



BULLETIN DE VEILLE GEOSCOPIE n°44 – Aout 2016

Edito

Bonjour à toutes et à tous,

Voici la cinquième édition du bulletin de veille Géoscopie « nouvelle formule » où vous découvrirez les actualités et une sélection de brevets et publications scientifiques des deux derniers mois sur les axes marchés et thématiques technologiques du POLE AVENIA.

Cependant ce bulletin n'est qu'une sélection réduite des plus de 2700 nouvelles entrées répertoriées ces deux mois par la **base de données IP-Metrix/Géoscopie**.

C'est pourquoi, afin de sensibiliser tout un chacun à l'importance de la veille technologique, le POLE AVENIA a décidé en partenariat avec la société TKM propriétaire de l'outil IP-Metrix, de **rendre accessible gratuitement jusqu'à la fin de l'année la base de donnée IP-Metrix/Géoscopie à toute structure**.

L'équipe du POLE AVENIA vous invite à faire la demande d'accès en contactant geoscopie@pole-avenia.com.

Bonne lecture à toutes et à tous !

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ACTUALITES

Les Géosciences en France

03/06/2016 - Inauguration d'une nouvelle liaison de transport de gaz France – Belgique [\[source\]](#)

Pascal De Buck, CEO de Fluxys Belgium, et Thierry Trouvé, Directeur général de GRTgaz, ont inauguré la nouvelle canalisation de transport de gaz entre la France et la Belgique à Pitgam (Nord).

20/05/2016 - Technip, FMC Technologies to merge into TechnipFMC [\[source\]](#)

French oilfield services giant Technip and U.S. subsea equipment specialist FMC Technologies, have announced a merger agreement. The companies said that the merger will create "a global leader that will drive change by redefining the production and transformation of oil and gas." The combined company will be called TechnipFMC and will have an equity value []

05/08/2016 – Initiative lancée contre la géothermie profonde dans le Jura suisse [\[source\]](#)

Un projet de forage près de Delémont (Suisse) qui a déjà provoqué une action en justice entraîne à présent le lancement d'une initiative populaire cantonale.

01/08/2016 – Le français Maurel et Prom trouve un repreneur [\[source\]](#)

Le petit pétrolier va passer sous pavillon indonésien. - L'opération valorise la société à au moins 822 millions d'euros.

Marché de la géothermie

03/06/2016 - UEFA Euro 2016: how geothermal fueled the football dreams of Iceland [\[source\]](#)

Geothermally heated football fields helped build a new generation of footballers that now proudly represent the smallest nation ever to compete in the UEFA European Football Championships in France, June 10 to July 10, 2016.

17/06/2016 - US Environmental Protection Agency Moves Forward with Clean Energy Incentive Program, Includes Geothermal and Hydropower [\[source\]](#)

The U.S. Environmental Protection Agency (EPA) on Thursday released additional details for public comment about the optional Clean Energy Incentive Program (CEIP), a part of the Clean Power Plan (CPP), despite the hold currently placed on the CPP by the U.S. Supreme Court.

10/06/2016 - Report: Emerging Markets More Attractive than EU, US for Renewable Energy Investment [\[source\]](#)



Almost without exception, European markets slipped while less mature markets across Latin America, Africa and Asia continued their ascent, revealed the latest edition of the EY Renewable Energy Country Attractiveness Index (RECAI) report. Emerging markets now represent half of the countries in the 40-strong index, including four African markets featuring in the top 30.

27/05/2016 - Energy Department Awards Up to \$4 Million for Projects to Recover Critical Materials from Geothermal Fluids [\[source\]](#)

The US Energy Department today announced four research and development projects in California, Utah, Washington, and Wyoming that will receive up to \$4 million in total funding to assess the occurrence of rare-earth minerals and other critical materials that may be dissolved in higher-temperature fluids associated with energy extraction.

27/05/2016 - Consortium receives exploration license for Guadeloupe prospect [\[source\]](#)

GEOTREF, a French consortium, has received an exclusive exploration license for a geothermal prospect area on the island of Guadeloupe in the Caribbean.

27/05/2016 - Low temperature micro-geothermal engines to utilise abandoned oil and gas wells [\[source\]](#)

A new approach to utilise geothermal energy from abandoned oil and gas wells is being developed by scientists at the University of Alberta in Calgary. With micro-geothermal engines it is hoped to generate electricity from abandoned wells.

17/05/2016 - First commercial project producing geothermal power from oil and gas well [\[source\]](#)

In exciting news, the U.S. Department of Energy reports on the success of the first commercial geothermal power production from an oil and gas well in the U.S.

17/05/2016 - Enel inaugurates combined biomass and geothermal plant in Italy [\[source\]](#)

Enel Green Power inaugurates combined biomass-geothermal plant, utilising biomass to superheat steam for the geothermal plant, expanding power generation capacity by 5 MW.

Marché du stockage géologique

17/05/2016 - US manufacturers' gas demand for gas to rise, study says [\[source\]](#)

Abundant US natural gas supplies have strengthened manufacturing significantly, but major investments will be needed in pipelines and other systems to meet future demand for gas to generate power and keep manufacturers strong, a study commissioned by the National Association of Manufacturers concluded.



31/07/2016 – Iceland rocks the world of CO2 emissions

[\[source\]](#)

Researchers inject the carbon dioxide back into the volcanic basalt rocks, 400 to 500m underground and found that more than 95 percent of the gas reacted with minerals to form stone within two years.

29/07/2016 – Carbon stored underground has not leaked in 100,000 years [\[source\]](#)

Researchers injected the carbon dioxide back into the volcanic basalt rocks at the site, 400 to 500m underground, and found out that more than 95 per cent of the gas reacted with minerals to form stones within two years.

Techniques et technologies pour les géosciences

17/06/2016 - Reasons for Not Completing a Well

[\[source\]](#)

Drilling but not completing wells why is it done? The uncertainty of the last year and a half surrounding the oil and gas industry has given rise to a multitude of different rationales about industry practices. Rig counts have been dissected, production levels followed, and any data point that could possibly be related to oil and gas has been factored in.

