



BULLETIN DE VEILLE GEOSCOPIE n°47 – Février 2017

Edito

Chers lecteurs, adhérents, membres et partenaires,

Ce premier bulletin est pour nous l'occasion de formuler ces vœux de retour à la prospérité et au développement. Toute l'équipe du POLE AVENIA se joint à moi pour vous présenter, à titre plus personnel, ses meilleurs vœux de bonheur et d'accomplissement pour 2017.

Notre programme d'actions 2017 sera centré sur la consolidation des filières de la « valorisation durable des ressources du sous-sol profond » par :

- La prise en compte de la transition énergétique et des objectifs de la COP21,
- Le soutien à l'emploi par le développement commercial collaboratif et les projets innovants,
- La valorisation de l'expertise française à l'export,
- Le développement de partenariats et de synergies entre pôles de compétitivité, clusters et associations.

Jean-Louis OLIVET et toute l'équipe du POLE AVENIA

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ACTUALITÉS

Les Géosciences en France

07/02/2017 - Early exploration work starts on geothermal project in the Auvergne region, France [\[source\]](#)

Two companies planning geothermal development in the Auvergne region in Southern France are now starting early exploration work. Electerre de France and Fonroche Geothermal, are launching an ultrasound scan of Limagne, in the Puy-de-Dôme area, in the hope of finding geothermal resources. There are strong indications for geothermal resources to be found. From mid-February, residents of the Riom area (Puy-de-Dôme) will see a very strange convoy...

07/02/2017 - EGEN announces 5 shortlisted firms for European Geothermal Innovation Award 2017 [\[source\]](#)

The European Geothermal Energy Council (EGEC) has announced the five endorsed nominations for this year's European Geothermal Innovation Award. The companies, in alphabetical order, are: enOware GmbH (Germany), for the measurement systems to plan, monitor and measure near-surface geothermal probes; HakaGerodur AG (Switzerland), for the pressure-resistant borehole heat exchanger (BHE) for difficult geological conditions and applications up to...

07/02/2017 - L'Assemblée nationale entérine l'interdiction des gaz de schiste [\[source\]](#)

L'Assemblée nationale a entériné mercredi l'interdiction des gaz de schiste, en achevant l'examen en première lecture du projet de réforme du code minier, mais des députés y ont vu un simple "effet d'annonce" en raison du calendrier parlementaire.

Marché de la géothermie

07/02/2017 - Overview on installed geothermal power generation capacity worldwide [\[source\]](#)

On popular request, we are herewith publishing our overview on all the countries with installed geothermal power generation capacity. Today, there are 13,270 MW installed power generation capacity installed worldwide in 24 countries world-wide. With projects underway, the number could increase to 51, with an additional 14,165 MW to be installed. With official statistics on the Global Geothermal Power Market provided by the International...

07/02/2017 - French ENGIE/ Storengy moving ahead on its first geothermal project in Indonesia [\[source\]](#)

With the announcement of a financing package of up to \$440 million signed earlier this week, a new large

scale geothermal project is kicking off in Indonesia raising hopes that development of geothermal projects are now finally picking up speed. French ENGIE (formerly GDF Suez) through its subsidiary Storengy, sees itself as having all the drilling and underground expertise to manage such project. With construction expected to commence this...

07/02/2017 - DOE Investing \$11.5 Million to Advance Geologic Carbon Storage and Geothermal Exploration [\[source\]](#)

The U.S. Department of Energy (DOE) has announced the selection of eight new research and development projects to receive a total of \$11.5 million in federal funding under DOE's Subsurface Technology and Engineering Research, Development, and Demonstration Crosscut initiative.

07/02/2017 - EGEN announces 5 shortlisted firms for European Geothermal Innovation Award 2017 [\[source\]](#)

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07/02/2017 - 35 MW Platanares geothermal plant in Honduras to start operation in 2017 [\[source\]](#)

As reported from Honduras this week, the construction for the Platanares geothermal power plant in Honduras has reached an advanced stage. This was announced by the advisor to the Honduran Council of Private Enterprise (COHEP), Solomon Ordonez, and as reported by Honduran newspaper La Tribuna. The Platanares geothermal power plant will be the country's first geothermal plant and is expected to start operation in 2017. The \$200 million...

07/02/2017 - U.S. State Department highlighting geothermal business opportunities in Mexico [\[source\]](#)

In a recent report on business opportunities for American companies, in a publication called "Overseas Business Insights" of January 27, 2017, the U.S. State Department describes Mexico's geothermal potential. Today, Mexico ranks no. 4 in terms of geothermal resources, according to the report, behind the U.S., the Philippines and Indonesia. The country is today the sixth largest geothermal operator with an installed geothermal power...



Marché du stockage géologique

03/01/2017 – Quand le stockage de CO2 s'associe à la géothermie [\[source\]](#)

Le BRGM met actuellement au point une technologie couplant le captage du CO2 provenant de fumées industrielles avec la géothermie. Ces stockages de petite taille, localisés près des sources d'émission, permettent de récupérer la chaleur de l'aquifère.

07/02/2017 - DOE Investing \$11.5 Million to Advance Geologic Carbon Storage and Geothermal Exploration [\[source\]](#)

The U.S. Department of Energy (DOE) has announced the selection of eight new research and development projects to receive a total of \$11.5 million in federal funding under DOE's Subsurface Technology and Engineering Research, Development, and Demonstration Crosscut initiative.

Techniques et technologies pour les géosciences

07/02/2017 - Supercritical heat, high pressure – IDDP successfully concludes drilling campaign [\[source\]](#)

At an information meeting today, the companies involved in the Iceland Deep Drilling Project no. 2 presented findings of the drilling campaign that was successfully completed in mid-January. The significant milestone was reached when drilling was concluded at 4,650 meters depth. According to the release by HS Orka, all of the initial targets were reached. These targets were to drill deep, extract drilling cores, measure the temperature and...

