

KIC 004833421

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
004833421-01	OBS	0232.01	12.466004	134.003344	2247.0	5.151	236.8	237.0	1.19	6038	5.97	153.03
004833421-02	OBS	0232.02	5.766147	134.019138	354.5	3.925	47.7	54.1	1.19	6038	2.52	427.79
004833421-03	OBS	0232.04	37.994464	162.998628	352.7	8.148	24.7	25.5	1.19	6038	2.79	34.63
004833421-04	OBS	0232.03	21.587152	142.981948	296.5	4.897	22.4	24.4	1.19	6038	2.28	73.59
004833421-05	OBS	0232.05	56.260588	164.194664	325.6	8.461	20.4	22.6	1.19	6038	2.34	20.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004833421-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

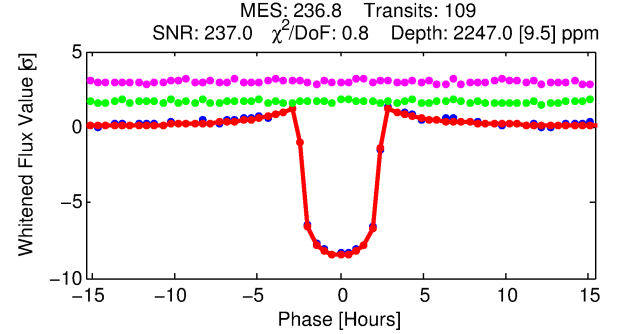
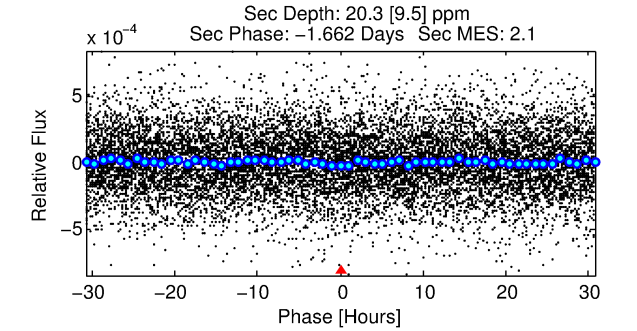
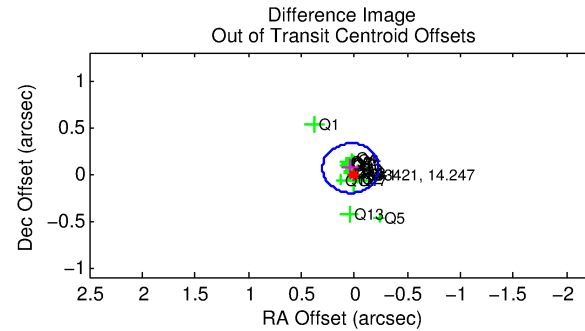
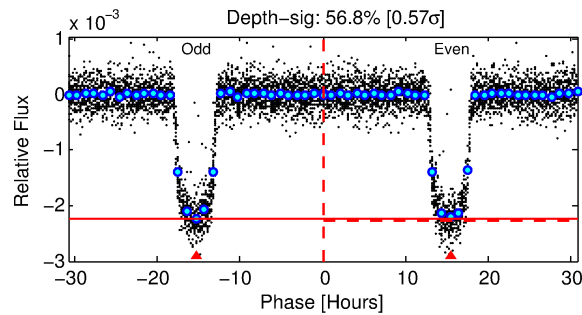
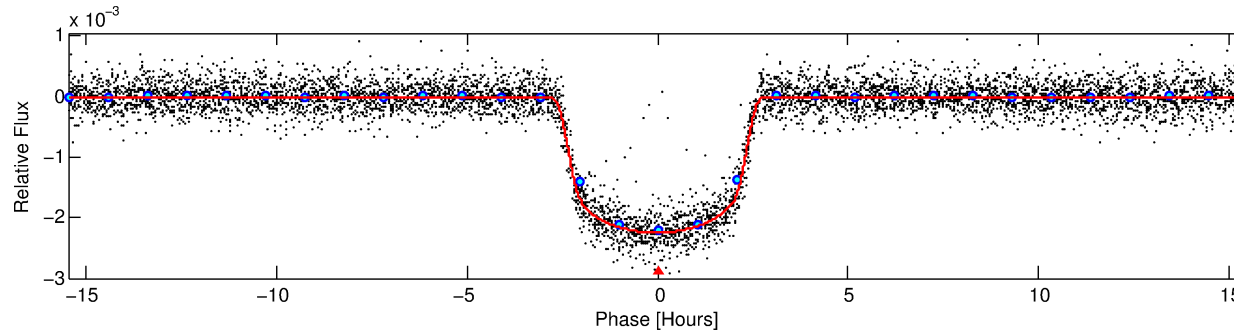
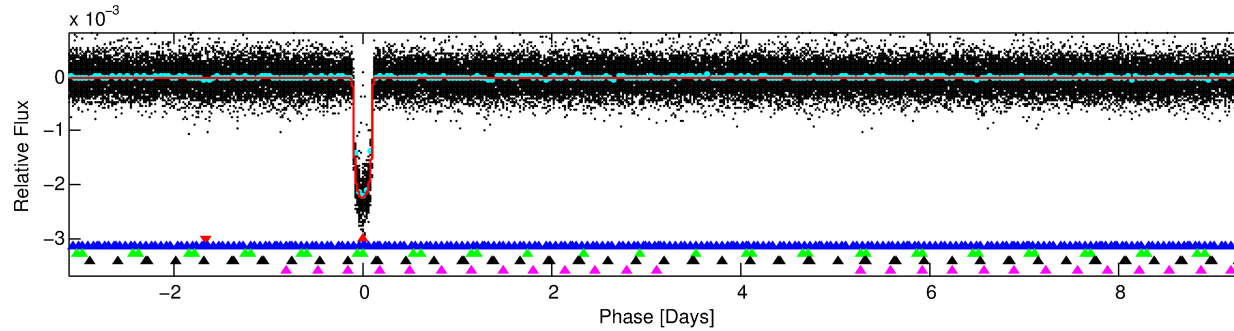
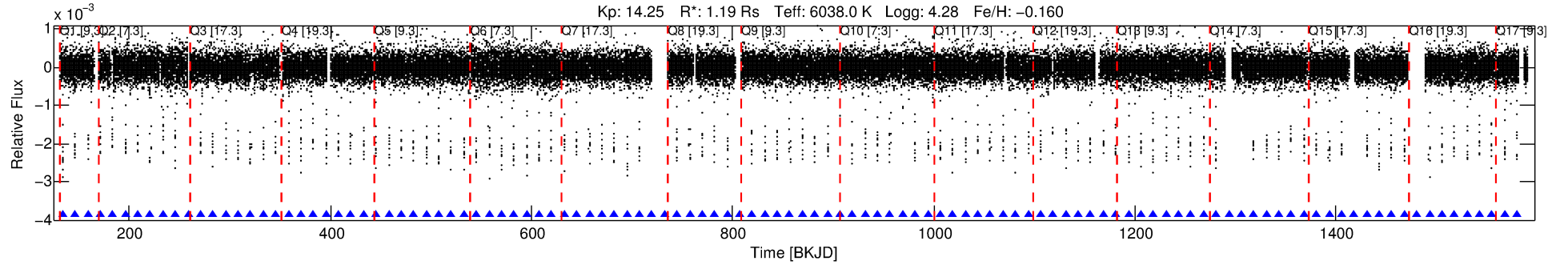
Ephemeris Match Information For 004833421-01

No Significant Match Found

DV One-Page Summary

KIC: 4833421 Candidate: 1 of 5 Period: 12.466 d
KOI: K00232.01 Name: Kepler-122c Corr: 0.990

Kp: 14.25 R*: 1.19 Rs Teff: 6038.0 K Logg: 4.28 Fe/H: -0.160



DV Fit Results:

Period = 12.46600 [0.00001] d
Epoch = 134.0033 [0.0004] BKJD
Rp/R* = 0.0459 [0.0007]
a/R* = 15.11 [1.07]
b = 0.65 [0.06]
Seff = 153.03 [38.06]
Teff = 897 [56] K
Rp = 5.97 [0.95] Re
a = 0.1051 [0.0157] AU
Ag = 3.46 [1.82] [1.35σ]
Teffp = 1892 [225] K [4.29σ]

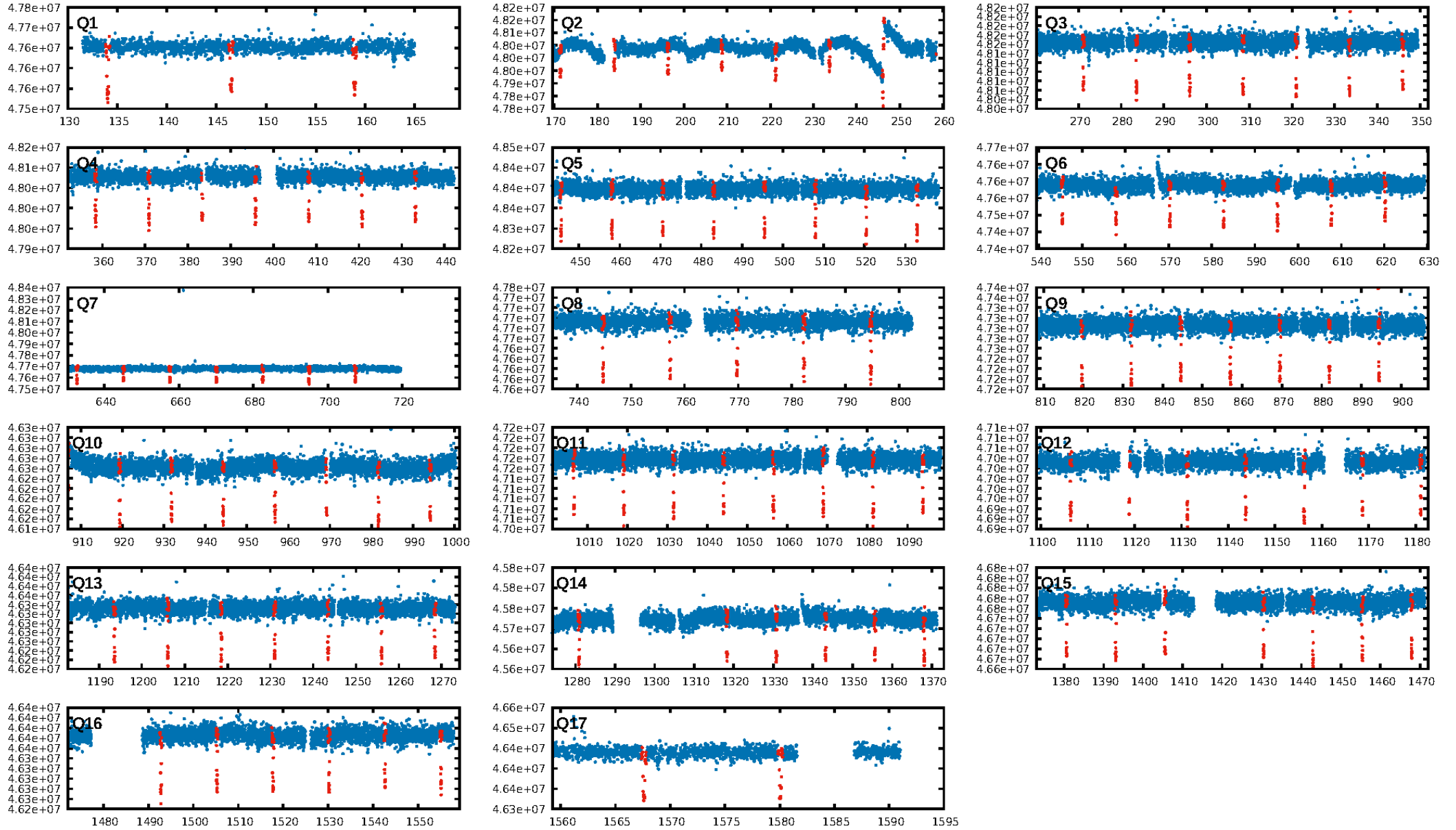
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [24.83σ]
LongPeriod-sig: 100.0% [30.80σ]
ModelChiSquare2-sig: 61.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [104/104]
GhostDiagnostic-chr: 5.697
Centroid-sig: N/A
Centroid-so: 0.180 arcsec [4.14σ]
OotOffset-rm: 0.071 arcsec [0.80σ]
KicOffset-rm: 0.048 arcsec [0.54σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

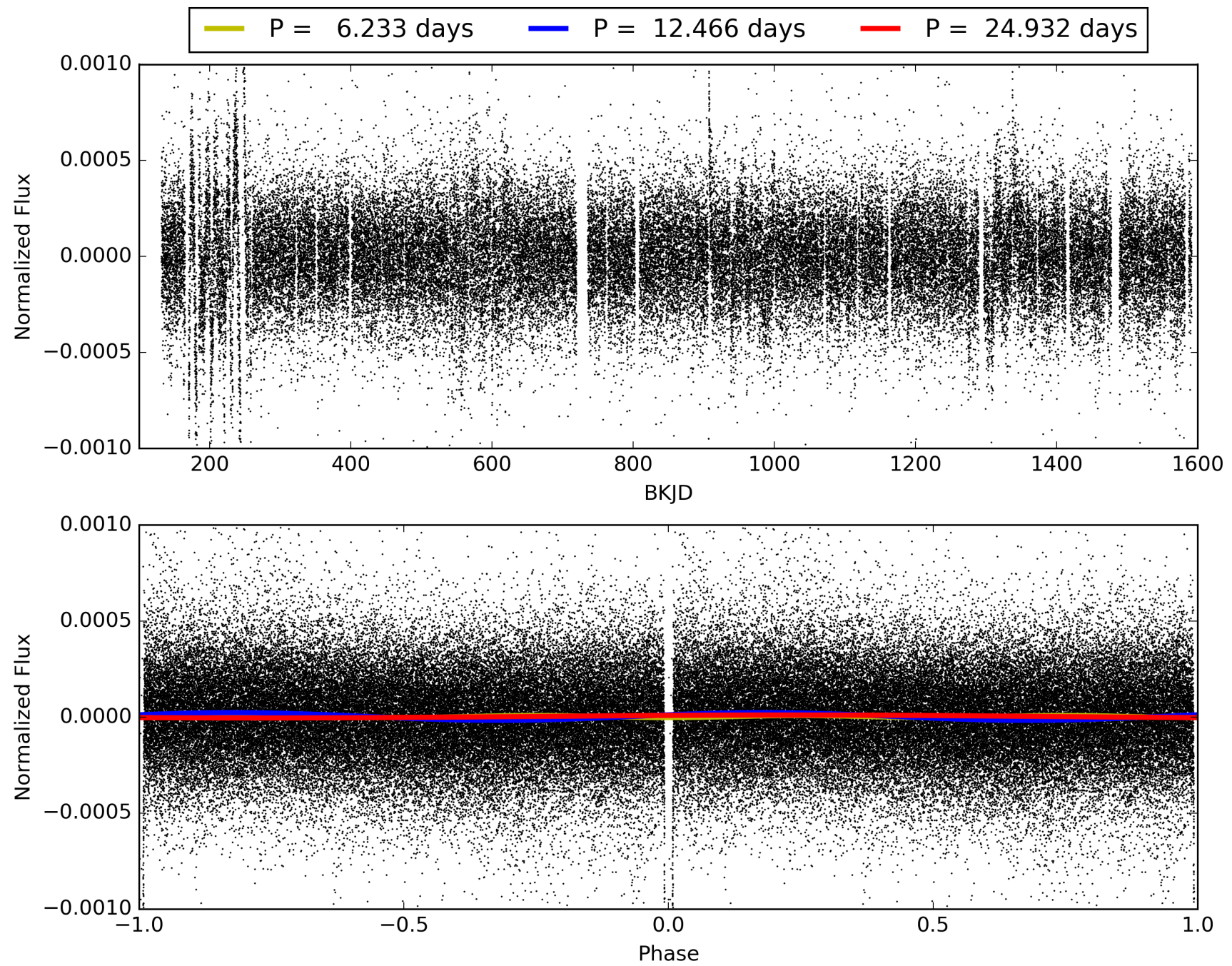
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:34:31 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004833421-01, PDC Light Curves

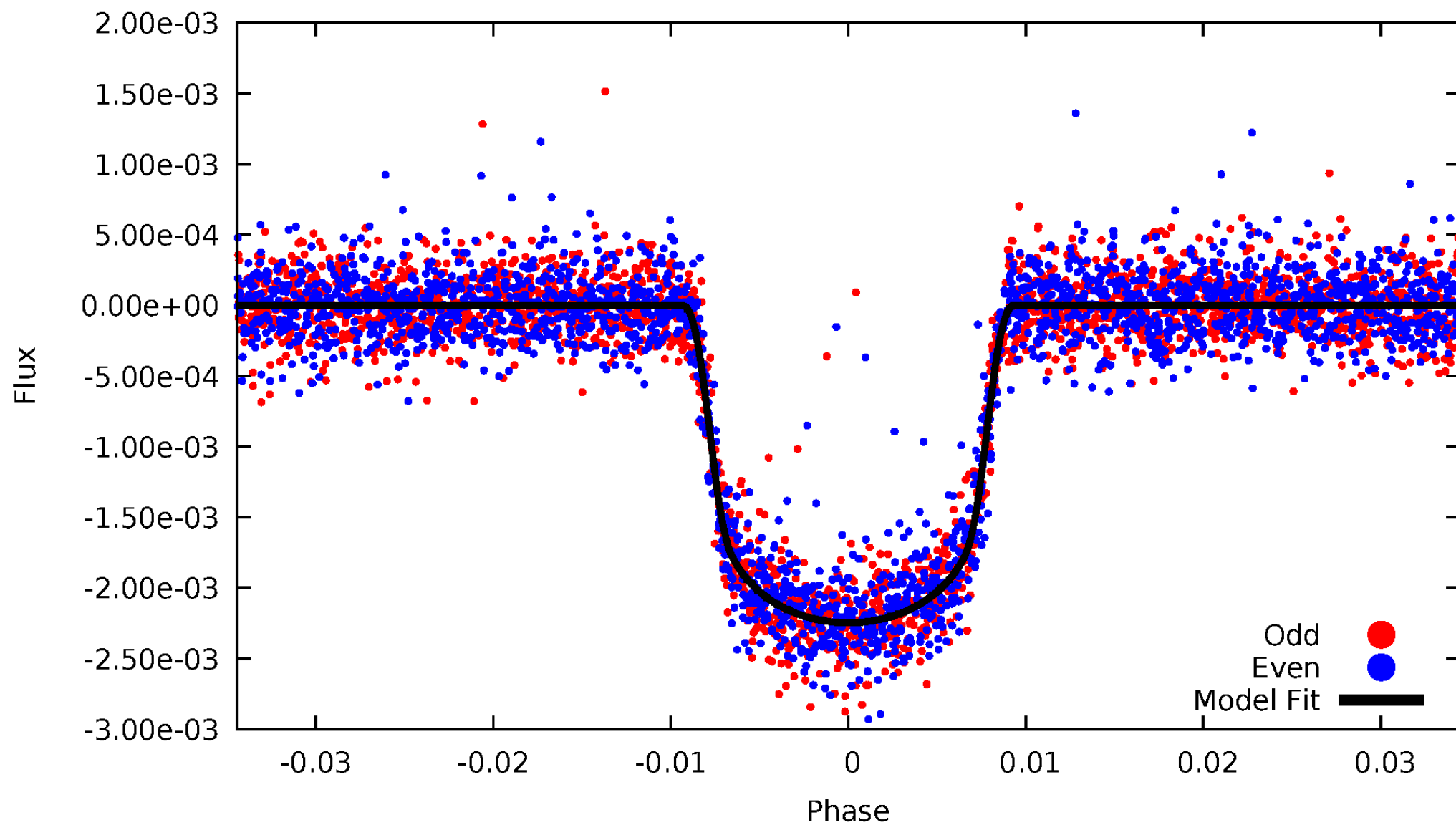


TCE 004833421-01



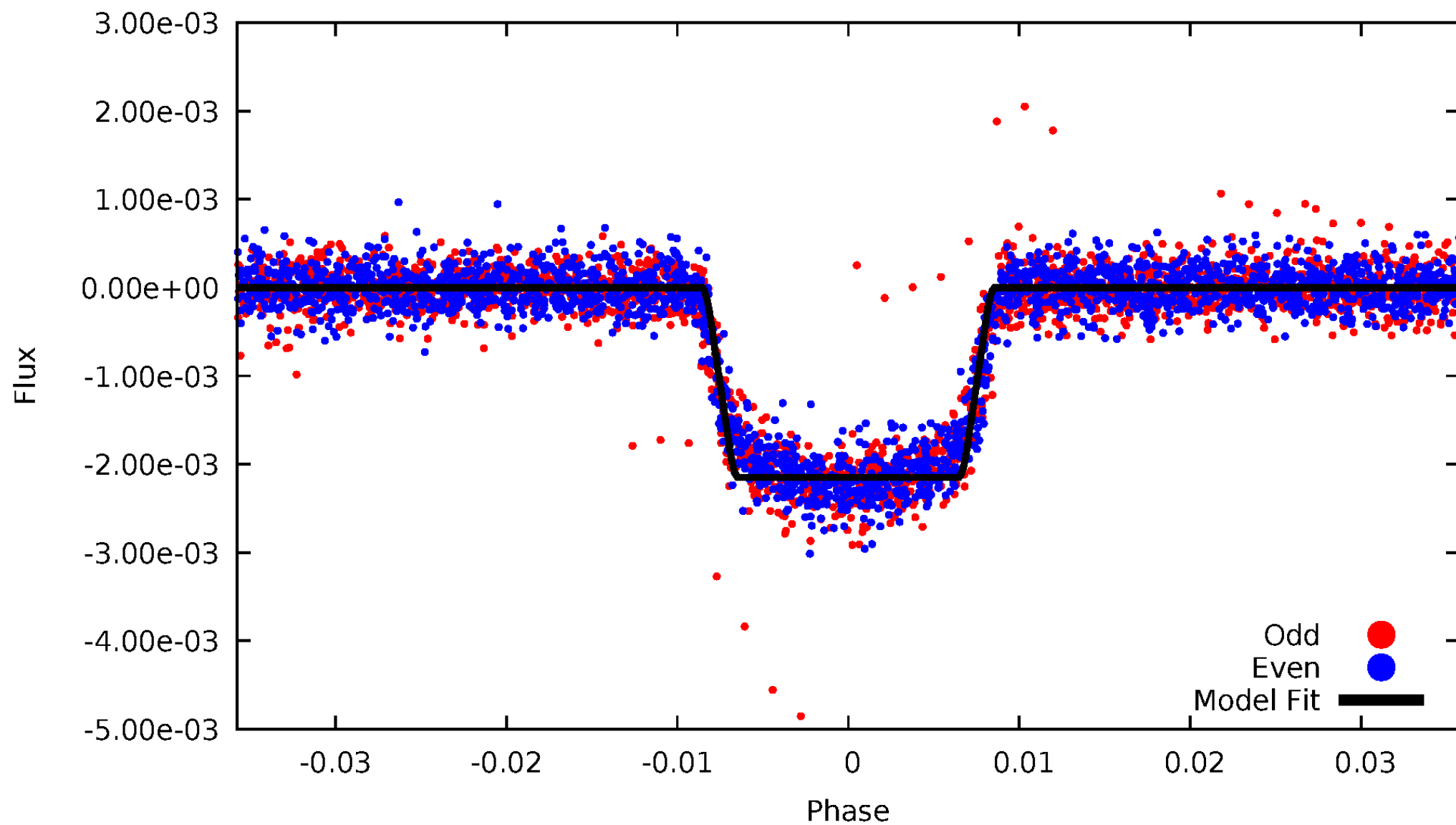
DV Odd/Even

TCE 004833421-01



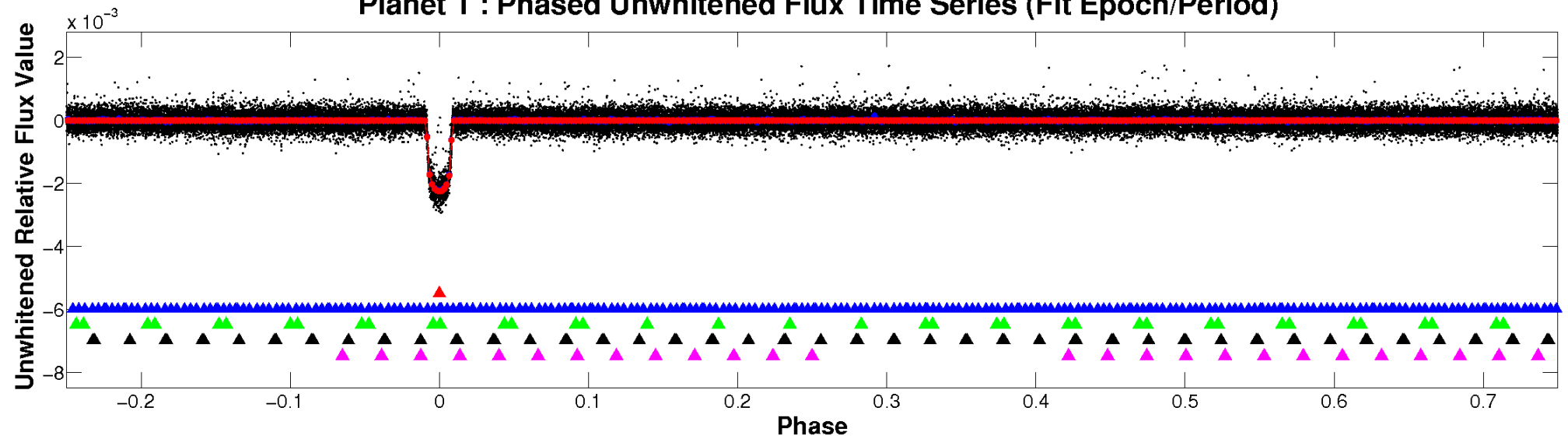
ALT Odd/Even

TCE 004833421-01

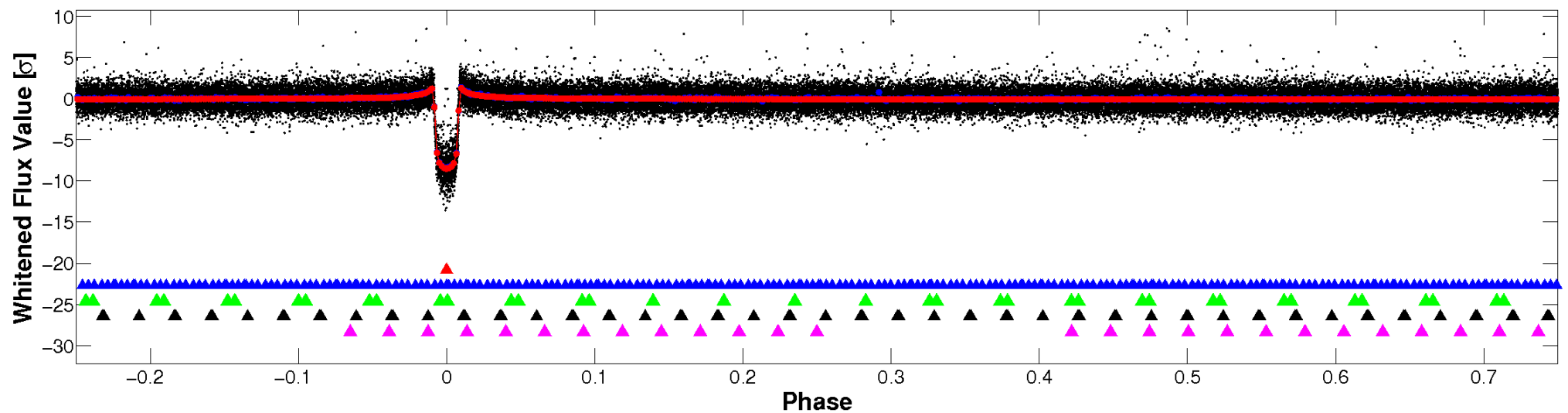


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

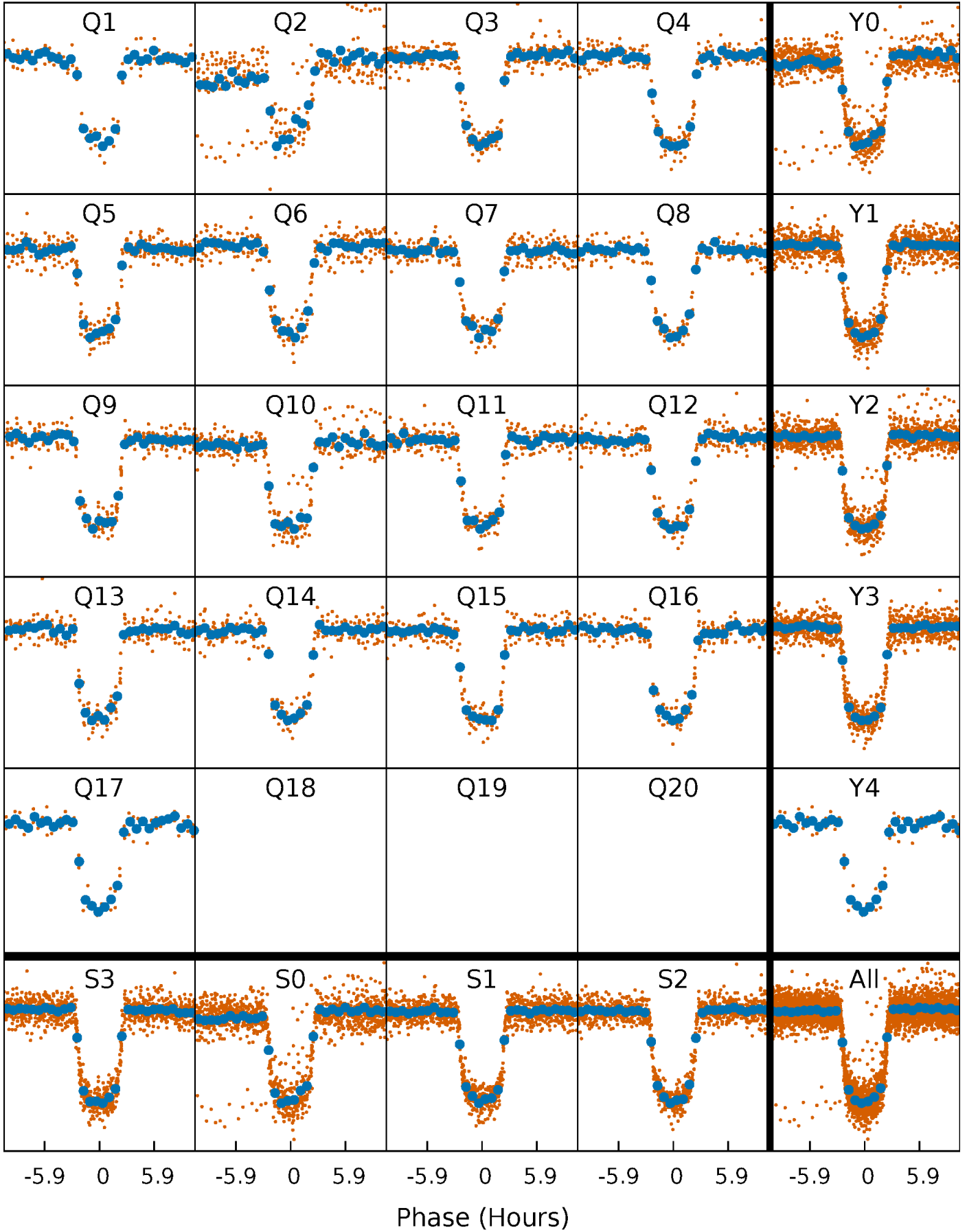


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



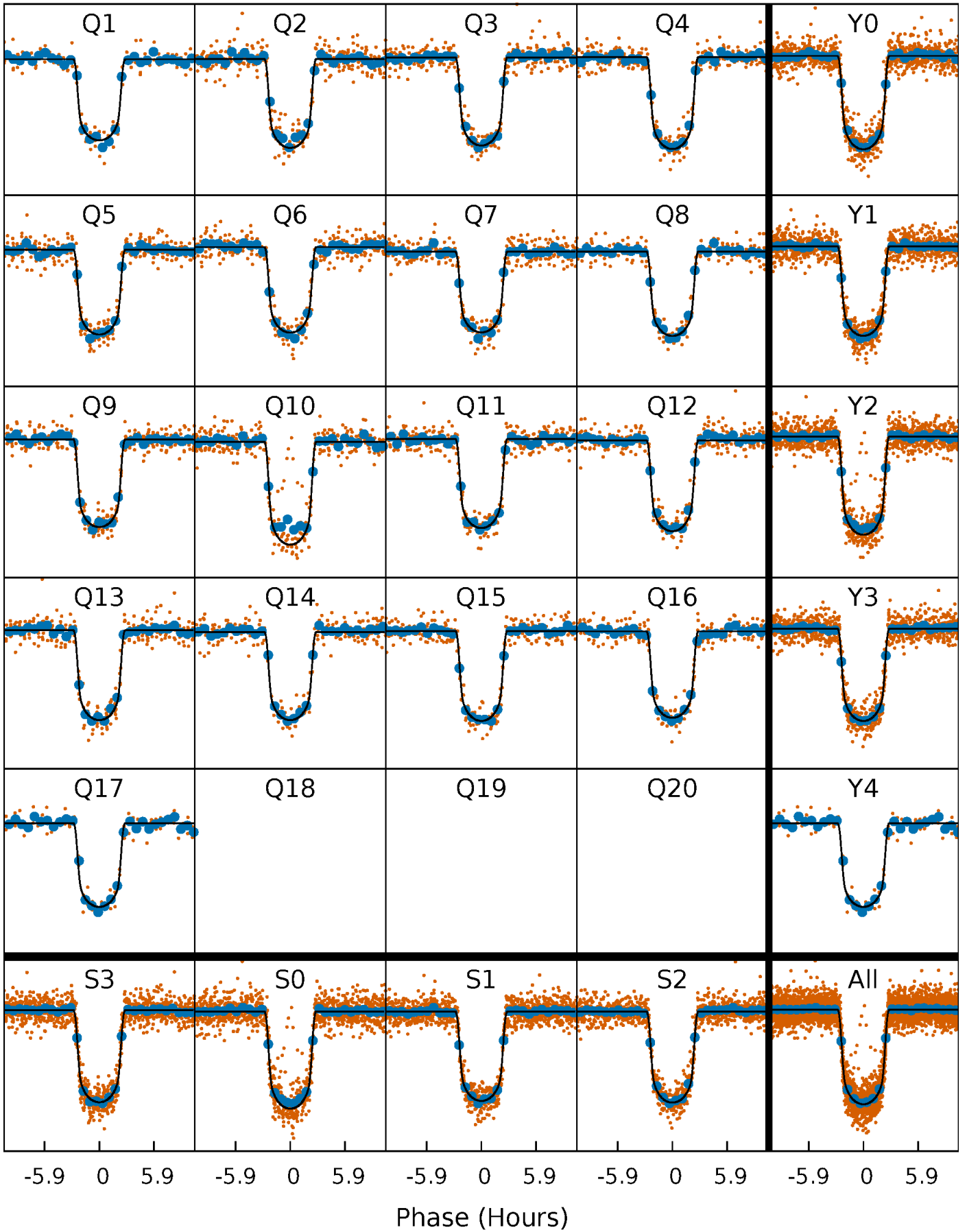
PDC Quarter-Phased Transit Curves

TCE 004833421-01 P= 12.466004 Days $T_0=134.003344$ (BKJD)



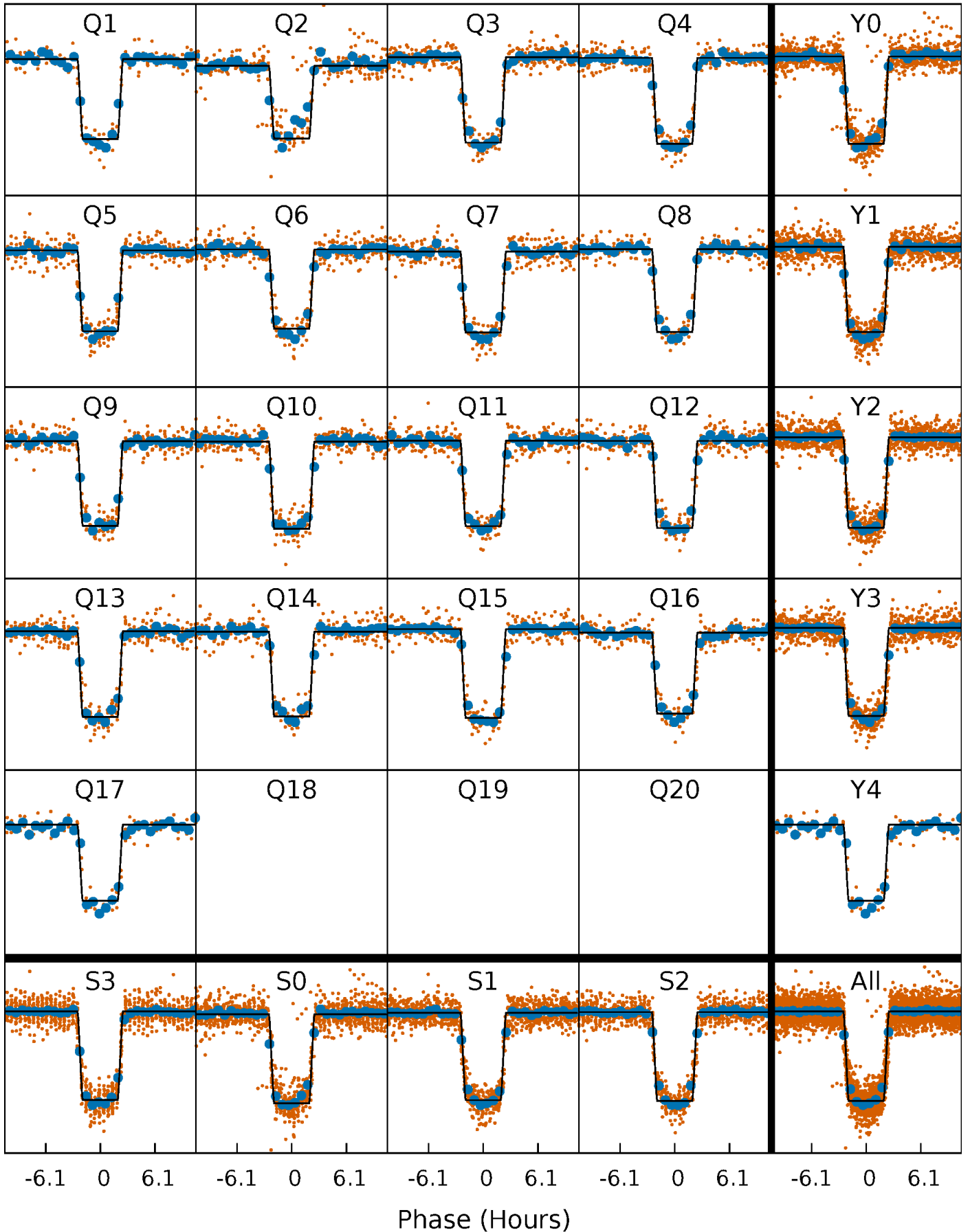
DV Quarter-Phased Transit Curves

TCE 004833421-01 P= 12.466004 Days $T_0=134.003344$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

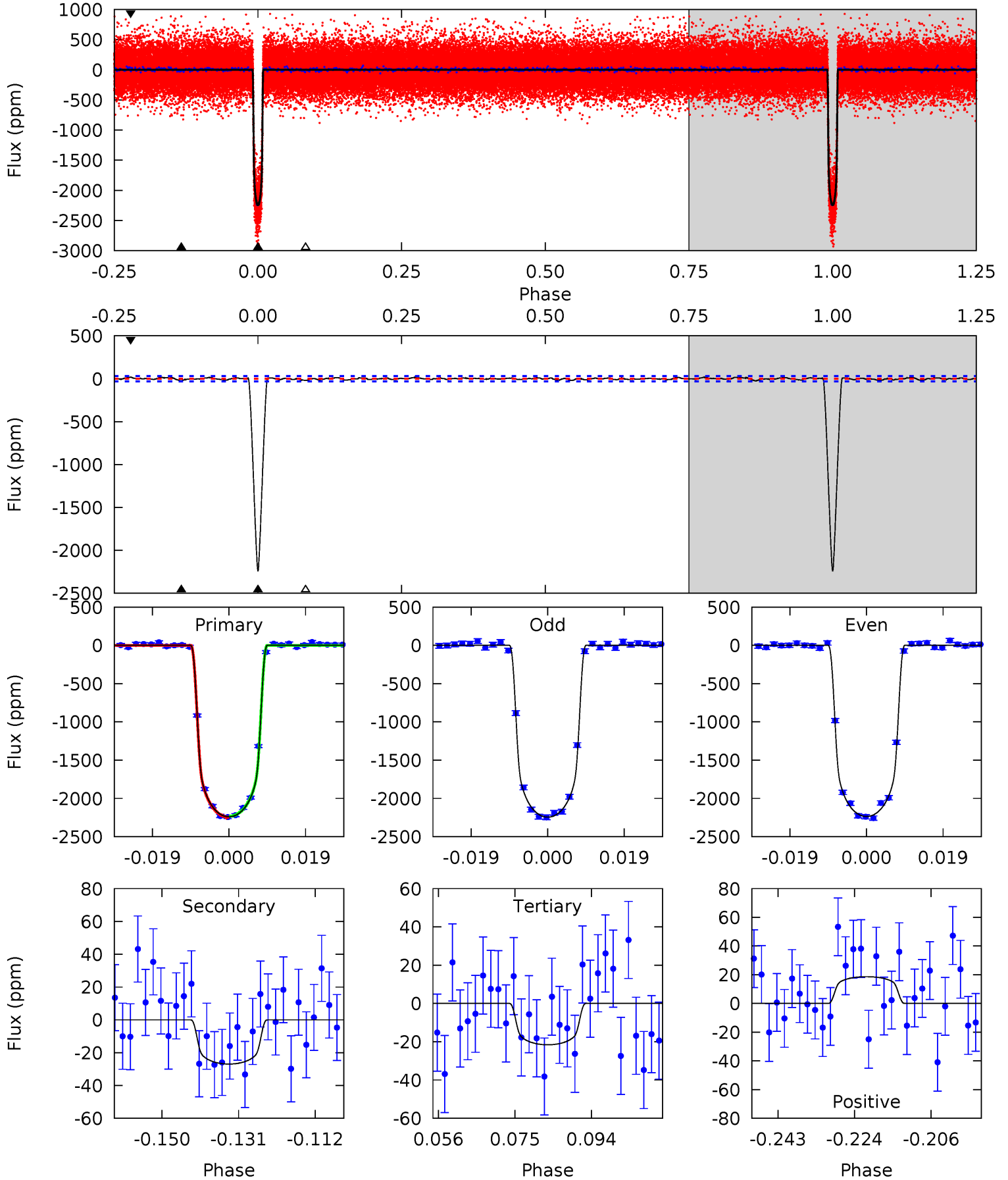
TCE 004833421-01 P= 12.465906 Days $T_0=134.008671$ (BKJD)



DV Model-Shift Uniqueness Test

004833421-01, P = 12.466004 Days, E = 121.537340 Days

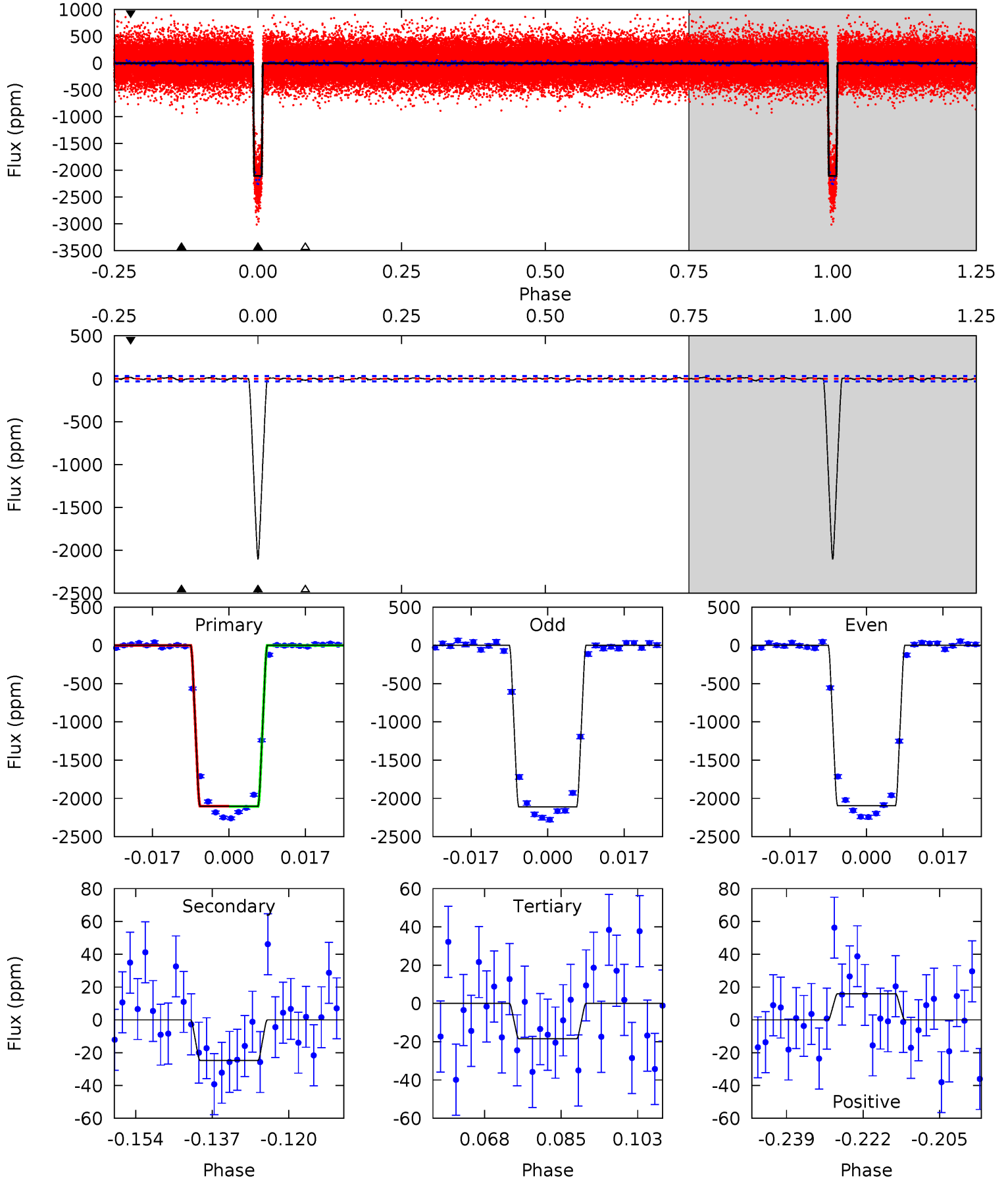
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
356.8	4.29	3.44	2.97	4.90	2.35	1.15	353.3	353.8	0.85	1.32	0.71	0.99	0.01	0.93



Alt Model-Shift Uniqueness Test

004833421-01, P = 12.465906 Days, E = 121.542765 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
322.6	3.80	2.83	2.45	4.92	2.38	0.99	319.8	320.2	0.97	1.35	1.25	1.00	0.01	0.27



Stellar Parameters For KIC 004833421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6038^{+121}_{-121}	$4.284^{+0.137}_{-0.112}$	$-0.160^{+0.150}_{-0.150}$	$1.191^{+0.189}_{-0.189}$	$0.995^{+0.082}_{-0.067}$	$0.830^{+0.562}_{-0.265}$
	+2%/-2%	+3%/-3%	+94%/-94%	+16%/-16%	+8%/-7%	+68%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004833421-01 / KOI 0232.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-27 ± 6	$5.95^{+0.56}_{-0.51}$	1249^{+64}_{-60}	2760^{+91}_{-119}	$4.590^{+1.484}_{-1.293}$
Alt.	-25 ± 7	$6.04^{+0.54}_{-0.53}$	1255^{+57}_{-60}	2718^{+95}_{-130}	$4.055^{+1.566}_{-1.227}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

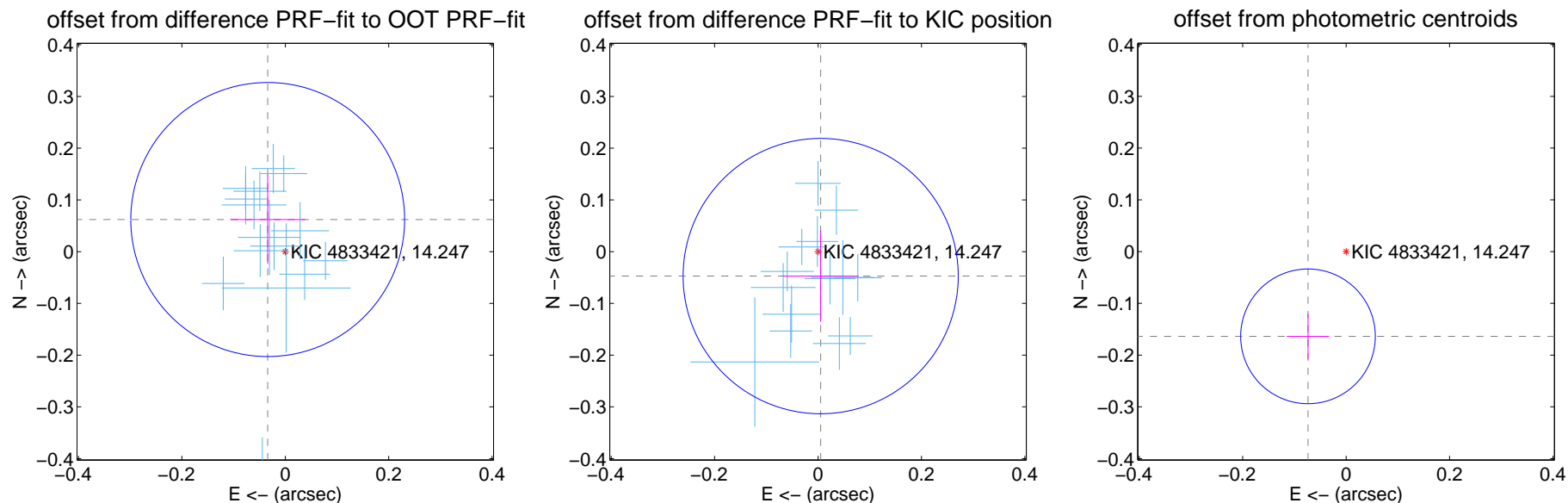
DV Centroid Data

Supplemental centroid analysis for 004833421-01. Kepler magnitude: 14.25. Transit SNR 236.97

There are 17 quarters with good PRF difference image offsets

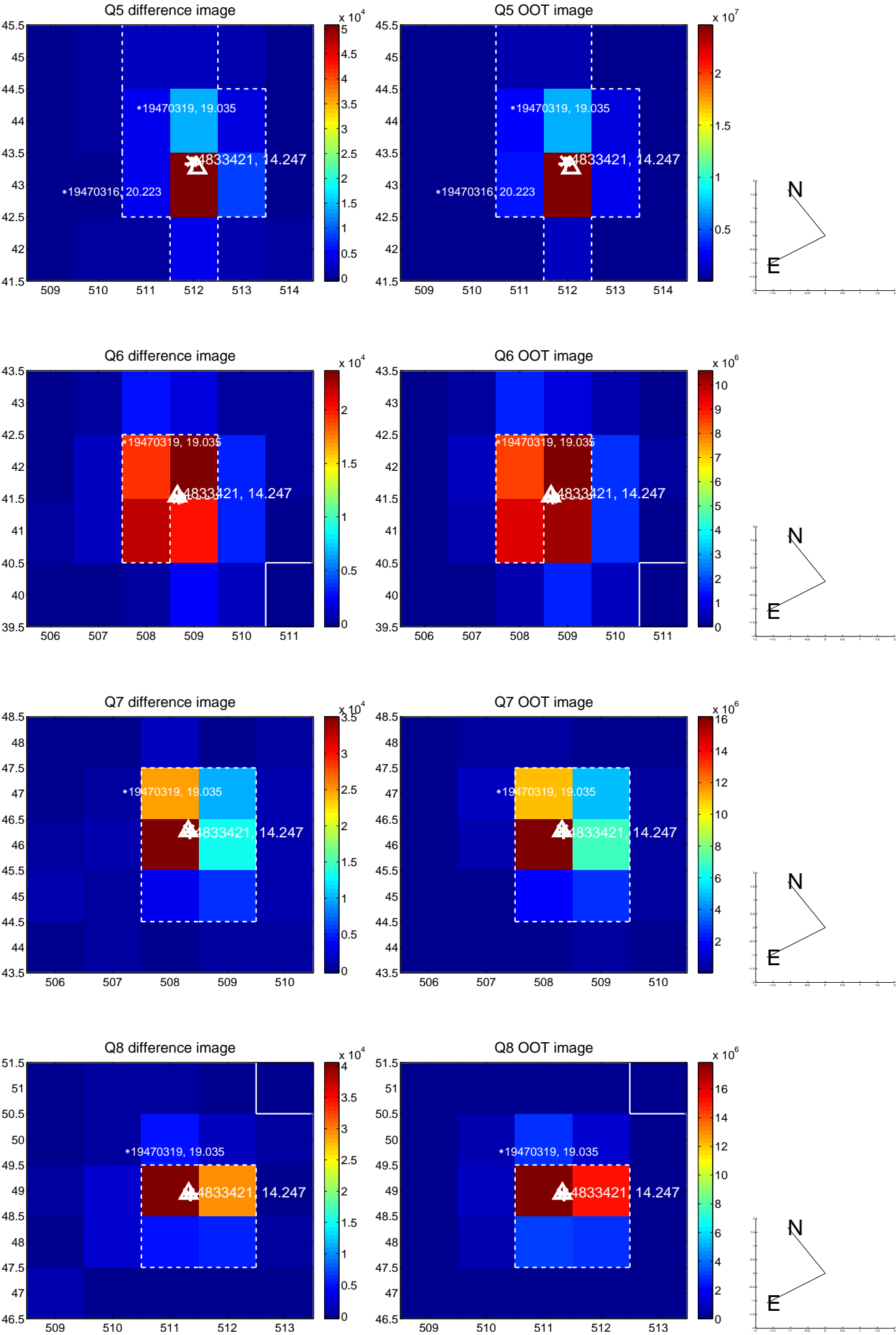
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.071 ± 0.088	0.80	0.034 ± 0.072	0.062 ± 0.086
PRF-fit source offset from KIC position	0.048 ± 0.089	0.54	-0.005 ± 0.073	-0.047 ± 0.088
photometric centroid source offset	0.18 ± 0.04	4.14	0.07 ± 0.04	-0.16 ± 0.04

