

# The "AGILE Dashboard" of the AGILE real-time Science Alert system



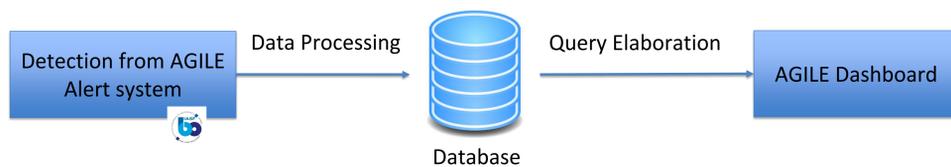
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## ABSTRACT

The Science Alert system developed at IASFBO is one of the key components of the AGILE Ground Segment and generates alerts when a candidate gamma-ray flares is detected. To support the management of candidate alerts, a web platform called "AGILE Dashboard" has been developed. This platform allows researchers to view the results of the AGILE Alert system automated analysis in many different views, like graphs and maps from their laptops or tablets. A demo of this software can be seen scanning the QR code at the end of this poster to use some of the features that will be released with the final version of the software.

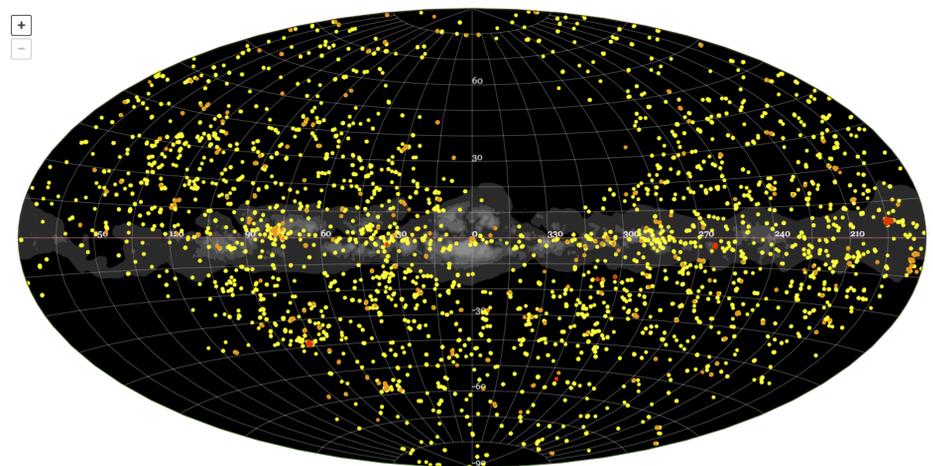
### Detection Life Cycle



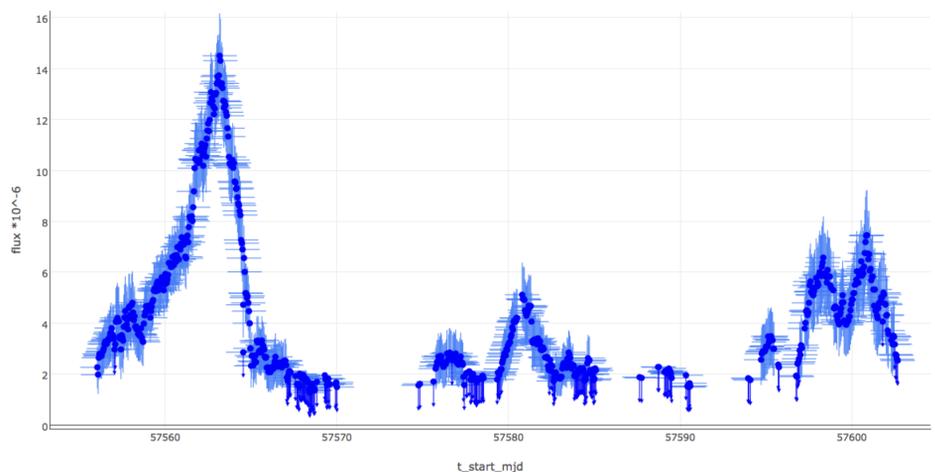
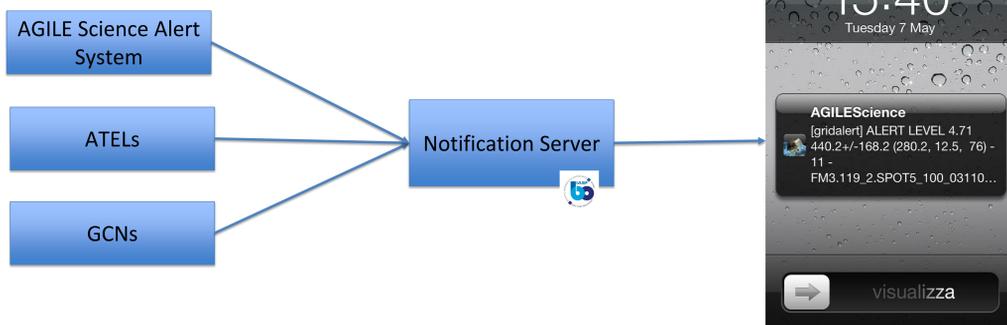
- 1) The AGILE Alert system finds detections by analyzing the data collected by AGILE.
- 2) An automatic procedure checks the presence of new detections to insert them into a constantly updated database. During insertion, some information is pre-calculated to make following analysis faster.
- 3) The detections stored in the database can be viewed through the AGILE Dashboard web portal that takes advantage of various tools to quickly and intuitively display the information. The website can be used by the computer but also by smartphones and tablets.

