JIFX
Joint Interagency Field Experimentation

NPS Joint Interagency Field Experimentation 19-4

Director's Note

JIFX 19-4 wrapped up on August 8th after an exciting week where twelve, including three "first time", technology teams conducted some very cool experiments. There were over 230 registered participants, including organizations from all Services, four Combatant Commands, National Nuclear Security Agency, Department of State, Department of Energy, and the International Atomic Energy Agency.

The experiments "checked the boxes" for Autonomy/Machine Learning, C2 and Cybersecurity areas while covering applications varying from tagging nuclear materials (simulated of course) to eradicating bird strikes near military airfields.

One highlight of the event was the visit of Marine Corps Lieutenant General Michael Dana. General Dana was accompanied by NPS President Ann Rondeau and in addition to interacting with the various experimenters they attended the Stakeholders Meeting and had lunch with two dozen NPS Marine Corps officer students.

One of the participant companies, Elroy Air, interacted with multiple members of the Unmanned Logistics System – Air (ULSA) Joint Capability Technology Demonstration (JCTD) team who are very interested in this type of capability. Elroy Air has entered into a Cooperative Research and Development Agreement (CRADA) with the Naval Postgraduate School to develop its commercial capability with a military variant and was recently awarded a Small Business Innovation Research (SBIR) contract by the U.S. Air Force using a process run by AFWERX.

Another participant (Greensight) is exploring the military applications of its AI equipped agricultural support drone. JIFX participation has led to discussions to explore using the system for bird mitigation in the vicinity of airfields and to assess runway and roadway damage after attack or national disaster.

The Air Force Research Laboratories provided its COPERS suite of collaboration and visualization tools to coordinate the event including the integrated experiment. For the integrated experiment all participants were required to inject data into the COPERS system.

JIFX 20-1, scheduled for November 4th – 8th 2019, will include experimentation with cybersecurity, laser counter-UAS, AI/ML, autonomy, and C3 systems. For more information visit the JIFX website or follow us on Twitter.

JIFX 19-4 by the Numbers

- **12** Experiments
- **232** Total Participants
- **67** Number of Sorties
- **8** Cyber Vulnerability Assessments Completed
- **11** Foreign Nationals in Attendance
- **87** Government Observers
- **3** First-Time Experimenter Organizations

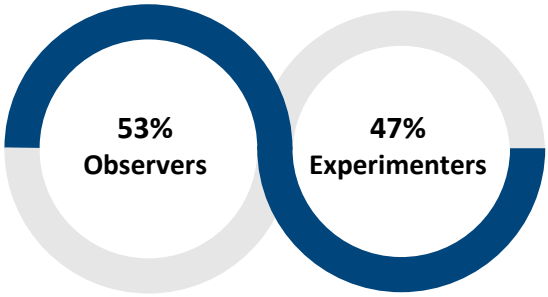
http://www.nps.edu/fx

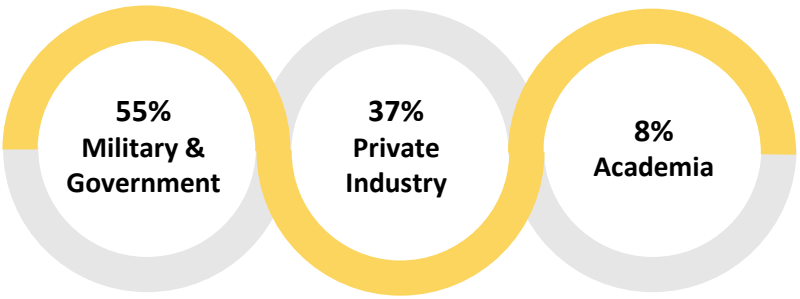
Experiment Information

Experiment Title	RFI Focus Area	Autonomy / Machine Learning	Command and Control	Cyber Security
Audio Capture of Airborne Rotary Drones, Naval Postgraduate School	Unmanned Aerial Systems	✓		✓
COPERS – Integrated Common Operating Picture, US Air Force Research Laboratory	Situational Awareness		✓	
Disconnected Integration Thresholds at the Tactical Edge, Thermopylae Sciences & Technology	Intelligence, Surveillance, and Reconnaissance	✓	✓	✓
EA-1 Chaparral, Elroy Air	Unmanned Aerial Systems	✓		✓
Long Range Tags/Seals for Nuclear Material Storage, CENETIX	Communication and Networking		✓	
Modern Autonomous LAPES, Corvidair	Unmanned Aerial Systems			✓
Personnel and Equipment Tracking and Messaging, Microwave Monolithics	Communication and Networking		✓	✓
Precision Automated Runway Inspection via UAS, Greensight	Intelligence, Surveillance, and Reconnaissance	✓		✓
Precision Liquid Spray Application from Unmanned Aerial Vehicles, Greensight	Unmanned Aerial Systems	✓		✓
Sandstorm Endurance Flight for Aerial Radiation Surveying, Special Technologies Lab – Nevada National Security Site	Unmanned Aerial Systems			✓
TUFER – a Tiny UAS Flight Experiment Recorder, Naval Postgraduate School	Unmanned Aerial Systems		✓	✓

Green = Primary Objective, Blue = Secondary Objective, **Black** = Includes Aspects of / Evaluated for

Participant Statistics





Above: **Lieutenant General Michael Dana** (USMC) observing **Thermopylae**'s eBee X UAV. The UAV is equipped with cameras and sensors which work in conjunction with car-mounted imagery collection to create a 360-degree view image.

