

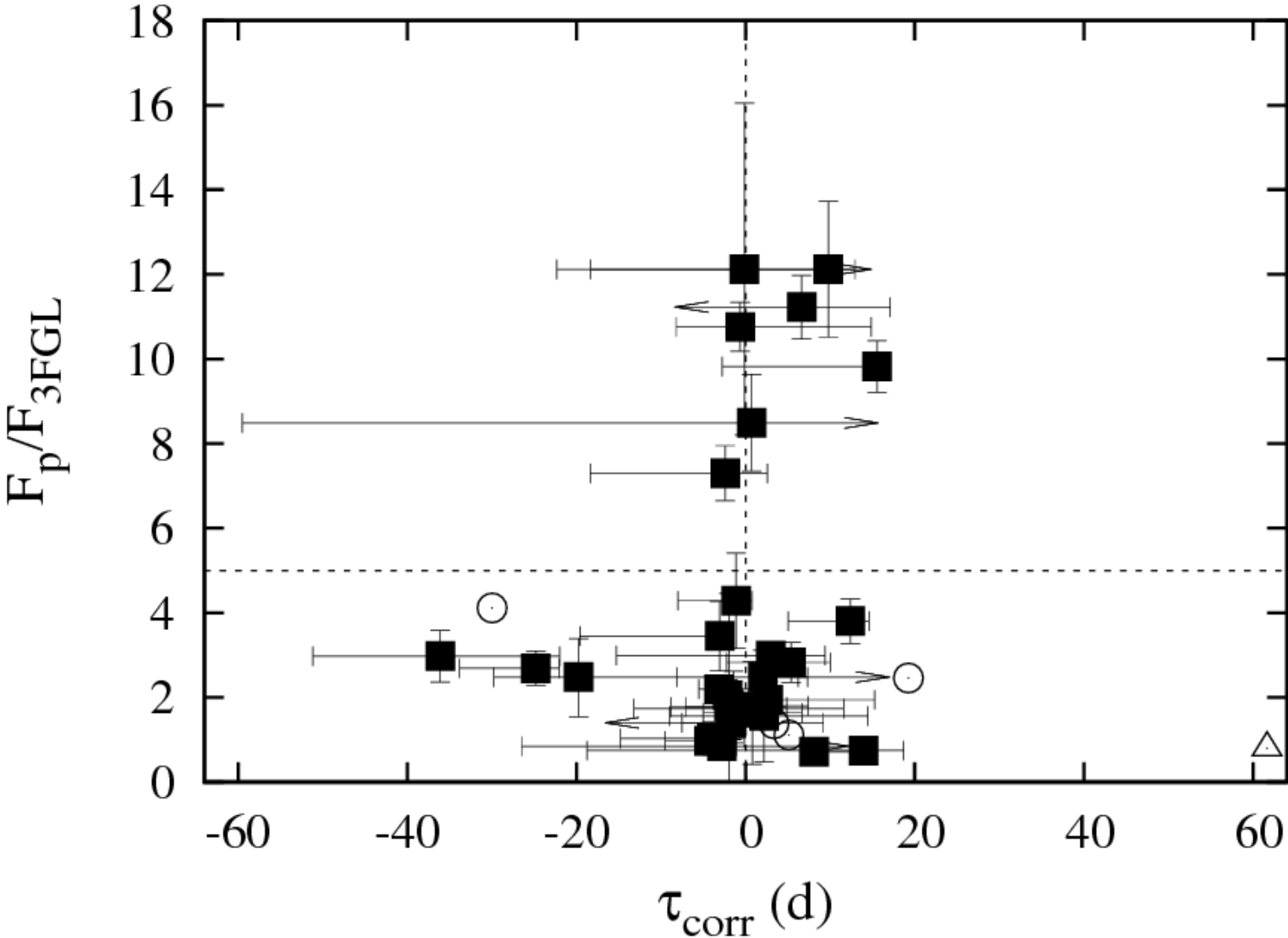
Coherent changes in the polarization angle and broadband SED: the case of 3C454.3

I. Liodakis ¹, D. Blinov ^{1,2}

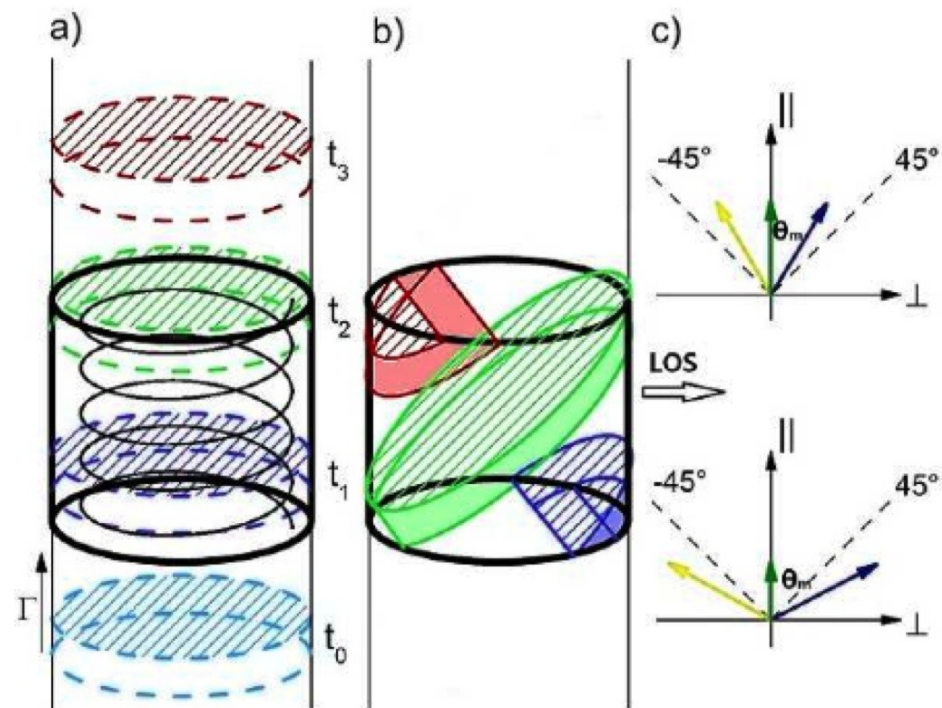
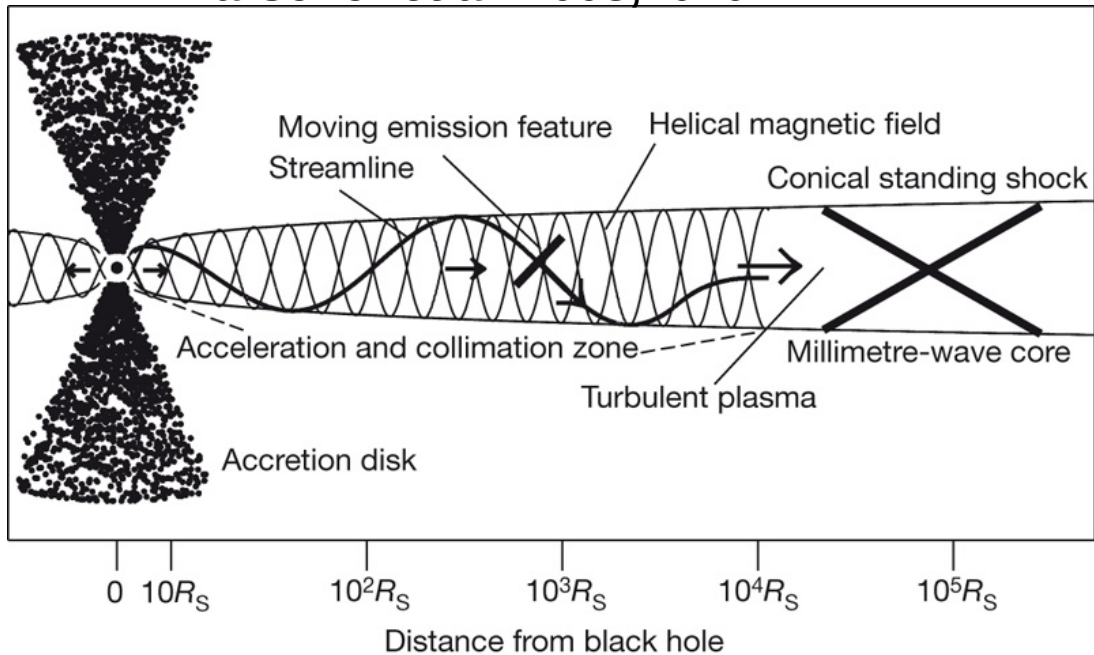
¹*University of Crete*

²*St. Petersburg University*

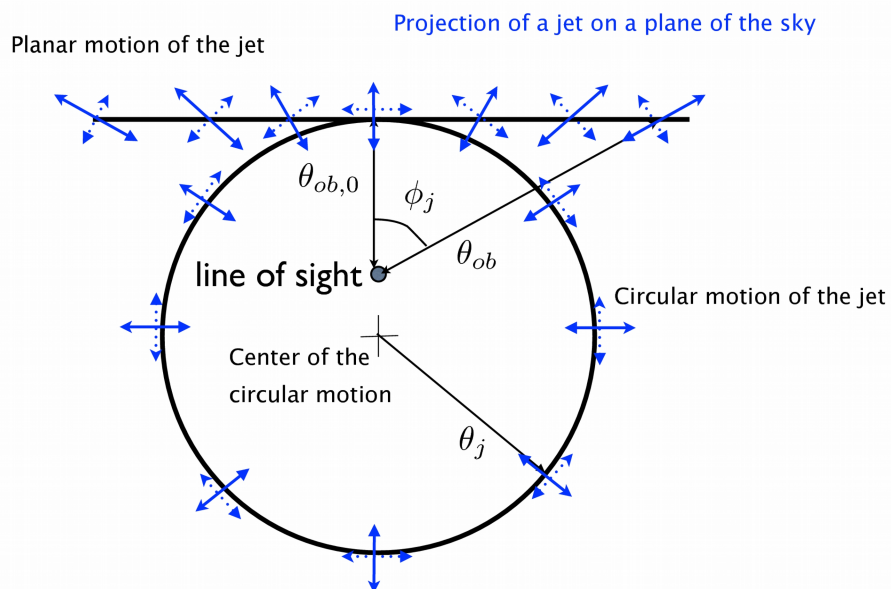
Polarised Emission from Astrophysical Jets
Ierapetra June 2017