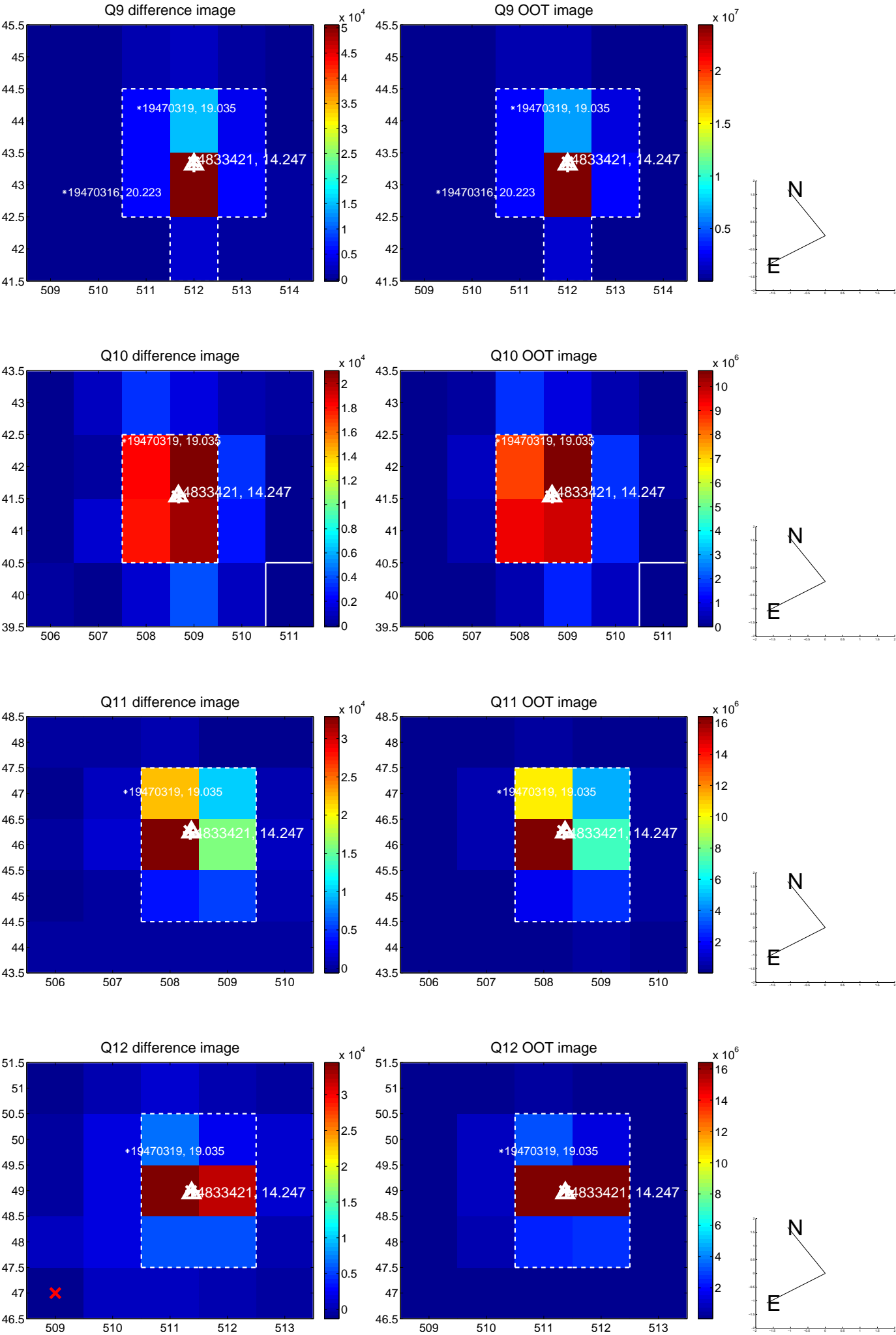


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

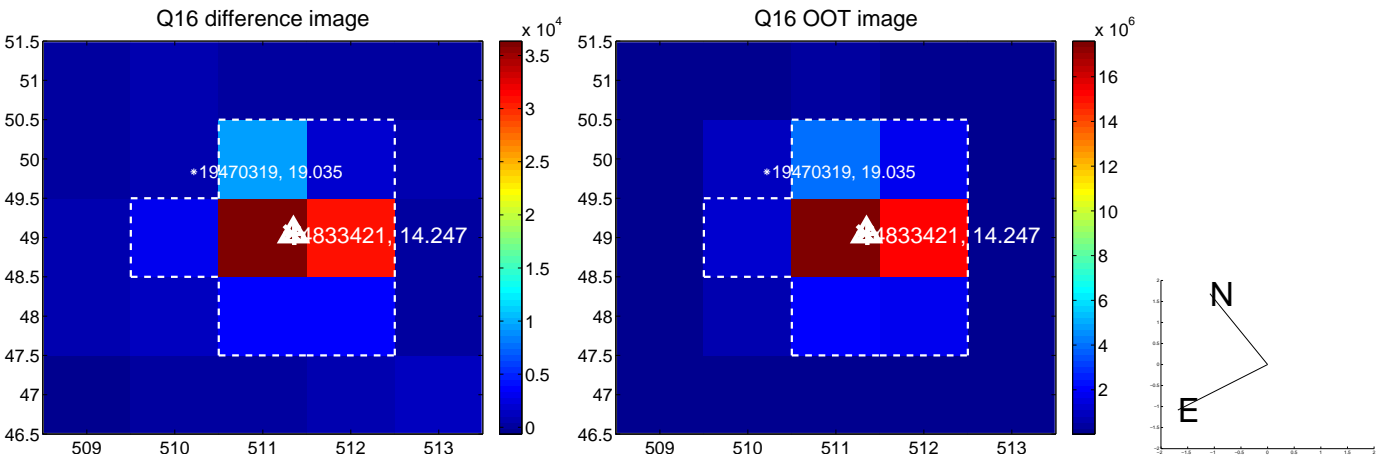
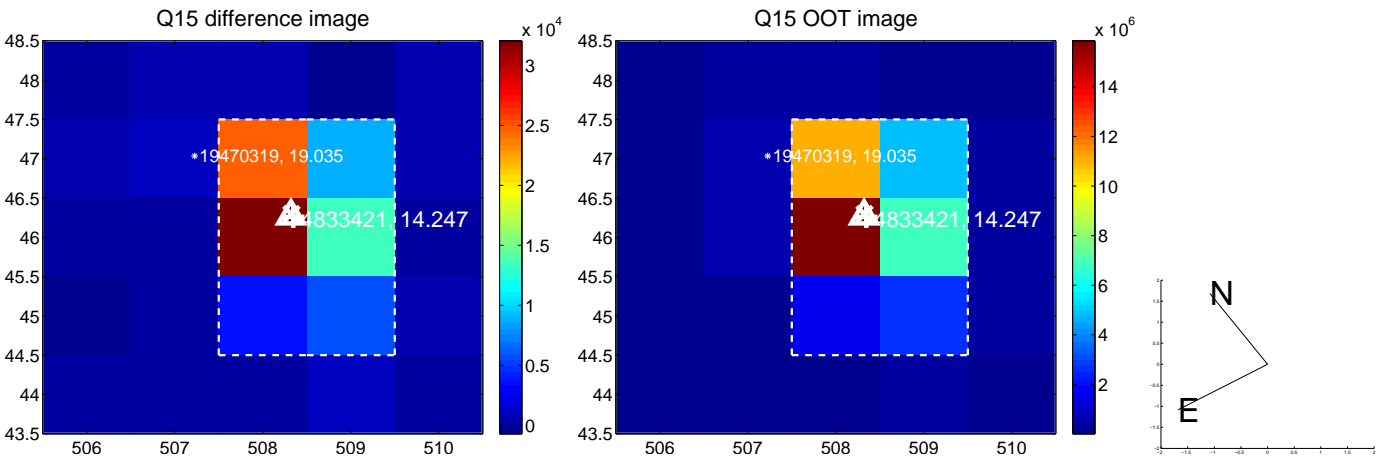
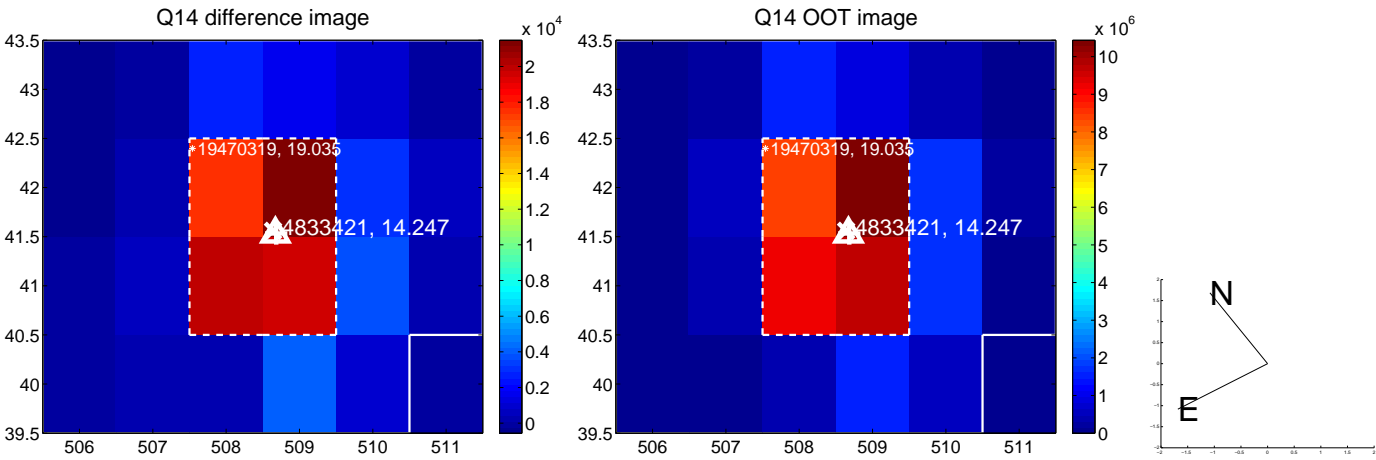
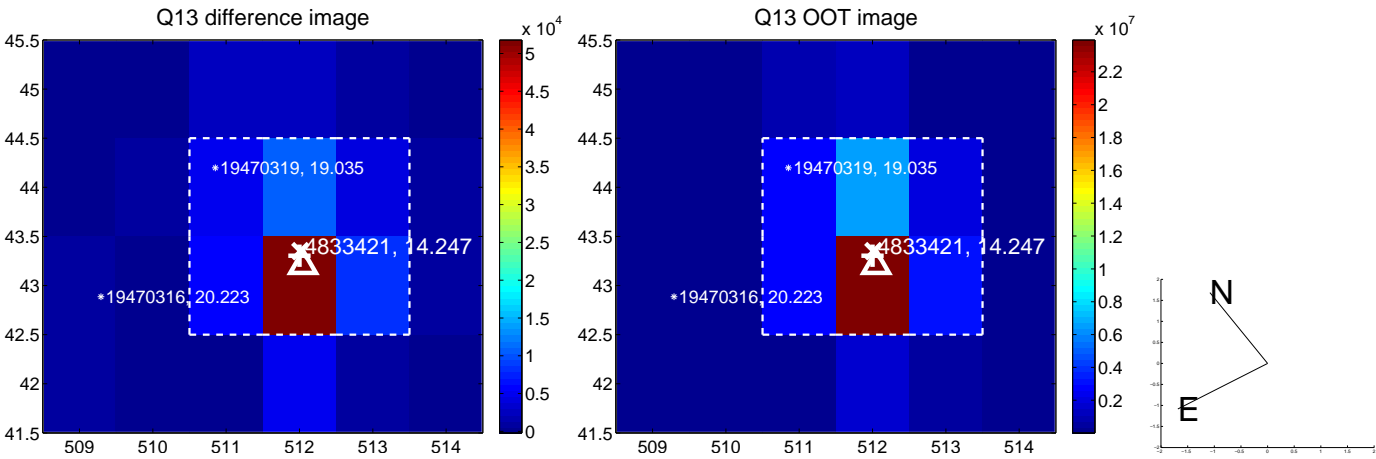
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



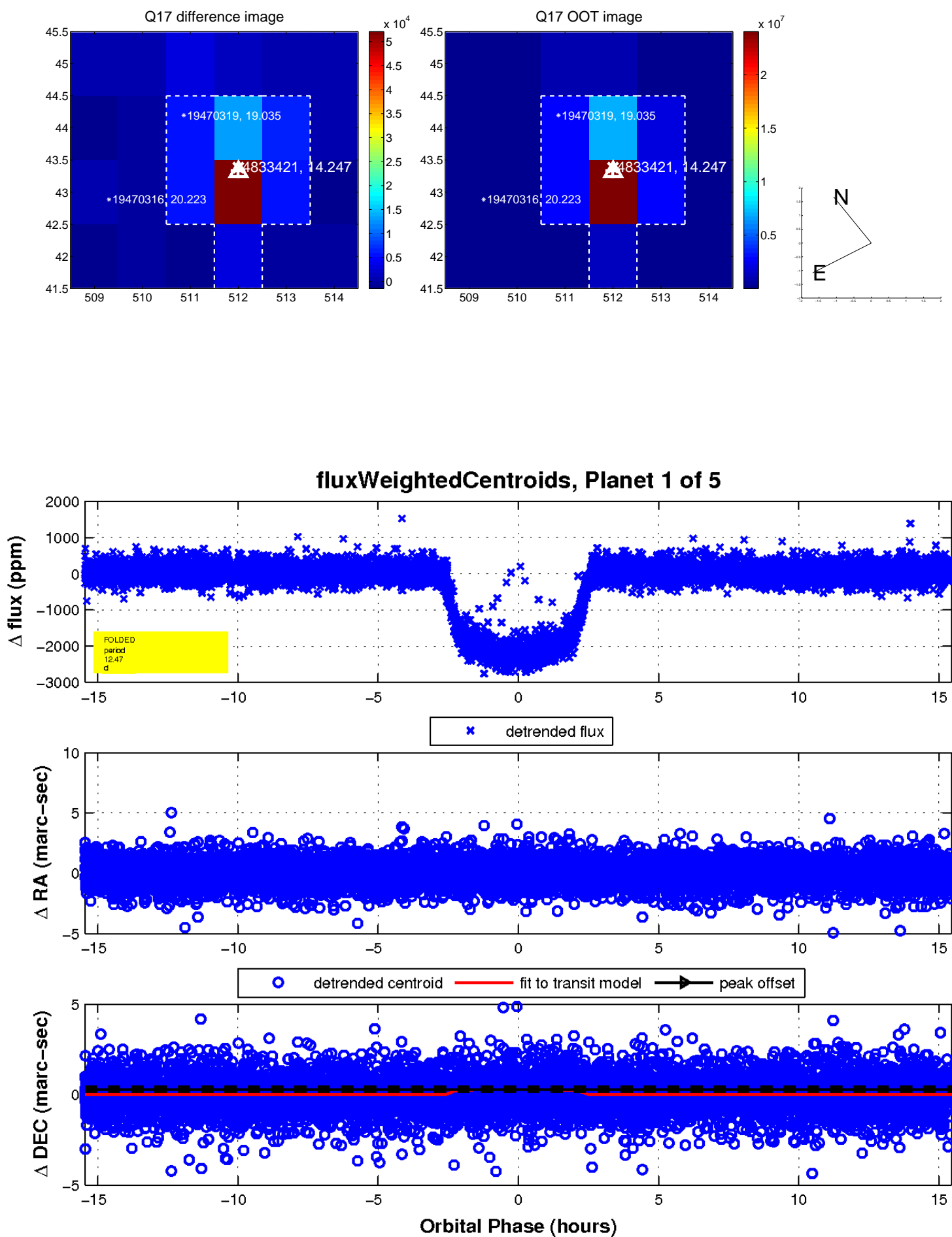
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

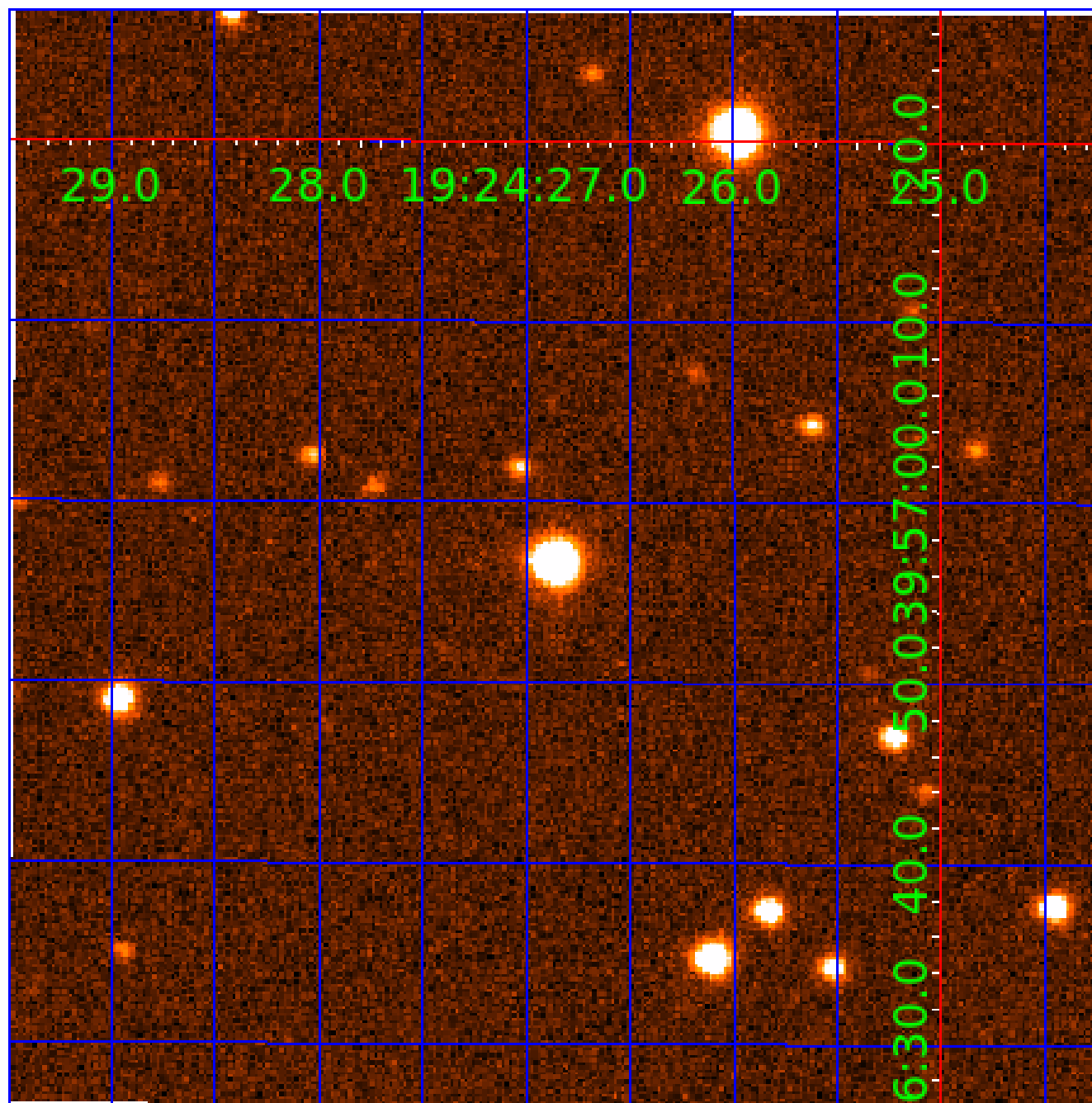


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004833421

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
004833421-01	OBS	0232.01	12.466004	134.003344	2247.0	5.151	236.8	237.0	1.19	6038	5.97	153.03
004833421-02	OBS	0232.02	5.766147	134.019138	354.5	3.925	47.7	54.1	1.19	6038	2.52	427.79
004833421-03	OBS	0232.04	37.994464	162.998628	352.7	8.148	24.7	25.5	1.19	6038	2.79	34.63
004833421-04	OBS	0232.03	21.587152	142.981948	296.5	4.897	22.4	24.4	1.19	6038	2.28	73.59
004833421-05	OBS	0232.05	56.260588	164.194664	325.6	8.461	20.4	22.6	1.19	6038	2.34	20.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004833421-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

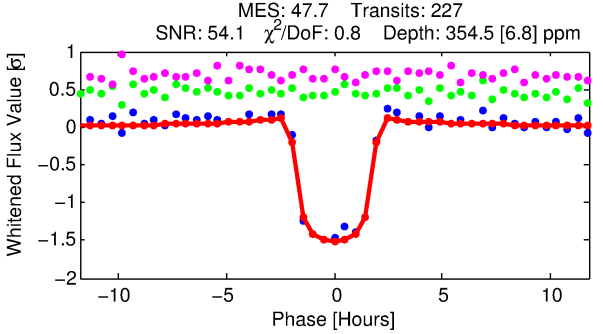
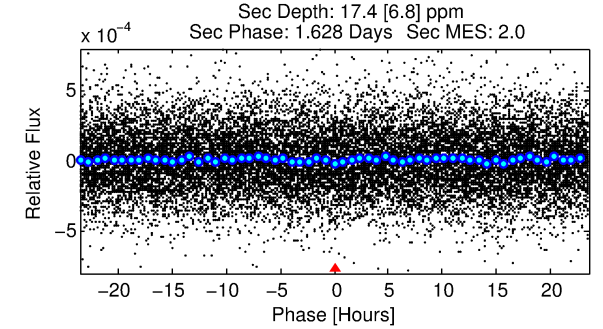
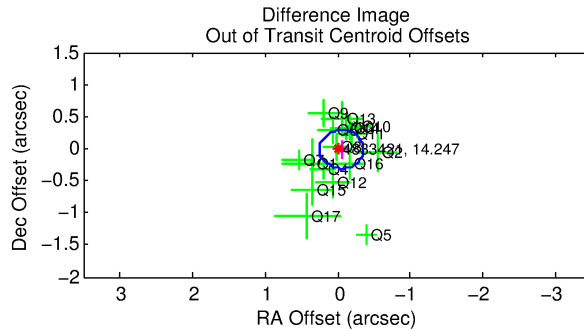
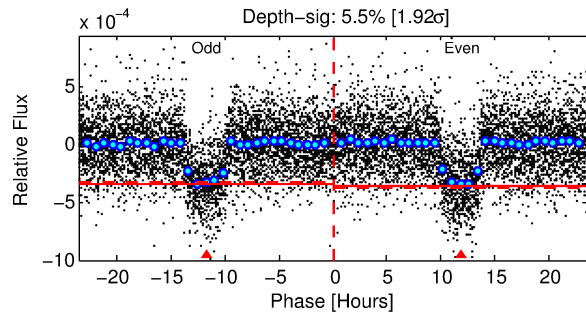
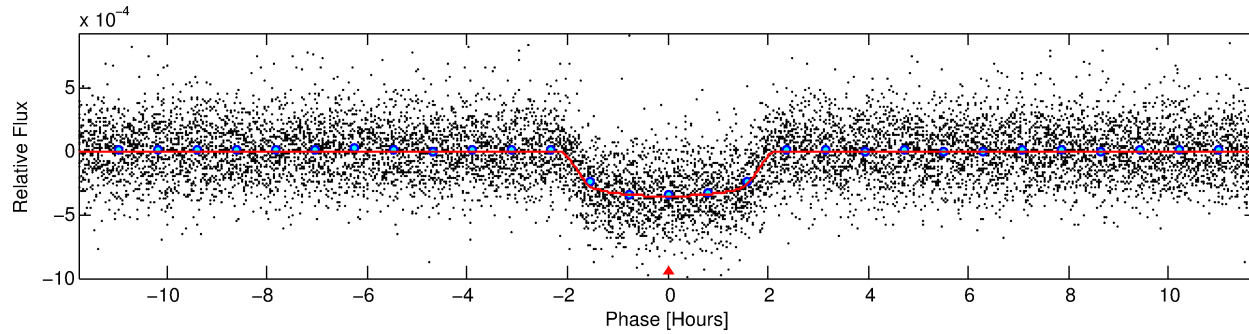
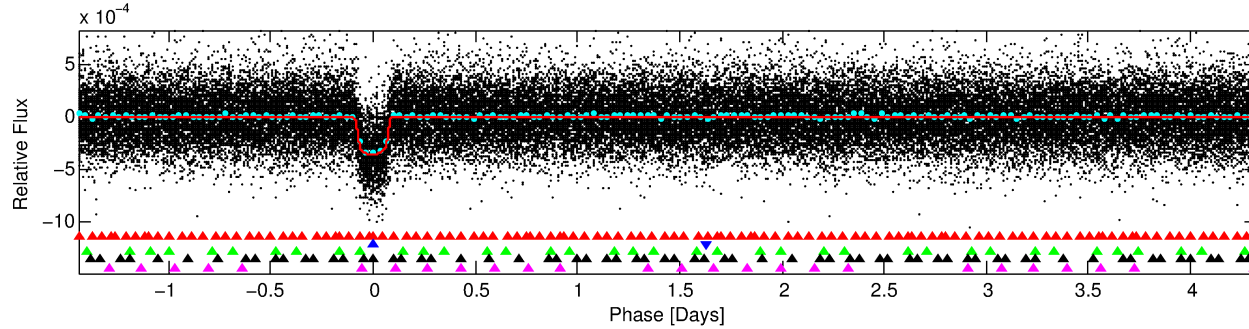
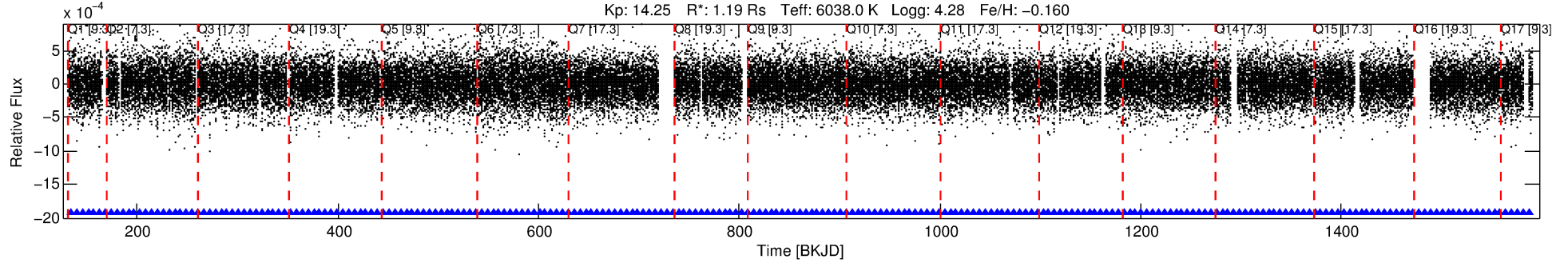
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004833421-02

No Significant Match Found

DV One-Page Summary

KIC: 4833421 Candidate: 2 of 5 Period: 5.766 d
KOI: K00232.02 Name: Kepler-122b Corr: 0.990



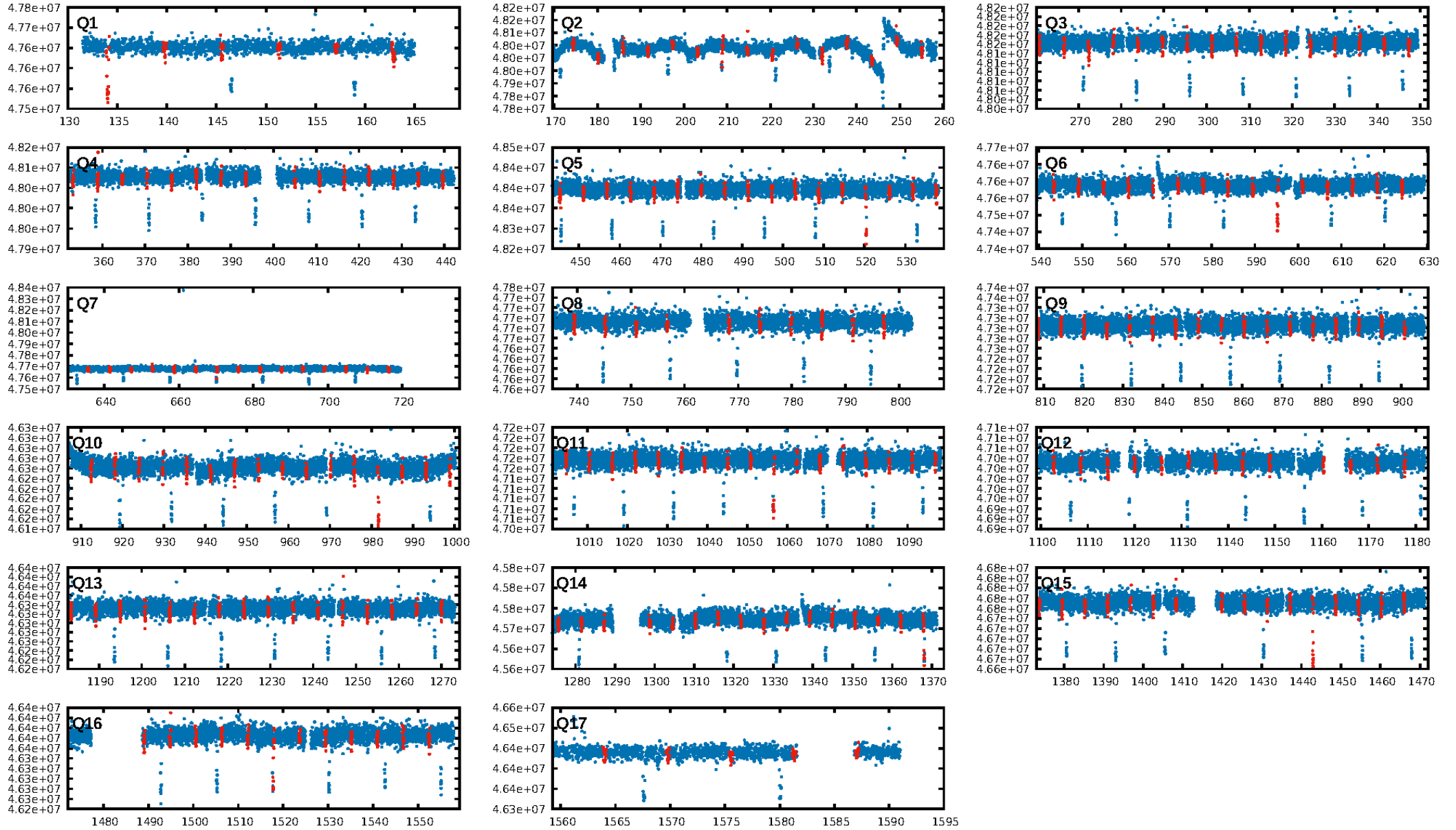
DV Fit Results:

Period = 5.76615 [0.00001] d
Epoch = 134.0191 [0.0012] BKJD
Rp/R* = 0.0194 [0.0022]
a/R* = 6.73 [3.68]
b = 0.83 [0.21]
Seff = 427.79 [106.38]
Teq = 1160 [72] K
Rp = 2.52 [0.49] Re
a = 0.0628 [0.0094] AU
Ag = 5.98 [3.03] [1.64 σ]
Teffp = 2804 [319] K [5.02 σ]

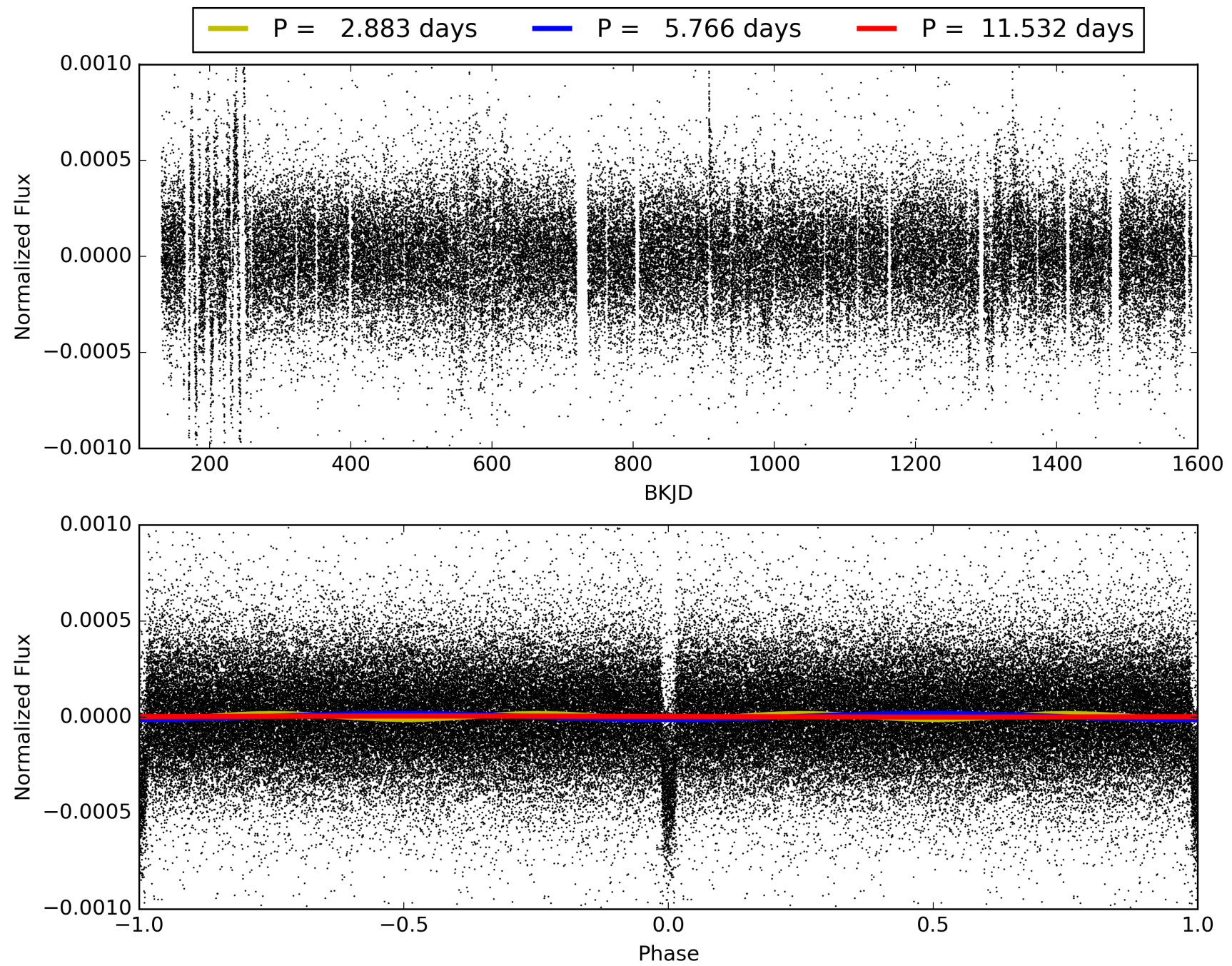
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [24.83 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [217/217]
GhostDiagnostic-chr: 7.374
Centroid-sig: N/A
Centroid-so: 0.244 arcsec [1.23 σ]
OotOffset-rm: 0.053 arcsec [0.53 σ]
KicOffset-rm: 0.133 arcsec [1.06 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004833421-02, PDC Light Curves

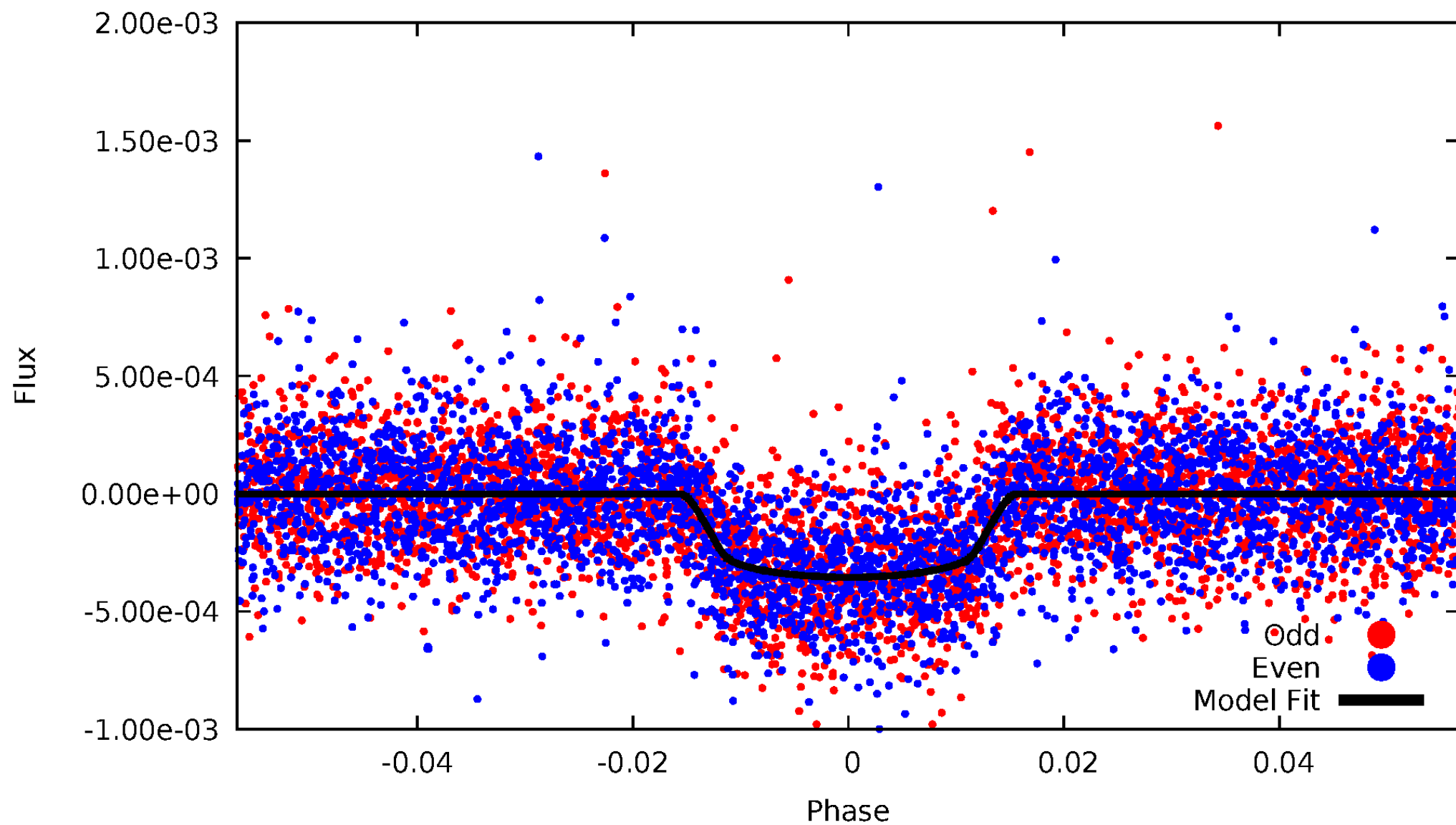


TCE 004833421-02



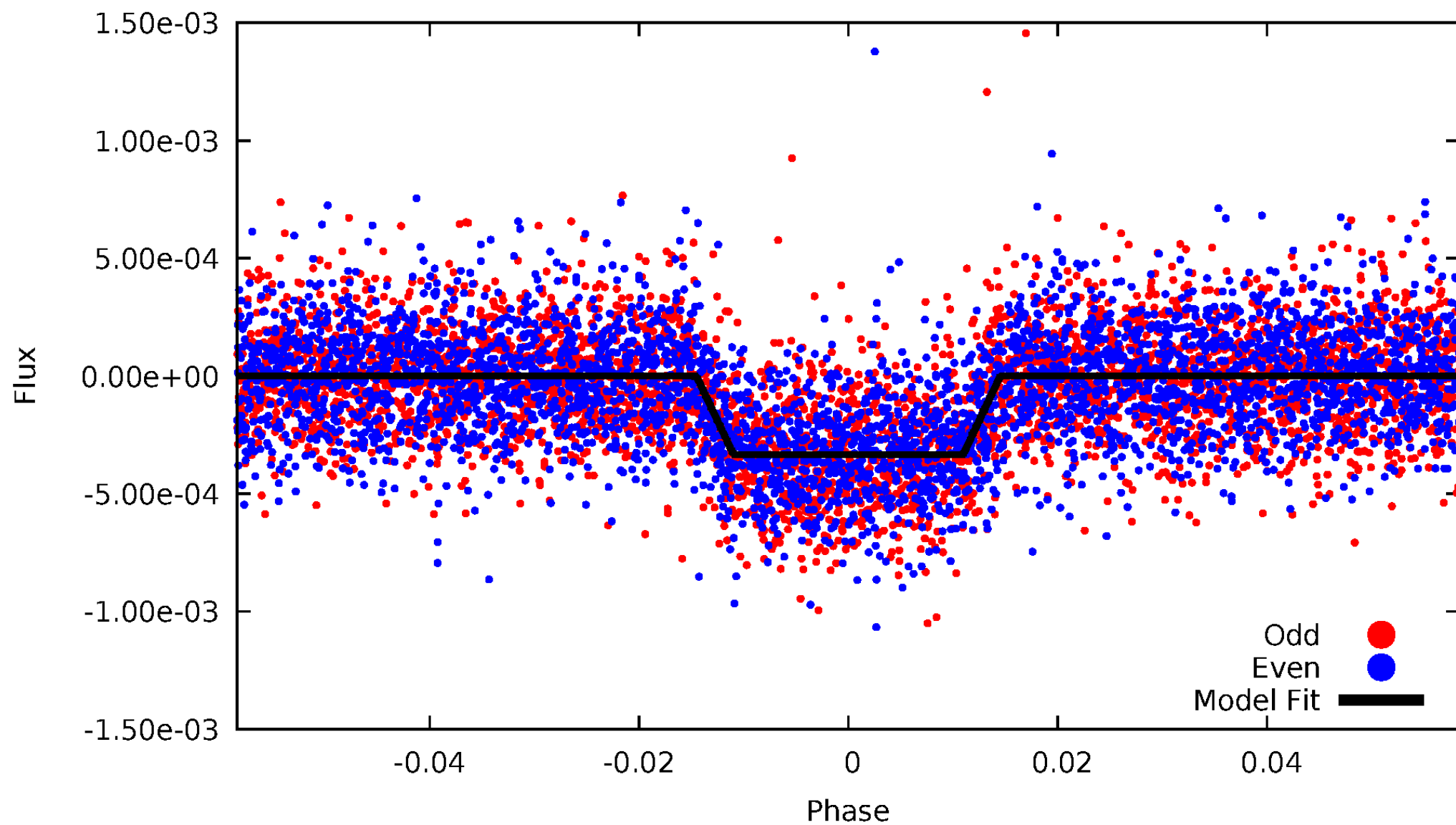
DV Odd/Even

TCE 004833421-02



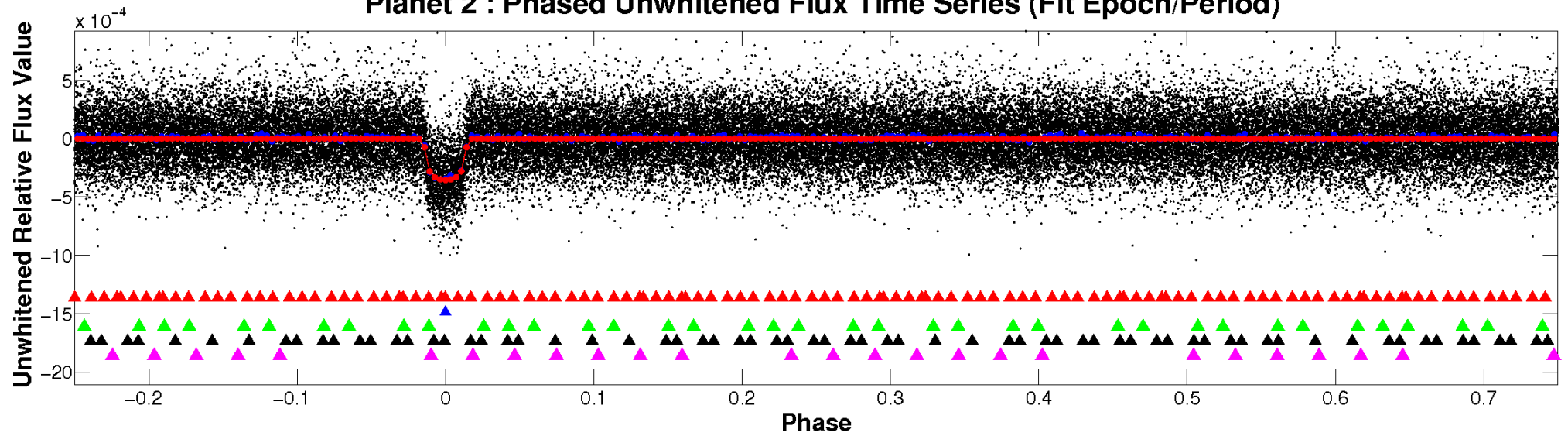
ALT Odd/Even

TCE 004833421-02

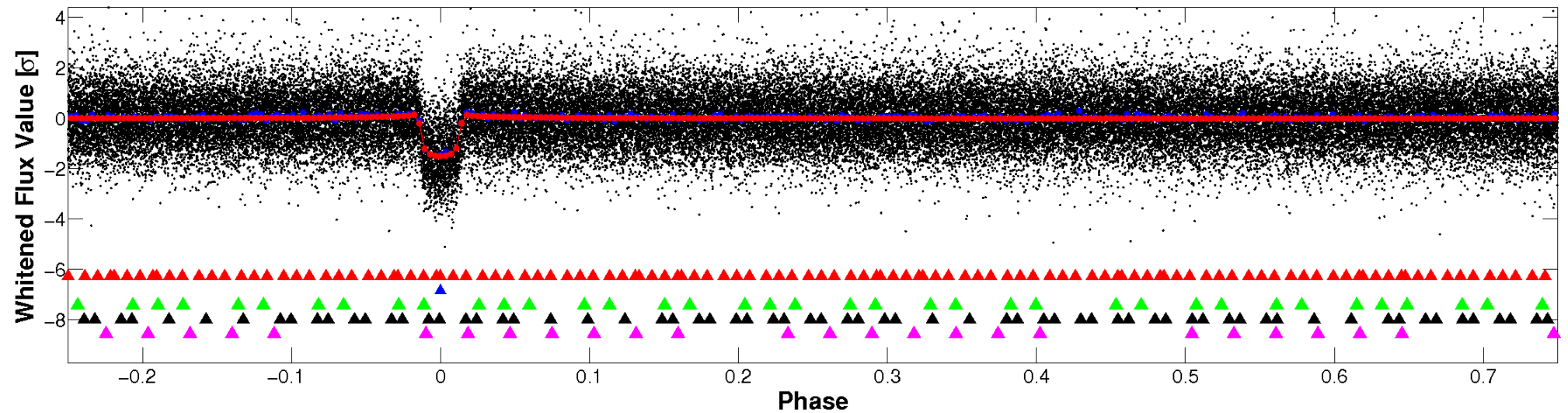


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

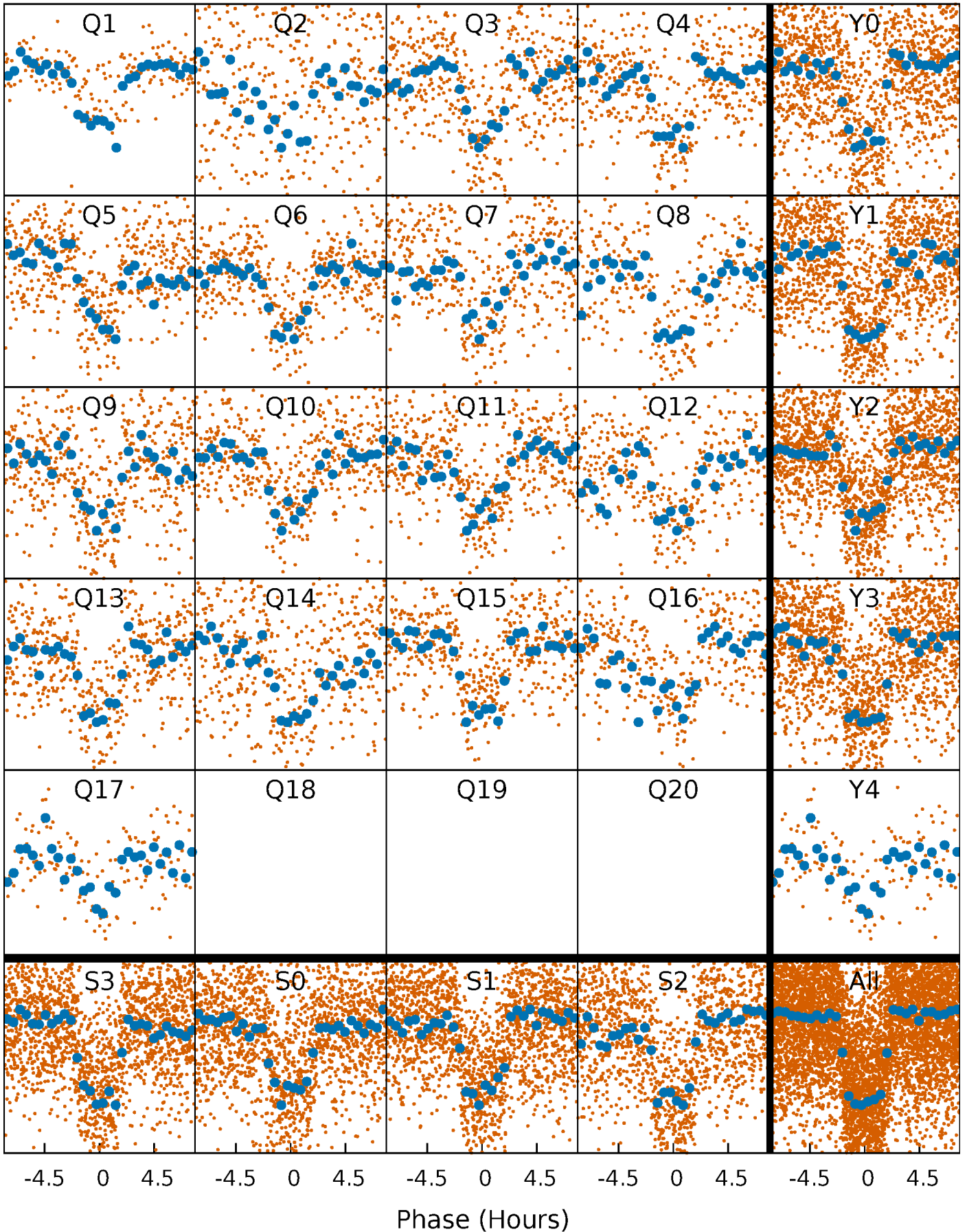


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



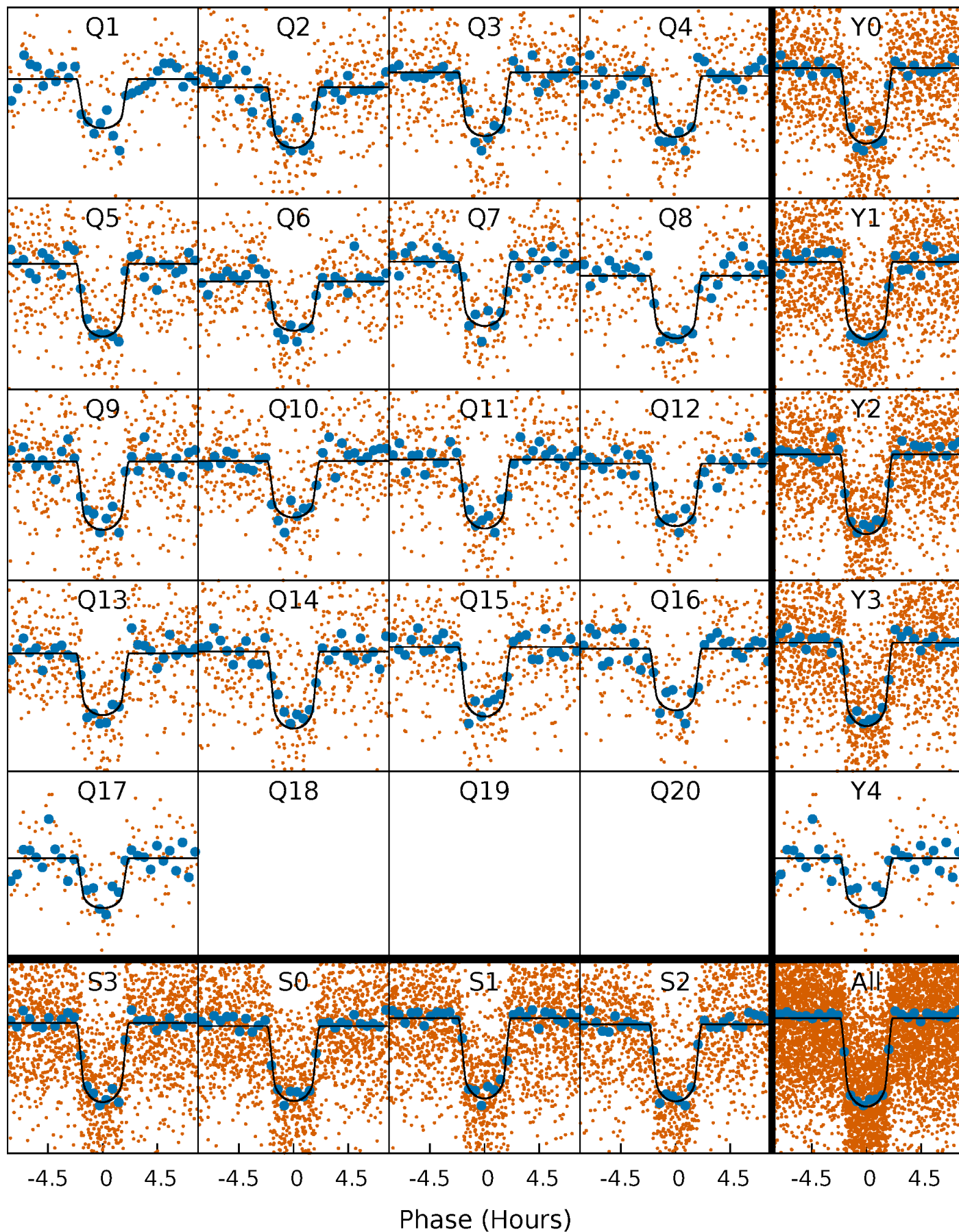
PDC Quarter-Phased Transit Curves

TCE 004833421-02 P= 5.766147 Days $T_0=134.019138$ (BKJD)



