



BULLETIN DE VEILLE GEOSCOPIE n°43 – 16 juin 2016

Edito

Bonjour à tou-te-s,

Voici la quatrième 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.

Toutes ces publications sont issues de la **base de données IP-Matrix/Géoscopie** mise en place en 2015 par le POLE AVENIA en tandem avec la société TKM, spécialisée en intelligence économique et veille technologique, selon une stratégie de recherche basée sur un jeu de plusieurs centaines de mots-clés liés aux géosciences et à l'ingénierie du sous-sol.

La base documentaire IP-Matrix/Géoscopie, qui contient déjà **près de 20 000 entrées** classées dans les différentes rubriques filières, marchés et technologiques, est accessible à toute structure désireuse via un abonnement annuel dont le tarif dépend du type de structure (laboratoires, PME, ETI & Grands groupes).

L'équipe du POLE AVENIA vous invite à lui remonter toute question ou jeu de mots-clés sur vos thématiques spécifiques pour tester le contenu de la base documentaire IP-Matrix/Géoscopie et apprécier l'intérêt d'un éventuel abonnement ou d'une éventuelle prestation en contactant geoscopie@pole-avenia.com.

Une réunion d'information consacrée à la veille technologique et à la sécurité économique se tiendra à l'auditorium d'Hélioparc à Pau mardi 5 juillet de 17 à 19h, suivie d'un cocktail apéritif. Le POLE AVENIA et son partenaire TKM feront une démonstration de l'outil de veille IP-Matrix/Géoscopie et présenteront l'offre de services en intelligence économique qu'ils proposent en binôme. **Inscription gratuite et obligatoire [ICI](#).**

Bonne lecture à tou-te-s!

SOMMAIRE DU BULLETIN DE VEILLE GEOSCOPIE N°43

Pages 2-3 :	ACTUALITES
Page 3 :	PROJETS
Page 4 :	AGENDA DU POLE AVENIA ET DE SES PARTENAIRES
Page 5 :	TABLEAUX DE BORD DE L'ACTIVITE SCIENTIFIQUE ET TECHNIQUE
Pages 6-7 :	BREVETS
Pages 8-10 :	PUBLICATIONS SCIENTIFIQUES



ACTUALITES

Les Géosciences en France

22/05/2016 – Si le Poitou tremble, c'est plutôt rassurant [\[source\]](#) Par quatre fois, entre le 14 avril et le 17 mai, les habitants de la Vienne ont pu sentir la terre trembler sous leurs pieds. Avec une magnitude de 4,9, le tremblement de terre du 28 avril est l'un des plus importants ressentis dans la région depuis un demi-siècle. Explications avec le BRGM.

11/04/2016 – L'avenir des mines françaises demeure en suspens [\[source\]](#) Bercy aurait donc renoncé à créer la Compagnie des mines de France, ou CMF, entreprise publique voulue par Arnaud Montebourg avant son départ du gouvernement. Détails.

27/04/2016 – Coupler stockage de CO2 et géothermie [\[source\]](#) Le projet « CO2-DISSOLVED » financé par l'ANR entre 2013 et 2016 a démontré la faisabilité d'associer le stockage de CO2 sous forme dissoute en aquifère salin profond et la récupération d'énergie géothermique. Une option pertinente pour les émetteurs industriels de CO2 faibles à moyens.

07/06/2016 – Chahutée par la crise, la filière géosciences prépare la relève à Pau [\[source\]](#) L'inauguration, lundi, de la pépinière "Géostart" dédiée aux géosciences met en lumière l'ambition de rebondir pour la plus importante filière économique paloise. Rencontre avec la relève.

01/06/2016 – Cerville : Une bulle de gaz géante [\[source\]](#) Storengy, héritier de GDF, entend prolonger de 25 ans la concession qui lui permet de stocker du gaz dans les profondeurs de Cerville et du sud du Grand Nancy.

Nouvelles des membres du pôle

14/04/2016 - EGEN releases new Geothermal Market Report for Europe [\[source\]](#) The European Geothermal Energy Council (EGEC) today released its annual Geothermal Market Report on Europe, reporting an installed geothermal power generation capacity of 2,285 MW and an installed capacity for district heating of 4,700 MW thermal.

18/04/2016 – SeaOwl rachète le Palois Well Staff [\[source\]](#) Le groupe SeaOwl, acteur dans l'assistance au secteur maritime et aux industries de l'énergie, vient d'annoncer l'acquisition de la société paloise Well Staff, spécialisée dans l'ingénierie et l'assistance aux industries pétrolières et gazières.

11/05/2016 – Seine et Marne : Le champ pétrolier géant veut faire tâche d'huile [\[source\]](#) L'entreprise canadienne Vermilion, 1^{er} producteur de pétrole en France, sollicite l'extension de la concession pétrolière de Champotran, située au centre du département.

17/05/2016 – Du gaz vert dans le réseau de TIGF [\[source\]](#) TIGF, deuxième transporteur et stockeur de gaz naturel en France, et dont le siège est situé à Pau, s'est associé à Fonroche Biogaz, pour l'inauguration de la première injection de biométhane dans le grand Sud-ouest à Villeneuve-sur-Lot (47).