27/05/2016 - GE Oil and Gas to use robotics, 3D printing at Talamona plant [\[source\]](#)

GE Oil and Gas has inaugurated two new component production lines at its plant in Talamona, Italy.

27/05/2016 - EERE Success Story—Percussive Hammer Enables Geothermal Drilling [\[source\]](#)

In 2013, Sandia National Laboratories (SNL) successfully completed the development of a high-temperature drilling technology able to withstand the harsh conditions present in geothermal reservoirs. SNL developed and tested a high-temperature downhole motor that includes an indexing tool for use with commercially available percussive hammers.

10/06/2016 - IFPEN progressing hydrate dissociation, remedial additive search [\[source\]](#)

Despite budget cuts, deepwater operators continue to support R and D designed to safeguard the integrity of their production systems.

03/06/2016 - CGG GeoSoftware completes series of software updates [\[source\]](#)

CGG GeoSoftware has completed the launch of a series of new releases from across its reservoir characterization product portfolio.

20/05/2016 - Wireless subsea systems assist integrity management [\[source\]](#)

WFS Technologies, Focus Subsea, and Aquip Systems will demonstrate the Seatooth wirelessly-enabled

products later this week at iTech's test tank facilities in Wangara, Western Australia.

Nouvelles des membres du pôle

03/08/2016 – Total met en production le champ de gaz d'Incahuasi en Bolivie [\[source\]](#)

TOTAL a démarré la production du champ de gaz à condensats d'Incahuasi, premier projet opéré par le Groupe en Bolivie, d'une capacité de 50.000 barils équivalent pétrole par jour (bep/j).

03/08/2016 – TIGF lance les études sur une interconnexion gazière à l'Est des Pyrénées entre la France et l'Espagne [\[source\]](#)

Ces études visent à évaluer l'intérêt d'une nouvelle interconnexion avec l'Espagne. Ce projet de développement d'infrastructure devrait permettre de renforcer la desserte gazière de la région Languedoc-Roussillon, Midi-Pyrénées et répondre à la politique énergétique de l'Europe

LES PROJETS COLLABORATIFS

10/06/2016 - Mexico and EU Launch GEMEX Geothermal Research Project [\[source\]](#)

At the June Clean Energy Ministerial Meeting, Carlos Moedas, European Commissioner for Research, Science and Innovation, and Pedro Joaquín Coldwell, Mexican Secretary of Energy, announced that European and Mexican researchers will work together on tapping into new sources of geothermal energy. The project, known as GEMex, was selected in a joint call launched by the European Union and Mexico.

01/07/2016 – Projet FluidSTORY: une solution innovante pour stocker l'énergie [\[source\]](#)

Le projet FluidSTORY, cofinancé par l'Agence nationale de la recherche (ANR) et supporté par le pôle AVENIA, étudie la faisabilité d'une solution d'avenir pour le stockage souterrain d'énergie, le principe étant de transformer un surplus d'électricité en méthane et de le restituer ultérieurement sous forme d'énergie électrique.



AGENDA DU POLE AVENIA ET DE SES PARTENAIRES

Date	Événements	Lieu
19-24 septembre 2016	Journées de la Géothermie 2016 (organisation AFPG) & European Geothermal Congress 2016 (organisation EGEN)	Strasbourg, Palais des Congrès
25-29 septembre 2016	"Groundwater and society: 60 years of IAH" (International Association of Hydrogeologists) - 43rd IAH International Congress	Montpellier
4-6 octobre 2016	5ème Colloque Franco-Espagnol sur le Stockage du CO2 suivi d'un colloque international sur la microfluidique appliquée aux milieux poreux . Organisé par ICMCB, IPRA, BRGM, Club CO2 & POLE AVENIA	Bordeaux & St Emilion
12-14 octobre 2016	JEMP2016 : 13èmes Journées d'étude des Milieux Poreux , organisées par l'IPRA (UPPA) et le FIC (French Interpore Chapter)	Anglet
24-28 octobre 2016	RST2016 : 25ème édition des Rencontres des Sciences de la Terre organisées par la Société Géologique de France (SGF) et le laboratoire M2C de l'université de Caen/Rouen	Caen
24 novembre 2016	Geologia 2016 : Journée métiers dédiée aux rencontres avec les professionnelles du secteur de la géologie	Nancy Centre Prouvé
29 novembre 2016	POLE AVENIA : Assemblée générale + focus adhérents : A l'issue de l'AG une douzaine d'adhérents présenteront leurs activités, produits, projets ...	Pau
2-3 décembre 2016	2ème édition des 24H DE L'INNOVATION AU CENTRE DE LA TERRE	Pau

COMMUNICATION DU POLE AVENIA



Le POLE AVENIA a lancé sa **plateforme de business collaboratif** www.thoms.fr dont la vocation est de fédérer les PME pour leur donner accès à du **chiffre d'affaires additionnel**.

Ce site inauguré début juin présente déjà 13 sociétés, 90 compétences, 72 produits et services, ainsi qu'un film de promotion de la filière.

La plupart de ces sociétés se sont visitées mutuellement et recherchent activement des pistes de collaboration possibles. Le POLE AVENIA les accompagne dans la structuration de la démarche. Outre les réunions de travail entre les partenaires industriels, une visite au cluster NEOPOLIA (qui pratique le business collaboratif depuis 2000) se dessine. Un consultant expérimenté interviendra pour accélérer la mise en œuvre fin septembre. Enfin, une campagne de communication sera lancée courant octobre dès que les offres THOMS seront packagées. Si vous voulez faire partie de l'aventure : contact@thoms.fr



