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The barrier reef from the West of New Caledonia: succession of reef units and chronology

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The "Grande Terre" of New Caledonia is surrounded by one of the largest continuous barrier reef system in the world. The development and structure of this barrier reef are poorly known so that a program of drillings was performed to recover somes cores. Two sites were investigated on the barrier reef tract at Amédée and Kendec islets in the south-west and north-west respectively. The extracted cores are 126 and 149 m in length respectively. Lithological descriptions and paleoecological analyses are combined with Uranium/Thorium and 14-Carbon dating, magnetostratigraphy and nannofossil-based biostratigraphy to reconstruct the evolution of the barrier reef during the Quaternary. Depending on the fluctuation of the Quaternary sea-level and the subsidence rate of the western shelf margin, the settlement of the barrier reef have occurred as early as 780,000 years and probably even more. Eleven reef units successively formed during the interglacial periods at high sea levels. The comparison in the barrier reef development between New Caledonia and the Australia (Great Barrier Reef) clearly indicates that both global climate and regional tectonic history have

been the major controls on reef initiation and growth along both sides of the Coral Sea. Moreover, climatic conditions are likely to have not been optimal before the late Quaternary, probably promoting luxuriant reef expansion only during the last 400,000 years.