

# Seasonal Reconstructions of the Earth's Surface at the Last Glacial Maximum

by

## CLIMAP PROJECT MEMBERS

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**Map 1A** Biogeography of zooplankton assemblages for the Modern Ocean; generalized modern oceanic surface currents are depicted by arrows; doubleheaded arrows show where flow reverses seasonally. Note: In maps 1A and 1B the Atlantic and Indian Oceans' patterns are based mainly on foraminifera; the Antarctic patterns are defined by Radiolaria and the Pacific by Radiolaria (dominant) and foraminifera. Dominant assemblage areas are defined by regions containing samples in which the assemblage has a value  $\geq 0.6$ .

**Map 1B** Biogeography of zooplankton assemblages for the Last Glacial Maximum Ocean. In maps 1B and 2B, continental ice is shown in white, indeterminate areas in gray screen, modern continental patterns are delineated in dark brown and continental areas exposed at the Last Glacial Maximum due to sea-level lowering are light brown.

**Map 2A** Biogeography of phytoplanktonic assemblages, Coccolithophorida, for the Modern Atlantic Ocean; generalized modern oceanic surface currents are depicted by arrows.

**Map 2B** Biogeography of phytoplanktonic assemblages, Coccolithophorida, for the Last Glacial Maximum Atlantic Ocean.

**Map 3A** Sea-surface temperature map for Modern August. Isotherm contour interval is 1° Celsius.

**Map 3B** Sea-surface temperature map for Last Glacial Maximum August. In the Last Glacial Maximum maps 3B and 4B the continental ice reconstruction depicts both major continental ice sheets and discrete Alpine type glaciers. These are shown in white, sea ice in gray, indeterminate areas in gray screen. Modern continental patterns are delineated in dark brown; continental areas exposed at the Last Glacial Maximum due to sea-level lowering are light brown. The locations of all cores used in the Last Glacial Maximum sea-surface reconstruction are shown by black dots. Isotherm contour interval is 1° Celsius. Dashed 1° Celsius contour in North Atlantic drawn by analogy to modern configuration.

**Map 4A** Sea-surface temperature map for Modern February.

**Map 4B** Sea-surface temperature map for Last Glacial Maxi-

um February. Dashed 1° Celsius contour in North Atlantic drawn by analogy to modern configuration.

**Map 5A** Sea-surface temperature anomaly map for August. Anomaly maps are constructed by subtracting the Last Glacial Maximum from Modern sea-surface temperatures. Negative values delineate regions that were colder during the Last Glacial Maximum. Isotherm contour interval for anomaly maps is 2° Celsius. In maps 5A and 5B continental ice is shown in white and sea ice in gray, indeterminate areas in gray screen.

**Map 5B** Sea-surface temperature anomaly map for February. Isotherm contour interval is 2° Celsius.

**Map 6A** Seasonality map of Modern sea-surface temperature. Seasonality maps are constructed by subtracting the coldest month from the warmest month. Isotherm contour interval for seasonality maps is 2° Celsius. Indeterminate areas in gray screen.

**Map 6B** Seasonality map of the Last Glacial Maximum sea-surface temperature. Continental ice is shown in white, sea ice in gray, indeterminate areas in gray screen. Isotherm contour interval is 2° Celsius.

**Map 7A** The patterns of Northern Hemisphere continental ice-extent and elevation, sea ice and sea-surface temperatures in August for the Modern world. Continental ice-contour interval is 1000 m. Sea-surface temperature contour interval is 1° Celsius. Modern sea-ice cover in August for Arctic Ocean is depicted by a heavy dashed line showing average boundary for concentrations  $> 0.8$ ; a light dashed line indicates maximum extent of  $\geq 0.1$ . Data obtained from U.S. Navy Hydrographic Office, 1958. Note: We have not extended sea-surface isotherms poleward of the CLIMAP—GFDL modern sea-surface temperature Map 3A.

**Map 7B** The reconstructed patterns of Northern Hemisphere continental ice extent and elevation, sea ice and sea-surface temperatures in August for the Last Glacial Maximum. Continental ice contour interval is 500 m. Sea-surface temperature interval is 1° Celsius. Dashed 1° Celsius contour in North Atlantic drawn by analogy to modern configuration. Elevations are given for ice drainage centers in continental ice masses. Continental ice

