



Geological Analysis and Resource Assessment of selected Hydrocarbon systems

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GARAH.D.3.2: Hydrates GISdataset





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GENERAL INTRODUCTION

The aim of the Geological Analysis and Resource Assessment of selected Hydrocarbon systems (GARAH) is to develop a harmonized, scientific based, geological analysis and assessment conventional and unconventional hydrocarbon resources that will help member states to continue the transition to lower Carbon energy sources. This will contribute to climate commitments, and allow the planning for secure sources of affordable energy. The analysis and assessment of hydrocarbons will focus on two areas:

(i) in Europe's major petroleum province – the North Sea and include a "Geological analysis and resource assessment of North Sea petroleum systems", This research includes the assessment of conventional and unconventional oil and gas resources in the most important hydrocarbon basin in Europe. This will enable the remaining resource to be better understood and managed, and identify options for multiple and alternative uses of the subsurface as producing fields come off-line.

(ii) with a pan-European view, "Hydrate assessment in the European continental margin and related risks".

The assessment of gas-hydrates resources in the European continental margin represents an information gap of pan-European interest. This will improve the understanding of the potential role that gas-hydrates may play in the future EU energy mix, as it will constitute a base-line for future projects pertaining the improvement of the European model of the GHSZ, related hazards and potential for geological storage of CO₂.

A catalogue evaluating the multiple-use of hydrocarbon reservoirs, as integrated or alternative use of the subsurface, together with an appraisal on risks and safety, will be produced.





TABLE OF CONTENTS

1	OBJE	ECTIVE FEJL! BOG	MÆRKE ER IKKE DEFINERET.
2	SCO	PE AND FRAMEWORK	6
	2.1	Seafloor temperature	Fejl! Bogmærke er ikke defineret.
	2.2	Geothermal gradient	Fejl! Bogmærke er ikke defineret.
	2.3	Geological maps	Fejl! Bogmærke er ikke defineret.
	2.4	Bathymetry	Fejl! Bogmærke er ikke defineret.
	2.5	Seismic anomalies	Fejl! Bogmærke er ikke defineret.
	2.6	Reports and papers	
3	INVE	NTORY OF DATA COLLECTIC	DN15
	3.1	PERGAMON	Fejl! Bogmærke er ikke defineret.
	3.2	MIGRATE	Fejl! Bogmærke er ikke defineret.
	3.3	EMODnet Geology	Fejl! Bogmærke er ikke defineret.
	3.4	IGME	Fejl! Bogmærke er ikke defineret.
	3.5	BGS	Fejl! Bogmærke er ikke defineret.
	3.6	BRGM	Fejl! Bogmærke er ikke defineret.
	3.7	GIU	Fejl! Bogmærke er ikke defineret.
4	ANNE	EX 1	





1 INTRODUCTION

Hydrate-related information of GIS of GARAH WP3 has been grouped in four geological groups: (A) Geological & geochemical evidences/indicators, (B) Geophysical indicators, (C) Fluid flow seabed indicators, (D) Oceanographic variables & geological constrains. A group with cultural data has been defined with relevant geographical and political marine information (Fig. 1 and Annex 3).

Although only one layer of information containing punctual, lineal and polygonal spatial features could be designed for each group, one information layer for each spatial feature has been designed for each group in order to use a standard GIS format (shapefile).

Group A, Geological & geochemical evidences-indicators, stores the gas hydrate evidences and indicators acquired by direct sampling. Three levels of information have been defined depending on the type geo-spatial feature and the nature of the evidence & indicator: GasHydrate_Site_Evidences&Indicators.shp (shapefile of points), GasHydrate_Areal_Evidences.shp (shapefile of polygons) and GasElement (table of attributes).

Group B, Geophysical indicators, stores the geophysical indicators of hydrates presence in the sediment columns such as levels of BSRs, bright spots or blanking acoustic facies. Three levels of information have been defined depending on the type geo-spatial feature: GasHydrate_Local_GeophyIndicator.shp (shapefile of points), GasHydrate_Profile_GeophyIndicator.shp (shapefile of lines) and GasHydrate Areal GeophyIndicator.shp (shapefile of polygons).

Group C, Fluid flow seabed indicators, stores the location of structures related to the hydrocarbon fluid flow throughout the sediment column such as pockmarks or mud volcanoes as well as surface models of the base of the gas hydrate stability zone (GHSZ). Three levels of information have been defined: FluidFlow_Seafloor_Point_Features.shp (shapefile of points), FluidFlow_Seafloor_Poly_Features.shp (shapefile of polygons) and GHSZ (folder with several models of the GHSZ in raster format).

Group D, Oceanographic variables & geological constrains, stores information related with the oceanographic variables controlling the GHSZ such as geothermal gradient, bathymetry of seafloor temperature, as well as geological constrains like the sediment thickness.

Finally, an additional group with *cultural data* has been added with relevant geographical and political marine information related to marine environment such as coast line, marine waters or countries boundaries.

<u>Abreviations:</u>

PK - (Principal Key) LV - List of Values NN - Not Null NDV – Not allowed duplicated value





GIS **DVD CONTENTS**

INTRODUCTION The aim of the database structure included in this appendix is to provide a reference list of all geospatial data provided to EGDI database genertaed in the GeoERA-IP project. Data have been collected from public and/or free servers and providers. Data source specifications, e.g. survey, timescale, etc., are provided in the metadata and tabular information for each file.

STRUCTURE

The information has been georeferenced and tabulated according to the standards of a Geographic Information System.

Spatial The projection used for each file depends on the source and the feature being represented. Thus different projections are utilised but this does not hinder the visualisation of the complete dataset in a world geographic coordinate system (WGS84).

Tabular Tabular information, linked to features, conforms to a relational database. Although relationships between tables are reduced as much as possible to simplify user queries, many identifiers and attributes will help in 'Join' and Relate' operations between tables. Where appropriate, hyperlinks between features and raw data are utilised. Raw data is stored in a Data folder inside the Theme folder and the field in the attribute table that stores the raw data file path is named Hyperlink.

