

PEER-REVIEWED SCIENTIFIC ARTICLES (*WITH WSL AFFILIATION)

*Sawi, T., Holtzman, B., **Walter, F.**, & Paisley, J. (2022). An unsupervised machine-learning approach to understanding seismicity at an alpine glacier. *Journal of Geophysical Research: Earth Surface*, 127, e2022JF006909. <https://doi.org/10.1029/2022JF006909>

***Walter, F.**, Hodel, E., Mannerfelt, E. S., Cook, K., Dietze, M., Estermann, L., Wenner, M., Farinotti, D., Fengler, M., Hammerschmidt, L., Hänsli, F., Hirschberg, J., McArdell, B. & Molnar, P. (2022). Brief communication: An autonomous UAV for catchment-wide monitoring of a debris flow torrent. *Natural Hazards and Earth System Sciences*, 22(12), 4011-4018.

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*Belli, G., **Walter, F.**, McArdell, B., Gheri, D., & Marchetti, E. (2022). Infrasonic and Seismic Analysis of Debris-Flow Events at Illgraben (Switzerland): Relating Signal Features to Flow Parameters and to the Seismo-Acoustic Source Mechanism. *Journal of Geophysical Research: Earth Surface*, 127(6), e2021JF006576.

Clyne, E., Alley, R. B., Vore, M., Gräff, D., Anandakrishnan, S., **Walter, F.**, & Sergeant, A. (2022). Glacial hydraulic tremor on Rhonegletscher, Switzerland. *Journal of Glaciology*, 1-11.

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***Walter, F.**, Chmiel, M., & Hovius, N. (2022). Debris flows at Illgraben, Switzerland—From seismic wiggles to machine learning. *Geomechanics and Tunneling*, 15(5), 671-675.

*Zhang, Z., **Walter, F.**, McArdell, B. W., de Haas, T., Wenner, M., Chmiel, M., & He, S. (2021). Analyzing bulk flow characteristics of debris flows using their high frequency seismic signature. *Journal of Geophysical Research: Solid Earth*, e2021JB022755.

*Gräff, D., Köpfler, M., Paul Lipovsky, B., Antony Selvadurai, P., Farinotti, D., & **Walter, F.** (2021). Fine structure of microseismic glacial stick-slip. *Geophysical Research Letters*, e2021GL096043.

Gajek, W., Gräff, D., Hellmann, S., Rempel, A. & **Walter, F.** (2021). Diurnal expansion and contraction of englacial fracture networks revealed by seismic shear wave splitting. *Nature Communications Earth and Environment*, 2(1), 1-8.

Meyer, M., Wenner, M., Hibert, C., **Walter, F.**, & Thiele, L. (2021). Using system context information to complement weakly labeled data. *Workshop on Weakly Supervised Learning WeaSuL 2021, International Conference on Learning Representations ICLR*.

de Haas, T., Åberg, A. S., **Walter, F.**, & Zhang, Z. (2021). Deciphering seismic and normal-force fluctuation signatures of debris flows: An experimental assessment of effects of flow composition and dynamics. *Earth Surface Processes and Landforms*. doi.org/10.1002/esp.5168

Gräff, D., & **Walter, F.** (2021). Changing friction at the base of an Alpine glacier. *Scientific Reports*, 11(1), 1-10.

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*Chmiel, M., **Walter, F.**, Wenner, M., Zhang, Z., McArdell, B. W., & Hibert, C. (2021). Machine Learning improves debris flow warning. *Geophysical Research Letters*, 48(3), e2020GL090874.

Umlauf, J., Lindner, F., Roux, P., Mikesell, T. D., Haney, M. M., Korn, M., & **Walter, F.** (2021). Stick-slip tremor beneath an alpine glacier. *Geophysical Research Letters*, 48(2), e2020GL090528.

Gimbert, F., Nanni, U., Roux, P., Helmstetter, A., Garambois, S., Lecointre, A., ... & **Walter, F.** (2021). A Multi-Physics Experiment with a Temporary Dense Seismic Array on the Argentière Glacier, French Alps: The RESOLVE Project. *Seismological Society of America*, 92(2A), 1185-1201.

