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<http://fred.csir.co.za/ematek/sadco/sadco.html>

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Some possible changes to SADCO

The SADCO Steering Committee has given its approval to the possibility of expanding SADCO's data set portfolio to include selected new data sets. One of them, a plankton database, could be of particular benefit to biological projects. Should this go ahead, it will signify an exciting new phase in SADCO's development.

When SADCO was "reconstituted" in 1989, it was decided to focus on a core set of data. This confinement in the scope of SADCO's activities was brought about by a significant reduction in the funding (reduction to approximately 20% of what it was before 1989). Areas such as some marine satellite data (NIMBUS Coastal Zone Colour Scanner), bird observations, biological data, etc had to be forfeited in an attempt to retain the viability of the data centre. SADCO retained only two main data sets:

- Hydrographic data (hydrographic stations, with temperature, salinity, nutrients, oxygen)
- Surface observations from voluntary observing ships (surface temperature, wind, waves, etc)

Some of the pre-1989 data sets that were not included in the core data were mothballed, but some files (e.g. the currents measured from the R.V. *Meiring Naudé* see article in this Newsletter) did not survive. The *Meiring Naudé* current measurements were recreated from printouts, and has since been added to the relevant hydrographic stations.

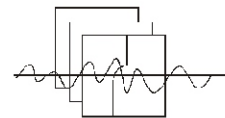
At the meeting of the Steering Committee in November 2002, the possibility of SADCO expanding into other oceanographic data domains was discussed. The following databases were of specific interest:

- a plankton data base
- satellite marine data base
- time series data (e.g. Seawatch)

It was concluded that SADCO's constitution does not prevent it from undertaking such developments, and that they could represent exciting developments in SADCO's history. Nevertheless, there were some practical aspects to keep in mind, and these included:

Continued on p.2...





Some possible changes to SADCO (continued..)

- there should be an identified regional benefit and need to expand the data centre in these domains.
- these possible developments should be funded through **additions** to the existing funding base, since the existing funding allows for ongoing management and limited development only;
- the additions to the data centre should not in any way jeopardise (“swamp”) the existing data and service.
- the consortium members should see benefit in, and be prepared to contribute to, the on-going support of such developments after the

development funding had come to an end.

At the end of the discussion, the Steering Committee gave the nod to a **plankton data base** and accommodation of the **Seawatch data**. A satellite data base was considered too large and complex to undertake, and a functional, modern data base was already in existence at the Satellite Applications Centre.

SADCO will now await an identification of the need for such developments from funding organisations.

Seawatch - a new buoy system for the region

Many of us probably saw in the newspapers but also on TV the launch of the first Seawatch buoy in Simonstown.

Organisations involved with the project are: Marine and Coastal Management (DEA&T), OCN (Oceanographic Company Netherlands), Institute for Maritime Technology, CSIR Environmentek, OCEANOR (Norway), University of Cape Town.

The buoys can collect a variety of parameters, and the data can be made available to users in real time.

The first buoy, as a pilot project, was acquired in August/September 2002 through funding made available by Marine and Coastal Management.

The buoy is a large, discus-type buoy (see Figure) with an antenna for data transmission, and space to mount the following instrument types:

air pressure, air temperature, wind speed and direction

wave height and period

salinity, water temperature, dissolved oxygen

current speed and direction

chlorophyll-A, nutrients

At the time of writing, the buoy has been recovered from its deployment in False Bay, and after being serviced it is planned to move it to a site off the west coast.

A description of the system, and **temporary** access to the real time data, can be obtained at the following website

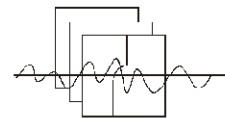
<http://fred.csir.co.za/seawatch/>

The userID is mcm, and the password is mcm.

The SADCO Steering Committee gave the green light to the archiving of the Seawatch data, should the required funding be made available.



Figure 1: Photograph of the Seawatch buoy during deployment in Simonstown (Photo: Dave Phelp)



International satellite data

*[from Earth System Monitor,
September 2002, NOAA]*

NOAA is exploring the possibility of participation in the Marine SAR Analysis and Interpretation System (MARS AIS) effort. This is a multinational project sponsored by the European Union with the goal of producing a comprehensive coastal ocean monitoring and prediction system using SAR and other remote sensing data. Applications being developed as part of MARS AIS include ocean wave spectra, oil spill detection, ship detection, wind speed retrieval, internal wave measurements, and surface current fronts and eddies monitoring.

