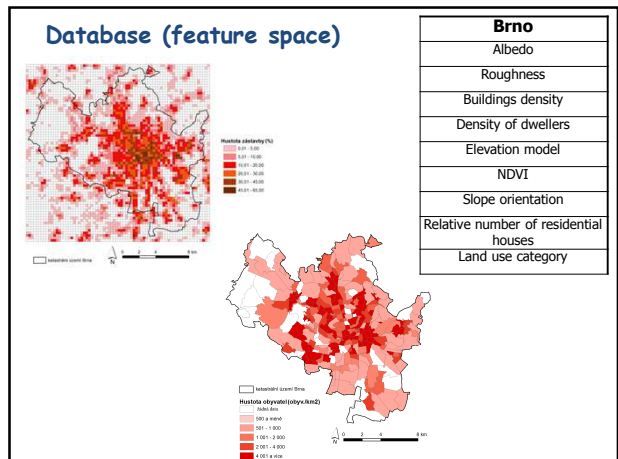
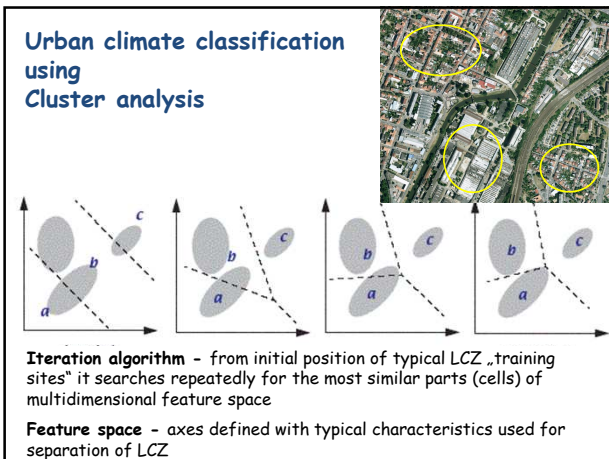
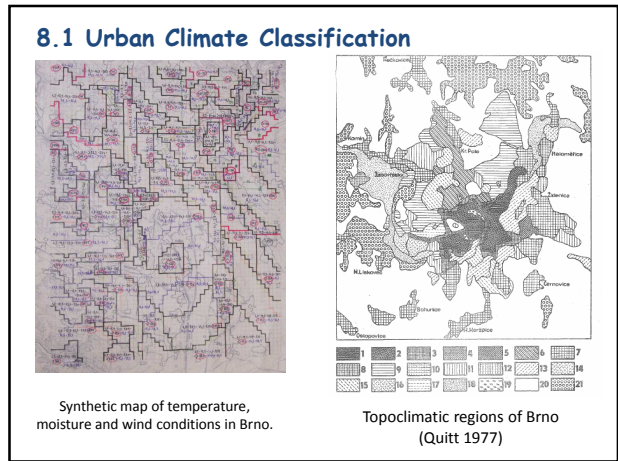
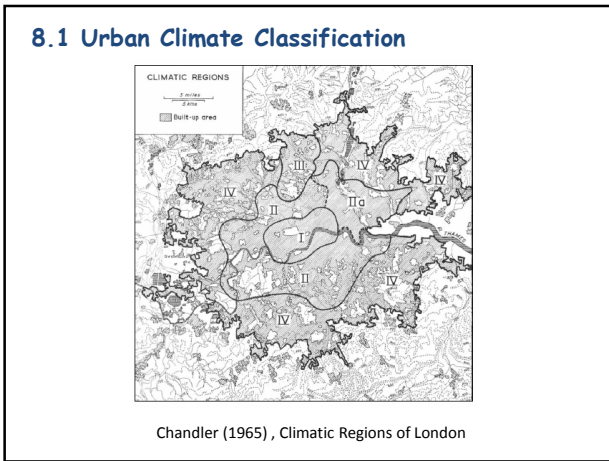
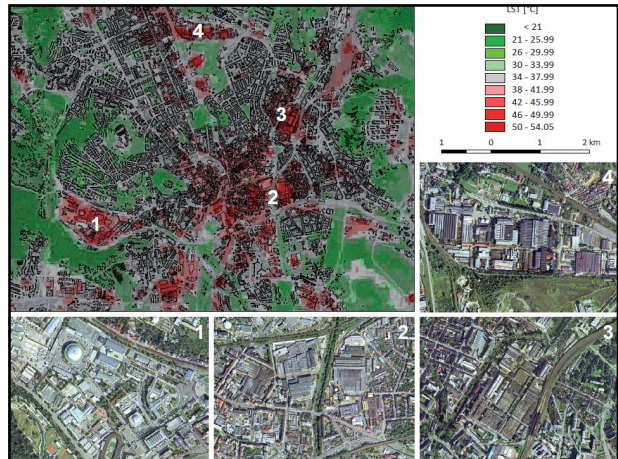
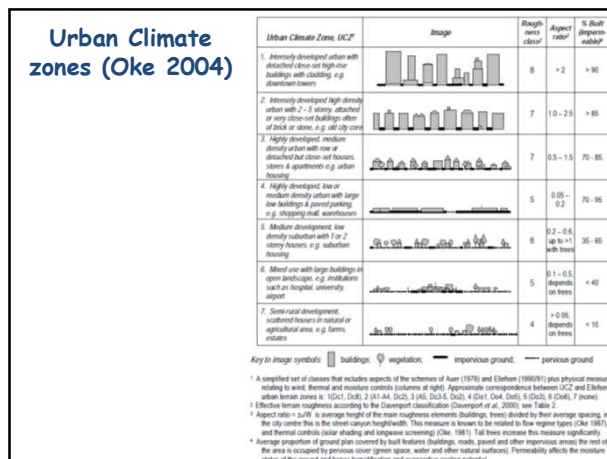
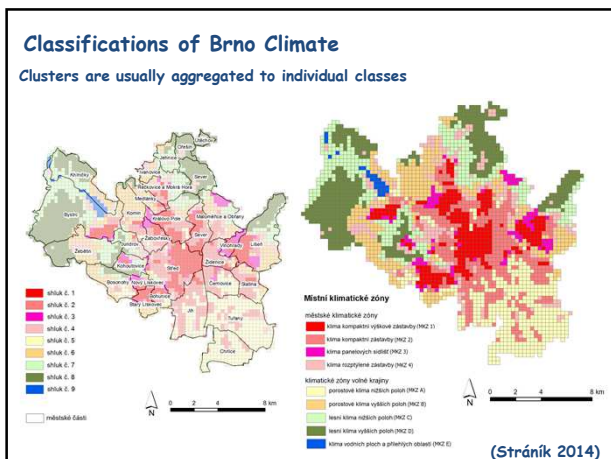


