

# GS30420 Volcanic Activity: Hazard and Environmental Change

View Online



1.

Papale, P., Marzocchi, W.: Volcanic threats to global society. *Science*. 363, 1275–1276 (2019).

2.

Francis, P., Oppenheimer, C.: *Volcanoes - 10 copies in the library*. Oxford University Press, Oxford (2004).

3.

Chester, D.K.: *Volcanoes and society*. E. Arnold, London (1994).

4.

Papale, P., Shroder, J.F. eds: *Volcanic hazards, risks and disasters*. Elsevier, Oxford (2014).

5.

Jo  
,  
n  
, Steingri

,  
msson: *Fires of the earth: the Laki eruption, 1783-1784*. Nordic Volcanological Institute, Reykjavik (1998).

6.

Marti

, J., Ernst, G.: Volcanoes and the environment. Cambridge University Press, Cambridge (2005).

7.

Oppenheimer, C.: Eruptions that shook the world. Cambridge University Press, Cambridge (2011).

8.

Lessons from recent Icelandic eruptions,  
[https://www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/r0112\\_highimpact.pdf](https://www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/r0112_highimpact.pdf).

9.

Fahrenkamp-Uppenbrink, J.: Preparing for the next supereruption. *Science*. 363, 1296.16-1298 (2019). <https://doi.org/10.1126/science.363.6433.1296-p>.

10.

Decker, R.W., Decker, B.: Volcanoes. W. H. Freeman, New York (1998).

11.

Firth, C.R., McGuire, B.: Volcanoes in the Quaternary. Geological Society, London (1999).

12.

McCoy, F., Heiken, G.: Volcanic hazards and disasters in human antiquity. Geological Society of America, Boulder, Colo (2000).

13.

Rothery, D.A.: Volcanoes, earthquakes and tsunamis. Teach Yourself, London (2010).

14.

Rosi, M., Hyams, J.: Volcanoes. Firefly Books, Toronto (2003).

15.

Scarth, A.: Volcanoes: an introduction. U C L Press, London (1994).

16.

Scarth, A.: Vulcan's fury: man against the volcano. Yale University Press, New Haven (1999).

17.

Sigurdsson, H.: Encyclopedia of volcanoes. Academic Press, San Diego (2000).

18.

Winchester, S.: Krakatoa: the day the world exploded, 27 August 1883. Penguin Books, London (2004).

19.

Alwyn Scarth: La catastrophe: Mount Pelée and the destruction of Saint-Pierre, Martinique - Alwyn Scarth - Google Books,  
[http://books.google.co.uk/books/about/La\\_catastrophe.html?id=SxROAQAIAAJ&redir\\_esc=y](http://books.google.co.uk/books/about/La_catastrophe.html?id=SxROAQAIAAJ&redir_esc=y).

20.

The Economics of Natural Disasters - cesifo-forum-v11-y2010-i2-p014-024.pdf,  
<https://www.econstor.eu/bitstream/10419/166388/1/cesifo-forum-v11-y2010-i2-p014-024.pdf>.

21.

Sinabung volcano: how culture shapes community resilience,  
<https://www.emerald.com/insight/content/doi/10.1108/DPM-05-2018-0160/full/pdf?title=sinabung-volcano-how-culture-shapes-community-resilience>.  
<https://doi.org/10.1108/DPM-05-2018-0160/full/pdf?title=sinabung-volcano-how-culture-shapes-community-resilience>.

22.

Barclay, J., Few, R., Armijos, M.T., Phillips, J.C., Pyle, D.M., Hicks, A., Brown, S.K., Robertson, R.E.A.: Livelihoods, Wellbeing and the Risk to Life During Volcanic Eruptions. *Frontiers in Earth Science*. 7, (2019). <https://doi.org/10.3389/feart.2019.00205>.

23.

Armijos, M.T., Phillips, J., Wilkinson, E., Barclay, J., Hicks, A., Palacios, P., Mothes, P., Stone, J.: Adapting to changes in volcanic behaviour: Formal and informal interactions for enhanced risk management at Tungurahua Volcano, Ecuador. *Global Environmental Change*. 45, 217–226 (2017). <https://doi.org/10.1016/j.gloenvcha.2017.06.002>.

24.

Few, R., Armijos, M.T., Barclay, J.: Living with Volcan Tungurahua: The dynamics of vulnerability during prolonged volcanic activity. *Geoforum*. 80, 72–81 (2017). <https://doi.org/10.1016/j.geoforum.2017.01.006>.

25.

Jonathan Stone: Risk reduction through community-based monitoring: the vigías of Tungurahua, Ecuador. *Journal of Applied Volcanology*. 3, (2014).

26.

Andreastuti, S., Paripurno, E., Gunawan, H., Budianto, A., Syahbana, D., Pallister, J.:

Character of community response to volcanic crises at Sinabung and Kelud volcanoes. *Journal of Volcanology and Geothermal Research*. 382, 298–310 (2019).  
<https://doi.org/10.1016/j.jvolgeores.2017.01.022>.

27.

Few, R., Armijos, M.T., Barclay, J.: Living with Volcan Tungurahua: The dynamics of vulnerability during prolonged volcanic activity. *Geoforum*. 80, 72–81 (2017).  
<https://doi.org/10.1016/j.geoforum.2017.01.006>.

28.

Haynes, K., Barclay, J., Pidgeon, N.: The issue of trust and its influence on risk communication during a volcanic crisis. *Bulletin of Volcanology*. 70, 605–621 (2008).  
<https://doi.org/10.1007/s00445-007-0156-z>.

29.

Hizbaron, D.R., Hadmoko, D.S., Mei, E.T.W., Murti, S.H., Laksani, M.R.T., Tiyanasyah, A.F., Siswanti, E., Tampubolon, I.E.: Towards measurable resilience: Mapping the vulnerability of at-risk community at Kelud Volcano, Indonesia. *Applied Geography*. 97, 212–227 (2018).  
<https://doi.org/10.1016/j.apgeog.2018.06.012>.

30.

Barclay, J., Haynes, K., Mitchell, T., Solana, C., Teeuw, R., Darnell, A., Crosweller, H.S., Cole, P., Pyle, D., Lowe, C., Fearnley, C., Kelman, I.: Framing volcanic risk communication within disaster risk reduction: finding ways for the social and physical sciences to work together. Geological Society, London, Special Publications. 305, 163–177 (2008).  
<https://doi.org/10.1144/SP305.14>.

31.

Tom Simkin, Lee Siebert and Russell Blong: Volcano Fatalities: Lessons from the Historical Record. *Science*. 291, (2001).

32.

Monitoring, forecasting collapse events, and mapping pyroclastic deposits at Sinabung

volcano with satellite imagery | Elsevier Enhanced Reader.

33.

Journal of Volcanology and Geothermal Research: Special issue on Sinabung and Kelud. 382, (2019).

34.

Delos Reyes, P.J., Bornas, Ma.A.V., Dominey-Howes, D., Pidlaoan, A.C., Magill, C.R., Solidum, Jr., R.U.: A synthesis and review of historical eruptions at Taal Volcano, Southern Luzon, Philippines. *Earth-Science Reviews*. 177, 565–588 (2018).  
<https://doi.org/10.1016/j.earscirev.2017.11.014>.

35.

Witham, C.S.: Volcanic disasters and incidents: A new database. *Journal of Volcanology and Geothermal Research*. 148, 191–233 (2005).  
<https://doi.org/10.1016/j.jvolgeores.2005.04.017>.

36.

Combining historical and 14C data to assess pyroclastic density current hazards in BaNos city near Tungurahua volcano (Ecuador) | Elsevier Enhanced Reader.

37.

Pistolesi, M., Cioni, R., Rosi, M., Aguilera, E.: Lahar hazard assessment in the southern drainage system of Cotopaxi volcano, Ecuador: Results from multiscale lahar simulations. *Geomorphology*. 207, 51–63 (2014). <https://doi.org/10.1016/j.geomorph.2013.10.026>.

38.

Pistolesi, M., Cioni, R., Rosi, M., Aguilera, E.: Lahar hazard assessment in the southern drainage system of Cotopaxi volcano, Ecuador: Results from multiscale lahar simulations. *Geomorphology*. 207, 51–63 (2014). <https://doi.org/10.1016/j.geomorph.2013.10.026>.

39.

Pistolesi, M., Cioni, R., Rosi, M., Cashman, K.V., Rossotti, A., Aguilera, E.: Evidence for lahar-triggering mechanisms in complex stratigraphic sequences: the post-twelfth century eruptive activity of Cotopaxi Volcano, Ecuador. *Bulletin of Volcanology*. 75, (2013). <https://doi.org/10.1007/s00445-013-0698-1>.

40.

Barberi, F., Martini, M., Rosi, M.: Nevado del Ruiz volcano (Colombia): pre-eruption observations and the November 13, 1985 catastrophic event. *Journal of Volcanology and Geothermal Research*. 42, 1–12 (1990). [https://doi.org/10.1016/0377-0273\(90\)90066-O](https://doi.org/10.1016/0377-0273(90)90066-O).

41.

Künzler, M., Huggel, C., Ramírez, J.M.: A risk analysis for floods and lahars: case study in the Cordillera Central of Colombia. *Natural Hazards*. 64, 767–796 (2012). <https://doi.org/10.1007/s11069-012-0271-9>.

42.

Dibben, C., Chester, D.K.: Human vulnerability in volcanic environments: the case of Furnas, São Miguel, Azores. *Journal of Volcanology and Geothermal Research*. 92, 133–150 (1999). [https://doi.org/10.1016/S0377-0273\(99\)00072-4](https://doi.org/10.1016/S0377-0273(99)00072-4).

43.

Fearnley, C.J., Bird, D.K., Haynes, K., McGuire, W.J., Jolly, G. eds: *Observing the Volcano World: Volcano Crisis Communication*. Springer International Publishing, Cham (2018).

44.

Leonard, G.S., Johnston, D.M., Paton, D., Christianson, A., Becker, J., Keys, H.: Developing effective warning systems: Ongoing research at Ruapehu volcano, New Zealand. *Journal of Volcanology and Geothermal Research*. 172, 199–215 (2008). <https://doi.org/10.1016/j.jvolgeores.2007.12.008>.

45.

De la Cruz-Reyna, S., Tilling, R.I.: Scientific and public responses to the ongoing volcanic crisis at Popocatepetl Volcano, Mexico: Importance of an effective hazards-warning system. *Journal of Volcanology and Geothermal Research*. 170, 121–134 (2008). <https://doi.org/10.1016/j.jvolgeores.2007.09.002>.

46.

Hazard information management during the autumn 2004 reawakening of Mount St. Helens volcano, Washington: Chapter 24 in *A volcano rekindled: the renewed eruption of Mount St. Helens, 2004-2006*, <http://pubs.er.usgs.gov/publication/pp175024>.

47.

Communicating eruption and hazard forecasts on Vesuvius, Southern Italy, [http://www.ucl.ac.uk/volcanoscope/files/pdf%20files/Solana%20et%20al\\_Hazard%20Perception\\_Vesuvius\\_JVGR\\_2008.pdf](http://www.ucl.ac.uk/volcanoscope/files/pdf%20files/Solana%20et%20al_Hazard%20Perception_Vesuvius_JVGR_2008.pdf).

48.

Chester, D.K., Duncan, A.M., Sangster, H.: Human responses to eruptions of Etna (Sicily) during the late-Pre-Industrial Era and their implications for present-day disaster planning. *Journal of Volcanology and Geothermal Research*. 225–226, 65–80 (2012). <https://doi.org/10.1016/j.jvolgeores.2012.02.017>.

49.

Allibone, R., Cronin, S.J., Charley, D.T., Neall, V.E., Stewart, R.B., Oppenheimer, C.: Dental fluorosis linked to degassing of Ambrym volcano, Vanuatu: a novel exposure pathway. *Environmental Geochemistry and Health*. 34, 155–170 (2012). <https://doi.org/10.1007/s10653-010-9338-2>.

50.

Connor, C.B.: Exploring links between physical and probabilistic models of volcanic eruptions: The Soufrière Hills Volcano, Montserrat. *Geophysical Research Letters*. 30, (2003). <https://doi.org/10.1029/2003GL017384>.

51.



