer numbers. Empty (NA) records in LENGHT_CLASS field are removed from the analysis being empty fields already detected by check_no_empty_fields function.

Value

The function returns TRUE if no error occurs, while FALSE is returned when the step is not correctly used. In the logfile is reported the list of all the records in which the inconsistency is detected.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
data <- RoME::TC
wd=tempdir()
year = 2007
suffix= "2020-03-05_time_h17m44s55"
check_step_length_distr(data,year,wd,suffix)
```

check_stratum	<i>Function that checks the consistency between start and end depth according to the stratum.</i>
---------------	---

Description

Start depth and end depth of each haul should be in the same stratum.

Usage

```
check_stratum(ResultData,year,wd,suffix)
```

Arguments

ResultData	Haul data table according to MEDITS protocol (TA).
year	reference year for the analysis
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

Start depth and end depth of each haul should be in the same stratum. The strata are the ones defined according to the MEDITS protocol: 10-15 m; 50-100 m; 100-200 m; 200-500m; 500-800 m.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

For the definition of the strata, please refer to: Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. [http://www.sibm.it/MEDITS 2011/principaledownload.htm](http://www.sibm.it/MEDITS%2011/principaledownload.htm)

Examples

```
wd=tempdir()
year=2007
TA = RoME::TA
suffix= "2020-03-05_time_h17m44s55"
check_stratum(TA,year,wd,suffix)
```

check_stratum_code	<i>Function to check the correct codification of the strata in haul data table (TA).</i>
--------------------	--

Description

This function verifies the correctness of the stratum code, following the stratification scheme table in the MEDITS protocol.

Usage

```
check_stratum_code(ResultDataTA,year,Strata,wd,suffix)
```

Arguments

ResultDataTA	Haul data table according to MEDITS protocol (TA).
year	reference year for the analysis
Strata	Stratification scheme according to MEDITS protocol.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

This function checks if the stratum code associated to each haul is consistent with the code reported in MEDITS manual and in the table Stratification scheme, corresponding to the associated depth range.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

For the definition of the strata, please refer to: Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. [http://www.sibm.it/MEDITS 2011/principaledownload.htm](http://www.sibm.it/MEDITS_2011/principaledownload.htm)

Examples

```
TA = RoME::TA
wd=tempdir()
year = 2007
suffix= "2020-03-05_time_h17m44s55"
check_stratum_code(TA,year,Strata=RoME::stratification_scheme,wd,suffix)
```

check_subsampling	<i>Function to warn the user about the presence of subsamples <0.1 of the total catch.</i>
-------------------	---

Description

Check if the sub-sample is smaller than the 10 percent of the total weight in the haul.

Usage

```
check_subsampling(ResultTC,year,wd,suffix)
```

Arguments

ResultTC	Biological data table (TC).
year	reference year for the analysis.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

This function give a warning, repoted in the Logfile, if the sub-sample is unusually small respect to the total catch of the species.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

For the definition of the strata, please refer to: Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. [http://www.sibm.it/MEDITS 2011/principaledownload.htm](http://www.sibm.it/MEDITS_2011/principaledownload.htm)

Examples

```
TC = RoME::TC
year=2007
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
check_subsampling(TC,year,wd,suffix)
```

check_temperature	<i>Function to check the consistency of the temperature data stored in haul data table (TA).</i>
-------------------	--

Description

This function checks if the temperature by haul is in the range 10-30 Celsius degrees; moreover, a plot depth versus temperature is produced and stored in the Graph folder.

Usage

```
check_temperature(ResultDataTA,year,wd,suffix)
```

Arguments

ResultDataTA	Haul data table according to MEDITS protocol (TA).
year	reference year for the analysis.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

This check uses the temperature range 10-30 Celsius degrees to provide quantitative warning and a plot, automatically stored in Graphs, for a qualitative inspection of the temperature data respect to depth.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
TA = RoME::TA
year=2012
wd=tempdir()
suffix="2020-03-05_time_h17m44s55"
check_temperature(TA, year, wd, suffix)
```

check_TE_TC	<i>Function to verify the consistency between individual data table (TE) and biological data table (TC) respect to number of individuals.</i>
-------------	---

Description

Check if the individuals by species, length, sex and maturity stage reported in TE are less than the number reported in TC

Usage

```
check_TE_TC(ResultDataTC, ResultDataTE, year, wd, suffix)
```

Arguments

ResultDataTC	Biological data table(TC).
ResultDataTE	Individual data table (TE).
year	reference year for the analysis.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

This function gives an error message, thus the execution is stopped if in TE are reported individuals not present in TC and if the number of individuals reported in TE is greater than the ones in TE; the user is informed in the Logfile.

Value

The function returns TRUE if there is no error, while FALSE if there is one or more errors. The run, in case of error, thus, is stopped.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
tc <- RoME::TC
te <- RoME::TE
year=2012
check_TE_TC(tc,te,year,wd,suffix)
```

check_type

*Consistency check of TYPE_OF_FILE field***Description**

The function checks if the correct value for TYPE_OF_FILE field is reported in each data table. This is a global function that runs with the data frames not filtered by year.

Usage

```
check_type(TA, TB, TC, TE, TL, years, wd, Errors)
```

Arguments

TA	Haul data table according to MEDITS protocol (TA)
TB	Catch data table according to MEDITS protocol (TB)
TC	Biological data table according to MEDITS protocol (TC)
TE	Individual biological data table according to MEDITS protocol (TE)
TL	Litter data table according to MEDITS protocol (TL)
years	list of the unique YEAR values in haul data (TA) table
wd	working directory path defined by the user
Errors	logfile name

Details

TA, TB and TC tables are mandatory while TE and TL could be used where available (otherwise use NA value).

Value

The function returns FALSE when errors are detected in the TYPE_OF_FILE field of the data tables.

Author(s)

I. Bitetto, W. Zupa

References

Anonymous. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
TL = NA
years <- unique(RoME::TA$YEAR)
Errors <- file.path(wd,"Logfiles","Logfile.dat")
check_type(TA=RoME::TA,TB=RoME::TB,TC=RoME::TC,
TE=NA,TL=NA,years=years,wd=wd,Errors=Errors)
```

check_unique_valid_haul

Function checking that among hauls with the same code, only one must be valid.

