CRUISE SUMMARY REPORT

FOR COLLATING CENTRE USE

Centre: DOD Ref. No.:

| Is data exchange | | \boxtimes | |
|------------------|-----|-------------|----|
| restricted | Yes | In part | No |

SHIP enter the full name and international radio call sign of the ship from which the data were collected, and indicate the type of ship, for example, research ship; ship of opportunity, naval survey vessel; etc.

Call Sign: DBKV Name: **Poseidon**

Type of ship: Research Vessel

CRUISE NO. / NAME Pos516

enter the unique number, name or acronym assigned to the cruise (or cruise leg, if appropriate).

CRUISE PERIOD 29/07/2017 to 18/08/2017 start end

> (set sail) day/ month/ year day/ month/ year (return to port)

PORT OF DEPARTURE (enter name and country) Ponta Delgada, Portugal (Azores)

PORT OF RETURN (enter name and country) Ponta Delgada, Portugal (Azores)

RESPONSIBLE LABORATORY

enter name and address of the laboratory responsible for coordinating the scientific planning of

Name: Universität Bremen, MARUM/IUP Address: Otto-Hahn Allee, 28359 Bremen

Country: Germany

CHIEF SCIENTIST(S) enter name and laboratory of the person(s) in charge of the scientific work (chief of mission) during the cruise.

Dr. Maren Walter, Universität Bremen, MARUM/IUP, Otto-Hahn Allee, 28359 Bremen phone +49 421 218 62147, email maren.walter@uni-bremen.de

OBJECTIVES AND BRIEF NARRATIVE OF CRUISE enter sufficient information about the purpose and nature of the cruise so as to provide the context in which the report data were collected.

The objectives of the cruise were:

- 1) Deploy a mooring to record the temporal variability of the internal wave field and associated energy fluxes
- 2) Use time series CTD/LADCP stations to assess locally the temporal variability of mixing, dissipation, and internal wave fluxes
- 3) Observe internal wave energy fluxes along paths where satellite altimetry shows beams of converging low-mode internal waves to study the processes operating along specific beams using shipboard measurements in combination with model data and satellite altimetry
- 4) Estimate the contribution of radiated internal wave energy to local mixing.

The work program consisted of two parts, a series of 7 repeated CTD/LADCP stations along a convergence of tidal beams south of the Azores archipelago, with 10 to 16 repeats at each station/position, and the deployment of the mooring.

PROJECT (IF APPLICABLE) if the cruise is designated as part of a larger scale cooperative project (or expedition), then enter the name of the project, and of organisation responsible for co-ordinating the project.

Project name: DFG TRR 181 'Energy Transfers in Atmosphere and Ocean'

Coordinating body: Institut für Meereskunde, Universität Hamburg

| | and who may be contacted for further information about the data. (The letter assigned below against each Principal Investigator is used on pages 2 and 3, under the column heading 'PI', to identify the data sets for which he/she is responsible) | | | | | | |
|----|---|--|--|--|--|--|--|
| A. | Maren Walter Uni Bremen/MARUM; CTD, LADCP, VMADCP, Mooring | | | | | | |
| В. | | | | | | | |
| C. | | | | | | | |
| D. | | | | | | | |
| E. | | | | | | | |
| F. | | | | | | | |
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PRINCIPAL INVESTIGATORS: Enter the name and address of the Principal Investigators responsible for the data collected on the cruise

MOORINGS, BOTTOM MOUNTED GEAR AND DRIFTING SYSTEMS

This section should be used for reporting moorings, bottom mounted gear and drifting systems (both surface and deep) deployed and/or recovered during the cruise. Separate entries should be made for each location (only deployment positions need be given for drifting systems). This section may also be used to report data collected at fixed locations which are returned to routinely in order to construct 'long time series'.

| PI | | APPROXIMATE POSITION LATITUDE LONGITUDE | | | | | | DESCRIPTION Identify, as appropriate, the nature of the instrumentation the parameters (to be measured, the number of instruments and their depths, whether deployed and/o |
|------------------------|-----|--|-----|-----|------|-----|--|--|
| See top of page. | deg | min | N/S | deg | min | E/W | enter code(s) from list on last page. | recovered, dates of deployments and/or recovery, and any identifiers given to the site. |
| A | 30 | 29.0 4 | N | 30 | 11.7 | W | D01, D71, | deployment of current meter mooring (08/08/2017), 6x current meter w. temperature logger (600m, 1000m, 1400m, 2000m, 2900m, 4550m); 1x acoustic Doppler current profiler w. temperature logger (280m) |
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SUMMARY OF MEASUREMENTS AND SAMPLES TAKEN

Except for the data already described on page 2 under 'Moorings, Bottom Mounted Gear and Drifting Systems', this section should include a summary of all data collected on the cruise, whether they be measurements (e.g. temperature, salinity values) or samples (e.g. cores, net hauls).

