

# **Aerosols and O<sub>3</sub> observations over Pajoso-Chile during VOCALS**

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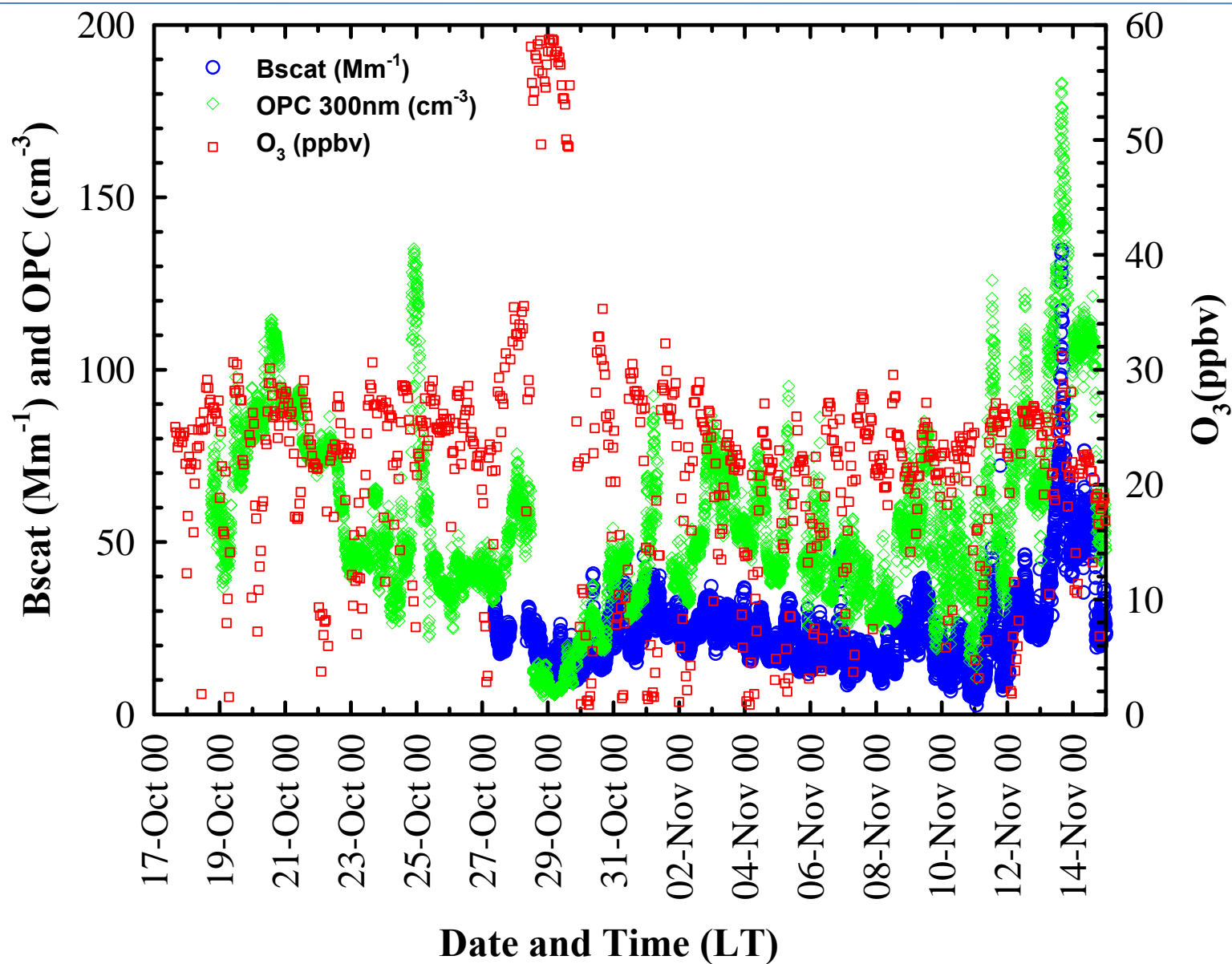
**July 12, 2009**