Paitz, P., Edme, P., Gräff, D., **Walter, F.**, Doetsch, J., Chalari, A., ... & Fichtner, A. (2021). Empirical investigations of the instrument response for distributed acoustic sensing (DAS) across 17 octaves. *Bulletin of the Seismological Society of America*, 111(1), 1-10.

van Dongen, E. C., Jouvét, G., Sugiyama, S., Podolskiy, E. A., Funk, M., Benn, D. I., ... & **Walter, F.** (2021). Thinning leads to calving-style changes at Bowdoin Glacier, Greenland. *The Cryosphere*, 15(2), 485-500.

*Wenner, M., Hibert, C., van Herwijnen, A., Meier, L., & **Walter, F.** (2021). Near-real-time automated classification of seismic signals of slope failures with continuous random forests. *Natural Hazards and Earth System Sciences*, 21(1), 339-361.

*Zhang, Z., **Walter, F.**, McArdell, B. W., Wenner, M., Chmiel, M., de Haas, T., & He, S. (2021). Insights from the particle impact model into the high frequency seismic signature of debris flows. *Geophysical Research Letters*, e2020GL088994.

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J. F. Clinton, M. Nettles, **F. Walter**, T. Dahl-Jensen, D. Giardini, A. Govoni, W., Hanka, S. Lasocki, W.-S. Lee, D. McCormack, S. Mykkelveit, E. Stutzmann, S. Tsuboi (2014). Seismic Network in Greenland Monitors Earth and Ice System. *EOS* 95(2).

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CONFERENCE INVITATIONS

Recent developments in Cryoseismology. Cryoseismology Symposium at the 28th General Assembly of the International Union of Geodesy and Geophysics, Berlin, Germany, 11-20 July 2023.

Data Science und maschinelles Lernen für gravitative Naturgefahren. 71. GEOMECHANIK KOLLOQUIUM, Salzburg, Austria, 12-14 October 2022.

Can Machine Learning Improve Debris-Flow Warning? LandAware, the international network on Landslide Early Warning Systems / MayDay Around-the-Clock Conference. 19-20 May 2021.

Geophysical Methods for Debris Flow Warning: New Perspectives via Machine Learning. Natural Hazards Virtual Meeting, AOGS-EGU Conference Series, 21 – 23 September 2020.

Debris-Flow Seismology: A Playground or a Construction Site?
Early Warning Systems for Debris Flows: State of the art and challenges – Bolzano, Italy, 16 - 19 October 2019.

Seismic Analysis of the August 2017 Landslide on Piz Cengalo (Switzerland). EGU General Assembly -Vienna, Austria, 8-13 April 2018.

The Microseismicity of Glacier Sliding. 2017 Glacial Seismology Training School – Fort Collins, Colorado, USA, 11-17 June 2017 (keynote).

Cryoseismology. EGU General Assembly, Vienna, Austria, 04/2017.

The microseismicity of glacial stick-slip. EGU General Assembly, Vienna, Austria, 04/2017.

What does seismology tell us about calving glaciers? "Importance of calving for mass budget of Arctic glaciers", Sopot Scientific Seminar on Ice Calving in the Arctic (3SICA), Sopot, Poland 10/2016.

What does seismology tell us about calving glaciers? (keynote) Workshop on Greenland ice sheet mass loss and its impact on global climate change. Sapporo, Japan, 03/2016.

Glacier seismology: eavesdropping on the ice-bed interface. AGU Fall Meeting, San Francisco, USA, 12/2015.

Water-Related Seismic Sources in Glaciers and Ice Sheets. AGU Fall Meeting, San Francisco, USA, 12/2013.

Spaltöffnungen und Ausbrüche am Gorner See - Wie das Klima die Region verändert. 8. ExtremWetterKongress, Hamburg, Germany, 09/2013.

Regional Calving Seismology: Understanding the Link Between Glacial Earthquakes and Iceberg Calving in Greenland. On the Diversity of Research on Geophysical and Environmental Sciences, Zürich, Switzerland, 02/2011.

Icequake tremors during glacier calving. AGU Fall Meeting, San Francisco, USA, 12/2009.

Full and constrained moment tensor inversions of basal icequakes beneath Gornergletscher, Switzerland. AGU Fall Meeting, San Francisco, USA, 12/2009.

Characterization of seismic signals and their sources in alpine glacier ice. EGU General Assembly, Vienna, Austria, 04/2006.