Boletín Científico CIOH No. 23, ISSN 0120-0542, 115-118 (2005)

Nota

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SURVEYING A NATURAL DEEP SEDIMENT TRAP IN THE SOUTHWESTERN CARIBBEAN

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Resumen - Durante julio de 2004 el fondo oceánico del Caribe suroccidental fue explorado con la sonda multihaz del ARC Providencia en el área de la Depresión Providencia (>2600m). También se obtuvieron seis núcleos de sedimento en las paredes y el fondo de la Depresión, que se encuentran congelados. El CIOH busca colaboración de Institutos o Laboratorios con capacidad de utilizar estas muestras en estudios de paleoclima especialmente.

During a verification for the IBCCA (International Bathymetric Chart of the Caribbean and Adjacent Regions) project, the ocean floor of the Southwestern Caribbean were surveyed in July 2004 with a multi-beam Atlas HYDROSWEEP MD-230 echo-sounder, on board the Colombian R/V *Providencia* using a TSS DMS3-05 movement sensor and a Trimble DMS 212H DGPS. In particular, the survey defined the Providencia Depression, a relatively deep (>2600m) bottom feature oriented north-south , 50 miles long by 10 miles wide surrounded by depths shallower than 1100m (Figure 1). On the west side is the slope of the Central American continental shelf braking from around 40m of depth. On the east side, the fragmented lifting of the shallows and islands of the San Andres Archipelago. To the north and south the Providencia Depression is limited by depths of about 1100m *(Figure 2)*. This depression is a deep environment that marks the separation between the actual continental shelf off Central America and the San Andres Archipelago, a detached fragment due to recent movements of the seafloor in probable genetic relation with the motions of the Pacific dorsal, in the prolongation of the fracture zone of Panama. It is an active "scar" (intra-plate) open and deepened by rotative mega-displacement and shear movement. *(personal comm. Jean-René Vanney*).

The geo-morphological situation of Providencia Depression generate a natural sediment trap that was sampled with a piston corer Kalhsico, obtaining cores in the bottom and lateral walls of the Providencia Depression (*see Table 1 and Figures 3, 4*). These cores are frozen at the Colombian Center of Investigations in Oceanography and Hydrography (CIOH) in Cartagena, Colombia. The CIOH is looking for collaboration in the analysis of these samples. We are interested in the paleo-climate of the region. Those institutes or laboratories that may be interested in sharing this effort please write to jsemon@cioh.org.co.

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miles wide surrounded by depths shallower than 1100m (Figure 1). On the west side is the slope of the central American continental shelf braking from around 40m of depth on the east side, the fragmented lifting of the shallows and islands of the San Andres Archipelago. To the north and south the Providencia Depression is limited by depths of about 1100m (Figure 2). This depression is a deep environment that marks the separation between the actual continental shelf off Central America and the San Andres Archipelago a detached fragment due to recent movements of the seafloor in probable genetic relation with the movement of the Pacific dorsal, in the prolongation of the fracture zone of Panama. It is an active "scar" (intra-plate) open and deepened by rotative mega-displacement and shear movement. (personal comm.. Jean-René Vanney).

Table 1 . Sediment cores characteristics.

Station	Latitude	Longitude	Depth (m)	Sample (cm)
05	12° 43´ 29´´ N	81° 39´ 27´´ W	1000	77
06	12° 49´ 14´´ N	81° 50´ 38´´ W	874	80
07	12° 46´ 03´´ N	81° 44´ 14´´ W	2517	80
08	13° 23´ 05´´ N	81° 25´ 41´´ W	750	37
09	13° 21´ 23´´ N	81° 32´ 40´´ W	2444	90
10	13° 24´ 55´´ N	81° 41´ 40´´ W	617	2 (Rocks)
13	13° 09´ 45´´ N	81° 47´ 30´´ W	802	120

