Interagency Fire and Aviation Management Information Systems Workshop
Agenda

Overview

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  - David Potter – Bureau of Indian Affairs
  - Gladys Crabtree – National Park Service
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  - Al Borup – National Wildfire Coordinating Group - PMO
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Day 2

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- National Fire Plan - Harry Croft
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Day 3

- Technology Breakout Sessions
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Credits

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Interagency Fire and Aviation Management Information Systems Workshop

Overview:

An Interagency Fire and Aviation Management Information Systems Workshop was held December 3rd through 5th, 2002 in the conference facilities of the New York, New York Hotel and Casino in Las Vegas, Nevada. The goal of the workshop was to provide a forum for improved discussion and coordination among interagency systems personnel and partners in support of the fire and aviation mission. The focus was on recent changes, innovations, and advancements in Fire and Aviation Management and the related systems and technologies that will be implemented over the next few years.

The National Interagency Fire Center in Boise, Idaho, the USDA Forest Service, and their partners in wildfire management organized the workshop. The intended audience included Regional Foresters, Station Directors, Fire Systems Personnel, Incident and Resource Management Staff, Fire Staff, Incident Teams, and other support personnel. Although the USDA Forest Service, National Park Service, and the Bureau of Land Management made up the majority of attendees, the Bureau of Indian Affairs, the U.S. Fish and Wildlife Service, Office of Aircraft Services, United States Geological Survey, and numerous other national and state agencies were also represented.

Speakers from several different agencies discussed many different fire related topics and presented multiple PowerPoint, Paper Point, and video presentations. During six Breakout Sessions, the different attending agencies and specialists in various technological fields had a chance to discuss the more specialized issues with which they are directly involved. Several question and answer sessions and interagency group discussions allowed the sharing of problems, issues, and special concerns between agency counterparts, collaborators, and colleagues.

A wide variety of diverse topics including everything from advancements in accounting technologies and automated resource tracking to infrared aerial photography and real-time geospatial computer mapping of fire-threatened structures was covered. By the end of the workshop, most attendees were eagerly discussing topics and issues for what is expected to become an annual conference. The future may even hold significantly lager conferences with attendees from all national, regional, and state agencies involved with wildland fire management.

Welcome
Mary Ann Szymoniak

Mary Ann Szymoniak, the conference facilitator, opened the workshop by welcoming the attendees to the first annual Interagency Fire and Aviation Information Systems Management Workshop. This was the first interagency workshop designed to facilitate discussion among wildland fire management colleagues. Mary Ann reviewed the meeting agenda, ground rules, and logistics, and provided details about the agency breakout sessions.

The goal of this workshop was to provide a forum for improved discussion and coordination among interagency systems personnel and partners in support of the fire and aviation mission. With a theme of building bridges with our partners, the conference objectives included: providing a forum to discuss agency and interagency issues, facilitating group recommendations on topical issues, and providing information and group recommendations to appropriate agency decision makers.

The intended audience of the workshop included Regional Foresters, Station Directors, Fire Systems Personnel, Incident and Resource Management Staff, Fire Staff, Incident Teams, and other support personnel. Although the USDA Forest Service, National Park Service, and the Bureau of Land Management made up the majority of attendees, the Bureau of Indian Affairs, the Fish and Wildlife Service, Office of Aircraft Safety, United States Geological Survey, and numerous state and national agencies were also represented.

Regional Fire Director
Mike Dudley

Mike Dudley is the Regional Fire Director for Region 4. He began his presentation by discussing important dates in the history of wildfire management. Some of the events mentioned were: the 10:00AM policy of 1935, which stated that all wildfires would be extinguished by 10AM the morning after they began, the Smokey Bear ad campaign which began in 1944, the10 Acre Policy, which attempted to keep all fires to a size under 10 acres, and the Let It Burn policy which was implemented in 1988 after the sever fires in Yellowstone National Park. Newer issues such as Wild land/Urban Interfaces and condition classes continue to change the face of wildfire management.

After the record 2000 fire season the National Fire Plan was implemented. This included the National Fire Plan Operations and Reporting System (NFPORS). This system allows for joint interagency reporting to Congress. A 10-year Comprehensive Implementation Plan has also been established. The 10-year plan involves priority setting, interagency collaboration, and accountability of money and resources used in fire suppression.

One reason for the implementation of these plans was to increase fiscal accountability of interagency fire suppression costs. The General Accounting Office had requested exact figures for fire suppression activities and felt that suppression costs were not being effectively tracked and reported. The Office of Management and Budget was charged with assuring that fire suppression agencies were keeping accurate records. The OMB has requested full accounting of all costs involved and timely and accurate reporting of these expenditures.

The newly created Department of Homeland Security will affect funding for all federal agencies. This new agency will eventually combine 22 different federal agencies and will employ more than 170,000 employees.

For these reasons and more, the theme of Building Bridges with our Partners was established for this workshop. Key aspects of this relationship include interagency cooperation, efficient coordination and effective communication.

Program Leads

During these presentations, the individuals who coordinate their agency's Information Management efforts with the National Wildfire Coordinating Group (NWCG) had a chance to speak about some of the current projects and other activities.

John Gebhard – Bureau of Land Management

The Bureau of Land Management is actively involved with many emerging communications and technology applications. One of the largest programs involves developments in remote weather sensing and fire weather radios. They are also involved in other communication developments such as radio frequency management and the standardization of radio frequency use and of communications equipment between agencies.

David Potter – Bureau of Indian Affairs

While the Bureau of Indian Affairs is one of the smallest partners in the National Wildfire Coordinating Group, they are active in many aspects of wildfire and aviation management such as budgeting, fire planning, fuels operations, safety, and training.

Gladys Crabtree – National Park Service

The National Park Service is involved in many cutting edge technologies such as geospatial modeling of fire effects, data collection using hand held computers, and the creation of a fire history GIS layer. The NPS is also initiating a library of fire data in order to make fire management plans easily available to all who need them.

Rick Mills – Office of Aircraft Services

The main goal of the Office of Aircraft Service is to help coordinate the development of interagency aviation applications. One program they are involved with is SAFECOM, which is a system for reporting aircraft accidents and near misses. They are also active in developing flight following and tracking technologies and improving the overall safety of fire related aviation.

Mike Funston – Forest Service

Within the United States Department of Agriculture (USDA) Forest Service, the mission of the Fire and Aviation Management Information Systems Branch is: to provide quality national information products and services, to the fire and aviation management community, and to fulfill the Information Resource Management (IRM) business needs in alignment with management direction and priorities. Key fire and aviation IRM partners within the Forest Service include: regional fire and aviation staffs, fire researchers, Chief Information Officer telecommunications management, remote sensing and geospatial service centers, and the Forest Service Technology and Development Centers. The Forest Service is also involved with many other partners including: federal and state wildland fire management agencies, the USDA National Information Technology Center at Kansas City, various fire management contractors, and non-government organizations such as The Nature Conservancy and the National Fire Protection Association.

