

RELIEF

Research & Experimentation for Local & International Emergency & First-Responders



August 2011 [Issue 2]

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Visit our
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[11-4 By the Numbers]

102 participants
11 experiments

46 sponsoring organizations
5 substantive briefs

Director's Corner

The 11-4 event was a huge success. Returning as the 9th installment of RELIEF, we enjoyed our largest attendance yet with over 100 participants representing 46 different government, non-government, and international organizations. The event itself also diversified from previous RELIEFs as it explored experimentation in three categories: Information Sharing, Field Utilities, and Policy & Procedures. Each day was supplemented by a keynote address from leading thinkers in the HA/DR community to encourage further dialogue and thought.

RELIEF continues to strive to provide a "launching point" from which to spur forward the development of a sustaining HA/DR collaboratory where effective data collection feeds concept development, concepts are tested, results are fed into exercises, and exercises yield new HA/DR capabilities. While RELIEF aims to provide the testbed in which to test new concepts, it is our hope that we can continue to assist in the development of sustaining data collection, concept development, and exercises execution elsewhere in the community.

The following newsletter offers a taste of our last event held 03-05 August at Camp Roberts, CA. While the successes listed below are exciting, the true unique value that RELIEF offers can best be experienced as a participant. We strongly encourage you to apply for participation at our website and join us in Camp Roberts this coming November. Held in a dynamic field environment, all types of experimentation and collaboration are encouraged.

As always, the RELIEF team is open to hear how to make RELIEF better for the community. I encourage you to look over this newsletter, discuss it with colleagues, and let us know.

Regards,

Ray Buettner
Director, Field Experimentation
Naval Postgraduate School
(rrbuett@nps.edu)

PS - We're especially interested in having more participants from the field, including first level community volunteers and support personnel. Float this newsletter amongst your own social networks. We appreciate your help spreading the word.

Congratulations to
Chris Mayfield
(USNORTHCOM)
for best Tweet of the
week. Hope you enjoyed
your bottle of Turley Zin!

A Shared World View

This was the National Geospatial-Intelligence Agency's (NGA) first time attending RELIEF. The diverse group arrived with the goal of identifying what circumstances NGA could provide data to non-governmental organizations, especially those that produce unclassified geospatial information during disaster relief events. This seminal discussion brought members from all relevant communities to the same table. Participation included the Volunteer Technical Community (including OpenStreetMap, OpenAerialMap, Walking Papers, and Humanity Road), Federal Agencies, US NORTHCOM, and associated legal teams. All provided great insight on the informal development of coordination processes in support of HA/DR. This forum enhanced the collaborative efforts of all participants and has set the standard for the formalization of information sharing processes in the future.



RELIEF 11-4 Experiment Recap

Follow the Humanity Road

At RELIEF 11-4, the Humanity Road team consisted of twenty volunteers from eleven countries. The project was lead by Cat Graham and the team lead was Oludotun Babayemi from Abuja, Nigeria.

The volunteer team was distributed across time zones to increase effectiveness and Internet accessibility with team members from the USA, United Kingdom, Germany, Zimbabwe, South Africa, India, Nigeria, Bangladesh, Apia Samoa, Cambodia, and Australia.

Humanity Road collaborated with QuickNets for three phases of the project at the 11-4 event. Phase 1 was to filter, geolocate and approve 700 SMS records for the brokerage testing that would take place on day two of the exercise. Phase 2 was to filter, geolocate, and approve live feeds of SMS records on day one of the actual exercise. Phase 3 was to test the brokering side of the platform on day two of the exercise and provide

feedback on brokerage functions and needs, platform issues or areas of improvement. The international participation exemplified cross cultural collaboration at its finest.

Humanity Road is a USA based Public Charity (501c3) nonprofit NGO that bridges the communications gap between the public impacted by disasters and those who are providing them aid. Humanity Road trains and project manages volunteer resources in the use of advanced Internet and mobile communications tools and techniques for the collection and dissemination of information during emerging disaster. Previous crisis map deployments included Libya Crisis Map, Christ Church New Zealand, Haiti, Chicago Blizzard and Tuscaloosa News Recovery Alabama project for the tornado outbreak.

For more information, please contact Cat Graham (cat@humanityroad.org)

CORE Research

Lighthouse is an ongoing NPS project that developed a cell-phone based system to help collect demographic information on a variety of mobile platforms. While initially intended for use by the US Marine Corps, the NPS-CORE team's application is quite applicable to humanitarian contexts as well. The team finally got a chance to prove their point at RELIEF 11-4.

The team successfully integrated existing Afghan data collection efforts with GeolQ's geospatial analysis tool. As a result, NPS-CORE was approached by Dr. Ronald Quincy representing Rutgers University. Dr. Quincy hoped to use Lighthouse to assist in an upcoming needs assessment in Haiti. The CORE lab quickly responded by providing data collection tools, form conversion, and form translation for the assessments. The collaboration will help refine user feedback mechanisms in addition to providing access to geo-spatially relevant assessment data in post-disaster Haiti.

