

# Documentation of CTD Data from RV Sonne Cruise No. 120 (28.04.98)

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## 1. General

The Data on RV Sonne cruise No. 120 were collected within the German JGOFS Programme. The cruise took place in the Arabian Sea from the 11.06.1997 until 12.05.1997, starting at Muscat (Oman) and finishing at Djibouti (Rep. Of Djibouti). Chief scientist was Prof. Dr. Bernt Zeitzschel from the Institute for Marine Research at Kiel Germany. This cruise was the last one of the international JGOFS Arabian Sea Process Study. The CTD probe was a Neil Brown Instrument Systems Inc. MARK IV combined with a 24 Niskin bottle rosette sampler.

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## 2. Processing

Gear (e.g. CTD, RO6, MSN,...):	CTD
Standard Depth or Standard Intervals :	continous profiles
Chemicals :	none
Special Procedures:	none

Comments and Notes:

uncalibrated

### 3. Sensor description/ technical details

(The following information were copied from the Neil Brown MARK IIIb conductivity, temperature, depth profiler underwater unit operation and maintenance manual 00101, Jan.1982.)

#### 3.1 The Conductivity cell:

Electrical conductivity of sea water is obtained using a miniature, four electrode ceramic cell and highly precise and stable interface electronics. The conductivity cell is a NBIS Inc. #B10086 4 electrode cell 0.4cm x 0.4cm x 3cm long.

The conductivity sensor has got a range from 1 to 65 mmho with an accuracy of 0.005 mmho, a resolution of 0.001 mmho and a stability of 0.003 mmho/mo.

#### 3.2 The Temperature sensor:

The Temperature is determined by electronically combining the outputs of a high speed (30 milliseconds) thermistor and a platinum resistance thermometer. This composite output has the excellent long term stability and linearity characteristics of platinum probes and rapid thermal response found with thermistors. The sensors were a Platinum Thermometer Rosemount Model 171 BJ 200  $\Omega$  @ 20°C (185.3  $\Omega$  @ 0°C) and a Thermistor Fenwal #GC32SM2 2000 $\Omega$  @ 25°C.

The sensor range starts at -32°C up to +32°C with an accuracy of +/- 0.005°C (in the range from -3 to +32°C) and a resolution of 0.0005°C and a stability of 0.001°C/mo.

#### 3.3 The Pressure sensor:

A high performance, strain gage pressure transducer and associated electronics were used to determine pressure. The pressure sensor was a model from Paine, Model type 211-35-440; 350 $\Omega$  bonded strain gage bridge, tube type. The instrument specifications are as follows:

in the range from 0-320db with an accuracy of 0.5db and a resolution of 0.005db

in the range from 0-650db with an accuracy of 1.0db and a resolution of 0.01db

in the range from 0-1600db with an accuracy of 1.65db and a resolution of 0.025db

in the range from 0-3200db with an accuracy of 3.2db and a resolution of 0.05db

in the range from 0-6500db with an accuracy of 6.5db and a resolution of 0.1db

#### 3.4 The fluorescence sensor:

The fluorescence sensor from Dr. Haardt has got a linear characteristic 0-100 ug/l corresponding to 0.015 - 10 V. Resolution 0.05 ug/l. Spectral range of excitation and detection 360nm to 800nm. The accuracy of the sensor is +/- 0.005.

### 4. Calibration / Analytical Investigations

Description of Calibration, mathematical formulas and coefficients

-Correction of the pressure offset for every profile

- Calibration with the pre cruise laboratory calibrations from January 1997 (T. Müller)
- Calibration of the salinity using the AUTOSAL bottle salinities and historical data
- Calibration of the oxygen (using equitation of Owens and Millard '85 resulting 7 coeff.) with the measured dissolved oxygen according to Winkler
- Calibration of the Fluorometer data were made with the Chlorophyll a data existing of almost every station

The calibration of the salinity was problematic because of a very high but known divergence of the conductivity sensor of the NB4 and besides not enough salinometer data