Cross-Border Information Sharing During CAUSE V

September 14, 2017 1-2 pm ET
Agenda

• Introduction
• Overview of the NISC
• Cross-Border Information Sharing During CAUSE V
• Q&A
• Quiz for those seeking Continuing Education Units (CEUs)
Today’s Speakers

• **Sean McSpaden**, NISC Executive Director
• **Denis Gusty**, Program Manager, DHS S&T First Responders Group
• **Glen Weimer**, Portfolio Manager, Emergency Management Systems, DRDC CSS
• **Joseph Fournier**, Portfolio Manager, Wireless Technologies, DRDC CSS
• **Erik Endrulat**, Project Manager G&H International Services, Inc.
• **Jeff Sopel**, Project Manager, G&H International Services, Inc.
Continuing Education Units (CEUs)

• CEUs will be awarded to participants that watch the webinar and complete the quiz following the webinar

• 0.1 CEUs for this hour-long event
Learning Objectives

• Understand the objectives of the Canada-U.S. Enhanced Resiliency Experiment (CAUSE) V.

• Understand the information sharing tools and technologies that will be tested during the CAUSE V experiment.
NISC Mission-Focused Job Aids Webinar Series

• In-depth discussion of tools, techniques, and standard operating procedures used for information sharing

• Webinar content applicable to multiple fields, including:
  • Homeland security,
  • Emergency management,
  • Public safety,
  • First responder, and
  • Healthcare preparedness.
NISC Mission-Focused Job Aids Webinar Series

- Information Sharing Tools Used During the New Orleans Flood Resilience Experiment – **April 26**
- Emergency Services Sector Presents Resources and Tools for Emergency First Responders – **June 1**
- EARTH Ex 2017: Multi-Sector Exercise Opportunity – **July 19**
- **Cross-Border Information Sharing During CAUSE V – September 14**
- Governance (Public Safety Continuum Series)
- NISC vUSA ArcGIS Online/Esri ArcGIS Enterprise
- Standard Operating Procedures (Public Safety Continuum Series)
- NISC Mutual Aid Resource Planning (MARP) Tool/Esri Ops Dashboard
- Technology/Data (Public Safety Continuum Series)
- Training/Exercises (Public Safety Continuum Series)
- NISC Battle Rhythm Manager
- Usage (Public Safety Continuum Series)
- Virtual Business Emergency Operations Center (VBEOC)
The NISC is a non-profit organization devoted to improving information sharing at all levels of government and for all homeland security, emergency management, first responder, healthcare, and public safety stakeholders.
NISC Members Span Multiple Domains & Disciplines

- Communications
- Critical Infrastructure
- Emergency Management
- EMS
- Fire
- GIS
- Homeland Security
- Information Technology
- Law Enforcement
- Military
- Private Industry
- Public Health
- & More!

Public Sector – Private Sector – Non-profits
Member Benefits & Application

• Guidance and technical assistance
• Knowledge exchange and networking opportunities
• Access to the NISC Member Portal


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CAUSE Cross-Border Information Sharing Outline

- Introduction
  - About the CAUSE Series
  - Previous Experiments

- Scenario & Objectives

- Technology Focus Areas
  - Wireless Communications
  - Information Sharing & Situational Awareness
  - Digital Volunteers
  - Mutual Aid
The CAUSE Resilience Series - Overview

CAUSE is a joint effort between DHS Science & Technology (S&T) and the Defence Research and Development Canada’s Centre for Security Science (DRDC-CSS).

The focus: enhancing cross-border capabilities, including communications interoperability, shared situational awareness, mutual aid and information-sharing.
Objectives of the CAUSE Series

- **Connect, test and demonstrate** emerging operational technologies
- **Advance emergency management** and responder situational awareness capabilities
- **Demonstrate value** of federal Science and Technology investments
- Demonstrate **enhanced resilience** through improved interoperable shared situational awareness and mutual aid during major events
- Enhance resilience in border region by **leaving behind** working operational interfaces, processes, training and exercises that will improve shared situational awareness
- Execute CAUSE V as catalyst to **build trust relationships** in support of the Beyond the Border Action Plan
Background

**CAUSE I:** British Columbia/Washington – Earthquake Scenario

**CAUSE II:** New Brunswick/Maine – Train Derailment/Industrial Accident Scenario

**CAUSE III:** East – Hurricane and West – Wildland Fire Scenarios

**CAUSE IV:** Michigan/Ontario – Tornado Scenario

**CAUSE V:** Washington-British Columbia–Volcano Scenario
The CAUSE Resilience Series
Review of Previous Experiments

CAUSE I (2011) Review

British Columbia and Washington

Earthquake scenario
(Cascadia Subduction Zone)

Enhancing systems interoperability between U.S. and Canada

Tech included BCeMap, HAZUS, MASAS, Ushahidi, IPAWS, MyStateUSA, and others.
New Brunswick and Maine

2 Scenarios: Explosion at oil refinery and CNG truck accident

Information exchange between local, state, provincial and national agencies using various systems and software applications.