The NPS-Rutgers collaboration marks one of the quickest "RELIEF to field" applications to date. Results from the study will be shared upon receipt.

For more information, please Capt Carrick Longley (clongle@nps.edu)

SAGE Insight

USNORTHCOM SAGE (Situational Awareness Geospatial Enterprise) team sent two eager representatives, Chris Mayfield and Jason Martinez, to RELIEF 11-4. The dynamic duo ran around all week, integrating their three Pallas Iridium/GPS Friendly Force Tracking devices with anyone who would let them; Chris and Jason were impressed with everyone's willingness and openness to engage in what soon came to be known as "10-minute Integration" efforts:

- *AV, inc. Puma:* After placing the GPS device on the bird, SAGE successfully integrated the data, providing reach back to N-NORTHCOM to track the Puma UAS in real time (shown right)
- *NGA's GeoEye RDOG:* Additionally, SAGE collaborated with NGA personnel to seamlessly integrate the GeoEye RDOG remote sensing imagery for the Mississippi Flooding response into SAGE's GoogleEarth platform. This effort took approximately 30 minutes to accomplish.
- *QuickNets and GeoIQ:* The SAGE team discussed future exercise participation with QuickNets and the GeoIQ platform for mapping and microtasking activities. In particular, a strong geospatial friendship with the GeoIQ representatives was forged to enable fast geospatial mapping integration of disparate data types. An attempt to integrate several data feeds with the GeoIQ proved unsuccessful, however, this does not detract from the numerous discussions with GeoIQ on how to bridge the DoD/NGO data distribution and follow on efforts for integration and improving the speed of geospatial data to the HADR community.
- *NPS Pelican:* Flying in Thursday afternoon, the Navy Pelican airborne platform containing the Predator nose package landed at Camp Roberts and the pilot was agreed to place a Pallas device on the dashboard of his aircraft to assist in near-real time tracking of the aircraft utilizing the SAGE architecture. N-NORTHCOM was able to track the aircraft during its flight back to Marina, CA and the next day drive back to Camp Roberts, CA!

For more information, please contact Chris Mayfield (chris.mayfield@gmail.com)



Captain Dan Westbrook (CAL FIRE) explores NPS Pelican.



Puma, an unmanned air vehicle (UAV), prepares for launch.



N-NORTHCOM follows the Puma launch in real-time

Interoperable Comms

The Lockheed Martin team demonstrated capabilities useful to interoperable wireless technologies with Land Mobile Radios (UHF/VHF), 2G GSM, and 3G cellular (local base stations). The video encoder technologies also allowed for live streaming video across very low bandwidths, including to 2G GSM cellular smartphones. The integrated demonstration placed a pan, tilt, zoom camera on the dashboard of a moving vehicle along with a video encoder connected to a local 3G cellular base station. The local 3G cellular system was then integrated with the other IP based networks, enabling streaming video to Android based smartphones and Windows based laptops, also providing voice communications between smartphones, laptops, Land Mobile Radios and MBITR tactical radios. The ability to track first responder locations ("Blue Force Tracking") was also demonstrated, using GPS equipped Land Mobile Radios to display the tracks onto a laptop. The added benefit of LM's solution is its open architecture, demonstrated by integrating the Boeing Unmanned Aircraft System MBITR tactical radio into the Universal Communications Platform, becoming the communications center for this ad hoc experiment. The Lockheed Martin team had discussions with both NGOs (Monterey County, CAL FIRE and Humanity Road) and US Government entities (Office of Secretary of Defense, NORTHCOM, SOUTHCOM, USSOCOM, US Special Forces Command, National Geospatial-Intelligence Agency and Federal Emergency Management Agency) representatives.

For more information, please contact Russ Chan (russ.chan@lmco.com)

Experiments

NGA Limited Objectives Experiment with the Volunteer Technical Community (National Geospatial Agency)

Lighthouse (NPS-CORE Lab)

BLoCS Gen III Lightweight Sustainment System (Dynglobal)

Situational Awareness with Interoperable Networks (Lockheed Martin Corporation)

Self-sufficient Forward Base Station Kit (Jason Rexilius)

Walking Papers (Stamen Design)

Explosive Remnants of War Collection Point Concept (ERW-CP) (LTJG Deward Cummings III, LT Paul Mahoney (NPS)

TweetTracker (Arizona State University)

OpenAerialMap (Schuyler Erle)

Completing HA/DR Requests through Crowdsourcing (Naval Surface Warfare Center-Dahlgren Division)

Small UAV Compatible Communications Relay (Boeing)

Tent Triumphs

The QuickNets objectives for the event were to evaluate enhancements to its tools for crowd-sourcing situational awareness to enable a more effective process for observation, orientation, decision and action (OODA), as well as user engineering methods to support operations. Naval Surface Warfare College-Dahlgren Division is the developer of the system, also partnering with several non- governmental representatives from the Crisis Mapping and first response communities. Experimentation during the week involved participation (via internet and Skype) by a group of 20 volunteers from 15 countries, organized through Humanity Road, who helped process messages obtained from the database of actual messages received during the Haiti earthquake response. This gave volunteers who are familiar with the Ushahidi platform (a foundation of QuickNets) a chance to test micro-tasking capabilities and gave the team a chance to both test the system and get the valuable feedback from probable user community members. In addition, local participants at the Camp Roberts location were able to experiment with a QuickNets enhancement to allow for operation in an off-line environment.

