

CHRISTOPHE BARNES

57 ans
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Synthèse

Près de 25 années d'expérience dans les domaines de la recherche, de la R&D et de la gestion de projets industriels. Expertise technique forte dans le traitement de données, la simulation numérique, la géophysique et le génie logiciel. Double formation : ingénieur généraliste et doctorat de géophysique.

Actuellement professeur PAST à CYU, président et directeur technique de la société GIM-labs.

Compétences

Direction technique	Reporting de direction, animation de la direction technique, direction de projets, rédaction de réponses à appels d'offre, évaluation technique des candidats (RH), participation aux stratégies marketing, expertise technique.
Gestion de projets	Ingénierie logicielle de type scientifique ou industrielle : planification, relation client, négociations techniques et contractuelles, mise en place des équipes et des moyens techniques, gestion des équipes, reporting, tableau de bord, suivi technique.
Génie logiciel	Informatique scientifique et industrielle : algorithmie, parallélisme, contrôle de version, makefile, profiling, open source, temps réel, calcul scientifique distribué sur des clusters de PC de grandes tailles.
Traitement de données	Problèmes inverses (optimisation, moindres carrés pondérés, non linéarité, Monte Carlo), traitement du signal, théorie de l'information, probabilités, analyse de données, statistiques classiques et spatiales.
Simulation numérique	Discretisation d'équations différentielles : différences finies, éléments spectraux. Rhéologie complexes (milieux élastiques anisotropes, visco-élastiques).
Formateur	Professeur PAST à l'Université de Cergy-Pontoise.
Langues	Anglais et espagnol : lu, écrit, parlé ; Maîtrise de l'anglais technique

Formation

- 1997** Thèse de Géophysique Interne, Université de Paris VII, effectuée à l'Institut de Physique du Globe de Paris (IPGP) et à l'Ecole Nationale Supérieure des Mines de Paris (ENSMP) : "Le problème inverse en tomographie géophysique : Incorporation d'information *a priori* et utilisation des méthodes de Monte Carlo. Application à l'inversion de temps d'arrivée".
- 1989** Ingénieur Civil des Mines, Ecole Nationale Supérieure des Mines de Paris (Sciences de la Terre).

Aptitudes humaines

Individuelle : grande adaptabilité, autonome, efficace, persévérant, bonne conceptualisation, sens pratique.

Gestion de groupes : synthétique, direct, exigeant, mobilisateur, disponible.

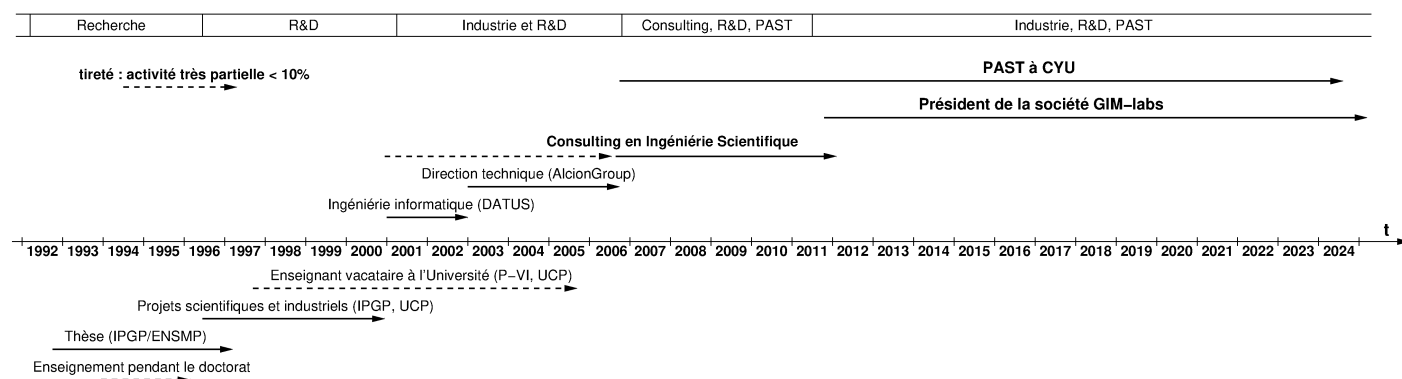
Autres centres d'intérêt

Sciences humaines, sports, musique.

