

## Publications list (2012-2021) by Franziska Aemisegger

ResearcherID: G-5340-2018

\*: publications by co-supervised PhD students

§: articles or datasets from projects, in which I am the main PI

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### *Submitted and in revision: (3)*

30. Schneider, A., Borsdorff, T., aan de Brugh, J., Lorente, A., **Aemisegger, F.**, Noone, D., Henze, D., Kivi, R., and Landgraf, J., Retrieving H<sub>2</sub>O/HDO columns over cloudy and clear-sky scenes from the Tropospheric Monitoring Instrument (TROPOMI), *Atmos. Meas. Tech. Discuss.*, [doi:10.5194/amt-2021-141](https://doi.org/10.5194/amt-2021-141), in revision, 2021.
- §,\*29. Villiger, L., Wernli, H., Boettcher, M., Hagen, M., and **Aemisegger, F.**, Lagrangian formation pathways of moist anomalies in the trade-wind region during the dry season: two case studies from EUREC4A, *Weather Clim. Dynam. Discuss.*, [doi:10.5194/wcd-2021-42](https://doi.org/10.5194/wcd-2021-42), in revision, 2021.
28. Krug, A., **Aemisegger, F.**, Sprenger, M., Ahrens, B., What intensifies Vb-cyclone precipitation in Central Europe?, *Clim. Dyn.*, revised, 2021.

### *Peer-reviewed manuscripts accepted and published: (27)*

- \*27. Dahinden, F., **Aemisegger, F.**, Wernli, H., Schneider, M., Diekmann, C. J., Ertl, B., Knippertz, P., Werner, M., and Pfahl, S., Disentangling different moisture transport pathways over the eastern subtropical North Atlantic using multi-platform isotope observations and high-resolution numerical modelling, *Atmos. Chem. Phys. Discuss.*, [doi:10.5194/acp-2021-269](https://doi.org/10.5194/acp-2021-269), accepted, 2021.
26. Diekmann, C. J., Schneider, M., Knippertz, P., de Vries, A. J., Pfahl, S., **Aemisegger, F.**, Dahinden, F., Ertl, B., Khosrawi, F., Wernli, H., Braesicke, P., A Lagrangian perspective on stable water isotopes during the West African Monsoon, *J. Geophys. Res.*, 126, e2021JD034895, [doi:10.1029/2021JD034895](https://doi.org/10.1029/2021JD034895), 2021.
25. Papritz, L., **Aemisegger, F.**, Wernli, H., Sources and transport pathways of precipitating waters in cold-season deep North Atlantic cyclones, *J. Atmos. Sci.*, 78, 3349-3368, [doi:10.1175/JAS-D-21-0105.1](https://doi.org/10.1175/JAS-D-21-0105.1), 2021.
24. Stevens, B., Bony, S., Farrel, D., et al. (incl. **Aemisegger, F.**, Dütsch, M., Villiger, L.), EUREC<sup>4</sup>A, *Earth Syst. Sci. Data*, 13, 4067–4119, [doi:10.5194/essd-13-4067-2021](https://doi.org/10.5194/essd-13-4067-2021), 2021.
- \*23. Li, Y., **Aemisegger, F.**, Riedl, A., Buchmann, N., and Eugster, W., The role of dew and radiation fog inputs in the local water cycling of a temperate grassland in Central Europe, *Hydrol. Earth Syst. Sci.*, 25, 2617–2648, [doi: 10.5194/hess-2020-493](https://doi.org/10.5194/hess-2020-493), 2021.
- \*22. Thurnherr, I., Hartmuth, K., Jansing, L., Gehring, J., Boettcher, M., Gorodetskaya, I., Werner, M., Wernli, H., and **Aemisegger, F.**, The role of air–sea fluxes for the water vapour isotope signals in the cold and warm sectors of extratropical cyclones over the Southern Ocean, *Weather Clim. Dynam.*, 2, 331-357, [doi:10.5194/wcd-2-331-2021](https://doi.org/10.5194/wcd-2-331-2021), 2021.
- §21. **Aemisegger, F.**, Vogel, R., Graf, P., Dahinden, F., Villiger, L., Jansen, F., Bony, S., Stevens, B., and Wernli, H., How Rossby wave breaking modulates the water cycle in the North Atlantic trade wind region, *Weather Clim. Dynam.*, 2, 281–309, [doi:10.5194/wcd-2020-51](https://doi.org/10.5194/wcd-2020-51), [highlight article], 2021.
20. Affolter, S., Steinmann, P., **Aemisegger, F.**, Putschert, R., and Leuenberger, M., Origin and percolation times of Milandre Cave drip water determined by tritium time series and Beryllium-7 data, *J. Environ. Radioact.*, 222, 106346, [doi:10.1016/j.jenvrad.2020.106346](https://doi.org/10.1016/j.jenvrad.2020.106346), 2020.
19. Jullien, N., Vignon, É., Sprenger, M., **Aemisegger, F.**, and Berne, A., Synoptic conditions and atmospheric moisture pathways associated to virga and precipitation over coastal Adélie Land in Antarctica, *The Cryosphere*, 14, 1685-1702, [doi:10.5194/tc-14-1685-2020](https://doi.org/10.5194/tc-14-1685-2020), 2020.
- \*18. Thurnherr, I., Kozachek, A., Graf, P., Weng, Y., Bolshiyarov, D., Landwehr, S., Pfahl, S., Schmale, J., Sodemann, H., Steen-Larsen, H. C., Toffoli, A., Wernli, H., and **Aemisegger, F.**, Meridional and vertical variations of the water vapour isotopic composition in the marine boundary layer over the Atlantic and Southern Ocean, *Atmos. Chem. Phys.*, 20, 5811–5835, [doi:10.5194/acp-20-5811-2020](https://doi.org/10.5194/acp-20-5811-2020), 2020.

