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Late Pleistocene–Holocene deltas in southern Buenos Aires Province, Argentina

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Abstract Along the Argentina coast there are only two present day deltas, the Paraná and Colorado deltas, both located in Buenos Aires Province. However, the Colorado Delta is only a minor remnant of a much larger delta system that was active from approximately 10 000 calibrated years BP, when mean sea level (msl) was about –30 m. Based on bathymetric and topographic maps, regional geology and bibliography, the evolution of the delta system is proposed. During the Last Glacial Maximum (LGM), 24 000 calibrated years BP, msl was –130 m, located at the present shelf break. During this period the fluvial drainage was minimum. As climate conditions changed, it can be deduced from well preserved terraces that the msl increased in pulses. The uppermost terrace, located at –25/–30 m corresponds to the deltaic front of the Colorado and Negro rivers. At this time, the fluvial discharge was large and a series of rivers (most of them no longer existing today) provided sediments to the deltas. The Colorado River and a set of unnamed rivers were active to the northern and central portion of this 430 km delta front, whereas the Negro River provided materials to the lower central and southern portions. We estimate that the major sediment and water inputs occurred at about 9000 calibrated years BP, when msl was –18 m. Delta evolution was significantly modified when msl was up to 6 m above the present, 6000 calibrated years BP. At this time, both the Colorado and Negro rivers migrated southward. Msl decreased at about 4 mm/year until it reached the lowest level, about –2 m during the Little Ice Age. Today, the only active delta is the one maintained by a diminished Colorado River in the central part of the area. The northern and southern portions are now extensive intertidal areas with remnant islands and large tidal channels corresponding, respectively, to Bahía Blanca Estuary and Anegada Bay. The Negro River has an estuary at its mouth but no delta is active today.

Key words delta evolution; Colorado River Delta; Negro River; Argentina