Separate entries should be made for each distinct and coherent set of measurements or samples. Different modes of data collection (e.g. vertical profiles as opposed to underway measurements) should be clearly distinguished, as should measurements/sampling techniques that imply distinctly different accuracy's or spatial/temporal resolutions. Thus, for example, separate entries would be created for i) BT drops, ii) water bottle stations, iii) CTD casts, iv) towed CTD, v) towed undulating CTD profiler, vi) surface water intake measurements, etc.

Each data set entry should start on a new line – it's description may extend over several lines if necessary.

NO, UNITS: for each data set, enter the estimated amount of data collected expressed in terms of the number of 'stations'; miles' of track; 'days' of recording; 'cores' taken; net 'hauls'; balloon 'ascents'; or whatever unit is most appropriate to the data. The amount should be entered under 'NO' and the counting unit should be identified in plain text under 'UNITS'.

| | under 'NO' and the counting unit should be identified in plain text under 'UNITS'. | | | | | |
|------------------------|--|-----------------------|--|--|--|--|
| PI see page 2 | NO see above | UNITS see above | DATA TYPE Enter code(s) from list on last page | DESCRIPTION Identify, as appropriate, the nature of the data and of the instrumentation/sampling gear and list the parameters measured. Include any supplementary information that may be appropriate, e. g. vertical or horizontal profiles, depth horizons, continuous recording or discrete samples, etc. For samples taken for later analysis on shore, an indication should be given of the type of analysis planned, i.e. the purpose for which the samples were taken. | | |
| А | 92 | profiles | H10, H16 | CTD, continuous temperature, salinity, turbidity vertical profiles | | |
| Α | 92 | profiles | D71 | Lowered ADCP, continuous vertical current profiling | | |
| Α | 20 | days | D71 | underway along track current measurements with ships' ADCP | | |
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TRACK CHART: You are strongly encouraged to submit, with the completed report, an annotated track chart illustrating the route followed and the points where measurements were taken.

Insert a tick() in this box if a track chart is supplied

X

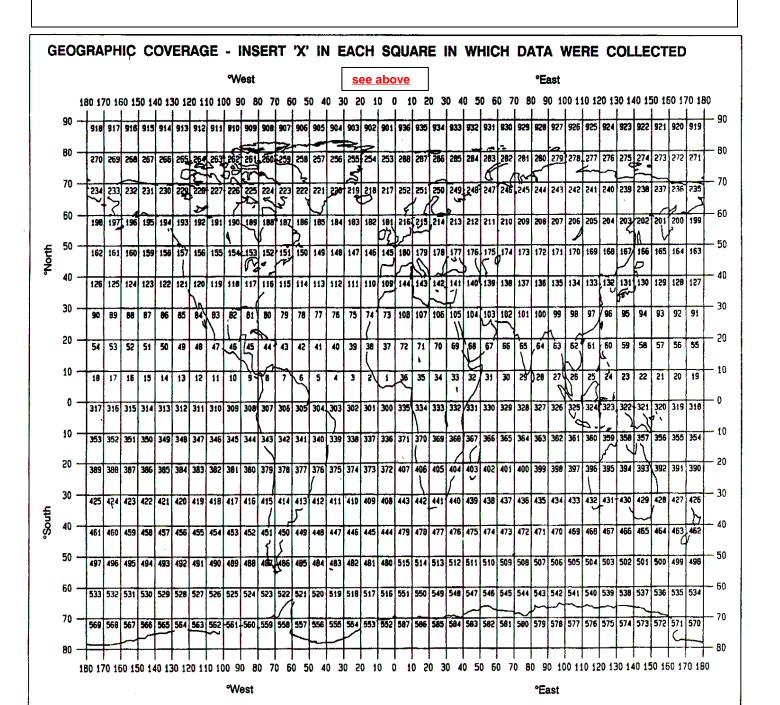
GENERAL OCEAN AREA(S): Enter the names of the oceans and/or seas in which data were collected during the cruise – please use commonly recognised names (see, for example, International Hydrographic Bureau Special Publication No. 23, 'Limits of Oceans and Seas').

subtropical Northeast Atlantic

SPECIFIC AREAS: If the cruise activities were concentrated in a specific area(s) of an ocean or sea, then enter a description of the area(s). Such descriptions may include references to local geographic areas, to sea floor features, or to geographic coordinates.

