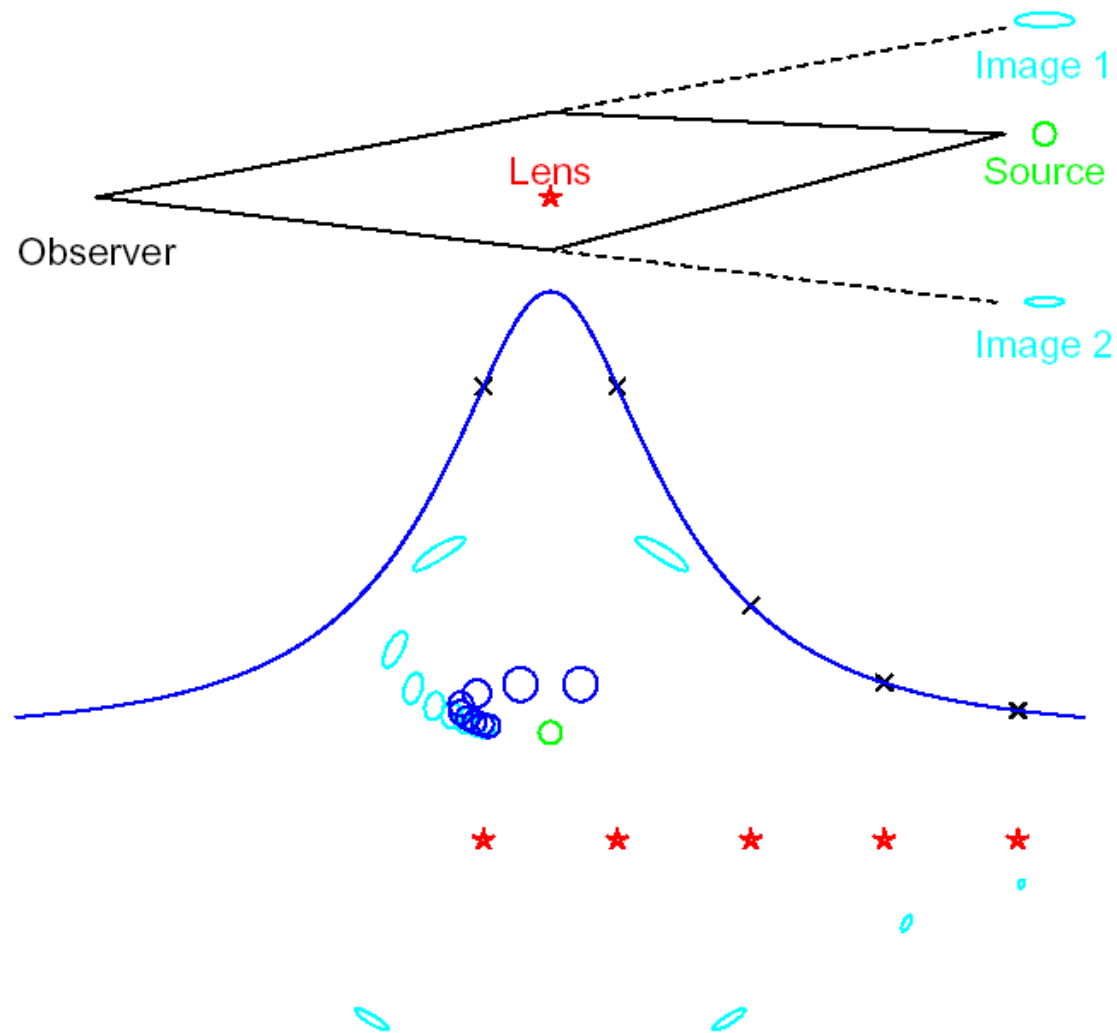


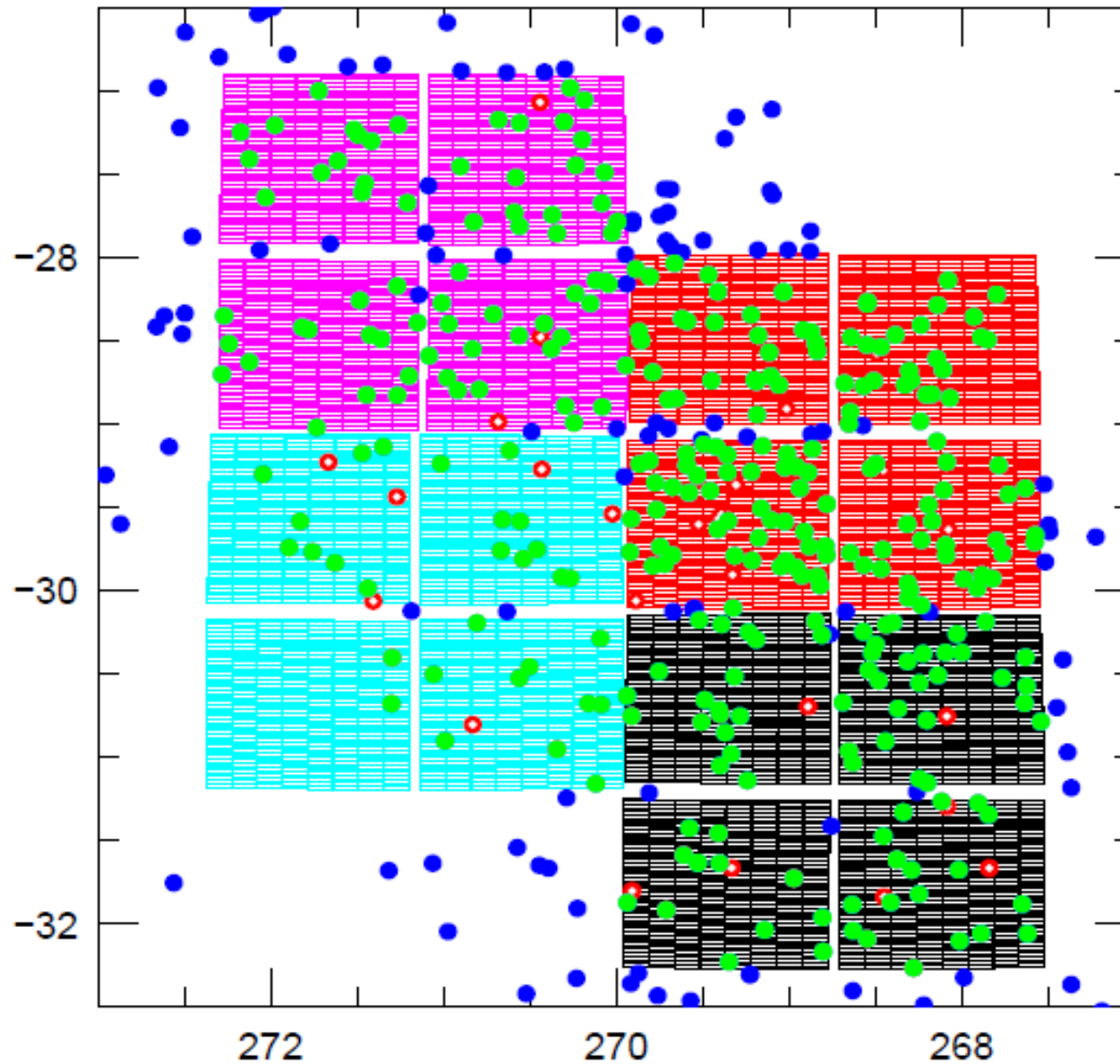
KMTNet 2015-2017

Strategy, Event-Finder, Data Policy

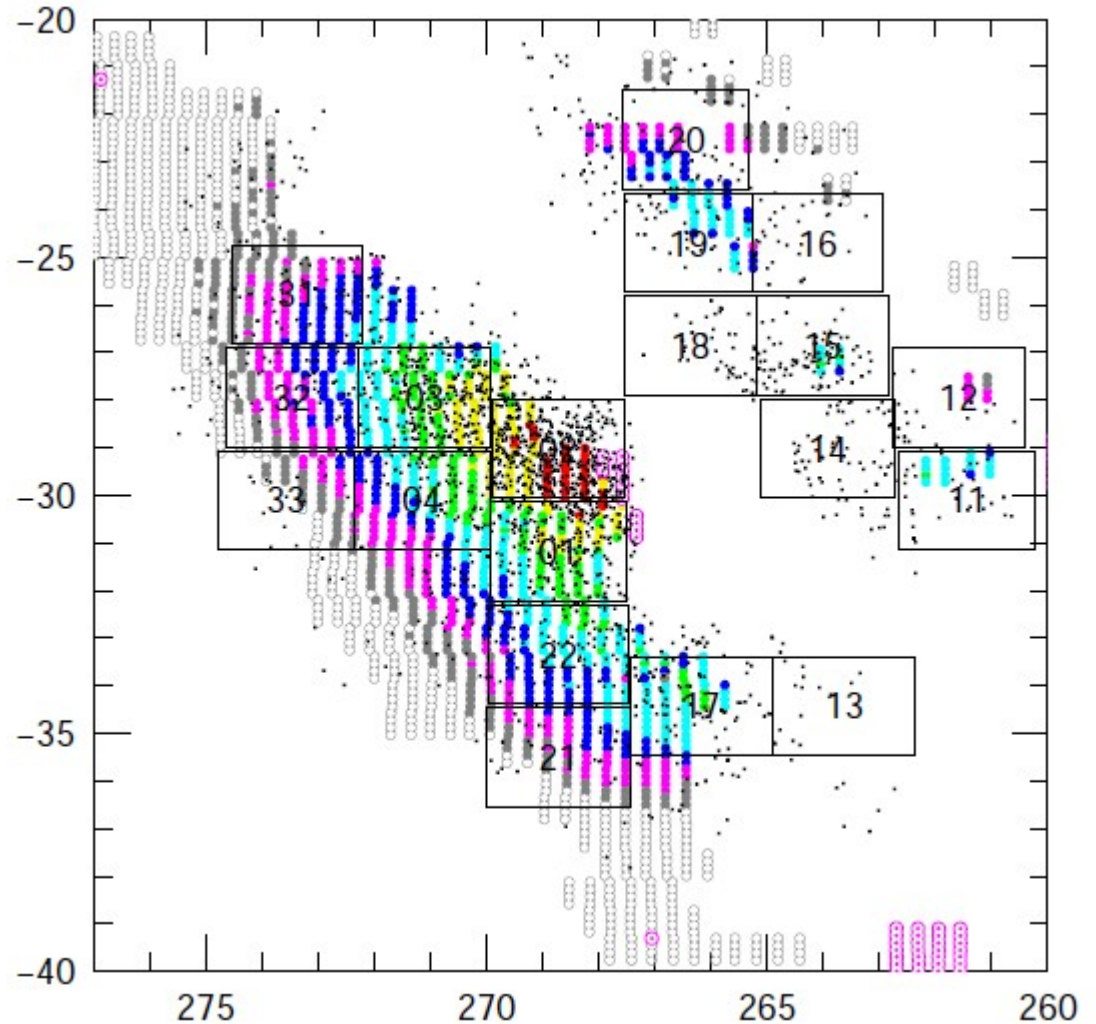
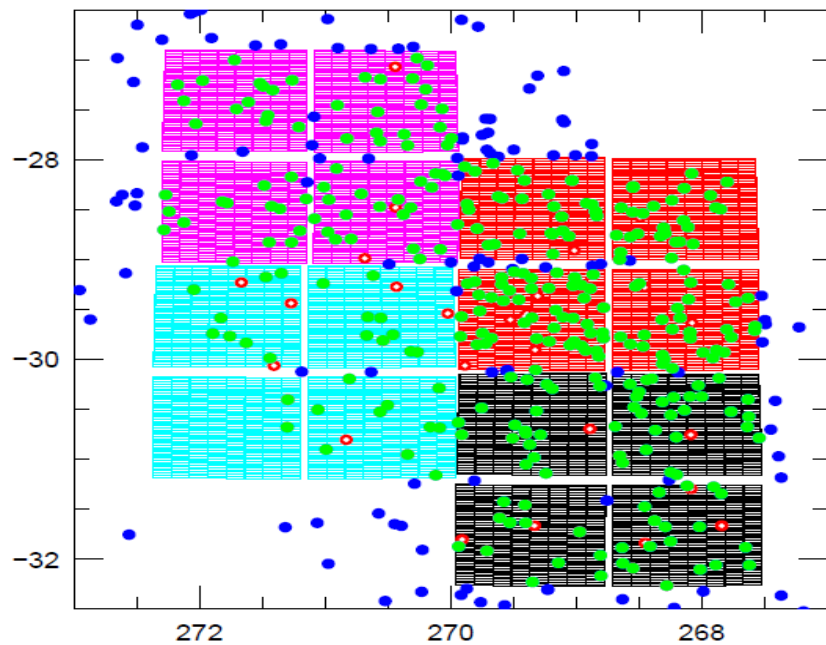
Andy Gould (KASI/MPIA/OSU)



2015 KMTNet Strategy



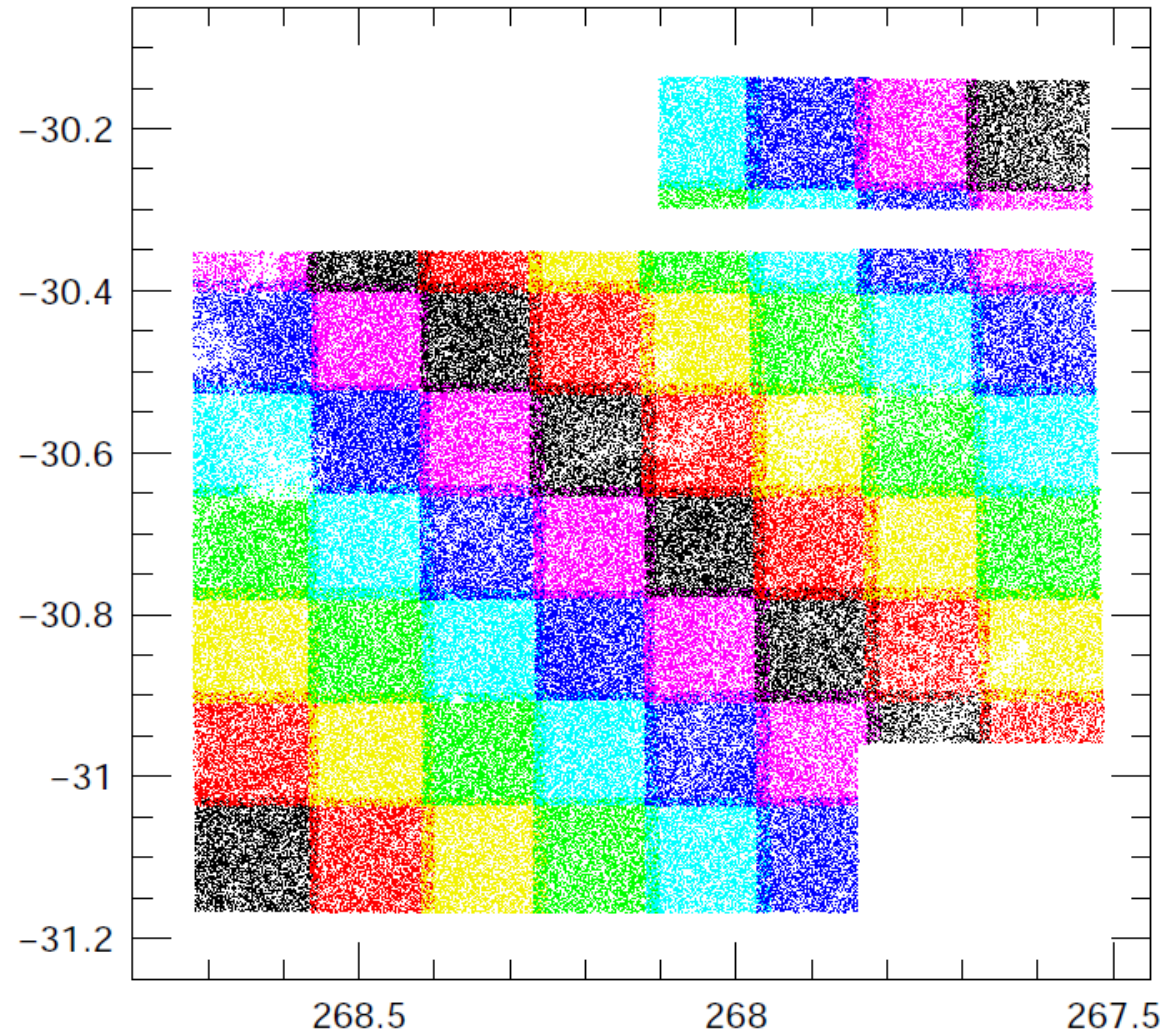
Augmented With Very Low Cadence Fields to Support Spitzer



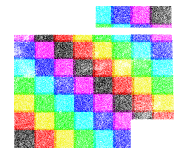
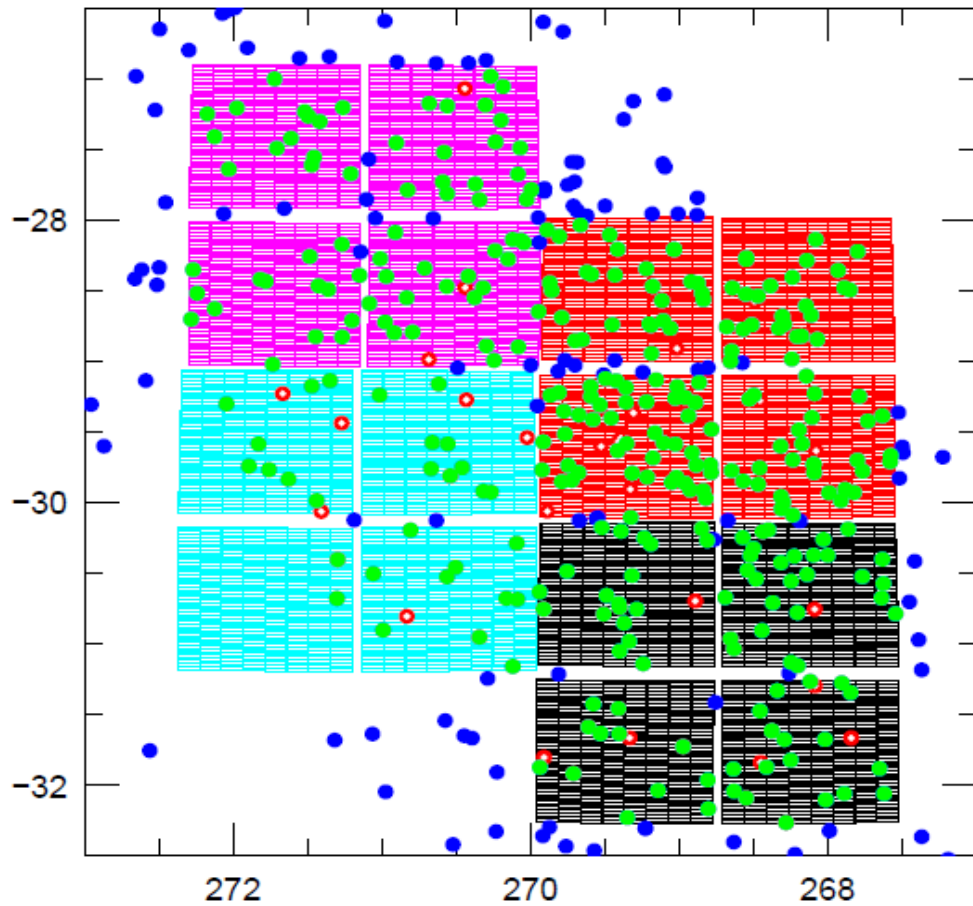
Pipeline

- 1) Star Catalogs

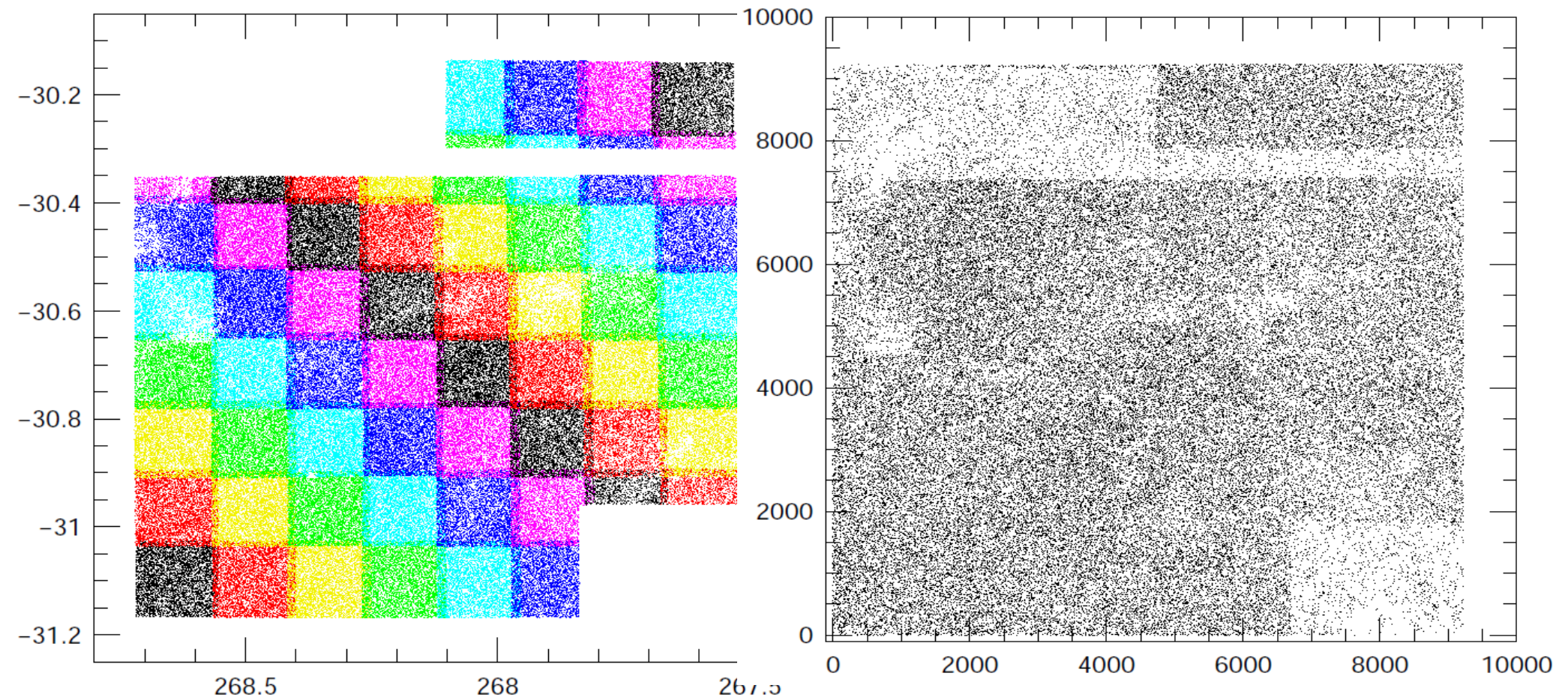
KMT BLG01K (OGLE-III stars)



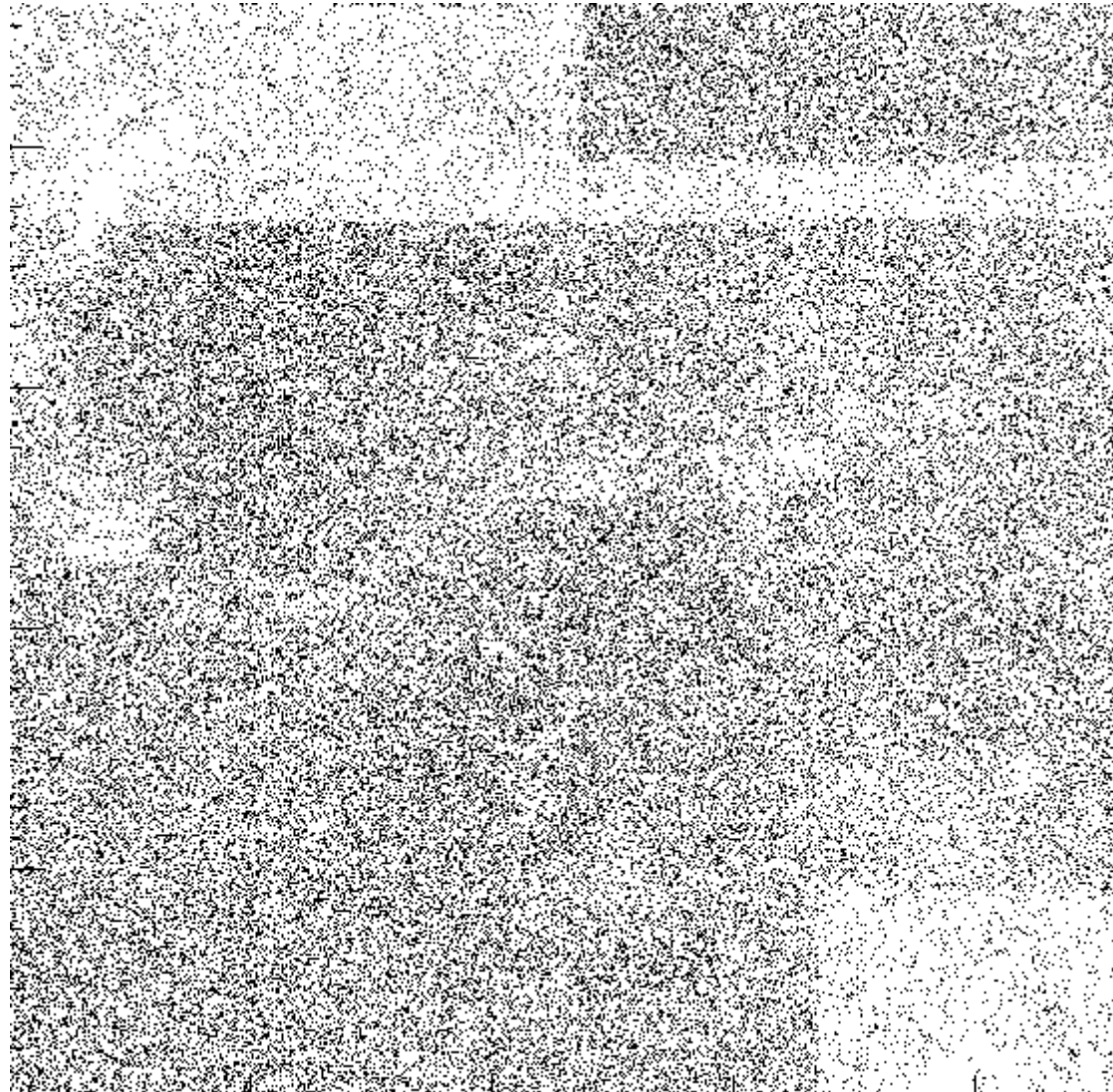
4 Main KMT Fields (2015)