Expériences professionnelles majeures

2012 – ce jour	Directeur technique et Président de la société GIM-labs : bureau d'études R&D, d'expertise et de veille technologique dans le domaine de la géophysique pétrolière (imagerie sismique, monitoring d'exploitation, caractérisation de réservoir, simulation numérique), du géostockage de CO2 (imagerie, caractérisation et monitoring), de la géotechnique (imagerie) et de la géothermie (imagerie et monitoring). (voir http://www.GIM-labs.com)
2006 – ce jour	Professeur PAST à l'UCP/CYU . Enseignement en L2, L3, M1, M2 : géophysique, géochimie, thermodynamique, imagerie géophysique. Recherche dans les domaines de la physique des roches, de l'imagerie géophysique, de la modélisation et simulation numérique des ondes sismiques, de la modélisation mécanique et analogique de la formation des chaînes de montagne.
2000 – 2012	Consultant-Expert en ingénierie scientifique dans les domaines du traitement de données pour le secteur pétrolier (imagerie sismique de temps d'arrivées, sismique de puits, imagerie sismique full-wave, caractérisation de l'atténuation sismique) et nucléaire (stockage souterrain de déchets).
2/2003 – 9/2006	Directeur technique de la société de services en informatique DATUS, rachetée par Alcion-Group puis directeur technique de la branche industrie (40 ingénieurs) d'AlcionGroup.
12/2004 – 9/2006	Direction de projets , exemple de projet majeur : <i>Mesure à Grande Vitesse : Informatique à bord de l'IRIS 320</i> projet informatique réalisé par AlcionGroup pour la SNCF (Direction de l'Ingénierie), 12 ingénieurs, 1.5 millions d'euros, durée de 2 ans (hors maintenance). Système d'acquisition de données embarqué à bord d'un TGV, nommé Iris320 et dédié à la "Mesure à Grande Vitesse" : conditionnement des données provenant de systèmes de mesures variés, mise à disposition temps-réel des mesures sur des postes de travail, sécurisation et mise en base de données, haute-disponibilité du réseau et de l'informatique à bord (voir p.ex. https://en.wikipedia.org/wiki/SNCF_TGV_Iris_320)

Historique



Recherche

Au cours de ces 20 dernières années, j'ai suivi et développé deux axes de recherche principaux, l'un méthodologique, l'autre en géophysique appliquée (voir le rapport d'activité pour plus d'information).

- Statistiques sur Google Scholar <http://scholar.google.fr/citations?user=NZQ4130AAAAJ>
citations : 1251 h-index : 15 i10-index : 22
- Statistiques sur Research Gate https://www.researchgate.net/profile/Christophe_Barnes
publications : 85 citations : 1026 h-index : 15 (excluding self-citations)