Legend DVD MXD Мар THEME – 🚞 Data

FEATURESShapefile

+

MAPS This GIS has been built in AreGIS versions 10.6.1 Map documents are provided in the MXD folder as follows:

Points

Lines

Grids

Poligons R Laver

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GEOGRAPHIC INFORMATION SYSTEM DIRECTORY STRUCTURE

GIS

— A_Geological_Geochemical DATA H GIS GasHydrate_Site_Evidences&Indicators GasHydrate_Areal_Evidences GasElement

B Geophysical Indicators

- 🗉 🧰 DATA . GIS

 - GasHydrate_Local_Geophy_Indicators GasHydrate_Profile_Geophy_Indicators
- GasHydrate Areal Geophy Indicators

C_Seabed_FluidFlow_Idicators

P DATA

- 🗄 🦲 GIS
- - FluidFlow_Point_Features
 - S FluidFlow Areal Features
 - 🗄 🧰 GHSZ
 - B HSZ CH4 Pinhero etal 2013
 - B_HSZ_CO2_96_SouthBiscayBay_CelticSea_GaliciaArea
 - B NBZ CO2 96 SouthBiscavBay CelticSea GaliciaArea
 - B_HSZ_CO2-96_French_EEZ_CelticSea_BiscayBay
 - B_NBZ_CO2-96_French_EEZ_CelticSea_BiscayBay

 - B_HSZ_CO2-100_French_EEZ_CelticSea_BiscayBay B_NBZ_CO2-100_French_EEZ_CelticSea_BiscayBay
 - B_HSZ_CO2_96_Ext200M_CelticSea_FISU
 - B_NBZ_CO2_96_Ext200M_CelticSea_FISU
 - B_HSZ_CH4b_SedCons_SW_Europe
 - B HSZ CH4b SedCons NW Europe

D_Oceanographicvariables_GeologicalConstrains DATA 🗉 🧰 GIS



SARAH_Hydrate_GIS_v10_6.mxd

MXD

HeatFlow Global

Folder containing Geological & Geochemical evidences and indicators Folder containing data referenced to Geological & Geochemical evidences and indicators Folder containing GIS features from Geological & Geochemical evidences and indicators Sites with Gas Hydrates evidences and indicators Areal evidences of Gas Hydrates Gas Hydrate composition

Folder containing Geophysical indicators Folder containing data referenced to Geophysical indicators Folder containing GIS features from Geophysical indicators Sites with geophysical indicators of gas hydrates Profiles with geophysical indicators of gas hydrates Geophysical indicators of gas hydrates with areal distribution

Folder containing seabed fluid flow indicators Folder containing data referenced to seabed fluid flow indicators Folder containing GIS features of seabed fluid flow indicators

Seabed fluid flow structures with punctual geographical representation Geophysical indicators of gas hydrates with areal distribution

3 D models of gas hydrate stability zone

Base of hydrate stability zone for CH4. Pinhero etal 2013

Base of hydrate stability zone for 96% CO2. South Biscay Bay - Galicia Area. Thinon_etal_2019 Base of negative bouvancy zone for 96% C02. South Biscay Bay - Galicia Area. Thinon etal 2019 Base of hydrate stability zonefor 96% CO2. Celtic Sea & French EEZ. Thinon_etal_2019 Base of negative bouyancy zone for 96% C02. Celtic Sea & French EEZ. Thinon_etal_2019 Base of hydrate stability zone for 100% CO2. Celtic Sea & French EEZ. Thinon etal 2019 Base of negative bouyancy zone for 100% C02. Celtic Sea & French EEZ. Thinon_etal_2019 Base of hydrate stability zone for 96% CO2, Extended 200M, FISU, Celtic Sea, Thinon etal 2019 Base of negative bouyancy zone for 96% C02. Extended 200M. FISU, Celtic Sea. Thinon_etal_2019 Base of hydrate stability zone for biogenic CH4. Southwest Europe. Sediment thickness constrain Base of hydrate stability zone for biogenic Ch4., Northwest Europe, Sediment thickness constrain

Folder containing data of oceanographic variables and geological constrains Folder containing data referenced to oceanographic variables and geological constrains Folder containing GIS features of oceanographic variables and geological constrains Heatflow data from Global heat Flow database (http://ihfo-iugg.org/products/global-heat-flow-database) Seafloor temperature obtained from CTD data World sediment thickness NOAA

Digital Elevation Model of Europe. Source: Migrate COST Action Bathymetry. Source: EMODnet Bathymetry Shade relief surfaces derived from EMODnet Bathymetry by EMODnet bathymetry quadrant numbers: from A1 to D4 Bathymetry, Source: GEBCO Atlas

Bathymetry of Arctic Sea. Source: IBCAO Shaded relief map of Arctic Sea. Derived from IBCAO bathymetry map Isoathymetric lines - 200m. Source: Migrate COST Action

Boundaries of the major oceans and seas of the world, VLIZ Gazetteer Coast line of Europe, EMODnet

Hydrate GIS project. MXD file in ArcGIS 10.6 version

Fig.1. Directory structure of the hydrate-related GIS of the WP3 of GARAH Project.





2 GROUP A: GEOLOGICAL & GEOCHEMICAL EVIDENCES-INDICATORS

This group stores the gas hydrate evidences and indicators acquired by direct sampling. Taking into account the related constrains for the "shapefile" format data file, three levels of information have been defined depending on the type geo-spatial feature and the nature of the evidence & indicator: GasHydrate_Site_Evidences&Indicators.shp (shapefile of points), GasHydrate_Areal_Evidences.shp (shapefile of polygons) and GasElement (table of attributes). In the tables below: principal key in yellow, geographical information in blue and geological information in orange.