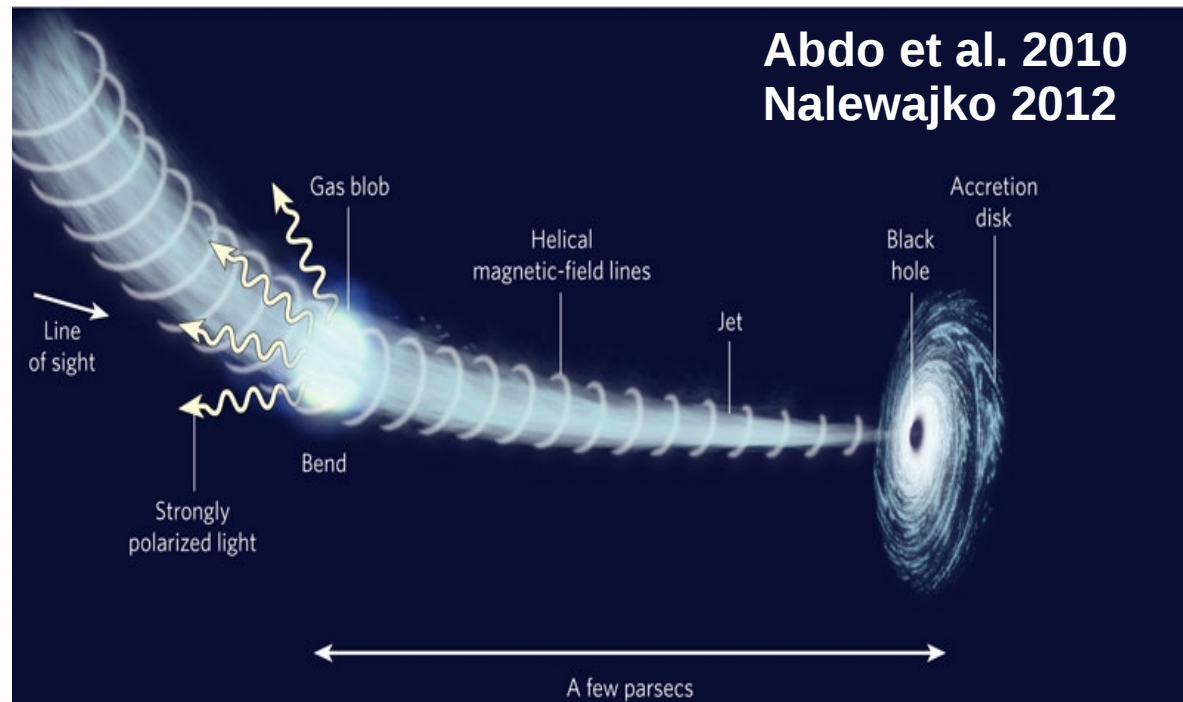
Marscher et al. 2008,2010



Zhang et al. 2014



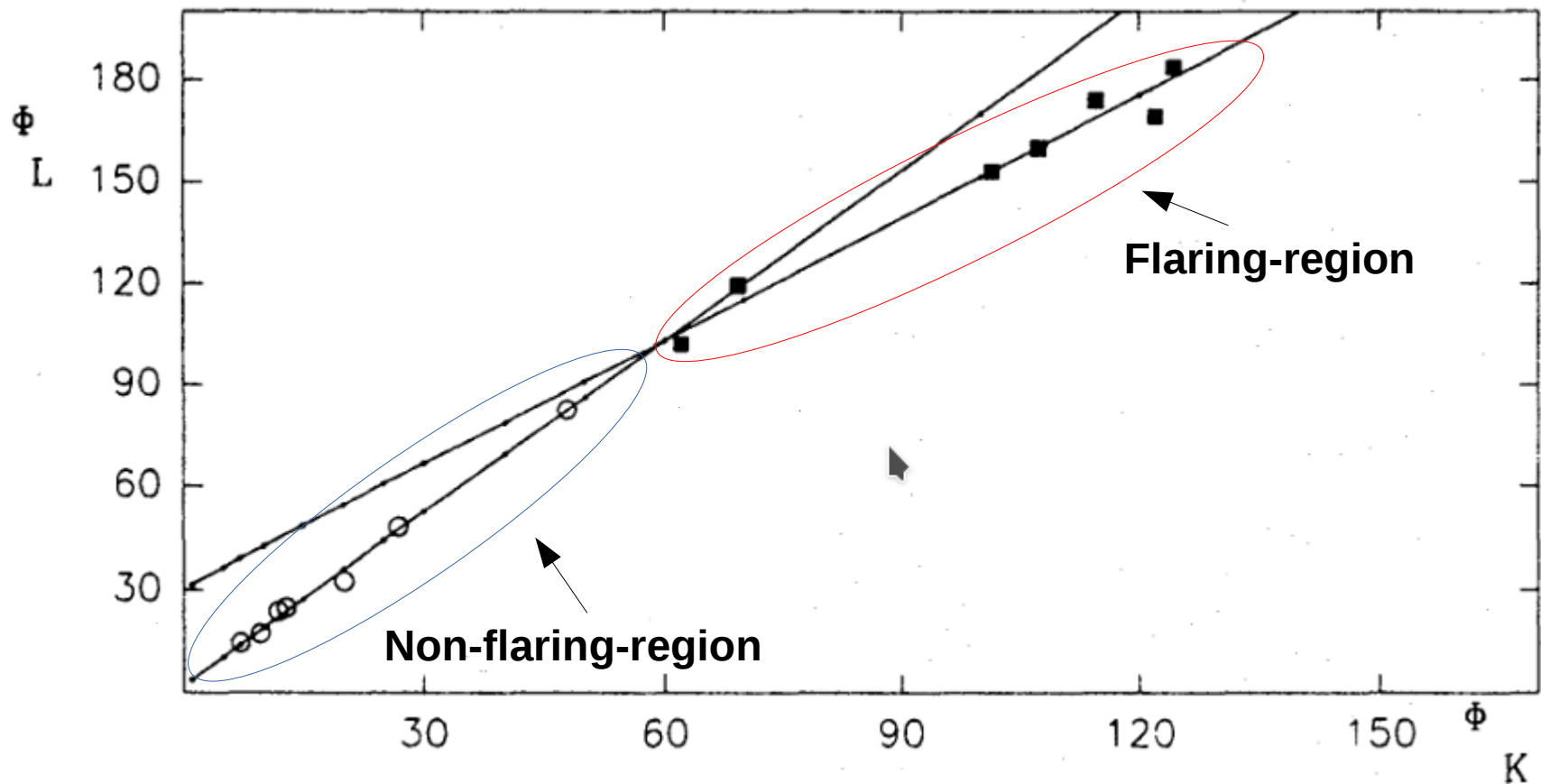
Lyutikov et al. 2017



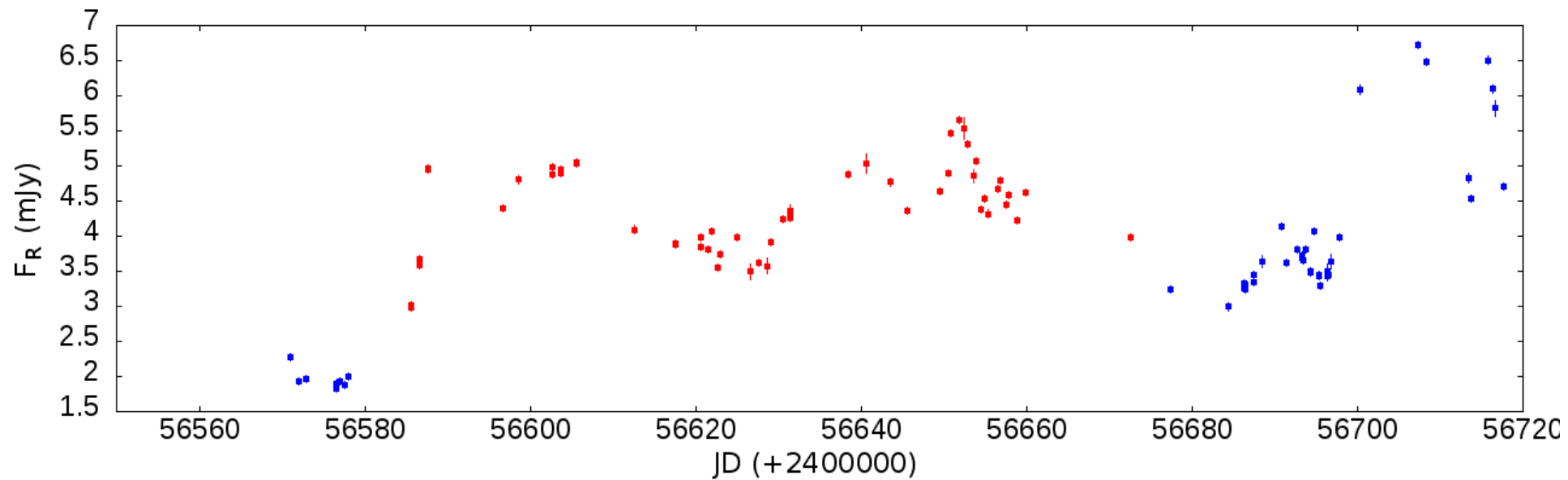
**Abdo et al. 2010
Nalewajko 2012**

Separating two variable components...

