

## LIST OF PUBLICATIONS (October 2015)

Jocelyne Erhel

*Most journal papers are in web of science (except papers Multiphysics-2008, ETNA-1995, 1990, 1986, 1984).*

*Only proceedings Europar 2007 and PDPTA 2005 are in web of science.*

*Only some journal papers are in mathscinet; only some journal and proceedings papers are in DBLP.*

### Thesis and HdR

1. Erhel, J. (1982), 'Parallélisation d'algorithmes numériques', thèse de 3<sup>e</sup> cycle, Université de Paris 6, France.
2. Erhel, J. (1992), 'Vitesse et précision en calcul scientifique', Habilitation à Diriger des Recherches, Université de Rennes 1, France.

### International journals

1. Erhel, J.; Lichnewsky, A. & Thomasset, F. (1984), 'Some algorithms for vector or parallel computers', *Physica A* **124**, 587-602.
2. Erhel, J. (1986), 'parallel programming and applications on Cray-XMP', *Supercomputer* **14**.
3. Erhel, J. (1990), 'sparse matrix multiplication on vector computers', *international journal on high speed computing* **2**, 101-106.
4. Erhel, J.; Traynard, A. & Vidrascu, M. (1991), 'An Element by Element Preconditioned Conjugate Gradient Method implemented on a Vector Computer', *Parallel Computing* **17**, 1051-1065.
5. Erhel, J. (1993), 'Experiments with Data Perturbations to Study Condition Numbers and Numerical Stability', *Computing* **51**, 29-44.
6. Carpraux, J. & Erhel, J. (1994), 'SESAME - A Knowledge-Based System for Eigenvalue Problems', *Mathematics and Computers in Simulation* **53**, 315-325.
7. Carpraux, J.; Erhel, J. & Sadkane, M. (1994), 'Spectral portrait for non hermitian large sparse matrices', *Computing* **53**, 301-310.
8. Bristeau, M.; Féat, P.; Erhel, J.; Glowinski, R. & Périaux, J. (1995), 'Solving the Helmholtz equation at high wave numbers on a parallel computer with a shared virtual

- memory', *International Journal of Supercomputer Applications and High Performance Computing* **9:1**, 18-28.
9. Erhel, J. (1995), 'A parallel GMRES version for general sparse matrices', *Electronic Transactions on Numerical Analysis* **3**, 160-176.
  10. Choquet, R. & Erhel, J. (1996), 'Newton-GMRES algorithm applied to compressible flows', *International Journal for Numerical Methods in Fluids* **23**, 177-190.
  11. Erhel, J.; Burrage, K. & Pohl, B. (1996), 'Restarted GMRES preconditioned by deflation', *Journal of Computation and Applied Mathematics* **69**, 303-318.
  12. Burrage, K.; Williams, A.; Erhel, J. & Pohl, B. (1996), 'The implementation of a Generalized Cross Validation algorithm using deflation techniques for linear systems', *J. Applied Numerical Mathematics* **19**, 17-31.
  13. Bristeau, M. & Erhel, J. (1998), 'Augmented Conjugate Gradient. Application in an iterative process for the solution of scattering problems', *Numerical Algorithms* **18**, 71-90.
  14. Burrage, K.; Erhel, J.; Pohl, B. & Williams, A. (1998), 'A deflation technique for linear systems of equations', *SIAM Journal on Scientific Computing* **19**(4), 1245-1260.
  15. Burrage, K. & Erhel, J. (1998), 'On the performance of various adaptive preconditioned GMRES', *Numerical Linear Algebra with Applications* **5**, 101-121.
  16. Saad, Y.; Yeung, M.; Erhel, J. & Guyomarc'h, F. (2000), 'A deflated version of the Conjugate Gradient Algorithm', *SIAM Journal on Scientific Computing* **21**(5), 1909-1926.
  17. Erhel, J. & Guyomarc'h, F. (2000), 'An Augmented Conjugate Gradient Method for solving consecutive symmetric positive definite systems', *SIAM Journal on Matrix Analysis and Applications* **21**(4), 1279-1299.
  18. Hoteit, H.; Erhel, J.; Mosé, R.; Philippe, B. & Ackerer, P. (2002), 'Numerical Reliability for Mixed Methods Applied to Flow Problems in Porous Media', *Computational Geosciences* **6**, 161-194.
  19. Hoteit, H.; Mosé, R.; Philippe, B.; Ackerer, P. & Erhel, J. (2002), 'The maximum principle violations of the mixed-hybrid finite-element method applied to diffusion equations', *International Journal for Numerical Methods in Engineering* **55**, 1373-1390.
  20. Altas, I.; Erhel, J. & Gupta, M. (2002), 'High Accuracy Solution of Three-Dimensional Biharmonic Equations', *Numerical Algorithms* **29**(1), 1-19.
  21. Brieu, M. & Erhel, J. (2003), 'On the convergence of a non-incremental homogenization method for non-linear elastic composite materials', *Numerical Algorithms* **32**, 141-161.

22. de Dreuzy, J. & Erhel, J. (2003), 'Efficient algorithms for the determination of the connected fracture network and the solution to the steady-state flow equation in fracture networks', *Computers and Geosciences* **29**, 107-111.
23. Hoteit, H.; Ackerer, P.; Mosé, R.; Erhel, J. & Philippe, B. (2004), 'New two-dimensional slope limiters for discontinuous Galerkin methods on arbitrary meshes', *International Journal of Numerical Methods in Engineering* **61**, 2566-2593.
24. de Dreuzy, J.; Davy, P.; Erhel, J. & de Bremond d'Ars, J. (2004), 'Anomalous diffusion exponents in continuous two-dimensional multifractal media', *Physical Review E* **70**, 016306 (6 pages).
25. de Dreuzy, J.; Beaudoin, A. & Erhel, J. (2007), 'Asymptotic dispersion in 2D heterogeneous porous media determined by parallel numerical simulations', *Water Resource Research* **43**, W10439 (doi:10.1029/2006WR005394).
26. Zein, S.; Canot, E.; Erhel, J. & Nassif, N. (2008), 'Determination and Sensitivity Analysis of the Seismic Velocity of a Shallow Layer from Refraction Traveltimes Measures', *International Journal of Multiphysics* **2**(4), 437-456.
27. Zein, S.; Canot, É.; Erhel, J. & Nassif, N. (2008), 'Determination of the Mechanical Properties of a Solid Elastic Medium from a Seismic Wave Propagation Using Two Statistical Estimators', *Mathematics and Mechanics of Solids*, **13**, 388 – 407.
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29. Erhel, J.; de Dreuzy, J.-R. & Poirriez, B. (2009), 'flow simulations in three-dimensional Discrete Fracture Networks', *SIAM Journal on Scientific Computing* **31**(4), 2688-2705.
30. de Dieuleveult, C.; Erhel, J. & Kern, M. (2009), 'A global strategy for solving reactive transport equations', *Journal of Computational Physics* **228**, 6395-6410.
31. Carrayrou, J.; Hoffmann, J.; Knabner, P.; Kräutle, S.; de Dieuleveult, C.; Erhel, J.; der Lee, J. V.; Lagneau, V.; Mayer, K. & MacQuarrie, K. (2010), 'Comparison of numerical methods for simulating strongly non-linear and heterogeneous reactive transport problems – the MoMaS benchmark case', *Computational Geosciences*, **14**, 483-502.
32. de Dieuleveult, C. & Erhel, J. (2010), 'A global approach to reactive transport: application to the MoMas benchmark', *Computational Geosciences*, **14**, 451-464.
33. Hariga-Tlatli, N.; Baranger, T. N. & Erhel, J. (2010), 'Misfit functionals for recovering data in ElectroCardioGraphy problems', *Engineering Analysis with Boundary Elements* **34**, 492-500.

