

Package: fdisf (via r-universe)

October 13, 2026

Version 0.1.20260713

Date 2026-07-13

Title Spatial features for fisheries data interoperability

Description Provides spatial features for fisheries data interoperability, including GIS functions of interest not available in other R spatial-based packages, and utilities for handling bounding boxes, vertices, and grids.

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Depends R (>= 4.2)

Imports methods, parallel, tidyr, sf, terra, geosphere, stringi

Suggests testthat, usethis

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URL <https://github.com/fdiwg/fdisf>

BugReports <https://github.com/fdiwg/fdisf/issues>

RoxygenNote 7.3.3

Encoding UTF-8

LazyData true

Config/pak/sysreqs libabsl-dev cmake libgdal-dev gdal-bin libgeos-dev libicu-dev libssl-dev libproj-dev libsqlite3-dev libudunits2-dev

Repository <https://fdiwg.r-universe.dev>

Date/Publication 2026-07-13 07:02:26 UTC

RemoteUrl <https://github.com/fdiwg/fdisf>

RemoteRef HEAD

RemoteSha 2795e5927fefe19e39f175d76db65faa800de3d5

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add_vertices	<i>add_vertices</i>
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Description

Densify a spatial polygon by adding vertices

Usage

```
add_vertices(sf, each = 0.1, parallel = FALSE, ...)
```

Arguments

sf	an object of class sf
each	the step value to use to create vertices
parallel	run in parallel
...	parallel options

Value

an object of class sf

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

bbox_to_sf	<i>bbox_to_sf</i>
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Description

Creates a **sf** object out of a bounding box

Usage

```
bbox_to_sf(xmin, ymin, xmax, ymax, crs = 4326)
```

Arguments

xmin	xmin
ymin	ymin
xmax	xmax
ymax	ymax
crs	Default is 4326

Value

an object of class sf

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

bearing_between_vertices

bearing_between_vertices

Description

Calculates the bearing between each pair of coordinate. The bearing is computed with the [bearingRhumb](#) function.

Usage

```
bearing_between_vertices(features)
```

Arguments

features an object of class sf

Value

an object of class data.frame including vertices indexes and the bearing

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

center_from_grid_code *center_from_grid_code*

Description

Function copied from iotc_core_gis_cwp_utils (https://github.com/iotc-secretariat/iotc-lib-core-gis-cwp/blob/master/R/iotc_core_gis_cwp_utils.R) Returns details about the center of a regular grid provided the grid code. Details include: the center latitude / longitude (regardless of the fraction of ocean area in the grid) the grid width and height (in degrees)

Usage

```
center_from_grid_code(grid_code)
```

Arguments

grid_code A grid code

Value

A named vector containing the center latitude (y) and longitude (x) plus the grid width (size_lat) and height (size_lon) in degrees

Examples

```
center_from_grid_code("5206066")
center_from_grid_code("6205065")
```

convert_CWP_grid	<i>convert_CWP_grid</i>
------------------	-------------------------

Description

Function copied from `iotc_core_gis_cwp_utils` (https://github.com/iotc-secretariat/iotc-lib-core-gis-cwp/blob/master/R/iotc_core_gis_cwp_utils.R) Converts a CWP grid code into another CWP grid code of a given type

Usage

```
convert_CWP_grid(grid_code, target_grid_type_code = grid_1x1)
```

Arguments

grid_code A CWP grid code

target_grid_type_code The type of CWP grid (one among `grid_1x1`, `grid_5x5`, `grid_10x10`, `grid_10x20`, `grid_20x20` and `grid_30x30`)

Value

The CWP grid code for the grid of type `grid_type_code` that contains the main corner of the original grid

Examples

```
convert_CWP_grid("5201123", grid_5x5)
convert_CWP_grid("6205125", grid_1x1)
```

convert_to_CWP_grid	<i>convert_to_CWP_grid</i>
---------------------	----------------------------

Description

Function copied from `iotc_core_gis_cwp_utils` (https://github.com/iotc-secretariat/iotc-lib-core-gis-cwp/blob/master/R/iotc_core_gis_cwp_utils.R) Converts a pair of decimal coordinate into a CWP grid code for a specific grid type

Usage

```
convert_to_CWP_grid(lon, lat, grid_type_code = grid_5x5)
```

Arguments

lon	Longitude (decimal coordinates)
lat	Latitude (decimal coordinates)
grid_type_code	The type of CWP grid (one among <code>grid_1x1</code> , <code>grid_5x5</code> , <code>grid_10x10</code> , <code>grid_10x20</code> , <code>grid_20x20</code> and <code>grid_30x30</code>)

