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# Curriculum Vitae

Dr. Wilken-Jon von Appen

## Personal information

Family name, given name: von Appen, Wilken-Jon  
Date of Birth: August 27th, 1984  
Nationality: German  
Researcher uni- ORCID: <http://orcid.org/0000-0002-7200-0099>  
que identifier:

## Contact address

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## Education

09/2007 to 02/2013: **Doctor of Philosophy** in Physical Oceanography,  
Joint Program in Oceanography of  
**Massachusetts Institute of Technology**, Cambridge, MA, USA, and  
**Woods Hole Oceanographic Institution**, Woods Hole, MA, USA  
09/2004 to 06/2007: **Bachelor of Science** in Geosciences and Astrophysics,  
**Jacobs University**, Bremen, Germany

## Current positions

Since 10/2020: **Senior Scientist** (tenured),  
Section Physical Oceanography of the Polar Seas,  
**Alfred Wegener Institute**, Helmholtz Centre for Polar and Marine  
Research, Bremerhaven, Germany  
Since 04/2017: **Guest Investigator**,  
Department of Physical Oceanography,  
**Woods Hole Oceanographic Institution**, Woods Hole, MA, USA

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Since 12/2023: **Adjunct Scholar**,  
Department of Oceanography,  
**Dalhousie University**, Halifax, NS, Canada

## Previous positions

04/2019 to 09/2020: **Associate Scientist** (tenure track),  
Section Physical Oceanography of the Polar Seas,  
**Alfred Wegener Institute**, Helmholtz Centre for Polar and Marine  
Research, Bremerhaven, Germany

03/2013 to 03/2019: **Postdoctoral Scientist**,  
Section Physical Oceanography of the Polar Seas,  
**Alfred Wegener Institute**, Helmholtz Centre for Polar and Marine  
Research, Bremerhaven, Germany

06/2009 to 12/2012: **Graduate Research Assistant**,  
Department of Physical Oceanography,  
**Woods Hole Oceanographic Institution**, Woods Hole, MA, USA

09/2007 to 05/2009: **Graduate Research Assistant**,  
Department of Earth and Planetary Sciences,  
**Massachusetts Institute of Technology**, Cambridge, MA, USA

## Career breaks

11/2022 to 06/2023: **Partial parental leave**,  
3 months with 20% work load; 5 months with 75% work load

06/2021 to 08/2021: **Partial parental leave**,  
3 months with 60% work load

08/2020 to 11/2020: **Parental leave**,  
4 months with 0% work load

## Fellowships and awards

02/2020 to 04/2020: **Visiting international fellowship**,  
Visiting fellow in Department of Oceanography,  
**Ocean Frontier Institute, Dalhousie University**, Halifax, NS,  
Canada

06/2006 to 08/2006: **Summer student fellowship**,  
Summer student fellow in Department of Physical Oceanography,  
**Woods Hole Oceanographic Institution**, Woods Hole, MA, USA

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## Supervision of Bachelor/Master/PhD students and Co-supervision of PhD students

- Since 2023: **Supervision of 1 Master of Science student** (Buu-Lik Duong), Institute for Chemistry and Biology of the Marine Environment, University of Oldenburg, Germany
- Since 2022: **Supervision of 1 PhD student** (Ryan Mole), Department of Physics, University of Bremen, Bremen, Germany
- Since 2020: **Supervision of 1 PhD student** (Zerlina Hofmann), Department of Physics, University of Bremen, Bremen, Germany
- 2019 to 2020: **Supervision of 1 Master of Science student** (Zerlina Hofmann), Department of Physical Oceanography, Christian-Albrecht University of Kiel, Kiel, Germany  
Title: "Seasonal variability of Atlantic Water recirculation in Fram Strait from observations", <http://hdl.handle.net/10013/epic.47d57510-e533-4a04-995f-cb62c436d4df>
- 2018 to 2019: **Supervision of 1 Master of Science student** (Laura Mathieu), Department of Environmental Sciences and Engineering, École polytechnique fédérale de Lausanne, Lausanne, Switzerland  
Title: "Using a towed undulating platform to measure ocean velocities and to estimate turbulent dissipation rate", <http://hdl.handle.net/10013/epic.4b77c1ef-3748-4ed5-8f91-38104f5b9cdf>
- 2016 to 2017: **Supervision of 1 Master of Science student** (Maren Richter), Department of Geosciences, University of Bremen, Bremen, Germany  
Title: "Fram Strait recirculation and the East Greenland Current: Spatial structure north of 79°N", <http://hdl.handle.net/10013/epic.52015>
- Since 2015: **Co-supervision of 10 PhD students** (Janin Schaffer, Thorben Wulff, Stylianos Kritsotalakis, Laura Mathieu, Wiebke Körtke, Lili Hufnagel, Joel Bracamontes Ramirez, Dong-gyun Kim, Simon Reifenberg, Alice Lane), Department of Physics and Department of Geosciences and Department of Mathematics/Computer Science, University of Bremen, Bremen, Germany and Department of Oceanography, Dalhousie University, Halifax, NS, Canada
- 2014 to 2015: **Supervision of 1 Bachelor of Science student** (Joleen Heiderich), Department of Earth and Space Sciences, Jacobs University, Bremen, Germany  
Title: "Flow of warm Atlantic Water in the Norske trough on the East Greenland shelf", <http://hdl.handle.net/10013/epic.45716>

