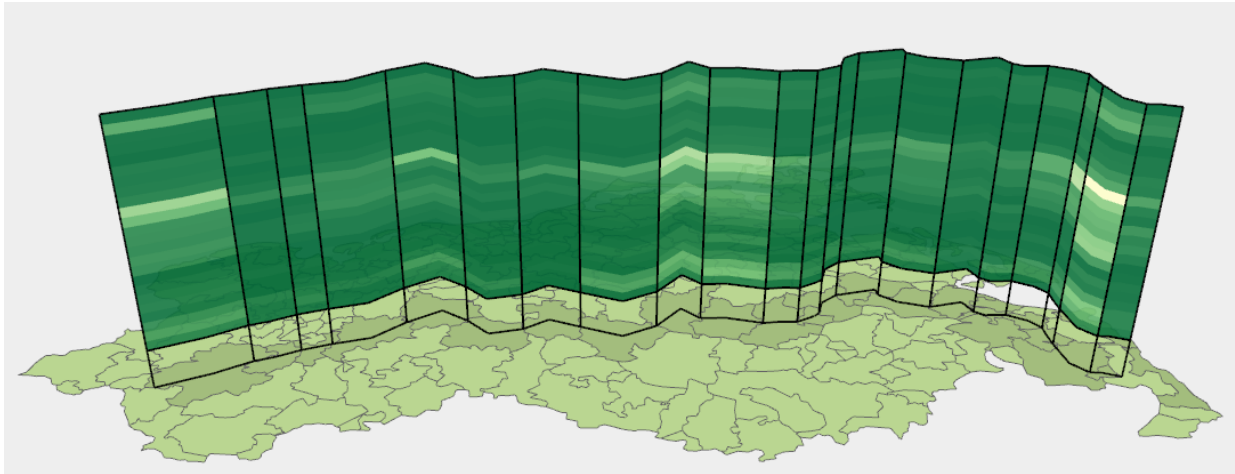
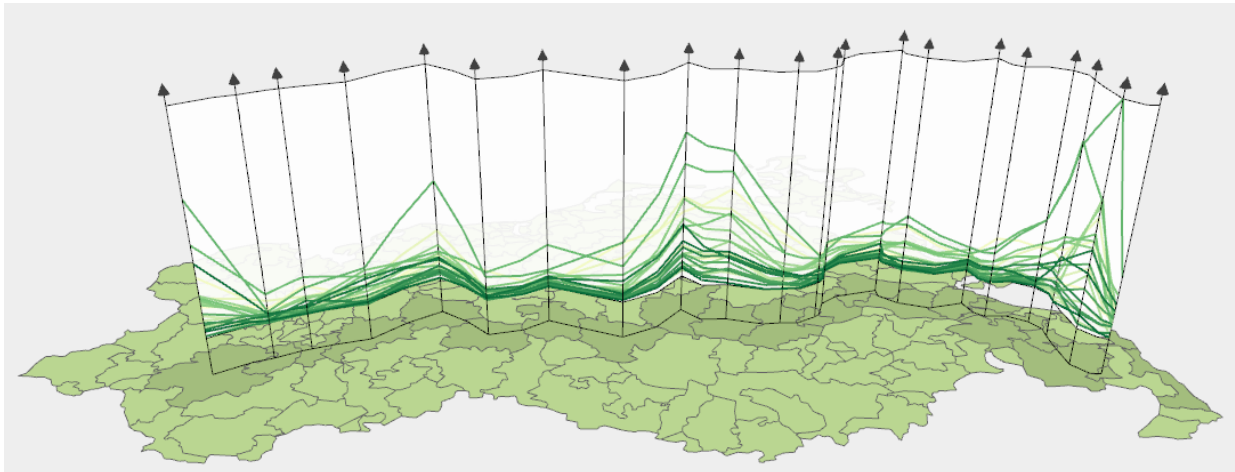


# A Wall-Like Visualization for Spatio-Temporal Data

Christian Tominski and Hans-Jörg Schulz



(a) Color-coded cells projected onto the wall.



(b) Parallel coordinates projected onto the wall.

Fig. 1. Cases of influenza for 24 months visualized along a selected path through space.

**Abstract**—Understanding how data evolves in space and time is an essential task in many application domains. Despite the numerous visual methods (e.g., showing the data on a map or plotting a time graph) that have been proposed to facilitate this task, the exploration of data with references to space and time still remains challenging. In this work, we present a novel concept for visualizing spatio-temporal data that refer to 2D geographical space and 1D linear time. The idea is to construct a non-planar slice – called the Great Wall of Space-Time – through the 3D (2D+1D) space-time continuum. Different visual representations can be projected onto the wall in order to display the data. We suggest using the wall’s vertical extent to map the dimension of time and to color-code individual bricks within the wall. Alternatively, a parallel coordinates plot can be shown at the wall. Compared to existing approaches, the wall has the advantage that it shows a closed path through space with no gaps between the information-bearing pixels on the screen. Hence, our novel visualization has the potential to be a useful addition to the user’s toolbox of techniques for exploring the spatial and temporal evolution of data.

**Index Terms**—Spatio-temporal data, visualization, interaction, space-time cube, slice.