Nouvelles des membres du pôle

27/01/2017 – TOTAL va consacrer 10% de sa R&D à la capture et au stockage du carbone [\[source\]](#)

Total annonce vouloir mettre l'accent sur la capture et le stockage du CO2. Une technologie qui peine à émerger en raison de la faiblesse du prix du CO2...

03/02/2017 – VALLOUREC va fournir des tubes pour un projet de géothermie alsacien [\[source\]](#)

Vallourec va fournir des tubes OCTG destinés à l'exploration d'un projet de puits de géothermie non conventionnelle, sur le site de l'ancienne raffinerie de Reichtet et sur le site d'Eckbolsheim en Alsace. Il s'agit d'un projet de 2 à 4 puits pour 1700 à 3400 tonnes de tubes et de connexion semi-premium et premium.

30/01/2017 – Signature d'un accord de partenariat entre ENGIE, via sa filiale Storengy et l'ENSEGID-Bordeaux INP [\[source\]](#)

Cet accord pose les bases d'une nouvelle collaboration pour des projets novateurs de géothermie et stockages saisonniers d'énergie entre Storengy et l'ENSEGID.

30/01/2017 – Les portes du Pyla, un écoquartier d'exception [\[source\]](#)

Villes en mue. Située dans le bassin d'Arcachon, la petite commune de La Teste-de-Buch développe un projet respectueux de l'environnement. Les logements seront chauffés grâce à la réutilisation des eaux chaudes de production des puits de pétrole de VERMILION.

28/01/2017 – TOTAL prépare le terrain pour les énergies du futur [\[source\]](#)

Chaque année, la compagnie pétrolière consacre plus d'un milliard d'euros à ses travaux de recherche et développement. Dans le cadre de sa réorganisation, elle privilégie une approche plus transverse et y a inclus un volet plus prospectif.



AGENDA DU POLE AVENIA ET DE SES PARTENAIRES

Date	Évènements	Lieu
16 mars 2017	CLUB GEOSCIENCES 2017 : transfert de technologies entre les filières du sous-sol : E&P, géothermie, stockage géologique, mines. Programme disponible sur www.pole-avenia.com	PAU
4 & 6 avril 2017	Subsea Valley Conference	OSLO
6-9 mai 2017	IRAN OIL SHOW : Comme RACE et EVOLEN, le POLE AVENIA est partenaire de BUSINESS France sur cette opération	TEHERAN
12-15 Juin 2017	79TH EAGE conference & Exhibition PARIS 2017	PARIS
26 juin 2017	Assemblée Générale du POLE AVENIA – FOCUS ADHERENTS	PAU
27 Juin 2017	RENDEZ VOUS GEOSCIENCES : « international B to B event » Invité d'honneur : IRAN Présentation du marché, des secteurs et projets par les Iraniens Intervention de BUSINESS France pour illustrer les coopérations/collaborations Rendez-vous B to B	PAU

Communication du POLE AVENIA



Club Géosciences 2017 : le jeudi 16 mars prochain, le POLE AVENIA organise l'édition 2017 du **CLUB GEOSCIENCES** à l'Université de Pau et des Pays de l'Adour. Cette manifestation ouverte à tous les acteurs des domaines liés aux géosciences (Pétrole & Gaz, Stockage géologique, Géothermie, Mines & Carrières), permet d'**augmenter leur capacité d'innovation en intégrant des technologies d'autres « mondes »** et de **favoriser la mise en relation entre les participants**.

Cette année, le thème concerne : « **les transferts de technologies entre les filières du sous-sol, à la recherche de techniques alternatives et de coûts optimisés** ».



IRAN OIL SHOW : pour la troisième édition, BUSINESS FRANCE organise le Pavillon France à l'IRAN OIL SHOW qui se tiendra du 6 au 9 mai 2017 à TÉHÉRAN. Dans le cadre de cet événement, BUSINESS FRANCE propose de mettre à disposition un stand à 5 adhérents du POLE AVENIA. Si vous êtes intéressés, merci de bien vouloir vous manifester auprès du pôle. Plus d'informations en cliquant [>>ici<<](#)

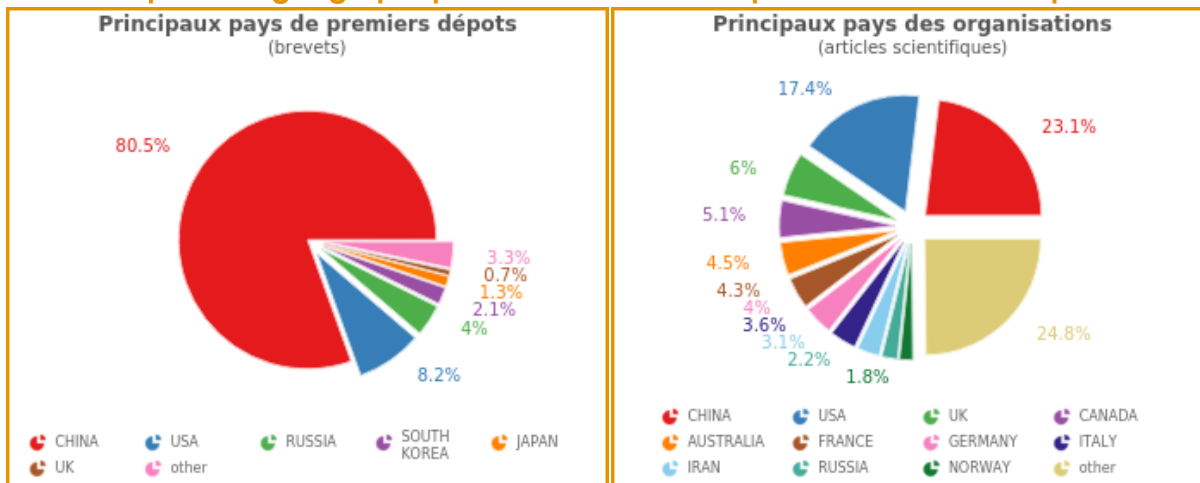


LES RENDEZ-VOUS GEOSCIENCES 2017 : rencontre annuelle incontournable des acteurs des domaines des géosciences, de l'énergie et de l'environnement, cette journée BtoB permet aux acteurs présents d'échanger sur leurs compétences et leurs besoins pour développer des coopérations. L'édition 2017 aura lieu le 27 juin prochain, au Palais Beaumont, où le pays d'honneur sera l'Iran.

