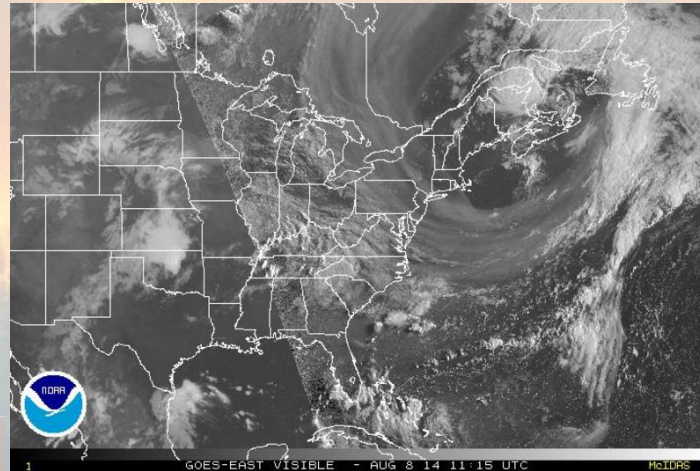
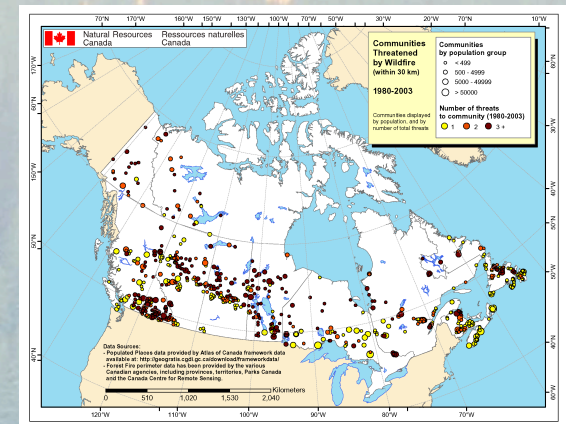


National Smoke Science Forum Proposal: Possible Smoke/Fire Research Organization Models

*B.J. Stocks Wildfire Investigations Ltd.
Sault Ste. Marie, ON, Canada*



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Halifax, NS



Wildland Fire Smoke Research in US

- Clean Air Act of 1970, with EPA setting standards and states responsible for meeting them
- Subsequent amendments/tighter regulations on PM & ozone levels
- Smoke management/emissions research began in early 1970s
- Focus on prescribed fire AQ impacts, particularly in NW & SE regions of US
- Many efforts by fire management/research communities to inform policy & address increasingly stringent regulations (e.g. NWCG Prescribed Fire Smoke Management Guide)
- Still, resolving the need for sound fire management practices with the requirements of evolving air resources management is an ongoing and increasingly difficult challenge in the US
- Led to the development of a Smoke Science Plan under the Joint Fire Sciences Program (JFSP)

US Joint Fire Sciences Program (JFSP)



- JFSP created with USFS and DOI funding support in 1998:
 - To **support** land managers with credible research, develop **new** lines of research targeted at managers' needs, and **communicate** findings clearly;
 - Designed to be a single, cross-agency, “go-to” organization with the mission of streamlining the creation, synthesis, and delivery of fire science in today’s changing ecological and social environment;
 - JFSP competitive, peer-reviewed grant process supports projects that complement and build on other federal research;
 - JFSP uniquely positioned to tailor wildland fire research in response to the emerging needs of policymakers and fire managers
 - Annual cycle of proposal solicitation, review, and funding ensures timely response to evolving conditions
- JFSP has appropriation of ~\$12 million annually

JFSP Smoke Science Plan

- JFSP hosted two (east & west) smoke needs assessment workshops in 2007 with key scientists & managers.
- Workshops identified four research themes:
 - Smoke Emissions Inventory Research
 - Fire and Smoke Model Validation
 - Smoke and Populations
 - Climate Change and Smoke
- Followed by web-based questionnaire (2009/2010) to community of interest (USFS, DOI, EPA, NASA, NOAA, universities) to further evaluate relevance of four themes – strongly supported themes
- These themes guide JFSP smoke research funding 2011-2015
- Funding \$1.5 - \$2 million annually
- Funded 31 smoke research proposals 2008-2013