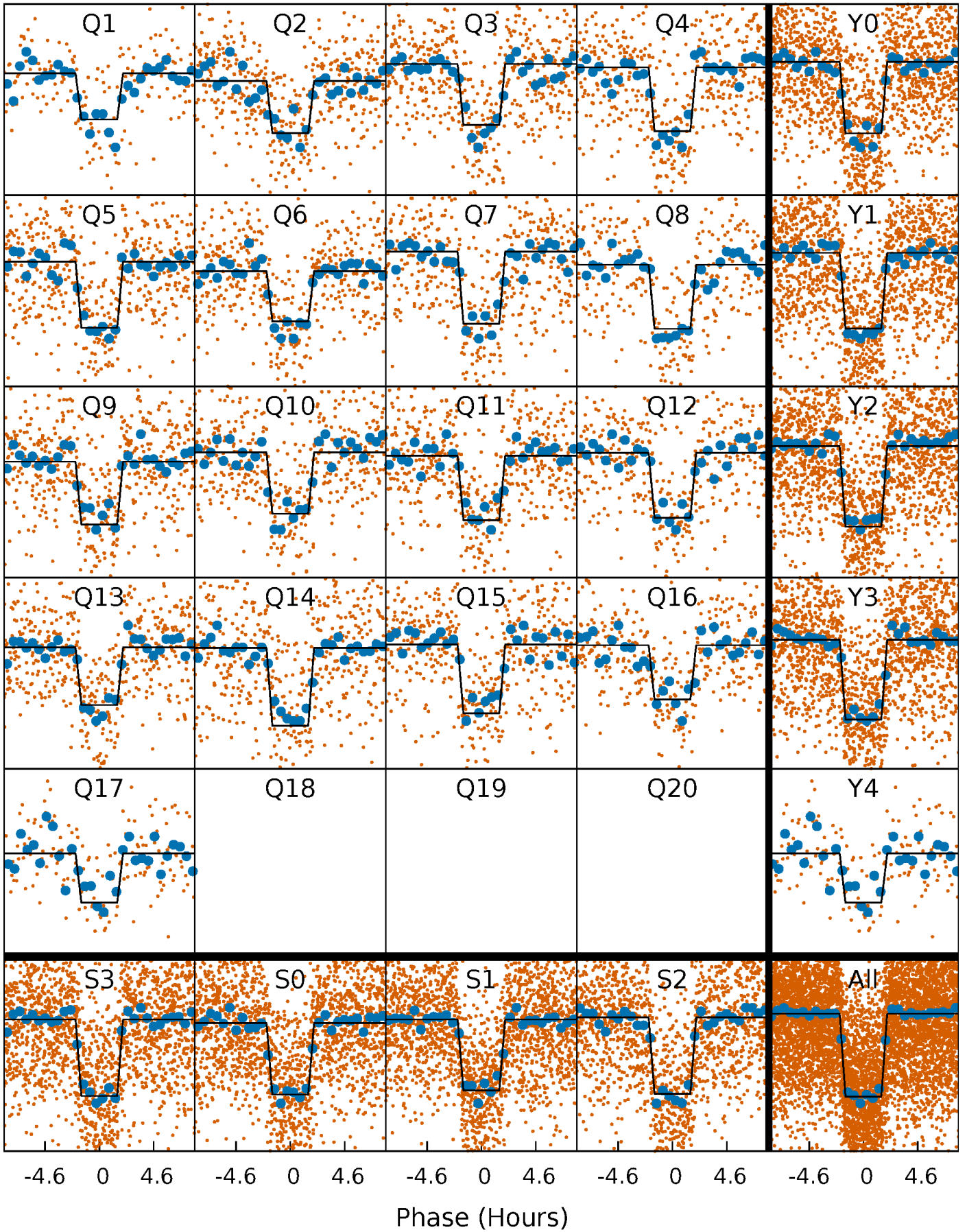
DV Quarter-Phased Transit Curves

TCE 004833421-02 P= 5.766147 Days $T_0=134.019138$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

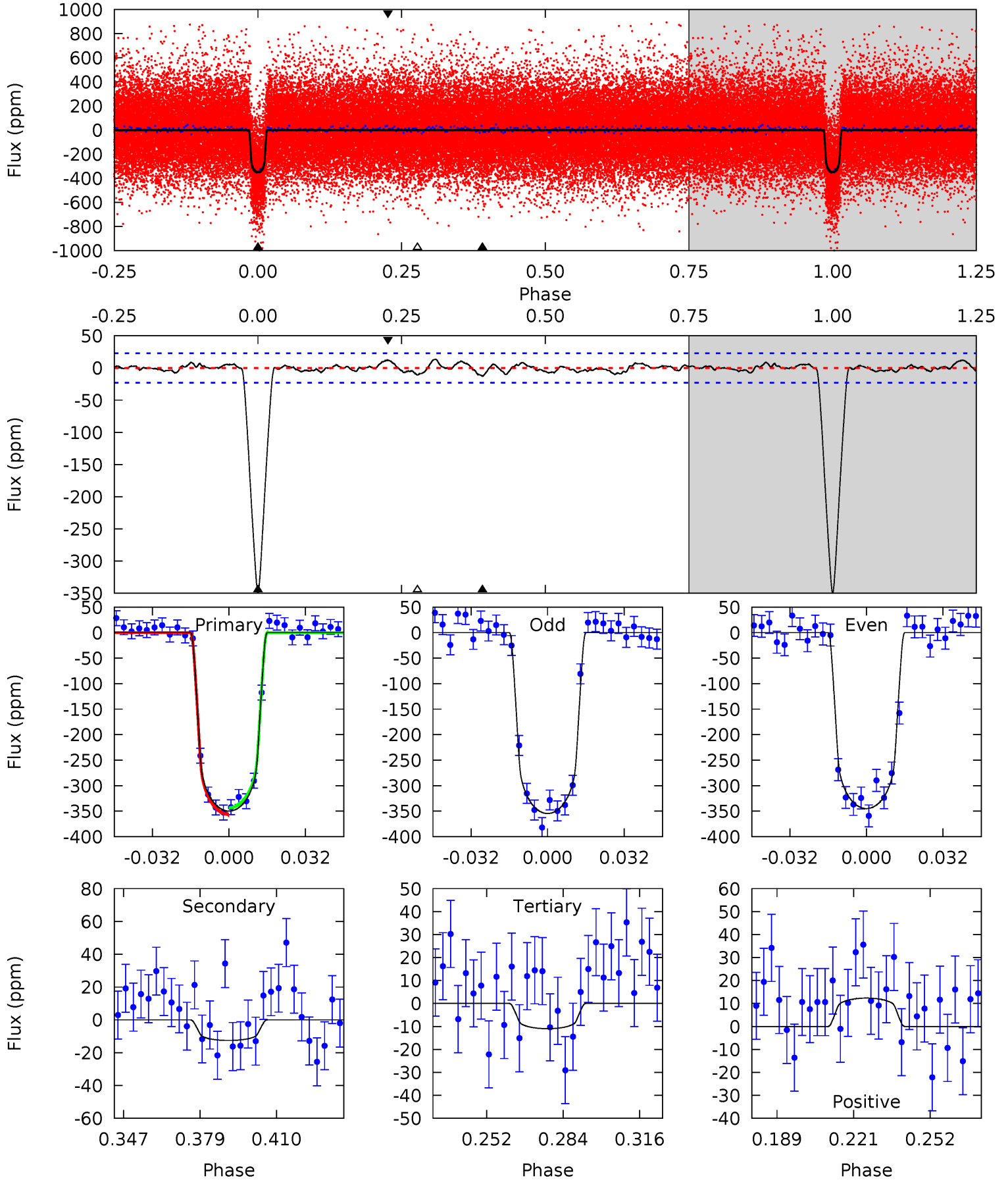
TCE 004833421-02 P= 5.766136 Days $T_0=134.020636$ (BKJD)



DV Model-Shift Uniqueness Test

004833421-02, P = 5.766147 Days, E = 128.252991 Days

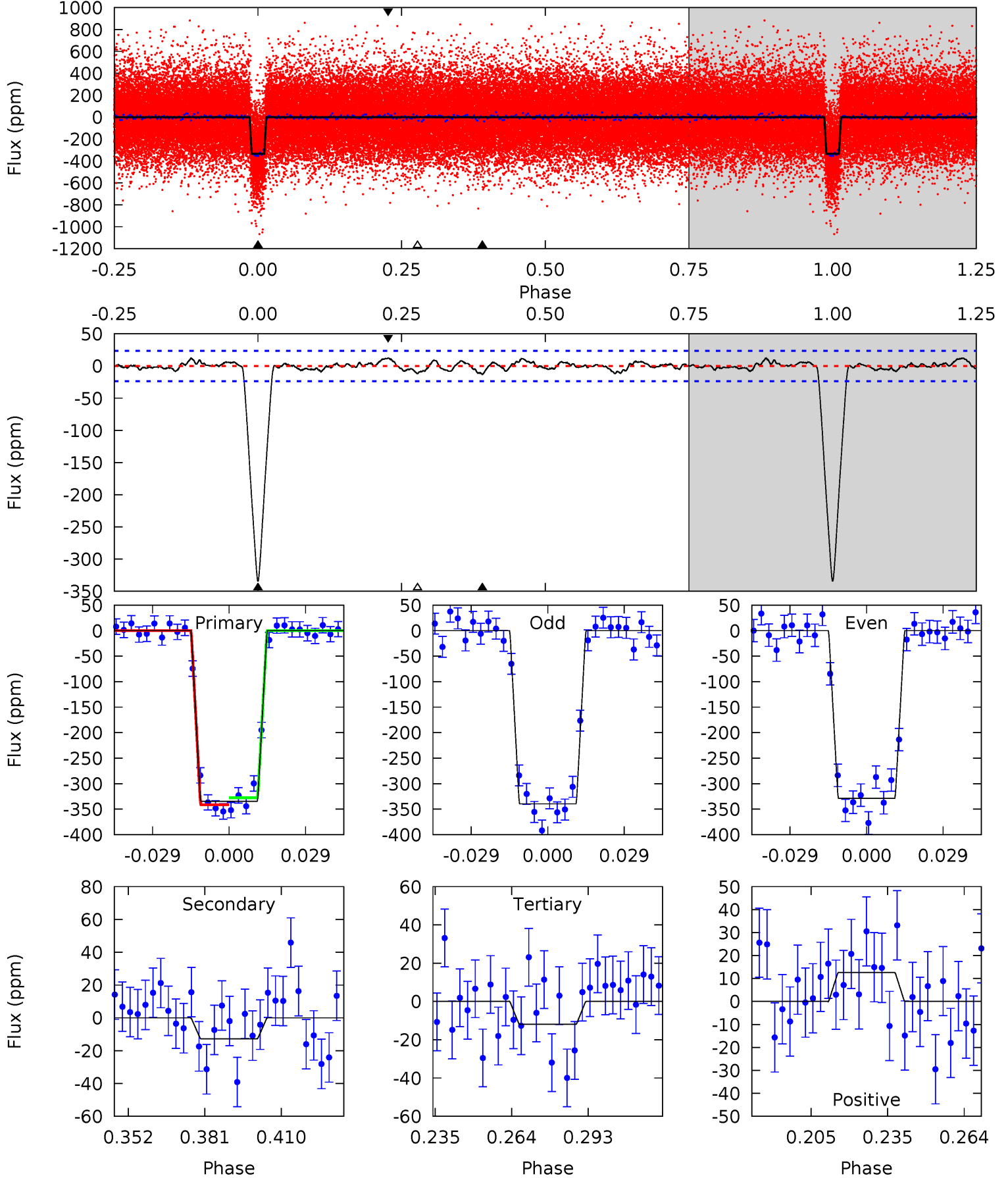
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.4	2.63	2.31	2.59	4.80	2.15	0.99	71.1	70.8	0.33	0.05	1.02	1.00	0.04	1.36



Alt Model-Shift Uniqueness Test

004833421-02, P = 5.766136 Days, E = 128.254500 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.9	2.59	2.43	2.55	4.82	2.18	0.98	65.4	65.3	0.15	0.03	1.09	1.02	0.04	1.38



Stellar Parameters For KIC 004833421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6038^{+121}_{-121}	$4.284^{+0.137}_{-0.112}$	$-0.160^{+0.150}_{-0.150}$	$1.191^{+0.189}_{-0.189}$	$0.995^{+0.082}_{-0.067}$	$0.830^{+0.562}_{-0.265}$
	+2%/-2%	+3%/-3%	+94%/-94%	+16%/-16%	+8%/-7%	+68%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004833421-02 / KOI 0232.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-13 ± 5	$2.51^{+0.39}_{-0.37}$	1615^{+82}_{-76}	3144^{+225}_{-248}	$4.225^{+2.534}_{-1.783}$
Alt.	-13 ± 5	$2.37^{+0.37}_{-0.33}$	1620^{+80}_{-81}	3201^{+245}_{-266}	$4.824^{+2.791}_{-2.132}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

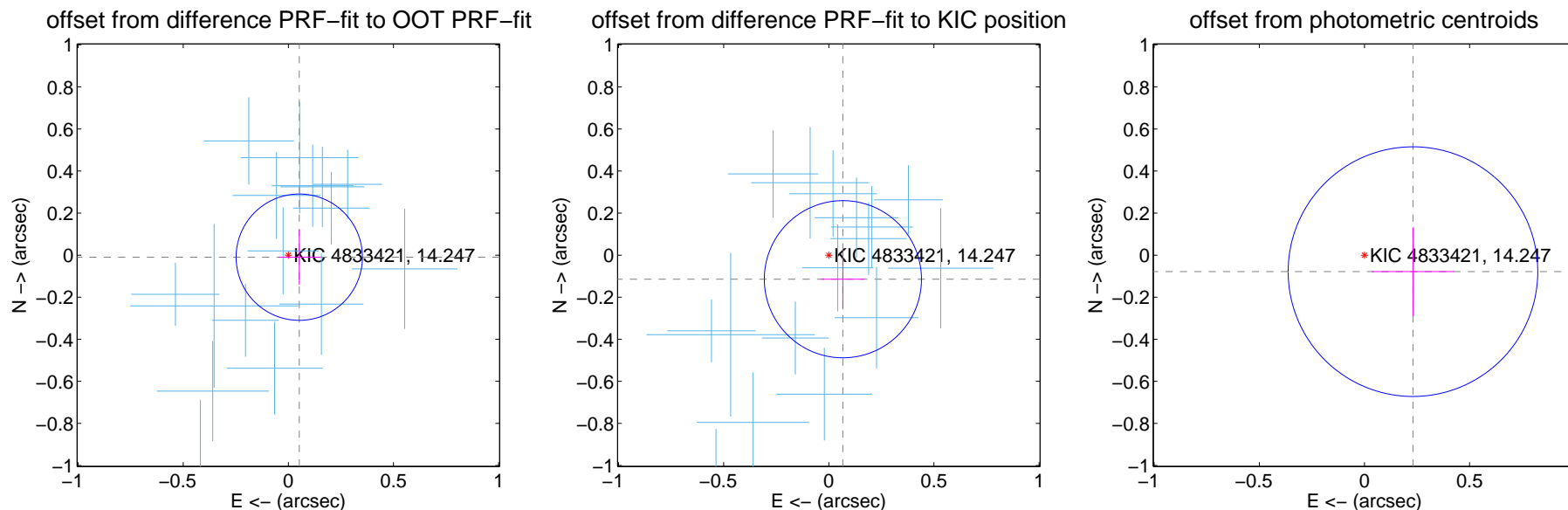
DV Centroid Data

Supplemental centroid analysis for 004833421-02. Kepler magnitude: 14.25. Transit SNR 54.07

There are 17 quarters with good PRF difference image offsets

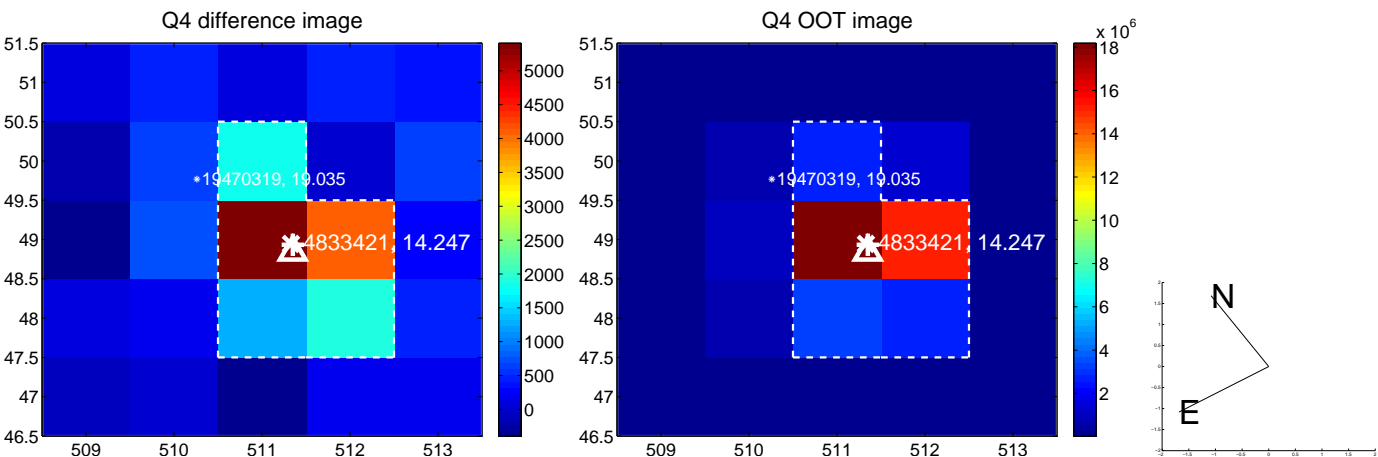
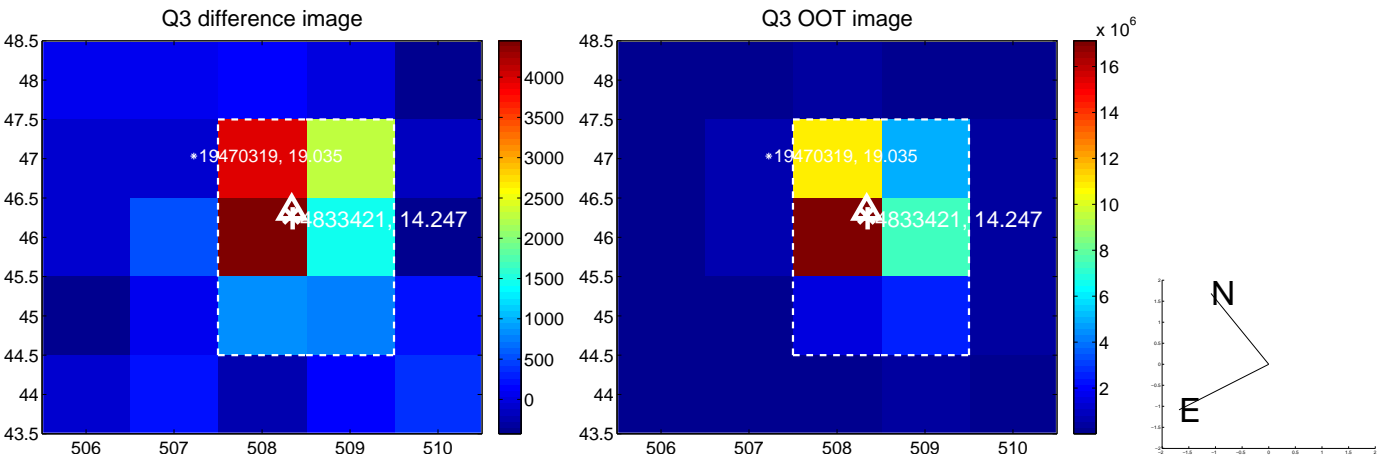
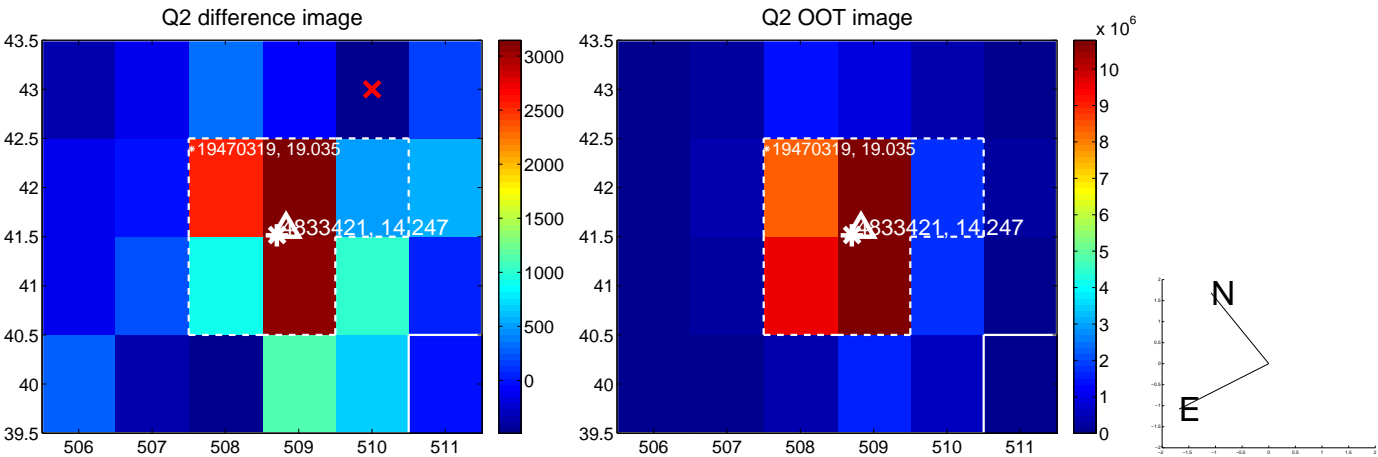
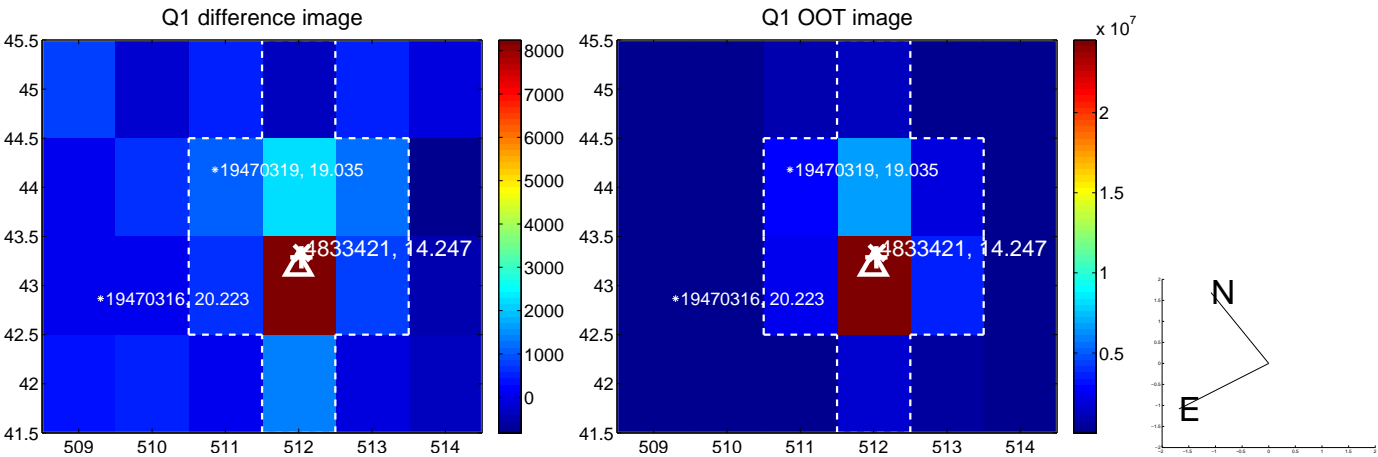
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.053 ± 0.100	0.53	-0.052 ± 0.099	-0.010 ± 0.131
PRF-fit source offset from KIC position	0.133 ± 0.125	1.06	-0.067 ± 0.103	-0.114 ± 0.143
photometric centroid source offset	0.24 ± 0.20	1.23	-0.23 ± 0.20	-0.08 ± 0.21

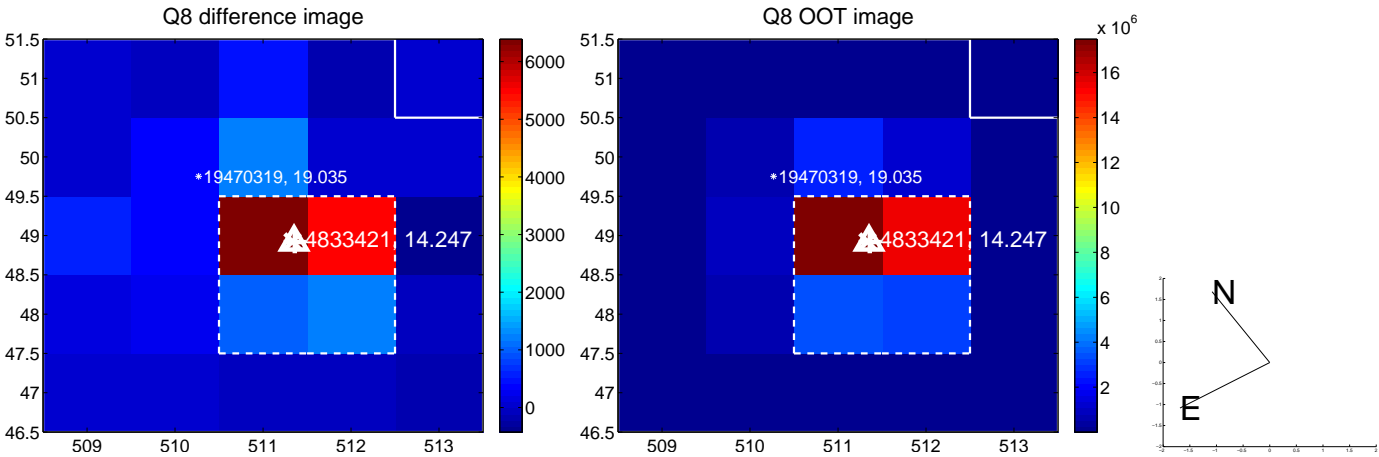
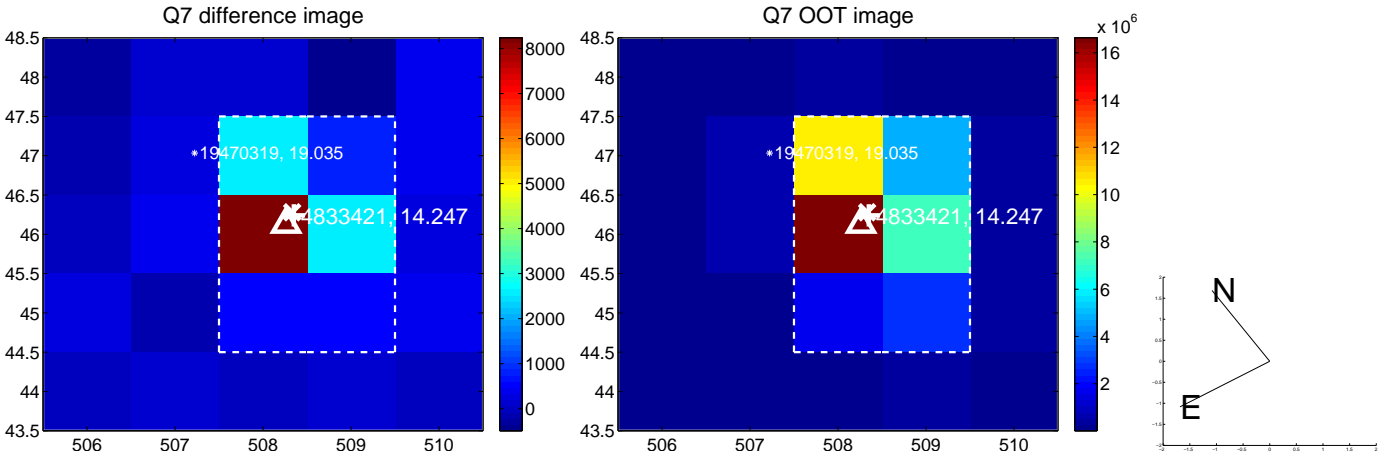
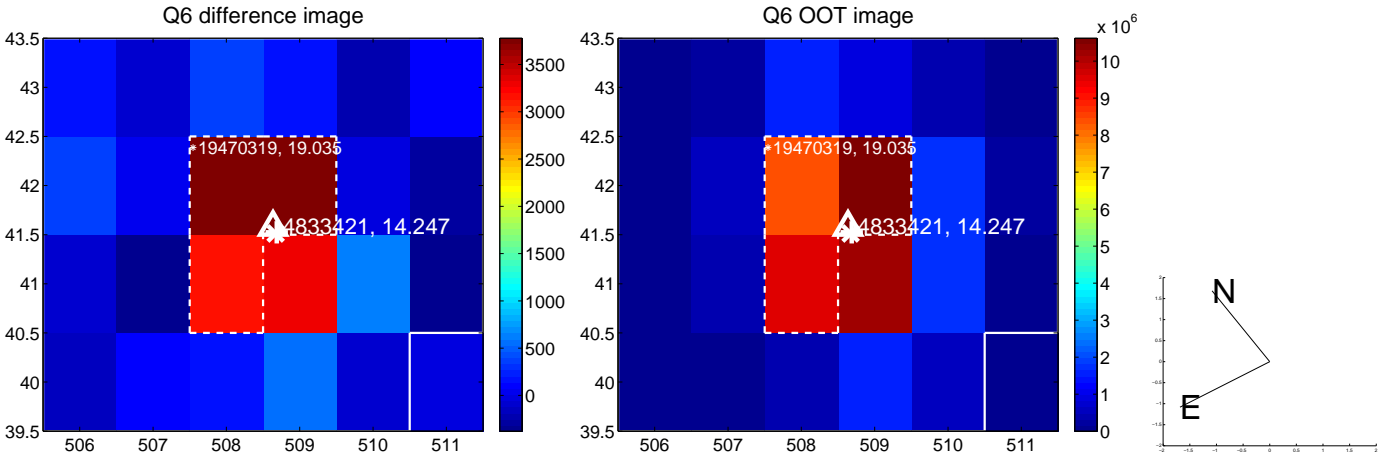
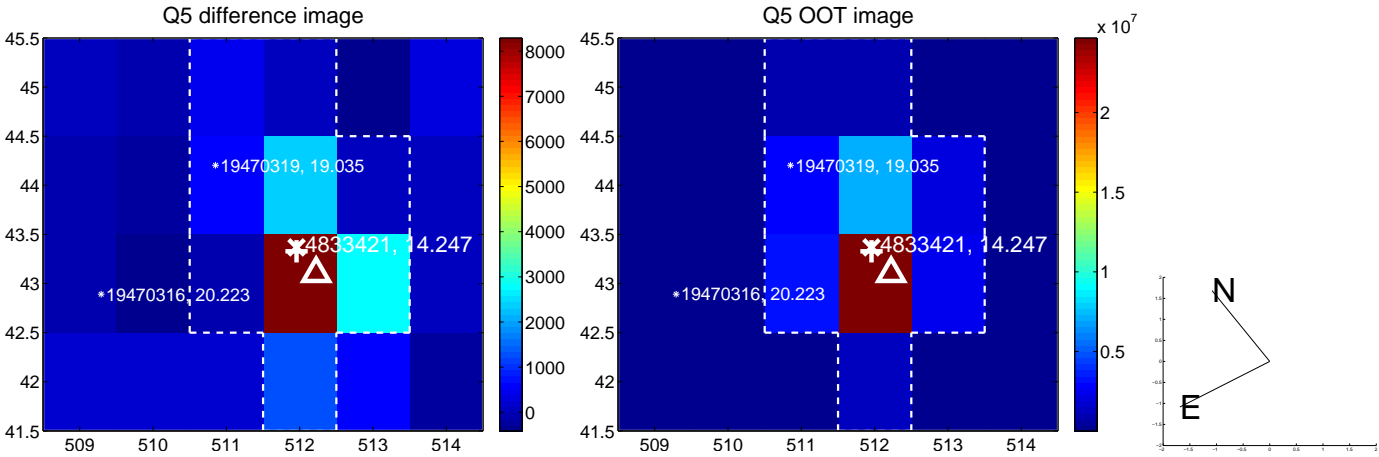


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

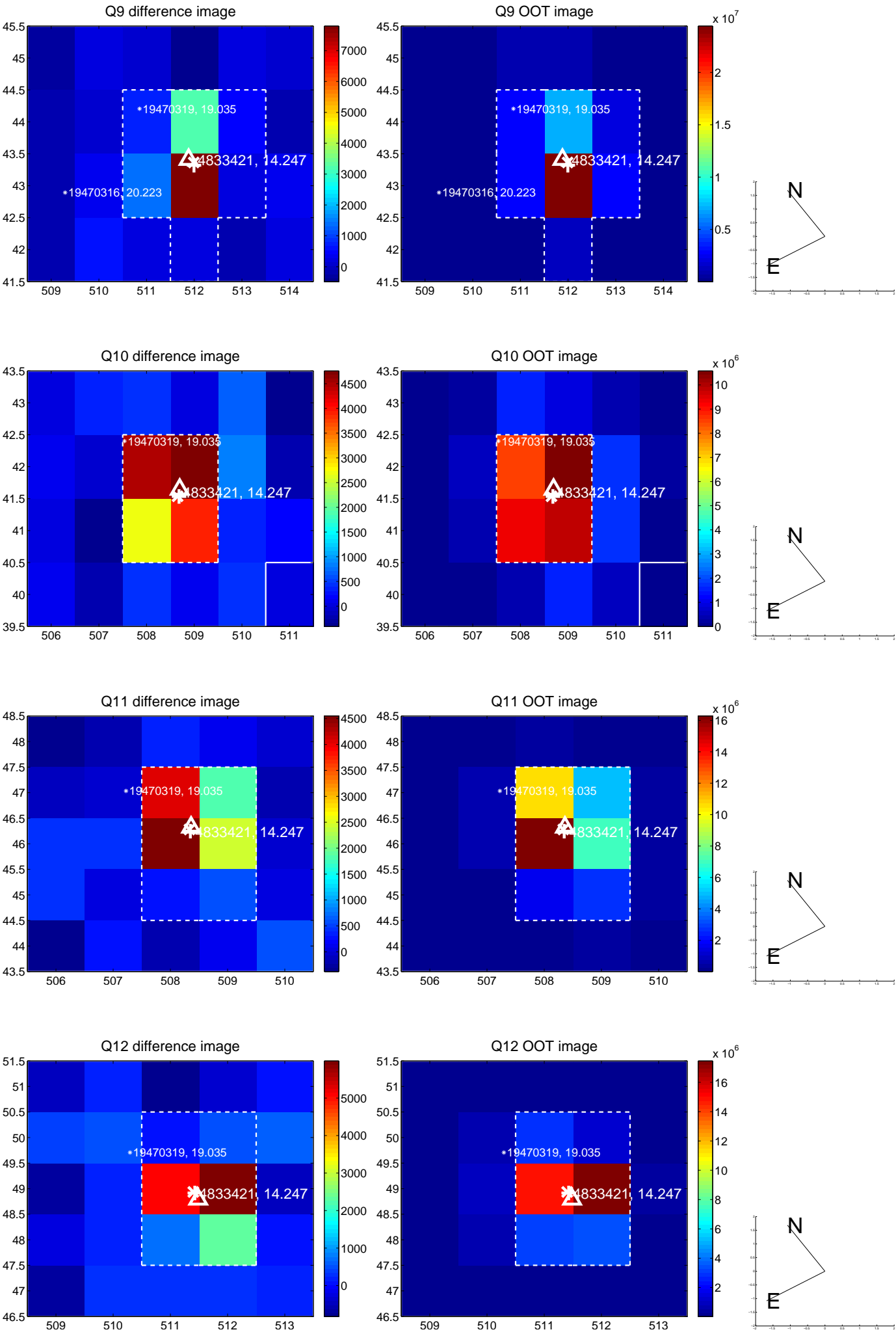
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



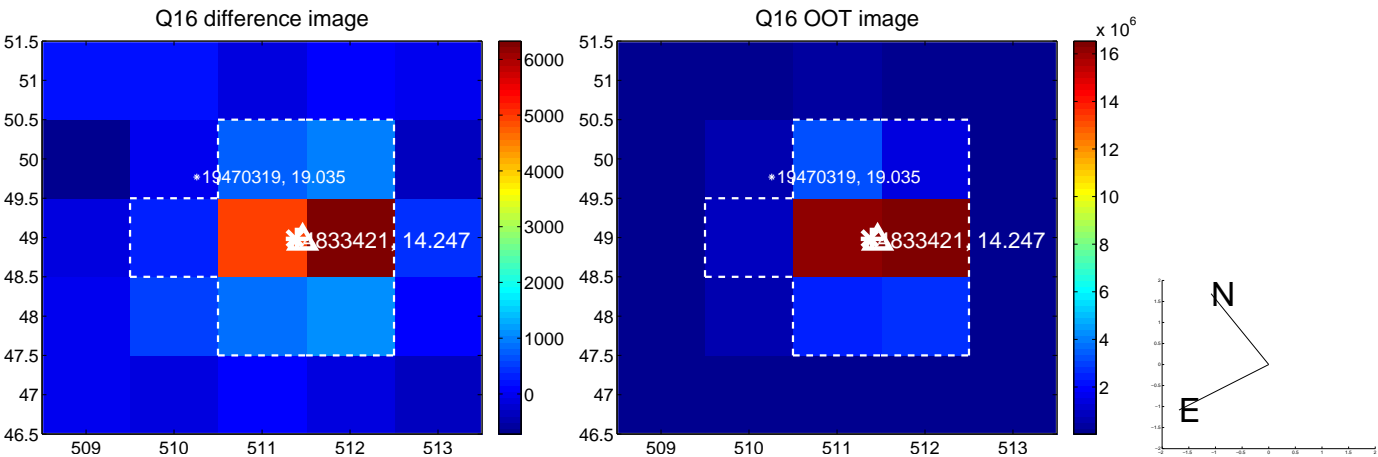
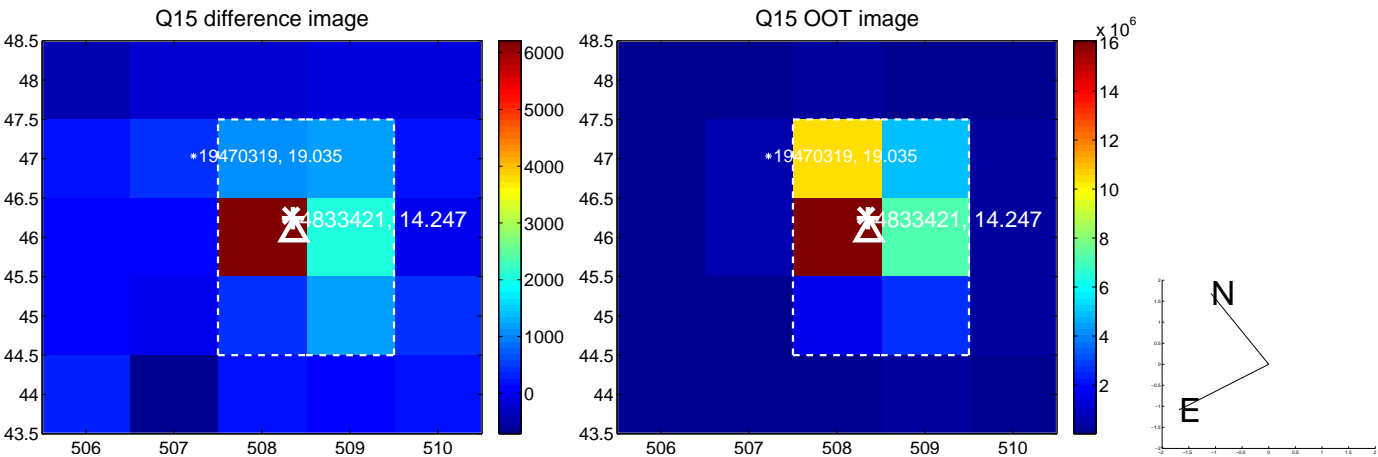
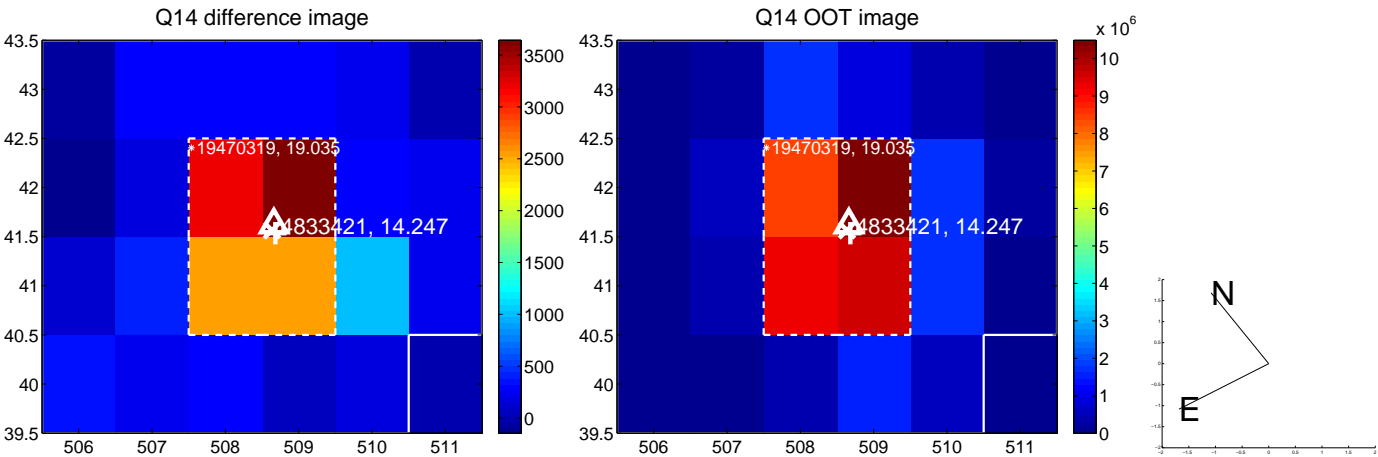
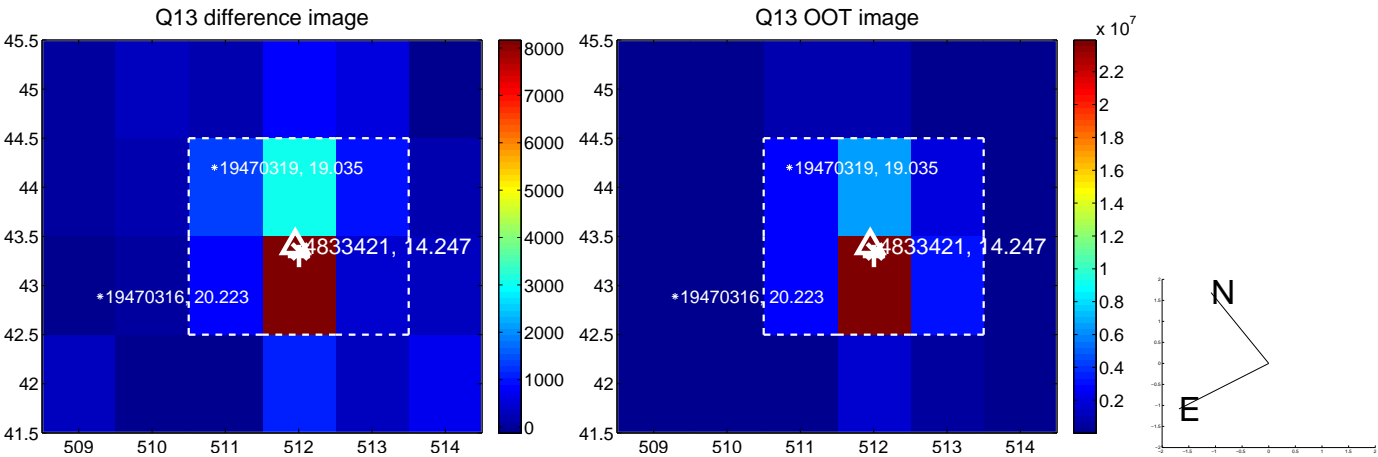
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



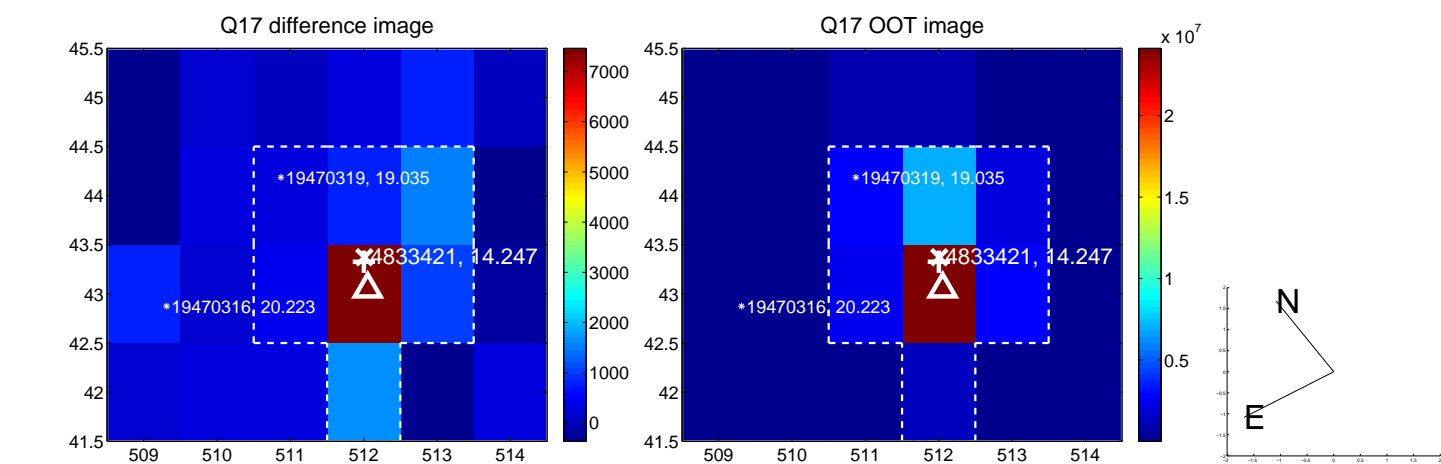
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



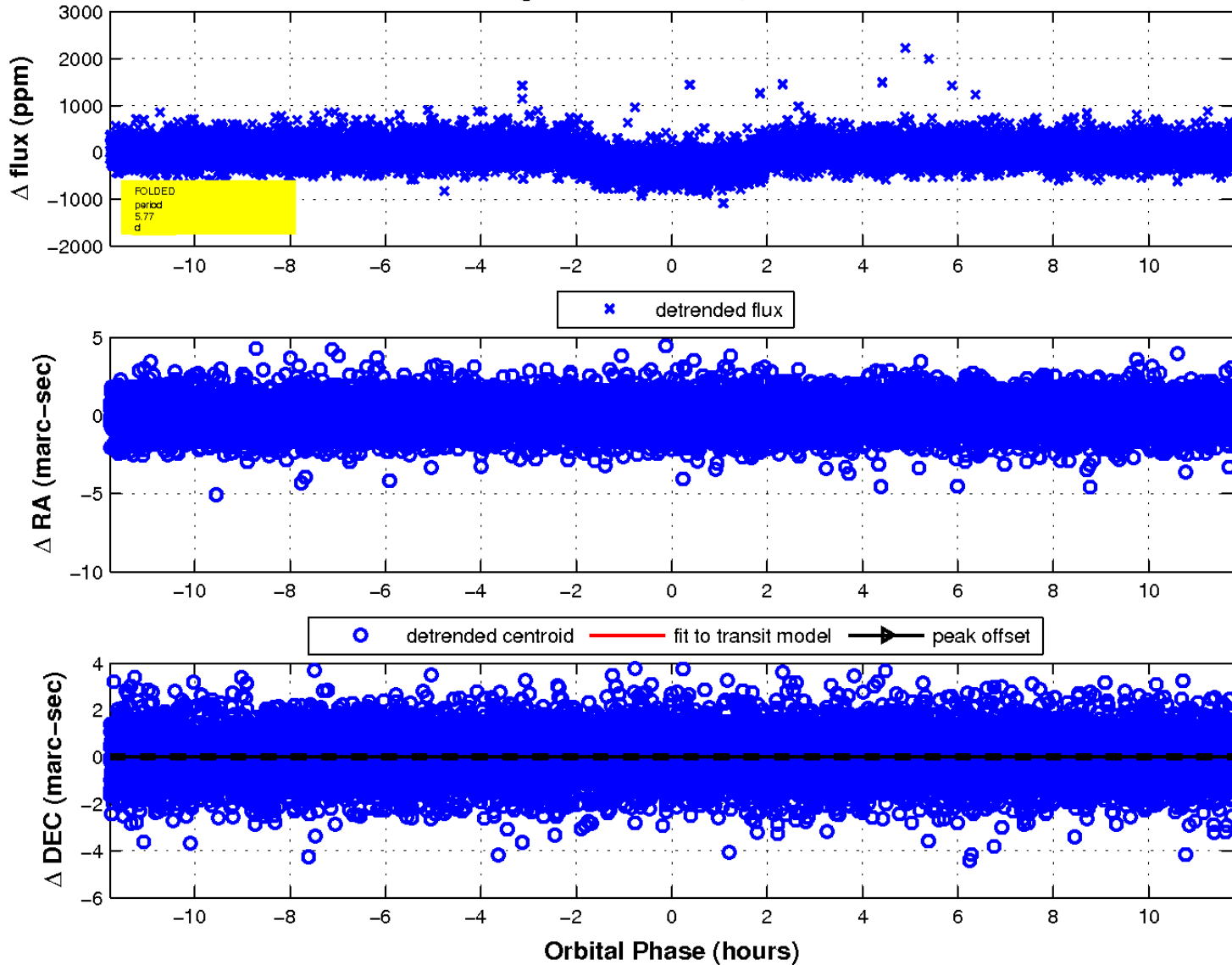
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

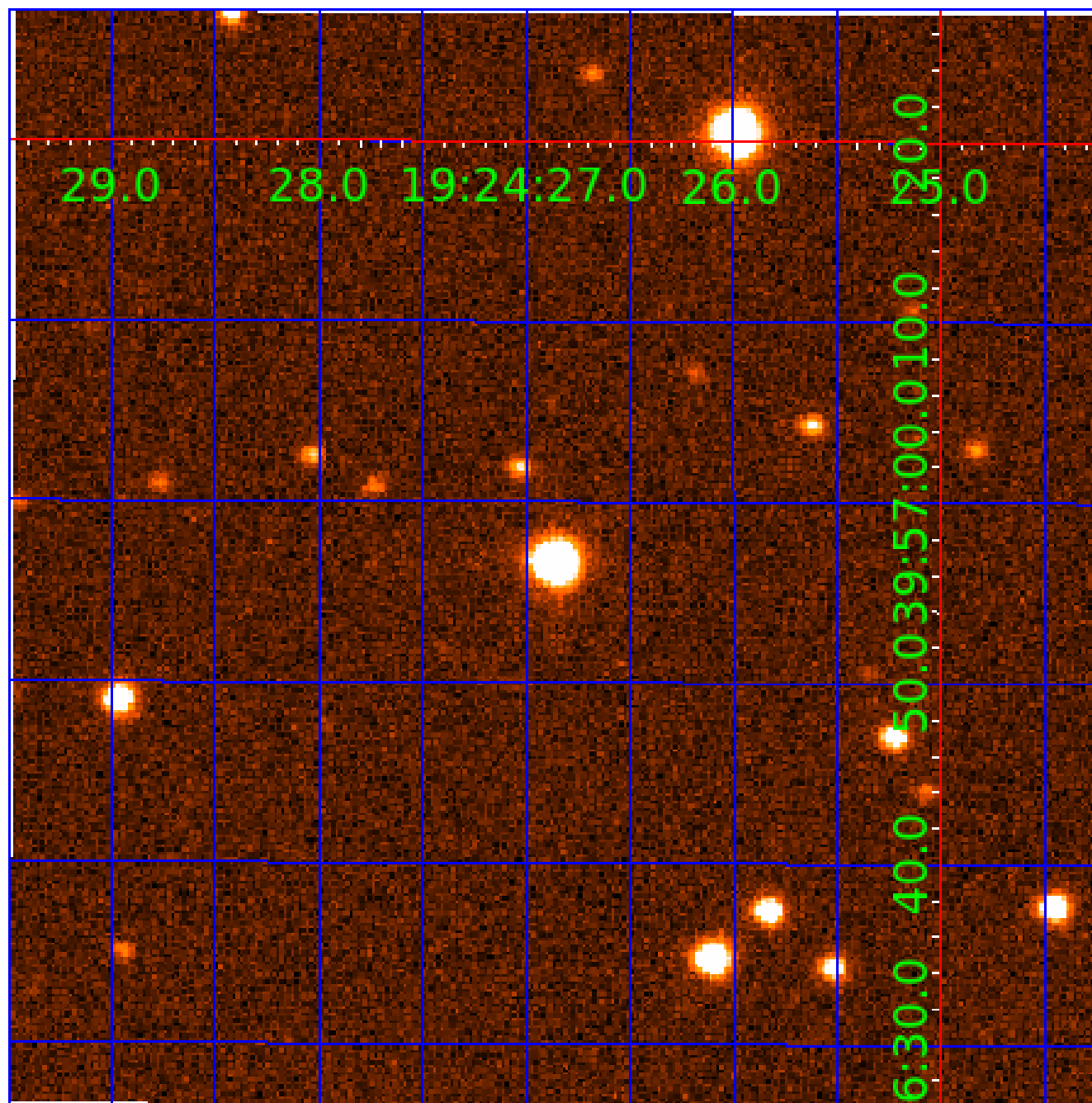


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 004833421

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
004833421-01	OBS	0232.01	12.466004	134.003344	2247.0	5.151	236.8	237.0	1.19	6038	5.97	153.03
004833421-02	OBS	0232.02	5.766147	134.019138	354.5	3.925	47.7	54.1	1.19	6038	2.52	427.79
004833421-03	OBS	0232.04	37.994464	162.998628	352.7	8.148	24.7	25.5	1.19	6038	2.79	34.63
004833421-04	OBS	0232.03	21.587152	142.981948	296.5	4.897	22.4	24.4	1.19	6038	2.28	73.59
004833421-05	OBS	0232.05	56.260588	164.194664	325.6	8.461	20.4	22.6	1.19	6038	2.34	20.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004833421-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

