

Project title [Descriptive title of data project]	Aerosol In Climate ChangE Observational Datasets
Project acronym <i>will be used as folder name on /pool/data, e.g. ISIMIP3b</i>	ALIC2E
Principal investigator PI [full name, affiliation, email] <i>Long-term contact person for this data, e.g. group leader</i>	Prof. Dr. Stephanie Fiedler Institute for Environmental Physics Heidelberg stephanie.fiedler@uni-heidelberg.de
Applicant (if not the same as PI) [full name, affiliation]	M. Sc. Claus Sarnighausen Institute for Environmental Physics Heidelberg claus.sarnighausen@iup.uni-heidelberg.de
Allocation period [YYYY-MM-DD to YYYY-MM-DD] <i>Maximally a period of 5 years will be granted, but the period can be extended upon request once it is close to expire.</i>	2026-03-01 to 2031-03-01
Total data storage volume requested [in GB or TB] <i>Maximally 80 Tb can be granted for /pool/data user projects.</i>	80 TB
License allows data read-access [Yes or No] <i>The license of the data allows that all Levante users have read access to the data.</i>	Yes

Project overview

Provide a brief overview of the context in which the data was generated, including the creators and methods used. Include references to scientific publications, web links, or other detailed sources that describe the data, its evaluation, and its application, if available.

The shared pool data user project will be hosting reanalysis and observational datasets that are used for validation and model input in the ALIC²E (AerosoL In Climate ChangE) research group at the Institute for Environmental Physics. Our main focus are interactions between the composition and dynamics of the atmosphere, from weather to climate scales. We seek answers to questions about the role of aerosols and circulation in regional climate, including connections to the water cycle, interactions with land processes, and impacts on renewable energy generation.

Further information can be found on the group's website:

<https://www.iup.uni-heidelberg.de/de/forschung/atmosphaere/alic2e-fiedler-gruppe>

Data content

Provide a brief overview of the data to be stored in /pool/data. If possible, provide information on the: (a) Kind of Data: Observational or model data, gridded or point data, (b) Coverage: Temporal and spatial range, including resolution, (c) Variables: List of variables, (d) File Formats: e.g., NetCDF, CSV, GRIB.

Dataset Name	(a) Kind of Data	(b) Coverage	(c) Variables	(d) File Formats
CAMS global reanalysis (EAC4)	reanalysis, gridded	global, 3D 01/2003 - 12/2024	oper, moda: pm10, duaod550; moda: aod469, aod550, aod670, aod865, aod1240, u10,v10	grib
MERRA-2	reanalysis, gridded	global (1970 -2014)	u10,v10	nc
IGRA BUFR, saved up to 500hPa	observation, point (saved up to 500hPa)	global (station data)	latitude, longitude, pressure, nonCoordinateGeopotentialHeight, airTemperature, dewpointTemperature, windDirection, windSpeed, data_datetime, WMO_station_id, heightOfStationGround AboveMeanSeaLevel, heightOfBarometer AboveMeanSeaLevel	csv
Original SEVIRI data	RGB Satellite Images	Europe and Africa	SEVIRI products: https://space.oscar.wmo.int/instruments/view/seviri Simon is most likely using aerosol optical depth	netcdf
IFS data	Model output, gridded	global (1994-2014)	computed windspeed and dust uplift potential	nc
ICON	Model output, gridded	global (1994-2014)	computed windspeed and dust uplift potential	nc
Japan reanalysis (JRA-3Q)	reanalysis, gridded	global; 1947-present	pressure level: u,v; single level: slp, u10,v10	netcdf
China reanalysis (CRA40)	reanalysis, gridded	global; 1979-present	pressure level: u,v; single level: slp, u10,v10	grib
MIDAS	retrieval/ interpolation, gridded	global, 2D global; 2001-2022	total dod550, fine dod550, coarse dod550; aod550	netcdf

Envisaged scientific data usage

Describe potential applications and target communities for the data.

