OPPORTUNITIES
Events current at time of publication. Have a virtual resource or event to share? Email us!

- January 7–10 – Consumer Electronics Show
- March 11–13 – Critical Infrastructure Protection & Resilience North America
- March 18–20 – 2025 Arctic Emergency Management Conference
- April 15–17 – Partners in Emergency Preparedness
- July 20–24 – Pacific NorthWest Economic Region 34th Annual Summit

CONTACT
Want to know more? Visit us at pnnl.gov/projects/nwrtc. Contact the NWRTC with questions and comments at nwrtc@pnnl.gov.

AROUND THE REGION IN HOMELAND SECURITY

The Northwest Regional Technology Center (NWRTC) is a virtual resource center, operated by Pacific Northwest National Laboratory (PNNL), to support regional preparedness, resilience, response, and recovery. The center enables homeland security solutions for emergency responder communities and federal, state, and local stakeholders in the Northwest.

HAPPY NEW YEAR AND WELCOME TO 2025!

On behalf of the NWRTC, thank you for your continued support to our center and the partnerships and opportunities we build. With your help, 2024 was a year of connecting science and technology to bolster preparedness, resilience, response, and recovery. It has been great to reconnect with so many familiar faces and also to build new relationships nationwide. You can hear from a few of our long-time collaborators in this short video.

This year's focus brought insight into a mix of challenges facing the emergency management (EM) and public safety community. From diving deep into aviation security and fentanyl detection to taking a bold look at emerging technology for emergency management, our colleagues at PNNL are exploring how science, technology, and strategic partnerships can impact tough challenges in homeland security. We also had the exciting opportunity to host tabletop exercises, interviews and focus groups, and conference panels with first responders and emergency managers nationwide. In particular, we'd like to thank the cities of Seattle, Boulder, Nashua, Albany, and the Tri-Cities for engaging with our teams. Much of this work is ongoing and activity reports are available on our website—please reach out if you are interested in learning more.

Thank you all for another year of outreach, engagement, and opportunity. Our center's power is in our partnerships, and we look forward to reconnecting with you to build smarter and safer solutions. To everyone who has contributed to our collective success: thank you for the work you do every day to keep us safe. We look forward to working with you as we usher in 2025!

Ann Lesperance
NWRTC Director, PNNL

Rachel Bartholomew
NWRTC Deputy Director, PNNL

DOMPREP JOURNAL EXPLORES AI AND EM

The future of EM is changing fast—and so is the science and technology to protect it. The December 2024 issue of the *Domestic Preparedness Journal* highlighted the transformative impact of AI on EM and emergency operations centers, highlighting both the technological advancements and practical applications but also barriers to implementation and acceptance. A team from PNNL contributed to several articles exploring the EM and AI R&D landscape:

"EM of Tomorrow: Emerging Technologies and Concepts," coauthored by Dan Cotter and Christina Bapst-Stump of the Department of Homeland Security Science and Technology Directorate and Ann Lesperance and Rachel Bartholomew of PNNL, highlights how an ongoing collaboration is helping sift through the noise to prioritize research and development needs to inform future investments for EM.

"Opportunities for Artificial Intelligence in EM," coauthored by PNNL's Alex Hagen and Jon Barr, shares how an in-depth landscape assessment conducted in 2024 dug deep into research articles, preprints, code repositories, and surveys at the intersection of applied AI and EM.

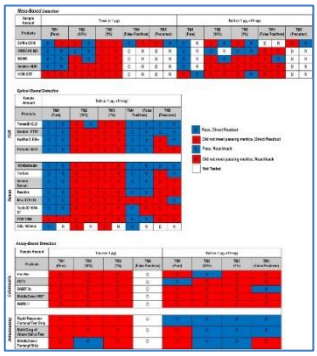
"From Today to Tomorrow: The Emergency Operations Center of the Future," coauthored by PNNL's Nick Betzsold and contractor Grant Tietje, explores a futuristic vision for emergency operations centers, grounded in findings from landscape assessments, stakeholder outreach, and a series of tabletop exercises that explored how the rapid and accelerating pace of advancements in science and technology can be highly disruptive to emergency services.

STEMMING THE FLOW OF FENTANYL

While emergency responders are on the front lines daily in a fentanyl epidemic that has seen hundreds of thousands of American lives lost, they have allies in chemists at PNNL.

PNNL scientists are developing ways to detect and identify not only new, previously unseen forms of fentanyl but also newer and more dangerous synthetic opioids known as nitazenes. Using a combination of mass spectrometry and computational modeling techniques, chemists have discovered a chemical characteristic indicative of all fentanyls tested to date. The team also discovered additional chemical traits that reveal the specific form of every fentanyl tested. The PNNL team published its work earlier this year in a pair of publications in the Journal of the American Society for Mass Spectrometry.

PNNL researchers have also led a series of projects focused on closing the gap between detection equipment and what responders encounter in the field. The work resulted in three new ASTM laboratory standards, updated spectral libraries used by detection equipment, and most recently, a publicly accessible report assessing field-portable detection products against the updated compound libraries and testing standards.



Click for figure summarizing assessment results

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