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## Employment

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| March 2023 – Feb. 2026 | Postdoc at the Free University of Bozen-Bolzano on alpine bedload transport trends under climate change. ▸ PI: Francesco Comiti, Stuart Lane |
| 2022 – 2023 | Postdoc at the University of Michigan on landslides and landscape evolution modelling. ▸ PI: Marin Clark |
| 2020 – 2021 | Marie Andeßner stipend. |
| 2017 – 2020 | Member of the RiCoLa (River Courses and Landslides) project. ▸ Supervisors: Jörg Robl, Günther Pracisek (PI) |
| 2018 – 2019 | Six-month stay as a visiting scholar at the Canterbury University in New Zealand, as part of my Ph.D.. ▸ Team head: Tim Davies |
| 2016 – 2017 | Eight-month contract at the ASGA (Scientific Association for Geology and its Applications) in the RING team (Research for Integrative Numerical Geology) as contractor for the CEREMA (Risk, Environment, Mobility and construction assessment Center) (C++). ▸ Head: Guillaume Caumon. |
| 2016 | Sixteen week internship at TOTAL E&P UK on the sampling of uncertainty on fault network topology (C++). ▸ Supervisor: Florent Lallier. |
| 2016 | Thirteen week research project in the GeoRessources laboratory of the Lorraine University (RING team) on faults displacement display using structural data (C++). ▸ Supervisors: Guillaume Caumon, Gautier Laurent, Gabriel Godefroy. |
| 2015 | Twelve week internship at BRGM Orleans (french geological survey) working on the 3D modelling of an area in the Pyrenees in order to study the seismicity. ▸ Supervisors: Gabriel Courrioux, Christelle Loiselet. |
| 2015 | Research project in the GeoRessources laboratory of the Lorraine University on the modelling of the stress state in Japan's active margin. ▸ Marianne Conin. |

## Education

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| 2017 – 2021 | **Ph.D. in Geomorphology/Geology** at the University of Salzburg in Austria on the modeling and analysis of landslide-induced river course changes and lake formation. |
| 2015 – 2016 | **MS in geosciences, planets, resources and environment (GPRE)**, specialization in petroleum geosciences and reservoir engineering, major in numerical geology. |
| 2013 – 2016 | 1rst, 2nd and 3rd year at ENSG ("Ecole Nationale Supérieure de Géologie"), a leading French engineering school in geosciences delivering an engineering diploma in 3 years (equivalent to a Master's degree) in Nancy. Major in numerical geology (software development, object oriented programming, revision control tool use, quality and development project management, user interface design, computational geometry, parallel computing, computer graphics, geomodelling, geostatistics, mathematics - Finite Element Method, databases ...) |

## Experiences & Skills

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| Teaching | Geostatistics class (including TD, class design); Georisk course as assistant; Introduction to best coding practices seminar |
| Supervision | 1 Bachelor student, 3 Master students, 2 PhD students |
| Languages | Bash, Matlab, C++, Python, R, sql, LaTeX, . . . , revision control (git), working under Linux & Linux server. |
| GIS | QGIS, GRASS, GIS, ArcGIS, GMT, GDAL. |
| Geomorphology codes | Gerris, OpenLEM, iSOSIA, Topotoolbox, Landlab (HyLands, SPACE). |
| Hydrology codes | Hydrobricks, D-CASCADE. |
| Geological modelisation | GOCAD and SKUA, GeoModeller 3D, Petrel, GemPy. |
| Project management | 1 Bachelor, 2 Master and 1 PhD thesis; HTML database creation |
| Human languages | English (C1-C2), French (mother tongue), German (B2), Italian (B1). |

## Research focus

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| Earth Surface Processes | Study of the erosion and sediment transport processes happening at the Earth surface. I analyze topographic datasets, simulate erosion and hydrological regimes, and model sediment transport under climate change. |
| Natural Hazards | Analyze of the risks originating from natural phenomenons. I simulate landslide and investigate the formation of landslide-dammed lakes and their impact on the river network. |
| 3D Geomodeling | Modeling of subsurface geology using geomodeling software and development of algorithms for those software. I specialized in the structural modeling of the Pyrenees and in the simulation of fault networks and means to take into account branching uncertainty. |

