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Introducing the Vienna Urban Carbon Laboratory (VUCL)

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The Vienna Urban Carbon Laboratory (VUCL) has begun testing in situ measurement-based options for monitoring local carbon dioxide (CO_2) and methane (CH_4) emissions in Austria's capital city. Building upon the groundwork of the CarboWien project, VUCL extends and expands the current tall-tower eddy covariance flux system and will furthermore conduct campaigns to measure carbon isotopes and isofluxes, as well as upwind-downwind gradients in total column CO_2 and CH_4 mixing ratios. The project, which runs between 2021 and 2024 and is funded by the Vienna Science and Technology Fund (WWTF), will be implemented by a collaboration between the University of Natural Resources and Life Sciences Vienna (BOKU), the Technical University of Munich (TUM), the Environment Agency Austria (EAA) and A1 Telekom Austria AG (A1). In addition to contributing to international research into measurement-based greenhouse gas emissions monitoring, the multi-method approach provides an opportunity to demonstrate measurement-based emissions monitoring options directly to Vienna's civil servants responsible for climate change mitigation action in the city. Continuous local stakeholder engagement over the project duration is therefore planned.

This conference contribution to the WMO-IG3IS session at vEGU21 will allow VUCL to be introduced to relevant scientists and stakeholders in the international community. Given the recent project start (01 Feb 2021), the foreseen discussions on the project's planned implementation will provide an important and timely input into VUCL. Finally, initial VUCL results will be presented together with data from the preceding CarboWien project (2018-2020) to show how the measured CO_2 fluxes in Vienna have been impacted by the lockdown restrictions due to the COVID-19 pandemic.