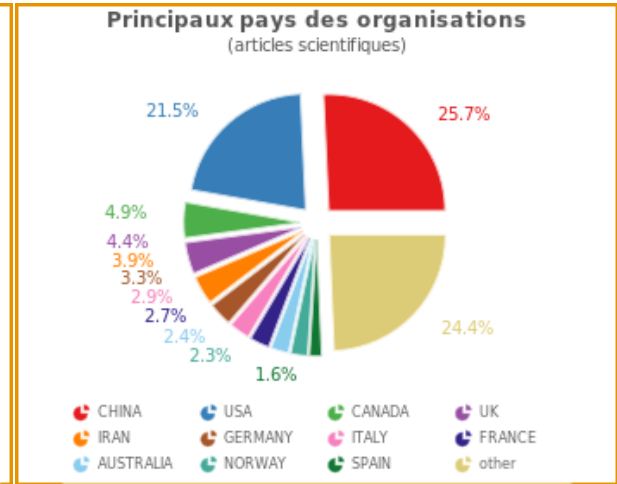
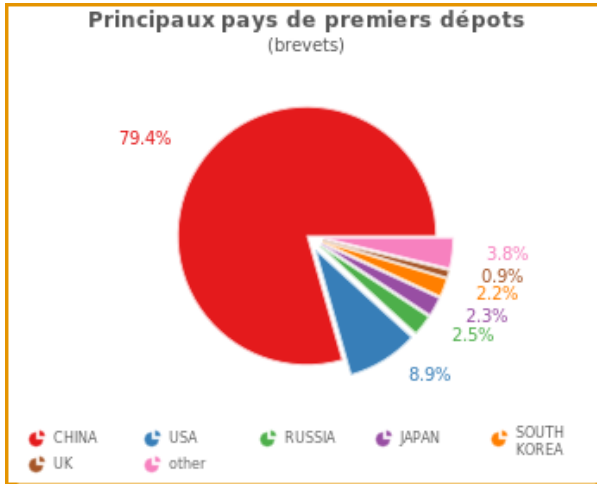
Le POLE AVENIA organise la deuxième édition des **24H de l'innovation au centre de la Terre** les 2 et 3 décembre 2016. Un aperçu de l'édition précédente [ici](#) :

Le concept est de faire œuvrer 24H non-stop des étudiants de tous domaines, sur des sujets d'entreprises partenaires à la recherche de créativité et d'innovation pour résoudre un problème ou investiguer un domaine. Elle peut aboutir pour les étudiants, à des opportunités professionnelles et pour les entreprises, à l'apport d'idées nouvelles sur des problématiques concrètes et au repérage de talents. Si en tant qu'entreprise vous souhaitez proposer un sujet : 24h@pole-avenia.com

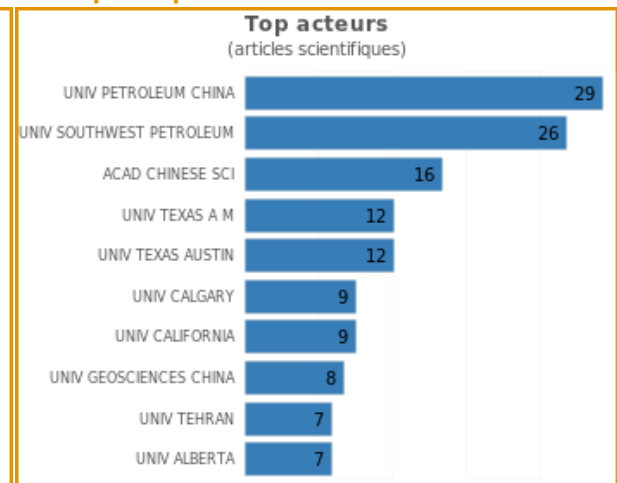
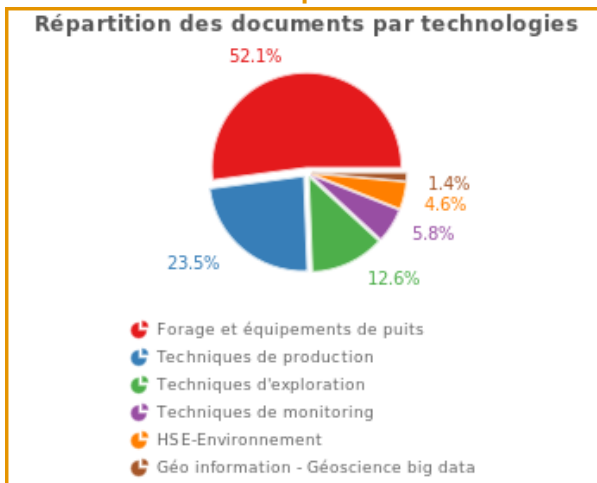


TABLEAUX DE BORD DE L'ACTIVITE SCIENTIFIQUE ET TECHNIQUE

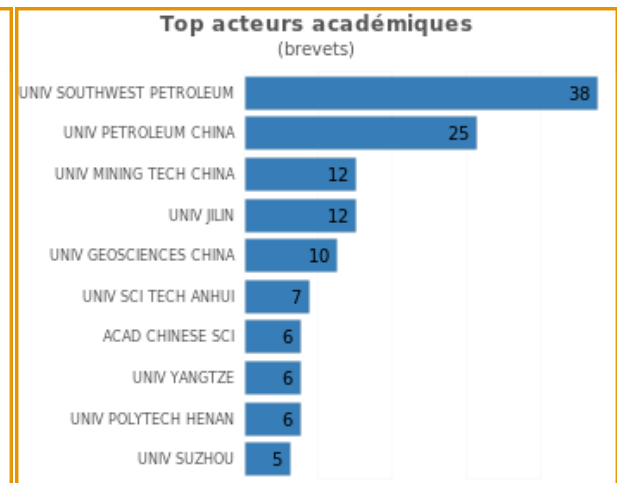
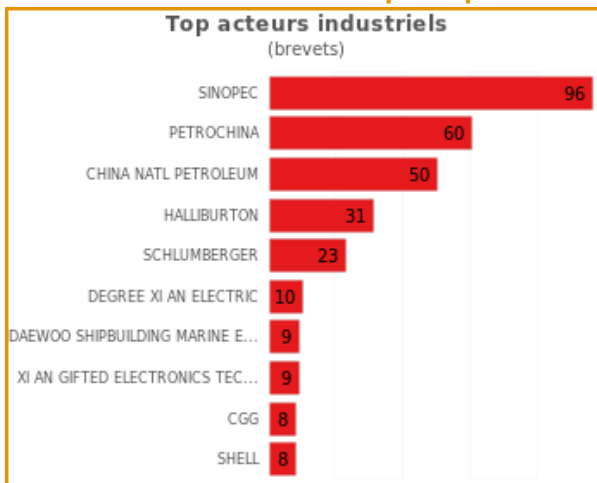
Répartition géographique des brevets et des publications scientifiques



Répartition des documents et principaux acteurs



Les principaux acteurs dans les brevets





LES BREVETS

Géo information - Géoscience big data

09/06/2016 - [WO16089835](#) SPATIAL DECLUSTERING OF OILFIELD DATA USING KERNEL DENSITY ESTIMATION - GEOQUEST SYSTEMS (NETHERLANDS); SCHLUMBERGER (USA) - Systems and methods are described for declustering and estimating spatially distributed data, such as oilfield data. Spatial data from a density estimation grid, such as a geological model grid, can be binned, and a data density grid can be generated by applying kernel density estimation to the binned spatial data. One or more spatial data locations can be received, and a data density can be determined for each location in the data density grid...