## Academic research achievements:

## Dissemination

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| Publications | 9 publications in peer-reviewed journals (4 as first author) + 1 first author article in review, 1 first author conference article; 1 technical report and 28 conference contributions |
| Organization | 2024, 2025 - Landscapes Live online seminars: Member of the organization team (`https://www.landscapeslive.org`). |
| | 2025 - International Mountain Conference session coconvener; 2022, 2023, 2025 - EGU session coconvener |
| Science communication | 2020 - Newspaper article "Risikolandkarte für Flussblockaden", on Science ORF (`https://science.orf.at/stories/3200699/`) |
| Reviewer for | Journal of Geophysical Research: Earth Surface, Journal of Mountain Science, Natural Hazards and Earth System Sciences, Natural Hazards, Hydrology and Earth System Sciences, Water Resources Research, Engineering Geology, Journal of Hydrology |
| Member of | Sustainable Development and Social Responsibility working group of the University of Rennes |

### Grants and Awards

- 2022 CSDMS Spring School (participant costs – travel, lodging…).
- 2021 AK Geomorphology travel grant (€250).
- 2020 Marie Andeßner PhD grant, University of Salzburg (€23.600).
- 2017 BSG Post-Graduate Training Workshop, by the International Association of Geomorphologists (€500).

### Codes

**simulate-landslide-dammed-lakes**: Sole developer of a workflow to simulate the formation of landslide-dammed lakes. The code is available online under the DOI: 10.5281/zenodo.4171597, and has been encapsulated in a Docker container for easy setup: `https://github.com/ALArgentin/simulate-landslide-dtree/v1.0.0`.

**hydrobricks**: Contributions to Hydrobricks, a modular hydrological modelling framework used for high Alpine catchment discharge predictions: `https://github.com/altroclima/hydrobricks`.

**glacial-discharge-downscaling**: Sole developer of a plugin for the hydrological modelling framework Hydrobricks to downscale daily discharge data into sub-daily flow duration curves: `https://github.com/ALArgentin/glacial-discharge-downscaling`.

### Invited talks

- 2025 University of Bordeaux
- 2023 University of Rennes, University of Bern
- 2022 University College Dublin, University of Nantes
- 2021 University of Michigan

### Contacts for reference letters

| **Relationship** | 1. Postdoc advisor | 2. PhD supervisor |
|---|---|---|
| **Name** | Francesco Comiti | Jörg Robl |
| **Address** | Dipartimento Territorio e Sistemi Agro-Forestali Viale dell'universita, 16 - Legnaro PD, Italy | Fachbereich Geographie und Geologie Hellbrunnerstraße 345020 Salzburg Austria |
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## Journal Articles

1. Pitscheider, F., **Argentin, A.-L.**, Doolaeghe, D., Gianini, M., Repnik, L., Bizzi, S., Lane, S. N., and Comiti, F. (In review). Modelling bedload transport at the network scale in a glacier-fed Alpine river system. *Submitted to Earth Surface Processes and Landforms*.

2. Duan, M., Neubauer, F., Robl, J., **Argentin, A.-L.**, and Liebl, M. (In review). The Northward Expansion of the Tibetan Plateau: Topographic Evidence from the Turpan Basin, the Lowest Land Point in East Asia. *Submitted to Global and Planetary Change*.

3. **Argentin, A.-L.**, Gianini, M., Schaefli, B., Horton, P., Chavez-Demoulin, V., Pitscheider, F.,

Repnik, L., Bizzi, S., Lane, S. N., and Comiti, F. (In review). Downscaling daily discharge to sub-daily scales for alpine glacierized catchments under climate change. *Water Resources Research*.

4 Duan, M., Neubauer, F., Robl, J., Zhou, X., **Argentin, A.-L.**, Liebl, M., Dong, Y., Shi, X., Zhang, S., and Peng, H. (2025). The northward expansion of the Tibetan Plateau: Topographic evidence from the Bogda Mts. – southern Junggar Basin coupling system, northwest China. *Quaternary Science Reviews*. ISSN: 0277-3791. doi:https://doi.org/10.1016/j.quascirev.2025.109402. https://www.sciencedirect.com/science/article/pii/S0277379125002227.

5 **Argentin, A.-L.**, Horton, P., Schaefli, B., Shokory, J., Pitscheider, F., Repnik, L., Gianini, M., Bizzi, S., Lane, S. N., and Comiti, F. (2025). Scale dependency in modeling nivo-glacial hydrological systems: the case of the arolla basin, switzerland. *Hydrology and Earth System Sciences*. doi:10.5194/hess-29-1725-2025. https://hess.copernicus.org/articles/29/1725/2025/.

