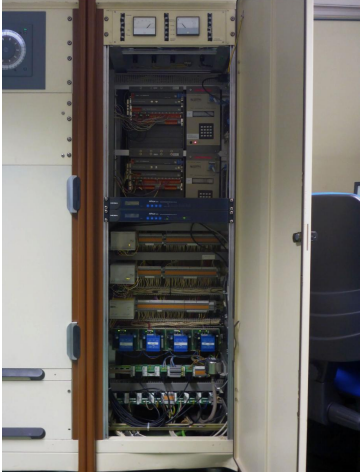# Weather Station

> ⚠️ **Attention:**
>
> The observatory is always manned with a weather radio technician and a meteorologist during scientific cruises. The facilities of the meteorological observatory can be co-used by scientists for special measurements.
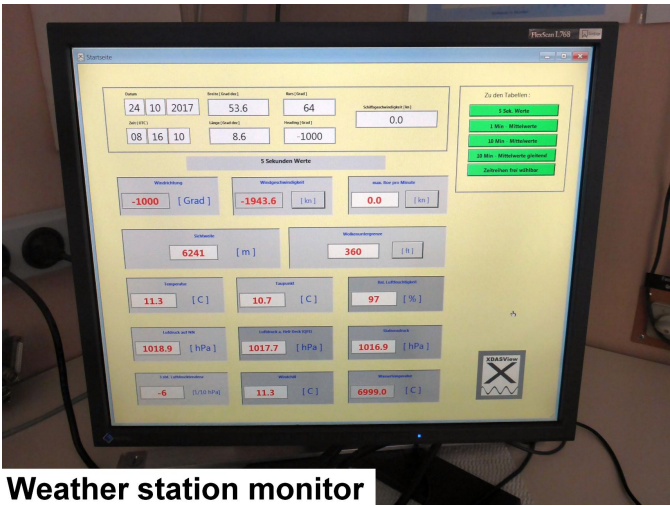
## Summary

The weather station at Polarstern consists of several devices which measure standard parameters such as temperature, wind, humidity, barometric pressure, radiation and precipitation. Satellite images are received with a dedicated antenna which, together with the data, are used for forecast purposes. The station is operated by a weather technician-observer from the German Weather Service (DWD) who is responsible for the routine 3-hourly synoptic observations and the daily upper air soundings.

| | |
|---|---|
| **Manufacturer** | AWI |
| **Model** | AWI |
| **Serial No.** | n/a |
| **Type** | small scale facility |
| **REGISTRY-Link** | REGISTRY (22) |

**Weather station data aquisition**





**Weather station monitor**

**schematic drawing of Polarstern deck A**

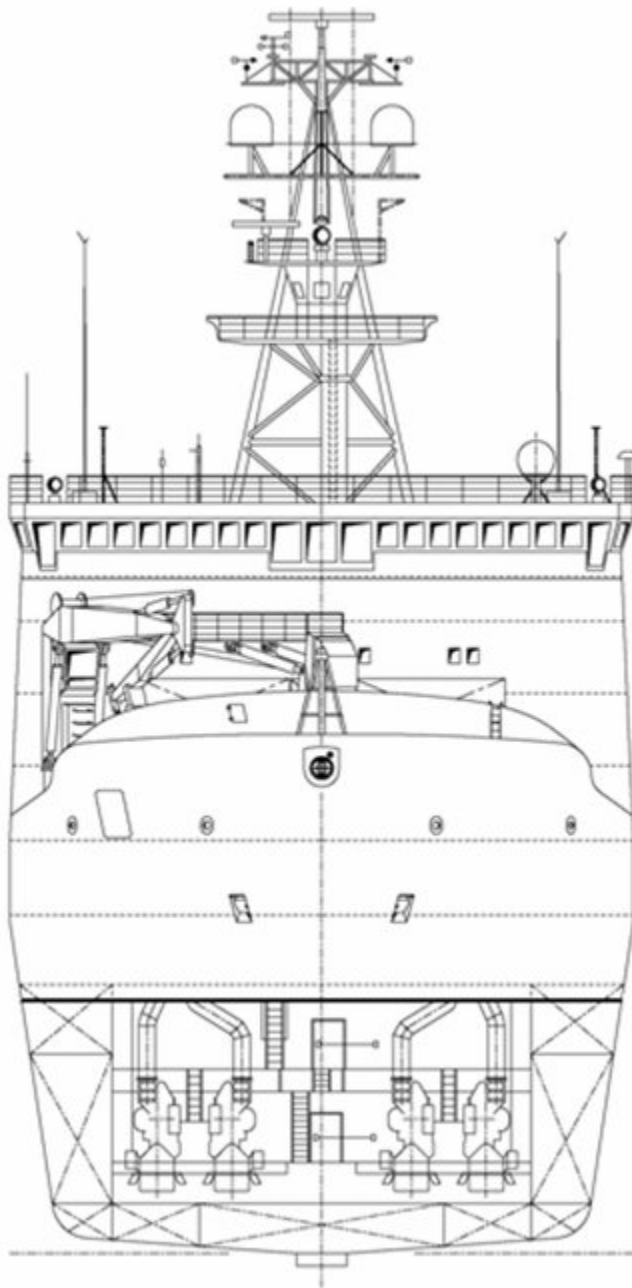location of weather station
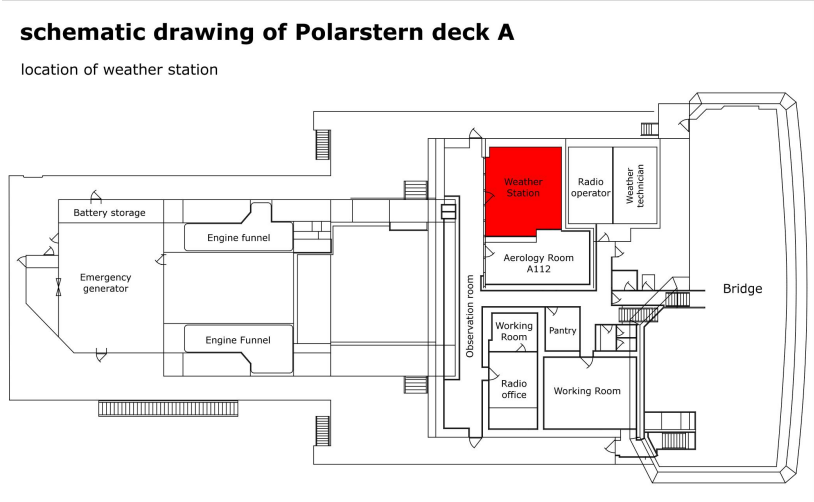