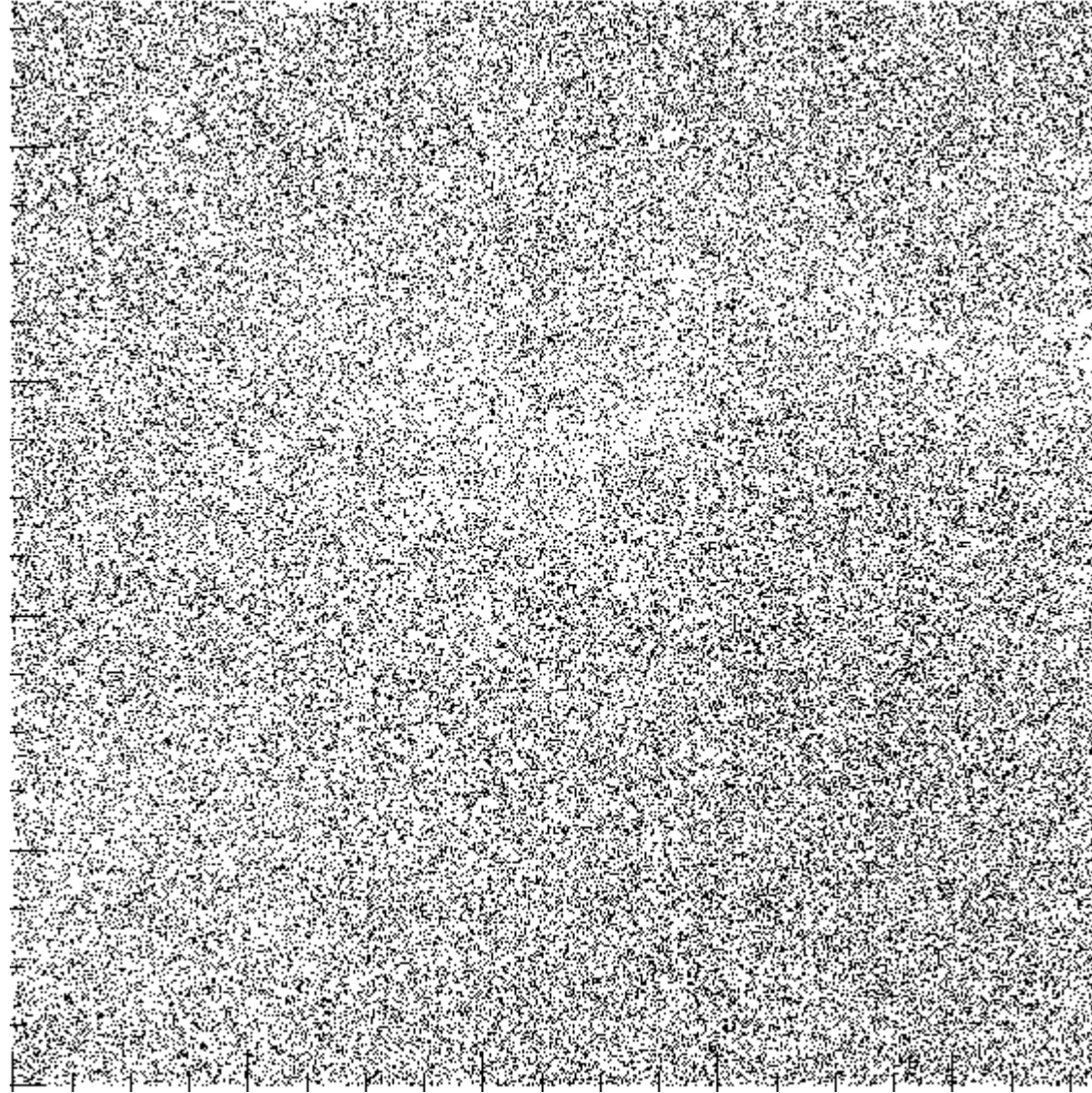
KMT BLG01K



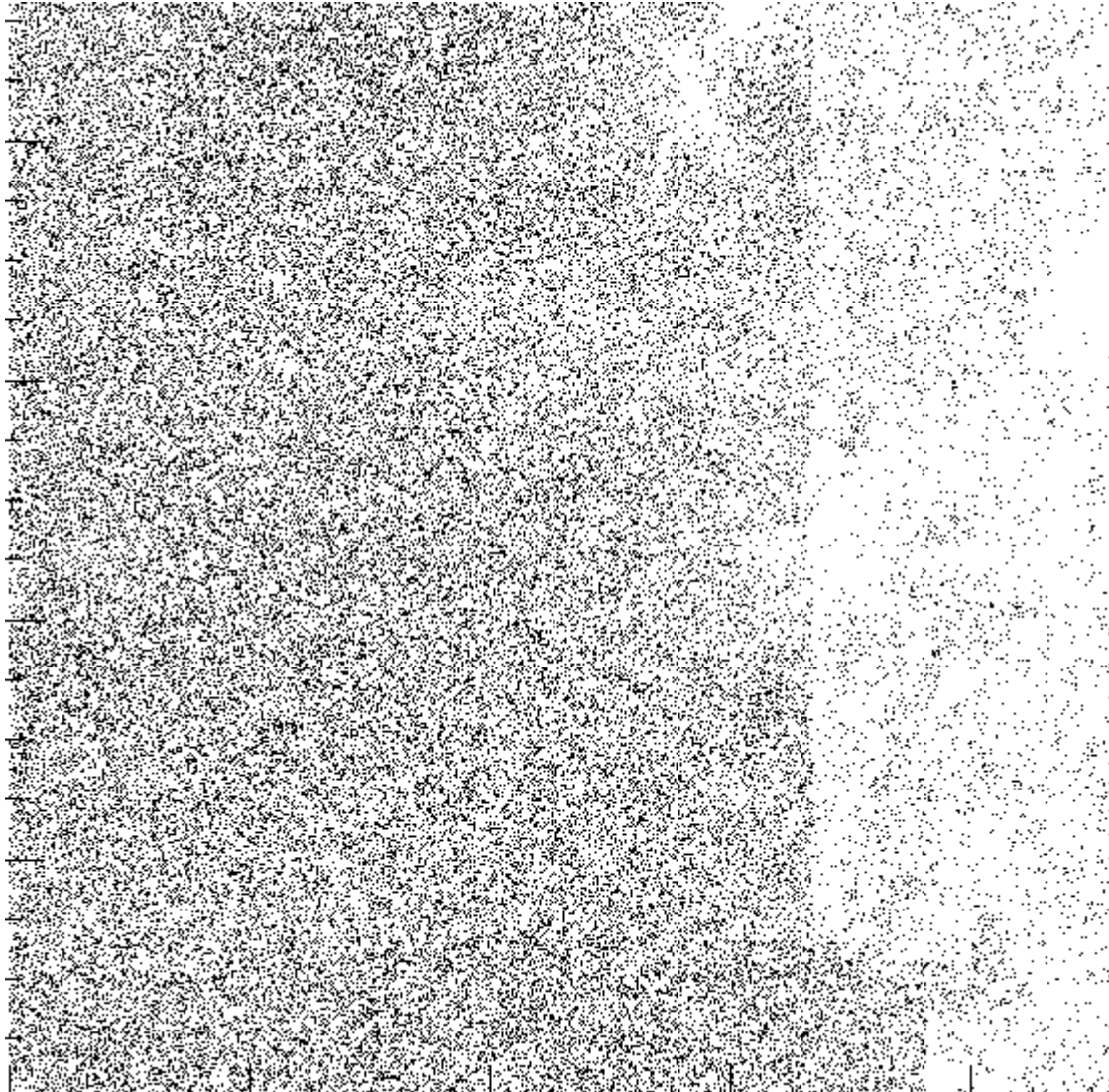
KMT BLG01K



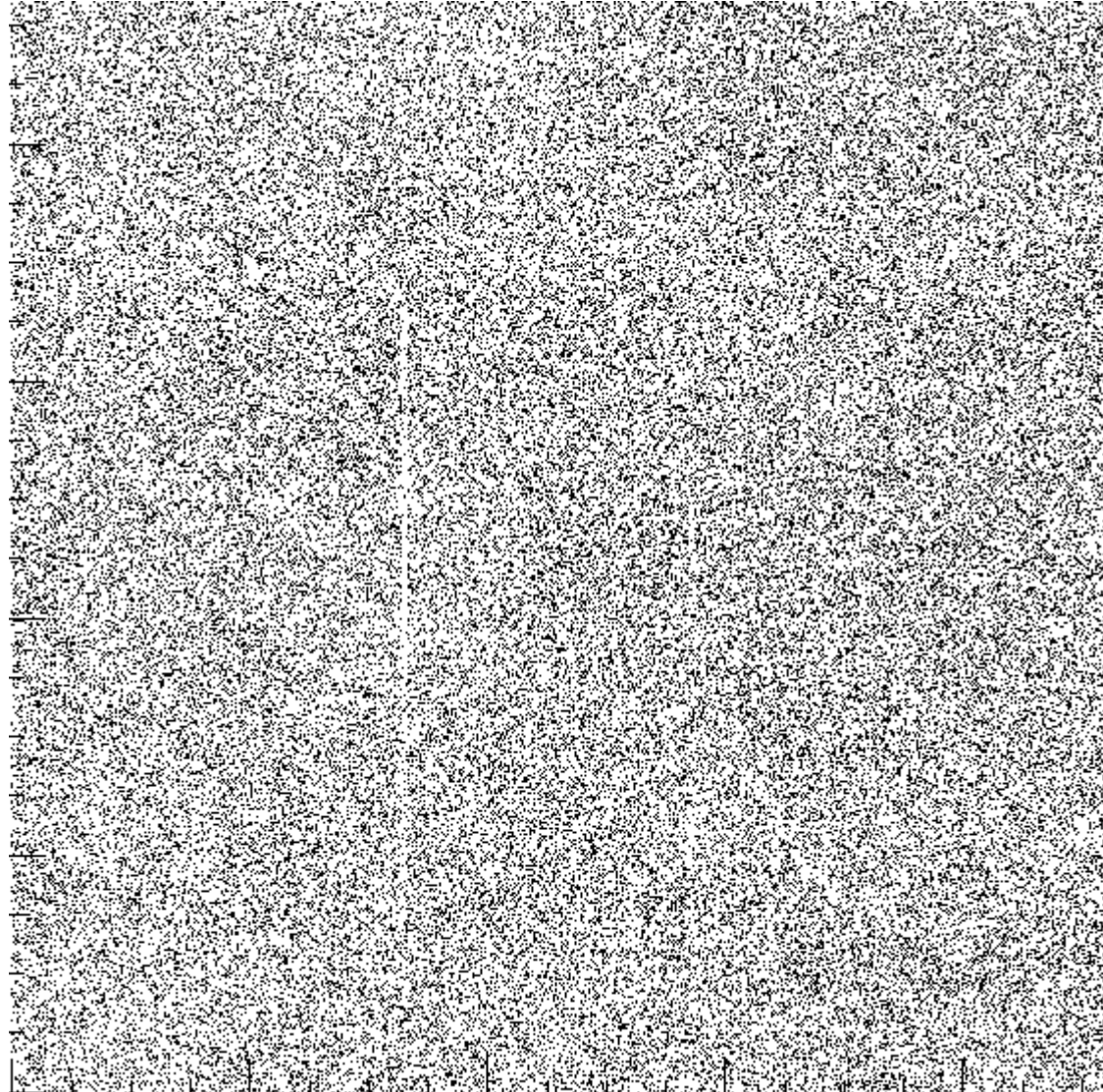
KMT BLG01M



KMT BLG01T



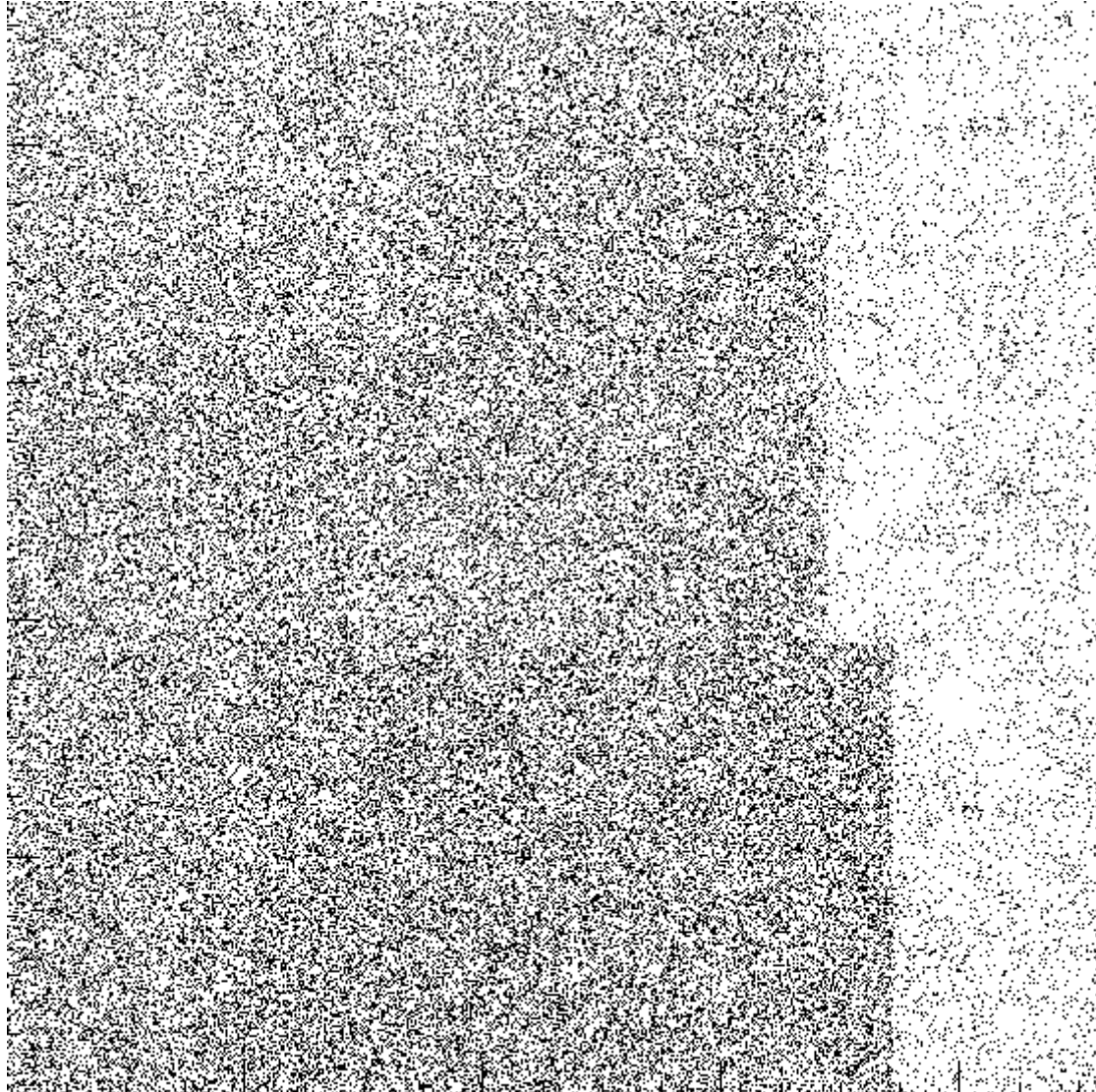
KMT BLG01N



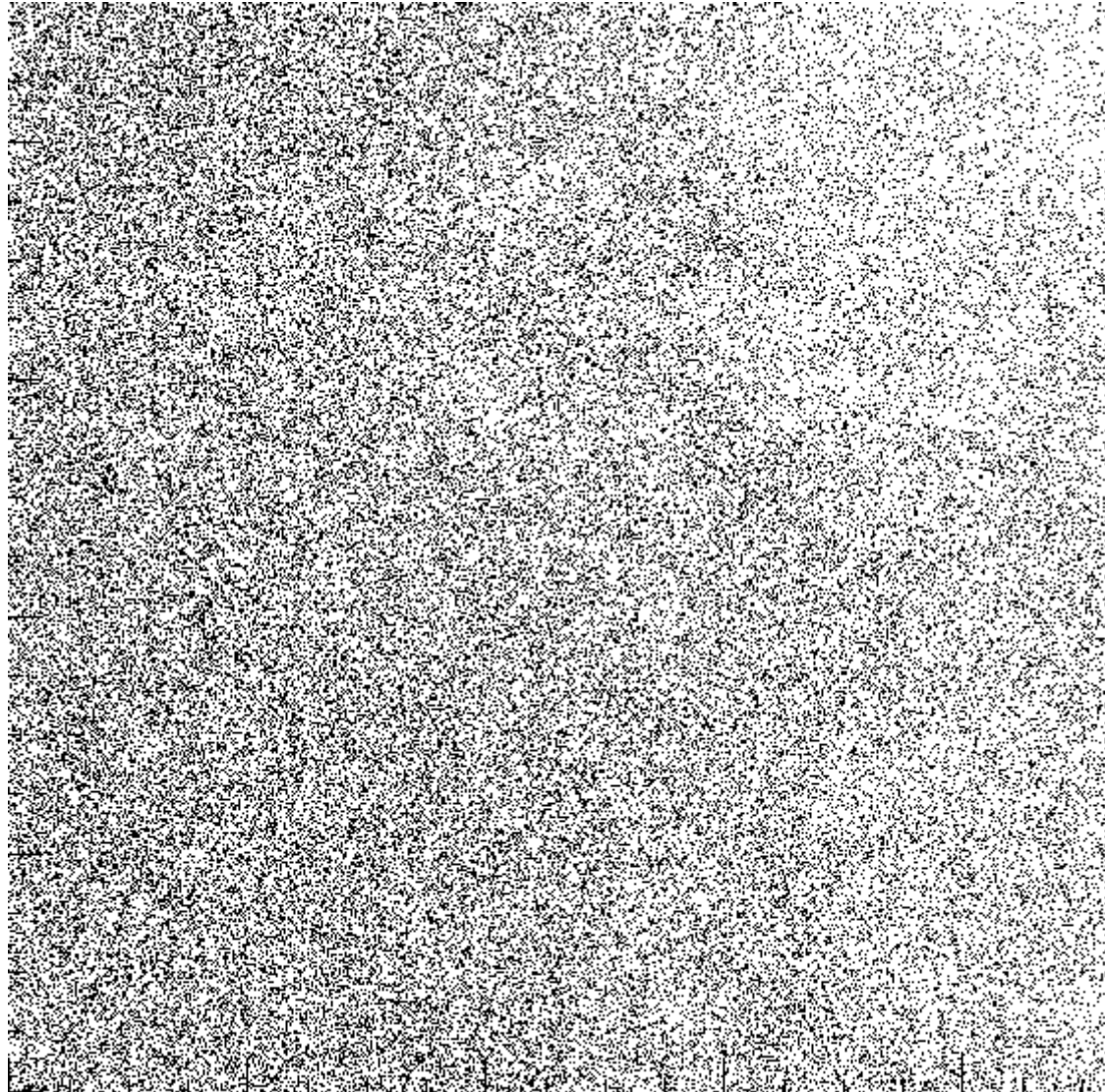
KMT BLG02K



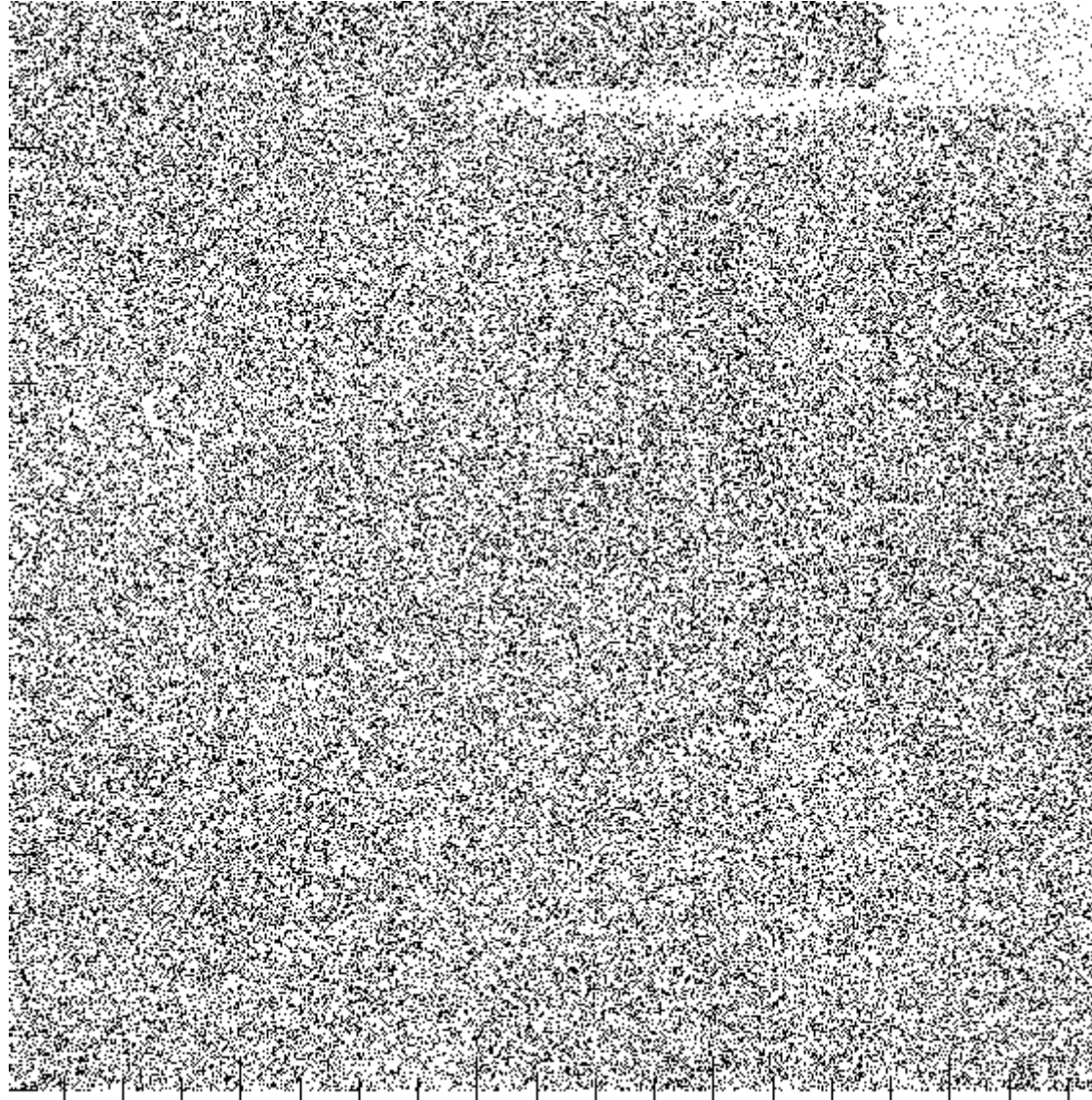
KMT BLG02M



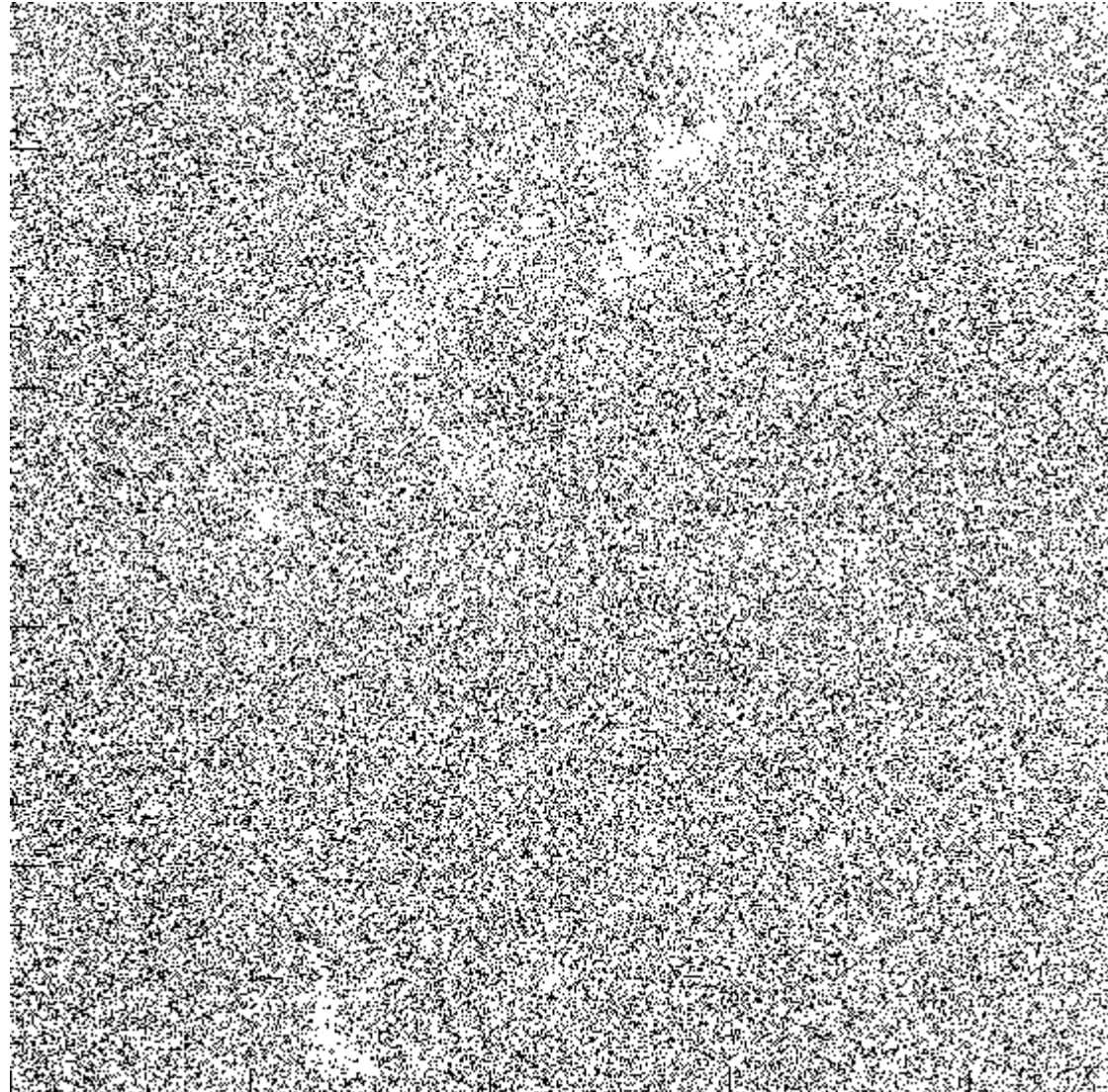
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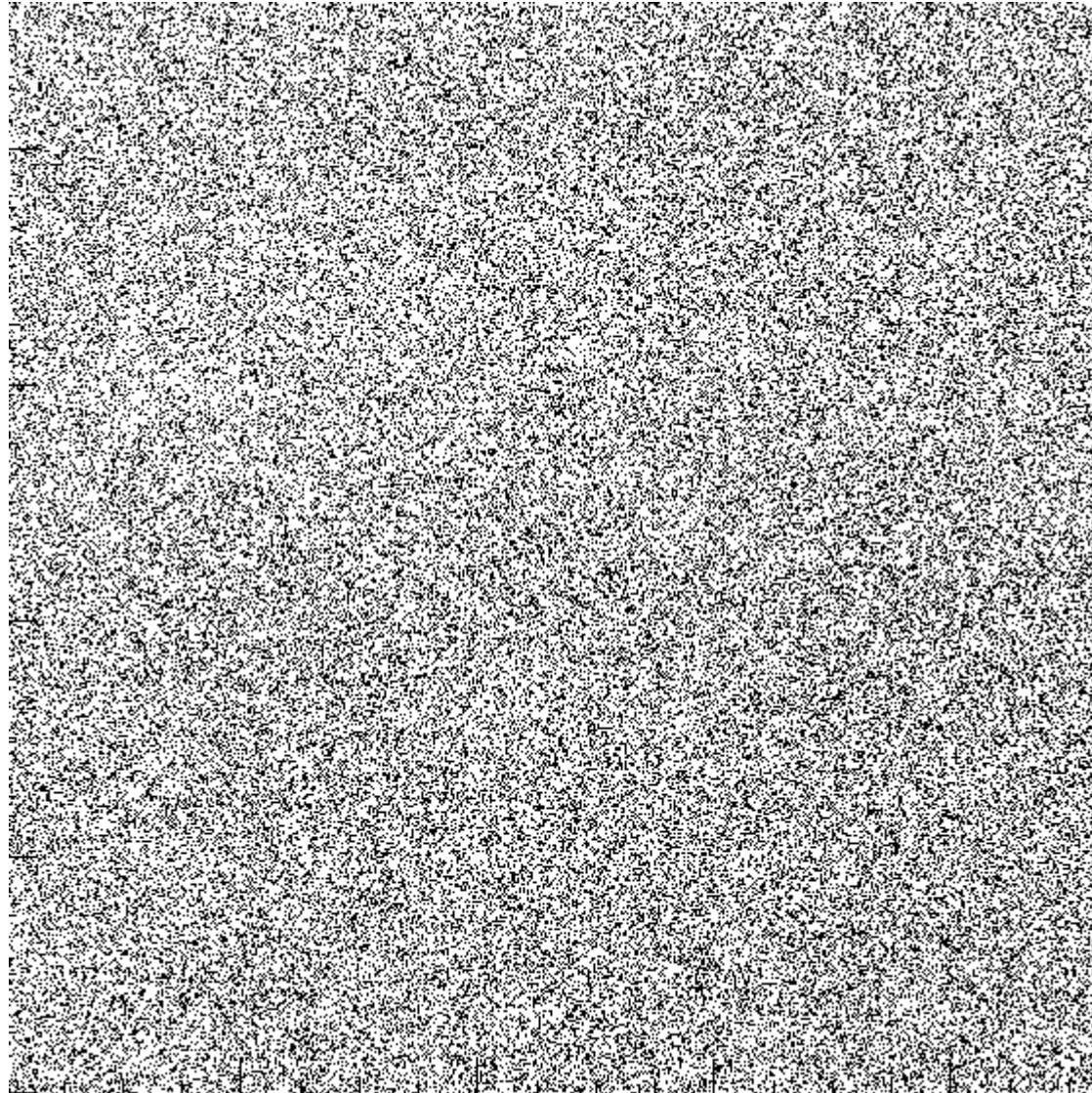
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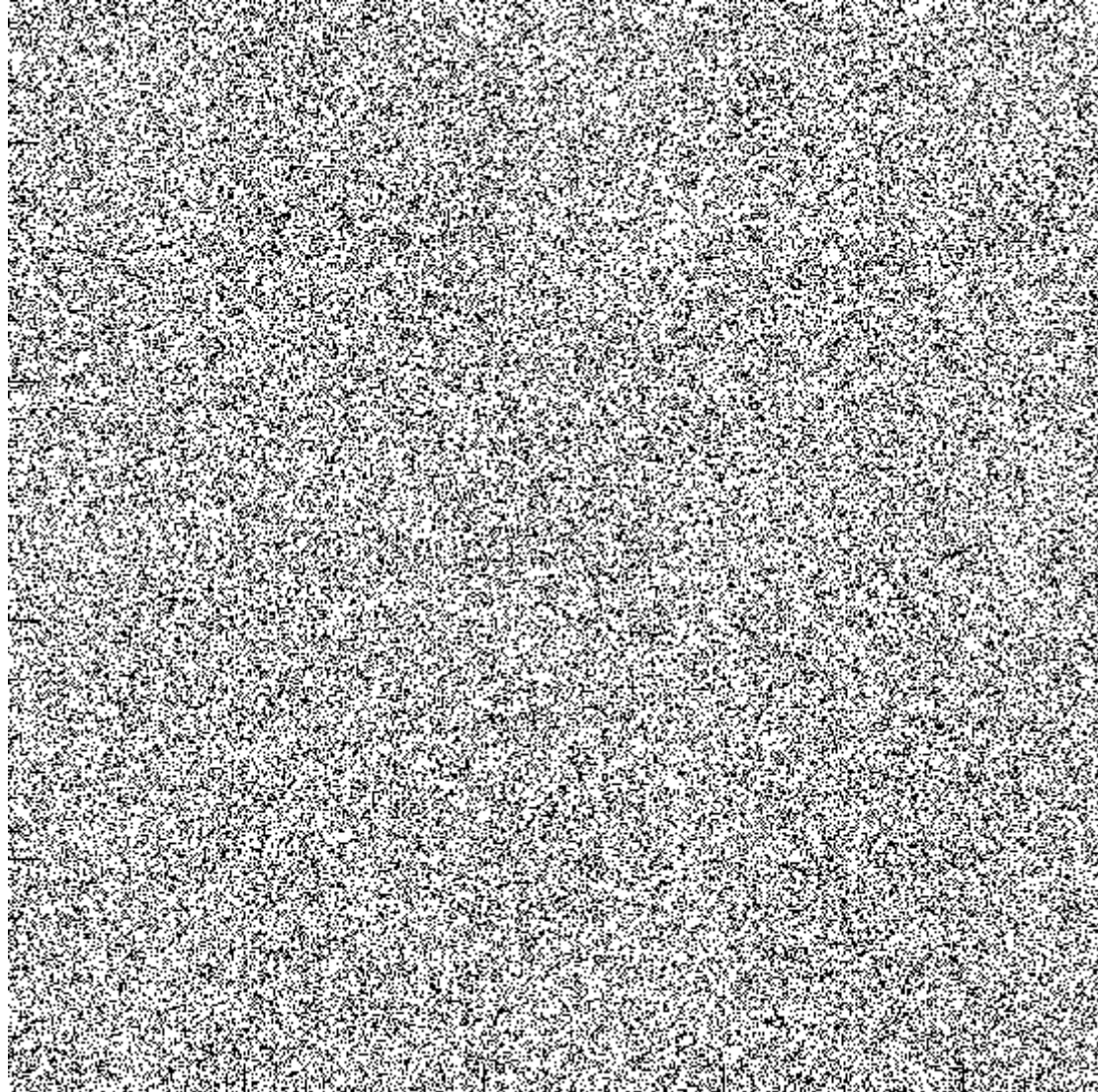
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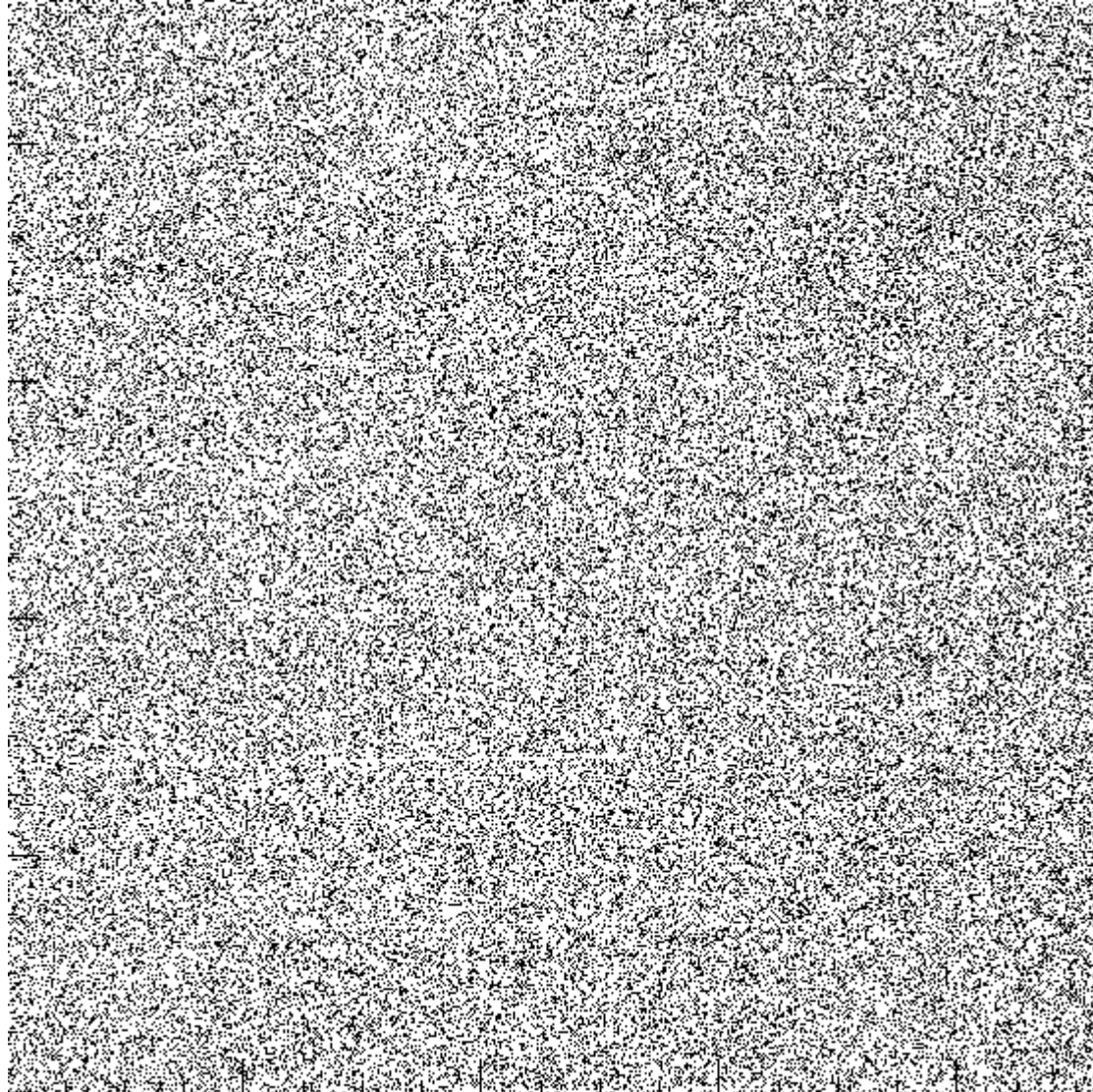
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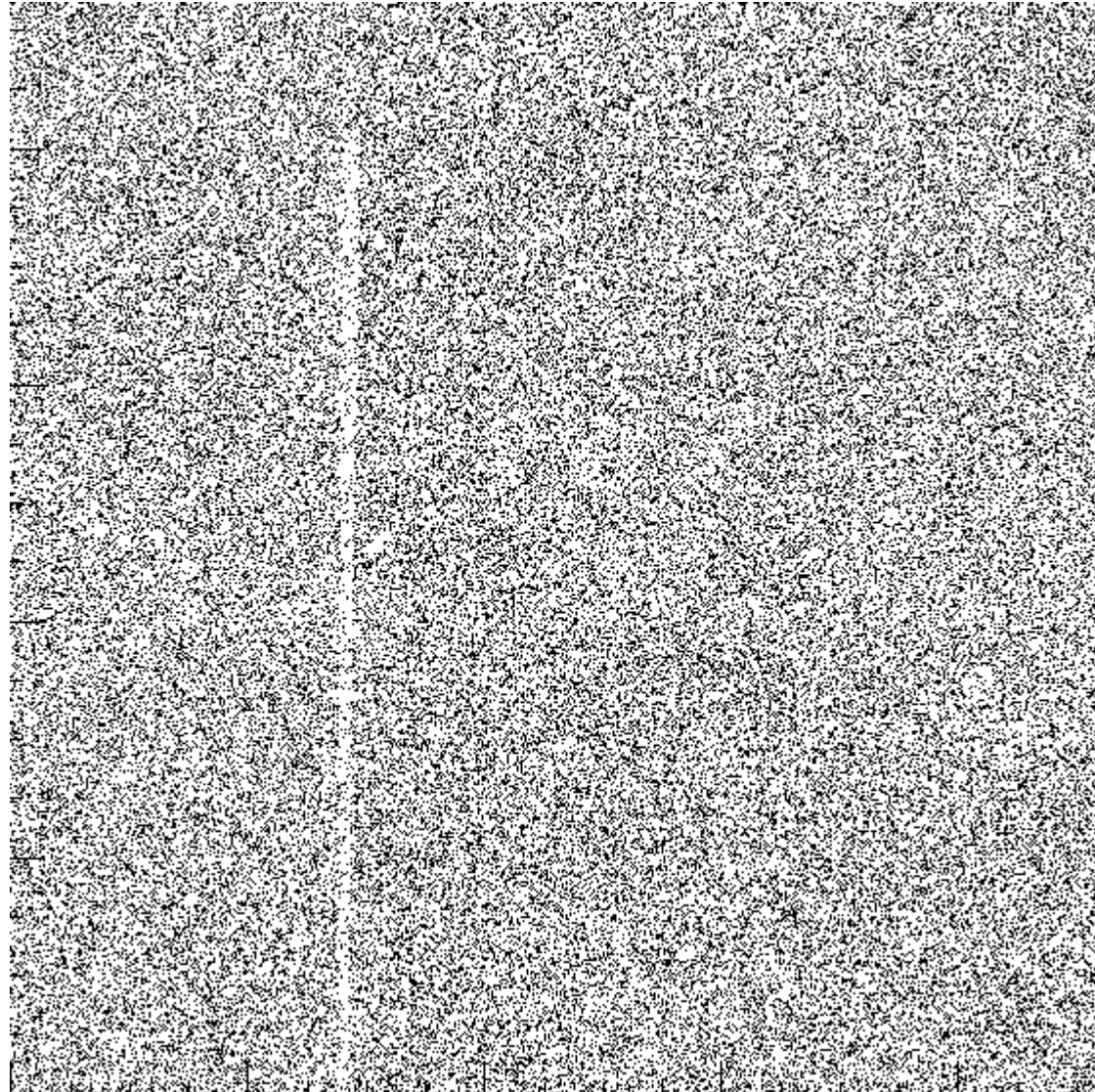
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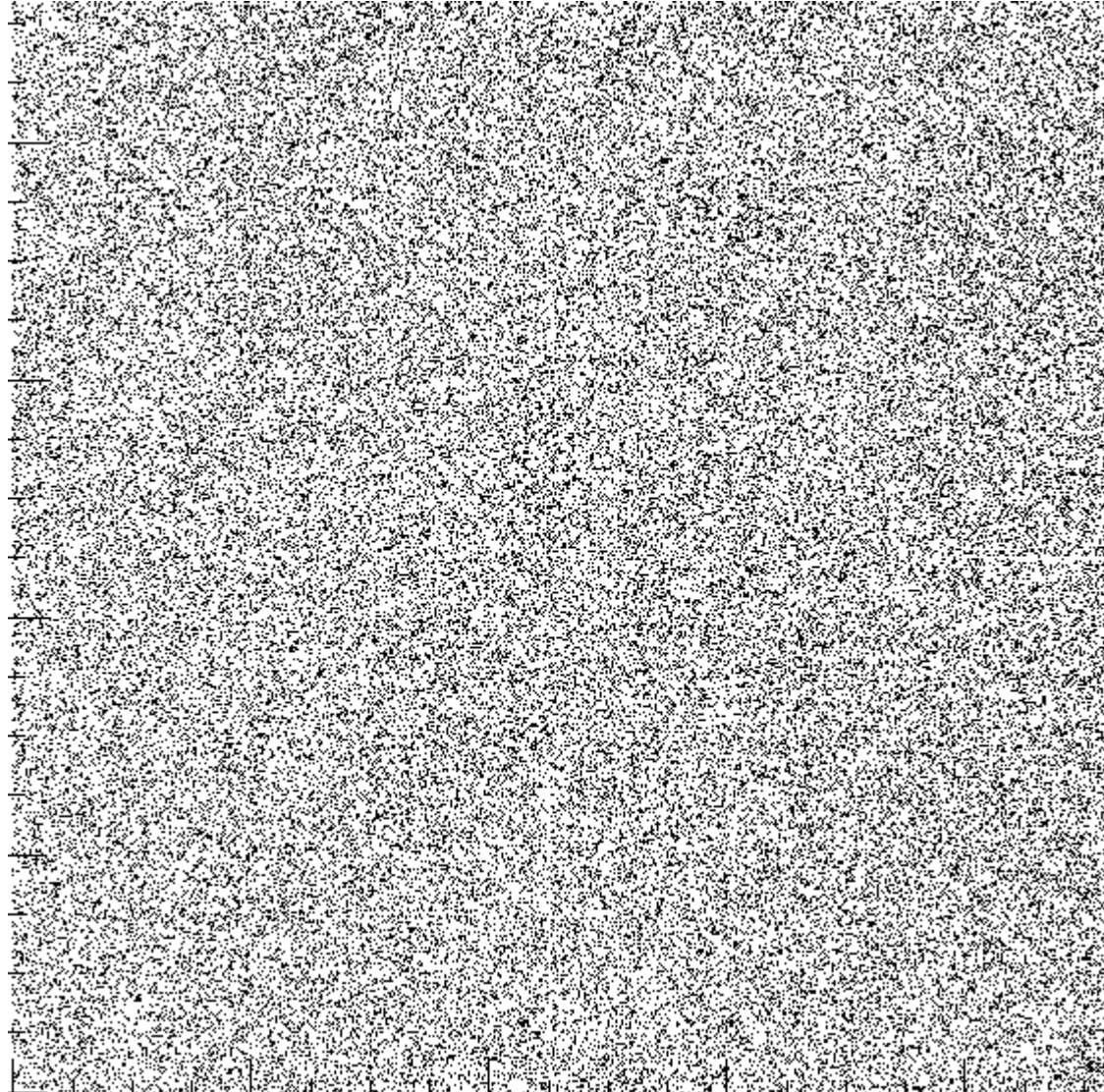
