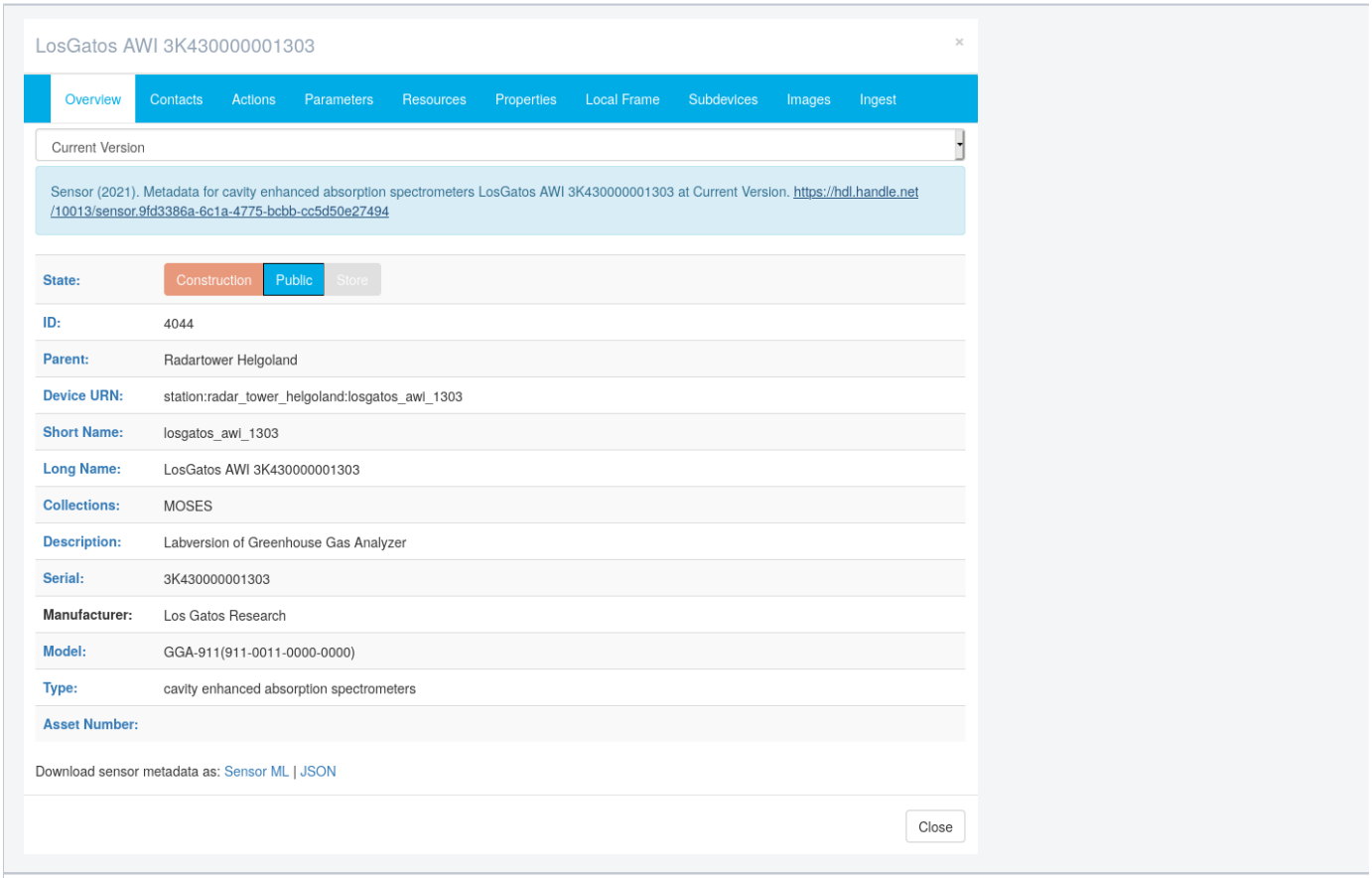
Overview

Item types

Generally speaking: everything is an item in registry.awi.de, covering the whole range of platform-like items. Examples of items in sensor.awi.de are not only vessels, AUVs, or measuring stations, but also collecting instruments, such as fish nets, pumps, or grabbing systems, and the sensor itself, such as methane sensor, piezometer, and nutrient analyser.

We always strive to use standardized vocabularies to describe items in registry.awi.de, such as NERC (BODC 2021). Thus, for instance, the item "*losgatos_awi_1303*" can be attributed to one of the **cavity enhanced absorption spectrometers** operated at AWI (http://vocab.nerc.ac.uk/collection/L05/current/LAB38/2/). Nonetheless, items cannot always be attributed with standardized vocables.

Every item must be assigned to a type (see table below). In the example, the *LosGatos AWI 3K430000001303* is of type cavity enhanced absorption spectrometers. Its parent item is the station *Radartower Helgoland*.



Overview tab of LosGatos AWI 3K430000001303 (4044) – Labversion of Greenhouse Gas Analyzer – at registry.awi.de.

Short names and URN syntax

Short names are the semantical foundation of every item. They are required to be as unique as possible, so it has proven to be good practise to attach the serial or asset number to the item, e.g. *losgatos_awi_1303*.

Even if there are numerous examples, short names shall be **lower case only**. Technically it is possible to set them upper case, but there are other places in the process chain that are case-sensitive. Be also aware that you cannot create items with the same short name under one parent item.

