



## **A comprehensive study of benzene concentrations and emissions in Houston**

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The Houston Metropolitan Area (Greater Houston) has a population of over 6 million people, it ranks among the three fastest growing metropolises in the developed world and population growth scenarios predict it to reach megacity status in the coming two to four decades. Greater Houston is home to the largest petrochemical-manufacturing complex in the world with important consequences for the environment in the region. Direct and fugitive emissions of hydrocarbons adversely affect Houston's air quality which has been subject to intense studies over the past two decades.

In 2013, NASA conducted the DISCOVER-AQ field campaign in support of developing a satellite-based capability to assess Houston's air quality in the future. Amongst other measurements, airborne, mobile ground-based and stationary ground-based measurements of benzene were carried out. Benzene is a carcinogenic air toxic with strict exposure regulations in the U.S. and in Europe. We have used the obtained comprehensive dataset to map benzene concentrations in the Houston metropolitan area, locate and identify point sources, compare industrial and traffic emissions and put them in relation to previous measurements and emission inventories. The obtained data will allow a better assessment of health risks associated with benzene exposure in a large metropolitan area that includes both traffic and industrial benzene sources.

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