

KIC 006430841

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})
006430841-01	OBS	No	295.663745	241.949691	100.8	7.457	44.7	18.3	17.09	4754	18.07	85.48
006430841-02	OBS	No	136.394785	222.741345	23.4	7.454	15.4	4.8	17.09	4754	8.76	239.82
006430841-03	OBS	No	344.451962	238.683748	70.5	44.212	14.3	4.4	17.09	4754	15.03	69.73
006430841-04	OBS	No	249.288140	196.635932	26.9	3.123	15.7	3.9	17.09	4754	10.45	107.32
006430841-05	OBS	No	167.624492	146.804219	1.8	8.407	17.7	0.4	17.09	4754	2.85	182.18
006430841-06	OBS	No	43.102199	159.524448	49.9	0.923	13.6	16.1	17.09	4754	15.31	1114.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006430841-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006430841-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

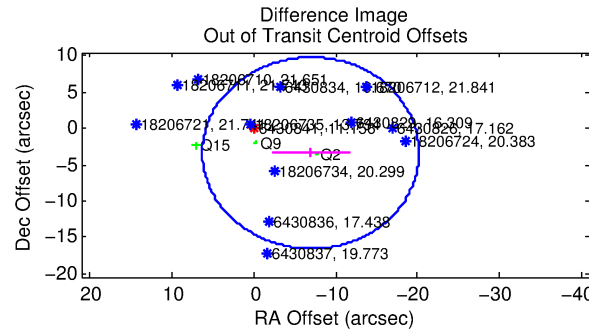
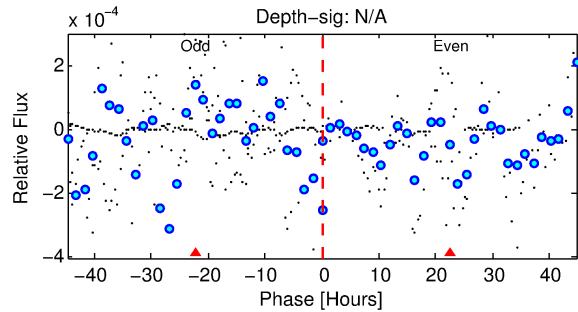
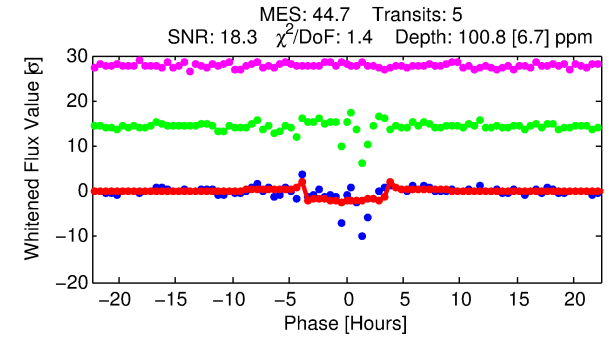
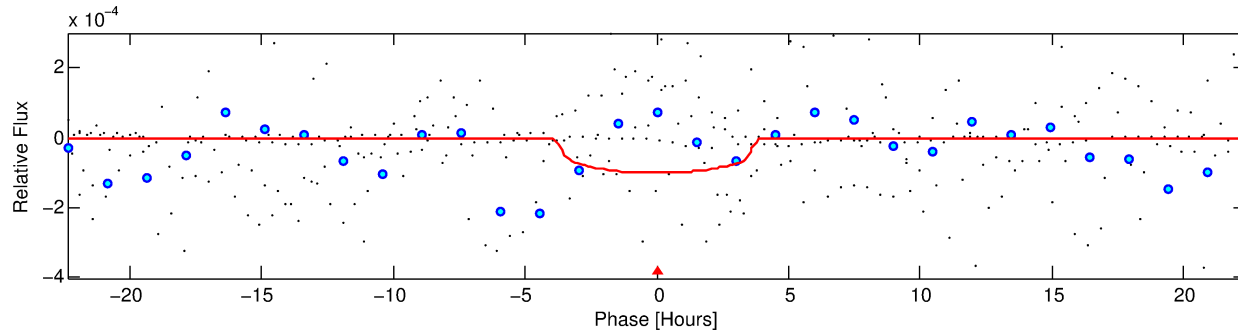
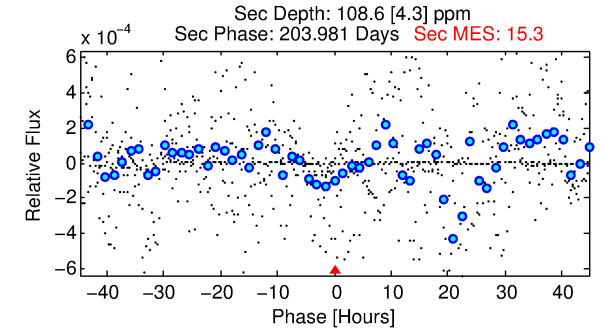
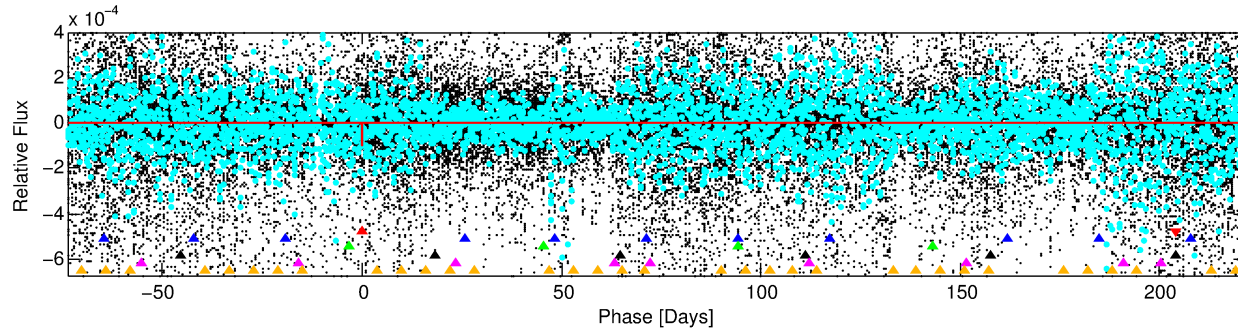
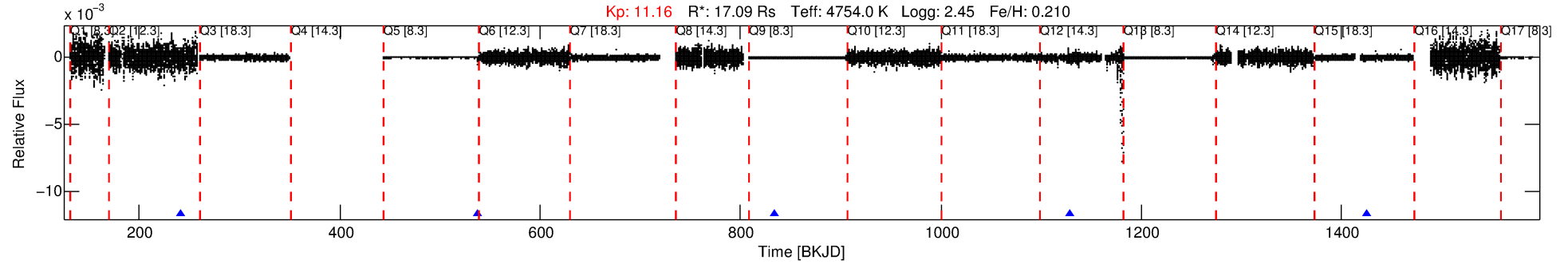
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006430841-01

No Significant Match Found

DV One-Page Summary

KIC: 6430841 Candidate: 1 of 6 Period: 295.664 d



DV Fit Results:

Period = 295.66375 [0.00257] d
Epoch = 241.9497 [0.0053] BKJD
Rp/R* = 0.0097 [0.0022]
a/R* = 228.83 [174.67]
b = 0.67 [0.63]
Seff = 85.48 [18.90]
Teq = 775 [43] K
Rp = 18.07 [6.52] Re
a = 1.2504 [0.2372] AU
Ag = 286.04 [141.19] [2.02 σ]
Teffp = 4930 [573] K [7.23 σ]

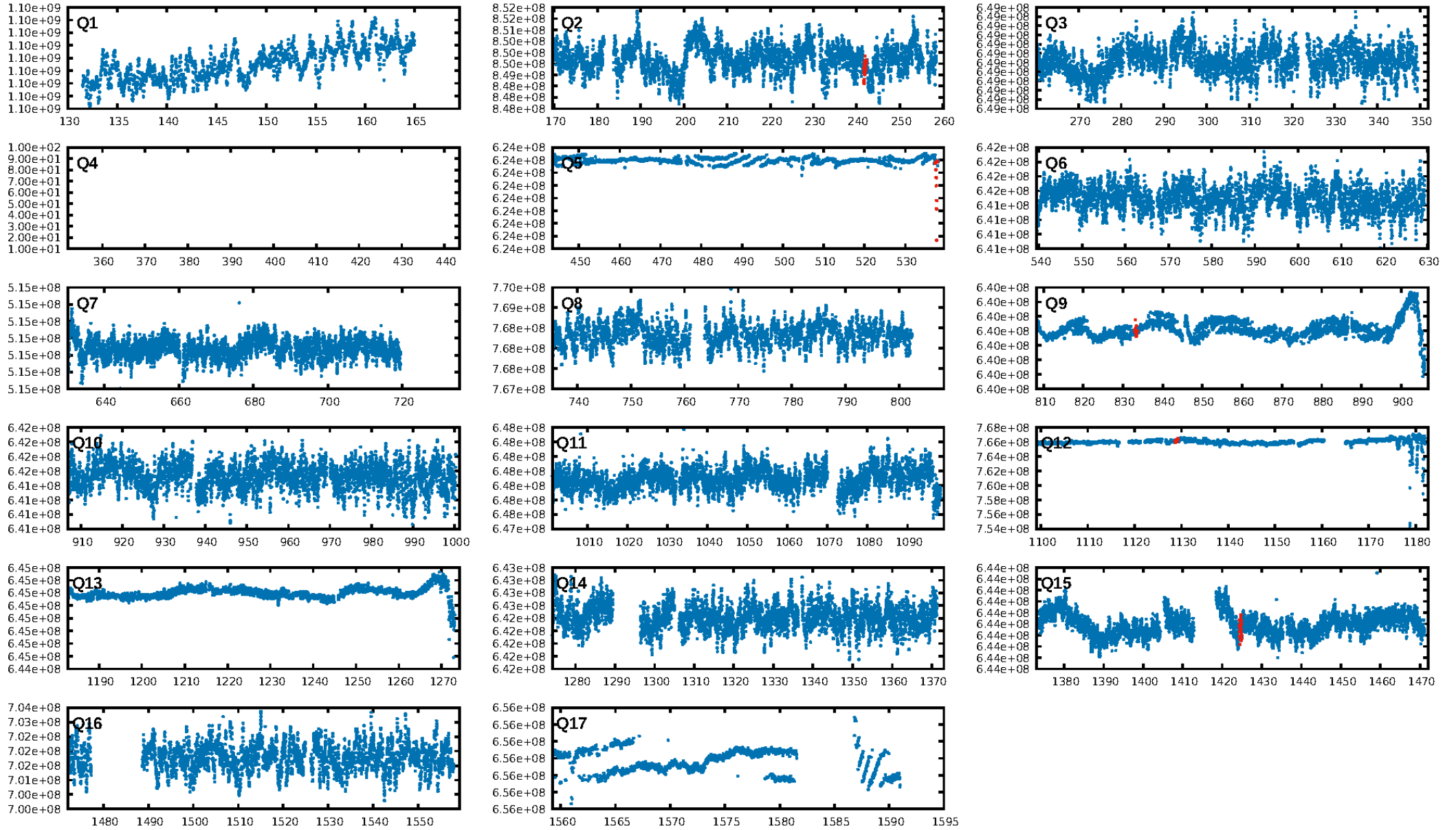
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [137.68 σ]
LongPeriod-sig: 100.0% [26.12 σ]
ModelChiSquare2-sig: 19.6%
ModelChiSquareGof-sig: 45.0%
Bootstrap-pfa: 1.02e-62
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1.442
Centroid-sig: 0.4%
Centroid-so: 16.327 arcsec [3.76 σ]
OotOffset-rm: 7.744 arcsec [1.76 σ]
KicOffset-rm: 8.232 arcsec [4.44 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [5/5]

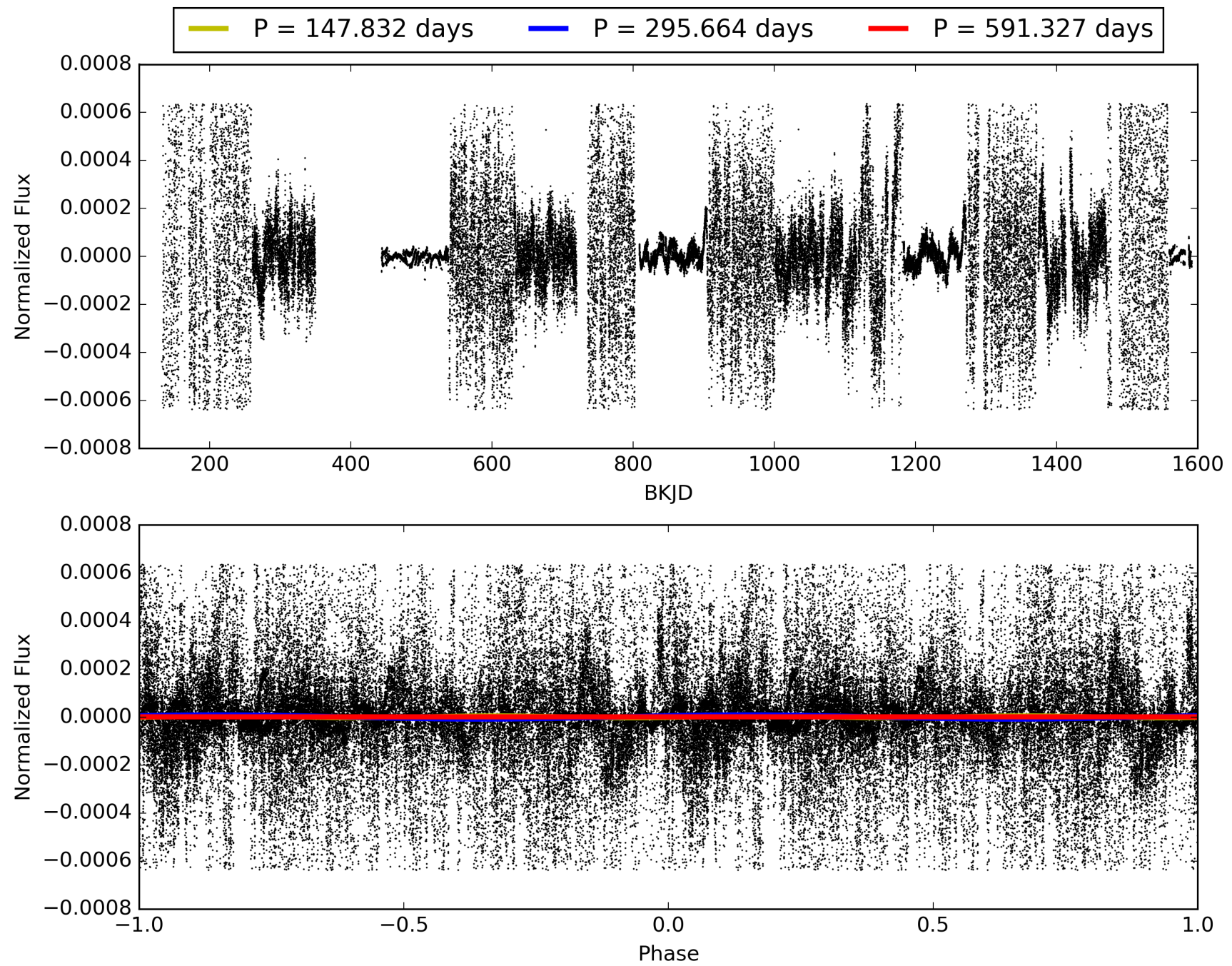
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006430841-01, PDC Light Curves

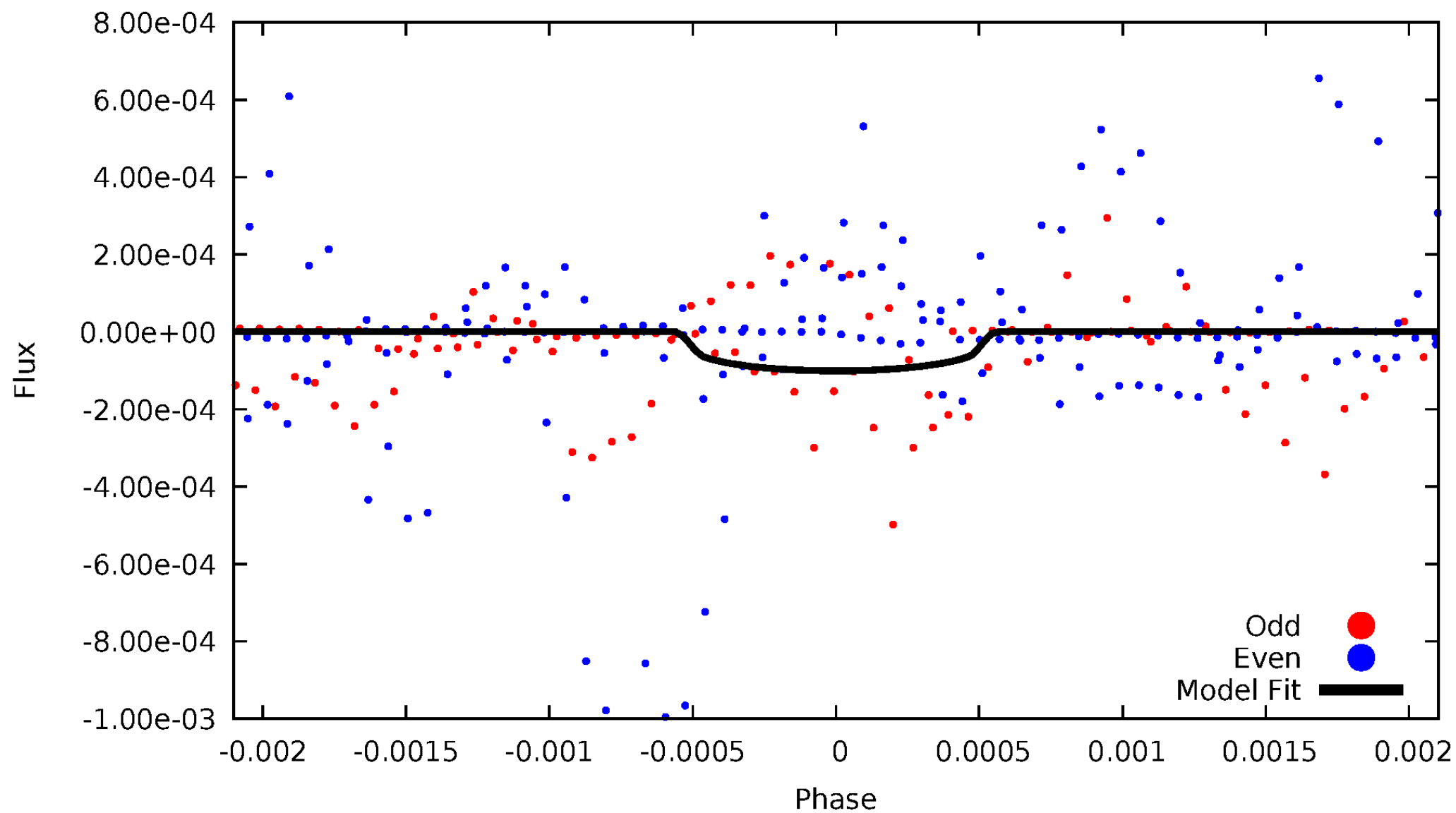


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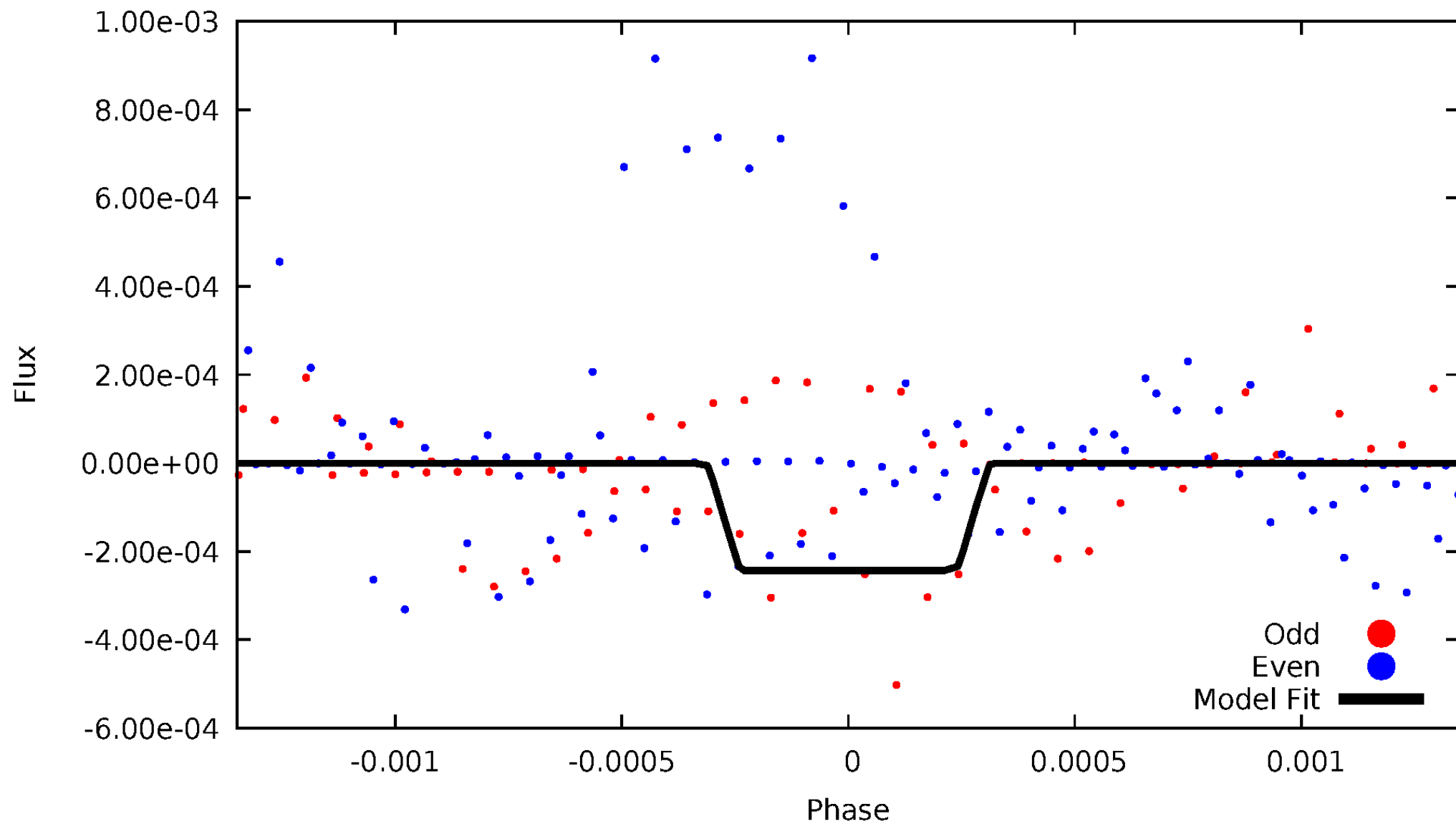
DV Odd/Even

TCE 006430841-01

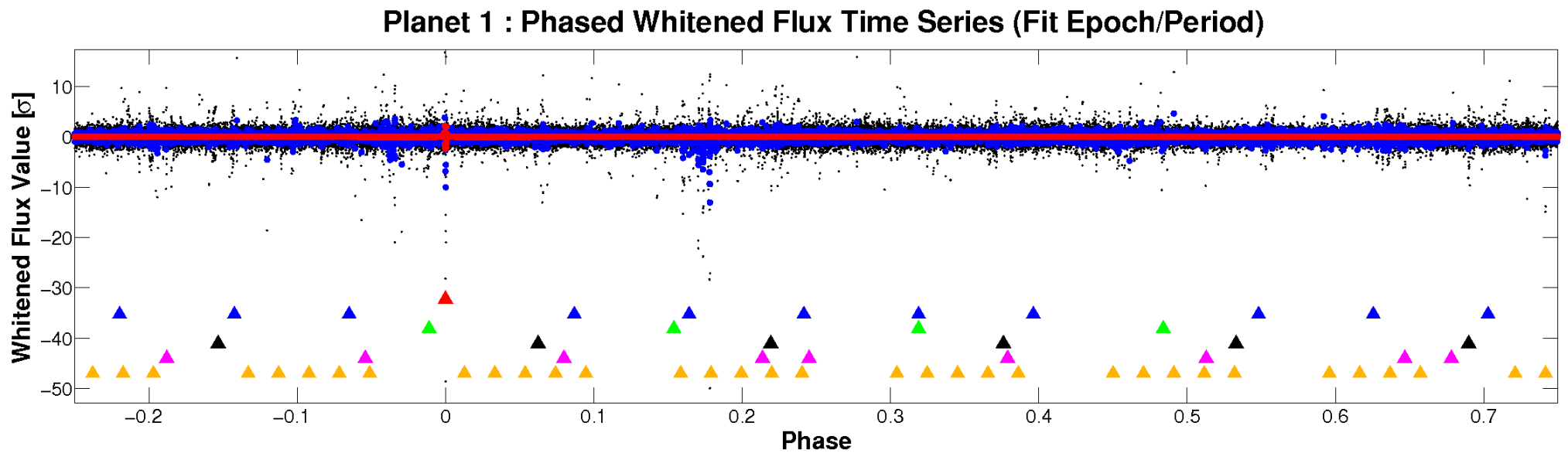
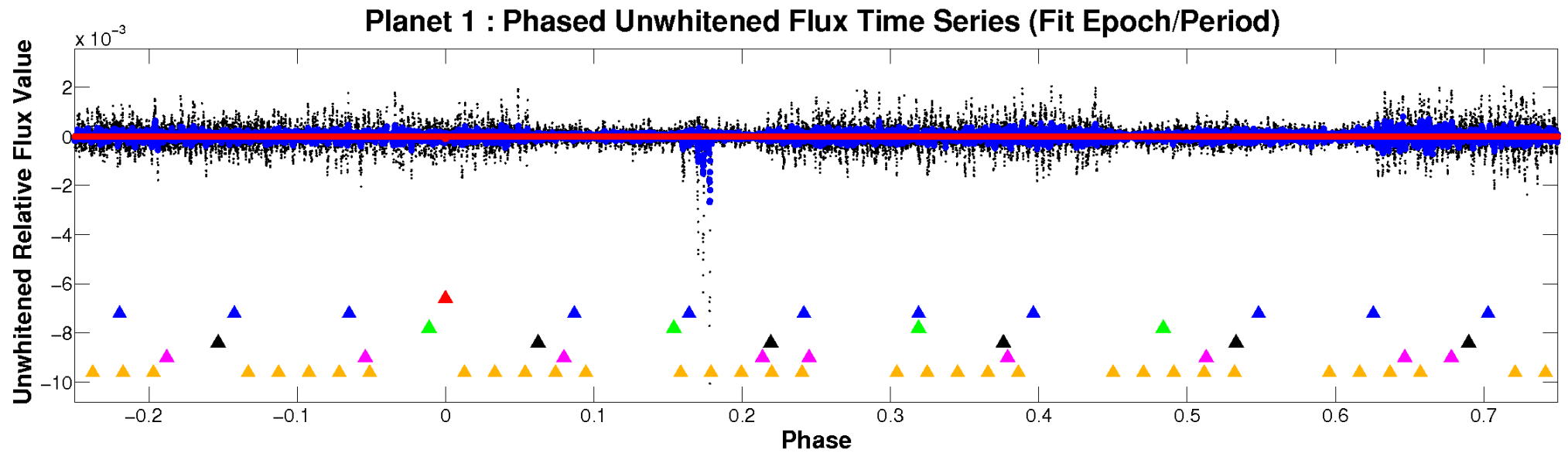


ALT Odd/Even

TCE 006430841-01

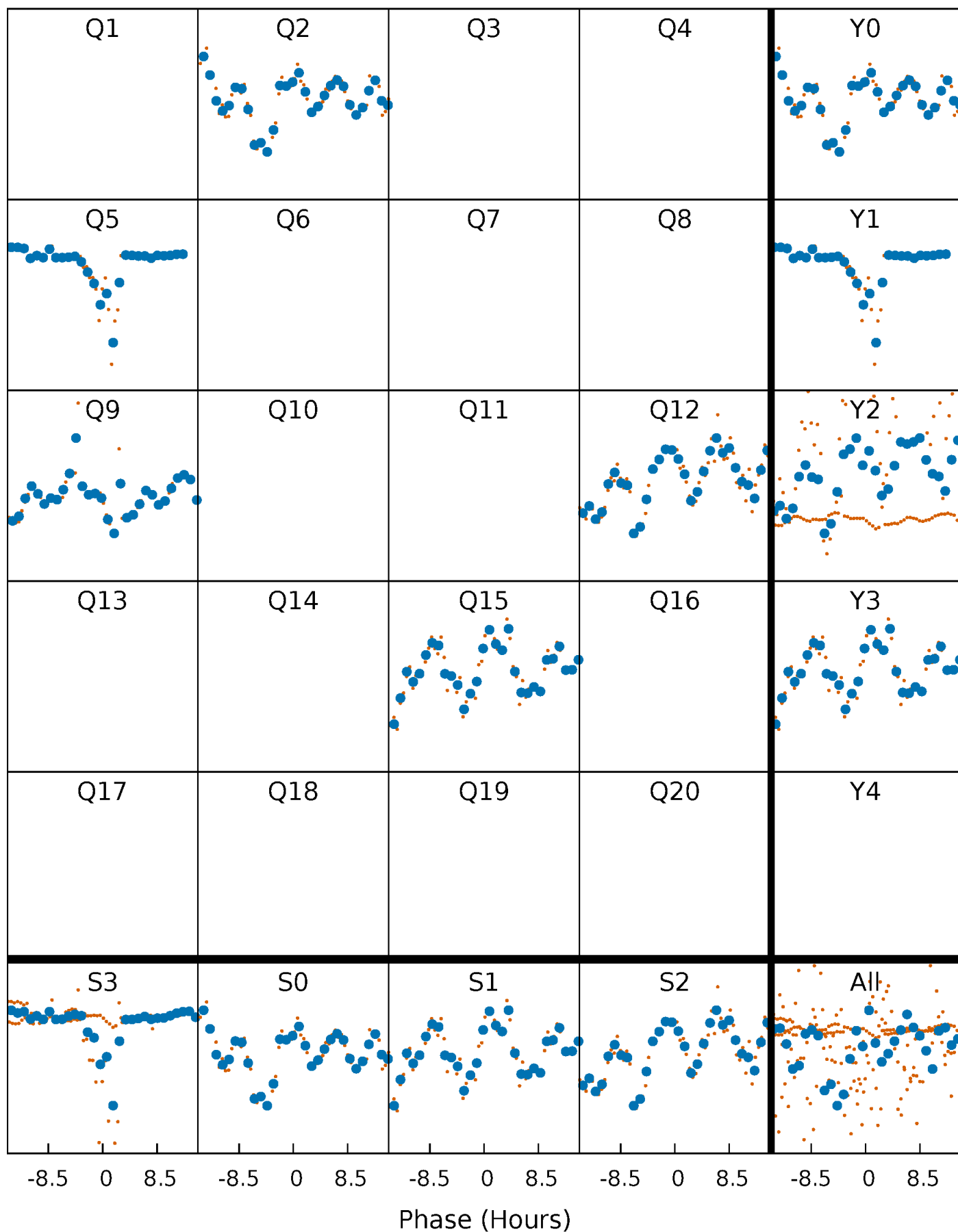


Non-Whitened Vs. Whitened Light Curve



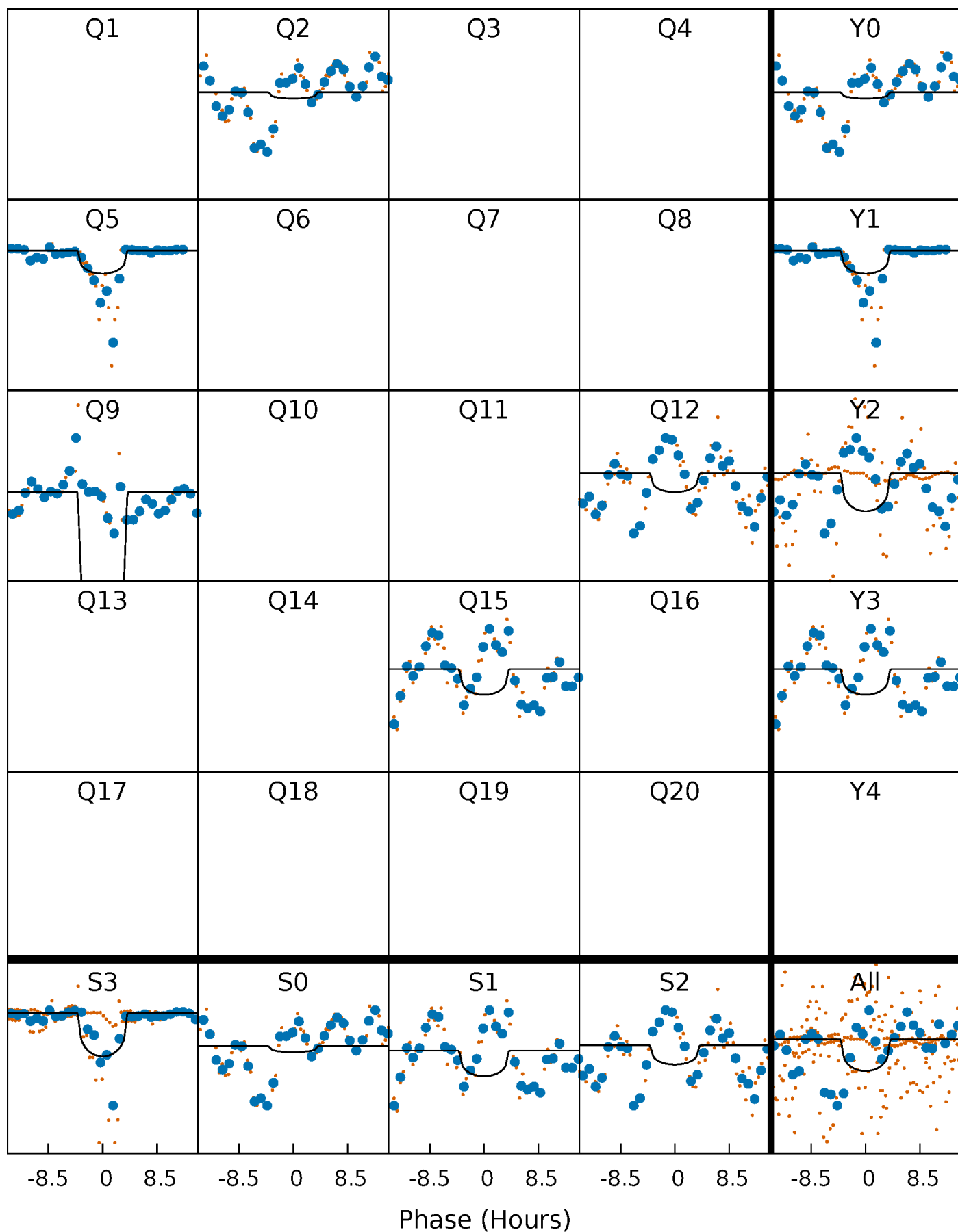
PDC Quarter-Phased Transit Curves

TCE 006430841-01 P=295.663745 Days $T_0=241.949691$ (BKJD)



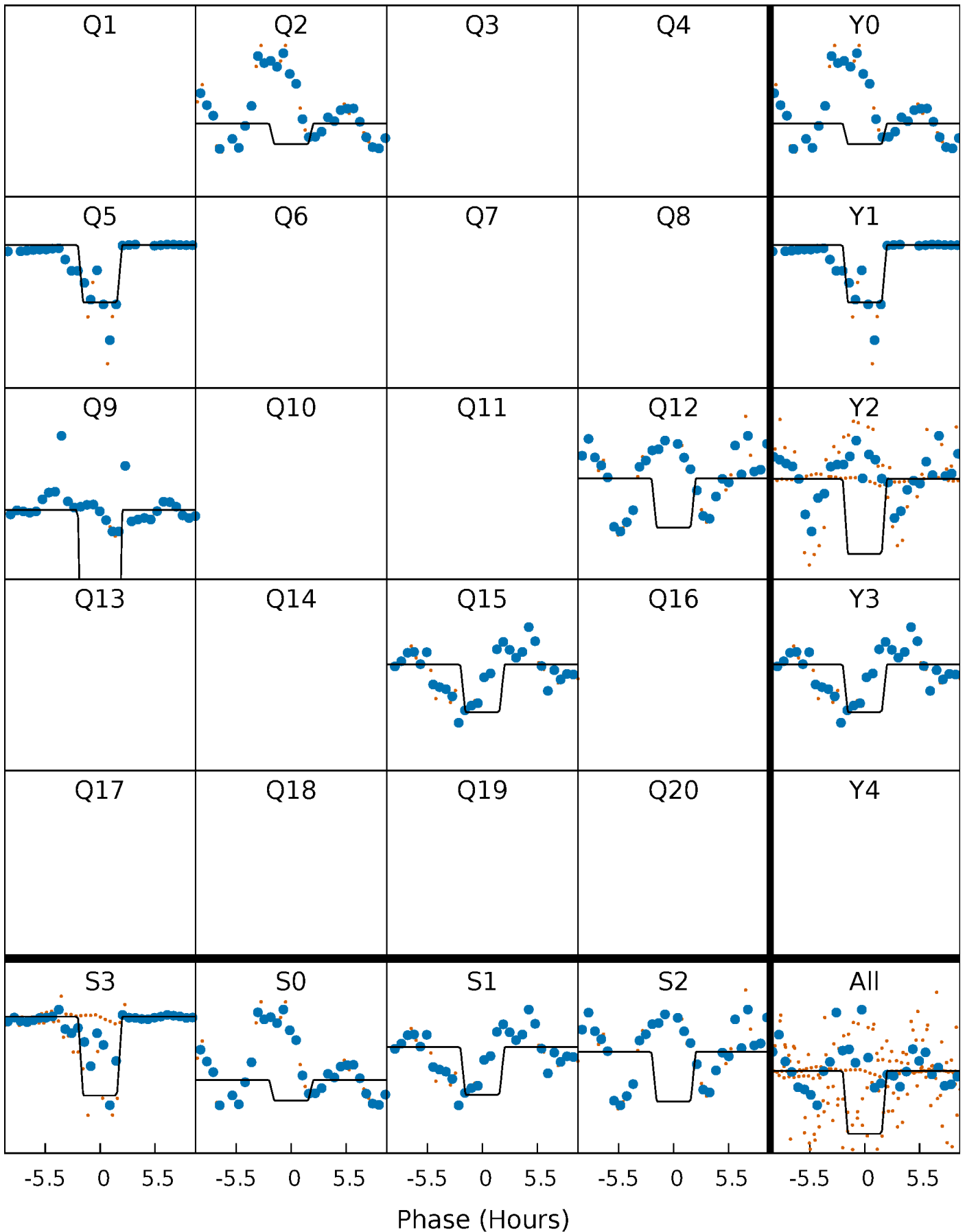
DV Quarter-Phased Transit Curves

TCE 006430841-01 P=295.663745 Days $T_0=241.949691$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

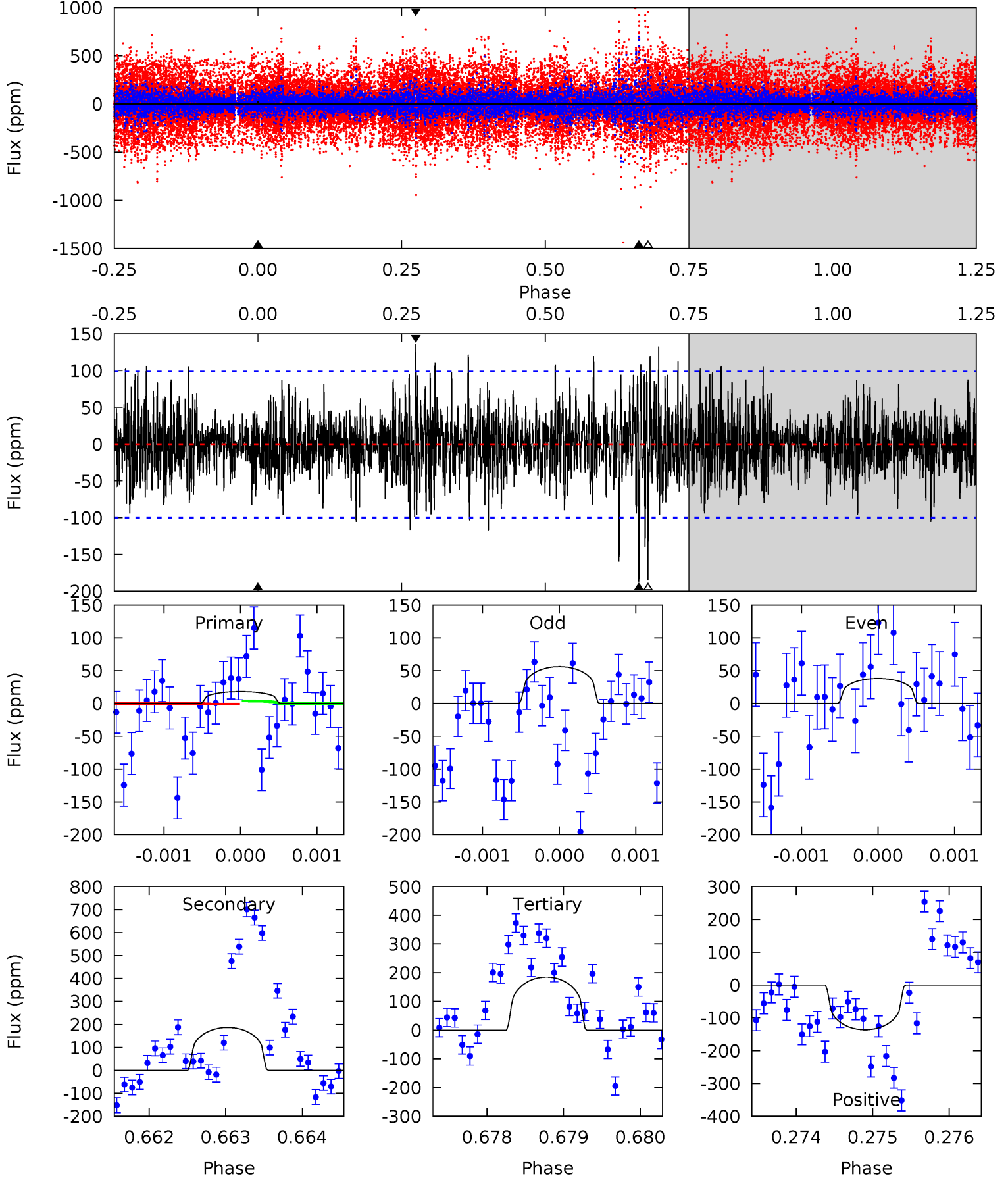
TCE 006430841-01 P=295.639557 Days $T_0=242.001761$ (BKJD)



DV Model-Shift Uniqueness Test

006430841-01, P = 295.663745 Days, E = 241.949691 Days

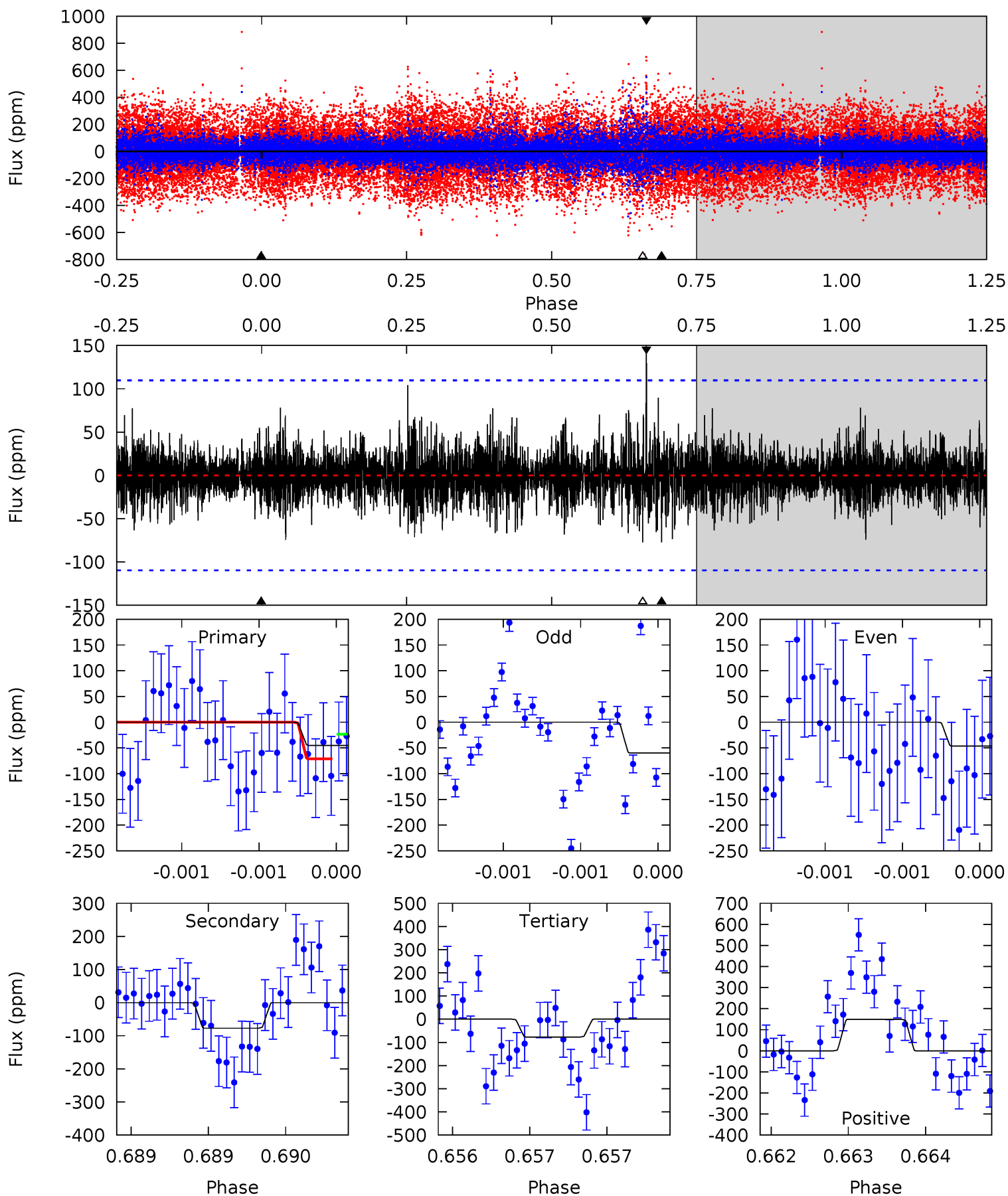
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.99	10.2	10.1	7.45	5.44	3.27	1.94	-9.10	-6.46	0.10	2.74	0.37	-0.21	0.42	0.08



Alt Model-Shift Uniqueness Test

006430841-01, P = 295.639557 Days, E = 242.001761 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.27	3.90	3.89	7.54	5.53	3.42	1.06	-1.62	-5.27	0.00	-3.65	0.27	-9.82	0.66	0



Stellar Parameters For KIC 006430841

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4754^{+56}_{-123}	$2.447^{+0.035}_{-0.031}$	$0.210^{+0.150}_{-0.300}$	$17.089^{+1.133}_{-4.814}$	$2.983^{+0.359}_{-1.436}$	$0.001^{+0.000}_{-0.000}$
	+1%/-3%	+1%/-1%	+71%/-143%	+7%/-28%	+12%/-48%	+46%/-10%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 006430841-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-187 ± 18	$18.26^{+4.29}_{-4.39}$	1081^{+25}_{-32}	5447^{+758}_{-467}	481^{+326}_{-160}
Alt.	-77 ± 20	$29.20^{+4.48}_{-4.68}$	1081^{+24}_{-33}	3834^{+250}_{-256}	79^{+37}_{-26}

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 $A_{\text{obs}} \gg 1.0$

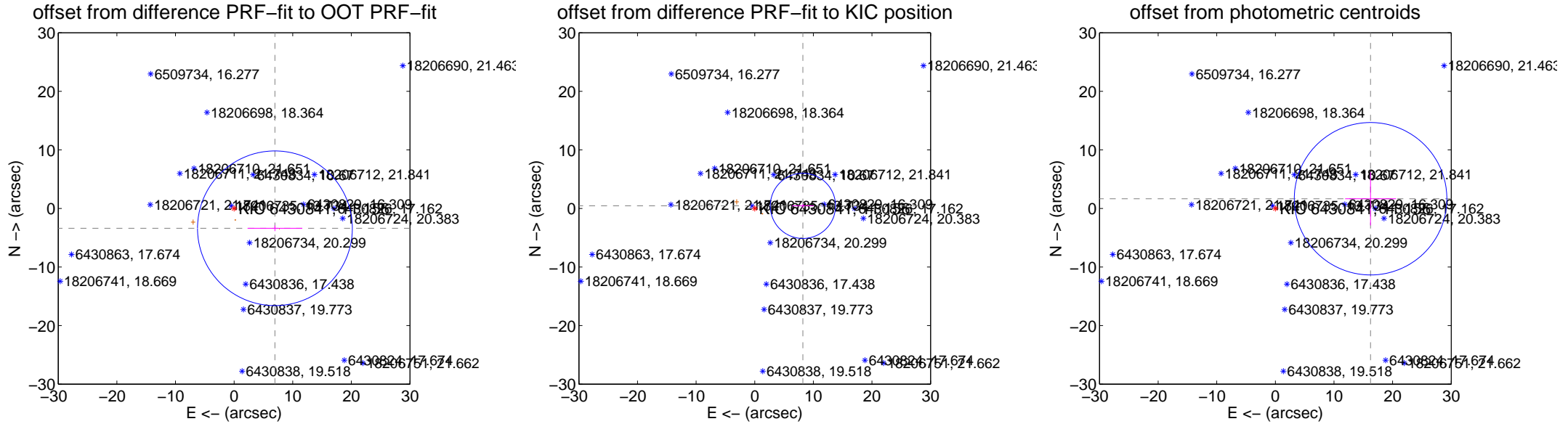
DV Centroid Data

Supplemental centroid analysis for 006430841-01. **Kepler magnitude: 11.16.** Transit SNR 18.26

There are 0 quarters with good PRF difference image offsets

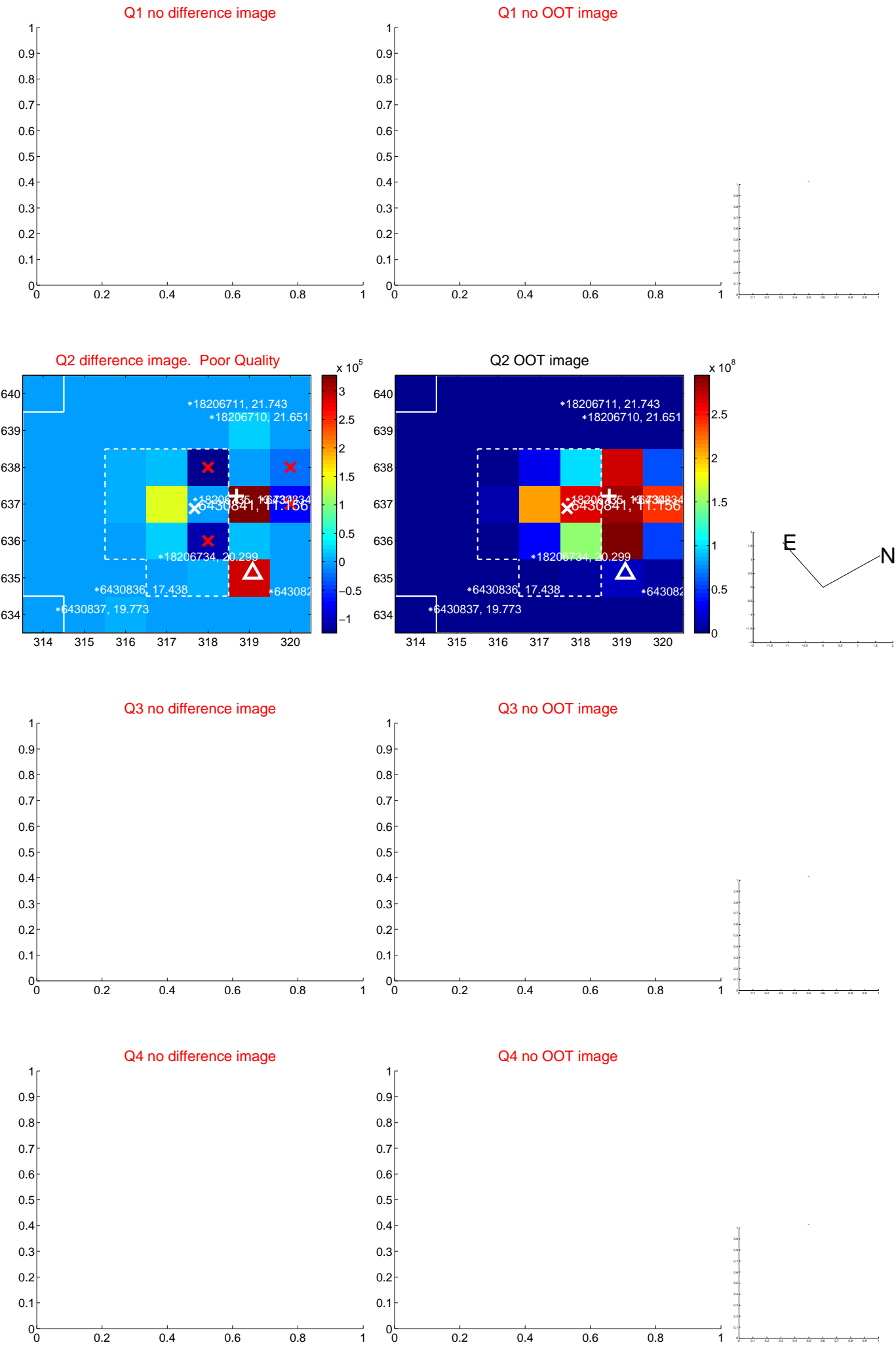
The OOT PRF centroid is offset from the target star catalog position by about 5.22 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.744 ± 4.402	1.76	-6.964 ± 4.672	-3.386 ± 0.486
PRF-fit source offset from KIC position	8.232 ± 1.855	4.44	-8.220 ± 1.858	0.441 ± 0.332
photometric centroid source offset	16.33 ± 4.34	3.76	-16.24 ± 4.34	1.66 ± 4.55

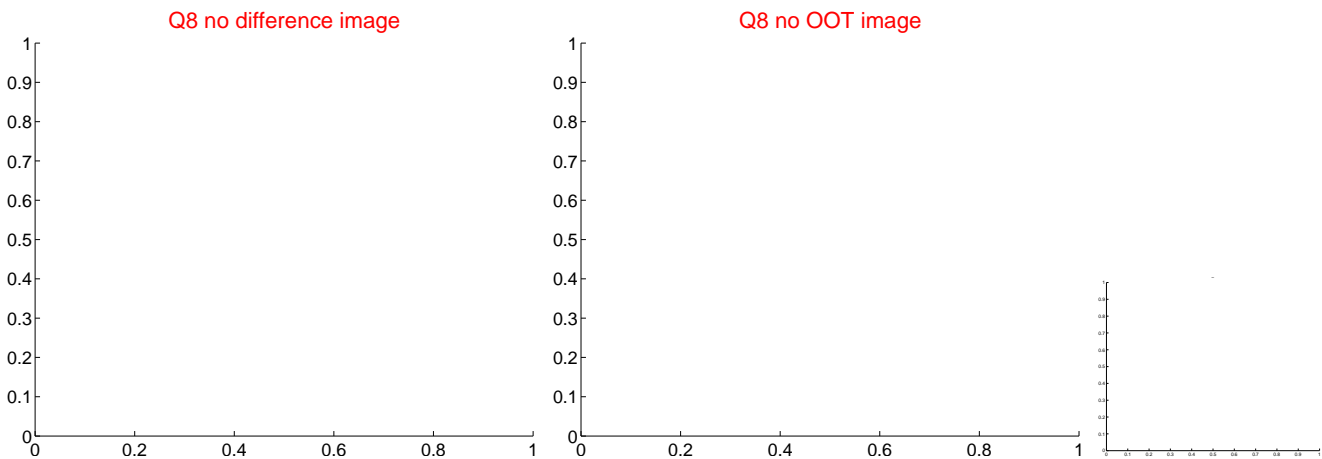
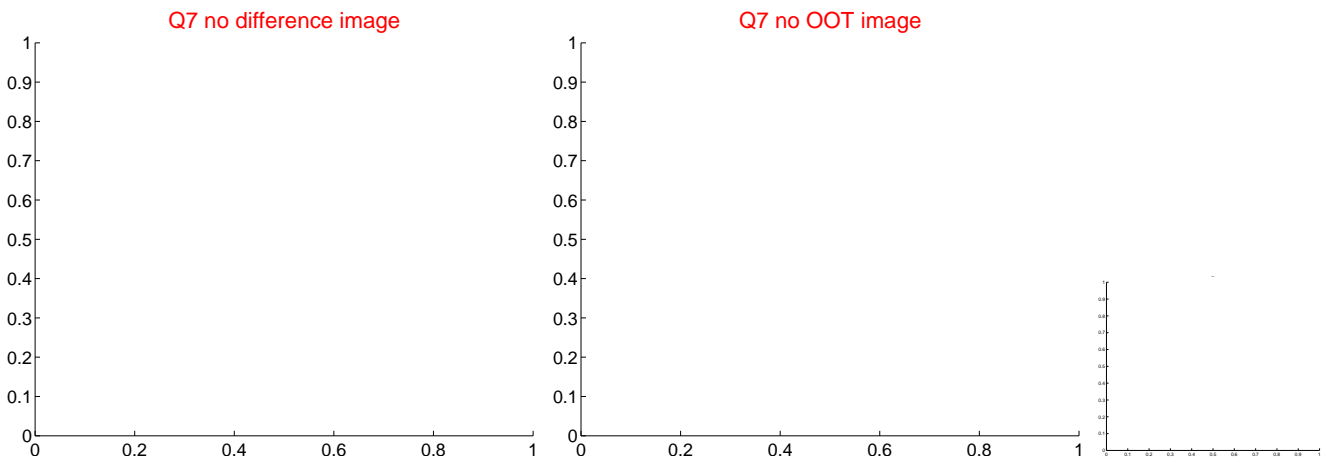
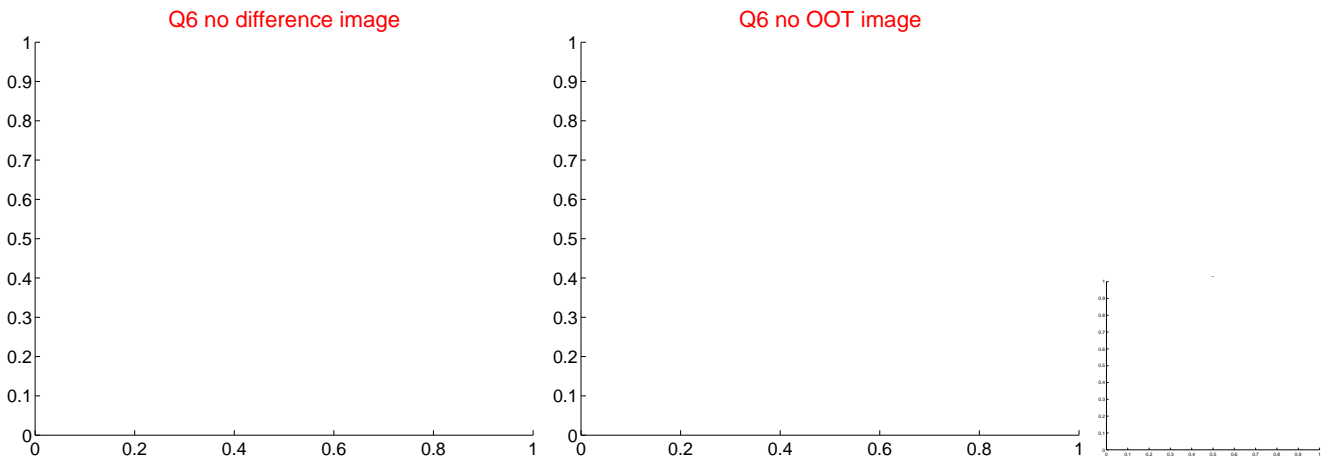
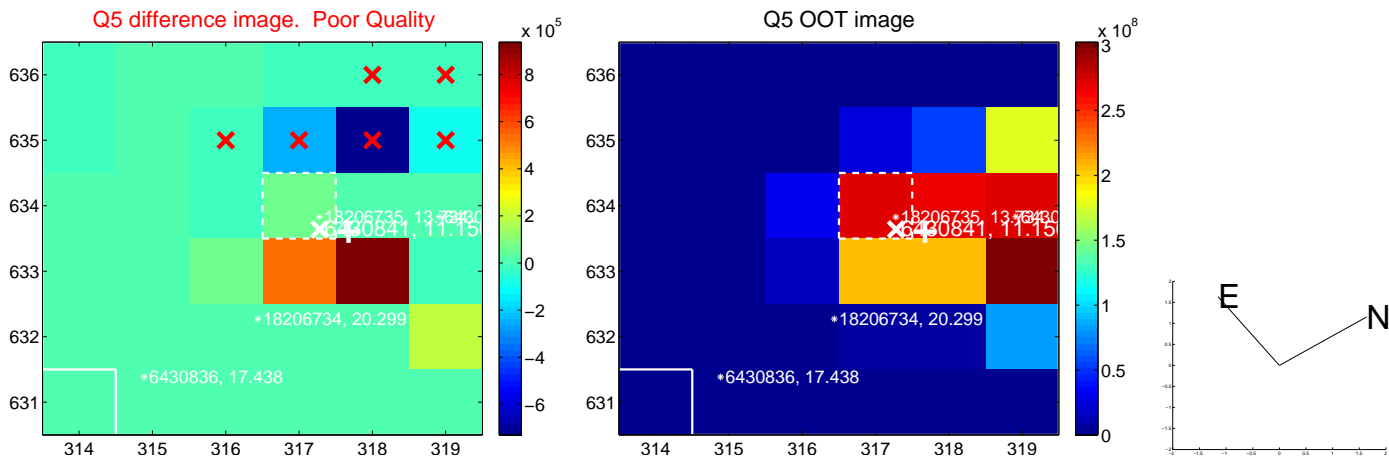