FIELDNAME	FORMAT	DESCRIPCION
ID_IndiNa	Text, 254	Identification code of the evidence - PK
Lat_DD	Double14,6	Latitude in decimal degrees (WGS84)
Long_DD	Double14,6	Longitude in decimal degrees (WGS84)
WaterDepth	Double14,6	Seafloor depth (meters)
GeoSettin	Text, 50	Geographical / Geological Setting – Constrains NN, LV
LocalSite	Text, 50	Local site where the evidence is located
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected
Cruise	Text, 50	Oceanographic Cruise where data have been recovered or observed
CName	Text, 50	Contact name
Email	Text, 50	Contact Email
E_I	Text, 50	E = Direct Evidence ; I = Indirect Indicator– constrains: NN
FF_Type	Text, 50	Type of evidence o indicator – constrains: NN- LV_FF_Type
Descripti	Text, 254	Description of the evidence - free text
Sedi_Type	Text, 50	Sediment type – LV_
D_Indi_mtp	Double 10,4	Depth of the top of the evidence below seabed in meters
D_Indi_mbt	Double 10,4	Depth of the bottom of the evidence below seabed in meters
Size	Text, 254	Size (volume, km2, tons, etc)
DOI	Text, 254	DOI of main data publication
Reference	Text, 254	References to data. Author, Year & Title. Link to PDF in data repository
Comments	Text, 254	Comments Free text

2.1 GasHydrate_Site_Evidences&Indicators: Points

The level of information "GasHydrate_Site_Evidences&Indicators" stores punctual information related to gas hydrate evidences or indicator recovered by direct sampling. Following is the detailed description of items shown in the above table.

ID_IndiNa is the principal key of the table of attributes. It stores the name of the sample in a text-type item 254 character long.





Lat_DD stores latitude coordinates in decimal degrees (WSG84 datum) of the sample. Numerical double-type item 14 character long with 6 in decimal place.

Long_DD stores longitude coordinates in decimal degrees (WSG84 datum) of the sample. Numerical double-type item 14 character long with 6 in decimal place.

WaterDepth stores the seafloor water depth of the sample in meter and negative values. Numerical double-type item 14 character long with 6 in decimal place.

GeoSettin stores the name of the geographical or geological setting where the sample has been recovered. It has a "not-null value" constrain and the value belongs to the list of values "geographical/geological setting". It is a text-type item 50 character long.

LocalSite stores the name of the local site where the sample has been recovered in a text-type item 50 character long.

Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.

Cruise stores the name of the oceanographic cruise where data have been acquired in a texttype item 50 character long.

CName stores the name of the contact person responsible of the record stored in the database. It is a text-type item 50 character long.

Email stores the e-mail address responsible of the record stored in the database. It is a text-type item 50 character long.

E_I stores the type of the evidence. Value "E" if it is a direct evidence or value "I" if it is indirect indicator. It is a text-type item 50 character long.

FF_Type stores the typology of the evidence or indicator of the hydrocarbon seabed fluid flow. It has a "not-null value" constrain and the value belongs to the list of values "FF_type". It is a text-type item 50 character long.

Descripti stores a description of the evidence or indicator as a free text. It is a text-type item 254 character long.

Sedi_Type stores the sediment type of the sample where the evidence or indicator has been recovered. The value has to belong to the codelist of lithology values of INSPIRE. It is a text-type item 50 character long.

D_Indi_mtp stores the depth of the top of the evidence or indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_mbt stores the depth of the bottom of the evidence or indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

Size stores information about the "quantity" of the evidence or indicator. It is a free text specifying the "size" and the dimension measured (eg. gr, tons, mm, cm, m^2 , Km^2). It is a text-type item 254 character long.

DOI stores the Digital Object Indentifier of the publication where the evidence or indicator appears. It is a text-type item 254 character long.

Reference stores references related to the evidence or indicator. It is a text-type item 254 character long.

Comments stores a free comment about the record. It is a text-type item 254 character long.

2.2 GasHydrate_Site_Evidences&Indicators: Polygons

FIELDNAME	FORMAT	DESCRIPCION	
ID_IndiNa	Text, 254	Identification code of the evidence - PK-	





MpArea	Double14,6	Cartographical area of the evidence in km2
GeoSettin	Text, 50	Geographical / Geological Setting – Constrains NN, LV
LocalSite	Text, 254	Local site where the evidence is located
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected
CName	Text, 50	Contact name
Email	Text, 50	Contact Email
FF_Type	Text, 50	Type of evidence ; FF_Type = "Gas Hydrate"
Descripti	Text, 254	Description of the evidence - free text
Sedi_Type	Text, 50	Sediment type – LV_
D_Evi_mtp	Double 10,4	Depth of the top of the evidence below seabed in meters
D_Evi_mbt	Double 10,4	Depth of the bottom of the evidence below seabed in meters
D_Evi_TWTt	Double 10,4	Depth of the top of the evidence below seabed in seconds TWT
D_Evi_TWbt	Double 10,4	Depth of the bottom of the evidence below seabed in seconds TWT
Size	Text, 50	Size (volume, km2, tons, etc)
DOI	Text, 254	DOI of main data publication
Reference	Text, 254	References to data. Author, Year & Title. Link to PDF in data repository
Comments	Text, 254	Comments Free text

The level of information "GasHydrate_Areal_Evidences" stores polygonal information related to gas hydrate evidences or indicators in the European continental margins. Following is the detailed description of items shown in the above table.

ID_IndiNa is the principal key of the table of attributes. It stores the name of the identifier of each record. It is a text-type item 254 character long.

MpArea stores cartographical area of the evidence or indicator in km². Numerical double-type item 14 character long with 6 in decimal place.

GeoSettin stores the name of the geographical or geological setting where the evidence or indicator has been recorded. It has a "not-null value" constrain and the value belongs to the list of values "geographical/geological setting". It is a text-type item 50 character long.

LocalSite stores the name of the local site where the evidence or indicator has been recorded. It is a text-type item 50 character long.

Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.

CName stores the name of the contact person responsible of the record stored in the database. It is a text-type item 50 character long.

Email stores the e-mail address responsible of the record stored in the database. It is a text-type item 50 character long.

FF_Type stores the typology of the evidence or indicator of the hydrocarbon seabed fluid flow. It has a "not-null value" constrain and the value belongs to the list of values "FF_type". It is a text-type item 50 character long.

Descripti stores a description of the evidence or indicator as a free text. It is a text-type item 254 character long.

Sedi_Type stores the sediment type where the evidence or indicator has been recorded. The value has to belong to the codelist of lithology values of INSPIRE. It is a text-type item 50 character long.





D_Indi_mtp stores the depth of the top of the evidence or indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_mbt stores the depth of the bottom of the evidence or indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_TWTt stores the depth of the top of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_TWTb stores the depth of the bottom of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

Size stores information about the "quantity" of the evidence or indicator. It is a free text specifying the "size" and the dimension measured (eg. gr, tons, mm, cm, m^2 , Km^2 , etc). It is a text-type item 254 character long.