The Forest Service is involved in the development and implementation of a wide variety of systems and services designed to improve wildland fire and aviation management. Some of the national systems that are currently in use include:

- Automated Lightning Management System (ALMS)
- Aviation Management Information System (AMIS)
- Fire Behavior Prediction (BEHAVE)
- Computer Aided Hazard Information System (IAMS/CAHIS)
- Dispatch Utilities (DU)
- Fire Growth Simulator (FARSITE)
- Fire & Weather Analysis (FireFamily+)
- Fire Statistics (FireStat)
- First-Order Fire Effects Model (FOFEM)
- Interagency Cache Business System (ICBS)
- Kansas City Data Retrieval and Reports (KCFAST)
- Lightning Data (LIGHTNING)
- National Fire Management Analysis System (NFMAS)
- Remote Automated Weather System (RAWS)
- Fire Qualification and Certification (REDCARD)
- Situation Report (SitReport/209)
- Wildland Fire Analysis System (WFAS)
- Weather Information Management System (WIMS)

The Forest Service also has the lead project management responsibility for several programs still in development:

- Federal Excess Property Management System (FEPMIS)
- WIMS Re-engineering
- ICBS Re-engineering
- NWCG Resource Order and Status System (ROSS)
- NWCG Incident Automation (to include I-SUITE)
- FFALC Fire Program Analysis (FPA)

The Forest Service is also assisting in the development of several more programs:

- NWCG Incident Qualifications and Certification System (IQCS)
- LANDFIRE
- Incident Financial Obligations Pilot

The Forest Service, for many of these programs, provides support services. The Help Desk receives more than 6000 phone calls form its interagency customers. The Forest Service support services include interagency training and test cells in order to maximize the benefits these systems. National standards for Forest Service geospatial data layers are also being developed. These standards will enable easier identification of aviation hazards and fire management zones.

The Forest Service has strong IRM relationships with group such as the National Wildfire Coordinating Group (NWCG), the Aviation Management Council (AMC), the Wildland Fire Leadership Council (WFLC) and the National Fire Plan. The Forest Service works directly with the NWCG's IRM Working Team, Fire Danger Working Team (FDWT), and Geospatial Task Group (GTG) in the development of information management technologies.

Al Borup – National Wildfire Coordinating Group - PMO

The National Wildfire Coordinating Group (NWCG) Information Resource Management Program Management Office is a service organization dedicated to the successful implementation of technology in the wildland fire community The Information Resource Management (IRM) Program Management Office (PMO) was established to provide a coordinating environment for interagency wildland fire IRM initiatives and to provide consistent management of NWCG IRM assets.

The mission statement of the IRM PMO states that they will "provide guidance, expertise, and tools to enable development, consolidation, and integration of information resource management systems for the wildland fire community."

The IRM Program Management Office performs many different tasks:

- Provide a single point of contact for collection and distribution of standards, "lessons learned", and other IRM best business practices
- Provide the field with information about collateral IRM efforts and initiatives
- Establish and maintain a data management strategy
- Establish and maintain a portfolio of interagency wildland fire applications
- Establish and maintain a repository of project deliverables and metadata

The IRM Program Management Office is involved in four main areas:

- Data Architecture
    - Maintaining enterprise data models
    - Developing and implementing data policies, standards, and stewardship
    - Guiding and advising project teams and IRM Working Team on data management
- Application Architecture
    - Ensuring NWCG IRM application projects align with fire business needs
    - Providing architectural oversight and quality assurance for NWCG applications
    - Maintaining a portfolio of fire applications
- Repository Management
    - Managing a repository of tools, models, documents, metadata, and standards
    - Providing oversight and quality assurance for modeling and documentation methods
    - Coordinating with individual fire agency repository efforts
- Data Architecture
    - Coordinating interagency wildland fire information system projects
- Facilitating agreement among cooperating agencies to achieve interagency project goals and objectives
    - Coordinating NWCG IRM development and implementation activities
    - Managing, developing and coordinating interagency IRM policy, procedures, and standards

Some of the products produced by the IRM PMO include:

- Enterprise models and a data dictionary
- A portfolio of wildland fire systems
- Archives of past projects
- Reviews and recommendations about projects and systems currently in use and those still in development
- PMO references including standards, templates, et cetera

Some of the services provided by the IRM PMO include:

- NWCG project and architecture oversight
- Reviews of models, designs, project plans and charters
- Data stewardship coordination
- Repository cataloging, publishing, searching and retrieving
- Advice, encouragement, coaching, guidance and support

The NWCG IRM Program Management Office provides its products and services to a wide variety of customers:

- Projects and project teams both the NWCG and other agencies
- Development Groups
- Business Leaders
- NWCG Working Teams
- Data Stewards
- Fire Business Users
- NWCG Managers

BIA National Fire Director/NWCG Chair
Jim Stires

The National Wildfire Coordinating Group (NWCG) was established to provide leadership in policies, standards, and procedures for wildland fire management. The NWCG works to provide leadership for a seamless response to wildland fire across the nation. The NWCG was formed in response to America Burning Task Force report in 1970s in order to better coordinate fire response and to help control escalating fire suppression costs. It was recognized that there was also duplication in many agencies standards and procedures. Five federal agencies, two state representatives, a research representative, and several other national representatives are involved in running and advising the NWCG.

The NWCG, in conjunction with other interagency fire management groups, currently creates most of the standards for fire investigation, suppression, and other procedures. The NWCG includes thirteen working teams and several advisory groups. The working teams are responsible for the bulk of the information and policies generated by the NWCG and cover a variety of disciplines. The advisory groups are responsible for areas such as radios, communications, and social sciences and provide recommendations relating to different technical issues involved in fire management.

One of the NWCG's working teams is the Information Resource Management (IRM) Working Team. Its mission is to identify policy level IRM issues that affect or are likely to affect interagency fire management activities and to provide advice to NWCG members on how to address these issues. The working team's main objective is to provide strategic planning and oversight for wildland fire information resource management needs.

The Program Management Office (PMO) of the Information Resources Management Working Team (IRMWT) was established to provide guidance, expertise, and tools to enable development, consolidation, integration and support of IRM systems for the wildland fire community.

The IRM – PMO provides products and services in support of NWCG IRM activities.

