

Martin VALLEE

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- Seismologist -

Professional experience

Since Sept 2021 ----- Professor (Physicien CNAP) at Institut de Physique du Globe de Paris
Dec 2012 – Aug 2021 ----- Associate professor (CNAP) at Institut de Physique du Globe de Paris (IPGP). Director of the GEOSCOPE observatory since 2015.
Dec 2004 – Dec 2012 ----- Researcher at Institut de Recherche pour le Développement (IRD) at Géoazur laboratory (Nice, France).
Jan 2004 - Nov 2004 ----- European research contract at Osservatorio Vesuviano (INGV), Naples, Italy : « *Analysis of Southern Italy moderate seismicity* ».
Mar 2003 - Dec 2003 ----- Research contract at Laboratoire de Détection Géophysique (CEA), Paris, France : « *Earthquake source study and application to seismic risk* ».
Jun 2001-Sep 2001 : ----- Visitor at University of California Santa Cruz (UCSC) : « *Central-American subduction zone study : Costa-Rica and El Salvador* ».
Jun 1998-Sep 1998: ----- Training period at Elf Exploration Angola : « *Isobath régional maps* ».

Education and Diplomas

June 2012 ----- « HDR » in seismology, University of Nice-Sophia Antipolis.
Defense on June 7, 2012
Nov 1999 – Jan 2003 ----- PhD in seismology at LGIT - Laboratoire de Géophysique Interne et Tectonophysique - in Grenoble, France. « *Kinematic study of earthquake rupture: Methods and resolution* ».
Direction: Michel Bouchon
Defense on January 6, 2003
Jun 1999: ----- Engineering diploma ENSPG, Ecole Nationale Supérieure de Physique de Grenoble, France.
1998-99 : ----- Master MMGE - Mécanique des Milieux Géophysiques et Environnement -, Grenoble, France : « *Equatorial seismicity study : Earthquakes and stress transfer* »

Languages and computer science

French : ----- Native language
English : ----- Fluent.
Italian, Spanish : ----- Good level of understanding and speaking
Computer science : ----- Linux and Windows - Languages Fortran, bash, Matlab...

Publication list

Publications in international journals (rang A):

