

KIC 003453494

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})
003453494-01	OBS	No	1.030916	131.693533	53.8	2.764	9.1	4.3	3.57	7766	2.98	64787.16
003453494-02	OBS	No	0.515440	131.946190	78.6	3.078	11.2	8.9	3.57	7766	3.70	0.00
003453494-03	OBS	No	34.898911	139.118838	1250.1	1.943	9.7	10.2	3.57	7766	13.43	591.61
003453494-04	OBS	No	29.752587	148.910721	1644.3	1.428	9.7	8.7	3.57	7766	15.75	731.85
003453494-05	OBS	No	42.057117	134.983982	1041.9	2.729	8.8	9.3	3.57	7766	12.80	461.32
003453494-06	OBS	No	21.543803	141.569803	1096.3	1.514	9.3	8.4	3.57	7766	13.83	1125.53
003453494-07	OBS	No	22.541275	131.761021	1403.5	1.611	9.2	11.5	3.57	7766	14.64	1059.62
003453494-08	OBS	No	35.097670	148.391078	1243.1	4.046	8.9	10.7	3.57	7766	20.68	587.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

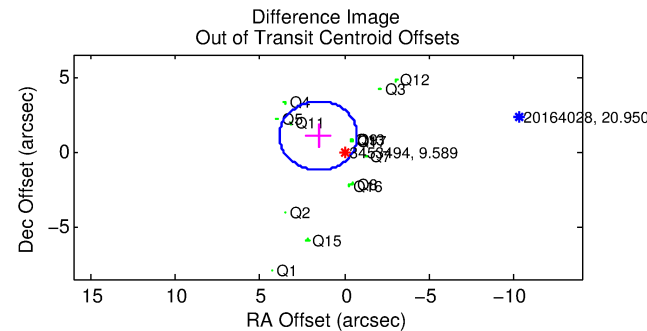
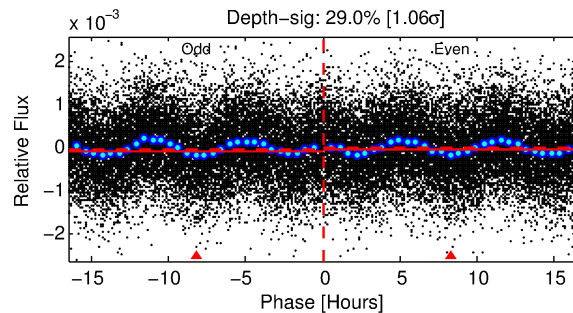
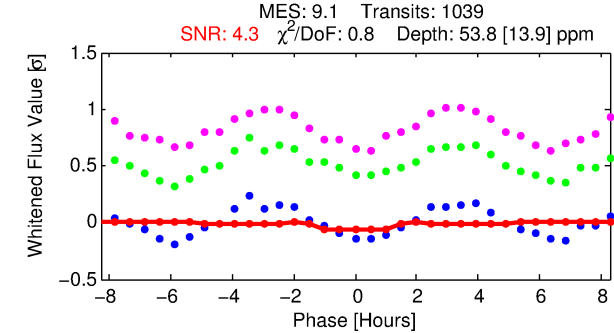
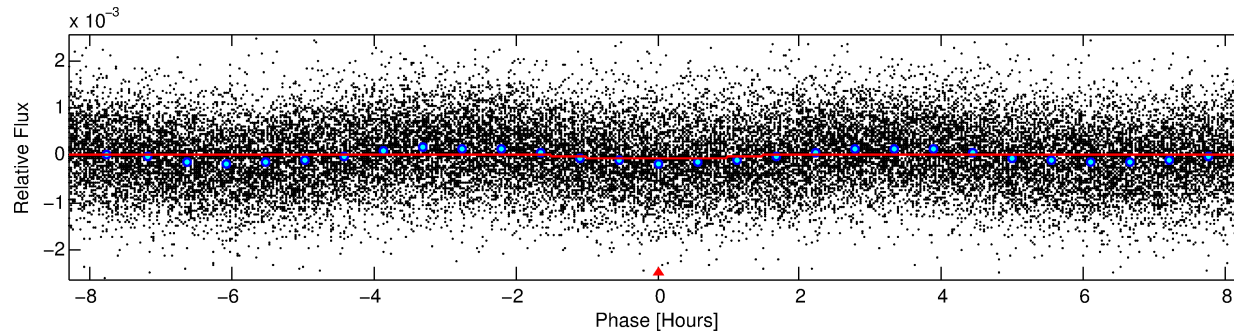
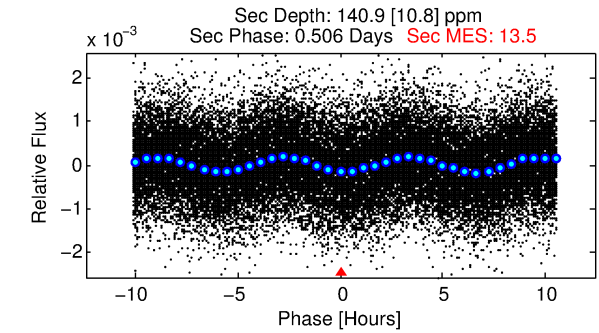
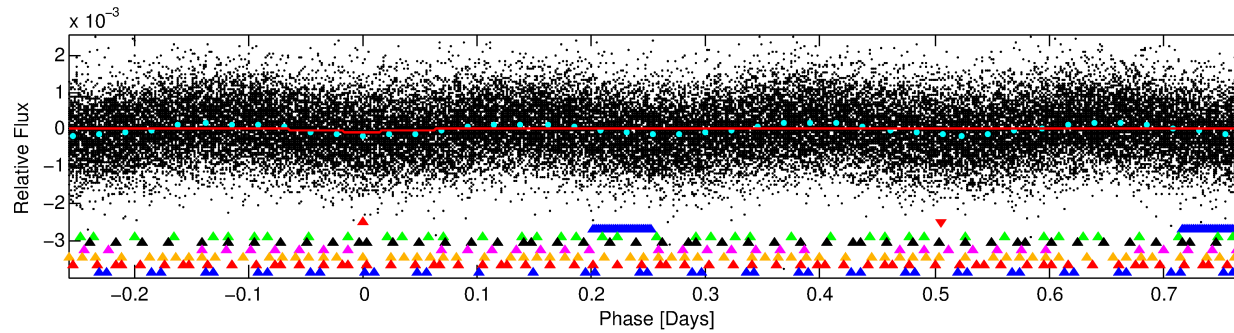
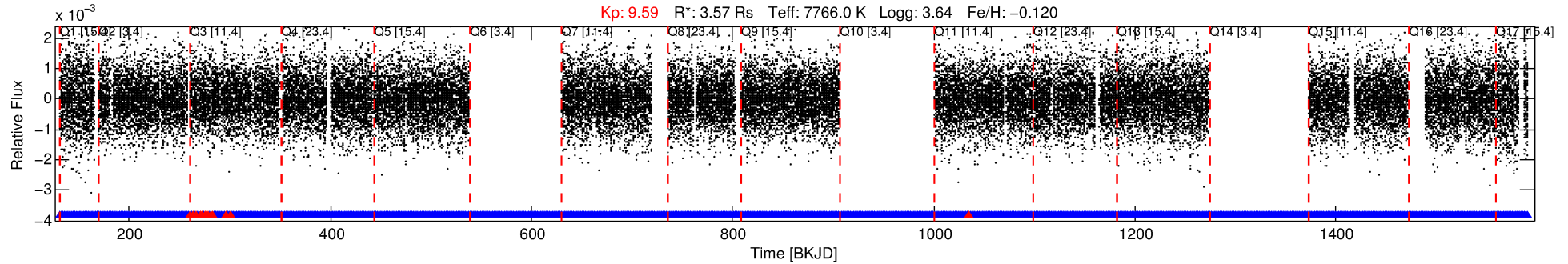
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-01

No Significant Match Found

DV One-Page Summary

KIC: 3453494 Candidate: 1 of 8 Period: 1.031 d



DV Fit Results:

Period = 1.03092 [0.00003] d
Epoch = 131.6935 [0.0065] BKJD
 $R_p/R^* = 0.0077$ [0.0046]
 $a/R^* = 1.74$ [4.14]
 $b = 0.86$ [1.06]
 $\text{Seff} = 64787.16$ [24701.46]
 $T_{\text{eq}} = 4068$ [388] K
 $R_p = 2.98$ [1.98] R_e
 $a = 0.0253$ [0.0061] AU
 $A_g = 5.59$ [7.08] [0.65σ]
 $T_{\text{eff}} = 9673$ [2937] K [1.89σ]

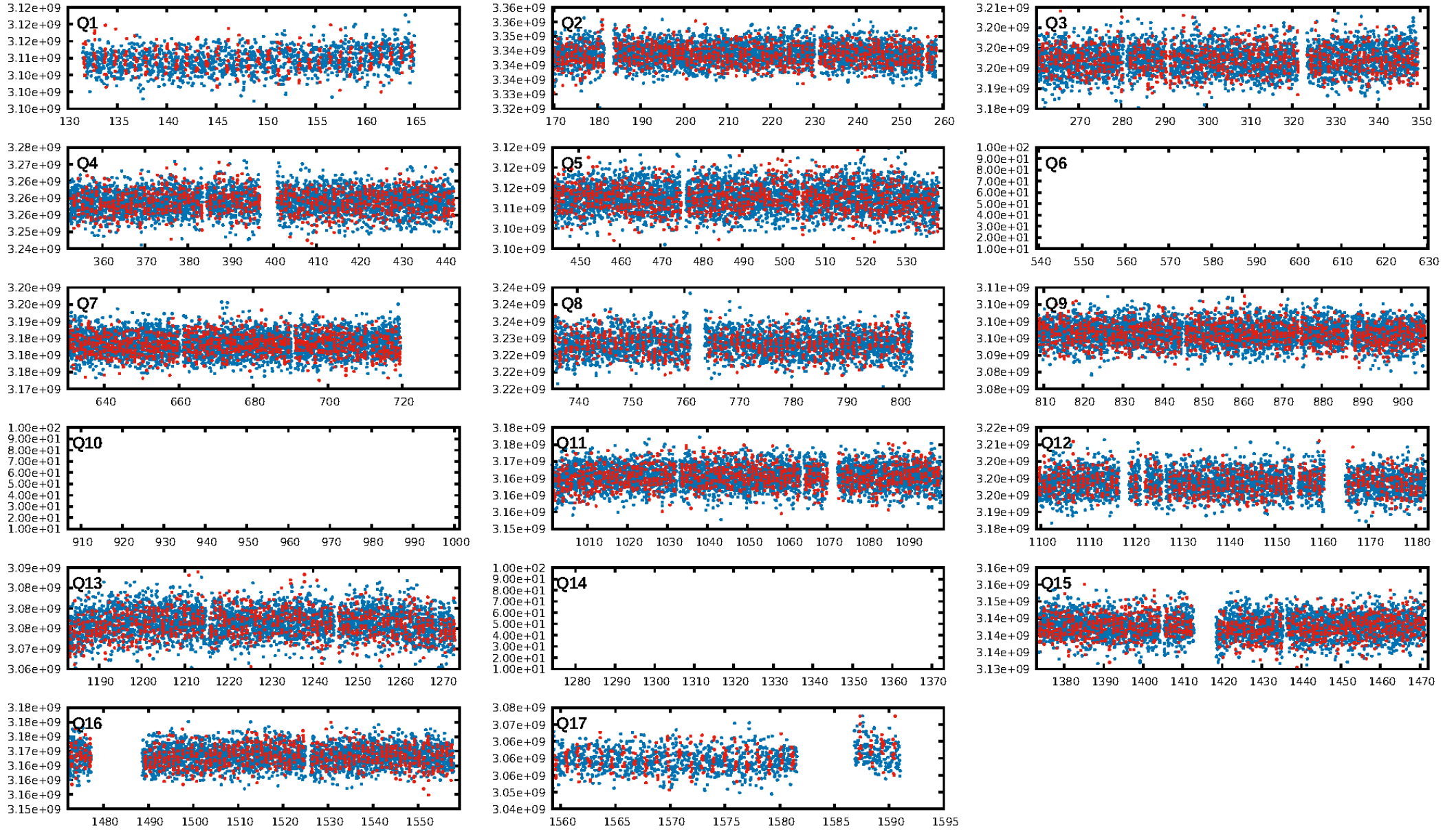
DV Diagnostic Results:

ShortPeriod-sig: 99.7% [2.99σ]
LongPeriod-sig: 100.0% [156.20σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [964/980]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.876 arcsec [1.96σ]
OotOffset-rm: 1.876 arcsec [2.45σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 1.939 arcsec [2.14σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.07 [1/14]
DiffImageOverlap-fno: 0.00 [0/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:08 Z

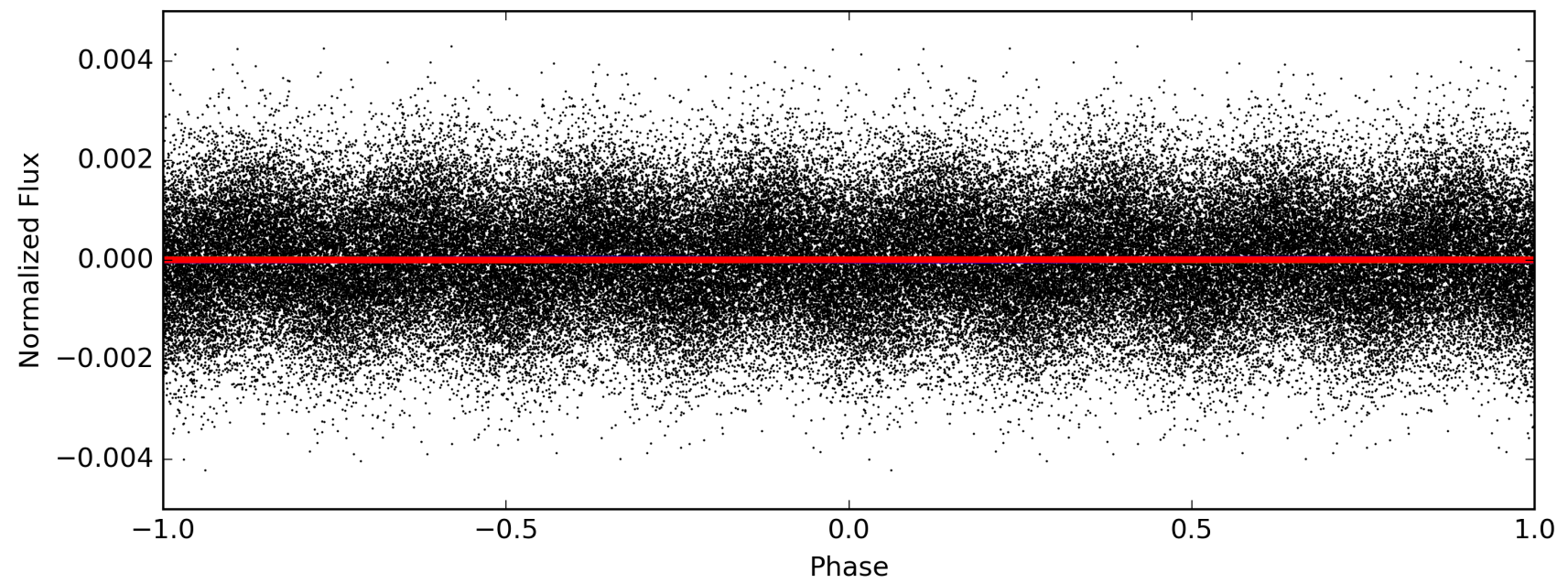
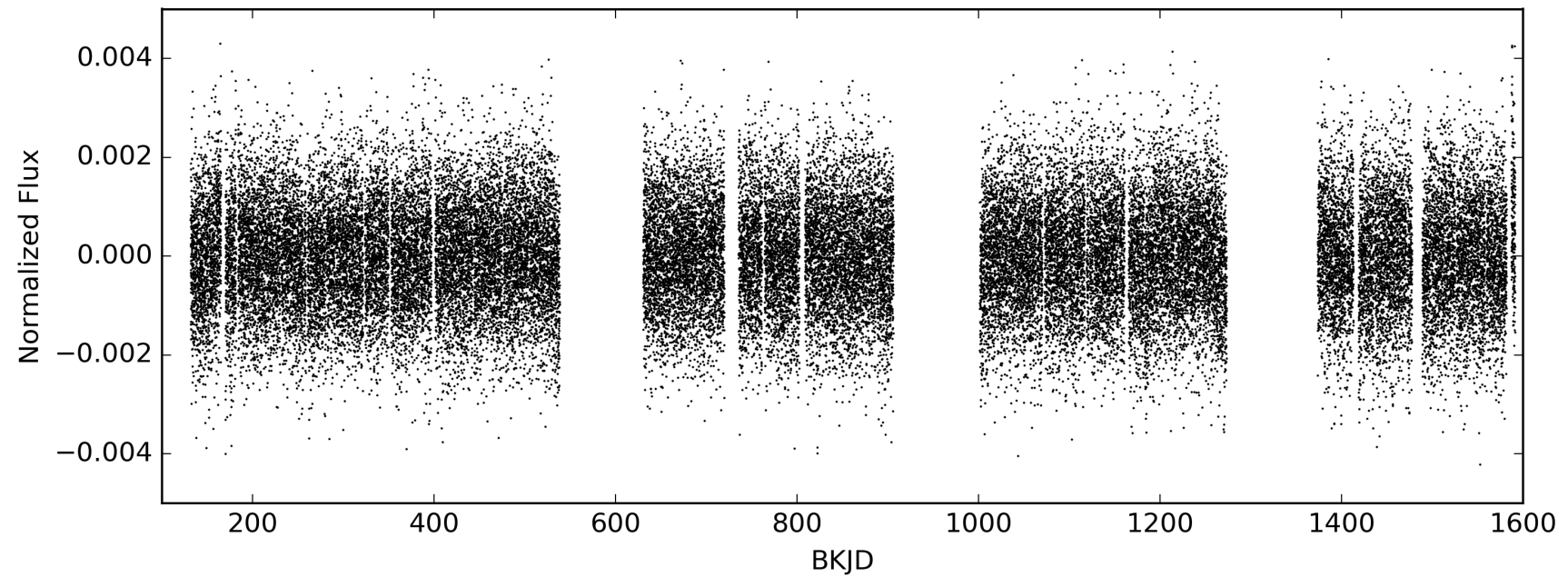
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003453494-01, PDC Light Curves



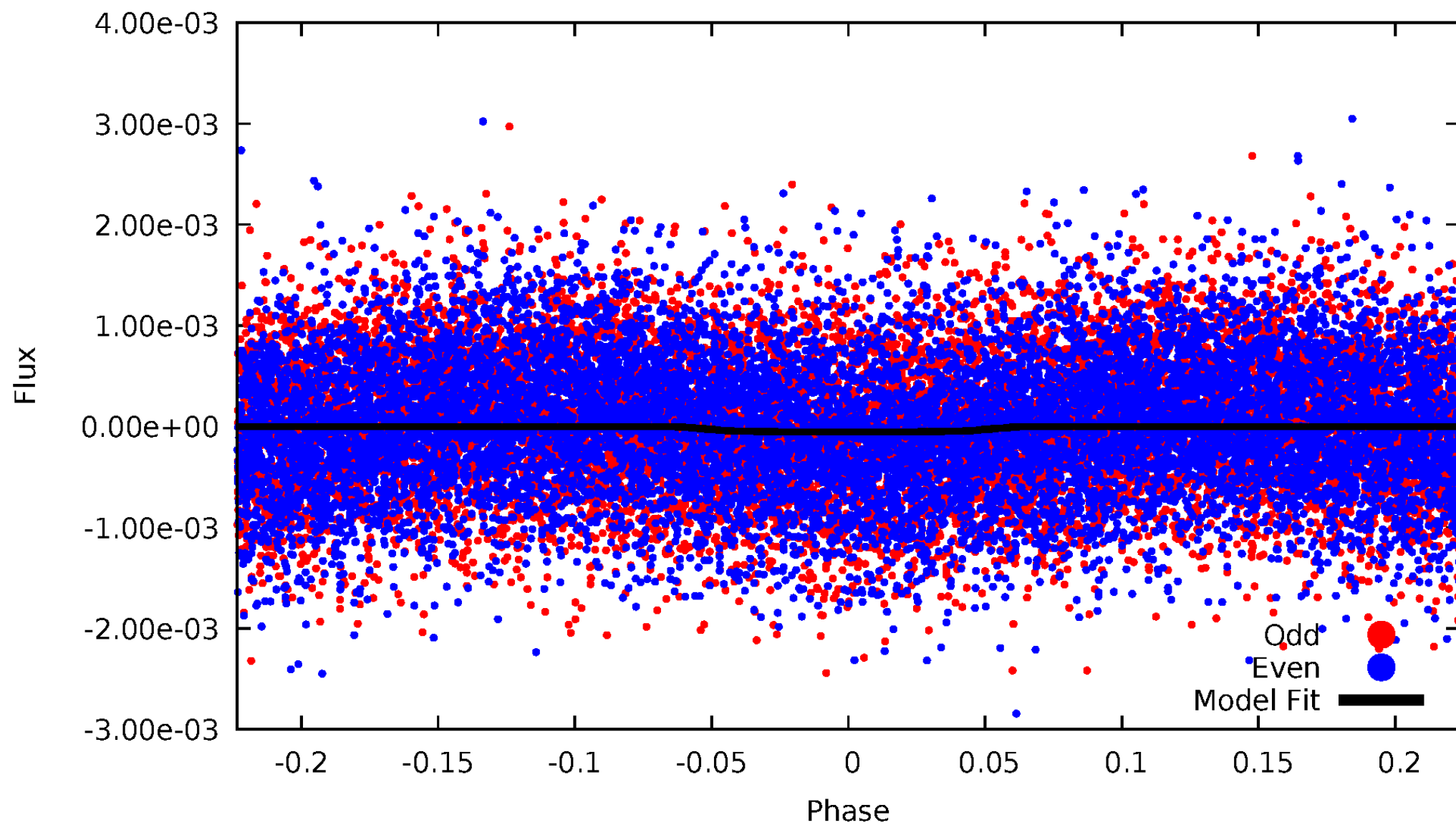
TCE 003453494-01

— P = 0.515 days — P = 1.031 days — P = 2.062 days



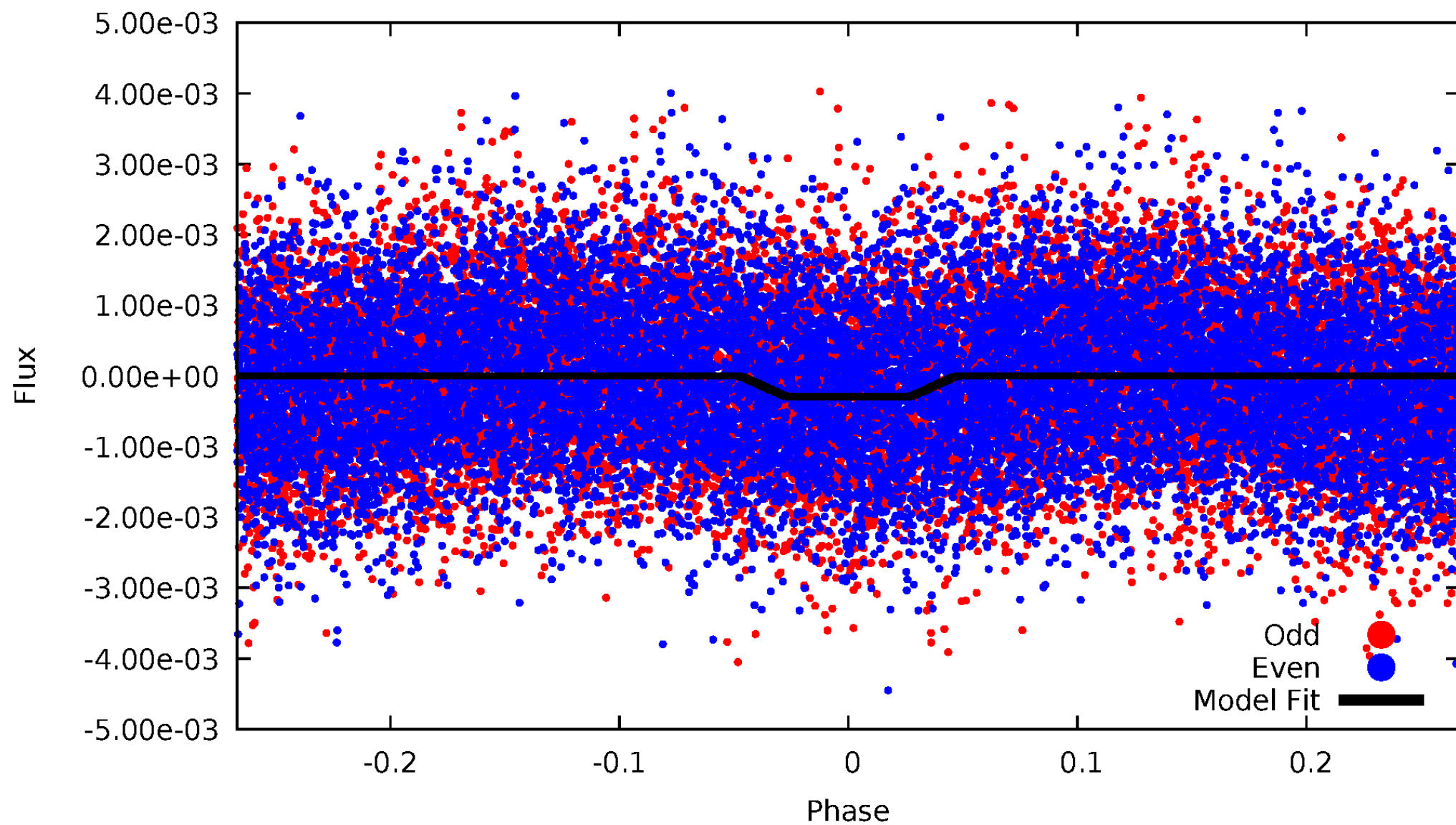
DV Odd/Even

TCE 003453494-01

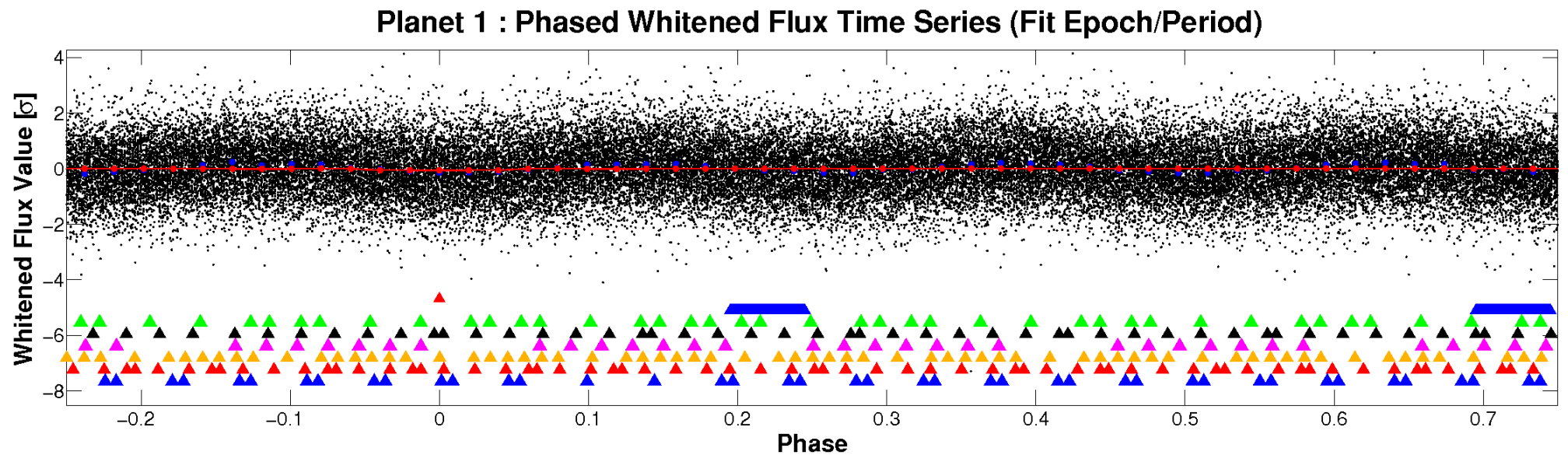
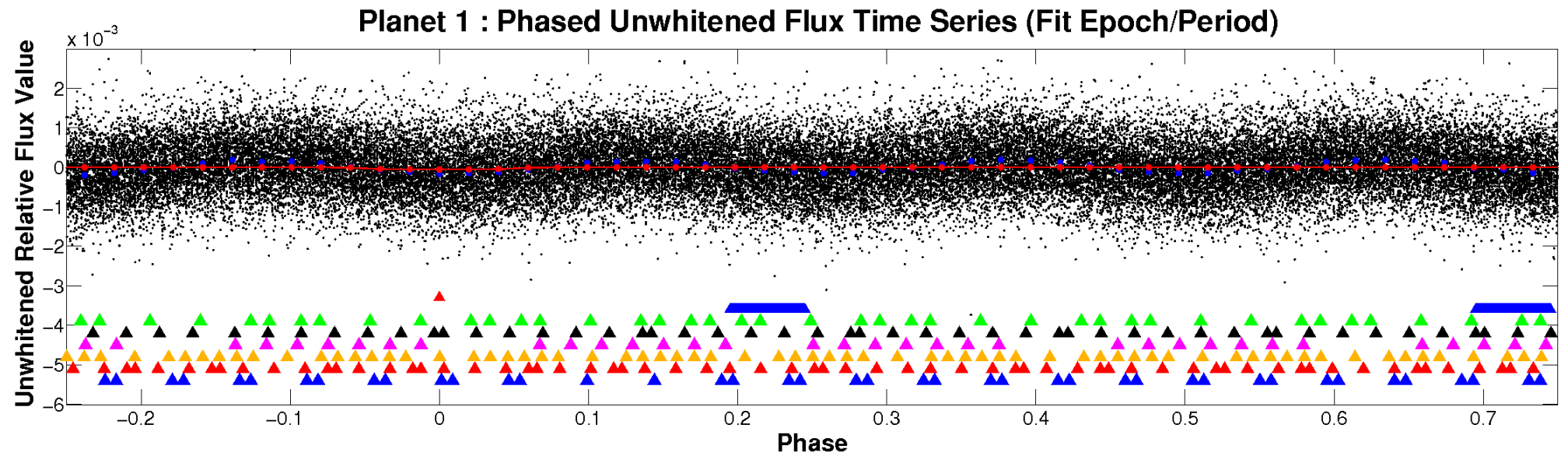


ALT Odd/Even

TCE 003453494-01

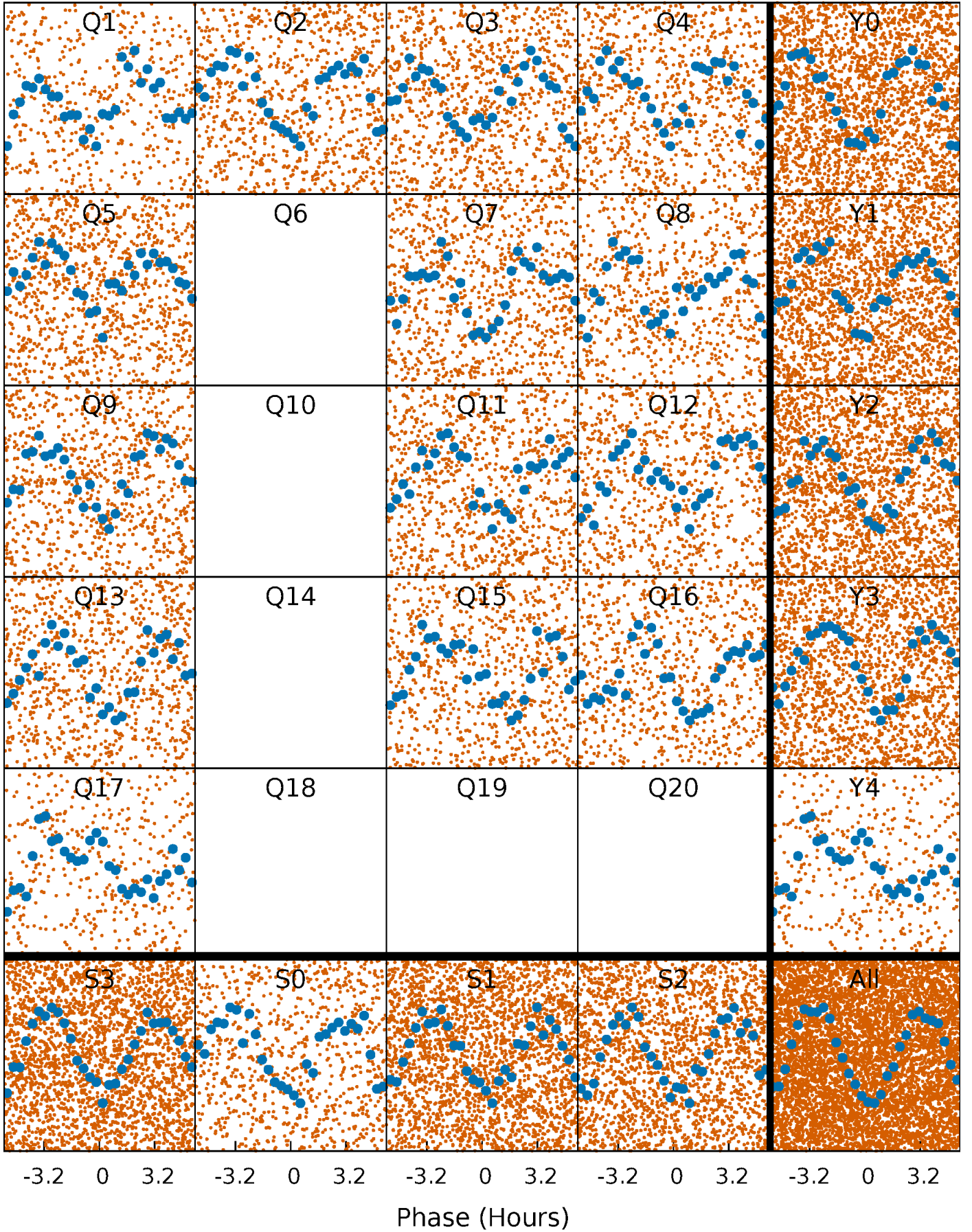


Non-Whitened Vs. Whitened Light Curve



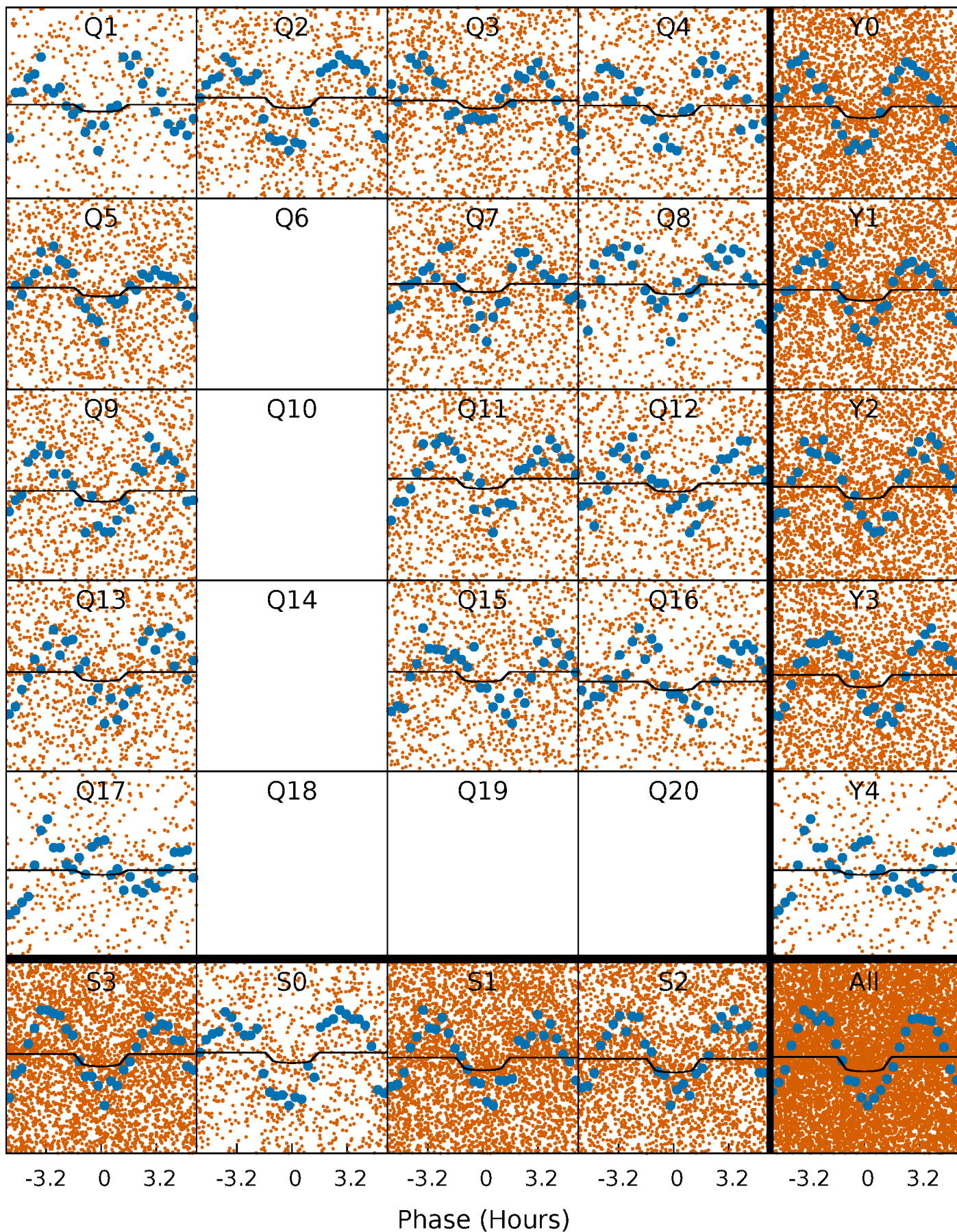
PDC Quarter-Phased Transit Curves

TCE 003453494-01 P= 1.030916 Days $T_0=131.693533$ (BKJD)



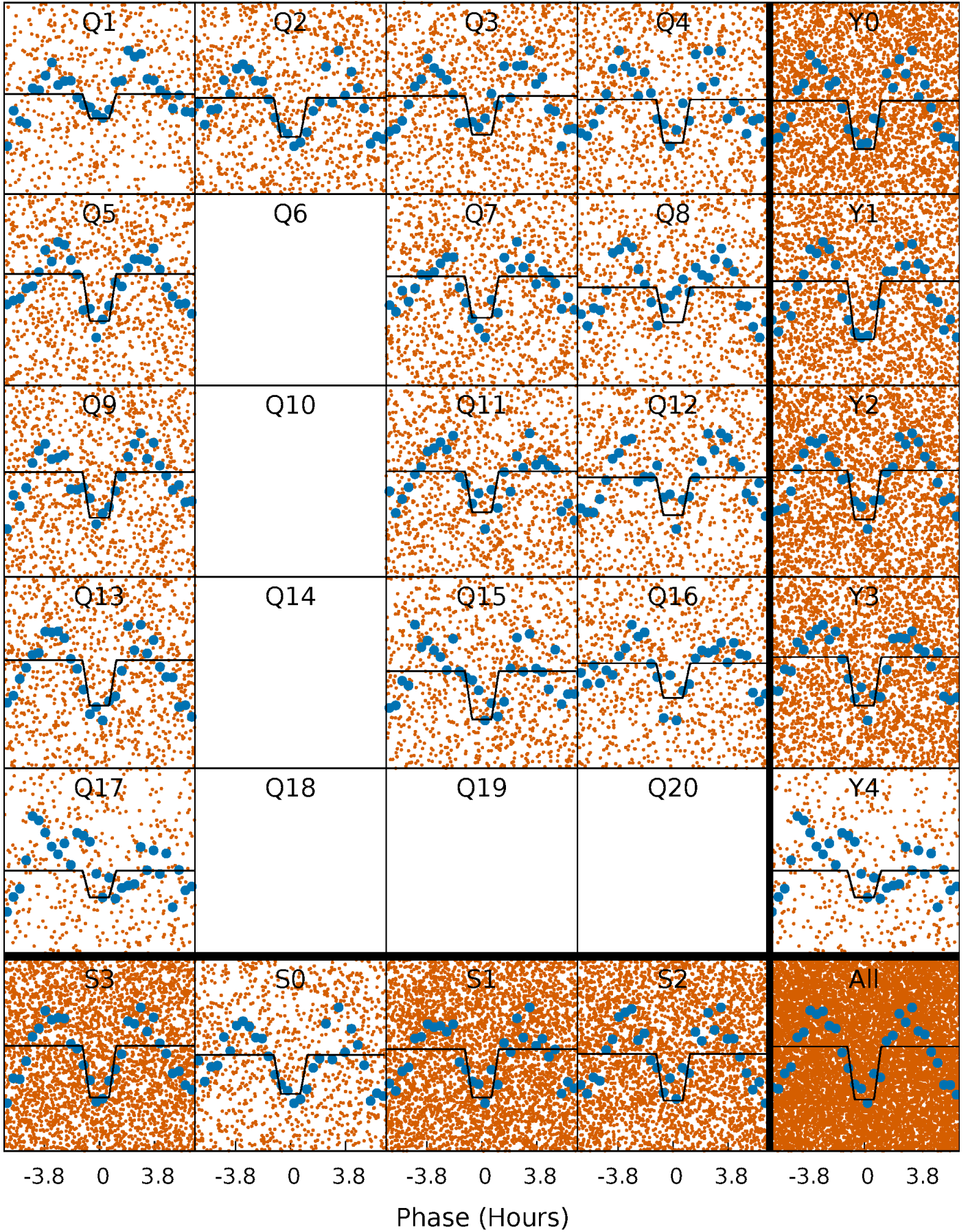
DV Quarter-Phased Transit Curves

TCE 003453494-01 P= 1.030916 Days $T_0=131.693533$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

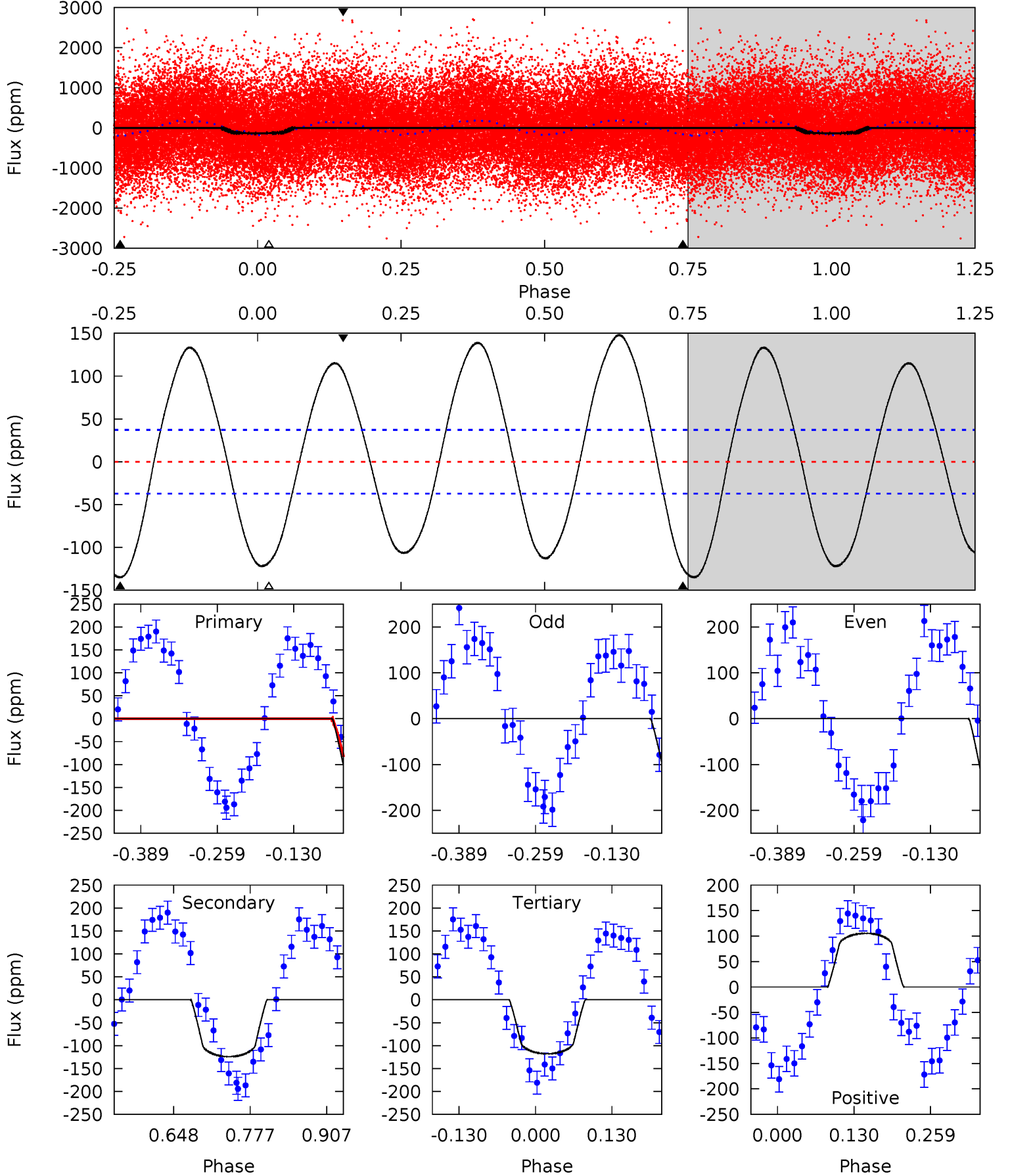
TCE 003453494-01 P= 1.030961 Days $T_0=131.677392$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-01, P = 1.030916 Days, E = 130.662617 Days

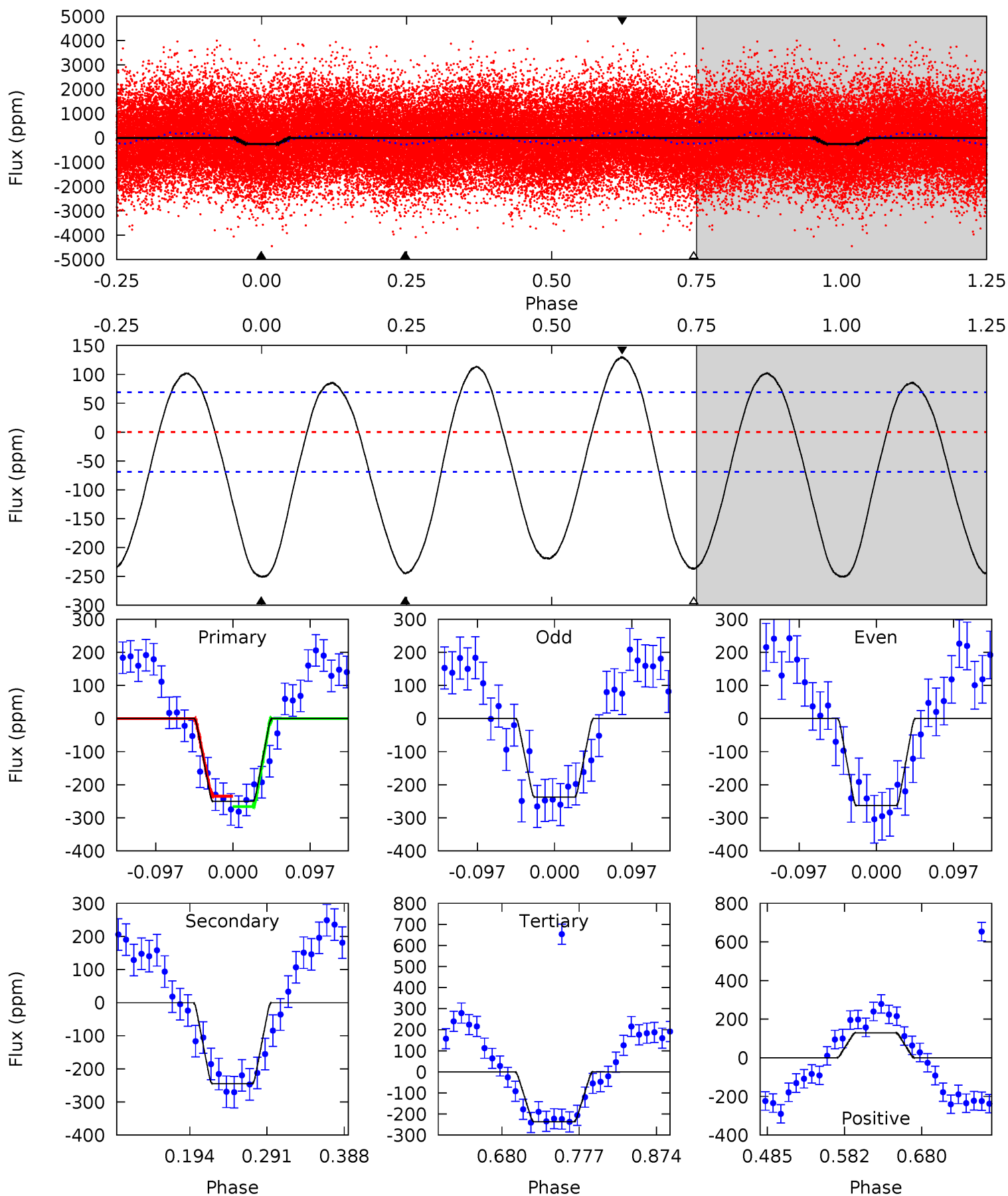
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	15.1	14.3	12.8	4.51	1.52	10.3	2.07	3.59	0.75	2.27	1.14	1.05	0.52	3.29



Alt Model-Shift Uniqueness Test

003453494-01, P = 1.030961 Days, E = 130.646431 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	16.2	15.7	8.59	4.57	1.66	8.20	0.92	8.01	0.54	7.64	0.84	1.06	0.34	1.04



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-124 ± 8	$2.86^{+1.75}_{-1.51}$	5599^{+241}_{-381}	9827^{+9495}_{-2849}	$5.476^{+19.137}_{-3.418}$
Alt.	-245 ± 15	$6.34^{+2.09}_{-1.87}$	5597^{+240}_{-379}	7063^{+1620}_{-1032}	$2.191^{+2.138}_{-0.944}$

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

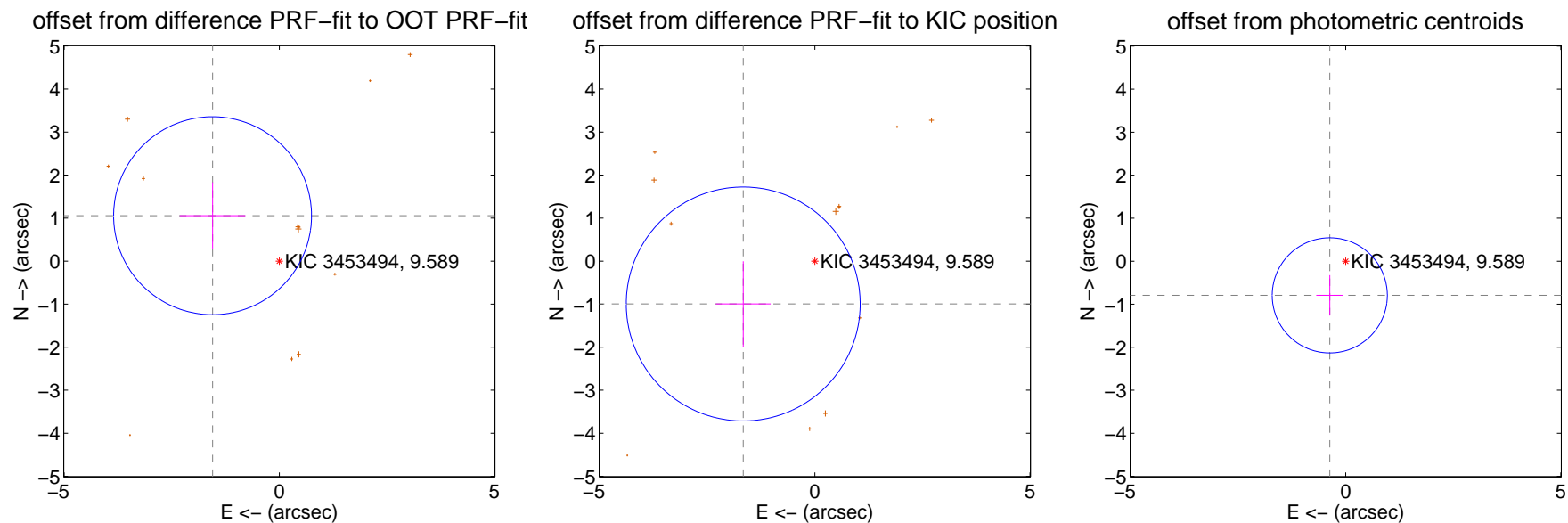
DV Centroid Data

Supplemental centroid analysis for 003453494-01. **Kepler magnitude: 9.59.** Transit SNR 4.34

There are 1 quarters with good PRF difference image offsets

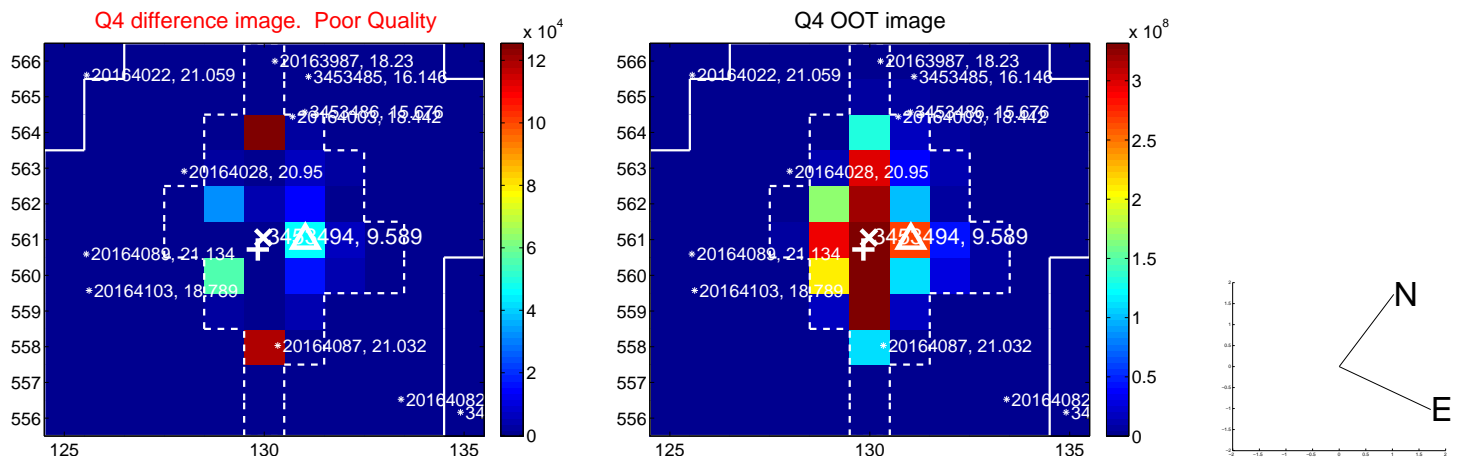
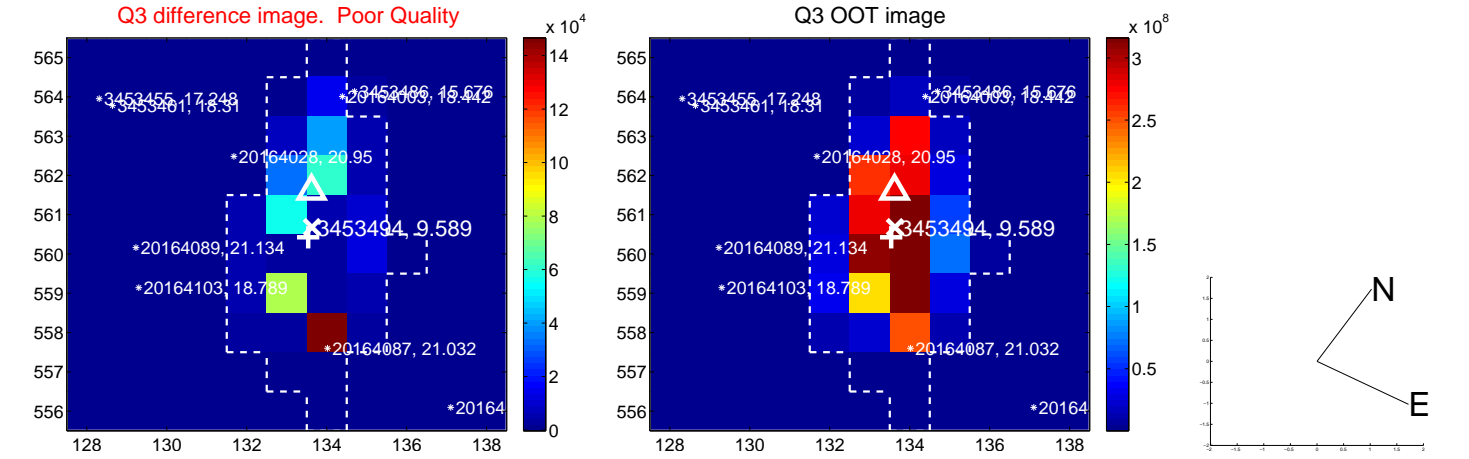
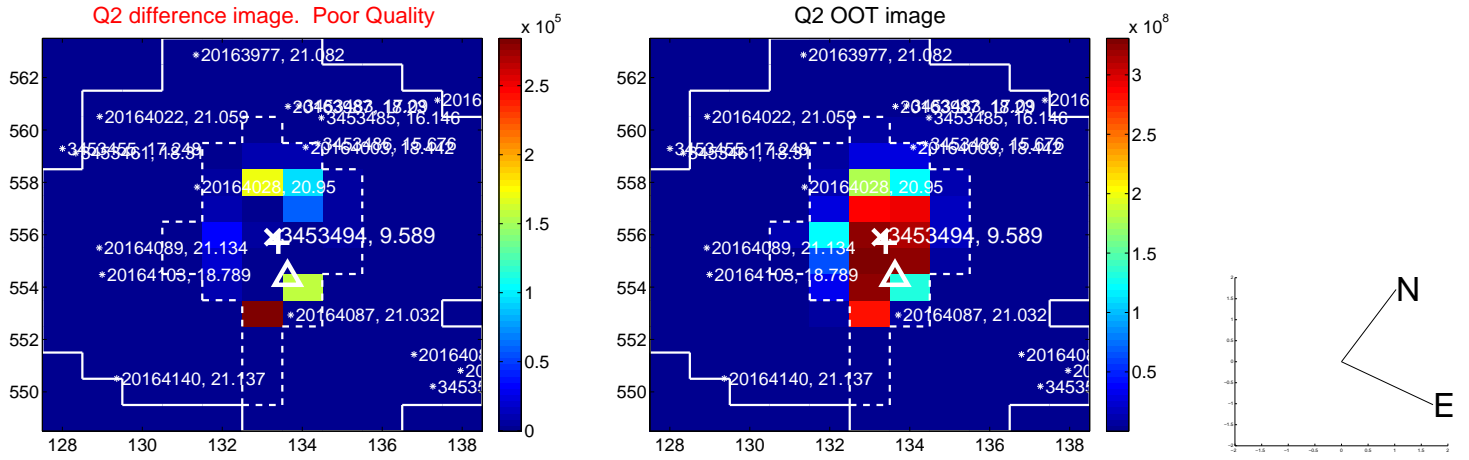
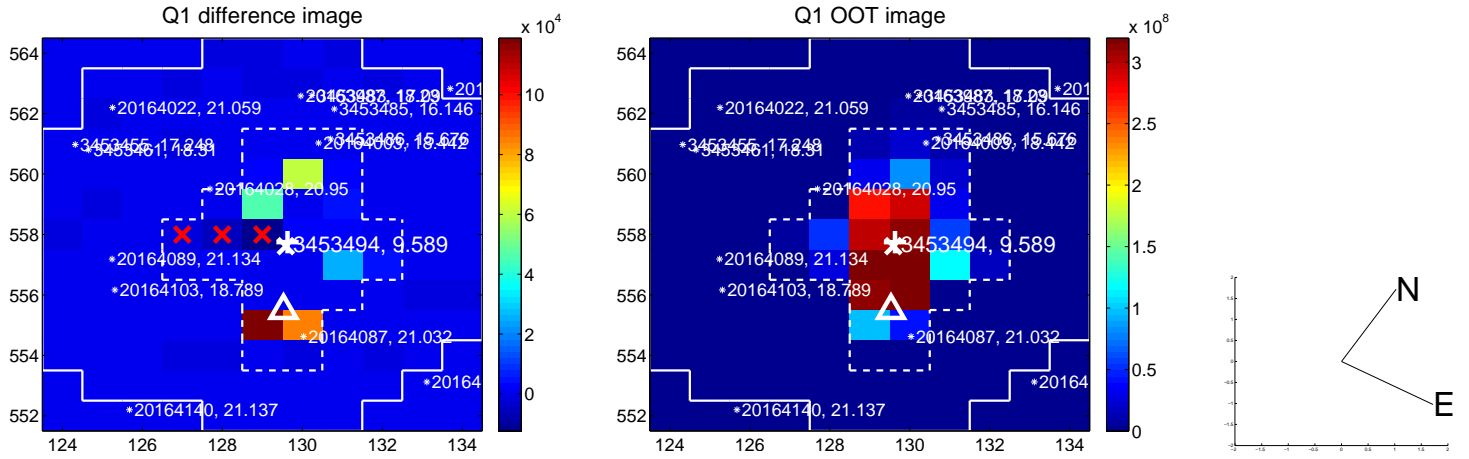
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.876 ± 0.767	2.45	1.551 ± 0.762	1.056 ± 0.777
PRF-fit source offset from KIC position	1.939 ± 0.906	2.14	1.664 ± 0.638	-0.996 ± 0.993
photometric centroid source offset	0.88 ± 0.45	1.96	0.37 ± 0.31	-0.79 ± 0.47

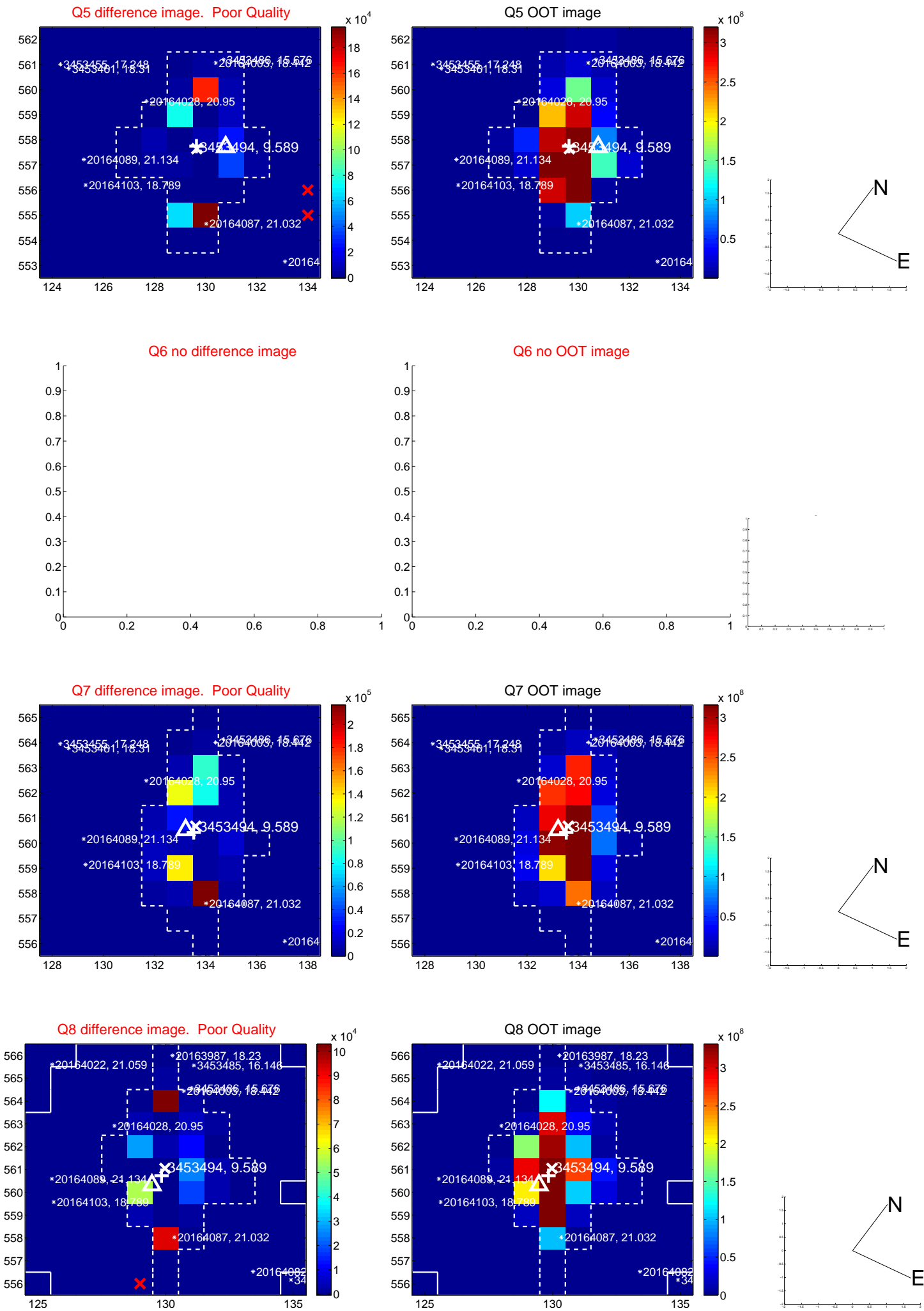


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

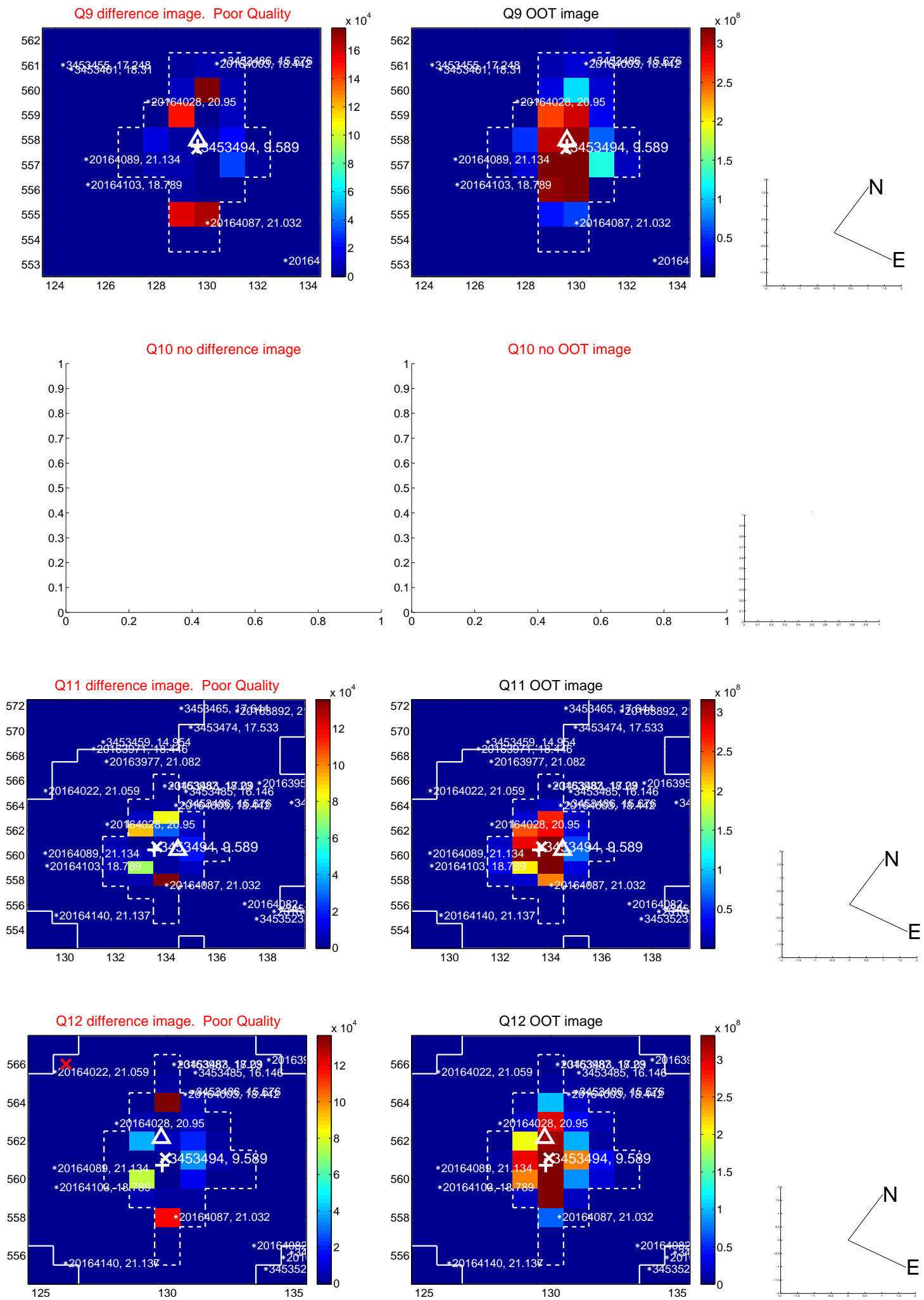
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