The respective setup of an item can be derived from the full URN (Uniform Resource Locator). It is the concatenation of all participating items, e.g.:

- **station:radar_tower_helgoland:losgatos_awi_1303**: the item *losgatos_awi_1303* is mounted to the *station:radar_tower_helgoland*
- **vessel:mya_ii:fb_741202:fsi_9999a**: the *FSI_9999a* (type: *thermosalinograph*) is attached to *FB_741202*, and in return that is mounted to *Mya_II*

The topmost item in the URN hierarchy is also stated with its item type, such as *vessel*.

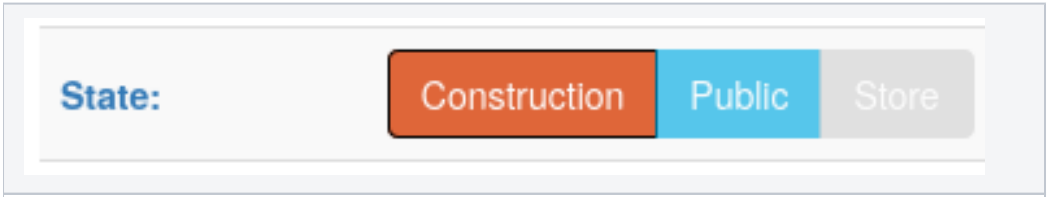
Occasionally items are not assigned to a specific parental item, e.g when drifters are deployed somewhere. Then the URN reads without parental item, e. g. *drifter:drifter_gmr_bgcd01* (*6070*) and it is a free-floating item with a URN syntax derived from the item type.

Recently the development of registry.awi.de brought UUIDs for everything. The item *station:radar_tower_helgoland:losgatos_awi_1303* has the UUID af127496-b8a6-4c4d-9b95-8c42f6a22afe. As of today (2021-06-17 15:18:15) UUIDs are only available via API.

Status of an item

Newly created items are assigned the state **construction** and can be seen and accessed by the owner (you) exclusively. Only items set to **public** are readable in public. If the item is not operative at the moment send it to **devicestore** and it is still accessible to others. If there are larger changes to the item and it (might) take a while until it is used again, please set it to **construction** again.

In the UI only three states are available to the editors. If you want to retire (**decom**) an item, the API must be utilized.



Available states in the UI

Available states via API

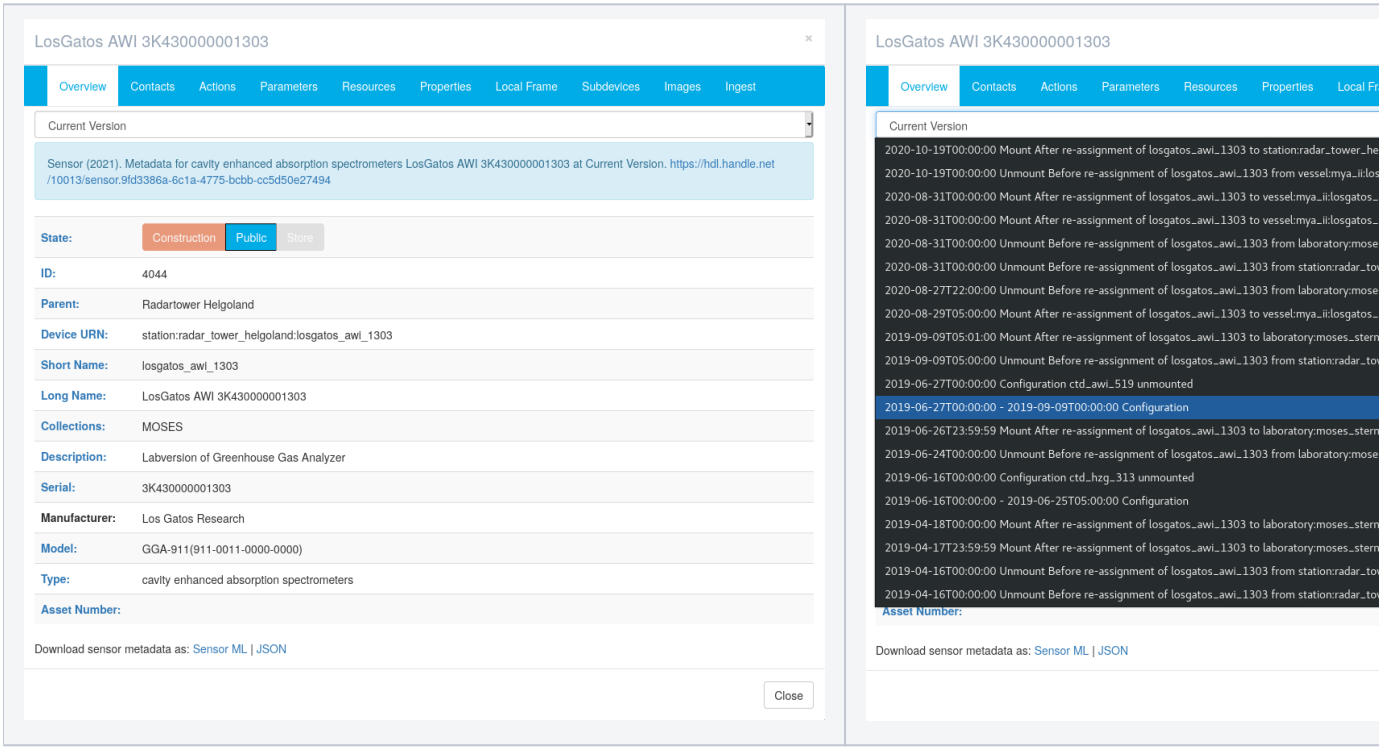
name	id	meta	uuid
public	1	Item is completely describe and in use	a080ff68-30b2-450a-9a44-06ecd244c0b7
construction	2	Item description is currently being created	380e59eb-5f70-4d6f-9f79-c212c5141e20
devicestore	3	Item is currently not on a mission	d251b7d5-3476-4606-81d4-1f76632eb802
decom	4	Item is retired and not used anymore	8fa8fd50-a2bf-49ea-991d-03b85cee1b7f

