CCOP/SOPAC TECHNICAL SECRETARIAT

DATA MANAGEMENT SECTION

MAGEONC SYSTEM

User's Manual

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TABLE OF CONTENTS

MAGEONC - Software

MAGEONC is a database management system for storing and retrieving underway geophysical data 'from oceanographic cruises (eg: navigation, bathymetry, magnetism and gravity).

The data base management system used at CCOP/SOPAC was originally developed by the ORSTOM-Noumea to store their cruise data (GEOMER data bank). It is a Network Pointer Model which allows 'fast retrievals for geographical information.

The Data base covers an area stretching 'from 90E to 90Wand 'from 30N to 50S.

The alphanumeric cruise information taken 'from MGD77 cruise header, is managed by the ISIS documentary data base management system.

Important note:

Characters enclosed in < > indicate a single keyboard key. All along this manual the PC keys are enclosed in (<)). The equivalence between the VT220 and PC keyboards is detailed in Annex C. The "Control" key is represented by <Ctrl).

Presently, the data extraction can be done only 'from your login directory. To access the documentary software ISIS, you must have the following files in your directory :isisuc.tab, Isisac.tab, and Syspar.par.

CHAPTER 1 SYSTEM

OVERVIEW

1.1 INTERFACE USER-SYSTEM

The system is written for the handling of the numerical data recorded during the cruises. The interface User-System is done interactively by use of Menu, prompt, worksheet.

Menu

A menu is made of a list of options. Each option is composed by an "Option Identifier", which is a letter or a number, and by an "Option Description", which describes an executable Function.

The screen cursor is automatically positioned at the bottom of this list. To execute a function, the user must hit the key associated to an option identifier. If a wrong key is pressed, no action is taken.

Once a Function has been selected, the system may need some more information from the user to complete the request. Then, prompt or worksheet are displayed.

Prompt

A prompt is a character line displayed on the screen, asking the user for an information (e.g. "Filename 1")

Worksheet

A worksheet is a screen layout for the input of numeric or character data. Some data may have default values that can be modified by the user.

Some worksheets can be spread on several screen displays. To *move* From one screen display to another, press <Prev Screen> or <Next Screen>.

To move the cursor up, press the key <PFl>, to *move* down press the key <PF2>.

To validate the input of one data, hit <CR>, then the cursor will *move* automatically to the next input Field.

To get Help message, press <HELP>.

CHAPTER 2

DATA BASE ORGANIZATION

2.1 GEOGRAPHIC AREA

The geographic area covered by the base spreads from 30N to 50S and from 90E to 90W. This area is split into 57600 quarters of square degree called "stations" used by the storage/retrieval algorithm.

However, a vast majority of the cruise data received from NGDC,Boulder,Colorado) and from some other' institutions provide from a CCOP/SOPAC's area of interest, which is from 5N to 40S, and from 140E to 130W.

2.2 THE DATA BASE FILES

The incorporated data are shared between five files:

- CROISR.DAT: general information about the incorporated cruises
- PROFIL.DAT: general information about the incorporated profiles
- STATN.DAT: information about the station sequentially crossed by the cruises

- MESxxx.DAT: files with the data points of the cruise number xxx
- BASGRA.DAT: general information about the gravity bases.

There are also files used by the file management system:

DGNDX,DGLST,xxx.EEZ.

Croisr.Dat

The file Croisr.dat contains general information about each cruise:

- Cruise name (8 characters)
- Cruise incorporation number (internal number)
- Dates of the survey (format: ddmm where dd=day mm=month)
- "Lower left" and "upper right" limits of the cruise
- Pointers onto the station and profile files
- Number of profiles
- Total number of data points
- Year of the survey
- Navigation quality code (O=satellite, I:mixed, 2 : celestial)
- Structure code of the data file (mesxxx.dat) 2.2.2

3

Data Base Organization

Profile.Data

The file Profile.dat contains general information about each profile:

- Cruise incorporation number
- Profile name (8 characters, currently the first 5 characters of the cruise name followed by a three digits number (e.g. ETM85001 for the first profile of the cruise ETM85FIJ)
- Starting date in minute (TO= OOhOO the 1st January)
- Ending date in minute
- Sequential number of the starting station of this profile
- Sequential number of' the ending station of' this profile

Statn.Dat

The file Statn.dat contains information about the stations sequentially crossed by a cruise:

- Cruise incorporation number
- Arrival time Ts of' the ship in the station
- Departure time Te of the ship from the station
- Number of' data points of' the cruise between Ts and Te

MESXXX.Dat

A MESxxx.dat file is created for each new cruise. Each record of this file is filled with a data point. The recorded fields are:

- Time (in decimal minutes with t=o for the 1st January OOhOO)
- Navigation code (international code; cf'. MGD77 format)
- Latitude
- Longitude
- Bathymetry
- Gravity
- Gravity anomaly
- Magnetic
- Magnetic anomaly

Data Base Organisation

2.3 **THE PROGRAMS**

The system is made of' three main programs:

- INCORP for cruise incorporation
- DQUERY for query formulation
- DQUERB which processes the extraction in batch mode.

There are utility programs which interface data exchange formats (MGD77,GF3) and allow the translation from binary to ASC II and the listing of the Data base files (program BROWSE}.

Access to the INCORP program is strictly reserved to the system manager and needs system privileges.

The DQUERY program can be run by any user from his login directory. You just type MAGEONC or press <PFl> «Fl>). The result binary file (RESULT.DAT) which contains extracted data and the listing of the extracted cruises ("FOR 118. DAT file) are created in your login directory.

The DQUERY program lets you choose between six types of extraction:
1.   Cruise name
2.   Profile name
3.   Range of stations
4.   EEZ (Exclusive Economic Zones)
5. Documentary search (through ISIS)
6. Geographical window

CHAPTER 3

CRUISE INCORPORATION

The program "INCORP" executes the cruise incorporation and some other functions related to the incorporation.

3.1 **MAIN MENU**

The cruise data to be incorporated must be stored in a file named TRSFRT.DAT which has the structure described in annex A.

For its creation read MGD77 utilities manual. Access to the cruise incorporation program requires system· privileges. To run it, type at the DCL level (**$** prompt) the following command:

$ RUN SGBD: INCORP

Then the following menu is displayed:

        F Full incorporation chain

        I Merge the satellite and estime files

        C Cruise information incorporation

        D Data incorporation

        l listing of the incorporation

         B Backup of the Data Base files on TK50

        X Exit

        _____
                            C

The screen cursor is placed at the bottom of the menu. Then type one or the option identifier. If you hit <F>, the cruise information incorporation and data incorporation are run sequentially.

3.2   I: MERGE SATELLITE AND ESTIME FILES

This routine merges the two files "satellite" and "estime", resulting from previous processing, into one file TRSFRT.DAT ready for the incorporation.

