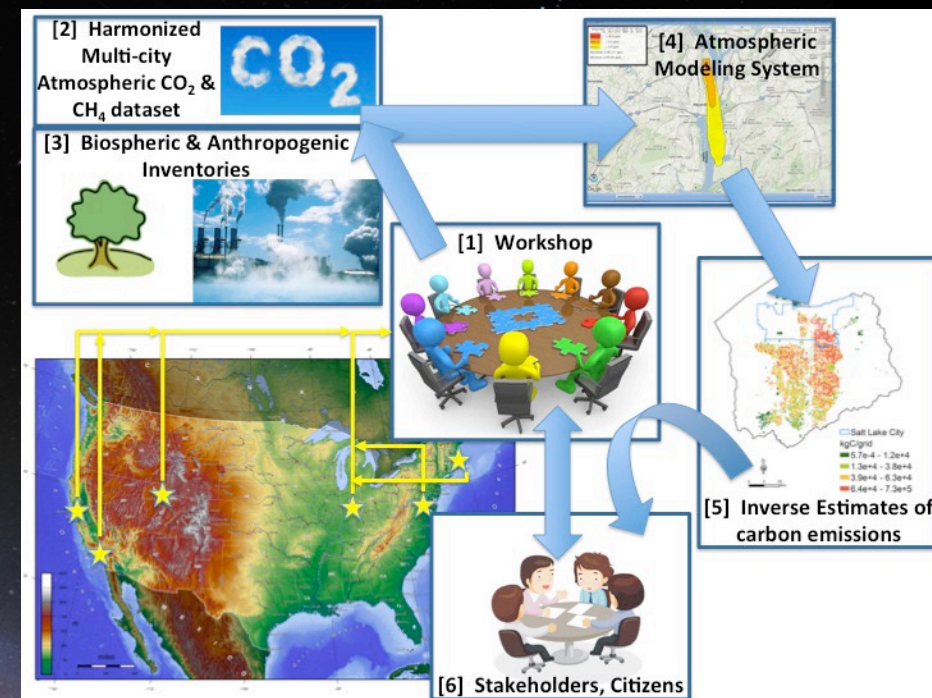


CO₂ Urban Synthesis and Analysis ("CO₂-USA") Network

Nov. 6 & 7, 2017

James Whetstone

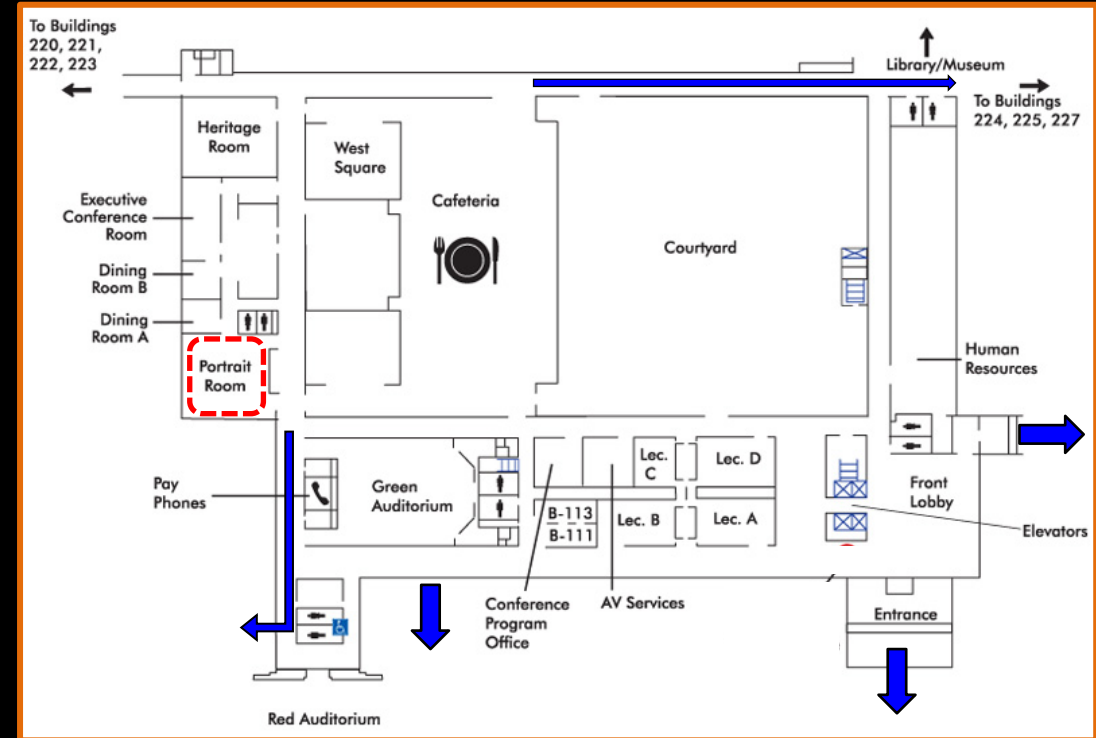
National Institute of Standards and Technology
Gaithersburg, Maryland