34. Pichot, G.; Erhel, J. & de Dreuzy, J.-R. (2010), 'A mixed hybrid Mortar method for solving flow in discrete fracture networks', *Applicable Analysis*, **89**, 1629–1643.
35. Beaudoin, A.; de Dreuzy, J.-R. & Erhel, J. (2010), 'Numerical monte-carlo analysis of the influence of pore scale dispersion on macrodispersion in 2D heterogeneous porous media', *Water Resources Research*, **46**, W12537.
36. Erhel, J.; Mghazli, Z. & Oumouni, M. (2011), 'Calcul de l'espérance de la solution d'une EDP stochastique unidimensionnelle à l'aide d'une base réduite', *Comptes Rendus Mathématique* **349**, 861-865.
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40. Nuentza Wakam, D. & Erhel, J. (2013), 'Parallelism and robustness in GMRES with the Newton basis and the deflated restarting', *Electronic Transactions on Numerical Analysis* **40**, 381-406.
41. Beaudoin, A.; de Dreuzy, J.-R.; Erhel, J. & Pichot, G. (2013), 'Convergence analysis of macrospeading in 3D heterogeneous porous media', *ESAIM Proceedings* **41**, 59-76.
42. Erhel, J.; Mghazli, Z. & Oumouni, M. (2014), 'A combined collocation and Monte-Carlo method for advection-diffusion equation of a solute in random porous media', *ESAIM: Proceedings and Surveys* **45**, 328-337.
43. Erhel, J.; Mghazli, Z. & Oumouni, M. (2015), 'An adaptive sparse grid method for elliptic PDE with stochastic coefficients', *Computer Methods in Applied Mechanics and Engineering*.

## Books

1. Bajard, J.; Beaumont, O.; Chesneaux, J.; Daumas, M.; Erhel, J.; Michelucci, D.; Muller, J.; Philippe, B.; Revol, N.; J-L.Roch & Vignes, J. (1997), *Qualité des Calculs sur Ordinateurs. Vers des arithmétiques plus fiables ?*, Masson. Version anglaise disponible également.
2. Tromeur-Dervout, D.; Brenner, G.; Emerson, D. & Erhel, J., ed. (2010), *PARCFD'2008 conference proceedings*, LNCSE, Springer.
3. Erhel, J.; Gander, M.; Halpern, L.; Pichot, G.; Sassi, T. & Widlund, O., ed., (2014), *Domain Decomposition Methods in Science and Engineering XXI*, Springer.
4. Nassif, N.; Erhel, J. & Philippe, B. (2015), *introduction to computational linear algebra*, CRC Press, Taylor and Francis group.

## Proceedings of international conferences and book chapters

1. Erhel, J.; Lichnewsky, A. & Thomasset, F. (1982), Parallelism in finite element computation, *in* 'IBM Symposium on Parallel Processing'.
2. Erhel, J.; Lichnewsky, A. & Thomasset, F. (1983), Some algorithms for vector or parallel computers, *in* '7th Int congress on mathematical physics', North-Holland.
3. Erhel, J.; Jalby, W.; Lichnewsky, A. & Thomasset, F. (1985), Recent developments in parallel and vector processing, *in* 'Proc. of the sixth int'l. symposium on Computing methods in applied sciences and engineering', North-Holland, pp. 249 - 253.
4. Angrand, F. & Erhel, J. (1986), Vectorized finite element codes for compressible flows, *in* 'Finite Element in Flow Problems', F. Antibes, ed., New York, 1988, John Wiley & Son.
5. Erhel, J.; Lichnewsky, A. & Thomasset, F. (1986), Vectorizing Finite Element Methods, *in* P. Chenin; C. Di Crescenzo & F. Robert, ed., 'Computers and computing ; Informatique et calcul', Masson, pp. 255-269.
6. Eisenbeis, C. & Erhel, J. (1986), Expériences sur le calculateur vectoriel ST100, *in* P. Chenin; C. Di Crescenzo & F. Robert, ed., 'Computers and computing ; Informatique et calcul', Masson, pp. 250-254.
7. Erhel, J. (1987), Finite element methods on parallel and vector computers; applications in fluid dynamics, *in* '1st International Conference on Supercomputing (ICS)', Springer-Verlag, , pp. 768 - 781.
8. Erhel, J. (1988), parallelization of finite element methods by domain decomposition, *in* '2nd international symposium on domain decomposition methods'.
9. Erhel, J. & Philippe, B. (1988), Multiplication of a vector by a sparse matrix on supercomputers, *in* Vanneschi, M. Cosnard, M.H. Barton, ed., 'IFIP working conference on Parallel Processing', North-Holland.
10. Angrand, F.; Erhel, J. & Leyland, P. (1989), Fully vectorized implicit scheme for 2D viscous hypersonic flow using adaptive finite element methods, *in* 'International Symposium on Numerical Methods in Engineering, pp. 765-774.
11. Erhel, J. (1989), Simulation of compressible flows on supercomputers, *in* 'Finite element analysis in fluids; Proceedings of the Seventh International Conference on Finite Element Methods in Flow Problems', University of Alabama in Huntsville Press, pp. 1219-1224.
12. Erhel, J.; Tallec, P.L. & Vidrascu, M. (1989), Parallel implementation of an algorithm for domain decomposition methods applied to three-dimensional elasticity problems, *in* '5e congrès international sur les méthodes numériques de l'ingénieur'.

