Lidar-infused LANDFIRE

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Work performed under USGS contract G13PC00028
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- Enhanced Wildland Fire Management Decision Support using Lidar-Infused LANDFIRE Data

- Project team:
  - Birgit Peterson (EROS) – Co-PI
  - Matt Jolly (Firelab) – Co-PI
  - Jason Stoker (EROS) – Co-I
  - Kurtis Nelson (EROS) – Co-I
  - Russ Parsons (Firelab) – Co-I
  - Carl Seielstad (U of Montana) – Co-I
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Objectives:

- Make lidar data more usable to resource managers for developing canopy fuel layers
- Enhance LANDFIRE data with locally available, lidar-derived canopy fuels layers
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- Automated system for processing ALS and combining with Landsat, GLAS, and LANDFIRE data to produce updated canopy fuel layers in local areas for use in fire behavior modeling systems
- Creating Hybrid Structure from LANDFIRE/lidar Combinations tool
- Currently developed as desktop application
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ALS data processing and product generation

- Identify elements of canopy structure that can be inferred directly from lidar
- Select lidar metrics that correlate with CH, CC, and CBH
- Adapt algorithms vetted in current literature
- Test methods in different study areas
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Integration of GLAS

- Enables spatial extrapolation of canopy fuels metrics beyond area surveyed by ALS
- All processing development completed at EROS
- Expect far less user familiarity with GLAS
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CHISLIC testing

- External test group will provide feedback on tool design, usability, and applicability
- Sites tested include:
  - Grand County, CO
  - Garcia River, CA
  - Big Pine Key, FL
  - Coeur d’Alene Indian Reservation, ID
  - Tenderfoot Experimental Forest, MT
  - Yukon Flats Ecoregion, AK
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- CHISLIC interface
A) LANDFIRE

- 0-5 m
- 5-10 m
- 10-25 m
- 25-50 m

B) CHISLIC

- 50 m
- 0 m

C) Landsat TM

D) ALS
Lidar-infused LANDFIRE tool
Lidar-infused LANDFIRE tool

Crown Fire Type
- Surface
- Torching
- Crowning
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- Operations partner is Wildland Fire Assessment System (WFAS) project
  - Co-PI Jolly is the project manager for WFAS

- Phase 2 plans include:
  - Transition from desktop application to web-based
  - Pre-processing and staging of GLAS data
  - Web links to lidar and imagery data sources
  - Generate full suite of FARSITE inputs