6 Duan, M., Neubauer, F., Robl, J., Zhou, X., Liebl, M., **Argentin, A.-L.**, Dong, Y., Cheng, C., Zhang, B., Boekhout, F., and Gonzalez, D. B. (2023). Northeastward expansion of the Tibetan Plateau: Topographic evidence from the North Qinling Mts.–Weihe Graben Coupling system, Central China. *Palaeogeography, Palaeoclimatology, Palaeoecology*. ISSN: 0031-0182. doi:https://doi.org/10.1016/j.palaeo.2023.111612. https://www.sciencedirect.com/science/article/pii/S0031018223002304.

7 **Argentin, A.-L.**, Prasicek, G., Robl, J., Hergarten, S., Hölbling, D., Abad, L., and Dabiri, Z. (2023). The scaling of landslide-dammed lakes. *Global and Planetary Change*. ISSN: 0921-8181. doi:https://doi.org/10.1016/j.gloplacha.2023.104190. https://www.sciencedirect.com/science/article/pii/S0921818123001637.

8 **Argentin, A.-L.**, Hauthaler, T., Liebl, M., Robl, J., Hergarten, S., Prasicek, G., Salcher, B., Hölbling, D., Pfalzner-Gibbon, C., Mandl, L., Maroschek, M., Abad, L., and Dabiri, Z. (2022). Influence of rheology on landslide-dammed lake impoundment and sediment trapping: Back-analysis of the Hintersee landslide dam. *Geomorphology*.

9 Abad, L., Hölbling, D., Spiekermann, R., Prasicek, G., Dabiri, Z., and **Argentin, A.-L.** (2022). Detecting landslide-dammed lakes on Sentinel-2 imagery and monitoring their spatio-temporal evolution following the Kaikōura earthquake in New Zealand. *Science of The Total Environment*. ISSN: 00489697. doi:10.1016/j.scitotenv.2022.153335. https://linkinghub.elsevier.com/retrieve/pii/S0048969722004272.

10 **Argentin, A.-L.**, Robl, J., Prasicek, G., Hergarten, S., Hölbling, D., Abad, L., and Dabiri, Z. (2021). Controls on the formation and size of potential landslide dams and dammed lakes in the Austrian Alps. *Natural Hazards and Earth System Sciences*. ISSN: 1684-9981. doi:10.5194/nhess-21-1615-2021.

11 Hölbling, D., Abad, L., Dabiri, Z., Prasicek, G., Tsai, T.-T., and **Argentin, A.-L.** (2020). Mapping and Analyzing the Evolution of the Butangbunasi Landslide Using Landsat Time Series with Respect to Heavy Rainfall Events during Typhoons. *Applied Sciences*. doi:10.3390/app10020630.

12 Dabiri, Z., Hölbling, D., Abad, L., Prasicek, G., **Argentin, A.-L.**, and Tsai, T.-T. (2019). AN OBJECT-BASED APPROACH FOR MONITORING THE EVOLUTION OF LANDSLIDE-DAMMED LAKES AND DETECTING TRIGGERING LANDSLIDES IN TAIWAN. *International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences*. doi:10.5194/isprs-archives-XLII-3-W8-103-2019.

13 **Argentin, A.-L.**, Godefroy, G., and Gautier, L. (2016). Fault displacement visualization from structural data. In *2016 RING Meeting*. ASGA. https://www.ring-team.org/research-publications/ring-meeting-papers?view=pub&id=2800.

## Cited reports

1 **Argentin, A.-L.** (2015). Modélisation géologique 3D d'une zone de sismicité intense dans les Pyrénées. *Master's thesis. BRGM.*

## Conference Proceedings, Abstracts and Posters

1 Repnik, L., Breillad, A., Giovanardi, A., Comiti, F., Gianini, M., **Argentin, A.-L.**, Pitscheider, F., and Lane, S. N. (2025). Historical photogrammetry for DoDs in deglaciating environments: challenges and opportunities. In *EGU General Assembly Conference Abstracts*.

2 Pitscheider, F., **Argentin, A.-L.**, Doolaeghe, D., Gianini, M., Repnik, L., Bizzi, S., Lane, S. N., and Comiti, F. (2025). Network-scale modelling of sediment transport in Alpine streams using the D-CASCADE model. In *EGU General Assembly Conference Abstracts*.

3 Gianini, M., Repnik, L., **Argentin, A.-L.**, Pitscheider, F., Comiti, F., and Lane, S. N. (2025). Bedload transport histories in heterogeneous Alpine glaciated catchments. In *EGU General Assembly Conference Abstracts*.

