# Breakout Room 3 Report

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And a host of others!

# Q1: Key applications

- Predicting spread and impacts of active fire events
- Understanding risks and planning prescribed burns
- Quantifying health and air quality impacts – critically important for both downstream and responders in the field
- Understanding how fire risks are evolving with climate change

# Q2: Major gaps

- Uncertainty in key physical processes and science that underpins models
- Lack of integrated observations to parameterize processes and validate models
  - What kind of field data would be most useful? Characterization of fire perimeter, intensity as they evolve over time. Horizontal and vertical winds, plume dynamics. Also smoke properties (composition and optical). Expand use of drones/UAVs.
- Agility in assimilating new data, but often requires manual intervention and a lot of new effort
  - Improved coordination and integration of data services needed
- Could make better use of GEO data
- Need for development of AI/ML techniques, integration with other modeling approaches to deal with lingering knowledge and scale gaps
- Need to address 2-way coupling to ensure broader AQ, circulation impacts are represented in regional/global models
- PyroCbs remain challenging. Need to understand connection to pyroCb and fire. Requires integration of multiple, complex components and a strategy for how to deploy.
- Lack of clarity on interagency roles/responsibilities

# Q3: Opportunities for interagency coordination

- Observational coordination
  - Coordinate intensive, airborne campaigns to gain holistic understanding of processes, validation
  - Work to deconflict airspace to maximize ability to leverage advances in UAV tech.
- Modeling and data assimilation
  - Need to support ability to share advances to make progress rapidly, including shared technical capabilities (e.g. tools, code repositories)
  - Need to find ways to engage with and learn from international efforts
- Data services
  - Coordinated services to provide more reliable access to datasets, facilitate integration for model initialization, DA
- Opportunity to engage with energy sector who need this info for planning