- Axe méthodologique : Simulation numérique 2D/3D de la propagation des ondes sismiques en milieux complexes pour des rhéologies réalistes (élastiques anisotropes, visco-élastique); traitement des données au sens large (analyse de données, géostatistiques, problèmes inverses, traitement du signal ou de l'image), et plus particulièrement dans le domaine du problème inverse probabiliste (exploration aléatoire de l'espace des possibles, modélisation des incertitudes, détermination du contenu informationnel des données ou de l'information a priori sur un système).
- Axe de recherche appliquée : L'axe méthodologique est appliqué à des problèmes concrets, collaborations avec :
 - l'Ecole des Mines de Paris (caractérisation d'hydrates de gaz au Japon),
 - l'ANDRA (stockage souterrain de déchets nucléaires),
 - DIA au Japon (stockage de déchets nucléaires à faible profondeur),
 - TOTAL (caractérisation de l'atténuation sismique sur un champ offshore en Angola, imagerie sismique sur un prospect Bolivien dans un contexte géologique difficile de type "foot-hills", imagerie sismique en contexte de type mangrove au Gabon, monitoring d'exploitation d'un champ d'huile lourde au Canada, prédiction de la pression de pore, imagerie *subsalt* au large de l'Angola, monitoring de l'injection de CO₂),
 - CEA (localisation d'événements microsismiques sur l'atoll de Mururoa)
 - NC-geophysical au Japon (tomographie du sous-sol de Fukushima, faisabilité du monitoring de l'injection de CO₂ dans un réservoir de profondeur intermédiaire au large du Japon),
 - ES Géothermie (imagerie des fractures en milieu granitique, monitoring d'événements microsismiques, design d'un réseau d'écoute sismique),
 - TotalEnergies (FWI de données DAS pour le monitoring de l'injection de CO₂, Otway).

Liste de publications

Articles et publications apériodiques à comité de lecture

- K. Khazraj, C. Barnes, and B. Maillot. Level set Full-Wave Inversion with mesh deformation method to retrieve the shape of salt bodies from borehole seismic data. *Geophysical Journal International*, (accepted with major revisions), 2024.
- A. Adwan, B. Maillot, P. Souloumiac, and C. Barnes. Fault detection methods for 2D and 3D geomechanical numerical models. *Numerical and Analytical Methods in Geomechanics*, 48(2) :607–625, February 2024.
- C. Barnes and E. Rebel. Full-Wave Inversion of DAS Borehole Seismic Data for CO₂ Injection Monitoring : A Feasibility Study on CRC3 Survey Data from Otway Field. *Proceedings of the 16th Greenhouse Gas Control Technologies Conference (GHGT-16)*, Août 2022.
- Y. Abdelfettah and C. Barnes. Sensitivity Analysis of FWI Applied to OVSP Synthetic Data for Fault Detection and Characterization in Crystalline Rocks. *Geosciences*, 11(11) :442, Novembre 2021.
- D. Geremia, C. David, F. Descamps, B. Menendez, C. Barnes, S. Vandycke, J. Dautriat, L. Esteban, and J. Sarout. Water-induced damage in microporous carbonate rock by low-pressure injection test. *Rock Mechanics and Rock Engineering*, 54, 10 2021.
- L. Pimienta, C. David, J. Sarout, X. Perrot, J. Dautriat, and C. Barnes. Evolution in Seismic Properties During Low and Intermediate Water Saturation : Competing Mechanisms During Water Imbibition ? *Geophysical Research Letters*, 46(9) :4581–4590, 2019.
- M. Charara and C. Barnes. Constrained full waveform inversion for borehole multicomponent seismic data. *Geosciences*, 9 :45, 01 2019.
- M. Salah, M. Alqudah, A. Abd El Aal, and C. Barnes. Effects of porosity and composition on seismic wave velocities and elastic moduli of lower cretaceous rocks, central lebanon. *Acta Geophysica*, 66, 08 2018.
- C. David, C. Barnes, J. Sarout, J. Dautriat, and L. Pimienta. Reply to Comment by Y. Kovalyshen on "Ultrasonic Monitoring of Spontaneous Imbibition Experiments : Precursory Moisture Diffusion Effects Ahead of Water Front". *Journal of Geophysical Research : Solid Earth*, 123(8) :6610–6615, 2018.
- C. Barnes and M. Charara. Anisotropic anelastic seismic full waveform modeling and inversion : Application to north sea offset vsp data. *Georesources*, 20 :149–153, 2018.
- C. David, J. Sarout, J. Dautriat, L. Pimienta, M. Michée, M. Desrues, and C. Barnes. Ultrasonic monitoring of spontaneous imbibition experiments : precursory moisture diffusion effects ahead of water front. *Journal of Geophysical Research : Solid Earth*, 122 :4948–4962, 2017.
- C. David, C. Barnes, M. Desrues, L. Pimienta, J. Sarout, and J. Dautriat. Ultrasonic monitoring of spontaneous imbibition experiments : acoustic signature of fluid migration. *Journal of Geophysical Research :solid Earth*, 122 :4931–4947, 2017.

