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Volcanism in the gulf of Cádiz : bibliographic availability

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VOLCANISM IN THE GULF OF CADIZ: BIBLIOGRAPHIC AVAILABILITY

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ABSTRACT: An ocean basin hydrocarbon province is emplaced along the Iberian – Moroccan wedge, in the Gulf of Cadiz. Giant seismically-chaotic bodies with thicknesses exceeding 4 km covers an area as great as 90.000 km² with potential hydrocarbon reserves revealing the Gulf of Mexico, suitable for petroleum storage. In cooperation with Moroccan institutions the Naval Research Laboratory of the United States carried out in 1999 a series of prospecting with the objective of mapping the submarine emissions. Afterwards the Floating University of the University of Moscow has intensely investigated in the tectonics associated with the Azores Gibraltar lines. The Portuguese Navy started in September 1999, and commanded by a Spanish Institute of Oceanography head scientist, cruise Anastasya sailed from Cádiz in September 1999. Early French studies started in August 2001. One of the sources of information on the nature of subsurface materials are mud volcanoes. The Spanish online marine information management capacity covers one of the mud volcanoes where deep-water corals were found, the Tasyo. This is a site in the North area close to the Spanish margin, where a volcano is located at 35°45'N and 07°05'W. At a depth of 1100, this volcano contained deep-water corals supported layers. The Tasyo web page on gas hydrates received between November 2006 and January 2007 16195 visits. The engine was created by the marine geologist head of the Tasyo-Gades Marine Research Group aboard R/V Hesperides (Apr-May 2000). Dublin core standardized meta-information is provided for each web sheet. The contents displayed are Why Tasyo ? Tecto-sedimentary and Olistostromic processes from the shelf to the abyssal plains; research topics: frequently unsolved questions (FUQ); directory of researchers; directory of oceanographic cruises; database (seismic lines); news: meetings, congress ...; post 2003 scientific ocean drilling proposal; comments and suggestions electronic box; and bibliography. Is is mostly available in English. Finally a bibliometrics study, is used to map the mud volcanisms of the Gulf of Cadiz, corresponding below to deep oil. 105 relevant authors, 45 journals, and 108 relevant key words are identified. 40 institutions are involved in the research with Lomonosov State University, the University of Aveiro, and CSIC been the first three. Russia, Spain and Portugal lead the scientific competition. A bibliographic chart is supplied that shows the leaders of Tasyo as focusing (in 2003) 40% of the investigations.

VOLCANISM IN THE GULF OF CÁDIZ : BIBLIOGRAPHIC AVAILABILITY

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ABSTRACT.-

An ocean basin hydrocarbon province is emplaced along the Iberian – Moroccan wedge, in the Gulf of Cádiz. Giant seismically-chaotic bodies with thicknesses exceeding 4 km covers an area as great as 90.000 km² with potential hydrocarbon reserves revealing the Gulf of México, suitable for [petroleum storage](#). In cooperation with Moroccan institutions the Naval Research Laboratory of the United States carried out in 1999 a series of prospecting with the objective of mapping the submarine emissions. Afterwards the Floating University of the University of Moscow has intensely investigated in the tectonics associated with the Azores Gibraltar lines. The Portuguese Navy started in September 1999, and commanded by a Spanish Institute of Oceanography head scientist, cruise Anastasya sailed from Cádiz in September 1999. Early French studies started in August 2001. One of the sources of information on the nature of subsurface materials are mud volcanoes. The Spanish online marine information management capacity covers one of the mud volcanoes where deep-water corals were found, the Tasyo. This is a site in the North area close to the Spanish margin, where a volcano is located at 35°45'N and 07°05'W. At a depth of 1100 m, this volcano contained deep-water corals supported layers. The Tasyo web page on gas hydrates received between November 2006 and January 2007 16195 visits. The engine was created by [the marine geologist head of the Tasyo-Gades Marine Research Group](#) aboard R/V Hespérides (Apr-May 2000). Dublin Core standardized meta-information is provided for each web sheet. The contents displayed are Why Tasyo ? Tecto-sedimentary and Olistostromic processes from the shelf to the abyssal plains; directory of researchers; directory of oceanographic cruises; database (seismic lines); news: meetings, congress ...; post 2003 scientific ocean drilling proposal; comments and suggestions electronic box; and bibliography. It is mostly available in English. Finally a bibliometrics study, is used to map the mud volcanisms of the Gulf of Cádiz, corresponding below to deep oil. 105 relevant authors, 45 journals, and 108 relevant key words are identified. 40 institutions are involved in the research with Lomonosov State University, the University of Aveiro, and CSIC been the first three. Russia, Spain and Portugal lead the scientific competition. A bibliographic chart is supplied that shows the leaders of Tasyo as focusing (in 2003) 40% of the investigations.

