

Aanderaa current meter and SeaTech transmissometer data series at the southern North Sea site

Data Originators for current meter data series

John Howarth and Phil Knight, Proudman Oceanographic Laboratory (POL), Merseyside, UK.

Data Originators for transmissometer data series

Dr. Sarah Jones and Dr. Robin McCandliss, University of Wales (UWB), Bangor, UK.

Two Aanderaa current meters with SeaTech transmissometers were deployed on two different rigs at the main mooring site A at the beginning of the southern North Sea (SNS) experiment in March 1999 during cruise Pelagia PE136 and recovered in May 1999 at the end of the experiment during cruise Belgica BG9912. The two rigs were respectively: Rig A ("STABLE mooring") and Rig H ("Near-bed Environmental mooring"). A further two Aanderaa current meters without SeaTech transmissometers were deployed at secondary locations, on Rig U and Rig V respectively, also for the duration of the experiment. However no data arose from Rig U because the rig could not be found at the end of the experiment.

This report contains the qualifying documentation and header information associated with the following data series extracted from the BODC database:

Series Reference	Data Type	Latitude deg min	Longitude deg min	Start Date yyyy/mm/dd	Sea Floor Depth m	Sensor Depth m
541766	LA	52 18.4 N	004 18.0 E	1999/03/29	20.0	18.5
541778	LA	52 18.0 N	004 18.0 E	1999/03/30	18.0	11.0
541754	LA	52 20.1 N	004 21.0 E	1999/03/30	19.0	16.0

where Data Type LA = Currents -subsurface Eulerian

Parameter	Unit	Parameter code	Comments		
			541766	541778	541754
Current direction	deg. T	LCDAEL01	NO DATA	none	none
Current speed	cm/sec	LCSAEL01	NO DATA	none	none
Attenuance	per m	ATTNMR01	caution	caution	no transmissometer
Conductivity	Mhos/m	CNDCPR01	caution	caution	none
Pressure	db	PRESPO01	caution	none	NO DATA
Salinity	PSU	PSALPR01	caution	caution	none
Temperature	deg. C	TEMPPR01	none	none	none

BODC Data Documentation
PROVESS Project MAS3-CT97-015

The following single character qualifying flags may be associated with one or more individual parameters within a data cycle:

<u>Flag</u>	<u>Description</u>
	Unqualified
<	Below detection limit
>	In excess of quoted value
B	Beginning of CTD Down/Up Cast
D	Thermometric depth
E	End of CTD Down/Up Cast
K	Uncertain/suspect value
L	Improbable value - originator's quality control
M	Improbable value - BODC quality control
N	Null value
O	Improbable value - user quality control
P	Trace/calm
Q	Indeterminate
R	Replacement value
S	Estimated value
T	Interpolated value
U	Uncalibrated
W	Control value
X	Excessive difference

INFORMATION FOR BODC SERIES REF. NO. 541766

Time Series Inventory Number : 10378

Start Time : 29 Mar 1999 1455 GMT
End Time : 19 May 1999 0735 GMT

Latitude : 52deg 18.4min N
Longitude : 004deg 18.0min E

Nominal Cycle Interval : 10.0 minutes

Sensor Depth : 18.50m
Sea Floor Depth : 20.00m

Positional Uncertainty : 0.1 to 0.5 n.miles
Sea Floor Datum : Instantaneous
Sensor Depth Datum : Sea floor reference
Disposition of Sensors : Sensor fixed, measurements made at fixed depths

Project : Provess

Data Category : Currents -subsurface Eulerian
Instrument Type : Paddle wheel current meter
Instrument Mounting : Sea floor - fixed
Originator Laboratory : Proudman Oceanographic Lab., Bidston, UK
Originator's Identifier : as11814.820

The following **warning** applies to this series:

No current speed or direction are available for this instrument.

The following **cautions** apply to this series:

- 1) The instrument's recorded pressure indicated a depth deeper than the total water depth measured on deployment by the ship's echo-sounder by at least 10 metres. Absolute pressure values from this instrument should therefore be used with caution.
 - 2) The attenuation time-series shows that the transmissometer saturated at 9.9 per metre. Records reaching this value were flagged '>'.
 - 3) Towards the end of the record from 1 May 1999 03:00, the attenuation signal indicated a final 'event' which was identified as suspect by the data originators (SPM group, UNW, Bangor) and which was probably due to the battery getting flat. Records from 1 May 1999 03:00 have therefore been flagged as suspect.
 - 4) The data originators also highlighted that a few attenuation values were below 0.364 per metre which is the typical value for particle free water at 660 nm in these instruments. The minimum value for data points not flagged as suspect was 0.22 per m. These low values were isolated and of small magnitude. However they could suggest that the transmissometer reading of beam attenuation was underestimating the real value. Absolute attenuation value from this instrument should therefore be used with caution.
 - 5) Throughout the record, the salinity and conductivity values appear low (by ca. 0.5 PSU for salinity) relative to concomitant conductivity/salinity measurements obtained from other instruments deployed close to this instrument position and depth. Absolute salinity values from this instrument should therefore be used with caution.
-
-

