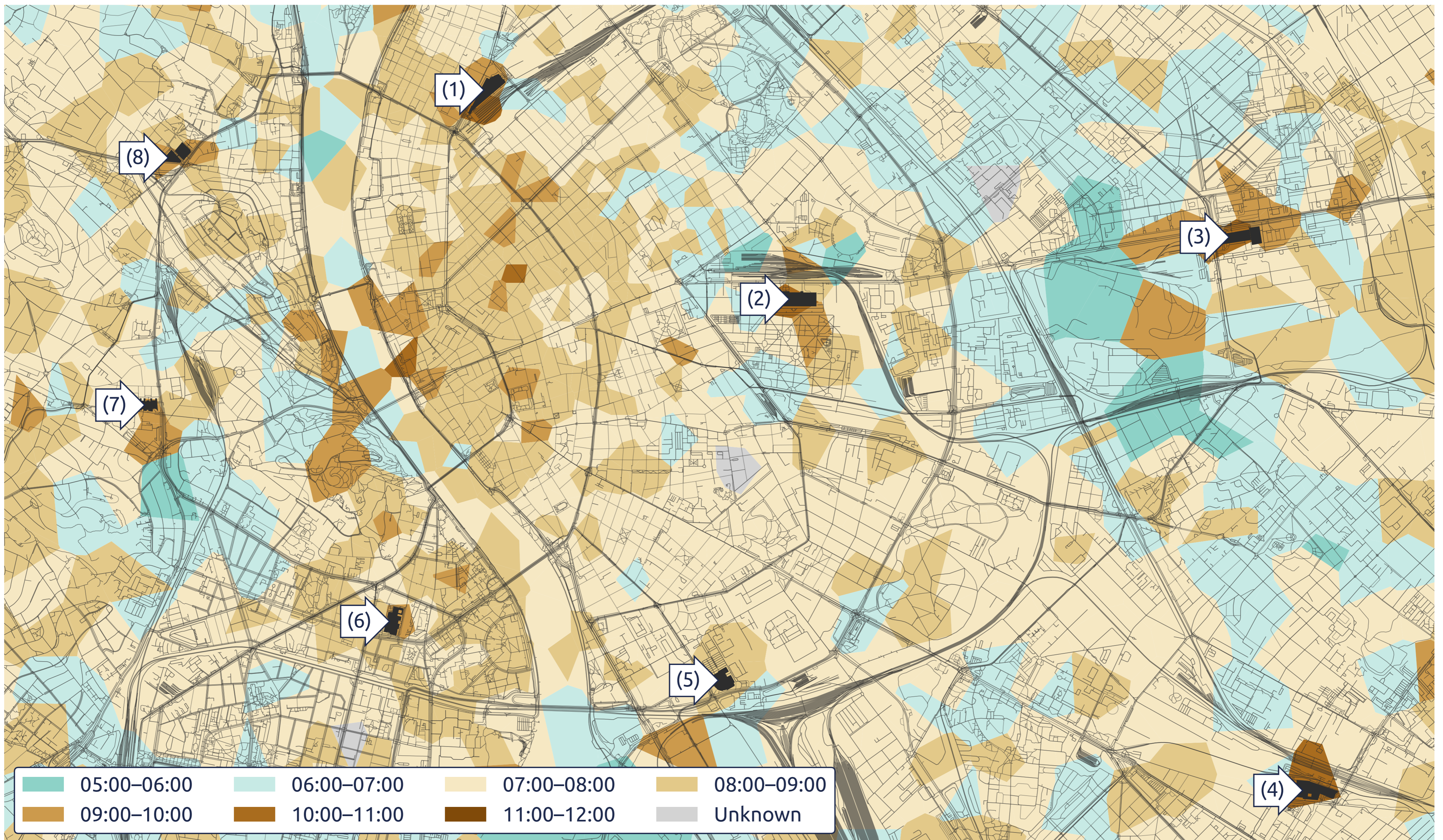


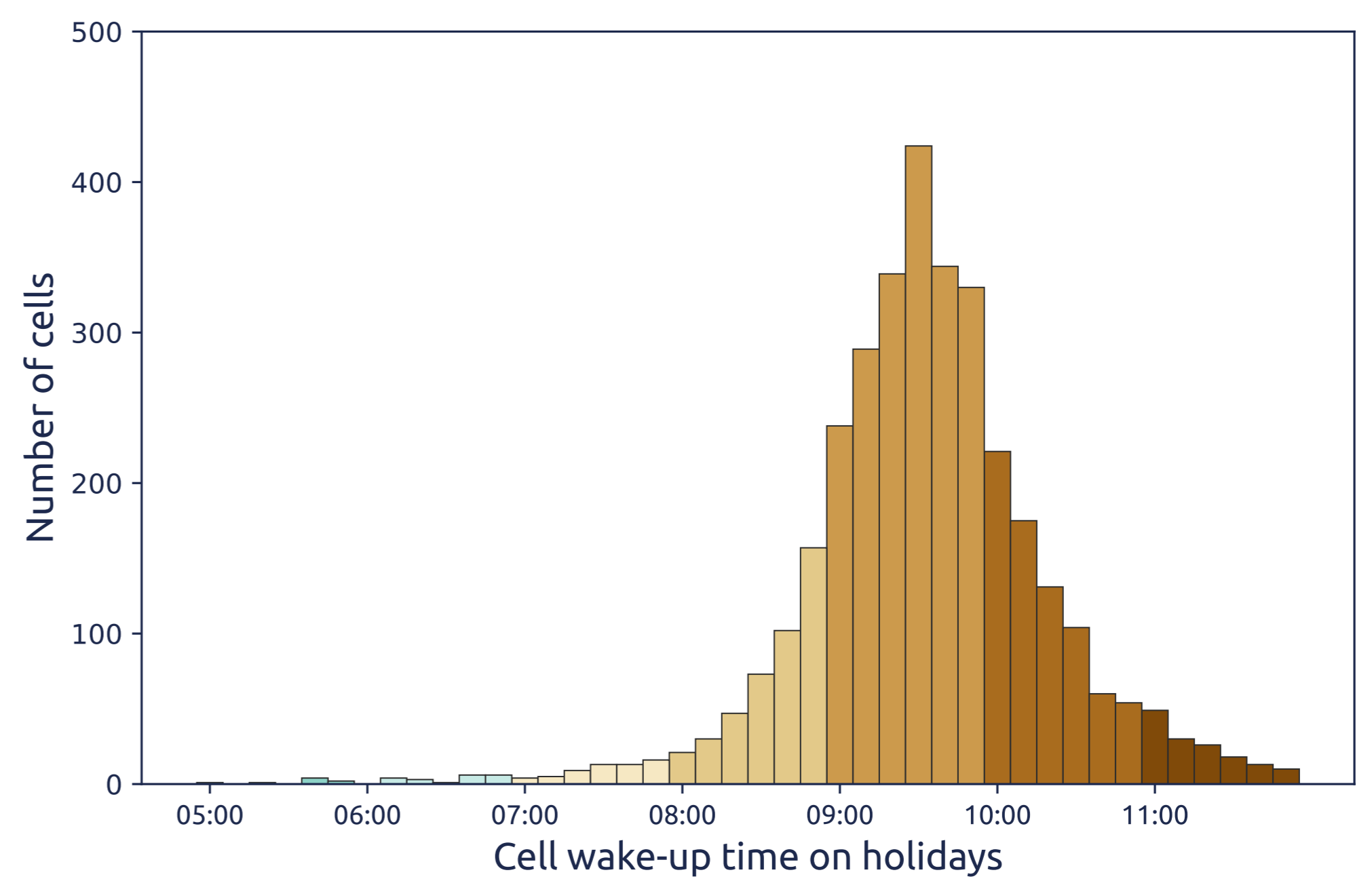
