



Weather from the ozone hole

S.-W. Son (1), A. Purich (1), H. Hendon (2), and B. Kim (3)

(1) McGill University, Department of Atmospheric and Oceanic Sciences, Montreal, Canada (seok-woo.son@mcgill.ca), (2) Centre for Australian Weather and Climate Research, Bureau of Meteorology, Melbourne, Australia, (3) Korea Polar Research Institute, Incheon, South Korea

Southern Hemisphere (SH) climate change in the late 20th century has been often attributed to the combined effect of increasing greenhouse gas concentrations and decreasing stratospheric ozone concentrations. Recent studies have robustly documented that the latter, Antarctic ozone depletion, has played at least a comparable role to the former in the austral-summer climate change. In this study, we present findings that suggest that stratospheric ozone affects not only long-term climate change but also inter-annual variability of the SH surface climate. A significant negative correlation is observed between September Antarctic ozone concentrations and October Southern Annular Mode (SAM) index. This time-lagged response is as important as that associated with ENSO, indicating that seasonal forecasting in austral spring could be improved by considering Antarctic ozone variability.