

# USING WILDFIRE VISUALIZATIONAL FOR MINDFUL COMMUNICATION

## **SUMMARY**

Visualizations like interactive maps, 3D videos, and virtual reality simulations are becoming popular tools for communicating with public and professional audiences about wildfire behavior and risk. Sharing information as visualizations requires careful consideration of how content might affect those who view it, particularly during and after wildfire events when the likelihood of causing or exacerbating impacts to mental health and wellbeing are higher.

This fact sheet provides five key considerations for sharing visualizations in appropriate and beneficial ways to support wildfire communication. The suggestions listed here were developed via interviews in which participants were invited to interact with wildfire visualizations of the 2020 East Troublesome Fire and 2021 Marshall Fire (both wildfires on the Colorado Front Range).

## **Five social and ethical best practices for using wildfire visualizations**

### **1. Determine whether the use of visualizations will truly benefit users:**

The perceived value and necessity of visualizations is highly variable, and people within any given group (e.g., residents of the same community, employees of a local fire department or ranger district) may not necessarily be in agreement about the relevance of such visualizations for their own use based on personal context and experience with wildfire. Don't push the use of a visualization if there is not a desire by the end user(s) to engage with it.

#### **Questions to ask:**

- Will providing visualizations improve communication when compared to simpler visuals such as maps or photographs?
- Is this the right time to share this kind of information?
- Does the visualization and its content truly benefit the user?

### **2. Connect users to visualizations by incorporating local values:**

If you are developing a wildfire visualization for a specific audience, it may be beneficial to first identify potential points of interest that go beyond basic map features to acknowledge their personal experiences with the featured landscape. Labeling key local features will help users rapidly orient themselves to your visualization.

#### **Questions to ask:**

- What local values or places of importance can help improve visualization accessibility and navigation?
- Are there some perspectives, areas, or processes that are more important to visualize in order to achieve the author's intent?
- Is it possible to partner with a key informant(s) who can share insights on which spatial framings of the visual data might be most useful to users?

### 3. Provide context around model uncertainty:

Uncertainty related to any data used to generate visualizations should be communicated prior to their introduction or immediately upon viewing to minimize any unintended assumptions about the accuracy of the visualization content. This will help minimize risk of misinterpretation.

#### Questions to ask:

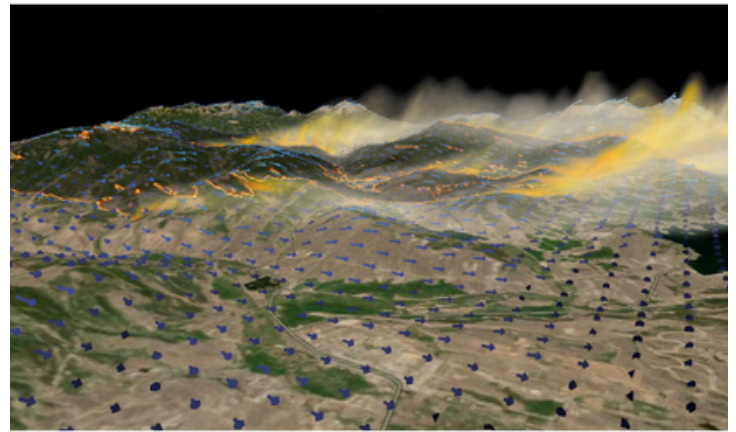
- Will more realistic visualizations be interpreted as more accurate by the user?
- What examples can be provided to demonstrate uncertainty at a level that the user will understand?
- How does the location or platform the visualization will be shared through support or prevent communication about uncertainty?

### 4. Design and share visualizations in ways that meet the needs of the user:

Different users and their audiences may connect with the same content in diverse ways based on their understanding of the local landscape, meaning that one single visualization may not meet everyone's diverse information needs.

#### Questions to ask:

- What level of detail do users need in order to understand the visualization?
- How familiar are users with the processes being modeled and visualized?
- How can visualizations be presented in ways that allow users to connect with the most important information?



Still image of a 3D video of the East Troublesome Fire. Credit: Scott Pearce

### 5. Be cognizant of the emotional impact that sharing wildfire visualizations can have

Wildfire visualizations contain information and imagery that may have significant impacts to the mental health or wellbeing of those affected, or to those who have experienced similar experience. If you are planning to use visualizations with populations affected by fires, take the time to first understand where end users currently stand emotionally.

#### Questions to ask:

- To what extent can users have control over the timing and duration of the visualization so that they can step away if needed?
- Is there local conflict or concern around the topic of wildfire or area being presented in the visualization?
- Is the visualization being shared by an organization that the user trusts?
- Has there been a wildfire in the user's area recently?
- How will those sharing visualizations communicate the content of the visualization so that potential users can make an informed decision on whether they are comfortable viewing it?

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