	Page 1
	FOR COLLATIMG CENTRE USE
CRUISE SUMMARY REPORT	Centre: DOD Ref. No.:
	Is data exchange
	restricted Yes In part No
<b>SHIP</b> enter the full name and international radio call sign of the ship from which the example, research ship; ship of opportunity, naval survey vessel; etc.	data were collected, and indicate the type of ship, for
Name: Polarstern	Call Sign: <u>DBLK</u>
Type of ship: <u>Research Vessel</u>	
CRUISE NO. / NAME PS 78 / ARK XXVI/2	enter the unique number, name or acronym assigned to the cruise (or cruise leg, if appropriate).
CRUISE PERIOD start <u>13/07/2011</u> to <u>03/08/2011</u> (set sail) day/ month/ year day/ month/ year (retur	end rn to port)
PORT OF DEPARTURE (enter name and country) Longyearbyen (Svalk	pard), Norway
PORT OF RETURN (enter name and country) Tromsø, Norway	
RESPONSIBLE LABORATORY enter name and address of the laboratory the cruise	responsible for coodinating the scientific planning of
Name: Alfred Wegener Institute for Polar and Marine Research (	AWI)
Address: <u>Am Handelshafen 12, 27570 Bremerhaven</u>	
Country: <u>Germany</u>	
CHIEF SCIENTIST(S) enter name and laboratory of the person(s) in charge of	of the scientific work (chief of mission) during the cruise.
Dr. Michael Klages (AWI)	
OBJECTIVES AND BRIEF NARRATIVE OF CRUISE enter sufficient i as to provide the	information about the purpose and nature of the cruise so e context in which the report data were collected.
<b>RV "Polarstern" cruise PS ARK XXVI/2</b> The work carried out during the RV "Polarstern" expedition into the Arctic milestone for the EU projects HERMIONE, HYPOX, ESONET and his suc PACES (Polar Regions and Coasts in the changing Earth System) research p we contribute within the topic "The changing Arctic and Antarctic" to work ecosystem interactions in a bi-polar perspective" and workpackage 6 "Ocear changing role in marine ecosystems". Our work was embedded in WP 3 ressea ice conditions and their impact on ecosystems and food webs. These char combination of long-term observations and modelling. Our contribution to V specialization of selected polar marine species, from algae to mammals, on conditions. These activities qualify and quantify the responses of model org levels, from molecular to ecosystem. Building on recent progress, they also background of species-specific sensitivities as well as the capacity of organi Finally, the conducted research programme contributed to the time-series structure and structure and structure to the species structure of the series struc	cessor EMSO, and second a contribution to the programme of the AWI which started in 2009. Here, package 3 "Sea ice – atmosphere – ocean – n warming and acidification: organisms and their earch activities through studies on changing Arctic anges have been addressed through a dedicated WP 6 originated from our studies on the functional polar climate regimes and associated living anisms to ongoing warming trends at key functional characterize the physiological and ecological isms and ecosystems to acclimate or adapt to change.

The work plan was based on the use of the unmanned Remotely Operated Vehicle (ROV) "KIEL 6000" of the IFM-GEOMAR in Kiel. Among a standard sampling programme including exchange of moorings and free falling landers, the ROV was used for various in situ experiments. One short dive took place at a location at around 400 m water depth west of Prins Karlsvorland where many methane seeps have been recorded recently with fishery echosounders. Further dives were carried out at the Vestnesa ridge and finally at the central experimental site of "HAUSGARTEN". Among these activities an Autonomous Underater Vehicle (AUV) was used for dives under the drifting sea ice and in open water. Water samples were collected, pCO2-concentrations, PAR, turbidity, chla a, temperature and salinity were measured *en route*. The cruise PS ARK XXVI/2 did end at the 3<sup>rd</sup> of August 2011 in the port of Tromsø.

**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: PS ARK XXVI/2

## Coordinating body: AWI

**PRINCIPAL INVESTIGATORS:** Enter the name and address of the Principal Investigators responsible for the data collected on the cruise 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 'Pl', to identify the data sets for which he/she is responsible)

- A. Dr. Michael Klages, Alfred-Wegener-Institut, Am Handelshafen 12, 27570 Bremerhaven, Germany
- B. Dr. Thomas Soltwedel, Alfred-Wegener-Institut, Am Handelshafen 12, 27570 Bremerhaven, Germany
- C. Dr. Ingo Schewe, Alfred-Wegener-Institut, Am Handelshafen 12, 27570 Bremerhaven, Germany
- D. Dr. Eduard Bauerfeind, Alfred-Wegener-Institut, Am Handelshafen 12, 27570 Bremerhaven, Germany