- K.S. Cordua, T.M. Hansen, M.L. Gulbrandsen, C. Barnes, and K. Mosegaard. Mixed-point geostatistical simulation : A combination of two- and multiple-point geostatistics. *Geophysical Research Letters*, 43(17) :9030–9037, 2016.
- N. Cubas, C. Barnes, and B. Maillot. Inverse method applied to a sand wedge : estimation of friction parameters and uncertainty analysis. *Journal of Structural Geology*, 55 :101–113, 2013.
- F. Humbert, L. Louis, C. Barnes, P. Robion, C. David, and S.-R. Song. Lithological control on shear-wave velocity anisotropy in core samples from the taiwan chelungpu fault drilling project. *Journal of Asian Earth Sciences*, 52 :63–72, 2012.
- N. Cubas, B. Maillot, and C. Barnes. Statistical analysis of an experimental compressional sand wedge. *Journal of Structural Geology*, 32 :818–831, 2010.
- C. Barnes and M. Charara. The domain of applicability of acoustic full-waveform inversion for marine seismic data. *Geophysics*, 74(6) :WCC91–WCC103, 2009.
- C. Barnes, M. Charara, and T. Tsuchiya. Feasibility study for an anisotropic full waveform inversion of cross-well seismic data. *Geophysical prospecting*, 56 :897–906, 2008.
- B. Maillot, C. Barnes, J.-M. Mengus, and J.-M. Daniel. Constraints on friction coefficients by an inverse analysis of sand box thrust dips. *Journal of Structural Geology*, 29 :117–128, 2007.
- D. Komatitsch, C. Barnes, and J. Tromp. Simulation of anisotropic wave propagation based upon a spectral element method. *Geophysics*, 65(4) :1251–1260, 2000.
- D. Komatitsch, C. Barnes, and J. Tromp. Wave propagation near a fluid-solid interface : a spectral element approach. *Geophysics*, 65(2) :623–631, 2000.
- M. Bosch, C. Barnes, and K. Mosegaard. Multi-step samplers for improving efficiency in probabilistic geophysical inference. In *Methods and Applications of Inversion*, volume 92 of *Lecture Notes in Earth Science*, pages 50–67. Springer-Verlag, 2000.
- H. Djikpéssé and C. Barnes. Integrating surface reflection data Inversion and offset-VSP modeling for imaging of converted S-waves in Gulf Coast hydrocarbon reservoirs. In *Methods and Applications of Inversion*, volume 92 of *Lecture Notes in Earth Science*, pages 82–96. Springer-Verlag, 2000.
- M. Charara, C. Barnes, and A. Tarantola. Full waveform inversion of seismic data for a viscoelastic medium. In *Methods and Applications of Inversion*, volume 92 of *Lecture Notes in Earth Science*, pages 68–81. Springer-Verlag, 2000.
- C. Barnes, M. Charara, and A. Tarantola. Geological Information and the Inversion of Seismic Data. In Jacobsen Mosegaard Sibani, editor, *Inverse Methods : Interdisciplinary elements of methodology, computation and application*, volume 63 of *Lecture Notes in Earth Science*, pages 113–121. Springer-Verlag, 1996.
- M. Charara, C. Barnes, and A. Tarantola. Constrained seismic well data waveform inversion. In Jacobsen Mosegaard Sibani, editor, *Inverse Methods : Interdisciplinary elements of methodology, computation and application*, volume 63 of *Lecture Notes in Earth Science*, pages 98–112. Springer-Verlag, 1996.

