

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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
004568729-06	OBS	No	90.964616	161.891452	244.7	4.761	19.2	13.9	1.73	7210	3.05	36.13
004568729-07	OBS	No	308.882039	157.191871	170.0	18.520	12.5	6.6	1.73	7210	4.39	7.08
004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

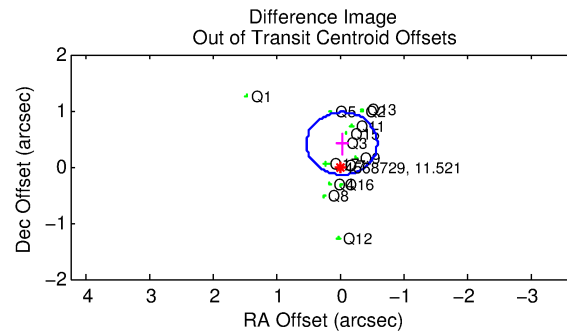
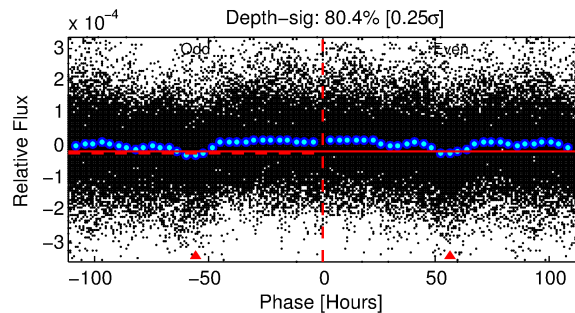
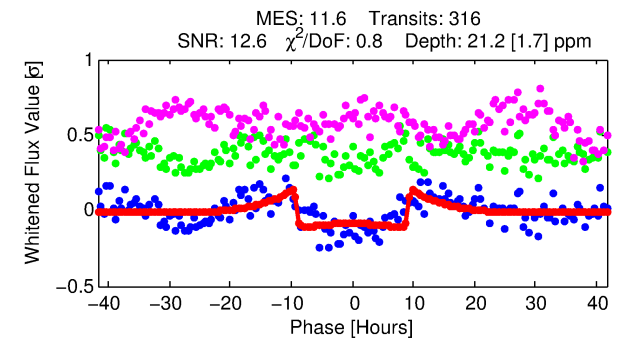
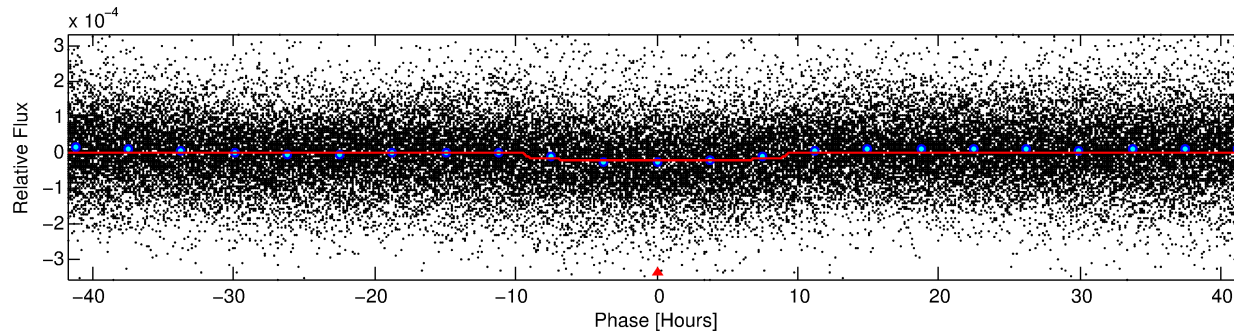
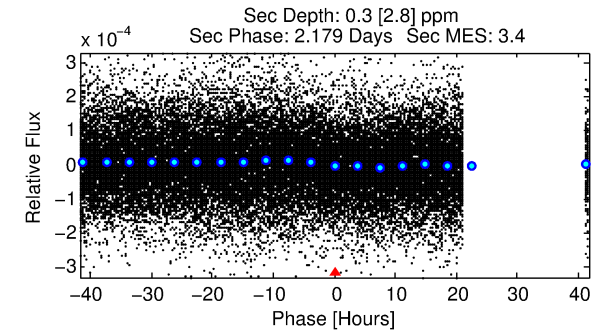
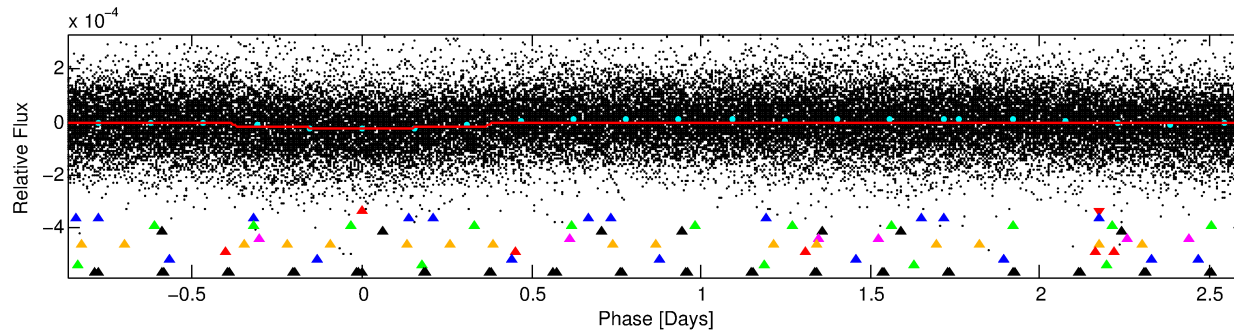
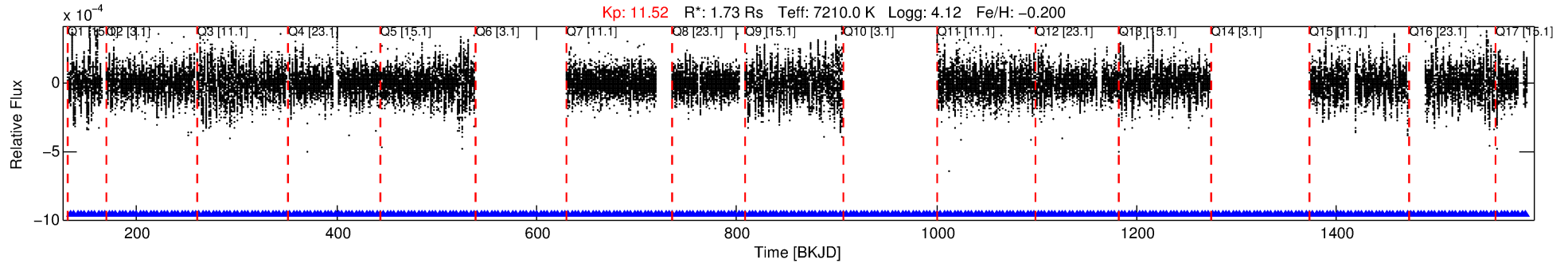
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-01

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 1 of 10 Period: 3.480 d



DV Fit Results:

Period = 3.48022 [0.00003] d
Epoch = 134.1430 [0.0048] BKJD
Rp/R* = 0.0047 [0.0005]
a/R* = 1.22 [0.24]
b = 0.81 [0.25]
Seff = 2802.35 [1090.54]
Teq = 1855 [180] K
Rp = 0.88 [0.28] Re
a = 0.0508 [0.0127] AU
Ag = 0.52 [5.15] [-0.09σ]
Teffp = 2440 [5994] K [0.10σ]

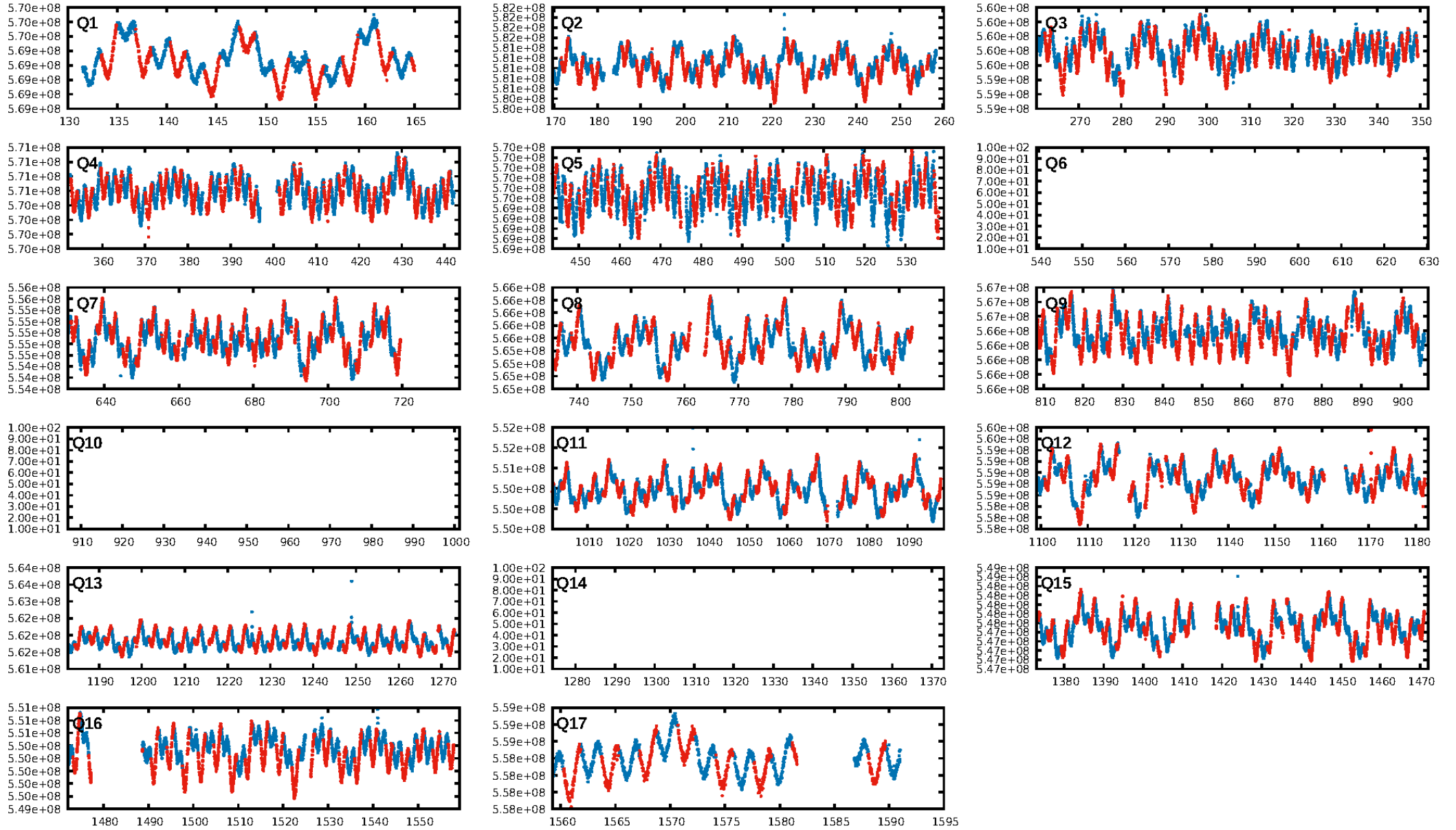
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [39.59σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.88e-17
RollingBand-fgt: 1.00 [299/299]
GhostDiagnostic-chr: 0.9675
Centroid-sig: 0.0%
Centroid-so: 3.188 arcsec [5.90σ]
OotOffset-rm: 0.413 arcsec [2.23σ]
KicOffset-rm: 0.525 arcsec [2.49σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

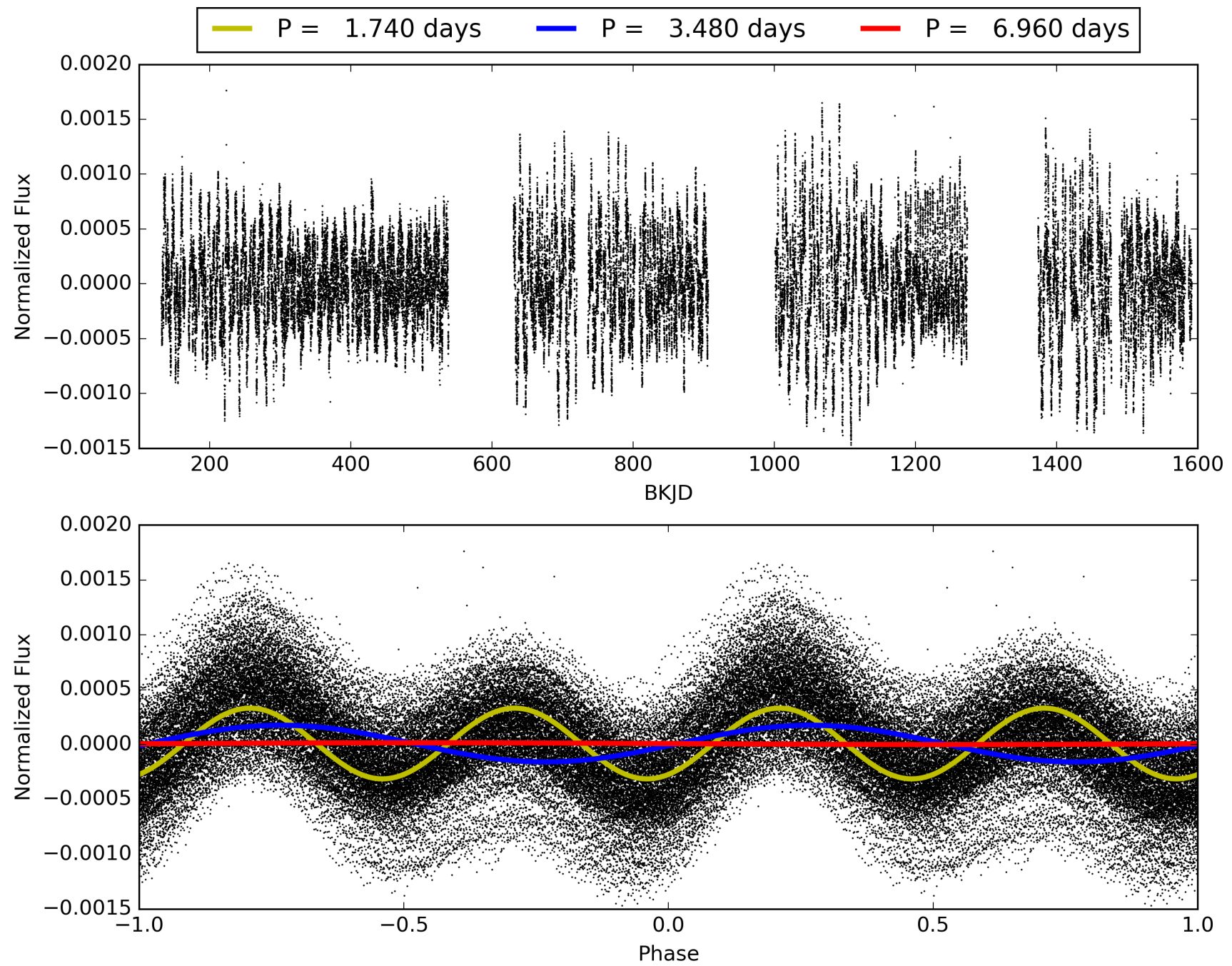
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004568729-01, PDC Light Curves

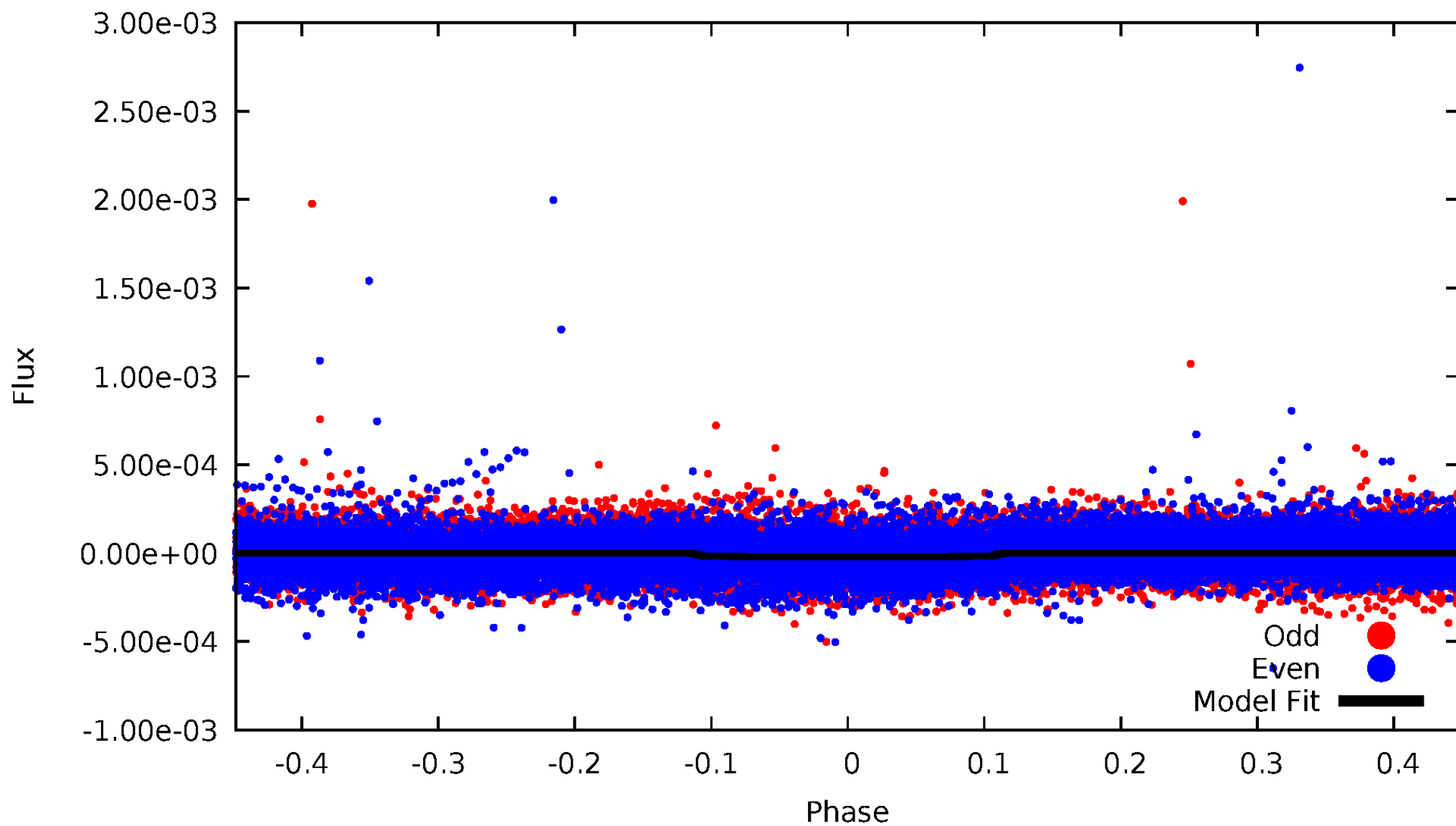


TCE 004568729-01



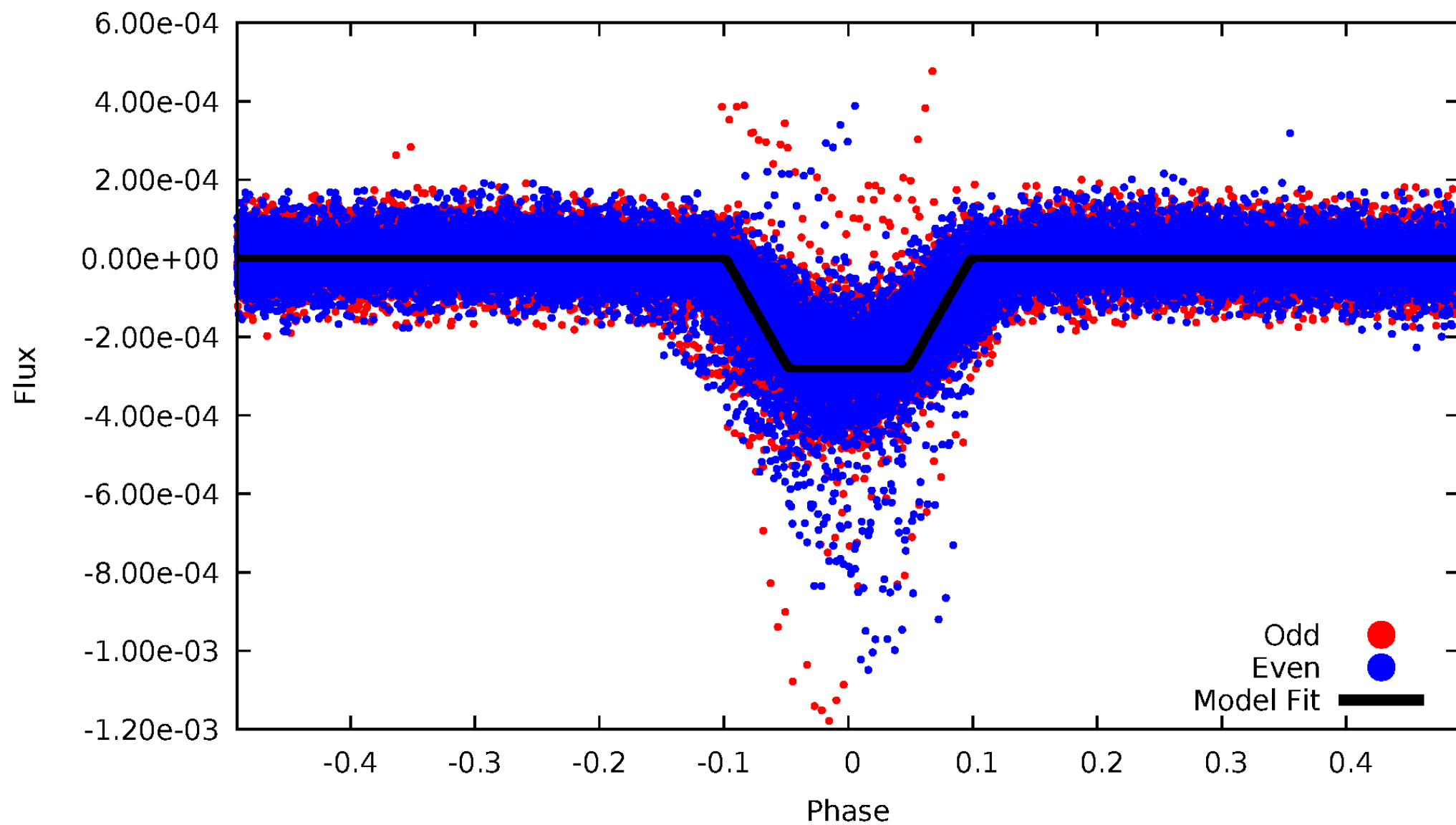
DV Odd/Even

TCE 004568729-01

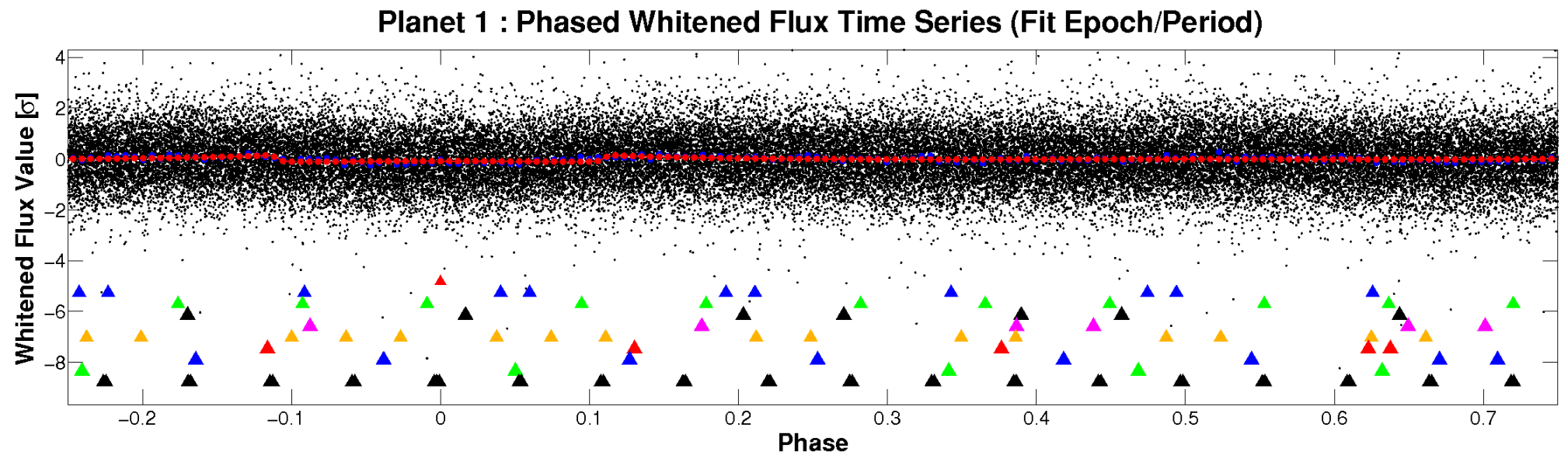
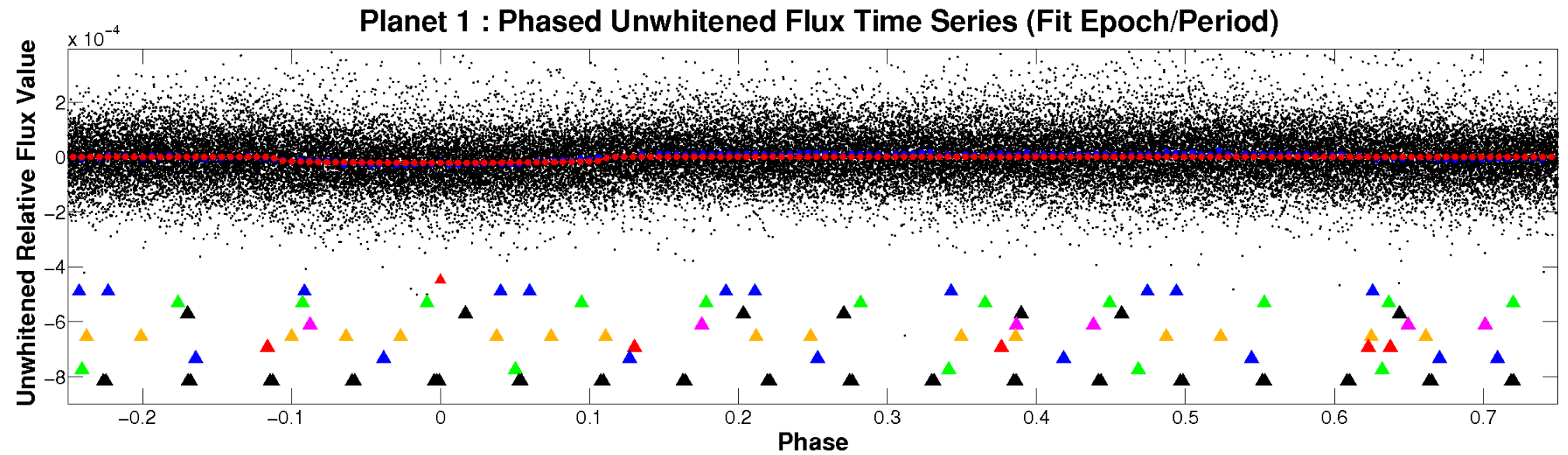


ALT Odd/Even

TCE 004568729-01

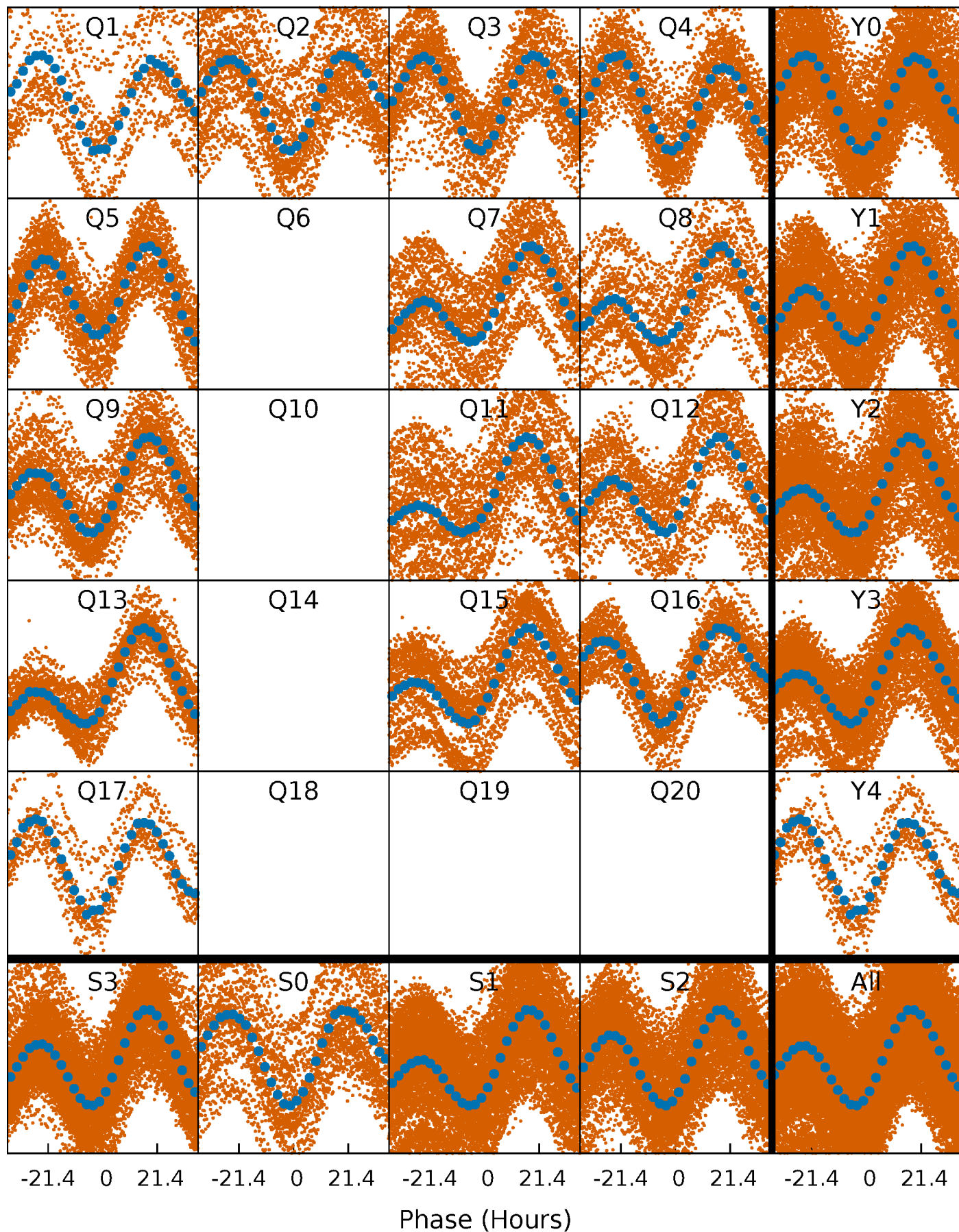


Non-Whitened Vs. Whitened Light Curve



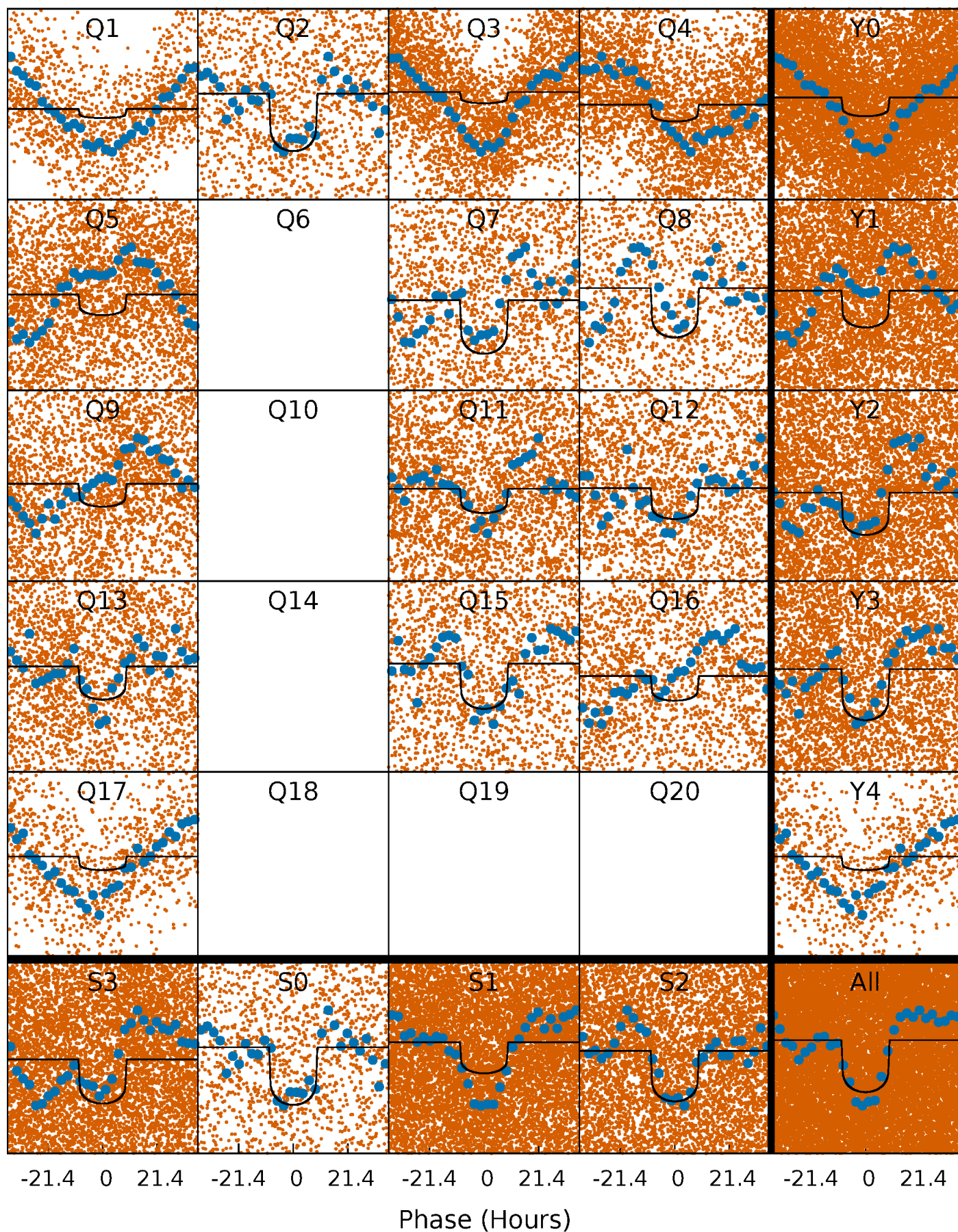
PDC Quarter-Phased Transit Curves

TCE 004568729-01 P= 3.480216 Days $T_0=134.142958$ (BKJD)