DOI stores the Digital Object Indentifier of the publication where the evidence or indicator appears. It is a text-type item 254 character long.

Reference stores references related to the evidence or indicator. It is a text-type item 254 character long.

Comments stores a free comment about the record. It is a text-type item 254 character long.

2.3 GasElement: Table

FIELDNAME	FORMAT	DESCRIPCION
ID_INDINA	Text,254	Internal identifier – PK.
EXP	Text, 254	Expedition number
SITE	Text, 254	Site number
HOLE	Text, 254	Hole number
CORE	Text, 254	Core name
ТҮРЕ	Text, 254	H-advanced piston core, X-extended core barrel , R-rotary core barrel
SECT	Text, 254	Section number
A_W	Text, 254	Number of Section: A-Archive half , W-Working half
TOP_OFFSET	Double 14,6	Top offset
BOTTOM_OFF	Double 14,6	Bottom offset
TOP_DEPTHA	Double 14,6	Top depth (mm), core depth below seafloor, overlap if long. Method-A
	Double 14,6	Bottom depth (mm), core depth below seafloor, overlap if long.
BOTTOM_DCA		Method-A
SAMPLE_TYP	Text, 254	HS - headspace analysis , VAC - vacutainer analysis
METHAN_PPM	Double 14,6	Methane. Parts per million by volume
ETHANE_PPM	Double 14,6	Ethane. Parts per million by volume
ETHENE_PPM	Double 14,6	Ethene. Parts per million by volume
PROPAN_PPM	Double 14,6	Propane. Parts per million by volume
PROPEN_PPM	Double 14,6	Propene. Parts per million by volume
ISO_BU_PPM	Double 14,6	Iso Butane. Parts per million by volume
N_BUTA_PPM	Double 14,6	n Butane. Parts per million by volume
ISO_PE_PPM	Double 14,6	Iso Pentane. Parts per million by volume
N_PEN_PPM	Double 14,6	n Pentane. Parts per million by volume
ISO_HE_PPM	Double 14,6	Iso Hexane. Parts per million by volume
N_HEXA_PPM	Double 14,6	n Hexane. Parts per million by volume
IS_HEP_PPM	Double 14,6	Iso Heptane. Parts per million by volume
N_HEPT_PPM	Double 14,6	n Heptane. Parts per million by volume





N2 PPM	Double 14,6	Nitrogen, Parts per million by volume
02 PPM	Double 14.6	Oxygen Parts per million by volume
	Double 14.6	Carbon dioxide. Parts per million by volume
	Double 14.6	H-S. Parts per million by volume
	Double 14,0	Venen Darts per million by volume
XENON_PPM	Double 14,6	Xenon. Parts per million by volume
ETHYLEN_PPM	Double 14,6	Ethylene. Parts per million by volume
PROPYLE_PPM	Double 14,6	Propylene. Parts per million by volume
METHODOLOG	Text, 254	NGA-TCD. Natural Gas Analysis by Thermal Conductivity Detector
		NGA-FID. Natural Gas Analysis by Flame Ionization Detector
		NGA-GC. Natural Gas Analysis by Gas Chromatography
PROCEEDING	Text, 254	Reference of the related publication
Comments	Text, 254	Comments about the record

The level of information "GasElement" stores the chemical composition of the gas hydrate evidence. ID_INDINA is the principal key with a "many to one" relationship to "GasHydrate_Site_Evidences&Indicators". The above table contains a detailed description of the items.





3 GROUP B: GEOPHYSICAL INDICATORS

FIELDNAME	FORMAT	DESCRIPCION
ID_IndiNa	Text, 254	Identification code of the evidence - PK-
Lat_DD	Double14,6	Latitude in decimal degrees (WGS84)
Long_DD	Double14,6	Longitude in decimal degrees (WGS84)
WaterDepth	Double14,6	Seafloor depth
GeoSettin	Text, 50	Geographical / Geological Setting – Constrains NN, LV
LocalSite	Text, 50	Local site where the evidence is located
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected
Cruise	Text, 50	Oceanographic Cruise where the evidence has been recovered or observed
CName	Text, 50	Contact name
Email	Text, 50	Contact Email
FF_Type	Text, 50	Type of evidence – constrain- NN- LV_FF_Type
Descripti	Text, 254	Description of the evidence - free text
D_Indi_mtp	Double 10,4	Depth of the top of the evidence below seabed in meters
D_Indi_mbt	Double 10,4	Depth of the bottom of the evidence below seabed in meters
D_IndiTWTt	Double 10,4	Depth of the top of the evidence below seabed in seconds TWTT
D_IndiTWTb	Double 10,4	Depth of the bottom of the evidence below seabed in seconds TWTT
DOI	Text, 254	DOI of main data publication
Reference	Text, 254	References to data. Author, Year & Title. Link to PDF in data repository
Comments	Text, 254	Comments Free text

3.1 GasHydrate_Local_Geophy_Indicators: Points

The level of information "GasHydrate_Local_Geophy_Indicators" stores punctual information related to geophysical indicators stored in the database. Following is the detailed description of items shown in the above table.

ID_IndiNa is the principal key of the table of attributes. It stores the name of the indicator in a text-type item 254 character long.

Lat_DD stores latitude coordinates in decimal degrees (WSG84 datum) of the indicator. Numerical double-type item 14 character long with 6 in decimal place.

Long_DD stores longitude coordinates in decimal degrees (WSG84 datum) of the sample. Numerical double-type item 14 character long with 6 in decimal place.

WaterDepth stores the seafloor water depth of the indicator in meter and negative values. Numerical double-type item 14 character long with 6 in decimal place.

GeoSettin stores the name of the geographical or geological setting where the indicator has been recorded. It has a "not-null value" constrain and the value belongs to the list of values "geographical/geological setting". It is a text-type item 50 character long.

LocalSite stores the name of the local site where the indicator has been recorded in a text-type item 50 character long.





Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.

Cruise stores the name of the oceanographic cruise where data have been acquired in a text-type item 50 character long.

CName stores the name of the contact person responsible of the record stored in the database. It is a text-type item 50 character long.

Email stores the e-mail address responsible of the record stored in the database. It is a text-type item 50 character long.

