Session: B11 Oral presentation

Does Carbonaceous emission from South Asia have impacts on the hinterland of the Tibetan Plateau?

Jing Ming [†];
[†] China National Climate Center, China, People's Republic of
Leading author: petermingjing@hotmail.com

South Asia is one of the strongest emitters that inject carbonaceous particles, e.g., black carbon (BC) and organic carbon (OC) into the atmosphere on earth. Due to the high elevated Himalayas, the pollutants from South Asia cannot be largely transported into the relatively cleaner Tibetan Plateau. Can it be completely free of BC pollution? An investigation on BC in the aerosol and precipitation in the surface air of the Nam Co region (30.77oN, 90.99oE) during 2006 to 2007 found BC here could be mainly originated from Southern Asia, as indicated by trajectory analysis and aerosol optical depth. Comparison between the BC concentrations measured in Lhasa, those at "Nepal Climate Observatory at Pyramid (NCO-P)" site on the southern slope of the Himalayas, and Nam Co suggested BC in the Nam Co region reflected a background with weak anthropogenic disturbances and the emissions from Lhasa might have little impact on the atmospheric environment here, while the pollutants from the Indo-Gangetic Basin of Southern Asia could be transported to the Nam Co region by both the summer monsoon and the westerly. BC can darken the surrounding glacier surface and accelerate its melting after depositing. Modeling work shows the present BC level in the glacier surface can cause a yearly mean forcing of 6 W/m2.