

## COSTANZA DEL GOBBO, PhD

### Employment record

2024 – 2025	Post-Doctoral Fellow. University of Quebec in Montreal, Department of Earth Sciences and Atmosphere, Canada.
2022 – 2023	Post- Doctoral Fellow. Institute of Polar Sciences, National Research Council (ISP-CNR), Italy.
Jun 2022 – Oct 2022	Specialist in Geology. Administrative Region Friuli-Venezia Giulia, Italy.
Jun 2021 – Dec 2021	Post- Doctoral Fellow. The Abdus Salam International Center for Theoretical Physics (ICTP-ESP), Italy.
Feb 2021 – Apr 2021	Research Fellow. The Abdus Salam International Center for Theoretical Physics (ICTP-ESP), Italy.
2015 – 2016	Hydro-glaciological monitoring. University of Innsbruck, Austria. (On-call contract).

### Teaching

2023 – 2025	Professoressa a contratto in Global and Regional Climate Change. University of Trieste.
2018 – 2023	Guest speaker for the course of Glaciology. Department of Mathematics and Geosciences, University of Trieste.

### Education

Nov 2017 – Jan 2021	PhD in Earth Science and Fluid Mechanics. <i>Use of the Regional Climate Model RegCM4 to assess circulation, precipitation and temperature patterns sustaining the Tagliamento glacier (southeastern Alps) at 21 ka.</i> University of Trieste and The Abdus Salam International Center for Theoretical Physics, Italy.
Jun 2018	International Summer School in Glaciology. University of Fairbanks, Alaska, USA.
Oct 2014 – Sep 2017	Master's Degree in Atmospheric Science (grade 2.27). <i>Debris thickness investigation of Solda Glacier, Italy. Methodological considerations about the use of Ground Penetrating Radar over a debris-covered glacier.</i> University of Innsbruck, Austria.
Sep 2010 – Jul 2014	Bachelor's Degree in Geology (grade 110/110L). <i>Volumetric reconstruction of the Triglav glacier, Slovenia, using Ground Penetrating Radar data.</i> University of Trieste, Italy.

### Fundings and Grants

2025 – 2029	NERC Doctoral Landscape Award PhD scholarship. (Lead Supervisor: Rea, B.: Co-supervisors: Plunkett, G., Spagnolo, M., Ribolini, A.)
2023 – 2025	LOGS - Local Glaciers Sisimiut. Assessment of past and recent evolution of Local Glaciers (LGs) in the Aqutitsoq mountains (West Greenland). Role: Co-Investigator (PI: Colucci R.R.; Co-investigator: Mercer M.)
2021 – 2023	CryoKarst FVG - Cryosphere in the Karstic environments of Friuli-Venezia Giulia. Monitoring of the external and hypogeal cryosphere in karst and alpine environments. Role: Co-Investigator (PI: R.R. Colucci, P. Manca, M. Potleca; Co-investigator: A. Securo, E. Forte, G. Goi)
2017 – 2021	Three-year PhD scholarship funded by The Abdus Salam International Center for Theoretical Physics.
2017 (declined)	PhD scholarship at the University Ca' Foscari of Venice.

### Scientific expeditions and fieldworks

2011 – present	Eastern Alps (Italy and Slovenia)
Aug – Sep 2023	Aqutitsoq mountains (Greenland)
2015 – 2016	Central Alps (Italy and Austria)
Mar – Apr 2016	Ngozumpa Glacier - Sagarmatha National Park (Nepal)

### Professional skills

- Climatic/paleoclimatic simulations with regional climate models (RCMs)
- Time-series and gridded data analysis (NCO, CDO and different python packages)
- Glacier mass balance and snow measurements (stake networks and snowpits)
- Geological and geomorphological surveys and mapping
- Installation and maintenance of data loggers and weather stations

- Photogrammetry, SfM-MVS with ground-based and drone images and terrestrial laser scanning survey
- Sampling of water and ice
- DGPS and theodolite survey
- Ground Penetrating Radar surveys and data processing
- Ice cave mapping using standard speleological techniques, laser scanner and SfM-MVS
- Ice core extraction

### Digital skills

- OS: Linux, macOS and Windows.
- Preferred programming language is Python, but I also have basic knowledge of R, Fortran90/95 and bash.
- HPC
- GIS (ArcGIS, QGIS)
- Image editing software (Adobe Photoshop, Illustrator, InDesign) and text editor (LaTeX and Office/Open Office).

