

Urban Heat Island Effects on Human Health in Birmingham and Its Mitigation

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Abstract : This study intends to investigate the effects of the Urban Heat Island on public health in Birmingham. Birmingham is located at the center of the West Midlands and its weather is Highly variable due to geographical factors. Residential developments, road networks and infrastructure often replace open spaces and vegetation. This transformation causes the temperature of urban areas to increase and creates an "island" of higher temperatures in the urban landscape. Extreme heat in the urban area is influencing public health in the UK as well as in the world. Birmingham is a densely built-up area with skyscrapers and congested buildings in the city center, which is a barrier to air circulation. We will investigate the city regarding heat and cold-related human mortality and other impacts. We are using primary and secondary datasets to examine the effect of population shift and land-use change on the UHI in Birmingham. We will also use freely available weather data from the Birmingham Urban Observatory and will incorporate satellite data to determine urban spatial expansion and its effect on the UHI. We have produced a temperature map based on summer datasets of 2020, which has covered 25 weather stations in Birmingham to show the differences between diurnal and nocturnal summer and annual temperature trends. Some impacts of the UHI may be beneficial, such as the lengthening of the plant growing season, but most of them are highly negative. We are looking for various effects of urban heat which is impacting human health and investigating mitigation options.

Keywords : urban heat, public health, climate change

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