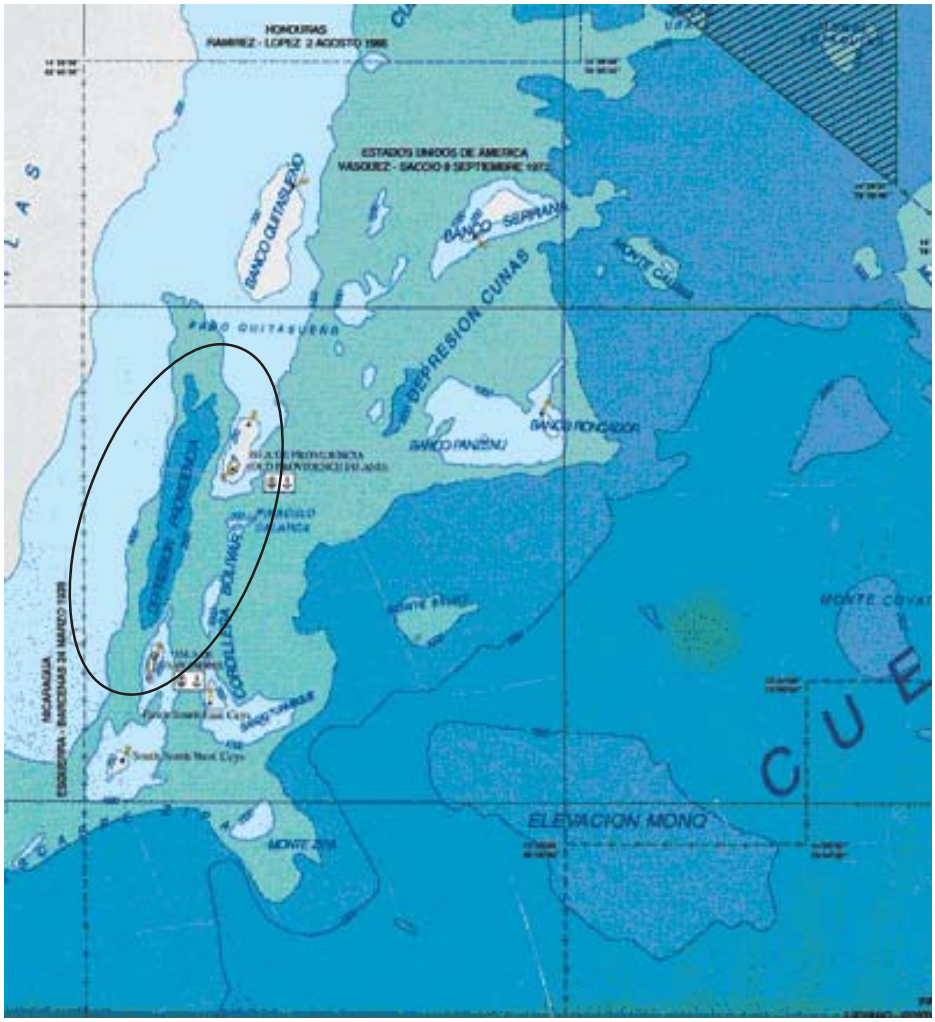

Figure 1. The Providencia Depression in the Bathymetric Chart 1601-CIOH.

