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## Stable isotopes in stratospheric carbon monoxide

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# Data availability

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All the data is store on the Centre For Isotope file server, for access contact the CIO secretariat. The data gathered during the work presented in this dissertation is publicly available, or will be made so in due time. This includes the raw data of many of the published datasets. There are a couple of exceptions to this. First the raw CLaMS data as well as CALIOP data is not stored here. Secondly, raw measurements of the IRMS are backed up by IMAU. Furthermore only a selection, the portion used here, of the ECHAM5/MESSy data can be found on the file server. CAMS reanalysis data is publicly available after registration. An overview of the data used in this dissertation can be found in Table 7.2.

**Table 7.2:** The data that is used in this work. A description of the data is presented . The second column indicates the chapters in which the data was used. A doi is provided; if no doi exist url to webbased access the link is provided in the reference list, a - indicates no doi exists, and that the data is not published. A references is given in the final column in case it was published elsewhere. A 10.18758/71021048, B [https://datapub.fz-juelich.de/slcs/clams/wildfire\\_aircore](https://datapub.fz-juelich.de/slcs/clams/wildfire_aircore), C 10.5067/CALIOP/CALIPSO/CAL\_LID\_L1-VALSTAGE1-V3-40, D <https://ads.atmosphere.copernicus.eu/cdsapp#!/dataset/cams-global-reanalysis-eac4?tab=overview>, E yet to be determined, and F stored on the CIO file server.

Description	doi/link	Reference
LISA sampler data	E/F	(Hooghiem et al., 2018)
Storage test measurements	F	(Hooghiem et al., 2018)
Chamber pressure data	F	(Hooghiem et al., 2018)
AirCore data	A/F	(Sha et al., 2019)
CLaMS back trajectories	B/F	(Hooghiem et al., 2020)
CALIOP	C	(NASA/LARC/SD/ASDC, 2016)
CAMSRA	D/F	(Inness et al., 2019)
ECHAM5/MESSy	F	(Hooghiem et al., 2021)
CO Stable isotope measurements	F	(Hooghiem et al., 2021)

The main scripting language used to process raw data, is the Python programming language. Most notably the libraries NumPy (Numerical Python) and SciPy (Scientific computing in Python) for the analysis, and the Matplotlib plotting library is used for producing most of the figures a full list of software including its version is given in Table 7.3, all which is open source. The scripts for the analysis performed in this work is on a Github library and will appear online in due time. Scripts are stored that analyse the raw data, produce the figures in this a manuscript. Furthermore the entire set of software, which runs on a machine with x86-64 architecture and the Arch

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Linux kernel, will be stored on the CIO file server. Other important tools used for manipulating netCDF data format, are NCO and CDO. Name and version of the used software is presented here.

**Table 7.3:** Software and version used for the analysis of the data in this work. Note that dependencies are not listed.

Software	Version
cdo	1.9.10-0
gcc	11.1.0-1
glibc	2.33-5
linux	5.15.5.arch1-1
linux-api-headers	5.12.3-1
linux-firmware	20211027.1d00989-1
linux-headers	5.15.5.arch1-1
nco	4.9.8-1
netcdf-openmpi	4.8.1-1
python	3.9.9-1
python-basemap	1.2.2-2
python-matplotlib	3.5.0-1
python-netcdf4-openmpi	1.5.7-2
python-numpy	1.21.3-1
python-pandas	1.3.4-1
python-scipy	1.7.3-1
python-statsmodels	0.13.0-1