

# The New Role of JHOD

It has been long years since Japan started the hydrographic organisation now called Japan Hydrographic and Oceanographic Department, JHOD, in 1872. The primary functions of the organisation have not basically changed since then. These are to implement a hydrographic survey in the surrounding waters of Japan and to provide mariners with information such as nautical charts. Such information also includes tide, and tidal and ocean current. However, I feel that the need for providing detailed marine information other than for conventional navigational purposes has been increasing in recent years.

One example is the information needed for people enjoying leisure in coastal areas. These might be boat users, yacht sailors or even swimmers. Coastal areas are not used by conventional merchant vessels except near ports and have not yet been adequately surveyed. Another example is an environmental issue. While many citizens have the opportunity of enjoying leisure at sea, wastewater, including that from households, puts a heavy burden on near-shore waters. In several inner bays water quality has become so bad as to damage fishery and the everyday life of citizens. The monitoring and simulation of water flow is considered to be a most important first step in understanding the mechanism of water pollutant behaviour in the sea and in improving the quality of coastal waters.

A further example is data demand for disaster mitigation measures. Japan frequently suffers tsunamis caused by earthquakes in the sea area. Detailed bathymetric data in mesh form is needed for the simulation of tsunamis.

In an effort to respond to the above-mentioned new demands, JHOD has been employing state-of-the-art hydrography technology. We are now using a number of multibeam echo sounders for shallow waters and also for deep oceans. Next year we will launch an airborne laser sounding system for coastal shallow water survey and we have also introduced a short-wave radar system which can monitor the coastal current on a real-time basis. Some current monitoring is already available on our web-site.

Whilst this new technology is already producing some outstanding results which may even be of academic significance, the big problem is establishing ways and means of conveying this information and making it available to users. We do not have a widely recognised "information tool" comparable to nautical charts. JHOD does have a wide variety of maps other than nautical charts on our publication list. Is it enough to improve these maps in order to respond to the new demands? Or should we put the maps on our Internet homepage?

On the other hand, many academics have suggested to us that we need to have a fundamental GIS data base for every use. But the architecture for such a data base is still not clear. Should this comprise just the collection of each sounding data? Should it be mesh data? Or should such data be the collection of contours? Perhaps the best solution would embrace all of the above. But there is a long way ahead until we have a complete data base. Let me give one example. We already have many digital data bases for the production of paper charts in the digital compilation process. But these are not adequate for arriving at homogeneous mesh depth data. The depth data employed in the nautical charts deviate from the first step, that is, the survey itself. Should we re-survey the whole area which has been surveyed for nautical charts? Are the users patient enough and the financial authority tolerant enough to allow us to conduct such a time-consuming re-survey?