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## Abstract

ASIM has now observed several hundreds of TGFs since the launch in 2018. Highlights and new science from the first ten months of observations were presented in Østgaard et al. (2019) paper. In this presentation we will present observational highlights from the last 1.5 year, when the relative timing accuracy between the TGF observations and the optical measurements is +/- 5 us (compared to +/- 80 us before march 2019). This includes many more simultaneous TGF and Elve observations, high flux TGFs, double TGFs simultaneous with double optical pulses and many TGFs with good radio measurements. ASIM has also observed several Gamma Ray Bursts (but not presented here).

## ASIM highlights to now

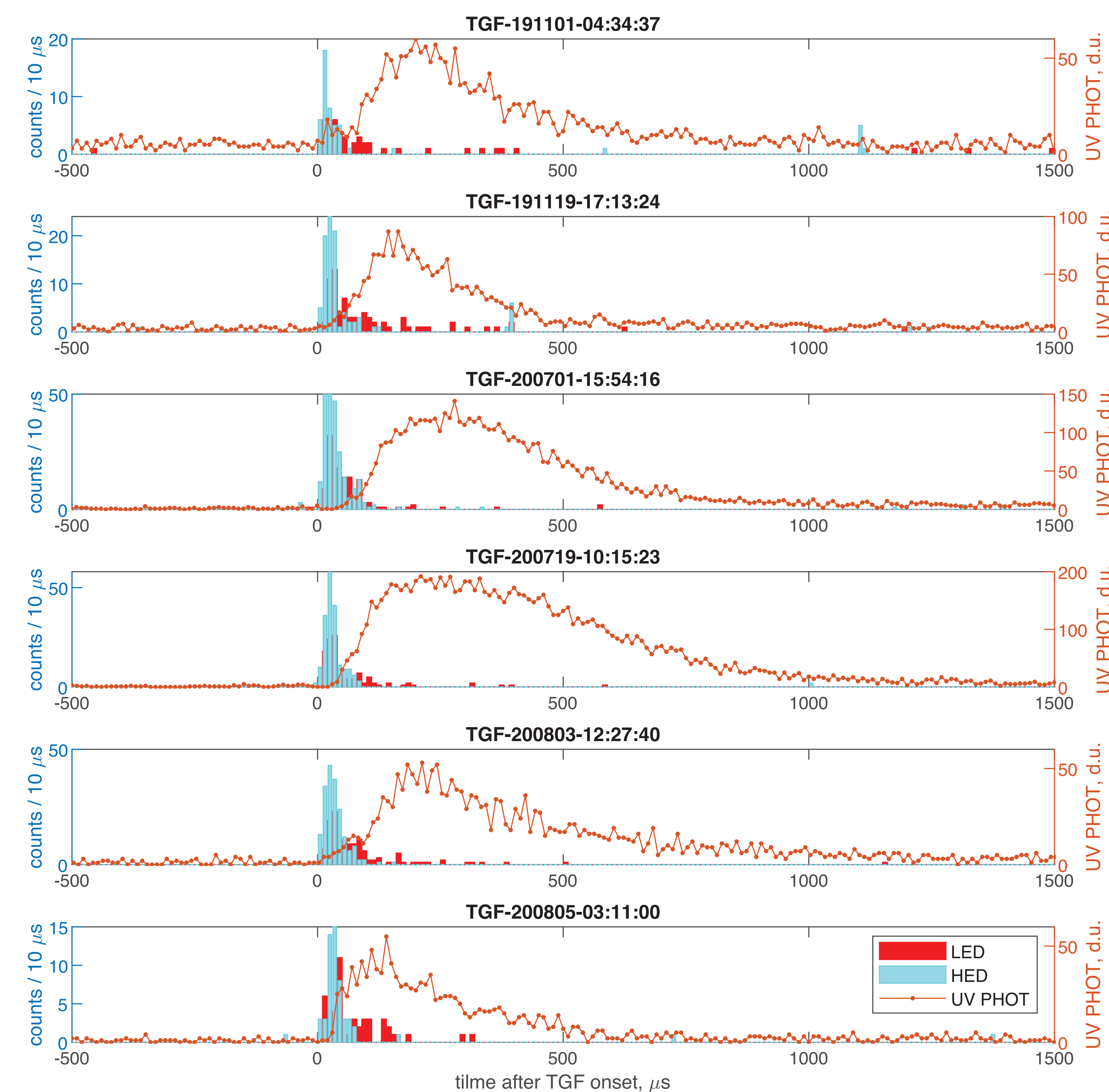