When the fire business community identifies an IRM need to the NWCG, the need is assessed and studied by the IRMWT. If the NWCG decides to sponsor a project, business requirements are studied, a solution is designed, and a system is developed to meet these needs and then implemented on an interagency basis. The way it frequently works is that after the business community identifies an IRM need, it then develops a solution to meet its immediate needs. NWCG, or another interagency group, is forced to integrate this system in an attempt to make it successful in the interagency environment

In order for the fire program to progress and reach its full potential, several things will have to occur:

- Improved incident business automation
- Improved fire occurrence reporting
- Improved operations accomplishment reporting
- Integration of federal finance and operational reporting systems
- Integration of geospatial, weather, and resource status reporting systems

In the near future, improvements in information technologies will bring about greater cooperation and collaboration between agencies involved in fire management. All aspects of fire community operations and information management will become even more integrated between the agencies. Better accountability, organization, and accounting of fire spending and the integration of operational and federal finance reporting systems will result in more efficient and cost effective fire management activities. The integration of the philosophy of electronic government (e-Gov) will discourage development of parochial IRM systems and applications more than ever before. Success in interagency IRM is critical to interagency fire program progress.

Fire Use Incident Commander
Tom Zimmerman

Tom Zimmerman's presentation described agency and interagency information system interrelationship. He also discussed the planning involved in the development of a wildland fire policy and the yearly Fire Plan.

The objectives of the Fire Plan are developed using knowledge gained over the last century of fire suppression. Recent developments, especially in the management of historical fire data and the improved collection of information, are having a significant effect current wildland fire use and suppression activities.

The 2001 national fire policy had several main goals:

- To provide for firefighter and public safety
- To protect/enhance and resource values and human welfare
- To integrate programs and disciplines
- To emphasize the natural role of fire
- To emphasize science
- To contribute to ecosystem management
- To promote and develop interagency coordination

The 2002 Wildland Fire Policy framework is based the influences of appropriate management response to various external factors including: land management objectives, threats to resources and structures, hazard mitigation, and fire management objectives. The Wildland Fire Policy includes two main management objectives: fire suppression and fire use. The characteristics of wildland fire suppression are mainly based on resource protection. Fire suppression activities are generally based on short-term objectives with an emphasis on the minimizing losses and eliminating wildland fires. Wildland fire use is generally based on long-term resource benefits and encourages the natural role of wildland fires.

The national Wildland Fire Use Program began in 1970 with the creation of Fire Use Management Teams. Originally, the program included only a few prescribed fires in a limited number of states. Over the last three decades, the program has expanded to include the majority of the country and has included prescribed fires in most states. The fire use program is now used extensively to improve resources and to decrease the potential for severe wildland fires.

Decisions about suppression and use of fires require a sound decision making model. One aspect of this model is the evaluation of the relative risk for wildland fires. This requires obtaining data from past years including average precipitation, usual wind speed and direction, and the historical seasonal severity of wildland fires. Qualitative risk factors must also be evaluated. This aspect involves examining current data including the current seasonal severity, expected precipitation, drought severity, and long-term risk assessments of extreme fuel conditions.

Wildland fire information management can be divided into four phases. The first would be the acquisition of data, both historical and current. This information must then be analyzed in order to evaluate its relevance to current situations. Once the information has been interpreted, it must be effectively applied. This would involve disseminating the information to those who need it and then implementing the data to make effective management decisions. The last step would be to archive the data and provide appropriate documentation for future uses.

Management programs must also include a variety of non-resource based objectives. Some of these factors would include public opinion, structure protection, and the overall cost of the management program. Wildland fire management programs succeed when all the program objectives have been met. Successful wildland fire management is a combination of fire control and prescribed fires used together to create the desired outcome. Wildland fire programs will continue to evolve as further advancements in information management arise.

Fire Program Analysis System Preparedness Module Preview
Dan Keller

- Fire Program Analysis System Preparedness Module
  - Was established :
    - To monitor Federal Wildland Fire Policy
    - To monitor National Fire Plan – 10 Year Comprehensive Strategy – Implementation PlanBecause of executive Direction from the Office of Management and Budget
    - In response to the Hubbard Report which is a comprehensive interagency fire planning and budget analysis identifying the most cost-effective program to achieve the full range of fire management goals and objectives
  - Developing the Preparedness Module is the first installment of the system.
    - FY2003 Appropriations Bill – Draft
- Design and develop a focused system for preparedness resource planning.
- Replace the systems currently in use by the fire management agencies.
- Implement by the end of fiscal year 2004.
- Conduct the project according to standard Federal regulations for planning, budgeting, acquisition and management of capital assets.
- Deliver quarterly progress reports that describe project status and provide updated cost information.
  - Long range vision for the Fire Program Analysis (FPA) System
  - Challenges of developing large applications in an interagency environment
  - The FPA Preparedness Module
  - Addressing challenges using disciplined project management.
- The Fire Program consists of four main activities
  - Suppression of wildland fires
    - Initial Attack
    - Extended Attack
    - Large Fire Support
  - Fire use in fuels management
    - Prescribed burn
    - Mechanical treatment
  - Rehabilitation and restoration of areas burned by wildfires
  - Prevention of wildland fires
- Additional elements of the fire program budget
  - Program Management and Leadership through
    - Fire Management Officers
    - Assistant Fire Management Officer
  - Direct Support
    - Monitoring & Evaluation
    - Smoke and other resource and ecosystem effects
    - Education
    - Training
    - Core data
    - GIS
    - Technology Admin Overhead and Indirect Support
- Interagency Challenges include
  - Budget requests
    - Challenges in submitting budgets using monies from multiple agencies
  - Capital Planning & Investment Control
    - Different processes, planning, and procedures in different agencies
  - Developing the business case (business plan, planning, why should this project be funded?)
    - Exhibit 300 form
  - Standard processes, policies and procedures
    - Need to be standardized between agencies
    - Changing or creating new processes, policies and procedures
  - Enterprise Architectures – different for each agency
    - How each organization and its subparts are arranged and organized
  - Technology
    - Different agencies using different technologies
- FPA Preparedness Module
  - Develop a common, interagency fire preparedness planning and budgeting system
  - Integrate fire preparedness planning with goals and objectives of agency land and resource management plans

- Standardize preparedness planning policies and procedures among the five federal wildland fire management agencies.
- Establish a foundation for future modeling of the entire wildland fire program
- Implement the new preparedness system by September 2004Requirements ProcessDefine business processes/scenarios
  - Define actors and stakeholders
  - Define business rules
- Define logical information requirements
  - Define input and output data
  - Define logical data relationships
- Define current system functionality
- Define new system functionality/features
- Identify assumptions and issues

FPA Preparedness Module Concepts and Architecture
Howard Roose – FPA Lead

- **New system design criteria**
  - Science-based, peer reviewed methodology
    - Based on the best available science and scientific models
  - New evaluator to replace C+NVC
    - Based on involved agencies' land and resource management plan
  - Interagency planning and budgeting tool
    - Standardized in order to avoid multiple work
  - Standard methods for defining data