Description

Check the presence of unique valid haul codes.

Usage

```
check_unique_valid_haul(ResultDataTA,year,wd,suffix)
```

Arguments

ResultDataTA	Haul data table according to MEDITS protocol (TA).
year	reference year for the analysis.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

This function produce an error, stopping the check procedure to avoid cascade errors.

Value

The function returns TRUE if no error occurs, while FALSE is returned when there is more than one valide hauls. In the logfile is reported the list of all the records in which the inconsistency is detected.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.
[http://www.sibm.it/MEDITS 2011/principaledownload.htm](http://www.sibm.it/MEDITS%2011/principaledownload.htm)

Examples

```
TA = RoME::TA
year=2012
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
check_unique_valid_haul(TA,year,wd,suffix)
```

check_weight	<i>Function that checks if number of individuals and total weight collected in the haul are consistent.</i>
--------------	---

Description

The total weight and total number in the haul have to be consistent. The check is quantitative if there is information related to average individual weight. Alternatively the check is qualitative (through a plot).

Usage

```
check_weight(ResultDataTB,year,DataTargetSpecies,wd,suffix)
```

Arguments

ResultDataTB	Catch data table according to MEDITS protocol (TB).
year	reference year for the analysis.
DataTargetSpecies	Information related to individual weight of target and not target species.
wd	Working directory selected by the user.
suffix	Suffix string of the Logfile.

Details

The check of the consistency of total weight and total number in TB is performed after computing the mean weight for each species in each haul; a list of the weight intervals is provided in the package (DataTargetSpecies); this list was created in on the basis of the data collected in GSA 10 and 18 from 1994 to 2014. Of course, the user should update and complete as much as possible the table in order to allow 'RoME' to detect errors on the basis of the updated weight intervals. This check is divided in a quantitative control (using the ranges mentioned above) and a qualitative control (using plots of the mean weight). The function gives a warning message. A maximum of 20 graphs will have been displayed in the R console and a maximum of 20 .tif files (6 plots per file) will have been stored in Graphs directory. The species with at least an occurrence of 10 hauls are plotted and saved.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks. The presence of inconsistencies in the data is reported in the logfile stored in the "Logfiles" subdirectory of the "wd" user-defined directory.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
TB = RoME::TB
year=2012
wd=tempdir()
suffix= "2020-03-05_time_h17m44s55"
check_weight(TB,year,DataTargetSpecies,wd,suffix)
```

check_weight_tot_nb *Function to check if, when the weight is not null, also the number is not null.*

Description

If total weight is different from 0, total number must be different from 0 (only if the category of the species is different from "E") and vice versa (for all faunistic categories).

Usage

```
check_weight_tot_nb(ResultDataTB,year,wd,suffix)
```

Arguments

ResultDataTB	Catch data table according to MEDITS protocol (TB)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

In this check 'RoME' verifies if for the records with total weight not null, there is a total number not null, except for categories V, G, H, D and E, as reported in MEDITS manual.

Value

The function returns always TRUE, because the outcome of the function is a warning that does not lock the execution of the 'RoME' checks.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd=tempdir()
year=2012
TB = RoME::TB
suffix= "2020-03-05_time_h17m44s55"
check_weight_tot_nb(TB,year,wd,suffix)
```

check_year	<i>Consistency check of YEAR field</i>
------------	--

Description

The function check if the correct value for YEAR field is reported in each data table. This is a global function that runs with the data frames not filtered by year.

Usage

```
check_year(TA, TB, TC, TE, TL, years, wd, Errors)
```

Arguments

TA	Haul data table according to MEDITS protocol (TA)
TB	Catch data table according to MEDITS protocol (TB)
TC	Biological data table according to MEDITS protocol (TC)
TE	Individual biological data table according to MEDITS protocol (TE)
TL	Litter data table according to MEDITS protocol (TL)
years	list of the unique YEAR values in haul data (TA) table
wd	working directory path defined by the user
Errors	logfile name

Details

TA, TB and TC tables are mandatory while TE and TL could be used where available (otherwise use NA value).

Value

The function returns FALSE when errors are detected in the YEAR field of the data tables.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
wd <- tempdir()
years <- unique(RoME::TA$YEAR)
Errors <- file.path(wd,"Logfiles","Logfile.dat")
check_year(TA=RoME::TA, TB=RoME::TB,
TC=RoME::TC, TE=NA, TL=NA, years=years,
wd=wd, Errors=Errors)
```

classes

Class of fields

Description

Definition of field' classes for TX tables

Usage

```
data("classes")
```

Format

A data frame with 123 observations on the following 4 variables.

RDBFIS a character vector

MEDITS a character vector

table a character vector

type a character vector

Details

See Medits handbook.

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.
<http://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
data(classes)
```

create_catch	<i>Function to create the R-sufi file capt.</i>
--------------	---

Description

This function report the information contained in the biological data table (TB) from the MEDITS protocol to the format required by R-sufi (Rochet et al., 2004).

Usage

```
create_catch(ResultDataTB, year, wd, save=TRUE)
```

Arguments

ResultDataTB	Catch data table according to MEDITS protocol (TB)
year	reference year for the analysis
wd	working directory path defined by the user
save	boolean value to save the results in a csv file

Value

The function saves by default in the files R-Sufi folder the table capt in.csv format, with suffix of the year and GSA. If save parameter is FALSE the function returns the data frame as output.

