

# Early Detection Methods for Wildfires Using Satellite Remote Sensing

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In Europe, only 5% of forest fires are of natural cause, with majority of forest fires resulting from human activity

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PATRICIA DE MELO/ROBERTO AGENTY IMAGES



PHOTO COURTESY/STAPPA



REPORTAGE/STAPPA

Portugal forest fire on June 18, 2017, naturally caused by dry thunderstorms

# What are the Impacts of Wildfires?

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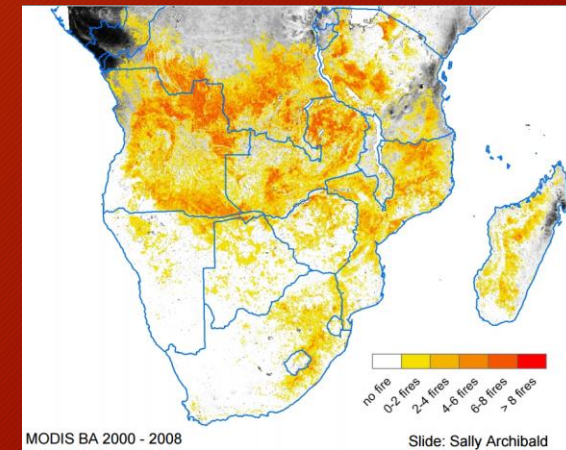
- A large, destructive fire that spreads quickly over woodland or bush
- Suppression of wildfires, demands large amounts of federal resources, costing up to \$1.6 billion per year in the USA
- Smoke from wildfires are composed of hundreds of chemicals in gaseous, liquid, and solid forms that affect visibility
- Jan-Jun 2016 - 21,280 wildfires  
Jan-Jun 2017 - 25,699 wildfires  
National Interagency Fire Center
- Jan-Jun 2016 ~ 1.7 million acres burned  
Jan-Jun 2017 ~ 2.3 million acres burned



# What is Remote Sensing?

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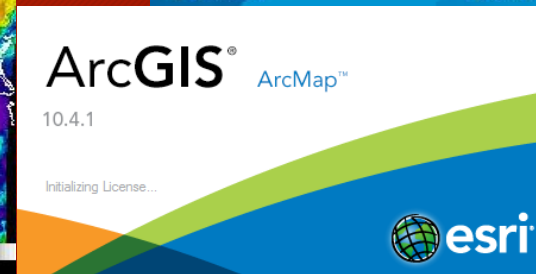
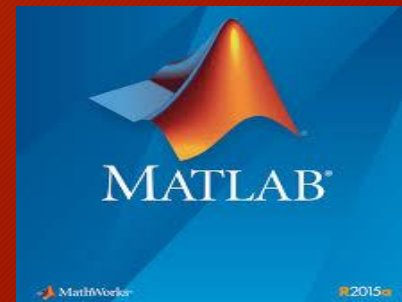
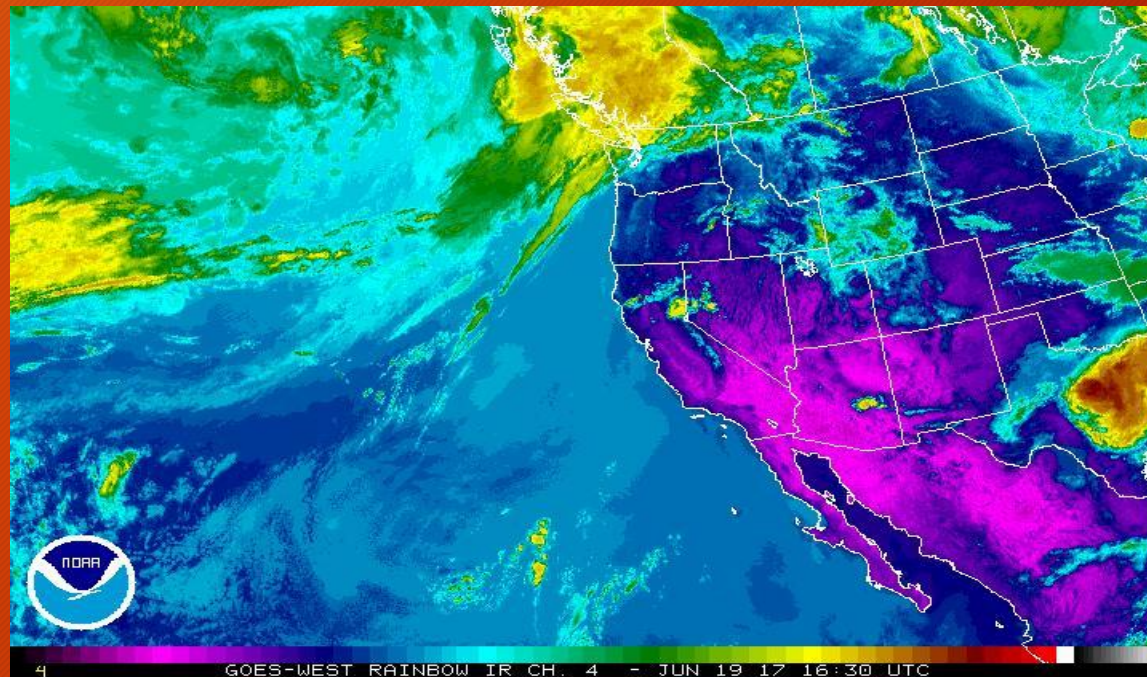
- Remote sensing is the science of obtaining information about objects or areas from a distance, typically from aircraft or satellites
- Often less expensive and faster to obtain data than acquiring data from the ground
- It permits the capturing of data across a wider EM spectrum than can be seen by the human eye
- Observations can cover large areas at a times, including remote and inaccessible areas
- It provides frequent updates
- Observations are consistent and objective



# Research Goals

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- Make use of both satellite remote sensing and GIS software to study and track recent (over the last decade) wildfires in the United States
- Quantify the damages (on public health and otherwise) associated with them
- Technology used:
  - NOAA GOES (Imager)
  - NOAA POES (AVHRR)
  - Aqua (MODIS)
  - Terra (MODIS)
  - MATLAB



# Questions? Comments?