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## Teaching activities

- Since 2019: **Chief scientist and instructor**, “Practical Physical Oceanography” on board *RV Heincke* in the Master Program in Environmental Physics, University of Bremen, Bremen, Germany
- 2017 to 2019: **Instructor**, “Physical oceanography measurement techniques” on board *RV Heincke* for Bachelor of Science students and POLMAR PhD students, Jacobs University, Bremen, Germany and AWI
- 2015 to 2017 and 2019: **Lecturer**, “Introduction to Physical Oceanography” in the Master Program in Marine Biology, University of Bremen, Bremen, Germany
- 2015 to 2018: **Teaching Assistant**, “Physics of the Climate System” in the Master Program in Environmental Physics, University of Bremen, Bremen, Germany
- 2015: **Teaching Assistant**, “Polar Oceanography” in the Master Program in Environmental Physics, University of Bremen, Bremen, Germany
- 2015: **Lecturer**, “Observational Physical Oceanography” (graduate level), ArcTrain Floating University on board *RV Polarstern*, Fram Strait
- 2006 to 2007: **Teaching Assistant**, “General Geosciences and Astrophysics” (undergraduate level), Jacobs University, Bremen, Germany

## Institutional responsibilities

- Since 2020: **Member** of technical commission for *RV Polarstern* at AWI
- Since 2019: **Chair** of scientific users group of topAWI Triaxus Remotely Operated Towed Vehicle at AWI
- Since 2016: **Task team leader**, task 2.1: Backbone Oceanography of the Helmholtz Infrastructure Initiative FRAM at AWI

## Reviewing activities

- Since 2019: **4 reviews for research funding organizations**: Eurofleets+, UK Natural Environment Council, CSIRO National Marine Facility, ArcticNet
- Since 2014: **42 reviews for scientific journals**: Deep Sea Research, Journal of Geophysical Research, Geophysical Research Letters, Journal of Physical Oceanography, Journal of Climate, Elementa D, Ocean Science, Frontiers in Marine Science, The Cryosphere, Ocean Dynamics, Nature Communications, Oceanography, Remote Sensing

## Membership of scientific societies

- Since 2019: Member, The Oceanography Society

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Since 2008:      Member, American Geophysical Union

### Third party funding

- 2022:      **1 Postdoc position (12 months)** from European Union Horizon program for “Explaining and Predicting the Ocean Conveyor”. Co-PI of WP1 with Laura de Steur.
- 2019:      **1 PhD position** from German Research Foundation (**DFG**) for Transregional Collaborative Research Centre TR 172 AC3 subproject C04 “Coupling between atmosphere, oceanic mixed layer and pycnocline under Arctic amplification: The role of sea ice related processes”. Co-PI with Monika Rhein, Torsten Kanzow, and Maren Walter.

### Acquisition of ship and airplane time

- 2023:      **43 working days** on *RV Polarstern* for “FRAM 2024” in 2024. Co-PI with Frank Wenzhöfer and 2 other co-PIs.
- 2020:      **40 working days** on *RV Polarstern* for “Atlantic Water Pathways to the Ice” in 2022. Co-PI with Torsten Kanzow and 6 other co-PIs.
- 2020:      **40 working days** on *RV Polarstern* for “Island Impact” in 2021. Co-PI with Christine Klaas, Sabine Kasten, and 6 other co-PIs.
- 2020:      **42+28+28 working days** on *RV Polarstern* for “FRAM 2021/22/23” in 2021/22/23. Co-PI with Thomas Soltwedel and 13 other co-PIs.
- 2019:      **17 days working days** on *RV Merian* for “FRAM 2020” in 2020. Co-PI with Thomas Soltwedel and 13 other co-PIs. Ship time was granted, but cruise could not be scheduled for 2020 and therefore ship time was returned.
- 2019:      **12 working days** on *RV Heincke* for student teaching cruise in 2020 for POLMAR graduate school, University of Bremen, and Jacobs University Bremen. Co-PI with Jelle Bijma and Vikram Unnithan. Cruise was scheduled as HE553 for April/May 2020, but was cancelled due to COVID-19.
- 2018:      **21 working days** on *RV Heincke* for “Submesoscale Dynamics in Fram Strait”. Lead-PI with Anya Waite, Morten Iversen, Thorben Wulff, and Torsten Kanzow. Cruise was rescheduled onto *RV Merian* as MSM93 for June/July 2020 due to COVID-19.
- 2018:      **12 working days** on *RV Heincke* for student teaching cruise in 2019 for POLMAR graduate school, University of Bremen, and Jacobs University Bremen. Co-PI with Jelle Bijma and Vikram Unnithan. Cruise took place as HE531.

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- 2017: **31 working days** on *RV Sonne* for “SubMesoscale Particle dynamics in the Southern Ocean”. Co-PI with Anya Waite, Eric Achterberg, Morten Iversen, and Katja Metfies. Cruise remains to be scheduled.
- 2015: **1.5 working days** on *RV Polarstern* for mooring recovery in Fram Strait. Co-PI with Ursula Schauer and Torsten Kanzow. Work took place as side user on PS93.1.
- 2005: **3 flights** on Zero-G Airbus A300 of **European Space Agency**, Noordwijk, Netherlands, to test the influence of microgravity on marine microalgae as part of the Zero-G Student Parabolic Flight Campaign. Group experiment flew in Bordeaux, France, in September 2006.