History and Citing

In .awi.de the history per item is tracked. Two entities must be considered: history of item configurations and history of item operations.

In the UI always the most recent configuration of the item is displayed. Former **item configurations** are accessible via the dropdown menu (below the blue bar on the top). Each item version comes with a PID, such as https://hdl.handle.net/10013/sensor.8e03063e-6179-48b4-b626-a25573727623, thus you can specificly address and reference a certain setup of your device, e.g. in reports or articles. This was used for example by Wulff, Lehmenhecker, and Hagemann (2016) when they referenced https://doi.pangaea.de/10013/sensor.664525cf-45b9-4969-bb88-91a1c5e97a5b to describe configuration of an AUV.

Following the link leads to a former setup of the item. (link: https://hdl.handle.net/10013/sensor.9fd3386a-6c1a-4775-bcbb-cc5d50e27494)



Remark: Some actions necessarily create a new version (https://spaces.awi.de/x/0oa0FQ). Versioning is permanently applied to all items and subitems, even if an action is applied to an item but not to its subitems each subitem gets a new handle as well, however, the action itself is not written to the subitems. This behavior is intended to have a proper documentation of the items, even if parts are not involved in certain phases of a measurement procedure.

For **item operations** the Actions (see https://spaces.awi.de/x/0oa0FQ) are the place to store and handle such things.

References

- British Oceanographic Data Centre. 2021. “NERC Vocabulary Server.” *The NERC Vocabulary Server, Natural Environment Research Council*. https://vocab.nerc.ac.uk/.
- Wulff, Thorben, Sascha Lehmenhecker, and Jonas Hagemann. 2016. “Carbon Dioxide Measurements Along AUV Track MSM29_440-5.” *Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven*, January. https://doi.org/10.1594/PANGAEA.857507.

Available item types

id	systemName	description	uuid
533	accelerometer		02bd0a54-9159-43ef-95ba-ef471743b073
269	acoustic_backscatter_sensor	Instrument that measures the amount of sound energy transmitted into the water column returned to the instrument.	1e4b1257-131f-465b-81d7-ede5e893db99
248	acoustic_doppler_velocimeter	ADV is the acronym for acoustic doppler velocimeter. The group includes all in-situ instruments that make high frequency measurements of three-dimensional current velocity in order to determine the extent of turbulence within a water body.	49e201a0-46ae-4915-85dd-341d4fbbd1b1
144	aerosol_sampler	A device that collects a sample of aerosol (dry particles or liquid droplets) from the atmosphere.	ba06dcce-aa4e-4633-ad2e-2f9792d4fc4e
514	air_data_computer		e663665e-963d-41a0-93b9-2af75d17767b
361	Air_sampler	A device that collects a sample of air from the atmosphere	2551a4a0-bedf-4572-942c-f5368c709108
254	aircraft	A fixed-wing self-propelled aircraft.	f8c88892-963b-4484-8146-bb0c23623d08

380	Airgun_Seismic_Source	Air Gun as seismic source towed by a vessel in the ocean to generate a controlled seismic signal - one type of several seismic sources	1234c3bd-078f-4e34-9d44-68a93dcebc06
485	airspeed_vector_system		9f6a822e-bb32-4291-8950-2376dfe727b6
250	alkalinity_sensor		d6df4c16-bf07-4a7d-8ab5-b402219b61b4
150	altimeter	Instruments that measure their distance above a specified elevation such as the sea surface or the seabed. Classification includes acoustic and pressure-based instruments that are designed to provide platform z co-ordinate spatial coverage in the atmosphere or a water body. It excludes remote sensing instruments such as LIDAR and satellite radar altimeters designed to map surface elevation.	3bc430cb-2f02-4278-a9bf-2eb8fd6fdfbe
390	anemometer	Windspeed Sensor	d6e6478c-235d-4e19-b461-d48712eadd75
229	autoanalyser	Autoanalyser	cb640784-b5df-451e-b987-4007f802e2b6
518	autonomous_surface_water_vehicle	A self-propelled vehicle operating on the sea surface with no human occupants.	5136aeb1-b38e-4a0f-a69a-914456a24acd
136	autonomous_underwater_vehicle	Autonomous underwater vehicle	4e3a4e6e-5dd6-463d-9b27-04476f2cf471
168	bathythermograph	Instruments that measure vertical profiles of sea temperature by either lowering a pressure plus temperature senor package (MBT) or dropping a free falling disposable sensor (XBT).	8491757d-5078-4987-8720-f9b0549abd98
251	battery_pack		95483ab3-1065-4637-a360-38af1f4b6923
166	benthic_incubation_chamber	A device that isolates a portion of seabed plus overlying water from its surroundings. Either returns the entire system to the surface or incorporates sampling devices and/or in-situ sensors.	40474f10-4dd6-46c7-a95a-36076abd1554

