Jui Ming Chang(張睿明)

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Environmental Seismology: Over the past year, I have focused on developing an in situ rockfall warning system for Provincial Highway No. 7 at 49.7k, Daman Landslide. This system effectively assesses rockfall risk for road users and achieves fully automated in situ warnings. Due to its success, I represented the Highway Bureau in presenting this innovation (one of only five talks) at the Ministry of Agriculture for local and central government representatives. In the coming years, the Highway Bureau plans to extend this technique to longer road sections.

Water chemistry: I campaigned river water during the typhoon integration of major ions, δD_{H2O}, $\delta^{18}O_{H2O}$, $\delta^{34}S_{SO4}$, $\delta^{18}O_{SO4}$, sulfur-oxidizing bacteria, and discharge simulations, in cooperation with Prof. Li-Hung Lin at NTU. These studies revealed dynamic changes in the weathered sources contributing to the carbon budget. Future research will link subsurface water to landslide occurrences and chemical contributions, as over 50% of typhoon discharge originates from subsurface water.

EDUCATION

Doctor of Philosophy (2015.09-2021.11)
National Taiwan University, Department of Geosciences
-Thesis: The application of seismic technique for rock slope failures and rockfall experiments.
(Advisor: Dr. Hongey Chen; Dr. Wei-An Chao)

Master Degree (2010.09-2012.06)

Bachelor of Science (2006.09-2010.06)
National Taiwan University, Bachelor of Science (BS), Department of Geosciences

EXPERIENCE

Postdoctoral Fellow (2021.12-now) (Host: Dr. Wei-An Chao)
National Yang Ming Chiao Tung University, Department of Civil Engineering
-Analyze comprehensive seismic monitoring data for Geo-Hazards.
-Develop a real-time algorithm for Geo-Hazards from seismic monitoring to in-situ warning.
-Establish a machine/deep learning process for landslide issues.

Visiting Ph.D. student (2018.05-2019.02) (Host: Dr. Niels Hovius; citation:16,066)
German Research Centre for Geosciences (GFZ), Potsdam, Germany
-Holder of Sandwich Project to visit a top research team (sec. 4.6 Geomorphology)
-Assist in building Taiwan's multi-parametric environmental seismic network.
(Data available: https://reurl.cc/aG7GrQ) (Permanent monitoring network)
-Trained in critical thinking, paper writing, and figure design.

Assistant Geologist, Carbon Dioxide Storage Plan (2012.9-2012.11)
(Host: Dr. Wen Shan Chen)
-Supervised a team of 15 geology students working on the project.
-Consolidated the information from the project professor and the drilling company.

PUBLICATION

1. Yang, C.J.*, Turowski, J., Zhou, Q., Nativ, R., Tang, H., **Chang, J.M.**, Chen, W.S. (2024) Measuring bedload motion time at second resolution using Benford's law on acoustic data. *Earth and Space Science,* 11, e2023EA003416. (IF:3.1; GEOSCIENCES, MULTIDISCIPLINARY; Q2, 80/202).
2. **Chang, J.M.,** Chao, W.A., Yang, C.M*., Huang, M.W. (2024). Coseismic and Subsequent Landslides of the 2024 Hualien Earthquake (M7.2) on April 3 in Taiwan. *Landslides.* Doi:10.1007/s10346-024-02312-x (IF:6.7; GEOSCIENCES, MULTIDISCIPLINARY; Q1, 14/202).
3. **Chang, J.M.,** Kuo, Y.T., Chao, W.A.*, Lin, C.M., Lan, H.W., Yang, C.M., Chen, H. (2024) Landslide Warning Area Delineation through Seismic Signals and Landslide Characteristics: Insights from the Silabaku Landslide in Southern Taiwan. *Seismol. Res. Lett.* Doi:10.1785/0220230396 *(IF:3.3; GEOCHEMISTRY & GEOPHYSICS; Q2 23/87)*
4. Wang, P.L.*, Tu, T.H., Lin, L.H., Chou, H.L., Wang, Y.J., Chen, J.N., Wang, L.Y., **Chang, J.M.**, Chu, M.F., Wu, Y.M., Lin, Y.T., Ke, C.C. (2024) Microbial driver of chemical weathering and CO_2 cycle in small island orogen. *Communications Earth & Environment.* (IF: 7.9; ENVIRONMENTAL SCIENCES; Q1, 21/330)
5. **Chang, J.M.***, Chao, W.A., Kuo, Y.T., Yang, C.M., Chen, H., Wang, Yu. (2023) Field experiments: How well can seismic monitoring assess rock mass falling? *Engineering Geology*, 323, 107211. (IF: 7.4; ENGINEERING, GEOLOGICAL; Q1,1/41) (Citation:2)
6. Yang, C.M.*, **Chang, J.M.**, Hung, C.Y., Lu, C.H., Chao, W.A., & Kang, K.H. (2022) Life span of a landslide dam on mountain valley caught on seismic signals and its possible early warnings. *Landslides*, 19, 637–646. (IF: 6.153; ENGINEERING, GEOLOGICAL; Q1, 4/41) (Citation:7)
7. Yang, C.M. *, Chao, W.A., Weng, M.C., Fu, Y.Y., & **Chang, J.M**. (2022) Outburst debris flow of Yusui Stream caused by a large-scale Silabaku landslide, Southern Taiwan. *Landslides*, 19, 1807–1811. (IF: 6.153; ENGINEERING, GEOLOGICAL; Q1, 4/41) (Citation:4)
8. Kang, K.H., Chao, W.A.*, Yang, C.M., Chung, M.C., Kuo, Y.T., Yeh, C.H, Liu, H.C., Lin, C.H., Lin, C.P., Liao, J.J., **Chang, J.M.**, Ngui, Y.N., & Tai, T.L. (2021) Rigidity Strengthening of Landslide Materials Measured by Seismic Interferometry. *Remote Sensing*, 2834. (IF: 5.349; GEOSCIENCES, MULTIDISCIPLINARY; Q1, 30/201) (Citation:3)
9. **Chang, J.M.***, Chao, W.A., Chen, H., Kuo, Y.T., & Yang, C.M. (2021) Locating rock slope failures along highways and understanding their physical processes using seismic signals. *Earth Surface Dynamics*, 9, 505–517. (IF: 4.390; GEOGRAPHY, PHYSICAL; Q1, 7/50) (Citation:13)
10. Bufe, A.*, Hovius, N., Emberson, R., Rugenstein, J.K.C., Galy, A., Hassenruck-Gudipati, H.J., & **Chang, J.M.** (2021) Co-variation of silicate, carbonate and sulfide weathering drives CO_2 release with erosion. *Nature Geoscience*, 14 (4), 211-216. (IF: 21.531;

