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A prototype system for hotspot detection

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Aim of the work is to present a system for MSG-SEVIRI hotspot detection and analysis.
This is a prototype system that uses Meteosat Second Generation (MSG) data continuously acquired at Space Geodesy Centre of Italian Space Agency in Matera to provide near real time hotspot on Mediterranean area. An extention to Africa region is under analysis.

The system implements a processing chain that automatically download all MSG data, extracts SEVIRI data and transforms it into geocoded reflectance, radiance and temperature on Europe. MSG Reflectance Channel 4 (IR 3.9 um) and channel 9 (IR 10.8 um) are used to detect local thermal anomalies.
Clouds mask and sea mask are applied in order to consider only useful pixels for hotspot detection.
Hotspot are archived in a POSTGRES database with POSTGIS extensions.
The system can be remotely accessed to visualize in near real time all hotspot detected on the last acquired image.
All hotspot detected can be displayed as a layer in a custom interface made by using OPENLAYERS library.

The system operated in summer 2007, 2008 and 2009 and provided a database of hotspot that have been analysed to validate as fires and used in a statistical analysis of the fires occurrence in Italy.