

Information for MAPS-Antarctic whale sighting data

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Project	MAPS: Marine Mammal Perimeter Surveillance from RV Polarstern

Program description:

Since 2005, AWI in cooperation with Reederei Laeisz, systematically and continuously logs all sightings of cetaceans near RV Polarstern in the Southern Ocean (Marine Mammal Perimeter Surveillance, MAPS). A corresponding sighting protocol is maintained by the nautical officer on duty on the bridge of the RV Polarstern. While the officers are advised to systematically log all sightings, no dedicated sighting efforts are taken. Neither does the ship follow a dedicated survey design.

The sightings hence are considered opportunistic sightings. However, in contrast to truly opportunistic sightings, logging occurs systematically and continuously and by a limited number of persons, who have received repeated briefing on marine mammal identification and generally several years of experience as nautical officers in the Southern Ocean.

Observations are made with the naked eye or handheld binoculars (7x50). Sightings were listed on a dedicated sightings form until Polarstern cruise ANT XXIV-4 ([Figure 1](#)). The paper form was replaced by electronic logs: WERUM Wallog for expeditions ANT XXV-1 through ANT XXV-4 ([Figure 2](#)); and AWI Walog (sic!) since ANT XXVI-1 ([Figure 3](#)).

In-field identification of sighted animals up to species level is aided by picture charts and common field guides. The fact that only 14 cetacean species are listed as true Antarctic species thereby greatly facilitates the identification effort. Additional *post-event* validation of the identification might be performed using photographs or a short video sequence if available.

For each cruise, the data sets are validated (test for plausibility of sighting location and time, standardization of species names, consideration of any "comments" and additional information (photo, video)) and entered into PANGAEA (one data set per cruise).

Within PANGAEA all data are aggregated relating to an "event label". Event labels used in Marine Mammal Observation contain information of the cruise, which animals were sighted as well as where and when sightings occurred.

Additional metadata information (atmospheric, oceanographic and operational conditions) may be accessed via the respective DOI's, as listed under "comments" on to each data set's description site.

Parameter: Whale Species [string]

Abbreviation: Species Parameter no: 84756

As determined by the observer at the time of observation.

When supplementary information (e.g. photographs, videos, concurrent sightings in context of dedicated marine mammal sighting efforts) are available, a post event review of this information might result in modified "species" assignments. Some of the listed species don't qualify as "true Antarctic" species (e.g. harbour porpoise) but are mentioned here for the sake of completeness as they occur during transit cruises.

Whale, unidentified

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small). If this is not possible, the sighting is generically listed as "Whale, unidentified".

Large whale, unidentified

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small). If this is not possible, the sighting is generically listed as "Whale, unidentified".

Small whale, unidentified

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small). If this is not possible, the sighting is generically listed as "Whale, unidentified".

Baleen whale, unidentified

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small) and additional key features for baleen whales (e.g. fluke, fin, number of blow holes). If this is not possible, the sighting is generically listed as "Whale, unidentified".

Dolphins, unidentified

On occasion, it is not possible to identify the animals up to species level. These sightings are generically listed as "Dolphins, unidentified".

Balaenoptera borealis

Abbreviation: B. borealis

Sei whale

Balaenoptera physalus

Abbreviation: B. physalus

Fin whale

Balaenoptera aff. musculus

Abbreviation: (B. musculus)

Blue whale

In the Southern Hemisphere, these sightings might comprise the Antarctic blue whale (*Balaenoptera musculus intermedia*) and the pygmy blue whale (*Balaenoptera musculus brevicauda*). At sea both are likely to be indistinguishable, and hence are listed as *Balaenoptera musculus*.

In the Northern Hemisphere only one subspecies, *Balaenoptera musculus*, exists.

Balaenoptera musculus intermedia

Abbreviation: (B. m. intermedia)

Antarctic blue whale

Sighting of blue whale with subsequent species identification as *Balaenoptera musculus intermedia* (Antarctic blue whale) on the basis of video/photo footage or opinion of expert onboard.

Balaenoptera musculus brevicauda

Abbreviation: (B. m. brevicauda)

Pygmy blue whale

Sighting of blue whale with subsequent species identification as *Balaenoptera musculus brevicauda* (pygmy blue whale) on the basis of video/photo footage or opinion of expert onboard.

