Beyond the Map:
Scaling Geospatial Solutions

NMGIC Fall Meeting 2026 Agenda

Doña Ana County Government Center - October 09, 2026

8:30 - 9:00

Registration

9:00 - 9:15

Announcements

9:15 - 9:45

Cynthia Ritmiller, USGS National Map Liaison, US Geological Survey

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"USGS 3D National Topography Model"

Cynthia Ritmiller has worked for the USGS since 2010. While at USGS, she has worked on a variety of projects including US Topo Maps, the National Hydrographic Dataset, NHDPlus HR, and 3DEP. Cynthia lives in Lakewood, CO.

https://www.usgs.gov/staff-profiles/cynthia-ritmiller
https://www.linkedin.com/in/cynthia-ritmiller-00a99321

The USGS 3D National Topography Model (3DNTM) is a new initiative that updates, improves, and integrates USGS elevation and hydrography data. High-resolution lidar elevation data have been collected across much of the conterminous US through the 3D Elevation Program (3DEP). 3DEP data will be used as the source to derive a positionally accurate and detailed stream network, called the 3D Hydrography Program (3DHP). The implementation of 3DHP marks the start of a new era of water data.

9:45 - 10:15

Leonardo Calzada, Assistant Professor, NMSU Geography and Environmental Studies

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"*Landscape Change in Open Moments: Development, Conservation, and Local Futures in the Southern Yucatán*"

Leonardo Calzada is an Assistant Professor in the Geography Department at New Mexico State University and a National Geographic Explorer. He is a geographer and land system scientist who studies how environmental change, public policy,

and local decision-making shape forests and rural landscapes. His work combines remote sensing, spatial analysis, and community-based research, with a particular focus on Mexico and tropical forests. He is especially interested in how conservation, development, and the governance of common lands influence ecological change and agrarian livelihoods.

Large development and conservation interventions can create moments when the future of a landscape feels unusually open to possibilities. This talk explores one of those "open moments" in southern Yucatán, Mexico, where new infrastructure, agriculture public policy programs, conservation initiatives and different forms of land tenure are reshaping forests, livelihoods, and local expectations. Drawing on spatially explicit land-use scenario modeling and participatory work with rural and indigenous communities, I examine how different actors imagine possible futures for the region and where those visions align or conflict, guiding present land use practices. The talk highlights how local perspectives, collective organization, labor agreements and land governance can shape what happens next, showing that periods of rapid change are not only moments of uncertainty, but also moments when alternative futures can still be debated and built.

10:15 - 10:30

Morning Break

10:30 - 11:00

Alma Pacheco, GIS Analyst, NMDOT Planning Division
Alex Oberg, GIS Applications Developer and Analyst, Timmons Group

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"*New Possibilities Using LRS Crash Data:*
Using a Crash Linear Referenced System with HPMS & MIRE Data"

Alma Pacheco is a GIS Analyst at NMDOT Planning Division in the Data Management Bureau. Her current work is to provide GIS support for the Roadway Inventory Program and Traffic Monitoring Program and works to improve public and interagency access to geographic data. She has over 15 years of applied GIS experience and has diverse experience in both public and private sectors. She has a B.A in Art History; B.F.A in Studio Art; and B.S in Geography from New Mexico State University and a M.S in Geography from the University of Montana.

Alex Oberg is a GIS applications developer and analyst with Timmons Group, specializing in advanced transportation data analysis and automation. With over 15 years of experience supporting federal and state agencies—including the U.S. Department of Transportation and multiple state DOTs—he builds custom geospatial tools in Python, SQL, and ArcGIS Pro to streamline complex workflows and sharpen decision-making. His expertise spans linear referencing, network analysis, and large-scale data integration, bringing technical precision and clear communication to diverse audiences. Alex holds a B.A. in Geography and Environmental Studies from Middlebury College and a post-baccalaureate certificate in GIS from Penn State University.

Over 500,000 New Mexico crash records spanning 2012-2024 were matched and integrated into the New Mexico Department of Transportation's own roadway data system, using a Python-driven process that combines spatial proximity

with road-name matching and automated confidence scoring to handle real-world data inconsistencies at scale. The result transforms a standalone crash dataset into a fully connected resource, unlocking corridor-level analysis, trend detection, and safety prioritization directly within NMDOT's existing infrastructure data.

