

# Parametric Forestry Wildfire Cover



We use modern satellite technologies and in-situ forest data to review historical wildfire losses and provide our clients with tailored and accurate parametric cover. Some of the data we analyse includes forestry species' age, along with the location of each plantation.

## How does it work?

The main peril for timber management units is fire. At Liberty Mutual Re, we are developing innovative solutions using new technologies, combined with machine learning algorithms and various data sources, to cover wildfire risks. We monitor fire risk by satellite imagery delivered by NASA Landsat, which provides us with a 30-meter resolution. Our processing technique enables us to develop an index that reflects the burned surface post event.

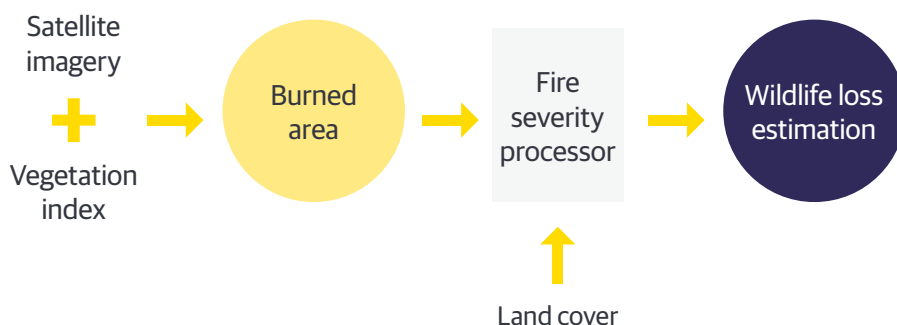
Once the smoke has dispersed, we process images before and after the event. With an edge detection algorithm and the shape files of the timber plantations, we will calculate the damaged areas. We are also able to determine the severity of the fire by analyzing the vegetative indices of remaining trees. Finally, we calculate the financial losses based on the burned area values defined at a pre-agreed and precise scale.

Our parametric forestry cover can also be complemented by a traditional policy to offer protection against other perils not measurable by remote-sensing.



**Our parametric solution  
presents two major advantages:**

- Fast and precise turnaround of the loss assessment: After the event, the burned area and the corresponding losses are estimated without any human intervention.
- In addition to determining the fire zone, our algorithm is able to estimate the fire severity to measure the plantation salvage with a very fine granularity over the area.

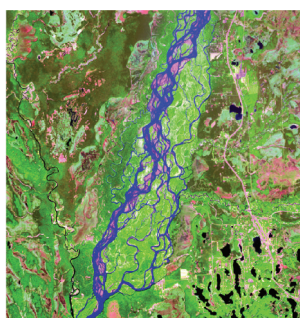




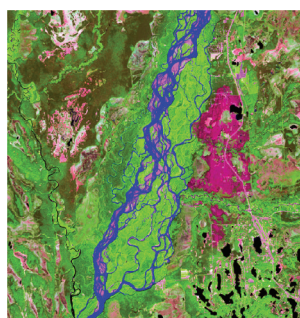
## Our solution

MODIS data delivers earth observation data with a large grid pattern of up to 500 meters.

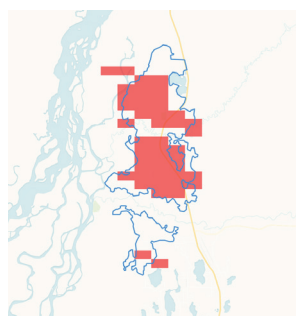
Our solution is based on Landsat technologies which, at a 30-meter resolution, enables us to generate an accurate and robust estimation of fire damage.



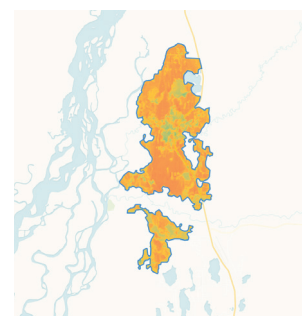
Pre-fire infrared picture



Post-fire infrared picture



MODIS burned area



Landsat-Liberty burned area

While MODIS provides binary information (burned/unburned), our solution based on Landsat produces a continuous severity index of the burned area. This index allows to fit a salvage policy and account at a thin scale the parameters of your property (value, age and type of trees, etc).

### Information we require:



Plantation information: location, area (shape file), age, species, etc.



Historical losses

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PFFS1057-06-20