13. Erhel, J. & Vidrascu, M. (1989), Adapting algorithms and data structures to supercomputers in finite element calculations, *in* P. Ladevèze J.M. Fouet & R. Ohayon, ed., 'Calcul des Structures et Intelligence Artificielle', Pluralis, pp. 403-417.
14. Erhel, J. & Philippe, B. (1991), Aquarels: A problem-solving environment for numerical quality, *in* R. Vichnevetsky & J. Miller, ed., '13th IMACS World Congress on Computation and Applied Mathematics', pp. 45-46.
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18. Bristeau, M.; Erhel, J.; Glowinski, R. & Périaux, J. (1993), 'A Time Dependent Approach to the Solution of the Helmholtz Equation at HighWave Numbers', *in* Norfolk, ed., '6th SIAM Conference on Parallel Processing for Scientific Computing', 258-261.
19. Hahad, M.; Erhel, J. & Priol, T. (1994), Scheduling strategies for Sparse Cholesky factorization on a shared virtual memory parallel computer, *in* 'International Conference on Parallel Processing', pp. 290-297.
20. Hahad, M.; Priol, T. & Erhel, J. (1995), Compiling Assemblage Patterns on Shared Virtual Memory Multicomputers, *in* 'Third Workshop on Languages, Compilers, and Run-Time Systems for Scalable Computers'.
21. Hahad, M.; Priol, T. & Erhel, J. (1995), Irregular Loop Patterns Compilation on Distributed Shared Memory Multiprocessors, *in* 'International Conference on Parallel Processing', pp. 113-116.
22. Erhel, J.; Hahad, M. & Priol, T. (1996), 'No-compile-time-knowledge' distribution of finite element calculations on multiprocessors, *in* '29th Hawaii International Conference of System Sciences (HICSS'96)', pp. 614-615.
23. Erhel, J. (1996), A Parallel Preconditioned GMRES Algorithm for Sparse Matrices, *in* M. Shub J. Renegar & S. Smale, ed., 'Lectures in Applied Mathematics, The Mathematics of Numerical Analysis', AMS, pp. 345-355.
24. Erhel, J. (1997), *About Newton-Krylov methods*, John Wiley & Sons, Chichester, pp. 53-61.

25. Beaumont, O.; Erhel, J. & Philippe, B. (2000), *Enabling technologies for computational science*, Kluwer Academic Publishers, Boston, chapter 28: Aquarels: a problem-solving environment for validating scientific software, pp. 351-357.
26. Erhel, J. & Kern, M. (2005), Numerical Methods for Chemistry and for Coupling Transport with Chemistry in Porous Media, *in* A. Mikelic; Ch. Scwhab & C. J. van Duijn, ed., 'Reactive Flow and Transport Through Complex Systems', pp. 2795-2798.
27. Mustapha, H.; Erhel, J. & de Dreuzy, J. (2005), 'Heterogeneous Fractured Media: Mathematical Analysis and Parallel Computing', *in* 'International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'05)', pp. 1031-1034.
28. Beaudoin, A.; Erhel, J. & de Dreuzy, J.-R. (2006), A comparison between a direct and a multigrid sparse linear solvers for highly heterogeneous flux computations, *in* 'Eccomas CFD 2006' (CD).
29. Beaudoin, A.; de Dreuzy, J.; Erhel, J. & Mustapha, H. (2006), Parallel Simulations of Underground Flow in Porous and Fractured Media, *in* G.R. Joubert; W.E. Nagel; F.J. Peters; O. Plata; P. Tirado & E. Zapata, ed., 'Parallel Computing: Current and Future Issues of High-End Computing', NIC, pp. 391-398.
30. Canot, É.; de Dieuleveult, C. & Erhel, J. (2006), A parallel software for a saltwater intrusion problem, *in* G.R. Joubert; W.E. Nagel; F.J. Peters; O. Plata; P. Tirado & E. Zapata, ed., 'Parallel Computing: Current and Future Issues of High-End Computing', NIC, pp. 399-406.
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34. Beaudoin, A.; de Dreuzy, J. & Erhel, J. (2007), An efficient parallel particle tracker for advection-diffusion simulations in heterogeneous porous media, *in* A.-M. Kermarrec; L. Bougé & T. Priol, ed., 'Euro-Par 2007, Lecture Notes in Computer Science 4641', Springer-Verlag, Berlin, Heidelberg, pp. 705-714.
35. de Dieuleveult, C. & Erhel, J. (2008), Global method for coupling reactive transport, *in* B. A. Schrefler & U. Perego, ed., 'Proceedings of IACM-ECCOMAS 2008 Congress', CD, 2 pages.



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37. Erhel, J. (2009), Stochastic groundwater simulations for highly heterogeneous porous media, *in* B. Amaziane; D. Barrera; M. Fortes; M. Ibanez; M. Odunlami; A. Palomares; M. Pasadas; M. Rodriguez & D. Sbibih, ed., 'Proceedings of the third international conference on approximation methods and numerical modelling in environment and natural resources, MAMERN'09', EUG, pp. 419-422.
38. Pichot, G.; de Dreuzy, J.-R.; Erhel, J. & Davy, P. (2009), Flow in multi-scale fracture networks: numerical optimization by use of a Mortar-like method, *in* B. Amaziane; D. Barrera; M. Fortes; M. Ibanez; M. Odunlami; A. Palomares; M. Pasadas; M. Rodriguez & D. Sbibih, ed., 'Proceedings of the third international conference on approximation methods and numerical modelling in environment and natural resources, MAMERN'09', EUG, pp. 761-766.
39. Erhel, J.; de Dreuzy, J.; Beaudoin, A.; Bresciani, E. & Tromeur-Dervout, D. (2009), A parallel scientific software for heterogeneous hydrogeology, *in* Ismail H. Tuncer; Ulgen Gulcat; David R. Emerson & Kenichi Matsuno, ed., 'Proceedings of the Parallel Computational Fluid Dynamics 2007 conference', Lecture Notes in Computational Science and Engineering, Springer, pp. 39-48.
40. Nuentza-Wakam, D.; Erhel, J.; Canot, É. & Atenekeng-Kahou, G. (2010), A comparative study of some distributed linear solvers on systems arising from fluid dynamics simulations, *in* B. Chapman; F. Desprez; G. Joubert; A. Lichnewsky; F. Peters & T. Priol, ed., 'Parallel Computing: from Multicores and GPU's to Petascale (proceedings of PARCO'09)', IOS Press, pp. 51-58.
41. Erhel, J.; de Dreuzy, J.-R. & Bresciani, E. (2010), Multi-parametric intensive stochastic simulations for hydrogeology on a computational grid, *in* D. Tromeur-Dervout; G. Brenner; D. Emerson & J. Erhel, ed., 'Proceedings of the Parallel Computational Fluid Dynamics 2008 conference', Lecture Notes in Computational Science and Engineering, Springer, pp. 389-397.
42. Nuentza-Wakam, D.; Erhel, J. & Canot, É. (2010), Parallélisme à deux niveaux dans GMRES avec un préconditionneur Schwarz multiplicatif, *in* E. Badouel; A. Sbihi & I. Lokpo, ed., 'proceedings of CARI'2010', INRIA, pp. 189-196.
43. Erhel, J. (2011), *Computational Technology Reviews*, Saxe-Coburg Publications, chapter Some Properties of Krylov Projection Methods for Large Linear Systems, pp. 41-70.
44. Nuentza Wakam, D.; Erhel, J. & Canot, É. (2011), Robustness in hybrid algebraic solvers for large linear systems, *in* 'Proceedings of 23th International Conference on Parallel Computational Fluid Dynamics (Parallel CFD 2011)', pp. 5 pages.

