ON-ORBIT FIRE DETECTION SYSTEMS AND METHODS

Tech ID: 21283 / UC Case 2011-081-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,792,500	10/17/2017	2011-081

BRIEF DESCRIPTION

In 2013, more than 33,000 wildfires have burned in the Western United States, covering over 5,000 square miles, and destroying almost 1000 homes and commercial buildings. In 2012, Federal agencies spent almost $2 billion on national firefighting resources. Fire detection today is much like it was 200 years ago, relying primarily on spotters in fire towers or on the ground and on reports from members of the public. The information can be augmented by expensive aerial reconnaissance and lightning detectors that alert firefighters to ground strikes, which can be a source of wildfires. New technologies that could improve situational awareness though proactive information collection and platform data sharing could advance wildfire decision-making and help protect human health and property worldwide. To help solve these challenges, researchers at Berkeley have successfully developed proprietary computer techniques which, when used with modern imaging detectors, could detect heat from early fires with minute-scale detection times and orders magnitude aerial sensitivity improvement. Berkeley's Fire Urgency Estimator in Geosynchronous Orbit (FUEGO) shows promise in rapid and accurate detection of hot spots on a massive scale, with the capability to identify patterns and detect important content from large volumes of information. By knowing when and where small fires are active, suppression resources can be more efficiently deployed to reduce vulnerability and risk to human safety, health, and property protection.

ADVANTAGES

- Firefighting
- Insurance
- Forestry
- Aerospace
- Utilities
- Land management
- State agencies
- Federal agencies

SUGGESTED USES

- Real-time tracking and monitoring improves accuracy and response times
- Scalable and platform agnostic (assumes modern imaging detectors)
- Superior reliability to traditional ad-hoc spotter systems and methods
- Detects patterns and culls important content from large volumes of data

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INVENTORS

- Pennypacker, Carlton R.
- Stephens, Scott
- Tripp, Robert D.

OTHER INFORMATION

KEYWORDS

fire, fire detection, wildfire, urgency, estimator, geosynchronous, multi-spectral, radiative, satellite, imaging, IR spectrometry, real-time, infrared

CATEGORIZED AS

- **Computer**
  - Software
- **Environment**
  - Sensing
- **Imaging**
  - Remote Sensing
  - Software
- **Sensors & Instrumentation**
  - Environmental Sensors
  - Scientific/Research

RELATED CASES

2011-081-0

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