



Lidar-infused LANDFIRE

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Lidar-infused LANDFIRE

- 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

Chislic 0.3 alpha

File Help

Input Output Run

Required:

LAS File Directory:

Meters Feet

Optional:

Landscape File:

GLAS File:

Landsat Image File:

Select All Clear All

Set Outputs Exit

LAS File Directory is required, the directory must contain at least one .las or .laz file
Specify whether input lidar data vertical units are in Meters or Feet

Landscape File is a FARSITE landscape file (.lcp). The landscape file can be specified for two purposes. First, an updated landscape file can be specified as an output which requires a landscape file as input to supply the necessary layers. Second, if extrapolation beyond the airborne lidar is desired the landscape file contains additional input layers used for modelling. Note - a projection files (.prj) must accompany the .lcp file for proper re-projection.

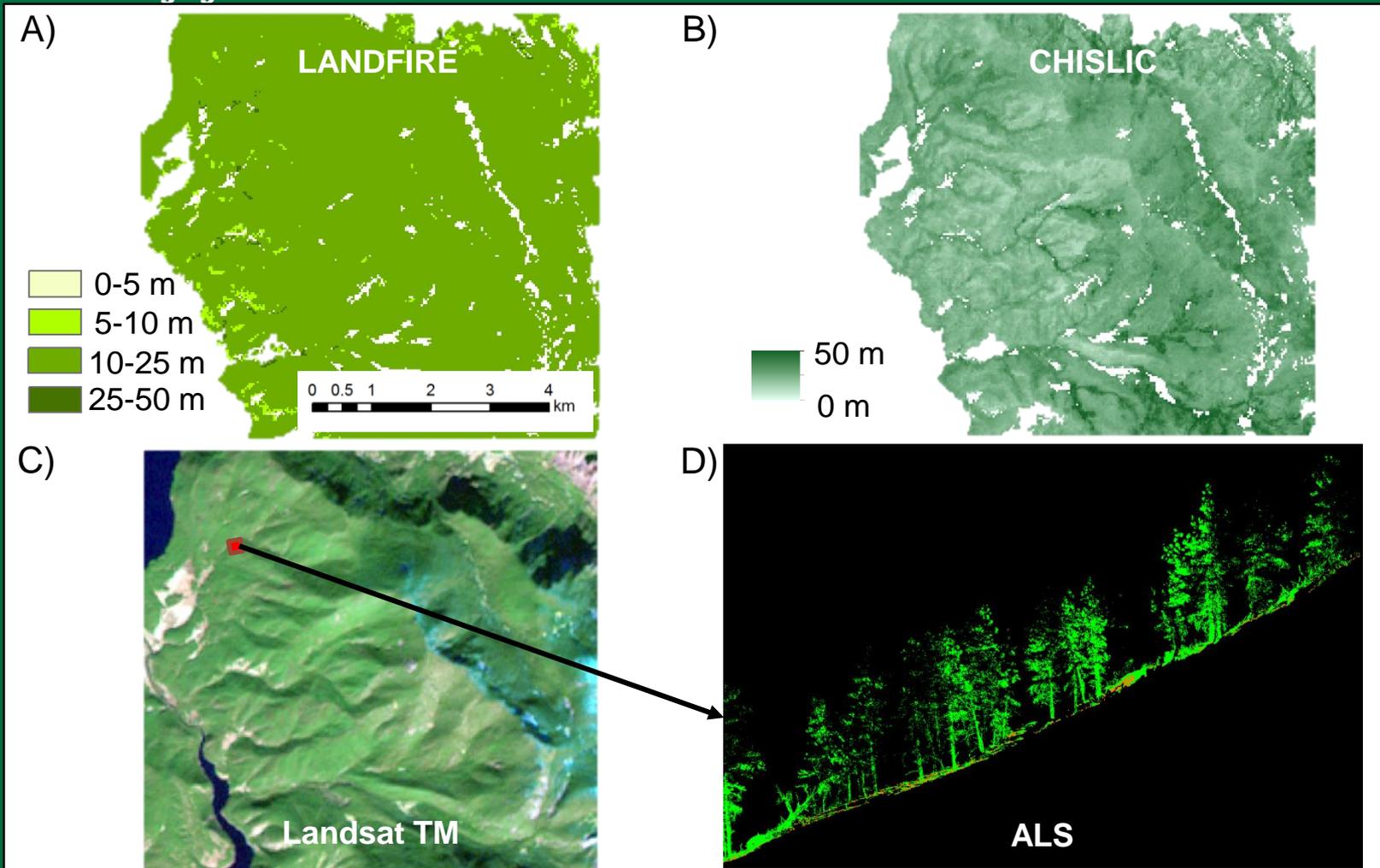
If extrapolation from airborne lidar to larger area is desired enable optional inputs for GLAS File, Landsat Image File, and Landscape File.

