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# Nuclear Transients in Gaia

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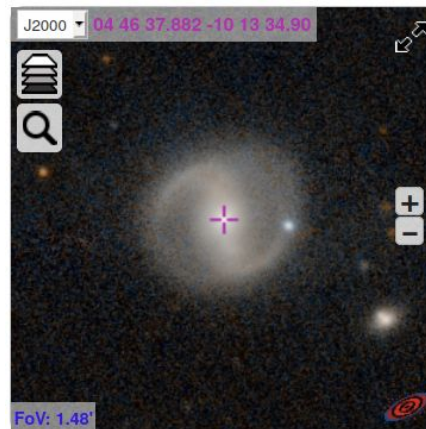
**gaia**

10th OPTICON Gaia Alerts Workshop, Catania, Sicily, 18-20 December 2019



# Gaia Alerts

- 10.646 published alerts - 7% nuclear
- Nuclear Alerts:
  - Active Galaxies
  - Tidal Disruption Events
  - (Supernovae)
- Nucleus of galaxy?



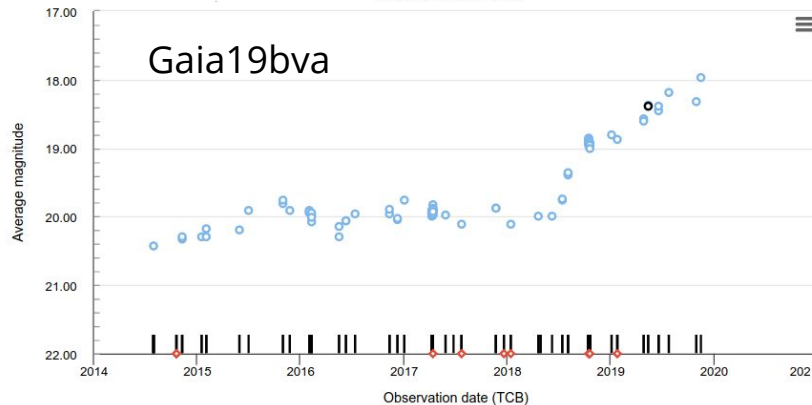
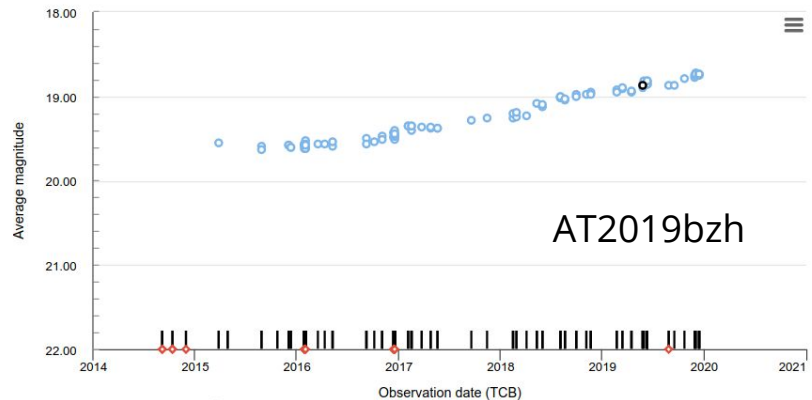
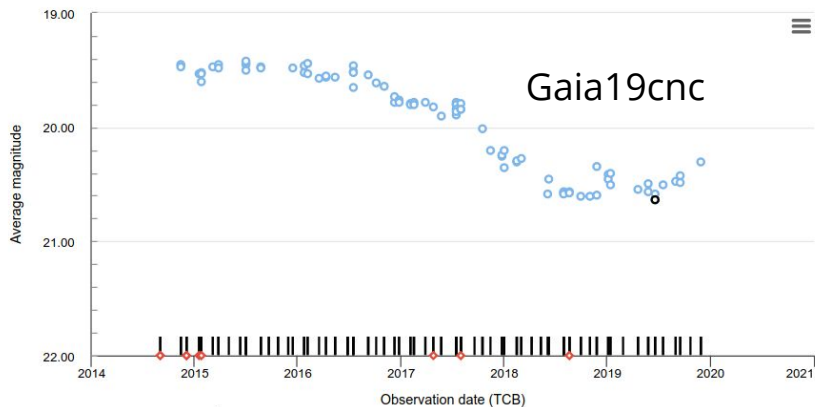
Gaia19eks  
FoV:1.48'