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

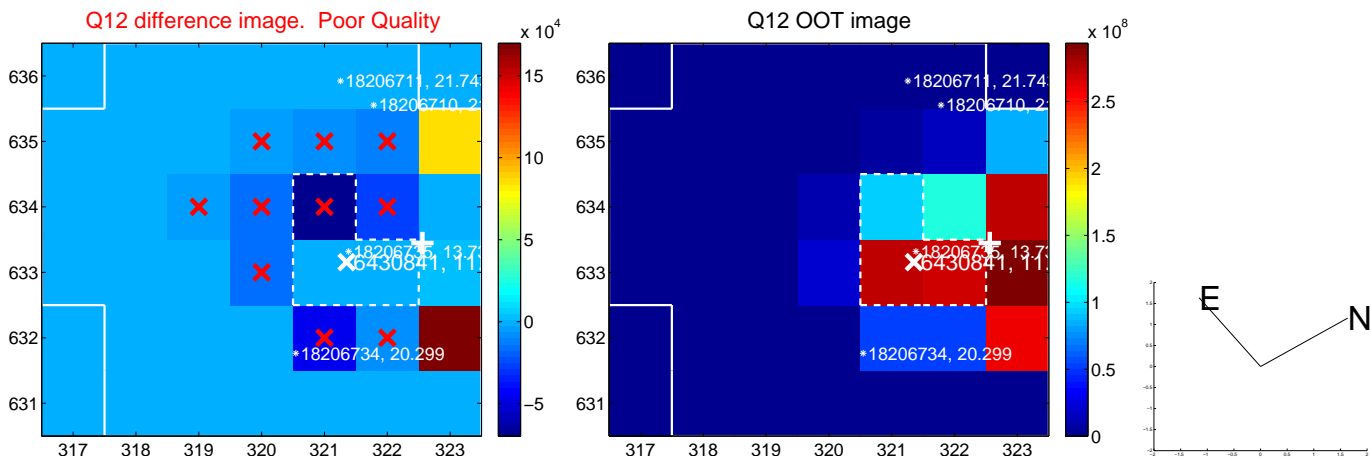
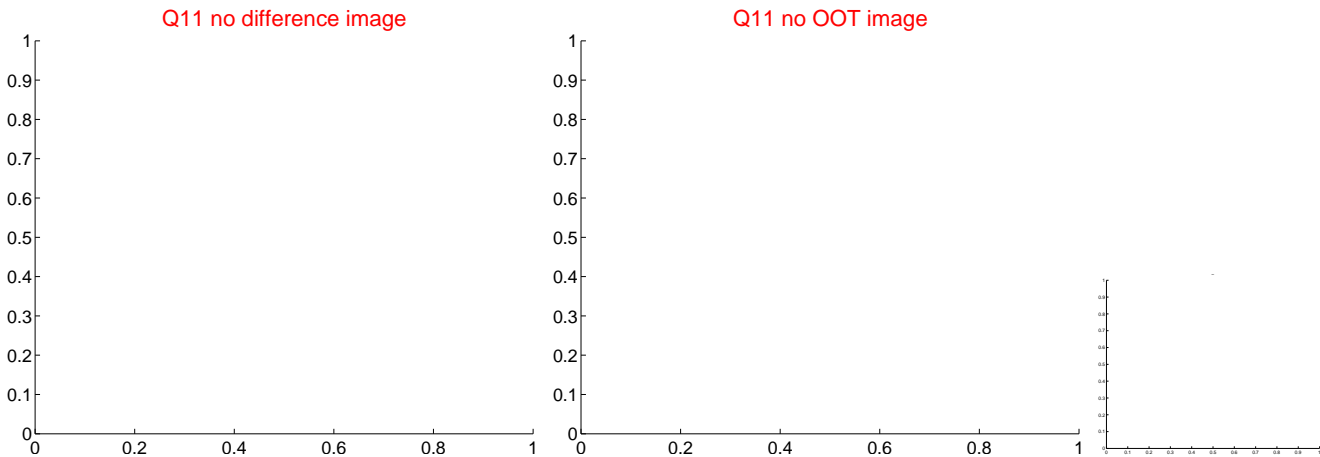
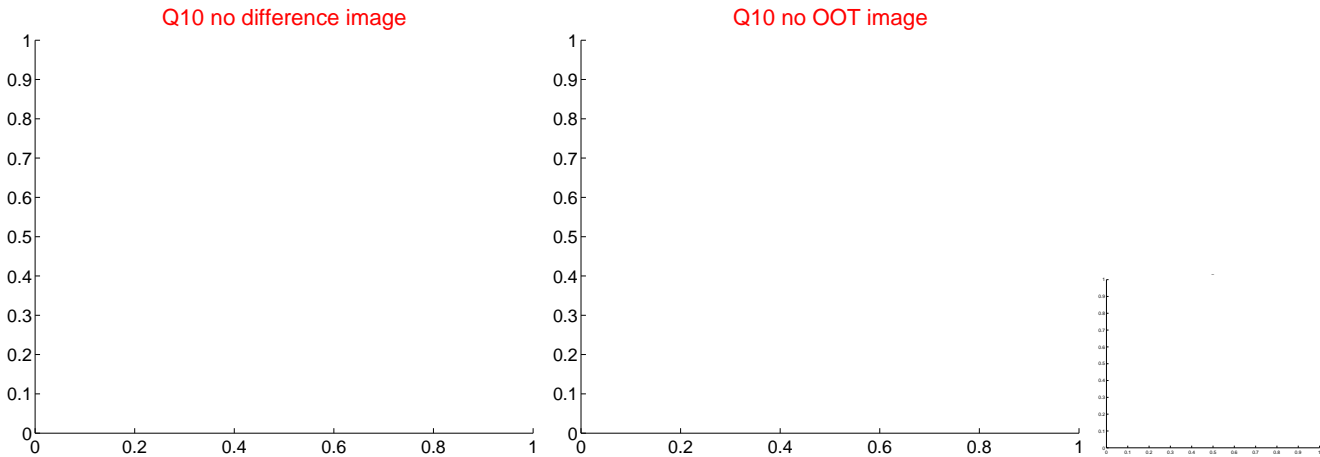
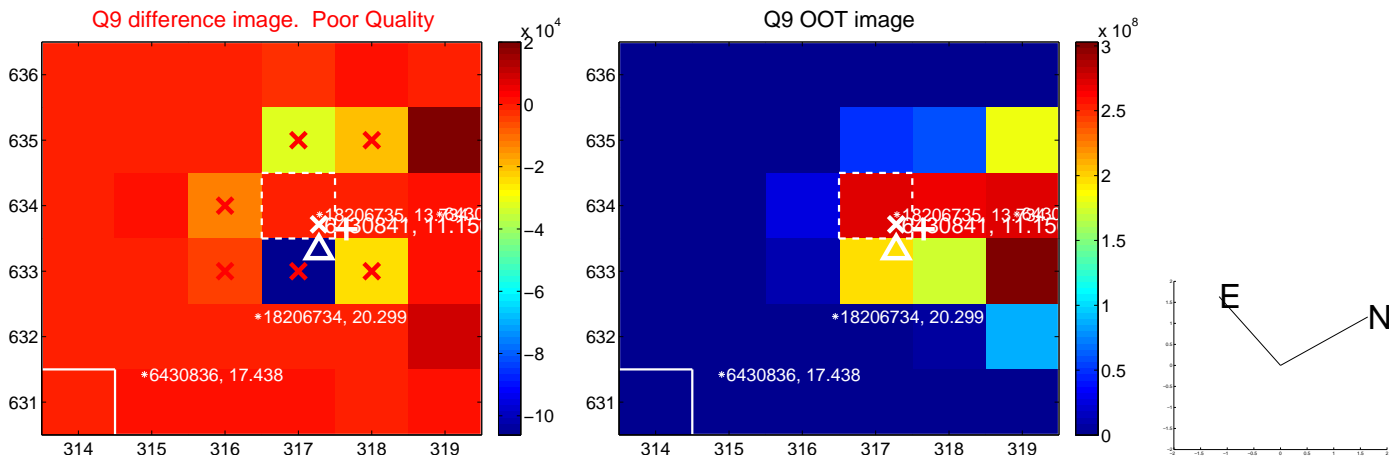
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



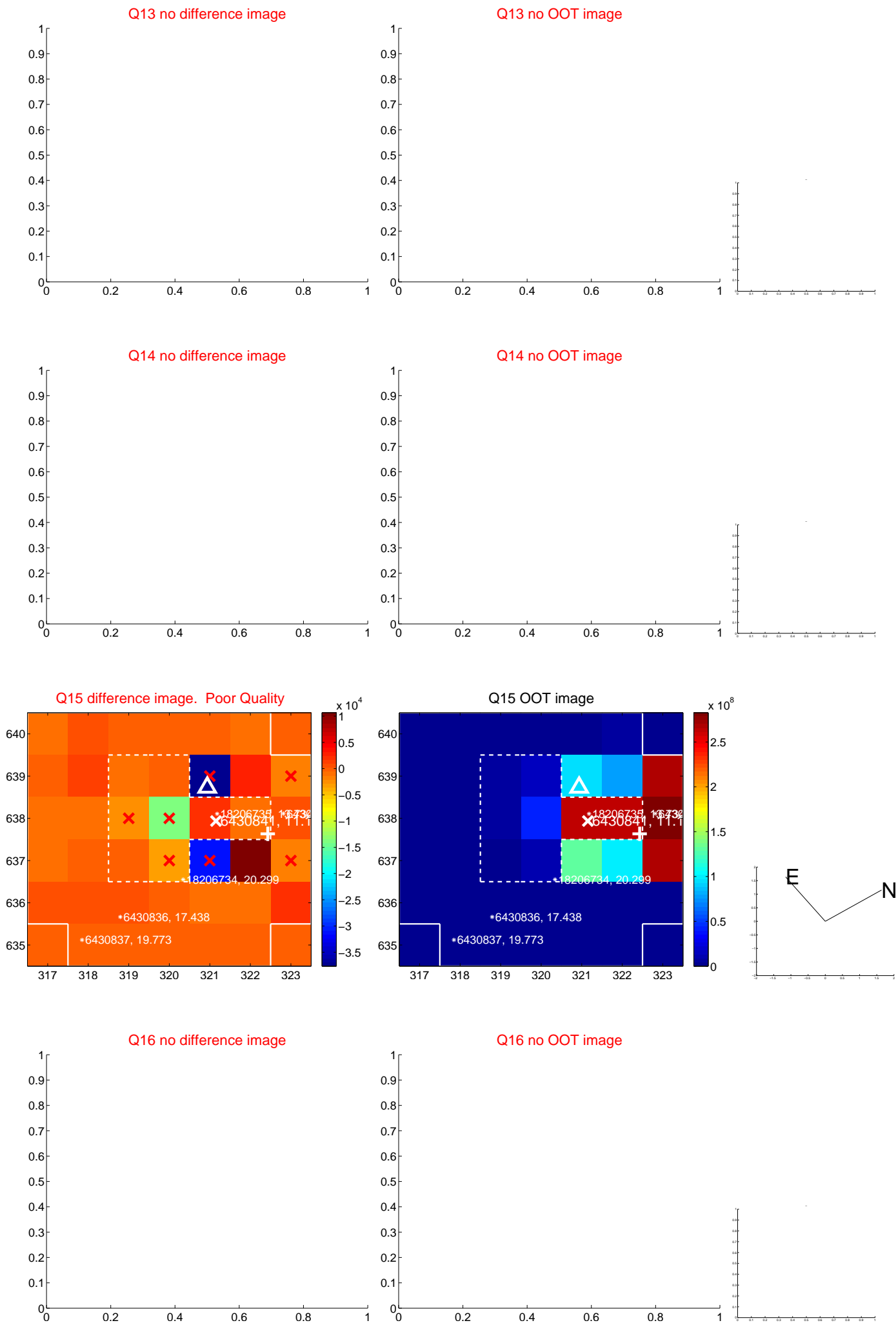
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



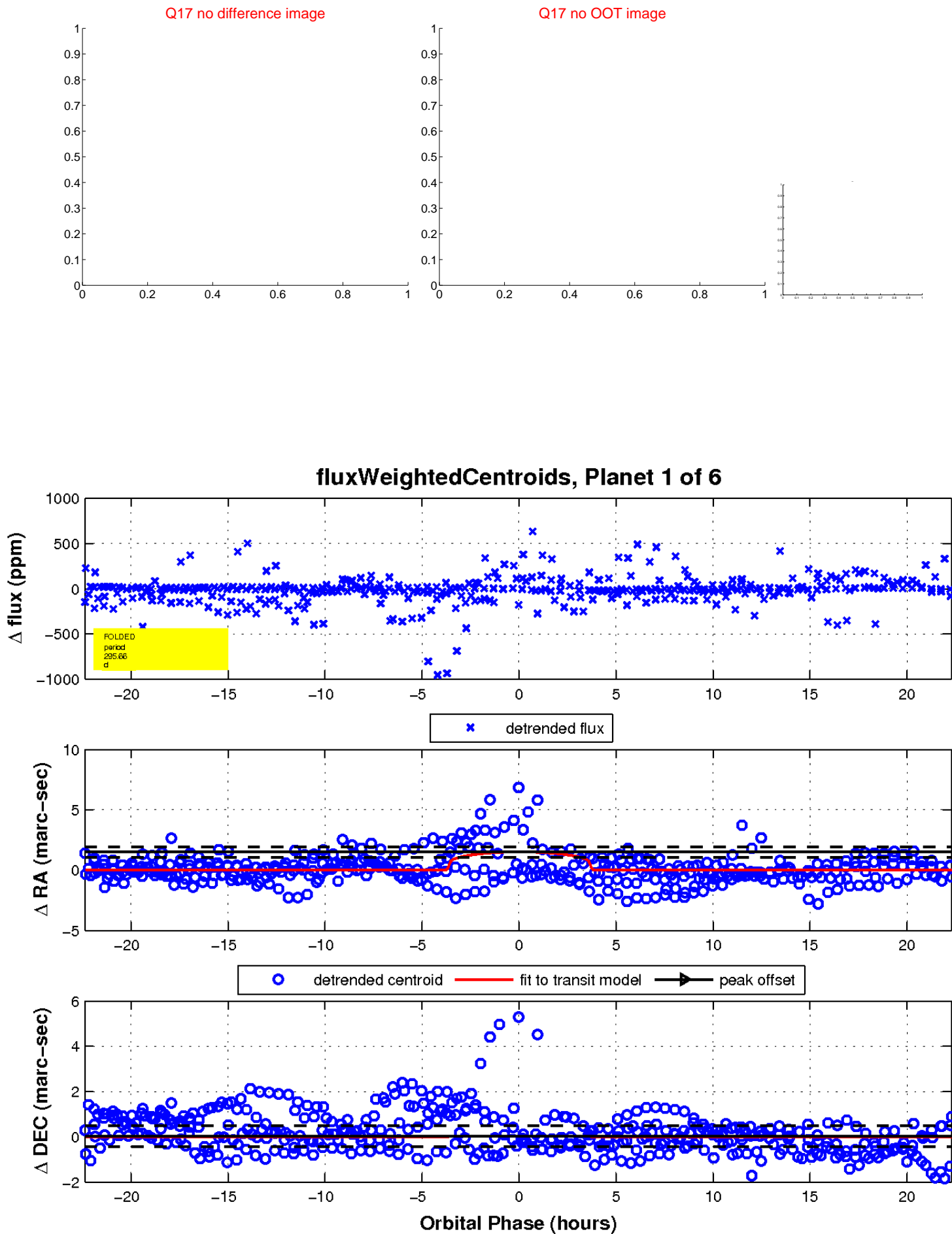
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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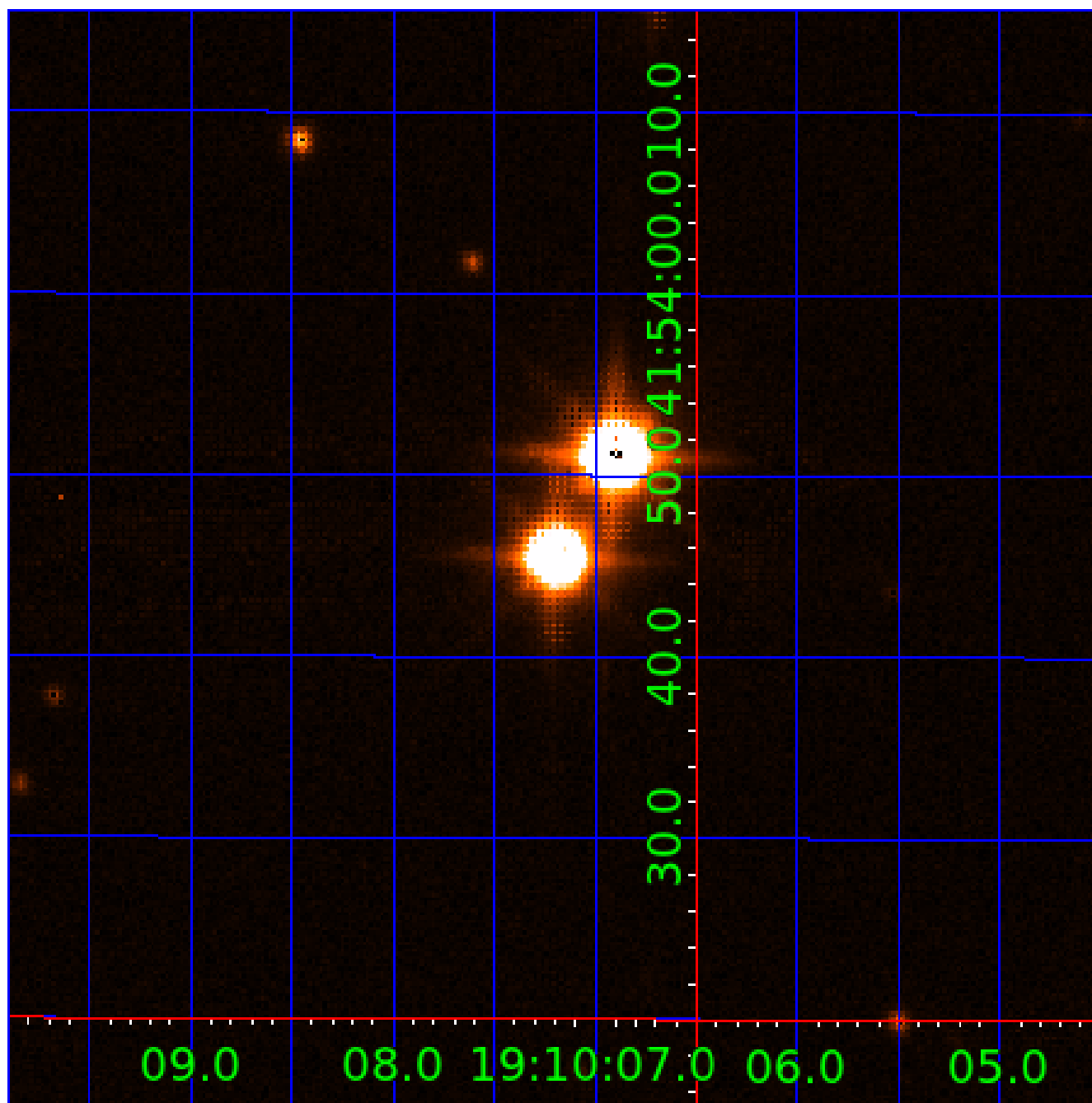


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006430841

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})
006430841-01	OBS	No	295.663745	241.949691	100.8	7.457	44.7	18.3	17.09	4754	18.07	85.48
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Robovetter Results

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006430841-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006430841-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

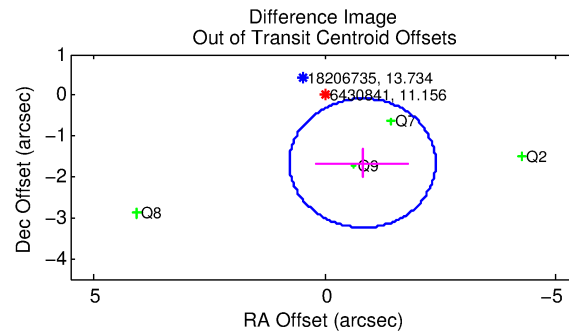
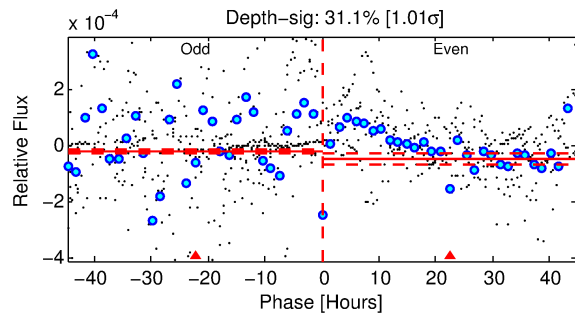
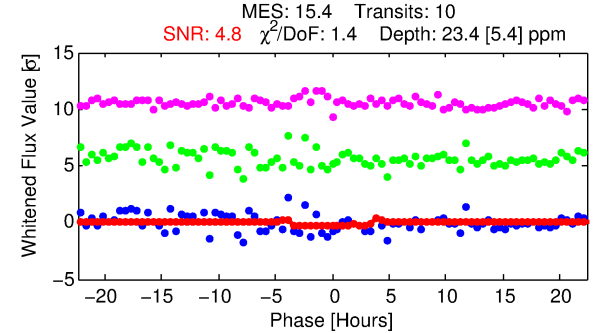
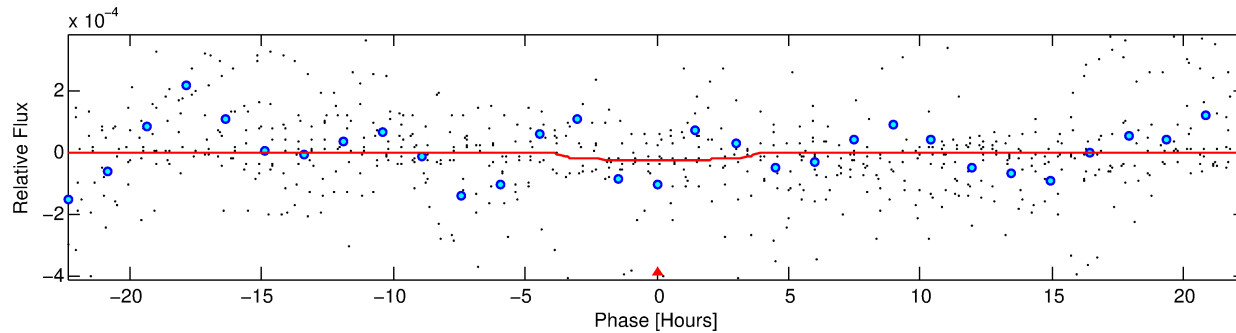
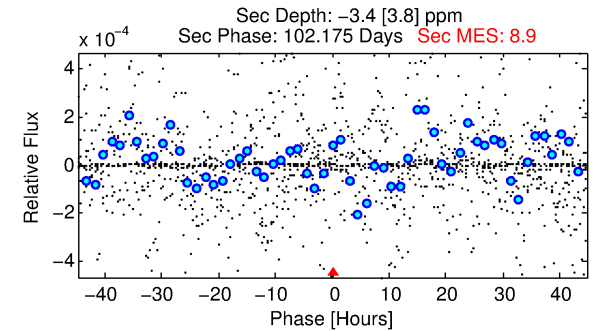
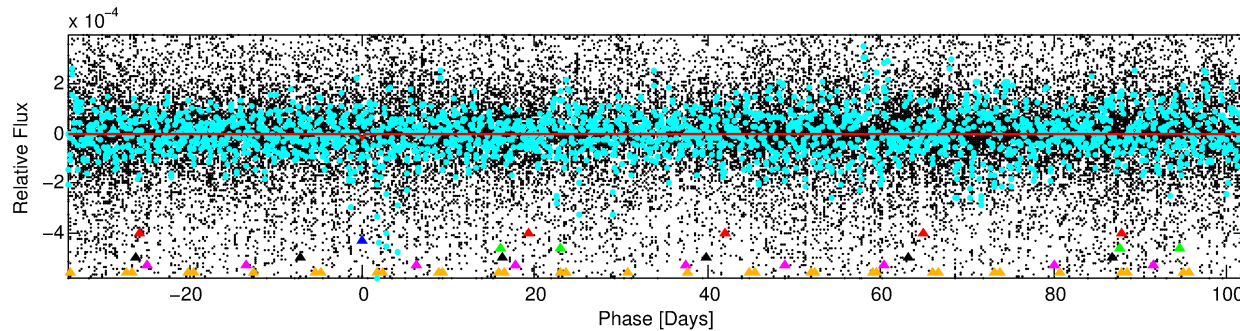
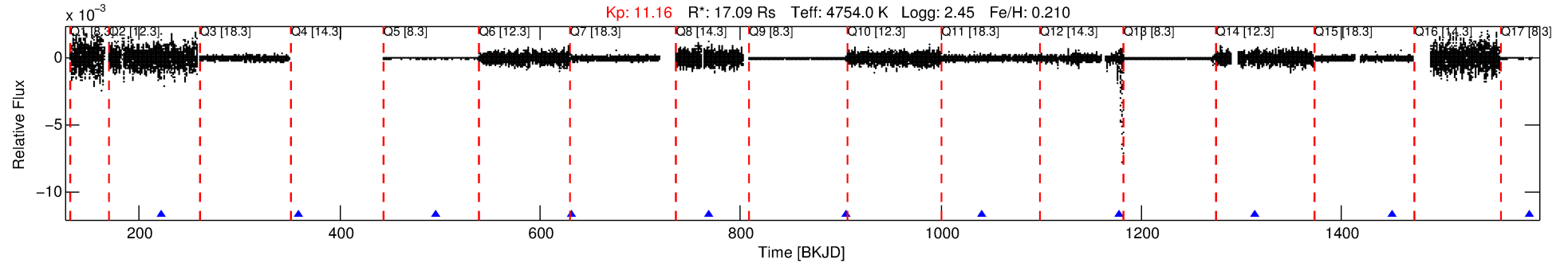
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006430841-02

No Significant Match Found

DV One-Page Summary

KIC: 6430841 Candidate: 2 of 6 Period: 136.395 d



DV Fit Results:

Period = 136.39478 [0.00282] d
Epoch = 222.7413 [0.0082] BKJD
Rp/R* = 0.0047 [0.0022]
a/R* = 102.88 [163.64]
b = 0.68 [1.24]
Seff = 239.82 [53.01]
Teq = 1003 [55] K
Rp = 8.76 [4.76] Re
a = 0.7465 [0.1416] AU
Ag = N/A
Teffp = N/A

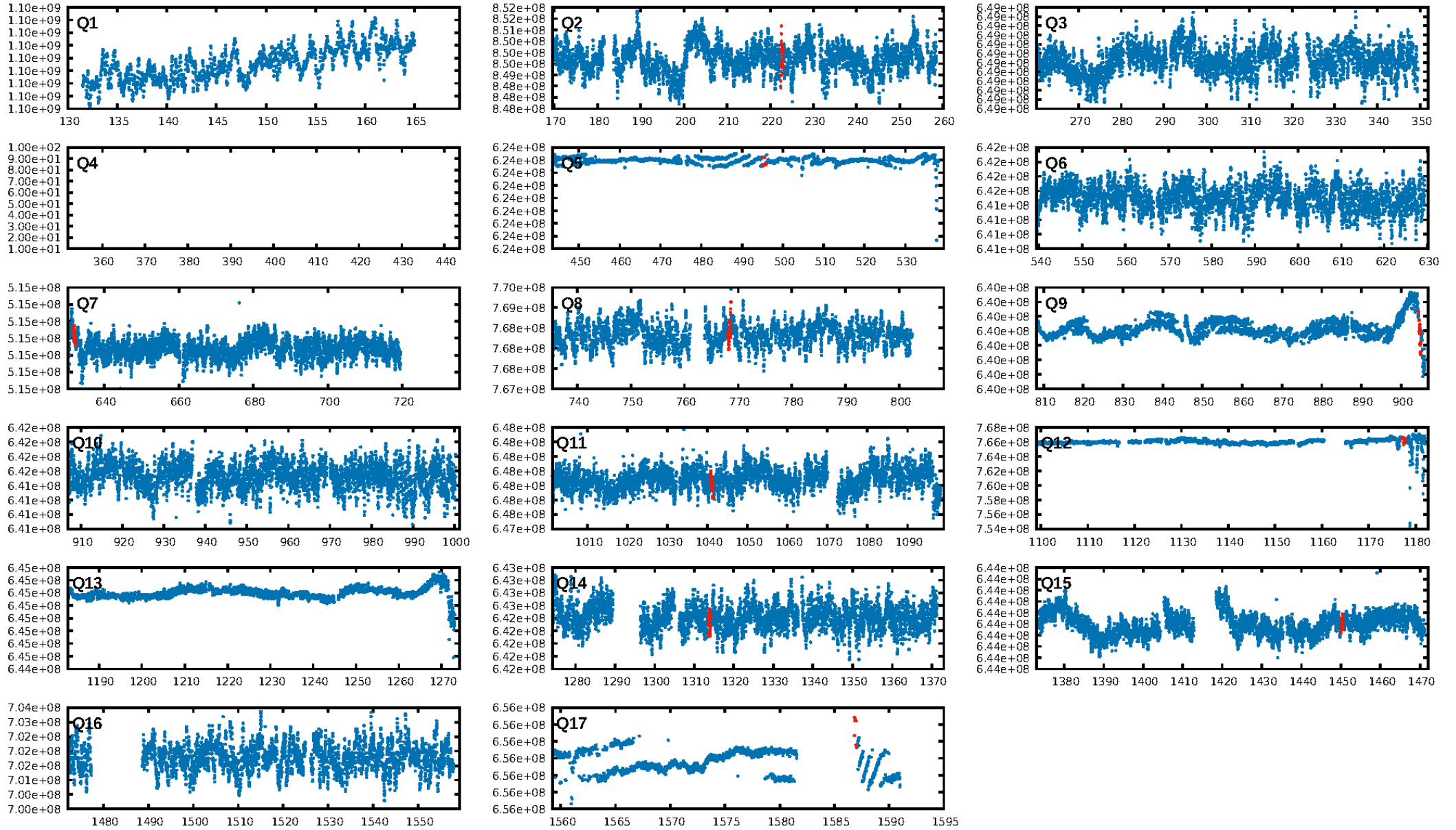
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [298.10σ]
LongPeriod-sig: 100.0% [66.71σ]
ModelChiSquare2-sig: 15.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.41e-11
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.363
Centroid-sig: 88.4%
Centroid-so: 4.950 arcsec [0.43σ]
OotOffset-rm: 1.854 arcsec [3.52σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-rm: 2.182 arcsec [1.21σ]
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DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [6/6]

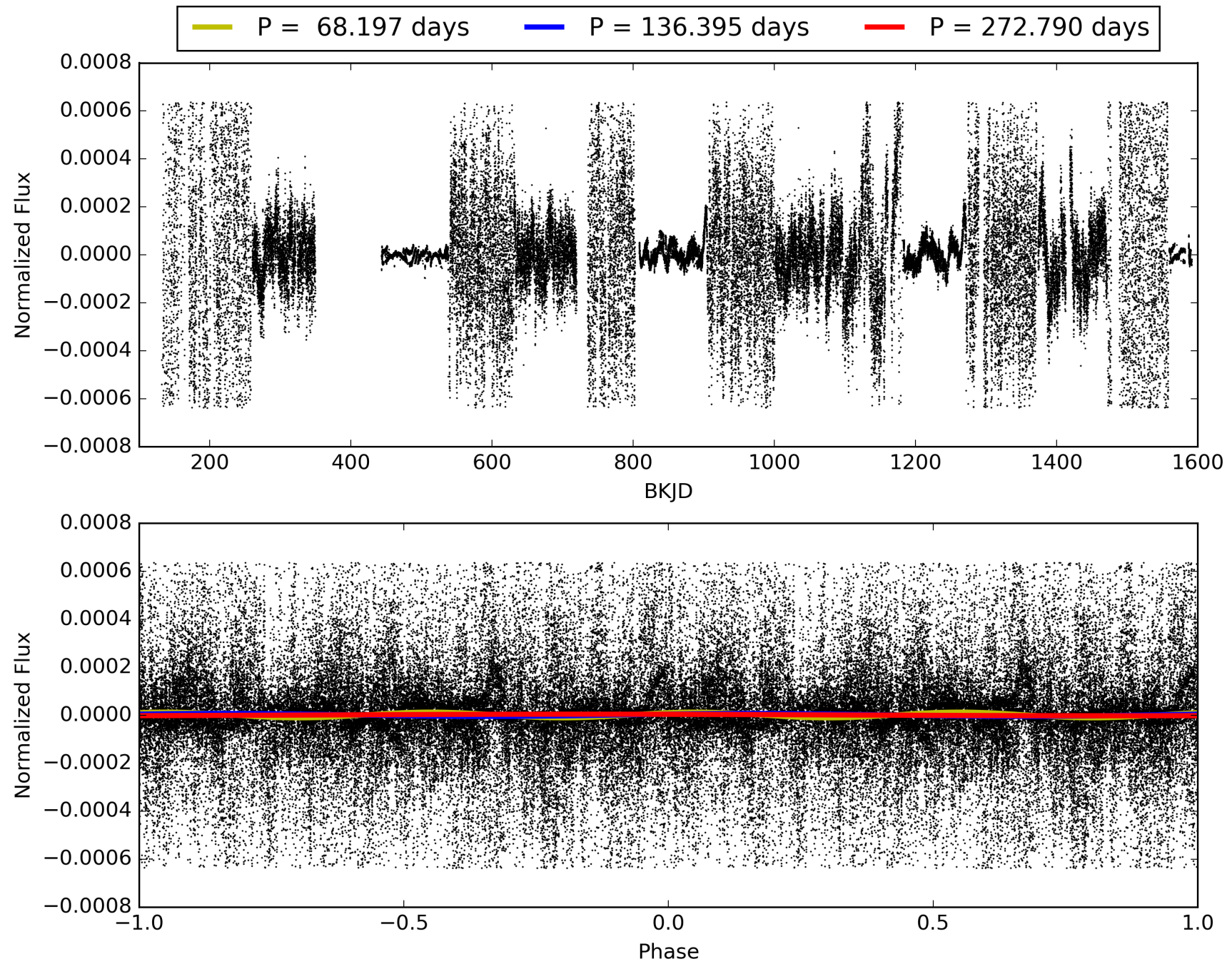
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006430841-02, PDC Light Curves

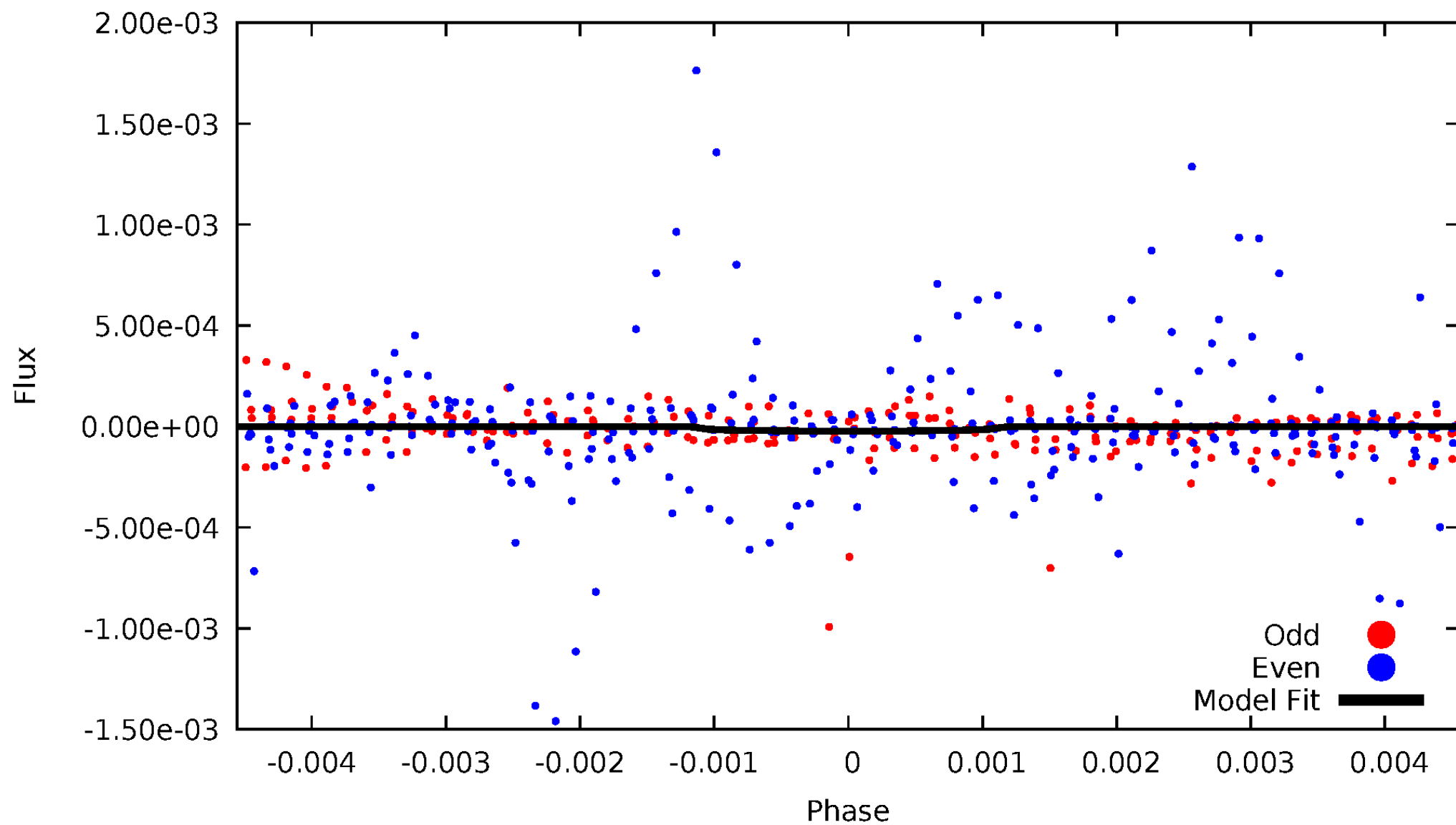


TCE 006430841-02



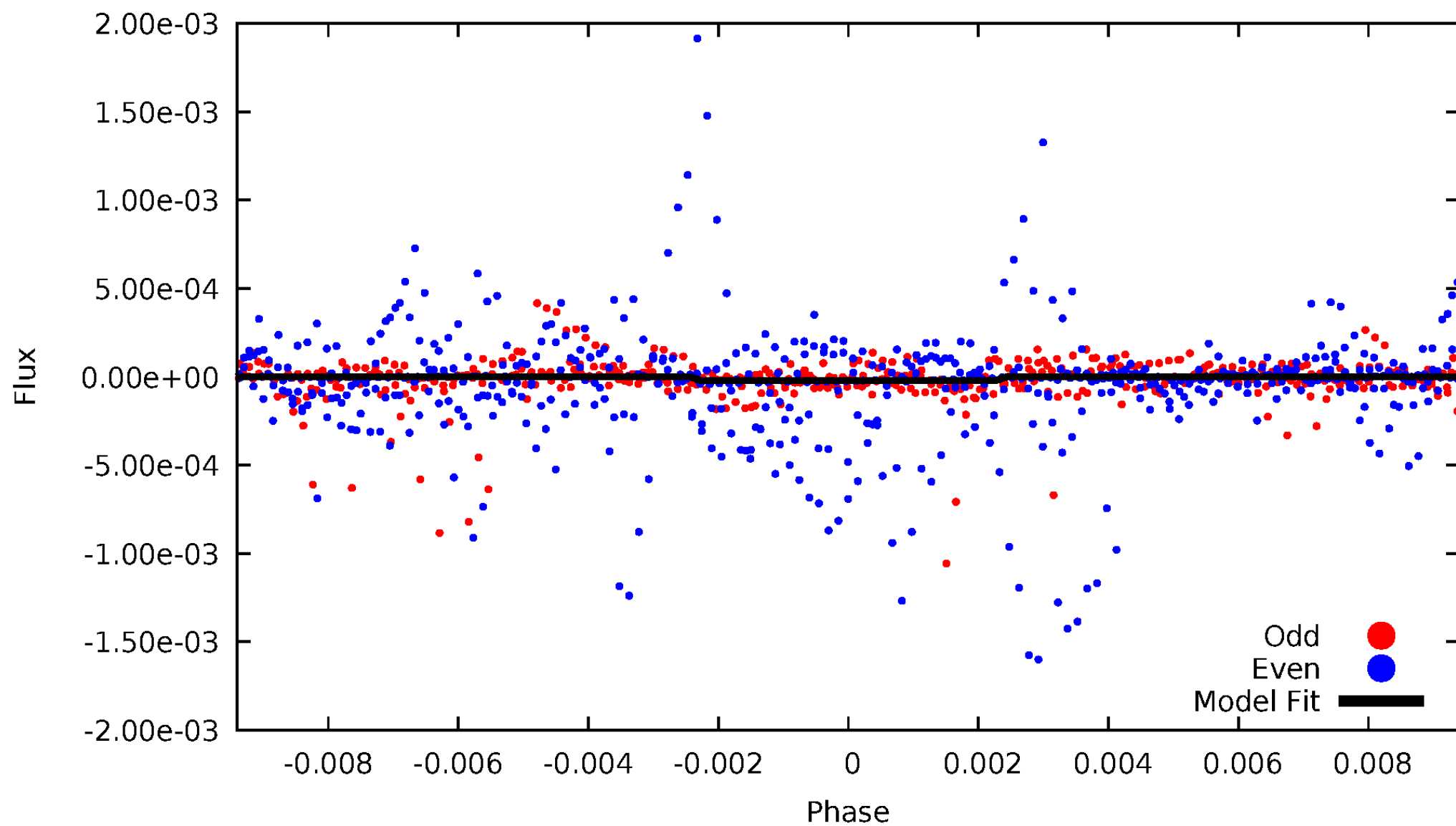
DV Odd/Even

TCE 006430841-02



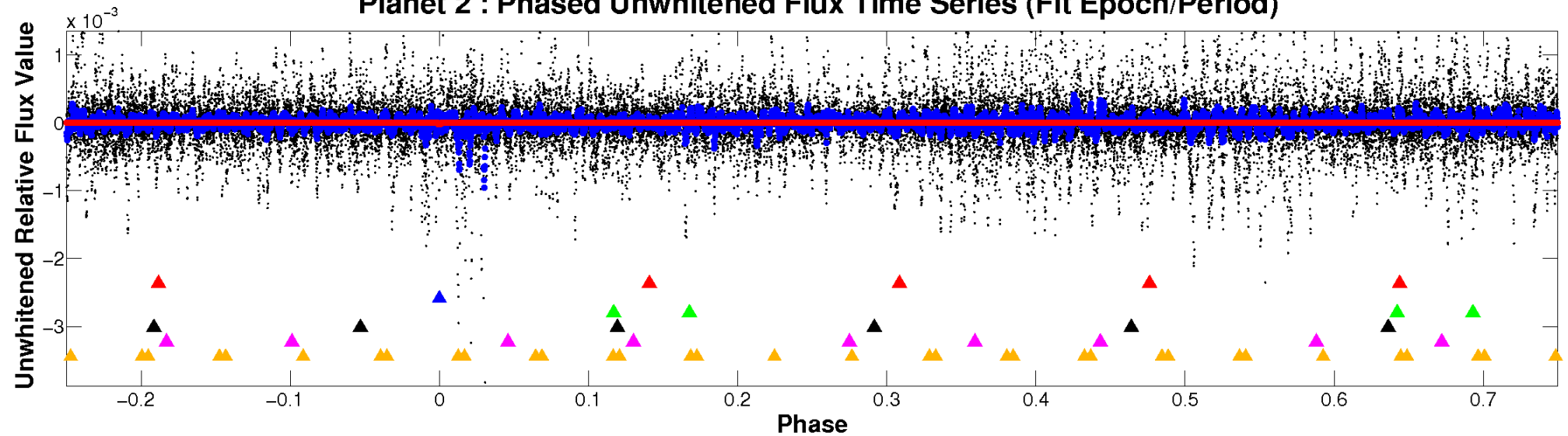
ALT Odd/Even

TCE 006430841-02

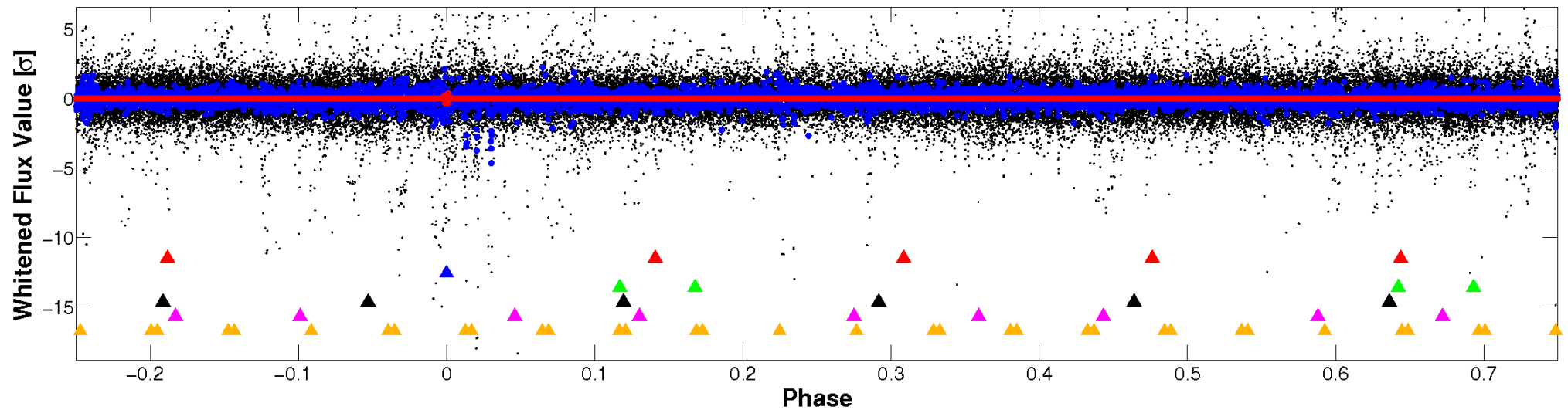


Non-Whitened Vs. Whitened Light Curve

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

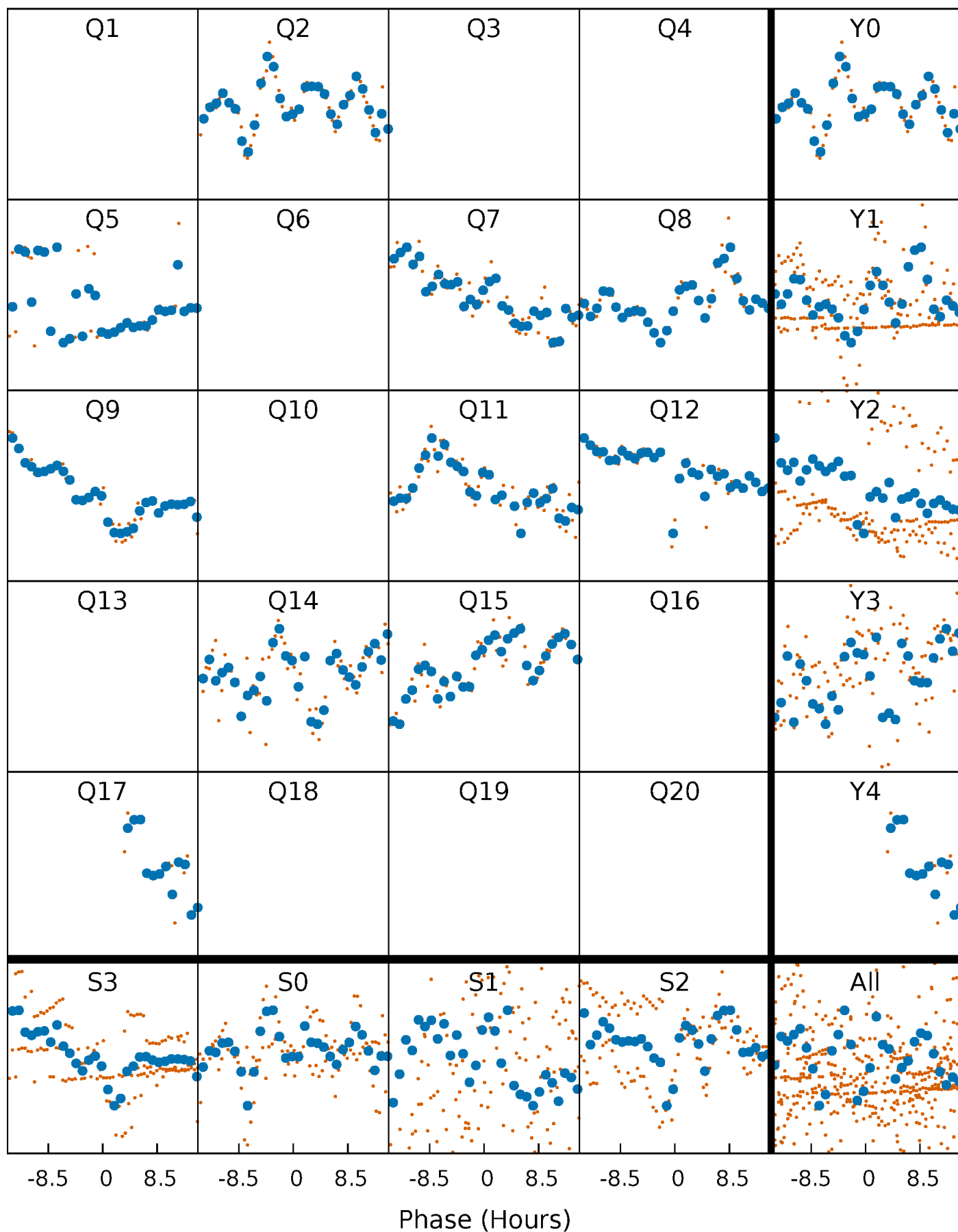


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



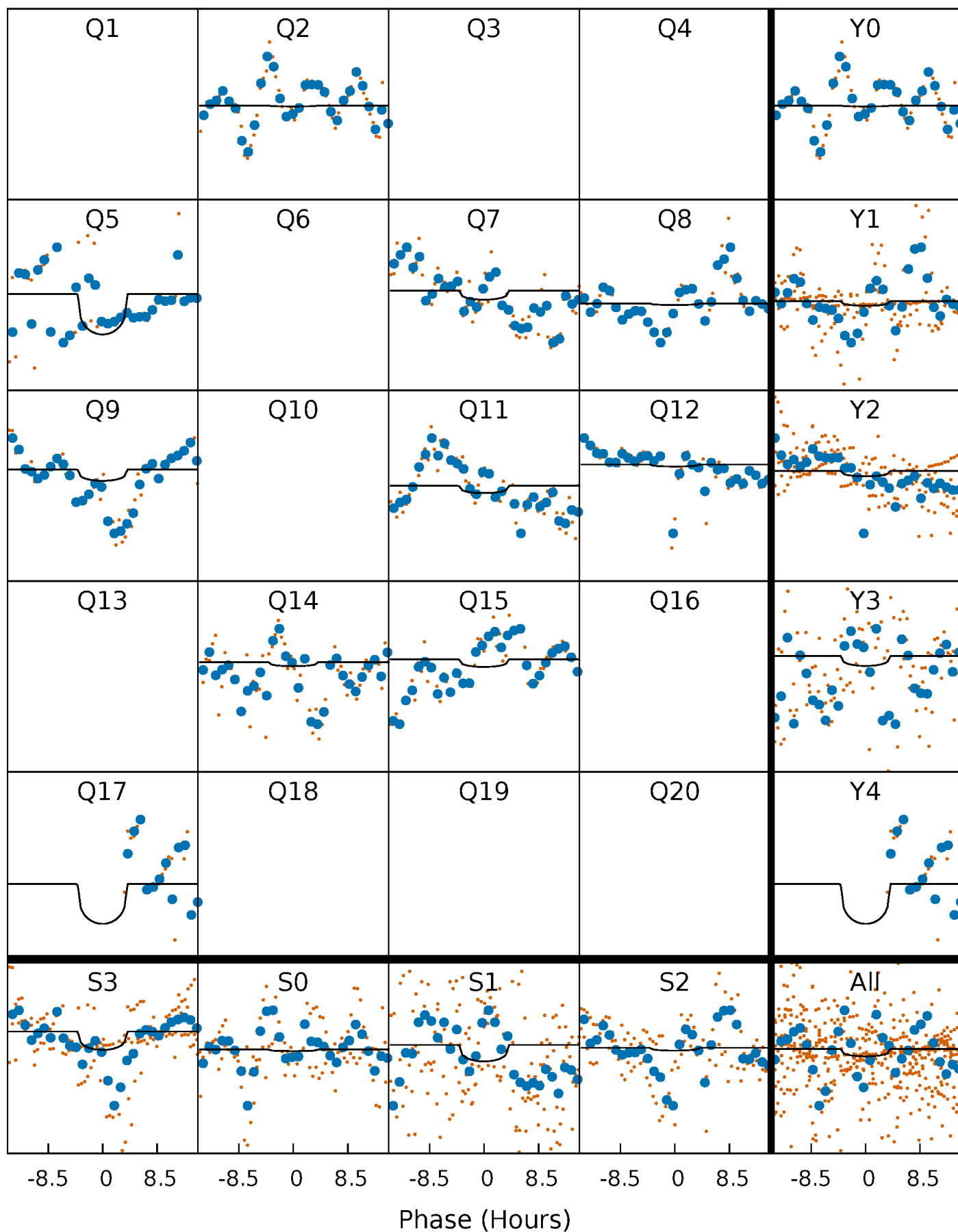
PDC Quarter-Phased Transit Curves

TCE 006430841-02 P=136.394785 Days $T_0=222.741345$ (BKJD)



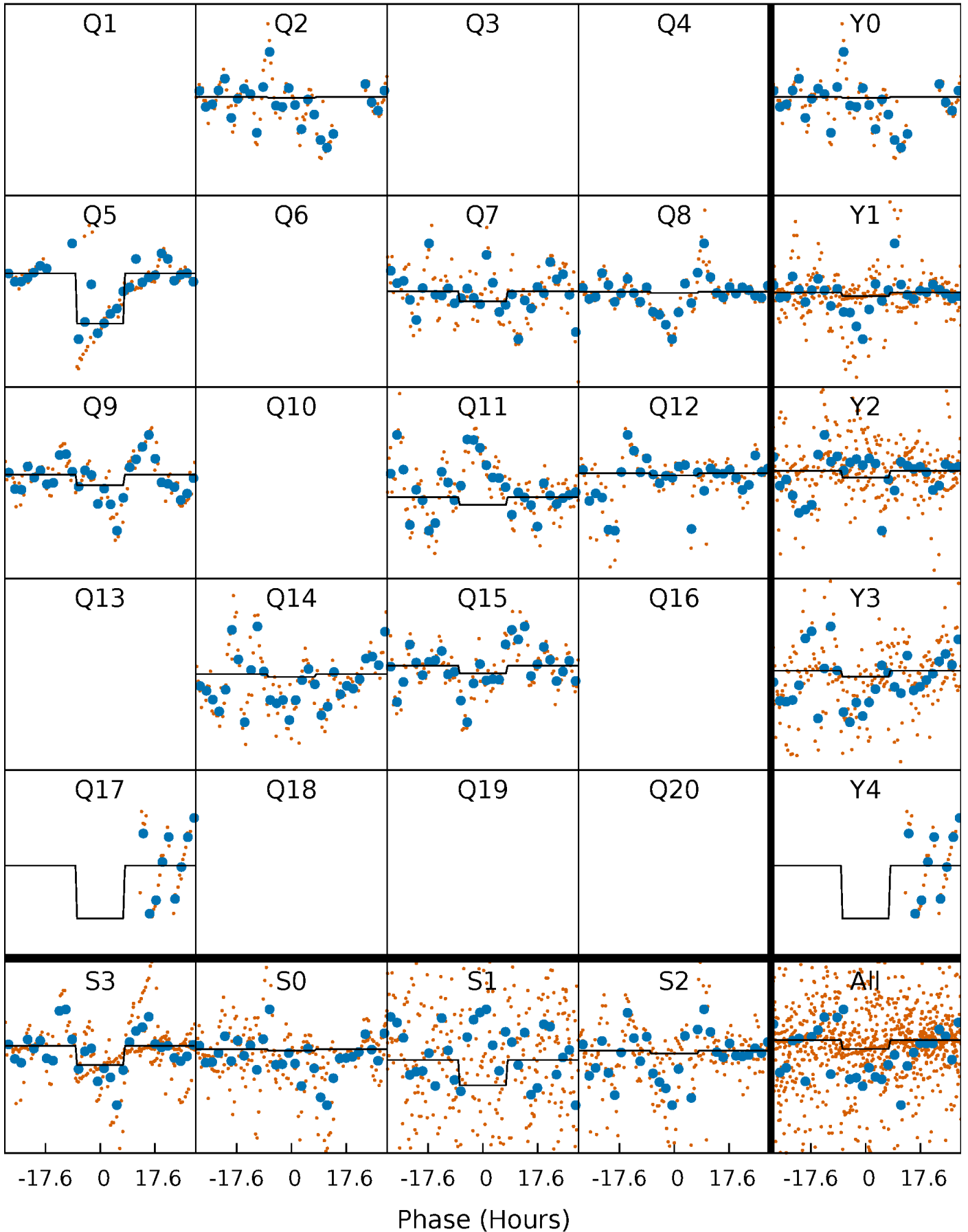
DV Quarter-Phased Transit Curves

TCE 006430841-02 P=136.394785 Days $T_0=222.741345$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