Author(s)

I. Bitetto, W. Zupa

References

Rochet M. J., V. M. Trenkel, J. A. Bertrand & J.-C. Poulard, 2004. R routines for survey based fisheries population and community indicators (R-SUFI). Ifremer, Nantes. Limited distribution.
Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
TB = RoME::TB
year =2012
wd = tempdir()
create_catch(TB, year, wd, save=TRUE)
```

create_haul	<i>Function to create R-sufi file containing haul data.</i>
-------------	---

Description

This function reports the information contained in the haul data table (TA) from the MEDITS protocol to the format required by R-sufi (Rochet et al., 2004).

Usage

```
create_haul(ResultDataTA, year, wd, save=TRUE)
```

Arguments

ResultDataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
save	boolean value to save the results in a csv file

Value

The function saves by default in the files R-Sufi folder the table traits in.csv format, with suffix of the year and GSA. If save parameter is FALSE the function returns the data frame as output.

Author(s)

I. Bitetto, W. Zupa

References

Rochet M. J., V. M. Trenkel, J. A. Bertrand & J.-C. Poulard, 2004. R routines for survey based fisheries population and community indicators (R-SUFI). Ifremer, Nantes. Limited distribution.
Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
TA = RoME::TA
year = 2012
wd = tempdir()
create_haul(TA, year, wd, save=FALSE)
```

create_length	<i>Function to create the R-sufi file taille.</i>
---------------	---

Description

This function reports the information contained in the biological data table (TC) from the MEDITS protocol to the format required by R-sufi (Rochet et al., 2004).

Usage

```
create_length(ResultData,year,DataSpecies=RoME::TM_list,wd,save=TRUE)
```

Arguments

ResultData	Biological data table according to MEDITS protocol (TC)
year	reference year for the analysis
DataSpecies	TM_list reference list
wd	working directory path defined by the user
save	boolean value to save the results in a csv file

Details

For the file taille the change in maturity scale in 2006 has been taken into account: from 1994 to 2005 the males of crustaceans have stage NA, because they were not staged until 2005. From 2006 they are considered mature for the stages strictly greater than 2A as well as for females of crustaceans. Before 2006 the females of crustaceans are considered mature for stages strictly greater than 1. Bony fish and cephalopods are considered mature from stage 3 until 2005 and then they are considered mature from stage 2B. For selachians, the immature are always stage 1 and 2.

Value

The function saves by default in the files R-Sufi folder the table taille in.csv format, with suffix of the year and GSA. If save parameter is FALSE the function returns the data frame as output.

Author(s)

I. Bitetto, W. Zupa

References

Rochet M. J., V. M. Trenkel, J. A. Bertrand & J.-C. Poulard, 2004. R routines for survey based fisheries population and community indicators (R-SUFI). Ifremer, Nantes. Limited distribution.
Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS/2011/principaledownload.htm>

Examples

```
ResultData = RoME::TC
year=2012
DataSpecies=RoME::TM_list
wd <- tempdir()
create_length(ResultData,year,DataSpecies,wd,save=FALSE)
```

create_strata	<i>Function to create R-sufi file containing strata surface data.</i>
---------------	---

Description

This function reports the information contained in the stratification scheme for the selected area from the MEDITS protocol to the format required by R-sufi (Rochet et al., 2004).

Usage

```
create_strata(Stratification,AREA,wd,save=TRUE)
```

Arguments

Stratification	Stratification scheme according to MEDITS protocol.
AREA	String of the GSA.
wd	Working directory selected by the user.
save	boolean value to save the results in a csv file

Value

The function saves automatically in the files R-Sufi folder the table strata in.csv format, with suffix of the year and GSA. If save parameter is FALSE the function returns the data frame as output.

Author(s)

I. Bitetto, W. Zupa

References

Rochet M. J., V. M. Trenkel, J. A. Bertrand & J.-C. Poulard, 2004. R routines for survey based fisheries population and community indicators (R-SUFI). Ifremer, Nantes. Limited distribution.
Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
Stratification=RoME::stratification_scheme  
wd <- tempdir()  
AREA = 18  
create_strata(Stratification,AREA,wd,save=TRUE)
```

DataTargetSpecies *Length and weight ranges*

Description

Data related to the range for length and mean individual weight for all the relevant species. The year for which the species is target is also indicated.

Usage

```
data("DataTargetSpecies")
```

Format

A data frame with 392 observations on the following 10 variables.

SPECIES a factor with levels the rubincode of the species for which the information is present.

FAUNISTIC_CATEGORY a factor with levels the old faunistic categories

MIN_WEIGHT a numeric vector

MAX_WEIGHT a numeric vector

UNIT_WEIGHT grams

MIN_LEN a numeric vector, in mm

MAX_LEN a numeric vector, in mm

UNIT_LEN mm

TARGET_START a value indicating the year when the species entered in the target species list

TARGET_END a value indicating the year when the species going out the target species list

Source

Literaure and others

Examples

```
data(DataTargetSpecies)
```

dd.distance *Estimation of haul distance*

Description

Function to estimate the hauls length using TA (table A, hauls data) with coordinates in the decimal degrees format (dd.ddd). The distances could be returned expressed in meters, kilometers and nautical miles.

Usage

```
dd.distance(data, unit = "m", verbose=TRUE)
```

Arguments

data	data frame of the hauls data (TA, table A)
unit	string value indicating the measure unit of the distance. Allowed values: "m" for meters, "km" for kilometers and "NM" for nautical miles.
verbose	give verbose output reporting in the output the selected measure unit of the distance.

Details

The TA file should be populated with coordinates in decimal degrees format.

Value

The function returns the vector of the distances expressed in the selected measure unit.

Author(s)

Walter Zupa

Examples

```
TA.dd <- MEDITS.to.dd(TA)
dd.distance(TA.dd, unit="km", verbose=FALSE)
```

error.table	<i>Summary table of the errors</i>
-------------	------------------------------------

Description

Function generating the error summary table.

Usage

```
error.table(check.df, check_without_errors,
            check_without_warnings, checkName, table, Field, yea)
```

Arguments

check.df	data frame of the checks
check_without_errors	boolean variable reporting if errors were detected
check_without_warnings	boolean variable reporting if warnings were detected
checkName	string of the check name
table	reference table checked by the function
Field	field checked by check dictionary
yea	reference year

Details

The function generate the summary table of the errors detected by the RoMEcc function.

Value

The output of the function is the data frame `check.df` updated with the result of the check.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

graphs_TA	<i>Function for qualitative checks of shooting depth, warp length and wing opening in Haul data table (TA).</i>
-----------	---

Description

Qualitative control (by means of 2 graphs) of relation between shooting depth e warp opening and between warp length e wing opening

Usage

```
graphs_TA(DataTA, year, wd, suffix)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function generate 2 graphs for qualitative controls.