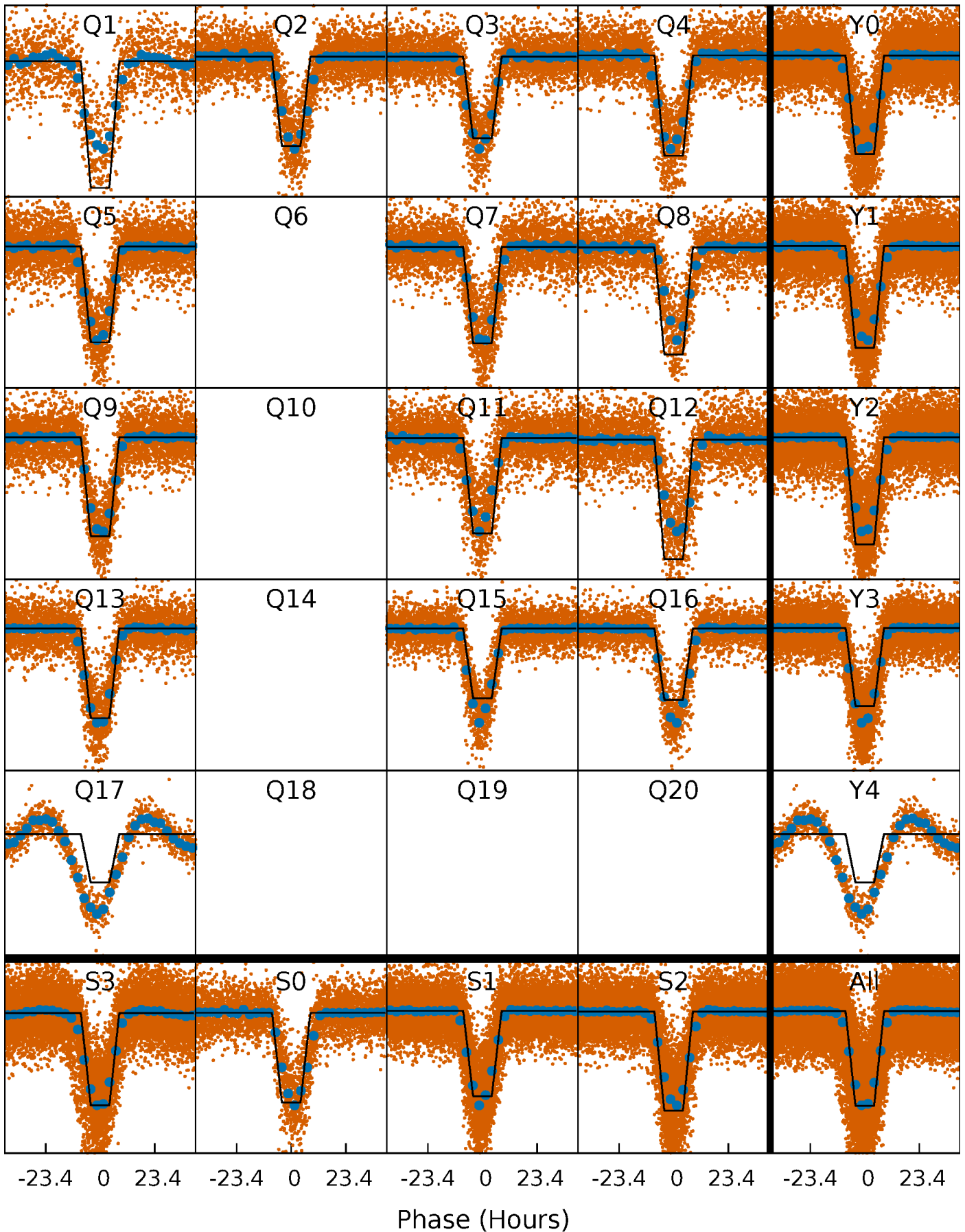
DV Quarter-Phased Transit Curves

TCE 004568729-01 P= 3.480216 Days $T_0=134.142958$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

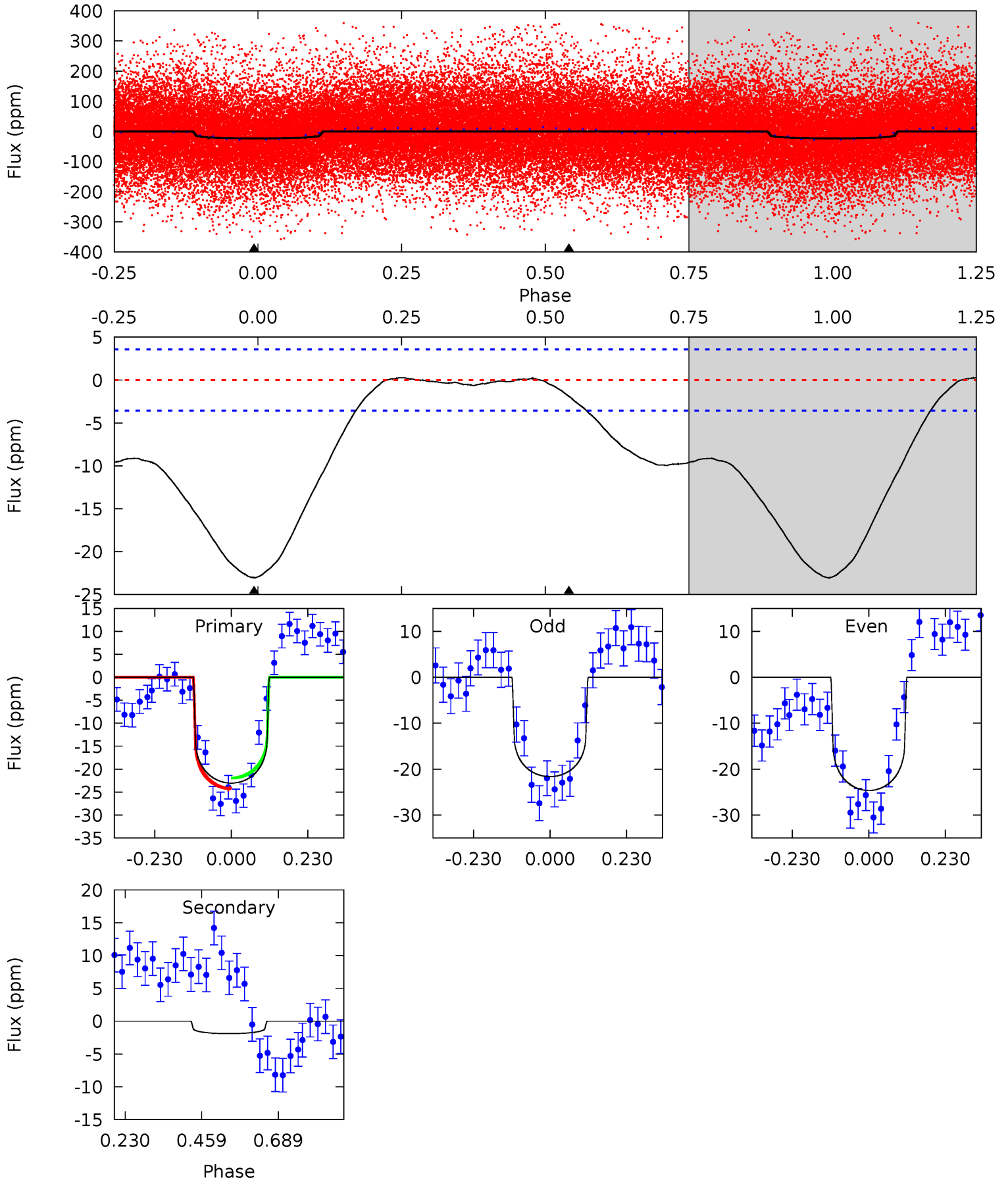
TCE 004568729-01 P= 3.479820 Days $T_0=134.179912$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-01, P = 3.480216 Days, E = 130.662742 Days

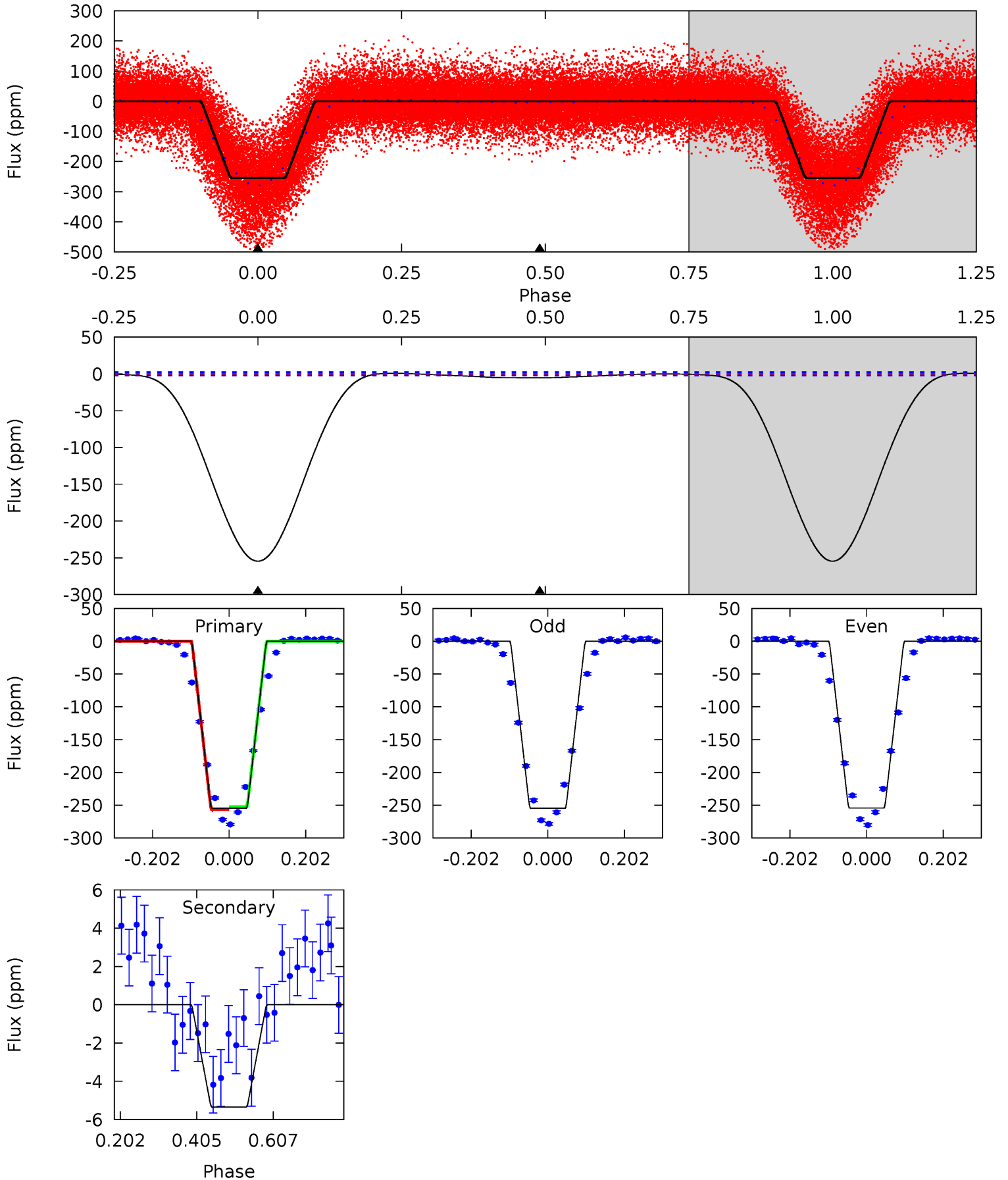
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.3	2.33	0	0	4.39	1.20	2.31	28.3	28.3	2.33	2.33	1.84	1.03	0.01	1.43



Alt Model-Shift Uniqueness Test

004568729-01, P = 3.479820 Days, E = 130.700092 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
510.6	10.7	0	0	4.41	1.27	1.61	510.6	510.6	10.7	10.7	0.37	1.05	0.00	4.36



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2 ± 1	$0.90^{+0.18}_{-0.16}$	2610^{+197}_{-186}	4075^{+361}_{-439}	$3.357^{+2.228}_{-1.606}$
Alt.	-5 ± 0	$3.19^{+0.54}_{-0.44}$	2602^{+216}_{-184}	2982^{+107}_{-144}	$0.736^{+0.217}_{-0.204}$

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

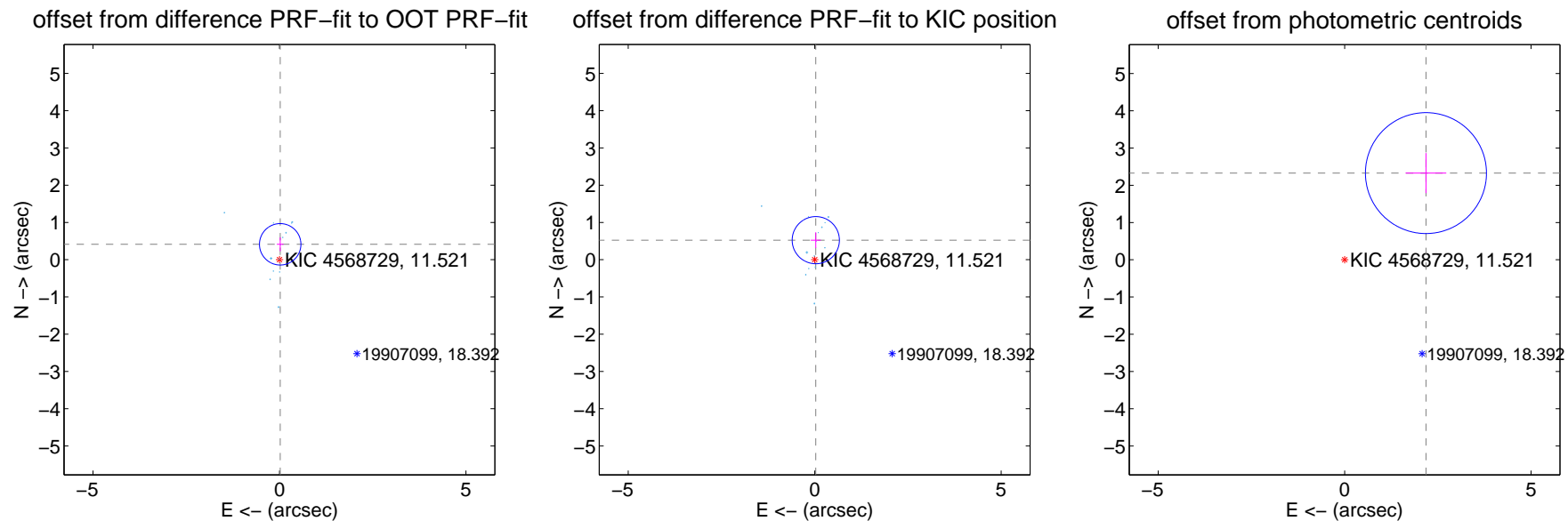
DV Centroid Data

Supplemental centroid analysis for 004568729-01. **Kepler magnitude: 11.52.** Transit SNR 12.60

There are 14 quarters with good PRF difference image offsets

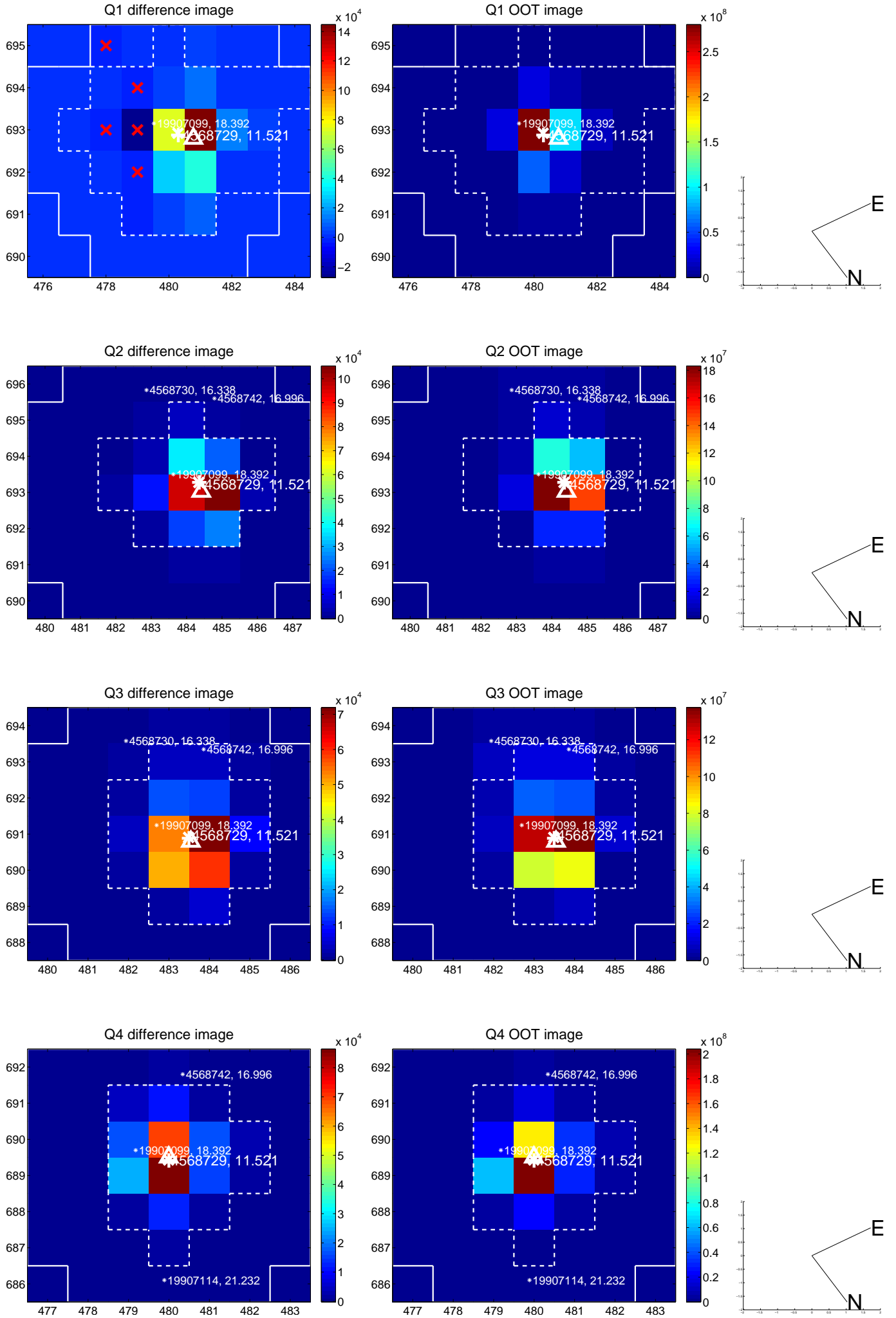
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.413 ± 0.185	2.23	-0.020 ± 0.088	0.413 ± 0.185
PRF-fit source offset from KIC position	0.525 ± 0.211	2.49	-0.029 ± 0.135	0.524 ± 0.213
photometric centroid source offset	3.19 ± 0.54	5.90	-2.18 ± 0.54	2.33 ± 0.54

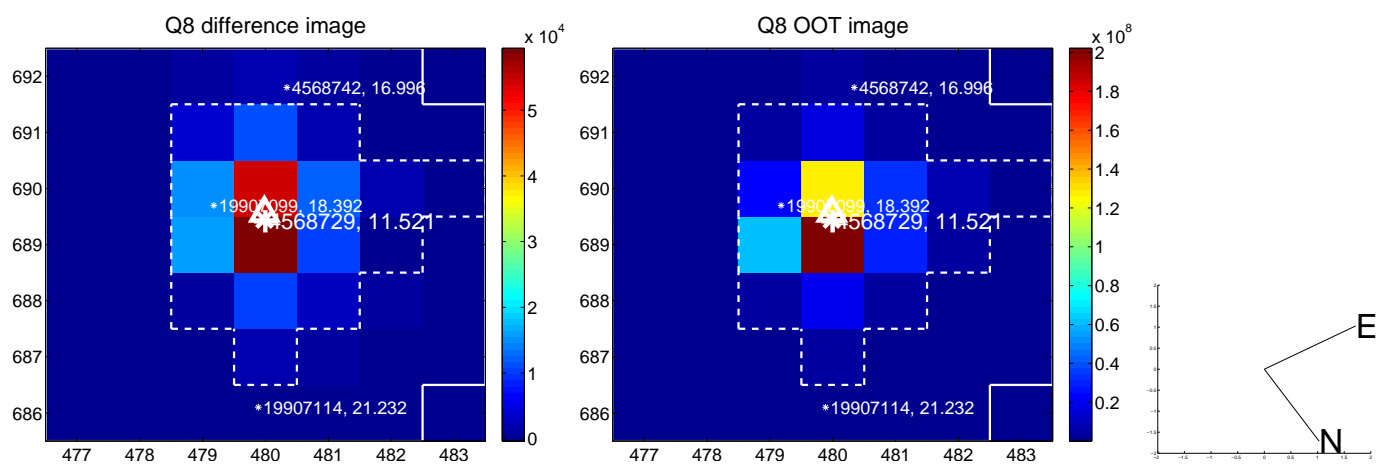
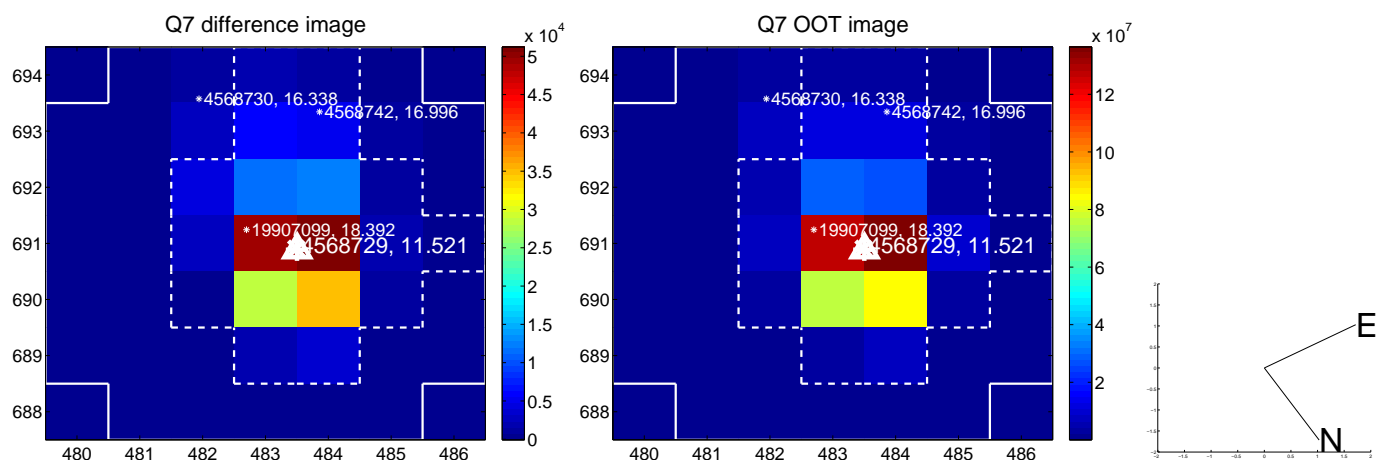
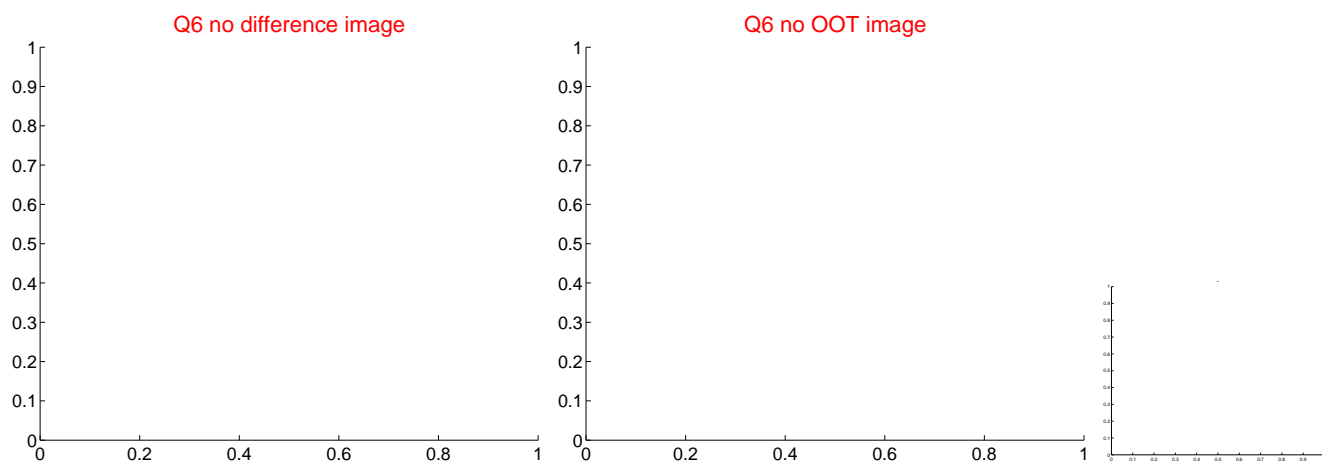
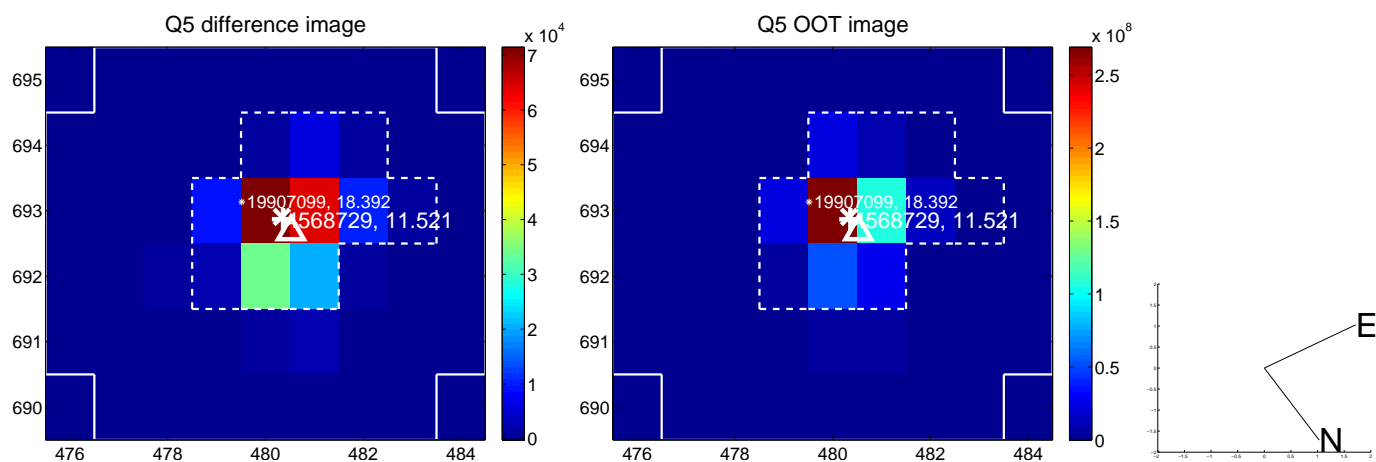


