

Dr. C. Ian Schipper

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RESEARCH INTERESTS

- Volcanic eruption mechanisms
- Magma-water interaction
- Magma vesiculation, permeability, and textural evolution
- Volatile solubility and degassing dynamics
- Experimental petrology
- Volcanic fluid dynamics
- Magmatic evolution and melt segregation

EDUCATION

- 2012 **University of Otago**
Dunedin, New Zealand
*PhD: Submarine explosive volcanism at Lo`ihi
Seamount, Hawaii`i*
Supervisors: Dr. J.D.L. White, Dr. B.F. Houghton
- 2004 **University of Otago**
Dunedin, New Zealand
*MSc: Chemical and Mineralogical Characterization
of Pyroclastic Deposits from the ca. 1 Ma. Kidnappers
and Rocky Hill Eruptions, Taupo Volcanic Zone, New
Zealand*
Supervisors: Dr. J.D.L. White, Dr. C.J.N. Wilson
- 2002 **University of British Columbia**
Vancouver, BC, Canada
*BASc: The Catastrophic Failure of a Volcanic Dam at
Mount Meager, Southwest British Columbia, 2360 BP:
An Engineering Approach to Volcanic Hazards*
Supervisor: Dr. J.K. Russell

RESEARCH GRANTS AND FUNDING

- 2013-14 **Australian Synchrotron IMBL: X-ray
microtomography unit (2-3 days beam time for
each project)**
*- Microtextural insights into the origin and
significance of mafic components in a silicic
ignimbrite from the world's youngest supervolcano*
*- Origins of the Struthiolariidae: Resolving the
phylogeny of Cretaceous-Paleogene ostrich-foot
snails using synchrotron micro-CT and three-
dimensional shape analysis*
*- In-conduit annealing of pumice: Nano-scale
evidence for multi-stage fragmentation and controls
on volcanic explosivity*
- 2013 **Victoria University Strategic Research Grant
(\$6220)**
*Chaitén and Cordón Caulle volcanoes: Modern
insights into rhyolite eruptive processes*
- 2013 **Australian Synchrotron IRB: FTIR
microspectroscopy unit (2 days beam time)**
*Linking water diffusion to textural evolution of
basaltic melt*

POSTDOCTORAL EXPERIENCE

- 2012- **School of Geography, Environment and Earth
Sciences, Victoria University**
Wellington, New Zealand
Postdoctoral Fellow, electron microprobe
Supervisor: Dr. C.J.N. Wilson
- 2013 **Japan Agency for Marine-Earth Science and
Technology (JAMSTEC), Japan Society for the
Promotion of Science (JSPS)**
Kanagawa, Japan
*Postdoctoral Fellow: FTIR analysis of
microcrystalline volcanic glasses, and application to
the shallow magmatic evolution of basaltic melts*
Supervision: Dr. A.R.L. Nichols
- 2010-12 **Institut des Sciences de la Terre d'Orléans
(ISTO), Centre National de la Recherche
Scientifique (CNRS)**
Orléans, France
*Investigating processes of bubble coalescence and
the development of magma permeability using high-
resolution computerized X-ray microtomography*
Supervisor: Dr. A. Burgisser
- 2010 **Soil and Earth Sciences, Massey University**
Palmerston North, New Zealand
*Calibration and development of Fourier transform
infrared spectroscopy (FTIR) techniques, and
production of a student-oriented handbook for FTIR
sample preparation and data reduction*
Supervisors: Dr. R.B. Stewart, Dr. S.J. Cronin

PROFESSIONAL AFFILIATIONS

American Geophysical Union (AGU)
European Geophysical Union (EGU)
Geological Society of New Zealand (GSNZ)
Japan Geoscience Union (JpGU)
Australian Synchrotron User Group
SPRING-8 Users Community

TEACHING EXPERIENCE

- 2015 Petrology and Microscopy (200 level)
Victoria University of Wellington
Course coordinator and lecturer
- 2015 Introductory Field Geology (200 level)
Victoria University of Wellington
Lecturer
- 2015 Fundamentals of Geology (100 level)
Victoria University of Wellington
Lecturer
- 2014 Physics and Chemistry of Volcanoes (400 level)
Victoria University of Wellington
Lecturer
- 2014 Volcanic Field Geology (300 level)
Victoria University of Wellington - Taupo Volcanic Zone
Lecturer
- 2011 Kamchatka Volcanological Field School.
University of Alaska
Guest Lecturer
- 2010 MSc Seminars Classes
Université d'Orléans, France
Guest Lecturer
- 2009 Swinburn, Otago third-year mapping field course
University of Otago, New Zealand
Teaching Assistant

