



## CASE STUDY

# TanSat Mission to Promote Global Carbon Monitoring China

The TanSat mission is the first Chinese mini-satellite dedicated to the detection and monitoring of carbon dioxide (CO<sub>2</sub>). In 2016, the satellite was launched into space, making China the third country after Japan and the United States of America to monitor greenhouse gas emissions through its own satellite.<sup>1</sup> The data collected by TanSat has helped to improve the understanding of global carbon dioxide distribution, its seasonal variation, and its impacts on climate change. The TanSat team produces global carbon dioxide maps and the chlorophyll fluorescent products, which will assist the global community in carbon monitoring.

In order to further enhance international collaboration on carbon monitoring, the Chinese Academy of Sciences approved the initiation of Cooperation on the Analysis of Carbon Satellites Data (CASA) in 2018.<sup>2</sup> CASA was officially launched in 2019 by ChinaGEOSS-Data Sharing Network. Since then, CASA has been cooperating actively with international entities, such as Group on Earth Observation (GEO), International Science Council, and United Nations Environment Programme (UNEP), in co-funding carbon-oriented scientific researches, through the International Reanalysis Cooperation on Carbon Satellites Data.<sup>3</sup>

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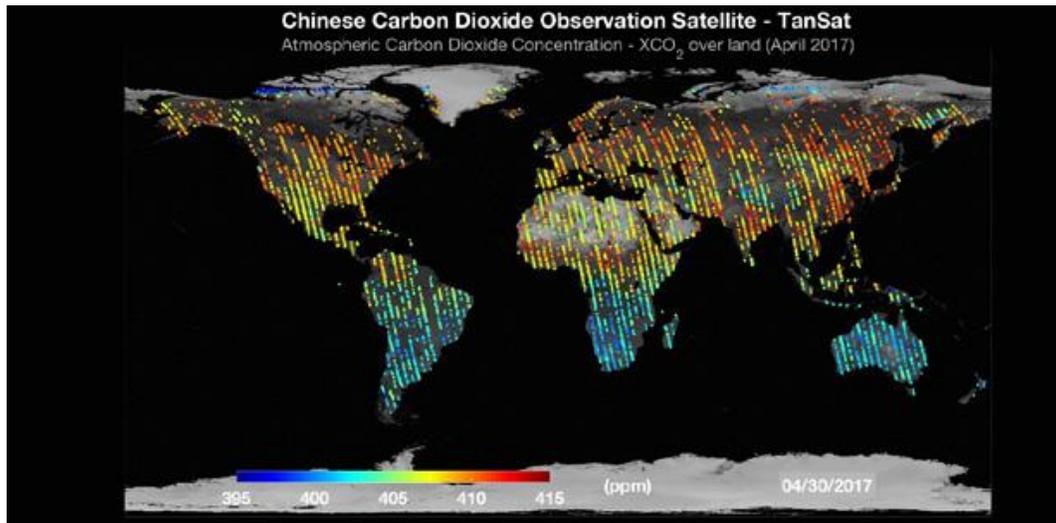
<sup>1</sup> The State Council of the People's Republic of China, "China launches satellite to monitor global carbon emissions", English.gov.cn (22 December 2016). Available at [http://english.www.gov.cn/news/top\\_news/2016/12/22/content\\_281475522238423.htm](http://english.www.gov.cn/news/top_news/2016/12/22/content_281475522238423.htm)

<sup>2</sup> Sharing Earth Observation Resources, "TanSat (Chinese Carbon Dioxide Observation Satellite Mission)". Available at <https://directory.eoportal.org/web/eoportal/satellite-missions/t/tansat>

<sup>3</sup> J. Zhao, and others, "International reanalysis cooperation on carbon satellites data", Remote Sensing of Clouds and Atmosphere XXIV, Proceedings SPIE vol. 11152 (9 October 2019). Available at <https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11152/111520L/International-reanalysis-cooperation-on-carbon-satellites-data/10.1117/12.2538614.full?SSO=1>



Figure 1. Data from TanSat showing Carbon Dioxide levels



**Source:** TanSat Imagery. Figure Provided by National Earth Observation Data Center (NODA), China.

**Disclaimer:** The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Additional details and more practices like this can be found in [Geospatial Practices for Sustainable Development in Asia and the Pacific 2020: A Compendium](#)