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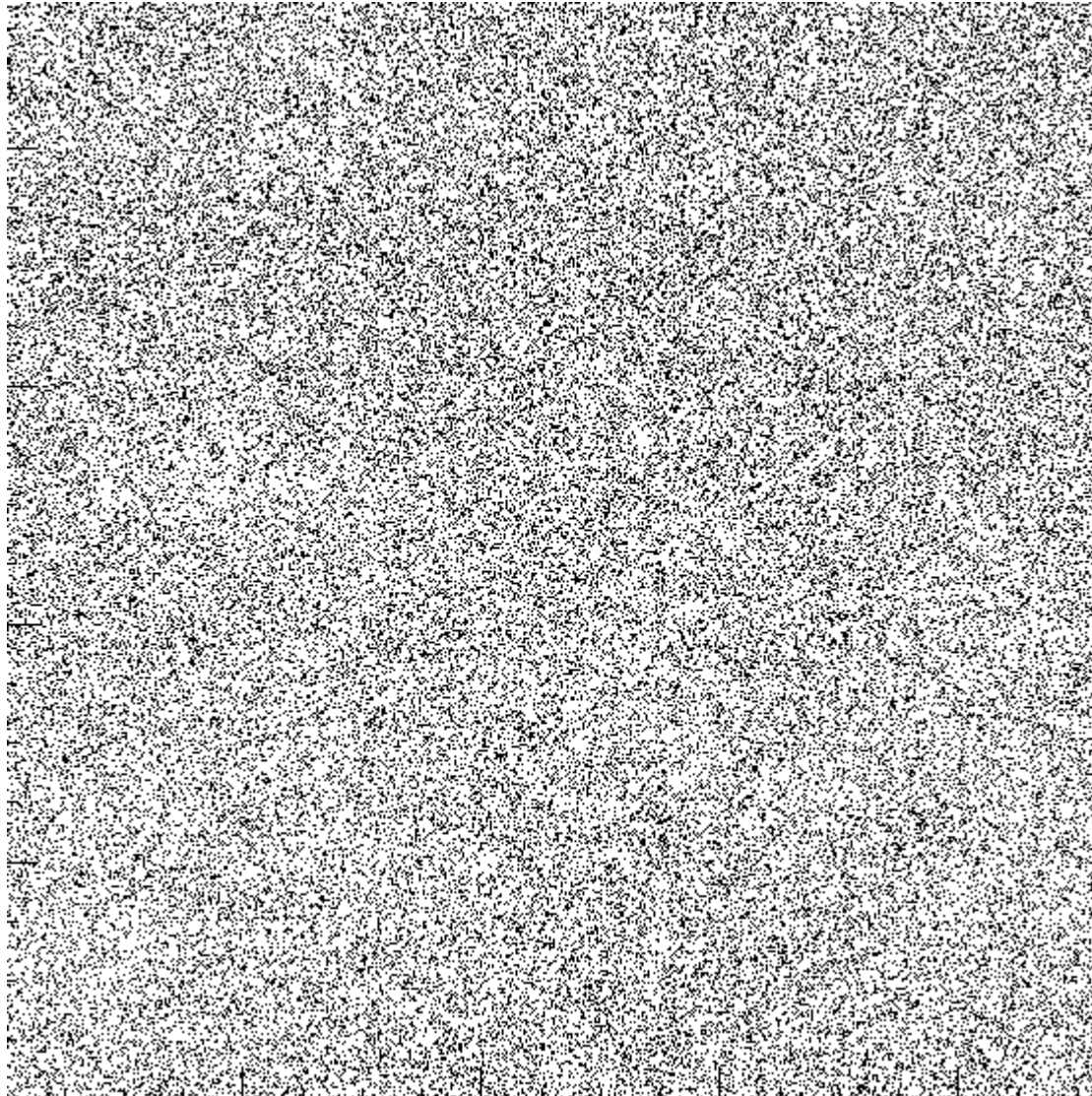
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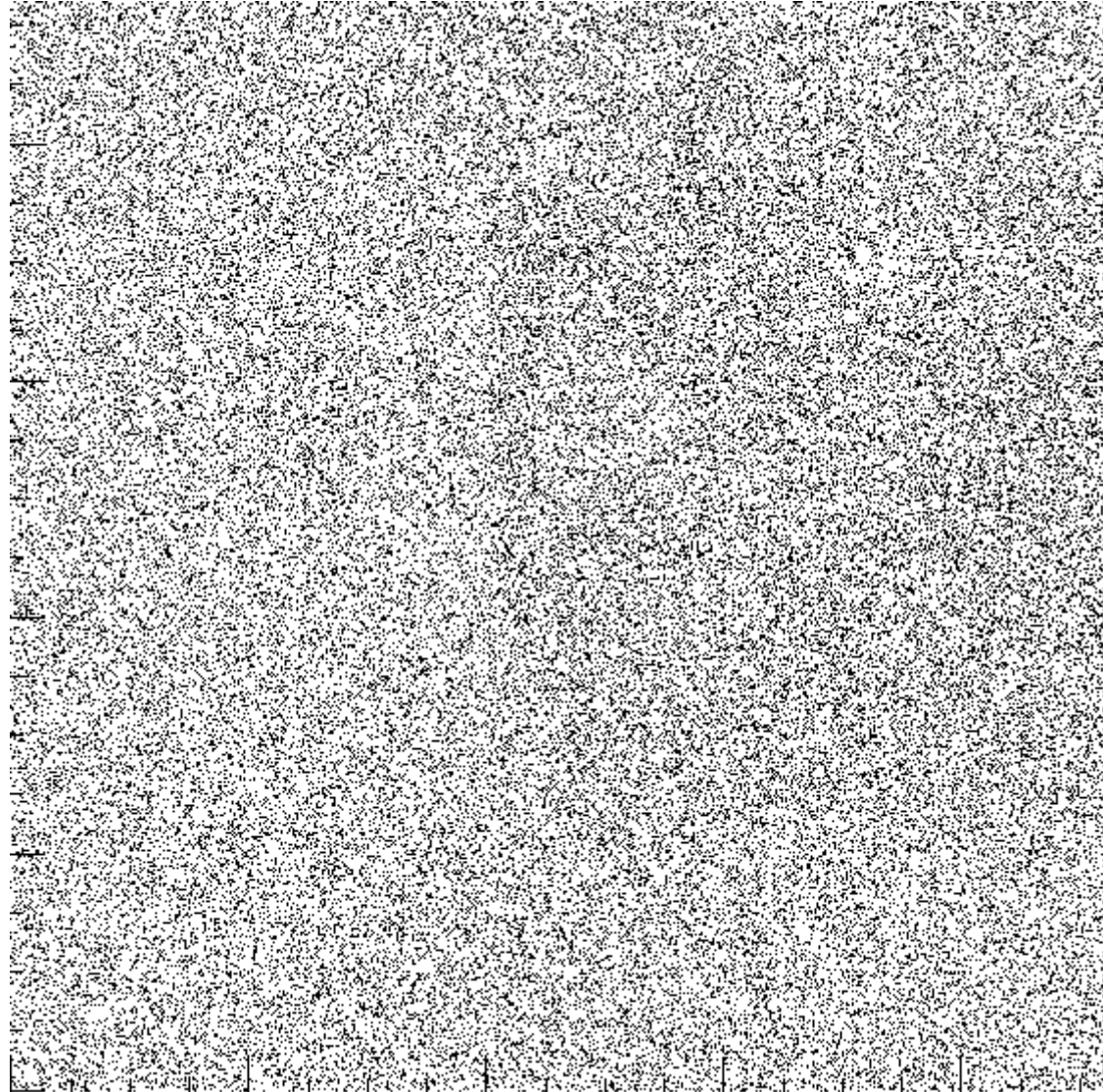
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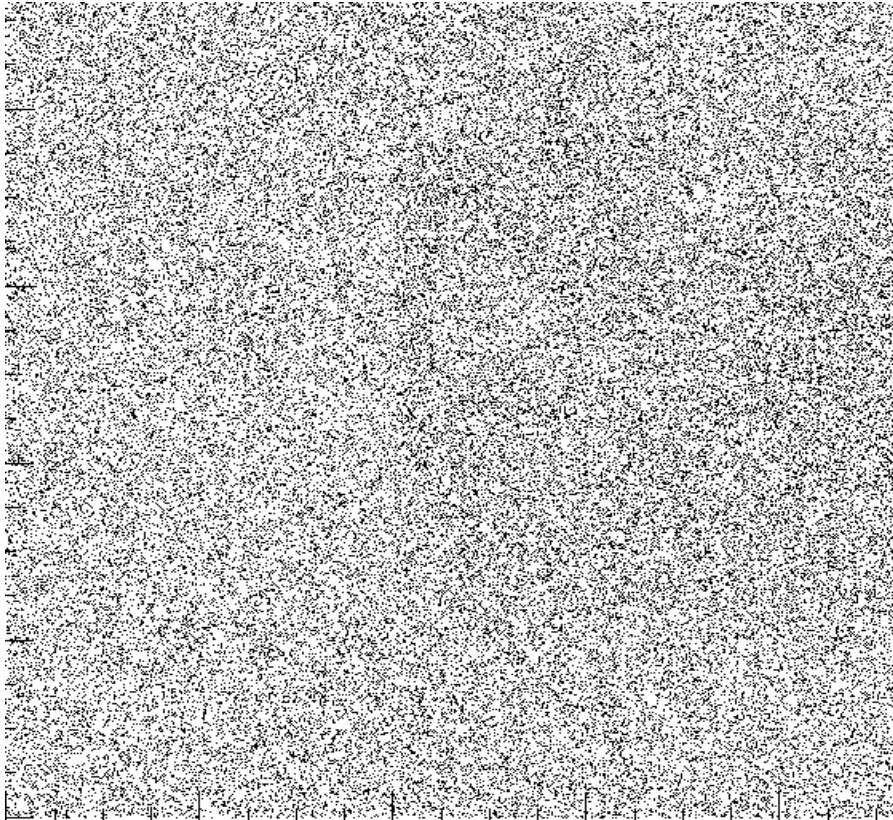
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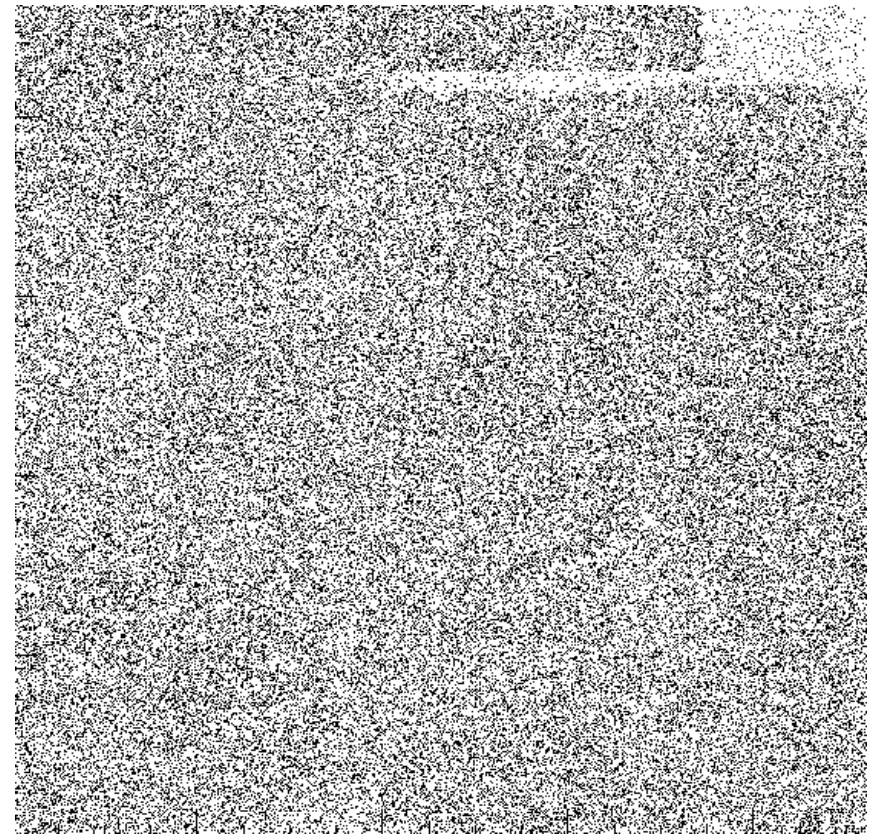
KMT BLG04N



KMT BLG04N



KMT BLG02N



Pipeline

- 1) Star Catalogs
- 2) Light Curves

Pipeline

- 1) Star Catalogs
- 2) Light Curves
 - Wozniak (2000) DIA

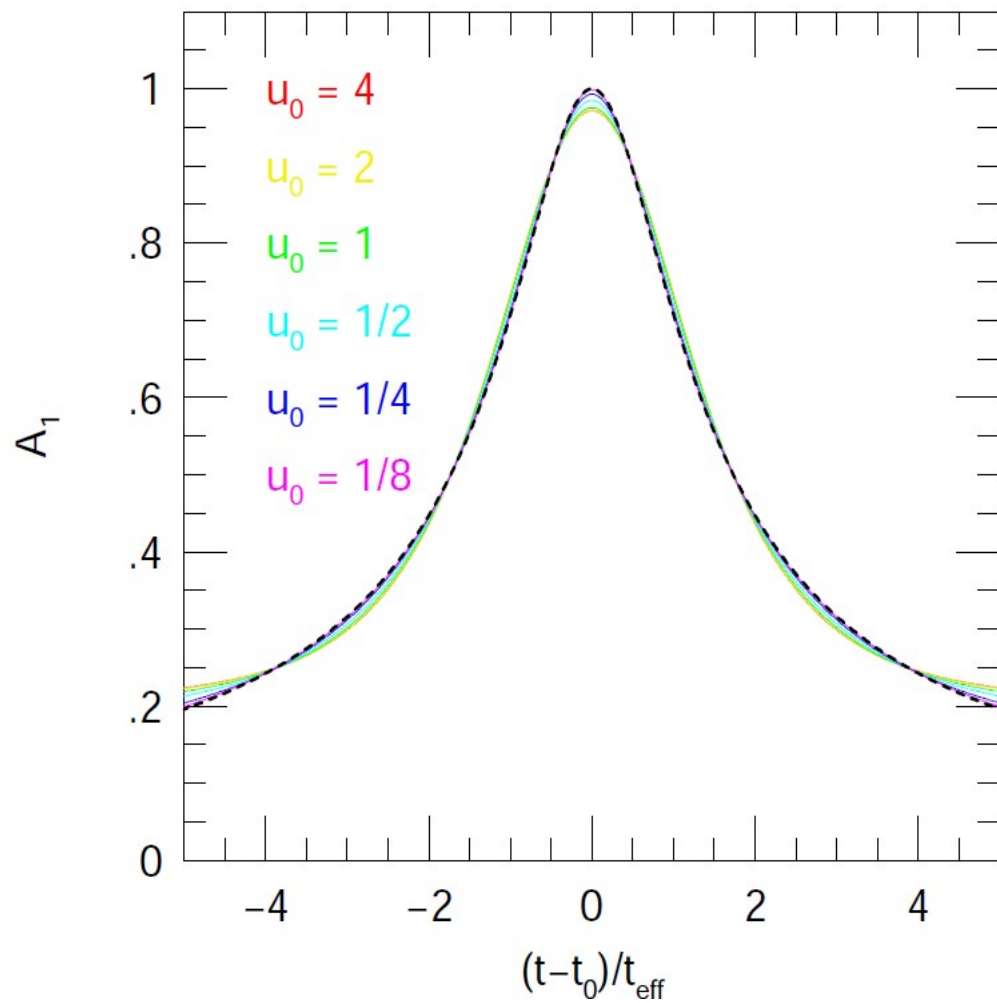
Pipeline

- 1) Star Catalogs
- 2) Light Curves
- 3) Event Finder

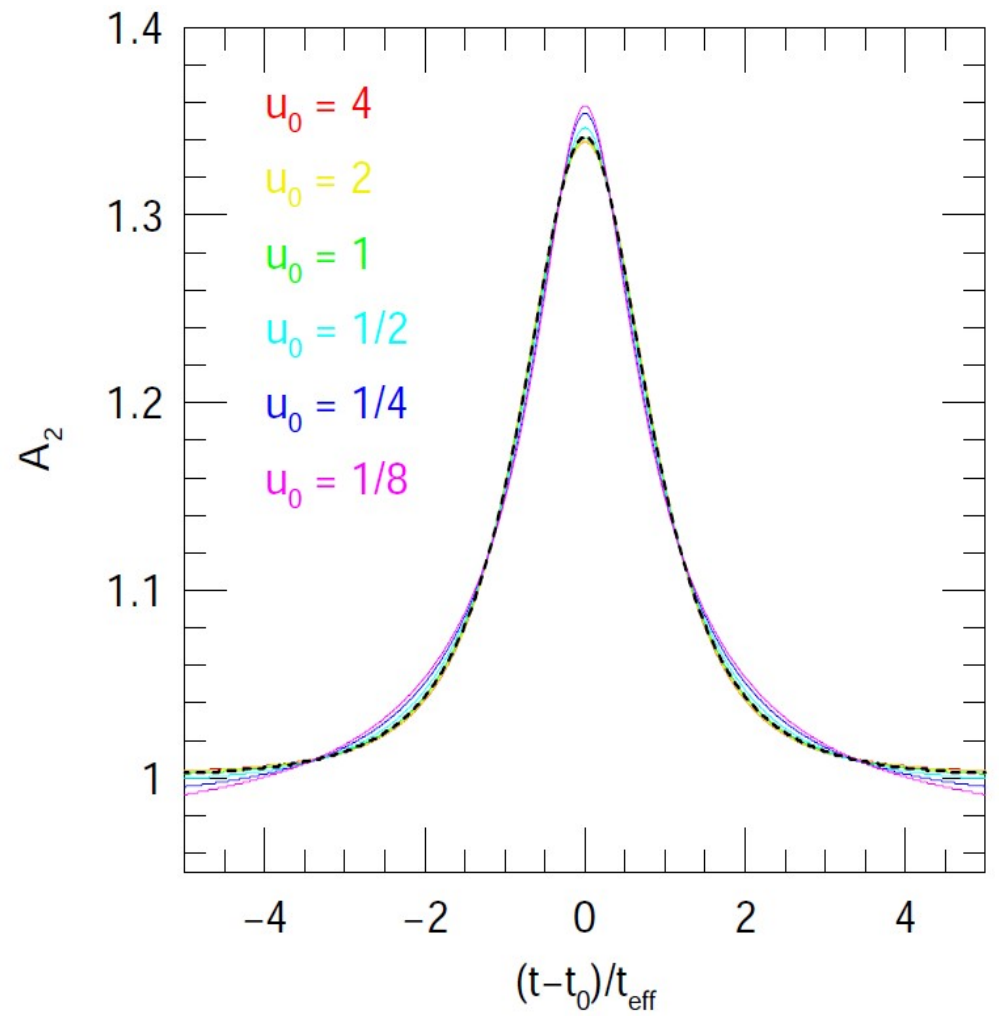
Pipeline

- 1) Star Catalogs
- 2) Light Curves
- 3) Event Finder
 - Simplified Form
 - $F(t) = a_1 + a_2 * f_k(t; t_0, t_{\text{eff}}); k=1,2$
 - NOT $F(t) = a_1 + a_2 * f(t; t_0, t_{\text{eff}}, u_0)$