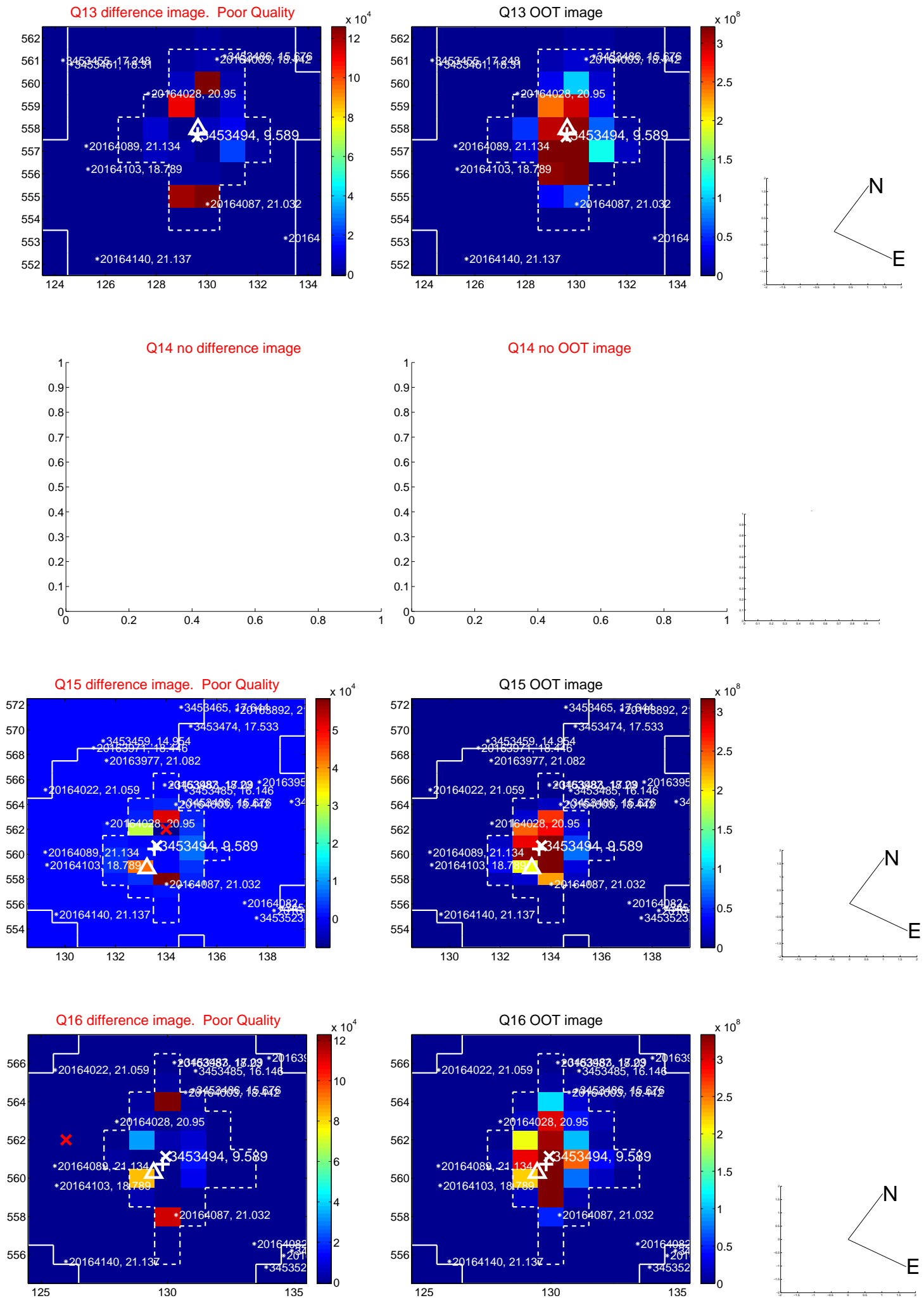
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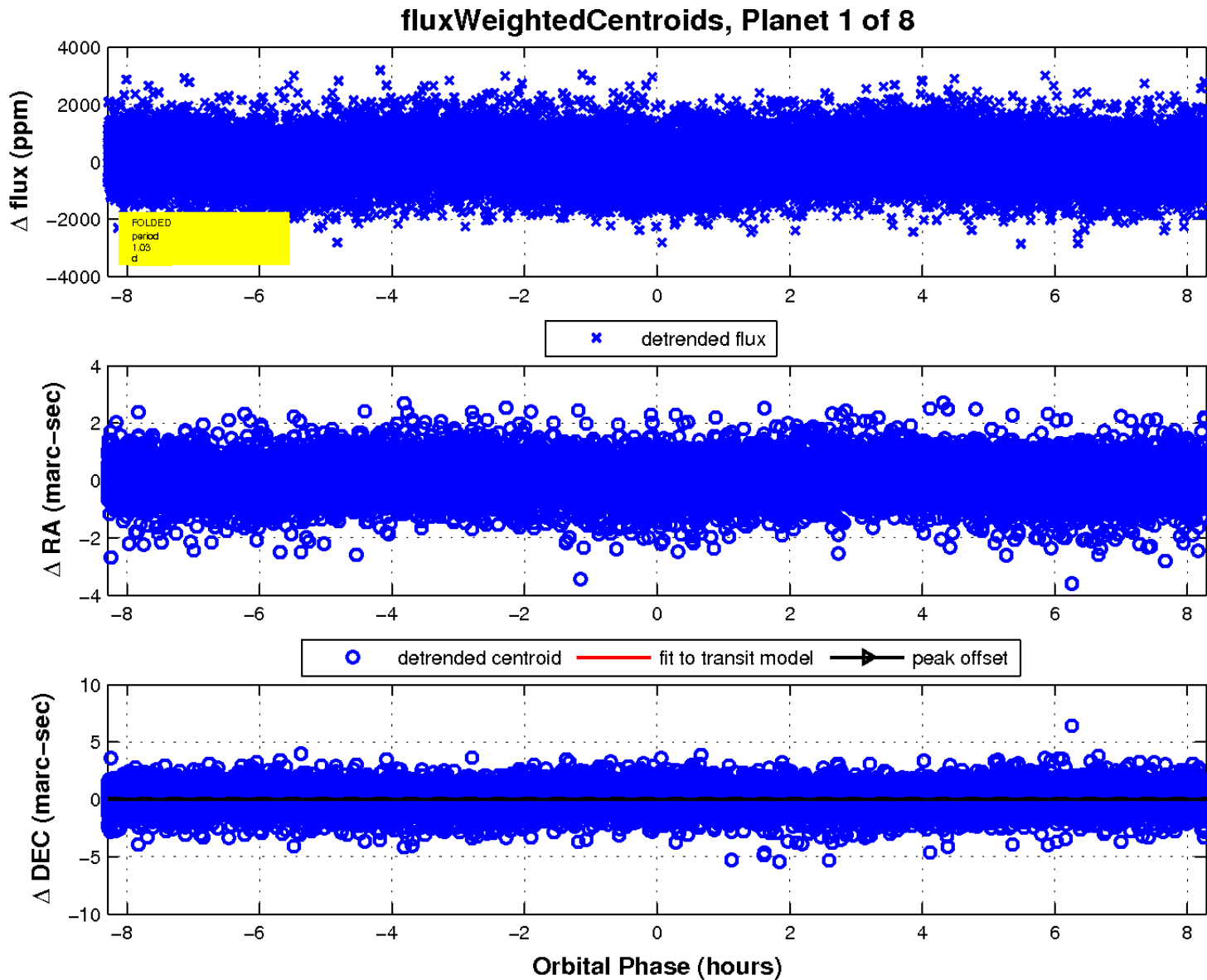
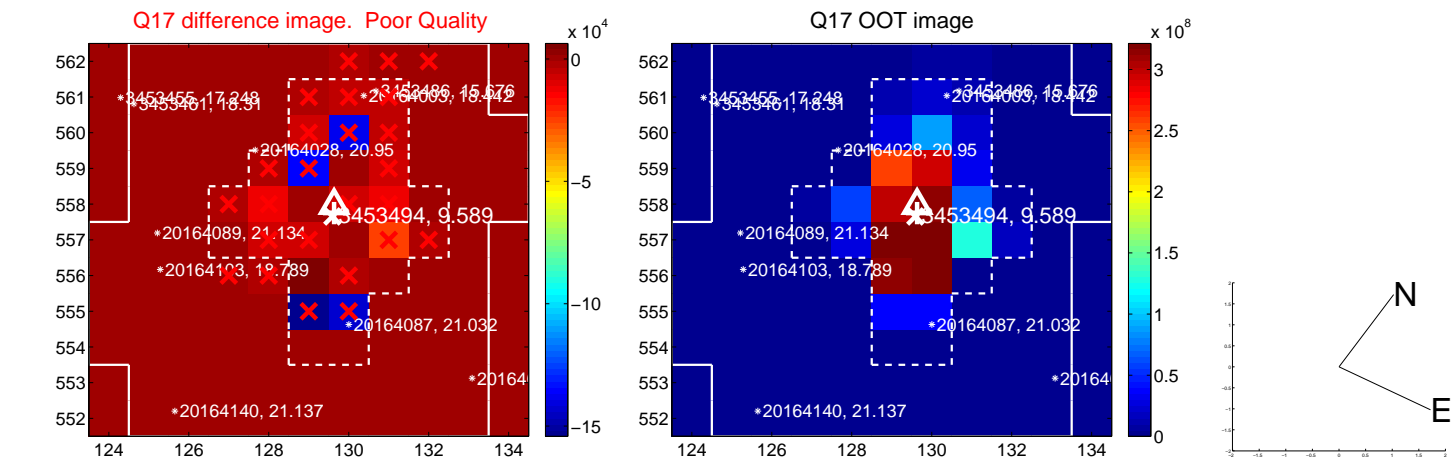
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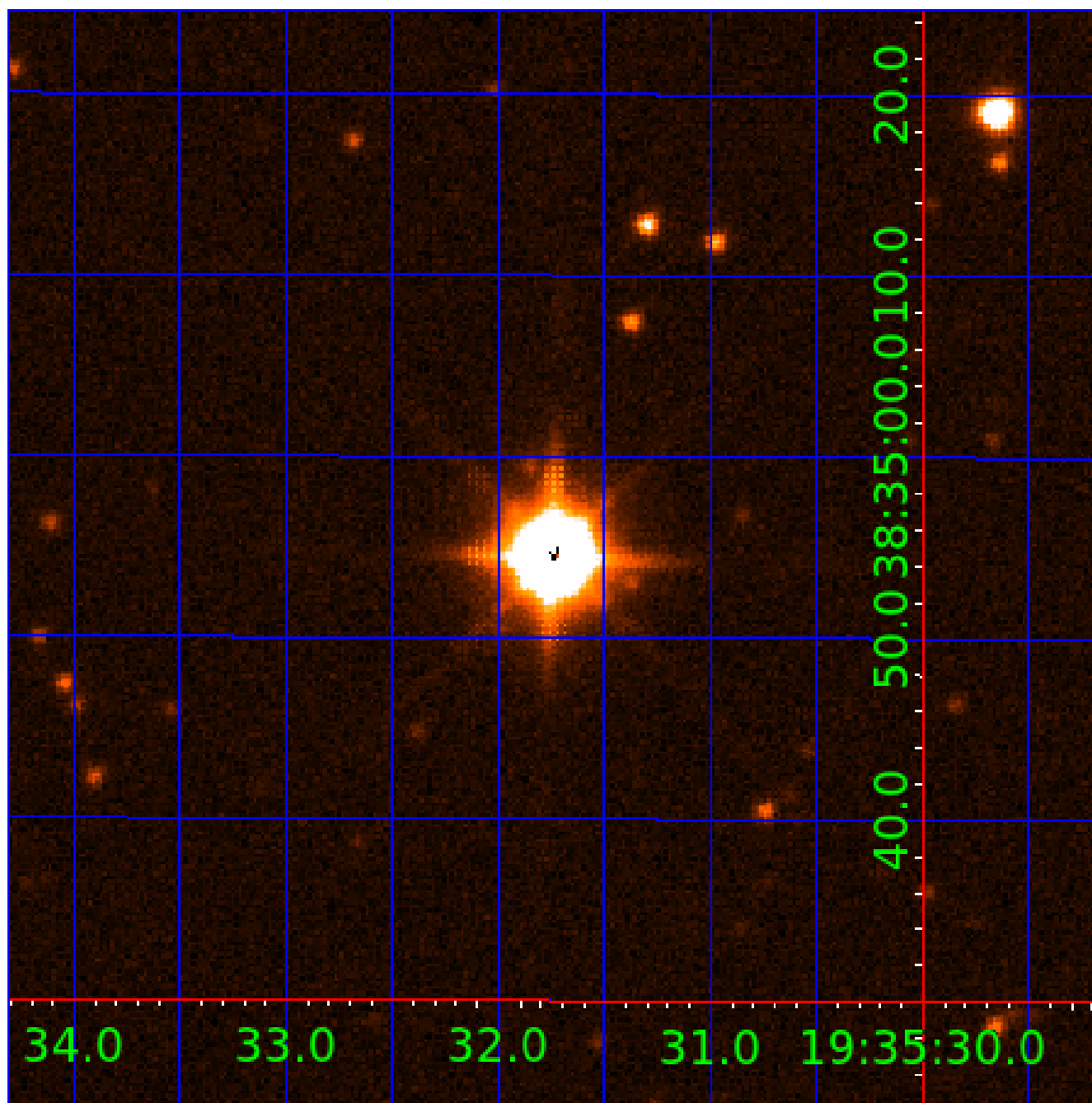


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003453494

Q1-17 DR25 TCE Parameters

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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

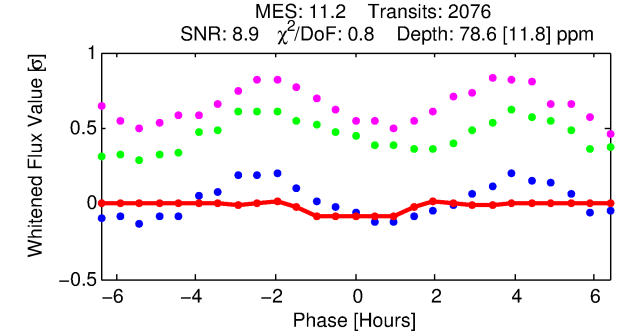
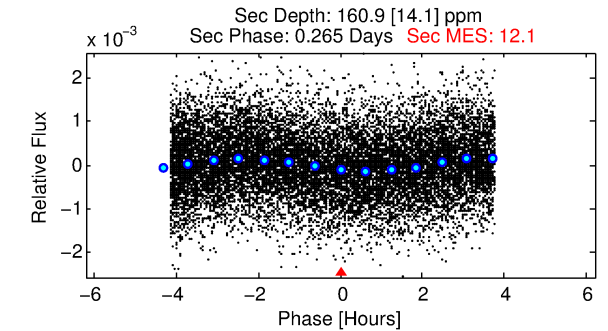
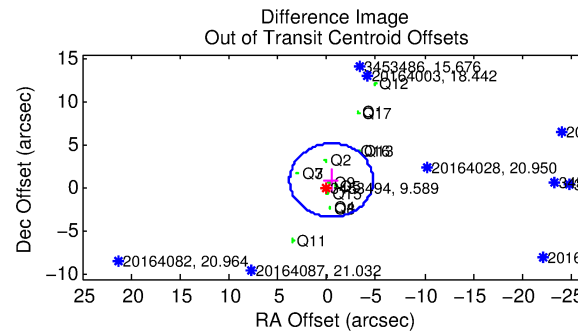
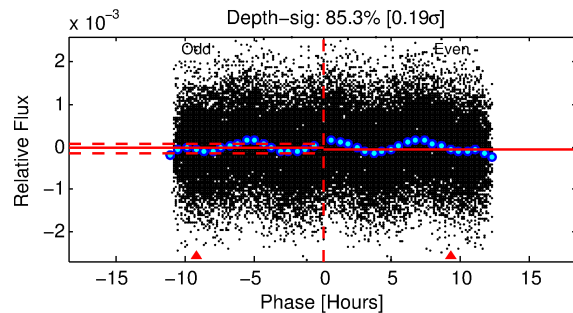
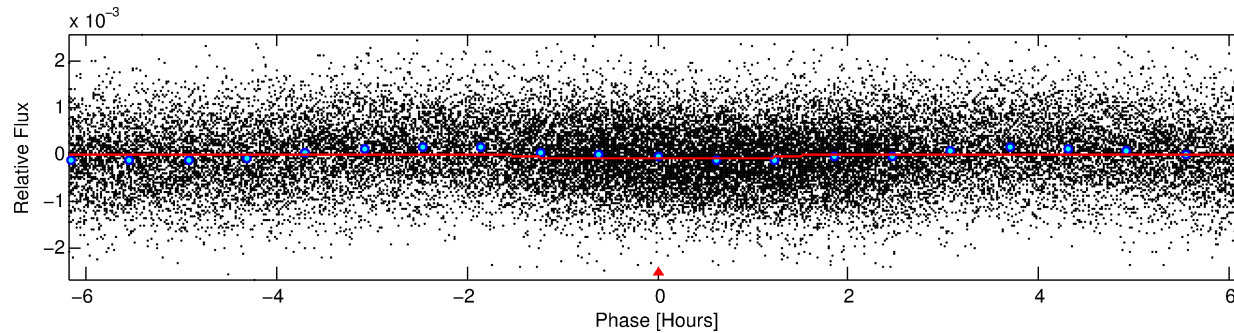
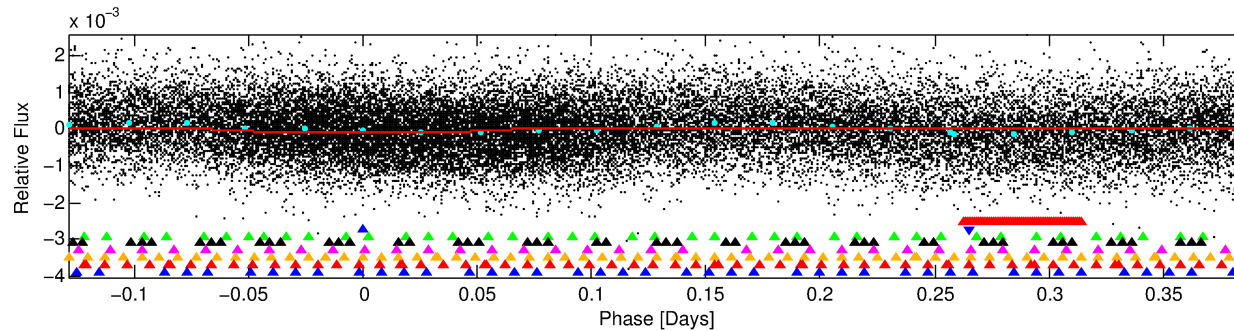
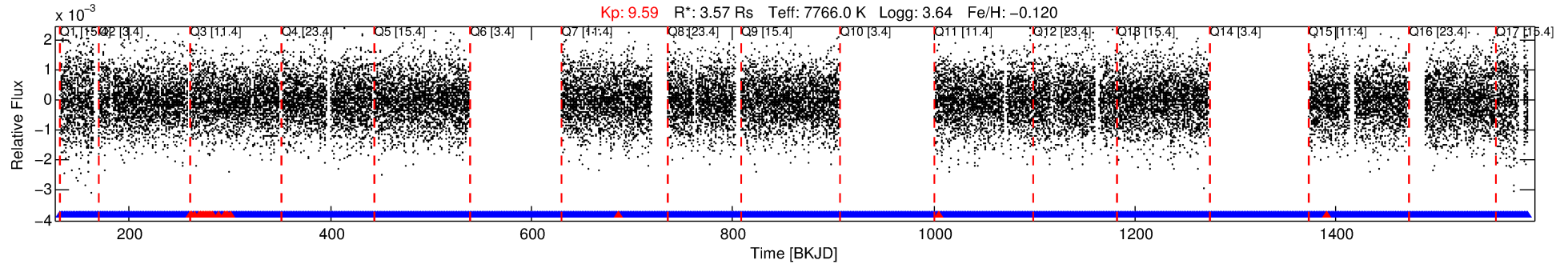
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-02

No Significant Match Found

DV One-Page Summary

KIC: 3453494 Candidate: 2 of 8 Period: 0.515 d



DV Fit Results:

Period = 0.51544 [0.00001] d
Epoch = 131.9462 [0.0035] BKJD
 $R_p/R^* = 0.0095$ [0.0046]
 $a/R^* = 1.11$ [0.60]
 $b = 0.90$ [0.61]
Seff = N/A
Teq = N/A
 $R_p = 3.70$ [2.04] R_e
 $a = \text{N/A}$
Ag = N/A
Teffp = N/A

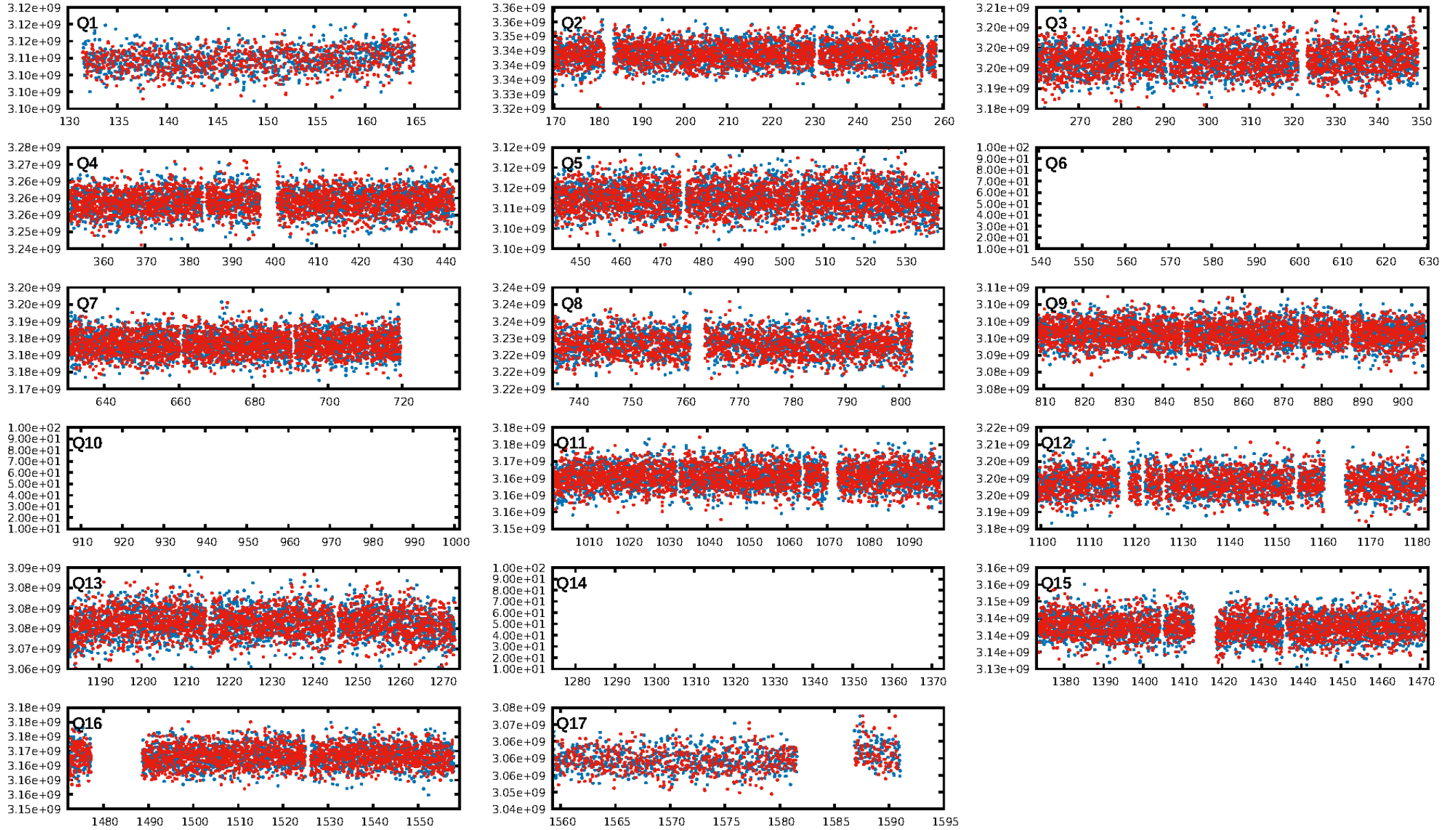
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.7% [2.99 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1921/1959]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.440 arcsec [2.98 σ]
OotOffset-rm: 1.037 arcsec [0.73 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.088 arcsec [0.07 σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/14]

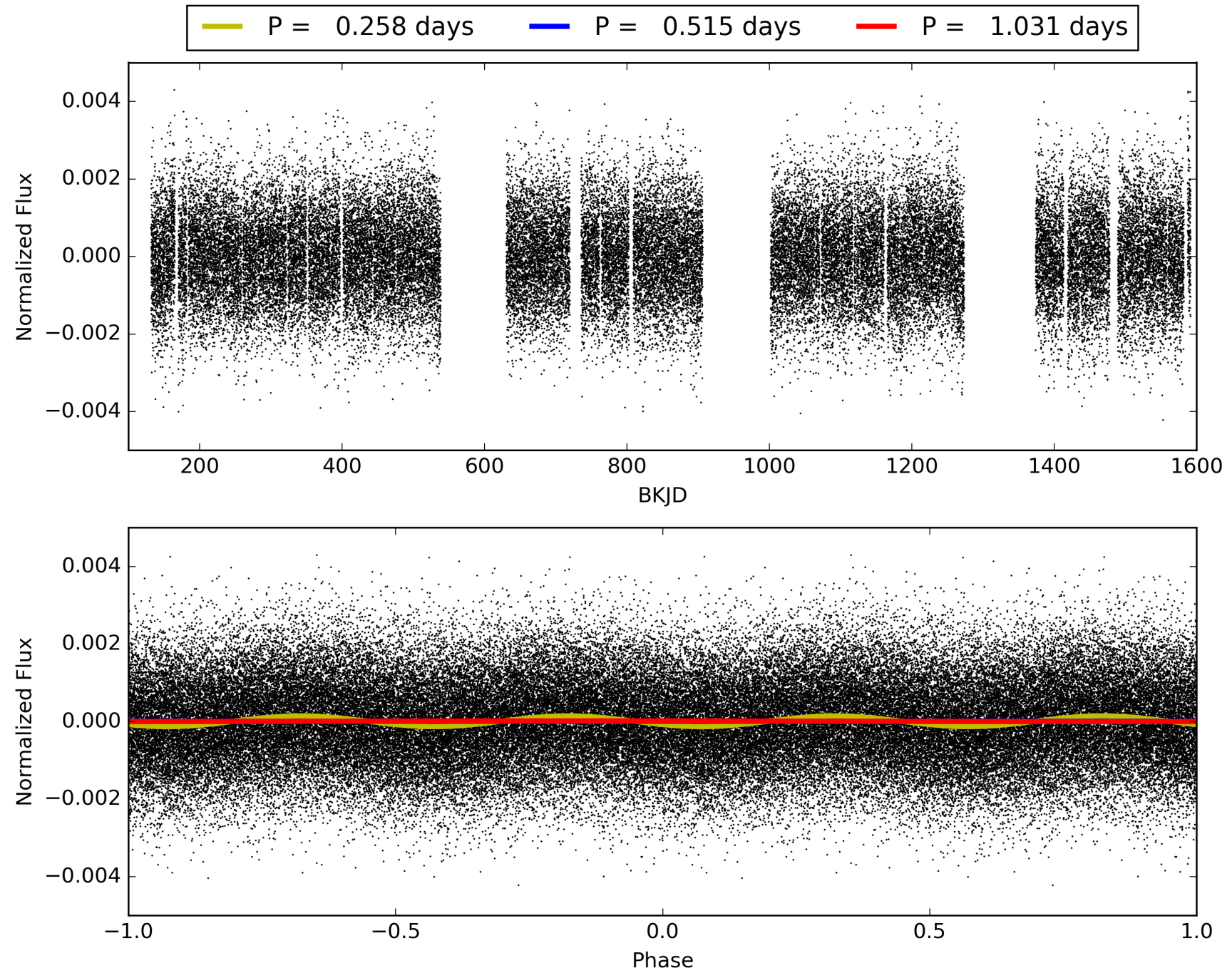
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:20 Z

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

TCE 003453494-02, PDC Light Curves

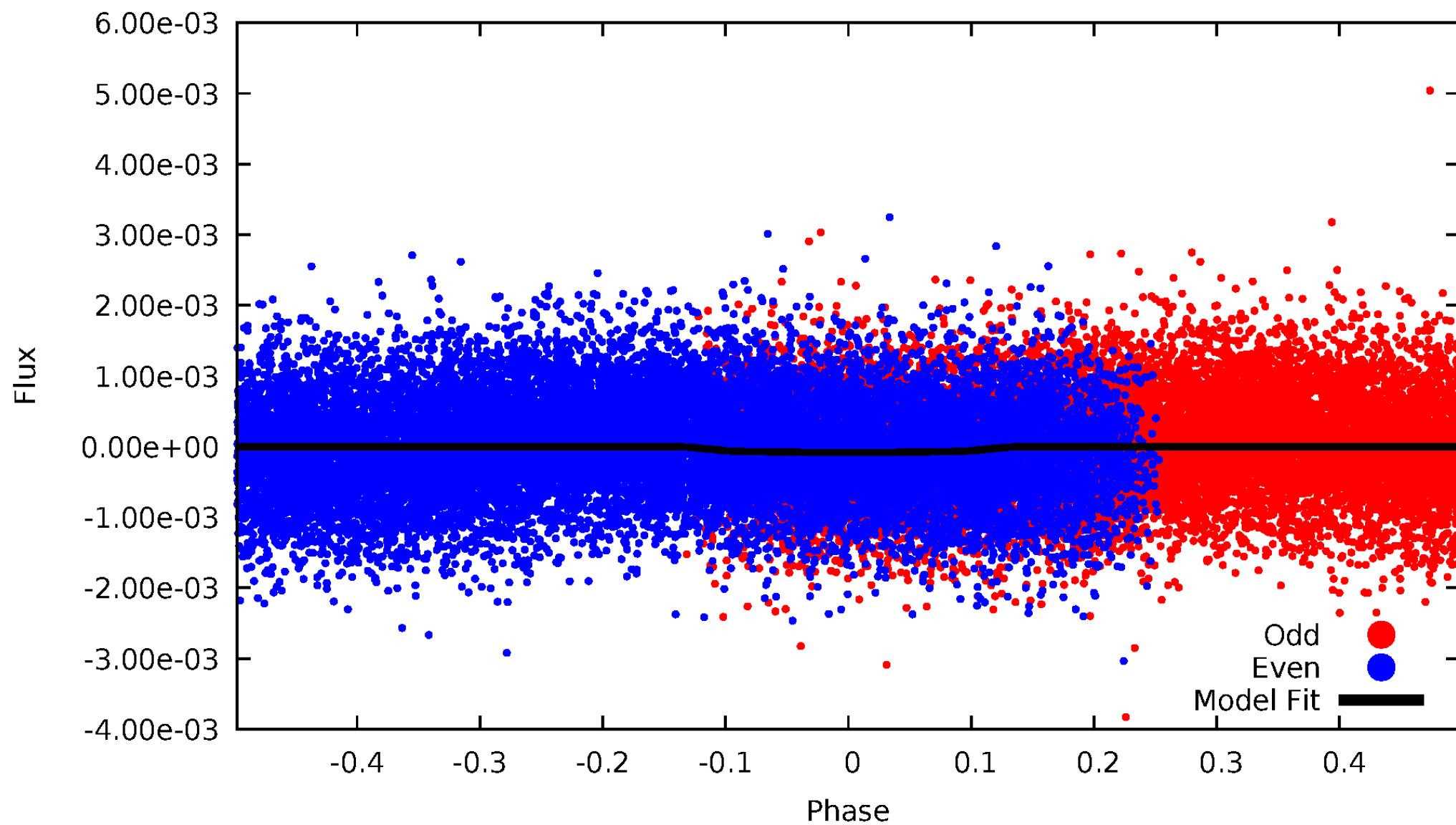


TCE 003453494-02



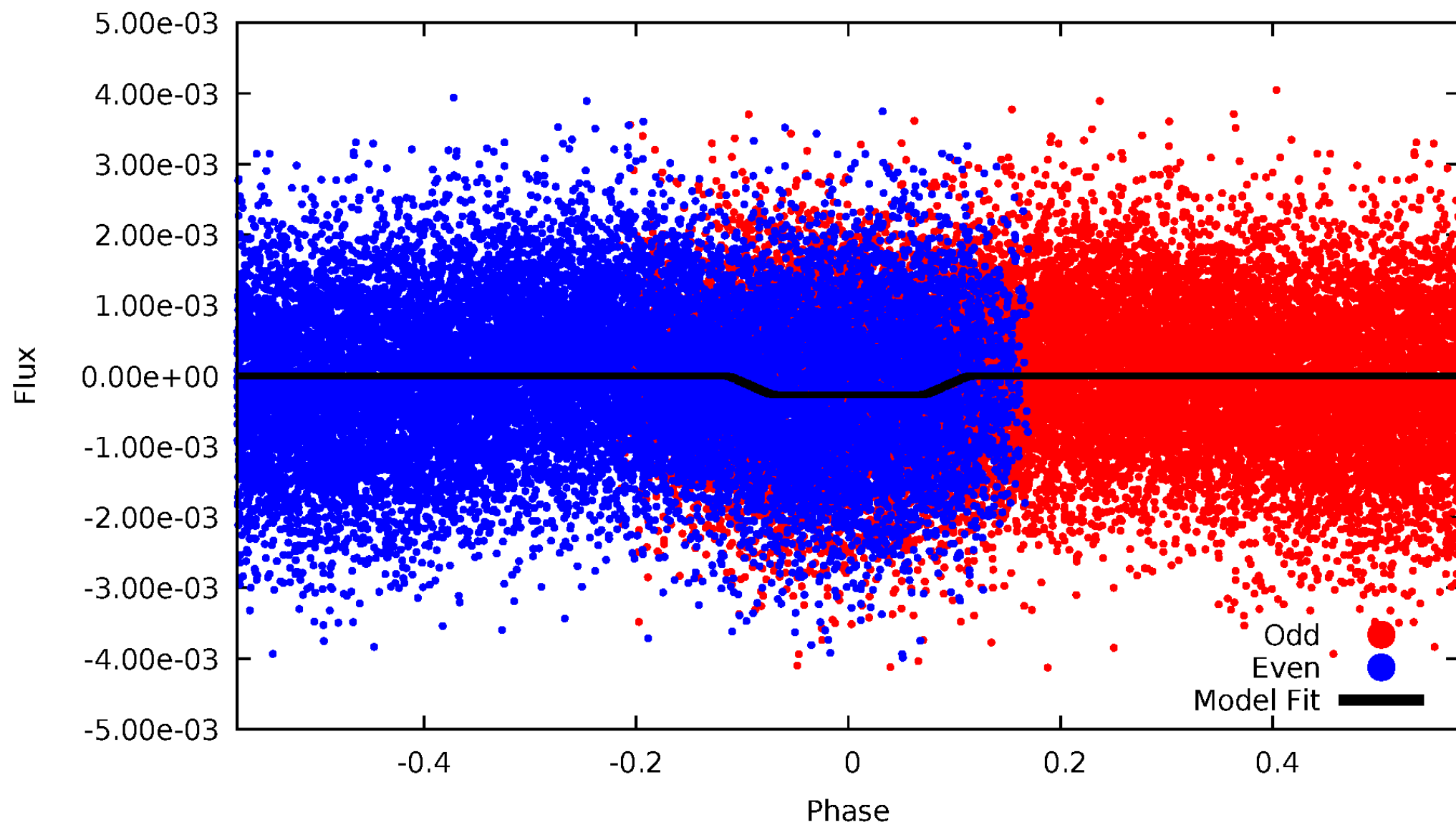
DV Odd/Even

TCE 003453494-02



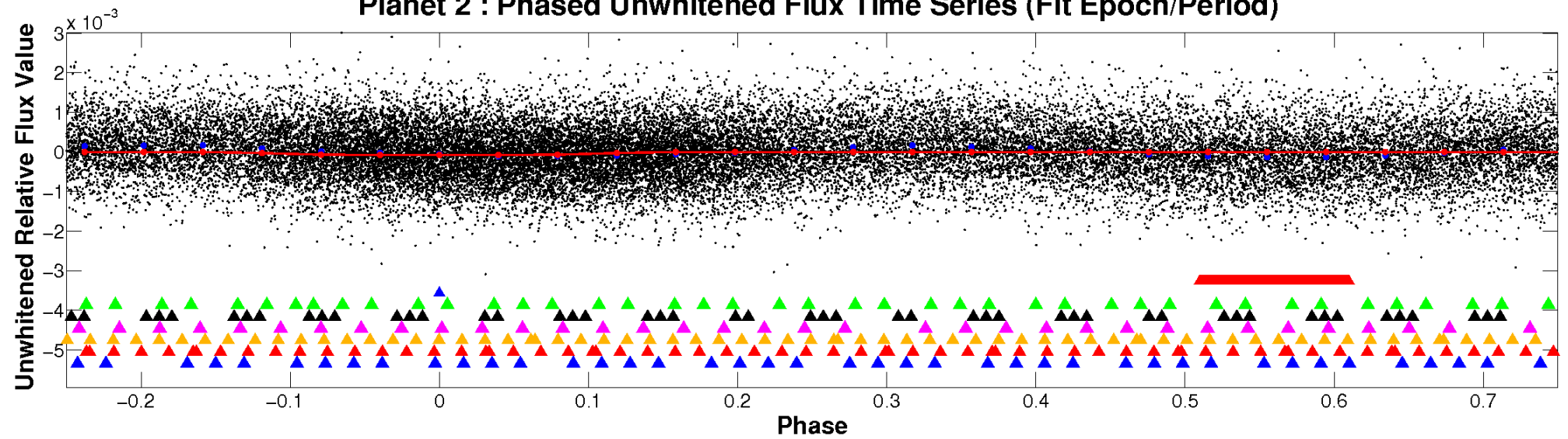
ALT Odd/Even

TCE 003453494-02

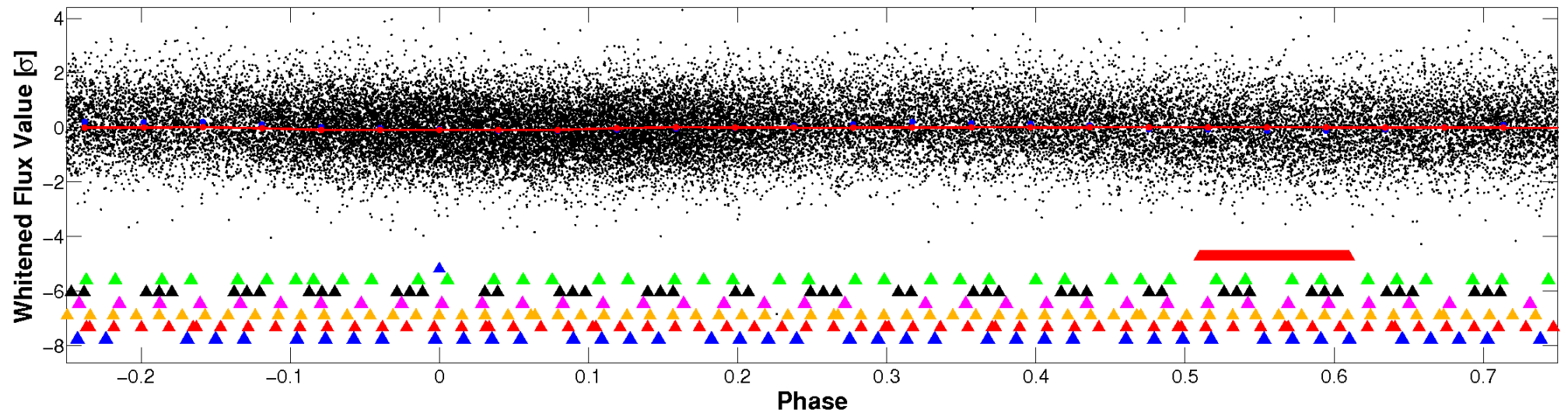


Non-Whitened Vs. Whitened Light Curve

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

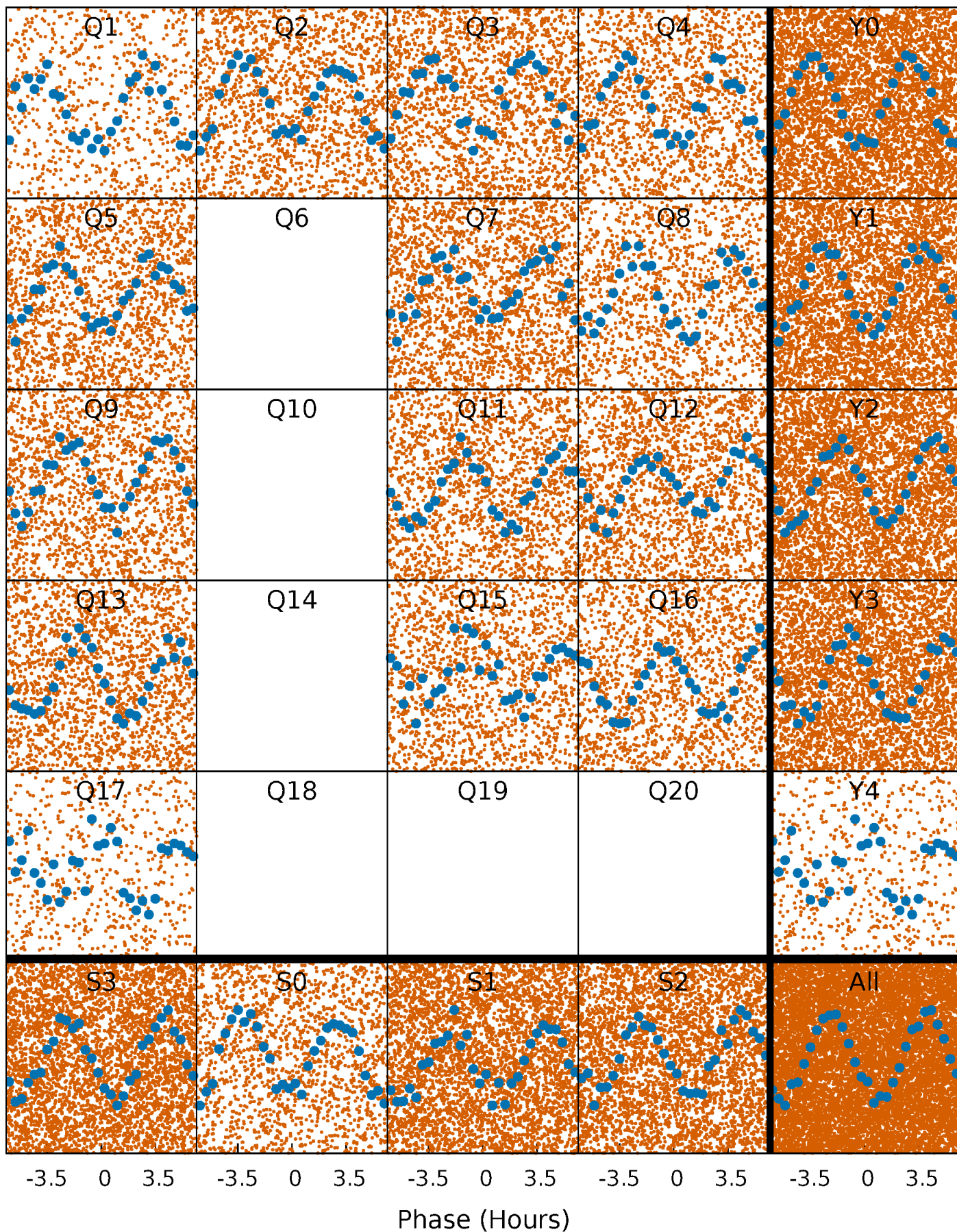


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



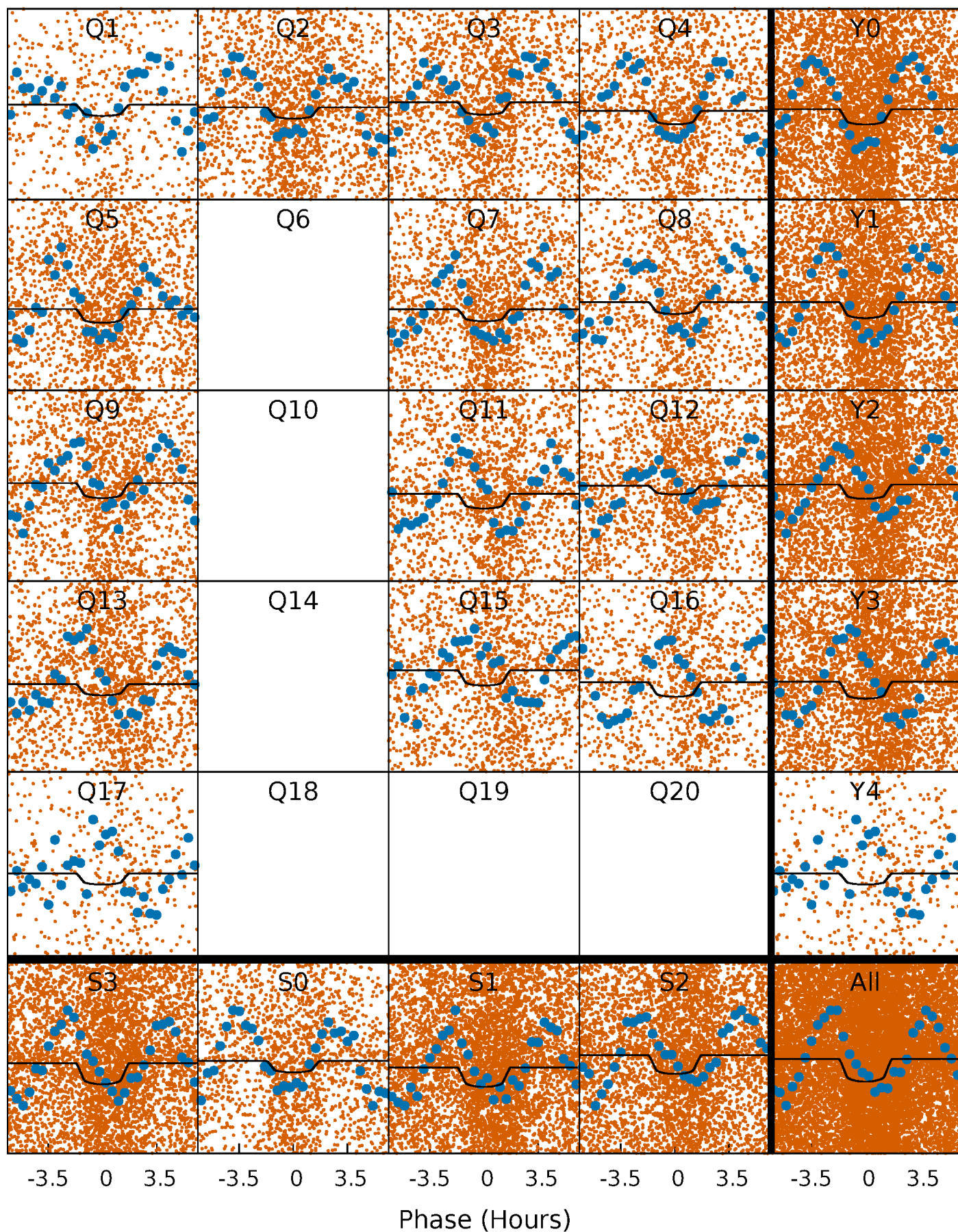
PDC Quarter-Phased Transit Curves

TCE 003453494-02 P= 0.515440 Days $T_0=131.946190$ (BKJD)



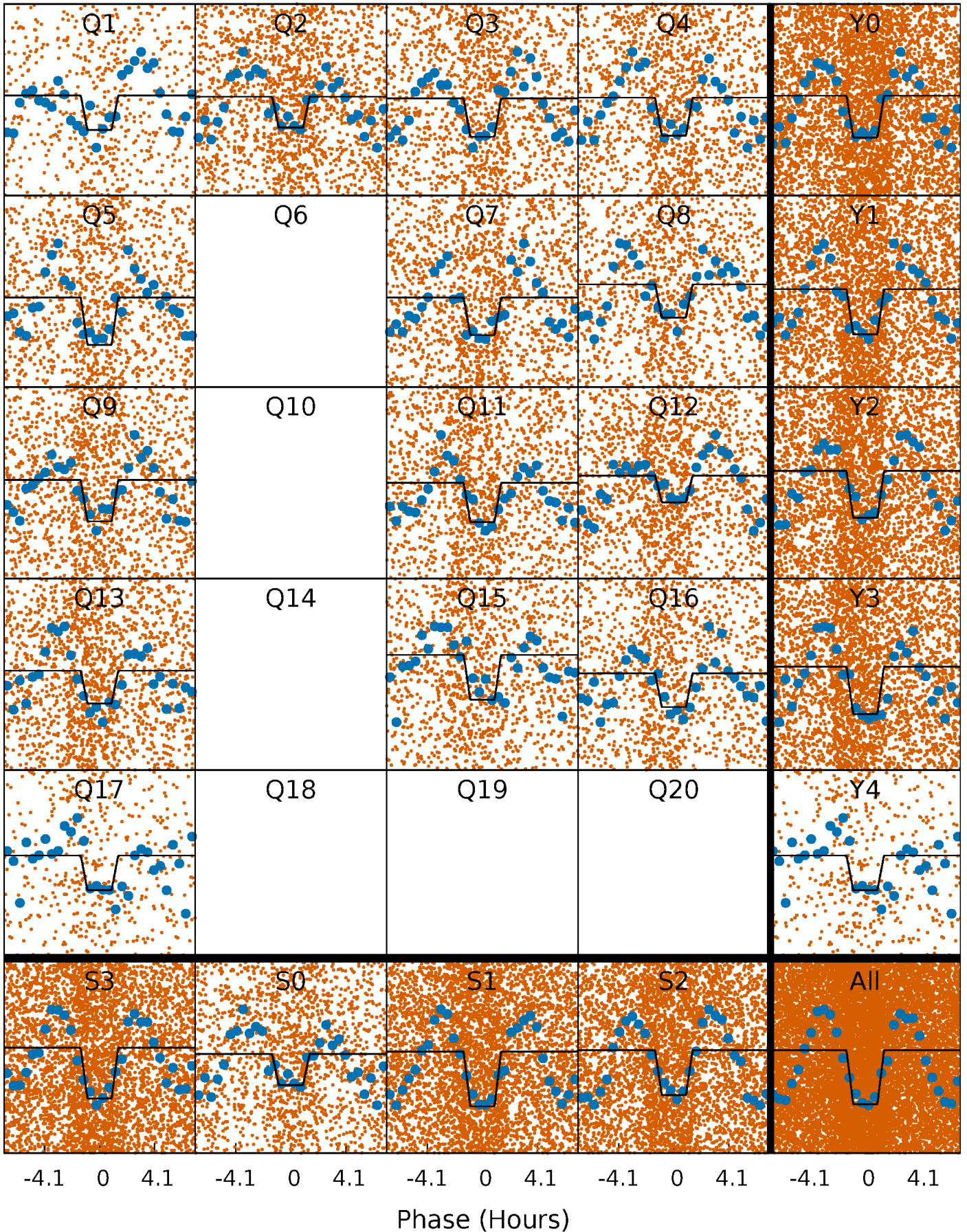
DV Quarter-Phased Transit Curves

TCE 003453494-02 P= 0.515440 Days $T_0=131.946190$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

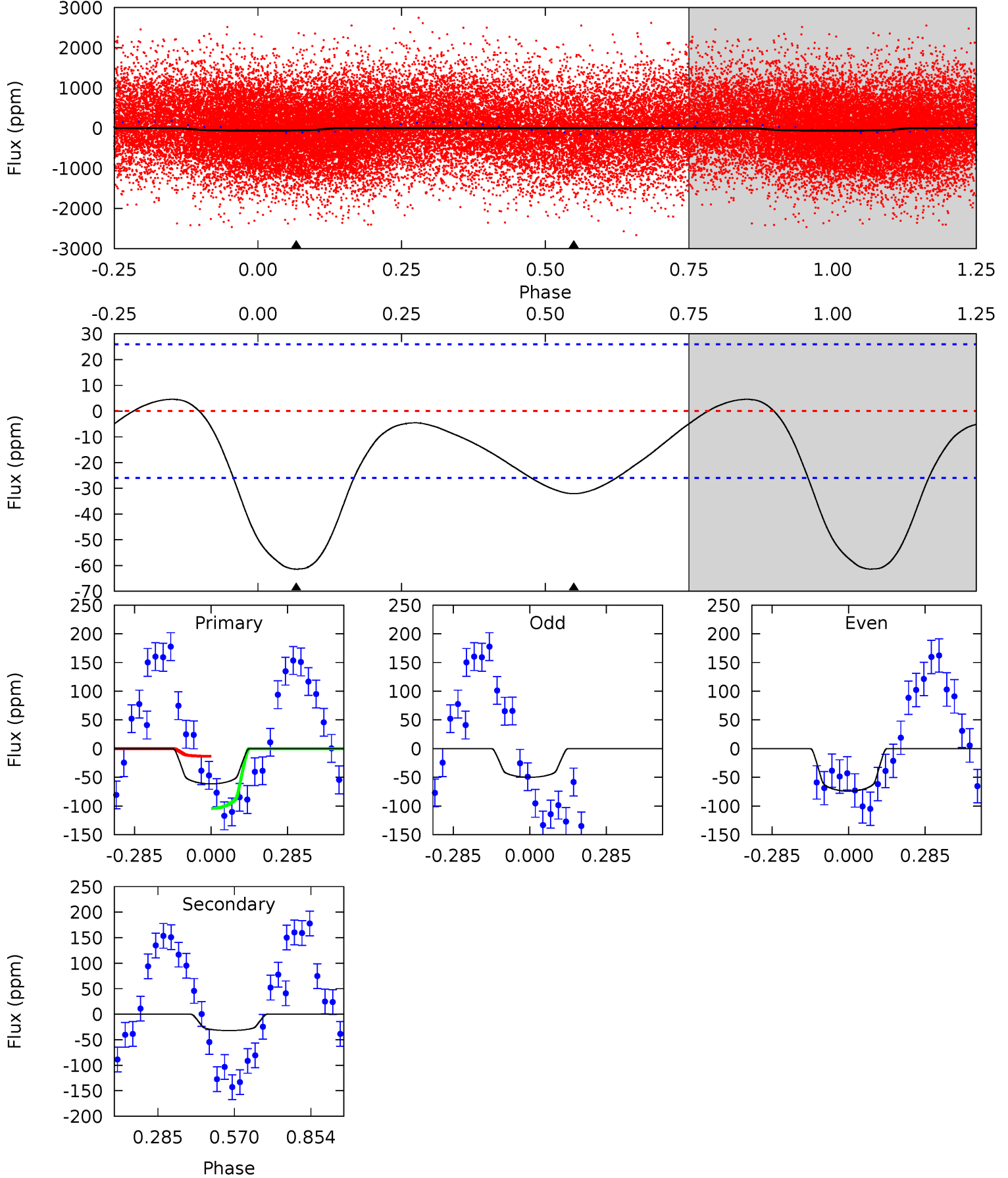
TCE 003453494-02 $P = 0.515477$ Days $T_0 = 131.937225$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-02, P = 0.515440 Days, E = 131.430750 Days

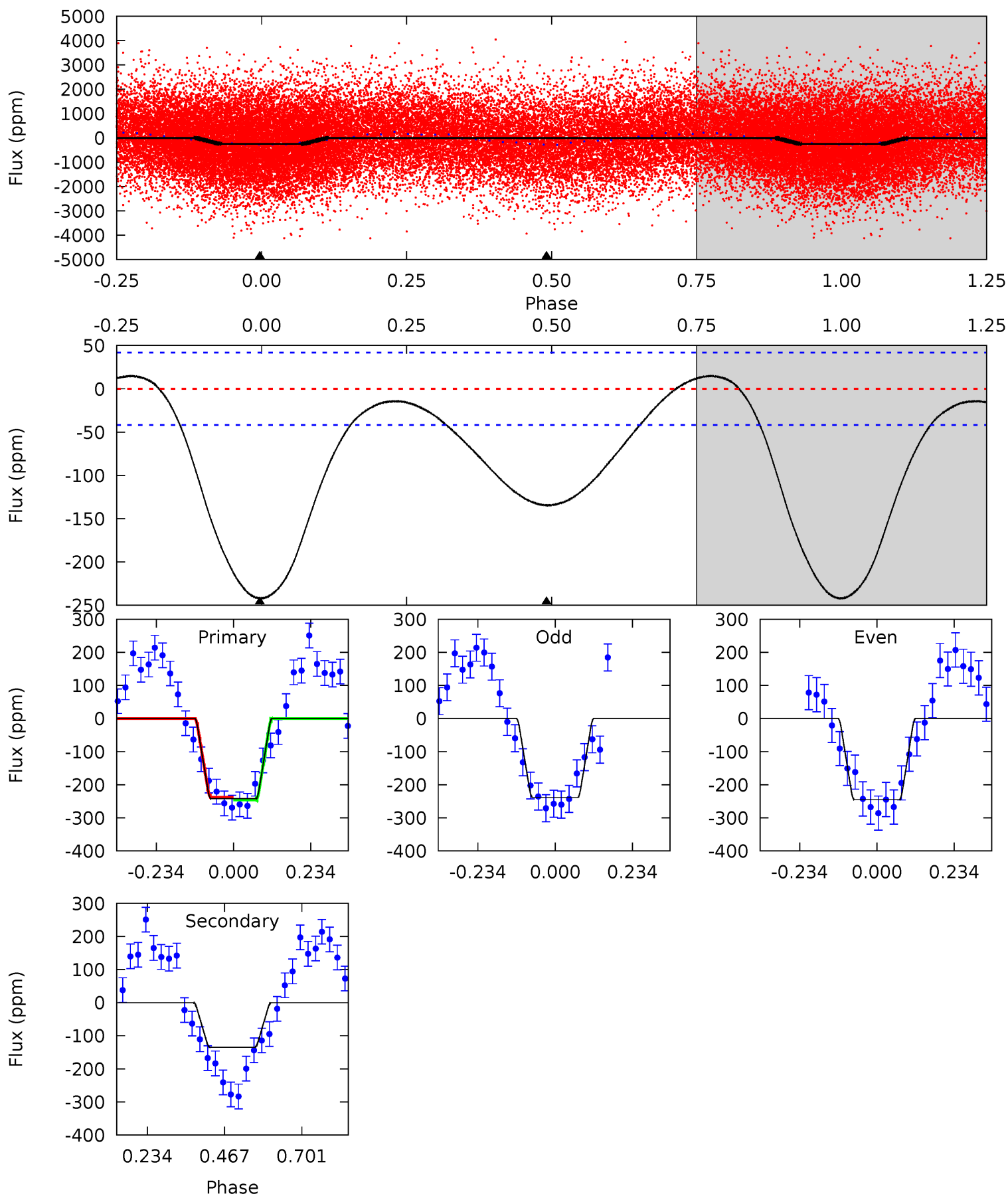
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	5.37	0	0	4.34	1.07	0.74	10.3	10.3	5.37	5.37	2.05	0.91	0.07	7.65



Alt Model-Shift Uniqueness Test

003453494-02, P = 0.515477 Days, E = 131.421748 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.4	14.1	0	0	4.38	1.19	1.39	25.4	25.4	14.1	14.1	0.33	0.99	0.06	0.38



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-32 ± 6	$3.65^{+1.85}_{-1.61}$	7057^{+322}_{-444}	3925^{+3325}_{-8793}	$0.348^{+0.758}_{-0.198}$
Alt.	-135 ± 10	$6.00^{+1.86}_{-1.84}$	7071^{+297}_{-459}	5290^{+1920}_{-2278}	$0.534^{+0.600}_{-0.225}$

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 $A_{obs} \gg 1.0$

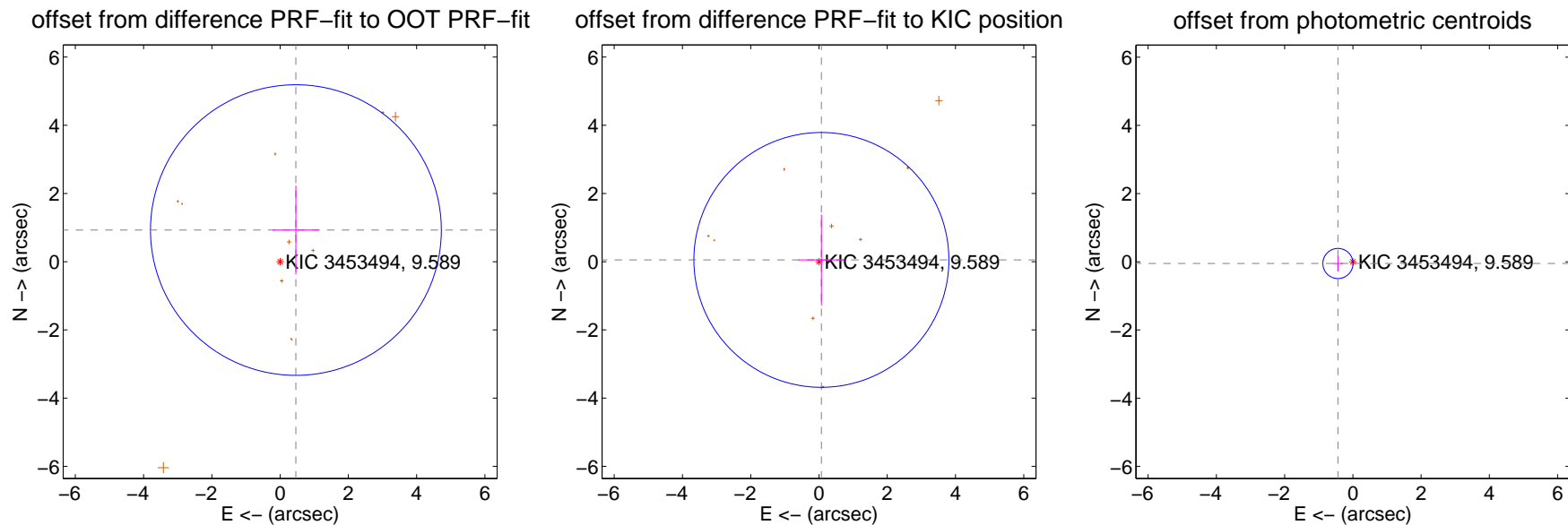
DV Centroid Data

Supplemental centroid analysis for 003453494-02. **Kepler magnitude: 9.59.** Transit SNR 8.93

There are 0 quarters with good PRF difference image offsets

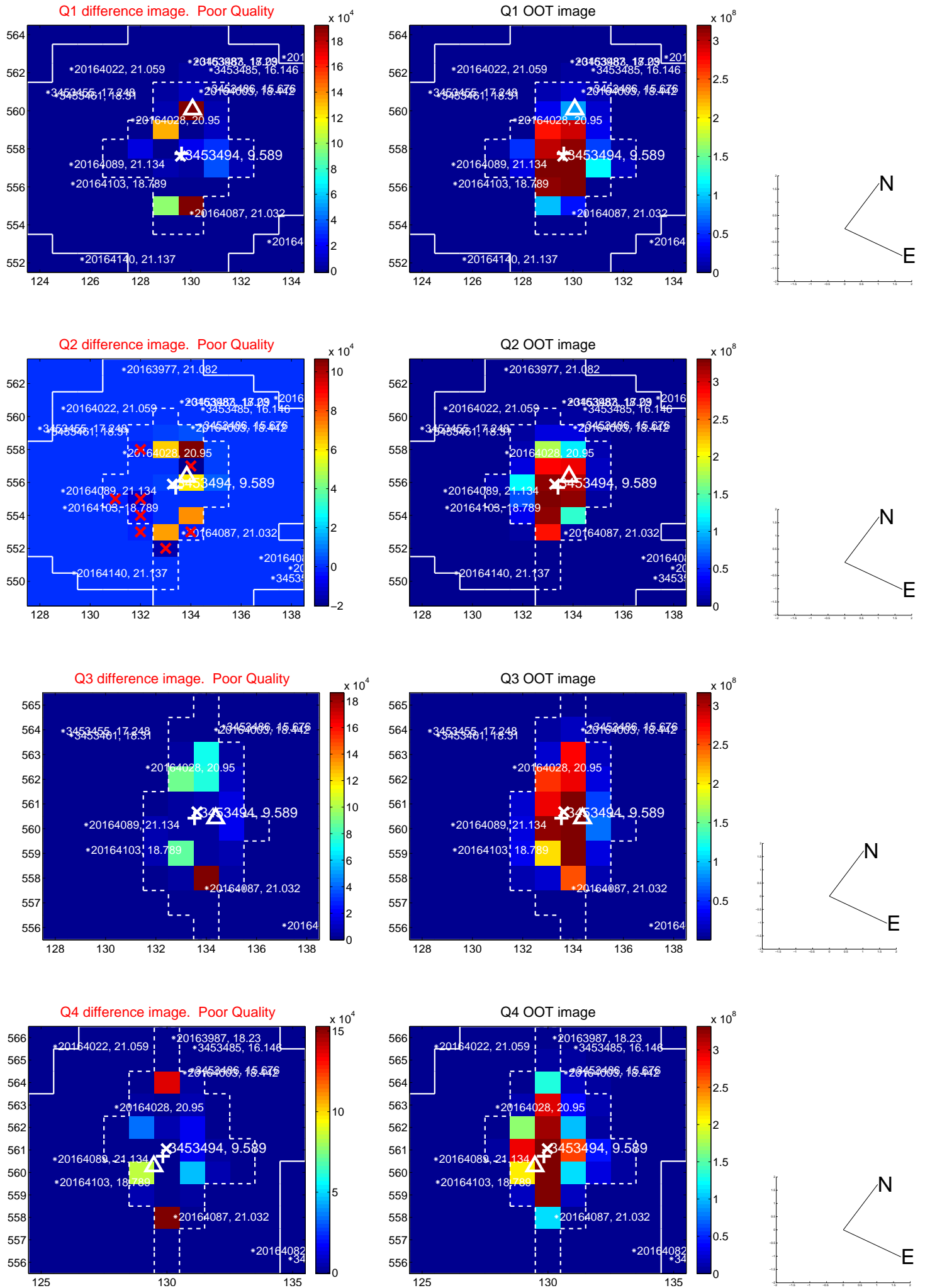
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.037 ± 1.420	0.73	-0.463 ± 0.681	0.928 ± 1.302
PRF-fit source offset from KIC position	0.088 ± 1.245	0.07	-0.070 ± 0.674	0.053 ± 1.330
photometric centroid source offset	0.44 ± 0.15	2.98	0.44 ± 0.15	-0.05 ± 0.22

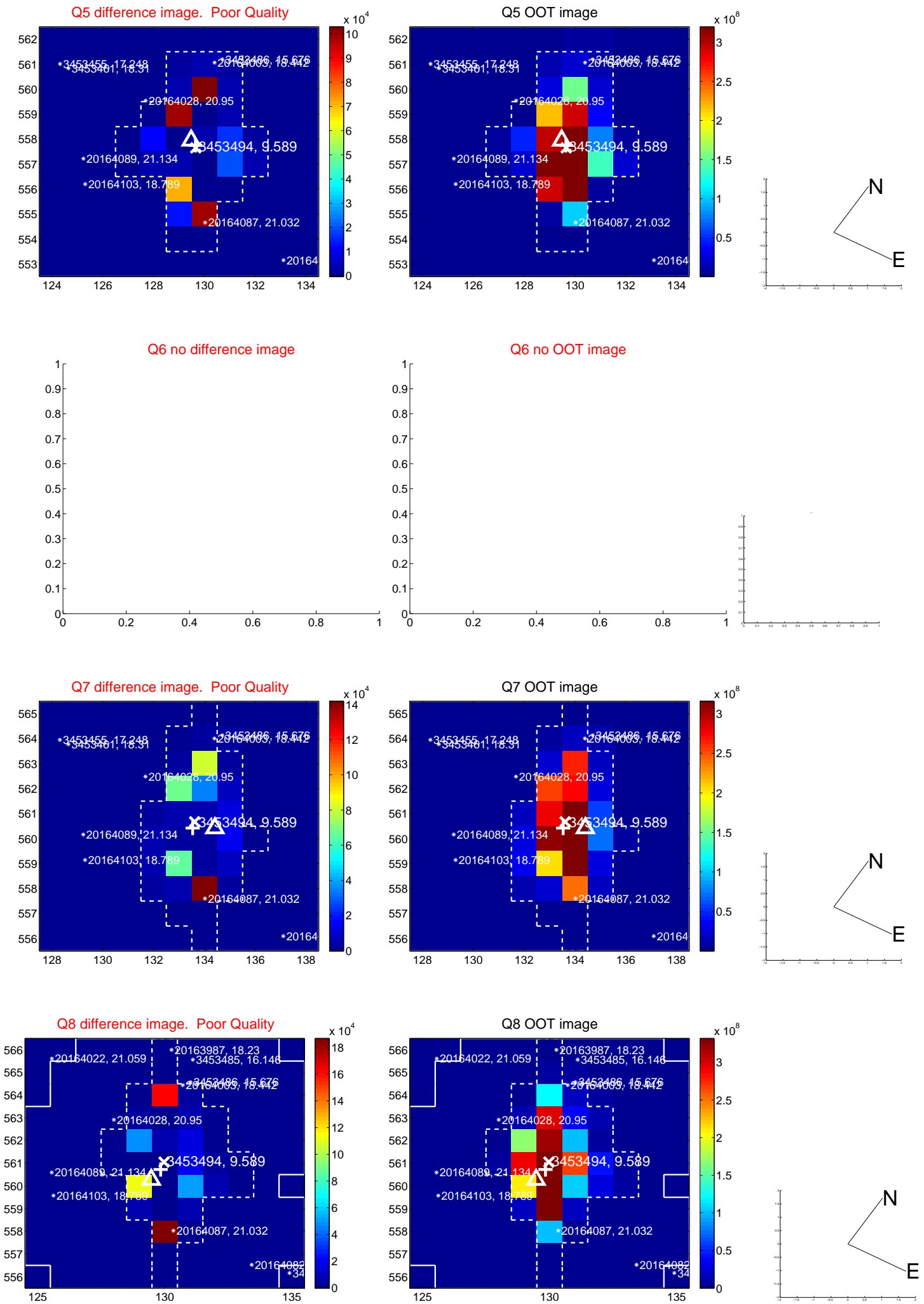


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

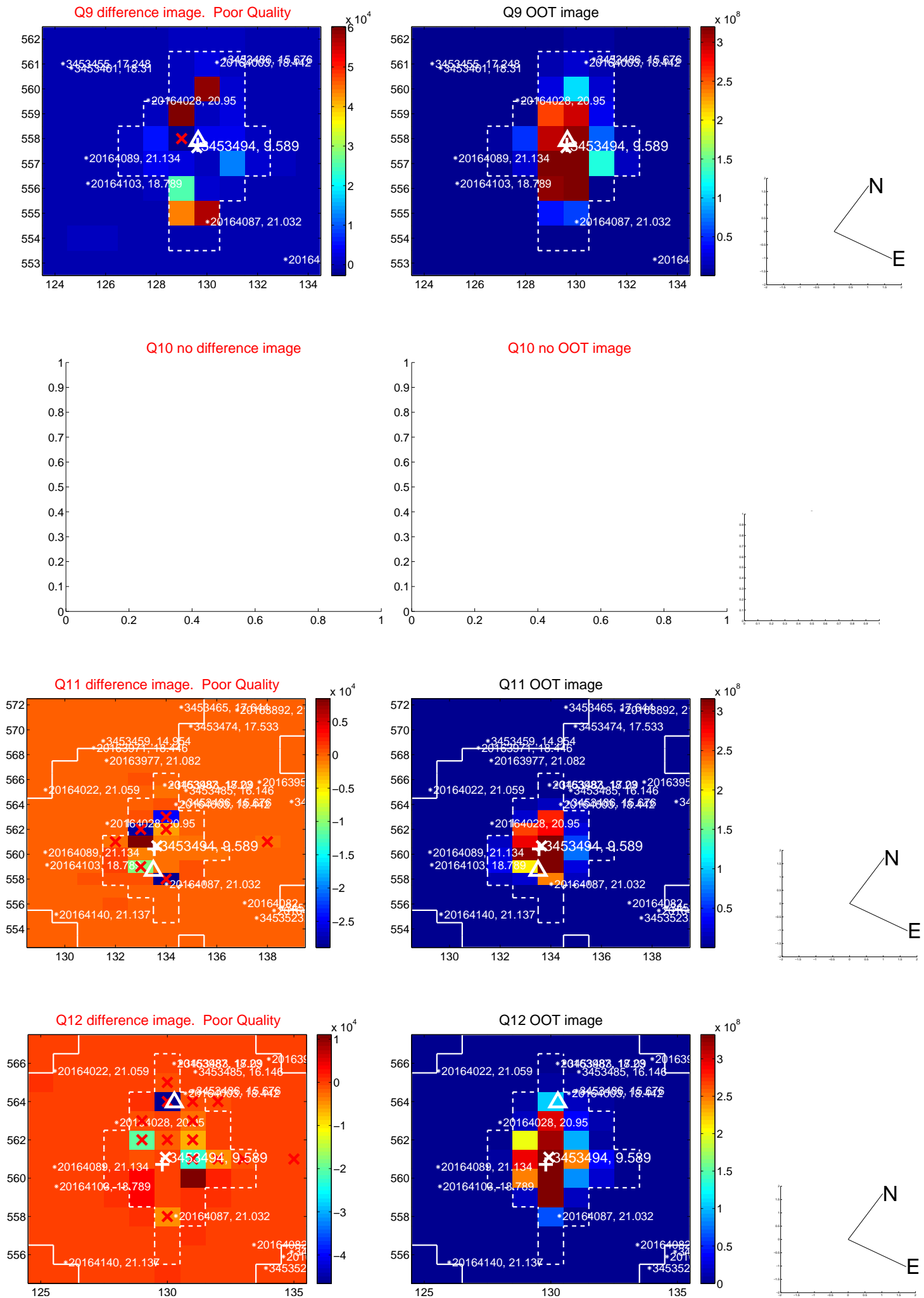
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



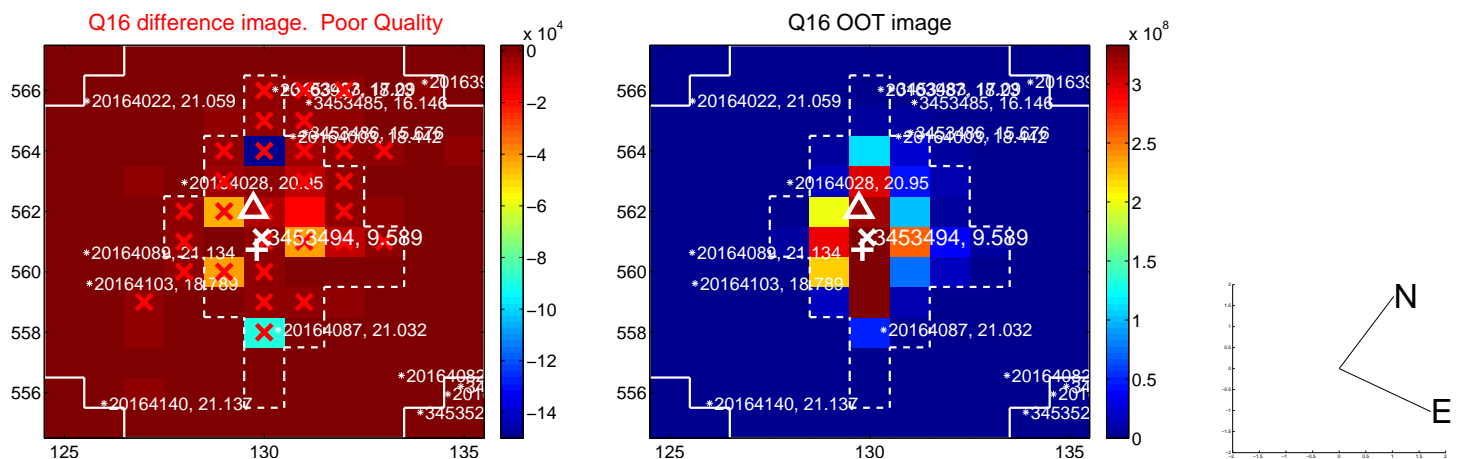
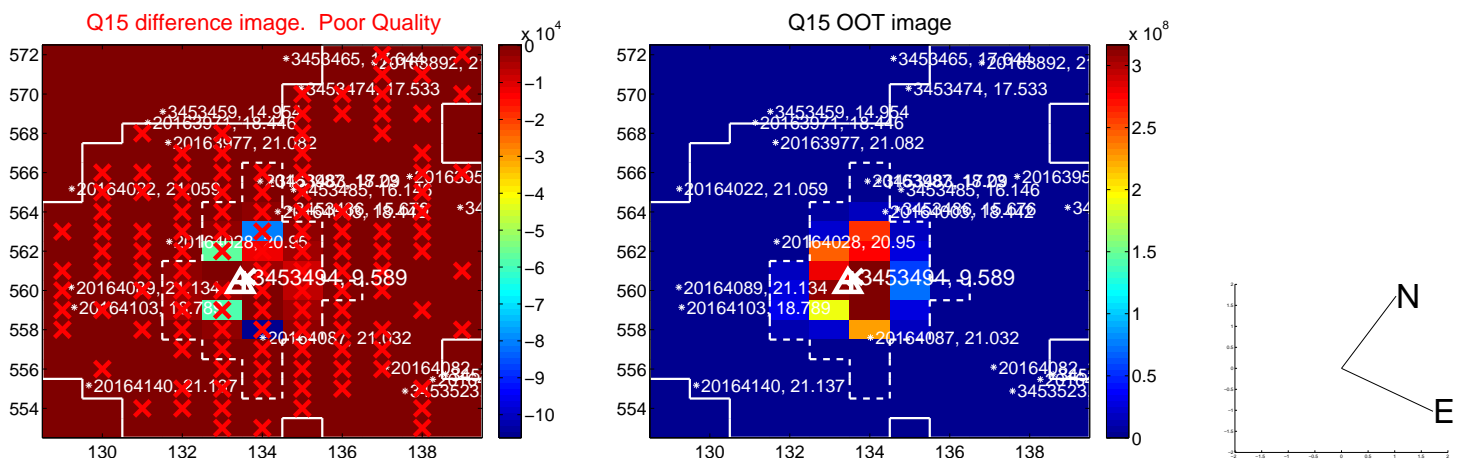
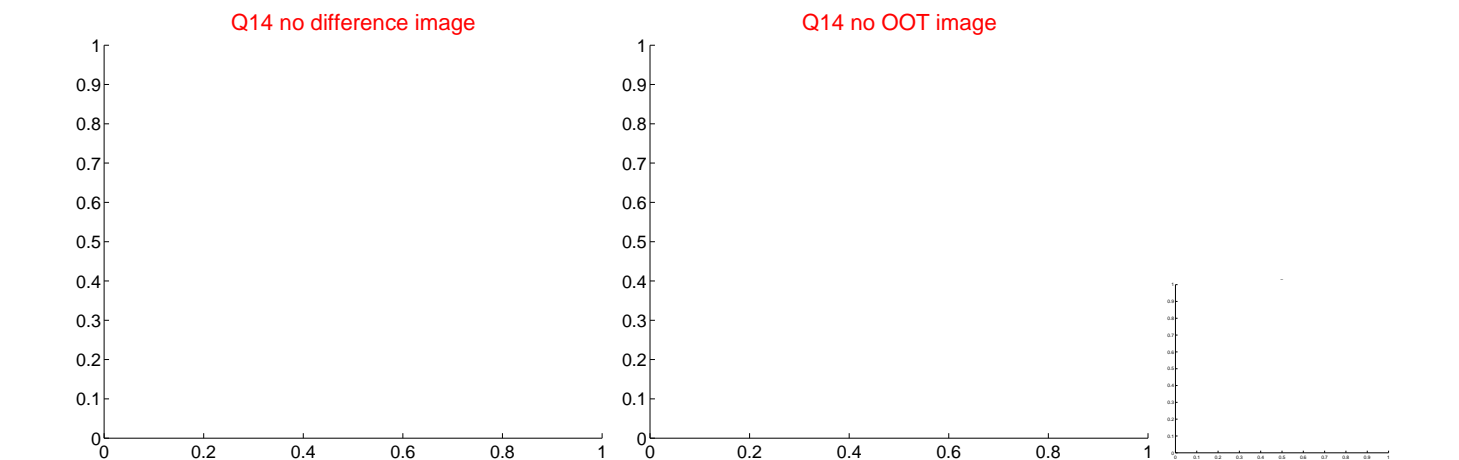
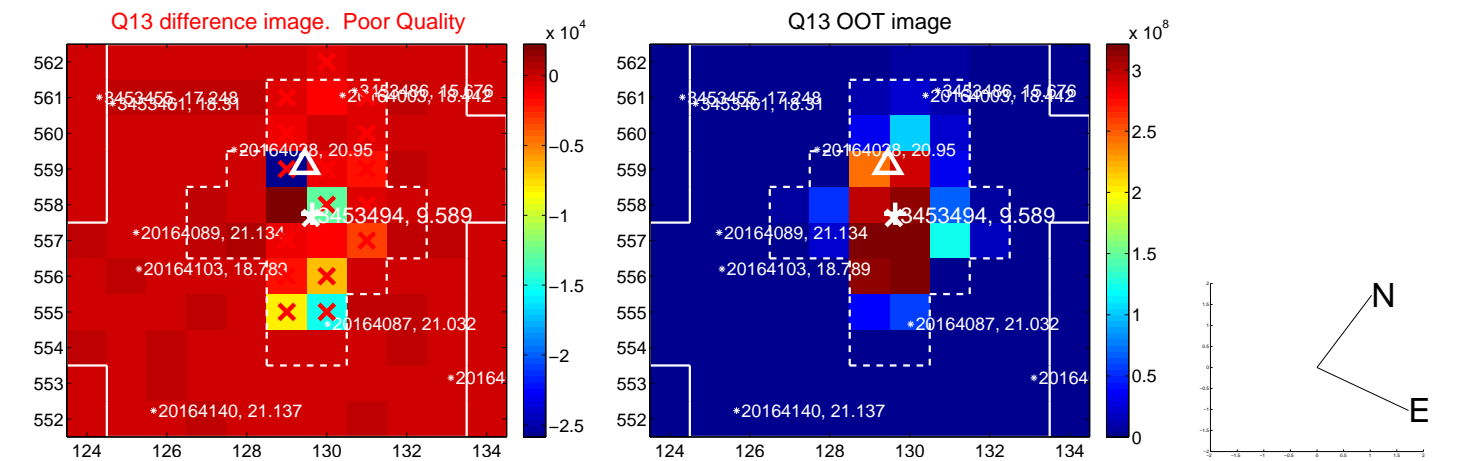
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