- **Key Concepts of Preparedness Module**
  - Decisions based on goals & objectives
  - Interagency planning units
  - Optimal allocation of suppression resources
  - Rules for adding program management and leadership
  - National preparedness planning database
    - Data made available to all agencies
  - Constraints for analyzing alternative staffing strategies

- **Analysis Based on Objectives**
  - GPRA performance measures
  - Land management objectives
  - Fire management objectives

- **Goals & Objectives – see example**
  - Proxy metrics
  - Relative importance of containing fires by Fire Management Unit (FMU) Fire Intensity Level (FIL)

- **FPA Preparedness Vision**
  - FPA Preparedness Architecture
  - Business Processes
  - Planning Unit
  - Fire Management Units
  - Suppression Resource
  - Suppression Costs
  - Conduct Fire Program Analysis
  - Simulate fire events

- **Management Constraints**
  - Organization constraints
    - E.g., no mechanical equipment in wilderness FMUs
    - E.g., Analyze an alternative utilizing the current organization
  - Acre constraints
    - E.g., ensure that all fires of FIL 4, 5 or 6 within WUI FMUs are contained at less than 20 acres.
  - Optimal Initial Attack Deployment Deploy initial attack resources to contain fires in each FMU within preparedness budget constraints Effectiveness **"Effectiveness"** describes the ability to contain fires during initial attack.
  - Effectiveness is based on minimizing the weighted sum of acres burned by FMU and FIL.
  - Optimal Organization and Effectiveness Measures Report Fire Program Analysis

User Involvement, Opportunities for Integration, and Project Management

- **Requirements & Design Reviews**
  - Core Team
  - User Team Review
  - Detailed Design Iteration Review

- **Opportunities for integration with existing systems**
  - PCHA – fire history
  - FireFamily+
  - Behave
  - NFDRS
  - FireBudget2
  - IIAA – FirePro- FireBase
  - FORBS – fuels planning
  - RAMS – risk assessment and mitigation

- **Iterative Process**
  - Developing most risky components first

- **Project Management**
  - Schedule & Cost Estimation
  - Schedule & Cost Tracking
    - Earned value management
  - Risk Management
    - Trying to abate unforeseen problems
    - Identification of potential problems
    - Mitigation of problems as necessary
  - Staffing
  - Communication
  - Configuration Management
    - Keeping track of the parts, who is working on them, what progress is being made
  - Quality Assurance
    - Testing strategies
    - Ensuring the finished product the what you set out to do

- **Project schedule**
  - Project Initiation 05/30/02
  - Project Charter Developed 09/30/02
  - Team Selection 10/30/02
  - Develop Initial Architecture 12/31/02
  - Requirements Specifications 01/30/03
  - Contract Award 01/15/03
  - Design and Build 03/31/04
  - Field Data Development 06/30/04
  - Develop Policy and Procedures 09/30/04
  - Testing/Release/Training 09/30/04
  - Data Migration 09/30/04
  - Implementation 09/30/04

- **Staffing**
  - Core Team
  - Requirements Contractor
  - Project Support Contract
  - Support for development of the optimization model
  - Design & Build Contractor – to work as a partner with NWCG

- **Looking Ahead**
  - Communications
  - Data migration & preparation
  - Training & awareness
  - Testing

Audience Comments

How can a contractor be selected before all requirements are established?

- Future components and requirements will not be fully established until after FY04.
- Contract will not be awarded solely on cost.
- Selected contractor will work as a partner to develop the finished product.
- The end of FY 2004 WILL implement application.

General Accounting Office
Glenda Wright

Glenda Wright, from the General Accounting Office (GAO), discussed a recent congressional interest in wildland fire management and the associated costs involved. Congress has charged the GAO with three related objectives. The GAO is now investigating the use of various geospatial applications on wildland fires including Geographic Information Systems, Global Positioning System mapping, remote sensing, and other related technologies. Congress has asked for information about how different agencies are using these applications to improve management of fires. The cost effectiveness and efficiencies gained by these applications and how they are being integrating into wildfire management is being examined. One of the main goals of this investigation is to increase cost accountability and efficiency of newly implemented technologies.

Agency Breakout Sessions

Forest Service Breakout Session
Incident Networking – Network Based Incident Reporting
Steve Simon

Network IP address standardization on incidents

- Standardization of PC IP addressing scheme across all regions
- Creation of a single network using Natural Class "A" Network Mask

Standardization of computer kits for Incident Command Teams

- Number and type of computers brought to an incident
- Layout of network wiring and equipment at the site

Possibility of creating a national cache for information technology equipment similar to caches used for other fire fighting equipment

- Caching of old non-WCF computers as "disposable computers" for use on incidents – This would provide a continual supply of equipment as current WCF computers are replaced.
- An incident is responsible to provide for maintenance of computers requested on that incident. The fire should not be responsible for computers not specifically requested on a resource order.

The Incident Command Team drives demand for automation on an incident.

- Standards should be established as to the types of computers and computer equipment an incident management team should bring to an incident.
- Criteria should be established to determine how much automation (number of computers, types of equipment, etc.) should be required on a certain size and type of incident.
- NWCG Incident Automation Project is moving slowly due to a lack of funding.
- Interagency standards should be established to determine what equipment and types of equipment should be brought to an incident and left on an incident during transitions.
- Standards should include more that just the number of laptops needed. Other criteria should be included: types of networks, network security, types of Internet connections to the camp, mitigation of potential risks, et cetera.

Competitive Sourcing
Joan Golden

Competitive sourcing consists of:

- Inherently governmental activities being done by government employees
- Activities which are not inherently governmental will be contracted to outside vendors
- Competing commercial activities in order to gain efficiency
    - A study will be announced
    - Determine what activities could be competed
    - Determining what would be the most efficient way for the Forest Service to do these activities
    - A bid is created by the Forest Service and compared to that of outside vendors
    - Information Technology is not an inherently governmental activity

Audience Comments:

- Plans should be made to reinvest the Forest Service's potential savings in the future.
- Almost all government positions could possibly be contracted out.
- Have humanistic issues been taken into account? Is cost the only issue considered?
- The contractor selected to study the Forest Service has a history helping organizations compete and win in order to increase efficiency. The goal is efficiency, not cost cutting.
- Many Forest Service employees are involved in both inherently governmental activities and commercial activities.

