

# NGAC 3DEP Subcommittee Update



National Geospatial Advisory Committee Meeting  
April 11, 2023

# 3DEP Subcommittee Membership – April 2023

Name	Organization
Gary Thompson (Chair) *	North Carolina Geodetic Survey, State of North Carolina
Gale Blackmer, Ph.D. (Vice Chair)	Pennsylvania Geological Survey
Garet Couch *	National Tribal Geographic Information Support Center
Lynn Dupont *	New Orleans Regional Planning Commission
William Haneberg, Ph.D. *	Kentucky Geological Survey
Karen Gaffney	North Coast Resource Partnership
David Maidment, Ph.D.	University of Texas
Mark Reichardt	Open Geospatial Consortium (Retired)
Jim Van Rens	Riegl, USA Inc.
Steven Steinberg, Ph.D.	County of Los Angeles, CA
A. Stewart Walker, Ph.D.	Lidar Magazine
Federal Contacts: Mike Tischler, Vicki Lukas ( <i>USGS/National Geospatial Program</i> )	

**\*NGAC Member**

# NGAC 3DEP Subcommittee

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- Established through National Landslides Preparedness Act (NLPA) - P.L. 116-323
- FGDC coordinated with USGS/DOI to establish the subcommittee and appoint members
- Membership includes NGAC and non-NGAC members selected for subject matter expertise
- Subcommittee established work groups to develop components of initial subcommittee report

# 3DEP Subcommittee – Objectives

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- **Objective 1:** Meet the statutory assessment and reporting requirements for the subcommittee as outlined in the NLPA.
- **Objective 2:** Provide ongoing advice and recommendations to the 3DEP program.
- **Objective 3:** Serve a liaison role between the organizations/ sectors represented on the subcommittee and the 3DEP program.

# 3DEP Subcommittee – Work Groups

Trends & Developments Work Group	Program Management Work Group
(A) ASSESSMENT. The Subcommittee shall conduct an assessment of—	
(i) trends and developments in— (I) the collection, dissemination, and use of 3D elevation data; and (II) science and technology relating to 3D elevation data;	(ii) the effectiveness of the 3D Elevation Program in carrying out the activities described in subsection (a)(1); (iii) the need to revise or reorganize the 3D Elevation Program; and (iv) the management, coordination, implementation, and activities of the 3D Elevation Program.
<b>Gale Blackmer (Team Lead)</b> <b>Bill Haneberg</b> <b>David Maidment</b> <b>Mark Reichardt</b> <b>Jim Van Rens</b> <b>Stewart Walker</b>	<b>Gary Thompson (Team Lead)</b> <b>Garet Couch</b> <b>Lynn Dupont</b> <b>Karen Gaffney</b> <b>Steve Steinberg</b>

# Draft Paper – Trends & Developments

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## INTRODUCTION

### TRENDS AND DEVELOPMENTS IN DATA COLLECTION AND PROCESSING

- Data Collection Technologies
- Project Data Contracting, Acquisition, and Processing Timelines

### TRENDS AND DEVELOPMENTS IN DATA DISSEMINATION

- Access to Lidar Data Products
- 3DEP Ecosystem
- Dissemination Benefits of 3DEP Alignment with the National Spatial Data Infrastructure (NSDI) and Standards
- Integration with other data
- Data storage

### TRENDS AND DEVELOPMENTS IN DATA USE

- Use Case Examples
- Post-Event Lidar Data Collection
- Precision Agriculture

# Draft Paper – Program Management

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## **EFFECTIVENESS OF THE 3D ELEVATION PROGRAM**

- Leveraging Public-Private-Partnerships
- Coordination with other groups
- Effectiveness measured by the economic benefits of 3DEP
- Effectiveness measured by the value of 3D elevation data for risk reduction

## **THE NEED TO REVISE OR REORGANIZE THE 3D ELEVATION PROGRAM**

- 3D Elevation Federal Interagency Coordinating Committee
- 3DNTM Call for Action Part 2: Next Generation 3DEP
- 3D National Topography Model