### Languages

ITALIAN (mother tongue); ENGLISH (full professional proficiency); GERMAN (basic)

### Scientific Papers (peer-reviewed):

- [8] Securo, A., Del Gobbo, C., Baccolo, G., Barbante, C., Citterio, M., De Blasi, F., Marcer, M., Valt, M., Colucci, R. R. (2025). The glaciers of the Dolomites: the last 40 years of melting, *The Cryosphere*, 19, 1335–1352, <https://doi.org/10.5194/tc-19-1335-2025>.
- [7] Securo, A., Del Gobbo, C., Citterio, M., Machguth, H., Marcer, M., Korsgaard, N.J., Colucci, R.R. (2024). Area, volume and ELA changes of West Greenland local glaciers and ice caps from 1985–2020. *Journal of Glaciology* 1–12. <https://doi.org/10.1017/jog.2024.76>.
- [6] Securo, A., Del Gobbo, C., Rettig, L., Pillon, S., De Luca, A., Fontana, D., Benedetti Fasil, E., Colucci, R.R. (2023). A glacier in transition: surface elevation change, ELA and geomorphic evolution of a very small glacier in the Dolomites (S-E Alps). *Geomorphology*, <https://doi.org/10.1016/j.geomorph.2023.108956>.
- [5] Del Gobbo, C., Colucci, R. R., Monegato, G., Žebre, M., and Giorgi, F. (2023). Atmosphere–cryosphere interactions during the last phase of the Last Glacial Maximum (21 ka) in the European Alps, *Clim. Past*, 19, 1805–1823, <https://doi.org/10.5194/cp-19-1805-2023>.
- [4] Securo, A., Del Gobbo, C., Colucci, R.R. (2022). Multi-year evolution of 75 snow and ice deposits in Schachtdolines and Shafts of recently deglaciated karst terrain: Observations from Mount Canin-Kanin, Julian Alps, Europe. *Geomorphology*, 108434. <https://doi.org/10.1016/j.geomorph.2022.108434>.
- [3] Colucci, R.R., Žebre, M., Torma, C.Z., Glasser, N.F., Maset, E., Del Gobbo, C., Pillon, S. (2021). Recent Increases in Winter Snowfall Provide Resilience to Very Small Glaciers in the Julian Alps, Europe. *Atmosphere*, 12(2), 263. <https://doi.org/10.3390/atmos12020263>.
- [2] Žebre, M., Colucci, R.R., Giorgi, F., Glasser, N.F., Racoviteanu, A.E., Del Gobbo, C. (2021). 200 years of equilibrium-line altitude variability across the European Alps (1901–2100). *Clim Dyn* 56, 1183–1201. <https://doi.org/10.1007/s00382-020-05525-7>.
- [1] Del Gobbo, C., Colucci, R.R., Forte, E., Triglav Čekada, M., Zorn, M. (2016). The Triglav Glacier (South-Eastern Alps, Slovenia): Volume Estimation, Internal Characterization and 2000–2013 Temporal Evolution by Means of Ground Penetrating Radar Measurements. *Pure and Applied Geophysics*, 173-8: 2753-2766. <https://doi.org/10.1007/s00024-016-1348-2>.

### Abstract e Poster

- [11] Colucci R.R., Securo A., Del Gobbo C., Sigsgaard C., Svennevig K., Citterio M. Extensive hydrogeological disruption triggered by an atmospheric river affecting Disko Island (West Greenland) in summer 2023. EMS Annual Meeting. Barcelona (Spain) 2-6/9/2024.
- [10] Securo A., Del Gobbo C., Citterio M., Machguth H., Marcer M., Korsgaard N. J., Colucci R.R. Area, volume and ELA changes of West Greenland local glaciers and ice caps over the last 35 years. EMS Annual Meeting. Barcelona (Spain) 2-6/9/2024.
- [9] Del Gobbo, C., Securo, A., Manca, P., Potleca, M., Colucci, R.R. (2023). The CryoKarst project: academic research meets citizen science to study ice deposits within caves. Karst - approaches and conceptual models: 30th International Karstological School "Classical Karst". Postojna (Slovenia).
- [8] Del Gobbo, C., Colucci, R. R.\*, Monegato, G., Žebre, M., and Giorgi, F. (2022). Atmospheric dynamics supporting the Alpine glaciers at the Last Glacial Maximum assessed with a high-resolution regional climate model. European Conference for Applied Meteorology and Climatology. Bonn (Germany) 4-9 Sep.
- [7] Žebre, M., Giorgi, F., Glasser, N.F., Racoviteanu, A.E., Del Gobbo, C., Colucci, R.R. (2020) Climate Change 1901-2100 and environmental ELA in the European Alps. 24th Alpine Glaciology Meeting, Milano (Italy) February 27-28.
- [6] Del Gobbo, C., Giorgi, F., Colucci, R.R. (2019). High-resolution regional climate simulation at the alpine LGM. EMS Annual Meeting Abstracts Vol.16, EMS 2019-878, 2019. European Conference for Applied Meteorology and Climatology, Lyngby Campus. Copenhagen (Denmark) 9-13 Sep.

