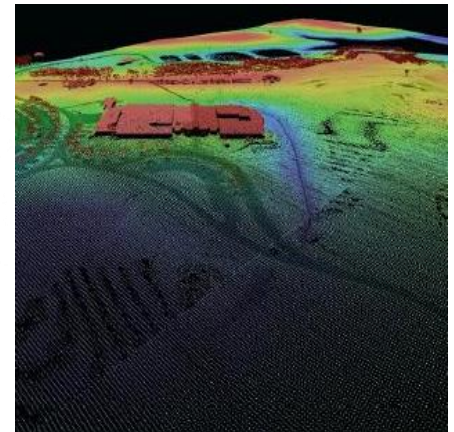
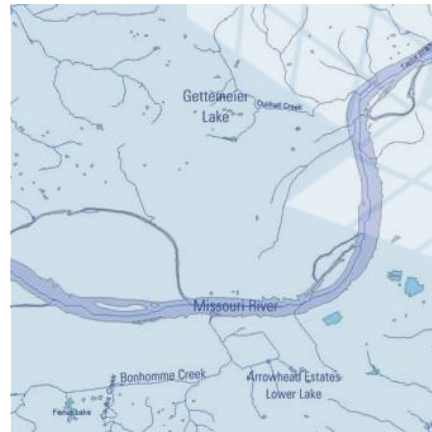
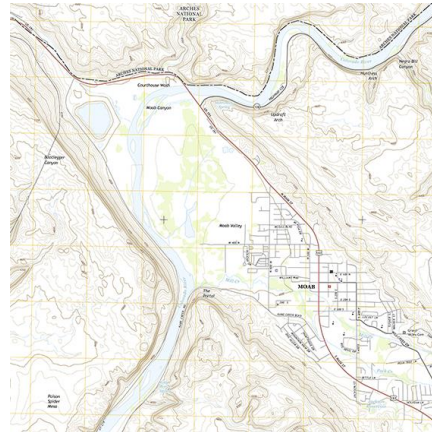


# NATIONAL LIDAR PROGRAMS: STRATEGIES, DATA MANAGEMENT, AND ANALYTICS

Geospatial Innovation, Science  
and Technology



Michael Tischler, Ph.D  
Director, National Geospatial Program  
United States Geological Survey

# Session Topics

- Brief history of lidar development
- Best practices of a national lidar program  
USA – 3D Elevation Program
- Role of private sector in national lidar programs
- Smart city applications of lidar

# Session Speakers



Dr. Michael Tischler  
Director, National Geospatial Program  
U.S. Geological Survey



Mr. Amar Nayegandhi  
Vice President, Director of Remote Sensing  
Dewberry Engineers Inc.



Dr. Victor Khoo  
Senior Deputy Director, Land Survey  
Singapore Land Authority

# + Lidar Timeline



1970s

1980s

1990s

2000s

2010s

## Invention

Laser-based remote sensing begins with NASA airborne prototypes for future space borne sensors

## Operational Systems

USACE begins lidar program, using Optech SHOALS instrument

GPS satellites reaches full configuration, and high-accuracy IMUs become available

## First Commercial Lidars

Laser scanners capable of 2,000 to 25,000 pulses per second become available for topographic mapping applications

## Lidar for Science & Industry

First uses of lidar for autonomous vehicle navigation

USGS creates first large, publicly available archive of lidar data

Large-scale production of high-res DEMs from lidar

Lidar used in topographic mapping, geology, archaeology, etc.

## National Lidar Program

Adoption of USGS lidar specification

National Enhanced Elevation Assessment study published

Launch of the USGS 3D Elevation Program (3DEP)

NASA ICESat-2 launch

USGS 3DEP data acquisition reached ~50% of the U.S.

# + Evolution of USGS Elevation Data

