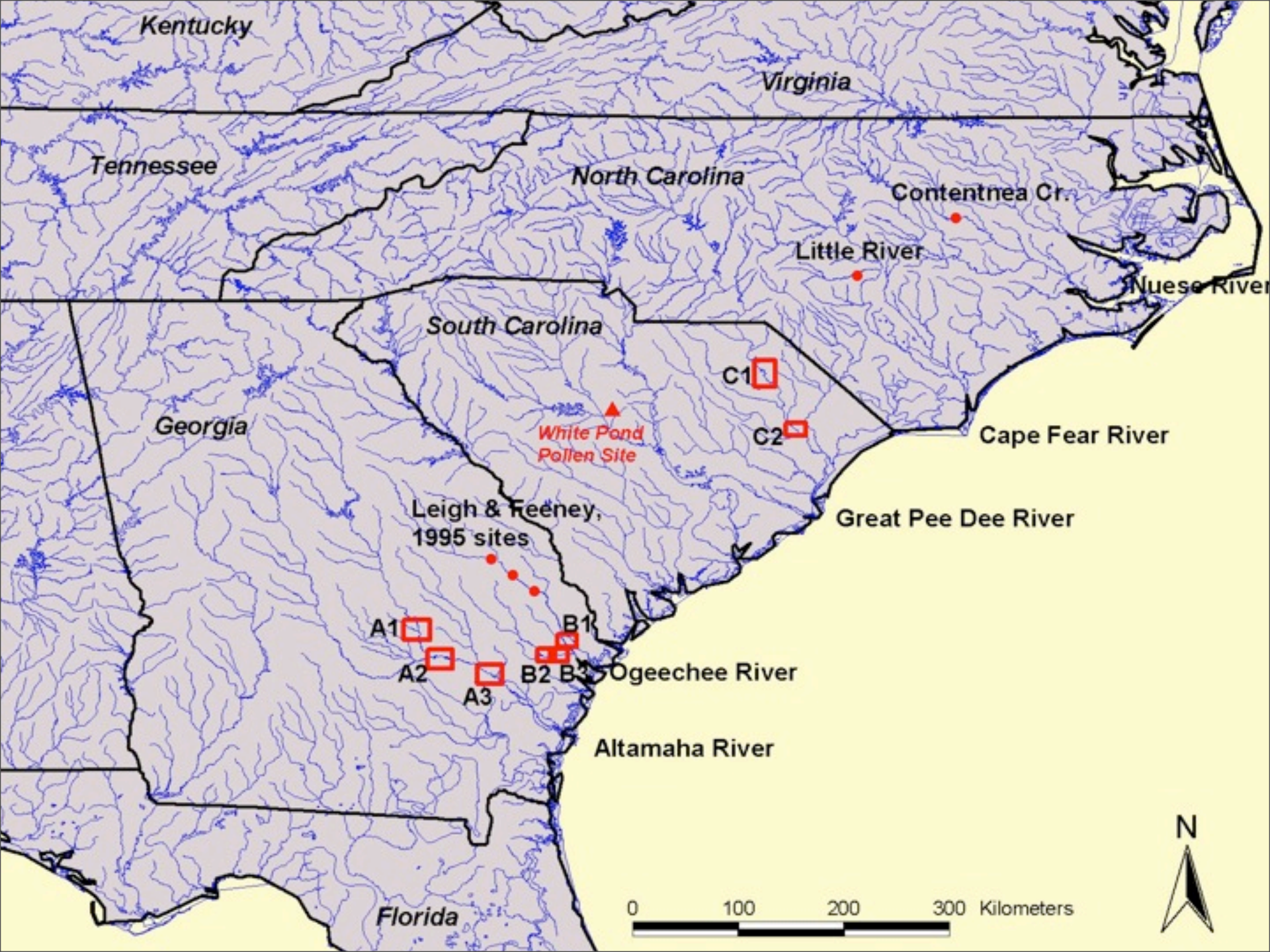


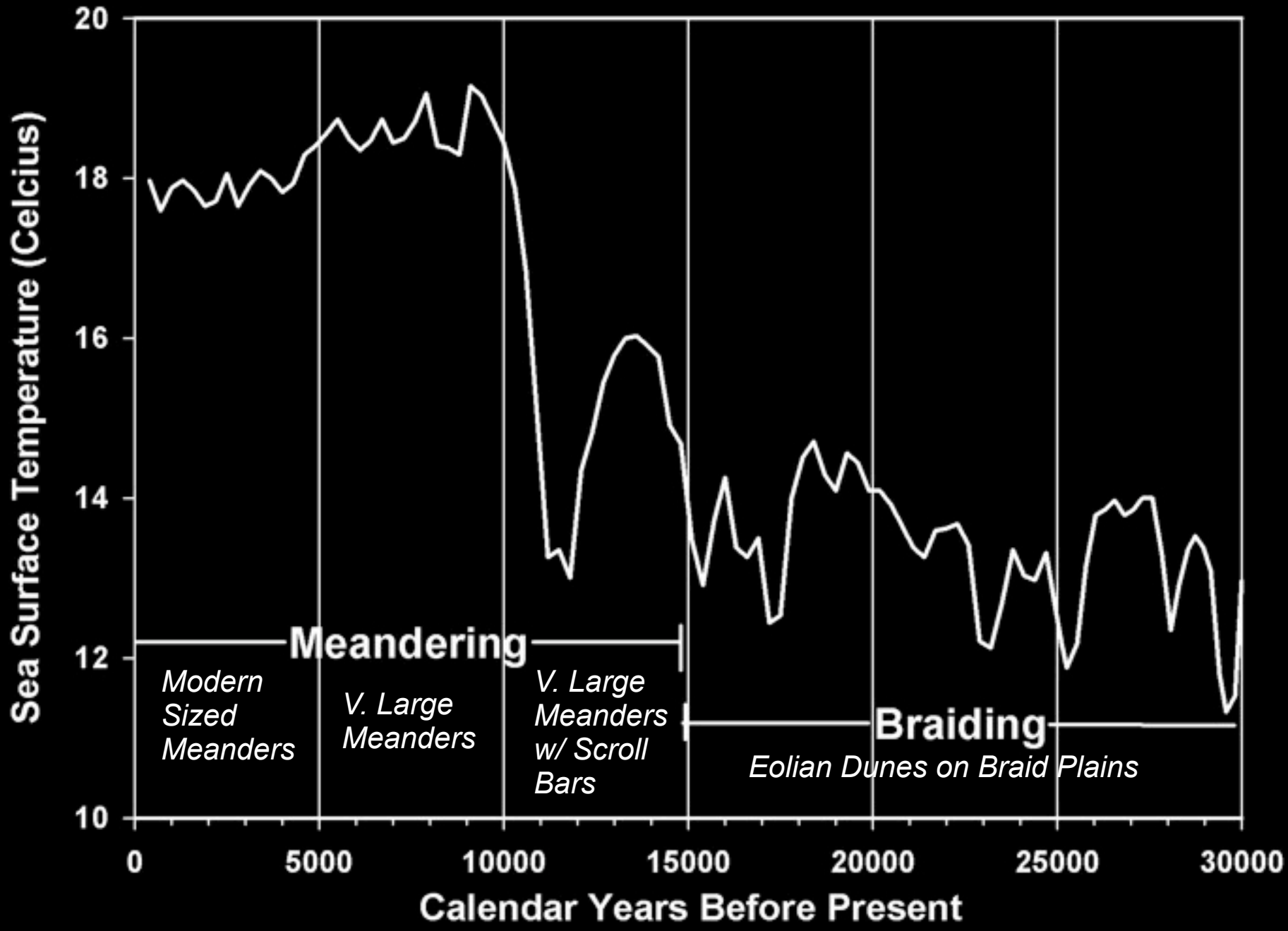


River Environments at the End of the Pleistocene, Southeast USA

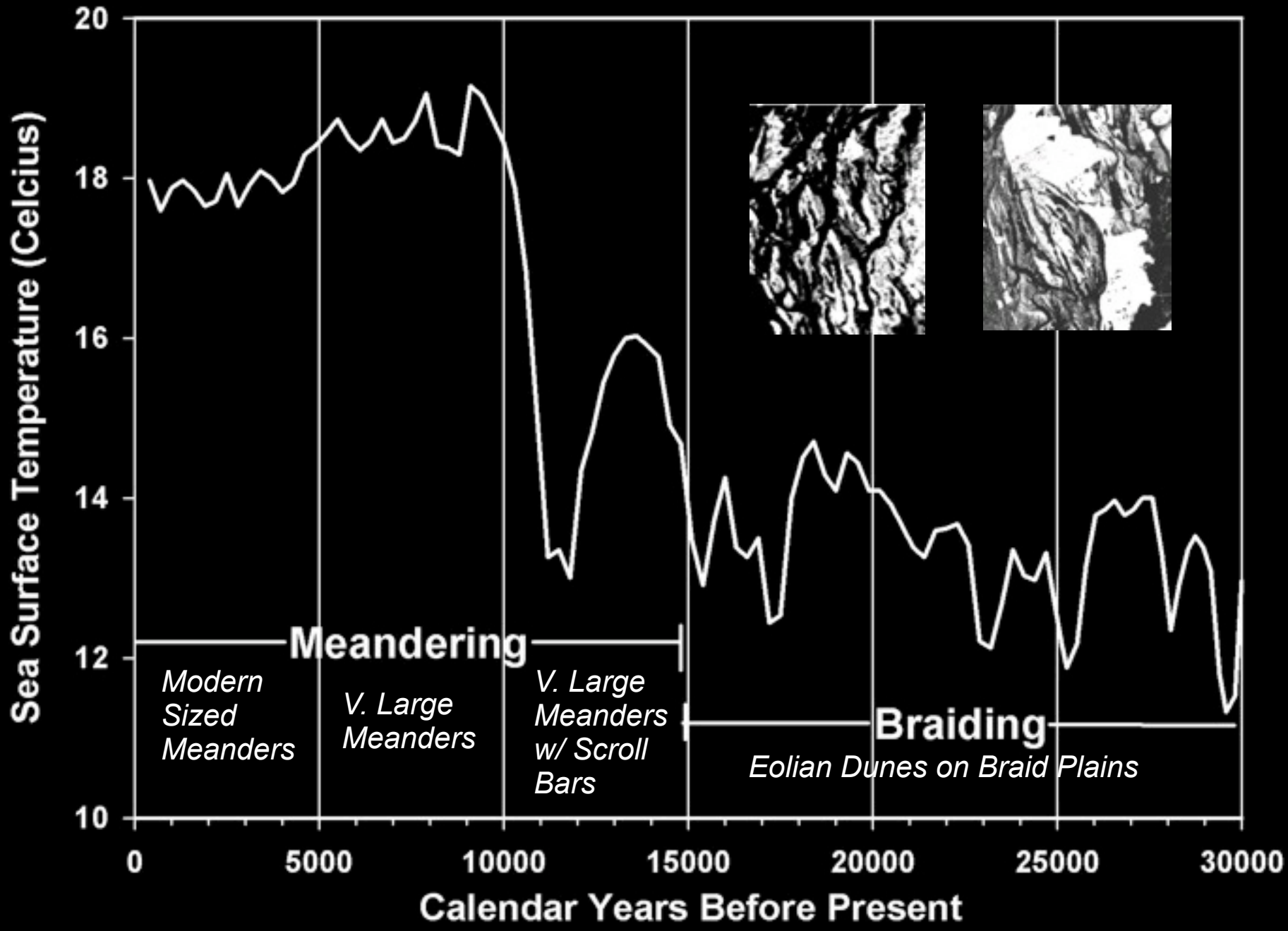
