

European Broker Services

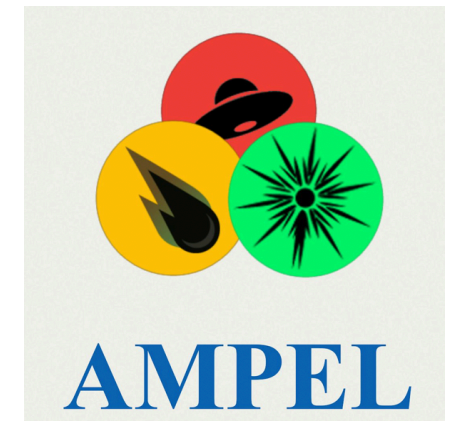
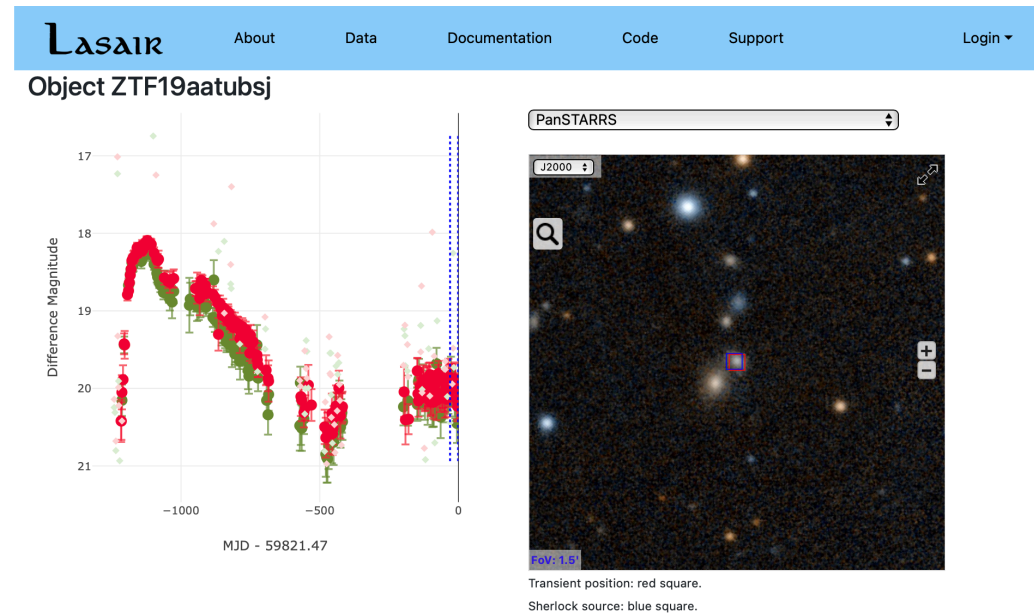
The starting point

Three community brokers selected by Rubin/LSST:

- AMPEL (Kowalski, Nordin, van Santen, Germany)
- FINK (J. Peleton, E. Ishida, France)
- LASAIR (S. Smartt, K. Smith, R. Williams, UK)

Each broker has somewhat different focus with good interactions between teams. Years of experience with ATLAS and ZTF, supporting a large community

Project idea: Join forces and provide a coherent broker and realtime data analyses service for a large number of time-domain observatories (e.g. ATLAS, Pan-STARRS, ZTF, ULTRASAT, LSST, IceCube, KM3NeT, LIGO/Virgo)



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Deliverables

UK node:

- Development of full access to the ATALS and Pan-STARRS transient streams -
- Enhancing Sherlock - crossmatching and classification

France node:

Development & deployment of a web-based platform for machine learning applications (training, testing, mining), and associated micro-services (versioning & comparison, connection to standardized and tailored data sets, automatic re-training, ...).

German node:

- Provide optimal access to the ULTRASAT transient stream
- Support complex analyses workflows for multi-messenger data streams

Common services:

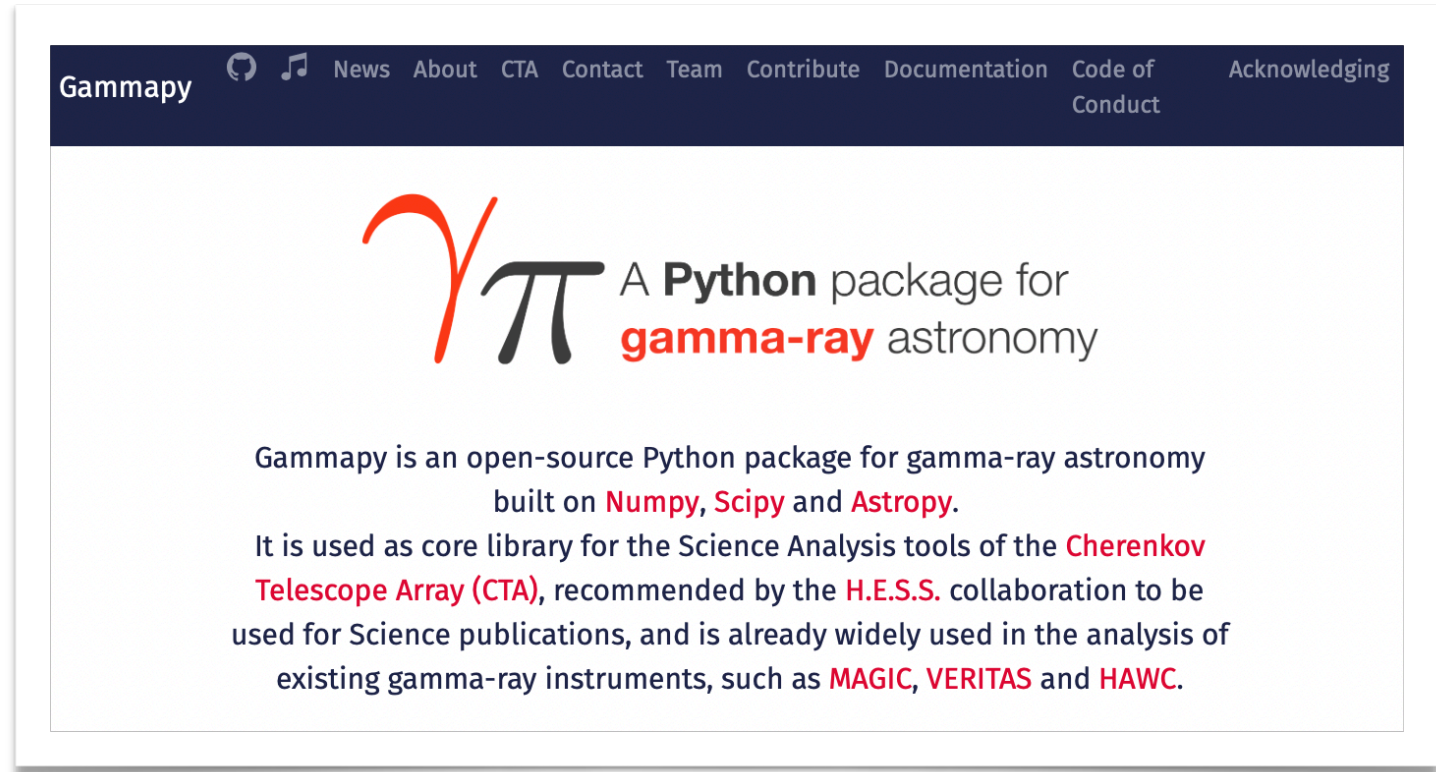
- Develop kafka streams that all brokers can access; support data exchange with other efforts (e.g. AstroColibri)
- Maintain catalogs for crossmatching
- European repository for real time data: Distributed storage, and associated services, to host and serve historical broker data over the next decade to the community
- Provide access to Rubin/LSST data

Other ideas

Tools for joint analyses

GammaPy used by many to perform analysis of Air Cherenkov Telescope data.

We could expand it to allow analyses of X-rays or even high-energy neutrino and GW data. A joint analysis framework would facilitate new multimessenger work.



The screenshot shows the homepage of the GammaPy project. At the top is a dark blue navigation bar with the text 'Gammapy' on the left and a series of links on the right: 'News', 'About', 'CTA', 'Contact', 'Team', 'Contribute', 'Documentation', 'Code of Conduct', and 'Acknowledging'. Below the navigation bar is the main content area. On the left side of this area is the GammaPy logo, which consists of a stylized orange Greek letter gamma (γ) and a black Greek letter pi (π). To the right of the logo is the text 'A Python package for gamma-ray astronomy', where 'gamma-ray' is in red. Below the logo and text is a paragraph of introductory text: 'Gammapy is an open-source Python package for gamma-ray astronomy built on Numpy, Scipy and Astropy. It is used as core library for the Science Analysis tools of the Cherenkov Telescope Array (CTA), recommended by the H.E.S.S. collaboration to be used for Science publications, and is already widely used in the analysis of existing gamma-ray instruments, such as MAGIC, VERITAS and HAWC.' The text 'Cherenkov Telescope Array (CTA)', 'H.E.S.S.', 'MAGIC', 'VERITAS', and 'HAWC' are all in red.