155	benthos_sampler	A net or sledge dragged across the seabed designed to sample benthic fauna.	de03a8c5-40ab-4d21-935d-a1e6c4293c52
544	bioacoustic		b91cb7f3-3623-4c29-a857-21c1fdb557a4
357	Bottom_Net		67047f31-4d87-4988-8684-24addd80639c
263	bottom_pressure_recorder		e52c12c1-ebe4-4fb0-9d0a-c07bb59cd930
540	broadband_radio	Real-time phased array digital radio units	4dc09c54-4498-4213-a5ec-53217363cccd
393	broadband_radiometer		1e699f52-24d2-4356-a7f6-050ab27f98a7
232	buoy	An undrogued (i.e. no sub-surface parachute) surface float that is deployed in regions where sea ice forms that moves with either ice or water depending upon the time of year.	958f789f-ed05-49a6-a030-cc2f90e7fab7
465	camera		1c65b58e-a3b4-4c52-bc8d-29ff9587e54b
537	cavity_enhanced_absorption_spectrometers	Instruments that illuminate a sample inside an optical cavity, typically using laser light, and measure the concentration or amount of a species in gas phase by absorption spectroscopy. Techniques include cavity ring-down spectroscopy (CRDS) and integrated cavity output spectroscopy (ICOS).	e967b68f-5471-4e08-a109-670c676116bb
538	cavity_ring_down_spectrometer	A device to apply a highly sensitive optical spectroscopic technique that enables measurement of absolute optical extinction by samples that scatter and absorb light.	024d5d81-864b-4a2f-8ea2-be7ec3b6132c
441	chamber_for_gas_sampling		8e11605b-ad12-4650-8b87-f18a5466f9d5

137	chirp	Chirp systems emit a swept-frequency signal, meaning that the transmitted signal is emitted over a period of time and over a set range of frequencies. This repeatable (transmitted) waveform can be varied in terms of pulse length, frequency bandwidth, and phase /amplitude. A matched filter, or correlation process, collapses the swept frequency modulated (FM) received signal into a pulse of short duration, maximizing the signal-to-noise-ratio. The reflected signal is received by a tuned transducer array that generates the outgoing acoustic energy. Chirps operate within a range of 400Hz - 24 kHz and are used for the first 20-30 metres of unconsolidated sediments.(sub bottom profiler)	cd4c962d-7bd2-44c1-b47b-8621094dfc06
377	Cloud_Condensation_Nuclei	http://vocab.nerc.ac.uk/collection/P04/current/G106/	28590e5b-a42f-4e80-bb25-beeaf26a17e6
379	Cloud_Radar_System	no further information	31a78d77-5b1f-452c-b1db-b641d3be1b5b
400	CO2_analyser	CO2 ANALYZERS	4b4ee3fa-52f7-45bc-9c08-7eee78722247
358	CO2_Sensor		70faeb53-846b-4daf-a3cd-106544f17db2
288	compass		3d9c2034-af83-4b6d-9f20-fe58d559da56
541	computer		60c8a7fb-2ee0-42d1-99ef-0d066509255f
283	conductivity_meter		a91b7e6b-c826-458d-a672-8aec35e581c2
355	Corer		f530f055-45d6-426d-815b-77e1acc85247
122	CTD	A package lowered and raised vertically from a surface platform, usually a ship, always carrying pressure, temperature and conductivity sensors. Addional optional sensors include fluorometers, transmissometers and radiometers. The package may also carry water bottles.	a9d74710-fd32-4820-b27b-5b01a9286138
140	current_meter	Instrument that measures current speed and direction at a single depth.	12fd2d50-8ce5-4909-aa25-14d1e6eb1757

127	current_profiler	Instrument that measures current speed and direction at multiple predetermined depths simultaneously.	a48763cf-66b7-4bae-b4f2-99560cd9087e
462	data_logger		c5a1d3a4-3485-425c-b429-fbe5b371896d
237	device_store	Device Store	bb84ef56-a267-4bd8-9d35-1e5b10c2f3e8
519	dielectric_probe	dielectric probe	946a92e4-ab46-49ba-ac1b-0d27b95170db
375	Differential_Optical_Absorption_Spectrometers		6f670fd9-a08c-41e5-9c14-2229381ad278
214	dissolved_oxygen_sensor	Dissolved Oxygen Sensor	f82d201d-8dc6-4c54-9cb3-7f69ebbeb333
464	distributed_temperature_sensor		ed728ce4-ac46-4f10-ab44-cda2f2d82d44
339	Dredge		03eacf4f-b468-4947-ba39-c33c0c93d32b
340	Drifter		20ac57d1-2ca9-49e2-bb65-f9227da8c7bc
337	Drill		b0ede8ca-dd55-483d-a1fc-1fd5ca2902b6
290	echo_sounder	An instrument that measures the depth of water by transmitting pulses of sound and determining the time taken for the seabed echo to return.	eb835665-0d1c-4842-9876-cf2d94039b0e