Agency Breakout Sessions

Bureau of Land Management Breakout Session

Major Issues

- Problems associated with security and management of multiple data lines to a single office
- Fire Plan Analysis (FPA) and future planned releases of the geospatial component
- Establishing an FTP site for incident management team to access necessary data
- Coordination of data standards for GIS information
- Management of GIS modules which are shared between projects
- Consolidating multiple FPA budget entries
- Reliable GIS data can be difficult to obtain – an issue that should be discussed at the Fire GIS conference
- Office location and its relationship with telecommunication support

Incident Support and Wireless Technologies Issues

- Creation of quality GPS maps
- Use of photos in fire management
- Efficient word processing of documents
- Limited internet connection speed is currently an issue
- There is a need for initial data to be used in pre-meeting planning
- 1202 data transmit
- 209 radio transmit GPS coordinates
- Included Initial Attack issues
- Use of PDAs for logistical support
- Central dispatch capabilities
- Wireless network security issues
- Management of radio frequencies
- The inclusion of radios in the IT spending cap

Agency Breakout Sessions

National Park Service Breakout Session

During this session, representatives from the National Park Service discussed issues which are specific to their agency and its relationships with its partners. Topics included: fire suppression management, developments in radio and internet communications, financial accountability and budgeting, and the National Park Service's role as a partner with the National Wildland Coordinating Group.

Department of Interior - Deputy Chief Information Officer
Sue Rachlin

- **Program overview and priorities**
  - Indian Trust Management (Cobell vs. Norton)
  - IT Management Reform Enterprise IT Solutions Chief Information officer Role
  - To implement Clinger-Cohen
  - To enhance existing programs CPIC Process
    - Enterprise Architecture
    - IT HR Environment
    - IT Security
  - To facilitate and promote
    - PMA – Egov, "Getting to Green" – rating (red, yellow, green)
    - Enterprise IT Solutions

- **Collaboration – Internal & External CIO's relationship with Wildland Fire and Aviation Program**
  - IT Capital Planning Support
  - Enterprise IT Solutions
  - IT Infrastructure

- **Implications of Government-wide Initiatives**
  - Increased OMB Involvement
  - Quality Exhibit 300B Crucial to Funding Approval
  - Elimination of Redundant Programs
  - Increased Scrutiny of Legacy Systems – E-Gov Perspective

- **Issues, Trends, and Opportunities with Indian Trust Management – Trust Net**
  - Private IP network being designed and implemented for Trust Bureaus
    - Best practice-based
    - 24X7 operations and security monitoring
    - Reduced points of Presence
    - Outsourced
  - Will be evaluated as a potential for DOI Net
    - 28 Major PoPs in DOI
    - Costs to secure and manage prohibitive

- **Issues/Trends/Opportunities IT Management Reform**
  - Secretarial order – November 2002
  - Mandates stand alone CIO positions at Bureau Level
  - Assigns IT funding approval authority to CIO
  - Functional Equivalency Across DOI Bureaus

- **IT organizational variety, consistency, and integration will be improved**
- **Outsourcing**
  - The FAIR Act and A76
  - Inherently Government Duties
    - Defining business and science requirements
    - Translating into technical requirements
    - Oversight and performance monitoring
    - Life cycle planning and strategic direction Outsourcing opportunities
    - System administration and maintenance
    - 24x7 operations
    - Helpdesk services
    - Wide area Network

- **Legislative Mandates have forced enterprise management improvements and IT solutions**

Forest Service Deputy Chief Information Officer Perspective
Joan Golden

- **Electronic Government**
  - EGov – What is it?
    - President's Management Initiative
    - Government Paperwork Elimination
    - It's the future!
  - EGov process will be implemented in steps
  - Strategic Considerations and government wide
    - 25 Presidential eGov Initiatives
    - 24 USDA eGov Initiatives
    - 20 Forest Service (FS) eGov Initiatives
  - Why this Obsession with eGov "Economies of Scale"
    - The Internet lends itself to "economies of scale" for two reasons
      1. It is most powerful when it allows users to search for information globally without regard to the source of the information
      2. The underlying technologies that support interactive Internet web sites are very expensive to acquire and maintain
  - Next Steps include FS Leadership to:
    - Finalize national priorities
    - Appoint Initiative Sponsors
    - Allocate funding for analysis and business case
  - FS National eGov Initiatives
    - GPEA Compliance
    - Web information delivery
    - NEPA/"process predicament"
    - Recreation
    - Permitting
    - Grants and agreements
    - Field Data Automation
    - Research One-Stop – all FS research in one location

- **Telecommunications**
  - The debate over Analog v. Digital
  - Project SAFECOM includes the interoperability between networks rather than one national
  - Enterprise Capable network and Security Project
  - ECNS Deliverables

- **Computer Base Contracts**
  - Project 615 Follow-on Contracts
    - FS Computer Base Contracts
      1. Integration Services
      2. Server and Software
      3. End User Support
      4. PC and Commodity Items
  - How the New Contracts are different
    - Information given to all sources through FEDBIZOPPS, web, and vendor conference
    - Awards made to GSA contract holders
    - Process Used (Source selection authority and many levels of review
  - PC Hardware/Software contracts will be through Dell, IBM, HP, and Planet Gov

- **End user support services**
  - FS End User Support Center
    - Single point of contact for all computer problems
    - Contractor and FS supported helpdesk services
    - Standardized internal and external helpdesk processes and tools
    - Improved services to employees
  - IBM Contract
  - Knowledge Databases
  - FS End User Support Workflow

- **Competitive Sourcing**
  - Many FS employees are involved in ad hoc fire fighting activities.

Incident Based Automation
Mary Ann Szymoniak

- **May 2002 NWCG approved a two phase project:**
  - Phase I (FY 2003 through the implementation Phase II) will support I- Suite as the interim Incident Automation Software
  - Phase II – will be the implementation of the new Incident Automation Software
- Charter will be approved at January 2003 NWCG meeting
- The Forest Service will provide funding this year
- Phase I team is to be established this year and will include an Interagency/Interdisciplinary steering team

- **In the Meantime:**
  - The original I-Suite team is working on the items identified to be updated, fixed, or added per their annual work plan
  - I-Suite will stay on the regular release schedule

Incident Qualifications and Certification System
Blair Young

What is the IQCS Project?