Hagen-Thorn et al. (1994)

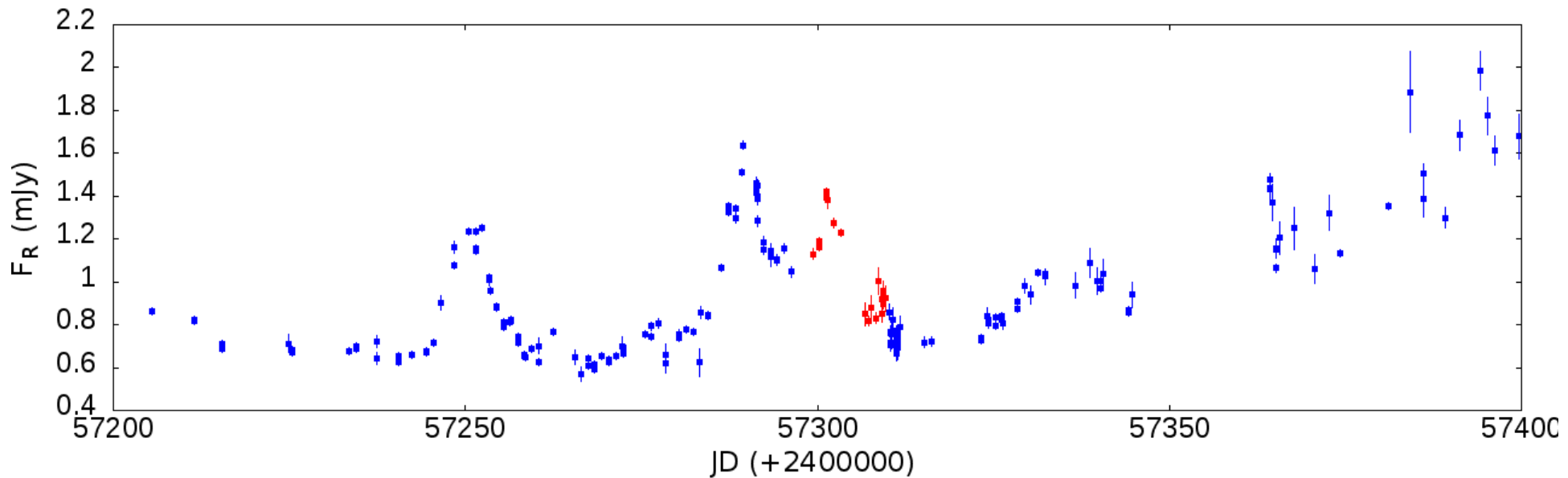


Red marks the duration of the EVPA rotation

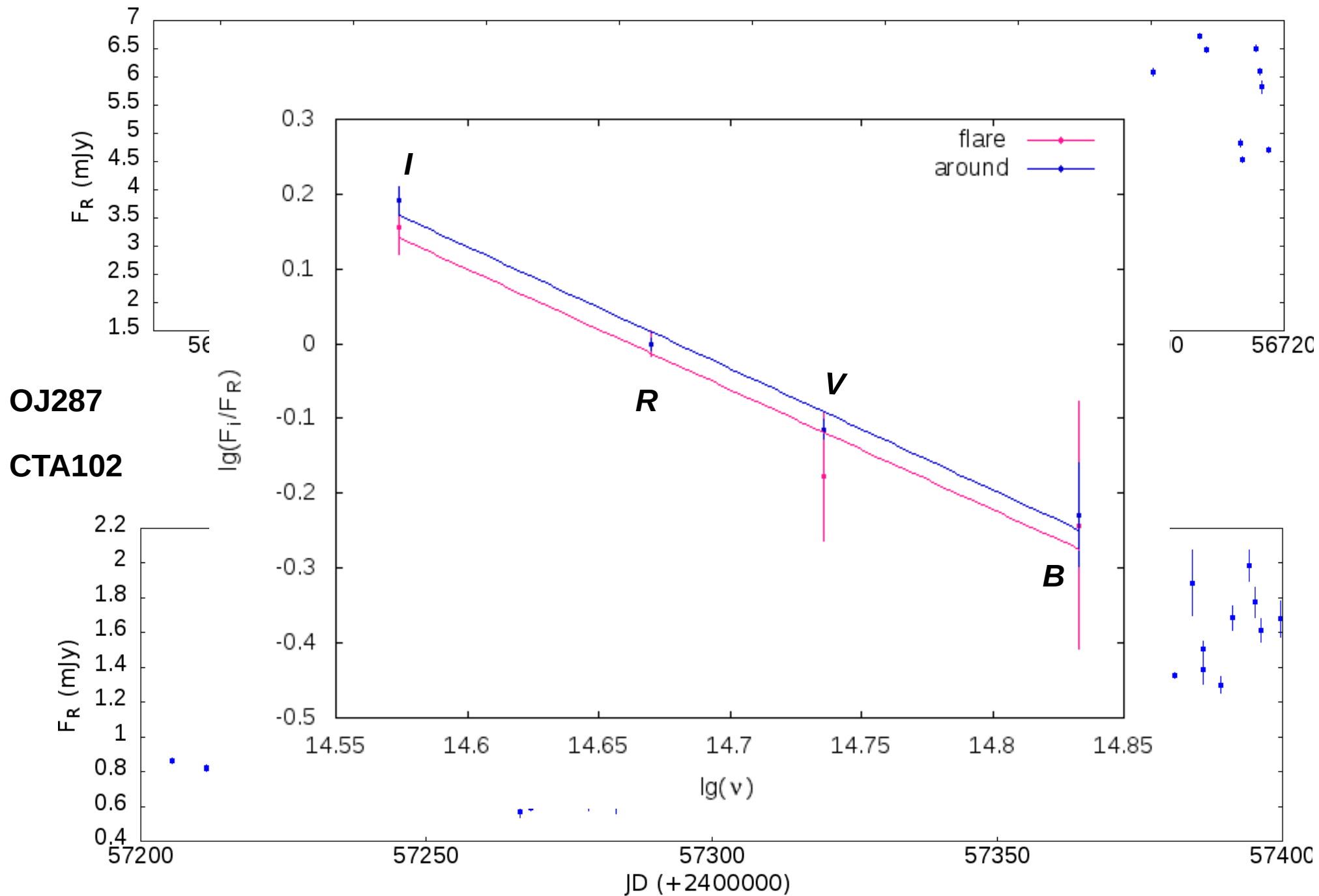


OJ287

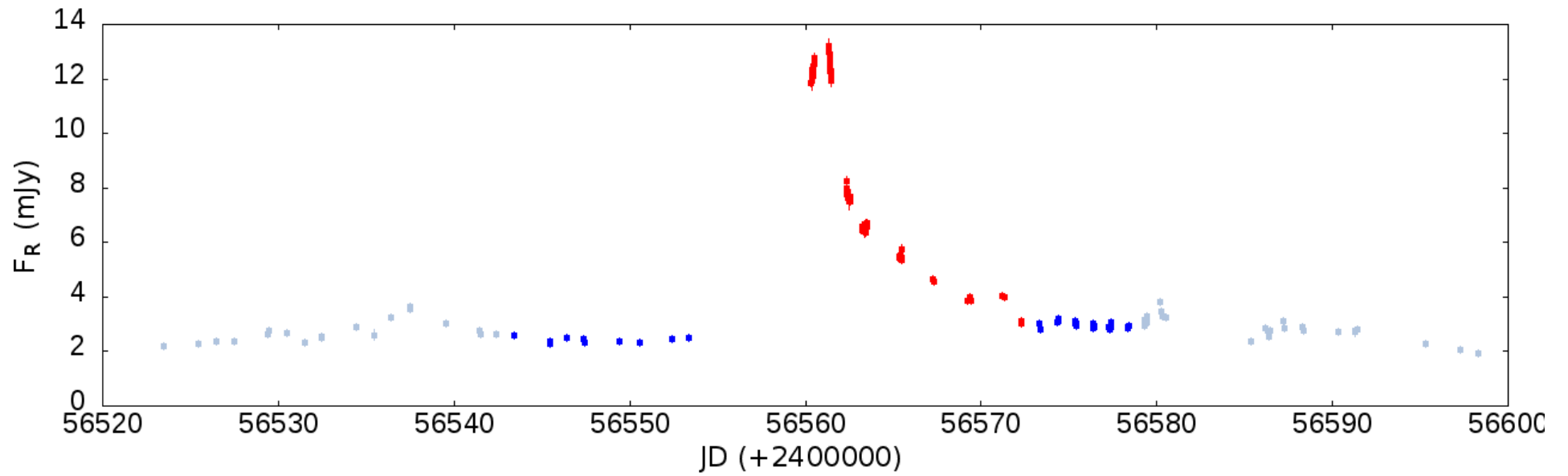
CTA102



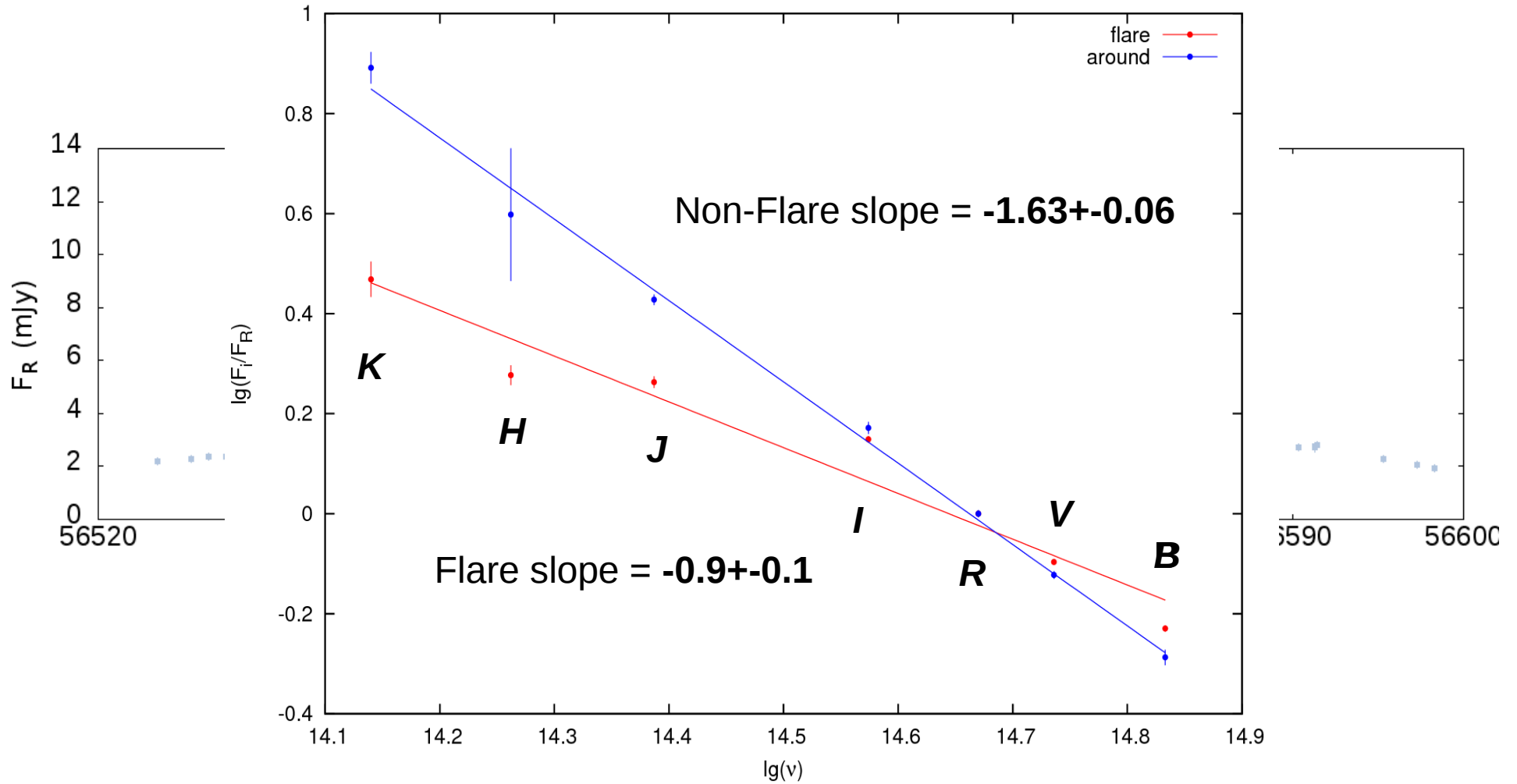
Red marks the duration of the EVPA rotation