INTRODUCTION.-

In the Gulf of Cádiz, past earthquakes can be studied by historic and geologic data (Maldonado A & Nelson Ch, 1999). Data for such seismological studies can be used for probabilistic estimates of future earthquakes and tsunamis (Rodriguez de la Torre F, 1990a). The discussion of sources for the study, the interpretation of the original reports, the problems and pitfalls in the compilation of comprehensive, parametric catalogues are some of the information analysis designs in need. As such, the Cádiz tsunami after the November 1, 1755, Lisbon earthquake has a distinct bibliography (Guillen J, 1956). Recently Africa and Iberia in the Pleistocene considered after the variation of the sea level has resulted in a specific literature for this Gibraltar area (Collina-Girard J, 2001).

The geochemical searches for oil and gas generation proofs requires large-scale science computations and experiments. Unprecedented networking capabilities in terms of high bandwidth and dynamically stable connections to carry out data transfers, interactive visualizations, and monitoring and steering operations were put at work from Cádiz when the mud volcanoes explorations began from its harbour in 1999 ([Google Earth, 2007](#)). To modelize it accurately through a Web page militate against the period of ‘inflation’ which characterize the early application of these kind of devices. We have several reports as a result of diverse projects and concluding in different cyber-occurrences. The ensuing technological disputes reflect continuous claims on their inception facing the next step in the research. Although these discussions did not seriously worry the scientists users of these new tools, it provide an argument to explain the low expansion of the bibliographical services that would have taken place with a great deal of energy and vision otherwise. Nevertheless the occurrence of new tools arguing for the extension of exchange formats in the domain of volcanic gases is a current desire of know how (Reiter E, 2007).

The aim of the present report is: 1- Use the Tasyo web page as a Spanish Oceanographic Vessel Hespérides transect to the Gulf of Cádiz utility, in order to check presence of fluid venting activity; 2- Use of other available web pages to detect the institutional repositories images dedicated to support library or other unit reporting lines on this specific purpose; 3- To compute bibliometrics data to improve the geographic localization of knowledge spillovers on these volcanoes as evidenced by citations.

The recognition of which research groups prevail under distinctive ship’s flags is a significant step toward determining the role these scientific communities play in Cádiz’s Gulf essential biogeochemical processes.

The genesis of the petroleum fields in Crimea has been important in the Ibero-Moroccan platform. Both because of their connection with mud volcanoes (Goubkin IM & Federov SF, 1938) (Somoza L. et al., 2003), and because in the early 90’s Cádiz’s researchers followed a UNESCO/ESF “Training-through-Research” course aboard the RV Gelendzhik on mud volcanism in the Mediterranean and Black Seas from the Novorossiysk Russian harbour. The nowadays distribution of the mud volcanoes into the Gulf of Cádiz (Martin-Puertas C, 2006) is reflected in the next Table I.

Morocco	Deep-margin	Tasyo field	GDR*
Yuma	Ribeiro	Hespérides	Anastasya
Ginsburg	Olenin	Faro	Pipoca
Tasyo	Bonjardim	Almazán	Gades
TTR		Cibeles	Tarsis
Baraza		Aveiro	
Student		Sr. Petersburg	
Kidd			
Adamastor			
Rabat			

Table I.- Mud volcanoes in the Moroccan, Portuguese and Spanish sectors of the Gulf of Cádiz. (Martin-Puertas C. et al., 2006). *Guadalquivir Diapiric Ridge (GDR)

THE TASYO WEB PAGE ON GAS HYDRATES.-

The Spanish online marine information management capacity covers one of the mud volcanoes where deep-water corals were found, the Tasyo. The acronym means: Tectosedimentary and olistostromic processes from the shelf to the abyssal plains, in Spanish “**T**ransferencia **S**edimentaria en **T**alud **Y** **M**ega-**O**listostromas”. And its web page is <http://tierra.rediris.es/TASYO/ventanas.html>. It is an automatic and transparent technology without install and setup tasks. It use BSCW for its only for researchers shared workplace and it provides an appropriate set of Dublin Core format meta-information. The user model, or set of concepts that users must understand, is pretty simple. It purpose a surfing mechanism that tries to avoid users to do lost or disoriented by providing a variety of indexes. Indexes that conforms to the "bring to me" paradigm. Users essentially ask that information be "brought to them" within the context of the current page. Thus preserving context, stability, and a sense of place. For browsers capable of reading frames and tables, an enhanced web site is available. Its contents are:

