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Geographic changes in the Aegean Sea since the Last Glacial Maximum: Postulating biogeographic effects of sea-level rise on islands

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SUPPLEMENTARY MATERIAL

Appendix A

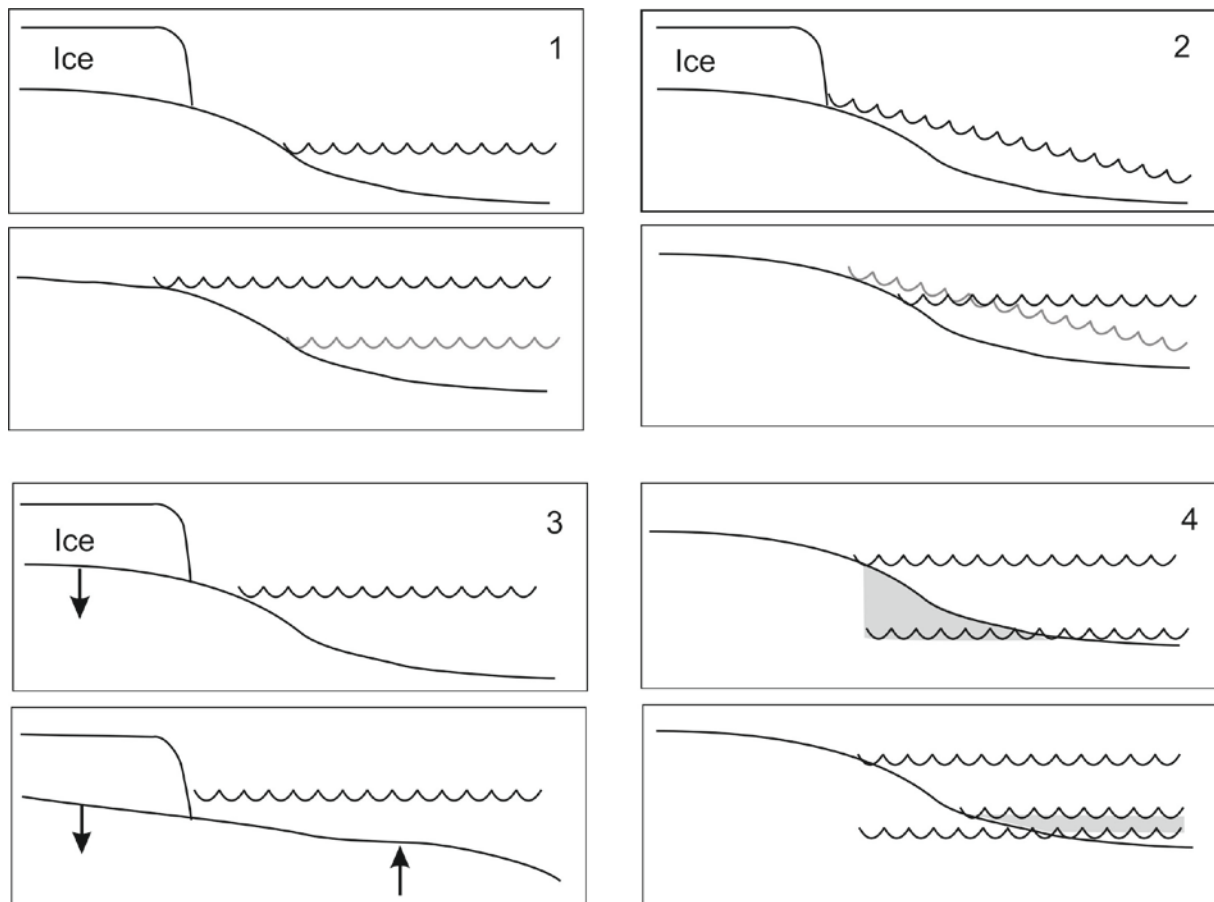


Figure S1. Local geophysical processes affecting eustatic sea-levels and integrated in the SELEN model used to reconstruct sea-level change in the Aegean Sea. 1) As a result of ice melting water volume is added in the ocean and sea-level rises. 2) As a result of the attraction by the ice sheet mass, sea water (volume) is pulled towards the ice sheets leading to local higher sea-levels. 3) As a result of crustal loading and unloading by the ice mass the crust is depressed or re-bounces. 4) As a result of water rising, shore-lines movements lead to changes in volumes.