45. Erhel, J.; Lejay, A. & Pichot, G. (2011), Comparison of some lagrangian schemes for the simulation of diffusion in discontinuous media, *in* B. Amaziane; D. Barrera; H. Mraoui; M.L. Rodriguez & D. Sbibi, ed., 'Proceedings of the 4th International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources (MAMERN'11)', EUG, , pp. 319-322.
46. Poirriez, B. & Erhel, J. (2011), Flow computations in 3D Discrete Fracture Networks using a Domain Decomposition Method, *in* B. Amaziane; D. Barrera; H. Mraoui; M.L. Rodriguez & D. Sbibi, ed., 'Proceedings of the 4th International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources (MAMERN'11)', EUG, , pp. 603-606.
47. Nuentza Wakam, D.; Erhel, J. & Gropp, W.; Bank, R.; Holst, M.; Widlund, O. & Xu, J., ed., (2013), *Domain Decomposition Methods in Science and Engineering XX*, Springer, chapter Parallel Adaptive Deflated GMRES, pp. 631-638.
48. Erhel, J.; Sabit, S. & de Dieuleveult, C.; Topping, B. & Iványi, P., ed., (2013), *Computational Science, Engineering and Technology Series*, Saxe-Coburg Publications, chapter Solving Partial Differential Algebraic Equations and Reactive Transport Models, pp. 151-169.
49. Sabit, S. & Erhel, J. (2013), Modèles numériques de transport réactif en milieu poreux, *in* T. Ali Ziane; N. Kahoul; D. E. Teniou; N. Zaidi & O. Zair, ed., 'Sixième colloque sur les Tendances dans les Applications Mathématiques en Tunisie, Algérie, Maroc (TAM-TAM)', pp. 309-314.
50. Oumouni, M.; Erhel, J. & Mghazli, Z. (2013), Numerical analysis of a method quantifying a solute transport in random media, *in* B. Amaziane; D. Barrera; J. Martínez-Aroza & A. Palomares and D. Sbibi, ed., 'Proceedings of the 5th International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources (MAMERN'13)'
51. Makhoul-Karam, N.; Nassif, N. & Erhel, J. (2014), An Adaptive Parallel-in-Time Method with application to a membrane problem, *in* Jocelyne Erhel; Martin Gander; Laurence Halpern; Géraldine Pichot; Taoufik Sassi & Olof Widlund, ed., 'Domain Decomposition Methods in Science and Engineering XXI', Springer.
52. Pichot, G.; Poirriez, B.; Erhel, J. & de Dreuzy, J.-R. (2014), A Mortar BDD method for solving flow in stochastic discrete fracture networks, *in* Jocelyne Erhel; Martin Gander; Laurence Halpern; Géraldine Pichot; Taoufik Sassi & Olof Widlund, ed., 'Domain Decomposition Methods in Science and Engineering XXI', Springer.

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## National journals, book chapters and proceedings

1. Erhel, J. (1992), Quelques exemples d'algorithmes numériques sur architectures vectorielles et parallèles à mémoire partagée, Masson, chapter 13, pp. 185-200.
2. Erhel, J. & Gourdou, O. (1997), 'Méthodes et outils pour les problèmes de précision numérique', *Revue internationale de CFAO et informatique graphique* **12** (1-2), 131-138.
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4. Brieu, M.; Devries, F. & Erhel, J. (2001), 'Algorithme parallèle non incrémental pour la simulation de l'évolution d'endommagements en milieux hyperélastiques', *Calculateurs parallèles, réseaux et systèmes répartis* **13**, 83-106.
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6. Beaudoin, A.; de Dreuzy, J. & Erhel, J. (2005), Transport dans les milieux poreux hétérogènes: Détermination des lois macroscopiques, *in* 'XXIIIèmes Rencontres Universitaires de Génie Civil'. Proceedings.
7. Beaudoin, A.; de Dreuzy, J. & Erhel, J. (2007), Utilisation du calcul parallèle pour étudier numériquement la macro dispersion dans les aquifères, *in* 'Congrès Français de Mécanique CFM'. Proceedings and two posters.

## National general journals

1. Erhel, J. & de Dreuzy, J.-R. (2009), 'Modélisation hydrogéologique: des pollutions suivies à la trace', *La Recherche, les cahiers de l'INRIA* (430).
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8. Erhel, J. & Leininger, C., ed., (2013), *les mathématiques de la terre*, Textes et Documents pour la Classe (TDC).

## **International and national conferences (invited plenary talks)**

1. Erhel, J.; Ackerer, P.; de Dreuzy, J.; Kern, M.; Leroy, H. & Perez, C. (2002), Couplage par composants logiciels de codes d'hydrogéologie, *in* 'École thématique Grid 2002'. Invited lecture.
2. Canot, É. & Erhel, J. (2003), 'Simulation de problèmes couplés d'hydro-géologie : utilisation d'une grille de calcul et d'un modèle de composants logiciels', 'Renpar'15', La Colle sur Loup. Invited plenary talk.
3. Erhel, J. (2004), Modèles numériques et calculs sur une grille appliqués à des problèmes d'hydrogéologie, Semestre Calcul Numérique Intensif de la Chaire Unesco, Tunis. Invited lecture.
4. Erhel, J. (2006), Nonlinear methods for reactive transport simulations, Int. conf. on Approximation and Iterative Methods, Lille. Invited plenary talk.
5. Erhel, J. (2007), A parallel scientific software for heterogeneous hydrogeology, Parallel CFD, Antalya. Invited plenary talk.
6. Erhel, J. (2009), Stochastic groundwater simulations for highly heterogeneous porous media, MAMERN'09'. Invited plenary talk.
7. Erhel, J. (2010), 'Modélisation et simulation appliquées au suivi de pollution des nappes phréatiques', 'MMS', INSA Rennes. Invited lecture.
8. Erhel, J. (2011), 'Parallel sparse linear solvers', PARENG11. Invited plenary talk.
9. Erhel, J. (2012), 'PARADIS: modélisation stochastique du transport de soluté dans un milieu hétérogène', CANUM'2012. Invited plenary talk.
10. Erhel, J.; Sabit, S. & de Dieuleveult, C. (2013), 'Solving Partial Differential Algebraic Equations and Reactive Transport Models', 'The Third International Conference on Parallel, Distributed, Grid and Cloud Computing for Engineering'. Invited plenary talk.
11. Pacull, F.; Gibert, P.; Sabit, S.; Erhel, J. & Tromeur-Dervout, D. (2014), 'Parallel Preconditioners for 3D Global Reactive Transport' 'Parallel CFD 2014', Trondheim, Norway, invited keynote lecture.

