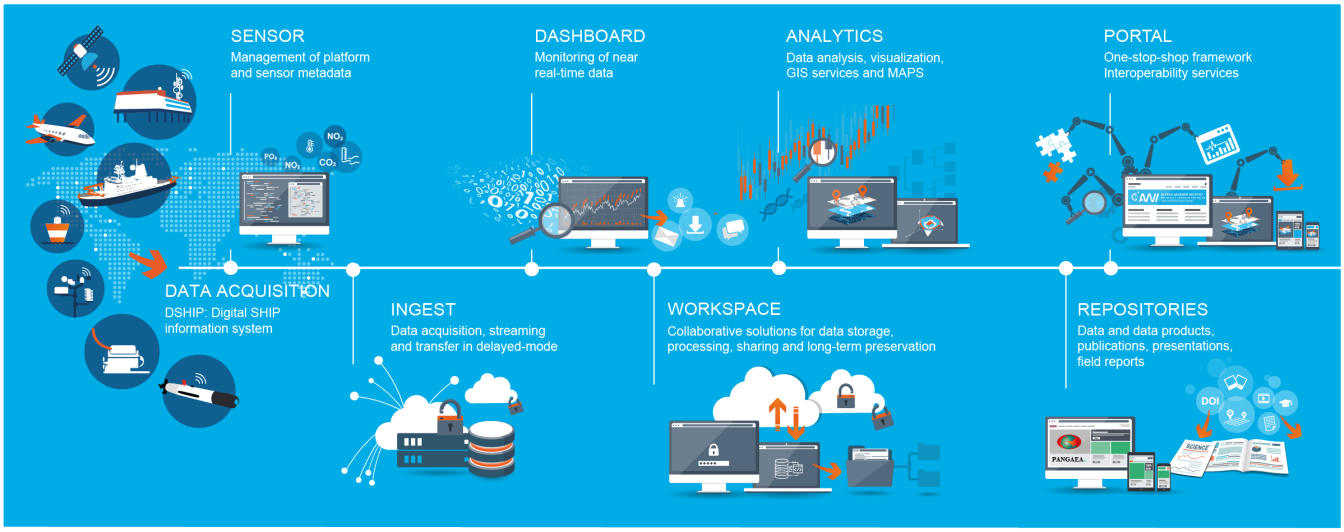
MOSAiC Data Management Concepts

- MOSAiC Central Storage (MCS)
- Handling of Analytical/Lab Data in MCS, SENSORWeb and DSHIP
- Handling of Coring-Events in MCS, SENSORWeb and DSHIP
- Update or add DSHIP-Device Operations for past legs
- Export DSHIP data on land
- Polarstern Devices: DShip data management systems

The metadata flow of MOSAiC is based on the O2A framework:



General Data Flow

Data annotated with metadata regarding device description and device operation will be stored in the onboard MOSAiC Central Storage (MCS) and transferred to the AWI storage (land MCS) after each leg. The land MCS will be accessible only to MOSAiC Consortium members prior to the data public release date 1.1.2023.

Data flow onboard Polarstern in MOSAiC

From left to right: Metadata of every instrument is registered in SENSOR. Data acquisition is logged with DSHIP Actionlog. Data is ingested into the MOSAiC Central Storage (MCS). Ingested data can be monitored with different tools providing that it is converted accordingly and registered appropriately with the monitoring tools. Data analysis onboard is supported with virtual workspaces. Eventually all data shall be published in an appropriate data repository, e.g. PANGAEA.

SENSOR

All devices used in MOSAiC must be registered in the SENSORWeb!!!

Due to limited network connections during the expedition, this has mainly has to be done prior to the respective leg of MOSAiC.

Handles for the versions of the devices in SENSOR can be published with the data in PANGAEA. This requires versions to be saved within SENSOR.

DShip

Every operation of a device must be registered in the DShip Action Log.

The devices in SENSOR are synchronized with DSHIP. By registering a usage of a device in the DShip ActionLog a device operation ID is created. Log entries contain information on Date, Time, Longitude, Latitude amongst others. Device Operations are synchronized back to SENSOR.

IceFloeNavi App

Used for logging sampling activities on the ice.