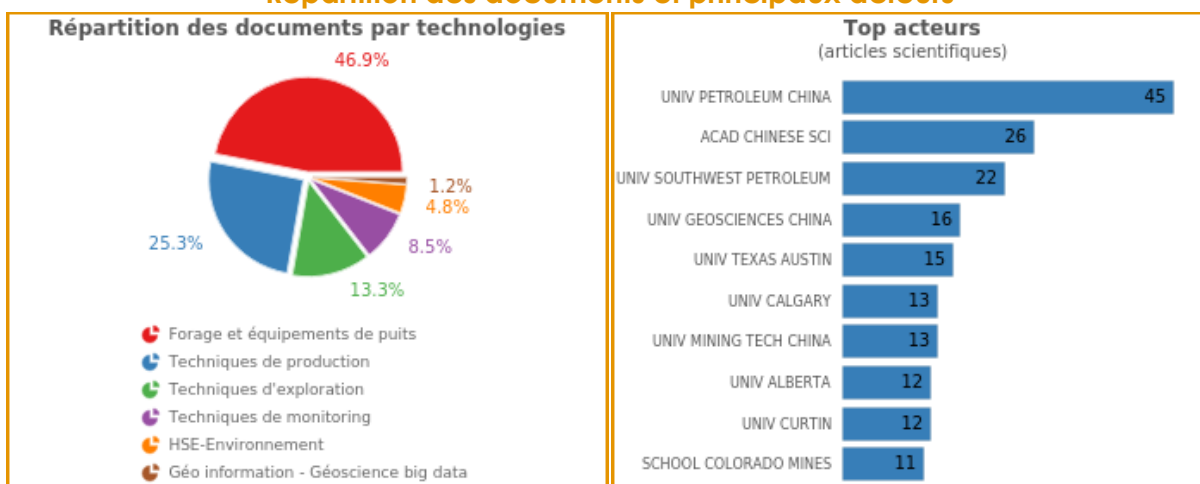


TABLEAUX DE BORD DE L'ACTIVITE SCIENTIFIQUE ET TECHNIQUE

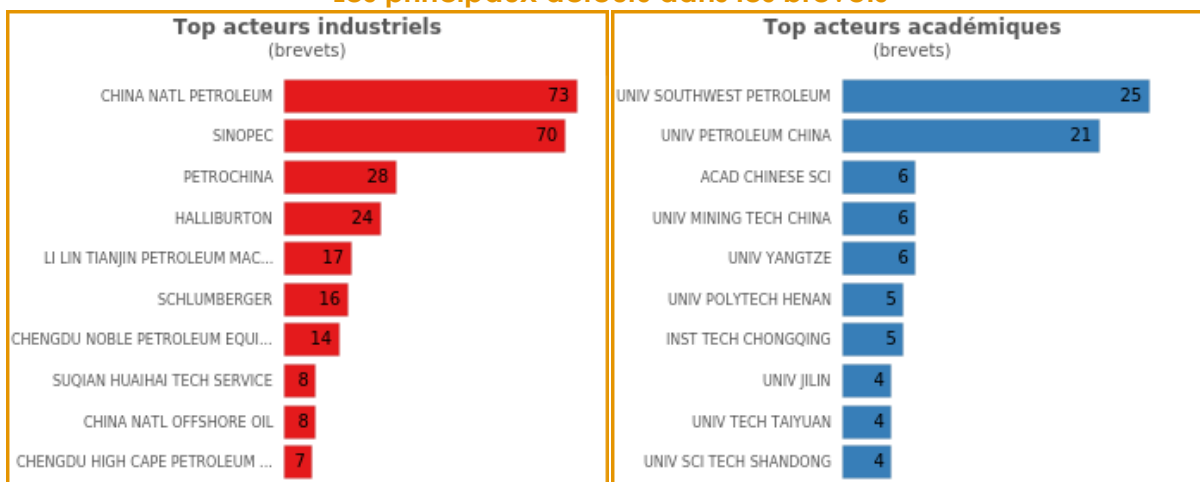
Répartition géographique des brevets et des publications scientifiques



Répartition des documents et principaux acteurs



Les principaux acteurs dans les brevets





LES BREVETS

Géo information - Géosciences big data

24/11/2016 - [US2016341015](#) PARALLEL SOLUTION FOR FULLY-COUPLED FULLY-IMPLICIT WELLBORE MODELING IN RESERVOIR SIMULATION - ARAMCO SERVICES (USA); SAUDI ARAMCO (SAUDI ARABIA) - (Source: US2016341015A) Computer processing time and results are improved in fully-coupled fully-implicit well-reservoir simulation system using Jacobian matrix methodology. Approximate inverse preconditioners are provided which treat a well influence matrix at comparable accuracy and robustness to those for the grid-to-grid flow terms of system matrix. The methodology is highly parallelizable and the data processing can be performed faster, as...

