Coastal lows and sulfur air pollution in Central Chile

Gallardo, L.

Olivares, G.

Langner, J.

Aarhus, B.

Air pollutants in Santiago (33.5°S, 70.8°W, 500m a.s.l.), a city with 5 million inhabitants, located in a basin in Central Chile surrounded by the high Andes, frequently exceed air quality standards. This affects human health and it stresses vegetation. The most extreme winter and fall pollution events occur when the subsident regime of the Pacific high is further enhanced by coastal lows (CLs), which bring down the base of the subsidence inversion. Under these conditions, the air quality worsens significantly giving rise to acute air pollution episodes. We assess the ability of a regional transport/chemistry/deposition model (MATCH) coupled to a meteorological model (High Resolution Limited Area Model - HIRLAM) to simulate the evolution of oxidized sulfur (SOx) in connection with intensive CLs. We focus on SOx since it is an environmental issue of concern, and the emissions and concentrations of SOx have been regularly monitored making it easier to bracket model outputs for SOx than f