Value

Two graphs are stored in the Graphs folder in the wd user defined directory

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
TA = RoME::TA
year = 2012
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
graphs_TA(RoME::TA,year,wd,suffix)
```

GSAs

List of GFCM Geographical subareas (GSAs)

Description

GSAs table

Usage

```
data("GSAs")
```

Format

A data frame with 31 observations on the following 3 variables.

GSA a numeric vector

CODE a character vector

Area a character vector

Source

<http://www.fao.org/gfcm/data/maps/gsas/en/>

References

<http://www.fao.org/gfcm/data/maps/gsas/en/>

Examples

```
data(GSAs)
str(GSAs)
head(GSAs)
```

haul_at_sea	<i>Check of haul position on sea area</i>
-------------	---

Description

The function identify the hauls that don't fall in the user defined sea area.

Usage

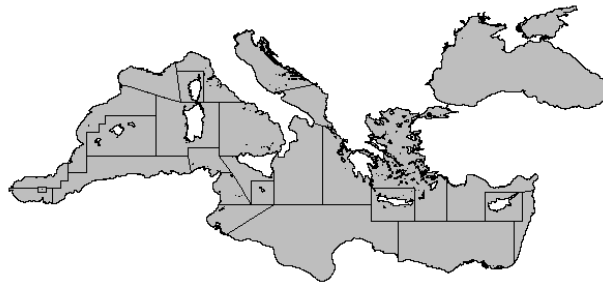
```
haul_at_sea(DataTA, year, seas=RoME::MedSea, verbose = TRUE)
```

Arguments

DataTA	Haul data table according to MEDITS protocol (TA)
year	reference year for the analysis
seas	polygon shapefile defining the extension of the sea area. The default MedSea dataset is referred to the Mediterranean and Black Sea area.
verbose	boolean variable returning verbose output if TRUE

Details

The function check whether the haul position falls in the polygon seas defining the extension of the reference sea area.



Value

The function returns the list of the hauls out of the seas polygon. In case only starting haul positions are out of the sea's area a data frame is returned. If both starting and end positions are out of the polygon an object of class `list` is returned.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
TA = RoME::TA
year = 2012
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
haul_at_sea(TA,year, seas = MedSea, verbose = TRUE)
```

headers.conversion *Headers conversion for MEDITS tables*

Description

Headers conversion for MEDITS tables

Usage

```
headers.conversion(table, type, verbose = FALSE)
```

Arguments

table	data frame of the TX table
type	type of tables to be analysed. Allowed values: "TA","TB","TC","TE","TL"
verbose	boolean. If TRUE a message is printed.

Details

The functions allow to convert headers of table coming from RDBFIS data base to the MEDITS format expected from RoME package

Value

A data frame object is returned including the only allowed field

list_g1_g2

*List of G1 and G2 species***Description**

List of the target species G1 and G1 as defined by the MEDITS protocol (see MEDITS-Handbook Version 9 2017)

Usage

```
data("list_g1_g2")
```

Format

A data frame with 88 observations on the following 17 variables.

No a numeric vector of progressive number

Medit_LIST_proposal_2011 a factor with levels of the list proposed in 2011

Species_group_DCF a factor with levels of the DCF species groups

MEDITS_G1 a numeric vector of G1 species

MEDITS_G2 a numeric vector of G2 species

Group a factor with levels of groups

Old_MEDITS_list a numeric vector of the old MEDITS list

Tot_No Tot_No

Tot_W Tot_W

Ind_Length Ind_Length

Sex a factor with levels of sex

Mat_stage a factor with levels of maturity stages

Age a factor with levels of age

Ind_weight a factor with levels of Ind_weight

Date a factor with levels of Date

CODE a factor with levels CODE

English_common_name a factor with levels of common names in english language

Source

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS2011/principaledownload.htm>

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
data(list_g1_g2)
```

LW

Table of the Length-Weight parameters

Description

Table of the length-weight relationship coefficients reported by species, area and sex.

Usage

```
data("LW")
```

Format

A data frame with 460 observations on the following 5 variables.

AREA vector of the reference geographic area

SPECIES reference species for the a and b parameters

SEX reference sex for the a and b parameters

a a parameters of the length-weight relationship function

b b parameters of the length-weight relationship function

Details

Table of the length-weight relationship coefficients a and b.

Examples

```
data(LW)  
str(LW)
```

Maturity_parameters

Maturity parameters

Description

Maturity parameters used for the checks: `check_smallest_mature`, `check_spawning_period` and `check_sex_inversion`

Usage

```
data("Maturity_parameters")
```

Format

A data frame with 64 observations on the following 12 variables.

Species a factor with levels the rubincodes of the species for which the information is known.

SEX a factor with levels C F M

min_L50 a numeric vector

max_L50 a numeric vector

smallest_mature_individual_observed a numeric vector

min_length_SEX_INVERSION a numeric vector

max_length_SEX_INVERSION a numeric vector

Type_of_hermaphroditism a factor with levels proterandrous protogynous

Area a factor with levels as the area of the relevant information

Start_reproductive_season a numeric vector

End_reproductive_season a numeric vector

Reference a factor with levels of the bibliografic references

Source

Literature and others

Examples

```
data(Maturity_parameters)
```

mat_stages

Table of maturity stages

Description

Table of maturity stages

Usage

```
data("mat_stages")
```

Format

A data frame with 132 observations on the following 4 variables.

TYPE_OF_FILE a character vector

FAUNISTIC_CATEGORY a character vector

SEX a character vector

MATURITY a character vector

MATSUB a character vector

code a character vector

Details

Table of maturity stages per faunistic category. The maturity scales adopted up to 2006 is also provided.

Source

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
data(mat_stages)
str(mat_stages)
```

MEDITS.to.dd

Conversion of MEDITS format coordinates in decimal degrees format

Description

Conversion of MEDITS format coordinates in decimal degrees format

Usage

```
MEDITS.to.dd(data)
```

Arguments

data data frame of the hauls data (TA, table A) in MEDITS format

Value

The function returns the data frame of the TA table with the coordinates expressed as decimal degrees.