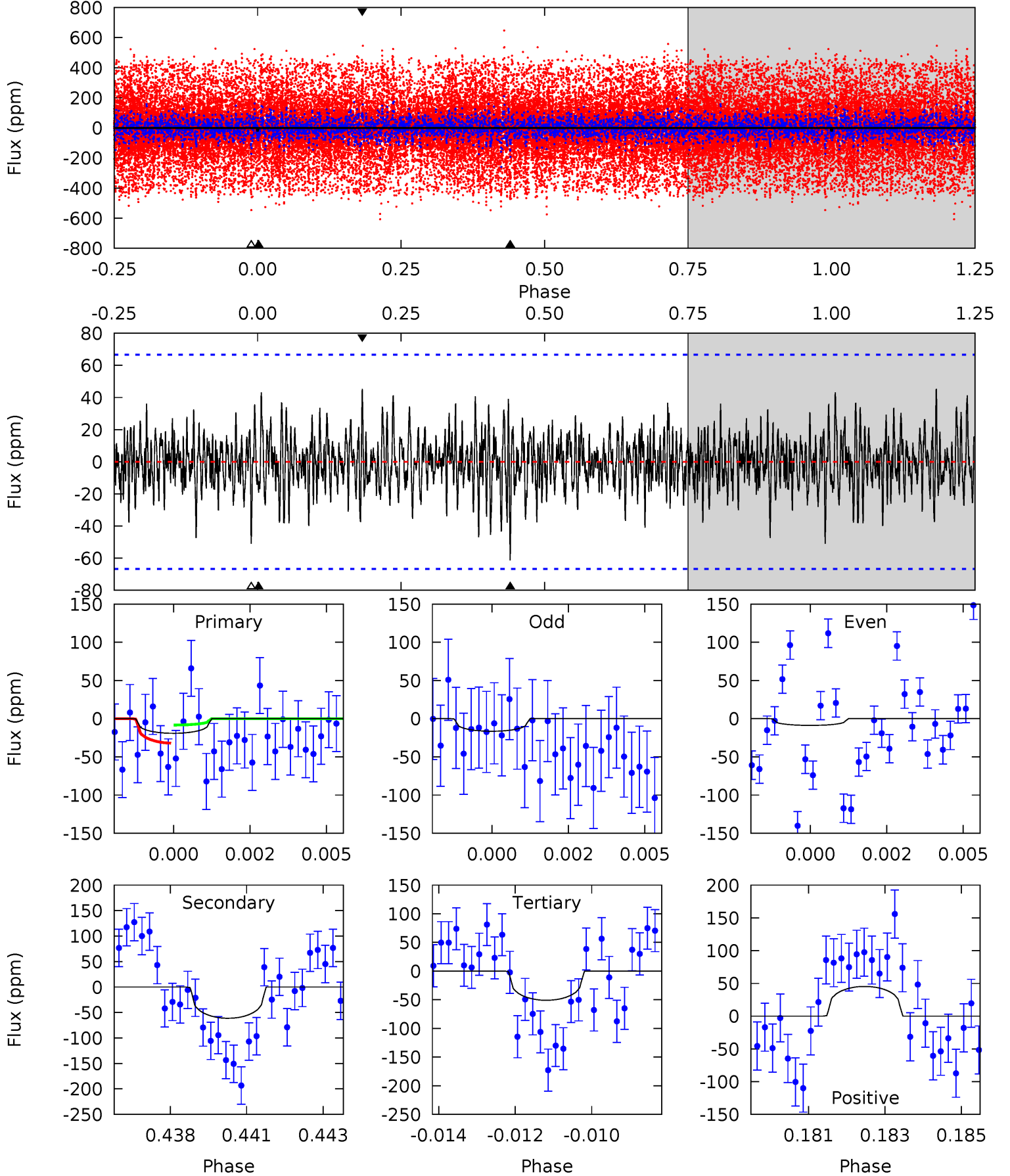
TCE 006430841-02 P=136.339524 Days $T_0=222.903286$ (BKJD)



DV Model-Shift Uniqueness Test

006430841-02, P = 136.394785 Days, E = 86.346560 Days

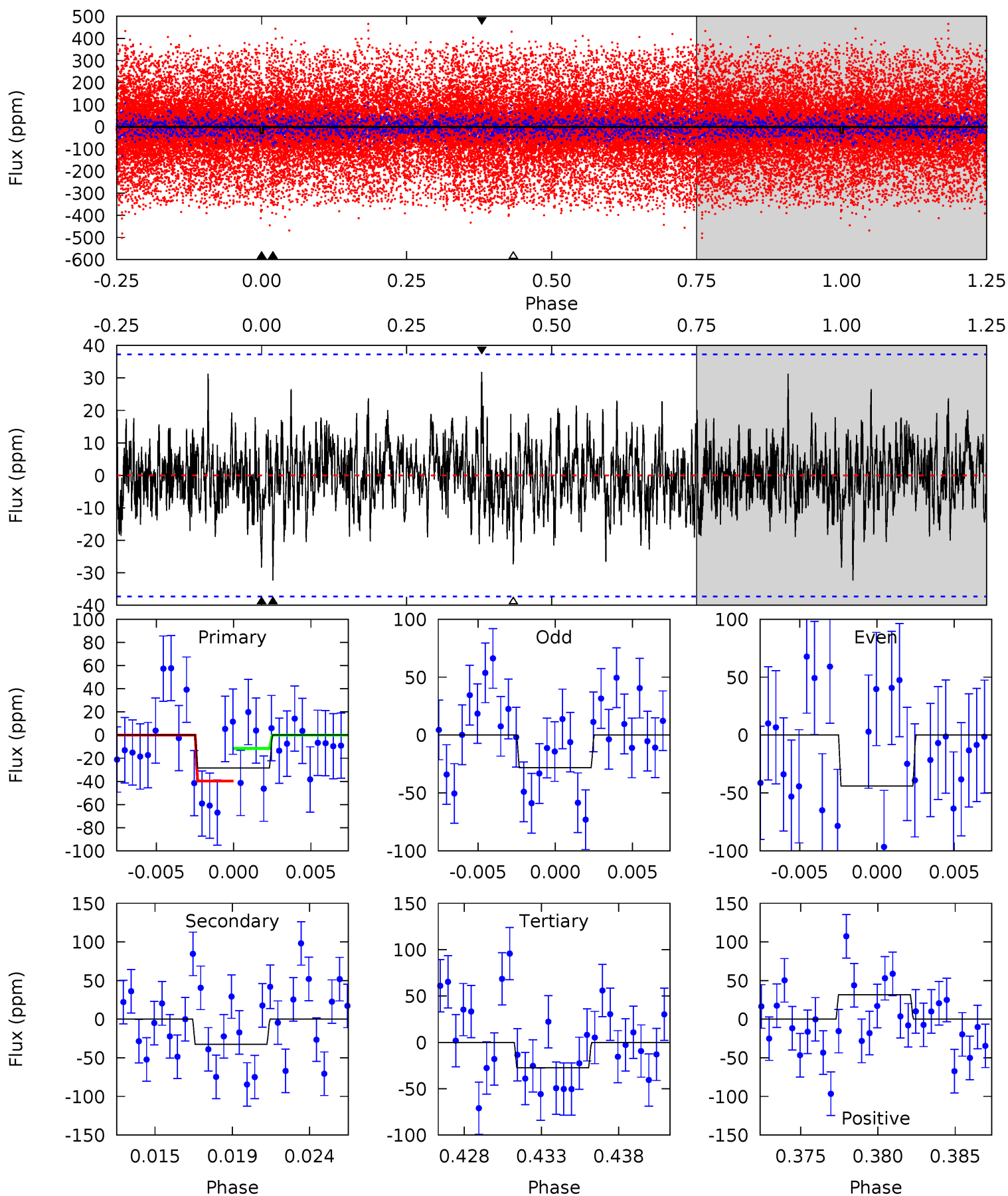
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.52	4.87	4.04	3.60	5.29	3.03	1.14	-2.52	-2.08	0.83	1.27	0.28	1.44	0.42	0.96



Alt Model-Shift Uniqueness Test

006430841-02, P = 136.339524 Days, E = 86.563762 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.92	4.48	3.79	4.40	5.16	2.82	1.11	0.14	-0.48	0.69	0.08	1.06	1.47	0.50	0



Stellar Parameters For KIC 006430841

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4754^{+56}_{-123}	$2.447^{+0.035}_{-0.031}$	$0.210^{+0.150}_{-0.300}$	$17.089^{+1.133}_{-4.814}$	$2.983^{+0.359}_{-1.436}$	$0.001^{+0.000}_{-0.000}$
	+1%/-3%	+1%/-1%	+71%/-143%	+7%/-28%	+12%/-48%	+46%/-10%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 006430841-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-61 ± 13	$8.99^{+4.02}_{-4.17}$	1399^{+32}_{-42}	5847^{+2447}_{-955}	241^{+605}_{-135}
Alt.	-32 ± 7	$8.62^{+4.32}_{-3.96}$	1405^{+28}_{-47}	5148^{+1868}_{-777}	132^{+348}_{-73}

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 $A_{obs} \gg 1.0$

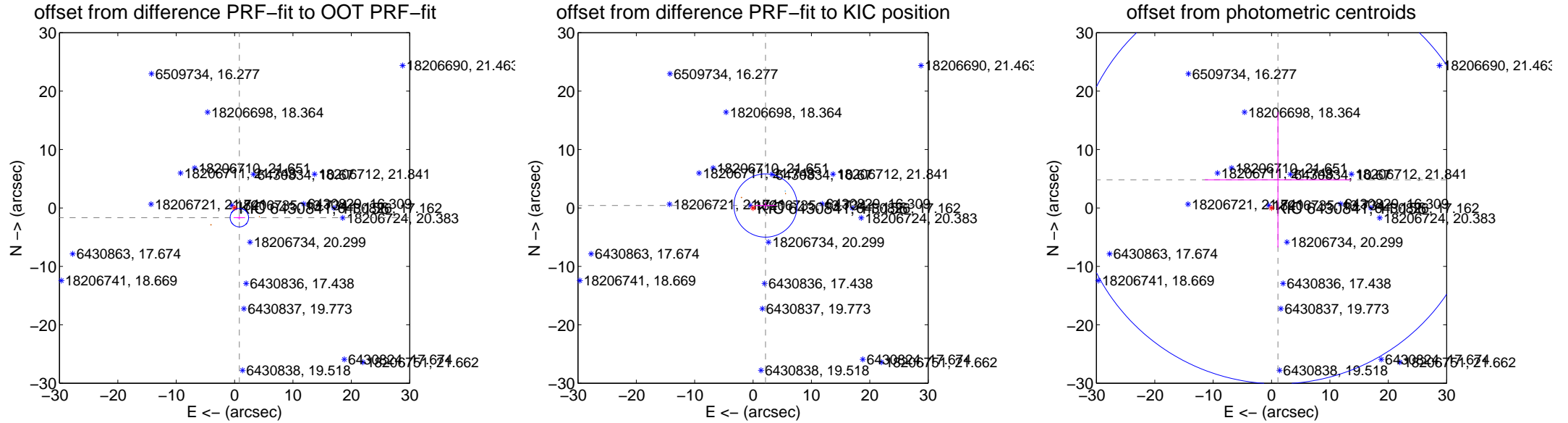
DV Centroid Data

Supplemental centroid analysis for 006430841-02. **Kepler magnitude: 11.16.** Transit SNR 4.78

There are 2 quarters with good PRF difference image offsets

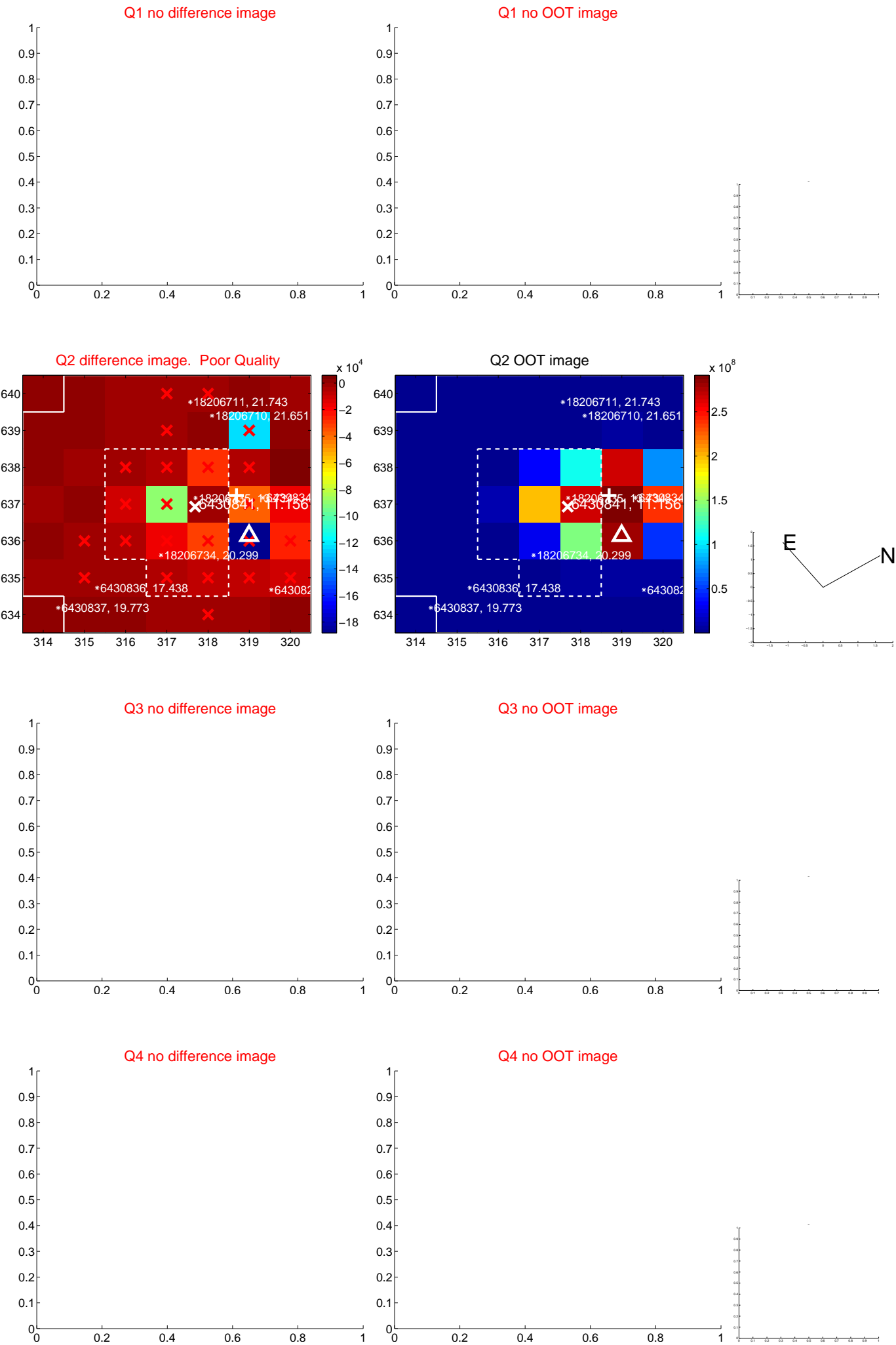
The direct PRF centroid is offset from the target star catalog position by about 1.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.854 ± 0.527	3.52	-0.820 ± 0.982	-1.663 ± 0.332
PRF-fit source offset from KIC position	2.182 ± 1.805	1.21	-2.141 ± 1.798	0.418 ± 0.513
photometric centroid source offset	4.95 ± 11.64	0.43	-1.10 ± 12.52	4.83 ± 11.59

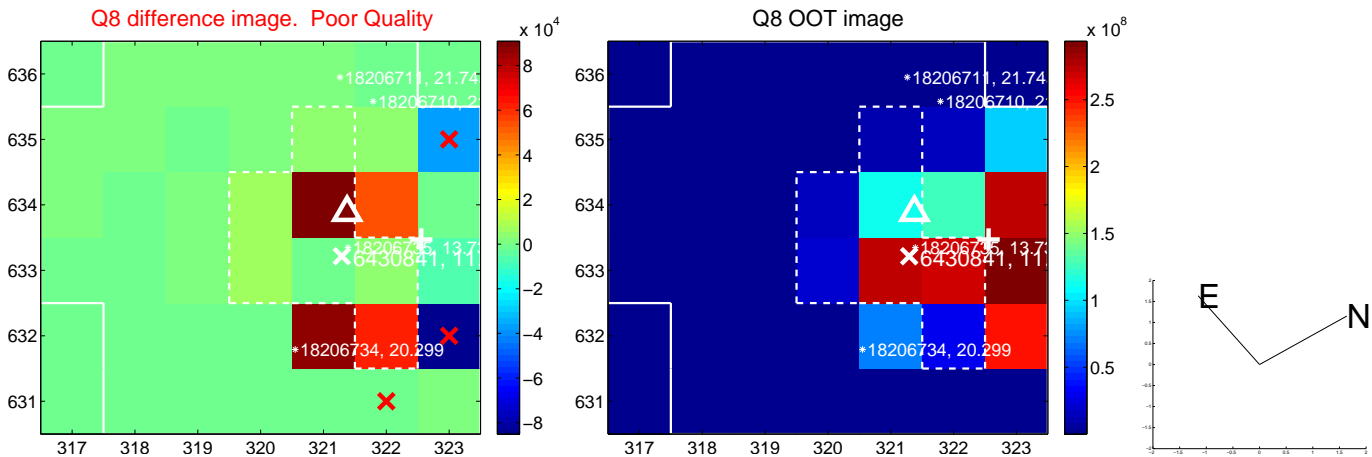
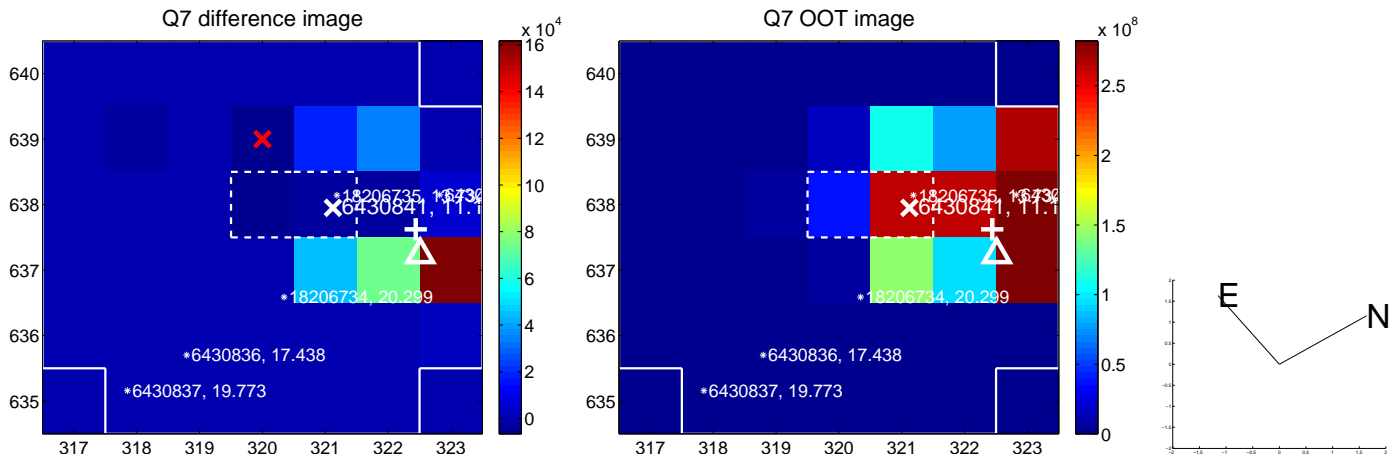
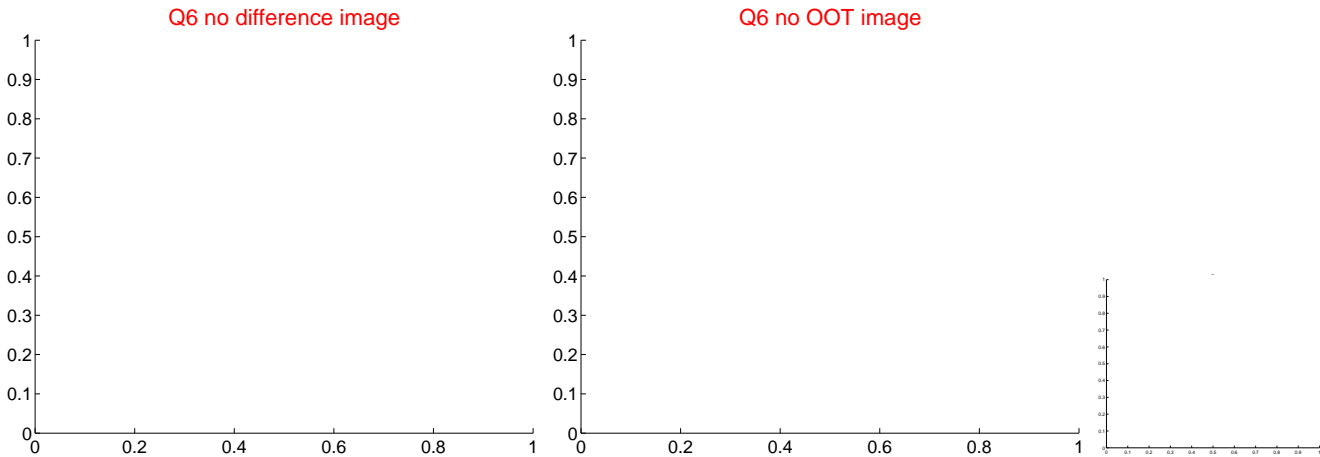
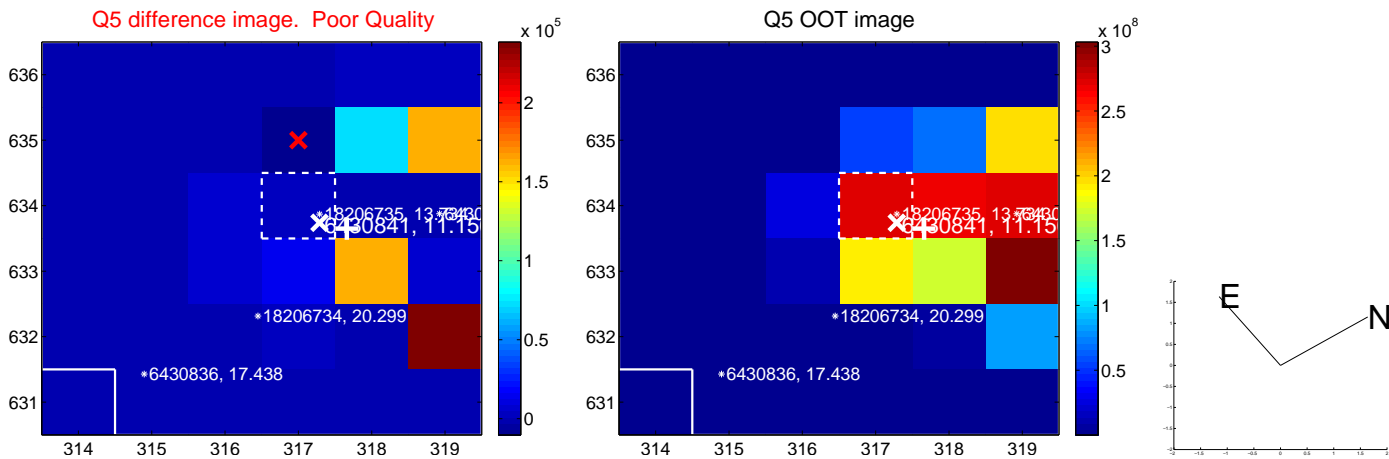


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

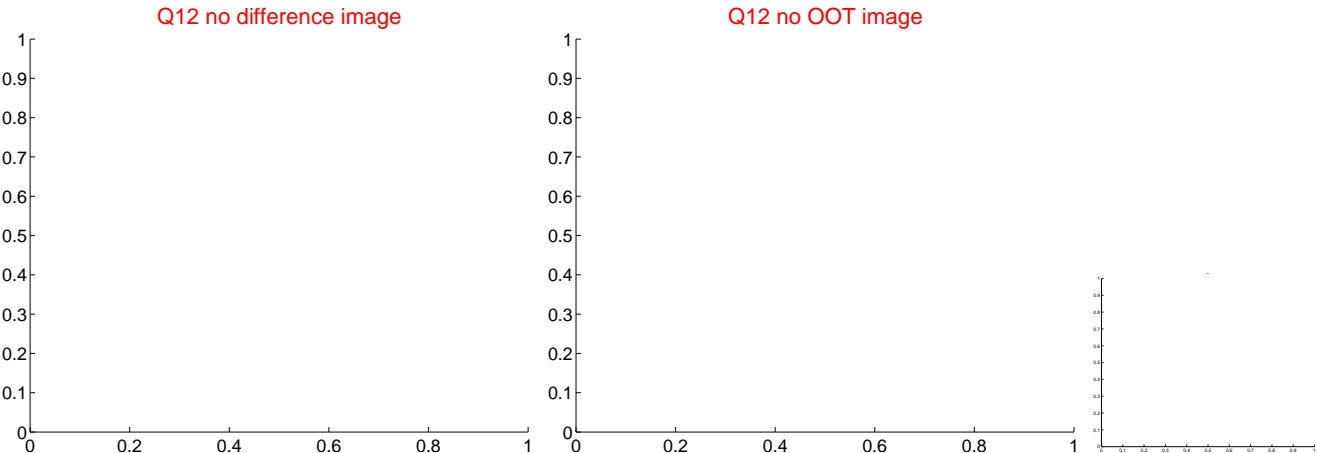
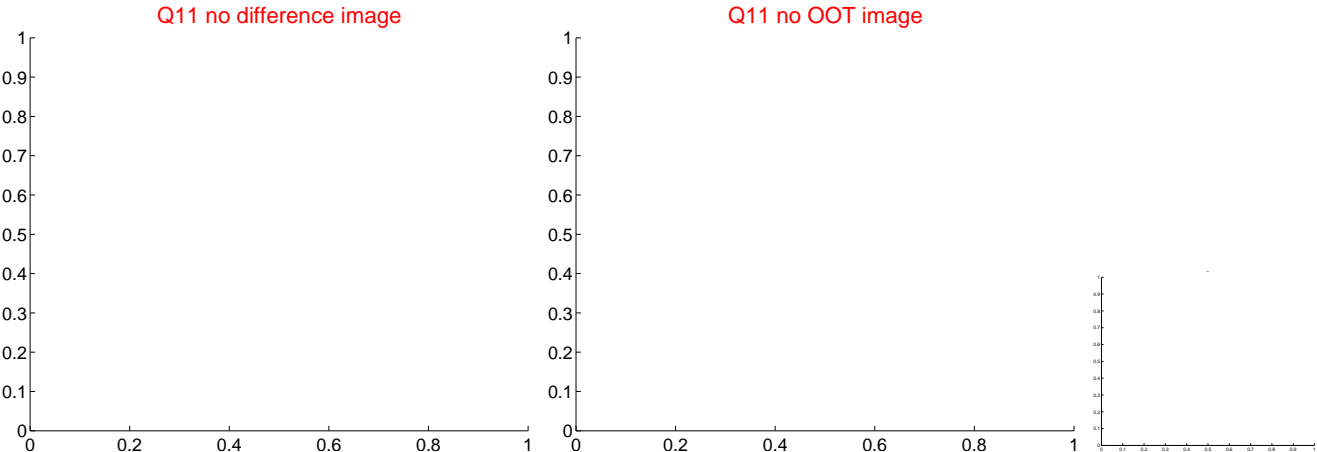
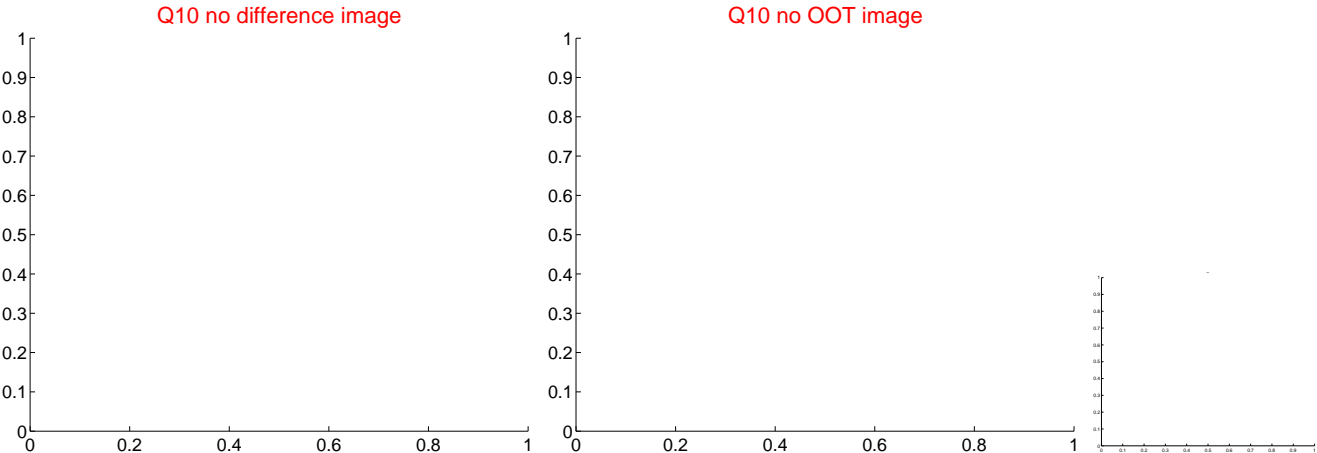
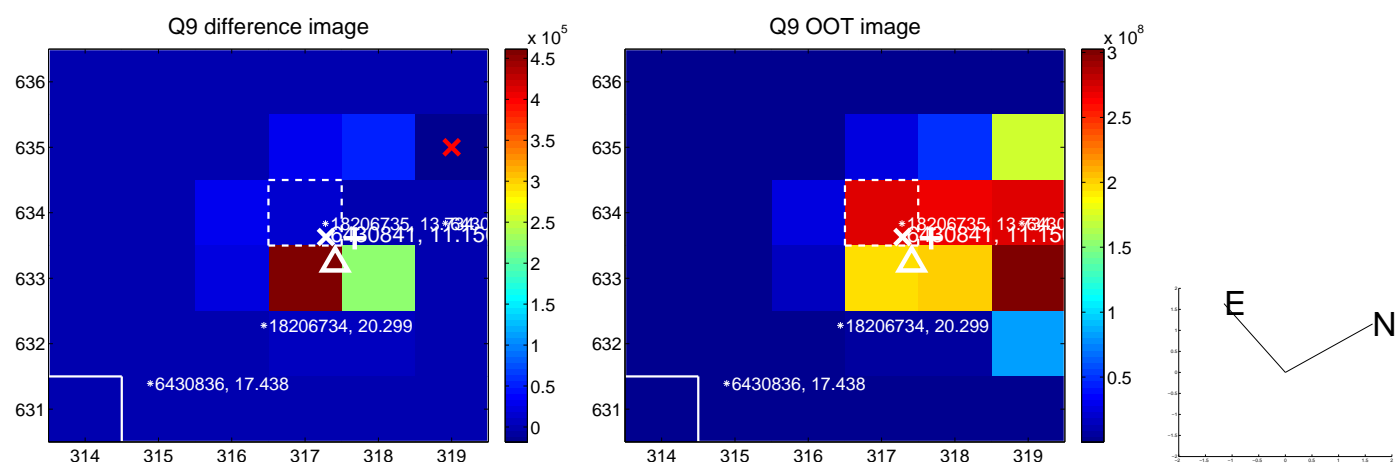
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



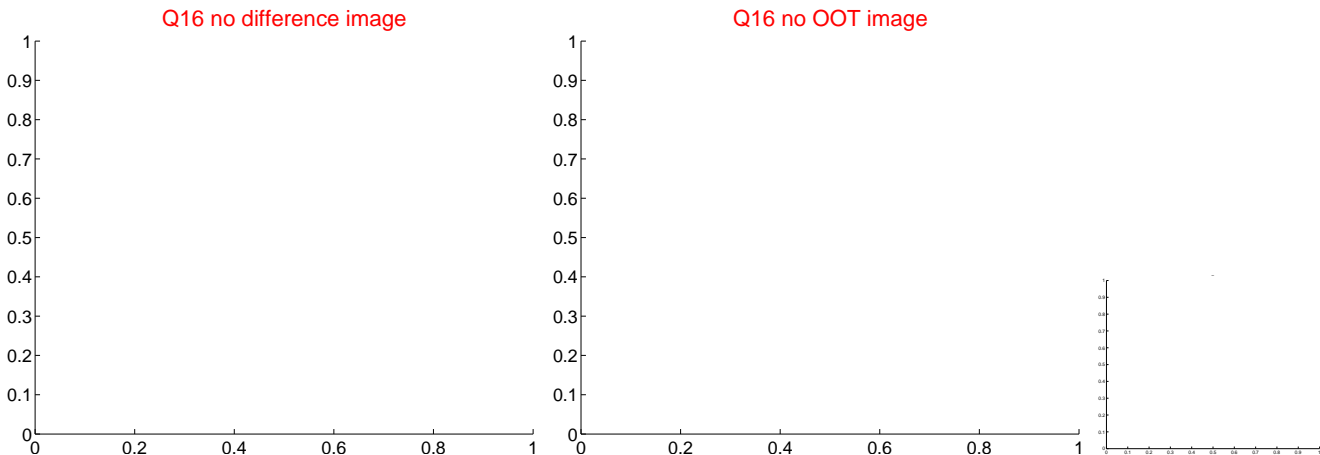
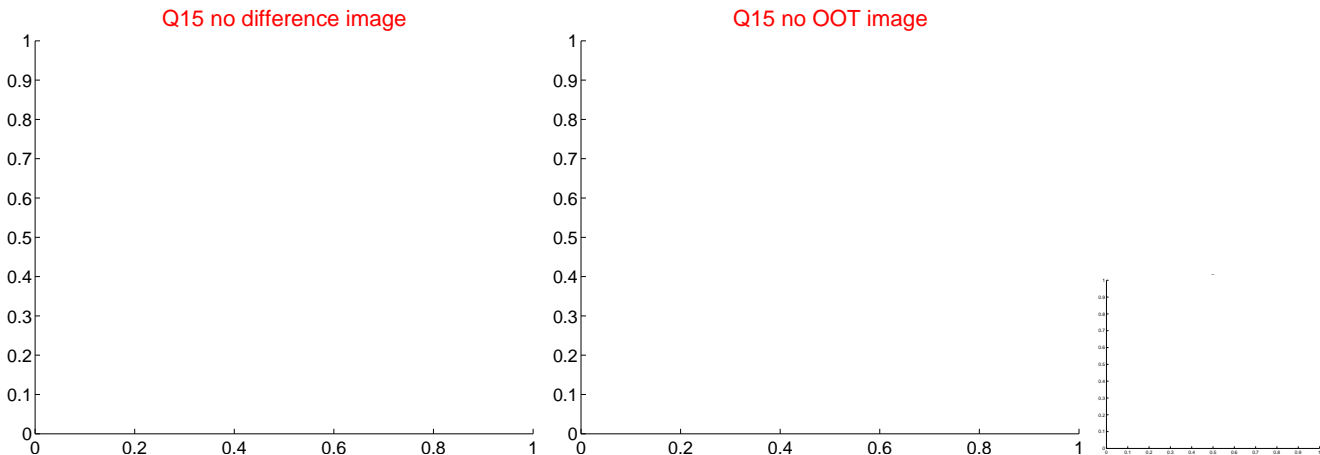
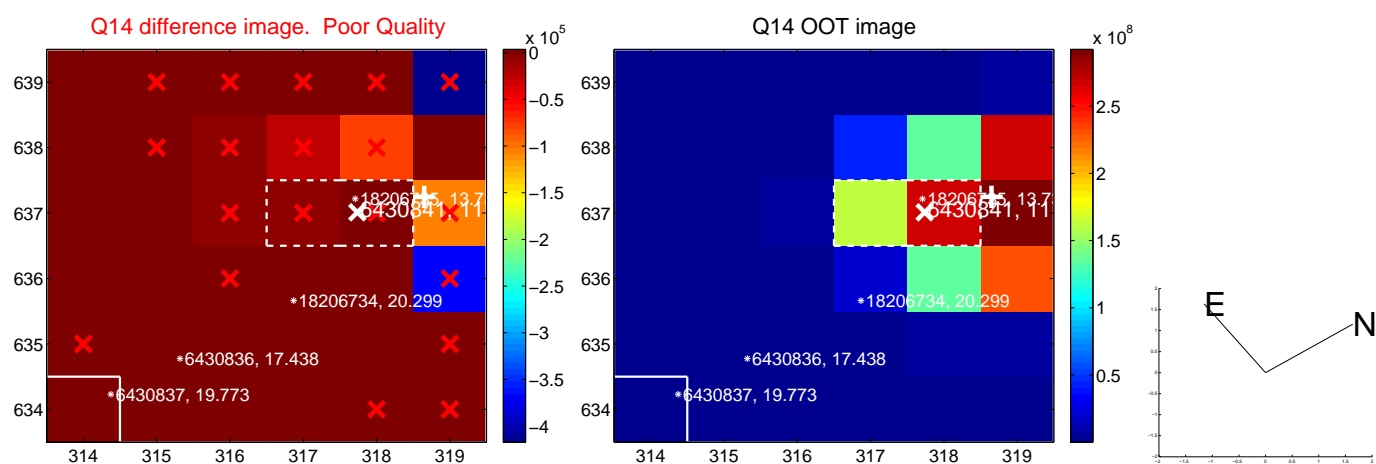
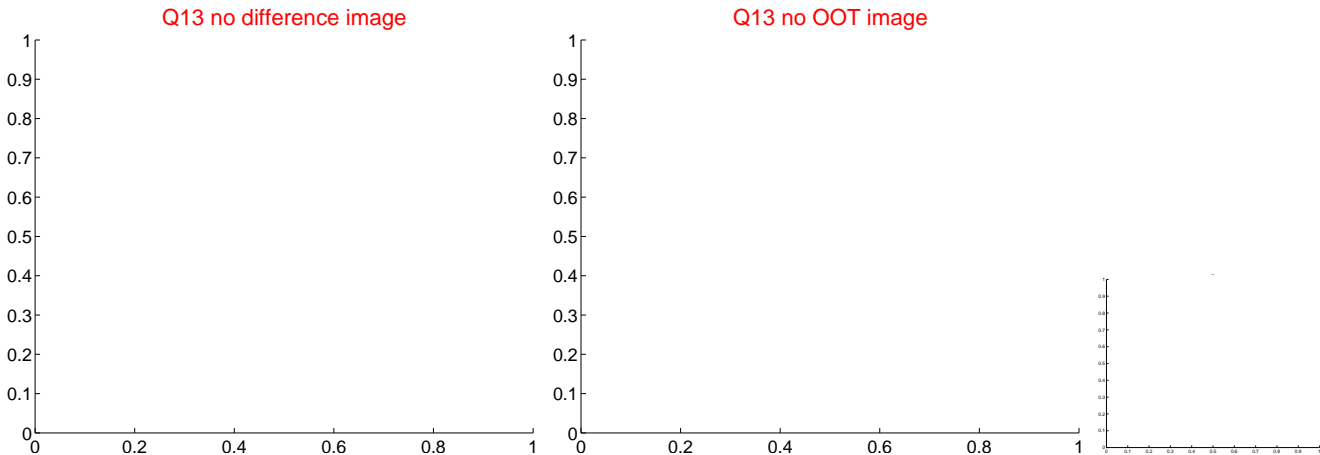
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



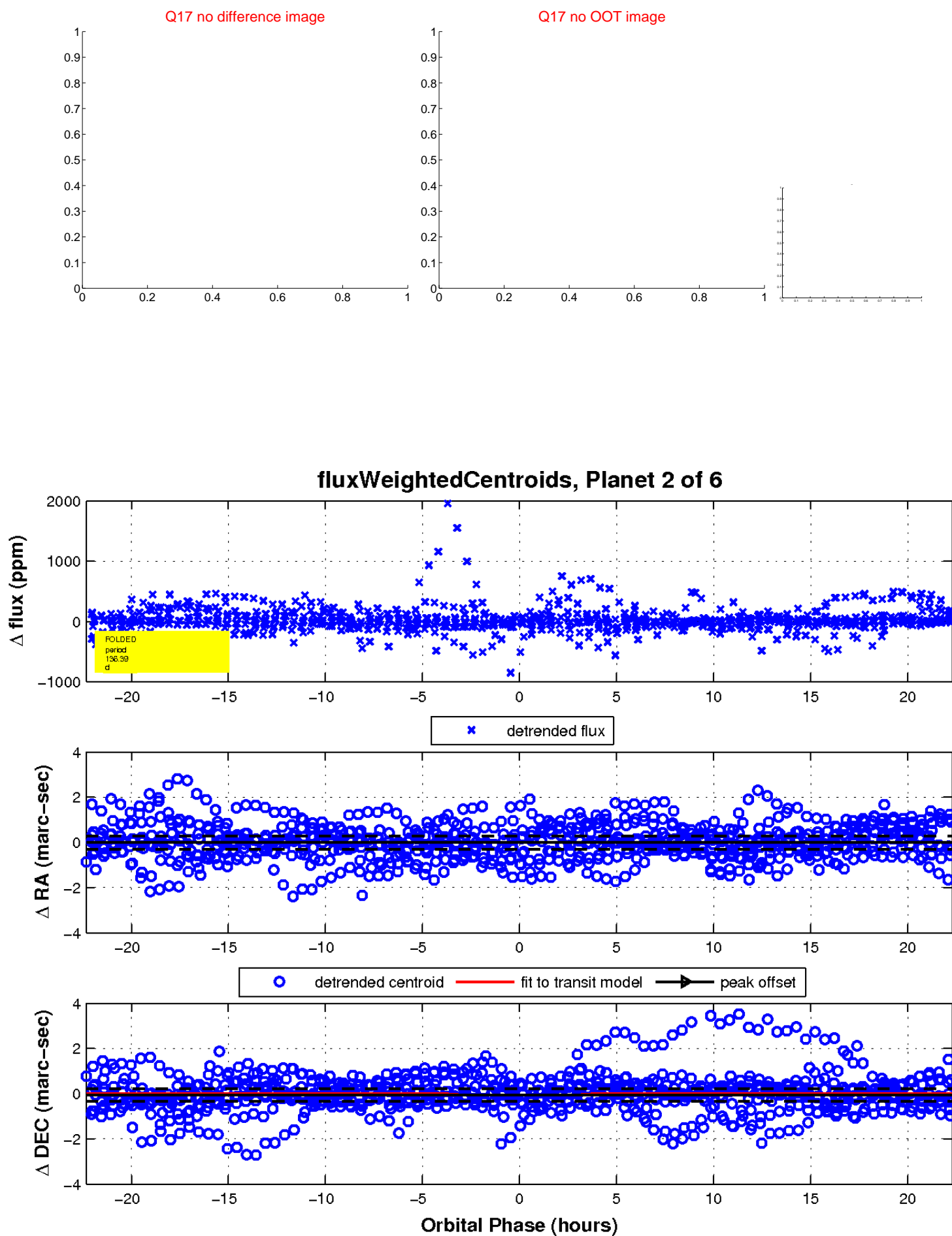
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

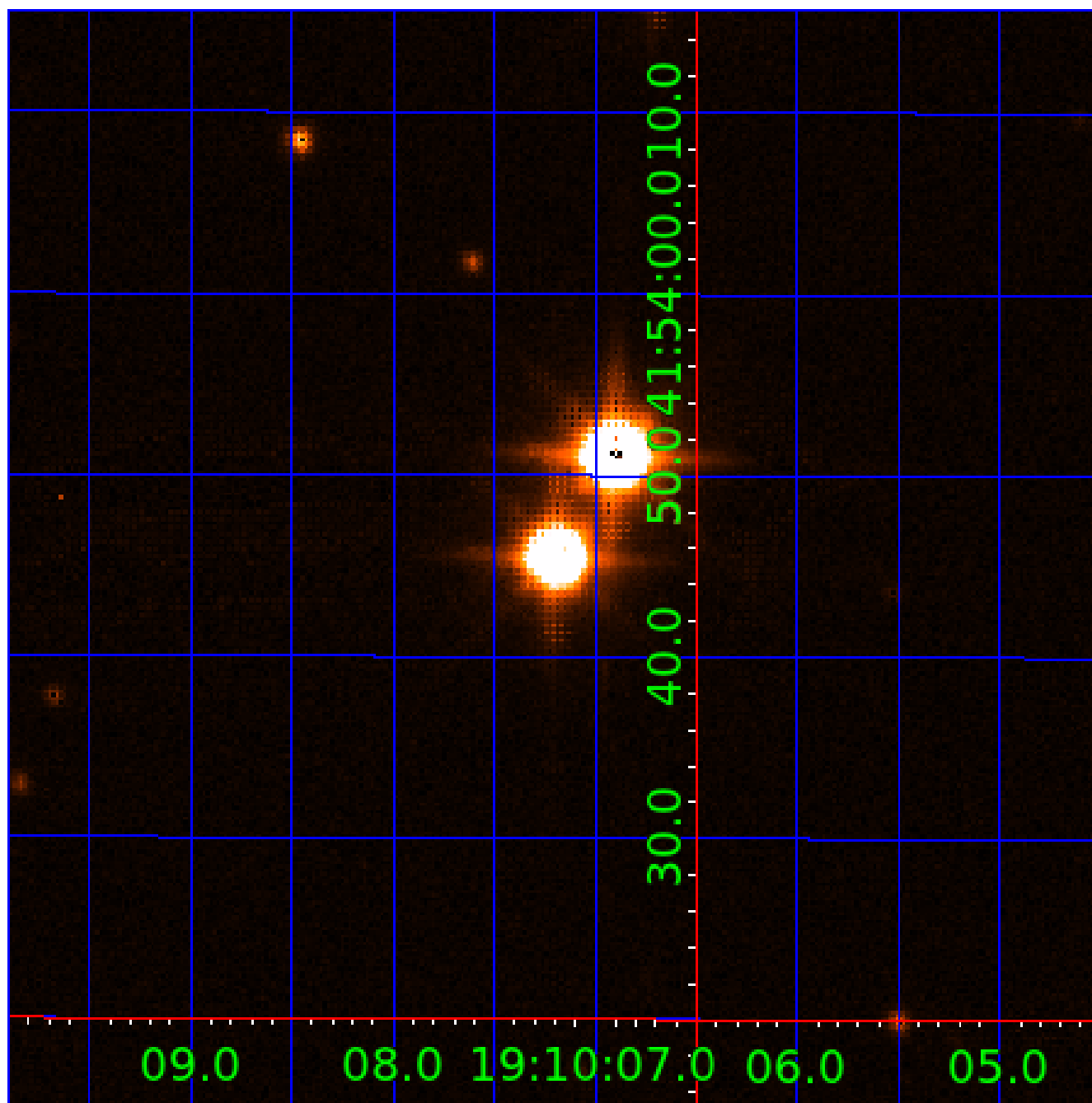


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006430841

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})
006430841-01	OBS	No	295.663745	241.949691	100.8	7.457	44.7	18.3	17.09	4754	18.07	85.48
006430841-02	OBS	No	136.394785	222.741345	23.4	7.454	15.4	4.8	17.09	4754	8.76	239.82
006430841-03	OBS	No	344.451962	238.683748	70.5	44.212	14.3	4.4	17.09	4754	15.03	69.73
006430841-04	OBS	No	249.288140	196.635932	26.9	3.123	15.7	3.9	17.09	4754	10.45	107.32
006430841-05	OBS	No	167.624492	146.804219	1.8	8.407	17.7	0.4	17.09	4754	2.85	182.18
006430841-06	OBS	No	43.102199	159.524448	49.9	0.923	13.6	16.1	17.09	4754	15.31	1114.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006430841-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006430841-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

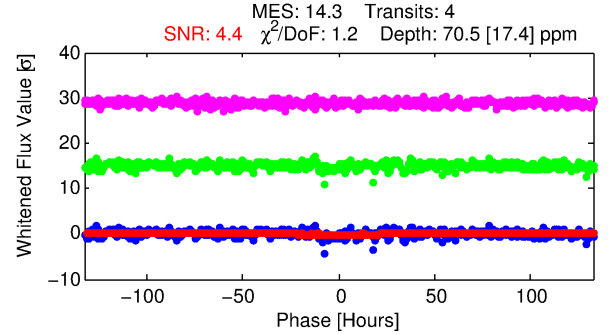
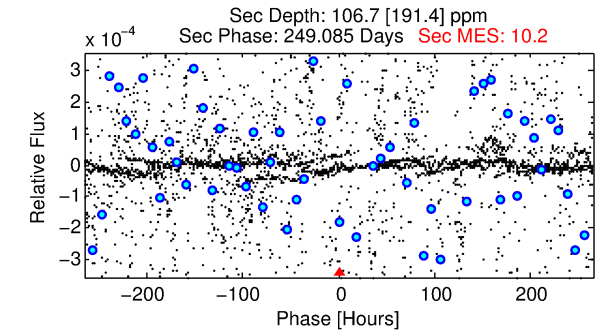
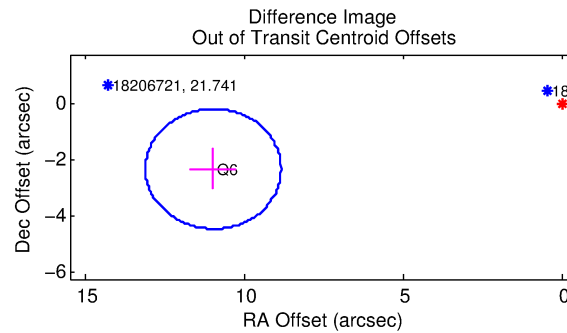
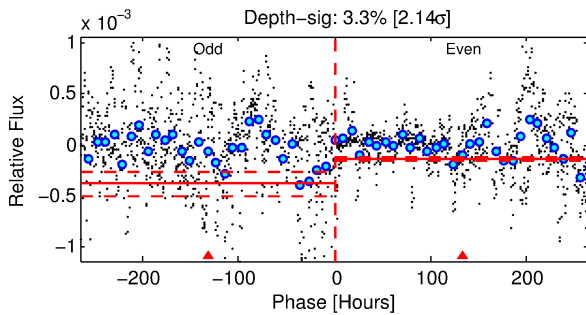
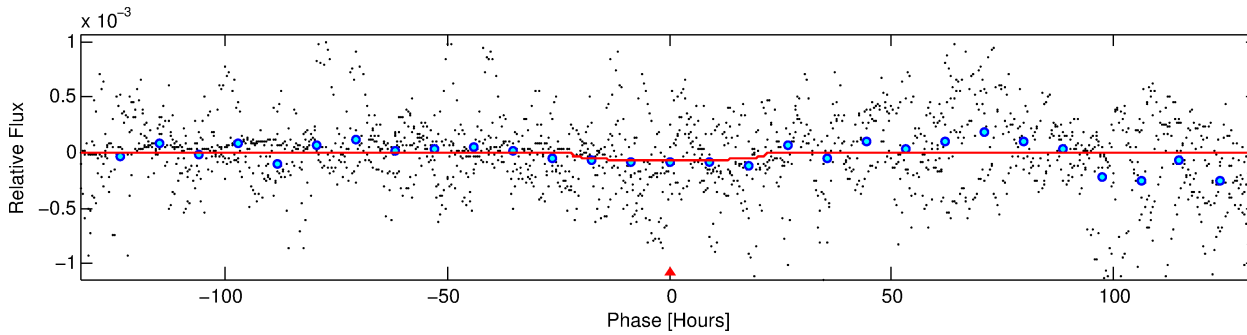
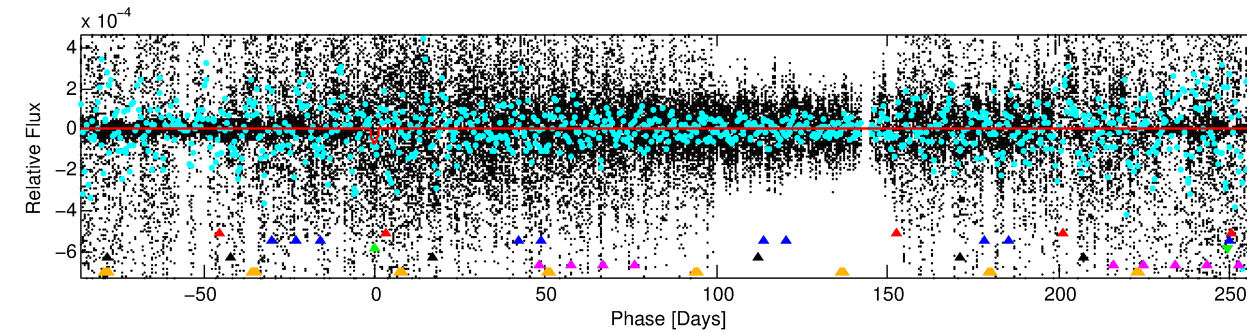
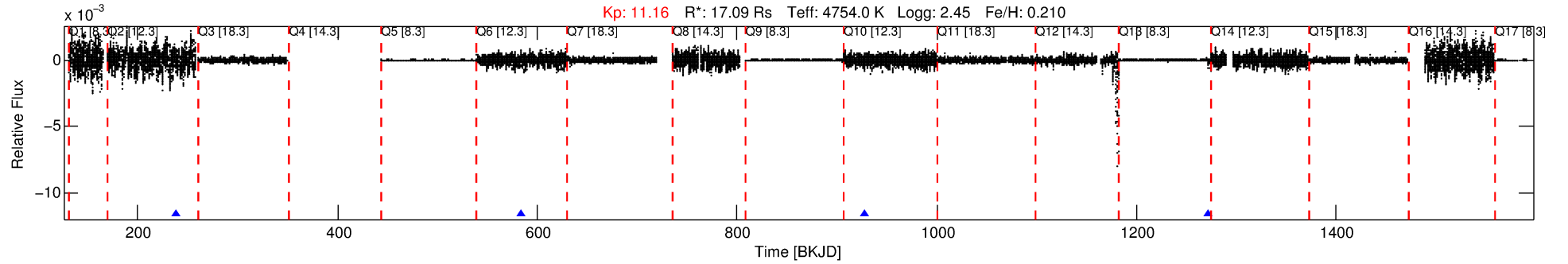
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006430841-03

No Significant Match Found

DV One-Page Summary

KIC: 6430841 Candidate: 3 of 6 Period: 344.452 d



DV Fit Results:

Period = 344.45196 [0.03624] d
Epoch = 238.6837 [0.0989] BKJD
Rp/R* = 0.0081 [0.0027]
a/R* = 45.58 [46.47]
b = 0.66 [0.89]
Seff = 69.73 [15.41]
Teq = 737 [41] K
Rp = 15.03 [6.51] Re
a = 1.3844 [0.2626] AU
Ag = 498.12 [956.40] [0.52 σ]
Teffp = 5382 [2574] K [1.80 σ]

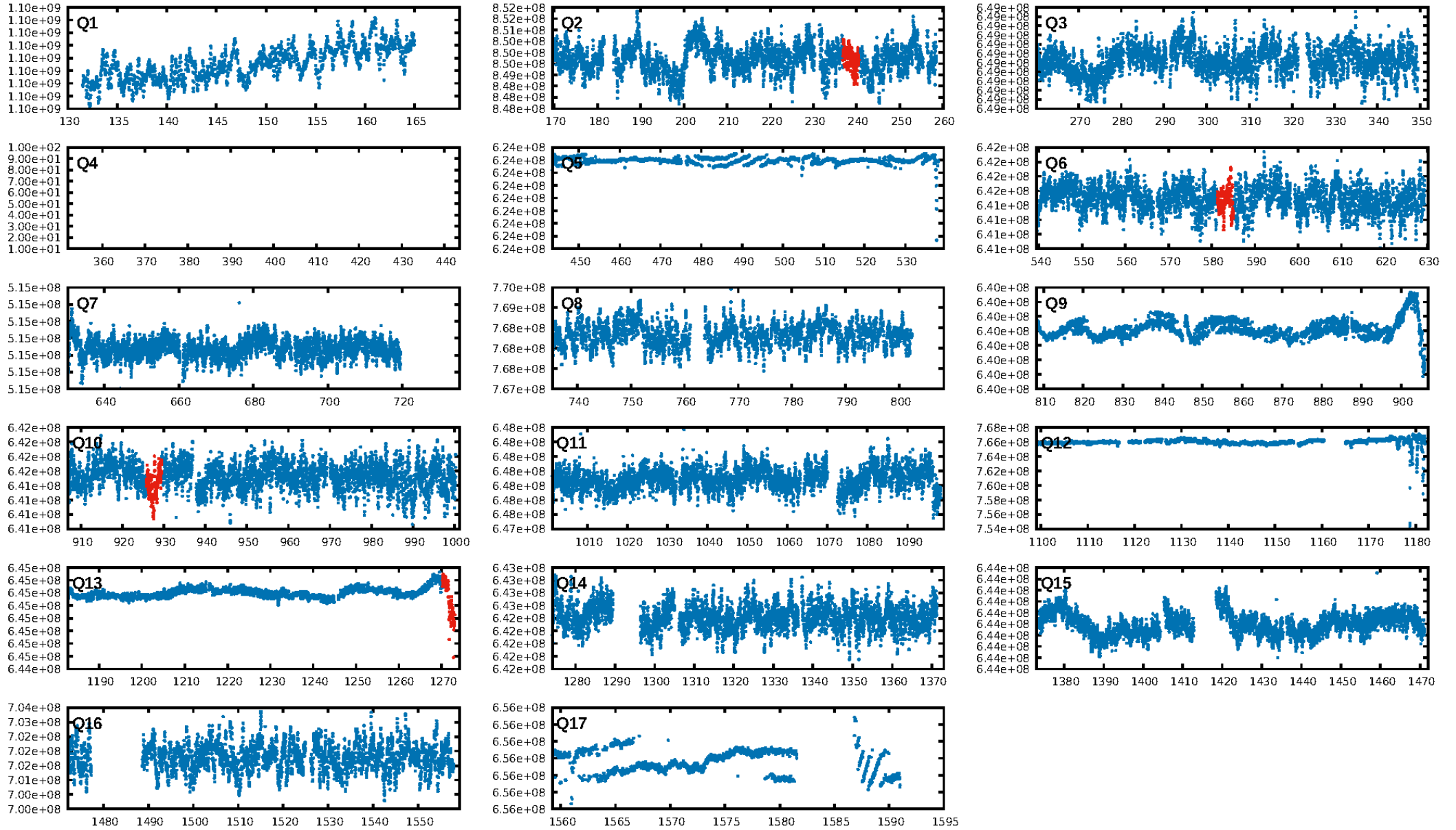
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.12 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 8.1%
ModelChiSquareGof-sig: 73.3%
Bootstrap-pfa: 4.75e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.4272
Centroid-sig: 26.1%
Centroid-so: 7.762 arcsec [1.52 σ]
OotOffset-rm: 11.229 arcsec [15.77 σ]
KicOffset-rm: 9.789 arcsec [13.75 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

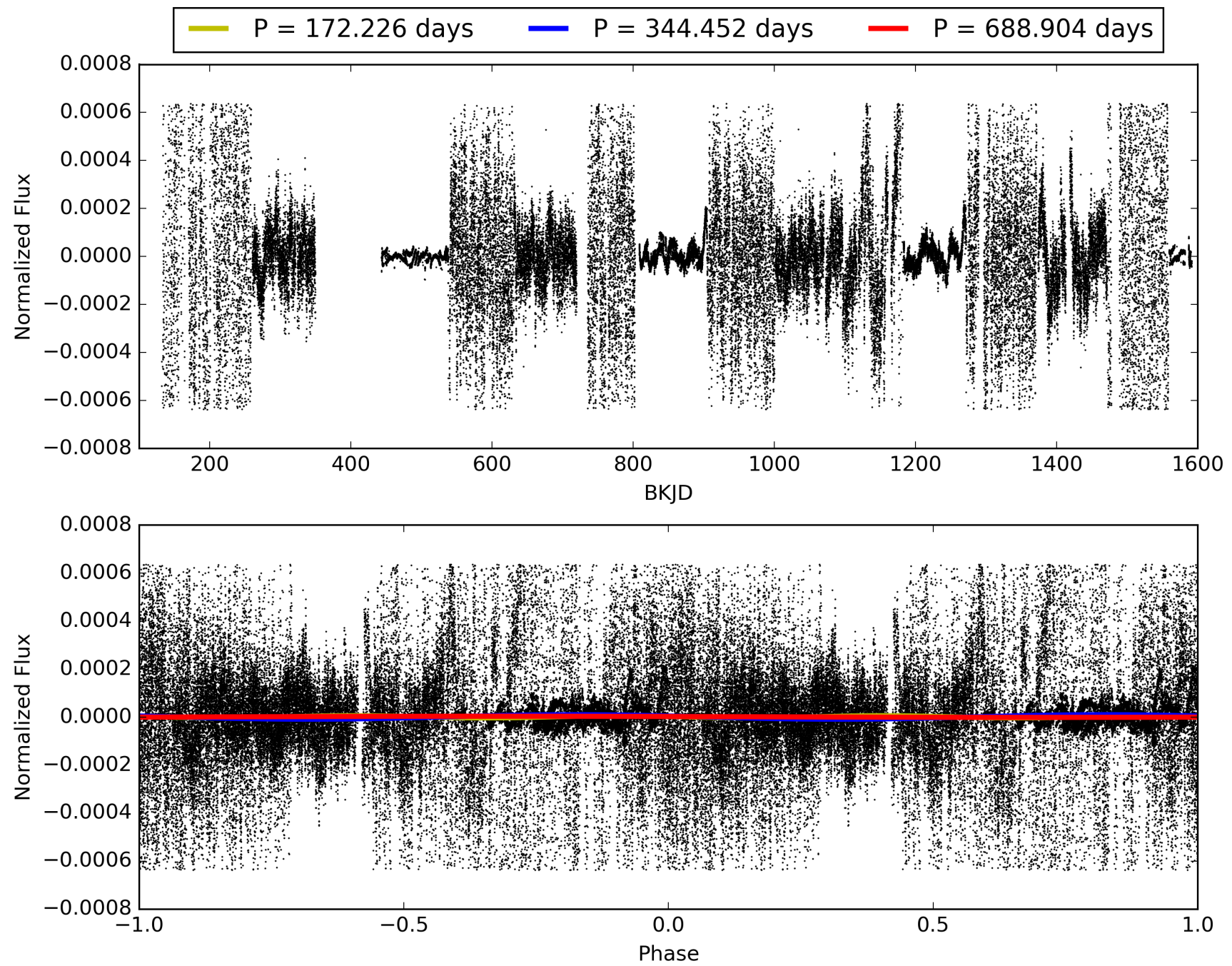
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:01:24 Z