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

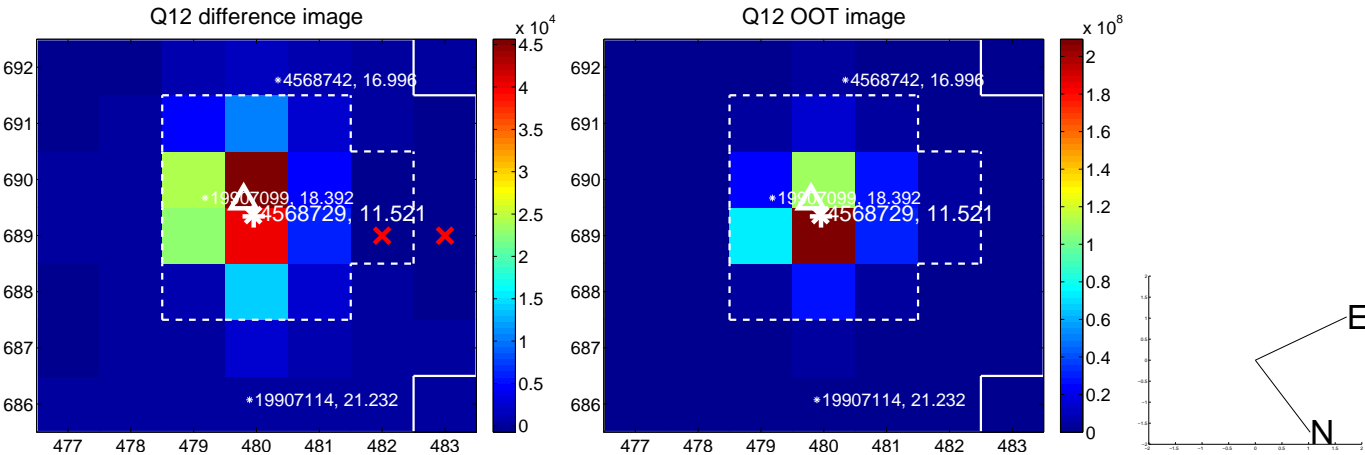
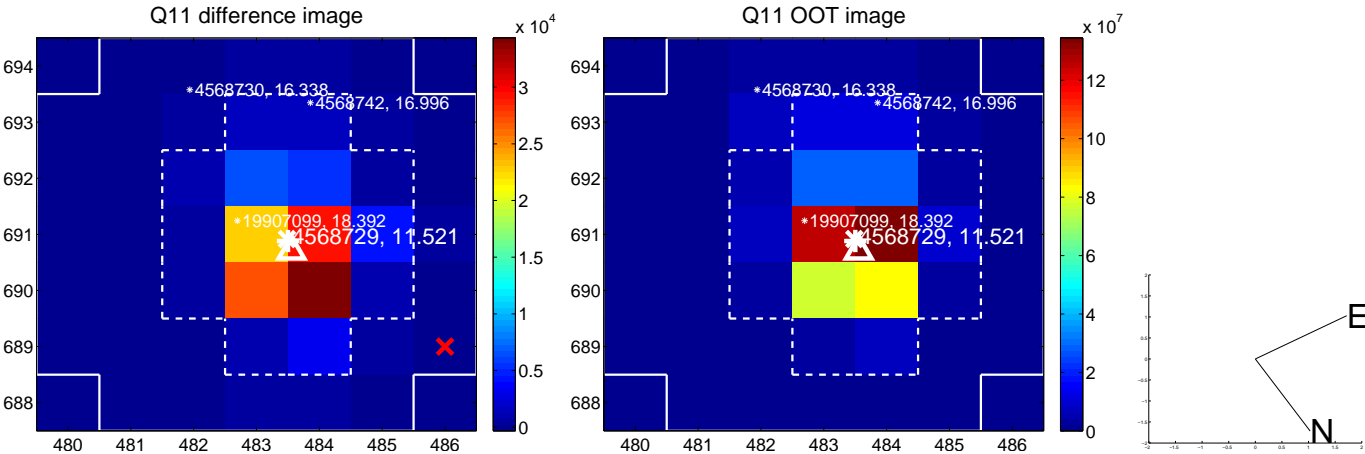
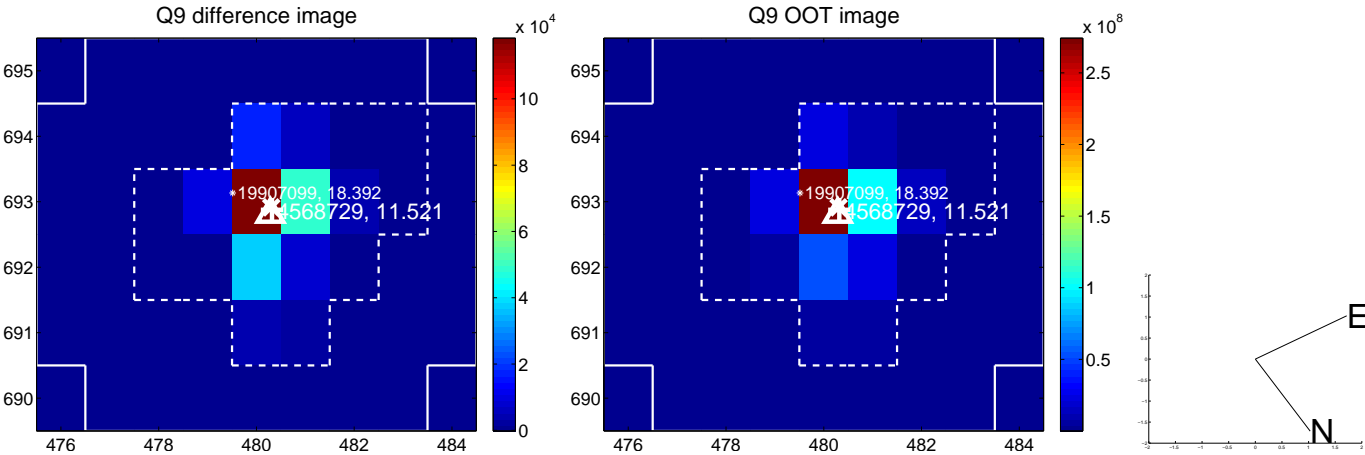
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



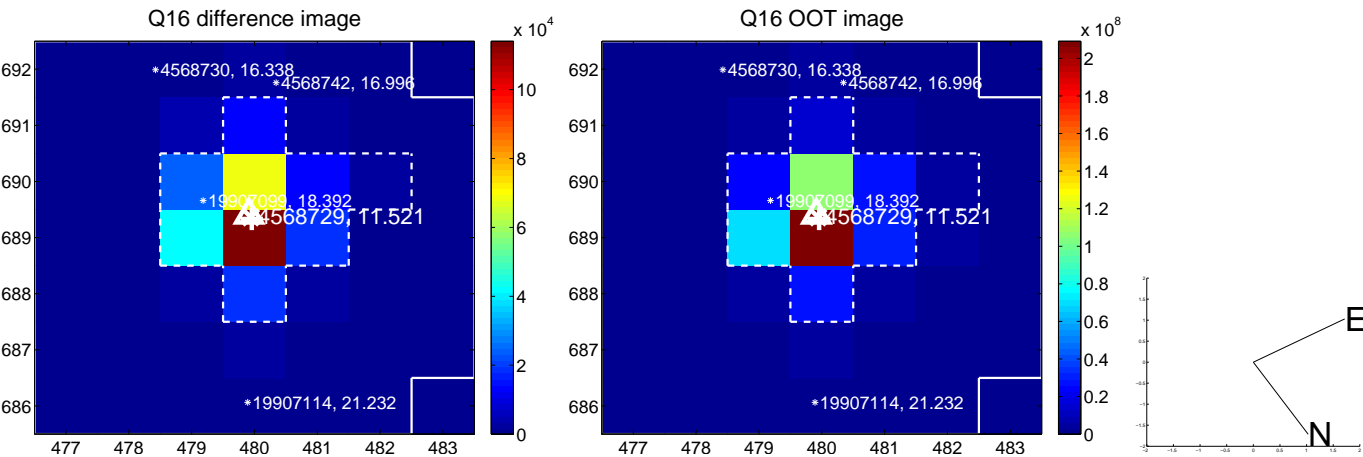
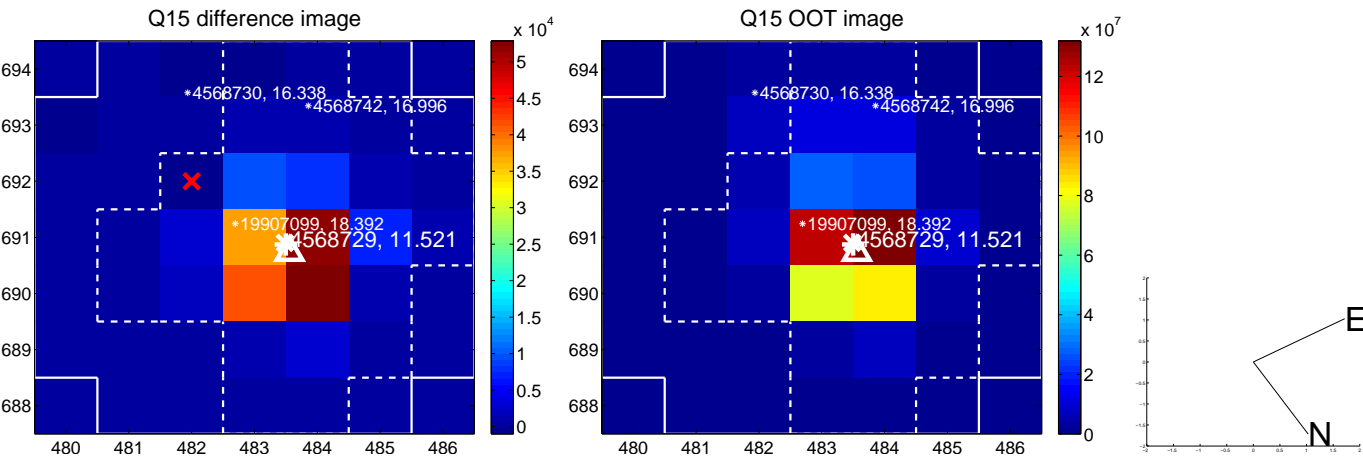
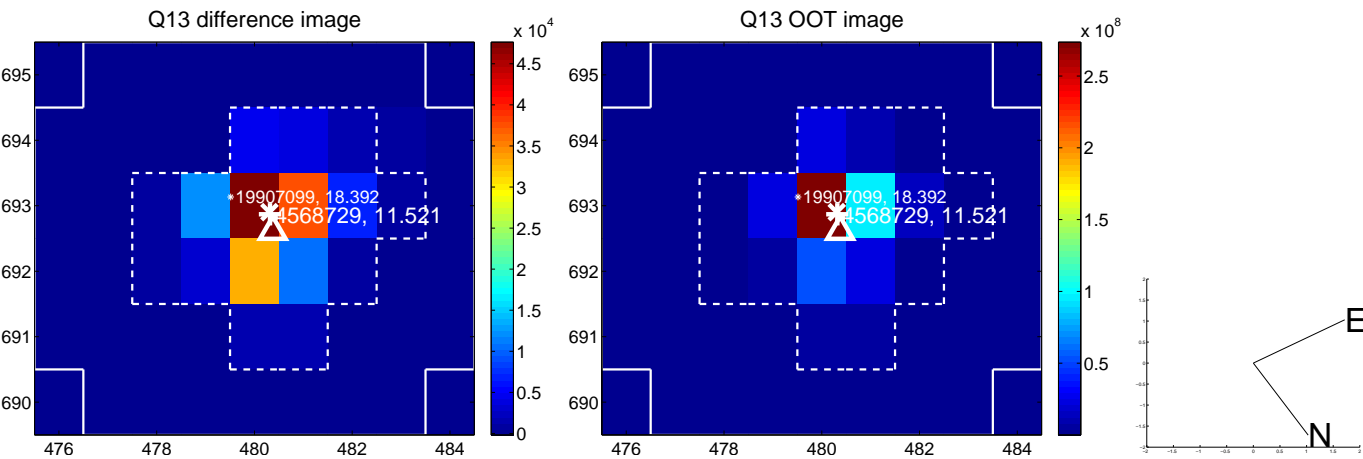
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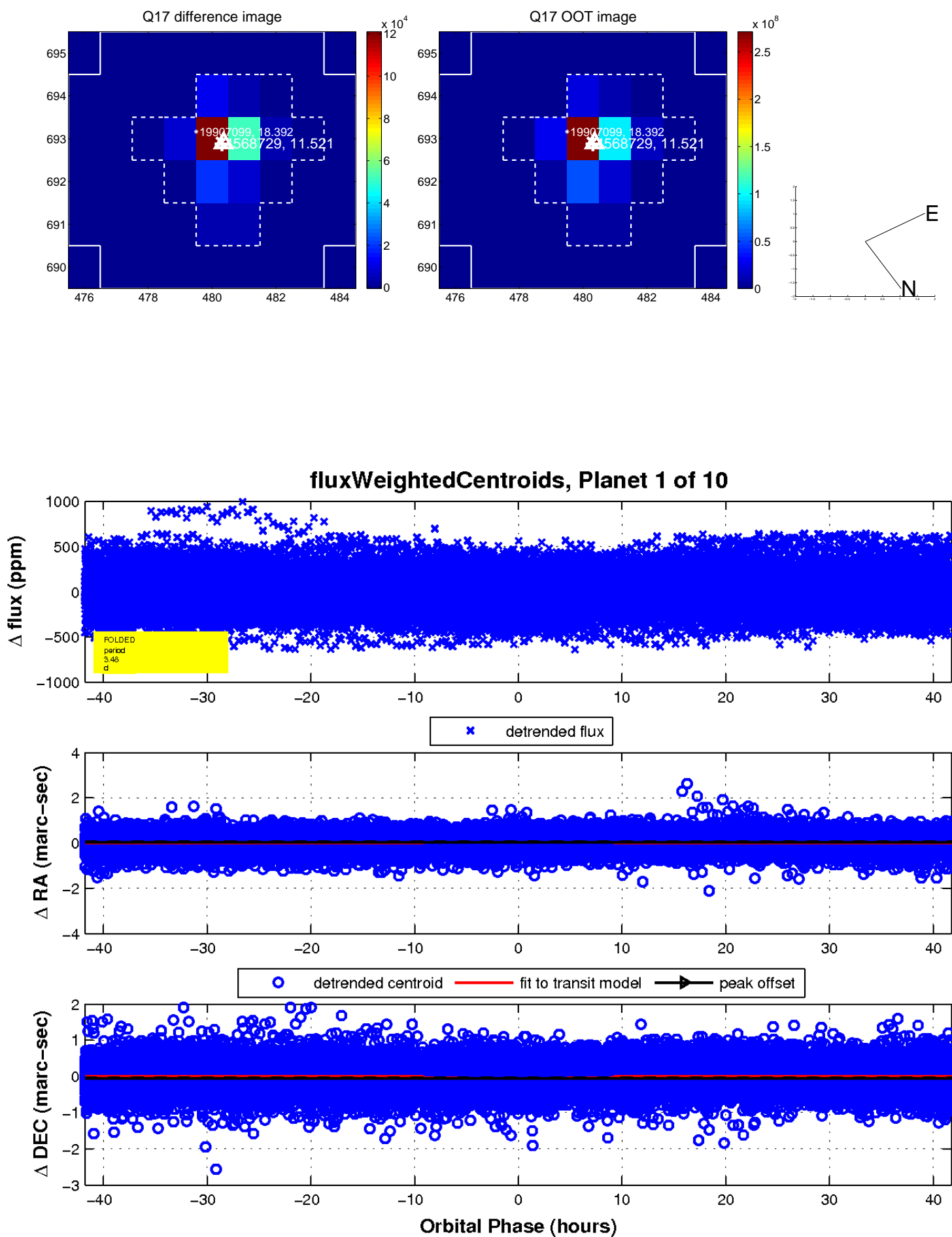
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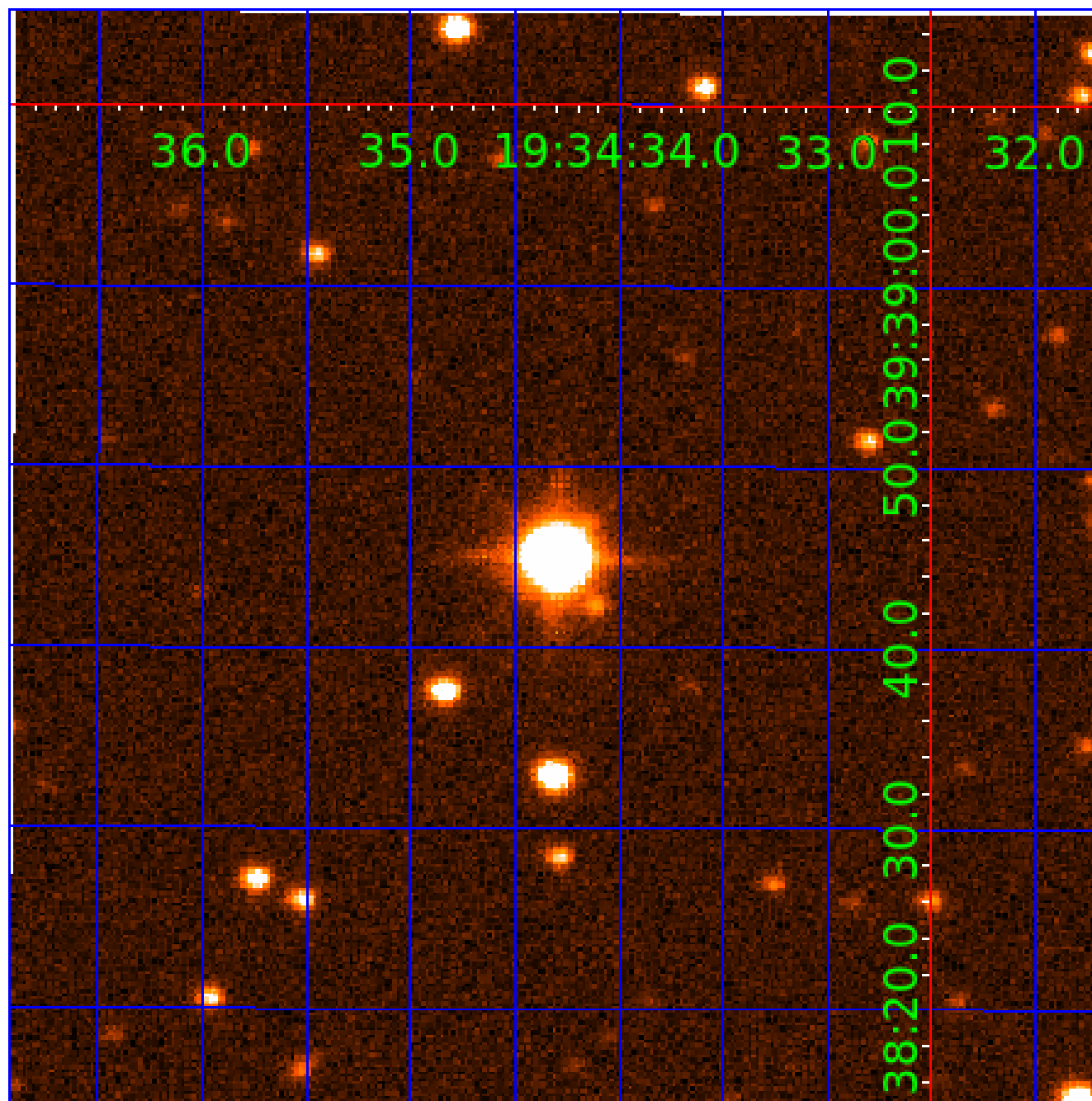


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UKIRT Image

Declination



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004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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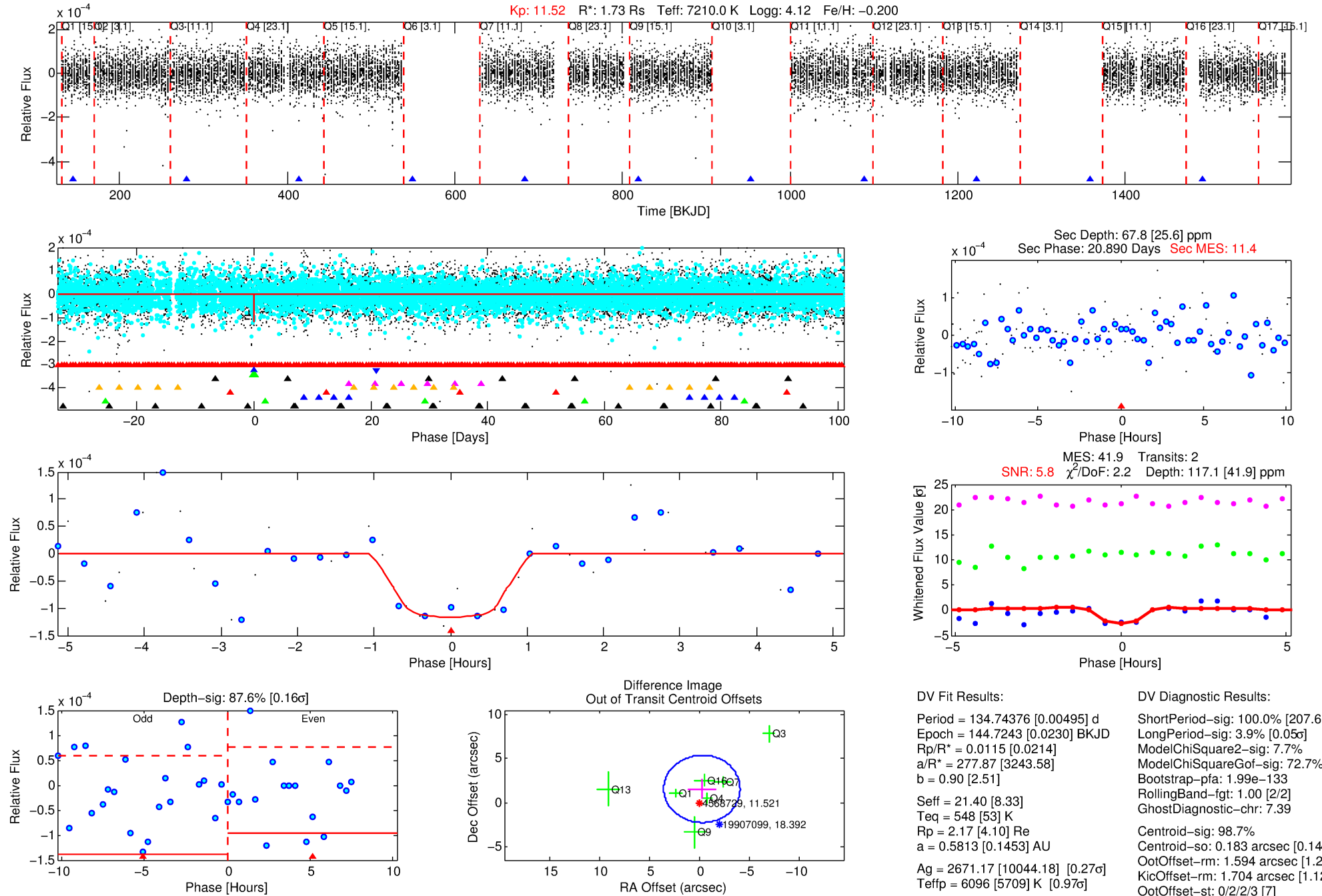
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-02

No Significant Match Found

DV One-Page Summary

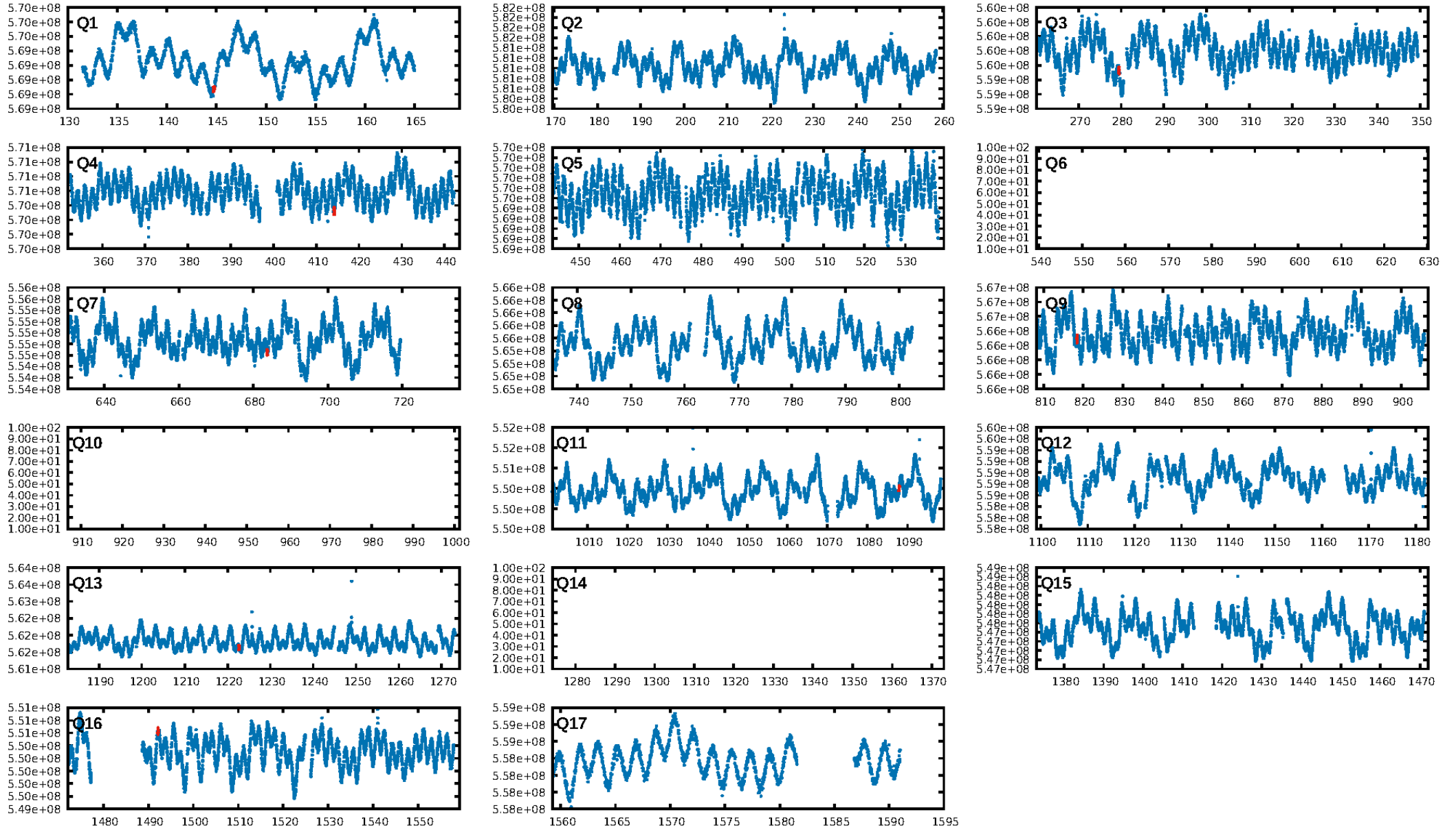
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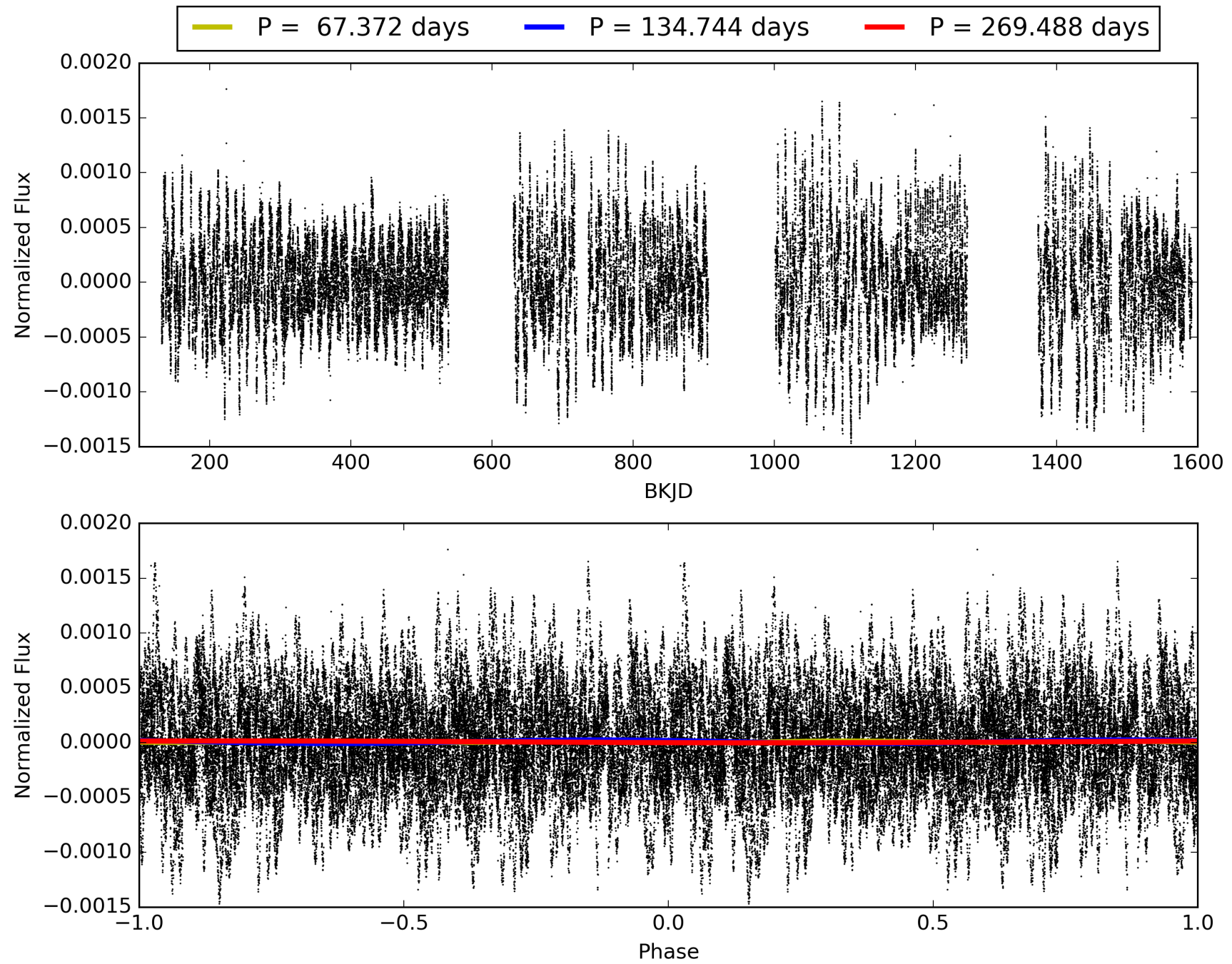
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004568729-02, PDC Light Curves