- [65] Juhel, K., Q. Bletery, A. Licciardi, [M. Vallée](#), C. Hourcade and T. Michel, Fast and full characterization of large earthquakes from prompt elastogravity signals. *Commun. Earth Environ.*, **5**, 561, 2024. ([doi](#))
- [64] Anthony, R. E., N. Leroy, R. Mellors, A. T. Ringler, J. Saul, [M. Vallée](#) and D. C. Wilson, Preface to Focus Section on New Frontiers and Advances in Global Seismology, *Seismol. Res. Lett.*, **95**, 1473-1477, 2024. ([doi](#))
- [63] Leroy, N., [M. Vallée](#), D. Zigone, B. Romanowicz, E. Stutzmann, A. Maggi, C. Pardo, J.-P. Montagner, M. Bès de Berc, C. Broucke, S. Bonaimé, G. Rault, J.-Y. Thoré, A. Bernard, M. Le Cocq, O. Sirol, L. Rivera, J.-J. Lévêque, M. Cara and F. Pesqueira, GEOSCOPE network: 40 years of global broadband seismic data, *Seismol. Res. Lett.*, **95**, 1495-1517, 2024. ([doi](#))
- [62] Juhel, K. Z. Duputel, L. Rivera and [M. Vallée](#), Early source characterization of large earthquakes using *W* phase and prompt elastogravity signals, *Seismol. Res. Lett.*, **95**, 1558-1568, 2024. ([doi](#))
- [61] Bès de Berc, M., D. Zigone, P. Danecsek, A. Steyer, F. Zanolin, A. Maggi, J.-Y. Thoré, A. Bernard, H. Blumentritt, S. Lambotte, J.-J. Lévêque, L. Rivera, O. Alemany, P. Possenti, [M. Vallée](#), E. Stutzmann, A. Cavaliere, N. Cotte, S. Marino, B. Gombert, W. Marie-Sainte, N. Leroy, C. Pardo, F. Pesqueira and C. Broucke, A new posthole seismometer at Concordia permanent research facility in the heart of the icy East Antarctic Plateau, *Seismol. Res. Lett.*, **95**, 1518-1532, 2024. ([doi](#))
- [60] Staats, M., K. Aderhold, K. Hafner, C. Dalton, M. Flanagan, H. Lau, F. J. Simons, [M. Vallée](#), S. S. Wei, W. Yeck, A. Frassetto and R. Busby, Inconsistent citation of the Global Seismographic Network in scientific publications. *Seismol. Res. Lett.*, **95**, 1478-1485, 2024. ([doi](#))
- [59] Simuté, S., C. Boehm, L. Krischer, A. Gokhberg, [M. Vallée](#) and A. Fichtner, Bayesian seismic source inversion with a 3-D Earth model of the Japanese islands, *J. Geophys. Res.*, **128**, e2022JB024231, 2023. ([doi](#))
- [58] [Vallée, M.](#), Y. Xie, R. Grandin, J. C. Villegas-Lanza, J.-M. Nocquet, S. Vaca, L. Meng, J. P. Ampuero, P. Mothes, P. Jarrin, C. Sierra Farfan and F. Rolandone, Self-reactivated rupture during the 2019 Mw=8 northern Peru intraslab earthquake, *Earth Planet. Sci. Lett.*, **601**, 117886, 2023. ([doi](#))
- [57] Ringler, A. T., R. E. Anthony, R. C. Aster, C. J. Ammon, S. Arrowsmith, H. Benz, C. Ebeling, A. Frassetto, W. -Y. Kim, P. Koelemeijer, H. C. P. Lau, V. Lekić, J. P. Montagner, P. G. Richards, D. P. Schaff, [M. Vallée](#) and W. Yeck, Achievements and prospects of global broadband seismographic networks after 30 years of continuous geophysical observations, *Reviews of Geophysics*, **60**, e2021RG000749, 2022. ([doi](#))
- [56] Renou, J., [M. Vallée](#) and H. Aochi, Deciphering the origins of transient seismic moment accelerations by realistic dynamic rupture simulations, *Bull. Seismol. Soc. Am.*, **112**, 1240-1251, 2022. ([doi](#))
- [55] Boudin, F., P. Bernard, G. Meneses, C. Vigny, M. Olcay, C. Tassara, J.-P. Boy, E. Aissaoui, M. Métois, C. Satriano, M.-F. Esnault, A. Nercessian, [M. Vallée](#), J-P Vilotte and C. Brunet, Slow slip events precursory to the 2014 Iquique Earthquake, revisited with long-base tilt and GPS records, *Geophys. J. Int.*, **228**, 2092-2121, 2022. ([doi](#))
- [54] Péquegnat, C. et al., Résif-SI: a distributed information system for French seismological data, *Seismol. Res. Lett.*, **92**, 1832-1853, 2021. ([doi](#))
- [53] Cornou, C. et al., Rapid response to the Mw4.9 earthquake of November 11, 2019 in Le Teil, Lower Rhône Valley, France, *C.R. Geosci.*, Online first (2021), 1-23, 2021. ([doi](#))
- [52] Moretti, R., J.-C. Komorowski, G. Ucciani, S. Moune, D. Jessop, J.-B. de Chabalière, F. Beauducel, M. Bonifacie, A. Burtin, [M. Vallée](#), S. Deroussi, V. Robert, D. Gibert, T. Didier, T. Kitou, N. Feuillet, P. Allard, G. Tamburello, T. Shreve, J.-M. Saurel, A. Lemarchand, M. Rosas-Carbajal, P. Agrinier, A. Le Friant and M. Chaussidon, The 2018 unrest phase at La Soufrière of Guadeloupe (French West Indies) andesitic volcano: Scrutiny of a failed but prodromal phreatic eruption, *J. Volcanol. Geotherm. Res.*, **393**, 106769, 2020. ([doi](#))
- [51] Pedersen, H. A., N. Leroy, D. Zigone, [M. Vallée](#), A. T. Ringler and D. C. Wilson, Using Component Ratios to Detect Metadata and Instrument Problems of Seismic Stations: Examples from 18 Yr of GEOSCOPE Data, *Seismol. Res. Lett.*, **91**, 272-286, 2020. ([doi](#))
- [50] Shreve T. L., R. Grandin, M. Boichu, E. Garaebiti, Y. Moussallam, V. Ballu, F. Delgado, F. Leclerc, [M. Vallée](#), N. Henriot, S. Cevuard, D. Tari, P. Lebellegard and B. Pelletier, From prodigious volcanic