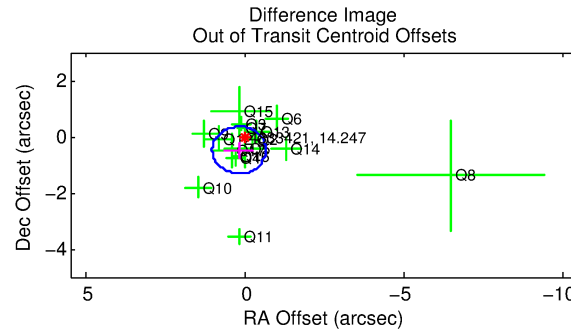
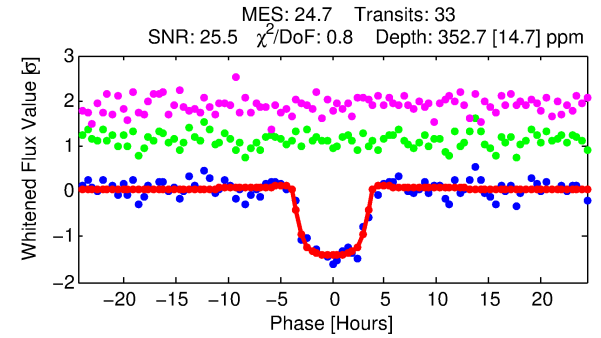
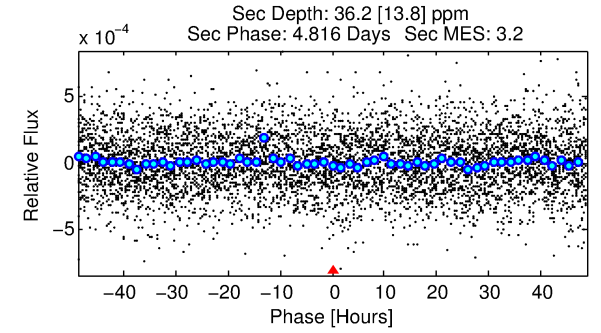
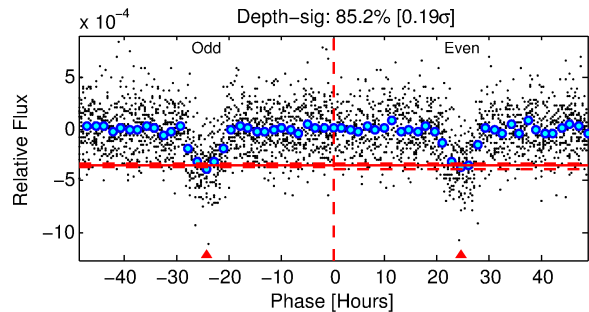
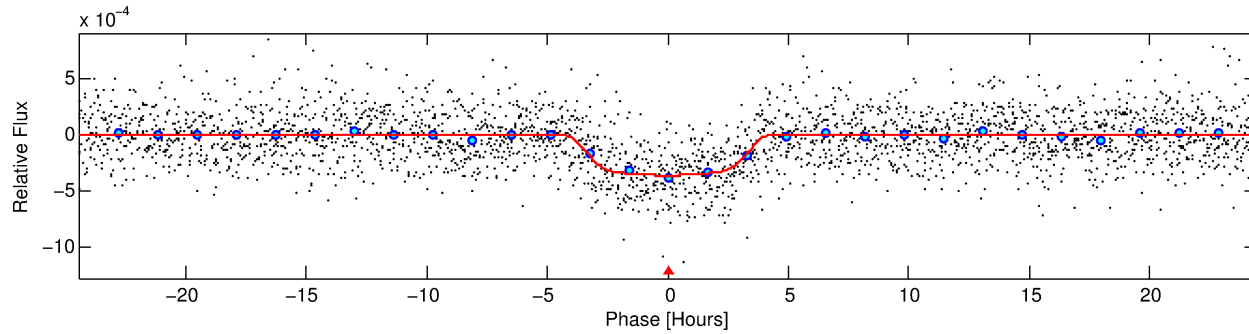
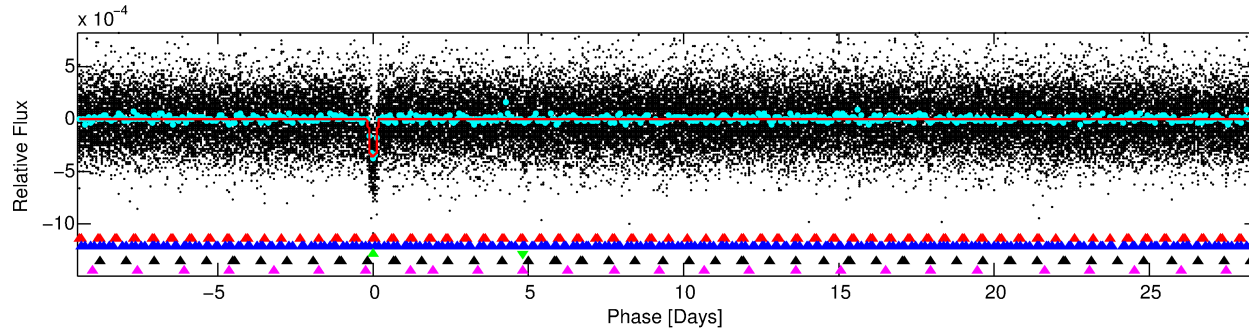
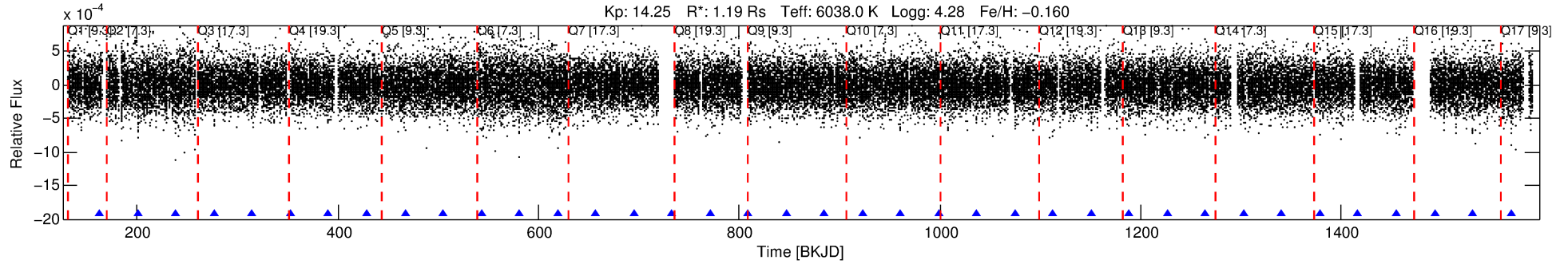
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004833421-03

No Significant Match Found

DV One-Page Summary

KIC: 4833421 Candidate: 3 of 5 Period: 37.994 d
KOI: K00232.04 Name: Kepler-122e Corr: 0.920



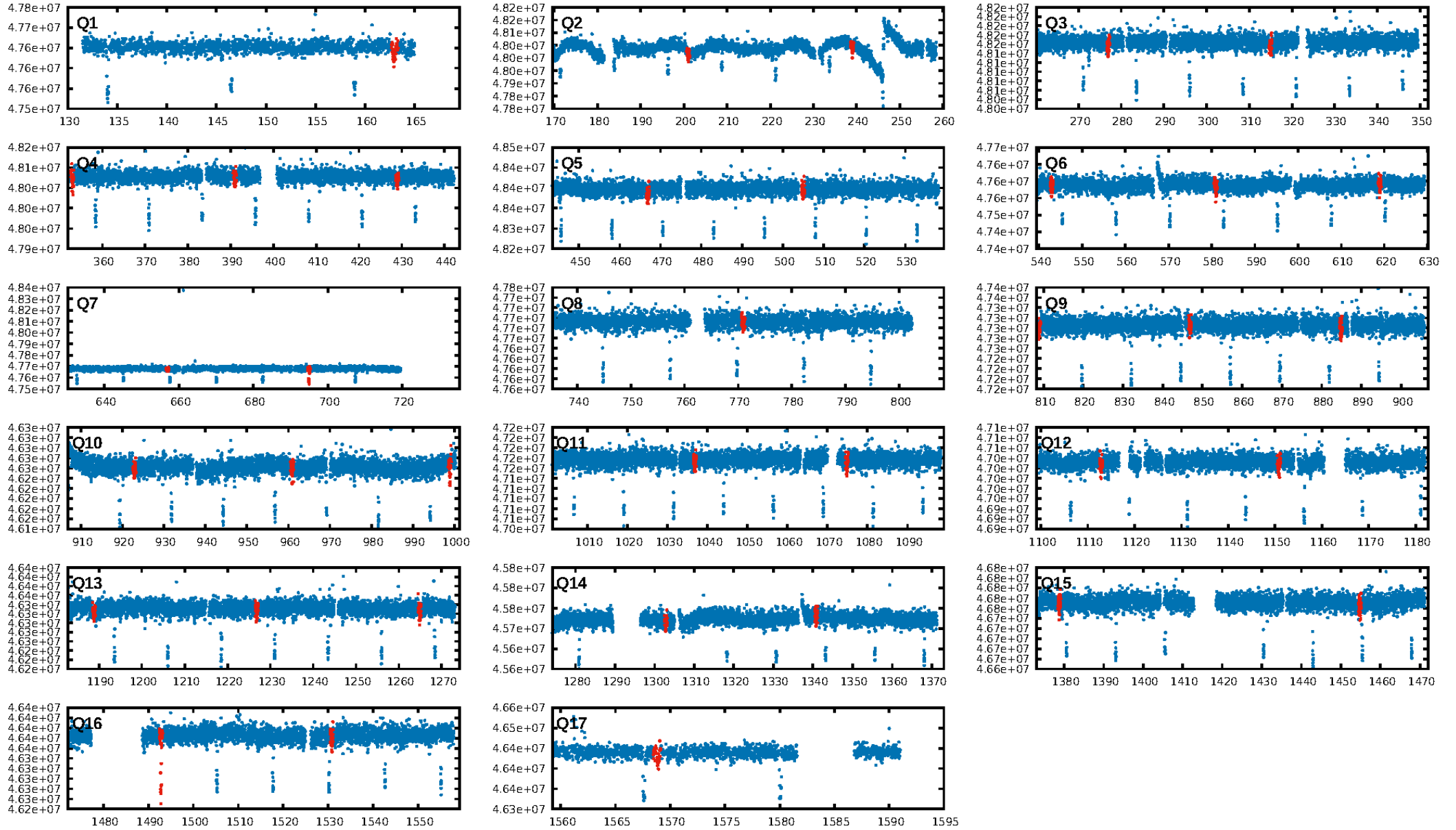
DV Fit Results:

Period = 37.99446 [0.00031] d
Epoch = 162.9986 [0.0067] BKJD
Rp/R* = 0.0215 [0.0008]
a/R* = 13.55 [1.91]
b = 0.95 [0.02]
Seff = 34.63 [8.61]
Teq = 619 [38] K
Rp = 2.79 [0.46] Re
a = 0.2209 [0.0329] AU
Ag = 124.63 [56.49] [2.19σ]
Teffp = 3195 [316] K [8.10σ]

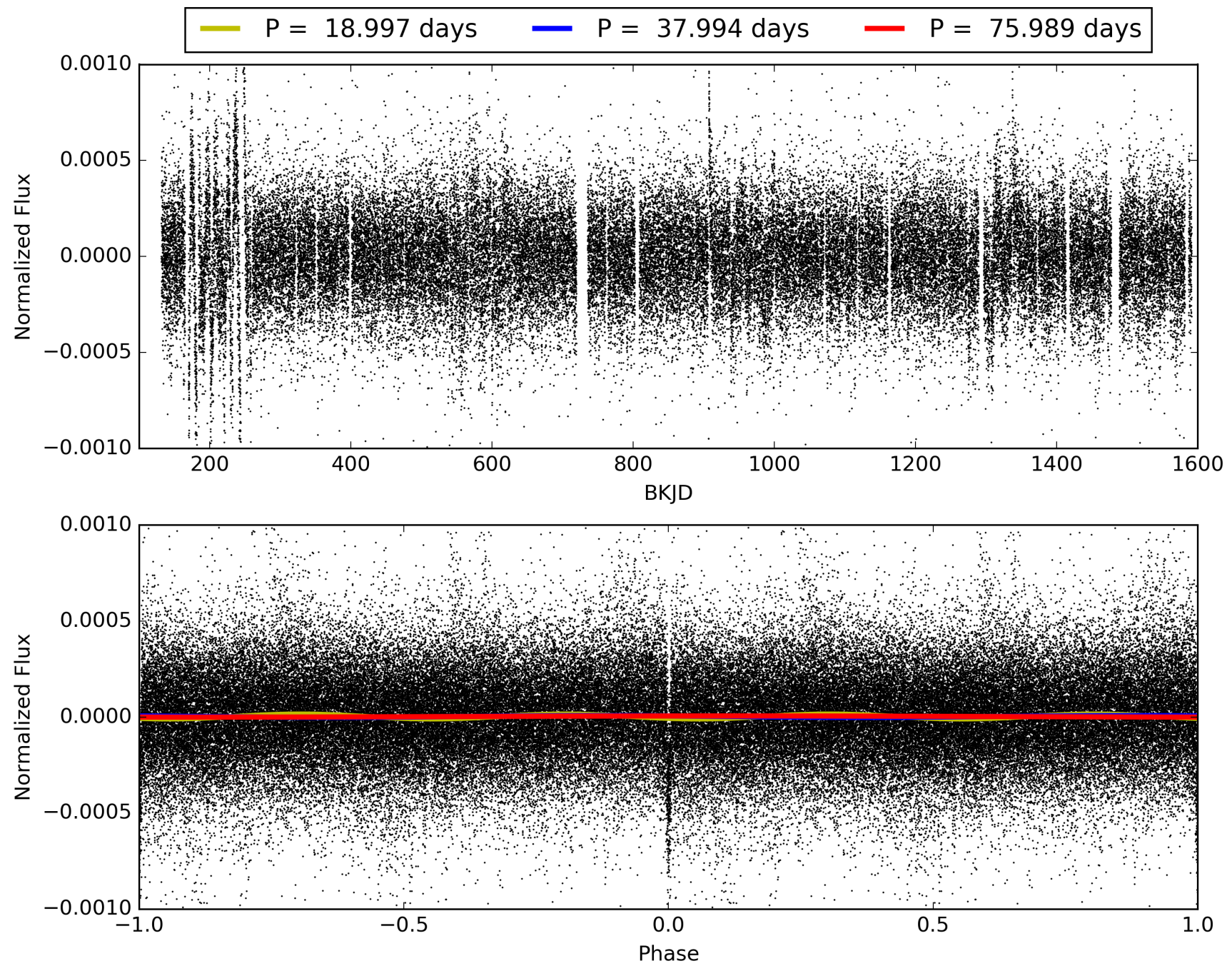
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.42σ]
LongPeriod-sig: 100.0% [37.32σ]
ModelChiSquare2-sig: 75.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.32e-128
RollingBand-fgt: 1.00 [31/31]
GhostDiagnostic-chr: 2.388
Centroid-sig: N/A
Centroid-so: 0.436 arcsec [1.11σ]
OotOffset-rm: 0.523 arcsec [1.87σ]
KicOffset-rm: 0.525 arcsec [1.71σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.59 [10/17]

TCE 004833421-03, PDC Light Curves

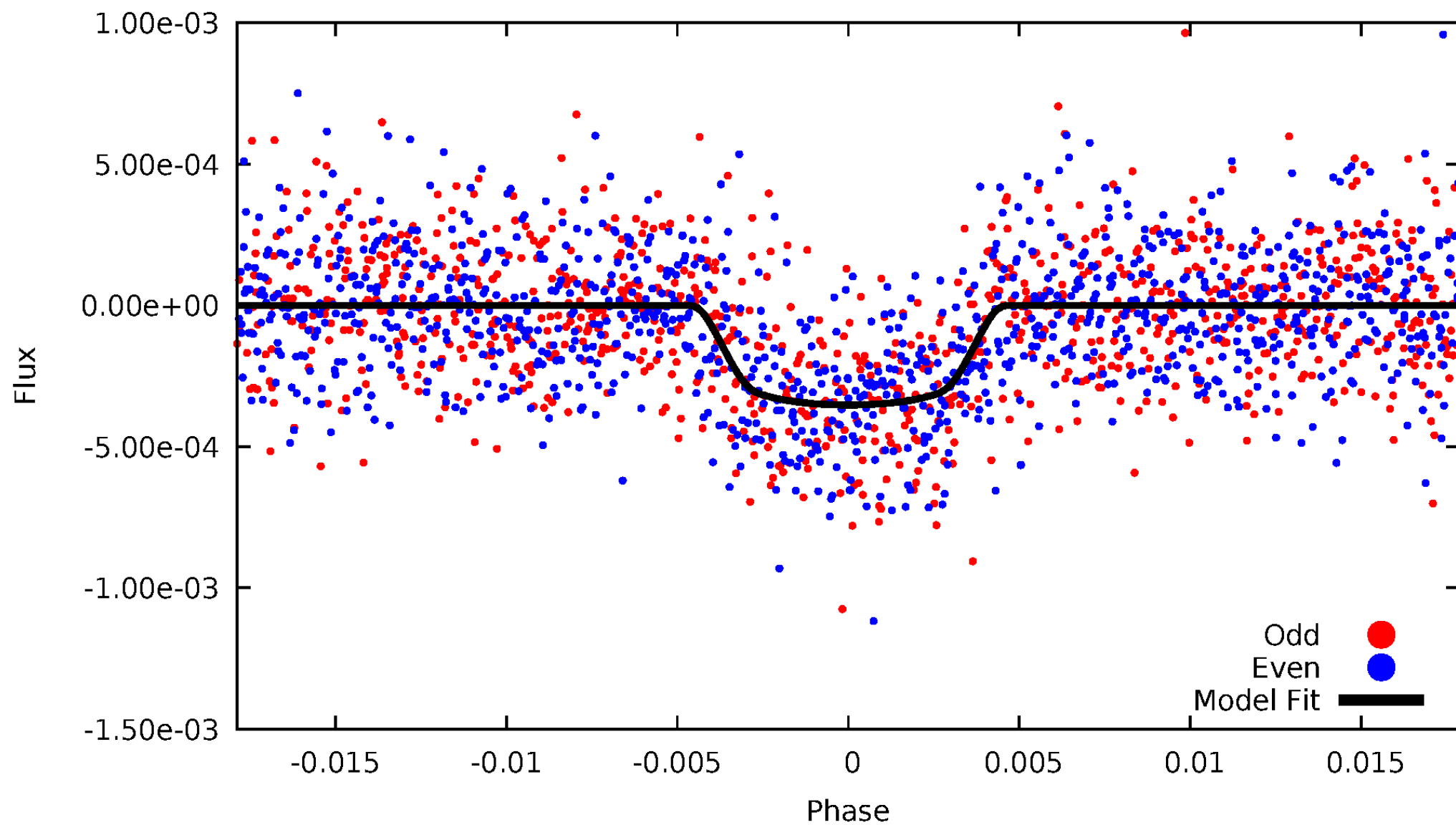


TCE 004833421-03



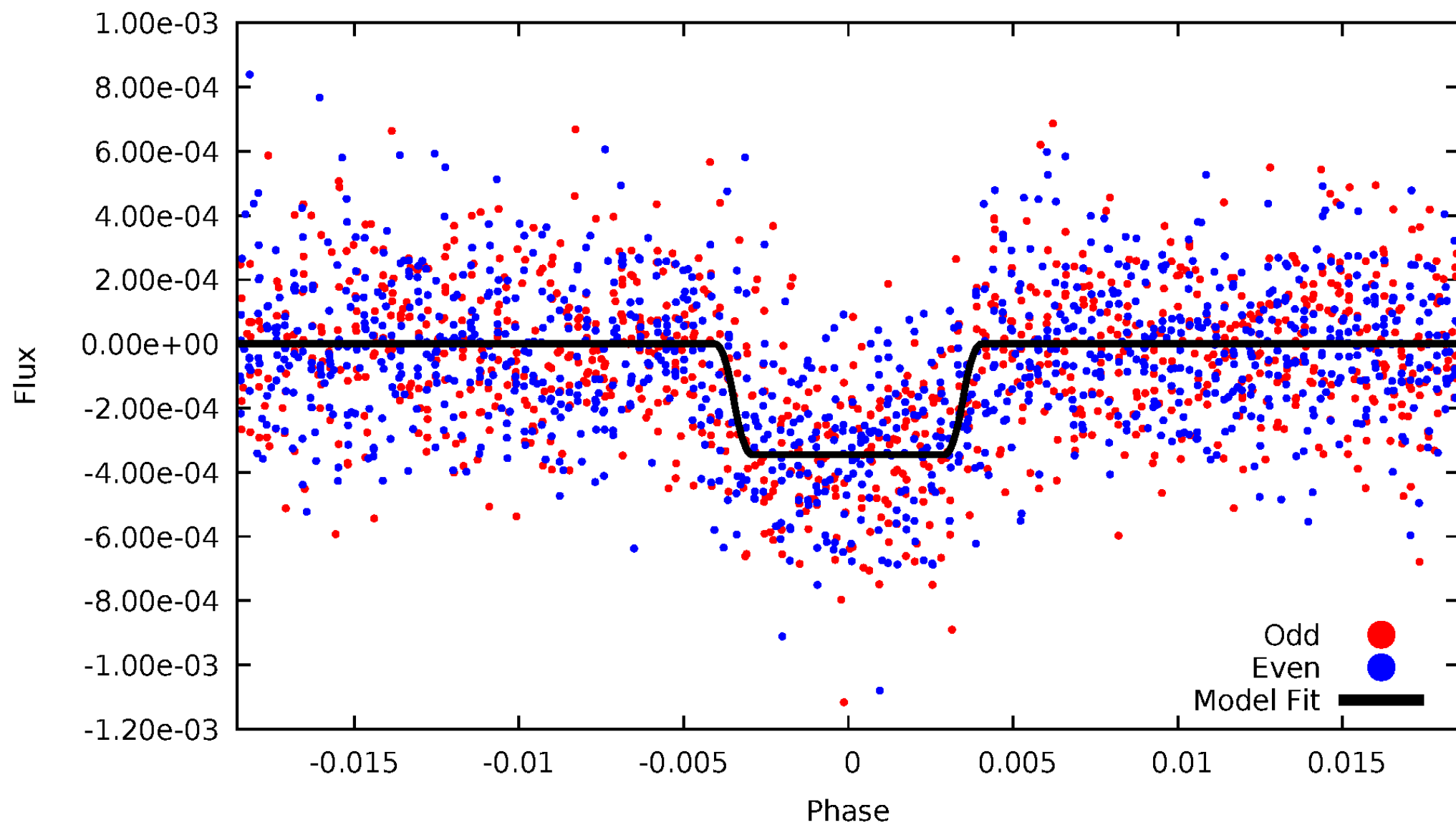
DV Odd/Even

TCE 004833421-03



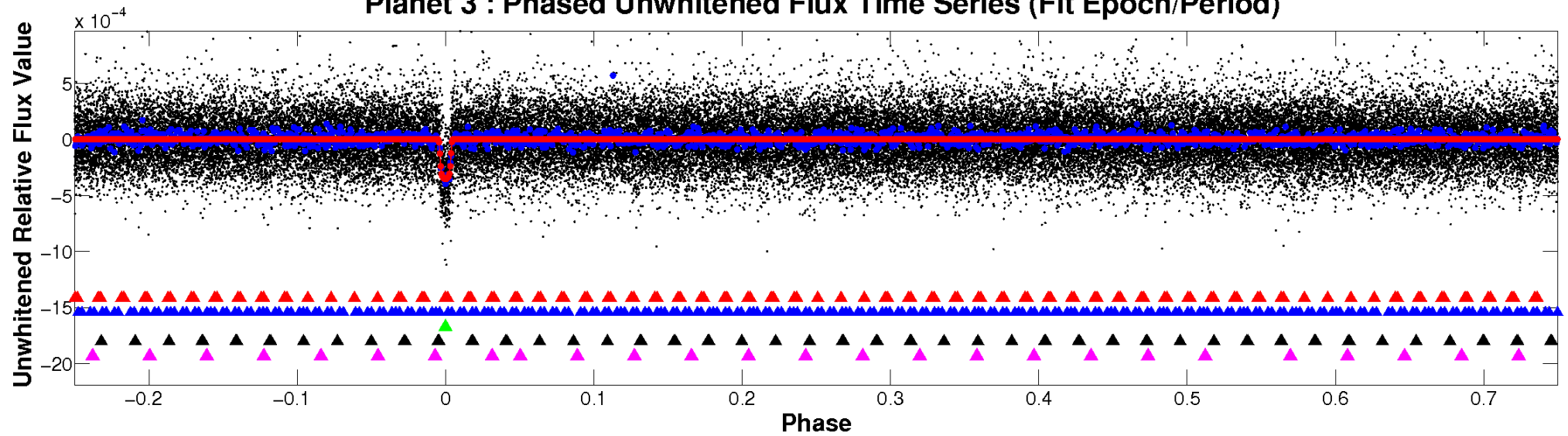
ALT Odd/Even

TCE 004833421-03

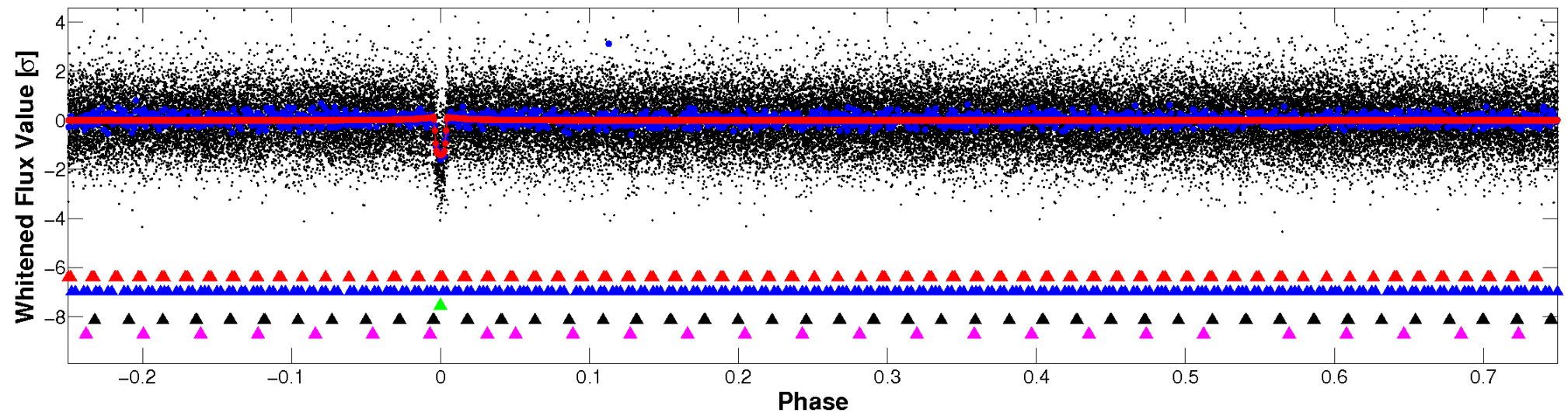


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

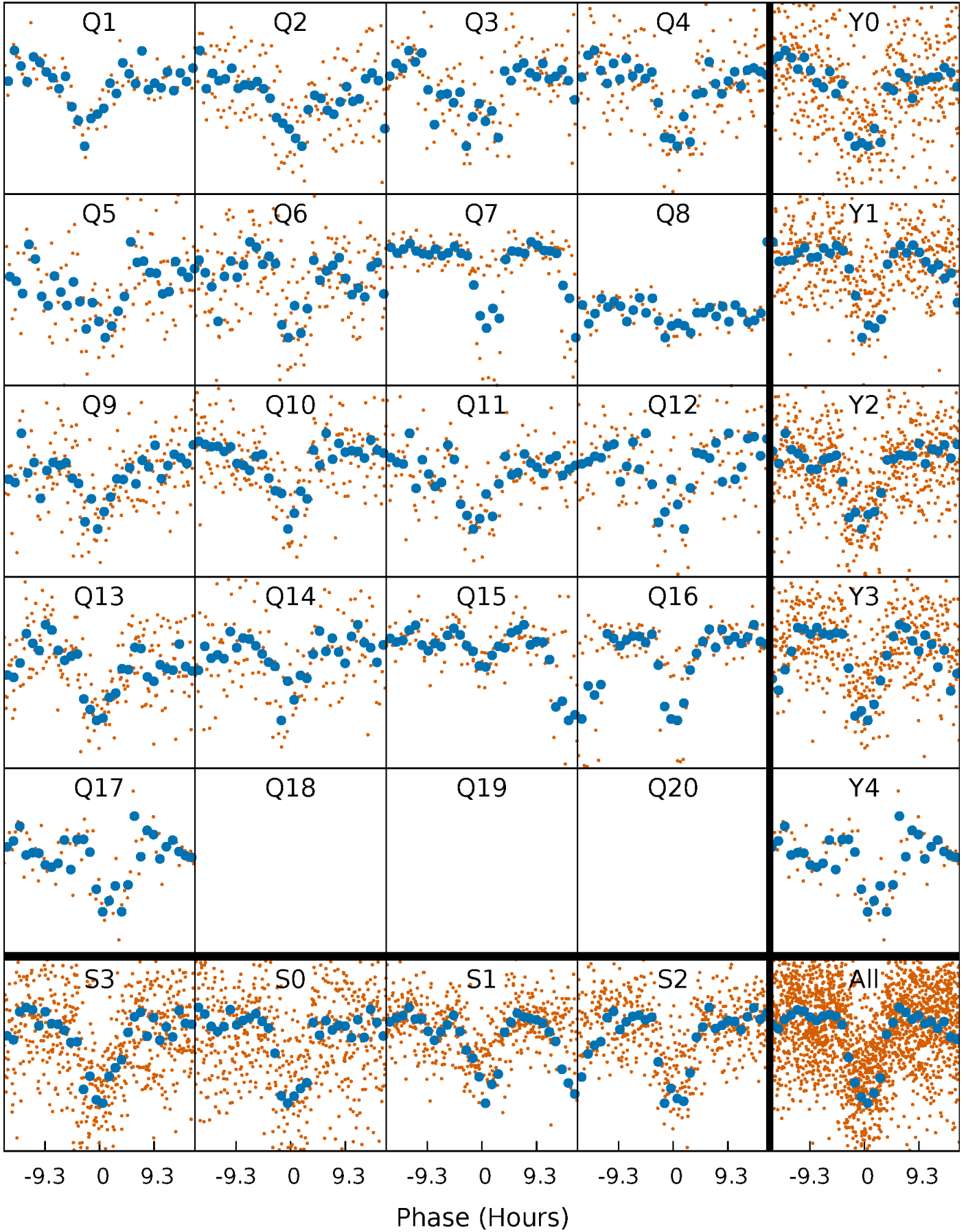


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



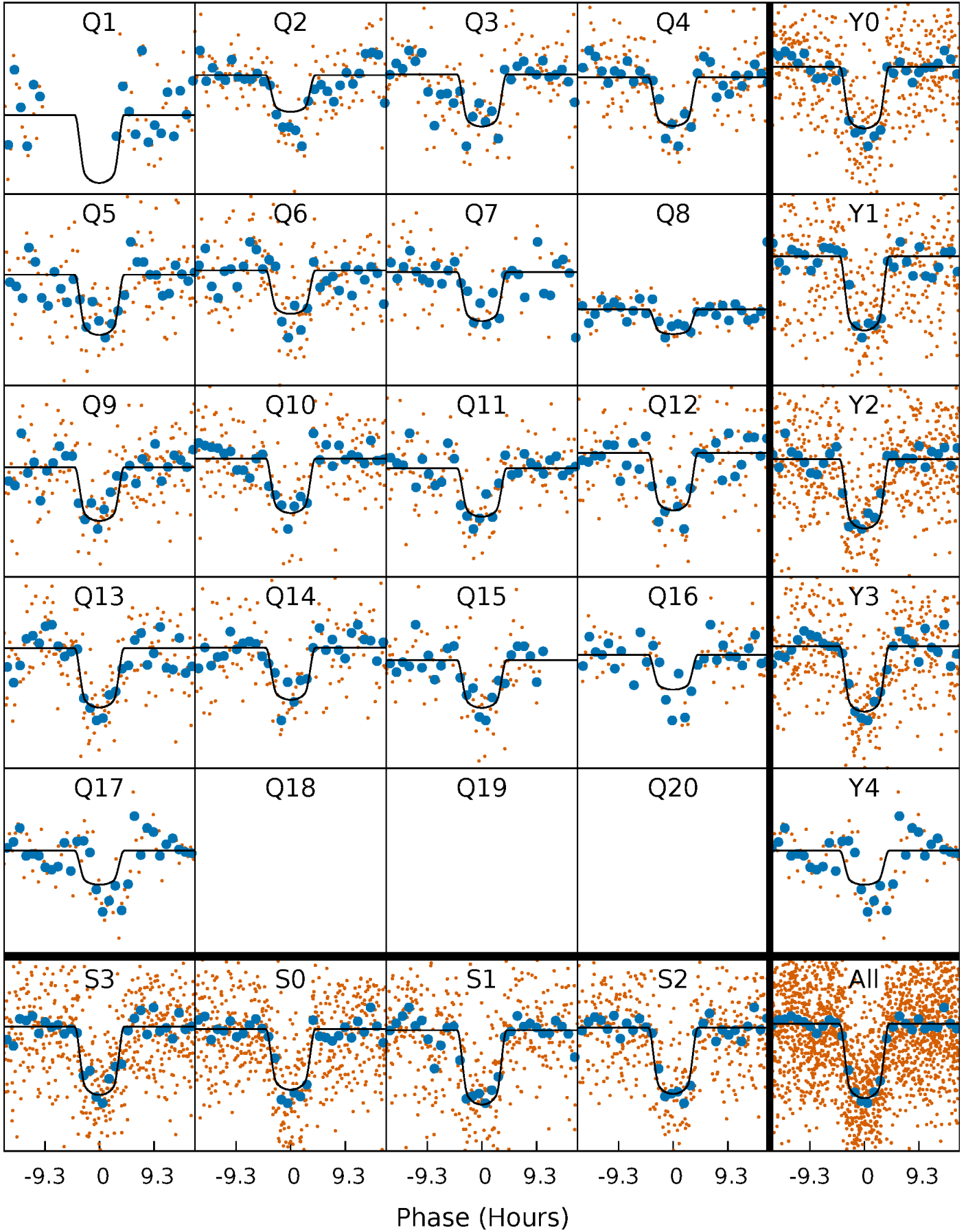
PDC Quarter-Phased Transit Curves

TCE 004833421-03 P= 37.994464 Days $T_0=162.998628$ (BKJD)



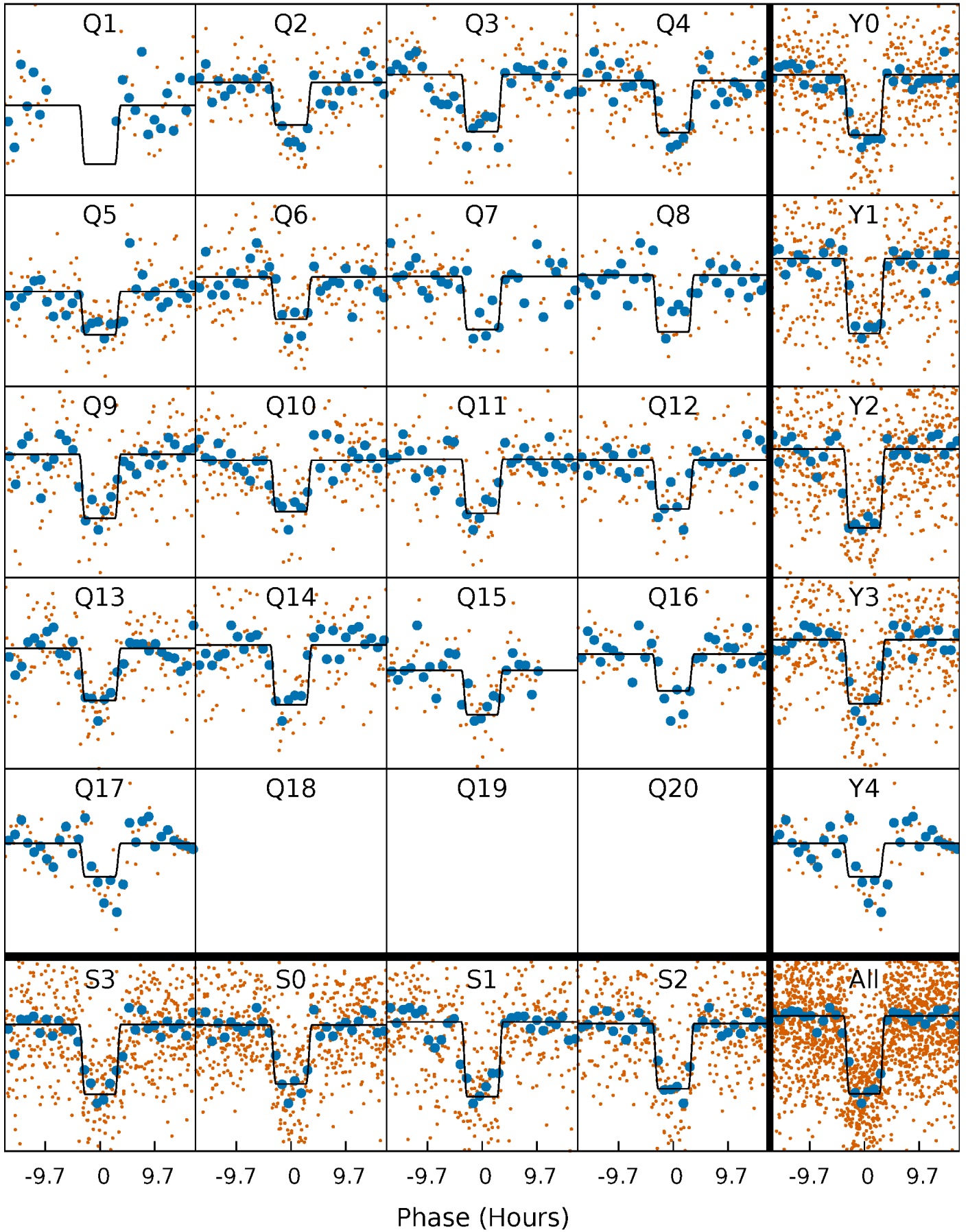
DV Quarter-Phased Transit Curves

TCE 004833421-03 P= 37.994464 Days $T_0=162.998628$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

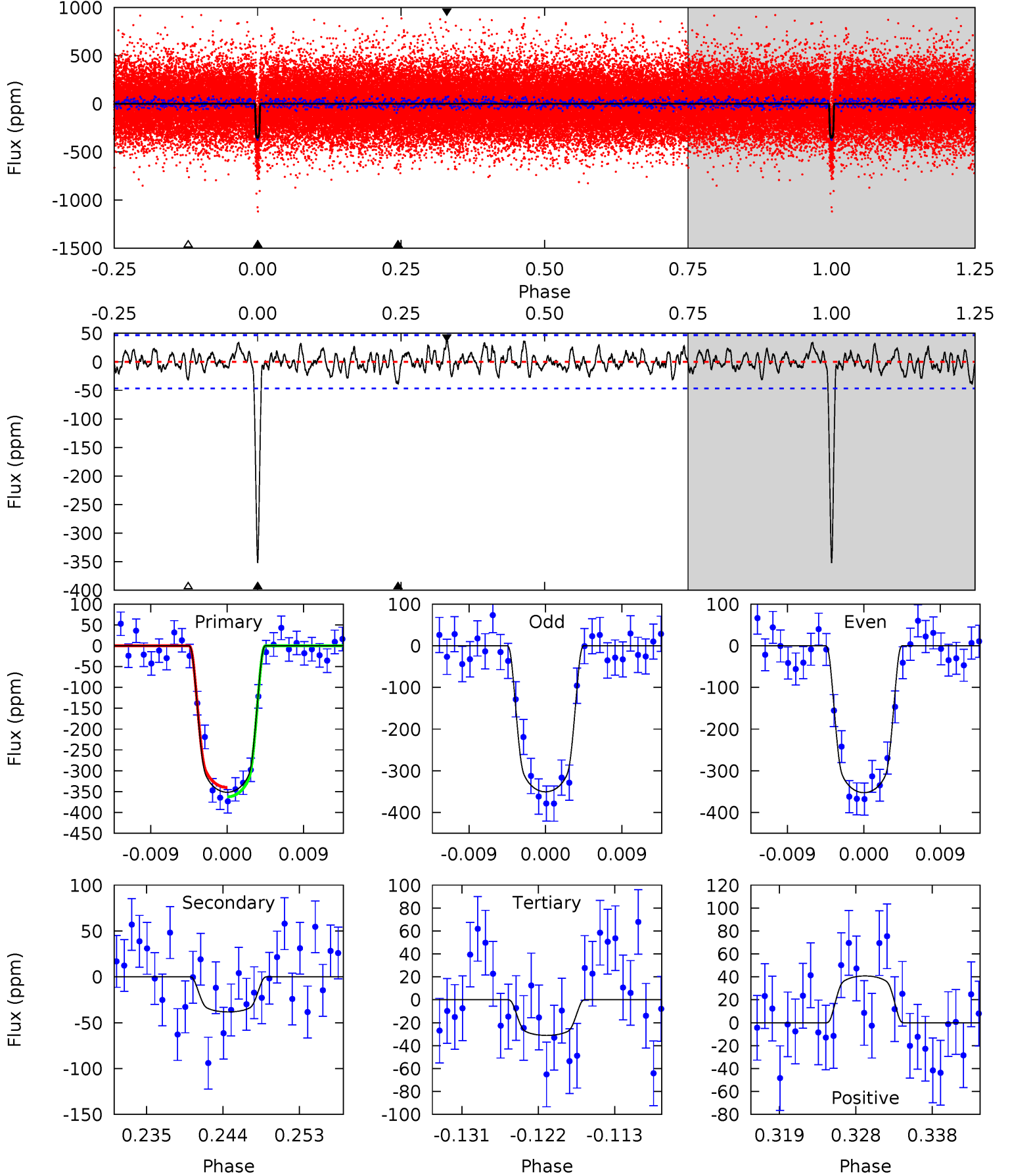
TCE 004833421-03 P= 37.995240 Days $T_0=162.988777$ (BKJD)



DV Model-Shift Uniqueness Test

004833421-03, P = 37.994464 Days, E = 125.004164 Days

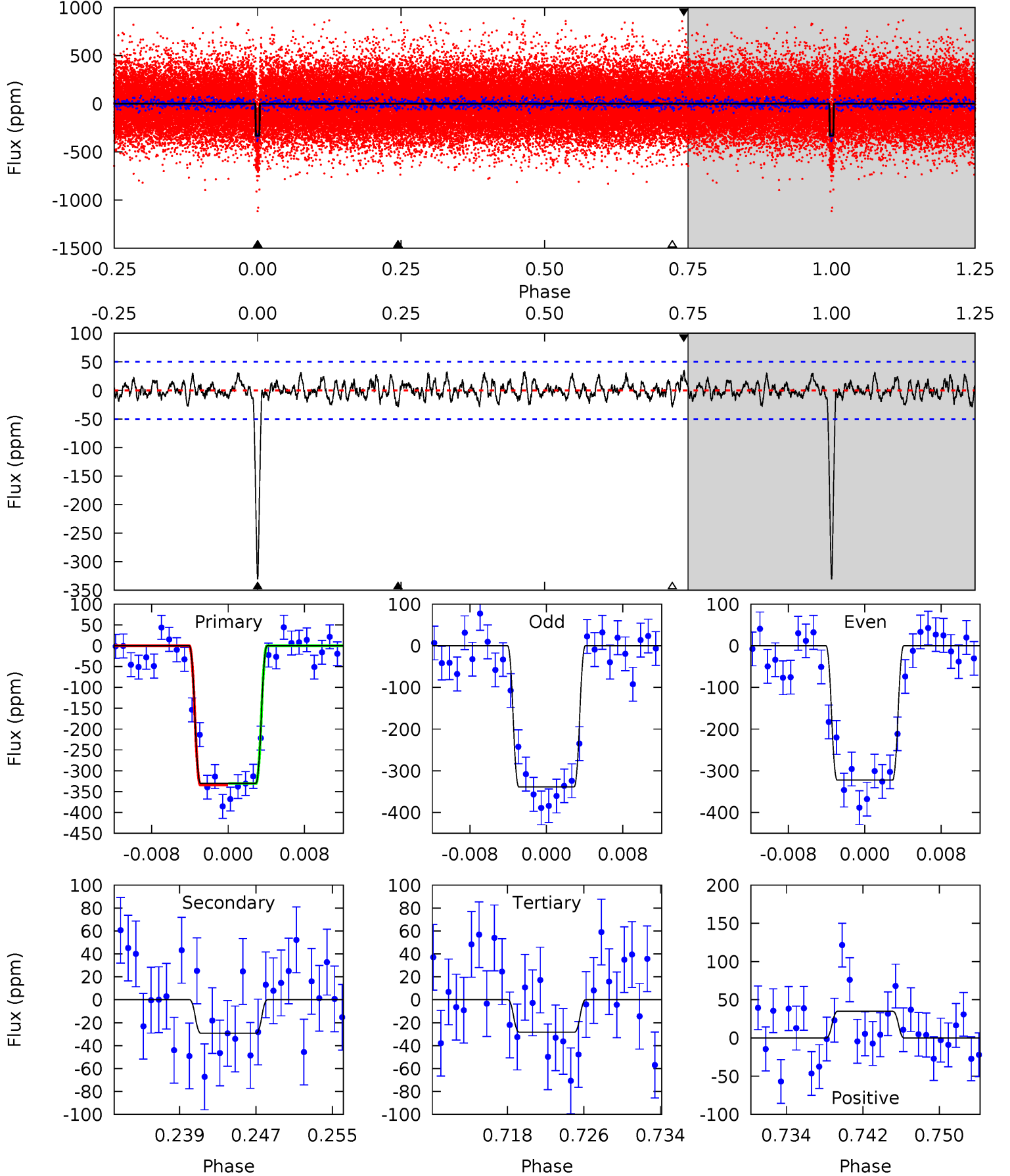
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.0	4.14	3.36	4.41	5.04	2.60	1.38	34.6	33.6	0.78	-0.27	0.11	0.95	0.10	1.22



Alt Model-Shift Uniqueness Test

004833421-03, P = 37.995240 Days, E = 124.993537 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.3	2.96	2.86	3.52	5.07	2.65	1.15	30.5	29.8	0.10	-0.56	0.82	0.99	0.10	0.18



Stellar Parameters For KIC 004833421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6038^{+121}_{-121}	$4.284^{+0.137}_{-0.112}$	$-0.160^{+0.150}_{-0.150}$	$1.191^{+0.189}_{-0.189}$	$0.995^{+0.082}_{-0.067}$	$0.830^{+0.562}_{-0.265}$
	+2%/-2%	+3%/-3%	+94%/-94%	+16%/-16%	+8%/-7%	+68%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004833421-03 / KOI 0232.04

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-38 ± 9	$2.79^{+0.27}_{-0.25}$	865^{+36}_{-40}	3662^{+160}_{-173}	130^{+47}_{-35}
Alt.	-29 ± 10	$2.43^{+0.21}_{-0.24}$	863^{+41}_{-40}	3669^{+206}_{-226}	133^{+52}_{-44}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

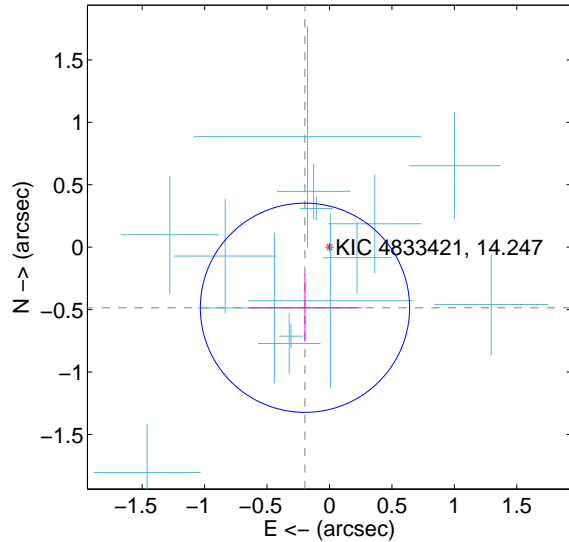
Supplemental centroid analysis for 004833421-03. Kepler magnitude: 14.25. Transit SNR 25.51

There are 15 quarters with good PRF difference image offsets

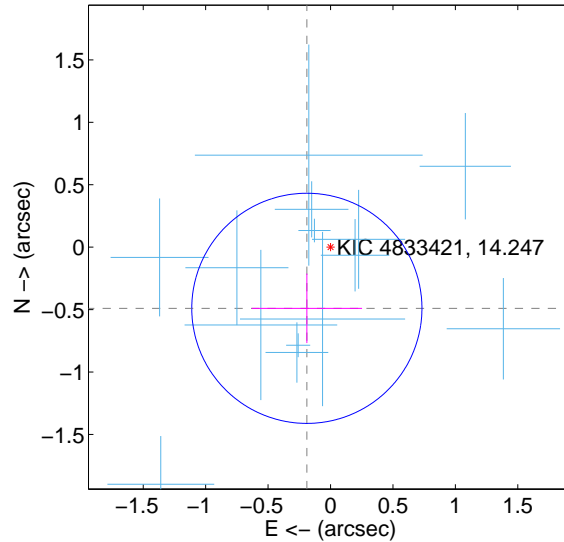
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.523 ± 0.279	1.87	0.196 ± 0.453	-0.485 ± 0.272
PRF-fit source offset from KIC position	0.525 ± 0.307	1.71	0.190 ± 0.442	-0.490 ± 0.279
photometric centroid source offset	0.44 ± 0.39	1.11	0.33 ± 0.38	-0.28 ± 0.41

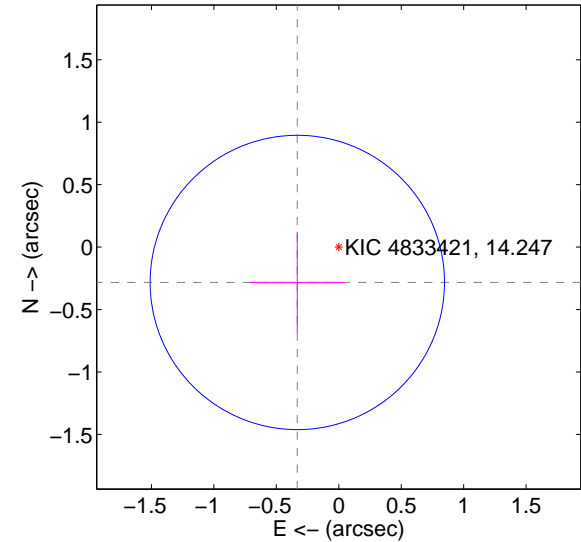
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