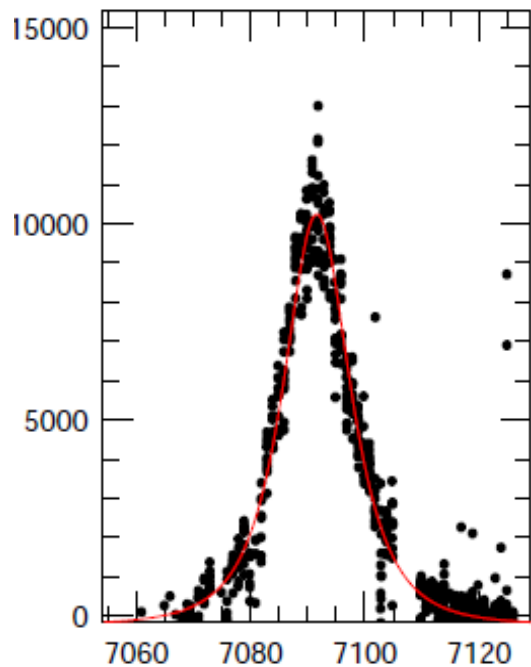
$$u_0 = 0$$



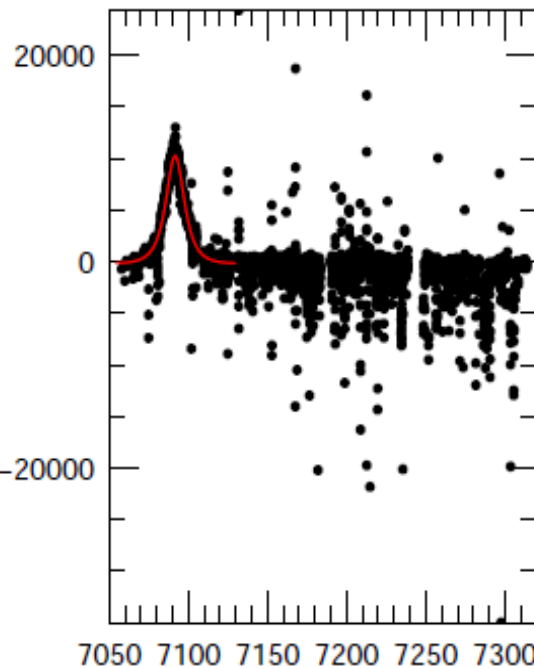
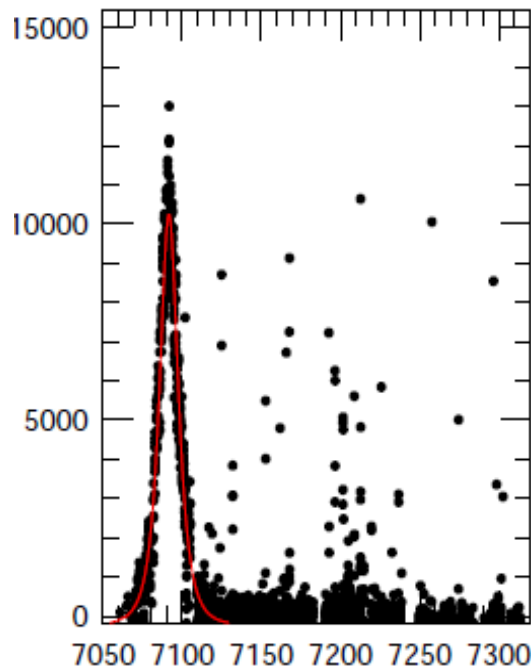
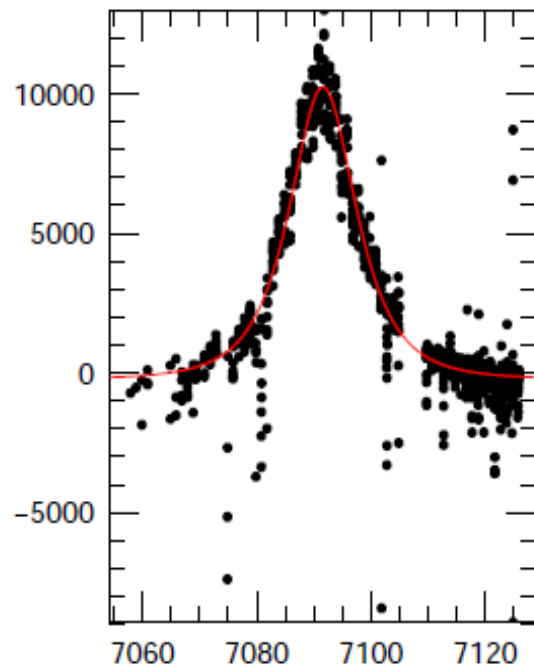
$$u_0 = 1$$



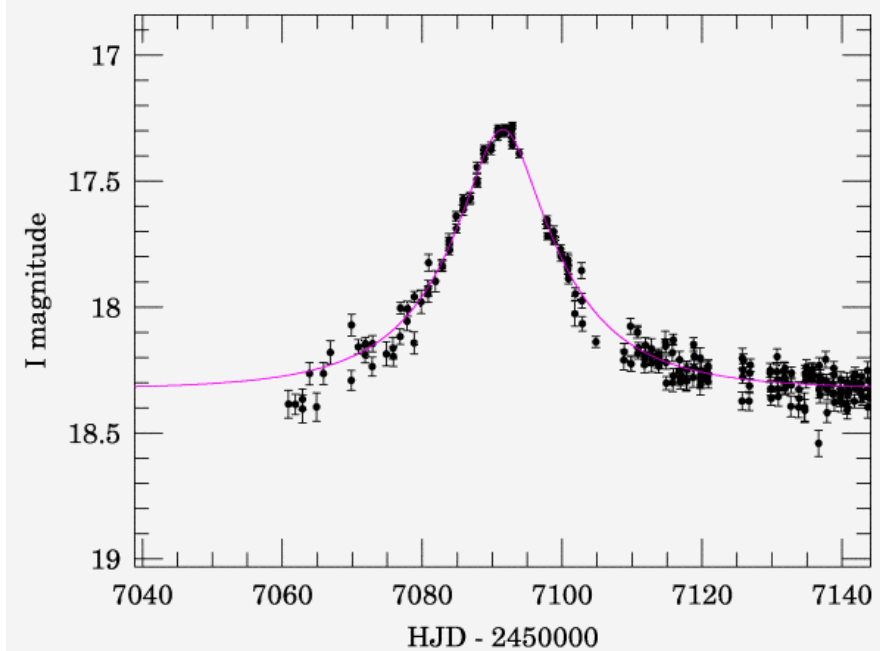
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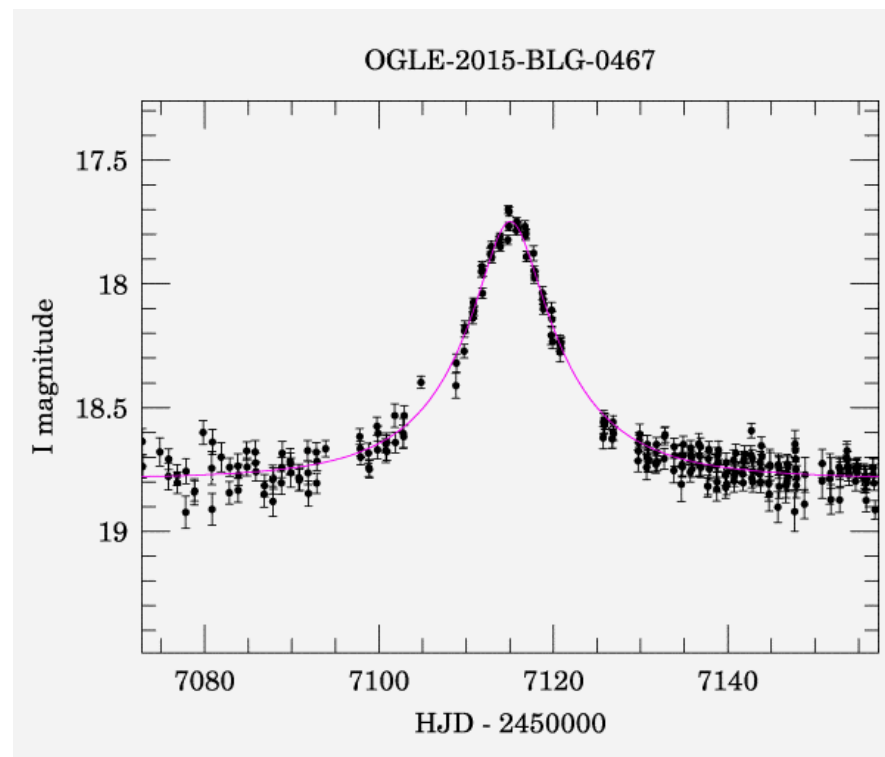
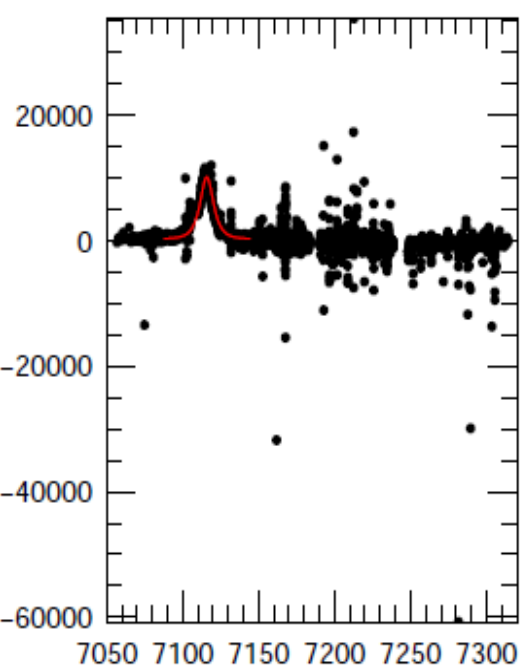
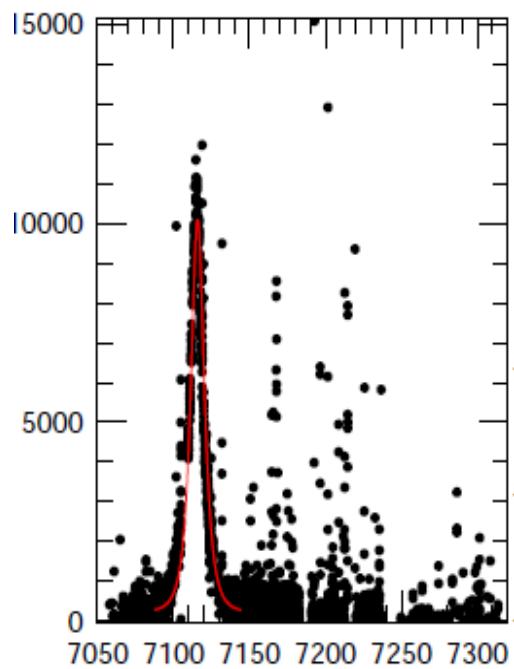
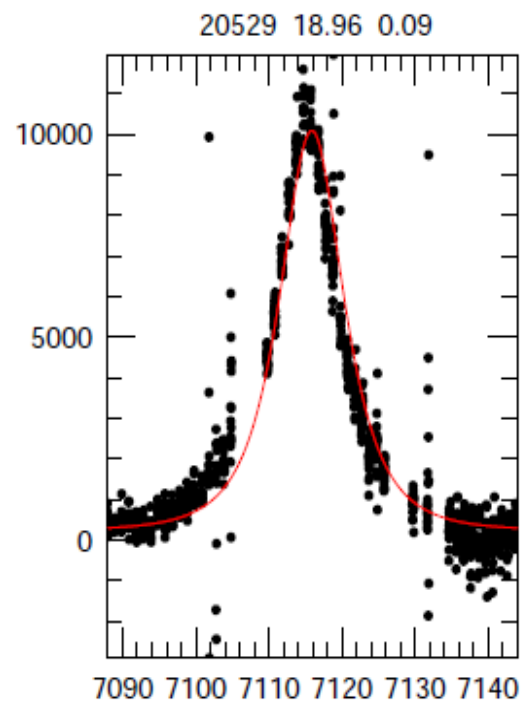
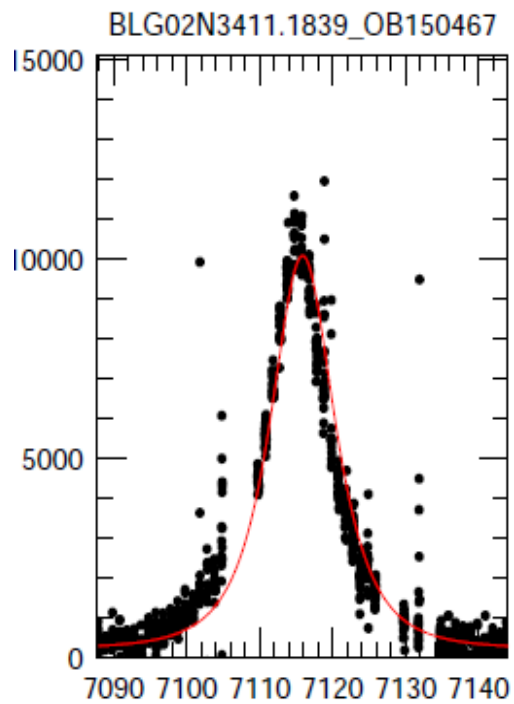


24468 18.56 0.08



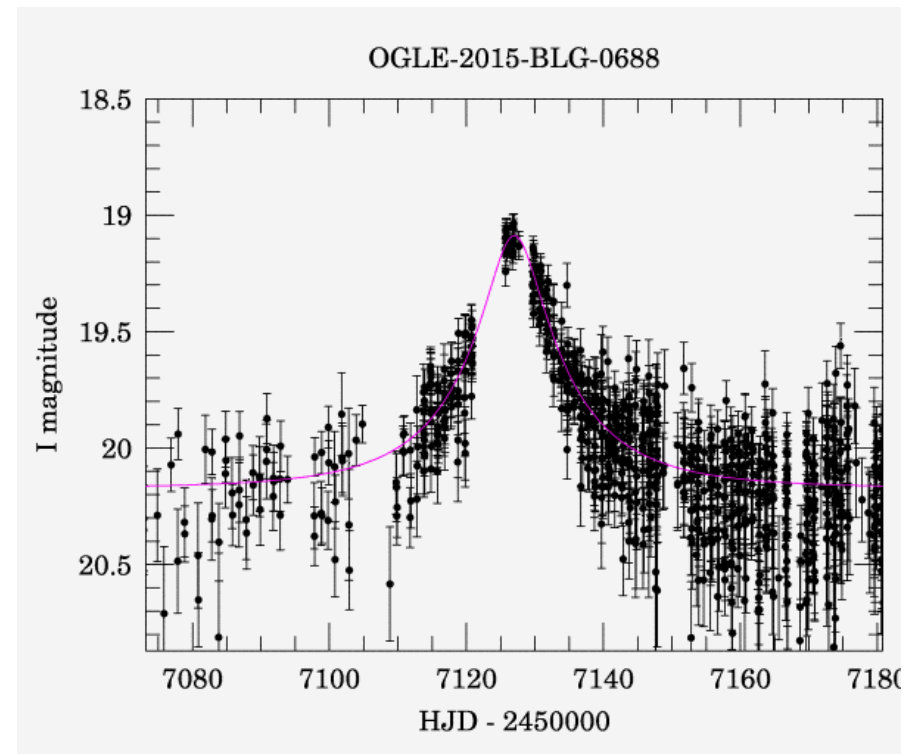
OGLE-2015-BLG-0210



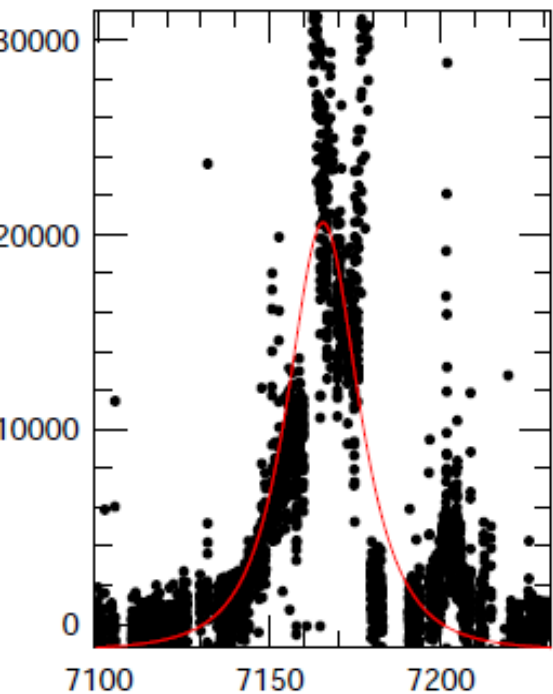


“New Star”

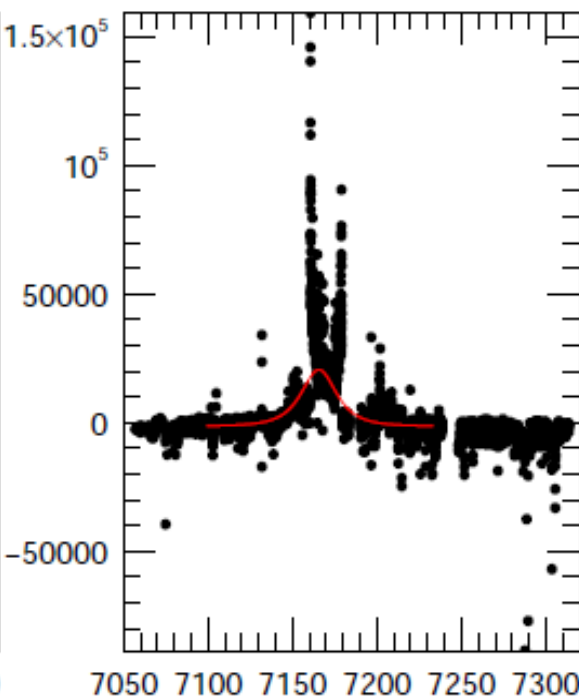
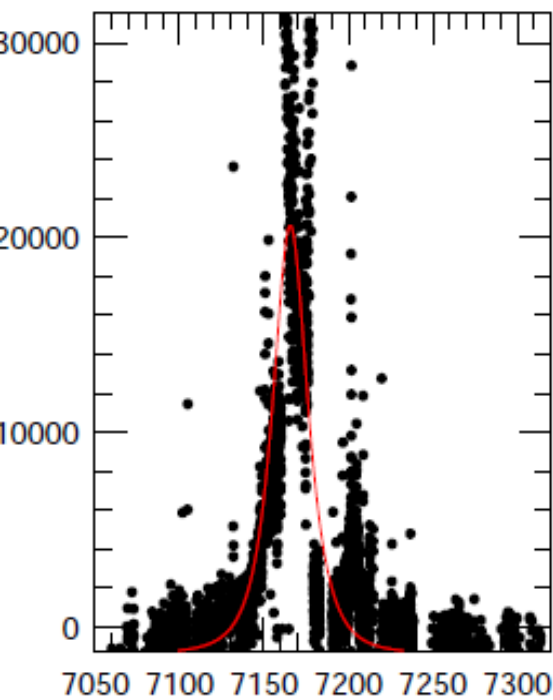
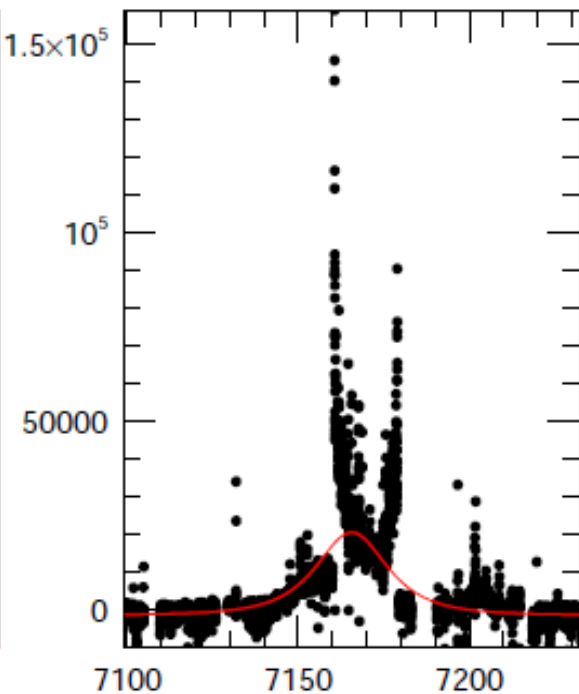
No catalog entries within 1"



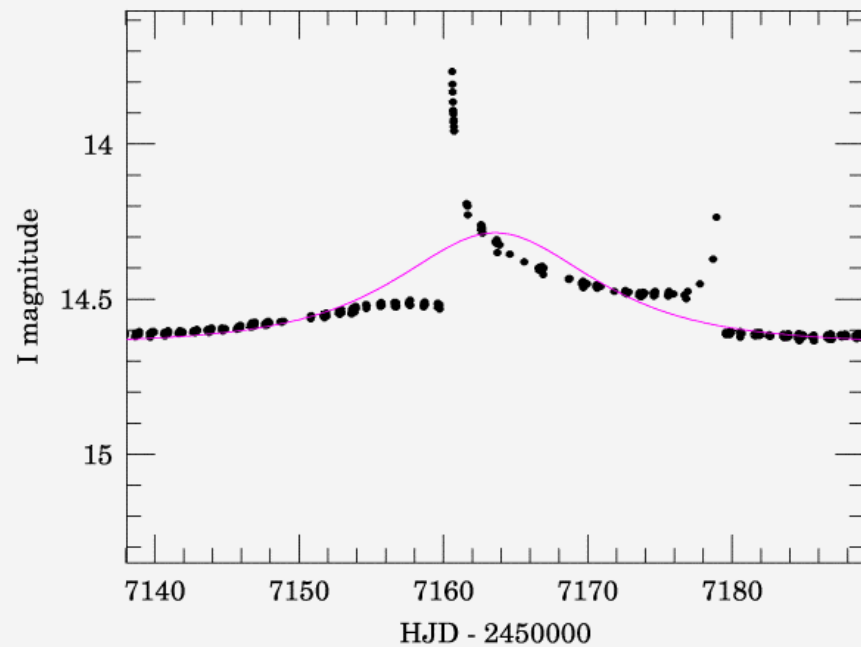
BLG02N2215.0044_OB150914

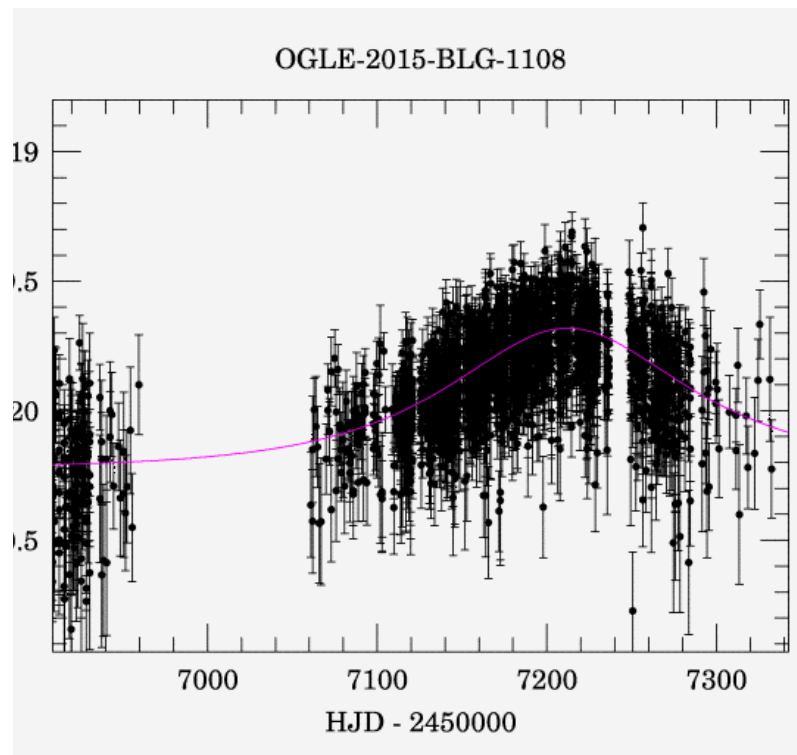
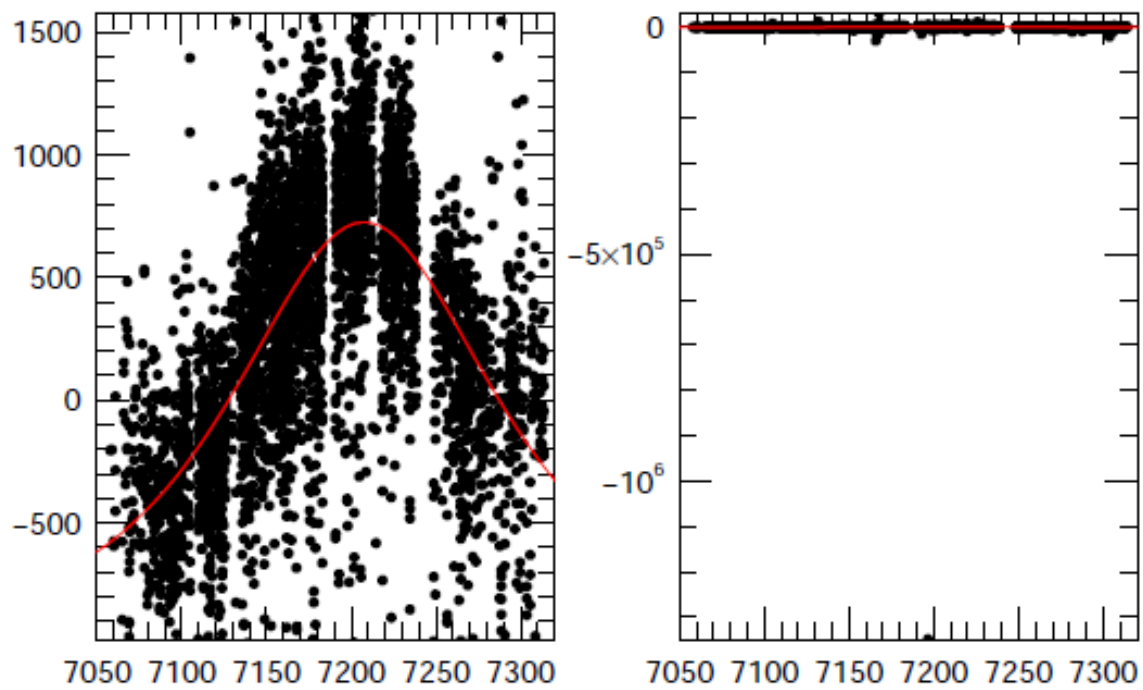
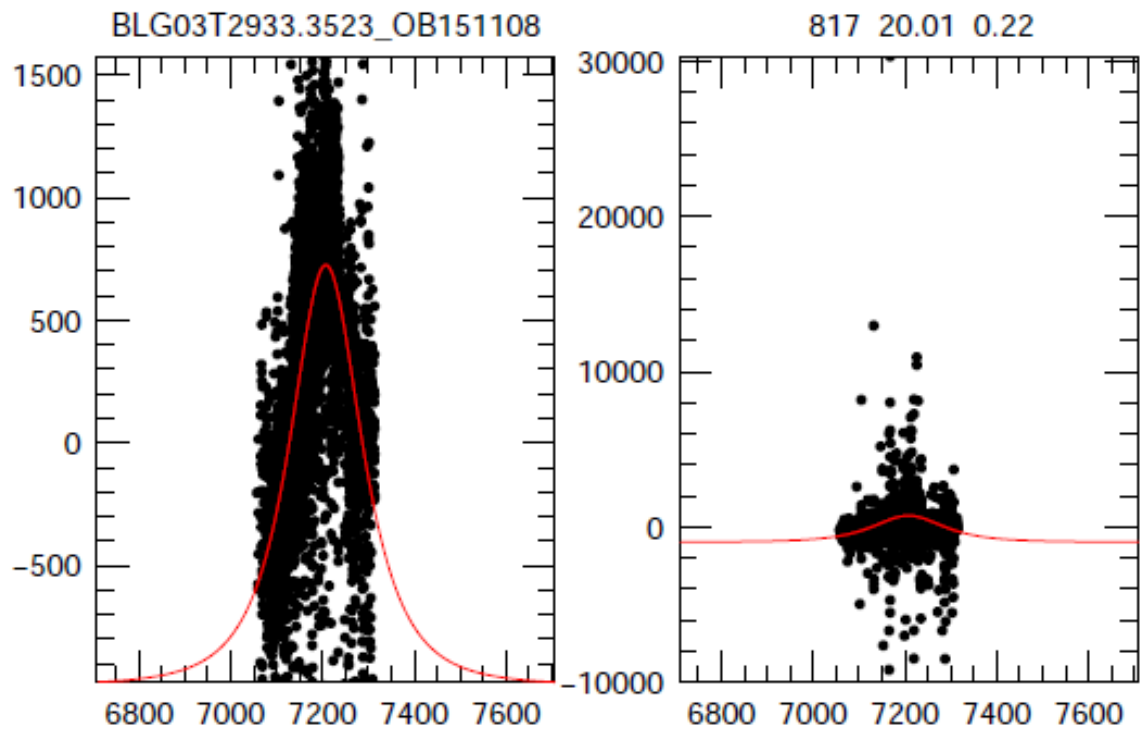


