SWERVE

Swedish Research Vessel Infrastructure for Marine Research

SWERVE

Swedish Research Vessel Infrastructure for Marine Research

Contribution to the

EuroGO-SHIP

Pen Picture

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

What is SWERVE?

SWERVE is a Swedish National Infrastructure that aligns Swedish research vessel and data infrastructures across government organisations to enhance access to vessels and equipment, technical expertise and quality-controlled data.

Sweden currently operates 6 large (>24m) research vessels, independently delivering research and data.

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

The vessels

R/V Electra af Askö

KBV 181

S/V Ocean Surveyor

I/B Oden

R/V Skagerak

R/V Svea

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Which organisations do hydrography?

Vessel	Organisation
Electra	Stockholm University (SU)
KBV 181	Swedish Coast Guard
Ocean Surveyor	Geological Survey of Sweden (SGU)
Oden	Swedish Polar Research Secretariat (SPRS)
Skagerak	University of Gothenburg (GU)
Svea	Swedish University of Agricultural Sciences (SLU)

Each vessel in SWERVE is operated independently by the owner organisation and have different priorities that determine what sort of hydrography is undertaken. Hydrography undertaken on Electra, Skagerak and Oden is for research and therefore the data collected is determined by the research/education agenda. Svea, Ocean Surveyor and KBV 181 are used predominantly for governmental monitoring or mapping activities, and therefore data collection is determined by the monitoring programs.

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Where, how often?

Vessel	Area of operation		Expeditions per year	Expedition length
Electra	Baltic Sea		Many, usually short voyages	Max 11 days
KBV 181	Gulf of Bothnia		~10	11 days – 3 weeks

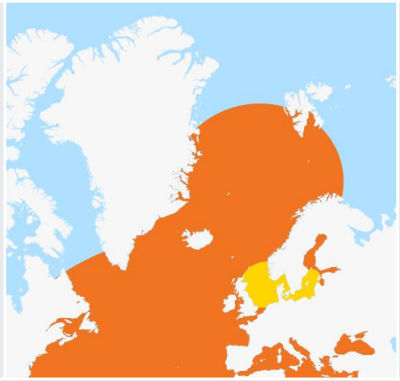
SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Where, how often?

Vessel	Area of operation		Expeditions per year	Expedition length
Ocean Surveyor	Swedish Economic Zone		Varies	1 week
Oden	Arctic Ocean		1	4-6 weeks

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Where, how often?

Vessel	Area of operation		Expeditions per year	Expedition length
Skagerak	Baltic Sea, North Sea; other areas (e.g. Iceland, Greenland, Svalbard) upon request		~7-10	Maximum 21 days
Svea	North Sea, Baltic sea; North Atlantic and polar regions is possible		~30-40	Max 16 days

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

What gets measured?

The vessels each have significant inventory of on-board equipment. This table lists the variables that are measured through their underway systems and CTD. These are the systems that will be addressed first in SWERVE to enhance quality and data delivery (through stages of readiness from 0 – 5)

Table 1: Sensors currently installed on each SWERVE vessel for Ferrybox, CTD and weather stations. The blue colour shows the level of readiness of the systems for delivering fully calibrated, quality controlled data to international repositories in an automated way. The NMTN will work through Module 2 and Module 3 to move the readiness level of all sensors from current status to 5.

Vessel	Temperature	Salinity	Fluorescense (phyco)	Fluorescense (Chl-a)	Oxygen	pH	pCO2
Oden	2	2	2	2	2	2	2
Svea	5	5	5	5	5	3	3
Skagerak	3	3	3	3	3	1	1
KBV 181	2	2	0	2	0	2	2
Ocean Surveyor	0	0	0	0	0	0	0
Electra	3	3	0	0	0	0	3

Weather Station Sensors							
Vessel	Wind speed/ Direction	Air Pressure	Temperature/ Humidity	Surface Earths Radiation Budget (ERB) shortwave (i.e. Photosynthecically active radiation)	Surface ERB longwave	Precipitation	Aerosol properties
Oden	5	5	5	5	1	5	0
Svea	4	4	4	4	0	4	0
Skagerak	3	3	3	3	3	1	0
KBV 181	3	3	3	3	0	0	0
Ocean Surveyor	1	1	1	0	0	0	0
Electra	3	3	3	0	0	3	2

CTD Sensors							
Vessel	Temperature	Salinity	Oxygen	Fluorescence	Turbidity	pCO2	pH
Oden	5	5	5	5	5	0	0
Svea	5	5	5	5	5	0	0
Skagerak	3	3	3	3	3	0	0
KBV 181	5	5	5	1	1	0	0
Ocean Surveyor	4	4	4	0	0	0	0
Electra	3	3	3	3	3	0	0

Readiness level	
0	Non-existent and not planned
1	Base Platform exists but sensors needed
2	Sensor exists but not calibrated or delivering quality data
3	Calibration systems needed, data stored locally and not visible
4	Calibration systems working, data delivered individually
5	Calibration systems in place, coordinated delivery of data in place

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Where does the data go?

Vessel	Repository
Electra	Bolin Centre Database (?)
KBV 181	Not yet clear
Ocean Surveyor	Kept in-house, most data has security classification levels and cannot be shared
Oden	Swedish National Data Service (SND)
Skagerak	Not yet delivering data
Svea	National archive for oceanographic data (SHARK), Database for Coastal Fish (KUL) (?)

A core action for SWERVE is to ensure that the data collected on SWERVE vessels is made FAIR. The National Oceanographic Data Centre for Sweden is run by SMHI, one of the SWERVE Partners. It is our objective to ensure that Ferrybox, weather station and CTD data is delivered to SMHI and onwards to COPERNICUS and EMODnet in the coming years.

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Why are they doing it?

Vessel	
Electra	Research and education
KBV 181	Governmental monitoring with some research as piggy—back on the monitoring activities
Ocean Surveyor	Governmental monitoring/mapping
Oden	Research (1 voyage a year, otherwise the vessel is used by the Government for ice breaking)
Skagerak	Research and Education
Svea	Governmental monitoring

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Who pays?

Vessel	
Electra	Stockholm University and/or ship user
KBV 181	Umeå University for research; Governmental support for monitoring
Ocean Surveyor	Government
Oden	Government
Skagerak	Ship user
Svea	Government for monitoring

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

How far in advance do they plan things?

Vessel	
Electra	Very short-term planning. Only some courses and monitoring voyages are booked in advance
KBV 181	October for expeditions during the upcoming year
Ocean Surveyor	Varies depending on project requirements
Oden	More than 2 yrs. Application for participation opens in February of the same year
Skagerak	October for expeditions during the following year (i.e. 2 yrs advance) but open year-round for any schedule gaps
Svea	November for expeditions during the upcoming year

SWERVE
Swedish Research Vessel
Infrastructure for Marine Research

Who decides about entering RIs?

The Swedish Research Council (Vetenskapsrådet; VR) is the funding body for national and international infrastructures. SWERVE is funded through the VR national infrastructure scheme, and any involvement of Sweden in an international research infrastructure would be funded through this same scheme.


SWERVE