

Curriculum Vitae Sara Carena

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EDUCATION

2014 *Habilitation* in Geology, LMU Munich
2003 Ph.D. in geology, Princeton University, USA.
1995 Laurea in geology, State University of Milano, Italy.

PROFESSIONAL EXPERIENCE

2010 – present Senior scientist/lecturer in geology, LMU Munich, Germany.
2007 – 2009 Postdoctoral scholar in geology, LMU Munich, Germany.
2005 – 2006 Maternity leave.
2004 – 2005 Visiting researcher, Princeton University, USA.
2003 – 2004 Maternity leave.
1997 – 2003 Ph.D. candidate, Dept. of Geosciences, Princeton University, USA.
1996 – 1997 Research fellow, National Institute of Geophysics and Volcanology, Roma, Italy.
1995 – 1996 Consultant in hydrogeology, Polytechnic of Milano, Italy.

PUBLICATIONS

Carena, S., Friedrich, A.M., Verdecchia, A., Kahle, B., Rieger, S., and Kübler, S., 2023, Identification of Source Faults of Large Earthquakes in the Turkey-Syria Border Region Between 1000 CE and the Present, and Their Relevance for the 2023 Mw 7.8 Pazarcik Earthquake. *Tectonics*. <https://doi.org/10.1029/2023TC007890>

Taufiqurrahman T., Gabriel A.-A., Li, D., Ulrich, T., Li, B., **Carena, S.**, Verdecchia, A., and F. Gallovic, 2023, Dynamics, interactions and delays of the 2019 Ridgecrest rupture sequence. *Nature*. <https://doi.org/10.1038/s41586-023-05985-x>

Stotz, I.L., Vilacís, B., Hayek, J.N., **Carena, S.**, and H.-P. Bunge, 2023, Plume driven plate motion changes: New insights from the South Atlantic realm. *Journal of South American Earth Sciences* 124, 104257. <https://doi.org/10.1016/j.jsames.2023.104257>

Vilacís, B., Hayek, J.N., Stotz, I.L., Bunge, H.-P., Friedrich, A.M., **Carena, S.**, Clark, S. (2022), Evidence for upper mantle flow in the Atlantic and Indo-Australian realm since the Upper Jurassic from hiatus maps and spreading rate changes. *Proc. R. Soc. A* 478: 20210764. <http://dx.doi.org/10.1098/rspa.2021.0764>.

Plattner, C., Parizzi, A., **Carena, S.**, Rieger, S., Friedrich, A.M., Abolghasem, A., DeZan, F. (2021), Long-lived afterslip of the 2013 Mw 6.1 Minab earthquake detected by Persistent Scatterer Interferometry along the Irer fault (western Makran-Zagros transition zone, Iran). *Geophys. J. Int.*, 229(1), DOI: 10.1093/gji/ggab456.

J.N. Hayek, B. Vilacís, H.-P. Bunge, A.M. Friedrich, **S. Carena**, and Y. Vibe (2020). Continent-scale Hiatus Maps for the Atlantic Realm and Australia since the Upper Jurassic and links to mantle flow induced dynamic topography. *Proc. R. Soc. A* 476: 20200390. <http://dx.doi.org/10.1098/rspa.2020.0390>.

Carena, S., Bunge, H.-P., and Friedrich, A.M. (2019) - Analysis of geological hiatus surfaces across Africa in the Cenozoic and implications for the timescales of convectively-maintained topography. *Can. J. Earth Sci.*, <https://doi.org/10.1139/cjes-2018-0329>.

Verdecchia, A., **Carena, S.**, Pace, B., and DuRoss, C.B. (2019) - The effects of stress changes on time-dependent earthquake probabilities for the central Wasatch fault zone, Utah, USA. *Geophys. J. Int.*, 219, 1065-1081. doi:10.1093/gji/ggz336.

Carena, S., and Friedrich, A.M. (2018) - Vertical-displacement history of an active Basin and Range fault based on integration of geomorphologic, stratigraphic, and structural data. *Geosphere*, 14 (4), 1657-1676. <https://doi.org/10.1130/GES01600.1>

Catlos, E.J., Friedrich, A.M., Lay, T., Elliott, J.R., **Carena, S.**, Upreti, B.N., DeCelles, P., Tucker, B., Bendick, R. (2016) - Nepal at Risk: Interdisciplinary Lessons Learned from the April 2015 Nepal (Gorkha) Earthquake and Future Concerns. *GSA Today*, 26 (6), doi: 10.1130/GSATG278GW.1

Verdecchia, A., and **Carena, S.** (2016): Coulomb stress evolution in a diffuse plate boundary: 1400 years of earthquakes in eastern California and western Nevada, USA, *Tectonics*, 35. DOI: 10.1002/2015TC004091.

Verdecchia, A., and **Carena, S.** (2015): One hundred and fifty years of Coulomb stress history along the California-Nevada border, USA, *Tectonics*, 34(2), 213-231. doi:10.1002/2014TC003746

Ustaszewski, K., Wu, Y.-M., Suppe, J., Huang, H.-H., Huang, C.-H., **Carena, S.** (2012): Crust-mantle boundaries in the Taiwan-Luzon arc-continent collision system determined from layered Vp models and local earthquake tomography, *Tectonophysics*, 578, 31-94, doi 10.1016/j.tecto.2011.12.029.

Carena, S. (2011) - Subducting-plate topography and nucleation of great and giant earthquakes along the South America trench. *Seismol. Res. Lett.*, 82 (5) 629-637, doi:10.1785/gssrl.82.5.629.

Carena S., Moder C. (2009) – The strength of faults in the crust in the western USA. *Earth Planet. Sci. Lett.*, doi: 10.1016/j.epsl.2009.08.021.

Suppe, J., Huang, M.-H., and **Carena, S.** (2009) - Mechanics of thrust belts and the weak-fault/strong-crust problem. *Trabajos de Geologia*, 29, 61-65.

Plesch, A., Shaw J.H., Benson C., Bryant W.A., **Carena S.**, Cooke M., Dolan J., Fuis G., Gath E., Grant L., Hauksson E., Jordan T., Kamerling M., Legg M., Lindvall S., Magistrale H., Nicholson C., Niemi N., Oskin M., Perry S., Planansky G., Rockwell T., Shearer P., Sorlien C., Süss M.P., Suppe J., Treiman J., and R. Yeats (2007) - Community Fault Model (CFM) for Southern California. *Bull. Seismol. Soc. Am.*, 97, 1793-1820, doi: 10.1785/0120050211.

Carena S., Suppe J., Kao H. (2004) - Lack of Continuity of the San Andreas Fault in southern California: 3-D fault models and earthquake scenarios. *J. Geophys. Res.*, 109, B04313, doi:10.1029/2003JB002643.

Carena S., Suppe J., Kao H. (2002) - The active detachment of Taiwan illuminated by small earthquakes and its control of first-order topography. *Geology*, 30 (10), 935 - 938.

Carena S., Suppe J. (2002) - 3-D Imaging of Active Structures Using Earthquake Aftershocks: the Northridge Thrust, California. *J. Struct. Geol.*, 24, 887-904.

Carena S., Borgia A., Battaglia A., Pasquare' G., Ferraris M., Martelli L., De Nardo M. T. (2000) - Gravity Synclines. *J. Geophys. Res.*, 105, 21819-21833.

AWARDS

2021 LMU Lehrinnovationspreis / *Prize for innovation in teaching*, for "Virtual Geological Field Trips" (Ludwig-Maximilians University Munich).

2003 Arnold Guyot teaching award (Geoscience Department, Princeton University).