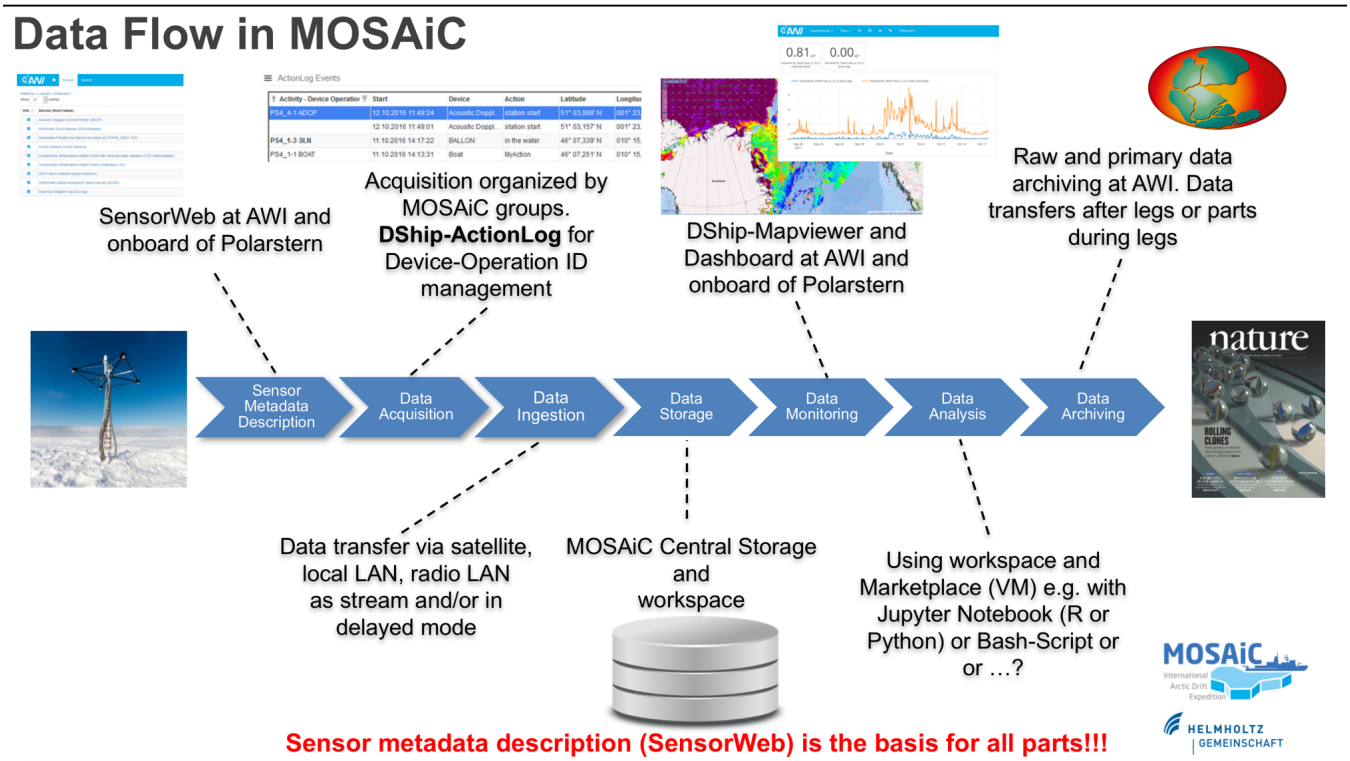
Devices are imported from DShip and device operations are synchronized back to DShip. Thereby information based on a relative coordinate system calculated with the use of AIS transponders is attached to device operations in the DShip ActionLog