Author(s)

Walter Zupa

Examples

```
MEDITS.to.dd(TA)
```

MedSea

Shapefile of Mediterranean and Black Sea area

Description

Polygon shapefile describing the GFCM's Geographical subareas (GSAs)

Usage

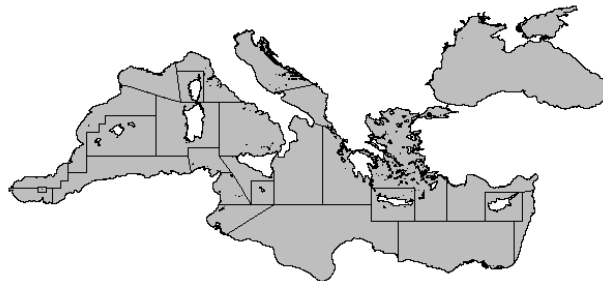
```
data("MedSea")
```

Format

The shapefile is derived from the GFCM's Geographical subareas (GSAs) shapefile

Details

Polygon shapefile describing the GFCM's Geographical subareas (GSAs) compressed with the xz type of compression.

**Source**

http://www.fao.org/fileadmin/user_upload/faoweb/GFCM/Maps/GSAs_simplified.zip

References

<http://www.fao.org/gfcm/data/maps/gsas/en/>

Examples

```
data(MedSea)
plot(MedSea)
```

printError

Management of the error in logfile.

Description

Management of the error in logfile.

Usage

```
printError(funname,check_without_errors, stop_)
```

Arguments

funname name of the check function.
check_without_errors TRUE if there is no error, FALSE if there is any error.
stop_ TRUE if the 'RoME' function has to stop, FALSE if the run should continue

Value

Description of the error is reported in the logfile and/or in the console.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
## Not run:
printError(funname,check_without_errors, stop_)

## End(Not run)
```

printError_cc	<i>Management of the error in logfile.</i>
---------------	--

Description

Management of the error in logfile.

Usage

```
printError_cc(funname,check_without_errors, stop_)
```

Arguments

funname	name of the check function.
check_without_errors	TRUE if there is no error, FALSE if there is any error.
stop_	TRUE if the 'RoME' function has to stop, FALSE if the run should continue

Value

Description of the error is reported in the logfile and/or in the console.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
## Not run:
printError_cc(funname,check_without_errors, stop_)

## End(Not run)
```

RoME	<i>R code to perform multiple checks on MEDITS Survey data (TA, TB, TC, TE and TL files)</i>
------	--

Description

The function calls all the functions built in the package in an ordered way to perform a complete quality check of TX data available. The check is performed simultaneously on the files that can contain also data of more than one year.

Usage

```
RoME(TA, TB, TC, TE=NA, TL=NA, wd, suffix=NA,
      create_RSufi_files = FALSE, create_global_RSufi_files=FALSE,
      Year_start=NA, Year_end=NA, verbose =TRUE, Stratification=RoME::stratification_scheme,
      Ref_list=RoME::TM_list, DataTargetSpecies=RoME::DataTargetSpecies,
      Maturity=RoME::Maturity_parameters,
      ab_parameters=RoME::LW,
      stages_list=RoME::mat_stages, assTL=assTL)
```

Arguments

TA	Haul data table according to MEDITS protocol (TA)
TB	Catch data table according to MEDITS protocol (TB)
TC	Biological data table according to MEDITS protocol (TC)
TE	Individual biological data table according to MEDITS protocol (TE) if available, if TE data are not available, use NA.
TL	Litter data table according to MEDITS protocol (TL) if available, if TL data are not available, use NA
wd	working directory path defined by the user
suffix	Suffix string of the Logfile, in case it suffix=NA it is automatically generated by the function using date and time of the check
create_RSufi_files	boolean variables used to choose if create R-sufi files. The files are saved in the R-sufi directory and named with a suffix of the year and GSA
create_global_RSufi_files	boolean variables used to choose if global R-sufi files should be created from an year to another year
Year_start	numeric value indicating the starting year for the production of R-sufi file. This parameter must to be reported in case
Year_end	numeric value indicating the ending year for the production of R-sufi files
verbose	...
Stratification	Stratification scheme according to MEDITS protocol.
Ref_list	TM_list reference list
DataTargetSpecies	Information related to target species.
Maturity	Information related to sex and maturity from literature or other sources.
ab_parameters	dataframe containing the a and b parameters of the length-weight relationships
stages_list	Table of maturity stages.
assTL	data frame with the association between TL (litter table) categories and sub-categories

Details

RoME checks can be used to integrate a list of common quality checks on survey data. This function calls all the functions built in the package in an ordered way to perform a complete quality check of TX data available. The order of the checks in RoME was implemented in a defined sequence to avoid cascade errors due to the correction of a previous error. No automatic correction is implemented

in 'RoME'. 'RoME' stops if an error occurs; then the user has to correct the error and run again the code to continue with the other checks. The function runs on a complete time series dataset, checking year after year, until the end of the time series. After the checks of the mandatory fields and the controlled vocabulary, that are carried out for all the TX tables, the specific checks on each kind of TX table are performed. Finally, RoME provides a list of cross checks aimed to guarantee the consistency among the data tables.

