

Figure S1. Difference between a) +1.5°C; b) +2°C and present climate (1979-2005) for DJF sea level pressure [shaded, hPa] and wind vector at 850hPa [shaded, m s–1]



Figure S2. Difference between +2°C and present climate (1979-2005) run for DJF a) sea level pressure [shaded, hPa] and wind vector at 850hPa [shaded, m s–1], b) fractional precipitation [*100 %, in reference to the present] and zonal wind [contours, m s–1] in CAM5.1.2 0.25°x0.25° lat-lon resolution.



Figure S3. Difference between +2°C and present climate experiments (1996-2005) for DJF a) sea level pressure [shaded, hPa] and wind vector at 850hPa [shaded, m s–1], b) precipitation [mm day-1] and zonal wind [contours, m s–1] in CAM5.1.2 0.25°x0.25° lat-lon resolution.



Figure S4. Distribution of differences estimated between $+2^{\circ}$ C and present climate experiments (1979-2005) for DJF top) meridional gradient in sea level pressure [hPa] (region for min: 55°-75° N, 40°-10°W; region for maximum: 30-50° N; 40°-10°W); bottom) midlatitude zonal wind [m s–1]in the region 30°W-0°,50°-65° N;in CAM5.1.2 0.25°x0.25° lat-lon resolution. Distribution is created by differentiating $+2^{\circ}$ C decadal runs average and randomly chosen 10 values from the 1985-2005 period.



Figure S5. Difference between +2°C and +1.5°C experiments for DJF a) sea level pressure [shaded, hPa] in CAM5.1.2 0.25°x0.25° lat-lon resolution. . Regions are stippled, where the difference is significant at 5% level.



Figure S6. Winter (DJF) climatology of 95th percentile of daily winds, derived for period 1979-2005 in CAM5_0.25.