## **International conferences (invited conference or mini-symposium talk, with book of abstracts)**

1. Brieu, M. & Erhel, J. (1999), 'simulation of damage evolution in nonlinear elastic materials' SCICADE', Fraser Island, Australie. Organization of a minisymposium.
2. Erhel, J. (1999): 'Direct and iterative sparse linear solvers', workshop of the european project CRUCID, Rabat. Invited contribution.
3. Altas, I.; Erhel, J. & Gupta, M. (2000), 'Iterative solvers for solving biharmonic equations', Workshop on 'Matrix Iterative Analysis and Biorthogonality', Luminy, France. Invited contribution.
4. Canot, É. & Erhel, J. (2002), 'Some inverse problems in electrocardiography', '2nd workshop, ERCIM Working Group on Matrix Computations and Statistics', Rennes, France. Invited contribution.
5. Erhel, J. & de Dreuzy, J.-R. (2003), 'A compact scheme for numerical simulation of flow circulation in highly heterogeneous porous media', 'ICIAM', Sydney, Australia. Invited talk in a minisymposium.
6. Erhel, J. & de Dreuzy, J.-R. (2003), 'Modelling Flow and Transport in Subsurface Complex Fracture Networks', 'SIAM GS', Austin, USA. Invited talk in a minisymposium.
7. de Dreuzy, J.; Davy, P. & Erhel, J. (2003), 'Well test interpretation in heterogeneous media', 'Workshop of European grant SALTRANS', Majorque, Spain. Invited contribution.
8. Erhel, J. (2005), 'A Global Method for Reactive Transport in Porous Media', 'SIAM on Computational Geosciences'05'. Invited talk in a minisymposium.
9. Erhel, J. (2005), 'Coupling flow, transport, heat transfer and geochemistry', Workshop on Model order reduction, coupled problems and optimization, Leiden, Pays-Bas. Invited contribution.
10. Mustapha, H.; de Dreuzy, J. & Erhel, J. (2005), 'Discrete Fracture Modeling of 3D Flow in Multi-scale Fracture Networks', 'SIAM on Computational Geosciences'05'. Organization of a minisymposium by J.Erhel and J.Roberts.
11. Erhel, J. (2006), 'Simulation numérique du transport de solutés dans des milieux poreux hétérogènes', Workshop on High Performance Computing, Tunis. Invited talk.
12. Erhel, J.; de Dreuzy, J.; Beaudoin, A. (2007), 'Direct and iterative sparse linear solvers applied to groundwater flow simulations', M2A07, Marseille. Invited talk.

13. Erhel, J.; de Dreuzy, J.; Beaudoin, A. & Tromeur-Dervout, D. (2007), 'High performance flow simulation in discrete fracture networks and heterogeneous porous media', 'SIAM on Computational Geosciences'07', Santa Fe (USA). Organization of a mini-symposium by J.Erhel and J.Roberts.
14. Erhel, J. & de Dieuleveult, C. (2008), 'A global strategy for solving reactive transport equations', 'First conference of SM2A. Porous media and scientific computing', Marocco. Invited talk in a minisymposium.
15. Poirriez, B.; Erhel, J. & de Dreuzy, J.-R. (2009), 'Flow simulation in 3D Discrete Fracture Networks', 'SIAM Conference on mathematical and computational issues in the Geosciences', Leipzig, Germany. Organization of a mini-symposium by J.Erhel and J.Roberts.
16. Erhel, J. & de Dieuleveult, C. (2009), 'Analysis of Numerical Methods for Coupling Transport Andgeochemistry Equations', 'SIAM Conference on mathematical and computational issues in the Geosciences', Leipzig, Germany. Invited talk in a minisymposium.
17. de Dieuleveult, C. & Erhel, J. (2009), 'Numerical Results with a Global Method for 2D Reactive Transport Problems', 'SIAM Conference on mathematical and computational issues in the Geosciences', Leipzig, Germany. Invited talk in a mini-symposium.
18. Nuentza-Wakam, D.; Canot, E. & Erhel, J. (2009), 'Comparison of some linear solvers on systems arising from fluid dynamics' 'Numerical methods and North-South Cooperation NUMCOOP'09', Yaounde, Cameroon. International conference organized by J. Erhel, E. Canot and E. Kamgnia.
19. Erhel, J.; Poirriez, B.; Pichot, G. & de Dreuzy, J.-R. (2009), 'How to compute flow in three-dimensional fracture networks'. 'Numerical methods and North-South Cooperation NUMCOOP'09', Yaounde, Cameroon. International conference organized by J. Erhel, E. Canot and E. Kamgnia.
20. Erhel, J.; ben Abda, A. & Khalfallah, S. (2010), 'Methods based on an energy formulation for data completion problems'. 'Inverse Problems, Computation, and Applications', Marseille, France. Invited talk.
21. Erhel, J.; de Dreuzy, J.-R.; Poirriez, B. & Pichot, G. (2010), 'Numerical schemes for simulation of steady-state flow in 3D Discrete Fracture Networks'. 'International congress in mathematical fluid dynamics and its applications (MFD)', Rennes, France. Organization of a mini-symposium by J. Erhel.
22. Nuentza Wakam, D.; Erhel, J. & Canot, É. (2010), 'GMRES with deflated restarting and multiplicative Schwarz preconditioner'. 'Third Workshop of the INRIA-Illinois Joint Laboratory on Petascale Computing', Invited talk.