3.3   C: CRUISE INFORMATION INCORPORATION

Administrative Information

This routine handles the input of administrative information about the cruise and profile information.

Information about sensors and other devices can be input through the documentary data base software ISIS.

```
+------------------------------------------------+
|              CRUISE INFORMATION                |
|                                                |
|   Cruise name     :  _____          |
|   Starting date   :  _____          |
|   Ending date     :  _____          |
|   Year            :  _____          |
|                                                |
+------------------------------------------------+
```

The date must be entered as four digits number (e.g. 1306 for 13 June). The cruise name must be no more than 8 characters long. If the starting year is different from the ending year, only the starting year is entered.

To validate a data input hit <CR>, to move up or down through the worksheet hit <PF1> or <PF2>. Once the worksheet filled in, hit <Next Screen> key to display the next worksheet.

Profile Information

The second worksheet collects the information about the profile names and the starting and ending times.

```
+---------------------------------+
|  PROFILE NAME   :  _____    |
|  Starting date  :  _____    |
|  Ending date    :  _____    |
+---------------------------------+
```

The profile names are eight characters long and must consists of the first five letters as of the Cruise name followed by 3 numerical characters. The dates must be given in minutes since t=0 (1rst january 00h00mn). If you do not have any information about the profile, you enter the starting and ending date given by the MGD77 utility program.

Cruise Incorporation

A new screen is displayed for each profile. You can *move* through the screens with the <Prev. Screen> and <Next Screen> keys. The input is validated with the <CR>.'When you have finished with the input, hit the <DO> key, the input information is saved in a temporary File INFCRO.DAT and the system takes you back to the main menu.

3.4 D: DATA INCORPORATION

The Cruise information Function must be executed before the data incorporation.

CAUTION

Once the 'D' key has been hit, the system must not be interrupted. If it is, the Data Base should be restored from the TK50 Mageonc backup tape.

Three windows are displayed on the screen. The First one displays the general information about the cruise. The system then asks you to give a navigation quality code: '0' stands for satellite', 'I' mixed or interpolated,'2' celestial, '3'. Type one of these code numbers and the incorporation of the cruise data begins.

Information about the profile and station which are being incorporated are displayed on the screen. When the data incorporation is completed the main menu is displayed again on the screen.

3.5 L: LISTING OF THE INCORPORATED DATA

IF you type 'L' the system will ask for the cruise name you want to get information about. So it searches these information through the Cruise, profile and station files, then you are asked if you want a listing of the numerical data. The listed data are stored in a File named 'PRINT.LIS' in your default directory.

To display the data list on the screen, type the DCL command:

'$TYPE PRINT'

To print data list on paper, type:

"$PRINT PRINT'

3.6   B :   BACKUP ON TK50

This command executes a backup of the update files on a TKSO tape. It is executed after you quit the program with the *'X'* (Exit) function. To backup your work, type "B" from the menu.

Then you are asked to load a TKSO tape (insert the initialized tape into the TKSO drive and press the red button).

The files are copied into a saveset labelled with the backup

        date (e.g. 2SDEC86.SAV).

The files can be restored with the following DCL command:

$ BACKUP/VERIFY MUAO:savesetname/SAVESET MAGDIR:

CHAPTER 4

DATA EXTRACTION

4.1 INTERFACE COMPUTER - USER

4.1.1 Introduction

The interface of the "Extraction" routine is slightly different from the "Incorporation" routine. The extraction program can be run from a DEC terminal as well as from a PC.

An interface (computer-user) is the part or the software which involves information exchanges between the user and its computer. In other words, it communicates with the software.

This interface has been developed with rules which are necessary to be known to use the software without any difficulty. Those rules are simple and will always be the same. The same interface rules are used for the MAP and PROJECTION programs.

The following headings and sub-headings will describe in detail how to use this interface by defining its basic concepts. The same interface is used by the cartographic software MAP.

This interface is supported by Vax computer under the operating system VMS (Virtual Memory System).

4.1.2 Window

A window is a box on the screen, limited by a border line and containing information, option or space to input information and parameter as requested. Several windows could be displayed on the screen at the same time. There are three types of window:

- Input window
- Help window (or informative window)
- Message window

Input Window

This type of window is dedicated to receive data, parameters, choice of' option or values asked by the software.

The test and validation of the input value is carried out, when the <Next Screen> «F2» key is pressed. The cursor will leave the current window to go on to the next one (cf 1.4.d) [figures 2,3,4].

Data Extraction

```
Help Window
```

This type of window is usually displayed when the user asks
for help, by pressing the <Help> «F3» key (cf 1.4.b). Then a
text is displayed, superposed on the current window; press
<CR> key to make it scroll.

It is impossible to input alphanumeric character. The only two
possible actions are:

- <Carriage Return>: scrolling Help message
- <Prev Screen>:   get back to the window where you
                        were before asking for help [figure
                        7].

4.1.3 **Message Window**

This window is always displayed at the bottom of the screen and
contains one line of text. I t appears mainly in two cases :

a)   When the program detects an error (e.g. bad syntax or
      input missing). Then the message indicates the type of
      error.

      The message disappears after the user has done an
      interaction (new data input, ask 'for help ••) which is
      valid, so doesn't involve a detection of error again.

b)   When the program does not need any more information and
      is running successfully [figure 5].

4.1.4 **Field**

A field is part of a window dedicated to their input of
information. Its video state is, always reverse or blinking.

One field will take only one data or information. There are
three types of field:
                              - input
                              - scrolling
                              - input and scrolling

It is possible and usual to have several 'fields of any type in
the same window. Each field is in video state reverse except
the one you can change (that means: input a data or make a
choice by <Select> key). If no field is blinking, no data is
needed, and a message informs the user that the program is
running [fig. 5].

Data Extraction

Input Field

This type of field accepts any alphanumeric or numeric data. In some circumstances there may be already a default value. Information could be asked at anytime by <Help> key.

Scrolling Field -

This type of field allows you to make a choice, with in several options. To be placed on the chosen option, press <select> key to scroll the options one by one. The <cr> or 'next screen' will leave the current field and go to the next scroll field or to the next window. When the user is in a such field, the cursor Is at left-upper corner of the current window, this last note is important, because sometime only one option at time is visible, and looking at the position of the cursor is the only way to know it is a scrolling field and not-an 'input field with a default value on it. The action available are <CR> to change of field (if' another field exists in the same window), <select> to change of choice, and <help>, <next screen> or <previous window> as usual. [figure 2,3]

Input And Scrolling Field

This type of field has been developed to input the geographical coordinates of an area. The aim of such a field is to accept an input of a geographical coordinate in any of the three following syntaxes:

        for latitude for longitude

        type 1 XDDMMSS.SS YDDDMMSS.SS type
        2 XDDMM.MMMMM YDDDMM.MMMMM type 3
        XDD.DDDDDDDD YDDD.DDDDDDDD

With D(Degree),M(Minute),S(Second) are belonging to [0,9] ; X

= N(North)/ S(South); Y = W(West)/E(East)

The coordinates can be input in the same way as the input field, according to the fact that the syntax must be respected.