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

TCE 006430841-03, PDC Light Curves

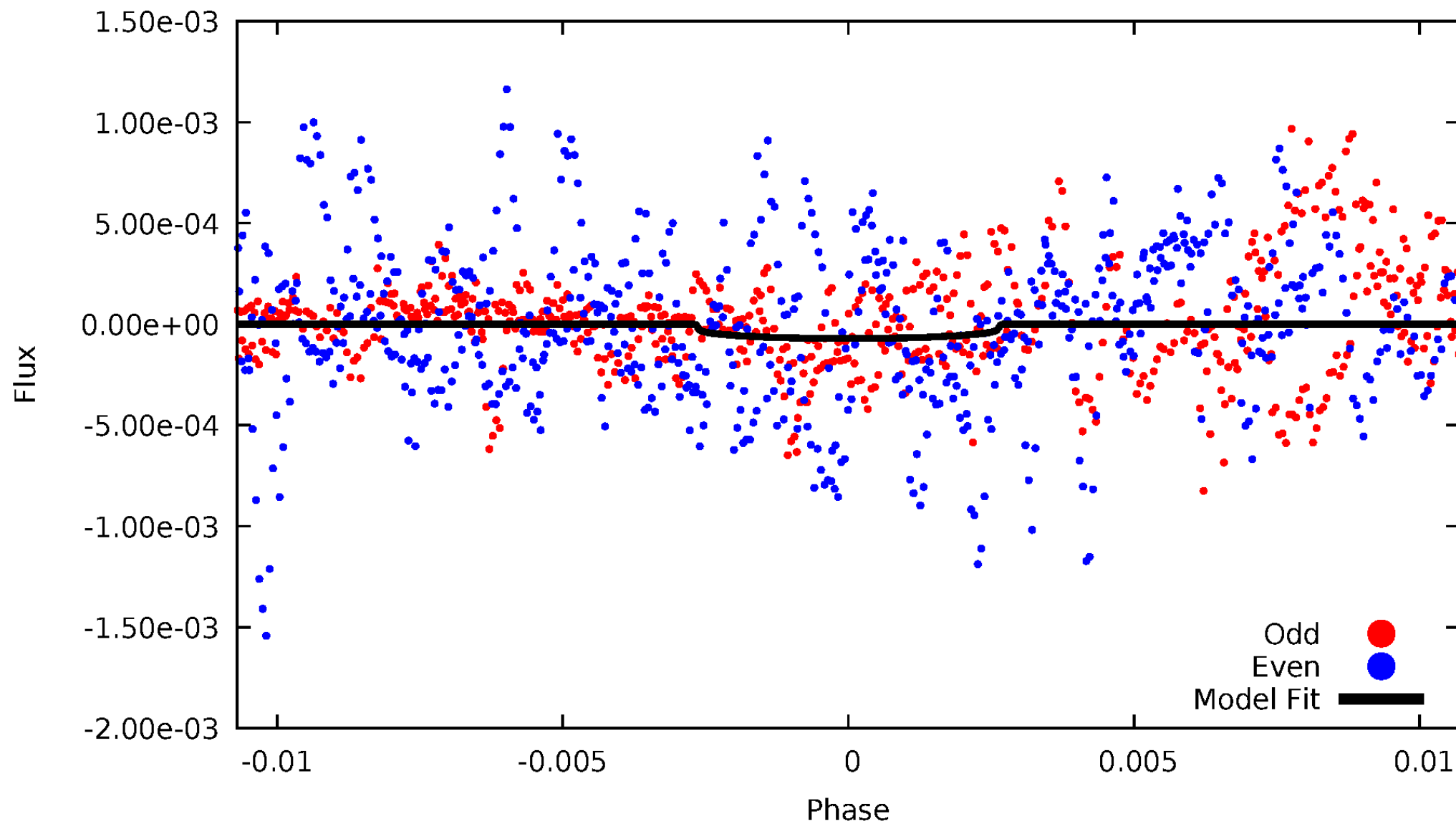


TCE 006430841-03



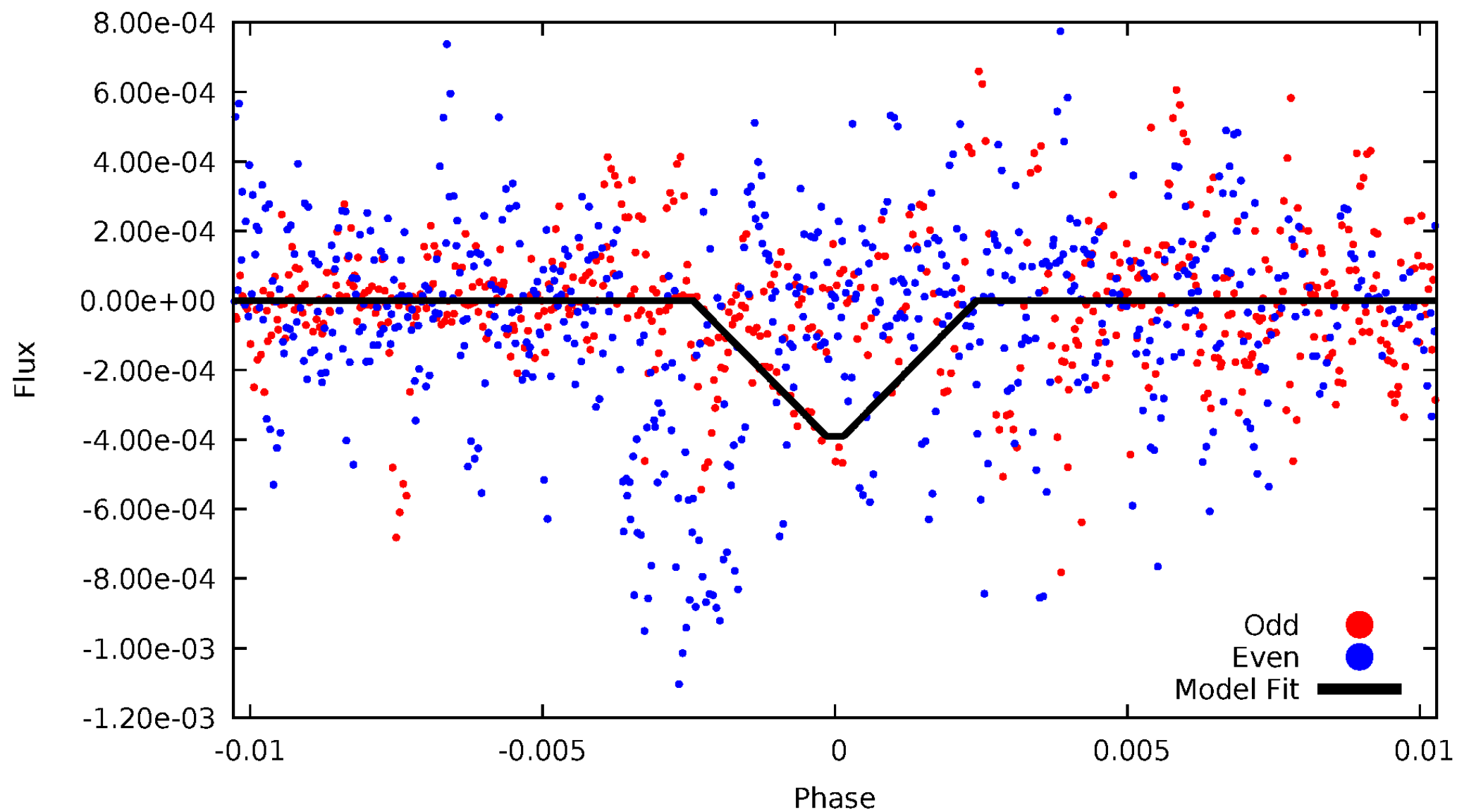
DV Odd/Even

TCE 006430841-03



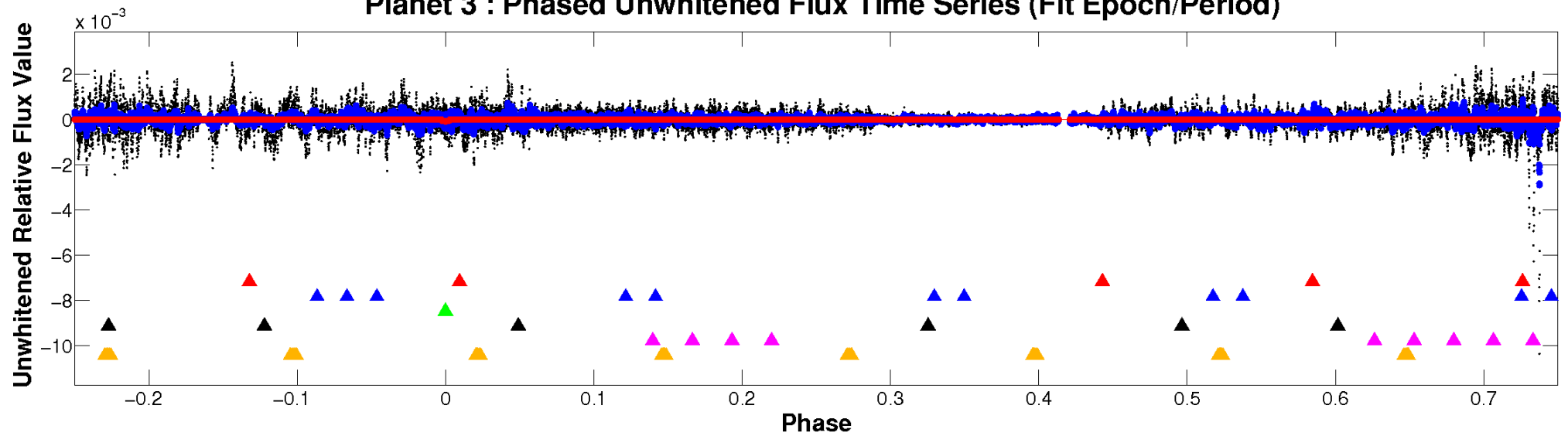
ALT Odd/Even

TCE 006430841-03

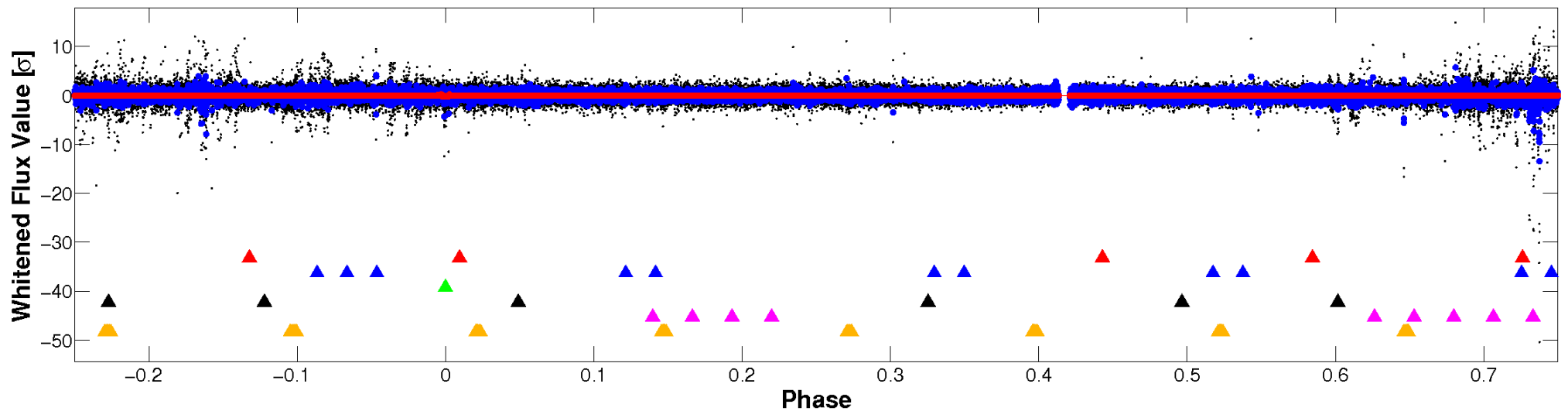


Non-Whitened Vs. Whitened Light Curve

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

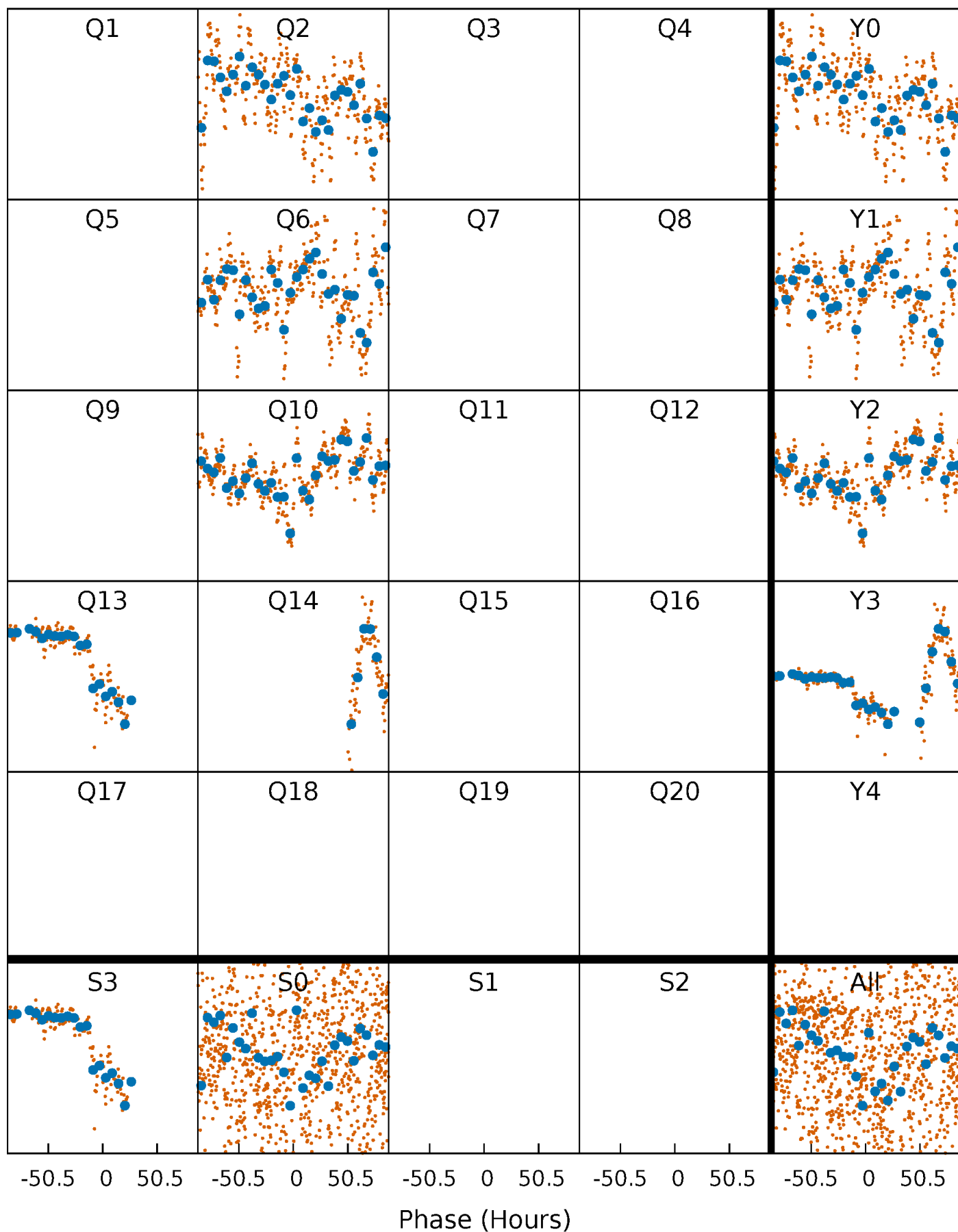


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



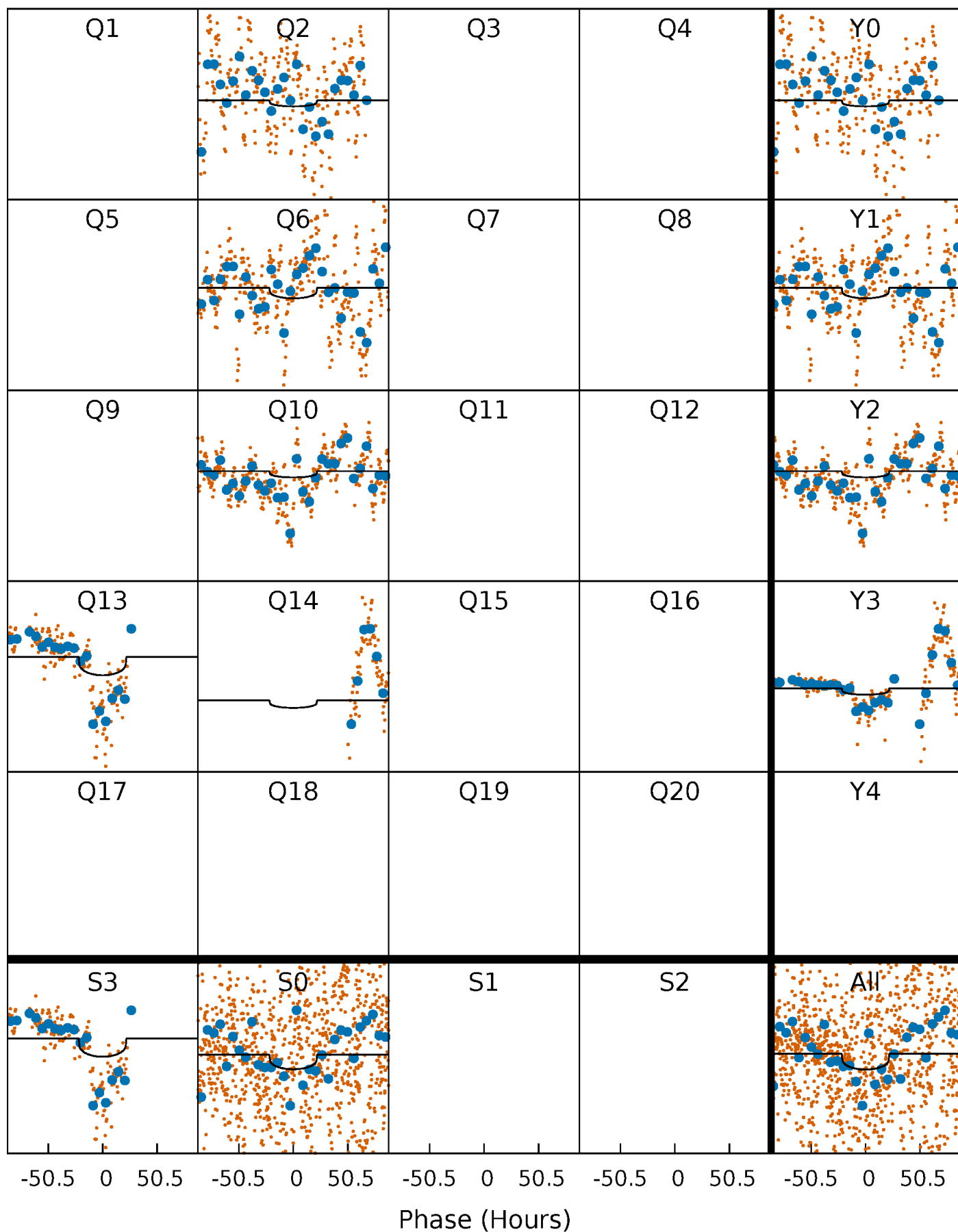
PDC Quarter-Phased Transit Curves

TCE 006430841-03 $P=344.451961$ Days $T_0=238.683748$ (BKJD)



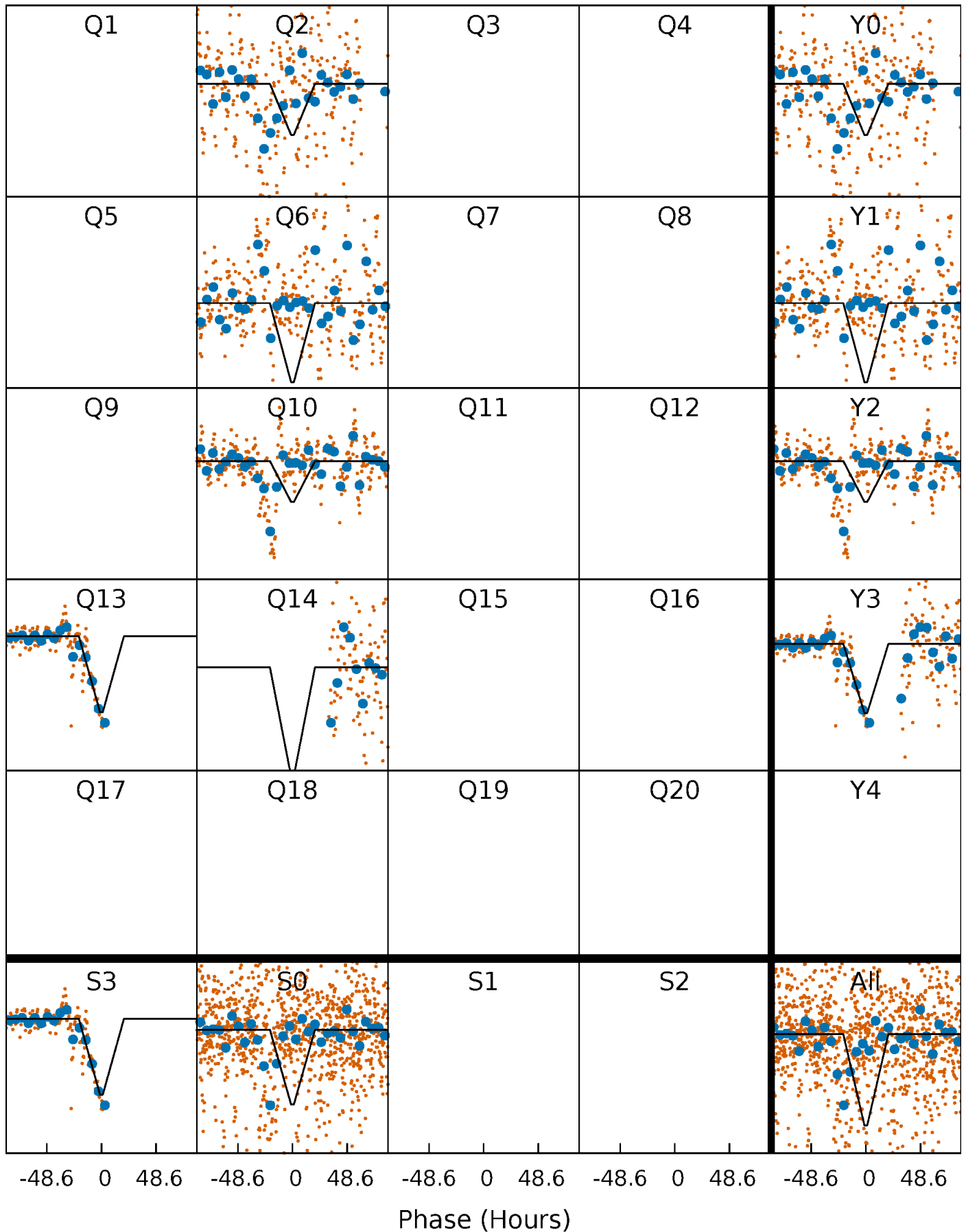
DV Quarter-Phased Transit Curves

TCE 006430841-03 $P=344.451961$ Days $T_0=238.683748$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

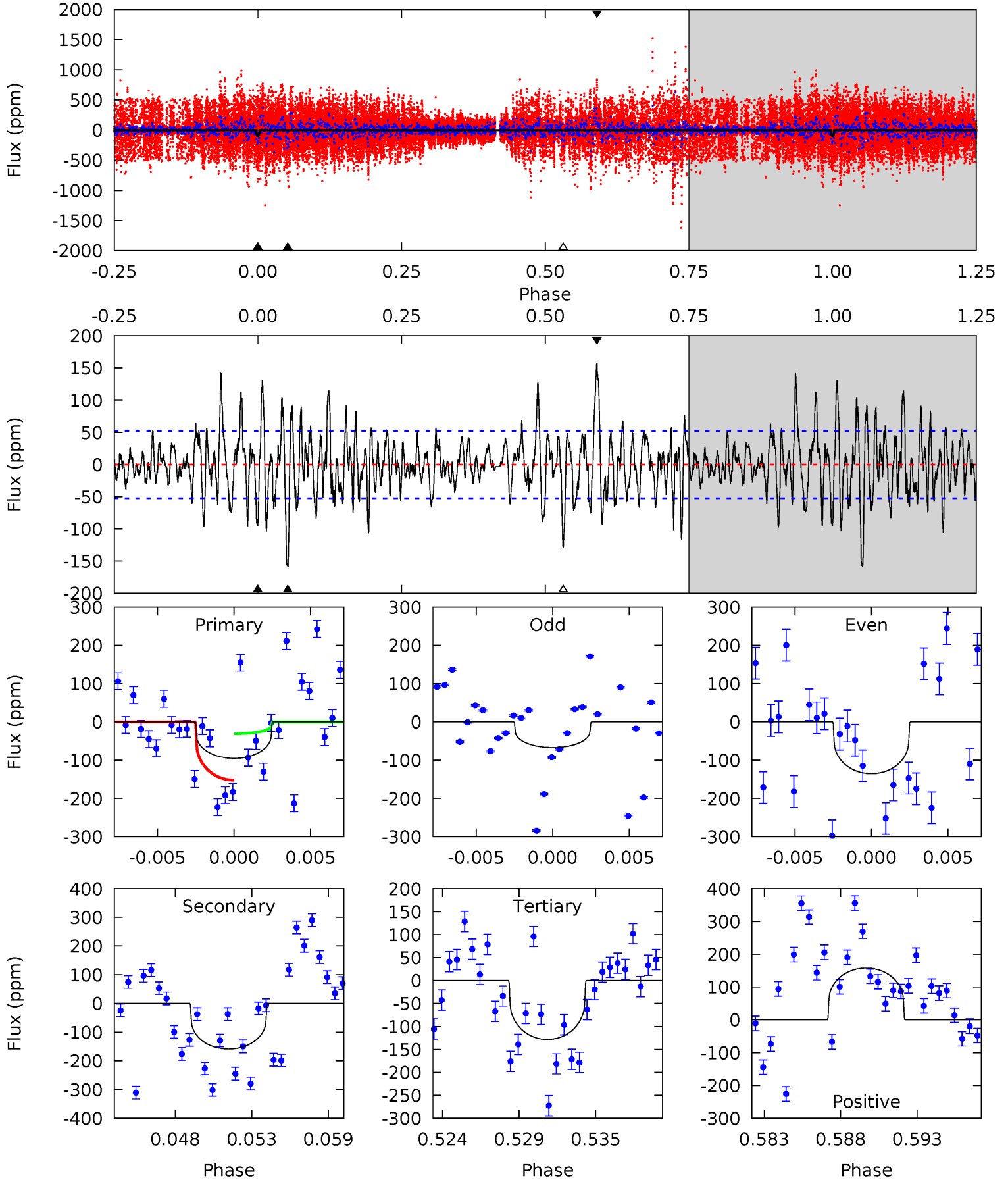
TCE 006430841-03 P=344.646045 Days $T_0=238.911288$ (BKJD)



DV Model-Shift Uniqueness Test

006430841-03, P = 344.451961 Days, E = 238.683748 Days

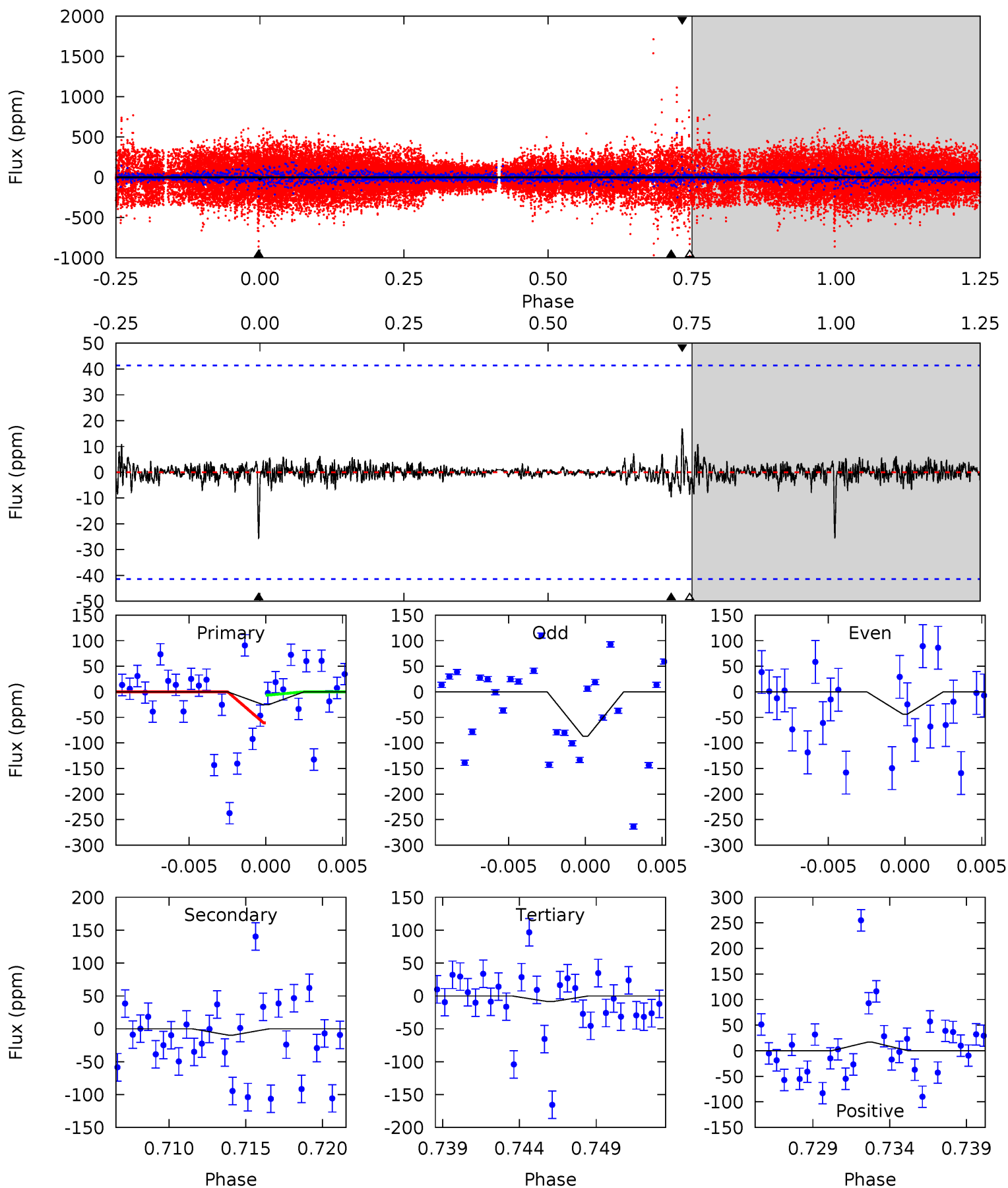
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.34	15.6	12.6	15.5	5.15	2.79	3.78	-3.27	-6.17	2.96	0.06	2.46	1.30	0.50	6.34



Alt Model-Shift Uniqueness Test

006430841-03, P = 344.646045 Days, E = 238.911288 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.18	1.20	1.08	2.10	5.16	2.82	0.28	2.10	1.09	0.12	-0.89	2.32	2.90	0.40	3.52



Stellar Parameters For KIC 006430841

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4754^{+56}_{-123}	$2.447^{+0.035}_{-0.031}$	$0.210^{+0.150}_{-0.300}$	$17.089^{+1.133}_{-4.814}$	$2.983^{+0.359}_{-1.436}$	$0.001^{+0.000}_{-0.000}$
	+1%/-3%	+1%/-1%	+71%/-143%	+7%/-28%	+12%/-48%	+46%/-10%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 006430841-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-159 ± 10	$15.37^{+5.30}_{-5.46}$	1029^{+21}_{-31}	5672^{+1429}_{-663}	719^{+947}_{-317}
Alt.	-10 ± 8	$37.44^{+5.73}_{-6.13}$	1027^{+21}_{-28}	2609^{+260}_{-469}	$7.321^{+7.440}_{-5.684}$

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

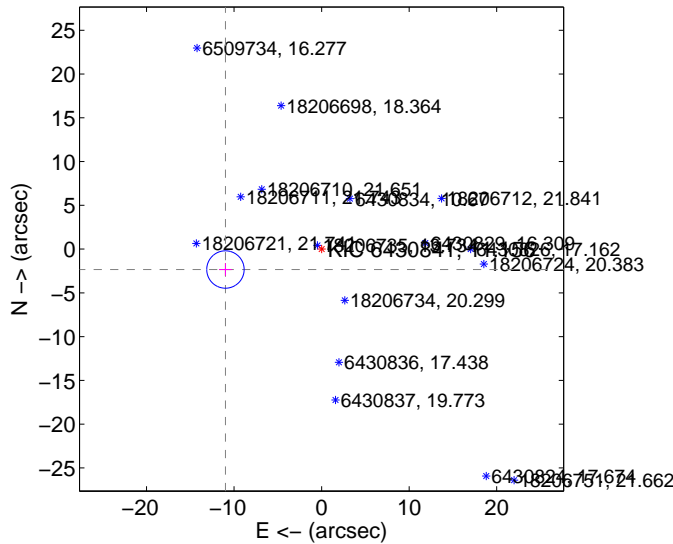
Supplemental centroid analysis for 006430841-03. **Kepler magnitude: 11.16.** Transit SNR 4.42

There are 0 quarters with good PRF difference image offsets

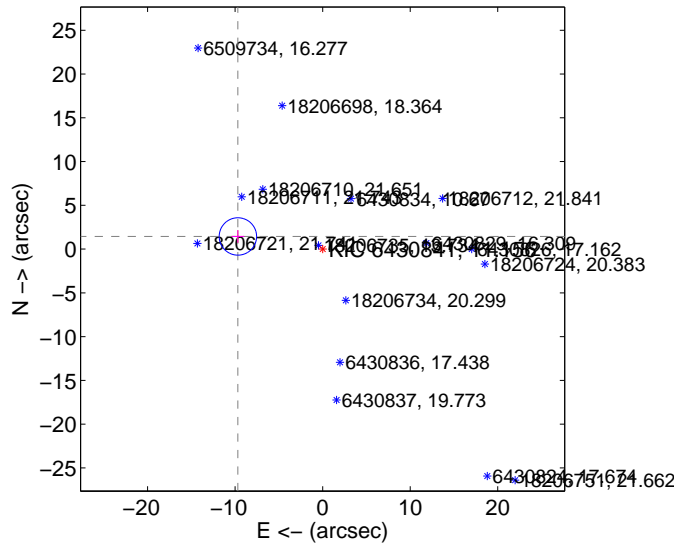
The OOT PRF centroid is offset from the target star catalog position by about 3.99 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.229 \pm 0.712	15.77	10.985 \pm 0.712	-2.331 \pm 0.717
PRF-fit source offset from KIC position	9.789 \pm 0.712	13.75	9.682 \pm 0.712	1.443 \pm 0.717
photometric centroid source offset	7.76 \pm 5.09	1.52	-7.12 \pm 5.25	3.08 \pm 4.17

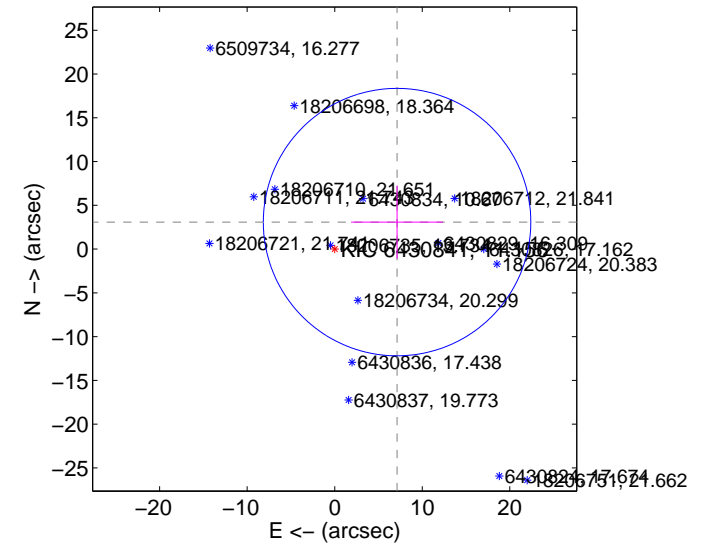
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

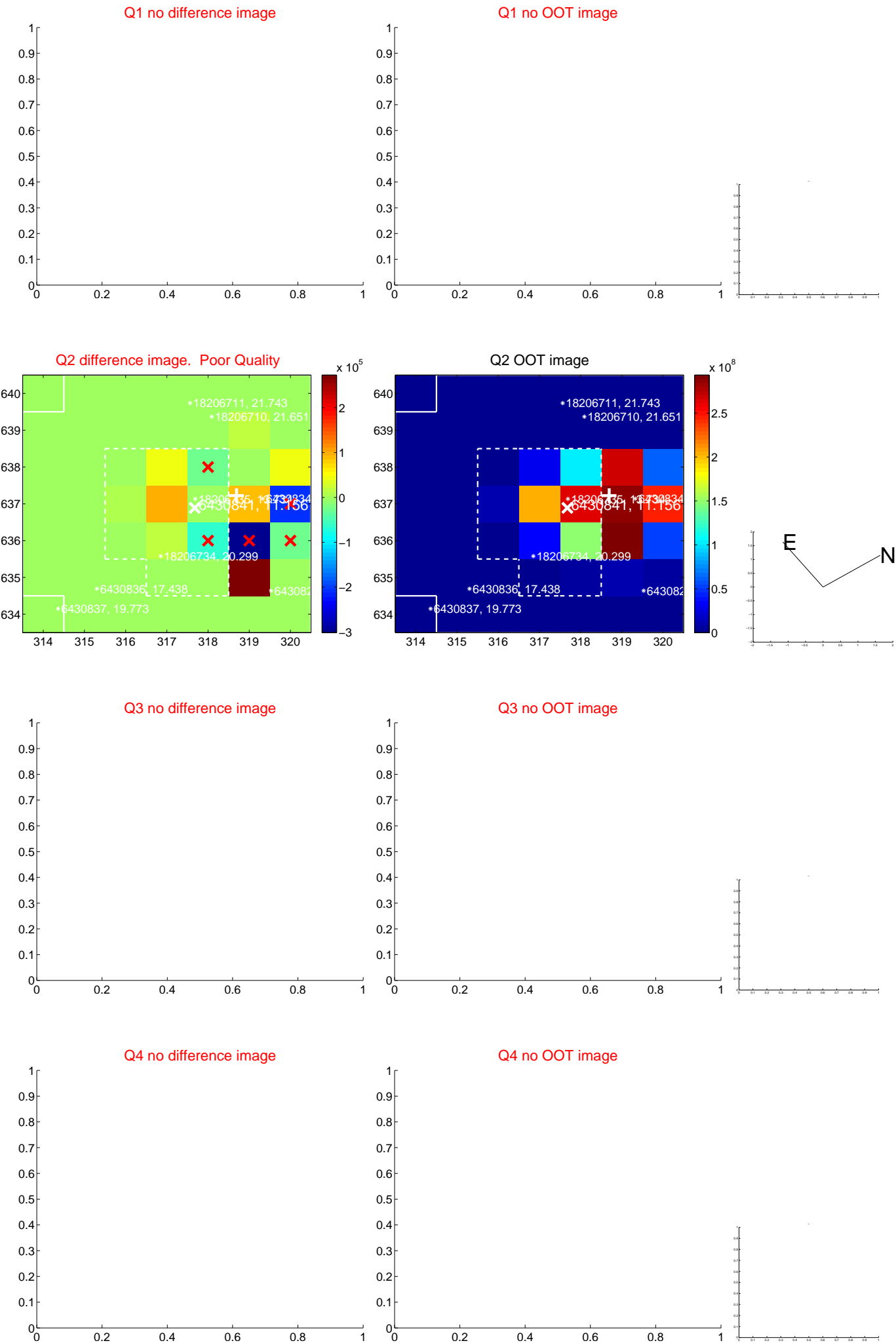


offset from photometric centroids



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



Q2 difference image. Poor Quality

Q2 OOT image

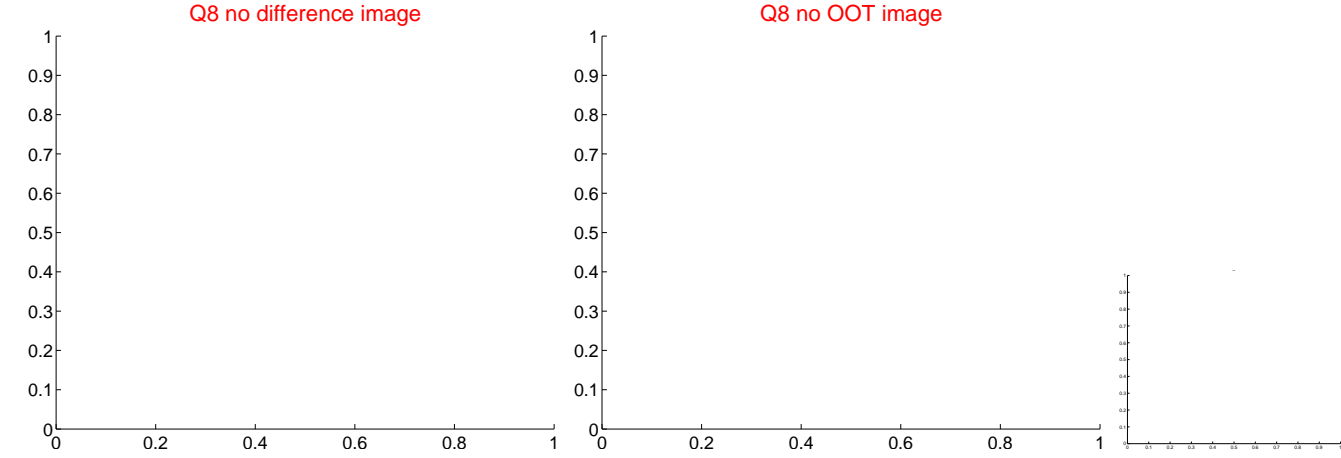
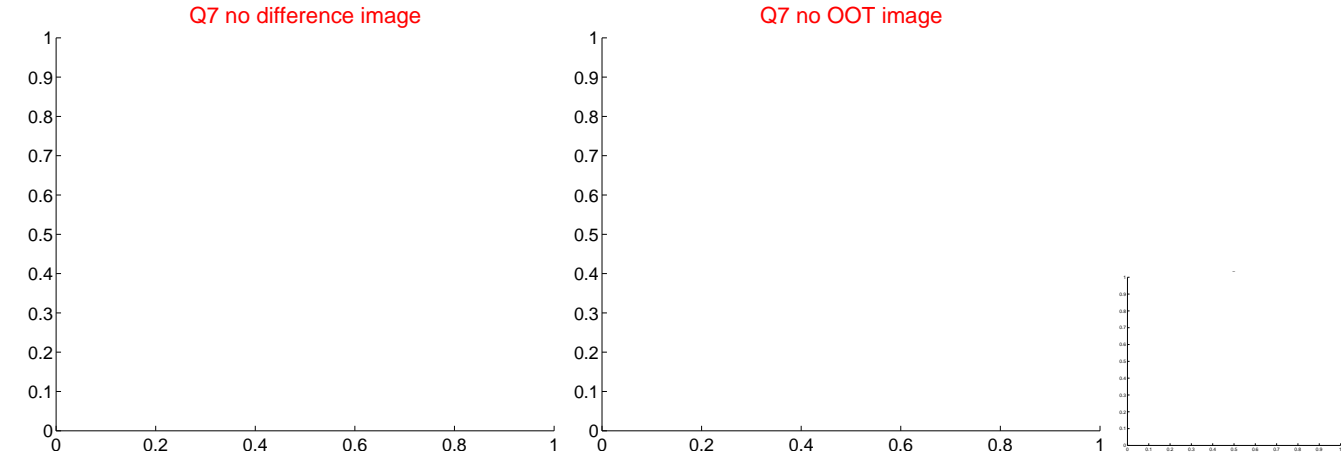
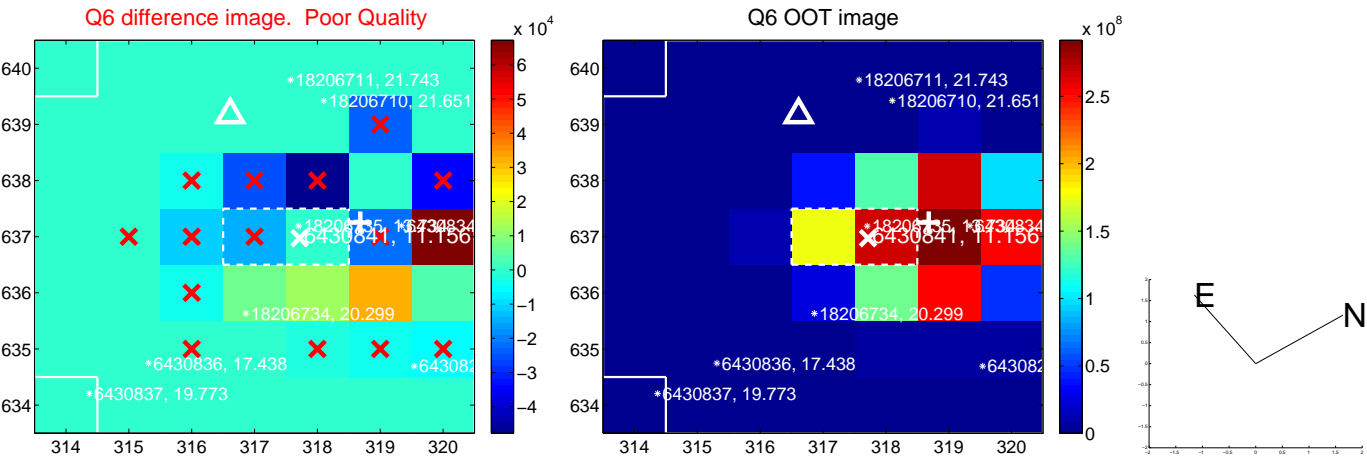
Q3 no difference image

Q3 no OOT image

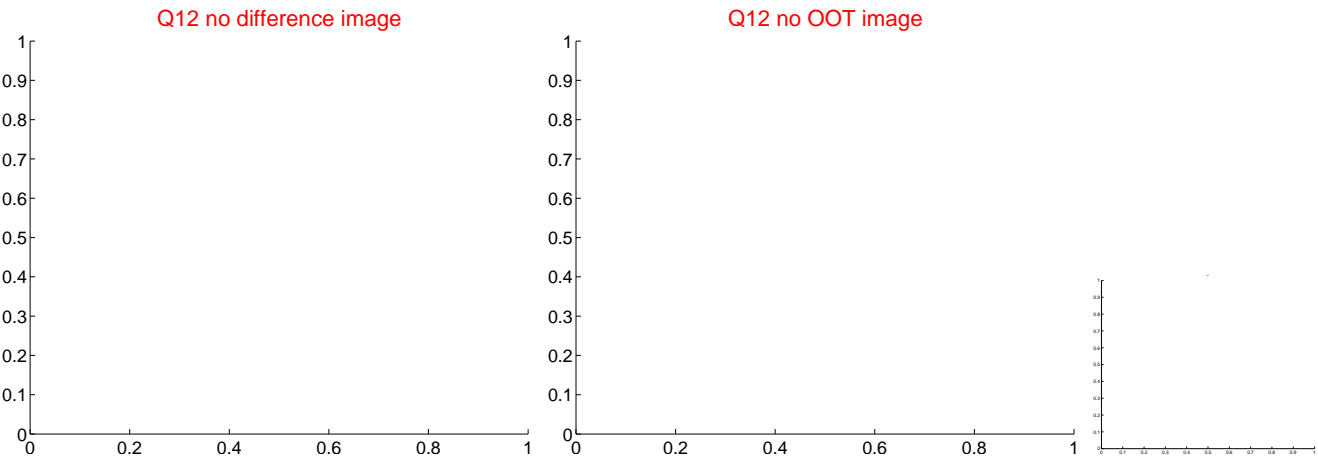
Q4 no difference image

Q4 no OOT image

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



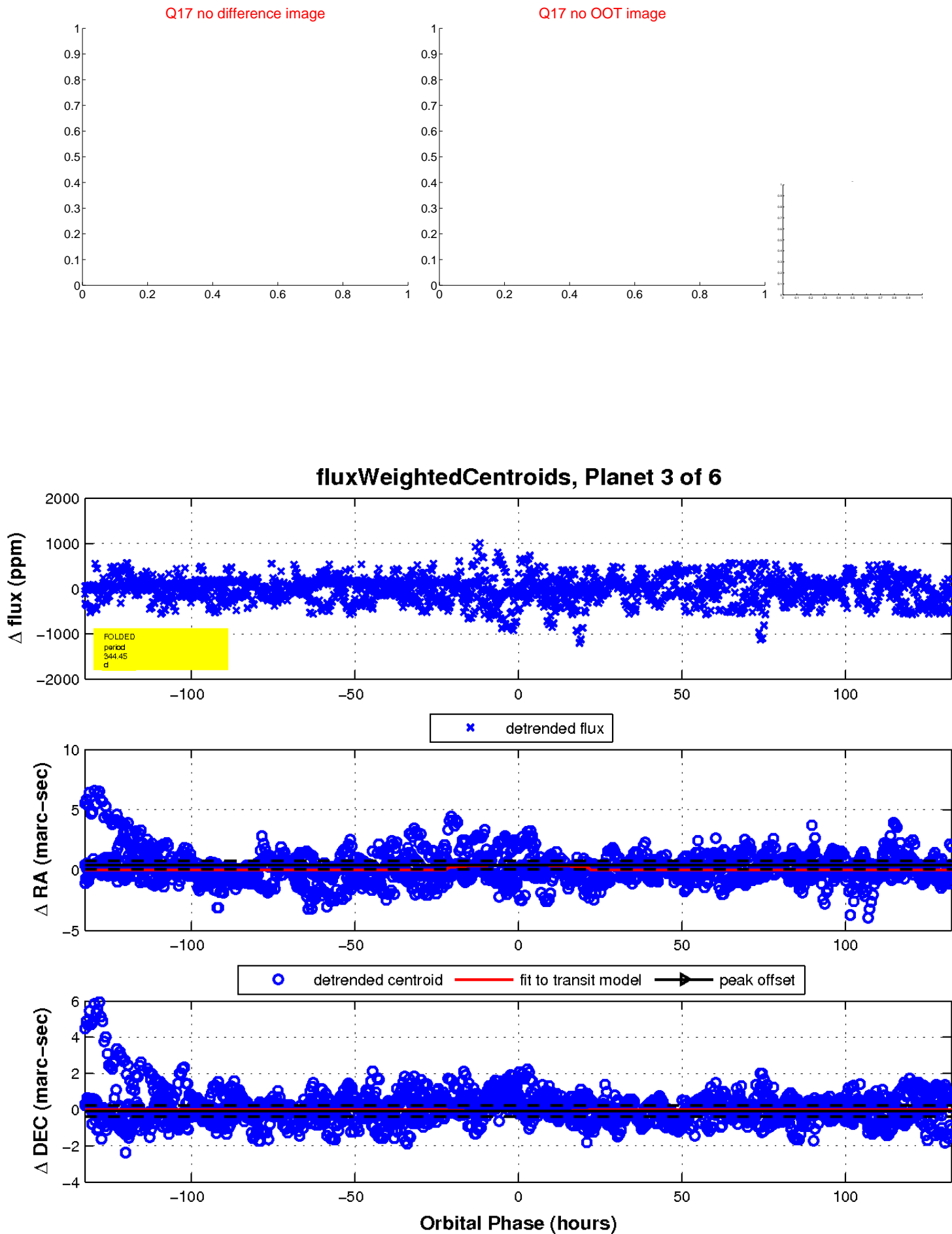
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

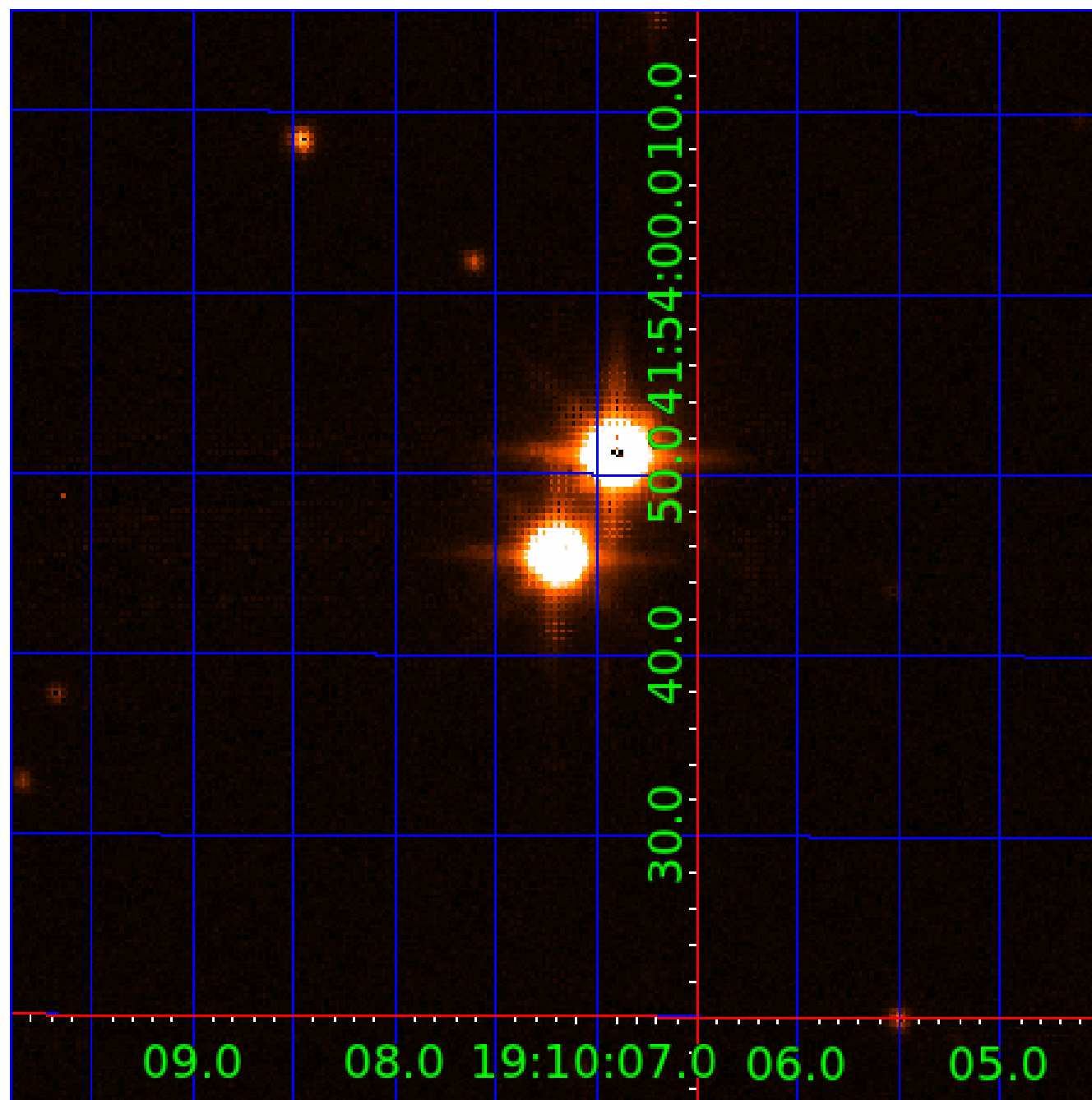


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006430841

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})
006430841-01	OBS	No	295.663745	241.949691	100.8	7.457	44.7	18.3	17.09	4754	18.07	85.48
006430841-02	OBS	No	136.394785	222.741345	23.4	7.454	15.4	4.8	17.09	4754	8.76	239.82
006430841-03	OBS	No	344.451962	238.683748	70.5	44.212	14.3	4.4	17.09	4754	15.03	69.73
006430841-04	OBS	No	249.288140	196.635932	26.9	3.123	15.7	3.9	17.09	4754	10.45	107.32
006430841-05	OBS	No	167.624492	146.804219	1.8	8.407	17.7	0.4	17.09	4754	2.85	182.18
006430841-06	OBS	No	43.102199	159.524448	49.9	0.923	13.6	16.1	17.09	4754	15.31	1114.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006430841-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006430841-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

