

Sebastian Bley



Dr. Sebastian Bley

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Function

Scientific staff

Department

Remote Sensing of Atmospheric Processes

Research areas & research interest

- Life cycle of small-scale convective clouds using Meteosat-SEVIRI
- Satellite remote sensing and field observations of cloud optical and microphysical properties
- Synergetic cloud products from passive and active satellite instruments for improved understanding of cloud processes
- Evaluation of convective clouds in atmospheric models

Past projects

- High definition clouds and precipitation for advancing climate prediction (HD(CP)²), sub project O2 (Full domain observations), funded by BMBF

Current projects

- Aeolus **DISC** project (**D**ata, **I**nnovation, and **S**cience **C**luster) is the core element in ESA's data quality framework for the Aeolus mission, comprised of an international expert consortium to study and improve the data quality of Aeolus products.
- CARDINAL project (EarthCARE algorithm development)

Curriculum Vitae

- 2021 - Today: Researcher at TROPOS in the Satellite Remote Sensing Working Group.
- 2018 - 2021: PostDoc Research Fellow at the European Space Agency (ESA-ESRIN) in Italy. Validation of wind, aerosol and cloud products from the Aeolus mission.
- 2013 - 2017: PhD in Meteorology at Uni Leipzig and TROPOS. Title of thesis: Investigation of warm convective cloud fields with Meteosat observations and high resolution models
- 2009 - 2012: Master of Science in Meteorology at the Uni of Leipzig; Title of master thesis: Vergleich zweier Schwellwertalgorithmen zur Wolkendetektion in solaren METEOSAT SEVIRI Bildern und Anwendung auf den hochaufgelösten sichtbaren Kanal
- 2006 - 2009: Bachelor of Science in Meteorology at the Uni of Leipzig

Publications

- Deneke, H., Barrientos-Velasco, C., **Bley, S.**, Hünerbein, A., Lenk, S., Macke, A., Meirink, J. F., Schroedter-Homscheidt, M., Senf, F., Wang, P., Werner, F., and Witthuhn, J.: Increasing the spatial resolution of cloud property retrievals from Meteosat SEVIRI by use of its high-resolution visible channel: implementation and examples, *Atmos. Meas. Tech.*, 14, 5107-5126, doi.org/10.5194/amt-14-5107-2021, 2021.
- Baars, H., Radenz, M., Floutsi, A. A., Engelmann, R., Althausen, D., Heese, B., Ansmann, A., Flament, T., Dabas, A., Traçon, D., Reitebuch, O., **Bley, S.**, Wandinger, U. (2021). Californian wildfire smoke over Europe: A first example of the aerosol observing capabilities of Aeolus compared to ground-based lidar. *Geophysical Research Letters*, 48, e2020GL092194, <https://doi.org/10.1029/2020GL092194>.
- Straume, A. G., Rennie, M., Isaksen, L., de Kloe, J., Marseille, G. J., Stoffelen, A., Flament, T., Stieglitz, H., Dabas, A., Huber, D., Reitebuch, O., Lemmerz, C., Lux, O., Marksteiner, U., Weiler, F., Witschas, B., Meringer, M., Schmidt, K., Nikolaus, I., Geiss, A., Flamant, P., Kanitz, T., Wernham, D., von Bismarck, J., **Bley, S.**, Fehr, T., Floberghagen, R., Parrinello, T.: ESA's Space-based Doppler Wind Lidar Mission Aeolus-First Wind and Aerosol Product Assessment Results. In Proc. 29th International Laser-Radar Conference, Hefei, China (pp. 24-28), 2019, <https://doi.org/10.1051/epjconf/202023701007>.
- **Bley, S.**, Deneke, H., Senf, F., and Scheck, L.: Metrics for the evaluation of warm convective cloud fields in a large eddy simulation with Meteosat images, *Quart. J. Roy. Meteor. Soc.*, <https://doi.org/10.1002/qj.3067>.
- Heinze, R., Dipankar, A., Henken, C. C., Moseley, C., Sourdeval, O., Trömel, S., Xie, X., Ada-midis, P., Ament, F., Baars, H., Barthlott, C., Behrendt, A., Blahak, U., **Bley, S.**, Brdar, S., Brueck, M., Crewell, S., Deneke, H., Di Girolamo, P., Evaristo, R., Fischer, J., Frank, C., Friederichs, P., Göcke, T., Gorges, K., Hande, L., Hanke, M., Hansen, A., Hege, H.-C., Hoose, C., Jahns, T., Kalthoff, N., Klocke, D., Kneifel, S., Knippertz, P., Kuhn, A., van Laar, T., Macke, A., Maurer, V., Mayer, B., Meyer, C. I., Muppa, S. K., Neggers, R. A. J., Orlandi, E., Pantillon, F., Pospichal, B., Rößler, N., Scheck, L., Seifert, A., Seifert, P., Senf, F., Siligam, P., Simmer, C., Steinke, S., Stevens, B., Wapler, K., Weniger, M., Wulfmeyer, V., Zängl, G., Zhang, D. and Quaas, J.: Large-eddy simulations over Germany using ICON: A comprehensive evaluation. *Quart. J. Roy. Meteor. Soc.*, 143: 69-100, <https://doi.org/10.1002/qj.2947>.
- Baars, H., Kanitz, T., Engelmann, R., Althausen, D., Heese, B., Komppula, M., Preißler, J., Tesche, M., Ansmann, A., Wandinger, U., Lim, J.-H., Ahn, J. Y., Stachlewska, I. S., Amiridis, V., Marinou, E., Seifert, P., Hofer, J., Skupin, A., Schneider, F., Bohlmann, S., Foth, A., **Bley, S.**, Pfüller, A., Giannakaki, E., Lihavainen, H., Viisanen, Y., Hooda, R. K., Pereira, S. N., Bortoli, D., Wagner, F., Mattis, I., Janicka, L., Markowicz, K. M., Achtert, P., Artaxo, P., Pauliquevis, T., Souza, R. A. F., Sharma, V. P., van Zyl, P. G., Beukes, J. P., Sun, J., Rohwer, E. G., Deng, R., Mamouri, R.-E., and Zamorano, F.: An overview of the first decade of PollyNET: an emerging network of automated Raman-polarization lidars for continuous aerosol profiling, *Atmos. Chem. Phys.*, 16, 5111-5137, <https://doi.org/10.5194/acp-16-5111-2016>.
- **Bley, S.**, H. Deneke and F. Senf (2016). Meteosat-Based Characterization of the Spatio-Temporal Evolution of Warm Convective Cloud Fields over Central Europe. *J. Appl. Meteor. Climatol.* <https://doi.org/10.1175/JAMC-D-15-0335.1>.
- **Bley, S.** and H. Deneke. 2013. A threshold-based cloud mask for the high-resolution visible channel of Meteosat Second Generation SEVIRI, *Atmos. Meas. Tech.*, 6, 2713-2723, <https://doi.org/10.5194/amt-6-2713-2013>.

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