If the syntax is not respected, an error message is displayed and you have to re-enter the coordinates. The facility offered by this type of field is that any of the three types of syntax of coordinates can be entered.

<u>**Data Extraction**</u>

Pressing the <Select> key changes all types of coordinates (calculations are automatic). In that way, several coordinates each of different types (or same) can be entered without any difficulty and without any preliminary calculation. The missing values are "0" by default [figures 4,9,10].

Examples
```
, "E 179.505     "for         "E 1 79.50500000"
  "E 179 30.5    "for         "E 179 30.50000"
  "E 179 30 30 "for           "E 179 30 30.00"
```

4.1.5 **Function Keys**

There is six keys defined to operate the interface [figure 1] -

```
         CR
         - HELP
         - Previous Screen
         - Next Screen
         - FI0
         - Select
```

CR <return/enter key>

This key has two functions:

- In an informative window it makes the text scroll page by page

- In an input window, it makes you move to the next field of the current window (if it is pressed in the last field. the cursor will take you back to the first field of the window).

  This key has no effect when there is only one Field in the window (ex: Main menu of Mageonc)

Help

This key can be used at any time in an input window. It displays an informative window. The user cannot ask for help while he is already in an help window·" (only one level of help).

Previous Screen

This key always enables you to go back to the previous window. The only case when it is not possible is in the Main menu (or the first window) because there is no previous window.

Data Extraction

<Previous Screen> «Fl» key is the only way to exit from an informative window.

Next Screen

This key can be used at any time in an input window; it enables to continue the processing, by passing to the next window. If no more data is needed, a message is displayed meaning the program is running.

The passage from a window to the possible next one goes through a validation of data after test (the tests are processed by the software and signalled by a message).

If some data are missing or incorrect, a message appears and the user must correct his previous input. The program places the user automatically in the field to be corrected.

F10

This key operates at any time in any input window, and allows to exit properly from the program.

Select

This key is enabled in a "scrolling" or in an "input and scrolling" field. It scrolls the available options one by one in a "scrolling" field. In an "input and scrolling" field it changes the type of syntax of the coordinates (e.g. geographical limits).

4.2 EXTRACTION PROGRAM MAGEONC

You access the query program by typing '$ MAGEONC' or hitting <PF 1> ‹ <F 1». Note that your result files will be in your logging directory. First you select the extraction mode and formulate the query interactively (program OQUERY) then, the query is processed in batch mode (program OQUERB)

4.2.1 Main Menu

The main menu is composed of one scrolling field. The user can choose an option with the <Select> «f4») key to scroll each option. Pressing of the <Next Screen> «f2») key will validate the choice and will display the next window. The meaning of the available options is explained in the following paragraphs [figure 2].

Data Extraction

4.2.2 Query Formulation

All the requested information will be Input interactively.

Administrative Information

The query number is the recording number of current query in the Demand file (DEMAND.DAT). Query number and date are both automatically displayed by the software. The user inputs his name, company name and geographical area. These information will not be used In the data retrieval. It's just a general information.

Selection Mode:

The scrolling field of this window allows the user to choose among six possible modes of data selection (c'f.2-3-2). After pressing <Next Screen> key a new window appears superposed on the last one (not erased) [figure 3].

Geographical Window

The four limits of the geographical window must be entered. Note that if the 180 meridian is in your area, the west limit begins by 'E' and the east limit by 'W'. The coordinates can be input under three different syntaxes (cf 4.1.4.3).

To validate your selection, press (Next Screen> «'f2». A test will be then run by the software to check the syntax of the last input data is checked [fig.4].

Profile

You have to enter the name of the profile as stored In MAGEONC. The profile name is made of the five first letters of the cruise name identifier, 'followed by a three digits number. [figure 5]

Cruise

You have to give a cruise name as stored In MAGEONC. By typing (help> you will get the list of the cruise and some information relative to them. [figure 5]

Cruise And Station

The number of the stations are the ones given chronologically to each station (quarter of square degree) crossed by the cruise. The information about these stations are stored in the file ST A TN. DAT which can be listed with the Browse program. [figure 6]

Through The Documentary Data Base

This option makes you run the documentary software ISIS. you need the "ISISAC.TAB" and "ISISUC.TAB" and "SYSPAR.PAR" 'files in your current directory.

- hit <S> (or <PF3> on DEC keyboard or <F3> on PC keyboard). Then you are prompted 'for the data base name: enter MAGEON. You access the search menu.

- Hit <S> then enter your request (cf ISIS manual 'Search language)

- You can display the results by hitting <D>

When you are satisfied with the result you save it hitting P. Then by typing< P> save the records in a 'file called MAG, press <PF1>, answer MYPRT to the ISIS prompt, some strange things are displayed on the screen, don't panic. Exit by typing twice <X>. For more information about this software, please refer to the ISIS user's manual.

Things should be easier with the new ISIS version.

Exclusive Economic Zone (EEZ)

Select through the EEZ scrolling 'field a South Pacific State name, then all the cruises belonging to its EEZ will be extracted. [figure]

4.2.3 Data Extraction

The query is stored in an ASCII 'file 'PARAM.MAG' in your login directory. The extraction is done in batch mode (submitting the program sgbd: DQUERB). When the process is over, the system displays a message onto your screen and rings the terminal bell. The data are in the RESULT.dat file in your login directory, and the information relative to the cruises extracted in the 'file FOR118.dat.

<u>Data Extraction</u>

A more detailed report of the extracted cruises **can** be obtained through ISIS. You read *From* FORl18.dat the N cruisenames cruise(i), then you run ISIS (by hitting <PF3> «F3»).

Enter the Following boolean Formulation:
cruise(l) **+** cruise(2) **+** •••• **+** cruise(N)

You display the search results (hit <0», save then (hit <P», go to the print menu «-> on the keypad) and print it.

Refer to the ISIS reference manual or to chapter 5 For more information.

NB: To run ISIS you need the ISISUC. TAB, ISISAC.tab and
        SYSPAR.PAR in your login directory.

4.3 **BROWSE**

This command displays the File RESULT.DAT on the screen.

As this option has not been modified from the previous version of the software, you have to use the following protocol <Next Screen> key and <Previous Screen> key to scroll the data up and down, page by page. With <FIO> (or <Ctrl-z> key go back to the Main menu [Figure 8].

