INTERNATIONAL OCEAN DISCOVERY PROGRAM

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Drilling the Agulhas Plateau and Transkei Basin to reconstruct the Cretaceous - Paleocene Tectonic and Climatic evolution of the Southern Ocean Basin (834-Full)

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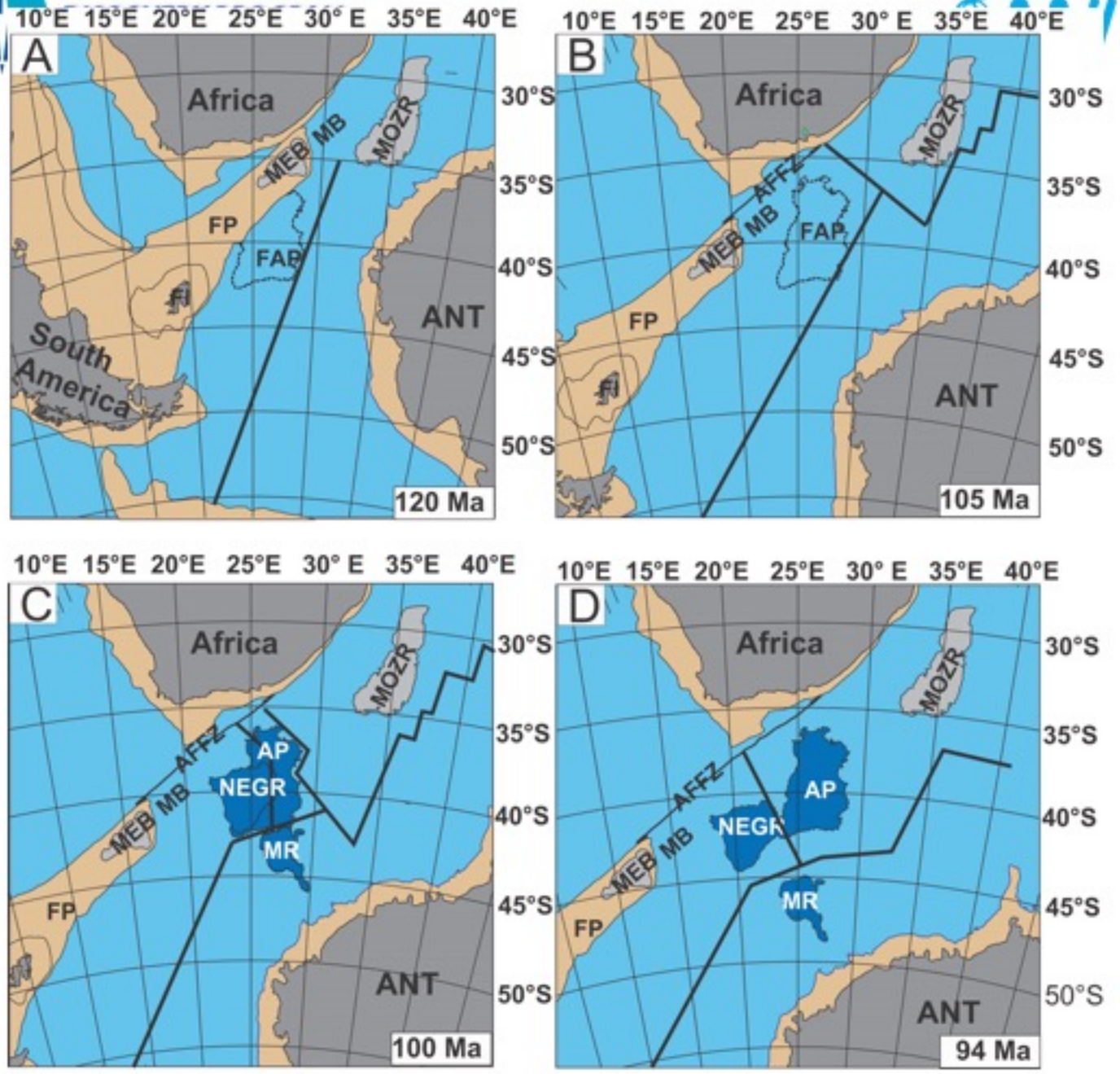


Scientific Objectives

(A) Did Indian Ocean LIPs related to the breakup of Gondwana tap a similar source and show a similar temporal and geochemical evolution to coeval and older Pacific LIPs?

