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"Marine Scientific Research and the Law of the Sea :
The Balance between Coastal States and the International Rights"

MARINE SCIENTIFIC RESEARCH : A SOUTH AFRICAN EXPERIENCE OF UNCLOS PART XIII

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Abstract

The experience outlined in this paper spans the last three years. It relates to the establishment of a project to manage South Africa's extended continental shelf claim, under the provisions of the UN Convention on the Law of the Sea, 1982, Article 76.

To facilitate scoping of potential new territory, the project required rapid access to existing geophysical and bathymetric survey data within the Exclusive Economic Zone and beyond. It soon became clear that very little of the large amounts of foreign academic data acquired over past decades is actually archived accessibly in South Africa and that the South African government was not fully exercising its rights under UNCLOS, Part XIII, to access this data. Applications from foreign research institutions were being correctly delivered through diplomatic channels but were either not being responded to or the permits issued did not require a supply of the full data sets.

A system has now been established to ensure the reliable and timeous issuing of permits that specify data delivery and other requirements, which are based, where possible, on prior discussion with the chief scientist of each cruise.

However, a number of difficulties and uncertainties remain to be resolved on the basis of a better understanding of not just our rights and responsibilities as a coastal state, but also those of the academic institutions wishing to conduct research in the marine areas under South African jurisdiction.

1. Introduction

At the beginning of 2003, the South African government directed the Petroleum Agency SA (the Agency) to establish and manage the national Extended Continental Shelf (ECS) Project. The Agency is well placed to do this because of its function as the national archive for all petroleum exploration related data, and also its experience of the petroleum geology and related geophysical surveys. It initially appeared to be an easy matter to obtain the limited amount of petroleum industry multichannel seismic data that exists in the deep water frontier areas of the Exclusive Economic Zone (EEZ) and the areas of potential extended continental shelf around the continental margin of South Africa's mainland and sub-Antarctic Prince Edward islands.

It soon became clear from an investigation of the USA NGDC/Geodas websites and those of the countries that had or have active research programmes, that a large amount of geological and hydrographic data relevant to the national ECS project has been acquired in South African waters but that very little of it is archived in South Africa. It also became apparent that obtaining a copy of the data is not simply a matter of asking for it. This prompted research on the legal issues relating to foreign marine scientific research on our continental margin. The UN Convention of the Law of the Sea (UNCLOS 1982), Part XIV and particularly Part XIII, section 3 (Conduct & Promotion of Marine Scientific Research) are the most pertinent :

Article 245 :	Marine Scientific Research in the territorial sea.
Article 246 :	Marine Scientific Research in the Exclusive Economic Zone (EEZ) and on the continental shelf.
Article 247 :	Marine Scientific Research under the auspices of International organisations.
Article 248 :	Duty to provide information to coastal state.
Article 249 :	Duty to comply with certain conditions.
Article 252 :	Implied consent.
Article 253 :	Suspension or cessation of marine scientific research activities.

W also noted with interest, the uncertainty and limited detail regarding rights and responsibilities relating to marine scientific research on the outer continental margin, seaward of the EEZ (Ong, 2003).

However, most notable from our national point of view is Article 76, clause 1 : “Coastal States, in the exercise of their jurisdiction, have the right to regulate, authorize and conduct marine scientific research in their exclusive economic zone and on their continental shelf in accord with the relevant provisions of this Convention”.

Three years later, although better informed, it is still a slow and arduous exercise to obtain useful data from both old and new foreign geophysical and hydrographic surveys, that are acquired and archived with overseas research institutions.

2. Problems Encountered

Particular issues encountered by the South African authorities in obtaining data have been :

