# Kai-Uwe Hess

List of Publications by Year
in descending order



| 94 | 4,196 | 87843 38 | 123376 61 |
|---|---|---|---|
| papers | citations | h-index | g-index |

| 95 | 95 | 95 | 2659 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | The effect of water on the viscosity of a haplogranitic melt under P-T-X conditions relevant to silicic volcanism. Contributions To Mineralogy and Petrology, 1996, 124, 19-28. | 1.2 | 211 |
| 2 | Non-Newtonian rheological law for highly crystalline dome lavas. Geology, 2007, 35, 843. | 2.0 | 164 |
| 3 | Seismogenic lavas and explosive eruption forecasting. Nature, 2008, 453, 507-510. | 13.7 | 161 |
| 4 | Viscosity, fragility, and configurational entropy of melts along the join SiO<sub>2</sub>-NaAlSiO<sub>4</sub>. American Mineralogist, 1997, 82, 979-990. | 0.9 | 159 |
| 5 | Universal representation of viscosity in glass forming liquids. Journal of Non-Crystalline Solids, 1998, 223, 207-222. | 1.5 | 125 |
| 6 | The influence of excess alkalis on the viscosity of a haplogranitic melt. American Mineralogist, 1995, 80, 297-304. | 0.9 | 124 |
| 7 | The influence of thermal-stressing (up to 1000Â°C) on the physical, mechanical, and chemical properties of siliceous-aggregate, high-strength concrete. Construction and Building Materials, 2013, 42, 248-265. | 3.2 | 114 |
| 8 | The viscous-brittle transition of crystal-bearing silicic melt: Direct observation of magma rupture and healing. Geology, 2012, 40, 611-614. | 2.0 | 113 |
| 9 | Volcanic ash melting under conditions relevant to ash turbine interactions. Nature Communications, 2016, 7, 10795. | 5.8 | 113 |
| 10 | Reconstructing magma failure and the degassing network of dome-building eruptions. Geology, 2013, 41, 515-518. | 2.0 | 106 |
| 11 | Rheological properties of dome lavas: Case study of Unzen volcano. Earth and Planetary Science Letters, 2009, 279, 263-272. | 1.8 | 101 |
| 12 | Volcanic sintering: Timescales of viscous densification and strength recovery. Geophysical Research Letters, 2013, 40, 5658-5664. | 1.5 | 91 |
| 13 | Extremely fluid behavior of hydrous peralkaline rhyolites. Earth and Planetary Science Letters, 1998, 158, 31-38. | 1.8 | 85 |
| 14 | Magmatic architecture of dome-building eruptions at VolcÃ¡n de Colima, Mexico. Bulletin of Volcanology, 2012, 74, 249-260. | 1.1 | 85 |
| 15 | Thermal weakening of the carbonate basement under Mt. Etna volcano (Italy): Implications for volcano instability. Journal of Volcanology and Geothermal Research, 2013, 250, 42-60. | 0.8 | 81 |
| 16 | The viscosities of dry and hydrous XAlSi3O8 (X=Li, Na, K, Ca0.5, Mg0.5) melts. Chemical Geology, 2001, 174, 115-132. | 1.4 | 77 |
| 17 | A compositional tipping point governing the mobilization and eruption style of rhyolitic magma. Nature, 2017, 552, 235-238. | 13.7 | 77 |
| 18 | Tracking the permeable porous network during strain-dependent magmatic flow. Journal of Volcanology and Geothermal Research, 2013, 260, 117-126. | 0.8 | 74 |