10/11/2016 - [US2016327671](#) PROCESSING HEXAGONALLY SAMPLED SEISMIC DATA - UNIV KING FAHD PETROLEUM MINERALS (SAUDI ARABIA) - (Source: US2016327671A) Aspects of the disclosure provide a method for processing three-dimensional (3D) hexagonally sampled seismic data. The method can include receiving 3D hexagonally sampled seismic data represented using 3D spiral architecture (SA).

Techniques d'exploration

22/12/2016 - [KR101688871](#) APPARATUS AND METHOD FOR ANALYSIS OF GEOPHYSICAL LOGGING DATA USING GAMMA RAYS - INST KOREA GEOSCIENCE MINERAL RESOURCES (SOUTH KOREA) - (Source: WO17007242A1) The present invention relates to an apparatus and a method for analyzing geophysical logging data using gamma rays, so as to predict lithofacies of strata by analyzing geophysical logging data, for lithofacies across a wide area, on the basis of data analyzed using gamma rays. The present invention comprises: a gamma-ray emission unit for emitting gamma rays by the nuclear transition of atomic nuclei; a gamma-ray...

08/12/2016 - [WO16193825](#) CALIBRATION METHOD, SYSTEM AND CONTROLLER FOR A MULTI-LEVEL SOURCE - CGG (FRANCE) - (Source: WO16193825A1) A multi-level marine seismic source is calibrated by firing a subset of the individual sources, acquiring calibration data using near-field receivers and a distant seismic receiver, and processing the calibration data to infer at least one actual depth related to the fired sources and/or a sea-surface reflection coefficient.

24/11/2016 - [WO16187239](#) METHOD FOR ANALYZING CEMENT INTEGRITY IN CASED WELLS USING SONIC LOGGING - SCHLUMBERGER (FRANCE) - (Source: WO16187240A1) Methods are provided for identifying a cementation status of a multi-string cased wellbore utilizing sonic tools with monopole and/or dipole transmitters and with an array of sonic receivers axially displaced from the transmitter(s). The sonic tool is used to record waveforms. The waveforms are then processed to generate slowness and/or attenuation dispersions. The slowness and/or attenuation dispersions are projected...

10/11/2016 - [US2016326865](#) USE OF NATURAL LOW-LEVEL RADIOACTIVITY OF RAW MATERIALS TO EVALUATE GRAVEL PACK AND CEMENT PLACEMENT IN WELLS - CARBO CERAM - (Source: US2016326865A) Methods for logging a well utilizing natural radioactivity originating from clay based particulates are disclosed. The methods can include utilizing a gravel pack slurry containing a liquid and gravel pack particles to hydraulically place the particles into a gravel pack zone of a borehole penetrating a subterranean formation and obtaining a post gravel pack data set by lowering into the borehole traversing the...

10/11/2016 - [US2016327679](#) PULSED CHEMICAL NEUTRON SOURCE - HALLIBURON ENERGY SERVICE - (Source: US2016327679A) Various embodiments include systems and methods to provide a pulsed chemical neutron source. The pulsed chemical neutron source can be used in well logging applications. Apparatus can be arranged to generate neutrons from a chemical neutron emitter and to pass the neutrons through an aperture of a neutron shield when the chemical neutron emitter aligns with the aperture such that the neutrons are substantially blocked by...

Forages et équipements de puits

30/12/2016 - [FR3037968](#) POLYOLEFINS USED AS SPECIAL FLUID - TOTAL (FRANCE) - (Source: WO17001487A1) The invention relates to the use, as a special fluid, of at least one oil having a kinematic viscosity at 100 degrees C, measured by the ASTM D445 standard, of between 0.5 and 2.5 mm².s⁻¹, comprising more than 50 percent by weight



of a 9-methylnonadecane 1-decene dimer. Also disclosed is a composition comprising 9-methylnonadecane and at least another special fluid, and its use in a product or in a composition selected...

29/12/2016 - [US2016376887](#) METHOD FOR DETERMINING PORE PRESSURE IN OIL AND GAS WELLS USING BASIN THERMAL CHARACTERISTICS - UNIV LOUISIANA LAFAYETTE (USA) - (Source: US2016376887A) This inventive method provides a novel way of modeling basins in planning the drilling of crude oil and natural gas wells by accounting for thermodynamic considerations in tracking the pore pressure of a location of interest. By plotting the energy gradients, heat flux, and thermal conductivity of the location of interest, the user can more accurately identify the location of the Top of Geopressure and additional...

15/12/2016 - [WO16200766](#) OFFLINE SYNCHRONIZATION OF MWD/LWD LOGS - SCHLUMBERGER (FRANCE) - (Source: WO16200766A1) A method for synchronizing downhole measurement data with a surface clock includes acquiring MWD/LWD data with a downhole tool and then processing the MWD/LWD measurements to obtain telemetry bits. The telemetry bits are transmitted to the surface and stored in downhole memory. The transmitted bits are received at a surface location and time stamped using a time obtained from a surface clock. Upon removing the drill...

21/12/2016 - [EP3106605](#) REDRESSING METHOD AND REDRESSED COMPLETION SYSTEM - WELLTEC (NORWAY) - (Source: US2016369603A) A redressing method for arranging an inner production casing within an existing production casing in order to re-establish production of hydrocarbon-containing fluid in a well, comprises providing the inner production casing to having a substantially constant inner diameter, the inner production casing comprising spaced first and second annular barriers. Each annular barrier has a tubular metal part and an expandable...

08/12/2016 - [WO16196253](#) LEAK DETECTION SYSTEM FOR WELL ABANDONMENT - SHELL (NETHERLANDS) - (Source: WO16196253A1) A leak detection system comprising: a well comprising a wellbore and a wellhead; a trace gas emitter disposed within the wellbore; and a trace gas detector at the wellhead and associated methods.