Gaia19dhd  
FoV:5.41"

# Slow-rising Nuclear Gaia Alerts

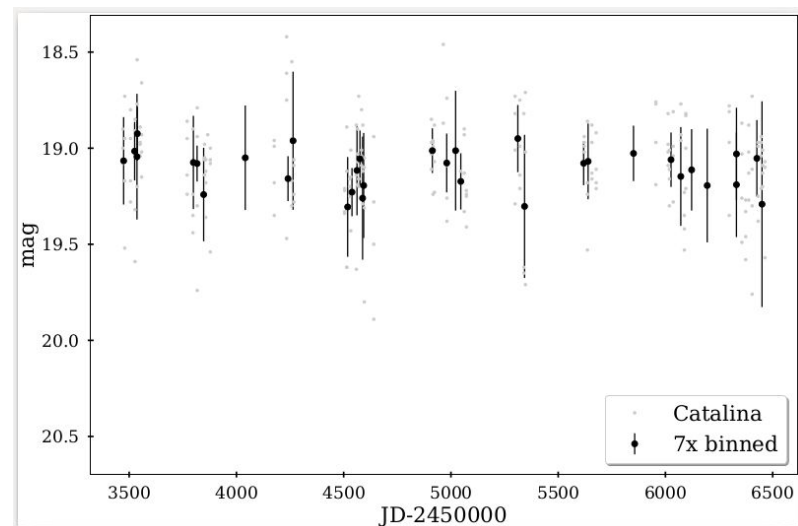
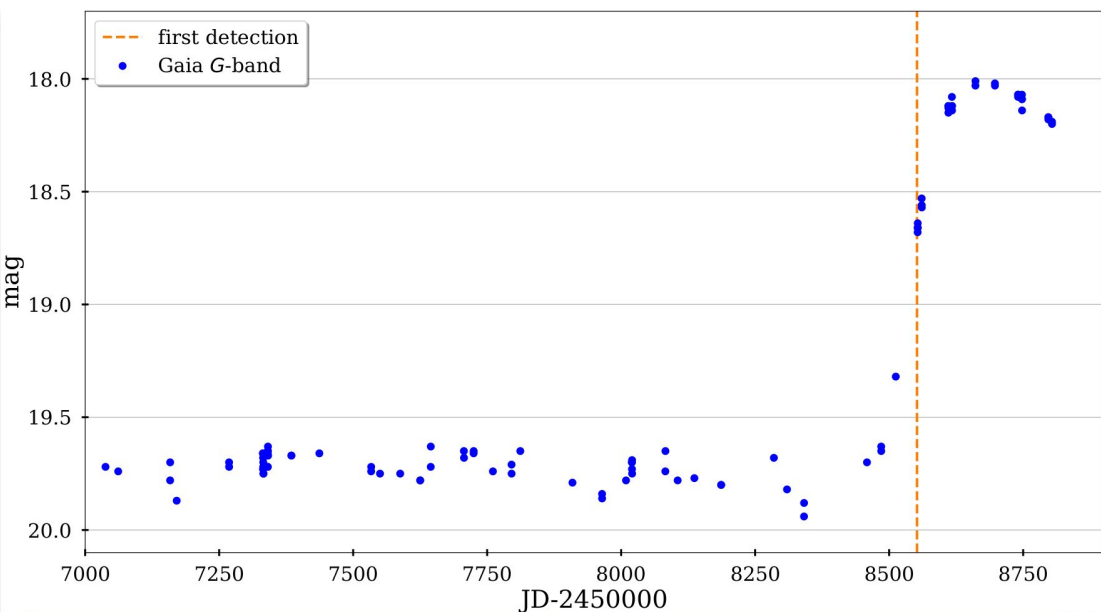
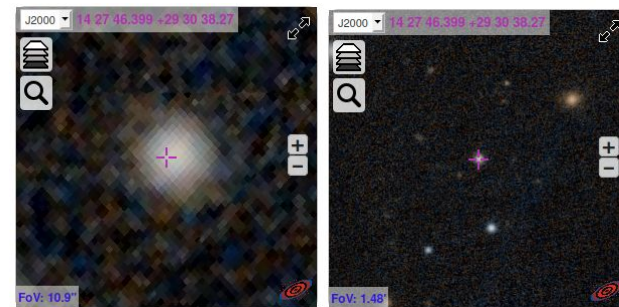
- Since June 2019
- Variety of LC
- AGN, QSO, CLQSO, unknown