Expert judgment and the Montserrat Volcano eruption,  
<http://dutiosc.twi.tudelft.nl/~risk/extrafiles/EJcourse/Sheets/Aspinall%20&%20Cooke%20PSAM4%203-9.pdf>.

52.

Biasi, S., Bonadonna, C.: A fast GIS-based risk assessment for tephra fallout: the example of Cotopaxi volcano, Ecuador. *Natural Hazards*. 65, 477–495 (2013).  
<https://doi.org/10.1007/s11069-012-0378-z>.

53.

Evidence---based volcanology: application to eruption crises,  
[http://www.geo.mtu.edu/~raman/VTimeSer/Bayesian\\_files/aspinall\\_etal\\_evidence\\_based\\_volcanology\\_application\\_eruption\\_crisis\\_Galeras.pdf](http://www.geo.mtu.edu/~raman/VTimeSer/Bayesian_files/aspinall_etal_evidence_based_volcanology_application_eruption_crisis_Galeras.pdf).

54.

Barberi, F., Carapezza, M.L., Valenza, M., Villari, L.: The control of lava flow during the 1991–1992 eruption of Mt. Etna. *Journal of Volcanology and Geothermal Research*. 56, 1–34 (1993). [https://doi.org/10.1016/0377-0273\(93\)90048-V](https://doi.org/10.1016/0377-0273(93)90048-V).

55.

A new approach to assess long---term lava flow hazard and risk using GIS and low---cost remote sensing: the case of Mount Cameroon, West Africa,  
<http://www.tandfonline.com/doi/pdf/10.1080/01431160802167873>.

56.

Chester, D.K., Dikken, C.J.L., Duncan, A.M.: Volcanic hazard assessment in western Europe. *Journal of Volcanology and Geothermal Research*. 115, 411–435 (2002).  
[https://doi.org/10.1016/S0377-0273\(02\)00210-X](https://doi.org/10.1016/S0377-0273(02)00210-X).

57.

Recent structural evolution of the Cumbre Vieja volcano, La Palma, Canary Islands: volcanic rift zone reconfiguration as a precursor to volcano flank instability,  
<http://www.geo.arizona.edu/~andyf/LaPalma/Rift%20Zone.pdf>.

58.

Fearnley, C.J., McGuire, W.J., Davies, G., Twigg, J.: Standardisation of the USGS Volcano Alert Level System (VALS): analysis and ramifications. *Bulletin of Volcanology*. 74, 2023–2036 (2012). <https://doi.org/10.1007/s00445-012-0645-6>.

59.

Newhall, C., Hoblitt, R.: Constructing event trees for volcanic crises. *Bulletin of Volcanology*. 64, 3–20 (2002). <https://doi.org/10.1007/s004450100173>.

60.

Tilling, R.I., Lipman, P.W.: Lessons in reducing volcano risk. *Nature*. 364, 277–280 (1993). <https://doi.org/10.1038/364277a0>.

61.

Blass, S., Bonadonna, C.: A fast GIS-based risk assessment for tephra fallout: the example of Cotopaxi volcano, Ecuador. *Natural Hazards*. 65, 477–495 (2013). <https://doi.org/10.1007/s11069-012-0378-z>.

62.

Countries | UNITAR, <https://unitar.org/maps/countries>.

63.

Sparks, R.S.J., Aspinall, W.P.: Volcanic activity: Frontiers and challenges in forecasting, prediction and risk assessment. In: *The state of the planet: frontiers and challenges in geophysics*. pp. 359–373. American Geophysical Union, Washington, DC (2004).

64.

Takehiro, H.: School-community collaboration in disaster education in a primary school near Merapi volcano in Java Island. In: *AIP Conference Proceedings*. Author(s) (2016). <https://doi.org/10.1063/1.4947418>.

65.

Sandri, L., Thouret, J.-C., Constantinescu, R., Biass, S., Tonini, R.: Long-term multi-hazard assessment for El Misti volcano (Peru). *Bulletin of Volcanology*. 76, (2014).  
<https://doi.org/10.1007/s00445-013-0771-9>.

66.

Solikhin, A., Thouret, J.-C., Liew, S.C., Gupta, A., Sayudi, D.S., Oehler, J.-F., Kassouk, Z.: High-spatial-resolution imagery helps map deposits of the large (VEI 4) 2010 Merapi Volcano eruption and their impact. *Bulletin of Volcanology*. 77, (2015).  
<https://doi.org/10.1007/s00445-015-0908-0>.

67.

Bakkour, D., Enjolras, G., Thouret, J.-C., Kast, R., Mei, E.T.W., Prihatminingtyas, B.: The adaptive governance of natural disaster systems: Insights from the 2010 mount Merapi eruption in Indonesia. *International Journal of Disaster Risk Reduction*. 13, 167–188 (2015).  
<https://doi.org/10.1016/j.ijdr.2015.05.006>.

68.

Shaw, R., Pulhin, J.M., Pereira, J.J.: *Climate change adaptation and disaster risk reduction: an Asian perspective*, Vol. 5. Emerald Group Pub. Ltd, Bradford, U.K. (2010).

69.

Angela K Diefenbach: Variations in community exposure to lahar hazards from multiple volcanoes in Washington State (USA). *Journal of Applied Volcanology*. 4, (2015).

70.

Assessing hazards to aviation from sulfur dioxide emitted by explosive Icelandic eruptions - Schmidt et al, 2014, JGR, [Assessing\\_SO2\\_aviation\\_hazards.pdf](http://eprints.whiterose.ac.uk/82709/1/Schmidt%20et%20al%2C%202014%2C%20JGR%2C%20Assessing_SO2_aviation_hazards.pdf),  
[http://eprints.whiterose.ac.uk/82709/1/Schmidt%20et%20al%2C%202014%2C%20JGR%2C%20Assessing\\_SO2\\_aviation\\_hazards.pdf](http://eprints.whiterose.ac.uk/82709/1/Schmidt%20et%20al%2C%202014%2C%20JGR%2C%20Assessing_SO2_aviation_hazards.pdf).

71.

Anja Schmidt, Claire S. Witham, Nicolas Theys, Nigel A. D. Richards, Thorvaldur Thordarson, Kate Szpek, Wuhu Feng, Matthew C. Hort, Alan M. Woolley, Andrew R. Jones, Alison L. Redington, Ben T. Johnson, Chris L. Hayward, Kenneth S. Carslaw: Assessing hazards to aviation from sulfur dioxide emitted by explosive Icelandic eruptions. *Journal of Geophysical Research: Atmospheres*. 119, 14,180-14,196 (2014).  
<https://doi.org/10.1002/2014JD022070>.

72.

Longo, B.M., Rossignol, A., Green, J.B.: Cardiorespiratory health effects associated with sulphurous volcanic air pollution. *Public Health*. 122, 809-820 (2008).  
<https://doi.org/10.1016/j.puhe.2007.09.017>.

73.

Olsson, J., Stipp, S.L.S., Dalby, K.N., Gislason, S.R.: Rapid release of metal salts and nutrients from the 2011 Grímsvötn, Iceland volcanic ash. *Geochimica et Cosmochimica Acta*. 123, 134-149 (2013). <https://doi.org/10.1016/j.gca.2013.09.009>.

74.

Cooper, C.L., Swindles, G.T., Savov, I.P., Schmidt, A., Bacon, K.L.: Evaluating the relationship between climate change and volcanism. *Earth-Science Reviews*. 177, 238-247 (2018). <https://doi.org/10.1016/j.earscirev.2017.11.009>.

75.

Robock, A.: Volcanic eruptions and climate. *Reviews of Geophysics*. 38, 191-219 (2000).  
<https://doi.org/10.1029/1998RG000054>.

76.

Robock, A.: Climatic impact of volcanic emissions. In: *The State of the Planet: Frontiers and Challenges in Geophysics*. pp. 125-134. American Geophysical Union, [Place of publication not identified] (2004).

77.

Sigl, M., Winstrup, M., McConnell, J.R., Welten, K.C., Plunkett, G., Ludlow, F., Büntgen, U., Caffee, M., Chellman, N., Dahl-Jensen, D., Fischer, H., Kipfstuhl, S., Kostick, C., Maselli, O.J., Mekhaldi, F., Mulvaney, R., Muscheler, R., Pasteris, D.R., Pilcher, J.R., Salzer, M., Schüpbach, S., Steffensen, J.P., Vinther, B.M., Woodruff, T.E.: Timing and climate forcing of volcanic eruptions for the past 2,500 years. *Nature*. 523, 543–549 (2015).  
<https://doi.org/10.1038/nature14565>.

78.

McConnell, J.R., Burke, A., Dunbar, N.W., Köhler, P., Thomas, J.L., Arienzo, M.M., Chellman, N.J., Maselli, O.J., Sigl, M., Adkins, J.F., Baggenstos, D., Burkhardt, J.F., Brook, E.J., Buizert, C., Cole-Dai, J., Fudge, T.J., Knorr, G., Graf, H.-F., Grieman, M.M., Iverson, N., McGwire, K.C., Mulvaney, R., Paris, G., Rhodes, R.H., Saltzman, E.S., Severinghaus, J.P., Steffensen, J.P., Taylor, K.C., Winckler, G.: Synchronous volcanic eruptions and abrupt climate change ~17.7 ka plausibly linked by stratospheric ozone depletion. *Proceedings of the National Academy of Sciences*. 114, 10035–10040 (2017).  
<https://doi.org/10.1073/pnas.1705595114>.

79.

Miller, G.H., Geirsdóttir, Á., Zhong, Y., Larsen, D.J., Otto-Bliesner, B.L., Holland, M.M., Bailey, D.A., Refsnider, K.A., Lehman, S.J., Southon, J.R., Anderson, C., Björnsson, H., Thordarson, T.: Abrupt onset of the Little Ice Age triggered by volcanism and sustained by sea-ice/ocean feedbacks. *Geophysical Research Letters*. 39, n/a-n/a (2012).  
<https://doi.org/10.1029/2011GL050168>.

80.

Bethke, I., Outten, S., Otterå, O.H., Hawkins, E., Wagner, S., Sigl, M., Thorne, P.: Potential volcanic impacts on future climate variability. *Nature Climate Change*. 7, 799–805 (2017).  
<https://doi.org/10.1038/nclimate3394>.

81.

Matthew Toohey: Volcanic stratospheric sulfur injections and aerosol optical depth from 500 BCE to 1900 CE. *Earth System Science Data*. 9, 809–809.

82.

Timmreck, C.: Modeling the climatic effects of large explosive volcanic eruptions. *Wiley Interdisciplinary Reviews: Climate Change*. 3, 545–564 (2012).

<https://doi.org/10.1002/wcc.192>.

83.

Sun, C., Plunkett, G., Liu, J., Zhao, H., Sigl, M., McConnell, J.R., Pilcher, J.R., Vinther, B., Steffensen, J.P., Hall, V.: Ash from Changbaishan Millennium eruption recorded in Greenland ice: Implications for determining the eruption's timing and impact. *Geophysical Research Letters*. 41, 694–701 (2014). <https://doi.org/10.1002/2013GL058642>.

84.

Wilson, R.M.: Variation of surface air temperatures in relation to El Niño and cataclysmic volcanic eruptions, 1796–1882. *Journal of Atmospheric and Solar-Terrestrial Physics*. 61, 1307–1319 (1999). [https://doi.org/10.1016/S1364-6826\(99\)00055-3](https://doi.org/10.1016/S1364-6826(99)00055-3).

85.

Oman, L., Robock, A., Stenchikov, G.L., Thordarson, T.: High-latitude eruptions cast shadow over the African monsoon and the flow of the Nile. *Geophysical Research Letters*. 33, n/a-n/a (2006). <https://doi.org/10.1029/2006GL027665>.

86.

Manning, J.G., Ludlow, F., Stine, A.R., Boos, W.R., Sigl, M., Marlon, J.R.: Volcanic suppression of Nile summer flooding triggers revolt and constrains interstate conflict in ancient Egypt. *Nature Communications*. 8, (2017). <https://doi.org/10.1038/s41467-017-00957-y>.

87.