*Tech included MASAS, IPAWS-TDL, MASAS-X, Virtual USA (vUSA) and others*
The CAUSE Resilience Series
Review of Previous Experiments

CAUSE III (2014) Review

2 locations: Northeast U.S., Nova Scotia and Montana, Saskatchewan and Alberta

2 scenarios: Wildland fire (MT, SK, AB) and Hurricane (NH, ME, NS)

2 vignettes: (a) Improving interoperable communications by augmenting LMR with deployable LTE during response phase. (b) Enhanced situational awareness using MASAS and vUSA, leveraging Digital Volunteers to support Emergency Operations during recovery phase.

Tech included: MASAS, IPAWS-JITC, OnTheGo Alerting, ArcGIS Online/Virtual USA (vUSA) among others
Blue Water Region of Port Huron, MI and Sarnia, ON

Tornado scenario

2 Vignettes: (a) establish cross-linked 700Mhz Public Safety Broadband Network to enable communications during cross-border patient transfer; (b) enhanced situational awareness leveraging digital volunteers, crowd-sourcing, and cross-border public alerting.

Tech included Everbridge, IPAWS, and NPAS/NAADS.
CAUSE V Participants
Project Leads & Partners

**Project Leads**
- **U.S.:** U.S. Department of Homeland Security Science & Technology Directorate (DHS S&T)
- **Canada:** Defence Research and Development Canada Centre for Security Science (DRDC-CSS)

**Partner Agencies**
- **U.S.:** DHS Office of Emergency Communications (OEC), CANUS Communications Interoperability Working Group (CIWG), National Information Sharing Consortium (NISC), DHS Social Media Working Group (SMWG), Texas A&M University
- **Canada:** Public Safety Canada, Communications Research Center
CAUSE V Participants
Local Stakeholders

Canadian Participants:
- Abbotsford Fire Rescue Service
- Abbotsford, City of
- Canada Border Services Agency
- E-Comm 911
- Emergency Management B.C.
- Fraser Valley Regional District Electoral Area Emergency Services
- Kinder Morgan
- Langley Emergency Program
- New Westminster Fire and Rescue Services
- Public Safety Canada
- Semiahmoo First Nation Emergency Preparedness Team
- Spectra Energy
- Surrey RCMP

U.S. Participants:
- City of Blaine
- BP Fuels
- City of Bellingham
- DHS Customs and Border Protection
- FEMA Region X
- City of Lynden
- North Whatcom Fire and Rescue
- Port of Bellingham Emergency Management and Security
- Seattle City Light
- The Sawicki Group LLC
- USGS; Cascade Volcano Laboratory
- State of Washington Division of Natural Resources
- Washington Emergency Management
- Western Washington University
- What-Comm 911
- Whatcom County
- Washington State Patrol
Experiment Planning Process

- **Collaborative planning process**, engaging stakeholders and project leads (U.S. DHS S&T, DRDC CSS)
- Experiment is being planned based on input and requirements from key stakeholders and partner agencies
- Experiment will be designed to meet the needs, objectives and goals of participating organizations
CAUSE V Experiment Scenario

- Eruption and subsequent collapse of the Sherman Crater on Mt. Baker resulting in lahars extending through the Nooksack River watershed.
- The event will lead to casualties to the populations in nearby areas, as well as significant infrastructure damage, including transportation, natural gas pipelines and nearby hydroelectric facilities.
• Early August: Onset of volcanic activity triggers USGS Volcano Observatory to raise volcano advisory level
• Early November: Atmospheric river event causes major flooding
• Mid November: Eruption and subsequent collapse of the Sherman Crater on Mt. Baker resulting in lahars extending through the Nooksack River watershed.

