

Federal Fire Working Group Meeting

Federal Emergency Management Agency/U.S. Fire Administration
16825 South Seton Avenue, Emmitsburg, Maryland 21727

February 10, 2014 Time: 9:30 a.m. – 11:30 a.m.

Call in#: 1-800-320-4330, PIN#: 621816

ATTENDEES

Jim Call
Mark Wright
Josh Stewart
Kevin King
Jason Steinmetz

ORGANIZATIONS

Smithsonian
Smithsonian
Smithsonian
Marines
Forest Service

PRESENTERS

Everett Hinkley, USDA, Forest Service
Ricky Ziebart, USFA
Dr. Anthony Hamins, NIST

USFA ATTENDEES

Ernest Mitchell
Glenn Gaines
Dr. Denis Onieal
Alex Furr

Sandy Facinoli

Ken Farmer

Rebecca Ryan

Administrator, U.S. Fire Administration
Deputy Administrator, U. S. Fire Administration
Superintendent, National Fire Academy
Director, National Fire Programs Division
(NFPD), USFA
Chief, Prevention & Information Branch (P&I),
National Fire Programs Division (NFPD), USFA
Chief, Leadership and Fire Risk Reduction
Branch, National Fire Academy
Fire Program Specialist, P&I/NFPD

Ernest Mitchell, Administrator, U. S. Fire Administration, welcomed all to the meeting and expressed his interest and appreciation to the members for their participation in this group especially in light of the fact that the meeting was to have been held in December but had to be cancelled to due inclement weather and late opening of the facility. He looked forward to hearing the presentations.

Roll Call was taken followed by the first of several presentations.

The following presentations were provided:

**Everett Hinkley, National Remote Sensing Program Mgr.
USDA Forest Service
Presentation: *Wildfire Support-Technology and Challenges***

Mr. Hinkley provided an overview and background on the Yarnell Hill Fire that occurred in central Arizona on June 30, 2013. Nineteen members of the Granite Mountain Interagency Hotshot Crew lost their lives that day due to a wildfire which had significant fire behavior

changes. The one crew member who survived was separated from the crew earlier that day and was not at the deployment site.

Mr. Hinkley elaborated on the role of technology in mitigating risk and what the USDA currently brings to that effort. Some notable examples provided were the USDA's Active Fire Mapping (AFM) program that provides critical, timely, and comprehensive imagery and fire geospatial data products for the wildfire management community and the public at large. National Infrared Operations (NIROPS) was illustrated and has been serving the fire management community with infrared images since 1964. Mr. Hinkley mentioned that there are few qualified infrared vendors and their costs tend to be higher than the NIROPS program costs. The topic of small UAVs (unmanned aerial vehicles) was discussed and some of their desired features were highlighted, i.e., fully autonomous takeoff and landing; operable from small, unimproved locations; man or light truck portable; and capable imaging systems and guidance systems were some of their desired features.

However, Everett was quick to point out that too much reliance on technology can create a false sense of security and dull our common sense in dangerous situations. Technology cannot prevent incidents or make all of us safe all the time.

**Ricky Ziebart, Chief
Emergency Response Support Branch
National Fire Programs Division
U.S. Fire Administration**

Presentation: *The USFA Role in the FEMA National Response Coordination Center*

Mr. Ziebart provided a detailed and informative overview of the U.S. Fire Administration's (USFA) Role within FEMA's National Response Coordination Center (NRCC). Some federal partners may not associate the mission of the U.S. Fire Administration with the Disaster Response of FEMA or DHS, but under the leadership of USFA Administrator Mitchell and Deputy Administrator Gaines, the USFA has become a full partner in the FEMA Disaster Operations.

Ricky explained that during normal day-to-day operations, the NRCC is not activated; however, the staff of the NRCC is always ready for activation to support the citizens of the United States. An activation of the NRCC occurs when a threat to the United States is imminent or a disaster has occurred and one or more of the ten FEMA Regions and affected States need support. The FEMA Administrator or designated official initiates the activation of the NRCC. Once the NRCC is activated, a guidance document called the National Incident Support Manual (NISM) is followed and sections are structured under a modified organization specific to the National Response Coordination Staff (NRCS). As the role of the NRCC is unique to supporting an incident, FEMA believes this structure serves the disaster response without conflicting with the standard Incident Command System (ICS) references in the National Incident Management System (NIMS) and implemented at the operations site.