## Expeditions and field campaigns

Participated in 24 cruises in total with 5 as chief scientist and 6 as group leader

- 2023: *RV Heincke*, cruise HE617.3: 5 days from Helgoland, Germany to Bremerhaven, Germany  
**Chief scientist:** Student teaching cruise University of Bremen around Helgoland
- 2022: *RV Polarstern*, cruise PS133.1: 48 days from Cape Town, South Africa to Punta Arenas, Chile  
**Group leader physical oceanography:** High resolution sections across the Antarctic Circumpolar Current
- 2022: *RV Polarstern*, cruise PS131: 51 days from and to Bremerhaven, Germany  
**Group leader physical oceanography:** Interdisciplinary (physical oceanography, sea ice physics, biology) marginal ice zone study north of Svalbard; servicing of moorings in Fram Strait and on the East Greenland shelf
- 2022: *RV Heincke*, cruise HE597.1: 2 days from Bremerhaven, Germany to Bremerhaven, Germany  
**Chief scientist:** Student teaching cruise University of Bremen, POLMAR graduate school, and Jacobs University Bremen around Helgoland
- 2020: *RV Merian*, cruise MSM93: 35 days, from and to Emden, Germany  
**Chief scientist:** High resolution physical-biological evolution of a submesoscale front in Fram Strait; servicing of moorings in West Spitsbergen Current
- 2019: *RV Polarstern*, cruise PS121: 35 days from Bremerhaven, Germany and to Tromsø, Norway  
**Group leader physical oceanography:** servicing of moorings and CTD measurements in Fram Strait

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- 2019: *RV **Heincke***, cruise HE531: 12 days from Bremerhaven, Germany to Bremerhaven, Germany  
**Chief scientist** of leg 3 and participant in legs 1 and 2: Student teaching cruise University of Bremen, POLMAR graduate school, and Jacobs University Bremen around Helgoland
- 2018: *RV **Polarstern***, cruise PS114: 25 days from Bremerhaven, Germany to Tromsø, Norway  
**Chief scientist**: Servicing of moorings in Fram Strait and physical and biogeochemical station sampling
- 2018: *RV **Polarstern***, cruise PS113: 36 days from Punta Arenas, Chile to Bremerhaven, Germany  
 Acquisition of underway sections with the Triaxus Remotely Operated Towed Vehicle across the Atlantic Ocean
- 2018: *RV **Heincke***, cruise HE508: 3 days from and to Bremerhaven, Germany  
 Student teaching cruise POLMAR graduate school and Jacobs University Bremen around Helgoland
- 2017: *RV **Polarstern***, cruise PS107: 30 days from and to Tromsø, Norway  
**Group leader physical oceanography**: underway CTD and vessel mounted ADCP survey of a submesoscale front, CTD measurements in Fram Strait
- 2017: *RV **Heincke***, cruise HE483: 8 days from and to Bremerhaven, Germany  
 Student teaching cruise POLMAR graduate school and Jacobs University Bremen around Helgoland
- 2017: *RV **Heincke***, cruise HE477: 15 days from and to Bremerhaven, Germany  
 Testing of and training on Triaxus Remotely Operated Towed Vehicle in Sognefjord
- 2016: *RV **Polarstern***, cruise PS100: 51 days from and to Tromsø, Norway  
**Group leader physical oceanography**: recovery of 16 moorings, deployment of 25 moorings, CTD and LADCP measurements, helicopter borne temperature-depth profiles in Fram Strait and on East Greenland shelf
- 2015: *RV **Heincke***, cruise HE451.2: 13 days from Longyearbyen, Svalbard to Bremerhaven, Germany  
 Deployment of five physical oceanographic moorings in Fram Strait
- 2015: *RV **Polarstern***, cruise PS93.1: 20 days from Longyearbyen, Svalbard to Tromsø, Norway  
**Group leader physical oceanography**: mooring recovery and deployment, CTD and UCTD measurements, Seaglider and Argo float

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- deployment in Fram Strait; Lecturer to ArcTrain Floating University students
- 2014: *RV **Polarstern***, cruise PS85: 33 days from Bremerhaven, Germany to Tromsø, Norway  
Oceanographic and biological mooring work in Fram Strait and on East Greenland shelf
- 2012: *USCGC **Healy***, cruise HLY12-03: 21 days from and to Dutch Harbor, AK, USA  
Arctic Observing Network service cruise for shelf-basin exchange across the Beaufort Sea shelfbreak
- 2012: *RRS **James Clark Ross***, cruise JR267: 31 days from Reykjavik, Iceland to Longyearbyen, Svalbard  
Mooring deployments upstream of Denmark Strait and CTD survey of the East Greenland Current
- 2010: *USCGC **Healy***, cruise HLY10-03: 21 days from Barrow, AK, USA to Dutch Harbor, AK, USA  
Arctic Observing Network service cruise for shelf-basin exchange across the Beaufort Sea shelfbreak
- 2009: *USCGC **Healy***, cruise HLY09-04: 14 days from and to Barrow, AK, USA  
Arctic Observing Network service cruise for shelf-basin exchange across the Beaufort Sea shelfbreak
- 2008: *USCGC **Healy***, cruise HLY08-04: 8 days from and to Barrow, AK, USA  
Arctic Observing Network service cruise for shelf-basin exchange across the Beaufort Sea shelfbreak
- 2007: *SSV **Cramer***, cruise C212A: 9 days from and to Woods Hole, MA, USA  
Joint Program introduction to shipboard scientific measurements in Mid Atlantic Bight
- 2006: *RV **Knorr***, cruise KN183: 12 days from and to Woods Hole, MA, USA  
SW06: Shallow Water Experiment of the US Navy on internal waves off New Jersey

## **Knowledge and technology transfer and Science communication and outreach**

- 11/2020: Feature article about scientific activities of *RV **Merian*** cruise MSM93 in *Süddeutsche Zeitung*, *Spektrum der Wissenschaft*
- 02/2020: TV interview on occasion of publication of Schaffer et al *Nature Geoscience* 2020 in *ARD Tagesschau*, *ARD Tagesthemen*, *N3 NDR Info*