27/11/2016 - [CA2931556](#) ELECTROMAGNETIC TELEMETRY SYSTEM WITH COMPENSATION FOR DRILLING FLUID CHARACTERISTICS - EVOLUTION ENG; GROOVEO - (Source: US2016348499A) A downhole apparatus for measuring drilling fluid characteristics. The downhole apparatus may comprise one or more sensors located within a housing. The sensors may include one or more of an imaging device, a resistivity/conductivity sensor, a temperature sensor, a pressure sensor, a flowmeter and a fluid density sensor. The downhole apparatus may also include a controller for receiving measurements and/or determining...

24/11/2016 - [WO16186612](#) CEMENT PLUG TRACKING WITH FIBER OPTICS - HALLIBURTON (USA) - (Source: WO16186612A1) A system can include a cementing tool positionable within a casing string of a wellbore. A receiver that is positionable at the surface of the wellbore can receive an optical signal. A locator coupled to the cementing tool can generate an electrical signal in response to detecting a change in a surrounding magnetic field. A light source can generate an optical signal. A fiber optic cable can transmit the optical signal...

24/11/2016 - [WO16187242](#) METHOD FOR ANALYZING CEMENT INTEGRITY IN CASING STRINGS USING MACHINE LEARNING - SCHLUMBERGER (FRANCE) - (Source: WO16187242A1) The present disclosure provides methods and systems for analyzing cement integrity in a depth interval of a wellbore having a multiple string casing with an innermost annulus disposed inside at least one outer annulus. The method includes processing ultrasonic data obtained from ultrasonic measurements on the interval of the wellbore to determine properties of the innermost annulus. The method also includes processing...

10/11/2016 - [WO16178906](#) METHODS FOR STRENGTHENING PERLITE MICROSPHERES, AND FLUIDS AND CEMENTS INCLUDING STRENGTHENED PERLITE MICROSPHERES - IMERYS FILTRATION MINERALS - (Source: WO16178906A1) A method for strengthening perlite microspheres may include providing a plurality of perlite microspheres, and heating the plurality of perlite microspheres at a temperature of at least about 800 degrees centigrade for at least about five minutes to form strengthened perlite microspheres. A composition may include the strengthened perlite microspheres formed from the above-noted method. At least one of a drilling fluid...

Techniques de production

23/12/2016 - [FR3037595](#) ETHOXYLATED DESORBING AGENTS FOR ENHANCED OIL RECOVERY - IFP ENERGIES NOW; RHODIA (FRANCE) - (Source: WO16202975A1) The invention relates to the use of at least one compound having the following formula: R-O-(CH₂-CH(CH₃)-O)_m-(CH₂-CH₂-O)_n-H, where: R is a hydrocarbon group including 6 to 40



carbon atoms, m is a number from 0 to 20, and n is a number higher than 20, for inhibiting the phenomena of retention of anionic surfactants inside an oil reservoir, in particular inside a carbonated or argillaceous reservoir.

01/11/2016 - [TW201638294](#) CO-SURFACTANT FOAM-FORMING COMPOSITION FOR ENHANCED OIL RECOVERY - DOW GLOBAL TECHNOLOGIES (USA); ROHM HAAS (USA) - (Source: WO16176385A1) The present invention includes a foam-forming composition for use in enhanced oil recovery, and a method of using said foam-forming composition for recovering oil. The foam-forming composition of the present invention comprises a nonionic surfactant, in particular an alcohol-alkoxylate, and an anionic surfactant, in particular an alkyl diphenyloxide (di)sulfonate, where the foam-forming composition promotes a formation of...

Techniques de monitoring

07/12/2016 - [EP3101450](#) QUICK 4D DETECTION SEISMIC SURVEY - CGG (FRANCE) - (Source: US2016356905A) A method for monitoring a subsurface during a 4-dimensional (4D) survey. The method includes obtaining an area of the subsurface that needs to be monitored; identifying receiver and source locations for the area and source frequencies to be emitted into the area based on demigration or inverse ray tracing; performing a light base survey for the area; performing a light monitor survey for the area; and generating an image...

11/11/2016 - [FR3035917](#) FACILITY FOR MONITORING GEOLOGICAL GAS STORAGE SITES - IFP ENERGIES NOW - (Source: WO16177606A1) A facility for monitoring a geological storage site for storing a gas, such as CO₂ or methane, comprises, in combination, at least one geochemical measurement device (DMG), comprising a plurality of gas sampling probes (SPG) connected to a gas analyser (AG), an electrical measurement device (DME) comprising a plurality of electrodes (ELEC) and a resistivity metre (RES), and a meteorological station (SM). The geochemical...

HSE-Environnement

01/12/2016 - [WO16188683](#) METHOD FOR ENVIRONMENTALLY ACCEPTABLE TREATMENT OF EMULSIONS IN CHEMICALLY ENHANCED OIL RECOVERY OPERATIONS - CLARIANT INT - (Source: WO16188683A1) The present invention provides a method of demulsifying an emulsion comprising water and oil, the method comprising adding an effective amount of a composition comprising a) an esterquat surfactant of the following formula (1) wherein R₁ is a C₅-C₂₉ aliphatic hydrocarbon group, R₂ is -C₂H₄OH or C₂H₄OCO R₁, R₃ is -C₂H₄OH or C₂H₄OCO R₁ or a C₁-C₁₀ aliphatic hydrocarbon group, R₄ is a C₁-C₁₀ aliphatic hydrocarbon group, X is...

03/11/2016 - [US2016319652](#) HYDROSTATIC STORAGE OF PRODUCED WATER - CHEVRON (USA) - (Source: US2016319652A) A subsea storage unit (SSU) with a flexible bag (flexible bladder or expandable skin) is used for produced water storage. The use of the SSU allows the solids to settle out in the storage vessel that would otherwise have settled out and accumulated on underwater surfaces, removal of hydrocarbons and the smoothing out of variations in water quality resulting from process upsets. Solids that remain in suspension and exit...



