PCAST Report: Modernizing Wildland Firefighting To Protect our Firefighters

January 19, 2023

DRAFT/PRE-DECISIONAL

PCAST Working Group

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Modernizing Wildland (and Urban Interface) Firefighting

How can science and technology make wildland firefighting safer and more effective?

Key Findings

- ***Situational awareness*** on the scene of active fires is an ***urgent and unmet need***
- Our country lacks a ***dedicated S&T organization to develop and deploy technologies that can make wildland firefighting safer***
- A wealth of ***untapped historical data from overhead assets*** could enable predictive models of active fires
- Robotics could be integrated with remote sensing to support firefighters with ***semi-autonomous systems***

Recommendations

Recommendation 1: Given the vulnerabilities and shortfalls in wildland firefighter communications, connectivity, and technology interoperability, immediately assess, adapt, and field currently available commercial technologies.

- Leadership from National Interagency Fire Center (NIFC) with support from NASA, NOAA, FCC, and FAA
- Funding is required above current base levels dedicated to wildland fire response.

Recommendations

Recommendation 2: Reverse the current trend of rapidly growing wildfire suppression costs by establishing a joint-agency executive office that can accelerate enterprise-level development and deployment of new technologies that enhance situational awareness and initial attack capabilities.

- Joint Office should leader have Cabinet-delegated decision-making authorities as well as the mandate and budget needed to develop and execute a unified technology roadmap.
- Once established, Joint Office can lead implementation of Recommendations 3-5.

Recommendations

Recommendation 3: Strengthen the full operational sequence of wildland firefighting—detection, alert, response, and suppression—by assessing existing technologies available within the federal arena, the private sector, and allied nations that could be integrated at each stage.

- Should establish clear priorities and develop an all-agency roadmap for testing and transition into operations
- Recommend initial leadership from U.S. Fire Administrator with support from other USG agencies.

Recommendations

Recommendation 4: Accelerate improvement of predictive wildfire modeling tools by expanding research community access to defense satellite observational data.

- Recommend DoD-led evaluation of data classification levels with goal of expanding access while balancing national security considerations
- Methods of data obfuscation can enable broader dissemination of derived data products

Recommendations

Recommendation 5: Expand our nation's wildfire response capacity by encouraging development and field demonstration of prototype autonomous detection, assessment, and containment systems for wildland fire.

- Enabling public-private partnerships to leverage new technology and regulatory frameworks to augment conventional wildland firefighting tools
- Recommend initial leadership from NASA given expertise in underlying technology and ongoing collaborations with fire services