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07/2018: TV interviews on occasion of *RV Polarstern* departure from Bremerhaven for PS114 in Buten un Binnen, Sat 1

## **Method and infrastructure developments**

- 2022: First deployment of the Triaxus Remotely Operated Towed Vehicle (ROTV) under sea ice (Marginal Ice Zone north of Svalbard) through the use of a depressor behind the stern of *RV Polarstern*
- 2016: Basic certified operator training for vLBV300 Remotely Operated Vehicle at Teledyne SeaBotix, San Diego, CA, USA.
- 2015 to 2016: Planning of the mooring concept of the Helmholtz Infrastructure Initiative FRAM to integrate physical and biological measurements in Fram Strait. A total of 18 moorings were deployed in 2016; a subset of those are ongoing redeployments.
- 2015 to 2017: Development of a lowered ADCP system that uses an optical gyro (inertial navigation system) to determine the instrument package's orientation in regions of weak magnetic fields such as the Arctic Ocean in cooperation with SubCtech GmbH, Kiel, Germany.
- 2013: Planning and supervision of a three months long Seaglider mission in the Greenland Sea and Fram Strait.
- 2011 to 2015: Development of method to correct ADCP compass errors resulting from iron in the instrument's vicinity.

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## Publication metrics

Number of citable publications (including data sets)	393
Number of peer-reviewed publications	50
Number of citations	1986
Number of publications with first authorship	11
h-index	25
m-index	1.6

Sources checked on March 14th, 2024:

- Google Scholar <https://scholar.google.com/citations?user=JPaCxdEAAAAJ&hl=en>  
Note that Google Scholar does not exclude self-citations.
- Pangaea <https://www.pangaea.de/?q=von+Appen%2C+Wilken-Jon>
- Note that m-index is heavily influenced by first publication in 2008 which derived from work undertaken during summer student fellowship (between 4th and 5th Bachelor semester). First PhD derived publication was in 2012 which would be an m-index of 2.1.

## Publication list: Peer reviewed publications

\* = student paper; ¶ = paper with PhD advisor)

11 first-author plus 39 co-author publications

50. Oldenburg, E., O. Popa, V. Lampe, **W.-J. von Appen**, M. Wietz, C. Bienhold, E.-M. Nöthig, O. Ebenhöf, and K. Metfies, 2024: Sea-ice melt determines seasonal phytoplankton dynamics and delimits the habitat of temperate Atlantic taxa as the Arctic Ocean atlantifies, *ISME Communications*, **accepted**
49. Wekerle, C., R. McPherson, **W.-J. von Appen**, Q. Wang, R. Timmermann, P. Scholz, S. Danilov, Q. Shu, and T. Kanzow, 2024: Atlantic Water warming increases melt below Northeast Greenland's last floating ice tongue, *Nature Communications*; <https://doi.org/10.1038/s41467-024-45650-z>
48. Dunn, M., S. Vojta, T. Soltwedel, **W.-J. von Appen**, and R. Lohmann, 2024: Passive sampler derived profiles and mass flows of Perfluorinated Alkyl Substances (PFAS) across the Fram Strait in the North Atlantic, *Environmental Science & Technology Letters*; <https://doi.org/10.1021/acs.estlett.3c00835>
47. Wietz, M., A. Engel, S. Ramondenc, M. Niwano, **W.-J. von Appen**, T. Priest, A. von Jackowski, K. Metfies, C. Bienhold, and A. Boetius, 2023: The Arctic summer microbiome across Fram Strait: Depth, longitude, and substrate concentrations structure microbial diversity in the euphotic zone, *Environmental Microbiology*; <https://doi.org/10.1111/1462-2920.16568>
46. Tsubouchi, T., **W.-J. von Appen**, T. Kanzow, and L. de Steur, 2023: Temporal variability of the overturning circulation in the Arctic Ocean and the associated heat