CHAPTER 5

CRUISE DOCUMENTARY SEARCH

Various non-numerical information about the cruises are accessible through 1515 software. This chapter describes which information is stored and how to retrieve it.

Most *of* the information are derived from the Cruise Header in the MGD77 formatted cruise data.

Please refer to the "Marine Geophysical Data Exchange Format _ MGD77 manual edited by the National Geophysical Data Centre, Boulder,Colorado.

5.1 DATA STORED

- Cruise identifier: Internal survey identifier.

                It is this identifier that is used to retrieve the numerical values (e.g. 5EAP5851)
- Institutions or agencies funding the survey
- Vessel name
- Project, leg (example: project: 5EAP50 Leg 1 or
                Tripartite II leg 3)
- survey departure date and departure port
- survey arrival date and port
- year *of* beginning of the cruise
- structure surveyed (e.g. Tonga trench, Louisville
                ridge)
- Exclusive Economic Zones entered by that cruise

Numerical Data Stored In MAGEONC-Code (field 50)

    0=Navigation only
- 1= Bathymetry only
- 2= Bathymetry and gravity
- 3= Bathymetry and magnetic
- 4= Bathymetry, magnetic and gravity
- 5= Magnetic only
- 6= Gravity only
- 7= Unspecified data
- 8= Under request, not in MAGEONC
- 9= Cruise being incorporated in MAGEONC

Tools

The instrumentation is described in plain language (navigation, bathymetry (3.5 kHz…), gravity (Lacoste-Romberg 5-26….), magnetic (Proton precession mag-Geometries G-801, seismic, water sampling, dredging (tangle net…...), photo, video, submersible.

A generic code for some type of instrumentation is added, which can make the user search easier:

- NBES: Narrow Beam Echo Sounder

- HBES: Multi Beam Echo Sounder (e.g. Seabeam)
- MCS: Multi Channel Seismic
- SCSI Single Channel Seismic
- SLS: Side looking (scan) Sonar
- PDR: Precision Depth Recorder
- SBP: Sub Bottom Profiler
- FFG: Free Fall Grab
- etc

Bathymetry

Digitization rate: e.g. 50 if there is one bathymetric record stored every five minutes interpolation scheme: this field allows for a description of the Interpolation scheme used, should some of the data records contain interpolated values. (e.g. 5 minutes Interval and peaks and troughs) datum code:

- 00: No correction applied (sea level)
- 01: Lowest normal low water
- 02: Mean tower low water
- 03: Lowest low water
- 04: Mean lower low water spring
- 05: Indian spring low water
- 06: Mean low water spring
- 07: Mean Sea level
- 08: Mean low water
- 09: Equatorial spring low water
- 10: Tropic lower low water
- 11: Lowest astronomical tide
- 88: other

Magnetic:

Digitization rate:e.g. 50 if there is one magnetic record stored every five minutes

Reference field code. This is the reference Field used to determine the residual magnetic:

- 01: AWC 70

- 02: AWC 75
- 03: I GRF-65
- 04: IGRF-75
- 05: GSFC-1266
- 06: GSFC-0674 (POGO 0674)
- 07: UK 75
- 08: POGO 0368
- 09: POGO 1068
- 10: POGO 0869
- 88: other

Method of applying residual field: e.g. "Linear interpolation in 60 miles square"

Gravity

Digitization rate:e.g. 50 if there is one gravity record stored every five minutes Theoretical gravity formula code:

1. 1 : Heiskenen 1924
2. 2: International 1930
3. 3: lAG system 1967
4. 8: other

Reference system code:

1. 1: local system
2. 2: Postdam system
3. 3: System IGSN 71
4. 9: other

Correct Ions app I led: Drift, tare, and b I as correct ions app lied (e.g. +0.075 mgal per day)

5.2 HOW TO ACCESS THE CRUISE-RECORD

Retrievable Information Field

Some of the fields described above are the access points to the Cruise information record. This is the list of' those fields that let you access the whole information record:

- Cruise identifier
- Institution
- Vessel name
- Chief Scientist
- Project
- Instrumentation code (ex: SCS, MBES…)
- Numerical data stored in MAGEONC
- Structure surveyed (ex: Louisville ridge)
- Year
- EEZ

Search Language

ISIS search language is based on boolean algebra. To go to Search menu, hit <S> (from the main menu) or <PF3> «F3». Type <S> to enter your query, then the program prompts you to enter a boolean expression

Cruise Documentary Search

Access Points

There are three ways of accessing a record: precise access point, right truncated access point and ANY term. A search term is any word or group of words recognized by ISIS as an entry point to a record.

A precise access point is a searchable term or group-or words as it is known by the system. Be sure of the spelling. If you type TONGA , you are requesting ISIS to retrieve all the cruise headers having the search term TONGA. The response is:-

```
        SET     1 : TONGA
        P=     13 Tonga
        T=     13 - #3: Tonga
        p=       ' , called the posting count indicates the
number of times that term Tonga occurs in the database. It
is not necessarily the same as the number of records, because
the same term may occur more than once in some records.
```

IF a search term is more than one word long, it must be enclosed in double quotation marks ("): "Louisville ridge"

With a right truncated access point you give the First letters of a search term. The truncated character is $. IF you enter TONGA$, you get:

```
         SET     2: TONGA $
        p=     13 Tonga
        p=1     1 Tongatapu
        p=      1 Tonga platform
        p=      1 Tonga ridge
        T=     13 -#5: Tonga$
        T=     13 -#2: #5
```

An ANY term is a collective search term. Presently no ANY term has been defined in MAGEONC.

Logical Operand

The main operands are the "OR" (inclusive), "AND" and "NOT". For a description of the full set of operands, please consult the CDS/ISIS reference manual (chapter IV).

The OR symbol " is "+", AND is "*", NOT is "_".
Now follow some examples of complex searches:
To get a list of the surveys in the Tonga area from 1970 to 1973, enter:

Cruise Documentary Search

Tonga * (70+71+72+73)

By typing <0> you get a listing of the retrieved cruises:
7TOW05WT (project Seventow leg5 ••••) and ANTP16MV (project
Antipode leg16 •••).

To get all the cruises with gravity data stored in MAGEONC, in
the Vanuatu area:

VANUATU • (2+4+6)/(50)

2,4,6 are the data code meaning that the gravity is stored
In MAGEONC. To bypass search conflicts the '/(50)' suffix
indicates that the terms 2,4,6 must belong to the field
50.

5.3 UTILITIES

Listing CROISR…DAT

This program lists the file croisr.dat by alphabetical order or
cruise Incorporation number. If you want all the cruises to be
listed type <I>; the cruises are displayed by increasing
Incorporation number.

