Most of the information concerning secular variation of the geomagnetic field comes from magnetic observatories and through global networks of sites which are observed periodically. This information is severely limited in the ocean. More recently, satellite data have been providing coverage across the oceans, but precise three-component measurements have only appeared sporadically between 1980 and 2000 and almost continuously during the last decade, but they cannot enhance our knowledge of the SV over periods of several decades.

The publication of the second version of the World Digital Magnetic Anomaly Map (WDMAM) supposed the collection of more than 2400 cruises in a period of time which span from 1960 to 2008. All this information was carefully checked profile by profile and cleaned by removing spikes and other spurious data.

From the magnetic information available after historical marine expeditions, it is possible to infer this long time-varying component by comparing readings at crossovers. This technique is not a new one. Nevertheless, the use of this new data set offers an opportunity to derive new more detailed secular variation patterns across the oceans. The last is reinforced due to the quality of its data, and the use of external field corrections provided by the comprehensive model CM4- to extract the short time varying component. This study focuses on this technique, and discusses the impact of the different error sources, by comparing with global models. Additionally, we will explain our future perspectives after applying Revised Spherical Cap Harmonic Analysis to obtain a reference model of geomagnetic secular change for Caribbean Sea and South Atlantic valid for the last 50 years.