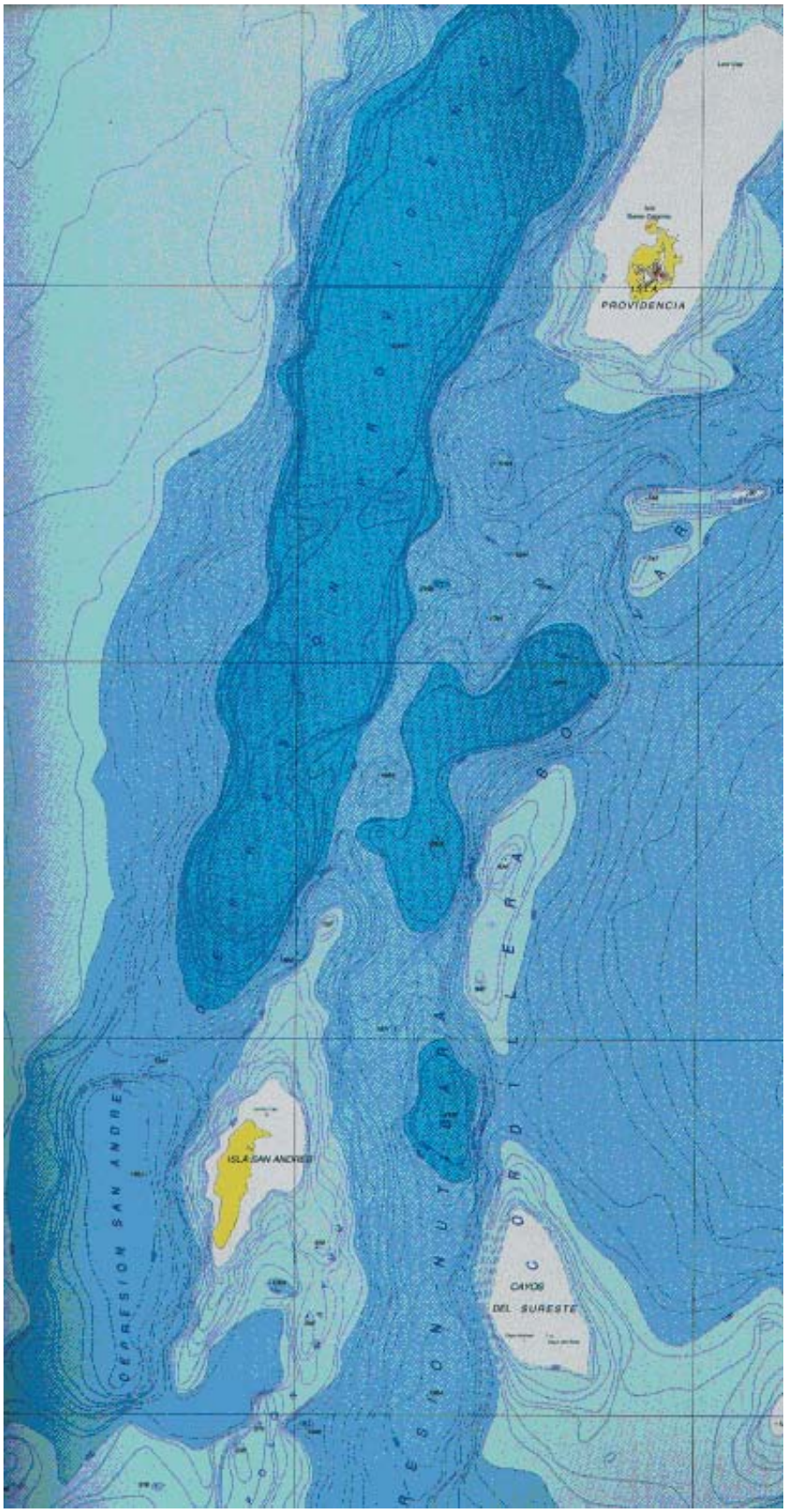

Figure 2. Bathymetric details of the Providencia Depression in Chart 1624-CIOH.