You can enter a cruisename, then the list starts at this
cruise; lf you enter a wrong name the lists start from the
cruise having the closest name.

To run this program type:

$ run sgbd$tool:liscru

Editing CROISR.DAT

During the cruise information input you may have misspelt the
cruisename, or have done some other minor mistakes. After the
incorporation you can correct it by editing the croisr.dat
file. You can enter either a cruisename or a cruise
incorporation number. The information about this cruise is
displayed on the screen and you are asked to give the field
number to modify, then to enter the new field value. The
following fields can be edited:

1= Cruise name:
2= Mageonc id:
3= starting date, ending date:
4= Year:
5= Navigation quality code:
6= File structure code:

When you finish the edition type <0> at the field number prompt.

To run this program type:

$ run sgbd$tool:edtcru

Reinvention of The DATABASE

In some unfortunate cases due to a power break or a bug while incorporating, the data base integrity can become ... hazardous because of' pointers pointing to wrong records. You can detect such a case when your extraction request ends with one of' the following messages:

, ERROR: attempt to access non-existent record'
, PLST+PSTA doesn't point to the right DGLST record'
' ERROR: record number outside range DGLST.DAT '
, Access violation '

Don't panic - consult the System Manager. There are two solutions to recover your data:

    a.   Retrieve data from the latest Backup file (TK50 cartridge) using the DCL command 'RESTORE'

or b. Reinvert the base from the data files MESxxx.dat. The inversion is done by running:

sgbd$tool:INVER.exe.

This program asks for the number of' cruises to be reprocessed.

CHAPTER 6

MAGEONC UTILITIES

6.1 TOOL PROCEDURE

Option Description

0 Help, execute a DCL command 1
List CROISR.DAT
2 Edit CROISR.OAT
3 Translate a binary result.dat into an ASCII File
4 Delete a cruise From MAGEONC 5 Full MAGEONC invertion
(requires system privileges)
<CR> Exit

6.2 MGD77 PROCEDURE

Option Description

0 Help, execute a DCL command
1 Read a 120 bytesMGD77 and write an input File
For MAGEONC
2 Translate a 80 bytes length MGD77 into TRSFRT.DAT 3
Read a MGD77 File and write a Result.dat file
4 Extract time,navigation,bathymetry from a MGD77 5
Export a RESULT.DAT into MGD77 Format
<CR> Exit

FILE DESCRIPTIONS

DEMAND.DAT= Query recording file
File Spec: MAGDIR:DEMAND.DAT;1
File Organization: relative
Record Format: fixed
Record size: 80 bytes

INTEGER*2	IDM,%FIL	: query number (= record number)
CHARACTER*16	DEMA	: name of the querier
CHARACTER*16	ORG	: company
CHARACTER*8	DDEM	: date of the query
CHARACTER*20	ZON	: name of the geographic area
REAL*4	FEN(4)	: geographic coordinates of the window (if extraction by window) N lat., S lat., E lon., W lon.

CROISR.DAT contains the general information on all the cruises of the base first record of one incorporated cruise :

File Spec: MAGDIR:CROISR.DAT;1
File Organization: relative
Record Format: fixed
Record Size: 148 bytes

CHARACTER*8	NOMC	: cruise name
INTEGER*2	NCROI	: incorporation cruise number
REAL*4	DTB	: starting date of the cruise
REAL*4	DTF	: ending date of the cruise
REAL*4	ALOAC(4)	: geographic coordinates of the rectangular window including the cruise
INTEGER*4	PSTA	: station pointer (to STATN.DAT)
INTEGER*4	PPRO	: profile pointer (to PROFIL.DAT)
INTEGER*2	NP	: number of profiles
INTEGER*2	NB	: number of gravimetric bases
INTEGER*4	NBTM	: number of measured points
INTEGER*2	IAN	: year

FILE OF GRAVITY BASES:

CHARACTER*20	IP1	: harbour name of the first base
REAL*4	DZ1	: measured gravity
REAL*4	DT1	: recording date
CHARACTER*20	IP2	: harbour name of the second base
REAL*4	DZ2	: measured gravity
REAL*4	DT2	: recording date
REAL*4	DER	: shift (mgal)

DGLST.DAT

File Spec: MAGDIR:DGLST.DAT;1
File Organization: relative
Record Format: fixed
Record Size: 8

INTEGER*2	NCROI	: cruise incorporation number
INTEGER*2	NSTA	: station incorporation number during the cruise
INTEGER*4	NSTAS	: pointer of the next DGLST record concerning the same station

DGNDX.DAT

File Spec: MAGDIR:DGNDX.DAT;1
File Organization: relative
Record Format: fixed
Record Size: 4

INFOG.DAT This file contains the first list pointers of the DGLST file.

INFOG contains the information about the state of the files for the next incorporation

File Spec: MAGDIR:INFOG.DAT;1
File Organization: sequential
Record Format: fixed
Record Size: 16

INTEGER*2	NCROI,%FILL:	incorporation number of the next cruise to incorporate
INTEGER*4	PSTA:	station pointer of the next cruise
INTEGER*4	PPRO:	profile pointer of the next cruise
INTEGER*4	PLST:	DGLST pointer of the next cruise

MESxxx contains the data of the cruise, number xxx. each record of this file is filled by a measure point.

Each record length of this file can be 5,7 or 8 long words depending if the gravity or the magnetism are recorded

File Spec: MAGDIR:MESxxx.DAT;1
File Organization: sequential
Record Format: fixed
Record Size: 5 , 7 or 8 long words

INTEGER*2	NSTA	: sequential station number in the cruise
REAL*4	T	: time of survey
INTEGER*2	CN	: navigation code
REAL*4	LAT	: latitude
REAL*4	LON	: longitude
REAL*4	B	: bathymetry

```
REAL*4        G            : gravity
INTEGER*2     F            : gravitmetric anomaly
REAL*4        M            : magnetic field value
INTEGER*2     A            : magnetic anomaly
```

PROFIL.DAT

File Spec: MAGDIR:PROFIL.DAT;1
File Organization: relative
Record Format: fixed
Record Size: 24

```
INTEGER*2     NCROI,%FILL  : cruise incorporation number
CHARACTER*8   NPR          : profile name
REAL*4        DTDBP        : starting time in minute
REAL*4        DTFNP        : ending time
INTEGER*2     NSD          :first station number in the cruise
INTEGER*2     NSF          :last station number in the cruise
```

STATN.DAT

File Spec: MAGDIR:STATN.DAT;1
File Organization: relative
Record Format: fixed
Record Size: 36

```
INTEGER*2     NCROI        : cruise incorporation number
INTEGER*2     NSTA         : sequential station number
REAL*4        DTDBS        : entry date in minute in the station
REAL*4        DTFNS        : exit date in minute
REAL*4        ALOAS(4)     : rectangular window coordinates
                             of the cruise in the station
INTEGER*4     NMES         : number of measure points inside
                             the station
INTEGER*4     IMESU        : pointer of the station in
```