INFORMATION FOR BODC SERIES REF. NO. 541766 (continued)

Additional information stored with the data:

Transmissometer calibration (University of Wales, Bangor, UK):

Transmission readings from the SeaTech transmissometer interfaced with the Aanderaa current meter SN11814 were converted to attenuation using the following values:

air correction reading = 653

blanked path reading = 0

These values were determined following a pre-deployment *in situ* calibration cast when the two SeaTech transmissometers to be used during PROVCESS SNS experiment were strapped to the CTD frame during Pelagia PE136 cruise (CTD001). The CTD was then lowered to the bed, brought back close to the surface and held at this depth for 5 minutes (see BODC documentation 66467 for further details on the calibration procedure).

The following additional documents apply to this series:

[63428](#); General Data Screening carried out by BODC

[65611](#); Aanderaa Recording Current Meter Model 7/8

[65720](#); Aanderaa Current Meter: DATA PROCESSING

[66188](#); SeaTech Transmissometer

[66467](#); SeaTech Transmissometer: DATA PROCESSING

Data Activity Document: [78072](#)

Project Document : [77554](#)

INFORMATION FOR BODC SERIES REF. NO. 541778 (continued)

These values were determined following a pre-deployment *in situ* calibration cast when the two SeaTech transmissometers to be used during the PROVCESS SNS mooring experiment were strapped to the CTD frame during Pelagia PE136 cruise (CTD001). The CTD was then lowered to the bed, brought back close to the surface and held at this depth for 5 minutes (see BODC documentation 66467 for further details on calibration procedures).

The following additional documents apply to this series:

[63428](#); General Data Screening carried out by BODC
[65611](#); Aanderaa Recording Current Meter Model 7/8
[65720](#); Aanderaa Current Meter: DATA PROCESSING
[66188](#); SeaTech Transmissometer
[66467](#); SeaTech Transmissometer: DATA PROCESSING
Data Activity Document: [78072](#)
Project Document : [77554](#)

INFORMATION FOR BODC SERIES REF. NO. 541754

Time Series Inventory Number : 10401

Start Time : 30 Mar 1999 1655 GMT
End Time : 18 May 1999 1355 GMT

Latitude : 52deg 20.1min N
Longitude : 004deg 21.0min E

Nominal Cycle Interval : 10.0 minutes

Sensor Depth : 16.00m
Sea Floor Depth : 19.00m

Positional Uncertainty : 0.1 to 0.5 n.miles
Sea Floor Datum : Instantaneous
Sensor Depth Datum : Sea floor reference
Disposition of Sensors : Sensor fixed, measurements made at fixed depths

Project : Provess

Data Category : Currents -subsurface Eulerian
Instrument Type : Paddle wheel current meter
Instrument Mounting : Subsurface mooring - surface and subsurface legs
Originator Laboratory : Proudman Oceanographic Lab., Bidston, UK
Originator's Identifier : as09652.827

The following additional documents apply to this series:

[63428](#); General Data Screening carried out by BODC
[65611](#); Aanderaa Recording Current Meter Model 7/8
[65720](#); Aanderaa Current Meter: DATA PROCESSING
Data Activity Document: [78072](#)
Project Document : [77554](#)

PARAMETERS

Parameter : AADYAA01 (TIME)
Description : Day number
Method : Computation
Units : Days (1760/01/01 = day 0)

Parameter : AAFDZZ01 (TIME)
Description : Day fraction (GMT)
Method : Computation
Units : Days

Parameters AADY/AAFD are usually supplied as date and time (GMT) or as parameters ADATAA01 and AHMSAA01

Parameter : ADATAA01 (TIME)
Description : Date in format yyyyymmdd
Method : Computation
Units : Years Months Days (yyyyymmdd)

Parameter : AHMSAA01 (TIME)
Description : Time in format hh24miss
Method : Computation
Units : Hours Minutes Seconds

Parameter : ATTNMR01 (HYDR)
Description : Red light attenuation (medium 20/25cm beam)
Method : Red light 20/25cm transmissometer
Units : per metre

Parameter : CND CPR01 (HYDR)
Description : Probe measured conductivity
Method : Conductivity probe
Units : Mhos/metre

Parameter : LCDAEL01 (CURR)
Description : Current direction (Eulerian method)
Method : In-situ current measurement
Units : Degrees True

Parameter : LCSAEL01 (CURR)
Description : Current speed (Eulerian method)
Method : In-situ current measurement
Units : cms/sec

Parameter : PRES PS01 (HYDR)
Description : Sea pressure (fixed)
Method : Fixed pressure sensor (e.g. SFPG)
Units : Decibars

Parameter : PSAL PR01 (HYDR)
Description : Practical salinity (unspecified probe type)
Method : Unspecified conductivity probe
Units : Practical Salinity Units

PARAMETERS (continued)

Parameter : TEMPPR01 (HYDR)
Description : Sea temperature (unspecified)
Method : Unspecified temperature probe
Units : Degrees Centigrade