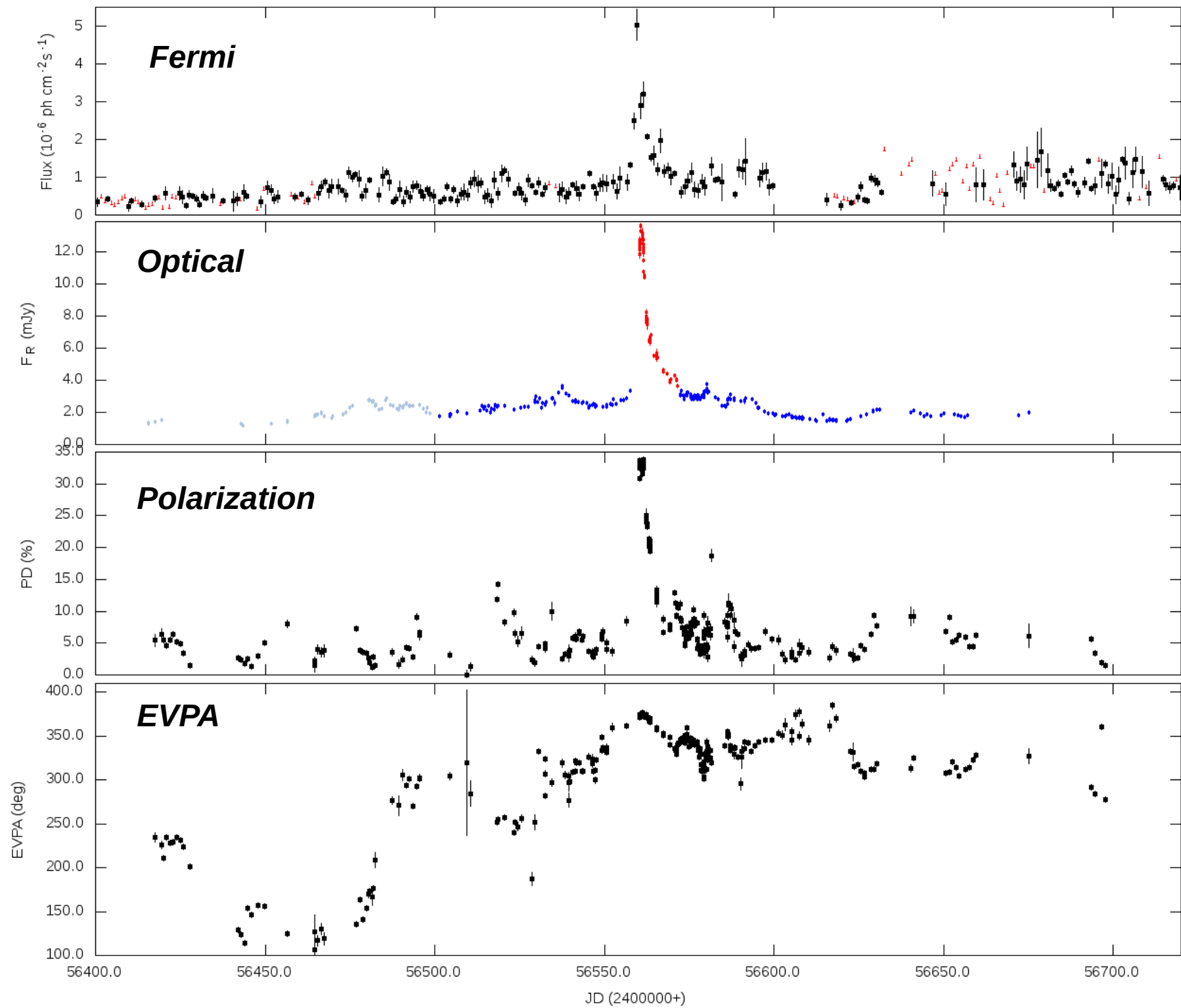


2013 optical flare in 3C454.3

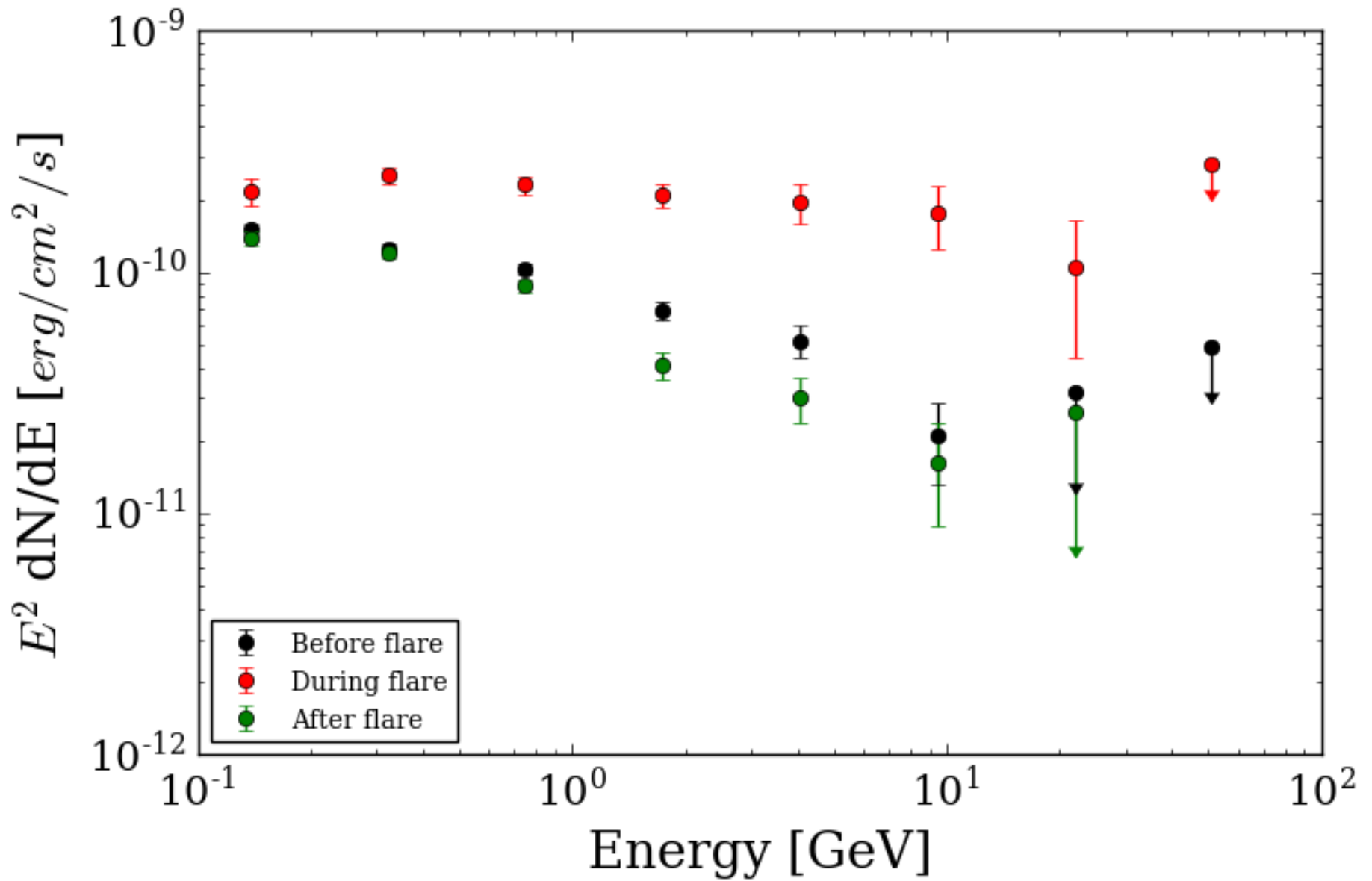


2013 optical flare in 3C454.3

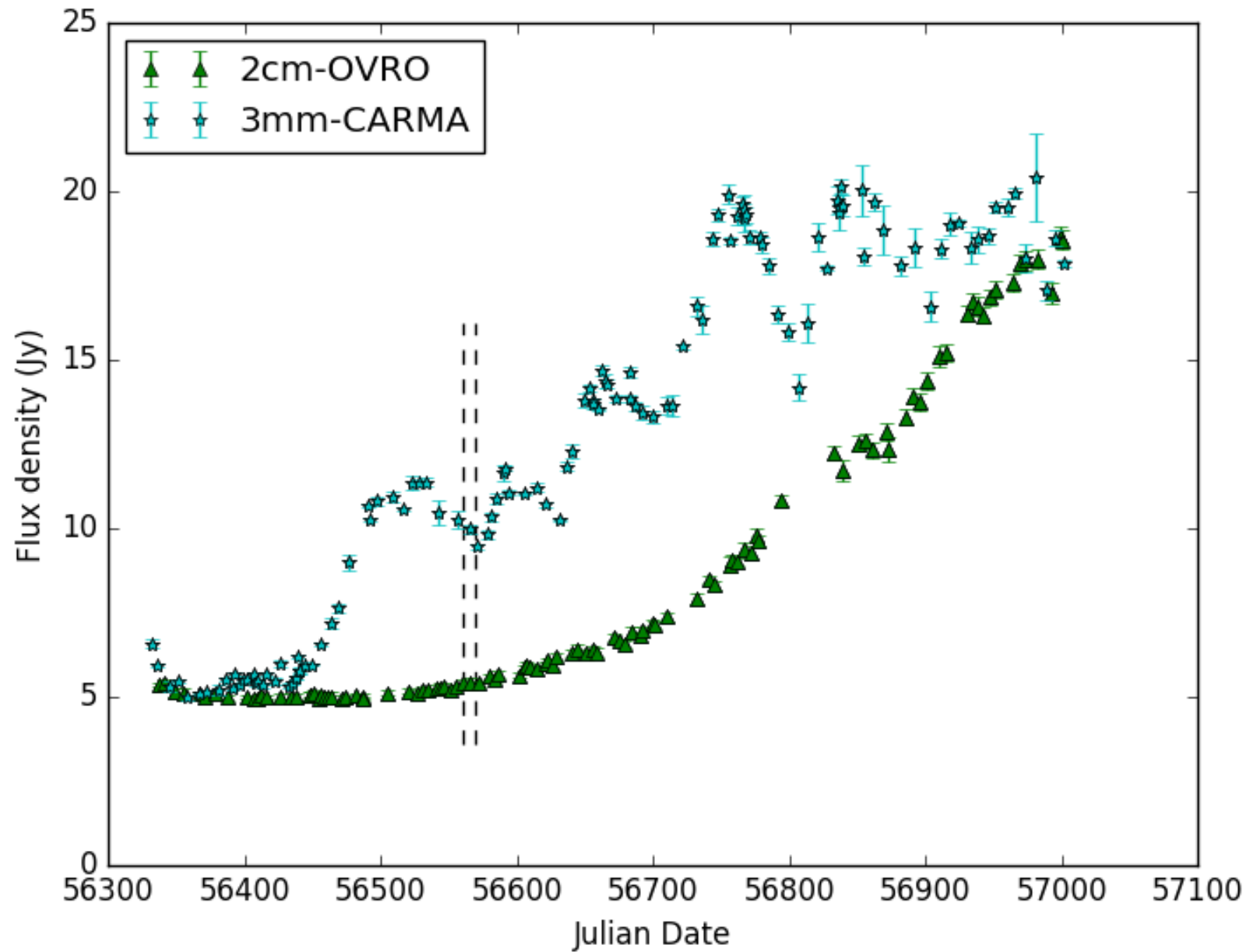