The crater collapse will cause extensive damage in both WA and BC, which will require response from numerous response agencies. The event is responsible for loss of life and widespread damage to property and critical infrastructure. Recovery efforts will span from months-years.
CAUSE V Objectives

• Leverage public safety LTE networks to create a common operating picture to enhance decision making across the many agencies involved;
• Provide live, or near real-time data and imagery from the field leveraging robots and human to Common Operating Picture (COP) applications in EOC’s;
• Explore the use of digital volunteers to support emergency operations;
• Test the Pacific Northwest Emergency Management Arrangement (PNEMA) for state-to-provincial mutual aid requests leveraging the EMAC Operating System;
• Test the process for moving specialized resources and personnel across the Canada-U.S. border and expediting the pre-vetting process.
Technology Focus Areas

• Evaluate ways to build resilient cross-border 700MHz **wireless public safety** networks

• Leverage **situational awareness tools** to improve disaster planning, field reporting, and cross-border information sharing

• Utilize **ground/water/land based robots** to monitor scene and send intelligence back to EOC

• Deploying **Digital Volunteer Teams** to support emergency operations
700 MHz Public Safety Broadband Network (PSBN in Canada / FirstNet in the US)

- A transformational national capability in both countries

- Key tenets
  - Interoperability
  - Affordability
  - Sustainability
  - Efficient use of spectrum
  - 365/24/7 availability
Narrowband / Broadband

Band 14

Band 14 downlink

Band 14 uplink

10 MHz

10 MHz
CAUSE Series Success!

**CAUSE III**

**CAUSE IV**

**CAUSE V**
CAUSE V – Broadband Wireless Enhanced Capabilities

- Support wireless users in the overall scenario

- Operational Capabilities
  - GIS-based situational awareness (real-time)
  - Video conferencing/voice/email
  - Information sharing
  - Internet of Things (IoT) – sensors, drones, robots
  - Possibly PTT? A stretch though 😊

- Novel technological demonstrations
  - QoS/prioritization/preemption (QPP)
  - Congestion-based Session persistence
  - NG-911 on public safety broadband
  - Heterogeneous networking in support of IoT

- DRDC/CSS, Texas A&M, Communications Research Centre
CAUSE V Wireless Coverage
CAUSE V – Wireless System Diagram
CAUSE V Information Sharing and Situational Awareness (SA)

Planning
- Lahar inundation model
- Modeling impact to critical infrastructure
- Long-term economic impacts

Response
- Assimilate information from various sources (ground reports, location of first responders, aerial robots/UAVs)
- Support Search and Rescue

Recovery
- Damage Assessments
- Support Debris Removal
Information Sharing/Situational Awareness
Defining Essential Elements of Information

- Identifying event-specific information that participants need to respond to a flood, lahar event
- What are the key attributes for each EEI?
- What are the thresholds for status (example: shelter 75% full = ‘Alert’)
- See NISC Resource Center for EEI templates
Information Sharing/Situational Awareness
The Lahar Hazard Model

- Determine impacted infrastructure based on lahar inundation zone
- Output can provide priorities for field personnel
- Status information can be updated based on field reports.
- Results can be displayed in a dashboard for visualization
Information Sharing/Situational Awareness
Information Sharing Platform

Technologies:
- ArcGIS Online as a common platform sharing information
- Field reporting tools (Drakontis, ArcGIS Explorer/Collector/Survey123)
- Web-based regional/user-defined operating pictures
Information Sharing/Situational Awareness
Improved multi-agency Response

1. Information collected in the field shared through common platform

2. The Essential Elements of Information (EEI’s) for can be accessed through various Apps

3. Planners, Operators and Command Staff can use the EEI products to compliment their various responsibilities

4. Situational Reports, Operations Briefings, Press Releases present the EEIs to official partners or the public

Planners, Operators and Command Staff can use the EEI products to compliment their various responsibilities.
Field Reporting & Location Tracking

Capabilities

• Track location of personnel real-time
• Send field personnel alerts based on location

Use cases for CAUSE V

• Planning phase: Risk assessments
• Response phase: On-the ground spotters
• Recovery phase: Damage Assessments

Tech

• ArcGIS Survey123, Drakontas DragonForce, TRX
Capabilities

- **Real Time Updates** – See near-real time information as it is collected by field personnel, UAV’s, etc.

- **Add Your Own Data Sources** – Use the vCAUSE and Add Data tools to make the COP come alive with new data.