Value

The CWP grid code for the provided coordinates and grid type

Examples

```
convert_to_CWP_grid(20, -10, grid_1x1)
```

create_cwp_grid	<i>create_cwp_grid</i>
-----------------	------------------------

Description

Creates a CWP grid spatial object

Usage

```
create_cwp_grid(
  size = NULL,
  res = NULL,
  xmin = NULL,
  ymin = NULL,
  xmax = NULL,
  ymax = NULL,
  densify = FALSE,
  parallel = FALSE,
  ...
)
```

Arguments

size	an integer code corresponding to the grid size (referred as code A in the CWP Handbook)
res	a string matching one of the accepted resolution values. Accepted resolutions values are '10min_x_10min', '20min_x_20min', '30min_x_30min', '30min_x_1deg', '1deg_x_1deg', '5deg_x_5deg', '10deg_x_10deg', '20deg_x_20deg', '30deg_x_30deg'
xmin	xmin of the output grid
ymin	ymin of the output grid
xmax	xmax of the output grid
ymax	ymax of the output grid
densify	densify
parallel	run in parallel
...	parallel options

Value

an object of class sf

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

References

CWP Handbook - <https://www.fao.org/cwp-on-fishery-statistics/handbook/general-concepts/main-water-areas/fr/#c737133>

create_geodesic_buffer

create_geodesic_buffer

Description

Creates a geodesic buffer

Usage

```
create_geodesic_buffer(
  features,
  distance,
  unit = c("m", "nm"),
  n_segments = 72
)
```

Arguments

features	an object of class sf
distance	distance
unit	unit for the distance (either 'm' for meters, or 'nm' for nautical miles)
n_segments	number of segments for each single vertex buffer (intermediate step). By default 72 which means a segment for each 5 degree bearing. For fine-grained buffers, values could be 180 (each 2 degree) or 360 (each degree).

Value

an object of class sf

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

create_loxodrome_line *create_loxodrome_line*

Description

Creates a loxodrome line from a straight line

Usage

```
create_loxodrome_line(features, distance = 1852)
```

Arguments

features	an lines object of class sf
distance	distance in meters. Default is 1852 (1 nautical mile)

Value

an object of class sf

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

CWP_to_grid_coordinates
CWP_to_grid_coordinates

Description

Function copied from `iotc_core_gis_cwp_utils` (https://github.com/iotc-secretariat/iotc-lib-core-gis-cwp/blob/master/R/iotc_core_gis_cwp_utils.R) Converts a CWP grid code into its four boundary points (NW, NE, SW and SE)

Usage

```
CWP_to_grid_coordinates(grid_code)
```

Arguments

`grid_code` A CWP grid code

Value

a data table containing the coordinates (LAT, LON) of each of the four boundary points for the grid

Examples

```
CWP_to_grid_coordinates("5201123")
CWP_to_grid_coordinates("6205125")
```

distance_between_vertices
distance_between_vertices

Description

Calculates the distance between each pair of coordinate. The distance is computed with the [distGeo](#) function.

Usage

```
distance_between_vertices(features)
```

Arguments

`features` an object of class `sf`

Value

an object of class `data.frame` including vertices indexes and the distance

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

fdisf

Spatial features for fisheries data interoperability

Description

fdisf provides a set of spatial features for fisheries data interoperability

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

See Also

Useful links:

- <https://github.com/fdiwg/fdisf>
- Report bugs at <https://github.com/fdiwg/fdisf/issues>

grid_10x10

A constant representing the code for a 10x10 regular grid

Description

A constant representing the code for a 10x10 regular grid

Usage

grid_10x10

Format

An object of class `numeric` of length 1.

See Also

grid_code_10x10

grid_10x20	<i>A constant representing the code for a 10x20 regular grid</i>
------------	--

Description

A constant representing the code for a 10x20 regular grid

Usage

grid_10x20

Format

An object of class numeric of length 1.

See Also

grid_code_10x20

grid_1x1	<i>A constant representing the code for a 1x1 regular grid</i>
----------	--

Description

A constant representing the code for a 1x1 regular grid

Usage

grid_1x1

Format

An object of class numeric of length 1.

See Also

grid_code_1x1

`grid_20x20`*A constant representing the code for a 20x20 regular grid*

Description

A constant representing the code for a 20x20 regular grid

Usage`grid_20x20`**Format**

An object of class `numeric` of length 1.

See Also`grid_code_20x20`

`grid_30x30`*A constant representing the code for a 30x30 regular grid*

Description

A constant representing the code for a 30x30 regular grid

Usage`grid_30x30`**Format**

An object of class `numeric` of length 1.

See Also`grid_code_30x30`

grid_5x5	<i>A constant representing the code for a 5x5 regular grid</i>
----------	--

Description

A constant representing the code for a 5x5 regular grid

Usage

grid_5x5

Format

An object of class `numeric` of length 1.