26/05/2016 - [US2016146957](#) SYSTEMS AND METHODS FOR DISTRIBUTED SEISMIC RECORDING AND ANALYSIS - CGG (FRANCE) - The present disclosure includes a data acquisition method for seismic exploration and monitoring including generating a time reference for an acquisition unit. The time reference defines a time window in the future. The method further includes transmitting the time reference to the acquisition unit. After the time window has elapsed, receiving a record of a seismic event measured during the time window.

Techniques d'exploration

30/06/2016 - [US2016178776](#) REAL-TIME INFILL IN MARINE SEISMIC SURVEYS USING AN INDEPENDENT SEISMIC SOURCE - ION GEOPHYSICAL (USA) - Embodiments of real-time infill in marine seismic surveys using an independent seismic source are described. One method of seismic data acquisition includes acquiring primary seismic data at a plurality of streamers towed by an acquisition vessel based at least in part on energy emitted by a first seismic source, and towing an independent seismic source to acquire infill seismic data at the plurality of streamers based at least in part on...

02/06/2016 - [WO16083861](#) MAPPING A GEOLOGICAL PARAMETER ON AN UNSTRUCTURED GRID - ARMINES (FRANCE); TOTAL (FRANCE) - The present invention relates to a method for a determination of a geological parameter in an unstructured grid representing a geological model. The method comprises receiving a description of a random field (Z(x), 101) of a petrophysical/geological variable and deriving a description of an auxiliary (102) Gaussian random field (Y(x)) through a transformation function. Then it is possible to determine (103) a decomposition in an Hilbertian...

26/05/2016 - [US2016146957](#) SYSTEMS AND METHODS FOR DISTRIBUTED SEISMIC RECORDING AND ANALYSIS - CGG (FRANCE) - The present disclosure includes a data acquisition method for seismic exploration and monitoring including generating a time reference for an acquisition unit. The time reference defines a time window in the future. The method further includes transmitting the time reference to the acquisition unit. After the time window has elapsed, receiving a record of a seismic event measured during the time window.

26/05/2016 - [WO16080955](#) ATTRIBUTE-INDEXED MULTI-INSTRUMENT LOGGING OF DRILL CUTTINGS - HALLIBURTON (USA) - A method according to some embodiments comprises obtaining a formation sample from a borehole, identifying minerals present in a first portion of the formation sample and determining densities of the minerals. The method also comprises determining, using a second portion of the formation sample, material properties associated with the mineral densities. The method further comprises associating the material properties with the identified...

Forage et équipements de puits

30/06/2016 - [US2016177630](#) EXTENDED OR RAISED NOZZLE FOR PDC BITS - SMITH INTERNATIONAL (USA) - A drill bit includes a bit body having a pin end capable of attaching to a drill string, a cutting end having a plurality of blades extending radially therefrom and separated by a plurality of channels therebetween, and a fluid plenum open to receiving drilling fluid from the drill string. The drill bit further includes at least one cutting element in a cutter pocket formed on the plurality of blades, at least one fluid flow passageway...

09/06/2016 - [US2016160620](#) METHOD AND SYSTEM FOR DEPLOYING PERFORATING GUN FOR MULTIPLE SAME LOCATION RESERVOIR PENETRATIONS WITHOUT DRILLING RIG - ARAMCO SERVICES (USA); SAUDI ARAMCO (SAUDI ARABIA) - Methods and apparatus are provided for conducting multiple successive same-location firings of a number of shaped charges carried by a perforating gun attached to an orienting tool that is, in turn secured to the length of coiled



tubing that is lowered into the wellbore by a coiled tubing unit and precisely positioned by engagement with a fixed receiving member that is secured proximate the end of a length of producing tubing to align its...

23/05/2016 - [JP2016089952](#) OCTG COUPLING STRUCTURE CONSISTING OF A COMPOSITE MATERIAL - NBL INST (USA) - The invention relates to providing a high-temperature corrosion-resistant resin layer on the inner surface of the tube 8 and the joint threaded portion 5, corrosion resistance of high temperature and high pressure by pushing on the convex portion 7 having a packing 3 of the reinforcing fibers containing trapezoid to the pipe end to the coupling inner surface Center oil well pipe is established...

06/05/2016 - [WO16068917](#) INTERNALLY TRUSSED HIGH-EXPANSION SUPPORT FOR REFRACTURING OPERATIONS - HALLIBURTON (USA) - A downhole system and method is disclosed for sealing a previously perforated section of casing and refracturing the subterranean formation in a region of the subterranean formation remote from those regions previously fractured. The system includes a truss structure radially expandable between a contracted configuration and an expanded configuration and a sealing structure disposed radially external to the truss structure. The truss structure...

30/06/2016 - [WO16105206](#) EVALUATION OF DOWNHOLE INSTALLATION - STATOIL (NORWAY) - A downhole installation comprises: a first pipe layer 8, a second pipe layer 10 about the first pipe layer, an annulus 12 between the first pipe layer 8 and the second pipe layer 10, and a geological formation outside of the second pipe layer. The downhole installation is evaluated by: using a logging tool 4 within the first pipe layer 8 to obtain data providing azimuthal amplitudes 22 for the third interface echo across a depth interval of...