Some functions included in the 'RoME' library and used by RoME function need specific dictionaries or tables. It is the case of Stratification, Ref_list, DataTargetSpecies, Maturity_parameters, mat_stages and assTL tables. All of them are provided by default in this library. Anyway, the user has the possibility to provide *ad hoc* modified versions of these tables adapting the checks to specific needs.

Value

The function does not correct data, but it detects the errors, warning the user that there is the possibility of one or more errors, specifying the type of the error and easing the data correction. If parameter verbose=TRUE returns a series of text output in console to let the user to trace the state of the checks. All the output of the functions are stored in the user defined working directory wd and in the sub-directory there resident. In the Lofile subfolder are stored the logfiles of each run of the function.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. https://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd <- tempdir()
suffix=NA
DataTA = RoME::TA
DataTB = RoME::TB
DataTC = RoME::TC
DataTE = NA
DataTL = NA
RoME(DataTA, DataTB,DataTC,DataTE,DataTL, wd, suffix,
  Stratification=RoME::stratification_scheme,
  Ref_list=RoME::TM_list,DataTargetSpecies=RoME::DataTargetSpecies,
  Maturity=RoME::Maturity_parameters,ab_parameters=RoME::LW,
  stages_list=RoME::mat_stages,assTL=RoME::assTL)
```

Description

The function calls all the functions included in the package in an ordered way to perform a complete quality check of TX data available. The check is performed simultaneously on the files that can contain also data of more than one year. Unlike the RoME function, RoMEcc does not stop at the first detected error, allowing user to correct data. Instead, it checks all the data and returns a report on the errors found, as well as compiling a detailed log file.

Usage

```
RoMEcc(TA, TB, TC, TE=NA, TL=NA, wd, suffix=NA,
       verbose =TRUE, Stratification=RoME::stratification_scheme,
       Ref_list=RoME::TM_list, DataTargetSpecies=RoME::DataTargetSpecies,
       Maturity=RoME::Maturity_parameters,
       ab_parameters=RoME::LW,
       stages_list=RoME::mat_stages, assTL=RoME::assTL, zip=TRUE)
```

Arguments

TA	Haul data table according to MEDITS protocol (TA)
TB	Catch data table according to MEDITS protocol (TB)
TC	Biological data table according to MEDITS protocol (TC)
TE	Individual biological data table according to MEDITS protocol (TE) if available, if TE data are not available, use NA.
TL	Litter data table according to MEDITS protocol (TL) if available, if TL data are not available, use NA
wd	working directory path defined by the user
suffix	Suffix string of the Logfile, in case it suffix=NA it is automatically generated by the function using date and time of the check
verbose	...
Stratification	Stratification scheme according to MEDITS protocol.
Ref_list	TM_list reference list
DataTargetSpecies	Information related to target species.
Maturity	Information related to sex and maturity from literature or other sources.
ab_parameters	dataframe containing the a and b parameters of the length-weight relationships
stages_list	Table of maturity stages.
assTL	data frame with the association between TL (litter table) categories and sub-categories
zip	boolean, if TRUE a zip file containing the results is generated

Details

RoMEcc checks can be used to integrate a list of common quality checks on survey data. This function calls all the functions built in the package in an ordered way to perform a complete quality check of TX data available. The order of the checks in RoME was implemented in a defined sequence to avoid cascade errors due to the correction of a previous error. No automatic correction is implemented in 'RoME'. 'RoME' stops if an error occurs; then the user has to correct the error and run again the code to continue with the other checks. The function runs on a complete time series

dataset, checking year after year, until the end of the time series. After the checks of the mandatory fields and the controlled vocabulary, that are carried out for all the TX tables, the specific checks on each kind of TX table are performed. Finally, RoME provides a list of cross checks aimed to guarantee the consistency among the data tables.

Some functions included in the 'RoME' library and used by RoME function need specific dictionaries or tables. It is the case of Stratification, TM_list, DataTargetSpecies, Maturity_parameters, mat_stages and assTL tables. All of them are provided by default in this library. Anyway, the user has the possibility to provide *ad hoc* modified versions of these tables adapting the checks to specific needs.

Value

The function does not correct data, but it detects the errors, warning the user that there is the possibility of one or more errors, specifying the type of the error and easing the data correction. If parameter verbose=TRUE returns a series of text output in console to let the user to trace the state of the checks. All the output of the functions are stored in the user defined working directory wd and in the sub-directory there resident. In the Lofile subfolder are stored the logfiles of each run of the function.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. [https://www.sibm.it/MEDITS 2011/principaledownload.htm](https://www.sibm.it/MEDITS%2011/principaledownload.htm)

Examples

```
wd <- tempdir()
suffix=NA
DataTA = RoME::TA
DataTB = RoME::TB
DataTC = RoME::TC
DataTE = NA
DataTL = NA
RoMEcc(DataTA, DataTB,DataTC,DataTE,DataTL, wd, suffix,
  Stratification=RoME::stratification_scheme,
  Ref_list=RoME::TM_list,DataTargetSpecies=RoME::DataTargetSpecies,
  Maturity=RoME::Maturity_parameters,ab_parameters=RoME::LW,
  stages_list=RoME::mat_stages,assTL=RoME::assTL)
```

RSufi_files

Function to concatenate the R-sufi files of the different years.

Description

When the check procedure is completed for a number of years, it is possible to obtain the 4 R-Sufi global files from an year to another year.

Usage