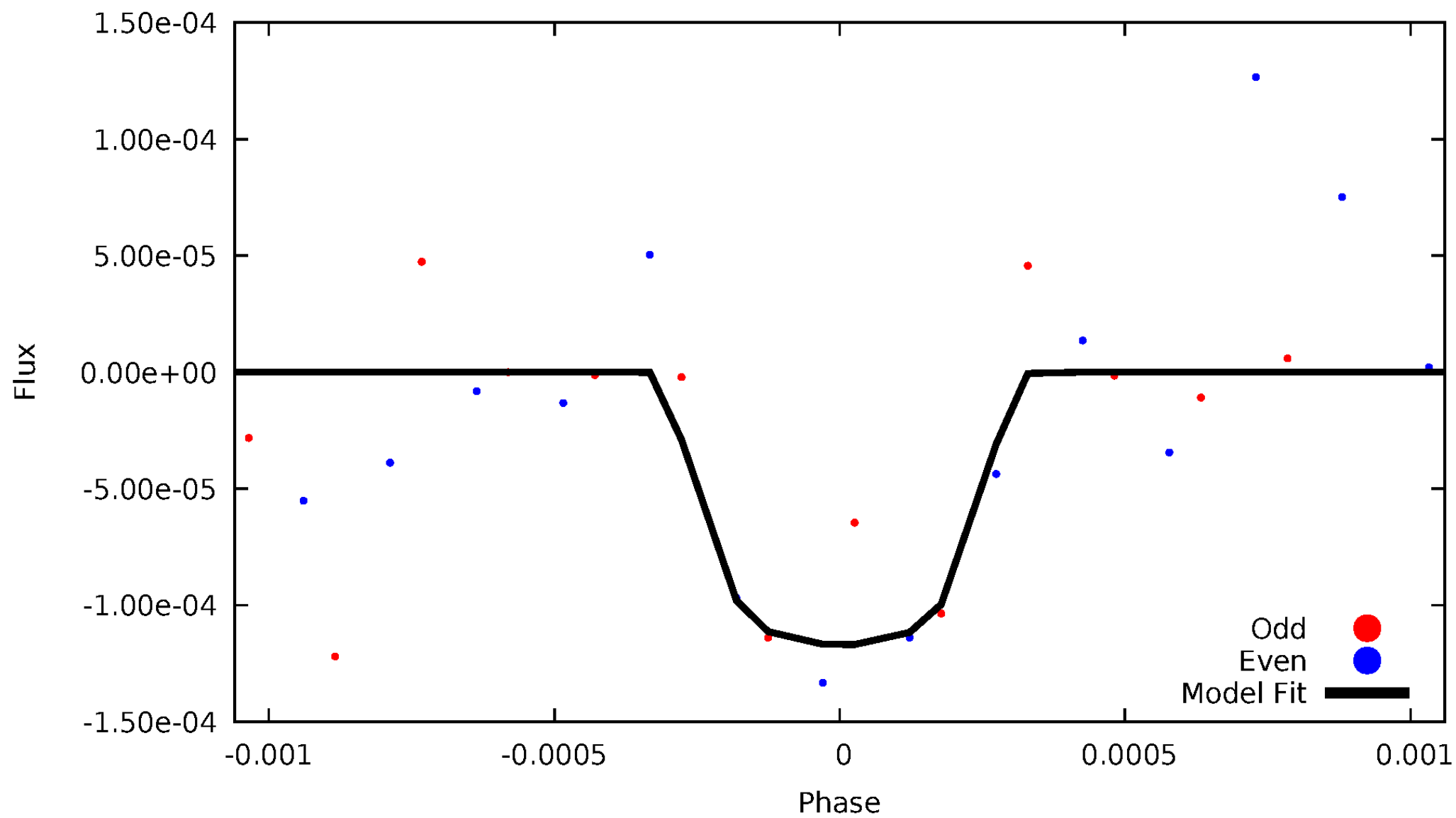


TCE 004568729-02



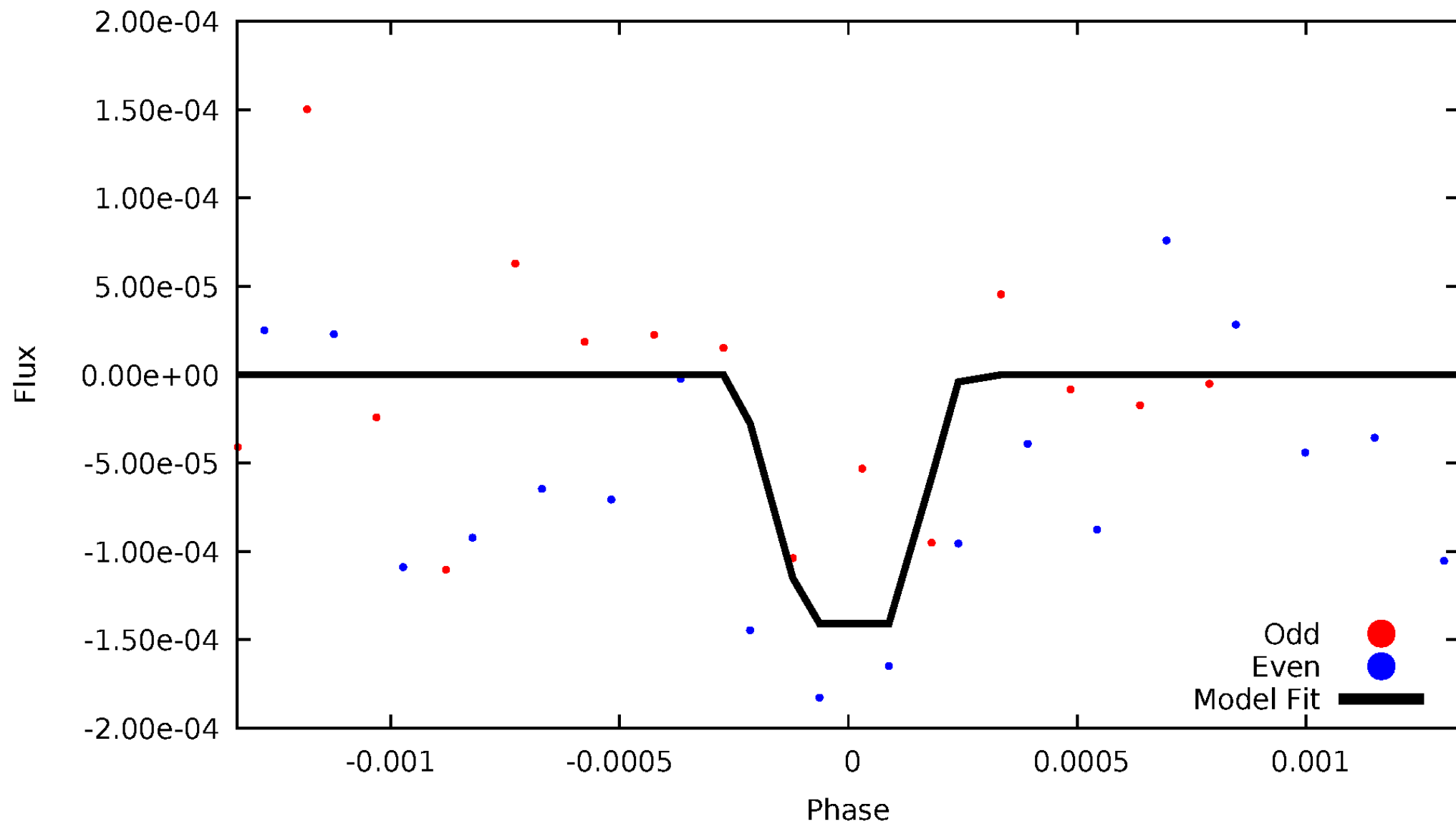
DV Odd/Even

TCE 004568729-02



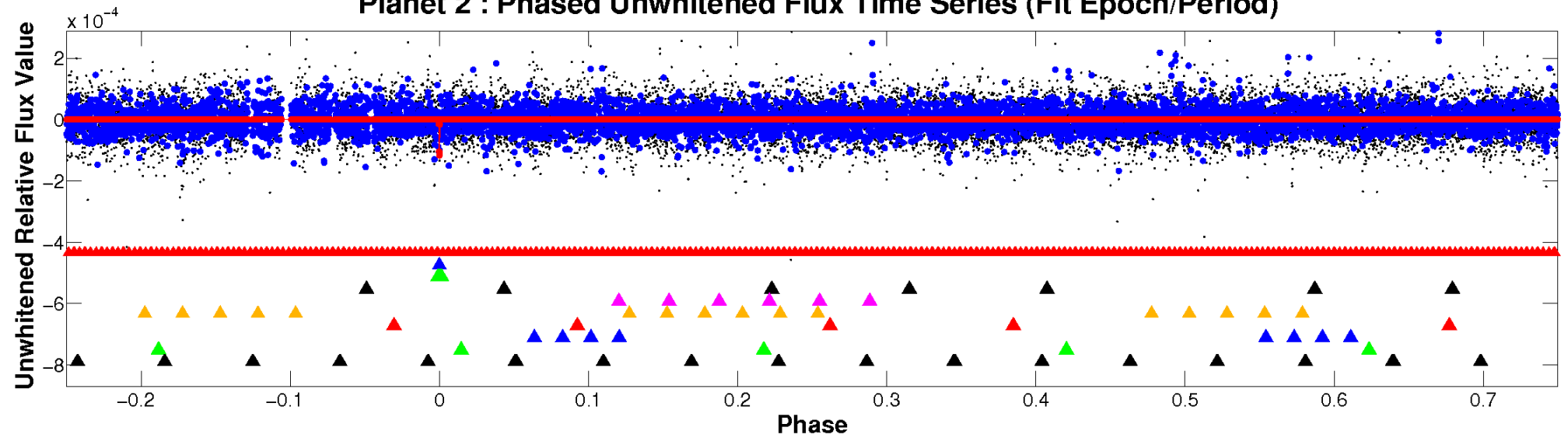
ALT Odd/Even

TCE 004568729-02

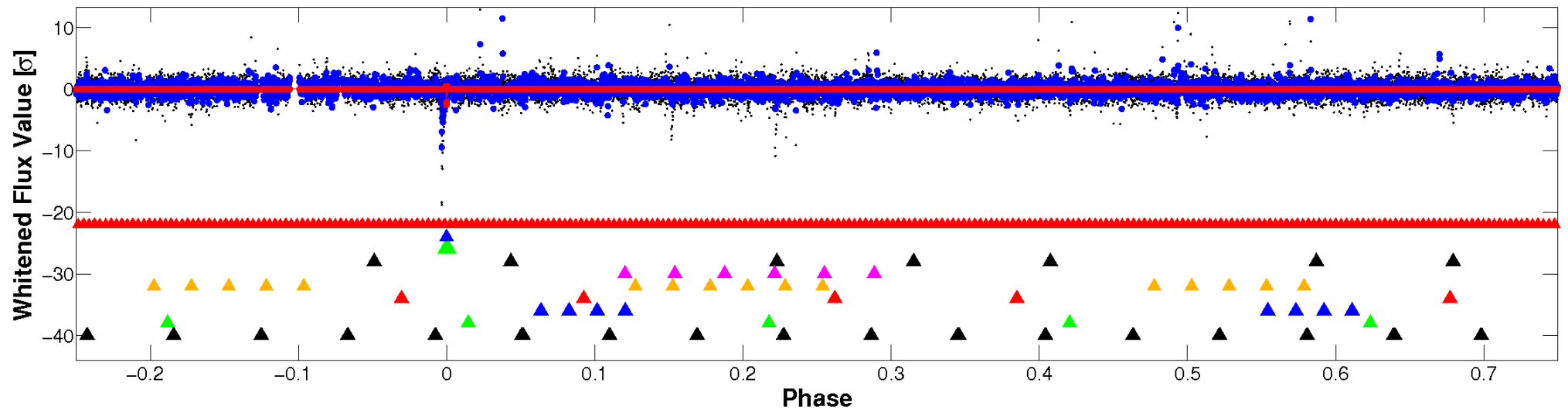


Non-Whitened Vs. Whitened Light Curve

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

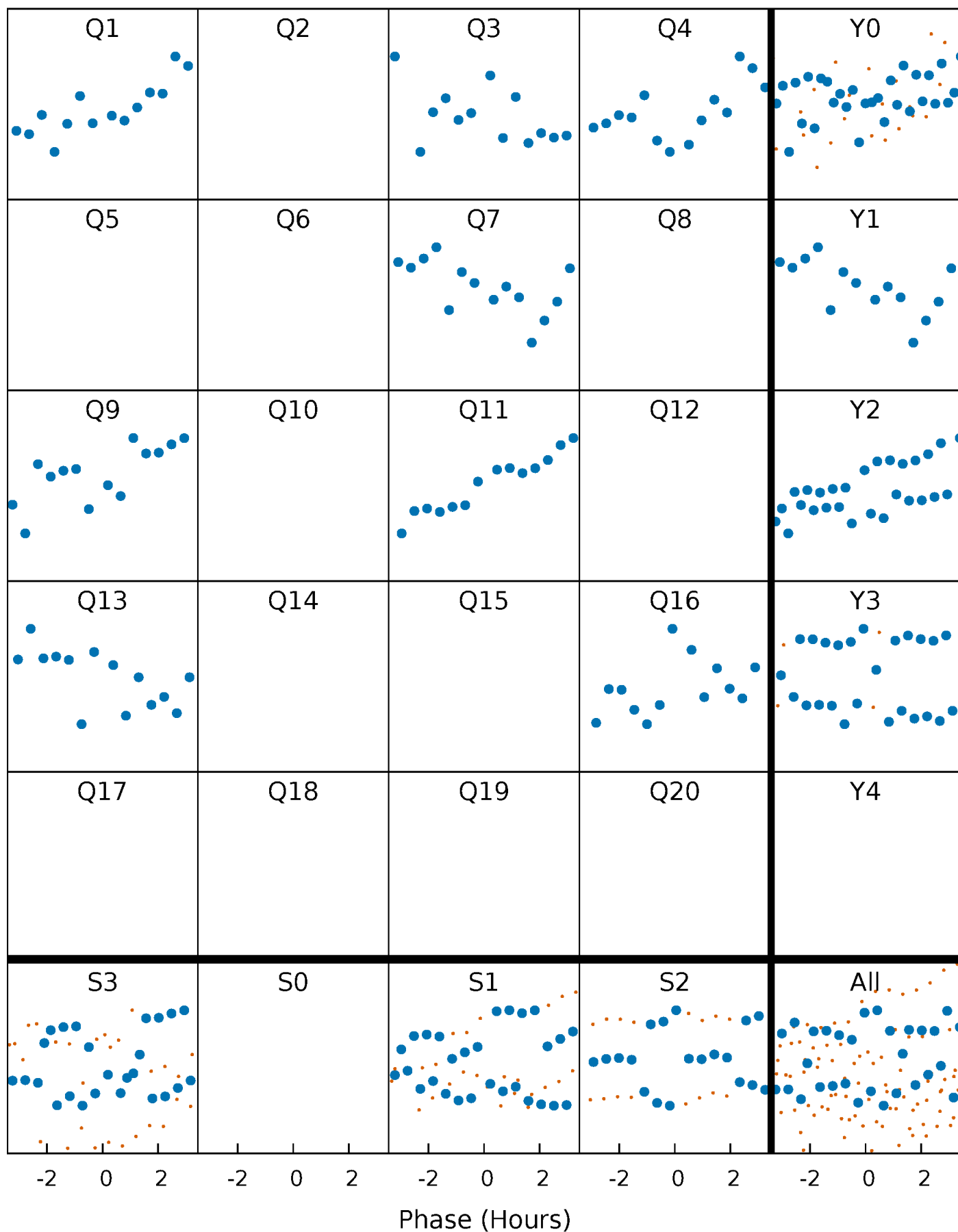


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



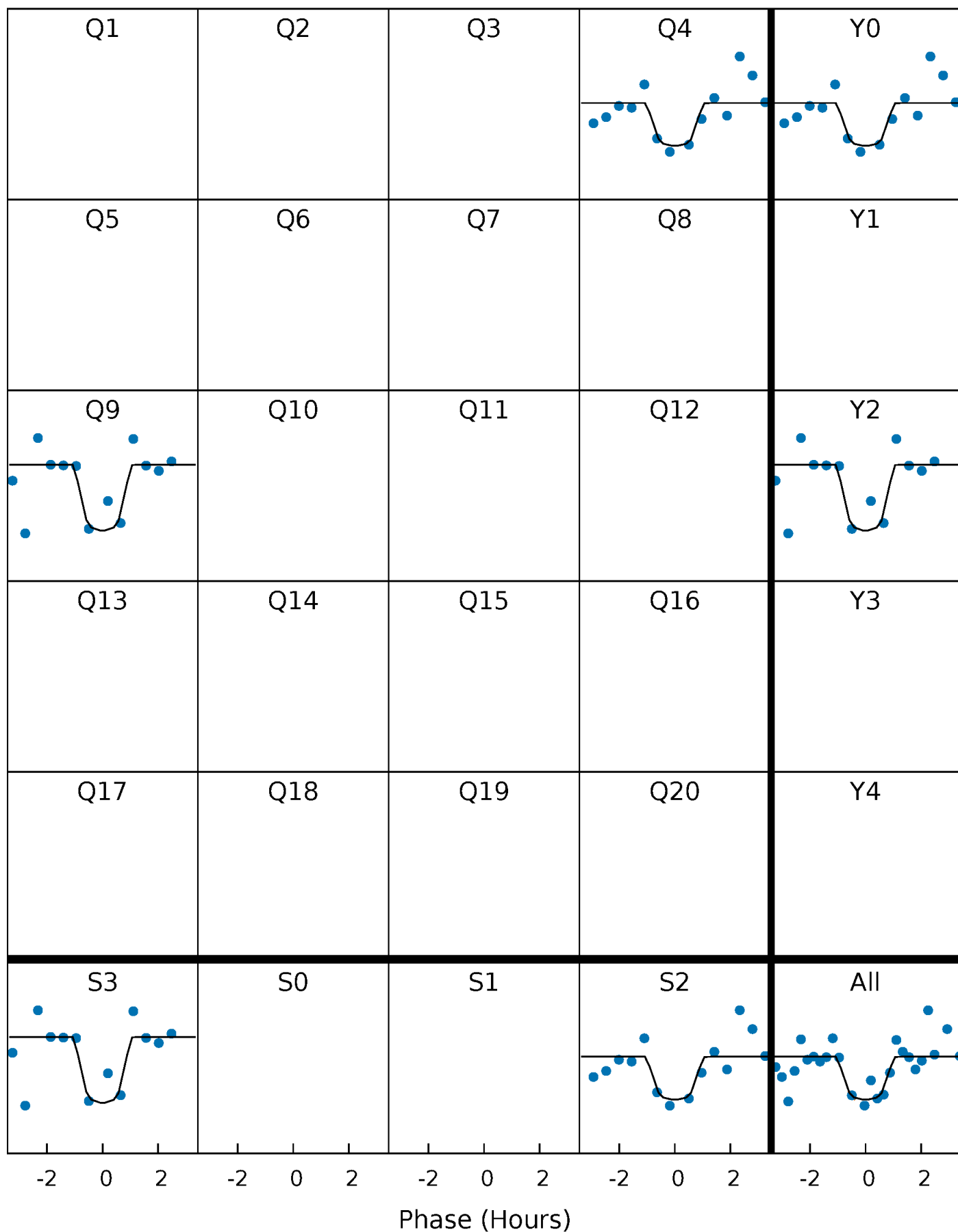
PDC Quarter-Phased Transit Curves

TCE 004568729-02 $P=134.743758$ Days $T_0=144.724252$ (BKJD)



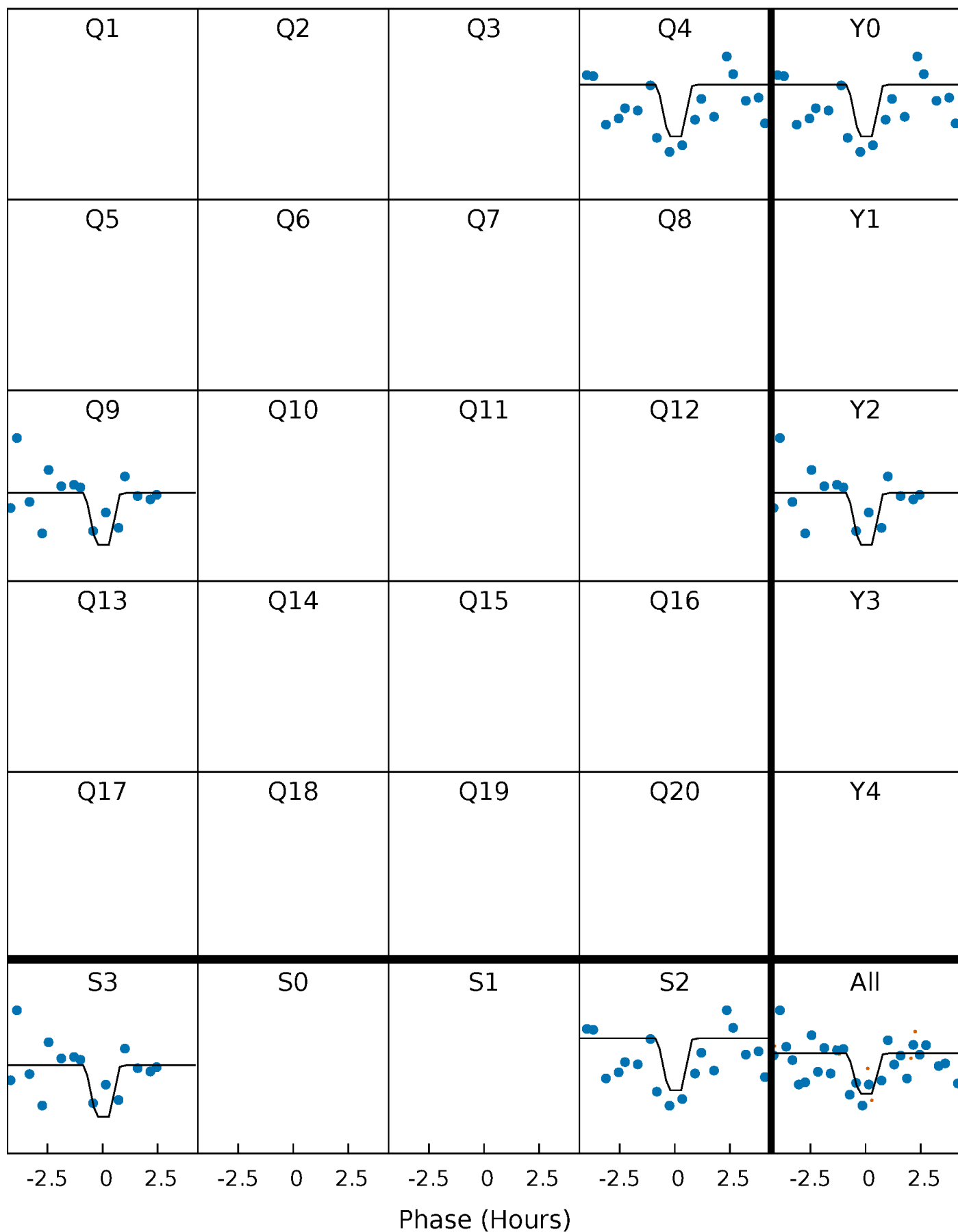
DV Quarter-Phased Transit Curves

TCE 004568729-02 $P=134.743758$ Days $T_0=144.724252$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

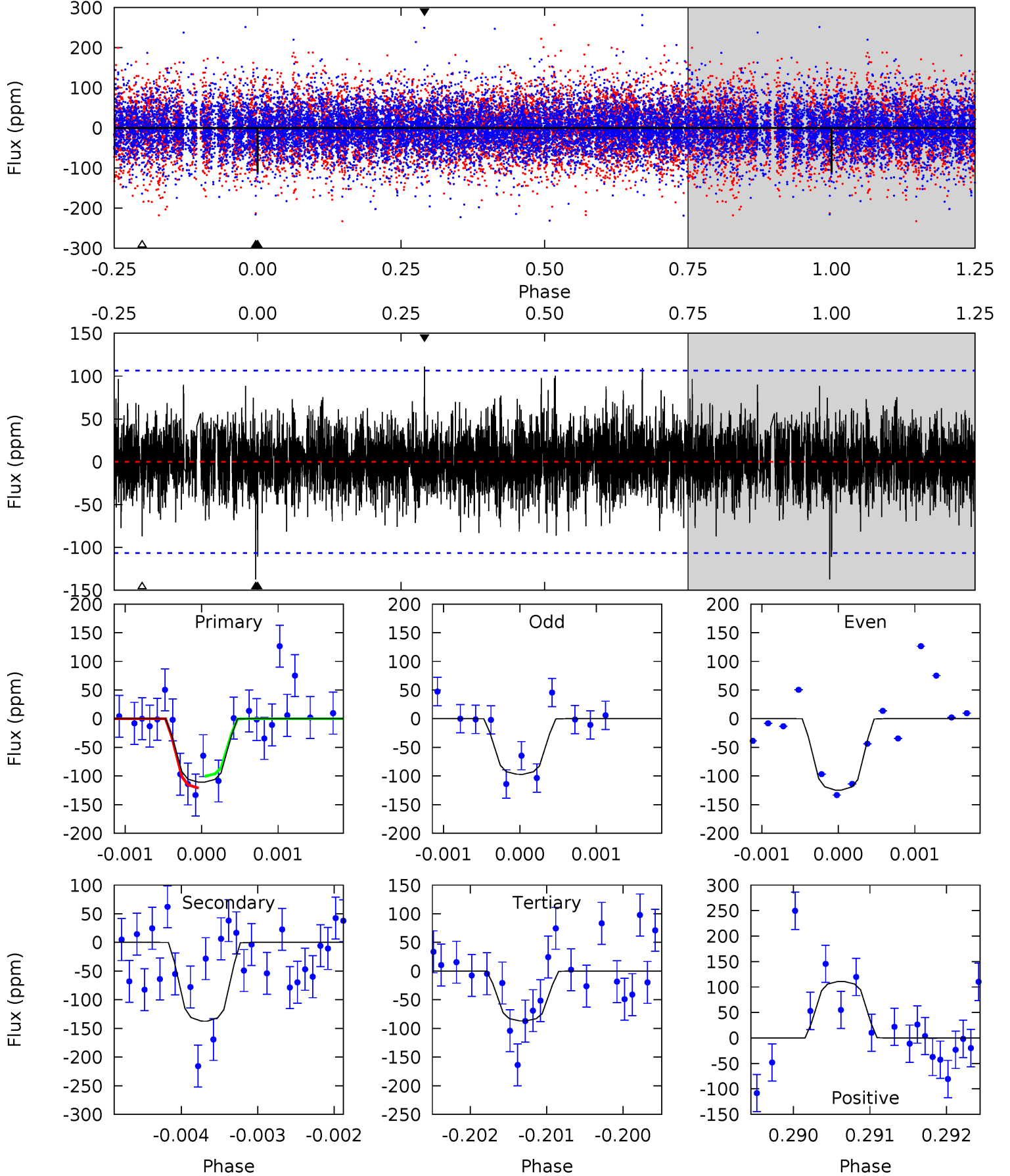
TCE 004568729-02 P=134.742049 Days $T_0=144.732212$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-02, P = 134.743758 Days, E = 9.980494 Days

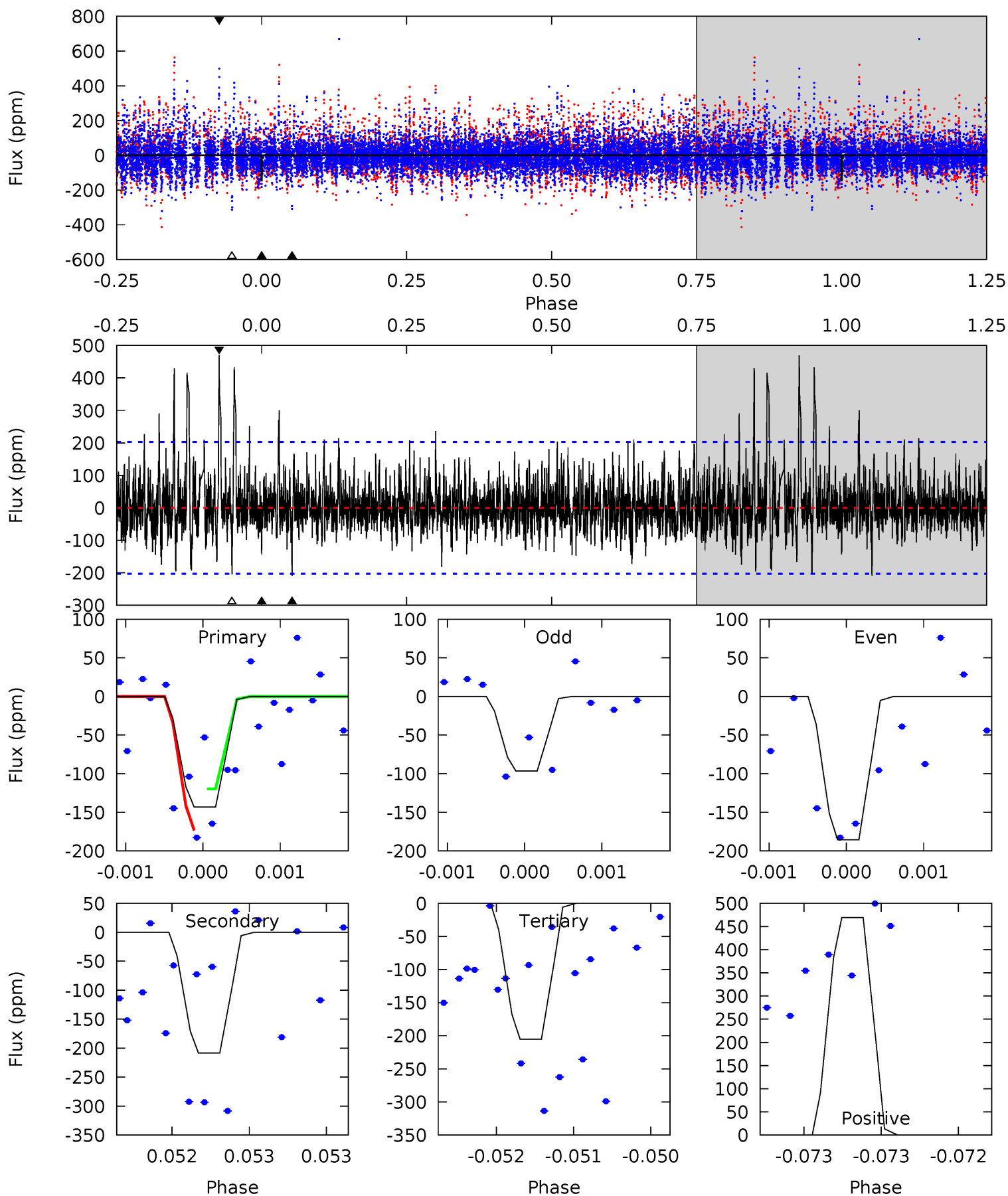
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.74	7.12	4.50	5.74	5.51	3.39	1.27	1.24	-0.00	2.61	1.37	0.73	1.00	0.45	0.51



Alt Model-Shift Uniqueness Test

004568729-02, P = 134.742049 Days, E = 9.990163 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.93	5.71	5.62	12.9	5.56	3.46	1.61	-1.69	-8.93	0.09	-7.14	1.16	1.00	0.69	0.67



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-137 ± 19	$3.61^{+3.46}_{-2.40}$	766^{+67}_{-54}	5600^{+5259}_{-1392}	1968^{+15308}_{-1469}
Alt.	-209 ± 36	$3.71^{+3.62}_{-2.54}$	773^{+57}_{-55}	6130^{+6863}_{-1579}	2760^{+23914}_{-2070}