GEOSCIENCES, MULTIDISCIPLINARY; Q1, 1/244) (Citation:97)

11. Rault, C*, Chao, W.A., Gelis, C. , Burtin, A., **Chang, J.M.**, Marc, O., Lai, T.S., Wu, Y.M., Hovius, N., & Meunier, P. (2020) Seismic response of a mountain ridge prone to landsliding. *Bulletin of the Seismological Society of America*, 110 (6), 3004-3020. (IF: 2.910; GEOCHEMISTRY & GEOPHYSICS; Q2, 38/101) (Citation:13).
12. **Chang, J.M.** Chen, H.*, Jou, B.J.D., Tsou, N.C., & Lin, G.W. (2017) Characteristics of rainfall intensity, duration, and kinetic energy for landslide triggering in Taiwan. *Engineering Geology*, 231, 81-87. (IF: 3.909; ENGINEERING, GEOLOGICAL; Q1,5/36) (Citation:48)
13. Chao, W.A.*, Wu, Y.M., Zhao, L., Chen, H., Chen, Y.G., **Chang, J.M.**, & Lin, C.M. (2017) A first near real-time seismology-based landquake monitoring system. *Scientific Reports*, 7 (1), 1-12. (IF: 4.259; MULTIDISCIPLINARY SCIENCES; Q1, 10/64) (Citation:41)
14. Chen, C.H., Chao, W.A.*, Wu, Y.M., Zhao, L., Chen, Y.G., Ho, W.Y., Lin, T.L., Kuo, K.H., & **Chang, J.M.** (2013) A seismological study of landquakes using a real-time broad-band seismic network. *Geophysical Journal International*, 194 (2), 885-898. (IF: 2.853; GEOCHEMISTRY & GEOPHYSICS; Q1, 17/76) (Citation:65)

UNDER REVIEW

Journal information is from Journal Citation Reports

1. **Chang, J.M.**, Yang, C.M*., Chao, W.A., Ku, C.S., Huang, M.W., Hsieh, T.C., Hung, C.Y. (2024). Unravelling Landslide Mechanisms with Seismic Signal Analysis for Enhanced Pre-Survey Understanding. *Nature Hazards and Earth System Sciences.* (IF: 4.6; GEOSCIENCES, MULTIDISCIPLINARY; Q1, 37/202)
2. Nativ, R.*, Turowski, J., **Chang, J.M.,** Hovius, N., Yang, C.J., Chen, W.S., Chang, W.Y., Laronne, J. (2024) Stationary Boulders Increase River Seismic Frequency via Turbulence. *Geophysical Research Letters* (IF:5.2; GEOSCIENCES, MULTIDISCIPLINARY; Q1, 24/202).

CONFERENCE

1. **Chang, J. M.**, Wu, I.F., Lin, L.H., Bufe, A., Wang, P.L., Chou, H.L., Hovius, N., Hsieh, T.C. (2024) Microbial Pyrite Oxidation and Chemical Weathering to a Typhoon Precipitation and Discharge Event in Taiwan *EGU General Assembly Conference*. (**Highlight Poster**)
2. **Chang, J.M.,** Chao, W.A., Huang, W.K. (2023) Classification Seismic Spectrograms from Deep Neural Network: Application to Alarm System of Post-failure Landslides. *EGU General Assembly Conference*. (Poster)
3. **Chang, J.M.**, Chao, W.A., Huang, M.W. (2023) Constructing Real-time Monitoring System for Roadside Landslide Prone Slope through Seismic Spectrograms by Deep Neural Network, *World Landslide Forum 2023 Florence, Italy*.
4. **Chang, J.M.,** Chao, W.A., Chen, H. (2020) Locating the rock hazard and understanding its physical process using seismic signals. *EGU General Assembly Conference*. (Oral)

HONOR

1. 2023 Postdoctoral Researcher Academic Research Award, NSTC.
2. Convener of the Review Committee for Student Poster competition at the Annual Conference of the Geological Society and Chinese Taipei Geophysical Society (2023)
3. Outstanding Poster Award (2019 and 2020), Student Poster Competition, Annual Conference of Geological Society and Chinese Taipei Geophysical Society.
4. Sandwich Project 2018 Spring (NSTC-DAAD)
5. Scholarships Award (2010.9 and 2011.2) from Sinotech Engineering Consultants, INC.

PROJECTS

1. Co-PI; 一工處邊坡落石防災告警與預警之研究。交通部公路局北區養護工程分局。(至 2024.12)
2. Co-PI;微地動監測技術應用於台 8 臨 37 線(中橫便道)邊坡崩塌落石災害告警委託服務工作。交通部公路局中區養護工程分局。(至 2025.01)