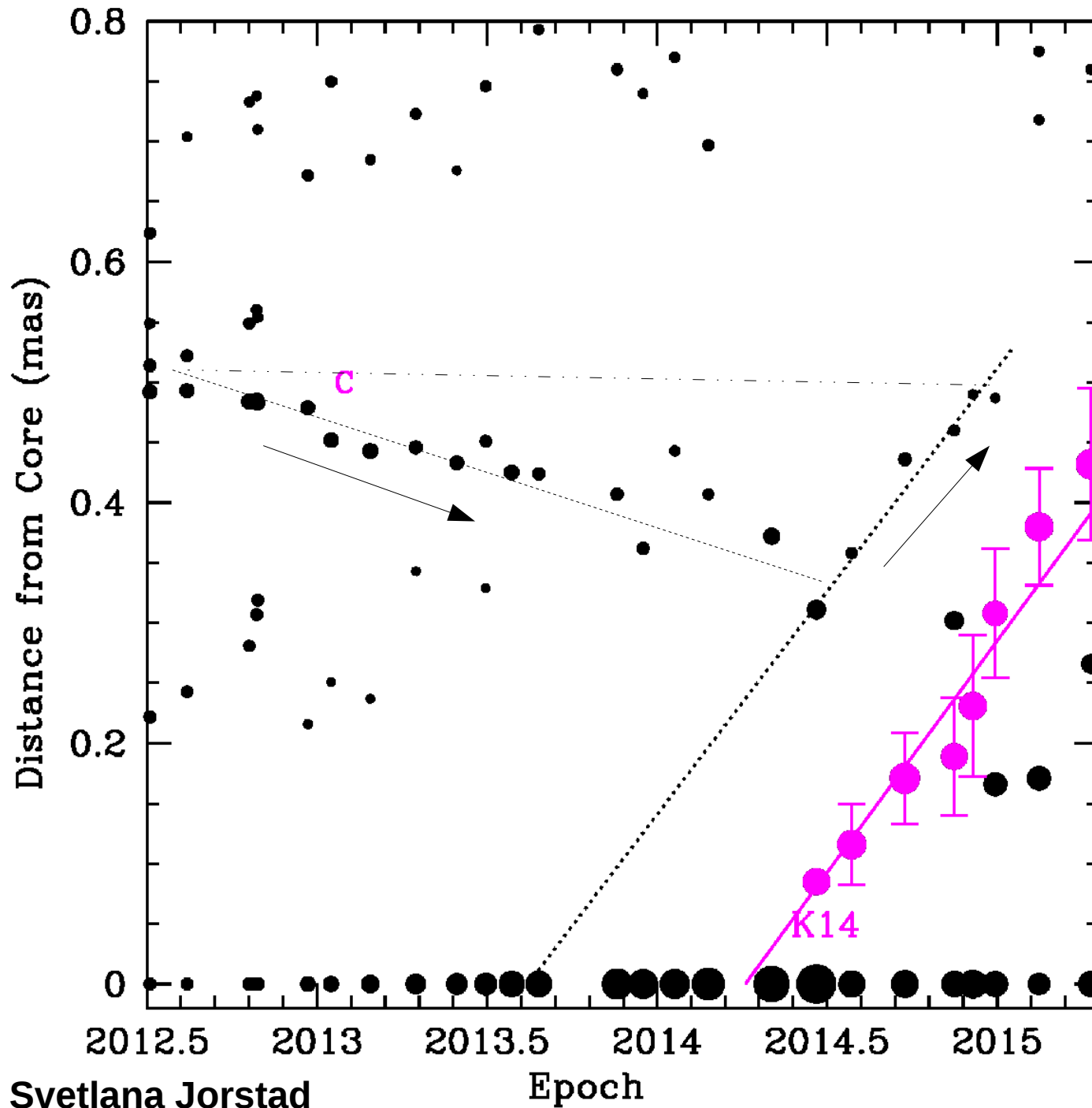
What about the γ -ray spectrum?



Not much in radio...

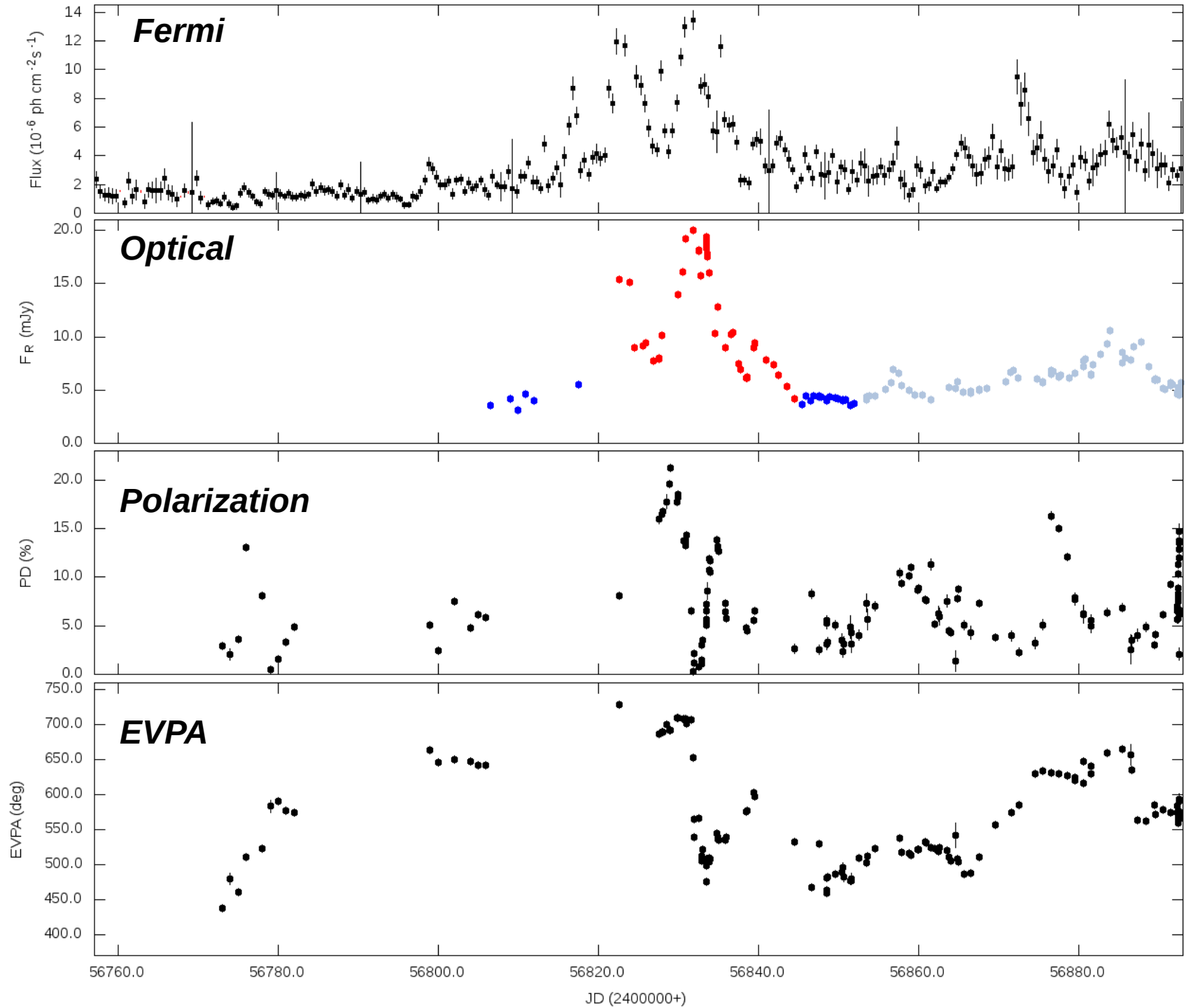


Is there any component ejected?