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- and freshwater transports during 2004–2010, *Journal of Physical Oceanography*; <https://doi.org/10.1175/JPO-D-23-0056.1>
45. Salter, I., E. Bauerfeind, K. Fahl, M.H. Iversen, C. Lalande, S. Ramondenc, **W.-J. von Appen**, C. Wekerle, and E.-M. Nöthig, 2023: Interannual variability (2000–2013) of mesopelagic and bathypelagic particle fluxes in relation to variable sea-ice cover in the eastern Fram Strait, *Frontiers in Earth Science*; <https://doi.org/10.3389/feart.2023.1210213>
  44. Priest, T., **W.-J. von Appen**, E. Oldenburg, O. Popa, S. Torres-Valdes, C. Bienhold, K. Metfies, W. Boulton, T. Mock, B. M. Fuchs, R. Amann, A. Boetius, and M. Wietz, 2023: Atlantic water influx and sea-ice cover drive taxonomic and functional shifts in Arctic marine bacterial communities, *The ISME Journal*; <https://doi.org/10.1038/s41396-023-01461-6>
  43. Svingen, K., A. Brakstad, K. Våge, **W.-J. von Appen**, and L. Papritz, 2023: The impact of cold air outbreaks and oceanic lateral fluxes on dense water formation in the Greenland Sea from a ten-year moored record (1999–2009), *Journal of Physical Oceanography*; <https://doi.org/10.1175/JPO-D-22-0160.1>
  42. **von Appen, W.-J.**, T.M. Baumann, Y.-D. Lenn, M. Janout, N. Koldunov, R.S. Pickart, R.B. Scott, and Q. Wang, 2022: Eddies and the Distribution of Eddy Kinetic Energy in the Arctic Ocean, *Oceanography, Special issue “The Changing Arctic Ocean”*; <https://doi.org/10.5670/oceanog.2022.122>
  41. Meyer-Kaiser, K., K. Schrage, **W.-J. von Appen**, M. Hoppmann, N. Lochthofen, A. Sundfjord, and T. Soltwedel, 2022: Larval dispersal and recruitment of benthic invertebrates on oceanographic moorings in the Arctic Ocean, *Progress in Oceanography*; <https://doi.org/10.1016/j.pocean.2022.102776>
  40. Berx, B., and 44 co-authors (incl. **W.-J. von Appen**), 2021: Climate relevant ocean transport measurements in the Atlantic and Arctic Ocean, *Oceanography, Supplement “Ocean Observing”*; <https://doi.org/10.5670/oceanog.2021.supplement.02-04>
  39. **von Appen, W.-J.**, A.M. Waite, M. Bergmann, C. Bienhold, O. Boebel, A. Bracher, B. Cisewski, J. Hagemann, M. Hoppema, M. Iversen, C. Konrad, T. Krumpen, N. Lochthofen, K. Metfies, B. Niehoff, E.-M. Nöthig, A. Purser, I. Salter, M. Schaber, D. Scholz, T. Soltwedel, S. Torres-Valdes, C. Wekerle, F. Wenzhöfer, M. Wietz, and A. Boetius, 2021: Sea-ice derived meltwater stratification slows the biological carbon pump: results from continuous observations, *Nature Communications*; <https://doi.org/10.1038/s41467-021-26943-z>
  38. Wietz, M., C. Bienhold, K. Metfies, S. Torres-Valdes, **W.-J. von Appen**, I. Salter, and A. Boetius, 2021: The polar night shift: Seasonal dynamics and drivers of Arctic Ocean microbiomes revealed by autonomous sampling, *ISME Communications*; <https://doi.org/10.1038/s43705-021-00074-4>
  37. Tuerena, R., J. Hopkins, P. Buchanan, R. Ganeshram, L. Norman, **W.-J. von Appen**, A. Tagliabue, A. Doncila, M. Graeve, K.-U. Ludwigowski, P.A. Dodd, C. de la Vega, I. Salter, and C. Mahaffey, 2021: An Arctic strait of two halves: The

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- changing dynamics of nutrient uptake and limitation across the Fram Strait, *Global Biogeochemical Cycles*; <https://doi.org/10.1029/2021GB006961>
36. Kaiser, P., W. Hagen, **W.-J. von Appen**, B. Niehoff, N. Hildebrandt, and H. Auel, 2021: Effects of a submesoscale oceanographic filament on zooplankton dynamics in the Arctic marginal ice zone, *Frontiers in Marine Research*; <https://doi.org/10.3389/fmars.2021.625395>
  35. \* Hofmann, Z., **W.-J. von Appen**, and C. Wekerle, 2021: Seasonal and Mesoscale Variability of the Two Atlantic Water Recirculation Pathways in Fram Strait, *Journal of Geophysical Research*; <https://doi.org/10.1029/2020JC017057>
  34. Fadeev, E., M. Wietz, **W.-J. von Appen**, M. H. Iversen, E.-M. Nöthig, A. Engel, J. Grosse, M. Graeve, and A. Boetius, 2021: Submesoscale physicochemical dynamics directly shape bacterioplankton community structure in space and time, *Limnology and Oceanography*; <https://doi.org/10.1002/lno.11799>
  33. Wekerle, C., T. Hattermann, Q. Wang, L. Crews, **W.-J. von Appen**, and S. Danilov, 2020: Properties and dynamics of mesoscale-eddies in the Fram Strait from a comparison between two high-resolution ocean-sea ice models, *Ocean Science*; <https://doi.org/10.5194/os-16-1-2020>
  32. Joerss, H., Z. Xie, C. Wagner, **W.-J. von Appen**, E. Sunderland, and R. Ebinghaus, 2020: Transport of legacy perfluoroalkyl substances and the replacement compound HFPO-DA through the Atlantic Gateway to the Arctic Ocean – Is the Arctic a sink or a source?, *Environmental Science and Technology*; <https://doi.org/10.1021/acs.est.0c00228>
  31. Bracher, A., H. Xi, **W.-J. von Appen**, T. Dinter, A. Mangin, V.H. Strass, and S. Wiegmann, 2020: High resolution water column phytoplankton composition across the Atlantic Ocean from ship-towed vertical undulating radiometry, *Frontiers in Marine Science*, 7, 1–22; <https://doi.org/10.3389/fmars.2020.00235>
  30. **von Appen, W.-J.**, V.H. Strass, A. Bracher, H. Xi, C. Hörstmann, M. Iversen, and A. Waite, 2020: High-resolution physical-biogeochemical structure of a filament and an eddy of upwelled water off Northwest Africa, *Ocean Science*, 16, 253–270; <https://doi.org/10.5194/os-16-253-2020>
  29. Schaffer, J., T. Kanzow, **W.-J. von Appen**, L. von Albedyll, J.E. Arndt, and D.H. Roberts, 2020: Bathymetry constrains ocean heat supply to Greenland's largest glacier tongue, *Nature Geoscience*; <https://doi.org/10.1038/s41561-019-0529-x>
  28. Wang, Q., C. Wekerle, X. Wang, S. Danilov, N. Koldunov, D. Sein, D. Sidorenko, **W.-J. von Appen**, and T. Jung, 2020: Intensification of the upward trend in the ocean heat transport to the Arctic Ocean through Fram Strait induced by sea ice decline, *Geophysical Research Letters*; <https://doi.org/10.1029/2019GL086682>
  27. ¶ Spall, M., R.S. Pickart, P. Lin, **W.-J. von Appen**, D. Mastropole, H. Valdimarsson, T. Haine, and M. Almansi, 2019: Frontogenesis and variability in Denmark Strait and its influence on overflow water, *Journal of Physical Oceanography*, 49 (7) 1889–1904; <https://doi.org/10.1175/JPO-D-19-0053.1>