INVITED CONFERENCE PRESENTATIONS

- Schipper, C.I.**, Le Voyer, M., White, J.D.L., Moussallam, Y., and Jakobsson, S.P. (2015)
Chronology of degassing and magma mixing at Surtsey (Iceland, 1963-67)
Invited oral presentation
Japan Geoscience Union (JpGU) annual meeting, Chiba, Japan
- Schipper, C.I.**, Burgisser, A., Le Voyer, M., and White, J.D.L. (2013)
Multi-parameter quantification of wet eruption dynamics
Invited oral presentation
AGU Fall Meeting, San Francisco, CA.
- Schipper, C.I.** (2011)
What are submarine pyroclasts trying to tell us?
Invited oral presentation
AGU Fall Meeting, San Francisco, CA.

PUBLIC OUTREACH

- 2012 **BBC Volcano Live**
Appearance in Episode 2 of BBC's Volcano Live program, presenting details of the 2011-12 Cordón Caulle eruption
<http://www.bbc.co.uk/programmes/p00v4wkb>
- 2010 **France Bleu Evening News**
Presentation of the microtomography laboratory

PUBLICATIONS

- Schipper, C.I.**, Castro, J.M., Tuffen, H., Wadsworth, F.B., Chappell, D., Pantoja, A.E., Simpson, M.P., and Le Ru, E.C. (in review)
Cristobalite in the 2011-12 Cordón Caulle eruption (Chile)
Bull. Volcanol.
- Rotella, M.D., Wilson, C.J.N., Barker, S.J., **Schipper, C.I.**, Wright, I.C., and Wysoczanski, R.J. (in review)
Dynamics of deep submarine silicic explosive eruptions in the Kermadec Arc, as reflected in pumice vesicularity textures
J. Volcanol. Geotherm. Res.
- White, J.D.L., Kano, K., and **Schipper, C.I.** (in press)
Submarine explosive eruptions
In Sigurdsson et al. (Eds.) Encyclopedia of Volcanoes, 2nd Edition. Elsevier, Amsterdam
- Moussallam, Y., Oppenheimer, C., Scaillet, B., Buisman, I., Kimball, C., Dunbar, N., Burgisser, A., **Schipper, C.I.**, Andujar, J., and Kyle, P. (2015)
Megacrystals track magma convection between reservoir and surface
Earth Planet. Sci. Lett. 413: 1-12. Doi: 10.1016/j.epsl.2014.12.022
- Castro, J.M., Bindeman, I.N., Tuffen, H., and **Schipper, C.I.** (2014)
Explosive origin of silicic lava: Textural and δD -H₂O evidence for pyroclastic degassing during rhyolite effusion
Earth Planet. Sci. Lett. 405: 52-61. Doi: 10.1016/j.epsl.2014.08.012
- von Aulock, F.W., Kennedy, B.M., **Schipper, C.I.**, Watkins, J., Castro, J.M., Martin, D., Wallace, P.J., Oze, C., Puskar, L., Bégué, F., Nichols, A.R.L., and Tuffen, H. (2014)
Advances in Fourier transform infrared spectroscopy of natural glasses: From sample preparation to data analysis
Lithos 206-207: 52-64. Doi: 10.1016/j.lithos.2014.07.017
- McIntosh, I.M., Llewellyn, E.W., Humphreys, M.C.S., Nichols, A.R.L., Burgisser, A., **Schipper, C.I.**, and Larsen, J.F. (2014)
Distribution of dissolved water in magmatic glass records growth and resorption of bubbles
Earth Planet. Sci. Lett., 401: 1-11. Doi: 10.1016/j.epsl.2014.05.037
- Pardo, N., Cronin, S.J., Wright, H.M., **Schipper, C.I.**, Smith, I., and Stewart, R.B. (2014)
Pyroclast textural variation as an indicator of eruption-column steadiness in andesitic Plinian eruptions at Mt. Ruapehu
Bull. Volcanol., 76: 802. Doi: 10.1007/s00445-014-0822-x
- Pardo, N., Cronin, S.J., Németh, K., Brenna, M., **Schipper, C.I.**, Breard, E., White, J.D.L., Procter, J., Stewart, R.B., Agustín-Flores, J., Zernack, A., Kereszturi, G., Lube, G., Auer, A., Neall, V., and Wallace, C. (2014)
Perils in distinguishing phreatic from phreatomagmatic ash: Insights into the eruption mechanisms of the 6 August 2012 Mt. Tongariro eruption, New Zealand
J. Volcanol. Geotherm. Res. Doi: 10.1016/j.volgeores.2014.05.001

PUBLICATIONS CONT.

