Wildfire Technology Management

Embracing Technology and Collaboration in the Fight Against Wildfires

IDGA
Institute for Defense and Government Advancement

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It seems like the last five years have brought us one devastating wildfire season after another. In the face of climate change increasing the frequency and severity of these fires, IDGA has put together the Wildfire Technology Management Summit to bring together the top minds in the wildfire management space. From April 23-24 the 5th iteration of the summit will be held at the Westin Pasadena in California, during which attendees will discuss the latest advancements in technologies that can be leveraged by fire agencies, the importance of bolstering interagency collaboration and international efforts - comparing technologies, tools, techniques, workflows and best practices for wildfire management around the world.

Before this year's conference kicks off, IDGA sat down with one of last year's notable speakers to discuss the event. Tami Parkinson is a Fire Management Specialist for the Wildland Fire Management Research Development and Application Group, a department in the U.S. Forest Services, and she has over thirty years experience in the wildfire management space. During her conversation with IDGA, Tami shared her experiences managing fires, what new technologies are on the horizon, and why she believes conferences like this one are important.

Can you share a memorable experience or incident from your career that highlights the challenges and complexities of managing wildfires? What lessons did you learn from that experience?

The experience that, to me, really epitomizes the challenges of managing a wildfire came in 2015, during a particularly intense wildfire season across the west. That year, resources were stretched thin due to numerous complex fires raging across Oregon, Washington, Idaho, Montana, Colorado, and eventually California.

I was stationed in Idaho at the time, and the climatic conditions were daunting, with fires spreading rapidly across the landscape. What struck me was how eerily similar the fire patterns were to those of the historic 1910 fires. This realization served as a stark reminder of the magnitude of the situation we were dealing with.

With large fires burning in multiple states, threatening several communities and high valued resources, combined with limited resources we were forced to think outside the box. We had to strategize on how to effectively manage the fires while prioritizing the safety of our firefighters and personnel. This meant reevaluating our approaches to utilize available resources more efficiently and exploring alternative strategies and tactics to leverage the best ridge, old fire scars, treatment units or other fuel modifications across the landscape.

Furthermore, the intense conditions challenged the accuracy of our fire behavior models. It became apparent that existing models struggled to accurately predict fire behavior under such extreme circumstances. As an analyst, I had to critically assess the inputs and outputs of these models to ensure they were reflective of the actual conditions on the ground. This validation led to a greater emphasis on refining our models and ensuring that they were reliable tools for decision-making tactically and strategically.

Despite the challenges, this experience taught me valuable lessons in resilience, adaptability, and resourcefulness. It underscored the importance of innovation and collaboration in effectively managing wildfires, especially during times of crisis. It also highlighted the need for continuous learning and improvement in our approach to wildfire management.

Can you share an example of successful inter-agency partnerships or collaborative efforts that have significantly contributed to effective wildfire management?

Interagency partnerships and collaborative efforts are crucial for effective wildfire management, given that fires transcend county and state lines without regard for ownership boundaries. One example that stands out is the remarkable collaboration seen in interagency training initiatives.

These training programs, often coordinated at both local and national levels, serve as the backbone for all firefighters, regardless of their organizational affiliations. They provide essential knowledge and operational skills necessary for effective wildfire response. What's particularly noteworthy is that these training efforts are led by a team representing various agencies, ensuring a comprehensive and standardized approach to firefighting practices.

Moreover, there's an ongoing effort to ensure that these training programs are grounded in scientific principles and updated in response to evolving wildfire dynamics. This commitment to basing training on the latest scientific insights equips firefighters with the best possible tools to make informed decisions on the ground.

However, there's always room for improvement, especially in leveraging external expertise. Many people in the wildfire management community come from diverse backgrounds with extensive on-the-ground experiences. Complimenting this expertise with formal instructional designers or adult educators that could be found through partnerships with universities and academic institutions could greatly enhance the quality and effectiveness of training programs.