- Foreign researchers who plan and carry out surveys and whose careers depend on publishing the results can be reluctant to provide copy of their data to our national archive – the nature of their business perhaps relates more to getting than giving data.
- Copyright / data ownership – with respect to the party that pays for and acquires the data, and to the coastal state, when it receives a copy of the data, and to any enhanced data product that it might generate :
    - What reasonable right of use can a coastal state expect for data supplied by a foreign researcher ?
    - Some researchers / institutions / government archives feel that it is reasonable to set restrictive conditions on the use of the data by the coastal state.
    - Whether it reasonable for a coastal state to require full data ownership of data supplied, at least after a reasonable period of time in order to allow the foreign researcher time for completion of MSc / PhD studies and publication of the results?
- The data can a coastal state can reasonably be expect to receive : whether a paper copy only or all field and processed data in digital form ?
- When after the completion of a survey, can a coastal state reasonably expect to receive data ?
- Whether it is reasonable for a foreign researcher to :
    - request the coastal state to pay for data?
    - supply only an abbreviated cruise report, and represent that the full report and a complete copy of the data must be purchased or traded ?
    - represent that research data will only be supplied to the coastal state if an equivalent value of data is exchanged ?
    - supply partial, in-accurate, un-edited, unusable data or data in unreadable formats and leave it to the coastal state to decipher ?
- It has been startling to discover that it is not uncommon for research institutions and government archives of developed countries to be unable to find recently acquired research data from within South Africa’s EEZ because it has been lost or never archived, or the researchers involved have moved on, taking the data with them.
- It is not only developing nations that suffer from limited capacity for data management and archiving functions. Developed countries may also have limited capacity for supplying even modest volumes of archived data. An arrangement must then be made by the coastal state for a paid service.
- Foreign research can have limited benefits to the coastal state. The foreign researcher may want to withhold newly acquired data until MSc and PhD research projects have been completed and published and furthermore may want to make immediate use of national data archived by the coastal state for such research and publication. This involves very little skills transfers or empowerment to South African geoscientists or institutions but commands a significant amount of staff time.
- Some of the planned research is in conflict with South Africa’s own national research programmes. A decision must then be made whether to commit national resource to serving the foreign or the domestic programme.

- Some research applications do not contain enough information for the coastal state to make an informed decision regarding the issuance of a permit and some are received only weeks or days before (or after) the survey is due to start.

- South Africa's response to incoming applications from foreign researchers for a survey approval permit has not been without problems. On occasion it has involved a very delayed or no response, or a simple "yes, OK", with no conditions set at all. Applications are sometimes not routed through to the correct institution or government department for action.
- Another difficulty has been that data received from foreign research has not been properly archived for a variety of reasons. Local academic institutions or researchers involved in the project may have regarded the data as their own property and did not supply copy to the appropriate national archive, or the data cannot be accessed because the appropriate hardware and software, or skills to read it are not available, i.e. in certain areas we lack the national capacity to effectively archive the data that is made available or could be obtained.
- It is not easy to obtain copy of cruise reports or digital data from our own academic institutions which participated in foreign surveys and received copy of the data.
- South Africa's government and research institutions typically lack sufficient staff or student capacity to take up the many offers of participation in foreign research cruises.

3. The Way Forward

Such issues can be intractable and easily lead to conflict and a "lose/lose" situation. Based on the South African experience, the best way forward is to achieve a reasonable agreement negotiated in advance of the research cruise, in accordance with the principles, rights and responsibilities contained in UNCLOS Parts XIII and XIV.

To this end, a procedure has been established which is intended to ensure that incoming applications for permission to conduct marine scientific surveys are promptly routed to the relevant government departments for comment and the issuance of permits by our Department of Environmental Affairs and Tourism. The minimum condition set is the supply of a copy of the full cruise report. In the case of geophysical and hydrographic surveys, we require, in addition, a full digital copy of the raw and processed data.

The situation is more complicated when seismic surveys with high energy airgun arrays and long hydrophone streamers and / or seafloor hydrophones are involved. Such surveys carry the risk of acoustic impact on marine life, particularly marine mammals and the towed gear and lack of manoeuvrability of the vessel increases the risk of conflict with fishing activities. In such cases, an environmental management programme is required and a local environmental observer should be placed on board the vessel to ensure compliance. The observer acts also as a fishing liaison officer, who uses his knowledge to assist both surveyor and fishermen in harmonising their activities to ensure that potential conflict is minimised. This process has worked very well and we have been encouraged by the degree of cooperation given by foreign academic survey operators. This procedure (which is also required for all petroleum exploration seismic surveys) has contributed largely to an unusually harmonious relationship with the local fishing industry as well as the community of environmentalists who monitor such geophysical survey activity.

Foreign research vessels have also generally been willing to assist our national programmes by acquiring data such as multibeam echosounder, sub-bottom profiler, or gravity data (which does not require the deployment of towed or overboard equipment) during transits through our EEZ. This has helped considerably in gaining data that could not otherwise have obtained by South Africa, and which can then be used for the more effective planning of geophysical and hydrographic surveys for the South African Extended Continental Shelf project.

Countries with which the Agency has cooperated in this manner include : Germany (BGR and AWI), the United Kingdom (NOC), and France (IPEV and Ifremer). South Africa is also communicating with USA research institutions regarding the supply of multibeam echosounder data. In addition, the Agency is currently engaged in a joint geophysical survey with France in the region of the Del Cano Rise, between the South African sub-Antarctic Prince Edward and the French Crozet islands, using the RV Marion Dufresne, and will receive considerable benefits in the way of skills transfers to South African geoscientists who are participating in the cruise. This

cooperation has also made it far easier to negotiate access to French academic geophysical and hydrographic survey data that has been acquired in our EEZ in previous years.