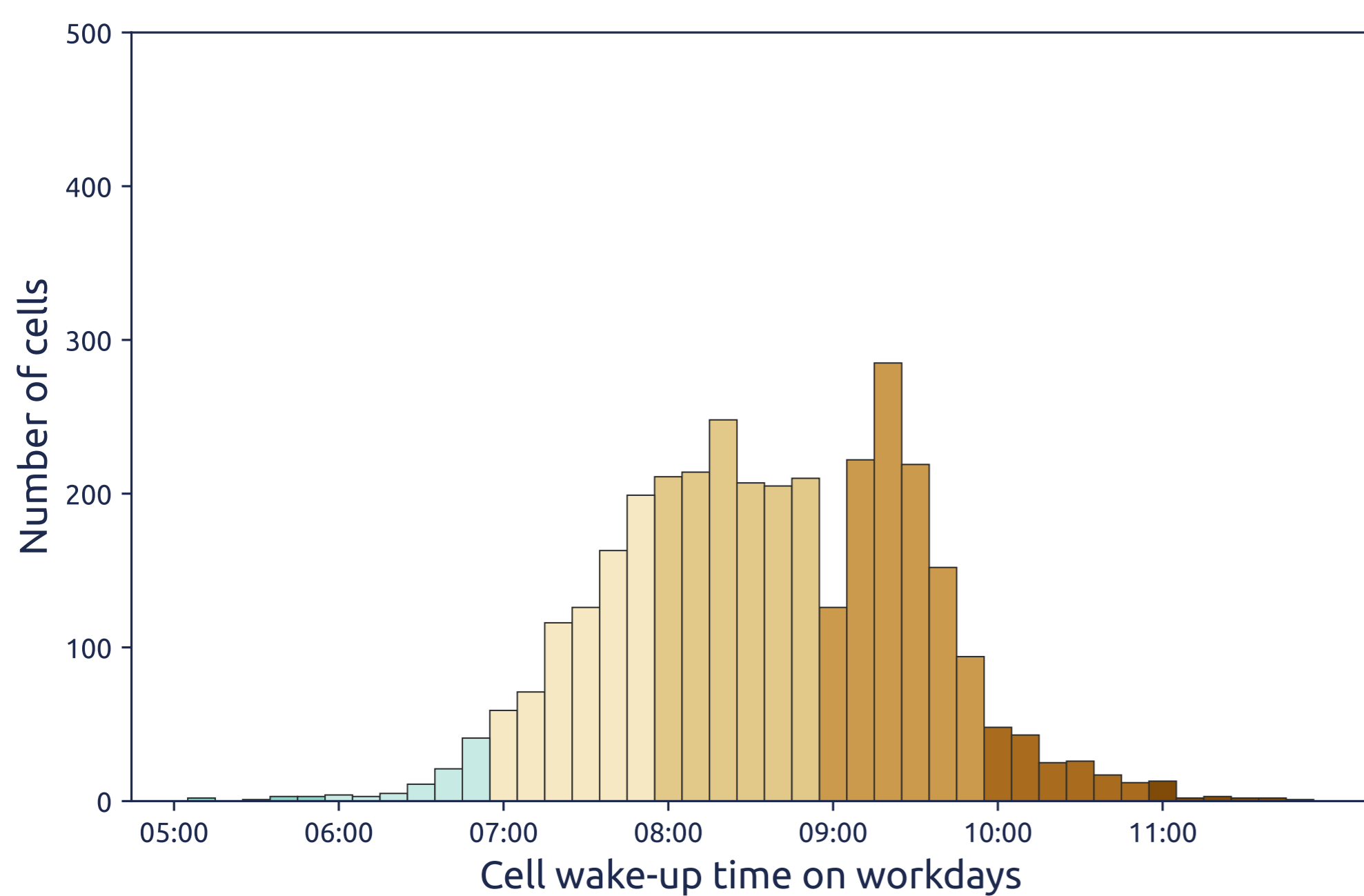
# WHEN DO THE MALLS OPEN? FROM A MOBILE NETWORK PERSPECTIVE