```
RSufi_files(Year_start,Year_end,AREA,wd)
```

Arguments

Year_start	Start year
Year_end	Start end
AREA	String of the GSA. Include only the number.
wd	working directory path defined by the user

Value

The function saves automatically in the files R-Sufi folder the 4 global files, with suffix of the year range and GSA.

Author(s)

I. Bitetto, W. Zupa

References

Rochet M. J., V. M. Trenkel, J. A. Bertrand & J.-C. Poulard, 2004. R routines for survey based fisheries population and community indicators (R-SUFI). Ifremer, Nantes. Limited distribution.
 Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.<https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
TA = RoME::TA
TB = RoME::TB
TC = RoME::TC
DataSpecies=RoME::TM_list
Stratification=RoME::stratification_scheme
year = 2012
wd <- tempdir()
create_haul(TA,year,wd,save=TRUE)
create_catch(TB,year,wd,save=TRUE)
create_length(TC,year,DataSpecies,wd,save=TRUE)
create_strata(Stratification,"10",wd,save=TRUE)
RSufi_files(2012,2012,"10",wd) # run only if you are working outside a temporary directory
```

scheme_individual_data

Summary of the individual data collected by species

Description

Check for summarize the individual data collection (goodness of individual data sampling)

Usage

```
scheme_individual_data(DataTC, DataTE, year, wd, suffix)
```

Arguments

DataTC	Biological data table according to MEDITS protocol (TC)
DataTE	Individual biological data table according to MEDITS protocol (TE)
year	reference year for the analysis
wd	working directory path defined by the user
suffix	Suffix string of the Logfile

Details

The function uses biological data and individual biological data to produce a table where for each species are stored the number of length measurements, individual weights and number of otoliths taken by length class.

Value

This check has as output a table (automatically saved in the wd user defined directory) named `sampling_individual_measures.csv` where for each species are stored the number of length measurements, individual weights and number of otoliths taken by length class. This table is useful to the user to evaluate the coverage of the individual measurements collections in order to verify if the sampling is in line with the protocol and to understand how eventually improve the sampling procedure.

Author(s)

I. Bitetto, W. Zupa

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
wd <- tempdir()
suffix="2020-03-05_time_h17m44s55"
DataTC = RoME::TC
DataTE = RoME::TE
year=2012
scheme_individual_data(DataTC,DataTE,year, wd, suffix)
```

stratification_scheme *stratification_scheme*

Description

data frame of the stratification_scheme

TA

TA

Description

TA table

TB

TB

Description

TB table

TC

TC

Description

TC table

TE

TE

Description

TE table

templateTA	<i>Template haul data table (TA).</i>
------------	---------------------------------------

Description

Dataframe containing the headers of TA, according to the MEDITS manual.

Usage

```
data("templateTA")
```

Format

A data frame with 0 observations on the following 43 variables.

TYPE_OF_FILE a logical vector
 COUNTRY a logical vector
 AREA a logical vector
 VESSEL a logical vector
 GEAR a logical vector
 RIGGING a logical vector
 DOORS a logical vector
 YEAR a logical vector
 MONTH a logical vector
 DAY a logical vector
 HAUL_NUMBER a logical vector
 CODEND_CLOSING a logical vector
 PART_OF_THE_CODEND a logical vector
 SHOOTING_TIME a logical vector
 SHOOTING_QUADRANT a logical vector
 SHOOTING_LATITUDE a logical vector
 SHOOTING_LONGITUDE a logical vector
 SHOOTING_DEPTH a logical vector
 HAULING_TIME a logical vector
 HAULING_QUADRANT a logical vector
 HAULING_LATITUDE a logical vector
 HAULING_LONGITUDE a logical vector
 HAULING_DEPTH a logical vector
 HAUL_DURATION a logical vector
 VALIDITY a logical vector
 COURSE a logical vector
 RECORDED_SPECIES a logical vector
 DISTANCE a logical vector

VERTICAL_OPENING a logical vector
 WING_OPENING a logical vector
 GEOMETRICAL_PRECISION a logical vector
 BRIDLES_LENGTH a logical vector
 WARP_LENGTH a logical vector
 WARP_DIAMETER a logical vector
 HYDROLOGICAL_STATION a logical vector
 OBSERVATIONS a logical vector
 BOTTOM_TEMPERATURE_BEGINNING a logical vector
 BOTTOM_TEMPERATURE_END a logical vector
 MEASURING_SYSTEM a logical vector
 NUMBER_OF_THE_STRATUM a logical vector
 BOTTOM_SALINITY_BEGINNING a logical vector
 BOTTOM_SALINITY_END a logical vector
 MEASURING_SYSTEM_SALINITY a logical vector

Details

See Medits handbook.

Source

The dataframe is empty and it is to be used to verify the correctness of headers.

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
data(templateTA)
```

templateTB

Template catch data table (TB).

Description

Dataframe containing the headers of TB, according to the MEDITS manual.

Usage

```
data("templateTB")
```

Format

A data frame with 0 observations on the following 43 variables.

TYPE_OF_FILE a logical vector
COUNTRY a logical vector
AREA a logical vector
VESSEL a logical vector
YEAR a logical vector
MONTH a logical vector
DAY a logical vector
HAUL_NUMBER a logical vector
CODEND_CLOSING a logical vector
PART_OF_THE_CODEND a logical vector
FAUNISTIC_CATEGORY a logical vector
GENUS a logical vector
SPECIES a logical vector
NAME_OF_THE_REFERENCE_LIST a logical vector
TOTAL_WEIGHT_IN_THE_HAUL a logical vector
TOTAL_NUMBER_IN_THE_HAUL a logical vector
NB_OF_FEMALES a logical vector
NB_OF_MALES a logical vector
NB_OF_UNDETERMINED a logical vector

Details

See Medits handbook.

Source

The dataframe is empty and it is to be used to verify the correctness of headers.

