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SCIENTIFIC INVESTIGATIONS OF THE SOUTHERN OCEANS:
A TABULATION OF WORK CARRIED OUT SINCE 1977

This document tabulates concisely the responses of Member States to IOC Circular Letter No 884, that were received up to 15 December 1982 plus material provided by Member States immediately before and during the Fourth Session of the Programme Group.

Up to 15 December 1982, responses to IOC Circular Letter No 884 were received from: Canada, Chile, Federal Republic of Germany, German Democratic Republic, New Zealand, Norway, Poland, UK, USA and USSR.

Responses were in many forms, including descriptive abstracts, summary tables or reports prepared for other bodies engaged in Antarctic research.

The tabulations of work carried out since 1977 cover:

- A. Physical Oceanography
- B. Air-Sea Interaction
- C. Sea-ice Dynamics
- D. Marine Geology and Geophysics
- E. Marine Pollution

Nearly all the marine biological investigations carried out in the Southern Oceans in recent years have been part of the BIOMASS programme. Summaries of work done are published regularly in the BIOMASS Newsletter and Report series, and are not, therefore, included here. Certain countries, notably Poland, FRG, GDR and the UK had been carrying out investigations on krill and fish prior to the setting-up of the BIOMASS programme, mainly in the Scotia Sea, Weddell Sea, Bellingshausen Sea and South Georgia Island regions.

For this revised version of document IOC/INF-514, the information presented in the tabulations has been supplemented by material provided by Member States immediately before and at the Fourth Session of the Programme Group.

A - PHYSICAL OCEANOGRAPHY

AREA	YEAR	COUNTRY	PROJECT
DRAKE PASSAGE and ADJACENT WATERS	1976/77 Jan-Feb. 77	USA, Chile, Argentina, FRG	ISOS - Project Drake - studies of Antarctic Circumpolar Current (ACC) and Polar Front Zone (PFZ) (- volume transport of ACC) (- structure of ACC) (- eddies and intrusions) (- lateral mixing)
"	1977/78	USA	General physical oceanography
"	Jan 79 - March 80	USA, Chile, Argentina, USSR	ISOS - Project Drake 79 (cont.): ACC & PFZ (- thermal structure of ACC) (- transport through Drake Passage) (- meso-scale features of ACC) (- turbulent fluxes)
"	1980/81	USA, Chile, Argentina	Project Drake 79 (contd.)
"	"	USA & USSR	Formation of Sub-Antarctic Mode Water (SAMW)
"	1979 onwards	GDR	General physical oceanography
SCOTIA SEA	Jan-May 77	Poland	Water masses and chemistry in connection with krill and fish investigations
"	"	FRG	" " "
"	July-Aug 77	Argentina	General physical and chemical oceanography
"	Jan-Feb 78	USSR	POLEX-South programme: Studies of PFZ; flow over Scotia Ridge
"	Feb-Apr 79	Argentina	General physical and chemical oceanography
"	Nov 80 - Apr 81	Argentina	" " "
"	Nov 77 - Apr 81	Poland	Water masses and chemistry in connection with krill and fish investigations
"	"	FRG	" " "
"	Jan-Feb 81	FRG	Currents; structure of water masses

A - PHYSICAL OCEANOGRAPHY (contd.)

AREA	YEAR	COUNTRY	PROJECT
SCOTIA SEA	Jan-Feb 81	Argentina	Physical and chemical observations in connection with Krill and fish investigations
" "	Dec 81 - Mar 82	Argentina	General physical and chemical oceanography
" "	Jan-Feb 83	Argentina	General physical oceanography
WEDDELL SEA	Jan-Mar 77	Argentina	General physical and chemical oceanography
" "	Jan-Mar 78	Argentina	" " "
" "	Jan-Mar 79	UK	Dynamics of ACC; Weddell Sea gyre (FGGE)
" "	Feb-Apr 79	Argentina	General physical and chemical oceanography
" "	Nov 78 - Apr 79	Norway	FGGE
" "	Nov 80 - Apr 81	USSR	POLEX-South; Formation of SAMW; Weddell Sea gyre
" "	Nov 80 - Apr 81	Argentina	General physical oceanography
" "	Dec 81 - Mar 82	Argentina	" " "
" "	Jan-Feb 82	USSR	Structure and dynamics of boundary conditions between water masses
" "	1981/82	FRG	Thermal structure of upper layers
" "	Jan-Feb 83	Argentina	General physical oceanography
CAMPBELL PLATEAU/ MACQUARIE RIDGE	Apr 78 and Nov-Dec 78	USA + NZ	Project Ridge, Phases I and II - effect of bottom topography on structure and flow of ACC. - formation of SAMW on Campbell Plateau
" "	Sept-Nov 78	USA	Circulation in sub-Antarctic Zone
" "	Jan 79 - Mar 80	USA + NZ	Project Ridge - Phase II
SOUTH OF NEW ZEALAND	1978-80	USA	Studies of PFZ
to ICE-EDGE	1980-81	USSR	General physical oceanography; structure and dynamics of ACC and PFZ

A - PHYSICAL OCEANOGRAPHY (contd.)