by

David S. Leigh,
University of Georgia,
Department of Geography

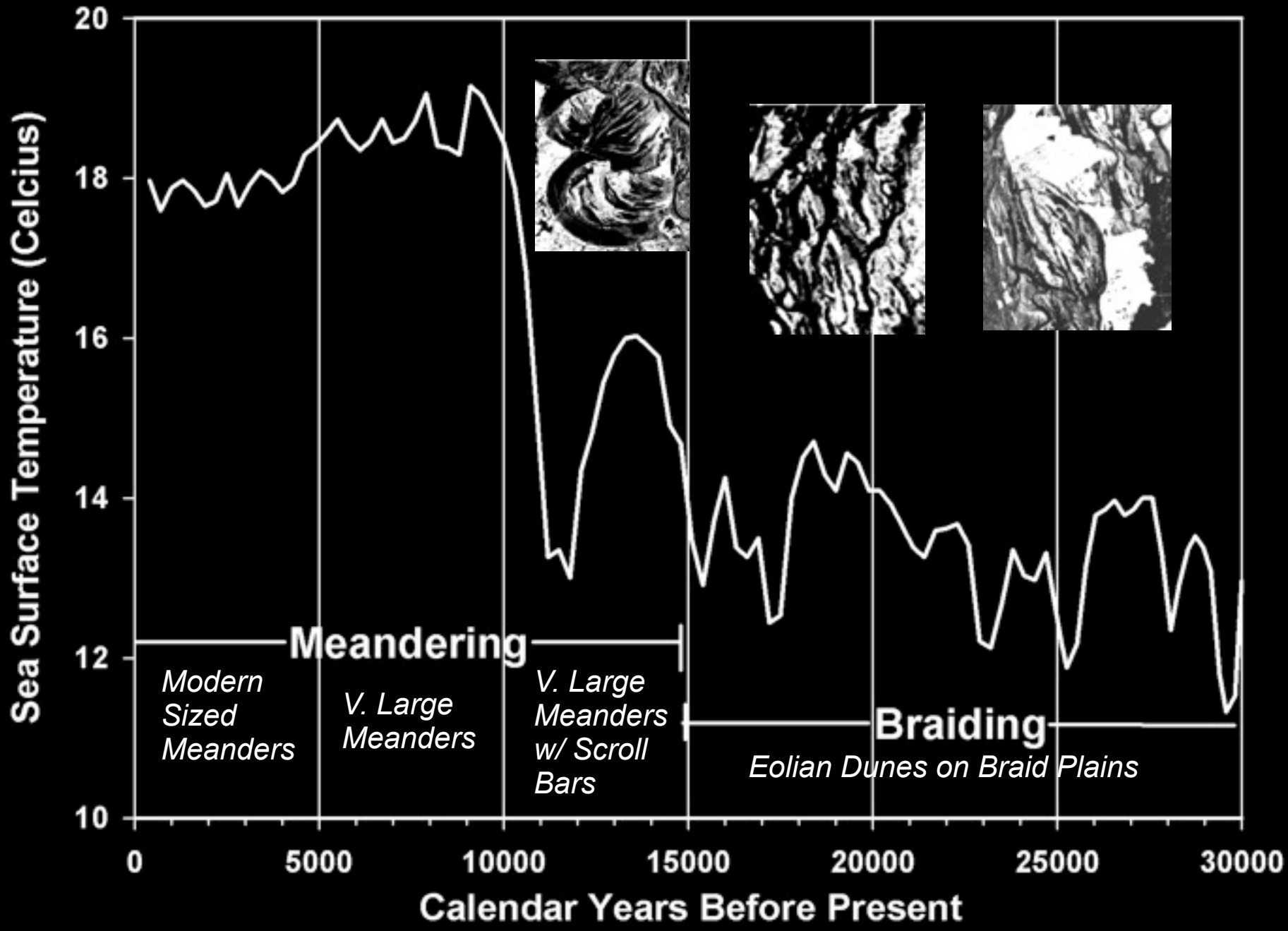




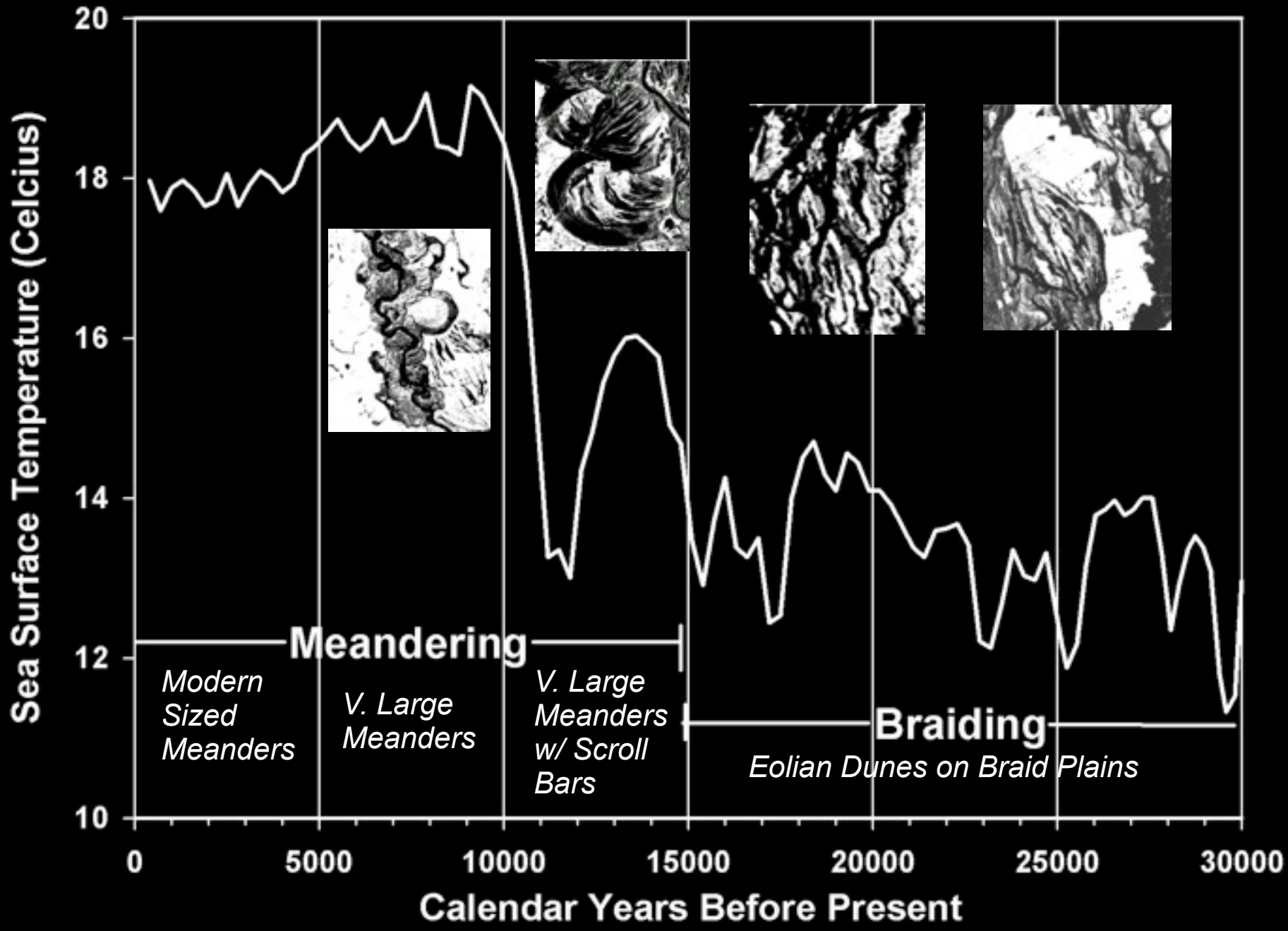