Communications aux congrès internationaux

- K. Khazraj*, C. Barnes, and B. Maillot. Hybrid full-wave inversion based on a B-spline level set mesh deformation method of borehole seismic data for a subsalt imaging context. In *EGU General Assembly Conference Abstracts*, pages EGU23–1324, Avril 2023.
- C. Barnes* and E. Rebel. Full-Wave Inversion of DAS Borehole Seismic Data for CO2 Injection Monitoring : A Feasibility Study on CRC3 Survey Data from Otway Field. In *16th Greenhouse Gas Control Technologies Conference (GHGT-16)*, Octobre 2022.
- A. Adwan*, B. Maillot, P. Souloumiac, C. Barnes, and P. Leturmy. Stochastic mechanical analysis of the stress field in a 3D thrust fold. In *EGU General Assembly Conference Abstracts*, pages EGU22–1324, Mars 2022.
- D. Geremia*, C. David, C. Barnes, B. Menéndez, J. Dautriat, L. Esteban, J. Sarout, S. Vandycke, and F. Descamps. Laboratory experiments of water injection coupled with ultrasonic monitoring reveal wave-induced fluid flow in microporous carbonate rock. In *EGU General Assembly Conference Abstracts*, pages EGU21–9230, Avril 2021.
- D. Geremia*, C. David, A. Zhengissov, B. Menéndez, C. Barnes, S. Vandycke, F. Descamps, J. Dautriat, L. Esteban, and J. Sarout. Chemical degradation from water injection in critically stressed carbonate rock. In *12th European Geothermal PhD Days*, February 2021.
- C. Barnes, Y. Abdelfettah, N. Cuenot, E. Dalmais, and A. Genter. Sensitivity Analysis of FWI Applied to OVSP Synthetic Data for Fault Detection and Characterization in Crystalline Rock. In *Proceedings World Geothermal Congress 2020+1*, 2021.
- B. Ledésert, X. Sengelen, P. Robion, S. Bourquin, J.-B. Regnet, and C. Barnes. Geothermal Exploration of Triassic Deposits in Paris Basin : Comparison of the Sedimentary Records and Petrophysical Properties between In-Situ and Analogue Site (Ardèche, France). In *Proceedings World Geothermal Congress 2020+1*, 2021.
- C. Barnes*, Y. Abdelfettah, N. Cuenot, E. Dalmais, and A. Genter. Reservoir seismic imaging using an elastic Full-wave Inversion approach applied to multi-OVSP Data in the context of Soultz-sous-Forêts. In *World Geothermal Congress 2020+1*, Avril 2021.
- C. Bailly*, J.-B. Regnet, P. Robion, S. Bourquin, X. Sengelen, C. Barnes, and B. Ledésert. Enhancing the exploitation of sedimentary basins for the energy transition : From hydrocarbon resources production to geothermal heat generation. In *Programme Â«Eutopia Science FairÂ»*, Session 3 - Environment and Climate change, Avril 2021.

