

REPORT ON SEA LEVEL OBSERVING ACTIVITIES IN GHANA

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1. INTRODUCTION:

Sea level measurements in the then Gold Coast (now Ghana) began at the Takoradi Harbour in 1927 when the Harbour became operational. It must be pointed out that other harbours were in operations prior to this period. For instance, the Accra Harbour was a major port for the shipment of goods. However, as at today no data or records of tidal measurements have been found. Tidal measurement at the Tema Port began in 1962 when the second Harbour became fully operational. However, age and lack of spare parts rendered both equipments non-operational and data collection ceased completely.

In 19... UNESCO donated a float operated tide gauge to replace the broken down one at Tema. This gauge did not last long because of the poor security in the Harbour at the time. Thieves broke in and stole the equipment rendering Tema a non – measuring station.

2. INDO-GHANA COLLABORATION:

In the year 2004 the Indian Government under the auspices of the National Institute of Oceanography (NIO) donated two tide gauges and a weather station to the Government and people of Ghana. At this juncture, we would wish to acknowledge the unique roles played by Dr. Ehrlich Desa the then Director of NIO (now with UNESCO) and Dr. Thorkild Aarup (IOC) in reactivating tidal measurements in Ghana.

This sea-level gauge was developed at the National Institute of Oceanography, India. The gauge was designed specifically for GLOSS applications, which include studies of climate (through mean sea level) and oceanographic and coastal sea-level research.

2.1 TAKORADI:

The Takoradi GLOSS station is directly open to the sea, so measurements from this gauge are not influenced by local resonant effects and hence a fair representative of conditions along the exposed coast.

The gauge at Takoradi GLOSS station is based on bottom-pressure measurements. In that gauge, a temperature-compensated, single-crystal, silicon, thin-diaphragm, piezo-resistive strain

gauge transducer (manufactured by Honeywell Inc.), is used for the estimation of sea level through measurements of absolute pressure (i.e. water column pressure + atmospheric air pressure). The sensor also provides temperature output. Absolute pressure is sampled at a frequency of 2Hz and averaged.

The self-recording sea-level gauge was installed by two Consultants from the NIO at the Takoradi Harbour in Ghana. This was after a short but intensive hands on training at the NIO of two Ghanaians under the auspices of IOC-GLOSS-ODINAFRICA.

The Takoradi station started operation from 1 July 2004 as part of the Global Sea Level Observing System (GLOSS) and data collected were initially sent to POL (as before) and also to NIO. However, difficulties in communication (via internet) halted the monthly transmission of data. Locally, the processed data collected are lodged with the Ghana Secretariat of Ocean Data and Information Network for Africa (ODINAFRICA). A second database has been created at the Survey of Ghana and can be assessed on request. Fortunately, the problem of communication is now history and all processed data are available and will be sent to all the appropriate Offices on request.

2.2 TEMA:

Tidal measurements at the Tema Harbour suffered a major blow when a Contractor undertaking a Harbour expansion project demolished the Tide Gauge House without any cause. The matter was taken up with the Minister for Ports and Railways who prior to his appointment was a member of the Ghana National Committee (GNC) of IOC. Promises were made by the Ghana Ports and Harbour Authority but not fulfilled. A recent visit to the Harbour indicated that there was no justification whatsoever for the demolition of the Tide Gauge House. New promises have been made to reconstruct the Tide Gauge house at the old site and this is being pursued vigorously to enable tidal measurement to start at Tema.

3.0 IOC/GLOSS/ODINAFRICA WORKSHOP:

We were very pleased to be invited to the above workshop which took place from the 13th – 24th November 2006 in Oostende, Belgium. The main objective of the workshop was to train tide gauge operators from Africa and the Western Indian Ocean on sea level measurement hardware and software and aspects of sea level science.

Our colleague, Mr. Kofi Nkebi who participated in the workshop gave a good report on it and was very instrumental in the fabrication of the support and installation of the RADAR gauge at the GLOSS station at Takoradi in December 2006. At this point, I would like mention the excellent cooperation and collaboration of the Director and Staff of the Takoradi Port in the whole project.

4.0 TIDAL MEASUREMENTS TAKORADI:

As can be seen Takoradi now has two tide gauges operating. We strongly feel this will offer checks on the two equipments as it will enable us detect drifts if any should occur.

Staff measurements are still being taken at regular intervals. This will however be reduced when we are certain all equipments are functioning normally.