In such cooperative projects, the Agency has endeavoured to pay its way by contributing directly to the survey costs and also by sharing our knowledge of the local geology as well as operating conditions and regulatory requirements.

It should be noted that this paper deals only with the relatively familiar business of geophysical marine scientific research. Other new disciplines such as marine "bioprospecting" (Arico and Salpin, 2005) involve a great variety of new issues that should command the serious consideration of the authorities of coastal states.

4. Acknowledgements

We wish to thank Rear Admiral (retired) Neil Guy, who kindly helped us gain an understanding of the intricacies of international maritime law relating to marine scientific research and other related matters.

5. References

Arico, S and Salpin, C (2005). Bioprospecting of genetic resources in the deep seabed : scientific, legal and policy aspects. UNU-IAS Report, 1-72.

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Figure 1 : showing GEODAS single beam bathymetric shiptrack cover over the study area.

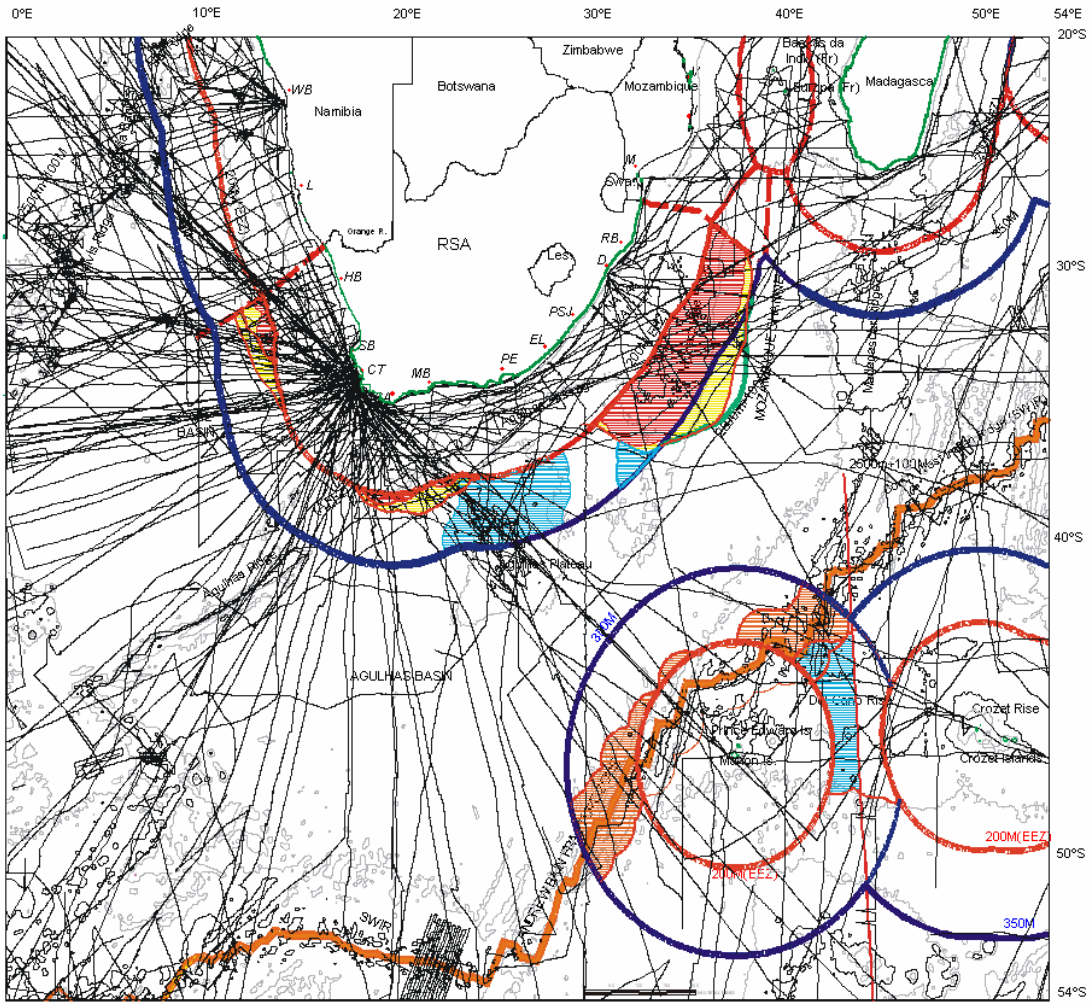

Figure 2 : Showing academic multichannel seismic data around the South African continental margin.