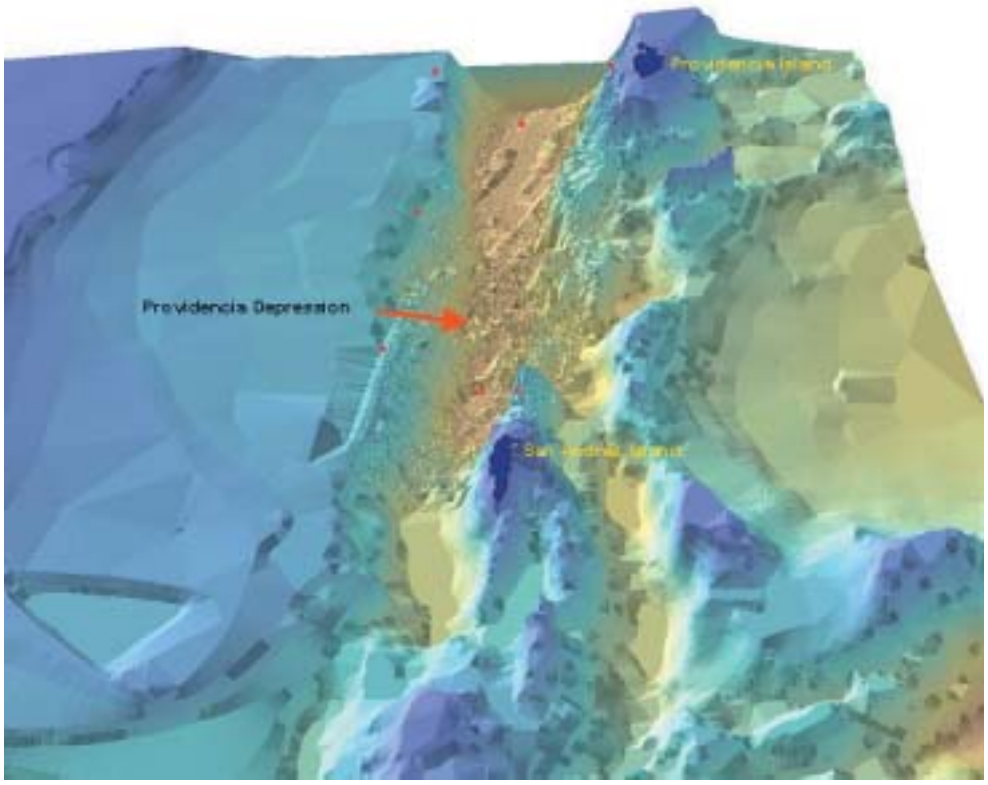

Figure 3. Three-dimensional view the Providencia Depression from South to North constructed from the data taken by the ATLAS Hydrosweep MD-2 onboard ARC "Providencia". The core samples are pointed by the red dots, see also table 1.

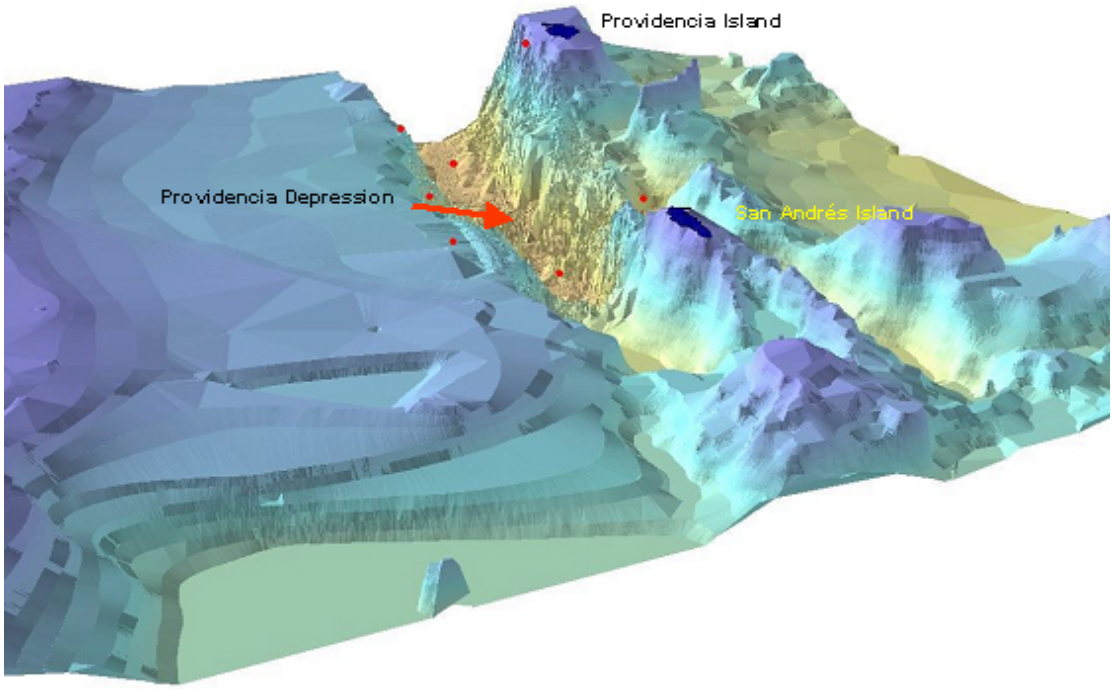

Figure 4. Southwest to Northeast three-dimensional view the Providencia Depression constructed from the data taken by the ATLAS Hydrosweep MD-2 onboard ARC "Providencia". The core samples are pointed by the red dots, see also table 1.