North Atlantic data of Bard, 2002, 2003



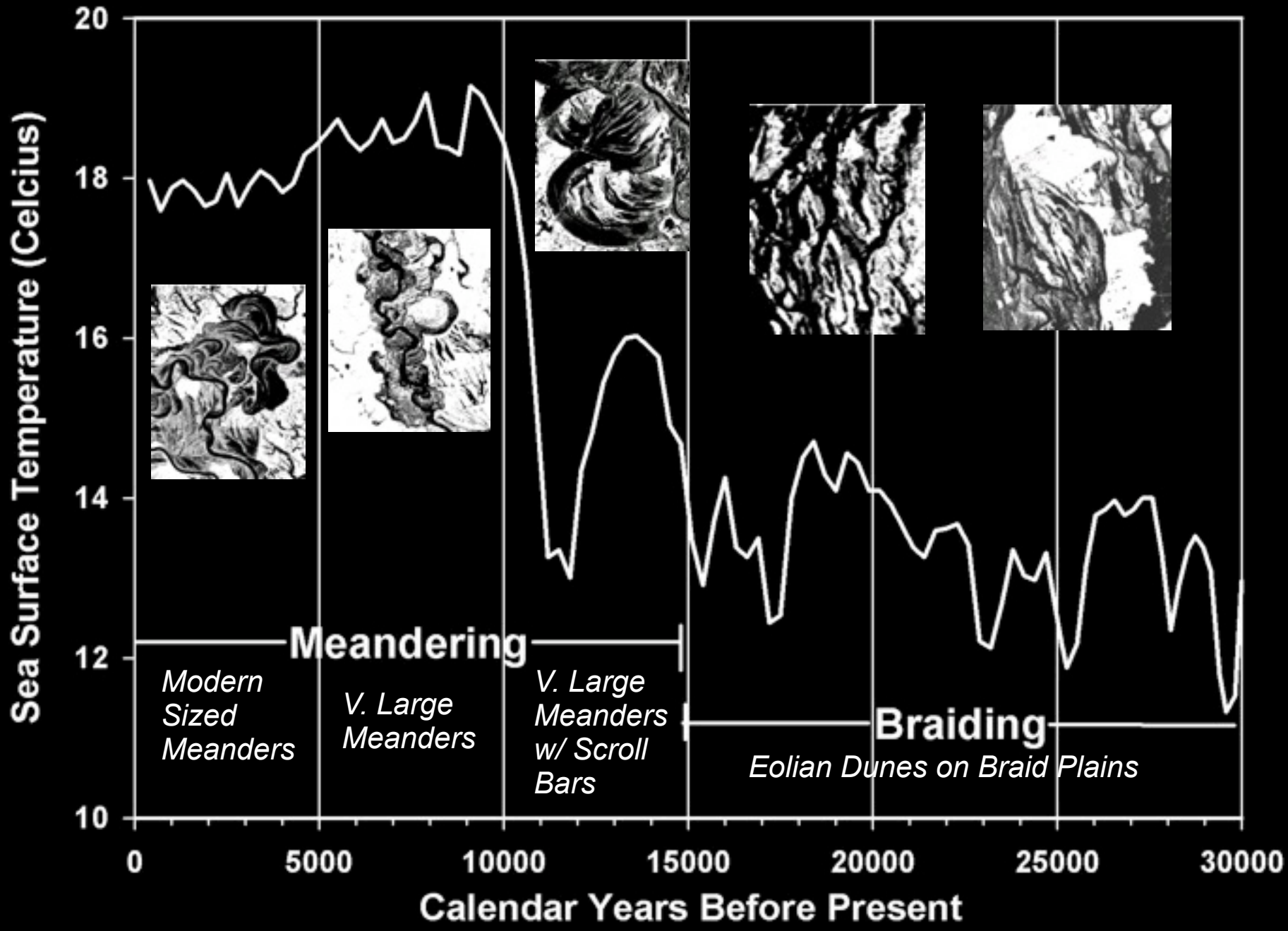
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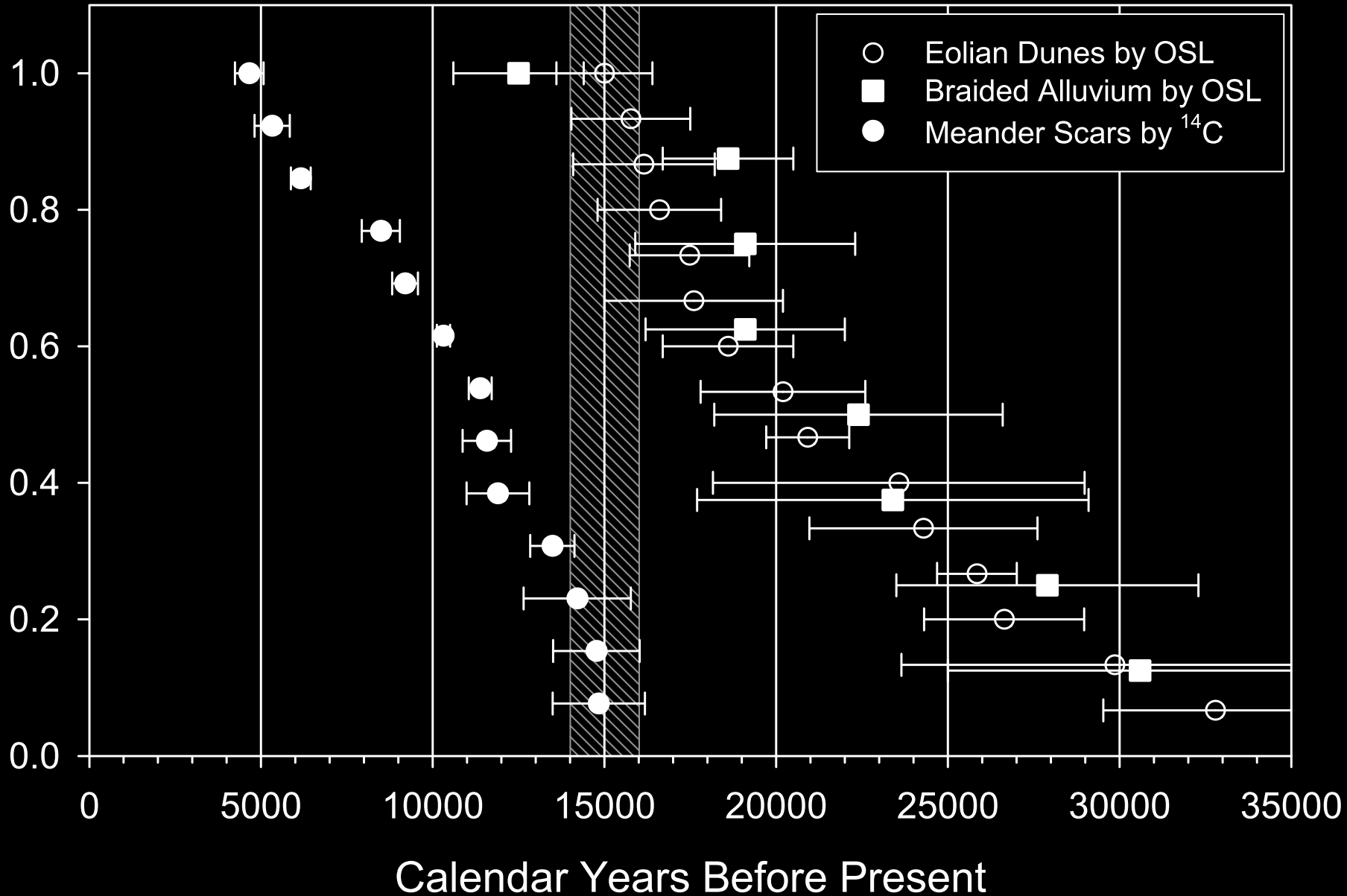


