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The EM27/SUN FTS has offered an amazing opportunity to collect total column measurements of CO2, CH4, and CO from sites where a TCCON station has not been feasible or practical, or in regions where multiple instruments are needed to constrain local emissions. While this instrument has expanded our ability to validate satellite-based measurements and monitor urban emissions, fully automated observations and better weatherproofing could expand these capabilities even further. An EM27 with an alternative solar-tracking arrangement consisting of a fibre optic, telescope, and external solar tracking instrument (Ekotracker) has already been used with some success at Wollongong. This setup eliminates the risk of exposing sensitive optics during operations and the need for daily alignment of the solar tracker. If correctly implemented, this would allow data collection to be fully automated, thus increasing the rate of data acquisition while decreasing the demand for on-site or remote maintenance. We are working to develop and deploy EM27s with the fibre optic tracking in Toronto and the surrounding area. Results, successes, and challenges from our initial testing and deployment will be presented and discussed.
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