01/06/2016 – Schlumberger acquies Satel Industries [\[source\]](#) Schlumberger announced today the acquisition of Saltel Industries, a France-based engineering, manufacturing and service company that offers expandable patches and steel packers technology for the oil and gas industry.

01/06/2016 – Total fait s'affronter des robots pétroliers [\[source\]](#) Total mise sur l'Open Innovation pour trouver un robot autonome adapté aux besoins et à l'environnement souvent complexes de ses installations. Cinq équipes se sont affrontées à Lacq pour présenter leur solution. Verdict au printemps 2017.

Marché de la géothermie

12/04/2016 – Kenya : la banque mondiale octroie 29 M\$ au projet géothermique de Menengai [\[source\]](#) Le projet géothermique de Menengai, au Kenya, a obtenu auprès de la Banque mondiale, un appui financier de 29,65 millions \$. L'opération s'est faite par le biais du Fonds d'investissements climatiques, l'un des démembrements de l'institution.

12/04/2016 – Alberta site of Canada's first abandoned oil well-to-geothermal conversion [\[source\]](#) The Leduc#1 Energy Discovery Centre in Devon, Alberta is converting an abandoned oil well to capture geothermal energy—a first in Canada.

14/04/2016 - Launch of the European Technology and Innovation Platform for Deep Geothermal [\[source\]](#) In a kick-off meeting this month, a new European Technology Innovation Platform for Deep Geothermal has been established by a variety of representatives of the European geothermal sector.

24/05/2016 – Four projects receive \$4m for research on extracting minerals from geothermal brines [\[source\]](#) The U.S. Department of Energy announced four research and development (R&D) 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.

08/06/2016 – Inauguration de la centrale géothermique de Rittershoffen [\[source\]](#) La centrale alsacienne de Rittershoffen est la première application de la géothermie profonde intégrée directement à un process industriel. La France compte sur cette vitrine pour exporter son savoir-faire.



Marché du stockage géologique

08/04/2016 - Nouvelle-Calédonie : des scories pour stocker le CO2 [\[source\]](#) Fixer le CO2 dans les scories produites par l'industrie du nickel : telle est l'idée du projet Carboscories, mené en partenariat avec plusieurs laboratoires scientifiques et deux industriels.

19/04/2016 – Quel prix fixer à la tonne de CO2 pour réduire les émissions du secteur électrique ? [\[source\]](#) Quel signal prix pourrait permettre de contribuer significativement à une baisse des émissions du secteur électrique européen ? Le gestionnaire du réseau de transport d'électricité français RTE s'est interrogé avec l'ADEME sur ce sujet dans une étude rendue publique hier. Conclusions.

19/05/2016 – Le laboratoire souterrain du mont Terri (JU) fête ses 20 ans [\[source\]](#) Le laboratoire souterrain du Mont Terri (JU), où sont menées des recherches pour le stockage des déchets radioactifs, a célébré ses 20 ans. Les travaux sur ce site joueront un rôle-clé dans le choix d'un futur dépôt géologique en Suisse.

14/06/2016 – Stocker le CO2 en le minéralisant : la démonstration islandaise [\[source\]](#) La revue américaine « Science » a publié la semaine dernière les résultats d'un projet pilote de minéralisation de CO2 par réaction avec du basalte en Islande. Cette technique nourrit beaucoup d'espoirs dans le cadre de la lutte contre le réchauffement climatique.

Techniques et technologies pour les géosciences

21/04/2016 - Qatargas introduces Waste Water Treatment plant to LNG facility [\[source\]](#) Qatargas has completed work on the region's first Waste Water Treatment plant using Membrane Bioreactor Technology.

01/04/2016 – Validating the effectiveness of chemical flooding [\[source\]](#) To reduce the upfront cost and time required to move a project from concept to implementation, a change of the paradigm must occur whereby the reservoir becomes the core flood/laboratory so that real-world results can be obtained at a fraction of the cost as compared to the conventional approach.

01/06/2016 – Self adjusting PDC bits could enable autonomous drilling systems [\[source\]](#) A new self-adjusting polycrystalline diamond compact (PDC) bit that can adjust its depth-of-cut (DOC) control characteristics to the constantly changing drilling environment marks a significant step toward autonomous drilling systems

31/05/2016 – Forecast for big data: Mostly cloudy [\[source\]](#) The growing deluge of geoscience data is in danger of maxing out the existing capacity to deliver that information to researchers.

LES PROJETS COLLABORATIFS

2016-2019 EU project SURE - Novel Productivity Enhancement Concept for a Sustainable Utilization of a Geothermal Resource - CTR HELMHOLTZ (GERMANY) et al - Within the project SURE (Novel Productivity Enhancement Concept for a Sustainable Utilization of a Geothermal Resource) the radial water jet drilling (RJD) technology will be investigated and tested as a method to increase inflow into insufficiently producing geothermal wells.

2016-2020 EU project HYDRA- Hydraulics modelling for drilling automation - ECOLE MINES PARIS (FRANCE); UNIV TECH EINDHOVEN (NETHERLANDS) et al - The HYDRA EID research and training program addresses the needs for advanced tools for virtual drilling scenario testing and drilling automation and for multidisciplinary employees with adequate technical and transferable skills.