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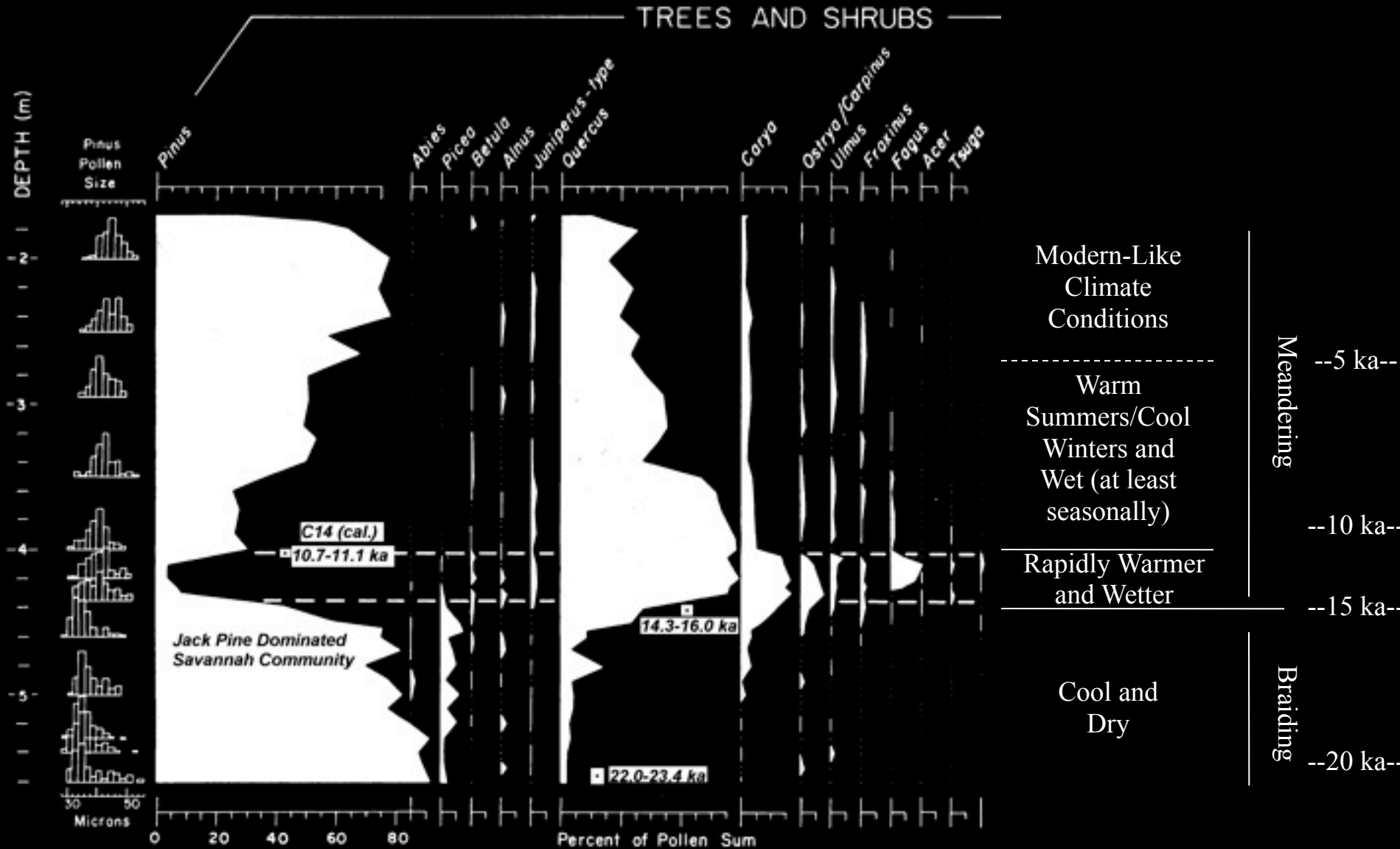