[Why ‘Tasyo’?](http://tierra.rediris.es/TASYO/TASYO_Tasio.html). (http://tierra.rediris.es/TASYO/TASYO_Tasio.html).- [Tasio is a spanish film](http://www.filmotecavasca.com/index.php/en/films/link/?id=100010) (<http://www.filmotecavasca.com/index.php/en/films/link/?id=100010>) describing the makers of coal from patient burning of wood mounds. Also, in the project Tasyo carbonate mounds made from patient fermentation of methane are studied. Tasyo is the name of one of the mud volcanoes in the Spanish field, it is sited at 35°45’N and 07°05’W; and at a depth of 1100m. It was discovered during the [Spanish Geological Institute expedition in 1999](http://tierra.rediris.es/TASYO/somoza_et_2000.html) (http://tierra.rediris.es/TASYO/somoza_et_2000.html). The multibeam, multifold and ultra-high resolution seismic data acquired aboard the April-May 2000 R/V Hespérides cruise determine the initial content of Tasyo as a Web page. The Tasyo project, as such, began in 1999 and ended in 2001; as a group project it is associated to the Gades approach (2001-2002). Other than the Greek name for the town of Cádiz, Gades is an integrated capacity to gas hydrates, sea-floor methane fluxes, biomineralizations and deep chemosynthetic ecosystems in the Pliocene and Quaternary reservoirs of the Gulf of Cádiz (geophysical, geochemical and micro/biology characterisation).

[Research topics](http://tierra.rediris.es/TASYO/area.html). (<http://tierra.rediris.es/TASYO/area.html>).- State of the art and unsolved questions. A few preferential research questions are specifically designated. Everyone who reads this page is proposed a definition encouraging further thinking

about the inquiry, one or several figures, the case study from which the scientific problem is advanced; and a navigation element that points to the already used by the Tasyo project general literature.

[Directory of researchers](http://tierra.rediris.es/TASYO/personal.html). (http://tierra.rediris.es/TASYO/personal.html).- Web users linking to Tasyo pages are offered an e-agenda of the Tasyo-Gades marine research group. Over 43 persons and 28 electronic addresses are facilitated. To create the best user experience, professional parameters such as the scientific work field and links to the research units (including the official ‘logo’) where the investigation is performed are supplied. It includes the official ‘logo’ from where the scientists come, what means that after an invitation to evolve in the "go to" paradigm, users consciously choose to go elsewhere, and are aware when they take such a link. The context changes distinctly and users are not surprised. The scientists considered are distributed into two categories those involved in the research that was carried out (distinguished by a sign ‘*’), and those been simple collaborators (noted ‘**’). 21 contributors are considered as ‘involved’ in the activity (mostly Spaniards – 18), and 22 are inscribed as collaborators. Six countries are included: Spain, Portugal, Morocco, USA, Canada and Bulgaria.

[Directory of oceanographic cruises](http://tierra.rediris.es/TASYO/cruises.html). (http://tierra.rediris.es/TASYO/cruises.html).- This visual presentation is a layout of the six oceanographic cruises involved in the early design of the discovery of the Tasyo mud volcano field. The rationale of each entry includes a few key aspects : the name of the research vessel, the name of the scientific chief of the expedition, the dates when the cruise surveyed the area, the harbour from where the expedition was launched, the variety of methods of preferential use (high-resolution seismic sources, multibeam echosounds, sonars, TV). As a framework for analysis a “bring to me” link supplies an access toward the cruise reports. These reports further assemble inside the Tasyo web page the main scientific aims of the campaigns, the institution and the staff involved, the oceanographic areas and methods, the publications produced and the terms of other countries participation. They are accessed through pointers that make the users participate in the results even if they are only early sketches on paper.

[Database](http://tierra.rediris.es/TASYO/bases_datos.html). (http://tierra.rediris.es/TASYO/bases_datos.html).- A good starting point to the European margin seismic system in the Gulf of Cádiz is illustrated by two figures. They explain a range of empirical data coming from the marine geology survey of Spain, and from 1986, 1992, 1996 and 1997 cruises.

[News: meetings, congress ...](http://tierra.rediris.es/TASYO/news.html) (http://tierra.rediris.es/TASYO/news.html).- The incoming congresses and thematic workshops at the time the Tasyo field was first identified are shown. The inception of the specialists community involved in the early design of the investigation in this intriguing area is approached. The official name of the Congress (with site and dates), its hyperlink in appliance of the “go to” paradigm and either a description of the contents or the corresponding call for papers are included. Two thematic workshops, that correspond to 1999 and 2000, are also referenced. The initial deployment of scientific authority can be tracked for within the context of those Portuguese-based 1999 and 2000 meetings.