2016-2020 EU project DESTRESS - Demonstration of soft stimulation treatments of geothermal reservoirs - CTR HELMHOLTZ (GERMANY); ES GEOTHERMIE (FRANCE); UNIV STRASBOURG (FRANCE) et al - DESTRESS is aimed at creating EGS (Enhanced geothermal systems) reservoirs with sufficient permeability, fracture orientation and spacing for economic use of underground heat. The concepts are based on experience in previous projects, on scientific progress and developments in other fields, mainly the oil and gas sector.

2016 - 2019 - EU project GEOWELL - Innovative materials and designs for long-life high-temperature geothermal well - BUREAU RECHERCHES GEOLOGIQUES MINIERES (FRANCE); ISLENSKAR ORKURANNSOKNIR (ICELAND) et al - New concepts for high-temperature geothermal well technologies are strongly needed to accelerate the development of geothermal resources for power generation in Europe and worldwide in a cost effective and environmentally friendly way. The objective of GeoWell is to develop reliable, cost effective and environmentally safe well completion & monitoring technologies.

2015 - 2019 - EU project DEEPEGS - DEPLOYMENT OF DEEP ENHANCED GEOTHERMAL SYSTEMS FOR SUSTAINABLE ENERGY BUSINESS - BUREAU RECHERCHES GEOLOGIQUES MINIERES (FRANCE); FONROCHE GEOTHERMIE (FRANCE); HS ORKA HF (ICELAND) et al - Our goal with the DEEPEGS project is to demonstrate the feasibility of enhanced geothermal systems (EGS). Testing of stimulating technologies for EGS in deep wells in different geologies, will deliver new innovative solutions and models for wider deployments of EGS reservoirs with sufficient permeability for delivering significant amounts of geothermal power across Europe.



AGENDA DU POLE AVENIA ET DE SES PARTENAIRES

Date	Événement	Lieu
5 juillet 2016	La veille technologique au service des filières énergétiques du sous-sol : réunion d'information + cocktail avec le POLE AVENIA , TKM & la CCI Pau-Béarn. Inscription gratuite et obligatoire ICI	Hélioparc Pau, 17h-19h
12 juillet 2016	Appels à projets européens (H2020 etc.) en cours & montage de projets européens : déjeuner d'information au POLE AVENIA	Hélioparc Pau, 12-14h
19-24 septembre 2016	Journées de la Géothermie 2016 (organisation AFPG) & European Geothermal Congress 2016 (organisation EGEC)	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
25-26 novembre 2016	2ème édition des 24H DE L'INNOVATION AU CENTRE DE LA TERRE	Pau

COMMUNICATION DU POLE AVENIA



GEOSTART, premier projet d'incubateur/pépinière d'entreprises dédié aux géosciences en France a été [inauguré le 6 juin 2016](#) en présence de Mr François Bayrou, maire de Pau. GEOSTART est un partenariat HELIOPARC/POLE AVENIA, il apporte une assistance pluridisciplinaire (marketing, finance, juridique, technologique et humaine) à la création de votre entreprise et facilite l'accès au marché via le réseau du POLE AVENIA et le tissu d'acteurs spécialisés dans le domaine des géosciences et des technologies supports implantés à proximité.

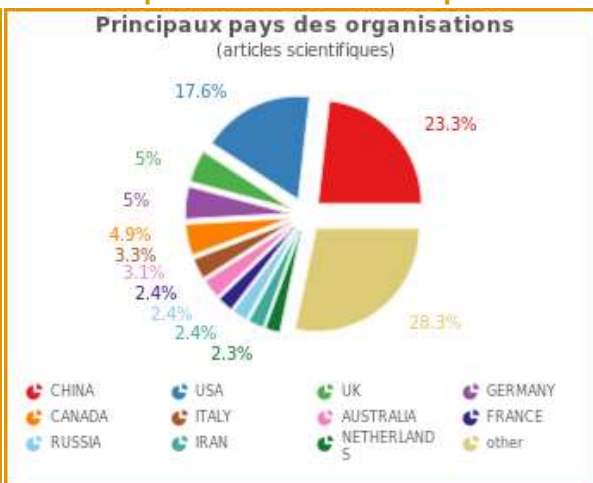
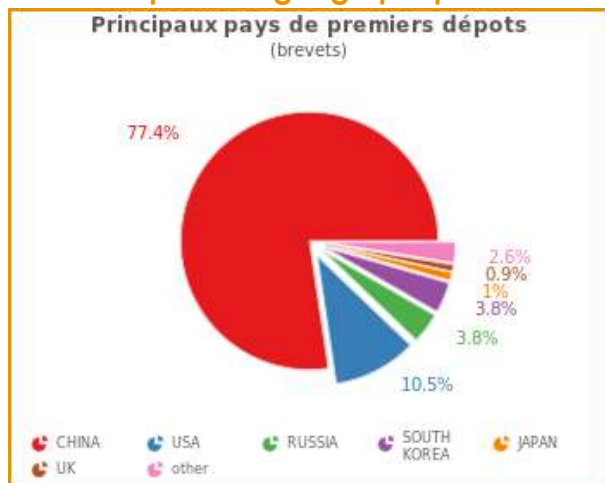


A l'initiative du POLE AVENIA et de l'UIMM Adour Atlantique (Union des Industries et des Métiers de la Métallurgie), la **plateforme THOMS** (Technology Hub for One Market Solution), inaugurée le 6 juin 2016, est l'outil de visibilité et de mutualisation commerciale incontournable des entreprises françaises des filières énergétiques du sous-sol. THOMS facilite la mise en relation entre vendeurs et donneurs d'ordre internationaux dans le but de générer du business. Conçue dans une optique de développement de business collaboratif, THOMS se veut une vitrine du savoir-faire industriel français et permettra aux entreprises de répondre à plusieurs à des appels d'offre qui leur sont difficilement accessibles en solo. Cliquer [ICI](#) pour accéder à la plateforme [THOMS](#).