23. Nuentza Wakam, D.; Erhel, J.; Canot, É. & Gropp, W. (2010), 'Parallel implementation of the deflated GMRES in the PETSc package'. 'Fourth Workshop of the INRIA-Illinois Joint Laboratory on Petascale Computing', Invited talk.
24. Nuentza Wakam, D.; Erhel, J. & Gropp, W. (2011), 'About deflated Parallel GMRES'. 'Fifth workshop of the INRIA-Illinois Joint Laboratory on Petascale Computing', Grenoble, invited talk.
25. Pichot, G.; Beaudoin, A.; Charrier, J.; Soualem, N.; Erhel, J.; de Dreuzy, J.-R. & Kern, M. (2011), 'Simulation of Transport in 2D Heterogeneous Porous Media via a Random Walk Particle Tracking method'. '2011 SIAM Conference on Mathematical and Computational Issues in the Geosciences', organization of a mini-symposium by G. Pichot and M. Kern.
26. Poirriez, B.; Erhel, J. & Pichot, G. (2011), 'Schur Complement Preconditioning for Flow Simulation in 3D Discrete Fracture Networks'. '2011 SIAM Conference on Mathematical and Computational Issues in the Geosciences', invited in a mini-symposium.
27. Nuentza Wakam, D. & Erhel, J. (2012), 'Parallel deflated GMRES with the Newton basis'. 'SIAM Conference on Applied Linear Algebra', Spain, invited in a minisymposium.
28. Sabit, S.; Erhel, J. & Canot, É. (2012), 'Numerical methods of reactive transport: global approach DAE'. 'First Brazil France workshop on High performance computing and scientific data management driven by highly demanding applications', Nice, France, invited talk.
29. Sabit, S.; Erhel, J. & Canot, É. (2012), 'Méthodes Numériques de transport réactif : approche globale DAE'. '3<sup>ème</sup> Conférence Internationale de la Société Marocaine de Mathématiques Appliquées (SM2A)', Marrakech, Maroc, invited in a minisymposium.
30. Erhel, J. (2012), 'Solving linear systems arising from flow simulations in 3D Discrete Fracture Networks'. 'The Seventh Workshop of the INRIA-Illinois Joint Laboratory on Petascale Computing', Rennes, France, invited talk.
31. Nuentza Wakam, D. & Erhel, J. (2012), 'A parallel augmented GMRES algorithm'. '3rd Dolomites Workshop on Constructive Approximation and Applications (DWCAA12)', Alba di Canazei, Italy, invited talk in a minisymposium.
32. Erhel, J. (2012), 'MICAS: Modelling and Intensive Computation for Aquifer Simulations'. 'Grand colloque STIC 2012 (ANR)', Lyon, Invited contribution and poster.
33. Poirriez, B. & Erhel, J. (2012), 'Deflation and Neumann-Neumann Preconditionner for Schur Domain Decomposition Method'. 'The Twenty First International Conference on Domain Decomposition Methods (DD21)', Rennes, France, invited talk in a minisymposium.
34. Dufaud, T.; Erhel, J. & Pichot, G. (2013), 'Coupled Flow Model and Simulation in 3D Porous-fractured Media'. '2013 SIAM Conference on Mathematical and Computational

Issues in the Geosciences', Padova, Italy, invited talk in a minisymposium.

35. Beaudoin, A.; de Dreuzy, J.; Erhel, J. & Oumouni, M. (2014), 'Computation of macro spreading in 3D porous media with uncertain data'. 'SIAM Conference on Uncertainty Quantification', Savannah (USA), invited talk in a minisymposium.
36. Erhel, J. (2014), 'Uncertainty Quantification and High Performance Computing for flow and transport in porous media'. 'Workshop on Spatial Statistics and Uncertainty Quantification on Supercomputers', Bath (GB), invited talk.
37. Pichot, G.; Gentil, A. L.; Erhel, J. & de Dreuzy, J.-R. (2014), 'A Graphical User Interface for simulating flow and transport in fractured-porous media'. 'CMWR', Stuttgart (Germany), organization of a special session by J. Erhel.
38. Pichot, G.; Laug, P.; Erhel, J.; Roberts, J.; Jaffré, J. & de Dreuzy, J.-R. (2014), 'Meshing Strategies and the Impact of Finite Element Quality on the Velocity Field in Fractured Media'. 'SIAM Annual Meeting', organization of a mini-symposium by G. Pichot.
39. Migot, T. & Erhel, J. (2015), 'About some numerical models for geochemistry'. '6th International Conference on High Performance Scientific Computing', Hanoi (Vietnam), Invited talk in a minisymposium.
40. Erhel, J. & Sabit, S. (2015), A global reactive transport model applied to the MoMaS benchmark, 6th International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources MAMERN'15, Pau (France). Invited talk in a minisymposium.

## International Conferences (accepted contribution with book of abstracts)

1. Erhel, J.; Philippe, B.; Mallejac, N. & Paoletti, J. (1995), 'Aquarels: a problem-solving environment for numerical quality - review of the project and first use on realistic problems', 'ICIAM'. Accepted contribution.
2. Erhel, J.; Philippe, B. & Rault, S. (1997), 'Parallelization of satellite trajectory', in 'third European Cray-SGI MPP workshop', Paris. Accepted contribution.
3. Erhel, J.; Guyomarc'h, F. & Saad, Y. (2001), 'Least-squares polynomial filters for ill-conditioned linear systems', 'Conference on Applied Inverse Problems', Montecatini Terme, Italy. Accepted contribution.
4. Hoteit, H.; Erhel, J.; Philippe, B.; Mosé, R. & Ackerer, P. (2001), 'Numerical Reliability and Time Requirements for the Mixed Methods Applied to Flow Problems in Porous Media', 'Sixth SIAM Conference on mathematical and computational issues in the Geosciences', Boulder, CO, USA. Accepted contribution.
5. Erhel, J. & Canot, É. (2003), 'The inverse Electrocardiography Problem viewed as a General Linear Model', 'ICIAM', Sydney, Australia. Accepted contribution.
6. de Dieuleveult, C.; Canot, É. & Erhel, J. (2005), 'High Performance Computing Applied to a Saltwater Intrusion Numerical Model', 'SIAM on Computational Geosciences'05'. Accepted contribution.
7. Zein, S.; Erhel, J.; Nassif, N. & Canot, É. (2005), 'Determination of the material properties of a solid elastic medium in contact with a fluid medium with MCMC and SPSA'3rd Word Conference on Computational Statistics and Data Analysis (CSDA)', IASC. Accepted contribution.
8. Zein, S.; Erhel, J.; Nassif, N. & Canot, É. (2005), 'Recovery of the coefficients of the elastodynamics equation using two statistical estimators', 'Workshop on Inverse Problems (WIP2005)'. Accepted contribution.
9. de Dieuleveult, C. & Erhel, J. (2007), 'A numerical model for coupling chemistry and transport', 'International Conference on Scientific Computation And Differential Equations, SciCADE 2007'. Accepted contribution.
10. Nassif, N.; Erhel, J. & Makhoul-Karam, N. (2008), 'Ratio-Based Parallel Time Integration (RaPTI) for Satellite Trajectories', 'SIAM conference on Parallel Processing for Scientific Computing', Atlanta, USA. Accepted contribution.
11. Pichot, G.; Erhel, J. & de Dreuzy, J. (2008), 'A Mixed-Hybrid Mortar Method for Domain Decomposition with non matching grids applied to solve flow in Discrete Fracture Networks', 'Scaling Up and Modeling for Transport and Flow in Porous Media', Dubrovnik, Croatia. Accepted contribution.