# Gaia19axp

● 2019-03-10

RA - DEC  
216.94333 29.51063  
14:27:46.40 29:30:38.27

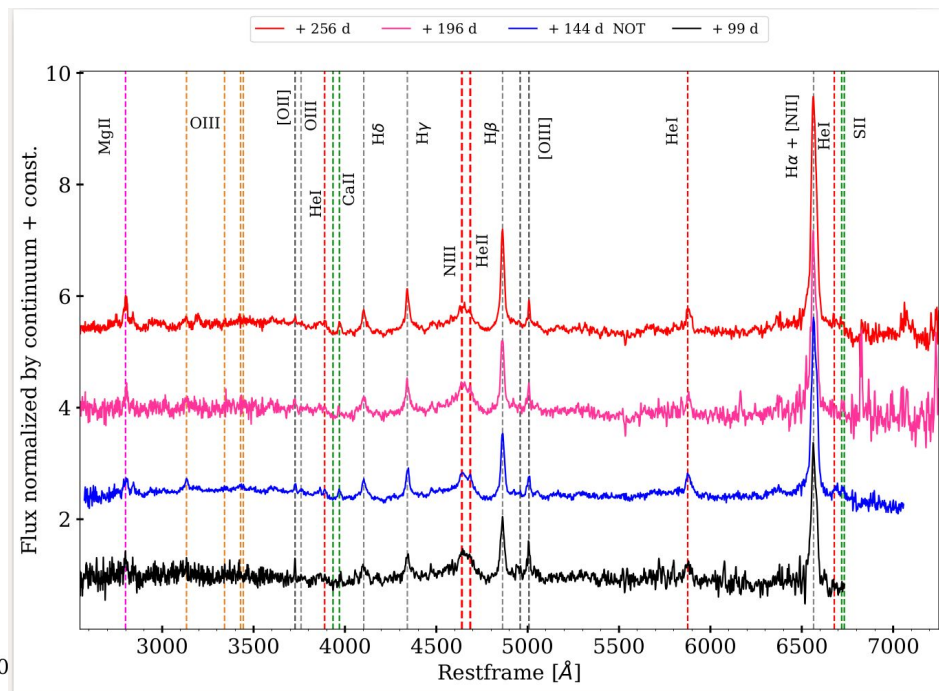
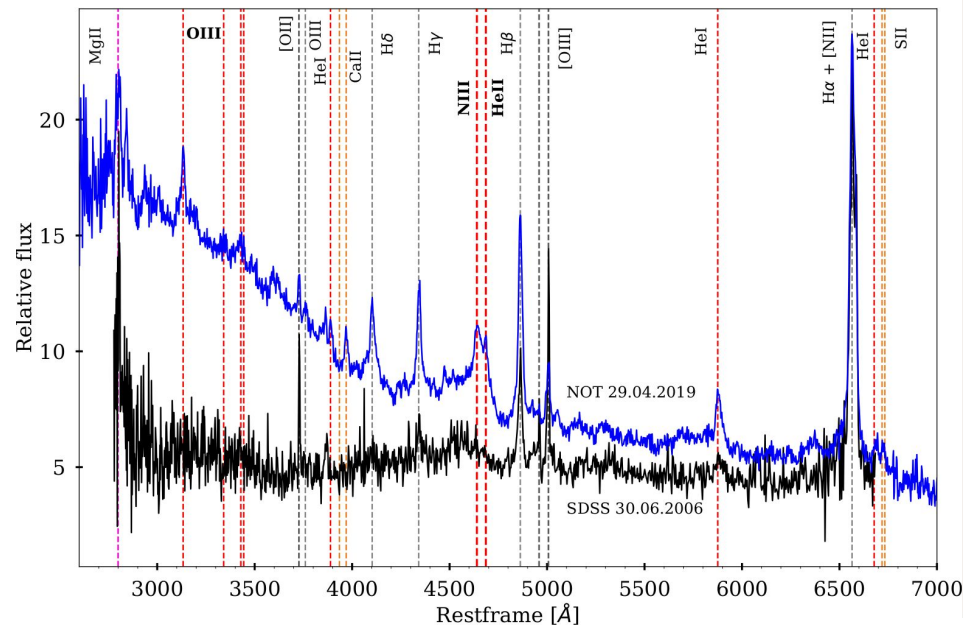


# Gaia19axp

Classified as *A member of the AT 2017bgt / ASASSN-17cv class* by I. Arcavi et al.