3693 14.75 0.01

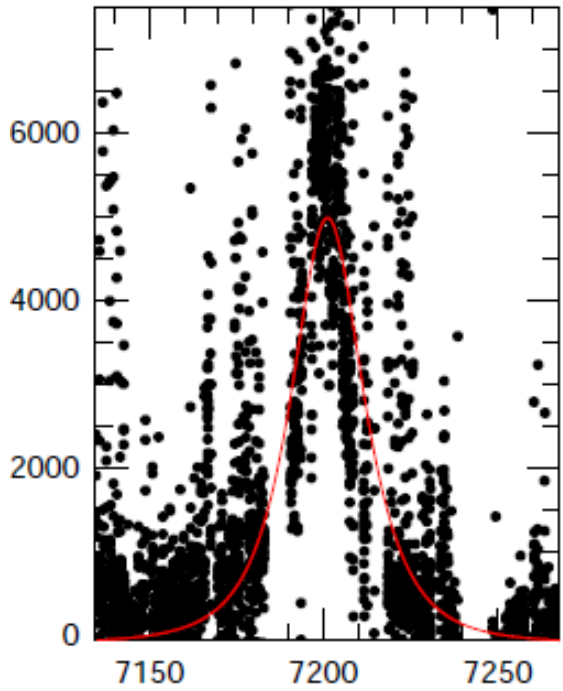


OGLE-2015-BLG-0914

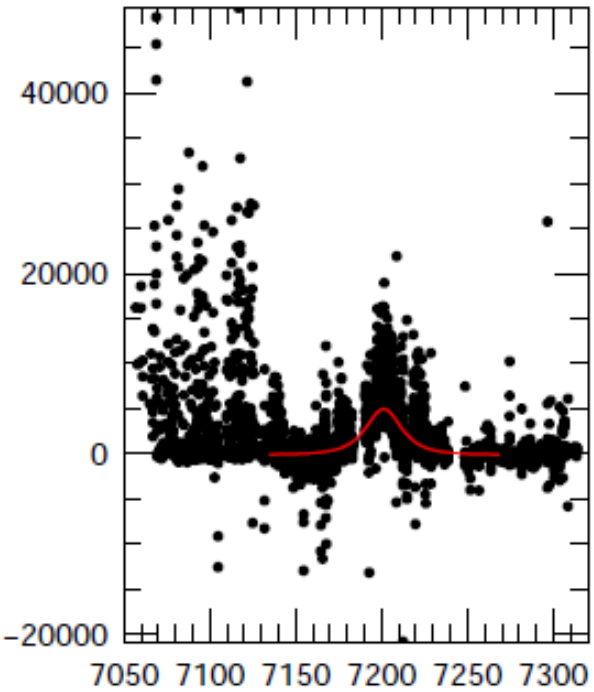
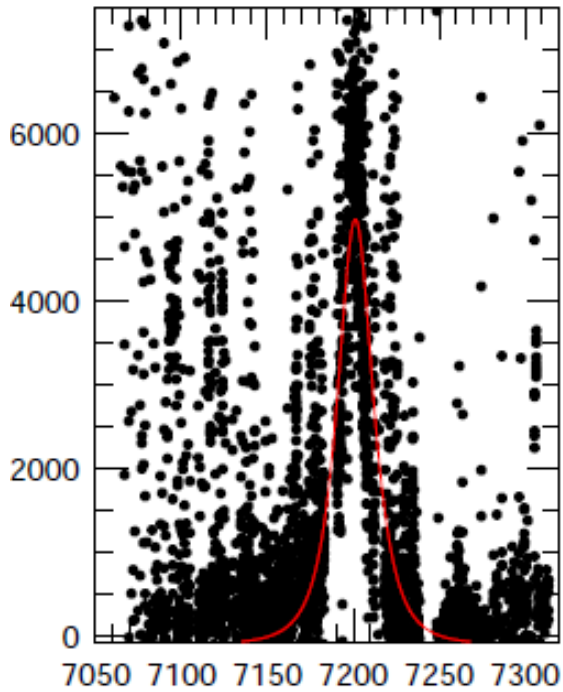
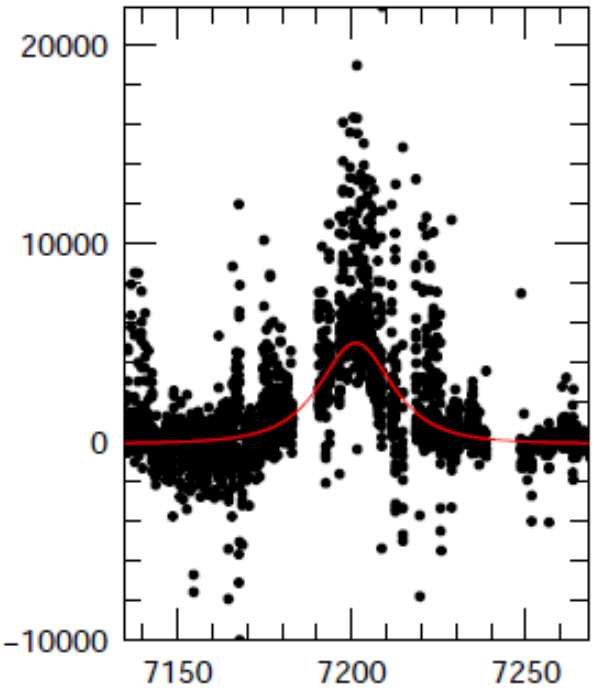




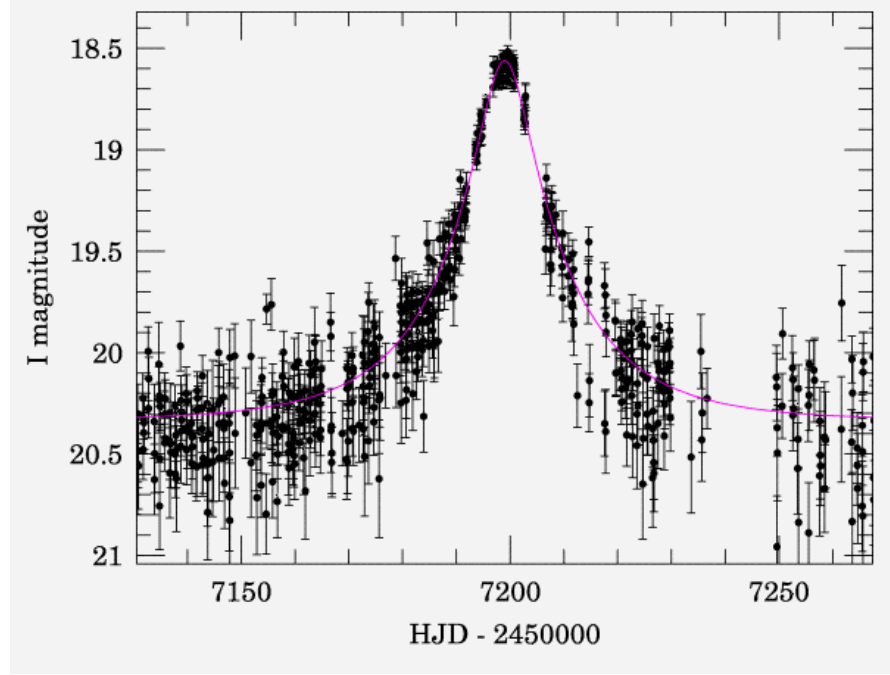
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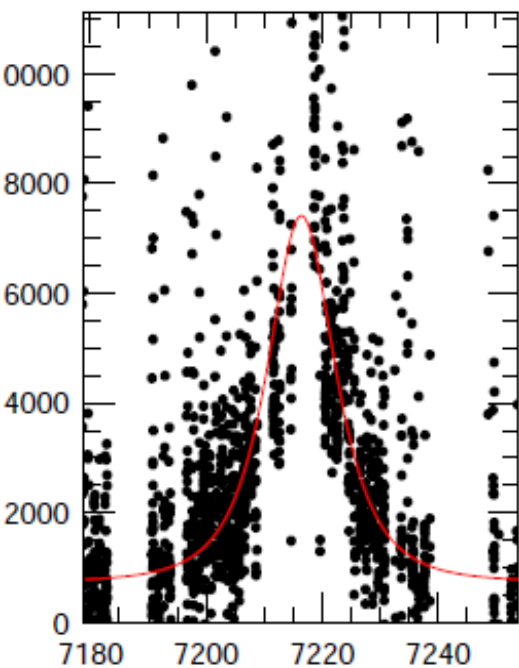
4047 20.24 0.24



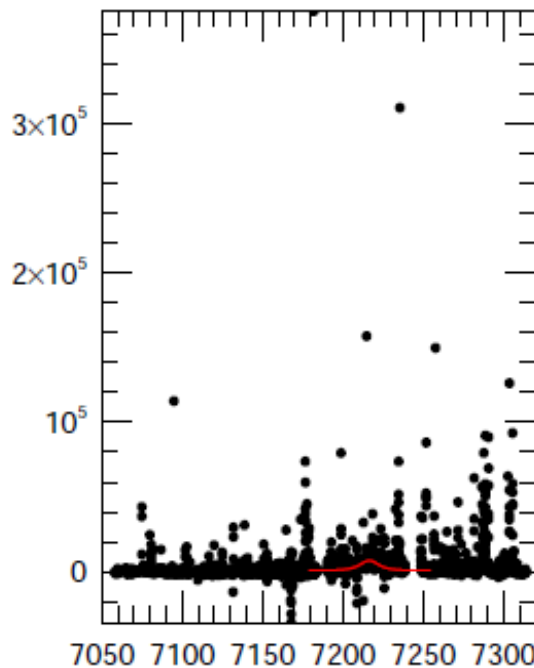
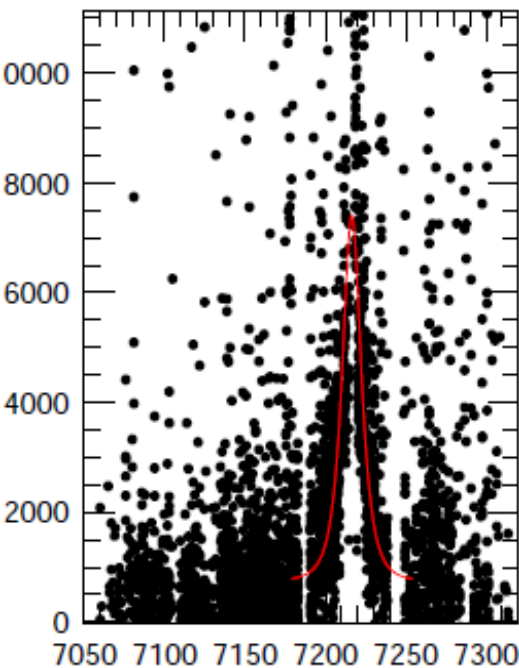
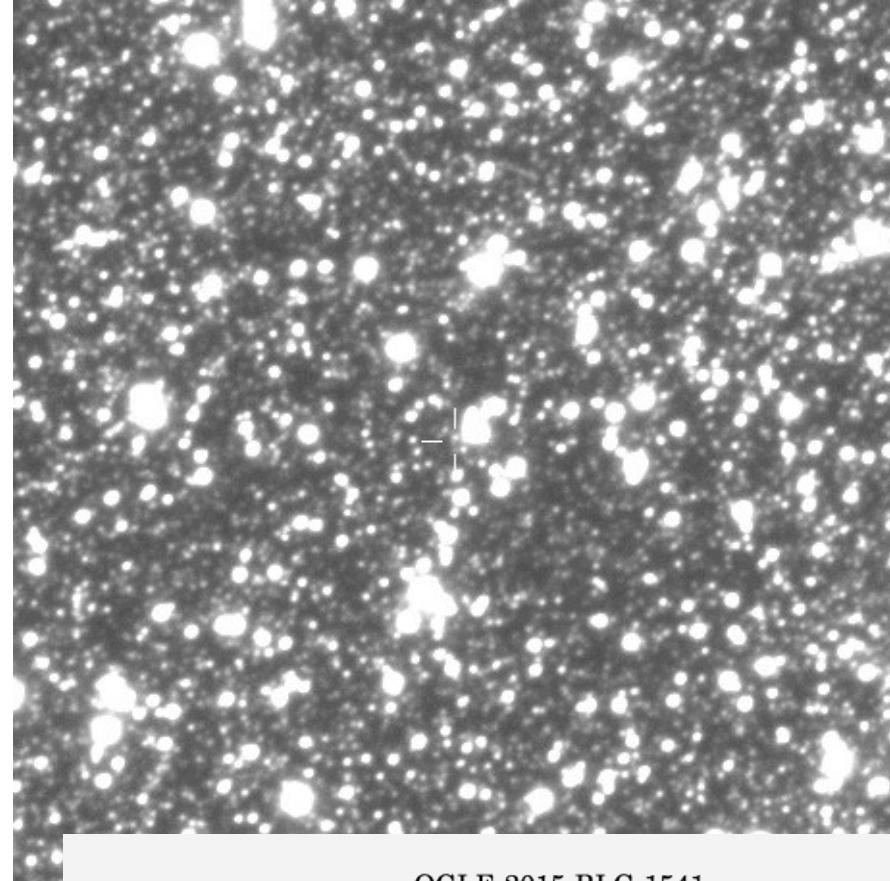
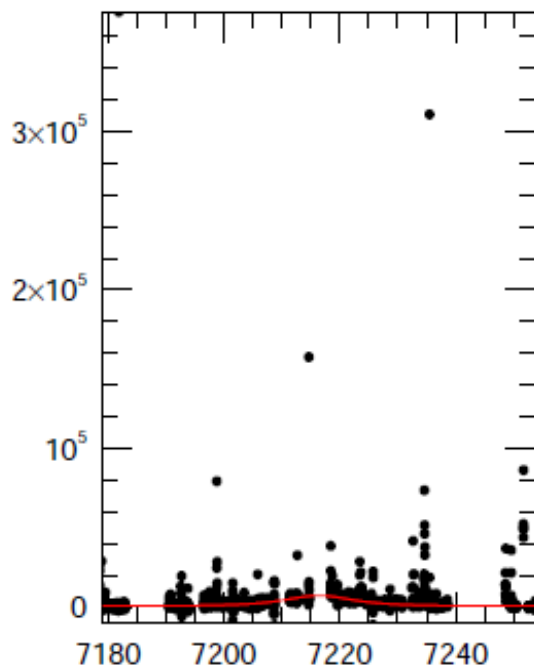
OGLE-2015-BLG-1348



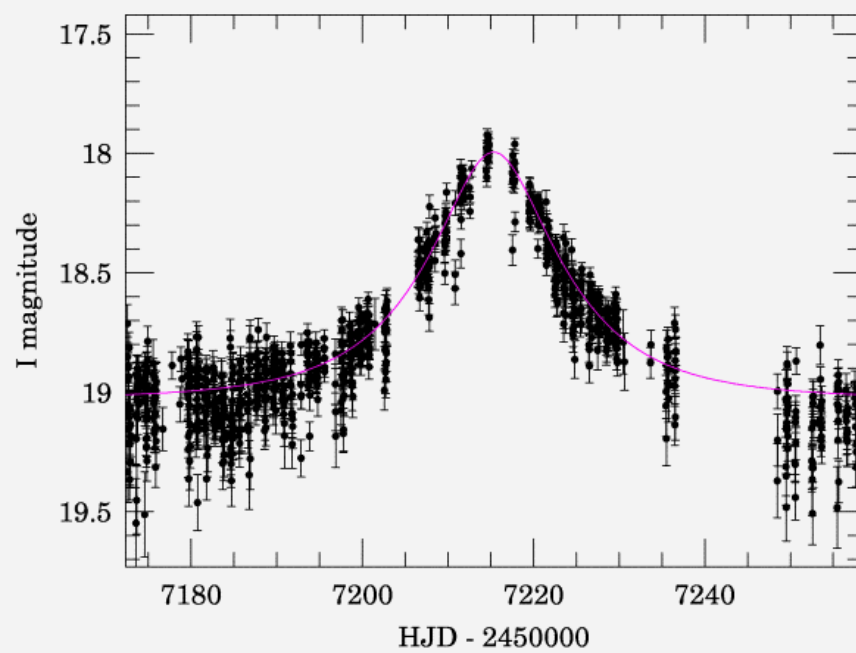
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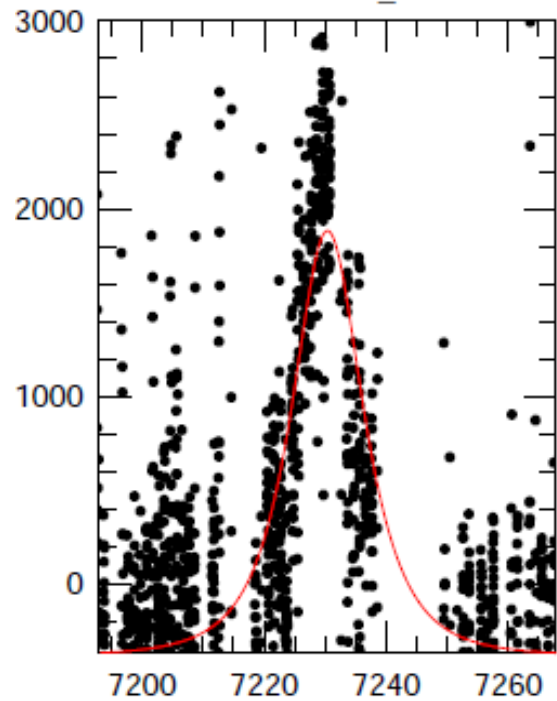
1244 18.99 0.29



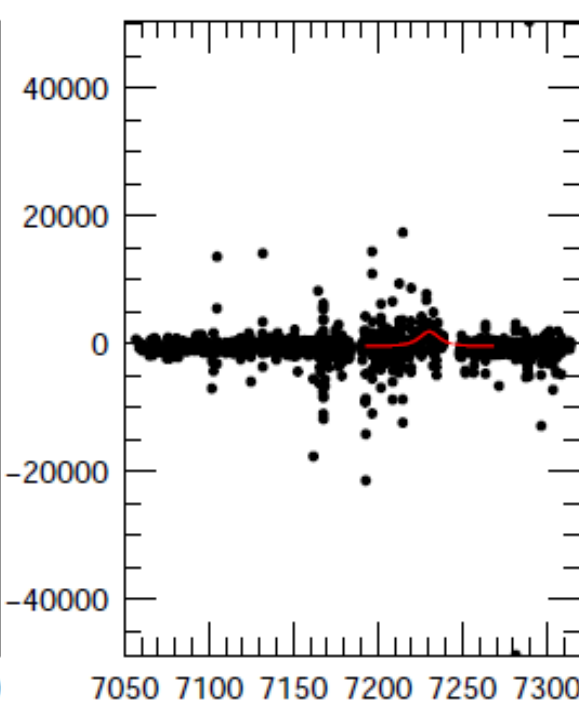
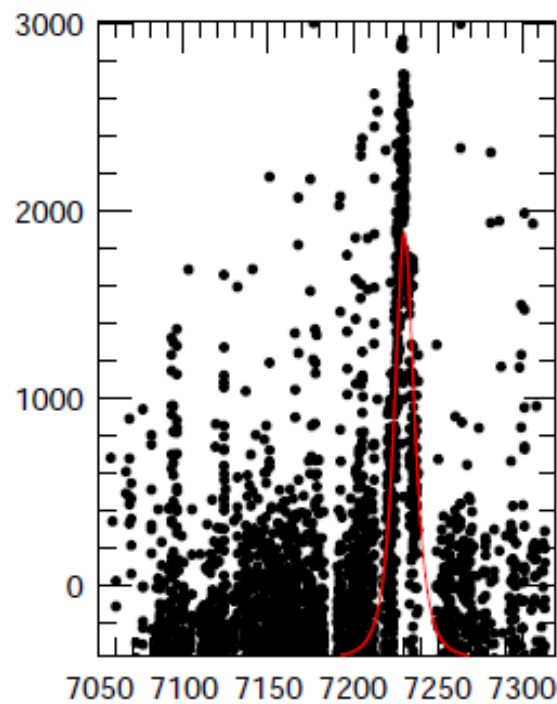
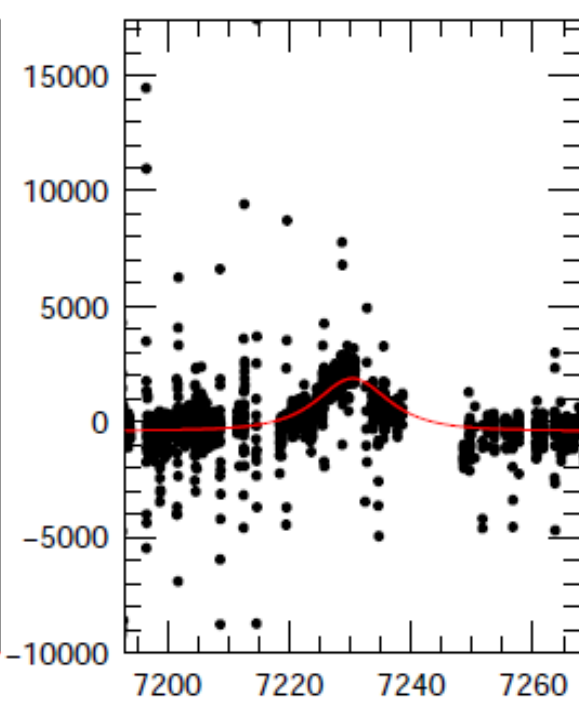
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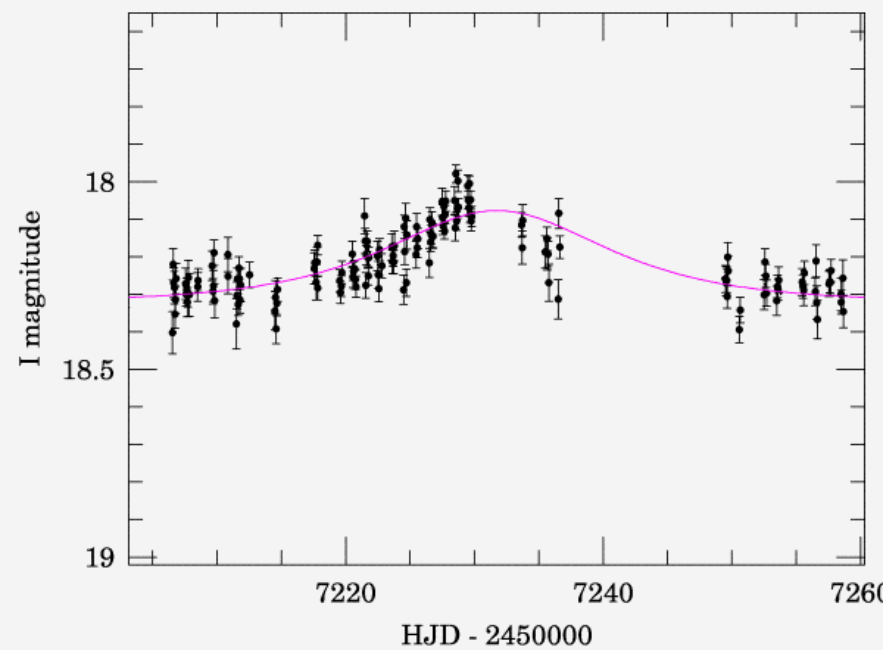
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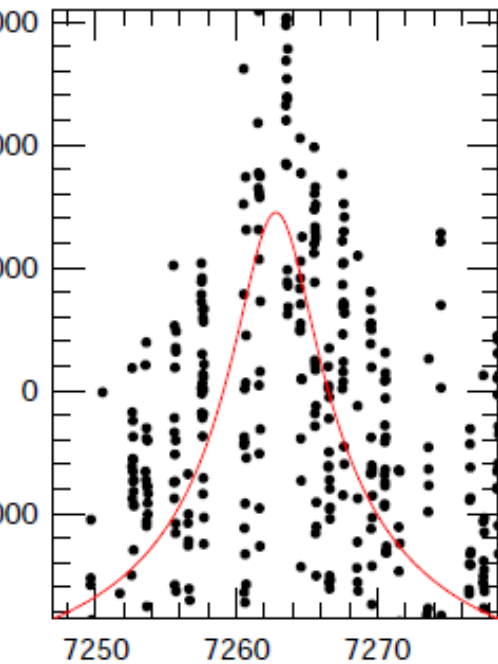
2328 19.32 0.15



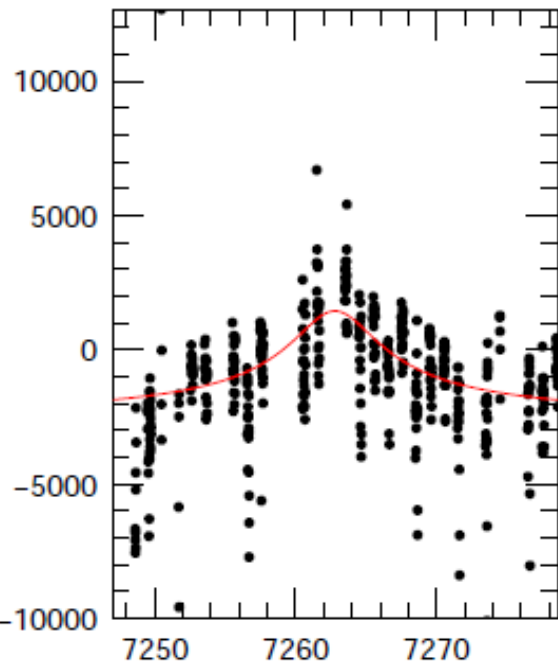
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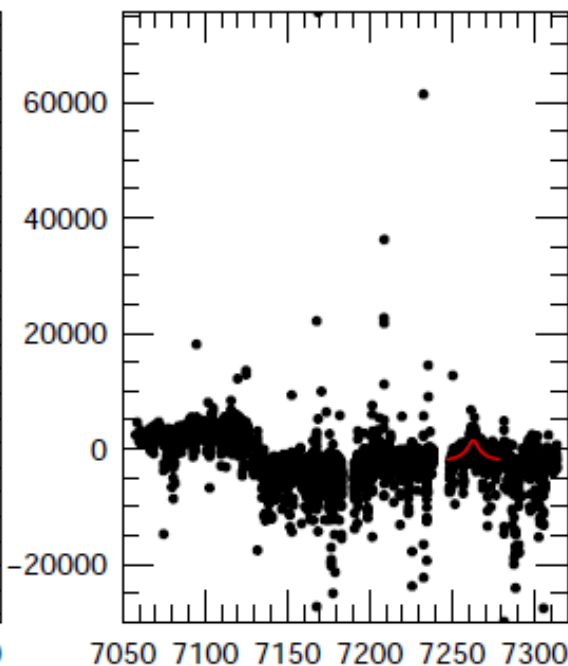
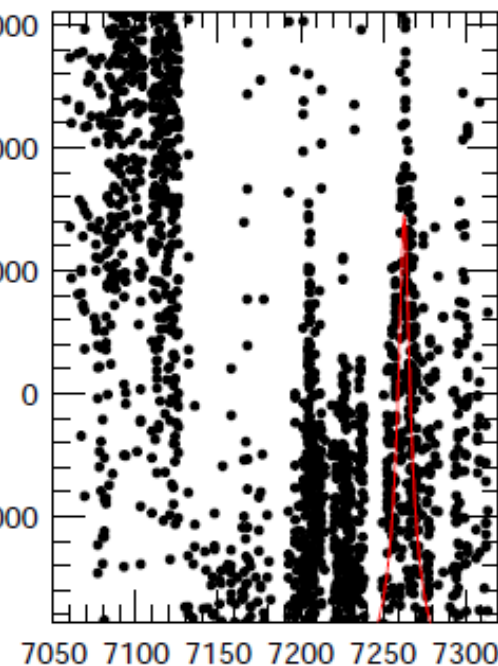
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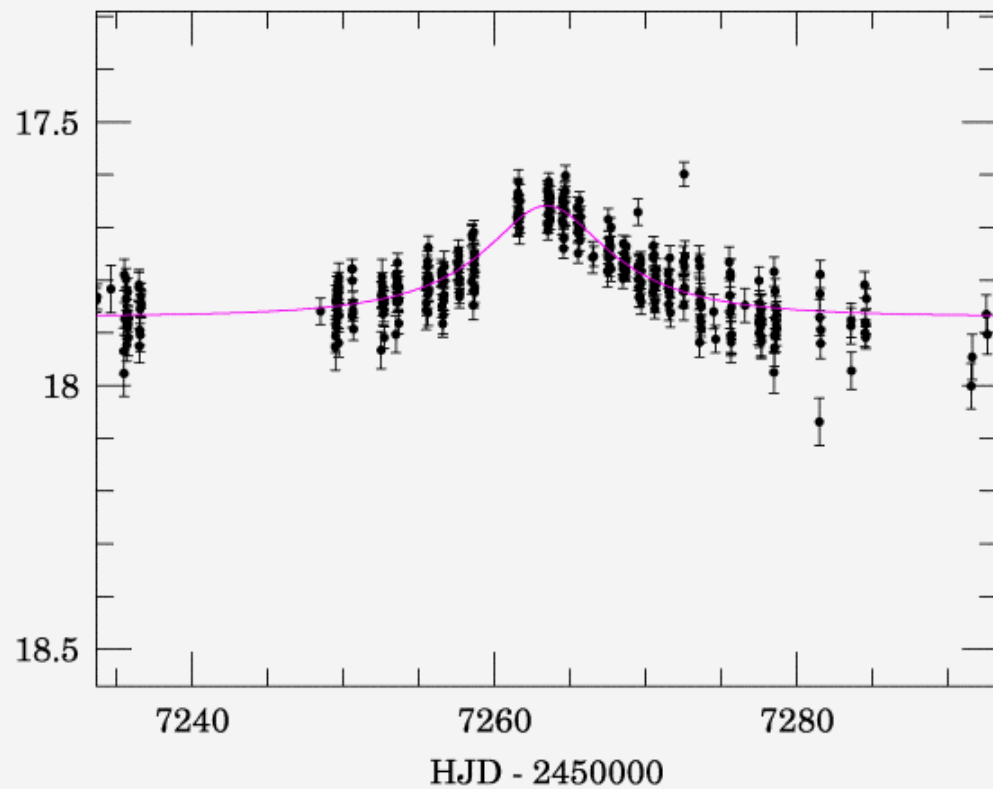
120 18.07 0.05