Logistics and Introduction

Logistics

- **Safety 1st**
 - Exiting the Building in Case of Fire
 - Gather in the Parking Lot in Front of the Tall Building
- **Workshop Operations**
 - Video conferencing is in place to properly
- **Coffee and Lunch in the Cafeteria**



Logistics and Introduction

Logistics

■ Conference Dinner Tonight

- Yu Chou Café, 576 N. Frederick
- Lower level of Gaithersburg Square
- Walking distance of the Hilton
 - Follow the Yellow Brick Road (figuratively)
- Menu has been selected
- Mix of vegetarian and non-vegetarian dishes, soups, & appetizers
- NIST & Its Greenhouse Gas Measurements Program



Yu Chou Cafe
Lower Level, G'burg Square

NIST – the National Institute of Standards and Technology

The U.S. National Metrology Institute

- The Department of Commerce agency focused on the science of measurements (metrology) and standards
- Broadly-based, fundamental and applied research programs aimed at advancing current and future measurement capabilities and standards
- Research in broad S&T fields addressing national technological needs to advance U.S. economic health .



Gaithersburg



NIST Boulder Laboratories



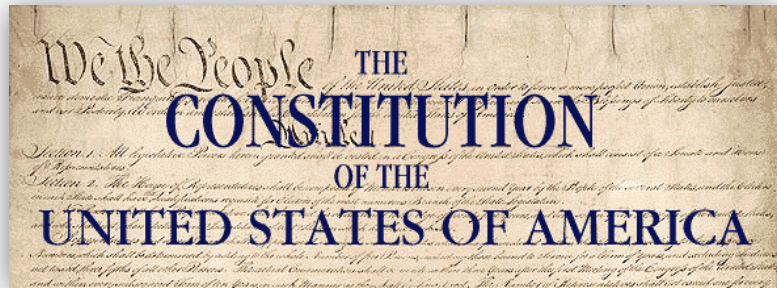
Joint Institutes

- ~ 3,000 employees
- ~ 2,700 associates and facilities users
- ~ 1,200 field staff in partner organizations
- Two main locations:
 - Gaithersburg, Md.
 - Boulder, Colo.
- Four main programs:
 - NIST Research Laboratories
 - Manufacturing Extension Partnership
 - Adv. Manufacturing Technology Consortia
 - Baldrige Perf. Excellence Program
- Six external collaborative institutes:
 - JILA – Boulder (Atomic & Optical Physics)
 - JQI – Joint Quantum Institute (Univ. Md.)
 - IBBR – Inst. for Biology & Biological Research
 - HML – Hollings Marine Laboratory
 - CHiMaD – NIST Mat'ls Genome Initiative
 - NCCoE – NIST Cybersecurity Ctr. of Excellence

History of Standards in the U.S. – NIST Antecedents

“Uniformity in the currency, weights, and measures of the United States is an object of great importance, and will, I am persuaded, be duly attended to.”

George Washington, State of the Union Address, 1790



Article I, Section 8: “The Congress shall have the power to...*fix the standard of weights and measures*”

The original National Bureau of Standards campus stood at the intersection of Connecticut Ave. and Van Ness in Washington, D.C



March 03, 1901

Heeding the call from the nation’s scientists and industrialists to establish an authoritative domestic measurement and standards

laboratory, the U.S. Congress founded NIST on March 3, 1901. The fledgling agency quickly assembled standards for electricity, length and mass, temperature, light, and time, and created a system to transfer those values to the public.

1988

Congress added responsibilities and NBS became the National Institute of Standards and Technology (NIST)

NIST's Greenhouse Gas Measurements Program

- **Our Mission**

- Advance measurements and standards capabilities that improve the accuracy of greenhouse and other trace gas emissions data and of remote sensing observations taken from satellites, aircraft, and the Earth's surface.

- **Our Focus**

- **Urban Testbed System:** Measurement tool development & demonstration for urban greenhouse gas flux quantification
- Stationary or point source emission metrology – power plant smoke stack measurements (aka Cont. Emissions Mon. Sys);
- Measurement tools, standards and reference data;
- Advanced satellite calibration methods and standards;
- Carbonaceous aerosol measurements

NIST's Urban Greenhouse Gas Testbed System

Our Goal

Develop and demonstrate measurements and analyses suitable for standardization that estimate GHG (CO₂ & CH₄) emissions for a wide range of city types.

Specifically to:

- quantify trends & absolute values,
- quantify uncertainties, and
- attribute emissions spatially, temporally, and by economic sector.

Our Strategy

- Develop city “laboratories” or testbed sites;
- Investigate measurements to improve air quality, energy efficiency & utilization, traffic patterns, & urban planning;
- Partner with universities, private industries, organizations, and other Federal Agencies; and,
- Develop good practices & standards useful to others for accurate estimation of urban emissions in aid of mitigation efforts.

Welcome to NIST