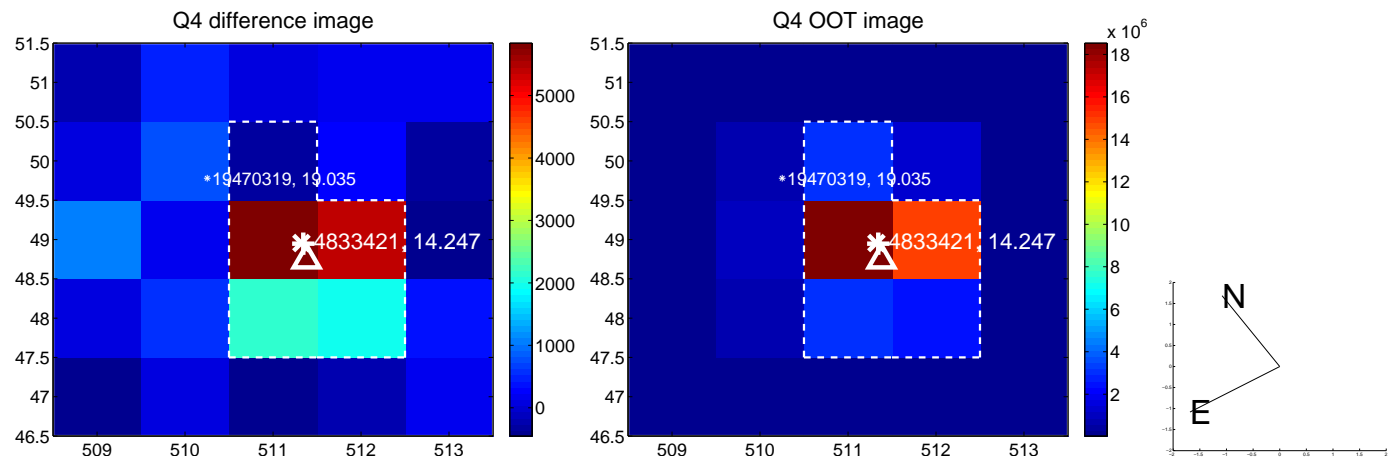
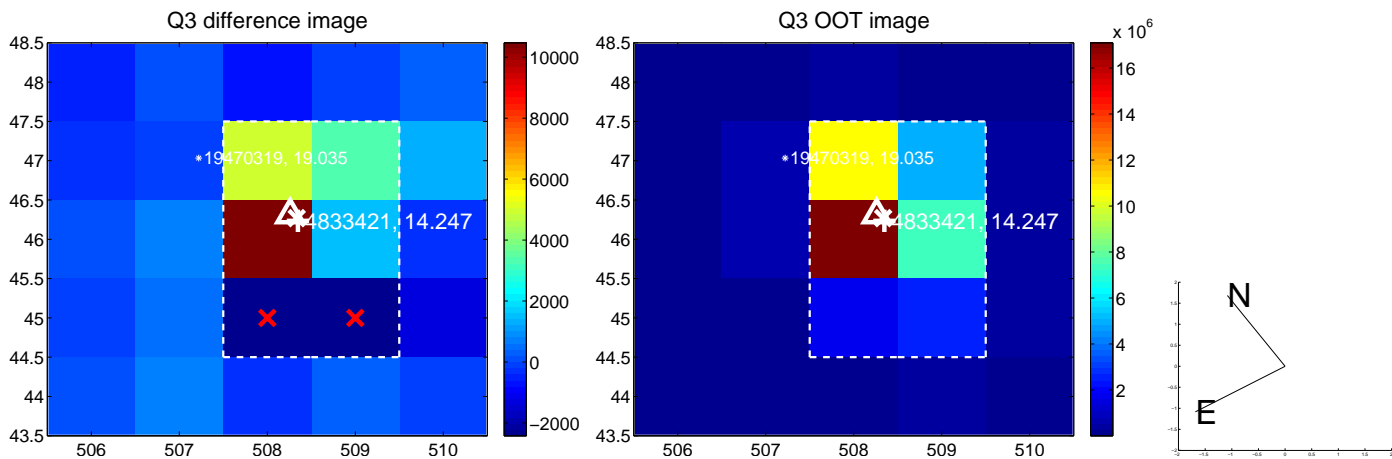
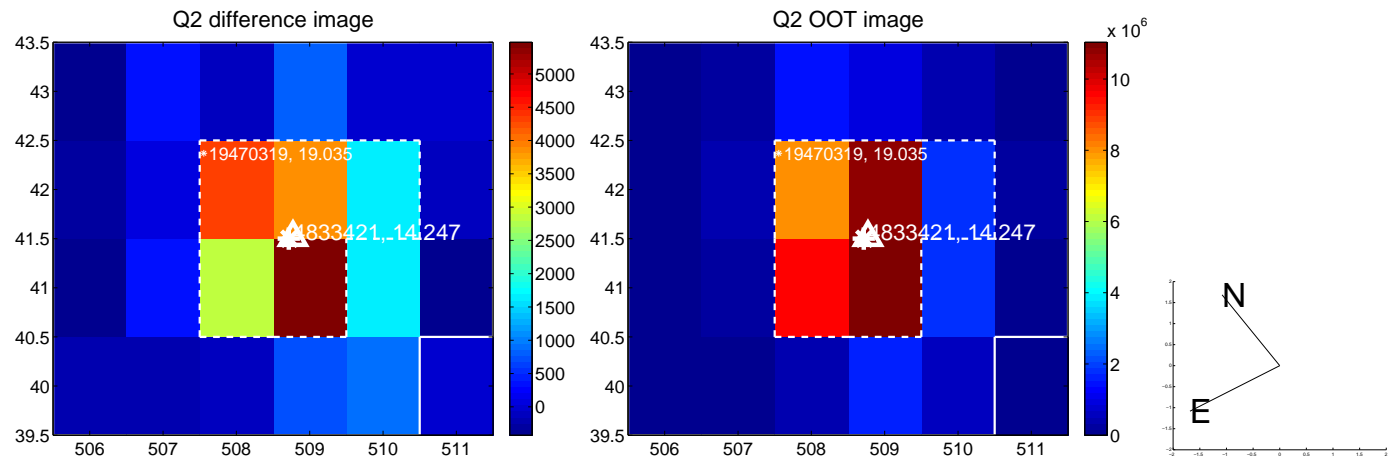
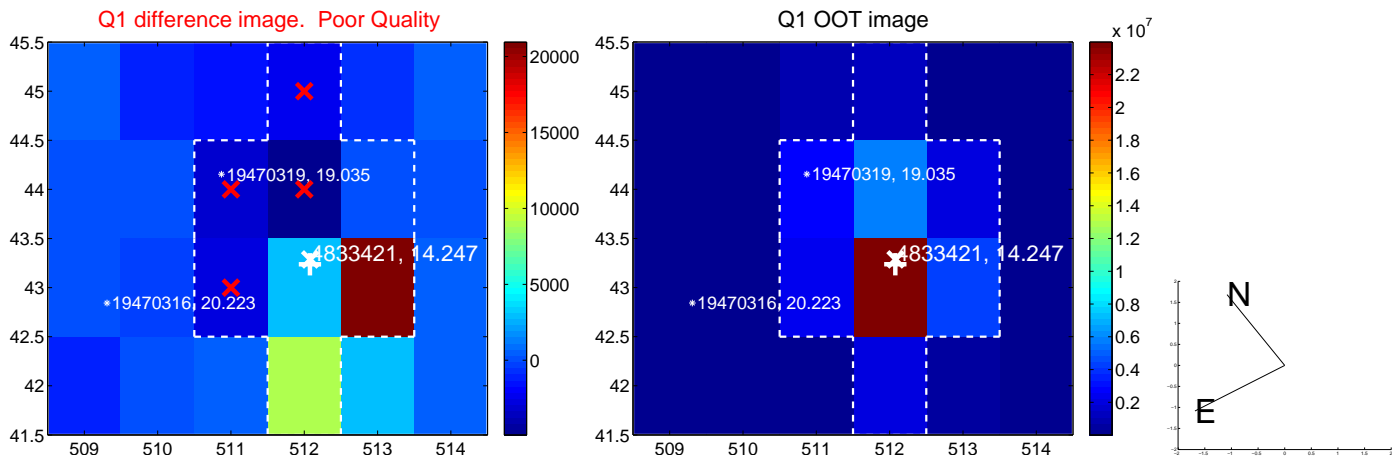


offset from photometric centroids

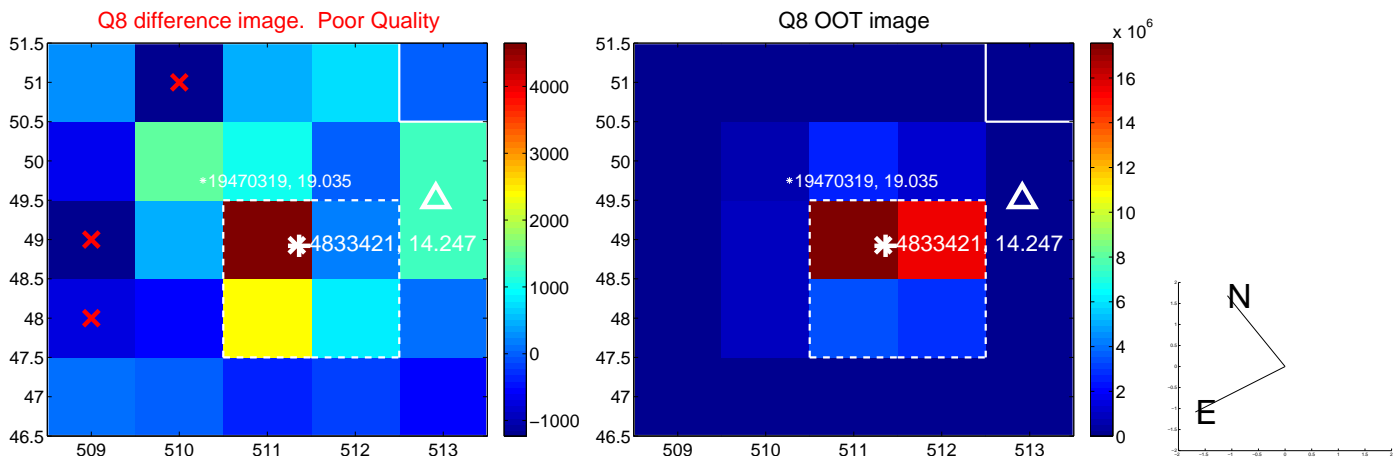
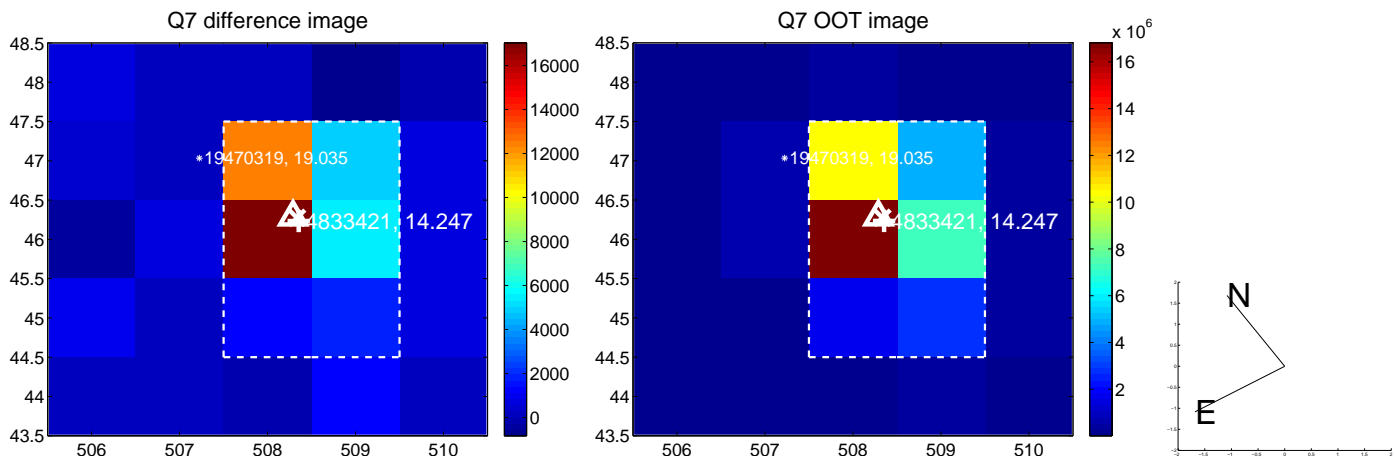
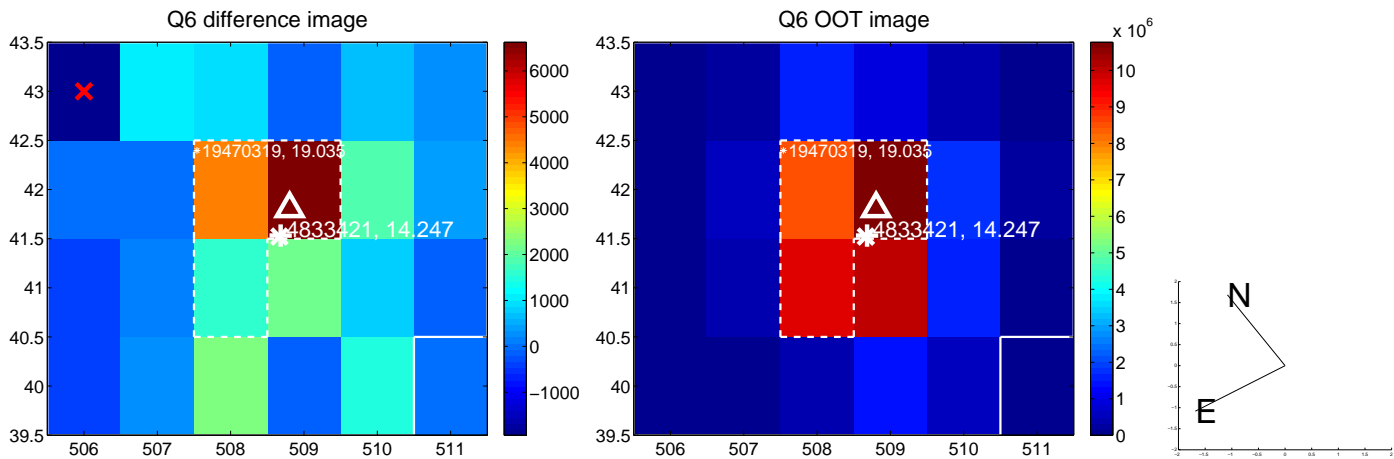
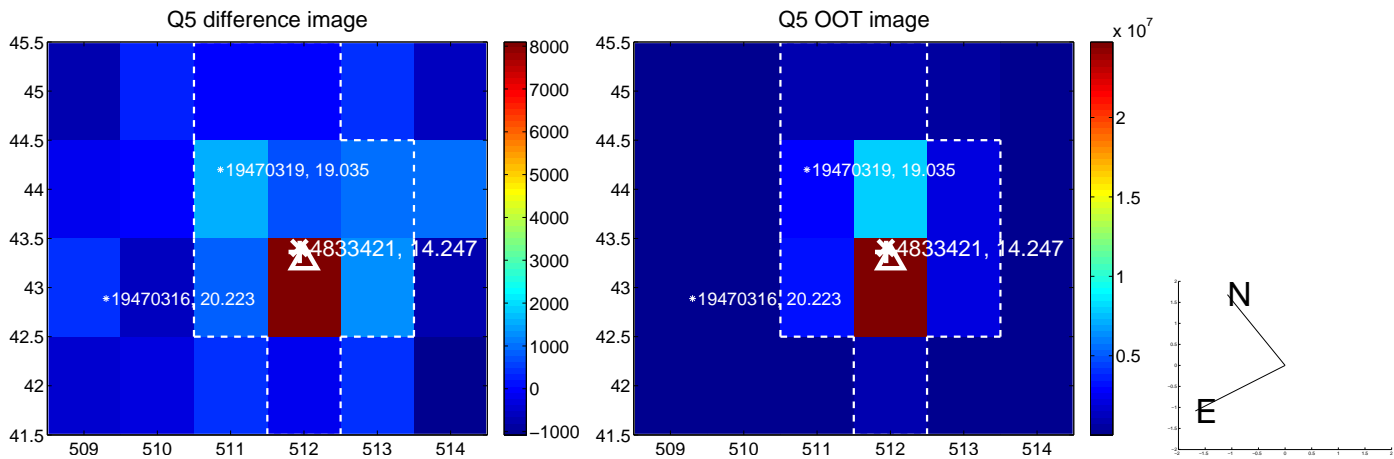


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

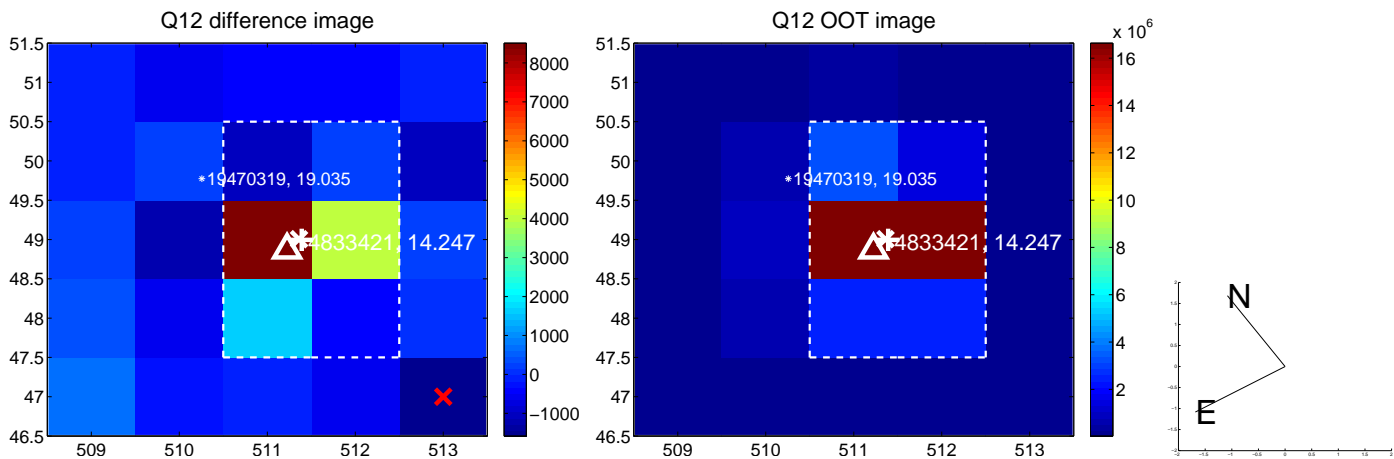
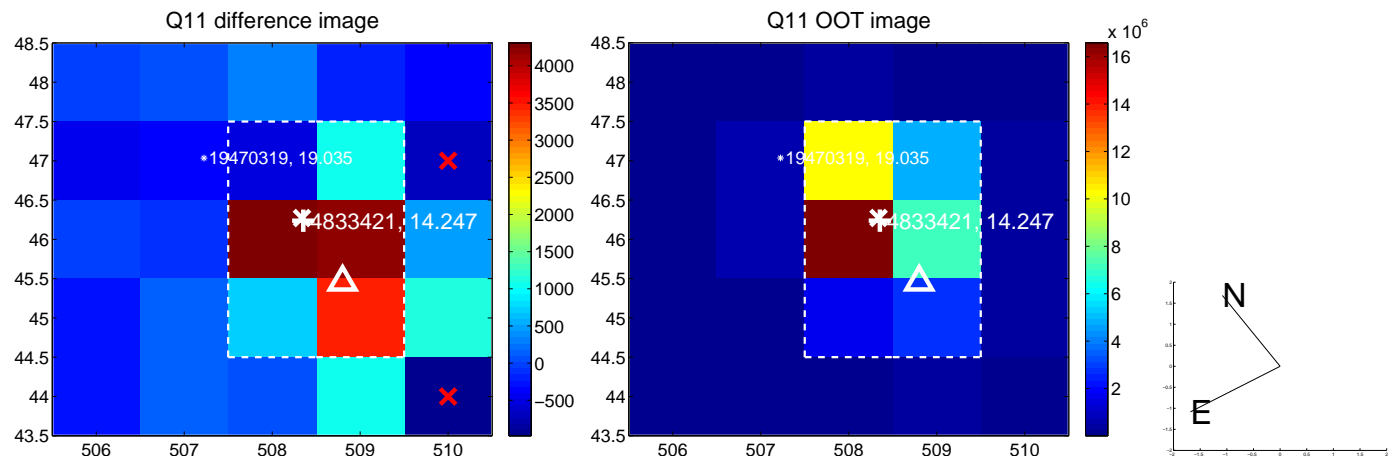
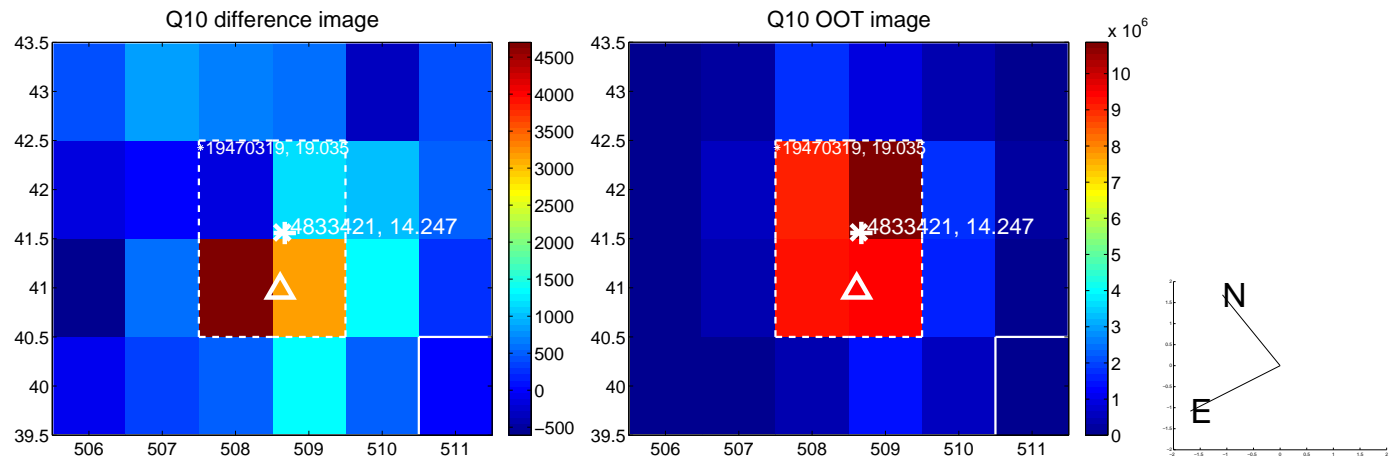
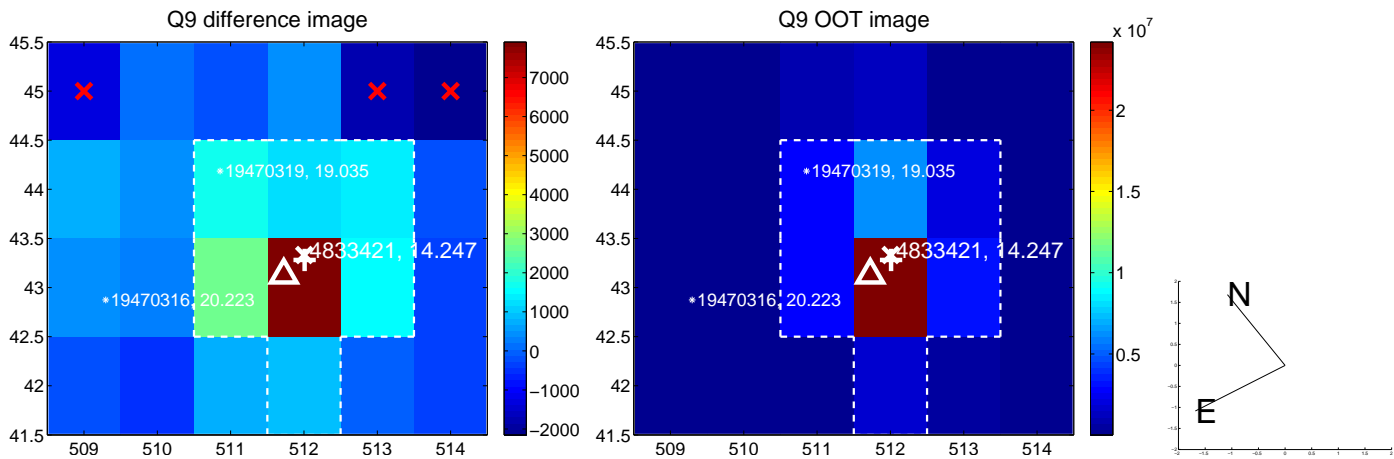
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



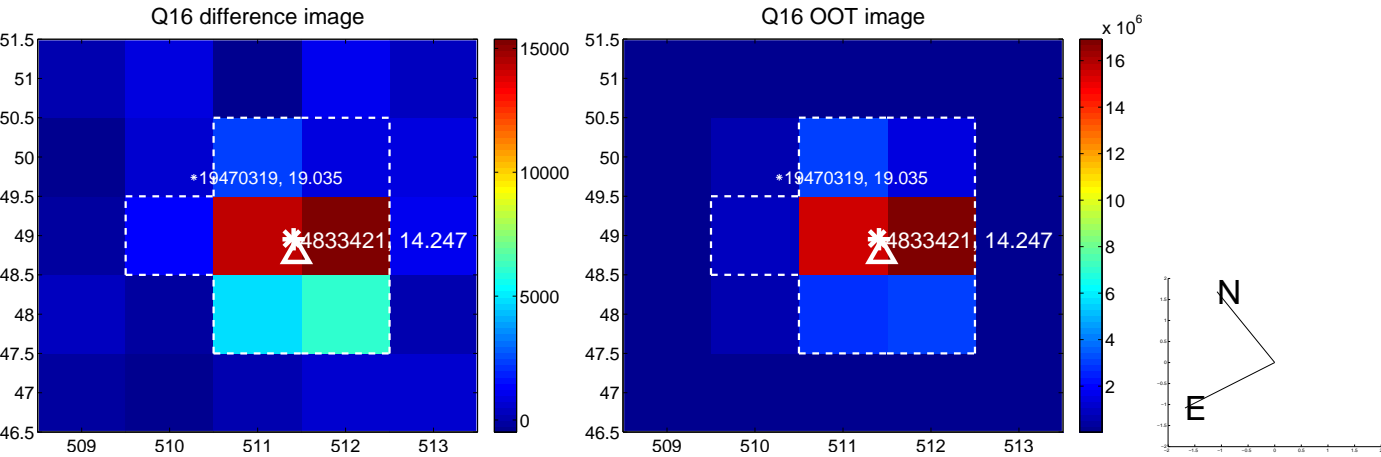
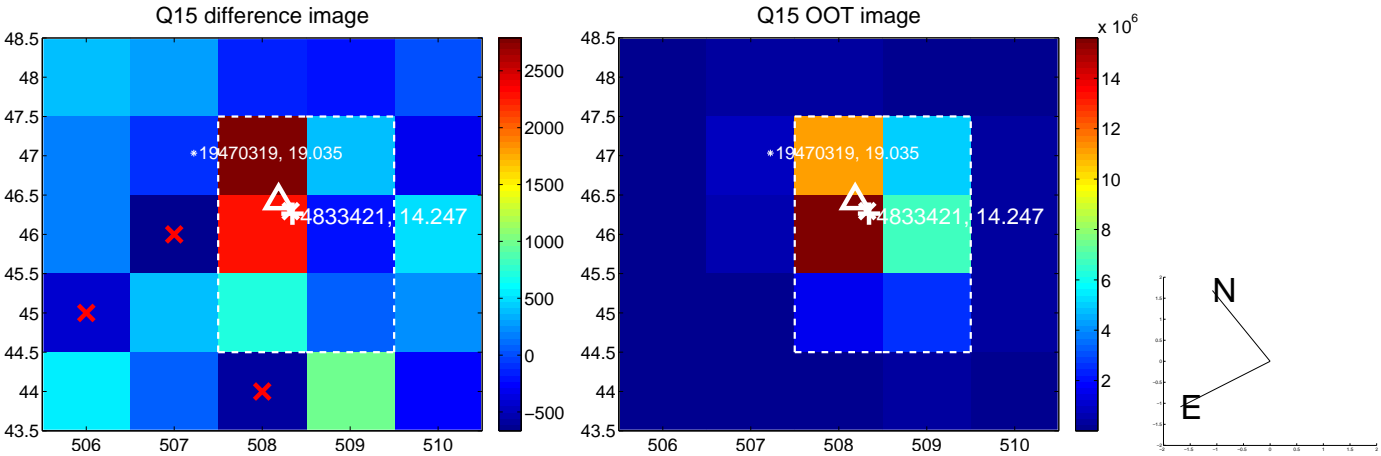
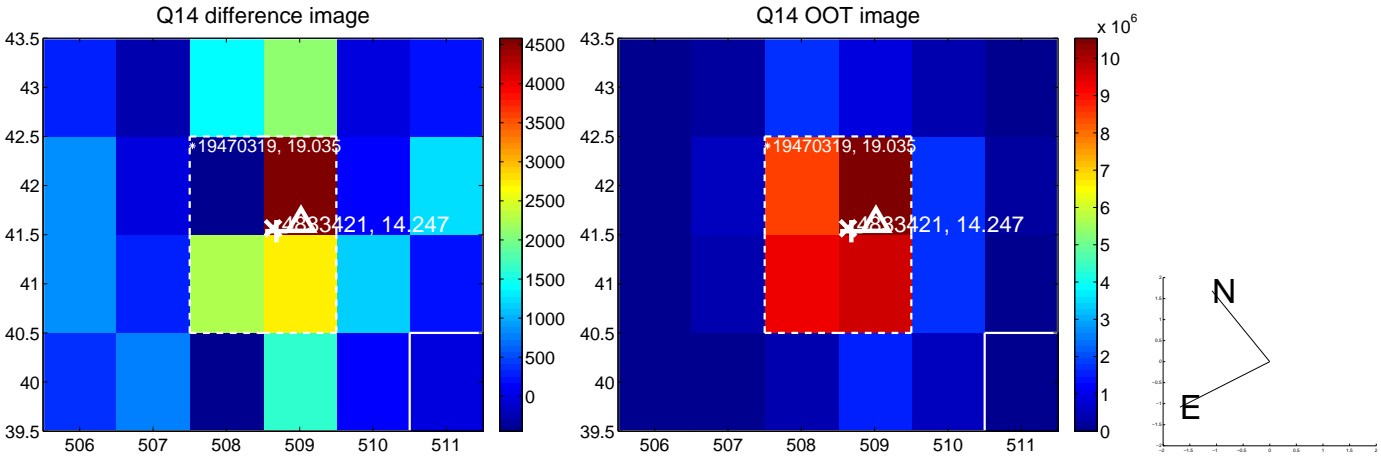
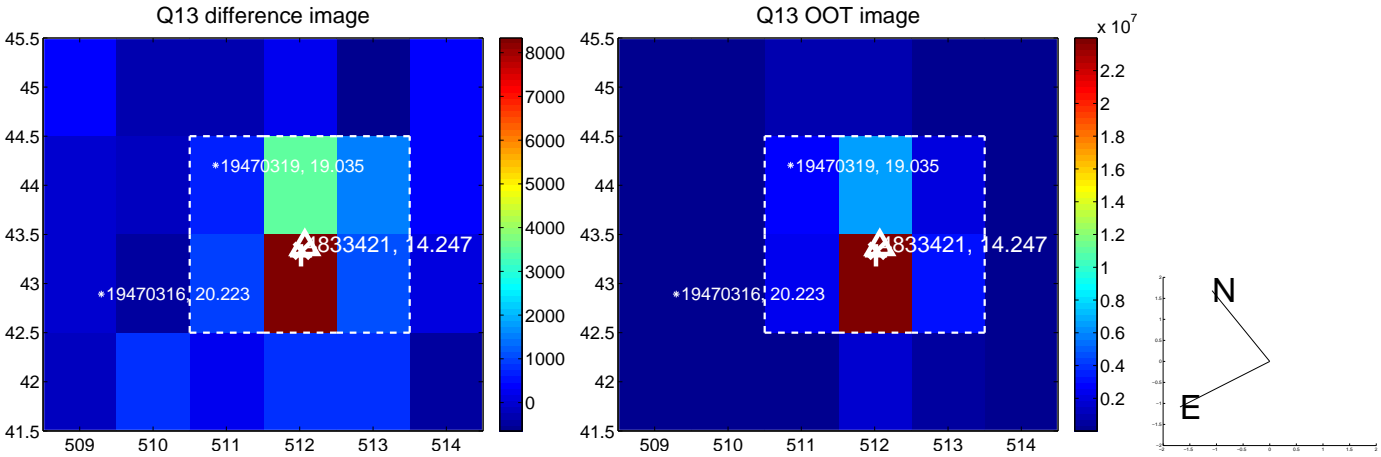
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



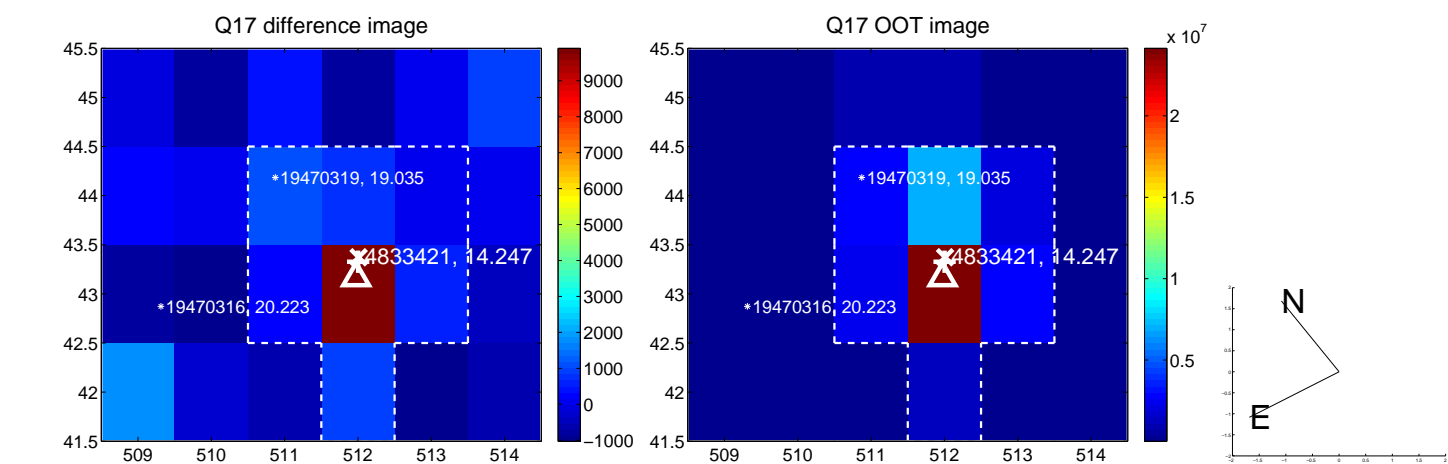
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



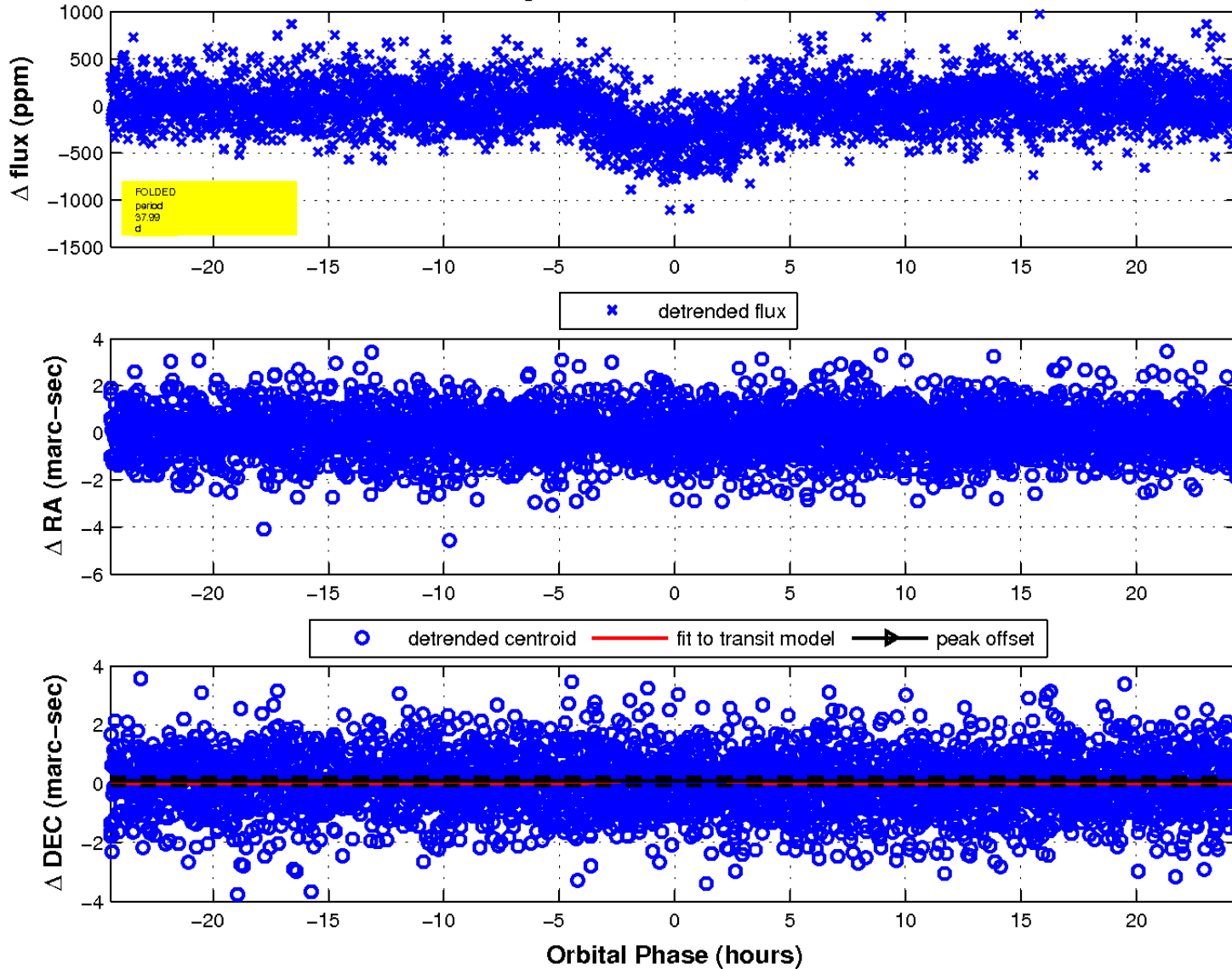
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

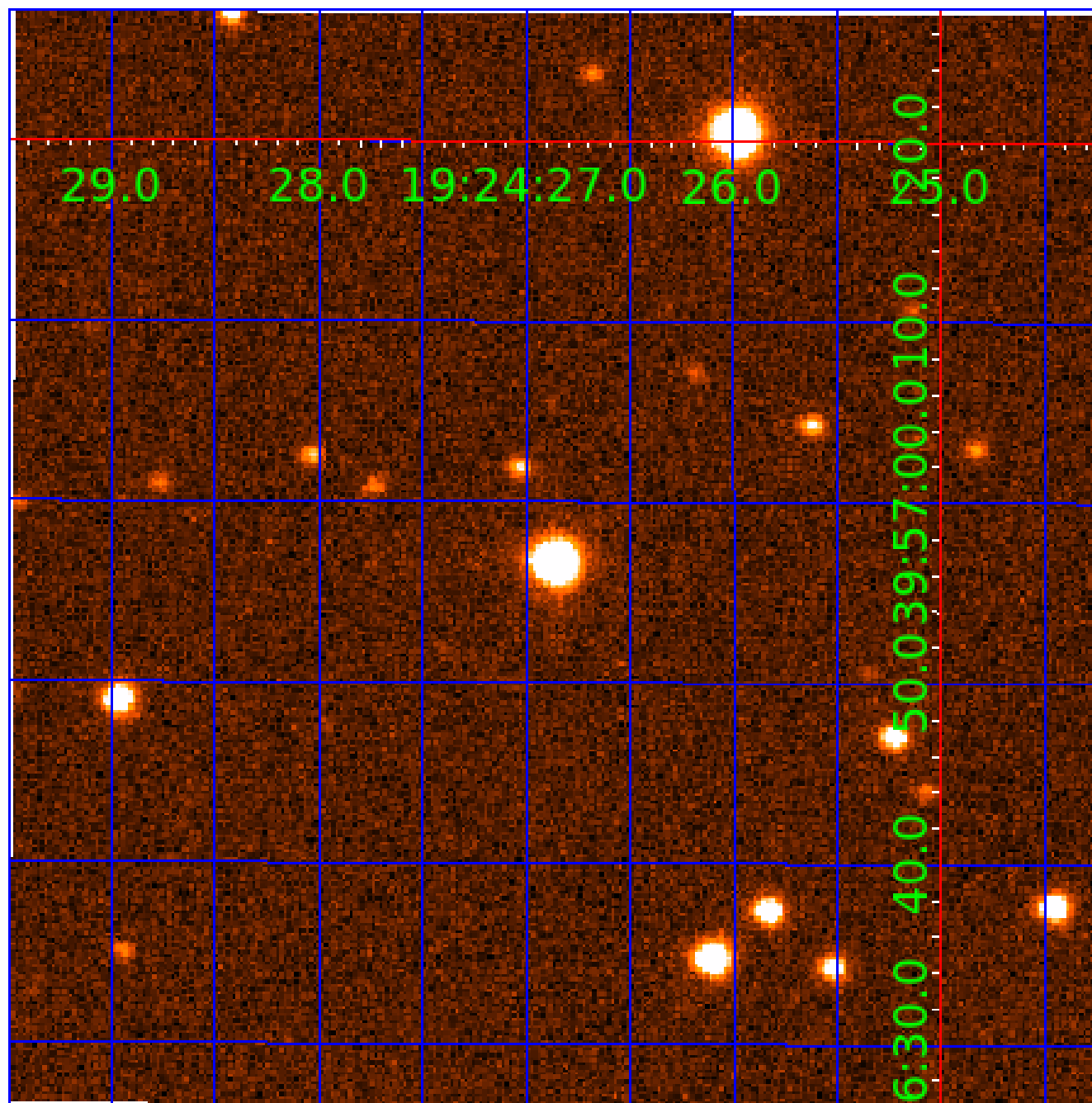


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 004833421

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
004833421-01	OBS	0232.01	12.466004	134.003344	2247.0	5.151	236.8	237.0	1.19	6038	5.97	153.03
004833421-02	OBS	0232.02	5.766147	134.019138	354.5	3.925	47.7	54.1	1.19	6038	2.52	427.79
004833421-03	OBS	0232.04	37.994464	162.998628	352.7	8.148	24.7	25.5	1.19	6038	2.79	34.63
004833421-04	OBS	0232.03	21.587152	142.981948	296.5	4.897	22.4	24.4	1.19	6038	2.28	73.59
004833421-05	OBS	0232.05	56.260588	164.194664	325.6	8.461	20.4	22.6	1.19	6038	2.34	20.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004833421-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

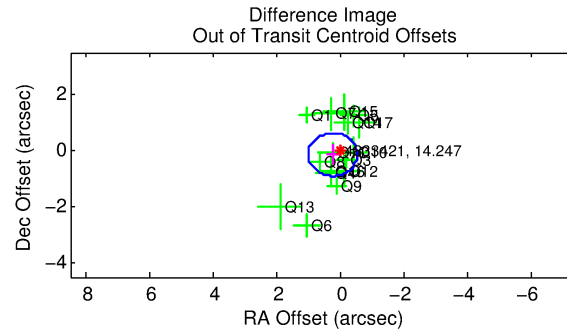
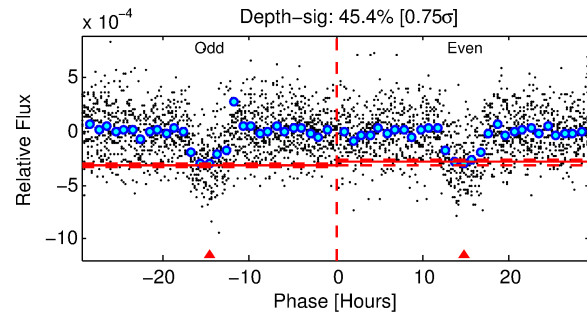
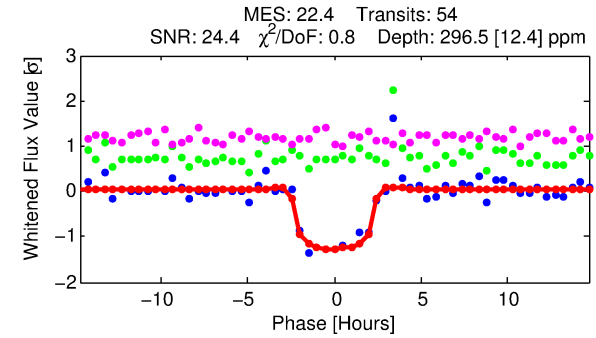
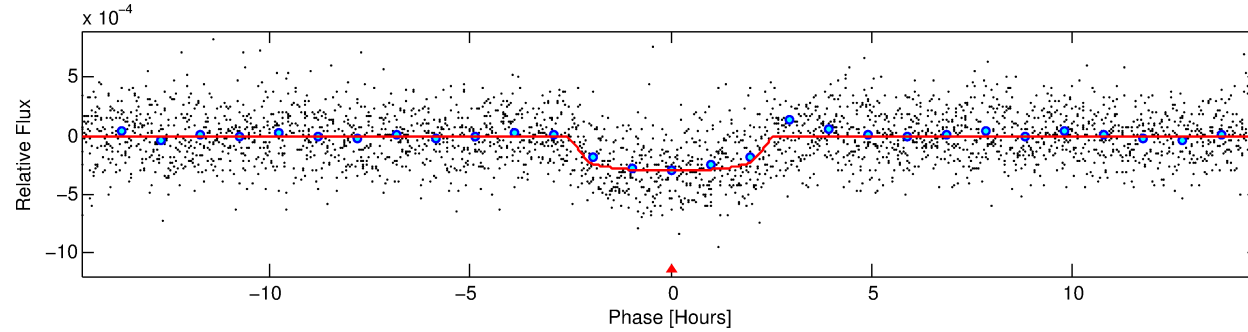
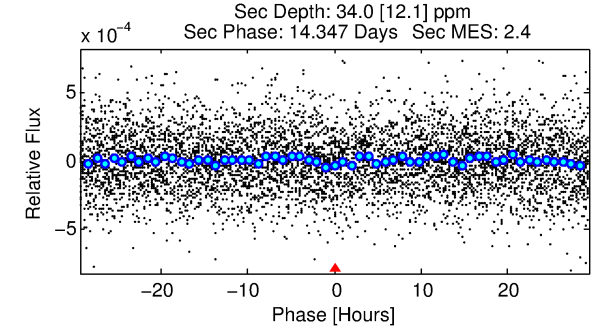
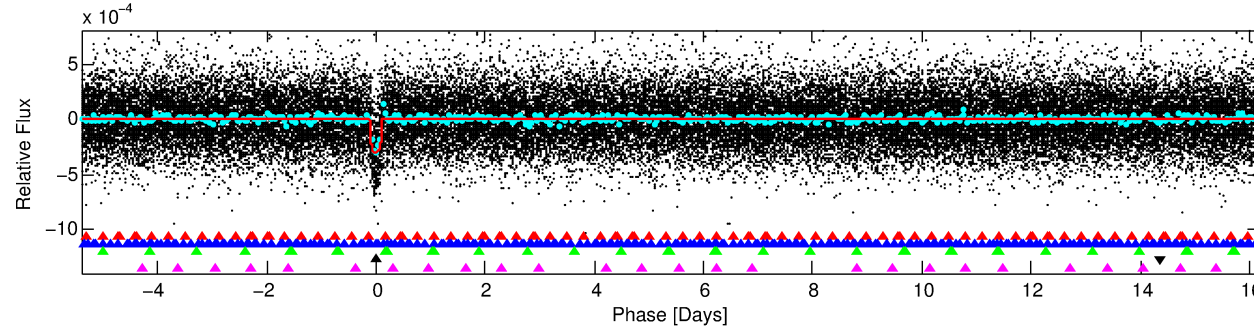
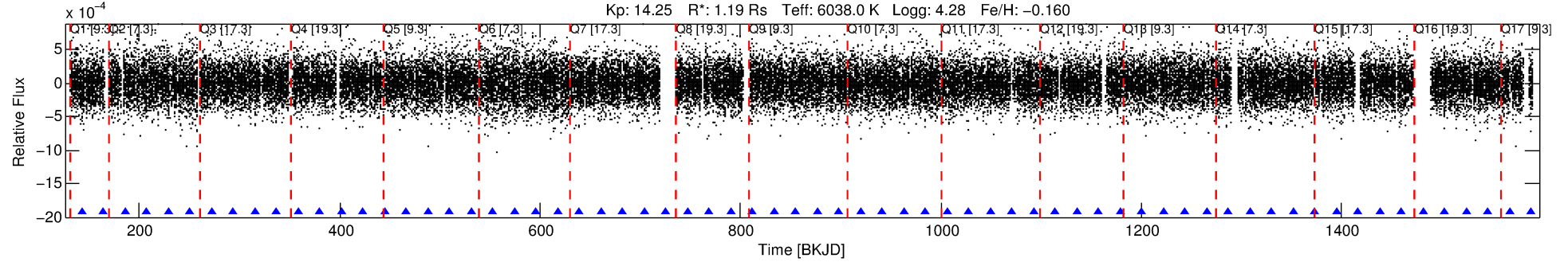
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004833421-04

No Significant Match Found

DV One-Page Summary

KIC: 4833421 Candidate: 4 of 5 Period: 21.587 d
KOI: K00232.03 Name: Kepler-122d Corr: 0.927



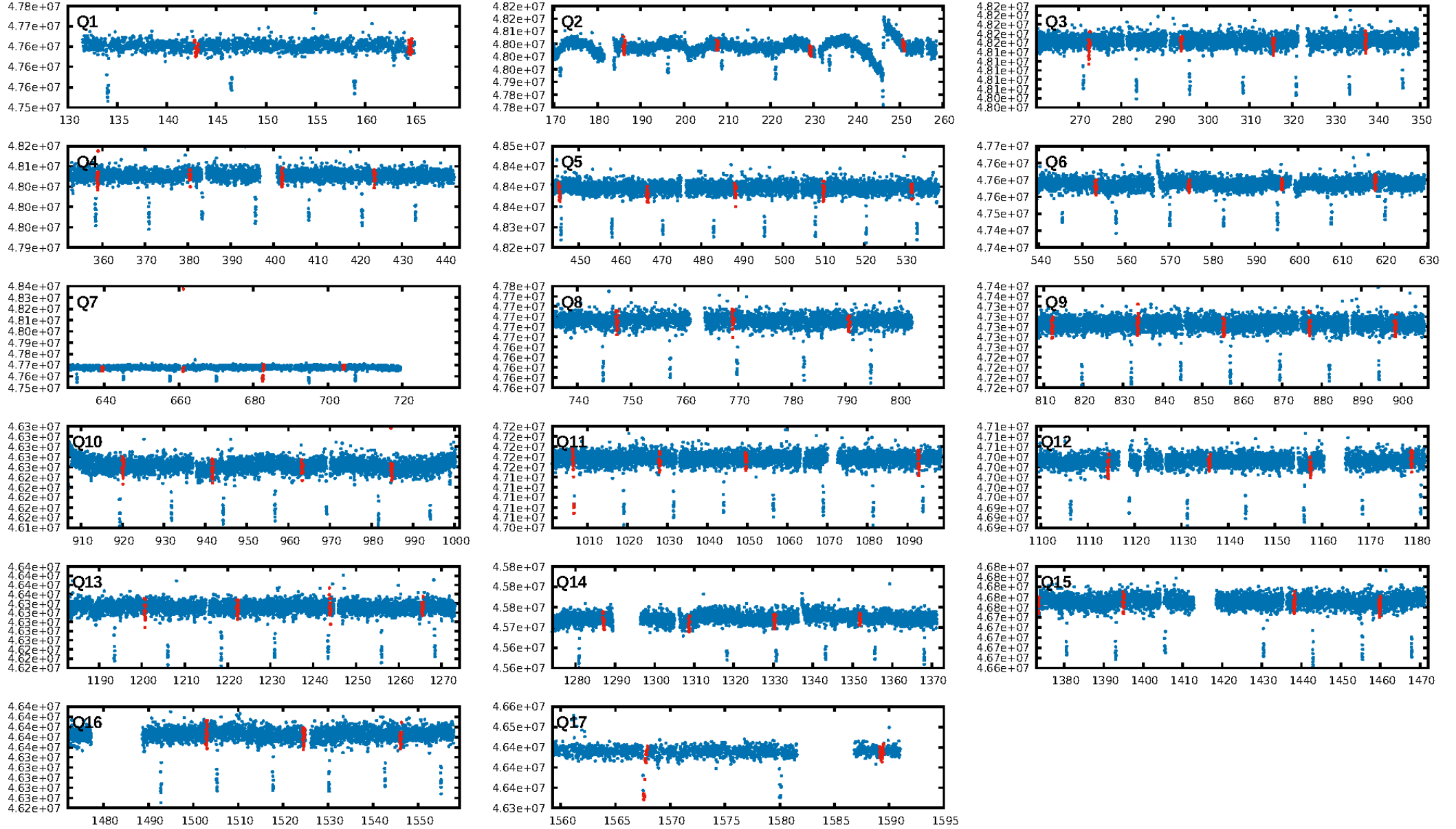
DV Fit Results:

Period = 21.58715 [0.00011] d
Epoch = 142.9819 [0.0040] BKJD
Rp/R* = 0.0175 [0.0046]
a/R* = 20.77 [27.46]
b = 0.81 [0.57]
Seff = 73.59 [18.30]
Teq = 747 [46] K
Rp = 2.28 [0.70] Re
a = 0.1515 [0.0226] AU
Ag = 82.46 [56.12] [1.45σ]
Teffp = 3480 [560] K [4.86σ]

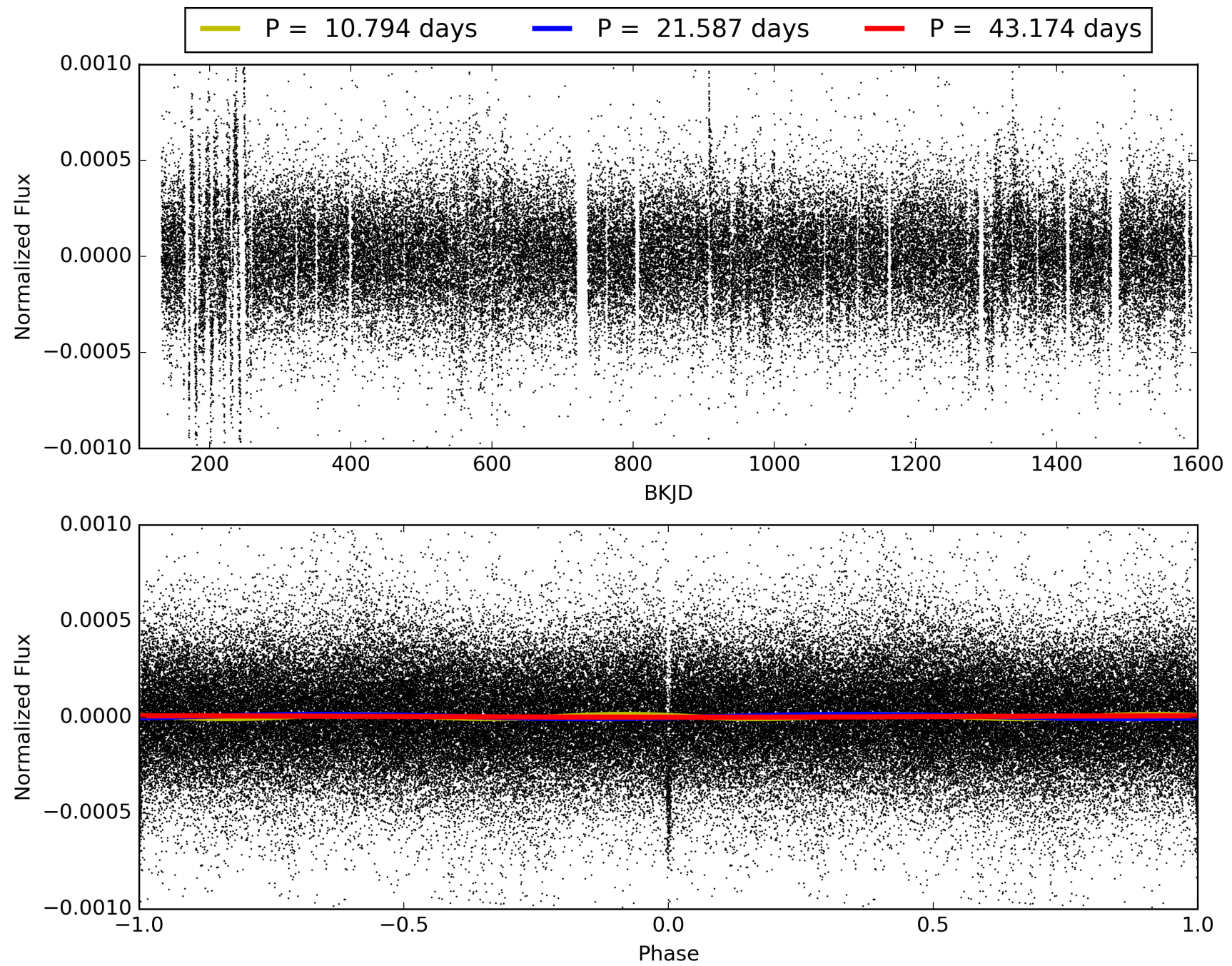
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.80σ]
LongPeriod-sig: 100.0% [41.42σ]
ModelChiSquare2-sig: 97.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.69e-107
RollingBand-fgt: 1.00 [51/51]
GhostDiagnostic-chr: 2.989
Centroid-sig: N/A
Centroid-so: 0.286 arcsec [0.69σ]
OotOffset-rm: 0.284 arcsec [1.11σ]
KicOffset-rm: 0.349 arcsec [1.19σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004833421-04, PDC Light Curves