IAWF International Smoke Symposium

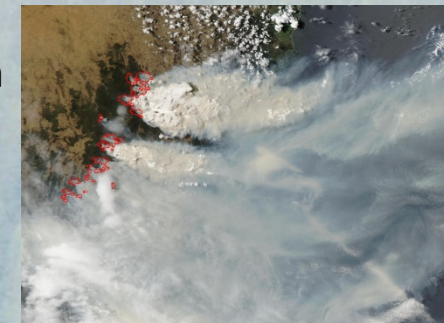


- Purpose:
 - Serve as a nexus of interdisciplinary research, management, and policy
 - Bring together research specialists, managers, and policy makers from non-governmental organizations, government agencies, tribes, and private institutions
 - Discuss and evaluate current practices, latest research and technological developments that inform decision-making to provide a critical sounding board for future research needs and practical solutions to management challenges
- Sessions*:
 - Smoke and Air Quality Modeling
 - Smoke and Climate Change
 - Smoke and Populations
 - Smoke Management and Mitigation: Policies, Procedures and Practices
 - Wildland and Agricultural Fire Activity, Smoke Emissions and Inventory

* Closely mirrored JFSP Smoke Science Plan themes

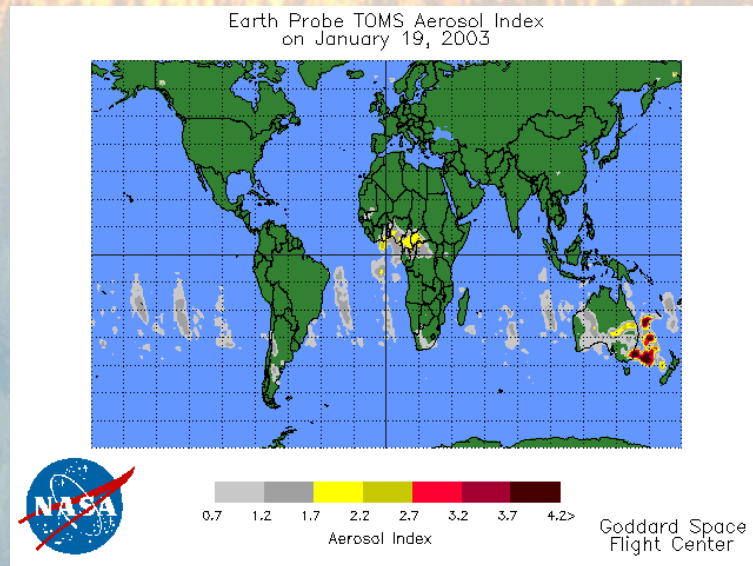
Australian Bushfire CRC

- Bushfire Cooperative Research Centre (CRC) established in 2003 through grant from Australian Government's Cooperative Research Centres Program (extended in 2010 and 2013)
- The CRC program supports **medium to long-term end user driven research collaborations** to address major challenges facing Australia. CRCs pursue solutions that are innovative, of high impact and capable of being effectively deployed by the end users
- Bushfire CRC supported by 51 partner organizations - all fire/land management agencies in AUS & NZ, CSIRO, Bureau of Meteorology, private enterprise, local governments:
 - 51 state-based agencies, 17 research organizations, 3 federal agencies, 6 industry bodies
- Program established and extended after major high-impact wildfires in 2003 and 2009, so research themes reflect this:
 - Prevention, preparation and suppression, management of fire in the landscape, community self-sufficiency for fire safety, protection of people and property
 - Understanding the risk, communicating the risk, and managing the threat
- Still basic research on fire weather, fire danger rating, fire behavior modelling, fire and landscape ecology, fire economics, risk assessment, smoke properties/impacts
- User agencies help set priorities as they are funding the research



Bushfire CRC Smoke Research

- Smoke transportation and emissions modelling from rural or urban fires
- Smoke composition from prescribed and wildfires
- The effect of smoke from prescribed burning and bushfires on plant physiology
- Health effects of bushfire smoke (public and firefighters)
- Close collaboration with academia



