# Measurements of carbon monoxide from space using the MOPITT instrument

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The Measurements Of Pollution in The Troposphere (MOPITT) instrument was launched on December $19^{th}$, 1999 and has now completed over six years of measurements of carbon monoxide from space, providing the most extensive and complete data set of a tropospheric minor constituent over the planet in both space and time.

During the mission – which is still continuing – events have been observed at many time and space scales, ranging from planetary-scale changes from extensive forest fires persisting for many months, to sharp concentration changes over 100km persisting only for a few days. This wealth of phenomena has given us a new view of the troposphere and its chemical and dynamical behavior.

With such an extensive dataset, it is now possible to try to assess the "average" behaviour of carbon monoxide over the planet. The intriguing result is that the average proves very elusive and the "typical year" has yet to be determined. Random surface events are frequent enough that carbon monoxide is frequently perturbed from its background state. This has implications for modeling and forecasting of future concentrations.

This paper will highlight some of the events that perturb the carbon monoxide concentration drawing from examples over the MOPITT mission time frame and discuss how these feed into the global picture. We will also discuss what implications this has for future missions to continue the dataset.