$z = 0.374$   
 $M = -23.7$

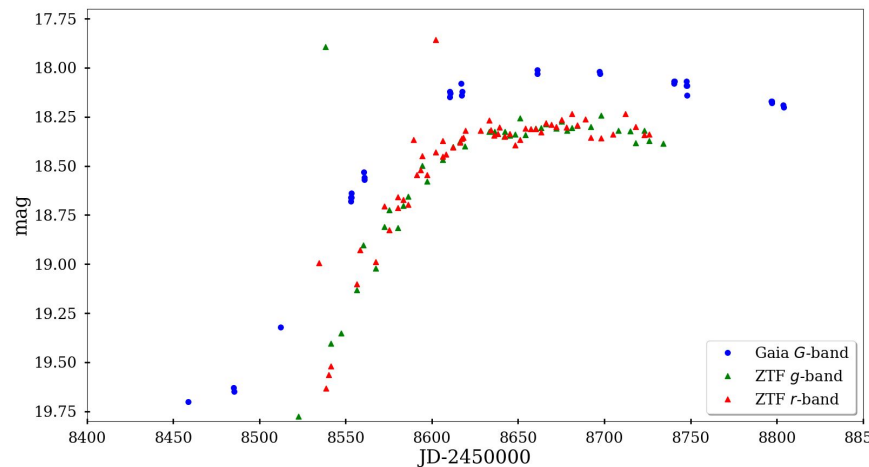
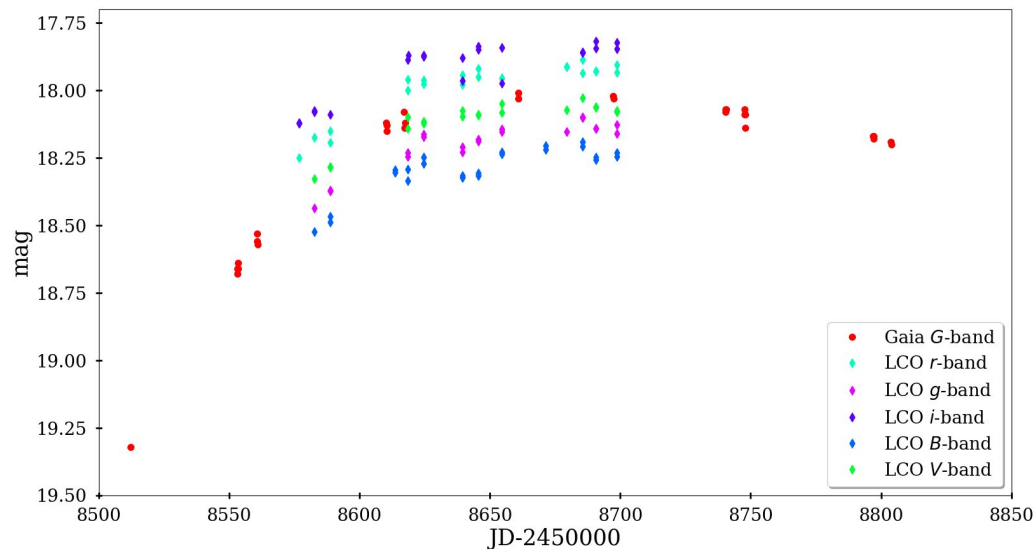
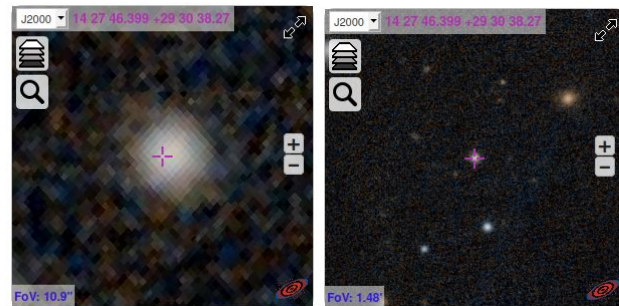
Spectroscopic follow-up: LCOGT, NOT, WHT