- X. Sengelen*, P. Robion, S. Bourquin, J.-B. Regnet, C. Barnes, and B. Ledésert. Geothermal Exploration of Upper Triassic Deposits in the Paris Basin : Comparison of the Sedimentary Records and Petrophysical Properties between In-Situ and Analogue Site. In *Proceedings World Geothermal Congress 2020+1*, Avril 2021.
- Y. Abdelfettah*, C. Barnes, E. Dalmais, V. Maurer, and A. Genter. Full wave inversion of ovsp seismic data for faults delineation and characterization in granite context. In *1st Geoscience & Engineering in Energy Transition Conference*, online, pages 1–5, Novembre 2020.
- D. Geremia*, C. David, C. Barnes, B. Menéndez, J. Dautriat, L. Esteban, J. Sarout, S. Vandycke, and F. Descamps. Laboratory testing for monitoring of reservoir properties during water injection. In *EGU General Assembly Conference 2020*, online, page 6615, Mai 2020.
- C. David*, J. Sarout, C. Barnes, J. Dautriat, and L. Pimienta. Acoustic signature of fluid substitution in reservoir rocks. In *EGU General Assembly Conference 2020*, online, page 6028, Mai 2020.
- M. Charara*, C. Barnes, T. Tsuchiya, and N. Yamada. Timelapse das vsp viscoelastic fwi for co2 monitoring. In *Fifth EAGE Workshop on Borehole Geophysics, The Hague, Netherland*, Novembre 2019.
- C. Barnes* and M. Verliac. Velocity estimation below the well bottom by using fwi : Application to walkaway synthetic seismic data. In *Fifth EAGE Workshop on Borehole Geophysics, The Hague, Netherland*, Novembre 2019.
- M. Charara* and C. Barnes. Multiscale constrained full waveform inversion for borehole multicomponent seismic data. In *81st EAGE Conference and Exhibition, London, UK*, Juin 2019.
- R. Sato*, N. Yamada, T. Tsuchiya, and C. Barnes. Introduction of "High-Definition seismic tomography" and its applications. In *138th SEGJ Spring conference, Tokyo, Japan*, Mai 2018.
- C. Barnes* and M. Charara. Multi-scale Traveltime Inversion - A robust method for velocity estimation in difficult geological context. In *Research Workshop 1 at 80th EAGE Conference & Exhibition, Copenhagen, Denmark*, Juin 2018.
- M. Charara*, C. Barnes, T. Tsuchiya, and N. Yamada. Timelapse VSP Viscoelastic Full Waveform Inversion for CO2 Monitoring. In *87th SEG Annual Meeting, Houston, Texas*, Septembre 2017.
- T. Tsuchiya*, N. Yamada, U.P. Iskandar, M. Kurihara, C. Barnes, and M. Charara. CO2 Monitoring by Using VSP-FWI - Synthetic Study on CO2-saturation and Pressure-buildup Differentiation. In *EAGE/SEG Research Workshop 2017, Trondheim, Norway*, Août 2017.
- C. Barnes*, M. Charara, T. Tsuchiya, and N. Yamada. CO2 Monitoring by Using VSP-FWI - Timelapse Elastic Parameters Estimation. In *EAGE/SEG Research Workshop 2017, Trondheim, Norway*, Août 2017.
- C. Barnes*, M. Charara, and M. El Sanharawi. Efficient and accurate TTI Eikonal solver based on hybrid schemes. In *79th EAGE Conference & Exhibition, Paris, France*, Juin 2017.