Arfeuille, F., Weisenstein, D., Mack, H., Rozanov, E., Peter, T., Brönnimann, S.: Volcanic forcing for climate modeling: a new microphysics-based data set covering years 1600–present. *Climate of the Past*. 10, 359–375 (2014). <https://doi.org/10.5194/cp-10-359-2014>.

88.

Sadler, J.P., Grattan, J.P.: Volcanoes as agents of past environmental change. *Global and Planetary Change*. 21, 181–196 (1999). [https://doi.org/10.1016/S0921-8181\(99\)00014-4](https://doi.org/10.1016/S0921-8181(99)00014-4).

89.

D'Arrigo, R., Wilson, R., Anchukaitis, K.J.: Volcanic cooling signal in tree ring temperature records for the past millennium. *Journal of Geophysical Research: Atmospheres*. 118, 9000–9010 (2013). <https://doi.org/10.1002/jgrd.50692>.

90.

H. Tuffen and R. Betts: Volcanism and climate: chicken and egg (or vice versa)? *Philosophical Transactions: Mathematical, Physical and Engineering Sciences*. 368, 2585–2588 (2010).

91.

Abdullah, Mikrajuddin: Interpretation of Past Kingdoms Poems to Reconstruct the Physical Phenomena in the Past: Case of Great Tambora Eruption 1815. (2012).

92.

Torrence, R., Grattan, J.: *Natural disasters and cultural change*. Routledge, London (2002).

93.

Harington, C.R.: *The Year without a summer?: world climate in 1816*. Canadian Museum of Nature, Ottawa (1992).

94.

Oppenheimer, C.: Climatic, environmental and human consequences of the largest known historic eruption: Tambora volcano (Indonesia) 1815. *Progress in Physical Geography*. 27, 230–259 (2003). <https://doi.org/10.1191/0309133303pp379ra>.

95.

Behringer, W., Selwyn, P.E.: *Tambora and the year without a summer: how a volcano plunged the world into crisis*. Polity, Medford, MA (2019).

96.

Rössler, O., Brönnimann, S.: The effect of the Tambora eruption on Swiss flood generation in 1816/1817. *Science of The Total Environment*. 627, 1218–1227 (2018).  
<https://doi.org/10.1016/j.scitotenv.2018.01.254>.

97.

Kandlbauer, J., Sparks, R.S.J.: New estimates of the 1815 Tambora eruption volume. *Journal of Volcanology and Geothermal Research*. 286, 93–100 (2014).  
<https://doi.org/10.1016/j.jvolgeores.2014.08.020>.

98.

Stothers, Richard B.: The great Tambora eruption in 1815 and its aftermath. *Science*. 224, (2012).

99.

Gao, C., Gao, Y., Zhang, Q., Shi, C.: Climatic aftermath of the 1815 Tambora eruption in China. *Journal of Meteorological Research*. 31, 28–38 (2017).  
<https://doi.org/10.1007/s13351-017-6091-9>.

100.

Cao, Shuji: Mt. Tambora, Climatic Changes, and China's Decline in the Nineteenth Century. *Journal of World History*. 23, 587–607 (2012).

101.

Kandlbauer, J., Hopcroft, P.O., Valdes, P.J., Sparks, R.S.J.: Climate and carbon cycle response to the 1815 Tambora volcanic eruption. *Journal of Geophysical Research: Atmospheres*. 118, 12,497–12,507 (2013). <https://doi.org/10.1002/2013JD019767>.



102.

Marshall, Lauren: Multi-model comparison of the volcanic sulfate deposition from the 1815 eruption of Mt. Tambora. *Atmospheric Chemistry and Physics*. 18, 2307–2328. <https://doi.org/https://doi.org/10.5194/acp-18-2307-2018>.

103.

After Tambora. *The Economist*. (20150411).

104.

Vakulenko, N.V., Sonechkin, D.M.: Analysis of early instrumental air temperature observations before and after the Tambora volcano eruption. *Russian Meteorology and Hydrology*. 42, 677–684 (2017). <https://doi.org/10.3103/S1068373917100089>.

105.

Alexander, K.E., Leavenworth, W.B., Willis, T.V., Hall, C., Mattocks, S., Bittner, S.M., Klein, E., Staudinger, M., Bryan, A., Rosset, J., Carr, B.H., Jordaan, A.: Tambora and the mackerel year: Phenology and fisheries during an extreme climate event. *Science Advances*. 3, (2017). <https://doi.org/10.1126/sciadv.1601635>.

106.

Lorenz, S.: Exploring the climate response to the Tambora in 1815 and the 1809 tropical eruption. *Quaternary International*. 279–280, (2012). <https://doi.org/10.1016/j.quaint.2012.08.770>.

107.

Flückiger, S., Brönnimann, S., Holzkämper, A., Fuhrer, J., Krämer, D., Pfister, C., Rohr, C.: Simulating crop yield losses in Switzerland for historical and present Tambora climate scenarios. *Environmental Research Letters*. 12, (2017). <https://doi.org/10.1088/1748-9326/aa7246>.

108.

Cole-Dai, J., Ferris, D., Lanciki, A., Savarino, J., Baroni, M., Thiemens, M.H.: Cold decade (AD

1810–1819) caused by Tambora (1815) and another (1809) stratospheric volcanic eruption. *Geophysical Research Letters*. 36, (2009).  
<https://doi.org/10.1029/2009GL040882>.

109.

Yalcin, K., Wake, C.P., Kreutz, K.J., Germani, M.S., Whitlow, S.I.: Ice core evidence for a second volcanic eruption around 1809 in the Northern Hemisphere. *Geophysical Research Letters*. 33, (2006). <https://doi.org/10.1029/2006GL026013>.

110.

A. Guevara-Murua: Observations of a stratospheric aerosol veil from a tropical volcanic eruption in December 1808: is this the Unknown ~1809 eruption? *Climate of the Past*. 10, 1707–1707.

111.

Gale General OneFile - Document - First eyewitness accounts of mystery volcanic eruption, <https://go.gale.com/ps/i.do?&id=GALE|A383506238&v=2.1&u=uniaber&p;it=r&p=ITOF&sw=w>.

112.

Brá: Climatic effects and impacts of the 1815 eruption of Mount Tambora in the Czech Lands. *Climate of the Past*. 12, (2012).

113.

Veale, L., Endfield, G.H.: Situating 1816, the 'year without summer', in the UK. *The Geographical Journal*. 182, 318–330 (2016). <https://doi.org/10.1111/geoj.12191>.

114.

Gertisser, R.: The great 1815 eruption of Tambora and future risks from large-scale volcanism.(Report). *Geology Today*. 31, (2012).

115.

Hubbard, Z.: Paintings in the Year Without a Summer. *Philologia*. 11, (2019).  
<https://doi.org/10.21061/ph.173>.

116.

Alan Robock: The Climatic Aftermath. *Science*. 295, (2002).

117.

Aquila, V., Oman, L.D., Stolarski, R.S., Colarco, P.R., Newman, P.A.: Dispersion of the volcanic sulfate cloud from a Mount Pinatubo-like eruption. *Journal of Geophysical Research: Atmospheres*. 117, n/a-n/a (2012). <https://doi.org/10.1029/2011JD016968>.

118.

Brian J. Soden: Global cooling after the eruption of Mount Pinatubo: A test of climate feedback by water vapor. (Reports). *Science*. 296, 727–731.

119.

Tang, Q., Hess, P.G., Brown-Steiner, B., Kinnison, D.E.: Tropospheric ozone decrease due to the Mount Pinatubo eruption: Reduced stratospheric influx. *Geophysical Research Letters*. 40, 5553–5558 (2013). <https://doi.org/10.1002/2013GL056563>.

120.

Meehl, G.A., Teng, H., Maher, N., England, M.H.: Effects of the Mount Pinatubo eruption on decadal climate prediction skill of Pacific sea surface temperatures. *Geophysical Research Letters*. 42, 10,840–10,846 (2015). <https://doi.org/10.1002/2015GL066608>.

121.

Grattan, J., Torrence, R., World Archaeological Congress: Living under the shadow: cultural impacts of volcanic eruptions. Left Coast Press, Walnut Creek, Calif (2007).

122.

Franck Lavigne, Jean-Philippe Degeai, Jean-Christophe Komorowski, Sébastien Guillet, Vincent Robert, Pierre Lahitte, Clive Oppenheimer, Markus Stoffel, Céline M. Vidal, Surono, Indyo Pratomo, Patrick Wassmer, Irka Hajdas, Danang Sri Hadmoko and Edouard de Belizal: Source of the great A.D. 1257 mystery eruption unveiled, Samalas volcano, Rinjani Volcanic Complex, Indonesia. *Proceedings of the National Academy of Sciences of the United States of America*. 110, (2013).

123.

Vidal, C.M., Métrich, N., Komorowski, J.-C., Pratomo, I., Michel, A., Kartadinata, N., Robert, V., Lavigne, F.: The 1257 Samalas eruption (Lombok, Indonesia): the single greatest stratospheric gas release of the Common Era. *Scientific Reports*. 6, (2016).  
<https://doi.org/10.1038/srep34868>.

124.

Campbell, B.M.S.: GLOBAL CLIMATES, THE 1257 MEGA-ERUPTION OF SAMALAS VOLCANO, INDONESIA, AND THE ENGLISH FOOD CRISIS OF 1258. *Transactions of the Royal Historical Society*. 27, 87–121 (2017). <https://doi.org/10.1017/S0080440117000056>.

125.

London's volcanic winter - *Current Archaeology*,  
<https://www.archaeology.co.uk/articles/features/londons-volcanic-winter.htm>.

126.

Guillet, S: Climate response to the 1257 Samalas eruption revealed 1 by proxy records. (2017).

127.

YANG, Z., LONG, N., WANG, Y., ZHOU, X., LIU, Y., SUN, L.: A great volcanic eruption around AD 1300 recorded in lacustrine sediment from Dongdao Island, South China Sea. *Journal of Earth System Science*. 126, (2017). <https://doi.org/10.1007/s12040-016-0790-y>.

128.

Alloway, B.V., Andreastuti, S., Setiawan, R., Miksic, J., Hua, Q.: Archaeological implications of a widespread 13th Century tephra marker across the central Indonesian Archipelago. *Quaternary Science Reviews*. 155, 86–99 (2017).  
<https://doi.org/10.1016/j.quascirev.2016.11.020>.

129.

Toohey, M., Krüger, K., Sigl, M., Stordal, F., Svensen, H.: Climatic and societal impacts of a volcanic double event at the dawn of the Middle Ages. *Climatic Change*. 136, 401–412 (2016). <https://doi.org/10.1007/s10584-016-1648-7>.

130.

Pfister, C., Schwarz-Zanetti, G., Wegmann, M., Luterbacher, J.: Winter air temperature variations in western Europe during the Early and High Middle Ages (AD 750–1300). *The Holocene*. 8, 535–552 (1998). <https://doi.org/10.1191/095968398675289943>.

131.

Gräslund, BoPrice, Neil: Twilight of the gods? The dust veil event of AD 536 in critical perspective. 86, 428–443.

132.

cp-2017-147.pdf, <https://www.clim-past-discuss.net/cp-2017-147/cp-2017-147.pdf>.

133.

J. U. L. Baldini: Evaluating the link between the sulfur-rich Laacher See volcanic eruption and the Younger Dryas climate anomaly. *Climate of the Past*. 14, 969–990 (2018).

134.

Dogar, M.M., Stenchikov, G., Osipov, S., Wyman, B., Zhao, M.: Sensitivity of the regional climate in the Middle East and North Africa to volcanic perturbations. *Journal of Geophysical Research: Atmospheres*. 122, 7922–7948 (2017).  
<https://doi.org/10.1002/2017JD026783>.

135.

Muhammad Mubashar Dogar: Ocean Sensitivity to Periodic and Constant Volcanism. *Scientific Reports*. 10, 1–15 (2020).

136.

Joanna Slawinska: Impact of Volcanic Eruptions on Decadal to Centennial Fluctuations of Arctic Sea Ice Extent during the Last Millennium and on Initiation of the Little Ice Age. (2018). <https://doi.org/JCLI-D-16-0498>.

137.

Brian Zambri, Allegra N. LeGrande, Alan Robock, Joanna Slawinska: Northern Hemisphere winter warming and summer monsoon reduction after volcanic eruptions over the last millennium. *Journal of Geophysical Research: Atmospheres*. 122, 7971–7989 (2017). <https://doi.org/10.1002/2017JD026728>.