# Gaia19axp

- Photometric follow-up: LCOGT, Swift, ZTF
  - UV, x-ray detection
  - No radio detection

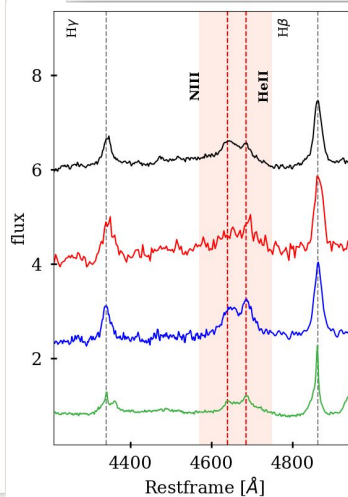
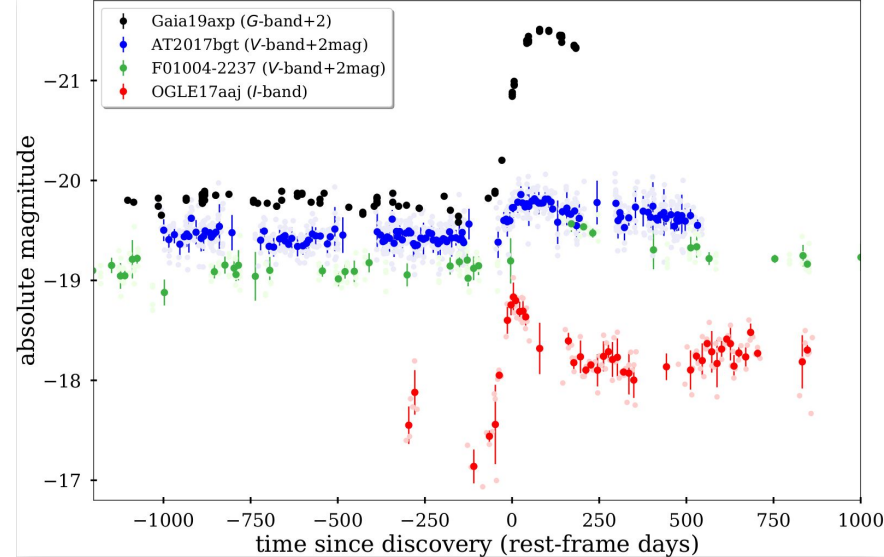
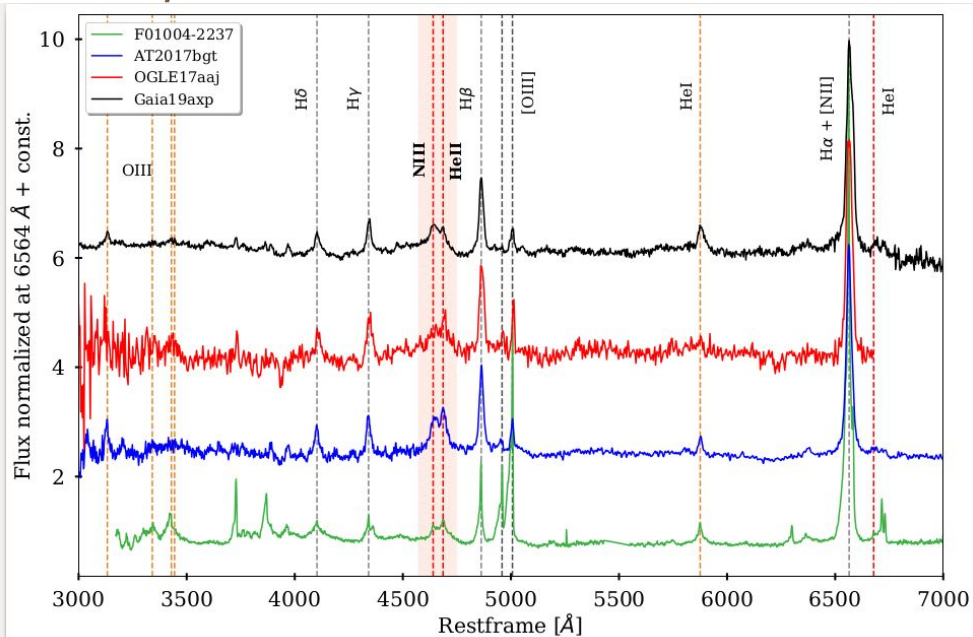
RA - DEC  
216.94333 29.51063  
14:27:46.40 29:30:38.27



