TanSat

David Crisp, NASA/JPL, CEOS AC-VC
for Yi Liu (CAS)
CEOS AC-VC
College Park, MD, USA
2-4 May 2018
The first 6 months of TanSat XCO₂
## TanSat XCO$_2$ validation against TCCON

### Table: Site Precision (ppm)

<table>
<thead>
<tr>
<th>Site</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pasadena, CA</td>
<td>2.53</td>
<td>13.20</td>
<td>1.46</td>
<td>3.08</td>
<td>--</td>
<td>2.27</td>
</tr>
<tr>
<td>East Trout Lake, Canada</td>
<td>--</td>
<td>0.49</td>
<td>2.12</td>
<td>0.75</td>
<td>0.67</td>
<td>1.01</td>
</tr>
<tr>
<td>Saga, Japan</td>
<td>4.22</td>
<td>1.22</td>
<td>1.56</td>
<td>0.96</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Lauder, New Zealand</td>
<td>--</td>
<td>--</td>
<td>2.12</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Lamont, OK, USA</td>
<td>0.60</td>
<td>1.31</td>
<td>0.81</td>
<td>0.97</td>
<td>--</td>
<td>1.49</td>
</tr>
<tr>
<td>Park Falls, WI, USA</td>
<td>--</td>
<td>0.80</td>
<td>0.72</td>
<td>0.85</td>
<td>1.88</td>
<td>1.72</td>
</tr>
<tr>
<td>Sodankyla, Finland</td>
<td>--</td>
<td>3.05</td>
<td>2.92</td>
<td>2.29</td>
<td>2.76</td>
<td>4.02</td>
</tr>
<tr>
<td>JPL</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>2.45</td>
<td>3.35</td>
<td>1.67</td>
<td>1.48</td>
<td>1.77</td>
<td>1.98</td>
</tr>
</tbody>
</table>

### Figure:

*Yi Liu et al., Chin. Sci. Bull. 2018*
Global terrestrial SIF map from TanSat observations

Liangyun Liu et al., Chin. Sci. Bull. 2018
The TanSat Team published the first global maps of XCO₂ over land as a 3-page News and Views article in Advances in Atmospheric Sciences


Two dot-plot maps were shown:

- Nadir mode observations for April 2017
- Nadir mode observations for July 2017

Here, I’ve compared those results to the OCO-2 v8 dot plot maps for the same months

- Global
- North America zoom
- Eurasia/Africa zoom
First Global Carbon Dioxide Maps Produced from TanSat Measurements

Dongxu YANG¹, Yi LIU¹,², Zhaonan CAI¹, Xi CHEN¹, Lu YAO¹,², and Daren LU¹

¹Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China
²University of Chinese Academy of Sciences, Beijing 100049, China

(Received 28 December 2017; revised 1 February 2018; accepted 13 February 2018)


or see:

TanSat (top) vs OCO-2 (bottom)
TanSat (top) vs OCO-2 (bottom)

April 2017

July 2017
TanSat (top) vs OCO-2 (bottom)
TanSat-2: satellite and orbit

6 satellites
Swath: 100km
Orbit: 14.58/day
TanSat data distribution and joint application

• TanSat L1b Data is available from October 23, 2017
  ➢ GEO China site:
  ➢ CMA FY data site:
    http://satellite.nsmc.org.cn

• TanSat L2 Data will be released soon
  ➢ on the same website