ADCP data from Marine and Coastal Management

SADCO is busy preparing for the Acoustic Doppler Current Profile (ADCP) data from Marine and Coastal Management. An inventory has been established and the loading of the data will proceed shortly.

What is ADCP?

Sound is the medium used in the marine environment to survey the sea bottom, search for items on the sea bed (e.g. wrecks), and items in the water column (fish shoals, sediment). In the ADCP technology sound is used to study the **movement of the water column** itself.

By transmitting sound into the water column, and measuring the time taken by the echo to return, the distance between the transmitter and the object can be determined (if the speed of sound is known).

However, if the object causing the echo is **moving**, there is a shift in frequency of the echo, relative to the transmitted signal. This shift is proportional to the speed of the subject, taken in

line with the direction between the transmitter and object (so only a component of the full velocity of the object is derived).

By transmitting sound signals in various directions into the water column, the full vector velocity can be obtained. And by chopping the return signal into different time (= depth) "bins" the velocity profile can be derived within strata of the water column.

In terms of direct flow velocity measurements from a vessel, only two data sets exist for this region:

- Between 1962 and about 1980, currents were measured by the CSIR from vessels (e.g. the *RV Meiring Naudé*) (see article, p.8).
- Marine and Coastal Management (MCM) has been collecting large amounts of ADCP data from its research vessels since 1990.

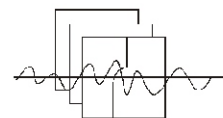
The SADCO Steering committee recognised the value of this data, and decided that SADCO should copy and load this data.

Tammy Morris has been employed on contract to help with the process of preparing the ADCP data. Before starting to transfer this data to SADCO, a significant effort has been required to establish an **inventory** of the data. A copy of this preliminary list is enclosed in this article, indicating the data from 3 vessels.

We will keep you informed on the progress once the loading starts.

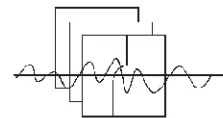


Tammy Morris



ADCP Data: AFRICANA

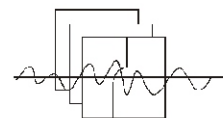
Vessel	Voyage #	Description	Date	Deckchits	Data
Africana	077	Physical Oceanography	Sep-89	N	Y
Africana	078	Pelagic Biomass	Nov-89	Y	Y
Africana	079	Hake Recruitment	Jan-90	Y	Y
Africana	080	Southern Oceans	Feb-90	N	N
Africana	081	Anchovy Recruitment	May-90	Y	Y
Africana	082	Hake Recruitment	May-90	Y	Y
Africana	083	Pelagic Recruitment	Jun-90	N	N
Africana	084	Hake Recruitment	Jul-90	Y	Y
Africana	085	Agulhas Ring Component	Aug-90	Y	Y
Africana	086	Hake Recruitment	Sep-90	Y	Y
Africana	087	Pelagic Recruitment	Nov-90	Y	Y
Africana	088	Hake Recruitment	Jan-91	Y	Y
Africana	089	Plankton Dynamics	Feb-91	Y	Y
Africana	090	Pelagic Recruitment	Mar-91	Y	Y
Africana	091	Physical Oceanography	Apr-91	N	N
Africana	092	Anchovy Recruitment	May-91	Y	Y
Africana	093	Hake Recruitment	Jun-91	Y	Y
Africana	094	No Cruise			
Africana	095	Hake Recruitment	Sep-91	Y	Y
Africana	096	Horse Mackerel	Oct-91	Y	Y
Africana	097	Pelagic Biomass	Nov-91	Y	Y
Africana	098	No Cruise			
Africana	099	Phys / Chem	Jan-92	N	Y
Africana	100	Hake Recruitment	Feb-92	Y	Y
Africana	101	Pelagic Pre-recruitment	Mar-92	Y	Y
Africana	102	Hake Recruitment	Apr-92	Y	Y
Africana	103	Pelagic Recruitment	May-92	Y	Y
Africana	104	No Cruise			
Africana	105	Phys / Chem - B.E.S.T 1	Jun-92	Y	Y
Africana	106	Hake Recruitment	Sep-92	Y	Y
Africana	107	Horse Mackerel	Oct-92	Y	Y
Africana	108	Anchovy Spawning	Nov-92	Y	Y
Africana	109	Hake Recruitment	Jan-93	Y	Y
Africana	110	No Cruise			
Africana	111	Hake Recruitment	Apr-93	Y	Y
Africana	112	Pelagic Recruitment	May-93	Y	Y
Africana	113	No Cruise			
Africana	114	Phys / Chem	Jul-93	Y	Y
Africana	115	Physical Oceanography	Jul-93	N	N
Africana	116	Hake Recruitment	Sep-93	Y	N
Africana	117	Pelagic Biomass	Nov-93	Y	Y
Africana	118	Hake Recruitment	Jan-94	Y	Y
Africana	119	South Georgia Krill	Feb-94	Y	Y
Africana	120	IAPSO Cruise	Mar-94	Y	Y
Africana	121	Pelagic Recruitment	May-94	Y	Y
Africana	122	South Coast Demersal	Sep-94	Y	Y
Africana	123	SARP 9	Sep-94	Y	Y
Africana	124	RAFOS 2	Sep-94	N	Y
Africana	125	Hake Recruitment	Sep-94	Y	Y
Africana	126	Pelagic Spawner Biomass	Nov-94	Y	Y
Africana	127	West Coast Hake Biomass	Jan-95	Y	Y
Africana	128	Pelagic Pre-recruitment	Feb-95	Y	Y
Africana	129	South Coast Hake	Apr-95	Y	Y
Africana	130	No Cruise			