North Atlantic data of Bard, 2002, 2003

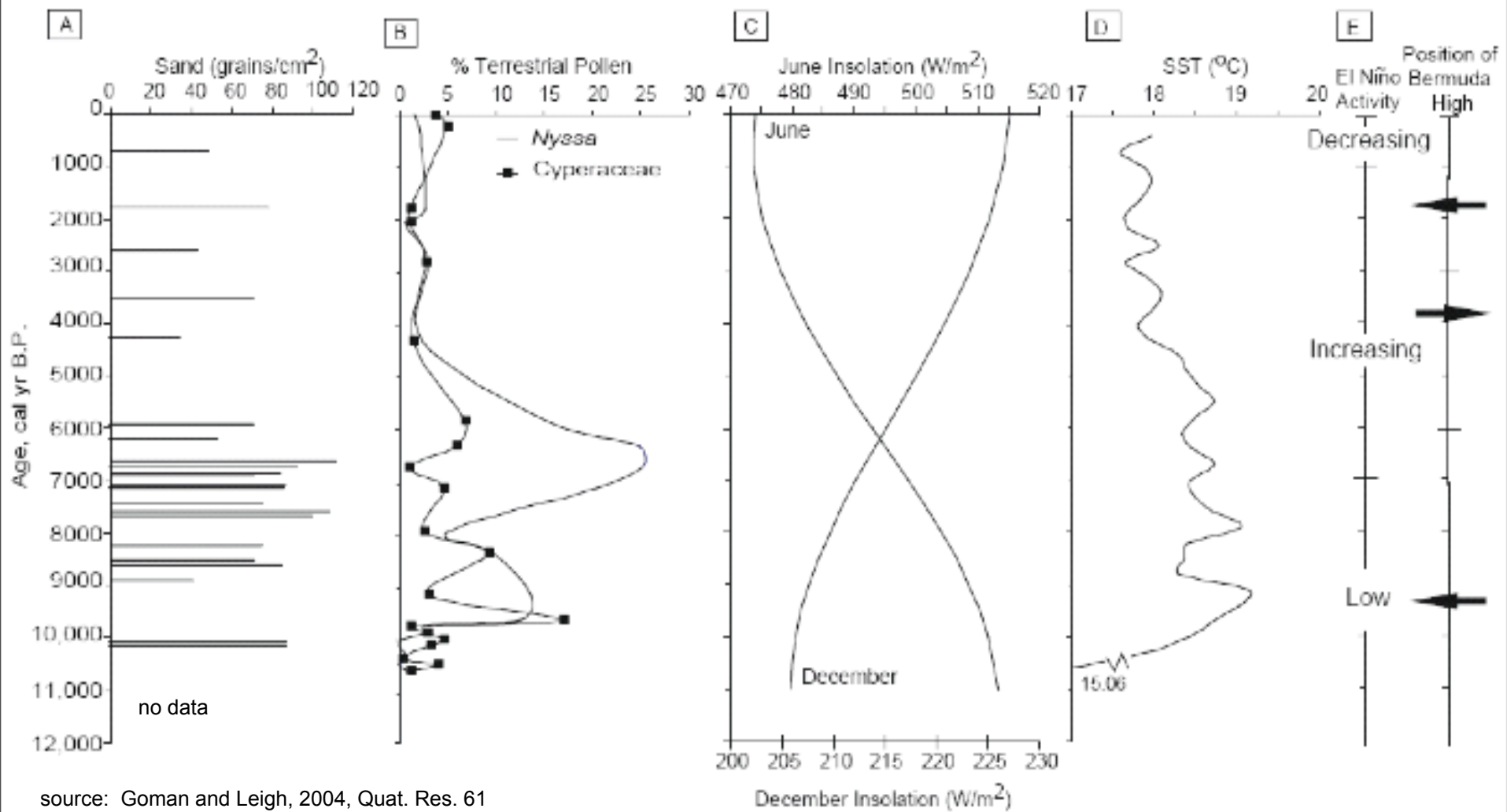
Meander Scar, Braid Bar, and Dune Dates from the Southeastern Atlantic Coastal Plain, USA



