



Vegetation/oceanographic changes in the mid-latitudes of southwestern North Atlantic during the Holocene

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The direct correlation between terrestrial (pollen) and marine (planktonic $\delta^{18}O$) proxies from a slope core (KNR 178-2 JPC 32), retrieved in the Cape Hatteras ($35^{\circ}58.58'N$, $74^{\circ}42.77'W$, 1006 m), provide substantial information on the Eastern North American vegetation response to the Holocene climate and oceanographic changes of the western North Atlantic.

The end of the last glacial-interglacial transition is marked by the gradual replacement of the Boreal forest and herbs by temperate trees reflecting a general warming. Within this overall gradual warming, several abrupt vegetation shifts reveal episodes of relative cool and warm events. The most notorious continental warming of this transition, occurred at around 9650 cal yr BP and is synchronous with the increase of sea surface temperature as revealed by the planktonic foraminifera $\delta^{18}O$.

The first maxima of temperate trees expansion, reflecting one of the most warmest events within the Holocene, occurred between 8700 and 7200 cal yr BP. Within this period 4 abrupt vegetation and hydrological changes suggest centennial scale returning cool conditions, being the most extreme detected at around 8400 cal yr BP.

Between 7200 and 5300 cal yr BP temperate trees were partially replaced by hemlock suggesting a relative cool episode. The re-expansion of temperate trees marking a climatic warming is detected between 5300 and 2500 cal yr BP. Within this interval it is detected an important change in both vegetation and hydrology, marking a relative long lasting cooling between 4100 and 3550 cal yr BP.

Finally the last 2500 cal yr BP is marked by important vegetation and hydrological shifts reflecting important climatic changes.