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Mesozoic palaeo-oceanography of rifted margins of the Atlantic

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Although the earliest history of the Atlantic and its rifted margins remains unknown, recent drilling has greatly improved our understanding of their palaeo-oceanographic evolution since the Late Jurassic. During the Late Jurassic the central north Atlantic only was deep basin bordered by carbonate platforms and connected to the world ocean to the east (Tethys) and probably also to the west (Pacific). To the north a relatively shallow pre-drift seaway between Iberia and Newfoundland connected that young ocean to narrow gulfs in the Labrador Sea and Bay of Biscay regions. With the partial opening of the south Atlantic, connection with the world ocean became more restricted and the widening central and south Atlantic turned into more or less isolated and possibly stagnant troughs where anoxic conditions reach up to the higher parts of the margins. During the Late Cretaceous inter basin deep-water circulation probably started gradually. Because of a generalized transgression, terrigenous sediments along the margins as well as calcareous pelagic sediments in the basins are extremely reduced and have been easily eroded during the Cainozoic when deep-water circulation became fully effective with the connection of the entire Atlantic to the rest of the world ocean through passages in the northern and southern high latitudes.