E. Dr. Frank Wenzhöfer, Alfred-Wegener-Institut, Am Handelshafen 12, 27570 Bremerhaven, Germany

## 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		APPR	OXIMATE	POSITIO	N		DATA TYPE	DESCRIPTION	
See top	LATITUDE			LONGITUDE		enter code(s) from list on cover page.	Identify, as appropriate, the nature of the instrumentation the parameters (to be) measured, the number of instruments and their depths, whether deployed and/or recovered, dates of deployments and/or recovery, and any identifiers		
of page.	deg	min	N/S	deg	min	E/W		given to the site.	
D	79	44.38	Ν	004	30.37	Е	G71	Deployed: FEVI-23; Moored Particle traps, Current meters	
D	79	00.42	N	004	19.90	Е	G71	Deployed: Moored Particle traps, Current meters	
Е	79	03.90	N	004	10.24	Е	G71	Deployed: Long-term free falling lander with oxygen optodes	
В	78	36.30	N	005	05.06	E	G71	Deployed: FLUME #9; Long-term mooring with current meter (only 50 m long)	
D	79	00.10	Ν	004	20.60	Е	G71	Recovered: FEVI-22 Mooring with particle traps, current meters	
D	79	44.36	Ν	004	30.31	Е	G71	Recovered: FEVI-21 Mooring with particle traps, current meters	
D	78	36.36	N	005	05.18	Е	G71	Recovered: FLUME # 8 Long-term mooring with current meter (only 50 m long)	
В	79	04.82	N	004	05.79	Е	G71	Recovered: Long-term free falling Lander	

## 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.

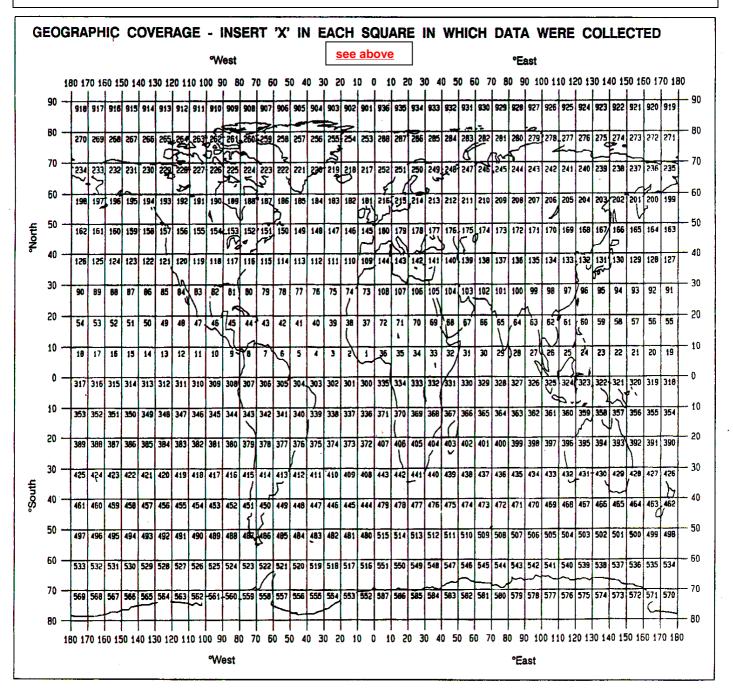
NO, UNITS : for each data set, enter the estimated amount of data collected expressed in terms of the number of 'stations'; miles' of track; 'days' of recording; 'cores' taken; net 'hauls'; balloon 'ascents'; or whatever unit is most appropriate to the data. The amount should be entered under 'NO' and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

PI see page 2	NO see above	UNITS see above	DATA TYPE Enter code(s) from list on cover 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.
Α	21	days	H71	Water temperature and salinity with hull mounted sensors of the ship
A,D	20	stations	H10	CTD casts for conductivity, temperature and depth measurements
A,B,C,E	6	dives	B16	Remotely Operated Vehicle operation for biological and geological sampling
С	19	stations	G02	Sediment sampling with Multi corer (100 mm diameter)
Α	35	stations	G74	Seafloor mapping with Hydrosweep
5				
b	<u>.</u>			

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	
<b>GENERAL OCEAN AREA(S):</b> Enter the names of the oceans and/or seas in which data were collected commonly recognised names (see, for example, International Hydrographic Bureau Special Publication No. 23,		
FRAM STRAIT		
SPECIFIC AREAS: If the cruise activities were concentrated in a specific area(s) of an ocean or sea, then		ea(s).

Such descriptions may include references to local geographic areas, to sea floor features, or to geographic coordinates. <u>Please insert here the number of each square in which data were collected from the below given chart</u>

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## THANK YOU FOR YOUR COOPERATION

Please send your completed report without delay to the collating centre indicated on the cover page