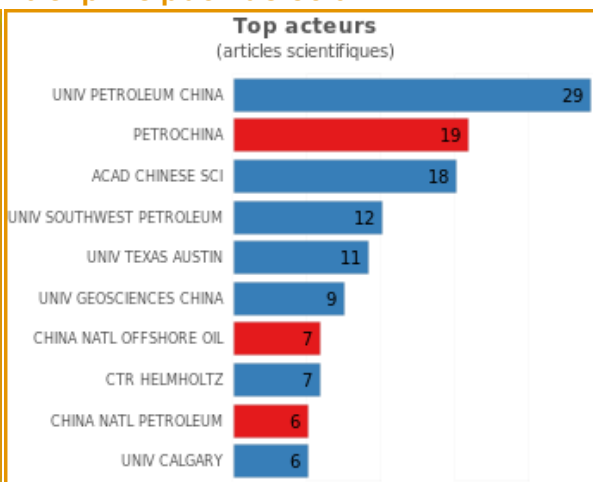
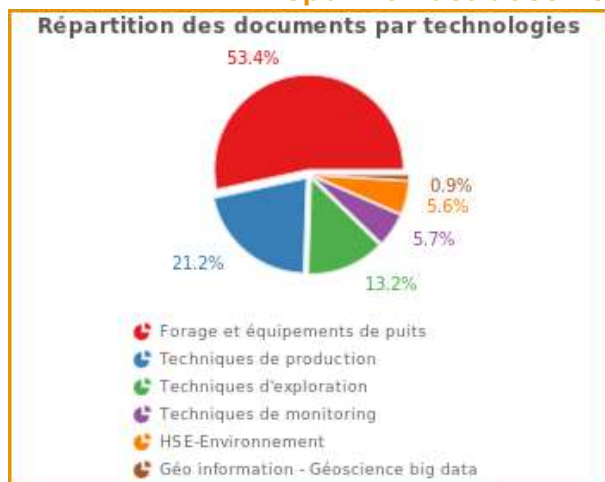


TABLEAUX DE BORD DE L'ACTIVITE SCIENTIFIQUE ET TECHNIQUE

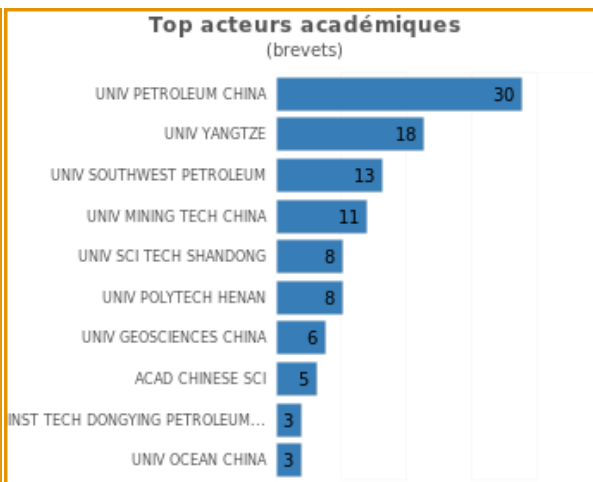
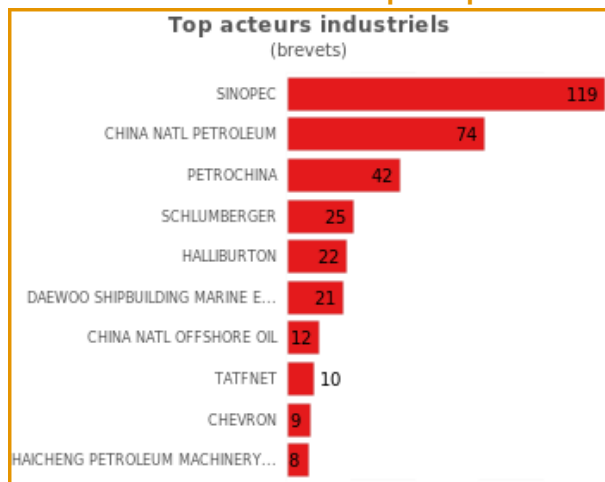
Répartition géographique des brevets et des publications scientifiques



Répartition des documents et principaux acteurs



Les principaux acteurs dans les brevets





LES BREVETS

Géo information - Géoscience big data

24/03/2016 - [US2016077231](#) DEVICE AND METHOD FOR DEBLENDING SIMULTANEOUS SHOOTING DATA USING ANNIHILATION FILTER - CGG (FRANCE) - A device, medium and method for deblending seismic data associated with a subsurface of the earth. The method includes receiving an input dataset generated by first and second sources S1 and S2 that are operating as simultaneous sources; arranging the input dataset based on the firing times of source S1; applying with a computing system an annihilation filter to the arranged input dataset to estimate cross-talk noise; convolving the cross-talk...

