

Bianca Adler

Curriculum Vitae

last updated: Sept. 2020

Employment

- Since **Research scientist**, *CIRES University of Boulder, NOAA/PSL*, Boulder, CO.
04/2020 Conduct research in boundary layer meteorology with a focus on enhanced process understanding using instrument synergies and application to renewable energy
- 07/2014 – **Research scientist**, *Institute of Meteorology and Climate Research at KIT*, Karlsruhe, Germany.
03/2020 Prepare and conduct meteorological field campaigns (e.g. DACCWA) with the mobile observation platform KITcube; analyse data and and publish results
- 07/2010 – **Visiting scientist**, *Department of Atmospheric Sciences at University of Utah*, Salt Lake City, UT, USA.
05/2011 Analysed and published data from a meteorological field campaign conducted in a meteor crater in Arizona (METCRAX) dealing with flow patterns in the stable boundary layer
- 03/2010 – **Research associate**, *Institute of Meteorology and Climate Research at KIT*, Karlsruhe, Germany.
06/2010 Published results from diploma thesis dealing with mesoscale convective systems in West Africa

Education

- 06/2011 – **PhD in Meteorology**, *Institute of Meteorology and Climate Research at KIT*, Karlsruhe, Germany.
06/2014 PhD thesis: Boundary-layer processes producing mesoscale water-vapour variability over a mountainous island.
Analysed observational data gathered with the mobile observation platform KITcube on the island of Corsica during the HyMeX field campaign to identify multi-scale processes relevant for the evolution of the atmospheric boundary layer and to evaluate their impact on the spatial variability of water vapour, convection-related parameters and the evolution of deep convection.
- 10/2004 – **Study of Meteorology**, *University of Karlsruhe*, Karlsruhe, Germany.
02/2010 Diploma thesis: Der Einfluss von Landoberflächeninhomogenitäten auf die Auslösung und Entwicklung eines mesoskaligen konvektiven Systems: Eine budgetbasierte Modellanalyse. Performed model simulations with the COSMO model to investigate the sensitivity of mesoscale convective systems to soil moisture inhomogeneities in West Africa.

Peer-reviewed Publications

- [1] **Adler, B.**, Gohm, A., Kalthoff, N., Babić, N., Corsmeier, U., Lehner, M., Rotach, M. W., Haid, M., Markmann, P., Gast, E., Tsaknakis, G., Georgoussis, G., "CROSSINN - a field experiment to study the three-dimensional flow structure in the Inn Valley, Austria". In: *Bull. Amer. Meteorol. Soc.* (Sept. 2020).