4 **Argentin, A.-L.**, Gianini, M., Schaefli, B., Horton, P., Chavez-Demoulin, F., V. Pitscheider, Repnik, L., Bizzi, S., Lane, S. N., and Comiti, F. (2025). Sub-daily downscaling of discharge in glacially-influenced Alpine catchments . In *EGU General Assembly Conference Abstracts*.

5 Repnik, L., Breillad, A., Giovanardi, A., Comiti, F., Gianini, M., **Argentin, A.-L.**, Pitscheider, F., and Lane, S. N. (2024). Peak water, peak sediment and the moderating effect of sediment connectivity in controlling sediment yield from deglaciating Alpine river basins. In *International Commission of Continental Erosion (ICCE2024)*.

6 Pitscheider, F., **Argentin, A.-L.**, Gianini, M., Repnik, L., Bizzi, S., Lane, S., and Comiti, F. (2024). How will bedload transport respond to climate change in Alpine regions? The "ALTRO-CLIMA" project. In *EGU General Assembly Conference Abstracts*.

7 Pitscheider, F., **Argentin, A.-L.**, Gianini, M., Repnik, L., Bizzi, S., Lane, S., and Comiti, F. (2024). A sensitivity analysis for bedload transport modelling in Alpine river catchments. In *International Commission of Continental Erosion (ICCE2024)*.

8. Gianini, M., Repnik, L., **Argentin, A.-L.**, Pitscheider, F., Comiti, F., and Lane, S. N. (2024). Bedload transport histories in heterogeneous Alpine glaciated catchments. In *International Commission of Continental Erosion (ICCE2024)*.

9. **Argentin, A.-L.**, Horton, P., Schaefli, B., Pitscheider, F., Gianini, M., Repnik, L., Bizzi, S., Lane, S. N., and Comiti, F. (2024). Predictions of changing bedload transport capacity in the Alps under climate change. In *International Commission of Continental Erosion (ICCE2024)*.

10. Jeanneau, L., Jardé, E., **Argentin, A.-L.**, Battais, A., Bernard, T., Coche, A., Fournereau, M., Moreau, F., and Guerit, L. (2023). Carbon footprint and reduction initiatives in a French geosciences laboratory. In *EGU General Assembly Conference Abstracts*, pages EGU23–14085.

11. Duan, M., Neubauer, F., Robl, J., Zhou, X., Liebl, M., **Argentin, A.-L.**, Dong, Y., and Boekhout, F. (2023). Southwestward tilting of the Ordos Loess Plateau, central China: topographic response to India-Asia convergence deduced from drainage systems. In *EGU General Assembly Conference Abstracts*, pages EGU23–8721.

12. **Argentin, A.-L.**, Hauthaler, T., Liebl, M., Robl, J., Hergarten, S., Prasicek, G., Salcher, B., Hölbling, D., Pfalzner-Gibbon, C., Mandl, L., and others. (2023). Quantification of the damming and sediment trapping capacity of landslides and their dammed lakes: the example of the Hintersee landslide dam. In *EGU General Assembly Conference Abstracts*, pages EGU23–9848.

13. Duan, M., Robl, J., Neubauer, F., Zhou, X., Liebl, M., and **Argentin, A.-L.** (2022). River reorganization based on geomorphic indices in the Huashan Mountains, central China. In *EGU General Assembly Conference Abstracts*, pages EGU22–5696.

14. Hauthaler, T., **Argentin, A.-L.**, Robl, J., Prasicek, G., Hölbling, D., Hergarten, S., Abad, L., and Dabiri, Z. (2021). Landslide dams acting as sediment traps: Example of the lake Hintersee, Berchtesgadener Land, south-eastern Germany. In *EGU General Assembly Conference Abstracts*, pages EGU21–12149. doi:10.5194/egusphere-egu21-12149.

15. **Argentin, A.-L.**, Prasicek, G., Robl, J., Hergarten, S., Hölbling, D., Abad, L., and Dabiri, Z. (2021). Size-frequency distribution of landslide-dammed lakes from a simulation approach. In *EGU General Assembly Conference Abstracts*, pages EGU21–9862. doi:10.5194/egusphere-egu21-9862.