Techniques d'exploration

17/03/2016 - [WO16038453](#) AUV BASED SEISMIC ACQUISITION SYSTEM AND METHOD - CGG (FRANCE) - An autonomous underwater vehicle (AUV) for guiding other AUVs during a marine seismic survey. The guiding AUV (200) includes a housing (202); a propulsion system (903) located inside the housing (202); and an acoustic positioning system (204) attached to an outside the housing (202). The acoustic positioning system (204) emits at least three chirps from three different locations.

03/03/2016 - [US2016061027](#) ELECTROMAGNETIC TELEMETRY FOR MEASUREMENT AND LOGGING WHILE DRILLING AND MAGNETIC RANGING BETWEEN WELLBORES - PRAD RESEARCH DEVELOPMENT (UK); SCHLUMBERGER (NETHERLANDS) - A method for signal communication between a well drilling instrument and the Earth's surface includes generating an electromagnetic field in an instrument disposed in drill string used to drill a wellbore. The electromagnetic field includes encoded measurements from at least one sensor associated with the instrument. A signal corresponding to an amplitude of the electromagnetic field is measured and the measurements from the measured signal are...

17/03/2016 - [WO16040139](#) SEISMIC INVERSION CONSTRAINED BY REAL-TIME MEASUREMENTS - PRAD RESEARCH DEVELOPMENT (UK); SCHLUMBERGER (NETHERLANDS) - A method is provided for constraining a seismic inversion using real-time measurements. The method comprises: receiving a seismic signal/seismic data; obtaining logging-while-drilling (LWD) measurements made during a drilling procedure; using the LWD measurements to constrain an inversion of the seismic signal/data; and using the inverted seismic signal/data to: obtain an image of a subterranean section of the Earth, determine properties of the...

Forage et équipements de puits

10/03/2016 - [US2016069180](#) COMMUNICATION PROTOCOL IN DIRECTIONAL DRILLING SYSTEM, APPARATUS AND METHOD UTILIZING MULTI-BIT DATA SYMBOL TRANSMISSION - MERLIN TECH - A system includes a transmitter for use in conjunction with a horizontal directional drilling system that transmits a multi-bit symbol stream that characterizes sensor symbols for receipt by an aboveground portable device. The portable device receives the symbol stream for aboveground recovery of the sensor signals.

17/03/2016 - [WO16040062](#) BEHIND PIPE EVALUATION TECHNIQUES FOR WELL ABANDONMENT AND COMPLEX ANNULAR ENVIRONMENTS - HALLIBURTON (USA) - A method includes introducing a tool string into a wellbore having annular material disposed in an annulus defined between casing and the wellbore. Obtaining acoustic refracted waveform measurements of the annular material from a cement bond logging tool, obtaining ultrasonic measurements of the annular material from a circumferential acoustic scanning tool...

17/03/2016 - [WO16039748](#) ELECTRICITY GENERATION WITHIN A DOWNHOLE DRILLING MOTOR - HALLIBURTON (USA) - A progressing cavity-type drilling motor having an electrical generator disposed within the rotor of the drilling motor. In some embodiments, the electrical generator produces electrical energy from a flow of drilling fluid through a bore in the rotor. In other embodiments, the electrical generator produces electrical energy by harnessing the kinetic energy of the rotor as the drilling motor is used to drill into a formation.

17/03/2016 - [WO16040136](#) MULTI-SENSOR WORKFLOW FOR EVALUATION OF GAS FLOW IN MULTIPLE CASING STRINGS - HALLIBURTON (USA) - A distance of a gas flow path and a velocity of the gas flow therein are calculated using pulsed neutron data and noise data. The gas saturation and distance to flow path obtained from the pulsed neutron data and gas velocity and distance to flow path obtained from the noise data are compared with each other to obtain a first calculated distance and a first calculated velocity.



17/03/2016 - [WO16040272](#) SYSTEMS AND METHODS FOR WELL CONTROL DURING MANAGED PRESSURE DRILLING - UNIV TEXAS (USA) - A method for well control during managed pressure drilling includes detecting an influx in a wellbore, where the wellbore includes a drill string and an annulus. The method also includes calculating an initial size of the influx, determining a maximum surface pressure due to removal of the initial size of the influx, determining a maximum circulating pressure in the annulus due to the initial size of the influx, calculating an estimated...

24/03/2016 - [US2016083640](#) HEXADECENE SYNTHETIC DRILLING FLUID WITH IMPROVED ENVIRONMENTAL PROPERTIES - CHEVRON (USA) - The disclosure relates to drilling fluid compositions, and their method of use, comprising a C16 unbranched internal olefin, including blends of the C16 unbranched internal olefin and a C16 linear alpha olefin. The exemplary drilling fluids are characterized by properties, e.g., pour points and kinematic viscosities, that enable them to be particularly useful in deep water drilling operations and have reduced environmental impact, e.g.,...