Using LRS Crash data, a new type of crash dashboard was created. Most crash dashboards only have 'Police Report' Crashes. There's no Route ID or Measure, which are important aspects of a Linear Referencing System (LRS). Crashes that have been put into the LRS allow further analysis about the road characteristics. NMDOT is one of the first State DOTs with an LRS Crash Dashboard that contains HPMS and MIRE data.

11:00 - 11:30

Daniel Estrada, Senior IT GIS Specialist, ITSB NM OSE
Shane Washburn, Applications Developer, Timmons Group

"*Pre-1907 Evaluation Application: Evolving Specialized GIS Functionality*"

This presentation explores the evolution of the New Mexico Office of the State Engineer's Pre-1907 Evaluation application, from its original Flex Viewer implementation through its transition to Web AppBuilder for ArcGIS (WAB) and, ultimately, Experience Builder for ArcGIS (ExB).

The presentation will examine the history of the application and the challenges of migrating a specialized legacy WAB widget to Experience Builder within a constrained timeframe. It will also highlight the collaborative development process, including the involvement of the original widget developers, technical considerations encountered during the migration, and lessons learned throughout the process.

The presentation will demonstrate how specialized GIS functionality can be maintained and adapted as Esri platforms evolve, while highlighting the value of collaboration between GIS professionals and application developers during technology transitions.

11:30 - 12:00

Arlin Arpero, GIS Analyst, EDAC

"*Web Accessibility Best Practices*"

Arlin Arpero earned her B.S. in Geography from the University of New Mexico in 2022 and is currently pursuing an MBA at UNM. She joined EDAC in 2021 as a Student Technician in the Image Archive department and now serves as a full-time GIS Programmer Analyst, supporting the New Mexico Broadband Program and New Mexico Secretary of State projects.

This presentation outlines accessibility guidelines and an implementation plan for NMDoIT-OBAE's public-facing web maps and applications. It covers six key areas: color, contrast, alternative text, symbols, navigation, and backgrounds. This is how EDAC and OBAE are preparing to meet New Mexico's federal ADA web accessibility requirement (WCAG 2.1 AA) by April 26, 2027.

12:00 - 1:00

Lunch

1:00 - 1:30

Nicholas Levine, Regional Enterprise Manager, Verkada
John Lawrence, Sales Engineer, Verkada

"*High-Level Overview of Verkada & Enterprise Platform*"

Nick Levine is the Regional Enterprise Manager with Verkada who has worked with multiple agencies in New Mexico from DoIT to DOH and looks forward to connecting with each of you about your physical security needs.

What does Verkada bring to the table for you and these agencies: a full enterprise Physical Security solution that is hybrid combining an on-premises presence with a secure cloud environment. Come to our session and learn more about how we can help you and our full enterprise solution.

1:30 - 2:00

Atikul Hoque, NMSU Geography and Environmental Studies

"*Mapping Shrub Encroached Rangelands: Scaling Remote Sensing from Unoccupied Aerial Systems to Satellites in the Chihuahuan Desert*"

Woody shrubs are encroaching across desert grasslands in the Southwestern United States, altering ecosystem function and complicating land management. This presentation draws on ongoing dissertation research at the Jornada Experimental Range near Las Cruces, where unoccupied aerial system (UAS) and satellite imagery are combined to characterize this change across spatial scales.

At the finest scale, a deep learning classifier combining two neural network architectures was developed to map mesquite canopies, non-photosynthetic vegetation, and bare soil from UAS imagery at three centimeter resolution. Evaluated across thirteen sites, the classifier maintained consistent and high accuracy. Near infrared band alone captured most of the relevant spectral information, a finding with potential implications for sensor selection in operational monitoring.

At a coarser scale, we estimated fractional cover of mesquite by fusing Sentinel-1 and -2 imagery while using the same thirteen sites. Optical imagery from Sentinel-2 accounted for most of the predictive accuracy. Incorporating radar imagery from Sentinel-1 provided negligible improvement, a result that contrasts with the common assumption that multi-sensor fusion necessarily improves accuracy.

A third component of this research, currently in progress, will use multi-year Sentinel-2 imagery to track shrub cover change at these same sites, including its response to a 2021 herbicide treatment applied to part of the study area.

Together, these findings trace a progression from fine-scale drone mapping to satellite-based monitoring, illustrating one approach to scaling geospatial solutions from the plot to the regional level.