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|---|---|---|---|
| 19 | Nonisothermal viscous sintering of volcanic ash. Journal of Geophysical Research: Solid Earth, 2014, 119, 8792-8804. | 1.4 | 71 |
| 20 | Surface tension driven processes densify and retain permeability in magma and lava. Earth and Planetary Science Letters, 2016, 433, 116-124. | 1.8 | 63 |
| 21 | Parametrization of viscosity-temperature relations of aluminosilicate melts. Chemical Geology, 1996, 128, 155-163. | 1.4 | 60 |
| 22 | The rheology of peralkaline rhyolites from Pantelleria Island. Journal of Volcanology and Geothermal Research, 2013, 249, 201-216. | 0.8 | 59 |
| 23 | How tough is tuff in the event of fire?. Geology, 2012, 40, 311-314. | 2.0 | 58 |
| 24 | Melt viscosities in the system Na-Fe-Si-O-F-Cl; contrasting effects of F and Cl in alkaline melts. American Mineralogist, 1998, 83, 1016-1021. | 0.9 | 57 |
| 25 | Fusion characteristics of volcanic ash relevant to aviation hazards. Geophysical Research Letters, 2014, 41, 2326-2333. | 1.5 | 57 |
| 26 | The effect of oxygen fugacity on the rheological evolution of crystallizing basaltic melts. Earth and Planetary Science Letters, 2018, 487, 21-32. | 1.8 | 57 |
| 27 | XAS determination of the Fe local environment and oxidation state in phonolite glasses. American Mineralogist, 2011, 96, 631-636. | 0.9 | 56 |
| 28 | Approximate chemical analysis of volcanic glasses using Raman spectroscopy. Journal of Raman Spectroscopy, 2015, 46, 1235-1244. | 1.2 | 53 |
| 29 | Viscous flow behavior of tholeiitic and alkaline Fe-rich martian basalts. Geochimica Et Cosmochimica Acta, 2014, 124, 348-365. | 1.6 | 48 |
| 30 | Models for the estimation of Fe<sup>3+</sup>/Fe<sub>tot</sub>ratio in terrestrial and extraterrestrial alkali- and iron-rich silicate glasses using Raman spectroscopyk. American Mineralogist, 2016, 101, 943-952. | 0.9 | 48 |
| 31 | Viscous heating in rhyolite: An in situ experimental determination. Earth and Planetary Science Letters, 2008, 275, 121-126. | 1.8 | 46 |
| 32 | Experimental generation of volcanic pseudotachylytes: Constraining rheology. Journal of Structural Geology, 2012, 38, 222-233. | 1.0 | 46 |
| 33 | Permeability of compacting porous lavas. Journal of Geophysical Research: Solid Earth, 2015, 120, 1605-1622. | 1.4 | 46 |
| 34 | Viscosity data for hydrous peraluminous granitic melts; comparison with a metaluminous model. American Mineralogist, 1998, 83, 236-239. | 0.9 | 45 |
| 35 | Wetting and Spreading of Molten Volcanic Ash in Jet Engines. Journal of Physical Chemistry Letters, 2017, 8, 1878-1884. | 2.1 | 45 |
| 36 | The rheological evolution of alkaline Vesuvius magmas and comparison with alkaline series from the Phlegrean Fields, Etna, Stromboli and Teide. Geochimica Et Cosmochimica Acta, 2009, 73, 6613-6630. | 1.6 | 44 |

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|---|---|---|---|
| 37 | Effect of oxygen fugacity on the glass transition, viscosity and structure of silica- and iron-rich magmatic melts. Journal of Non-Crystalline Solids, 2017, 470, 78-85. | 1.5 | 42 |
| 38 | Granite and granitic pegmatite melts: volumes and viscosities. Earth and Environmental Science Transactions of the Royal Society of Edinburgh, 1996, 87, 65-72. | 0.3 | 41 |
| 39 | Topological inversions in coalescing granular media control fluid-flow regimes. Physical Review E, 2017, 96, 033113. | 0.8 | 39 |
| 40 | Combined effusive-explosive silicic volcanism straddles the multiphase viscous-to-brittle transition. Nature Communications, 2018, 9, 4696. | 5.8 | 39 |
| 41 | Shear Rateâ€Dependent Disequilibrium Rheology and Dynamics of Basalt Solidification. Geophysical Research Letters, 2018, 45, 6466-6475. | 1.5 | 39 |
| 42 | Synthesis, Crystal Structure, and Properties of Two Modifications of MgB12C2. Chemistry - A European Journal, 2007, 13, 3450-3458. | 1.7 | 37 |
| 43 | Spine growth and seismogenic faulting at Mt. Unzen, Japan. Journal of Geophysical Research: Solid Earth, 2015, 120, 4034-4054. | 1.4 | 36 |
| 44 | Centrifuge-assisted falling-sphere viscometry. European Journal of Mineralogy, 1996, 8, 507-514. | 0.4 | 36 |
| 45 | Viscous heating in silicate melts: An experimental and numerical comparison. Journal of Geophysical Research, 2012, 117, . | 3.3 | 35 |
| 46 | Estimation of CMAS infiltration depth in EB-PVD TBCs: A new constraint model supported with experimental approach. Journal of the European Ceramic Society, 2019, 39, 2936-2945. | 2.8 | 35 |
| 47 | Physical properties of the 1980 Mount St. Helens cryptodome magma. Bulletin of Volcanology, 1997, 59, 103-111. | 1.1 | 34 |
| 48 | Vesiculation and Quenching During Surtseyan Eruptions at Hunga Tongaâ€Hunga Ha'apai Volcano, Tonga. Journal of Geophysical Research: Solid Earth, 2018, 123, 3762-3779. | 1.4 | 34 |
| 49 | Experiments and models on H2O retrograde solubility in volcanic systems. American Mineralogist, 2015, 100, 774-786. | 0.9 | 33 |
| 50 | High-load, high-temperature deformation apparatus for synthetic and natural silicate melts. Review of Scientific Instruments, 2007, 78, 075102. | 0.6 | 28 |
| 51 | Shallow magmaâ€minglingâ€driven Strombolian eruptions at Mt. Yasur volcano, Vanuatu. Geophysical Research Letters, 2012, 39, . | 1.5 | 27 |
| 52 | Raman spectra of Martian glass analogues: A tool to approximate their chemical composition. Journal of Geophysical Research E: Planets, 2016, 121, 740-752. | 1.5 | 27 |
| 53 | Viscosityâ€“temperature behaviour of dry melts in the Qzâ€“Abâ€“Or system. Chemical Geology, 2001, 174, 133-142. | 1.4 | 26 |
| 54 | Modelling the non-Arrhenian rheology of silicate melts: Numerical considerations. European Journal of Mineralogy, 2002, 14, 417-428. | 0.4 | 26 |