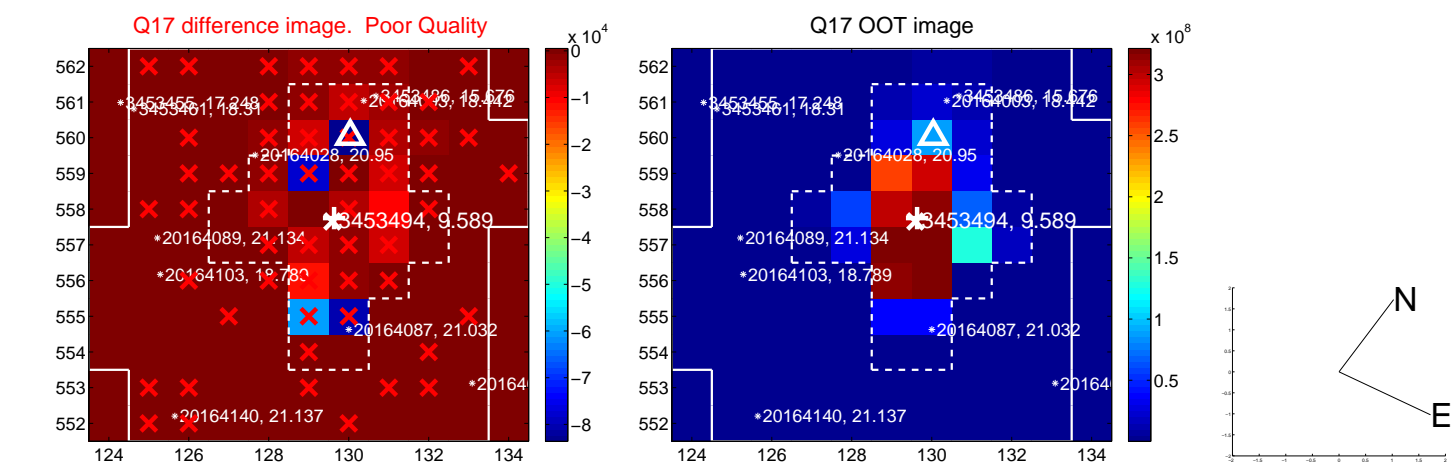
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



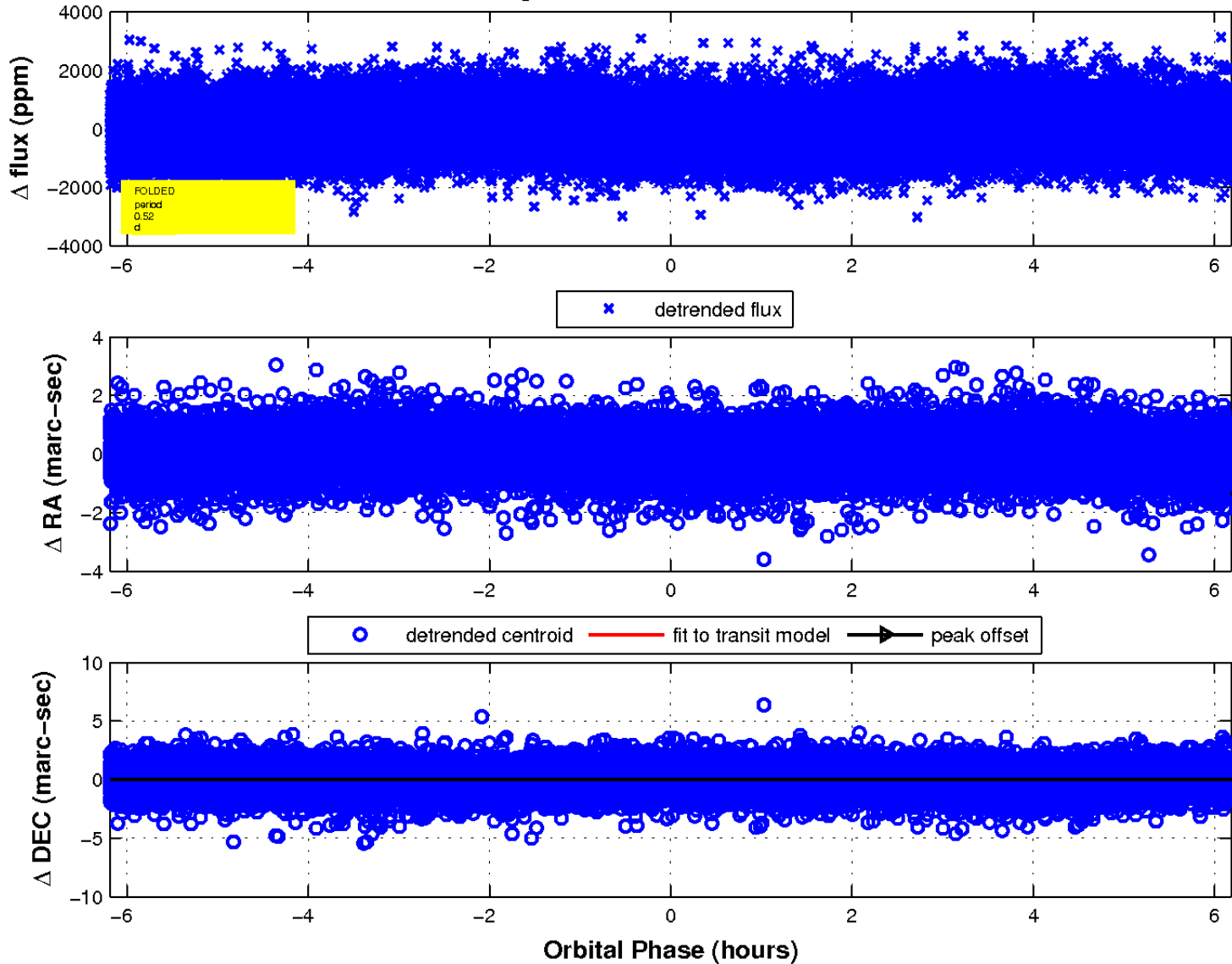
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

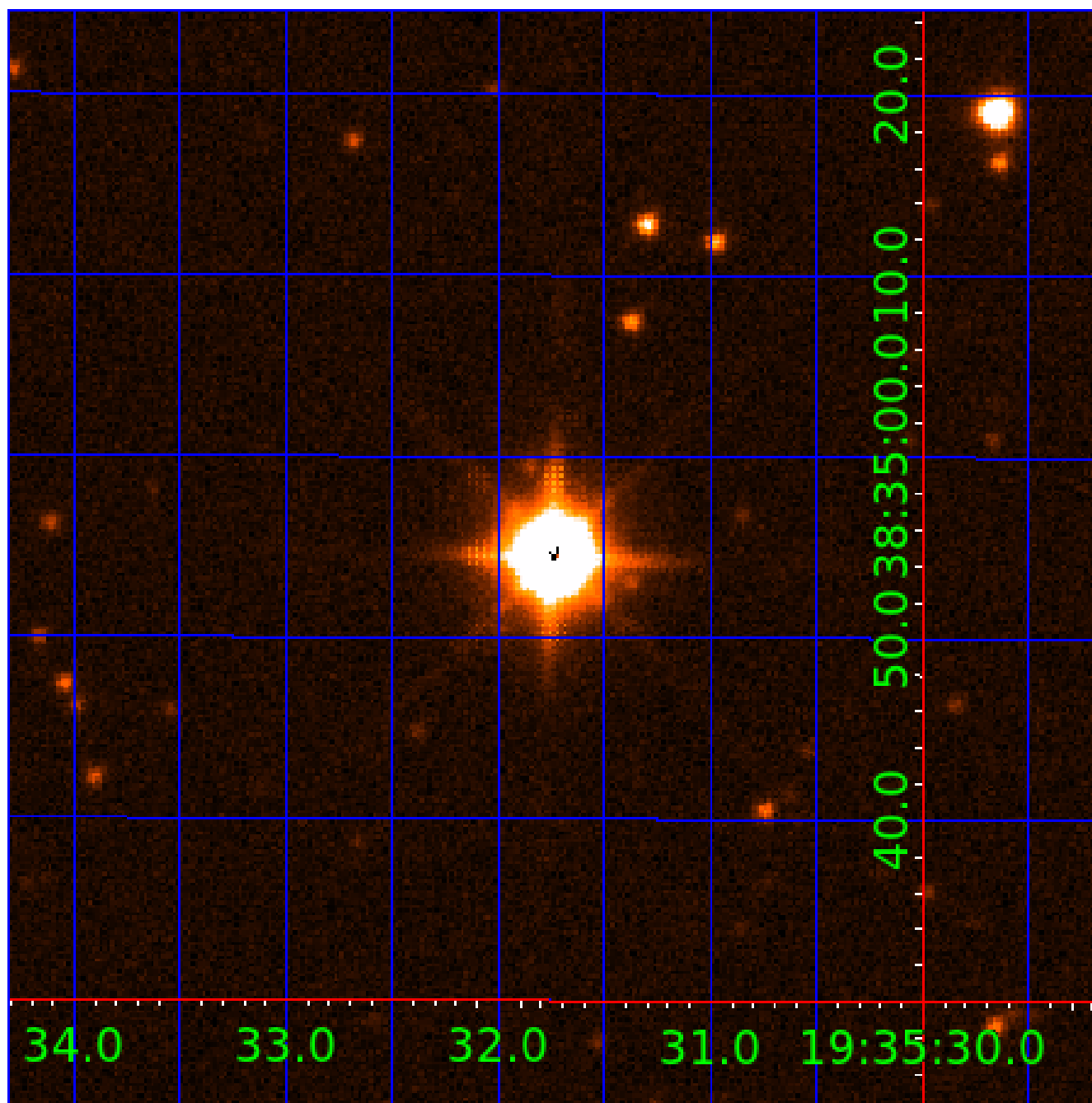


fluxWeightedCentroids, Planet 2 of 8



UKIRT Image

Declination



KIC 003453494

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})
003453494-01	OBS	No	1.030916	131.693533	53.8	2.764	9.1	4.3	3.57	7766	2.98	64787.16
003453494-02	OBS	No	0.515440	131.946190	78.6	3.078	11.2	8.9	3.57	7766	3.70	0.00
003453494-03	OBS	No	34.898911	139.118838	1250.1	1.943	9.7	10.2	3.57	7766	13.43	591.61
003453494-04	OBS	No	29.752587	148.910721	1644.3	1.428	9.7	8.7	3.57	7766	15.75	731.85
003453494-05	OBS	No	42.057117	134.983982	1041.9	2.729	8.8	9.3	3.57	7766	12.80	461.32
003453494-06	OBS	No	21.543803	141.569803	1096.3	1.514	9.3	8.4	3.57	7766	13.83	1125.53
003453494-07	OBS	No	22.541275	131.761021	1403.5	1.611	9.2	11.5	3.57	7766	14.64	1059.62
003453494-08	OBS	No	35.097670	148.391078	1243.1	4.046	8.9	10.7	3.57	7766	20.68	587.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

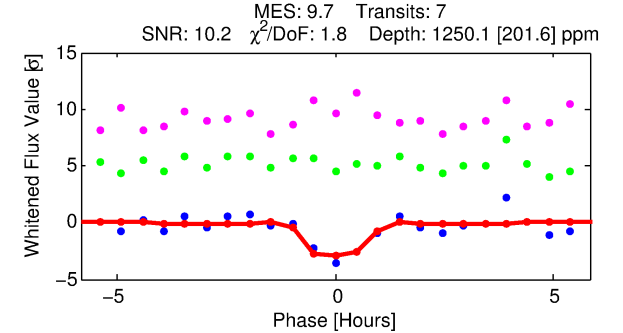
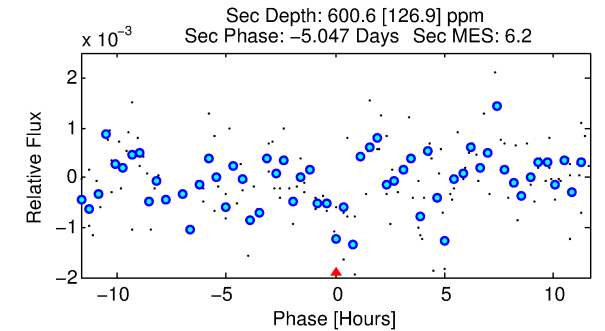
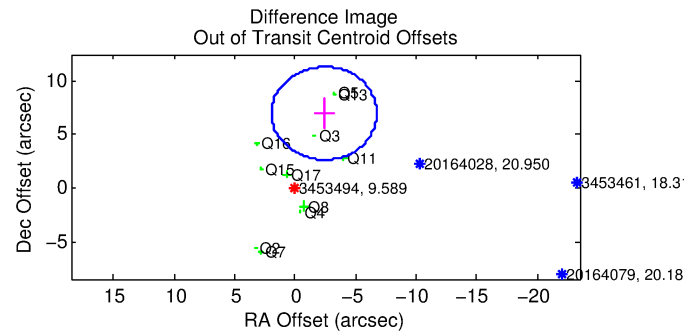
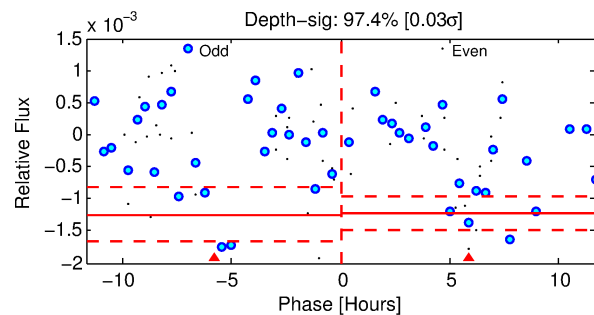
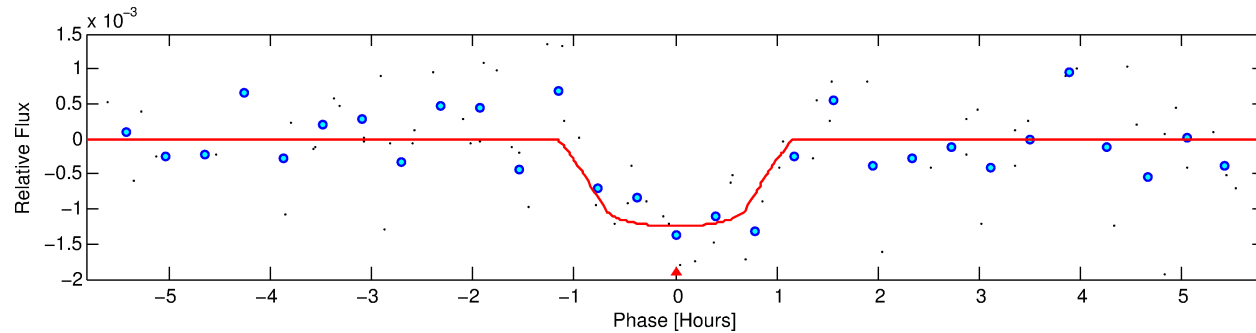
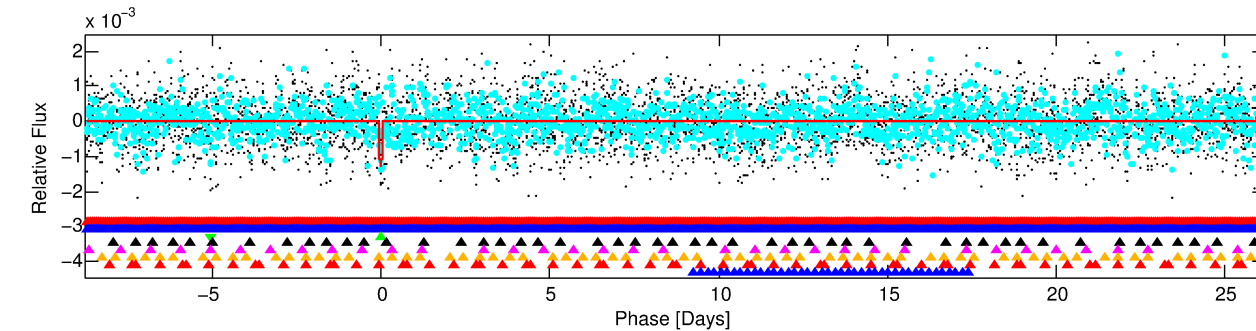
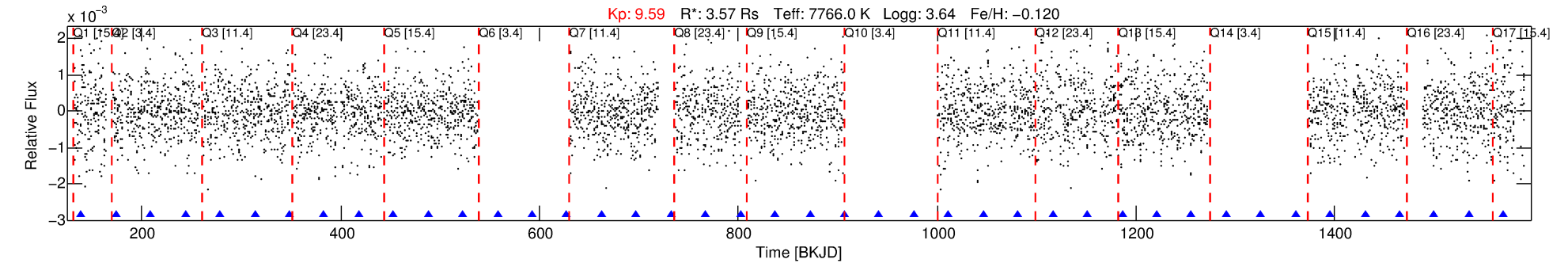
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-03

No Significant Match Found

DV One-Page Summary

KIC: 3453494 Candidate: 3 of 8 Period: 34.899 d



DV Fit Results:

Period = 34.89891 [0.00044] d
Epoch = 139.1188 [0.0119] BKJD
Rp/R* = 0.0344 [0.0642]
a/R* = 109.63 [1141.17]
b = 0.66 [9.09]
Seff = 591.61 [225.56]
Teq = 1258 [120] K
Rp = 13.43 [25.30] Re
a = 0.2653 [0.0641] AU
Ag = 128.87 [483.58] [0.26 σ]
Teffp = 6551 [6118] K [0.87 σ]

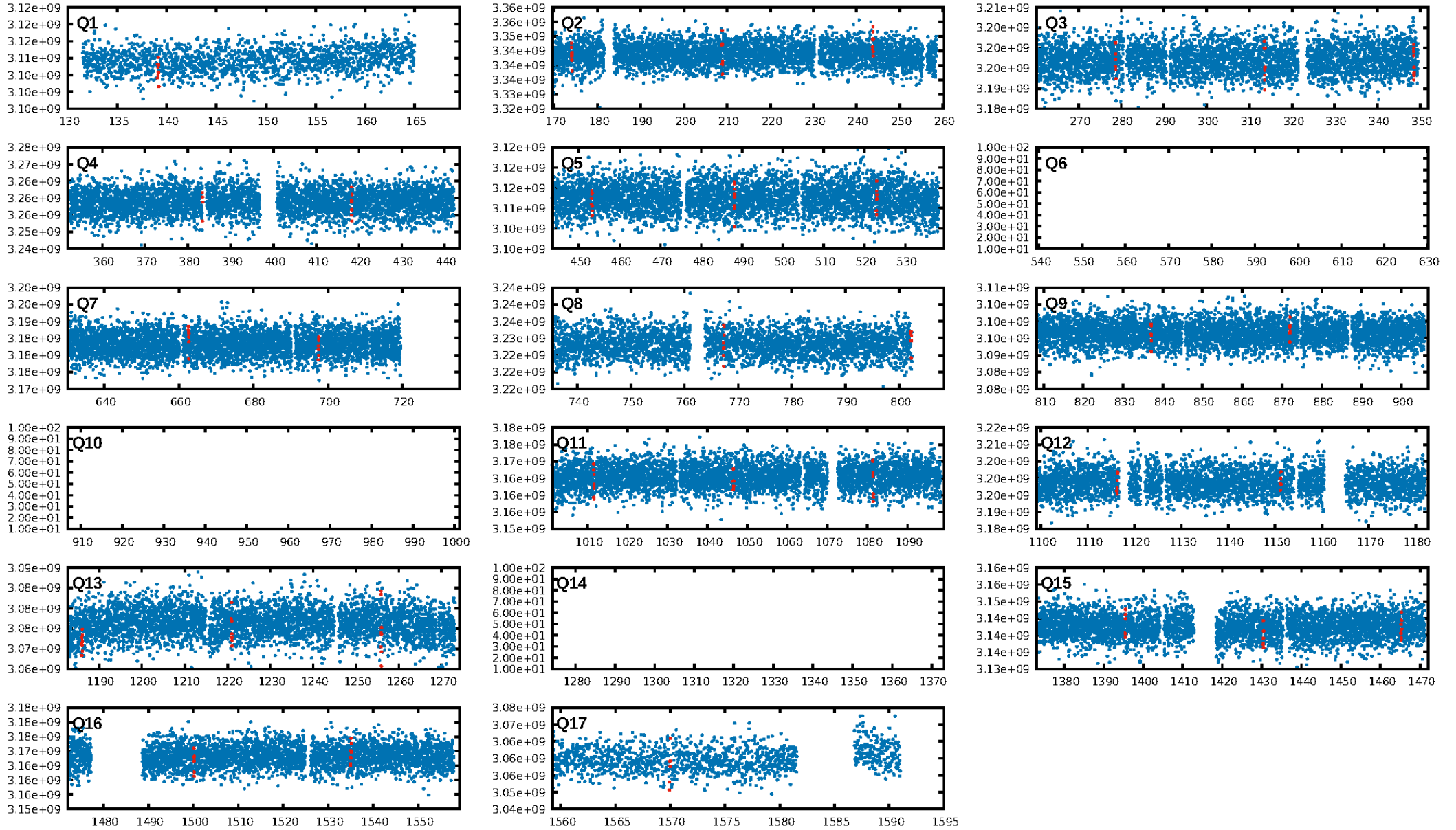
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [51.22 σ]
LongPeriod-sig: 71.2% [1.06 σ]
ModelChiSquare2-sig: 7.1%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.504 arcsec [4.65 σ]
OotOffset-rm: 7.385 arcsec [5.11 σ]
KicOffset-rm: 7.263 arcsec [4.42 σ]
OotOffset-st: 1/4/3/4 [12]
KicOffset-st: 1/4/3/4 [12]
DiffImageQuality-fgm: 0.00 [0/12]
DiffImageOverlap-fno: 0.00 [0/14]

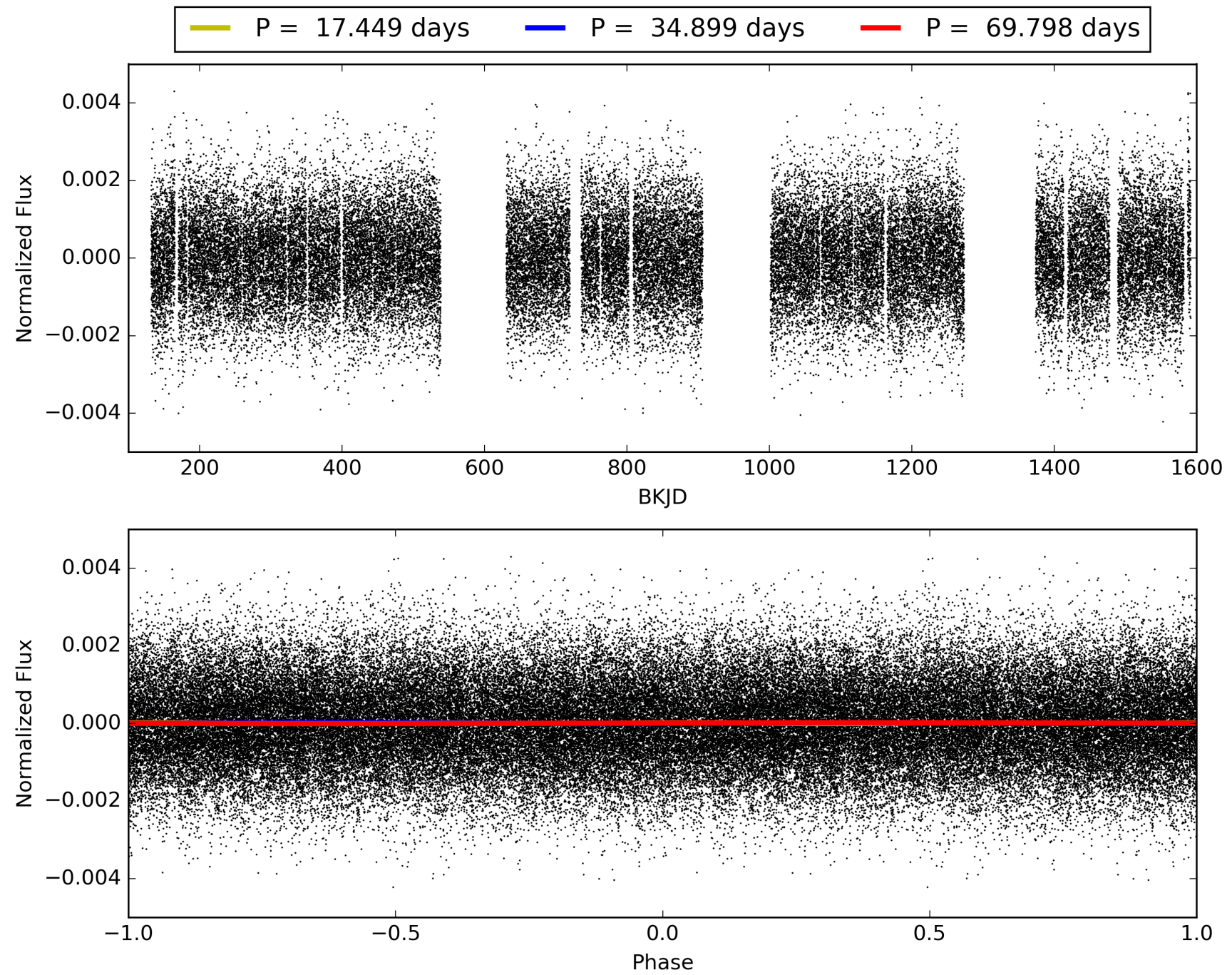
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:28 Z

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

TCE 003453494-03, PDC Light Curves

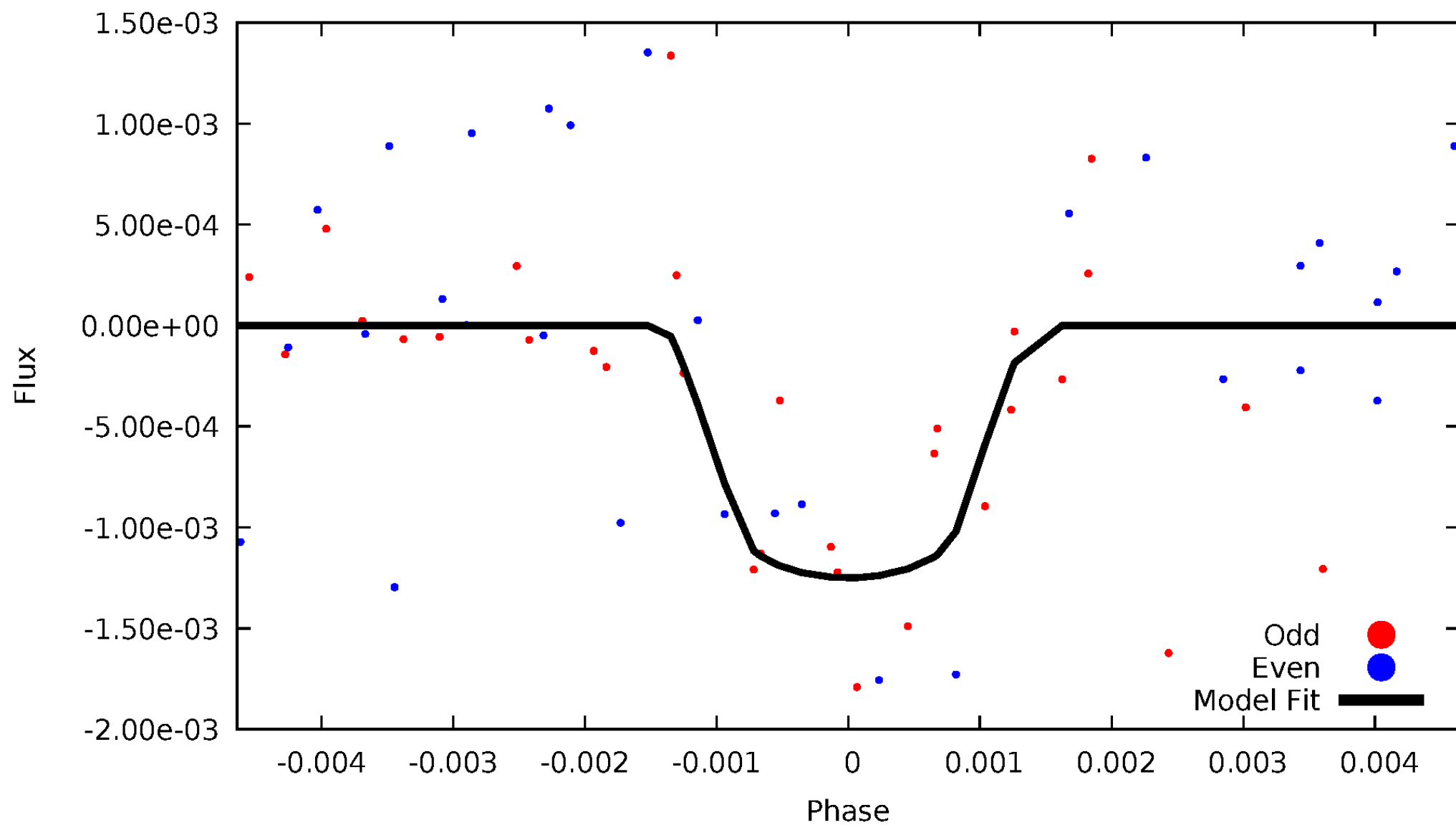


TCE 003453494-03



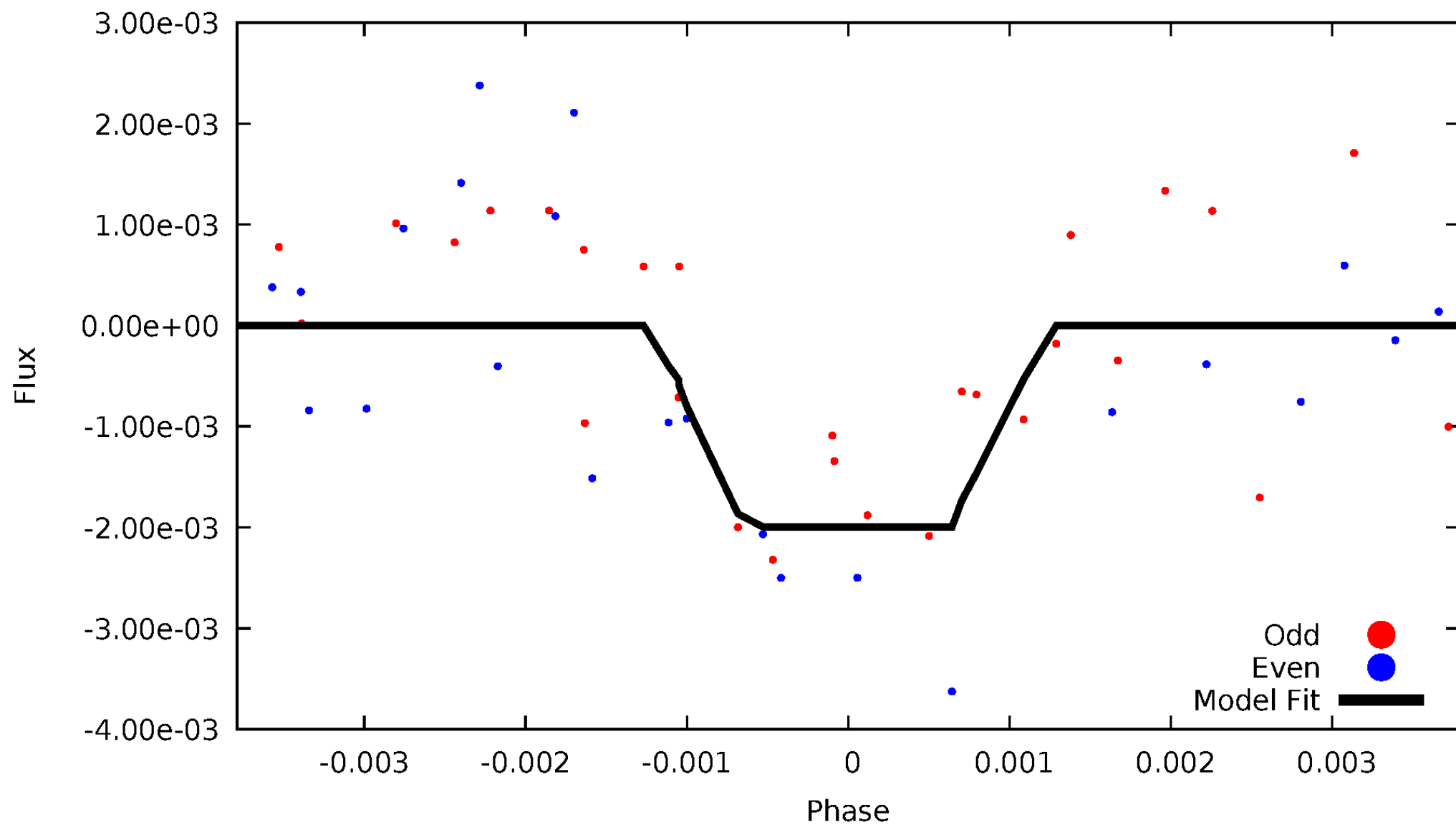
DV Odd/Even

TCE 003453494-03



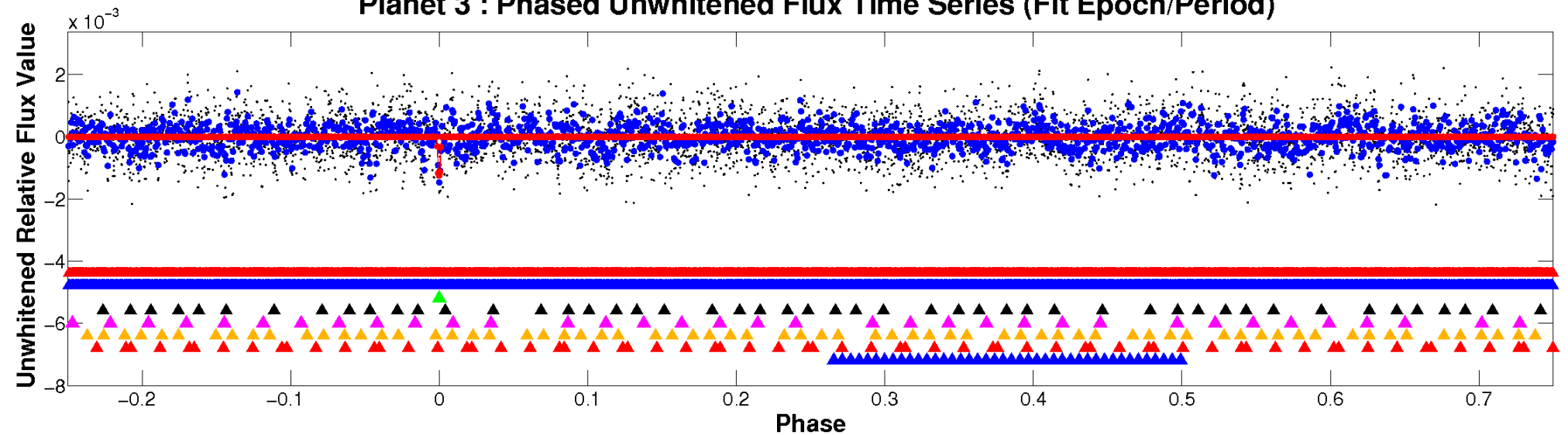
ALT Odd/Even

TCE 003453494-03

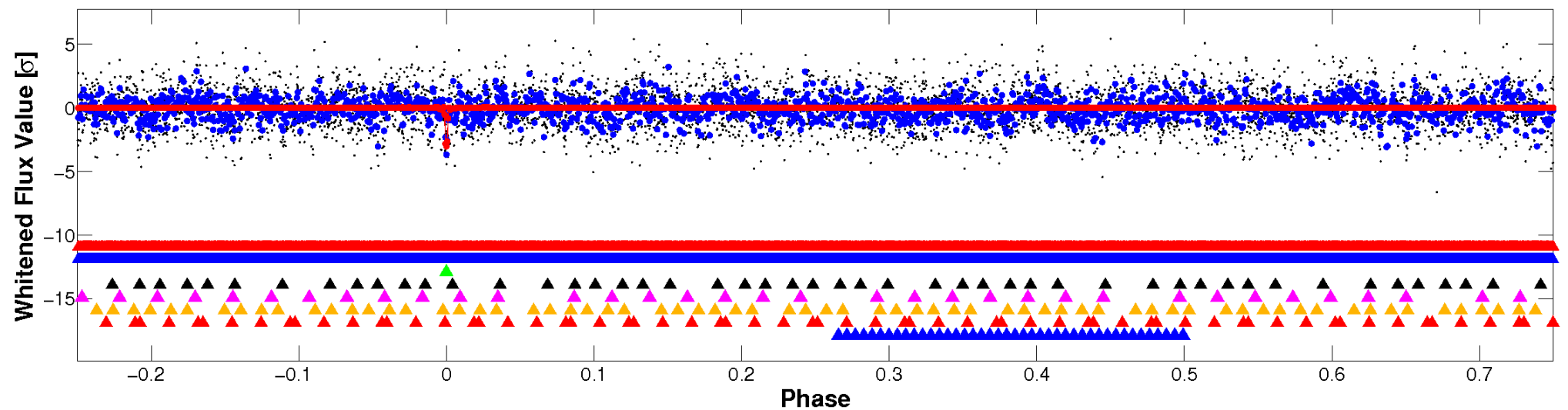


Non-Whitened Vs. Whitened Light Curve

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

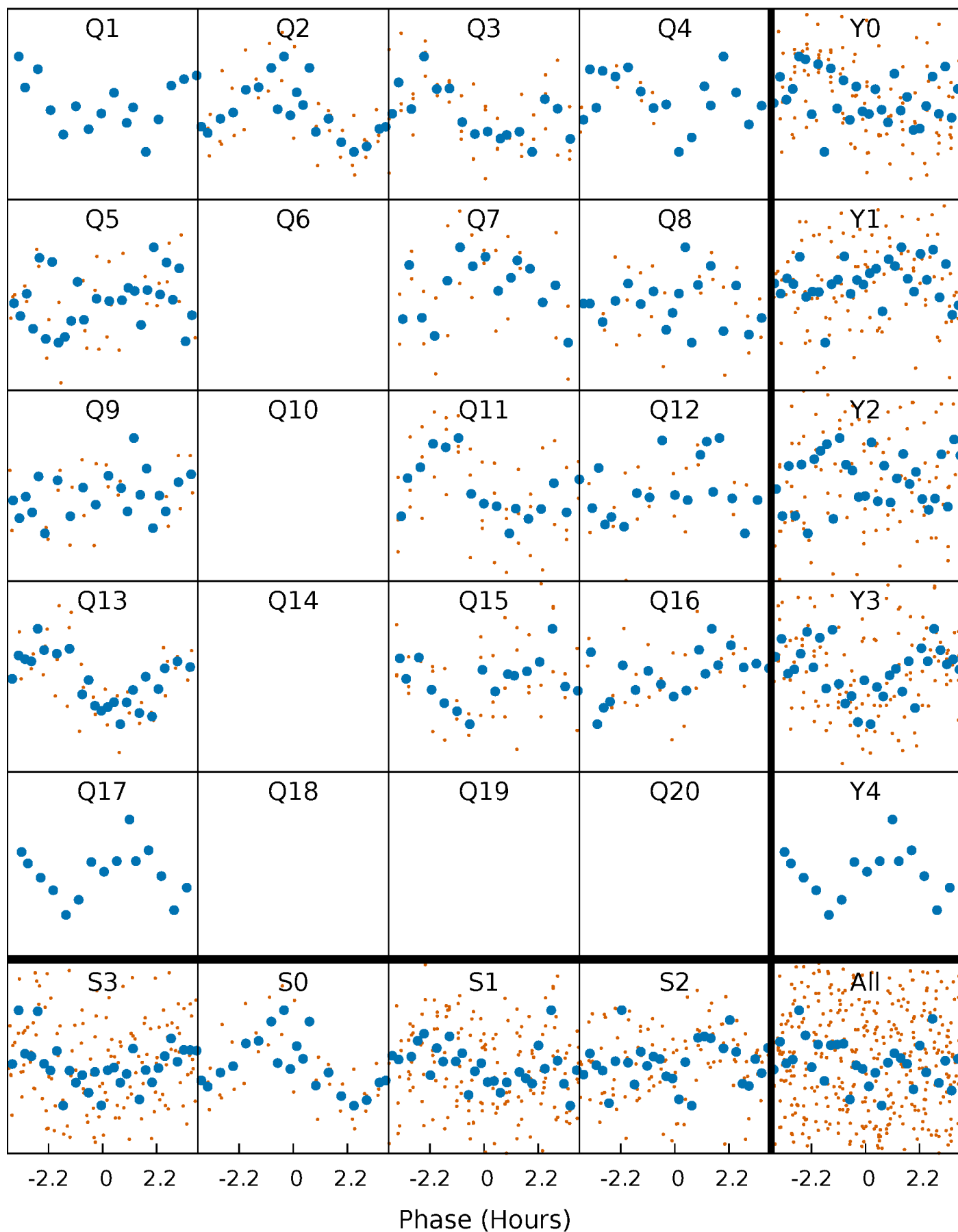


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



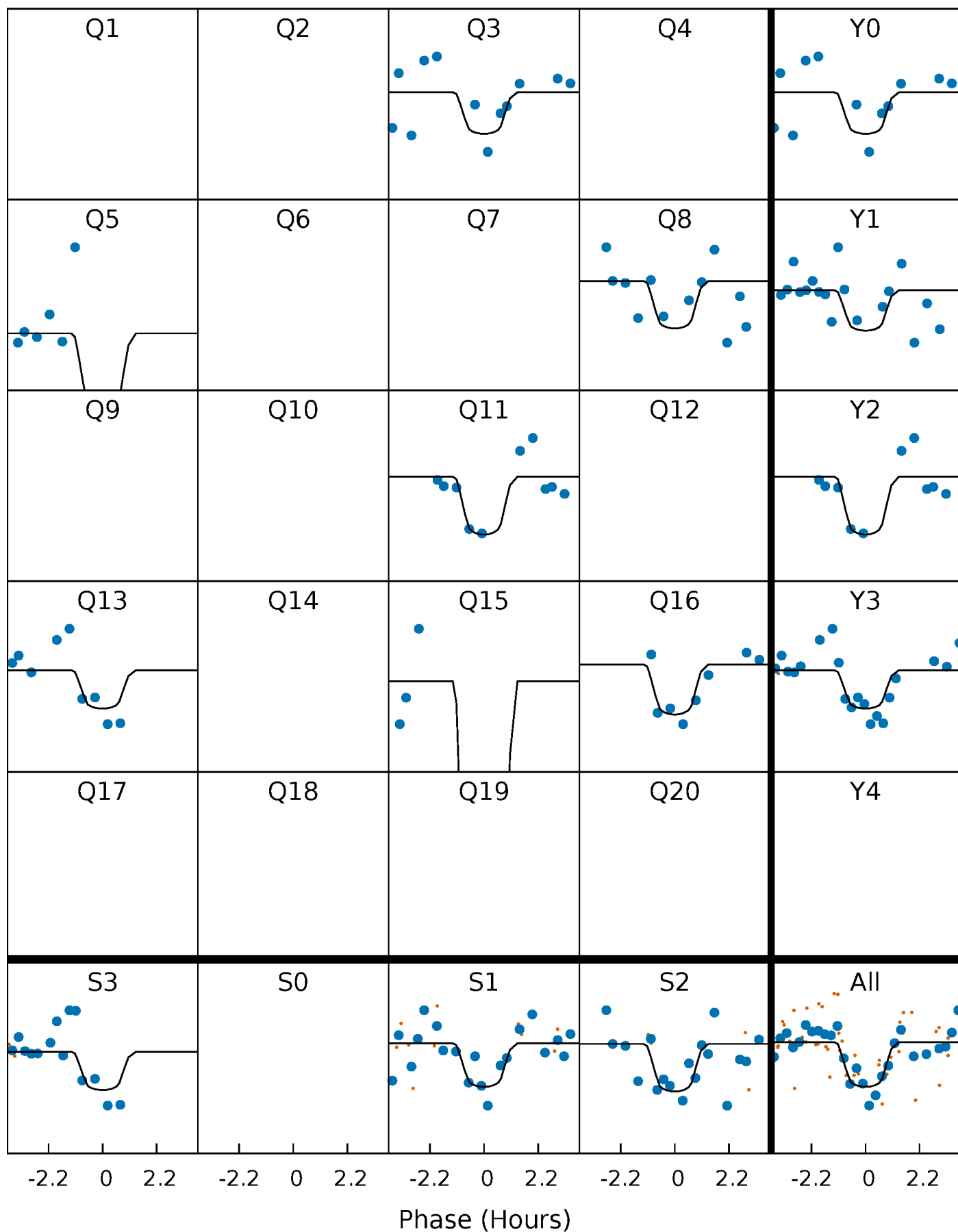
PDC Quarter-Phased Transit Curves

TCE 003453494-03 P= 34.898911 Days $T_0=139.118838$ (BKJD)



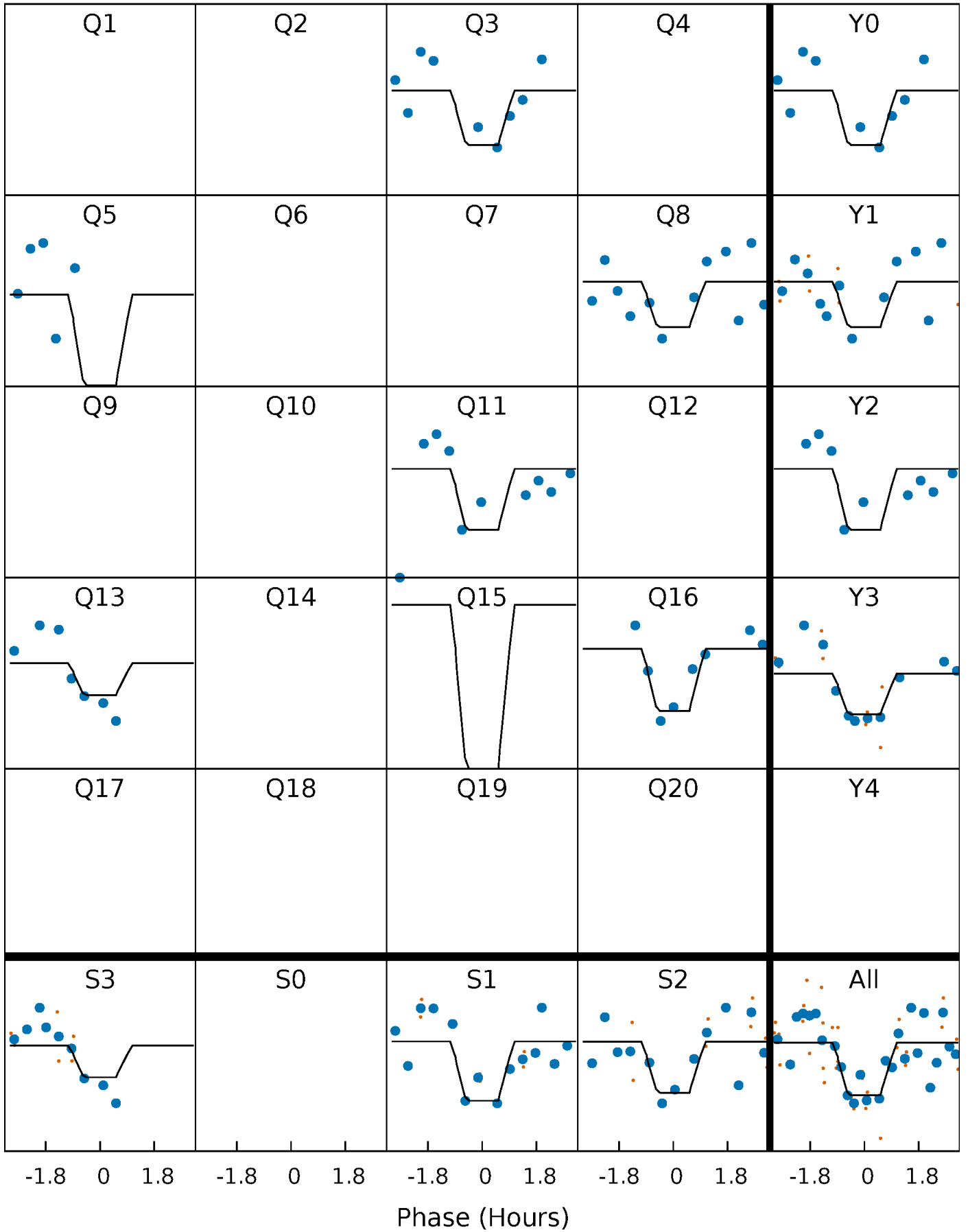
DV Quarter-Phased Transit Curves

TCE 003453494-03 P= 34.898911 Days $T_0=139.118838$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

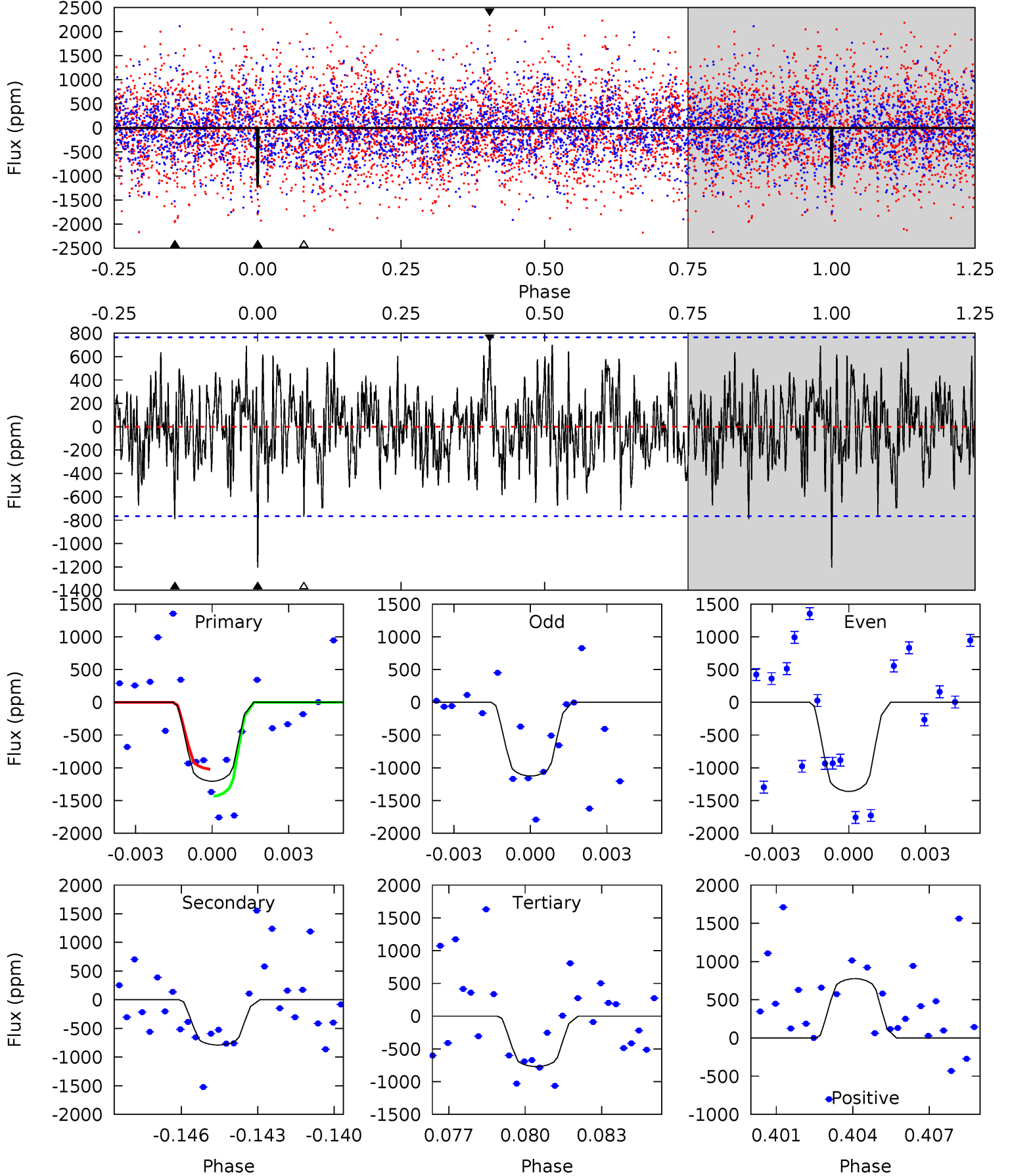
TCE 003453494-03 P= 34.899700 Days $T_0=139.099727$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-03, P = 34.898911 Days, E = 104.219927 Days

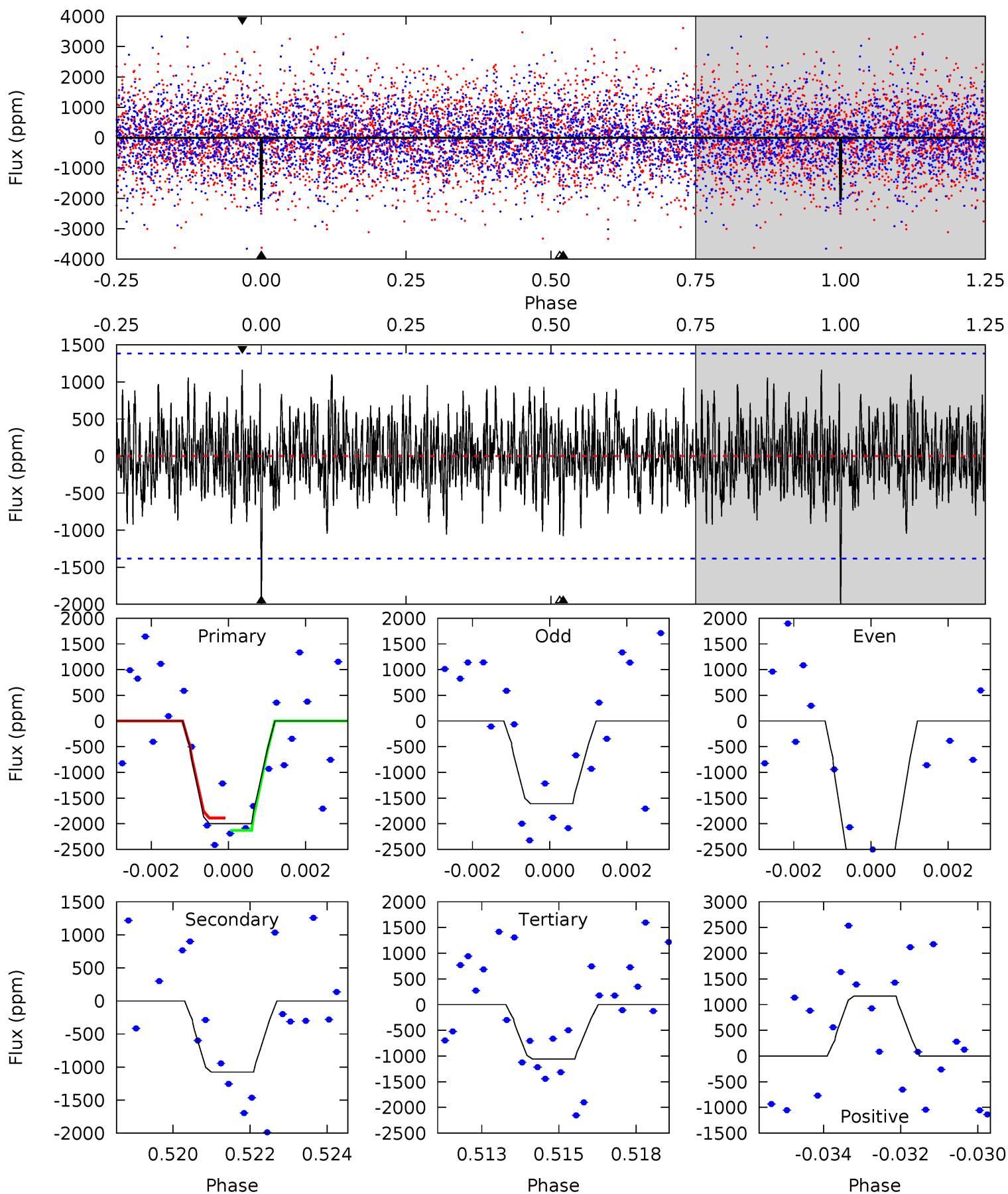
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.27	5.42	5.28	5.33	5.25	2.97	1.73	2.99	2.94	0.14	0.09	0.74	0.98	0.39	1.41



Alt Model-Shift Uniqueness Test

003453494-03, P = 34.899700 Days, E = 104.200027 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.67	4.13	4.06	4.47	5.31	3.07	1.42	3.61	3.20	0.07	-0.34	1.97	1.17	0.37	0.46



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-790 ± 146	$22.07^{+20.32}_{-14.74}$	1724^{+77}_{-110}	5332^{+4561}_{-1273}	65^{+549}_{-48}
Alt.	-1077 ± 261	$23.89^{+21.00}_{-15.69}$	1733^{+78}_{-114}	5490^{+4377}_{-1255}	76^{+561}_{-55}

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

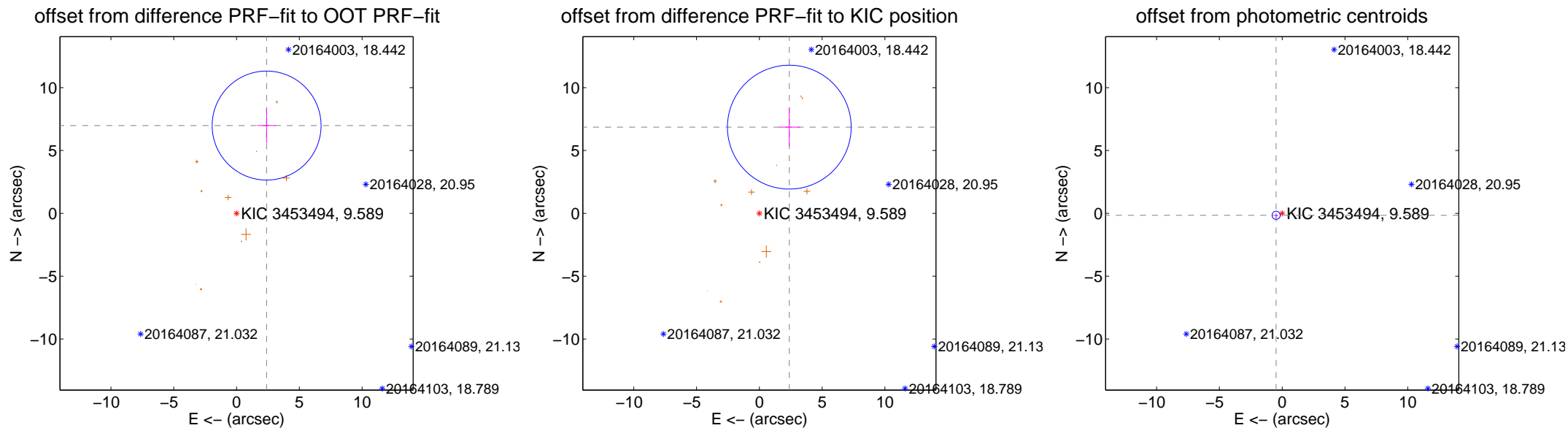
DV Centroid Data

Supplemental centroid analysis for 003453494-03. **Kepler magnitude: 9.59.** Transit SNR 10.18

There are 0 quarters with good PRF difference image offsets

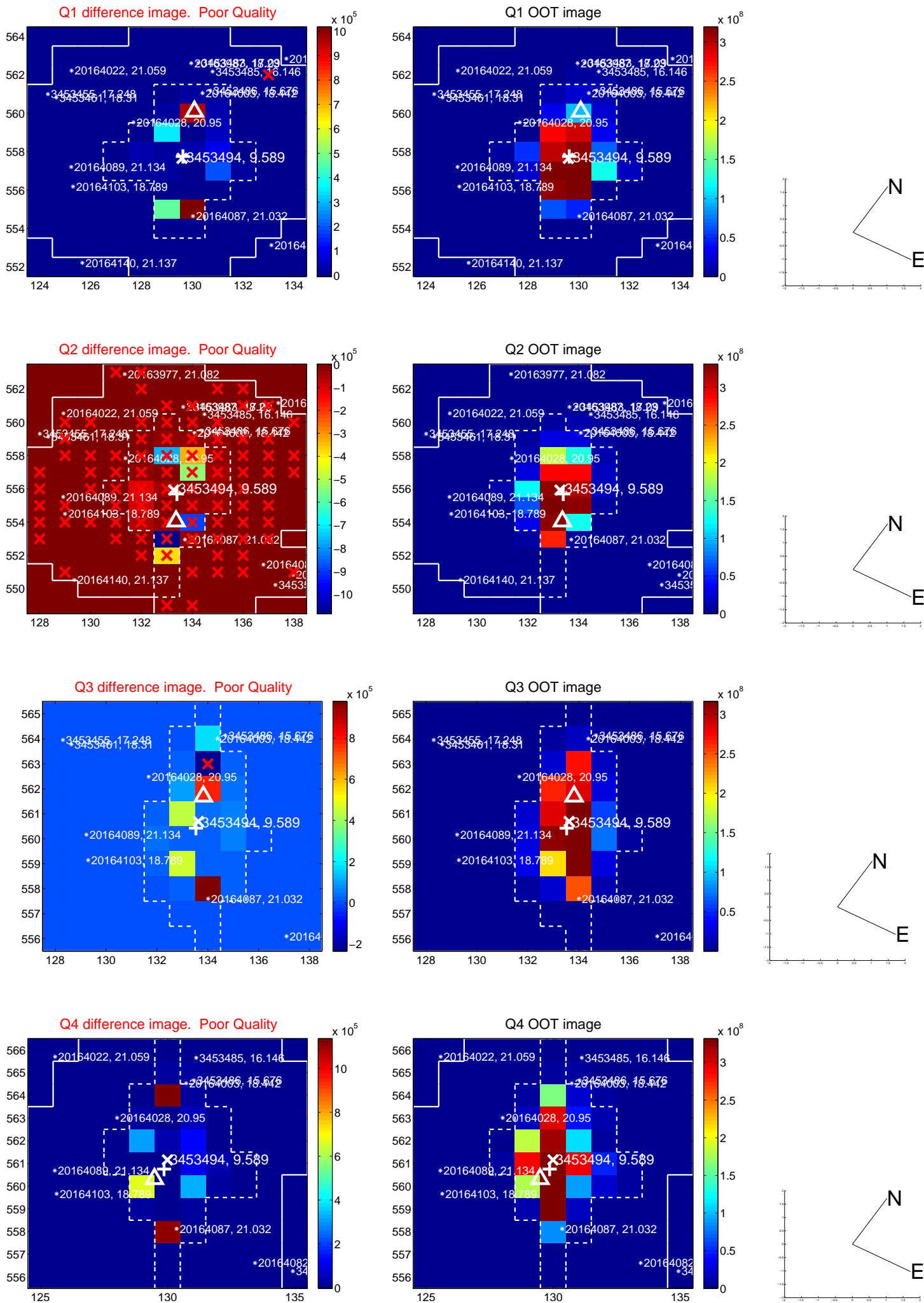
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.385 ± 1.446	5.11	-2.395 ± 0.729	6.986 ± 1.367
PRF-fit source offset from KIC position	7.263 ± 1.643	4.42	-2.385 ± 0.822	6.860 ± 1.530
photometric centroid source offset	0.50 ± 0.11	4.65	0.48 ± 0.10	-0.15 ± 0.16

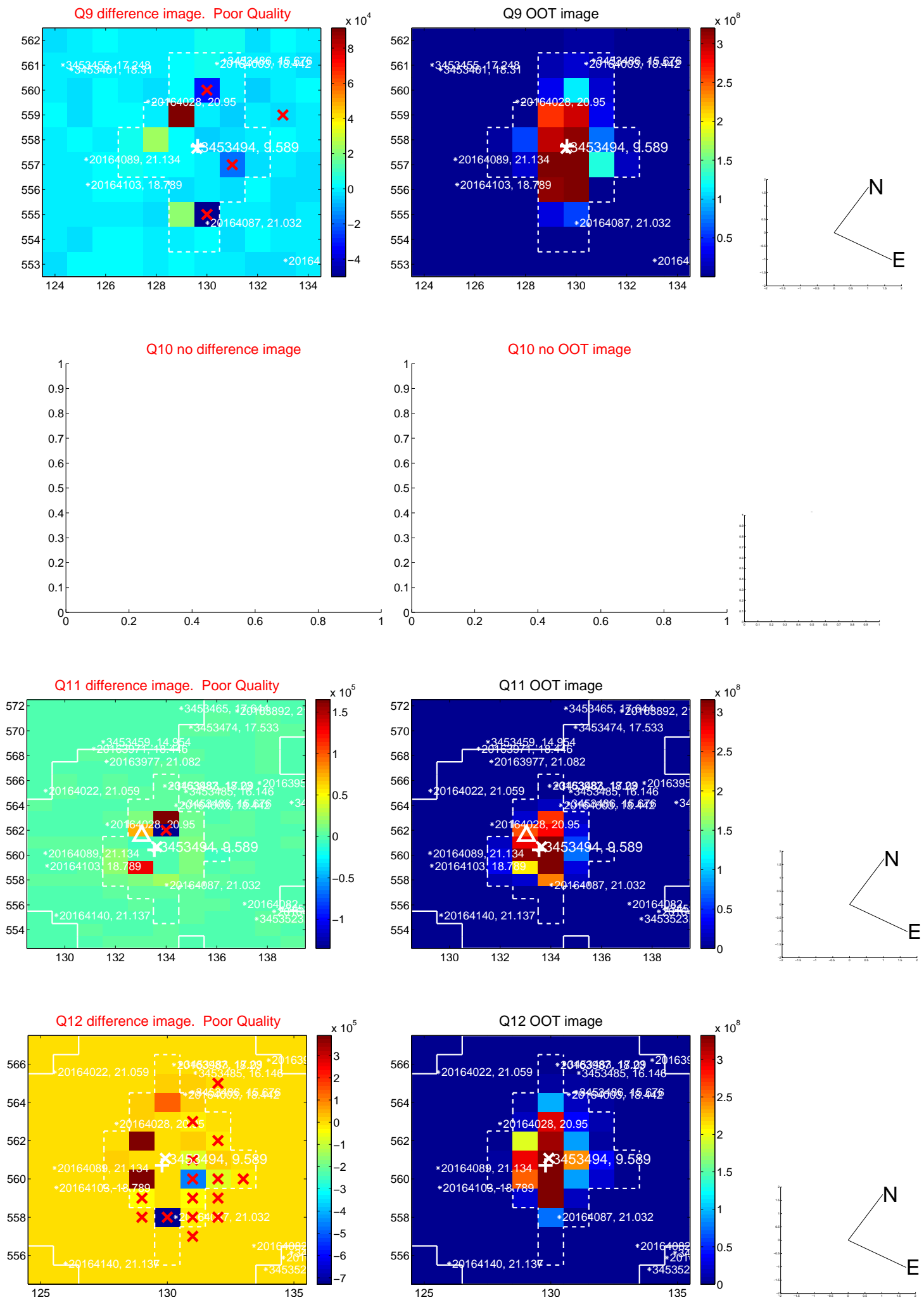


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

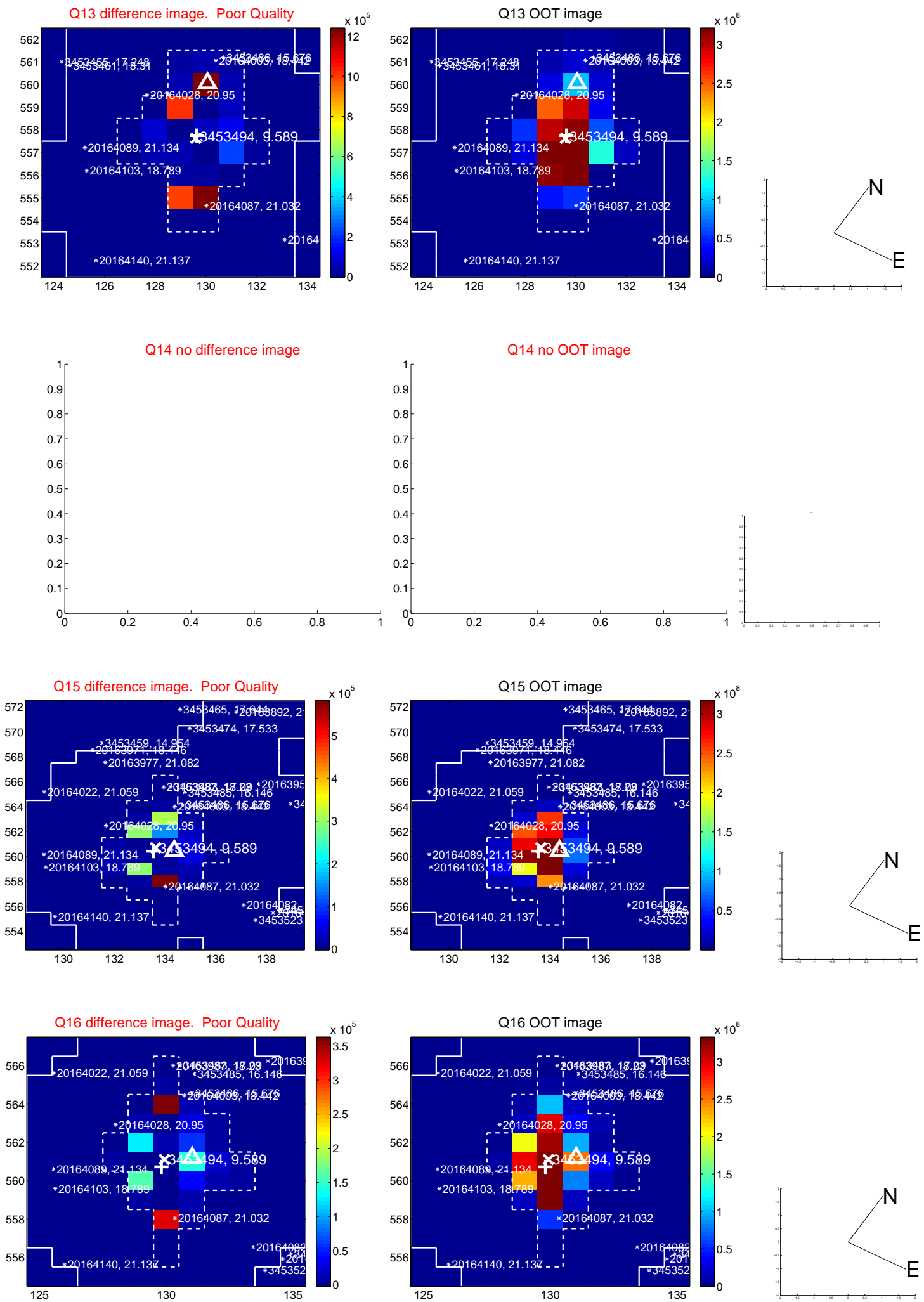
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



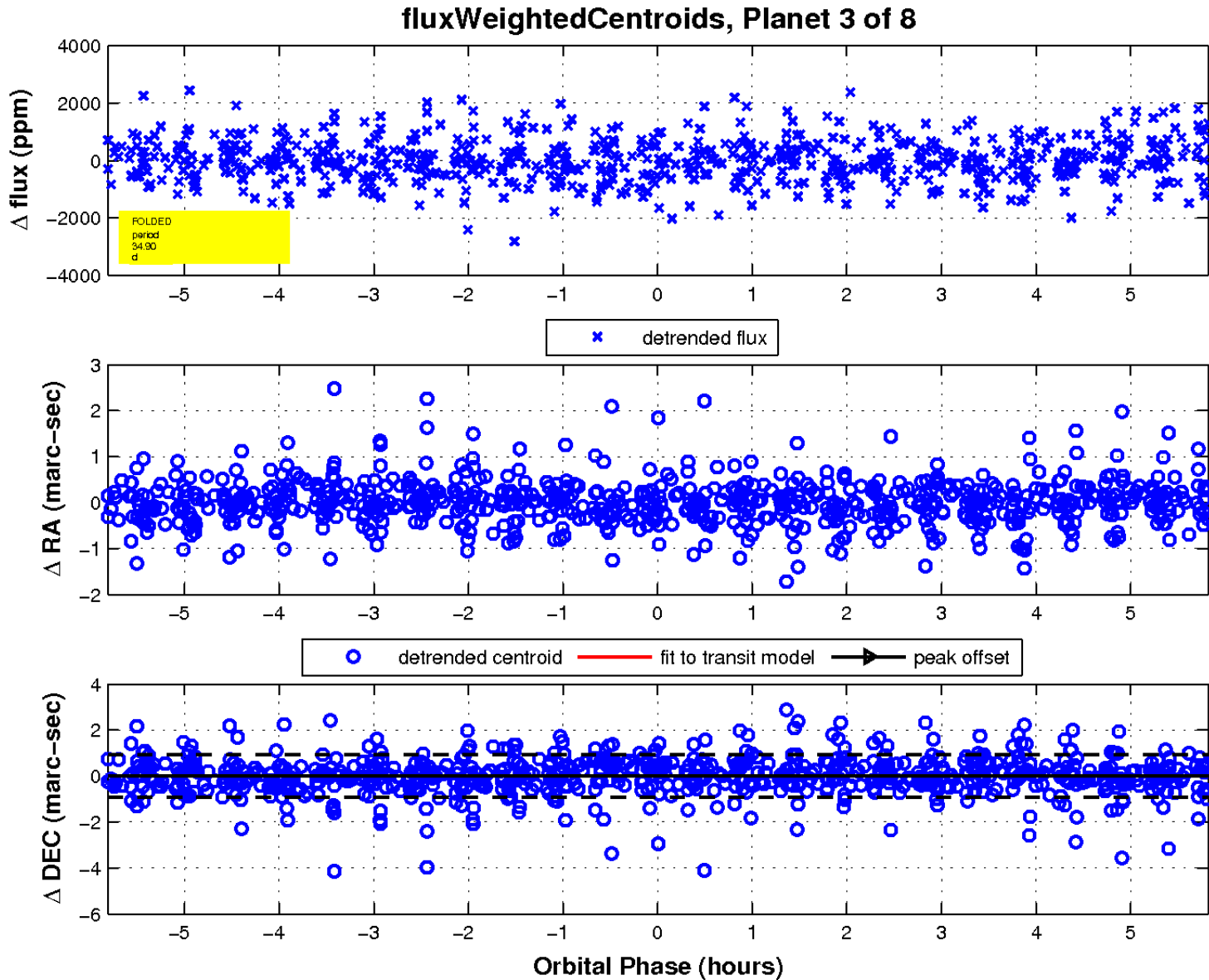
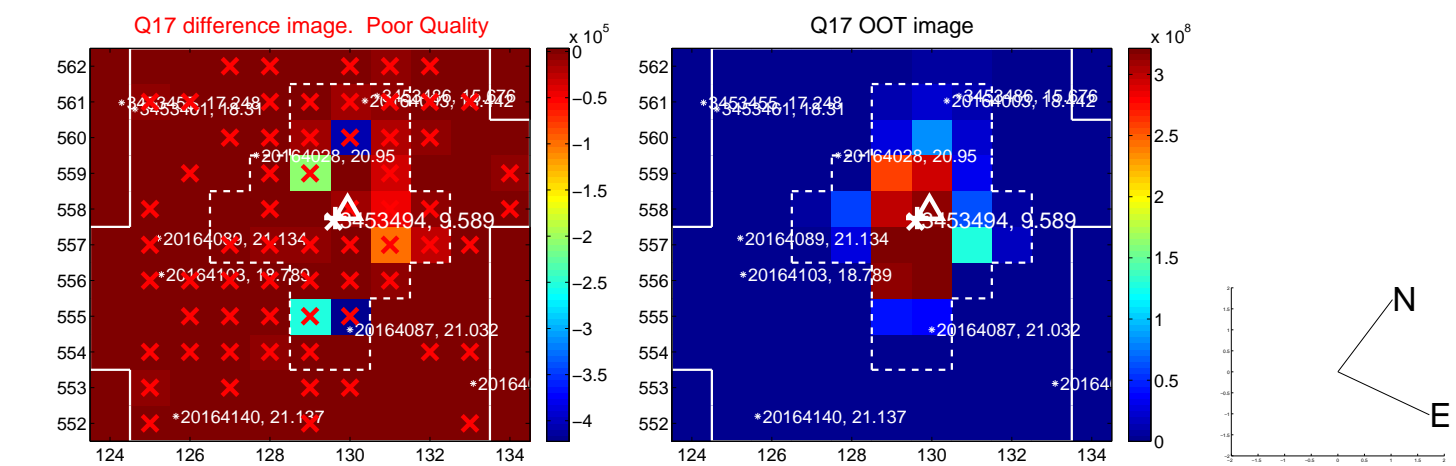
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

