

Martin VALLEE

born on 1976/11/19

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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):

- [63] Leroy, N., M. Vallée, D. Zigone, B. Romanowicz, E. Stutzmann, A. Maggi, C. Pardo, J.-P. Montagner, M. Bès 12de Berc, C. Broucke, S. Bonaimé, G. Roullet, 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.*, 2023. ([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.*, 2023. ([doi](#))
- [61] Bès de Berc, M., D. Zigone, P. Danecek, 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.*, 2023. ([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.*, 2023. ([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. Necessian, 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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- [22] Courboux, F., A. Dujardin, M. Vallée, B. Delouis, C. Sira, A. Deschamps, L. Honoré and F. Thouvenot, High frequency directivity effect for an M_w 4.1 earthquake, widely felt by the population in southeastern France, *Bull. Seismol. Soc. Am.*, **103**, 3347–3353, 2013. ([doi](#))
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- [20] Orefice, A., M. Vallée, J. Balestra, B. Delouis, and A. Zollo, Refined rupture velocity estimation of the 2009 L'Aquila earthquake (M_w 6.3, Central Italy) derived from apparent source time functions, *Bull. Seismol. Soc. Am.*, **103**, 2474–2481, 2013. ([doi](#))
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- [18] Zhang, G., M. Vallée, X. Shan, and B. Delouis, Evidence of sudden rupture of a large asperity during the 2008 M_w 7.9 Wenchuan earthquake based on strong motion analysis, *Geophys. Res. Lett.*, **39**, L17303, 2012. ([doi](#))
- [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](#))
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- [11] Delouis, B., J.-M. Nocquet, and M. Vallée, Slip distribution of the February 27, 2010 $M_w = 8.8$ Maule Earthquake (Central Chile) from static and high-rate GPS, InSAR, and broadband teleseismic data, *Geophys. Res. Lett.*, **37**, L17305, 2010. ([doi](#))
- [10] Delouis B., J. Charléty, and M. Vallée, A method for rapid determination of moment magnitude M_w for moderate to large earthquakes from the near-field spectra of strong-motion records (MWSYNTH), *Bull. Seismol. Soc. Am.*, **99**, 1827–1840, 2009. ([doi](#))
- [9] Vallée, M., M. Landès, 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)
- [8] Vallée, M., Rupture properties of the giant Sumatra earthquake imaged by empirical Green function analysis, *Bull. Seismol. Soc. Am.*, **97**, S103–114, 2007. ([doi](#))
- [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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- [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 :

- [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.