\[ \Delta \text{CH}_2\text{O} \]

### Altitude (km)

- 20:50
- 20:55
- 21:00
- 21:05
- 21:10
- 21:15
- 21:20
- 21:25
- 21:30

### UTC

- 20:53:10 (Start Time)
- 21:23:15 (End Time)

### Distance between planes (km)

- 3000
- 2500
- 2000
- 1500
- 1000
- 500
- 0

### \( \text{CH}_2\text{O} \) (pptv)

#### GV

- 2500
- 2000
- 1500
- 1000
- 500

#### DC-8 (DFGAS, pptv)

- 2500
- 2000
- 1500
- 1000
- 500

### GV CH\(_2\)O (pptv)

#### GV CAMS vs DC-8

- \( y = a + bx \)
- \( a = 515.7 \pm 91.2 \)
- \( b = 0.808 \pm 0.057 \)
- \( R^2 = 0.952 \)

#### GV TOGA vs DC-8

- \( y = a + bx \)
- \( a = 74.8 \pm 21.4 \)
- \( b = 0.842 \pm 0.015 \)
- \( R^2 = 0.968 \)

### Start Time

- 20:53:10

### End Time

- 21:23:15

### DFGAS - CAMS Avg = 122.5 \pm 172.7

### DFGAS - TOGA Avg = -232.7 \pm 227.6

05/25/12
Altitude (km):

UTC:

Distance between planes (km):

CH$_2$O (pptv):

Start Time 19:04:40
End Time 19:38:35

Start Time 19:43:50
End Time 20:00:00

DFGAS - CAMS Avg = -14.9 ± 52.8
DFGAS - TOGA Avg = -55.8 ± 257.5

y = a + bx

a = 1.5 ± 9.1
b = 1.053 ± 0.044
$R^2 = 0.750$

y = a + bx

a = -128.6 ± 67.7
b = 2.69 ± 0.32
$R^2 = 0.775$

05/30/12
The image contains a graph with multiple plots showing data related to CH$_2$O (perchloroethylene) concentrations and their distances and altitudes. The plots include:

- DC-8 DFGAS
- DC-8 ISAF
- GV CAMS
- GV TOGA

The graph compares the data from these different sources and shows the distances and altitudes over time. The data is presented in various formats, including linear equations and their corresponding $R^2$ values for regression analysis.

For example, the linear equation for GV CAMS vs DC-8 is:

$$y = a + bx$$

With:

- $a = -110.1 \pm 5.5$
- $b = 0.9555 \pm 0.0059$
- $R^2 = 0.992$

Similarly, for GV TOGA vs DC-8:

- $a = 1170 \pm 116$
- $b = 0.289 \pm 0.073$
- $R^2 = 0.675$

The data is presented in a tabular format within the graph, showing the start and end times for the experiment, as well as the average differences between the measurements from different sources.
Start Time
20:27:16

End Time
21:35:15

DFGAS - CAMS Avg = -57.1 ± 122.0
DFGAS - LIF Avg = 80.5 ± 90.9
DFGAS - TOGA Avg = -28.3 ± 109.8

GV CAMS vs DC-8
\( y = a + bx \)
\( a = -10.6 ± 22.6 \)
\( b = 2.24 ± 0.14 \)
\( R^2 = 0.645 \)

GV TOGA vs DC-8
\( y = a + bx \)
\( a = -41 ± 35 \)
\( b = 1.76 ± 0.20 \)
\( R^2 = 0.812 \)

GV CAMS vs DC-8
\( R^2 = 0.214 \)

GV TOGA vs DC-8
\( R^2 = 0.463 \)
Start Time 23:05:45
End Time 23:34:55

DFGAS - CAMS Avg = -38.3 ± 122.7
DFGAS - LIF Avg = 75.5 ± 109.2
DFGAS - TOGA Avg = -14.9 ± 146.7

GV CH$_2$O (pptv)

GV CAMS vs DC-8
$R^2 = 0.281$

GV TOGA vs DC-8
$R^2 = 0.339$

GV CAMS vs DC-8
$R^2 = 0.009$
## Time Series Data

<table>
<thead>
<tr>
<th>Comparison Date</th>
<th>DC-8 DFGAS</th>
<th>GV CAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/25/12</td>
<td>DC3-CU-DFGAS-CH2O_DC8_20120525_R0.ict</td>
<td>DC3-CAMS-CH2O_GV_20120525_R1.ict</td>
</tr>
<tr>
<td>05/30/12</td>
<td>DC3-CU-DFGAS-CH2O_DC8_20120530_R0.ict</td>
<td>DC3-CAMS-CH2O_GV_20120530_R1.ict</td>
</tr>
<tr>
<td>06/01/12</td>
<td>DC3-CU-DFGAS-CH2O_DC8_20120601_R0.ict</td>
<td>DC3-CAMS-CH2O_GV_20120601_R1.ict</td>
</tr>
<tr>
<td>06/05/12</td>
<td>DC3-CU-DFGAS-CH2O_DC8_20120605_R0.ict</td>
<td>DC3-CAMS-CH2O_GV_20120605_R1.ict</td>
</tr>
<tr>
<td>06/17/12</td>
<td>DC3-CU-DFGAS-CH2O_DC8_20120617_R0.ict</td>
<td>DC3-CAMS-CH2O_GV_20120617_R1.ict</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparison Date</th>
<th>DC-8 ISAF</th>
<th>GV TOGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/25/12</td>
<td></td>
<td>DC3-TOGA_GV_20120525_R2.ict</td>
</tr>
<tr>
<td>05/30/12</td>
<td></td>
<td>DC3-TOGA_GV_20120530_R2.ict</td>
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<tr>
<td>06/01/12</td>
<td>DC3-ISAF-H2CO_DC8_20120601_R1.ict</td>
<td>DC3-TOGA_GV_20120601_R2.ict</td>
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<td>DC3-TOGA_GV_20120605_R2.ict</td>
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<td>06/17/12</td>
<td>DC3-ISAF-H2CO_DC8_20120617_R1.ict</td>
<td>DC3-TOGA_GV_20120617_R2.ict</td>
</tr>
</tbody>
</table>

## Correlation Data

- Merged DC-8 DFGAS, DC-8 ISAF, and GV CAMS to 10-second time step.
- Merged DC-8 DFGAS and DC-8 ISAF to GV TOGA time step.

- Fit lines are derived from orthogonal distance regressions.
- $R^2$ values are calculated independently, not from orthogonal distance regression.

- Average and standard deviation are calculated over the comparison time frame.
5 Day Comparison

- Numbers on Colorbar correspond to the 5 intercomparison days
  1: 05/25/12
  2: 05/30/12
  3: 06/01/12
  4: 06/05/12
  5: 06/17/12

- Avg Bias denotes the difference between y and x, calculated by (y-x)