Techniques de production

31/03/2016 - [WO16045682](#) METHOD FOR ELECTRICALLY ENHANCED OIL RECOVERY - ECP LICENS APS - A method of electrically enhancing oil-recovery from an underground oil-bearing reservoir (3), comprising: (a) selecting an underground rock formation (2) comprising an oil-bearing reservoir (3); (b) positioning two or more electrically conductive elements (4, 5) at two or more spaced apart locations in proximity to said formation (2, 3), at least one of said conductive elements (4, 5) being disposed in or adjacent to a bore hole affording...

31/03/2016 - [WO16048637](#) THERMALLY UNSTABLE AMMONIUM CARBOXYLATES FOR ENHANCED OIL RECOVERY - DOW GLOBAL TECHNOLOGIES (USA) - A process includes (a) injecting a steam composition into a subterranean location containing heavy hydrocarbons, preferably bitumen, wherein the steam composition comprises (i) steam and (ii) an ammonium carboxylate and (b) recovering the heavy hydrocarbon from the subterranean location to above the ground. The process is preferably cyclic steam stimulation (CSS) or steam assisted gravity drainage (SAGD)...

28/04/2016 - [WO16064568](#) SUSPENSIONS FOR ENHANCED HYDROCARBON RECOVERY, AND METHODS OF RECOVERING HYDROCARBONS USING THE SUSPENSIONS - BAKER HUGHES (USA) - Suspensions comprising polyhedral oligomeric silsesquioxane nanoparticles and at least one carrier fluid. The polyhedral oligomeric silsesquioxane may include functional groups and the suspension may further comprise carbon-based nanoparticles and silica nanoparticles. Methods of recovering hydrocarbons from a subterranean formation using the suspension are disclosed. The method comprises contacting hydrocarbons with the suspension to form an...

Techniques de monitoring

03/03/2016 - [US2016061991](#) GAS WELL INTEGRITY INSPECTION SYSTEM - GENERAL ELECTRIC (USA) - A well integrity inspection system configured to inspect a well structure including multiple concentric layers. The well integrity inspection system includes an inspection probe positioned in the well structure. The inspection probe includes a plurality of excitation assemblies for transmitting a plurality of radiation emissions into the well structure. The plurality of excitation assemblies includes at least a neutron excitation assembly and...

03/03/2016 - [WO16030412](#) DOWNHOLE WIRELESS TRANSFER SYSTEM - WELLTEC (NORWAY) - The present invention relates to a downhole wireless transfer system (1) for transferring signals and/or power, comprising a production casing (2) arranged in a borehole (3), defining an annulus (4) there between, the production casing having an inner face (5) and an outer face (6), a downhole tool (7) comprising a first ultrasonic transceiver (8), a second ultrasonic transceiver (9) connected to the outer face of the production casing, wherein...

HSE-Environnement

21/04/2016 - [WO16058961](#) TREATMENT OF PRODUCED WATER, PARTICULARLY OBTAINED FROM A CHEMICALLY ENHANCED OIL RECOVERY PROCESS USING VISCOSITY-INCREASING POLYMERS - SNF (FRANCE); VEOLIA WATER SOLUTIONS TECH (FRANCE) - The present invention is concerned with the treatment of produced water, that may be obtained from a chemically enhanced oil recovery process using viscosity-increasing polymeric compounds. Said treatment comprises particularly the steps of obtaining a produced water, such as from an oil-water mixture recovered from an oil-bearing formation, wherein the produced water comprises the viscosity-increasing polymeric compounds; and, of directing the...

24/03/2016 - [WO16044485](#) OIL EXTRACTION FROM DRILLING MUD AND CUTTINGS - OXR - Methods, processes and equipment for producing an oil product and environmentally friendly clean cuttings from an oil and gas drilling waste. The process involves a liquid-liquid extraction unit; feeding an extraction feed stream comprising drill cuttings and drilling mud to said liquid-liquid extraction unit which produces a miscella stream and a solids stream.



LES PUBLICATIONS SCIENTIFIQUES

Géo information - Géoscience big data

[The Internet of Geophysical Things: Raspberry Pi Enhanced REF TEK \(RaPIER\) System Integration and Evaluation](#) - **2016 - Seismological Research Letters** - UNIV BAYLOR (USA) - The proliferation of commercial Internet of Things (IoT) devices is raising consumers of awareness of the benefits of enhancing everyday objects with the ability to communicate, sense, and process information. Commercial-off-the-shelf (COTS) versions of the embedded technologies responsible for the rise of the IoT are easy-to-use, inexpensive, and relatively powerful.

[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

[Very high geothermal gradient during mantle exhumation recorded in mylonitic marbles and carbonate breccias from a Mesozoic Pyrenean palaeomargin \(Lherz area, North Pyrenean Zone, France\)](#) - **2016 - Comptes Rendus - Geoscience** - BRGM (FRANCE); CNRS MONTPELLIER (FRANCE); CNRS ORLEANS (FRANCE); CNRS RENNES (FRANCE); INST SCIENCES TERRE PARIS (FRANCE); UNIV MONTPELLIER (FRANCE); UNIV RENNES 1 (FRANCE) - Although they are famous among Earth scientists, the Lherz peridotites are exposed within geological formations of the North Pyrenean Zone (NPZ) still lacking detailed investigations. Our study focuses on the metasediments of the Aulus basin hosting the Lherz peridotite body and associated ultramafic fragments of smaller size. The new data set comprises of structural analysis and detailed geological mapping of the massive Mesozoic marbles that...