FF_Type stores the typology of the indicator of the hydrocarbon seabed fluid flow. It has a "not-null value" constrain and the value belongs to the list of values "FF_type". It is a text-type item 50 character long.

Descripti stores a description of the indicator as a free text. It is a text-type item 254 character long.

D_Indi_mtp stores the depth of the top of the indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_mbt stores the depth of the bottom of the indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_TWTt stores the depth of the top of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_TWTb stores the depth of the bottom of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

DOI stores the Digital Object Indentifier of the publication where the indicator appears. It is a text-type item 254 character long.

Reference stores references related to the indicator. It is a text-type item 254 character long. Comments stores a free comment about the record. It is a text-type item 254 character long.

FIELDNAME	FORMAT	DESCRIPCION
ID_IndiNa	Text, 254	Identification code of the evidence - PK-
MpLength	Double 14,6	Cartographical length in km of the indicator
GeoSettin	Text, 50	Geographical / Geological Setting – Constrains NN, LV
LocalSite	Text, 50	Local site where the evidence is located
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected
Cruise	Text, 50	Oceanographic Cruise where the evidence has been recovered or observed
CName	Text, 50	Contact name
Email	Text, 50	Contact Email
FF_Type	Text, 50	Type of evidence – constrain- NN- LV_FF_Type
Descripti	Text, 254	Description of the evidence - free text
D_Indi_mtp	Double 10,4	Depth of the top of the evidence below seabed in meters
D_Indi_mbt	Double 10,4	Depth of the bottom of the evidence below seabed in meters
D_IndiTWTt	Double 10,4	Depth of the top of the evidence below seabed in seconds TWTT
D_IndiTWTb	Double 10,4	Depth of the bottom of the evidence below seabed in seconds TWTT
DOI	Text, 254	DOI of main data publication

3.2 GasHydrate_Profile_Geophy_Indicators: Lines





Reference	Text, 254	References to data. Author, Year & Title. Link to PDF in data repository
Comments	Text, 254	Comments Free text
Scan_URL	Text, 254	URL with image data
Terms_Of_U	Text, 254	Term Of use

The level of information "GasHydrate_Profile_Geophy_Indicators" stores lineal information related to geophysical indicators stored in the database. Following is the detailed description of items shown in the above table.

ID_IndiNa is the principal key of the table of attributes. It stores the name of the indicator in a text-type item 254 character long.

MpLength stores the cartographical length in km of the indicator. This measure is calculated automatically by the system. It is a numerical double-type item 14 character long with 6 in decimal place

GeoSettin stores the name of the geographical or geological setting where the indicator has been recorded. It has a "not-null value" constrain and the value belongs to the list of values "geographical/geological setting". It is a text-type item 50 character long.

LocalSite stores the name of the local site where the indicator has been recorded in a text-type item 50 character long.

Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.

Cruise stores the name of the oceanographic cruise where data have been acquired in a text-type item 50 character long.

CName stores the name of the contact person responsible of the record stored in the database. It is a text-type item 50 character long.

Email stores the e-mail address responsible of the record stored in the database. It is a text-type item 50 character long.

FF_Type stores the typology of the indicator of the hydrocarbon seabed fluid flow. It has a "not-null value" constrain and the value belongs to the list of values "FF_type". It is a text-type item 50 character long.

Descripti stores a description of the indicator as a free text. It is a text-type item 254 character long.

D_Indi_mtp stores the depth of the top of the indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_mbt stores the depth of the bottom of the indicator below seabed in meters. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_TWTt stores the depth of the top of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_TWTb stores the depth of the bottom of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

DOI stores the Digital Object Indentifier of the publication where the indicator appears. It is a text-type item 254 character long.

Reference stores references related to the indicator. It is a text-type item 254 character long. Comments stores a free comment about the record. It is a text-type item 254 character long. Scan_URL stores the URL direction where an image of the indicator is located. It is a text-type item 254 character long.





3.3	GasHydrate_	Areal_	Geophy_	Indicators:	Polygons
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FIELDNAME	FORMAT	DESCRIPCION	
ID_IndiNa	Text, 254	Identification code of the evidence - PK-	
MpArea	Double 14,6	Cartographical area of the evidence in km2	
GeoSettin	Text, 50	Geographical / Geological Setting – Constrains NN, LV	
LocalSite	Text, 50	Local site where the evidence is located	
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected	
Cruise	Text, 50	Oceanographic Cruise/es in which the evidence is supported	
CName	Text, 50	Contact name	
Email	Text, 50	Contact Email	
FF_Type	Text, 50	Type of evidence – constrain- NN- LV_FF_Type	
Descripti	Text, 254	Description of the evidence - free text	
D_IndiTWTt	Double 10,4	Depth of the top of the evidence below seabed in seconds TWTT	
D_IndiTWTb	Double 10,4	Depth of the bottom of the evidence below seabed in seconds TWTT	
Size	Text, 50	Size (volume, km2, tons, etc)	
DOI	Text, 254	DOI of main data publication	
Reference	Text, 254	References to data. Author, Year & Title. Link to PDF in data repository	
Comments	Text, 254	Comments Free text	

The level of information "GasHydrate_Areal_Geophy_Indicators" stores lineal information related to geophysical indicators stored in the database. Following is the detailed description of items shown in the above table.

ID_IndiNa is the principal key of the table of attributes. It stores the name of the indicator in a text-type item 254 character long.

MpArea stores cartographical area of the indicator in km^2 . Numerical double-type item 14 character long with 6 in decimal place.

GeoSettin stores the name of the geographical or geological setting where the indicator has been recorded. It has a "not-null value" constrain and the value belongs to the list of values "geographical/geological setting". It is a text-type item 50 character long.

LocalSite stores the name of the local site where the indicator has been recorded in a text-type item 50 character long.

Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.

Cruise stores the name of the oceanographic cruise where data have been acquired in a text-type item 50 character long.

CName stores the name of the contact person responsible of the record stored in the database. It is a text-type item 50 character long.

Email stores the e-mail address responsible of the record stored in the database. It is a text-type item 50 character long.

FF_Type stores the typology of the indicator of the hydrocarbon seabed fluid flow. It has a "not-null value" constrain and the value belongs to the list of values "FF_type". It is a text-type item 50 character long.

