Testing Japan hot spot system for High Temperature Events (HTE) in central Italy

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Hot spot detection and retrieval of brightness temperature with satellites operating in NIR-SWIR, is traditionally optimized for night data. However, if the radiance from hotspot could be distinguished from the reflected solar radiance the method could be valid for day time (Kato et al 2016). This is the idea at the base of the Landsat 8/Sentinel-2 Hotspot Detection System (Hotarea) which automatically detects hotspots (e.g., fires and volcanoes) in Landsat 8 - released from U. S. Geological Survey (USGS) and Sentinel-2 data - released by d European Space Agency (ESA) and displays the results on a web-based GIS system.

The Hotarea experimentally displays the heat sources classified based on two distinct methods, namely the deep learning and empirical classifier based on land cover and detection history. There are 5 hot spot categories including volcano, fire, factory, oil platform, roof reflection and 1 unknown.
To reduce the number of false attributions and to identify the unknown, an extended work of validation is required.

We present the validation activity carried out within the Free Research project titled " Testing Japan hot spot system for HTE in central Italy".- FIRS-2016-0865.057, funded by MIUR which focused on testing the Hotarea detection system over Marche Umbria Lazio and Toscana (M U L T) Italian regions.