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|---|---|---|---|
| 55 | Laboratory simulations of tensile fracture development in a volcanic conduit via cyclic magma pressurisation. Earth and Planetary Science Letters, 2012, 349-350, 231-239. | 1.8 | 26 |
| 56 | Synthesis, crystal growth and structure of Mg containing Î²-rhombohedral boron: MgB17.4. Journal of Solid State Chemistry, 2006, 179, 2900-2907. | 1.4 | 25 |
| 57 | Influence of cooling rate on thermoremanence of magnetite grains: Identifying the role of different magnetic domain states. Journal of Geophysical Research: Solid Earth, 2014, 119, 1599-1606. | 1.4 | 25 |
| 58 | Fault rheology beyond frictional melting. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 9276-9280. | 3.3 | 25 |
| 59 | Synthesis and crystal structure of MgB12. Journal of Solid State Chemistry, 2006, 179, 2916-2926. | 1.4 | 24 |
| 60 | A cooling rate bias in paleointensity determination from volcanic glass: An experimental demonstration. Journal of Geophysical Research, 2010, 115, . | 3.3 | 24 |
| 61 | Volcanic edifice weakening via decarbonation: A selfâ€limiting process?. Geophysical Research Letters, 2012, 39, . | 1.5 | 24 |
| 62 | Seismogenic frictional melting in the magmatic column. Solid Earth, 2014, 5, 199-208. | 1.2 | 23 |
| 63 | Eruptive shearing of tube pumice: pure and simple. Solid Earth, 2016, 7, 1383-1393. | 1.2 | 22 |
| 64 | Decarbonation and thermal microcracking under magmaticP-T-fâ€‰CO2 conditions: the role of skarn substrata in promoting volcanic instability. Geophysical Journal International, 2013, 195, 369-380. | 1.0 | 21 |
| 65 | Synthesis and crystal structure of Mg2B24C, a new boron-rich boride related to â€œtetragonal boron Iâ€. Journal of Solid State Chemistry, 2006, 179, 2150-2157. | 1.4 | 19 |
| 66 | Cooling rates of lunar orange glass beads. Earth and Planetary Science Letters, 2018, 503, 88-94. | 1.8 | 19 |
| 67 | Enhancement of eruption explosivity by heterogeneous bubble nucleation triggered by magma mingling. Scientific Reports, 2017, 7, 16897. | 1.6 | 18 |
| 68 | Volcanic conduit failure as a trigger to magma fragmentation. Bulletin of Volcanology, 2012, 74, 11-13. | 1.1 | 17 |
| 69 | Magma mixing enhanced by bubble segregation. Solid Earth, 2015, 6, 1007-1023. | 1.2 | 17 |
| 70 | An advanced rotational rheometer system for extremely fluid liquids up to 1273 K and applications to alkali carbonate meltsk. American Mineralogist, 2016, 101, 953-959. | 0.9 | 17 |
| 71 | Advances in high-resolution neutron computed tomography: Adapted to the earth sciences. , 2011, 7, 1294-1302. | | 16 |
| 72 | Reducing tool wear in abrasive cutting. International Journal of Machine Tools and Manufacture, 2005, 45, 1120-1123. | 6.2 | 15 |