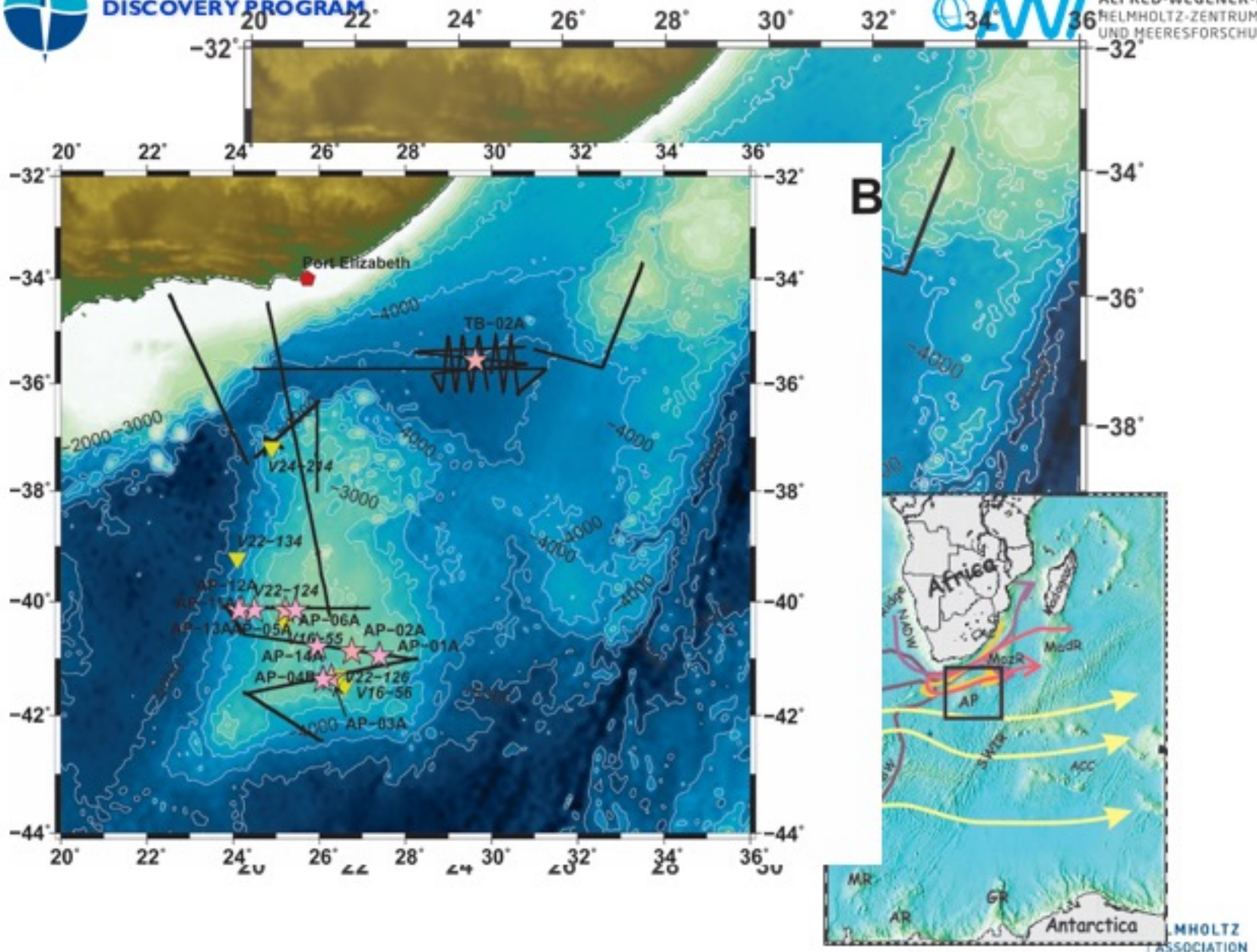
(B) Did sedimentation start immediately after crust emplacement at 100 Ma under subaerial conditions?

(C) Did deep and intermediate water mass flow as well as climatic events leave their imprint in form of seismic reflections and unconformities?