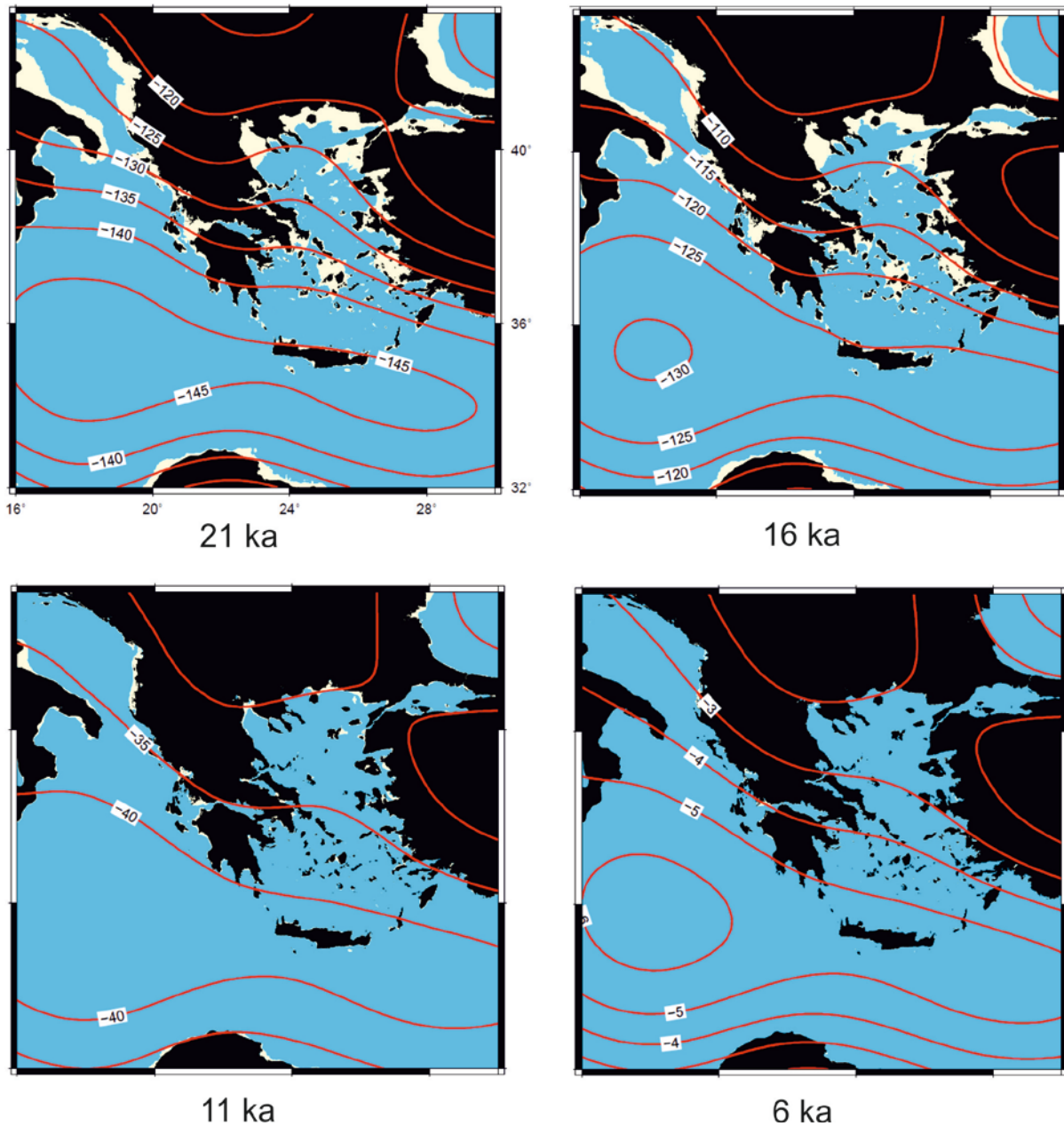


Figure S2. Isolines (red lines) show the regional height of sea-level in four different periods (21 kyr, 16 kyr, 11 kyr, 6 kyr BP) as compared to present day sea-level. The extent of the marine-flooded region appears in blue, the extent of the palaeo-surface area of coastline and islands appears in white, the present day coastline appears in black. All maps per time-slice since 21 kyr BP are included as grids with a 1km^2 resolution in Appendix B.

