

**Table 1.** Large-scale climatic controls and regional climatic and biotic responses

	Last Glacial Maximum (21 ka)		Early Holocene (11 ka)	
	Northern Hemisphere	Southern Hemisphere	Northern Hemisphere	Southern Hemisphere
<b>Large-scale controls</b>				
insolation (45N & 45S) (relative to present) (3)	near-present levels	near-present levels	+8% (Jul) -10% (Jan)	+3% (Jul) -6% (Jan)
ice-sheet volume (relative to LGM) (2)	maximum	maximum	20% LGM	60% LGM
sea ice thickness (relative to present) ( <i>n.s.</i> )	20 x (Jul) 10.4 x (Jan)	3.5 x (Jul) 3.3 x (Jan)	0.34 x (Jul) 0.28 x (Jan)	1.8x (Jul) 1.7x (Jan)
SST's (relative to present) (5)	4 to 8 C colder (Jul) 4 to 8 C colder (Jan)	4 to 8 C colder (Jul) 4 to 8 C colder (Jan)	1 C colder (Jul) 1 to 2 C colder (Jan)	1 C warmer (Jul) 1 to 2 C warmer (Jan)
<b>Regional controls</b>				
upper-level winds (relative to present) (6, 10, 12)	southward displacement and acceleration of jet stream (Jan & Jul)	latitudinal compression of jet stream (Jan & Jul)	near-present configuration	near-present configuration
surface winds relative to present (7, 10, 12)	weaker westerlies, winter and summer	stronger westerlies, especially winter	stronger STH (PNW), stronger onshore flow (SW)	stronger STH (winter), weaker STH (summer)
other aspects of regional circulation systems	glacial anticyclone	fast westlies along sea- ice margin	stronger summer monsoon	weaker summer monsoon
indirect effects of insolation anomalies on seasonal cycles (3, 4, 5)	absent	absent	strong positive summer anomaly lagged into fall and winter	weak positive winter anomaly lagged into spring
<b>Regional responses</b>				
	<b>North America</b>	<b>South America</b>	<b>North America</b>	<b>South America</b>
net radiation (relative to present) (4)	less than present (Jul), near present (Jan)	near present (Jan & Jul)	greater than present (Jul), less than present (Jan)	near present (Jul), less than present (Jan)
temperature (relative to present) (10, 12)	colder year round	colder year round	warmer summers, cooler winters, warmer annually	cooler winters, cooler summers, cooler or near-present annually
precipitation (relative to present) (10, 12)	drier winters	spatially variable	drier summers, near present winters	wetter summers spatially variable winters
<b>Bioclimatic variables</b>				
growing degree-days (11, 13)	much lower than present	much lower than present	greater than present	less than present
temperature of the coldest month (11, 13)	much lower than present	much lower than present	lower than present	lower than present
AE/PE moisture index (11, 13)	greater than present	less than present	less than present	spatially variable
<b>Biotic responses</b>				
vegetation	NW: spread of subalpine, tundra vegetation to low elevations; expansion of xerophytic taxa from east to west; lower- than-present lake levels SW: spread of woodland and montane taxa to low elevations; higher- than-present lake levels	widespread treeless vegetation. lat 36-43°: <i>Nothofagus</i> woodland; bogs with moorland taxa > lat 45°: expansion of <i>Empetrum</i> heath	NW: spread of xerophytic taxa; higher-than- present treeline; expansion of fire- adapted species relative to present SW: spread of species sensitive to monsoonal precipitation (Mohave); higher-than-present treeline; more fire- adapted species than at present	< lat 45°S: expansion of warm-temperate forests lat 45 to 50°S: rain forest and moorland optimally developed, comparable to present- day conditions; higher- than-present lake levels east of the Andes > lat 50°: less diverse <i>Nothofagus</i> woodland; high fire frequency
beetles	NW: Spread of alpine species to low elevations; depauperate fauna relative to present. SW: variable response: expansion of grassland species (Chihuahuan); mixtures of modern and montane species (Sonoran); little faunal change compared to present (Sonoran) Mid continent: tundra species south to lat. 40	spread of high-elevation species to sea level; depauperate fauna	NW: no data SW: similar to present Mid-continent: open boreal forest species; no modern analogue	lat 45 to 50°S: similar species to present

notes: (a) "Northern Hemisphere" and "Southern Hemisphere" refer to the mid-latitude regions discussed in this paper.

(b) Relevant figures are indicated by figure numbers in *italics* in the first column.

(c) Sea-ice anomalies are for those high-latitude grid points with sea ice at present, extending 30-degrees (or four model grid points) to the west of each region.