[Post 2003 scientific ocean drilling proposal](http://tierra.rediris.es/TASYO/odp.html). (http://tierra.rediris.es/TASYO/odp.html).- A proposal to drill in the Gulf of Cádiz properly sent to the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES) office is advanced at this point. Users of

the web page are invited to express their support, suggestions and collaborations to the proposal by emailing the webmaster. To facilitate a better understanding of the options a chart of the Gulf is exhibited. The background and scientific objectives are provided. And a second figure optimize the amount of information transmitted bringing into focus the three drills proposed. The interpretation underlying the area with active seismicity also point out the violent generation phenomena derived from the contact with the Mediterranean outflow water. The explanation can be well-understood by consulting the Tasyo research topics and the Tasyo bibliography.

[Comments and suggestions electronic box](http://tierra.rediris.es/TASYO/comments.html). (http://tierra.rediris.es/TASYO/comments.html).- Referring back to understand who your users are, and have them experience the web design, this content provides a Web-style interface. The elements required to use the e-box are the personal name and the electronic address. Once validated, beyond simple look, are the last comments about marine geology.

[Bibliography](http://tierra.rediris.es/TASYO/bibliografia.html). (http://tierra.rediris.es/TASYO/bibliografia.html).- Identified as bibliographical references used by the Tasyo project. They are alphabetically displayed by authors and classified into four different folders: gulf of Cádiz; Salt tectonics and mega-slides; gas hydrates; and gas charged sediments and slides. The web addresses of some contributions are supplied.

[Publications](http://tierra.rediris.es/TASYO/publicaciones.html). (http://tierra.rediris.es/TASYO/publicaciones.html).- The early publications of the Tasyo research group along the years 1999-2005 are presented. The contributions are displayed by language employed: English, Spanish and Portuguese. Abstracts presented to conferences and congresses that can be daunting to even the most information-experienced users are facilitated. An alphabetical order by name of authors rules the entries inside each annual set. To focus on academic activities a list of four doctoral dissertations is offered. The Universities of Cádiz, Lisboa and Granada typically represent Academia in the Tasyo field. Links to the abstracts of the contributions are provided in diverse cases. Priority is given to the 'Publications' along the TASYO web. The users are invited to employ this issue from the first navigation element at the home page (http://tierra.rediris.es/TASYO/homepage.html), or from the research topics (http://tierra.rediris.es/TASYO/area.html). Preferential attachments from the home page (http://tierra.rediris.es/TASYO/homepage.html) can also be identified for the journal 'Marine Geology' special issue introducing hydrocarbon emission on deep European continental margins, the European Geophysical Society, Nice (France), Assembly in 2003 (with special issues on gas hydrates, methane fluxes and continental break-ups above mantle plumes), the BSCW shared workspace for researchers, to the first report on submarine chimney in the Gulf of Cádiz and to the research vessels Logachev and Hespérides cruises in July and April-May 2000.

[Links to access](http://tierra.rediris.es/TASYO/accesos.html). (http://tierra.rediris.es/TASYO/accesos.html).- Users in the Tasyo cyberspace that need to be more aware of the changes in time from 2006 onwards can use the links page. A framework of 15 profiles integrate the likely user model previewed by the Web designer. They reflect the evolution of the information-centric Web sites where relevant key aspects for those who read on Tasyo can be approached. The subdivision of the links page are: News and electronic forums on marine research (4); net searches (12); international programmes for sea floor research (5); oceanographic institutes and marine geology centers (16); marine geology departments of geological surveys (14); oceanographic cruises and research vessels (2); and

thematic searches cumulated by a range of subjects from deep fluid venting (9), gas hydrates (18), chemosynthesis bacterias and extremophile organism (27), carbonate mounds & mud volcanoes (8), salt tectonics and sea-floor mobile salt/shale features (3) and seismicity and tsunamis (4); databases and image files ; free software on marine geology; and journals.

OTHER AVAILABLE WEB PAGES ON MUD VOLCANOES IN THE GULF OF CÁDIZ.-

As a number of HERMES cruises (<http://www.eu-hermes.net>) have significantly contributed to the knowledge about the mud volcanoes along the present continental shelf of the Gulf of Cádiz a few pages have been designed on this area. A real network that coordinates research efforts along the whole European margin, Hermes integrated the two TTR (Training-through-Research, <http://ioc.unesco.org/ttr>) cruises, number 9 (1999) and 10 (2000), that lead to improve our knowledge on the Tasyo field. It is why Hermes visual resources are relevant to approach it.

