

Interpreting the Lightning Imager Accumulated Flash Area Product



Lightning Imager Accumulated Flash Area Product

- The LI Accumulated Flash Area (AFA) product represents the area touched by multiple flashes and the number of flashes per pixel.
- The area touched by one or multiple flashes are displayed using a colour palette (from yellow to red).
- The LI-AFA 5-minute accumulation is derived from the LI AFA half-minute product.



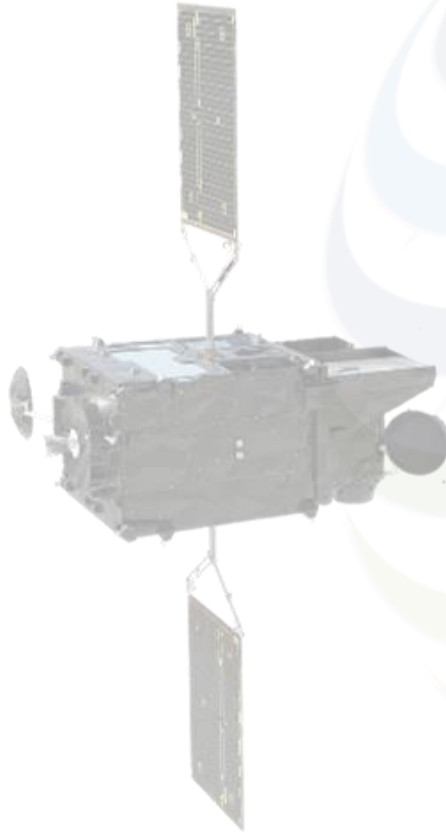
Product Overview

- LI Level 2 Accumulated Flash Area (AFA) provides the user with data about flash mapping by using the area covered by the optical emission of each flash in LI Level 2 Lightning Flashes (LFL).
- It is important to keep in mind that each flash is treated as a flat (uniform) optical emission in this data.
- Accumulated Flash Area allows one to monitor the regions within a cloud top from which lightning-related optical emissions over 30 sec are emerging and accumulating and to know the number of flashes that were observed within the FCI grid pixels composing those regions.



Product Limitations

- Possible degradation of LI navigation performances after spacecraft manoeuvres, during the eclipse season, and in early mornings.
- Occasional increase of the level 2 Flash False Alarm Rate (eg, in case of objects transiting in the LI field of view).
- Other channels being overlaid with LI AFA may temporarily disappear when the LI AFA is the driving layer (Temporal sampling) in the visualization settings.



