RELIEF 12-04 | Camp Roberts | 13-17 Aug 2012

The JIFX-RELIEF Field Explorations are acknowledged to be the premier venue for creating interoperable civil-military systems for HADR operations. These quarterly events hosted by NPS and NDU enable USG, NGO, and private-sector engineers to engage in open innovation in a field environment that closely mimics the real world. RELIEF serves a unique and efficient role in the ecosystem of international disaster response organizations: it compresses months of dispersed R&D trials into a few days of intense work.

The upcoming JIFX/RELIEF event in August 2012 will be the 12th meeting in the series and the most technically comprehensive to date. With an expected 400+ engineers in attendance, it will be the largest integration of technical and field operations staff since DARPA's Strong Angel III in 2006.

The core problem set for this 12th event will build on the technical and policy success of recent RELIEF events, including the NGA-DoD-DoS-OpenStreetMap process for Imagery Workflow in Disasters. That process, the first of its kind anywhere in the Federal government to release data to a crowdsourcing organization, significantly accelerated the release of unclassified imagery in international disasters and is now returning critical vector (road) data to the USG and international community.

These Field Explorations are adopting the model of issuing challenges. In August, the Challenges will include:

1) **Accelerating Aerial Imagery Dissemination after Disasters**: *Provide a 10cm resolution base map to an arriving FEMA FCO within 12 hours of a natural disaster*. Both FEMA and the National Weather Service (NWS) have requested that RELIEF accelerate the NGA-OSM workflow and explore imagery support for floods and earthquakes. RELIEF will fly a Predator-surrogate aircraft, collecting high-resolution imagery over a specified hazard area using both the Predator optical package and low-cost camera mounts. All imagery will be crowd-sourced to GISCorps, a volunteer network of 6000 GIS professionals, who will perform photogrammetry.

2) **Dynamic Aerial Reconnaissance Collection Plans**: *Develop an imagery collection plan for CAP that integrates Shake Maps, critical infrastructure, and ongoing social-media reports into a dynamic map of gaps in situational awareness*. The Civil Air Patrol currently flies most missions without a specific imagery collection plan. This Challenge will integrate data from USGS shake maps, DHS HSIP data of domestic critical infrastructure, formal SITREP data, and multi-modal social media analysis into a dynamic collection plan delivered in proper format for CAP pilots. The overarching RELIEF Challenge is to deliver useful and usable data-driven CAP imagery to the local Commander within three hours of a tasking.

3) **Cybersecurity in Crowdsourcing**: *Perform the first known security audit for civilian-sourced information during a domestic disaster.* Haiti was an early example of disaster response agencies using social media to communicate with affected populations, and subsequent events have proven both the value and the hazards of pervasive communications. Research revealed that no audit has ever been performed on the underlying software or practices, yet the risks of a malignant injection are substantial, particularly in an unstable political environment. The JIOWC team will work with crowdsourcing developers—along with members of the DEFCON community, NPS, Harvard, NASA and NORTHCOM—to devise techniques for an assessment of social-media vulnerabilities and first-order mitigation strategies.

Organizations Requesting Invitations (20 June 2012)

Boeing
CIRPAS
Civil Air Patrol
DHS/FEMA
DigitalGlobe
ESRI
Geeks without Bounds
GeoIQ
GISCorps
Harvard Univ
Humanitarian OSM Team
IST Research
Lockheed Martin Corp
MedWeb
MIT Media Lab
NetHope
NPS Core Lab
NDU TIDES
NGA
NOAA/NWS
NPS Remote Sensing Center
Pacific Disaster Center
OpenGeo
Range Networks
Rogue Genius
SolarStik
U.S. Department of State
U.S. Geological Survey

USAID

Other Field Explorations:
RELIEF will also engage in other innovation during this event, including:
1) enabling patient triage and tracking using man-packed solar-powered cellular systems and connecting to shore-to-ship coordination with USNS Comfort; 2) deploying Android-based field data collection/survey tools for Rapid Assessment Surveys with real-time relay of data to Commanders in the field; and 3) using UAVs to relay COTS data communications over the horizon, including provisioning of bandwidth to a CAP aircraft.