[Marine broadband technology: History and remaining challenges from an end-user perspective](#) - **2016 - Leading Edge** - EXXONMOBIL (USA) - Broadband marine seismic data is evolving as the new standard in petroleum geoscience. Much of the dialogue to date has been focused on the seismic acquisition systems and deghosting aspects of this technology. The first requirement of any broadband project should be to 'do not harm.' This is especially true in the acquisition arena, since the penalty for deficient data is significant. A reasonable objective would be to demonstrate equal, or...

[Rigorous Analysis of Available Data from Cerro Prieto and Las Tres Virgenes Geothermal Fields with Calculations for Expanded Electricity Generation](#) - **2016 - Natural Resources Research** - IAP (MEXICO); UNIV NATL AUTONOMA MEXICO (MEXICO) - Changes in legislation have opened the Mexican geothermal resources for exploitation to private companies; therefore the evaluation of the known geothermal areas has a high priority to plan further exploitation and possibly the expansion of the well fields. The calculation of the remaining productivity of geothermal fields currently in exploitation can be achieved with less uncertainty using the parameters obtained from production and injection...

Forage et équipements de puits

[The effect of drilling fluid and temperature on the cement/rock interaction in wells](#) - **2016 - Advances in Cement Research** - DEPT ADVANCED MATERIALS (NEW ZEALAND); UNIV VICTORY WELLINGTON (NEW ZEALAND) - While most wells are cemented with American Petroleum Institute (API) class cements, alternative cementing systems are currently being considered. In this paper, the interactions of two alternative cement formulations with a typical geothermal rock formation are...

[To drill or not to drill? An econometric analysis of US public opinion](#) - **2016 - Energy Policy** - INST TECH INDIAN KANPUR (INDIA) - Offshore drilling in the United States (US) has been the subject of public and political discourse due to multiple reasons which include economic impact, energy security, and environmental hazard. Consequently, several polls have been conducted over time to gauge public attitude towards offshore drilling. Nevertheless, the economic literature on this issue is sparse. This paper analyzes support for offshore...



[Efficiency of radial drilling and acidizing technologies in carbonate reservoirs of Perm Region](#) - 2016 - **Neftyanoe Khozyaystvo - Oil Industry** - PERM (RUSSIA); PERMNIPINEFT BRANCH LUKOIL ENGINEERING PERM (RUSSIA) - This article focuses on experience of radial drilling and acidizing technologies in similar geological and hydrodynamic conditions. Main advantages of radial drilling are shown in analysis of oil production rate and productivity index.

[Real time prediction of suspended solids in drilling fluids](#) - 2016 - **Journal of Natural Gas Science and Engineering** - PETROBRAS (BRAZIL); UNIV RURAL FED RIO JANEIRO (BRAZIL) - Drilling operations require the usage of drilling fluids to perform not only cleaning and cooling functions, but also to control the hydraulic pressure inside the oil well. Monitoring the quantity of solids suspended in such fluid is important because it is related to density and apparent viscosity. Both physicochemical data influence the determination of the frictional pressure loss in annuli...

[A generalized rheological model for drilling fluids with cubic splines](#) - 2016 - **SPE Drilling and Completion** - SCHOOL COLORADO MINES (USA) - In drilling-fluid rheological characterization and hydraulics modeling, selecting a proper rheological model and obtaining rheological parameters with viscometers are critically important. Bingham plastic, power law, and yield power law are the most commonly used standard models for drilling-fluid rheology because they are mathematically simple to use...

Techniques de production

[Preliminary numerical modelling of CO₂ gas foaming in heavy oil and simulations of oil production from heavy oil reservoirs](#) - 2016 - **Canadian Journal of Chemical Engineering** - CTR RESEARCH (JAPAN); JAPAN PETROLEUM EXPLORATION (JAPAN); UNIV KYUSHU (JAPAN) - Basic understanding of numerical modelling for the effects of CO₂ foaming on heavy oil production behaviour using the huff-and-puff process is relevant for CO₂-EOR performance. The numerical model was constructed based on laboratory measurements: CO₂ solubility, foam swelling, and apparent viscosity.

[A comprehensive review of low salinity/engineered water injections and their applications in sandstone and carbonate rocks](#) - 2016 - **Journal of Petroleum Science and Engineering** - INST PETROLEUM (UNITED ARAB EMIRATES); UNIV TEXAS AUSTIN (USA) - The low salinity/engineered water injection techniques (LSWI/EWI) have become one of the most important research topics in the oil industry because of their possible advantages for improving oil recovery compared to conventional seawater injection.

[Thermodynamic analysis of enhanced geothermal systems using impure CO₂ as the geofluid](#) - 2016 - **Applied Thermal Engineering** - LAB BEIJING KEY FOR CO₂ UTILIZATION REDUCTION TECH (CHINA); LAB KEY FOR THERMAL SCIENCE POWER ENGINEERING (CHINA); UNIV TSINGHUA (CHINA) - Numerical simulations have indicated that pure CO₂ is superior to water for wellbore hydraulics and for recovering heat from hot fractured rock.