16. **Argentin, A.-L.**, Hauthaler, T., Robl, J., Prasicek, G., Hölbling, D., Hergarten, S., Abad, L., and Dabiri, Z. (2021). The impact of landslide rheology on river damming and sediment trap formation. In *Mid-European Geomorphology Meeting Munich (MGM 2021)*.

17. Prasicek, G., Hölbling, D., **Argentin, A.-L.**, Abad, L., and Dabiri, Z. Detection and analysis of landslide-induced river course changes and lake formation (RiCoLa) - Final Project Report. Technical report, (2021).

18. **Argentin, A.-L.**, Prasicek, G., Robl, J., Hölbling, D., Abad, L., and Dabiri, Z. (2020). Landslide dam susceptibility in the Austrian Alps inferred from modelled landslides, potential valley damming and lake formation. In *EGU General Assembly Conference Abstracts*, page 8040. doi:10.5194/egusphere-egu2020-8040.

19. Abad, L., Hölbling, D., Spiekermann, R., Dabiri, Z., Prasicek, G., and **Argentin, A.-L.** (2020). Mapping and monitoring of landslide-dammed lakes using Sentinel-2 time series-a case study after

the 2016 Kaikōura Earthquake in New Zealand. In *EGU General Assembly Conference Abstracts*, page 572. doi:10.5194/egusphere-egu2020-572.

20 Hölbling, D., Dabiri, Z., Tsai, T.-T., Prasicek, G., Tsui, C., Schäffer, L., **Argentin, A.-L.**, and Abad, L. (2019). Mapping the Evolution of the Butangbunasi Landslide, Taiwan, using Landsat Time Series. In *27th IUGG General Assembly*. https://www.czech-in.org/cmPortalV15/CM_W3_Searchable/iugg19/normal#!abstractdetails/0000728040.

21 Argentin, A.-L. M., Prasicek, G., Robl, J. C., Hölbling, D. W., and Friedl, B. (2019b). Influence of landslide dam history on the landform persistence. In *Proceedings of the 18th ANZGG conference*.

22 **Argentin, A.-L.**, Prasicek, G., Robl, J., and Hölbling, D. (2019a). Automated detection of past river-blocking landslides based on valley geometry. In *EGU General Assembly Conference Abstracts*, page 8617. https://meetingorganizer.copernicus.org/EGU2019/EGU2019-8617.pdf.

23 Prasicek, G., Hölbling, D., **Argentin, A.-L.**, and Friedl, B. (2018). Detection of Landslide-induced River Course Changes and Lake Formation on Remote Sensing Data. In *AGU Fall Meeting Abstracts*, volume 2018, pages NH33D–1033. https://ui.adsabs.harvard.edu/abs/2018AGUFMNH33D1033P.

24 Prasicek, G., Hölbling, D., **Argentin, A.-L.**, and Friedl, B. (2018). Detection and analysis of River course changes and lake formation - The RiCoLa Project. In *EGU General Assembly Conference Abstracts*, page 7768. https://meetingorganizer.copernicus.org/EGU2018/EGU2018-7768.pdf.

25 Hölbling, D., Prasicek, G., **Argentin, A.-L.**, and Friedl, B. (2018). Detection of Landslide-induced River Course Changes and Lake Formation on Remote Sensing Data. In *AGU Fall Meeting 2018*. https://agu.confex.com/agu/fm18/prelim.cgi/Paper/406215.

26 Friedl, B., Hölbling, D., Prasicek, G., **Argentin, A.-L.**, and Tsai, T.-T. (2018). Detection of landslide-dammed lakes and triggering landslides in Taiwan using Landsat imagery. In *EGU General Assembly Conference Abstracts*, page 14915. https://meetingorganizer.copernicus.org/EGU2018/EGU2018-14915.pdf.

27 **Argentin, A.-L.**, Prasicek, G., Robl, J., Hölbling, D., and Friedl, B. (2018). A spatial causality method to identify the landslide-induced natural hazard cascades. In *Hron, K., Bábek, O., Fišerová, E., van den Boogaart, R. (eds.) Short Abstracts of IAMG2018 – The 19th Annual Conference of the International Association for Mathematical Geosciences, Olomouc, Czech Republic. ISBN: 978-80-270-4612-6.*

28 **Argentin, A.-L.**, Prasicek, G., Robl, J., Hölbling, D., and Friedl, B. (2018). Detecting landslide-induced paleolakes and their impact on river course. In *EGU General Assembly Conference Abstracts*, page 6349. https://meetingorganizer.copernicus.org/EGU2018/EGU2018-6349-3.pdf.