GLAS File is a comma delimited text file (.csv) containing merged waveform and Gaussian distribution parameters from GLA01 and GLA14 files.

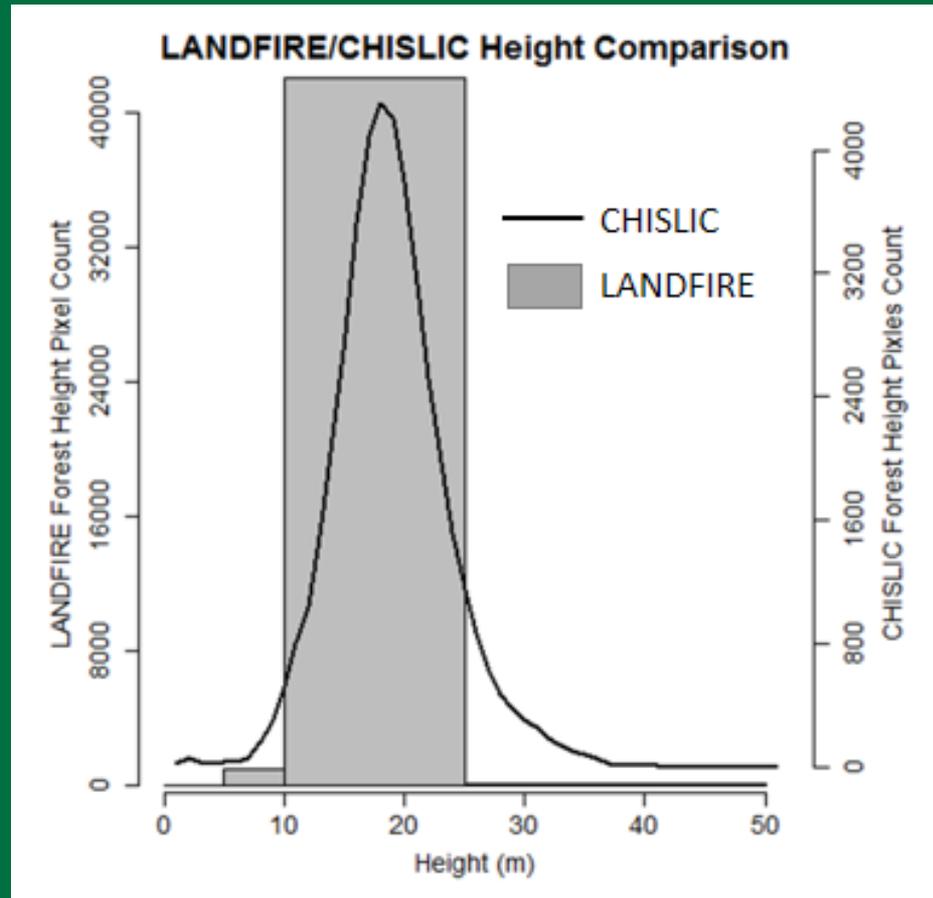
Landsat Image File can be an Imagine image (.img), GeoTIFF image (.tif), ENVI/Arc header file (.hdr), or Arc Ascii GRID (.asc) containing all desired Landsat image bands clipped to the extent of the desired study area.

All inputs are verified as they are specified. Valid inputs are shown in green text, invalid inputs are shown in red text. The Output tab will not be accessible until all inputs are specified and validated.

