

Sensor information

The following *.cgn file was used to retrieve the data for PoldatDB:

(TSB = ThermoSalinograph Bow, TSK = ThermoSalinograph Keel)

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POLDAT Configuration File: PDDB4.MIW                                26-JAN-1995
Start of Computation .....: 01-JUN-1994 00:00
End of Computation .....: 04-JUN-1994 00:00
Length of Statistic Interval ....: 10 min 0 sec
Output File Format .....: VMS
Output-Format of Time .....: YY MM DD hh mm
Output-Format of Position .....: degree(decimal)                sign
Output-Format ID (internal).....: 1211
  
```

SNo	Format	v	m	-	+	s	n	d.d<< Value	Sensor	Error >>	v	m	-	+	s	n
3	num	*						3.2	TSB temperature 2							
4	num	*						2.2	TSB conductivity							
5	num	*						2.2	TSB salinity							
7	num	*						3.1	air temperature luv							
8	num	*						4.0	rel. humidity							
9	num	*						3.1	dewpoint							
10	num	*						4.1	air pressure							
11	num	*						4.1	rel. wind velocity luv							
12	num	*						4.0	rel. wind direction luv							
14	num	*						4.0	global radiation							
15	num	*						5.0	visibility							
16	num	*						5.0	ceiling							
17	num	*						4.0	true wind direction							
18	num	*						4.1	true wind velocity							
45	num	*						4.1	gyro heading							

60	pos	*	1.4	system position lat
61	pos	*	1.4	system position lon
68	num	*	5.1	system depth
80	num	*	3.1	filter course made good
81	num	*	3.1	filter speed made good
108	num	*	3.2	TSK temperature 2
109	num	*	2.2	TSK conductivity
110	num	*	2.2	TSK salinity
112	num	*	3.2	ozone concentration
119	num	*	4.1	max rel. wind veloc. last min
120	num	*	* 3.4	precipitation

Frequently, averaged values (m), as offered by Poldat, were taken. The visibilities and cloud ceilings base on minimum values (-), the max rel. wind veloc. last min on maximum values (+), while all navigation data are taken from the last valid (v) instantaneous data within the statistic intervals. To calculate the precipitation the averages (m) and numbers of events (n) were retrieved.

Timing

The time information, offered in PoldatDB, represents the center of the 10-minute statistic interval. Please keep in mind, that all instantaneous values are normally taken about 5 minutes later.

Wind

Wind direction and wind speed are measured at a height of 37m above sea level at the port and starboard side of the ship. Only the windward sensor gets registered. Data for Max. Relative Wind Velocity exist after 10-18-94. The U_Wind and V_Wind components are calculated using the true wind direction and true wind velocity. A positive (negative) U_Wind denotes a wind component from west (east), while a positive (negative) V_Wind denotes a wind component from south (north).

Temperature

The air temperature is measured at a height of 27m above sea level at the port and starboard side of the ship. Only the windward sensor gets registered.

Humidity

On board of POLARSTERN air humidity informations are available from a hair hygrometer (rel. humidity) and a dewpoint sensor (dewpoint) at a height of 27m above sea level. Both informations are used to calculate one validated relative humidity, which is the basis for all other humidity information offered in PoldatDB.

Surface air pressure

The air pressure taken at POLARSTERN is reduced to sea level. From 5-18-93 to 10-6-94 the surface pressure was sampled in hPa once a minute and stored only as integer. Thus the 10-minute averages - taken during this time - have a rather low resolution.

Precipitation

Precipitation measurements on board of Polarstern started at 10-18-94. Only rain events are normally quantified. Due to several problems with the sensor, the data should be taken with care. Data which are obviously wrong are already excluded from the database. Nevertheless, it is still possible that some rain events are missing, that extreme sea spray affects the measurements and that accumulated snow melts within the sensor and gets measured as liquid precipitation hours or days after the snowfall.

Radiation

Global radiation is measured by using an artificially ventilated pyanometer. A description of the instrument can be found at <http://www.kippzonen.com/product/cm11.html>. The instrument is placed

at the level of the crow`s nest, a position, not totally free of cast shadow problems.

Nighttime values are normally not set to zero. They vary +/-0 and can be used to quantify offsets of the instruments which also occur during daytime. Especially the older data are subject of rather huge offset problems and have to be taken with care. The given extraterrestrial insolation and sun elevation data are calculated after Iqbal, M. 1983: An Introduction to Solar Radiation.

Water temperature und salinity

Only some validated data are available interactively yet. The validation work is ongoing. More data will be available in future. For information about the validation status please contact [Gerd Rohardt](#)

Cloud height

Till 2011-10-25 the cloud height was measured using the cloud ceilometer LD-WHX05 (Impulsphysik, Germany) with a maximum range of 12,000 feet. The value 20,000 denotes clear sky above the vertically pointing instrument. After 2011-10-25 the ceilometer CL51 (Vaisala, Finland) with a range up to 43,000 feet was used and the clear sky value was changed to 50,000.

Other data

The data from the bathymetry and chemie are not available via the WEB at this time, but archived in unvalidated form in PoldatDB.