Balaenoptera aff. bonaerensis

B. aff. bonaerensis

Minke whale

In the Southern Hemisphere, these sightings might comprise *Balaenoptera bonaerensis* (Antarctic minke whale) or *Balaenoptera acutorostrata ssp* (dwarf minke whale) as these are difficult to differentiate between at sea. If additional video/footage has led to a species identification of quality "certain", the correct scientific names are given as described below.

Balaenoptera bonaerensis

Abbreviation: *B. bonaerensis*

Antarctic minke whale

Sighting of "Minke whale" with subsequent species identification as *Balaenoptera bonaerensis* (Antarctic minke whale) on the basis of video/photo footage or opinion of expert onboard.

Balaenoptera acutorostrata ssp.

Abbreviation: *B. acutorostrata ssp.*

Dwarf minke whale

Sighting of "Minke whale" with subsequent species identification as *Balaenoptera acutorostrata ssp.* (Dwarf minke whale) on the basis of video/photo footage or opinion of expert onboard.

Balaenoptera acutorostrata

Abbreviation: *B. acutorostrata*

Common minke whale

Sighting of "Minke whale" with subsequent species identification as *Balaenoptera acutorostrata* on the basis of video/photo footage or opinion of expert onboard.

In the Northern Hemisphere "Minke whale" sightings are listed as *Balaenoptera acutorostrata*.

Megaptera novaeangliae

Abbreviation: *M. novaeangliae*

Humpback whale

Eubalaena australis

Abbreviation: *E. australis*

Southern right whale

Physeter macrocephalus

Abbreviation: *P. macrocephalus*

Sperm whale

Globicephala melas

Abbreviation: *G. melas*

Long-finned Pilot whale

Orcinus orca

Abbreviation: *O. orca*

Killer whale key: Orca

Ziphiidae spp.

Beaked whale, unidentified

Species identification for beaked whales is extremely difficult due to their elusive behavior. Therefore sightings are frequently identified only to the family level Ziphiidae. For the Antarctic treaty region (south of 60°S), the family of Ziphiidae includes:

<i>Berardius arnouxii</i>	Abbreviation: <i>B. arnouxii</i>	Key: Arnoux's beaked whale
<i>Hyperoodon planifrons</i>	Abbreviation: <i>H. planifrons</i>	Key: Southern bottlenose whale
<i>Mesoplodon layardii</i>	Abbreviation: <i>M. layardii</i>	Key: Strap-toothed whale

Lagenorhynchus cruciger

Abbreviation: *L. cruciger*

Hourglass dolphin

Lissodelphis peronii

Abbreviation: *L. peronii*

Southern right whale dolphin

Cephalorhynchus commersonii

Abbreviation *C. commersonii*

Commerson's dolphin

Phocoena phocoena

Abbreviation: *P. phocoena*

Harbour porpoise

Stenella attenuata

Abbreviation *S. attenuata*

Pantropical spotted dolphin

Delphinus delphis

Abbreviation *D. delphis*

Short-beaked common dolphin

Parameter: Certainty of identification [string]

Abbreviation: Certainty Parameter no: 84757

As determined by the observer at the time of sighting.

When supplementary information (e.g. photographs, videos, concurrent sightings in context of dedicated marine mammal sighting efforts) are available, a post event review of this information might result in modified "certainty of identification" assignments with respect to the original data.

definite

Used if unambiguous characteristics (e.g. fluke, flippers, shape of blow, fin, color) have been observed *in-situ*, possibly supported by video/photo footage.

probable

Used if identification is supported by evidence strong enough to establish presumption but not proof of species.

possible

Used if the presumed identification has an indicated potential to be correct.

Parameter: Number of individuals [#]

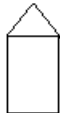
Abbreviation: Parameter no: 84758

The number of individuals is binned according to the options given in the data acquisition software: 1, 2, 3, 4, ≥5, ≥10, ≥20, ≥50. More precise values may exist, due to observer comments.

