

66th International Astronautical Congress 2015

EARTH OBSERVATION SYMPOSIUM (B1)  
Earth Observation Sensors and Technology (3)

Author: Dr. Shimshon (Steven) Lashansky  
Elbit Systems, Electro Optics, ELOP Ltd., Israel, shimshon.lashansky@elbitsystems.com

Dr. Yuval Erez  
Elbit Systems, Electro Optics, ELOP Ltd., Israel, Yuval.Erez2@elbitsystems.com

Dr. Michael Berger  
Israel, michael.berger@elbitsystems.com

Mr. Aharon Nir  
Israel, aharon.nir@elbitsystems.com

Mr. Zohar Shmoelof  
Israel, Zohar.Shmoelof@elbitsystems.com

Mr. Omer Cohen  
Israel, omerc@scd.co.il

Dr. Philip Klipstein  
Israel, philip\_k@scd.co.il

Mr. Nadav Shavit  
Israel, Shavit.Nadav@elbitsystems.com

Mr. Yossi Kamari  
Israel, Yossi.Kamari@elbitsystems.com

INNOVATIVE IDEAS FOR THE DETECTION OF FIRES FROM A GEOSTATIONARY ORBIT.

**Abstract**

Thermal imagers are used in a geostationary orbit for monitoring weather, volcanic eruptions and fire detection. Each year, global wildfires burn roughly 865 million acres ( 3.5 million square kilometers) of land. The cost in damage is devastating not to mention the impact on the environment. In the United States alone the damage is estimated to be roughly between *20billionand*125 billion annually. In the past uncooled thermal imagers did not have the sensitivity to meet the legacy mission requirements. Recent developments in detector and scanning technology have facilitated the development of smaller more sensitive systems. This paper analyzes the feasibility of using these new technologies for early detection of forest fires from a geostationary orbit. The detector technologies that are evaluated are, wide band microbolometers, large format InGaAs SWIR detectors and HOT XBn detectors.

Keywords: fire detection, microbolometer, scanning mirror, SWIR, XBn, InGaAs