To provide a coverage for users, a short record was created in both cases as soon as cruise reports and post-cruise meeting abstracts became available. The record in the IOC (the Intergovernmental Oceanographic Commission (IOC) of UNESCO) contain three types of information:

- a brief description of the cruise with status information for its preliminary identification;
- supplementary information that enables the users to locate on a map where the facts and experiments were geographically performed;
- the traditional pushbutton navigation frame that provides links to subsequent (precedent) cruises pages.

It is not possible to change window sizes and no significant user choice or personalization is available, the code does not employ metadata, the technique of interaction is standard by clicking simple links.

The associated reports with [the 9th TTR cruise page](#) (<http://www.ioc.unesco.org/ttr/cruises/ttr9.html>) are consistent with those from the [10th TTR cruise page](#) (<http://www.ioc.unesco.org/ttr/cruises/ttr10.html>). They are normal Adobe information retrieval facilities incorporated from a web written in JavaScript. The search concept inside the reports are displayed from the Adobe menu by selecting the option 'Find'. The 'Print' option enables to print complete reports whilst you are online on the local computer. Both reports are official UNESCO publications, the preliminary results relate to the IOC Commission technical series number [56](#) (<http://unesdoc.unesco.org/images/0012/001216/121650e.pdf>) and [60](#) (<http://unesdoc.unesco.org/images/0012/001263/126306eo.pdf>).

To display the most important bibliographical data contained in the 'Post-cruise meeting abstracts' the IOC Workshop Report [No.168](#) (<http://unesdoc.unesco.org/images/0012/001204/120467e.pdf>) and [No.175](#) (<http://unesdoc.unesco.org/images/0012/001242/124241eo.pdf>) are shown in the screen. The post-9th TTR cruise meeting was in Granada, Spain (January-February 2000). And Russian and Spanish scientists were fifty/fifty gathering 70% of the total attendance. The following 10th TTR cruise session was in Moscow (January-February 2001). With

the effective presence of [the head scientist](#) (<http://tierra.rediris.es/TASYO/curriculum.html>) having conducted the Tasyo campaign.

Normally selected from the [EurOcean Research Vessels](#) (<http://euroceanrv.addition.pt/spec/index.jsp?mode=0>) database, the [R/V Hespérides web page](#) (http://www.utm.csic.es/clasica/hesperides/actual/2000/tasyo_01.htm) allows the access to online displayed results concerning [the Tasyo field](#) ([http://www.sociedadgeologica.es/archivos/REV/19\(3-4\)/Art6.pdf](http://www.sociedadgeologica.es/archivos/REV/19(3-4)/Art6.pdf)). This publication enables to give a visual appeal from the Web to the April/May 2000 Tasyo campaign. By providing the photos and the identities of the staff and by displaying some of the multi-channel seismic data collectors capabilities. A pushbutton action is previewed to go to the next page, and a link to the ‘Tasyo’ (<http://tierra.rediris.es/TASYO>) official page at [Rediris](#) (the Spanish national research network, <http://www.rediris.es/index.en.html>) is included at the top of each page. No meta-information is supplied.

Another web page with an enthusiastic view characterising the mud volcanoes in the ‘Fila de Hormigas’ area of the Gulf of Cádiz, come [from the town](#) (<http://www.navalcan.com/cultura/navalcanvolcan.asp>) where some of the discoverers were born, in Toledo. Their approximation is personal and anecdotic.