Walbeobachtungen von Bord RV Polarstern

Weißer Felder: Bitte ausfüllen,

Grüne Felder: Bitte ausfüllen falls möglich

Datum		Uhrzeit		
Schiff: RV Polarstern		Beobachter		
Position		Wassertiefe		
Walart		Sicherheit der Bestimmung der Art sicher / wahrscheinlich / möglich (zutreffendes bitte einkreisen)		
Gesamtzahl an Tieren: Beschreibung (wie z.B. Größe, Kopfform, Färbung und Muster, Größe, Form und Position der Rückenfinne, Richtung und Form des Blas) Verhalten ausweichend / annähernd / Kurs haltend (zutreffendes bitte einkreisen) taucht unter Schiff durch: Ja/Nein		Anzahl ausgewachsene Tiere		
		Anzahl Kälber		
		Photo oder Videoaufnahmen Ja/Nein (zutreffendes bitte einkreisen)		
		Schwimmrichtung relativ zum Schiff <div style="text-align: center;">  </div>		
Aktivität des Schiffes <input type="checkbox"/> Fahrt kn, Kurs.....°T <input type="checkbox"/> auf Station		Schwimmrichtung geographisch:		
		Entfernung vom Schiff		
		Akustische Aktivitäten		
		an	aus	unbekannt
		DoLog		
		DWS-Lot		
		Hydrosweep		
		Parasound		
		Simrad EK 60		
		ADCP		
		AirGuns		
Windrichtung und Stärke	See	Sichtweite		

Gesammelte Aufzeichnungen bitte bei Anlaufen B'hvn an Olaf Boebel, AWI (0471-4831-1879)

Figure 1: Copy of paper form for systematic recording of opportunistic cetacean sightings. In use for ANT XXII, ANT XXIII and ANT XXIV.