[5] Monegato, G., Mozzi, P., Asioli, A., Badino, F., Bonfardeci, A., Caruso, A., Colucci, R.R., Del Gobbo, C., Fontana, A., Gianotti, F., Guglielmin, M., Pellegrini, C., Pini R., Ravazzi, C., Ribolini, A., Ronchi, L., Rossato, S., Spagnolo, M., Trincardi, F., Žebre, M. & Zerboni, A. (2019). The Last Glacial Maximum in the southern side of the European Alps. Workshop The Last Glacial Maximum in Europe, State of Knowledge in Geosciences and Archaeology. 20-22 March, 2019 Erlangen-Nürnberg (Germany).

[4] McCarthy, M., Nicholson, L., Rieg, L., Klug, C., Wirbel, A., Del Gobbo, C., Pritchard, H., Willis, I., and Mayer, C. (2017). Debris thickness and surface topography on Ngozumpa Glacier, Nepal. European Geosciences Union (EGU) General Assembly 2017, Vienna, 23-28/04/2017.

[3] Colucci, R.R., Forte, E., Triglav, C.M., Basso Bondini, M., Colle Fontana, M., Del Gobbo, C., Fontana, D., Pierobon, S. and Zorn, M. (2014). Present state of the cryosphere in the Italian and Slovenian south-eastern Alps. International Symposium CGI. The Future of the Glaciers, from the past to the next 100 years Turin, Italy 18-21/09/2014. doi: 10.13140/2.1.2645.6329.

[2] Colle Fontana, M., Pierobon, S., Basso Bondini, M., Del Gobbo, C., Forte, E. and Colucci, R.R (2014). Positive mass balance of the very small glaciers of Prevala and Eastern Canin (south-eastern Italian Alps) in the hydrological year 2012-2013. International Symposium CGI. The Future of the Glaciers, from the past to the next 100 years Turin, Italy 18-21/09/2014. doi:10.13140/2.1.2391.6808.

[1] Forte E., Colucci R.R., Basso Bondini M., Belligoi D., Colle Fontana M., Del Gobbo C., Filippazzi M., Fontana D., Maggi V., Stenni B. (2014) The MONICA (MONitoring of Ice within Caves) project: A multidisciplinary approach for the geophysical and paleoclimatic characterization of permanent ice deposits in the Southeastern Alps (Italy). VI International Workshop on Ice Caves. Idaho Falls, USA.

### Datasets

[2] Securo, A., Del Gobbo, C., Baccolo, G., Barbante, C., Citterio, M., De Blasi, F., Marcer, M., Valt, M., Colucci, R.R (2024). The Glaciers of the Dolomites: last 40 years of melting (1.0) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.11109783>

[1] Del Gobbo, C., Colucci, R. R., Monegato, G., Žebre, M., & Giorgi, F. (2022). Atmosphere-cryosphere interactions during the last phase of the LGM (21 ka BP) in the European Alps [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7278461>

### Invited seminars

20/11/2025 Climate models: a tool for investigating glacier changes. University of Aberdeen (UK).

22/10/2022 Evolution of the Equilibrium Line of the Alpine glaciers from the LGM to the present and future scenarios. Julian Alps: Climate, Paleoclimate, Glaciers; XX Annual Conference of SMA-A, Sella Nevea (UD).

23/03/2021 Use of RegCM4 for the reconstruction of atmospheric circulation, precipitation and temperature fields on the Tagliamento glacier at 21 ka BP. AIQUA seminars; scientific virtual tour.

18/11/2017 What remains of the Triglav glacier. Julian Alps, the mountains born from the sea; XVII annual conference of the Meteorological Union of Friuli Venezia Giulia, Sella Nevea (UD).

### Grey literature

[2] Institute of Polar Science and Italian Administrative Region FVG. Eds: Colucci, R.R, Del Gobbo, C., Securo, A. (2023): CryoKarst - Snow and ice deposits within caves. Survey protocol: Main document and field manual [in Italian].

[1] Colucci, R.R, Del Gobbo, C., Securo, A. (2023). The cryosphere in the Julian Alps, Past and recent evolution. In: Signals from climate [in Italian].

### Services to the community

- 2022-2023 - Deployment of weather stations for the Alpine-Adriatic Meteorological Society.
- 2022-2023 - Editorial staff of Meteorologica - Bulletin of the Alpine-Adriatic Meteorological Society.
- Convener. EMS Annual Meeting 2019, 2020 (cancelled due to COVID-19), 2025 (in preparation) - The cryosphere and cold region processes in the global climate system.

### Outreach events

- Global warming and the cryosphere: from glaciers to ice deposits within caves. Savogna, Italy (18/02/2024). [Oral presentation in Italian]
  - CryoKarst - Snow and ice deposits within caves. Trieste and Udine, Italy (23-24/03/2023). [Oral presentations in Italian]
- The response of the cryosphere to climate evolution in the Eastern Alps. Influence of the climate crisis on water resources; Legambiente, Ronchi dei Legionari (GO), Italy (08/11/2019). [Oral presentation in Italian]

Autorizzo il trattamento dei dati personali nelle modalità previste dal Regolamento UE 2016/679