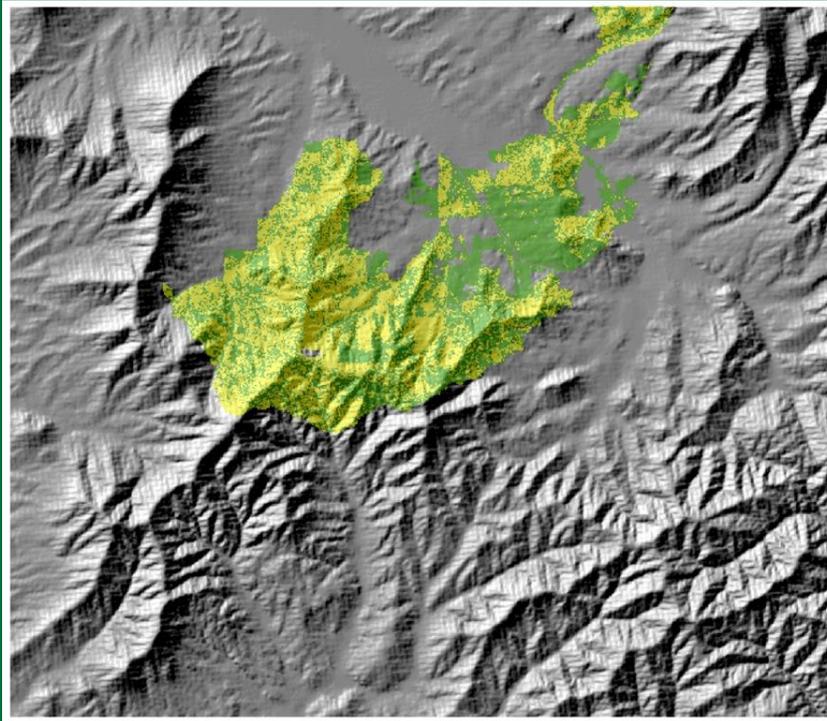
Version 0.3 alpha



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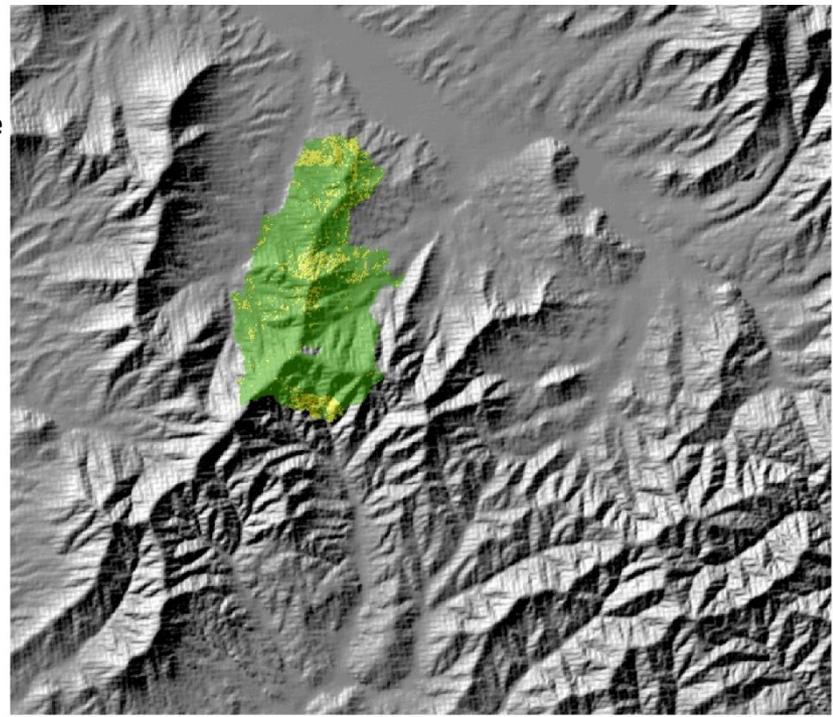


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Crown Fire Type

- Surface
- Torching
- Crowning



Lidar-infused LANDFIRE

- 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