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.
http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
data(templateTB)
```

 templateTC

Template biological data table (TC).

Description

Dataframe containing the headers of TC, according to the MEDITS manual.

Usage

```
data("templateTC")
```

Format

A data frame with 0 observations on the following 43 variables.

TYPE_OF_FILE a logical vector

COUNTRY a logical vector

AREA a logical vector

VESSEL a logical vector

YEAR a logical vector

MONTH a logical vector

DAY a logical vector

HAUL_NUMBER a logical vector

CODEND_CLOSING a logical vector

PART_OF_THE_CODEND a logical vector

FAUNISTIC_CATEGORY a logical vector

GENUS a logical vector

SPECIES a logical vector

LENGTH_CLASSES_CODE a logical vector

WEIGHT_OF_THE_FRACTION a logical vector

WEIGHT_OF_THE_SAMPLE_MEASURED a logical vector

SEX a logical vector

NO_OF_INDIVIDUAL_OF_THE_ABOVE_SEX_MEASURED a logical vector

LENGTH_CLASS a logical vector

MATURITY a logical vector

MATSUB a logical vector

NUMBER_OF_INDIVIDUALS_IN_THE_LENGTH_CLASS_AND_MATURITY_STAGE a logical vector

Details

See Medits handbook.

Source

The dataframe is empty and it is to be used to verify the correctness of headers.

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
data(templateTC)
```

templateTE	<i>Template individual data table (TE).</i>
------------	---

Description

Dataframe containing the headers of TE, according to the MEDITS manual.

Usage

```
data("templateTE")
```

Format

A data frame with 0 observations on the following 43 variables.

TYPE_OF_FILE a logical vector

COUNTRY a logical vector

AREA a logical vector

VESSEL a logical vector

YEAR a logical vector

MONTH a logical vector

DAY a logical vector

HAUL_NUMBER a logical vector

FAUNISTIC_CATEGORY a logical vector

GENUS a logical vector

SPECIES a logical vector

LENGTH_CLASSES_CODE a logical vector

SEX a logical vector

NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_OTOLITH a logical vector

LENGTH_CLASS a logical vector

MATURITY a logical vector

MATSUB a logical vector

INDIVIDUAL_WEIGHT a logical vector

NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_WEIGHT a logical vector

OTOLITH_SAMPLED a logical vector

NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_AGEING a logical vector

OTOLITH_READ a logical vector

AGE a logical vector

OTOLITH_CODE a logical vector

RECORD_NUMBER a logical vector

Details

See Medits handbook.

Source

The dataframe is empty and it is to be used to verify the correctness of headers.

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. [http://www.sibm.it/MEDITS 2011/principaledownload.htm](http://www.sibm.it/MEDITS_2011/principaledownload.htm)

Examples

```
data(templateTE)
```

templateTL	<i>TL table template</i>
------------	--------------------------

Description

Template of the Litter data table (TL) as defined in the MEDITS protocol

Usage

```
data("templateTL")
```

Format

A data frame with 0 observations on the following 14 variables.

TYPE_OF_FILE a logical vector

COUNTRY a logical vector

AREA a logical vector

VESSEL a logical vector

YEAR a logical vector

MONTH a logical vector

DAY a logical vector

HAUL_NUMBER a logical vector

LITTER_CATEGORY a logical vector

‘LITTER_SUB-CATEGORY’ a logical vector

TOTAL_WEIGHT_IN_THE_CATEGORY_HAUL a logical vector

TOTAL_NUMBER_IN_THE_CATEGORY_HAUL a logical vector

‘TOTAL_WEIGHT_IN_THE_SUB-CATEGORY_HAUL’ a logical vector

‘TOTAL_NUMBER_IN_THE_SUB-CATEGORY_HAUL’ a logical vector

Details

For details see MEDITS Survey - Instruction Manual - Version 9 (2017)

Source

MEDITS Survey - Instruction Manual - Version 9 (2017)

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp. <https://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
data(templateTL)
```

time	<i>allowed values for SHOOTING_TIME and HAULING_TIME</i>
------	--

Description

allowed values for SHOOTING_TIME and HAULING_TIME

Usage

```
data("time")
```

Format

A data frame with allowed values for SHOOTING_TIME and HAULING_TIME.

Details

The integer values vector is used to check the correctness of SHOOTING_TIME and HAULING_TIME.

Source

Anonymus (2017) "MEDITS-Handbook. Version n. 9. MEDITS Working Group" <http://www.sibm.it/MEDITS2011/principaledownload.htm>

References

Anonymus (2017) "MEDITS-Handbook. Version n. 9. MEDITS Working Group" <http://www.sibm.it/MEDITS2011/principaledownload.htm>

Examples

```
data(time)  
str(time)
```

TL	<i>TL</i>
----	-----------

Description

TL table

TM_list	<i>TM list</i>
---------	----------------

Description

The present list is destined to code the marine species encountered in the Mediterranean. It has been built following the principle used in the Nordic Code Centre (Stockholm). For most of the species the codes are identical to those proposed by the NCC. However some species can be coded differently. In addition numerous Mediterranean species are not included in the NCC code and have been added. So the present list is specific. It has to be referred as the TM list (Taxonomic list not only Faunistic, FM list).

Usage

```
data("TM_list")
```

Format

A data frame with 1470 observations on the following 11 variables.

N. a numeric vector

MeditsCode a factor with levels of species codes in the RUBIN format (see MEDITS manual)

Scientific.Name.....valid a factor with levels of the scientific names of the species

Authorship a factor with levels of the authorship of the information

Source a factor with levels sources of the information

Reference a factor with levels of the bibliografic references

Remarks a factor with levels the reported remarks

CATFAU a factor with levels of the faunistic categories of the species

CODLON a factor with CODLON that represents the Length classes code: m = 1 mm; 0 = 0,5 cm; 1 = 1 cm.

GSAs a factor with levels of the Geographic Sub-Areas (GSA) adopted in the MEDITS protocol.

Year a factor with levels of the years

Source

MEDITS MEDITS-Handbook, Version n. 9 (2017)

References

Anonymus. 2017. MEDITS-Handbook. Version n. 9. MEDITS Working Group. 106 pp.
http://www.sibm.it/MEDITS_2011/principaledownload.htm

Examples

```
data(TM_list)
str(TM_list)
head(TM_list)
```

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