

Worldwide delta initiation, the beginning of the 8.2-ka event, and the base of the Middle Holocene

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The Early Holocene is globally characterised by steady postglacial climatic warming and the drowning of continental shelves due to sea level rise (SLR). The 8.2-event sits as a superimposed event on both the climatic and the sea-level records. Terrestrial and marine records in Eastern Canada and the Labrador Sea and from deltas and coastal systems around the world, show the event to comprise more than just the century long period of cooling seen in the North Atlantic and Europe. Between c. 8.45 and 8.15, it spans a chain of events, including the release of the largest single-source meltwater-pulse in the Holocene by the thawing Laurentian ice sheet from Lake Agassiz-Ojibway and the Hudson Bay areas, and global response by stepwise increase (jumping) of the ocean sea level (as a twin event).

For deltas and coastal systems worldwide, the SLR acceleration event pushed coast lines inland. For most deltaic areas, this was the last time of major back stepping: All further Holocene sea-level rise was at lower rates making that river sediment delivery was capable of at least maintaining coast line position. In fact, deltas have typically switched to build out the coast line with further decreasing SLR and arrival of the sea-level at high stand position. These particularities make that in the build-up of all modern deltas, the 8.2 event is very marked and was geographically decisive. One could say, that the transgressive sedimentary impact associated to the 8.2-ka event was more global than the impact of the climatic event proper, and also more permanent and more instantaneous. We want to highlight the registration of the event in deltaic settings where terrestrial and marine records overlap and interfinger, also because of the foreseen role of the 8.2-event to pinpoint a formal boundary between Early and Middle Holocene (GSSP).