- 17 Schneider, A., Borsdorff, T., de Brugh, J., **Aemisegger, F.**, Feist, D. G., Kivi, R., Hase, F., Schneider, M., and Landgraf, J., First results of H<sub>2</sub>O/HDO column retrievals from TROPOMI, *Atmos. Meas. Tech.*, 13, 85–100, [doi:10.5194/amt-13-85-2020](https://doi.org/10.5194/amt-13-85-2020), 2020.
16. Papritz, L., Rouges, E., **Aemisegger, F.**, and Wernli, H., On the thermodynamic pre-conditioning of Arctic air masses and the role of tropopause polar vortices for cold air outbreaks from Fram Strait, *J. Geophys. Res.*, 124, 11033–11050, [doi:10.1029/2019JD030570](https://doi.org/10.1029/2019JD030570), [open access link](#), 2019.
15. Fischer, B. M. C., **Aemisegger, F.**, Graf, P., Sodemann, H., and Seibert, J., Assessing the sampling precision of a low-tech low-budget volume-based rainfall sampler for stable isotope analysis, *Front. Earth Sci.*, 7:244, [doi:10.3389/feart.2019.00244](https://doi.org/10.3389/feart.2019.00244), 2019.
14. Schmale, J., Baccharini, A., Thurnherr, I., Henning, S., Ephraim, A., Regayre, L., Bolas, C., Hartmann, M., Welti, A., Lehtipalo, K., **Aemisegger, F.**, Tatzelt, C., Landwehr, S., Modini, R., Tummon, F., Johnson, J., Harris, N., Schnaiter, M., Toffoli, A., Derkani, M., Bukowiecki, N., Stratmann, F., Dommen, J., Baltensperger, U., Wernli, H., Rosenfeld, D., Gysel-Beer, M., Carslaw, K., Overview of the Antarctic Circumnavigation Expedition: study of preindustrial-like aerosols and their climate effects (ACE-SPACE), *B. Am. Meteorol. Soc.*, 100, 2260–2283, [doi:10.1175/BAMS-D-18-0187.1](https://doi.org/10.1175/BAMS-D-18-0187.1), 2019.
13. Lee, K.-O., **Aemisegger, F.**, Pfahl, S., Flamant, C., Lacour, J.-L., and Chaboureau, J.-P., Contrasting stable water isotope signals from convective and large-scale precipitation phases of a heavy precipitation event in Southern Italy during HyMeX IOP 13, *Atmos. Chem. Phys.*, 19, 7487–7506, [doi:10.5194/acp-19-7487-2019](https://doi.org/10.5194/acp-19-7487-2019), 2019.
12. Wei, Z., Lee, X., **Aemisegger, F.**, Benetti, M., Berkelhammer, M., Bonne, J.-L., Casado, M., Caylor, K., Christner, E., Dyroff, C., García, O. E., González, Y., Griffis, T., Kurita, N., Liang, J., Liang, M.-C., Lin, G., Noone, D., Gribanov, K., Munksgaard, N.-C., Schneider, M., Ritter, F., Steen-Larsen, H. C., Vallet-Coulomb, C., Wen, X., Wright, J. S., Xiao, W., Yoshimura, K., A global database of water vapour isotopes measured with high temporal resolution infrared laser spectroscopy, *Scientific Data*, 6, 180302, [doi:10.1038/sdata.2018.302](https://doi.org/10.1038/sdata.2018.302), 2019.
11. Suess, E., **Aemisegger, F.**, Sonke, J., Sprenger, M., Wernli, H., and Winkel, L., Marine versus continental sources of iodine and selenium in rainfall at two European high-altitude locations, *Environ. Sci. and Technol.*, 19;53(4):1905-1917, [doi: 10.1021/acs.est.8b05533](https://doi.org/10.1021/acs.est.8b05533), 2019.