- C. David*, J. Sarout, C. Barnes, J. Dautriat, and L. Pimienta. Acoustic signature of fluid migration in spontaneous imbibition experiments with ultrasonic monitoring. In *12th Euroconference on Rock Physics and Geomechanics, Ma'ale HaHamisha, Israel*, 2017.
- K.S. Cordua*, M.L. Gulbrandsen, K. Mosegaard, C. Barnes, and T.M. Hansen. Mixed-point geostatistical prior models based on a combination of two- and multi-point statistics. In *10th International Geostatistics, Valencia, Spain*, Septembre 2016.
- C. Barnes* and C. Hubans. Time-lapse refraction seismic monitoring for oil sand reservoirs. In *International workshop on low permeability rocks, University of Cergy-Pontoise, France*, Juin 2016.
- M. Charara* and C. Barnes. Multi-parameter viscoelastic full waveform inversion of crosswell seismic data. In *78th EAGE Conference & Exhibition, Vienna, Austria*, Juin 2016.
- C. Barnes* and M. Charara. The choice of the physical law and constraints in seismic FWI. In *2nd SEG workshop on Full Waveform inversion : Filling the gaps. Abu Dhabi, United Arab Emirates*, Mars 2015.
- C. Barnes*, M. Charara, and P. Williamson. P & S wave attenuation effects on full-waveform inversion for marine seismic data. In *84th SEG Annual Meeting, Denver, USA*, Octobre 2014.
- T. Tsuchiya*, J. Sakakibara, and C. Barnes. Look-Up Acoustic Debris-imaging ; Acoustic Probing of Fuel Debris buried in the mat concrete from Underground. In *130th SEGJ spring conference, Tokyo, Japan*, Mai 2014.
- C. Barnes*. Classification of uncertainties and noise sources in seismic data inversion. In *82th SEG Annual Meeting Workshop : Inversion-based high resolution imaging of reservoirs, Las Vegas, USA*, Novembre 2012.
- C. Barnes* and M. Charara. A priori model estimation for FWI from constrained kinematic inverse problem. In *EAGE Research Workshop 05 - From Kinematic to Waveform Inversion Where Are we and where Do we Want to Go ? A Tribute to Patrick Lailly, Copenhagen, Denmark*, Juin 2012.
- D. Rappin*, T. Castex, C. Barnes, and K. Samyn. High frequency losses - stripping various causes. In *74th EAGE Conference and Exhibition, Copenhagen, Denmark*, Juin 2012.
- C. Barnes*, C. Gereia, F. Clément, and J.-M. Mougenot. Diving wave tomography : a robust method for velocity estimation in a foothills geological context. In *81th SEG Annual Meeting, San-Antonio, USA*, Septembre 2011.
- O. Podgornova*, M. Charara, and C. Barnes. Anisotropic full waveform inversion for cross-well experiment. In *73rd EAGE Conference and Exhibition, Vienna, Austria*, Mai 2011.
- M. Charara* and C. Barnes. Constrained viscoelastic full waveform inversion of North Sea offset VSP data. In *Borehole Geophysics EAGE workshop - Emphasis on 3D VSP, Turkey*, Janvier 2011.