# URBAN CLIMATOLOGY

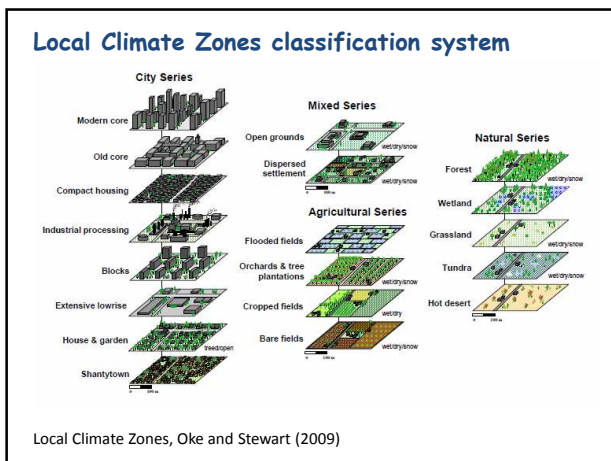
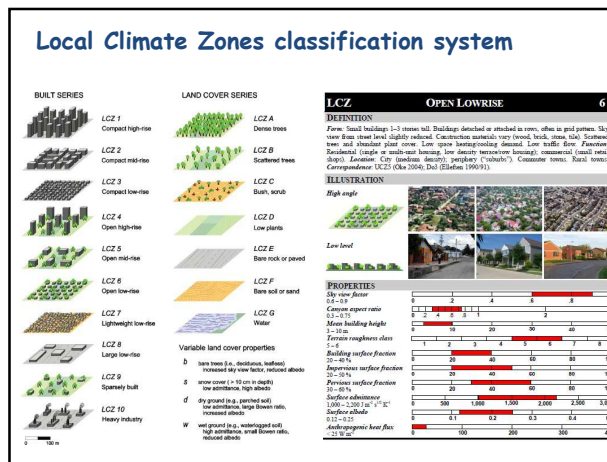
## VIII. Urban climate classification, Local Climate Zones





### 8.2 Concept of the Local Climate Zones (LCZ)

- Until recently, there was no universal approach to describe and characterize the physical nature of cities for urban climatologists.
- Much of the existing terminology was not transferable across cultural and geographical regions.
- To help standardize methods of observation and documentation in urban heat island studies, Stewart and Oke (2012) developed the Local Climate Zone (LCZ) classification scheme.