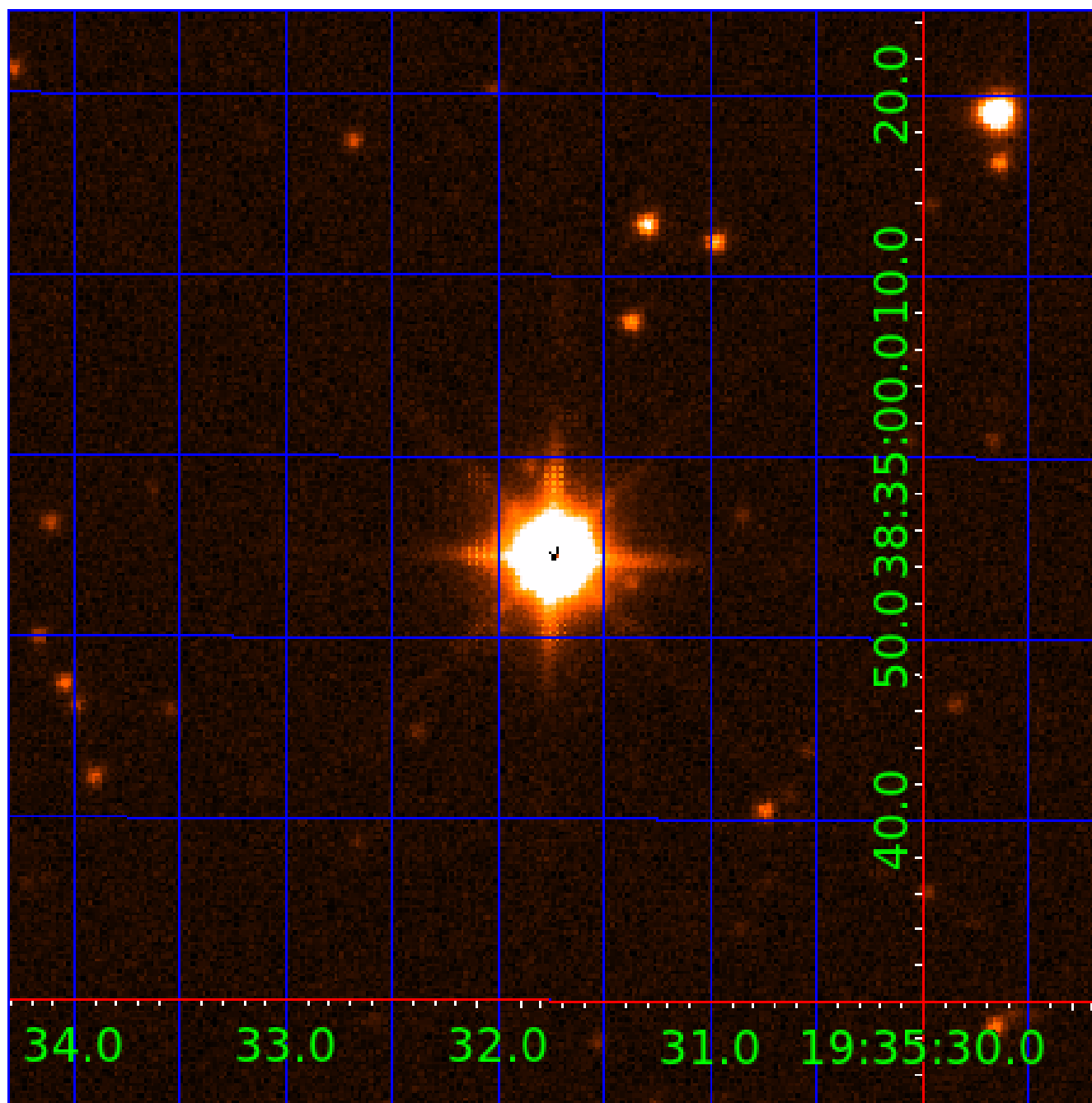


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003453494

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})
003453494-01	OBS	No	1.030916	131.693533	53.8	2.764	9.1	4.3	3.57	7766	2.98	64787.16
003453494-02	OBS	No	0.515440	131.946190	78.6	3.078	11.2	8.9	3.57	7766	3.70	0.00
003453494-03	OBS	No	34.898911	139.118838	1250.1	1.943	9.7	10.2	3.57	7766	13.43	591.61
003453494-04	OBS	No	29.752587	148.910721	1644.3	1.428	9.7	8.7	3.57	7766	15.75	731.85
003453494-05	OBS	No	42.057117	134.983982	1041.9	2.729	8.8	9.3	3.57	7766	12.80	461.32
003453494-06	OBS	No	21.543803	141.569803	1096.3	1.514	9.3	8.4	3.57	7766	13.83	1125.53
003453494-07	OBS	No	22.541275	131.761021	1403.5	1.611	9.2	11.5	3.57	7766	14.64	1059.62
003453494-08	OBS	No	35.097670	148.391078	1243.1	4.046	8.9	10.7	3.57	7766	20.68	587.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

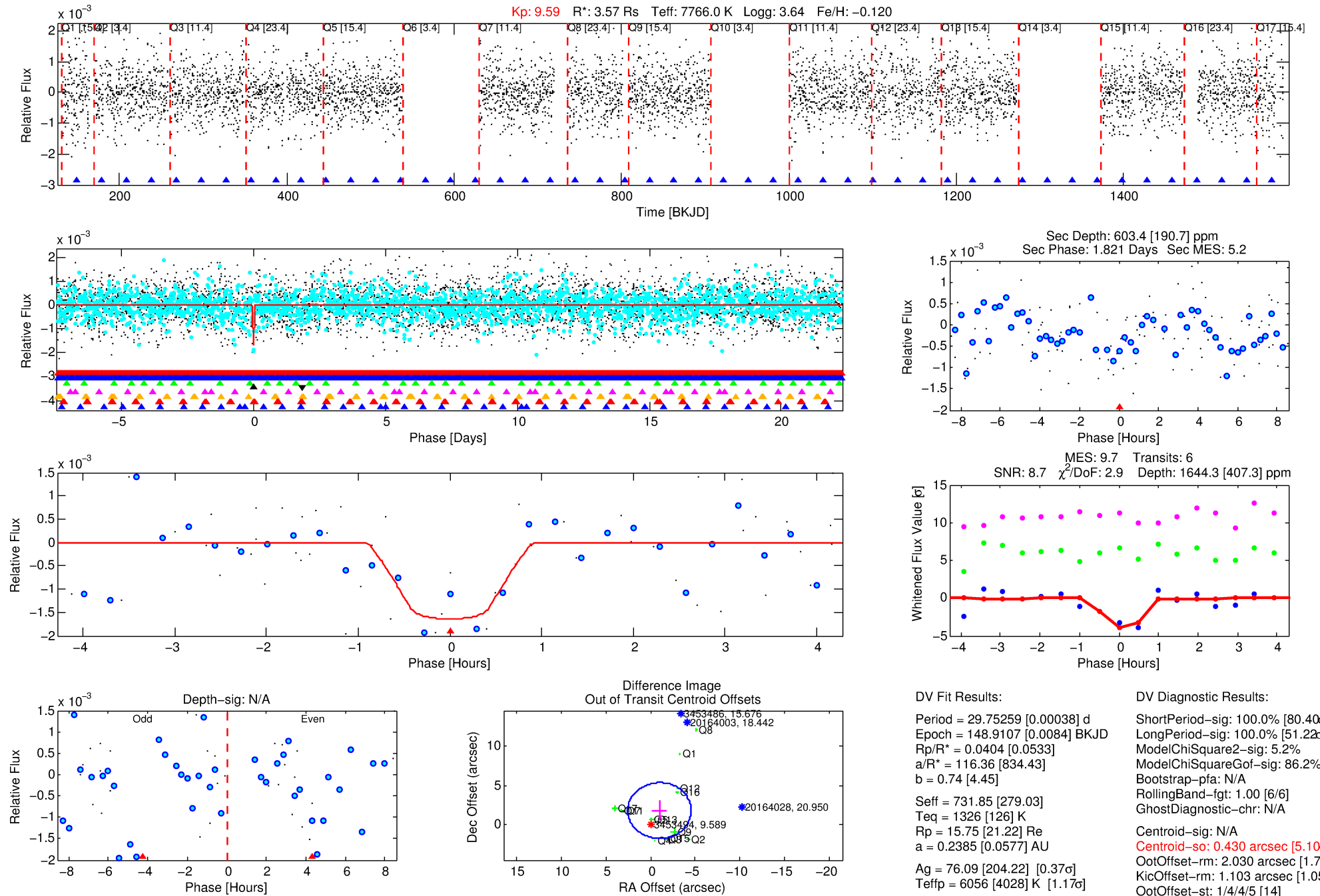
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-04

No Significant Match Found

DV One-Page Summary

KIC: 3453494 Candidate: 4 of 8 Period: 29.753 d



DV Fit Results:

Period = 29.75259 [0.00038] d
Epoch = 148.9107 [0.0084] BKJD
Rp/R* = 0.0404 [0.0533]
a/R* = 116.36 [834.43]
b = 0.74 [4.45]
Seff = 731.85 [279.03]
Teq = 1326 [126] K
Rp = 15.75 [21.22] Re
a = 0.2385 [0.0577] AU
Ag = 76.09 [204.22] [0.37σ]
Teff = 6056 [4028] K [1.17σ]

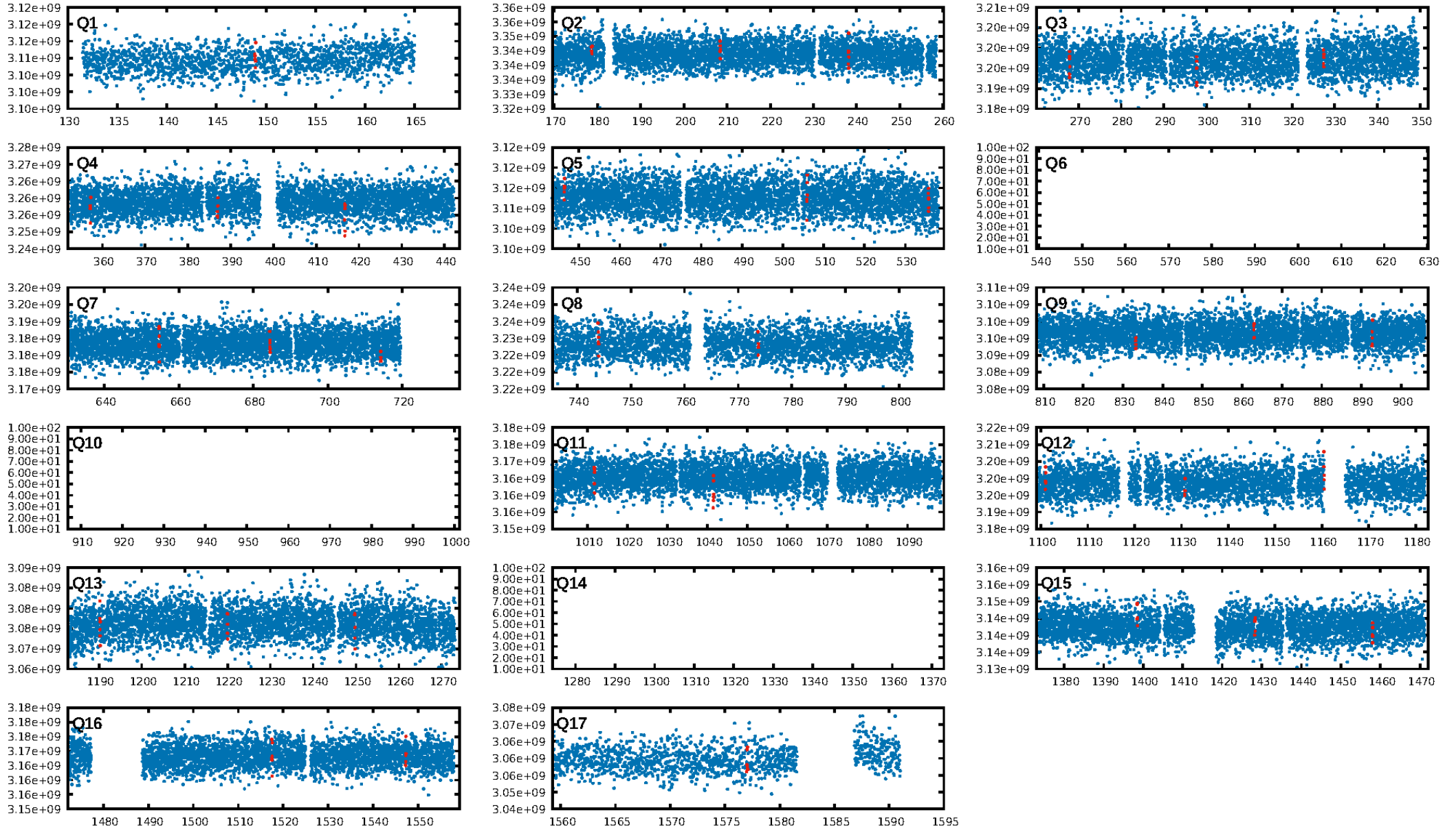
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [80.40σ]
LongPeriod-sig: 100.0% [51.22σ]
ModelChiSquare2-sig: 5.2%
ModelChiSquareGoF-sig: 86.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.430 arcsec [5.10σ]
OotOffset-rm: 2.030 arcsec [1.71σ]
KicOffset-rm: 1.103 arcsec [1.05σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.07 [1/14]
DiffImageOverlap-fno: 0.00 [0/14]

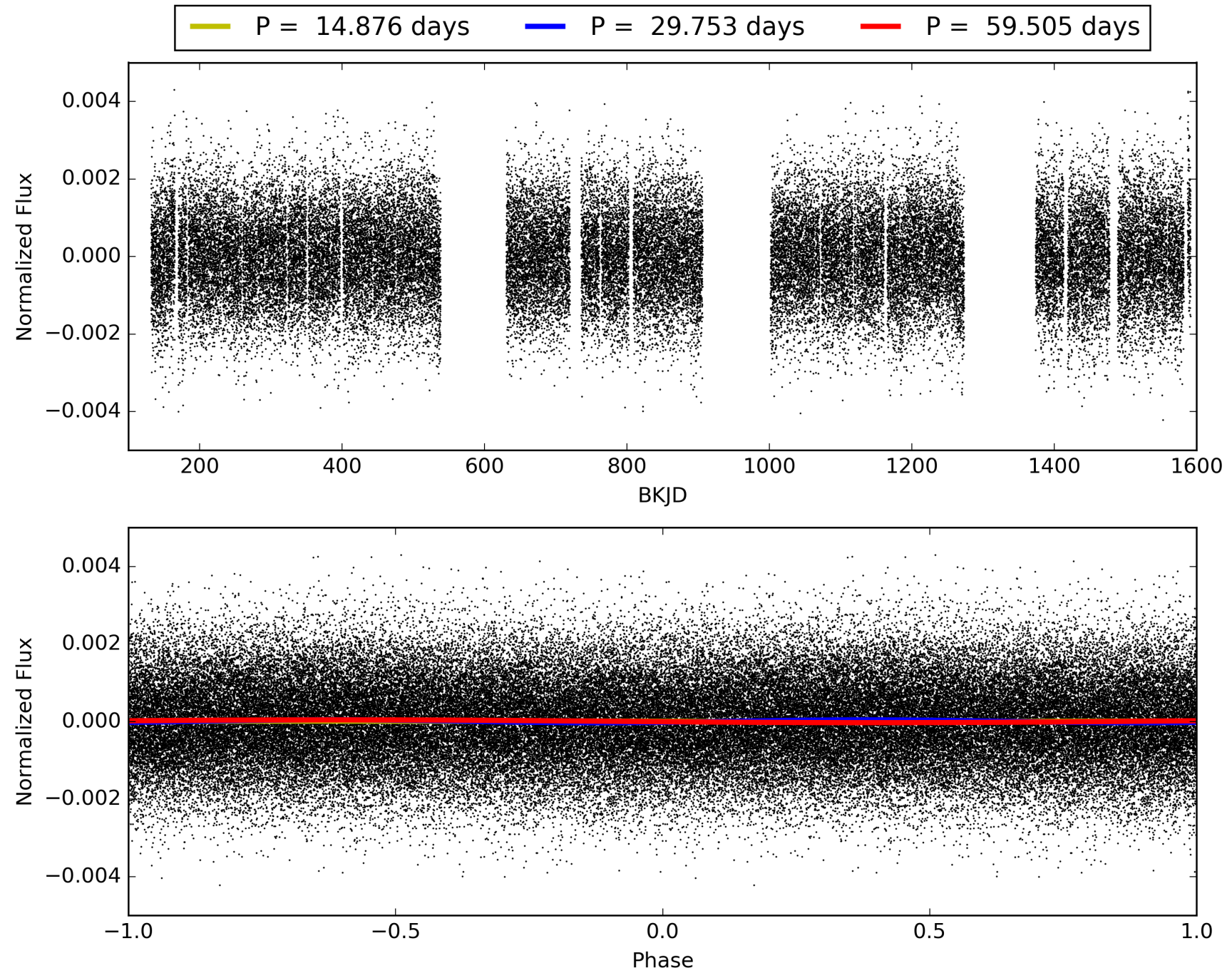
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:31 Z

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

TCE 003453494-04, PDC Light Curves

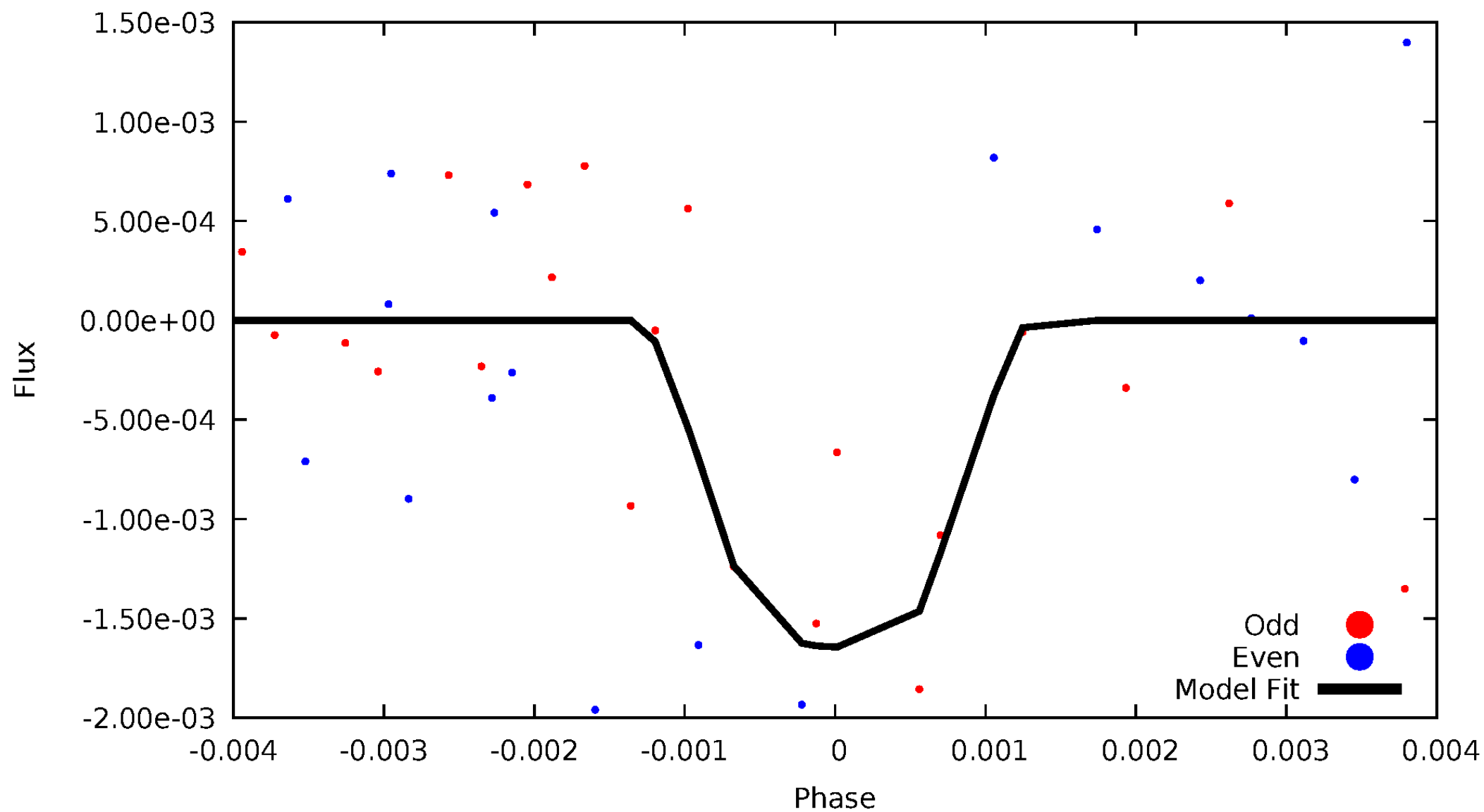


TCE 003453494-04



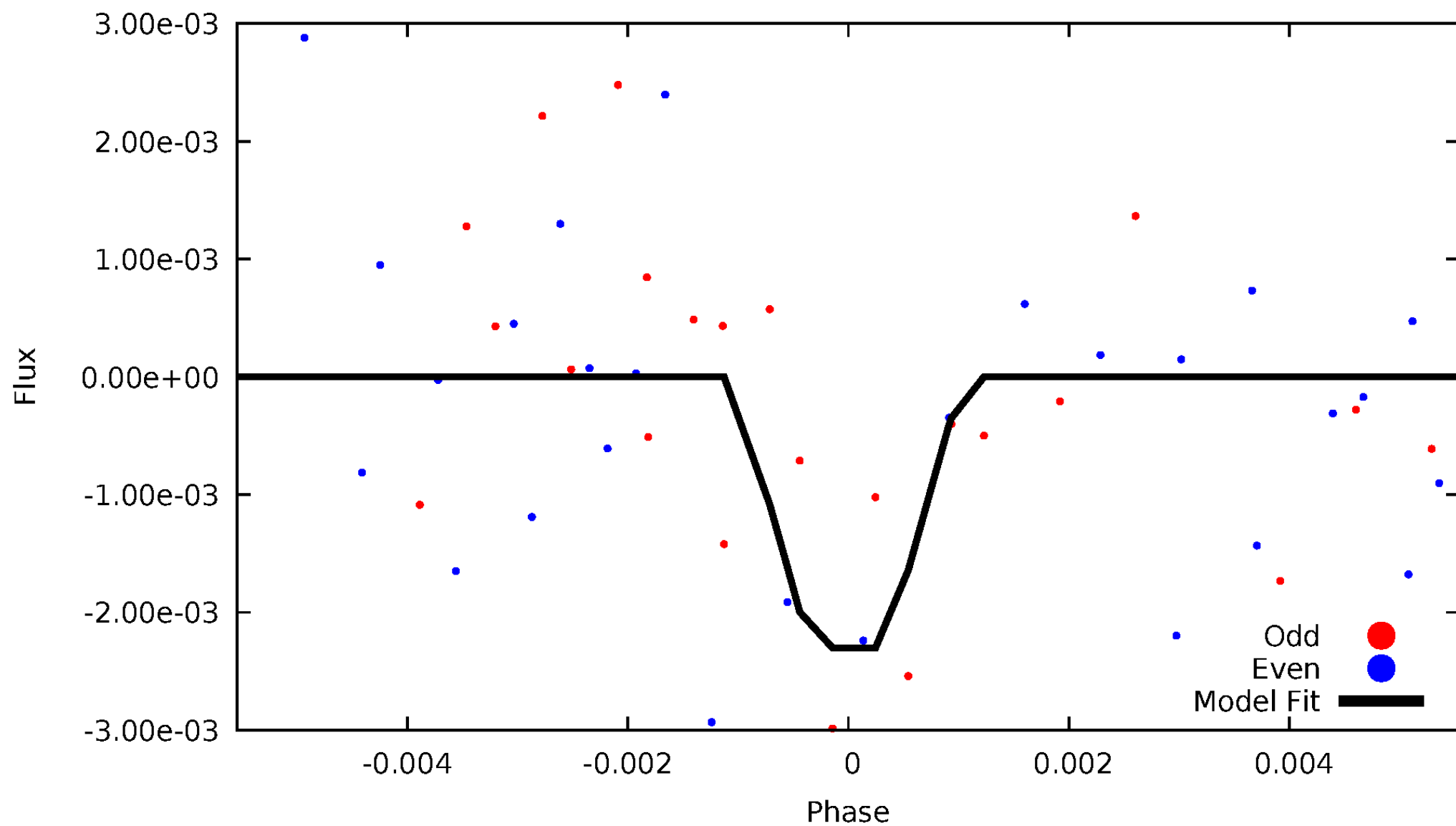
DV Odd/Even

TCE 003453494-04



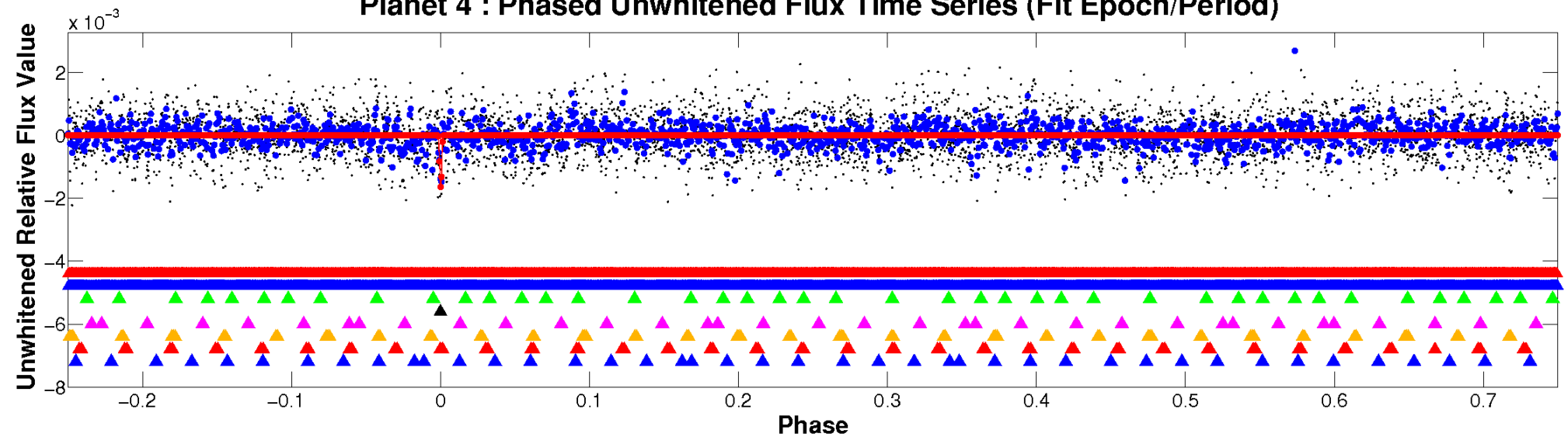
ALT Odd/Even

TCE 003453494-04

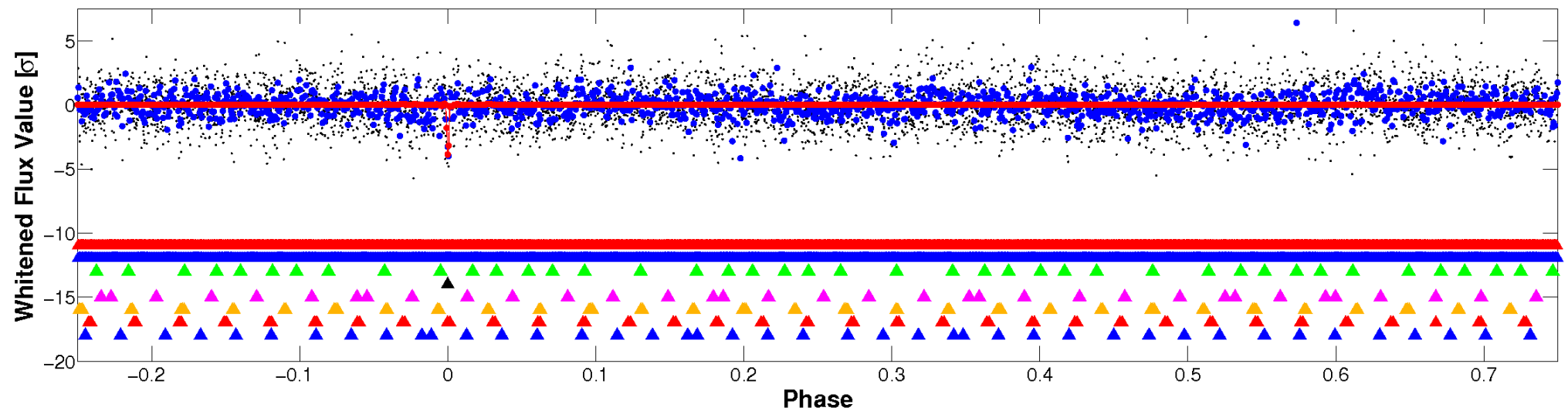


Non-Whitened Vs. Whitened Light Curve

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

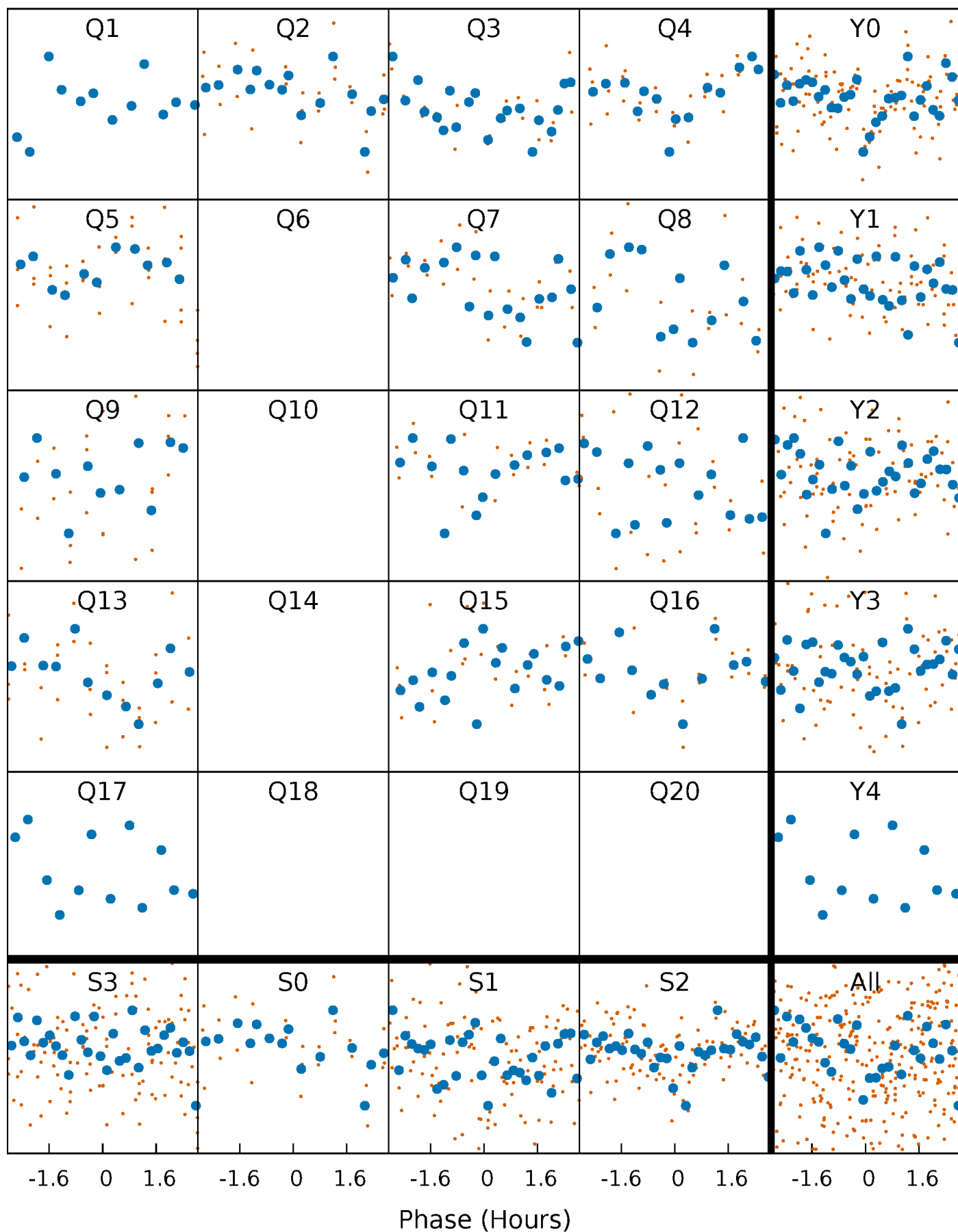


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



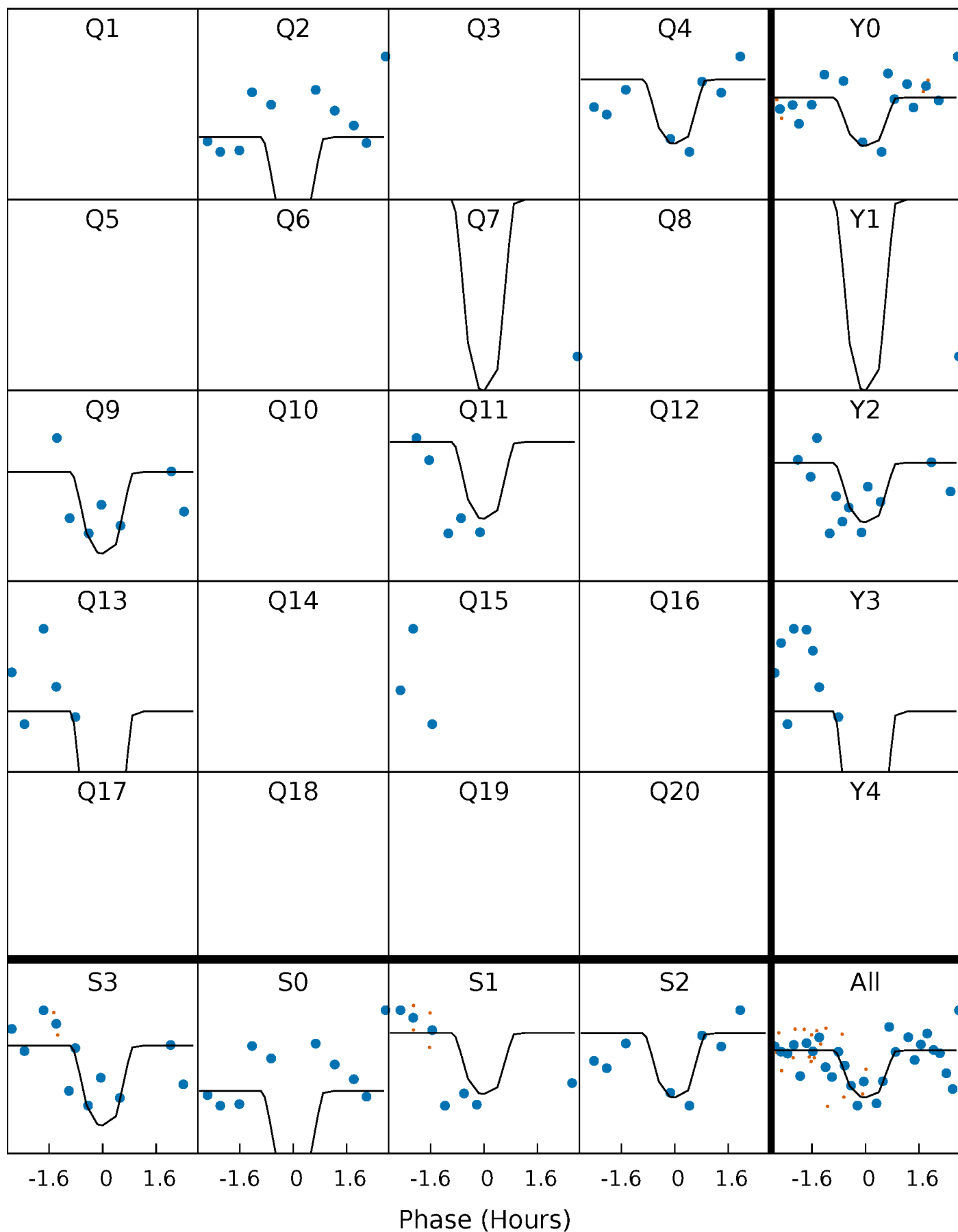
PDC Quarter-Phased Transit Curves

TCE 003453494-04 P= 29.752587 Days $T_0=148.910720$ (BKJD)



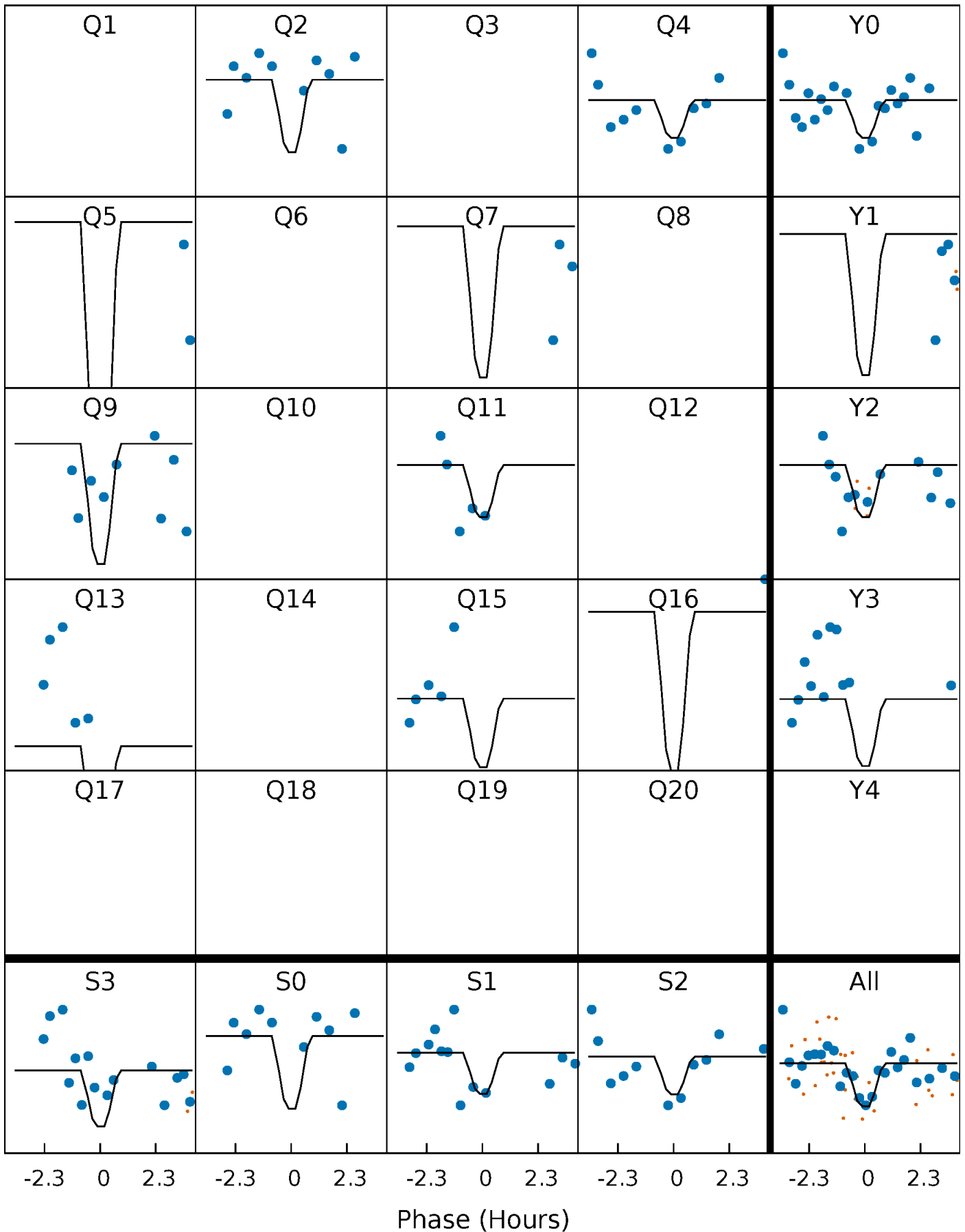
DV Quarter-Phased Transit Curves

TCE 003453494-04 P= 29.752587 Days $T_0=148.910720$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

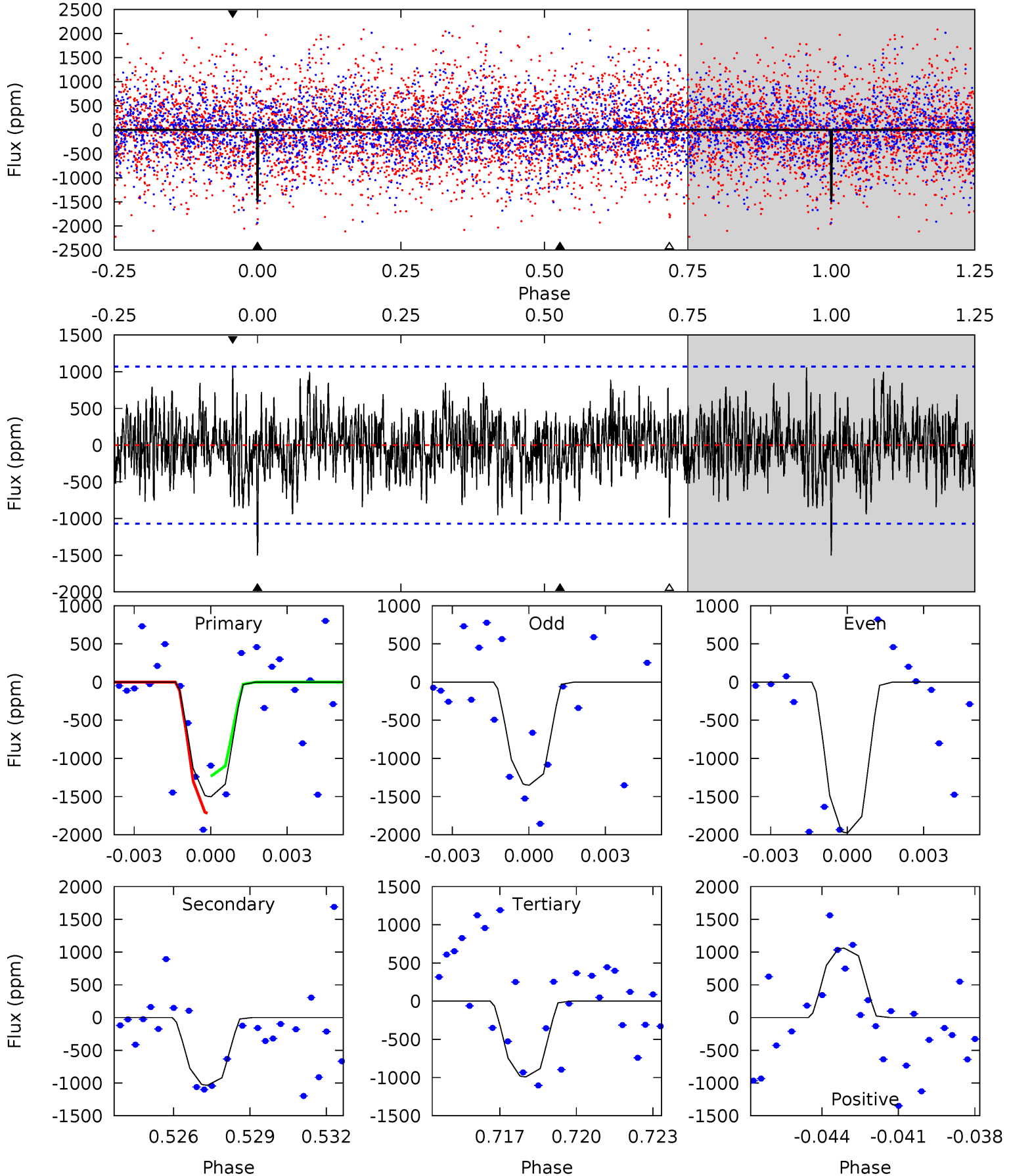
TCE 003453494-04 P= 29.752057 Days $T_0=148.916005$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-04, P = 29.752587 Days, E = 119.158133 Days

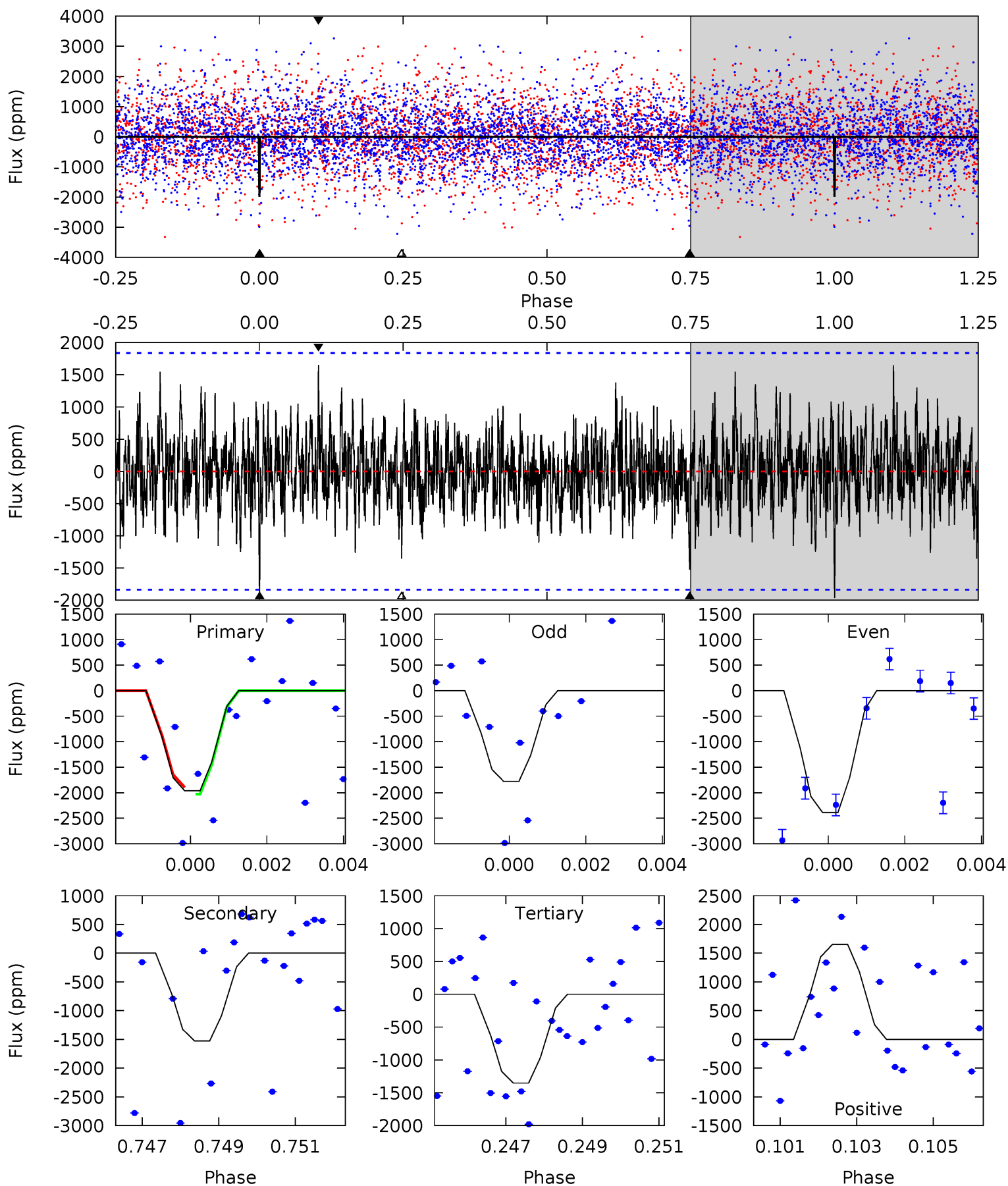
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.38	5.07	4.87	5.20	5.26	2.97	1.53	2.51	2.18	0.20	-0.13	1.41	0.97	0.41	1.19



Alt Model-Shift Uniqueness Test

003453494-04, $P = 29.752057$ Days, $E = 119.163948$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.70	4.43	3.93	4.80	5.33	3.10	1.28	1.77	0.90	0.50	-0.37	0.87	0.91	0.46	0.19



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1032 ± 203	$20.95^{+18.36}_{-14.24}$	1833^{+74}_{-114}	5770^{+5992}_{-1317}	77^{+659}_{-56}
Alt.	-1526 ± 344	$23.15^{+18.12}_{-14.64}$	1826^{+77}_{-115}	6007^{+5350}_{-1434}	87^{+611}_{-62}

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 $A_{obs} \gg 1.0$

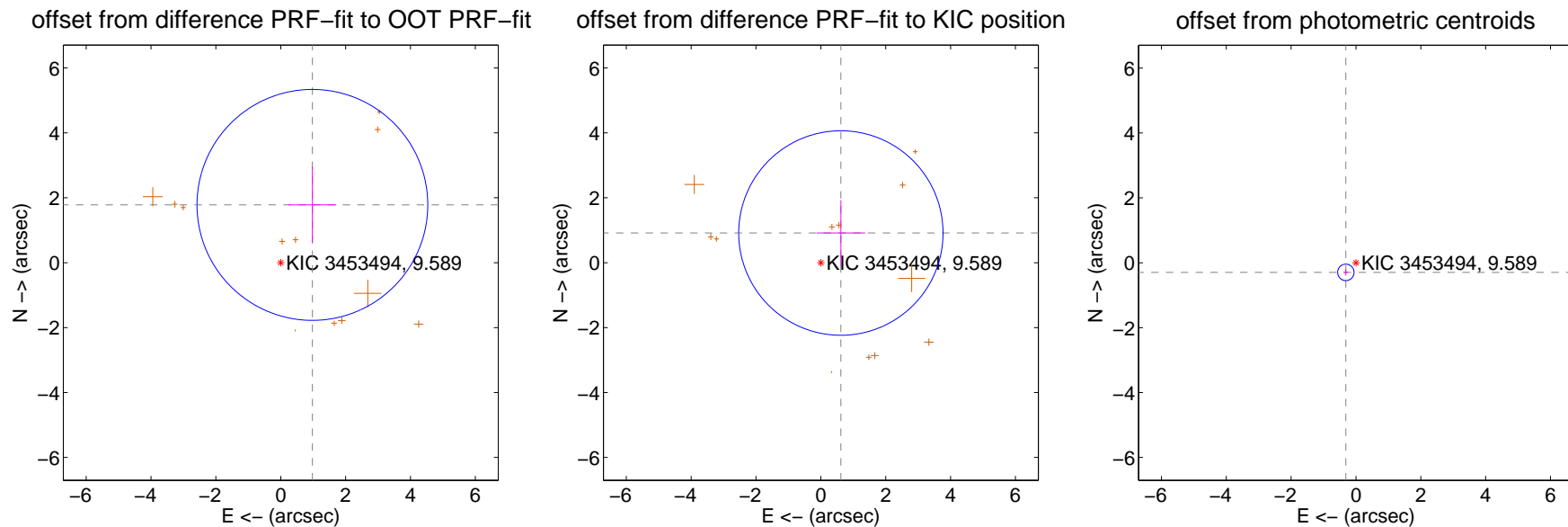
DV Centroid Data

Supplemental centroid analysis for 003453494-04. **Kepler magnitude: 9.59.** Transit SNR 8.67

There are 1 quarters with good PRF difference image offsets

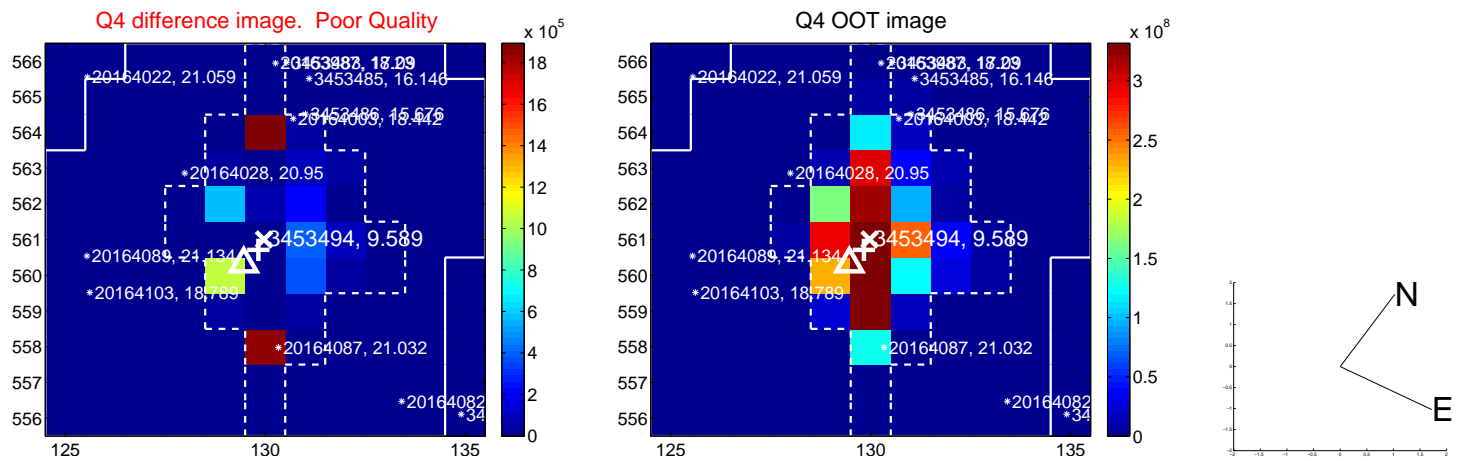
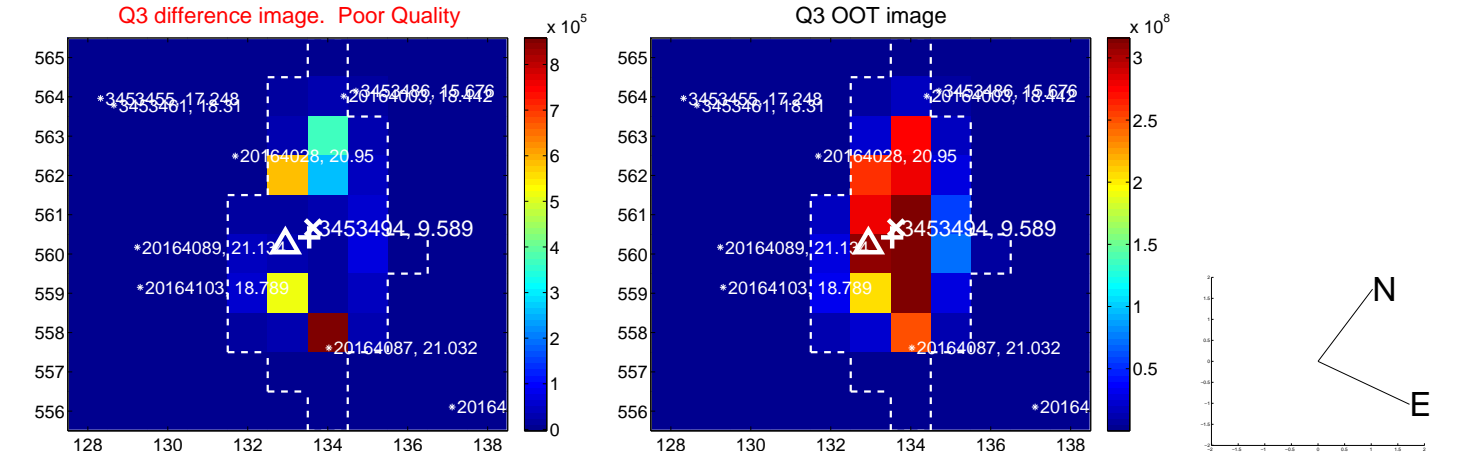
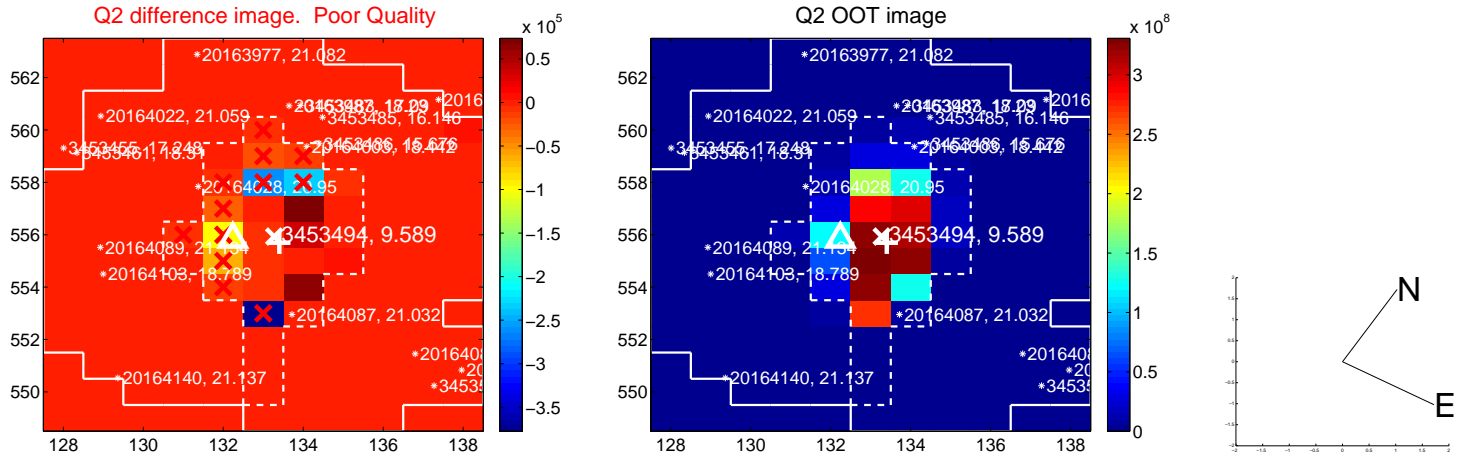
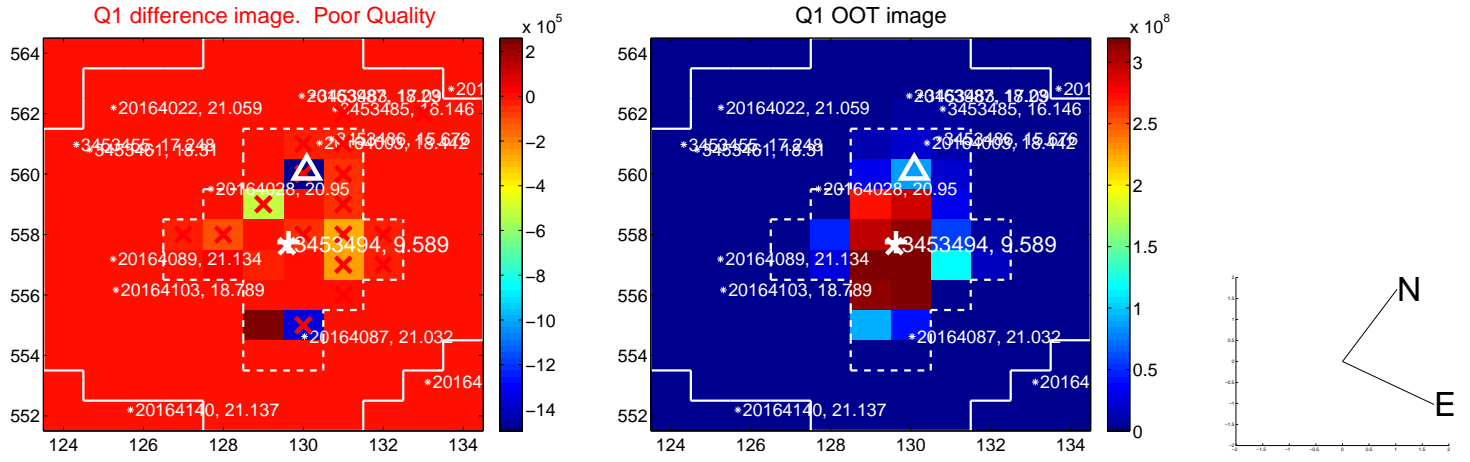
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.030 ± 1.186	1.71	-0.975 ± 0.738	1.780 ± 1.183
PRF-fit source offset from KIC position	1.103 ± 1.050	1.05	-0.617 ± 0.748	0.914 ± 1.011
photometric centroid source offset	0.43 ± 0.08	5.10	0.31 ± 0.07	-0.30 ± 0.10

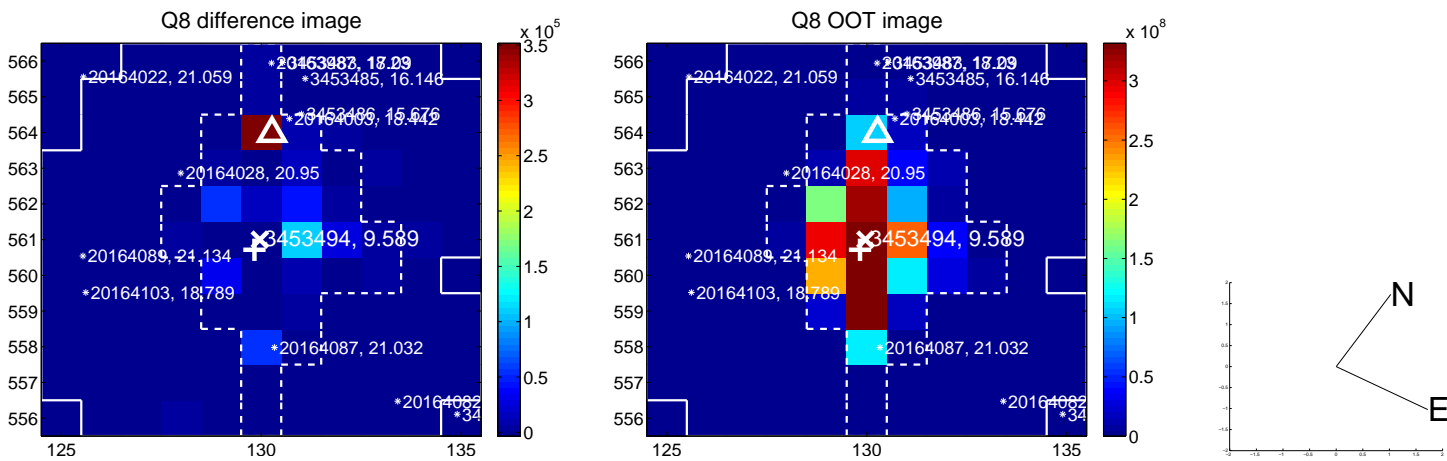
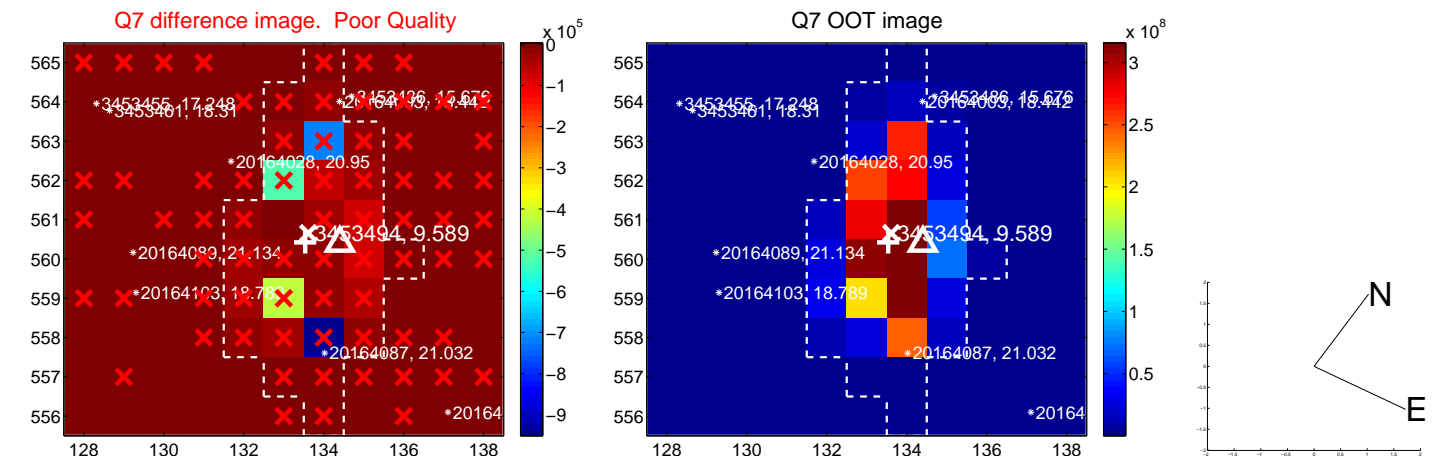
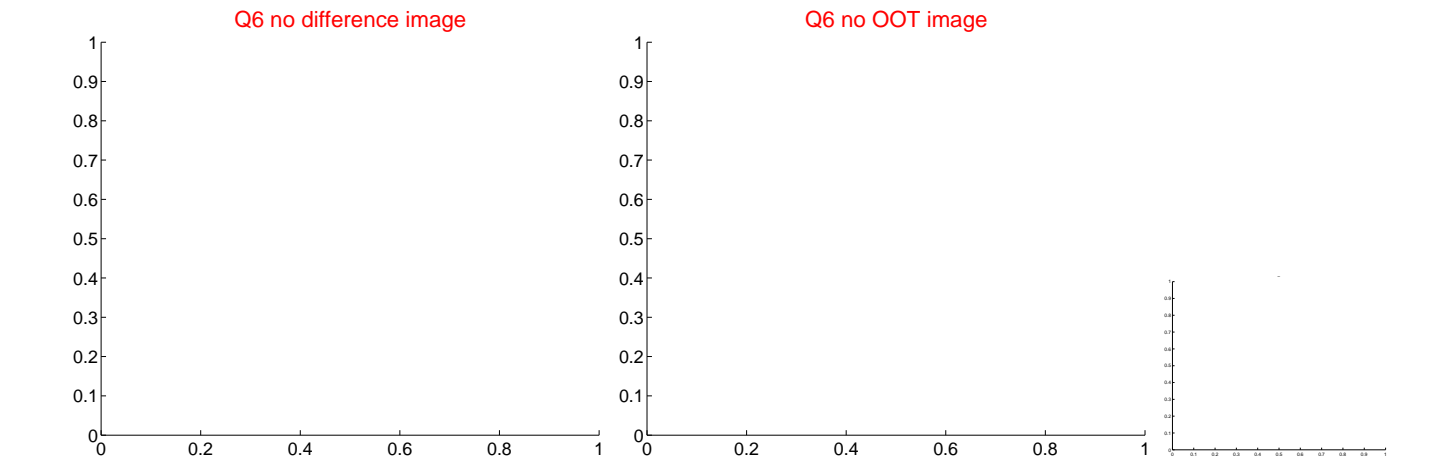
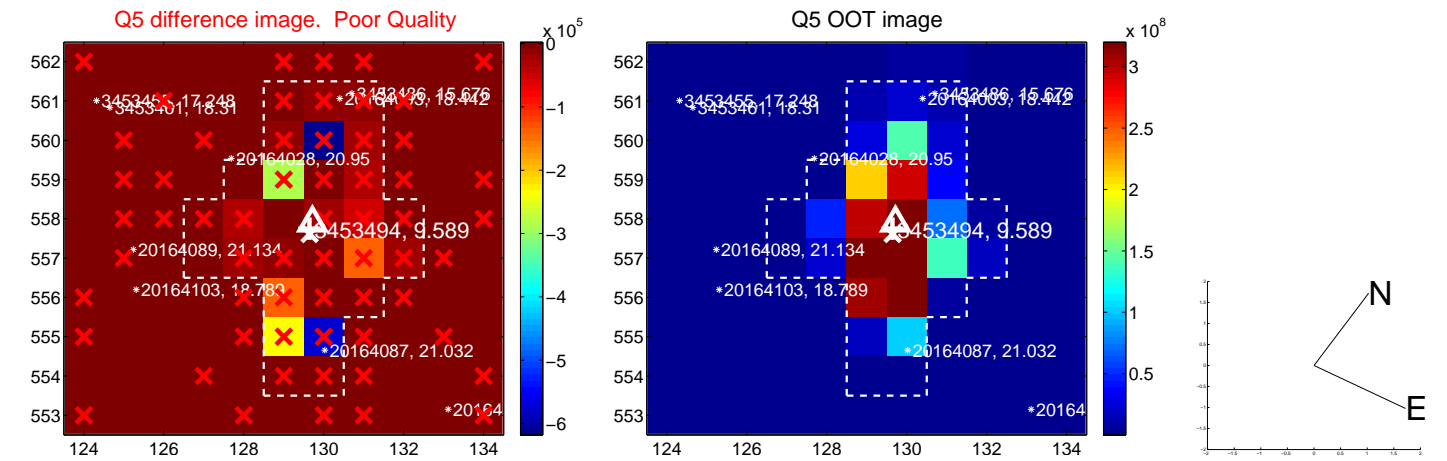


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

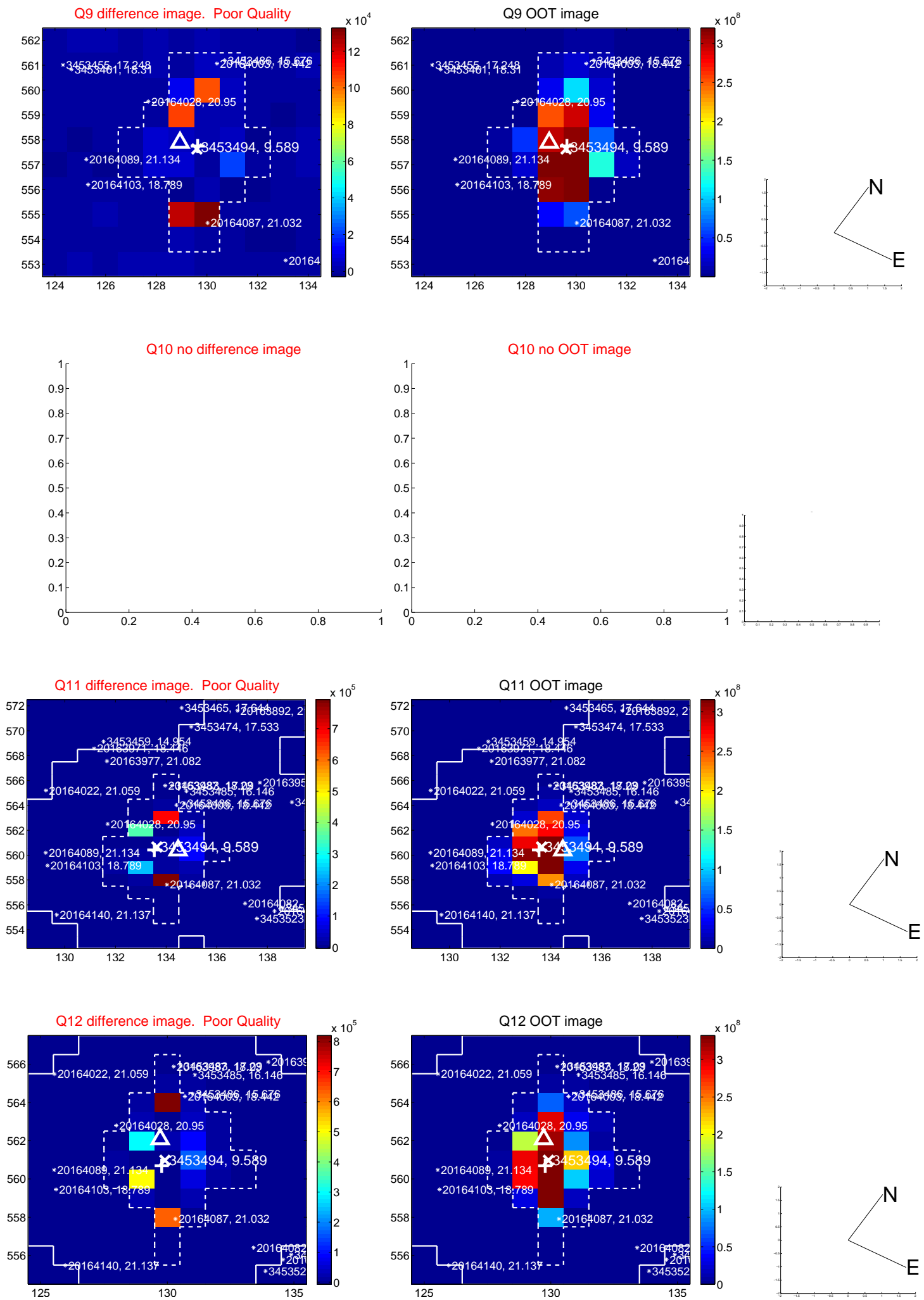
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