# Observations

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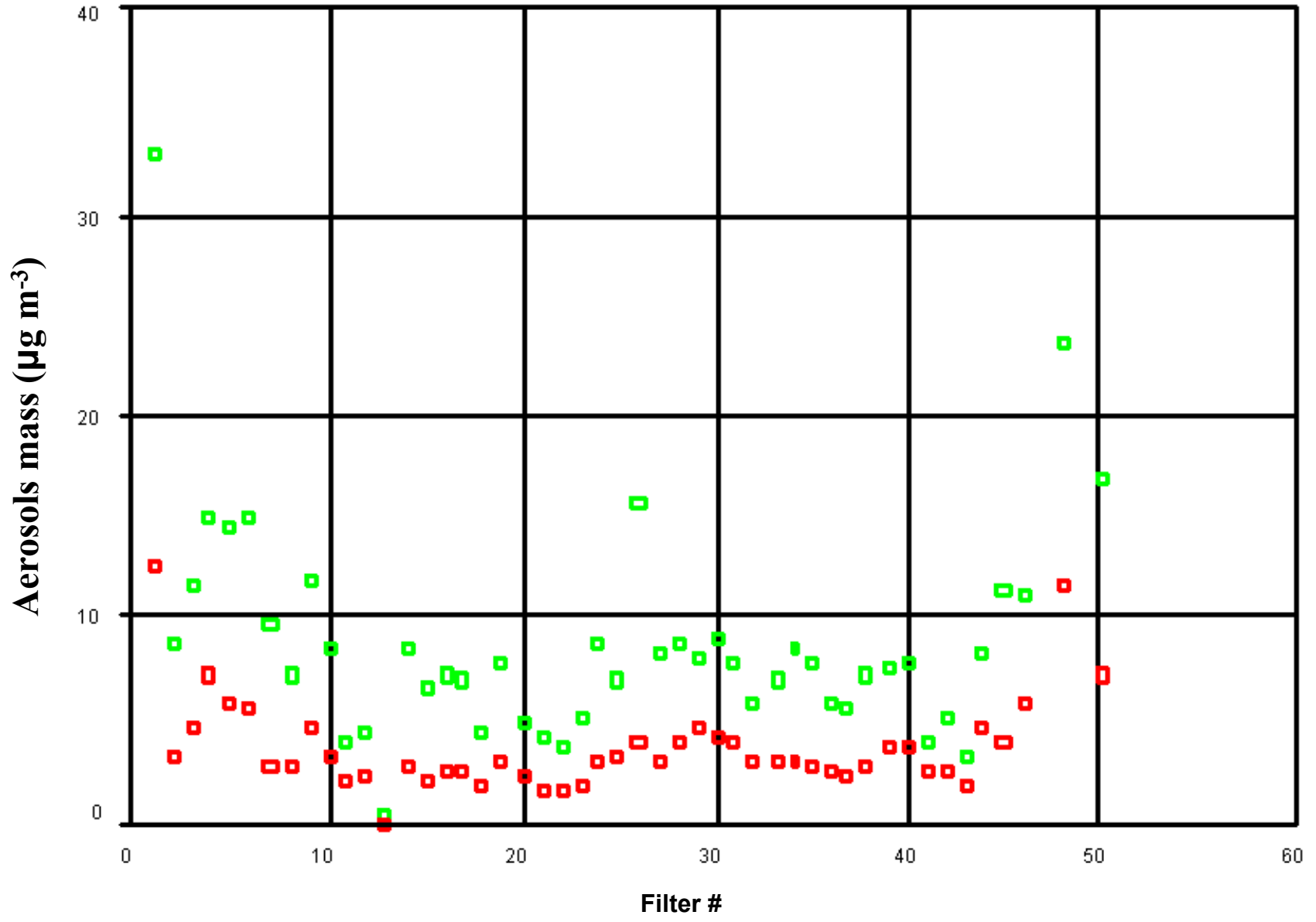
- OPC (0.3, 0.5, 1.0, 5.0  $\mu\text{m}$  channels)**
  
