

2014

**IMPROVING COMMUNITY RESPONSE TO  
WILDFIRE:  
2013 FIRE SEASON FINDINGS REPORT**

**METHODOLOGY SUPPLEMENT**

This methodology supplement was prepared by  
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This supplement summarizes the methodology employed in preparing the 2013 Fire Season Findings Reports issued by the Fire Chasers Improving Community Response to Wildfire Project. The reports presented outcomes for twenty-one Type I and Type II incidents that occurred in Idaho, Montana, Oregon, Washington, and one pilot incident in Colorado, during the 2013 wildfire season. The goal of this report supplement is to provide disaster, fire response, and land management agencies with feedback on the general methodology and sample employed in the collection and analysis of data presented in the 2013 Fire Season Findings Reports for each of the 22 incidents in our sample. Additionally, we have made a core set of our research tools available to the public on our website here: [firechasers.ncsu.edu](http://firechasers.ncsu.edu). Interested parties can download our research tools for use on future incidents.

### **Data Collection & Sample**

The data collection methodology for the Fire Chasers 2013 post-fire surveys consisted of three stages: a) incident identification; b) incident network identification; and c) survey administration. We identified incidents by monitoring Inciweb for incidents in our sample area of Idaho, Montana, Oregon, and Washington in which wildfires started on USDA Forest Service land and for which the Forest Service was a host agency. Once this was established, fires were selected for inclusion if they met at least three of the following four criteria: 1) involved a Type I or Type II Incident Management Team; 2) there were significant values at risk that included threatened residential structures; 3) there were evacuations and road closures; and 4) the incident involved multiple jurisdictions or multiple agency administrators.

Since our study is primarily concerned with the social complexities on wildfire incidents, the next step in our post-fire survey was to identify something we call “the incident response network”—or the group of key agencies and organizations involved in responding to the incident. The objectives of network identification were to identify the sample of incident respondents and to develop a list of cooperating agencies, host units, and IMT personnel. We accomplished this by following three general steps. First, we contacted the Incident Commander from the Type I or Type II IMT on the incident while the incident was ongoing, but beyond 50 percent containment. Incident Commanders were asked to identify affected jurisdictions, the host agencies/units and agency administrators, and to provide the names and contact information for their command and general staff (C&G). Second, we contacted the Liaison Officer (LOFR) or equivalent from the IMT to identify the agencies and personnel engaged as cooperators in response to the ongoing incident. LOFRs or their equivalents indicated each agency and agency representative engaged as a cooperator in any capacity, providing contact information where possible. Finally, we contacted personnel from select responding county agencies and the host units to confirm their participation and other participants in the incident response network.

The next stage of data collection occurred in two phases. In the first, we administered surveys to IMT personnel by phone while the incidents were ongoing, but approaching containment. In the second phase, we emailed invitations to personnel in each cooperating agency and host unit in November 2013, after the government shutdown ended and federal agencies returned to daily operations. Each respondent was provided a link to a survey based on the incident in which they were engaged as a responder or host. All survey data collection was completed by the end of November 2013. At the close of data collection, our combined sample and response rates for all twenty-two incidents were as follows:

- **Cooperating Agencies** – there were 467 individuals and 280 organizations in our sample and a total of 205 surveys were completed (43% response rate)
- **USDA Forest Service** – there were 251 individuals in the sample and 167 surveys were completed (66% response rate)
- **Non-USDA Forest Service Host Agencies** – there were 50 individuals and 14 organizations in the sample and a total of 26 surveys were completed (52% response rate)
- **Incident Management Teams** – there were 105 individuals from 20 IMTs in our sample and we administered a total of 99 surveys (94% response rate)

### Survey Design

Our surveys were designed to capture various aspects of interactions between the agencies, units, and personnel on each incident, as well as respondents' perceptions of the quality of response performance, and various relevant aspects of respondents' backgrounds. Surveys contained the following sections (*respondent groups indicated in parentheses*):