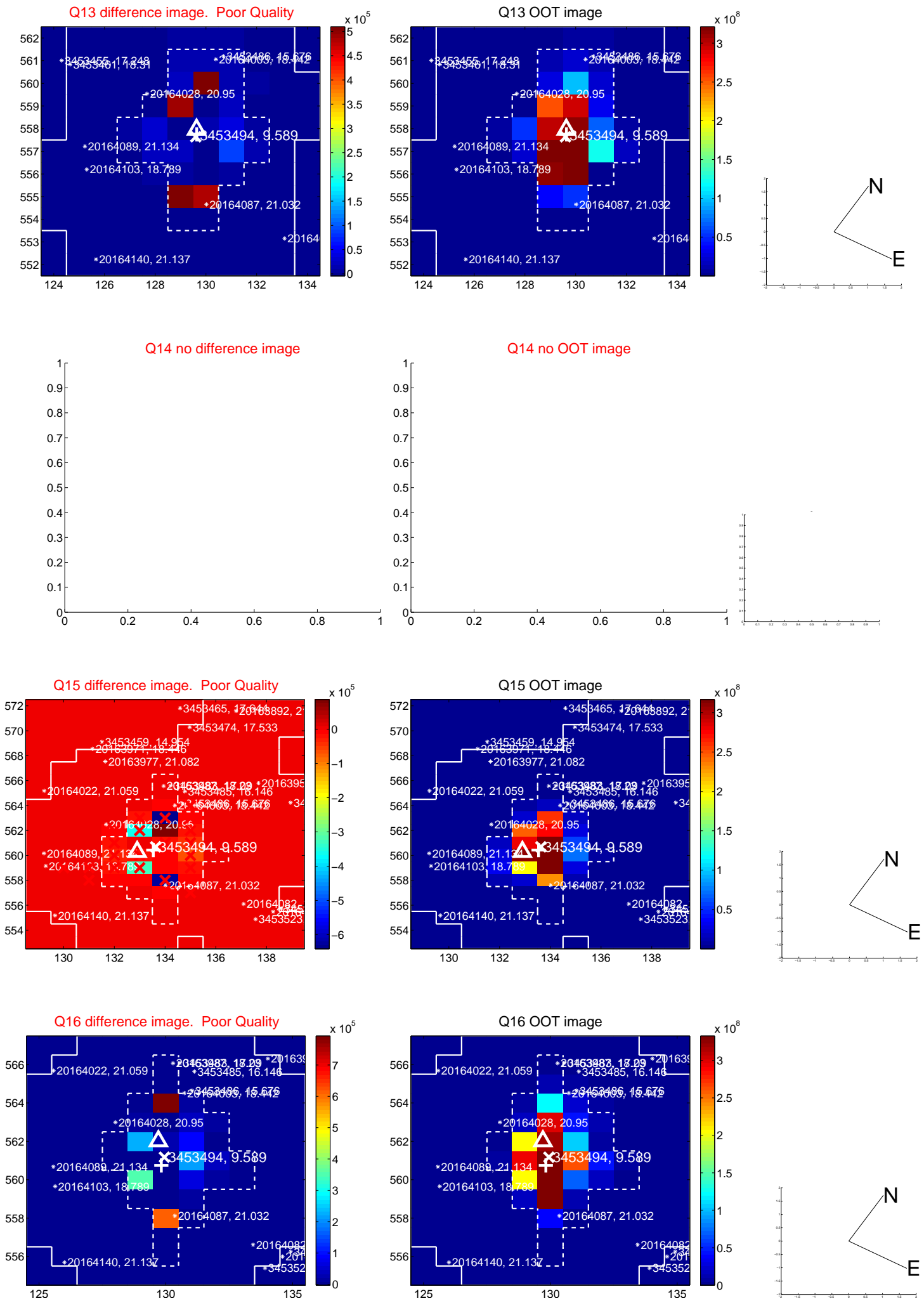
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



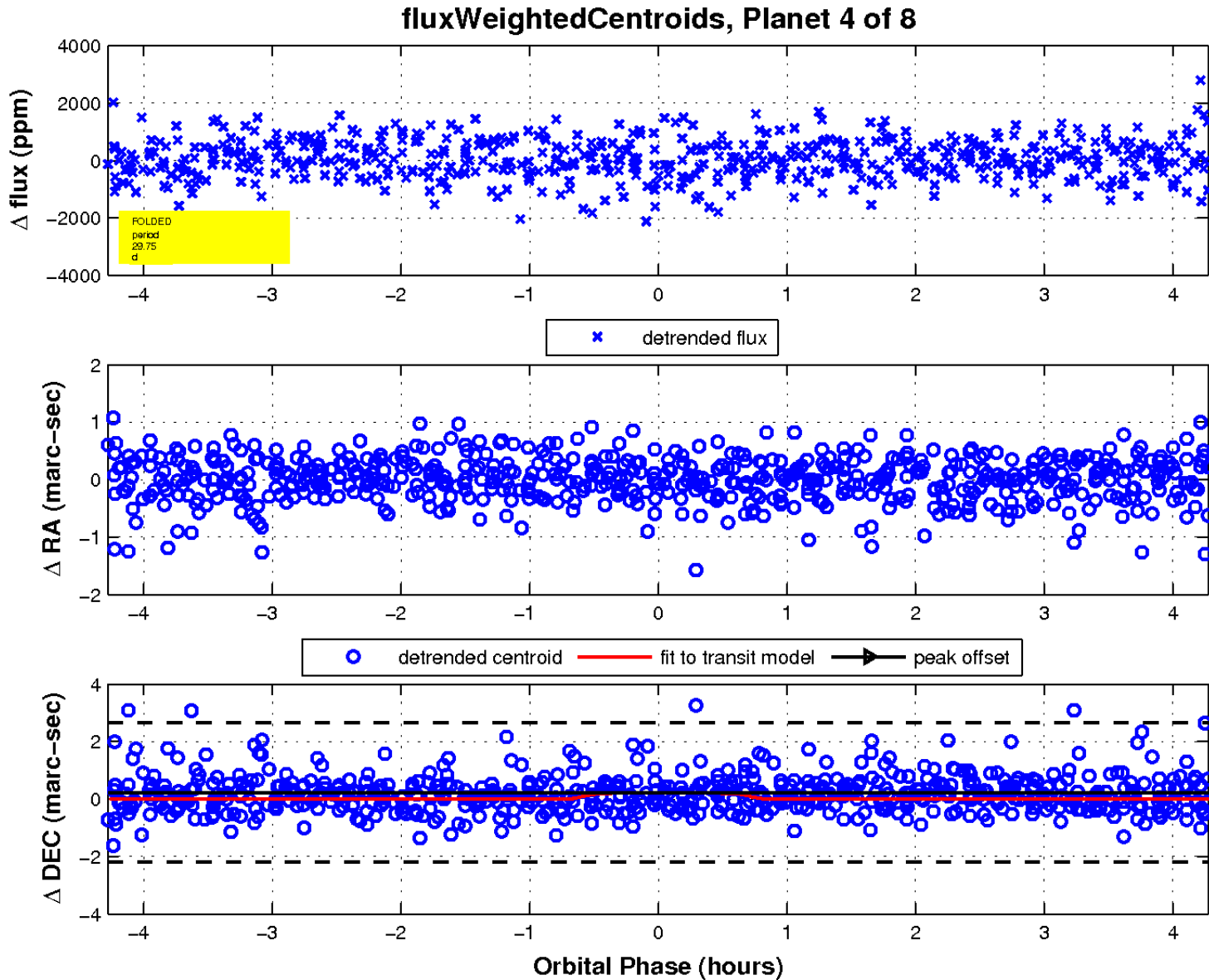
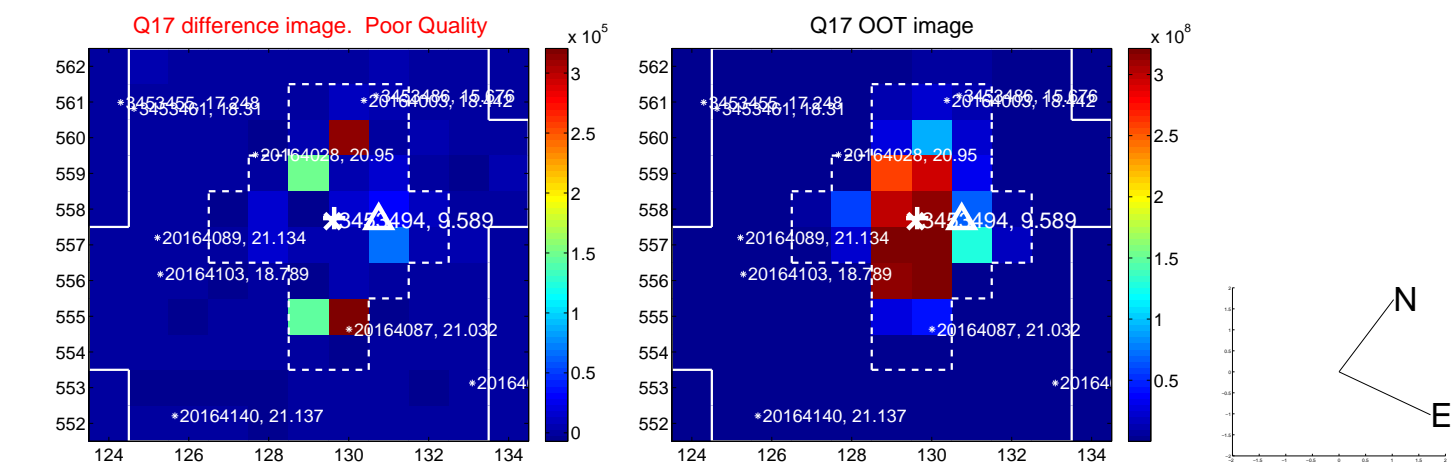
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

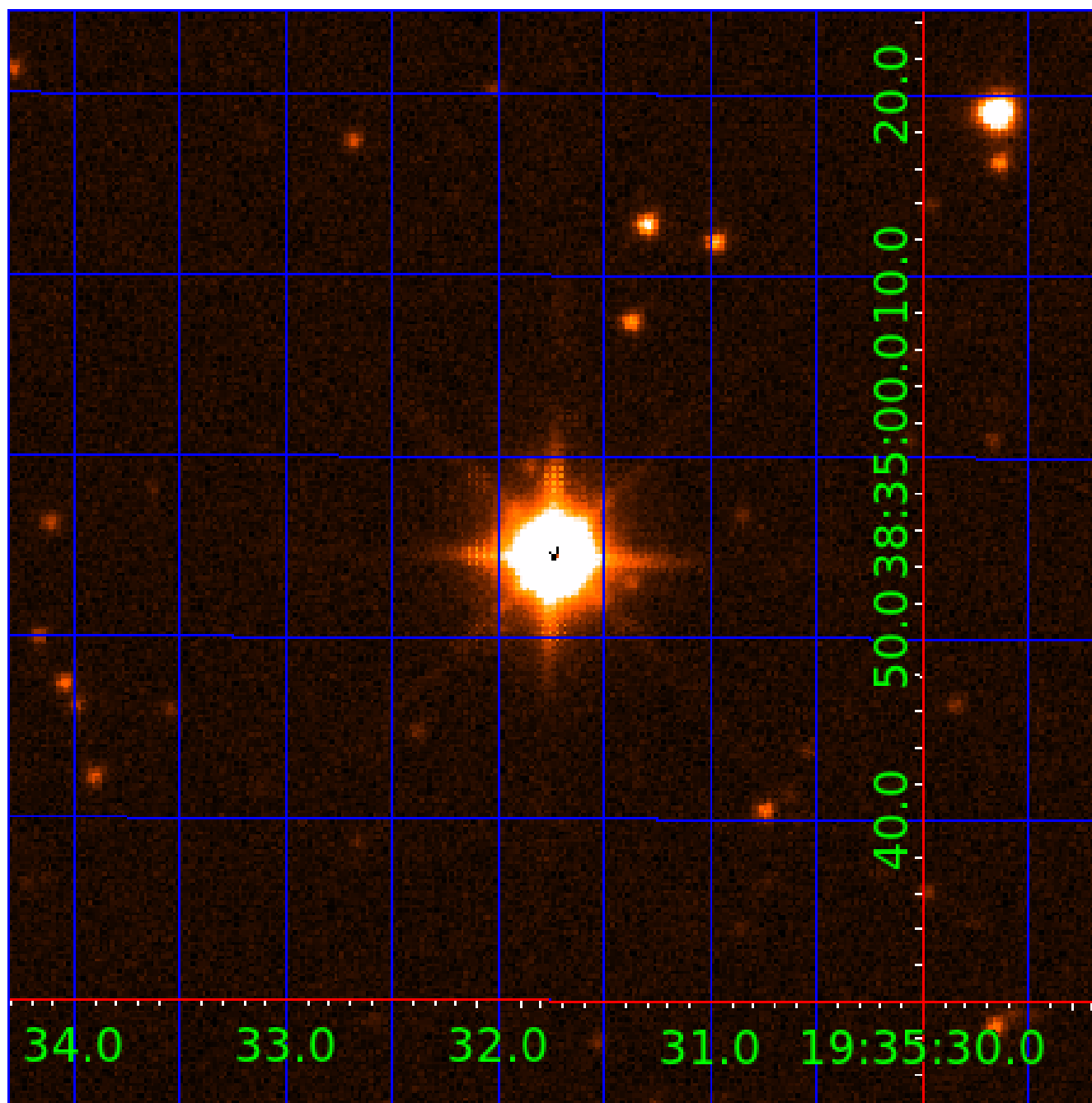


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003453494

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})
003453494-01	OBS	No	1.030916	131.693533	53.8	2.764	9.1	4.3	3.57	7766	2.98	64787.16
003453494-02	OBS	No	0.515440	131.946190	78.6	3.078	11.2	8.9	3.57	7766	3.70	0.00
003453494-03	OBS	No	34.898911	139.118838	1250.1	1.943	9.7	10.2	3.57	7766	13.43	591.61
003453494-04	OBS	No	29.752587	148.910721	1644.3	1.428	9.7	8.7	3.57	7766	15.75	731.85
003453494-05	OBS	No	42.057117	134.983982	1041.9	2.729	8.8	9.3	3.57	7766	12.80	461.32
003453494-06	OBS	No	21.543803	141.569803	1096.3	1.514	9.3	8.4	3.57	7766	13.83	1125.53
003453494-07	OBS	No	22.541275	131.761021	1403.5	1.611	9.2	11.5	3.57	7766	14.64	1059.62
003453494-08	OBS	No	35.097670	148.391078	1243.1	4.046	8.9	10.7	3.57	7766	20.68	587.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

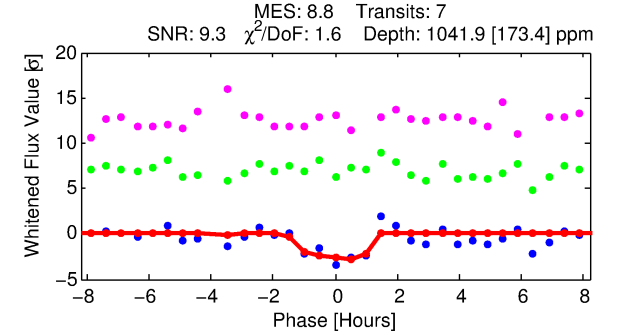
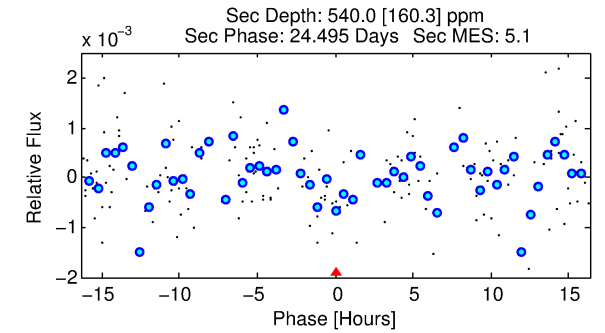
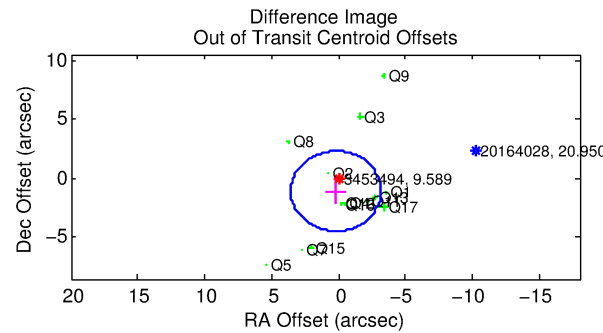
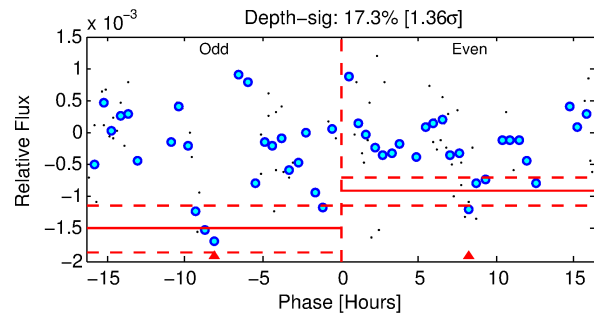
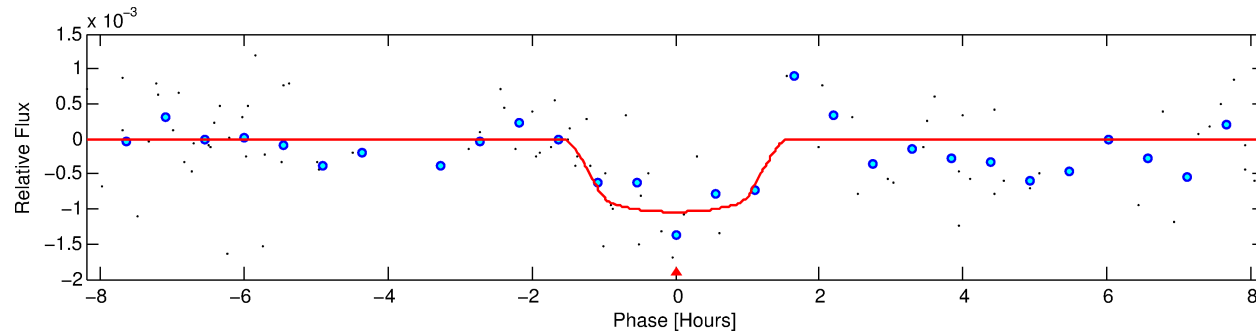
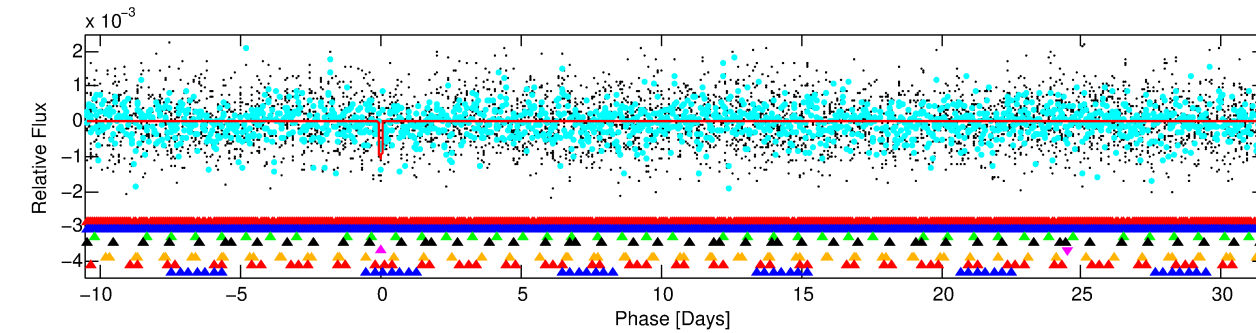
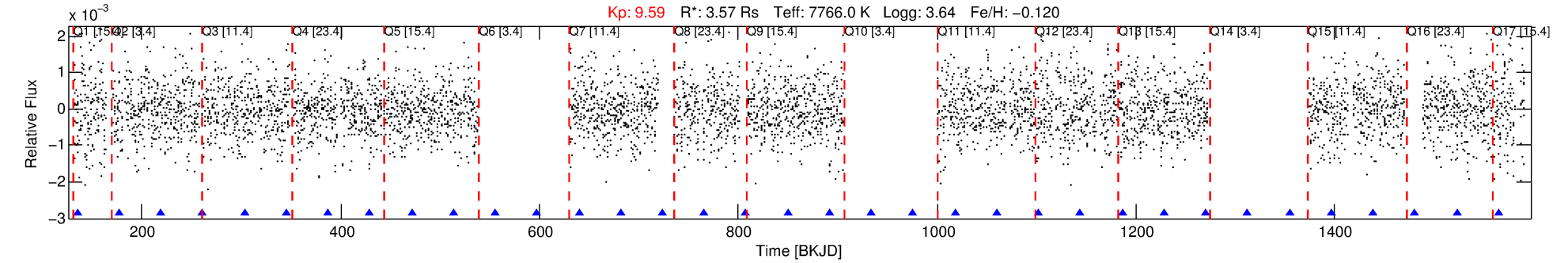
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-05

No Significant Match Found

DV One-Page Summary

KIC: 3453494 Candidate: 5 of 8 Period: 42.057 d



DV Fit Results:

Period = 42.05712 [0.00052] d
Epoch = 134.9840 [0.0143] BKJD
Rp/R* = 0.0328 [0.0216]
a/R* = 75.38 [273.96]
b = 0.81 [1.57]
Seff = 461.32 [175.89]
Teq = 1182 [113] K
Rp = 12.80 [9.10] Re
a = 0.3004 [0.0726] AU
Ag = 163.53 [228.61] [0.71 σ]
Teff = 6534 [2208] K [2.42 σ]

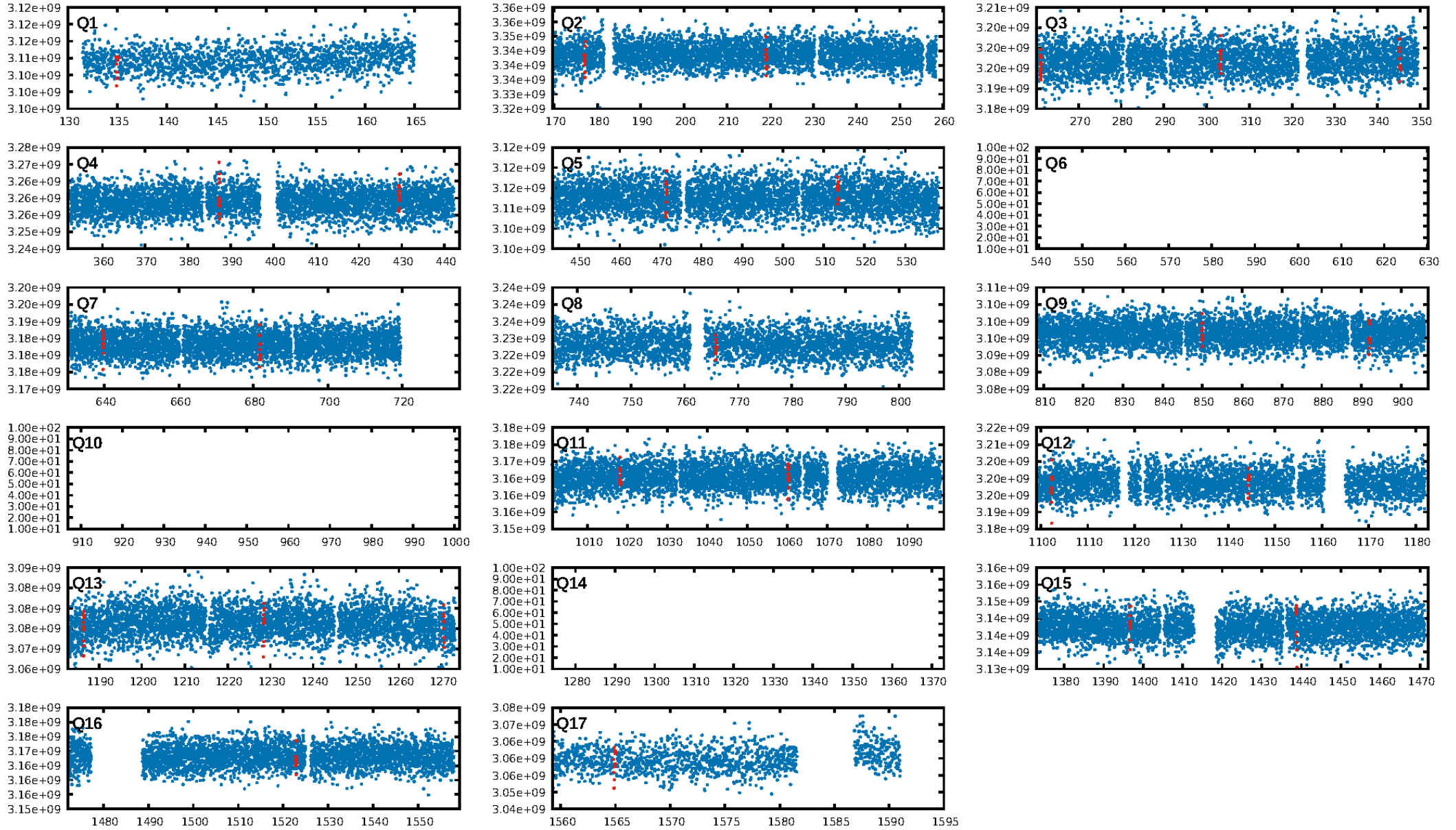
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [34.22 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 10.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.601 arcsec [4.74 σ]
OotOffset-rm: 1.090 arcsec [0.97 σ]
KicOffset-rm: 2.668 arcsec [2.15 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/14]

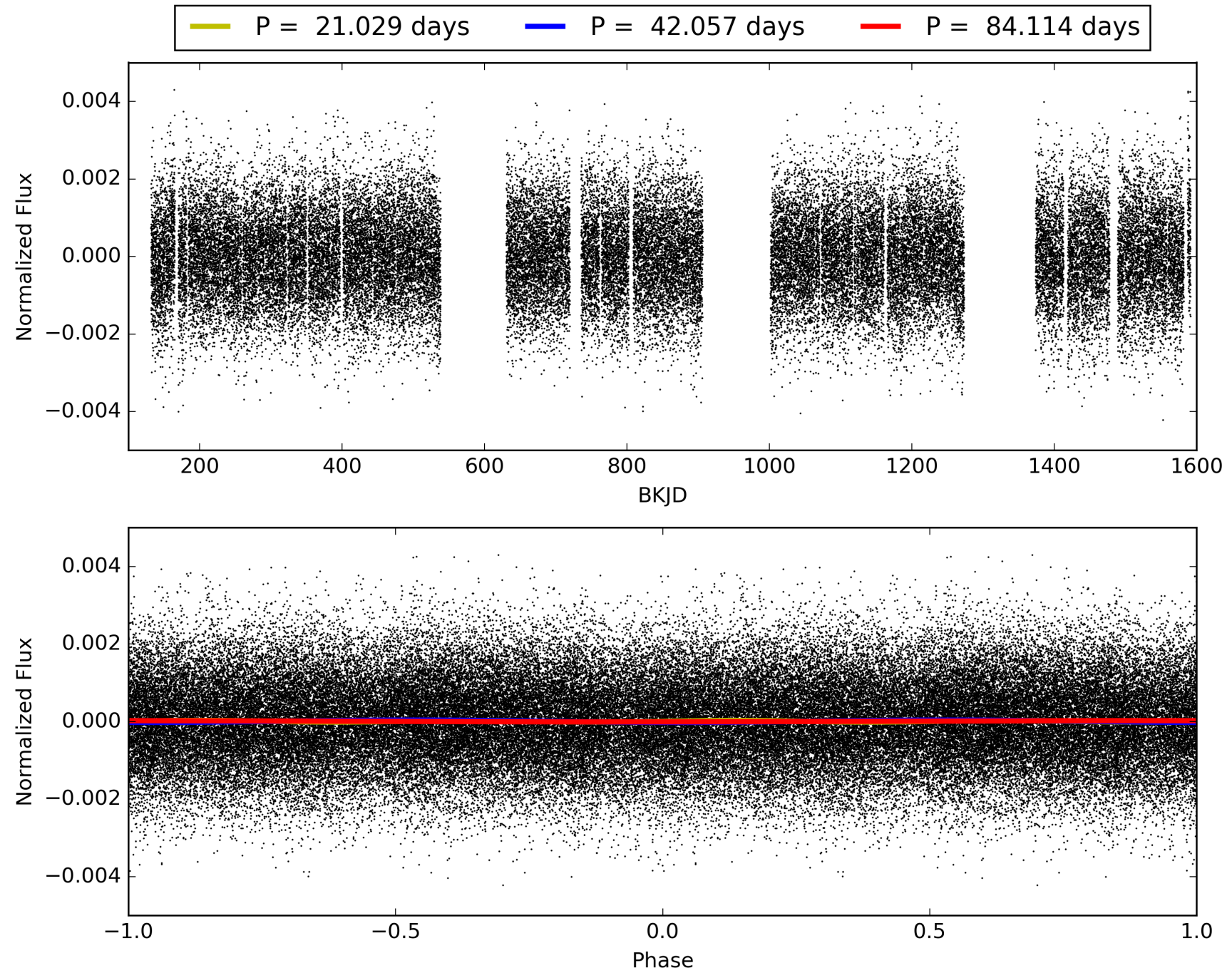
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:3Z

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

TCE 003453494-05, PDC Light Curves

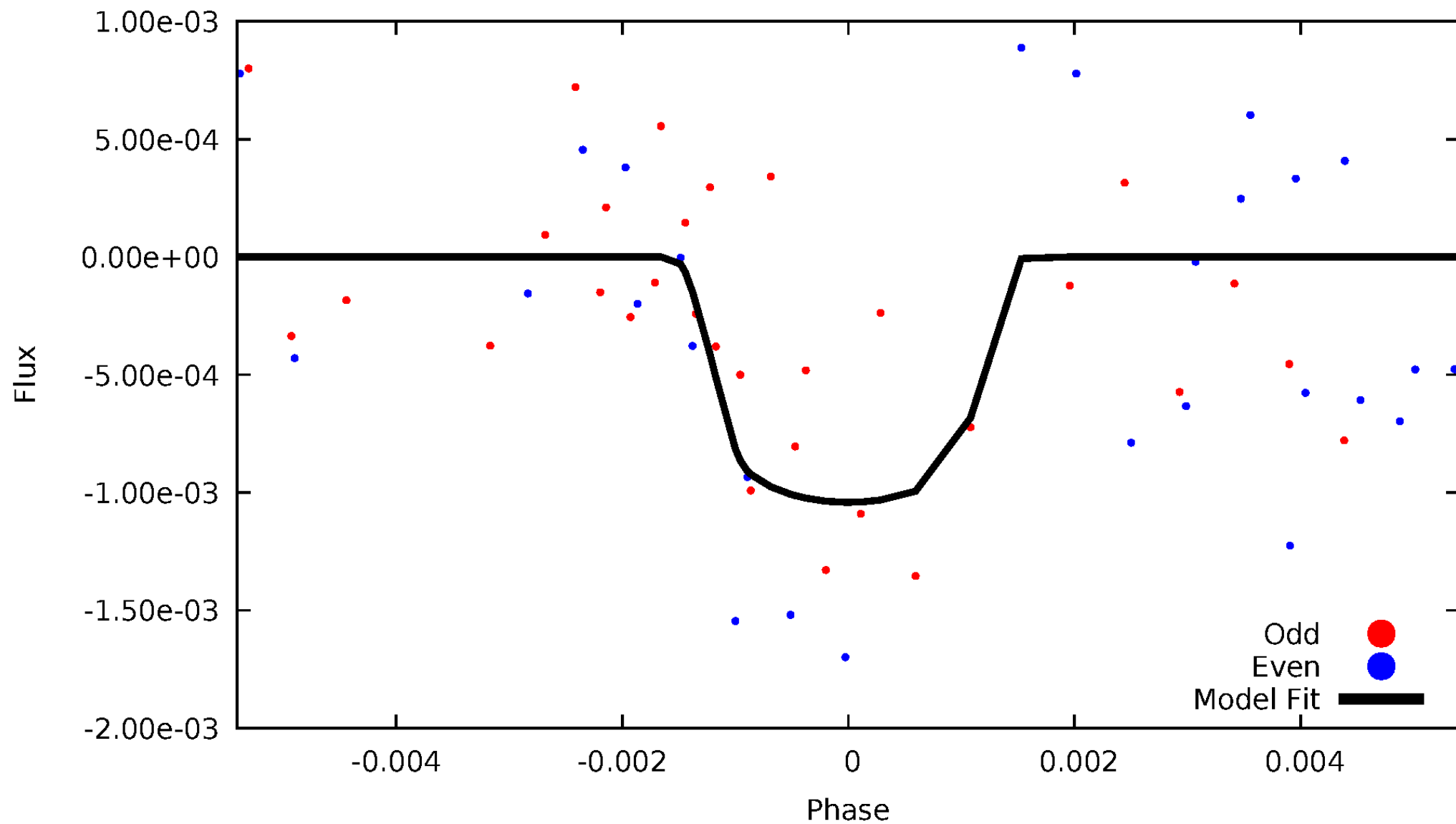


TCE 003453494-05



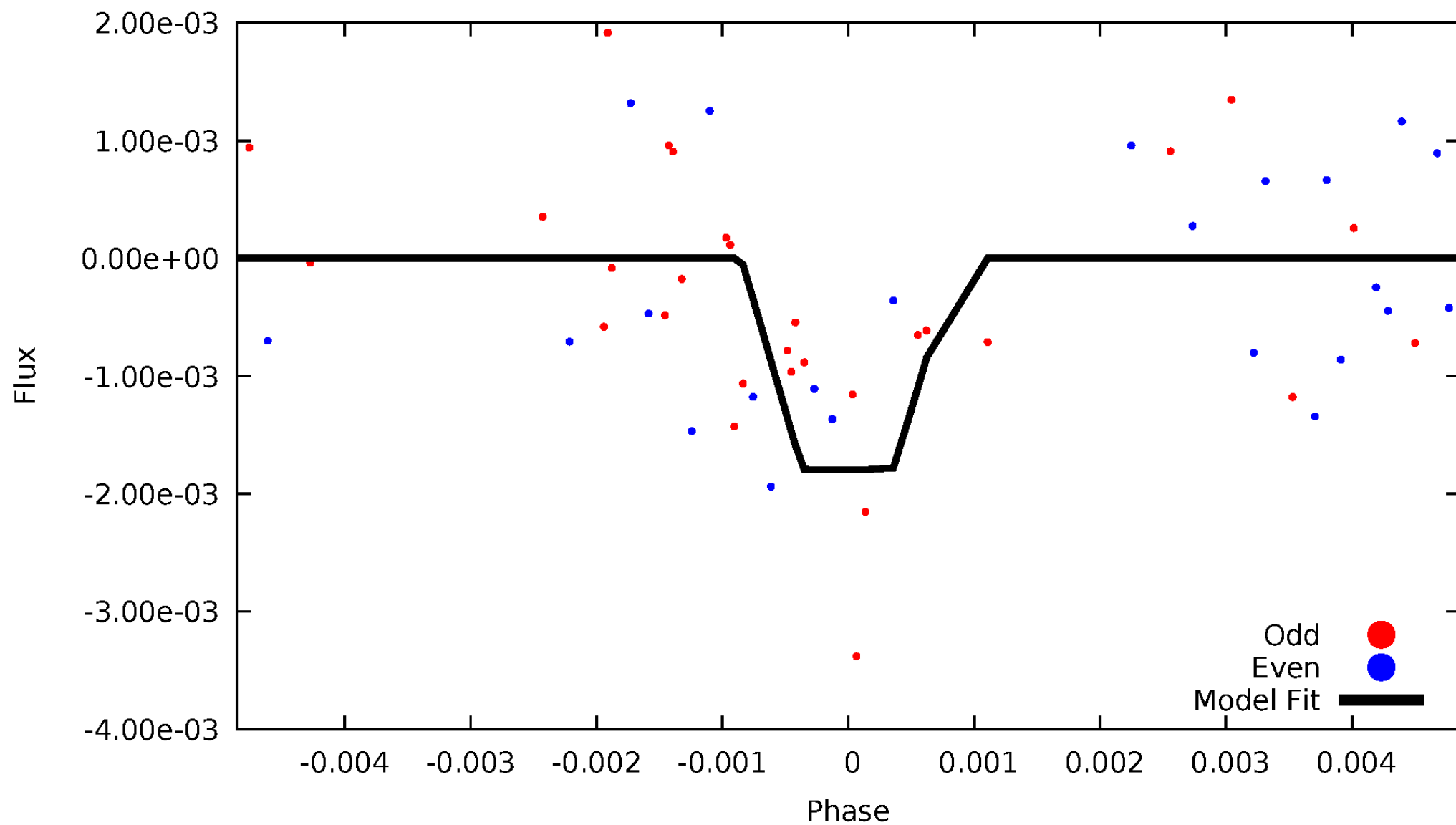
DV Odd/Even

TCE 003453494-05



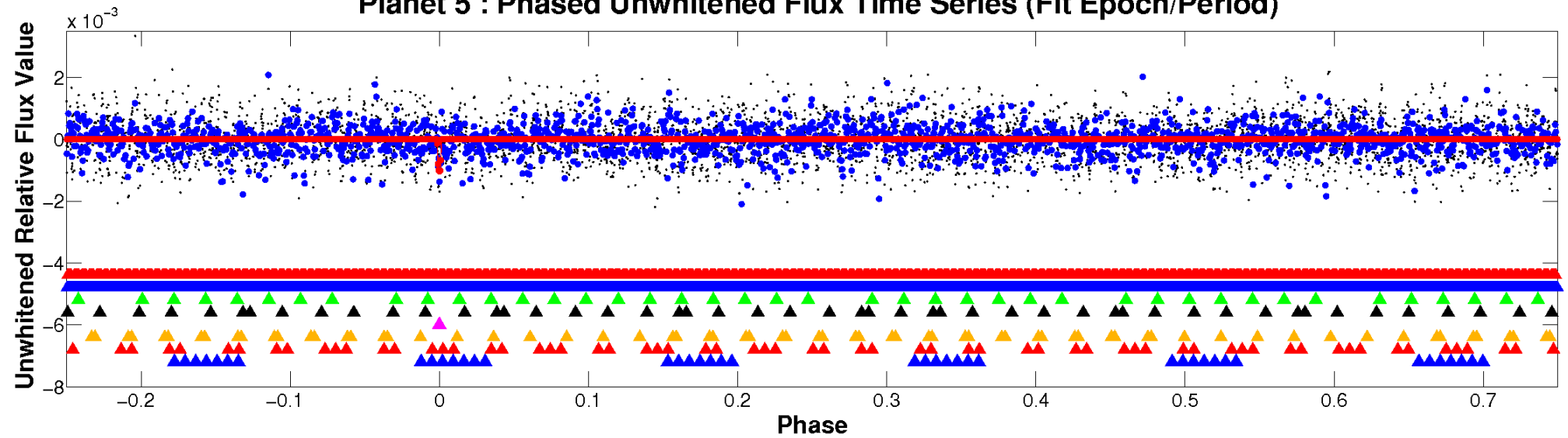
ALT Odd/Even

TCE 003453494-05

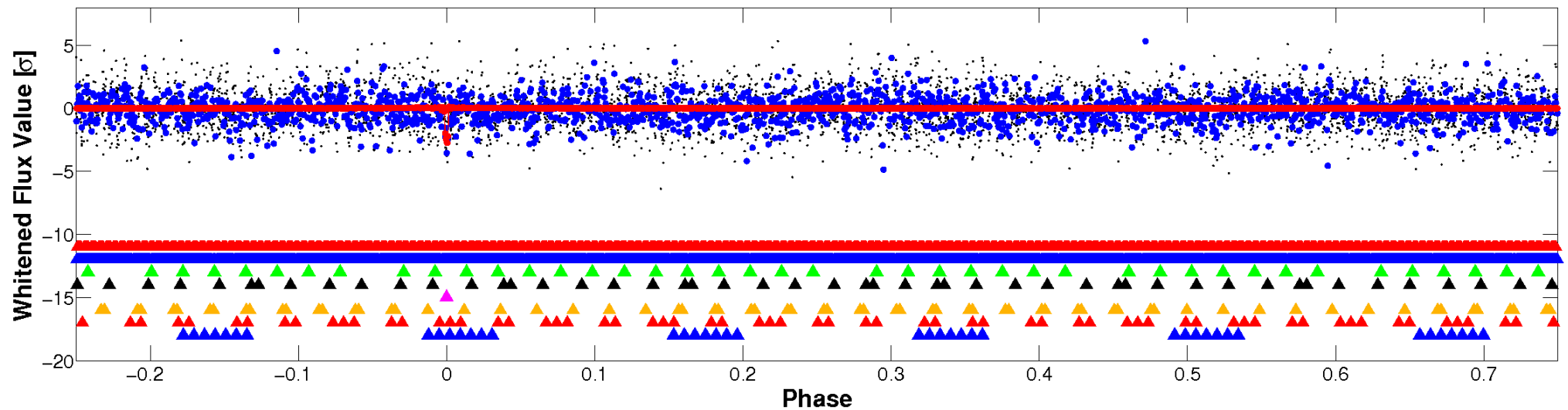


Non-Whitened Vs. Whitened Light Curve

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

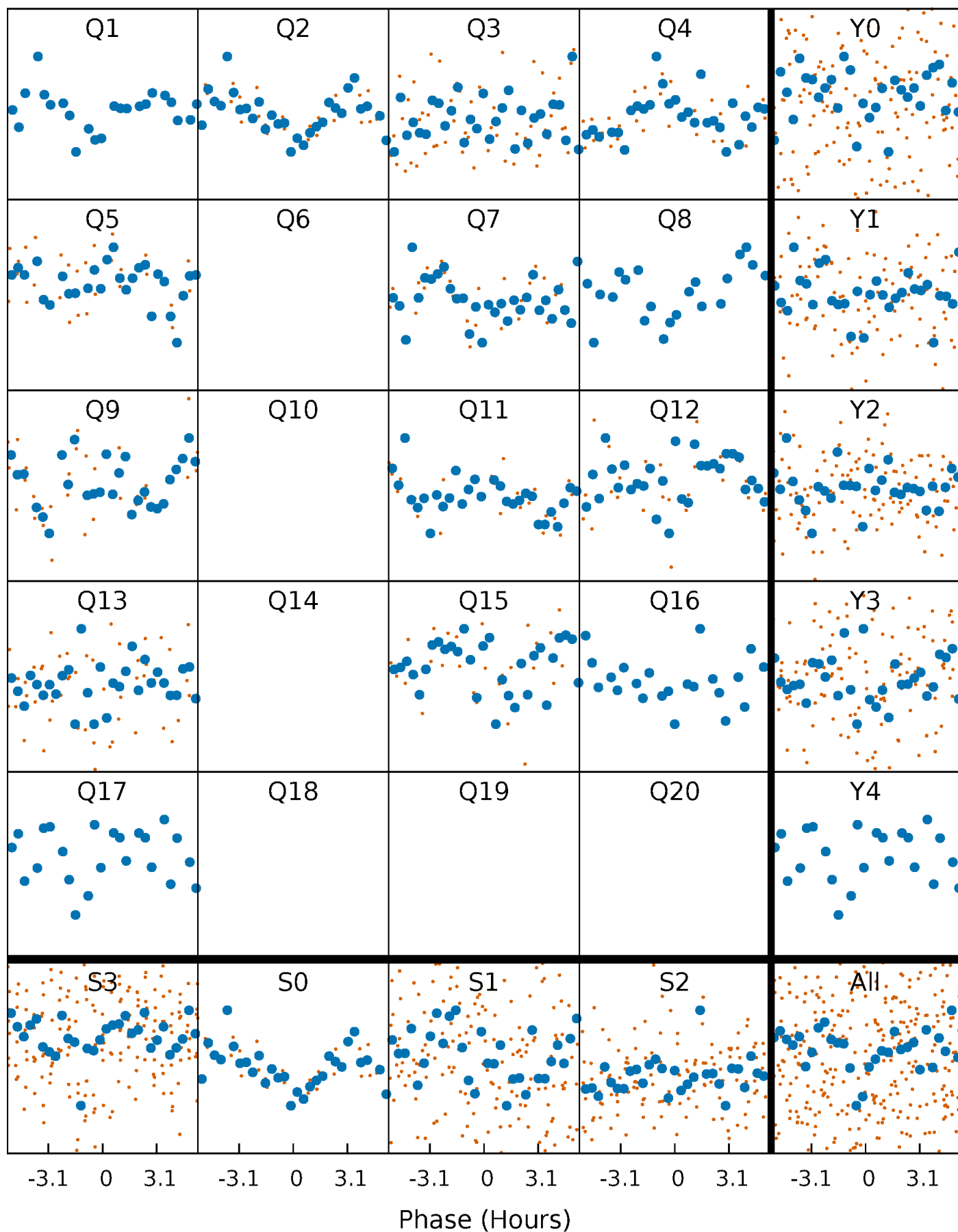


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



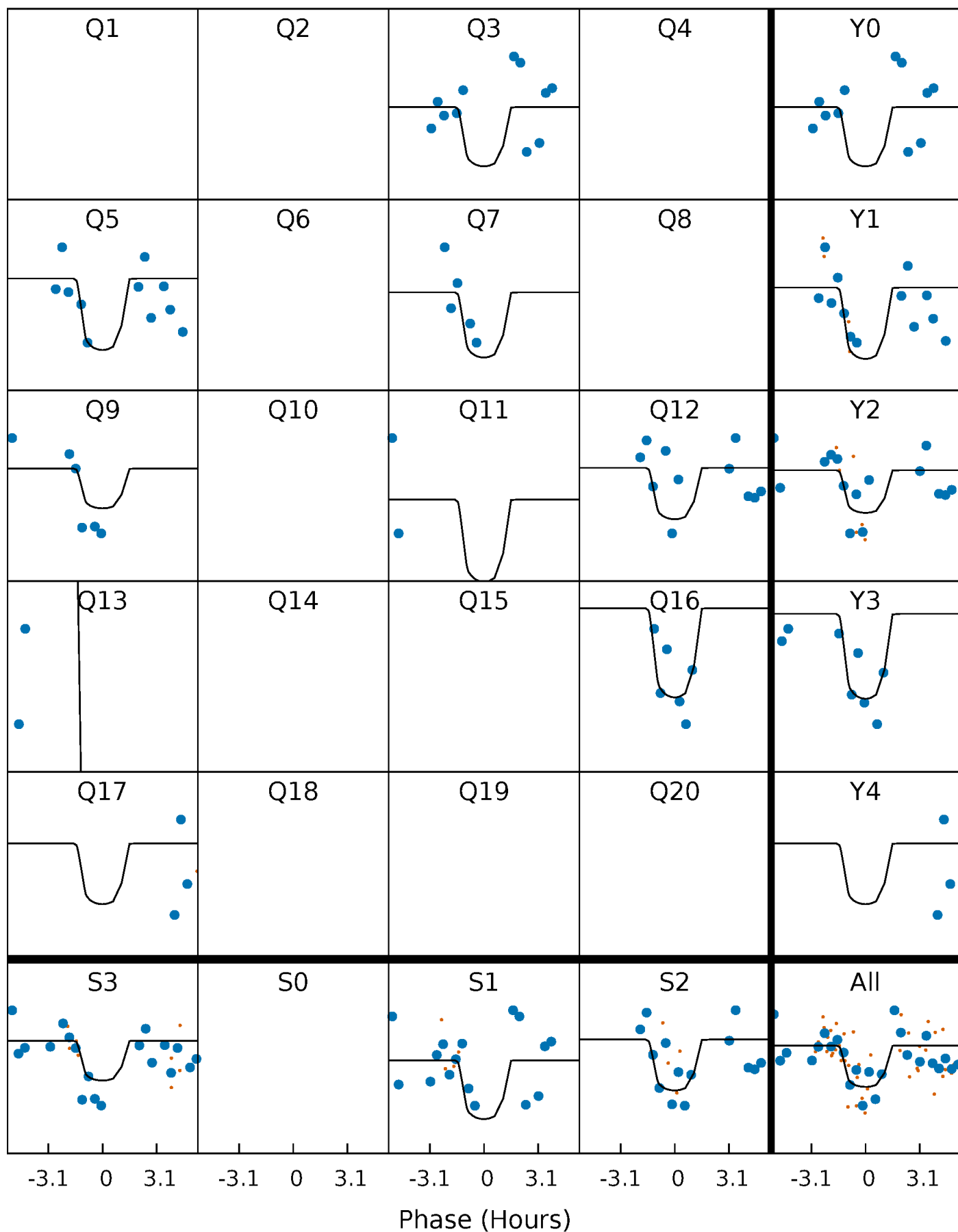
PDC Quarter-Phased Transit Curves

TCE 003453494-05 $P = 42.057117$ Days $T_0 = 134.983982$ (BKJD)



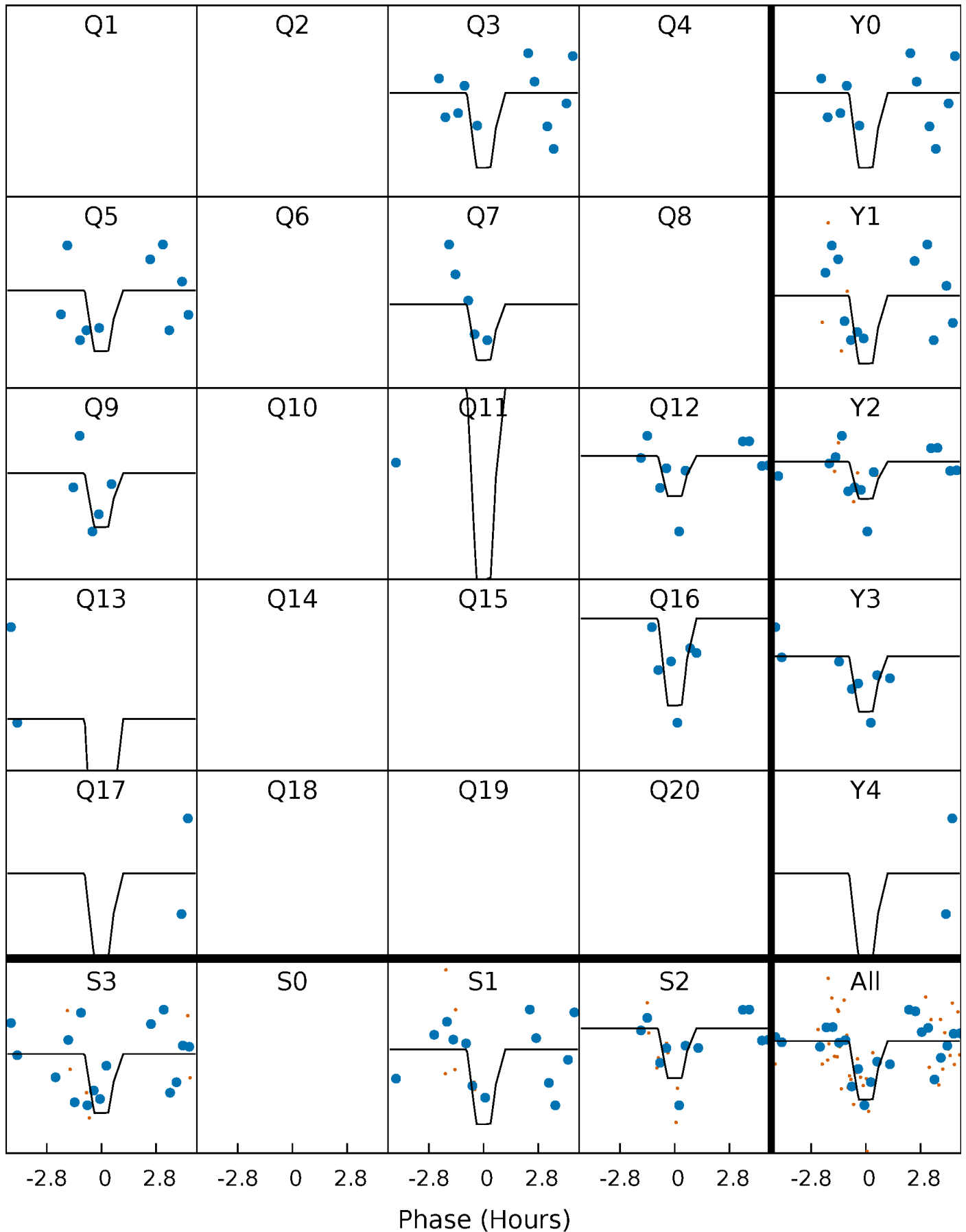
DV Quarter-Phased Transit Curves

TCE 003453494-05 $P = 42.057117$ Days $T_0 = 134.983982$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

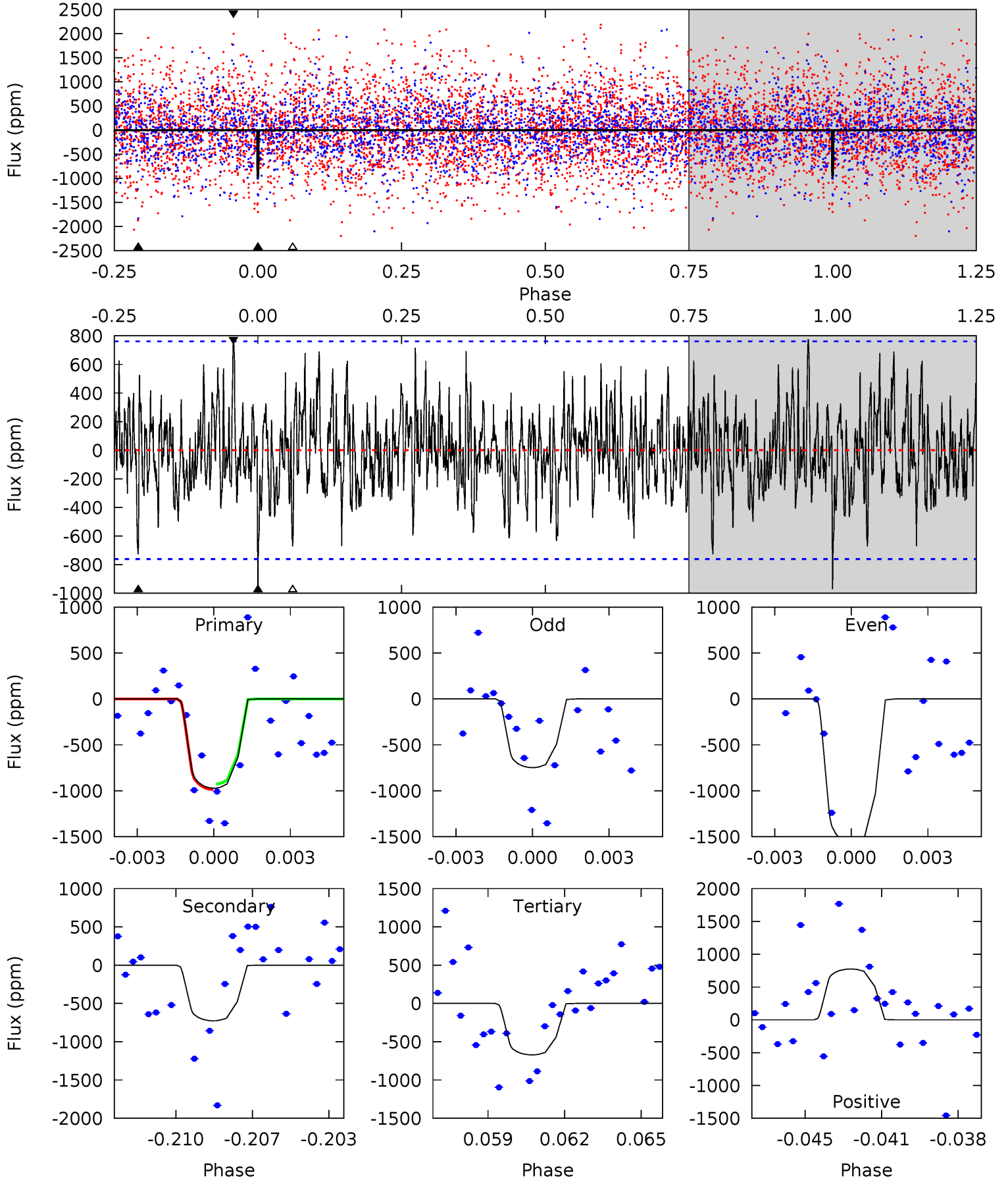
TCE 003453494-05 $P = 42.058118$ Days $T_0 = 134.949814$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-05, P = 42.057117 Days, E = 92.926865 Days

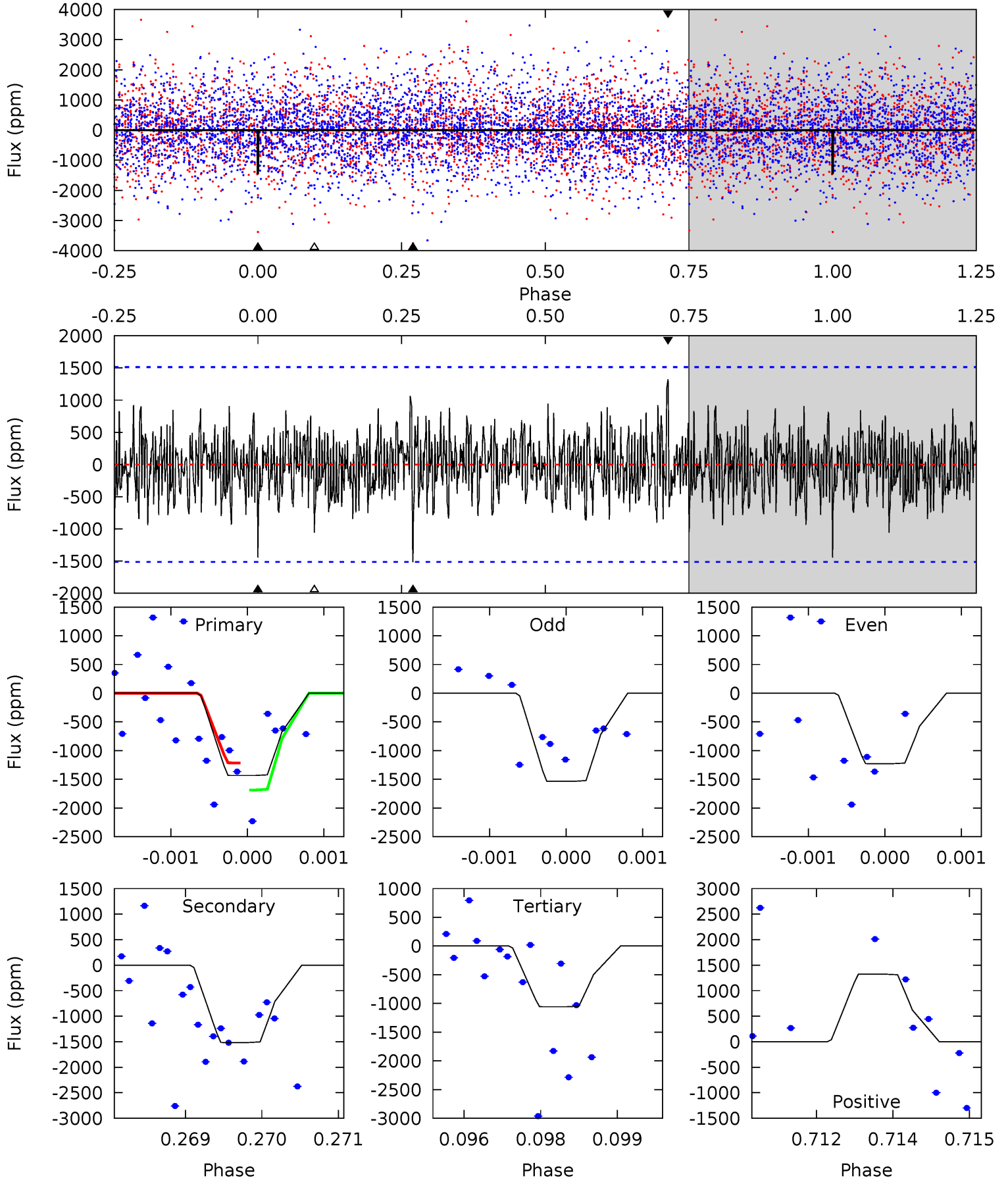
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.67	4.99	4.61	5.32	5.23	2.93	1.61	2.06	1.35	0.38	-0.33	2.61	0.98	0.44	0.18



Alt Model-Shift Uniqueness Test

003453494-05, P = 42.058118 Days, E = 92.891696 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.11	5.40	3.77	4.72	5.39	3.20	1.26	1.34	0.40	1.63	0.69	0.52	1.11	0.47	0.83



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-727 ± 146	$12.49^{+9.02}_{-6.35}$	1632^{+68}_{-106}	6745^{+4460}_{-1465}	223^{+773}_{-143}
Alt.	-1516 ± 281	$16.28^{+8.66}_{-7.52}$	1628^{+63}_{-106}	7305^{+3770}_{-1493}	289^{+742}_{-167}

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 $A_{obs} \gg 1.0$

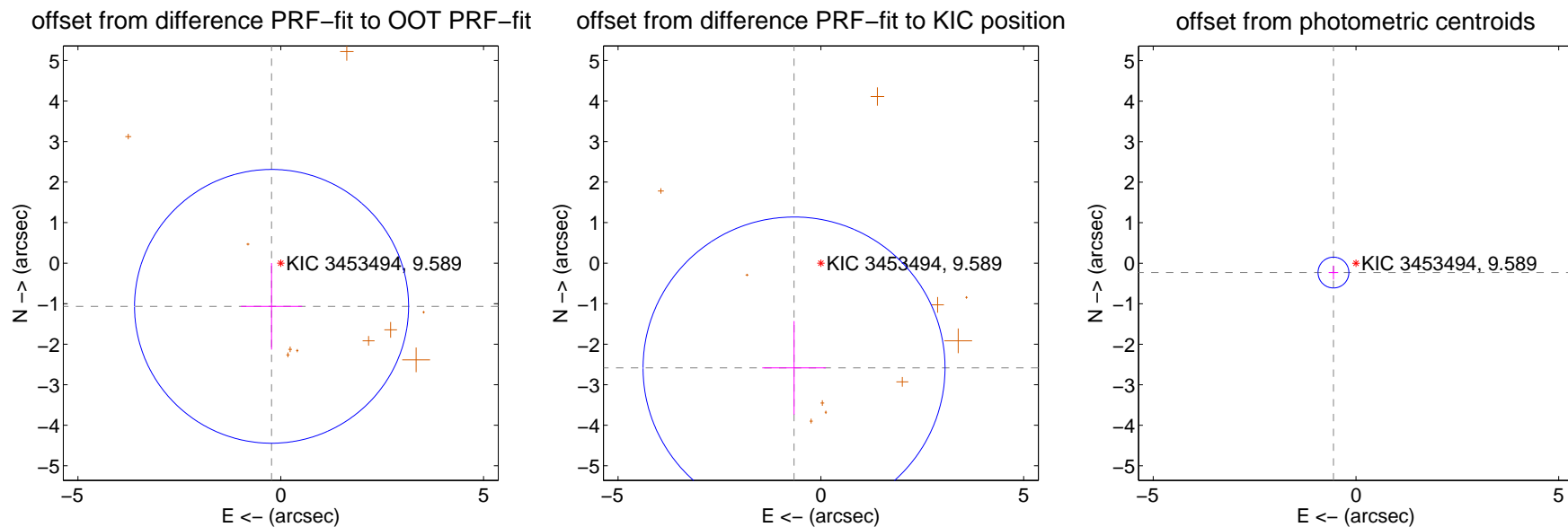
DV Centroid Data

Supplemental centroid analysis for 003453494-05. **Kepler magnitude: 9.59.** Transit SNR 9.27

There are 0 quarters with good PRF difference image offsets

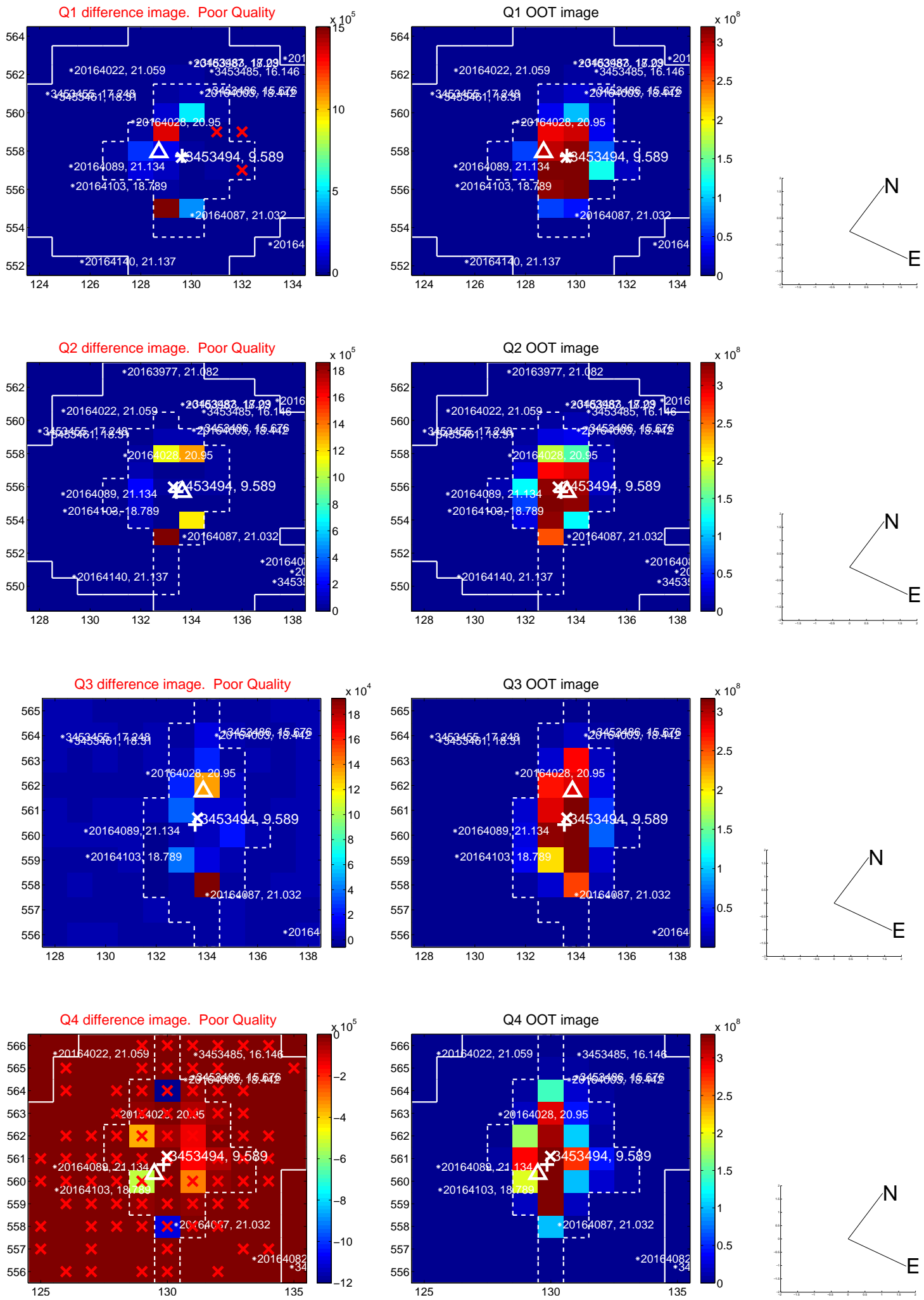
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.090 ± 1.126	0.97	0.227 ± 0.753	-1.066 ± 1.067
PRF-fit source offset from KIC position	2.668 ± 1.241	2.15	0.661 ± 0.785	-2.584 ± 1.153
photometric centroid source offset	0.60 ± 0.13	4.74	0.56 ± 0.12	-0.23 ± 0.17

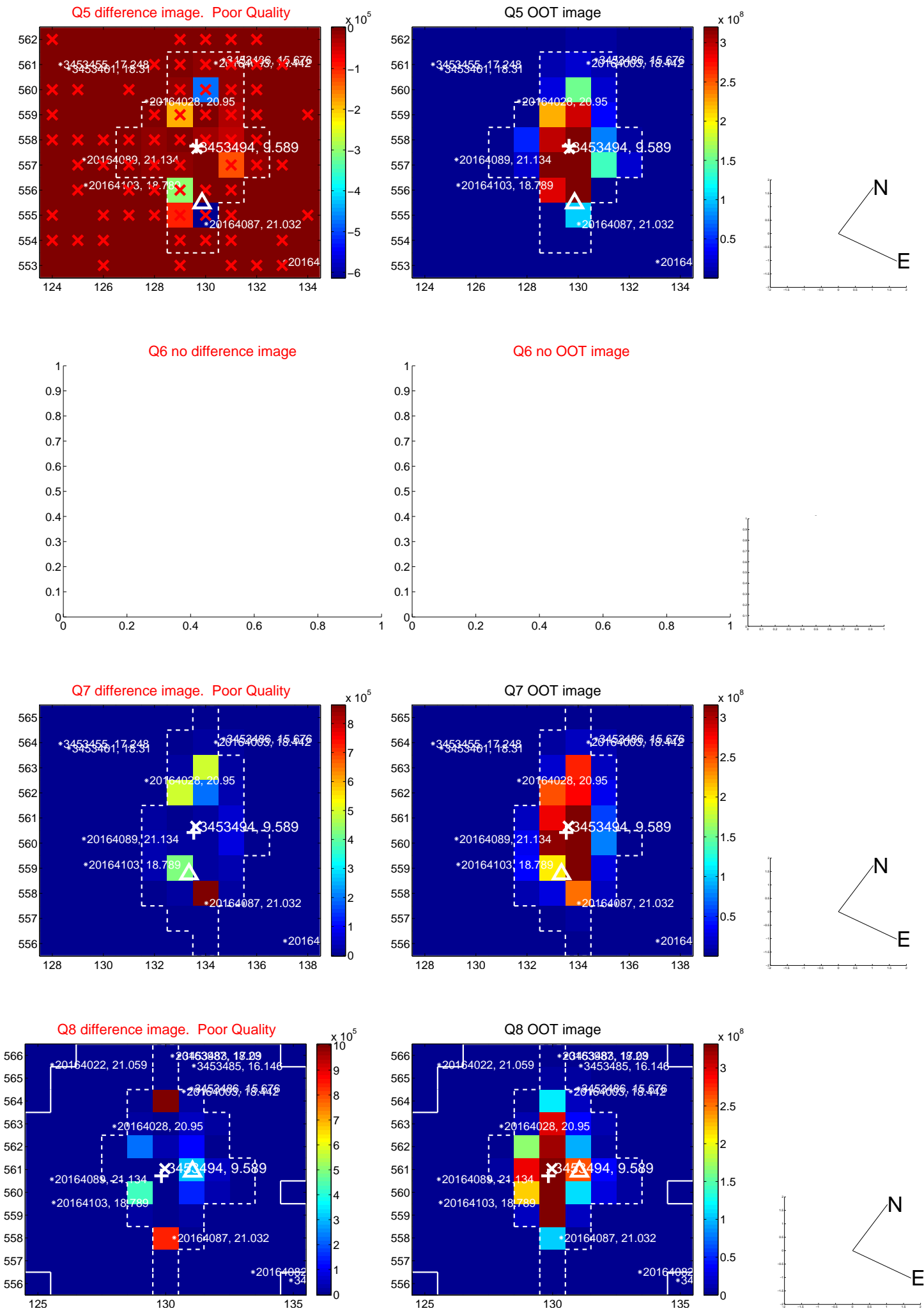


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

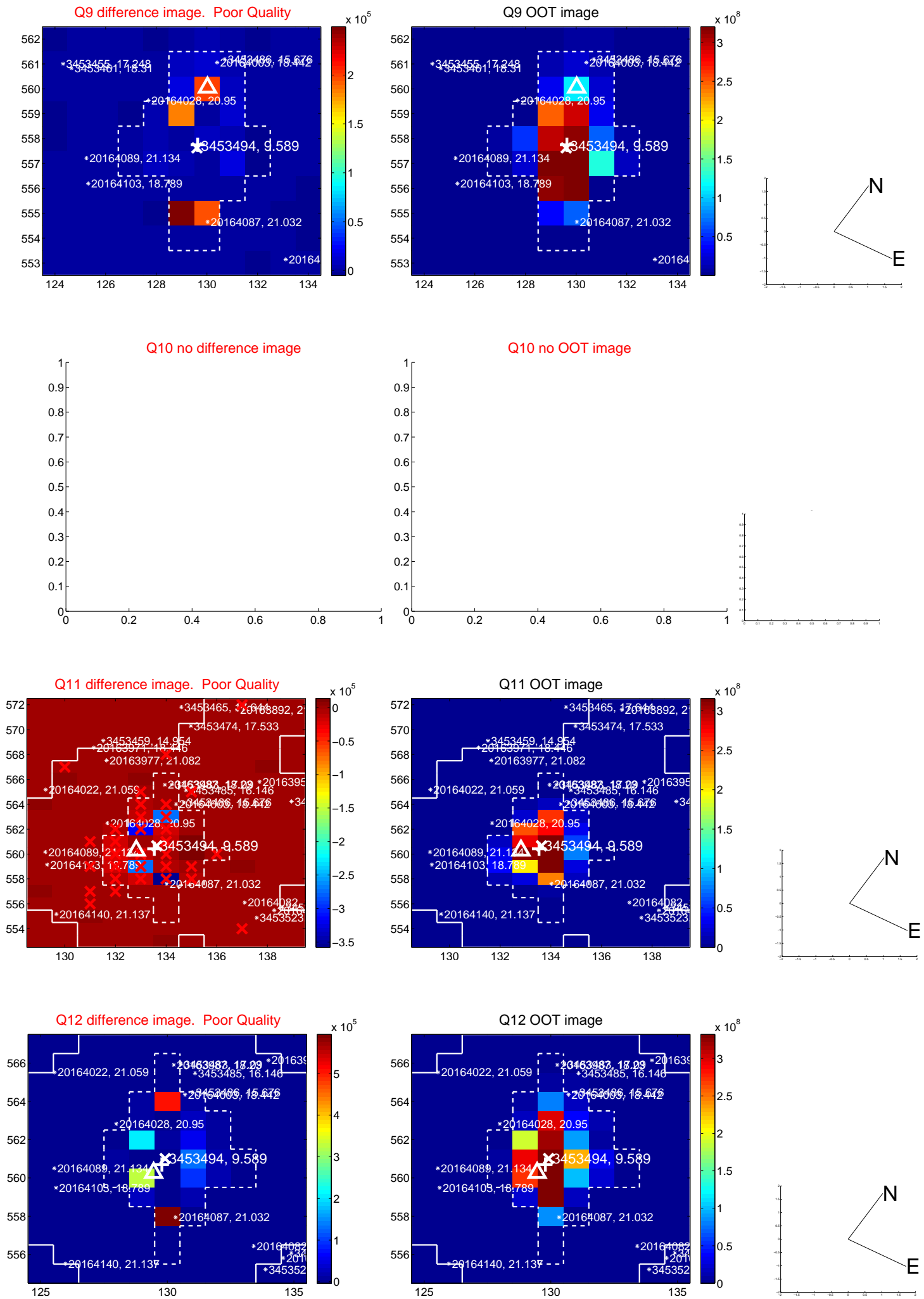
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



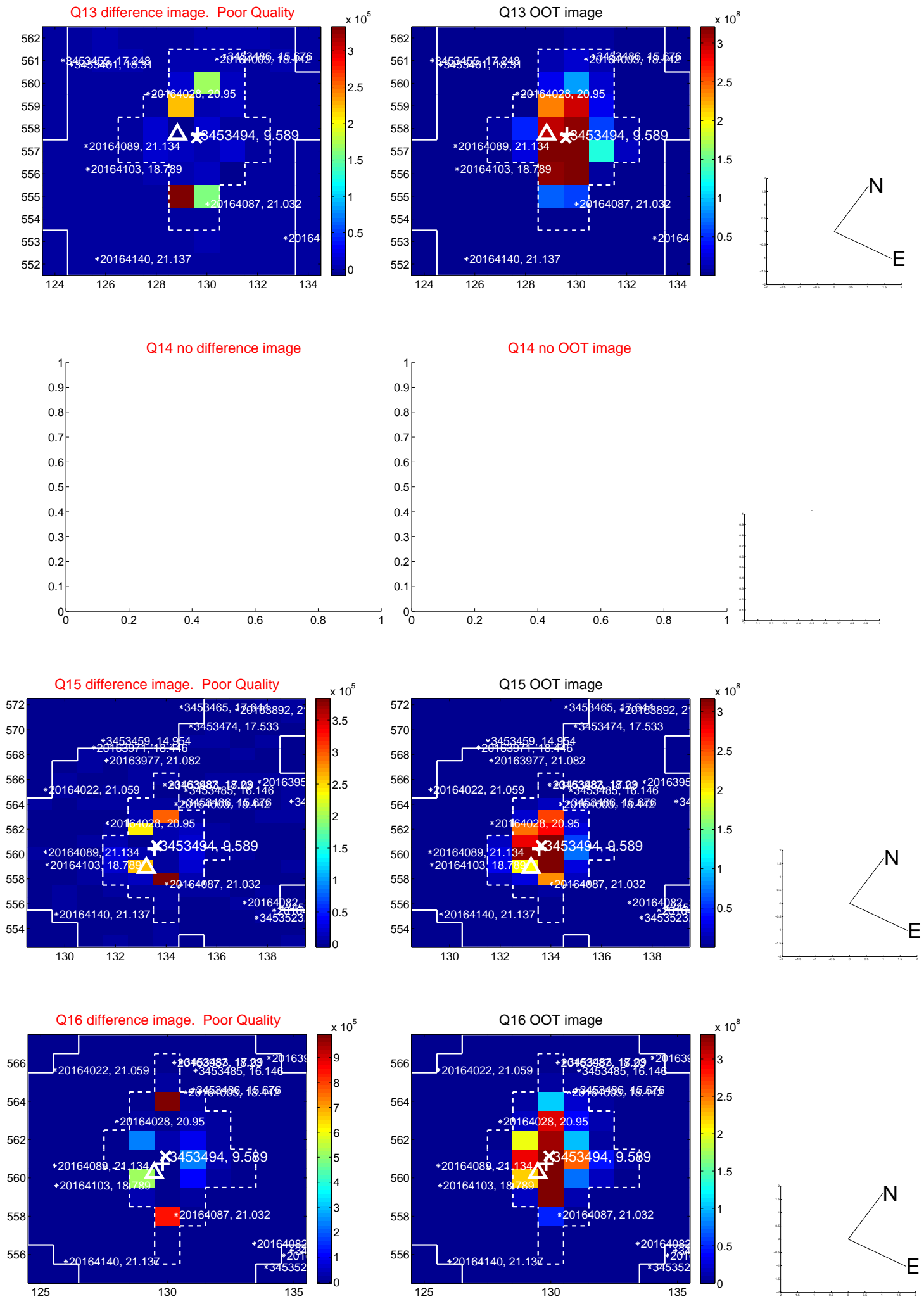
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