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26. Hessner, K., S. El Naggar, **W.-J. von Appen**, and V. Strass, 2019: On the reliability of surface current measurements by X-band Marine Radar, *Remote Sensing*, 11, 1030; <https://doi.org/10.3390/rs11091030>
  25. ¶ Perez-Hernandez, M.D., R.S. Pickart, D.J. Torres, F. Bahr, A. Sundfjord, R. Ingvaldsen, A. Renner, A. Beszczynska-Möller, **W.-J. von Appen**, and V. Pavlov, 2019: Structure, Transport, and Seasonality of the Atlantic Water Boundary Current North of Svalbard: Results From a Yearlong Mooring Array, *Journal of Geophysical Research*, 1679–1698; <https://doi.org/10.1029/2018JC014759>
  24. Wekerle, C., T. Krumpen, T. Dinter, **W.-J. von Appen**, M. Iversen and I. Salter, 2018: Origin and properties of particles found in sediment traps in Fram Strait, *Frontiers in Marine Science*, 5, 1–16; <https://doi.org/10.3389/fmars.2018.00407>
  23. \* Richter, M., **W.-J. von Appen**, and C. Wekerle, 2018: Does the East Greenland Current exist in northern Fram Strait?, *Ocean Science*, 14, 1147–1165; <https://doi.org/10.5194/os-14-1147-2018>
  22. **von Appen, W.-J.**, C. Wekerle, L. Hehemann, V. Schourup-Kristensen, C. Konrad, and M. Iversen, 2018: Observations of a submesoscale cyclonic filament in the marginal ice zone, *Geophysical Research Letters*, 45, 1–9; <https://doi.org/10.1029/2018GL077897>
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4. ¶ **von Appen, W.-J.**, I. M. Koszalka, R. S. Pickart, T. W. N. Haine, D. Mastropole, M. G. Magaldi, H. Valdimarsson, J. Girton, J., K. Jochumsen, and G. Krahmann, 2014b: The East Greenland Spill Jet as an important component of the Atlantic Meridional Overturning Circulation, *Deep-Sea Research I*, 92, 75–84; <https://doi.org/10.1016/j.dsr.2014.06.002>
  3. ¶ **von Appen, W.-J.**, R. S. Pickart, K. H. Brink, and T. W. N. Haine, 2014a: Water column structure and statistics of Denmark Strait Overflow Water cyclones, *Deep-Sea Research I*, 84, 110–126; <https://doi.org/10.1016/j.dsr.2013.10.007>
  2. ¶ **von Appen, W.-J.** and R. S. Pickart, 2012: Two Configurations of the Western Arctic Shelfbreak Current in Summer, *Journal of Physical Oceanography*, 42 (3), 329–351; <https://doi.org/10.1175/JPO-D-11-026.1>
  1. Bower, A. S. and **W.-J. von Appen**, 2008: Interannual Variability in the Pathways of the North Atlantic Current over the Mid-Atlantic Ridge and the Impact of Topography, *Journal of Physical Oceanography*, 38 (1), 104–120; <https://doi.org/10.1175/2007JPO3686.1>

### Publication list: Citable non-peer reviewed publications

4. **von Appen, W.-J.** (editor), 2021: Submesoscale Dynamics in Fram Strait, Cruise No. MSM93 (GPF 18-1\_33) in 2020, *MARIA S. MERIAN-Berichte*, 1–53; [https://doi.org/10.48433/cr\\_msm93](https://doi.org/10.48433/cr_msm93)
3. **von Appen, W.-J.** (editor), 2018: The Expedition PS114 of the Research Vessel Polarstern to the Fram Strait in 2018, *Reports on Polar and Marine Research*, 1–84; [https://doi.org/10.2312/BzPM\\_0723\\_2018](https://doi.org/10.2312/BzPM_0723_2018)
2. Author or co-author of 340 data sets in Pangaea Data Publisher for Earth and Environmental Science: <https://www.pangaea.de/?q=von+Appen%2C+Wilken-Jon>
1. **von Appen, W.-J.**, 2012: Moored Observations of Shelfbreak Processes at the Inflow to and Outflow from the Arctic Ocean, *PhD Thesis*, MIT-WHOI Joint Program, Cambridge/Woods Hole, MA, USA; <https://doi.org/10.1575/1912/5822>

### Publication list: Submitted publications and publications in preparation

1. \* Hofmann, Z., **W.-J. von Appen**, T. Kanzow, L. Hufnagel, and M. Iversen, 2024: Stepwise Subduction Observed at a Front in the Marginal Ice Zone in Fram Strait, *Journal of Geophysical Research*, **revised**
2. Weiss, J., **W.-J. von Appen**, B. Niefhoff, N. Hildebrand, M. Graeve, S. Neuhaus, A. Bracher, E.-M. Nöthig, and K. Metfies, 2024: Unprecedented insights into extents of biological responses to physical forcing in an Arctic sub-mesoscale filament by combining high-resolution measurement approaches, *Scientific Reports*, **revised**