Ihanec et al. (in prep)

# Accreting Black Holes?

$z=0.374$ , Gaia19axp  
 $z=0.116$ , OGLE17aaj  
 $z=0.065$ , AT2019bgt  
 $z=0.117$ , F01004-2237



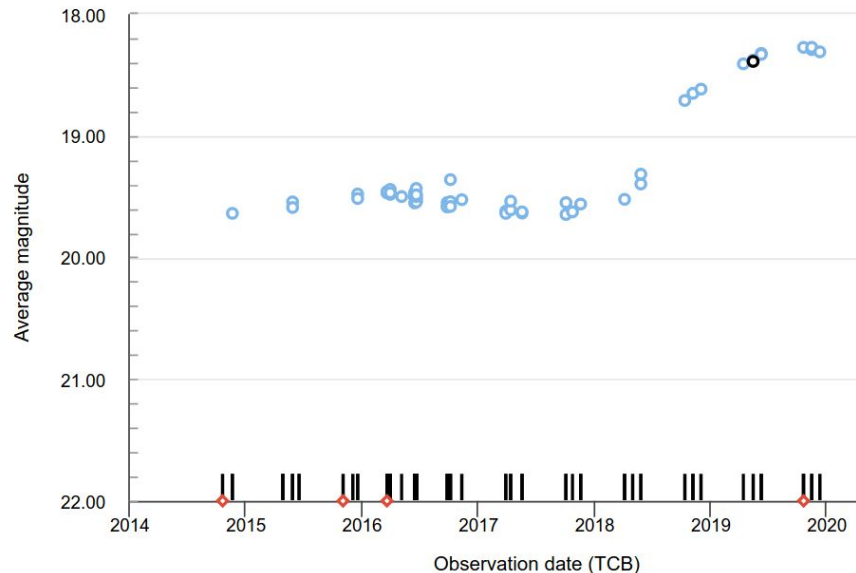
**Bowen fluorescence**  
Prominent emission  
lines:  
OIII  $\lambda 3133$ ,  
NIII  $\lambda 4640$ ,  
HeII  $\lambda 4686$

# Gaia19ceq

Rise May 2018, detected May 201

Host classified as QSO  $z=1.6$  ?

Swift: no UV, x-ray detection



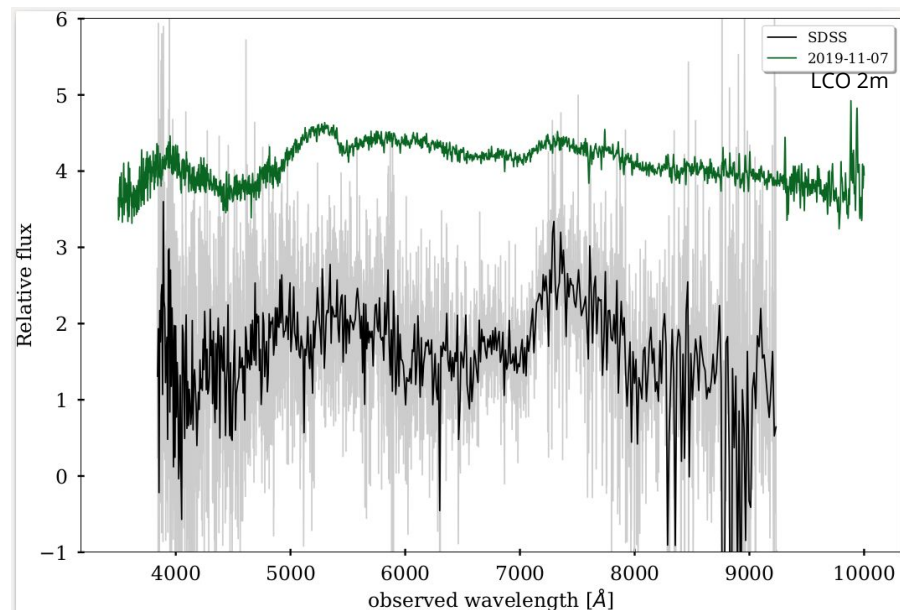
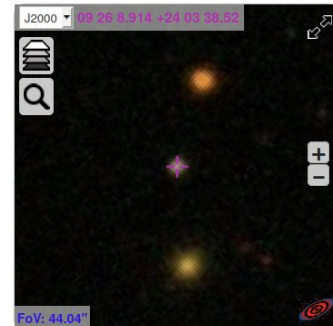
## RA - DEC