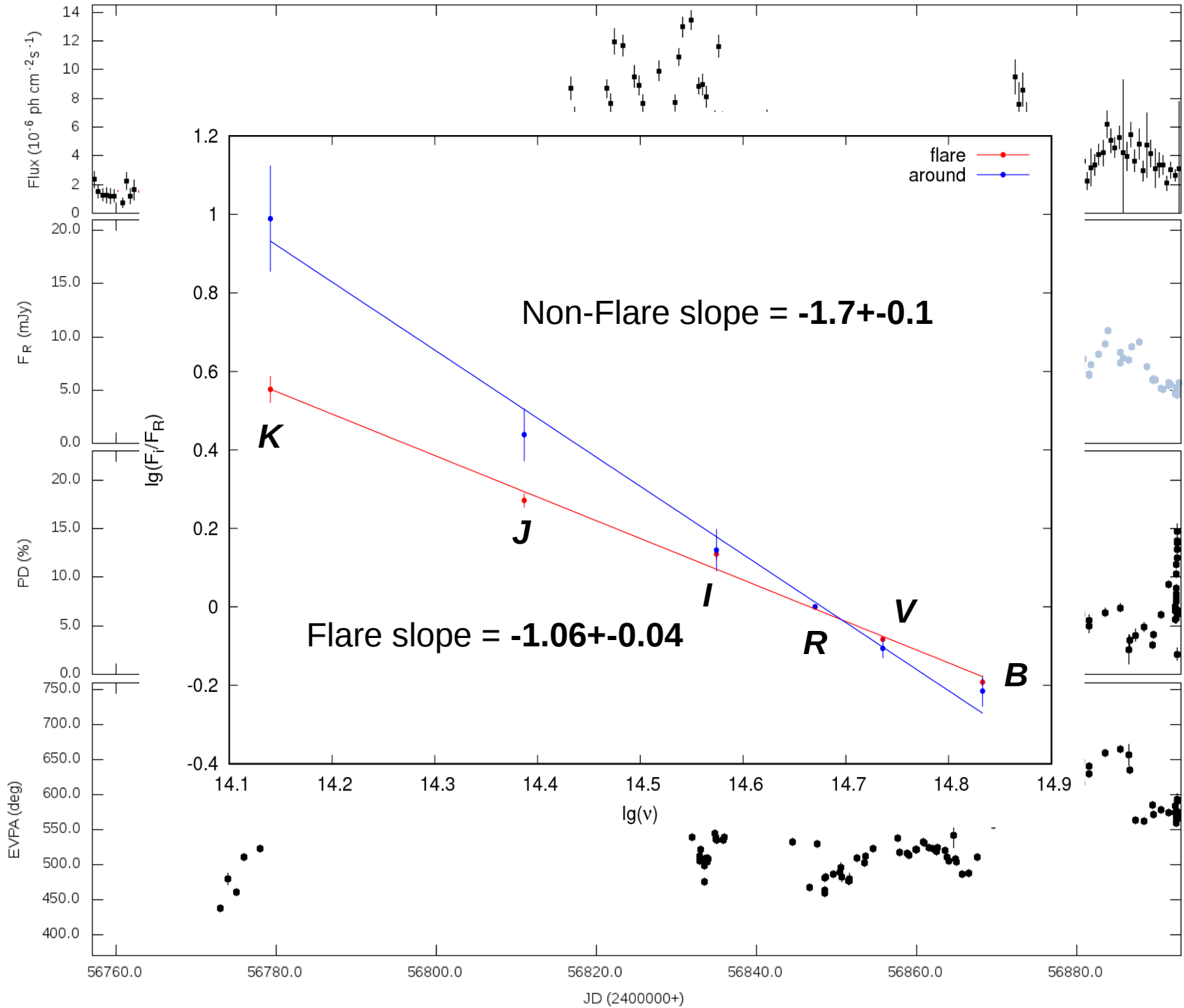
2014-flare

3C 454.3 Fermi flux data (100 MeV \leq E \leq 200 GeV) and R-band magnitudes



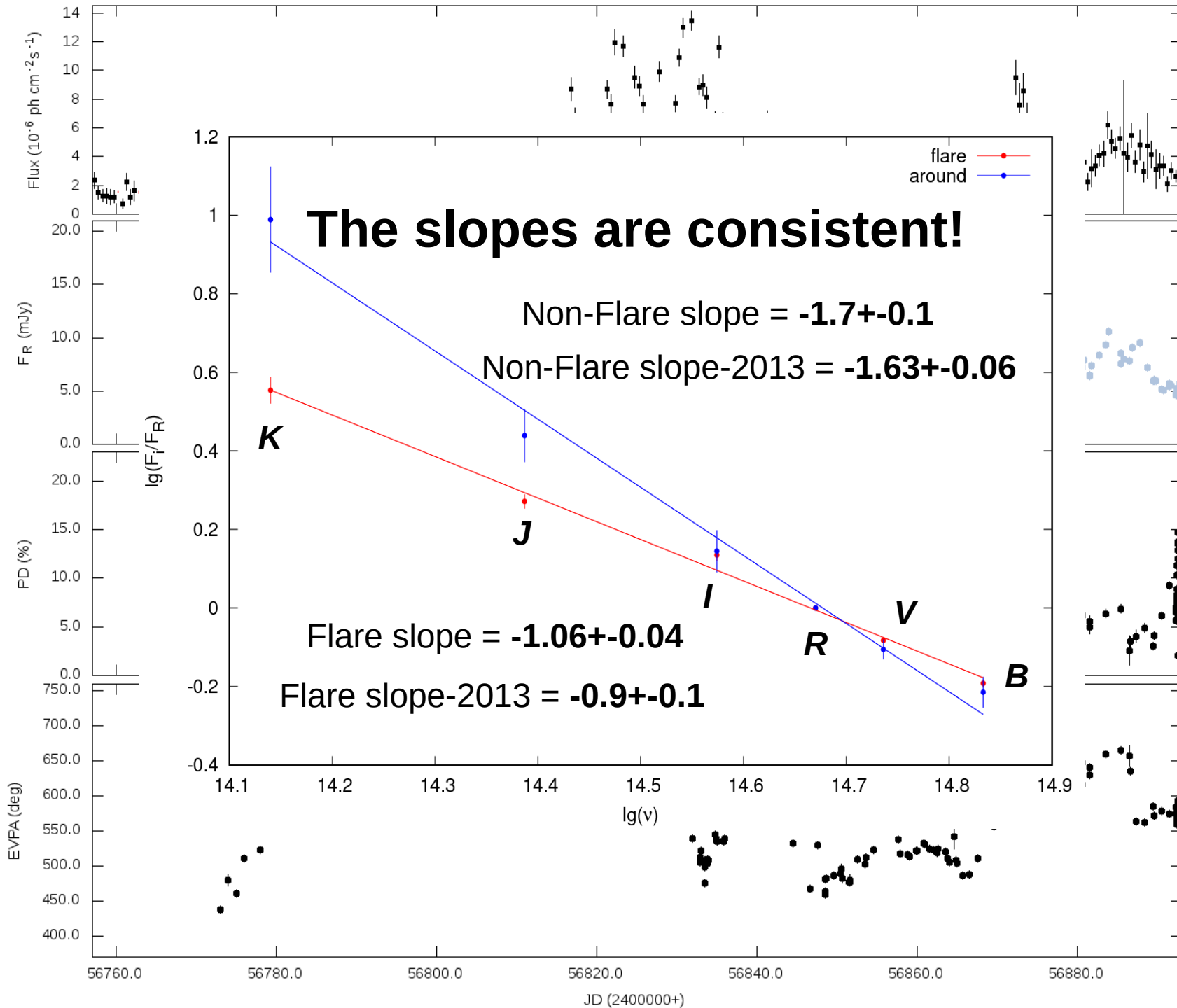
2014-flare

3C 454.3 Fermi flux data (100 MeV $\leq E \leq 200$ GeV) and R-band magnitudes

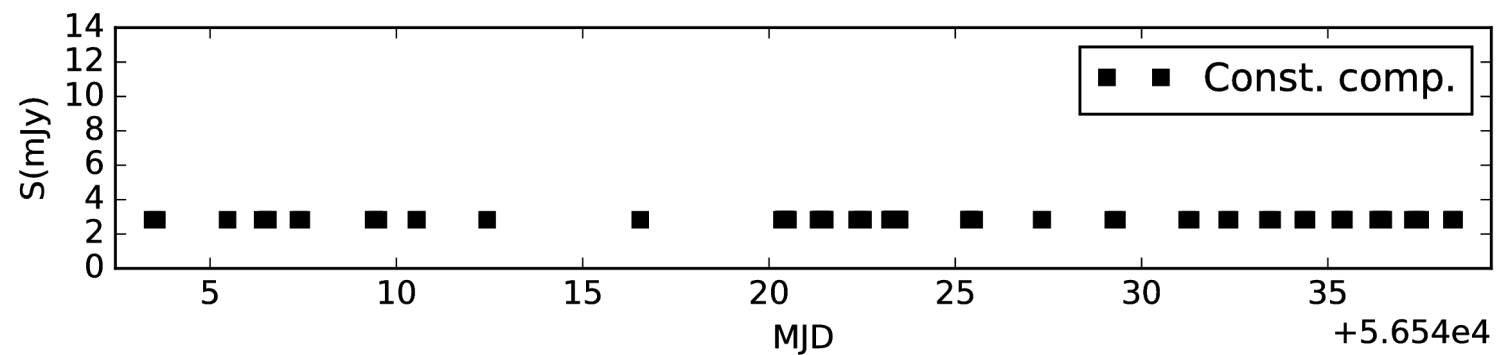
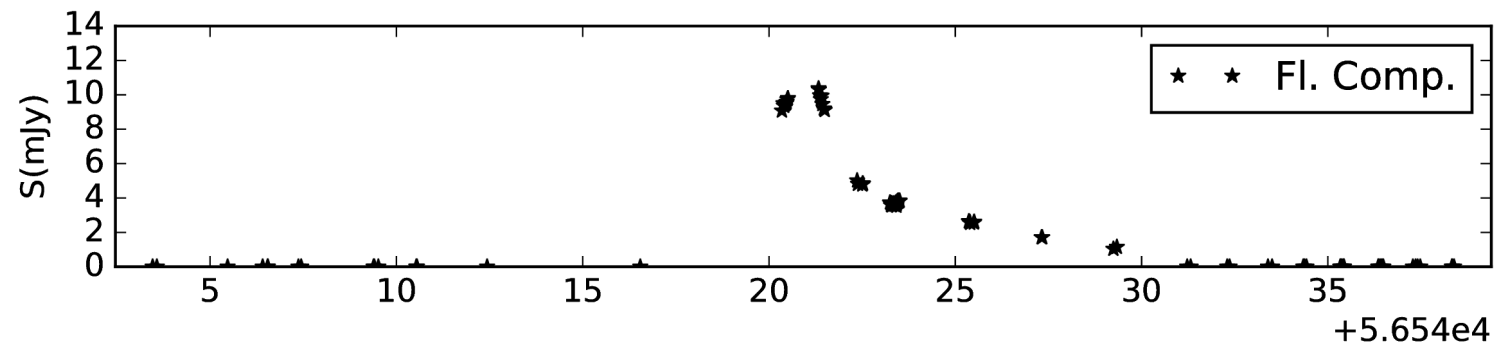
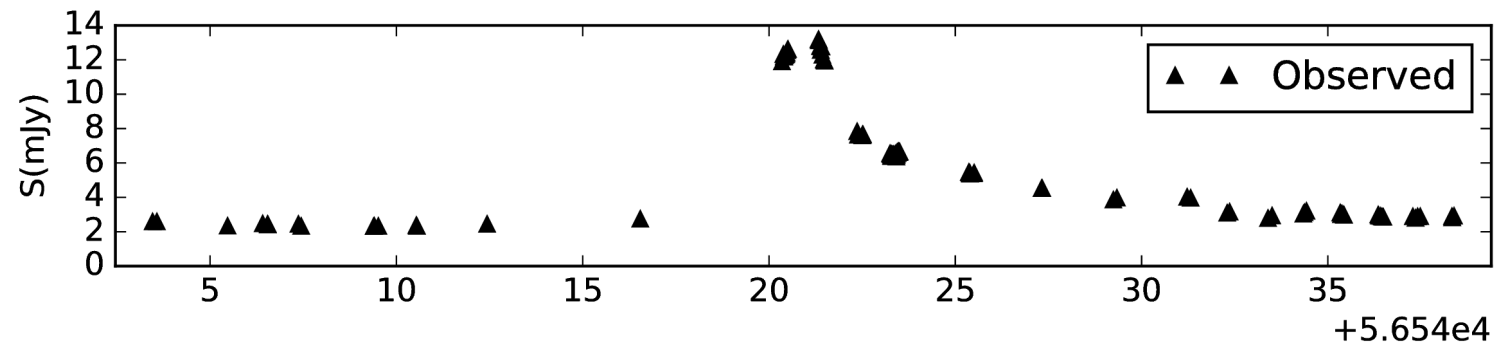