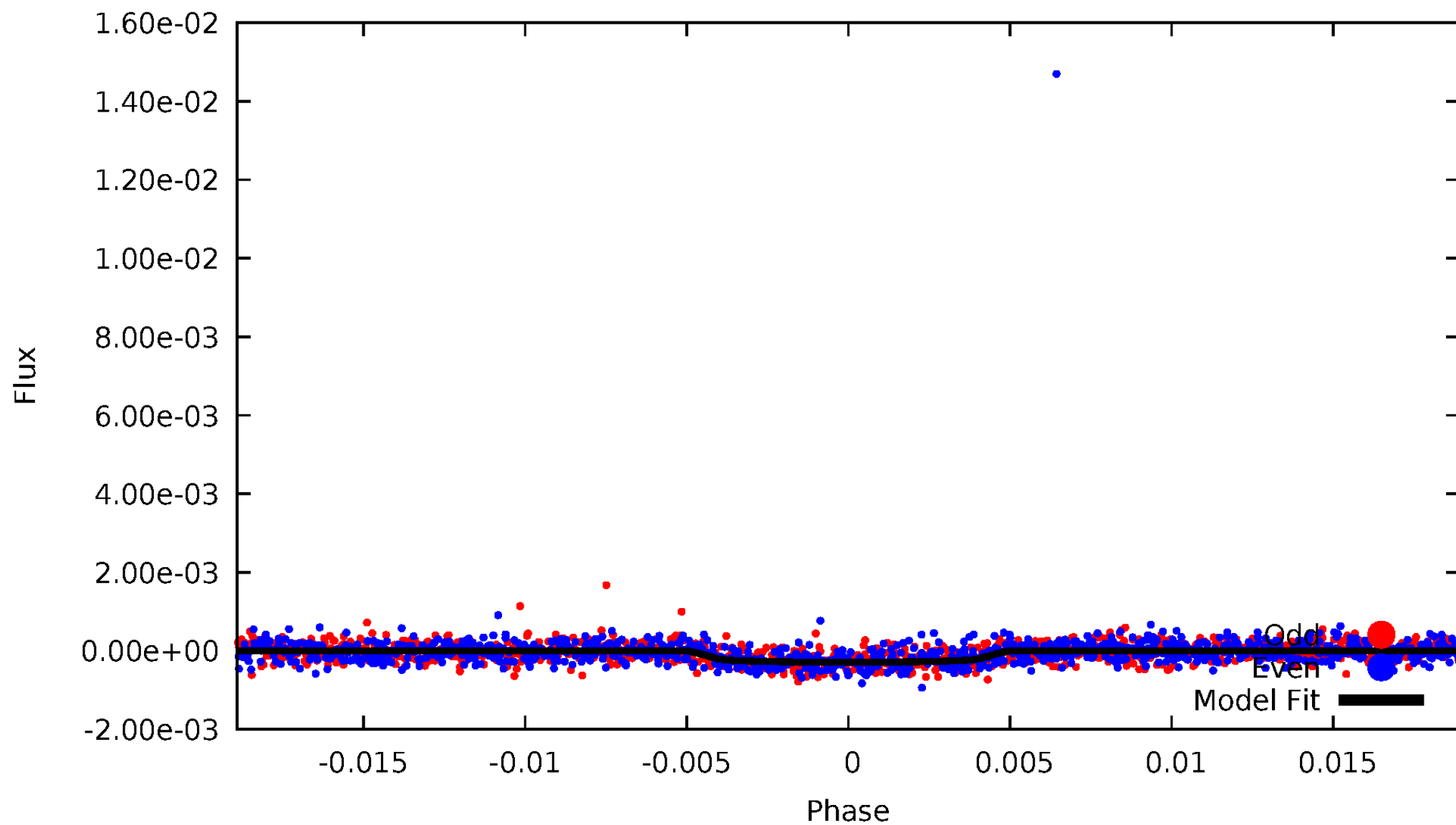


TCE 004833421-04



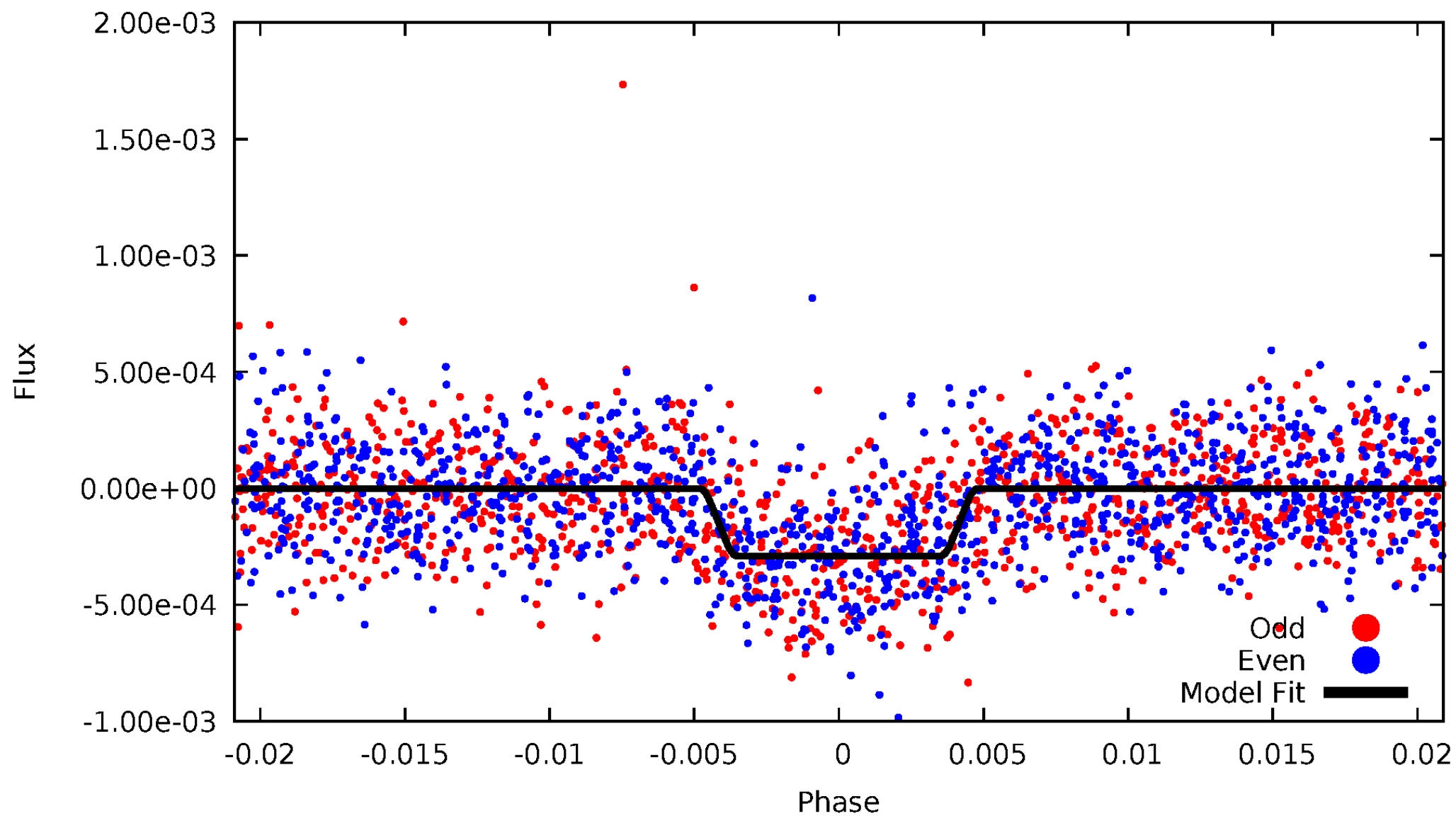
DV Odd/Even

TCE 004833421-04



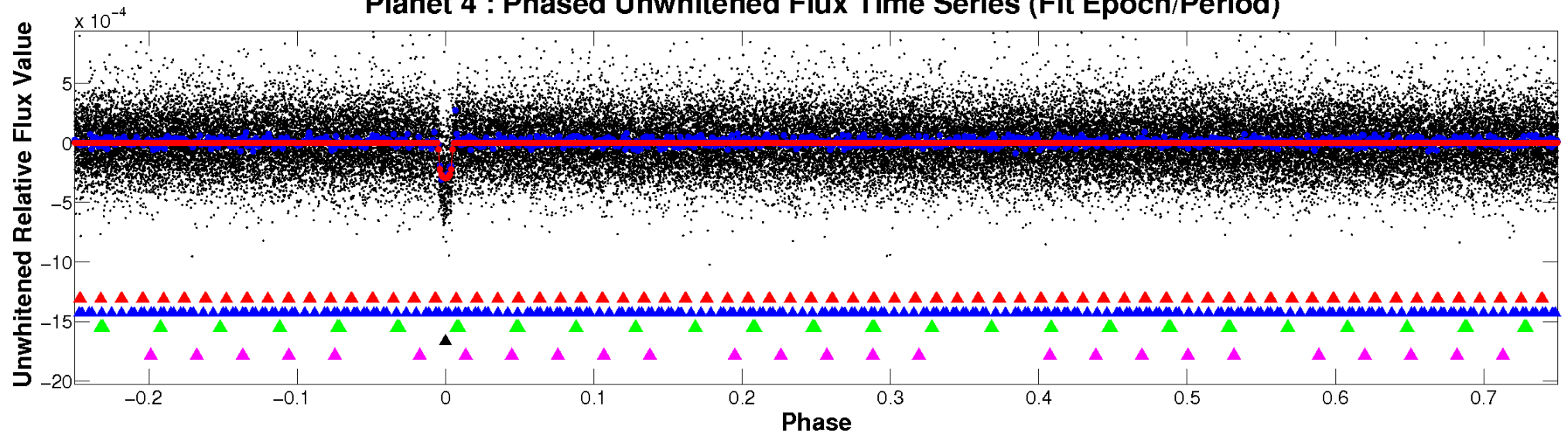
ALT Odd/Even

TCE 004833421-04

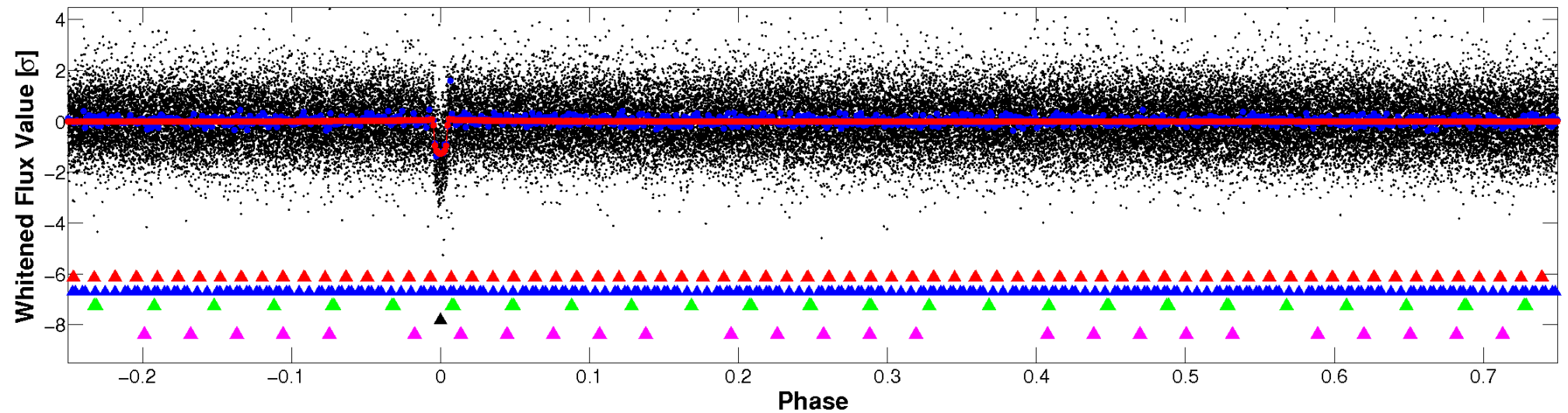


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

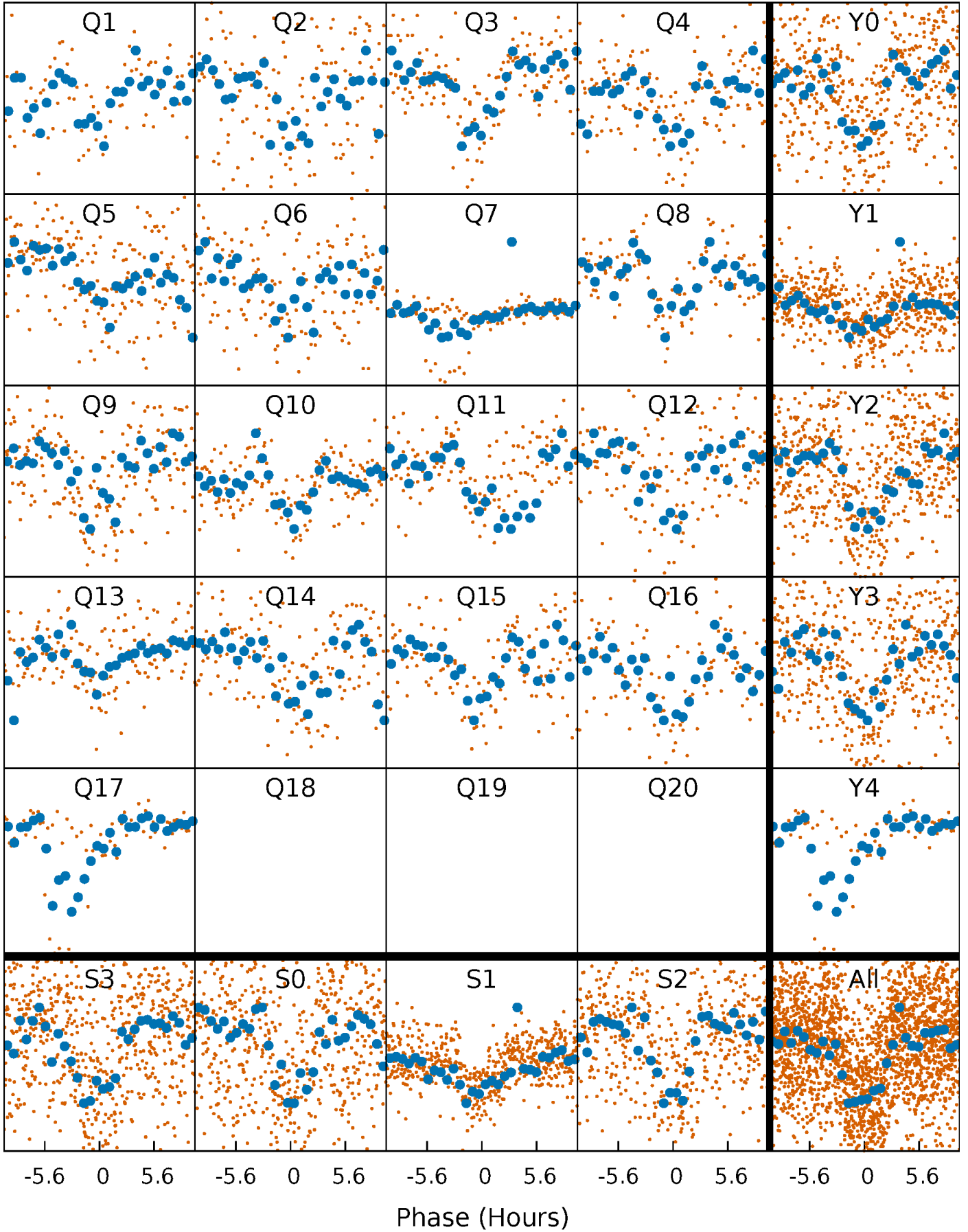


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



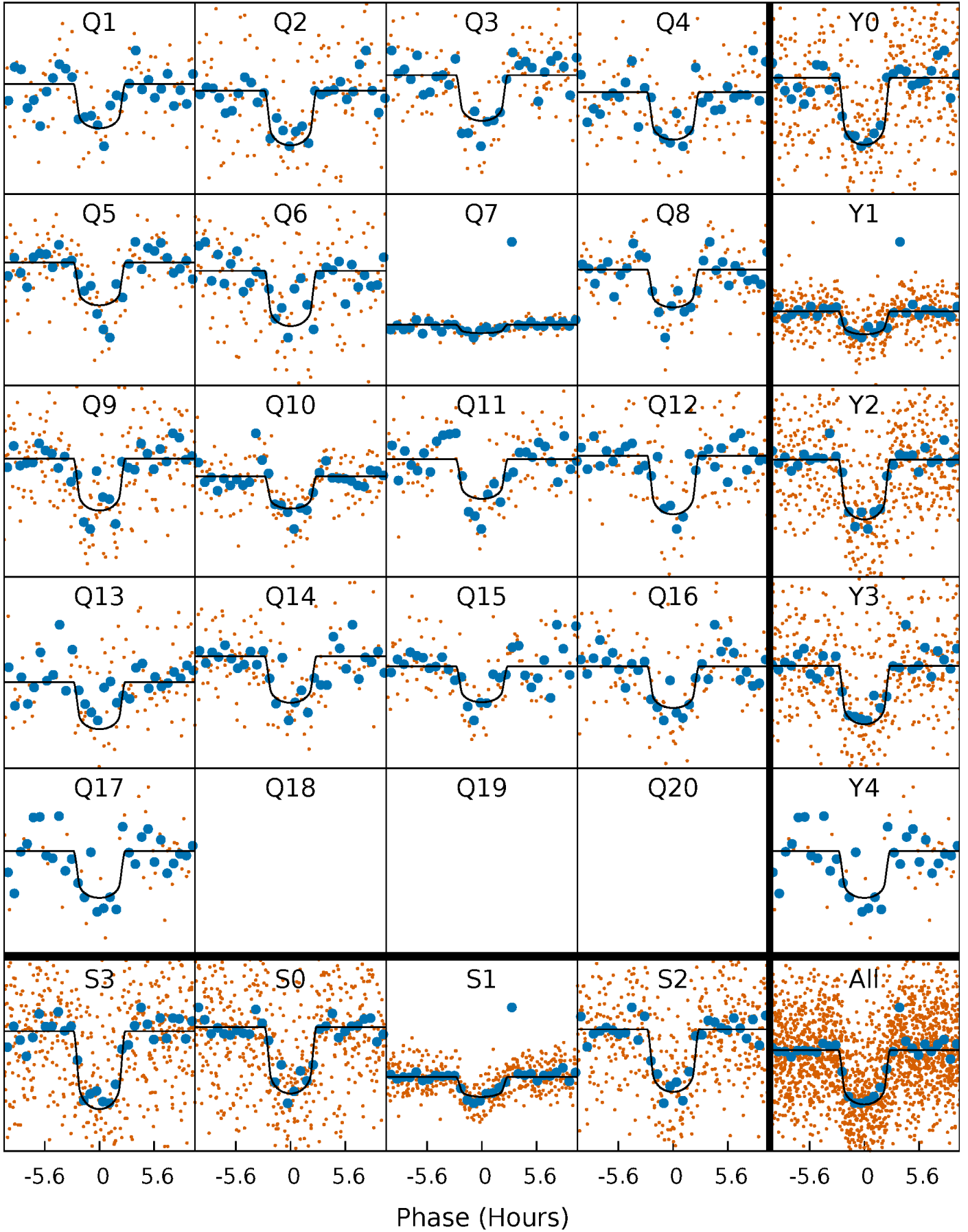
PDC Quarter-Phased Transit Curves

TCE 004833421-04 P= 21.587152 Days $T_0=142.981948$ (BKJD)



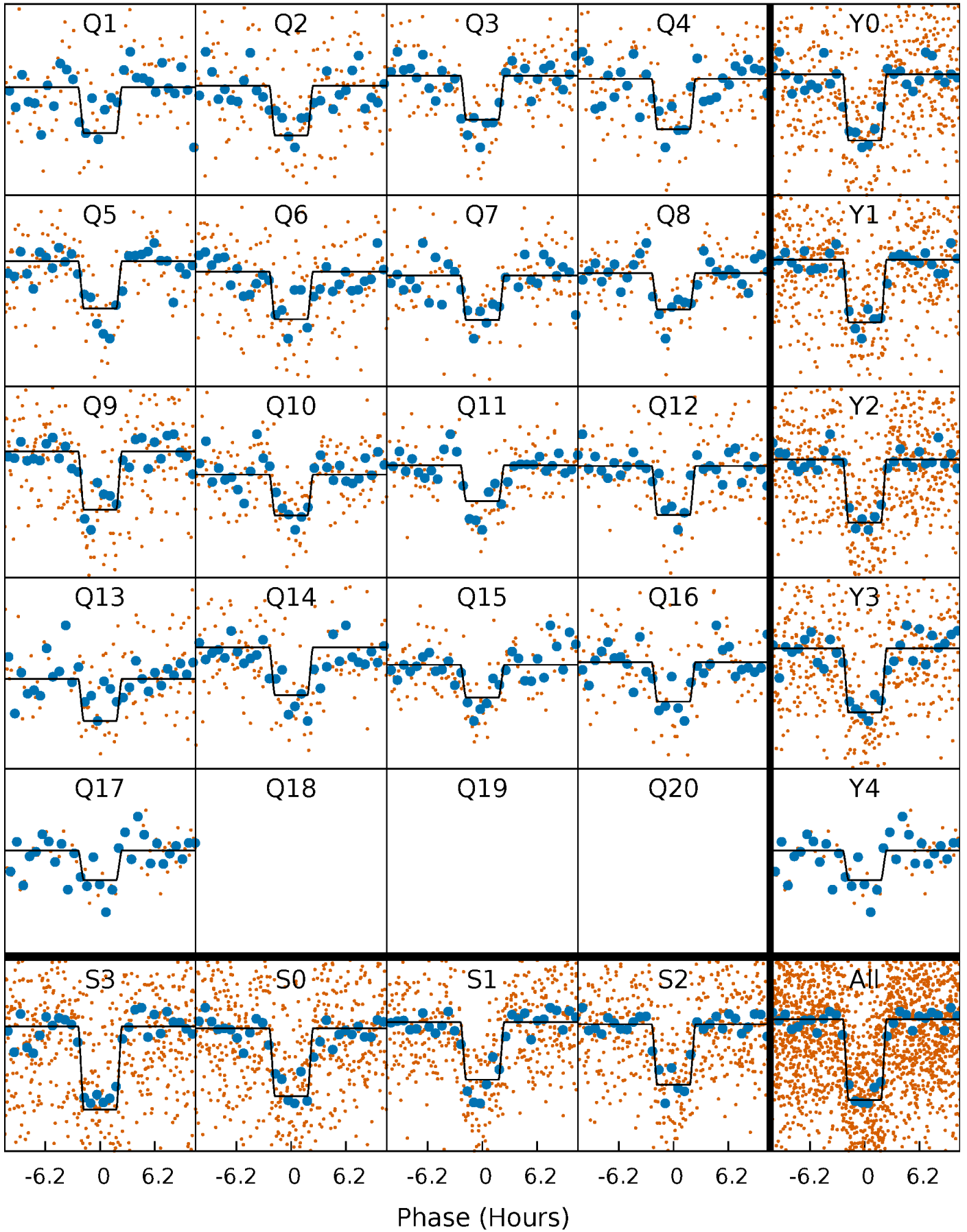
DV Quarter-Phased Transit Curves

TCE 004833421-04 P= 21.587152 Days $T_0=142.981948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

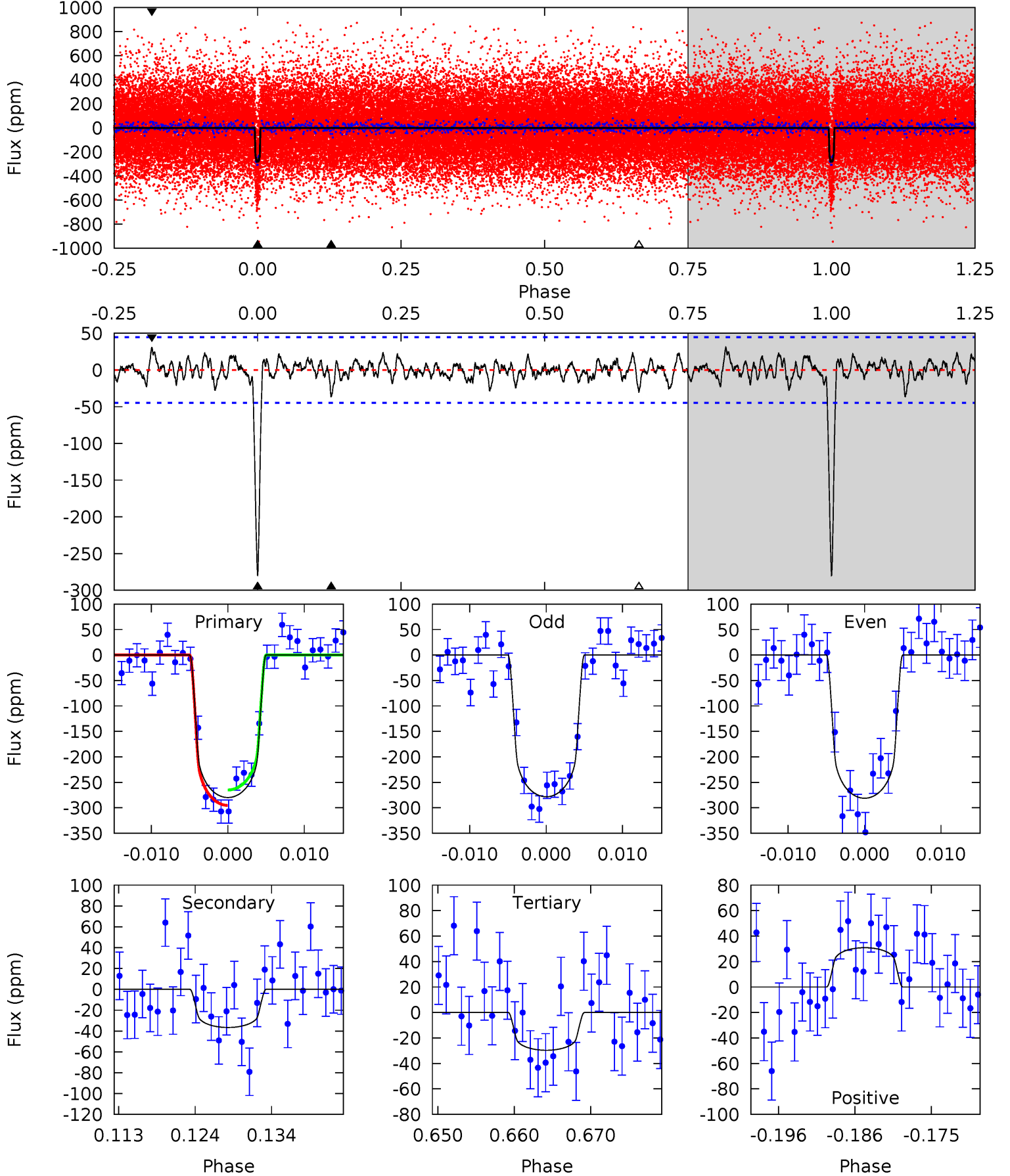
TCE 004833421-04 P= 21.586916 Days $T_0=142.990582$ (BKJD)



DV Model-Shift Uniqueness Test

004833421-04, P = 21.587152 Days, E = 121.394796 Days

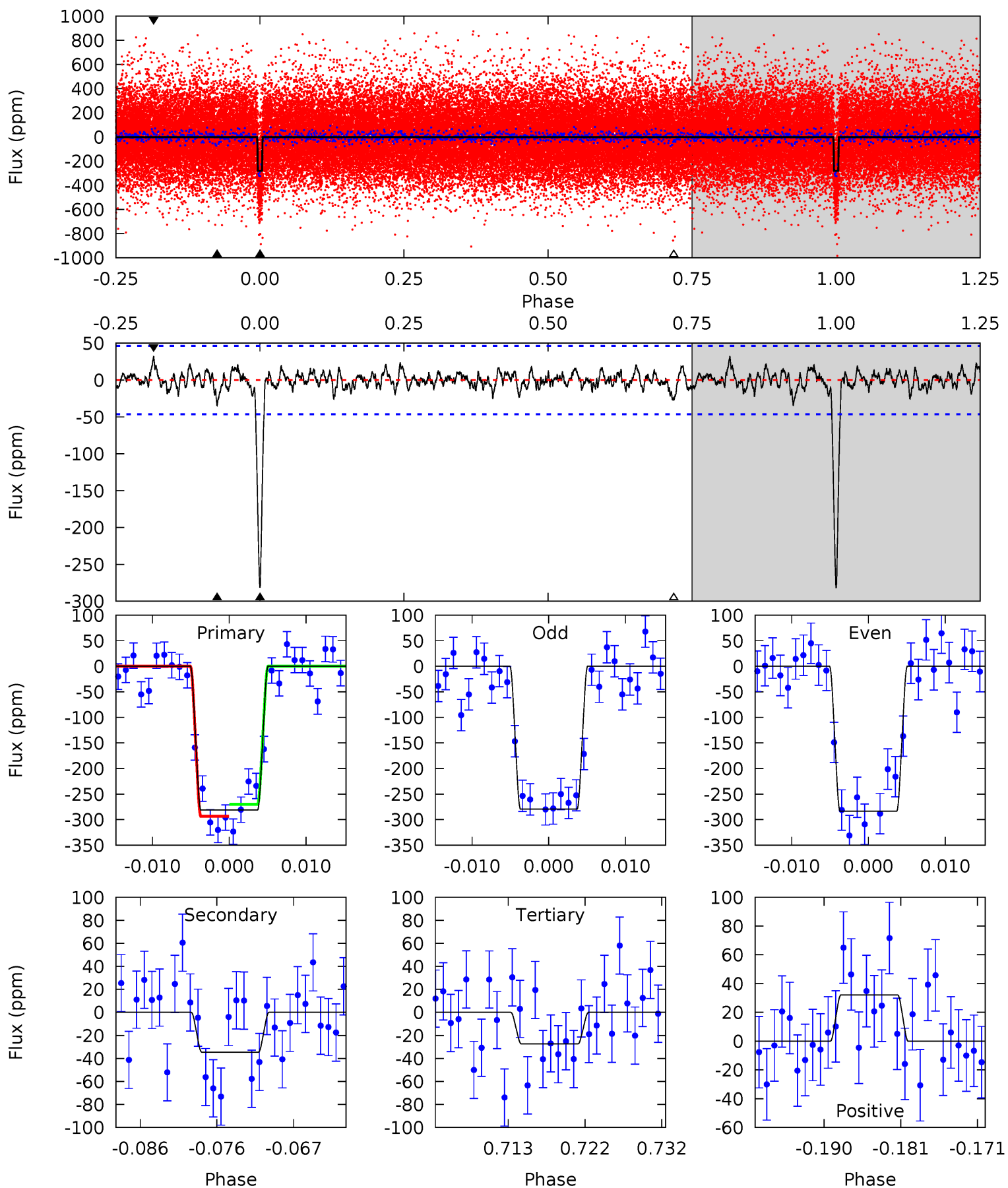
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.4	4.11	3.33	3.47	5.02	2.57	1.09	28.1	28.0	0.78	0.64	0.16	0.93	0.10	1.71



Alt Model-Shift Uniqueness Test

004833421-04, P = 21.586916 Days, E = 121.403666 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	3.76	2.98	3.49	5.04	2.59	0.96	27.6	27.1	0.78	0.27	0.23	0.97	0.10	1.28



Stellar Parameters For KIC 004833421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6038^{+121}_{-121}	$4.284^{+0.137}_{-0.112}$	$-0.160^{+0.150}_{-0.150}$	$1.191^{+0.189}_{-0.189}$	$0.995^{+0.082}_{-0.067}$	$0.830^{+0.562}_{-0.265}$
	+2%/-2%	+3%/-3%	+94%/-94%	+16%/-16%	+8%/-7%	+68%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004833421-04 / KOI 0232.03

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-37 ± 9	$2.28^{+0.64}_{-0.62}$	1039^{+52}_{-47}	3871^{+491}_{-345}	86^{+89}_{-38}
Alt.	-35 ± 9	$2.20^{+0.67}_{-0.61}$	1046^{+52}_{-53}	3880^{+516}_{-364}	86^{+96}_{-39}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

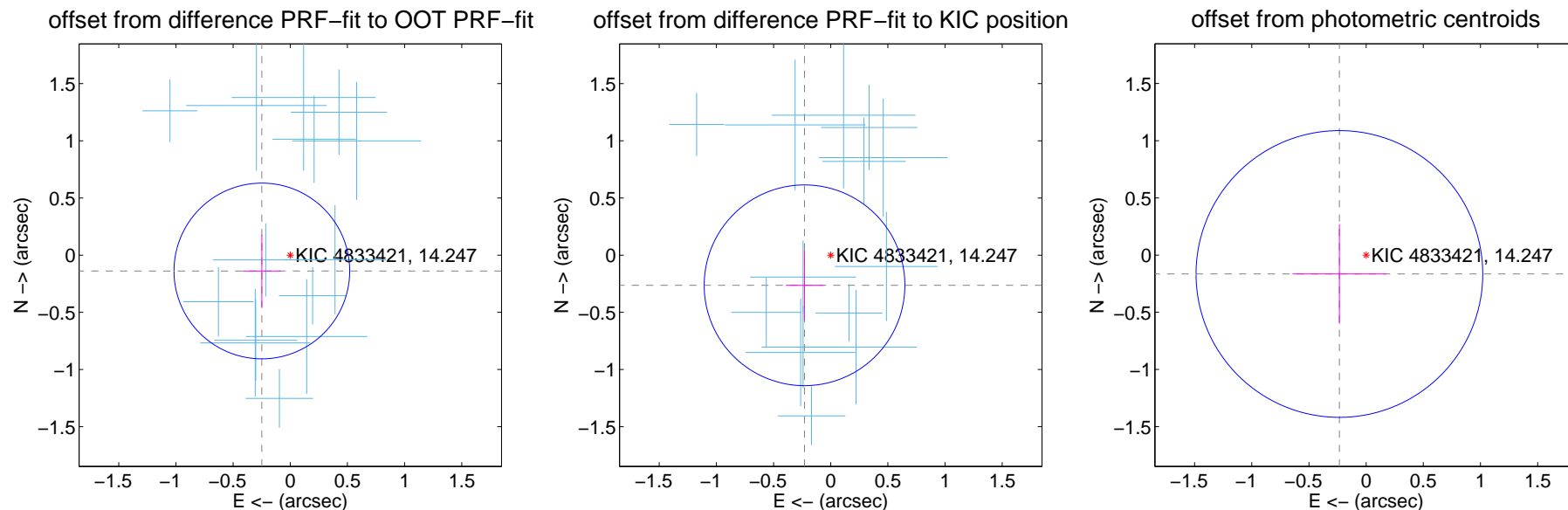
DV Centroid Data

Supplemental centroid analysis for 004833421-04. Kepler magnitude: 14.25. Transit SNR 24.40

There are 15 quarters with good PRF difference image offsets

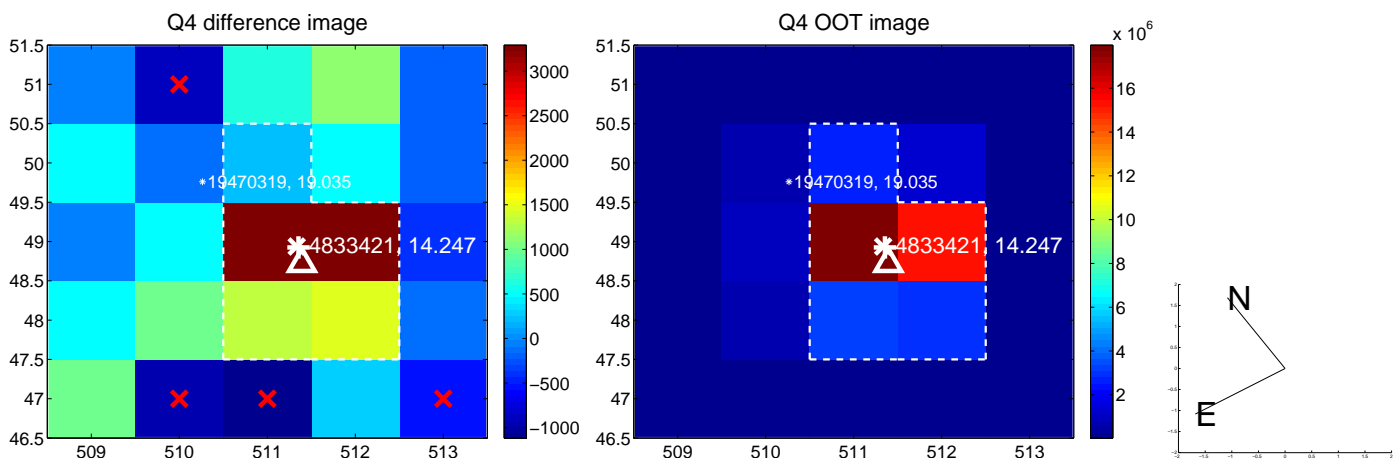
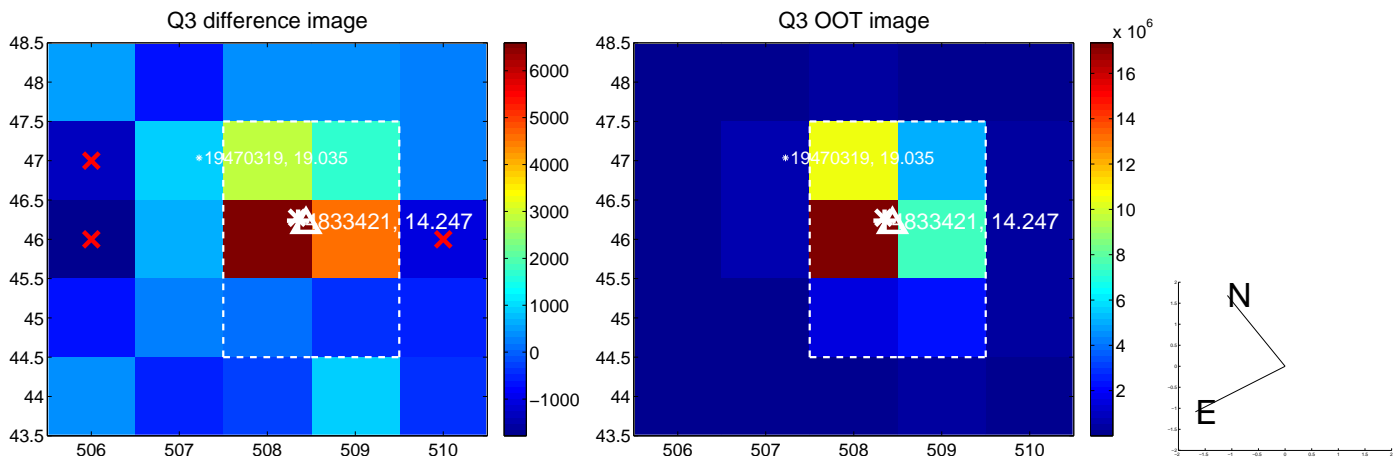
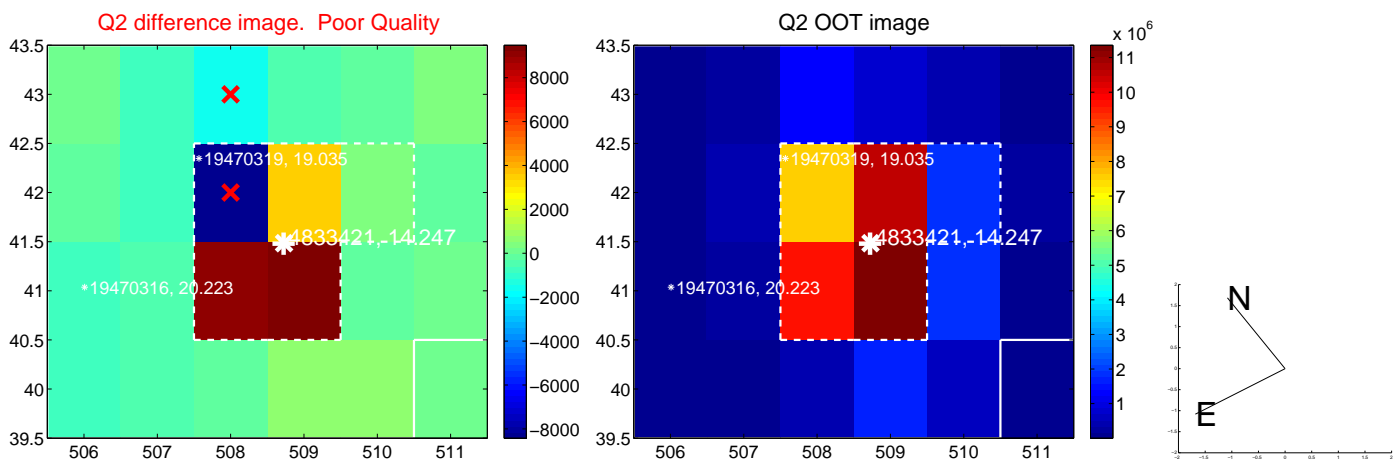
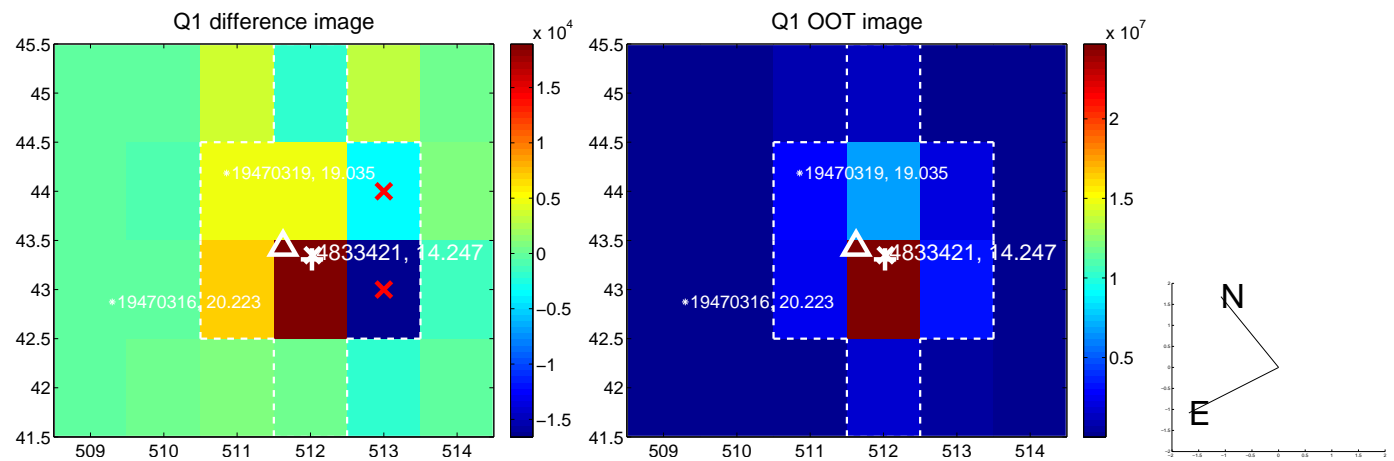
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.284 ± 0.256	1.11	0.249 ± 0.166	-0.138 ± 0.315
PRF-fit source offset from KIC position	0.349 ± 0.292	1.19	0.229 ± 0.164	-0.263 ± 0.305
photometric centroid source offset	0.29 ± 0.42	0.69	0.23 ± 0.41	-0.17 ± 0.43

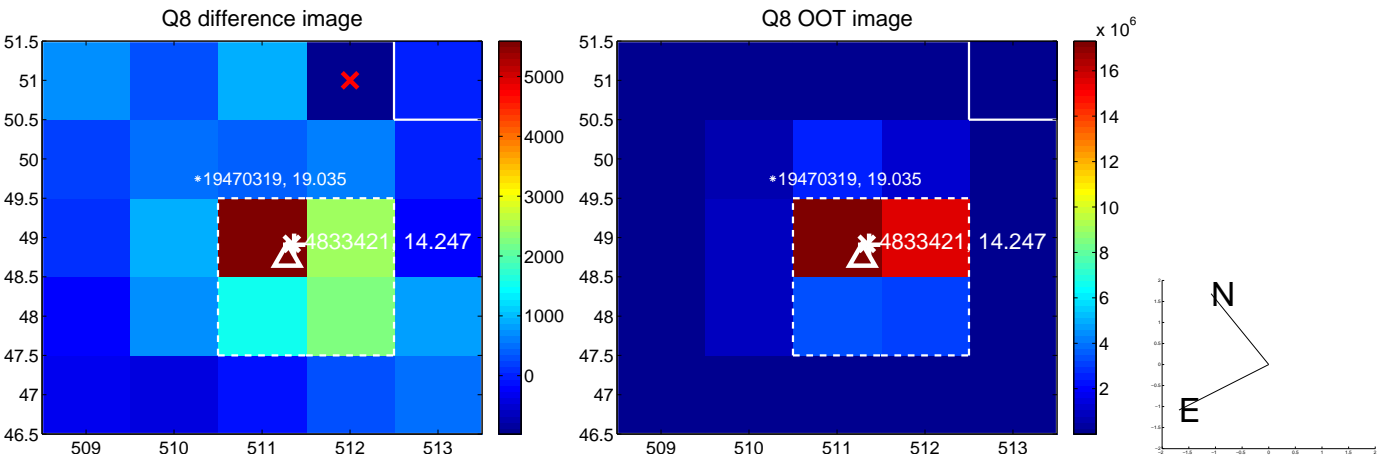
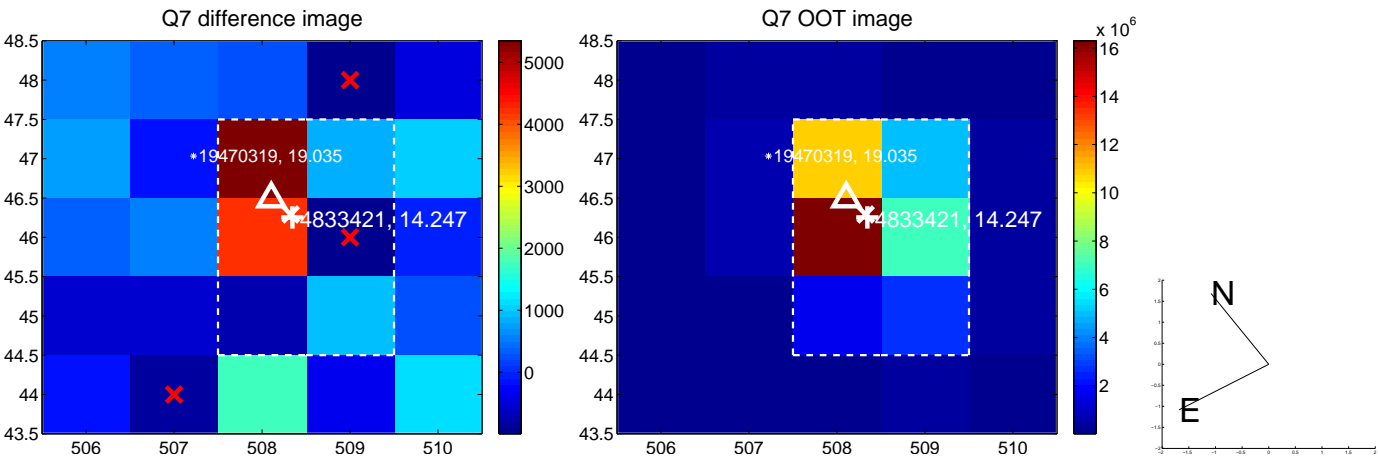
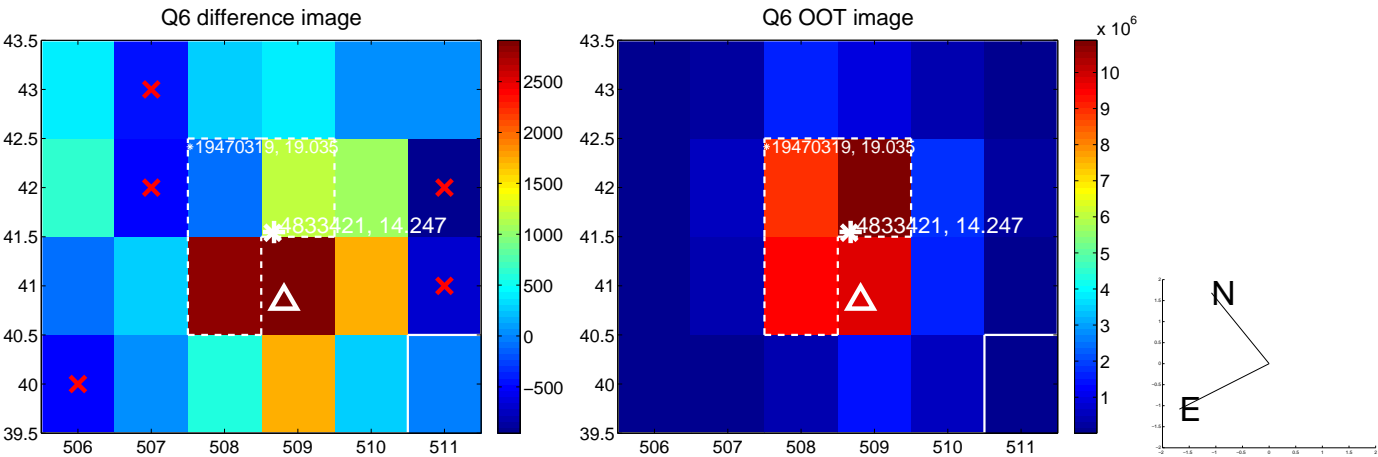
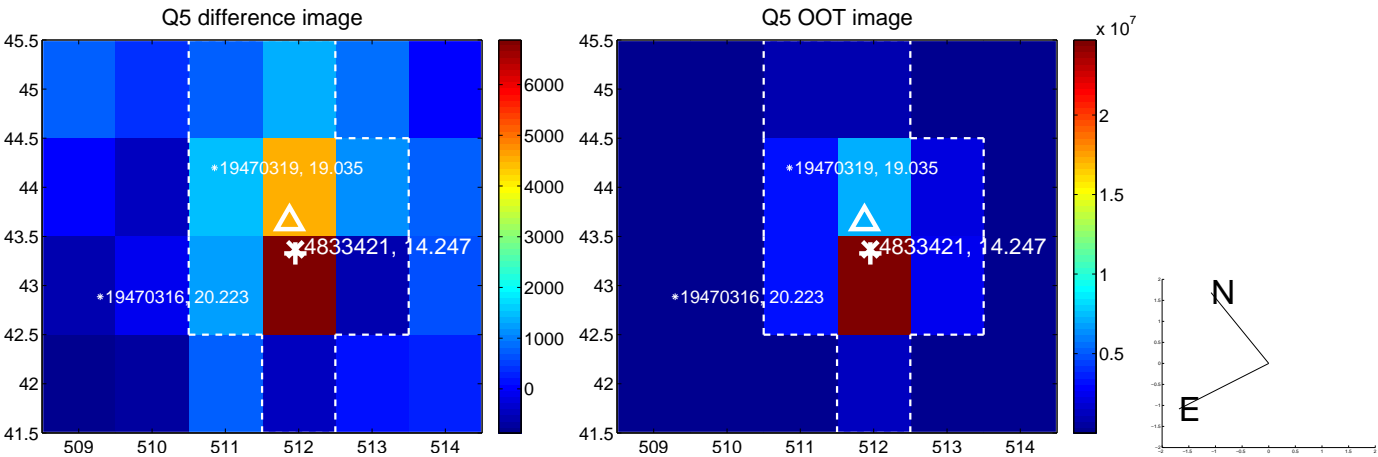