- degassing to caldera subsidence and quiescence at Ambrym (Vanuatu): the influence of regional tectonics, *Sci. Rep.*, **9**, 18868, 2019. ([doi](#))
- [49] Renou, J., M. Vallée and P. Dublanchet, How does seismic rupture accelerate? Observational insights from earthquake source time functions, *J. Geophys. Res.*, **124**, 8942-8952, 2019. ([doi](#))
- [48] Sainte-Marie, J., S. Allgeyer, M.-O. Bristeau, D. Froger, R. Hamouda, A. Mangeney, F. Souillé and M. Vallée, Numerical approximation of the 3d hydrostatic Navier-Stokes system with free surface, *ESAIM: M2AN*, **53**, 1981–2024, 2019. ([doi](#))
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- [46] Vallée, M., J. P. Ampuero, K. Juhel, P. Bernard, J.-P. Montagner and M. Barsuglia, Comment on “Earthquake-induced prompt gravity signals identified in dense array data in Japan” by Kimura et al., *Earth Planets Space*, **71**, 51, 2019. ([doi](#))
- [45] Vallée, M. and K. Juhel, Multiple observations of the prompt elastogravity signals heralding direct seismic waves, *J. Geophys. Res.*, **124**, 2970-2989, 2019. ([doi](#))
- [44] Juhel, K., J.-P. Montagner, M. Vallée, J. P. Ampuero, M. Barsuglia, P. Bernard, E. Clévéde, J. Harms, and B. F. Whiting, Normal mode simulation of prompt elastogravity signals induced by an earthquake rupture, *Geophys. J. Int.*, **216**, 935-947, 2019. ([doi](#))
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- [42] Chounet, A., M. Vallée, Global and inter-region characterization of subduction interface earthquakes derived from source time functions properties, *J. Geophys. Res.*, **123**, 5831-5852, 2018. ([doi](#))
- [41] Chounet, A., M. Vallée, M. Causse and F. Courboux, Global catalog of earthquake rupture velocities shows anticorrelation between stress drop and rupture velocity, *Tectonophysics*, **733**, 148-158, 2018. ([doi](#))
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- [26] Vallée, M., and C. Satriano, Ten-year recurrence time between two major earthquakes affecting the same fault segment, *Geophys. Res. Lett.*, **41**, 2312–2318, 2014. ([doi](#))
- [25] Nocquet, J.-M., J. C. Villegas-Lanza, M. Chlieh, P. A. Mothes, F. Rolandone, P. Jarrin, D. Cisneros, A. Alvarado, L. Audin, F. Bondoux, X. Martin, Y. Font, M. Régnier, M. Vallée, T. Tran, C. Beauval, J. M. Maguiña Mendoza, W. Martinez, H. Tavera, and H. Yepes, Motion of continental slivers and creeping subduction in the northern Andes, *Nature Geoscience*, **7**, 287–291, 2014. ([doi](#))
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- [22] Courboux, F., A. Dujardin, M. Vallée, B. Delouis, C. Sira, A. Deschamps, L. Honoré and F. Thouvenot, High frequency directivity effect for an Mw 4.1 earthquake, widely felt by the population in southeastern France, *Bull. Seismol. Soc. Am.*, **103**, 3347-3353, 2013. ([doi](#))
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- [17] Vallée, M., and E.M. Dunham, Observation of far-field Mach waves generated by the 2001 Kokoxili supershear earthquake, *Geophys. Res. Lett.*, **39**, L05311, 2012. ([doi](#))
- [16] Mercier de Lepinay, B., A. Deschamps, F. Klingelhoefer, Y. Mazabraud, B. Delouis, V. Clouard, Y. M. Hello, J. Crozon, B. Marcaillou, D. Graindorge, M. Vallée, J. Perrot, M.-P. Bouin, J.-M. Saurel, P. Charvis, and M. St-Louis, The 2010 Haiti earthquake: a complex fault pattern constrained by seismologic and tectonic observations, *Geophys. Res. Lett.*, **38**, L22305, 2011. ([doi](#))
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- [14] Vallée, M., J. Charl ty, A.M.G. Ferreira, B. Delouis, and J. Vergoz, SCARDEC : a new technique for the rapid determination of seismic moment magnitude, focal mechanism and source time functions for large earthquakes using body wave deconvolution, *Geophys. J. Int.*, **184**, 338-358, 2011. ([doi](#))
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- [11] Delouis, B., J.-M. Nocquet, and M. Vallée, Slip distribution of the February 27, 2010 Mw = 8.8 Maule Earthquake (Central Chile) from static and high-rate GPS, InSAR, and broadband teleseismic data, *Geophys. Res. Lett.*, **37**, L17305, 2010. ([doi](#))
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- [9] Vallée, M., M. Land s, N.M. Shapiro, and Y. Klinger, The 2001/11/14 Kokoxili (Tibet) earthquake: high frequency seismic radiation originates from the transitions between subRayleigh and supershear rupture velocity regimes, *J. Geophys. Res.*, **113**, B07305, 2008. ([doi](#)) ([Science Editor's choice](#)) (**321**, 1272, 5 September 2008)