WHITE POND, SOUTH CAROLINA

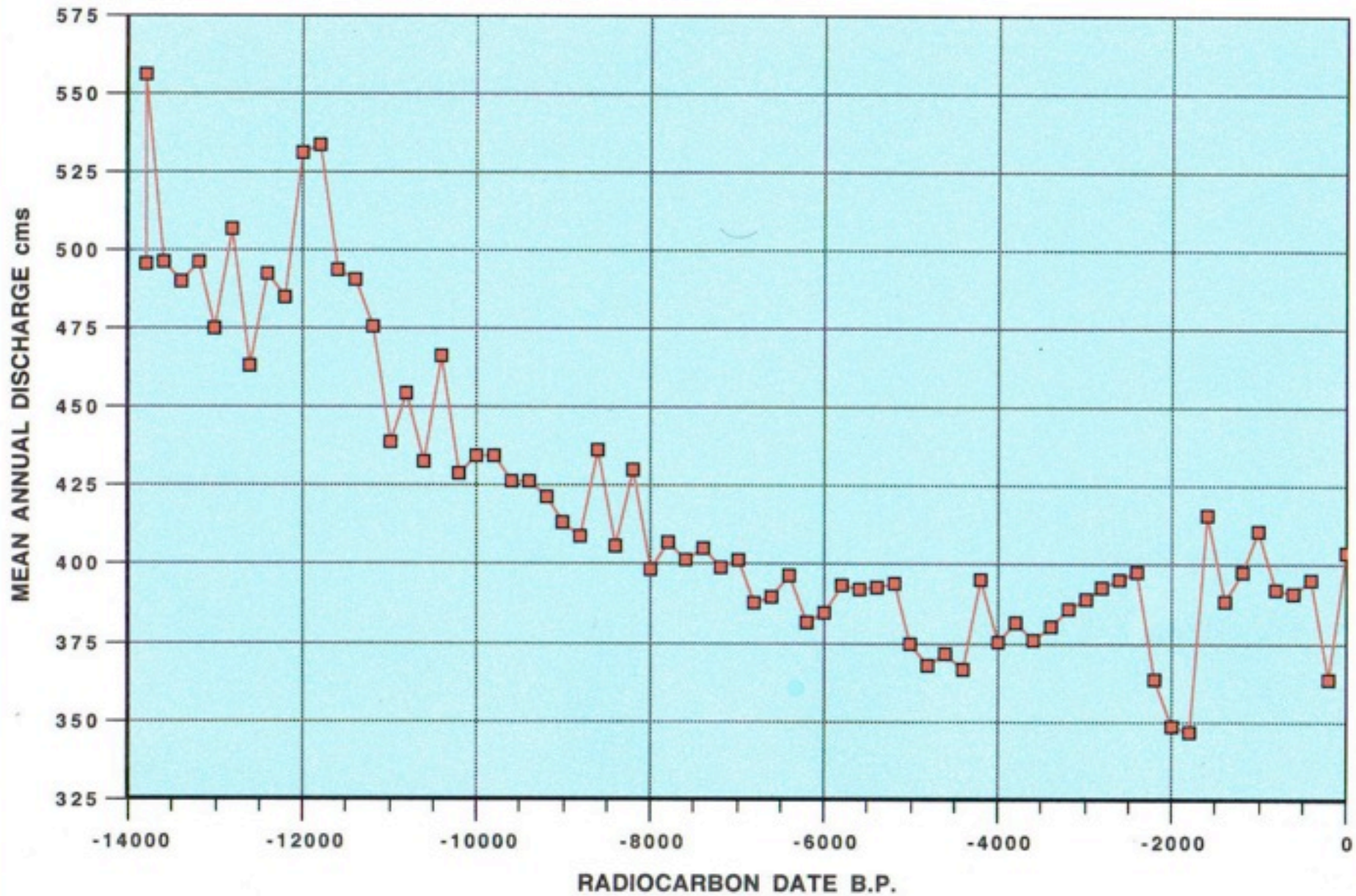


Pollen diagram from Watts, 1980, Quaternary Research V13, p 190



source: Goman and Leigh, 2004, Quat. Res. 61

MODELED DISCHARGE HISTORY
ALTAMAHA R@DOCTORTOWN, GA



modeled discharge courtesy of Dr. Reid Bryson

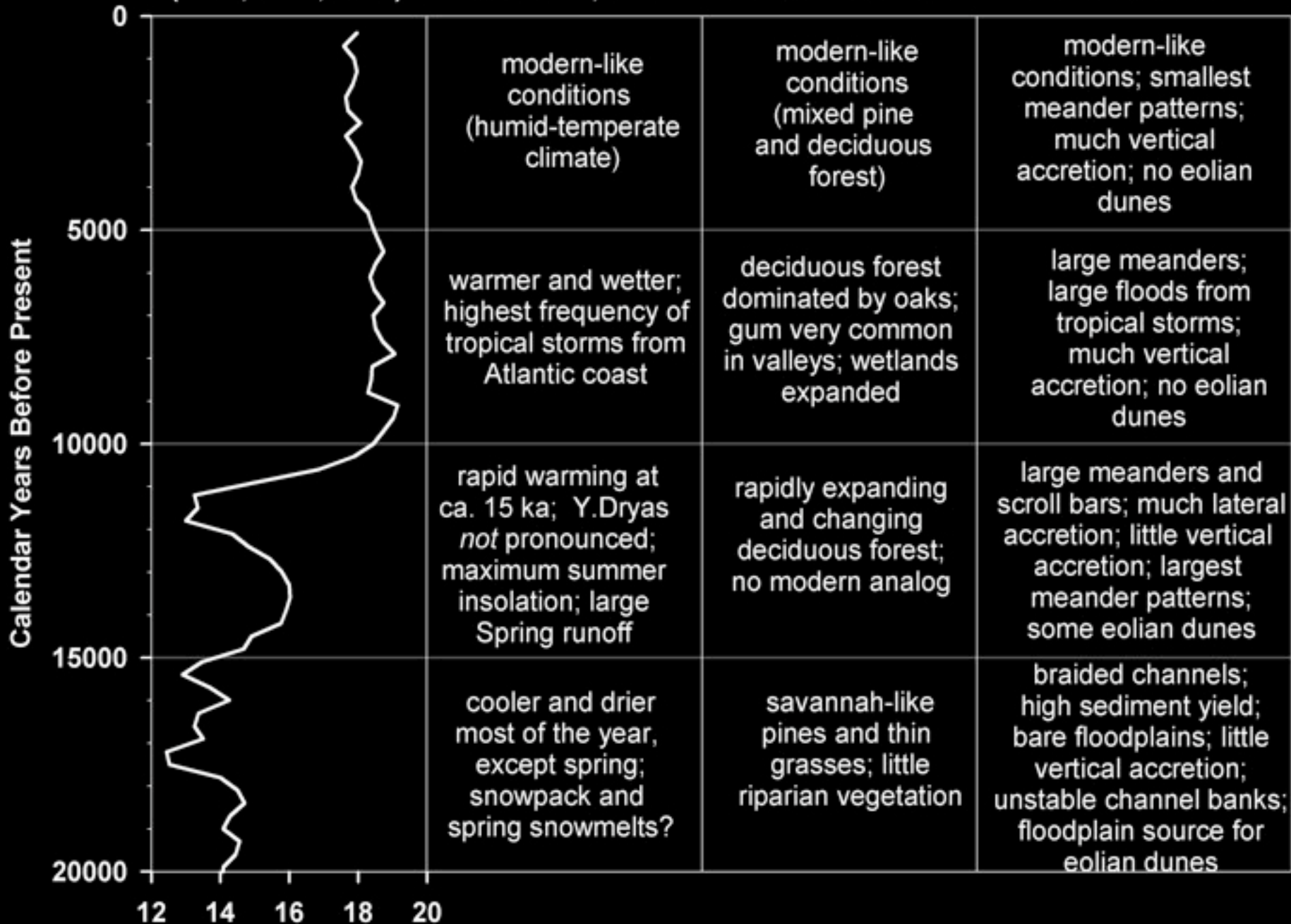
030804

**N. Atlantic SST
(Bard, 2002; 2003)**

**Paleoclimate of
Southeast, USA**

**Paleovegetation
of Southeast
USA**

**Paleogeomorphology
of Southeast
USA**

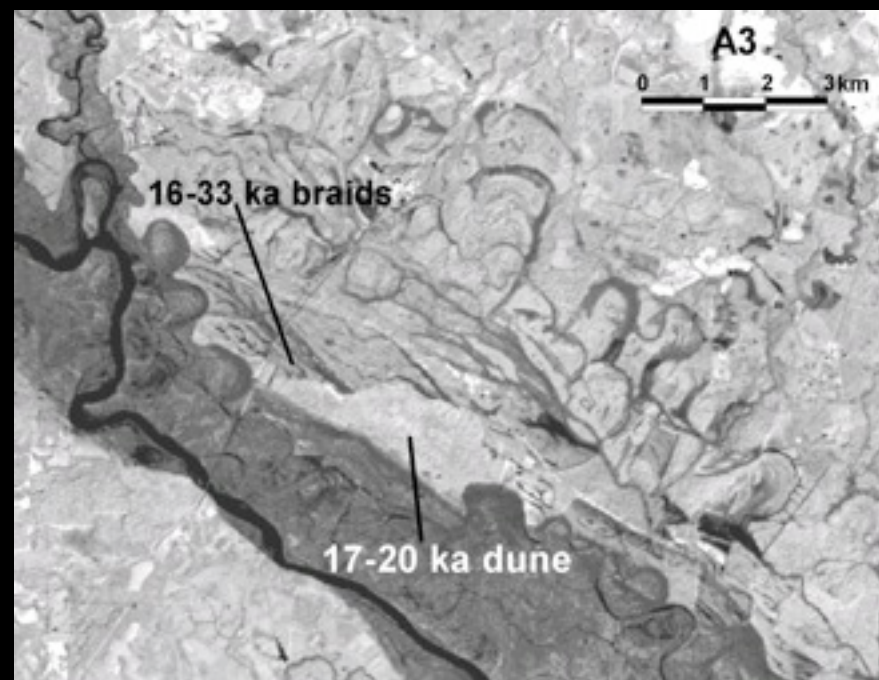
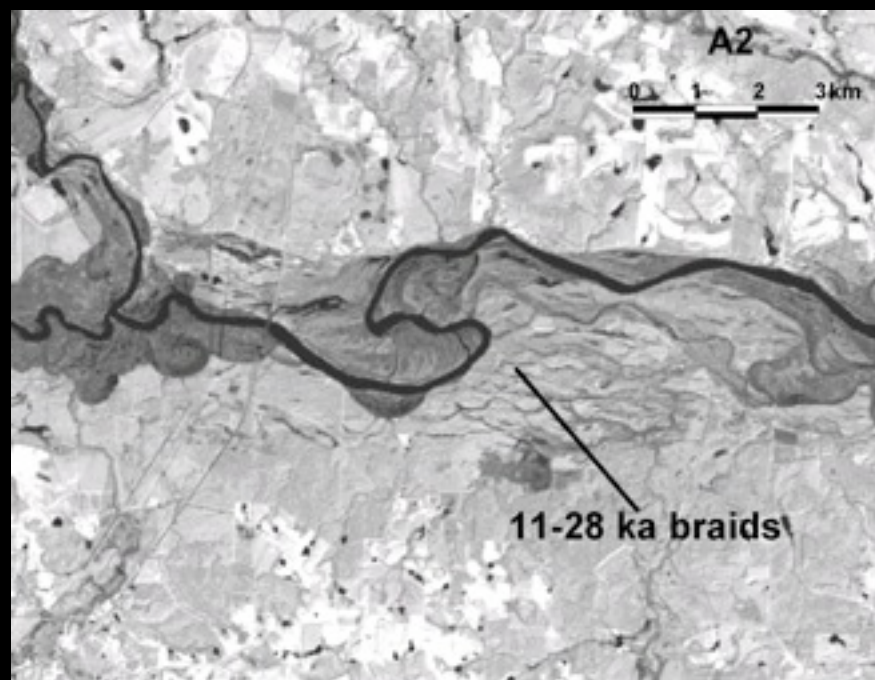
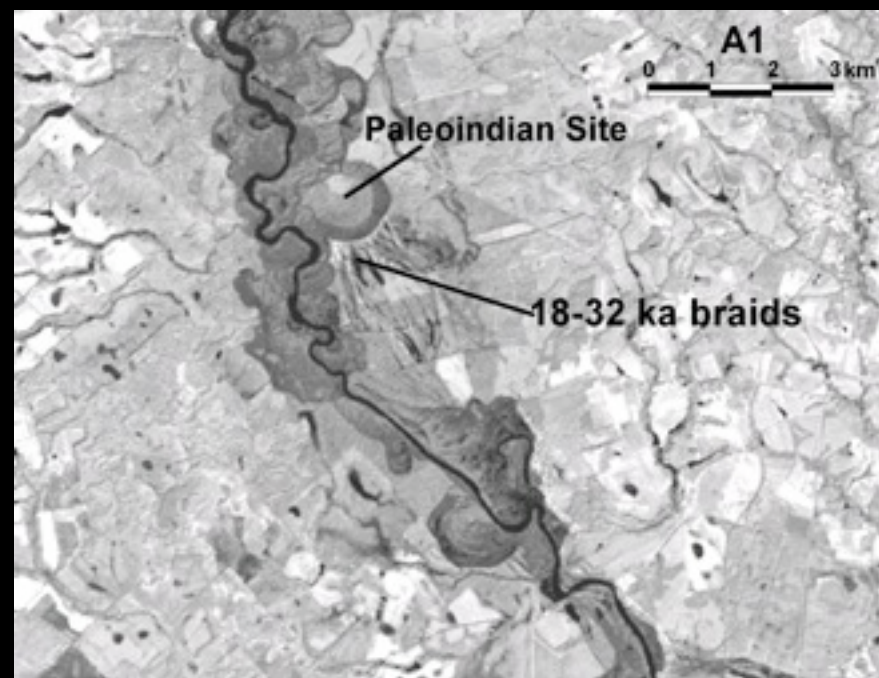