- Consolidation of federal qualifications and certifications systems
- Integration if systems are inter-related
- Conforms with National Fire Plan direction
- Designed for federal, state, and local use
- The agency wants a more robust system

- **Business needs Addressed by IQCS**
  - Qualifications and Certifications
  - Training management and administration will be able to be fully accessed over the internet
  - Workforce Analysis
  - Data Exchange (IQS, FHRIS, etc)
  - Data for Resource Ordering and Status System (ROSS)

- **Many states are currently using Incident Qualification System (IQS)**
  - IQS, which was created in 1998, has no revision planned after 2002
  - The states can fully migrate to IQCS
- IQCS is chartered by NWCG
- IQCS Project Life-Cycle is divided into phases
- IQCS updates will be made regularly

Resource Ordering and Status System
Nancy DeLong, John Skeels, and Neil Hitchcock

- **Resource Ordering and Status System (ROSS) Focus Areas**
  - Dispatch Messaging
  - Administration (data Mgt.)
  - Resource Status
  - Resource Ordering
  - Map Display
  - Reports

- **Current ROSS Availability**
  - Production Instance
    - Administration (Data Mgt.)
    - Resource Ordering
    - Resource Status
    - Reports
  - Training Instance

- **Training Session Components**
  - ROSS Training
  - ROSS Support
  - ROSS Training Products
  - ROSS Readiness Review Checklist

- **Current ROSS development issues**
  - Funding
  - Staffing
  - Incomplete list of requirements
  - Training scope and complexities
  - Impact from external events
  - HUGE expansion of reporting requirements since project initiation
  - Agency travel and training restrictions
  - Constant changing of agency hardware/software which affects COTS Products

- **How can IRM help development?**
  - Communication with dispatch
  - Review of the project
  - Talk to dispatch office

- **Cooperative Efforts**

- **The key to ROSS Success is an effective project management process**

Remote Automated Weather Stations
Mark Barbo

- 1735 RAWS stations are currently in use
- Fire RAWS – used extensively this fire season and in other incidents (flood prediction, wind events, etc.)
- Incident Weather Observation System is the latest weather observation system and is smaller and lighter than older RAWS systems

Suppression Incident Commander – Mike Lowrey
Controlling Costs on a Large Incident

- Large incidents are expensive and will only become more so
- Incident management spending costs are escalating
- Size and complexity of fires has also increased
- National Incident Management Teams – roles expanded to include other than natural disasters
- Cost containment managing and keeping track of costs
- Contract resources have caused an increase in incident command complexity
- Consistency in data management and equipment will help control costs
- Lack of consistency in hardware and software causes lost time and costs money during transition
- Costs must be actively controlled
- Costs must be accurately tracked
- Examples of over spending which we can easily control
    - GIS services
    - Satellite internet connection
- There are minimum requirements for incident management. An incident management team should arrive with all necessary equipment.
- Minimum standards should be established for the equipment that a management team should arrive with
- Required items for incident management:
    - Internet connection
    - Phone lines
    - Projector for PPT
    - Equipment for public presentations
        - Projector
        - PA system
- There is an ever increasing demand for safety and accountability on large incidents

National Fire Plan Performance Measures
Harry Croft

- **Guiding principles of the National Fire Plan 10-Year Implementation Plan**
  - Priority Setting
  - Collaboration
  - Accountability

- **Performance measures will be used to measure outcomes**
- **Why is this Important?**
  - Interagency standardization
  - Reporting will establish baseline data for future evaluations and analysis
  - Reporting provides the basis for Regional Forester Performance evaluation
  - NRE is closely monitoring accomplishments of tasks
  - GAO, OIG, OMB are all watching

- **Your role in the National Fire Plan**
  - Timely Reporting
    - Fire reporting has the potential to be much faster and more efficient
  - Accurate Reporting
    - Inaccurate data is useless
  - Regional Analysis of Forests
    - Data is useless if it is not interpreted
  - Analysis of State Activities
    - States are usually much less accurate about reporting – often under report number of fires
  - Basis for unit Evaluations

- **Information Management**
  - Not a computer thing
  - Not a system thing
  - It is an information thing!!
  - Old information is useless
    - Useless if not used in a timely manner

- **Cost Codes are to be standardized – one code per federal fire for all workers**
  - Required by House Report 107-564
  - Standard coding practices and procedures
  - Starting in FY 2003
  - Simple, minimum amount of change
  - P – Codes

- **Code requirements**
  - Interagency
  - Single code per incident
  - 18,000 Federal Fires per year
  - Support to other entities
  - Unique for minimum of 3 years – rehab, etc
  - Compatible with existing systems
    - AD hiring
    - Training codes
- **New P codes will be used for FY 03**
  - Alpha – Numeric codes generated by a web based pick list

- **Performance Management Plan**
  - FY 2002 Data Set For 04 Budget
  - FY 2003 baseline data
  - Managing results, not process
  - "FS Strategy for Improving Organizational Efficiency, 2003-2007"
  - OMB Program Assessment Rating Tool (PART)

National Fire Plan Operations and Reporting System
Peter Betker

National Fire Plan Operations and Reporting System (NFPORS) Project Goals include the development of a single tool that allows DOI and USFS to report National Fire Plan project plans and accomplish effective administration.

- **Project Benefits**
  - Reduce the number of data calls from the regional and National levels
  - Improve the quality of data reported at the field, regional and national levels
  - Enable users to track the planning and implementation

- **What's next**
  - Deploy NFPORS within the Forest Service
  - Complete the Community Assistance Module
  - Complete the management dashboard
  - Review of existing systems and develop recommendations
  - Training and support services
  - Configuration Management
  - Operations and maintenance

Wildland Computer-Aided Dispatch – WildCAD
Aaron Gelobter

- **History of the WildCAD system**
  - Started with DOS-based CAD (CAD/CAN) system and eventually added multi-users, GIS, and Relational Database
  - Uses a standard hardware platform
  - Created for use in simple to complex interagency centers

- **Testing**
  - Central California Interagency Communication Center (Porterville, CA)
    - FS, BLM, BIA, extensive state and local Cooperating Agencies
  - 1997 initial contract issued
  - 1998 beta test completed
  - 1999 Twelve additional centers added
  - 1999 Region 5 FS/BLM
  - 2000 Nevada – BLM and FS Joint Centers
  - 2001 BLM in UT, ID, WY and FS region 4
  - 2002 FS Region 2 and NICC
  - 2003 BLM in AZ,NM,

- **Milestones**
  - 37 centers across the country – (100 to 14,000 incidents per year)
  - 12 Centers Scheduled for 2003
  - 300,000 incidents to date handled by WildCAD
  - BLM – National Implementation – Site License (up to 100 additional centers)
  - Charted User Committee and Board of Directors

- **The WildCAD system is currently in use on 28 national forests and all BLM Field offices (22 currently online)**
- **WildCAD Training**
  - New Centers
    - Three 2 day training sessions from the vender
    - Onsite installation and training
  - Dispatcher and System Administrator Training
  - Annual System Administrator Conference

- **WildCAD Priorities**
  - Support to existing online centers
  - BLM National Implementation
  - Enhancements
  - Additional Centers

- **WildCAD Contract**
  - 5 year – middle of year 4
  - provides full Technical Support
  - Annual Enhancements
  - Copy of the Source Code is stored “In Escrow”
  - New 5 year contract (FY 03-07)

- **WildCAD Board of Directors – WildBOD**
  - Review recommendations
  - Identify concerns
  - Develop request for Technical Approval
  - Identify and strive towards common business practices that will be applied to the program