January 2020:  
Elve and TGF from same  
lightning stroke

January 2021: Blue jet  
and Elve from same  
lightning flash



## Many more Elves



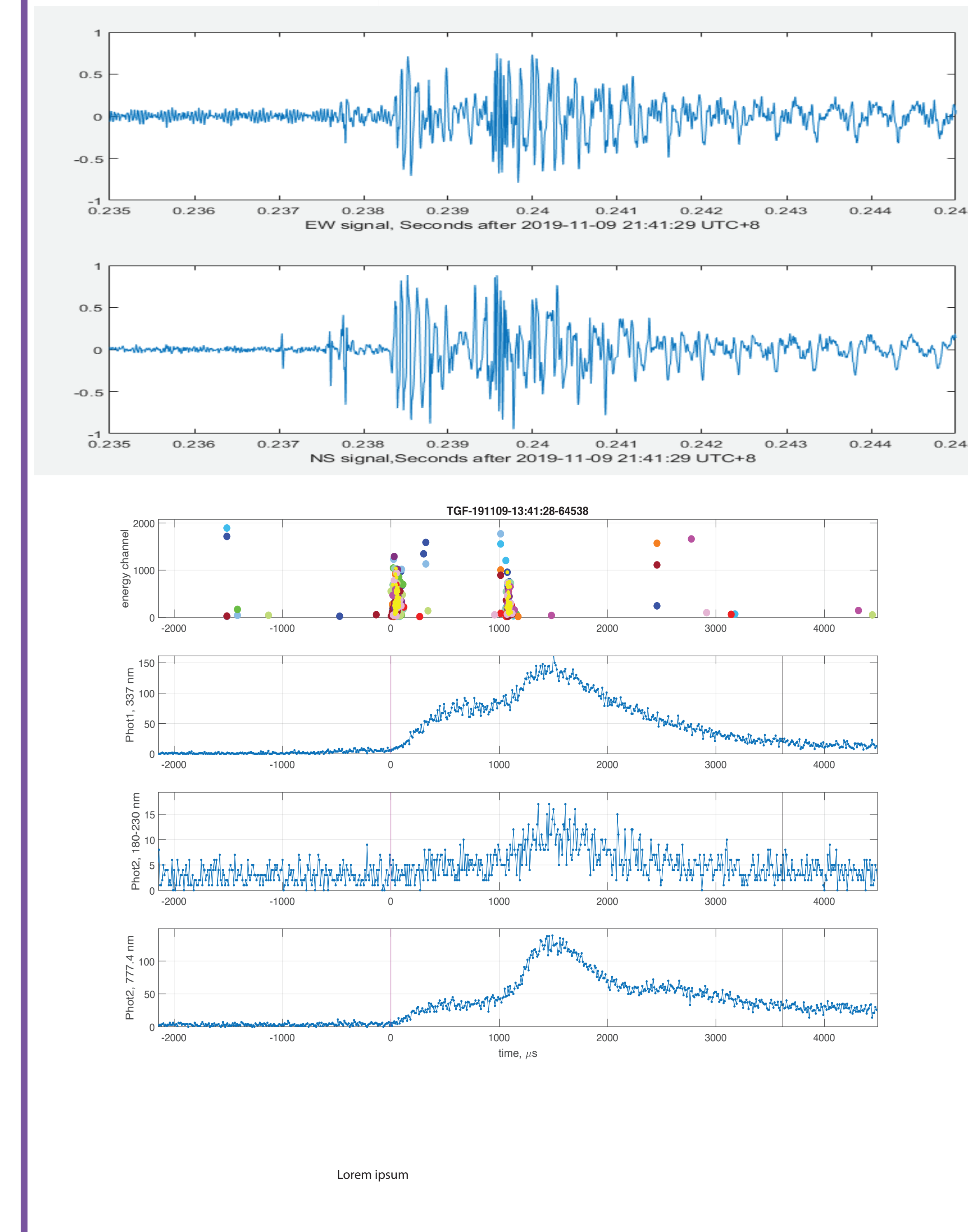
ASIM have now detected many more simultaneous TGFs and Elves.

Six of them are shown above, and a sample of 16 such events have been found to be associated with:

- very large peak currents
- short TGFs
- They are special, because most TGFs are not associated with large peak currents

Paper prepared by Ingrid Bjørge Engeland is about to be submitted

## Many more multi-TGFs



Show case:

VLF from Singapore

MMIA and MXGS

Camera image (83 ms exposure) indicates that the two light pulses come from a point source and are scattered by the cloud (red bar indicates 4 km)

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