



## Accomplishments & Current Projects – FY07

**Fire Modeling Institute (FMI)** brings together fire managers with technical experts and scientists in order to solve fire-related resource management problems by incorporating the best available fire analysis technology and the most current information from the scientific literature. FMI is composed of two teams: the **Application Team (ATeam)** provides applications, development, and training in modeling, spatial analysis, and data analysis; and the Information Team, also known as **Fire Effects Information System (FEIS)** provides state-of-the-knowledge reviews of scientific literature on biology, ecology and fire effects. FMI work is divided into four categories: Development, Support, Training, and Maintenance; which are listed below followed by accomplishments (indicated by ● bullets) and current projects (indicated by ○ bullets) from fiscal year 2007.

### **Development** – Applications, products, and methods that addresses the latest fire management issues:

- Publication: *Fire ecology & management of the major ecosystems of southern Utah* (In press)
- Publication: *Wildland fire & ecosystems: fire and nonnative invasive plants* (In press)
- Publication: *Guidance on spatial wildland fire analysis: models, tools and techniques*
- Publication: *Nomographs for estimating surface fire behavior characteristics*.
- Publication: *Restoring the Pacific Northwest: the art and science of ecological restoration in Cascadia*
- Developed a national map whitebark pine blister rust infestations to support regional restoration strategies
- Developed a national map of Wildland Fire Potential (Version 2) to support strategic planning at the USFS Washington Office
- Developing a spatial and web version of the First Order Fire Effects Model (FOFEM)
- Developing methods to modify wildland fire use decision support nomographs based on local conditions
- Developing a standard for creating & reporting weather conditions used in fire behavior models at different scales
- Integrating the Fire Ecology Assessment Tool (FEAT) & Fire Effects Monitoring and Inventory System (FIREMON)
- Developing a tool for calculating fuel quantities & qualities and simulating fire behavior effects (FUELCALC)
- Summarizing fuel treatment changes over 12 years on treated ponderosa pine/Douglas fir forests in western MT
- Developing an annotated, illustrated, electronic glossary of fire science terminology (FireWords)
- Developing a desk guide for Stewardship and Fireshed Assessment (SFA) program
- Publishing a Photo Guide to the Fuel Loading Model (FLM)
- Writing a synthesis paper on fuel treatment effectiveness in the southeast

### **Support** – Integrating state-of-the-art science and technology into tools and products for management:

- Modeled consumption and emissions to support MT/ID Prescribed Burn Reporting System
- Provided a long-term fire behavior assessment to support fire & fuels planning on Sawtooth NF
- Modeled fire behavior to predict fuels treatment effectiveness in the Bozeman MT Municipal Watershed
- Provided an assessment of the risk of fire moving out of the Lee Metcalf Wilderness in MT
- Assisted Helena NF with development and analysis of spatial layers for FARSITE & FLAMMAP fire behavior models
- Enhanced spatial data to support both the USFS FY08 and DOI FY07 Fuels Allocation Process
- Provided spatial data and technical expertise to USFS State & Private Forestry Redesign Allocation Tool
- Evaluated fuel treatment effectiveness in the southeast based on fire behavior modeling – DeSoto National Forest Case Study
- Evaluated similarities in fire behavior and ecology of National Forests to the Tahoe Basin Management Unit
- Provided computational fluid dynamics wind modeling (WindWizard) on three national forests in USFS Region 4
- Provided fire behavior and GIS support to wildland fire Northern Rockies and Southern Area Commands (14 total weeks)
- Modeling fire danger in the Pacific Northwest to support the regional fuel allocation processes
- Fire behavior & smoke modeling to support a fuels & fire plan for the Savanna River NF
- Burn probability mapping to support restoration and protection strategies for USFS Region 1

### **Training** – In using the latest technology and information for fire behavior, fuels, and ecology:

- Information Sharing/Training: Presentations/Posters: FEIS > 20, ATeam > 30; Specialized Tech Transfer Activities > 20 total
- Taught FIREMON grassland biomass sampling methodologies to the Coeur D'Alene Tribe in ID & six Great Plains tribes
- Taught in IQCS classes: RX310, RX410, S492, and S493; and SPOT's workshops in Bend and Portland OR
- Trained 18 people on using the FireWorks educational trunk
- Developing training materials for the BehavePlus fire behavior modeling program

### **Maintenance** – Maintaining applications and technologies:

- Interactive internet map was added to the Wildland Fire Assessment System (WFAS) website
- Updated FIREMON with additional analysis tools, sampling fields, and user options
- Added 50 species and fire effect write-ups to the Fire Effects Information System (FEIS)
- Provided technical/helpdesk support: FEIS over 60 calls; Application Team over 100 calls
- Rewriting and adding 150 species reviews into FEIS
- Updating NEXUS, a crown fire potential model, with additional features
- Updating the Strategic Placement of Treatments (SPOTS) and Stewardship & Fireshed Assessment (SFA) programs website