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## Integrated use of Greenhouse Effect related index (Downward Surface Longwave Flux) in the Aratos Disaster Control natural disaster management system

ADC now includes a new service: a Greenhouse Effect related index (Downward Surface Longwave Flux) of the Earth's surface as received from Eumetsat satellites. DSLF is the result of atmospheric absorption, emission and scattering within the entire atmospheric column and may be defined as the thermal irradiance reaching the surface in the thermal infrared spectrum (4-100  $\mu\text{m}$ ).

DSLF is directly related to the greenhouse effect and its monitoring has an important role in climate change studies. Other applications include meteorology (land applications) and Hydrology.

In clear sky situations DSLF depends on the vertical profiles of temperature and gaseous absorbers (primarily the water-vapour followed by CO<sub>2</sub>, and others of smaller importance like O<sub>3</sub>, CH<sub>4</sub>, N<sub>2</sub>O and CFCs). However, DSLF is determined by the radiation that originates from a shallow layer close to the surface (about one third being emitted by the lowest 10 meters and 80% by the 500-meter layer). The cloud contribution mainly occurs in the atmospheric window (8-13  $\mu\text{m}$ ) and mainly depends on cloud base properties (height, temperature and emissivity).

Aratos Technologies has created the integrated system of natural disaster management Aratos Disaster Control (ADC). The system is designed for crisis management situations and is used as an ideal tool for depicting and monitoring hazards as well as assessing the damage after the crisis.

The system can detect the progress, almost in real time, as well as the history of past natural disasters (fires, earthquakes, landslides, etc.) for the user's area of interest and present the data in an interactive geographical map (GIS), 24x7.

ADC consists of an amalgam of various technologies such as satellite images and data as well as GNSS signals (Global Navigation Satellite System), which are combined in an integrated architecture, and delivers processed, meaningful information to the user and alerts via sms and emails.

**We continue to innovate in space technologies since 2005.**

For more info visit [www.aratos.gr](http://www.aratos.gr) and [www.aratosdisastercontrol.com](http://www.aratosdisastercontrol.com).