See Also

grid_code_5x5

grid_ALL	<i>The list of all constants representing the codes for the various grids</i>
----------	---

Description

The list of all constants representing the codes for the various grids

Usage

grid_ALL

Format

An object of class `numeric` of length 6.

grid_char_10x10	<i>A constant representing the initial character of a 10x10 regular grid code</i>
-----------------	---

Description

A constant representing the initial character of a 10x10 regular grid code

Usage

grid_char_10x10

Format

An object of class character of length 1.

grid_char_10x20	<i>A constant representing the initial character of a 10x20 regular grid code</i>
-----------------	---

Description

A constant representing the initial character of a 10x20 regular grid code

Usage

grid_char_10x20

Format

An object of class character of length 1.

grid_char_1x1	<i>A constant representing the initial character of a 1x1 regular grid code</i>
---------------	---

Description

A constant representing the initial character of a 1x1 regular grid code

Usage

grid_char_1x1

Format

An object of class character of length 1.

grid_char_20x20	<i>A constant representing the initial character of a 20x20 regular grid code</i>
-----------------	---

Description

A constant representing the initial character of a 20x20 regular grid code

Usage

grid_char_20x20

Format

An object of class character of length 1.

grid_char_30x30	<i>A constant representing the initial character of a 30x30 regular grid code</i>
-----------------	---

Description

A constant representing the initial character of a 30x30 regular grid code

Usage

grid_char_30x30

Format

An object of class character of length 1.

grid_char_5x5	<i>A constant representing the initial character of a 5x5 regular grid code</i>
---------------	---

Description

A constant representing the initial character of a 5x5 regular grid code

Usage

grid_char_5x5

Format

An object of class character of length 1.

grid_chars_ALL	<i>The list of all constants representing the initial character for the various regular grid codes</i>
----------------	--

Description

The list of all constants representing the initial character for the various regular grid codes

Usage

grid_chars_ALL

Format

An object of class character of length 6.

grid_code_10x10	<i>A constant representing the code for a 10x10 regular grid</i>
-----------------	--

Description

A constant representing the code for a 10x10 regular grid

Usage

grid_code_10x10

Format

An object of class numeric of length 1.

See Also

grid_10x10

grid_code_10x20	<i>A constant representing the code for a 10x20 regular grid</i>
-----------------	--

Description

A constant representing the code for a 10x20 regular grid

Usage

grid_code_10x20

Format

An object of class numeric of length 1.

See Also

grid_10x20

grid_code_1x1	<i>A constant representing the code for a 1x1 regular grid</i>
---------------	--

Description

A constant representing the code for a 1x1 regular grid

Usage

grid_code_1x1

Format

An object of class numeric of length 1.

See Also

grid_1x1

grid_code_20x20	<i>A constant representing the code for a 20x20 regular grid</i>
-----------------	--

Description

A constant representing the code for a 20x20 regular grid

Usage

grid_code_20x20

Format

An object of class numeric of length 1.

See Also

grid_20x20

grid_code_30x30	<i>A constant representing the code for a 30x30 regular grid</i>
-----------------	--

Description

A constant representing the code for a 30x30 regular grid

Usage

grid_code_30x30

Format

An object of class numeric of length 1.

See Also

grid_30x30

grid_code_5x5	<i>A constant representing the code for a 5x5 regular grid</i>
---------------	--

Description

A constant representing the code for a 5x5 regular grid

Usage

grid_code_5x5

Format

An object of class numeric of length 1.

See Also

grid_5x5

grid_code_irregular	<i>A constant representing the code for an irregular grid</i>
---------------------	---

Description

A constant representing the code for an irregular grid

Usage

grid_code_irregular

Format

An object of class numeric of length 1.

See Also

grid_irregular

grid_codes_ALL	<i>The list of all constants representing the codes for the various grids</i>
----------------	---

Description

The list of all constants representing the codes for the various grids

Usage

grid_codes_ALL

Format

An object of class `numeric` of length 6.

grid_irregular	<i>A constant representing the code for an irregular grid</i>
----------------	---

Description

A constant representing the code for an irregular grid

Usage

grid_irregular

Format

An object of class `numeric` of length 1.

See Also

grid_code_irregular

optimize_bbox	<i>optimize_bbox</i>
---------------	----------------------

Description

Creates an optimized bbox for an **sf** object. The optimization consists in extending the bounding box to manage features crossing the dateline.

Usage

```
optimize_bbox(sf)
```

Arguments

<code>sf</code>	object of class sf
-----------------	---------------------------

Value

an object of class `bbox`

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

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