Below: NPS Students from the Military Operations in the Information Environment (IW3101) and Information Warfare Systems Engineering (IW4500) courses discuss experimentation with **Lieutenant General Michael Dana** (USMC) and **NPS President retired Vice Admiral Ann Rondeau**.

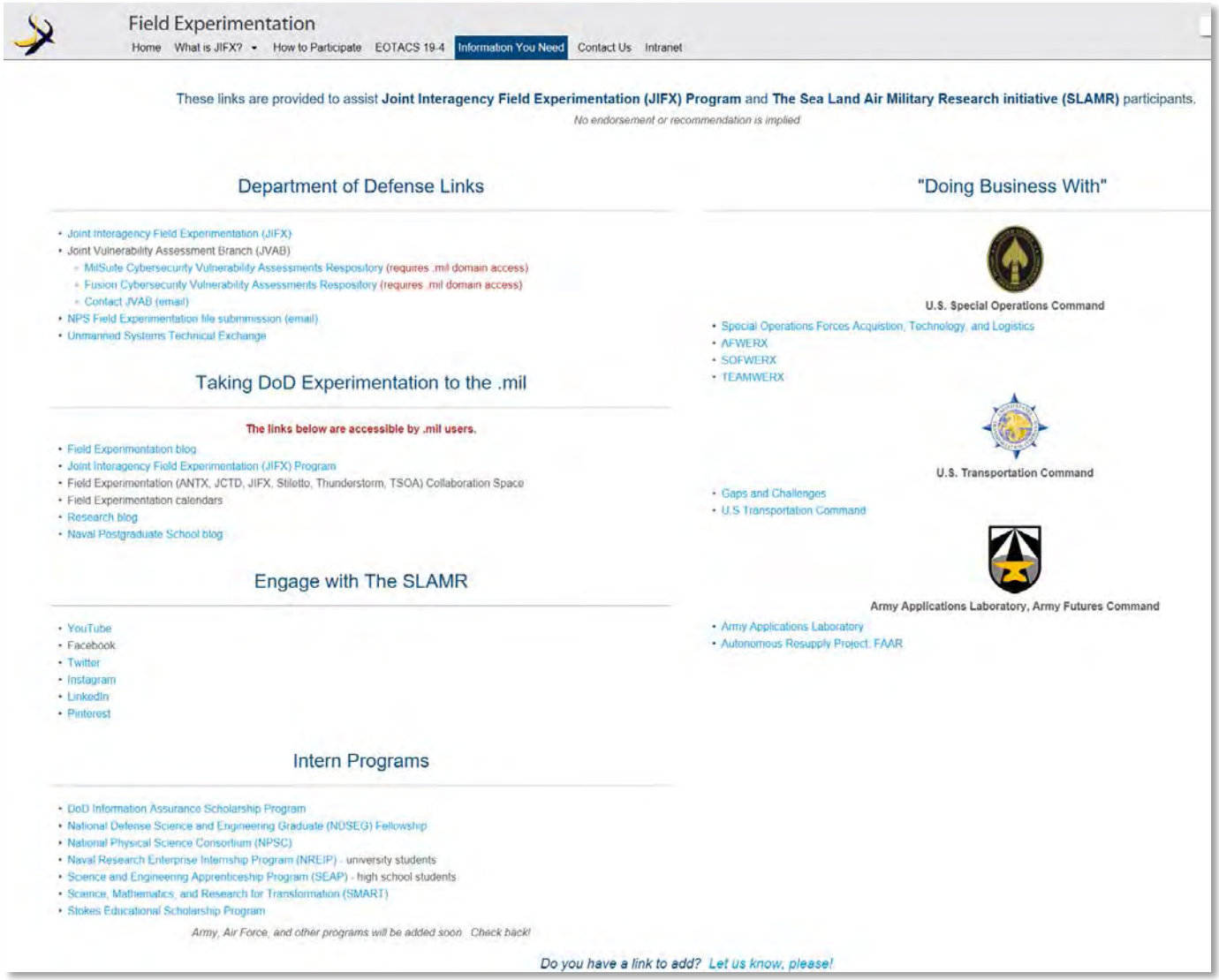
Above: **Naval Postgraduate School** physics department student LT Austin Fleming using a microphone to record audio of UAVs in flight as part of his thesis work.

Below: **Special Technology Labs** prepares the Sandstorm UAV for flight. The Sandstorm is a turboprop UAV used for aerial radiation mapping by flying "low and slow" for extended times.

http://www.nps.edu/fx

Stay Connected

The Field Experimentation website now includes an extensive list of Department of Defense and Experimentation resources for out JIFX community! Visit https://go.usa.gov/xVqpJ to check out the list!



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