Land fire – Satellite-based Vegetation Classification
Cam Johnston

- Land fire – Satellite-based vegetation classification is a science based assessment
- Land Fire is a national fire management tool endorsed by the National Fire Plan
- Land Fire provides
    - Reference Database
        - Geo-Referenced Field Plot Data
        - All possible Sources
        - Geo-referenced Location
    - Biophysical Settings
        - Long term environmental conditions
    - Image Classification
        - EROS Data Center
    - Successional Modeling
        - Vegetative Triplet
        - FIREHARM Computer Model – Fire Hazard Rating Model
            - Ecosystem Status
            - Fire Hazard

Infrared Program Update
Paul Greenfield

- **National Infrared Operations Program**
  - Airborne thermal infrared system
  - NIROPS internet web site
- Equipment is mounted in a Cessna aircraft
- Phoenix imagery provides 1670 Pixels wide by however long
- NIROPS internet web site has a server located at the Fort Collins information technology center
- NIROPS Data Availability

- **Geo-correcting Imagery**
  - Must correct for 6 freedoms of aircraft movement
  - Must use a Digital Elevation Model DEM
- This information is useful to the planning section at incident
- MODIS provides on-line maps of current wildfire locations produced from infrared photography
- Less accurate private sector thermal imaging system are also available

Automated Flight Following
Bob Roth

- **Pilot Phase:**
  - Automated real time
  - Web based map display with selectable overlays
  - Data sharing with British Columbia Forest Service

- **Initial Implementation:**
  - Improves Situational Awareness
    - Increased number of aircraft tracked (50+)
    - Includes provisions data and some voice transmissions
    - Can provide both permanent and temporary installations
    - Provides a variety of tools and reporting features
    - User profiles
  - Focus Groups
    - Developing integration and data sharing with other systems
    - Integrating dispatch tools
  - Fire and Forest Health Protection
    - Increased accuracy of incident locations

Aviation Training System
Rick Mills

- **Current status of the Aviation Training System**
  - Benefits from interagency collaboration
  - Current OAS Application
    - Department of the Interior (DOI) Aviation Board of Directors endorsed 5 year project to replace existing OAS aviation management applications
    - AMFS – Aviation Management and Finance System
    - FMMS – Fleet Management System
    - MRO Maximio is the selected product and is used by several bureaus within DOI

- **Interagency Aviation Training (IAT)**
  - Consists of online web based courses
  - Office of Aircraft Services – Aviation Conference & Education
  - IAT training schedule

- **SAFECOM System – aircraft mishap reporting system**
  - Developed in coordination with:
    - AMIS – Aviation Mishap Information System
    - DOI
    - Forest Service

- **New SAFECOM Application**
  - Combining the USFS& OAS SAFECOM applications
  - Reasons for the upgrade
    - Provide a common database for all SAFECOMs under one domain

- **New SAFECOM Application**
  - Total development cost = $30,000
  - 5 year life cycle cost less than $50,000
  - Project start – August 2002

Fuels Treatment Tracking System - FASTRAC
Mary Ann Sanford

- **Fuels Treatment Tracking System (FASTRAC) is a visual basic application which tracks burn activities**
  - Related software includes:
  - Blue Sky which create smoke plume models
  - Consume which models fuels consumption

- **More upgrades to FASTRAC will come in the future**

Wildfire Information Web Site
Colin Watts, Jason Harbaugh

- The prototype web site was developed after a request from R2 Regional forester Rick Cables to improve information delivery and consistency on the web for the Hayman Fire
- The web site used a simple user interface designed for the general public. The site was designed to be user friendly and simple to use with the most up to date and accurate information.
- Public reaction was enthusiastic
- Recommendations for future development
    - A single, national web site service for incident-level information will provide:
        - Central information location for the public
        - Ability for the Public
- What is needed
    - Either commercially or Government provided web services (web servers and domains)
    - A unique web site domain name (Ex. – www.wildfires.gov)
    - Government management of non-incident information (national statistics, site navigation, etc.)

Current/Future Technology Trends
Environmental Systems Research Institute

Russ Johnson

- **Uses for Mobile GIS**
  - Increasingly being used by first responders and other emergency personnel
  - Linking handheld devices over the web in order to update GIS information on a real-time basis
  - GIS and hand held computers were used at the Olympics command center
  - Use of GIS to plan and prepare for an incident – pictures, floor plans, etc
  - Wildland/Urban Interface structural fire planning
  - GPS Tracking of resources and personnel
  - GIS modeling and data fusion to answer questions
  - Public information dissemination
  - Online map request system
  - GIS – homeland security planning

Jeff Brynyl

- **GIS Architecture**
  - Fire information database
  - Incident Mapping
    - Incident Command System extension for ArcGIS 8
    - ICS features include data templates

- **Internet Map Services (ArcIMS)**
  - View map data without requiring desktop software to be installed
  - Improved situational awareness
  - Increase access to spatial data
- ArcWeb Services provide GIS content and capabilities available over the internet
- Web Mapping can integrate other data sources quickly
- Geography Network is ESRI's internet map service
- Rocky Mountain Coordination Center has begun using ArcIMS Map Service

- **The Fire Database can be accessed using:**
  - Desktop Tools (ArcGIS)
  - Interactive web mapping tools (ArcIMS)
  - Static (but current) maps

- **There is a lot that could be done to provide better geospatial information to more people using current technology.**

John Caulkin

- **ArcGIS Software Development Projects:**
  - Geoprocessing
  - 3-D GIS/Visualization
  - Temporal GIS
  - Tablet PC / Sketching
    - Drawing, editing on screen, creating a new GIS layer
  - Tracking Analyst
    - Time based information playback in Arc
  - Disconnected Editing
    - Uploading changes to data bases
  - ArcGlobe mapping software

Tom Patterson

- **Mobile GIS can be used to:**
  - Link digital video with GIS coordinates
  - Produce digital photographs with attached GIS coordinates
  - Provide accurate mapping and recording of structures and other property damaged by wildland fires

Technology Breakout Sessions

Information and Technology Management Breakout Session
Creation of Interagency Standards

- **Standardization of interagency projects:**
  - Tool sets for project management and portfolio management
  - Processes to increase accountability
  - Training standards
    - How are standards determined
    - Which set of standards should be used
  - Transitions from Initial Attack to Extended Attack

- **In the National Wildfire Coordinating Group:**
  - Standards should be created for all fire projects
  - All agencies should agree on standard
  - Increase interagency communication about projects
  - Take an inventory of all projects to eliminate redundancies
  - Standardize project requirements

- **Establishing Interagency Standards**
  - Determine which problems and issues require standards that affect interagency environment
  - Different standards are used by different agencies
  - Multiple wildfire glossaries are in use:
    - ICS Glossary
    - IIAA Glossary
    - Wildland Fire Glossary
  - Different agencies use unique names to identify their land units – i.e. Forest Service districts and Bureau of Land Management field offices
  - "Political" influences and "Cultural" interpretations influence standards – Perceived values at risk vary between political entities