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 $A_{obs} \gg 1.0$

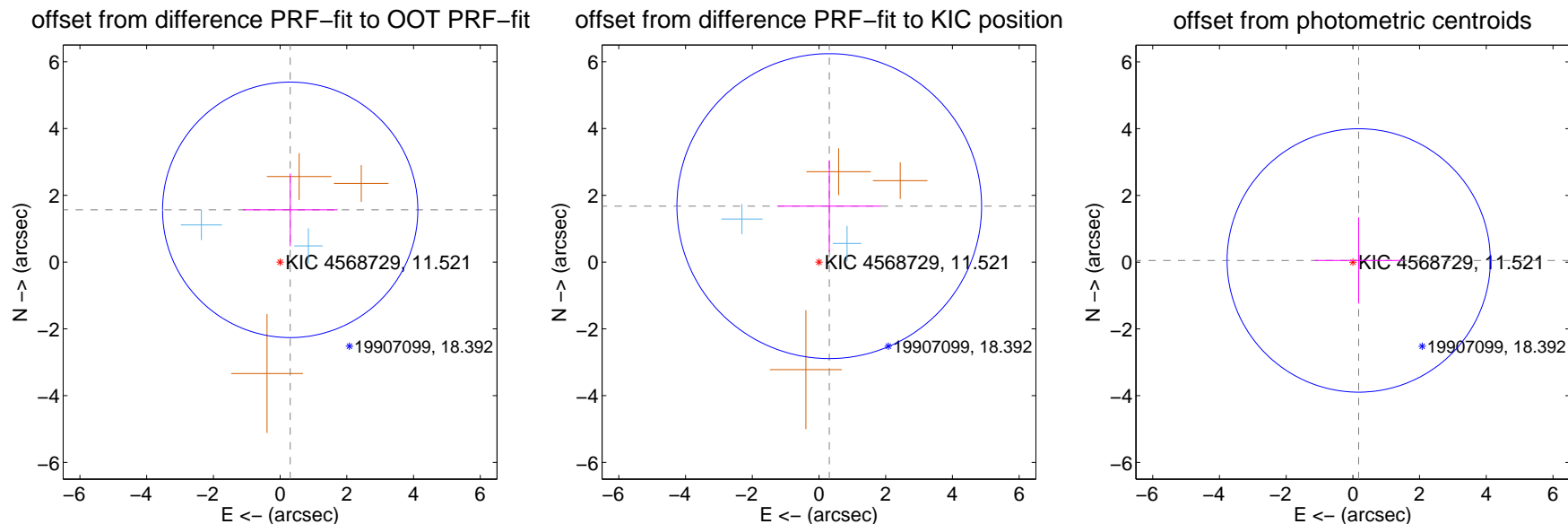
DV Centroid Data

Supplemental centroid analysis for 004568729-02. **Kepler magnitude: 11.52.** Transit SNR 5.78

There are 2 quarters with good PRF difference image offsets

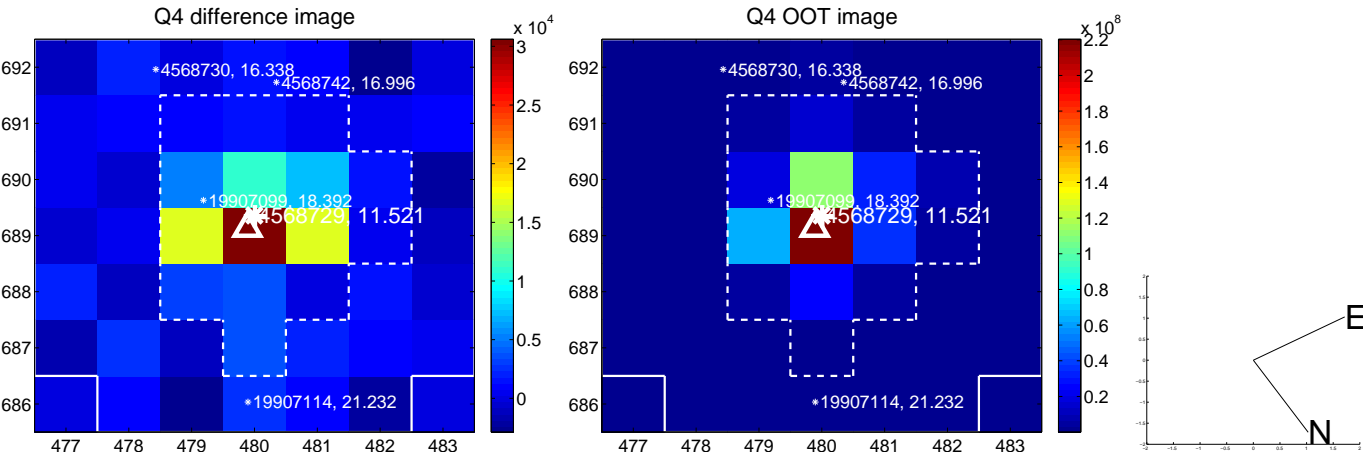
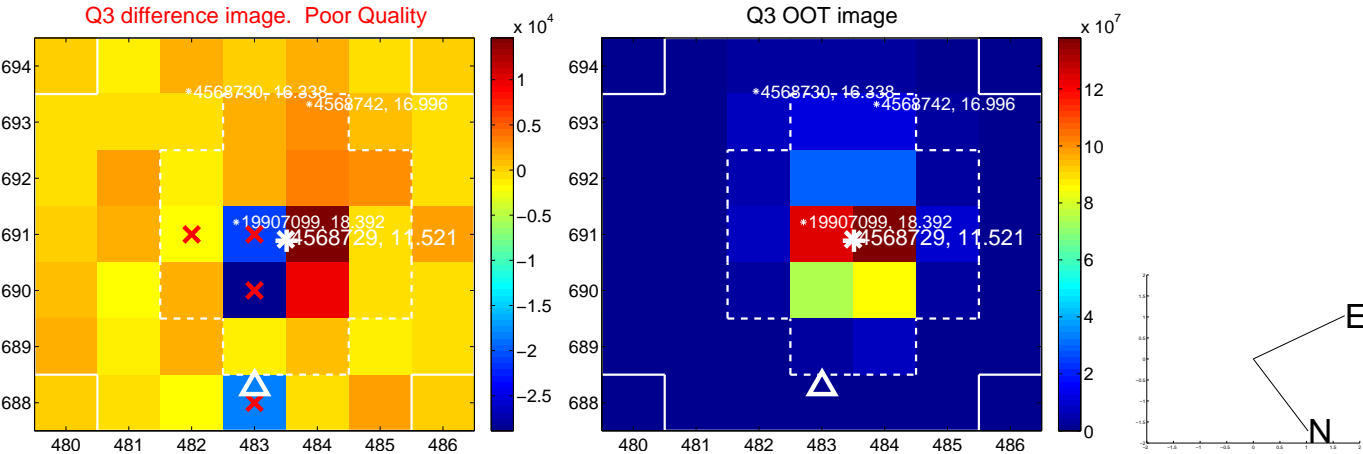
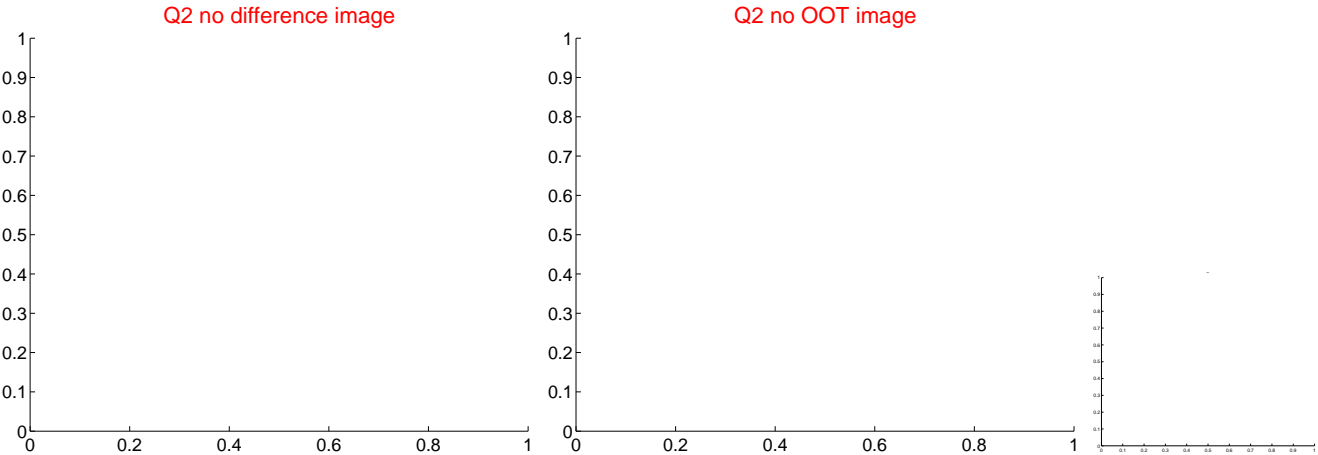
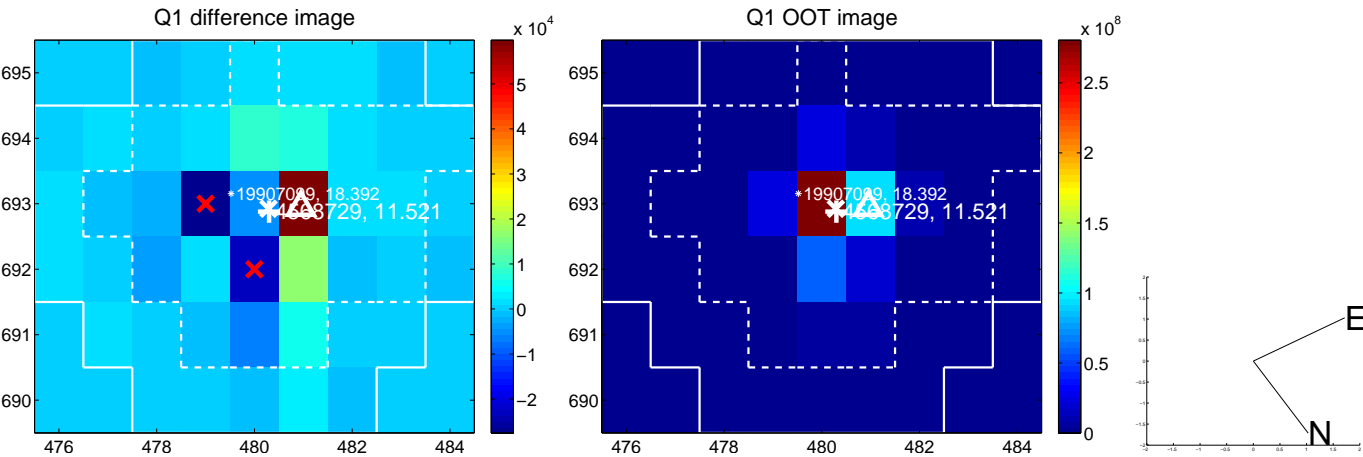
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.594 ± 1.275	1.25	-0.302 ± 1.419	1.565 ± 1.088
PRF-fit source offset from KIC position	1.704 ± 1.522	1.12	-0.308 ± 1.543	1.676 ± 1.372
photometric centroid source offset	0.18 ± 1.32	0.14	-0.18 ± 1.32	0.05 ± 1.29

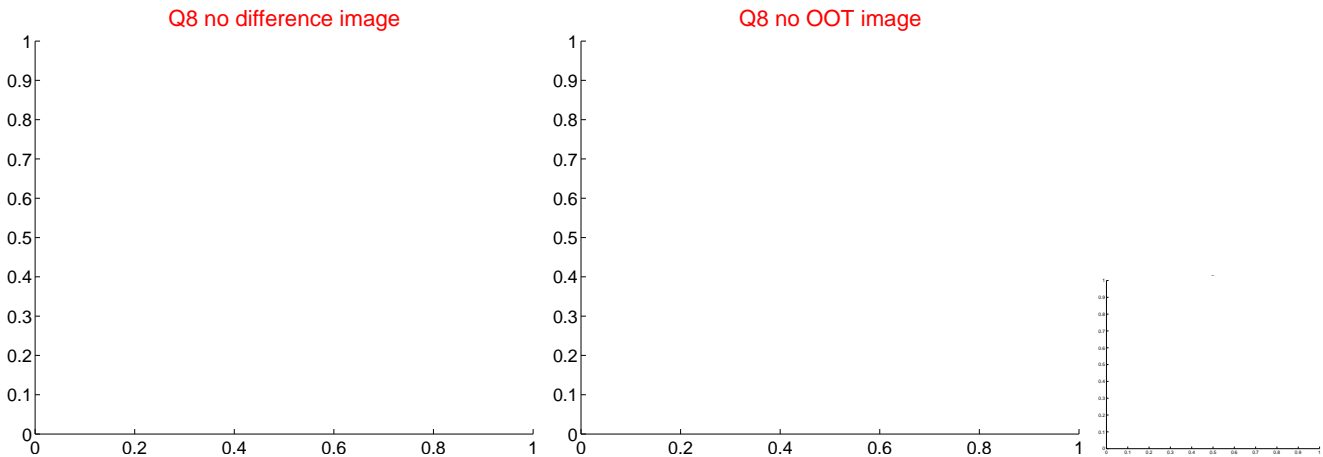
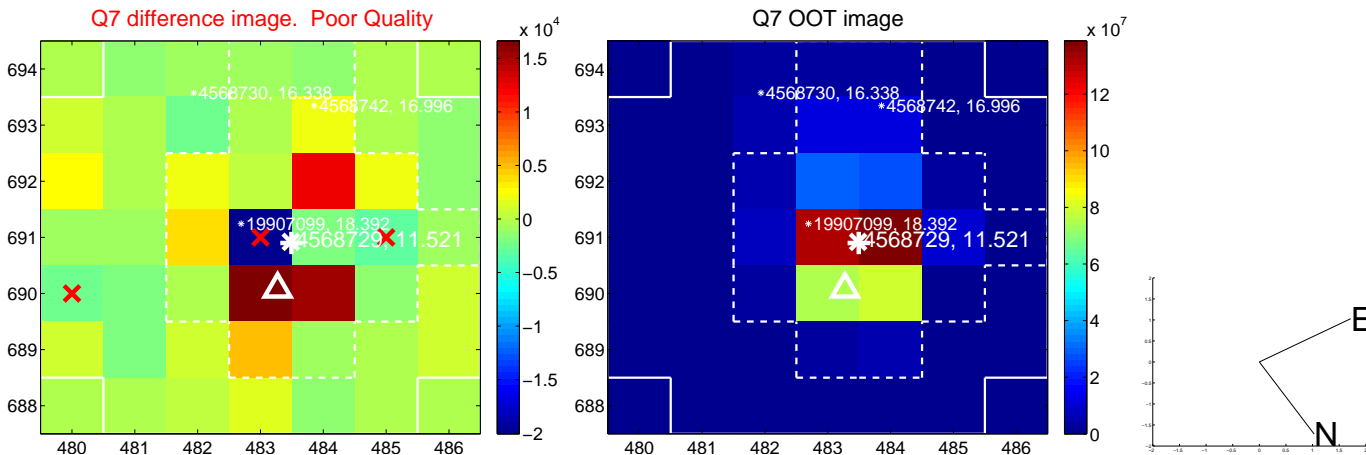
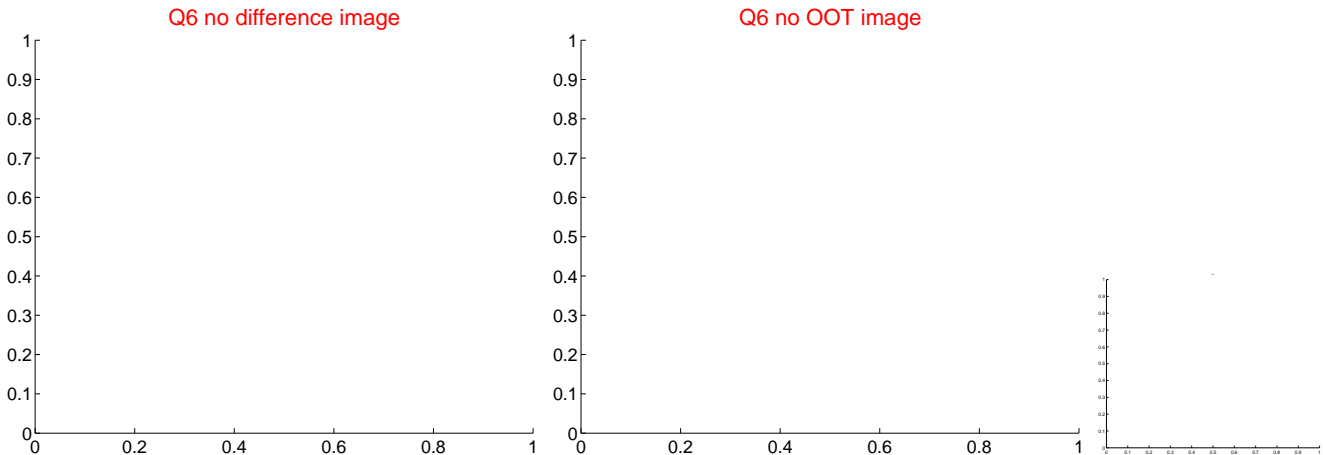
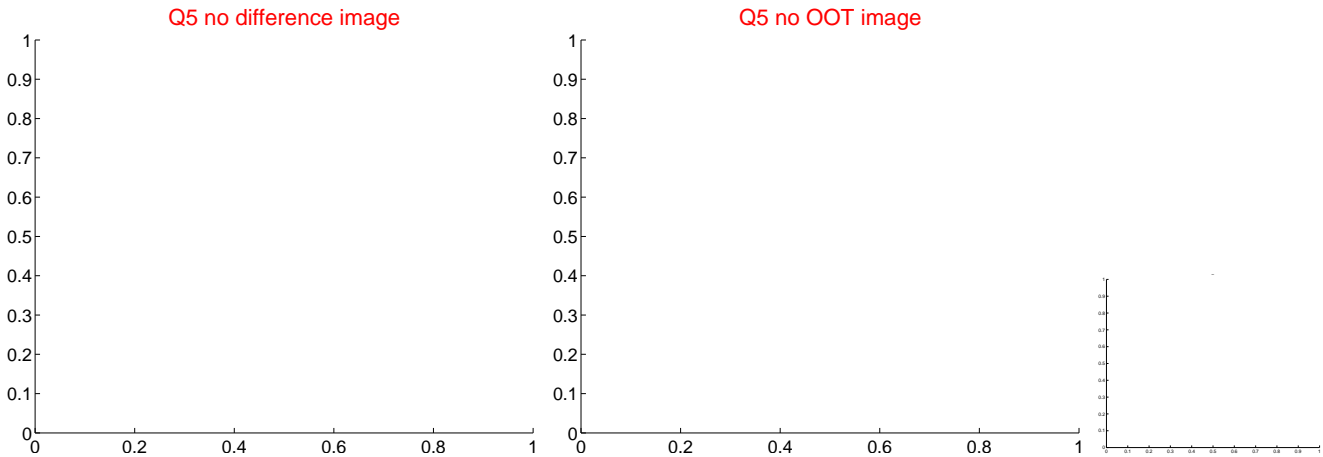


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

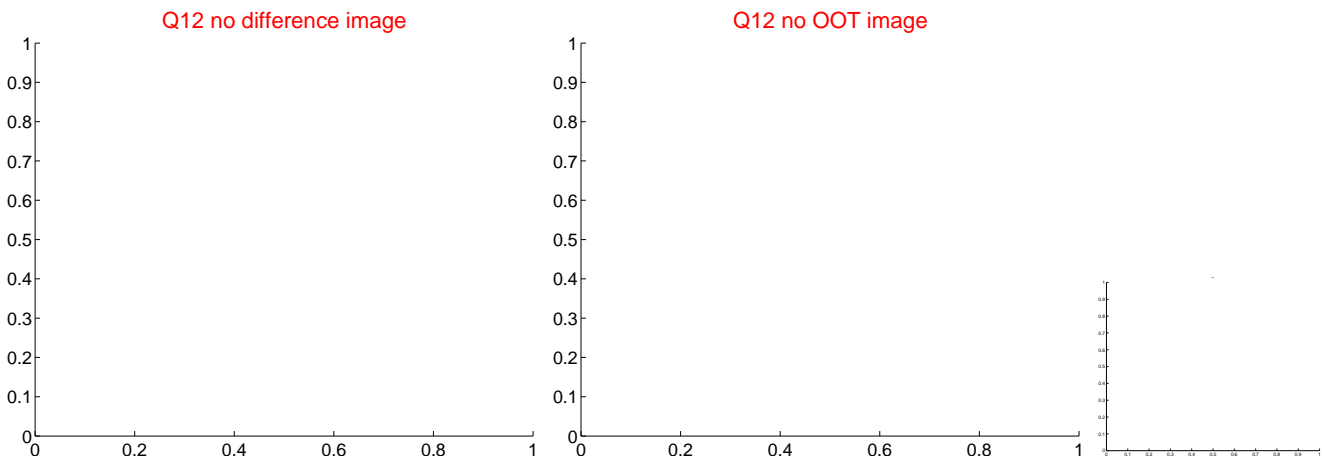
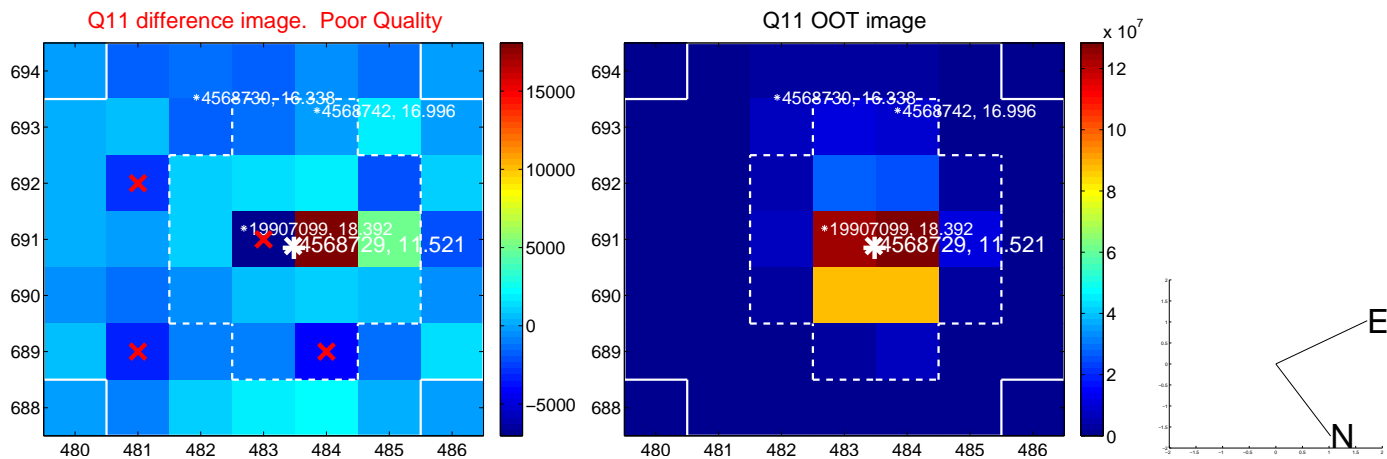
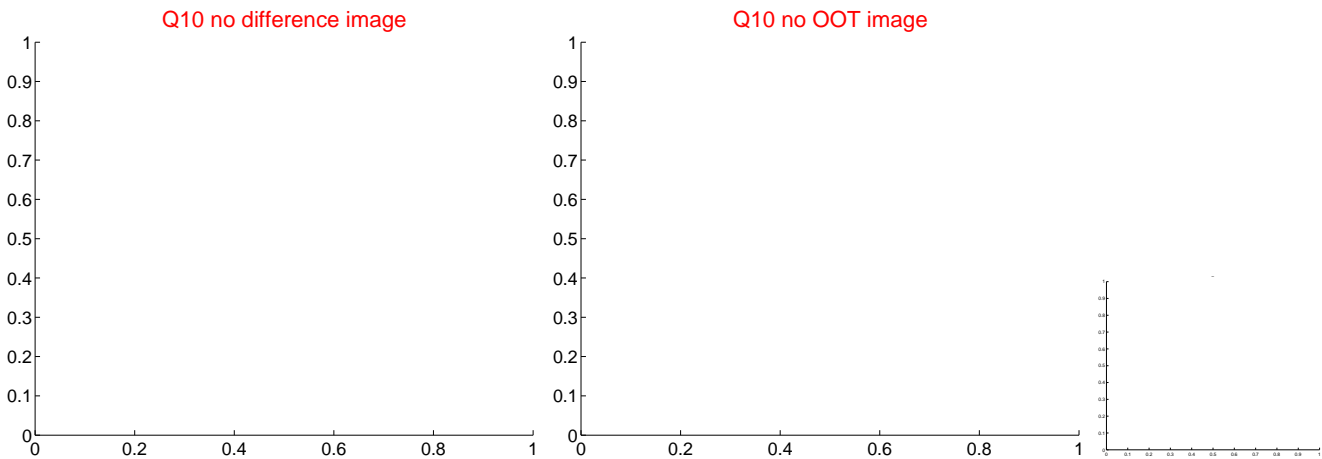
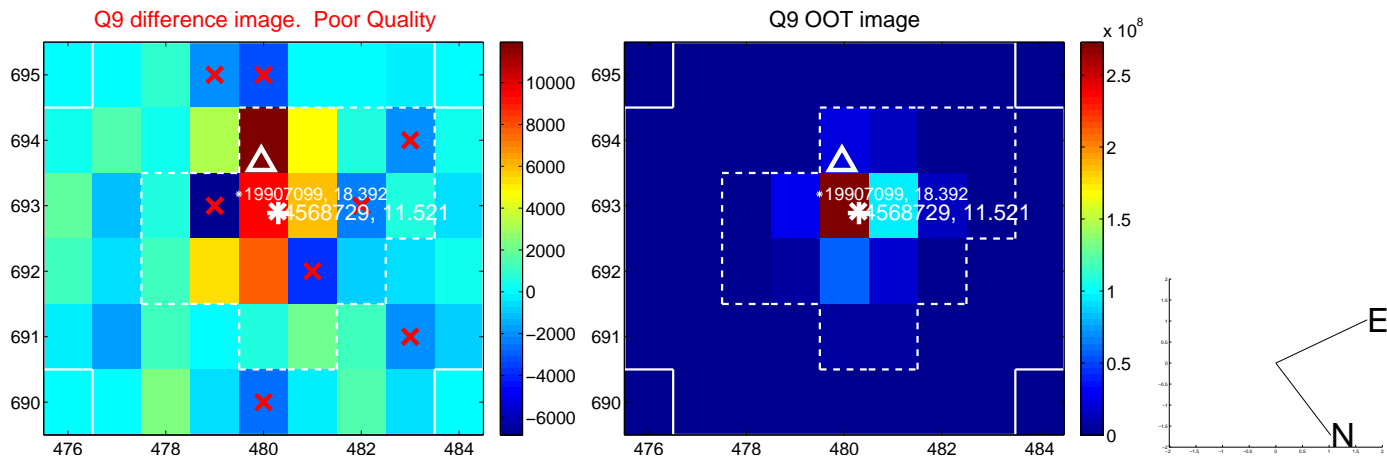
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



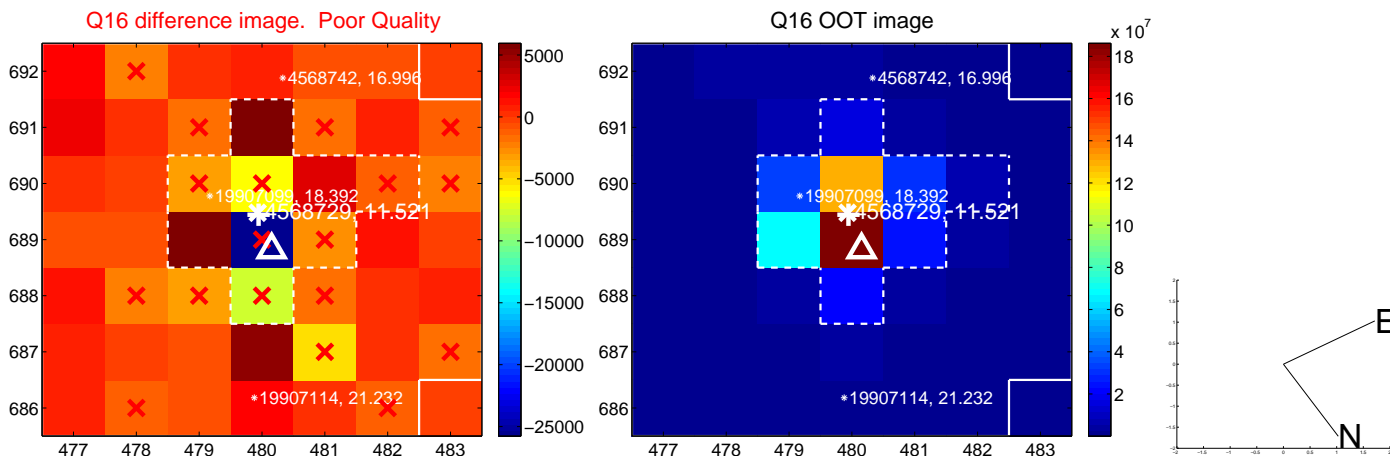
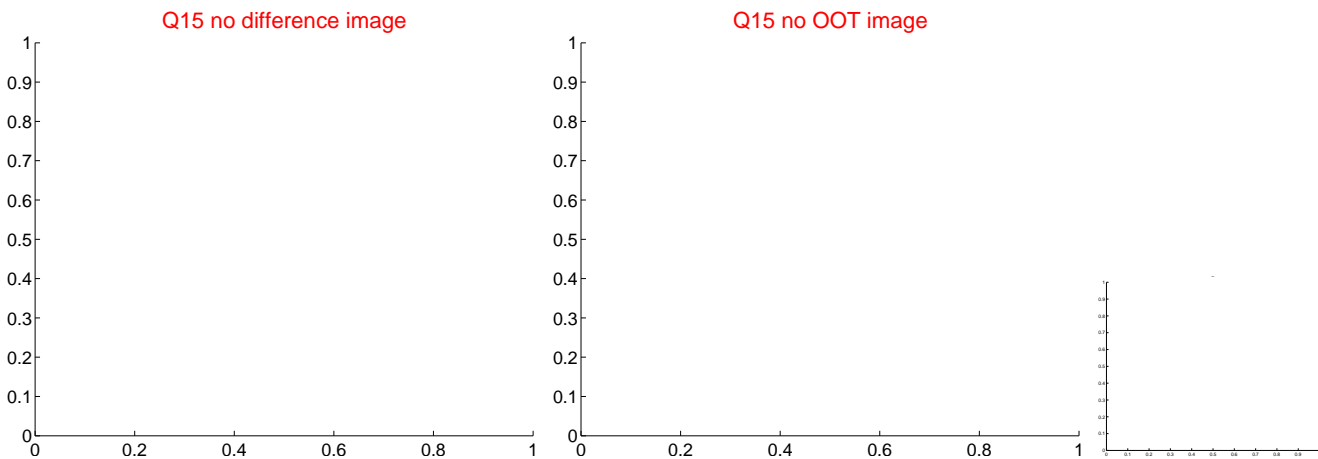
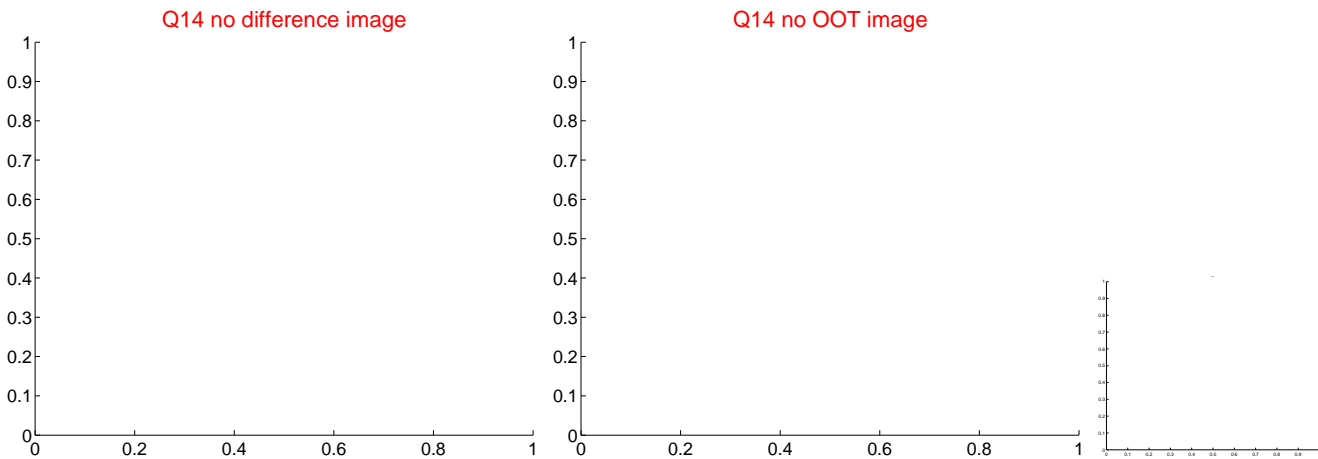
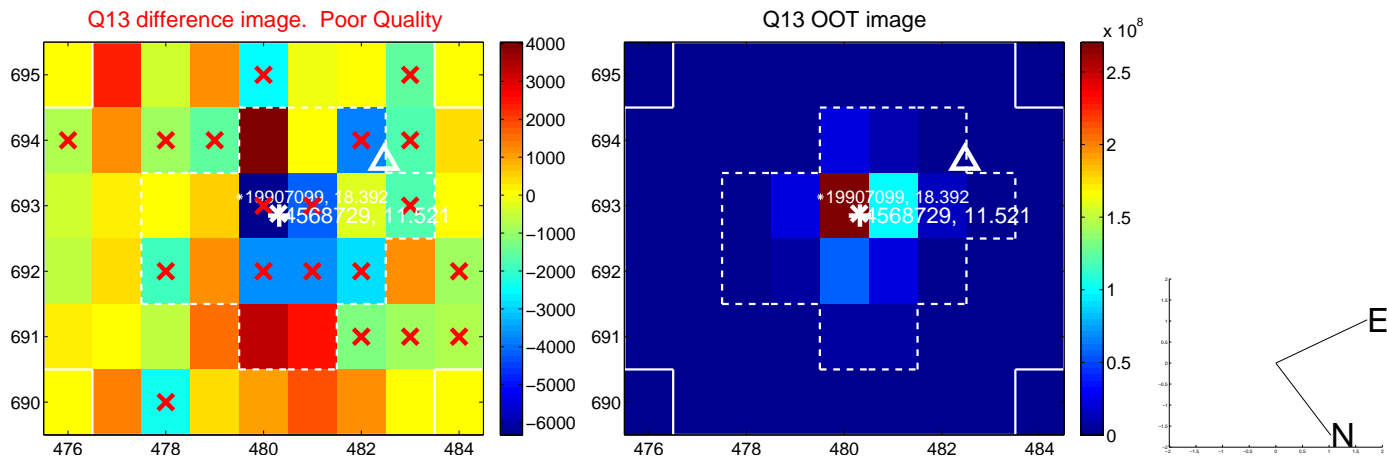
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