2:00 - 2:15

Afternoon Break

2:15 - 2:45

Elizabeth M. Kallman, PhD, University of West Florida Computer Science
Klaus A. Heinemann, UNM Department of Mathematics

"*From Landsat to Sentinel-2: Machine Learning Burn Severity Maps for Hermit's Peak/Calf Canyon*"

[Virtual Presentation] Dr. Kallman has a PhD in mechanical engineering from UC Berkeley and is pursuing an M.S. in Computer Science at the University of West Florida, with additional coursework at the University of Florida. This is joint work with Klaus A. Heinemann in the Department of Mathematics at the University of New Mexico, and will also be presented at the AGU Annual Meeting in December 2026.

A discussion of training classifiers to reproduce Monitoring Trends in Burn Severity (MTBS) classes from Sentinel-2 using the 2022 Hermit's Peak/Calf Canyon scar as the test case, including what transfers across sensors and the pros of finer resolution.

2:45 - 3:15

Joe Peters, Solution Engineer, Esri Denver Regional Office
Miranda Mastrocola, Solution Engineer, Esri Denver Regional Office

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"*Introduction to Geospatial AI*"

Joe Peters is a Solution Engineer Team Lead with Esri, working out of the Denver Regional Office. He has been with Esri since 2015 and works with state and local governments in Arizona, Colorado, New Mexico, Utah, and Wyoming.

Miranda Mastrocola is a Solution Engineer based out of Esri's Denver Regional office working with local governments in Colorado, Arizona, New Mexico, Wyoming, and Utah. Prior to working as a Solution Engineer, she helped customers at Esri resolve their operational issues for ArcGIS Online and Location Platform as a DevOps Support Engineer by triaging issues and applying best practices for high volume apps.

This presentation is designed for anyone eager to explore the intersection of Artificial Intelligence and Geographic Information Systems. AI technologies are advancing at lightning speed, and keeping pace can feel overwhelming—but also full of opportunity. In this session, you'll discover not only how AI is being embedded into GIS tools to accelerate and

streamline common workflows, but also how GIS itself can fuel AI workflows with spatial data, context, and insights. From smarter decision-making to predictive modeling, we'll highlight practical ways AI and GIS together can transform the way you work.

3:15 - 3:45

Tambri Hunteman, GIS Mapping Specialist, Doña Ana County Flood Commission

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"*The Doña Ana County Flood Tax District - Adventures in Data Capture*"

Tambri is the GIS staff for the Doña Ana County Flood Commission. They also let her fly drones and do floodplain management. She presents an overview of the journey one takes when legacy data, legacy interpretations, and no documentation are used in an official capacity.

3:45 - 4:15

Zach Edwards, MAG MGIS/UAS/Scanning Training & Support Lead, AllTerra Central, Inc.

"*Using Simultaneous Localization & Mapping (SLAM) for High Accuracy GIS Data Collection and Basic Post-Processing in ArcGIS Pro 3.7x*"

Zach Edwards is the Mapping & GIS and Scanning Training & Support Lead for AllTerra Central, Inc. and is based in Albuquerque, New Mexico. Zach has been with AllTerra Central for over 7 years. Moreover, he has 18 years' experience as a GIS professional with 11 years of this being in field data collection solution sales, training, & support. Zach has a solid understanding of GIS mapping and techniques, a deep knowledge of geographic theory gained through research, relevant academic coursework, and work experience. Zach has a Bachelor of Arts in Geography from Bowling Green State University (2005) and a Master of Applied Geography from New Mexico State University (2008). Zach is passionate about solving difficult problems, as well as training & educating others! Outside of work, Zach enjoys weightlifting, music, hiking, and helping others!

LiDAR is both a fast and accurate approach and can be used in a wide range of environments and conditions. A LiDAR-based SLAM system uses a laser sensor to generate a 3D map of its environment. LiDAR (Light Detection and Ranging) measures the distance to an object (for example, a wall or chair leg) by illuminating the object using an active laser "pulse". How can we efficiently capture our environment and move it into the digital age? Using GeoCue's TrueView GO Neo Handheld SLAM system, we can easily capture LiDAR with GNSS, post-process said lidar, and produce usable and actionable 3D data.

4:15 - 4:45

Announcements, Door Prizes & Adjourn