

From gamma-ray to radio

Multi-wavelength follow-up within the
first five minutes

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Aims of this talk

- ▶ Highlight recent work:
 - ▶ Fast radio follow-up
 - ▶ Transient classification
- ▶ Talk about transient screening and prioritisation, and how to start implementing it

Outline

Fast Radio Follow-up

Multi- λ classification

Automating 'transient triage'

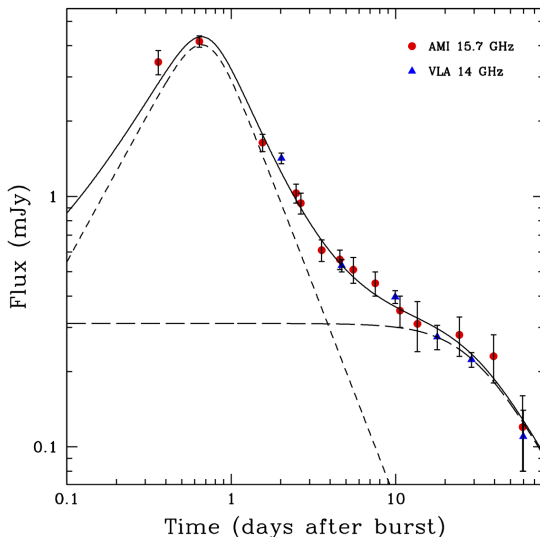
ALARRM

AMI-LA Rapid Response Mode



Staley 2013, <http://ukads.nottingham.ac.uk/abs/2013MNRAS.428.3114S>

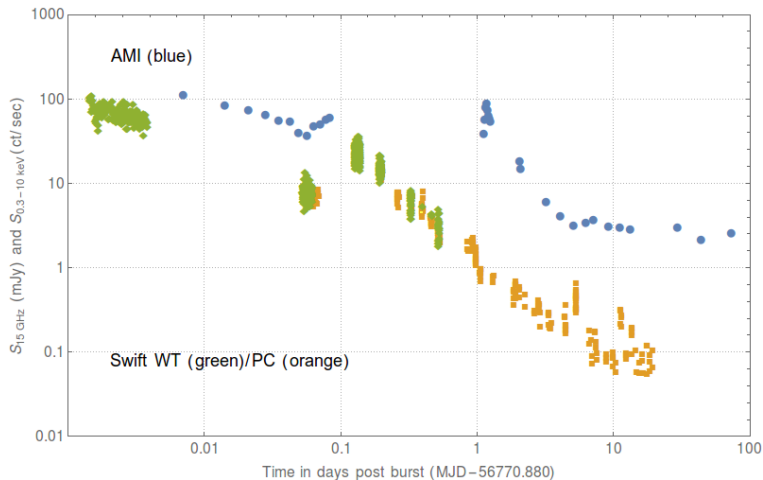
GRB140327A



Anderson 2014, <http://adsabs.harvard.edu/abs/2014MNRAS.440.2059A>

van der Horst 2014, <http://adsabs.harvard.edu/abs/2014MNRAS.444.3151V>

DG CVn M-dwarf superflare



Fender 2014, <http://adsabs.harvard.edu/abs/2014arXiv1410.1545F>

Osten et al (in prep)