Another vital aspect of interagency collaboration lies in the realm of dispatch operations. Dispatch centers play a critical role in wildfire management by coordinating the deployment of resources, tracking personnel, and ensuring logistical support. These centers operate in an interagency environment, with staff representing various agencies working together seamlessly to ensure efficient resource allocation and incident management.

While firefighting itself may garner much of the attention, it's essential to recognize the indispensable role of dispatch operations in facilitating effective wildfire response. Without their logistical support and coordination, firefighting efforts would be severely hampered. For that reason, it's crucial to acknowledge and appreciate the contributions of dispatch personnel in the broader wildfire management framework.

How has your department embraced advancements in technology to enhance wildfire prevention, detection, and response?

Embracing advancements in technology has been instrumental in enhancing wildfire prevention, detection, response, smoke forecasting and fuels mitigation activities for fire managers. Our department is deeply committed to leveraging technology to empower decision-making and streamline wildfire management processes.

One of the cornerstone technologies we utilize is the Wildland Fire Decision Support System, or WFDSS. This system is required by all federal fire agencies, it is a comprehensive platform serving as a centralized hub for critical wildfire-related information and decision support tools. Through WFDSS, agency administrators can access a wealth of spatial data, including fuels, weather, topography, infrastructure, jurisdictional boundaries, historical fires, etc, this information is used to inform fire modeling and various risk assessments to guide agency administrators through a risk-based decision process. This consolidated view enables informed decision-making by providing a holistic compilation of spatial data to depict wildfire potential, risk and resource allocation needs on one repository application.

Moreover, WFDSS facilitates a risk-based decision process tailored to each line officer's Land Management plan, aligning operational strategies with legal guidelines and landscape-specific considerations. This ensures flexibility and adaptability in wildfire response efforts while maintaining compliance with regulatory frameworks.

A key strength of WFDSS lies in its extensive data coverage, incorporating national-level datasets like LANDFIRE data. This comprehensive dataset eliminates disparities in fuel data availability across different jurisdictions, enabling consistent and standardized analysis and modeling approaches regardless of who owns or manages the land.

In addition to WFDSS, Wildland Fire Management Research Development and Application program also oversees the Interagency Fuels Treatment Decision Support System (IFTDSS), which focuses on fuels management and prescribed burning. IFTDSS provides fire managers with tools for assessing quantitative risk, evaluating treatment options, and monitoring treatment effectiveness. This user-friendly platform is accessible to all stakeholders and supports collaborative decision-making in fuels management efforts.

By embracing systems like WFDSS and IFTDSS, we are enhancing our ability to prevent, detect, and respond to wildfires effectively. These tools empower decision-makers with timely and comprehensive information, enabling proactive wildfire management strategies and ultimately contributing to safer and more resilient landscapes.

Why do you think Wildfire Technology Management is important? What gaps does this conference address?

Last year when I attended the conference I was impressed by the diversified expertise and skills the attendees represented not just individuals from traditional fire agencies. It included experts from entities like NASA and the Department of Defense. While these organizations possess cutting-edge technology, they often lack the specific fire management expertise found within agencies like the Forest Service.

The conference creates a powerful bridge between these different groups. It allows us to share information, make connections, and explore how to complement each other's strengths. One agency alone can't solve all of the wildfire challenges, but collaborative teams leveraging combined expertise and resources can make significant progress.

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Western Fire Chiefs Association

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California Department of Forestry and Fire Protection (CAL FIRE)

Angela Coleman
Associate Chief
US Forest Service

Brian Rhodes
National Director, Fire and Aviation Management
US Forest Service

Jeff Rupert
Director, Office of Wildland Fire
Department of Interior

Gordy Sachs
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Brian Marshall
Chief, Fire and Rescue
California Govenor Office of Emergency Services (CAL OES)

Daniel Berlant
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Scott Gregory
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