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3. \* Reifenberg, S., I. Fer, T. Kanzow, **W.-J. von Appen**, M. Hoppmann, M. Neudert, and C. Haas, 2024: Shallow observations of sea ice-ocean boundary layer turbulence for an ice floe during the Arctic melt season, *Journal of Physical Oceanography*, **in preparation**
  4. \* Mole, R., **W.-J. von Appen**, S. Rokitta, and A. Haumann, 2024: Synoptic View of the Antarctic Circumpolar Current Downstream of South, *Journal of Physical Oceanography*, **in preparation**
  5. \* Oetjens, A., **W.-J. von Appen**, J. Anselin, B. Ebner, F. Koch, K.-U. Ludwichowski, R. Mole, and S. Kasten, 2023: Physical transport processes in the fjords of South Georgia, *Ocean Sciences*, **in preparation**
  6. von Friesen, L., H. Farnelid, **W.-J. von Appen**, M. Benavides, O. Grosso, C. Laber, J. Schüttler, M. Sundbom, S. Torres-Valdes, S. Bertilsson, I. Peeken, P. Snoeijs-Leijonmalm, L. Riemann, 2023: Nitrogen fixation linked to primary production in different sea ice regimes in the Central and Western Eurasian Arctic Ocean, **in preparation**
  7. **von Appen, W.-J.**, P. Assmy, H. Becker, A. Bracher, I. Fer, C. Haas, Z. Hofmann, M. Hoppmann, M. Iversen, T. Kanzow, T. Krumpen, L. Mathieu, R. McPherson, K. Metfies, B. Niehoff, E.-M. Nöthig, E. Oldenburg, O. Popa, L. Rehder, S. Reifenberg, S. Rokitta, S. Torres-Valdes, A. Waite, C. Wekerle, and L. Winberg von Friesen, 2024: Evolution of thin deep chlorophyll maxima in the marginal ice zone, **in preparation**
  8. McPherson, R., **W.-J. von Appen**, 2024: Variability of Atlantic Water temperature and transport in the West Spitsbergen Current as observed from 1997 to 2024, **in preparation**
  9. Kim, D.-G., S. Ramondec, **W.-J. von Appen**, B. Niehoff, and M.H. Iversen, 2022: Zooplankton and particle interaction in an Arctic Submesoscale filament, **in preparation**

## Presentations and meetings

### **MSM93: Submesoscale Dynamics in Fram Strait**

Talk, March 2024, Status Conference German Research Vessels, Bremen, Germany

### **Evolution of thin deep chlorophyll maxima in the marginal ice zone**

Talk, February 2024, Ocean Sciences Meeting, New Orleans, LA, USA

### **The 2023 and beyond efforts of AWI's physical oceanography in Fram Strait and the Central Arctic Ocean**

Talk, November 2023, Arctic Atlantic Distributed Biological Observatory, Sopot, Poland

### **Sea-ice derived meltwater stratification and its effects on the ecosystem**

Talk, August 2023, Woods Hole Oceanographic Institution, Woods Hole, MA, USA

### **Atlantic Water pathways to the ice ("ATWAICE"): The WSC and The Mixed Layer and Meltwater Regimes in the MIZ at high spatial resolution**



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Poster, May 2023, Arctic Subarctic Ocean Fluxes Meeting, Las Palmas de Gran Canaria, Spain

**Sea-ice derived meltwater stratification slows the biological carbon pump: results from continuous observations**

Talk, September 2022, International Conference for Young Marine Researchers, Bremerhaven, Germany

Talk, May 2022, European Geosciences Union General Assembly, Vienna, Austria (presented online)

**Eddies and the distribution of eddy kinetic energy in the Arctic Ocean**

Invited talk, May 2022, European Geosciences Union General Assembly, Vienna, Austria (presented online)

Talk, March 2022, Ocean Sciences Meeting, Honolulu, HI, USA (presented online)

Talk, October 2021, Arctic Subarctic Ocean Fluxes Meeting (presented online)

**On the recirculation and subduction of Atlantic Water in Fram Strait**

Talk, April 2020, Woods Hole Oceanographic Institution, Woods Hole, MA, USA (presented online)

**Submesoscale dynamics and biogeochemical variability from towed observations**

Talk, April 2020, Bedford Institute of Oceanography, Halifax, NS, Canada (presented online)

**The seasonal cycle of physical, biogeochemical and biological properties in the marginal ice zone in the Fram Strait: differences in sea ice conditions during the growth phase lead to different carbon production and export patterns**

Talk, March 2020, Dalhousie University, Halifax, NS, Canada (presented online)

Talk, February 2020, Ocean Sciences Meeting, San Diego, CA, USA

**High-resolution physical-biogeochemical structure of an upwelling filament off Northwest Africa**

Talk, March 2019, Alfred Wegener Institute, Bremerhaven, Germany

Talk, February 2019, Aquatic Sciences Meeting, San Juan, PR, USA

**Nordic Seas-Arctic Ocean exchanges: state of knowledge and long-term observational performance in the West Spitsbergen Current and the Fram Strait Recirculation**

Talk, October 2018, Workshop Climate Change at the Arctic gateways, Bergen, Norway

**Observations of a submesoscale cyclonic filament in the marginal ice zone**

Talk, April 2018, Arctic Subarctic Ocean Fluxes Meeting, Paris, France

Talk, April 2018, Alfred Wegener Institute, Bremerhaven, Germany

Talk, February 2018, Ocean Sciences Meeting, Portland, OR, USA

Poster, October 2017, FAMOS meeting, Woods Hole, MA, USA

Talk, August 2017, University of British Columbia, Vancouver, BC, Canada

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**The contribution of the Atlantic Water Recirculation in Fram Strait to the East Greenland Current**