Techniques de production

30/06/2016 - [US2016186043](#) ENHANCED OIL RECOVERY USING CARBOXYLATE GROUP CONTAINING SURFACTANTS - SHELL (USA) - The invention relates to a method of treating a hydrocarbon containing formation, comprising the following steps: a) providing a composition comprising a surfactant to at least a portion of the hydrocarbon containing formation, wherein the surfactant is a compound of the formula (I) R-O-[R'-O]_x-X wherein R is a hydrocarbyl group, R'-O is an alkylene oxide group, x is the number of alkylene oxide groups R'-O, and X is a group comprising a...

16/06/2016 - [US2016168955](#) EQUIPMENT AND METHOD ENABLING TO DIRECTLY USE POWDER POLYMER IN HYDRAULIC FRACTURING - SPCM (FRANCE) - An installation for the dosing of a powder polymer having a particle size in the range from 100 to 500 micrometers intended to feed a blender in hydraulic fracturing operations, successively including: a powder polymer supply, from a pressurized tilting truck or from big bags emptied by pneumatic conveying, a mechanism for transporting the powder polymer fed by a compressor, and provided with a polymer transportation check valve, a hopper for...

23/06/2016 - [WO16099847](#) ULTRA-HIGH SALINITY SURFACTANT FORMULATION - HUNTSMAN PETROCHEMICAL (USA) - Methods of enhanced oil recovery are disclosed that use compositions including an alkyl polyether anionic surfactant having the general structure R₁JA, wherein R₁ is a C₈-C₁₈ primary or secondary radical group, J is a random, block, alternating, or alternating block polyether segment having the structure [(PO)_x(EO)_y(BO)_z], wherein x is 4 to 18, y is 0 to 20, and z is 0 to 5, and A is an anionic group; a co-surfactant having the general...

13/05/2016 - [CA2870794](#) STEAM-ASSISTED HYDROCARBON RECOVERY WITH STEAM-CO₂ SEPARATION - SUNCOR ENERGY (CANADA) - There is provided an in situ thermal recovery process for recovering hydrocarbons from a reservoir. The process includes providing an oxygen-enriched mixture, fuel and feedwater to a DCSG; operating the DCSG to obtain a combustion mixture including steam and CO₂; separating all or part of the CO₂ from the combustion mixture to obtain a CO₂-depleted steam stream; injecting the CO₂-depleted steam stream or a stream derived from the CO₂-depleted...



Techniques de monitoring

23/06/2016 - [US2016177710](#) SYSTEMS AND METHODS FOR EVALUATING GAS-CONTAMINATED CEMENT - SCHLUMBERGER (NETHERLANDS) - Embodiments of the disclosure may include systems and methods for evaluating gas-contaminated cement. In one embodiment, a vector-valued image of cement state probability may be obtained from an acoustic logging tool, and a maximum a posterior classification of cement state of the vector-valued image may be determined. A vector probability diffusion equation may be used to minimize the total variation of the vector-valued image over a number of...

26/05/2016 - [US2016146957](#) SYSTEMS AND METHODS FOR DISTRIBUTED SEISMIC RECORDING AND ANALYSIS - CGG (FRANCE) - The present disclosure includes a data acquisition method for seismic exploration and monitoring including generating a time reference for an acquisition unit. The time reference defines a time window in the future. The method further includes transmitting the time reference to the acquisition unit. After the time window has elapsed, receiving a record of a seismic event measured during the time window.

06/05/2016 - [US2016124105](#) TOUCH DOWN MONITORING OF AN OCEAN BOTTOM SEISMIC NODE - SEABED GEOSOLUTIONS (NETHERLANDS) - Apparatuses, systems, and methods for guiding and/or positioning a plurality of seismic nodes on or near the seabed by an autonomous underwater vehicle (AUV) or a remotely operated vehicle (ROV). In one embodiment, an underwater vehicle is configured to monitor the deployment of cable connected to a plurality of seismic nodes, including the touchdown monitoring, positioning, and guiding of deployed autonomous seismic nodes or ocean bottom...

06/05/2016 - [WO16069002](#) USING AMPLITUDE RATIO CURVES TO EVALUATE CEMENT SHEATH BONDING IN MULTI-STRING DOWNHOLE ENVIRONMENTS - HALLIBURTON (USA) - A method for evaluating a cement sheath in a wellbore, in some embodiments, comprises transmitting sonic or ultrasonic waves from a logging tool disposed in a wellbore, receiving reflected waves at the logging tool and recording waveforms based on the received waves, processing the waveforms to determine average absolute value amplitude data for each of a plurality of zones, and determining a number using average absolute value amplitude data...

26/05/2016 - [US2016146964](#) MONITORING MATRIX ACIDIZING OPERATIONS - SCHLUMBERGER (USA) - An acoustic logging tool is disposed in a wellbore during an acidizing operation. Measurements are made using the acoustic logging tool on a region of a formation penetrated by the wellbore and being subjected to the acidizing operation. An acoustic anisotropic property of the formation is inferred at one or more depths of investigation within the region using the measurements, and a wormhole porosity and/or an orientation of one or more...

HSE-Environnement

05/05/2016 - [US2016122612](#) NON-TOXIC, INEXPENSIVE, LOW VISCOSITY MINERAL OIL BASED DRILLING FLUID - CHEVRON (USA) - The disclosure relates to drilling fluid compositions, and their method of use, comprising a non-toxic and low cost-to-produce mineral base oil comprising 90 to 100 percent branched and cyclic-paraffins and virtually aromatic free. The disclosed base oils are suitable to replace diesel oil and distillates in any drilling operation and offers a reduced environmental impact and improved health and safety of employees.

30/06/2016 - [WO16102654](#) PROCESS FLUID WITH ENVIRONMENTALLY FRIENDLY BIOSTABILISATOR - AGRANA BETEILIGUNGS (AUSTRIA) - The present invention relates to a process fluid comprising an environmentally friendly biostabiliser, for industrial scale use in the Earth's crust, preferably for use in oil and natural gas extraction, in particular in hydraulic fracturing. The biostabiliser is characterised in that it comprises at least one organic acid, or a salt, alcohol or aldehyde thereof, wherein the at least one organic acid is selected from the group consisting of hop...