Also associated to the Hermes research project, the Portuguese laboratory for the marine sciences and technologies Instituto Hidrográfico maintains a very efficient [web platform](#) (<http://ih-net-www.hidrografico.pt/hermes/index.htm>). The Instituto has gathered this Portal as a Portuguese coast / gulf of Cádiz GIS support, [to consult Portuguese metadata](#) (<http://ih-net-www.hidrografico.pt/metadataexplorer/>), using the metadata explorer parameters. There is an specific Portuguese/gulf of Cádiz margin regional co-ordinator. The metadata are originated in Lisbon by the Institute’s Centro de Dados Técnico-Científicos. The GIS regional coordinator, a woman, is the metadata contact. The language is English and the standard employed ISO 19115. The downloadable ZIP archives are all codified. It is possible to draw the search area, to choose the content type and the content theme. And then an optional keyword is offered. User assistance is previewed through a go to Help JavaScript instruction. If after constraining the geographical area to the Gulf of Cádiz a [search is started on volcanoes](#) the results are content fields on ‘[mud volcano field](#)’, ‘[mud volcanoes and mud diapir](#)’, ‘[carbonate mounds](#)’, ‘[active cold seeps](#)’, and ‘[Gulf of Cádiz Structural Setting](#)’. The subsequent window, in any of these distinct contents, offers two buttons respectively focusing the user to two different windows. A map with the coverage area view and a full metadata view. A 2004 item (Vulcanismo de lama, hidratos de metano e potenciais ocorrências de hidrocarbonetos na Margem Sul Portuguesa profunda) issued in the journal ‘[Nação e Defesa](#)’ (Pinheiro L. et al., 2004), published by the Instituto de Defesa Nacional, a 2004 ICES report on cold-water corals (ICES, 2004) and the 2003 ‘[Marine Geology](#)’ issue on Sedimentary Processes and Seafloor Hydrocarbon Emission on Deep European Continental Margins, were the bibliographical source of this information. The [GIS Support](#) (http://ih-net-www.hidrografico.pt/hermes/GIS_support.htm) admits a ‘mud volcano’ field under the [pre-Hermes cruises layer](#) (<http://ih-net-www.hidrografico.pt/website/hermes0307/viewer.htm>) and also inside the [Geology area](#) (<http://ih-net-www.hidrografico.pt/website/hermesgeology/viewer.htm>) under the cold seeps layer. A set of bibliography on volcanoes in the Gulf is available as pdf files

hyperlinked to their sources from [an additional geology connected page](http://ih-net-www.hidrografico.pt/hermes/Geology.htm) (<http://ih-net-www.hidrografico.pt/hermes/Geology.htm>).

Some Petroleum companies (Shell, ConocoPhillips and ExxonMobil) have been associated with UNESCO and the UK Natural Environment Research Council (Ocean Margins project) in the Speculobe Project (<http://www.noc.soton.ac.uk/gg/uk-taps/speculobe.html>). To identify the mechanisms of sand transport in the Gulf of Cádiz mud volcanoes area is its main purpose. The web page close the information gap by providing a framework with introduction, objectives, project time frame and costs, and a bibliographic reference. Also a combination of oil companies and NERC is the Agadir project. Its aim is to understand the turbidite sands and their depositional processes in the Agadir basin, Morocco. The web page (<http://www.noc.soton.ac.uk/gg/uk-taps/agadir.html>) reflect primarily the fact that it is a work in progress project with a further information interface (under codification) option addressed to potential financial sponsors.

Otherwise the ESF (European Science Foundation) develop three project related with the Gulf of Cádiz. Mud volcanoes is project FP24 (<http://www.esf.org/activities/eurocores/programmes/euromargins/projects/fp24.html>) coral reefs is FP06 (<http://www.esf.org/activities/eurocores/programmes/euromargins/projects/fp06.html>), and tsunami and earthquakes are SWIM (<http://www.esf.org/activities/eurocores/programmes/euromargins/projects/swim.html>). All three web pages use essentially the same elements: a description of the project and the contact addresses of the principal investigators. Only the coral reefs page offers some photos (including a comparison with continental fossil carbonate chimneys from Varna (Bulgaria)) and a map of the volcanoes sites into the Gulf of Cádiz, also the project Moundforce presentation is displayed. No relevant metadata are offered, although a mechanical addition of Dublin core fields could make think other. It is noticeable that the important ESF Marine Board publication 'Integrating Marine Science in Europe' (position paper 5, http://www.esf.org/fileadmin/be_user/research_areas/marine/pdf/Marinescience.pdf) reproduced in his cover page an image of the 4km in diameter and 200m above the seafloor al Idrisi mud volcano. This exceptional region is a permanent source of rich information engines and one of the last presentation elements, written in JavaScript and without metadata, come from [the CADIPOR II campaign](#) after the North Sea Mathematical Modelling Management Unit in Brussels (<http://www.mumm.ac.be/FR/Monitoring/Belgica/programme.php?progID=2005-18>).

TO MAP THE MUD VOLCANISMS OF THE GULF OF CÁDIZ BY USING BIBLIOMETRICS INSTRUMENTALITIES.-

By mapping out a previously uncharted area this contribution search to provide a detailed answer to the questions: who is responsible for creating and providing accurate information on mud volcanism in the Gulf of Cádiz?; and, to what extent is it the creator and/or provider of actually liable web pages?. The results suggest that a linear relationship exist between the producer of a quality web page as a conceptual issue and his ranking inside the group of specialists. Thus reflecting the fact that the broad

electronic distribution of data appears to have created a demand for a higher standard of quality than is expected of traditional printed materials.