138.

Papale, P.: Global time-size distribution of volcanic eruptions on Earth. *Scientific Reports*. 8, (2018). <https://doi.org/10.1038/s41598-018-25286-y>.

139.

Understanding the environmental impacts of large fissure eruptions: Aerosol and gas emissions from the 2014–2015 Holuhraun eruption (Iceland) - 1-s2.0-S0012821X17302911-main.pdf, <https://discovery.ucl.ac.uk/id/eprint/10074536/1/1-s2.0-S0012821X17302911-main.pdf>.

140.

Zambri, B., Robock, A., Mills, M.J., Schmidt, A.: Modeling the 1783–1784 Laki Eruption in Iceland: 1. Aerosol Evolution and Global Stratospheric Circulation Impacts. *Journal of Geophysical Research: Atmospheres*. (2019). <https://doi.org/10.1029/2018JD029553>.

141.

Zambri, B., Robock, A., Mills, M.J., Schmidt, A.: Modeling the 1783–1784 Laki Eruption in Iceland: 2. Climate Impacts. *Journal of Geophysical Research: Atmospheres*. (2019).

<https://doi.org/10.1029/2018JD029554>.

142.

Anja Schmidt, Bart Ostro, Kenneth S. Carslaw, Marjorie Wilson, Thorvaldur Thordarson, Graham W. Mann and Adrian J. Simmons: Excess mortality in Europe following a future Laki-style Icelandic eruption. *Proceedings of the National Academy of Sciences of the United States of America*. 108, 15710–15715 (2011).

143.

Jo

n  
Steingri

msson: Fires of the earth: the Laki eruption, 1783-1784. Nordic Volcanological Institute, Reykjavik

k (1998).

144.

Grattan, J.P., Pyatt, F.B.: Acid damage to vegetation following the Laki fissure eruption in 1783 — an historical review. *Science of The Total Environment*. 151, 241–247 (1994).  
[https://doi.org/10.1016/0048-9697\(94\)90473-1](https://doi.org/10.1016/0048-9697(94)90473-1).

145.

Pollution and paradigms: lessons from Icelandic volcanism for - Pollution and paradigms1.pdf,  
<http://cadair.aber.ac.uk/dspace/bitstream/handle/2160/234/Pollution%20and%20paradigms1.pdf?sequence=1>.

146.

Atmospheric and environmental effects of the 1783---1784 Laki eruption: a review and reassessment, <http://seismo.berkeley.edu/~manga/LIPS/thordarson03.pdf>.

147.

Lanciki, A., Cole-Dai, J., Thiemens, M.H., Savarino, J.: Sulfur isotope evidence of little or no stratospheric impact by the 1783 Laki volcanic eruption. *Geophysical Research Letters*. 39, n/a-n/a (2012). <https://doi.org/10.1029/2011GL050075>.

148.

Effects of volcanic air pollution on health,  
[https://www.researchgate.net/publication/12118448\\_Effects\\_of\\_volcanic\\_air\\_pollution\\_on\\_health](https://www.researchgate.net/publication/12118448_Effects_of_volcanic_air_pollution_on_health).

149.

Anja Schmidt, Bart Ostro, Kenneth S. Carslaw, Marjorie Wilson, Thorvaldur Thordarson, Graham W. Mann and Adrian J. Simmons: Excess mortality in Europe following a future Laki-style Icelandic eruption. *Proceedings of the National Academy of Sciences of the United States of America*. 108, 15710–15715 (2011).

150.

Witham, C.S., Oppenheimer, C.: Mortality in England during the 1783 Laki Craters eruption. *Bulletin of Volcanology*. 67, 15–26 (2004).  
<https://doi.org/10.1007/s00445-004-0357-7>.

151.

Non-climatic factors and the environmental impact of volcanic volatiles: Implications of the Laki fissure eruption of AD 1783,  
[https://www.researchgate.net/publication/249868764\\_Non-climatic\\_factors\\_and\\_the\\_environmental\\_impact\\_of\\_volcanic\\_volatiles\\_Implications\\_of\\_the\\_Laki\\_fissure\\_eruption\\_of\\_AD\\_1783](https://www.researchgate.net/publication/249868764_Non-climatic_factors_and_the_environmental_impact_of_volcanic_volatiles_Implications_of_the_Laki_fissure_eruption_of_AD_1783).

152.

Stone, Richard: Iceland's doomsday scenario? The more researchers learn about the unheralded Laki eruption of 1783, the more they see a need to prepare for a reprise that could include fluoride poisoning and widespread air pollution. (News Focus). *Science*. 306, (2010).



153.

Trigo, R.M., Vaquero, J.M., Stothers, R.B.: Witnessing the impact of the 1783–1784 Laki eruption in the Southern Hemisphere. *Climatic Change*. 99, 535–546 (2010).  
<https://doi.org/10.1007/s10584-009-9676-1>.

154.

D'Arrigo, R., Seager, R., Smerdon, J.E., LeGrande, A.N., Cook, E.R.: The anomalous winter of 1783-1784: Was the Laki eruption or an analog of the 2009-2010 winter to blame? *Geophysical Research Letters*. 38, n/a-n/a (2011). <https://doi.org/10.1029/2011GL046696>.

155.

Balkanski, Y., Menut, L., Garnier, E., Wang, R., Evangeliou, N., Jourdain, S., Eschstruth, C., Vrac, M., Yiou, P.: Mortality induced by PM<sub>2.5</sub> exposure following the 1783 Laki eruption using reconstructed meteorological fields. *Scientific Reports*. 8, (2018).  
<https://doi.org/10.1038/s41598-018-34228-7>.

156.

Thordarson, T.: Atmospheric and environmental effects of the 1783–1784 Laki eruption: A review and reassessment. *Journal of Geophysical Research*. 108, (2003).  
<https://doi.org/10.1029/2001JD002042>.

157.

Brázdil, R., Demarée, G.R., Deutsch, M., Garnier, E., Kiss, A., Luterbacher, J., Macdonald, N., Rohr, C., Dobrovolný, P., Kolář, P., Chromá, K.: European floods during the winter 1783/1784: scenarios of an extreme event during the 'Little Ice Age'. *Theoretical and Applied Climatology*. 100, 163–189 (2010). <https://doi.org/10.1007/s00704-009-0170-5>.

158.

Jacoby, Gc: Laki eruption of 1783, tree rings, and disaster for northwest Alaska Inuit. *Quaternary Science Reviews*. 18, 1365–1371 (1999).

159.

Sonnek, K.M., Mårtensson, T., Veibäck, E., Tunved, P., Grahn, H., von Schoenberg, P., Brännström, N., Bucht, A.: The impacts of a Laki-like eruption on the present Swedish society. *Natural Hazards*. 88, 1565–1590 (2017).  
<https://doi.org/10.1007/s11069-017-2933-0>.

160.

Fei, J., Zhou, J.: The Possible Climatic Impact in China of Iceland's Eldgjá Eruption Inferred from Historical Sources. *Climatic Change*. 76, 443–457 (2006).  
<https://doi.org/10.1007/s10584-005-9012-3>.

161.

Fei, J., Zhou, J.: The Possible Climatic Impact in China of Iceland's Eldgjá Eruption Inferred from Historical Sources. *Climatic Change*. 76, 443–457 (2006).  
<https://doi.org/10.1007/s10584-005-9012-3>.

162.

The drought and locust plague of 942-944 AD in the Yellow River Basin, China | Elsevier Enhanced Reader.

163.

Höskuldsson, Á., Óskarsson, N., Pedersen, R., Grönvold, K., Vogfjörð, K., Ólafsdóttir, R.: The millennium eruption of Hekla in February 2000. *Bulletin of Volcanology*. 70, 169–182 (2007). <https://doi.org/10.1007/s00445-007-0128-3>.

164.

Walker, G.P.L., Self, S., Wilson, L.: Tarawera 1886, New Zealand — A basaltic plinian fissure eruption. *Journal of Volcanology and Geothermal Research*. 21, 61–78 (1984).  
[https://doi.org/10.1016/0377-0273\(84\)90016-7](https://doi.org/10.1016/0377-0273(84)90016-7).

165.

Jona Schellekens: Irish famines and English mortality in the eighteenth century. *The Journal of Interdisciplinary History*. 27, 29–43.

166.

J. Lelieveld: The contribution of outdoor air pollution sources to premature mortality on a global scale. *Nature*. 525, 367–385.

167.

Gale General OneFile - Document - Air pollution 'causes more deaths than smoking', <https://go.gale.com/ps/i.do?&id=GALE|A578128317&v=2.1&u=uniaber&p;it=r&p=ITOF&sw=w>.

168.

Anja Schmidt, Susan Leadbetter, Nicolas Theys, Elisa Carboni, Claire S. Witham, John A. Stevenson, Cathryn E. Birch, Thorvaldur Thordarson, Steven Turnock, Sara Barsotti, Lin Delaney, Wuhu Feng, Roy G. Grainger, Matthew C. Hort, Ármann Höskuldsson, Iolanda Ialongo, Evgenia Ilyinskaya, Thorsteinn Jóhannsson, Patrick Kenny, Tamsin A. Mather, Nigel A. D. Richards, Janet Shepherd: Satellite detection, long-range transport, and air quality impacts of volcanic sulfur dioxide from the 2014–2015 flood lava eruption at Bárðarbunga (Iceland). *Journal of Geophysical Research: Atmospheres*. 120, 9739–9757 (2015). <https://doi.org/10.1002/2015JD023638>.

169.

Anja Schmidt, Susan Leadbetter, Nicolas Theys, Elisa Carboni, Claire S. Witham, John A. Stevenson, Cathryn E. Birch, Thorvaldur Thordarson, Steven Turnock, Sara Barsotti, Lin Delaney, Wuhu Feng, Roy G. Grainger, Matthew C. Hort, Ármann Höskuldsson, Iolanda Ialongo, Evgenia Ilyinskaya, Thorsteinn Jóhannsson, Patrick Kenny, Tamsin A. Mather, Nigel A. D. Richards, Janet Shepherd: Satellite detection, long-range transport, and air quality impacts of volcanic sulfur dioxide from the 2014–2015 flood lava eruption at Bárðarbunga (Iceland). *Journal of Geophysical Research: Atmospheres*. 120, 9739–9757 (2015). <https://doi.org/10.1002/2015JD023638>.

170.

Rampino, M.R., Self, S., Stothers, R.B.: Volcanic Winters. *Annual Review of Earth and Planetary Sciences*. 16, 73–99 (1988). <https://doi.org/10.1146/annurev.ea.16.050188.000445>.

171.

Harris, B.: The potential impact of super-volcanic eruptions on the Earth's atmosphere. *Weather*. 63, 221–225 (2008). <https://doi.org/10.1002/wea.263>.

172.

Rampino, M.: Supereruptions as a Threat to Civilizations on Earth-like Planets. *Icarus*. 156, 562–569 (2002). <https://doi.org/10.1006/icar.2001.6808>.

173.

Miller, C.F., Wark, D.A.: SUPERVOLCANOES AND THEIR EXPLOSIVE SUPERERUPTIONS. *Elements*. 4, 11–15 (2008). <https://doi.org/10.2113/GSELEMENTS.4.1.11>.

174.

Kent, A.: RESEARCH FOCUS: Tackling supervolcanoes: Big and fast? *Geology*. 43, 1039–1040 (2015). <https://doi.org/10.1130/focus112015.1>.

175.

Gualda, G.A.R., Sutton, S.R.: The Year Leading to a Supereruption. *PLOS ONE*. 11, (2016). <https://doi.org/10.1371/journal.pone.0159200>.

176.

Dunbar, N.W., Iverson, N.A., Van Eaton, A.R., Sigl, M., Alloway, B.V., Kurbatov, A.V., Mastin, L.G., McConnell, J.R., Wilson, C.J.N.: New Zealand supereruption provides time marker for the Last Glacial Maximum in Antarctica. *Scientific Reports*. 7, (2017). <https://doi.org/10.1038/s41598-017-11758-0>.

177.