LES PUBLICATIONS SCIENTIFIQUES

Géo information - Géoscience big data

[Neuro-evolutionary event detection technique for downhole microseismic surveys](#) - 2016 - **Computers and Geosciences** - INST GAS TECH (USA) - Recent years have seen a significant increase in borehole microseismic data acquisition programs associated with unconventional reservoir developments such as hydraulic fracturing programs for shale oil and gas. The data so acquired is used for hydraulic fracture monitoring and diagnostics and therefore, the quality of the data in terms of resolution and accuracy has a significant impact on its value to the industry. Borehole microseismic data...

[Designing a Subscription Service for Earthquake Big Data Analysis from Multiple Sources](#) - 2015 - **Proceedings - 2015 10th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing, 3PGCIC 2015** - UNIV DERBY (UK); UNIV TECHNICAL CRETE (GREECE) - The unpredictable nature of earthquakes has been a challenge for many researchers for a long time. Earthquakes take place suddenly and quickly, leaving scientists little time to prepare for it. This is due to the inescapable realization of the fact that much information can be deciphered from the huge volume of data being generated from numerous heterogeneous sources by the second. This paper investigates the acquisition of earthquake data,...

Techniques d'exploration

[Some techniques for reducing seismic data lacking zones in complicated areas](#) - 2016 - **Shiyou Diqiu Wuli Kantan/Oil Geophysical Prospecting** - BGP (CHINA) - Nowadays more and more seismic surveys are carried out in some places with lots of obstacles such as urban area, industrial area, oilfields, and others. The large number of obstacles causes seismic data lacking zones, which brings uncertainty of the follow-up seismic data processing and interpretation. We propose in this paper a few approaches to reduce seismic acquisition blank zones and improve data integrity such as receiver point multi-move...

[Geo-acoustic modelling of late and postglacial sedimentary units in the Baltic Sea and their acoustic visibility](#) - 2016 - **Marine Geology** - GEOLOGICAL SURVEY DENMARK GREENLAND GEUS (DENMARK); INNOMAR TECH (GERMANY); INST LEIBNIZ FOR BALTIC SEA RESEARCH WARNEMUNDE IOW (GERMANY); UNIV ERNST MORITZ ARNDT GREIFSWALD (GERMANY) - Acoustic profiling methods are commonly used in the geosciences to obtain knowledge about the sedimentary structures of marine deposits. However, their interpretation and the correlation of acoustic reflectors with sedimentological boundaries remain difficult. The gradient in acoustic impedance determines the intensity of acoustic reflectors, which are not necessarily sedimentary boundaries. Suitable geo-acoustic models that cover a wide range...

[Interpreting direct hydrocarbon indicators of low-API biodegraded oils-A case study from a deepwater South Atlantic Basin](#) - 2016 - **Leading Edge** - HESS (USA); SHELL (USA) - Strong seismic flat spots are typically associated with the oil/water contact (OWC) in many amplitude-supported deepwater South Atlantic Basin (SAB) discoveries, particularly in relatively shallow (2000 mbml), high-porosity unconsolidated Eocene-age reservoirs. These reservoirs contain biodegraded oils that have low API gravity, low gas-oil ratios, high viscosities, and fluid acoustic velocities between 4500 and 5000 ft/s. Often, a mismatch in...

[Geological lineament mapping in arid area by semi-automatic extraction from satellite images: Example at the El Kseibat region \(Algerian Sahara\)](#) - 2016 - **Estudios Geologicos** - UNIV KASDIMERBAH OUARGLA (ALGERIA) - Geologists in charge of a detailed lineament mapping in arid and desert area, face the extent of the land and the abundance of eolian deposits. This study presents a semi-automatic approach of extraction of lineament, different from other methods, such as the automatic extraction and manual extraction, by being both fast and objective. It consists of a series of digital processing (textural and spatial filtering, binarization by thresholding...

Forage et équipements de puits

[Efficient drilling in horizontal directional drilling by implementing the concept of specific energy](#) - 2016 - **Geomechanics and Geoengineering** - CROSSING (CANADA); UNIV ALBERTA (CANADA) - The oil and gas industry has successfully used the concept of specific energy (SE) to maximise drill rate and identify inefficient conditions in drilling operations. This paper proposes the idea of implementing the concept of SE in horizontal directional drilling (HDD), a



pipeline installation technique which was adopted from horizontal oil well drilling technology. The similarity of the HDD technique with oil well drilling makes SE...

[Effect of Sand Content on the Filter Cake Properties and Removal during Drilling Maximum Reservoir Contact Wells in Sandstone Reservoir](#) - 2016 - **Journal of Energy Resources Technology, Transactions of the ASME** - CTR TECH (KUWAIT); UNIV KING FAHD PETROLEUM MINERALS (SAUDI ARABIA); UNIV SUEZ (EGYPT) - The drilling mud program contains many tests such as filtration rate and filter cake properties to select the proper drilling fluid additives that yield the standard ranges of the viscosity, filtration rate, etc. However, the physical and chemical changes in the mud composition during the mud circulating will cause changes to the filter cake properties. The changes in the filter cake properties should be considered in the mud design program to...

[Continuous high-frequency measurements of the drilling process provide new insights into drilling-system response and transitions between vibration modes](#) - 2016 - **SPE Drilling and Completion** - SCHLUMBERGER (USA) - The oil-and-gas industry has become increasingly interested in drilling dynamics and vibration as causes of drilling inefficiency and reduced drilling performance. Generally, drillstring vibration is measured with shock-and-vibration sensors installed in measurement- while-drilling (MWD) tools, logging-while-drilling (LWD) tools, and rotary steerable systems (RSS). Although these tools provide valuable real-time and recorded-mode information on...

[Application of general regression neural network \(GRNN\) for indirect measuring pressure loss of Herschel-Bulkley drilling fluids in oil drilling](#) - 2016 - **Measurement: Journal of the International Measurement Confederation** - UNIV BIRJAND TECH (IRAN) - Experimental measurements of the pressure losses in a well annulus are costly and time consuming. Pressure loss calculations in annulus is generally conducted based on an extension of empirical correlations developed for Newtonian fluids and extending pipe flow correlations. However, correct estimation of pressure loss of non-Newtonian fluids in oil well drilling operations is very important for optimum design of piping system and minimizing...