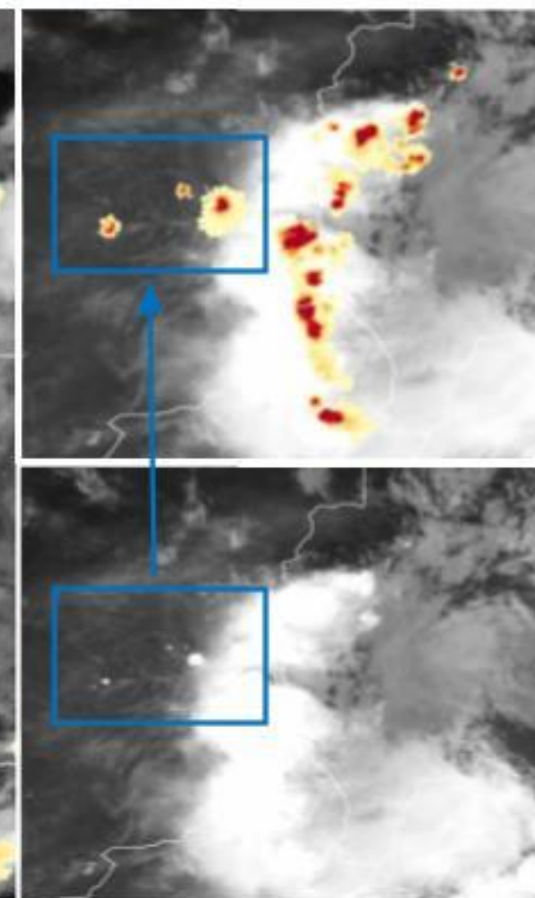
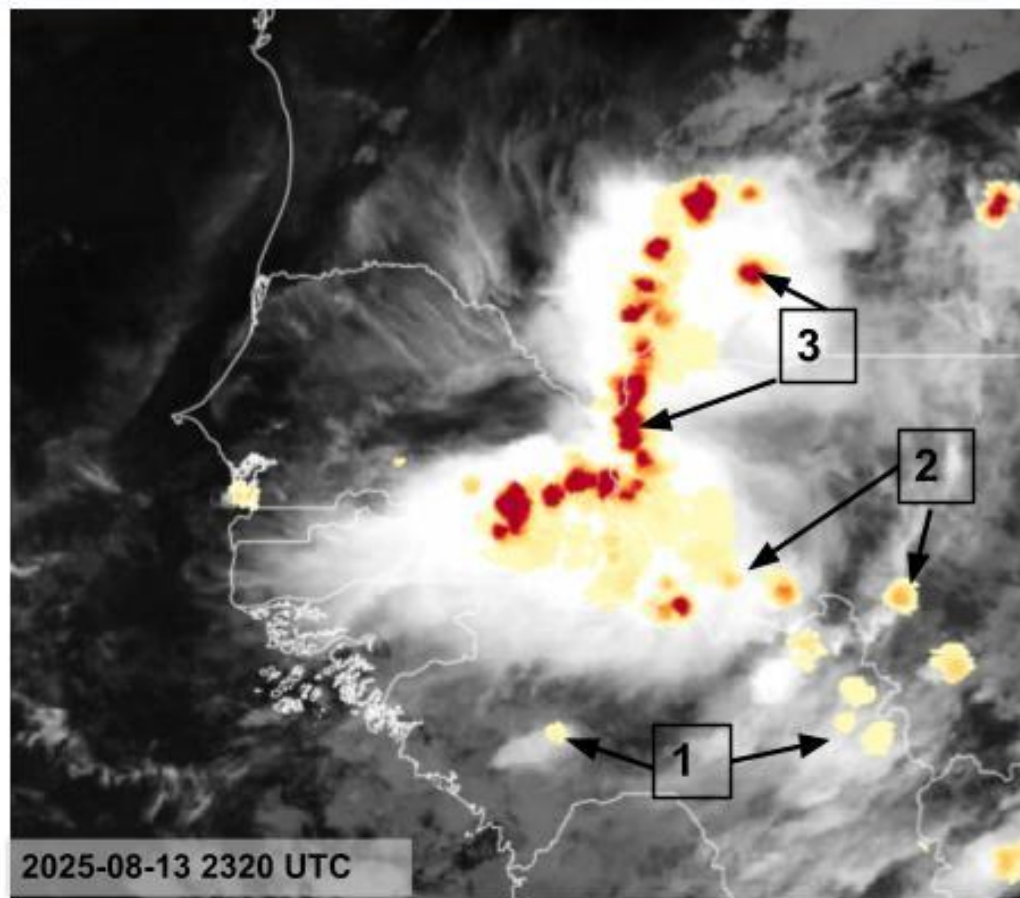
Quick Guide