Ryan C. Bay, Nathan Bramall and P. Buford Price: Bipolar Correlation of Volcanism with Millennial Climate Change. *Proceedings of the National Academy of Sciences of the United States of America*. 101, (2004).

178.

Historical unrest at large calderas of the world, <http://pubs.er.usgs.gov/publication/b1855>.

179.

Anja Schmidt, [https://www.researchgate.net/profile/Anja\\_Schmidt](https://www.researchgate.net/profile/Anja_Schmidt).

180.

Mastin, L.G., Van Eaton, A.R., Lowenstern, J.B.: Modeling ash fall distribution from a Yellowstone supereruption. *Geochemistry, Geophysics, Geosystems*. 15, 3459–3475 (2014). <https://doi.org/10.1002/2014GC005469>.

181.

Central Mediterranean explosive volcanism and tephrochronology during the last 630 ka based on the sediment record from Lake Ohrid | Elsevier Enhanced Reader.

182.

The ~73 ka Toba super-eruption and its impact: History of a debate | Elsevier Enhanced Reader.

183.

Timmreck, C., Graf, H.-F., Zanchettin, D., Hagemann, S., Kleinen, T., Krüger, K.: Climate response to the Toba super-eruption: Regional changes. *Quaternary International*. 258, 30–44 (2012). <https://doi.org/10.1016/j.quaint.2011.10.008>.

184.

Oppenheimer, C.: Limited global change due to the largest known Quaternary eruption, Toba [74kyr BP? *Quaternary Science Reviews*. 21, 1593–1609 (2002). [https://doi.org/10.1016/S0277-3791\(01\)00154-8](https://doi.org/10.1016/S0277-3791(01)00154-8).

185.

Rampino, M R: Bottleneck in human evolution and the Toba eruption. *Science* (New York). 262, (2014).

186.

Robock, A., Ammann, C.M., Oman, L., Shindell, D., Levis, S., Stenchikov, G.: Did the Toba volcanic eruption of ~74 ka B.P. produce widespread glaciation? *Journal of Geophysical Research*. 114, (2009). <https://doi.org/10.1029/2008JD011652>.

187.

Rampino, M.R., Ambrose, S.H.: Volcanic winter in the Garden of Eden: The Toba supereruption and the late Pleistocene human population crash. In: *Special Paper 345: Volcanic Hazards and Disasters in Human Antiquity*. pp. 71–82. Geological Society of America (2000). <https://doi.org/10.1130/0-8137-2345-0.71>.

188.

Michael R. Rampino and Stephen Self: Bottleneck in Human Evolution and the Toba Eruption. *Science*. 262, (1955).

189.

Wagner, B., Leng, M.J., Wilke, T., Böhm, A., Panagiotopoulos, K., Vogel, H., Lacey, J., Zanchetta, G., Sulpizio, R.: Potential impact of the 74 ka Toba eruption on the Balkan region, SE Europe. *Climate of the Past Discussions*. 9, 3307–3319 (2013). <https://doi.org/10.5194/cpd-9-3307-2013>.

190.

Roberts, R.G., Storey, M., Haslam, M.: Toba supereruption: Age and impact on East African ecosystems. *Proceedings of the National Academy of Sciences*. 110, E3047–E3047 (2013). <https://doi.org/10.1073/pnas.1308550110>.

191.

Smith, Eugene I: Humans thrived in South Africa through the Toba eruption about 74,000

years ago. (2018). <https://doi.org/10.17863/CAM.23506>.

192.

Smith, E.I., Jacobs, Z., Johnsen, R., Ren, M., Fisher, E.C., Oestmo, S., Wilkins, J., Harris, J.A., Karkanias, P., Fitch, S., Ciravolo, A., Keenan, D., Cleghorn, N., Lane, C.S., Matthews, T., Marean, C.W.: Humans thrived in South Africa through the Toba eruption about 74,000 years ago. *Nature*. 555, 511–515 (2018). <https://doi.org/10.1038/nature25967>.

193.

Oppenheimer, S.: A single southern exit of modern humans from Africa: Before or after Toba? *Quaternary International*. 258, 88–99 (2012).  
<https://doi.org/10.1016/j.quaint.2011.07.049>.

194.

Lane, Christine S.: Ash from the Toba supereruption in Lake Malawi shows no volcanic winter in East Africa at 75 ka. *Proceedings of the National Academy of Sciences of the United States of America*. 110, 8025–8029 (2013).

195.

Petraglia, M.D., Ditchfield, P., Jones, S., Korisettar, R., Pal, J.N.: The Toba volcanic super-eruption, environmental change, and hominin occupation history in India over the last 140,000 years. *Quaternary International*. 258, 119–134 (2012).  
<https://doi.org/10.1016/j.quaint.2011.07.042>.

196.

Michael Petraglia, Ravi Korisettar, Nicole Boivin, Christopher Clarkson, Peter Ditchfield, Sacha Jones, Jinu Koshy, Marta Mirazón Lahr, Clive Oppenheimer, David Pyle, Richard Roberts, Jean-Luc Schwenninger, Lee Arnold and Kevin White: Middle Paleolithic Assemblages from the Indian Subcontinent before and after the Toba Super-Eruption. *Science*. 317, (2007).

197.

Clarkson, Chris: Continuity and change in the lithic industries of the Jurreru Valley, India,

before and after the Toba eruption.(Report). Quaternary International. 258, (2014).

198.

Jones, S.C.: Palaeoenvironmental response to the ~74 ka Toba ash-fall in the Jurreru and Middle Son valleys in southern and north-central India. Quaternary Research. 73, 336–350 (2010). <https://doi.org/10.1016/j.yqres.2009.11.005>.

199.

Late Pleistocene human population bottlenecks, volcanic winter, and differentiation of modern humans | Elsevier Enhanced Reader.

200.

Williams, M.A.J., Ambrose, S.H., van der Kaars, S., Ruehlemann, C., Chattopadhyaya, U., Pal, J., Chauhan, P.R.: Environmental impact of the 73ka Toba super-eruption in South Asia. Palaeogeography, Palaeoclimatology, Palaeoecology. 284, 295–314 (2009). <https://doi.org/10.1016/j.palaeo.2009.10.009>.

201.

Haslam, M., Petraglia, M.: Comment on "Environmental impact of the 73ka Toba super-eruption in South Asia" by M.A.J. Williams, S.H. Ambrose, S. van der Kaars, C. Ruehlemann, U. Chattopadhyaya, J. Pal and P.R. Chauhan [Palaeogeography, Palaeoclimatology, Palaeoecology 284 (2009) 295–314]. Palaeogeography, Palaeoclimatology, Palaeoecology. 296, 199–203 (2010). <https://doi.org/10.1016/j.palaeo.2010.03.057>.

202.

Williams, M.A.J., Ambrose, S.H., der Kaars, S. van, Ruehlemann, C., Chattopadhyaya, U., Pal, J., Chauhan, P.R.: Reply to the comment on "Environmental impact of the 73ka Toba super-eruption in South Asia" by M. A. J. Williams, S. H. Ambrose, S. van der Kaars, C. Ruehlemann, U. Chattopadhyaya, J. Pal, P. R. Chauhan [Palaeogeography, Palaeoclimatology, Palaeoecology 284 (2009) 295–314]. Palaeogeography, Palaeoclimatology, Palaeoecology. 296, 204–211 (2010). <https://doi.org/10.1016/j.palaeo.2010.05.043>.



203.

Haslam, M., Clarkson, C., Petraglia, M., Korisettar, R., Jones, S., Shipton, C., Ditchfield, P., Ambrose, S.H.: The 74 ka Toba super-eruption and southern Indian hominins: archaeology, lithic technology and environments at Jwalapuram Locality 3. *Journal of Archaeological Science*. 37, 3370–3384 (2010). <https://doi.org/10.1016/j.jas.2010.07.034>.

204.

Petraglia, Michael D.: Toba volcanic super-eruption, environmental change, and hominin occupation history in India over the last 140,000 years. *Quaternary international*. 258, 119–134 (2014).

205.

Tim Appenzeller: Eastern odyssey: humans had spread across Asia by 50,000 years ago. Everything else about our original exodus from Africa is up for debate. *Nature*. 484, 24–27.

206.

Louys, Julien: Mammal community structure of Sundanese fossil assemblages from the Late Pleistocene, and a discussion on the ecological effects of the Toba eruption. *Quaternary International*. 258, (2014).

207.

Wagner, B., Leng, M.J., Wilke, T., Böhm, A., Panagiotopoulos, K., Vogel, H., Lacey, J., Zanchetta, G., Sulpizio, R.: Potential impact of the 74 ka Toba eruption on the Balkan region, SE Europe. *Climate of the Past Discussions*. 9, 3307–3319 (2013). <https://doi.org/10.5194/cpd-9-3307-2013>.

208.

Huang, Cy: Cooling of the South China Sea by the Toba eruption and correlation with other climate proxies similar to 71,000 years ago. *Geophysical Research Letters*. 28, 3915–3918 (2014).

209.

Lane, C.S., Chorn, B.T., Johnson, T.C.: Ash from the Toba supereruption in Lake Malawi shows no volcanic winter in East Africa at 75 ka. *Proceedings of the National Academy of Sciences*. 110, 8025–8029 (2013). <https://doi.org/10.1073/pnas.1301474110>.

210.

Nicholas J. G. Pearce: Origin of ash in the Central Indian Ocean Basin and its implication for the volume estimate of the 74,000 year BP Youngest Toba eruption. *Current Science*. 889–893.

211.

*Quaternary International*. 258, (2012).

212.

Paul Mellars, Kevin C. Gori, Martin Carr, Pedro A. Soares and Martin B. Richards: Genetic and archaeological perspectives on the initial modern human colonization of southern Asia. *Proceedings of the National Academy of Sciences of the United States of America*. 110, (2013).

213.

Baldini, J.U.L., Brown, R.J., McElwaine, J.N.: Was millennial scale climate change during the Last Glacial triggered by explosive volcanism? *Scientific Reports*. 5, (2015). <https://doi.org/10.1038/srep17442>.

214.

Costa, A., Folch, A., Macedonio, G., Giaccio, B., Isaia, R., Smith, V.C.: Quantifying volcanic ash dispersal and impact of the Campanian Ignimbrite super-eruption. *Geophysical Research Letters*. 39, n/a-n/a (2012). <https://doi.org/10.1029/2012GL051605>.

215.

Allen, J.R.M., Watts, W.A., Huntley, B.: Weichselian palynostratigraphy, palaeovegetation and palaeoenvironment; the record from Lago Grande di Monticchio, southern Italy. *Quaternary International*. 73–74, 91–110 (2000). [https://doi.org/10.1016/S1040-6182\(00\)00067-7](https://doi.org/10.1016/S1040-6182(00)00067-7).

216.

Fitzsimmons, K.E., Hambach, U., Veres, D., Iovita, R.: The Campanian Ignimbrite Eruption: New Data on Volcanic Ash Dispersal and Its Potential Impact on Human Evolution. *PLoS ONE*. 8, (2013). <https://doi.org/10.1371/journal.pone.0065839>.

217.

Woo, J.Y.L., Kilburn, C.R.J.: Intrusion and deformation at Campi Flegrei, southern Italy: Sills, dikes, and regional extension. *Journal of Geophysical Research*. 115, (2010). <https://doi.org/10.1029/2009JB006913>.

218.

Fedele, F.G., Giaccio, B., Isaia, R., Orsi, G.: Ecosystem Impact of the Campanian Ignimbrite Eruption in Late Pleistocene Europe. *Quaternary Research*. 57, 420–424 (2002). <https://doi.org/10.1006/qres.2002.2331>.

219.

Fedele, F.G., Giaccio, B., Hajdas, I.: Timescales and cultural process at 40,000BP in the light of the Campanian Ignimbrite eruption, Western Eurasia. *Journal of Human Evolution*. 55, 834–857 (2008). <https://doi.org/10.1016/j.jhevol.2008.08.012>.

220.

Pyle, D.M., Ricketts, G.D., Margari, V., van Andel, T.H., Sinitsyn, A.A., Praslov, N.D., Lisitsyn, S.: Wide dispersal and deposition of distal tephra during the Pleistocene 'Campanian Ignimbrite/Y5' eruption, Italy. *Quaternary Science Reviews*. 25, 2713–2728 (2006). <https://doi.org/10.1016/j.quascirev.2006.06.008>.