536	ferrybox		fed3ec43-a28e-48f5-a4df-de1600ecc84a
356	Fish_Net		1338dc0b-672a-41b9-b090-9d4751ff3826
473	fishing_gear		d3cd8b8b-3fa0-426b-9a7f-bc72025f84c3
351	float	A free-floating platform either on the surface of the water column or at a predetermined depth within the water column.	6b520f34-e384-4da3-999c-2724e3b01afa
510	flowmeter		ca778620-e8d5-49c0-938c-9d1f3257473f
245	fluorescence_Sensor	Fluorescence Sensor	726318e6-cd42-4f07-b5ff-79d43f4dfc88
152	fluorometer	Instrument that measures the amount of stimulated electromagnetic radiation produced by pulses of electromagnetic radiation emitted into the water column.	c6c00ff3-258e-40ca-8d0e-e0c9157834f4
467	flux_plate		852a3fa9-c64e-4022-b01b-1976dd978496
417	frost_point_hygrometer		8335c528-a46e-4093-9fe2-e294aedefa9d
469	gas_analyzer		492ce3f9-81d9-476e-888b-8970f5aa9b36
399	gas_chromatograph	Instruments separating gases, volatile substances or substances dissolved in a volatile solvent by transporting an inert gas through a column packed with a sorbent to a detector for assay.	5019ae1d-17ad-4a44-8210-8ad0d9067c6a

135	glider	Glider	c7fdebfd-58c6-44bc-ac41-d0abca32c7fb
499	GPS_receiver		13882578-d9eb-4d18-ba89-664503c9c939
338	Grab		5825acd0-e385-41e1-8bd2-4809ce2f3150
148	gravimeter	Instrument that makes measurements of the Earth's gravity field.	e1649c8b-77a1-46e3-9eec-8638ccd0a135
345	Heat_Flow_Probe		f744658d-f14c-4d0b-bd1f-936e30b7d6bc
521	High_Throughput_Sequencer	High Throughput Sequencer	60e3d56b-979f-4954-97a8-488510497bc1
416	humidity_sensor		5bc08d98-00fa-4fe8-8f3a-341f20884dcc
365	Hydrophon	Instrument for recording underwater sound.	9047e835-0faf-4ae0-8f3f-bf040ed1a0ff
481	inertial_measurement_unit		2c9d6c51-120e-4b45-8180-f734e06b3e4b
311	inertial_navigation_system	Systems that determine spatial position using high-accuracy inertial measurements plus input from other sensors such as doppler current sensors to determine platform 3-D location by interpolation between satellite network fixes.	1ece68fb-4078-4276-ac0a-18ab9529e123
383	infrared_gas_analyzer	Infrared Gas Analyzers	0022670b-83e4-49a4-92da-49e63a9911d9

231	inverted_echosounder	Instruments that locate acoustic reflectors such as fronts in the water column by transmitting pulses of sound from the seabed and determing reflection return times.	471205cc-66d0-4b6c-acbf-f9598c336be1
246	laboratory		d00ea7d4-e583-46d8-acd9-23de2b4f8655
491	Land	A platform located on the solid surface of the Earth either above or below sea level.	c84bff90-3a2c-459d-908c-8b1482b5a24c
492	land_sea_mammals	A mammal that exists both on land and within the water column. Includes seals, sealions, sea-otters and walruse	4c29c381-550e-4c9f-b16c-c32fdb1ccc74
336	Lander		c9523d76-eb55-4328-82d5-85e41789a6b6
191	large_scale_facility	Large Scale Facility	dae7678f-0279-4e89-be8b-fd129a998451
497	laser_distance_meter		acd26eb8-6829-401f-ae25-ba4f9370264a
498	laser_scanner		cf04a8b9-3fb4-4126-ae2e-618fbffe3138
406	Launch_and_recovery_system_Depressor	Launch and recovery system (LARS) Depressor	2565b557-9900-46a5-a158-6b49d47f6332
374	Light_Detection_And_Ranging	Device for surveying method that measures distance to a target by illuminating target with laser light.	7a4a31e2-e08a-4da1-a19d-44a266ecf9d1
334	Light_Optics		0b75ebc0-2fbb-4254-9491-cbdd3ab30531

517	magnaprobe		e2253571-98f8-4c35-9bce-cd6d8f065b6d
493	magnetic_snow_depth_sensor	The device should measure snow depth along transects or in grids as the observer walks or skis on the snow surface.	14094ef4-abed-4230-9a9f-b4bfe744159e
104	magnetometer	Instrument that makes measurements of the Earth's magnetic field.	26bac605-bbb4-4704-97f2-ed209252330f
546	malaise_trap		c6431e80-ae2e-4eab-9789-3b4aea41cbef
382	mass_spectrometer		d5ec2137-b39c-4827-952d-d0aa55244345
172	meteorological_package	Instrument that makes routine meteorological measurements on the atmosphere, typically air pressure, temperature and humidity.	7be0c605-0621-4425-bfb7-7374c5fccded
444	methane_sensor		83b18853-7035-4ba2-904e-0f30fd530110
346	Micro_Structure_Probe		190181a3-17b7-4c57-aab7-789a01b4371c
258	MicroCAT		b2200cb9-39ab-4f95-9f75-79e8d0e4abc0
427	microscope		eb3cbb48-2fe6-47eb-8719-40041223fd5d
268	microstructure_sensor	Fast response sensors sampled at high frequency to determine the distribution of water body properties on a millimetric scale.	3e176313-384a-41cf-abf1-d42e8500e385