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

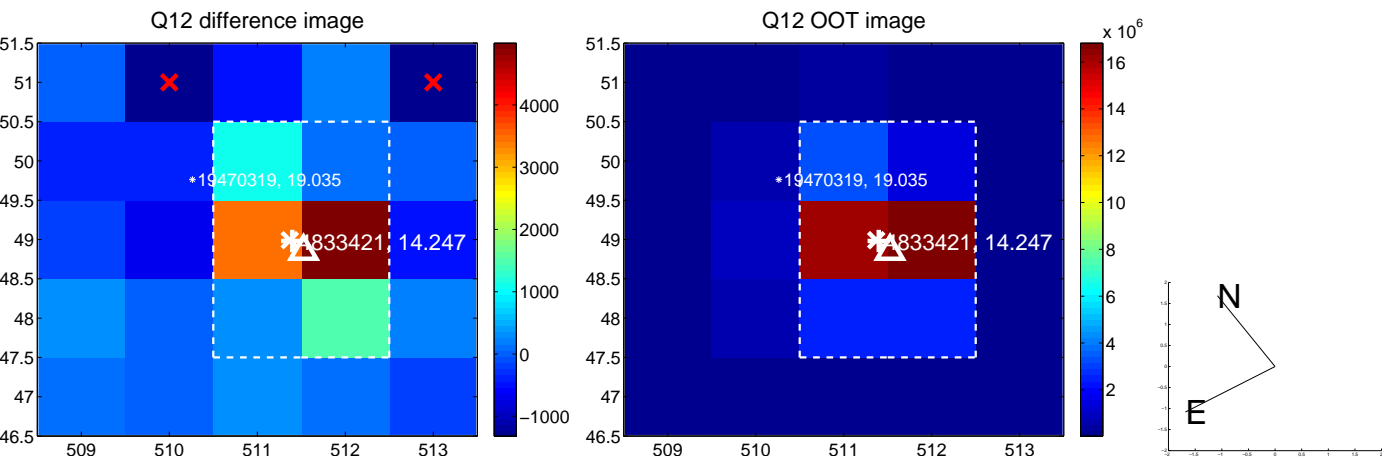
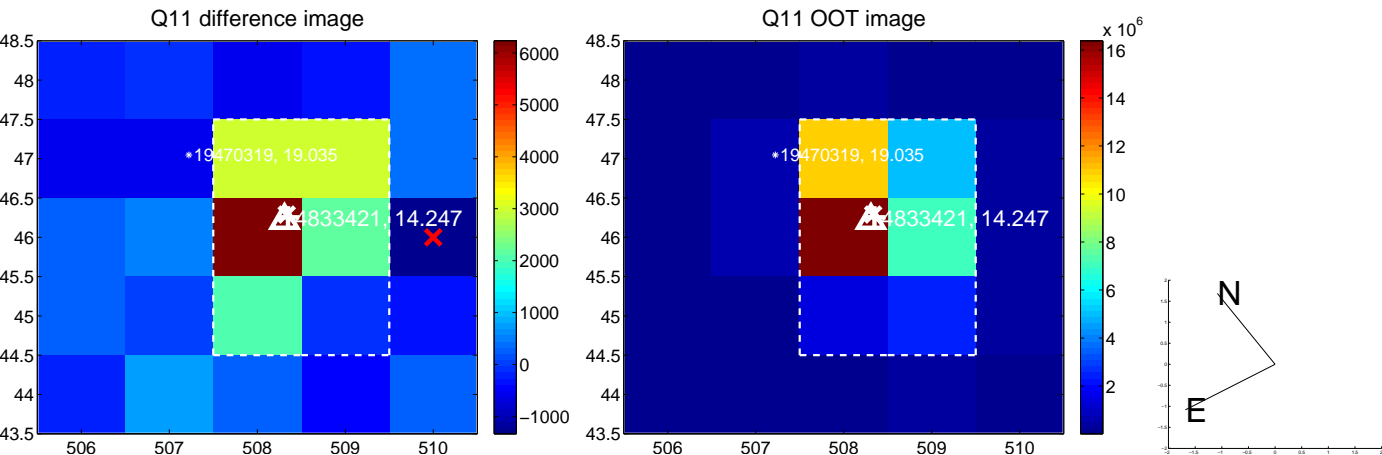
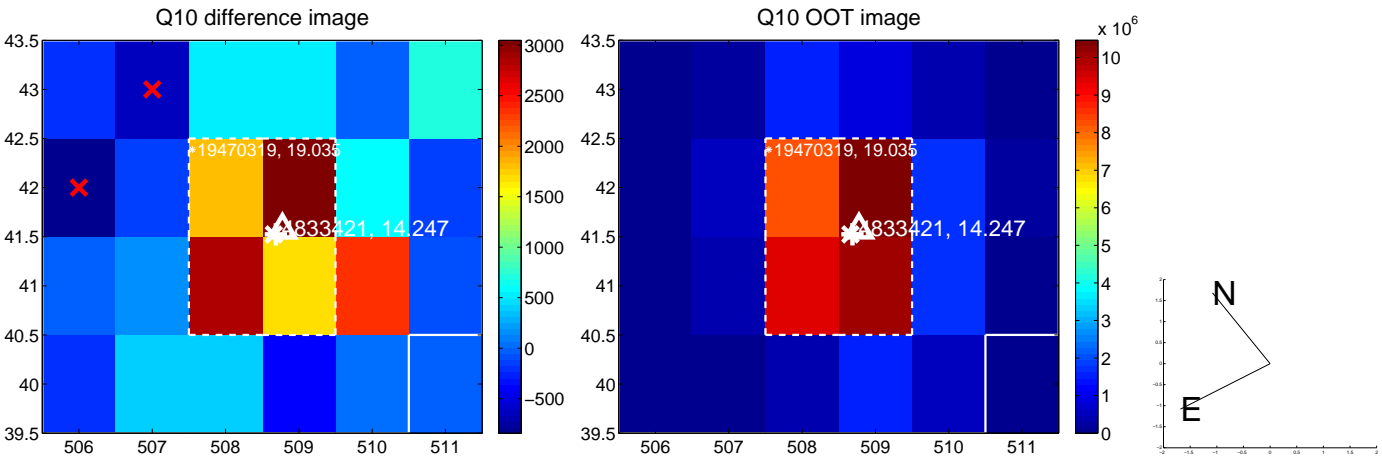
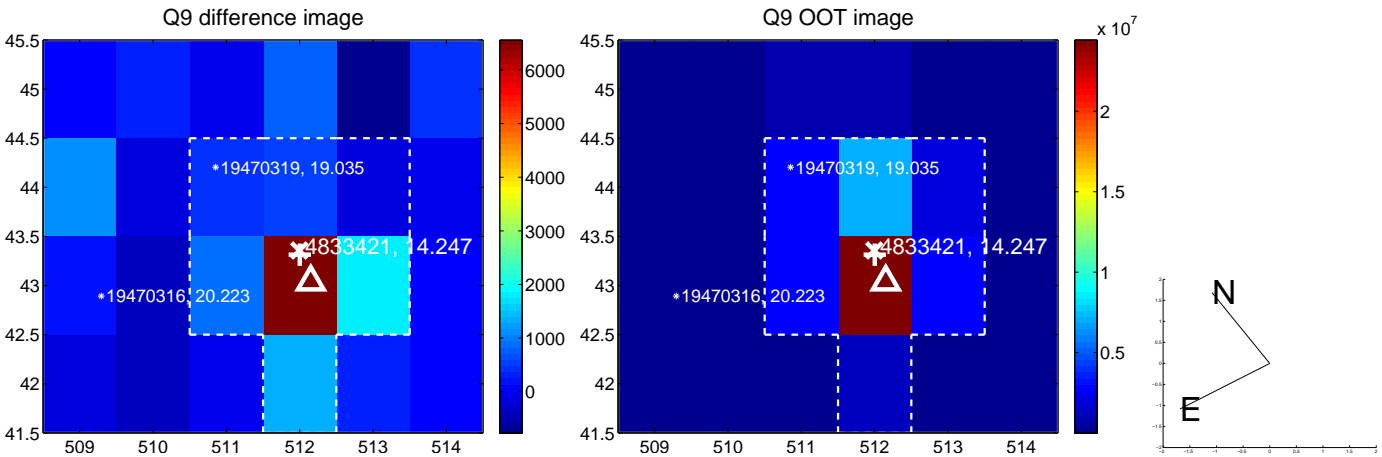
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



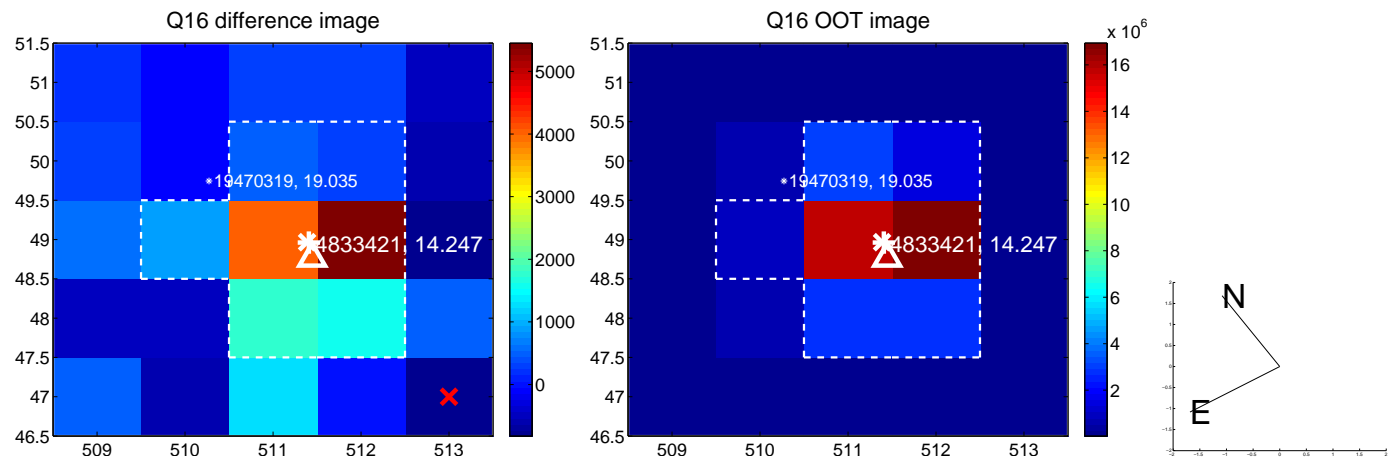
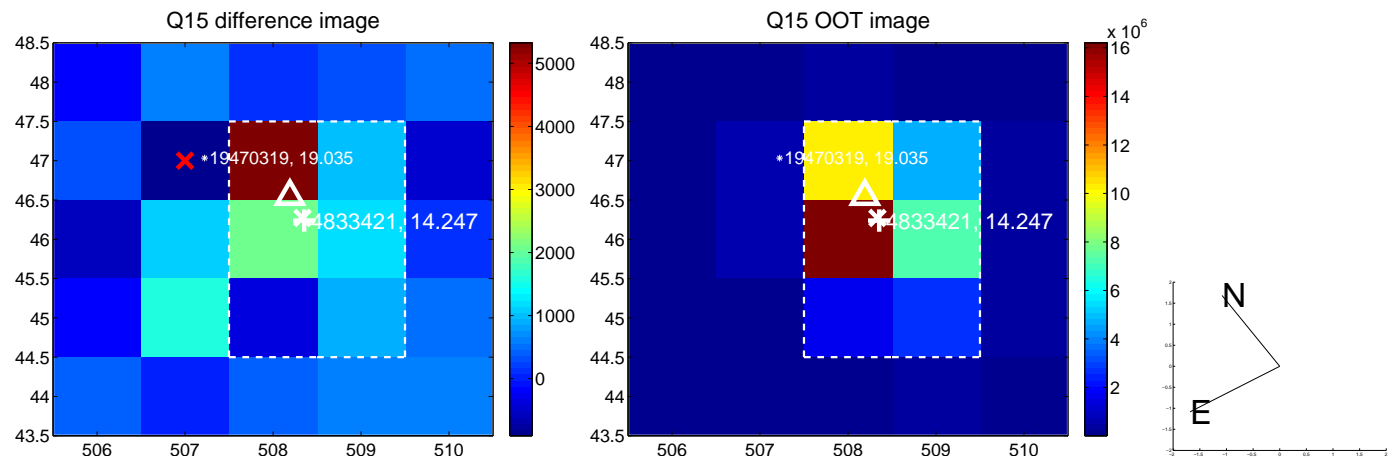
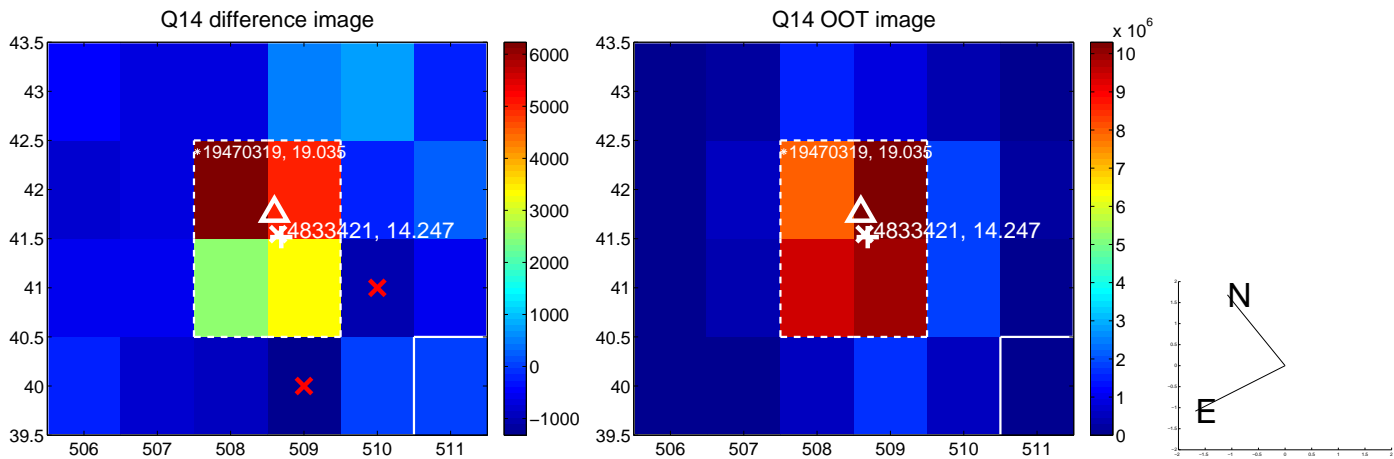
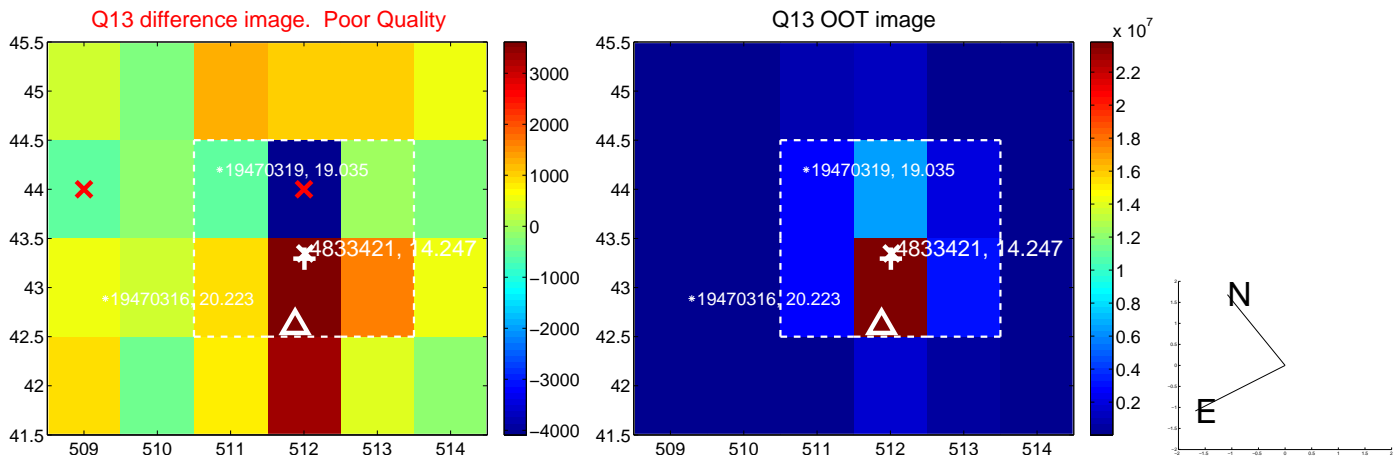
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



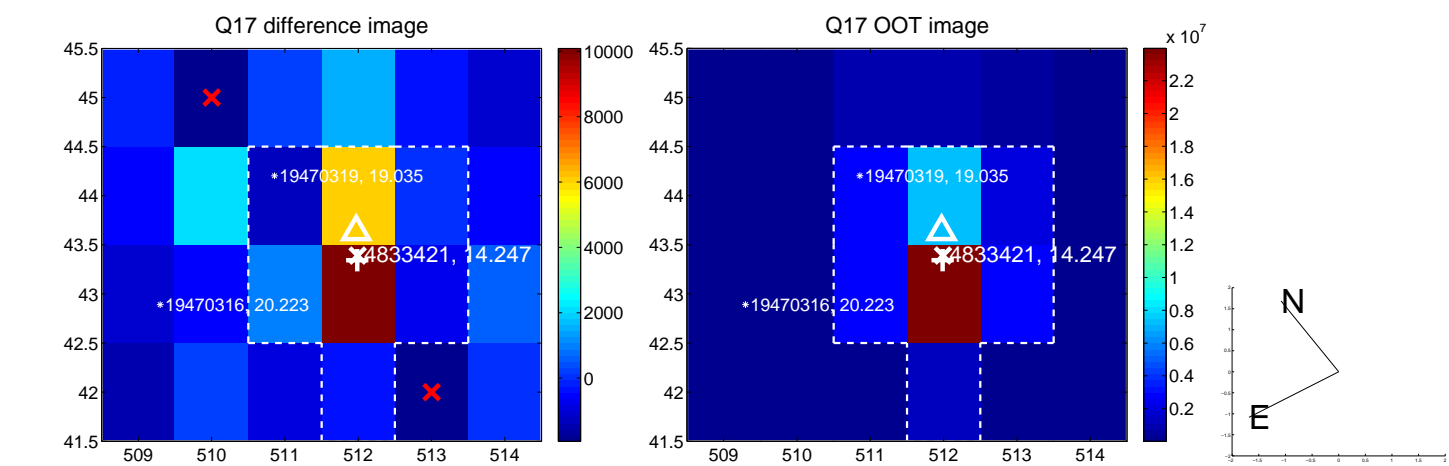
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



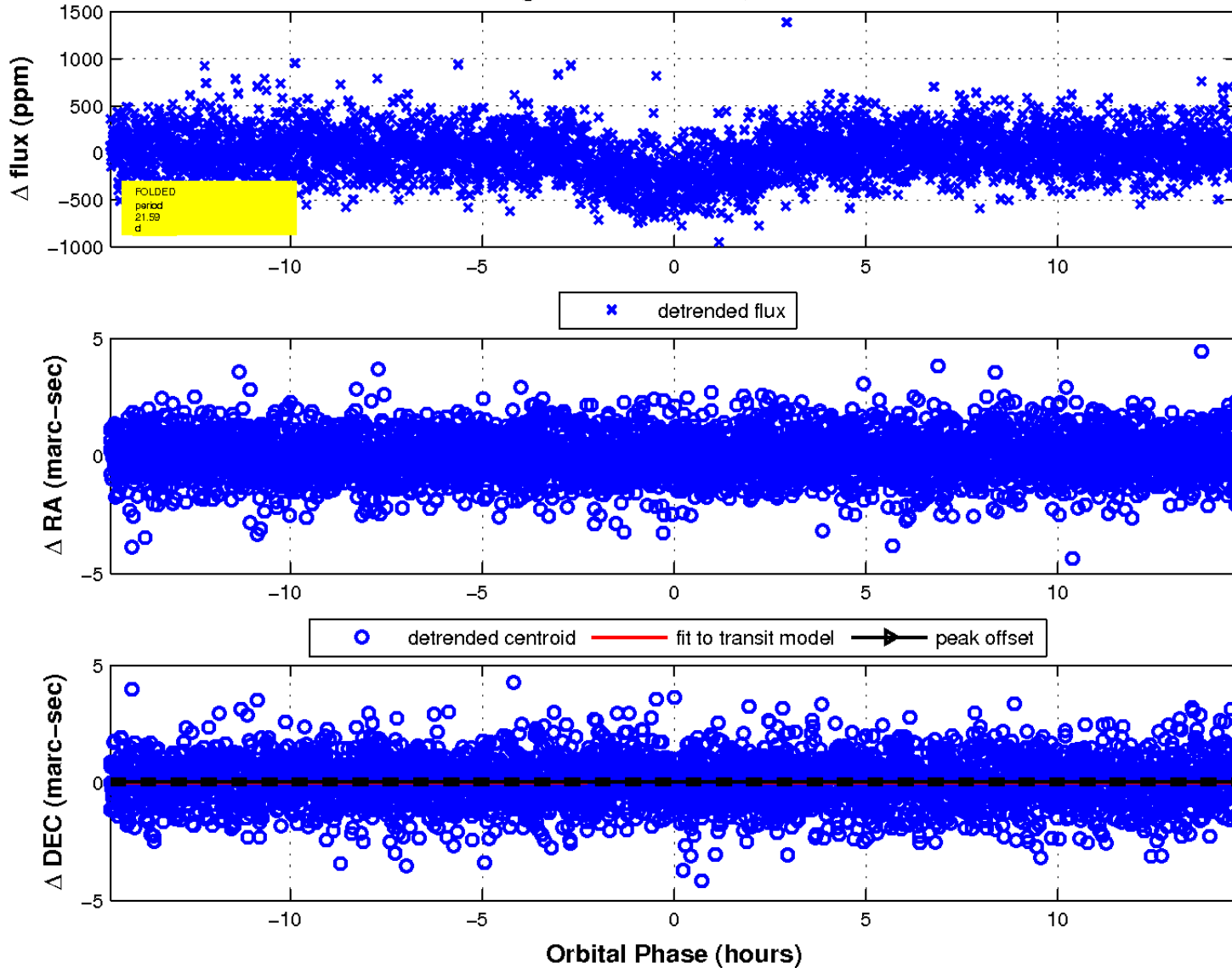
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

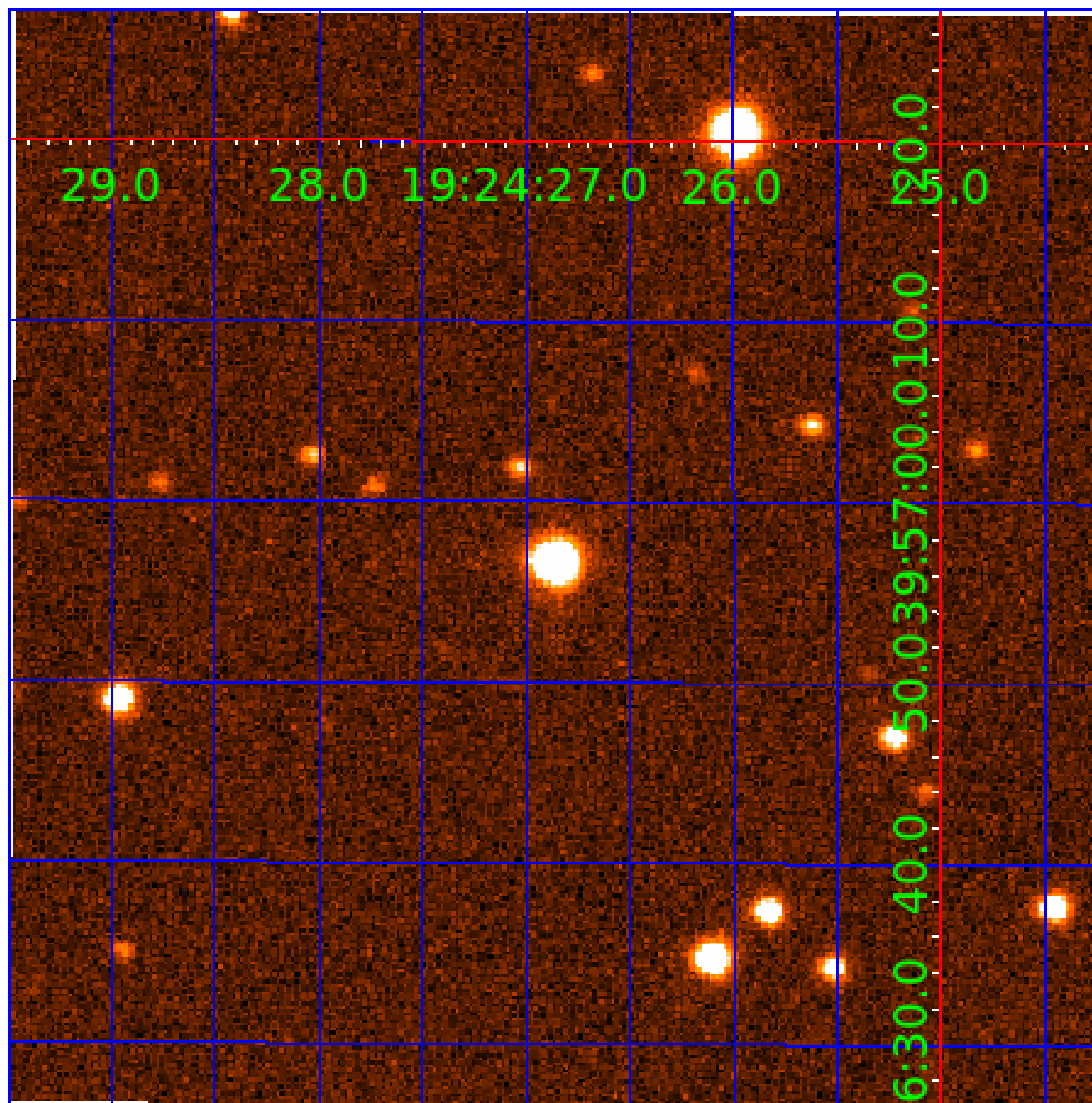


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 004833421

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
004833421-01	OBS	0232.01	12.466004	134.003344	2247.0	5.151	236.8	237.0	1.19	6038	5.97	153.03
004833421-02	OBS	0232.02	5.766147	134.019138	354.5	3.925	47.7	54.1	1.19	6038	2.52	427.79
004833421-03	OBS	0232.04	37.994464	162.998628	352.7	8.148	24.7	25.5	1.19	6038	2.79	34.63
004833421-04	OBS	0232.03	21.587152	142.981948	296.5	4.897	22.4	24.4	1.19	6038	2.28	73.59
004833421-05	OBS	0232.05	56.260588	164.194664	325.6	8.461	20.4	22.6	1.19	6038	2.34	20.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004833421-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004833421-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

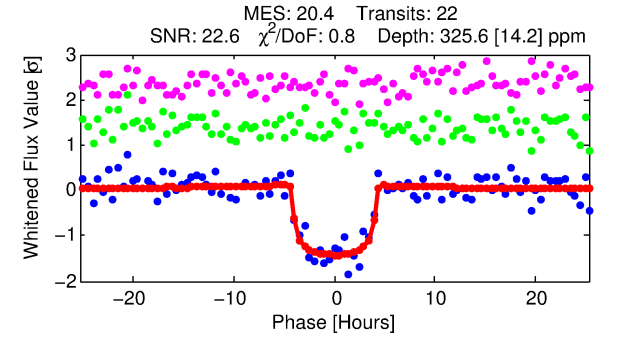
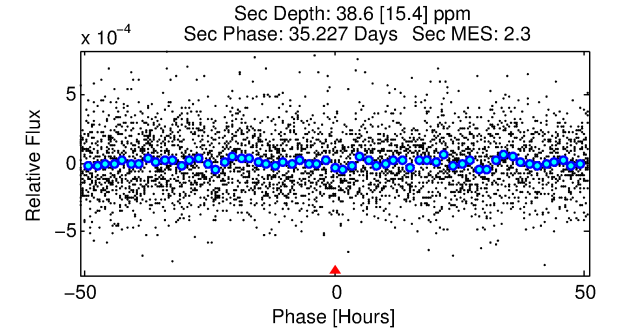
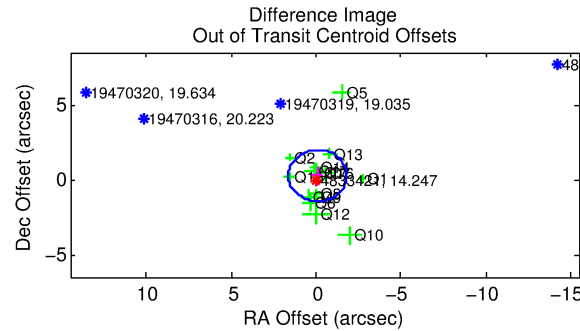
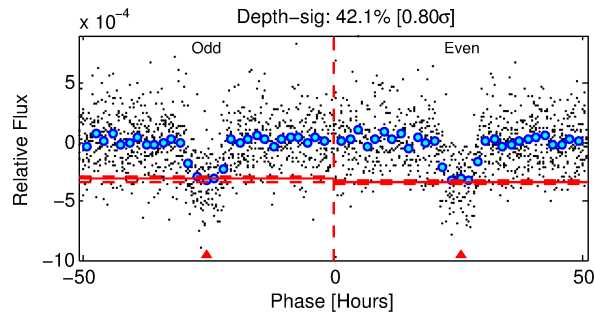
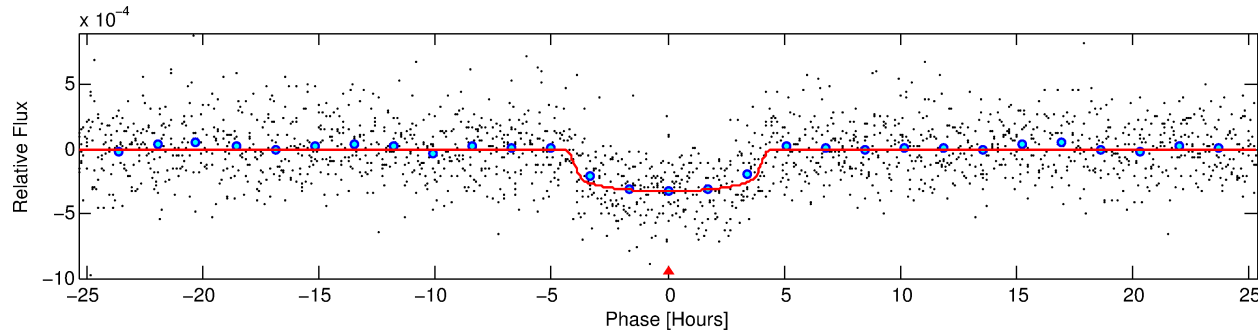
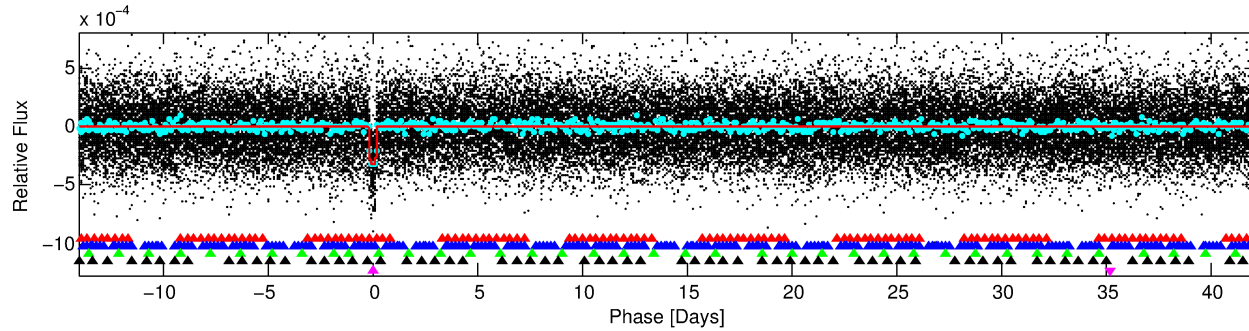
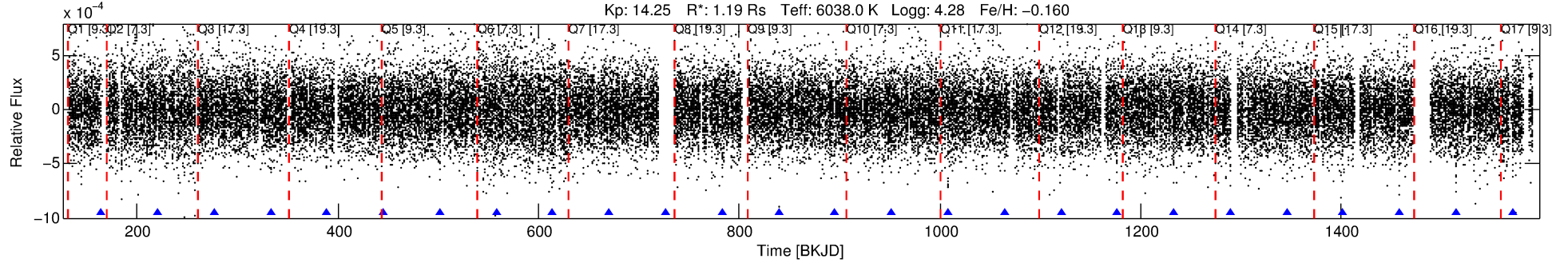
Ephemeris Match Information For 004833421-05

No Significant Match Found

DV One-Page Summary

KIC: 4833421 Candidate: 5 of 5 Period: 56.261 d
KOI: K00232.05 Name: Kepler-122f Corr: 0.963

Kp: 14.25 R*: 1.19 Rs Teff: 6038.0 K Logg: 4.28 Fe/H: -0.160



DV Fit Results:

Period = 56.26059 [0.00048] d
Epoch = 164.1947 [0.0080] BKJD
Rp/R* = 0.0180 [0.0043]
a/R* = 34.45 [40.56]
b = 0.76 [0.66]
Seff = 20.52 [5.10]
Teq = 543 [34] K
Rp = 2.34 [0.67] Re
a = 0.2869 [0.0428] AU
Ag = 318.98 [212.41] [1.50σ]
Teffp = 3546 [557] K [5.38σ]

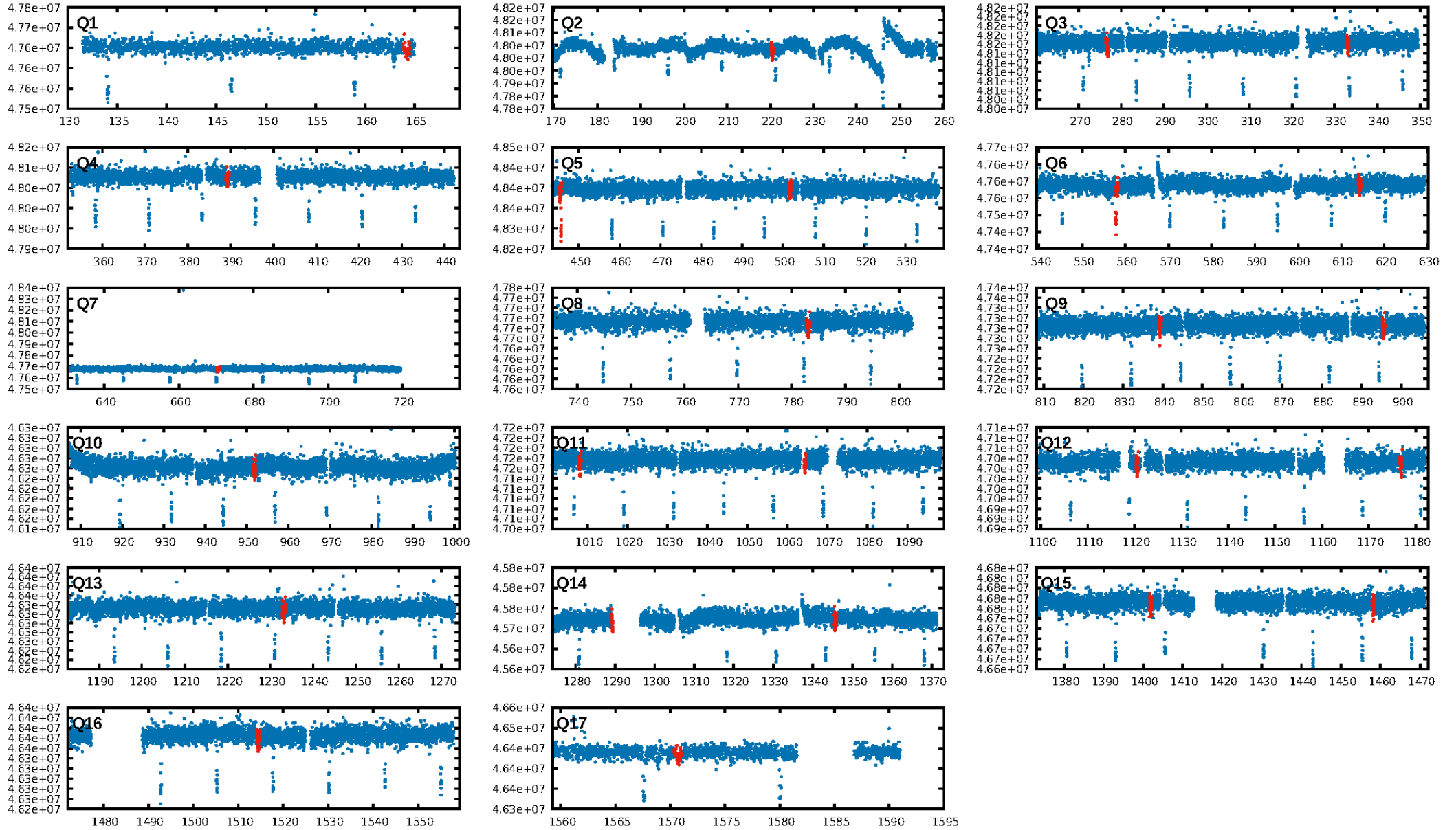
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.32σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 87.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.68e-87
RollingBand-fgt: 1.00 [20/20]
GhostDiagnostic-chr: 1.978
Centroid-sig: N/A
Centroid-so: 0.398 arcsec [0.81σ]
OotOffset-rm: 0.284 arcsec [0.50σ]
KicOffset-rm: 0.193 arcsec [0.37σ]
OotOffset-st: 4/2/4/5 [15]
KicOffset-st: 4/2/4/5 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 0.69 [11/16]

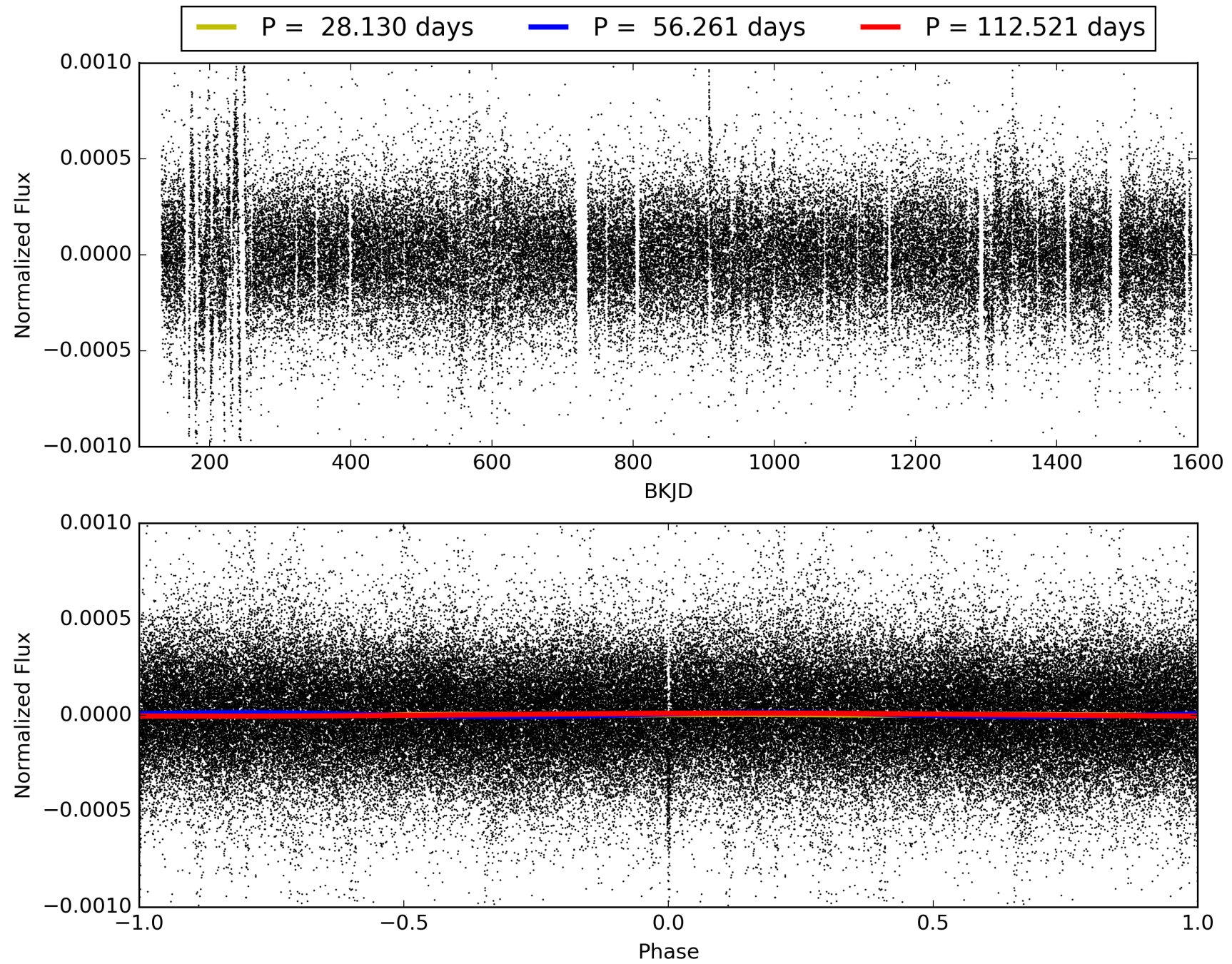
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:34:59 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004833421-05, PDC Light Curves

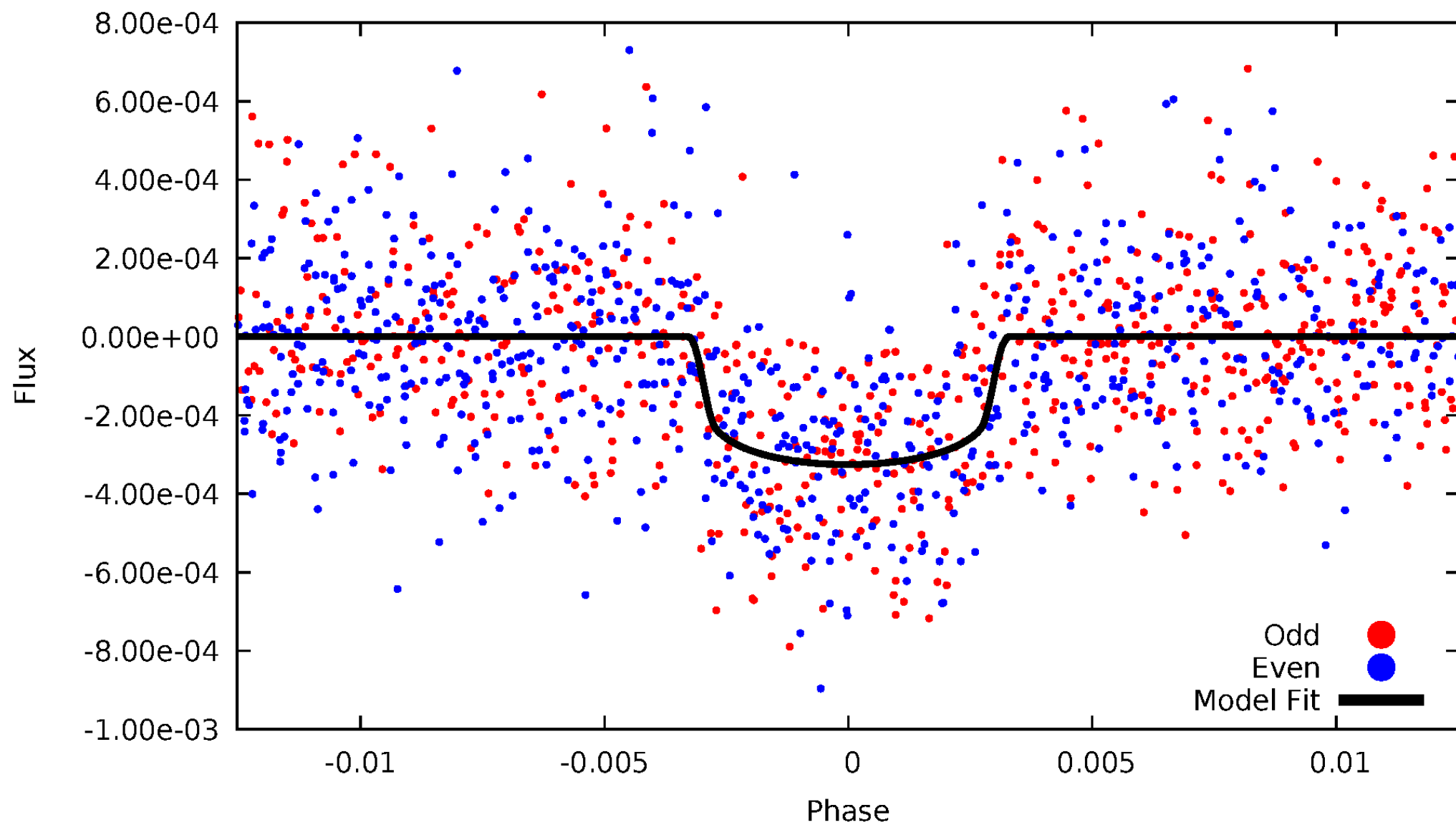


TCE 004833421-05



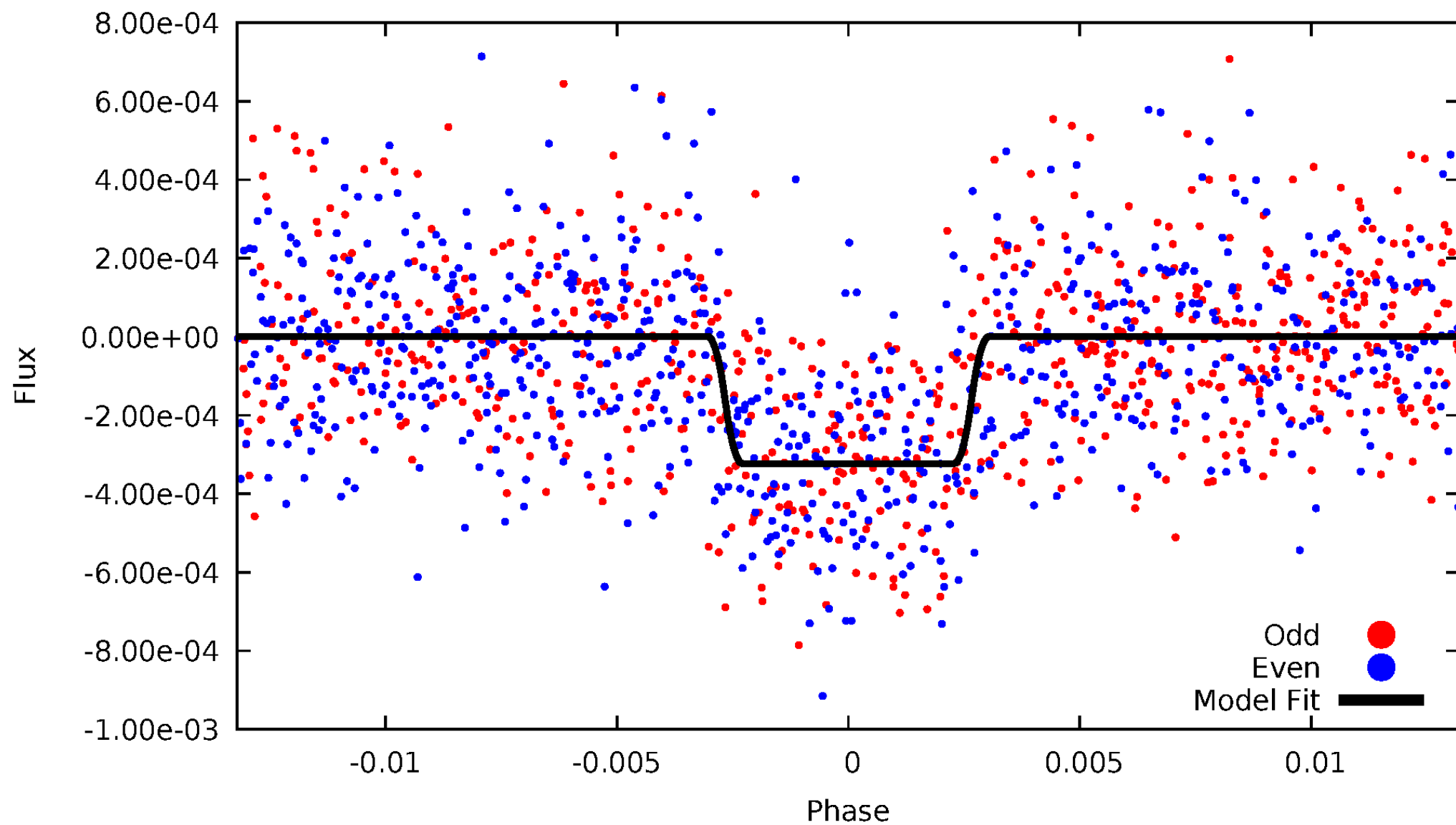
DV Odd/Even

TCE 004833421-05



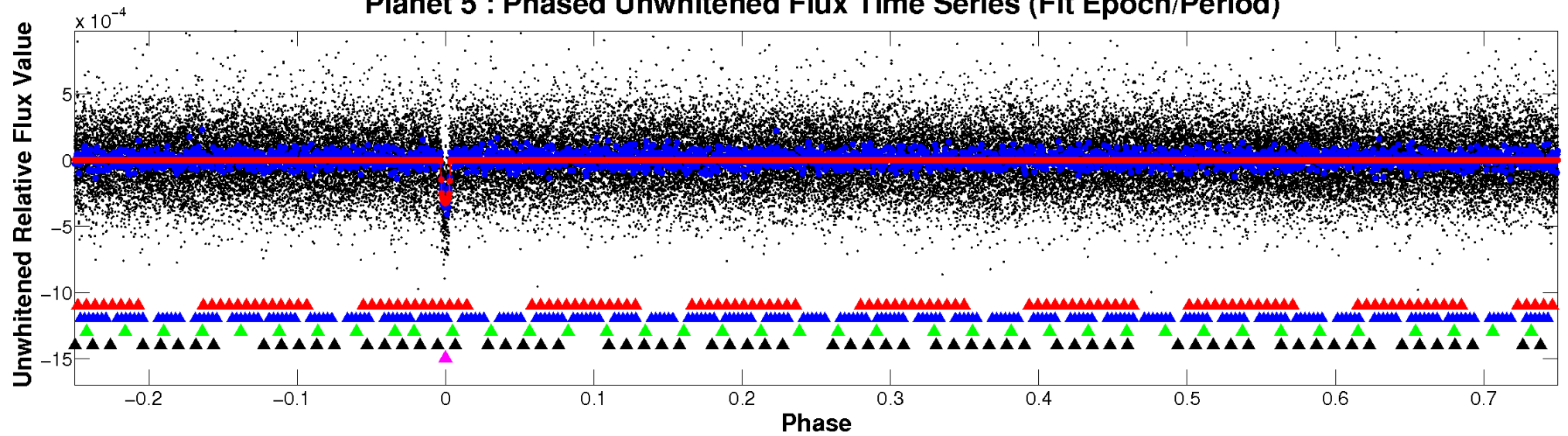
ALT Odd/Even

TCE 004833421-05

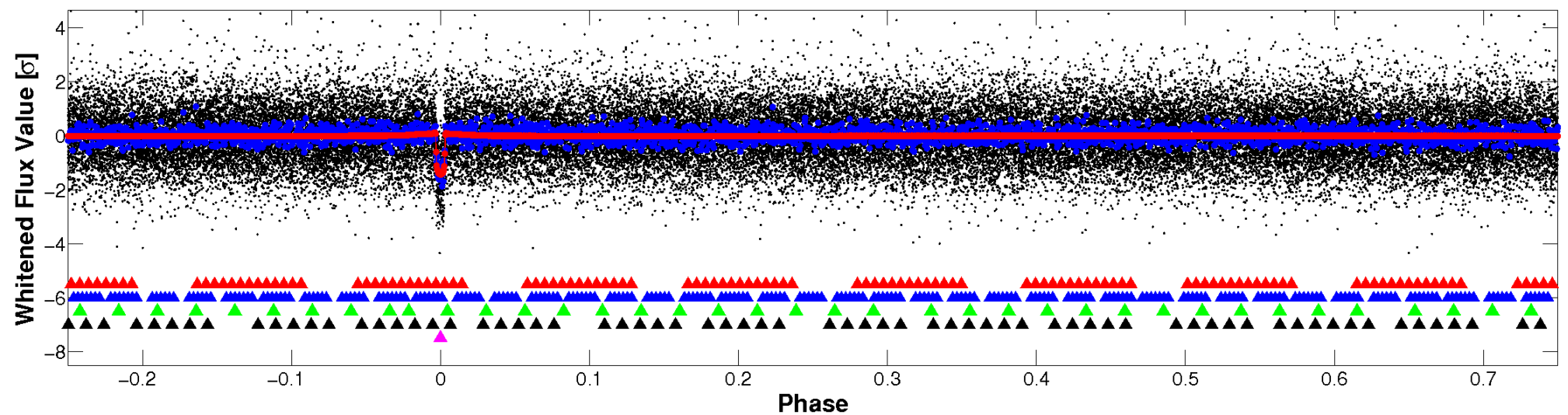


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

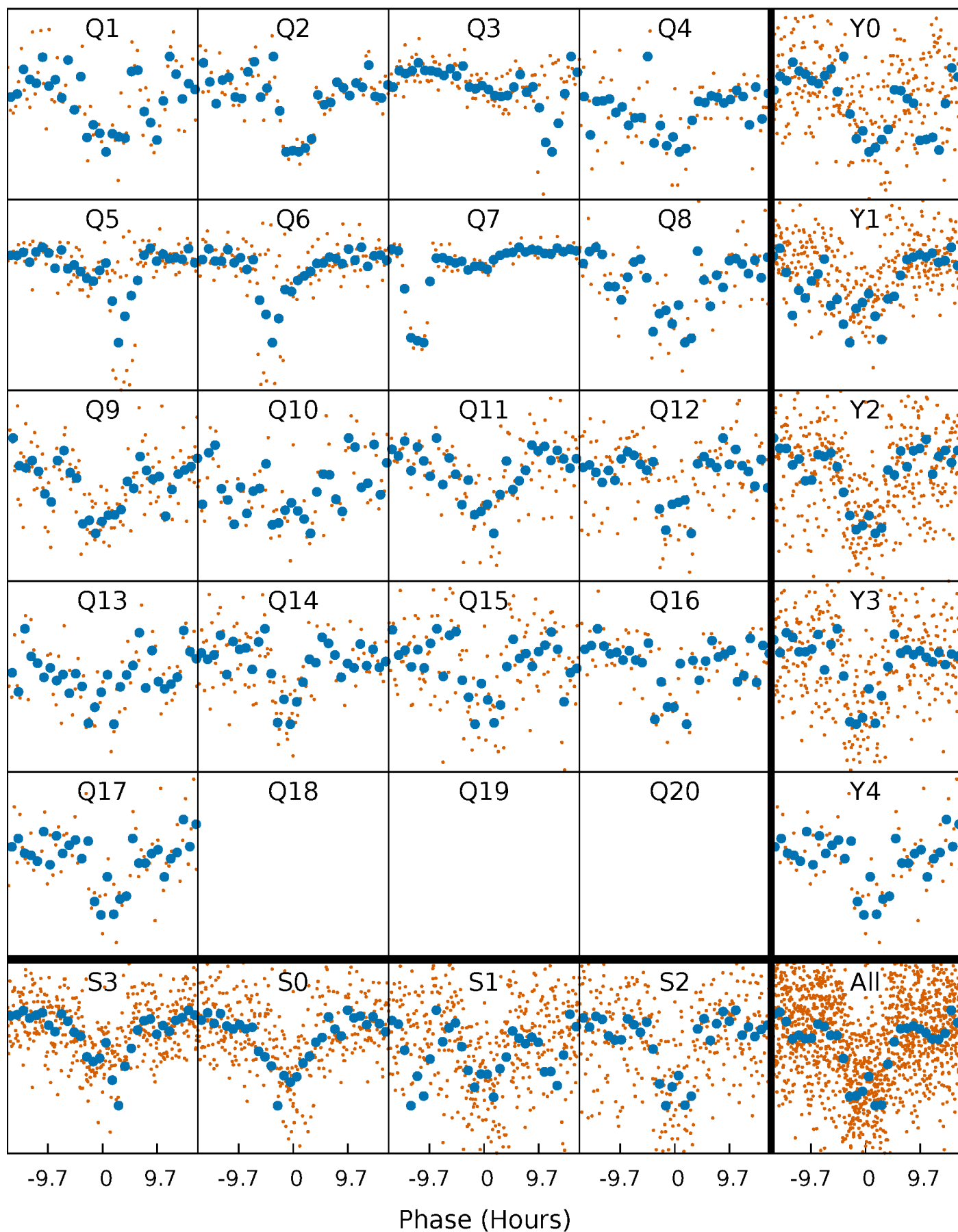


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



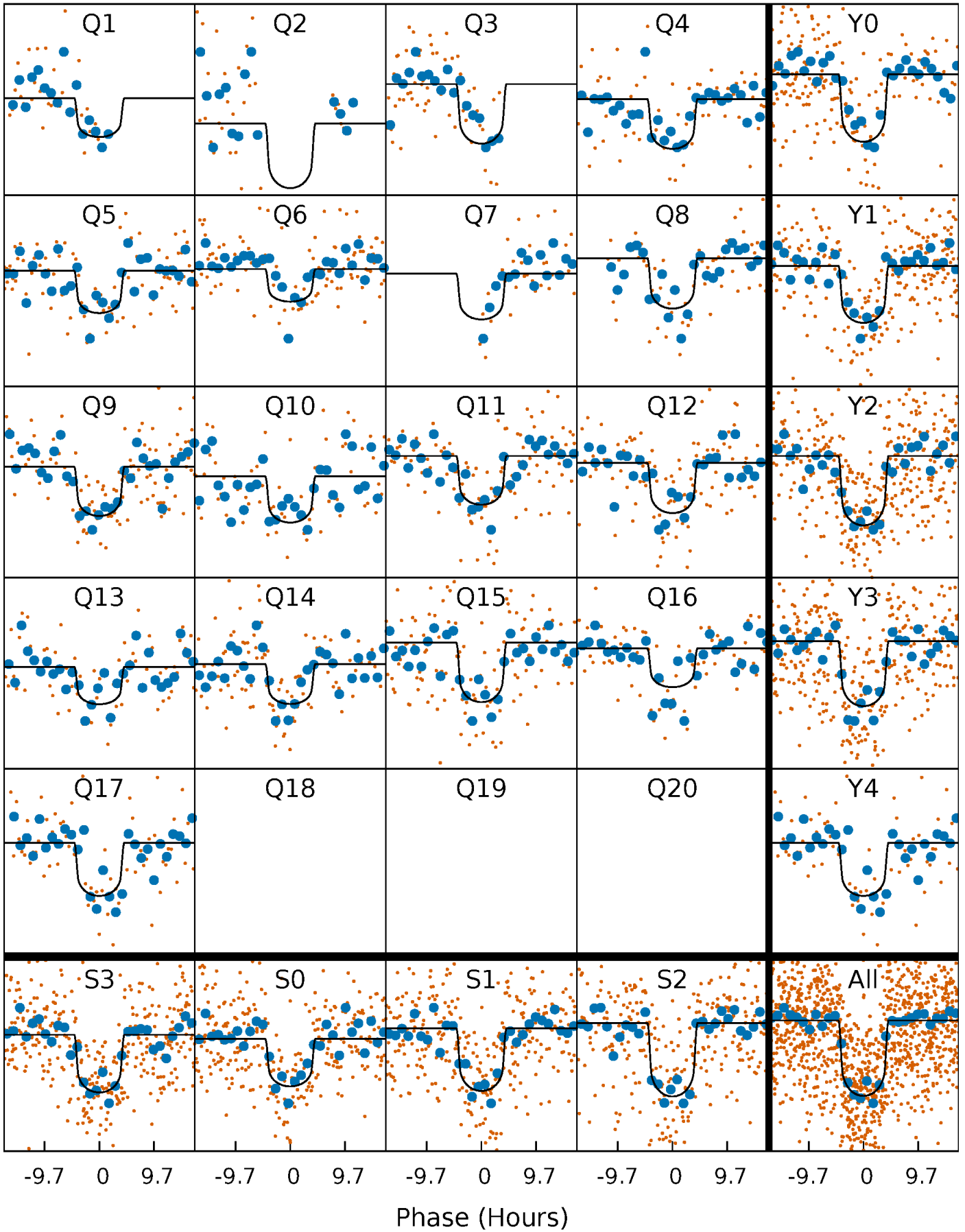
PDC Quarter-Phased Transit Curves

TCE 004833421-05 $P = 56.260588$ Days $T_0 = 164.194664$ (BKJD)