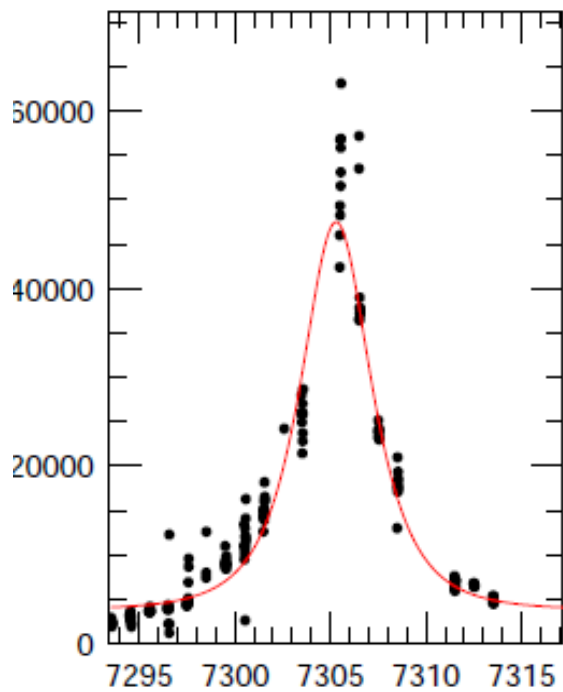
Failed
 $\chi^2 = 120$



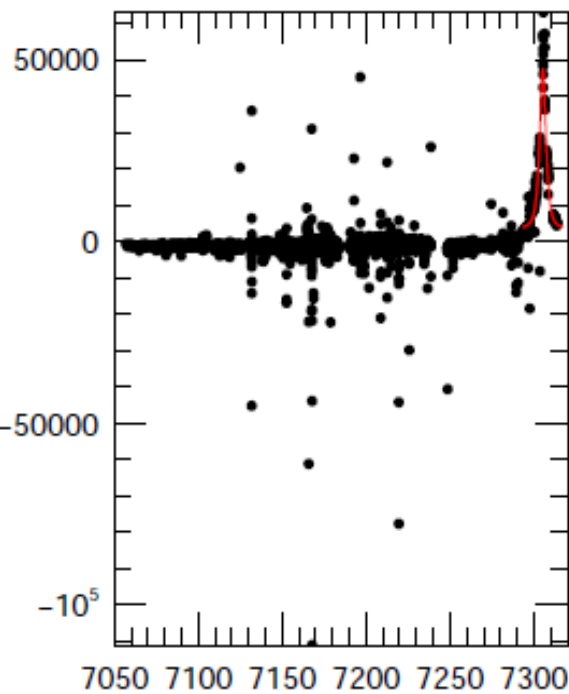
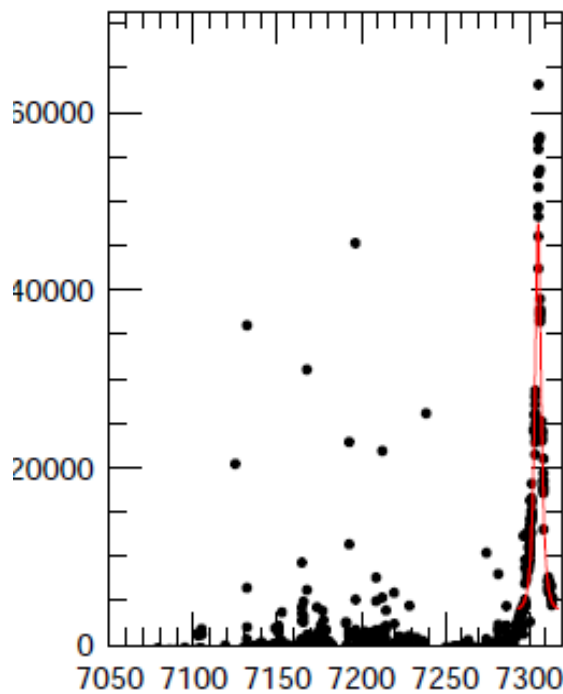
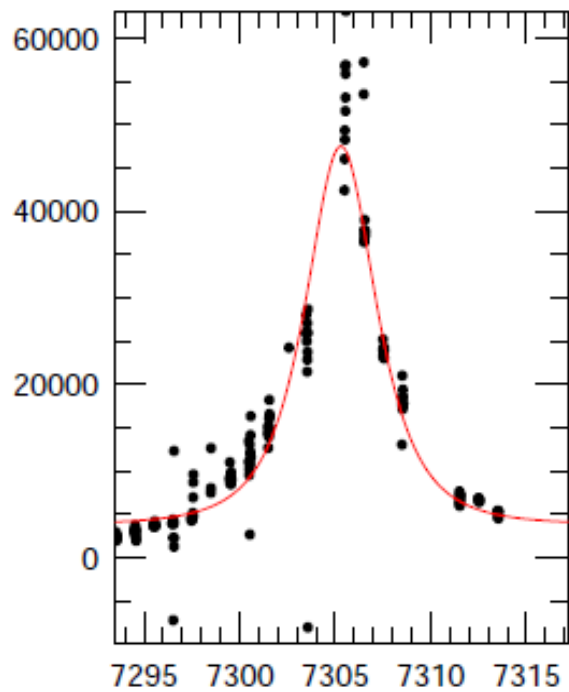
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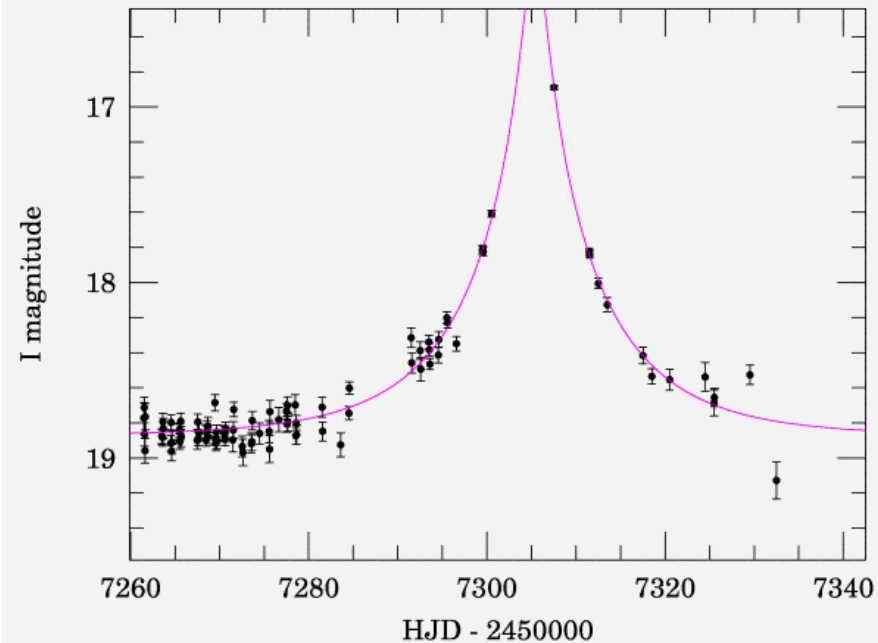
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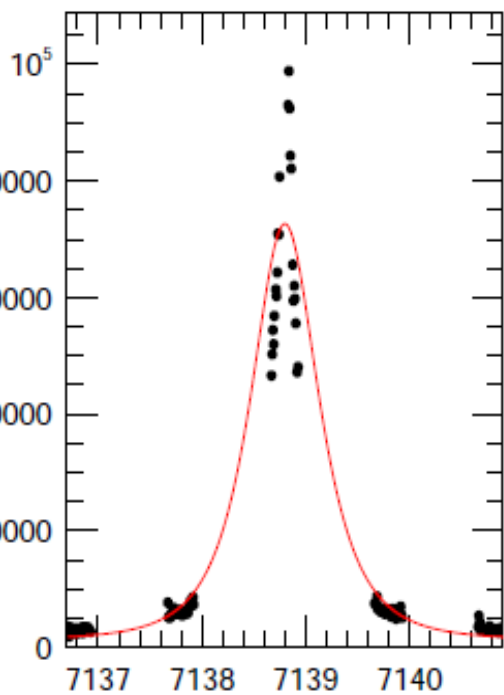
3253 18.89 0.08



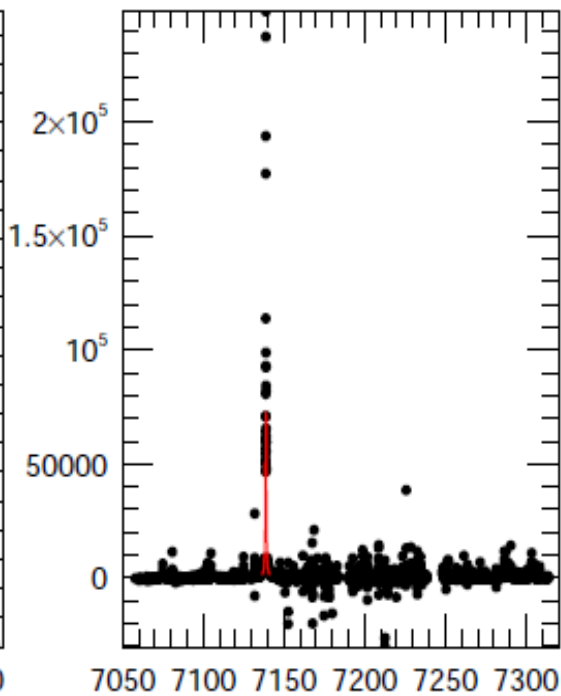
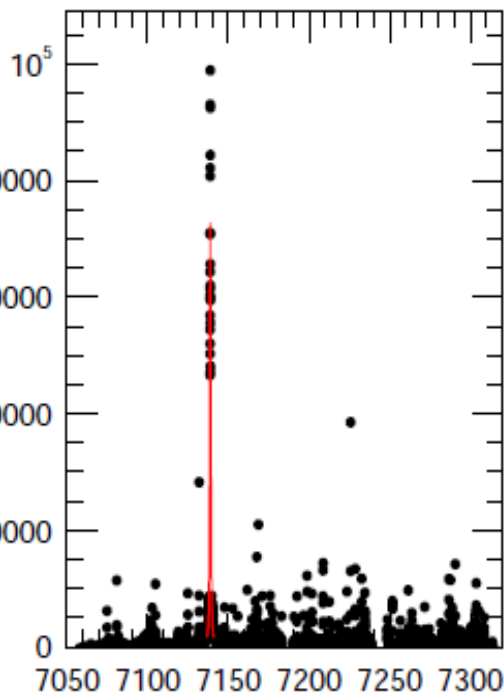
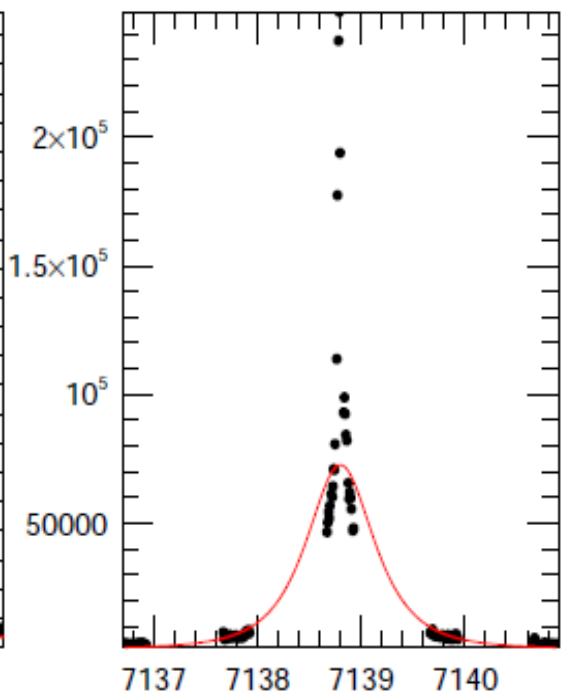
OGLE-2015-BLG-2087



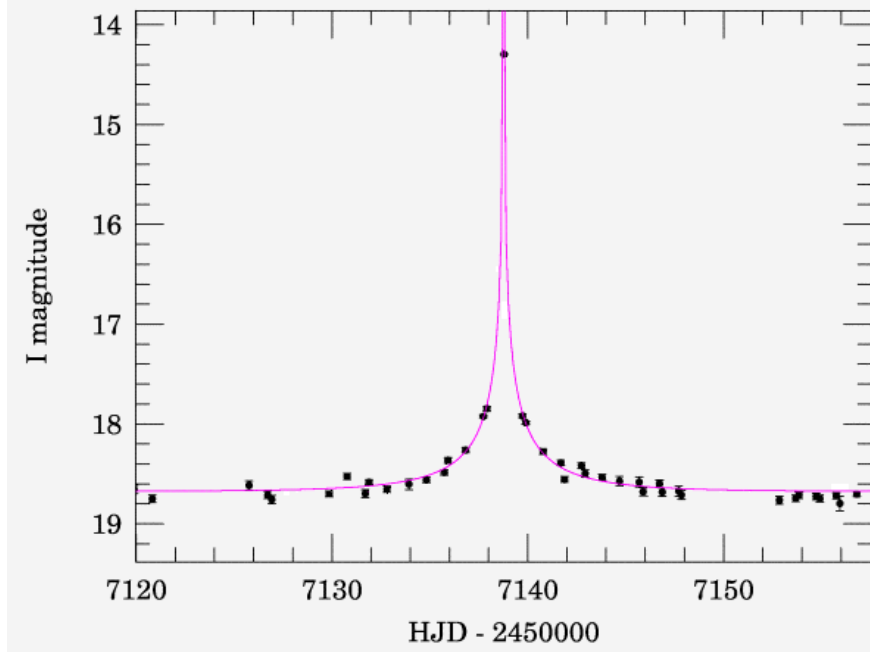
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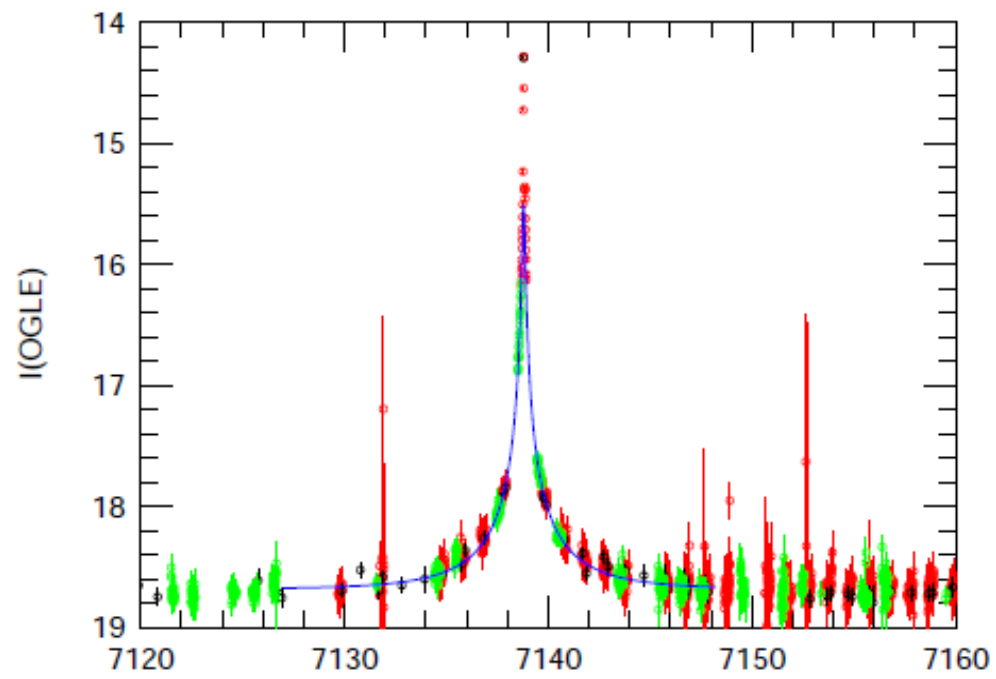
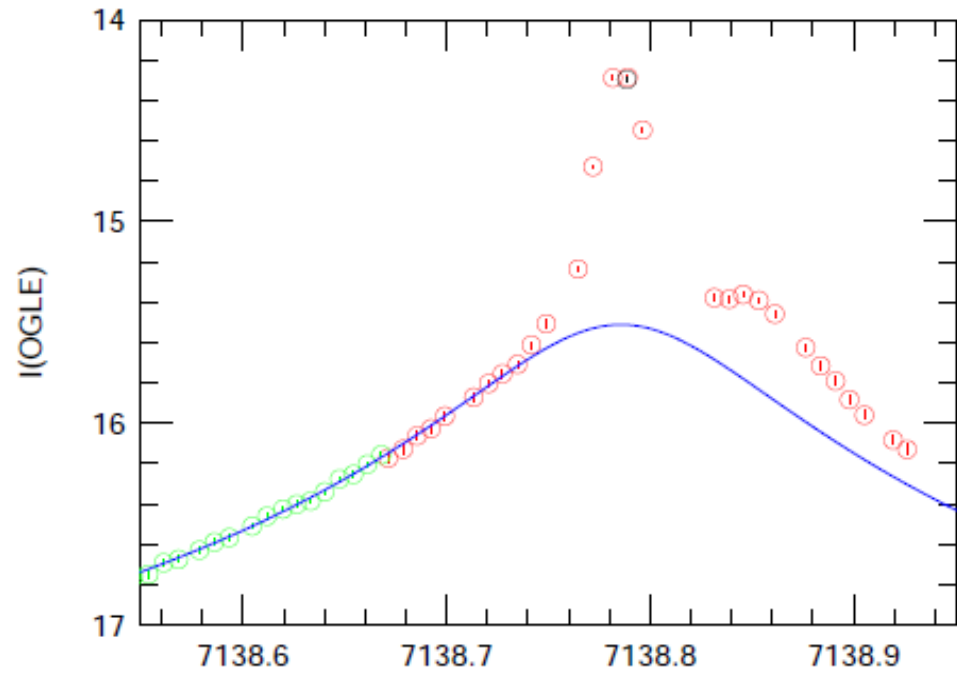


2201 18.73 0.09

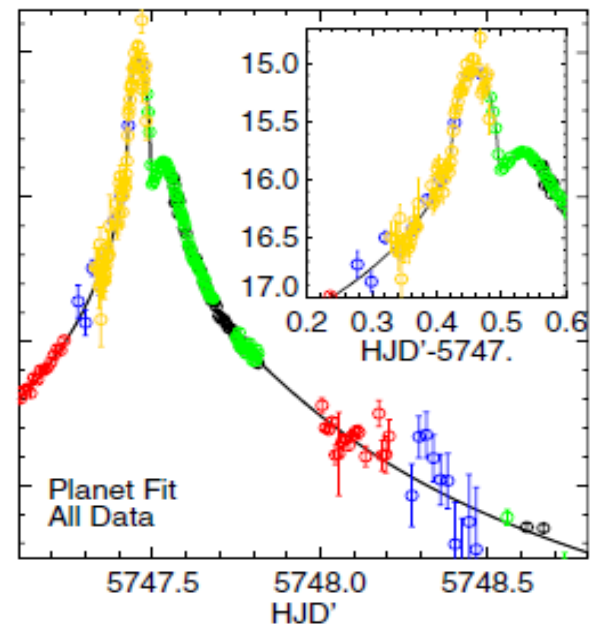
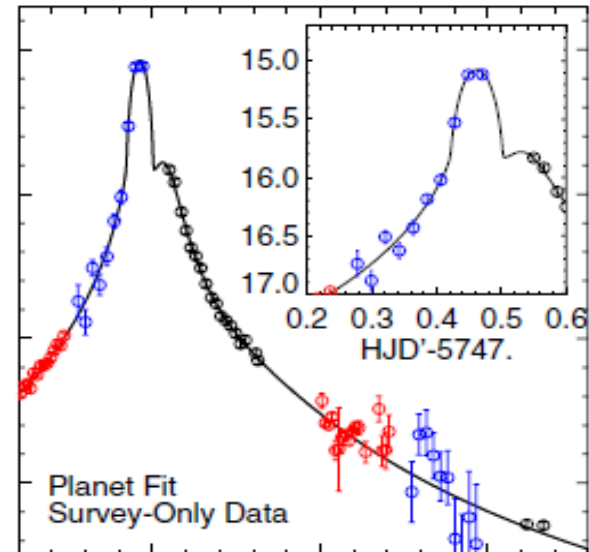
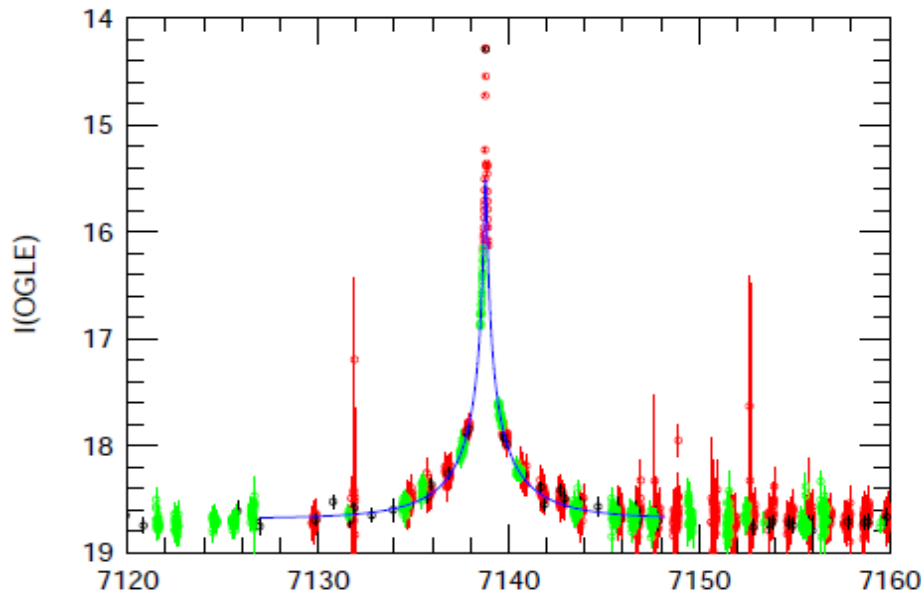
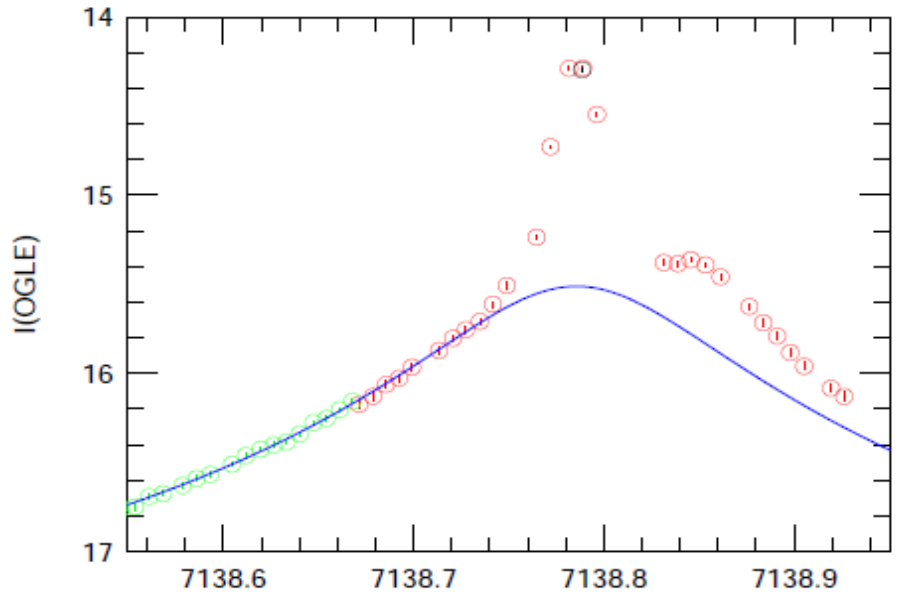


OGLE-2015-BLG-0797





Similar to MOA-2011-BLG-293

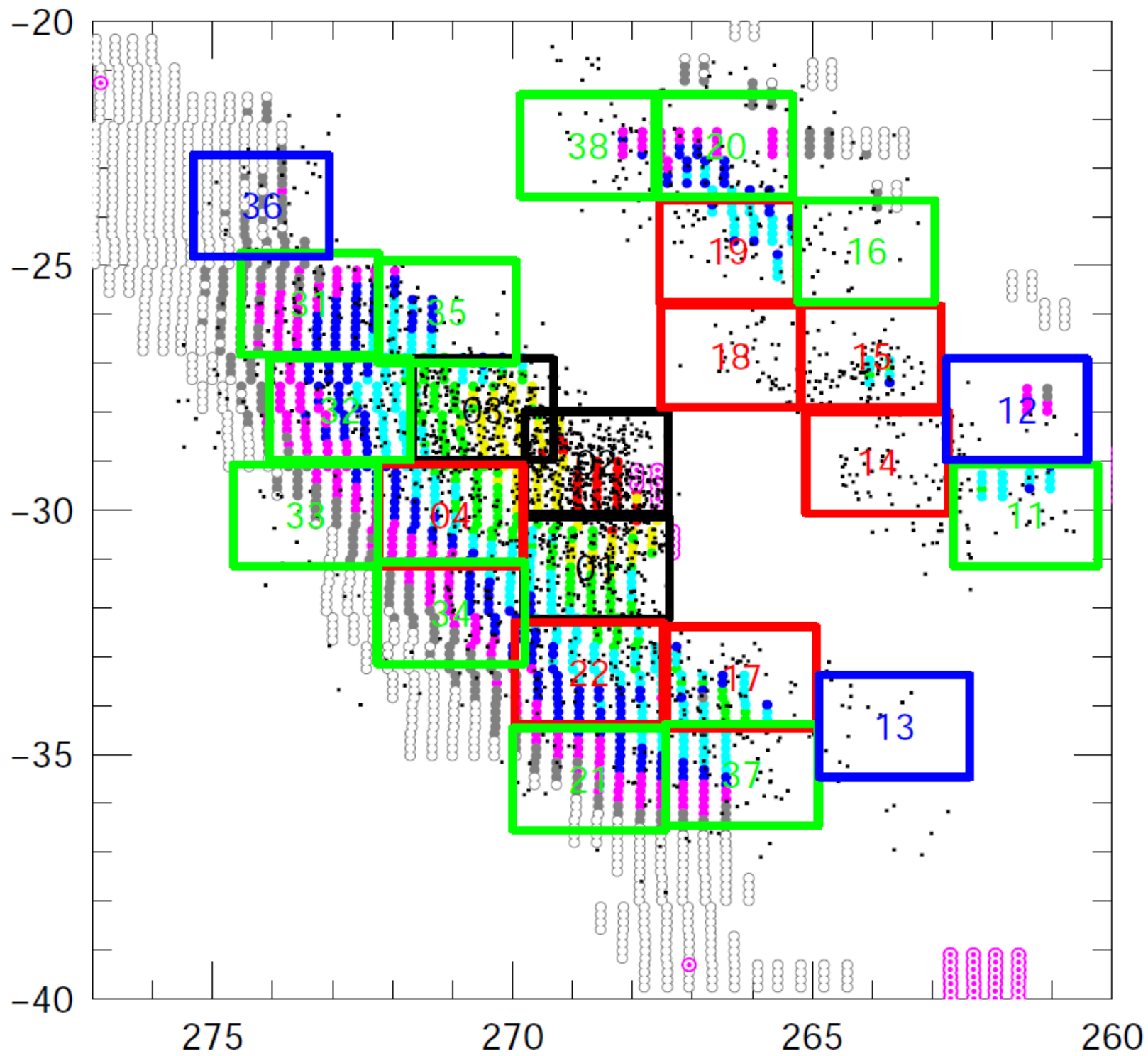


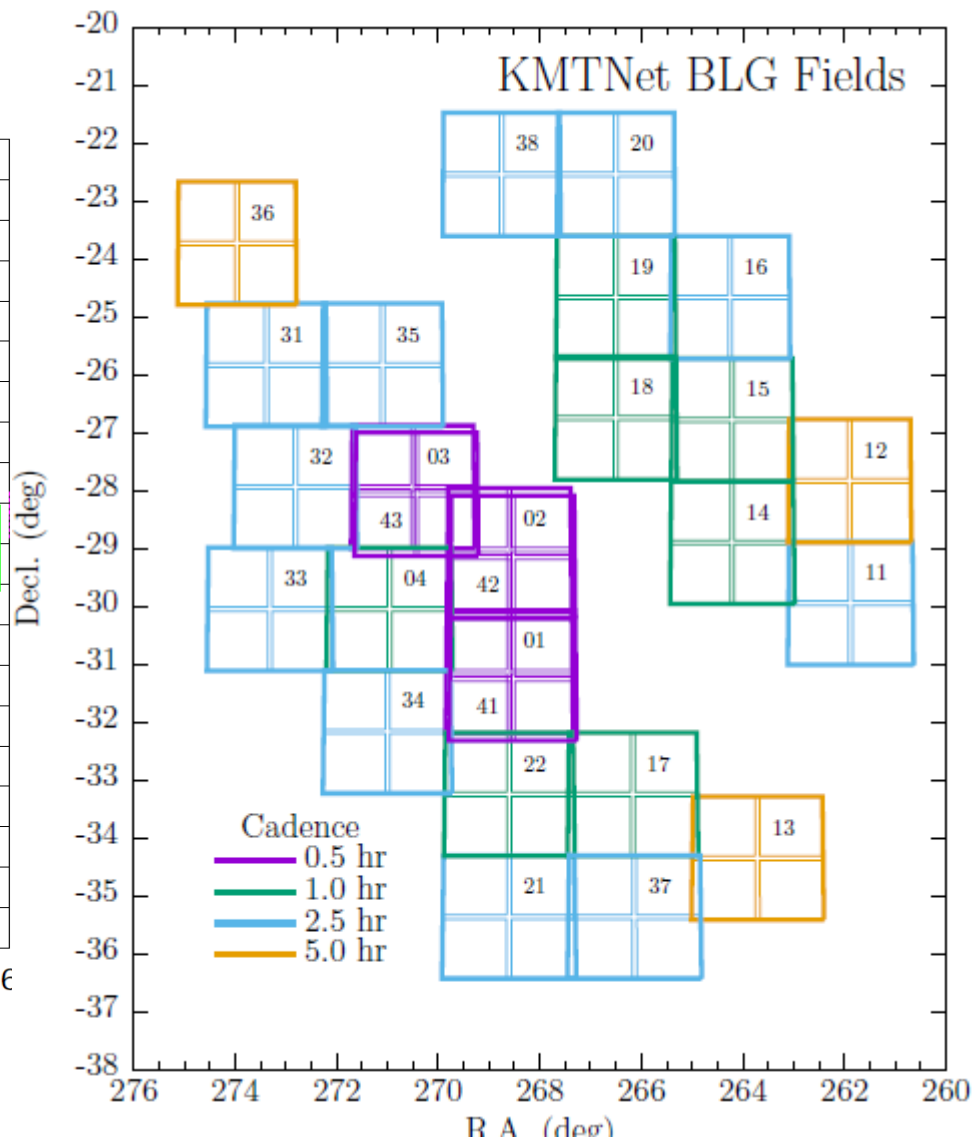
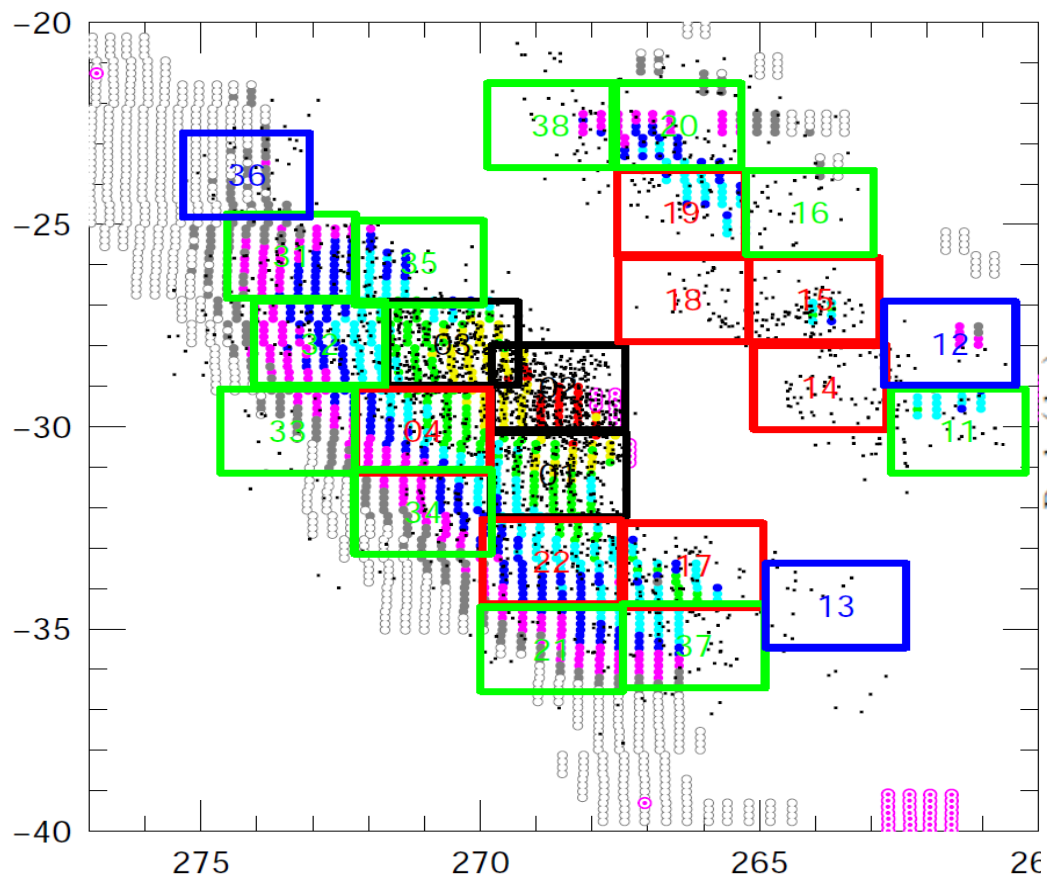
Pipeline/Event-Finder Tasks