Descripti stores a description of the indicator as a free text. It is a text-type item 254 character long.





D_Indi_TWTt stores the depth of the top of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

D_Indi_TWTb stores the depth of the bottom of the indicator below seabed in seconds Two Way Travel Time. Numerical double-type item 10 character long with 4 in decimal place.

DOI stores the Digital Object Indentifier of the publication where the indicator appears. It is a text-type item 254 character long.

Reference stores references related to the indicator. It is a text-type item 254 character long. Comments stores a free comment about the record. It is a text-type item 254 character long.





4 GROUP C: SEABED FLUID FLOW INDICATORS

FIELDNAME	FORMAT	DESCRIPCION
ID_IndiNa	Text, 254	Identification code of the evidence - PK-
Lat_DD	Double14,6	Latitude in decimal degrees (WGS84)
Long_DD	Double14,6	Longitude in decimal degrees (WGS84)
WaterDepth	Double14,6	Seafloor depth
GeoSettin	Text, 50	Geographical / Geological Setting – Constrains NN, LV
LocalSite	Text, 50	Local site where the evidence is located
FF_Type	Text, 50	Type of evidence – constrain- NN- LV_FF_Type
Descripti	Text, 254	Description of the evidence - free text
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected
CName	Text, 50	Contact name
Email	Text, 50	Contact Email
DOI	Text, 254	DOI of main data publication
Reference	Text, 254	References to data. Author, Year & Title. Link to PDF in data repository
Comments	Text, 254	Comments Free text

4.1 FluidFlow_Seafloor_Point_Features: Points

The level of information "FluidFlow_Seafloor_Point_Features" stores punctual information related to seabed fluid flow structures. Following is the detailed description of items shown in the above table.

ID_IndiNa is the principal key of the table of attributes. It stores the name of the geographical feature in a text-type item 254 character long.

Lat_DD stores latitude coordinates in decimal degrees (WSG84 datum) of the geographical feature. Numerical double-type item 14 character long with 6 in decimal place.

Long_DD stores longitude coordinates in decimal degrees (WSG84 datum) of the geographical feature. Numerical double-type item 14 character long with 6 in decimal place.

WaterDepth stores the seafloor water depth of the geographical feature in meter and negative values. Numerical double-type item 14 character long with 6 in decimal place.

GeoSettin stores the name of the geographical or geological setting where the geographical feature is located. It has a "not-null value" constrain and the value belongs to the list of values "geographical/geological setting". It is a text-type item 50 character long.

LocalSite stores the name of the local site where the geographical feature is located. It is a text-type item 50 character long.

FF_Type stores the type of the hydrocarbon seabed fluid flow structure. It has a "not-null value" constrain and the value belongs to the list of values "FF_type". It is a text-type item 50 character long.

Descripti stores a description of the hydrocarbon seabed fluid flow structure. It is a text-type item 254 character long.

Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.





CName stores the name of the contact person responsible of the record stored in the database. It is a text-type item 50 character long.

Email stores the e-mail address responsible of the record stored in the database. It is a text-type item 50 character long.

DOI stores the Digital Object Indentifier of the publication where the hydrocarbon seabed fluid flow structure appears. It is a text-type item 254 character long.

Reference stores references related to the hydrocarbon seabed fluid flow structure. It is a text-type item 254 character long.

Comments stores a free comment about the hydrocarbon seabed fluid flow structure. It is a text-type item 254 character long.

FIELDNAME	FORMAT	DESCRIPCION
ID_IndiNa	Text, 254	Identification code of the evidence - PK-
MpArea	Double14,6	Cartographical area of the evidence in km2
GeoSettin	Text, 50	Geographical / Geological Setting – Constrains NN, LV
LocalSite	Text, 50	Local site where the evidence is located
FF_Type	Text, 50	Type of evidence – constrain- NN- LV_FF_Type
Descripti	Text, 254	Description of the evidence - free text
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected
CName	Text, 50	Contact name
Email	Text, 50	Contact Email
DOI	Text, 254	DOI of main data publication
Reference	Text, 254	References to data. Author, Year & Title. Link to PDF in data repository
Comments	Text, 254	Comments Free text

4.2 FluidFlow_Seafloor_Areal_Features: Polygons

The level of information "FluidFlow_Seafloor_Areal_Features" stores polygonal information related to seabed fluid flow structures. Following is the detailed description of items shown in the above table.

ID_IndiNa is the principal key of the table of attributes. It stores the name of the geographical feature in a text-type item 254 character long.

MpArea stores cartographical area of the geographical feature in km². Numerical double-type item 14 character long with 6 in decimal place.

GeoSettin stores the name of the geographical or geological setting where the geographical feature is located. It has a "not-null value" constrain and the value belongs to the list of values "geographical/geological setting". It is a text-type item 50 character long.

LocalSite stores the name of the local site where the geographical feature is located. It is a text-type item 50 character long.

FF_Type stores the type of the hydrocarbon seabed fluid flow structure. It has a "not-null value" constrain and the value belongs to the list of values "FF_type". It is a text-type item 50 character long.

Descripti stores a description of the hydrocarbon seabed fluid flow structure. It is a text-type item 254 character long.





Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.

CName stores the name of the contact person responsible of the record stored in the database. It is a text-type item 50 character long.

Email stores the e-mail address responsible of the record stored in the database. It is a text-type item 50 character long.

DOI stores the Digital Object Indentifier of the publication where the hydrocarbon seabed fluid flow structure appears. It is a text-type item 254 character long.

Reference stores references related to the hydrocarbon seabed fluid flow structure. It is a text-type item 254 character long.

Comments stores a free comment about the hydrocarbon seabed fluid flow structure. It is a text-type item 254 character long.

4.3 GHSZ:

FIELDNAME	FORMAT	DESCRIPCION
Longitude	Num (Double) (15,6)	Longitude coordinates in decimal degrees (GCS WGS84)
Latitude	Num (Double) (15,6)	latitude coordinates in decimal degrees (GCS WGS84)
Z_VALUE	Num (Double) (15,6)	Value of the continuous variable (BGHSZ, thickness, etc) in meters

GHSZ stores 3D models in raster format related to the base of the gas hydrate stability zone. The folder GHSZ stores individual rasters of the European continental margins. Detailed information about the rasters is specified in Figure 1 and Annex 2.