Talk, March 2017, Arctic Subarctic Ocean Fluxes Meeting, Sopot, Poland

**Observations of physical and ecological processes at the sea-ice edge and the meltwater front**

Poster, May 2016, Colloquium on Submesoscale Processes, Liège, Belgium

**The Two Branches of the Recirculation of Atlantic Water in Fram Strait**

Talk, April 2016, European Geosciences Union General Assembly, Vienna, Austria

Talk, March 2016, Arctic Subarctic Ocean Fluxes Meeting, Lerici, Italy

Talk, February 2016, Ocean Sciences Meeting, New Orleans, LA, USA

**The FRAM Mooring Arrays in Fram Strait and the Arctic**

Poster, November 2015, Alfred Wegener Institute, Bremerhaven, Germany

**Seasonal cycle of mesoscale instability of the West Spitsbergen Current**

Talk, March 2016, Virginia Institute of Marine Sciences, Gloucester Point, VA, USA

Talk, December 2015, GEOMAR, Helmholtz Centre for Ocean Research, Kiel, Germany

Talk, November 2015, FAMOS meeting, Hyannis, MA, USA

Talk, August 2015, Woods Hole Oceanographic Institution, Woods Hole, MA, USA

Talk, June 2015, IUGG/IAPSO General Assembly, Prague, Czech Republic

Talk, June 2015, Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland

Talk, May 2015, Applied Physics Laboratory, University of Washington, Seattle, WA, USA

Talk, March 2015, Alfred Wegener Institute, Bremerhaven, Germany

**On the Nature of the Mesoscale Variability in Denmark Strait**

Talk, November 2015, Woods Hole Oceanographic Institution, Woods Hole, MA, USA

**Exchange of warming deep waters across Fram Strait**

Talk, April 2015, European Geosciences Union General Assembly, Vienna, Austria

Talk, March 2015, Arctic Subarctic Ocean Fluxes Meeting, Bremerhaven, Germany

Talk, January 2015, Alfred Wegener Institute, Bremerhaven, Germany

Talk, November 2014, Alfred Wegener Institute, Bremerhaven, Germany

**Correction of ADCP compass errors resulting from iron in the instrument's vicinity**

Talk, December 2014, Alfred Wegener Institute, Bremerhaven, Germany

**The East Greenland Spill Jet as an important component of the Atlantic Meridional Overturning Circulation**

Poster, April 2014, European Geosciences Union General Assembly, Vienna, Austria

**On the Nature of the Atlantic Water Recirculation in Fram Strait**

Poster, February 2014, Ocean Sciences Meeting, Honolulu, HI, USA

Talk, November 2013, Arctic Subarctic Ocean Fluxes Meeting, Helsinki, Finland

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**Long- and Short-term Variability of the Currents in Fram Strait**

Poster, April 2014, European Geosciences Union General Assembly, Vienna, Austria

**Evidence for the Generation of Denmark Strait Overflow Water Cyclones Upstream as well as Downstream of Denmark Strait**

Talk, November 2013, Arctic Subarctic Ocean Fluxes Meeting, Helsinki, Finland

**Water Column Structure and Statistics of Denmark Strait Overflow Water Cyclones**

Talk, March 2014, Marine Research Institute, Reykjavik, Iceland

Poster, April 2013, European Geosciences Union General Assembly, Vienna, Austria

Talk, March 2013, Alfred Wegener Institute, Bremerhaven, Germany

Talk, January 2013, Johns Hopkins University, Baltimore, MD, USA

Talk, January 2013, Woods Hole Oceanographic Institution, Woods Hole, MA, USA

Talk, January 2013, University of Rhode Island, Narragansett, RI, USA

**Moored Observations of Shelfbreak Processes at the Inflow to and Outflow from the Arctic Ocean**

Talk, November 2012, Woods Hole Oceanographic Institution, Woods Hole, MA, USA

**On the Role of Denmark Strait Overflow Water Cyclones in the Deep Western Boundary Current**

Talk, October 2012, Applied Physics Laboratory, University of Washington, Seattle, WA, USA

Talk, September 2012, Massachusetts Institute of Technology, Cambridge, MA, USA

Talk, September 2012, Yale University, New Haven, CT, USA

**A Case Study of Denmark Strait Overflow Water Cyclones from a Cross-stream Mooring Array**

Talk, June 2012, Alfred Wegener Institute, Bremerhaven, Germany

Poster, February 2012, Ocean Sciences Meeting, Salt Lake City, UT, USA

**The East Greenland Mooring Array: Measurements in an Energetic Ocean**

Talk, June 2011, Atmosphere Ocean Science Days, Cambridge, MA, USA

Talk, February 2011, Woods Hole Oceanographic Institution, Woods Hole, MA, USA

**Two Configurations of the Western Arctic Shelfbreak Current in Summer**

Talk, September 2011, NASA Jet Propulsion Laboratory, Pasadena, CA, USA

Talk, May 2011, AMS 11th Conference on Polar Meteorology and Oceanography, Boston, MA, USA

Talk, December 2010, Alfred Wegener Institute, Bremerhaven, Germany

Talk, November 2010, Woods Hole Oceanographic Institution, Woods Hole, MA, USA

Talk, September 2010, Applied Physics Laboratory, University of Washington, Seattle, WA, USA

Poster, June 2010, Alpine Summer School, Valsavarenche, Val d'Aosta, Italy

Talk, February 2010, Ocean Sciences Meeting, Portland, OR, USA

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**Interannual Variability in the Pathways of the North Atlantic Current over the Mid-Atlantic Ridge and the Impact of Topography**

Poster, April 2007, European Geosciences Union General Assembly, Vienna, Austria

Talk, August 2006, Woods Hole Oceanographic Institution, Woods Hole, MA, USA