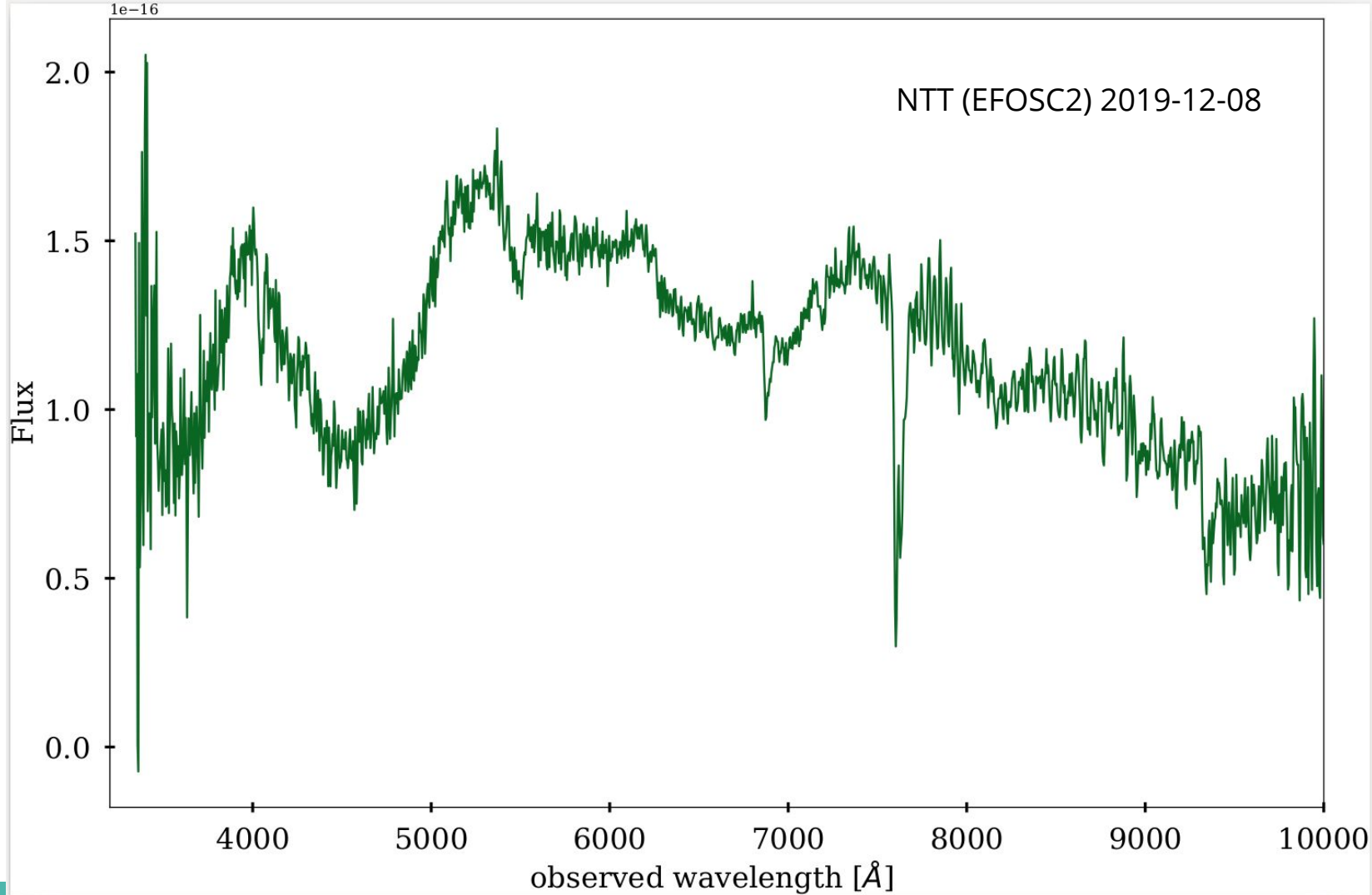
141.53714 24.06070

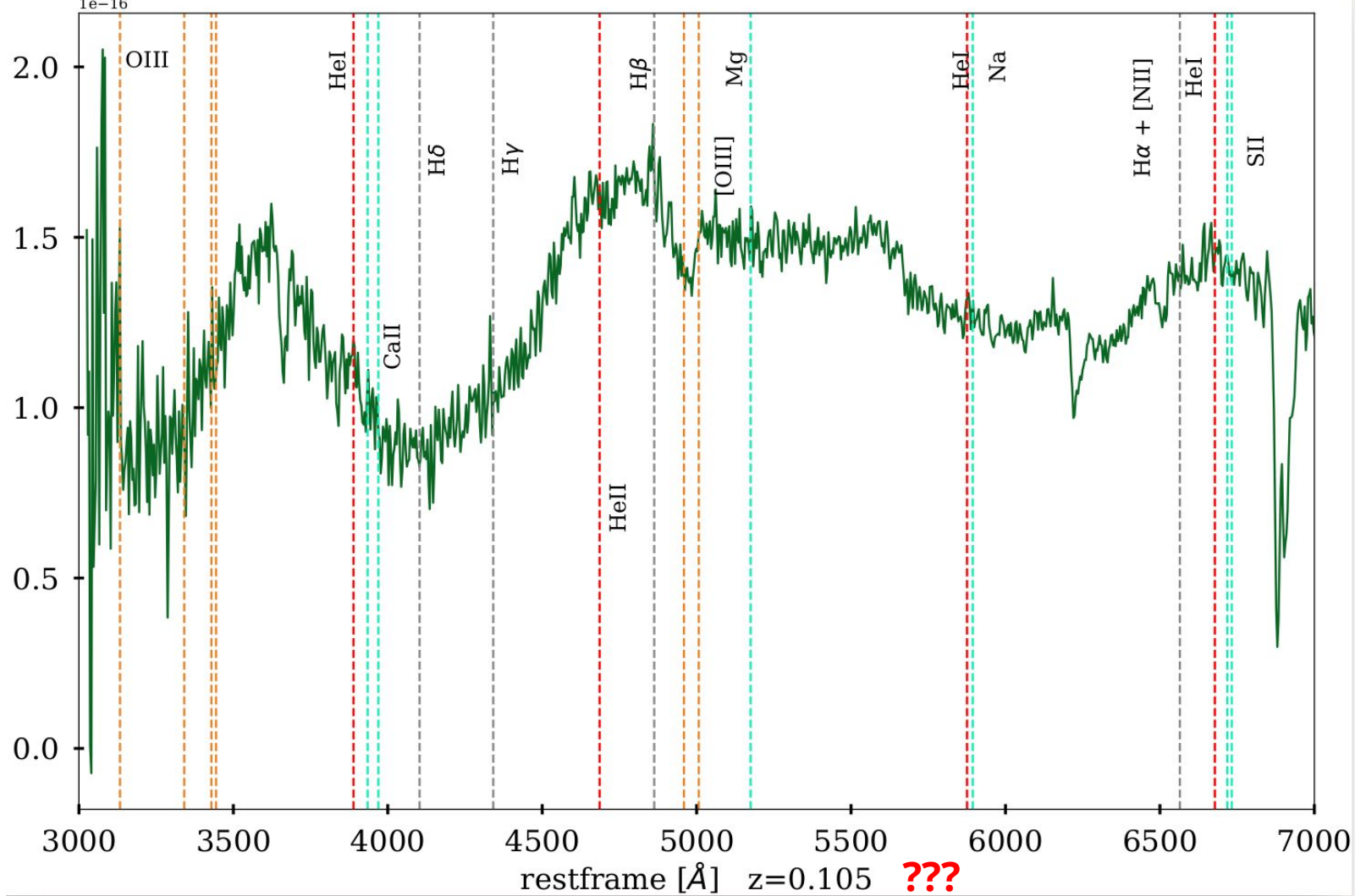
09:26:08.91 24:03:38.52

## Galactic coords.

204.73768 43.92923







# Summary

- Gaia Alerts good at detecting slow-rising transients
- Variety of LC
- Spectroscopic classification needed
- New type of transients

