

Urban Meteorology

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"A weather-ready nation is a society that is able to prepare for and respond to environmental events that affect safety, health, the environment, economy, and homeland security. Urbanization and a growing population increasingly put people and businesses at greater risk to the impacts of weather, water, and climaterelated hazards ..."

NOAA's Next-Generation Strategic Plan, 2010



Improved parameterizations to help models perform better over complex urban areas!

Improving parameterizations means collecting representative measurements! Long term record is needed to address the many complex temporal and spatial issues related to urban meteorology

Approach DCNet Urban Testbed

"Urban Test Bed: A multifunctional infrastructure that provides multi-year continuous measurements and archival of environmental data, across a metropolitan area and through the atmospheric boundary layer, supporting improvements in a range of activities from scientific research to user applications"

FCMSSR/Joint Action Group for the Joint Urban Test Beds (JAG/JUTB)



Current DCNet Stations

DC001	NOAA Hoover Bldg
DC003	National Acad Science
DC004	NOAA Silver Spring
DC005	National Arboretum
DC006	DOE Forrestal
DC008	Frank Reeves Municipal Center
DC009	Navy Annex
DC011	Naval Research Lab
DC012	DC EMA 2
DC013	RFK Stadium
DC014	Ft. A. P. Hill
DC018	National Education Association
DC019	WTOP
DC020	Howard University
DC021	American Geophysical Union
DC023	CSPAN Tower

Urban Observations





4/15/2011

ND ATMOSPH NOAA

Air Resources Laboratory



4/15/2011



Transition to Other Urban Environments



National Building Statistics Database Version 2, 2008





Indicators of Success

- •Data
 - In use for critical operations
 - •Multiple users
- Better understanding of the Urban environment
 - Rules-of-thumb (Persistence)
 - Surface roughness
 - Phi* roughness layer correction
- Collaborations



Urban Meteorology Future Directions

•Develop urban observatory for in-situ vertical observations of mean and turbulent winds and temperature.

•Assess changes in turbulent flow along transects from rural to urban to suburban.