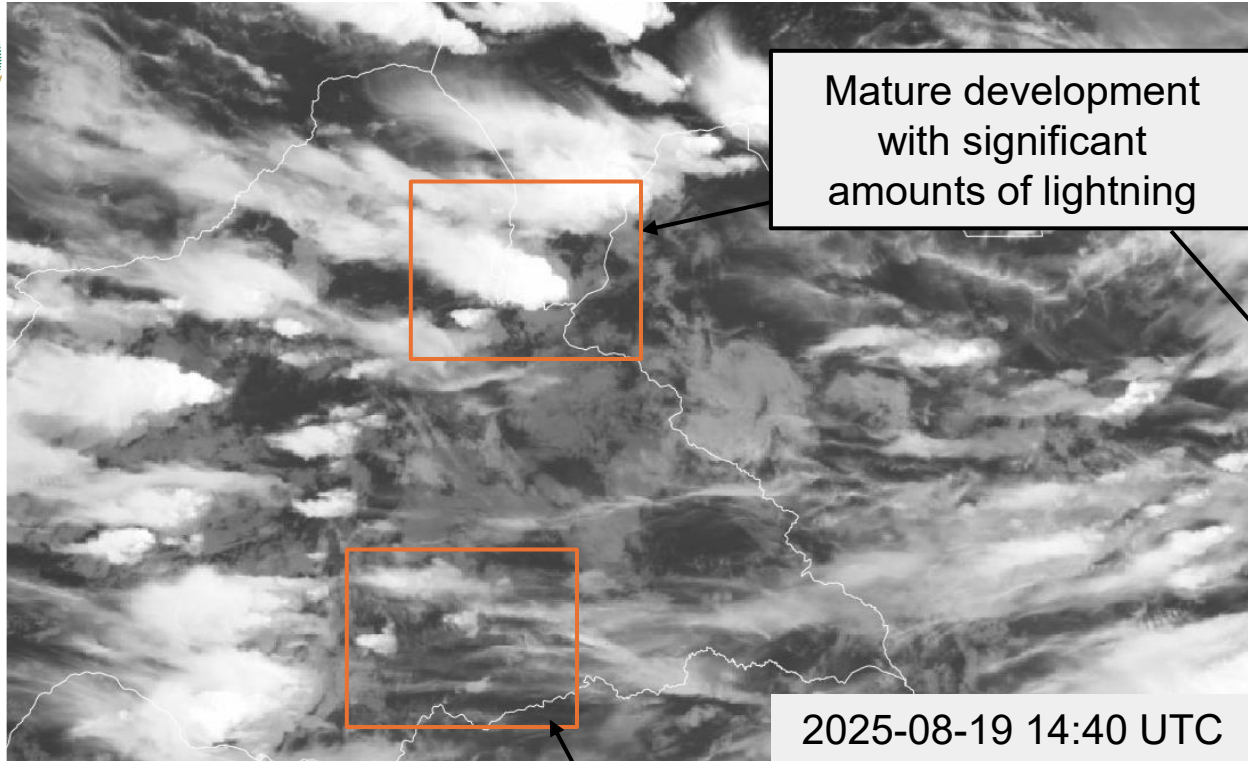


LI Accumulated Flash Area (AFA)

Interpretation

- 1** 1-2 Flashes in 5 minutes
- 2** 7-8 Flashes in 5 minutes
- 3** >18 Flashes in 5 minutes





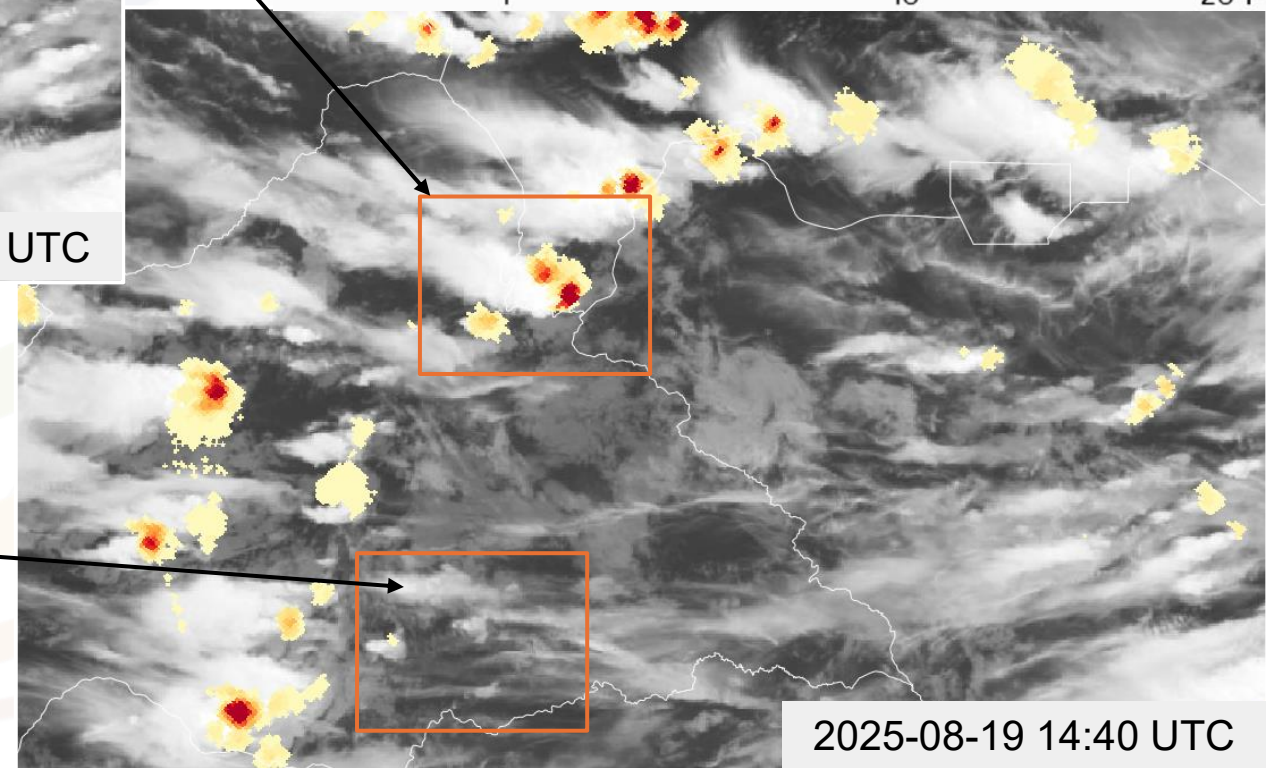
The LI AFA product allows for the detection of all lightning in thunderstorms.

