

Key Issues

- Sources of aerosol in the VOCALS-Rex region - can we quantify the key sources?
- role of nucleation and what is its role in BL repopulation
- Entrainment
- To what extent are cloud processes, for example the propensity for drizzle; POC formation or sustenance, controlled by the air masses above and below the BL encountered during VOCALS-REx?
- Aerosol-Cloud-Precipitation Interactions – can we separate micro and large scale effects?
- VOCALS offers an ideal framework to challenge coupled chemistry-cloud models

Key Issues

- **Sources of aerosol in the VOCALS-Rex region - can we quantify the key sources?**

- the gradient that we all report in the BL is also evident in the FT – how important are the BL and FT aerosol in influencing cloud properties
- Santiago and smelters are important contributors but perhaps not as dominant as originally perceived, what is the role of regional pollution versus individual plumes?
- what is clean and where is clean?
- what is the input of aerosol from the north and its impact regionally?
- Biomass burning influences
- what is the sea salt contribution?
- what is the DMS contribution to sulphate versus anthropogenic sources

Key Issues 2

- **role of nucleation and what is its role in BL repopulation**

- POCs
- clean layers
- polluted outflow
- linkages to DMS

- **Entrainment**

- Role of entrainment in resupply of aerosol
- enhancement in turbulent cloud elements versus large scale entrainment in models?
- effect on dehydration of cloud layer

- To what extent are cloud processes, for example the propensity for drizzle; POC formation or sustenance, controlled by the air masses above and below the BL encountered during VOCALS-REx?

- **Aerosol-Cloud-Precipitation Interactions**

- What is the role of precipitation in controlling the aerosol population in the region? and conversely what is the role of aerosol in influencing precipitation?

- Can we separate microphysical effects on clouds from large scale effects?

- **VOCALS offers an ideal framework to challenge coupled chemistry-cloud models**

- Can/should VOCALS play a coordinating role in identifying the optimum physical schemes for use by these models before testing of the chemical schemes? How?

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