**CODC-GOSD**

**Format Description (single profile netCDF)**

The netCDF file provides detailed metadata information and records of quality control and systematic bias corrections for each profile. The netCDF files are compressed in units of years, 82 years in total from 1940 to 2021 (82 tar.gz files).

**Main Variables**

* **z**: depth records (one-dimension)
* **Temperature**: temperature records，the number of observed levels is the same as the depth records. (one-dimension)
* **Salinity**: salinity records，the number of observed level is the same as the depth records. (one-dimension)
* **dataset**: observational type (one of the following types: OSD (bottle/rossette/net), XBT (Expendable bathythermograph), CTD, GLD (Glider), APB (Autonomous Pinniped Bathythermographs), MBT (Mechanical Bathythermographs), MRB (Moored Buoys), UOR (Towed CTD), PFL (Argo), STD, and MicroBT)
* **lat**: latitude record
* **lon**: longitude record
* **date**: observation date
* **Temperature\_CASflag**：temperature qaulity control flag by CODC-QC. Flag=0 denotes good data, flag=1 denotes bad (rejected) data. At present, only temperature QCed data are available by CODC-QC. For more information about the CODC-QC, please refers: [http://www.ocean.iap.ac.cn/](http://www.ocean.iap.ac.cn/pages/dataService/dataService.html?navAnchor=dataService)
* **temp\_XBT\_cor**, **z\_XBT\_cor**: Depth and temperature corrected data by CH14 XBT systematic bias correction method. The number of observed levels is the same as the depth records. (one-dimension). For more information about the CH14 method, please refers: [http://www.ocean.iap.ac.cn/](http://www.ocean.iap.ac.cn/pages/dataService/dataService.html?navAnchor=dataService)
* **temp\_MBT\_cor**, **z\_MBT\_cor**：Depth and temperature corrected data by GC20 MBT systematic bias correction method. The number of observed levels is the same as the depth records. (one-dimension). For more information about the GC20 method, please refers: [http://www.ocean.iap.ac.cn/](http://www.ocean.iap.ac.cn/pages/dataService/dataService.html?navAnchor=dataService)
* **temp\_BOT\_cor,** **z\_BOT\_cor**：Depth and temperature corrected data by GC22 Bottle systematic bias correction method. The number of observed levels is the same as the depth records. (one-dimension). For more information about the GC22 method, please refers: [http://www.ocean.iap.ac.cn/](http://www.ocean.iap.ac.cn/pages/dataService/dataService.html?navAnchor=dataService)

**Format of netCDF filename**

When the file is successfully decompressed, each temperature and salinity profile is stored in a netCDF file. The format of each netCDF file is:

* **CAS<version>\_<T/S>\_<yyyymmdd>\_<order>\_<type>.nc**

in which，<version> represents the version of CAS-GOSD (the latest version is v1)；<T/S> represent the variable type, “T” denotes temperature profile, and “S” denotes salinity profile (if “T” and “S” are obtained, it means the profile has the temperature and salinity record at the same time)；<yyyymmdd> represents the observational date (YYYMMDD)；<order> represents the order of the observational date; <type> represents the instrument type (the same as “dataset” variable, “999” denotes unknown type.

For example, “CASv1\_T\_S\_19400703\_00011\_BOT.nc” denotes a bottle temperature and salinity profile data in the version 1 of CAS-GOSD database. The observation date is July 3rd, 1940. The order number is 11 on July 3rd, 1940.

**DATA CITATIONS**

Tan Z., Cheng L., Gouretski V., Zhang B., Wang Y., Li F., Liu Z., Zhu J., 2023:  A new automatic quality control system for ocean in-situ temperature observations and impact on ocean warming estimate. Deep Sea Research Part I, 103961, <https://doi.org/10.1016/j.dsr.2022.103961>

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