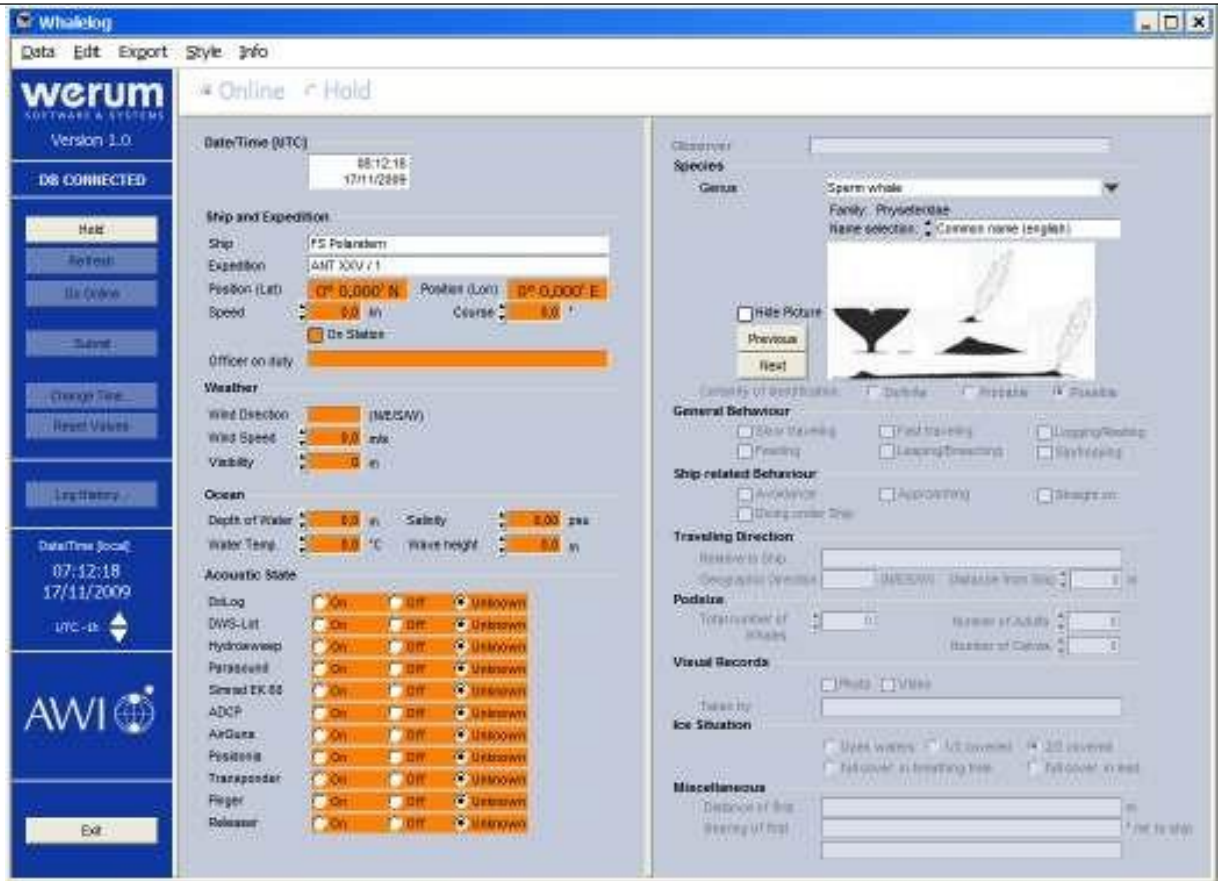


Figure 2: Screenshot of Werum Wallog program for systematic recording of opportunistic cetacean sightings in use for ANT XXV.

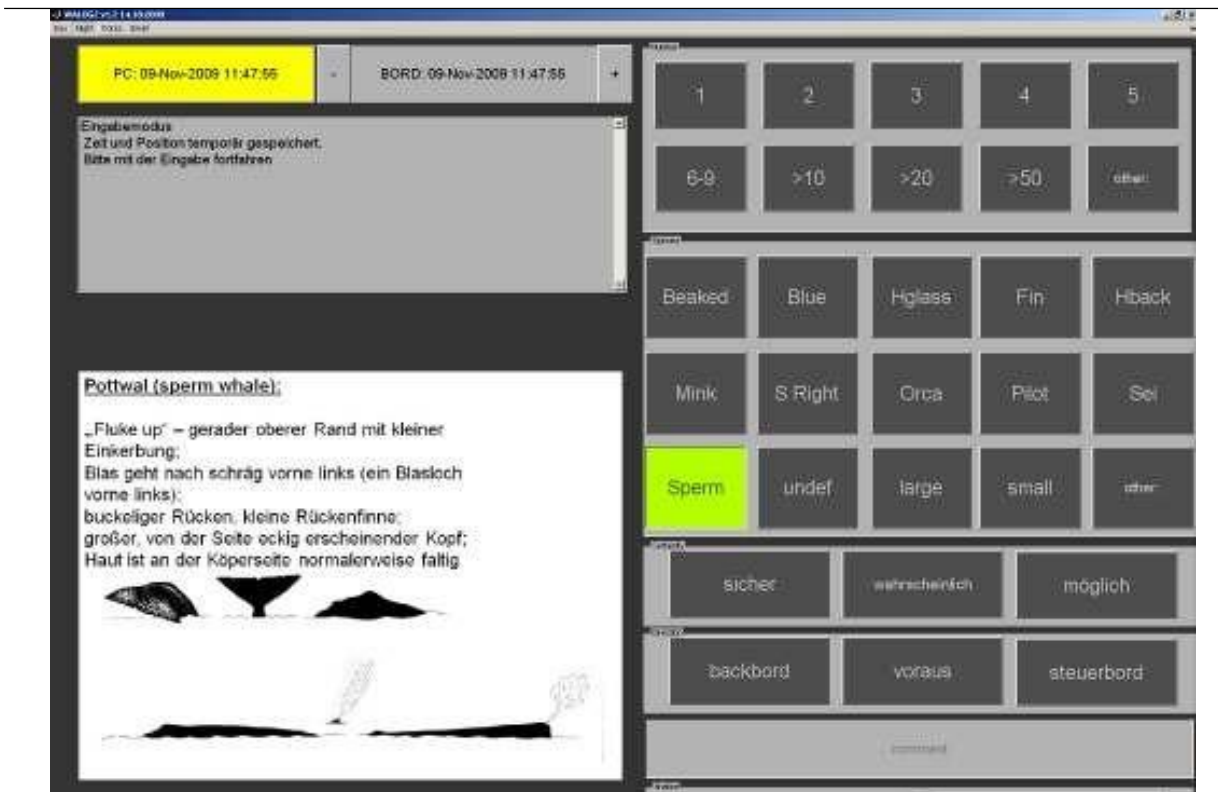


Figure 3: Screenshot of AWI Walog program for systematic recording of opportunistic cetacean sightings in use since ANT XXVI.