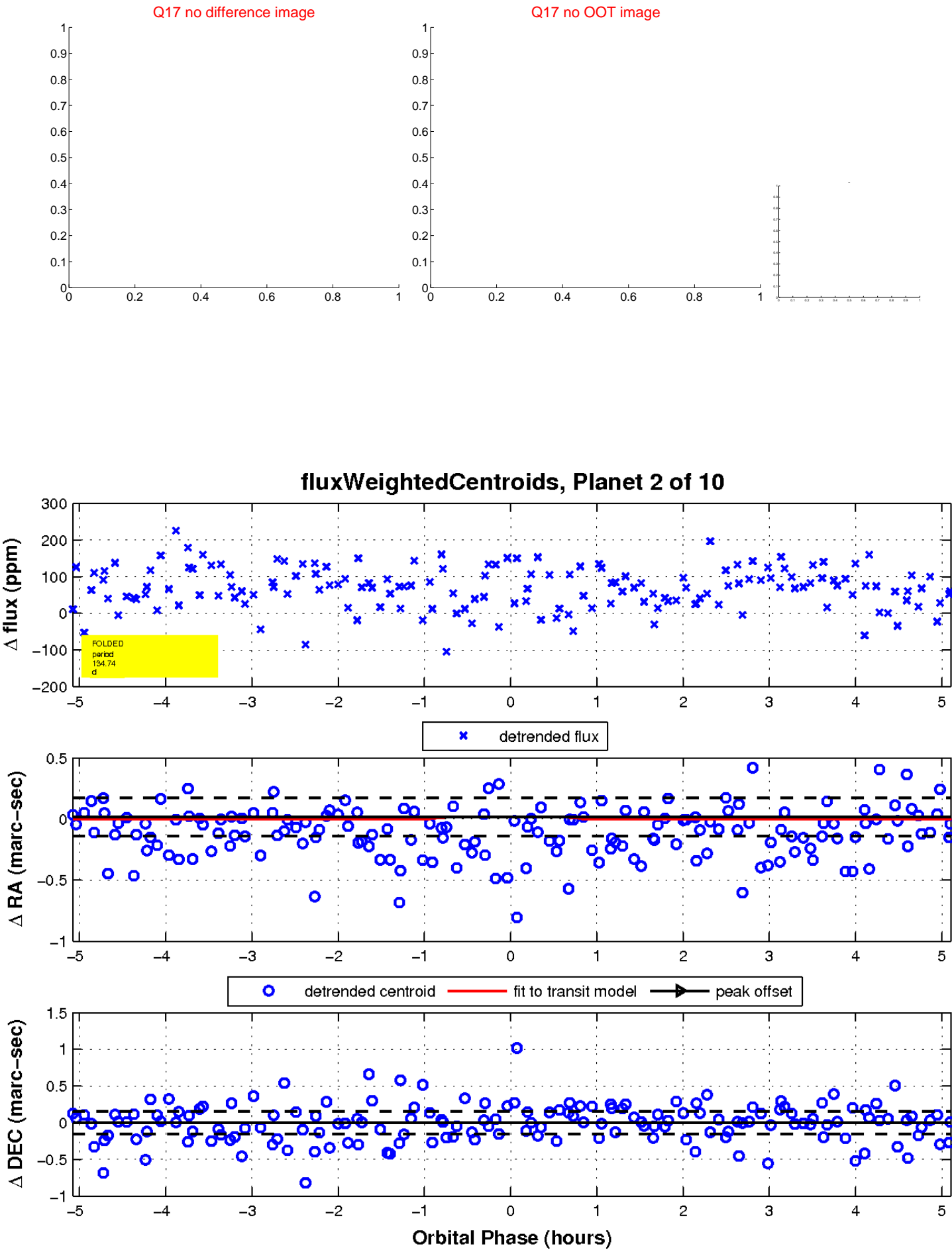
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

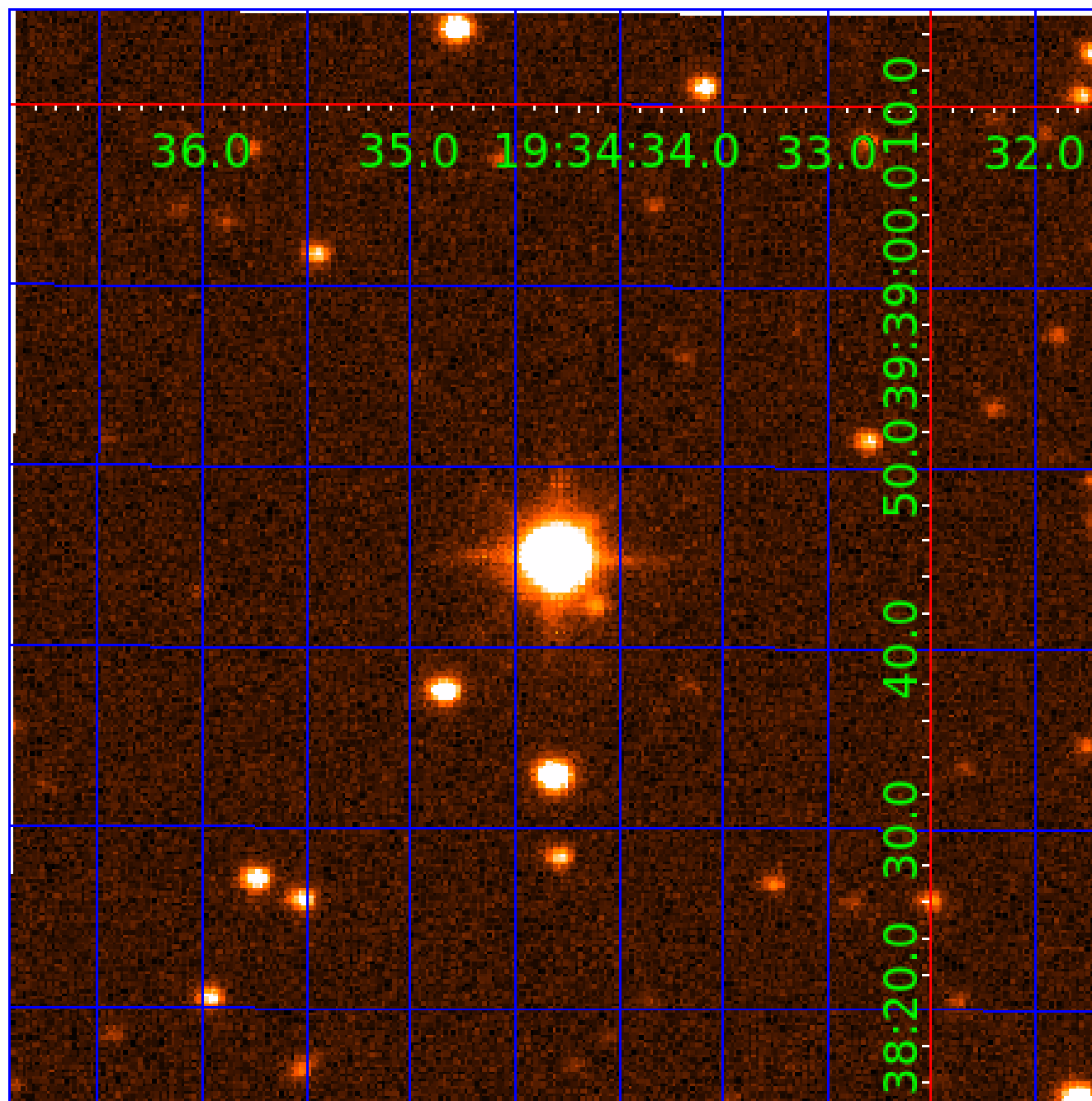


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
004568729-06	OBS	No	90.964616	161.891452	244.7	4.761	19.2	13.9	1.73	7210	3.05	36.13
004568729-07	OBS	No	308.882039	157.191871	170.0	18.520	12.5	6.6	1.73	7210	4.39	7.08
004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

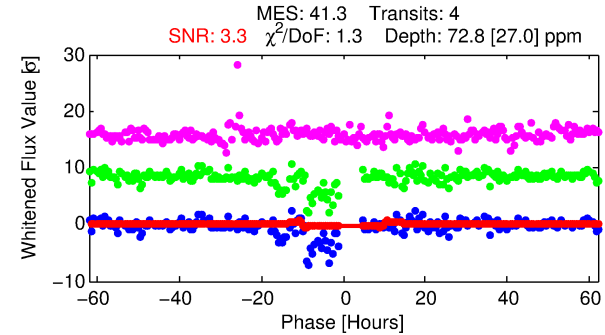
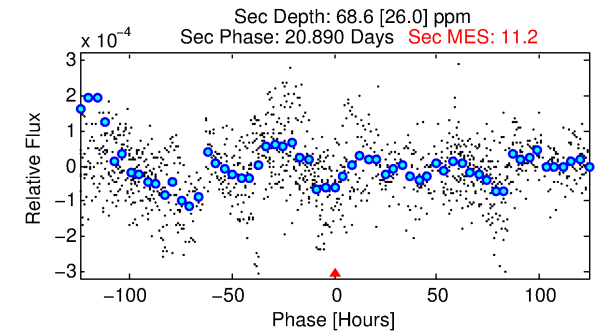
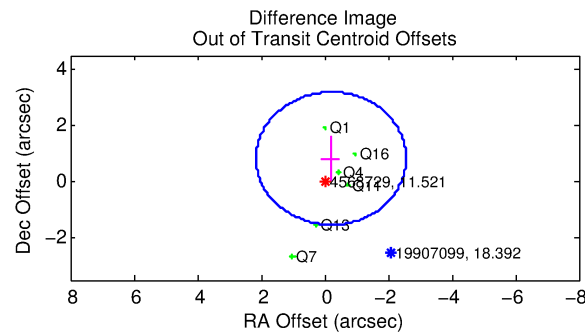
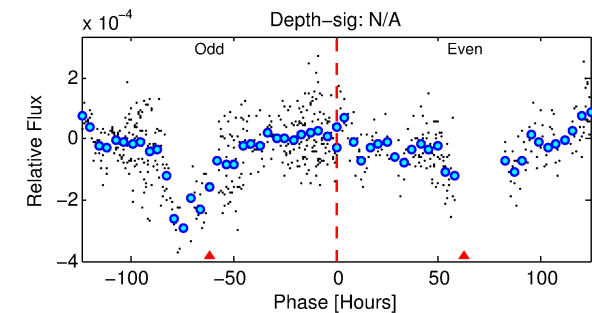
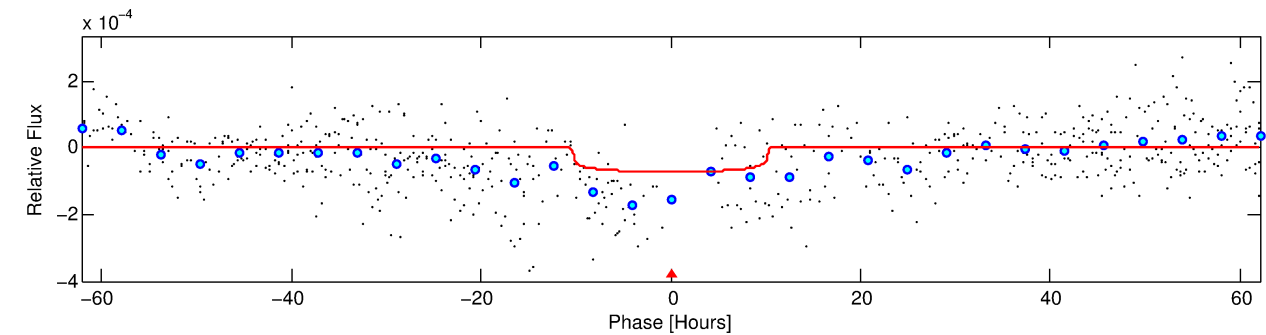
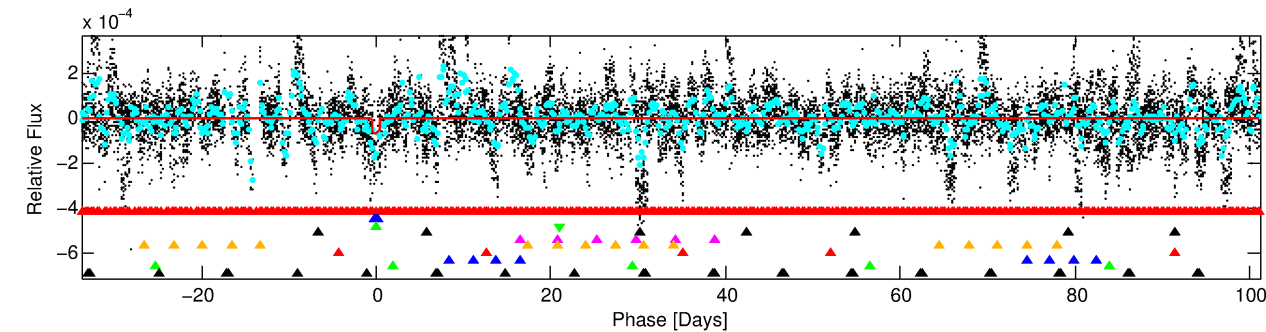
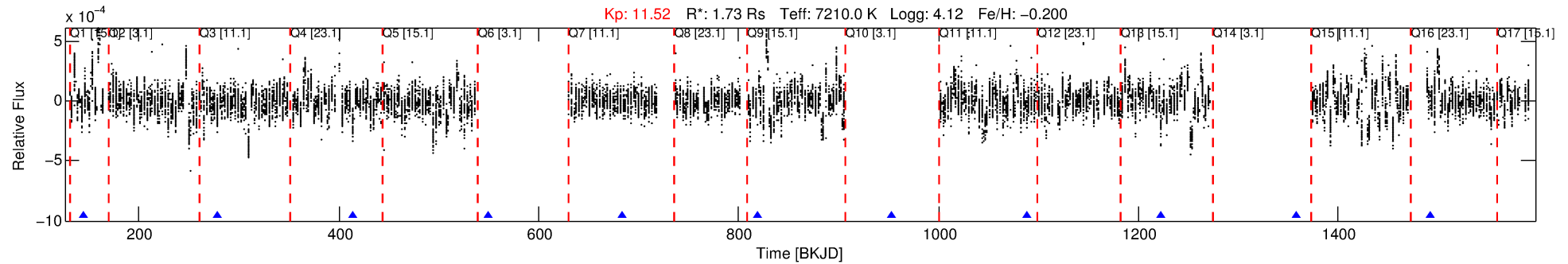
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-03

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 3 of 10 Period: 134.786 d



DV Fit Results:

Period = 134.78567 [0.00441] d
Epoch = 144.5521 [0.0262] BKJD
Rp/R* = 0.0080 [0.0059]
a/R* = 46.69 [204.35]
b = 0.37 [10.41]
Seff = 21.39 [8.32]
Teq = 548 [53] K
Rp = 1.51 [1.21] Re
a = 0.5814 [0.1454] AU
Ag = 5596.04 [8811.26] [0.63] σ
Teffp = 7333 [2825] K [2.40] σ

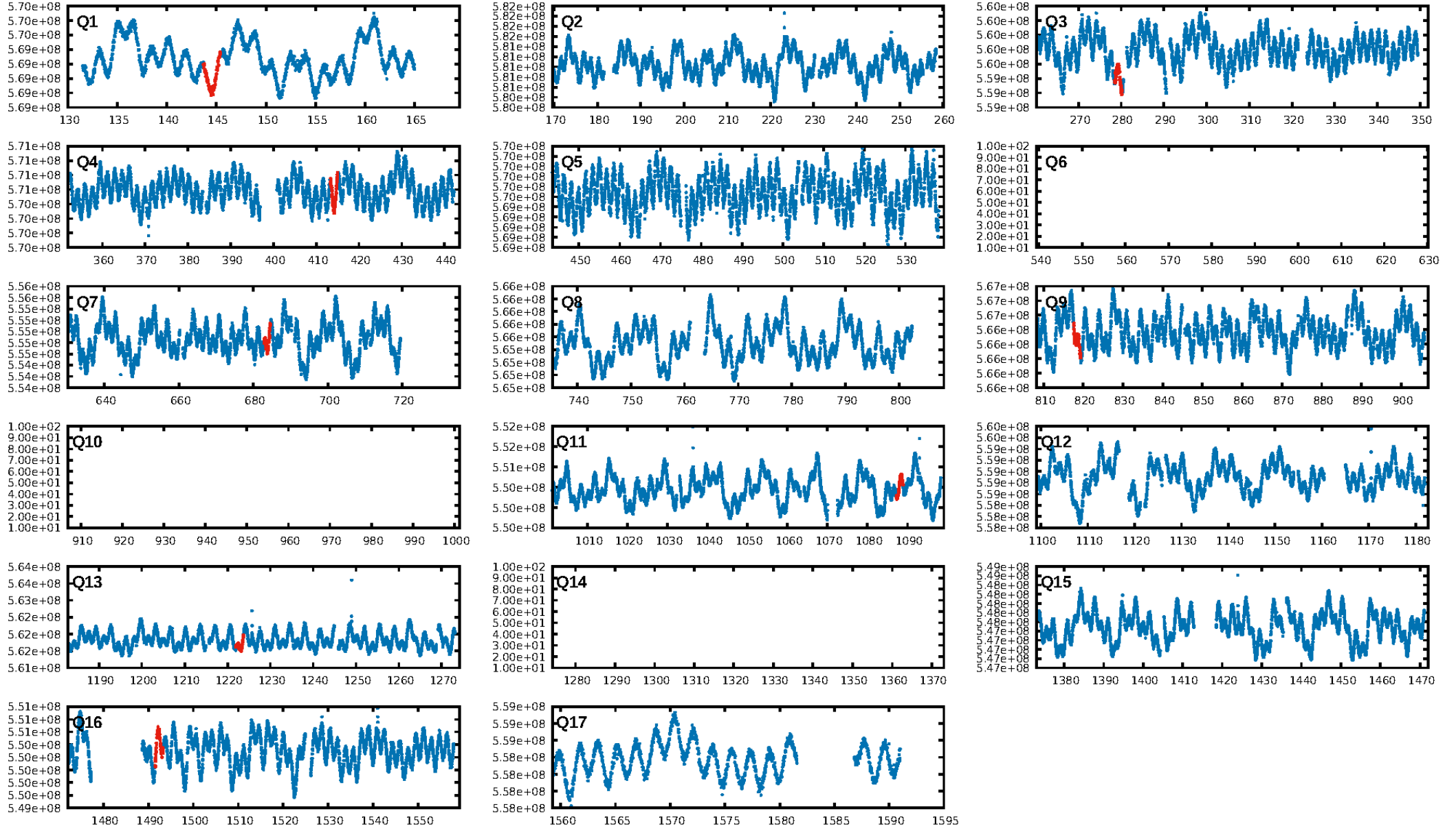
DV Diagnostic Results:

ShortPeriod-sig: 3.9% [0.05] σ
LongPeriod-sig: 100.0% [38.84] σ
ModelChiSquare2-sig: 29.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.74e-130
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.4328
Centroid-sig: 6.0%
Centroid-so: 1.654 arcsec [1.58] σ
OotOffset-rm: 0.855 arcsec [1.09] σ
OotOffset-st: 0/2/2/2 [6]
KicOffset-rm: 1.001 arcsec [1.37] σ
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.00 [0/7]

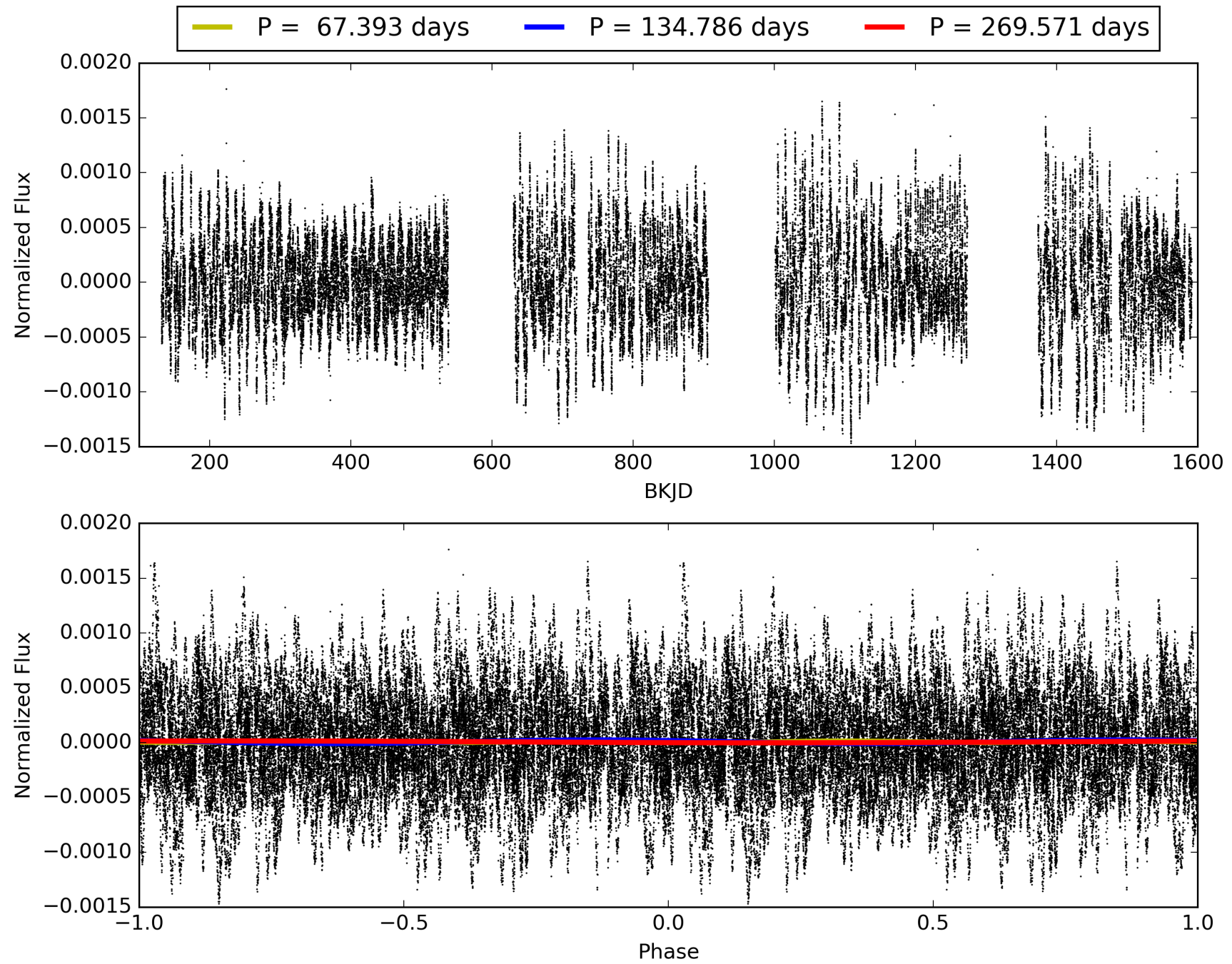
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:01:09 Z