## Contacts

| Name | Institution | Role |
|---|---|---|
| Bernd Loose | Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research | Engineer In Charge |
| Holger Schmithüsen | Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research | Principal Investigator, Editor |
| Alfred Wegener Institute for Polar and Marine Research | Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research | Owner |
| Loretta Preis | Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research | Engineer In Charge, Editor |

## Components

### Subdevices

| Name | Model | Serial Number | REGISTRY-Link |
|---|---|---|---|
| Barometric Pressure Sensor | Vaisala PTB330 digital barometer | n/a | REGISTRY (1410) |
| Cloud Height Detector | CL51 | F4060001 | REGISTRY (1409) |
| Global Radiation Sensor | Pyranometer SMP21 | n/a | REGISTRY (1415) |
| Ship Rain Gauge | SRM 450 H | 093999 | REGISTRY (1417) |
| Sunshine Detector | SONI e3 | n/a | REGISTRY (1416) |
| Temperature and Humidity | HMP155 | n/a | REGISTRY (1523) |
| Visibility Sensor | FS11 | n/a | REGISTRY (1408) |
| Water temperature for weather station | PT100 | n/a | REGISTRY (5010) |
| Wind Sensors (anemometer) | Ultrasonic Anemometer Sonic 2D | n/a | REGISTRY (1413) |

| 39 m | Wind |
| 34 m | Global radiation, Precipitation |
| 29 m | Humidity, Temperature |
| 20 m | Visibility, Ceiling |
| 16 m | Met. Office |
| 10 m | Balloon launch at helicopter port |
| 0 m | Waterline |
| -5 m | Water temperature |

## Position

| Info | no xyz-position given, the weather station is located on deck A |
|------|------------------------------------------------------------------|
| **X** | 0.0 (no unit given)<br>(no description given) |
| **Y** | 0.0 (no unit given)<br>(no description given) |
| **Z** | 0.0 (no unit given)<br>(no description given) |

## Data logging, storage and archiving

**Logged parameters**

| Parameter | O2ARegistry Output Type | Unit |
|---|---|---|
| true wind direction | wind direction | deg |
| true wind velocity | wind speed | m/s |
| air pressure | pressure | hPa |
| air temperature | air temperature | °C |
| rel. humidity | relative humidity | % |
| global radiation | global radiation | W/m2 |
| precipitation | precipitation | mm/min |
| ceiling | cloud ceiling | ft |
| direct radiation | direct radiation | W/m2 |
| sunshine indicator | UV radiation | unknown |
| visibility | visibility | m |
| max rel. wind velocity last min | wind speed | m/s |
| rel. wind velocity | wind speed | m/s |
| rel. wind direction | wind direction | deg |
| true wind speed | wind speed | m/s |
| ceiling_m | cloud ceiling | m |

**Central geographical ship's position and time standard**

**Rawdata storage on board**

**Dship**

**Data archiving on land**