MESxxx.dat

File specifications: SYS$LOGIN:RESULT.DAT
File organization: Relative
Record format: Fixed length 56 byte records
Record attributes: None
Access Cntrl List: None

First record structure: Geographical limits of the file
structure /lglim/

```
      integer*4 latmin,latmax,lonmin,lonmax
      integer*4 %fill,%fill,%fill,%fill,%fill,%fill,%fill,
                %fill,%fill,%fill
      end structure
```

Other records Structure:

```
structure /mageo/
      character*8 nomprof        : profilename
      integer*2 cn               : Navigation code (1,3,9)
      integer*2 ian              : Year
      real*4 t                   : time in decimal minute
      real*8 lat,lon             : Latitude, longitude
      real*4 z(5)                : bathymetry,gravity,
                                   Free air anomaly
                                   magnetic,magnetic
                                        residual

      integer*4 shpt             : Shotpoint number (dummy
                                   field) end structure
```

KEYBOARDS CORRESPONDENCE

DEC Terminals VT220 - VT240	IBM PC or Compatibles
<CR>	<CR>
<HELP>	<F3>
<Prev. Screen>	<F1>
<Next Screen>	<F2>
<Select>	<F4>

APPENDIX B

ISIS KEYBOARD FUNCTION: DEC/IBM.PC

Keyboard	Meaning
<Ctrl-W>	delete word
<CR>	Carriage return
<TAB>	Previous field/line
<Ctrl-R>	ESC (restore field value)
<PF1> (<F1>)	Help
<PF2> (<F2>)	Delete field
Keypad 7	Home
Keypad 1	End of field
Keypad .	Delete character at cursor
Keypad 0	Insert/replace toggle
Keypad 4	Back one word
Keypad 6	forward one word
Keypad ,	Erase to end of field
<PF3> (<F3>)	Mark beginning of cut
<PF4> (<F4>)	Cut text from mark to cursor
Keypad -	Paste text at cursor

When a menu is displayed on the screen the following keys will perform the special functions indicated below:

Keyboard	Meaning
Keypad ,	Enter VAX command
<PF3> (<F3>)	Switch to search menu
<PF4> (<F4>)	Switch to entry menu
<PF2> (<F2>)	Switch to main menu
Keypad -	Switch to print menu

APPENDIX C

SIMPLIFIED ALGORITHMS

DEFINITIONS

For each new cruise incorporated, a file MESxxx.dat is created. It is filled with the measure points. *xxx* is equal to the ^&incorporation number\& NCROI given by the system to the cruise. The other riles (CROISR.OAT,STATN.DAT, OGLST.OAT, PROFIL.OAT, OGNOX.OAT) are not created but updated.

To speed up the retrieval of data by geographic window or economic zone, the area covered by the base is split in 57600 .... &stations\&. A station is equal to one quarter of' square degree. Each of these stat ions is associated to a record or the A &OGNOX \ & File. The record number I of the OGNOX is associated with the station number 1. A station is the smallest geographical element that can be extracted.

For each station crossed by a cruise a new record is added to the A&OGLST\& File *(cF* Annexe A). IF the stations never been crossed by any cruise the OGLST record number (named OGNOX index) is written in the given OGNOX record.

Each time a cruise enters into a new station, the A&sequential station number[A]& NSTA is incremented by one. This sequential station number is recorded in OGLST and STATN. The starting station of' a cruise gets the sequential number 1, this number is incremented for each new crossed station. If a stations crossed twice (or more) by this cruise, it will get two (or more) different sequential numbers.

So, a ^&measured point\& is defined by the three elements : the cruise number NCROI, the sequential stat10nnumber NSTA, and the time T (in decimal minute) of the measure.

The ^&station pointer\& PSTA is equal to the record number of the first record *of* a given cruise in the STATN.OAT File. The ^&profile pointer\& PPRO is equal to the record number of the First record of a given cruise in the PROFIL.DAT file. Both of them are stored in CROISR.DAT.

INCORPORATION

For each new incorporation, an incorporation number NCROI is given to the new cruise and a File MESxxx.DAT is created that contains the measure points data.

Simplified Alogrithms

During the incorporation, at each station crossed by the cruise is given a station number NSTA, and a new record is added at the end of the DGLST.dat file. If this station has never been crossed by any cruise before, then the number of the DGLST record is stored in the right DGNOX record.

The DGLST record is made or three fields:

        -The cruise incorporation number NCROI
        -The sequential station number NSTA
        -The DGLST pointer PLST

If this station has been already crossed by this cruise or another cruise, the PLST or this previous passage is updated and made equal to the DGLST record number or the new DGLST record.

The PLST or the last record is made equal to zero.

EXTRACTION

The elementary algorithm is the extraction or the data contained in one station. So we shall only explain here, the great lines or this algorithm.

If the program has to extract a station I, the program reads In the DGNDX record, numbered I, the Index J (or first list pointer PLST). Then it reads in the DGLST record (number J), a couple cruise station (NCROI, NSTA) and the next list pointer. With NCROI, It can read in CROISR.OAT the station pointer PSTA. PSTA+NSTA is equal to the STATN record number in which the measure pointer and the number of measure points permit to read in the file MESNCROI. DAT all the measure points recorded by the cruise NSTA. These data are stored in RESUlT.DAT.

Then the PLSTth record or DGLST Is read and the process is iterated. The retrieval is finished when PLST is null.

FOR MORE INFORMATION

For more information about the structure or the database and the used algorithms you are invited to read the MAGEONC programmer's manual.