Bushfire CRC Funding

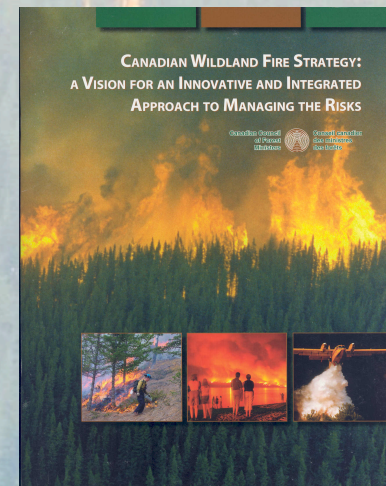
- **2003-2009:**
 - \$33.5M from Commonwealth, and \$18.0M direct and \$62.5M in-kind from Fire Industry
 - Total \$114 M
- **2010-2013:**
 - \$15M from Commonwealth, and \$10M direct and \$32M in-kind from Fire Industry
 - Total \$57M
- **Total: 2003-2013: \$171M**



Canadian Wildland Fire Strategy*

- Developed after 2003 BC fires and signed in 2005
- Recognized changing context in CDN fire management:
 - Becoming more complex – social, economic, political & ecological factors
 - Globalization of forest industry – pressure for secure wood supply
 - Expanding WUI, aboriginal communities, resource development in north
 - Information explosion – internet, 24-hr news – public/political awareness
- Emerging issues, challenges and risks:
 - Managing public risk/expectations in expanding WUI & resource management
 - Forests under stress – fuel accumulation, insects etc.
 - Competition for forest land base – parks, aboriginal rights – no buffer stocks
 - Climate change – more frequent, severe & larger fires, longer seasons
 - Declining fire management infrastructure – equipment & personnel
- Largely unimplemented – some evaluation studies under CCFM WFMWG

* Note: **No mention of smoke issues**

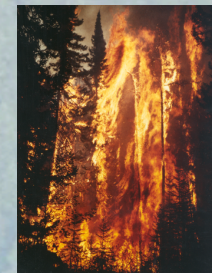


Canadian Interagency Forest Fire Centre (CIFFC)

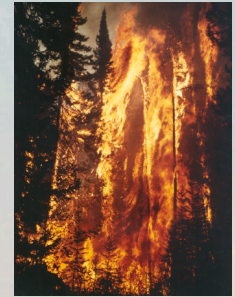
- Mandate:
 - Cost-effective sharing of fire management resources
 - Promote, develop and provide services to member agencies
 - Budget 50% federal government (NRCan), 50% provincial/territorial members
 - Directs working groups created for specific tasks
- Main responsibility is resource-sharing facilitation – limited additional responsibilities unlike NIFC – not a clearing house
- Could CIFFC house a WG or CoP on smoke?
- Could CCFM WFMWG support this concept?

Summary Points

- US smoke research more mature and complex:
 - Began in 1970s (SE and NW) around prescribed fire
 - Recent fire impacts, population density, infrastructure, regulatory bodies, litigation all combine to make public and managers more aware of smoke/fire issues than in Canada
- Potential funding models:
 - JFSP in US actively soliciting and funding smoke research
 - Bushfire CRC in AUS successfully lobbied for funding
 - Canada? A model where agencies, feds and private sector solicit proposals & fund fire research
- Must see smoke research in context of:
 - Other government priorities
 - Declining federal research capacity (recent major fire impacts have no lasting effect on gov't priorities)



Summary Points (cont'd)



- Public and professional surveys:
 - JFSP surveyed fire managers to set funding priorities
 - Do this in Canada? Through CIFFC?
 - US also using questionnaires to solicit public perceptions/expectations on smoke management – builds awareness
 - Use of Google or Yahoo groups for collaboration and education?
- Evacuations:
 - Extremely costly and disruptive, but now a common tool
 - Costs largely unknown due to multi-agency involvement – cost not a deterrent
 - Could some evacuations be avoided with better smoke management tools/information?
- Is smoke a high priority to CDN fire managers? More of a concern to health care system?