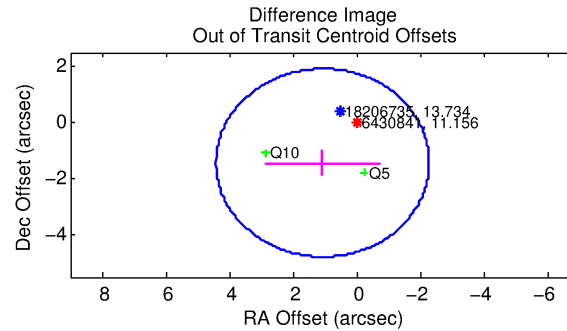
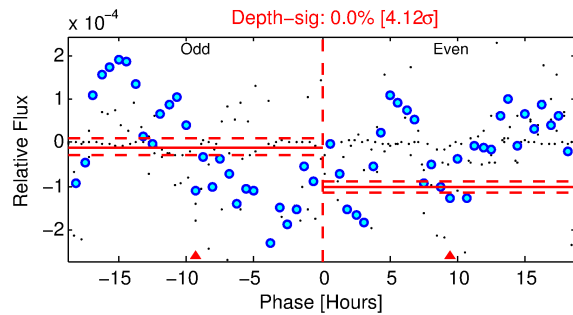
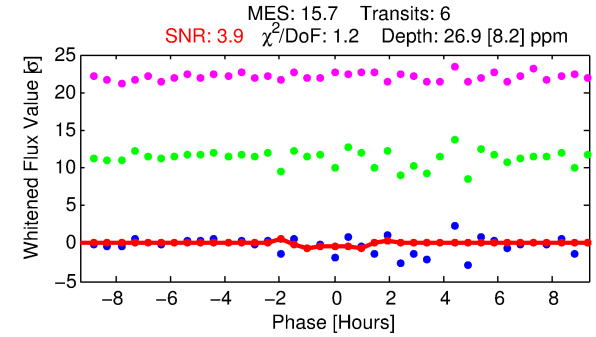
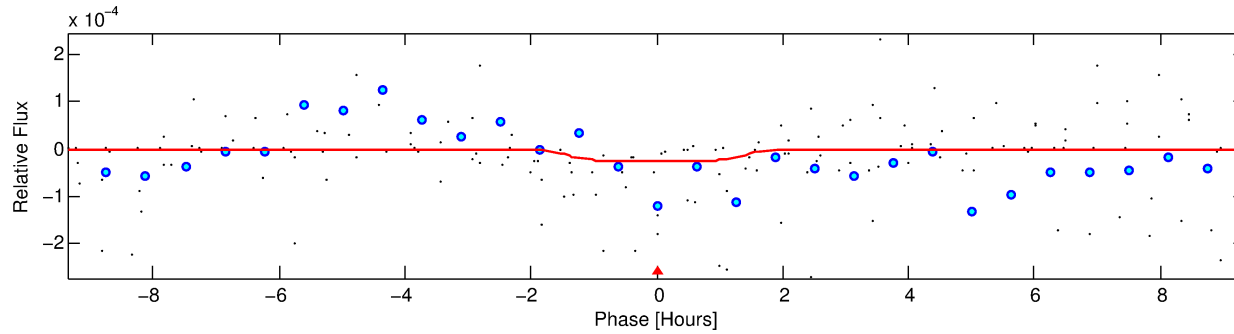
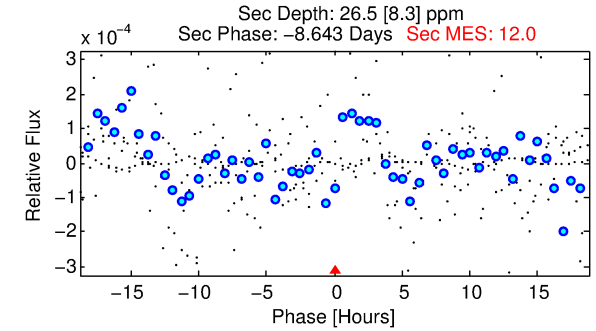
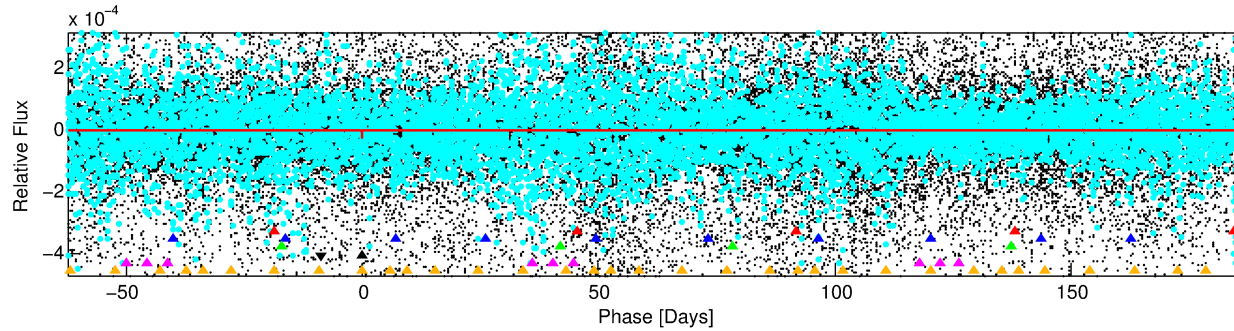
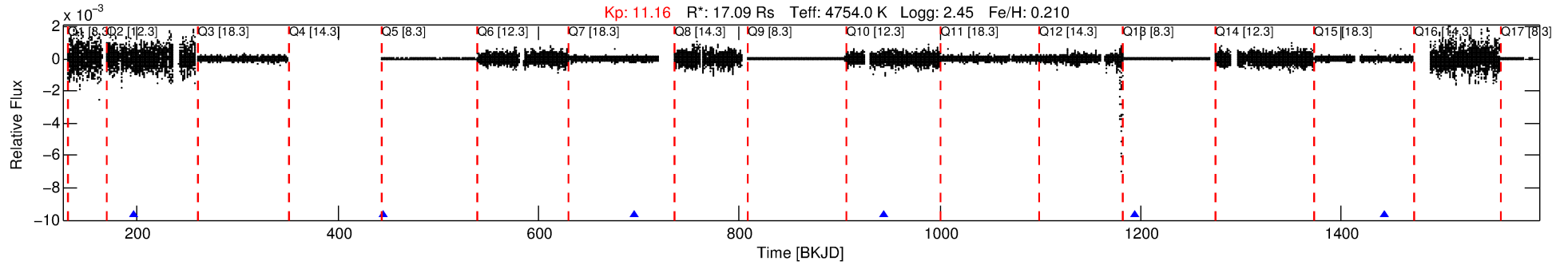
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006430841-04

No Significant Match Found

DV One-Page Summary

KIC: 6430841 Candidate: 4 of 6 Period: 249.288 d



DV Fit Results:

Period = 249.28814 [0.00249] d
Epoch = 196.6359 [0.0107] BKJD
Rp/R* = 0.0056 [0.0055]
a/R* = 316.72 [1189.73]
b = 0.86 [1.16]
Seff = 107.32 [23.72]
Teq = 821 [45] K
Rp = 10.45 [10.72] Re
a = 1.1159 [0.2117] AU
Ag = 166.63 [334.40] [0.50σ]
Teffp = 4559 [2280] K [1.64σ]

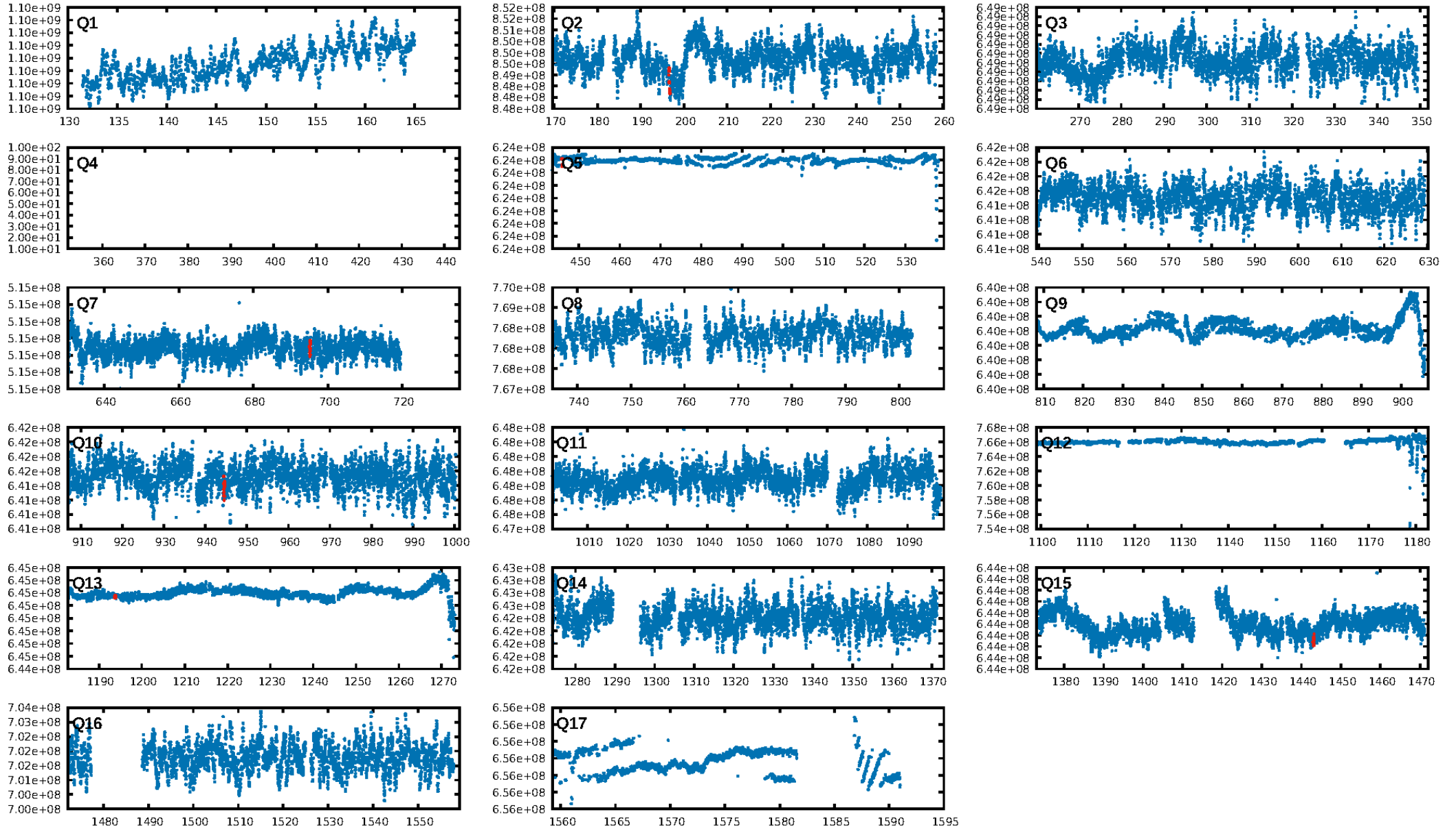
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [218.54σ]
LongPeriod-sig: 100.0% [137.68σ]
ModelChiSquare2-sig: 2.8%
ModelChiSquareGof-sig: 62.7%
Bootstrap-pfa: 9.69e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.4018
Centroid-sig: 2.1%
Centroid-so: 21.655 arcsec [1.92σ]
OotOffset-rm: 1.786 arcsec [1.60σ]
KicOffset-rm: 0.868 arcsec [0.45σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [5/5]

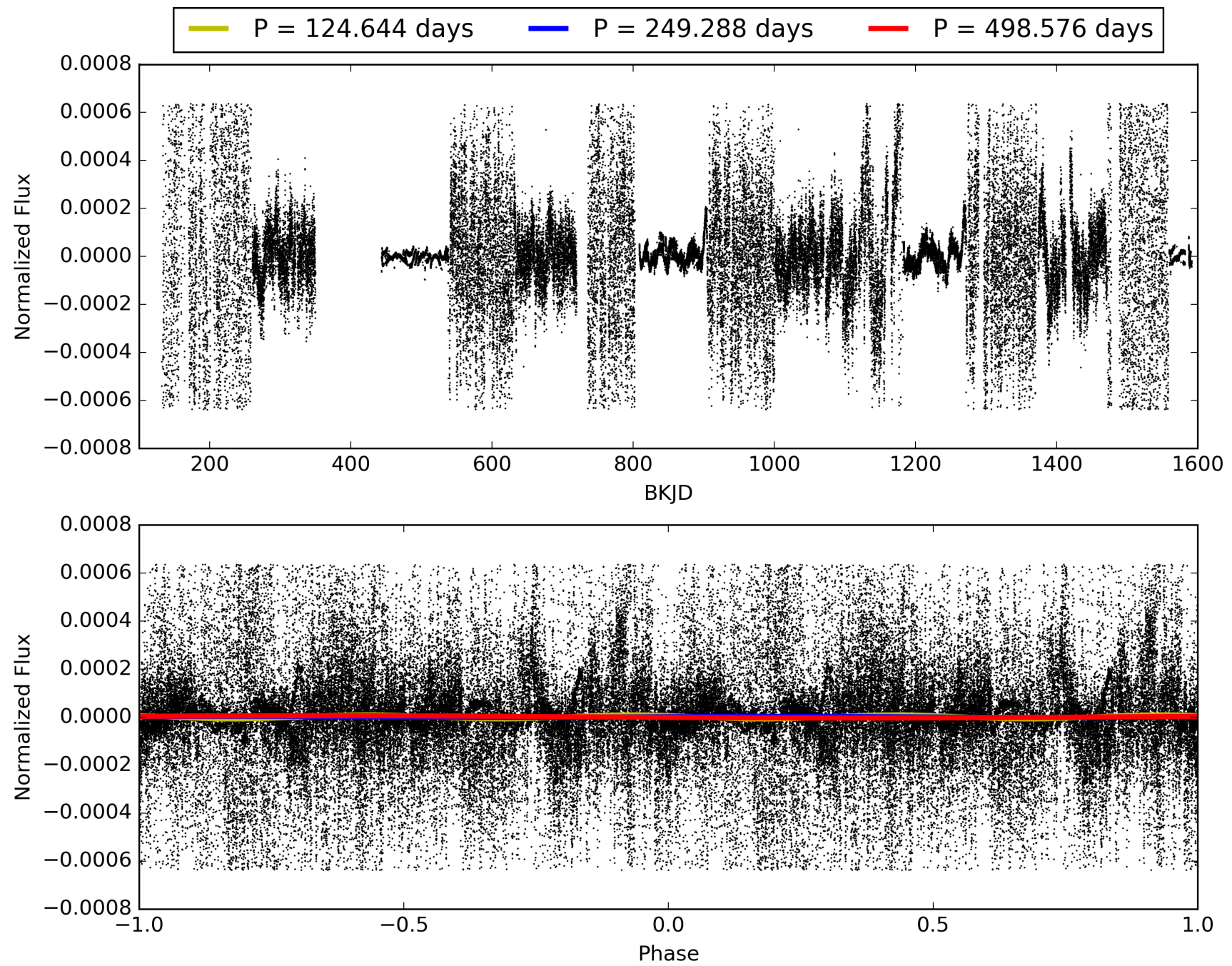
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:01:37 Z

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

TCE 006430841-04, PDC Light Curves

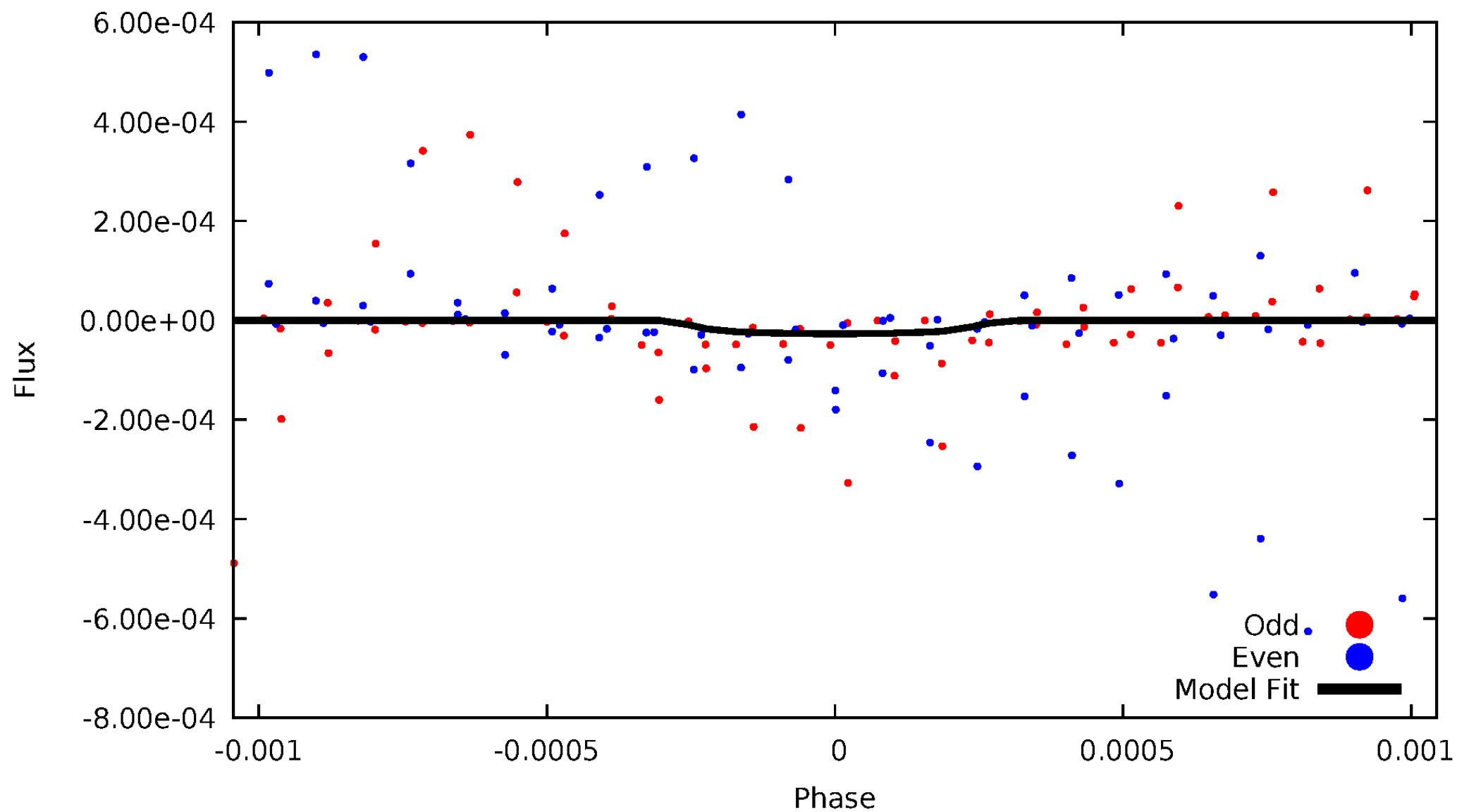


TCE 006430841-04



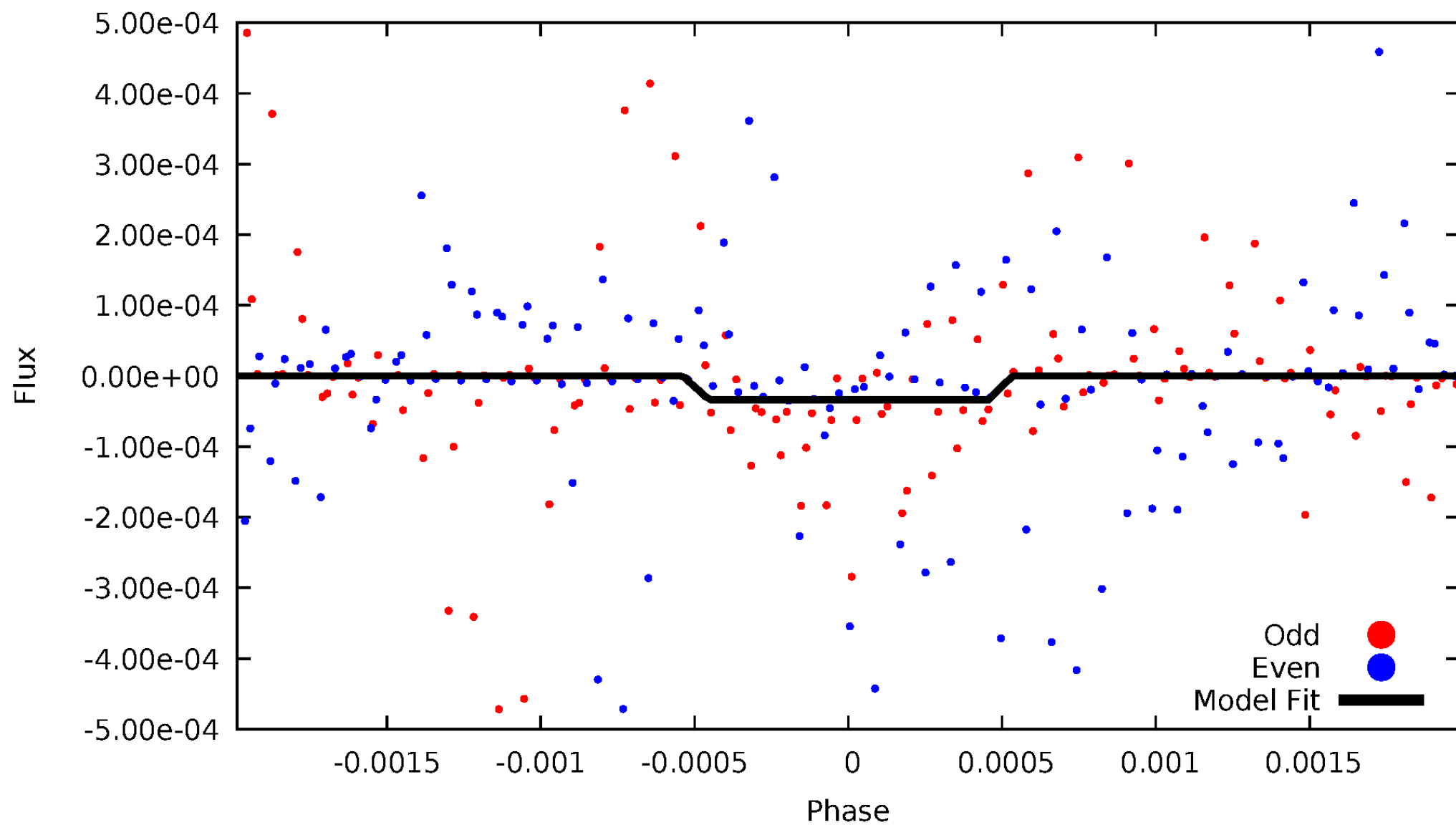
DV Odd/Even

TCE 006430841-04



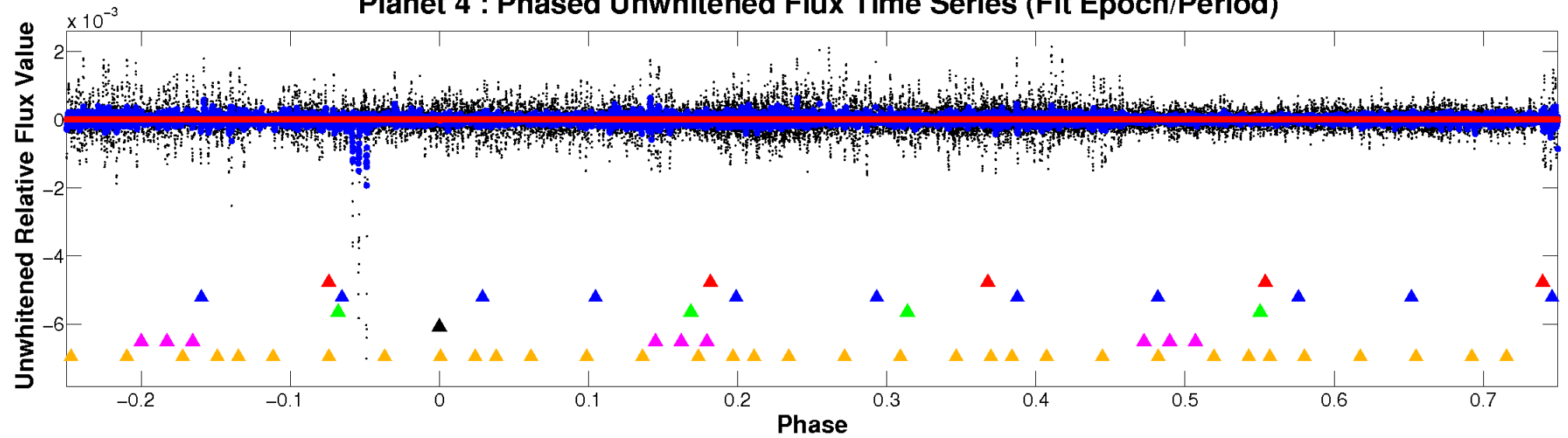
ALT Odd/Even

TCE 006430841-04

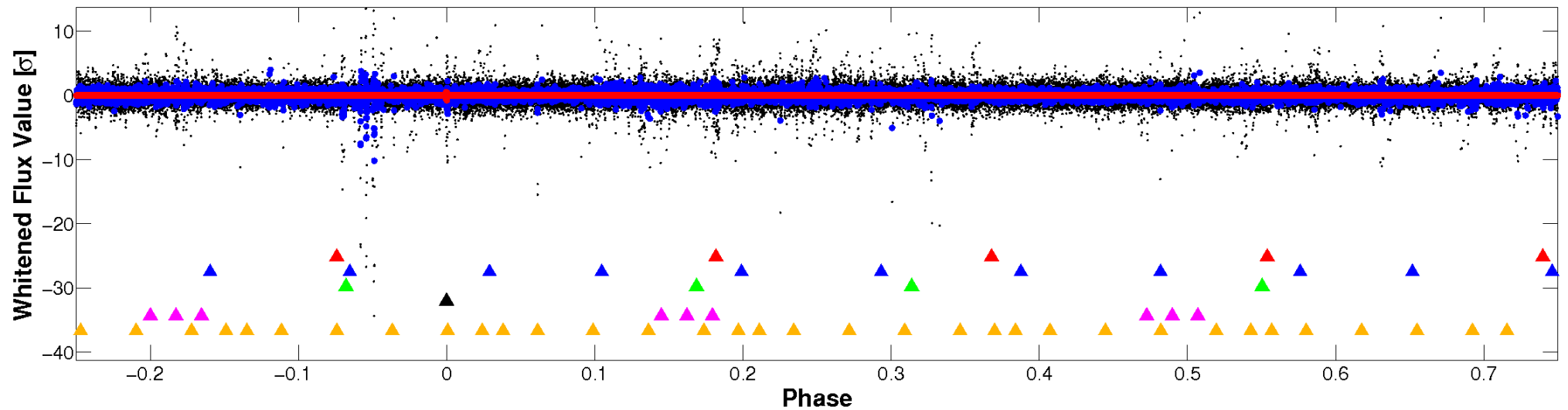


Non-Whitened Vs. Whitened Light Curve

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

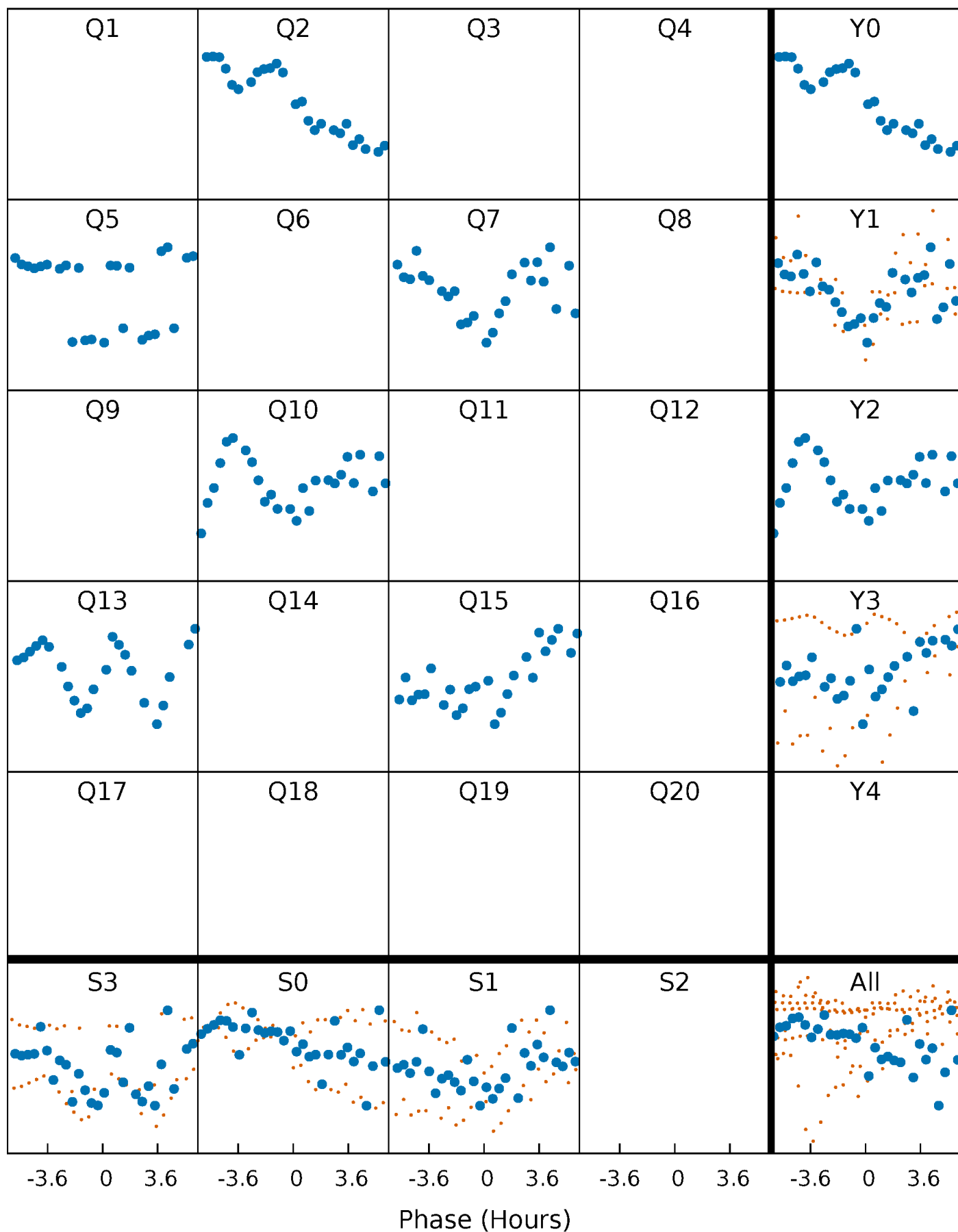


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



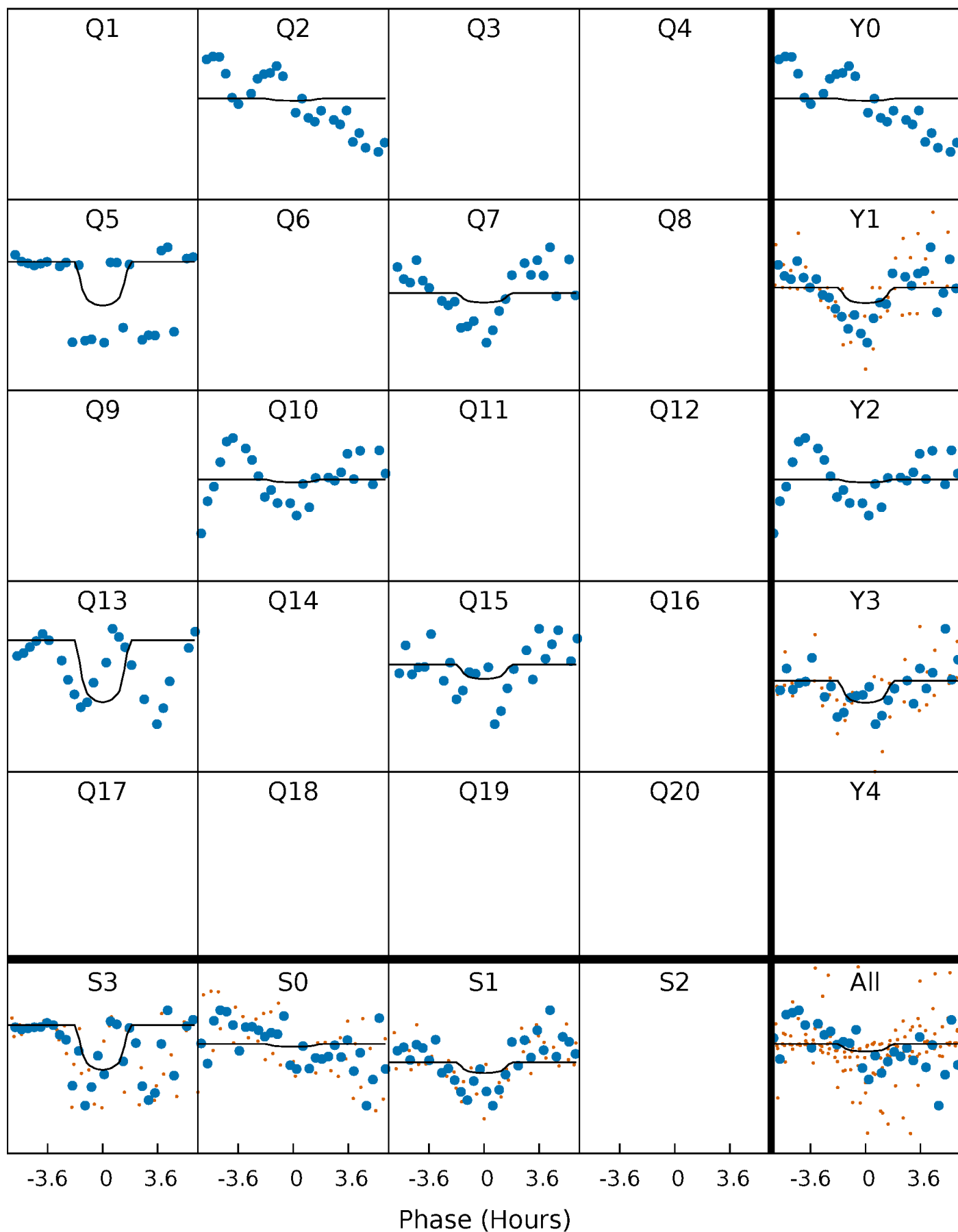
PDC Quarter-Phased Transit Curves

TCE 006430841-04 $P=249.288140$ Days $T_0=196.635932$ (BKJD)



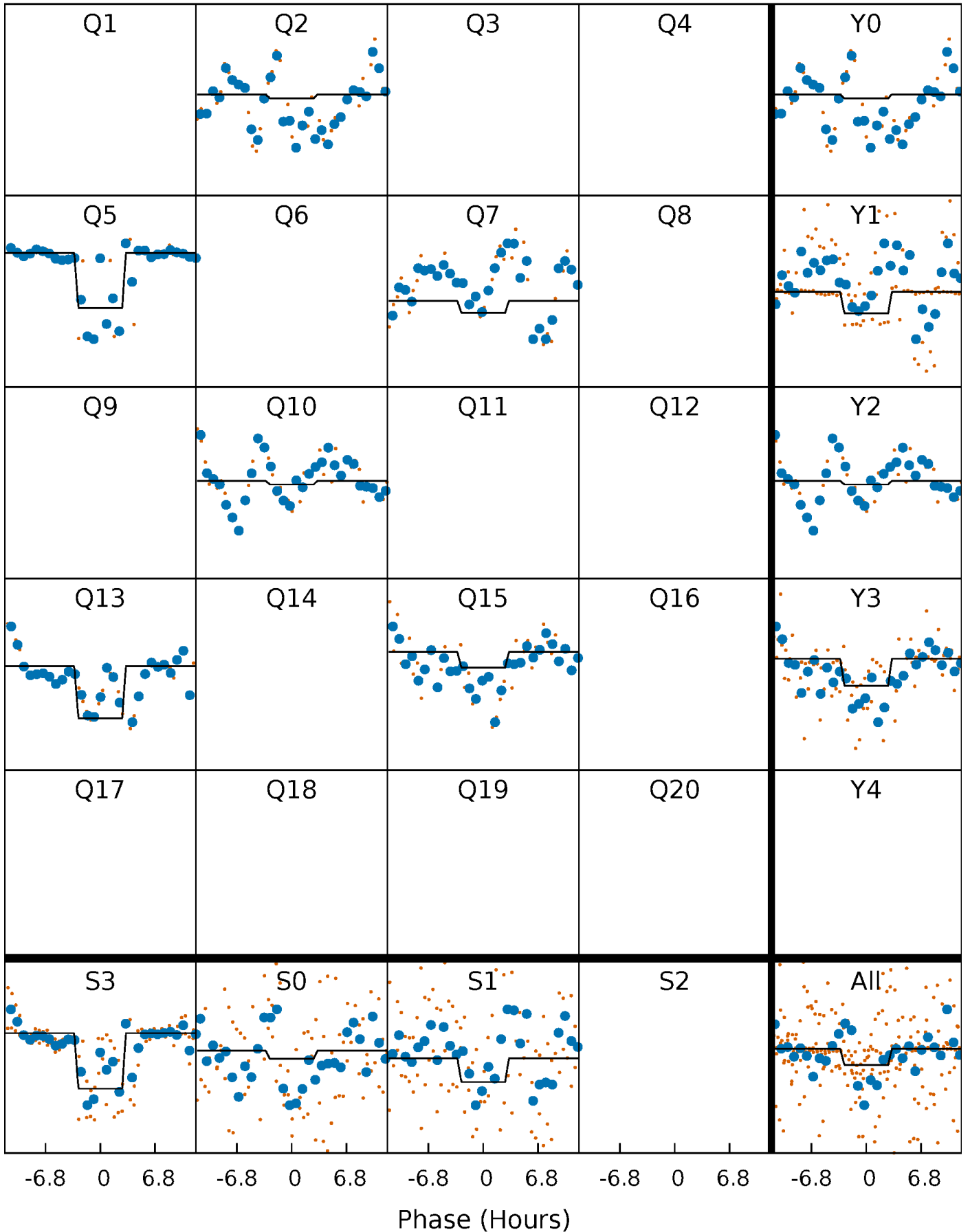
DV Quarter-Phased Transit Curves

TCE 006430841-04 P=249.288140 Days $T_0=196.635932$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

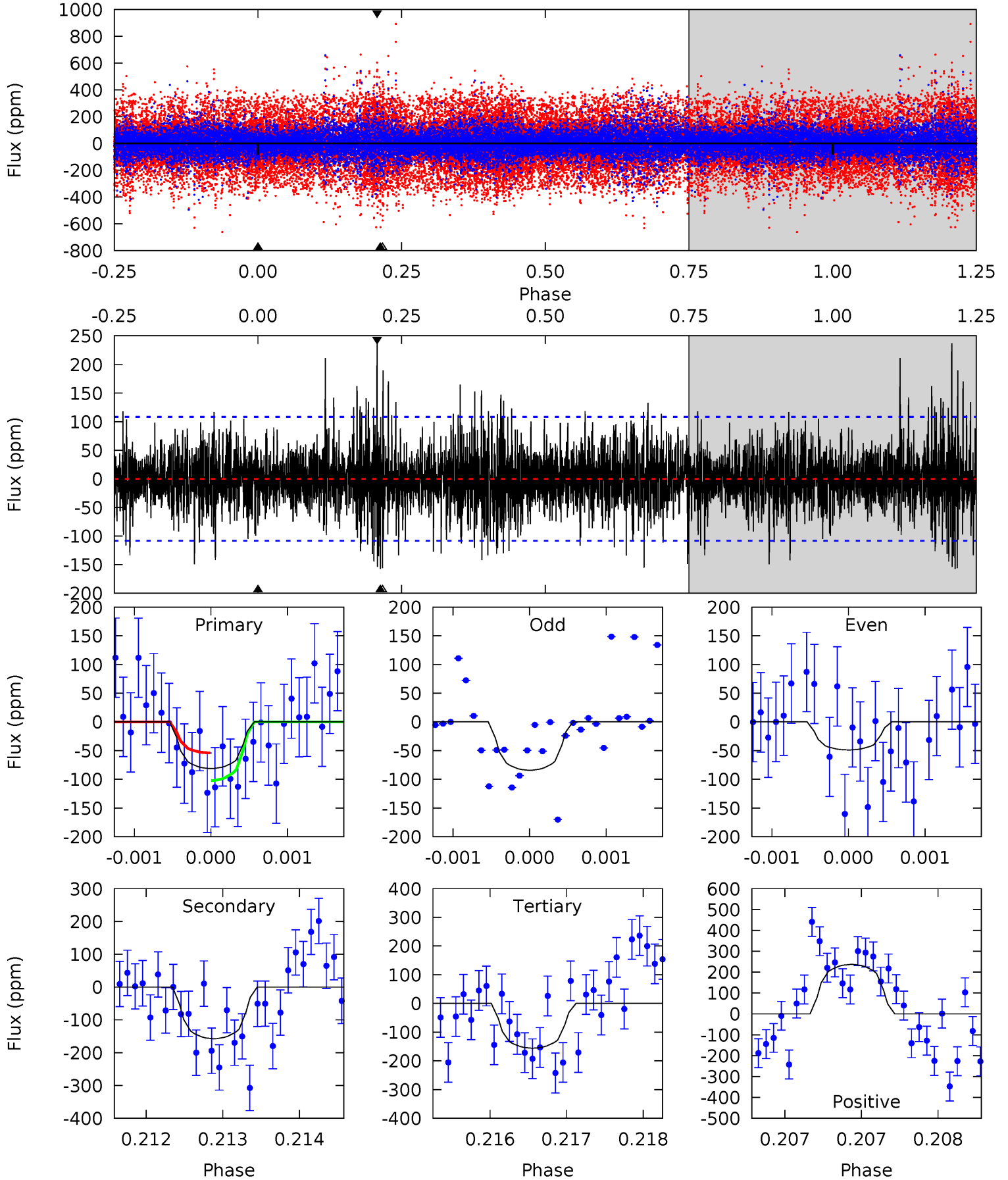
TCE 006430841-04 P=249.275810 Days $T_0=196.675854$ (BKJD)



DV Model-Shift Uniqueness Test

006430841-04, P = 249.288140 Days, E = 196.635932 Days

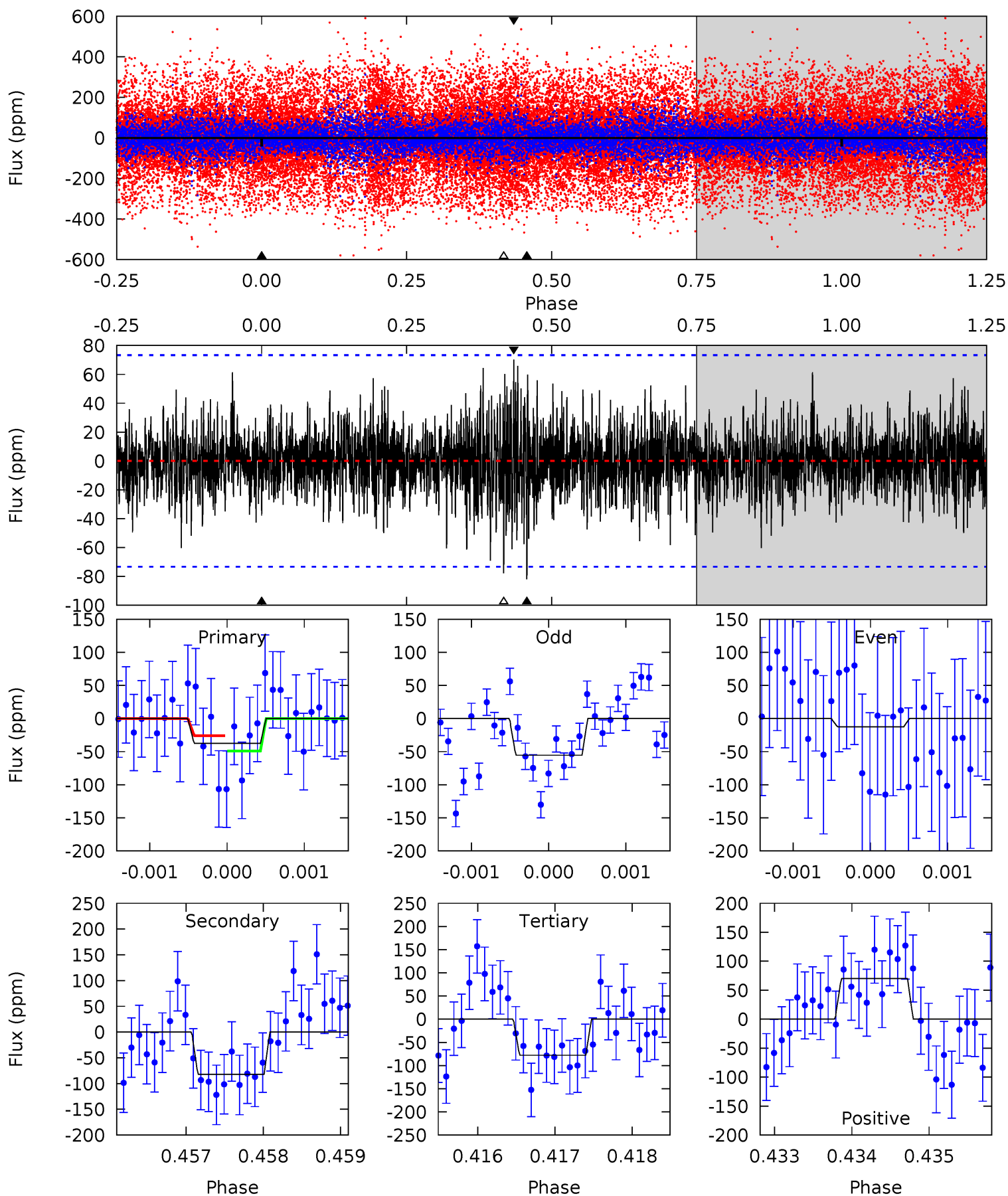
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.17	8.06	7.98	12.1	5.55	3.45	2.11	-3.81	-7.98	0.09	-4.08	0.73	1.42	0.60	1.24



Alt Model-Shift Uniqueness Test

006430841-04, P = 249.275810 Days, E = 196.675854 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.80	6.08	5.77	5.21	5.44	3.27	1.33	-2.97	-2.41	0.31	0.87	1.40	0.96	0.46	0.88



Stellar Parameters For KIC 006430841

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4754^{+56}_{-123}	$2.447^{+0.035}_{-0.031}$	$0.210^{+0.150}_{-0.300}$	$17.089^{+1.133}_{-4.814}$	$2.983^{+0.359}_{-1.436}$	$0.001^{+0.000}_{-0.000}$
	+1%/-3%	+1%/-1%	+71%/-143%	+7%/-28%	+12%/-48%	+46%/-10%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 006430841-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-157 ± 20	$12.66^{+10.37}_{-7.38}$	1145^{+25}_{-35}	6290^{+4276}_{-1501}	666^{+2951}_{-459}
Alt.	-82 ± 13	$12.25^{+10.32}_{-7.46}$	1143^{+26}_{-34}	5361^{+3979}_{-1138}	369^{+2170}_{-260}

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 $A_{\text{obs}} \gg 1.0$

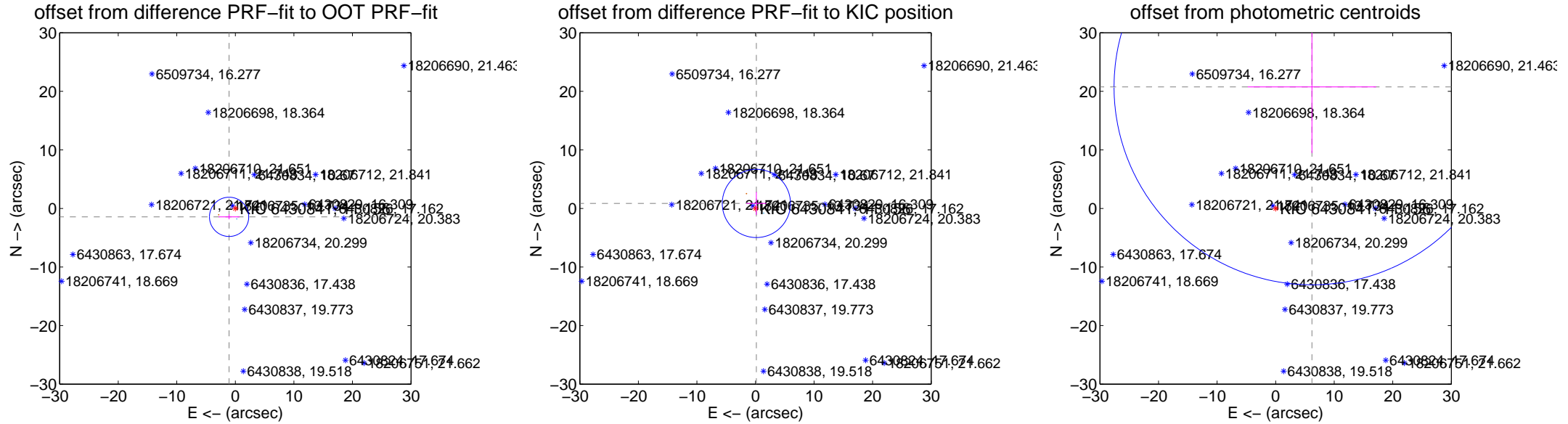
DV Centroid Data

Supplemental centroid analysis for 006430841-04. **Kepler magnitude: 11.16.** Transit SNR 3.92

There are 1 quarters with good PRF difference image offsets

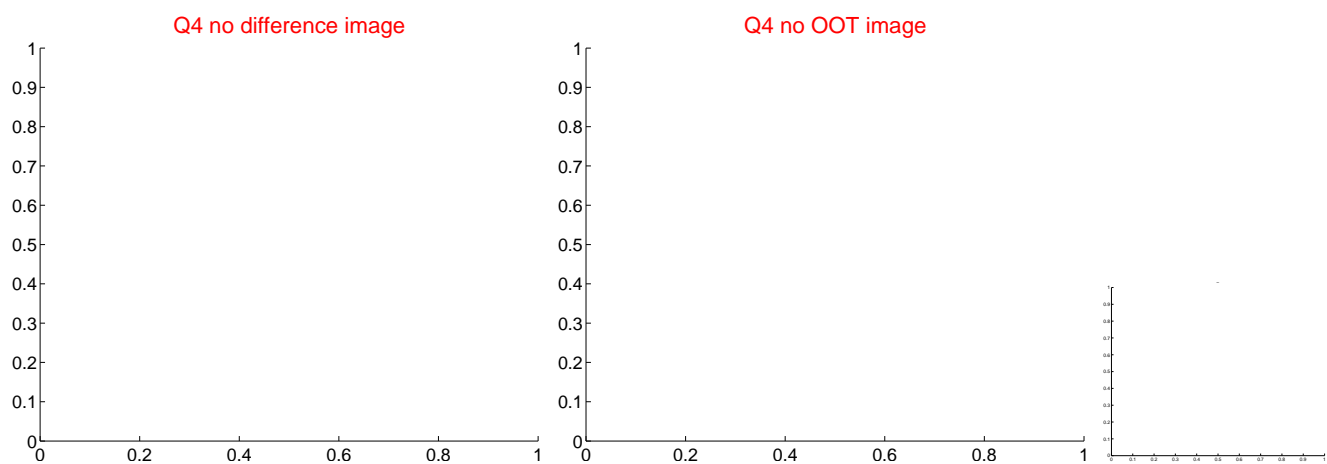
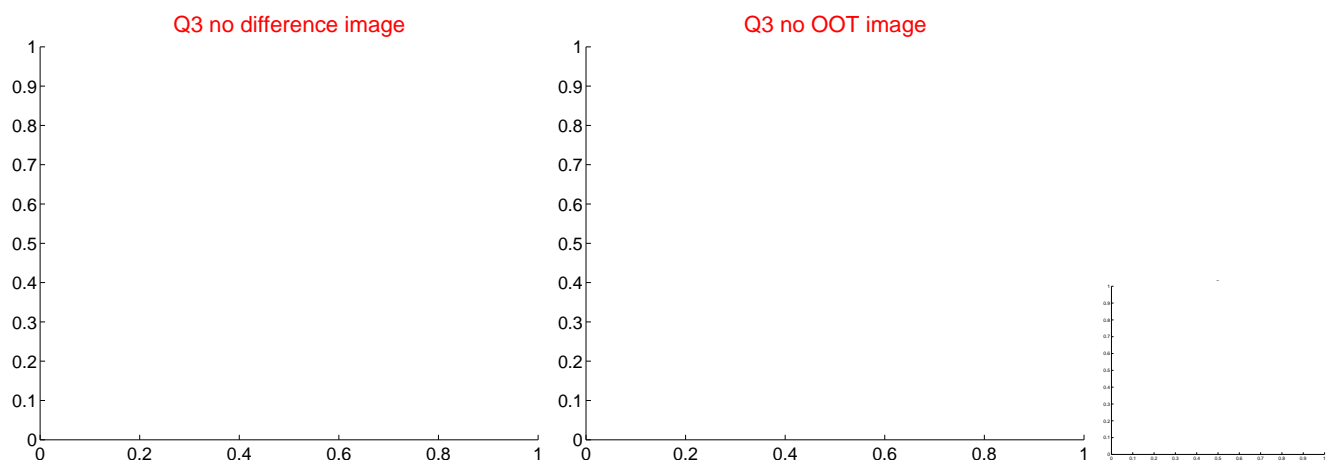
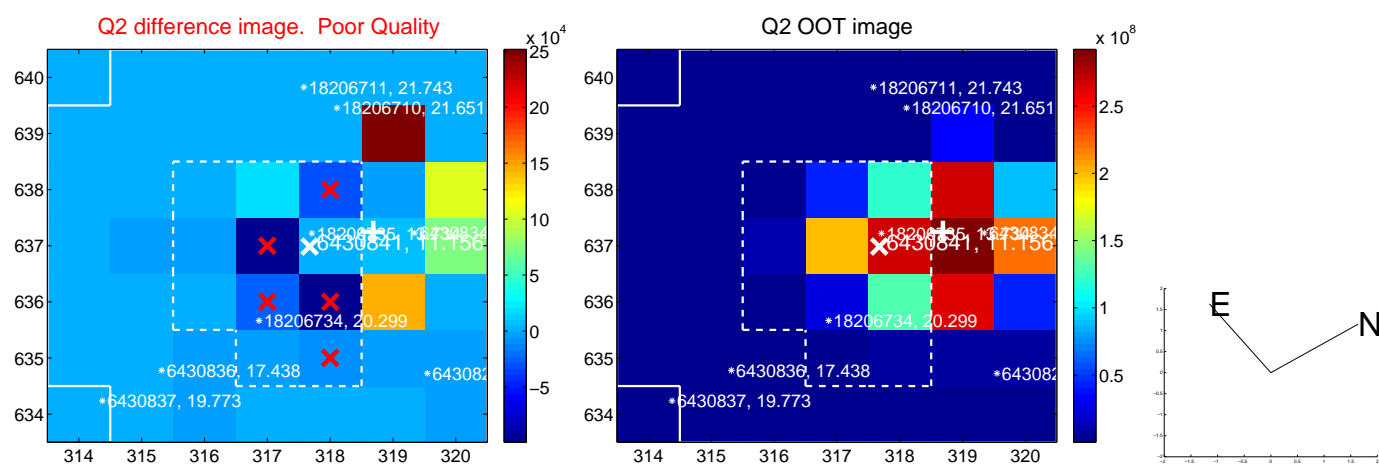
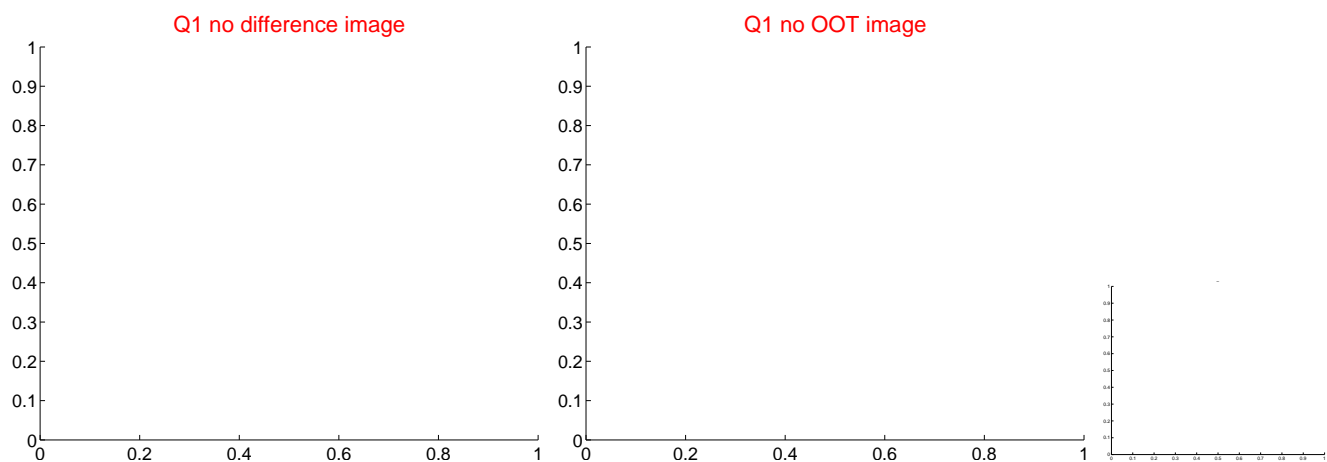
The OOT PRF centroid is offset from the target star catalog position by about 3.84 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.786 ± 1.117	1.60	1.065 ± 1.787	-1.434 ± 0.419
PRF-fit source offset from KIC position	0.868 ± 1.941	0.45	-0.151 ± 1.700	0.855 ± 1.948
photometric centroid source offset	21.66 ± 11.26	1.92	-6.20 ± 10.96	20.75 ± 11.29

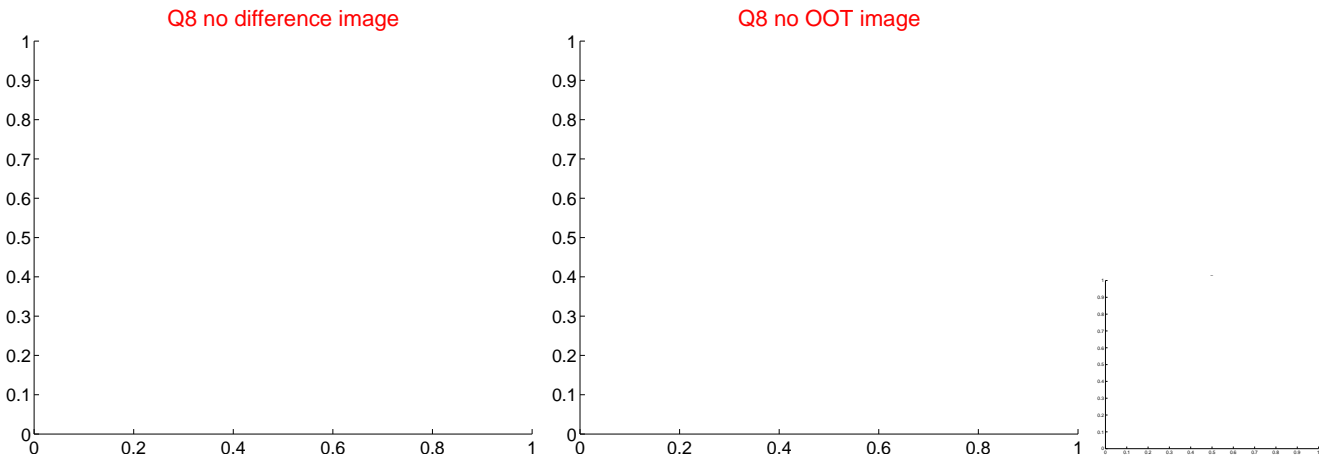
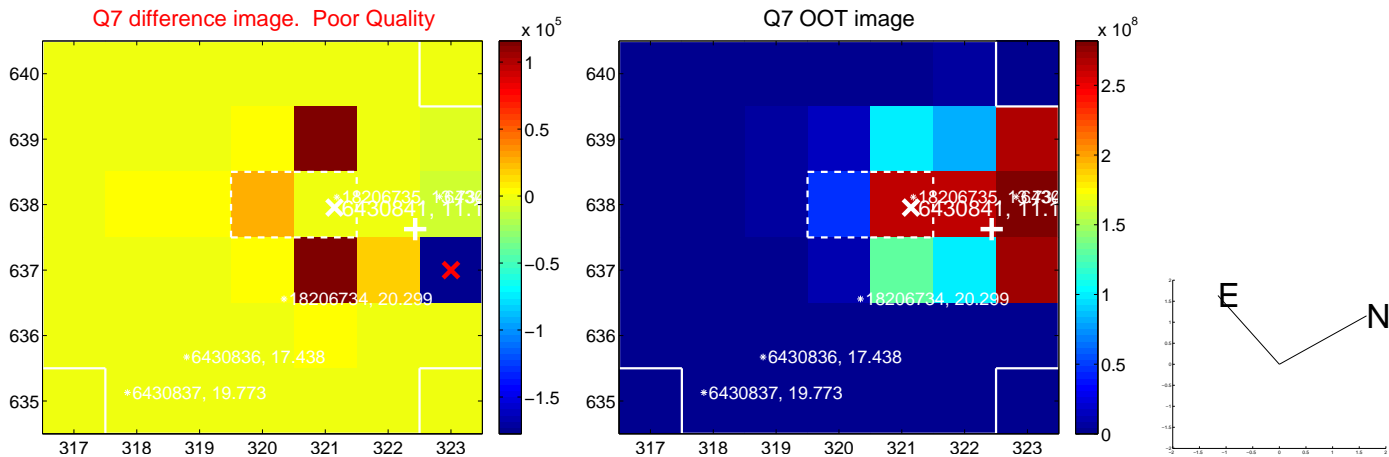
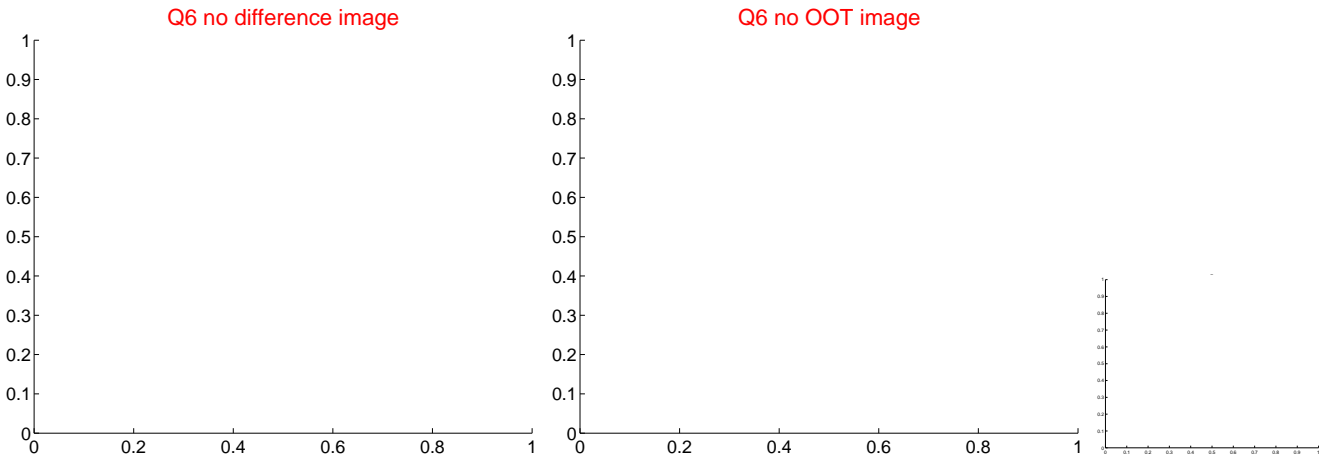
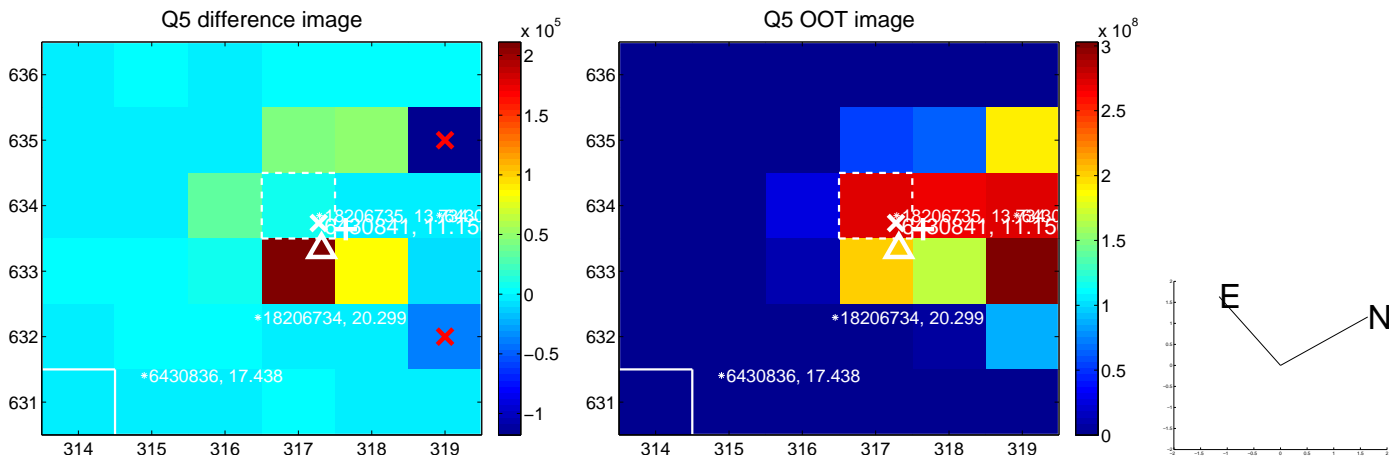