Appendix B

Table S1. Biogeographical relevant separation events and their timing of onset. Note that these timings are the product of a geophysical model exercise that partially incorporates all regional tectonic and geophysical complexity; thus, values may differ from reality. Although the precision of the timing can be questioned, the order of events and order of magnitude of spatiotemporal change are considered realistic.

Timing	Region	Main Events
21 kyr	Cyclades	The islands of Andros, Antiparos, Despotiko, Donousa, Folegandros, Gyaros, Ios, Mykonos, Naxos, Paros, Sikinos, Syros and Tinos and many other smaller islands were part of the mega Cycladean palaeo-island. The islands of Amorgos, Anafi, Astypalaia, Kythnos, Serifos, Sifnos and Thira and the palaeo-island of Kimolos, Milos and Polyaeogos had always been separated from the mega Cycladean palaeo-island and the Greek mainland.
21 kyr	West Aegean	The land mass of Skyros' archipelago was isolated from the Greek mainland.
21 kyr	South Aegean	The islands of Crete, Kythira, Rodos and the island complex of Karpathos and Kasos had remained isolated from the mainland. The palaeo-island of Gavdos and Gavdopoula was isolated from Crete.
18 kyr	East Aegean	The island of Ikaria became isolated from Asia Minor.
17 kyr	Cyclades	The fragmentation of the mega Cycladean palaeo-island began. The island of Gyaros became separated from the palaeo-

island.

16 kyr	West Aegean	The palaeo-island of Alonissos and Skopelos became separated from the Greek mainland.
16 kyr	Cyclades	The island of Kea became separated from the Greek mainland.
15 kyr	North Aegean	Onset of transgression of the Thermaikos Gulf bay.
15 kyr	Cyclades	The islands of Donoussa, Mykonos, Syros, and the palaeo-islands of i) Andros and Tinos and ii) Folegandros and Sikinos became separated from the mega Cycladean island.
15 kyr	East Aegean	The islands of Patmos and Fournoi became separated from Asia Minor.
14 kyr	East Aegean	The palaeo-islands of Limnos and Imvros became separated from Asia Minor.
14 kyr	North Aegean	Onset of transgression of the Saronikos Gulf bay.
14 kyr	Cyclades	The island of Ios became isolated from the mega Cycladean palaeo-island. The islands of Folegandros and Sikinos became separated from each other.
14 kyr	South Aegean	The islands of Karpathos and Kasos became separated from each other.
14 kyr	East Aegean	The island of Leipsoi became separated from Asia Minor.
13 kyr	North Aegean	The island of Samothraki was separated from the Greek mainland.
13 kyr	East Aegean	The islands of Limnos and Imvros became separated from each other. The sea of Marmara formed.
13 kyr	West Aegean	The islands of Alonissos and Skopelos became separated from each other.

13 kyr	South Aegean	The islands of Gavdos and Gavdopoula became separated from each other.
13 kyr	East Aegean	The land mass of Kalymnos and Leros became separated from Asia Minor.
12 kyr	East Aegean	The islands of Lesvos became separated from Asia Minor.
11 kyr	North Aegean	The island of Thasos became separated from the Greek mainland.
11 kyr	Cyclades	The island of Naxos became separated from the land mass of Antiparos, Despotiko and Paros and the island group of Koufonisia. The island of Polyagos became separated from Kimolos and Milos island.
11 kyr	East Aegean	The island of Kos became separated from Asia Minor.
10 kyr	East Aegean	The island of Chios became separated from Asia Minor.
10 kyr	West Aegean	The island of Skiathos became separated from the Greek mainland.
9 kyr	Cyclades	The islands of Andros and Tinos became separated from each other.
4 kyr	Cyclades	The island of Paros became separated from the palaeo-island Antiparos and Despotiko. At the same time the islands of Kimolos and Milos became separated from each other.
2 kyr	East Aegean	The island of Samos became separated from Asia Minor.

Hyperlink 22 time-slices of the Aegean Sea drowning since 21 kyr BP.

Hyperlink 22 time-slices of the Mega-Cyclades drowning since 21 kyr BP.

Every time slice represents 1000 kyr ago.