Long Term Monitoring of the new MERLIN Lidar Instrument

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After water vapor and carbon dioxide, Methane is the most abundant greenhouse gas in the Earth atmosphere. The new generation space borne Lidar mission MERLIN (Methane Remote Sensing Lidar Mission) will make very sensitive measurements of the Methane distribution with unprecedented quality. It will provide 50km averaged methane column measurements with an accuracy of about 1%. MERLIN will therefore track down the Methane sources and sinks on a global scale.

During the commissioning and routine operations phase, the task of long-term instrument monitoring is one of the key ground segment functions. It tracks the behavior of the instrument and its subsystems. It monitors the instrument's performance in response to expected or unexpected natural events or technical situations. This is achieved by analyzing the measurement data and housekeeping information over different time frames. Long-term monitoring allows a close follow up of the mission scientific results to ensure high quality data acquisition and instrument's consistent performances with mission planning. We present our strategy to develop the MERLIN long-term monitoring functionality and how this is based on our expertise in previous missions, e.g. SCIAMACHY.