Mr. Ziebart stated that FEMA stands ready to support response and recovery efforts. The motto of the FEMA NRCC is to be "Forward Leaning. ...Go Big, Go Fast, Go Smart!" The goal is to

get resources there as soon as they are needed without any delay or lag in the response to support the citizens impacted by the disaster. FEMA would rather pre-stage the resources than to wait on the “boots on the ground” ordering that is routinely provided at a disaster site and to prevent any delay in aid to the citizens.

An example came from the Oklahoma tornadoes last year that struck the schools. FEMA had been watching the development of the storms and saw a potential. They activated the NRCC and sent out two USAR teams and one Incident Support Team to a pre-stage area outside Oklahoma City. This had them enroute to the affected area before the tornadoes touched down. The result was that we had the teams arriving to the pre-staged area (incident support base) at the time they were needed to search homes and schools. Normally, it can take us up to 72 hours to have the rescue teams there; under this strategy, the team arrived, conducted all required initial and secondary searches, wrapped up the operations, and were returning to their home bases within 72 hours.

In closing, Mr. Ziebart reiterated that the USFA plays several valuable roles with FEMA during a disaster response and at the NRCC. This enhances our capabilities to provide the national leadership to foster a solid foundation for our fire and emergency services stakeholders in prevention, preparedness and response.

**Dr. Anthony Hamins, Chief
Supervisory Mechanical Engineer
Fire Research Division
National Institute of Standards and Technology
Presentation: *Smart Firefighting and Cyber-Physical Systems (CPS)***

Dr. Hamins provided a description of a new NIST project in Smart Firefighting and cyber-physical systems (CPS). CPS includes massive integration of wireless networks, advanced sensors, 3D simulations, and cloud services enabling a new generation of Smart Systems. He further went on to explain that CPS should be applied to firefighting because it offers opportunities previously unimaginable. NIST is working on a roadmap to identify and prioritize research needs to enable smart firefighting.

Dr. Hamins believes the current state of firefighting sees fire loses that are too large; a fire ground that is chaotic; and firefighting that is hazardous. CPS provides an information-rich environment, data analytics, and real-time decision tools to improve fire protection and the safety and effectiveness of fire fighters.

He also stated there needs to be a paradigm shift to smart firefighting.

From:	To:
-untapped/unavailable data	-data collection, analysis and communication
-lack of awareness	-sensors everywhere
-local information-poor decisions	-global information-rich decision making
-tradition-based tactics	-data-driven physics-based tactics

- isolated equipment and building elements
- human operations

- interconnected equipment and building monitoring, data, and control systems
- human controlled operations

Dr. Hamins spoke about technology gaps in CPS platforms including reliability; validation and verification; control, communications, and interoperability; and diagnostics and prognostics to mention a few. Obviously, some significant technical challenges loom on the horizon.

In summary, CPS has a critical role in the future of firefighting; significant research issues remain; and NIST has programmatic efforts underway to help advance Smart Fire Fighting.

Round Robin:

Question from USFA Administrator Ernest Mitchell on the use of unmanned aerial vehicles (UAVs): at what altitude do they work? what is their ability to photograph or capture video?

Answer: Everet Hinkley, U.S. Forest Service, provided the following: UAVs work at all altitudes. The size of the aircraft has a direct relationship to payload. The larger the aircraft, the larger the payload capability (in general). Larger payload capacity provides for more sophisticated sensors with better spatial and spectral resolutions. On any given aircraft with a specific sensor, as the aircraft goes higher, the swath width of the sensor increases and the size of each pixel on the ground also increases. So, in general, you get better resolutions closer to the ground. Even small hand launch aircraft can provide streaming video and collect photos. NASA has a great diagram which illustrates altitude capabilities for various aircraft. Mr. Hinkley has provided a copy of NASAs diagram on UAV size classes which will be included in the presentation section.

Question from USFA Deputy Administrator Chief Glenn Gaines: Can you explain the FAA ruling on the Open Skies initiatives. My concern is that steps need to be taken to prevent UAVs from being used to deliver IEDs (improvised explosive devices) by terrorists; especially concerning is the potential delivery to secure sites.

Answer: Dr. Anthony Hamins, NIST, responded that it is best to contact the FAA about Open Skies. His understanding is that the FAA will allow testing of UAVs at a few selected sites.

Question: Someone asked what are the costs for technology?

Answer: Dr. Hamins responded that cost is a huge issue. Effective use of appropriate technology can help reduce the fire loss profile and drive overall costs down.

**No date has been scheduled for the next meeting; we will notify the FFWG members when a timeframe has been established.