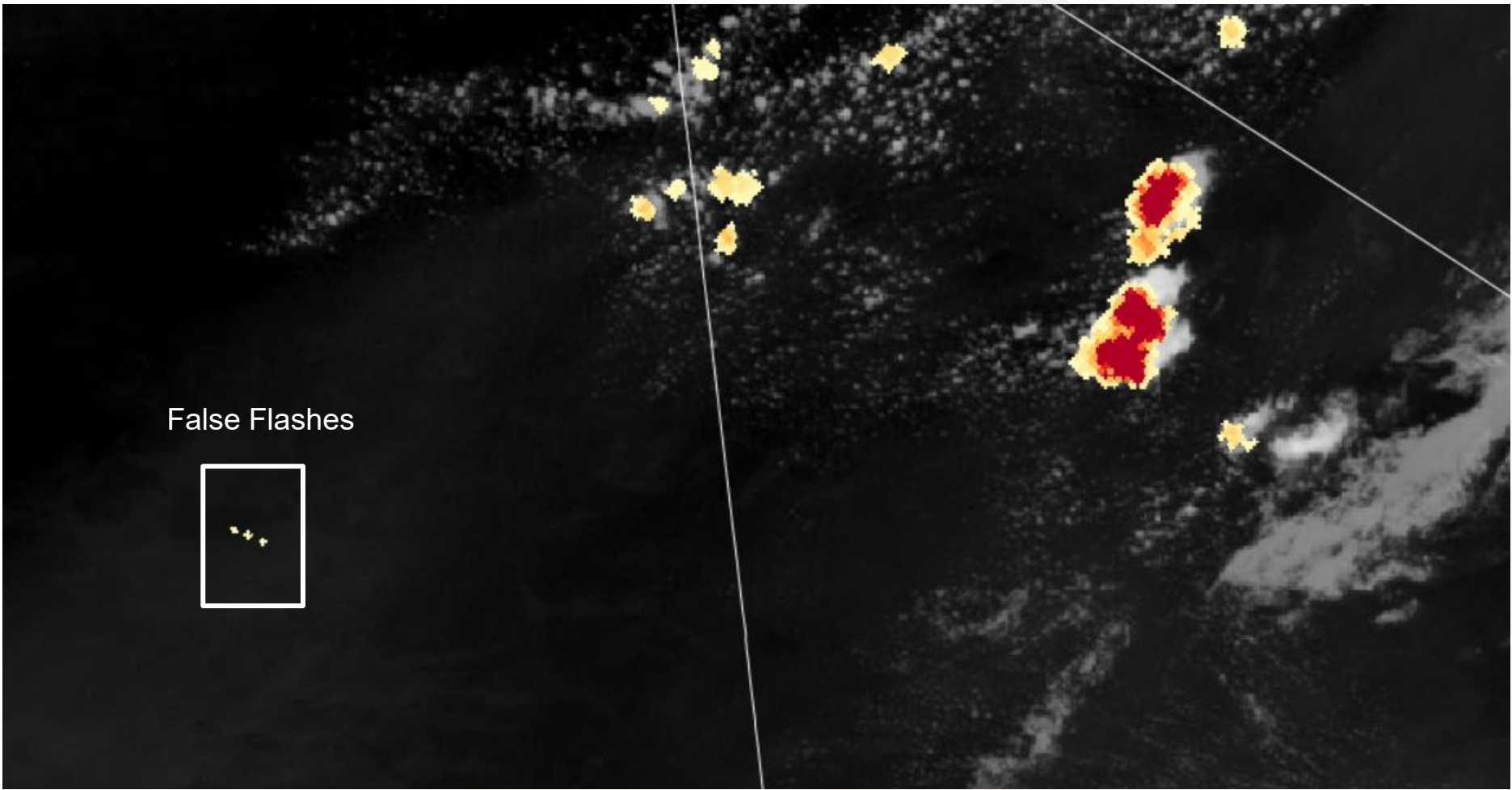
To know whether a storm is intensifying or dissipating, it is best to animate the imagery and analyse the AFA over time.



