

MAAR-DIATREME VOLCANOES

References used and related other readings.

Greg Valentine and Alison Graettinger

University at Buffalo

13 June 2016

Note – this is a selected bibliography intended to provide key references for recent field, experimental, and numerical modeling studies related to maar-diatremes, including those referenced in the presentations. It is not intended to be an exhaustive list of all important contributions to maar-diatreme studies. However, by following up on references listed within these papers (or that have cited these papers), students and researchers should be able to get a full picture of the maar-diatreme literature.

- Blaikei, T.N., Ailleres, L., Betts, P.G. and Cas, R.A.F., 2014. Interpreting subsurface volcanic structures using geologically constrained 3-D gravity inversions: Examples of maar-diatremes, Newer Volcanics Province, southeastern Australia. *Journal of Geophysical Research* 119, doi:10.1002/2013JB010751.
- Bowman, D.C., Taddeucci, J., Kim, K., Anderson, J.F., Lees, J.M., Graettinger, A.H., Sonder, I., Valentine, G.A., 2014. The acoustic signatures of ground acceleration, gas expansion, and spall fallback in experimental volcanic explosions. *Geophysical Research Letters* 41: 1916-1922, doi:10.1002/2014GL059324
- Büttner, R. and Zimanowski, B., 1998. Physics of thermohydraulic explosions. *Physical Review* 57: 5726-5730
- Delpit, S., Ross, P.-S. and Hearn, B.C., 2014. Deep bedded ultramafic diatremes in Missouri River Breaks volcanic field, Montana, USA: more than 1 km of syn-eruptive subsidence. *Bulletin of Volcanology*. doi:10.1007/s00445-014-0832-8
- Geshi, N., Németh, K. and Oikawa, T., 2011. Growth of phreatomagmatic explosion craters: A model inferred from Suoana crater in Miyakejima Volcano, Japan. *Journal of Volcanology and Geothermal Research*, 201:30-38. doi:10.1016/j.jvolgeores.2010.11.012
- Goto, A., Taniguchi, H., Yoshida, M., Ohba, T. and Oshima, H., 2001. Effects of explosion energy and depth to the formation of blast wave and crater: Field explosion experiment for the understanding of volcanic explosion. *Geophysical Research Letters*, 28: 4287-4290
- Graettinger, A.H., in review. Global database of maar craters MaarVLS: Maar Volcano Location and Shape database. *Earth and Planetary Science Letters*
- Graettinger, A.H., 2016. MaarVLS: A Database of Maar Craters on Earth to Enable Investigation of Maars on Mars, Lunar and Planetary Science Conference. Lunar and Planetary Institute, Woodlands, Houston, TX.
- Graettinger, A.H., Valentine, G.A. and Sonder, I., 2015a. Circum-crater variability of deposits from discrete, laterally and vertically migrating volcanic explosions: experimental evidence and field implications. *Journal of Volcanology and Geothermal Research*, 308: 61-69. doi:10.1016/j.jvolgeores.2015.10.019

- Graettinger, A.H., Valentine, G.A., Sonder, I., Ross, P.-S., White, J.D.L. and Taddeucci, J., 2014. Maar-diatreme geometry and deposits: subsurface blast experiments with variable explosion depth. *Geochemistry, Geophysics, Geosystems*, 15. doi:10.1002/2013GC005198
- Graettinger, A.H., Valentine, G.A., Sonder, I., Ross, P.S. and White, J.D.L., 2015b. Facies distribution of ejecta in analog tephra rings from experiments with single and multiple subsurface explosions. *Bulletin of Volcanology*, 77(8): 66. doi:10.1007/s00445-015-0951-x
- Jordan, S.C., Cas, R.A.F. and Hayman, P.C., 2013. The origin of a large (>3 km) maar volcano by coalescence of multiple shallow craters: Lake Purrumbete maar, southeastern Australia *Journal of Volcanology and Geothermal Research*, 254: 5-22. doi:10.1016/j.jvolgeores.2012.12.019
- Lefebvre, N.S., White, J.D.L. and Kjarsgaard, B.A., 2013. Unbedded diatreme deposits reveal maar-diatreme forming eruptive processes: Standing Rocks West, Hopi Buttes, Navajo Nation, USA. *Bulletin of Volcanology*, 75: 739. doi:10.1007/s00445-013-0739-9
- Lorenz, V., 1986. On the growth of maars and diatremes and its relevance to the formation of tuff rings. *Bulletin of Volcanology* 48: 265-274
- Macorps, E., Graettinger, A.H., Valentine, G.A., Sonder, I., Ross, P.-S. and White, J.D.L., 2016. The effects of the host-substrate properties on maar-diatreme volcanoes. *Bulletin of Volcanology*, 78(26). doi:10.1007/s00445-016-1013-8
- Ort, M.H. and Carrasco-Núñez, G., 2009. Lateral vent migration during phreatomagmatic and magmatic eruptions at Tecuitlapa Maar, east-central Mexico. *Journal of Volcanology and Geothermal Research*, 181: 67-77. doi:10.1016/j.jvolgeores.2009.01.003
- Ross, P.-S. and White, J.D.L., 2006. Debris jets in continental phreatomagmatic volcanoes: A field study of their subterranean deposits in the Coombs Hills vent complex, Antarctica *Journal of Volcanology and Geothermal Research*, 149: 62-84. doi:10.1016/j.jvolgeores.2005.06.007
- Ross, P.-S., White, J.D.L., Valentine, G.A., Taddeucci, J., Sonder, I. and Andrews, R., 2013. Experimental birth of a maar-diatreme volcano. *Journal of Volcanology and Geothermal Research*, 260: 1-12. doi:10.1016/j.jvolgeores.2013.05.005
- Ross, P.-S., White, J.D.L., Zimanowski, B. and Büttner, R., 2008a. Multiphase flow above explosion sites in debris-filled volcanic vents: Insights from analogue experiments. *Journal of Volcanology and Geothermal Research*, 178: 104-112. doi:10.1016/j.jvolgeores.2008.01.013
- Ross, P.-S., White, J.D.L., Zimanowski, B. and Büttner, R., 2008b. Rapid injection of particles and gas into non-fluidized granular material, and some volcanological implications *Bulletin of Volcanology*, 70: 1151-1168. doi:10.1007/s00445-008-0230-1
- Sato, H. and Taniguchi, H., 1997. Relationships between crater size and ejecta volume of recent magmatic and phreato-magmatic eruptions: Implications for energy partitioning *Geophysical Research Letters*, 24: 205-208