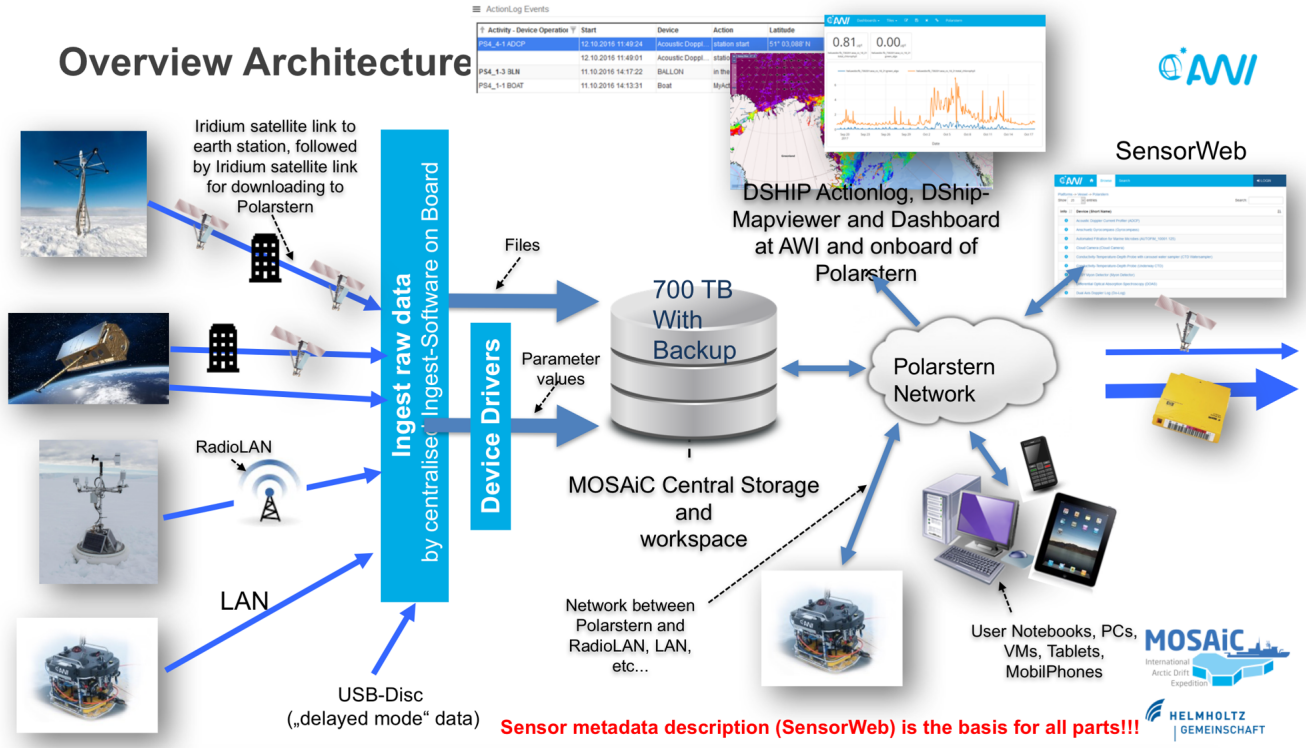
Raw data on MCS

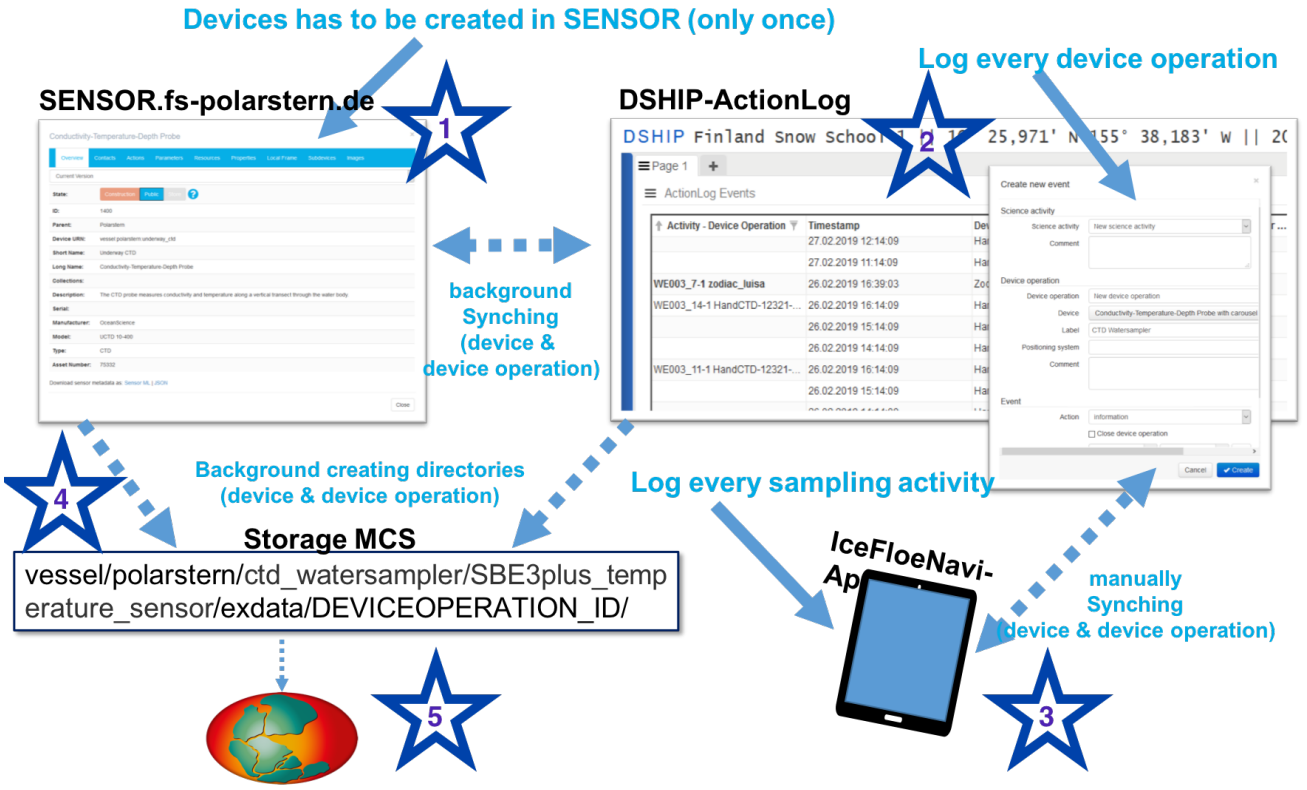
The MOSAiC Central Storage (MCS) is the main storage platform for you raw data.

The directory structure on the MCS is derived from the URN of the device entered SENSOR. Each respective device or subdevice folder will contain a subdirectory named according to the device operation ID in DShip in which the device was used. Raw data obtained during each device operation have to be uploaded (automatically or manually by Data PI) to the respective subdirectory.

Overview charts on data infrastructure during MOSAiC







Introductory Slides on Data Management presented in September in Tromsö during Safety Briefing: MOSAiC_DataManagement_SafetyBriefingTromso.pdf