APPENDIX C

SEARCH TERMS DICTIONARY

CRUISE IDENTIFIERS

02580	26180	36283	66102601	66102602	67102100
68101200	70042204	70042201	70042202	70042203	71042603
71042602	71042606	71042605	71042604	72001831	72110803
72110807	72110801	72110808	72110802	73002311	74071700
74090800	76010303	76010304	77031701	77110902	77110901
79080801	79080802	79102901	79G602GY	7TOW05WT	7TOW06WT
7TOW3BWT	80001511	80001711	80012101	82001211	82031602
82031605	82031603	82031604	82031601	8516TR	851SEAPS
852SEAPS	853SEAPS	854SEAPS	855SEAPS	8612	87001411
A476SP	ALCY01MV	AMPH01AR	AMPH02AR	AMPH03AR	ANTP14MV
ANTP16MV	ANTP17MV	ARES04WT	ARES1BWT	ARES1CWT	ARIA01WT
ARIA02WT	ATLS02MV	C0804	C0805	C0905	C0906
C1005	C1006	C1007	C1110	C1111	C1203
C1204	C1205	C1211	C1212	C1304	C1305
C1306	C1501	C1502	C1712	C1713	C1714
C2011	C2307	C2309	CAPHBHO	CAPHCHO	CATO02MV
CATO03MV	CATO04MV	CH100L08	CH100L11	CH100L09	CH8003
CH8004	CK761	CK771	CK782	CK801	CK802
CRGN01WT	CRGN07WT	DA6804	DM5-B	DME05B	DME06
DME09	DME18	DME21	DME24	DME28	DNWBABD
DNWBAHO	DNWBBBD	DOLP02HO	DOLPAHO	DSDP07GC	DSDP08GC
DSDP09GC	DSDP17GC	DSDP20GC	DSDP21GC	DSDP30GC	DSDP33GC
DSDP34GC	DSDP85GC	DSDP89GC	DSDP90GC	DSDP91GC	DSDP92GC
E881SP	E16302	EL40A	EL47A	EL54A	EL54B
EL55A	ELT15	ELT16	ELT19	ELT20	ELT23

ELT24	ELT26	ELT27	ELT28	ELT29	ELT30
ELT31	ELT33	ELT34	ELT36	ELT37	ELT38
ELT39	ELT40	ELT47	ELT48	ELT53	ELT55
ERDC02WT	ERDC03WT	ERDC04WT	ERDC09WT	ERDC11WT	ES6609
ET6001	ETM85FIJ	EV1000	EV1100	EVA800	FB7305
FGGE06WC	FGGE07WC	FGGE08WC	GECSEMV	GECSFMV	GECSIMV
GECSJMV	GECSKMV	GH7601	GH7801	GH801A	GH801B
HT6705	HT7701	HT7903	HT8103	HY6601	HY6801
INDP14WT	IS6604	KH6705	KH6804D	KH6804A	KH6804C
KH6804B	KH7104	KI801	KI802	KI803	KI811
KI812	KI813	KI881	KN073L04	KR6607	KT7401
L384SP	L582SP	L583HW	L584SP	L682SP	L683SP
L684SP	L782SP	L783SP	L784SP	L883SP	L884SP
LH6602	LH7803	LUSI05HO	LUSI06HO	MB6301	MH87S
MK6603	MONS01AR	MONS07AR	MONS08AR	MRTN05WT	MW871
ND31	ND32	NOVA01AR	NOVA02HO	NOVA02AR	NOVA03AR
NOVA03HO	NOVA04AR	NOVA04HO	NOVA05AR	NOVA05HO	NOVA06HO
NOVA06AR	NOVA07AR	NOVA08AR	NOVA09AR	NOVA1AHO	NOVA1BHO
NR7601	NR8302	NU6608	PLDS03MV	PLDS04MV	PN791
PN811	PN812	PN813	POL6702	POL6725	POL7008
POL7101	PPTU03WT	PPTU04WT	PPTU05WT	PPTU06WT	PROA3ABD
PROA3BBD	RAMA01WT	RC2608	RE7102	RISP02BD	RISP03BD
RS47	SCAN02AR	SCAN08AR	SCAN09AR	SI791	SI792
SI811	SI812	SI813	SO352	SO353	SOTW01WT
SOTW02WT	SOTW08WT	SOTW09WT	SOTW10WT	SOTW11WT	SOTW12WT
STYX02AZ	STYX03AZ	STYX04AZ	STYX05AZ	STYX06AZ	STYX08AZ

STYX09AZ	SWAN1AR	TA6702	TETH02BD	TG761	TG771
TG782	TG791	TI6303	TI6505	TRIPO1AR	TT208
UM6402A	UM6402C	UM66A	UM67	V1812	V1813
V1814	V1815	V1905	V1906	V1907	V2104
V2105	V2403	V2405	V2407	V2408	V2409
V2810	V2811	V2812	V2813	V3210	V3214
V3215	V3301	V3303	V3304	V3313	V3314
V3401	V3403	V3506	V3601	V3602	V3603
V3610	V3611	VA801	VA802	VA803	VI49
VIT51	VLCN08MV	VLCN09MV	WS771	WS782	WS791
WSTG801	X05761	ZOE100	ZOE200		

INSTITUTIONS

BGI
DEFENCE MAPPING AGENCY
BMG
INST. PHYSICS EARTH ACAD. SCI.
BGR
BMR
CCOP/SOPAC
CNEXO
DSIR
GAISH
GSJ
HIG
IFREMER

IFZ AN SSSR
LDGO
MMAJ
MRD
NOAA/POL
ORSTON
SCRIPPS
SOUTH CHINA SEA SUB-BUREAU
U. OF RHODE IS
U. OF TOKYO
U. OF WASHINGTON
USGS
WHOI

VESSELS

ACHERON
ALEXANDER AGASSIZ
ARGO
ATA
BAIRD
CHAIN
CONRAD
CORIOLIS
DMITRIJ
MENDELEEV
ELTANIN

ENDEAVOUR
GLOMAR
CHALLENGER
GYRE
HAKUHO MARU
HAKUREI   MARU
HAKUREI MARU.NO.2
HORIZON
JEAN CHARCOT
KANA KEOKI
KNORR

LEE
MACHIAS
MAHI
MELVILLE
MOANA WAVE
NEI TEWEWI
NELLA   DAN
NOROIT
OCEANOGRAPHER
RAVAKAI
RIG SEISMIC

VESSELS cont..

SONNE	THOMAS WASHINGTON	EMA
SURVEYOR	TUI I	VITYAZ
TANGAROA	TUI II	WECOMA (OSU)
TARANUI	UMITAKA MARU	XIANGYANGHON
TAURANGA	VAUBAN	

CHIEF SCIENTISTS

ACKHAM	AITKEN	ANDERSON	ANDREWS	AUZENDE	BALLARD
BASS	BENNETT	BERELSON	BERGER	BISCAYE	BREWER
BRINTON	BROCHER	BROECKER	BRYAN	BURNE	BURNS
CAMPBELL	CANDE	CARPENTER	CHASE	COLLOT	COLWELL
COMER	COOK	COX	CRAIG	CRAMPTON	DANIEL
DAVEY	DIXON	EADE	EISSEN	EMBLEY	EPP
ERICKSON	ERLANDSON	EWING	EXON	FALCONER	FALVEY
FISHER	FOUCHER	FRANCHETEAU		GAUSS	GAYMAN
GEORGE	GERARD	GOLDBERG	GREENE	GREENSLATE	GUINASSO
HALUNEN	HAMMOND	HAMPTON	HARPER	HART	HARVEY
HAWKINS	HAYES	HAYS	HEEZEN	HELSLEY	HENDERSHOT
HERTZLER	HERZER	HESSLER	HOLMES	HOUTZ	HUSSONG
HUSSONG	HUSSONG	HUSSONG	HUSSONG	JACKSON	JORDO
JOUANNIC	KARIG	KEATING	KELLER	KENNETT	KENT
KNAUSS	KNOX	KORENFELD	KROENKE	LADD	LANDMESSER
LANGSETH	LARSON	LEINEN	LEWIS	EYDEN	LIEBER
LIEBERTZ	LONARDI	LONSDALE	LUCAS	LUDWIG	LUTHER
MALAHOFF	MAMMERICKX		MANHEIM	MANN	MARGOLIS
MARKL	MARLOW	MAUNG	MAYER	MCFARLANE	MCGOWAN
MCGOWEN	MCGREGOR	MEIJER	MENARD	MEYERS	MILLER
MIZUNO	MOBERLY	MORRIS	MUDIE	NATLAND	NEUMAN

CHIEF SCIENTISTS cont....