LES PUBLICATIONS SCIENTIFIQUES

Géo information - Géosciences big data

[Implications of data placement strategy to Big Data technologies based on shared-nothing architecture for geosciences](#) - 2016 - **International Geoscience and Remote Sensing Symposium (IGARSS)** - BAYESICS (USA); NASA GODDARD SPACE FLIGHT CTR (USA); SCIENCE SYSTEMS APPLICATIONS (USA); UNIV MARYLAND (USA); UNIV NEBRASKA (USA) - It is found that data placement on the networked nodes of a cluster based on the shared-nothing architecture (SNA) should align in the physical (i.e. spatiotemporal) space for most geoscience Big Data analysis systems in order to minimize data movements and thus achieve optimal performance and efficiency. This is due to the fact that data analysis in geosciences predominantly requires spatiotemporal coincidence. If individual datasets are...

[PCA and SVM as geo-computational methods for geological mapping in the southern of Tunisia, using ASTER remote sensing data set](#) - 2016 - **Arabian Journal of Geosciences** - CTR D'ETUDES SPATIALES BIOSPHERE CESBIO (FRANCE); CTR RECHERCHES TECH EAUX CERTE (TUNISIA); INRA MONTPELLIER (FRANCE); IRD MONTPELLIER (FRANCE); IRD TOULOUSE (FRANCE); UNIV TUNIS MANAR (TUNISIA) - The purpose of this study was to examine the efficiency of Advanced Space Borne Thermal Emission and Reflection Radiometer (ASTER) data in the discrimination of geological formations and the generation of geological map in the northern margin of the Tunisian desert. The nine ASTER bands covering the visible (VIS), near-infrared (NIR) and short-wave infrared (SWIR) spectral regions (wavelength range of 400–2500 nm) have been treated and...

[Feature extraction and tracking for large-scale geospatial data](#) - 2016 - **International Geoscience and Remote Sensing Symposium (IGARSS)** - UNIV MARYLAND (USA); UNIV NEBRASKA LINCOLN (USA) - Feature extraction and tracking is a fundamental operation used in many geoscience applications. In this paper, we present a scalable method for computing and tracking features on distributed memory machines for large-scale geospatial data. We carefully apply new communication schemes to minimize the data exchanged among the computing nodes in building and updating the global connectivity information of features. We present a theoretical...

Techniques d'exploration

[An Application of Hydraulic Tomography to a Large-Scale Fractured Granite Site, Mizunami, Japan](#) - 2016 - **Groundwater** - AGENCY ATOMIC ENERGY JAPAN (JAPAN); OBAYASHI (JAPAN); SCHOOL COLORADO MINES (USA); UNIV ARIZONA (USA); UNIV NATL YUNLIN SCIENCE TECH (TAIWAN); UNIV NIHON (JAPAN); UNIV WATERLOO (CANADA); UNIV WUHAN (CHINA) - While hydraulic tomography (HT) is a mature aquifer characterization technology, its applications to characterize hydrogeology of kilometer-scale fault and fracture zones are rare. This paper sequentially analyzes datasets from two new pumping tests as well as those from two previous pumping tests analyzed by Illman et al. (2009) at a fractured granite site in Mizunami, Japan. Results of this analysis show that datasets from two previous...

[PCA and SVM as geo-computational methods for geological mapping in the southern of Tunisia, using ASTER remote sensing data set](#) - 2016 - **Arabian Journal of Geosciences** - CTR D'ETUDES SPATIALES BIOSPHERE CESBIO (FRANCE); CTR RECHERCHES TECH EAUX CERTE (TUNISIA); INRA MONTPELLIER (FRANCE); IRD MONTPELLIER (FRANCE); IRD TOULOUSE (FRANCE); UNIV TUNIS MANAR (TUNISIA) - The purpose of this study was to examine the efficiency of Advanced Space Borne Thermal Emission and Reflection Radiometer (ASTER) data in the discrimination of geological formations and the generation of geological map in the northern margin of the Tunisian desert. The nine ASTER bands covering the visible (VIS), near-infrared (NIR) and short-wave infrared (SWIR) spectral regions (wavelength range of 400–2500 nm) have been treated and...

[Seismic surveying with drone-mounted geophones](#) - 2016 - **IEEE International Conference on Automation Science and Engineering** - DEPT ELECTRICAL COMPUTER ENGINEERING (USA); UNIV HOUSTON (USA) - Seismic imaging is the primary technique for subsurface exploration. Traditional seismic imaging techniques rely heavily on manual labor to plant sensors, lay miles of cabling, and then recover the sensors. Often sites of resource or rescue interest may be difficult or hazardous to access. Thus, there is a substantial need for unmanned sensors that can be deployed by air and potentially in large numbers. This paper presents working prototypes...

[Imaging radial distribution of water saturation and porosity near the wellbore by joint inversion of sonic and resistivity logging data](#) - 2016 - **SPE Reservoir Evaluation and Engineering** - GROUP BG (UK); SCHLUMBERGER (USA) - We present a work flow for joint inversion of sonic flexural-wave dispersion data and array-induction resistivity data acquired in a



vertical well. The work flow estimates a pixel-based radial distribution of water saturation and porosity extending several feet into the formation at each log depth. Radial changes in saturation and porosity are caused by mud-filtrate invasion and mechanical damage, respectively. The flexural-wave and...