- **Recommended course for establishments of standards:**
  - Standards should be submitted to or suggested through NWCG avenues (working teams, advisory groups)
  - Standards are then endorsed by the NWCG
  - Standards are approved and implemented by WFLC
  - Standards are published
  - Changes or amendments to standards need to go through the same process
  - All agencies must comply to this process
  - A standardized dictionary of terms and standards must be established

Project User Support

- **National Wildfire Coordinating Group Working Team User Support:**
  - Developing criteria to determine what constitutes an interagency project
  - Determine which projects the NWCG needs to provide support for
  - Types of support required for different projects (help desk, et cetera)
  - Interfacing with other incident management agencies
  - Service level agreements between the end user and the service provider
  - No two applications require the same types and levels of support

- **Incident Automation**
  - Major Issues
    - There are wide variations of standards and equipment among teams
    - Each team acquires hardware differently: renting, purchasing, leasing, etc.
  - Solutions and Suggestions
    - Standardize incident IP addressing
    - Establish transition protocol
    - Expand scope of I-Suite web page to include other incident support issues
    - Emphasize Status Check-In Recorder training needs

Technology Breakout Sessions

Wildfires and Web Sites
Flint Cheney, Colin Watts, and Jason Harbaugh

A nationwide wildland fire web site would be established to:

- Present information to the general public
- Standardize types of information disseminated

A single, national web site service for incident-level information will provide:

- A central information location for the public
- The ability for the public to get information more easily and more quickly
- Better ability for management teams to manage their own content
- Consistency between different teams and incidents

What is needed to establish a web site of this type:

- Either commercial or government provided web services (web servers and domains)
- A unique web site domain name (Ex. – www.wildfires.gov)
- Government management of non-incident information such as national statistics, site navigation, etc.
- Ability to post website information for incident teams without that expertise

Audience comments:

- Fire information and public affairs need to be involved
- Information about prescribed fire should also be included
- Web page templates should be easy to use to facilitate the input information
- Public affairs and prevention information should also be integrated

Technology Breakout Sessions

Fire GIS

Recommendations

- Perform a cost analysis of GIS services on fires
- Setup an interagency FTP site to facilitate sharing of data
- Ensure reliable internet access on scene
- More IRIN and GIST cooperation
- Develop data standards

Vegetation Mapping Issues

- Identified as a critical need
- Seamless vegetation mapping to support fire management efforts
- Consistent ground information
- Create a list of standard processes for vegetation mapping

Fire Information Management Recommendations

- Keep GTG informed
- Projects discussed in this venue need to be shared with Fire Management Officers
- Develop a strategy for fire planning including data elements such as fire occurrence history
- Support the development of a single point of entry for data collection for all fire data including prescribed and wildland fire information

Technology Breakout Sessions

Telecommunications and Radio

- **Department of the Interior radio contract**
  - Project 25 – the use of analog and digital together

- **Improvement in the SAFECOM system**
  - Interoperability between all agencies – state, local, federal
  - Lacks sufficient funding
  - Old radio systems

- **PC use in fire camp**
  - Status of PCs and PC issues for Incident Command Teams

- **NWCG Radio Meeting**
  - Identify the needs of radios on fire

- **BLM radio system implementation**
  - Created an efficient system through state and federal cooperation

- **Discussion of communications problems of fires**
  - Identification of needs and possible solutions

- **Standardization of flight following between agencies**

- **Voice over Internet Provider (IP)**
  - Concepts
  - Advantages
  - Possible uses
  - Interfacing with existing systems

Agency and Technology Breakout Session Review

During this session, representatives from the different agencies shared views and concerns raised in the six Breakout Sessions. Issues discussed during these sessions ranged from the creation and implementation of standards for training, equipment, and resource ordering to radio communications and real time aerial mapping of fire lines. An outline of the issues and topics discussed is located in each of the Breakout Sessions sections.

Conclusions and Critique

Conclusions

- Many attendees expressed the view that this workshop should become an annual event in order to further facilitate the necessary interagency dialogue which was begun at this conference.
- Perhaps two conferences could be created: one more specialized, addressing specialized management and technical issues, and one with a larger, more diverse attendance including more Fire Management Officers and other staff, specialists, and personnel involved in fire management.
- An increased attendance by specialists and those directly involved with fire and aviation management topics discussed would benefit the entire fire management effort.

Audience Critique of the Workshop

- The workshop was effective and well thought, thanks to the efforts of its coordinators and creators.
- Some would like to see more states agencies represented.
- More fire techs, fire management officers, and other related specialists should attend future conferences.
- More time should be spent on technical issues rather then broader management topics.
- Many attendees liked the different tracks.
- The large variety of materials presented was well suited to this group.
- The CIO, GAO, and WO speakers were great to have. It was good to know what the overhead is doing in relationship to the fire management community.
- This workshop has helped to establish a better coordination of conflicts, interests, and issues discussed at future interagency and agency specific meetings.
- A similar meeting should be held annually in order to promote interagency cooperation and to further the Wildland fire and aviation management cause.
- Some people felt that the agency breakout sessions did cause them to miss valuable presentations given at the other agency sessions.

Credits

To everyone who made this workshop a success, Thank You!

Special Thanks To:

- **Mike Barrowcliff – Workshop Organizer**, Bill Rush, Mike Funston, Mary Ann Szymoniak, Tom Patterson, Colin Watts, Jason Harbaugh, Mike Dudley, Jim Stires, Al Borup, Sylvia Fici, Penny Whoosey, Diana Wormwood, Ed Toth, and Countless Others

Conference Creators

- Mike Funston, Tom Harbour, Kim Walton, Jerry T. Williams

Conference Facilitator and Time Keeper

- Mary Ann Szymoniak

Recorder and Note Taker

- Erick Schneider

About the Author

Erick Schneider

The Green Mountain National Forest Fire Crew
The author is in the back row, second from left.

Erick Schneider began his career with the USDA Forest Service in the summer of 2001, after earning a degree in theater from Northeastern Oklahoma Agricultural and Mechanical College. Erick's first position was as an Information Receptionist on the Manchester Ranger District of the Green Mountain National Forest in Vermont. Through his training over the next two years, Erick earned certifications as a Type II Wildland Firefighter, a Class "B" Sawyer, a certified trainer of the "Leave No Trace" outdoor ethics, and qualifications for many other office and administrative activities. Erick is currently working as the Public Affairs Assistant in charge of the Visitor Information Center on the Rochester Ranger District of the Green Mountain National Forest.

Erick Schneider

eschneider@fs.fed.us

Rochester Ranger District
Green Mountain National Forest
99 Ranger Road
Rochester, Vermont 05767-9431

Phone: (802) 767 – 4261 Ext. 512
Fax: (802) 767 - 4777