12. de Dreuzy, J.; Beaudoin, A. & Erhel, J. (2008), 'Asymptotic dispersion in 2D heterogeneous porous media' (EGU2008-A-00000), 'EGU General Assembly', USA. Accepted contribution.
13. de Dieuleveult, C. & Erhel, J. (2008), 'A global approach for coupling chemistry and transport' 'International Workshop on Modelling reactive transport in porous media', Strasbourg. Accepted contribution.
14. Pichot, G.; Erhel, J. & de Dreuzy, J.-R. (2009), 'On the Simulation of Flow in Large-Scale Fractured Media', 'SIAM Conference on mathematical and computational issues in the Geosciences', Leipzig, Germany. Accepted contribution.
15. Poirriez, B.; Pichot, G. & Erhel, J. (2010), 'Domain decomposition methods applied to flow simulation in 3D Discrete Fracture Networks'. 'Eleventh Copper Mountain conference on iterative methods'. Accepted contribution.
16. Nassif, N.; Erhel, J. & Makhoul-Karam, N. (2010), 'Rescaling Systems of Ordinary Differential Equations: Control of Stiffness and Parallel-in-Time Integration'. 'Conference in Numerical Analysis NumAn2010'. Accepted contribution.
17. ben Abda, A.; Erhel, J. & Khalfallah, S. (2010), 'Fictitious domain decomposition technique for recovering missing boundary data: groundwater flow equation', *in* J. Carrera, ed., 'XVIII International Conference on Water Resources (CMWR 2010)', CIMNE, Barcelona. Accepted contribution.
18. Pichot, G.; Erhel, J. & de Dreuzy, J.-R. (2010), 'A non conforming mortar like method for modeling flow in 3d multiscale fracture networks', *in* J. Carrera (Ed), ed., 'XVIII International Conference on Water Resources (CMWR 2010)', CIMNE, Barcelona. Accepted contribution.
19. Erhel, J.; Mghazli, Z. & Oumouni, M. (2011), 'Calcul de l'espérance de la solution d'une EDP stochastique unidimensionnelle à l'aide d'une base réduite' 'TAM-TAM'11: 5ème colloque maghrébin de Mathématiques Appliquées.', Sousse, Tunisie. Accepted contribution.
20. Nuentza Wakam, D.; Erhel, J. & Canot, É. (2011), 'Deflated GMRES with Multiplicative Schwarz Preconditioner: A Challenge of Robustness and Parallelism' 'The Twentieth International Conference on Domain Decomposition Methods', La Jolla, California, USA. Accepted contribution.
21. Makhoul-Karam, N.; Nassif, N. & Erhel, J. (2012), 'Ratio-Based Parallel Time Integration'. '21st International Conference on Domain Decomposition Methods (DD21)', Rennes, France. Accepted contribution.
22. Erhel, J. & Sabit, S. (2013), 'A global method for reactive transport in porous media'. 'Numerical Analysis and Scientific Computation with Applications (NASCA13)',

Accepted contribution, page 38.

23. Oumouni, M.; Erhel, J. & Mghazli, Z. (2013), 'Méthode de Monte Carlo et des grilles clairsemées anisotropes pour la modélisation du transport de soluté dans un milieu aléatoire'. 'Congrès SMAI 2013', Accepted contribution, page 244.
24. Sabit, S. & Erhel, J. (2013), 'Méthodes Numériques de Transport Réactif en milieu poreux: approche globale DAE'. 'Congrès SMAI 2013', Accepted contribution, page 252.
25. Pichot, G.; Poirriez, B.; Erhel, J. & de Dreuzy, J.-R. (2013), 'A domain decomposition method for solving flow in stochastic Discrete Fracture Networks (DFN) on non-conforming mesh'. Domain Decomposition Methods in Science and Engineering XXII (DD22), Lugano, Swiss, contribution.

## National conferences

1. Erhel, J. & Gourdou, O. (1997), 'Méthodes et outils pour les problèmes de précision numérique "MICAD'97', Paris. Invited talk.
2. Hoteit, H.; Philippe, B.; Erhel, J.; Ackerer, P. & Mosé, R. (2002), 'Linear systems and mixed finite elements in hydrogeology', 'Sparse days at Cerfacs', Toulouse, France. Contribution.
3. Erhel, J.; Hoteit, H.; Ackerer, P.; Mosé, R. & Philippe, B. (2002), 'Simulation du transport de solutés en milieu poreux par séparation des opérateurs de convection et diffusion', 'Journées du GdR MOMAS', Rocquencourt, France. Invited talk.
4. Hoteit, H.; Mosé, R.; Ackerer, P.; Philippe, B. & Erhel, J. (2001), 'A propos de la stabilité de la méthode des Éléments Finis Mixtes', 'Congrès National de Mathématiques Appliquées et Industrielles', Pompadour, France. Contribution.
5. Erhel, J.; Hoteit, H.; Ackerer, P.; Mosé, R. & Philippe, B. (2002), 'méthodes d'éléments finis mixtes en hydrogéologie des milieux poreux', 'Journées du PNRH', Rocquencourt, France. Invited talk.
6. Erhel, J. & Kern, M. (2003), 'Méthodes numériques pour le transport réactif', 'Journées scientifiques du GdR MOMAS', Marseille, France. Contribution.
7. Erhel, J. & Kern, M. (2005), 'reactive transport', 'Journées scientifiques Momas'. Contribution.
8. de Dieuleveult, C. & Erhel, J. (2007), 'Couplage transport--chimie par une approche DAE : application au benchmark transport réactif', 'Journées scientifiques Momas'. Contribution.
9. Canot, É.; Zein, S.; Erhel, J. & Nassif, N. (2008), 'Application des méthodes d'optimisation stochastiques à deux problèmes d'inversion sismique', 'International marine science and technology week (Sea Tech): Appraisal of the Undersea Acoustics and Geophysics Elements of the Regional Strategic Development Plan', 'Sea Tech week, Brest, CPER "Acoustique et Sismique sous-marine" final meeting. Invited contribution.
10. Beaudoin, A.; de Dreuzy, J. & Erhel, J. (2008), 'Dispersion dans des milieux hétérogènes', 'XXIV Rencontres Universitaires de Génie Civil AUGC', Nancy, France. Contribution.
11. Erhel, J., Carrayrou J., Kern M. and Younes A. (2009), 'Méthodes numériques pour le transport réactif', 'Journées scientifiques Momas'. Invited contribution.
12. Erhel, J. (2010), 'MICAS: Modelling and Intensive Computation for Aquifer Simulations', 'Grand colloque STIC 2010 (ANR)', Paris, Invited contribution.

13. Erhel, J. (2010), 'Méthodes numériques pour des modèles couplés et stochastiques d'hydrogéologie'. 'Journée GNR MOMAS / GDR CALCUL', Paris. Invited contribution.
14. Erhel, J. (2010), 'How to solve a large sparse linear system arising in groundwater and CFD problems', 'Workshop on High Performance Computing for CO2 Geological Storage'. Invited contribution.
15. Erhel, J. & Kern, M. (2011), 'MoMaS: 10 years of reactive transport'. 'Journées scientifiques du GNR MOMAS', Marseille. Invited contribution.
16. Erhel, J. (2014), 'A global reactive transport model"Momass workshop', Marseille.
17. Erhel, J. (2014), 'Parallel sparse linear solvers and applications in CFD"Meeting Inria-CWI', Paris.
18. Erhel, J. (2014), 'Parallel sparse linear solvers and applications in CFD"Journée Calcul Intensif Distribué dans l'Industrie, Université Paris 13', Paris.
19. Erhel, J.; Sabit, S. & de Dieuleveult, C. (2014), 'A global reactive transport model"séminaire "applications des mathématiques" de l'ENS Rennes', Rennes, invited talk.