221.

The Campanian Ignimbrite (Y5) tephra at Crvena Stijena Rockshelter, Montenegro | Elsevier Enhanced Reader.

222.

Hoffecker, J.F., Holliday, V.T., Anikovich, M.V., Sinitsyn, A.A., Popov, V.V., Lisitsyn, S.N., Levkovskaya, G.M., Pospelova, G.A., Forman, S.L., Giaccio, B.: From the Bay of Naples to the River Don: the Campanian Ignimbrite eruption and the Middle to Upper Paleolithic transition in Eastern Europe. *Journal of Human Evolution*. 55, 858–870 (2008).  
<https://doi.org/10.1016/j.jhevol.2008.08.018>.

223.

Andrei A. Sinitsyn: A Palaeolithic 'Pompeii' at Kostenki, Russia. (Research). *Antiquity*. 77, 9–15.

224.

Kathryn E Fitzsimmons: The Campanian Ignimbrite eruption: new data on volcanic ash dispersal and its potential impact on human evolution. *PLoS ONE*. 8, (2013).

225.

Mellars, P.: The Neanderthal Problem Continued. *Current Anthropology*. 40, 341–364 (1999). <https://doi.org/10.1086/200024>.

226.

John Lowe, Nick Barton, Simon Blockley, Christopher Bronk Ramsey, Victoria L. Cullen, William Davies, Clive Gamble, Katharine Grant, Mark Hardiman, Rupert Housley, Christine S. Lane, Sharen Lee, Mark Lewis, Alison MacLeod, Martin Menzies, Wolfgang Müller, Mark Pollard, Catherine Price, Andrew P. Roberts, Eelco J. Rohling, Chris Satow, Victoria C. Smith, Chris B. Stringer, Emma L. Tomlinson, Dustin White, Paul Albert, Ilenia Arienzo, Graeme Barker, Dušan Borić, Antonio Carandente, Lucia Civetta, Catherine Ferrier, Jean-Luc Guadelli, Panagiotis Karkanas, Margarita Koumouzelis, Ulrich C. Müller, Giovanni Orsi, Jörg Pross, Mauro Rosi, Ljiljana Shalamanov-Korobar, Nikolay Sirakov and Polychronis C. Tzedakis: Volcanic ash layers illuminate the resilience of Neanderthals and early modern humans to natural hazards. *Proceedings of the National Academy of Sciences of the United States of America*. 109, (2012).

227.

Black, B.A., Neely, R.R., Manga, M.: Campanian Ignimbrite volcanism, climate, and the final decline of the Neanderthals. *Geology*. 43, 411–414 (2015).  
<https://doi.org/10.1130/G36514.1>.

228.

The timing and spatiotemporal patterning of Neanderthal disappearance. *Nature*. 512, 306–310.

229.

Paul Mellars: The earliest modern humans in Europe: the reanalysis of findings from two archaeological sites calls for a reassessment of when modern humans settled in Europe, and of Neanderthal cultural achievements. *Nature*. 479, 483–486.

230.

Mellars, P.: Neanderthals and the modern human colonization of Europe. *Nature*. 432, 461–465 (2004). <https://doi.org/10.1038/nature03103>.

231.

Paul Mellars and Jennifer C. French: Tenfold Population Increase in Western Europe at the Neandertal—to—Modern Human Transition. *Science*. 333, (2011).

232.

Mystery eruption traced to dangerous Italian volcano : Research Highlights, <https://www.nature.com/articles/d41586-019-01462-6>.

233.

Tephra in caves\_ Distal deposits of the Minoan Santorini eruption and the Campanian super-eruption | Elsevier Enhanced Reader.

234.

Michael Staubwasser: Impact of climate change on the transition of Neanderthals to modern humans in Europe. *Proceedings of the National Academy of Sciences*. 115, 9116–9121 (2018). <https://doi.org/10.1073/pnas.1808647115>.

235.

João Zilhão: Neandertals and moderns mixed, and it matters. *Evolutionary Anthropology: Issues, News, and Reviews*. 15, 183–195 (2006). <https://doi.org/10.1002/evan.20110>.

236.

M. Damaschke, R. Sulpizio, G. Zanchetta, B. Wagner, N. Nowaczyk, J. Rethemeyer: Tephrostratigraphic studies on a sediment core from Lake Prespa in the Balkans. *Climate of the Past*. 9, 267–267 (2013).

237.

Villa, P., Pollarolo, L., Conforti, J., Marra, F., Biagioni, C., Degano, I., Lucejko, J.J., Tozzi, C., Pennacchioni, M., Zanchetta, G., Nicosia, C., Martini, M., Sibilila, E., Panzeri, L.: From Neandertals to modern humans: New data on the Uluzzian. *PLOS ONE*. 13, (2018). <https://doi.org/10.1371/journal.pone.0196786>.

238.

Mannella, G., Giaccio, B., Zanchetta, G., Regattieri, E., Niespolo, E.M., Pereira, A., Renne, P.R., Nomade, S., Leicher, N., Perchiazzi, N., Wagner, B.: Palaeoenvironmental and palaeohydrological variability of mountain areas in the central Mediterranean region: A 190 ka-long chronicle from the independently dated Fucino palaeolake record (central Italy). *Quaternary Science Reviews*. 210, 190–210 (2019). <https://doi.org/10.1016/j.quascirev.2019.02.032>.

239.

Garcia Garriga, J., Martínez Molina, K., Baena Preysler, J.: Neanderthal Survival in the North of the Iberian Peninsula? Reflections from a Catalan and Cantabrian Perspective. *Journal of World Prehistory*. 25, 81–121 (2012). <https://doi.org/10.1007/s10963-012-9057-y>.

240.

Bond, D.P.G., Grasby, S.E.: On the causes of mass extinctions. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 478, 3–29 (2017). <https://doi.org/10.1016/j.palaeo.2016.11.005>.

241.

Lindström, S., Sanei, H., van de Schootbrugge, B., Pedersen, G.K., Lesher, C.E., Tegner, C., Heunisch, C., Dybkjær, K., Outridge, P.M.: Volcanic mercury and mutagenesis in land plants during the end-Triassic mass extinction. *Science Advances*. 5, (2019).  
<https://doi.org/10.1126/sciadv.aaw4018>.

242.

VAN DE SCHOOTBRUGGE, B., WIGNALL, P.B.: A tale of two extinctions: converging end-Permian and end-Triassic scenarios. *Geological Magazine*. 153, 332–354 (2016).  
<https://doi.org/10.1017/S0016756815000643>.

243.

Deccan volcanism caused coupled pCO<sub>2</sub> and terrestrial temperature rises, and pre-impact extinctions in northern China - Zhang et al., accepted.pdf,  
<http://eprints.whiterose.ac.uk/128432/1/Zhang%20et%20al.%2C%20accepted.pdf>.

244.

Paul E. Olsen: Giant Lava Flows, Mass Extinctions, and Mantle Plumes. *Science*. 284, 604–605.

245.

Sobolev, S.V., Sobolev, A.V., Kuzmin, D.V., Krivolutsкая, N.A., Petrunin, A.G., Arndt, N.T., Radko, V.A., Vasiliev, Y.R.: Linking mantle plumes, large igneous provinces and environmental catastrophes. *Nature*. 477, 312–316 (2011).  
<https://doi.org/10.1038/nature10385>.

246.

Wignall, P.B.: Large igneous provinces and mass extinctions. *Earth-Science Reviews*. 53, 1–33 (2001). [https://doi.org/10.1016/S0012-8252\(00\)00037-4](https://doi.org/10.1016/S0012-8252(00)00037-4).

247.

Wignall, P.: The Link between Large Igneous Province Eruptions and Mass Extinctions. *Elements*. 1, 293–297 (2005). <https://doi.org/10.2113/gselements.1.5.293>.

248.

Ernst, R.E., Buchan, K.L., Campbell, I.H.: Frontiers in large igneous province research. *Lithos*. 79, 271–297 (2005). <https://doi.org/10.1016/j.lithos.2004.09.004>.

249.

Rampino, M.R., Caldeira, K.: Comparison of the ages of large-body impacts, flood-basalt eruptions, ocean-anoxic events and extinctions over the last 260 million years: a statistical study. *International Journal of Earth Sciences*. 107, 601–606 (2018). <https://doi.org/10.1007/s00531-017-1513-6>.

250.

Saunders, A.D.: Large Igneous Provinces: Origin and Environmental Consequences. *Elements*. 1, 259–263 (2005). <https://doi.org/10.2113/gselements.1.5.259>.

251.

Sobolev, S.V., Sobolev, A.V., Kuzmin, D.V., Krivolutsкая, N.A., Petrunin, A.G., Arndt, N.T., Radko, V.A., Vasiliev, Y.R.: Linking mantle plumes, large igneous provinces and environmental catastrophes. *Nature*. 477, 312–316 (2011). <https://doi.org/10.1038/nature10385>.

252.

Grattan, J.: Pollution and paradigms: lessons from Icelandic volcanism for continental flood basalt studies. *Lithos*. 79, 343–353 (2005). <https://doi.org/10.1016/j.lithos.2004.09.006>.

253.

Richard Stone: BACK FROM THE DEAD: The once-moribund idea that volcanism helped kill off the dinosaurs gains new credibility. *Science*. 346, (2014).

254.



Steven M. Holland: Ecological disruption precedes mass extinction. *Proceedings of the National Academy of Sciences of the United States of America*. 113, (2016).

255.

Grasby, S.E., Them, T.R., Chen, Z., Yin, R., Ardakani, O.H.: Mercury as a proxy for volcanic emissions in the geologic record. *Earth-Science Reviews*. 196, (2019).  
<https://doi.org/10.1016/j.earscirev.2019.102880>.

256.

Courtillot, V., Jaupart, C., Manighetti, I., Tapponnier, P., Besse, J.: On causal links between flood basalts and continental breakup. *Earth and Planetary Science Letters*. 166, 177–195 (1999). [https://doi.org/10.1016/S0012-821X\(98\)00282-9](https://doi.org/10.1016/S0012-821X(98)00282-9).

257.

Age of the Emeishan flood magmatism and relations to Permian–Triassic boundary events, <http://libra.msra.cn/Publication/5357742/age-of-the-emeishan-flood-magmatism-and-relations-to-permian-triassic-boundary-events>.

258.

Black, B.A., Hauri, E.H., Elkins-Tanton, L.T., Brown, S.M.: Sulfur isotopic evidence for sources of volatiles in Siberian Traps magmas. *Earth and Planetary Science Letters*. 394, 58–69 (2014). <https://doi.org/10.1016/j.epsl.2014.02.057>.

259.

Black, B.A., Lamarque, J.-F., Shields, C.A., Elkins-Tanton, L.T., Kiehl, J.T.: Acid rain and ozone depletion from pulsed Siberian Traps magmatism. *Geology*. 42, 67–70 (2014).  
<https://doi.org/10.1130/G34875.1>.

260.

Grasby, S.E., Sanei, H., Beauchamp, B.: Catastrophic dispersion of coal fly ash into oceans during the latest Permian extinction. *Nature Geoscience*. 4, 104–107 (2011).  
<https://doi.org/10.1038/ngeo1069>.

261.

Darcy E. Ogden and Norman H. Sleep: Explosive eruption of coal and basalt and the end-Permian mass extinction. *Proceedings of the National Academy of Sciences of the United States of America*. 109, (2012).

262.

Percival, L.M.E., Witt, M.L.I., Mather, T.A., Hermoso, M., Jenkyns, H.C., Hesselbo, S.P., Al-Suwaidi, A.H., Storm, M.S., Xu, W., Ruhl, M.: Globally enhanced mercury deposition during the end-Pliensbachian extinction and Toarcian OAE: A link to the Karoo–Ferrar Large Igneous Province. *Earth and Planetary Science Letters*. 428, 267–280 (2015).  
<https://doi.org/10.1016/j.epsl.2015.06.064>.

263.

Cui, Y., Kump, L.R.: Global warming and the end-Permian extinction event: Proxy and modeling perspectives. *Earth-Science Reviews*. 149, 5–22 (2015).  
<https://doi.org/10.1016/j.earscirev.2014.04.007>.

