The Sensitivity of Land–Atmosphere Coupling to Modern Agriculture in the Northern Midlatitudes

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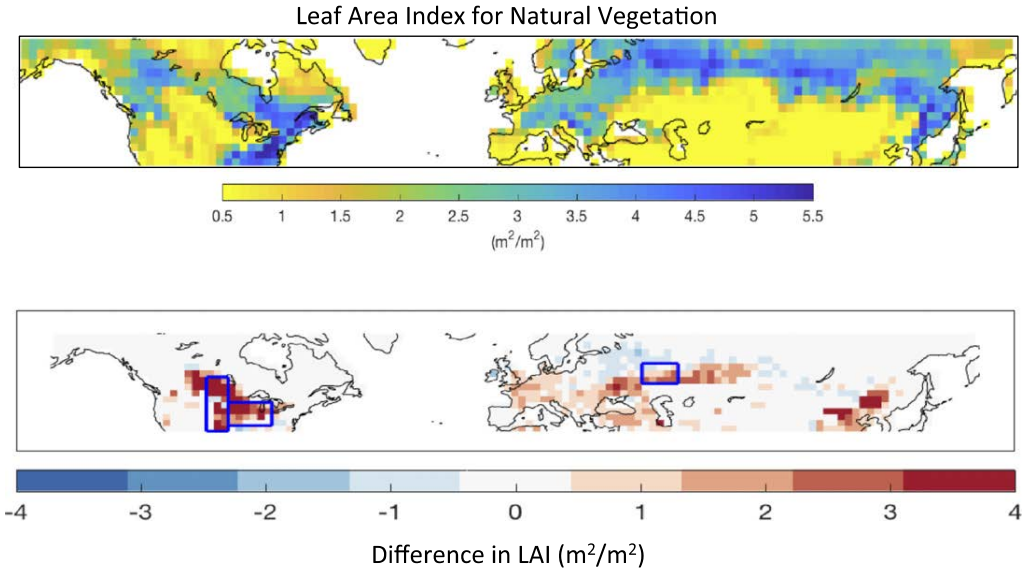

FIG. 2. (a) Maximum annual LAI for the NatVeg experiment. (b) The change in maximum LAI between the CropSpec and NatVeg experiments. The blue boxes denote the domains of focus: (i) the Great Plains, (ii) the Midwest, and (iii) central Asia.

"Intensive agriculture" (repeated cropping during the year) can cool local surface temperature and increase precipitation and soil moisture, as simulated with the **NASA Goddard Institute for Space Studies (GISS) Earth System Model ModelE2 / Ent Terrestrial Biosphere Model**, combining a new, refined cropping calendar with observations of leaf area index (LAI) derived from the **NASA Moderate Resolution Imaging Spectrometer (MODIS).**

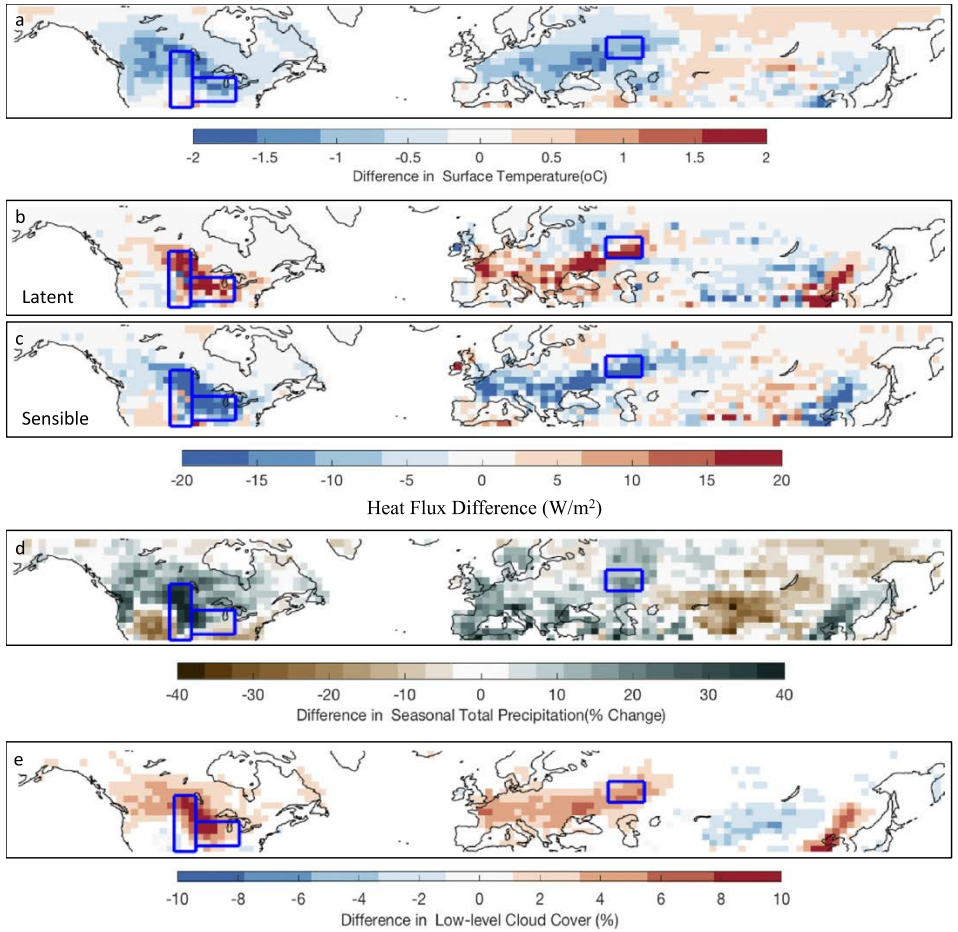

FIG. 8. JJA differences between CropSpec and NatVeg for (a) surface temperature (°C), (b) latent heat flux ($W m^{-2}$), (c) sensible heat flux ($W m^{-2}$), (d) precipitation (% change), and (e) low-level cloud cover (%). Blue boxes highlight the three domains of focus. Only significant differences at the 0.05 level are shaded.