373	Microwave_Radiometer		6e34f72e-f877-4793-b45c-1e3adc6ca234
396	model	Models or model data products including forecast data	26d4fae8-4c5c-4e59-83bf-d8ebf66562bc
44	mooring	A tethered collection of oceanographic instruments at a fixed location that may include seafloor, mid-water and surface components.	5fae2273-cc67-40b7-b99f-d4aeee864b20
292	motion_sensor		de237beb-c6a6-4430-be2d-1e4f1e3801bc
333	multi_corer		d57662d7-c907-41e6-a306-24ad7c11fd23
266	multi_beam_echosounder	Instruments that measure water depth along several tracks parallel to the platform track by timing pulses of sound reflected on the seafloor.	7bea66ac-bec1-414d-8210-126420577652
279	multimeter		257507de-df12-4876-96d1-e7227e6150e5
495	multiparameter_water_monitoring_probe	https://en.eijkelkamp.com/products/sensors-monitoring_uk/multiparameter-ap-5000-set-uk.html	ef95ac77-2642-4941-8082-7d6dd6a9b82d
300	navigation_system		a7bca47a-60f4-47be-8c78-030952a163fe
278	nephelometer		9625b029-f043-475e-b831-a8a32ed50185
343	Net		a923a4db-fcde-477f-a560-f98e08055a16

408	Neuston_Microplastics_Catamaran		45263f34-7446-4885-9dac-e6e27f74bec8
474	niskin_bottle		4a917ca0-90df-4bb2-a790-9afd0d67559f
242	NO3_sensor	NO3 Sensor	ddae05f9-0e92-448e-acaf-fbd99b6c0667
219	not_assigned	not assigned	062397bd-7864-4a07-a040-1d41d7b2fbda
369	nutrient_analyser	Instrument that makes in-situ measurements of one or more of nitrate, nitrite, ammonium, urea, phosphate or silicate dissolved in the water column.	8449e4db-a812-49f2-a117-384c3167a6f3
378	observer	Humans who estimate a parameter through observation of a phenomenon such as bird counts, bird song mappings and visual wave observations.	0252cb17-bb13-447b-b84c-19a9f05ff96a
118	oxygen_sensor	Oxygen Sensor	ffbbeb84-4ce2-4d4a-9f3b-a8d5c71fbf09
476	ozone_analyzer		de417a19-7ea3-4248-9848-8749d5a34cb3
364	Ozone_Sonde	Airborne (balloon) measurements of ozone in atmosphere and above	e31f9ed5-5829-4f01-b9af-fa62d61238cc
328	pack_ice	Sea ice not connected to land with an ice concetration of over 70 per cent	3fe730f3-aa5a-44c5-8965-18115d6eefbd
244	PAR_Sensor	PAR Sensor	6d0ea7e4-372a-4aa1-a19a-38f4cb4c7e93

405	particle_camera		c12cf481-35e7-4cae-a495-088a6e1c637f
452	particle_counter		44f38ffd-cde8-48a2-981c-e10579f060ae
426	particle_sampler		600bcb04-b83e-4120-93bc-9e04ad14982a
243	pCO2_Sensor	pCO2 Sensor	59a81143-83da-4fc7-980f-359be6af036d
230	PH	PH	ae51bd9c-0d26-4dc2-9c55-2b738664897a
153	photo	Photo	8afdd1dd-ae04-40ce-93f1-f9298c41f91e
372	Photometer	Generic type for various photometric instruments measuring light intensities or optical properties	d3b07746-14c5-4319-82f5-392285cbe345
484	photometric_dissolved_oxygen_titrator		aeb2ec51-507b-4642-8f18-3e49df0637cd
167	piezometer	Devices that measure fluid (air, gas, water, or oil) pressure within soil, sediment, rock or concrete providing information such as water table level in an aquifer system.	353648ab-74c0-4197-8752-a0259728b9e1
171	plankton_net	A fine-meshed net designed for sampling microzooplankton, mesozooplankton or nekton.	7af853f6-9927-406f-a8d8-10bb73c6ae64
149	plankton_recorder	A device that continuously samples a flow of water, separating and fixing plankton for subsequent identification and counting.	eee571ef-21d9-4a03-89c1-33c86789c935

547	pollen_trap		97ce6fdd-58ba-4fc9-8365-d2692d83bbb6
350	Positioning_System		e702f1bb-2e09-4bef-ab04-51ea9a42651b
348	Pressure_Inverted_Echo_Sounder		832195ce-3056-4fdb-88f5-3ae77f456242
271	pressure_sensor	AWI	da39c873-7556-42db-9f20-cefc6b9652fa
262	profiler		2785b7af-68be-4f4c-a508-bccd014140f8
265	provisioning_system	Addon systems like batteries, lights, cables, lifting bodies, …	b75fefb8-d5c2-4e12-85e2-b5ecf811e4c3
249	pump		9b01768f-c30f-436e-b47b-9488d0bd055d
413	pyranometer		c9f165c2-8b5b-4ea2-b261-b3a3f25acac9
412	pyrgeometer		184259c6-44fe-4407-b2f9-9be25d1203db
532	pyrheliometer		a2223982-be72-4c78-bbfc-555caa87feae
483	pyrometer		23522d3f-b76b-4809-9f1b-9cc149c2b360