- Tuffen, H., James, M.R., Castro, J.M., and **Schipper, C.I.** (2013)
Exceptional mobility of an advancing rhyolitic obsidian flow at Cordón Caulle volcano in Chile
Nature Comms., 4: 2709. Doi: 10.1038/ncomms3709
- Schipper, C.I.**, Castro, J.M., Tuffen, H., James, M., and How, P. (2013)
Shallow vent architecture during hybrid explosive-effusive activity at Cordón Caulle (Chile, 2011-12): Evidence from direct observations and pyroclast textures
J. Volcanol. Geotherm. Res., 262: 25-37.
Doi: 10.1016/j.jvolgeores.2013.06.005
- Castro, J.M., **Schipper, C.I.**, Amigo, A., Parejas, C.S., Mueller, S., Jacob, D., and Militzer, A.S. (2013)
Storage and eruption of near-liquidus rhyodacite magma at Cordón Caulle, Chile
Bull. Volcanol., 75: 702. Doi: 10.1007/s00445-013-0702-9
- Schipper, C.I.**, Sonder, I., Schmid, A., White, J.D.L., Dürig, T., Zimanowski, B., and Büttner, R. (2013)
Vapour dynamics during magma-water interaction experiments: Hydromagmatic origins of submarine volcanoclastic particles (limu o Pele)
Geophys. J. Int., 192: 1109-1115. Doi: 10.1016/j.epsl.2011.01.010
- Wysoczanski, R.J., Handler, M.R., **Schipper, C.I.**, Leybourne, M.I., Creech, J., Rotella, M.D., Nichols, A.R.L., Wilson, C.J.N., and Stewart, R.B. (2012)
The tectonomagmatic source of ore metals and volatile elements in the Southern Kermadec Arc
Econ. Geol., 107: 1539-1556. Doi: 10.2113/econgeo.107.8.1539
- Castro, J.M., Burgisser, A., **Schipper, C.I.**, and Mancini, S. (2012)
Mechanisms of bubble coalescence in silicic magmas
Bull. Volcanol., 74: 2339-2352. Doi:10.1007/s00445-012-0666-1
- Schipper, C.I.**, White, J.D.L., Nichols, A.R.L., Burgisser, A., Hellebrand, E., and Murtagh, R.M. (2012)
Incipient melt segregation as preserved in subaqueous pyroclasts
Geology, 40: 355-358. Doi: 10.1130/G32582.1
- Schipper, C.I.**, White, J.D.L., and Houghton, B.F. (2011)
Textural, geochemical, and volatile evidence for a Strombolian-like eruption sequence at Lō`ihi Seamount, Hawai`i
J. Volcanol. Geotherm. Res., 207: 16-32.
Doi:10.1016/j.jvolgeores.2011.08.001
- Schipper, C.I.**, White, J.D.L., Zimanowski, B., Büttner, R., Sonder, I., and Schmid, A. (2011)
Experimental interaction of magma and "dirty" coolants
Earth Planet. Sci. Lett., 303: 323-336. Doi:10.1016/j.epsl.2011.01.010
- Schipper, C.I.**, White, J.D.L., Houghton, B.F., Shimizu, N., and Stewart, R.B. (2010)
Explosive submarine eruptions driven by volatile-coupled degassing at Lō`ihi Seamount, Hawai`i
Earth Planet. Sci. Lett., 295: 497-510. Doi:10.1016/j.epsl.2010.04.031
- Schipper, C.I.**, White, J.D.L., Houghton, B.F., Shimizu, N., and Stewart, R.B. (2010)
"Poseidic" explosive eruptions at Loihi Seamount, Hawaii
Geology, 38: 291-294. Doi:10.1130/G30351.1
- Schipper, C.I.**, White, J.D.L., and Houghton, B.F. (2010)
Syn- and post-fragmentation textures in submarine pyroclasts from Lō`ihi Seamount, Hawai`i
J. Volcanol. Geotherm. Res., 191: 93-106.
Doi:10.1016/j.jvolgeores.2010.01.002
- Schipper, C.I.** and White, J.D.L. (2009)
No depth limit to hydrovolcanic limu o Pele: evidence from Lō`ihi Seamount, Hawai`i
Bull. Volcanol., 72: 149-164. Doi:10.1007/s00445009-0315-5

REFERENCES

Dr. Alain Burgisser (Postdoctoral supervisor)

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