2014-flare

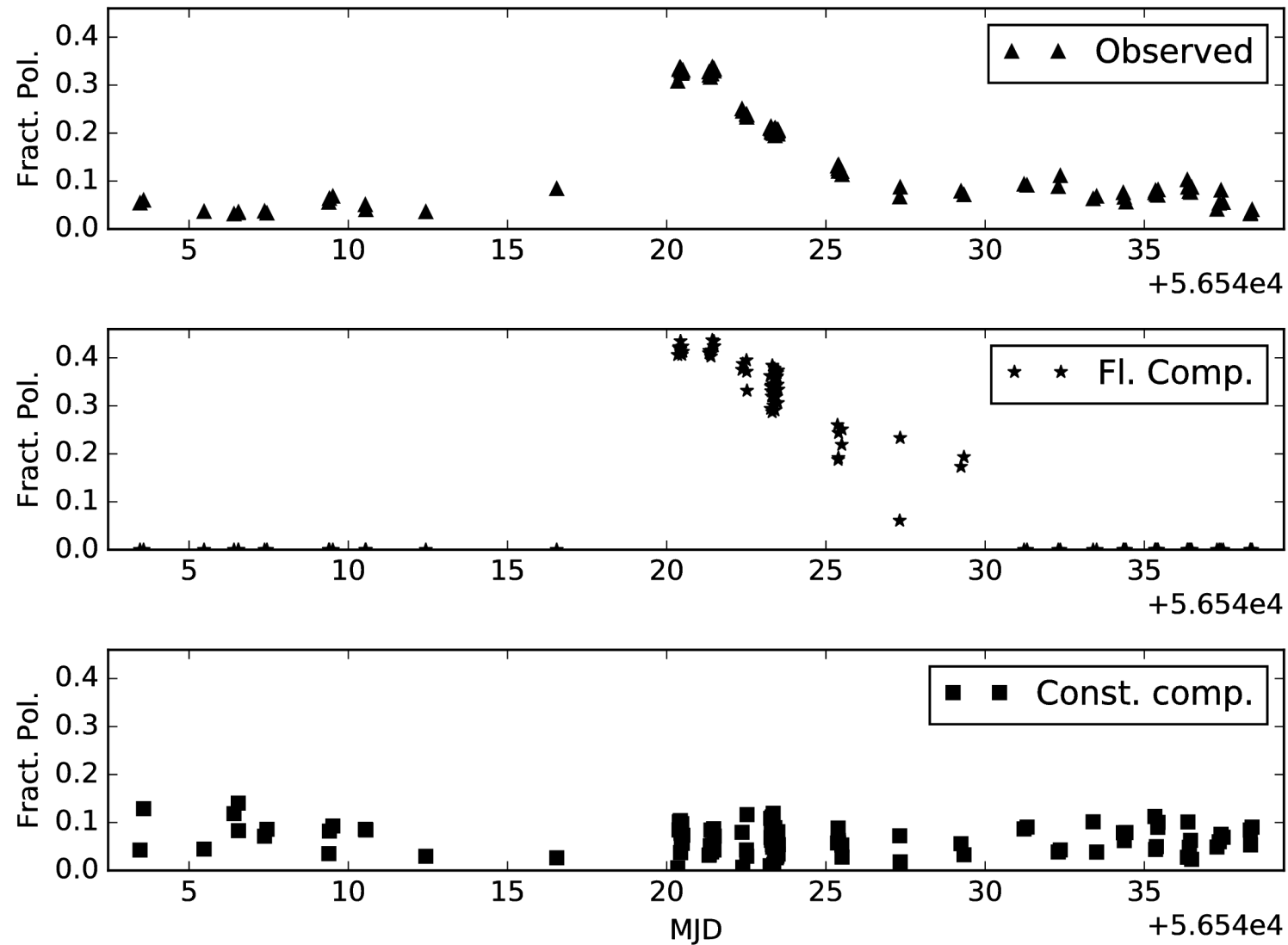
3C 454.3 Fermi flux data (100 MeV <= E <= 200 GeV) and R-band magnitudes



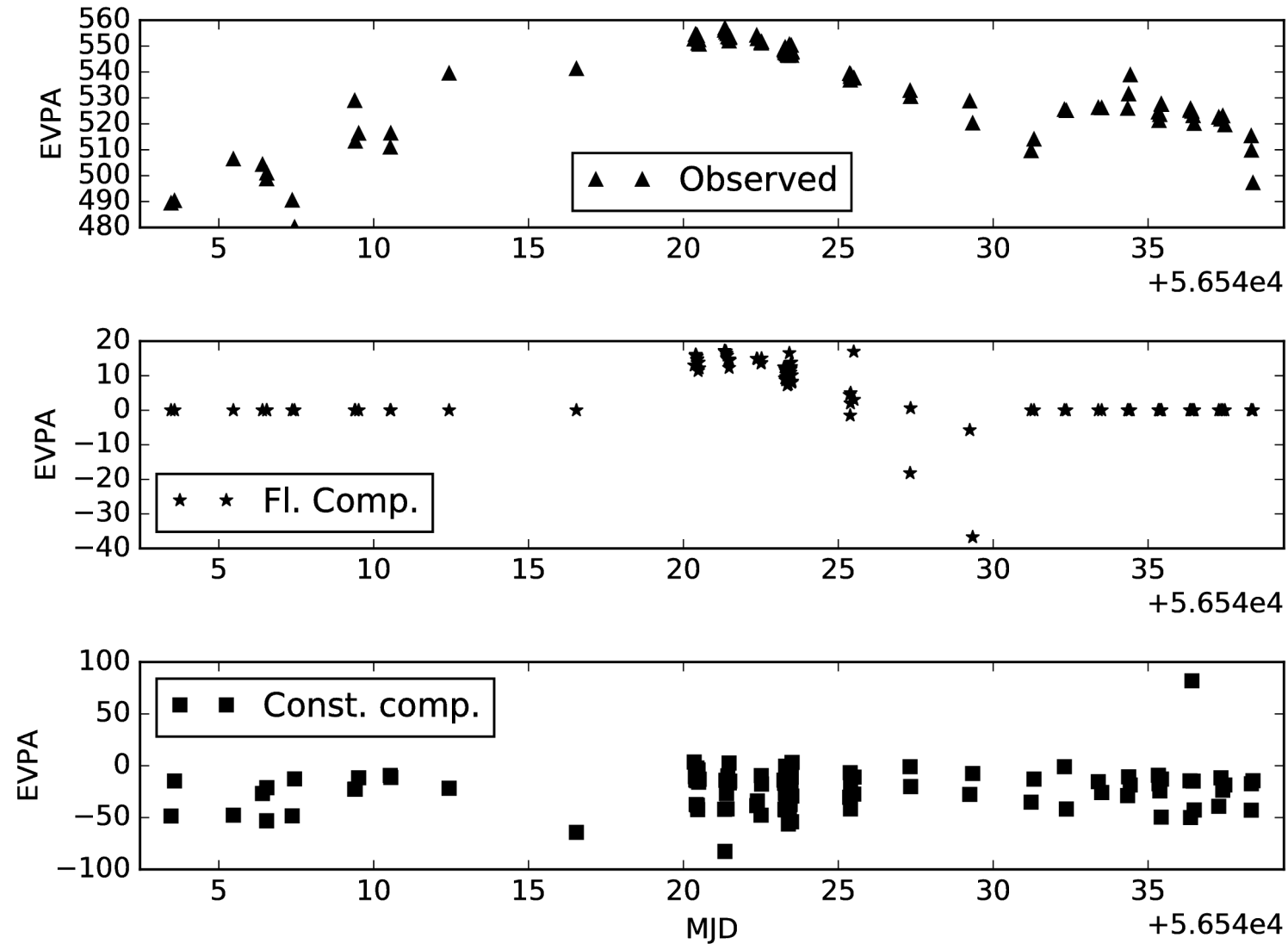
Is a simple two component model good enough?



Is a simple two component model good enough?