482	radar_altimeter_		fab3539e-e607-47e5-8211-83efc22661ce
291	radar_system		ff438a7e-e6b5-42e3-953f-8f1a45a073d0
362	Radiation_Meter	Instrument measuring photosynthetically active radiation	d7d31427-5e35-4b5c-88e1-6bfd7f3e65b6
117	radiometer	Instrument that measures the intensity of electromagnetic radiation in either the atmosphere or the water column.	7d91e0af-7811-4f70-840c-d199ea9671af
363	radiosonde	A balloon-borne package equipped with a radio transmitter and meteorological sensors typically measuring temperature, pressure, and humidity.	eed6a99c-e665-4563-93e3-ed2c2b836aa6
442	radon_extractor_and_counters		1a37df25-b522-4b6a-b5a6-2fde4bcec09f
529	rain_gauge		2be217bc-c81d-4347-b05d-33667d047296
404	rain_water_collector		66cb75f5-7247-46bd-a0c1-83e48cc4568a
360	Recorder		5f5fa06b-9eb0-48df-940d-478b0623d67f
260	releaser		08f71187-8f99-4d21-aad6-27d4788416c2
253	remote_water_sampler		14562b36-55bb-4bcb-ba12-43186e1c05e4

504	rock_dredge	A device dragged across the seabed designed to collect loose rock samples	49eaf3fb-839f-49ce-aef4-cfa41f2a7248
488	Ruler		2ce83258-55e4-4253-ae8c-331a4e9b5c18
227	salinity_sensor	Instrument that simultaneously measures electrical conductivity and temperature in the water column to provide temperature and salinity data.	a3544e09-b9a3-481b-b843-d536e0abaf4a
352	Sampler		53aa2ea1-7b4f-4202-837c-8dece2539220
233	satellite	A vehicle operating beyond the Earth's atmosphere without human occupants that orbits the Earth at a different rate to the Earth's rotation so it moves over the Earth's surface..	29544383-0f8d-4138-9841-d8909596f04f
147	satellite_positioning_system	A network of statellites that generate signals that allow a receiver to determine its position such as GPS.	7406ce34-4b6e-4258-9cce-19a4b68661af
257	satellite_tracking_system	A network of satellites that determines the position of a transponder by triangulation such as Argos. Generally used to track surface buoys for the determination of Lagrangian currents.	86ce1bae-8938-4bdb-9d8c-23f5517b0825
449	scales		37cce2f0-df1e-4972-80cb-ef7c6ef275c4
428	scintillation_counter		1ddd281a-9a2a-494a-8b70-d8eb32cab28c
409	Secchi_Disk		f9b066b2-f12a-49c2-94d3-31959e77fdf8
111	sediment_dredge	Bucket-like containers hauled over the sea bed collecting integrated samples of surface sediment along a segment of ship track.	d1a83883-de2e-47d0-bf29-382cf91184be

110	sediment_grab	A device that collects a sample of surface sediment including manually deployed equipment like a shovel or bucket.	8806a0ea-ac61-43a9-b94c-f21a8ce8fc36
107	sediment_trap	A collector of particulates as they sink through the water column.	e28670ea-5e74-4e32-af05-f0c433c185de
354	Seismic_Ocean_Bottom_Receiver	instrument to collect seismic data	6e0f4d9e-26f9-4638-b74a-4c8579f82924
353	Seismic_profile		9a79e08d-9d27-4915-8e98-2ad68f5cb095
371	Shadowband_Radiometer	Special radiometer, where shadow casted on sensor allows estimate of direct sunlight, which in turn can be used to estimate aerosol and cloud properties during its rotation.	975363f6-bcae-4c04-8e1d-110db837ed1a
121	sidescan_sonar	Instruments with directional acoustic transmitters and receivers fitted to an underwater platform that emit fan-shaped pulses down toward the seafloor across a wide angle perpendicular to the path of the platform through the water.	be4ef045-f2a9-4ca6-9c1e-bbc5b3d16818
199	small_scale_facility	Small Scale Facility	0be2269d-aca4-4647-9d25-1c03b41bc455
329	small_boat	A small self-propelled platform operating on the surface of the water column that may be easily removed from the water (e.g. shore-based RIBs, ships' boats)	e991e458-937a-4604-812c-137408fd926d
545	smellscape		fd622964-1589-4dca-bc75-dbc2582a38c3
425	snow_fall_sensor		4243b500-9a09-4ee7-87c2-64d278f62805
496	snow_micro_pen	penetration resistance of snow	b9411bea-4054-47e3-ae67-cc533a786431

411	SODAR	Sound Detection and Ranging	686c12c0-203b-4006-98d9-4e77083bc689
527	soil_moisture_sensor		da9ed46f-222c-417a-bdd6-e55d9ebe64f6
451	sonic_anemometer	SONIC ANEMOMETER	af98b2e7-7f7a-4ce6-b4ff-7e320d62b8fc
468	sonic_ranger		43461654-0b2d-4e60-ac26-bc61c4ae4bd5
349	Sound_Velocity_Profiler		ca555cd4-c71a-4d76-9f75-f715df562d1a
143	sound_velocity_sensor	Instrument that measures the velocity of sound in seawater.	3878c04e-251e-4a43-b700-af1cfea30730
376	Spectrometer		02ed1c0e-ee2f-4d64-a9b6-24ae7bacb836
238	spectrophotometer	Instruments measuring the relative absorption of electromagnetic radiation of different wavelengths in the near infra-red, visible and ultraviolet wavebands by samples.	9fa506c3-d8f5-4ab3-b852-88d0acf226a7
392	spectroradiometer	The raw output expressed in counts from an downward-facing radiometer measuring light travelling vertically upwards for one particular wavelength from the measured spectrum.	5cf20e79-74f0-4c4c-b52b-f16c0ae55b2a
289	speed_log		55347482-cddc-47f5-a1b9-2f189259cd71
234	station		2ca566f2-a991-4af0-824c-3de957f32d02