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When do people wake up? When do people start to use their phones, or more precisely the mobile network in the morning? To answer this question using mobile network data, the time when the mobile network activity increases significantly in the morning has been determined. Note that workdays and holidays have different behavior, as shown in the histograms below. When the wake-up times are determined for the workdays, the Voronoi polygon representations of the cells can be colored according to the values. The map shows the median wake-up times, and eight malls are highlighted in Budapest. The results show that all of them have later wake-up times than their surroundings. The fact is that the shops in the malls usually open at 10:00, which is well represented in the results. Pest-side downtown, especially the party district, and the Castle Garden that attract many tourists also wake notably later. The malls denoted in the map: (1) WestEnd City Center, (2) Aréna Pláza, (3) Árkád, (4) KÖKI Terminál, (5) Lurdy Ház, (6) Allee, (7) MOM Park, and (8) Mammut.



This poster is based on the following paper, full text available via the QR code.

Gergő Pintér and Imre Felde. "Awakening City: Traces of the Circadian Rhythm within the Mobile Phone Network Data". In: *Information* 13.3 (2022), p. 114.

The mobile network data is provided by Vodafone Hungary, and not publicly available. For plotting the road network OpenStreetMap data was used; that is copyrighted by the OpenStreetMap contributors and licensed under the Open Data Commons Open Database License (ODbL).

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