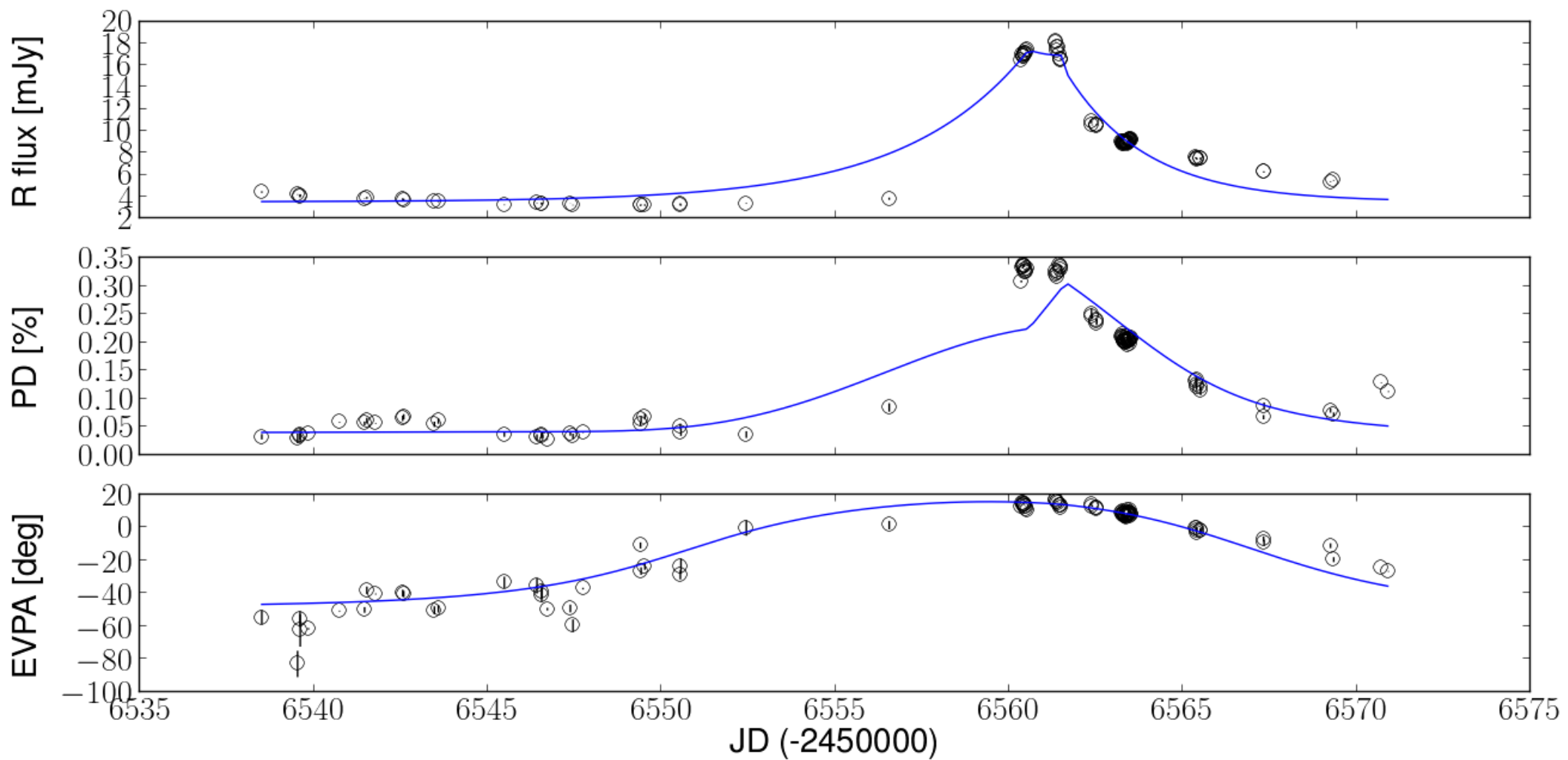


Is a simple two component model good enough?



Preliminary modeling results

Model from Larionov et al. (2013)



Summary & Conclusions

We investigated coherent changes in the EVPA in blazars observed by RoboPol

Found clear evidence of a secondary component propagating in the jet of 3C454.3

Found strong evidence of one blob causing multiple flares before exiting the core

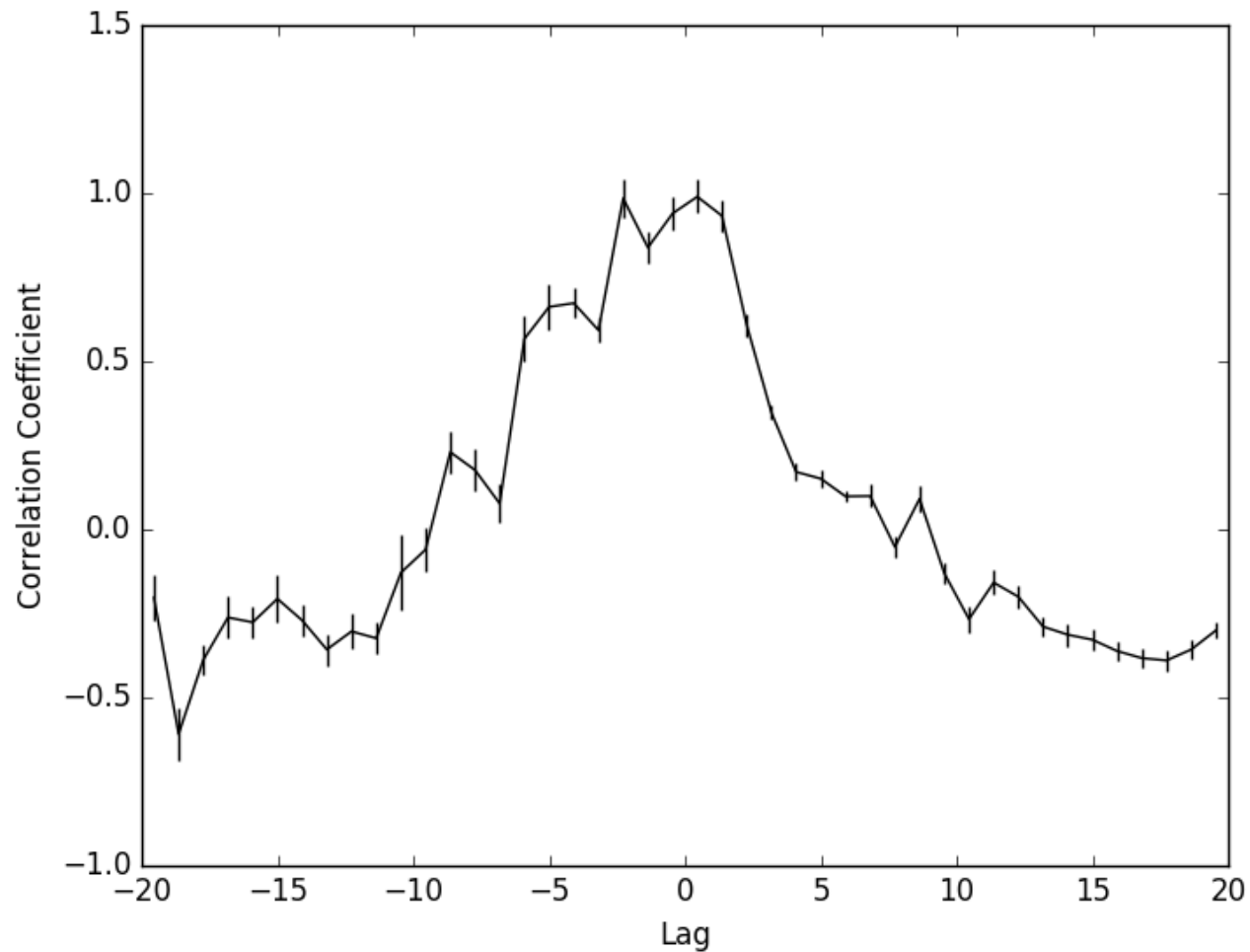
Provided strong constrains on current models of EVPA rotations

There are still a lot to learn on the physical properties of the jet once we find the correct model!

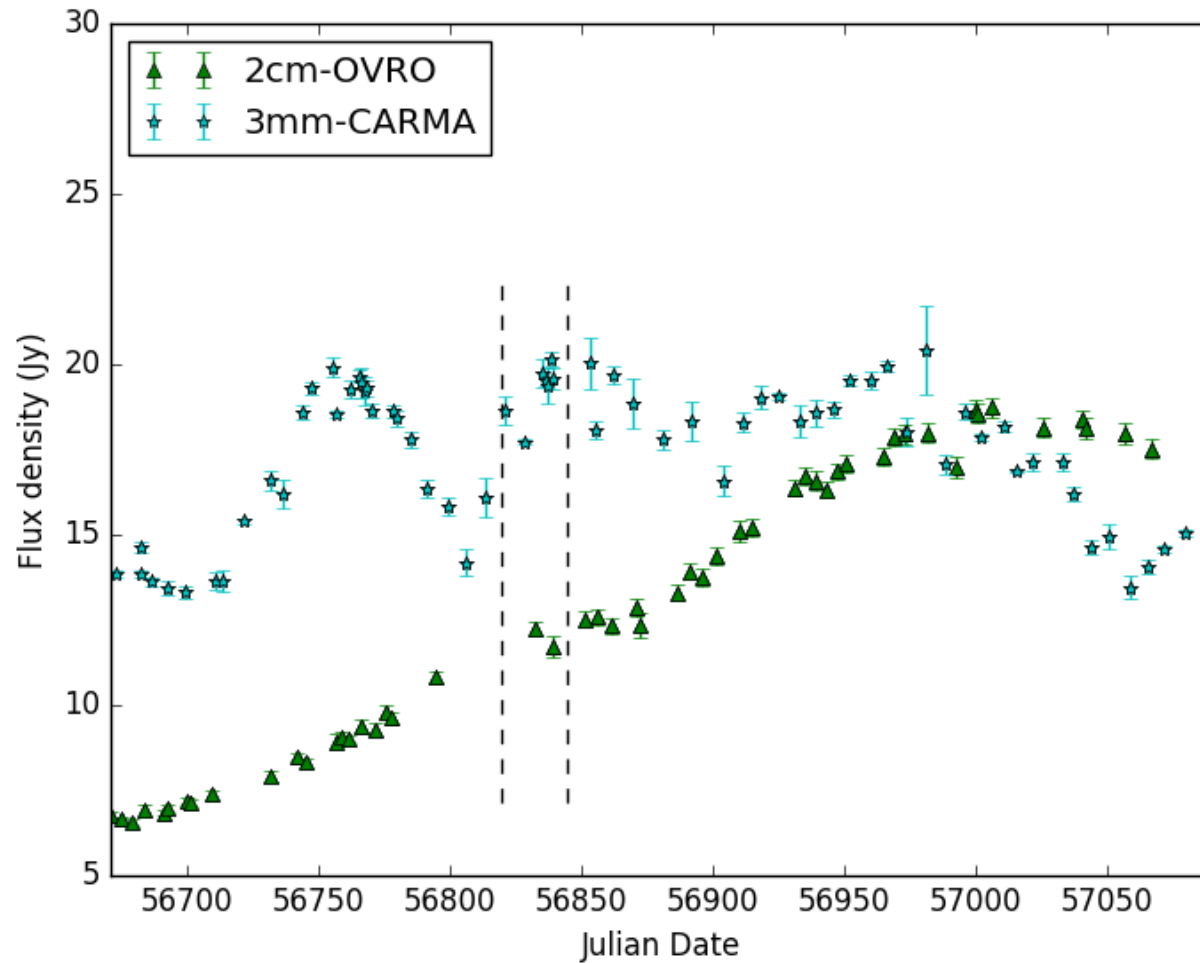
Additional slides

Discrete correlation function

Optical vs γ -rays



Radio view of the 2014 flare



γ -ray spectrum-2014

