

## **Invited Speech by Professor Zhenfeng Shao**

### **Urban Impervious Surface Extraction for Sponge City Planning in China**

Urban waterlogging and urban heat island effects are typical urban issues, resulting from the rapid urbanization processes. e.g., the transformation of land types with better water permeability in the suburbs to urban land with poor water permeability, resulting in the construction of natural landscapes with vegetation coverage as the main component. Impervious surfaces are artificially constructed surfaces that do not allow water to penetrate. They are considered as a key indicator parameter to measure the degree of urbanization and environmental quality. Regional impervious surface dynamics can affect the spread of pathogens and other non-point source pollutants, posing a potential threat to the health of urban residents. Compared with natural underlay surfaces such as vegetation, impervious surfaces tend to have a stronger solar radiation absorption capacity. Part of the absorbed energy can be radiated outward in the form of long waves, largely changing the thermal environment within a city. Information regarding impervious surfaces distribution has been widely used in urban land use classification, urban population density assessment, urban planning, urban environmental assessment, heat island effect analysis, and hydrological process simulation, etc. This talk will share the urban remote sensing technologies for impervious surface extraction. The requirements for mapping urban impervious surfaces will be introduced. The challenges and strategies of urban impervious surface extraction will be analyzed. This talk will focus on the methods of extracting urban impervious surfaces and will share several applications of Sponge City planning and construction in China.

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