AREA	YEAR	COUNTRY	PROJECT
SOUTH OF AFRICA to 58°S	1978-79	USSR	Structure and dynamics of ACC and PFZ (and FGGE)
to BOUVET ISLAND	1978-79	Norway	FGGE
SOUTH PACIFIC	Nov-Dec 78	Argentina	Support for GARP, release of drifting buoys; bathythermal observations
BELLINGSHAUSEN SEA	Dec 81 - Mar 82	Argentina	General physical and chemical oceanography
GAUSSBERG- KERGUELEN PLATEAU (southern extremities)	1981-82	Australia	Oceanographic investigations
General or Unspecified	1976-79	Canada	Support for FGGE, especially provision of moored buoy instrumentation
"	1977-79	Australia	Bathythermal studies in the Southern Ocean
"	1978-79	Australia	Support for FGGE, release of drifting buoys in the Southern Oceans
"	1980-81	Japan	Currents and water masses; water chemistry
"	1981-82	Australia	Physical oceanography in the Southern Oceans
"	1982-83	Australia	Physical oceanography in the Southern Oceans

B - AIR-SEA INTERACTION

AREA	YEAR	COUNTRY	PROJECT
DRAKE PASSAGE	1979-80	USA	Project Drake 79: Effect of wind stress on currents
SOUTH AFRICA to the ANTARCTIC and WEDDELL SEA WEDDELL SEA	Jan 80	USSR	Air-Sea interaction experiments
General or Unspecified	1981-82	USA & USSR	Air-Sea interaction in area of thin sea-ice (see also below)
	1981-82	Australia	Air-Sea exchange of ammonia in the Southern Oceans area; size, distribution of maritime and polar aerosol particles. Sampling and quantifying of atmospheric aerosols in the Antarctic

C - SEA-ICE DYNAMICS

AREA	YEAR	COUNTRY	Project
MCMURDO SOUND	1978	NZ	Water circulation at ice-edge
ROSS SEA	1978	NZ	Circulation beneath Ross Sea ice shelf
	1979	NZ	Water temperatures under thin ice
WEDDELL SEA	Oct-Nov 81	USA & USSR	Studies of polynya in Weddell Sea
ROSS SEA	1980-81	USA	Sea-ice dynamics
MANSON-DAVIS area	1980-81	Australia	Sea-ice heat-budget experiments

D - MARINE GEOLOGY AND GEOPHYSICS

AREA	YEAR	COUNTRY	PROJECT
SCOTIA SEA	1977 onwards	UK	Tectonic evolution of Scotia Sea region
" "	July-Aug 77	Argentina	Geological sampling; geophysical observations
" "	1980-81	FRG	Sedimentology
WEDDELL SEA	1977	UK	Tectonic evolution of Weddell Sea region
" "	Jan-Mar 77	Argentina	Geological observations
" "	Jan-Mar 78	Argentina	Geological and geophysical observations
" "	1978	FRG	Geophysical investigations
" "	1980-81	USSR	Upper-mantle investigations
" "	Dec 81 - Mar 82	Argentina	Geophysical observations
ROSS SEA	1977 onwards	NZ	Geophysical investigations
" "	1980	FRG	Geophysical investigations
SOUTH OF AUSTRALIA and SOUTH PACIFIC	1978-79	FRG	Sedimentology
SOUTH PACIFIC	1978-79	NZ	Manganese-nodule investigations
PRYDZ BAY REGION	1980-81	Australia	Geological and geophysical survey
MACQUARIE ISLAND TO THE ANTARCTIC MARGIN	1981	Australia	Magnetometry
MAWSON-DAVIS AREA	1982	Australia	Geophysical investigations
SOUTHEAST INDIAN OCEAN	1982-83	Australia	Magnetic and seismic surveys
Off ENDERBY LAND	1982-83	Australia	Magnetic survey
General of Unspecified	1981-82	Australia	Seismic and magnetic survey of the Antarctic margin

F - MARINE POLLUTION

AREA	YEAR	COUNTRY	PROJECT
SCOTIA SEA AREA	1980-81	FRG	Sampling for pesticide residues in birds and seals
SOUTH PACIFIC	1980-81	Japan	Sampling for PCB, DDT, BHC
McMURDO SOUND	1980-81	USA	Sampling for synthetic organic residues in Antarctic food web
ROSS SEA AREA	1981-82	NZ	Surveys of tar, plastics and man-made litter on Ross Sea shores