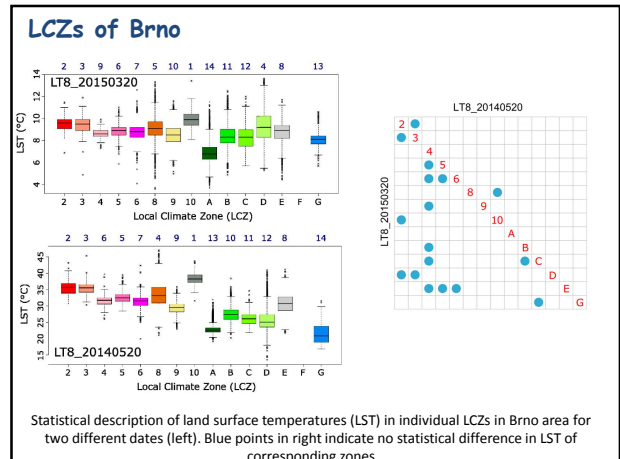
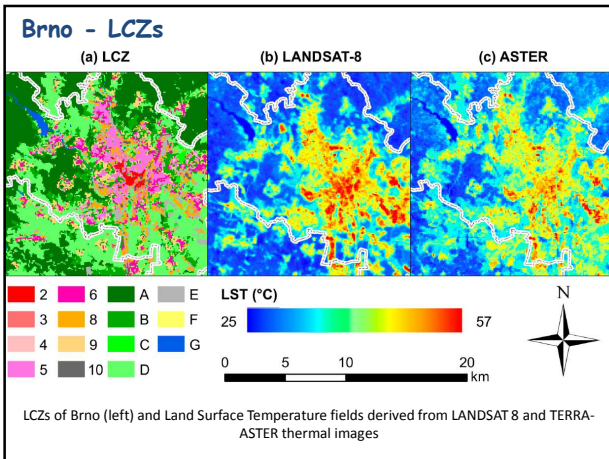
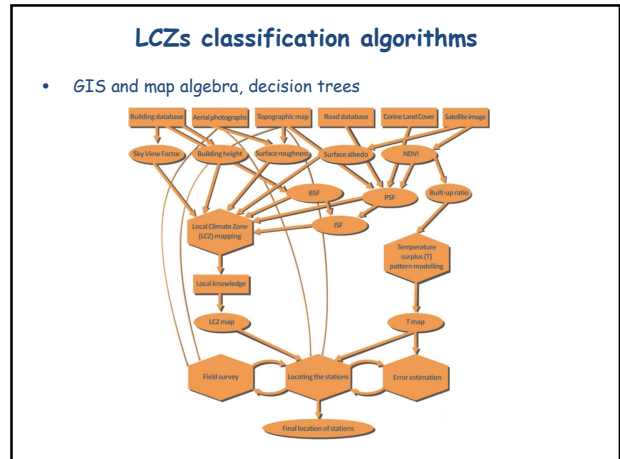
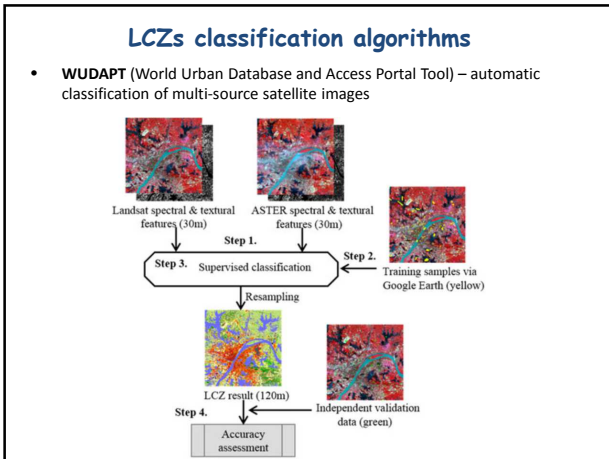


### Local Climate Zones classification system

- Local climate zones are formally defined as regions of uniform surface cover, structure, material, and human activity that span hundreds of meters to several kilometers in horizontal scale.
- Each LCZ exhibits a characteristic geometry and land cover that results in characteristic screenheight temperature regime that is most apparent over dry surfaces, on calm, clear nights, and in areas of simple relief.
- LCZ scheme consists of 17 standard LCZs, of which 15 are defined by surface structure and cover and 2 by construction materials and anthropogenic heat emissions. The standard set is divided into "built types"(1-10), and "land cover types"(A-G)

There are several methods how to define LCZ:

- Method based on automatic classification of satellite imagery (WUDAPT, Bechtel et al.)
- GIS method using geo-database and a set of logical rules in the form of decision tree



### 8.3 Final remarks and questions

1. Why is simple Urban - rural division insufficient in urban climatology?
2. What were the main reasons to create LCZ classification scheme in urban climatology?
3. How can be LCZs used for mitigation negative effects of UHI and heat waves?
4. How can be LCZ useful e.g. to architects, planners, ecologists, and engineers?