Savannah River circa 20 ka



2001 8 15

Halfway River, northern British Columbia (photo by Martin Geertsema)



Braided rivers and streams in the Southeast were aggrading the valley bottoms between 30-15 ka.

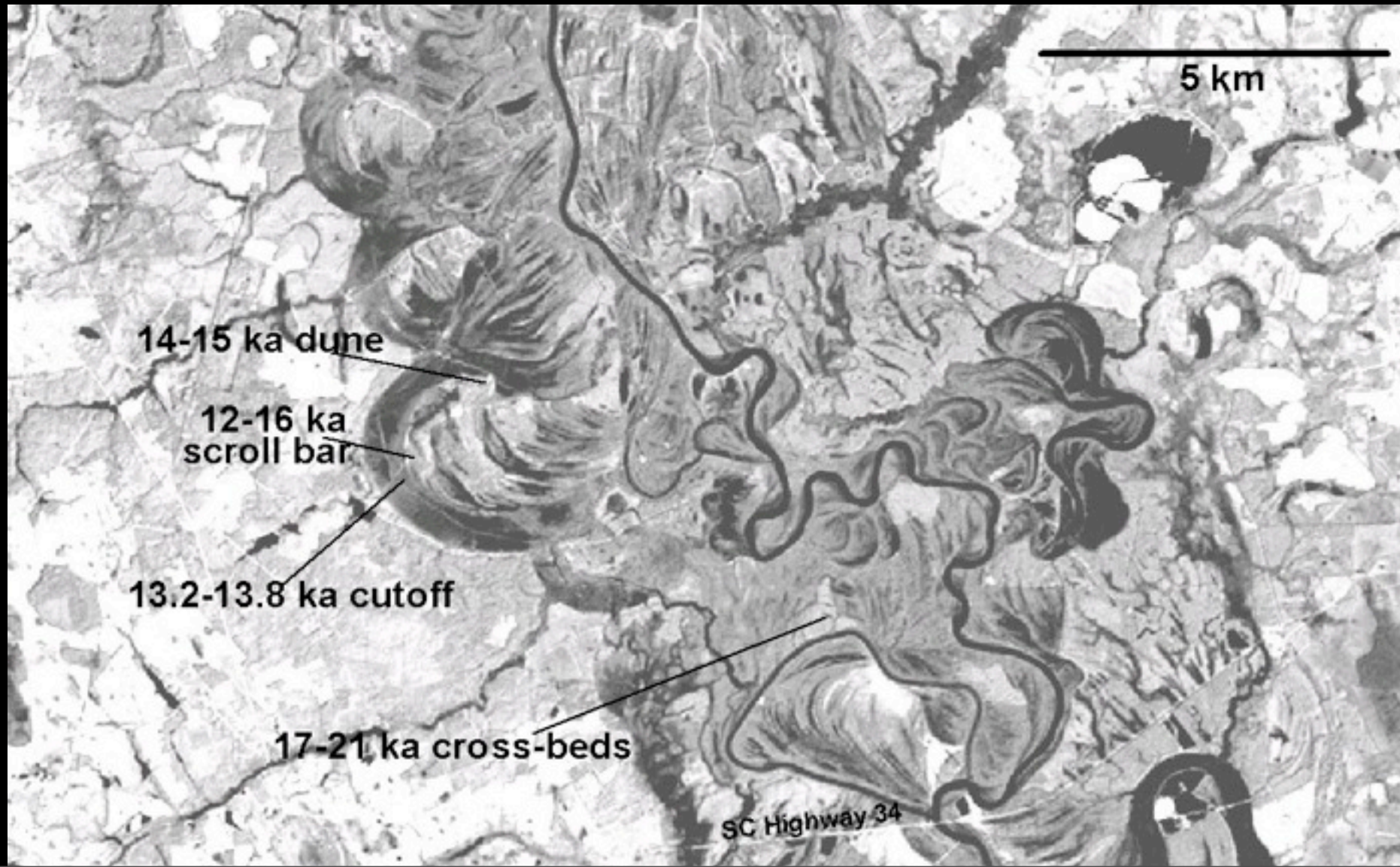


31,000 ^{14}C yr BP log at 6 m depth in thick sequence of cross-bedded sands, Altamaha River, Bullock Cr. site



23,000 cal yr BP OSL date at 2.5 m depth in thick sequence of cross-bedded sands, Altamaha River, Bullock Cr. site

Braiding switched to very large scrolled meanders at ~15 ka and sandy scrolling persisted to perhaps 10 ka. Lateral migration (bank erosion) rates were rapid (0.35-0.67 m/yr).