- 1) Run Event-Finder on 2015 prime fields

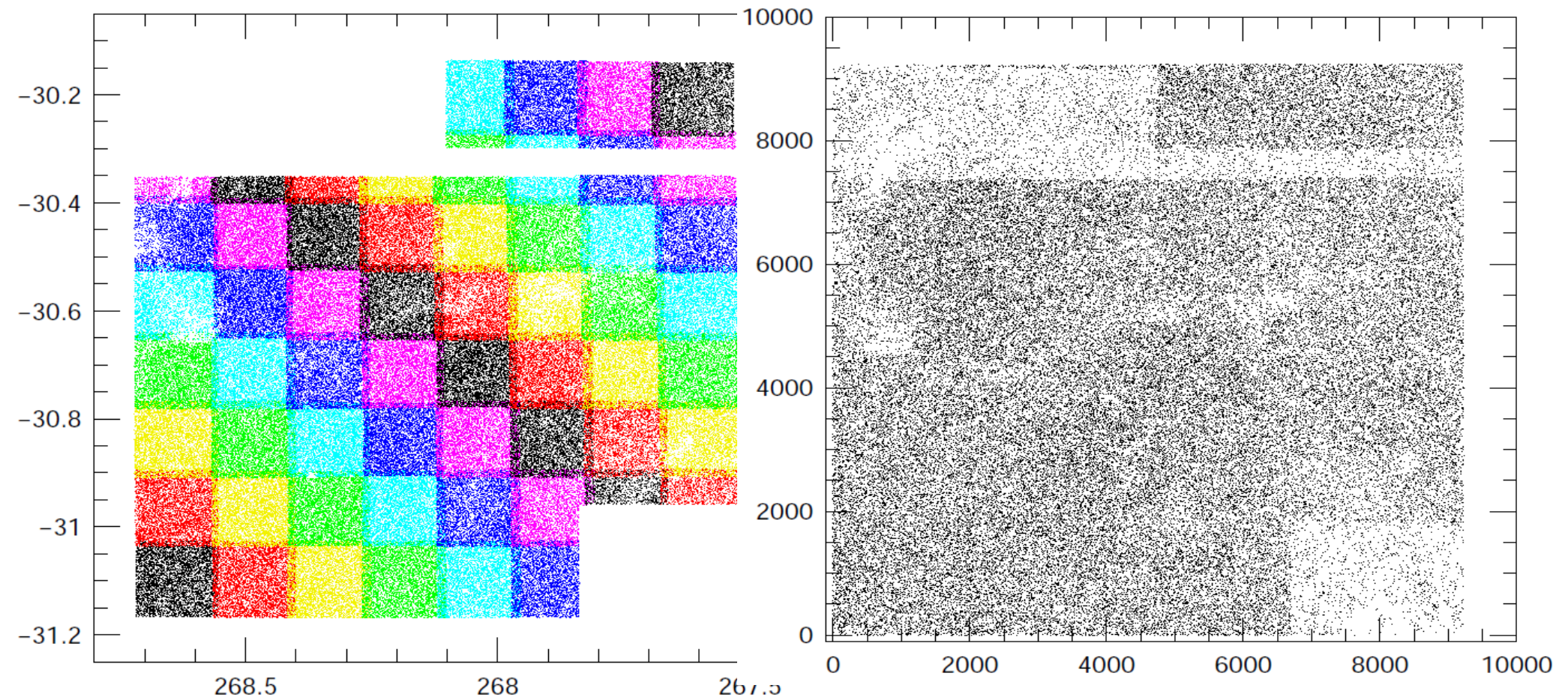
Pipeline/Event-Finder Tasks

- 1) Run Event-Finder on 2015 prime fields
- 2) Make Star Catalogs for 2016+ fields

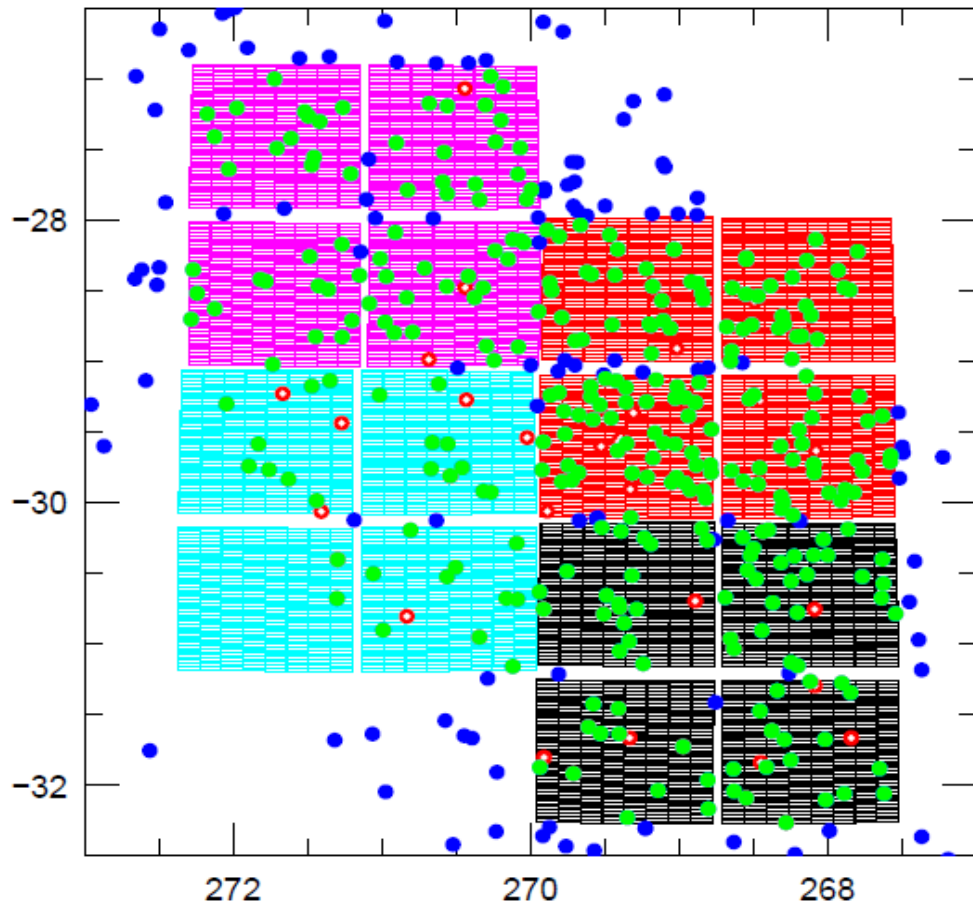


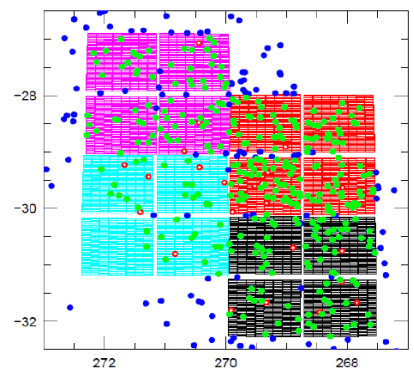
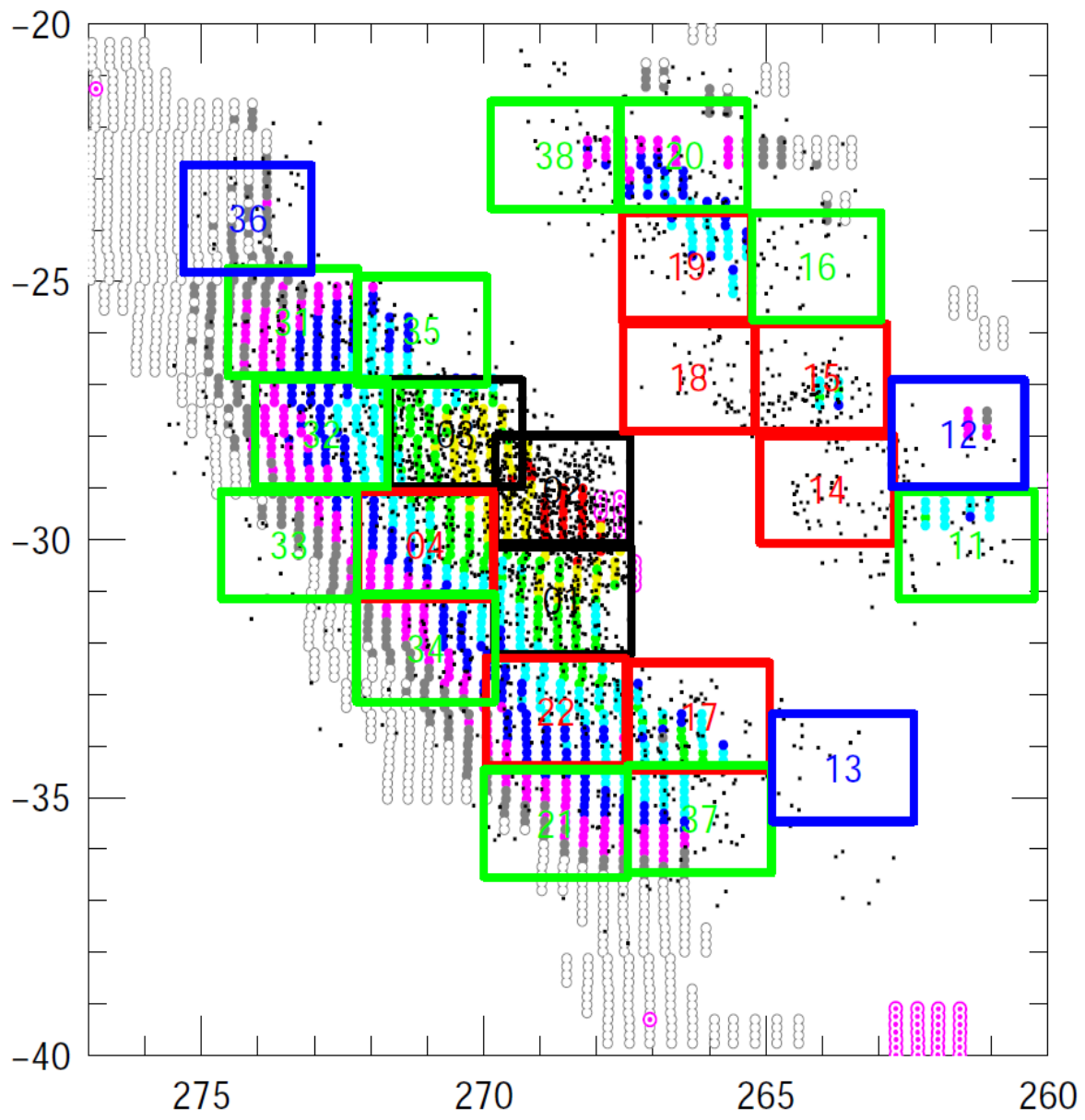


KMT BLG01K



4 Main KMT Fields (2015)





Pipeline/Event-Finder Tasks

- 1) Run Event-Finder on 2015 prime fields
- 2) Make Star Catalogs for 2016+ fields
- 3) Adapt Event-Finder to 2016 conditions

Pipeline/Event-Finder Tasks

- 1) Run Event-Finder on 2015 prime fields
- 2) Make Star Catalogs for 2016+ fields
- 3) Adapt Event-Finder to 2016 conditions
 - Simultaneous fits to e.g. BLG02 & BLG42

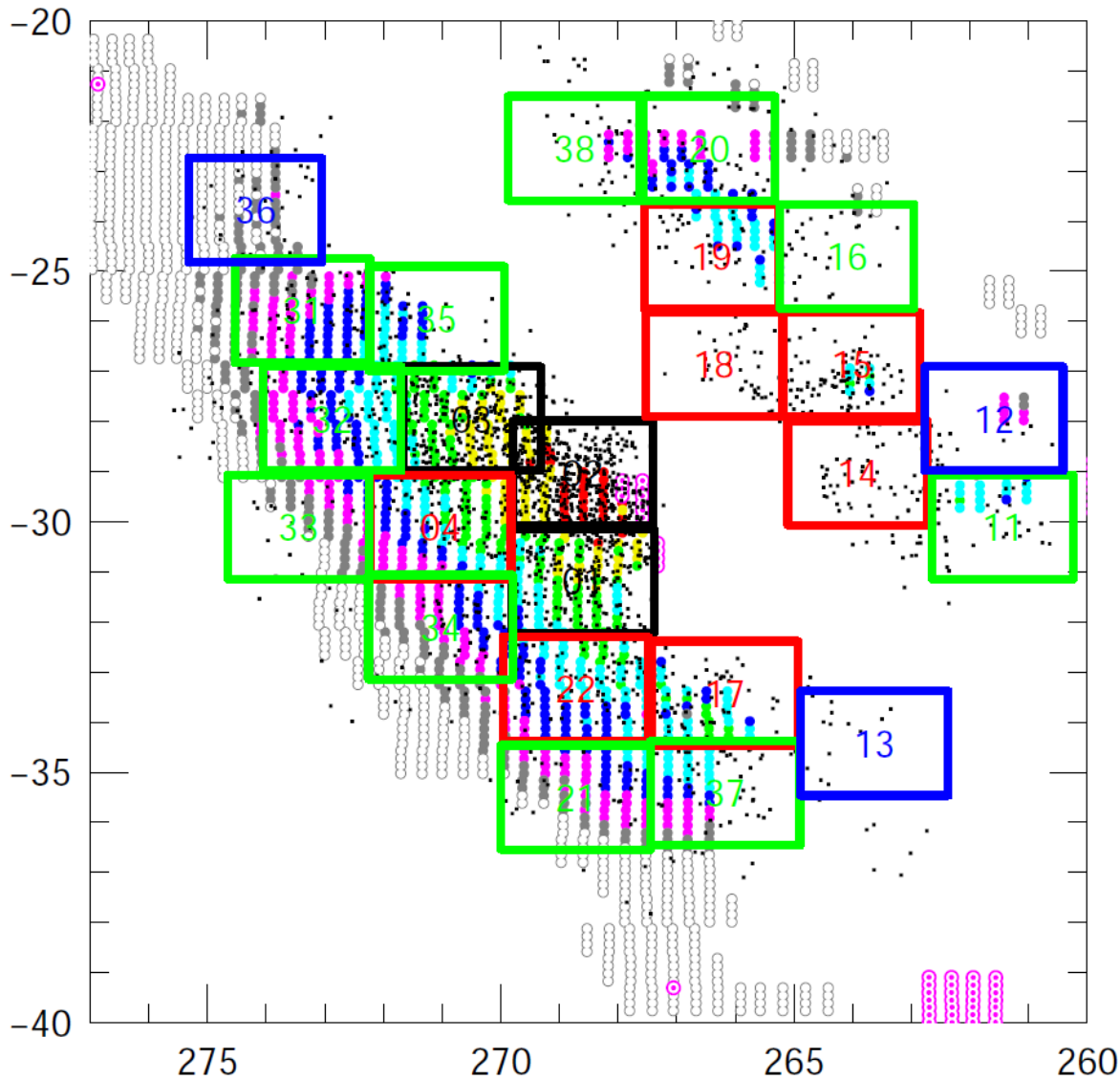
Pipeline/Event-Finder Tasks

- 1) Run Event-Finder on 2015 prime fields
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Pipeline/Event-Finder Tasks

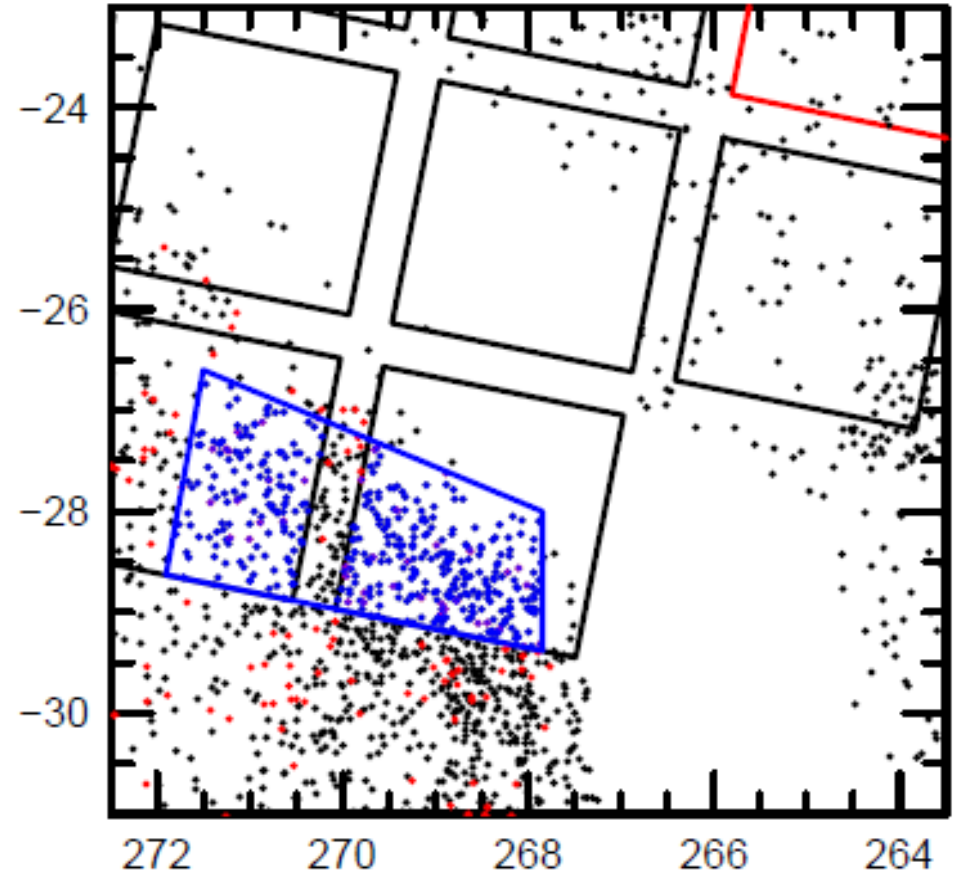
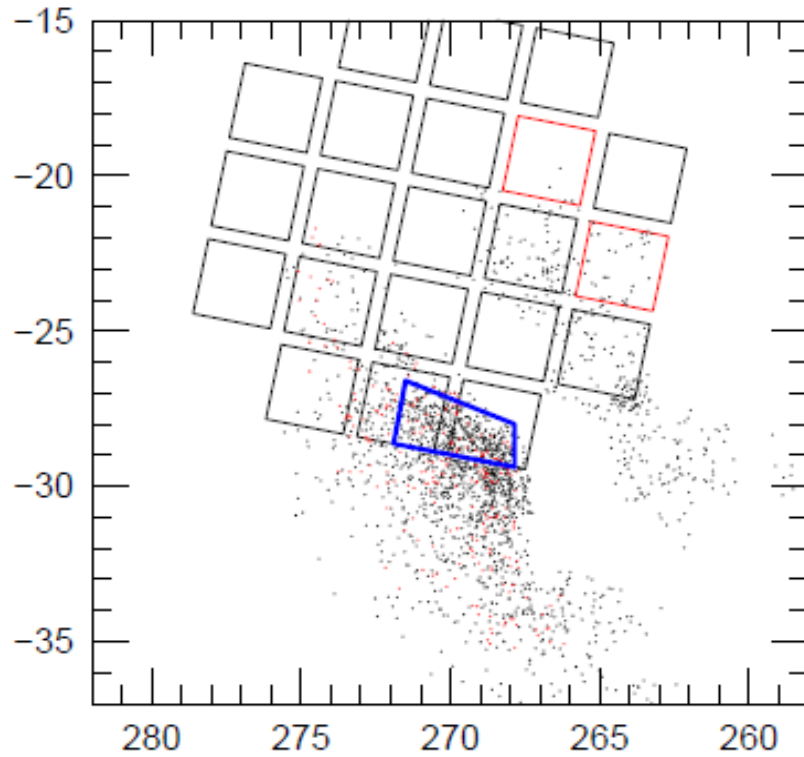
- 1) Run Event-Finder on 2015 prime fields
- 2) Make Star Catalogs for 2016+ fields
- 3) Adapt Event-Finder to 2016 conditions
 - Simultaneous fits to e.g. BLG02 & BLG42
 - Simultaneous fits to CTIO, SAAO, SSO data
 - Run Event Finder on all 24(+3) fields

2016 (except K2)



- 3 flds 0.25 hr
- 7 flds 1.00 hr
- 11 flds 2.50 hr
- 3 flds 5.00 hr

Proposal: K2 Field9 5.3 Mpxl

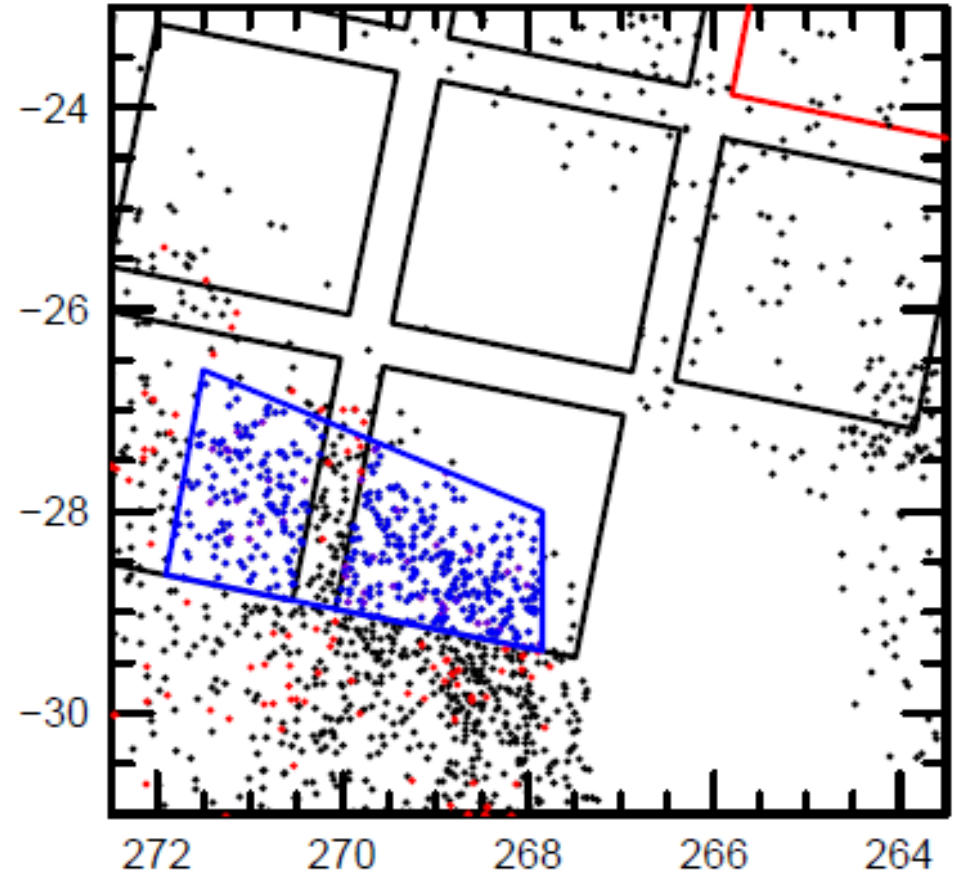
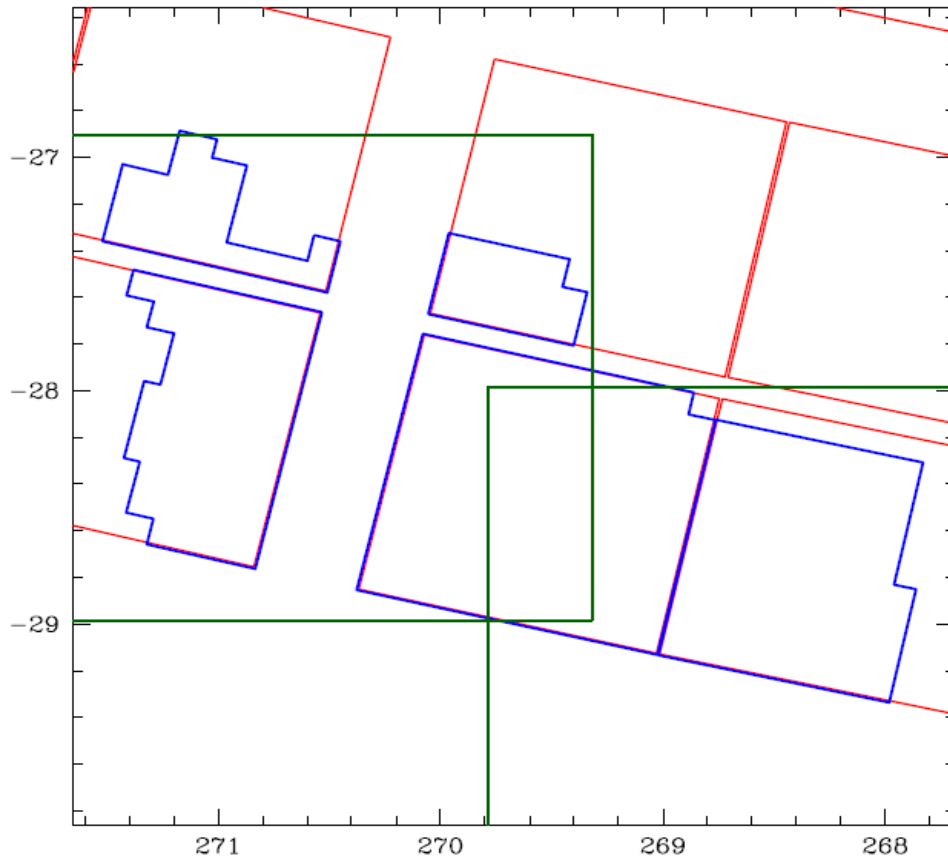