Outline

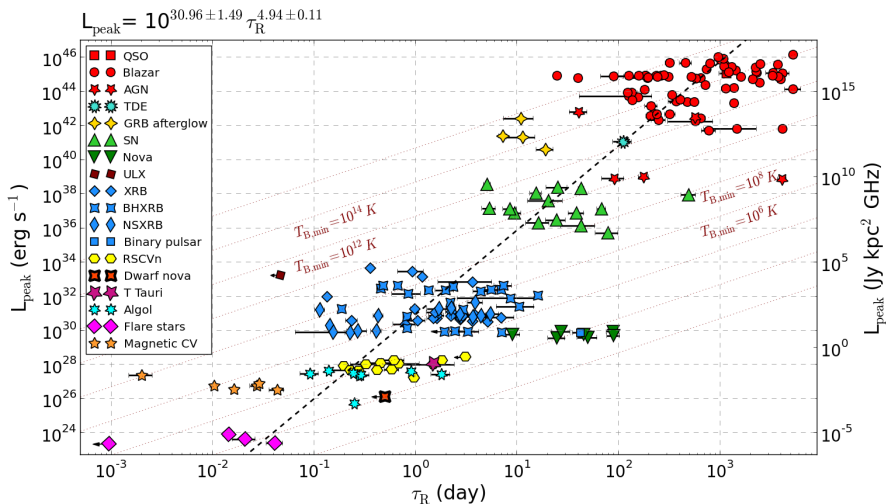
Fast Radio Follow-up

Multi- λ classification

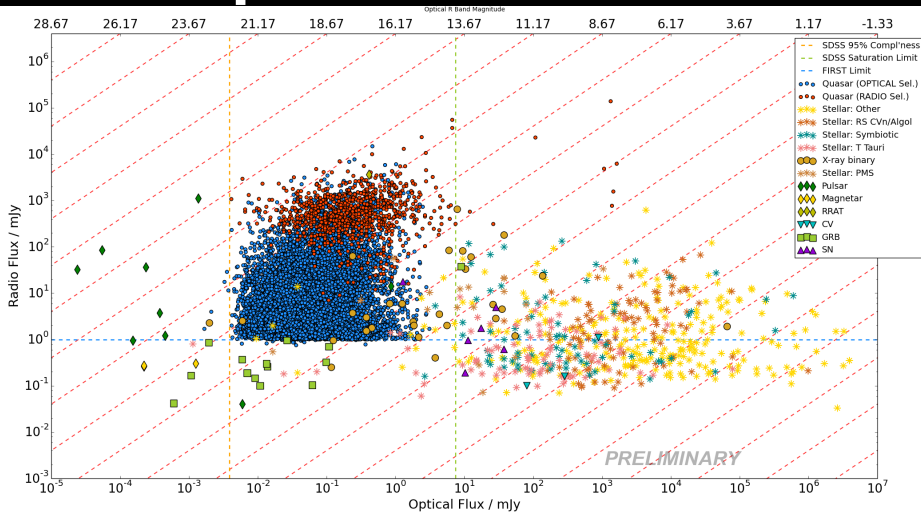
Automating 'transient triage'

Radio timescales

Weak classification based on rise rate?



Radio-optical flux ratio



Stewart, Munoz-Darias (in prep)

Outline

Fast Radio Follow-up

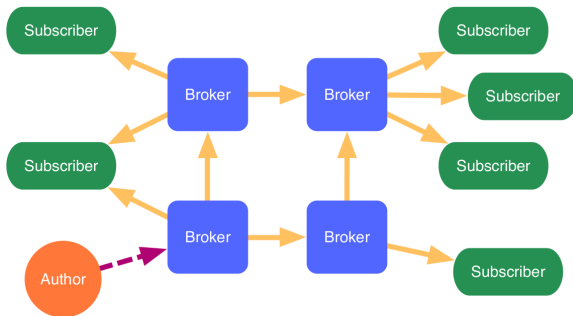
Multi- λ classification

Automating 'transient triage'

Transient triage

- ▶ Want to make optimal use of both small and large facilities
- ▶ Perform crude classification and target prioritisation with small facilities first
 - ▶ Has to be **fast**
 - ▶ Has to be **automated**

Automating the spread of information



VOEvent provides a decentralised, machine-readable publication model.

e.g. *Swinbank 2013*, <http://adsabs.harvard.edu/abs/2013MNRAS.428.3114S>

Let's make this work

- ▶ We can provide the tools and infrastructure
- ▶ Running an open VOEvent server at `voevent.4pisky.org`
 - ▶ NASA-GCN
 - ▶ DESAlerts (soon)
 - ▶ OGLE / GAIA (possibly)
- ▶ A minimum working example to get you started:
`github.com/timstaley/fourpiskytools`

Summary

- ▶ There are **rapidly** evolving radio-band transients, too
- ▶ Radio information could be a powerful aid to classification
- ▶ We can help you get started with VOEvents
- ▶ More info: 4pisky.org