# Lightning Imager: an upcoming spaceborne sensor with potential for meteor detection

Pierre Kokou

Meteosat Third Generation (MTG) is the next generation of European meteorological geostationary satellites, set to be launched in 2021. Besides ensuring continuity with Meteosat Second Generation imagery mission, the new series will feature new instruments, such as the Lightning Imager (LI), a high-speed optical detector providing near real-time lightning detection capabilities over Europe and Africa. The LI is designed as a high-speed (acquisition frequency of 1000 Hz) event detector operating in a 1.9 nm-wide spectral window centred on 777.4 nm (corresponding to an atmospheric neutral oxygen triplet line). The instrument will register events on pixels where a lightning pulse generates a transient in the acquired radiance.

Due to the similarity of the temporal and spectral signature between lightning and fireball, it is expected that the LI will also detect events due to fireballs. Indeed, a similar sensor already flying, the Geostationary Lightning Mapper, has already confirmed observations of more than 10 bright bolides.

The presentation will introduce the working principle of the MTG LI, summarize the first results of fireball detection from spaceborne optical sensors and present the results of early studies showing the expected sensibility of the LI to simulated fireball signal.