Gould, Horne, Street 2014, K2 White Paper

KMTNet BLG02 & BLG03

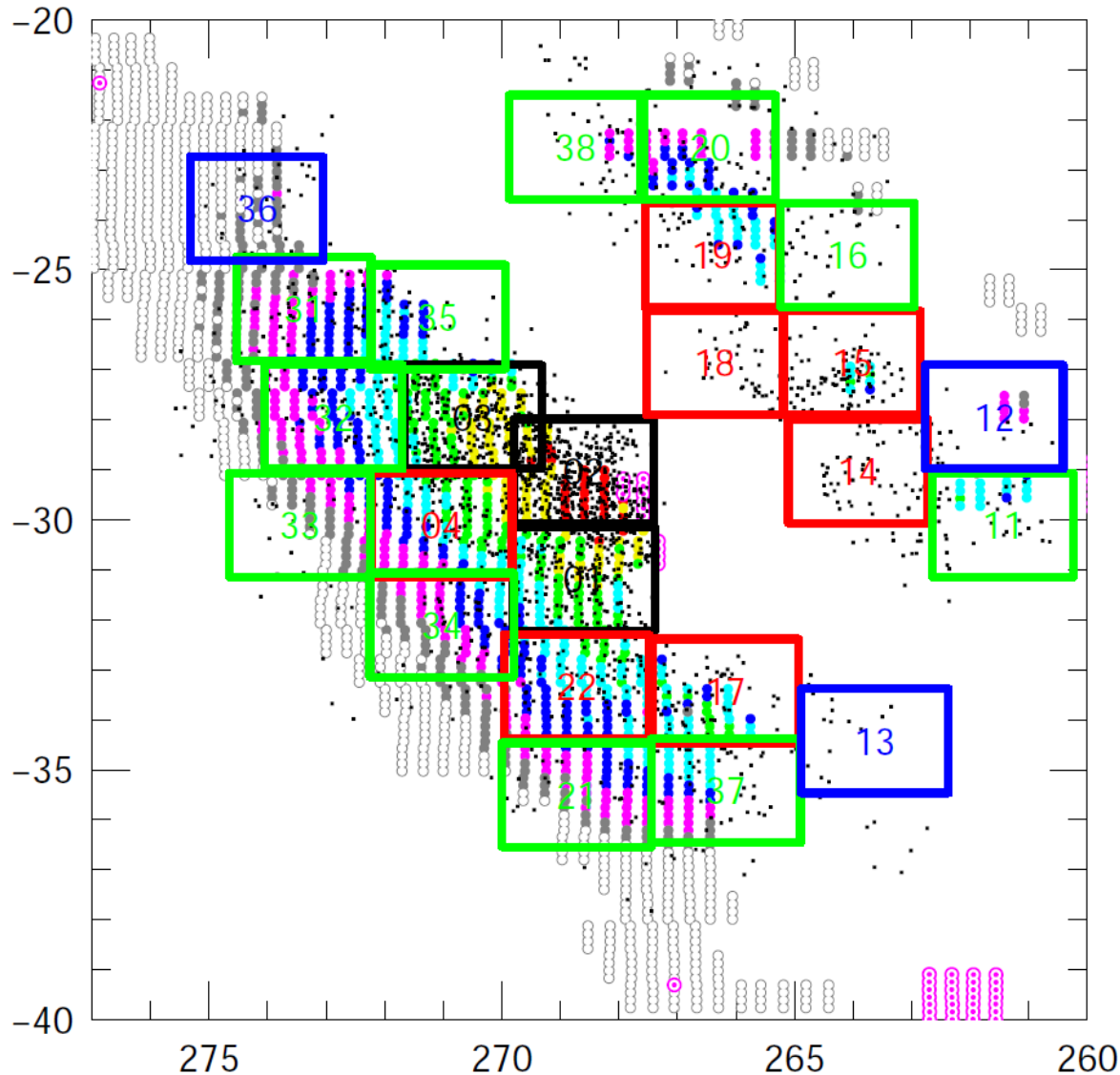
Adopted Pixels

K2 Chips



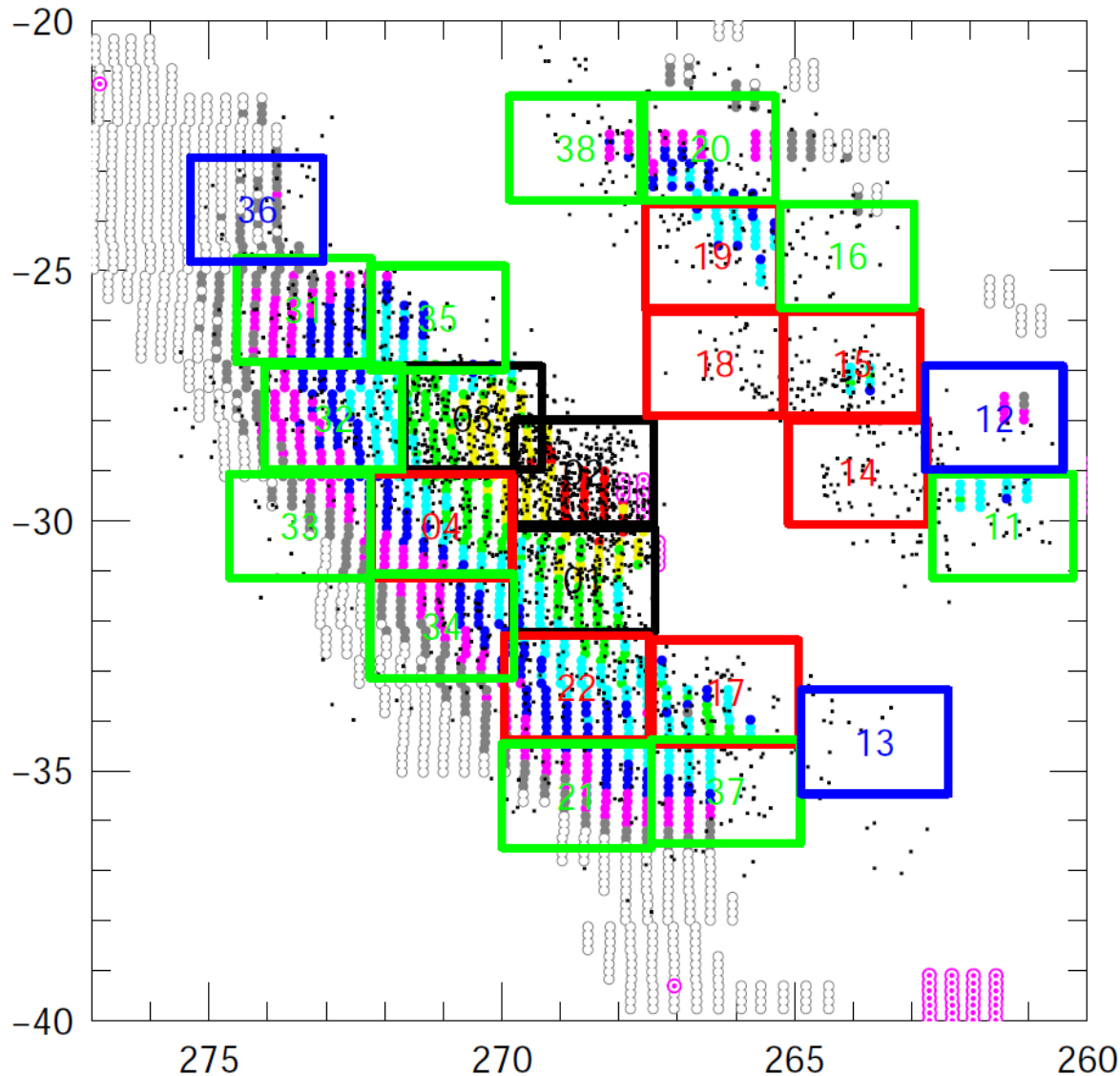
Courtesy of Radek Poleski

2016 (K2 only)



- SAAO + SSO
- 2 flds 0.17 hr
- 1 fld 0.33 hr
- 7 flds 1.33 hr
- 11 flds 3.33 hr
- 3 flds 6.67 hr
- CTIO
- 3 flds 0.25 hr
- 7 flds 1.00 hr
- 11 flds 2.50 hr
- 3 flds 5.00 hr

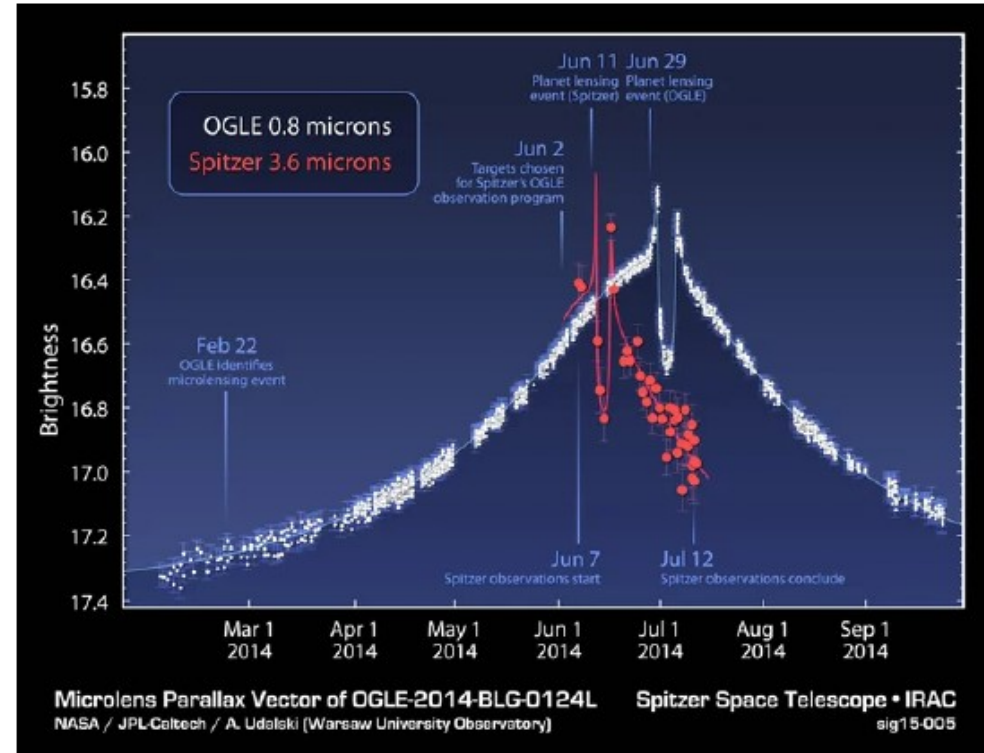
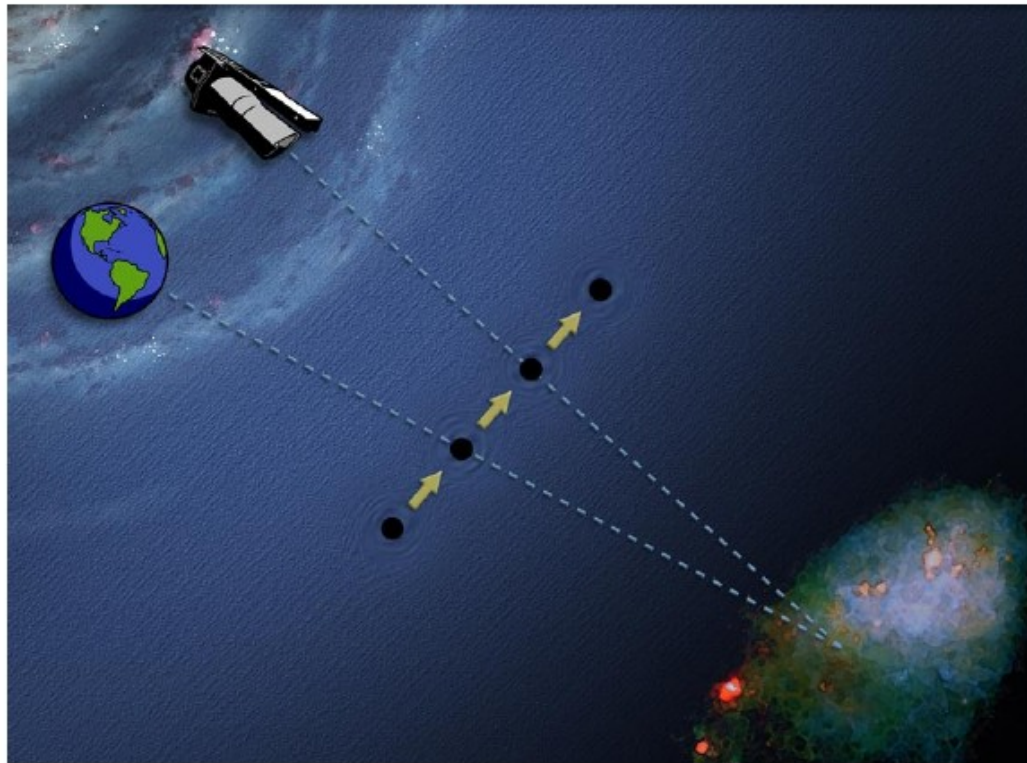
2017 (except Spitzer)



- SAAO + SSO
- 2 flds 0.17 hr
- 1 fld 0.33 hr
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- 11 flds 2.50 hr
- 3 flds 5.00 hr

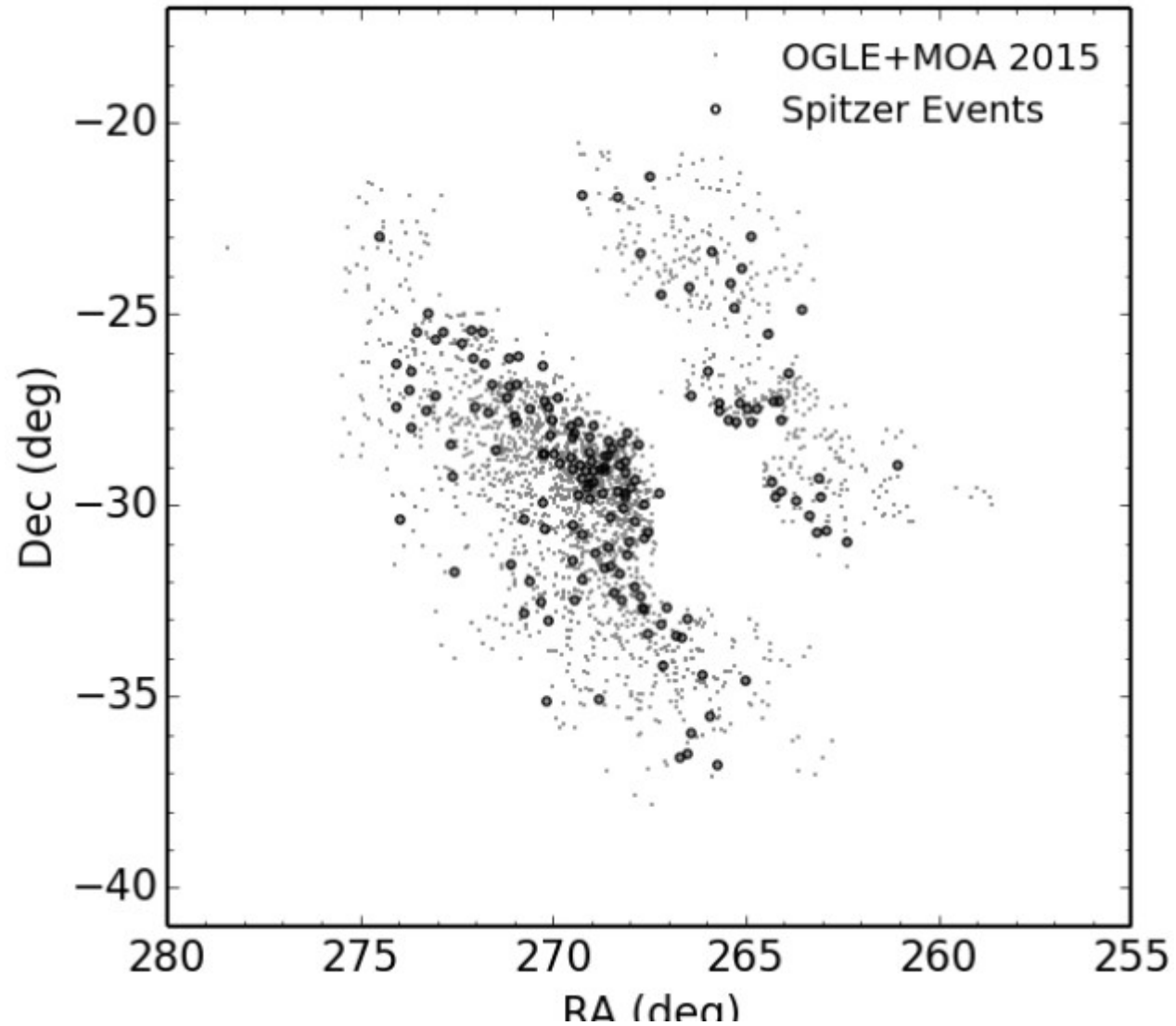
Spitzer Microlensing



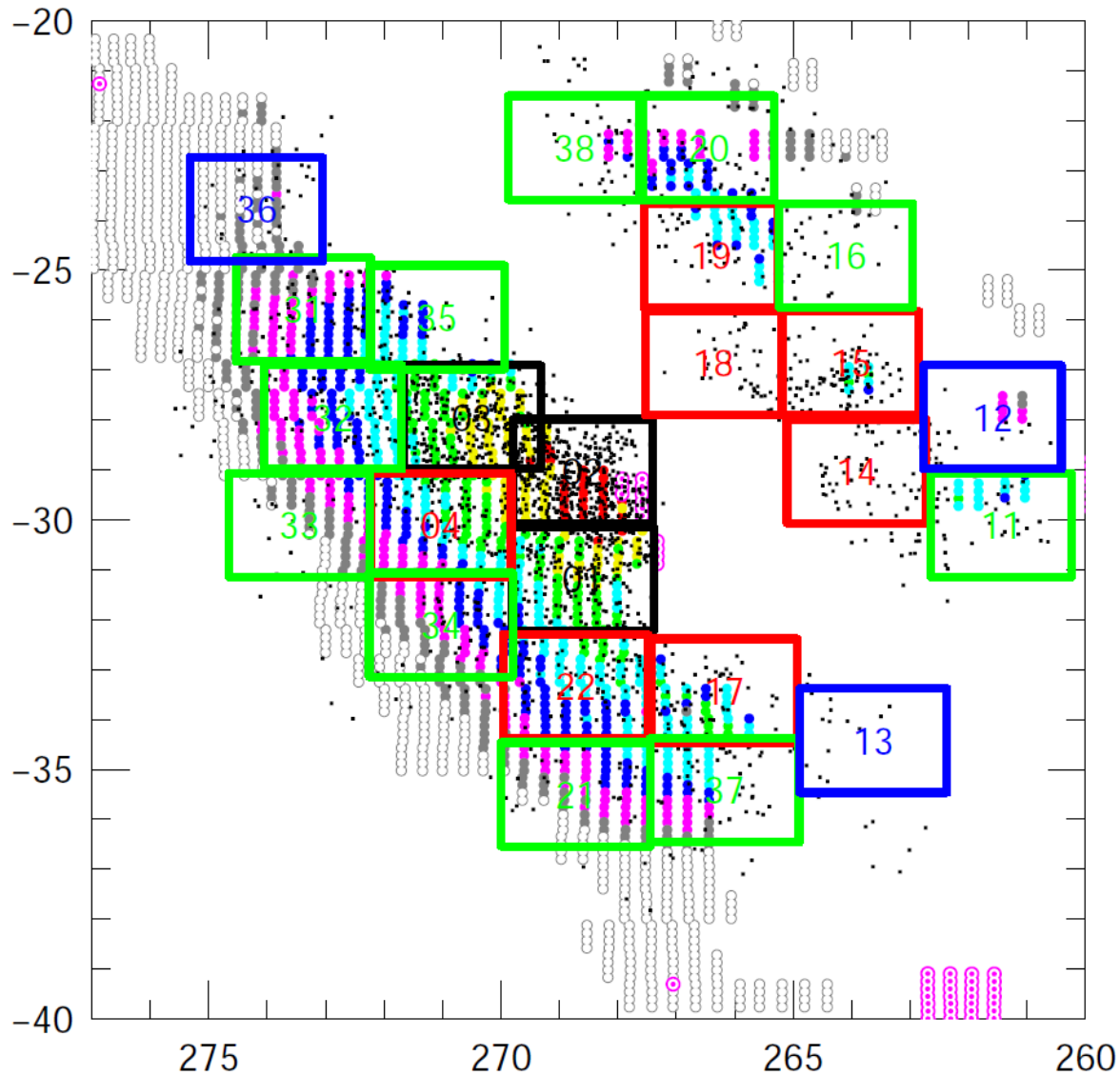
Dong et al., 2007, ApJ, 664, 862

Udalski et al., 2015, ApJ, 799, 237

Spitzer Microlensing



2017 (Spitzer only)



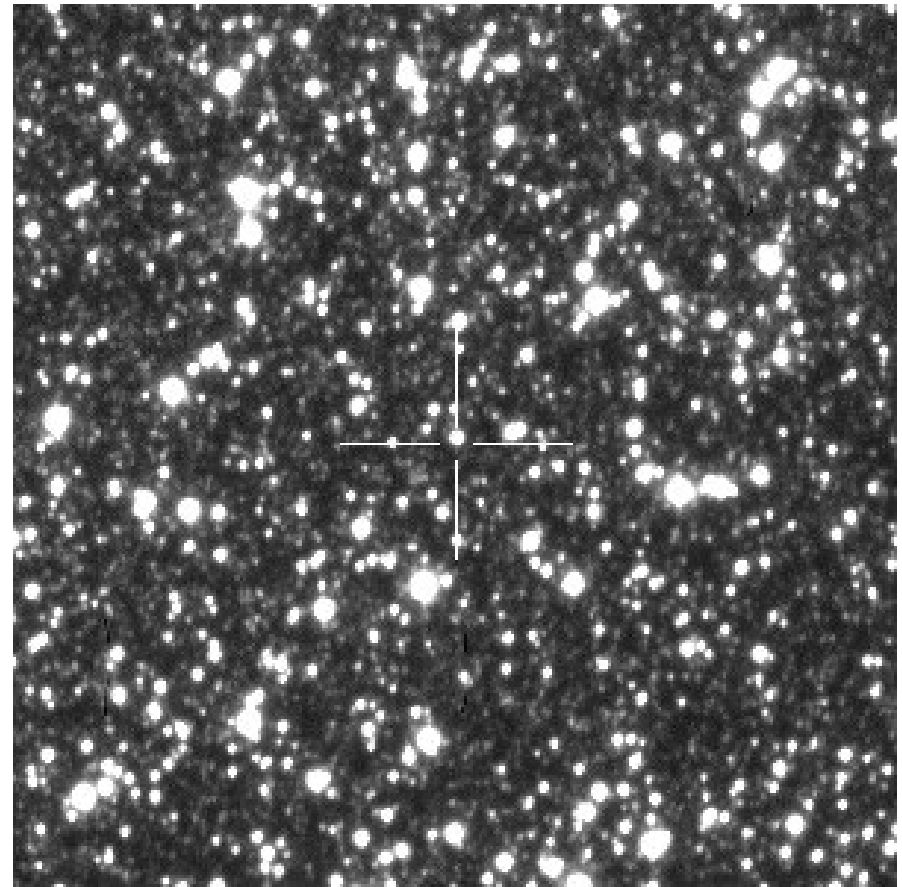
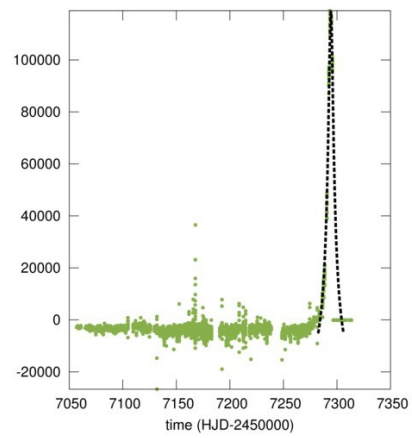
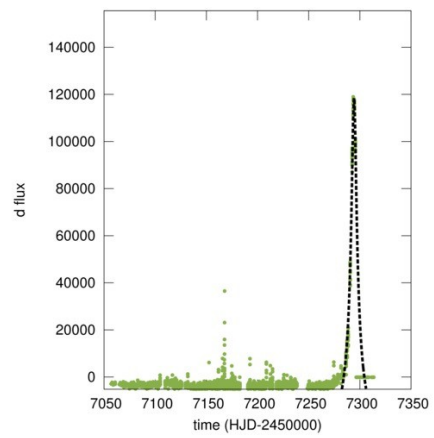
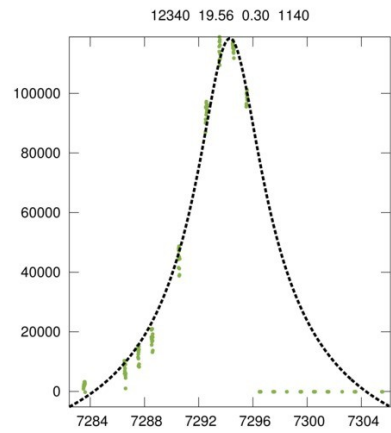
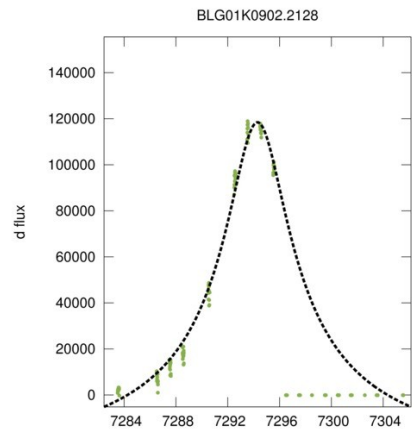
- 3 flds 0.25 hr
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- 3 flds 5.00 hr

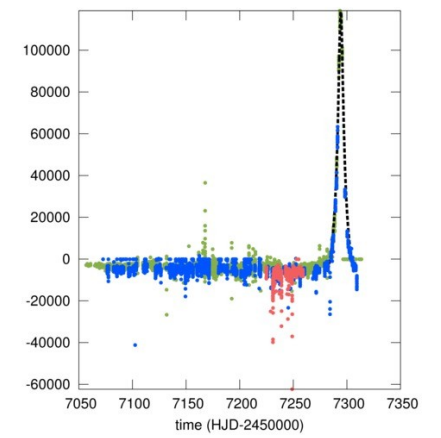
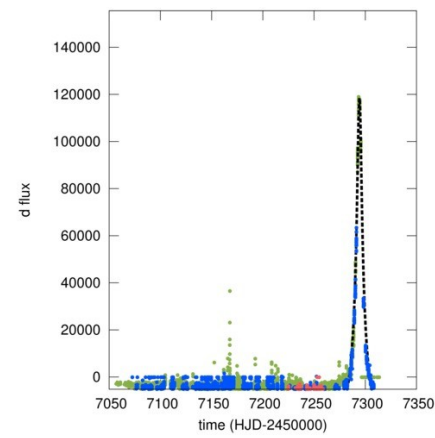
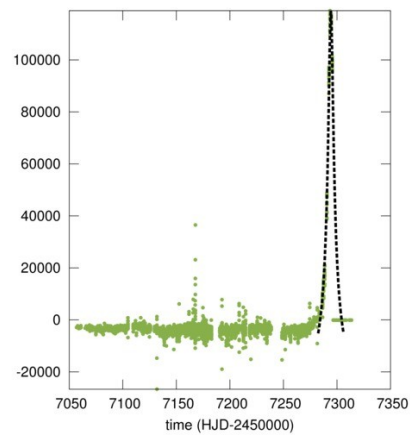
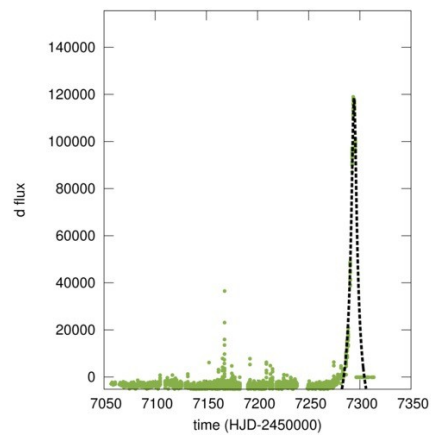
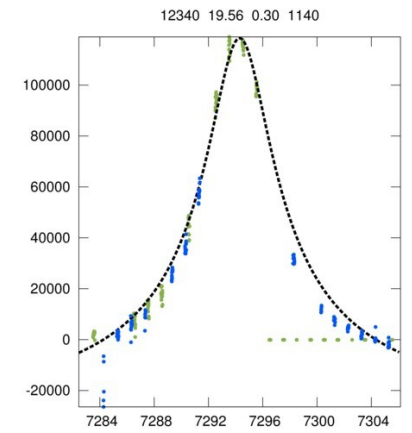
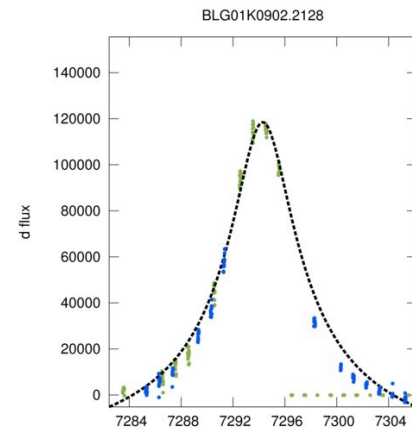
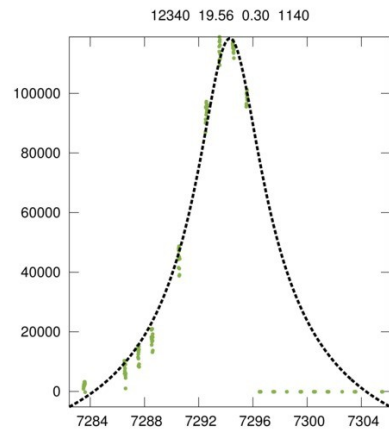
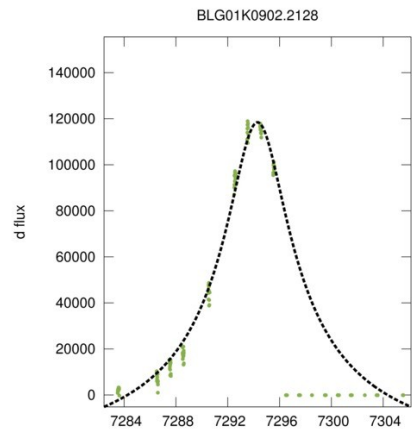
V band

- 2015
 - CTIO (1/6)
- 2016
 - CTIO (1/11), SAAO (1/21)
- 2017
 - CTIO (1/11), SAAO (1/21), SSO (1/21)?

DATA POLICY: 2015

- Journal Paper: Event-Finder + Light Curves





DATA POLICY: 2015

- Journal Paper: Event-Finder + Light Curves
- Modeling can start immediately, but ...

DATA POLICY: 2015

- Journal Paper: Event-Finder + Light Curves
- Modeling can start immediately, but
- Data remain proprietary until ...
 - Event Finder Paper is accepted
 - All KMTNet Team Papers 2015-event papers that it references are accepted

DATA POLICY: 2015

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- Modeling can start immediately, but
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- Mass produced DIA/Pysis Lightcurves
 - Completely unrestricted use

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- Images available for work nearing publication

DATA POLICY: 2016

DATA POLICY: 2016

- Same Principles

DATA POLICY: 2016

- Same Principles
- Details Not Yet Worked Out

DATA POLICY: 2016

I: K2 (tentative)

- Journal Paper, Event-Finder + Light Curves

DATA POLICY: 2016

I: K2 (tentative)

- Journal Paper, Event-Finder + Light Curves
- Full immediate access to KMTNet events

DATA POLICY: 2016

I: K2 (tentative)

- Journal Paper, Event-Finder + Light Curves
- Full immediate access to KMTNet events
 - No “wait time” for acceptance

DATA POLICY: 2016

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- Journal Paper, Event-Finder + Light Curves
- Full immediate access to KMTNet events
- Strongly Encourage KMTNet co-authorship

DATA POLICY: 2016

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- Post Light Curves for non-KMTNet (OGLE/MOA) events, but ...

DATA POLICY: 2016

I: K2 (tentative)

- Journal Paper, Event-Finder + Light Curves
- Full immediate access to KMTNet events
- Strongly Encourage KMTNet co-authorship
- Post Light Curves for non-KMTNet (OGLE/MOA) events, but
- Permission from OGLE/MOA required to use these KMTNet data

DATA POLICY: 2016

II: non-K2 (tentative)

DATA POLICY: 2016

II: non-K2 (tentative)

- Same as 2015, except ...

DATA POLICY: 2016

II: non-K2 (tentative)

- Same as 2015, except
- Hopefully faster turnaround

DATA POLICY: 2017+

(tentative)

DATA POLICY: 2017+ (tentative)

- Same as 2015/2016, except

DATA POLICY: 2017+ (tentative)

- Same as 2015/2016, except
- Target: post light curves by Apr 1 of next year

Conclusions

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