- [2] **Adler, B.**, Kalthoff, N., Kiseleva, O., “Detection of structures in the horizontal wind field over complex terrain using coplanar Doppler lidar scans”. In: *Meteorol. Z.* (July 2020).
- [3] Fersch, B., Senatore, A., **Adler, B.**, Arnault, J., Mauder, M., Schneider, K., Völsch, I., Kunstmann, H., “High-resolution fully coupled atmospheric–hydrological modeling: a cross-compartment regional water and energy cycle evaluation”. In: *Hydrology and Earth System Sciences* 24.5 (2020), pp. 2457–2481.
- [4] Kalthoff, N., **Adler, B.**, Bischoff-Gauss, I., “Spatio-temporal structure of the boundary layer under the impact of mountain waves”. In: *Meteorol. Z.* (July 2020).
- [5] Lohou, F., Kalthoff, N., **Adler, B.**, Babić, K., Dione, C., Lothon, M., Pedruzo-Bagazgoitia, X., Zouzoua, M., “Conceptual model of diurnal cycle of low-level stratiform clouds over southern West Africa”. In: *Atmos. Chem. Phys.* 20.4 (2020), pp. 2263–2275.
- [6] Pedruzo-Bagazgoitia, X., Roode, S. R., **Adler, B.**, Babić, K., Dione, C., Kalthoff, N., Lohou, F., Lothon, M., Arellano, J. V.-G., “The diurnal stratocumulus-to-cumulus transition over land in southern West Africa”. In: *Atmos. Chem. Phys.* 20.5 (2020), pp. 2735–2754.
- [7] Zouzoua, M., Lohou, F., Assamoi, P., Lothon, M., Yoboue, V., Dione, C., Kalthoff, N., **Adler, B.**, Babić, K., Pedruzo-Bagazgoitia, X., “Breakup of nocturnal low-level stratiform clouds during southern West African Monsoon Season”. In: *Atmos. Chem. Phys.* (2020).
- [8] **Adler, B.**, Babić, K., Kalthoff, N., Lohou, F., Lothon, M., Dione, C., Pedruzo-Bagazgoitia, X., Andersen, H., “Nocturnal low-level clouds in the atmospheric boundary layer over southern West Africa: an observation-based analysis of conditions and processes”. In: *Atmos. Chem. Phys.* 19.1 (2019), pp. 663–681.
- [9] **Adler, B.**, Kiseleva, O., Kalthoff, N., Wieser, A., “Comparison of convective boundary layer characteristics from aircraft and wind lidar observations”. In: *J. Atmos. Oceanic Technol.* 36.7 (2019), pp. 1381–1399.
- [10] Babić, K., **Adler, B.**, Kalthoff, N., Andersen, H., Dione, C., Lohou, F., Lothon, M., Pedruzo-Bagazgoitia, X., “The observed diurnal cycle of low-level stratus clouds over southern West Africa: a case study”. In: *Atmos. Chem. Phys.* 19.2 (2019), pp. 1281–1299.
- [11] Babić, K., Kalthoff, N., **Adler, B.**, Quinting, J. F., Lohou, F., Dione, C., Lothon, M., “What controls the formation of nocturnal low-level stratus clouds over southern West Africa during the monsoon season?” In: *Atmos. Chem. Phys.* 19.21 (2019), pp. 13489–13506.
- [12] Dione, C., Lohou, F., Lothon, M., **Adler, B.**, Babić, K., Kalthoff, N., Pedruzo-Bagazgoitia, X., Bezombes, Y., Gabella, O., “Low-level stratiform clouds and dynamical features observed within the southern West African monsoon”. In: *Atmos. Chem. Phys.* 19.13 (2019), pp. 8979–8997.
- [13] Deetz, K., Vogel, H., Knippertz, P., **Adler, B.**, Taylor, J., Coe, H., Bower, K., Haslett, S., Flynn, M., Dorsey, J., Crawford, I., Kottmeier, C., Vogel, B., “Numerical simulations of aerosol radiative effects and their impact on clouds and atmospheric dynamics over southern West Africa”. In: *Atmos. Chem. Phys.* 18.13 (2018), pp. 9767–9788.
- [14] Emeis, S., Kalthoff, N., **Adler, B.**, Pardyjak, E., Paci, A., Junkermann, W., “High-resolution observations of transport and exchange processes in mountainous terrain”. In: *Atmos.* 9.12 (2018).