- §10. **Aemisegger, F.**, On the link between the North Atlantic storm track and precipitation deuterium excess in Reykjavik, *Atmos. Sci. Lett.*, 19:e865, [doi:10.1002/asl.865](https://doi.org/10.1002/asl.865), 2018.
- §9. **Aemisegger, F.** and Sjolte, J., A climatology of strong large-scale ocean evaporation events. Part II: relevance for the deuterium excess signature of the evaporation flux, *J. Climate*, 31, 7313–7336, [doi:10.1175/JCLI-D-17-0592.1](https://doi.org/10.1175/JCLI-D-17-0592.1), 2018.
- §8. **Aemisegger, F.** and Papritz, L., A climatology of strong large-scale ocean evaporation events. Part I: identification, global distribution, and associated climate conditions, *J. Climate*, 31, 7287–7312, [doi:10.1175/JCLI-D-17-0591.1](https://doi.org/10.1175/JCLI-D-17-0591.1), 2018.
7. Christner, E., **Aemisegger, F.**, Pfahl, S., Werner, M., Cauquoin, A., Schneider, M., Hase, F., Barthlott, S., and Schaedler, G., The climatological impacts of continental surface evaporation, rainout, and sub-cloud processes on  $\delta D$  of water vapor and precipitation in Europe, *J. Geophys. Res.*, 123, 4390–4409, [doi:10.1002/2017JD027260](https://doi.org/10.1002/2017JD027260), 2018.
6. Sodemann, H., **Aemisegger, F.**, Pfahl, S., Bitter, M., Corsmeier, U., Feuerle, T., Graf, P., Hankers, R., Hsiao, G., Schulz, H., Wieser, A., and Wernli, H., The stable isotopic composition of water vapour above Corsica during the HyMeX SOP1 campaign: insight into vertical mixing processes from lower-tropospheric survey flights, *Atmos. Chem. Phys.*, 17, 6125–6151, [doi:10.5194/acp-17-6125-2017](https://doi.org/10.5194/acp-17-6125-2017), 2017.
5. **Aemisegger, F.**, Spiegel, J., Pfahl, S., Sodemann, H., Eugster, W., and Wernli, H., Isotope meteorology of cold front passages: a case study combining observations and modeling, *Geophys. Res. Lett.*, 42, 5652–5660, [doi:10.1002/2015GL063988](https://doi.org/10.1002/2015GL063988), 2015.
4. **Aemisegger, F.**, Pfahl, S., Sodemann, H., Lehner, I., Seneviratne, S. I., and Wernli, H., Deuterium excess as a proxy for continental moisture recycling and plant transpiration, *Atmos. Chem. Phys.*, 14, 4029–4054, [doi:10.5194/acp-14-4029-2014](https://doi.org/10.5194/acp-14-4029-2014), 2014.
3. **Aemisegger F.**, Sturm P., Graf P., Sodemann H., Pfahl S., Knohl A. and Wernli H., Measuring variations of  $\delta^{18}O$  and  $\delta^2H$  in atmospheric water vapour using two commercial laser-based spectrometers: an instrument characterisation study. *Atmos. Meas. Tech.* 5, 1491–1511, [doi:10.5194/amt-5-1491-2012](https://doi.org/10.5194/amt-5-1491-2012), 2012.