457	strain_gauge		2b104576-c22f-45ac-a08e-584c0e1a725f
347	Sub_Bottom_Profiler		184ca1de-97ea-499d-bb37-84df0046675c
463	temperature_and_humidity_sensor		006cc465-9ed5-4617-8d00-4f4d65454f71
294	temperature_sensor		8bcf2d87-a111-45ef-bea8-b64f200dff54
525	terrestrial_mapping	Parameters relating to the mapping of terrestrial features, including coastlines	2538049e-701d-4ffb-af19-bc05910bd444
389	tethered_balloon	A container filled with a gas that is lighter than air, which is tethered at a fixed height and location.	fa7fd3d7-d407-4e20-9e71-7a030220818d
466	thermal_camera		bac558f6-28f1-4b51-9c38-840e4fefcec0
494	thermal_properties_analyzer	measuring the thermal conductivity of soil and ice samples	41e11a4e-89e1-4e58-b22b-f40a6d52608f
194	thermometer	Thermometer	bded0583-5b45-4a25-bfe3-094c36c2dc42
14	thermosalinograph	Temperature and conductivity sensors mounted on a sea-surface platform continuously measuring a surface water supply	0801eb2d-861a-4db6-b3b0-8e9bef7bef0a
526	time_domain_reflectometer		c8444bf8-748c-42ac-b3cb-1cc16536930f

240	TOC_analyzer	TOC-Analyzer	d197214d-eedc-4ba7-900a-a60243fb44cd
370	Total_Sky_Imager	Device which provides continuous images of the sky and computes cloud amount for each image.	5993a3c7-8169-4c5a-9180-915d2433a575
247	towed_systems		e6927856-2536-43bd-97c2-ef6e78adff9f
424	trace_gas_monitor		35c793d6-c096-4aa2-b8f6-dccb52407b7b
267	transmissometer	System that measure the attenuation of electromagnetic radiation by the water column. Includes human observer plus Secchi Disk.	bb5c5ece-2ad2-47e9-9f0b-ede06bb13fa8
261	transponder		7b72388e-870c-4dfa-b742-2c3e071acad0
335	Trap		80f3911a-176d-4213-a305-b1965059568e
407	Trawl_net		347febab-667d-417a-9e8c-a477bbd8493f
282	turbidity_meter		44be69a7-069e-4258-80a1-9fbc705511fb
368	Turbidity_Sensor	Measurement unit for turbidity in the water column.	2f24ba55-4758-4276-8979-e5b0f8c2e6d9
511	turbulence_probe		3ceec204-0503-45c3-8b59-88476882db85

366	UAV	Unmanned aerial vehicle. Any untethered heavier-than-air aircraft that is not occupied by people: may be a remotely piloted aircraft or an autonomous aircraft. Also referred to as a drone.	f0556b30-1e9f-436c-ab88-f26bcfc75c48
198	ultra_short_baseline_positioning_systems	Systems dedicated to the positioning of subsea vehicles such as ROV and AUV. They are based on acoustic transmitted signals between one or several transponders and one acoustic antenna installed on a surface vessel. The transponders are mounted on the underwater vehicle or are fixed on the seafloor. These underwater acoustic positioning systems are coupled with inertial navigation systems.	1f9fa222-c47b-4e5e-bd87-f2c89747d4b2
505	unconsolidated_sediment_corer	Devices designed to collect samples of unconsolidated sediment from between the surface and depths from centimetres to 10s of metres with minimal disturbance of the sediment structure	ab1eaf6f-c6d8-44d4-9981-a24e284759b5
259	underwater_acoustic_recorder	Underwater Acoustic Recorder	31fb67fc-0dc6-4f3c-a275-be47cf8dbbb9
341	underwater_cameras	All types of photographic equipment that may be deployed underwater including stills, video, film and digital systems.	846295eb-7afa-4b92-b282-8e1a5ae50d17
235	vehicle		bf2d0acf-96e6-479b-a58c-912ba374511c
236	vessel	A platform of any size operating on the surface of the water column in unpredictable locations that is specifically equipped, manned and operated for scientific, usually oceanographic, research	32f59e33-05a9-4834-a62e-06c6c34f3ef6
119	video	Video	97f2e30d-5906-4ec3-b50e-9198b420dd00
293	video_and_sampling_system		12d59cd1-01ca-427d-ba8b-147472dc6200
513	water_content_analyzer		c5efd5b2-1106-4110-a708-174c036e1fcb
342	Water_Sampler		e26b854c-7d91-4bbd-b332-231aea46c9fc

359	water_temperature_sensor	An instrument that measures the temperature of the water with which it is in contact.	d3b5bc29-bfe0-499d-9487-69579a160090
367	Weather_station_or_Meteorological_observation	Station where meteorological data such as air temperature, humidity, air pressure, wind speed and direction are monitored.	17c4e490-54b4-4d59-a4f6-e1e2b535b188
344	Whale_Watching		c7624b47-e0de-41bb-a96b-bdb69f28fd49