PERMANENT COMMITTEE ON TIDES AND MEAN SEA LEVEL

Author: GORDON HOMES, Senior Surveyor, Division of National Mapping, Dept of National Development and Energy: Secretary to the Permanent Committee on Tides and Mean Sea Level.

The Permanent Committee on Tides and Mean Sea Level was established in 1979 by the National Mapping Council. The composition of the Committee and its aims are presented. The relevance of the Committee to the marine science community is explained and the development of a National Tidal Data Base is discussed. In line with an AMSTAC requirement for inventories of various data fields, the Committee seeks views on what information potential users of an inventory of tidal records would require to be included in that inventory.

Introduction

For many years the Association of Australian Port and Marine Authorities (AAPMA) has been lobbying for the establishment of a National Tidal Authority. There had been little or no progress made toward such an authority and many organisations had continued to obtain and store tidal data throughout the country with very little co-ordination or co-operation.

With the ever increasing amount of data being collected it became apparent to many that some mechanism for the exchange of data between the various agencies was required at the very least.

Action needed to be taken; but by whom?

National Mapping Council

The National Mapping Council (NMC) is made up of the State and Northern Territory Directors of Mapping or Surveyors-General plus the Commonwealth Surveyor-General, the Hydrographer,RAN, the Director of Survey-Army and the Director,Division of National Mapping.

The NMC has been interested in tides and, in particular, mean sea level since 1964 when the adjustment of the National Levelling Survey was proposed, to establish the Australian Height Datum.

The matter of the exchange of tidal data arose at a technical sub-committee meeting and it was agreed that the Hydographer,RAN and the Director, Division of National Mapping (Natmap) should investigate and report to the Council.

At its meeting in 1979 the NMC resolved to set up the Permanent Committee on Tides and Mean Sea Level (PCTMSL).

Permanent Committee on Tides and Mean Sea Level

The Committee was to consist of persons nominated by the Director, Natmap and the Hydrographer,RAN together with a representative from the Flinders Institute for Atmospheric and Marine Sciences (FIAMS).

Provision was made to co-opt members of the NMC and the AAPMA as necessary.

In recognition of its previous contribution and its extensive nation-wide membership, the AAPMA was invited to nominate a representative to the PCTMSL.

The PCTMSL is not a substitute for a National Tidal Authority but an interim measure. It is a permanent committee in the sense that it is continually active with secretariat support being provided by Natmap.

Aims

The aims of the PCTMSL are:

1. To establish a data base of digitised tidal observations.
2. To establish a catalogue of available tide gauge recordings which are still in a non-digitised form.
3. To establish a data base of tidal harmonic constants.
4. To consider the most appropriate media and formats for the exchange of the above data.
5. To investigate the quality of existing tide gauges and their records.
6. To obtain tidal records from all NMC members and other co-operating authorities.
7. To recommend other relevant activities which may be in the national interest.

Activities

What has the PCTMSL achieved toward these stated aims?

1. A data base of tidal observations has been developed at FIAMS with the support of a grant from the Australian Marine Sciences and Technologies Advisory Committee (AMSTAC), extending the existing tidal library.
2. An inventory of possibly available tidal records is being compiled from various sources including Easton's work and responses to the first circular letter of the PCTMSL.
3. Harmonic constants have been included in the data base along with the observations and non-tidal residuals.
4. The exchange media and formats are being examined in line with international guidelines.
5. In order to investigate the quality of existing gauges and their records, the owners and operators have been asked to update and supply details of their gauges to the PCTMSL.
   A routine program of calibrations has already been embarked on, utilising the field programs of the component organisations together with the CSIRO Division of Oceanography, the Public Works Department,Victoria and others.
   As data is received for digitising, analysis and incorporation in the data base, it is assessed and any serious deficiencies in the record are reported back to the donor.
6. The collection of tidal data from the NMC member organisations and others has commenced. This program is being co-ordinated with the available resources at FIAMS.
7. In accordance with the seventh aim the Committee has turned primarily to the improvement of tide gauge records through the drafting of a booklet "Operating Procedures for Tide Gauges on the National Network", and to the establishment of a National Network of gauges which the Committee believes is representative of the tidal phenomena of Australia and could be reasonably maintained to acceptable standards of data quality.

Services Provided

The PCTMSL offers a number of services, notably a limited digitising service for analogue records, storage of original records in archive facilities and advice on ways of improving the quality of tidal records. The Committee is investigating the many types of gauges currently available commercially in order to provide advice on the preferred sort of gauge for a particular purpose or location.
The PCTMSL can provide information on where installations and deployments have been made in the past and where to find the data. Finally it can provide information on current and intended locations of both permanent and temporary gauges.

Relevance to the Marine Science Community

It is to the last point that I will direct your attention in the relevance of the PCTMSL to the marine science community.
In these times of economic restraint none of us can really afford to duplicate the work of others. This is where the PCTMSL can help the marine science community and the surveying and mapping organisations alike by acting as an information service.
Of course, for this to be successful we need to know where,when and for how long you intend to install and deploy tide gauges and current meters.
After you have finished your research and the reports have been published, what will happen to the data that you collected and used? With a little extra effort that data could be supplied to a National repository where it is freely available to be used by others in the interest of marine science in general.

Data Base

This brings me back to the aims of the PCTMSL and in particular the data base of observations and harmonic constants.
You may have seen the poster display provided by Mark Andersson of FIAMS on the Sea Level Data Base. This data base is essentially a a computerised extension of the tidal library that FIAMS had been maintaining since 1966. It is designed to give ready access to observational data, harmonic constants and non-tidal residuals.
Information from the data base will be available to anyone on request, be it a marine survey organisation requiring data to correct depths to a particular tidal datum or a reseach organisation using empirical data to verify a numerical model.
Data from the base will be used to meet Australia's responsibility to the UNESCO supported Permanent Service for Mean Sea Level and to meet other responsibilities both within this country and internationally.
It is intended to be, with your co-operation, the National Tidal Data Base.

Inventory

As it will be some time before all available data can be collected, digitised and incorporated in the data base it is necessory to create and maintain an inventory of possibly available tidal records. The PCTMSL is already well advanced in the creation of this inventory.
As some of you will be aware, AMSTAC has expressed a desire to see a series of inventories of the numerous marine science data fields. It is envisaged that a directory will be published, pointing a potential user of a particular data field to a designated "lead agency" which has the responsibility of developing a detailed, technical inventory of data that is available and where to obtain the data.
The PCTMSL has been recognised by AMSTAC as the "lead agency" responsible for the inventory on tidal data. As a "lead agency" the PCTMSL is required to ascertain from potential users of such an inventory, their views on what sort of information they would require to be in the inventory to make it as useful as possible.
A questionnaire has been available during this conference for this purpose and I hope that all of you have given it some thought and filled in the questionnaire. If not, I urge you to do so after this session.

Closing Remarks.

On behalf of the members of the PCTMSL I would like to thank you for allowing the Committee this opportunity to promote its activities at your physical oceanography conference.

I sincerely hope that, if not already, your organisation will be one of those co-operating authorities referred to in the aims of the PCTMSL.

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