



Evaluating the regional influence of Santiago de Chile on air quality and meteorology during VOCALS-REX

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The VOCALS campaign was carried out in Chile during October-November 2008, gathering hundreds of scientists from all over the world with the objective to study stratocumulus decks in the East South Pacific, off the coast of Chile and Peru. Surface and airborne platforms measured multiple chemical and meteorological parameters, with support from chemical weather forecast models. Anthropogenic influence on meteorology and climate was evidenced due to in situ measurements, and satellite observations, as was expected from the large point sources of sulfur due to smelters and power plants in the region. However certain conditions benefited long range transport from central Chile, which made the Santiago plume clearly discernible (high ozone, organic aerosol, low CO) as sampled by the NSF C-130 almost 2000 km north of the city. This research will highlight how model products can provide guidance on the sources of the air masses sampled during the campaign, and how the Santiago plume influences regional air quality and meteorology (focusing on effective cloud radii and brightness temperature differences satellite measurements). Ultimately the research shows that the campaign's objective of contrasting cloud properties between pristine and anthropogenically influenced airmasses provided a unique opportunity to isolate the signal of a large emerging South American megacity from remote regions of the East South Pacific.