[The syringe sampler: An inexpensive alternative borehole sampling technique for CO₂-rich fluids during mineral carbon storage](#) - 2016 - **Greenhouse Gases: Science and Technology** - UNIV CURTIN (AUSTRALIA); UNIV ICELAND (ICELAND) - Mineral carbon storage involves the dissolution of injected gaseous or supercritical CO₂ followed by interaction of the carbonated solution with the host rock at depth resulting in the precipitation of carbonate minerals. Monitoring of elemental chemistry and tracers is required to evaluate the evolution of the fluid geochemistry and the degree of CO₂ mineralization during its injection into the subsurface. To avoid degassing during sampling,...

[Fault locating in pipelines via time domain reflectometry \[Schadensdetektion an Rohrleitungen mittels zeitreichsreflektometrie\]](#) - 2016 - **Logistics Journal** - UNIV GARBSEN (GERMANY); UNIV LEIBNIZ HANNOVER (GERMANY) - Simulation processes and an experimental test are performed to investigate the practicability of using the time domain reflectometry (TDR) for the detection of defects in pipelines. Similar to the employment of TDR in checking electrical wiring it may serve to evaluate the position and the degree of a defect. Various simulation models are used to learn about the correlation between the quality of the defect and the reflected signals. A...

[Assessment of naturally occurring radioactive material \(NORM\) in the oil drilling mud of Az Zubair oil field, Basra, Iraq](#) - 2016 - **Environmental Earth Sciences** - UNIV TECH (GERMANY) - The concentration of naturally occurring radioactive material (NORM) in oil drilling mud samples collected from 14 geological formations begins with Dibdibba Formation depth (140–150 m) and ends with Ahmadi Formation depth (2764.5 m) of the oil well in Az Zubair oil field (ZB-296) in Basra governorate were determined using NaI gamma spectrometer. Gamma spectrometric analyses of natural radionuclides ²³⁸U, ²³²Th and ⁴⁰K have indicated...

Techniques de production

[Syngas from H₂S and CO₂: An alternative, pioneering synthesis route?](#) - 2016 - **Hydrocarbon Processing** - ALFA LAVAL OLMI (ITALY); KT KINETICS TECH (ITALY); UNIV POLYTECH MILAN (ITALY) - Hydrogen sulfide (H₂S) and carbon dioxide (CO₂) represent major concerns for the hydrocarbon industry. Both species are contaminants and, since their use as feedstock is minor, are considered troubling byproducts. H₂S, which mainly derives from oil and gas desulfurization, cannot be vented. Consequently, neutralization is mandatory. Practically every refinery is equipped with a Claus sulfur recovery unit (SRU). Flue gases rich in CO₂ are...

[Crack Features and Shear-Wave Splitting Associated with Fracture Extension during Hydraulic Stimulation of the Geothermal Reservoir in Soultz-sous-Forêts](#) - 2016 - **Oil and Gas Science and Technology** - IFP ENERGIES NOUVELLES (FRANCE); UNIV N CIUDAD (MEXICO); UNIV STRASBOURG (FRANCE) - The European Enhanced Geothermal System



project at Soultz-sous-Forêts (France) aims to extract energy from hot fractured granites. The concept of a geothermal system consists in extracting the heat from the rock mass by circulating fluids between injectors and producers. A novel approach to explain the behavior of the Soultz reservoir, which was submitted to a massive hydraulic stimulation, is presented. The study shows how to take advantage...

[Low-salinity water-alternating-CO₂ EOR - 2016 - Journal of Petroleum Science and Engineering](#) - INST PETROLEUM (UNITED ARAB EMIRATES); SCHOOL COLORADO MINES (USA) - Carbon dioxide flooding is currently the most technically and economically viable enhanced oil recovery (EOR) process in carbonate and sandstone reservoirs. Low-salinity waterflood is a relatively new EOR process; and our experiments in carbonate cores show significant oil recovery improvements with low-salinity waterflood. We propose a new EOR process to improve recovery, which involves low-salinity water-alternating-CO₂/gas (LS-WACO₂ or...

[Effect of surfactant concentration on foam: From coreflood experiments to implicit-texture foam-model parameters - 2016 - Journal of Industrial and Engineering Chemistry](#) - SHELL (NETHERLANDS); UNIV TECH DELFT (NETHERLANDS) - We present a comparative study of foam coreflood experiments with various surfactant concentrations. Plots of apparent viscosity vs. injected gas fraction were obtained for surfactant concentrations at the critical micelle concentration and above. Bulk foam stability was measured for all concentrations and compared with the coreflood results. There were different responses to surfactant concentration in bulk and in corefloods. The coreflood...

[Compositional modeling of dissolution-induced injectivity alteration during CO₂ flooding in carbonate reservoirs - 2016 - SPE Journal](#) - UNIV PENNSYLVANIA STATE (USA) - Geochemical reactions between fluids and carbonate rocks can change porosity and permeability during carbon dioxide (CO₂) flooding, which may significantly affect well injectivity, well integrity, and oil recovery. Reactions can cause significant scaling in and around injection and production wells, leading to high operating costs. Dissolution-induced well-integrity issues and seabed subsidence are also reported as a substantial problem at the...

[On the determination of CO₂-crude oil minimum miscibility pressure using genetic programming combined with constrained multivariable search methods - 2016 - Fuel](#) - UNIV TECH SHARIF (IRAN) - In addition to reducing carbon dioxide (CO₂) emission, the high oil recovery efficiency achieved by CO₂ injection processes makes CO₂ injection a desirable enhance oil recovery (EOR) technique. Minimum miscibility pressure (MMP) is an important parameter in successful designation of any miscible gas injection process such as CO₂ flooding; therefore, its accurate determination is of great importance. The current experimental techniques for...

Techniques de monitoring

[Tracking tracer motion in a 4-D electrical resistivity tomography experiment - 2016 - Water Resources Research](#) - BRITISH GEOLOGICAL SURVEY (UK); UNIV NOTTINGHAM (UK) - A new framework for automatically tracking subsurface tracers in electrical resistivity tomography (ERT) monitoring images is presented. Using computer vision and Bayesian inference techniques, in the form of a Kalman filter, the trajectory of a subsurface tracer is monitored by predicting and updating a state model representing its movements. Observations for the Kalman filter are gathered using the maximally stable volumes algorithm, which is...