The analysis undertaken is based in two retrieval equations used with the database Web of knowledge. The first of these credited the work of the head scientists of the US, Russian, Portuguese, French, Belgian, Netherlander, and Spanish research teams^{*}. The second observation from the database was a matter of reflecting those papers that have continued to be referred to in the development of the subject[†]. Working with the computer application HistCiteTM© two chart spreadsheets were developed containing information on the journals selected for the study, authors and institutions.

The main ten authors when considering the subject and the main authors searches are exhibited in Table II.

Subject search.	%	Authors search.	%
Pinheiro LM	22.7	Somoza L	54.2
Ivanov MK	18.1	Diaz del Rio V	39.9
Somoza L	18.1	Hernández-Molina FJ	37.1
De Preiter D	13.6	Maestro A	22.8
Diaz del Rio V	13.6	Lobo FJ	20
Gardner J	13.6	Medialdea T	20
Henriet JP	13.6	Vazquez JT	20
Leon R	13.6	Llave E	17.1
Maestro A	13.6	Dias JMA	14.2
Magalhaes VH	13.6	Fernández-Puga MC	14.2

Table II.- Ranked All-Author list with percentual values. Subject vs. author searches.

Most web users experience is reflected here. Although a highly dynamic and transient space, it appears that the significant influence of the designer of the Tasyo web page could be advanced. A web page tool easy to operate with, although having avoided an eclectic design, assures that the judicious use of careful planning and implementation of quality control processes and procedures result from a defined effect of scientific power. Such web tools should be used to the greatest extent possible.

* The search strategy was: TS=(Gulf of Cadiz) AND AU=(Gardner JM* OR Akhmetzhanov A* OR Ivanov MK* OR Pinheiro LM* OR Gutscher MA* OR Henriet JP* OR Van Rensbergen P* OR Somoza L*)

† The search strategy was: TS=(Volcan* OR Chimne*) AND Gulf of Cadiz*

As showed by Table III, real differences did exist in terms of the journals used lists if considering the Spanish media.

Subject search	%	Authors search	%
Marine Geology	31.8	Marine Geology	37.1
Geochimica et Cosmochimica Acta	9	Geo-Marine Letters	8.5
Scientia Marina	9	Geology	8.5
Deep-Sea Research. Part II-Topical Studies in Oceanography	4.5	Deep-Sea Research. Part II-Topical Studies in Oceanography	5.7
Geo-Marine Letters	4.5	Geochimica et Cosmochimica Acta	5.7
Geochemistry International	4.5	Tectonophysics	5.7
Geophysical Journal	4.5	Terra Nova	5.7
International Geophysical Journal	4.5	Continental Shelf Research	2.8
International Geophysical Research Letters	4.5	Geophysical Research Letters	2.8
Journal of Geophysical Research-Solid Earth	4.5	Journal of Geophysical Research-Earth Surface	2.8

Table III.- Ranked All-Journal list with percentual values. Subject vs. author searches.

And the Spanish ‘Scientia Marina’ (http://www.icm.csic.es/scientia_marina.php) appears just in the thematic retrieval frame.

The countries involved are scaled in Table IV.

Subject search	%	Authors search	%
Russia	36.3	Spain	55.8
Spain	36.3	Portugal	44.11
Portugal	31.8	France	20.5
USA	22.7	Russia	20.5
Morocco	18.1	USA	20.5
Belgium	13.6	England	14.7
France	13.6	Belgium	11.7
England	9	Germany	8.8
Germany	9	Morocco	5.8
Greece	4.5	Netherlands	5.8

Table IV.- Ranked All-Country list with percentual values. Subject vs. author searches.

And the Institutions organizing or involved into campaigns are presented in Table V.

Subject search	%	Authors search	%
Moscow Lomonosov State Univ	31.8	Inst Español Oceanografía	35.3
Univ Aveiro	31.8	Inst Geol & Minero España	32.3
CSIC	18.1	Univ Cádiz	23.5
Inst Geol & Minero España	18.1	Univ Vigo	23.5
Inst Español Oceanografía	13.6	Moscow Lomonosov State Univ	20.6
State Univ Ghent	13.6	Univ Algarve	17.6
USN	13.6	Univ Aveiro	17.6
All Russia Res Inst Geol & Mineral Resources Ocea	9	Univ Granada	17.6
Univ Cádiz	9	USN	17.6
Alfred Wegener Inst Polar & Marine Res	4.5	State Univ Ghent	11.8
Cornell Univ	4.5	All Russia Res Inst Geol & Mineral Resources Ocea	5.9

Table V.- Ranked All-Institutions list with percentual values. Subject vs. author searches.