For more information, contact Mark Bradshaw (mark.a.bradshaw@navy.mil)



Enjoying the air conditioned expeditionary tent, members from QuickNets, NGA, and GeolQ discuss potential opportunities for collaboration.

Takeaways for I2-I

Continuing conversations to develop a Global Collaboratory for Humanitarian Assistance and Disaster Relief

Dr. Buettner's "Big Idea"

NPS has offered to host a virtual collaboration space for humanitarian-based research, serving as Chair for Year One. NDU has stepped up to lead Year Three.

What organizations are ready to lead Year Two in Charter development and Chairmanship?

The Haitian Experience

Outlining the procedural aspects of her experience as deputy of operations in a Haitian field hospital after the 2010 earthquake, Dr. Jennifer Chan highlighted lessons learned regarding on/offshore patient transfers. More importantly, she noted the value in building trusting relationships between actors - civilian, military, or otherwise - before disaster strikes.

How can a global collaboratory facilitate this kind of in-person and virtual interaction?

Civil-Military Boundary Breaking

NPS student LCDR Dave Matvay's survey catalyzed discussions on practical ways to build trust between NGOs and the military. One opportunity that has surfaced is joint participation in a National Guard Field Training Exercise (FTX) held in Southern California.

Who's ready to flip their perspective?

RELIEF I I-4 Schedule Highlights

3 August (Wednesday)

"The Big Idea" by *Dr. Ray Buettner*

[Experiments]

Brown Bag: United Nations Global Pulse by Sara Farmer (UN, Crisis Mappers)

Daily Hot Wash

Turley Wine Tasting + Eats

Words from NGA by Dick Williams (NGA)

The Haitian Medical Experience by Dr. Jennifer Chan (Northwestern, HHI)

4 August (Thursday)

Track 1: On/offshore Patient Transfer Brief by Dr. Chan

Track 2: IMISAS Conference Call

[Experimentation cont.]

Brown Bag: Crowd, Bridge, Transaction, Feedback Model by Dr. Lin Wells II (NDU)

5 August (Friday)

NGO-Military Relations by LCDR David Matvay (NPS)

All-Hands Hot Wash

Did you know??

N-NORTHCOM stands for the combined North American Air Defense-Northern Command? This Department of Defense entity is responsible for providing defense support to civil authorities (DSCA) during natural disasters responsein and around the United States.

Tweeterific Time

The ASU team demonstrated its “TweetTracker” tool. The technical achievements for this event included machine language translation “bulk processing” of 35,000 SMS messages (provided by Stanford University) in a remarkable four hours. This kind of bulk processing is needed for high-tempo, high volume SMS and Twitter feeds during crisis; machine translators like Bing and Google translate can provide a rough translation that can be used for prioritizing crowd-sourced language translation using native speakers and advanced speakers to their best advantage. ASU and ONR conducted “twitorials” -- showing participants how to use Twitter and also to demonstrate how the TweetTracker managed the tweet-stream in novel ways, to capture tweets with a variety of subjects and geographic locations. ASU’s social repository has used Tweet Tracker to capture over 20 million tweets on the Arab Spring thus far. At the I I-4 event Humanity Road and ASU explored how to use new communications tools (persistent SKYPE chatrooms and MUX communications systems) for HA/DR coordination and training.

For more information, contact
Rebecca Goolsby (rebecca.goolsby@navy.mil)

CP Roberts Sandbox

Water for participants (US\$3 each)

1 National Guard (Hot) Dog (\$3.50)

1 Expeditionary Tent (\$100k)

Multiple UAVs (\$150k each)

3 Humvees (\$300k)

**Full Connectivity with a fully networked
Tactical Operations Center** (\$250k)

**Realtime imagery flows, hands
on collaboration with first
responders, and countless net-
working opportunities with Lo-
cal, Federal, and International
agencies?**

Priceless

RELIEF 12-1

What's Next...



*What do you have to bring to the
next round of RELIEF?*

Apply for an invitation to join us for
RELIEF 12-1 (November 3-5).

Visit our [website](#), forward along this
newsletter, and most importantly -
be in touch (relief@nps.edu)

*“...It is always good to see other technologies in use as they could be additional
resources upon which to draw during a disaster or emergency response.*

*I appreciate the opportunity to participate and believe my two days at the event
were well spent in that it provided me with new ways of looking at the same old
problem – **what is going on and where so that I can appropriately
respond.** I am looking forward to the next event.”*

Captain Dan Westbrook, CAL FIRE (San Benito Monterey Unit)