- **Edit the Information** – Authorized users can correct and update editable data layers

Use cases for CAUSE V

- Planning phase: Risk assessments
- Response phase: Track status of EEIs

http://nisconsortium.org/CAUSEV/
# Points of access

<table>
<thead>
<tr>
<th>Capabilities</th>
<th>Access</th>
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<tr>
<td><strong>Level 1:</strong> Discovering, viewing information</td>
<td>Access via the NISC Member Portal</td>
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</table>
| **Level 2:** Editing, Reporting, Sharing information | 1. BYOU - Bring Your Own User account  
2. Project provided user account |
CAUSE V Digital Volunteer Support Team

Goals

1. Revisit the strategies and tactics for standing up a Digital Volunteer Support Team. How do they contribute to shared situational awareness for communities along the border.

2. Explore and capture practices for combatting disinformation in times of crisis.

In an age of 'alternative facts,' a massacre of schoolchildren is called a hoax.

The conspiracy theorists are the same people in Houston, Texas, who were pro-cancer advocates.
1. All team members will be given an account in the NISC.

2. The team members will be provided tools from the following site.

3. Tools include a form for recording actionable data and a dashboard for tracking trends.
Volcanic activity

Situational Awareness from USGS

Alerting & Notification process via WHATCOMM & Social Media

Community

Digital Volunteers monitor and record actionable Social media content.

This may warrant activation of Services.

Government Services
Volcanic activity

Situational Awareness from USGS

DVST monitors social media traffic for disinformation

Alerting & Notification process

Community

Digital Volunteer Support Team provides Social Media posts

Rogue bloggers, social media pundits post false information regarding Mt. Baker response.
Engaging Digital Volunteers to support Emergency Operations

The Public
- Share first hand reports of emergency information (e.g., downed trees, power outages)
- Send requests for assistance or information
- Provide volunteer support, donations based on needs
- Intentionally or non-intentionally spread rumors and other misinformation

Digital Volunteers Whatcom / Langley
- Monitor and analyze social media based on JIC requirements using various tools
- Produce products (e.g., summary reports and GIS-based products) to EMAs, including unmet needs, rumors, and damage reports

Information Products:
- Emergency information
- Rumors
- Trending Data

Joint Information Command (Whatcom ECC)
- Provide information to public, including alerts/warnings and Correct rumors
- Route information gathered by digital volunteers to emergency management staff

Information requirements:
- Type of support required
- Accurate messaging

Information Products:
- Vetted reports shared to EOC, displayed in map-based products

Direct Engagement / Official Messaging
Information Products:
- Emergency information
- Rumors
- Trending Data

Information Products:
- Vetted reports shared to EOC, displayed in map-based products

Information requirements:
- Type of support required
- Accurate messaging
CAUSE V Scenario – Mutual Aid
Whole of Community Planning and Response
Mutual Aid Planning Activities

• Engage with participants to develop Mission Ready Packages (MRPs) and Pre-scripted Mission Plans to plan for scenario response/recovery phases

• Apply the whole community planning concept, engaging with local, state, and private sector partners

• Conduct the following study of resource requests:
  • Local to Local Mutual Aid requests
  • Local to State/Provincial requests
  • International requests (local-local, state to province)

• Explore the use of the EMAC operating system for Pacific Northwest Emergency Management Arrangement (PNEMA)
Experiment Phases for Mutual Aid

First signs of unrest on Mt. Baker

Pre incident

What resources will be pre-deployed in anticipation of an incident on Mt. Baker?

Mt. Baker Incident

Post incident / Recovery

What will be the forecasted need for Mutual Aid Resources at the:
Local Level
State Level
International Level
Experiment Phases for Mutual Aid

Phase I: Pre-Incident

What resources will be pre-deployed in anticipation of an incident on Mt. Baker?

First signs of unrest on Mt. Baker

Pre incident

What is the composition of resources required for pre-incident missions:

1. Whatcom County Resources
2. Abbotsford Fire-BC
3. Langley EM-BC
4. Federal Resources
   - Cascadia Volcano Observatory
   - USCG
   - CBP
5. State of Washington
6. City of Bellingham
Experiment Phases for Mutual Aid

Phase II: Post-Incident/Recovery

What will be the forecasted need for Mutual Aid Resources at the:

1. Local Level
   - Whatcom County
   - Skagit County
   - Snohomish County
   - City of Bellingham

2. State Level
   - State Departments
     - DOT
     - National Guard
     - EMAC

3. International Level
   - British Columbia
     - Lower Mainland Communities
   - PNEMA
Process for pre-scripted mission planning

1. Define Hazard and Impact
2. Link hazards/risks with Hazard Plans, THIRA or other planning documents
3. Crosswalk the resource needs to the MARP
Process for pre-scripted mission planning

3. Crosswalk the resource partnerships from MARP to ICS 201 and 215

4. Identify existing mutual aid agreements/compacts

5. Requests for assistance are sent
Mutual Aid planning for CAUSE V will likely involve the same partners involved with other areas of the experiment (e.g., information and communications groups).
What would a pre-scripted mission plan look like for Whatcom County?