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

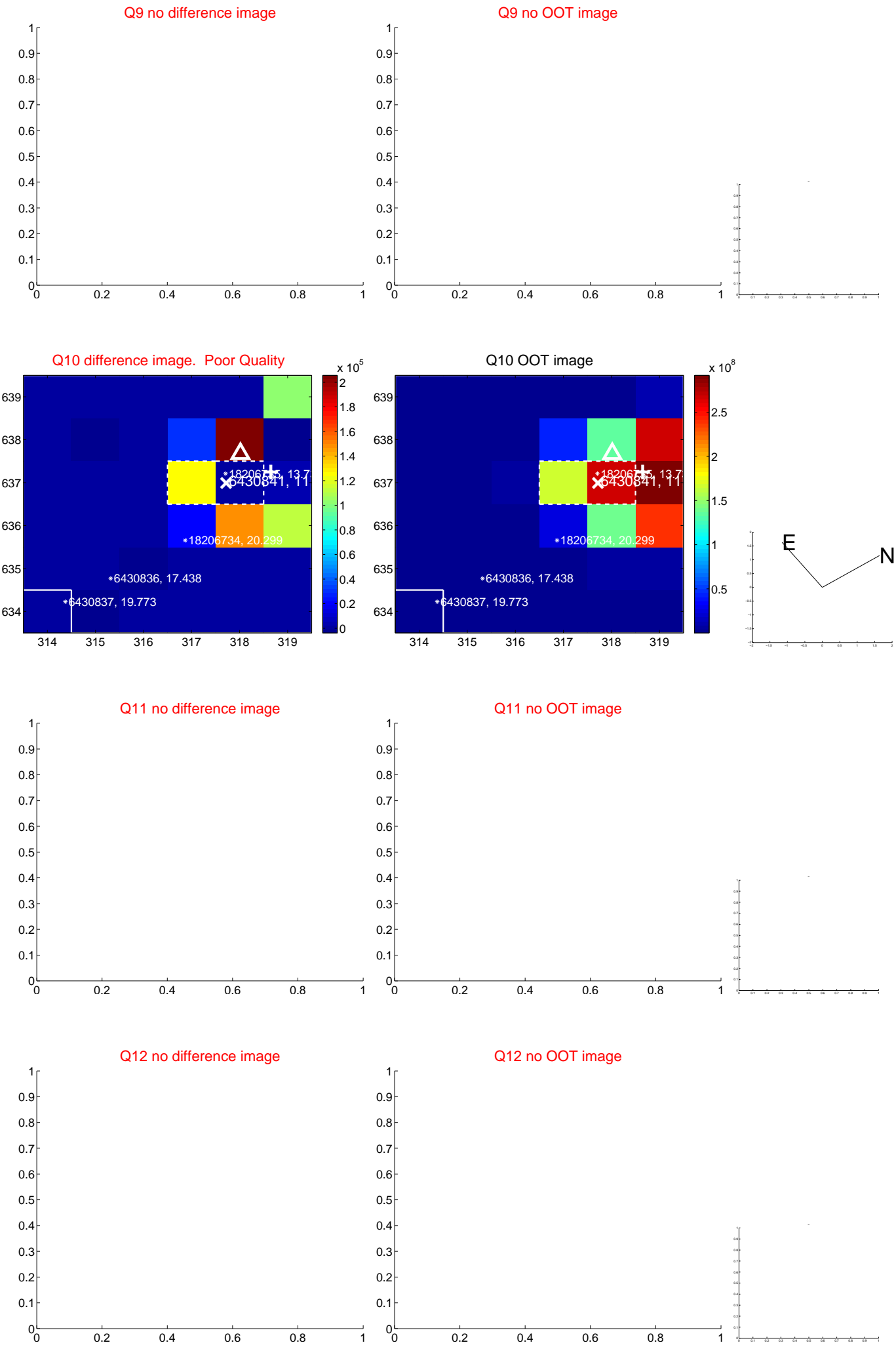
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



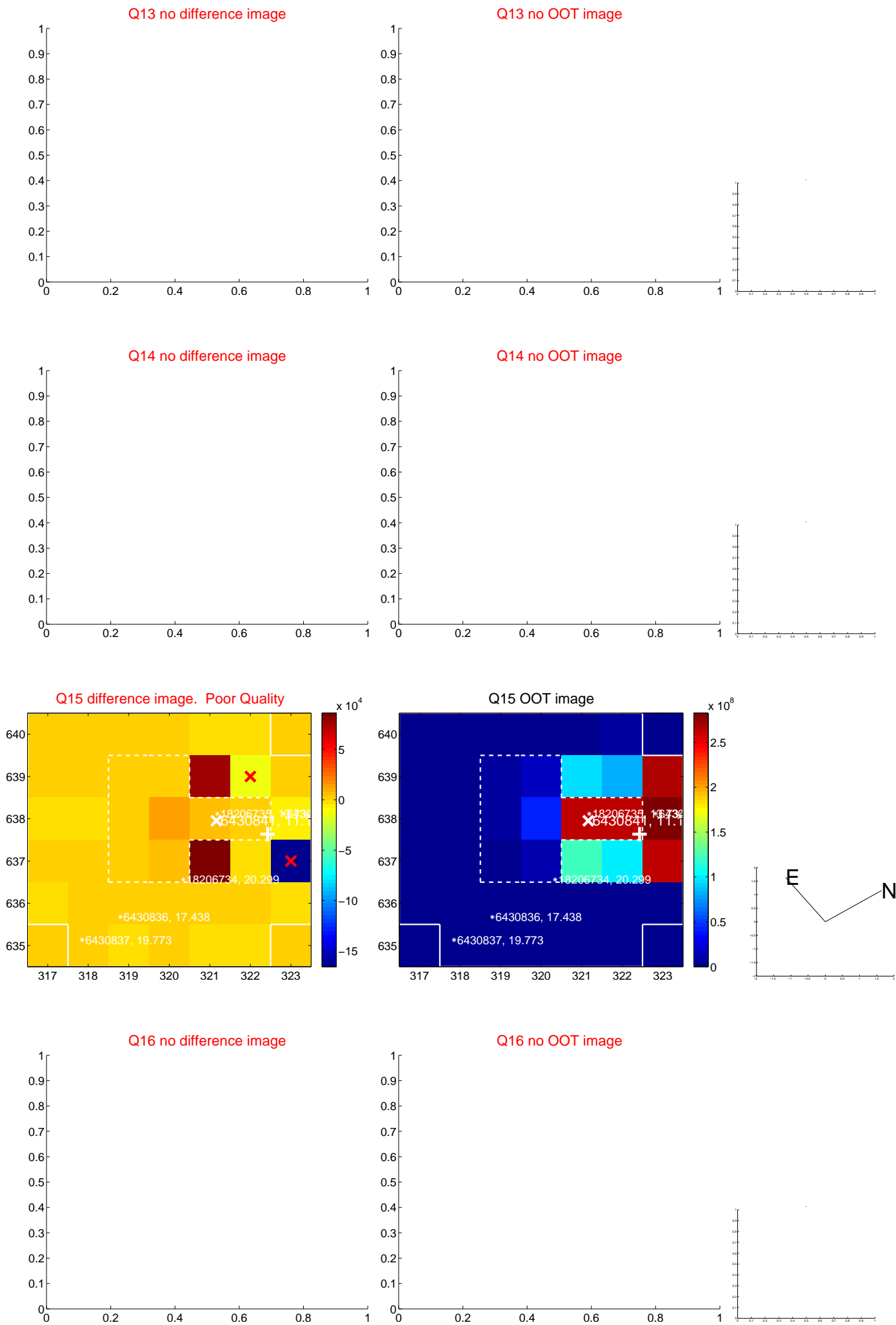
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



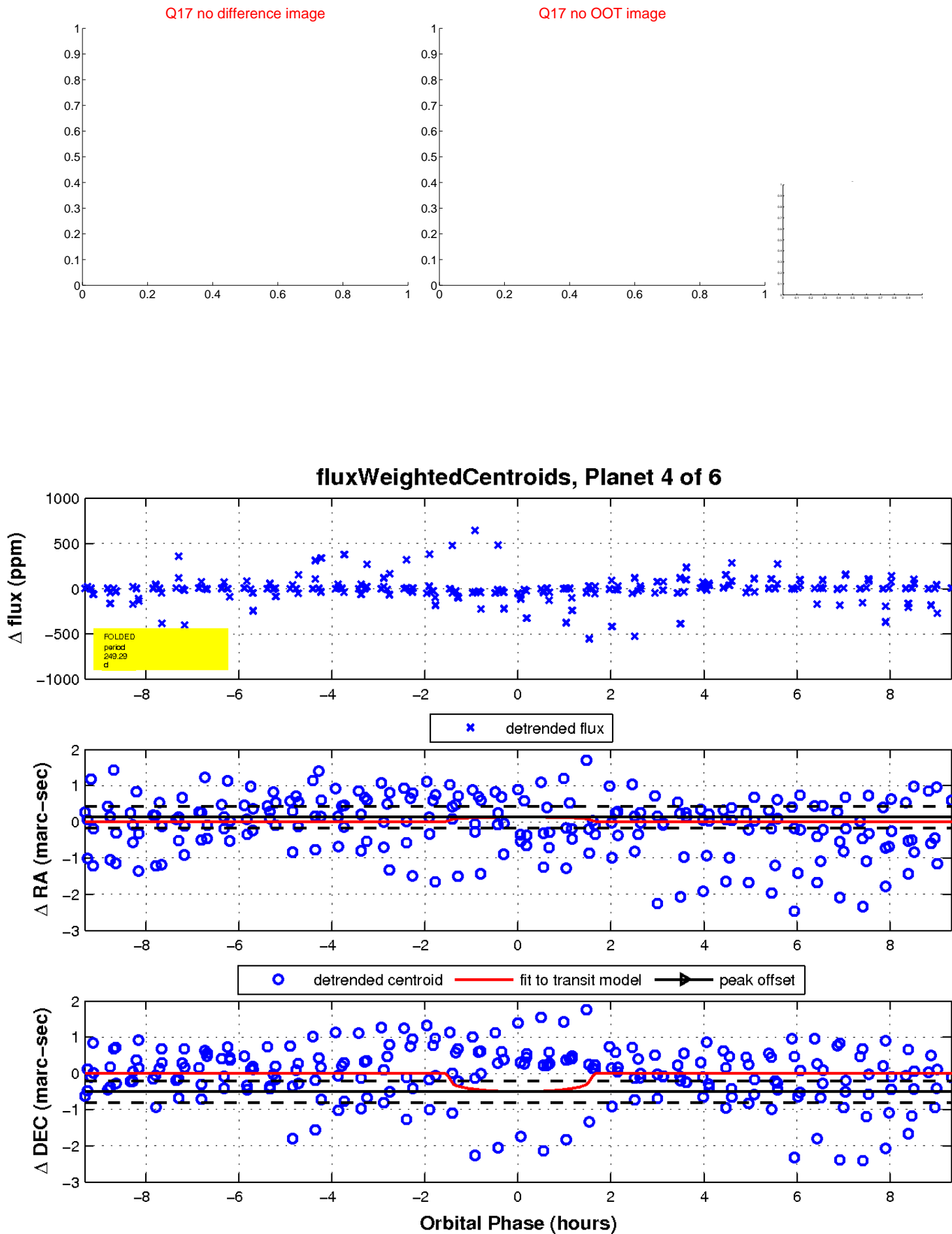
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white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

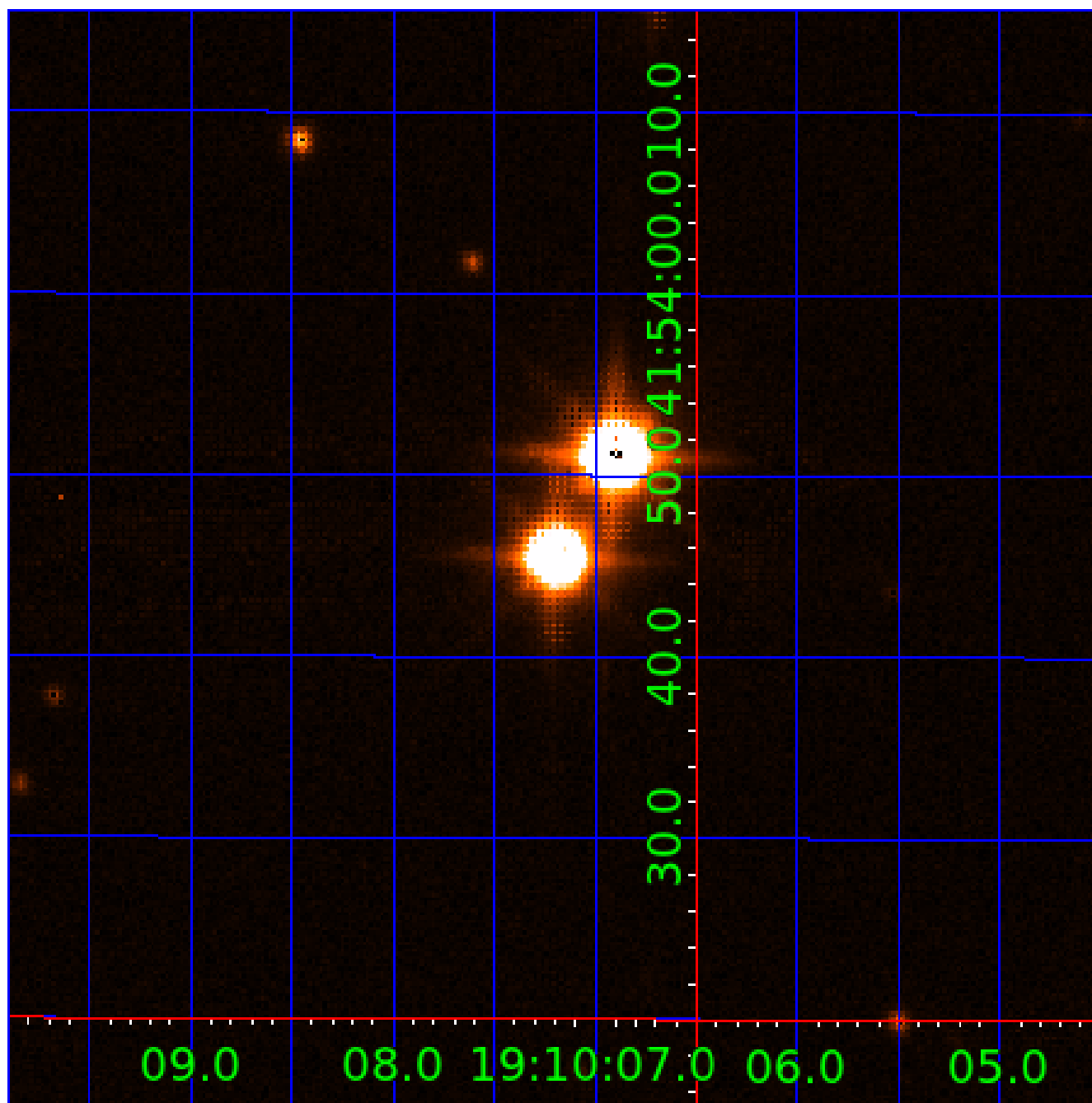


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006430841

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})
006430841-01	OBS	No	295.663745	241.949691	100.8	7.457	44.7	18.3	17.09	4754	18.07	85.48
006430841-02	OBS	No	136.394785	222.741345	23.4	7.454	15.4	4.8	17.09	4754	8.76	239.82
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006430841-06	OBS	No	43.102199	159.524448	49.9	0.923	13.6	16.1	17.09	4754	15.31	1114.15

Robovetter Results

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006430841-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006430841-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

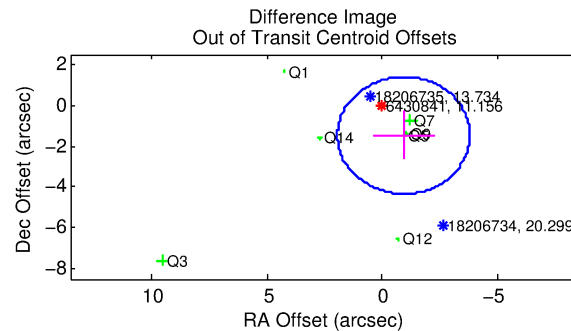
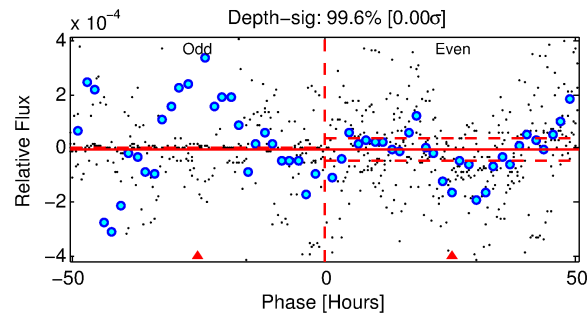
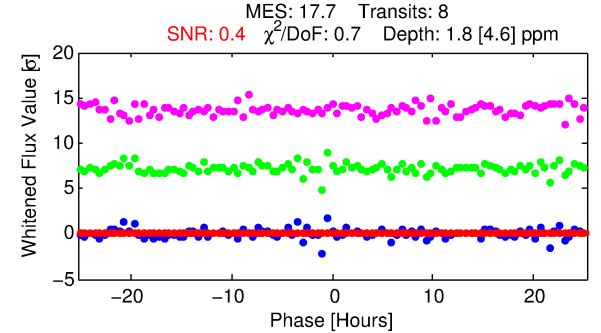
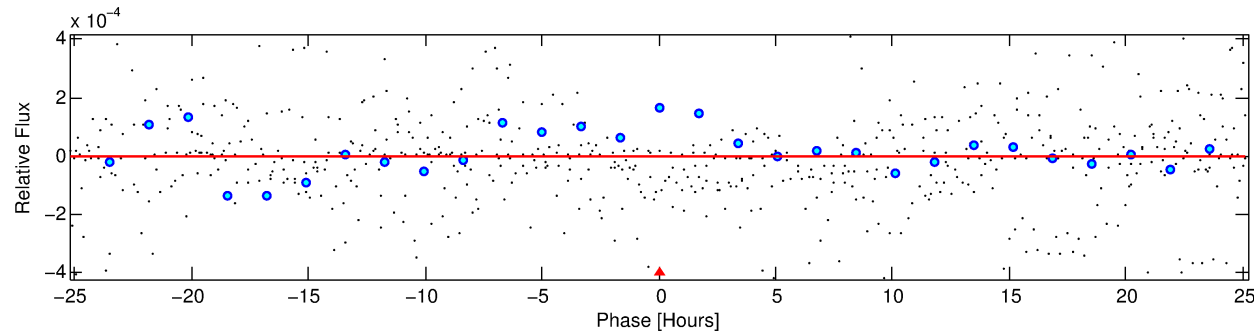
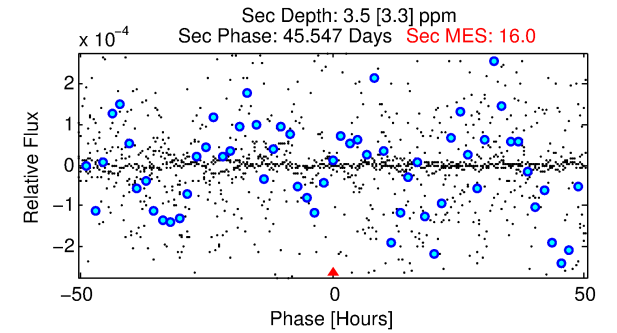
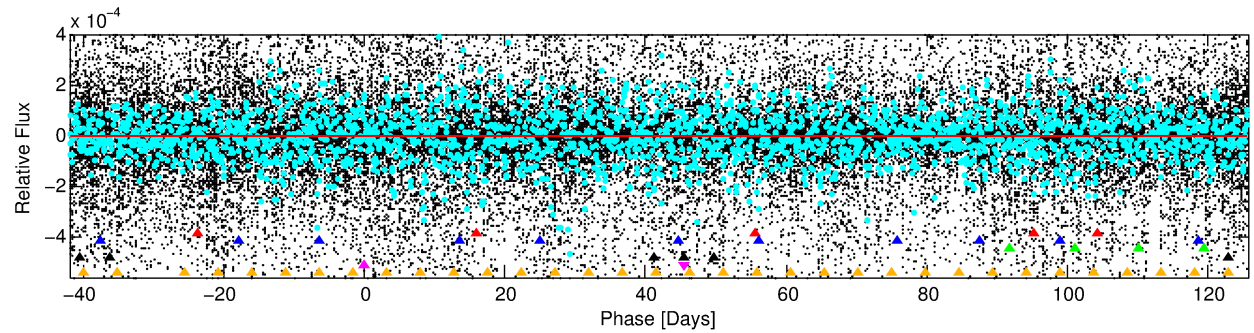
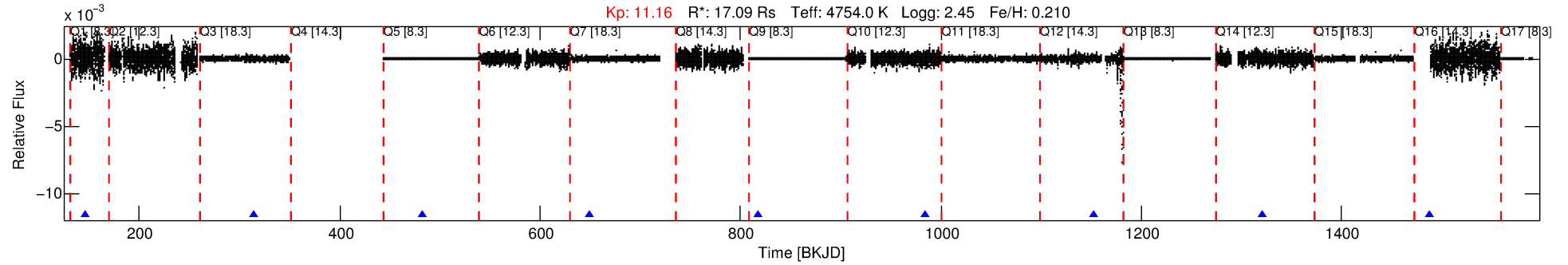
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006430841-05

No Significant Match Found

DV One-Page Summary

KIC: 6430841 Candidate: 5 of 6 Period: 167.624 d



DV Fit Results:

Period = 167.62449 [0.04292] d
Epoch = 146.8042 [0.1168] BKJD
Rp/R* = 0.0015 [0.0022]
a/R* = 62.67 [258.69]
b = 0.91 [0.69]
Seff = 182.18 [40.27]
Teq = 937 [52] K
Rp = 2.85 [4.21] Re
a = 0.8565 [0.1625] AU
Ag = 173.86 [531.54] [0.33σ]
Teffp = 5259 [4014] K [1.08σ]

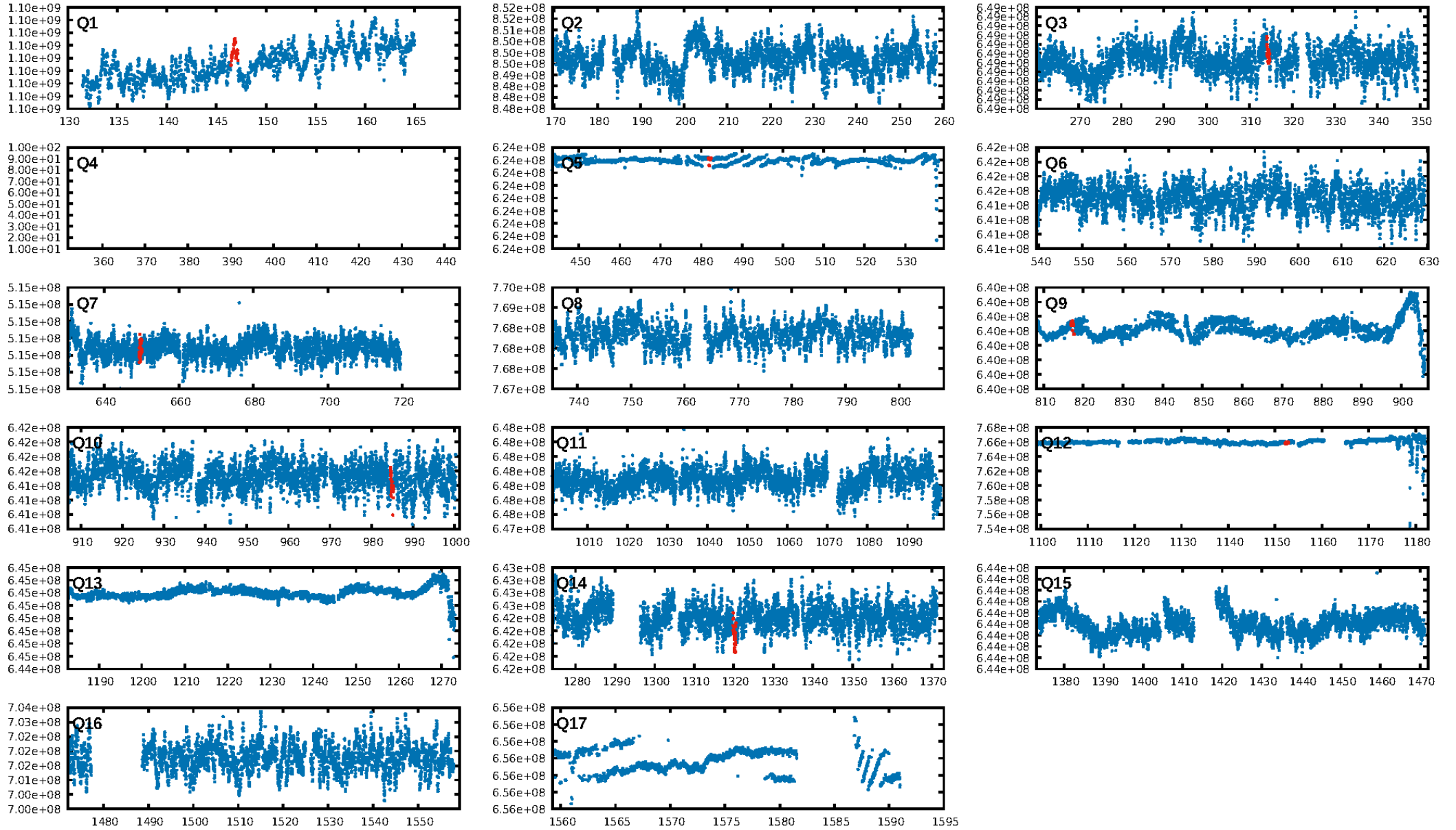
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [66.71σ]
LongPeriod-sig: 100.0% [218.54σ]
ModelChiSquare2-sig: 90.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.39e-07
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.730 arcsec [1.81σ]
KicOffset-rm: 2.212 arcsec [2.24σ]
OotOffset-st: 1/2/1/3 [7]
KicOffset-st: 1/2/1/3 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 1.00 [8/8]

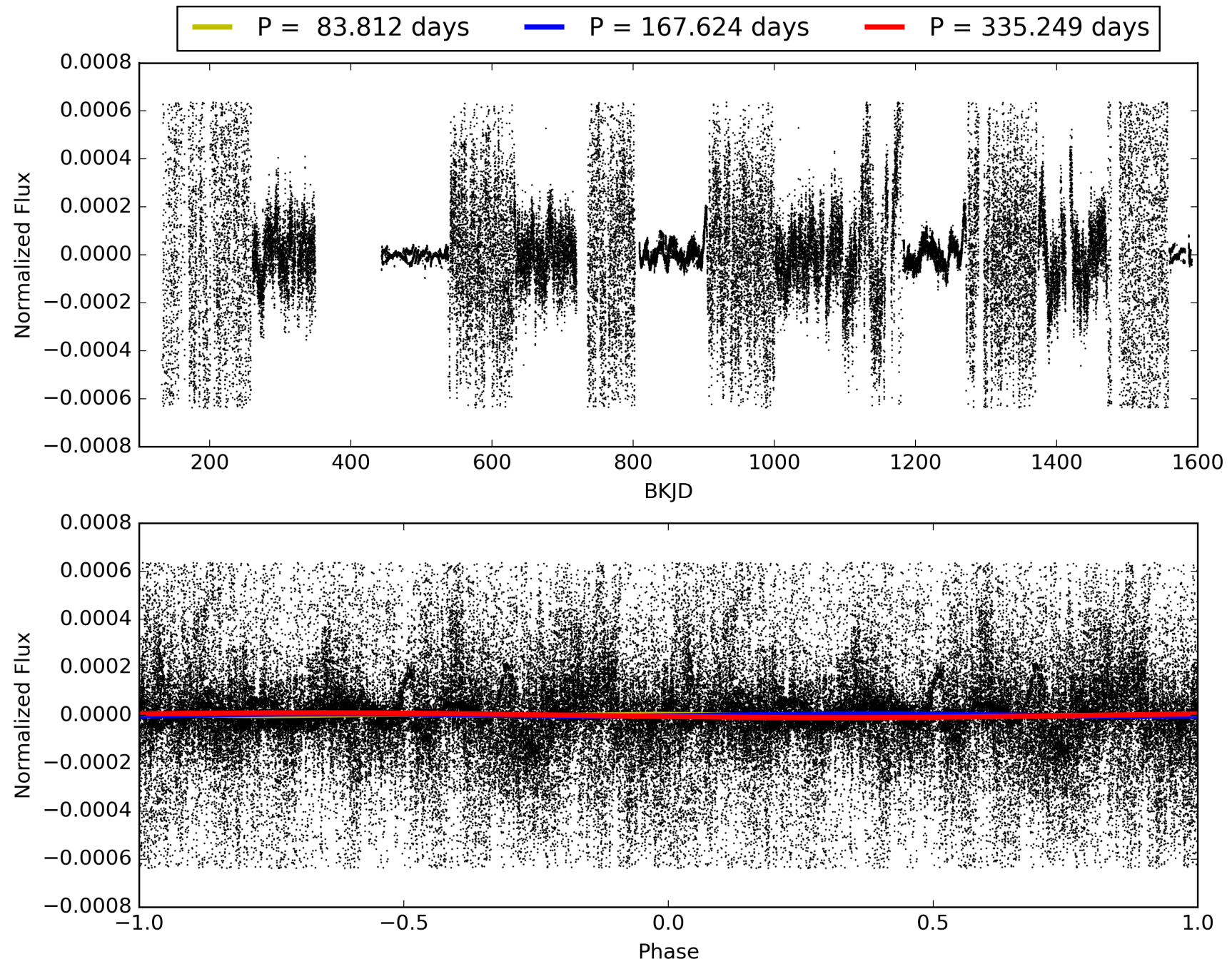
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:01:44 Z

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

TCE 006430841-05, PDC Light Curves

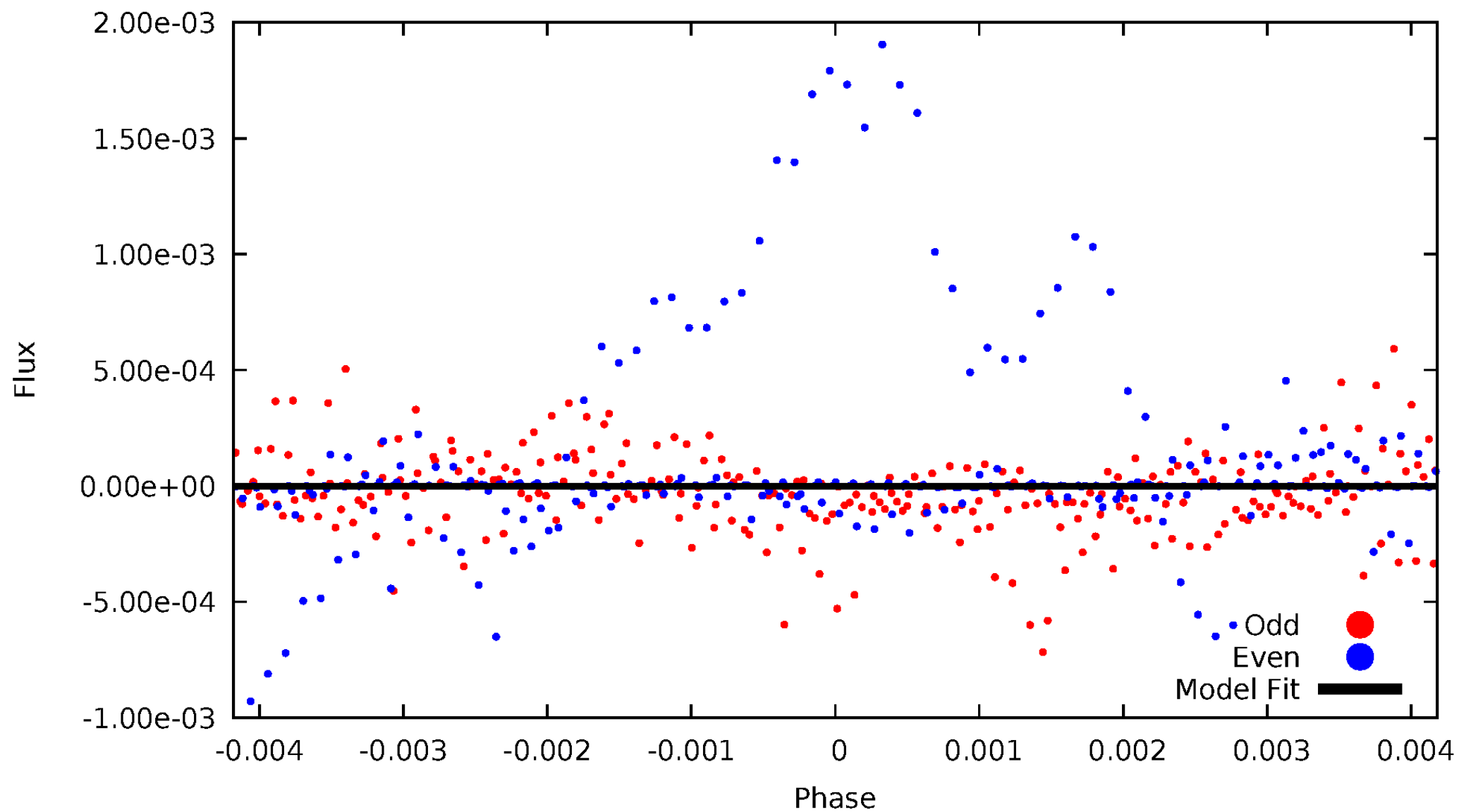


TCE 006430841-05



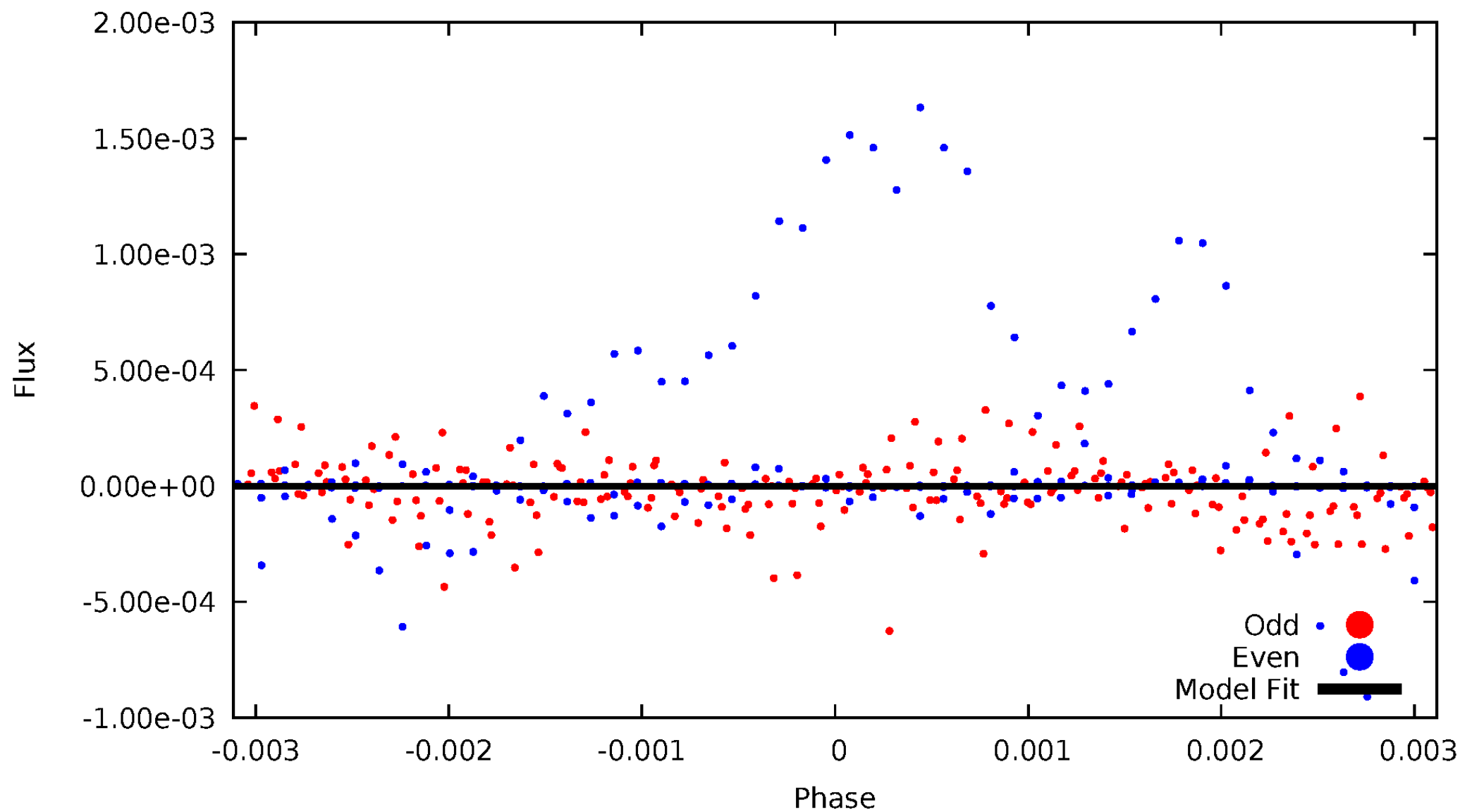
DV Odd/Even

TCE 006430841-05



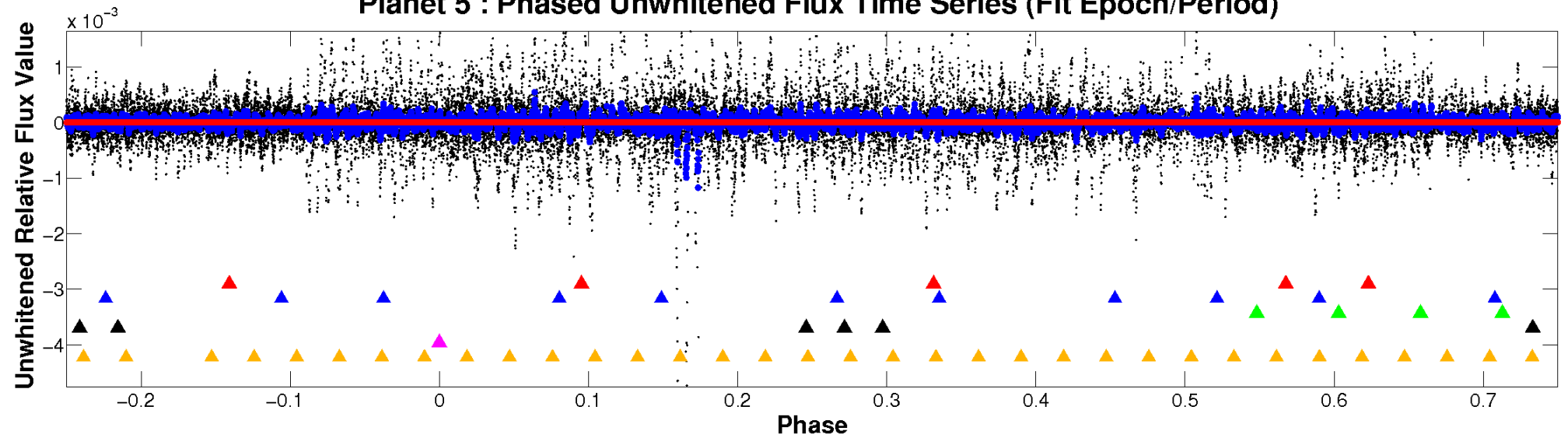
ALT Odd/Even

TCE 006430841-05

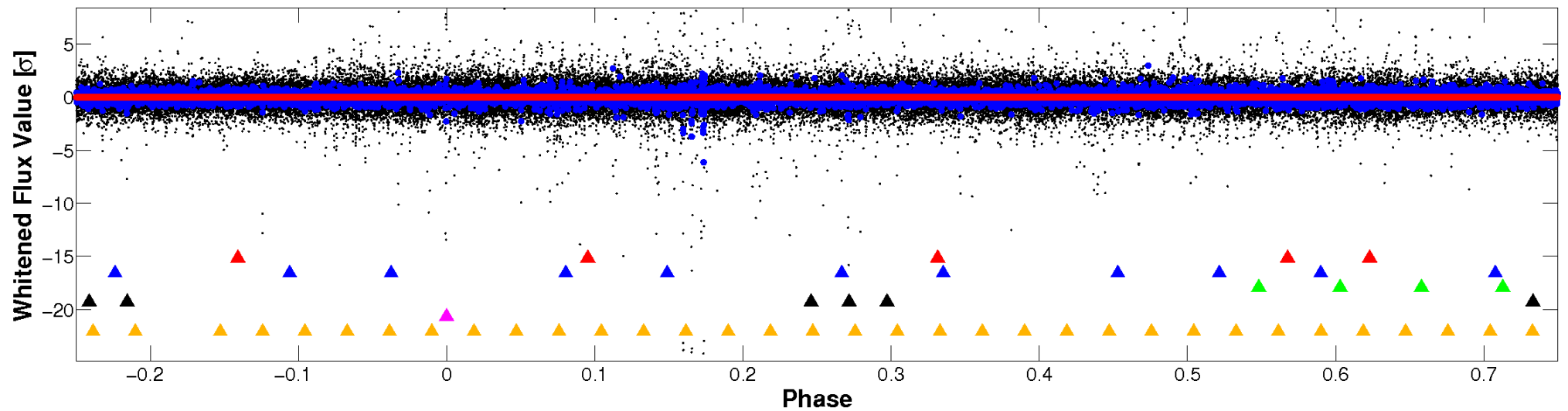


Non-Whitened Vs. Whitened Light Curve

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

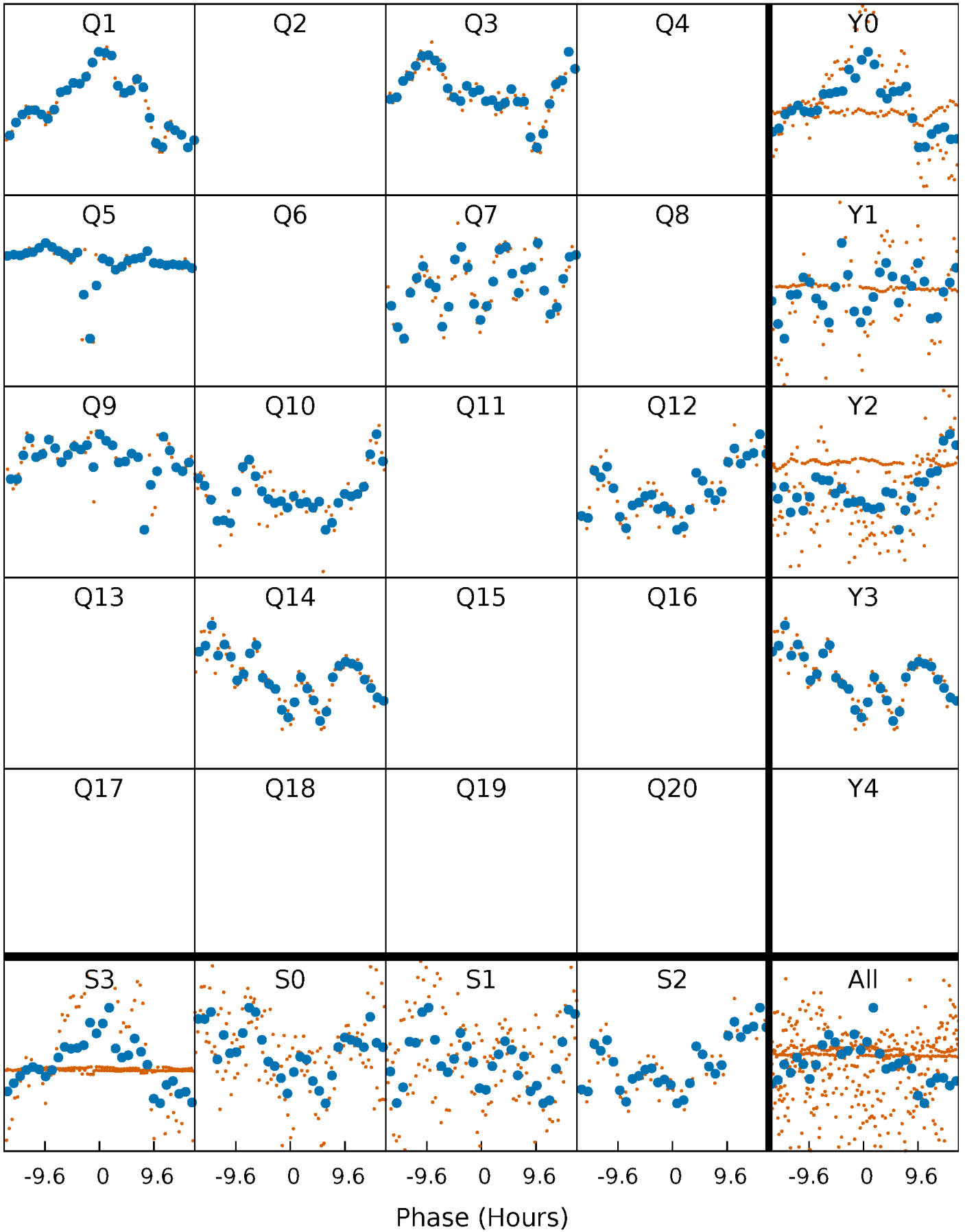


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



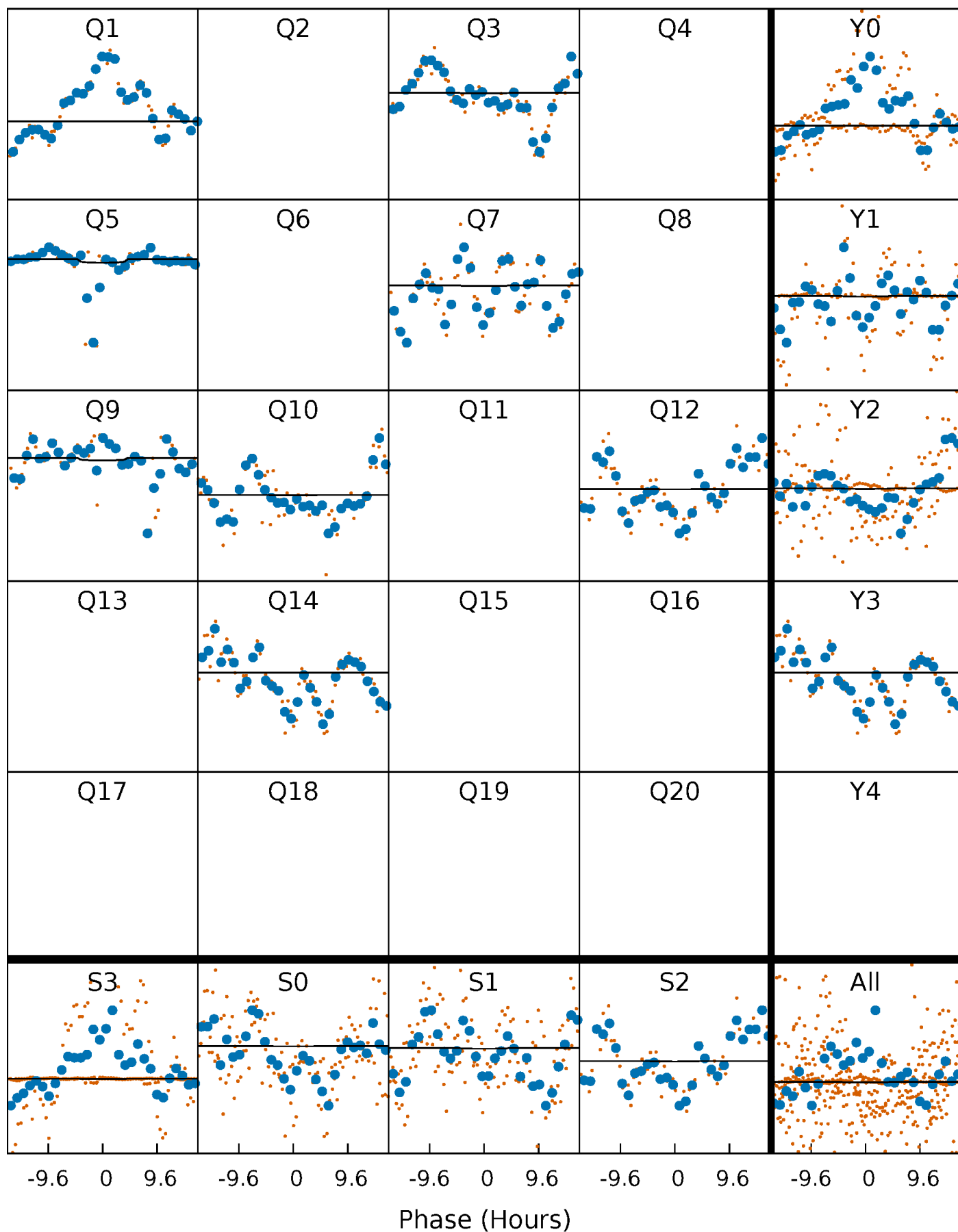
PDC Quarter-Phased Transit Curves

TCE 006430841-05 $P=167.624492$ Days $T_0=146.804219$ (BKJD)



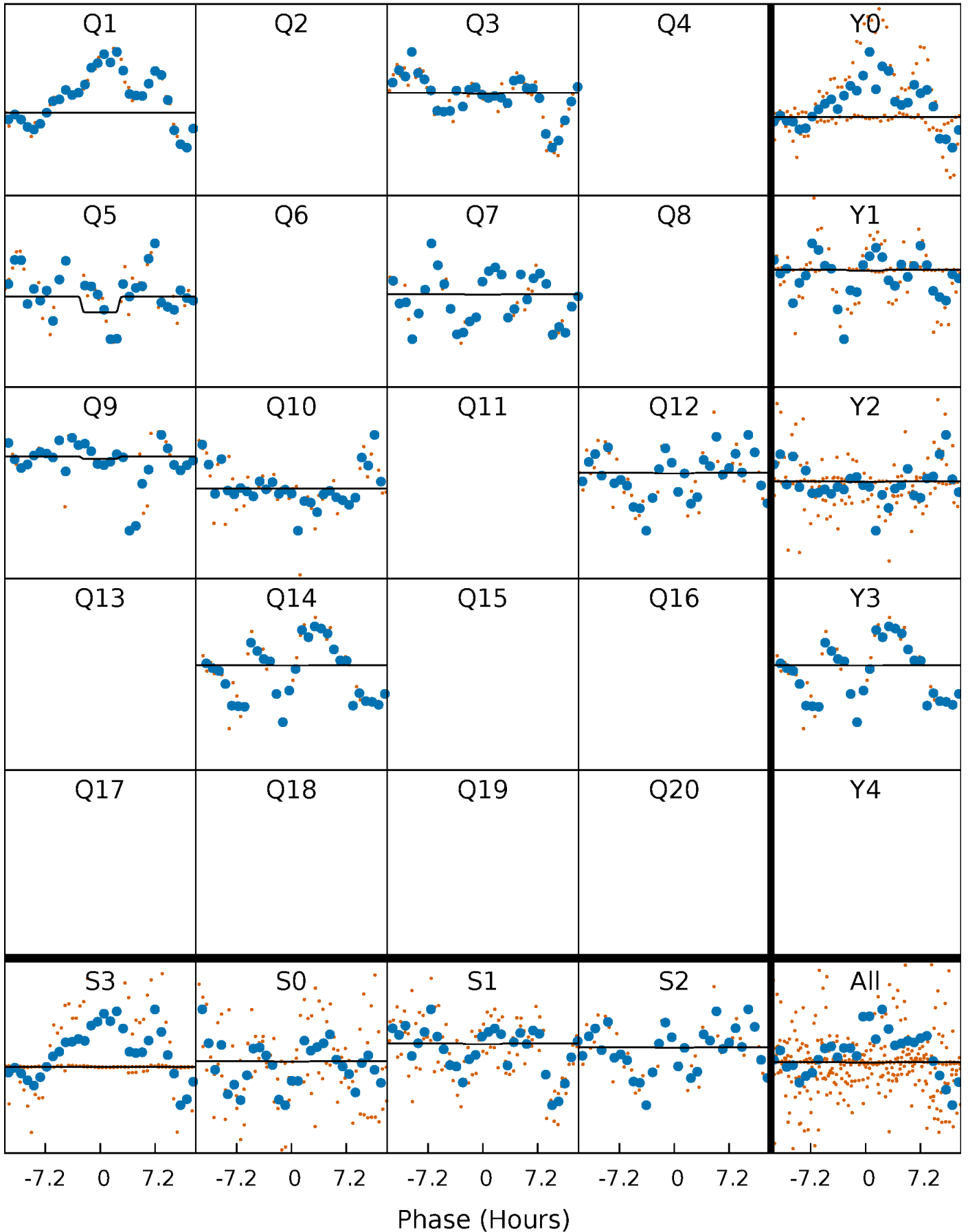
DV Quarter-Phased Transit Curves

TCE 006430841-05 $P=167.624492$ Days $T_0=146.804219$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

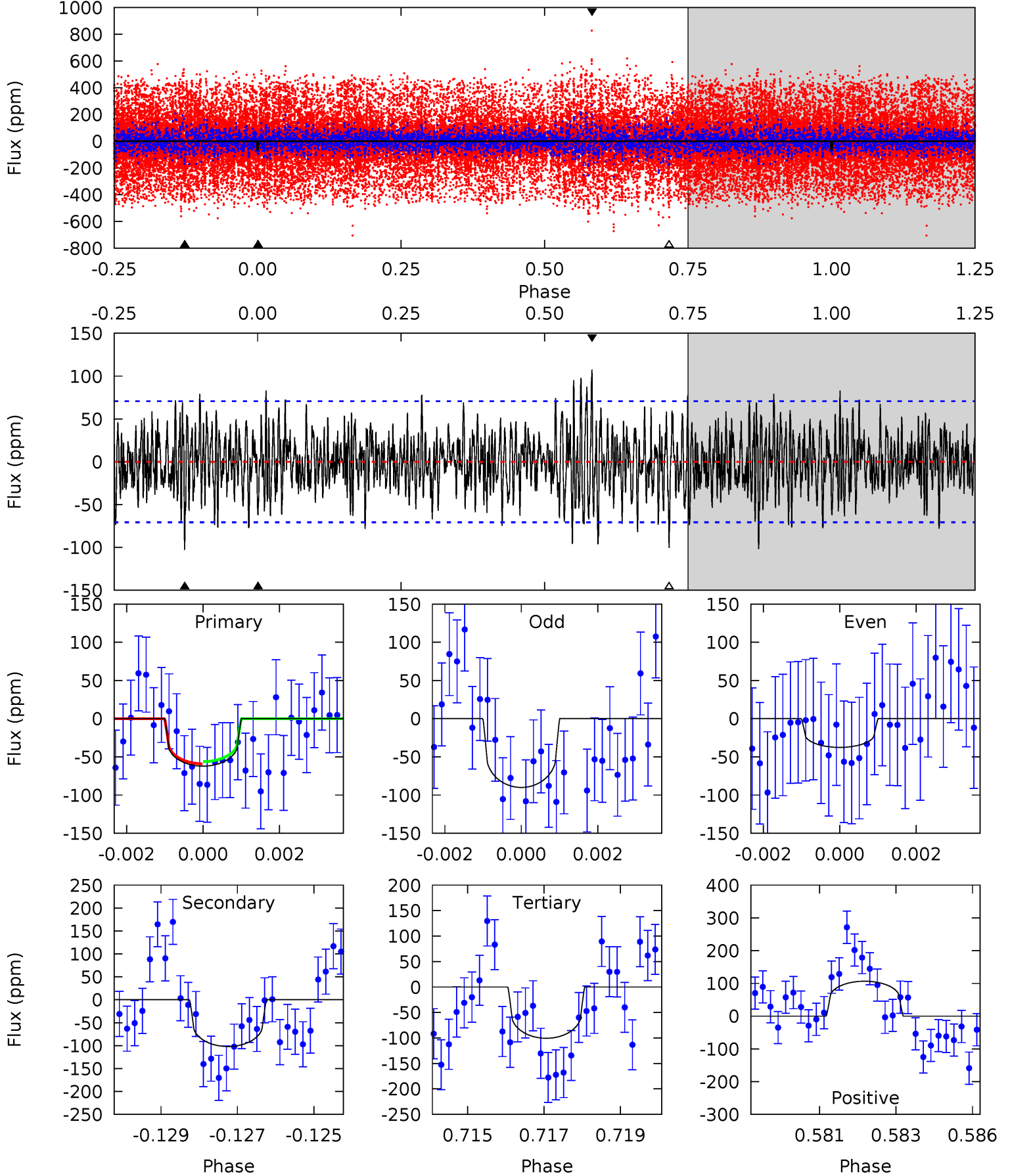
TCE 006430841-05 $P=167.667273$ Days $T_0=146.784849$ (BKJD)