- Nephelometer (532 nm)**
  - Most of time sampled dry aerosols**
  - Some humid scans were also performed**
  
- Ozone**
  
- Submicron aerosols of 52 Teflon filters (day and night): chemical analysis for sulfate, nitrate, chloride, succinate, oxalate, and formic acid**

# VOCALS 208 Paposo/Parnal



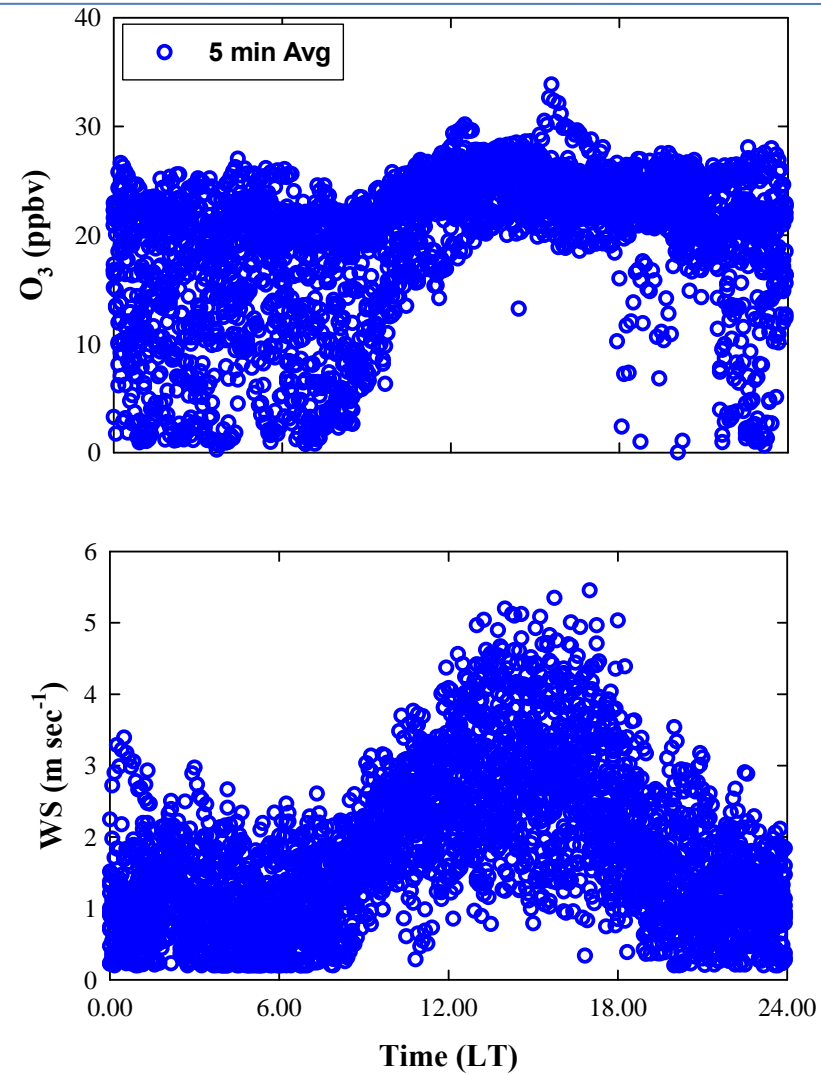
# Chemical analysis of aerosols collected on Teflon Filters