- J. Wassermann*, Y. Le Gonidec, C. Nussbaum, C. Barnes, C. David, B. Menendez, P. Robion, and P. Souloumiac. Damage mechanisms during gallery excavation in opalinus clay formation at the mont terri underground rock laboratory. In *9th Euro-conference on Rock Physics and Geomechanics, Trondheim, Norway*, Octobre 2011.
- B. Maillot*, N. Cubas, and C. Barnes. Solving an inverse problem with analogue modelling data. In *Conference on Seismic and aseismic deformation in crustal domains subject to very slow deformation rates, Application to the North-West Alpine Arc, Mont Saint-Odile*, Juin 2011.
- B. Maillot*, N. Cubas, and C. Barnes. Solving an inverse problem with physical modelling data of thrust tectonics. In *Intl. Workshop on Modern Computational Geosciences Frontiers, GUCAS (Graduate University of the Chinese Academy of Sciences), Beijing*, Juillet 2011.
- M. Charara and C. Barnes*. Nonlinear inversion of seismic waveforms : A North Sea offset VSP example. In *80th SEG Annual Meeting, Denver, USA*, Octobre 2010.
- C. Barnes* and M. Charara. Anisotropic anelastic full waveform inversion : Application to North Sea offset VSP data. In *80th SEG Annual Meeting, Denver, USA*, Octobre 2010.
- M. Charara* and C. Barnes. Viscoelastic full waveform inversion of North Sea offset VSP data. In *Homage to Albert Tarantola : Inverse problem conference, IPGP, Paris, France*, Juin 2010.
- C. Barnes*. Seismic full waveform inversion : the physical uncertainties and the modeling noise. In *Homage to Albert Tarantola : Inverse problem conference, IPGP, Paris, France*, Juin 2010.
- C. Barnes* and M. Charara. Constrained full-waveform inversion of multi-component seismic data. In *72th EAGE Annual Conference, Barcelona, Spain*, Juin 2010.
- C. Barnes and M. Charara*. Viscoelastic full waveform inversion of north sea offset VSP data. In *79th SEG Annual Meeting, Houston, USA*, Octobre 2009.
- D. Rappin*, C. Barnes, and K. Samyn. Contribution to the discrimination of field-specific seismic amplitude attenuation causes. In *EAGE/SEG Research Workshop - Frequency Attenuation and Resolution of Seismic Data*, Septembre 2009.
- C. Barnes*. Frequency-dependent analysis of the relationship heterogeneities/anisotropy for seismic waves. In *EGU General Assembly 2009, Vienna, Austria*, Avril 2009.
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- C. Barnes* and M. Charara. Full-waveform inversion results when using acoustic approximation instead of elastic medium. In *Workshop, 70th EAGE Annual Conference, Roma, Italy*, Juin 2008.
- N. Cubas*, B. Maillot, and C. Barnes. Growth of a sand wedge : experimental uncertainties, and inversion to deduce fault strength. In *European Geosciences Union General Assembly, Vienna, Austria*, Avril 2008.
- C. Barnes* and M. Noble. Feasibility study to quantify gas hydrates using an anisotropic full waveform inversion in the time domain. In *77th SEG Annual Meeting, San Antonio, USA*, Octobre 2007.
- C. Barnes*. Full-wave inversion of seismic data for an anisotropic visco-elastic medium. In *Journée scientifique : "Imagerie quantitative par formes d'ondes", IFP, France*, Avril 2005.
- C. Barnes*, M. Charara, and T. Tsuchiya. Full-wave anisotropic elastic inversion of synthetic crosswell seismic data. In *74th SEG Annual Meeting, Denver, USA*, Octobre 2004.
- C. Barnes, M. Charara*, and T. Tsuchiya. Crosswell seismic data tomography for heterogeneous viscoelastic media. In *74th SEG Annual Meeting, Denver, USA*, Octobre 2004.
- C. Barnes, M. Charara*, and T. Tsuchiya. Borehole seismic data inversion for attenuating media. In *66th EAGE Annual Conference, Paris, France*, Juin 2004.
- C. Barnes* and T. Tsuchiya. Full-wave anisotropic elastic inversion of synthetic crosswell seismic data. In *Expanded Abstracts, 5th Soc. Expl. Geophys. Japan International Symposium*, 2000.
- C. Barnes*, T. Tsuchiya, and M. Charara. Full-wave inversion of borehole seismic data for viscoelastic media. In *Expanded Abstracts, 5th Soc. Expl. Geophys. Japan International Symposium*, 2000.
- D. Komatitsch*, J. Tromp, and C. Barnes. Numerical modeling of wave propagation in 3D complex media : recent advances using the spectral element method. E.G.S. XXV General Assembly, Nice, France, Avril 2000.
- C. Barnes*, M. Charara, and A. Tarantola. Monte Carlo inversion of arrival times for multiple phases in OVSP data. S.E.G. meeting, Workshop, New Orleans, USA, Septembre 1998.
- H. Djikpéssé* and C. Barnes. Confidence on multiparameter interpretation of reflection seismograms. Interdisciplinary Inversion Conference, University of Copenhagen, Denmark, Août 1998.
- M. Charara, C. Barnes*, and A. Tarantola. Full waveform inversion of seismic data for a visco-elastic medium. Interdisciplinary Inversion Conference, University of Copenhagen, Denmark, Août 1998.
- M. Charara*, C. Barnes, and A. Tarantola. The state of affairs in inversion of seismic data : an OVSP example. pages 1999–2002. S.E.G. meeting, Denver, USA, Novembre 1996.
- M. Charara*, C. Barnes, and A. Tarantola. Constrained seismic well data waveform inversion. volume 76 of *EOS Transactions*, page 418. A.G.U. meeting, San Fransisco, USA, Décembre 1995.

- C. Barnes* and A. Tarantola. Geological information and inversion of seismic data. Interdisciplinary Inversion Conference, Aarhus, Denmark, Mai 1995.
- M. Charara*, C. Barnes, and A. Tarantola. Waveform inversion for VSP data. Interdisciplinary Inversion Conference, Aarhus, Denmark, Mai 1995.
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