The pool data storage is primarily intended to store large datasets that are required as input for modeling or analyses within the ALIC²E research group. Results are presented at scientific conferences and published in peer reviewed journals. In every day work, the applied-for pool data augments the public pool datasets with specific data sets that is used often within the group. With the common focus on observed and modeled aerosol and related variables, such as wind, key datasets are used by Post-Docs, PhD and Master students. Having these datasets readily available will save individuals months of valuable time that can be put into research.

Data storage usage plan

Briefly specify the expected storage duration. Also, please note if the data volume will change over the allocation period due to new additions or updates

Major datasets listed above will be downloaded into the pool at the beginning of the storage period. Most of the datasets are expected to be relevant for the entire 5 year period. They will be kept up-to-date on an annual basis, and unused datasets or variables will be removed. If needed, variables and datasets are added to the pool.

Data Licenses and Data Citation

Specify the licenses associated with the data and any usage restrictions. Additionally, outline how users must attribute the data, providing the required citation details.

All datasets listed above are distributed under the Creative Commons Attribution 4.0 International (CC BY 4.0), the Creative Commons Zero (CC0), except Climate Research Unit (CRU) data, which is published under the Open Government License v3.0 and the CRA-40 reanalysis. All of the data can thus be used in scientific publications under the condition that the source is cited and that changes made to the data are transparently described.

For each dataset added to the pool data, a README file will contain the date of access, the License, Citation, and changes made to the dataset.

References

List here the citation you are referring to in the text above. Preferentially in ACP style..

Integrated Global Radiosonde Archive (IGRA): <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>, last access: 11 August 2025.

Copernicus Atmosphere Monitoring Service: CAMS global reanalysis (EAC4), <https://doi.org/10.24381/D58BBF47>, 2020.

Copernicus Climate Change Service: ERA5-Land hourly data from 1950 to present, <https://doi.org/10.24381/CDS.E2161BAC>, 2019.

EUMETSAT and European Organisation For The Exploitation Of Meteorological Satellites: MSG15RSS0100MSG15-RSSSEVIRI Rapid Scan High Rate Level 1.5 Image Data Climate Data Record Release 1 - MSG (1), https://doi.org/10.15770/EUM_SEC_CLM_0098, 2024.

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Gkikas, A., Proestakis, E., Amiridis, V., Kazadzis, S., Di Tomaso, E., Tsekeri, A., Marinou, E., Hatzianastassiou, N., and Pérez García-Pando, C.: ModIs Dust AeroSol (MIDAS): a global fine-resolution dust optical depth data set, *Atmos. Meas. Tech.*, 14, 309–334, <https://doi.org/10.5194/amt-14-309-2021>, 2021.

Kosaka, Y., Kobayashi, S., Harada, Y., Kobayashi, C., Naoe, H., Yoshimoto, K., Harada, M., Goto, N., Chiba, J., Miyaoka, K., Sekiguchi, R., Deushi, M., Kamahori, H., Nakaegawa, T., Tanaka, T. Y., Tokuhiro, T., Sato, Y., Matsushita, Y., and Onogi, K.: The JRA-3Q Reanalysis, *Journal of the Meteorological Society of Japan*, 102, 49–109, <https://doi.org/10.2151/jmsj.2024-004>, 2024.

Liu, Z., Jiang, L., Shi, C., Zhang, T., Zhou, Z., Liao, J., Yao, S., Liu, J., Wang, M., Wang, H., Liang, X., Zhang, Z., Yao, Y., Zhu, T., Chen, Z., Xu, W., Cao, L., Jiang, H., and Hu, K.: CRA-40/Atmosphere—The First-Generation Chinese Atmospheric Reanalysis (1979–2018): System Description and Performance Evaluation, *J Meteorol Res*, 37, 1–19, <https://doi.org/10.1007/s13351-023-2086-x>, 2023.

Numerical Prediction Division, Information Infrastructure Department: The Japanese Reanalysis for Three Quarters of a Century, <https://doi.org/doi:10.20783/DIAS.645>, 2022.