[Earthquake detection probability within a seismically quiet area: Application to the Bruchsal geothermal field - 2016 - Geophysical Prospecting](#) - INST TECH KARLSRUHE (GERMANY) - In applications such as oil and gas production, deep geothermal energy production, underground storage, and mining, it is common practice to implement local seismic networks to monitor and to mitigate induced seismicity. For this purpose, it is crucial to determine the capability of the network to detect a seismic event of predefined magnitude in the target area. The determination of the magnitude of completeness of a network is particularly...

[Using pulse testing for leakage detection in carbon storage reservoirs: A field demonstration - 2016 - International Journal of Greenhouse Gas Control](#) - LAB NATL LAWRENCE BERKELEY (USA); UNIV TEXAS AUSTIN (USA) - Monitoring techniques capable of deep subsurface detection are desirable for early warning and leakage pathway identification in geologic carbon storage formations. This work demonstrates the feasibility of a pulse-testing-based leakage detection procedure, in which the storage reservoir is stimulated using periodic injection patterns and the acquired pressure perturbation signals are analyzed in the frequency domain to detect potential...

[A Low-Cost Accelerometer Developed by Inkjet Printing Technology - 2016 - IEEE Transactions on Instrumentation and Measurement](#) - UNIV CATANIA (ITALY) - An inkjet-printed sensor in the mesoscale is presented with the aim to investigate its behavior as an accelerometer in the low-frequency domain (up to 20 Hz), The accelerometer consists



of a Polyethylene terephthalate membrane clamped by four spring legs to a fixed support. The sensing readout strategy is implemented through four strain gauges directly printed onto the flexible substrate. The advantages of the approach proposed are mainly related to the adopted low-cost direct printing technology, which allows for the realization of cheap and customizable devices. by four spring legs to a fixed support.

[Application of surface tiltmeter in monitoring complicated hydraulic fractures](#) - 2016 - **Shiyu Diqiu Wuli Kantan/Oil Geophysical Prospecting** - UNIV PEKING (CHINA) - Hydraulic fracturing is a key technology to develop shale gas and tight sandstone gas. With hydraulic fracture monitoring, we can get the fracture shape and orientation, which could improve the pertinence of hydraulic fracturing and guide the oilfield development. This paper describes the theory of tiltmeter mapping; and by referencing Okada's linear elastic theory and simulated annealing inversion method based on Monte Carlo method, we build...

[Seismic monitoring of CO2 plume growth, evolution and migration in a heterogeneous reservoir: Role, impact and importance of patchy saturation](#) - 2015 - **International Journal of Greenhouse Gas Control** - UNIV EDINBURGH (UK); UNIV HERIOT WATT EDINBURGH (UK) - We combine reservoir simulation with 2D synthetic seismic reflection time-lapse data to assess the ability of seismic methods to image plume growth, evolution, and migration within a heterogeneous saline reservoir. The incorporation of reservoir heterogeneity results in a range of saturations due to the tortuous migration around the intra-reservoir baffles. To account for the disruptive nature of the injected CO2, and the uncertainties...

HSE-Environnement

[Nutrient content in sunflowers irrigated with oil exploration water](#) - 2016 - **Revista Caatinga** - EMBRAPA AGROINDUSTRIA TROPICAL (BRAZIL); UNIV ESTADUAL DO CEARA (BRAZIL); UNIV FED DO CEARA (BRAZIL); UNIV FED VICOSA (BRAZIL) - Irrigation using produced water, which is generated during crude oil and gas recovery and treated by the exploration industry, could be an option for irrigated agriculture in semiarid regions. To determine the viability of this option, the effects of this treated water on the nutritional status of plants should be assessed. For this purpose, we examined the nutritional changes in sunflowers after they were irrigated with oil-produced water and...

[A combined technology of normal temperature cleaning and microbial treatment for oil-based drilling cuttings](#) - 2016 - **Natural Gas Industry** - INST DRILLING ENGINEERING TECH RESEARCH (CHINA); SINOPEC (CHINA) - Oil-based drilling fluids are widely used in the exploration and development of unconventional oil and gas resources owing to their advantages of strong inhibition, good lubricity, high temperature resistance, contamination resistance, safety and high-speed drilling. However, the cuttings are seriously emulsified and cannot be recovered easily with high content of mineral oil, so they are challenges to treatment and environmental protection....

[Toxicity of acidization fluids used in California oil exploration](#) - 2016 - **Toxicological and Environmental Chemistry** - UNIV CALIFORNIA (USA) - There has been considerable public interest regarding the toxicity of chemicals used in hydraulic fracturing, but little is known about its sister technique, acidizing. Little to no research has been done on what the chemicals of acidization are and what impact they could have on humans and the environment. This paper discusses the differences between three acidizing techniques (acid maintenance, matrix acidization, and acid fracturing) and...

[Prospective air pollutant emissions inventory for the development and production of unconventional natural gas in the Karoo basin, South Africa](#) - 2016 - **Atmospheric Environment** - UNIV CAPE TOWN (SOUTH AFRICA) - The increased use of horizontal drilling and hydraulic fracturing techniques to produce gas from unconventional deposits has led to concerns about the impacts to local and regional air quality. South Africa has the 8th largest technically recoverable shale gas reserve in the world and is in the early stages of exploration of this resource. This paper presents a prospective air pollutant emissions inventory for the development and production of...

[Desalination of oilfield produced water associated with treatment of domestic wastewater and bioelectricity generation in microbial osmotic fuel cell](#) - 2015 - **Journal of Membrane Science** - UNIV AL NAHRAIN (IRAQ); UNIV BAGHDAD (IRAQ) - In the present study, a novel application of microbial osmotic fuel cell (MOFC) for simultaneous treatment of real wastewater, bioenergy generation and desalination of real oilfield produced water is investigated. A three-chambered MOFC provided with forward osmosis (FO) membrane and cation exchange membrane (CEM) was inoculated with activated sludge and fueled with actual domestic wastewater. Real oil produced water having initial total...