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- [7] Vallée, M., and F. Di Luccio, Source analysis of the 2002 Molise, southern Italy, twin earthquakes (10/31 and 11/01), *Geophys. Res. Lett.*, **32**, L12309, 2005. ([doi](#))
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- [5] Vallée, M., and M. Bouchon, Imaging coseismic rupture in far field by slip patches, *Geophys. J. Int.*, **156**, 615-630, 2004. ([doi](#))
- [4] Vallée, M., Stabilizing the empirical Green function analysis : development of the projected Landweber method, *Bull. Seism. Soc. Am.*, **94**, 394-409, 2004. ([doi](#))
- [3] Le Pichon, A., J. Guilbert, M. Vallée, J.X. Dessa, and U. Munkhuu, Infrasonic imaging of the Kunlun mountains during the great 2001 China earthquake, *Geophys. Res. Lett.*, **30**(15), 1814, 2003. ([doi](#))
- [2] Bouchon, M., and M. Vallée, Observation of long supershear rupture during the Ms=8.1 Kunlunshan (Tibet) earthquake, *Science*, **301**, 824-826, 2003. ([doi](#))
- [1] Vallée, M., M. Bouchon, and S.Y. Schwartz, The 13 January 2001 El Salvador earthquake: a multi-data analysis, *J. Geophys. Res.*, **108**(B4), 2203, 2003. ([doi](#))

Book chapters :

- [3] Nocquet, J.M., and M. Vallée, Chapter « GNSS applications for earthquake deformation » in book « GNSS monitoring of the terrestrial environment », edited by Yosuke Aoki and Corné Kreemer, Elsevier, 2024. ([doi](#))
- [2] Vallée, M., Chapitre « Détermination des caractéristiques principales des séismes à partir des données sismologiques » dans le livre « Le cycle sismique, de l'observation à la modélisation », coordonné par F. Rolandone, ISTE éditions, 2023. ([doi](#))
- [1] Vallée, M., Chapter « Determining the Main Characteristics of Earthquakes from Seismological Data » in book « The seismic cycle, from observation to modeling », coordinated by F. Rolandone, ISTE-Wiley editions, 2022. ([doi](#))

PhD Thesis :

Vallée, M., Etude cinématique de la rupture sismique en champ lointain: méthodes et résolution, *Thèse de doctorat de l'Université Joseph Fourier – Grenoble I*, 2003.

HDR (« Habilitation à Diriger des Recherches »)

Vallée, M., Caractérisation de la source sismique : depuis les études globales jusqu'aux analyses détaillées du processus de rupture, *Habilitation à Diriger des Recherches de l'Université de Nice-Sophia Antipolis*, 2012.