Africana	131	South Coast Hake	Sep-95	Y	Y
Africana	132	Pelagic Spawner Biomass	Nov-95	Y	Y
Africana	133	West Coast Hake Biomass	Jan-96	Y	Y
Africana	134	Training Cruise	Mar-96	N	Y
Africana	135	South Coast Hake	Apr-96	Y	Y
Africana	136	(Aborted)	Jun-96	N	Y
Africana	137	Pelagic Spawner Biomass	Nov-96	Y	Y
Africana	138	Agulhas Shelf/Eddy Interaction	Dec-96	Y	Y
Africana	139	West Coast Hake Biomass	Jan-97	Y	Y
Africana	140	CUFES	Feb-97	Y	Y
Africana	141	UCT Training	Feb-97	Y	Y
Africana	142	UWC Training	Feb-97	Y	Y
Africana	143	Pelagic Pre-recruitment	Mar-97	Y	Y
Africana	144	South Coast Hake	Apr-97	Y	Y
Africana	145	Pelagic Recruitment	May-97	Y	Y
Africana	146	No Cruise			
Africana	147	No Cruise			
Africana	148	Pelagic Biomass - West Coast	Nov-97	Y	Y
Africana	149	No Cruise			
Africana	150	South Coast Demersal	Jan-99	Y	Y
Africana	151	No Cruise			
Africana	152	Hake Recruitment	Apr-99	N	N
Africana	153	Pelagic Recruitment	May-99	Y	Y
Africana	154	No Cruise			
Africana	155	Physical Oceanography	Jun-99	N	N
Africana	156	No Cruise			
Africana	157	No Cruise			
Africana	158	No Cruise			
Africana	159	No Cruise			
Africana	160	Hake Recruitment	Aug-01	N	N
Africana	161	No Cruise			
Africana	162	No Cruise			
Africana	163	Spawner Biomass	Oct-01	N	N
Africana	164	No Cruise			
Africana	165	Hake Recruitment	Jan-02	N	N
Africana	166	Benefit Training	Feb-02	N	N
Africana	167	Hake Recruitment	Apr-02	N	N
Africana	168	Engine Trials	Sep-02	N	N
Africana	169	Gear Trials	Sep-02	N	Y
Africana	170	Bencal	Oct-02		

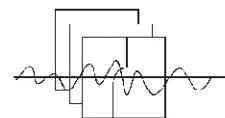
ADCP Data: NANSEN

Vessel	Voyage #	Description	Date	Deckchits	Data
Nansen	405	Hake Recruitment	May-00	N	Y
Nansen	406	Hake Recruitment	Jun-00	N	Y
Nansen	401	Hake Recruitment	Jan-01	Y	Y