5 GROUP D: OCEANOGRAPHIC VARIABLES & GEOLOGI-CAL CONSTRAINS

5.1 *HeatFlow_Global: Points* – (Global heat flow data base - AAPG) *Taken from ODV- https://odv.awi.de/*

FIELDNAME	FORMAT	DESCRIPCION
Data_Numbe	Text, 254	Number arbitrary
Codes	Text, 254	Codes based on Lee and Uyeda 1965
Site_Name	Text, 254	Code from "AAPG Datapages" (Jessop et al 1975)
Latitude	Num (Double) (0,0)	Latitude
Longitude	Num (Double) (0,0)	Longitude
Elevation	Text, 254	Elevation
minD	Text, 254	Mínimum depth for the heat flow calculation
maxD	Text, 254	Maximum depth for the heat flow calculation
NoTemps	Number	Number of temperatura point used in the calculation
Gradient	Gradient	Temperatue gradient
NoCond_	Number	0, Estimated by roc type or existing data. Blank , lack of info
Conductivi	Num (Double) (0,0)	Average conductivity
No_Heat_Pr	Text, 254	Number of samples used in the calculation
Heat_Flow	Num (Double) (0,0)	Heat flow in mE/m2
Nosites	Number	Differnt of 1 if grouping has occurred. Blank in subitems. More information in Jessop et al (1975)
Year_of_Pu	Text, 254	Year of publication
Reference	Text, 254	Source of data
Comments	Text, 254	Methods, Geographical setting, or additional references
Add_Refer	Text, 254	Additional references

The level of information "HeatFlow_Global" stores information about the heat flow and the geothermal gradient caming from the global heat flow database of the International Heat Flow Commission (website: http://engineering.und.edu/geology-and-geological-engineering/globe-heat-flow-database/index.cfm). Data where downloaded with the ODV application (https://odv.awi.de/). The above table contains a detailed description of the items.

5.2 Seafloor Temperature: Points – Modified Taken from ODV- https://odv.awi.de/





FIELDNAME	FORMAT	DESCRIPCION
ID_OceName	Text, 254	Identification name of data - PK
Lat_DD	Double 14,6	Latitude in decimal degrees (WGS84)
Long_DD	Double 14,6	Longitude in decimal degrees (WGS84)
WaterDepth	Double 14,6	Seafloor depth
Measure_De	Double 14,6	Water depth of the temperature measured (m)
Тетр	Double 14,6	Temperature (ºC)
Data_Sourc	Text, 254	Institution/Company if Owner of Data. Project, database or publication where data have been collected

The level of information "Seafloor Temperature" stores punctual information related to seafloor temperature. Data have been collected from CTDs downloaded from the Sea Data Net with ODV software (<u>https://odv.awi.de/</u>). Following is the detailed description of items shown in the above table.

Lat_DD stores latitude coordinates in decimal degrees (WSG84 datum) of the geographical feature. Numerical double-type item 14 character long with 6 in decimal place.

Long_DD stores longitude coordinates in decimal degrees (WSG84 datum) of the geographical feature. Numerical double-type item 14 character long with 6 in decimal place.

WaterDepth stores the seafloor water depth of the geographical feature in meter and negative values. Numerical double-type item 14 character long with 6 in decimal place.

Measure_De stores the water depth where CTD has measured the temperature. Numerical double-type item 14 character long with 6 in decimal place.

Temp stores the value of the seafloor temperature. Numerical double-type item 14 character long with 6 in decimal place.

Data_Sourc stores the source where the data come from such as: the name of the institution or company owner of data, database or publication where data have been collected, etc. It is a text-type item 254 character long.

5.3 Sediment_Thickness: Raster

The level of information "Sediment_Thickness" is a raster data set containing the value of total sediment thickness of the world's Oceans and Marginal Seas. Data have collected from the NOAA (query: 27/09/2019; https://data.noaa.gov/dataset/dataset/total-sediment-thickness-of-the-worlds-oceans-marginal-seas-version-2).

FIELDNAME	FORMAT	DESCRIPCION
Longitude	Num (Double) (15,6)	Longitude coordinates in decimal degrees (GCS WGS84)
Latitude	Num (Double) (15,6)	latitude coordinates in decimal degrees (GCS WGS84)
Z_VALUE	Num (Double) (15,6)	Value of the sediment thickness in meters





6 ANNEX 1: LIST OF VALUES

FF_Type

- Hydrate Direct Sample (cristals, etc)
- Hydrate Indirect Sample (Gas Bubbling, etc)
- Pore water anomaly
- BSR
- Amplitude anomaly
- Velocity anomaly
- High reflectivity anomaly
- High resitivity anomaly

Seabed Features

- Pockmark
- Pockmark field
- Collapse
- Mud Volcano
- HDAC
- Gas Hydrates
- Gas Chimney
- Blanking acoustic facies
- Dim zones
- bright spots
- MDAC
- Mud Diapir
- Gas seepages

GeoSetting

- Mediterranean Sea
- Baltic Sea
- Macronesia
- Gulf of Cadiz
- Arctic
- North Atlantic