(D) What was the palaeotemperature history at high southern latitudes across the rise and decline of Cretaceous Supergreenhouse and through the Paleocene?

(E) Was the Cretaceous and Paleocene Southern Ocean area major source of deep water formation that strongly influenced climatic changes?

(F) What forcing factors caused Cretaceous OAEs and what effects did these events have on the high latitude climate, oceanography and biota?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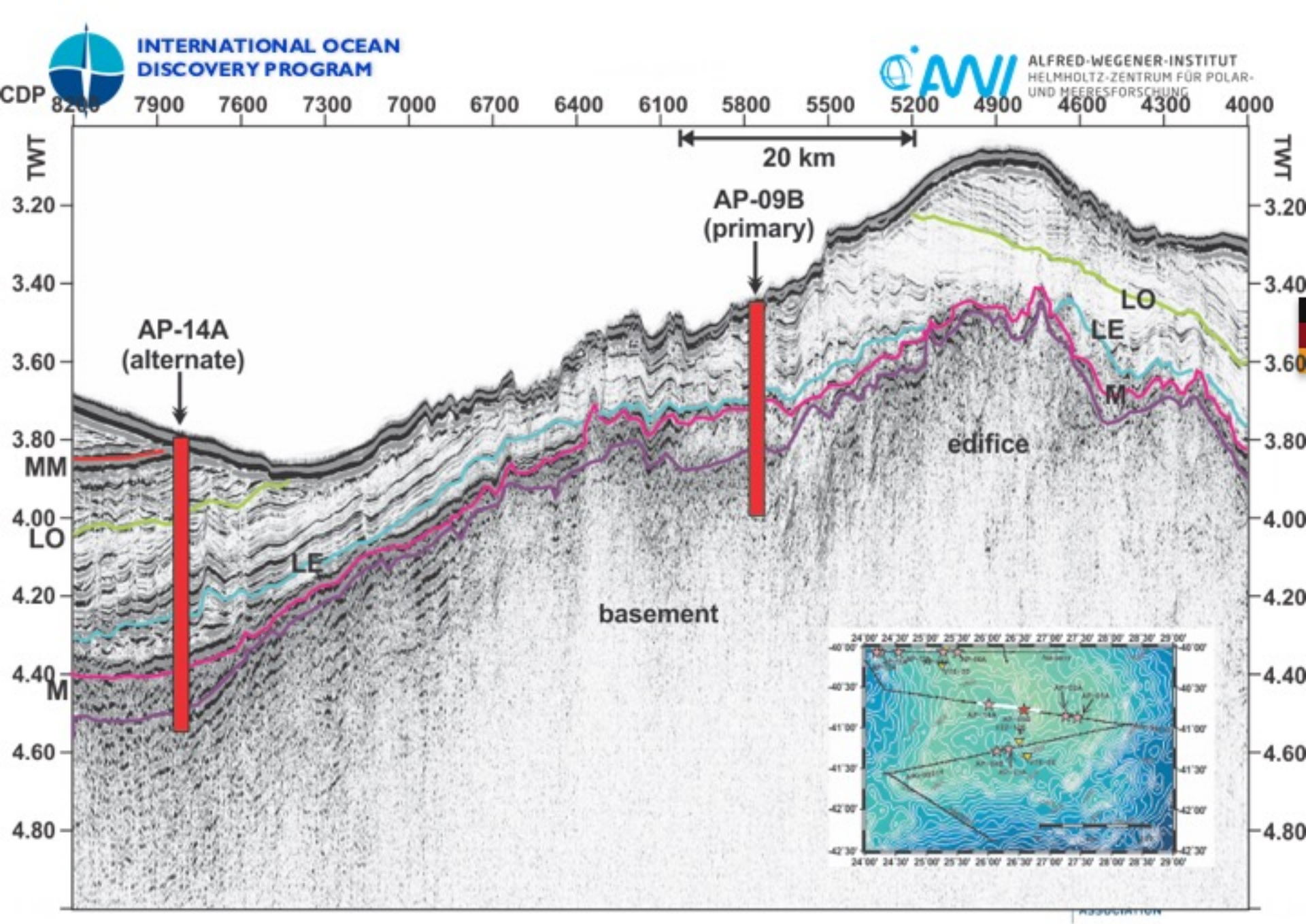
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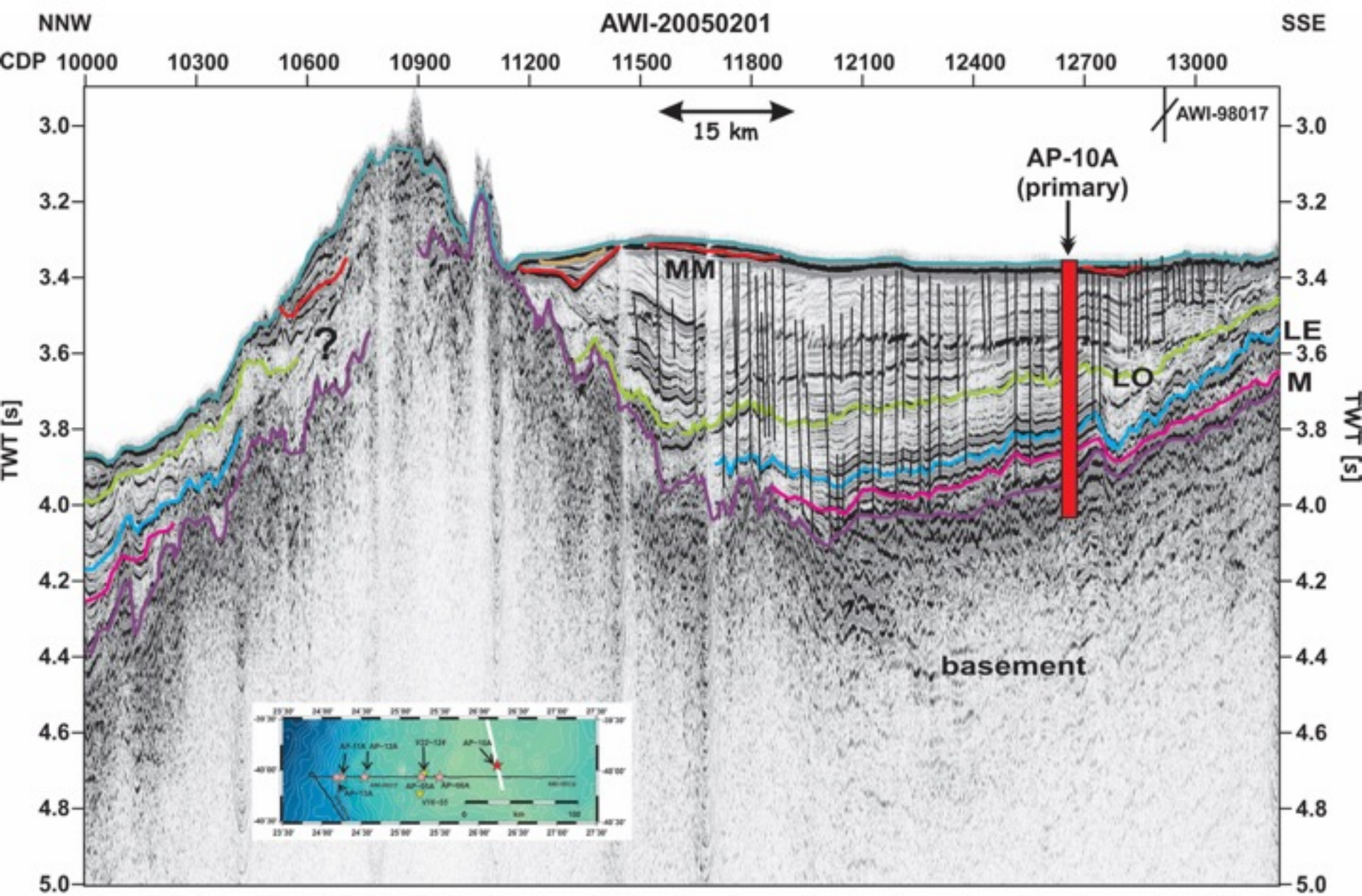

