

Six fundamental aspects for conceptualizing multidimensional urban form: A spatial mapping perspective

Wentz E.A.

York A.M.

Alberti M.

Conrow L.

Fischer H.

Inostroza L.

Jantz C.

Pickett S.T.A.

Seto K.C.

Taubenböck H.

Urbanization is currently one of the most profound transformations taking place across the globe influencing the flows of people, energy, and matter. The urban form influences and is influenced by these flows and is therefore critical in understanding and how urban areas affect and are affected by form. Nevertheless, there is a lack of uniformity in how urban form is analyzed. Urban form analyzed from a continuum of a simple urban versus non-urban classification to highly detailed representations of land use and land cover. Either end of the representation spectrum limits the ability to analyze within-urban dynamics, to make cross-city comparisons, and to produce generalizable results. In the framework of remote sensing and geospatial analysis, we identify and define six fundamental aspects of urban form, which are organized within three overarching components. Materials, or the physical elements of the urban landscape, consists of three aspects (1) human constructed elements, (2) the soil-plant continuum, and (3) water elements. The second component is configuration, which includes the (4) two- and three-dimensional space and (5) spatial pattern of urban areas. Lastly, because of the dynamics of human activities and biophysical processes, an important final component is the change of urban form over (6) time. We discuss how

a this urban form framework integrates into a broader discussion of urbanization. © 2018

GIS

Land cover

Land use

Remote sensing

Urban form

Urban materials

Geographic information systems

Land use

Plants (botany)

Space optics

Biophysical process

Geo-spatial analysis

Land cover

Land use and land cover

Three dimensional space

Urban classification

Urban form

Urban materials

Remote sensing

conceptual framework

GIS

human activity

land cover

land use

mapping method

remote sensing

soil-vegetation interaction

urban area

urbanization