[A new method for assessing Young's modulus and Poisson's ratio in tight interbedded clastic reservoirs without a shear wave time difference](#) - 2016 - **Journal of Natural Gas Science and Engineering** - LAB KEY GEOLOGICAL EVALUATION DEVELOPMENT ENGINEERING UNCONVENTIONAL NATURAL GAS ENERGY (CHINA); LAB KEY STRATEGIC EVALUATION SHALE GAS RESOURCES (CHINA); UNIV CHENGDU TECH (CHINA); UNIV GEOSCIENCES CHINA (CHINA) - Tight clastic reservoirs are an important aspect of hydrocarbon exploration and development worldwide. The Xu5 section of the Upper Triassic Xujiahe Formation in the western Sichuan Basin of central China contains tight terrestrial clastic reservoirs. The depth of these reservoirs is greater than 3000 m, while the thickness is generally greater than 500–580 m; the tight sandstone and shale reservoirs are frequently interbedded. Based on the...

[Using microseismic data recorded at the Weyburn CCS-EOR site to assess the likelihood of induced seismic activity](#) - 2016 - **International Journal of Greenhouse Gas Control** - OUTER LIMITS GEOPHYSICS LLP (UK); UNIV BRISTOL (UK) - Since 2000, CO₂ has been successfully injected for the purposes of both enhanced oil recovery (EOR) and carbon capture and storage (CCS) at the Weyburn oilfield. A component of the geophysical monitoring program at Weyburn has included the use of downhole geophones to monitor microseismic activity. Microseismic events have already been used to assess the likelihood of CO₂ leakage through the caprock at Weyburn. However, in recent years, the...

[Compaction of diagenetically altered mudstones – Part 2: Implications for pore pressure estimation](#) - 2016 - **Marine and Petroleum Geology** - UNIV DURHAM (UK) - Diagenetically altered mudstones compact mechanically and chemically. Consequently, their normal compaction trends depend upon their temperature history as well as on the maximum effective stress they have experienced. A further complication is that mudstones are commonly over pressured where clay diagenesis occurs, preventing direct observation of the hydrostatic normal compaction trend. A popular way to estimate pore pressure in these...

Forages et équipements de puits

[Damage mechanism of casings used in ultra-deep well salt layers of Yuke Block in the Tarim Basin and prevention measures](#) - 2016 - **Natural Gas Industry** - INST OIL GAS ENGINEERING RESEARCH (CHINA); PETROCHINA TARIM OILFIELD (CHINA); UNIV PETROLEUM CHINA (CHINA) - The Yuke Block is located at the eastern flank of Hadexun nose-like uplift in the Lunnan low salient, North Tarim uplift, Tarim Basin. The ultra-deep wells in the block suffered serious casing damage in salt layers in the process of well drilling, leading to frequent pipe sticking and even back-filling sidetracking. Consequently, the drilling of new wells and subsequent oil and gas development in this block were seriously hindered, and great...

[Numerical investigation on the effect of cementing properties on the thermal and mechanical stability of geothermal wells](#) - 2016 - **Energies** - INST TECH GEORGIA (USA); UNIV KOREA (SOUTH KOREA) - In this paper, a two-dimensional (2-D) Finite Element (FE) analysis of a geothermal well was performed with respect to five different cross-sections corresponding to the design specifications for the geothermal well that is currently constructed in Pohang, South Korea. Among the essential components (such as ground formation, casing, and cementing) of a geothermal well, the thermal and mechanical stability of the cementing component was...

[A calibration-free inversion algorithm for evaluating cement quality behind highly contrasting steel pipe](#) - 2016 - **IEEE International Ultrasonics Symposium, IUS** - SCHLUMBERGER (FRANCE) - In the context of subterranean well inspection, it is important to efficiently and accurately evaluate the quality of the cement sheath that fills the annular region between the rock formation and the casing, which is a string of steel tubes. A continuously increasing number of such wells are being drilled in extreme environments requiring heavy, attenuative fluid filling the borehole for well stabilization, and larger and thicker casings for...

[Steel-concrete-steel sandwich composite structures subjected to extreme loads](#) - 2016 - **International Journal of Steel Structures** - UNIV NANJING TECH (CHINA); UNIV NATL SINGAPORE (SINGAPORE) - This paper summarizes the latest research and development work on steel-concrete-steel (SCS) sandwich composite structures for the use as Arctic offshore platform, and to resist impact and blast loads. Current development of ultra-lightweight cement composite (ULCC) and a floatable structural cement composite (FSCC) to be used as infilled materials for SCS sandwich structure are presented. This paper aims to advance the application of SCS...



[Development of a structured workflow for enhanced well cement integrity: Lessons learned and the way ahead](#) - **2016 - Journal of Natural Gas Science and Engineering** - UNIV OKLAHOMA (USA) - Despite the increased emphasis on enhancing short and long-term cement isolation, the oil and gas industry has not agreed upon a collective, scientifically supported blueprint to govern cement integrity standards. This is largely due to the fact that cement integrity and gas migration processes are influenced by an intricate assortment of transient elements, frequently occurring simultaneously. Ambiguity and insufficient information are an...

Techniques de production

[The oil recovery enhancement by nitrogen foam in high-temperature and high-salinity environments](#) - **2016 - Journal of Petroleum Science and Engineering** - CHUANQING DRILLING ENGINEERING PROJECT MANAGEMENT (CHINA); SINOPEC (CHINA); UNIV SOUTHWEST PETROLEUM (CHINA); YUMEN OILFIELD CHINESE NATL PETROLEUM (CHINA) - This article is designed for the application of Cocamidopropyl hydroxyl sulfobetaine (CHSB) in the nitrogen foam flooding under the high-temperature and high-salinity environments. Firstly, foam properties of CHSB were evaluated at different temperatures and varying salinity, as well as the effect of concentration on foam properties, and the long-term foam properties of CHSB were developed under different concentration. Then, a series of...

