

Cruise report  
"Sonne" cruise 89

A. Cruise narrative

A.1. Highlights

- a. WOCE designation: IR1W and ISS2
- b. Expedition designation: 06BE89/1
- c. Chief scientist: Prof. Dr. F. Schott  
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- d. Ship: Sonne
- e. Ports of call: Colombo, Sri Lanka to Karachi, Pakistan
- f. Cruise dates: August 4 to August 30, 1993

A.2. Cruise Summary Information

a. Geographic boundaries: Stations along IR1W were primarily located along 8°N (IR1W) between 54°E and 77°E. Additional stations that fall both on IR1W and within the ISS2 Special Study area are located between 6°N and 19°N from 51°E to 59°E.

b. Stations occupied: 99 CTD/rosette stations were occupied during the cruise. 62 of these stations fall along IR1W with the other 37 located within the ISS2 area.

Water sampling on the cruise included measurements of salinity, both by CTD and bottle sample oxygen determinations, CTD temperature. Tracer analysis were made for F-11 and F-12, but reliable values were gained only for F-11.

c. Floats and drifters deployed: None reported.

d. Moorings deployed or recovered: None reported.

A.3. List of Principal Investigators

Parameter/Instrument	Sampling group	Responsible Investigator
CTD/O <sub>2</sub> / Rosette	IfM Kiel	Lothar Stramma
Chlorofluorocarbons	IfM Kiel	Monika Rhein
ADCP	IfM Kiel	Jurgen Fischer
Salinity	IfM Kiel	Lothar Stramma
Oxygen		IfM Kiel Monika Rhein
XBTs	IfM Kiel	Lothar Stramma

A.4. Scientific Programme and Methods

SONNE cruise 89 focused on the study of the circulation and water mass of

the Arabian Sea. The investigation was carried out in the context of the World Ocean Circulation Experiment (WOCE). Cruise objectives were the study of water mass and heat exchange at the entrance of the Arabian Sea during the summer monsoon, the investigation of the outflow of the Somali Current region to the north and the investigation of upwelling off the Oman coast.

SONNE left Colombo, Sri Lanka on 4 August 1993 at 21:00 local time heading towards the southwest Indian coast. A test station was done at  $7^{\circ}29.8'N$ ,  $78^{\circ}14.8'E$ . The CTD section along  $8^{\circ}N$  started with CTD station 2 at  $7^{\circ}59.98'N$ ,  $76^{\circ}51.97'E$ . On 15 August at station 50 at  $8^{\circ}01'N$ ,  $53^{\circ}55.21'E$  the 200 miles zone of Somalia was reached. As no research permission for Somalia waters was obtained, some CTD stations were made along the 200 mile zone of Somalia, or within the Yemen waters at the border to the Somalia waters.

Although the winds increased due to the summer monsoon off the African continent, CTD measurements were still possible, although sometimes without water bottles, as R/V SONNE showed very good performance during rough weather.

In the last week of the cruise, CTD stations were made in the Owens Fracture Zone and off the Omani coast. The ship reached Karachi on 28 August, where the cruise SONNE 89 terminated.

A.5. Major Problems and Goals Not Achieved  
None reported.

A.6. Other Incidents of Note  
None reported.

# IR01W Schott/IfMK (SONNE 1993) – 06BE89\_1