Please insert here the number of each square in which data were collected from the below given chart

112, 111, 76



PARAMETER CODES

METEOROLOGY

| M01 | Upper air observations |
|-----|-----------------------------------|
| M02 | Incident radiation |
| M05 | Occasional standard measurements |
| M06 | Routine standard measurements |
| M71 | Atmospheric chemistry |
| M90 | Other meteorological measurements |

PHYSICAL OCEANOGRAPHY

| | OAL GOLANGORAI III |
|-----|---|
| H71 | Surface measurements underway (T,S) |
| H13 | Bathythermograph |
| H09 | Water bottle stations |
| H10 | CTD stations |
| H11 | Subsurface measurements underway (T,S) |
| H72 | Thermistor chain |
| H16 | Transparency (eg transmissometer) |
| H17 | Optics (eg underwater light levels) |
| H73 | Geochemical tracers (eg freons) |
| D01 | Current meters |
| D71 | Current profiler (eg ADCP) |
| D03 | Currents measured from ship drift |
| D04 | GEK |
| D05 | Surface drifters/drifting buoys |
| D06 | Neutrally buoyant floats |
| D09 | Sea level (incl. Bottom pressure & inverted |
| | echosounder) |
| D72 | Instrumented wave measurements |
| D90 | Other physical oceanographic measurements |
| | |

CHEMICAL OCEANOGRAPHY

| H21 | Oxygen |
|-----|------------------------------|
| H74 | Carbon dioxide |
| H33 | Other dissolved gases |
| H22 | Phosphate |
| H23 | Total - P |
| H24 | Nitrate |
| H25 | Nitrite |
| H75 | Total - N |
| H76 | Ammonia |
| H26 | Silicate |
| H27 | Alkalinity |
| H28 | PH |
| H30 | Trace elements |
| H31 | Radioactivity |
| H32 | Isotopes |
| H90 | Other chemical oceanographic |
| | measurements |

MARINE CONTAMINANTS/POLLUTION

| P01 | Suspended matter |
|-----|--------------------------------|
| P02 | Trace metals |
| P03 | Petroleum residues |
| P04 | Chlorinated hydrocarbons |
| P05 | Other dissolved substances |
| P12 | Bottom deposits |
| P13 | Contaminants in organisms |
| P90 | Other contaminant measurements |

MARINE BIOLOGY/FISHERIES

| | E BIOLOG I/FISHERIES |
|-----|--|
| B01 | Primary productivity |
| B02 | Phytoplankton pigments (eg chlorophyll, |
| | fluorescence) |
| B71 | Particulate organic matter (inc POC, PON) |
| B06 | Dissolved organic matter (inc DOC) |
| B72 | Biochemical measurements (eg lipids, amino |
| | acids) |
| B73 | Sediment traps |
| B08 | Phytoplankton |
| B09 | Zooplankton |
| B03 | Seston |
| B10 | Neuston |
| B11 | Nekton |
| B13 | Eggs & larvae |
| B07 | Pelagic bacteria/micro-organisms |
| B16 | Benthic bacteria/micro-organisms |
| B17 | Phytobenthos |
| B18 | Zoobenthos |
| B25 | Birds |
| B26 | Mammals & reptiles |
| B14 | Pelagic fish |
| B19 | Demersal fish |
| B20 | Molluscs |
| B21 | Crustaceans |
| B28 | Acoustic reflection on marine organisms |
| B37 | Taggings |
| B64 | Gear research |
| B65 | Exploratory fishing |
| B90 | Other biological/fisheries measurements |

MARINE GEOLOGY/GEOPHYSICS

| G01 | Dredge |
|-----|---|
| G02 | Grab |
| G03 | Core - rock |
| G04 | Core - soft bottom |
| G08 | Bottom photography |
| G71 | In-situ seafloor measurement/sampling |
| G72 | Geophysical measurements made at depth |
| G73 | Single-beam echosounding |
| G74 | Multi-beam echosounding |
| G24 | Long/short range side scan sonar |
| G75 | Single channel seismic reflection |
| G76 | Multichannel seismic reflection |
| G26 | Seismic refraction |
| G27 | Gravity measurements |
| G28 | Magnetic measurements |
| G90 | Other geological/geophysical measurements |