2. Spiegel, J. K., **Aemisegger, F.**, Scholl, M., Wienhold, F. G., J. L. Collett Jr., Lee, T., van Pinxteren, D., Mertes, S., Tilgner, A., Herrmann, H., Werner, R. A., Buchmann, N., and Eugster, W., 2012, Stable water isotopologue ratios in fog and cloud droplets are not size-dependent, *Atmos. Chem. Phys.*, 12, 9855-9863, [doi:10.5194/acp-12-9855-2012](https://doi.org/10.5194/acp-12-9855-2012), 2012.
1. Spiegel, J. K., **Aemisegger, F.**, Scholl, M., Wienhold, F. G., Collett Jr., J. L., Lee, T., van Pinxteren, D., Mertes, S., Tilgner, A., Herrmann, H., Werner, R. A., Buchmann, N., and Eugster, W., Temporal evolution of stable water isotopologues in cloud droplets in a hill cap cloud in central Europe (HCCT-2010), *Atmos. Chem. Phys.*, 12, 11679-11694, [doi:acp-12-11679-2012](https://doi.org/10.5194/acp-12-11679-2012), 2012.

#### *Datasets published: (9)*

- §**Aemisegger, F.**, Dütsch, M., Rösch, M., and Villiger, L., Calibrated stable water vapour isotope measurements on board the ATR-42 during EUREC4A, *Aeris*, [doi:10.25326/244](https://doi.org/10.25326/244), 2021.
- §Villiger, L., Dütsch, M., Jansen, F., Mech, M., and **Aemisegger, F.**, Calibrated stable water vapour isotope measurements from the BCO during EUREC4A, *Aeris*, [doi:10.25326/245](https://doi.org/10.25326/245), 2021.
- §Villiger, L., Herbstritt, B., Ringel, M., Stolla, K., Mech, M., Jansen, F., and **Aemisegger, F.**, Calibrated stable water isotope data in precipitation from the BCO during EUREC4A, *Aeris*, [doi:10.25326/242](https://doi.org/10.25326/242), 2021.
- §Villiger, L., Herbstritt, B., Acquistapace, C., Böck, T., and **Aemisegger, F.**, Calibrated stable water isotope data in precipitation from the R/V Maria Sybilla Merian during EUREC4A, *Aeris*, [doi:10.25326/243](https://doi.org/10.25326/243), 2021.
- Thurnherr, I., **Aemisegger, F.**, Jansing, L., Wernli, H., Numerical weather simulations using COSMOiso from Dec 2016 – Mar 2017 along the ship track of the Antarctic Circumnavigation Expedition, *ETH Research Collection*, [doi: 10.3929/ethz-b-000445744](https://doi.org/10.3929/ethz-b-000445744), 2020.
- §**Aemisegger, F.** and Graf, P., IsoTrades campaign dataset, high time resolution (1min) laser spectroscopic stable water vapour isotope measurements from 25 January to 17 February 2018 at the Barbados Cloud Observatory, *ETH Research Collection*, [doi:10.3929/ethz-b-000439434](https://doi.org/10.3929/ethz-b-000439434), 2020.
- Thurnherr, I. and **Aemisegger, F.**, Calibrated data of stable water isotope measurements in water vapour at 13.5 m a.s.l., made in the austral summer of 2016/2017 around the Southern Ocean during the Antarctic Circumnavigation Expedition (ACE), *Zenodo*, [doi:10.5281/zenodo.3250790](https://doi.org/10.5281/zenodo.3250790), 2020.
- Graf, P., Bertolini, P., **Aemisegger, F.**, and Wernli, H., Research Data supporting "A new interpretative framework for below-cloud effects on stable water isotopes in vapour and rain", *ETH Research Collection*, [doi:10.3929/ethz-b-000271617](https://doi.org/10.3929/ethz-b-000271617), 2019.
- Aemisegger, F.** and Sodemann, H., Water vapour isotopes, D-IBUF, *HyMeX-SOP1*, [doi:10.6096/MISTRALS-HyMeX.1475](https://doi.org/10.6096/MISTRALS-HyMeX.1475), 2017.

#### *Published non-peer-reviewed (3):*

- Martius, O., Viviroli, D., Rössler, O., Zischg, A., Röthlisberger, V., **Aemisegger, F.**, Schulte, L., Stuber, M., Pena, J. C., Ruiz-Villanueva, V., Molnar, P., 2020. Understanding flood triggering mechanisms and flood risk changes. In V. Ruiz-Villanueva & P. Molnar (Eds.), "Past, current, and future changes in floods in Switzerland", Hydro-CH2018 project, Federal Office for the Environment (FOEN), Bern, Switzerland, pp. 11-21, [doi:10.3929/ethz-b-000462768](https://doi.org/10.3929/ethz-b-000462768).
- Aemisegger, F.**, Atmospheric stable water isotope measurements at the timescale of extratropical weather systems, PhD Thesis, ETH Zurich, ETH Diss no. 21165, [doi:10.3929/ethz-a-009989698](https://doi.org/10.3929/ethz-a-009989698), 2013.
- Aemisegger, F.**, Tropical cyclone forecast verification: three approaches to the assessment of the ECMWF tropical cyclone ensemble prediction system, *Master Thesis*, ETH Zurich, 2009.

*News articles about own research: (6)*

ETHnews, *Anchors aweigh and off to the Antarctic!*, Peter Rüegg, 18.11.2016.

24 heures, *Autour de l'Antarctique, au chevet du climat*, François Modoux, 16.12.2016.

Le Matin, *Un tour complet de l'Antarctique pour la science*, Kalina Anguelova, 20.12.2016.

Swiss Radio and Television (SRF) *Science Team report from the Antarctic Circumnavigation Expedition ACE*, Mario Nottaris, 09.03.2017.

EAWAG news article, *The search for Selenium, traces in the high Alps*, Stephanie Schnydrig, 11.2.2019.

Frankfurter Allgemeine Sonntagszeitung, *Wolken der Karibik, sagt uns, was ihr treibt*, Roland Wengenmayr, NR. 3, 54-55, 19.1. 2020.