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|---|---|---|---|
| 73 | Magma mixing induced by particle settling. Contributions To Mineralogy and Petrology, 2016, 171, 96. | 1.2 | 15 |
| 74 | The propagation and seismicity of dyke injection, new experimental evidence. Geophysical Research Letters, 2016, 43, 1876-1883. | 1.5 | 14 |
| 75 | Viscosities of granitic (sensu lato) melts: Influence of the anorthite component. American Mineralogist, 2000, 85, 1342-1348. | 0.9 | 13 |
| 76 | Paleointensities of phonolitic obsidian: Influence of emplacement rotations and devitrification. Journal of Geophysical Research, 2011, 116, . | 3.3 | 13 |
| 77 | In situgranulation by thermal stress during subaqueous volcanic eruptions. Geology, 2019, 47, 179-182. | 2.0 | 12 |
| 78 | Mineralogical and thermal characterization of a volcanic ash: Implications for turbine interaction. Journal of Volcanology and Geothermal Research, 2019, 377, 43-52. | 0.8 | 12 |
| 79 | Variability in composition and physical properties of the sedimentary basement of Mt Etna, Italy. Journal of Volcanology and Geothermal Research, 2015, 302, 102-116. | 0.8 | 11 |
| 80 | Aggregation in particle rich environments: a textural study of examples from volcanic eruptions, meteorite impacts, and fluidized bed processing. Bulletin of Volcanology, 2018, 80, 32. | 1.1 | 11 |
| 81 | Eruption and emplacement timescales of ignimbrite super-eruptions from thermo-kinetics of glass shards. Frontiers in Earth Science, 2015, 3, . | 0.8 | 10 |
| 82 | The roles of microlites and phenocrysts during degassing of silicic magma. Earth and Planetary Science Letters, 2022, 577, 117264. | 1.8 | 10 |
| 83 | Paleointensities on 8 ka obsidian from Mayor Island, New Zealand. Solid Earth, 2011, 2, 259-270. | 1.2 | 9 |
| 84 | Paleointensity on volcanic glass of varying hydration states. Physics of the Earth and Planetary Interiors, 2012, 208-209, 25-37. | 0.7 | 9 |
| 85 | Vesiculation in rhyolite at low <scp>H</scp><sub>2</sub><scp>O</scp> contents: A thermodynamic model. Geochemistry, Geophysics, Geosystems, 2015, 16, 4292-4310. | 1.0 | 9 |
| 86 | Determination of the hydrogen-bond network and the ferrimagnetic structure of a rockbridgeite-type compound, ${{m Fe^{2+}Fe^{3+}_{3.2}(Mn^{2+}, Zn)_{0.8}(PO_{4})_{3}(OH)_{4.2}(HOH)_{0.8}}}$. Journal of Physics Condensed Matter, 2018, 30, 235401. | 0.7 | 8 |
| 87 | Local geology controlled the feasibility of vitrifying Iron Age buildings. Scientific Reports, 2017, 7, 40028. | 1.6 | 7 |
| 88 | Intrinsic proton dynamics in hydrous silicate melts as seen by quasielastic neutron scattering at elevated temperature and pressure. Chemical Geology, 2017, 461, 152-159. | 1.4 | 5 |
| 89 | The glass transition and the non-Arrhenian viscosity of carbonate melts. American Mineralogist, 2022, 107, 1053-1064. | 0.9 | 5 |
| 90 | Determination of water speciation in hydrous haplogranitic glasses with partial Raman spectra. Chemical Geology, 2020, 553, 119793. | 1.4 | 4 |

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|---|---|---|---|
| 91 | A model for the kinetics of high-temperature reactions between polydisperse volcanic ash and SO2 gas. American Mineralogist, 2021, 106, 1319-1332. | 0.9 | 4 |
| 92 | The feasibility of vitrifying a sandstone enclosure in the British Iron Age. Journal of Archaeological Science: Reports, 2015, 4, 605-612. | 0.2 | 2 |
| 93 | Volcanic glass and its suitability to recover the ancient geomagnetic field strength. Geological Society Special Publication, 2015, 396, 265-276. | 0.8 | 1 |
| 94 | Using obsidian in glass art practice. Volcanica, 2022, 5, 183-207. | 0.6 | 1 |