- [15] Flamant, C., Knippertz, P., Fink, A., Akpo, A., Brooks, B., Chiu, C., Coe, H., Danuor, S., Evans, M., Jegede, O., Kalthoff, N., Konaré, A., Lioussé, C., Lohou, F., Mari, C., Schlager, H., Schwarzenboeck, A., **Adler, B.**, Amekudzi, L., Aryee, J., Ayoola, M., Batenburg, A., Bessardon, G., Borrmann, S., Brito, J., Bower, K., Burnet, F., Catoire, V., Colomb, A., Denjean, C., Fosuamankwah, K., Hill, P., Lee, J., Lothon, M., Maranan, M., Marsham, J., Meynadier, R., Ngamini, J.-B., Rosenberg, P., Sauer, D., Smith, V., Stratmann, G., Taylor, J., Voigt, C., Yoboué, V., “The dynamics-aerosol-chemistry-cloud interactions in west Africa field campaign”. In: *Bull. Amer. Meteorol. Soc.* 99.1 (2018), pp. 83–104.
- [16] Kalthoff, N., Lohou, F., Brooks, B., Jegede, G., **Adler, B.**, Babic, K., Dione, C., Ajao, A., Amekudzi, L. K., Aryee, J. N. A., Ayoola, M., Bessardon, G., Danuor, S. K., Handwerker, J., Kohler, M., Lothon, M., Pedruzo-Bagazgoitia, X., Smith, V., Sunmonu, L., Wieser, A., Fink, A. H., Knippertz, P., “An overview of the diurnal cycle of the atmospheric boundary layer during the West African monsoon season: results from the 2016 observational campaign”. In: *Atmos. Chem. Phys.* 18.4 (2018), pp. 2913–2928.
- [17] Kirshbaum, D., **Adler, B.**, Kalthoff, N., Barthlott, C., Serafin, S., “Moist orographic convection: Physical mechanisms and links to surface-exchange processes”. In: *Atmos.* 9.3 (2018), p. 80.
- [18] Pantillon, F., Wieser, A., **Adler, B.**, Corsmeier, U., Knippertz, P., “Overview and first results of the Wind and Storms Experiment (WASTEX): a field campaign to observe the formation of gusts using a Doppler lidar”. In: *Adv. Sci. Res.* 15 (2018), pp. 91–97.
- [19] Serafin, S., **Adler, B.**, Cuxart, J., Wekker, S. D., Gohm, A., Grisogono, B., Kalthoff, N., Kirshbaum, D., Rotach, M., Schmidli, J., Stiperski, I., Večenaj, Ž., Zardi, D., “Exchange processes in the atmospheric boundary layer over mountainous terrain”. In: *Atmos.* 9.3 (2018), p. 102.
- [20] Whiteman, C. D., Lehner, M., Hoch, S. W., **Adler, B.**, Kalthoff, N., Haiden, T., “Katabatically Driven Cold Air Intrusions into a Basin Atmosphere”. In: *J. Appl. Meteor. Climatol.* 57.2 (2018), pp. 435–455.
- [21] Whiteman, C., Lehner, M., Hoch, S., **Adler, B.**, Kalthoff, N., Vogt, R., Feigenwinter, I., Haiden, T., Hills, M., “The nocturnal evolution of atmospheric structure in a basin as a larger-scale katabatic flow is lifted over its rim”. In: *J. Appl. Meteor. Climatol.* 57.4 (2018), pp. 969–989.
- [22] **Adler, B.**, Kalthoff, N., Gantner, L., “Nocturnal low-level clouds over southern West Africa analysed using high-resolution simulations”. In: *Atmos. Chem. Phys.* 17.2 (2017), pp. 899–910.
- [23] Wolf, B., Chwala, C., Fersch, B., Garvelmann, J., Junkermann, W., Zeeman, M. J., Angerer, A., **Adler, B.**, Beck, C., Brosy, C., Brugger, P., Emeis, S., Dannenmann, M., De Roo, F., Diaz-Pines, E., Haas, E., Hagen, M., Hajsek, I., Jacobeit, J., Jagdhuber, T., Kalthoff, N., Kiese, R., Kunstmann, H., Kosak, O., Krieg, R., Malchow, C., Mauder, M., Merz, R., Notarnicola, C., Philipp, A., Reif, W., Reineke, S., Roediger, T., Ruehr, N., Schaefer, K., Schroen, M., Senatore, A., Shupe, H., Voelksch, I., Wanninger, C., Zacharias, S., Schmid, H. P., “THE SCALEX CAMPAIGN Scale-Crossing Land Surface and Boundary Layer Processes in the TERENO-preAlpine Observatory”. In: *Bull. Amer. Meteorol. Soc.* 98.6 (2017), pp. 1217–1234.
- [24] **Adler, B.**, Kalthoff, N., “The impact of upstream flow on the atmospheric boundary layer in a valley on a mountainous island”. In: *Boundary-Layer Meteorol.* 158.3 (2016), pp. 429–452.

