Name: SOP for vessel:meteor:tsg_meteor:sbe_38_0749 (7493)
Version: 1.0
Valid from: 2022-10-06
Status: This is a **public version**. Certain sensitive information, such as server names, addresses, and exact paths and storage locations that is not meant for others than AWI associates was removed in that document.

Changelog:

1. 2023-01-12
    - initial publication

1. Contacts/Responsible Persons

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2. Purpose & Scope

Description: This SOP describes device configuration, parameter characteristics, transmission and processing of its output, ingest procedure, storage, data access possibilities, and publishing. Intended user groups are device owners, technicians, and data managers.
Comment: This item is managed and processed by the Deutsche Allianz Meeresforschung (German Marine Research Alliance), please see www.allianz-meeresforschung.de for further information.

3. Item Description

Short Name: SBE_38_0749
Long Name: SBE 38 Digital oceanographic thermometer
URN: vessel:meteor:tsg_meteor:sbe_38_0749
ID: 7493
UUID: b8115f80-0be3-42e5-b9fc-581d9020cfaa
Description: Thermometer with housing for depths up to 10500 m. Used as remote temperature sensor for the SBE 21 Thermosalinograph. Installed near the water inlet connection at starboard side.
Serial No.: 0749
Manufacturer: Sea-Bird Scientific
PID/Handle: https://hdl.handle.net/10013/sensor.b6d9e55f-5420-4fcf-938a-4c6b027f9657

4. Parameter Description

Short Name: water_temperature
Long Name: water temperature
full URN: vessel:meteor:tsg_meteor:sbe_38_0749:water_temperature
ID: 87922
UUID: 95d33861-488b-45a0-b27a-1ffdcb193a85
Type: water temperature
Unit: °C
Comment:
Measurement Properties: none

5. Processing

This instrument measures temperature of sea water (Sea-Bird Electronics 2020). Usually, an additional thermosalinograph SBE21 (Sea-Bird Electronics 2015) is related to the SBE38. All data are stored through the data management system DAVIS-SHIP (DSHIP). After the cruise all data are transfered to the DSHIP land system. From there data are obtained for further evaluation.

5.1. Acquisition

The SBE38 is installed directly at the sea water inlet in about 5m depth (Bergmann 2021).
Auxiliary Files:
Name: *"Meteor" Bordhandbuch für Expeditionsteilnehmer*
Type: Manual
Description: General overview on the research vessel Meteor with detailed information on onboard scientific devices
URL: https://fiona.uni-hamburg.de/d1574276/meteorhandbuch.pdf
Last Modification: Jan. 2021

Name: *SBE21 SeaCAT Thermosalinograph*
Type: Manual
Description: User manual of SBE45 MicroTSG Thermosalinograph
URL: https://www.seabird.com/asset-get.download.jsa?id=54627862330
Last Modification: 2015

Name: *SBE38 Digital Oceanographic Thermometer*
Type: Manual
Description: User manual of SBE38 Digital Oceanographic Thermometer
URL: https://www.seabird.com/asset-get.download.jsa?id=54627862501
Last Modification: 2020

5.2. Extraction

Data are extracted from the DSHIP land system at BSH (dship.bsh.de). The data are stored per cruise and extracted likewise. Together with accompanying system parameters like latitude, longitude, ships speed, and flow rate

through the system, all relevant SBE38 parameters are extracted in one-second resolution. Output of the extraction is the usual DSHIP export, consisting of a folder with three files, (1) a *.dat ASCII-data file, (2) a *.xml order-file and (3) a *.sys log-file.
Auxiliary Files: none

5.3. Conversion

The aforementioned DSHIP-Export is processed with Python with the following steps: (1) parsing of the data file with the output of a Geodataframe using the time as index, (2) checking for dummy-values, (3) comparison of position data against Mastertrack, (4) checking whether position data are in an EEZ, (5) averaging into one-minute means, (6) several quality tests (global range test, spike test, gradient test, test of adjacent values, flow speed test), and (if applicable) (7) calibration of temperature data with independent data (usually CTD data from inlet depth).
Software: -
Network Share Name: - ← *public version, input cropped*
Filename Convention: -
-
Auxiliary Files:
Name: -
Type: -
Description: -
URL: -
Last Modification: -

6. Ingest

Ingest is part of the O2A process chain (Koppe et al. 2015, Gerchow et al. 2017) and is the starting point to collect, store, and redistribute data and metadata.
There is no automated data transfer available for this workflow. All data must be retrieved manually from BSH.
Protocol: MDM
Project path: *public version, input removed*
Campaign Data: yes
Filename Convention: per campaign
Expected Data Interval: per campaign
Ingest Data Interval: per campaign
Mapping: -
Save Directory: -
json/xml:
Script: -
Script call:
Repository: -

7. Storage

7.1. Raw Data

Location *public version, input cropped*
Backup Policy: does not apply

7.2. Near Real-Time Data

Info: no NRT for this workflow
Service: link to near real-time data service

7.3. Publications and further Reading

Publication: Wollschläger and Schlundt 2022, Menapace and Schlundt 2021, Koschinsky and Schlundt 2021, Hübscher and Schlundt 2022, Hansteen and Schlundt 2022, Grevemeyer and Schlundt 2022, Geldmacher and Schlundt 2022, Dürkefälden and Schlundt 2021, Achterberg and Schlundt 2022
Further Reading: This device and workflow is part of DAM, please check https://www.allianz-meeresforschung.de/ for further information.

References

Achterberg, Eric Pieter and Michael Schlundt (July 2022). "Continuous thermosalinograph oceanography along RV METEOR cruise M176/2". en. In: DOI: 10.1594/PANGAEA.946388. URL: https://doi.pangaea.de/10.1594/PANGAEA.946388 (visited on 09/21/2022).

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Gerchow, Peter, Roland Koppe, Ana Macario, Antonie Haas, Christian Schäfer-Neth, Hans Pfeiffenberger, and Angela Schäfer (Nov. 2017). "O2A - Data Flow Framework from Sensor Observations to Archives". In: *EPIC3 Digital Infrastructures for Research 2017, Brussels, 2017-11-30-2017-12-01Brusseles, DI4R 2017 conference*. Brusseles: DI4R 2017 conference. URL: https://indico.egi.eu/indico/event/3455/session/1/contribution/114/material/slides/1.pdf (visited on 01/21/2020).

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Koschinsky, Andrea and Michael Schlundt (Nov. 2021). "Continuous thermosalinograph oceanography along RV Meteor cruise M169". en. In: DOI: 10.1594/PANGAEA.938474. URL: https://doi.pangaea.de/10.1594/PANGAEA.938474 (visited on 09/21/2022).

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