Creating an overlay of the IR 10.5 and the LI AFA allows for 24-hour monitoring of storms

Very early stages of development with very little lightning

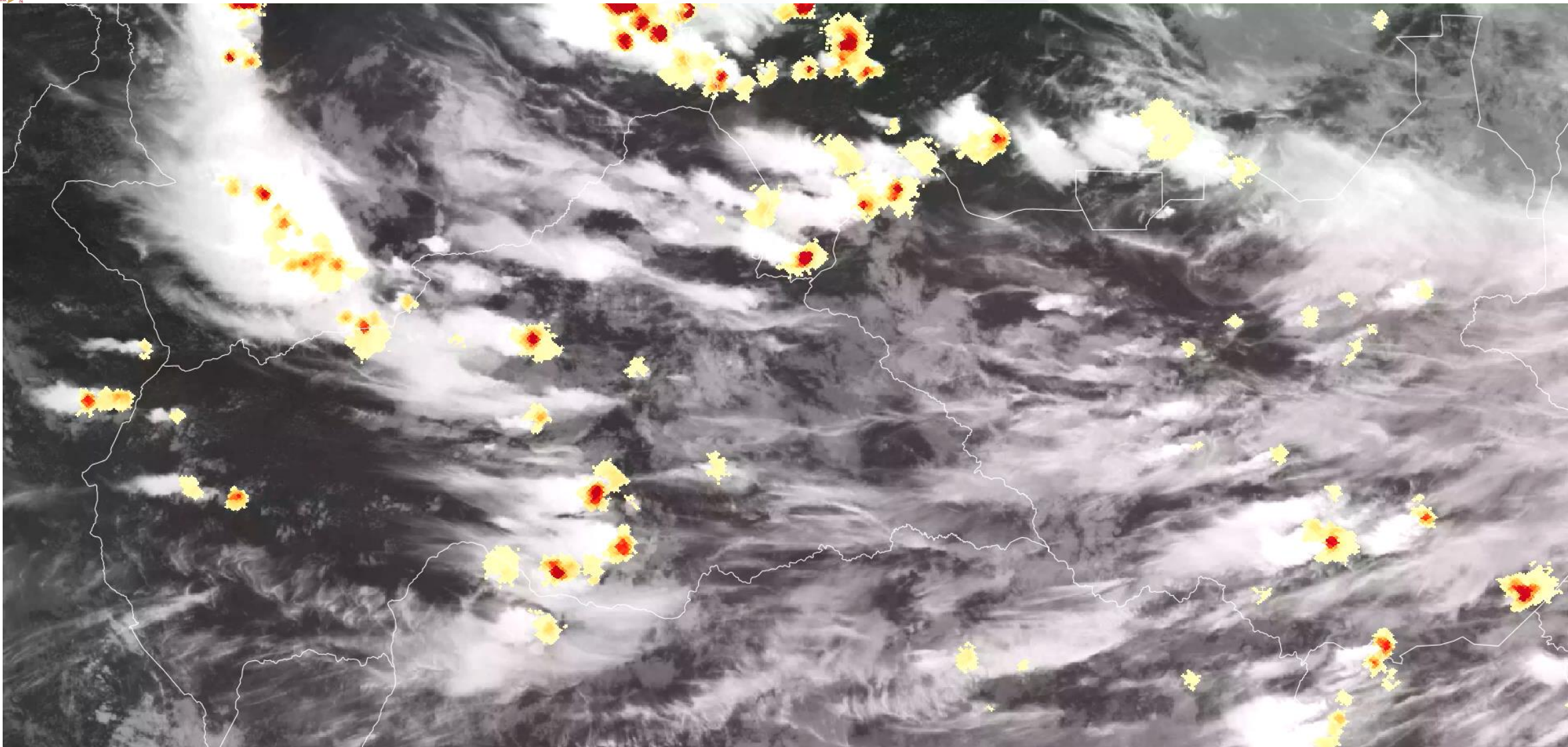






Animation

Take note of the increasing (becoming more red) and decreasing (becoming more yellow) AFA, as well as areas of new development (small pixels of yellow)





Practice applying your new knowledge by answering the questions on the Moodle page