Fig. 6: Seismic profile AWI-20050201 with proposed sites from the northern Agulhas Plateau (location see bold white line in insert map). LE= lower Eocene, LO= lower Oligocene, M= Maastrichtian, MM= middle Miocene.

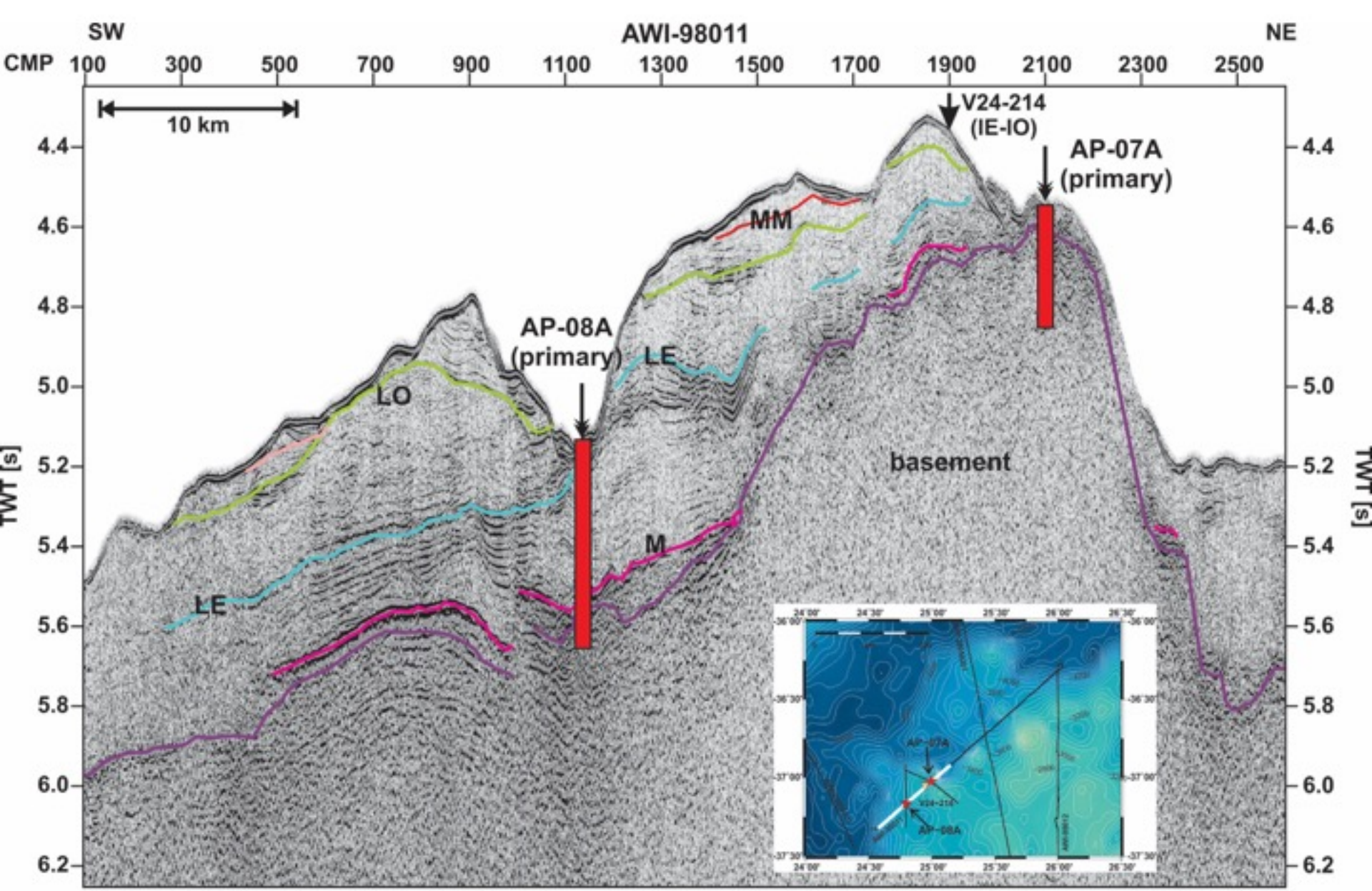

Fig. 5: Seismic profile AWI-98011 with proposed sites and sediment core locations from the northern Agulhas Plateau (location bold white line in insert map). LE= lower Eocene, LO= lower Oligocene, M= Maastrichtian, MM= middle Miocene. For details of sediment core ages (lE-lO= latest Eocene to latest Oligocene) see Table 3.