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

TCE 004568729-03, PDC Light Curves

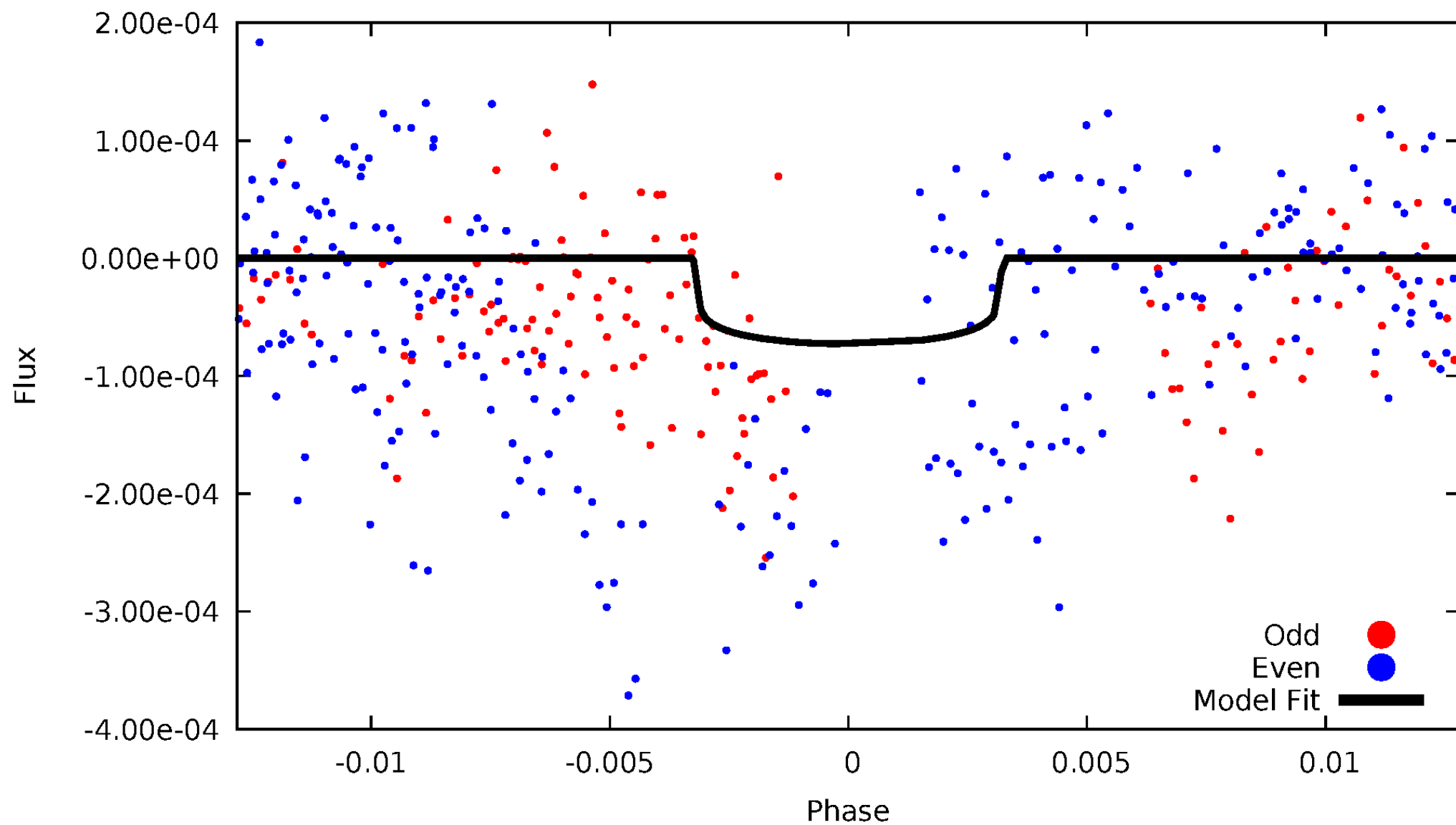


TCE 004568729-03



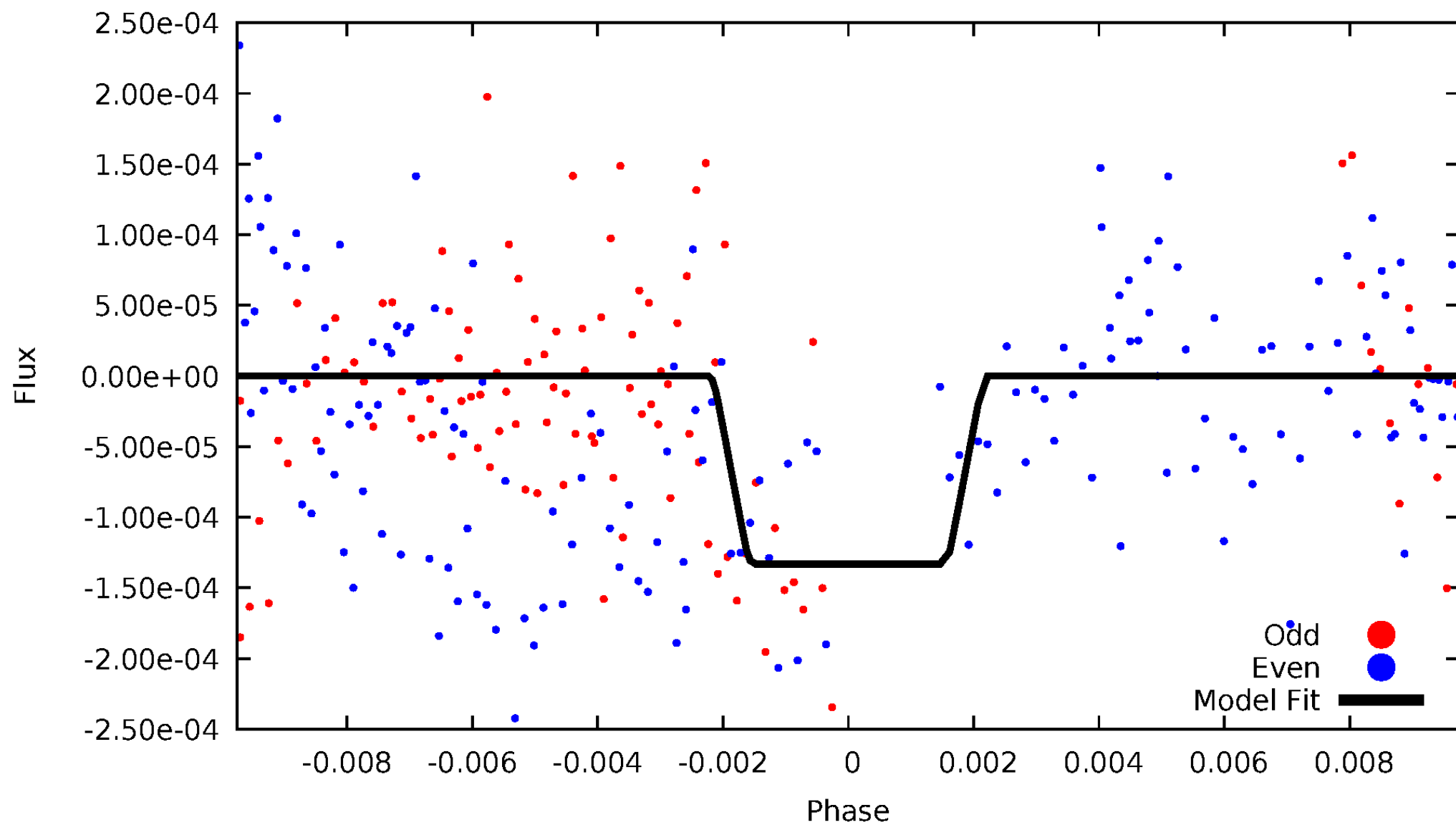
DV Odd/Even

TCE 004568729-03

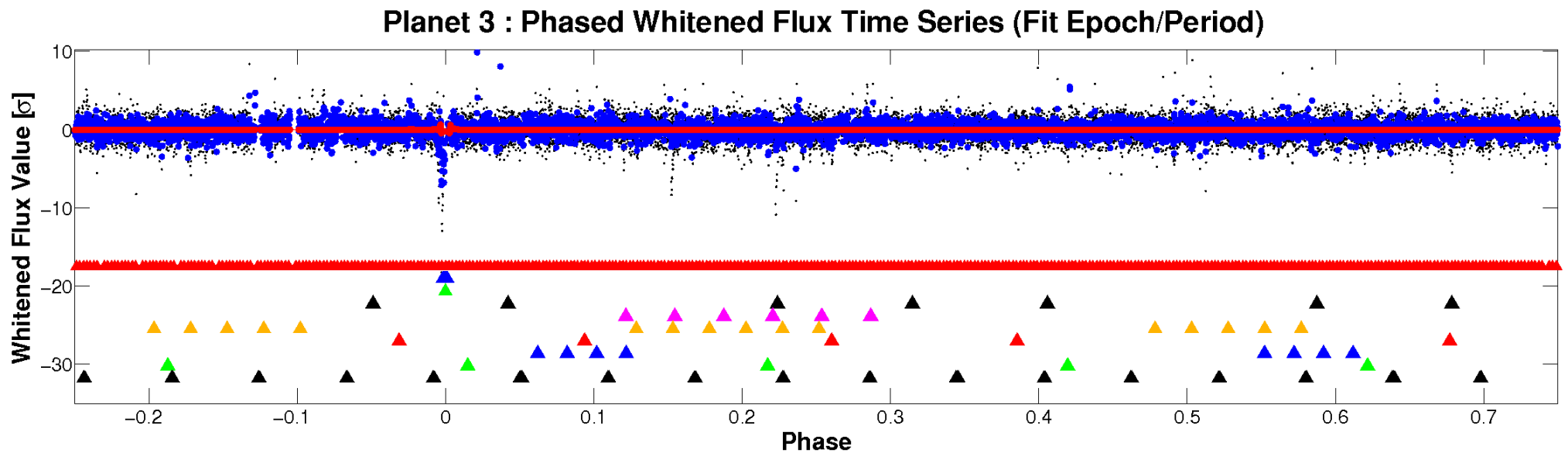
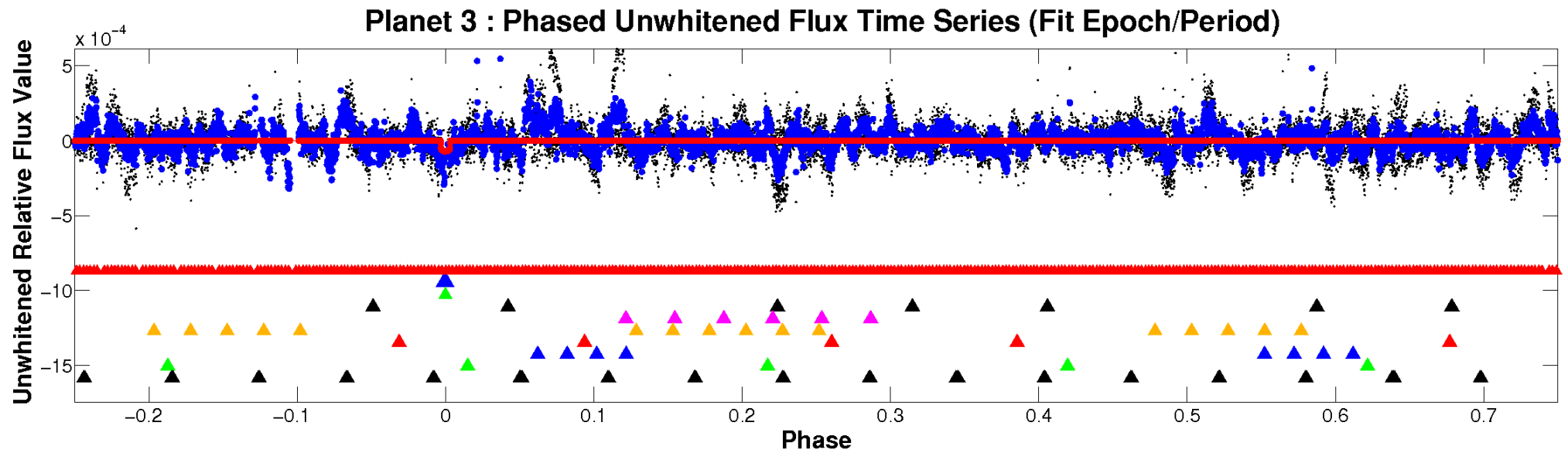


ALT Odd/Even

TCE 004568729-03

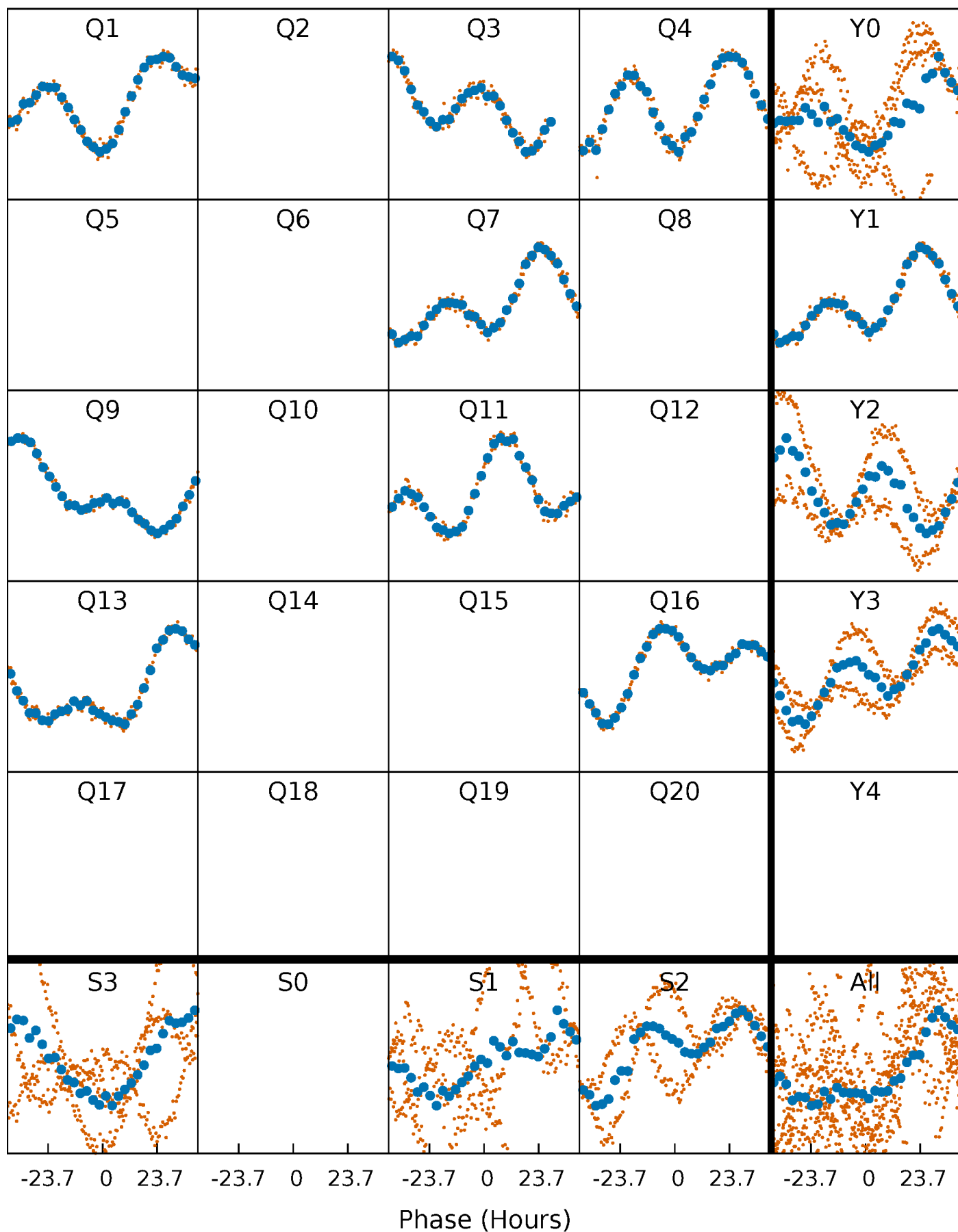


Non-Whitened Vs. Whitened Light Curve



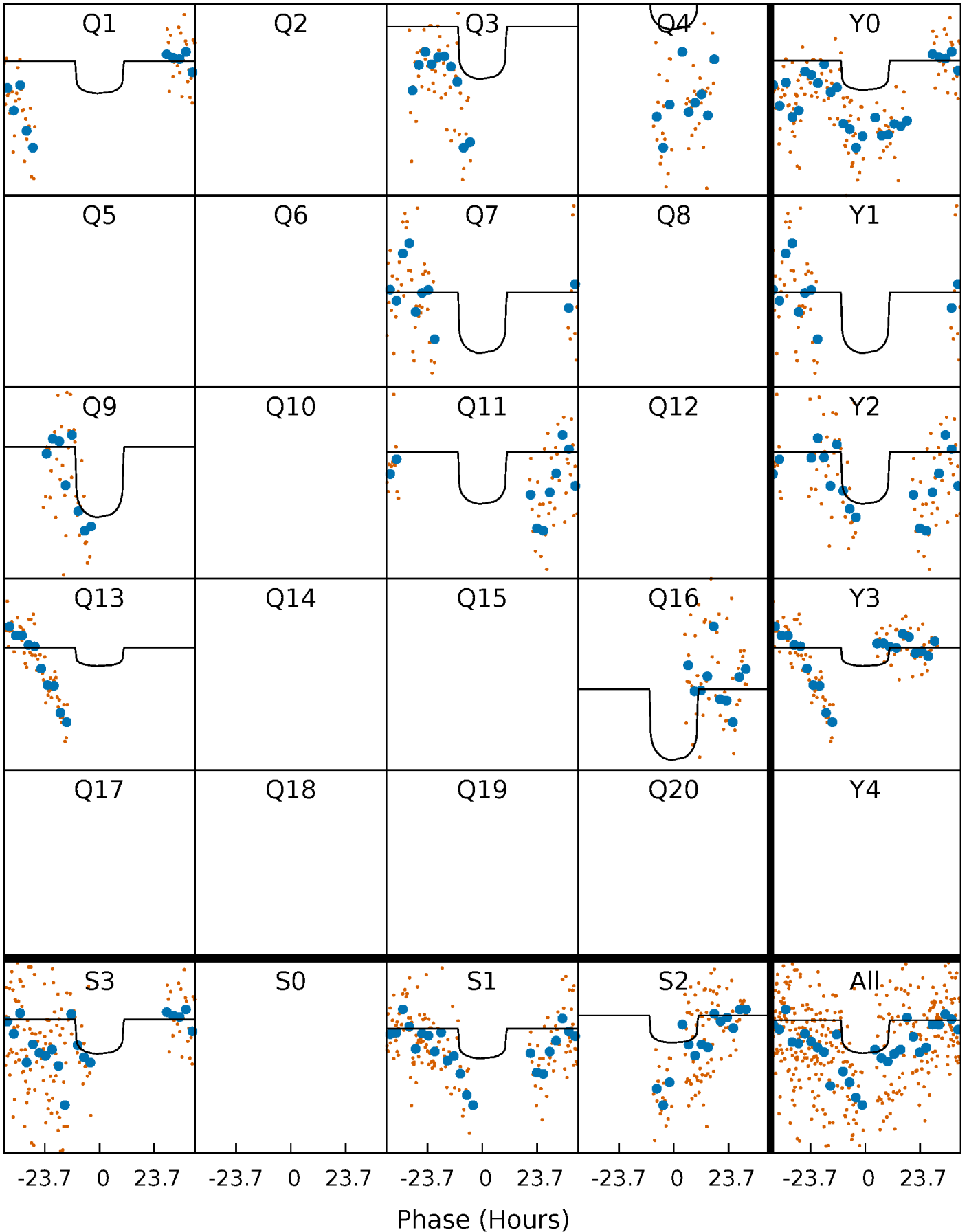
PDC Quarter-Phased Transit Curves

TCE 004568729-03 $P=134.785673$ Days $T_0=144.552132$ (BKJD)



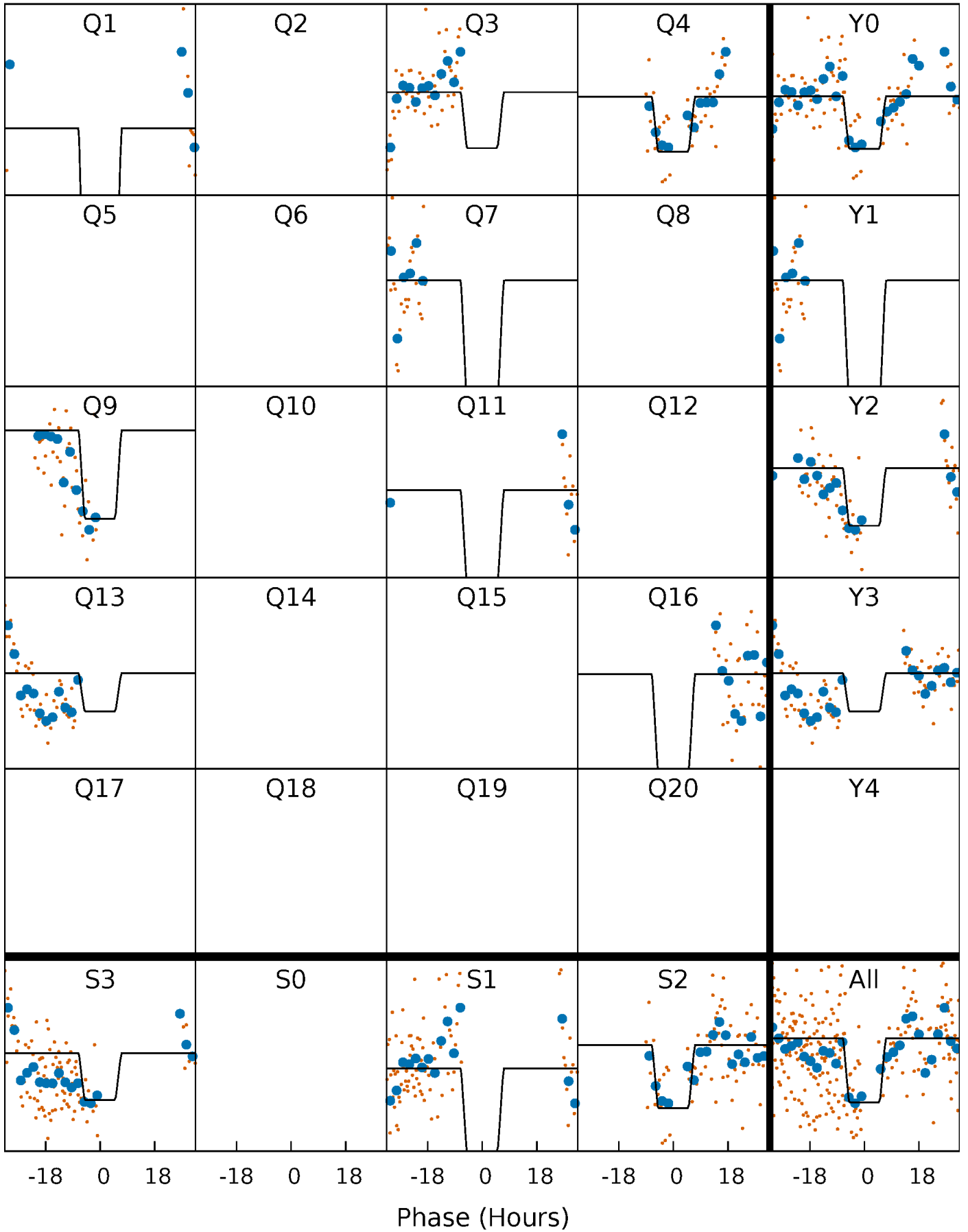
DV Quarter-Phased Transit Curves

TCE 004568729-03 $P=134.785673$ Days $T_0=144.552132$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

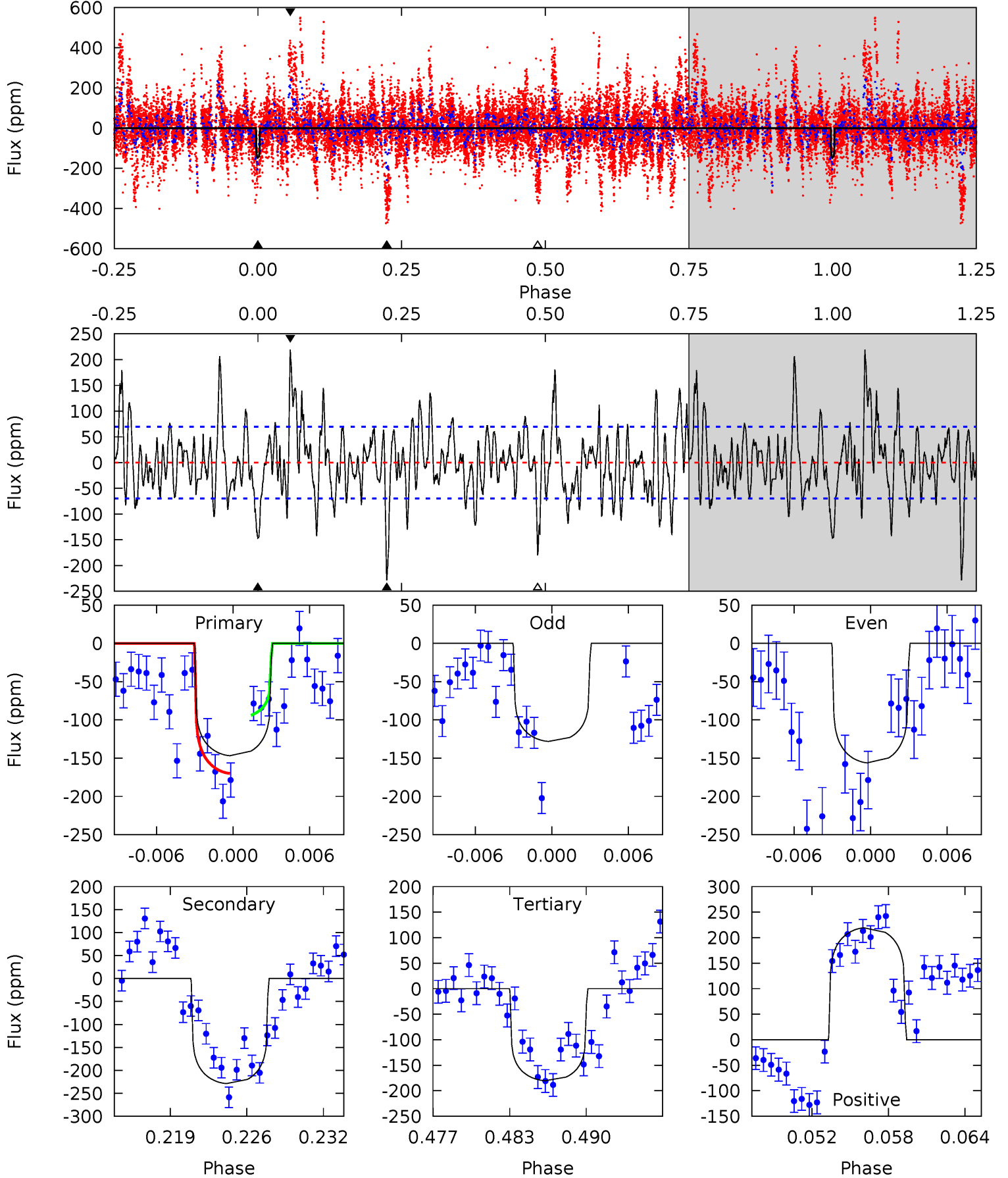
TCE 004568729-03 P=134.742049 Days $T_0=144.649007$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-03, P = 134.785673 Days, E = 9.766459 Days

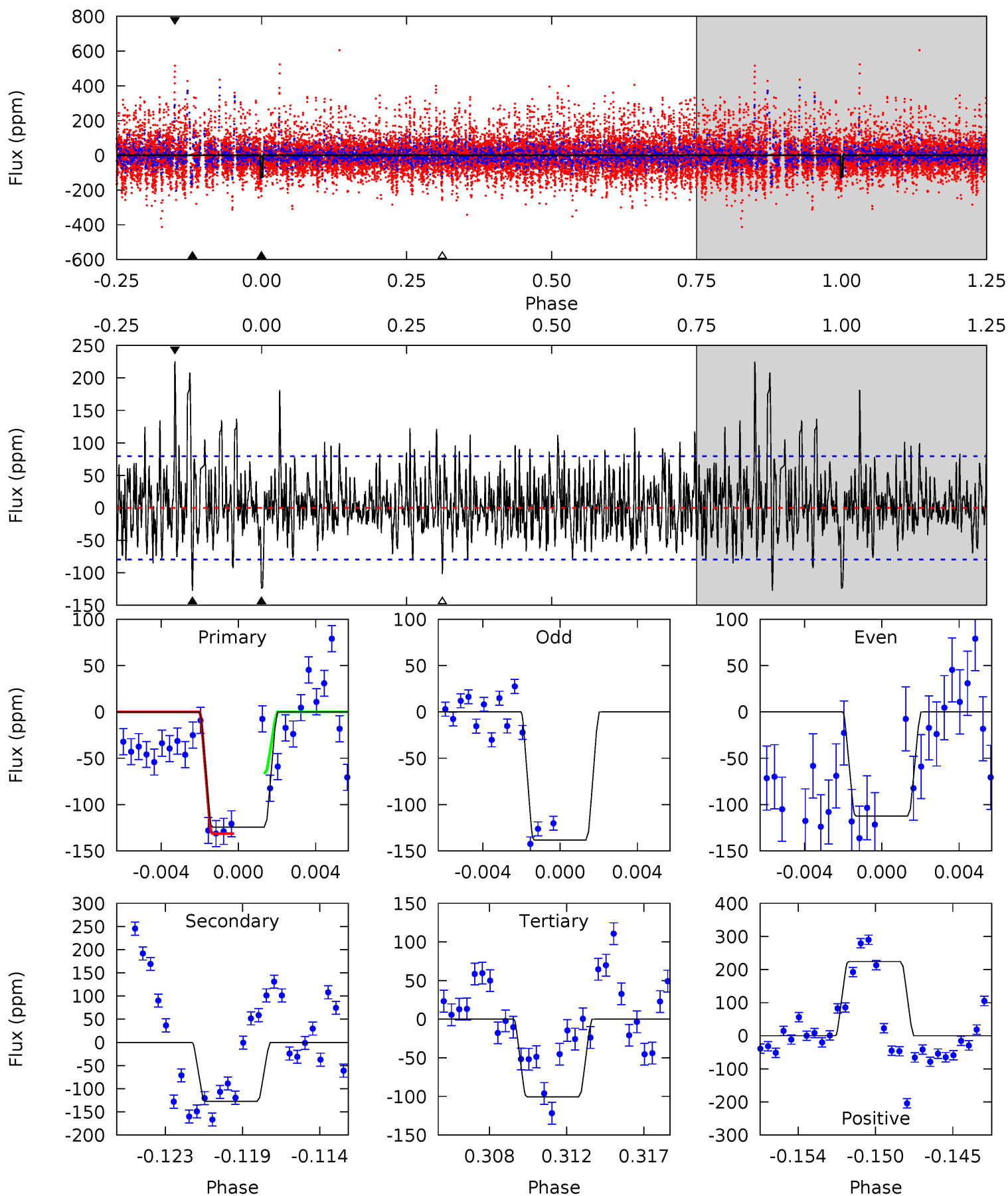
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	16.8	13.2	16.1	5.11	2.72	4.28	-2.46	-5.32	3.56	0.70	0.96	0.86	0.49	2.69



Alt Model-Shift Uniqueness Test

004568729-03, P = 134.742049 Days, E = 9.906958 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.09	8.29	6.53	14.6	5.18	2.85	2.42	1.55	-6.51	1.76	-6.30	0.80	-0.07	0.64	1.64



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-229 ± 14	$1.64^{+1.11}_{-0.95}$	771^{+57}_{-58}	10174^{+12751}_{-2718}	15574^{+74018}_{-9901}
Alt.	-127 ± 15	$2.24^{+1.21}_{-1.13}$	766^{+56}_{-49}	7045^{+3539}_{-1375}	4669^{+13795}_{-2679}

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

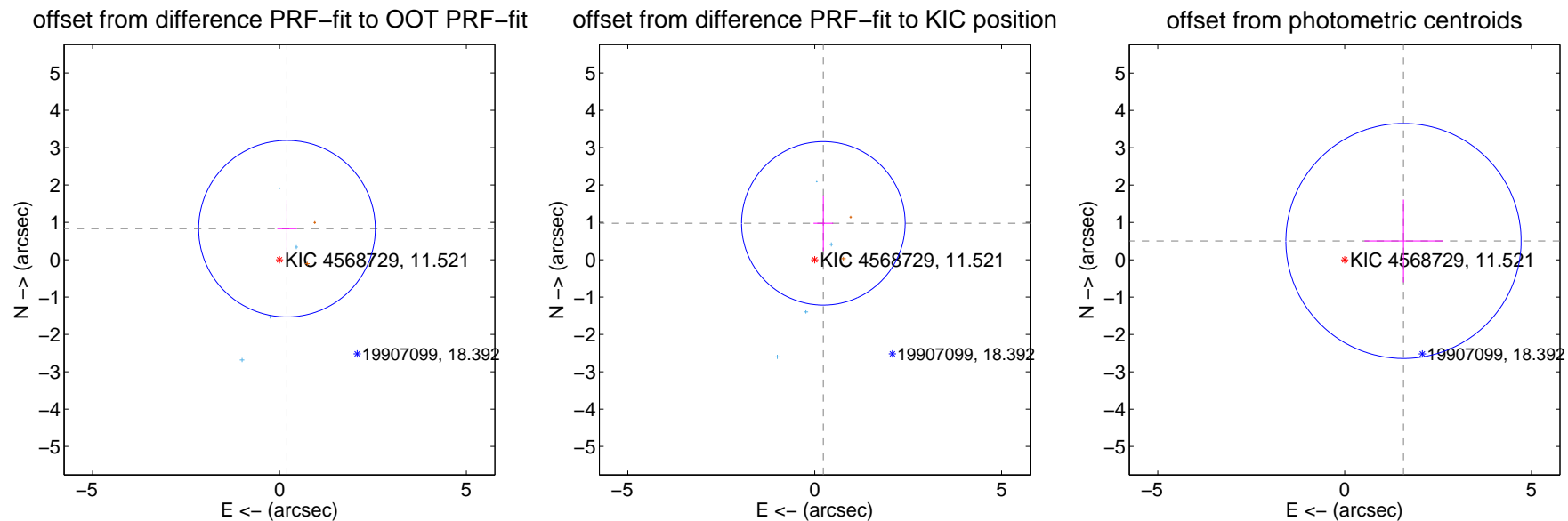
DV Centroid Data

Supplemental centroid analysis for 004568729-03. **Kepler magnitude: 11.52.** Transit SNR 3.32