DV Model-Shift Uniqueness Test

006430841-05, P = 167.624492 Days, E = 146.804219 Days

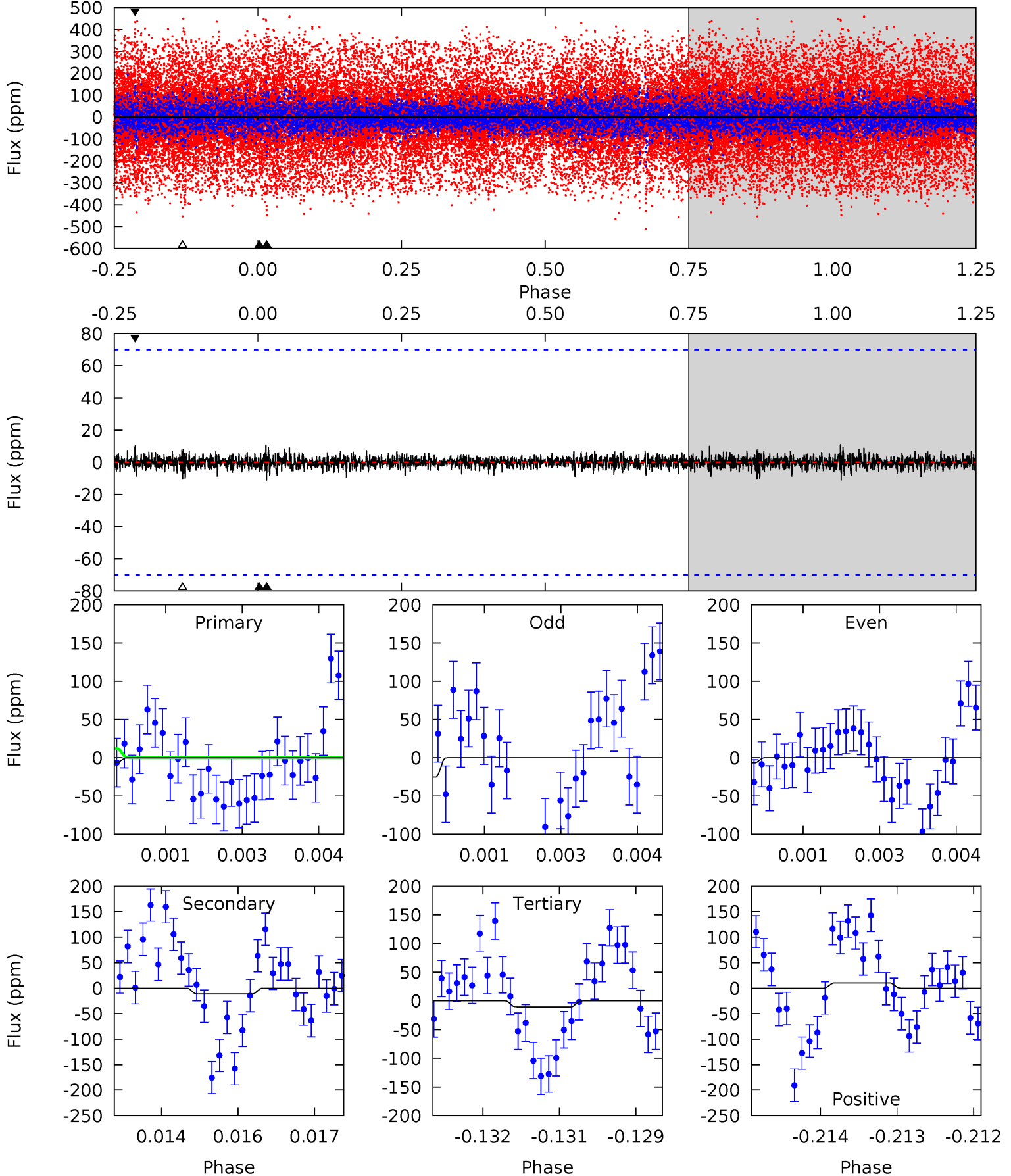
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.67	7.66	7.55	8.01	5.31	3.06	2.19	-2.89	-3.34	0.11	-0.34	1.95	-5.29	0.51	0.11



Alt Model-Shift Uniqueness Test

006430841-05, P = 167.667273 Days, E = 146.784849 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.43	0.87	0.81	0.78	5.39	3.19	0.20	-0.38	-0.35	0.06	0.09	0.72	-25.0	0.49	0



Stellar Parameters For KIC 006430841

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4754^{+56}_{-123}	$2.447^{+0.035}_{-0.031}$	$0.210^{+0.150}_{-0.300}$	$17.089^{+1.133}_{-4.814}$	$2.983^{+0.359}_{-1.436}$	$0.001^{+0.000}_{-0.000}$
	+1%/-3%	+1%/-1%	+71%/-143%	+7%/-28%	+12%/-48%	+46%/-10%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 006430841-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-102±13	$4.03^{+3.60}_{-2.63}$	1307^{+27}_{-39}	11315^{+24540}_{-4198}	2610^{+19353}_{-1911}
Alt.	-11±13	$3.84^{+3.42}_{-2.55}$	1306^{+29}_{-40}	5467^{+5006}_{-9249}	232^{+1903}_{-269}

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 $A_{obs} \gg 1.0$

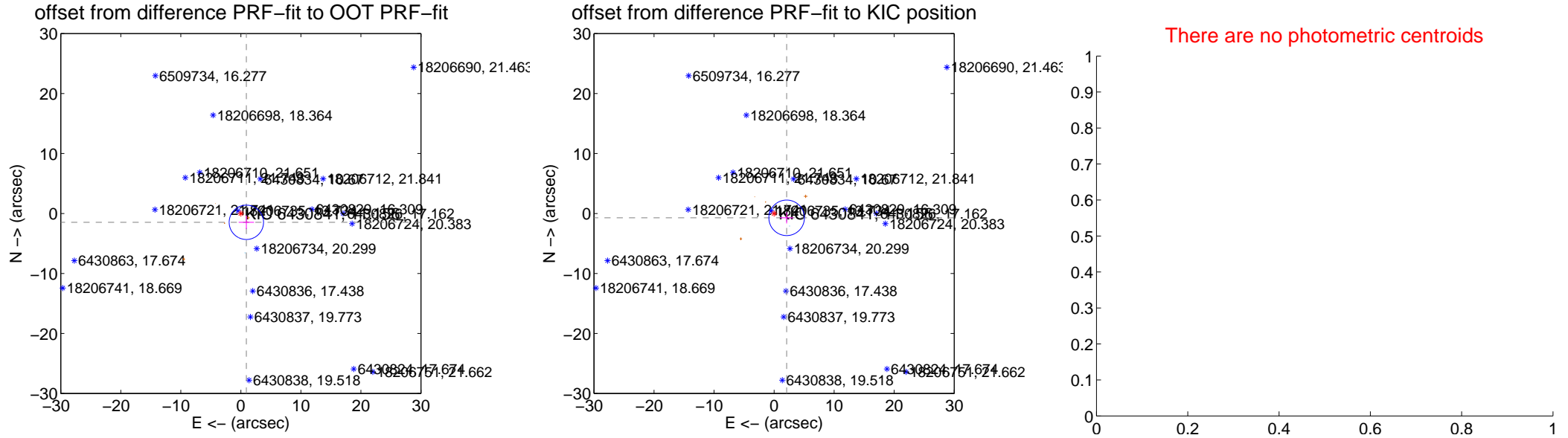
DV Centroid Data

Supplemental centroid analysis for 006430841-05. **Kepler magnitude: 11.16.** Transit SNR 0.38

There are 1 quarters with good PRF difference image offsets

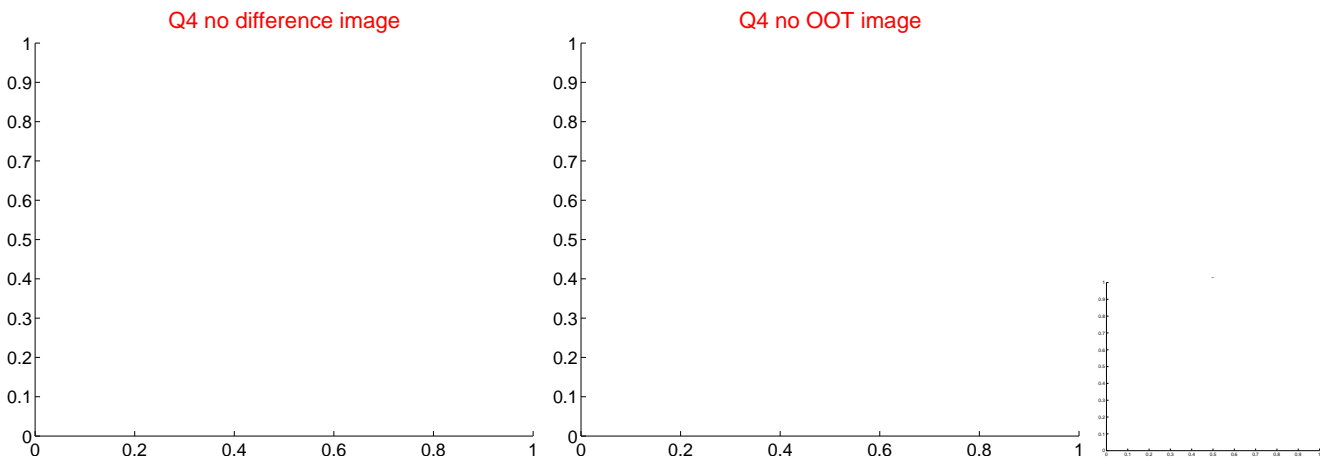
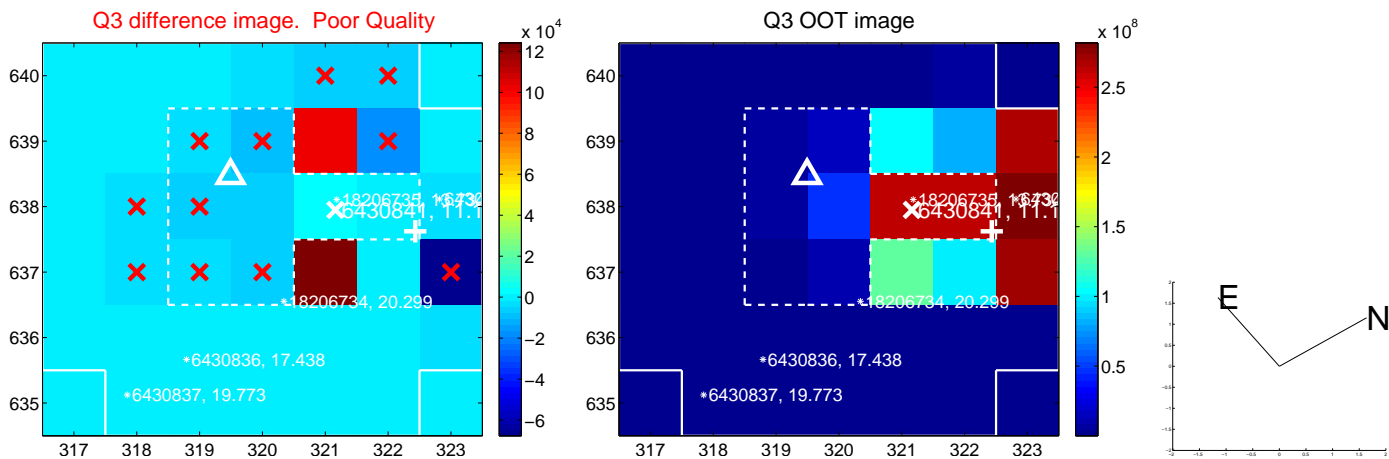
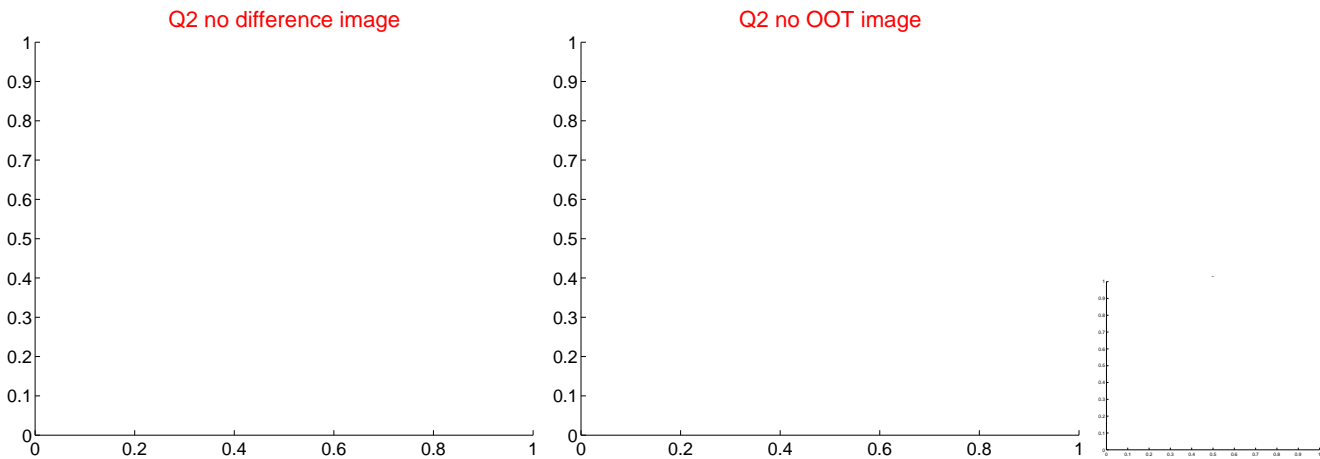
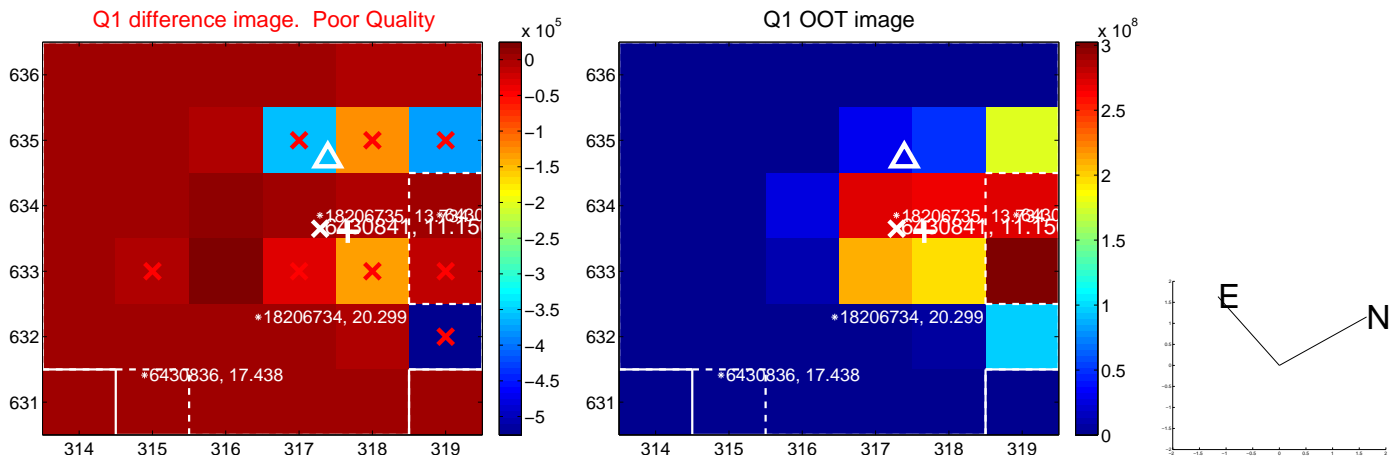
The OOT PRF centroid is offset from the target star catalog position by about 3.77 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.730 ± 0.954	1.81	-0.916 ± 1.282	-1.468 ± 1.130
PRF-fit source offset from KIC position	2.212 ± 0.987	2.24	-2.091 ± 1.104	-0.721 ± 0.928
photometric centroid source offset	—	—	—	—

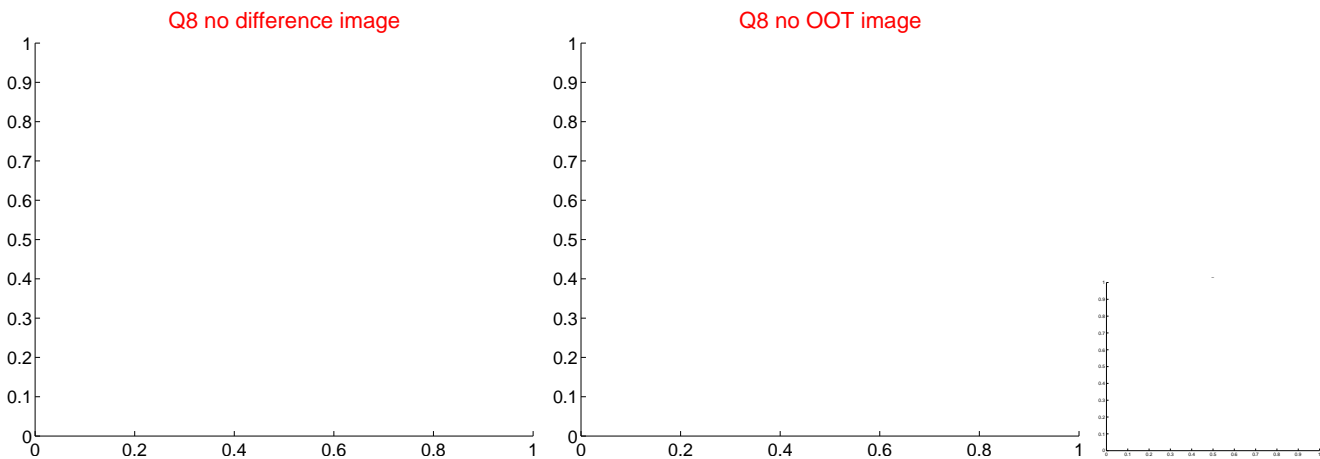
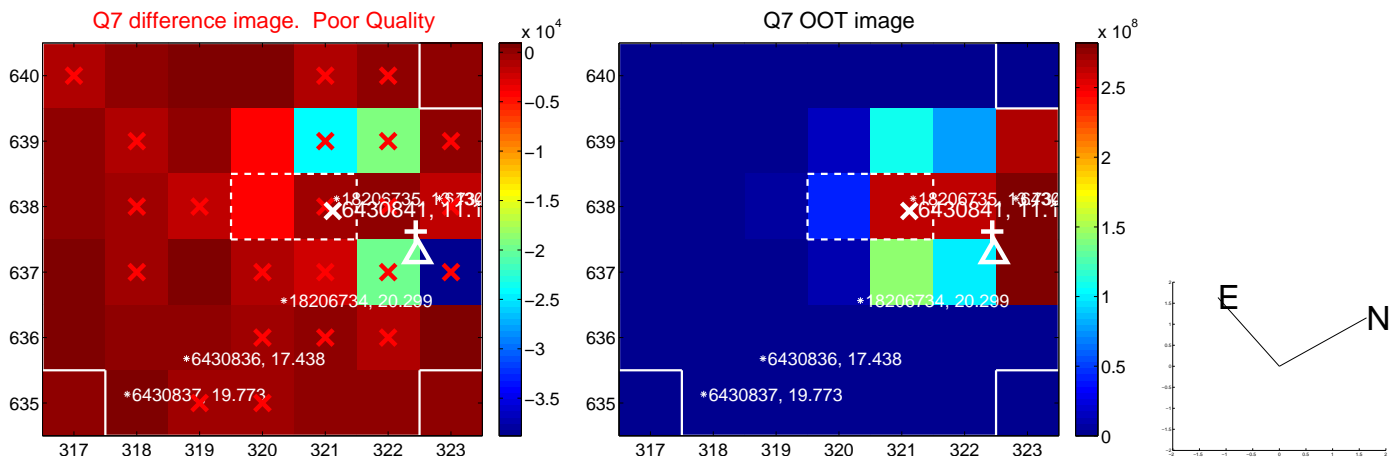
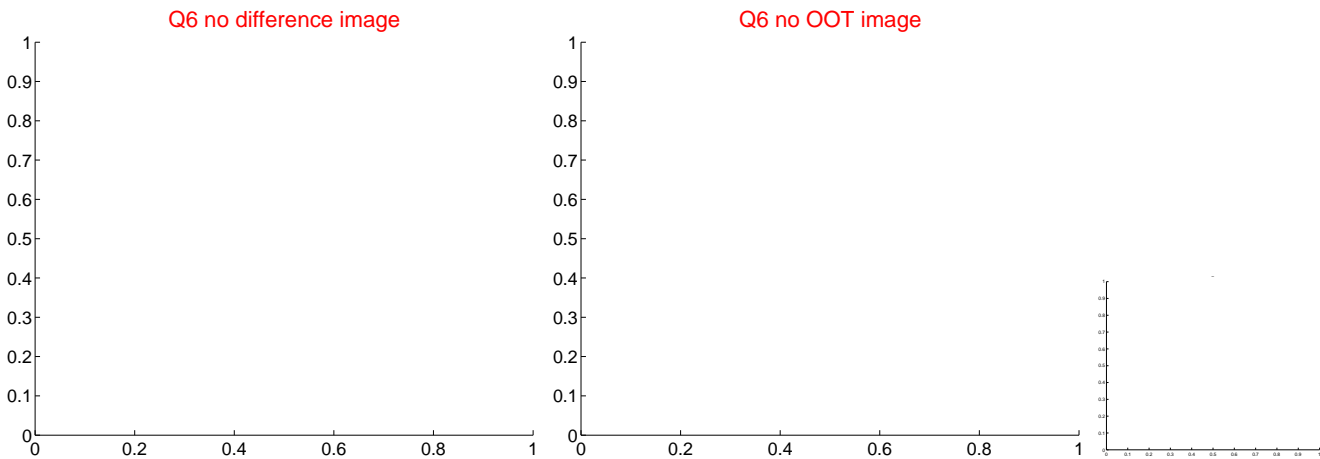
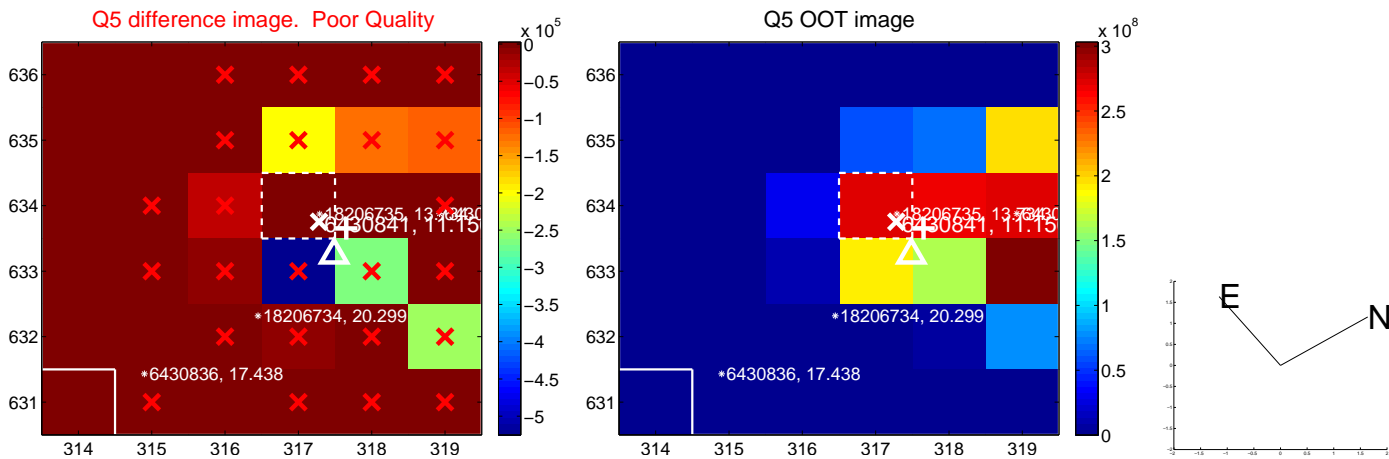


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

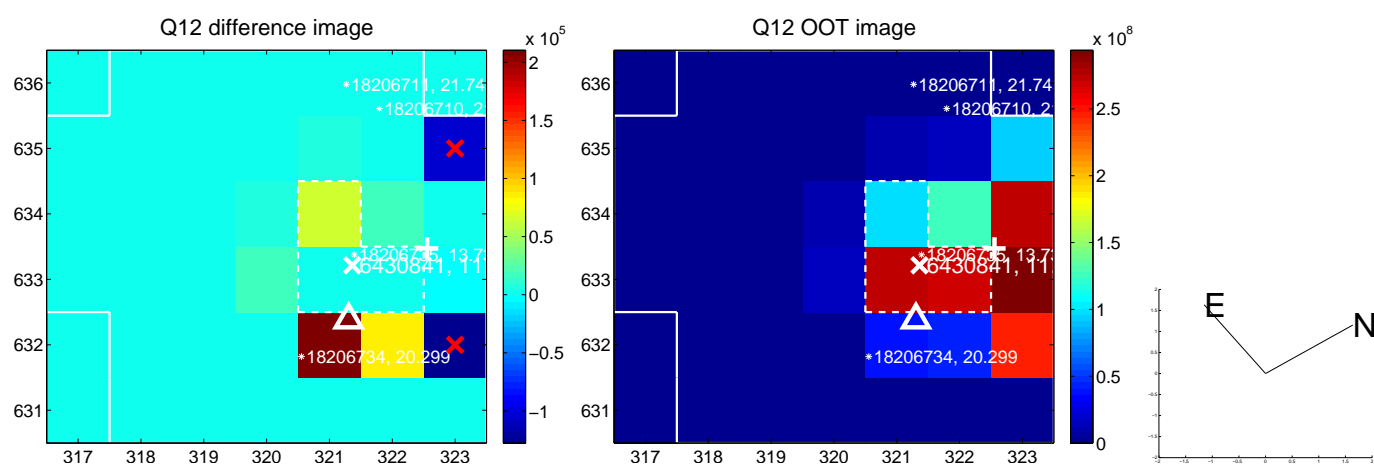
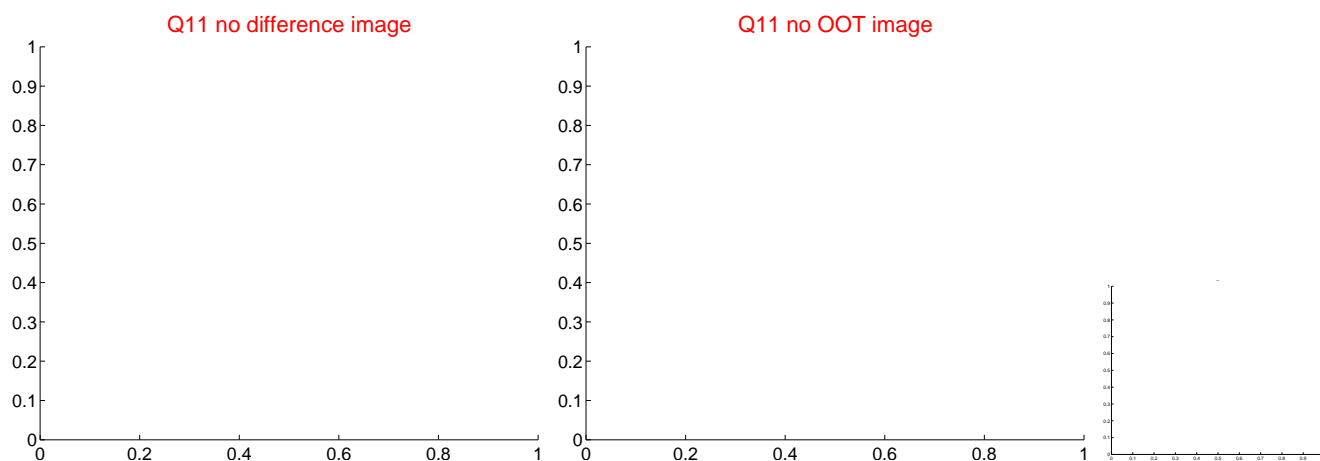
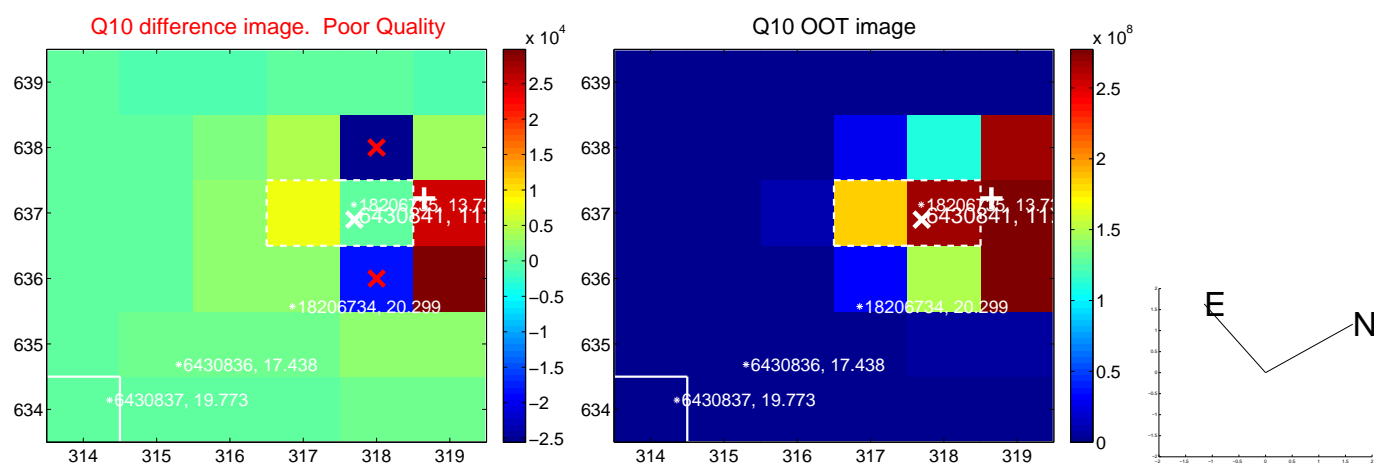
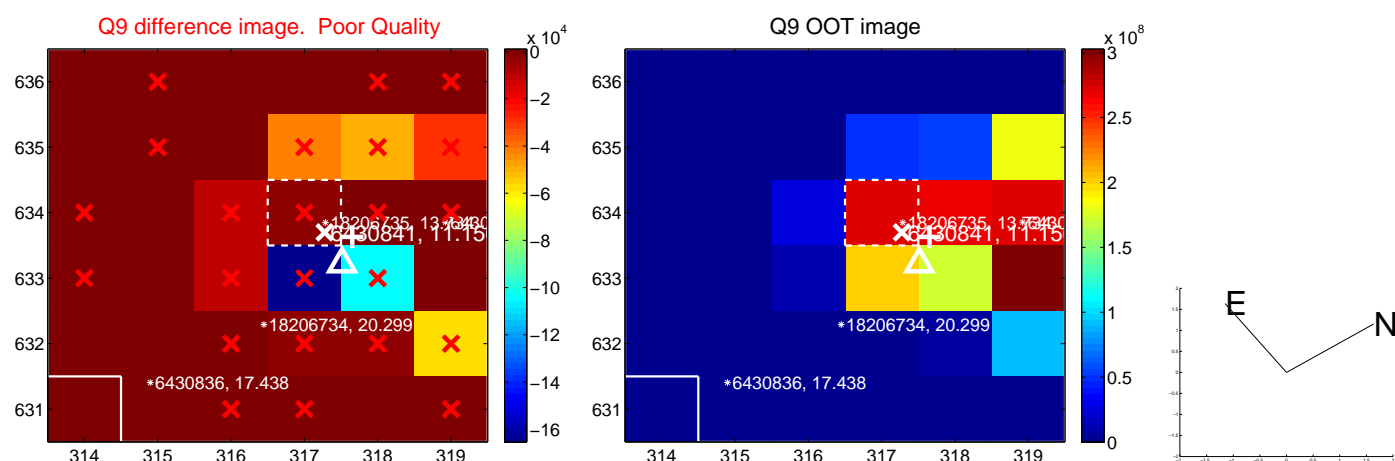
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



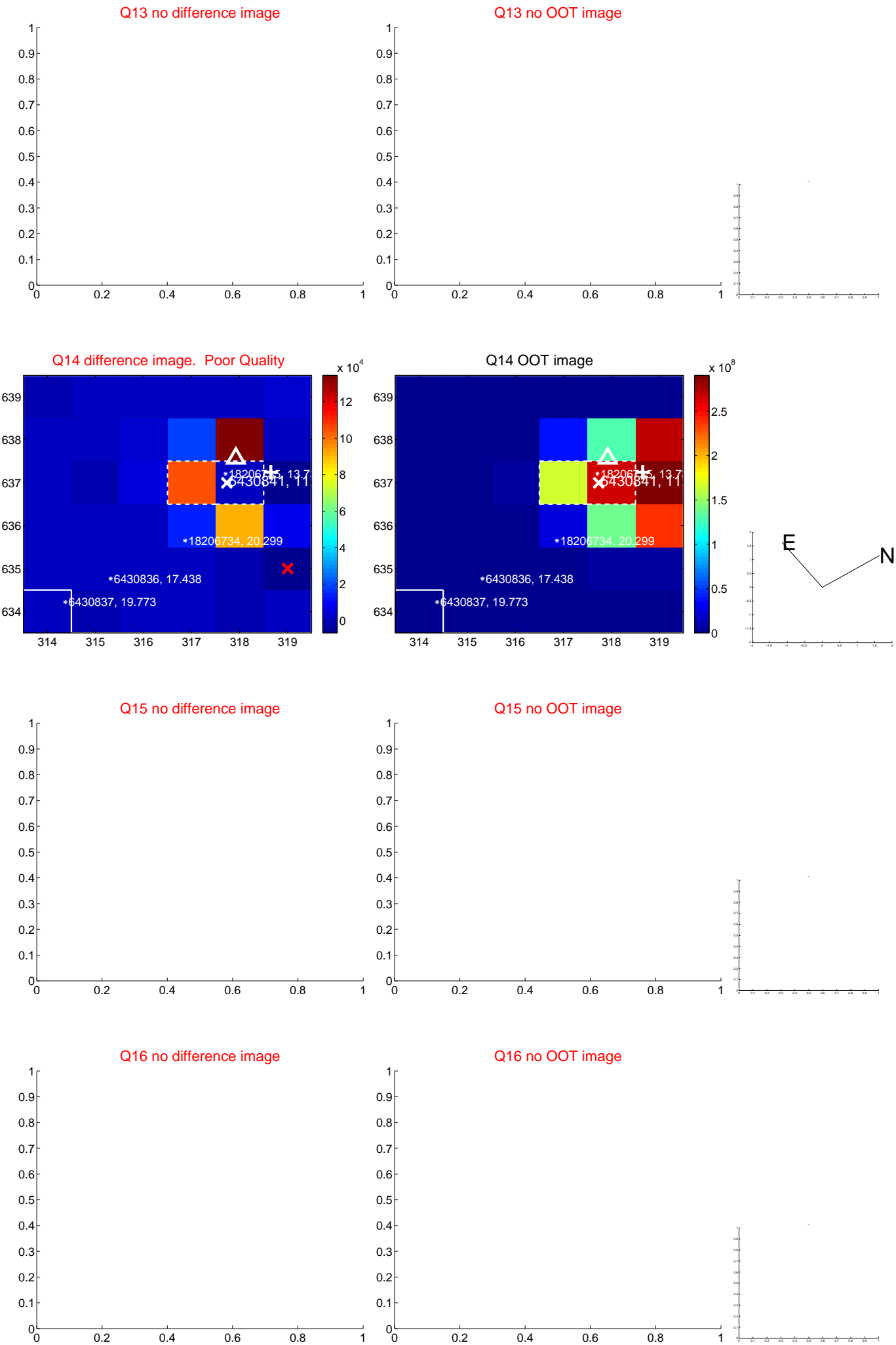
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



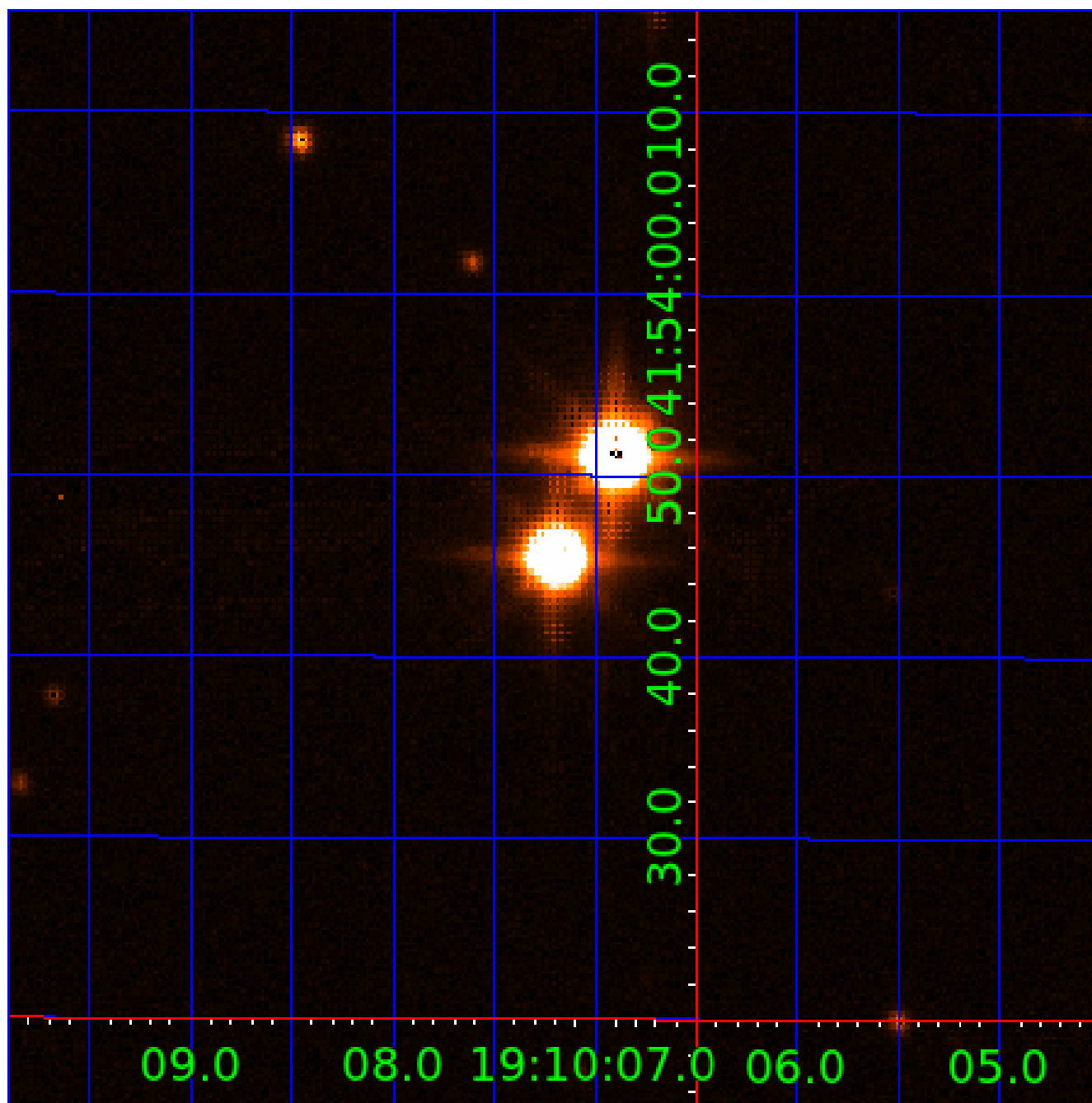
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 006430841

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})
006430841-01	OBS	No	295.663745	241.949691	100.8	7.457	44.7	18.3	17.09	4754	18.07	85.48
006430841-02	OBS	No	136.394785	222.741345	23.4	7.454	15.4	4.8	17.09	4754	8.76	239.82
006430841-03	OBS	No	344.451962	238.683748	70.5	44.212	14.3	4.4	17.09	4754	15.03	69.73
006430841-04	OBS	No	249.288140	196.635932	26.9	3.123	15.7	3.9	17.09	4754	10.45	107.32
006430841-05	OBS	No	167.624492	146.804219	1.8	8.407	17.7	0.4	17.09	4754	2.85	182.18
006430841-06	OBS	No	43.102199	159.524448	49.9	0.923	13.6	16.1	17.09	4754	15.31	1114.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006430841-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006430841-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006430841-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

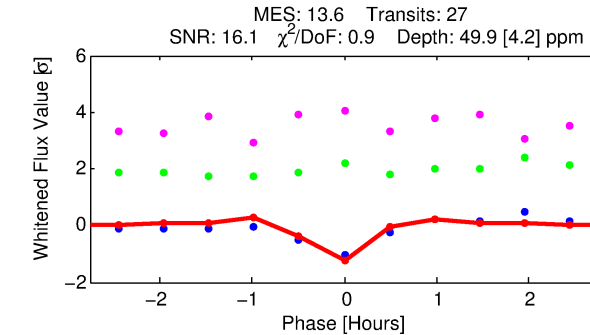
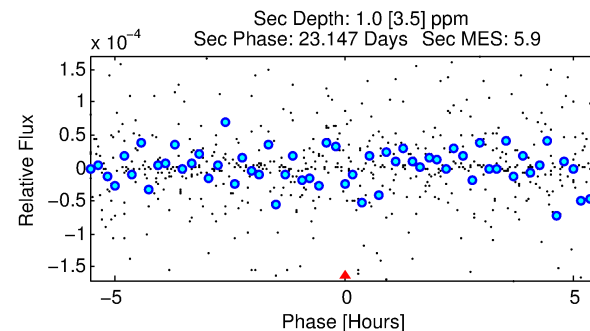
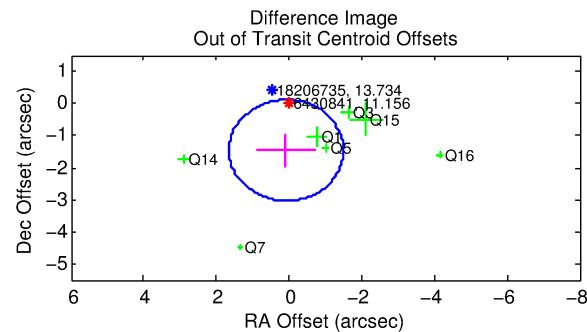
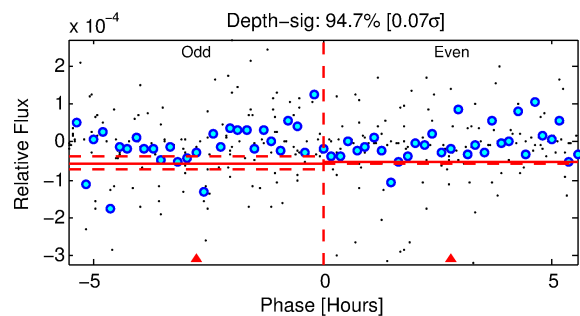
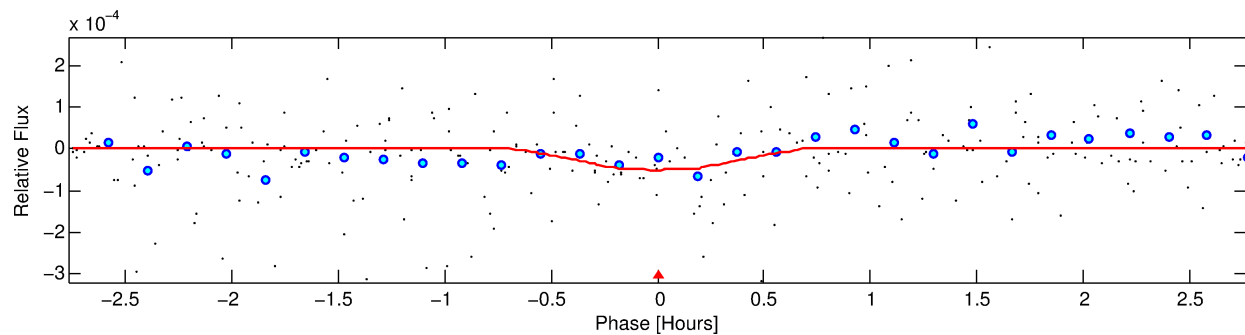
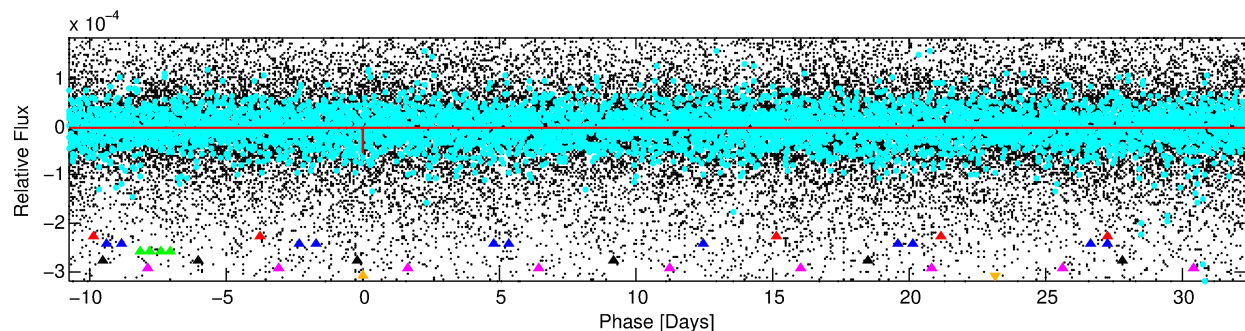
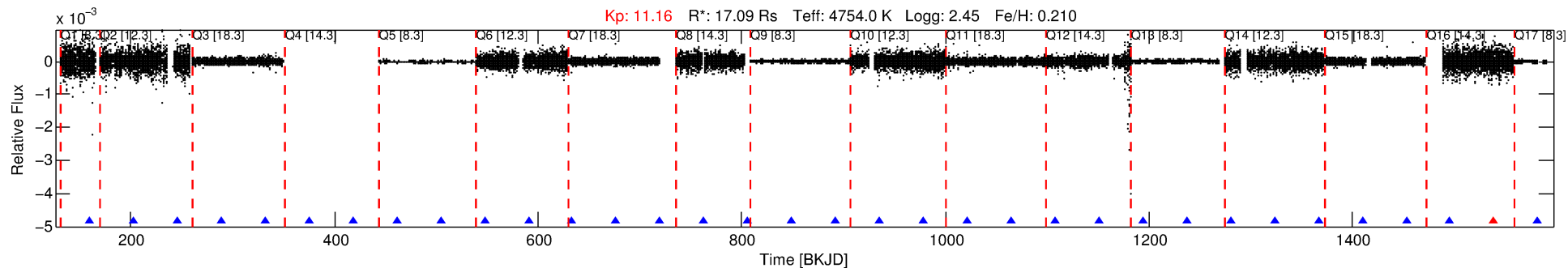
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006430841-06

No Significant Match Found

DV One-Page Summary

KIC: 6430841 Candidate: 6 of 6 Period: 43.102 d



DV Fit Results:

Period = 43.10220 [0.00021] d
Epoch = 159.5244 [0.0041] BKJD
Rp/R* = 0.0082 [0.0042]
a/R* = 151.37 [286.19]
b = 0.91 [0.36]
Seff = 1114.15 [246.29]
Teq = 1473 [81] K
Rp = 15.31 [8.90] Re
a = 0.3463 [0.0657] AU
Ag = 0.29 [1.02] [-0.69 σ]
Teffp = 1672 [1472] K [0.14 σ]

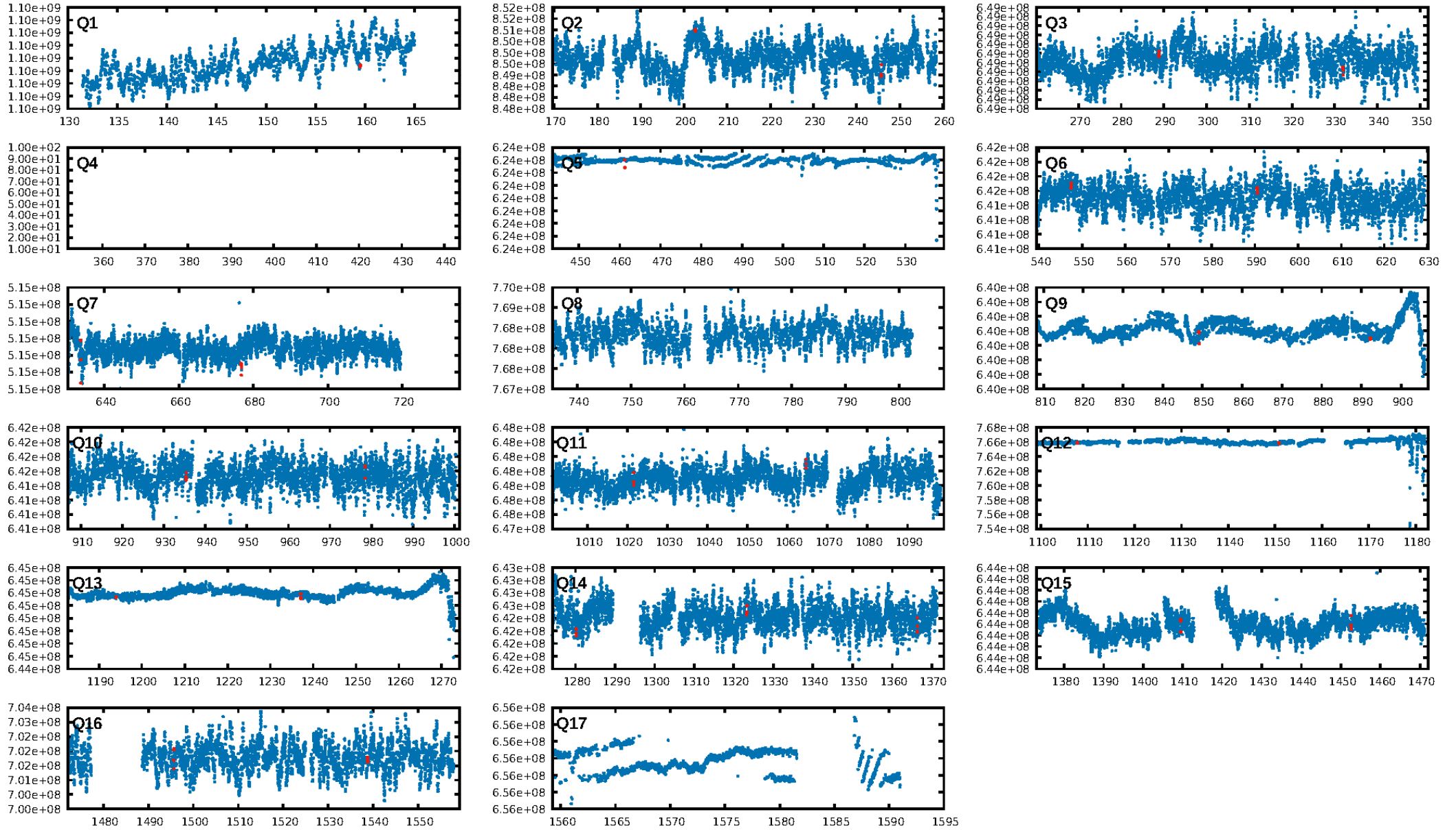
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [298.10 σ]
ModelChiSquare2-sig: 81.8%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.36e-15
RollingBand-fgt: 0.96 [25/26]
GhostDiagnostic-chr: 1.2
Centroid-sig: 95.9%
Centroid-so: 1.918 arcsec [0.76 σ]
OotOffset-rm: 1.463 arcsec [2.79 σ]
KicOffset-rm: 3.228 arcsec [2.97 σ]
OotOffset-st: 1/3/1/2 [7]
KicOffset-st: 1/3/1/2 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 1.00 [14/14]

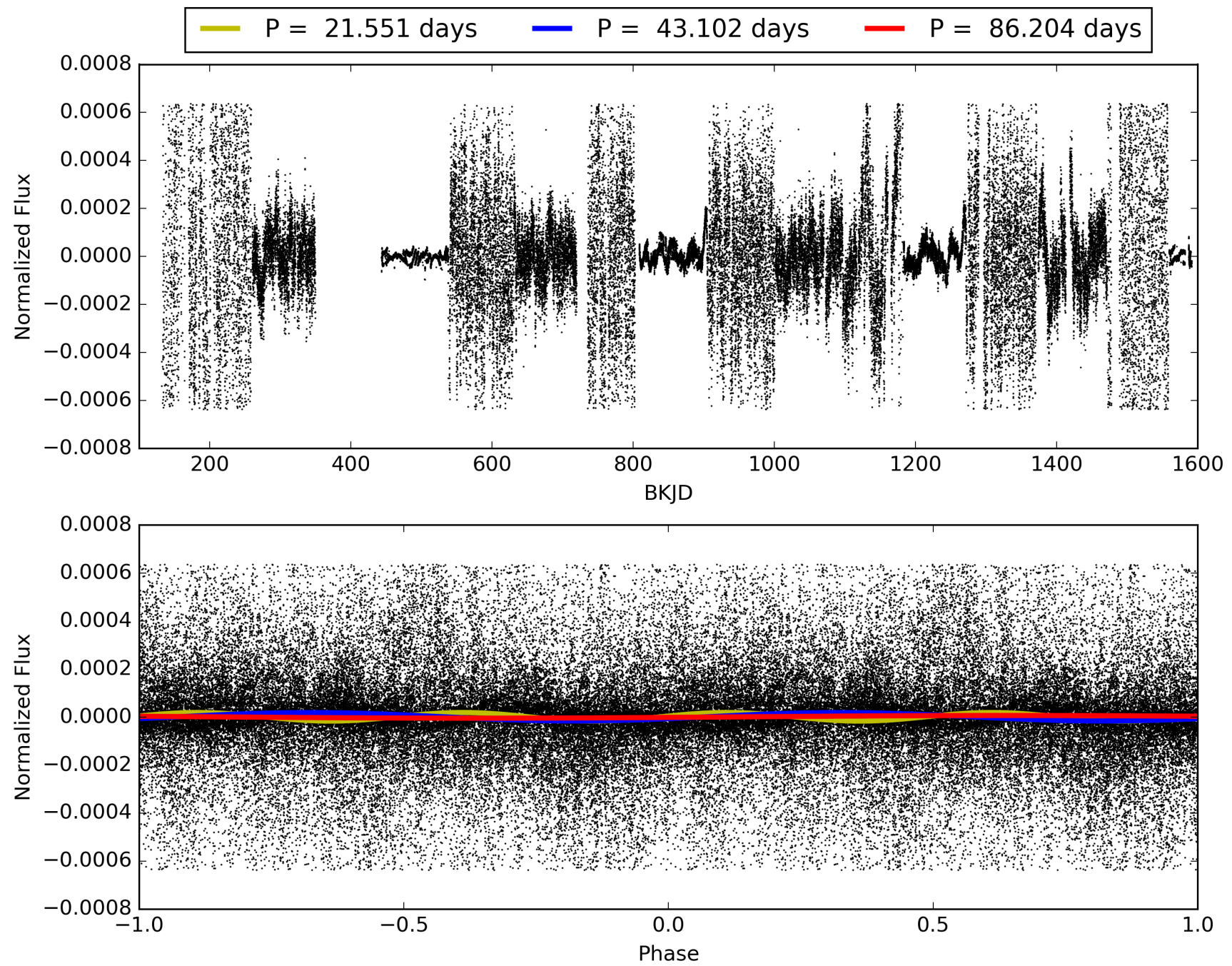
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:01:53 Z