- **Role** (*cooperating agencies & non-USFS host agencies*) – this section elicited information on the respondent's primary roles and responsibilities during the fire, including the dates and duration of their involvement.
- **Familiarity with ICS and IMTs** (*cooperating agencies & non-USFS host agencies*) – respondents were asked to respond to their level of familiarity and experience with the incident command system and working with incident management teams. Additionally, this section included questions about respondents' knowledge of incident-based Twitter feeds, their subscription to these feeds, and whether or not they found these feeds helpful.
- **Overall Network Performance during the Fire** (*all respondents*) – respondents were asked to indicate their level of agreement with a series of 30 statements about the quality of network performance (i.e., the combined efforts of all responding agencies and units) in six areas of incident response: a) inter-agency interactions and fire response; b) public information; c) road closures (if applicable); d) evacuation and sheltering (if applicable); e) re-entry of evacuated areas (if applicable); and f) cost share (if applicable). Respondents indicated their level of agreement on a 5-point Likert scale (1-strongly disagree; 2-somewhat disagree; 3-neither agree nor disagree; 4-somewhat agree; 5-strongly agree; N/A-not applicable).
- **IMT Performance Working with Local Community during the fire** (*cooperating agencies, non-USFS host agencies, USFS*) – Non-IMT respondents were asked to indicate what room for improvement there might have been for IMT performance in 19 areas, all of which are listed in our 2013 Fire Season Findings Report. Respondents indicated IMT room for improvement on a 5-point Likert scale (0-no room for improvement; 1-a little room for improvement; 3-some room for improvement; 4-quite a bit of room for improvement; 5-a lot of room for improvement; N/A-not applicable).
- **Host Unit Performance** (*IMT*) – IMT respondents were asked to indicate what room for improvement there might have been for host unit performance in 14 areas, all of which are listed in our Host Unit Addendum to the 2013 Fire Season Findings Report. Respondents indicated host unit room for improvement on a 5-point Likert scale (0-no room for improvement; 1-a little room for improvement; 3-some room for improvement;

4-quite a bit of room for improvement; 5-a lot of room for improvement; N/A-not applicable).

- **Relational Impact of the Fire** (*cooperating agencies, non-USFS host agencies, USFS*) – To assess incident learning and capacity building, respondents were asked to report how personal outcomes were influenced by the incident in the areas of: 1) increased knowledge of other agencies' missions and values; 2) enhanced knowledge of the Incident Command System (ICS); and 3) increased familiarity and strengthened professional relationships within the local network. Respondents were asked to rate how each of these were affected by the incident, on a 5-point Likert scale (1-much worse; 2-somewhat worse; 3-no change; 4-somewhat better; 5-much better; DK-don't know).

## **Analysis**

We ended up collecting data on a total of 22 wildfires over the summer 2013 and produced a report back to participants in all cases. For each of our 22 2013 Fire Season Findings Reports, we presented simple, descriptive analyses of our findings in four areas: a) network performance; b) incident management team performance; c) Twitter use; and d) incident learning and capacity building. Additionally, host units for each incident received an addendum report on host unit performance (data provided by IMT respondents about host unit performance). Our descriptive analyses provided mean responses or percentages in each of the areas evaluated. In some cases, to reduce the information presented and best summarize trends in the data, we performed factor analyses to help identify thematic patterns in the data. Thus, in our section on overall network performance, rather than report average level of agreement for each of the thirty items respondents reported on, we provided average level of agreement for each of the six areas of incident response: a) inter-agency interactions and fire response; b) public information; c) road closures (if applicable); d) evacuation and sheltering (if applicable); e) re-entry of evacuated areas (if applicable); and f) cost share (if applicable). In the section on IMT performance, we report average room for improvement in each of the 19 areas in which IMTs were assessed and which are listed in the report. In the area of Twitter use, we reported the percentage of respondents who: were aware of incident-based Twitter feeds, subscribed to these feeds, and found these feeds helpful. In the area of incident learning and capacity building, rather than report average level of agreement for each of the thirteen items respondents reported on, we provided average level of agreement for each of the three areas of incident learning and capacity building: knowledge of agency missions and values, knowledge of ICS, and professional relationships and networks. Finally, in the area of host unit performance, we reported average room for improvement in each of the 14 areas in which host units were assessed and which are listed in the report addendum distributed to host units. To contextualize findings for each incident, all incident-based findings are presented alongside averages and percentages (as applicable) for the entire 22 incident sample.

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