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This paper describes the hydrographic conditions observed during six surveys carried out during 2003 and 2004, in the framework of the “IDEA Project” (acronym for “Influence of oceanographic structure and dynamics on demersal populations in waters of the Balearic Islands”). The surveys were developed on the shelf and slope of Mallorca Island, in particular in two fishing grounds at the north and south of the Mallorca channel. Periodic movements of the fishing fleet between these two areas have been regularly reported, suggesting a seasonal variability of the resources which could be in turn associated with the hydrodynamic variability. With this motivation, water masses affecting these grounds have been identified and their seasonal variability has been studied. Different oceanographic and environmental conditions have been found between the two fishing grounds. These differences are related to the presence of mesoscale structures, associated with the Western Mediterranean Intermediate Water (WIW) at the north of the Ibiza channel and big gyres detached from the Algerian Current. The former has been shown to have influence on the regional oceanic circulation and the latter could affect the progress of fresh Atlantic Water (AW) towards the channels and make possible the presence of high salinity values at intermediate waters at the south of Mallorca Island. Historical data from other oceanographic cruises carried out in the region are finally used to discuss the interannual variability of these mesoscale structures.

Keywords: Western Mediterranean; Balearic Islands; Water masses; Circulation; Seasonality; Interannual variability.