264.

Darcy E. Ogden and Norman H. Sleep: Explosive eruption of coal and basalt and the end-Permian mass extinction. *Proceedings of the National Academy of Sciences of the United States of America*. 109, (2012).

265.

Ponomarenko, A.G.: Insects during the time around the Permian—Triassic crisis. *Paleontological Journal*. 50, 174–186 (2016). <https://doi.org/10.1134/S0031030116020052>.

266.

JUN SHEN, YONG LEI, THOMAS J. ALGEO, QINGLAI FENG, THOMAS SERVAIS, JIANXIN YU and LIAN ZHOU: VOLCANIC EFFECTS ON MICROPLANKTON DURING THE PERMIAN-TRIASSIC TRANSITION (SHANGSI AND XINMIN, SOUTH CHINA). *PALAIOS*. 28, (2013).

267.

Lawrence M. E. Percival, Micha Ruhl, Stephen P. Hesselbo, Hugh C. Jenkyns, Tamsin A. Mather and Jessica H. Whiteside: Mercury evidence for pulsed volcanism during the end-Triassic mass extinction. *Proceedings of the National Academy of Sciences of the United States of America*. 114, (2017).

268.

Bercovici, A., Cui, Y., Forel, M.-B., Yu, J., Vajda, V.: Terrestrial paleoenvironment characterization across the Permian–Triassic boundary in South China. *Journal of Asian Earth Sciences*. 98, 225–246 (2015). <https://doi.org/10.1016/j.jseaes.2014.11.016>.

269.

Yadong Sun, Michael M. Joachimski, Paul B. Wignall, Chunbo Yan, Yanlong Chen, Haishui Jiang, Lina Wang and Xulong Lai: Lethally Hot Temperatures During the Early Triassic Greenhouse. *Science*. 338, (2012).

270.

Keller, G., Bhowmick, P.K., Upadhyay, H., Dave, A., Reddy, A.N., Jaiprakash, B.C., Adatte, T.: Deccan volcanism linked to the Cretaceous-Tertiary boundary mass extinction: New evidence from ONGC wells in the Krishna-Godavari Basin. *Journal of the Geological Society of India*. 78, 399–428 (2011). <https://doi.org/10.1007/s12594-011-0107-3>.

271.

Early to Late Maastrichtian environmental changes in the Indian Ocean compared with Tethys and South Atlantic | Elsevier Enhanced Reader.

272.

Constraints on the volume and rate of Deccan Traps flood basalt eruptions using a combination of high-resolution terrestrial mercury records and geochemical box models | Elsevier Enhanced Reader.

273.

Preliminary comparison of ancient bole beds and modern soils developed upon the Deccan volcanic basalts around Pune (India): Potential for palaeoenvironmental reconstruction.

274.

Negi, J.G., Agrawal, P.K., Pandey, O.P., Singh, A.P.: A possible K-T boundary bolide impact site offshore near Bombay and triggering of rapid Deccan volcanism. *Physics of the Earth and Planetary Interiors*. 76, 189–197 (1993).  
[https://doi.org/10.1016/0031-9201\(93\)90011-W](https://doi.org/10.1016/0031-9201(93)90011-W).

275.

Rampino, M.R.: Relationship between impact-crater size and severity of related extinction episodes. *Earth-Science Reviews*. 201, (2020).  
<https://doi.org/10.1016/j.earscirev.2019.102990>.

276.

Multiple impacts across the Cretaceous–Tertiary boundary,  
[http://geoweb.princeton.edu/research/Paleontology/Keller\\_et\\_al.\\_ESR\\_03.pdf](http://geoweb.princeton.edu/research/Paleontology/Keller_et_al._ESR_03.pdf).

277.

Tandon, S.K.: Records of the influence of Deccan volcanism on contemporary sedimentary environments in Central India. *Sedimentary Geology*. 147, 177–192 (2002).  
[https://doi.org/10.1016/S0037-0738\(01\)00196-8](https://doi.org/10.1016/S0037-0738(01)00196-8).

278.

Schulte, P., Alegret, L., Arenillas, I., Arz, J.A., Barton, P.J., Bown, P.R., Bralower, T.J., Christeson, G.L., Claeys, P., Cockell, C.S., Collins, G.S., Deutsch, A., Goldin, T.J., Goto, K., Grajales-Nishimura, J.M., Grieve, R.A.F., Gulick, S.P.S., Johnson, K.R., Kiessling, W., Koeberl, C., Kring, D.A., MacLeod, K.G., Matsui, T., Melosh, J., Montanari, A., Morgan, J.V., Neal, C.R., Nichols, D.J., Norris, R.D., Pierazzo, E., Ravizza, G., Rebolledo-Vieyra, M., Reimold, W.U., Robin, E., Salge, T., Speijer, R.P., Sweet, A.R., Urrutia-Fucugauchi, J., Vajda, V., Whalen, M.T., Willumsen, P.S.: The Chicxulub Asteroid Impact and Mass Extinction at the Cretaceous–Paleogene Boundary. *Science*. 327, 1214–1218 (2010).  
<https://doi.org/10.1126/science.1177265>.

279.

Keller, G., Sahni, A., Bajpai, S.: Deccan volcanism, the KT mass extinction and dinosaurs. *Journal of Biosciences*. 34, 709–728 (2009). <https://doi.org/10.1007/s12038-009-0059-6>.

280.

Wacey, D., Saunders, M., Cliff, J., Kilburn, M.R., Kong, C., Barley, M.E., Brasier, M.D.: Geochemistry and nano-structure of a putative ~3240 million-year-old black smoker biota, Sulphur Springs Group, Western Australia. *Precambrian Research*. 249, 1–12 (2014). <https://doi.org/10.1016/j.precamres.2014.04.016>.

281.

Maltman, C., Walter, G., Yurkov, V.: A Diverse Community of Metal(loid) Oxide Respiring Bacteria Is Associated with Tube Worms in the Vicinity of the Juan de Fuca Ridge Black Smoker Field. *PLOS ONE*. 11, (2016). <https://doi.org/10.1371/journal.pone.0149812>.

282.

Hodel, F., Macouin, M., Trindade, R.I.F., Triantafyllou, A., Ganne, J., Chavagnac, V., Berger, J., Rospabé, M., Destigneville, C., Carlut, J., Ennih, N., Agrinier, P.: Fossil black smoker yields oxygen isotopic composition of Neoproterozoic seawater. *Nature Communications*. 9, (2018). <https://doi.org/10.1038/s41467-018-03890-w>.

283.

Reigstad, L.J., Jorgensen, S.L., Lauritzen, S.-E., Schleper, C., Urich, T.: Sulfur-Oxidizing Chemolithotrophic Proteobacteria Dominate the Microbiota in High Arctic Thermal Springs on Svalbard. *Astrobiology*. 11, 665–678 (2011). <https://doi.org/10.1089/ast.2010.0551>.

284.

*Earth-Science Reviews*. 149, (2015).

285.

GLIKSON, A.: Asteroid/comet impact clusters, flood basalts and mass extinctions: Significance of isotopic age overlaps. *Earth and Planetary Science Letters*. 236, 933–937 (2005). <https://doi.org/10.1016/j.epsl.2005.05.007>.

286.

Fraser, N.C., Sues, H.-D.: The beginning of the 'Age of Dinosaurs': a brief overview of terrestrial biotic changes during the Triassic. *Earth and Environmental Science Transactions of the Royal Society of Edinburgh*. 101, 189–200 (2010).  
<https://doi.org/10.1017/S1755691011020019>.

287.

Percival, L.M.E., Ruhl, M., Hesselbo, S.P., Jenkyns, H.C., Mather, T.A., Whiteside, J.H.: Mercury evidence for pulsed volcanism during the end-Triassic mass extinction. *Proceedings of the National Academy of Sciences*. 114, 7929–7934 (2017).  
<https://doi.org/10.1073/pnas.1705378114>.

288.

Ernst, R.E., Youbi, N.: How Large Igneous Provinces affect global climate, sometimes cause mass extinctions, and represent natural markers in the geological record. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 478, 30–52 (2017).  
<https://doi.org/10.1016/j.palaeo.2017.03.014>.

289.

Fantasia, A., Adatte, T., Spangenberg, J.E., Font, E.: Palaeoenvironmental changes associated with Deccan volcanism, examples from terrestrial deposits from Central India. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 441, 165–180 (2016).  
<https://doi.org/10.1016/j.palaeo.2015.06.032>.

290.

Grattan, J., Torrence, R., *World Archaeological Congress: Living under the shadow: cultural impacts of volcanic eruptions*. Left Coast Press, Walnut Creek, Calif (2007).

291.

Cashman, K.V., Giordano, G.: Volcanoes and human history. *Journal of Volcanology and Geothermal Research*. 176, 325–329 (2008).  
<https://doi.org/10.1016/j.jvolgeores.2008.01.036>.

292.

Grattan, J.: Aspects of Armageddon: An exploration of the role of volcanic eruptions in human history and civilization. *Quaternary International*. 151, 10–18 (2006). <https://doi.org/10.1016/j.quaint.2006.01.019>.

293.

Riede, F.: Towards a science of past disasters. *Natural Hazards*. 71, 335–362 (2014). <https://doi.org/10.1007/s11069-013-0913-6>.

294.

Social responses to volcanic eruptions: A review of key concepts | Elsevier Enhanced Reader.

295.

Volcanic activity and human society | Elsevier Enhanced Reader.

296.

Zanchetta, G., Bini, M., Di Vito, M.A., Sulpizio, R., Sadori, L.: Tephrostratigraphy of paleoclimatic archives in central Mediterranean during the Bronze Age. *Quaternary International*. 499, 186–194 (2019). <https://doi.org/10.1016/j.quaint.2018.06.012>.

297.

Volcanic disasters and agricultural intensification: A case study from the Willaumez Peninsula, Papua New Guinea | Elsevier Enhanced Reader.

298.

Social resilience and long-term adaptation to volcanic disasters: The archaeology of continuity and innovation in the Willaumez Peninsula, Papua New Guinea | Elsevier Enhanced Reader.

299.

Changes in mid- and far-field human landscape use following the Laacher See eruption (c. 13,000 BP) | Elsevier Enhanced Reader.

300.

Evidence of cultural responses to the impact of the Mazama ash fall from deeply stratified archaeological sites in southern Alberta, Canada | Elsevier Enhanced Reader.

301.

Prehistoric human responses to volcanic tephra fall events in the Ust-Kamchatsk region, Kamchatka Peninsula (Kamchatsky Krai, Russian Federation) during the middle to late Holocene (6000-500 cal BP) | Elsevier Enhanced Reader.

302.

Reconciling multiple ice-core volcanic histories: The potential of tree-ring and documentary evidence, 670-730 CE | Elsevier Enhanced Reader.

303.

Torrence, R., Grattan, J.: Natural disasters and cultural change. Routledge, London (2002).

304.

McGuire, B.: The archaeology of geological catastrophes. Geological Society, Bath (2000).

305.

Manning, J.G., Ludlow, F., Stine, A.R., Boos, W.R., Sigl, M., Marlon, J.R.: Volcanic suppression of Nile summer flooding triggers revolt and constrains interstate conflict in ancient Egypt. *Nature Communications*. 8, (2017).  
<https://doi.org/10.1038/s41467-017-00957-y>.



306.

Chester, D.K., Duncan, A.M., Dibben, C.J.L.: The importance of religion in shaping volcanic risk perception in Italy, with special reference to Vesuvius and Etna. *Journal of Volcanology and Geothermal Research*. 172, 216–228 (2008).  
<https://doi.org/10.1016/j.jvolgeores.2007.12.009>.

307.

Torrence, R.: Social responses to volcanic eruptions: A review of key concepts. *Quaternary International*. 499, 258–265 (2019). <https://doi.org/10.1016/j.quaint.2018.02.033>.

308.

Riede, F.: Doing palaeo-social volcanology: Developing a framework for systematically investigating the impacts of past volcanic eruptions on human societies using archaeological datasets. *Quaternary International*. 499, 266–277 (2019).  
<https://doi.org/10.1016/j.quaint.2018.01.027>.

309.