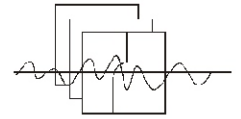
ADCP Data: ALGOA

Vessel	Voyage #	Description	Date	Deckchits	Data
Algoa	001	Squid	Jul-93	Y	Y
Algoa	002	Pelagic Pre-recruit	Aug-93	Y	Y
Algoa	003	SARP 1	Sep-93	Y	Y
Algoa	004	SARP 2	Oct-93	Y	Y
Algoa	005	SARP 3	Nov-93	Y	Y
Algoa	006	Squid and paralarval survey	Nov-93	Y	Y
Algoa	007	SARP 5	Dec-93	Y	Y
Algoa	008	SARP 6	Jan-94	Y	Y
Algoa	009	SARP7	Feb-94	Y	Y
Algoa	010	Plankton Dynamics	Mar-94	Y	Y
Algoa	011	SARP 8	Mar-94	Y	Y
Algoa	012	Pelagic Pre-recruit	Mar-94	Y	Y
Algoa	013	No Cruise			
Algoa	014	Mozambique	Jun-94	N	Y
Algoa	015	SARP 10	Nov-94	Y	Y
Algoa	016	SARP 11	Dec-94	Y	Y
Algoa	017	SARP 13	Feb-95	Y	Y
Algoa	018	RAFOS	Feb-95	N	N
Algoa	019	SARP 14	Mar-95	Y	Y
Algoa	020	Pelagic Pre-recruit	Mar-95	Y	Y
Algoa	021	Agulhas current air/sea exchange	Apr-95	N	N
Algoa	022	Maasbanker	May-95	Y	N
Algoa	023	Pelagic Recruitment	Jun-95	Y	Y
Algoa	024	Calibration Trials	Jul-95	N	N
Algoa	025	UCT Training+C60	Jul-95	N	Y
Algoa	026	No Cruise			
Algoa	027	No Cruise			
Algoa	028	No Cruise			
Algoa	029	ACAC	Oct-95	Y	Y
Algoa	030	Spawner Biomass	Oct-95	Y	Y
Algoa	031	Gear Trials	Nov-95	N	N
Algoa	032	Atresia	Feb-96	Y	Y
Algoa	033	Filament	Feb-96	Y	Y
Algoa	034	Training Cruise	Feb-96	N	Y
Algoa	035	Squid Acoustics Experiment	Feb-96	N	Y
Algoa	036	Pelagic Recruitment	Mar-96	Y	Y
Algoa	037	NERC Charter	Apr-96	Y	Y
Algoa	038	NERC Charter	May-96	Y	Y
Algoa	039	Pelagic Recruitment	Jun-96	Y	Y
Algoa	040	No Cruise			
Algoa	041	Gear Trials	Sep-96	N	Y
Algoa	042	CUFES	Sep-96	Y	Y
Algoa	043	ACA, Atresia	Oct-96	Y	Y
Algoa	044	Spawner Biomass	Oct-96	Y	Y
Algoa	045	Spawner Biomass	Nov-96	Y	Y
Algoa	046	Squid Cruise	Dec-96	Y	Y
Algoa	047	No Cruise			
Algoa	048	Red Tide	Apr-97	Y	Y
Algoa	049	No Cruise			
Algoa	050	Pelagic Biomass - South Coast	Nov-97	N	Y
Algoa	051	Spawner Biomass	Nov-97	N	Y
Algoa	052	No Cruise			
Algoa	053	UCT Training	Feb-98	Y	Y
Algoa	054	Pelagic Pre-recruit	Mar-98	Y	Y



ADCP Data: ALGOA continued...