- Sonder, I., Graettinger, A.H. and Valentine, G.A., 2015. Scaling multiblast craters: general approach and application to volcanic craters. *Journal of Geophysical Research*, 120: 6141-6158. doi:10.1002/2015JB012018
- Sweeney, M.R. and Valentine, G.A., 2015. Transport and mixing dynamics from explosions in debris-filled volcanic conduits: Numerical results and implications for maar-diatreme volcanoes. *Earth and Planetary Science Letters*, 425: 64-76. doi:10.1016/j.epsl.2015.05.038
- Taddeucci, J., Valentine, G.A., Sonder, I., White, J.D.L., Ross, P.-S. and Scarlato, P., 2013. The effect of pre-existing crater on the initial development of explosive volcanic eruptions: An experimental investigation. *Geophysical Research Letters*, 40: 507-510. doi:10.1002/grl.50176
- Valentine, G.A. and Connor, C.B., 2015. Basaltic Volcanic Fields. In: H. Sigurdsson (Editor), *The Encyclopedia of Volcanoes (Second Edition)*. Academic Press, pp. 423-439.
- Valentine, G.A. and Cortés, J.A., 2013. Time and space variations in magmatic and phreatomagmatic eruptive processes at Easy Chair (Lunar Crater Volcanic Field, Nevada, USA). *Bulletin of Volcanology*, 75: 752-765. doi:10.1007/s00445-013-0752-z
- Valentine, G.A., Graettinger, A.H., Macorps, E., Ross, P.-S., White, J.D.L., Dohring, E. and Sonder, I., 2015a. Experiments with vertically and laterally migrating subsurface explosions with applications to the geology of phreatomagmatic and hydrothermal explosion craters and diatremes. *Bulletin of Volcanology*, 77: 15. doi:10.1007/s00445-015-0901-7
- Valentine, G.A., Graettinger, A.H. and Sonder, I., 2014. Explosion depths for phreatomagmatic eruptions. *Geophysical Research Letters*, 41. doi:10.1002/2014GL060096
- Valentine, G.A., Sottili, G., Palladino, D.M. and Taddeucci, J., 2015b. Tephra ring interpretation in light of evolving maar-diatreme concepts: Stracciacappa maar (central Italy). *Journal of Volcanology and Geothermal Research*, 308: 19-29. doi:10.1016/j.jvolgeores.2015.10.010
- Valentine, G.A. and Van Wyk de Vries, B., 2014. Unconventional maar diatreme and associated intrusions in the soft sediment-hosted Mardoux structure (Gergovie, France). *Bulletin of Volcanology*, 76. doi:10.1007/s00445-014-0807-9
- Valentine, G.A. and White, J.D.L., 2012. Revised conceptual model for maar-diatremes: Subsurface processes, energetics, and eruptive products. *Geology*, 40(12): 1111-1114. doi:10.1130/G33411.1
- Valentine, G.A., White, J.D.L., Ross, P.-S., Amin, J., Taddeucci, J., Sonder, I. and Johnson, P.J., 2012. Experimental craters formed by single and multiple buried explosions and implications for volcanic craters with emphasis on maars. *Geophysical Research Letters*, 39: L20301. doi:10.1029/2012GL053716
- van de Hove, J.C., Ailleres, L., Betts, P.G. and Cas, R.A.F., 2015. Subsurface structure of a large basaltic maar volcano examined using geologically constrained potential field modeling, Lake Purrumbete Maar, Newer Volcanics Province,

- southeastern Australia. *Journal of Volcanology and Geothermal Research* 204: 142-159, doi:10.1016/j.jvolgeores.2015.08.020
- van Otterloo, J., Cas, R.A.F. and Sheard, M.J., 2013. Eruption processes and deposit characteristics at the monogenetic Mt. Gambier Volcanic Complex, SE Australia: implications for alternating magmatic and phreatomagmatic activity. *Bulletin of Volcanology*, 75: 737. doi:10.1007/s00445-013-0737-y
- van Otterloo J. and Cas, R.A.F., 2013. Reconstructing the eruption magnitude and energy budgets for the pre-historic eruption of the monogenetic ~5 ka Mt. Gambier Volcanic Complex, south-eastern Australia. *Bulletin of Volcanology*, 75: 769, doi:10.1007/s00445-013-0769-3
- White, J.D.L., 1991. Maar-diatreme phreatomagmatism at Hopi Buttes, Navajo Nation (Arizona), USA. *Bulletin of Volcanology*, 53: 239-258.
- White, J.D.L. and Ross, P.S., 2011. Maar-diatreme volcanoes: A review. *Journal of Volcanology and Geothermal Research*, 201: 1-29. doi:10.1016/j.jvolgeores.2011.01.010
- Wohletz, K.H., 1986. Explosive magma-water interactions: Thermodynamics, explosions mechanisms, and field studies. *Bulletin of Volcanology*, 48: 245-264