- Sulfate
- Gravimetric mass



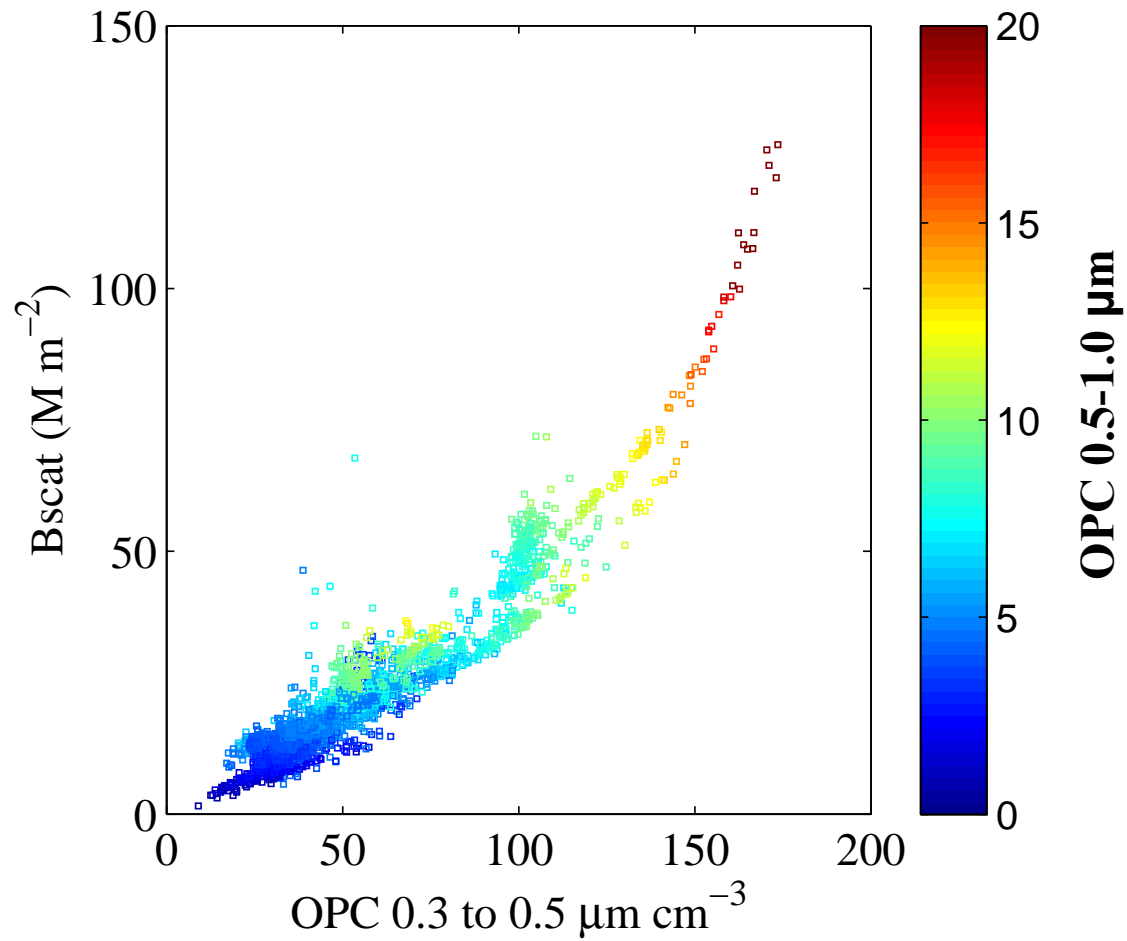
# Diurnal variation in $O_3$

Nov 03-15, 2008

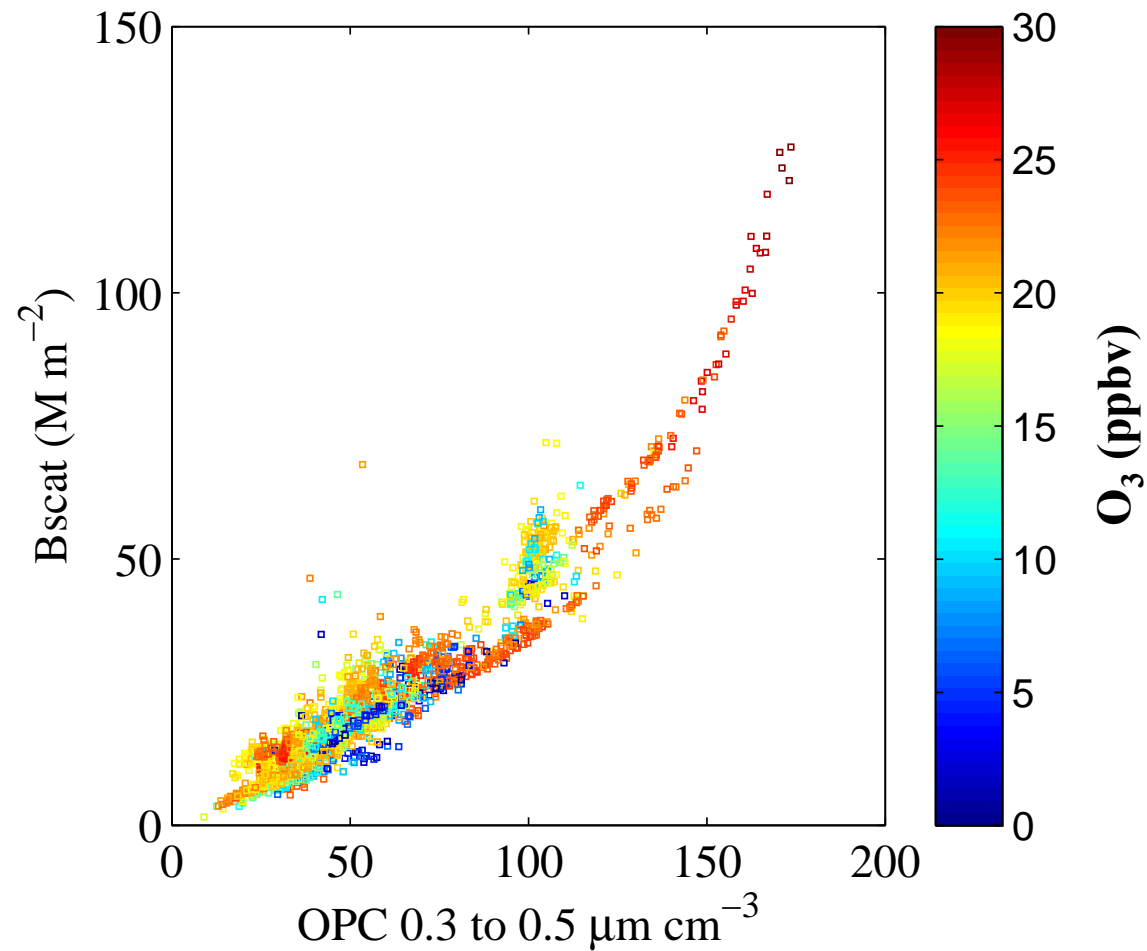


# Bscat vs OPC 0.3-0.5 $\mu\text{m}$ Ch. (color bar OPC 0.5-1.0 $\mu\text{m}$ )

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# Bscat vs OPC 0.3-0.5 $\mu\text{m}$ Ch. (color bar $\text{O}_3$ )



# Chemical analysis of aerosols from 52 teflon filters

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% →	CL_CON	NIT_CON	SULF_CON	OXAL_CON	UNK_MASS
Median	1.0	0.9	40.9	0.4	56.4
Mean	1.3	1.1	41.6	0.5	55.1

$$\text{Day } \frac{\textit{Nitrate}}{\textit{Sulfate}} = 0.024 \qquad \text{Night } \frac{\textit{Nitrate}}{\textit{Sulfate}} = 0.030$$

**Average submicron aerosol mass = 8.2  $\mu\text{g m}^{-3}$**



# Summary:

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➤ **Average levels in 2<sup>nd</sup> half of campaign**

<b>Average Bscat =</b>	<b>23.5 Mm<sup>-1</sup></b>
<b>Average mass =</b>	<b>8.2 μg m<sup>-3</sup></b>
<b>Average OPC 0.3-0.5μm=</b>	<b>55.8 cm<sup>-3</sup></b>
<b>Average OPC 0.5-1.0 μm =</b>	<b>5.9 cm<sup>-3</sup></b>
<b>Average O3=</b>	<b>17.6 ppbv</b>

➤ **OPC and Neph shows a strong correlation**

➤ **O<sub>3</sub> show diurnal variation most of the days.**

➤ **Half of the submicron aerosol mass is sulfate**

➤ **As an average, higher sulfate is found in day than night time.**

**Analysis continue.....**