ESRL Theme Presentation on the Weather-Climate Connection

Ozone Trends in Eastern Pacific Troposphere: Effect of Interannual Meteorological Variability?

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Tropospheric Ozone Entering the US from the Pacific Has Increased over the Past 2 Decades
Tropospheric Ozone Entering the US from the Pacific Has Increased over the Past 2 Decades

- NASA CITE-1C
- NOAA ITCT-2K2
- NASA INTEX-B

Ozone (ppbv)


2 km < altitude < 8 km

Spring
Tropospheric Ozone Entering the US from the Pacific Has Increased over the Past 2 Decades

Data Set                      slope  intercept  \( r \)  
Aircraft Field Studies:       0.93 ± 1.4  61 ± 11  0.97

2 km < altitude < 8 km

-128 -124 -120 -116

longitude
Tropospheric Ozone Entering the US from the Pacific Has Increased over the Past 2 Decades

Examine 2 other data sets:

Trinidad Head Ozone sondes
Sam Oltmans
NOAA/ESRL/GMD
1998 to present
Generally weekly

MOZAIC* aircraft profiles
1995 to present
avg. 10/month in winter

*Measurements of Ozone, Water Vapour, Carbon Monoxide and Nitrogen Oxides by In-Service Airbus Aircraft
Tropospheric Ozone Entering the US from the Pacific Has Increased over the Past 2 Decades

<table>
<thead>
<tr>
<th>Data Set</th>
<th>slope</th>
<th>intercept</th>
<th>r</th>
</tr>
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<tbody>
<tr>
<td>MOZAIC</td>
<td>0.63 ± 0.16</td>
<td>44.8 ± 0.7</td>
<td>0.62</td>
</tr>
<tr>
<td>TH sondes:</td>
<td>0.49 ± 0.20</td>
<td>48.4 ± 0.7</td>
<td>0.78</td>
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O₃ (ppbv)


2 km < altitude < 8 km
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<tr>
<td>Average:</td>
<td>0.56 ± 0.12</td>
<td>46.7 ± 0.5</td>
<td>0.59</td>
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2 km < altitude < 8 km
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Can Interannual Meteorological Variability Explain Some of the Variance and/or the Cause of the Trend?