NORMARK	OBLINGER	OPDYKE	PAUTOT	PITMAN	POMEROY
PONTOISE	PRICE	RAITI	RAMSAY	REA	RECY
REGIER	REID	RIEDEL	ROBERT	ROSSFELDER	ROTTMAN
SAPHORE	SCHINK	SCHLANGER	SCHOLL	SCLATER	SHARMAN
SHERIDAN	SHIPLEY	SHOR	SMITH	SPIESS	STACKELBERG
STROEV	STROUP	SULLIVAN	SUTTON	TAFT	TAKAHASHI
TALWANI	TAYLOR	THEYER	TIFFIN	TONEY	TOOLE
TRACEY	TRUCHAN	TULIN	VACQUIER	VAN DORN	VEDER
VENRICK	VON DER BORCH		VON HERZEN	WALL	WALSH
WARLOP	WATTS	WEISS	WEISSEL	WINDISCH	WINTERER
WOODROFFE	WORZEL	WUSTENBERG	YEATS	ZACHARIADIS	

PROJECT NAME

ALCYONE
AMPHITRITE
ANTIPODE
ARIAONE
ARIES
ATLAS
AUSTRADEC
CAPRICORN
CATO
CHALLENGER PLATEAU
CROSSGRAIN
DAMPIER
DMEI
DOLPHIN
DOWNWIND
DSDP
EAST PACIFIC RISE STUDY
EGMONT SEDIMENTS
ENDEAVOUR IS
EURYDICE
EV1100
EVA08
EVA1000

GEOVAN 2
EVA800
GEOSECS
GEOVAN
GYRE
HIKURANGI TROUGH
IDOE MN74-01
INDOPAC
IPOD KK77-03-17
ISOPOD
KERMADEC RIDGE
KERMADEC TRENCH
KK71-04-26
KK72-11-08-1
KK72-11-08
KK76-01-03
KK77-11-09
KK77-11-08
KK80-01-21
KK82-03-16
LINE IS
LORD HOWE RISE
LUSIAD
MACQARIE BENTHOS

MARATHON
MN74-02
MOKAU
MONSOON
MONSTER CRUISE
MAHI 2-70
MULTIPSO
MW8516
MW8612
NORFOLK RIDGE
NORPAX/FGGE
NORTH EAST HYDROLOGY
NORTH EAST TASMAN
NOVA
OPR 476
PAPATUA
PLEIADES
PROA
REFLECT   RIG
SEISMIC   RESEARCH
CRUISE 2
RISEPAC
SCAN

PROJECT NAME   cont...

SEAPSO
SEARISE
SEVENTOW
SO352
SO353
SOLIS 66
'SOLIS 67
SOLIS 68

SOUTH HIKURANGI
SOUTHTOW
STYX
SWANSONG
TETHYS
THOMASITE
TRANSPAC
TRIPARTITE

TRIPARTITE 2
TRIPOD
TUI IS
VITI
VULCAN
ZOE100
ZOE200

TOOLS

CORING
MAGNETOMETER
PDR
SATNAV
SLS

DREDGING
MBES
PHOTO
SBP
SUBMERSIBLE

GRAVIMETER
MCS
REFRACTION
SCS
TANGLE NET

HEATFLOW
NBES
SAMPLING
SLC

GEOGRAPHICAL AREA

AMERICAN SAMOA
AMERICAN TRUST TERRITORY
ARGENTINA
AUSTRALIA
CANADA
CAROLINE IS
CHILE
CHINA
COOK IS
COSTA RICA
EASTER IS
ECUADOR
FIJI
FRENCH POLYNESIA
GUAM
GUATEMALA
HAWAII
INDONESIA

JAPAN
KIRIBATI
MARSHALL IS
MEXICO
NEW CALEDONIA
NEW ZEALAND
PANAMA
PAPUA NEW GUINEA
PERU
PHILLIPINES
SINGAPORE
SOLOMON IS
TONGA
USA
USSR
VANUATU
WESTERN SAMOA

STRUCTURE SURVEYED

CORIOLIS TROUGHS
EGMONT SEDIMENTS
FIJI PLATEAU
HAVRE TROUGH
HIKURANGI TROUGH
HORIZON GUYOT
IPOD NAURU BASIN
ISOPOD
KERGUELEN PLATEAU
KERMADEC RIDGE
KERMADEC TRENCH
LAU BASIN
LINE Is
LORD HOWE RISE
LOUISVILLE RIDGE
LOYALTY RIDGE
MANUS BASIN
MELANESIAN BOARDERLANDS
MOKAU
NAURU & CENTRAL PACIFIC BASINS
NAZCA PLATE
NECKER RIDGE
NEW IRELAND BASIN
NORFOLK RIDGE

NORTH FIJI BASIN
NORTH OF TONGA
NORTH HALF OF TONGA ARC
NORTH EAST HYDROLOGY
NORTHERN COOK Is
NORTHWEST OF SAVAII ISLAND
ONTONG JAVA PLATEAU
PHOENIX GROUP
RENDELL ARCH
SANTA CRUZ IS
SAVAI'I Is
SOUTH WEST OF GILBERT CHAIN
SOUTH LINE Is
SOUTH FIJI BASIN
SOUTH FRINGE OF CENTRAL PACIFIC
SOUTH & CENTRAL SOLOMON ISLAND
SOUTH VITI LEVU
SOUTH HIKURANGI
SOUTHERN HALF OF TONGA ARC
SOUTHERN COOK IS
TONGA RIDGE
TONGA PLATFORM
UPOLU Is
WOODLARK BASIN

DATA CODE

0= Navigation only
1= Bathymetry only
2= Bathymetry and gravity
3= Bathymetry and magnetic
4= Bathymetry, magnetic and gravity
5= Magnetic only
6= Gravity only
7= Unspecified

YEAR

the two last digits

****

Acknowledgement

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