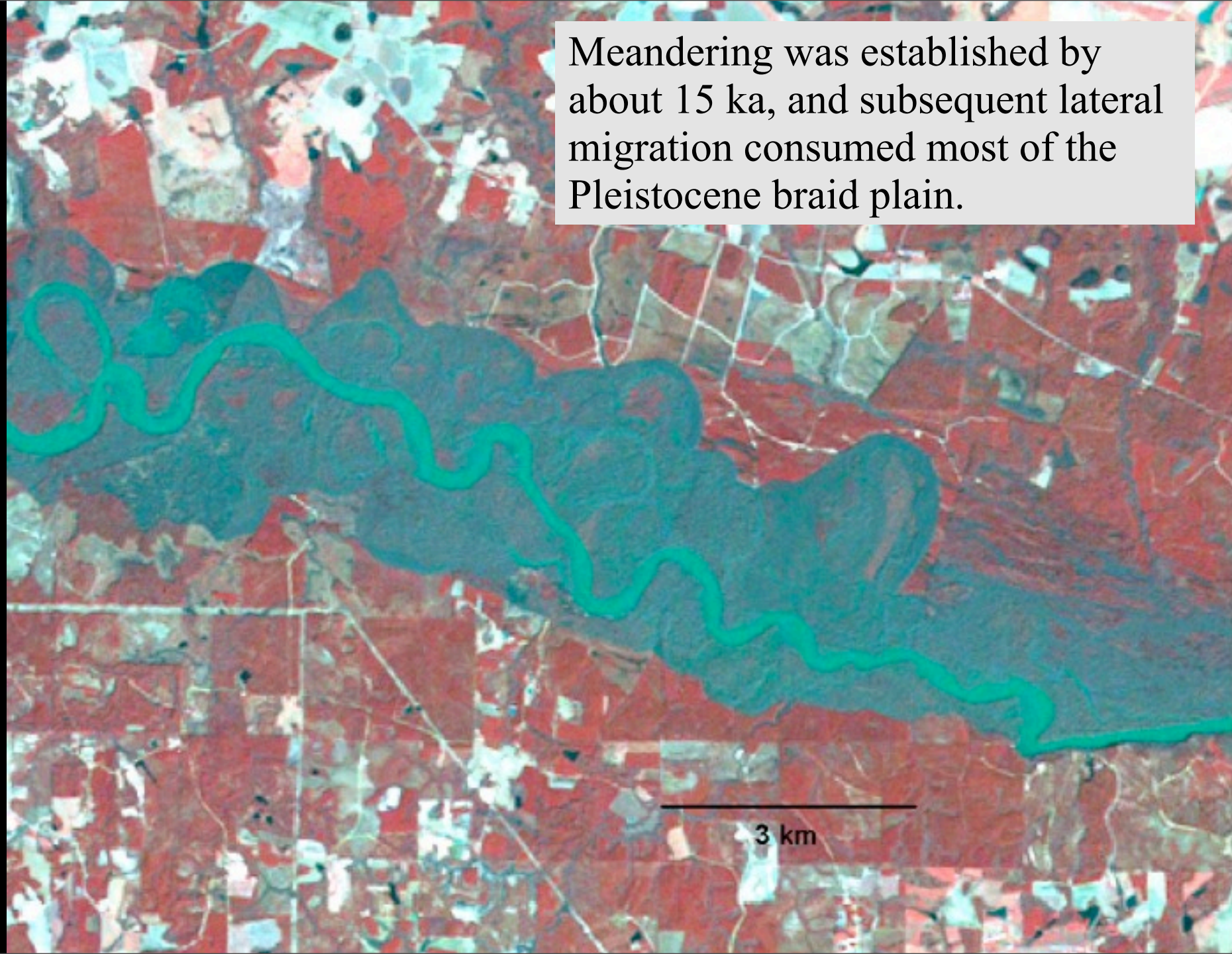


Parabolic dunes were commonplace on the late Pleistocene braided and scrolled floodplains until circa 12-13 ka

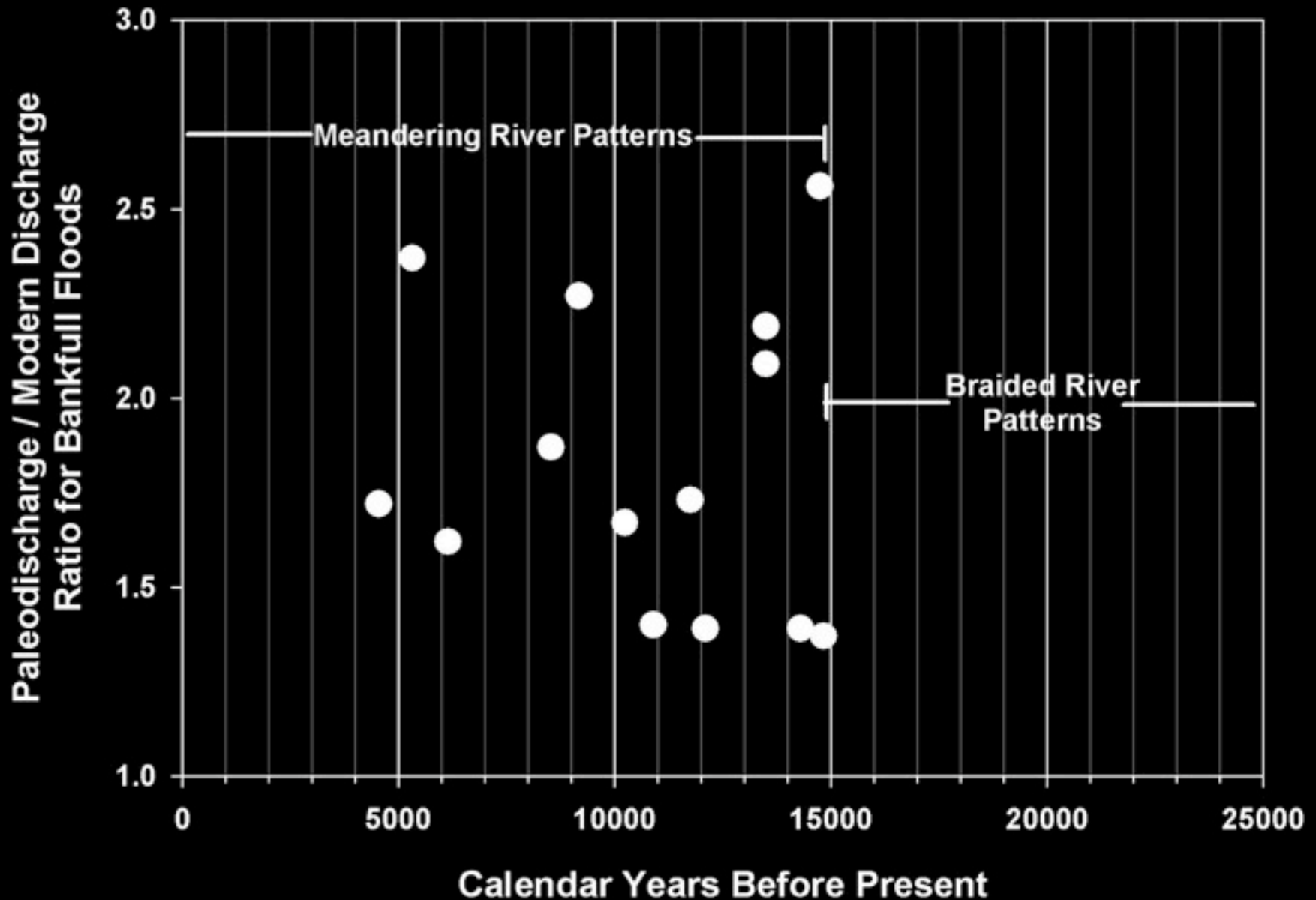


Western Australia, photo by Patirck Hesp

Meandering was established by about 15 ka, and subsequent lateral migration consumed most of the Pleistocene braid plain.



Paleodischarge for meandering channels was greatest from 15-5 ka and more modern-like during the last 5 ka.



Archeological Implications for Bottomlands:

-Pre-Clovis artifacts were buried by fluvial and eolian sedimentation prior to 15 ka.

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-Almost complete erosion and removal of Paleoindian and pre-Clovis artifacts from alluvial valleys was accomplished by widespread lateral migration of meandering of channels throughout the Holocene. The pre-10 ka landscape constitutes only a small percentage (maybe 10 to 15 %) of alluvial bottomlands. This has profound implications for landscape distribution models of archeological sites, particularly Paleoindian and pre-Clovis sites.

Graphic of lateral erosion

Summary and Conclusions:

-Coastal Plain rivers of the Southeast were braided at the end of the Pleistocene until about 15 ka. High sediment yield, related to less protective plant cover, resulted in braiding. Eolian sand commonly blew from the braid plains and deposited riverine parabolic dunes.

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-Early and Middle Holocene channels remained large due to relatively wet conditions and large bankfull floods, but vertical accretion became an important sedimentary component. River channels became modern-like at about 5-6 ka.

Acknowledgements:

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Follow-up references:

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