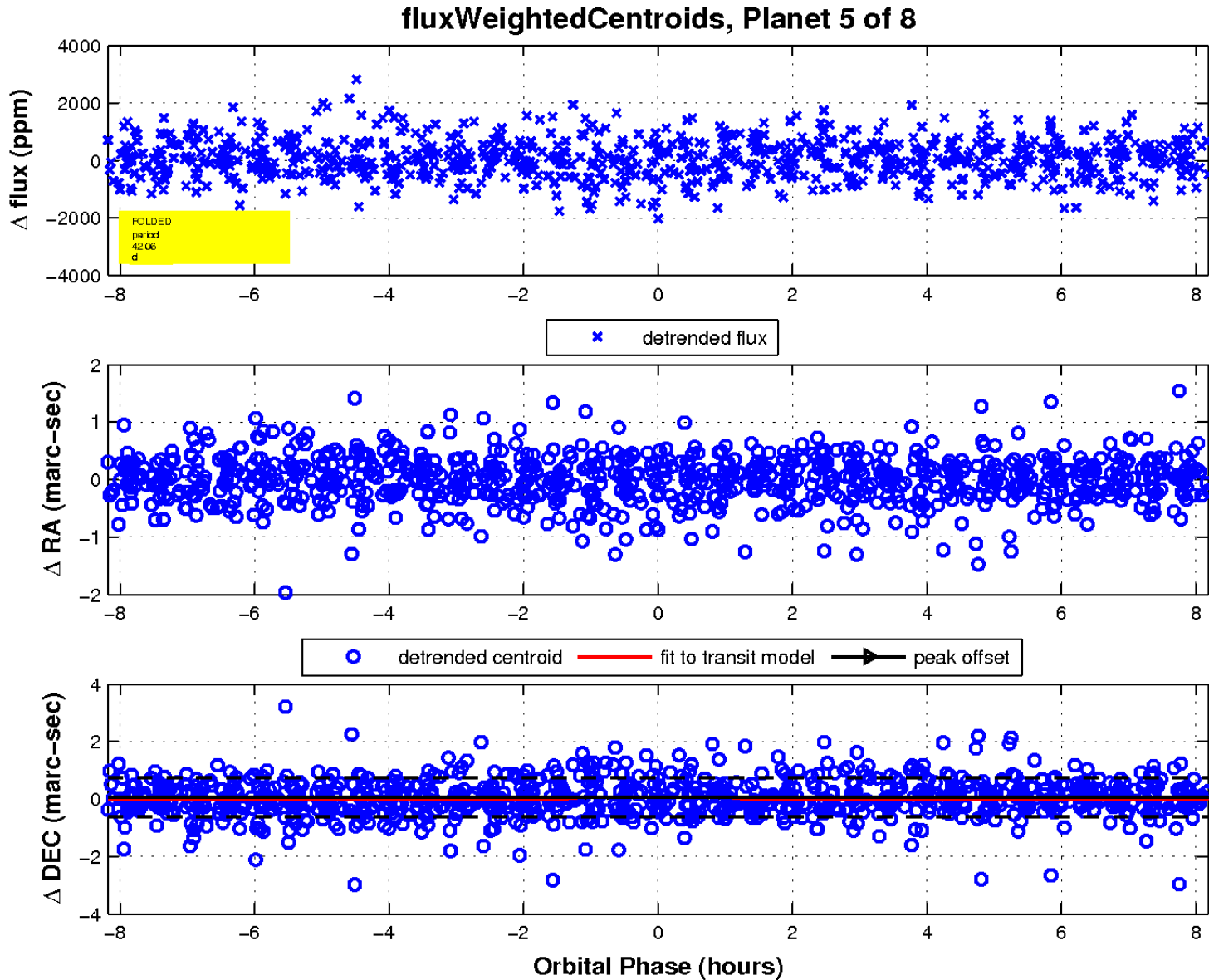
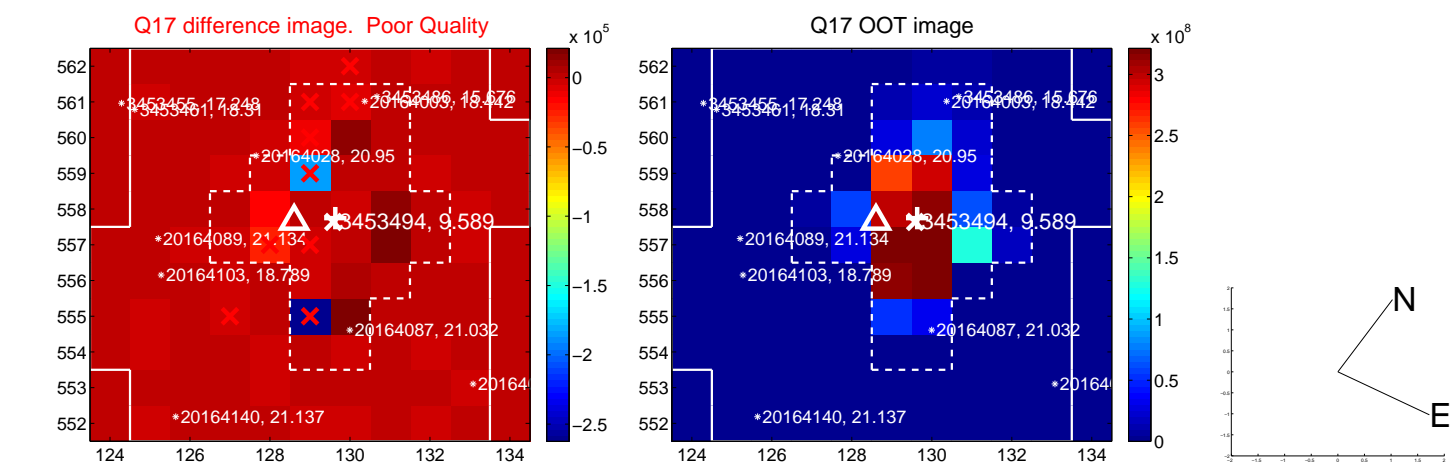
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

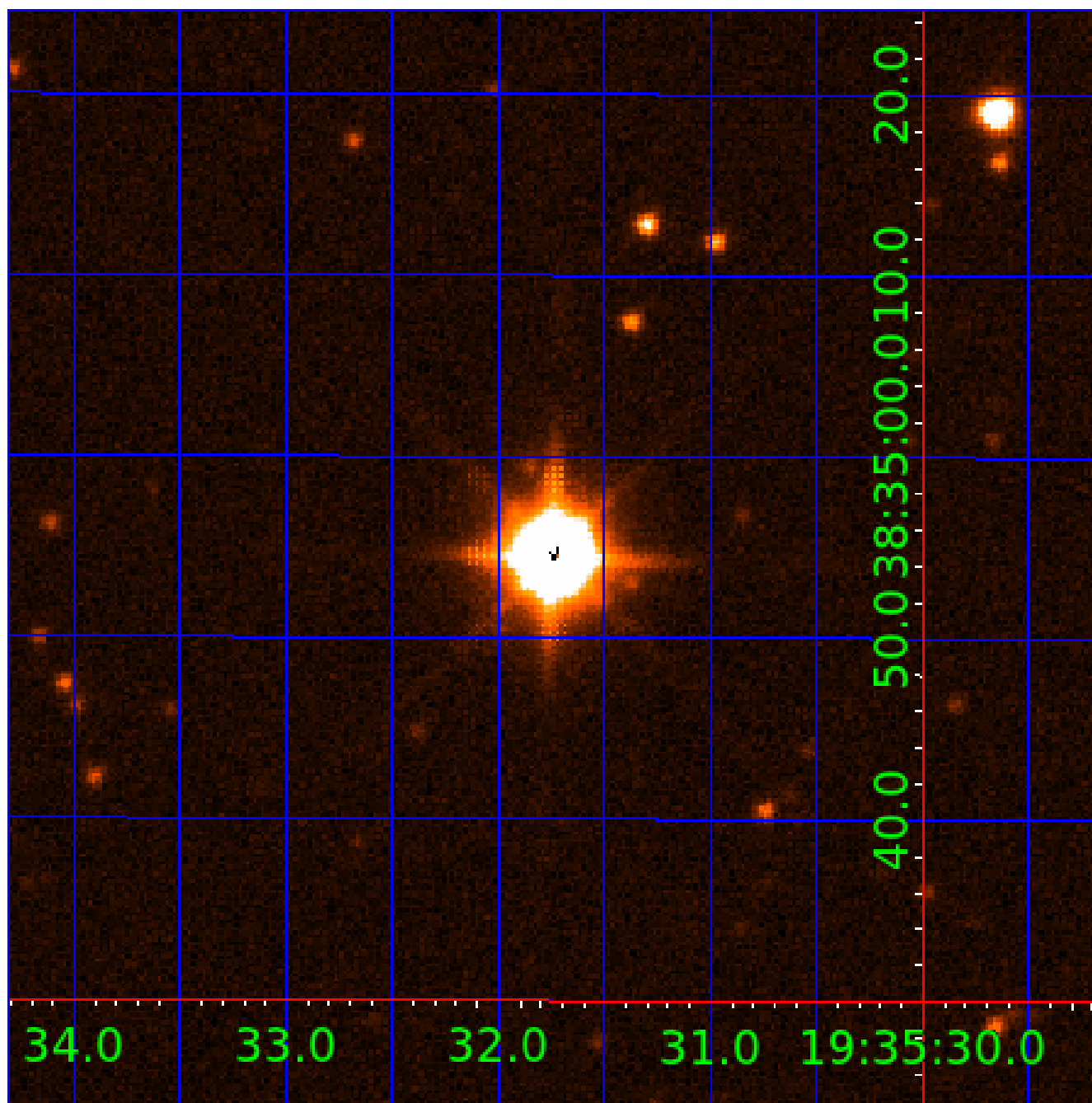


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003453494

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})
003453494-01	OBS	No	1.030916	131.693533	53.8	2.764	9.1	4.3	3.57	7766	2.98	64787.16
003453494-02	OBS	No	0.515440	131.946190	78.6	3.078	11.2	8.9	3.57	7766	3.70	0.00
003453494-03	OBS	No	34.898911	139.118838	1250.1	1.943	9.7	10.2	3.57	7766	13.43	591.61
003453494-04	OBS	No	29.752587	148.910721	1644.3	1.428	9.7	8.7	3.57	7766	15.75	731.85
003453494-05	OBS	No	42.057117	134.983982	1041.9	2.729	8.8	9.3	3.57	7766	12.80	461.32
003453494-06	OBS	No	21.543803	141.569803	1096.3	1.514	9.3	8.4	3.57	7766	13.83	1125.53
003453494-07	OBS	No	22.541275	131.761021	1403.5	1.611	9.2	11.5	3.57	7766	14.64	1059.62
003453494-08	OBS	No	35.097670	148.391078	1243.1	4.046	8.9	10.7	3.57	7766	20.68	587.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

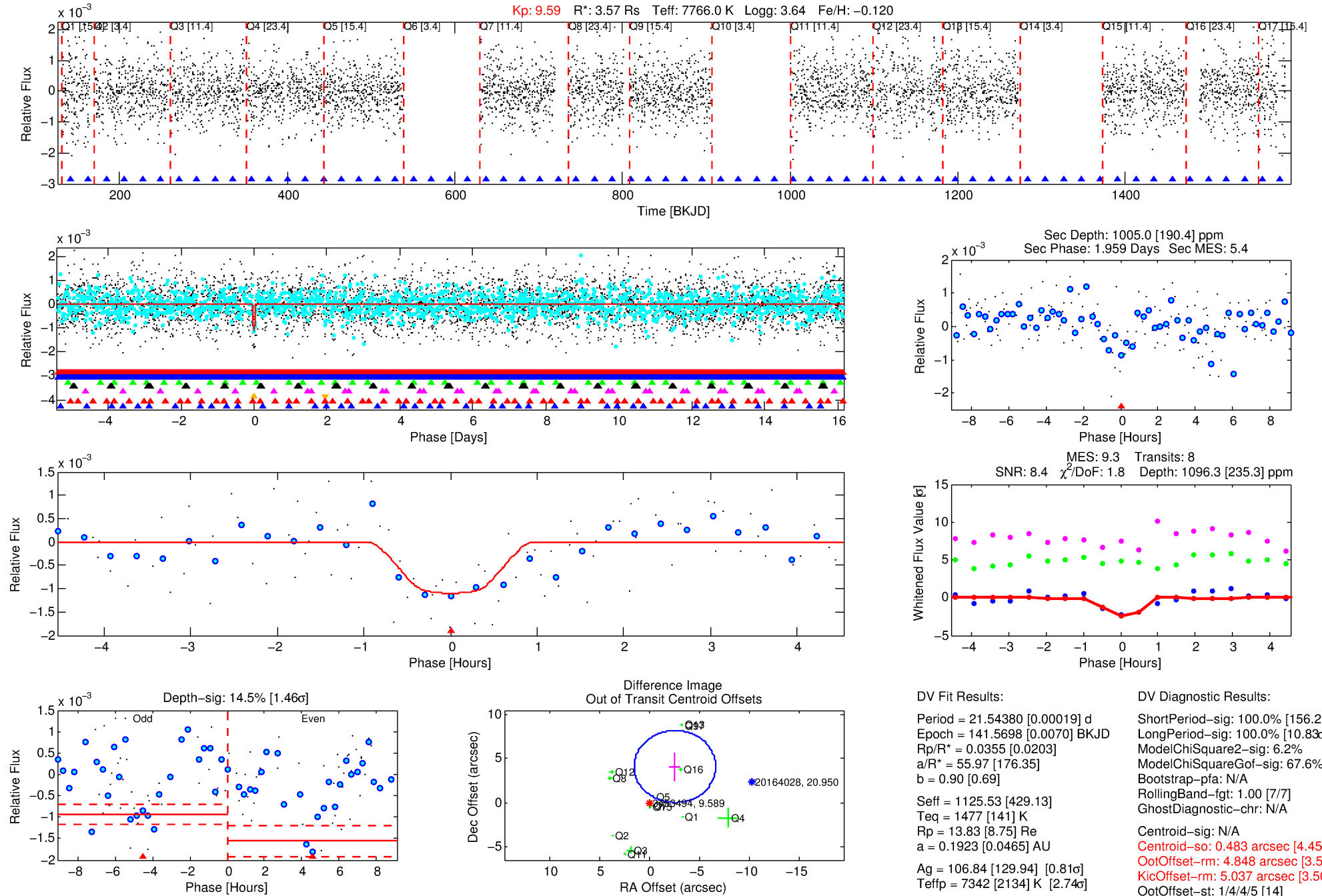
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-06

No Significant Match Found

DV One-Page Summary

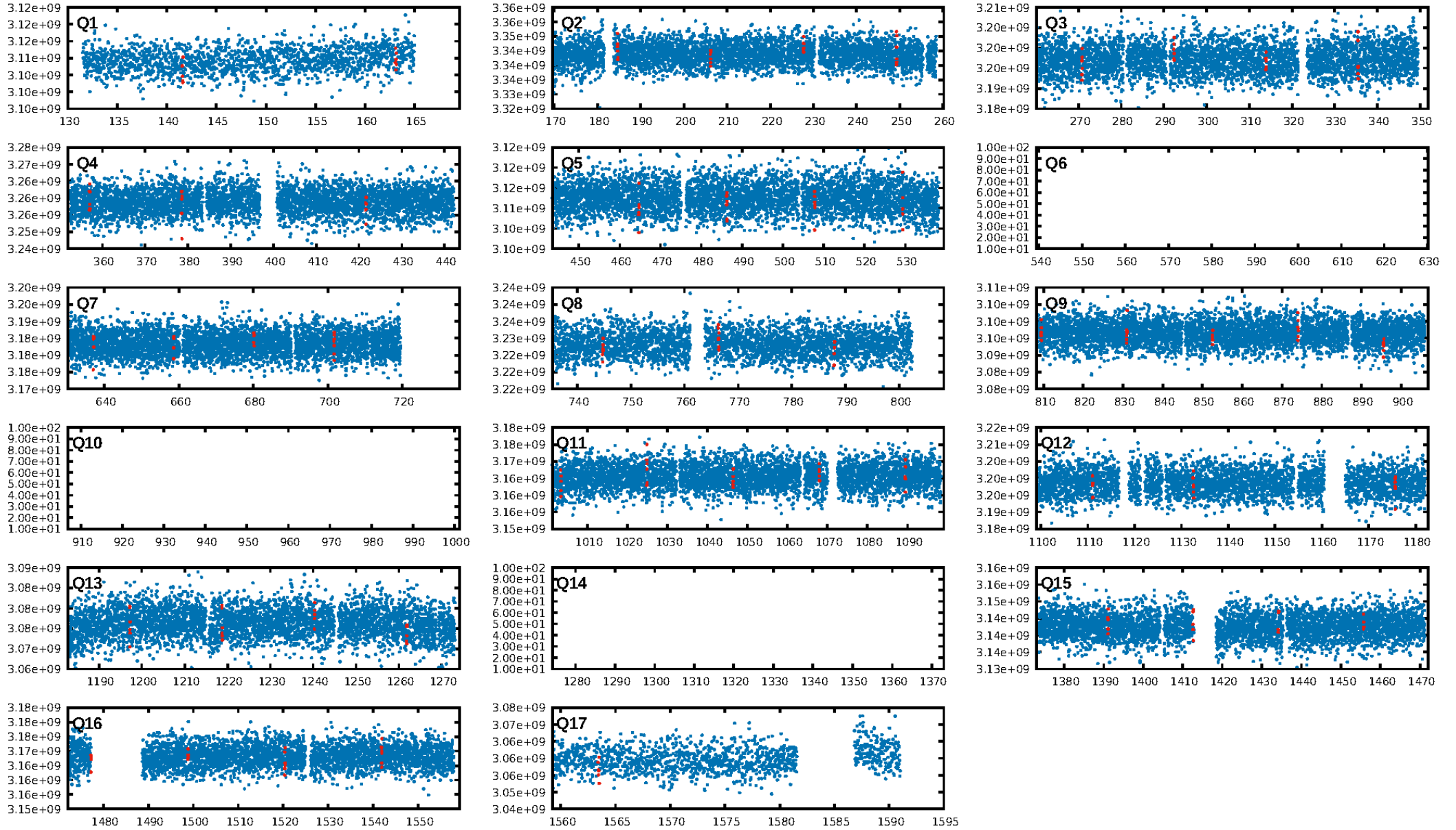
KIC: 3453494 Candidate: 6 of 8 Period: 21.544 d



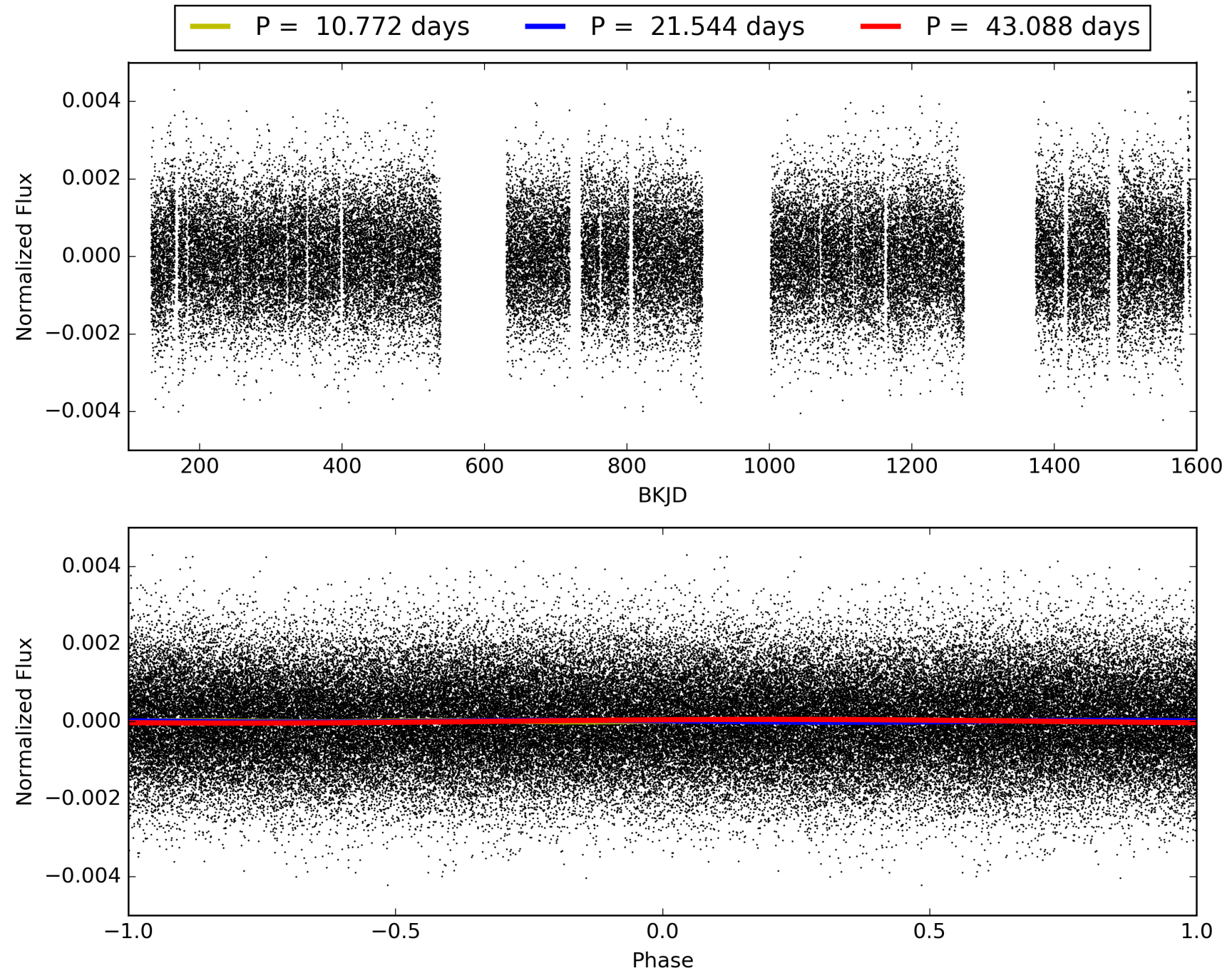
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:38 Z

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

TCE 003453494-06, PDC Light Curves

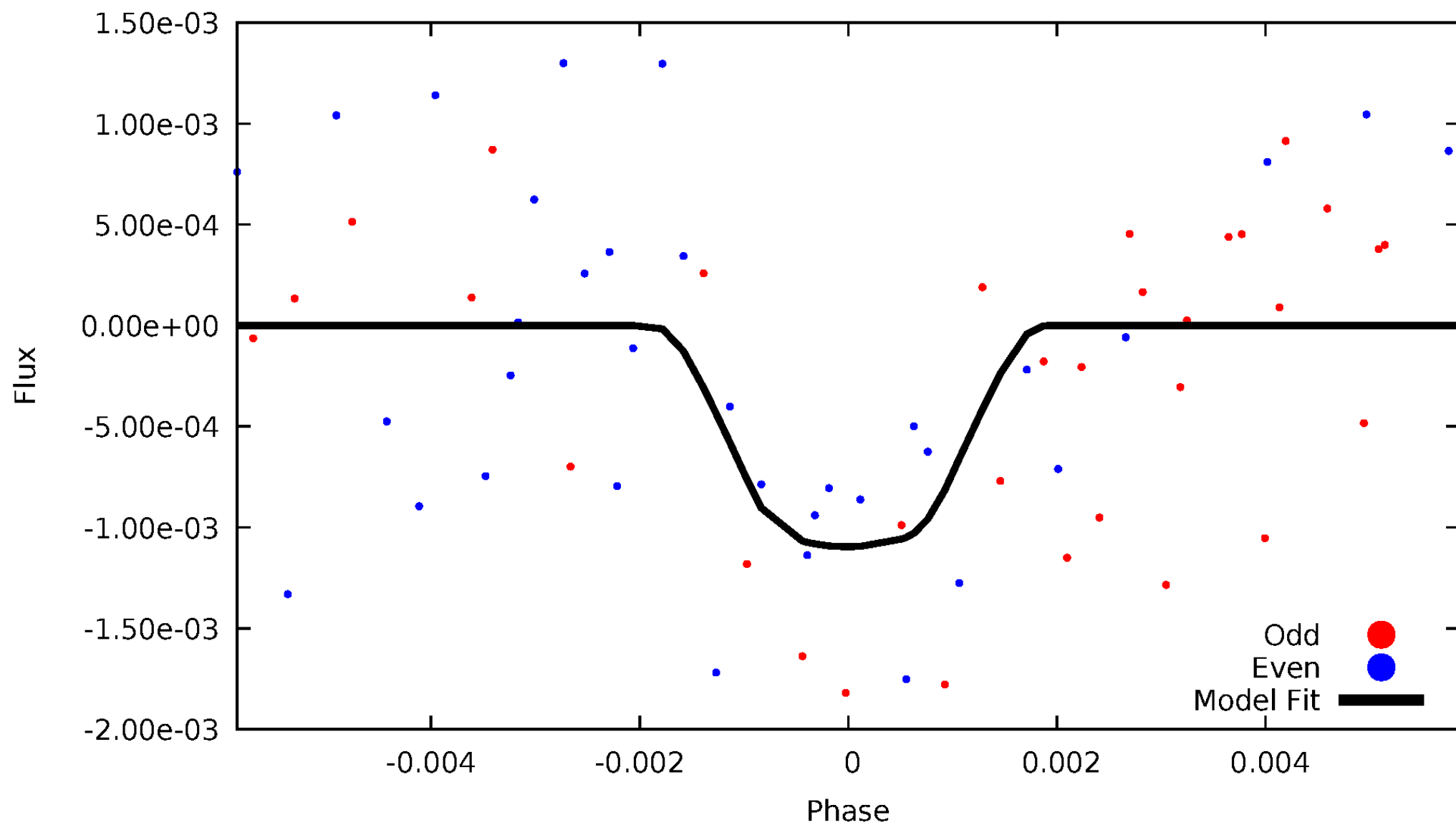


TCE 003453494-06



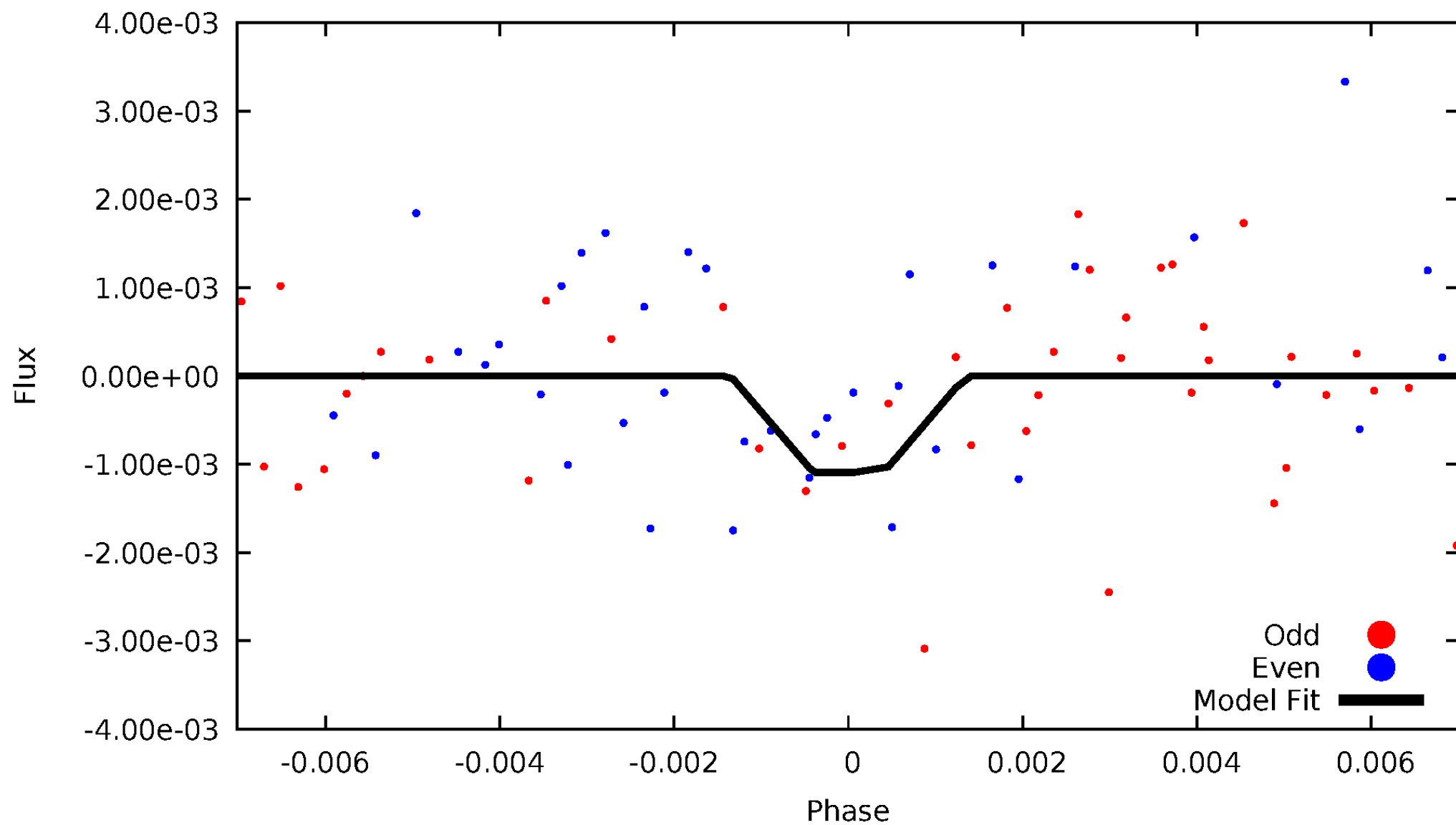
DV Odd/Even

TCE 003453494-06



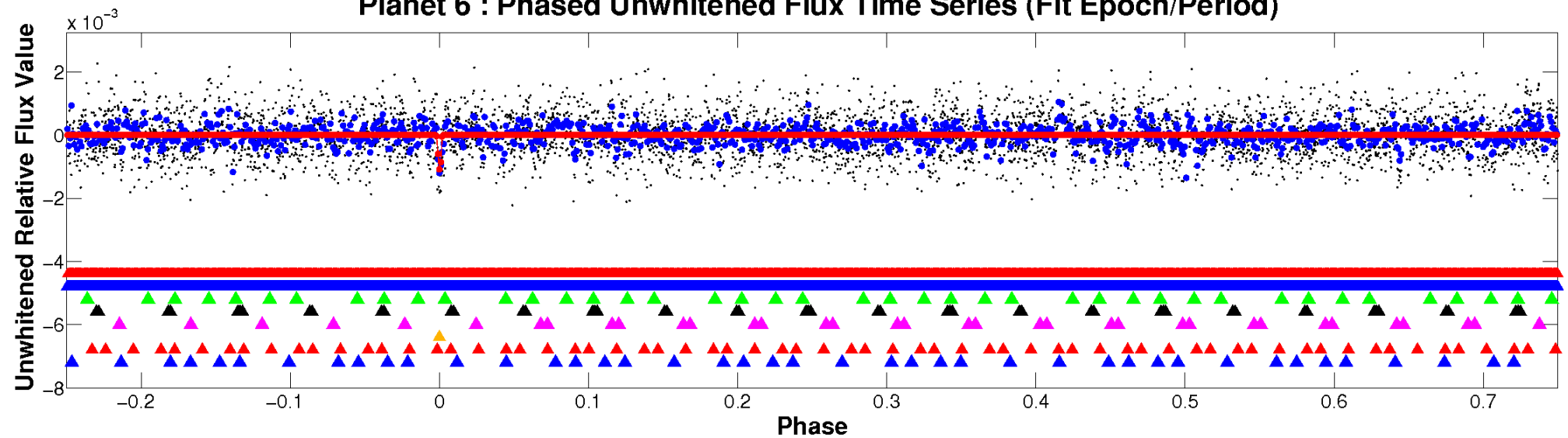
ALT Odd/Even

TCE 003453494-06

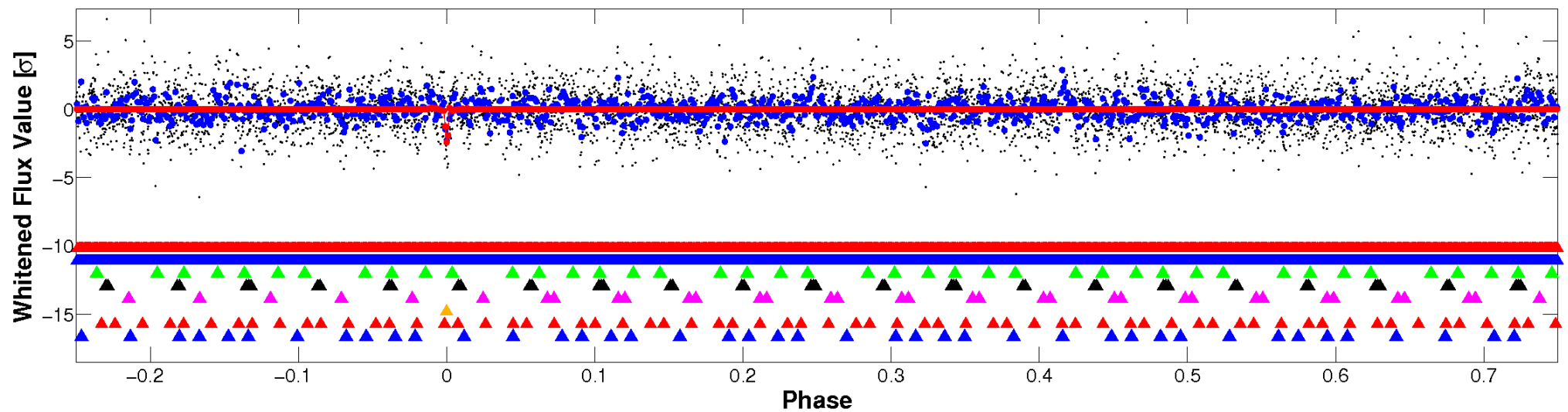


Non-Whitened Vs. Whitened Light Curve

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

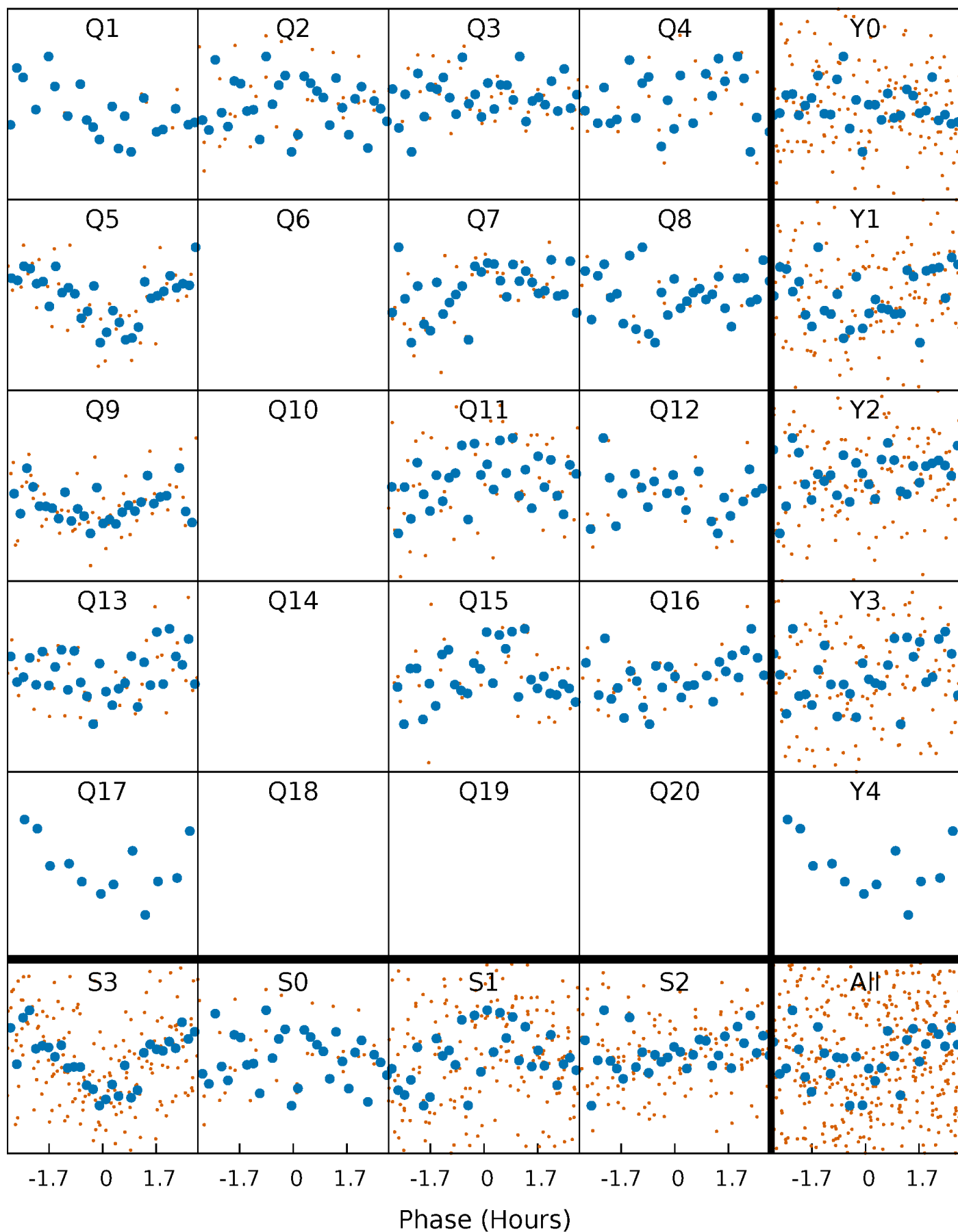


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



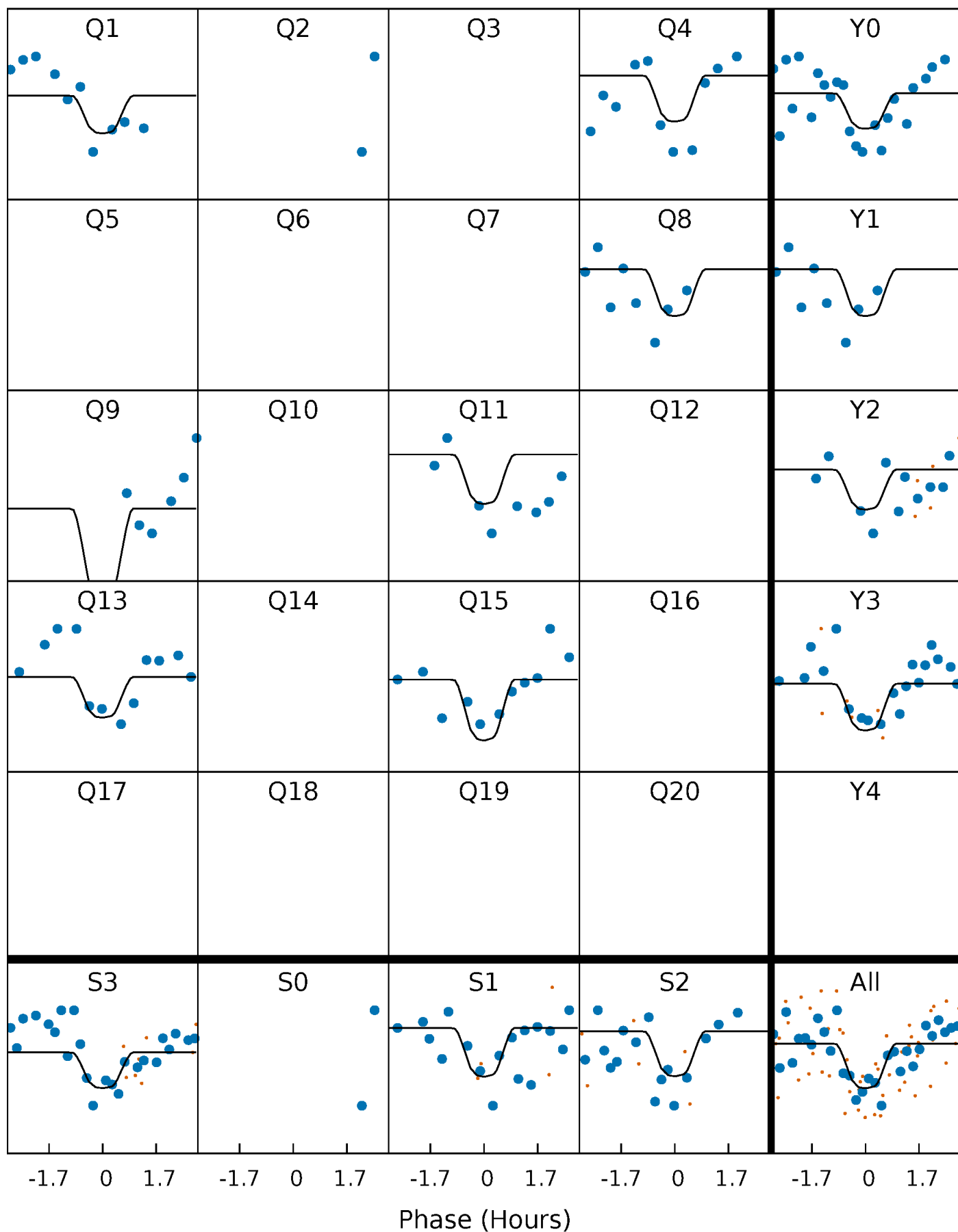
PDC Quarter-Phased Transit Curves

TCE 003453494-06 $P = 21.543803$ Days $T_0 = 141.569803$ (BKJD)



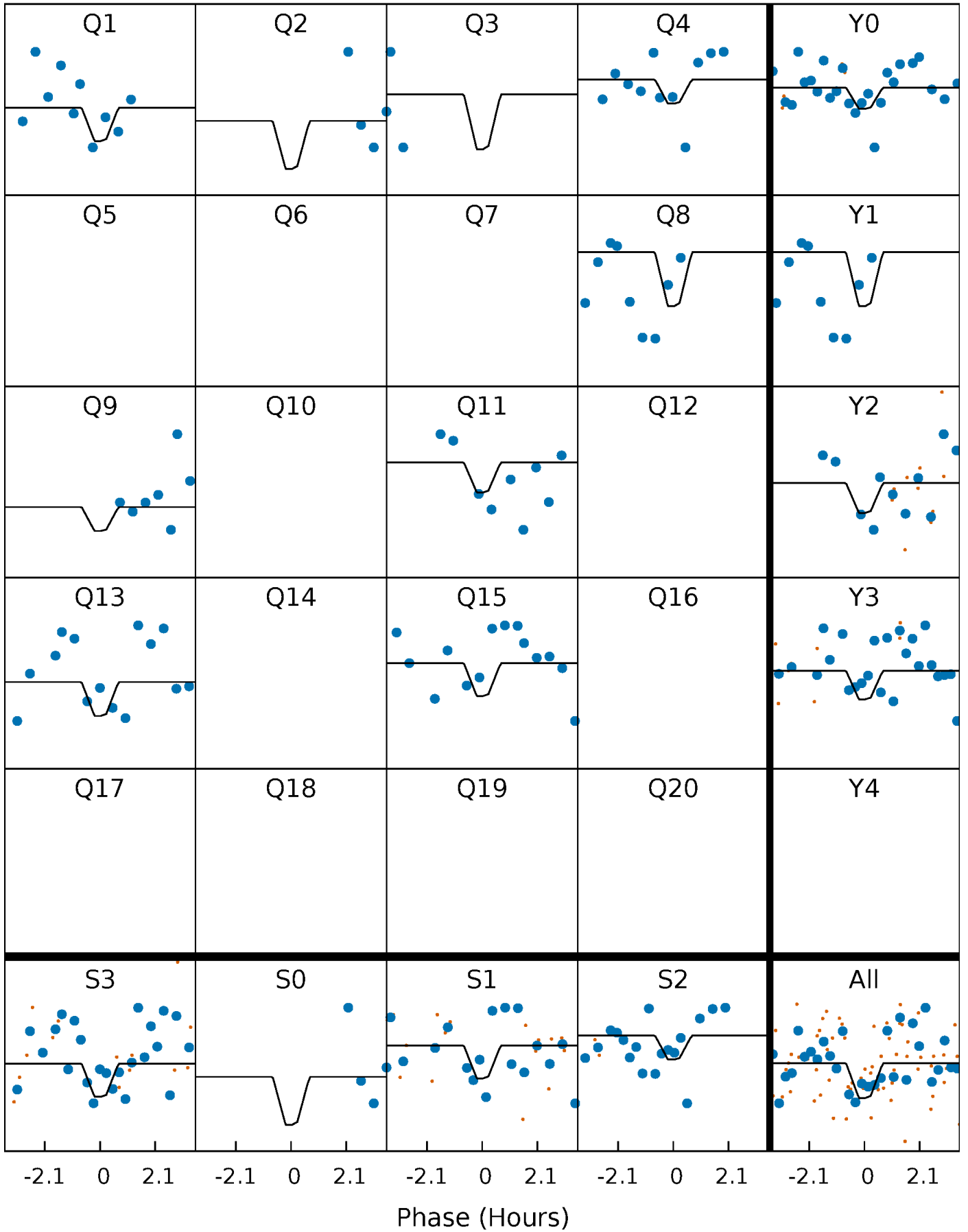
DV Quarter-Phased Transit Curves

TCE 003453494-06 P= 21.543803 Days $T_0=141.569803$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

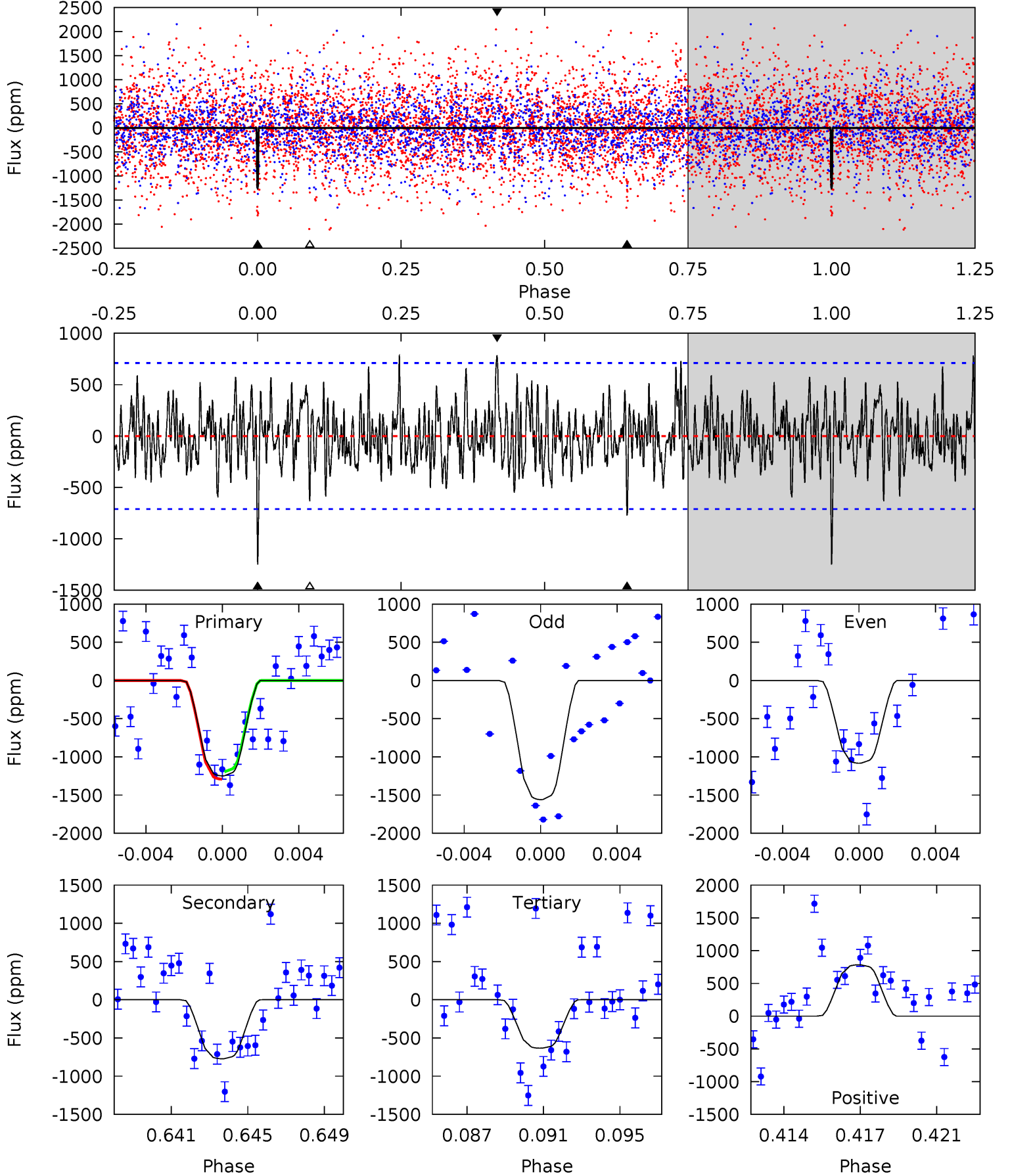
TCE 003453494-06 P= 21.543806 Days $T_0=141.570868$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-06, P = 21.543803 Days, E = 120.026000 Days

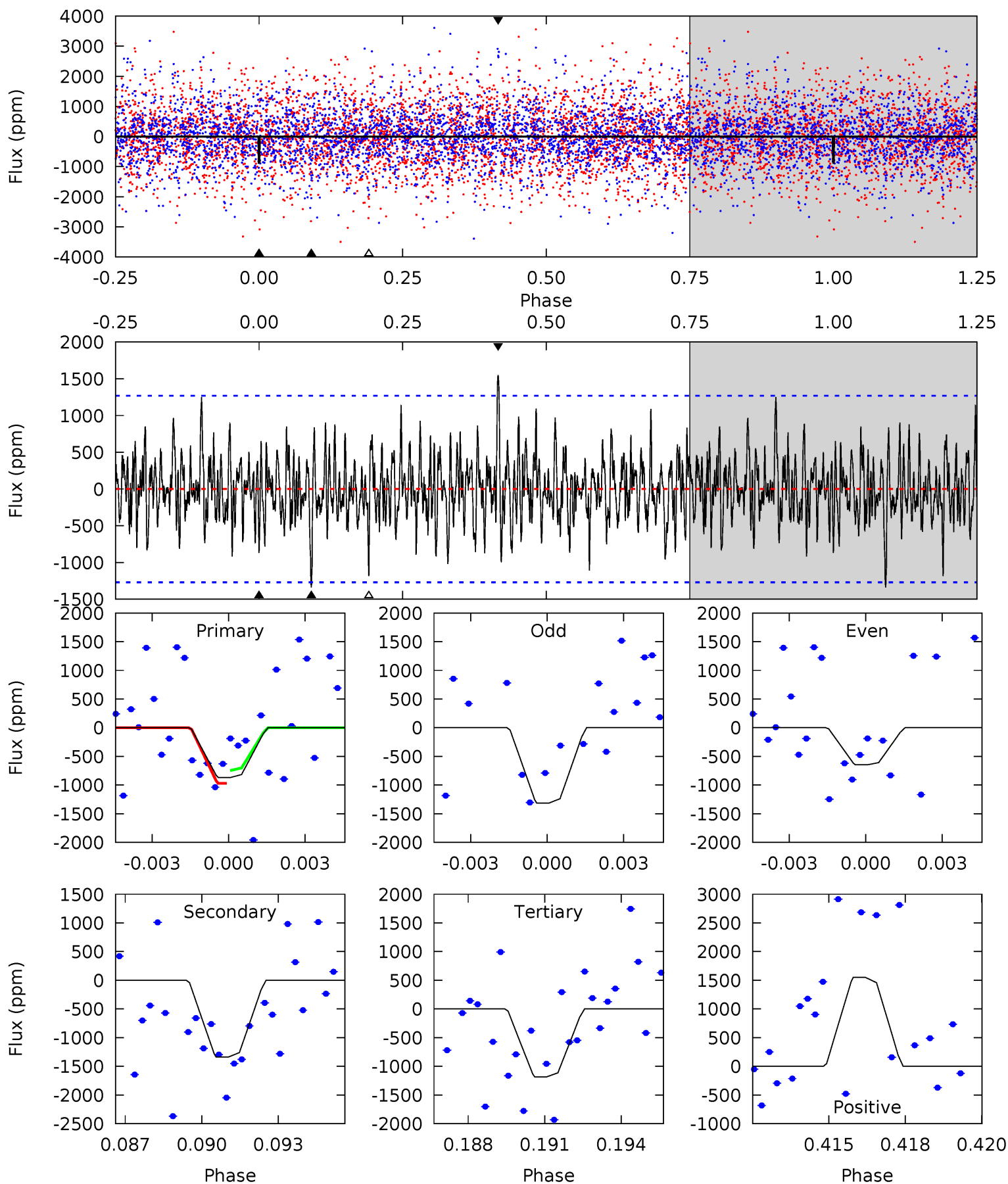
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.16	5.66	4.65	5.75	5.21	2.89	1.71	4.51	3.41	1.02	-0.09	1.73	1.05	0.39	0.36



Alt Model-Shift Uniqueness Test

003453494-06, P = 21.543806 Days, E = 120.027062 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.61	5.56	4.91	6.44	5.27	3.00	1.56	-1.30	-2.83	0.65	-0.88	1.35	1.21	0.54	0.47



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-773 ± 136	$14.10^{+7.71}_{-7.32}$	2030^{+86}_{-142}	6493^{+3791}_{-1179}	80^{+251}_{-47}
Alt.	-1340 ± 241	$12.98^{+7.53}_{-6.71}$	2029^{+93}_{-125}	8055^{+5688}_{-1933}	167^{+536}_{-104}

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 $A_{obs} \gg 1.0$

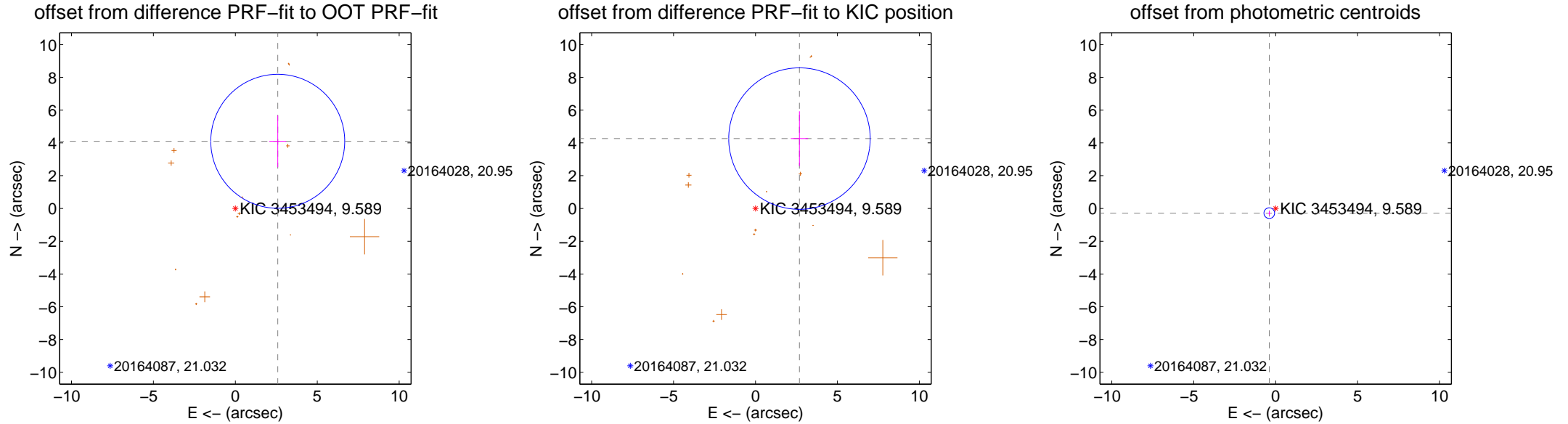
DV Centroid Data

Supplemental centroid analysis for 003453494-06. **Kepler magnitude: 9.59.** Transit SNR 8.37

There are 0 quarters with good PRF difference image offsets

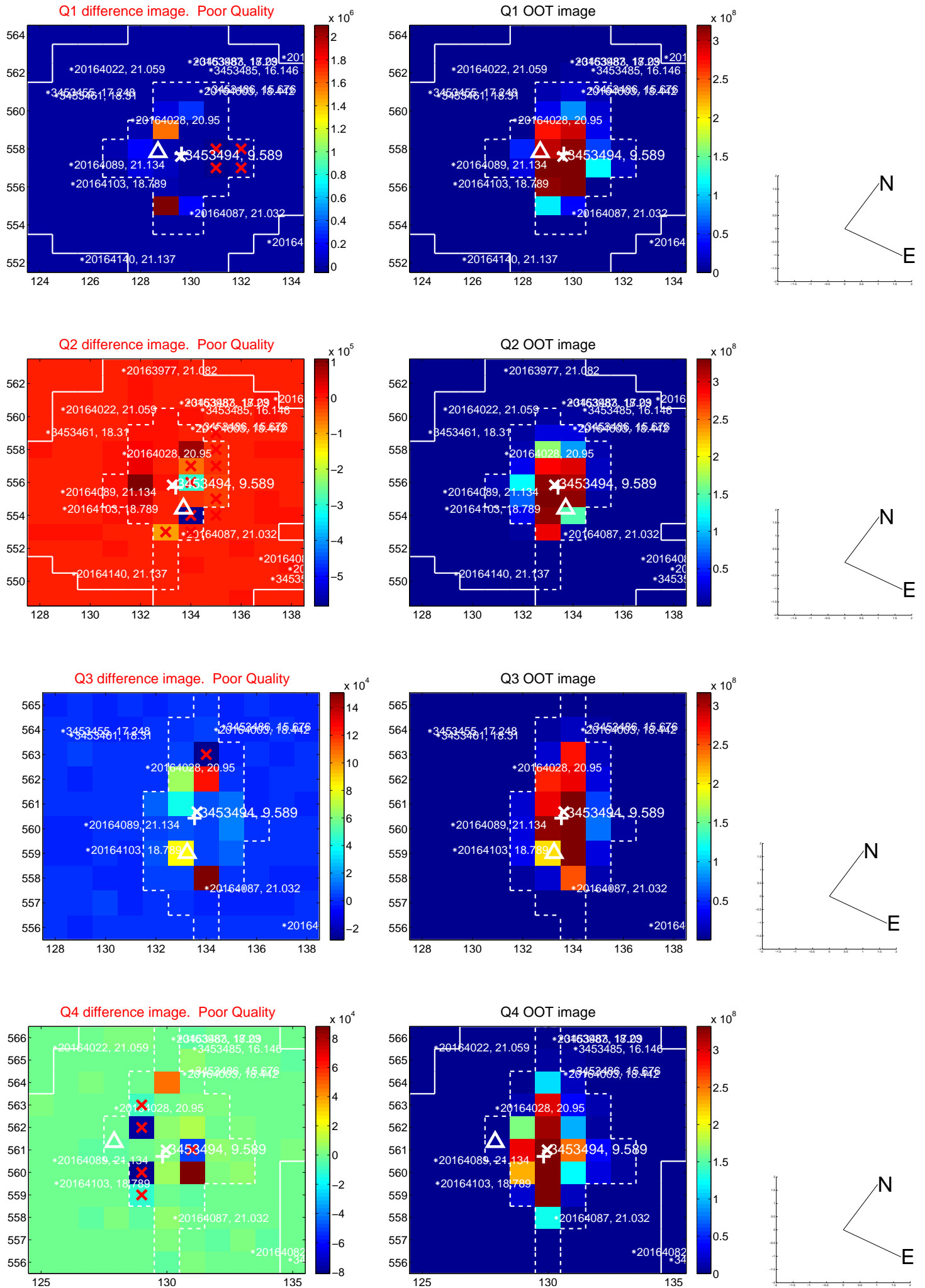
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.848 ± 1.363	3.56	-2.588 ± 0.520	4.099 ± 1.578
PRF-fit source offset from KIC position	5.037 ± 1.439	3.50	-2.683 ± 0.528	4.263 ± 1.668
photometric centroid source offset	0.48 ± 0.11	4.45	0.39 ± 0.09	-0.29 ± 0.13

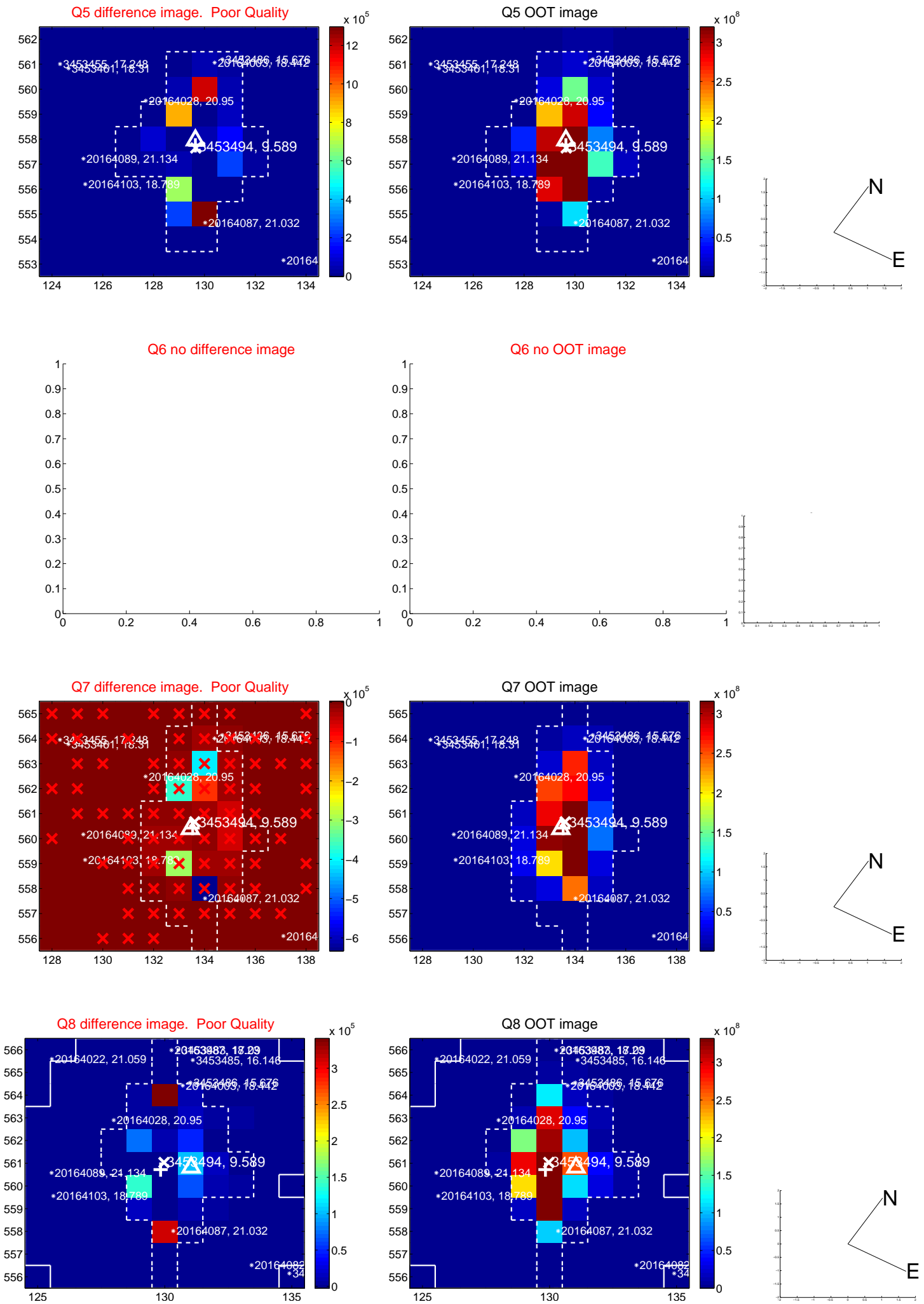


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

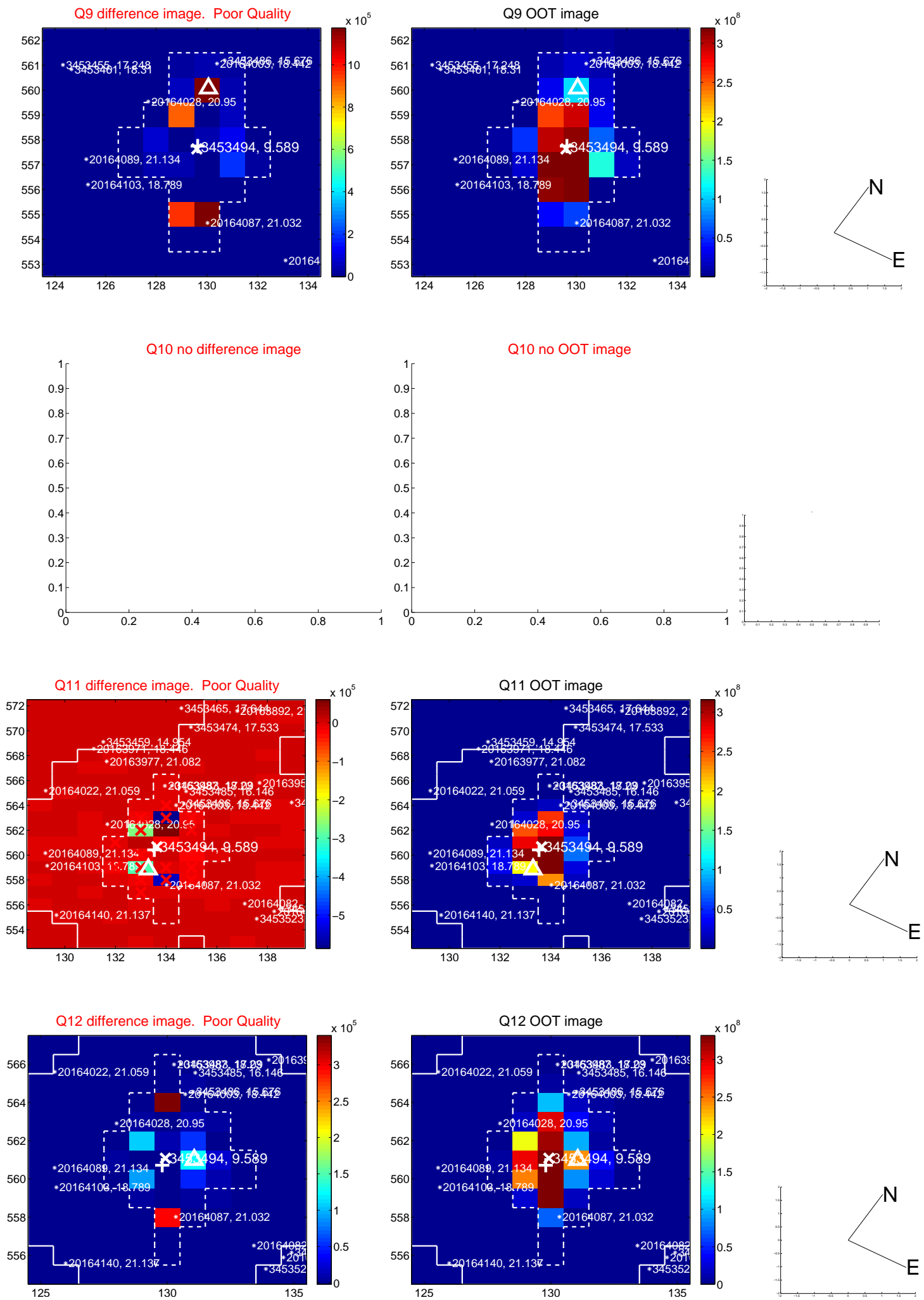
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



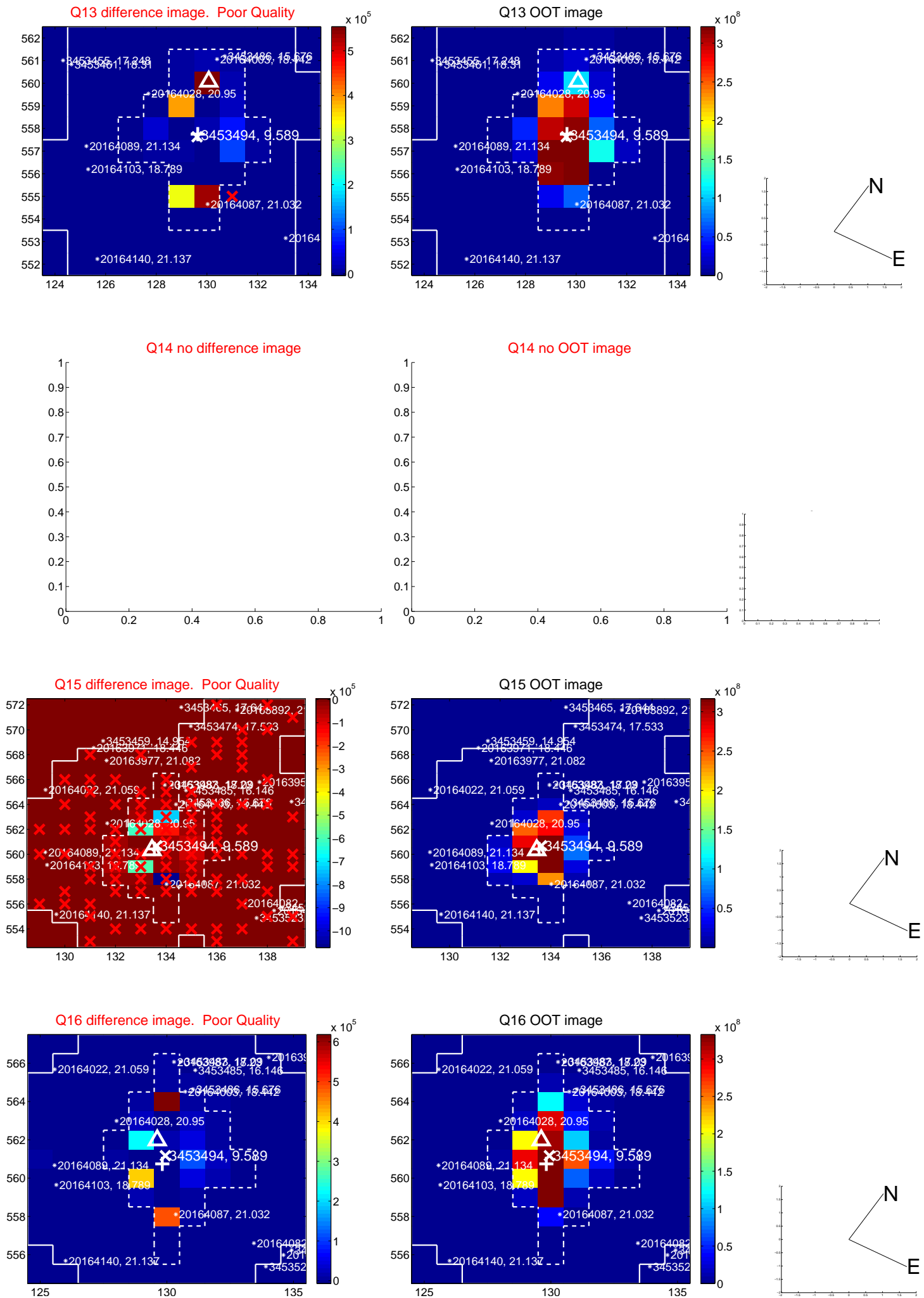
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



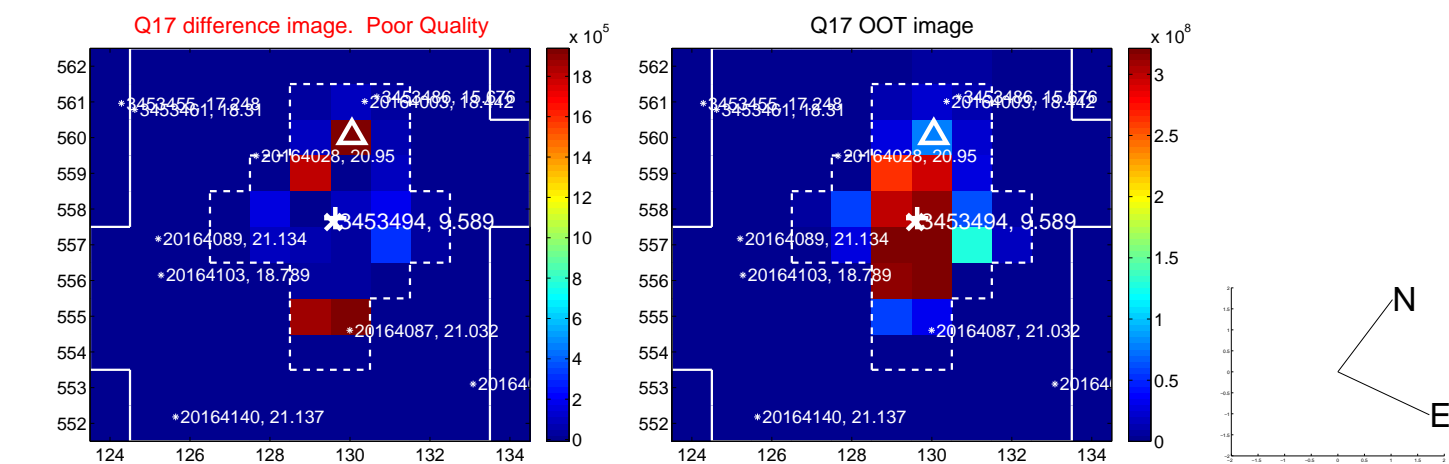
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