CONCLUSION.-

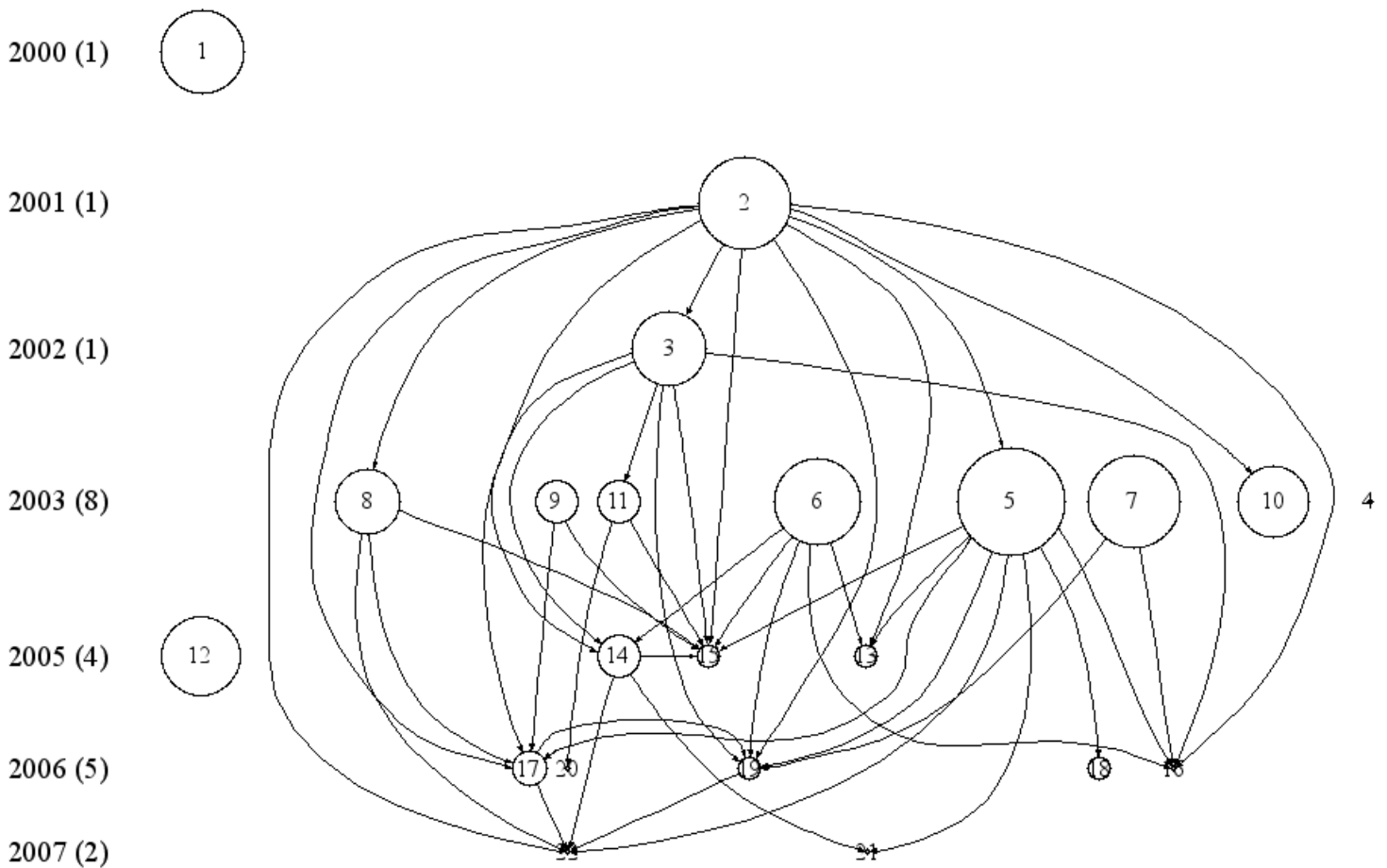
The current web capabilities on mud volcanism into the Gulf of Cádiz define a sphere of interest model that follows the logical path of the printed materials. As users identify common information liability from the web as a practical issue (“how to”), the demand from the specialists make emphasis upon continual improvement of electronic information delivery as a way to supply better quality. Coupled with the complexity of the electronic publishing process and the economic value of decisions based upon online information, the role of head scientists as large predictor components has a significant elevated concern on information liability.

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[‡] Glossary:

LCR - Local Cited References shows the number of citations in a paper's reference list to other papers within the collection.

CR - Number of Cited References shows the number of cited references in the paper's bibliography.

LCS - Local Citation Score shows the count of citations to a paper within the collection.

GCS - Global Citation Score shows the total number of citations to a paper in Web of Science.

SCS - Scopus Citation Score

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