## **THE MANAGEMENT, COORDINATION, IMPLEMENTATION, AND ACTIVITIES OF THE 3D ELEVATION PROGRAM**

- Encouraging Greater Participation from Non-Federal Partners
- Improving Coordination with Federal Agencies

# Draft Recommendations (topics)

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## Technical/Technology

- Current technologies and products
- Validation process
- Full-waveform data collection
- Software development and interoperability sprints / pilot initiatives
- AI/ML techniques to streamline and future-proof 3DEP processing
- Research on automation of QC of 3D point-cloud data

## Partnerships

- Additional partnerships with private entities
- Coordination to enhance nationwide understanding of 3DEP
- Use of elevation data to identify risks
- Relating utility of 3DEP data with key national priorities
- Harmonization balance with data acquisition priority



# Draft Recommendations (topics)

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## **Program Enhancements/Future Plans**

- Embracing and implementing the Ecosystem concept
- Facilitating coordination role for the next generation of 3DEP
- Seamless 1-meter DEM for derivation of hydrography from elevation data
- Data storage and dissemination in next generation 3DEP
- 3DEP / 3DNTM coordination
- Documenting 3DEP system architecture
- Utilizing deep learning/artificial intelligence to yield Analysis Ready Data (ARD) and Decision Ready Information (DRI)
- Utilizing IfSAR for elevation-change data

# Draft Recommendations (topics)

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## **Standards**

- SDO standards development activities to maintain awareness, leverage common interests and resources, and ensure optimization of current and emerging standards

## **Governance**

- Implementing the governance process outlined in the NLPA, including the 3D Elevation Federal Interagency Coordinating Committee

# Draft Paper – Concluding Remarks

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The Subcommittee has concluded through this assessment that 3DEP has successfully advanced its initial goal of full lidar coverage of the nation, helping to address many of the requirements and benefits as described in the 3D Nation Elevation Requirements and Benefits Study. The comprehensive management approach already established for the program and its array of partners from all national sectors has been a model for the nation, which will only be enhanced through the establishment of an Interagency Coordinating Committee as directed by the NLPA.

The 3DEP has also been a catalyst for growth of the lidar services and equipment industry and has driven the advancement of private sector technology and software tools for storing and processing lidar data, and tools for and approaches to storing, manipulating, and generating lidar derived products and analytics.

There is opportunity for further, substantial improvement in 3DEP quality, efficiencies, and capabilities to support a growing range of user needs. A 3DNTM draft plan is under development, which strongly promotes ongoing research, technology and application development, and a critical assessment of the existing and future program design. When finalized, this document will position the program to respond to advances in sensor technology as well as potentially incorporating new types of data to meet current and future user needs.

This very successful public/private partnership will continue in the next generation of 3DEP.

# 3DEP Subcommittee – Milestones

Name	Date
Subcommittee established (appointment letters signed)	July 5, 2022
Subcommittee (kick-off meeting)	Aug - Sept 2022
<b>September 2022 NGAC meeting and subcommittee status report</b>	<b>September 7-8, 2022</b>
Subcommittee Work Group Meetings: Program Management WG and Trends & Developments WG	Sept – Dec 2022
FACA legal/ethics briefing	October 5, 2022
<b>December 2022 NGAC meeting and subcommittee status report</b>	<b>December 6-7, 2022</b>
Subcommittee Work Group Meetings	Jan - April 2023
<b>April 2023 NGAC meeting – Overview of draft report</b>	<b>April 11, 2023</b>
<b>NGAC review of draft report – NGAC comments due Friday April 28</b>	<b>April 11 - April 28</b>
Subcommittee revises paper and prepares final draft report	May – June 2023
<b>June 2023 NGAC meeting – Review/Approval of final draft report</b>	<b>June 27-28, 2023</b>
3DEP Subcommittee report due	July 2023

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# 3DEP Program Update

**Vicki Lukas**

Chief, Topographic Data Services  
USGS National Geospatial Program