[Thermal Drawdown-Induced Flow Channeling in Fractured Geothermal Reservoirs](#) - 2016 - **Rock Mechanics and Rock Engineering** - LAB NATL LAWRENCE LIVERMORE (USA) - We investigate the flow-channeling phenomenon caused by thermal drawdown in fractured geothermal reservoirs. A discrete fracture network-based, fully coupled thermal-hydrological-mechanical simulator is used to study the interactions between fluid flow, temperature change, and the associated rock deformation.

[Stabilization of Forced Heat Convection: Applications to Enhanced Geothermal Systems \(EGS\)](#) - 2016 - **Transport in Porous Media** - UNIV CALGARY (CANADA); UNIV GRENOBLE (FRANCE) - The natural permeability of geothermal reservoirs is low and needs to be enhanced to ensure an efficient use and economic viability. Next to chemical enhancement, the main technique used for that purpose is hydraulic fracturing. Here, hydraulic fracturing is introduced in a thermo-poroelastic framework.

[Wettability, hysteresis and fracture-matrix interaction during CO₂ EOR and storage in fractured carbonate reservoirs](#) - 2016 - **International Journal of Greenhouse Gas Control** - UNIV HERIOT WATT EDINBURGH (UK) - Relative permeabilities show significant dependence on the saturation path during CO₂ enhanced oil recovery (EOR) and storage. This dependence (or hysteresis) is particularly important for water-alternating-gas (WAG) injection, a successful CO₂ EOR and storage method for clastic and carbonate reservoirs.

[Injection of biosurfactant and chemical surfactant following hot water injection to enhance heavy oil recovery](#) - 2016 - **Petroleum Science** - UNIV SULTAN QABOOS (OMAN) - This study investigates the potential of enhancing oil recovery from a Middle East heavy oil field via hot water injection followed by injection of a chemical surfactant and/or a biosurfactant produced by a *Bacillus subtilis* strain which was isolated from oil-contaminated soil.



Techniques de monitoring

[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...

[Review on geophysical monitoring of CO2 injection at Ketzin, Germany](#) - 2016 - **Journal of Petroleum Science and Engineering** - CTR HELMHOLTZ (GERMANY); INST GEOPHYSICS (CHINA); SINTEF (NORWAY); TNO (NETHERLANDS); UNIV JILIN (CHINA); UNIV UPPSALA (SWEDEN) - Geophysical monitoring activities were an important component of the CO2 injection program at the Ketzin site, Germany. Here we report on the seismic and electrical resistivity tomography (ERT) measurements performed during the period of the site development and CO2 injection.

[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.

[Influence of fluid displacement patterns on seismic velocity during supercritical CO2 injection: Simulation study for evaluation of the relationship between seismic velocity and CO2 saturation](#) - 2016 - **International Journal of Greenhouse Gas Control** - SCHLUMBERGER (JAPAN); UNIV KYOTO (JAPAN); UNIV KYUSHU (JAPAN) - Monitoring of injected subsurface carbon dioxide (CO2) is essential for safe CO2 capture and storage. Quantitative monitoring requires knowledge of the relationship between CO2 saturation and P-wave velocity (VP). VP response to CO2 saturation is not unique and depends on the CO2 distribution within rock pores. This study evaluated the influence of CO2 distributions on VP-CO2 saturation relationships. We conducted two computational studies with...

HSE-Environnement

[Treatment of sulphur-containing produced water for re-injection in Yanchang oilfield](#) - 2016 - **Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/Journal of Xi'an Shiyou University, Natural Sciences Edition** - CHINA NATL PETROLEUM (CHINA); UNIV SOUTHWEST PETROLEUM (CHINA) - Oily sewage from Qilicun block of Yanchang Oilfield contains large amounts of S²⁻, SO₄²⁻, HCO₃⁻ and SRB. The laboratory static corrosion coupon experiments and the XRD analysis results of the scale samples from the corroded water injection pipeline show that the corrosion of the water injection pipeline is mainly local corrosion caused by high sulfur content. Corrosion inhibitor Xasy-201 and bactericides FW-BT01 and FW-BT02 are screened...

[Interfacially Active Hydroxylated Soybean Lecithin Dispersant for Crude Oil Spill Remediation](#) - 2016 - **ACS Sustainable Chemistry and Engineering** - UNIV GHANA (GHANA); UNIV OSMANIYE KORKUT ATA (TURKEY); UNIV SULEYMAN DEMIREL (TURKEY); UNIV VIRGINIA COMMONWEALTH (USA) - Chemical dispersant application is one of the universally accepted oil spill response options. However, some concerns regarding the toxicity of chemical dispersants have been raised. The toxicity of the chemical dispersant can be reduced by using environmentally benign and biodegradable surfactants and water in their formulation. In this work, we have examined the ability of dispersants formulated with hydroxylated soybean lecithin solubilized...

[Risk-based safety analysis of well integrity operations](#) - 2016 - **Safety Science** - UNIV DELFT TECH (NETHERLANDS); UNIV MEMORIAL NEWFOUNDLAND (CANADA) - Assurance of well integrity is critical and important in all stages of operation of oil and gas reservoirs. In this study, well integrity is modeled during casing and cementing operations. Two different approaches are adapted to model potential failure scenarios. The first approach analyzes failure scenarios using bow-tie model which offers a better visual representation of the logical relationships...