[A methodological analysis of the mechanisms associated with steam/solvent coinjection processes using dynamic gridding](#) - **2016 - SPE Journal** - CTR OPEN EXPERIMENTAL FOR HEAVY OIL (FRANCE); TOTAL (FRANCE) - Hybrid steam-solvent processes have gained importance as a thermal-recovery process for heavy oils in recent years. Numerous pilot projects during the last decade indicate the increasing interest in this technology. The steam/solvent coinjection process aims to accelerate oil production, increase ultimate oil recovery, reduce energy and water-disposal requirements, and diminish the volume of emitted greenhouse gases compared with the...

[High-pressure air blasting experiments on concrete and implications for enhanced coal gas drainage](#) - **2016 - Journal of Natural Gas Science and Engineering** - INST SHENYANG RESEARCH (CHINA); UNIV NORTHEASTERN (USA) - High-pressure air blasting is one type of distress blasting techniques to enhance gas drainage in coal seams and thus to prevent coal and gas outbursts. In this work, firstly, high-pressure air blasting experiment is conducted on concrete specimen with a size of 600 mm × 600 mm × 600 mm, the blasting crack distribution is observed and the particle vibration acceleration at the outer boundary of the sample is monitored. Then a damage model for...

[Using microseismic data recorded at the Weyburn CCS-EOR site to assess the likelihood of induced seismic activity](#) - **2016 - International Journal of Greenhouse Gas Control** - OUTER LIMITS GEOPHYSICS LLP (UK); UNIV BRISTOL (UK) - Since 2000, CO₂ has been successfully injected for the purposes of both enhanced oil recovery (EOR) and carbon capture and storage (CCS) at the Weyburn oilfield. A component of the geophysical monitoring program at Weyburn has included the use of downhole geophones to monitor microseismic activity. Microseismic events have already been used to assess the likelihood of CO₂ leakage through the caprock at Weyburn. However, in recent years, the...

[Relative permeability of foamy oil for different types of dissolved gases](#) - **2016 - SPE Reservoir Evaluation and Engineering** - UNIV ALBERTA (CANADA) - Foamy-oil flow is encountered not only during the primary stage of the cold-heavy-oil-production (CHOP) process through evolving methane originally in the oil but also in the post-CHOP enhanced-oil-recovery (EOR) applications in which different gases are injected and dissolved in heavy oil. Despite remarkable efforts on the physics of foamy oil flow, the mechanics of its flow through porous media is not properly understood yet. This is mainly...

[Estimation of fracture height growth in layered tight/shale gas reservoirs using flowback gas rates and compositions- Part II: Field application in a liquid-rich tight reservoir](#) - **2016 - Journal of Natural Gas Science and Engineering** - UNIV CALGARY (CANADA) - While hydraulic fracturing is the key to unlocking the potential of unconventional low-permeability hydrocarbon resources, challenges remain in the monitoring of subsurface propagation of fractures and the determination of which geologic intervals have been contacted. This is particularly challenging for wells that are completed in multiple hydraulic fracture stages (multi-fractured horizontal wells or MFHWs) where fracture spacing may be very...

[Experimental investigation of the influence of supercritical carbon dioxide and supercritical nitrogen injection on tertiary live-oil recovery](#) - **2016 - Journal of Supercritical Fluids** - UNIV ISLAMIC AZAD (IRAN); UNIV SHAHROOD TECH (IRAN); UNIV SHARIF TECH (IRAN); UNIV SHIRAZ (IRAN); UNIV TECH BABOL (IRAN) - Generally, there are different enhanced oil recovery (EOR) methods. One of the most promising EOR method is the gas injection especially carbon dioxide (CO₂) injection since it introduce several unique characteristic desired for higher tertiary oil recovery. In this



study, the performance and feasibility of supercritical carbon dioxide (SC-CO₂) and supercritical nitrogen (SC-N₂) injection to enhanced oil recovery was investigated. In this...

[Real-time diagnostics of oil production equipment using data mining](#) - **2016 - 2016 5th International Conference on Informatics, Electronics and Vision, ICIEV 2016** - UNIV LOUGHBOROUGH (UK); UNIV SOUTHERN FED (RUSSIA) - In this paper, we consider the problem of increasing the efficiency of heavy oil production by a qualitative enhanced oil recovery (EOR) application. A novel approach, based on the analysis of data related to successful events is proposed. In particular, a synthesised model, targeted to automated search of wells for EOR application, is developed. For data processing, we present a novel approach based on a hybrid implementation of neural network...

Techniques de monitoring

[Using microseismic data recorded at the Weyburn CCS-EOR site to assess the likelihood of induced seismic activity](#) - **2016 - International Journal of Greenhouse Gas Control** - OUTER LIMITS GEOPHYSICS LLP (UK); UNIV BRISTOL (UK) - Since 2000, CO₂ has been successfully injected for the purposes of both enhanced oil recovery (EOR) and carbon capture and storage (CCS) at the Weyburn oilfield. A component of the geophysical monitoring program at Weyburn has included the use of downhole geophones to monitor microseismic activity. Microseismic events have already been used to assess the likelihood of CO₂ leakage through the caprock at Weyburn. However, in recent years, the...

[Estimation of fracture height growth in layered tight/shale gas reservoirs using flowback gas rates and compositions - Part II: Field application in a liquid-rich tight reservoir](#) - **2016 - Journal of Natural Gas Science and Engineering** - UNIV CALGARY (CANADA) - While hydraulic fracturing is the key to unlocking the potential of unconventional low-permeability hydrocarbon resources, challenges remain in the monitoring of subsurface propagation of fractures and the determination of which geologic intervals have been contacted. This is particularly challenging for wells that are completed in multiple hydraulic fracture stages (multi-fractured horizontal wells or MFHWs) where fracture spacing may be very...