Algoa	055	UWC Training	Apr-98	Y	Y
Algoa	056	Pelagic Recruitment	May-98	Y	Y
Algoa	057	Snoek Aggregation	Aug-98	Y	Y
Algoa	058	Training/SARP	Sep-98	Y	Y
Algoa	059	SARP	Oct-98	Y	Y
Algoa	060	Pelagic Biomass	Nov-98	Y	Y
Algoa	061	SARP/Method test with Cufes	Feb-99	Y	Y
Algoa	062	SARP/Method trials	Feb-99	Y	Y
Algoa	063	Pelagic Pre-recruit	Mar-99	Y	Y
Algoa	064	Physical Oceanography	Apr-99	N	Y
Algoa	065	Oceanography/Benefit Survey	Apr-99	N	N
Algoa	066	Snoek Aggregation	Sep-99	N	N
Algoa	067	No Cruise			
Algoa	068	Pelagic Biomass	Nov-99	Y	Y
Algoa	069	No Cruise			
Algoa	070	Harmful Algal Bloom	Feb-00	N	N
Algoa	071	Pelagic Pre-recruit	Mar-00	Y	Y
Algoa	072	No Cruise			
Algoa	073	SHMBL	Apr-00	N	N
Algoa	074	Pelagic Recruitment	May-00	N	Y
Algoa	075	No Cruise			
Algoa	076	SHMBL	Jun-00	N	N
Algoa	077	No Cruise			
Algoa	078	SHMBL	Jul-00	N	Y
Algoa	079	SHMBL	Aug-00	N	Y
Algoa	080	No Cruise			
Algoa	081	Snoek Aggregation	Aug-00	N	Y
Algoa	082	No Cruise			
Algoa	083	SHMBL	Sep-00	N	Y
Algoa	084	No Cruise			
Algoa	085	Sardine Survey	Sep-00	N	N
Algoa	086	Squid Biomass	Oct-00	N	Y
Algoa	087	Spawner Biomass	Nov-00	N	Y
Algoa	088	SHMBL	Dec-00	N	Y
Algoa	089	SHMBL	Jan-00	N	Y
Algoa	090	No Cruise			
Algoa	091	SHMBL	Feb-01	N	N
Algoa	092	UCT Training	???	N	N
Algoa	093	Pelagic Pre-recruit	Mar-01	Y	Y
Algoa	094	SHMBL	Apr-01	N	Y
Algoa	095	Pelagic Pre-recruit	May-01	Y	Y
Algoa	096	SHMBL	Jun-01	N	Y
Algoa	097	SHMBL	Jul-01	N	Y
Algoa	098	SHMBL	Aug-01	N	Y
Algoa	099	Spawner Biomass	Oct-01	Y	Y
Algoa	100	Squid Biomass	Nov-01	N	N
Algoa	101	SHMBL	Dec-01	N	Y
Algoa	102	SHMBL	Jan-01	N	Y
Algoa	103	CMS Charter	Jan-01	Y	Y
Algoa	104	Training Cruise	Feb-02	N	Y
Algoa	105	Pelagic Pre-recruit	Feb-02	N	N
Algoa	106	Gear Trials: Jago	Mar-02	N	N
Algoa	107	Coelacanth Cruise	Apr-02	Y	Y
Algoa	108	Pelagic Recruitment	May-02	Y	Y
Algoa	109	Shark Cruise	Jun-02	N	N
Algoa	110	SHMBL	Jun-02	N	N
Algoa	111	Whale Cruise	Jul-02	N	N
Algoa	112	Coelacanth/Training	Aug-02	Y	Y
Algoa	113	Gear Trials (pelagic)	Sep-02	N	Y



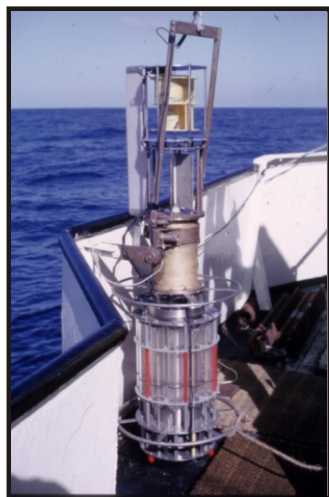
Current measurements from CSIR research vessels

When the CSIR started its oceanographic operations off the South African east coast (about 1960), it was soon recognised that measurements of the movement of the water was essential to understand oceanographic conditions in the area. This requirement later grew to include strategic current information on and off the continental shelf, and the characteristics of the Agulhas Current.

In a fairly innovative process, the CSIR lowered a special current meter (see photograph) from a vessel, to record the flow of water. In deep water it was impossible to anchor the vessel, and the measurements had to be corrected for the drift of the vessel (which contributed the largest part of the flow measurement). The measurement of the drift of the vessel used microwave technology based on the *Tellurometer*, an instrument that revolutionised the high-accuracy measurement of distance for surveyors. The near-shore (30 km) ship tracking was automated in the 1970s to improve accuracy and reduce dependency on manpower.

The data is only reliable in the upper layers of the ocean (normally a few hundred meters), where it could be assumed that the instrument and the vessel were rigidly coupled.

A large amount of current measurements was collected over about two decades, and these were fundamental to much that is known about the current field off the east coast today. A relatively small part of this data has been loaded into SADC. If considered with the ADCP data from MCM, the data will provide a unique capture of the flow field around the coast of South Africa.