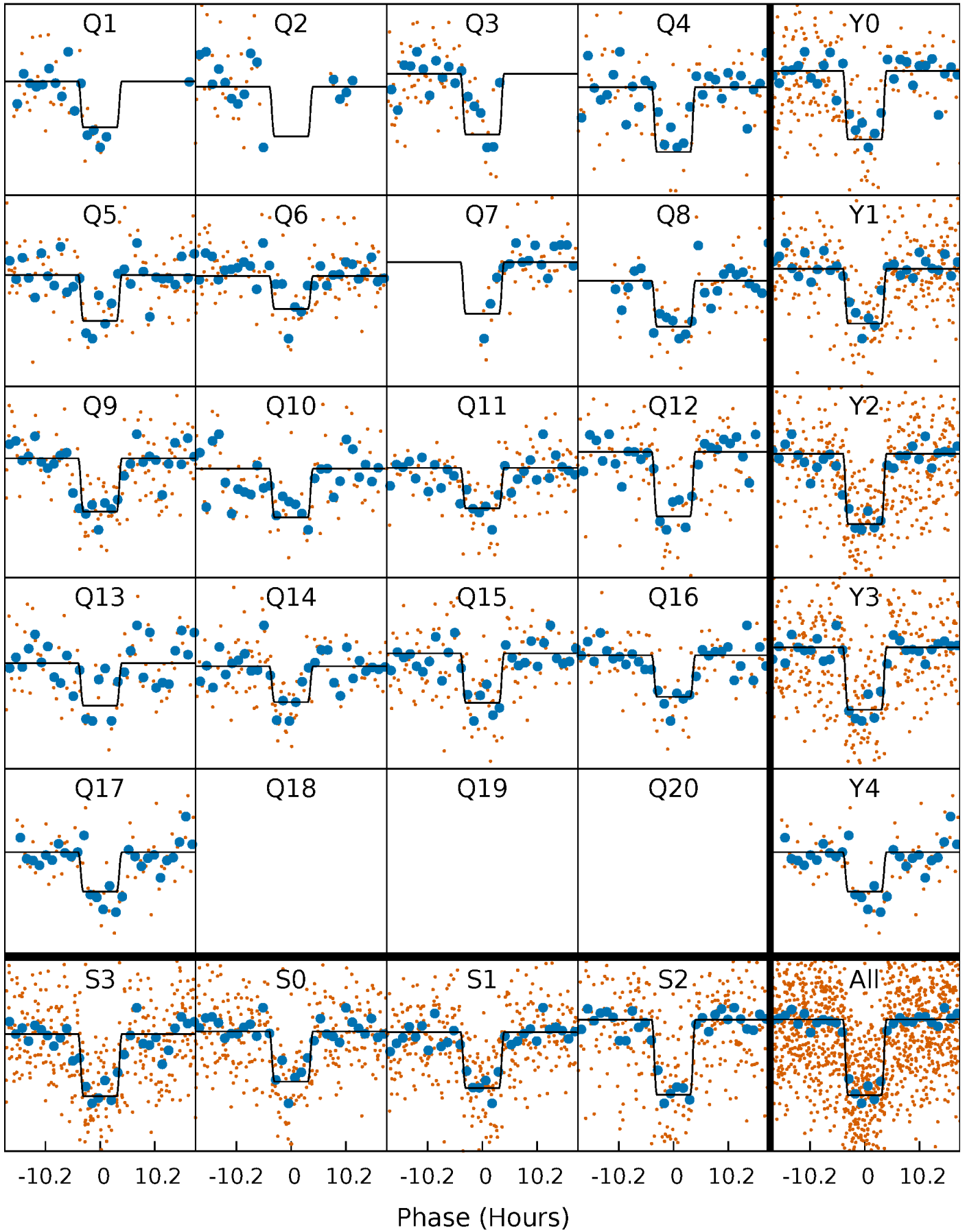
DV Quarter-Phased Transit Curves

TCE 004833421-05 P= 56.260588 Days $T_0=164.194664$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

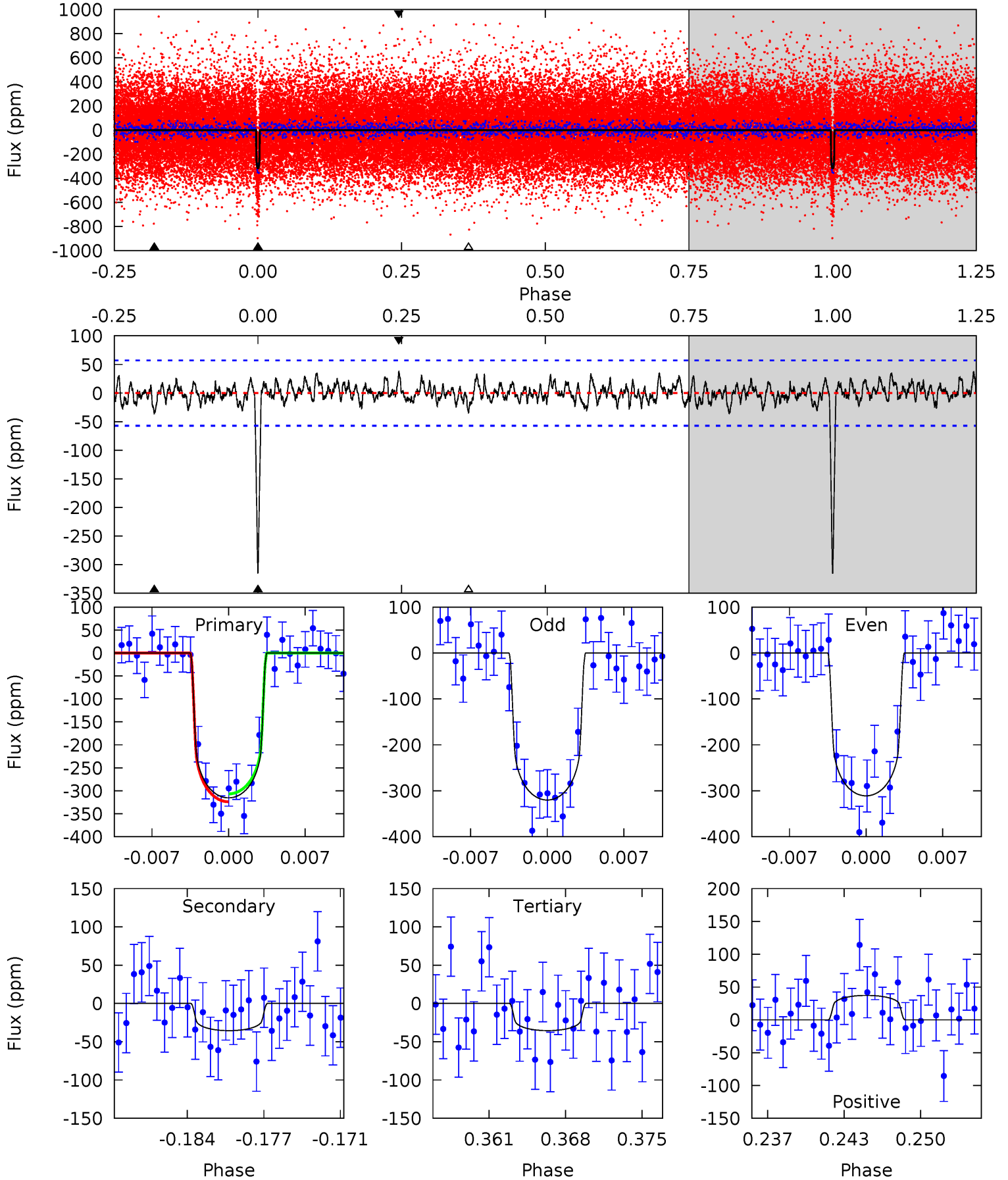
TCE 004833421-05 P= 56.259951 Days $T_0=164.201675$ (BKJD)



DV Model-Shift Uniqueness Test

004833421-05, P = 56.260588 Days, E = 107.934076 Days

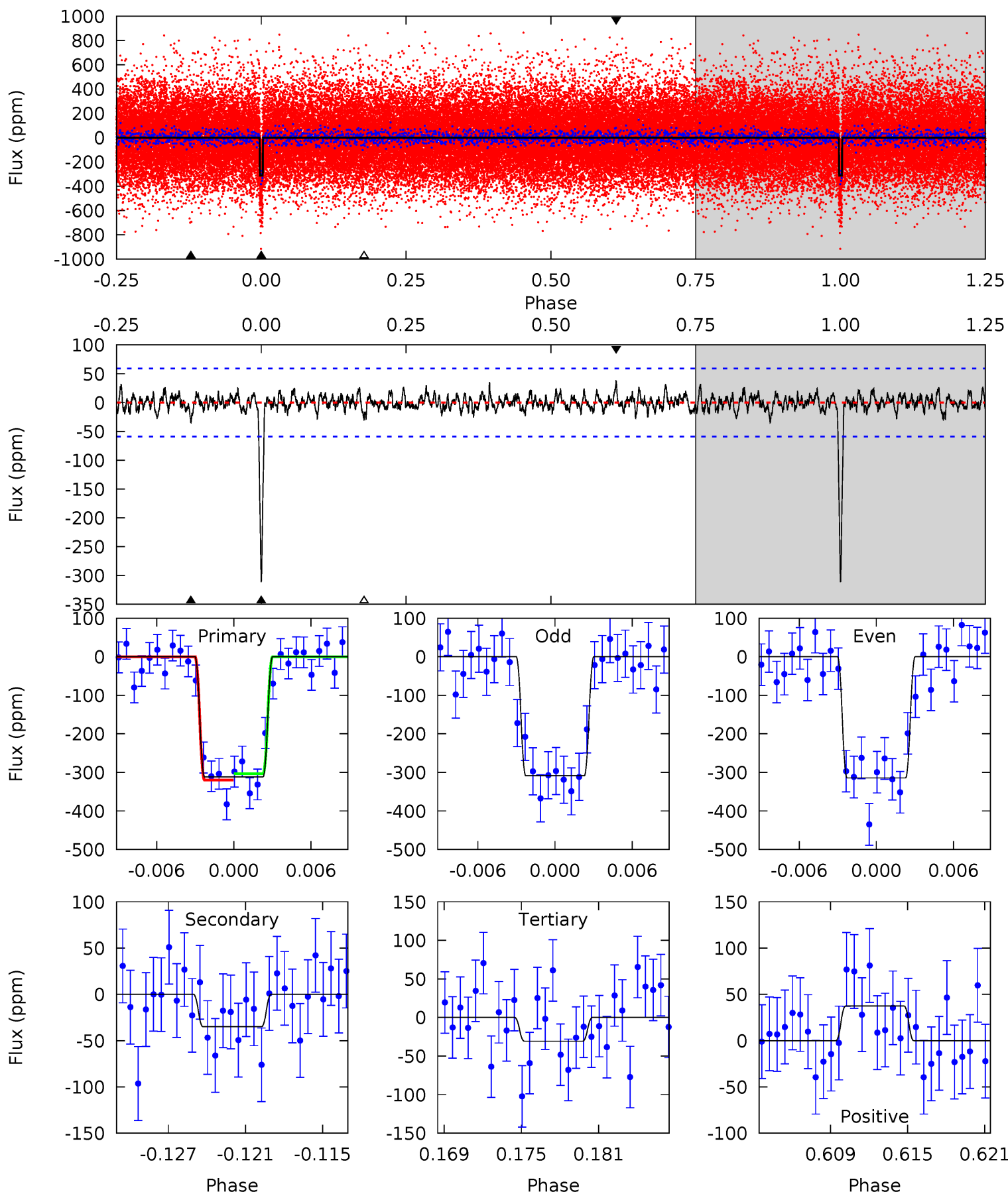
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.2	3.18	3.18	3.34	5.11	2.72	1.12	25.1	24.9	0.00	-0.16	0.41	1.06	0.11	0.77



Alt Model-Shift Uniqueness Test

004833421-05, P = 56.259951 Days, E = 107.941724 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.1	3.04	2.67	3.24	5.12	2.75	0.89	24.4	23.8	0.37	-0.20	0.25	1.03	0.11	0.70



Stellar Parameters For KIC 004833421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6038^{+121}_{-121}	$4.284^{+0.137}_{-0.112}$	$-0.160^{+0.150}_{-0.150}$	$1.191^{+0.189}_{-0.189}$	$0.995^{+0.082}_{-0.067}$	$0.830^{+0.562}_{-0.265}$
	+2%/-2%	+3%/-3%	+94%/-94%	+16%/-16%	+8%/-7%	+68%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004833421-05 / KOI 0232.05

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 11	$2.35^{+0.61}_{-0.59}$	756^{+37}_{-36}	3835^{+415}_{-353}	296^{+239}_{-133}
Alt.	-35 ± 12	$2.32^{+0.71}_{-0.62}$	756^{+39}_{-35}	3828^{+446}_{-350}	290^{+264}_{-139}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

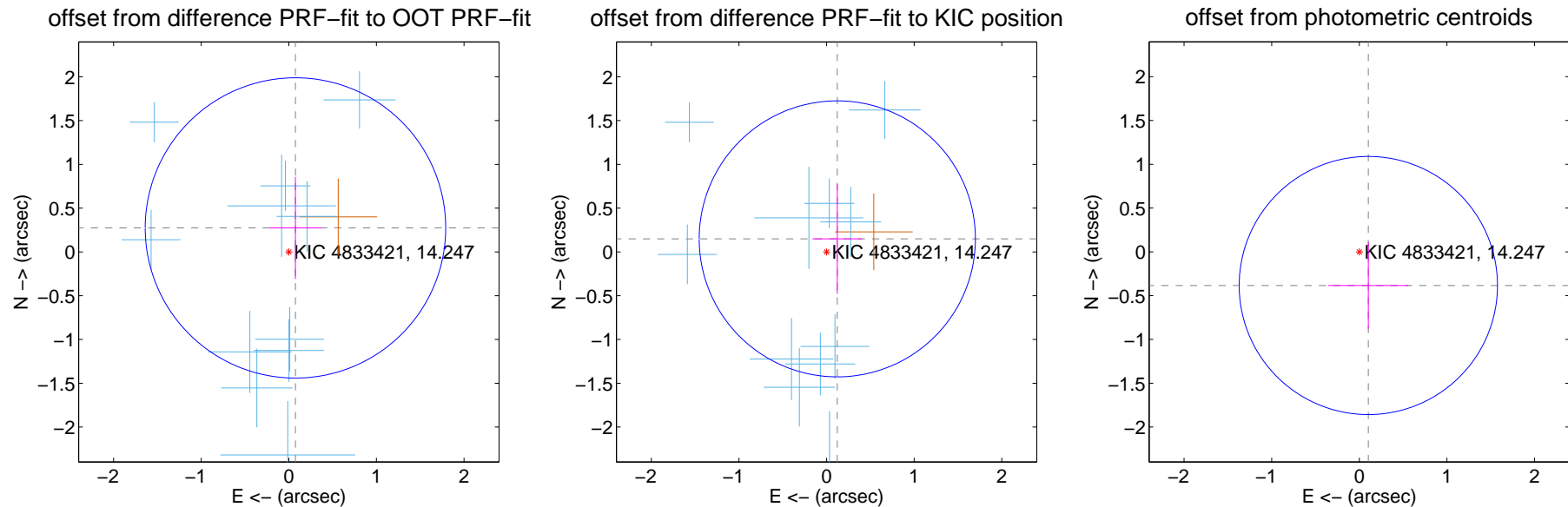
DV Centroid Data

Supplemental centroid analysis for 004833421-05. Kepler magnitude: 14.25. Transit SNR 22.58

There are 12 quarters with good PRF difference image offsets

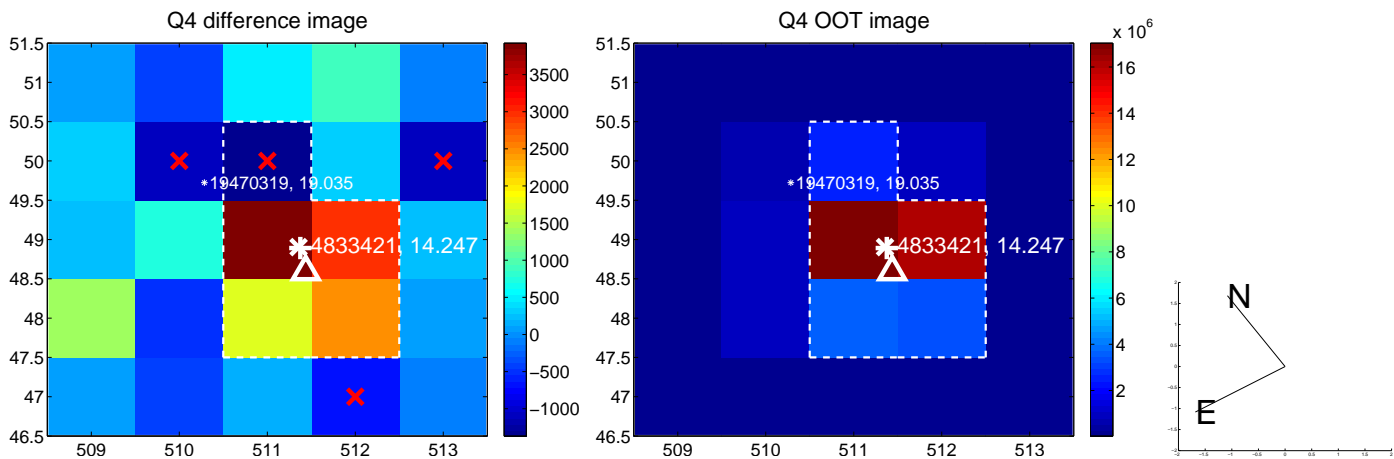
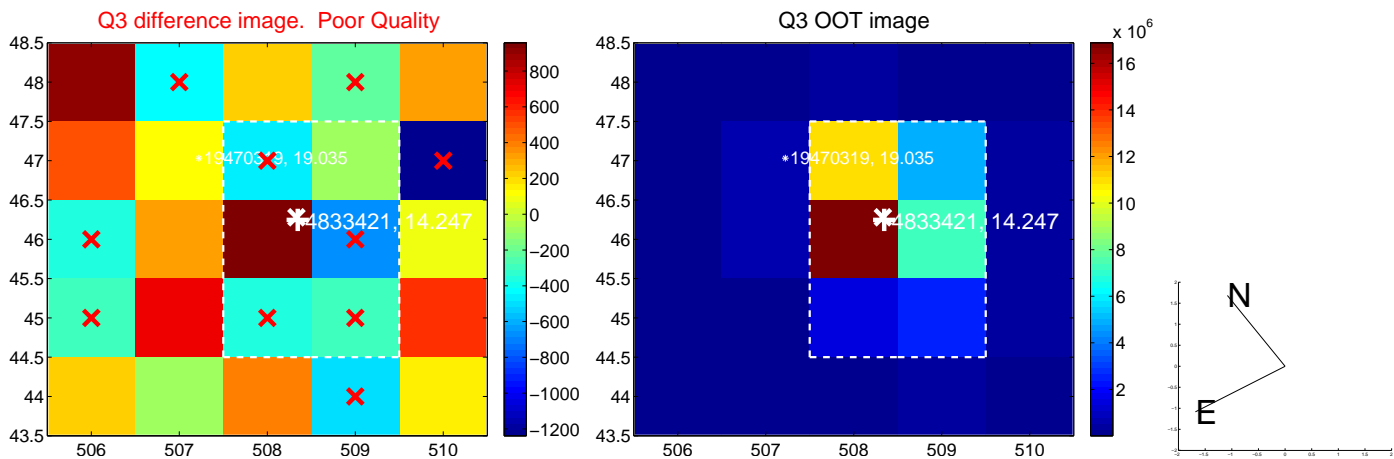
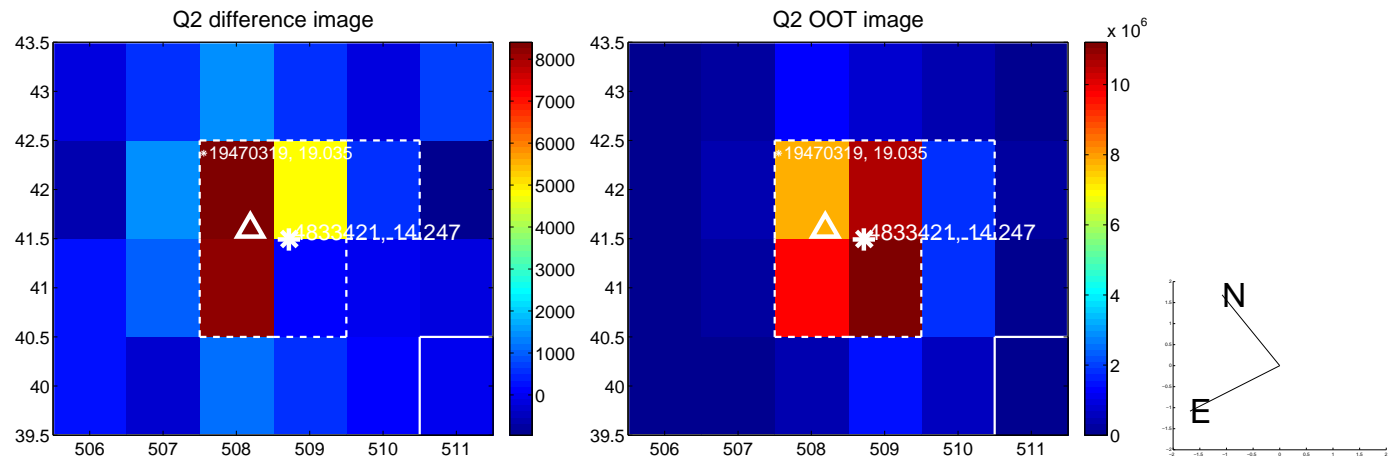
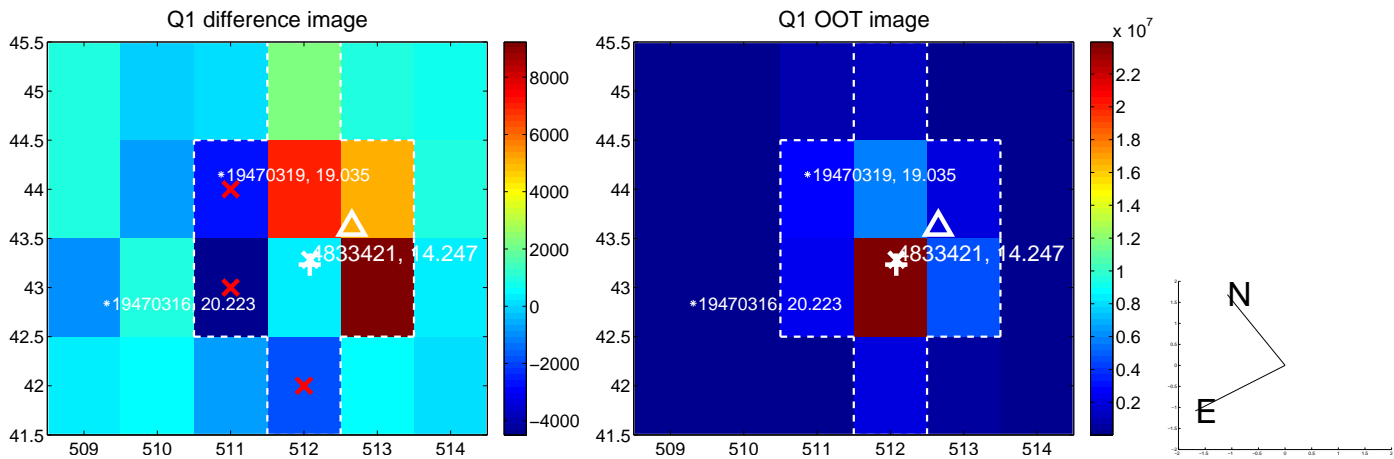
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.284 ± 0.572	0.50	-0.076 ± 0.295	0.274 ± 0.583
PRF-fit source offset from KIC position	0.193 ± 0.525	0.37	-0.122 ± 0.283	0.149 ± 0.626
photometric centroid source offset	0.40 ± 0.49	0.81	-0.10 ± 0.46	-0.38 ± 0.49

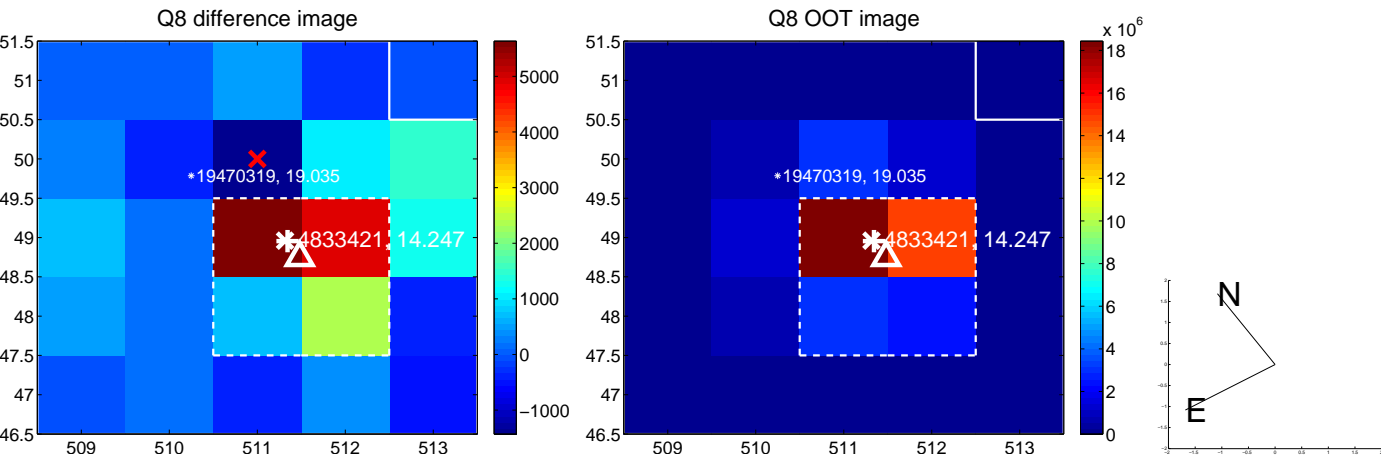
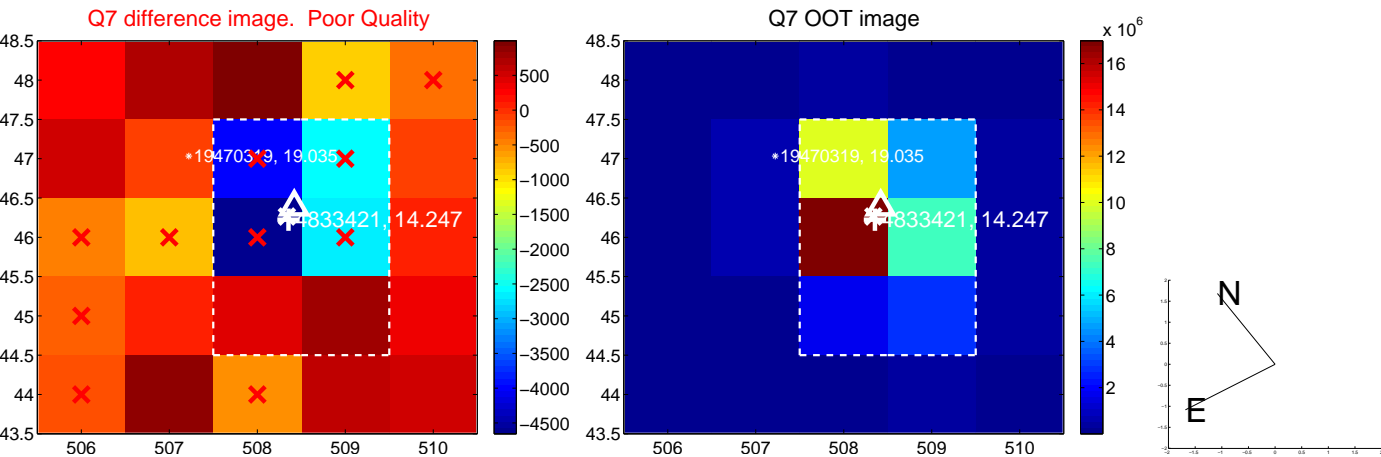
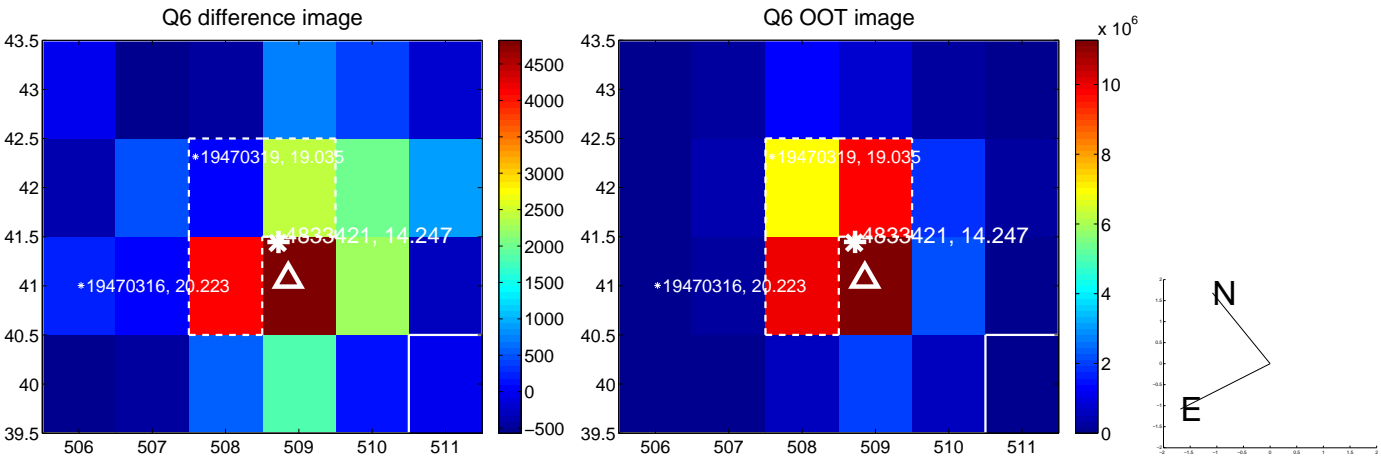
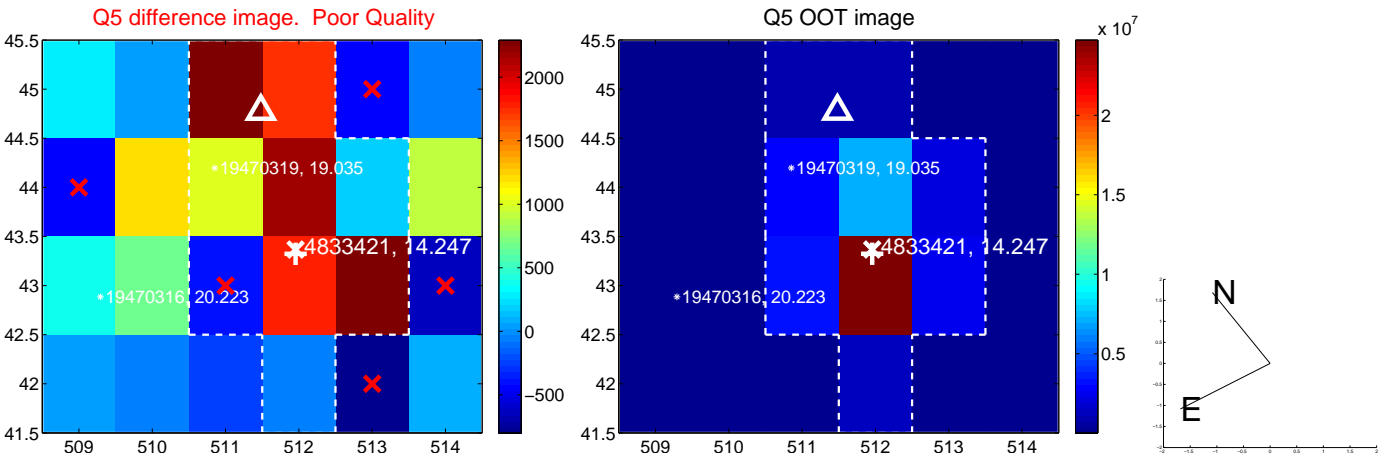


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

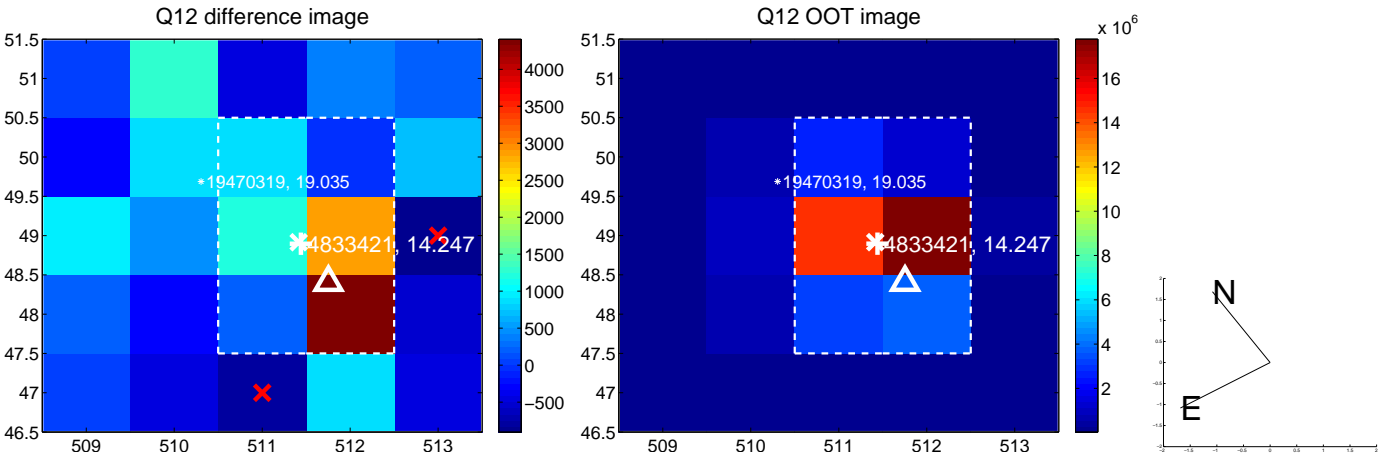
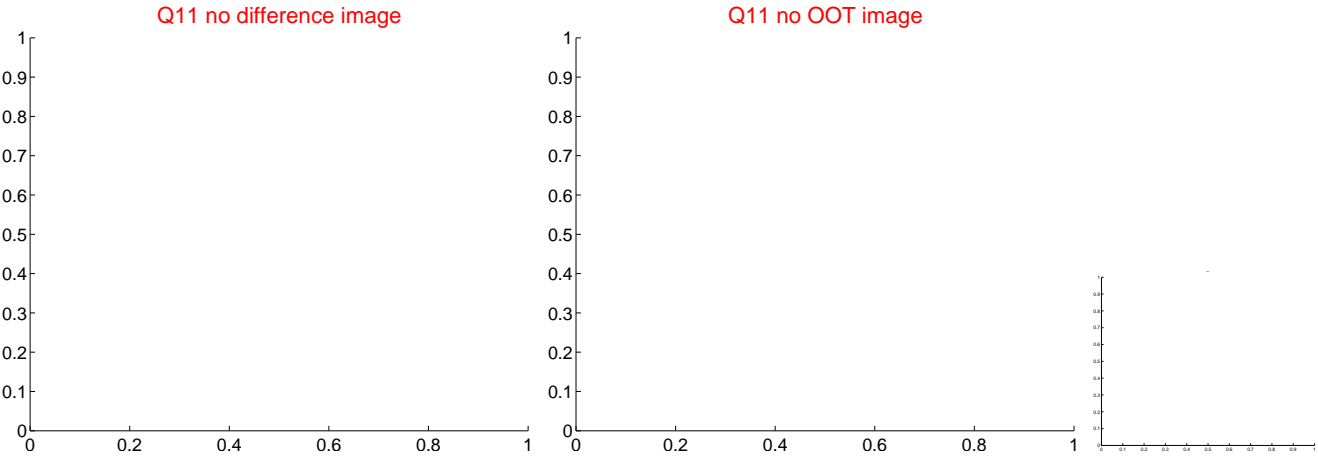
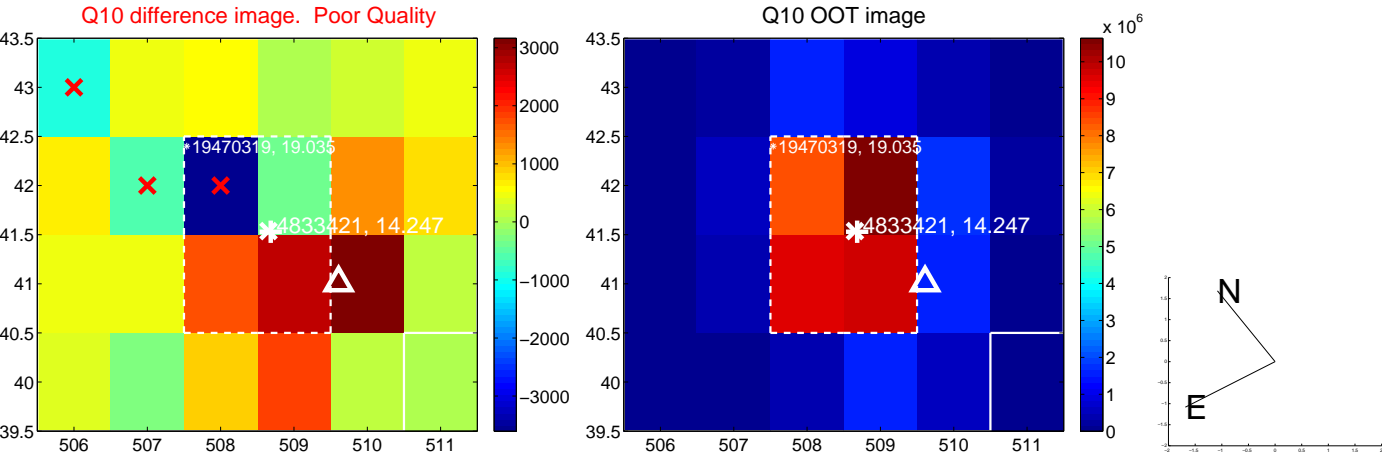
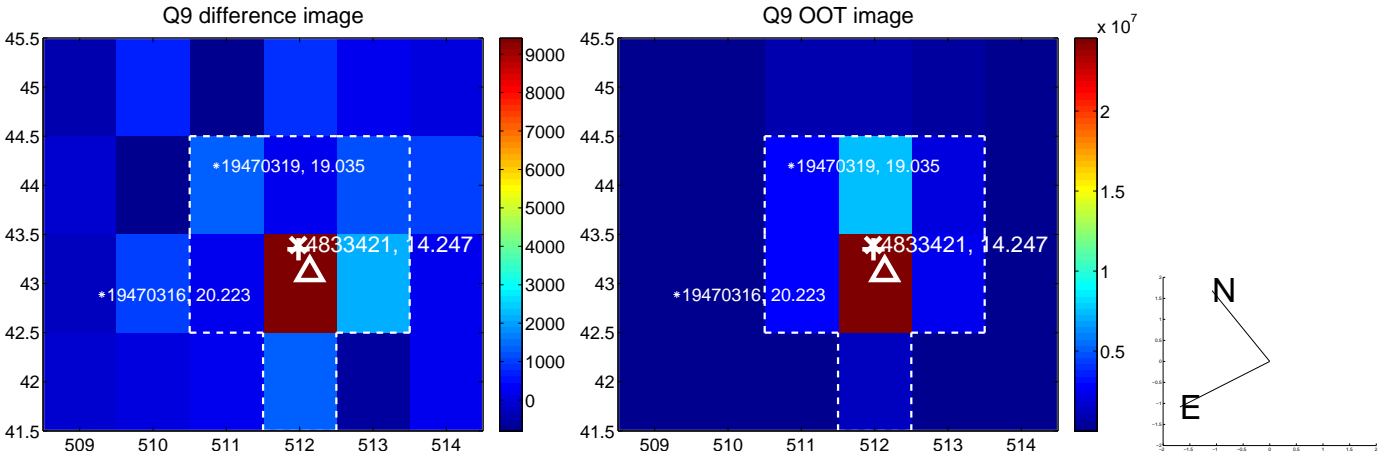
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



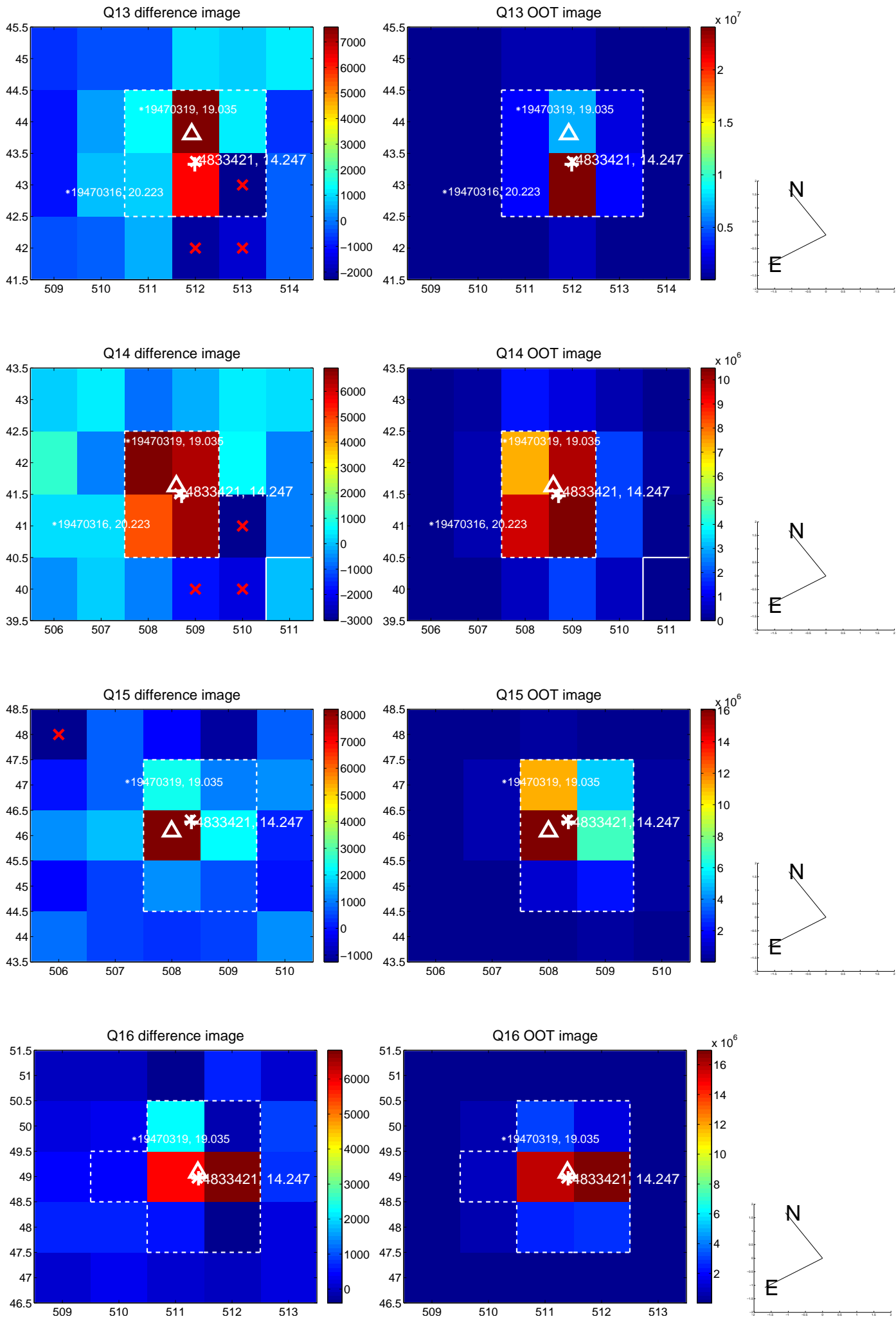
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



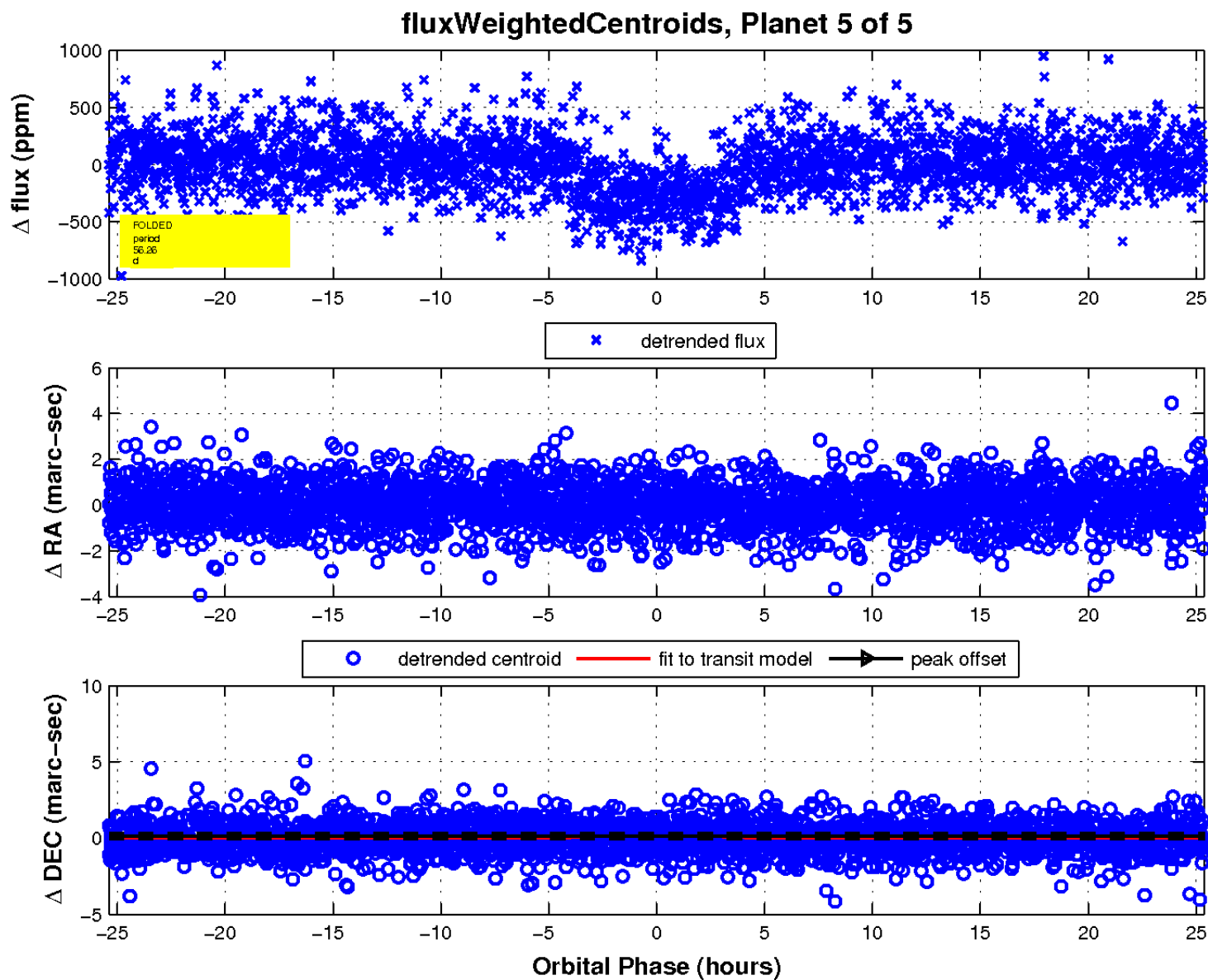
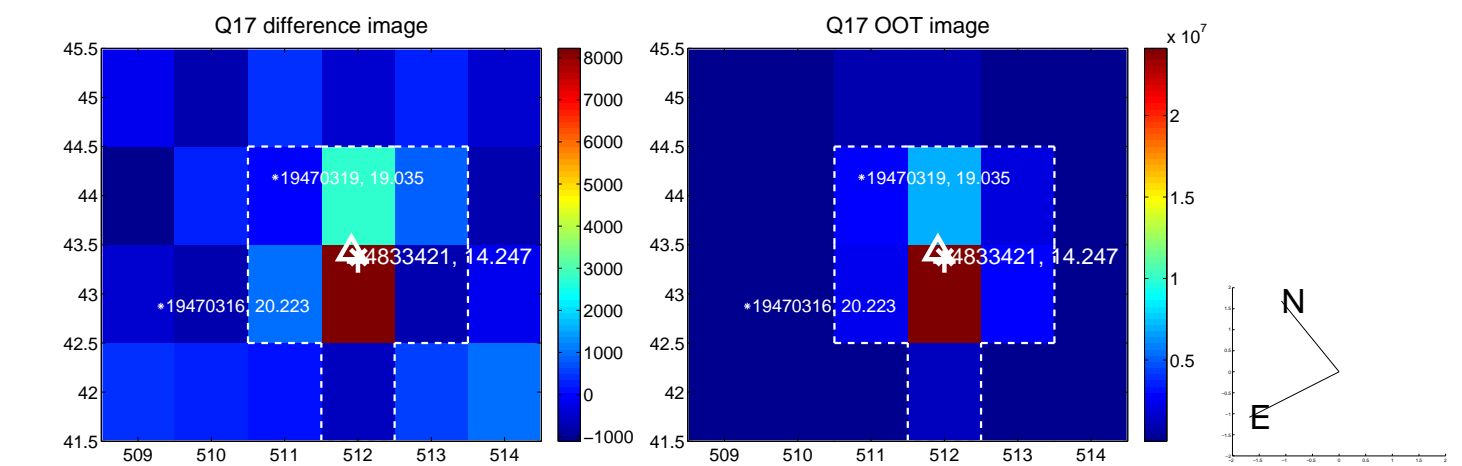
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