What resource requests would be passed up to the State?

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<thead>
<tr>
<th>Who</th>
<th>What</th>
<th>When</th>
<th>How long</th>
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<tbody>
<tr>
<td>CBP</td>
<td>Air Assets</td>
<td>xxxx</td>
<td>XXX</td>
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<tr>
<td>USCG</td>
<td>Air Assets</td>
<td>xxxx</td>
<td>XXXX</td>
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<tr>
<td>USGS</td>
<td>Observatory Team</td>
<td>xxxx</td>
<td>XXXX</td>
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<tr>
<td>Abbotsford, BC</td>
<td>Mass Care</td>
<td>xxxx</td>
<td>XXXX</td>
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Tools and Job Aids to assist in the planning

The lahar impact zone is the focus for the Mutual Aid planning.

The Whatcom County team of interns have assessed the economic impact of the lahar hazard on Agriculture, Natural Resources, Critical Infrastructure, etc.

CAUSE V - Timeline

- Scoping & Stakeholder Engagement
  - September’16 – Jan ‘17
- Initial Planning Conference
  - February 7-8 ’17
- Technology/Process Training
  - March – October ‘17
- Main Planning Conference
  - May 24 ’17
- Final Planning Conference
  - September 27 ‘17
- CAUSE V Dry Run
  - October ‘17
- Experimentation
  - November 15-16 ‘17
- AAR/Video Production
  - Dec’17
What’s Next

• Complete planning, tech development, training and execution of CAUSE V.
• Provide recommendations to DHS and DRDC leadership towards establishing binational experiment series beyond CAUSE V.
• Develop CAUSE series toolkit and user guides to facilitate and aid transition efforts.
• Evaluate transitioning leave be hind s and other artifacts from the CAUSE series to the National Information Sharing Consortium to socialize with border communities.
Want to get involved?

Interested in opportunities to observe during CAUSE V?

Contact Erik Endrulat
eendrulat@ghinternational.com
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>NISC</td>
<td>National Information Sharing Consortium</td>
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<tr>
<td>DRDC</td>
<td>Defence Research and Development Canada - Centre for Security Science</td>
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<tr>
<td>DHS S&amp;T FRG</td>
<td>Department of Homeland Security, Science and Technology Directorate, First Responders Group</td>
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<td>LMR</td>
<td>Land Mobile Radio</td>
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<tr>
<td>LTE</td>
<td>Long-term Evolution (e.g., 4G wireless)</td>
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<td>MASAS</td>
<td>Multi-Agency Situational Awareness System</td>
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<td>IPAWS</td>
<td>Integrated Public Alert and Warning System</td>
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<td>NAADS</td>
<td>National Alert Aggregation &amp; Dissemination System</td>
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<tr>
<td>EOC</td>
<td>Emergency Operation Center</td>
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<td>EMAC</td>
<td>Emergency Management Assistance Compact</td>
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<td>PSBN</td>
<td>Public Safety Broadband Network</td>
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<tr>
<td>PTT</td>
<td>Push to Talk</td>
</tr>
<tr>
<td>QoS</td>
<td>Quality of Service</td>
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<tr>
<td>QPP</td>
<td>Quality of Service, Priority, and Preemption</td>
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<tr>
<td>UAV</td>
<td>unmanned aerial vehicle</td>
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<tr>
<td>EEI</td>
<td>Essential Elements of Information</td>
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<tr>
<td>DVST</td>
<td>Digital Volunteer Support Team</td>
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<tr>
<td>THIRA</td>
<td>Threat and Hazard Identification and Risk Assessment</td>
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<tr>
<td>MARP</td>
<td>Mutual Aid Resource Planner</td>
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Questions?

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Quiz

• Following the webinar you will be prompted to complete a quiz

• Complete the quiz to receive your continuing education units (CEUs) for this session