- [25] **Adler, B.**, Kalthoff, N., Kohler, M., Handwerker, J., Wieser, A., Corsmeier, U., Kottmeier, C., Lambert, D., Bock, O., "The variability of water vapour and pre-convective conditions over the mountainous island of Corsica". In: *Q. J. R. Meteorol. Soc.* 142 (2016), pp. 335–346.
- [26] Barthlott, C., **Adler, B.**, Kalthoff, N., Handwerker, J., Kohler, M., Wieser, A., "The role of Corsica in initiating nocturnal offshore convection". In: *Q. J. R. Meteorol. Soc.* 142 (2016), pp. 222–237.
- [27] Lehner, M., Whiteman, C. D., Hoch, S. W., Crosman, E. T., Jeglum, M. E., Cherukuru, N. W., Calhoun, R., **Adler, B.**, Kalthoff, N., Rotunno, R., Horst, T. W., Semmer, S., Brown, W. O. J., Oncley, S. P., Vogt, R., Grudzielanek, A. M., Cermak, J., Fonteyne, N. J., Bernhofer, C., Pitacco, A., Klein, P., "The METCRAX II field experiment: a study of downslope windstorm-type flows in Arizona's meteor crater". In: *Bull. Amer. Meteorol. Soc.* 97.2 (2016).
- [28] **Adler, B.** "Boundary-Layer Processes Producing Mesoscale Water-Vapour Variability over a Mountainous Island". 12.01.02; LK 01. PhD thesis. 2014. 242 pp.
- [29] **Adler, B.**, Kalthoff, N., "Multi-scale Transport Processes Observed in the Boundary Layer over a Mountainous Island". In: *Boundary-Layer Meteorol.* 153.3 (2014), pp. 515–537.
- [30] Kalthoff, N., **Adler, B.**, Wieser, A., Kohler, M., Traeumner, K., Handwerker, J., Corsmeier, U., Khodayar, S., Lambert, D., Kopmann, A., Kunka, N., Dick, G., Ramatschi, M., Wickert, J., Kottmeier, C., "KITcube - a mobile observation platform for convection studies deployed during HyMeX". In: *Meteorol. Z.* 22.6 (2013), pp. 633–647.
- [31] Kalthoff, N., Traeumner, K., **Adler, B.**, Spaeth, S., Behrendt, A., Wieser, A., Handwerker, J., Madonna, F., Wulfmeyer, V., "Dry and moist convection in the boundary layer over the Black Forest - a combined analysis of in situ and remote sensing data". In: *Meteorol. Z.* 22.4 (2013), pp. 445–461.
- [32] **Adler, B.**, Whiteman, C. D., Hoch, S. W., Lehner, M., Kalthoff, N., "Warm-air intrusions in Arizona's meteor crater". In: *J. Appl. Meteor. Climatol.* 51.6 (2012), pp. 1010–1025.
- [33] **Adler, B.**, Kalthoff, N., Gantner, L., "Initiation of deep convection caused by land-surface inhomogeneities in West Africa: a modelled case study". In: *Meteorol. Atmos. Phys.* 112.1-2 (2011), pp. 15–27.
- [34] **Adler, B.**, Kalthoff, N., Gantner, L., "The impact of soil moisture inhomogeneities on the modification of a mesoscale convective system: An idealised model study". In: 101.1-2 (2011), pp. 354–372.
- [35] Kalthoff, N., Kohler, M., Barthlott, C., **Adler, B.**, Mobbs, S. D., Corsmeier, U., Traeumner, K., Foken, T., Eigenmann, R., Krauss, L., Khodayar, S., Di Girolamo, P., "The dependence of convection-related parameters on surface and boundary-layer conditions over complex terrain". In: 137 (2011), pp. 70–80.
- [36] Barthlott, C., Schipper, J. W., Kalthoff, N., **Adler, B.**, Kottmeier, C., Blyth, A., Mobbs, S., "Model representation of boundary-layer convergence triggering deep convection over complex terrain: A case study from COPS". In: 95.2-3 (2010), pp. 172–185.
- [37] Kalthoff, N., **Adler, B.**, Barthlott, C., Corsmeier, U., Mobbs, S., Crewell, S., Traeumner, K., Kottmeier, C., Wieser, A., Smith, V., Di Girolamo, P., "The impact of convergence zones on the initiation of deep convection: A case study from COPS". In: 93.4 (2009), pp. 680–694.

Awards and Scholarships

- 06/2020 **Invited talk** at the National Renewable Energy Laboratory (NREL) in Boulder, CO
- 11/2017 **Invited speaker** at the graduate seminar of the Institute of Atmospheric and Cryospheric Sciences at the University of Innsbruck in Innsbruck, Austria
- 02/2017 **Invited speaker** at the International Conference on Meteorology and Climatology of the Mediterranean & Challenges in Meteorology in Zagreb, Croatia
- 10/2014 **Invited talk** at the Department of Atmospheric Sciences at the University of Utah, Salt Lake City, UT, USA
- 05/2011 **Best student oral presentation** at the "International Conference on Alpine Meteorology" in Aviemore, Scotland
- 02/2011 – **Scholarship** by "Deutscher Akademischer Austauschdienstes (DAAD)" for a stay
04/2011 as a visiting scientist in Salt Lake City, UT, USA
- 07/2010 – **Scholarship** by "Karlsruhe House of Young Scientists (KHYS)" for a stay as a
01/2011 visiting scientist in Salt Lake City, UT, USA
- 10/2008 **Award for an outstanding contribution** by a young scientist at the "7th Workshop of Convective and Orographically-Induced Precipitation Study (COPS)" in Strasbourg, France

Service to international communities

- 2021 Session co-chair of the AMS annual meeting
- 2020 Session co-chair of the 19th Conference on Mountain Meteorology
- 2019 Member of the program committee of the 35th International Conference on Alpine Meteorology (ICAM) conference and session chair
- 2018 Member of the International Symposium for the Advancement of Boundary-Layer Remote Sensing (ISARS) scientific committee and session chair
- 2018 Co-convenor at the EGU General Assembly of the session "Atmospheric processes in complex terrain" and session chair
- since 2017 Member of the (International Conference on Alpine Meteorology) ICAM steering committee
- since 2015 Reviewer for Quarterly Journal of the Royal Meteorological Society, Journal of Applied Meteorology and Climatology, Monthly Weather Review, Atmospheric Chemistry and Physics, Atmosphere, Frontiers in Earth Science

Languages

- German mother tongue
- English fluent

Skills

- Operating system Linux, Microsoft Windows

Scripting language Python, Matlab (participated in Mathworks training course in 2018), IDL, GrADS

Numerical model COSMO-model of German weather service (participated in COSMO training course in 2015)

Applications LaTeX, Microsoft Office, Libre Office