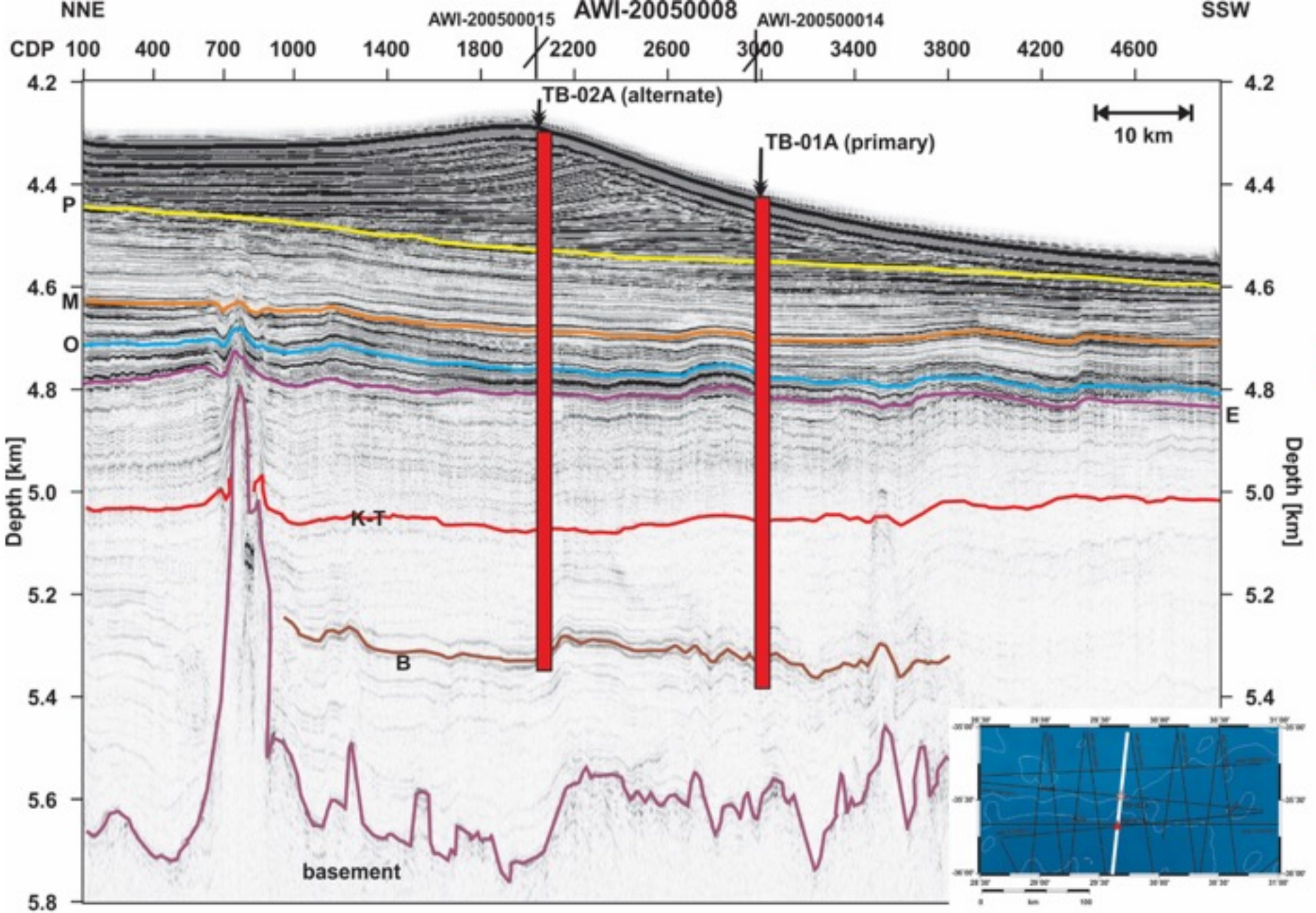

Fig. 7: Seismic profile AWI-20050008 with proposed sites from the Transkei Basin (location see bold white line in insert map). B= black shales, E= Paleocene-Eocene boundary, K-T- Cretaceous-Tertiary boundary, M= Oligocene-Miocene boundary, O= Eocene-Ologocene boundary, P= Miocene-Pliocene boundary.