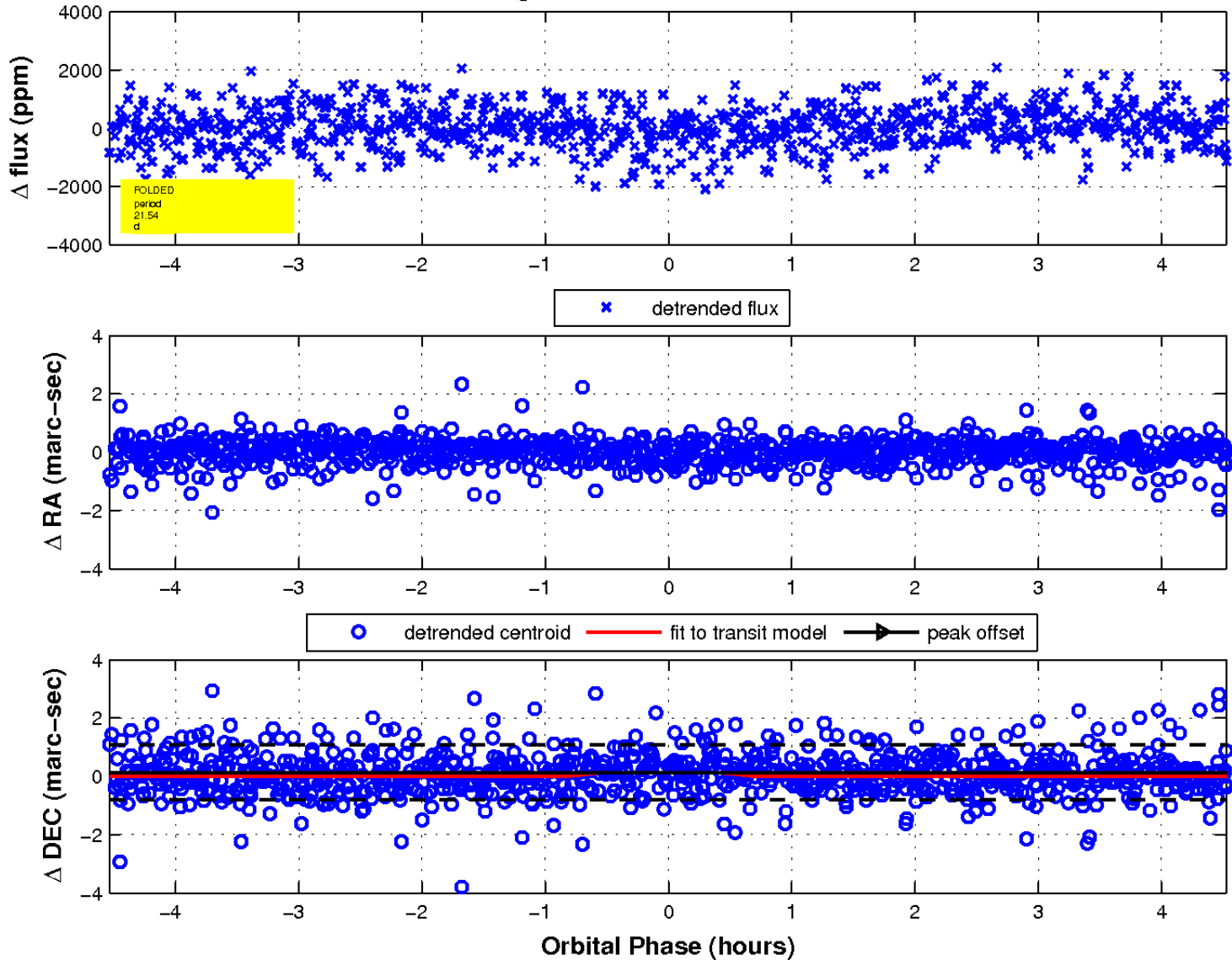
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

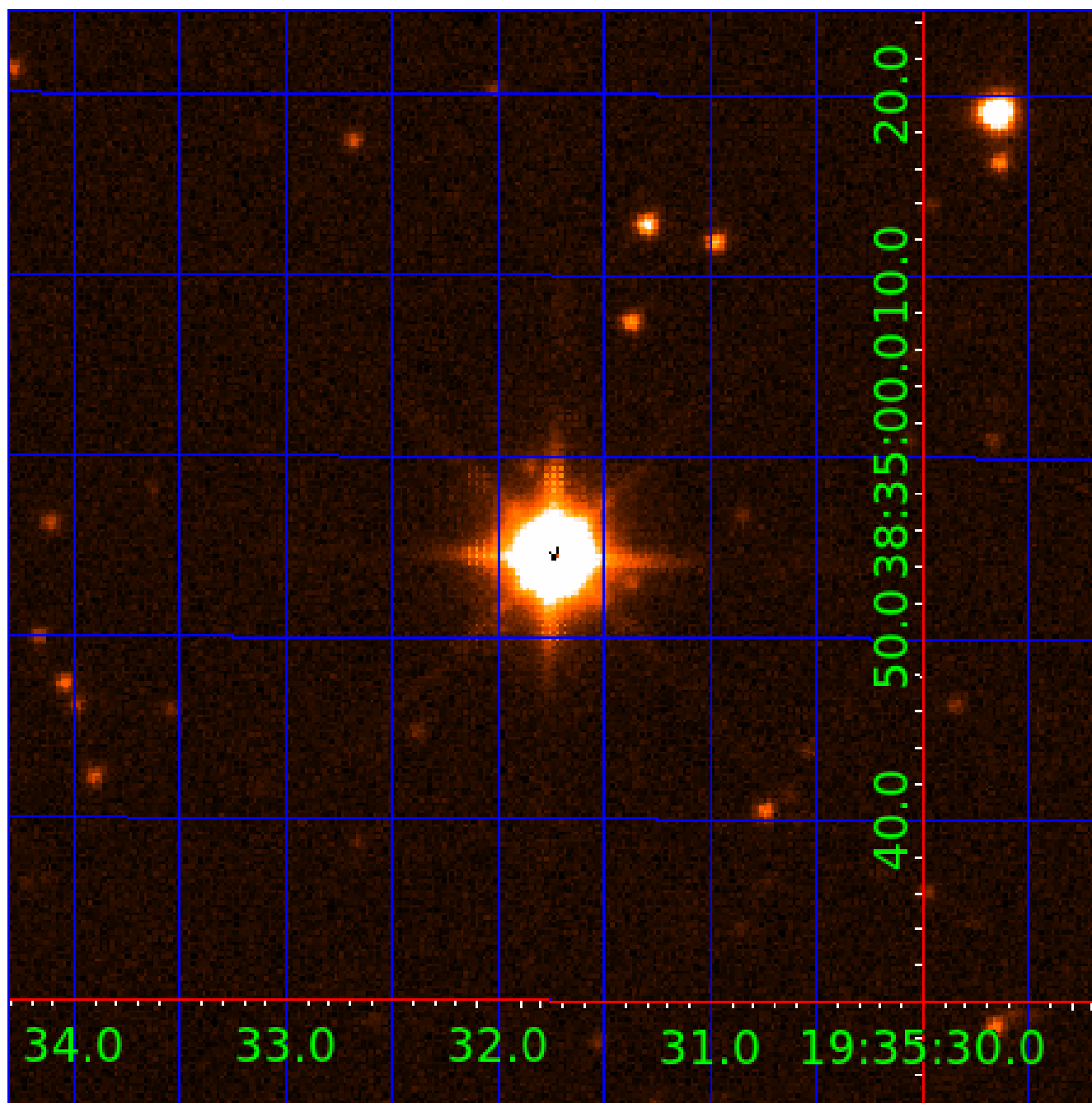


fluxWeightedCentroids, Planet 6 of 8



UKIRT Image

Declination



KIC 003453494

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})
003453494-01	OBS	No	1.030916	131.693533	53.8	2.764	9.1	4.3	3.57	7766	2.98	64787.16
003453494-02	OBS	No	0.515440	131.946190	78.6	3.078	11.2	8.9	3.57	7766	3.70	0.00
003453494-03	OBS	No	34.898911	139.118838	1250.1	1.943	9.7	10.2	3.57	7766	13.43	591.61
003453494-04	OBS	No	29.752587	148.910721	1644.3	1.428	9.7	8.7	3.57	7766	15.75	731.85
003453494-05	OBS	No	42.057117	134.983982	1041.9	2.729	8.8	9.3	3.57	7766	12.80	461.32
003453494-06	OBS	No	21.543803	141.569803	1096.3	1.514	9.3	8.4	3.57	7766	13.83	1125.53
003453494-07	OBS	No	22.541275	131.761021	1403.5	1.611	9.2	11.5	3.57	7766	14.64	1059.62
003453494-08	OBS	No	35.097670	148.391078	1243.1	4.046	8.9	10.7	3.57	7766	20.68	587.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

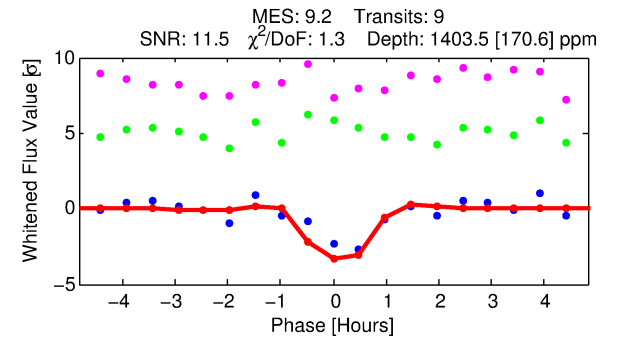
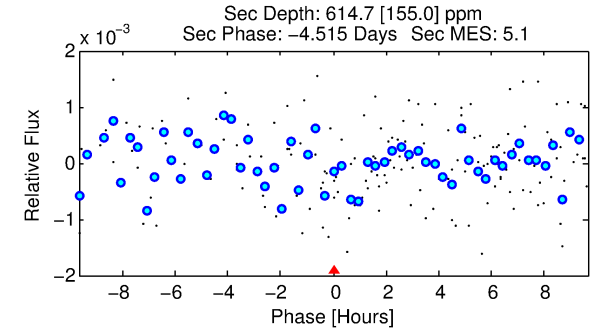
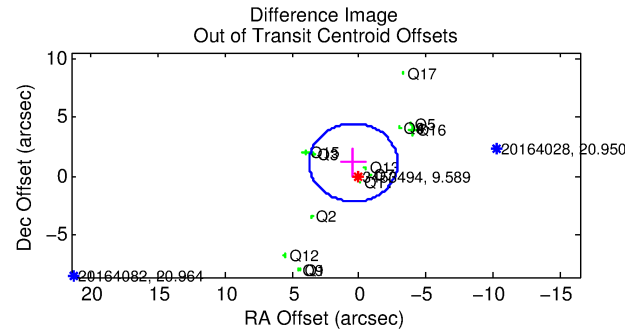
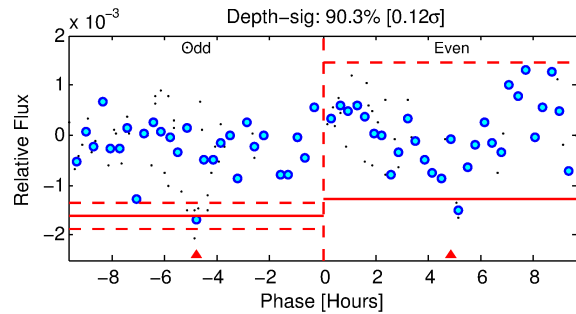
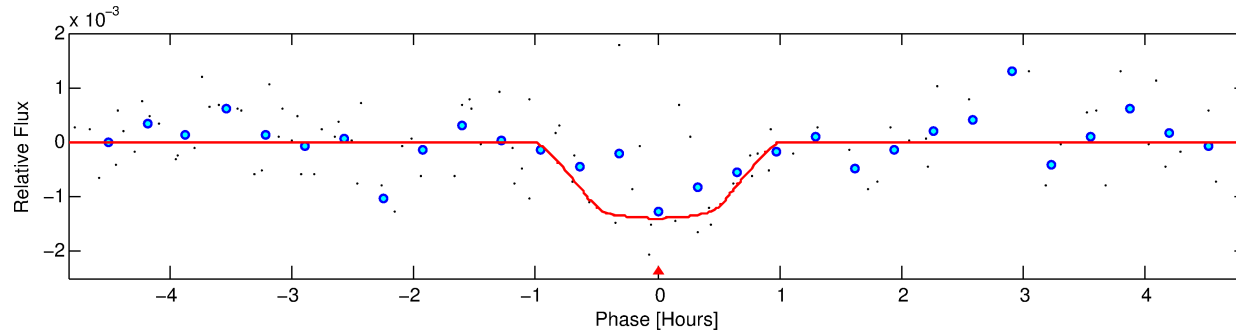
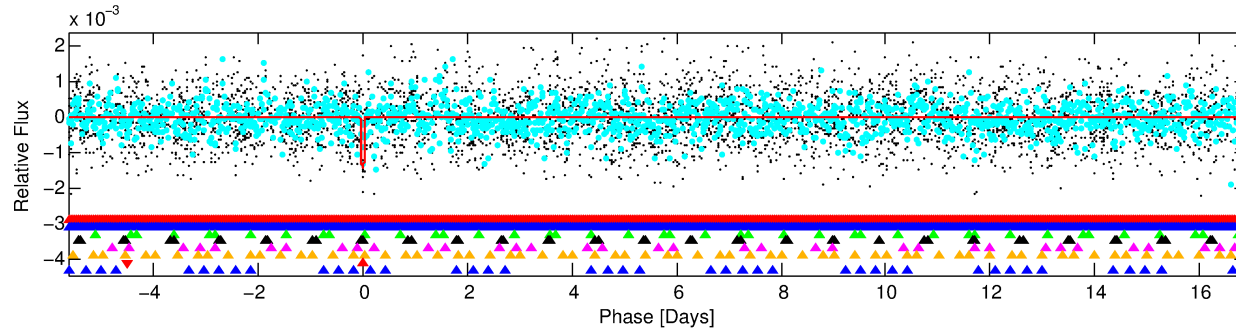
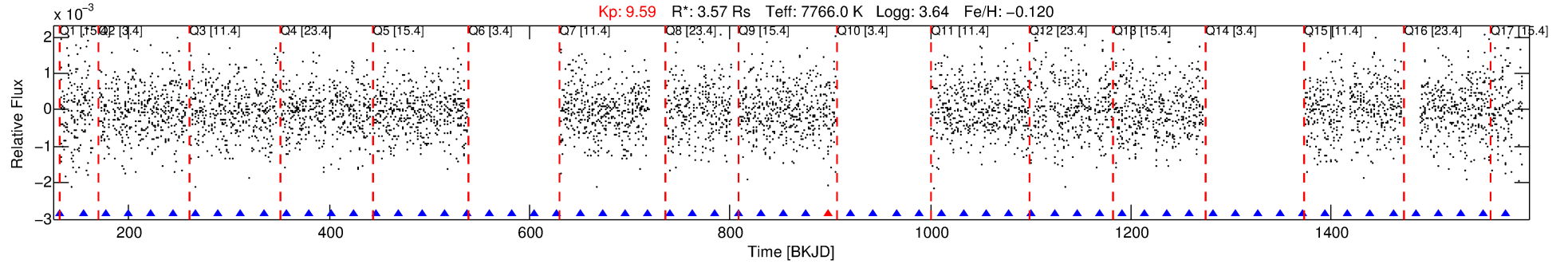
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-07

No Significant Match Found

DV One-Page Summary

KIC: 3453494 Candidate: 7 of 8 Period: 22.541 d



DV Fit Results:

Period = 22.54128 [0.00017] d
Epoch = 131.7610 [0.0067] BKJD
 $R_p/R^* = 0.0375$ [0.0693]
 $a/R^* = 75.10$ [777.98]
 $b = 0.76$ [5.75]
 $\text{Seff} = 1059.62$ [404.00]
 $T_{\text{eq}} = 1455$ [139] K
 $R_p = 14.64$ [27.30] R_e
 $a = 0.1982$ [0.0479] AU
 $A_g = 61.96$ [230.24] [0.26 σ]
 $T_{\text{eff}} = 6311$ [5836] K [0.83 σ]

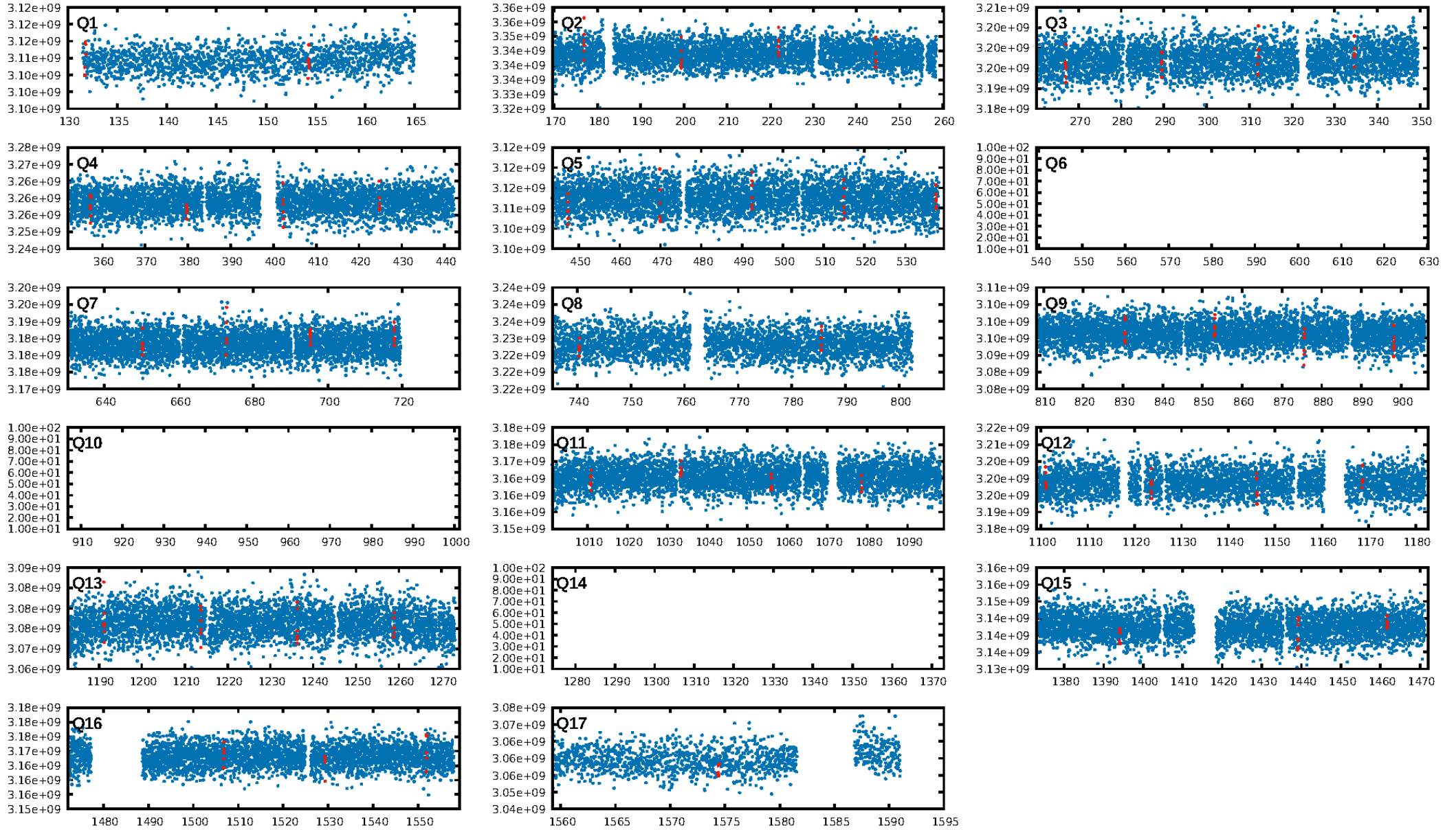
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.83 σ]
LongPeriod-sig: 100.0% [80.40 σ]
ModelChiSquare2-sig: 6.0%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.88 [7/8]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.501 arcsec [6.18 σ]
OotOffset-rm: 1.241 arcsec [1.13 σ]
KicOffset-rm: 1.071 arcsec [0.84 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.07 [1/14]
DiffImageOverlap-fno: 0.00 [0/14]

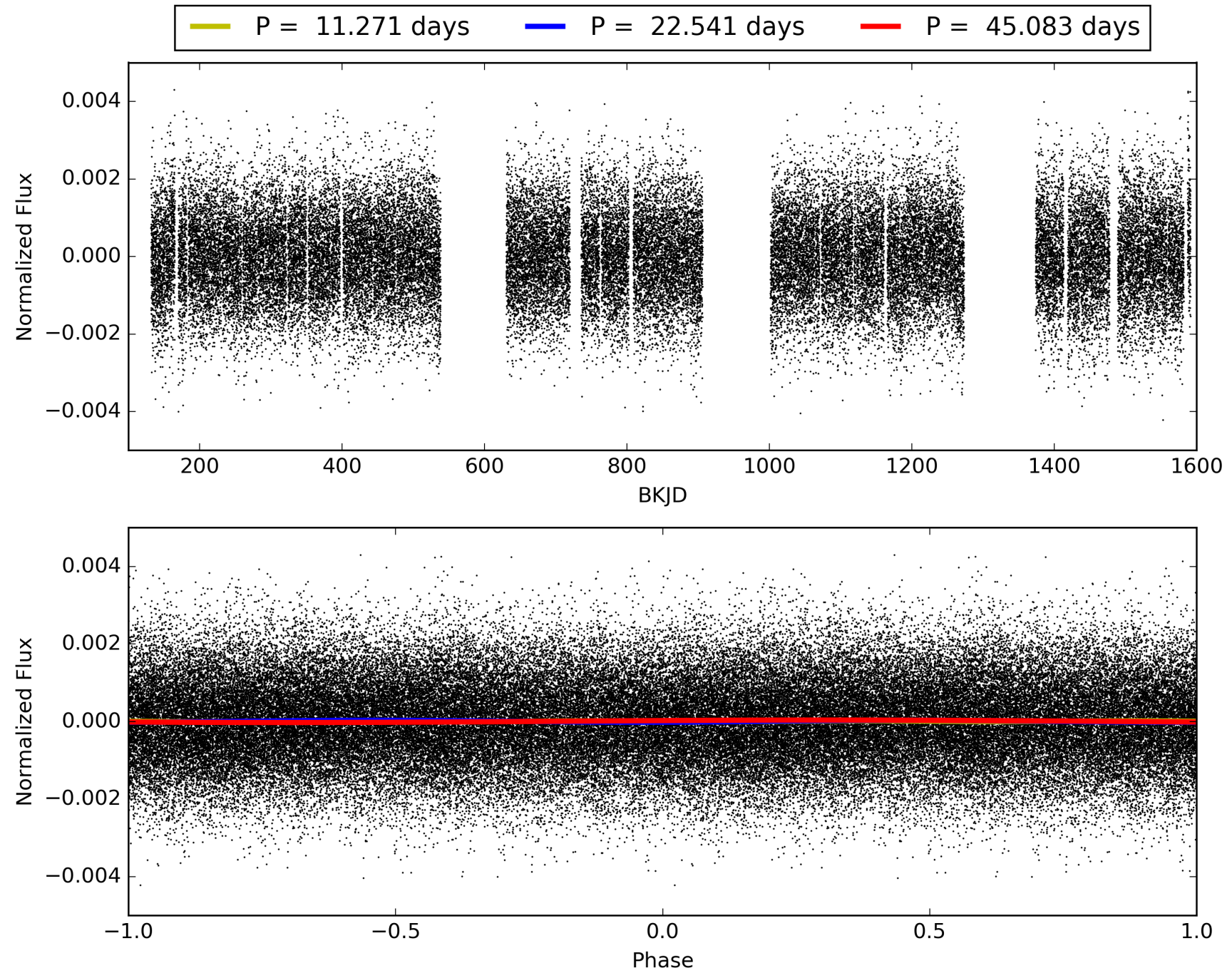
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:41 Z

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

TCE 003453494-07, PDC Light Curves

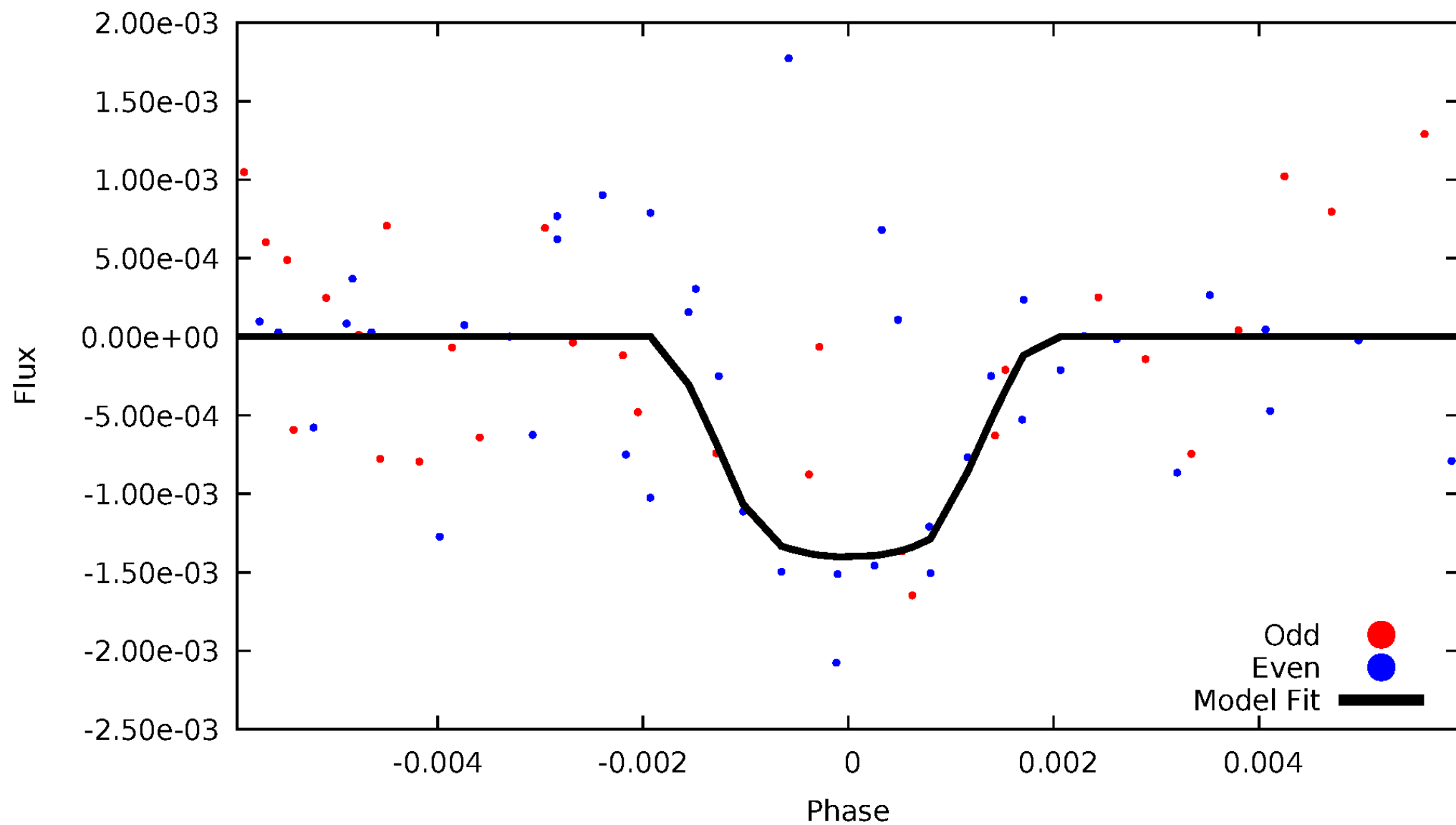


TCE 003453494-07



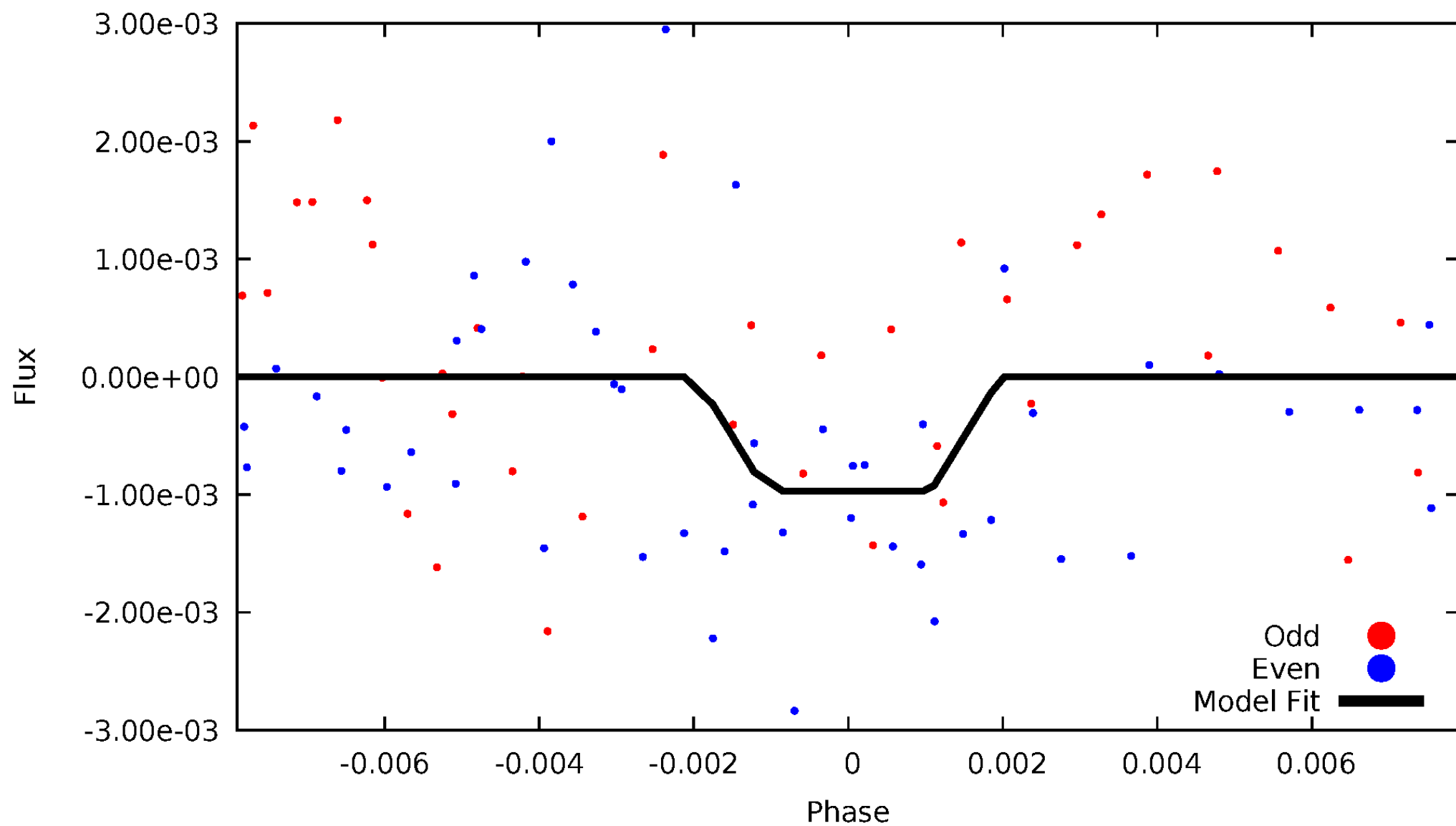
DV Odd/Even

TCE 003453494-07



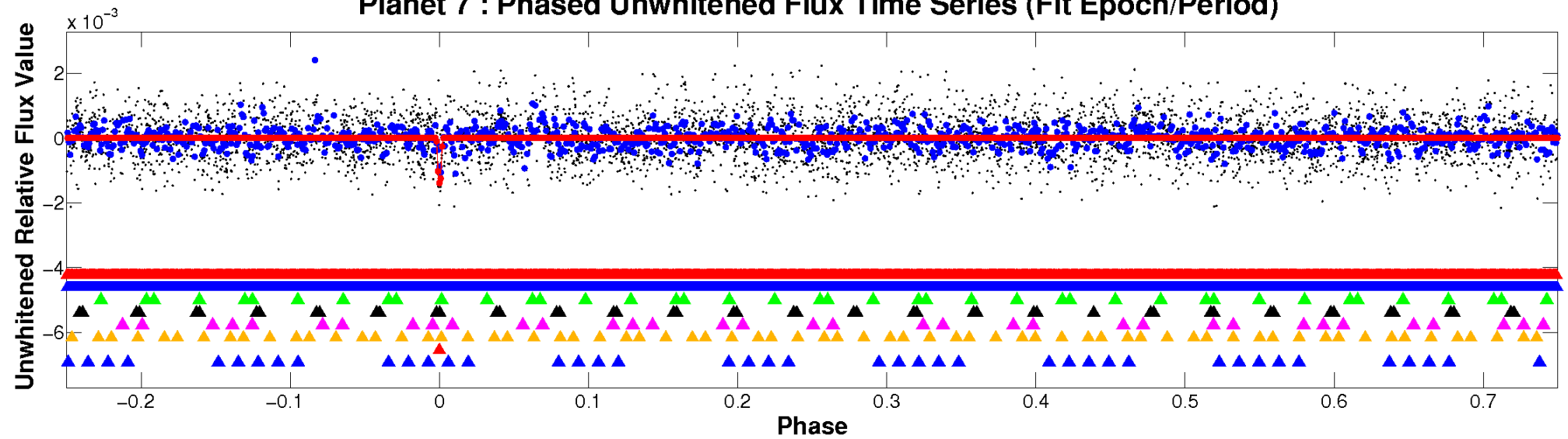
ALT Odd/Even

TCE 003453494-07

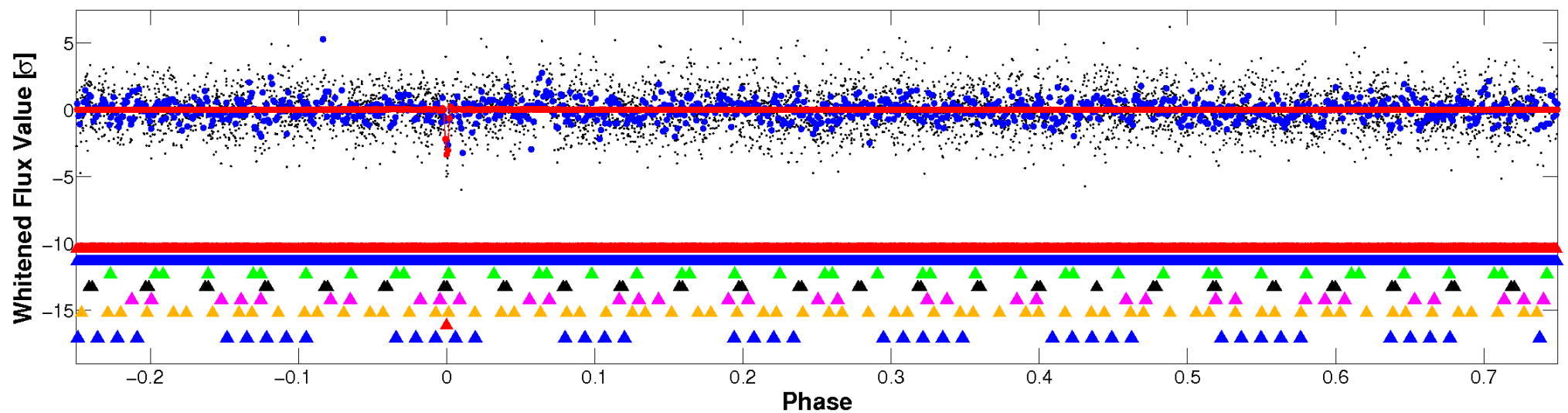


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

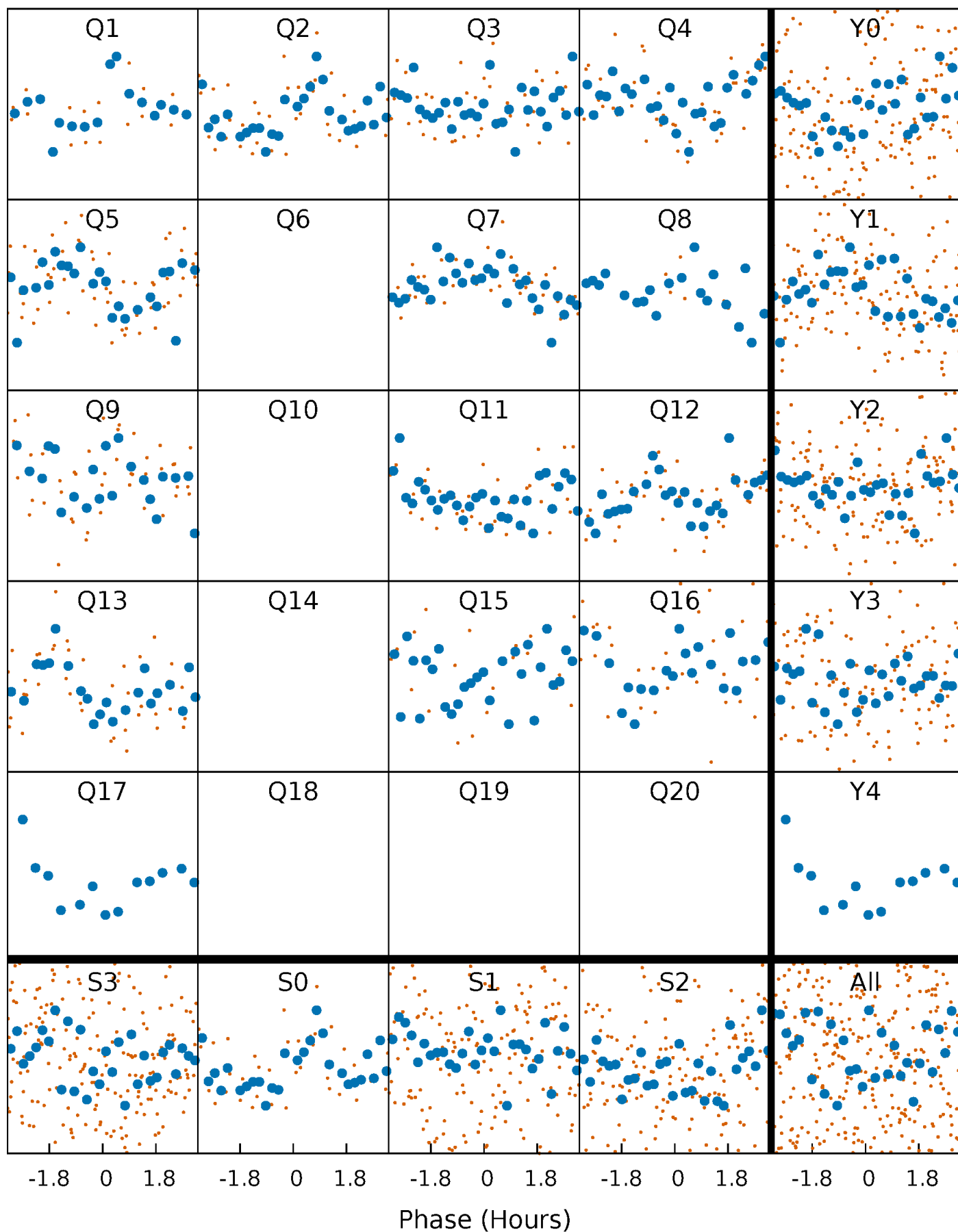


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



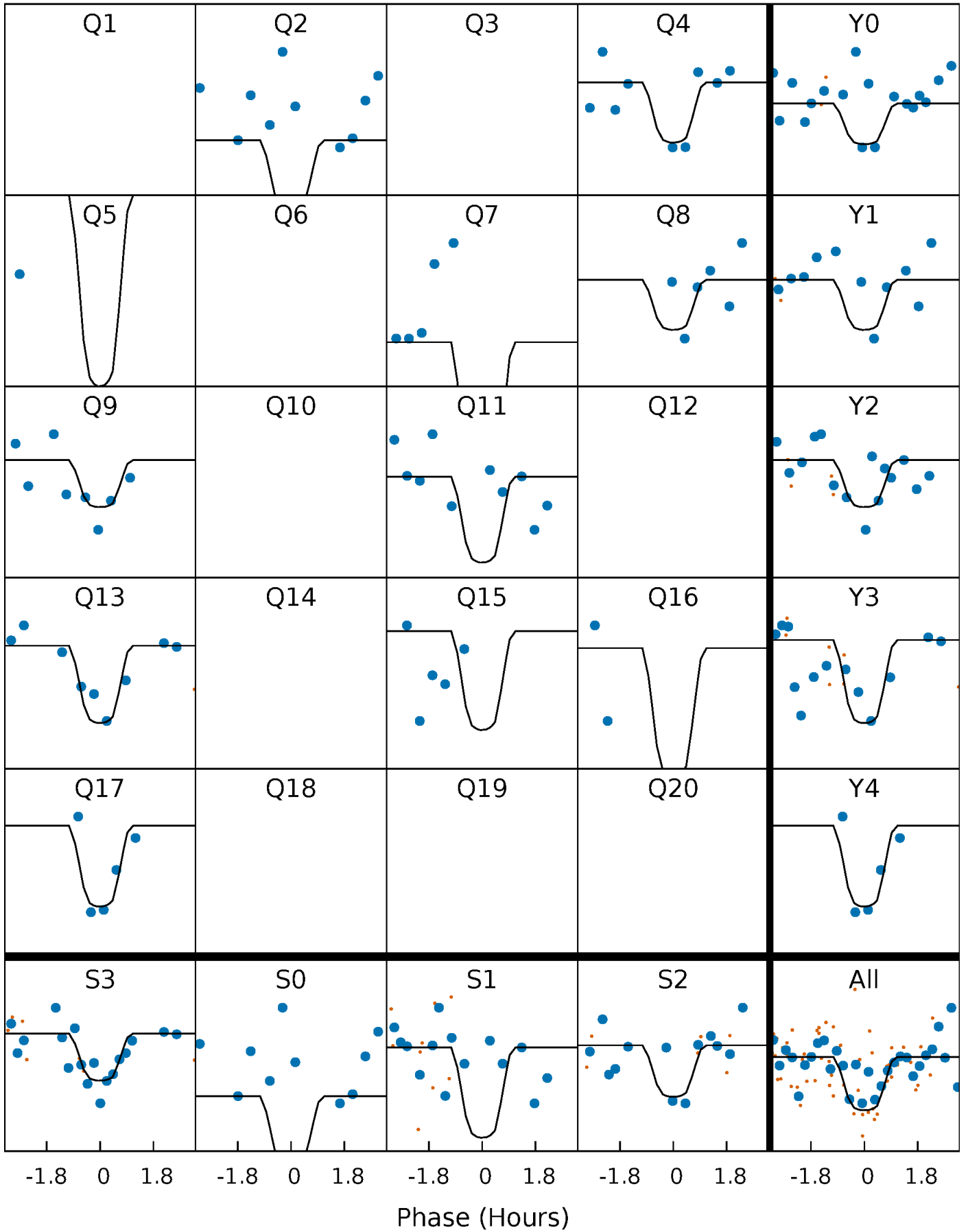
PDC Quarter-Phased Transit Curves

TCE 003453494-07 P= 22.541275 Days $T_0=131.761021$ (BKJD)



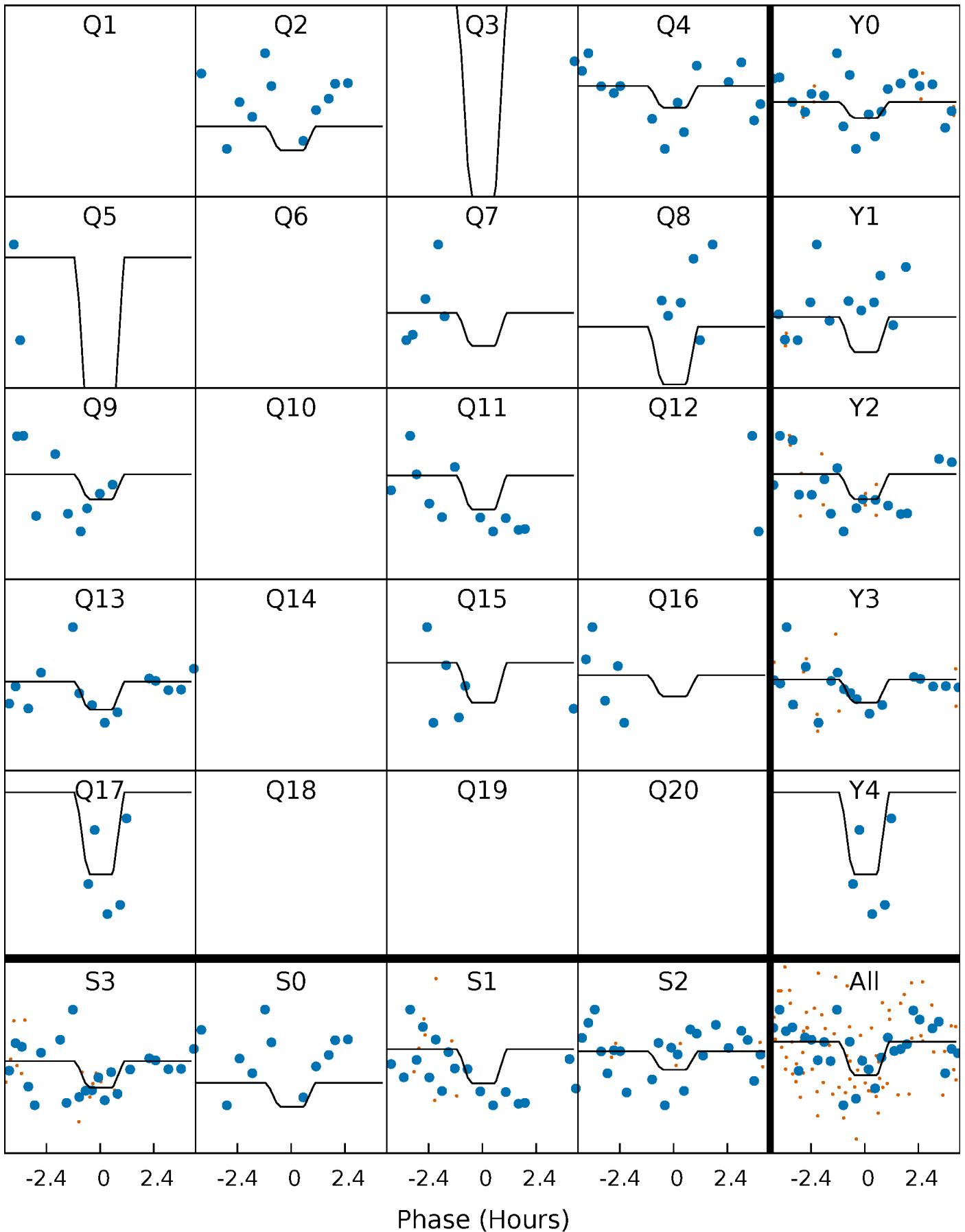
DV Quarter-Phased Transit Curves

TCE 003453494-07 P= 22.541275 Days $T_0=131.761021$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

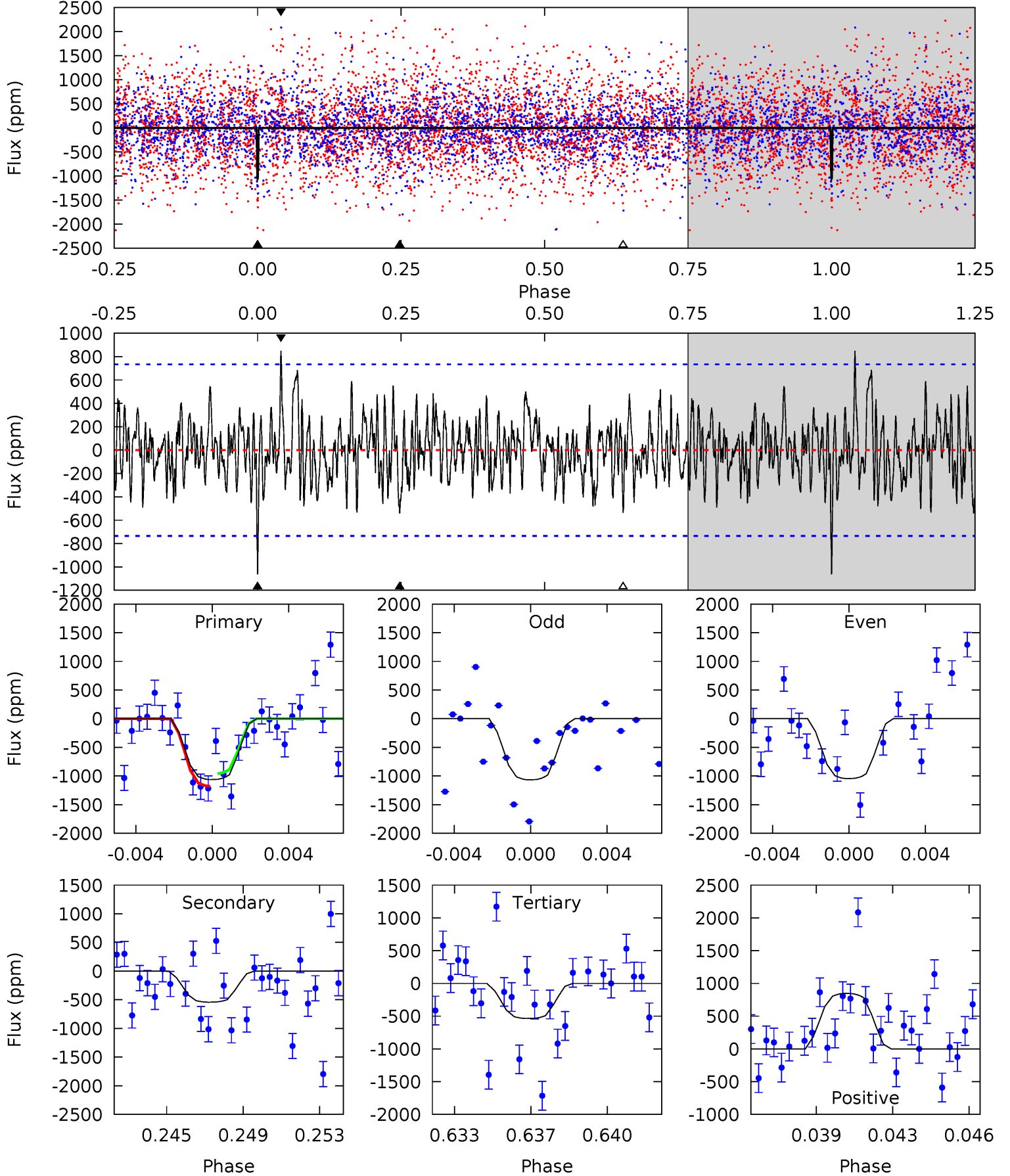
TCE 003453494-07 $P = 22.540485$ Days $T_0 = 131.804318$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-07, P = 22.541275 Days, E = 131.761021 Days

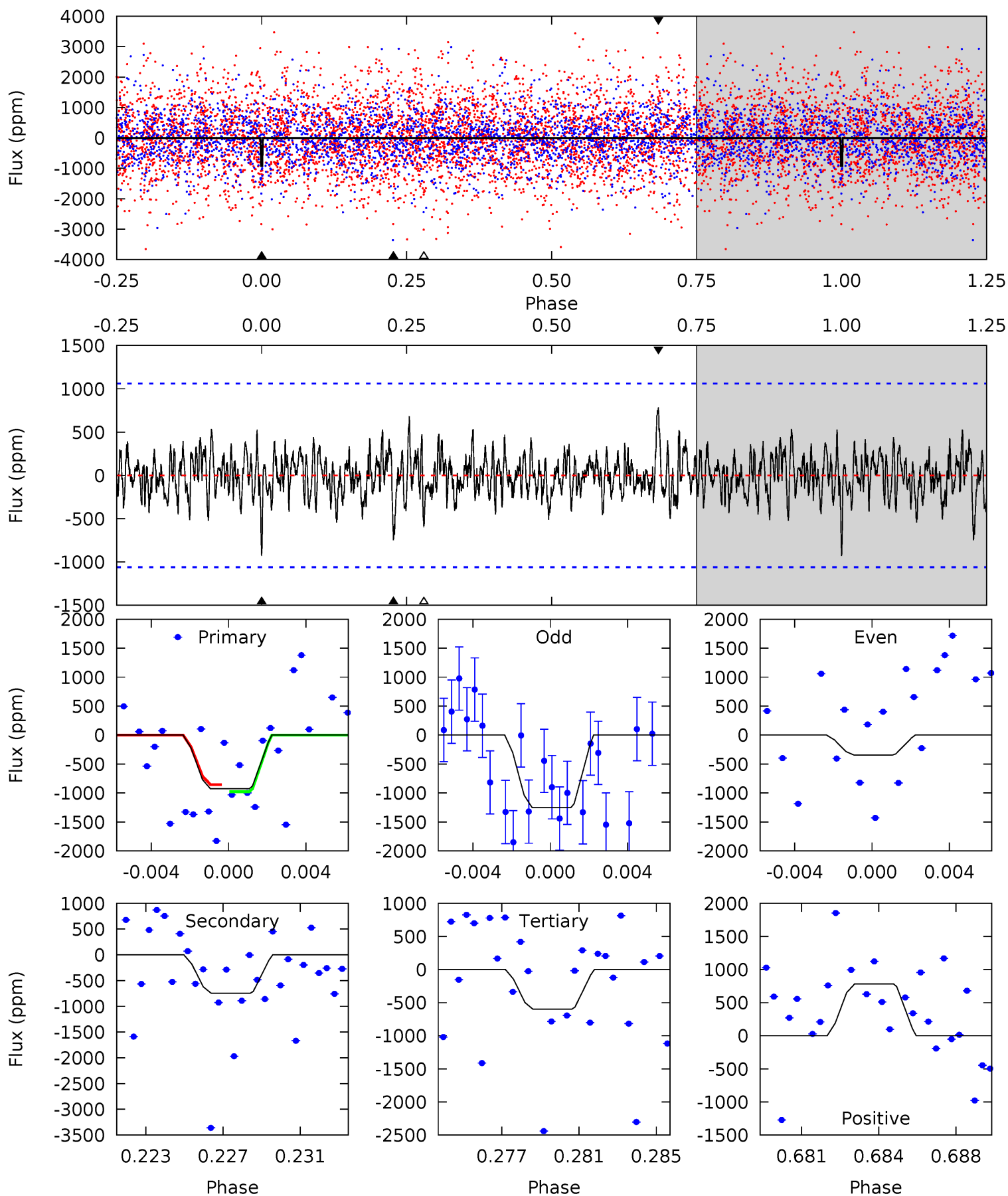
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.56	3.86	3.81	6.03	5.22	2.91	1.52	3.75	1.53	0.05	-2.17	0.07	0.64	0.44	0.77



Alt Model-Shift Uniqueness Test

003453494-07, P = 22.540485 Days, E = 131.804318 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.56	3.68	2.95	3.85	5.22	2.91	1.03	1.62	0.71	0.73	-0.17	2.17	0.90	0.46	0.30



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-543 ± 141	$24.29^{+22.37}_{-16.38}$	2006^{+85}_{-140}	4635^{+3530}_{-989}	19^{+165}_{-14}
Alt.	-748 ± 203	$22.76^{+24.64}_{-16.12}$	2011^{+79}_{-126}	5146^{+5058}_{-1257}	32^{+322}_{-25}

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

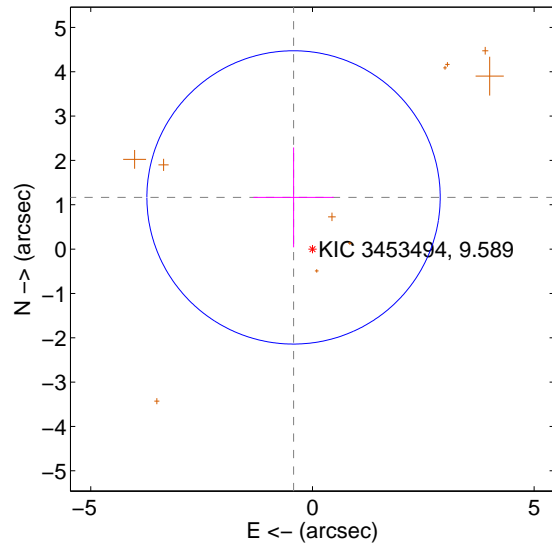
Supplemental centroid analysis for 003453494-07. **Kepler magnitude: 9.59.** Transit SNR 11.47

There are 1 quarters with good PRF difference image offsets

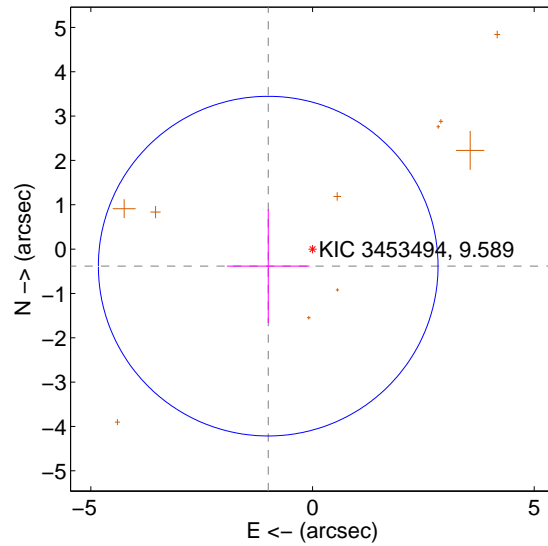
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.241 ± 1.103	1.13	0.426 ± 0.908	1.166 ± 1.126
PRF-fit source offset from KIC position	1.071 ± 1.277	0.84	1.000 ± 0.931	-0.384 ± 1.281
photometric centroid source offset	0.50 ± 0.08	6.18	0.42 ± 0.07	-0.28 ± 0.10

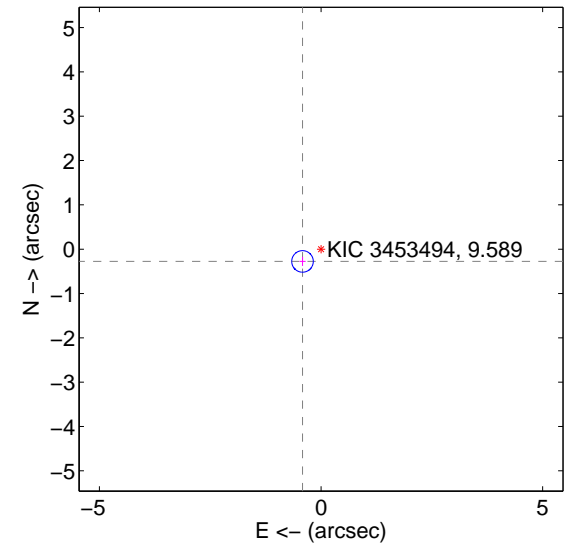
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

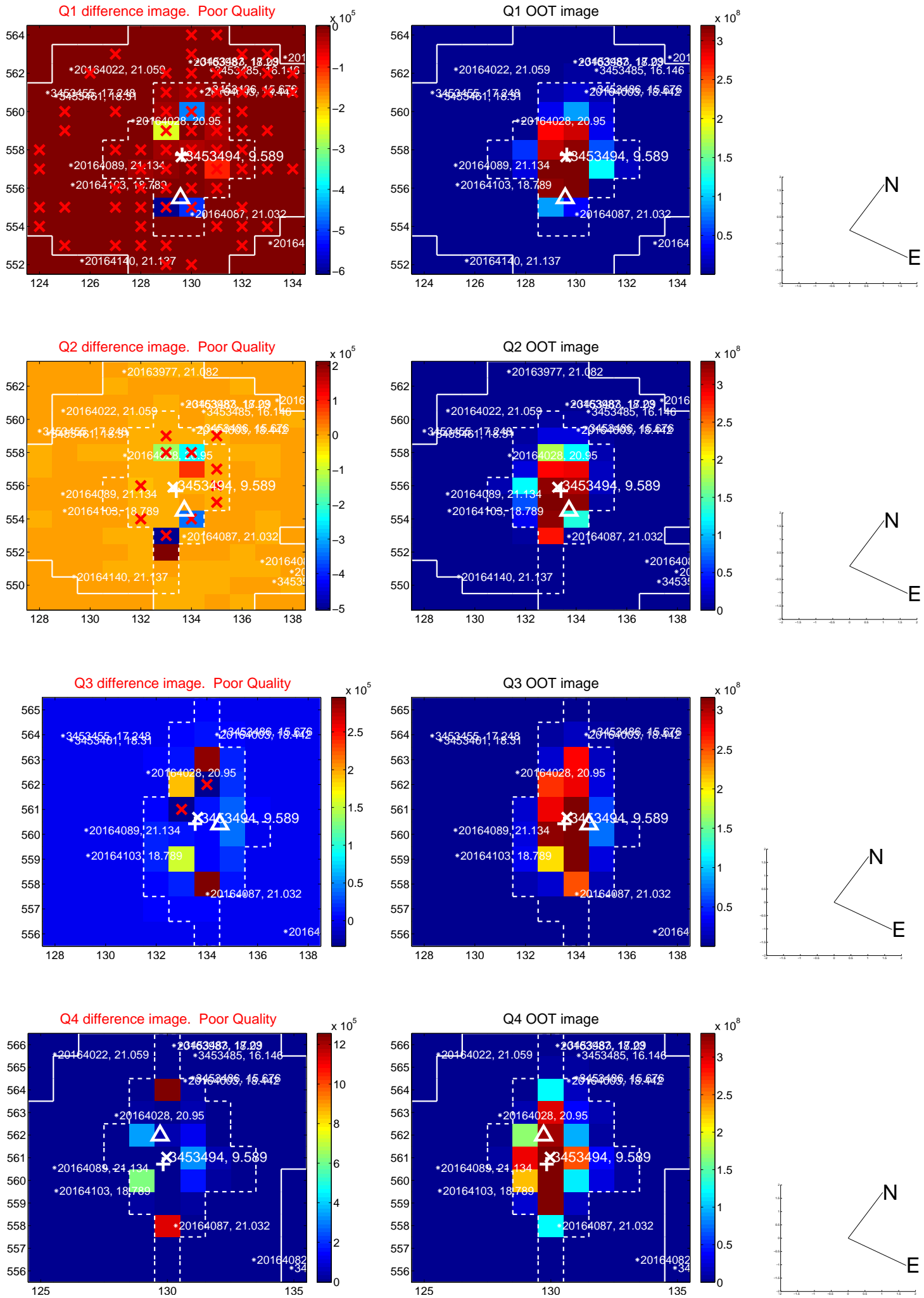


offset from photometric centroids

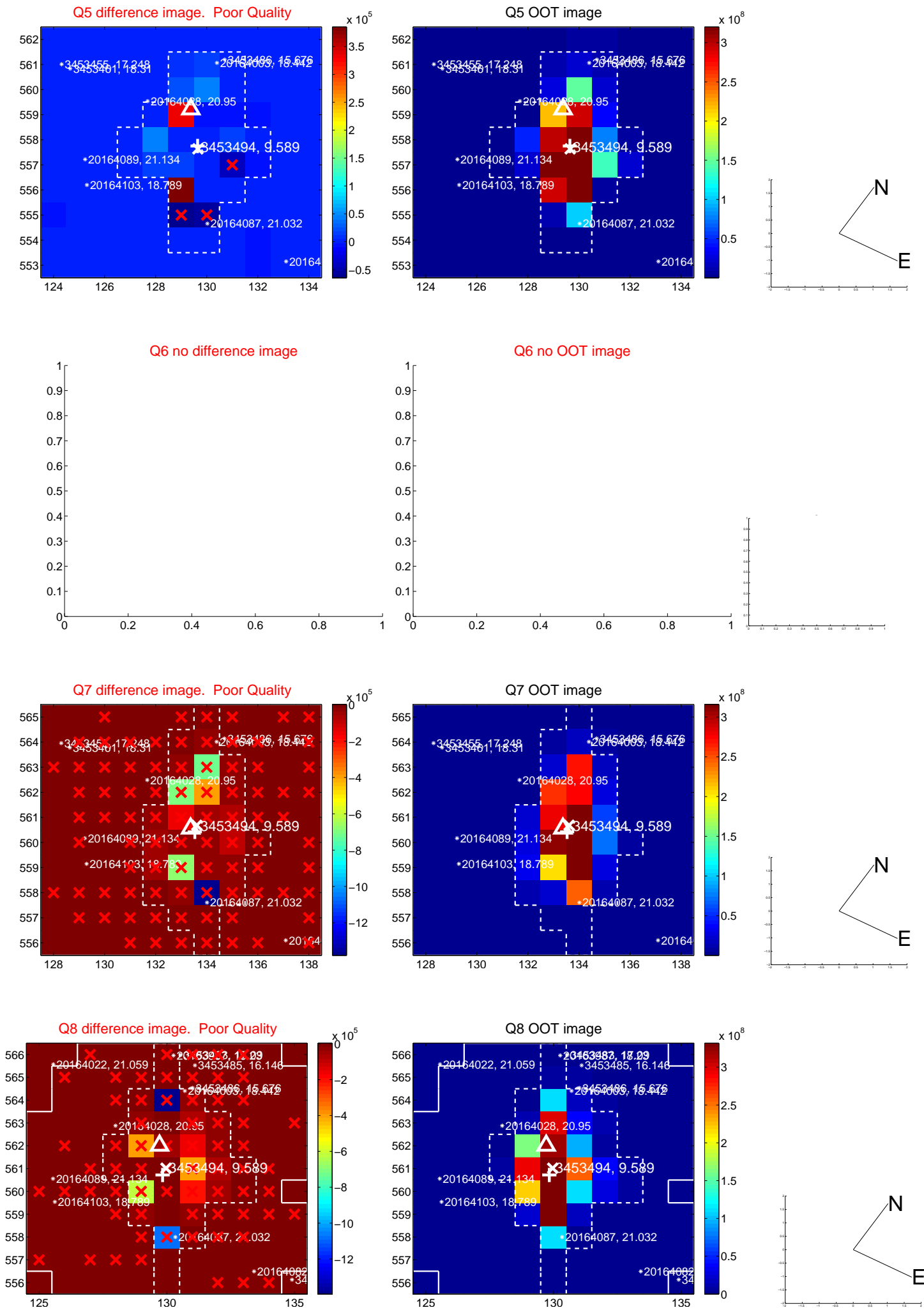


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

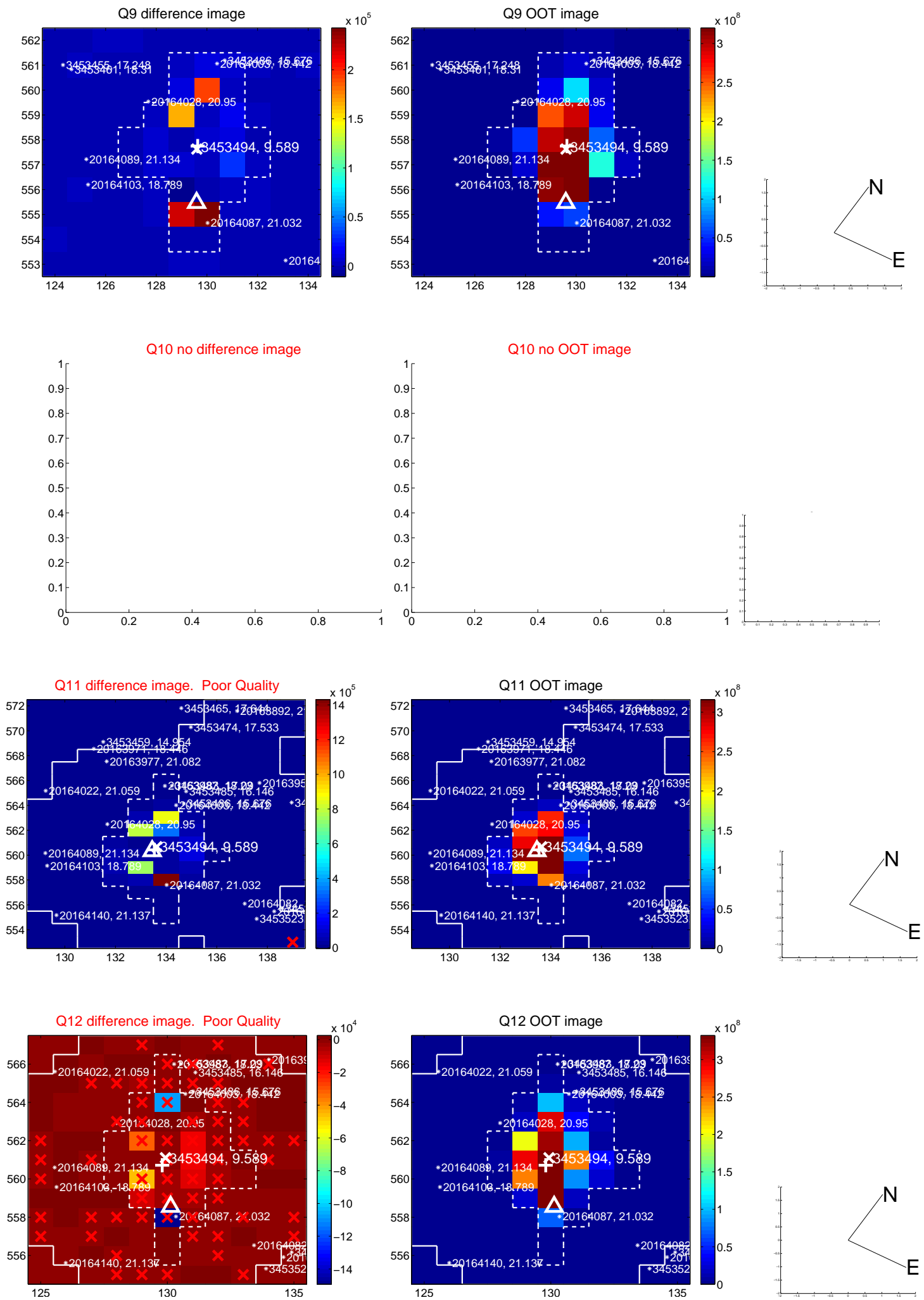
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



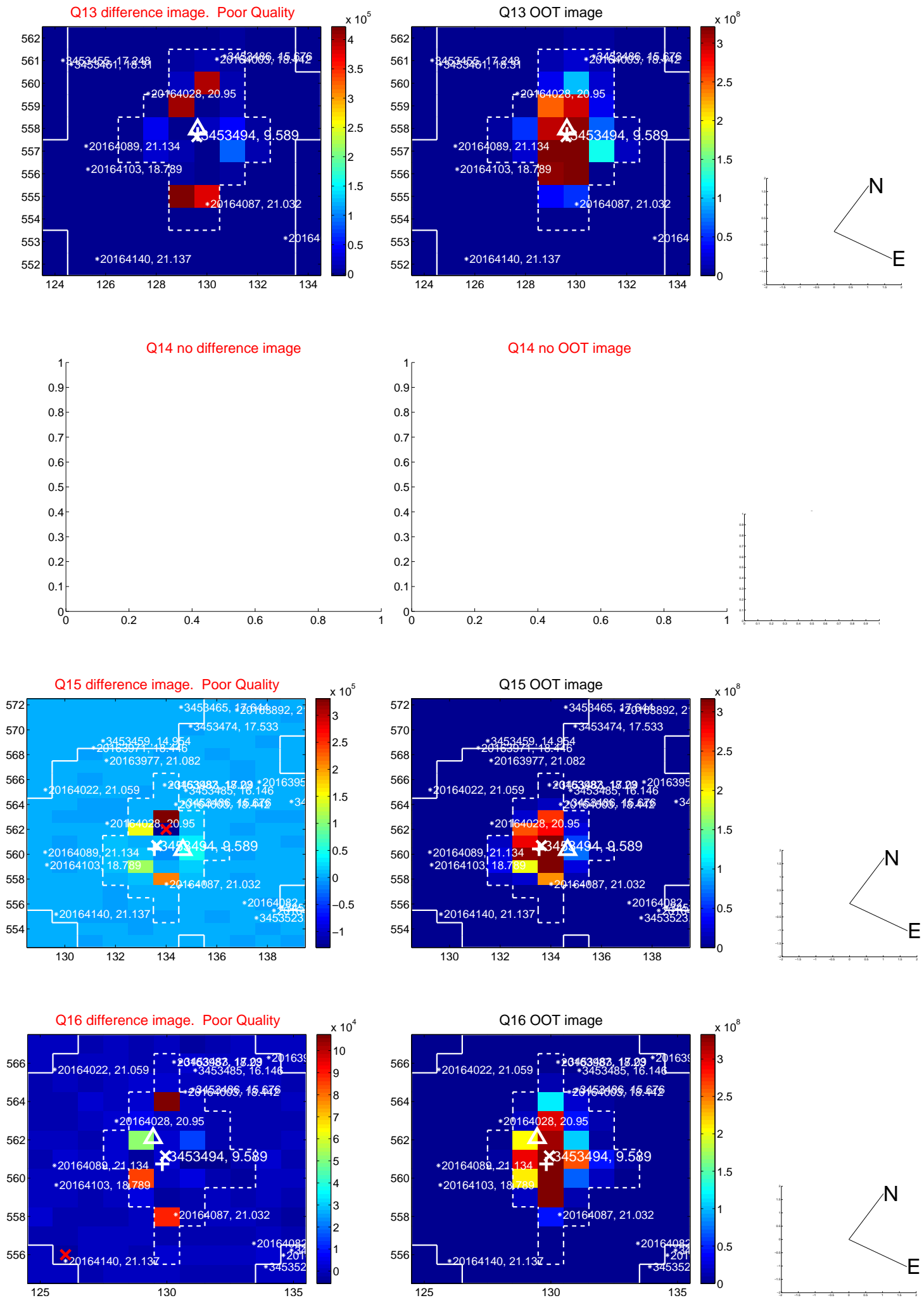
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



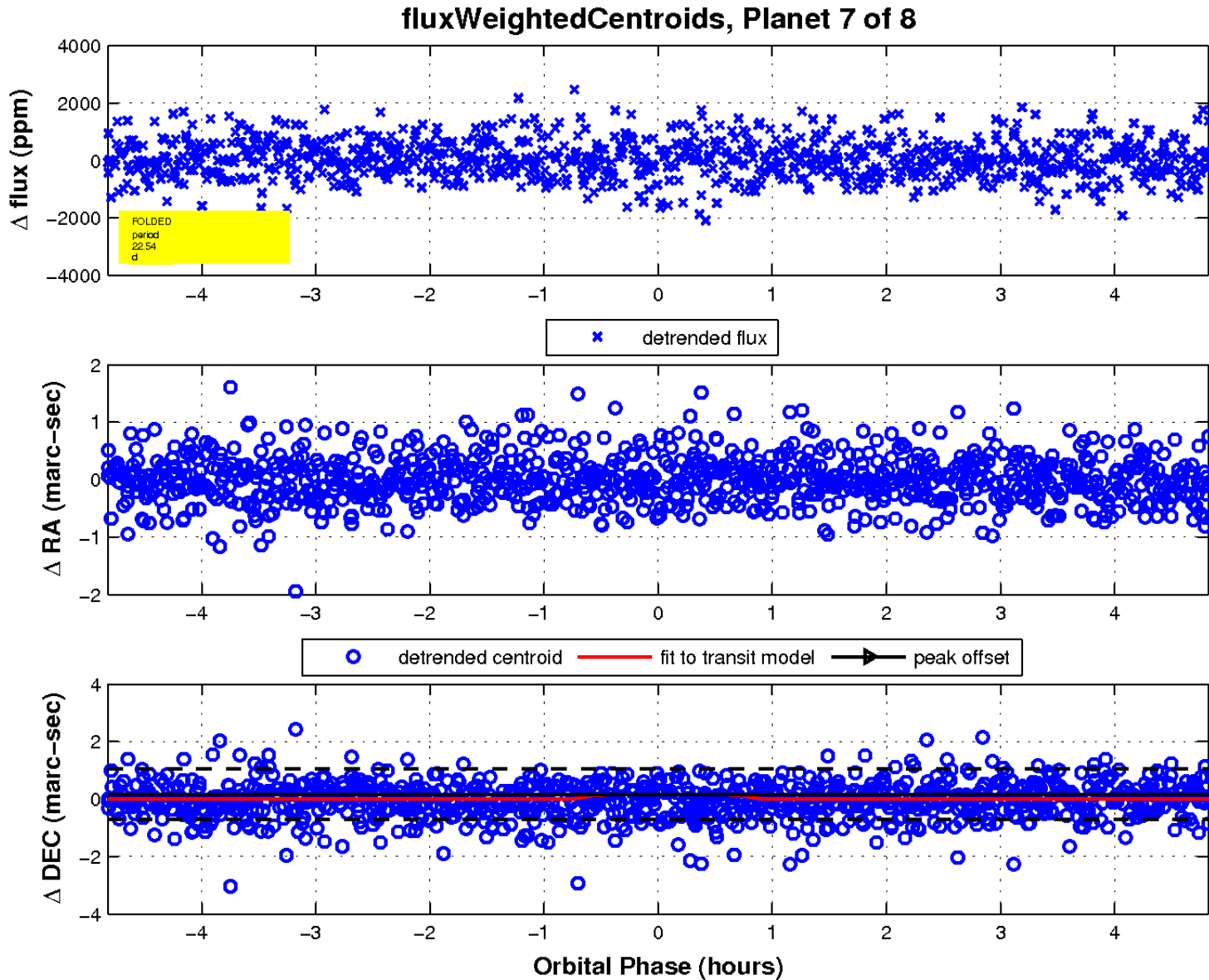
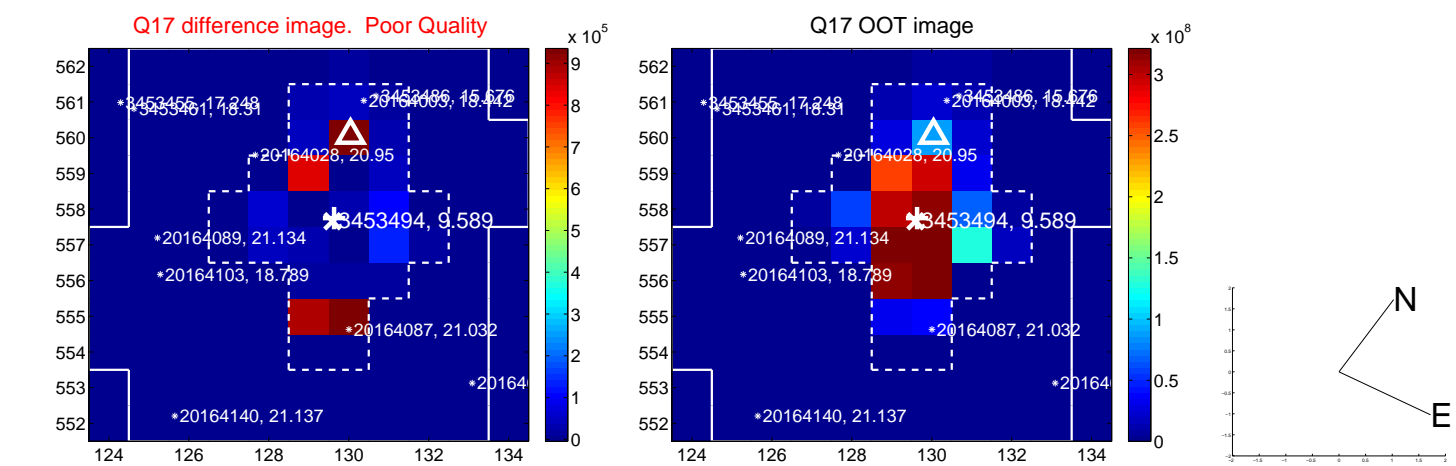
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