## Research reports

1. Erhel, J.; Lichnewsky, A. & Thomasset, F. (1982), 'Multiprocesseur INRIA: structure et fonctionnement'(14), Technical report, INRIA.
2. Erhel, J. (1983), 'Parallélisation d'un algorithme de Gradient Conjugué'(189), Technical report, INRIA.
3. Erhel, J. (1983), 'CREM User's manual'(25), Technical report, INRIA.
4. Eisenbeis, C. & Erhel, J. (1985), 'Etude des performances du calculateur vectoriel ST100'(51), Technical report, INRIA.
5. Erhel, J. (1985), 'Vectorizing finite element methods'(383), Technical report, INRIA.
6. Erhel, J. (1986), 'concurrent programming and numerical applications'(67), Technical report, INRIA.
7. Angrand, F. & Erhel, J. (1987), 'Simulation par éléments finis d'écoulements compressibles sur calculateurs vectoriels'(622), Technical report, INRIA.
8. Erhel, J. (1990), 'Erreur de calcul des ordinateurs'(552), Technical report, IRISA.
9. Erhel, J. (1991), 'Statistical estimation of roundoff errors and condition numbers'(1490), Technical report, INRIA.

10. Choquet, R. & Erhel, J. (1993), 'Some Convergence Results for the Newton-GMRES Algorithm'(2065), Technical report, INRIA.
11. Hahad, M.; Erhel, J. & Priol, T. (1993), 'Factorisation parallèle de Cholesky pour matrices creuses sur une mémoire virtuelle partagée'(1988), Technical report, INRIA.
12. Hahad, M.; Erhel, J. & Priol, T. (1993), 'A New Approach to Parallel Sparse Cholesky Factorization on DMPCs'(2081), Technical report, INRIA.
13. Hahad, M.; Priol, T. & Erhel, J. (1994), 'Irregular loop patterns compilation on distributed shared memory multiprocessors'(1862), Technical report, IRISA.
14. Erhel, J.; Philippe, B. & Rault, S. (1997), 'Parallélisation de calculs d' orbites'(3150), Technical report, INRIA.
15. Brieu, M.; Devries, F. & Erhel, J. (1998), 'Une méthode non incrémentale d'homogénéisation de structures élastomères. Application aux composites unidirectionnels'(3341), Technical report, INRIA.
16. Brieu, M. & Erhel, J. (1999), 'Une méthode non incrémentale d'homogénéisation de structures élastomères. Démonstration de la convergence.'(3599), Technical report, INRIA.
17. Erhel, J.; Guyomarc'h, F. & Saad, Y. (2001), 'Least-squares polynomial filters for ill-conditioned linear systems'(4175), Technical report, INRIA.



## Reports for contracts and grants

1. Erhel, J. & Thomasset, F. (1983), 'expertise du langage LC2', Technical report, INRIA.
2. Erhel, J. & Thomasset, F. (1983), 'expertise du langage Xanadu', Technical report, INRIA.
3. Bloch, T.; Erhel, J.; Herchuelz, P. & Lichnewsky, A. (1985), 'rapport d'expertise sur les calculateurs vectoriels japonais', Technical report, INRIA et CCVR.
4. Erhel, J. (1986), 'Experiments with the ETA multitasking library', Technical report, INRIA et Control Data.
5. Erhel, J. & Thomasset, F. (1986), 'rapport d'expertise sur les calculateurs vectoriels CONVEX et SCS-40', Technical report, INRIA.
6. Erhel, J. & Philippe, B. (1989), 'qualité numérique des logiciels scientifiques: étude de faisabilité du projet AQUARELS', Technical report, INRIA.
7. Erhel, J. & Philippe, B. (1991), 'dossier de spécifications d'Aquarels', Technical report, INRIA-CNES.
8. Erhel, J.; Jégou, Y. & Philippe, B. (1991), 'Rapport de conception préliminaire d'Aquarels: bibliothèques d'arithmétiques diverses', Technical report, INRIA-CNES.
9. Erhel, J. (1993), 'rapport d'activités sur KSR', Technical report, INRIA.
10. Erhel, J. & Paoletti, J. (1996), 'rapport de contrat sur l'utilisation d'Aquarels', Technical report, INRIA-Simulog-CNES.
11. Choquet, R. & Erhel, J. (1997), 'Amélioration de l'algorithmique pour un code de traitement automatique des relevés géo-acoustiques des fonds marins', Technical report, INRIA.
12. Erhel, J.; Philippe, B. & Rault, S. (1997), 'Analyse du comportement numérique de modules de calcul', Technical report, INRIA.
13. Erhel, J. (1998), 'Parallélisation du code MBTTRAY', Technical report, INRIA.
14. Erhel, J. (2000), 'Étude de la prise en compte des erreurs d'arrondi dans la preuve d'un algorithme de calcul de trajectoire', Technical report, INRIA.
15. Canot, É.; Erhel, J. & Zein, S. (2004), 'Développement de nouveaux moyens d'exploration géophysique : mise au point d'un modèle numérique pour la propagation des ondes élastiques ; 1<sup>ère</sup> partie.', Technical report, INRIA.

16. Canot, É.; Erhel, J. & Zein, S. (2005), 'Développement de nouveaux moyens d'exploration géophysique : mise au point d'un modèle numérique pour la propagation des ondes élastiques ; 2<sup>ème</sup> partie.', Technical report, INRIA.
17. Canot, É.; Erhel, J.; Nassif, N. & Zein, S. (2006), 'Estimation des propriétés d'un milieu élastique solide en contact avec un fluide à partir de la propagation d'une onde sismique', Technical report, INRIA.
18. de Dieuleveult, C.; Erhel, J. & Perez, C. (2006), 'Déploiement sur une grille de calcul de composants logiciels parallèles pour simuler l'intrusion d'eau salée dans une nappe d'eau souterraine', Technical report, INRIA.
19. de Dieuleveult, C. & Erhel, J. (2006), 'Modèle numérique global et performant pour le couplage géochimie/transport', Technical report, INRIA.
20. de Dieuleveult, C. & Erhel, J. (2007), 'Résultats numériques d'une méthode globale pour le transport réactif', Technical report, INRIA.
21. Canot, É.; Erhel, J.; Nassif, N. & Zein, S. (2007), 'Estimation des coefficients mécaniques d'un milieu élastique par une méthode SPSA parallèle', Technical report, INRIA
22. de Dieuleveult, C. & Erhel, J. (2008), 'Résultats numériques avec la méthode globale appliquée à des problèmes de transport réactif', Technical report, INRIA.