Sed_Type

http://inspire.ec.europa.eu/codelist/LithologyValue





7 ANNEX 2: DIGITAL DATA LIST

Digital data list

Folder		
A_Geo	ological_Geochemical	
Subfold	File	Description
DAT A	Akhmetzhanov_etal_2007.pdf	Cruise report of TTR-15
	Akhmetzhanov_etal_2008.pdf	Cruise report of TTR-16
	Bourry_etal_2009.pdf	Chemical Geology 264 (2009) 197–206
	Bunz_etal_2012.pdf	Marine Geology 332–334 (2012) 189–197
	Gardner_2001.pdf	Geophysical Research Letters 28 (2001) 339-342
	Hensen_etal_2007.pdf	Geochimica et Cosmochimica Acta 71 (2007) 1232-1248
	Hensen_etal_2015.pdf	Geology 43 (2015) 339–342
	Ivanov_etal_2010.pdf	Preliminary results of investigations during the TTR-17 cruise
	Kenyon_etal_2000.pdf	Cruise report of TTR-9
	Kenyon_etal_2001.pdf	Cruise report of TTR-10
	Kenyon_etal_2002.pdf	Cruise report of TTR-11
	Kenyon_etal_2003.pdf	Cruise report of TTR-11
	Kenyon_etal_2004.pdf	Cruise report of TTR-13
	Kenyon_etal_2006.pdf	Cruise report of TTR-14
	Klaucke_etal_2006.pdf	Marine Geology 231 (2006) 51–67
	Kopf_etal_2004.pdf	Cruise report and preliminary results of SO175 Sonne cruise
	Minshull_etal_2019.pdf	Marine and Petroleum Geology 111 (2020) 735–764
	Nielsen_etal_2014.pdf	Geo-Marine Letters 34 (2014) 511–523
	Niemann_etal_2006.pdf	Geochimica et Cosmochimica Acta 70 (2006) 5336–5355
	Szpak_etal_2012.pdf	Geochemistry Geophysics Geosystems 13 (2012) Q01011
	Szpak_etal_2015.pdf	Continental Shelf Research 103 (2015) 45–59
GIS	See Figure 1	
Folder		
B_Geo	pphysical_Indicators	Description
er		
DAT A	Holmes_1997_BGS_technicalReportB975C .pdf	Estimated base of methane hydrate and observations from analogue air-gun profiles west of Shetland
	Figure 3 of Long et al. 2015 map of predicted methane hydrate stability zone west shetland rockall.JPG	Map of predicted methane hydrate stability zone west shetland rockall. Faroe-Shetland
	Figure 85 of Hitchen et al. 2013 Isopach base hydrate stability zone.jpg	Isopach base hydrate stability zone. Rockall area
	Figure 145 of Ritchie et al. 2011 Location of methane hydrate stability zone.jpg	Location of methane hydrate stability zone. West Shetland shelf, British Islands.
	Bialas_et_al_2014.pdf	Cruise Report MSM-34 / 1 & 2 SUGAR Site - Danube delta
	Bunz_etal_2012.pdf	Marine Geology 332–334 (2012) 189–197
	Garcia_etal_2014.pdf	Geochem. Geophys. Geosyst. 15 (2014) 867–885





	Labora atal 1009 adf	Cap Marina Latters 19 (1009) 26 22
	Leon_etal_2010.pdf	Geo-Marine Letters 30 (2010) 231–247
	Leon_etal_2014.pdf	Geo-Marine Letters 34 (2014) 131–151
	Minshull_etal_2010.pdf	Terra Nova 22 (2010) 131–136
	Petersen_etal_2010.pdf	Marine and Petroleum Geology 27 (2010) 1981-1994
	Somoza_etal_2003.pdf	Marine Geology 195 (2003) 153-176
	Zillmer_etal_2005.pdf	Geophys. J. Int. 161 (2005) 662–678
GIS	See Figure 1	
Folder	•	
C_Sea	bed_FluidFlow_Indicators	
Subfold er	File	Description
DAT A	Figure 97 of Hitchen et al. 2013 Geohazards.jpg	Map of Rockall area. Pockmark, slides, moraines, carbonate sands.
	Bialas_et_al_2014.pdf	Cruise Report MSM-34 / 1 & 2 SUGAR Site - Danube delta
	Bourry_etal_2009.pdf	Chemical Geology 264 (2009) 197–206
	Bunz_etal_2012.pdf	Marine Geology 332–334 (2012) 189–197
	Chand etal 2012.pdf	Earth and Planetary Science Letters 331-332 (2012) 305–314
	Klaucke etal 2006.pdf	Marine Geology 231 (2006) 51–67
	Lammers etal 1995.pdf	Geol. Rundsch 84 (1995) 59-66
	Nielsen etal 2014.pdf	Geo-Marine Letters 34 (2014) 511–523
	Sahling etal 2014 pdf	Biogeosciences 11 (2014) 6029–6046
	Sznak etal 2012 ndf	Geochemistry Geophysics Geosystems 13 (2012) Q01011
	Sznak etal 2015 ndf	Continental Shelf Research 103 (2015) 45-59
	CO2 06 Ext 200M Coltingen EISU htt	VVZ ASCIL file with values of the base of hydrate stability zana for 06% CO2 Extended
		200M. FISU, Celtic Sea. Thinon_etal_2019
	CO2_96_Ext_200M_CelticSea_FISU_nbz.t xt	XYZ ASCII file with values of the base of negative bouyancy zone for 96% C02. Extended 200M. FISU, Celtic Sea. Thinon_etal_2019
	CO2_96_French_EEZ_CelticSea_BiscayBa y_hfz.txt	XYZ ASCII file with values of the base of hydrate stability zonefor 96% CO2. Celtic Sea & French EEZ. Thinon_etal_2019
	CO2_96_French_EEZ_CelticSea_BiscayBa y_nbz.txt	XYZ ASCII file with values of the base of negative bouyancy zone for 96% C02. Celtic Sea & French EEZ. Thinon_etal_2019
	CO2_96_SouthBiscayBay_CelticSea_Galici	XYZ ASCII file with values of the base of hydrate stability zone for 96% CO2. South Biscay Bay, Galicia Area, Thinon, et al. 2019
	CO2_96_SouthBiscayBay_CelticSea_Galici	XYZ ASCII file with values of the base of negative bouyancy zone for 96% C02. South
	aArea_nbz.txt	Biscay Bay - Galicia Area. Thinon_etal_2019
	av hfz.txt	Sea & French EEZ. Thinon etal 2019
	CO2_100_French_EEZ_CelticSea_BiscayB	XYZ ASCII file with values of the base of negative bouyancy zone for 100% C02. Celtic
	ay_nbz.txt	Sea & French EEZ. Thinon_etal_2019
GIS	See Figure 1	
Folder		al Construcion
D_OCE	eanographicvariables_Geologic	Description
er		Description
DAT A	Figure 133 of Ritchie et al. 2011 Water masses.jpg	Profile of Water masses from Faroe shelf to West Shetland shelf, British Islands.
	BODC_nearsebed_data_101218.zip	CTD data of British Islands area
	Figure 97 of Hitchen et al. 2013	Map of Rockall area. Pockmark, slides, moraines, carbonate sands.
	ocldb1550752395.29946.CTD.zip	CTD data from NOAA OCLDB 1550752395 query in February 2019.





GIS	See Figure 1	