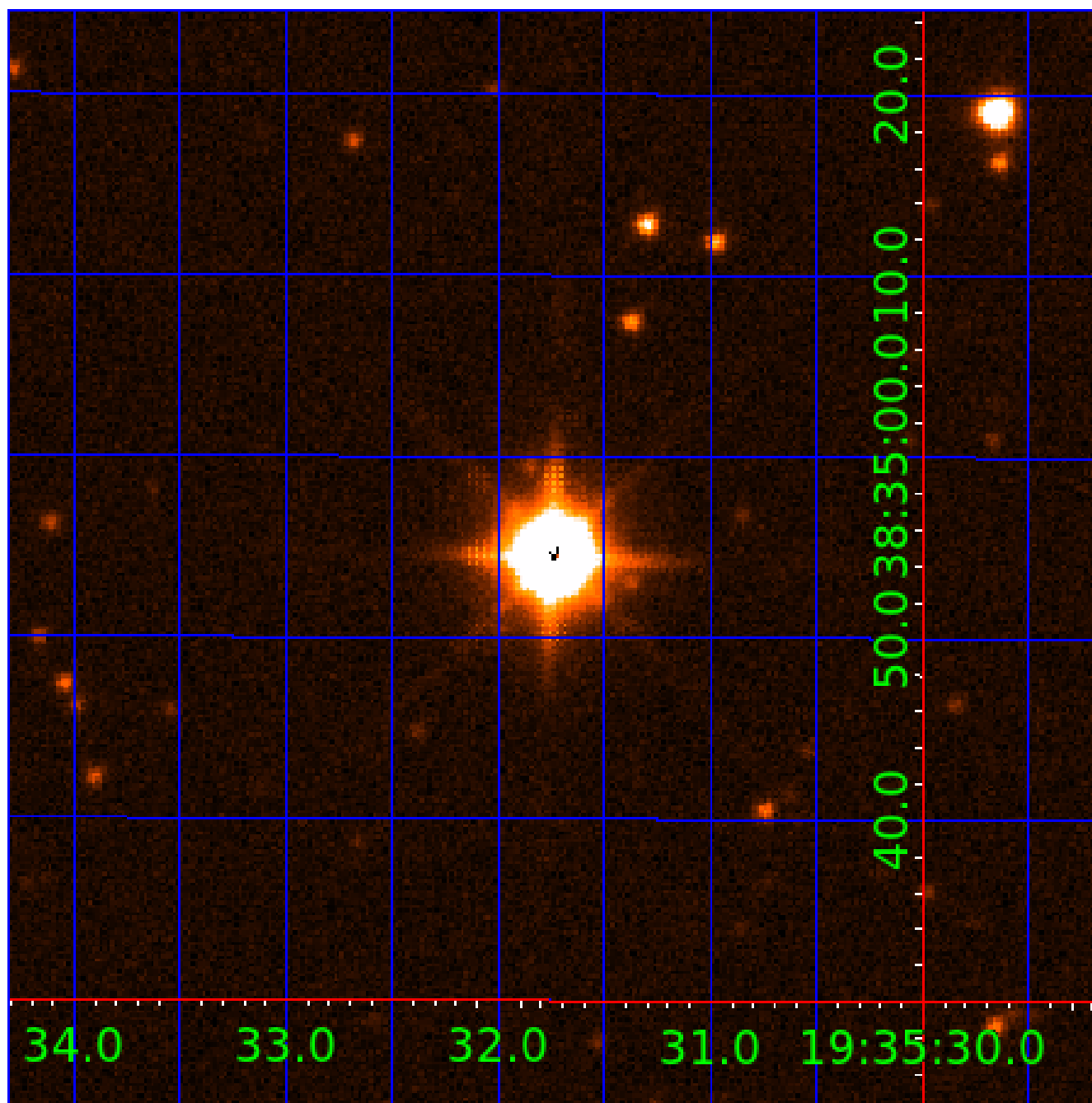


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003453494

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})
003453494-01	OBS	No	1.030916	131.693533	53.8	2.764	9.1	4.3	3.57	7766	2.98	64787.16
003453494-02	OBS	No	0.515440	131.946190	78.6	3.078	11.2	8.9	3.57	7766	3.70	0.00
003453494-03	OBS	No	34.898911	139.118838	1250.1	1.943	9.7	10.2	3.57	7766	13.43	591.61
003453494-04	OBS	No	29.752587	148.910721	1644.3	1.428	9.7	8.7	3.57	7766	15.75	731.85
003453494-05	OBS	No	42.057117	134.983982	1041.9	2.729	8.8	9.3	3.57	7766	12.80	461.32
003453494-06	OBS	No	21.543803	141.569803	1096.3	1.514	9.3	8.4	3.57	7766	13.83	1125.53
003453494-07	OBS	No	22.541275	131.761021	1403.5	1.611	9.2	11.5	3.57	7766	14.64	1059.62
003453494-08	OBS	No	35.097670	148.391078	1243.1	4.046	8.9	10.7	3.57	7766	20.68	587.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003453494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003453494-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003453494-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003453494-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

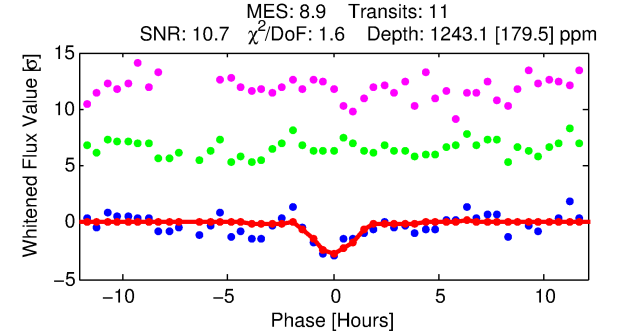
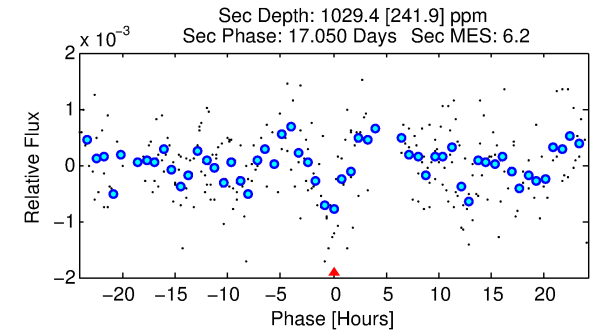
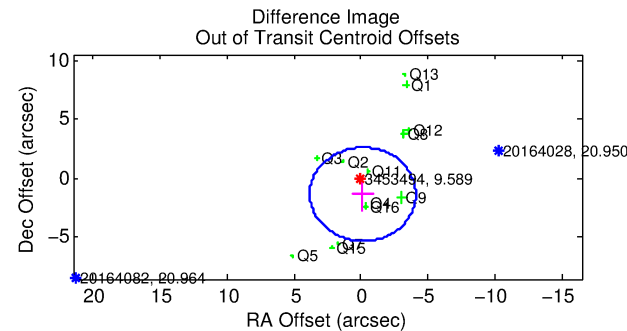
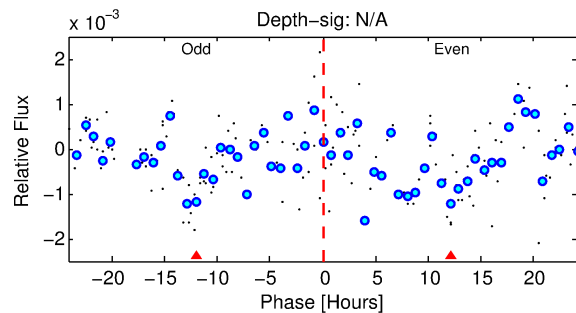
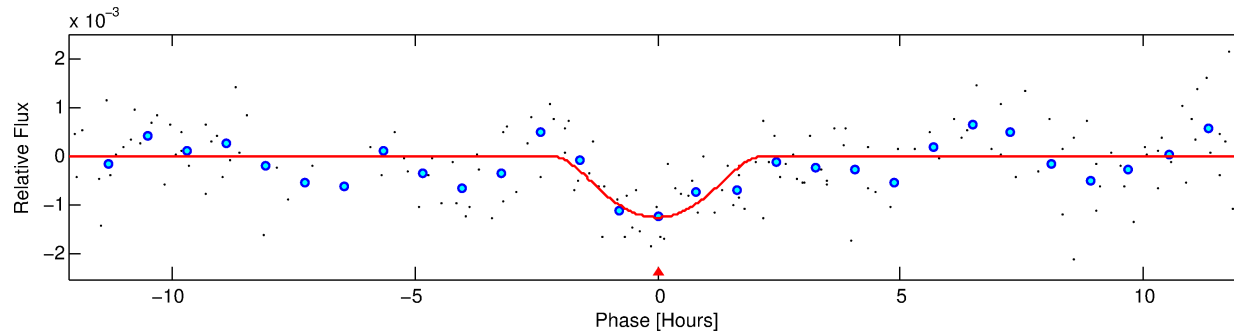
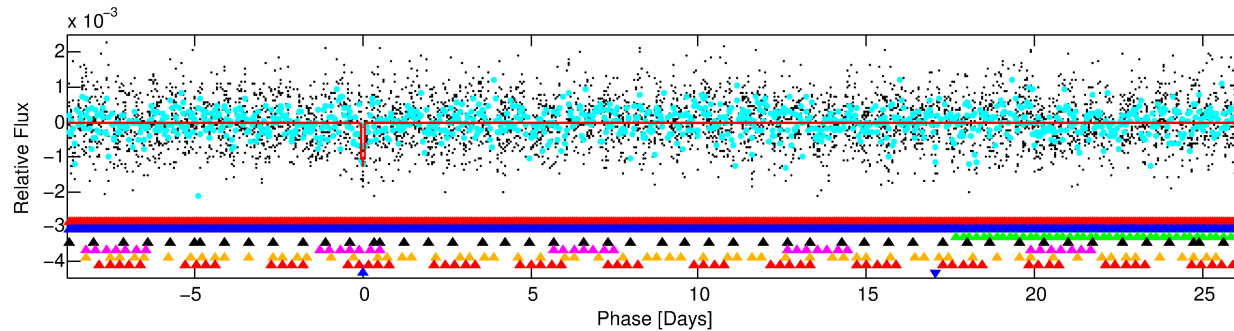
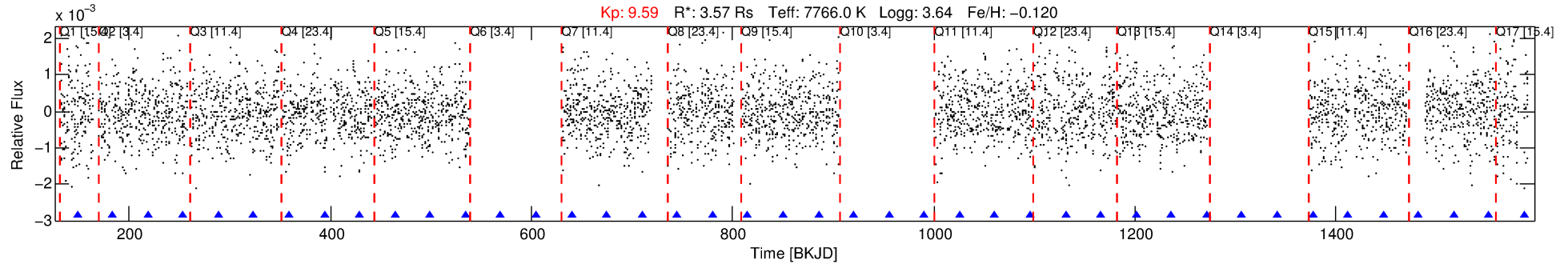
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003453494-08

No Significant Match Found

DV One-Page Summary

KIC: 3453494 Candidate: 8 of 8 Period: 35.098 d



DV Fit Results:

Period = 35.09767 [0.00061] d
Epoch = 148.3911 [0.0116] BKJD
 $R_p/R^* = 0.0530$ [0.1694]
 $a/R^* = 24.01$ [23.27]
 $b = 0.99$ [0.28]
 $\text{Seff} = 587.15$ [223.86]
 $\text{Teq} = 1255$ [120] K
 $R_p = 20.67$ [66.31] Re
 $a = 0.2663$ [0.0644] AU
 $\text{Ag} = 93.94$ [601.81] [0.15σ]
 $\text{Teffp} = 6042$ [9662] K [0.50σ]

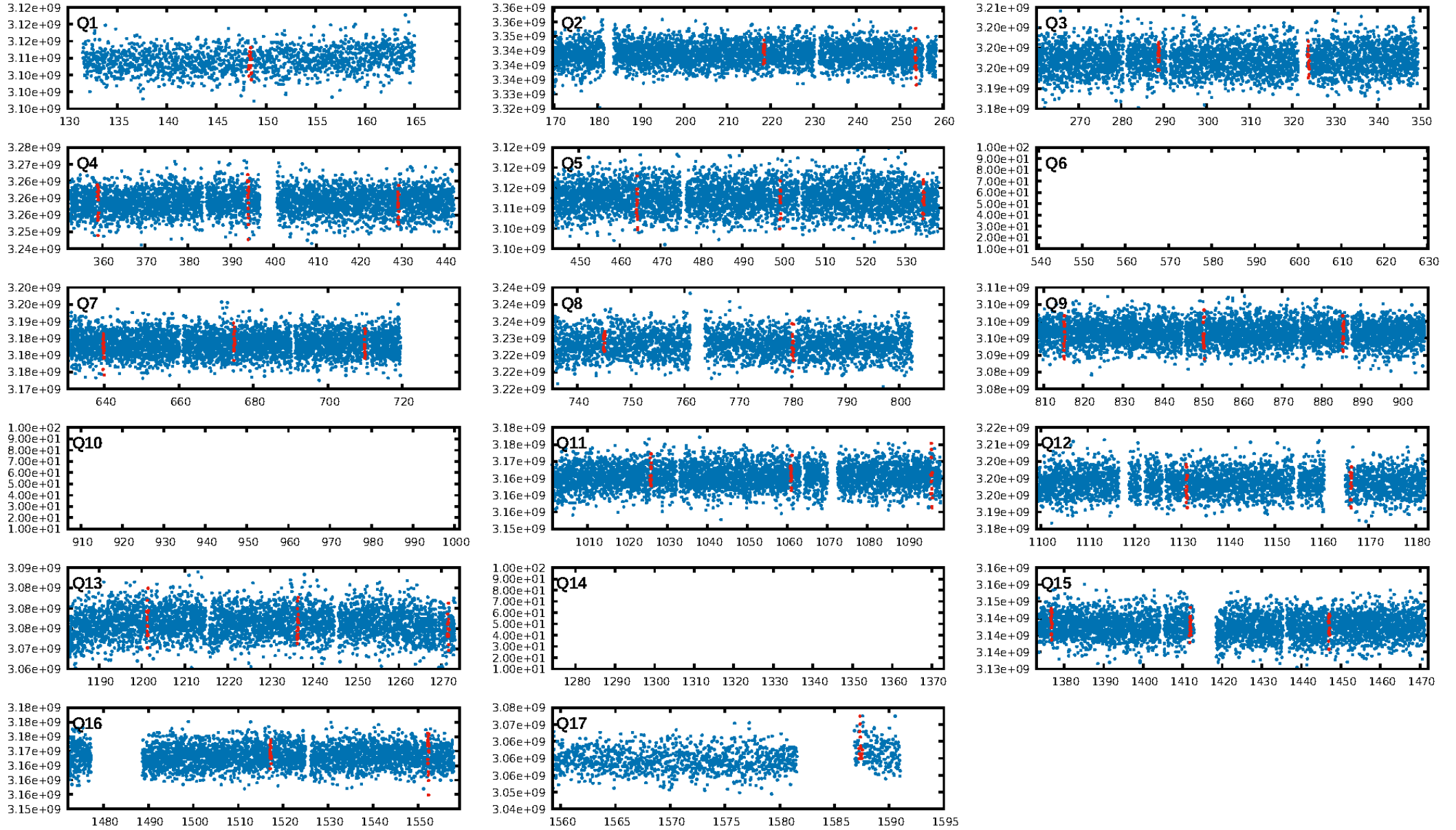
DV Diagnostic Results:

ShortPeriod-sig: 71.2% [1.06σ]
LongPeriod-sig: 100.0% [34.22σ]
ModelChiSquare2-sig: 25.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.263 arcsec [2.43σ]
OotOffset-rm: 1.343 arcsec [1.02σ]
KicOffset-rm: 2.804 arcsec [2.03σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.00 [0/13]
DiffImageOverlap-fno: 0.00 [0/13]

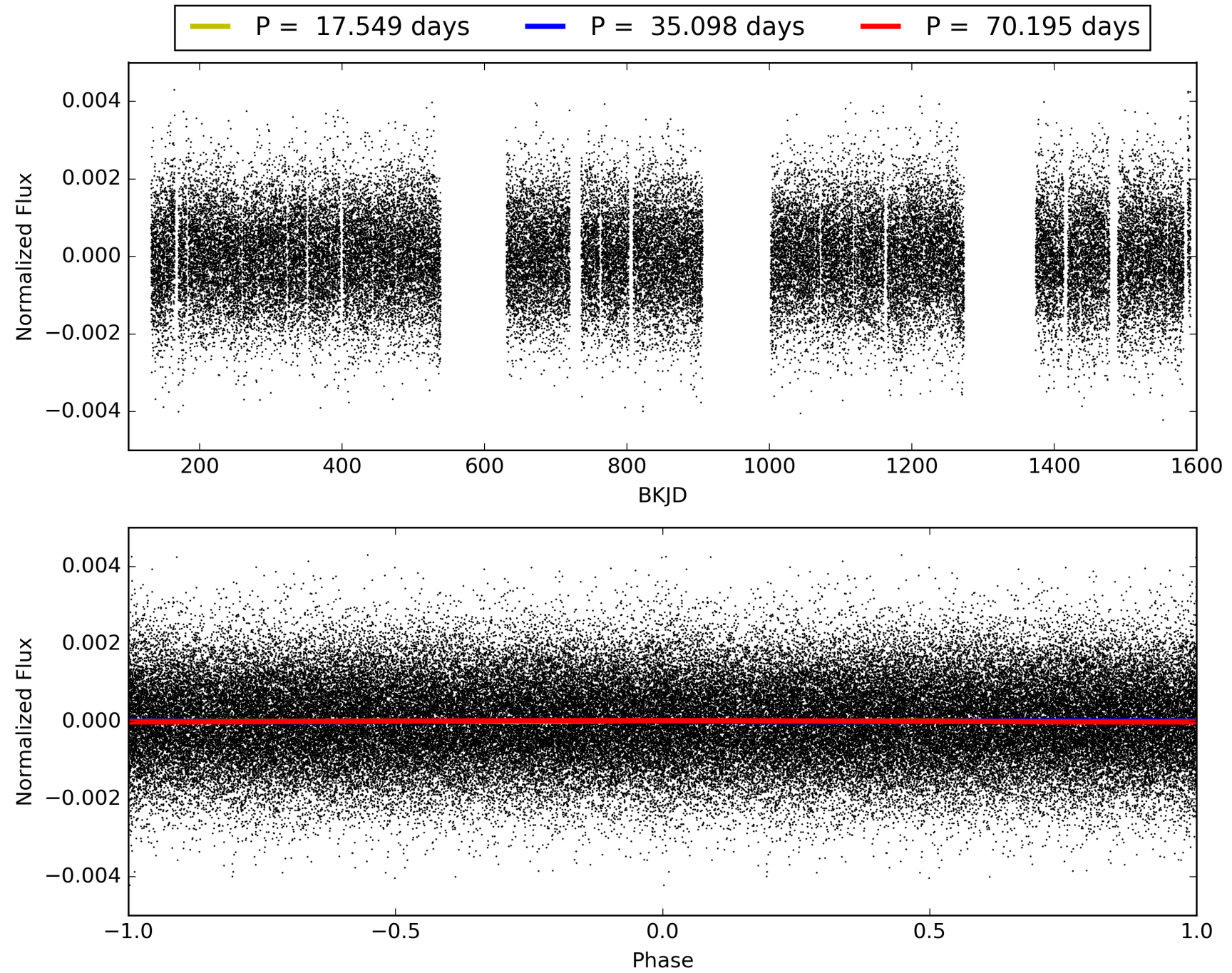
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:44 Z

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

TCE 003453494-08, PDC Light Curves

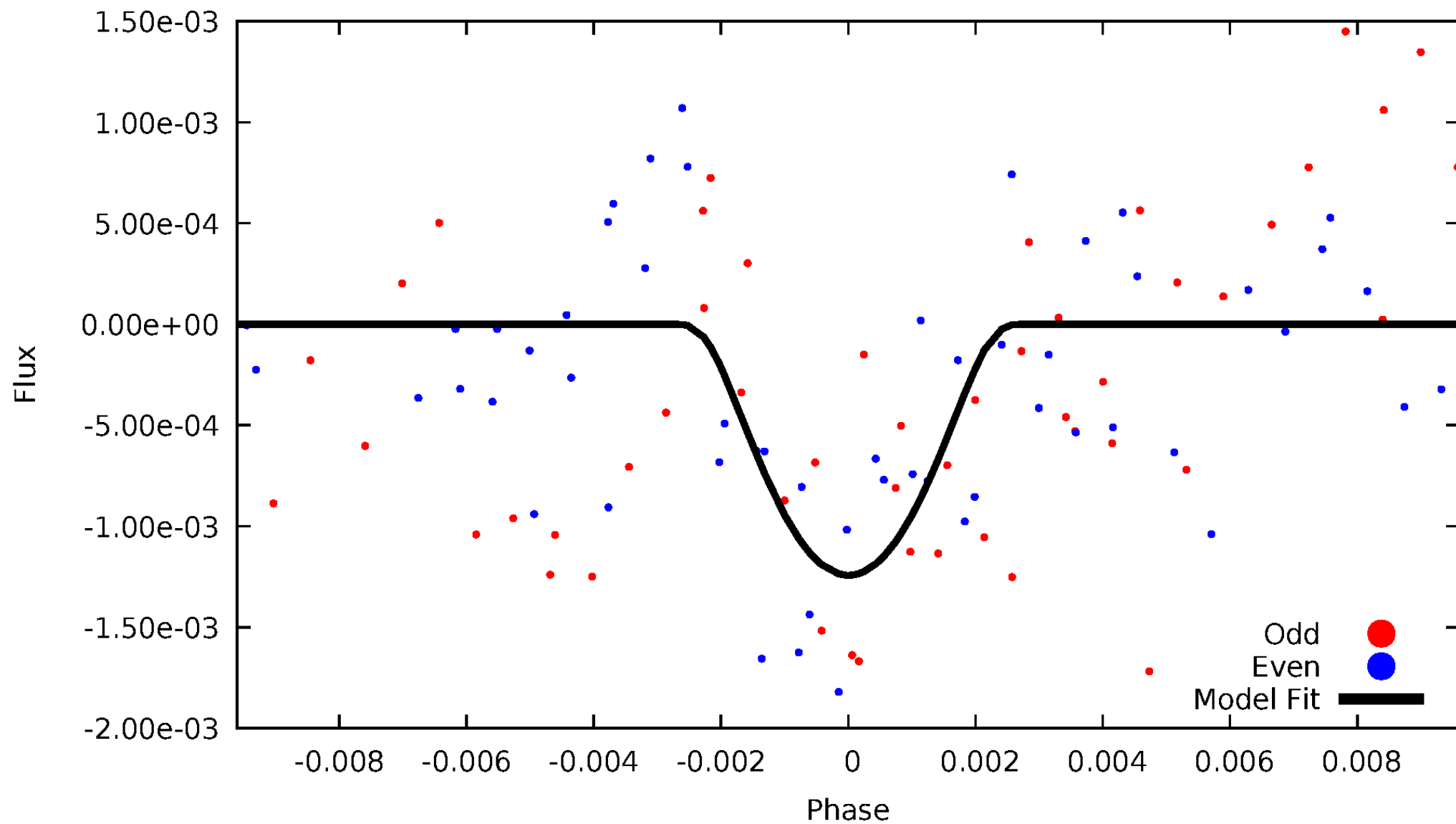


TCE 003453494-08



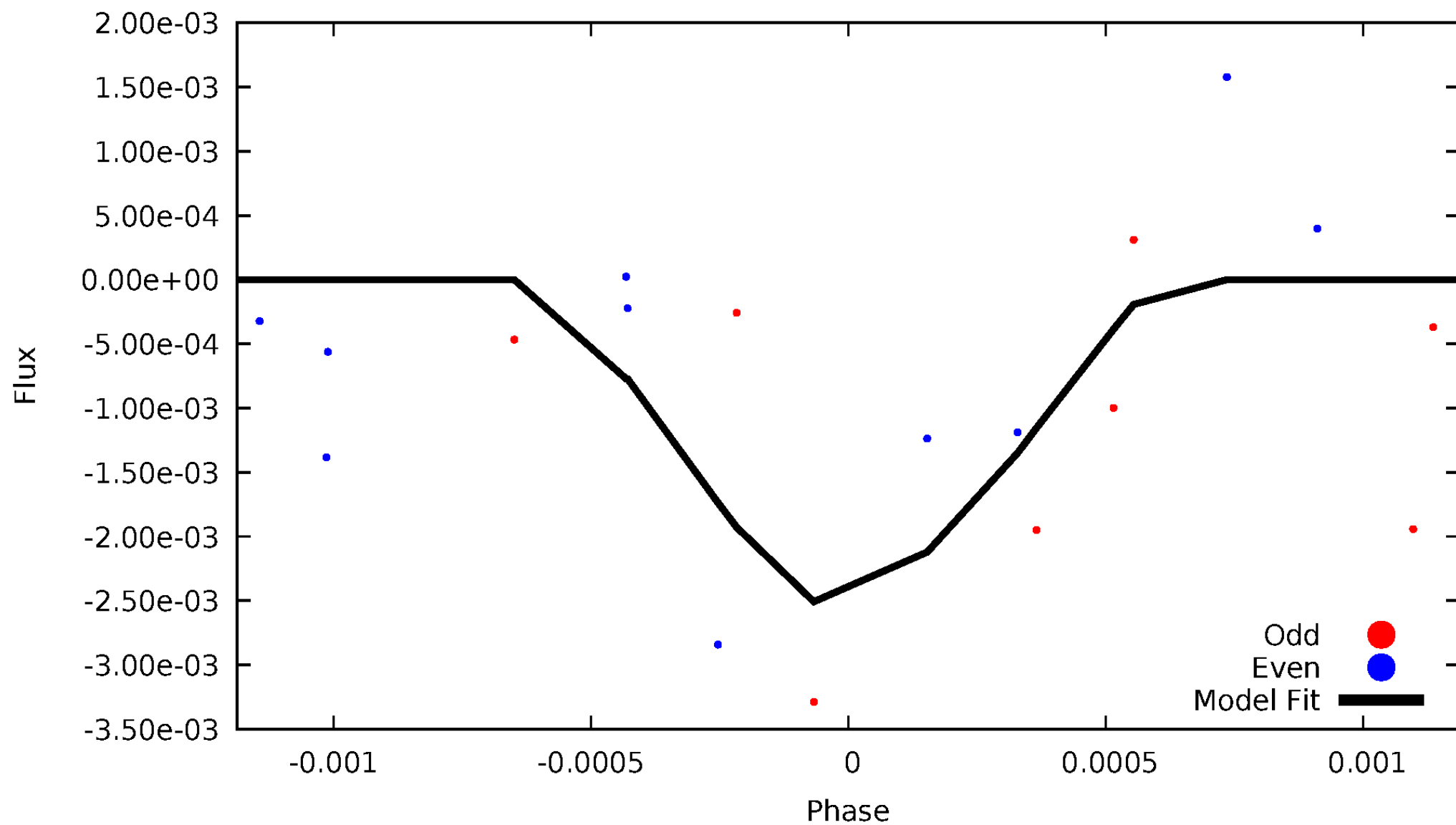
DV Odd/Even

TCE 003453494-08



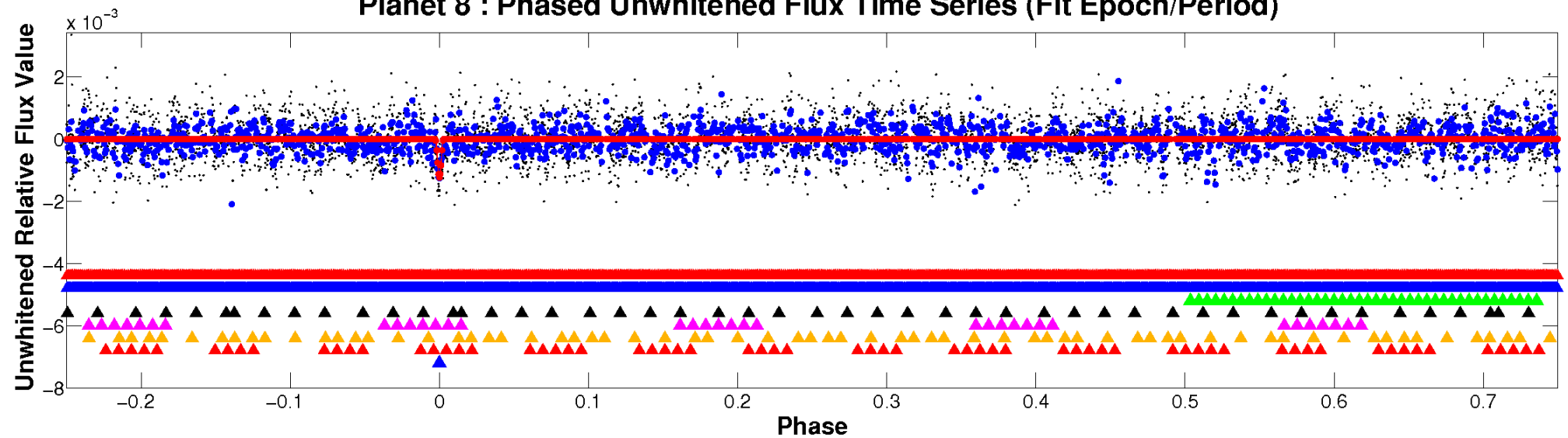
ALT Odd/Even

TCE 003453494-08

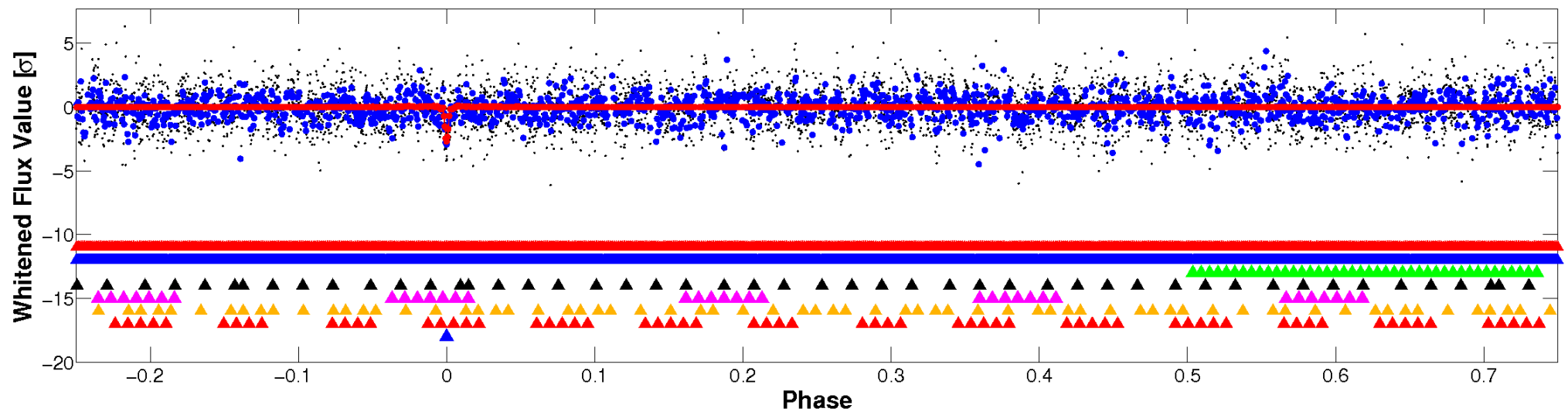


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

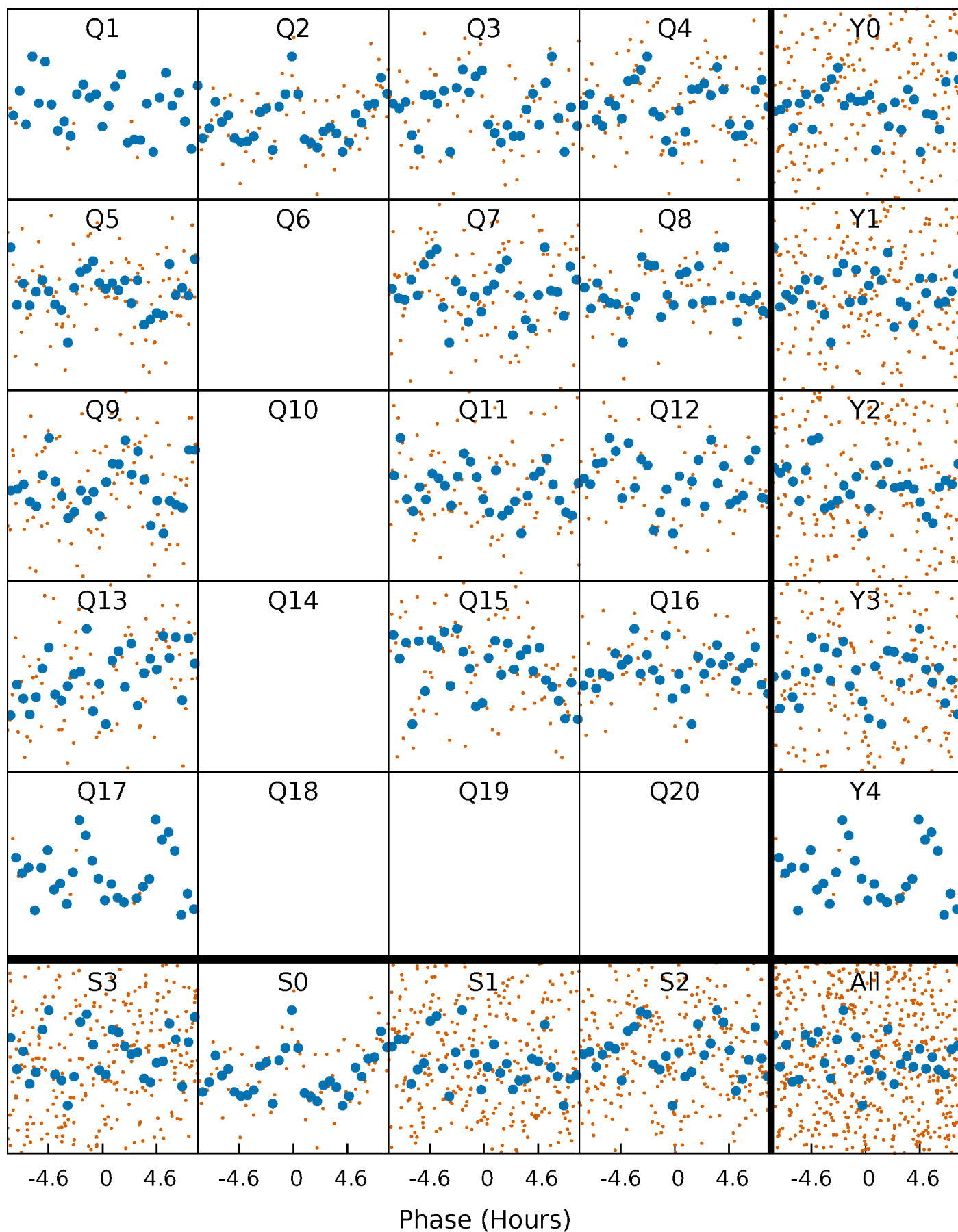


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



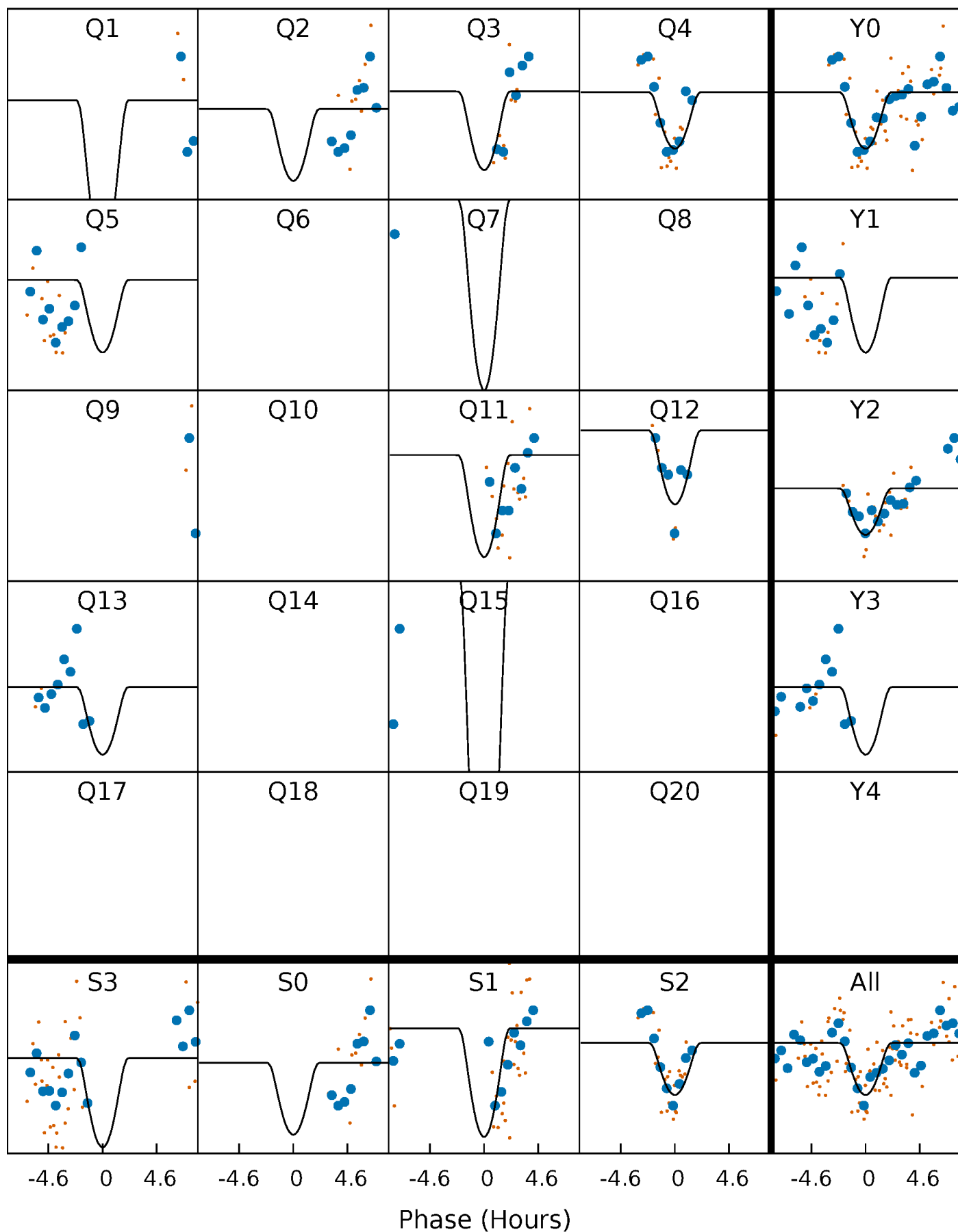
PDC Quarter-Phased Transit Curves

TCE 003453494-08 P= 35.097670 Days $T_0=148.391078$ (BKJD)



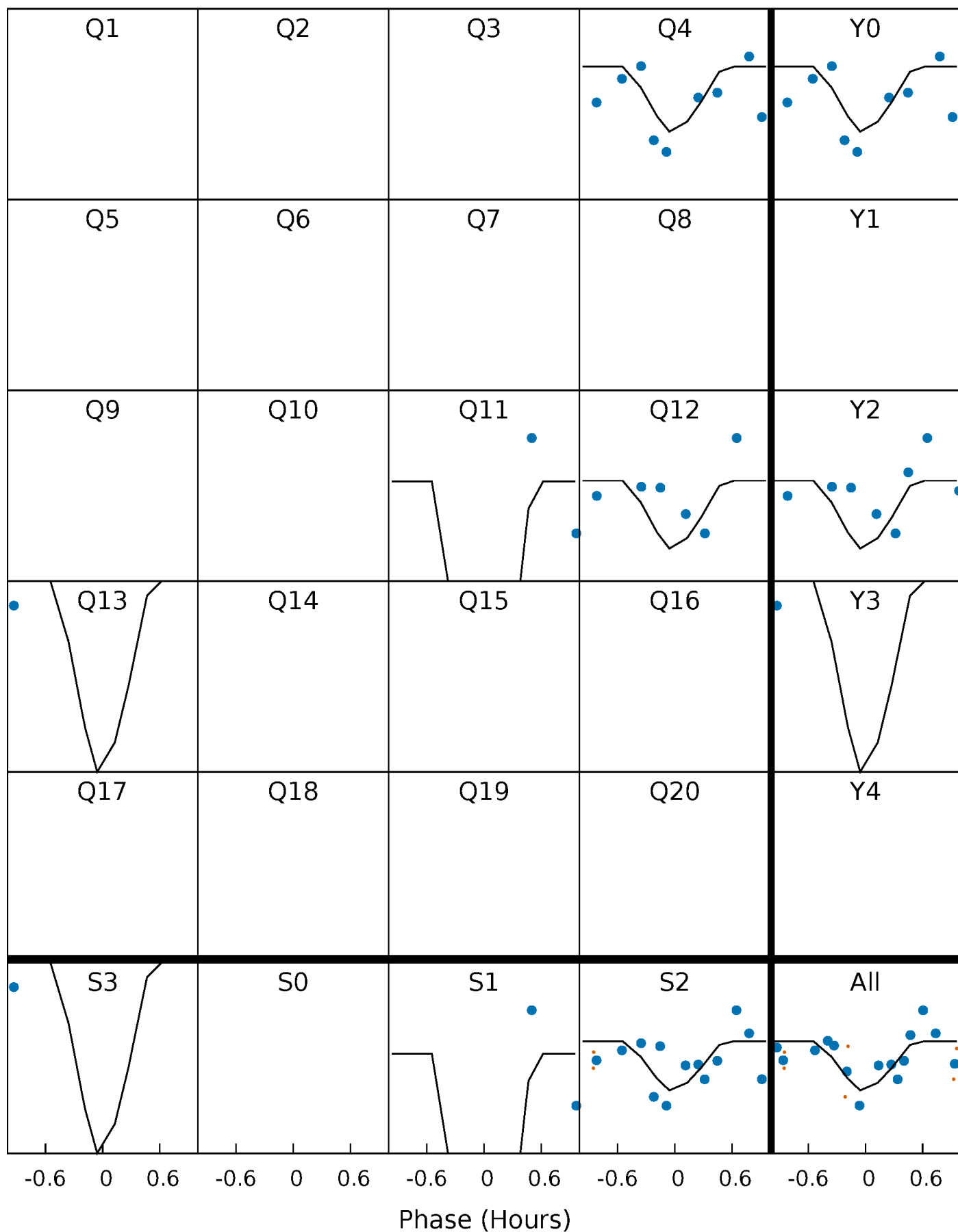
DV Quarter-Phased Transit Curves

TCE 003453494-08 $P = 35.097670$ Days $T_0 = 148.391078$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

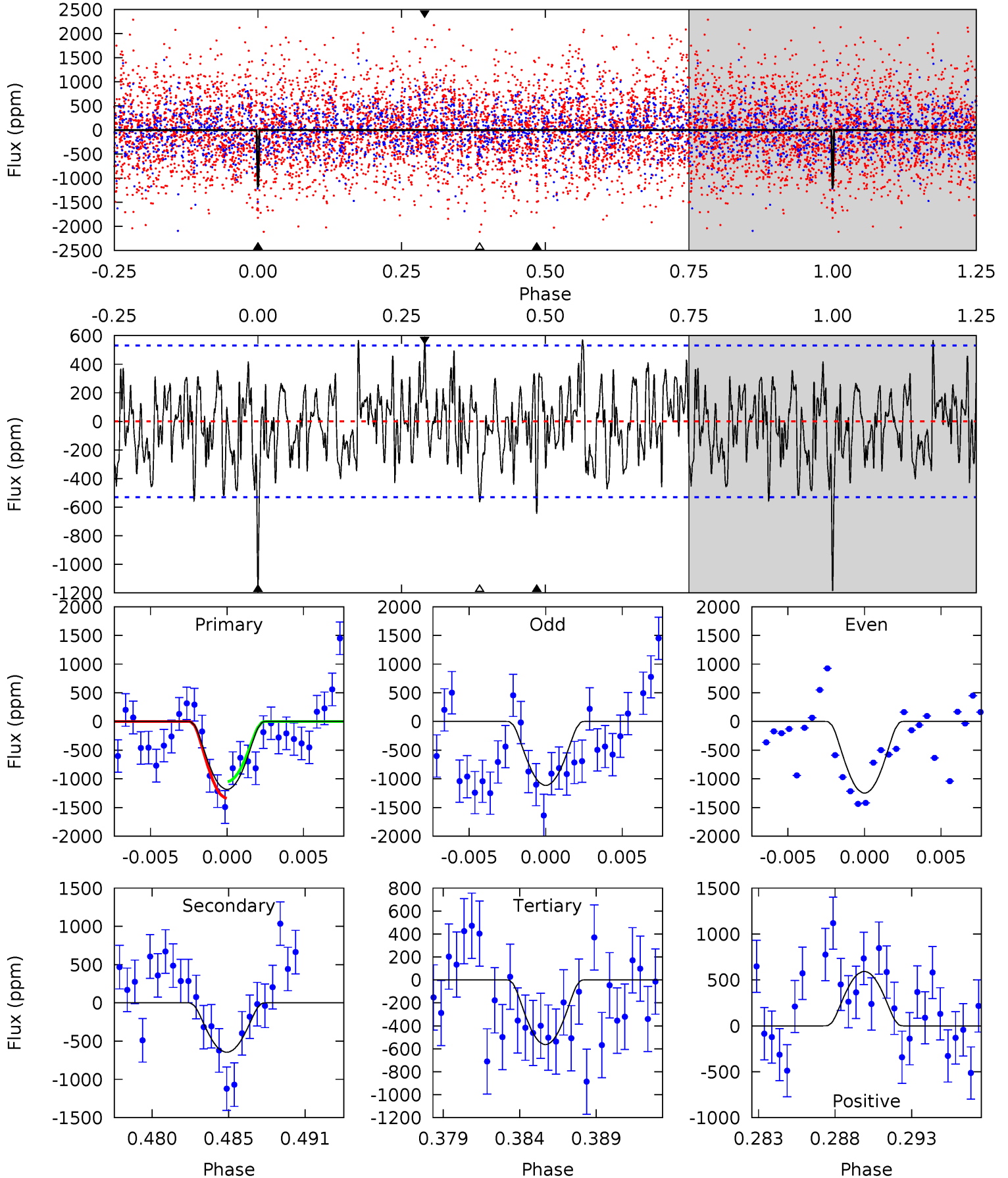
TCE 003453494-08 $P = 35.097745$ Days $T_0 = 148.378224$ (BKJD)



DV Model-Shift Uniqueness Test

003453494-08, P = 35.097670 Days, E = 113.293408 Days

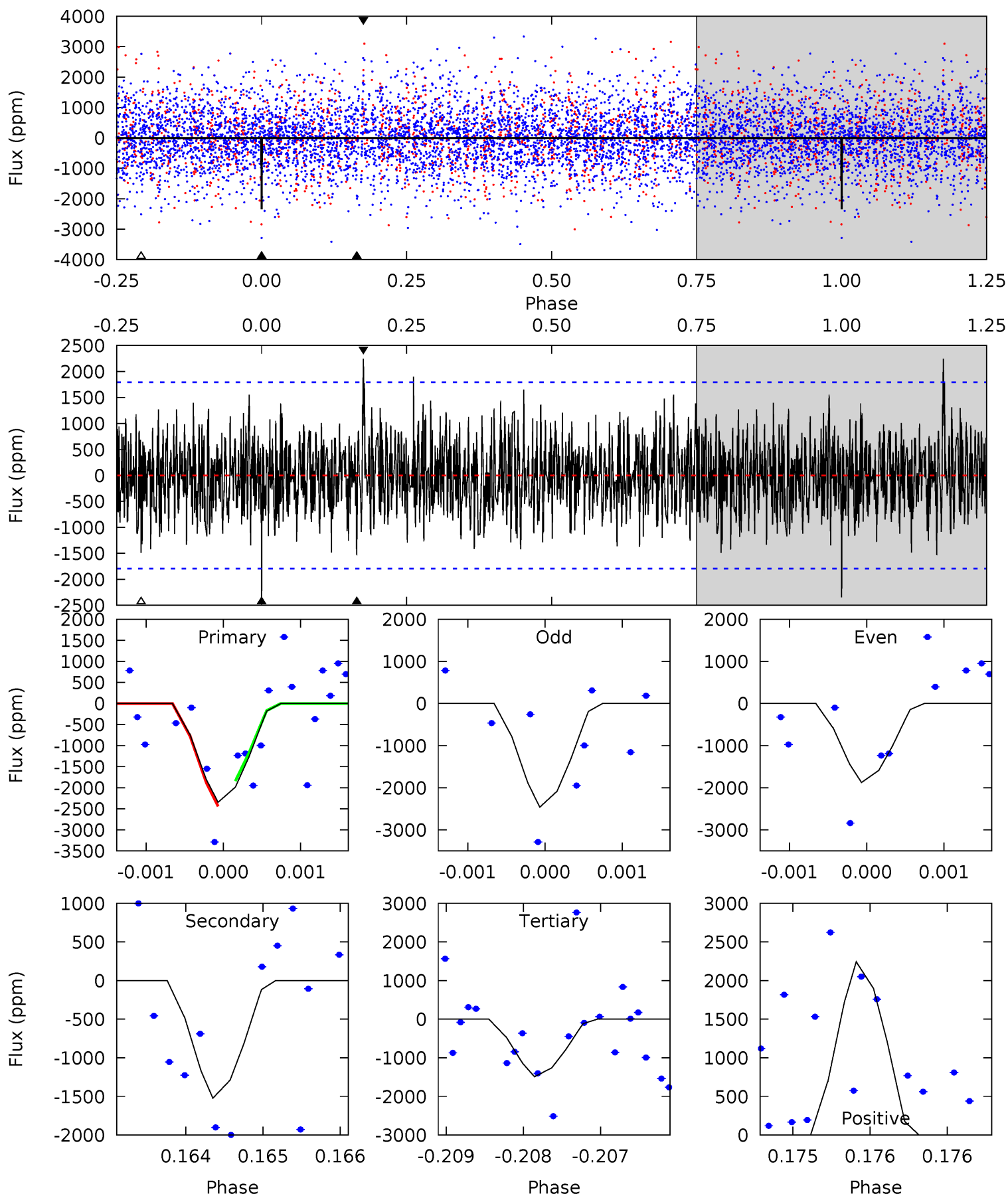
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	6.26	5.46	5.74	5.15	2.79	2.04	6.02	5.75	0.80	0.52	0.66	1.22	0.33	1.41



Alt Model-Shift Uniqueness Test

003453494-08, P = 35.097745 Days, E = 113.280479 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.14	4.63	4.53	6.83	5.45	3.29	1.64	2.61	0.31	0.10	-2.19	0.90	1.00	0.49	0.92



Stellar Parameters For KIC 003453494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7766^{+123}_{-184}	$3.642^{+0.210}_{-0.070}$	$-0.120^{+0.150}_{-0.200}$	$3.574^{+0.483}_{-0.966}$	$2.039^{+0.279}_{-0.150}$	$0.063^{+0.078}_{-0.017}$
	+2%/-2%	+6%/-2%	+125%/-167%	+14%/-27%	+14%/-7%	+124%/-28%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 003453494-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-646 ± 103	$51.78^{+49.62}_{-34.85}$	1722^{+77}_{-114}	3668^{+2053}_{-726}	$9.841^{+84.997}_{-7.327}$
Alt.	-1522 ± 329	$53.18^{+54.38}_{-36.47}$	1737^{+69}_{-119}	4246^{+3082}_{-928}	21^{+202}_{-16}

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

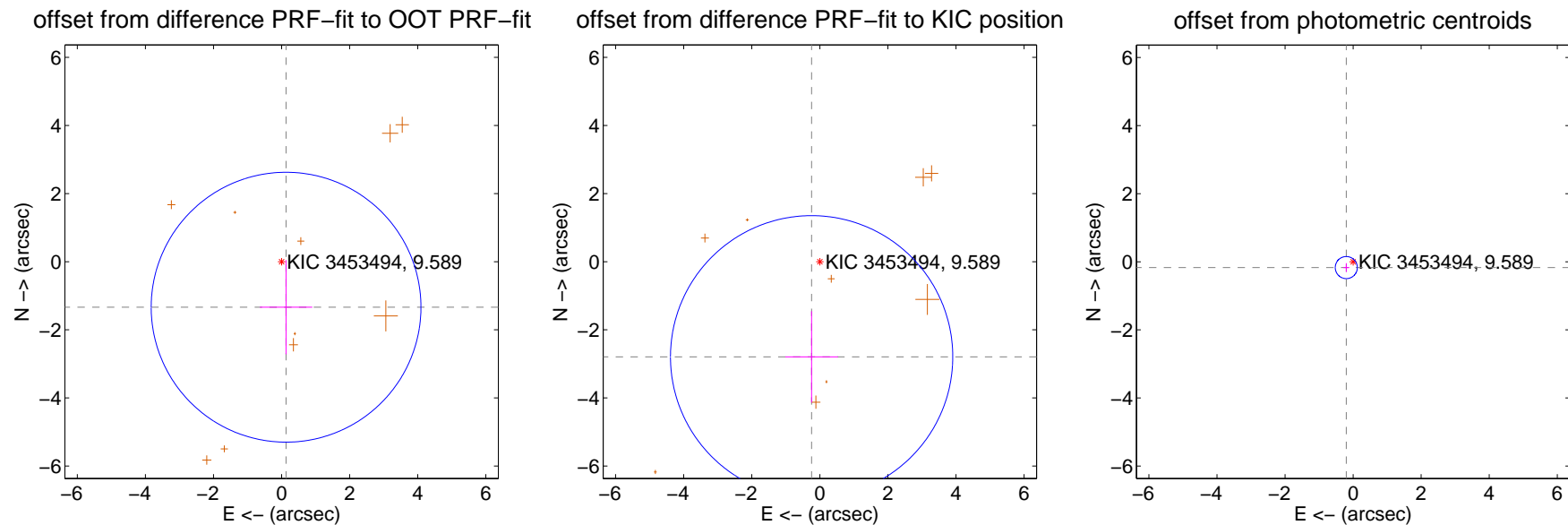
DV Centroid Data

Supplemental centroid analysis for 003453494-08. **Kepler magnitude: 9.59.** Transit SNR 10.69

There are 0 quarters with good PRF difference image offsets

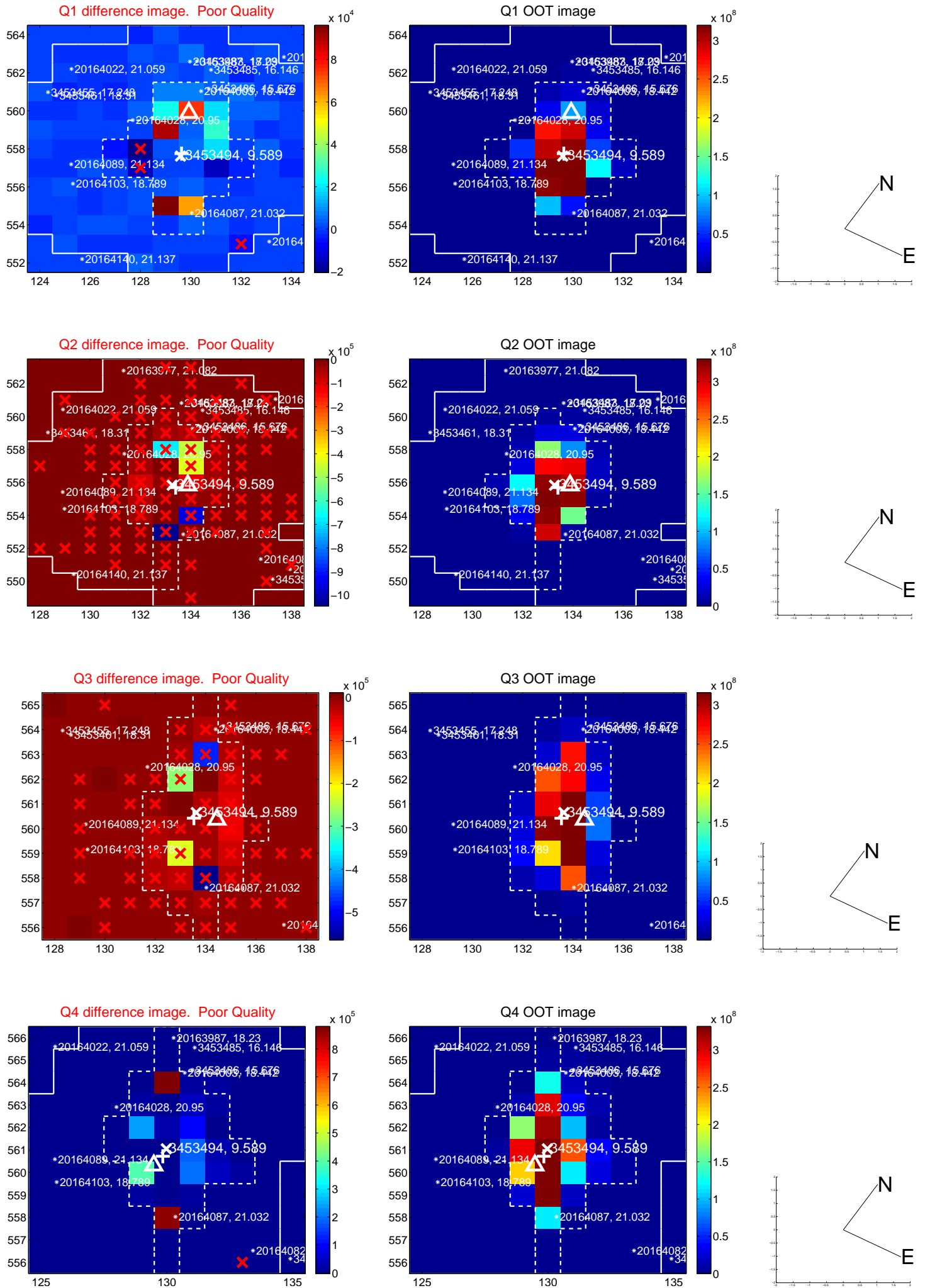
The direct PRF centroid is offset from the target star catalog position by about 1.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.343 ± 1.321	1.02	-0.132 ± 0.770	-1.336 ± 1.383
PRF-fit source offset from KIC position	2.804 ± 1.382	2.03	0.241 ± 0.773	-2.794 ± 1.340
photometric centroid source offset	0.26 ± 0.11	2.43	0.20 ± 0.09	-0.17 ± 0.13

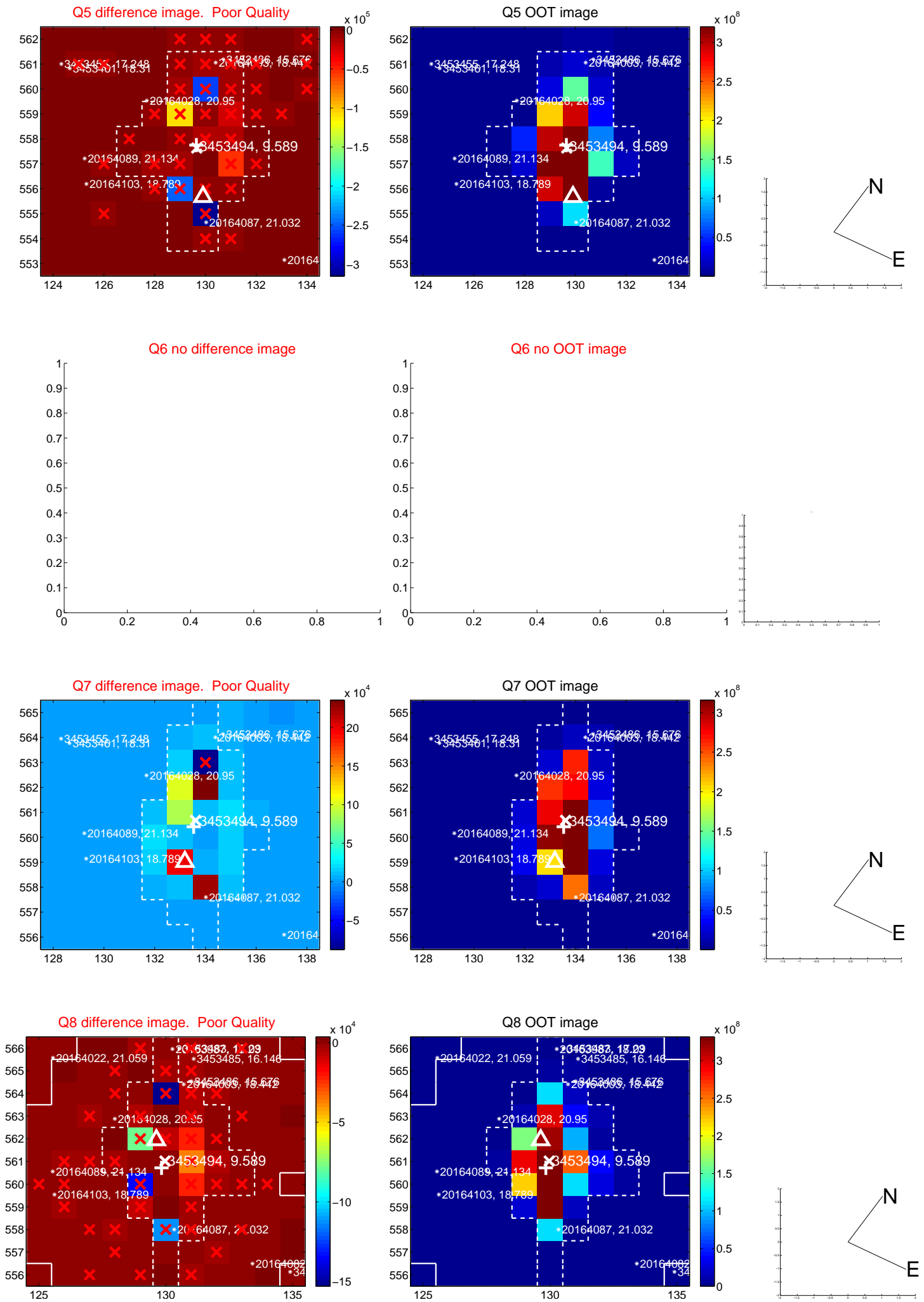


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

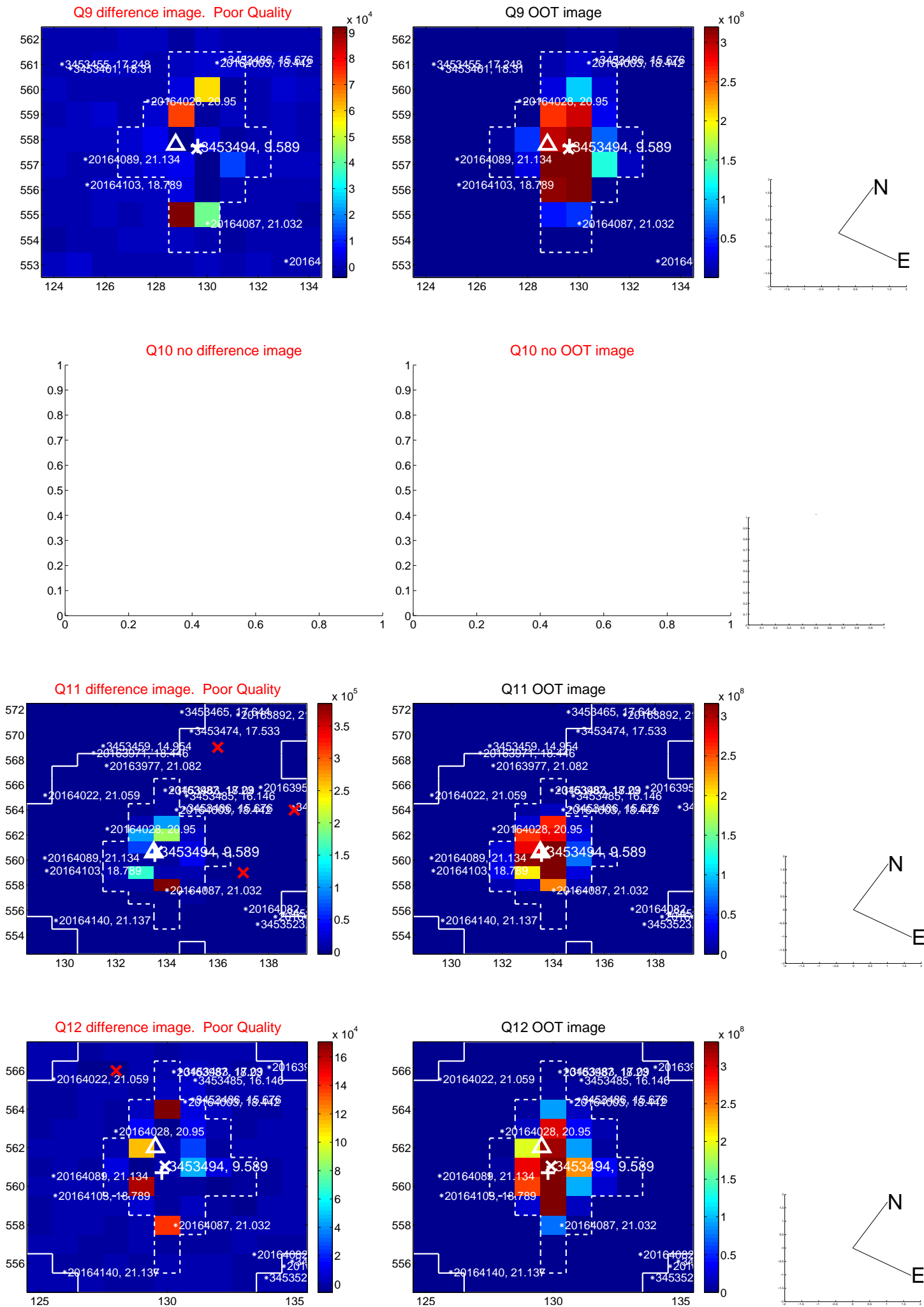
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



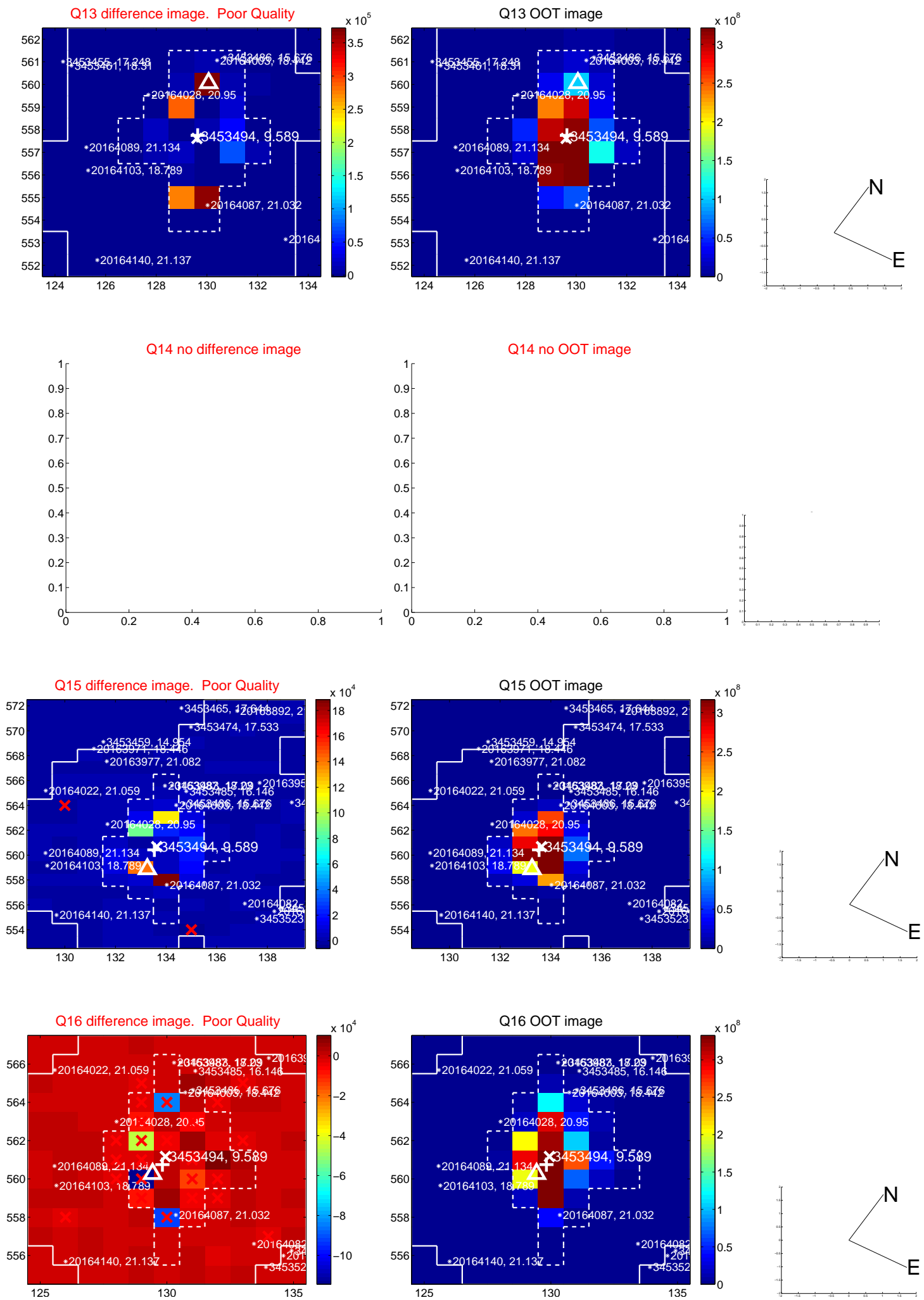
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



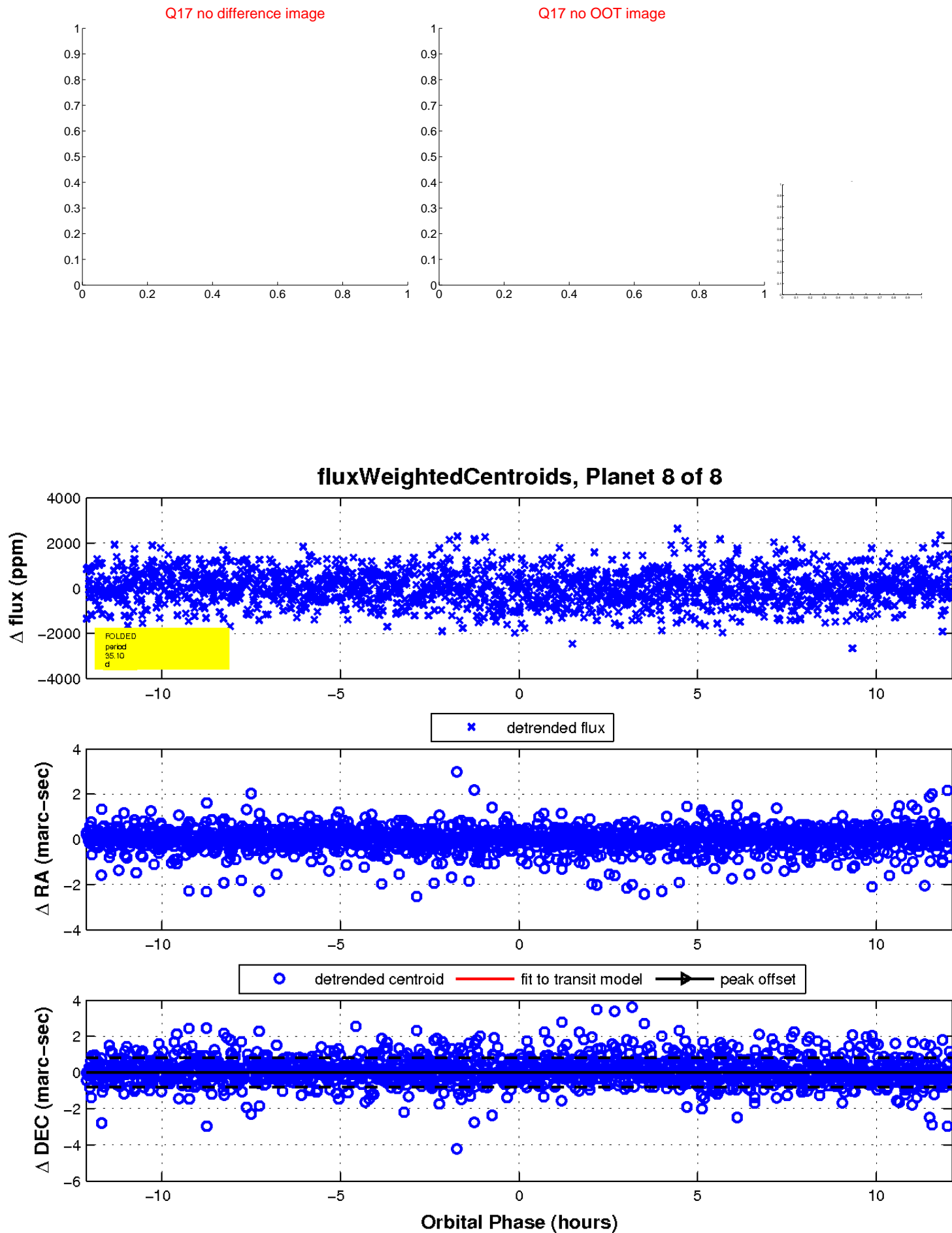
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