### The Interactive Map

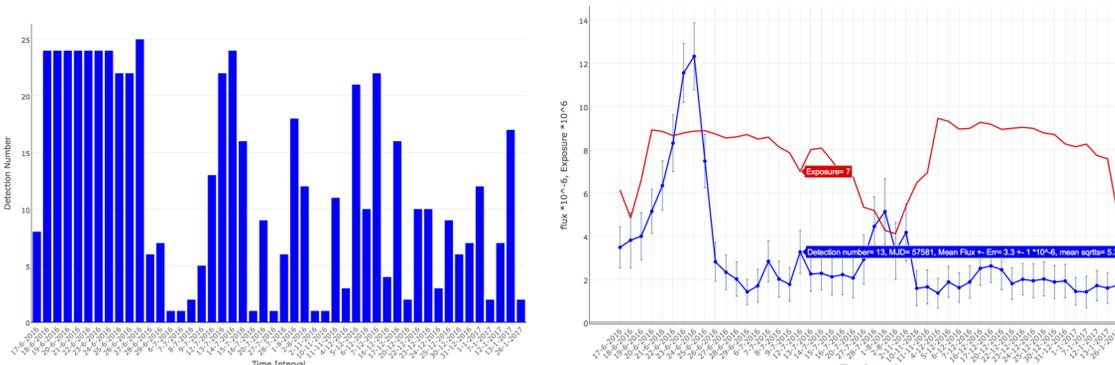
With this tool, developed using d3-celestial library, researchers can view the detection found by the AGILE Alert system and their scientific alerts within the map of the sky. The user can rotate or zoom the map using the mouse and clicking on an alert it is possible to display the light curve for that specific alert.



Researchers receive directly on their smartphones the notifications that report ongoing astrophysical events. After receiving a notification, the researcher can use the AGILE Dashboard to analyze more deeply the data collected by AGILE and processed by the AGILE Science Alert system.



In addition to maps and light curves, the AGILE Dashboard can also be used to display charts of various types representing the information contained in the database related to a certain region of the sky such as the detection number that the AGILE Science Alert system find every day or the level of flow and exposure of that region.



- ❖ The light curve graph, developed using plotly.js library, is interactive and can be zoomed to display detail in a given time window. Moving your mouse over a detection will show additional information about it.
- ❖ The user can create a light curve relative to a time window in a specific sky position. This feature is very useful to analyze the gamma emission flow level over time.
- ❖ These tools are used to produce a report showing detection found over the past 48 hours. Through this report researchers can have an overview of the most interesting recent events and if they think it is necessary they can deepen the analysis using the tools contained in the AGILE Dashboard

### Conclusion

With this web platform, researchers have access to a large amount of informations quickly and easily. This software can be used on any device connected to the network. In the next future, the AGILE Dashboard will be expanded by adding new useful analysis tools to allow researchers to analyze the information seen by the AGILE satellite in many different way.

### References

[1] Bulgarelli A., et al., ApJ 781:19, 2014

A demo version of the AGILE Dashboard

