Assessing sub-kilometre models for a heatwave event over Paris

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The Bureau of Meteorology is a participant in the 2024 Paris Olympic Research Demonstration Project (RDP), a platform to bring international meteorological agencies and universities together to advance the research on future weather forecasting systems for urban areas. The RDP is supported by the World Meteorological Organization. The present study will discuss a deterministic modelling system over Paris developed for participation in the model inter-comparison exercise of the RDP. The modelling system uses the Unified Model (UM) and its urban scheme, the Met Office Reading Urban Surface Exchange Scheme (MORUSES). The modelling system is configured with three one-way nested domains having spatial resolutions of 1.5km, 333m and 100m, respectively. The present study will also present the analysis of the numerical simulations conducted using the above-mentioned modelling system for the 2022 July heatwave event over Paris. This heatwave case is one among the multiple high impact events selected for model intercomparison in the RDP. The study will use observations from existing networks as well as from campaigns conducted during the period of interest to explore the model behaviour at each spatial resolution.