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

TCE 006430841-06, PDC Light Curves

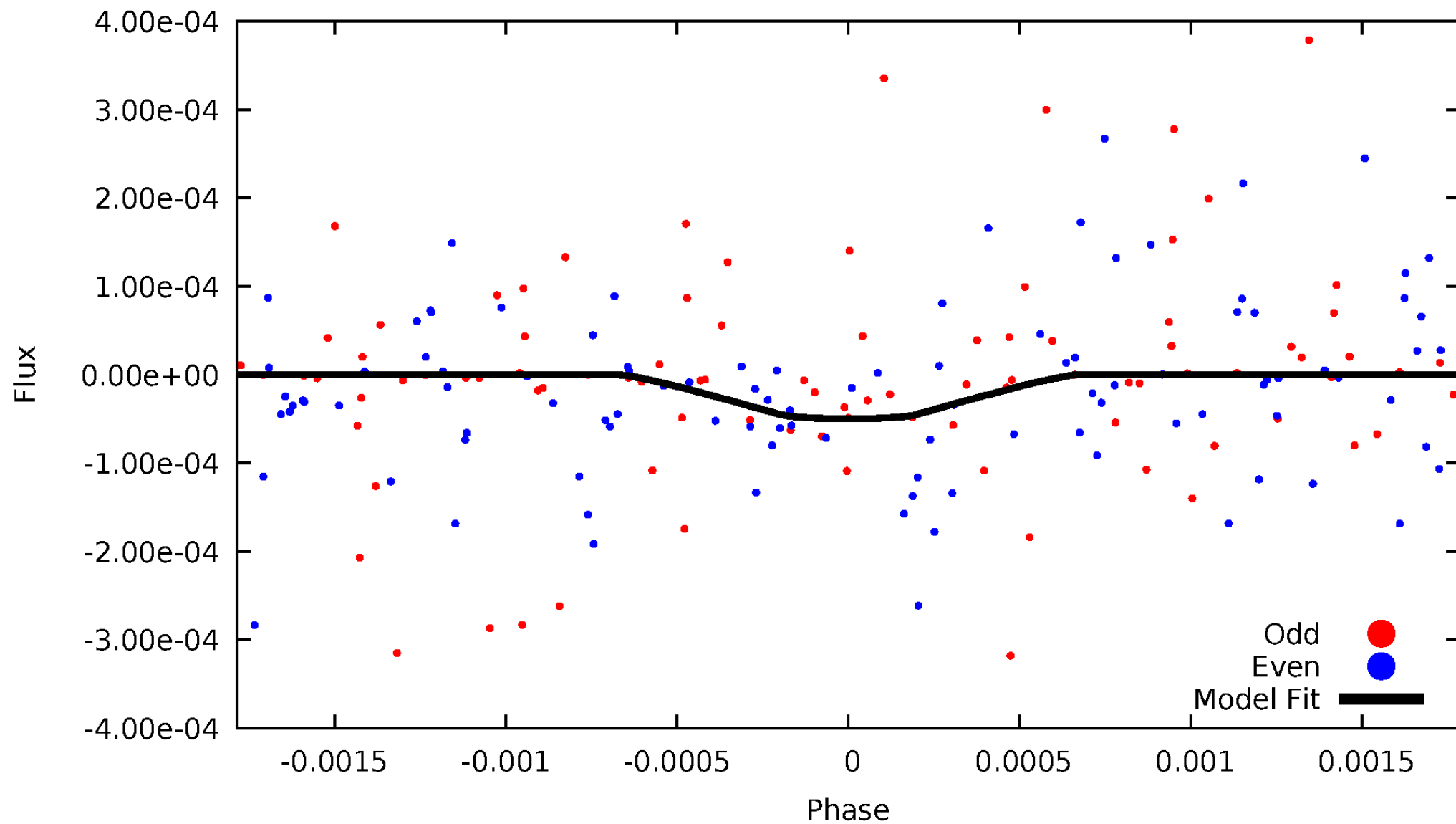


TCE 006430841-06



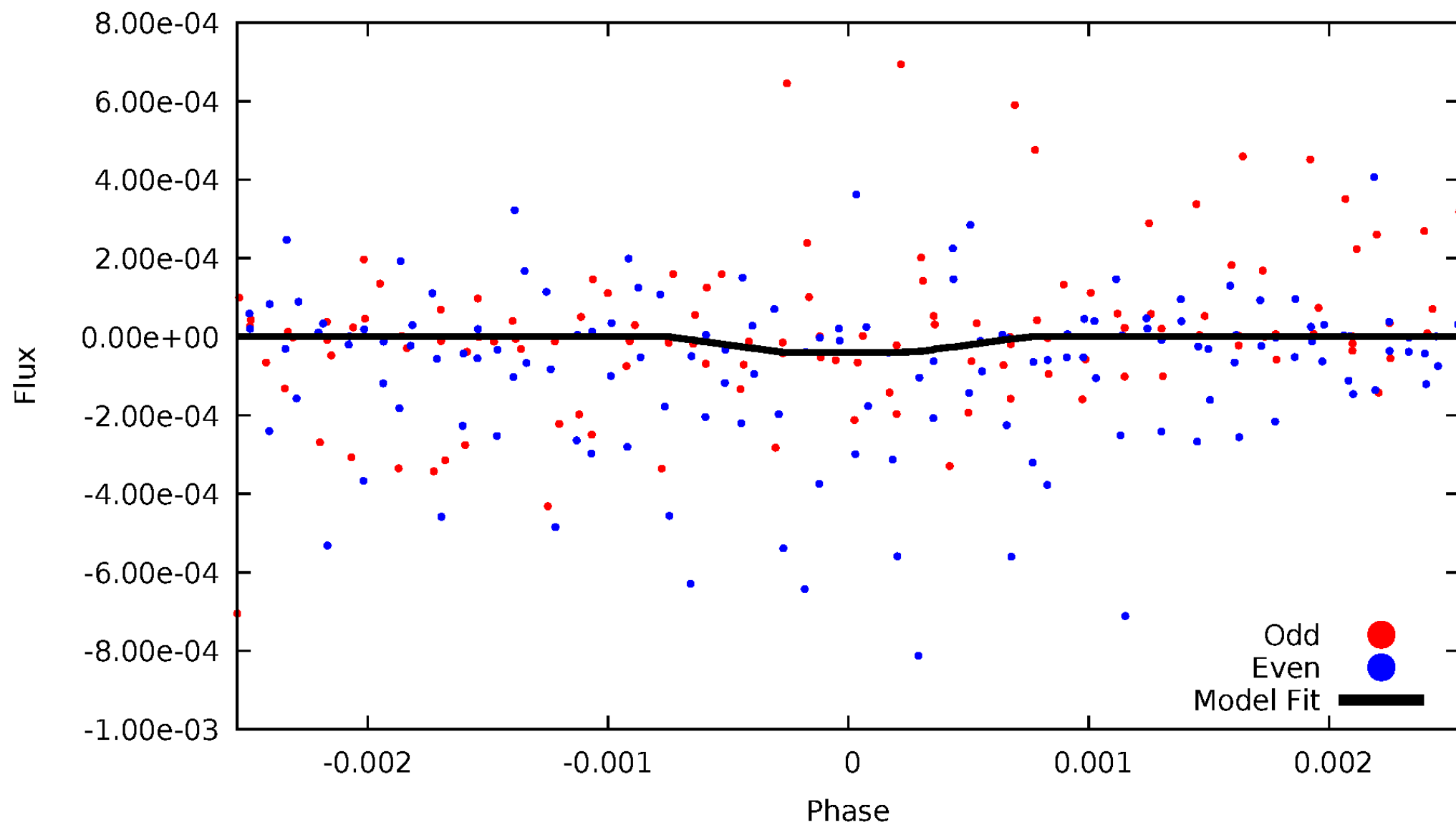
DV Odd/Even

TCE 006430841-06



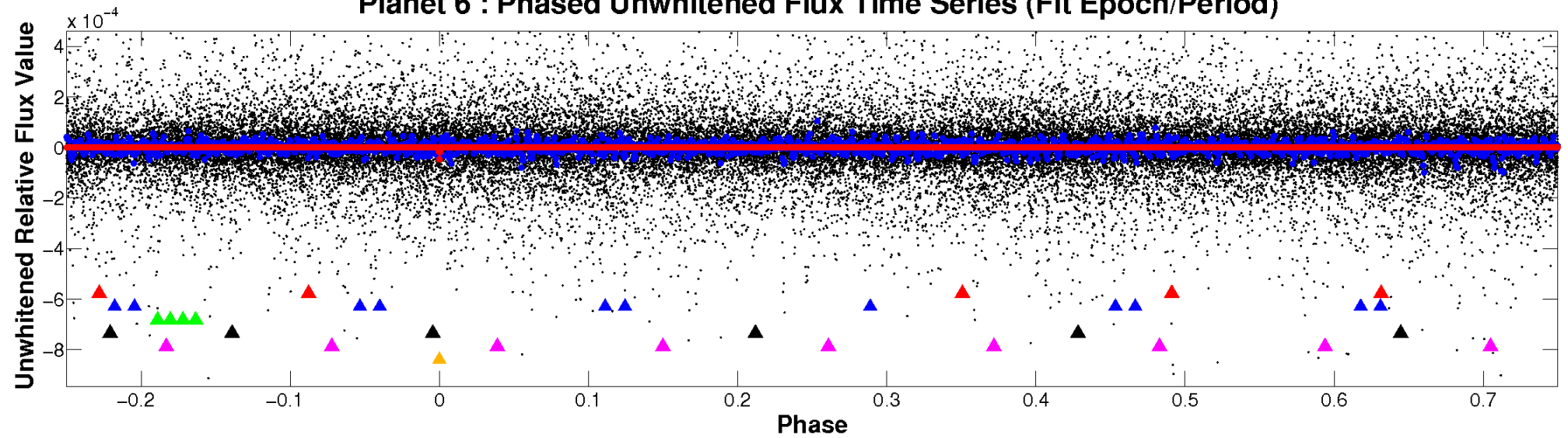
ALT Odd/Even

TCE 006430841-06

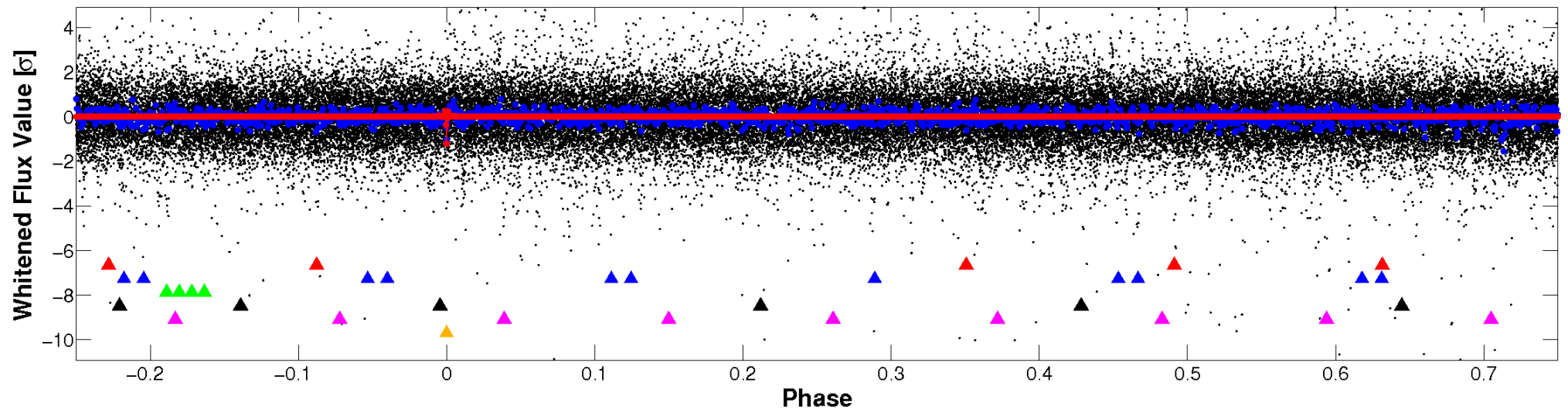


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

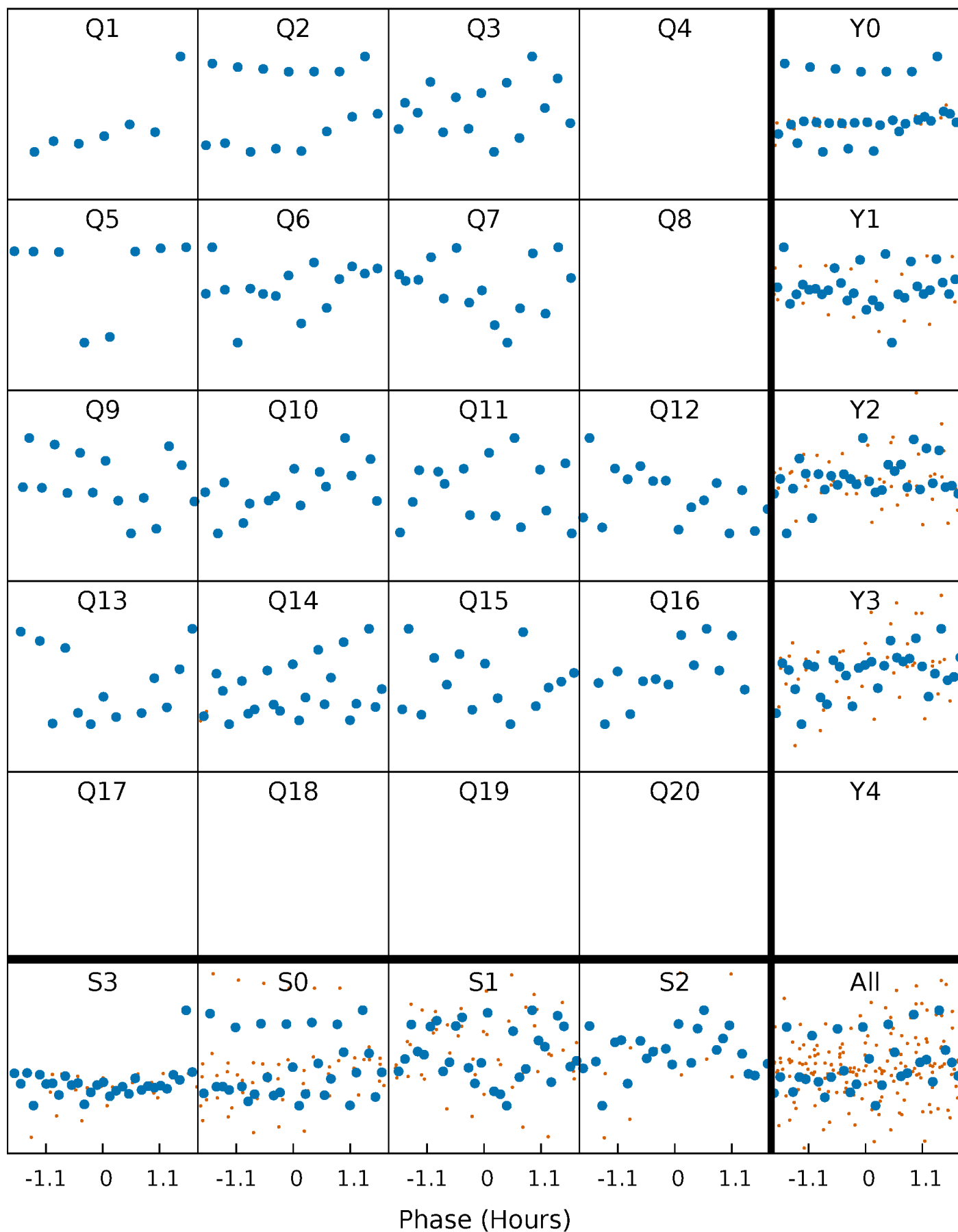


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



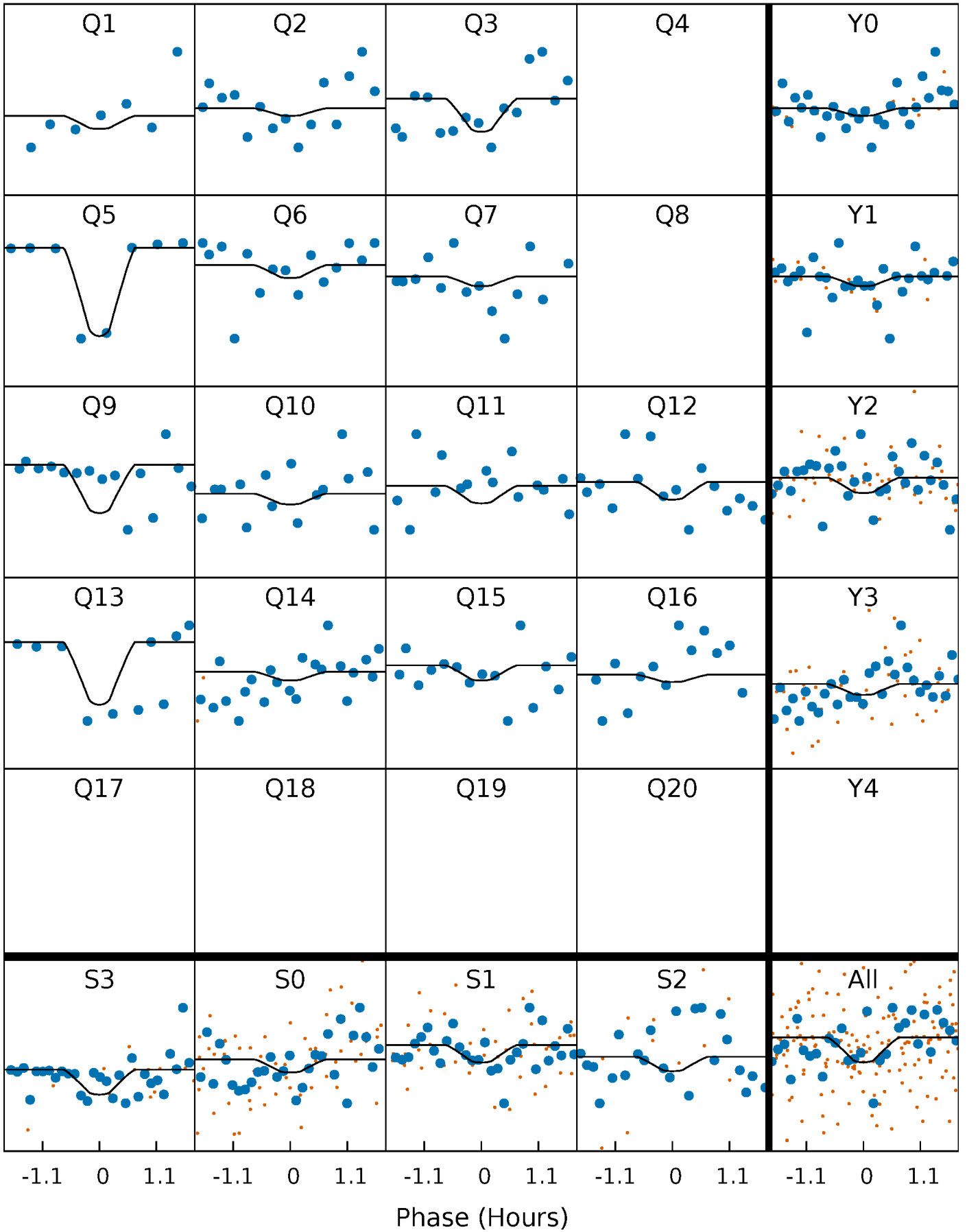
PDC Quarter-Phased Transit Curves

TCE 006430841-06 P= 43.102199 Days $T_0=159.524448$ (BKJD)



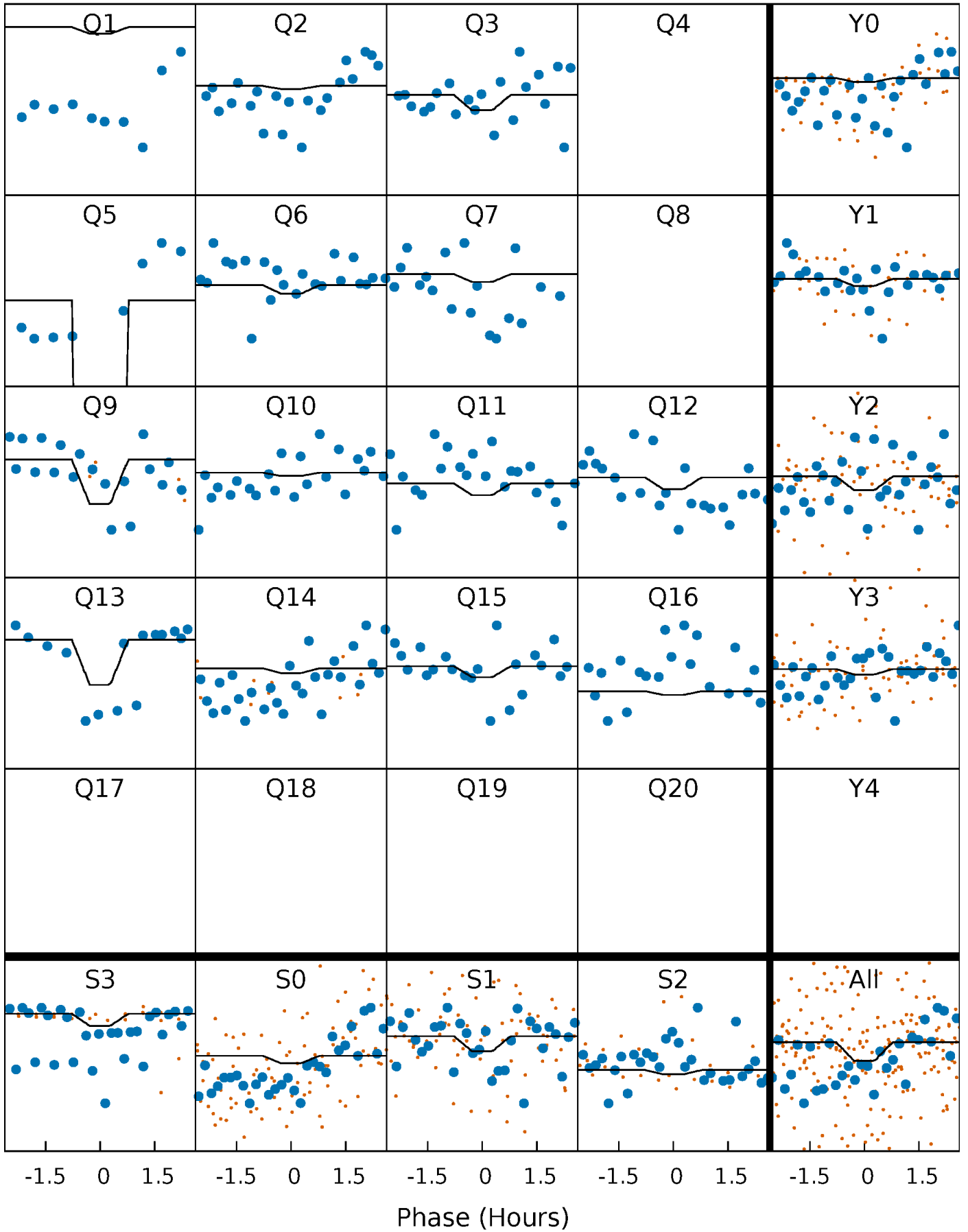
DV Quarter-Phased Transit Curves

TCE 006430841-06 P= 43.102199 Days $T_0=159.524448$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

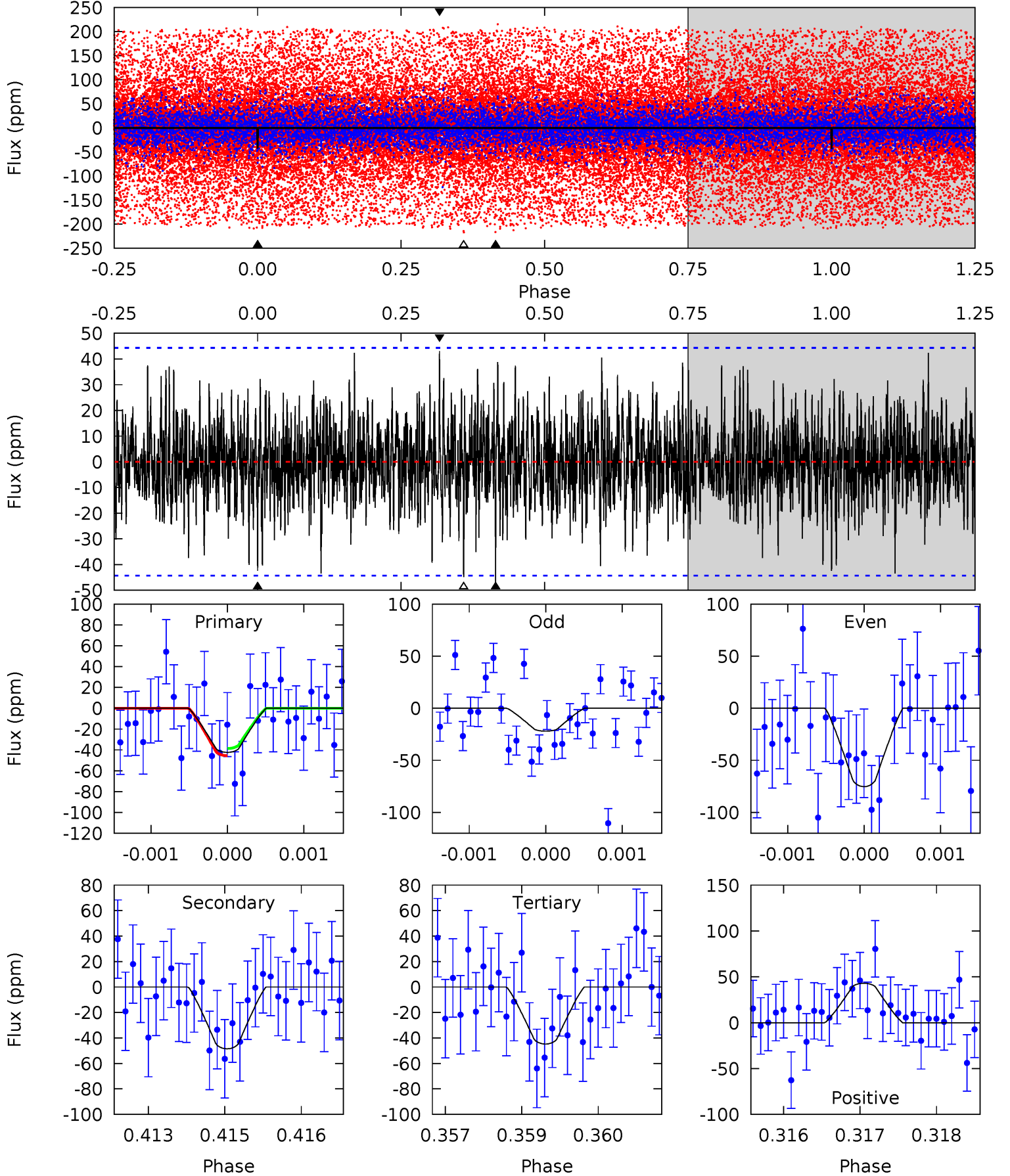
TCE 006430841-06 $P = 43.102863$ Days $T_0 = 159.519355$ (BKJD)



DV Model-Shift Uniqueness Test

006430841-06, P = 43.102199 Days, E = 116.422249 Days

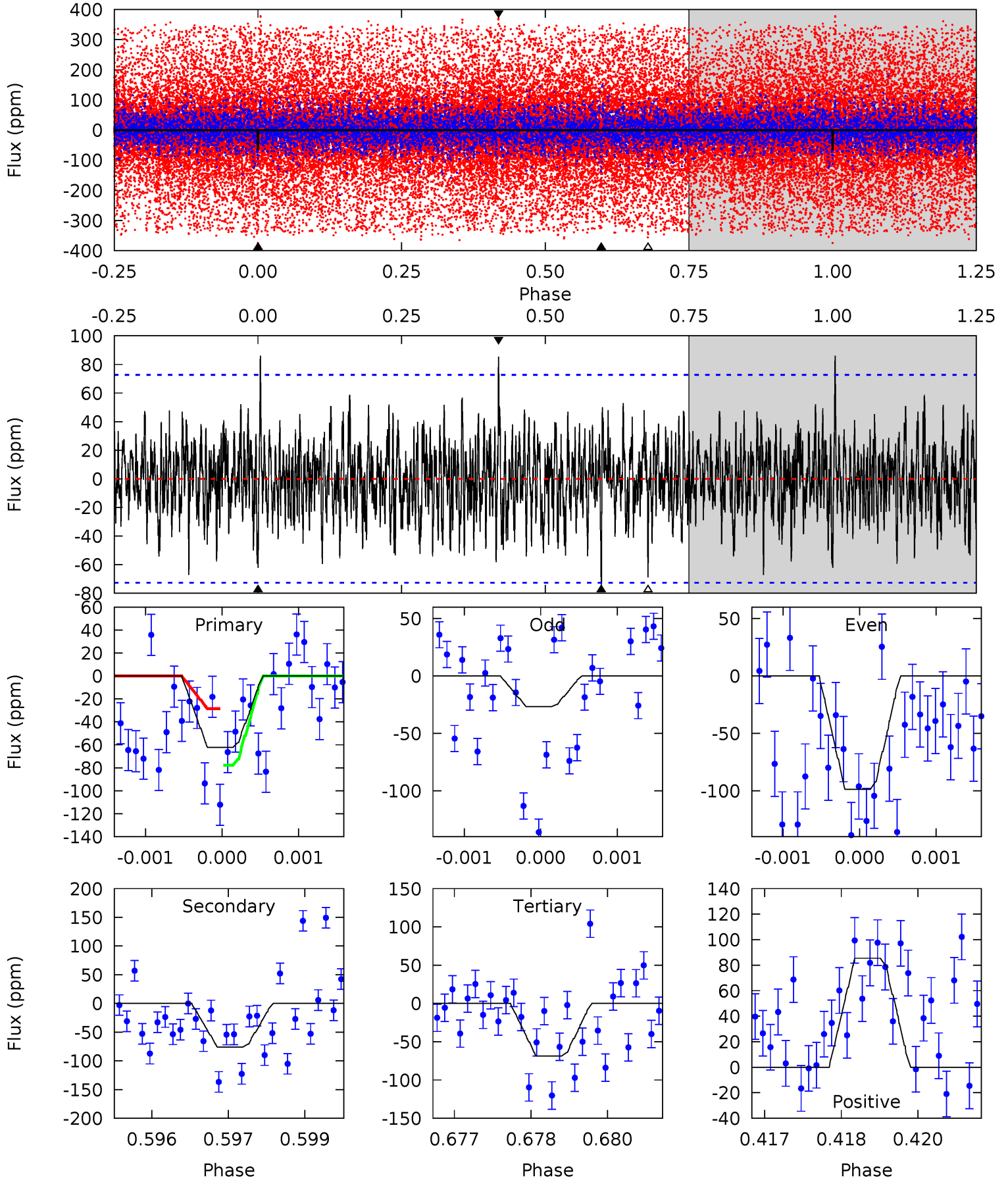
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.17	5.92	5.46	5.25	5.40	3.22	1.54	-0.29	-0.08	0.46	0.67	3.30	0.65	0.47	0.43



Alt Model-Shift Uniqueness Test

006430841-06, P = 43.102863 Days, E = 116.416492 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.61	5.62	5.09	6.33	5.39	3.19	1.57	-0.49	-1.73	0.53	-0.71	2.66	2.48	0.53	1.85



Stellar Parameters For KIC 006430841

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4754^{+56}_{-123}	$2.447^{+0.035}_{-0.031}$	$0.210^{+0.150}_{-0.300}$	$17.089^{+1.133}_{-4.814}$	$2.983^{+0.359}_{-1.436}$	$0.001^{+0.000}_{-0.000}$
	+1%/-3%	+1%/-1%	+71%/-143%	+7%/-28%	+12%/-48%	+46%/-10%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 006430841-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-49 ± 8	$15.59^{+7.92}_{-7.96}$	2053^{+46}_{-59}	4370^{+1562}_{-636}	13^{+41}_{-7}
Alt.	-76 ± 13	$12.84^{+7.12}_{-6.80}$	2057^{+42}_{-64}	5222^{+2550}_{-916}	31^{+106}_{-19}

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

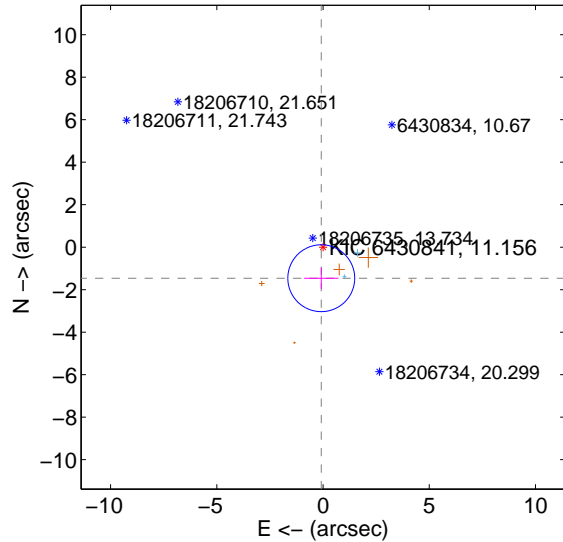
Supplemental centroid analysis for 006430841-06. **Kepler magnitude: 11.16.** Transit SNR 16.06

There are 2 quarters with good PRF difference image offsets

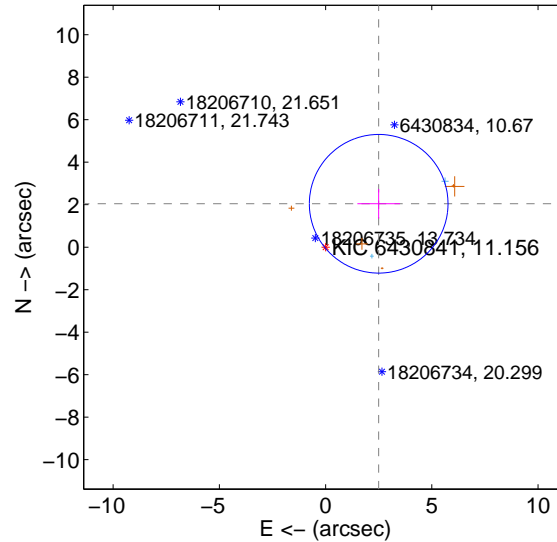
The OOT PRF centroid is offset from the target star catalog position by about 4.86 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.463 ± 0.525	2.79	0.084 ± 0.811	-1.461 ± 0.497
PRF-fit source offset from KIC position	3.228 ± 1.088	2.97	-2.499 ± 1.003	2.043 ± 0.699
photometric centroid source offset	1.92 ± 2.52	0.76	-0.94 ± 2.86	1.67 ± 2.41

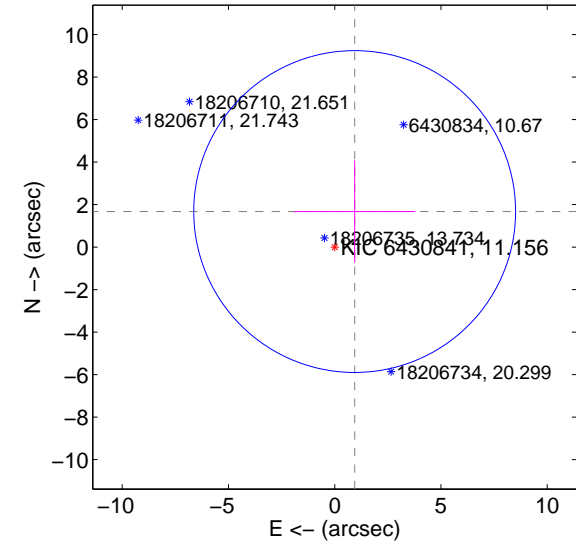
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

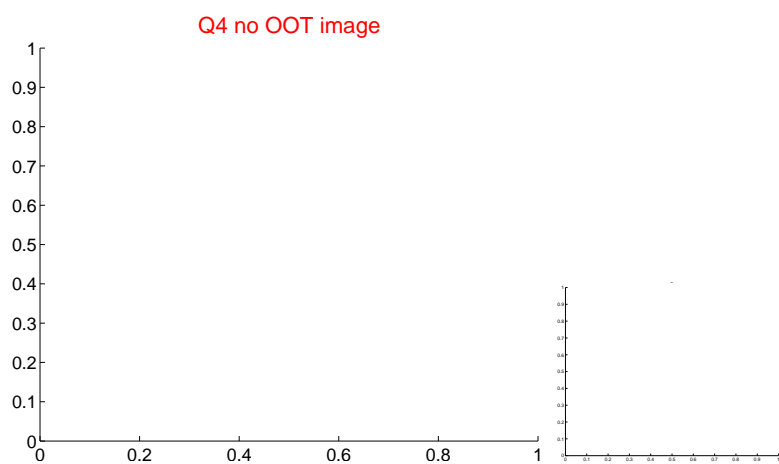
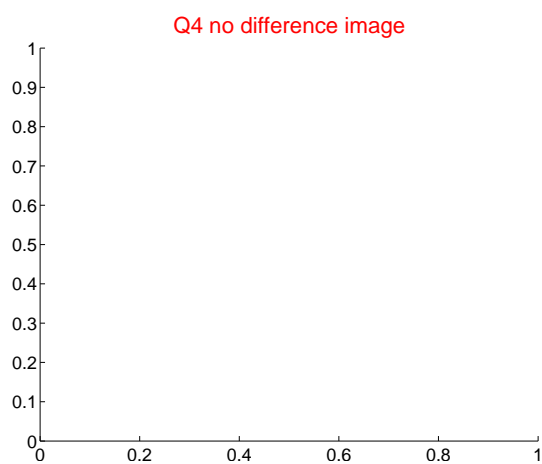
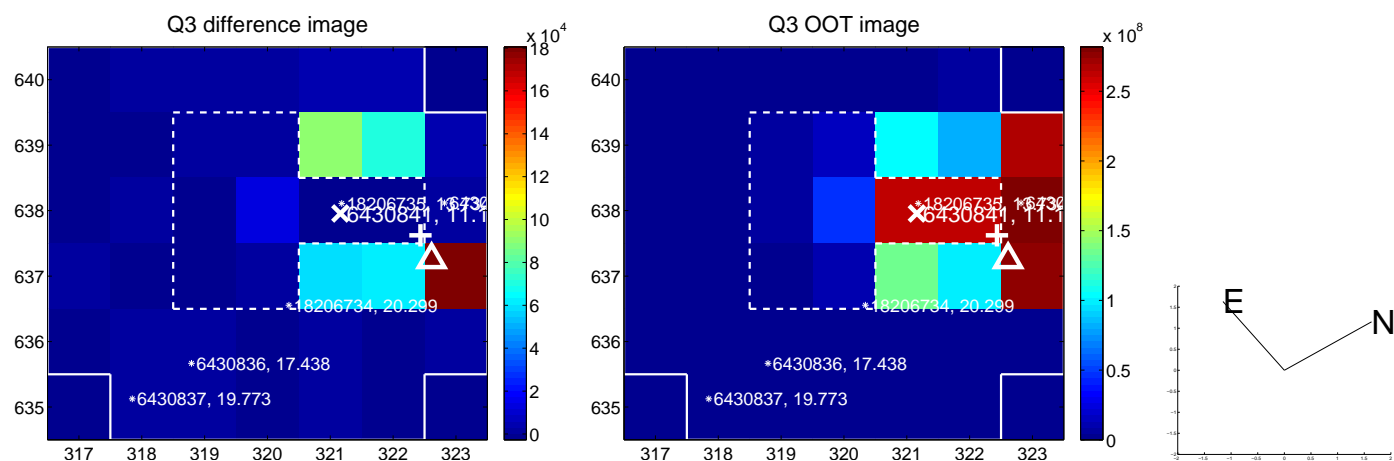
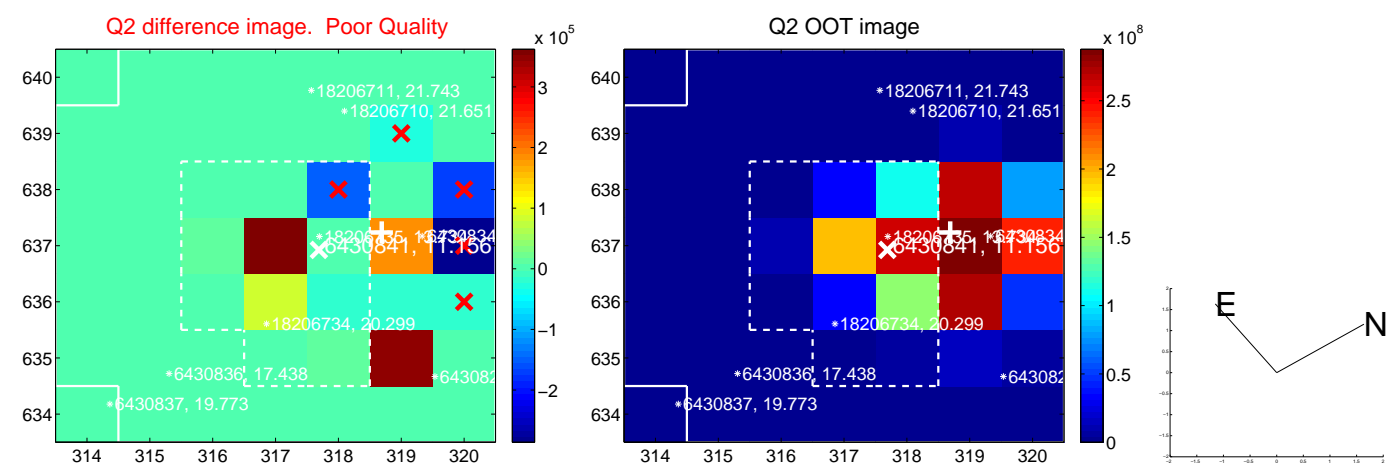
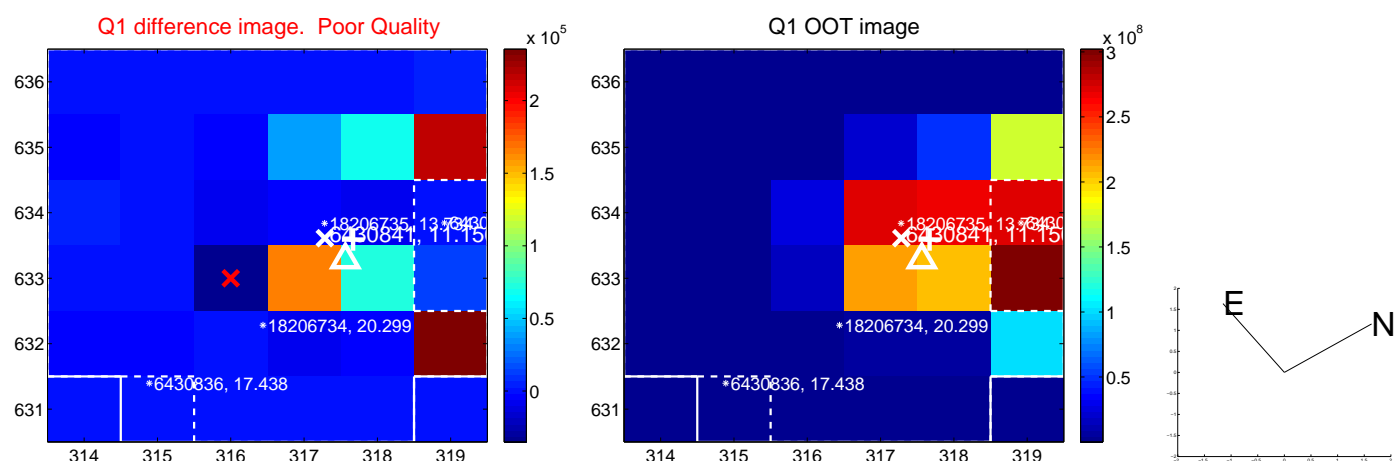


offset from photometric centroids

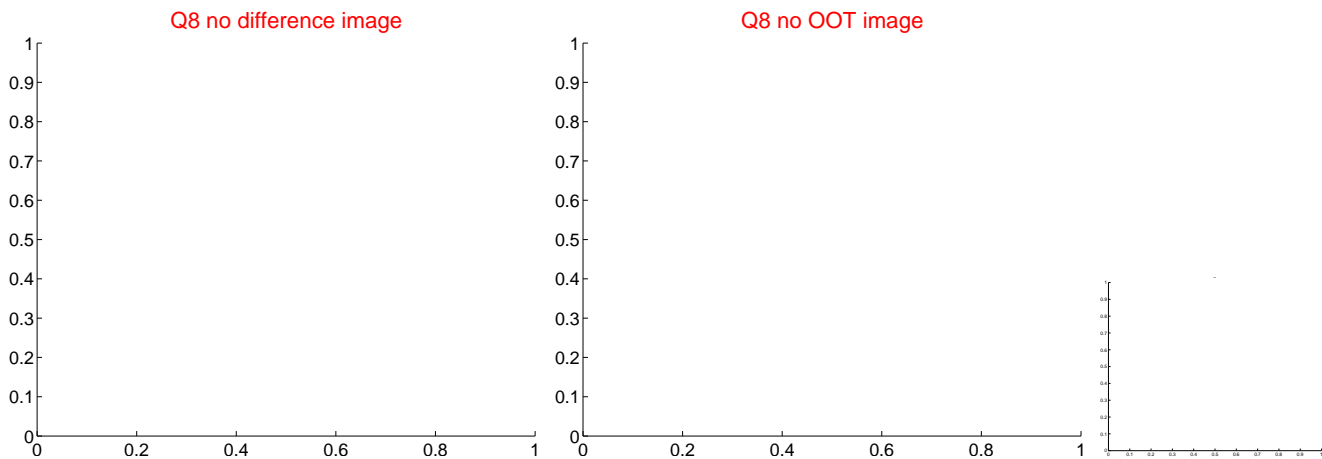
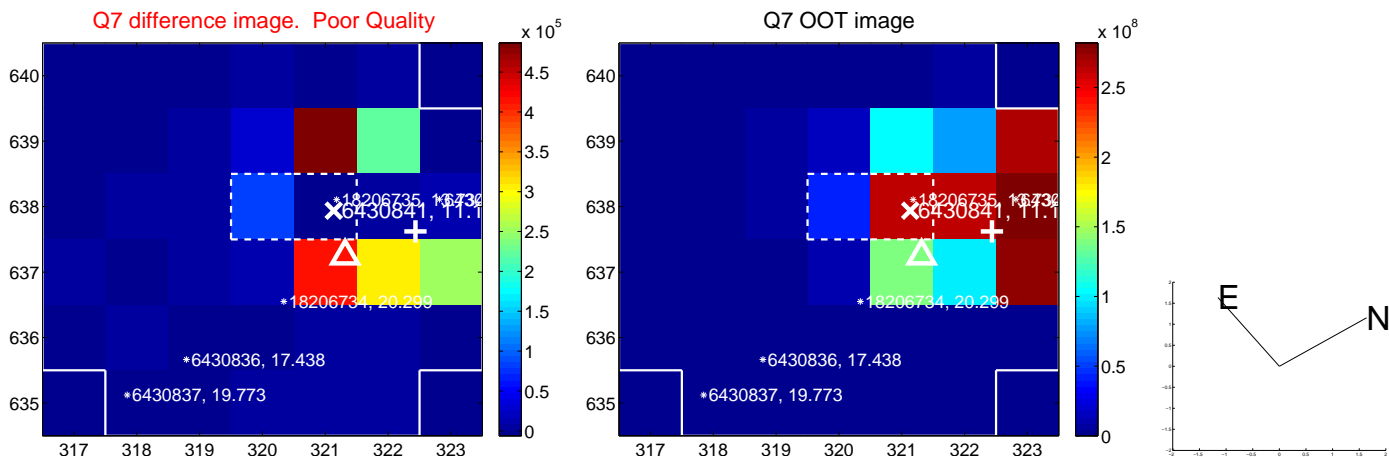
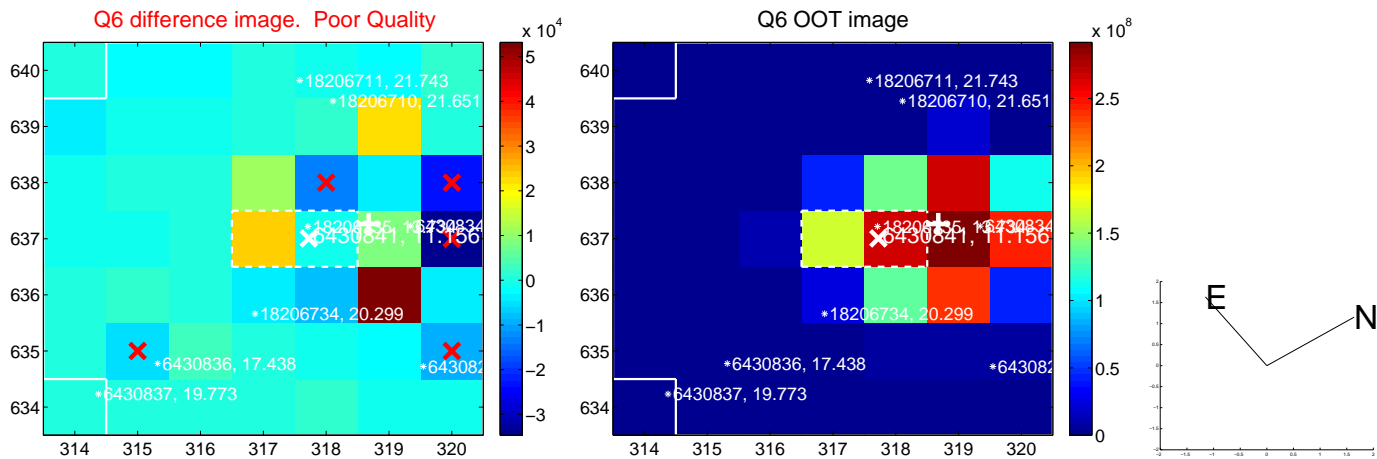
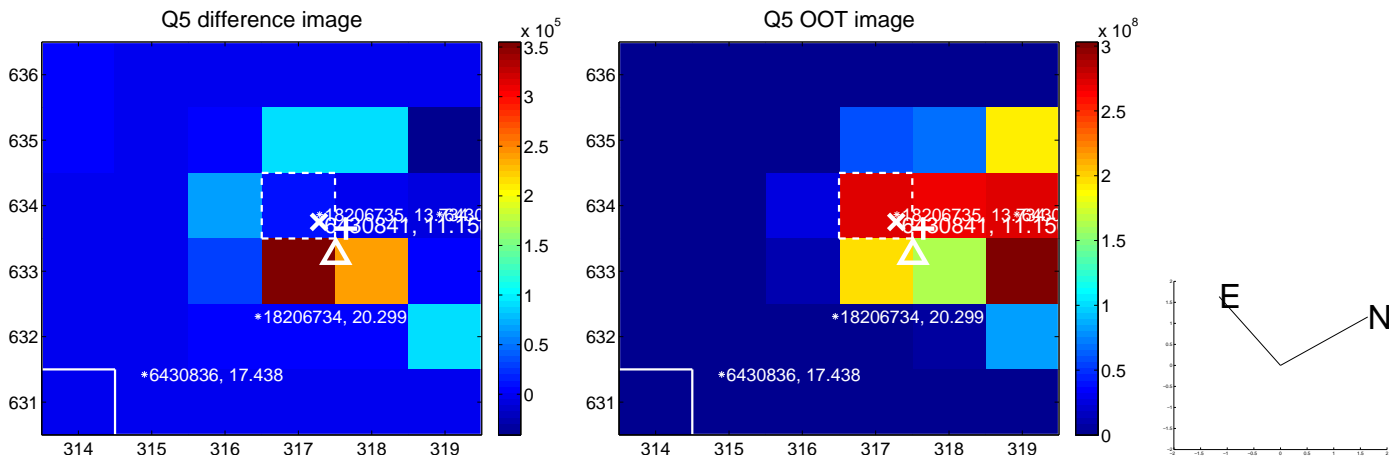


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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.

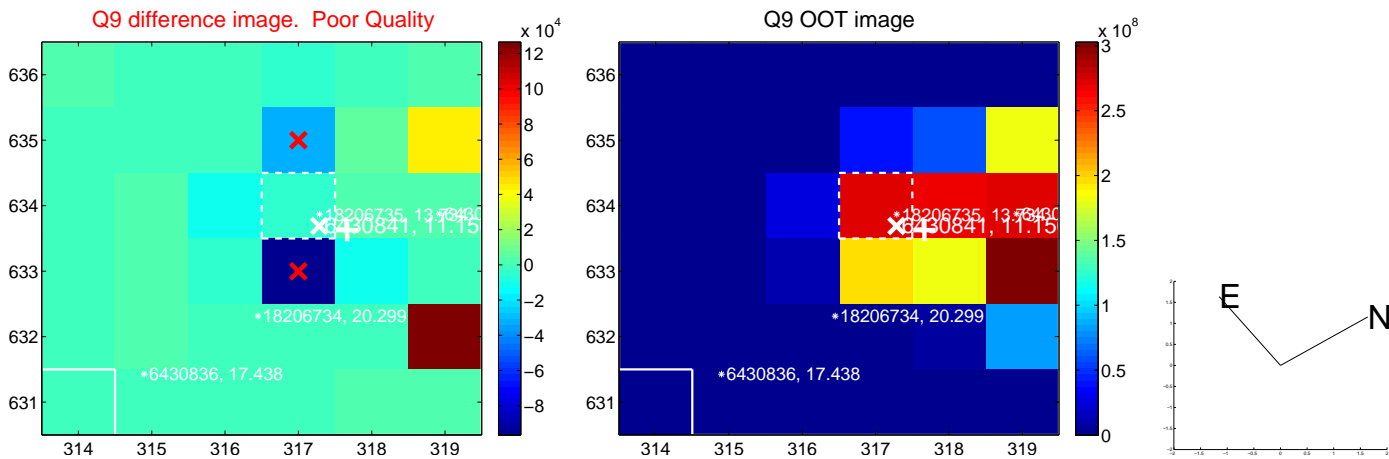
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



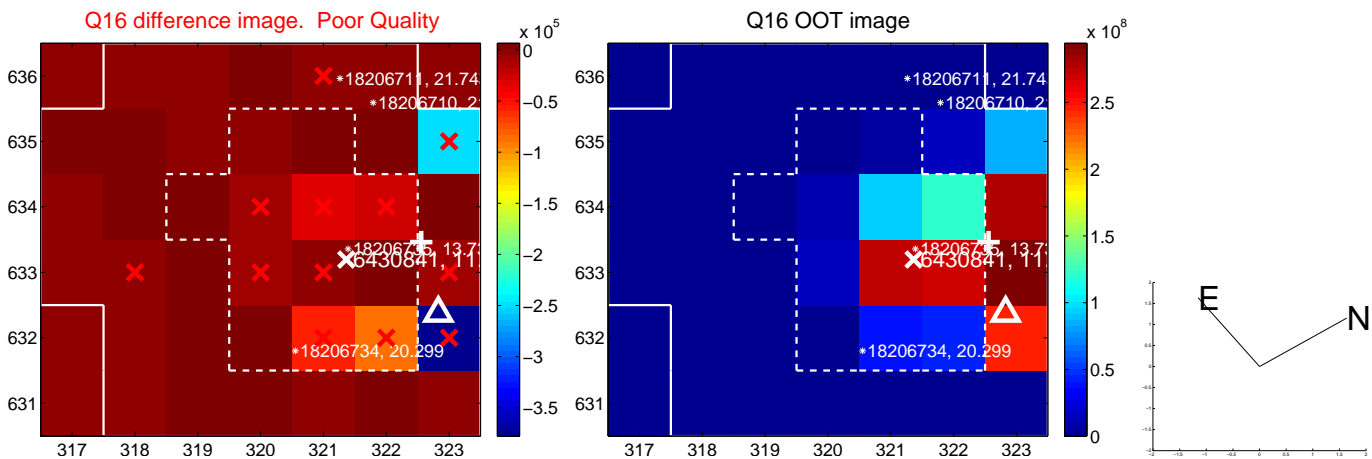
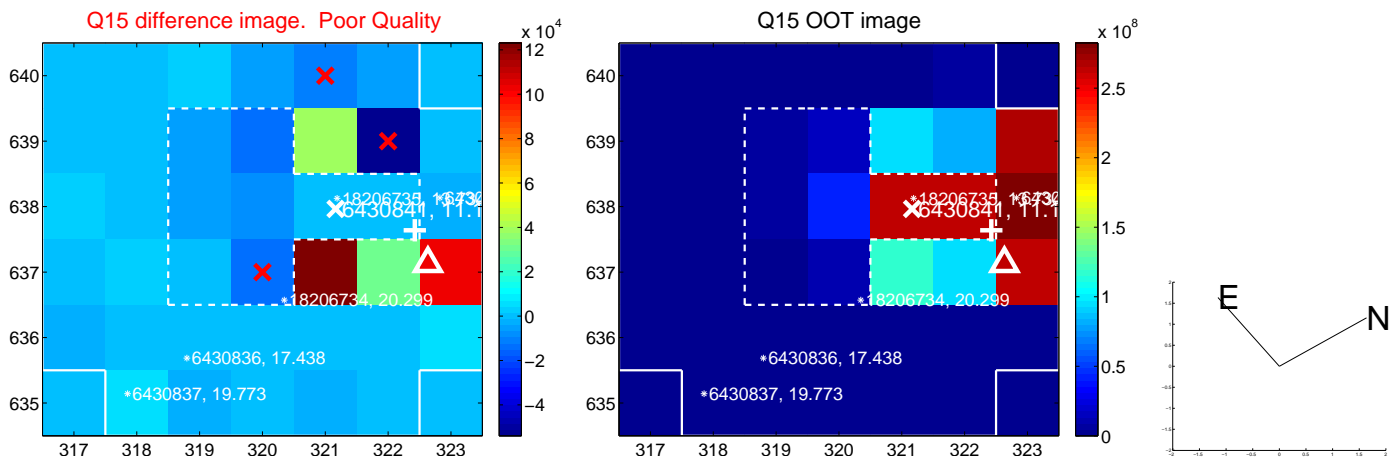
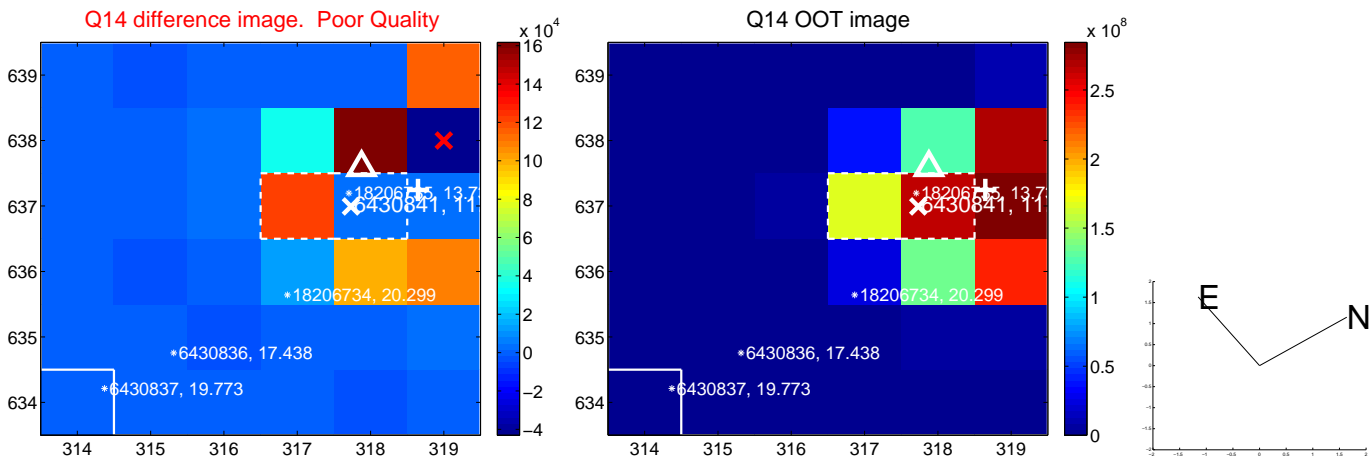
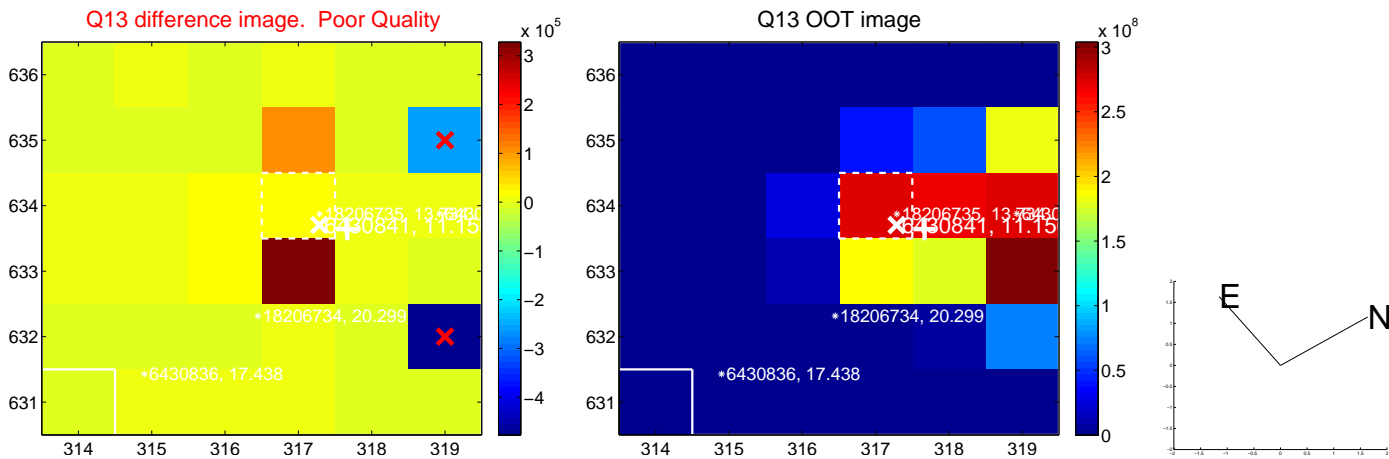
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



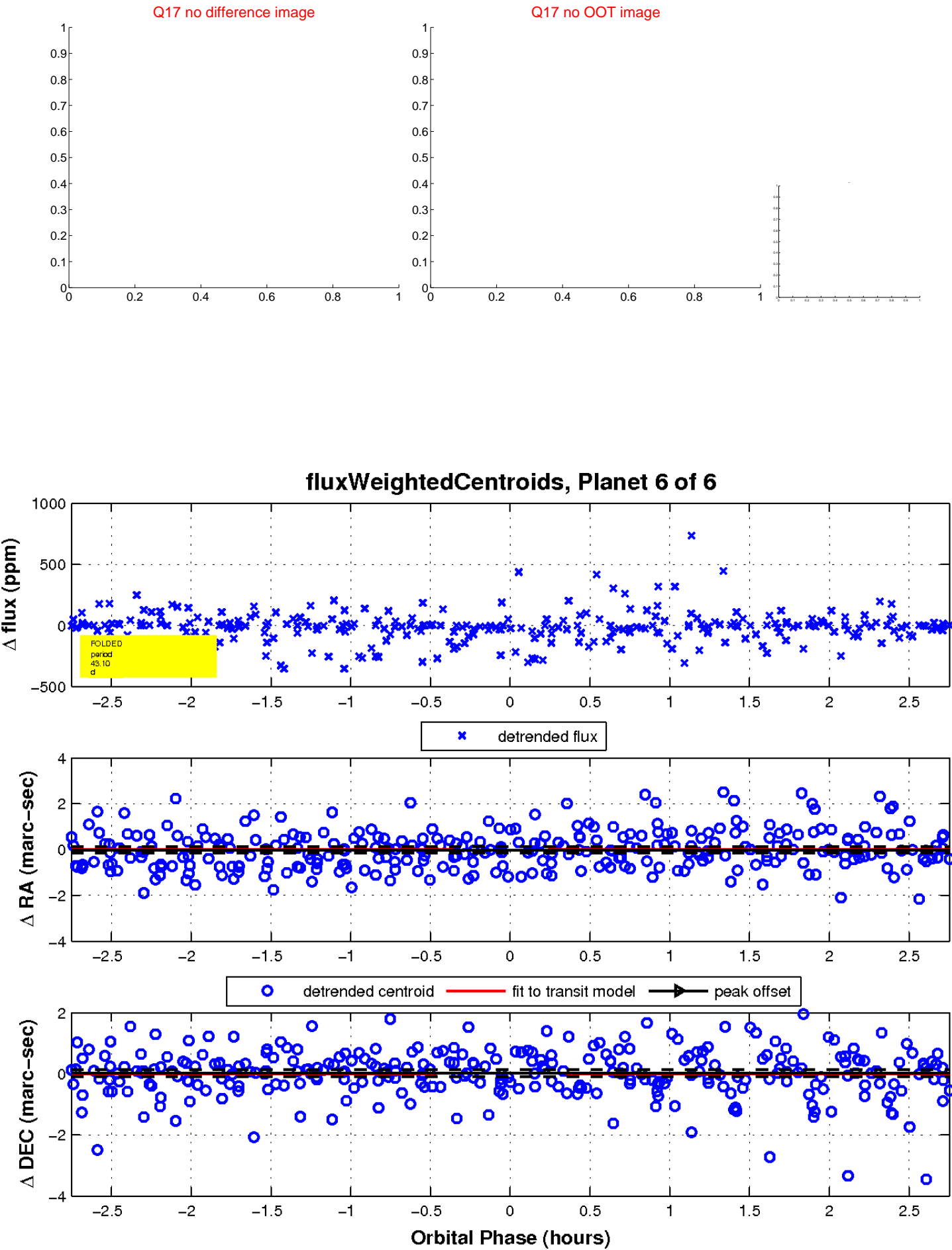
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