Giuseppe Mastrolorenzo, Pierpaolo Petrone, Lucia Pappalardo and Michael F. Sheridan: The Avellino 3780-yr-B.P. Catastrophe as a Worst-Case Scenario for a Future Eruption at Vesuvius. *Proceedings of the National Academy of Sciences of the United States of America*. 103, (2006).

310.

Mastrolorenzo, G., Pappalardo, L.: Hazard assessment of explosive volcanism at Somma-Vesuvius. *Journal of Geophysical Research*. 115, (2010).  
<https://doi.org/10.1029/2009JB006871>.

311.

Haraldur Sigurdsson, Stanford Cashdollar and Stephen R. J. Sparks: The Eruption of Vesuvius in A. D. 79: Reconstruction from Historical and Volcanological Evidence. *American Journal of Archaeology*. 86, 39–51 (1982).

312.

Albore Livadie, C., Pearce, M., Delle Donne, M., Pizzano, N.: The effects of the Avellino Pumice eruption on the population of the Early Bronze age Campanian plain (Southern Italy). *Quaternary International*. 499, 205–220 (2019).  
<https://doi.org/10.1016/j.quaint.2018.03.035>.

313.

Milia, A., Raspini, A., Torrente, M.M.: The dark nature of Somma-Vesuvius volcano: Evidence from the ~3.5ka B.P. Avellino eruption. *Quaternary International*. 173–174, 57–66 (2007). <https://doi.org/10.1016/j.quaint.2007.03.001>.

314.

The effects of the Avellino Pumice eruption on the population of the Early Bronze age Campanian plain (Southern Italy) | Elsevier Enhanced Reader.

315.

Di Vito, M.A., Talamo, P., de Vita, S., Rucco, I., Zanchetta, G., Cesarano, M.: Dynamics and effects of the Vesuvius Pomice di Avellino Plinian eruption and related phenomena on the Bronze Age landscape of Campania region (Southern Italy). *Quaternary International*. 499, 231–244 (2019). <https://doi.org/10.1016/j.quaint.2018.03.021>.

316.

Convertito, V., Zollo, A.: Assessment of pre-crisis and syn-crisis seismic hazard at Campi Flegrei and Mt. Vesuvius volcanoes, Campania, southern Italy. *Bulletin of Volcanology*. 73, 767–783 (2011). <https://doi.org/10.1007/s00445-011-0455-2>.

317.

Gurioli, L., Sulpizio, R., Cioni, R., Sbrana, A., Santacroce, R., Luperini, W., Andronico, D.: Pyroclastic flow hazard assessment at Somma-Vesuvius based on the geological record. *Bulletin of Volcanology*. 72, 1021–1038 (2010).  
<https://doi.org/10.1007/s00445-010-0379-2>.

318.

Senatore, M.R., Ciarallo, A., Stanley, J.-D.: Pompeii Damaged by Volcaniclastic Debris Flows Triggered Centuries Prior to the 79 A.D. Vesuvius Eruption. *Geoarchaeology*. 29, 1–15 (2014). <https://doi.org/10.1002/gea.21458>.

319.

Mastrolorenzo, G., Palladino, D.M., Vecchio, G., Taddeucci, J.: The 472 AD Pollena eruption of Somma-Vesuvius (Italy) and its environmental impact at the end of the Roman Empire. *Journal of Volcanology and Geothermal Research*. 113, 19–36 (2002). [https://doi.org/10.1016/S0377-0273\(01\)00248-7](https://doi.org/10.1016/S0377-0273(01)00248-7).

320.

Albore Livadie, C., Pearce, M., Delle Donne, M., Pizzano, N.: The effects of the Avellino Pumice eruption on the population of the Early Bronze age Campanian plain (Southern Italy). *Quaternary International*. 499, 205–220 (2019). <https://doi.org/10.1016/j.quaint.2018.03.035>.

321.

Driessen, J.: The Santorini eruption. An archaeological investigation of its distal impacts on Minoan Crete. *Quaternary International*. 499, 195–204 (2019). <https://doi.org/10.1016/j.quaint.2018.04.019>.

322.

Monaghan, J.J., Bicknell, P.J., Humble, R.J.: Volcanoes, Tsunamis and the demise of the Minoans. *Physica D: Nonlinear Phenomena*. 77, 217–228 (1994). [https://doi.org/10.1016/0167-2789\(94\)90135-X](https://doi.org/10.1016/0167-2789(94)90135-X).

323.

Pearson, C.L., Brewer, P.W., Brown, D., Heaton, T.J., Hodgins, G.W.L., Jull, A.J.T., Lange, T., Salzer, M.W.: Annual radiocarbon record indicates 16th century BCE date for the Thera eruption. *Science Advances*. 4, (2018). <https://doi.org/10.1126/sciadv.aar8241>.

324.

Athanassas, C.D., Modis, K., Alçiçek, M.C., Theodorakopoulou, K.: Contouring the

Cataclysm: A Geographical Analysis of the Effects of the Minoan Eruption of the Santorini Volcano. *Environmental Archaeology*. 23, 160–176 (2018).  
<https://doi.org/10.1080/14614103.2017.1288885>.

325.

Tephra in caves\_ Distal deposits of the Minoan Santorini eruption and the Campanian super-eruption | Elsevier Enhanced Reader.

326.

Paolo Cherubini: The olive-branch dating of the Santorini eruption. *Antiquity*. 88, 267–274.

327.

Stratospheric Ozone destruction by the Bronze-Age Minoan eruption (Santorini Volcano, Greece) - srep12243.pdf, <https://www.nature.com/articles/srep12243.pdf>.

328.

Panagiotakopulu, E., Higham, T., Sarpaki, A., Buckland, P., Doudas, C.: Ancient pests: the season of the Santorini Minoan volcanic eruption and a date from insect chitin. *Naturwissenschaften*. 100, 683–689 (2013). <https://doi.org/10.1007/s00114-013-1068-8>.

329.

Sturt W. Manning: Dating the Thera (Santorini) eruption: archaeological and scientific evidence supporting a high chronology. *Antiquity*. 88, 1164–1180.

330.

Medical papyri describe the effects of the Santorini eruption on human health, and date the eruption to August 1603–March 1601 BC.

331.

Athanassas, C.D., Modis, K., Alçiçek, M.C., Theodorakopoulou, K.: Contouring the Cataclysm: A Geographical Analysis of the Effects of the Minoan Eruption of the Santorini Volcano. *Environmental Archaeology*. 23, 160–176 (2018).  
<https://doi.org/10.1080/14614103.2017.1288885>.

332.

Knappett, Carl Rivers, Ray Evans, Tim: The Thera eruption and Minoan Palatial Collapse. 85, 1008–1023.

333.

Bottema, S., Sarpaki, A.: Environmental change in Crete: a 9000-year record of Holocene vegetation history and the effect of the Santorini eruption. *The Holocene*. 13, 733–749 (2003). <https://doi.org/10.1191/0959683603hl659rp>.

334.

Speleothems as sensitive recorders of volcanic eruptions – the Bronze Age Minoan eruption recorded in a stalagmite from Turkey | Elsevier Enhanced Reader.

335.

Six medical papyri describe the effect of Santorini's volcanic ash.

336.

Trevisanato, S.I.: Treatments for burns in the London Medical Papyrus show the first seven biblical plagues of Egypt are coherent with Santorini's volcanic fallout. *Medical Hypotheses*. 66, 193–196 (2006). <https://doi.org/10.1016/j.mehy.2005.08.052>.

337.

Periáñez, R., Abril, J.M.: Modelling tsunamis in the Eastern Mediterranean Sea. Application to the Minoan Santorini tsunami sequence as a potential scenario for the biblical Exodus. *Journal of Marine Systems*. 139, 91–102 (2014).  
<https://doi.org/10.1016/j.jmarsys.2014.05.016>.

338.

Modeling cultural responses to volcanic disaster in the ancient Jama-Coaque tradition, coastal Ecuador: A case study in cultural collapse and social resilience | Elsevier Enhanced Reader.

339.

Abbott, D.A., Sheets, P.D., Cooper, J.: *Surviving Sudden Environmental Change: Answers from Archaeology*. University Press of Colorado, Boulder, Colo (2012).

340.

Hartmann, W.K., Malin, M., McEwen, A., Carr, M., Soderblom, L., Thomas, P., Danielson, E., James, P., Veverka, J.: Evidence for recent volcanism on Mars from crater counts. *Nature*. 397, 586–589 (1999). <https://doi.org/10.1038/17545>.

341.

Cousins, C.R., Crawford, I.A.: Volcano-Ice Interaction as a Microbial Habitat on Earth and Mars. *Astrobiology*. 11, 695–710 (2011). <https://doi.org/10.1089/ast.2010.0550>.

342.

Head, J.W., Crumpler, L.S., Aubele, J.C., Guest, J.E., Saunders, R.S.: Venus volcanism: Classification of volcanic features and structures, associations, and global distribution from Magellan data. *Journal of Geophysical Research*. 97, (1992). <https://doi.org/10.1029/92JE01273>.

343.

Terrestrial Volcanism in Space and Time - Annual Review of Earth and Planetary Sciences, 21(1):427, <http://www.annualreviews.org/doi/abs/10.1146/annurev.ea.21.050193.002235>.

344.

Lopes, R.M.C., Mitchell, K.L., Williams, D., Mitri, G.: Beyond Earth: How extra-terrestrial volcanism has changed our definition of a volcano. In: *What is a volcano?* pp. 11–30.

Geological Society of America, Boulder, Colo. [https://doi.org/10.1130/2010.2470\(02\)](https://doi.org/10.1130/2010.2470(02)).

345.

Volcanism and tectonics on Venus, <http://www.es.ucsc.edu/~fnimmo/website/paper5.pdf>.

346.

Strom, R.G., Schaber, G.G., Dawson, D.D.: The global resurfacing of Venus. *Journal of Geophysical Research*. 99, (1994). <https://doi.org/10.1029/94JE00388>.

347.

Hints of a volcanically active exomoon. *Space Daily*. (2011).

348.

van Summeren, J., Conrad, C.P., Gaidos, E.: MANTLE CONVECTION, PLATE TECTONICS, AND VOLCANISM ON HOT EXO-EARTHS. *The Astrophysical Journal*. 736, (2011). <https://doi.org/10.1088/2041-8205/736/1/L15>.

349.

Parnell, J.: Plate tectonics and the detection of land-based biosignatures on Mars and extrasolar planets. *International Journal of Astrobiology*. 4, 175–186 (2005). <https://doi.org/10.1017/S1473550405002715>.

350.

Kaltenegger, L., Henning, W.G., Sasselov, D.D.: DETECTING VOLCANISM ON EXTRASOLAR PLANETS. *The Astronomical Journal*. 140, 1370–1380 (2010). <https://doi.org/10.1088/0004-6256/140/5/1370>.

351.

Buizert, C., Sigl, M., Severi, M., Markle, B.R., Wettstein, J.J., McConnell, J.R., Pedro, J.B.,

Sodemann, H., Goto-Azuma, K., Kawamura, K., Fujita, S., Motoyama, H., Hirabayashi, M., Uemura, R., Stenni, B., Parrenin, F., He, F., Fudge, T.J., Steig, E.J.: Abrupt ice-age shifts in southern westerly winds and Antarctic climate forced from the north. *Nature*. 563, 681–685 (2018). <https://doi.org/10.1038/s41586-018-0727-5>.

352.

Trevisanato, S.I.: Treatments for burns in the London Medical Papyrus show the first seven biblical plagues of Egypt are coherent with Santorini's volcanic fallout. *Medical Hypotheses*. 66, 193–196 (2006). <https://doi.org/10.1016/j.mehy.2005.08.052>.

353.

Thouret, J.-C., Lavigne, F., Kelfoun, K., Bronto, S.: Toward a revised hazard assessment at Merapi volcano, Central Java. *Journal of Volcanology and Geothermal Research*. 100, 479–502 (2000). [https://doi.org/10.1016/S0377-0273\(00\)00152-9](https://doi.org/10.1016/S0377-0273(00)00152-9).

354.

Ernst, R.E., Youbi, N.: How Large Igneous Provinces affect global climate, sometimes cause mass extinctions, and represent natural markers in the geological record. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 478, 30–52 (2017). <https://doi.org/10.1016/j.palaeo.2017.03.014>.