CSIR hydrosonde to measure current velocity, temperature and take samples at sea.

Entries added to the Inventory during 2001/2

Items for the Inventory are located by scouting in publications, reports and electronic media. Sailing orders (e.g. from Marine and Coastal Management) are also entered. Data sets submitted to SADC for loading are also supplied with an entry in the Inventory. The list below indicates those entries that were added during 2001/2.

Survey	Vessel	Description	Date added	Data on database
01/0023	Algoa	UCT training	24/04/2001	Yes
01/0024	Algoa	Pelagic pre-recruitment	24/04/2001	Yes
01/0025	Algoa	St Helena Bay Monitoring Line	24/04/2001	Yes
01/0026	Nansen	Hake recruitment	24/04/2001	Yes
01/0027	Pelagia	ACSEX I and II	30/05/2001	No
01/0028	Sardinops	Seabirds	30/05/2001	No
01/0029	Sardinops	Seabird survey	30/05/2001	No
01/0030	Sardinops	Seabird survey	30/05/2001	No
01/0031	Thalassa	Physical ocean ography	30/05/2001	No
01/0032	Antea	Met and phys ocean ography	30/05/2001	No
01/0033	Antea	Pirata-FRS	30/05/2001	No
01/0034	Antea	Physical ocean ography & tech	30/05/2001	No
01/0035	Marion Dufres ne	Antares 4	30/05/2001	No
01/0036	Sardinops	Seabirds	30/05/2001	No
01/0037	Sardinops	Rock lobster	30/05/2001	No
01/0038	Algoa	Anchovy/pilc hard recruitm ent	30/05/2001	No
01/0039	Sardinops	Seabirds	30/05/2001	No
01/0040	Sardinops	Rock lobster	30/05/2001	No
01/0041	Sardinops	Rock lobster	30/05/2001	No
01/0042	Sardinops	Marine mammal	30/05/2001	No
01/0043	Sardinops	White Shark cruis e	22/06/2001	No
01/0044	Africana	Spawner biomass	28/08/2001	Yes
01/0045	Africana	Pelagic recr uitment	28/08/2001	Yes
01/0046	Africana	Pelagic recr uitment	28/08/2001	Yes
01/0047	Algoa	Pelagic recr uitment	28/08/2001	Yes
01/0048	Algoa	St Helena Bay Monitoring Line	28/08/2001	Yes
01/0049	Algoa	St Helena Bay Monitoring Line	28/08/2001	Yes
01/0050	Algoa	St Helena Bay Monitoring Line	28/08/2001	Yes
01/0051	Africana	Pelagic recr uitment	08/10/2001	Yes
01/0052	Africana	Spawner biomass	08/10/2001	Yes
01/0053	Africana	Hake recruitment	08/10/2001	Yes
01/0054	Africana	Spawner biomass	08/10/2001	Yes
01/0055	Africana	Hake recruitment	08/10/2001	Yes
01/0056	Africana	Pelagic recr uitment	25/10/2001	Yes
01/0057	Africana	Hake recruitment	25/10/2001	Yes
02/0001	Sardinops	Rock lobster	09/01/2002	No
02/0002	Sardinops	Rock lobster	09/01/2002	No
02/0003	Sardinops	Rock lobster	09/01/2002	No
02/0004	Sardinops	St Helena Bay Monitoring Line	09/01/2002	No
02/0005	Sardinops	Seabirds	09/01/2002	No
02/0006	Algoa	Squid Hydroac oustics	09/01/2002	No
02/0007	Africana	Pelagic spawner	09/01/2002	No
02/0008	Africana	Demersal inter-cal	09/01/2002	No
02/0009	Sardinops	Seabirds	09/01/2002	No
02/0010	Sardinops	SARP 9	09/01/2002	No
02/0011	Sardinops	Seabirds	09/01/2002	No
02/0012	Sardinops	Biochem	09/01/2002	No
02/0013	Africana	Seabirds	09/01/2002	No
02/0014	Sardinops	Biochem	16/01/2002	No
02/0015	Africana	Hake biomass	16/01/2002	No
02/0016	Africana	Voyage 90	13/02/2002	Yes
02/0017	Algoa	Voyage 99	13/02/2002	Yes
02/0018	Algoa	Voyage 101	13/02/2002	Yes