There are 4 quarters with good PRF difference image offsets

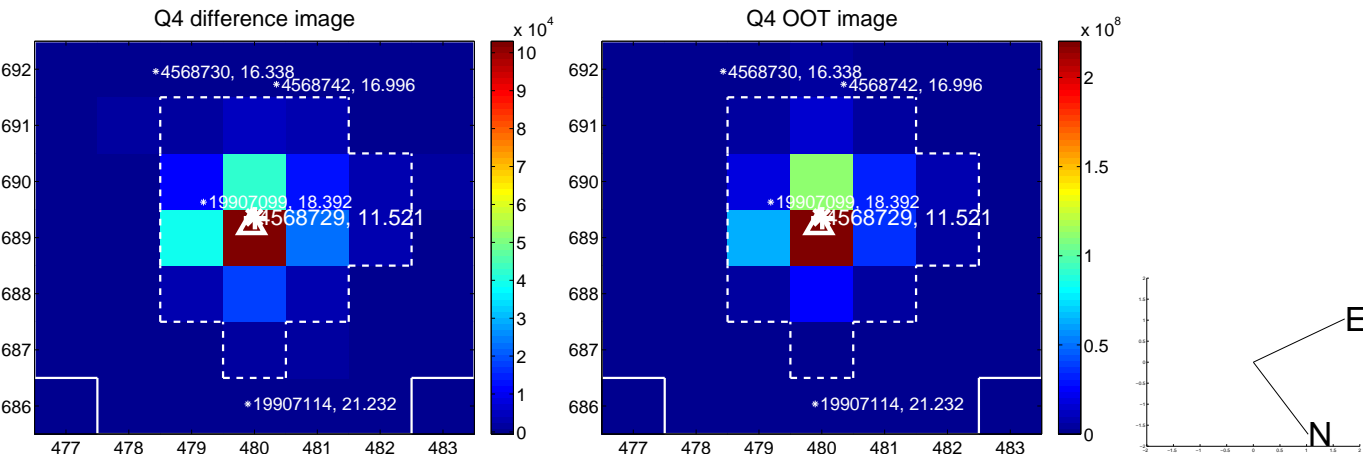
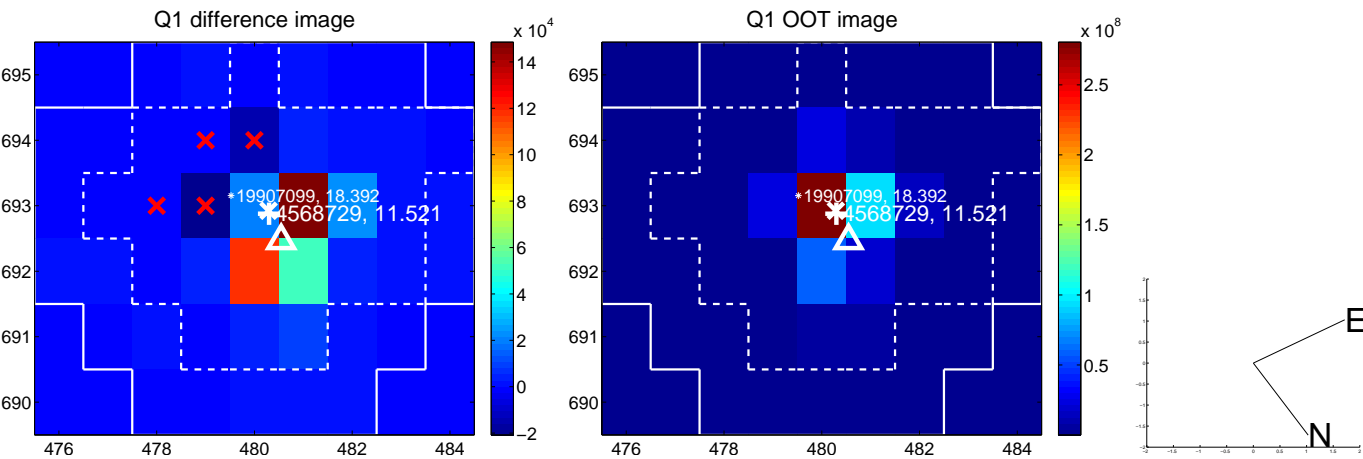
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.855 ± 0.788	1.09	-0.201 ± 0.260	0.831 ± 0.767
PRF-fit source offset from KIC position	1.001 ± 0.729	1.37	-0.231 ± 0.264	0.974 ± 0.747
photometric centroid source offset	1.65 ± 1.05	1.58	-1.58 ± 1.04	0.50 ± 1.11

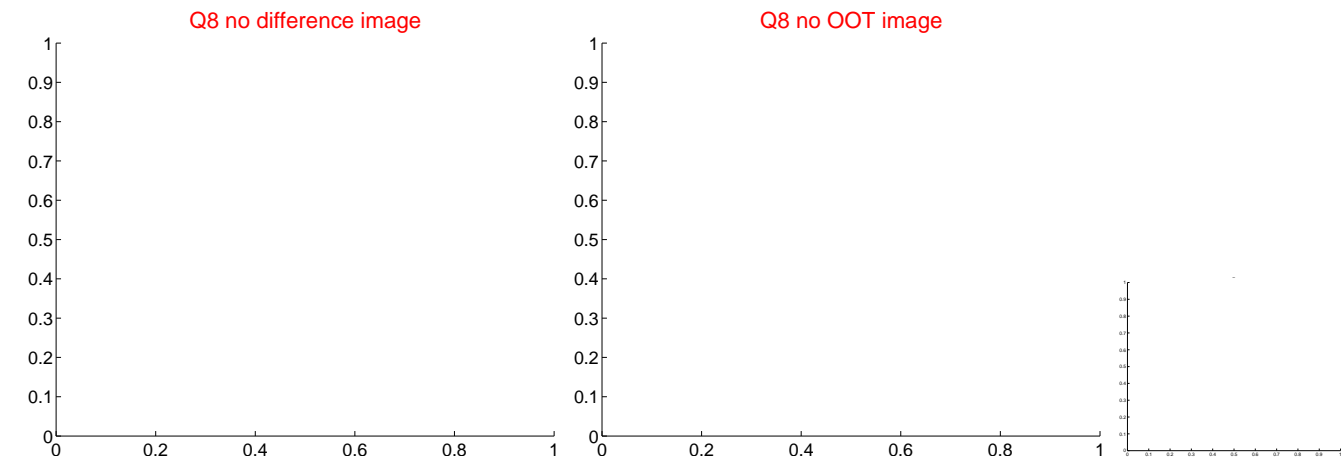
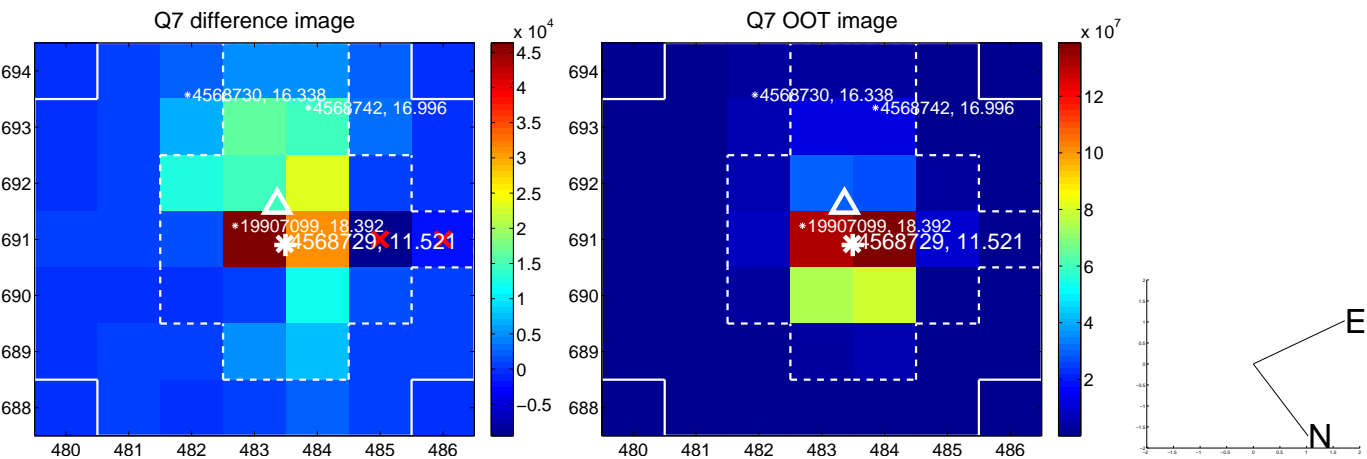


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

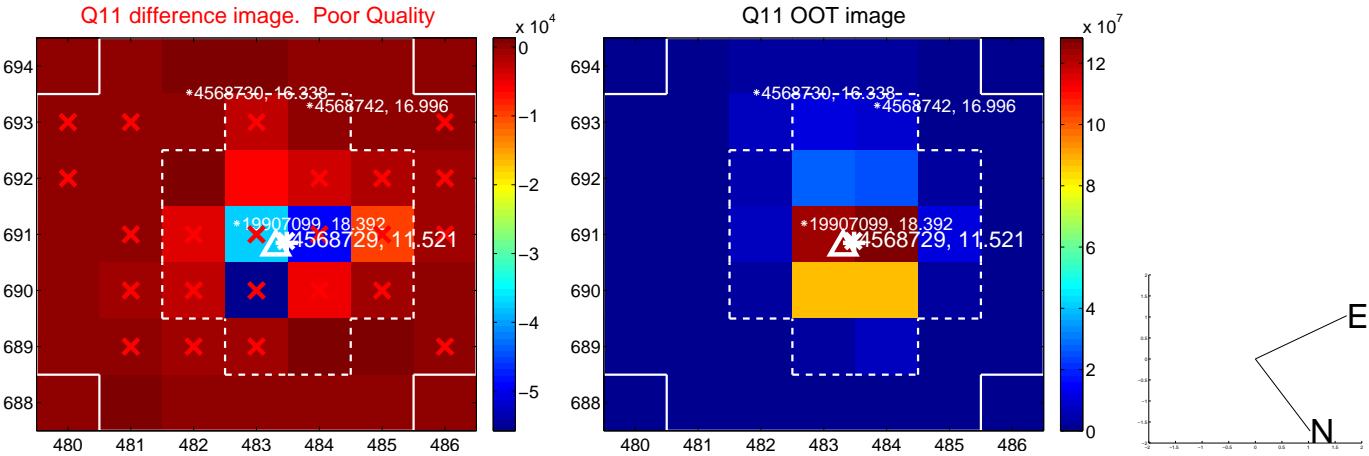
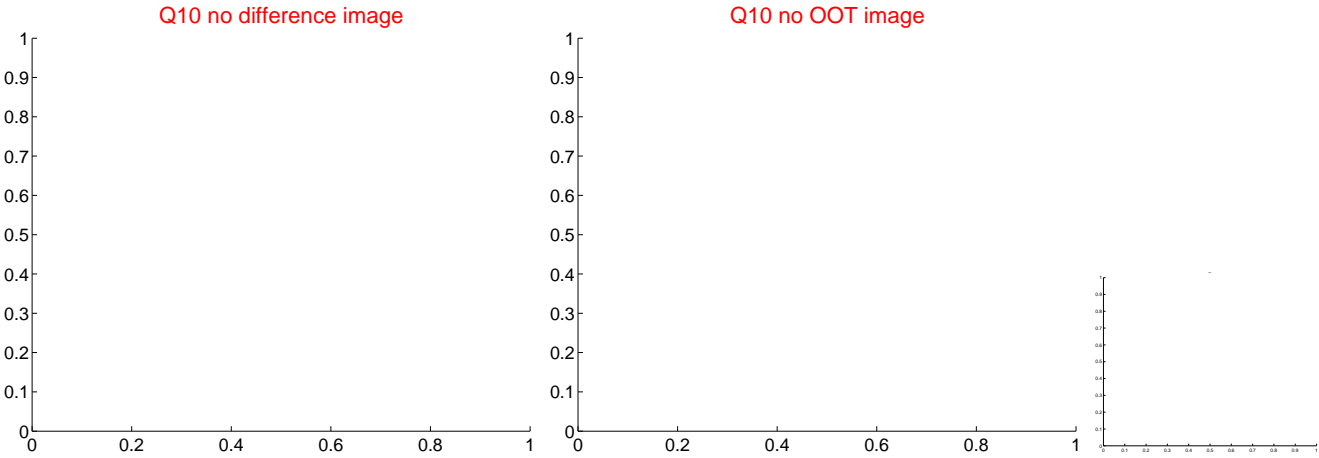
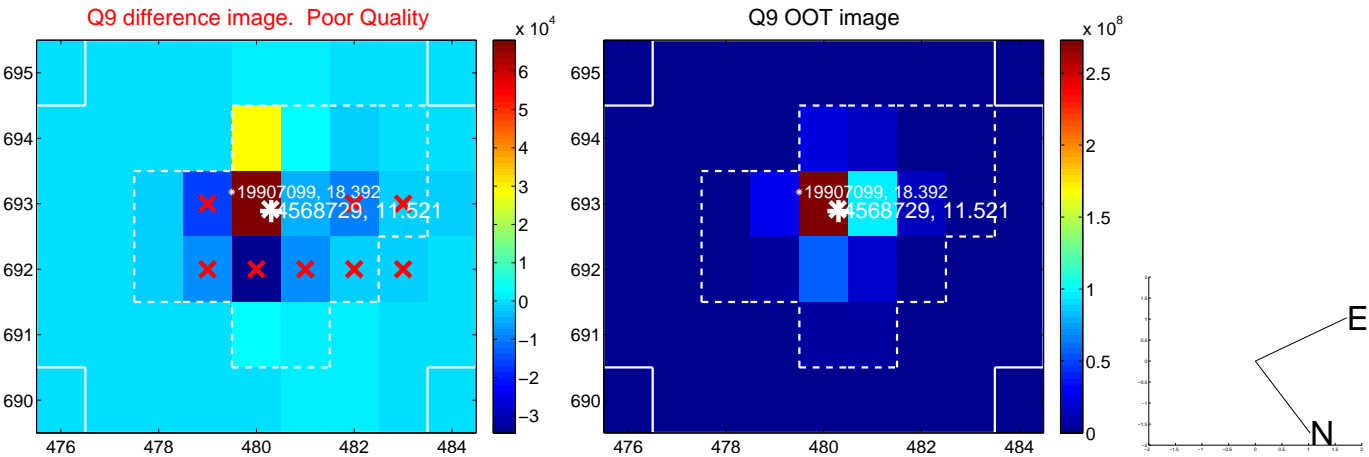
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



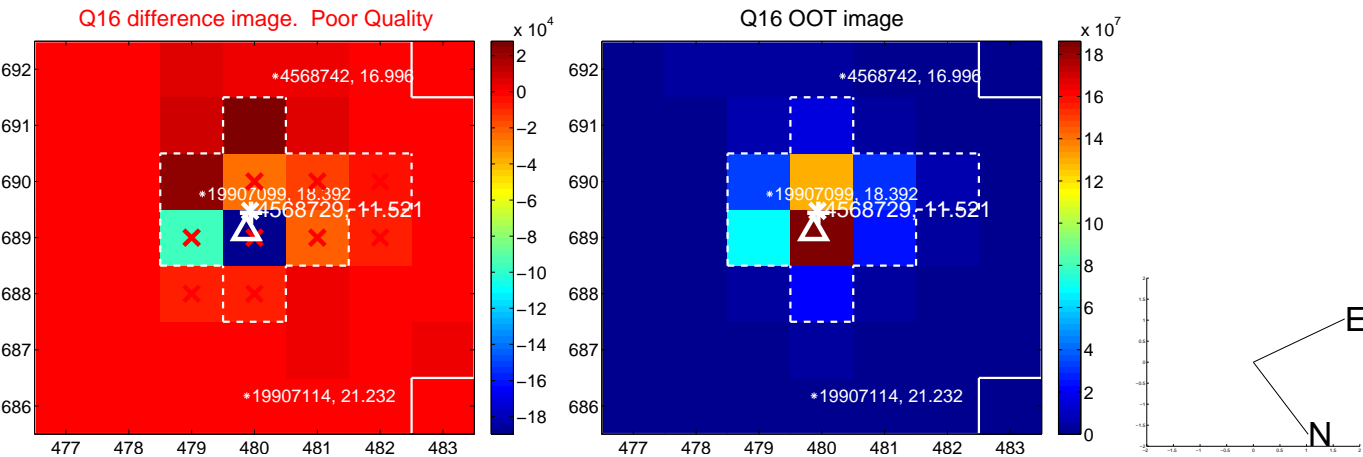
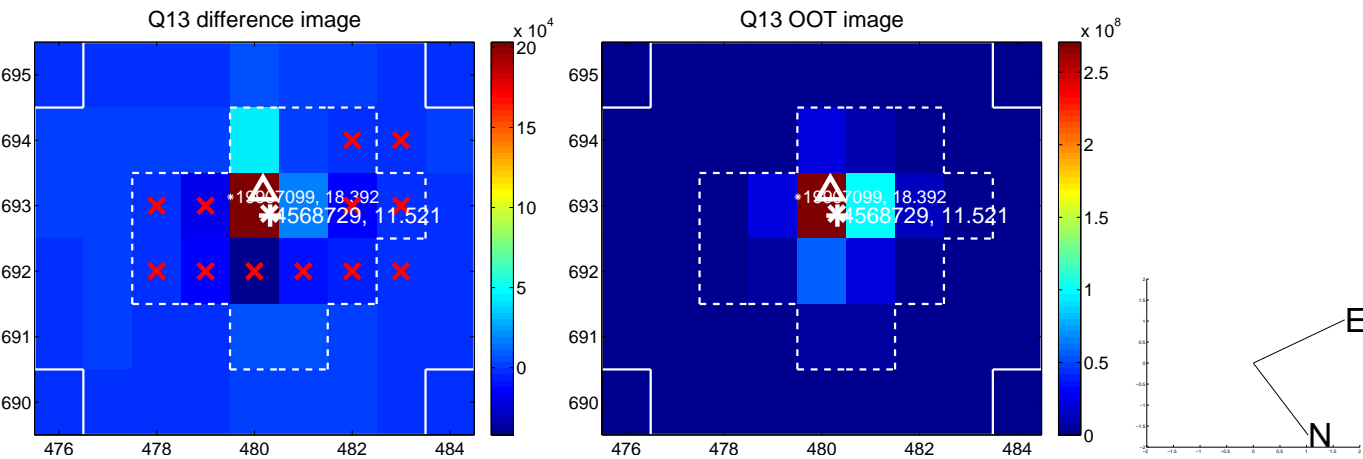
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



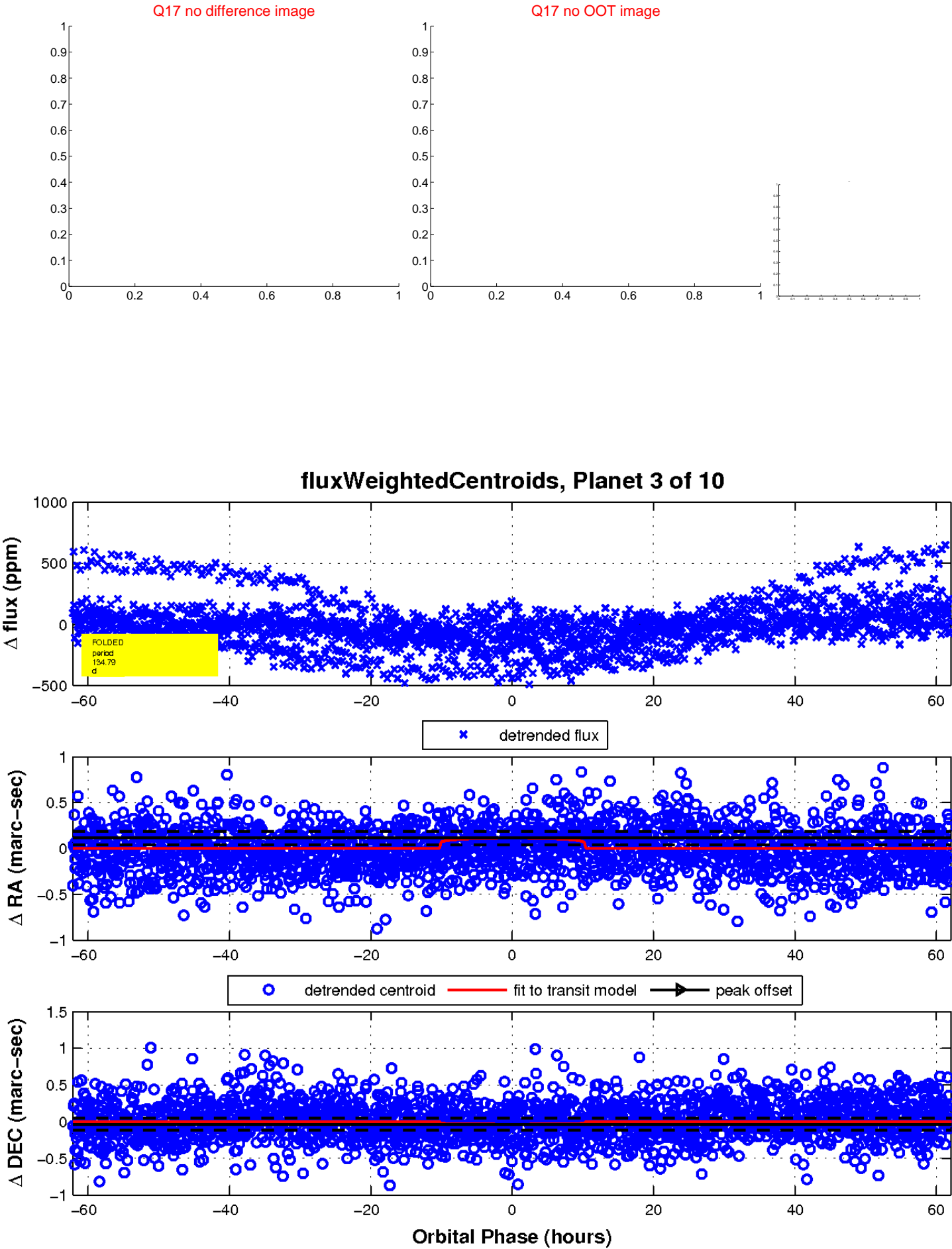
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

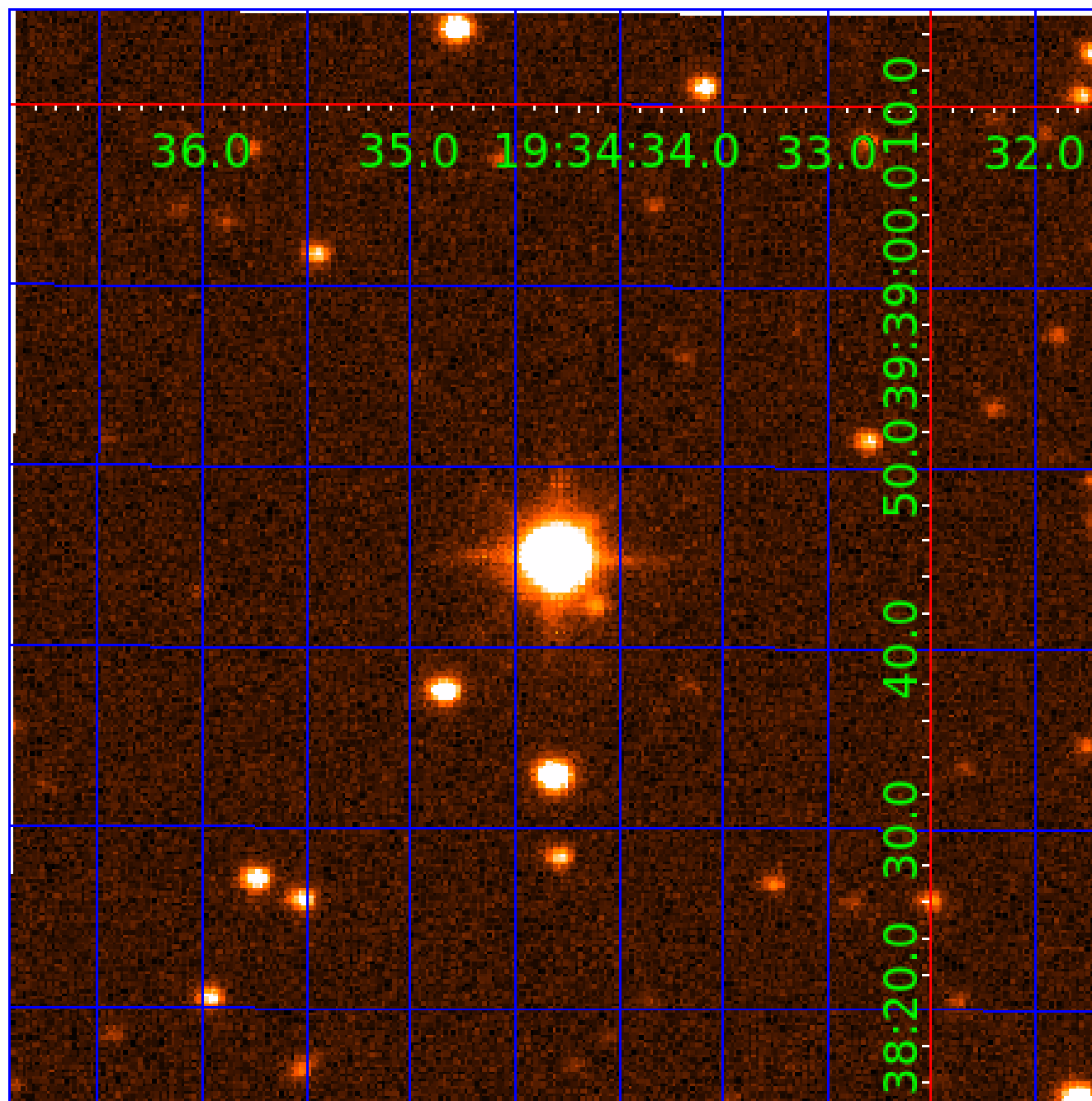


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
004568729-06	OBS	No	90.964616	161.891452	244.7	4.761	19.2	13.9	1.73	7210	3.05	36.13
004568729-07	OBS	No	308.882039	157.191871	170.0	18.520	12.5	6.6	1.73	7210	4.39	7.08
004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

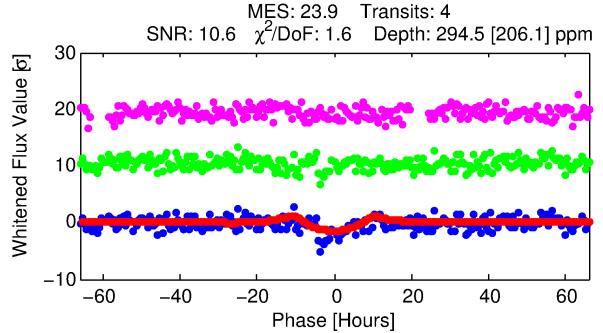
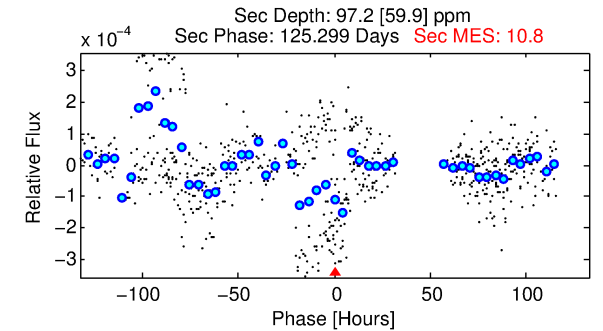
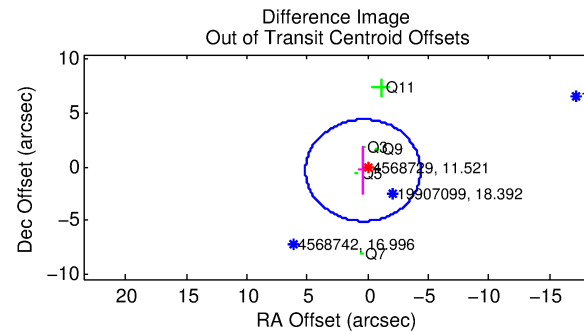
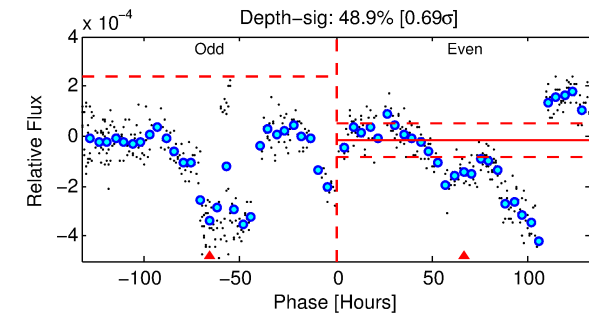
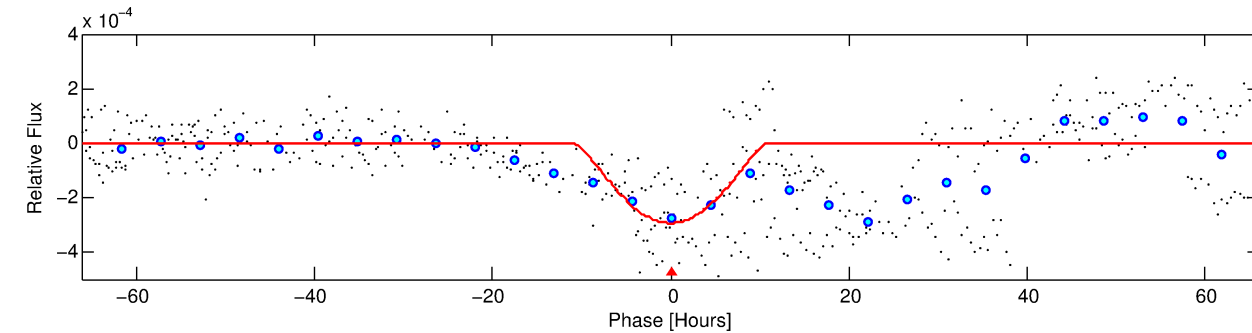
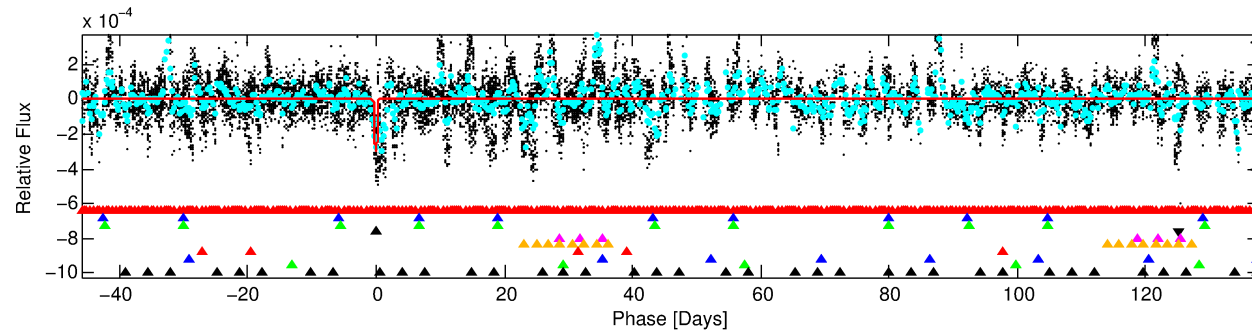
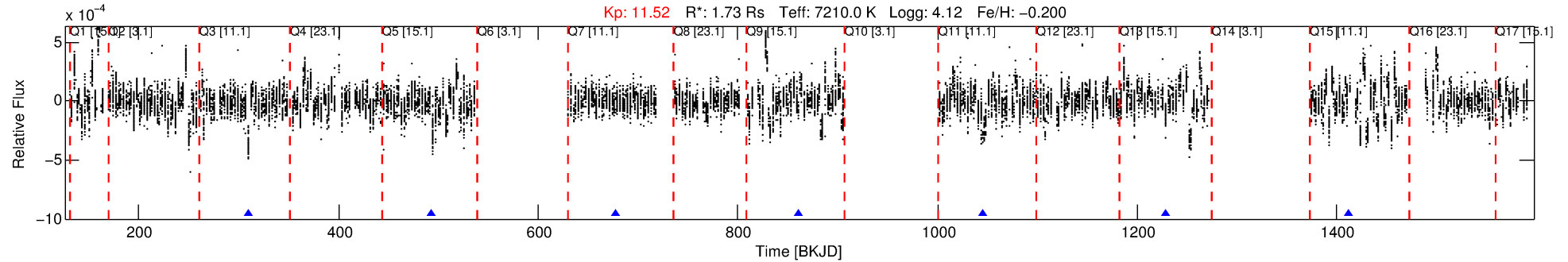
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-04

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 4 of 10 Period: 183.802 d



DV Fit Results:

Period = 183.80234 [0.00991] d
Epoch = 309.5105 [0.0430] BKJD
Rp/R* = 0.0302 [0.0455]
a/R* = 15.77 [6.33]
b = 1.00 [0.05]
Seff = 14.14 [5.50]
Teq = 494 [48] K
Rp = 5.70 [8.75] Re
a = 0.7150 [0.1787] AU
Ag = 842.59 [2608.88] [0.32 σ]
Teffp = 4119 [3171] K [1.14 σ]

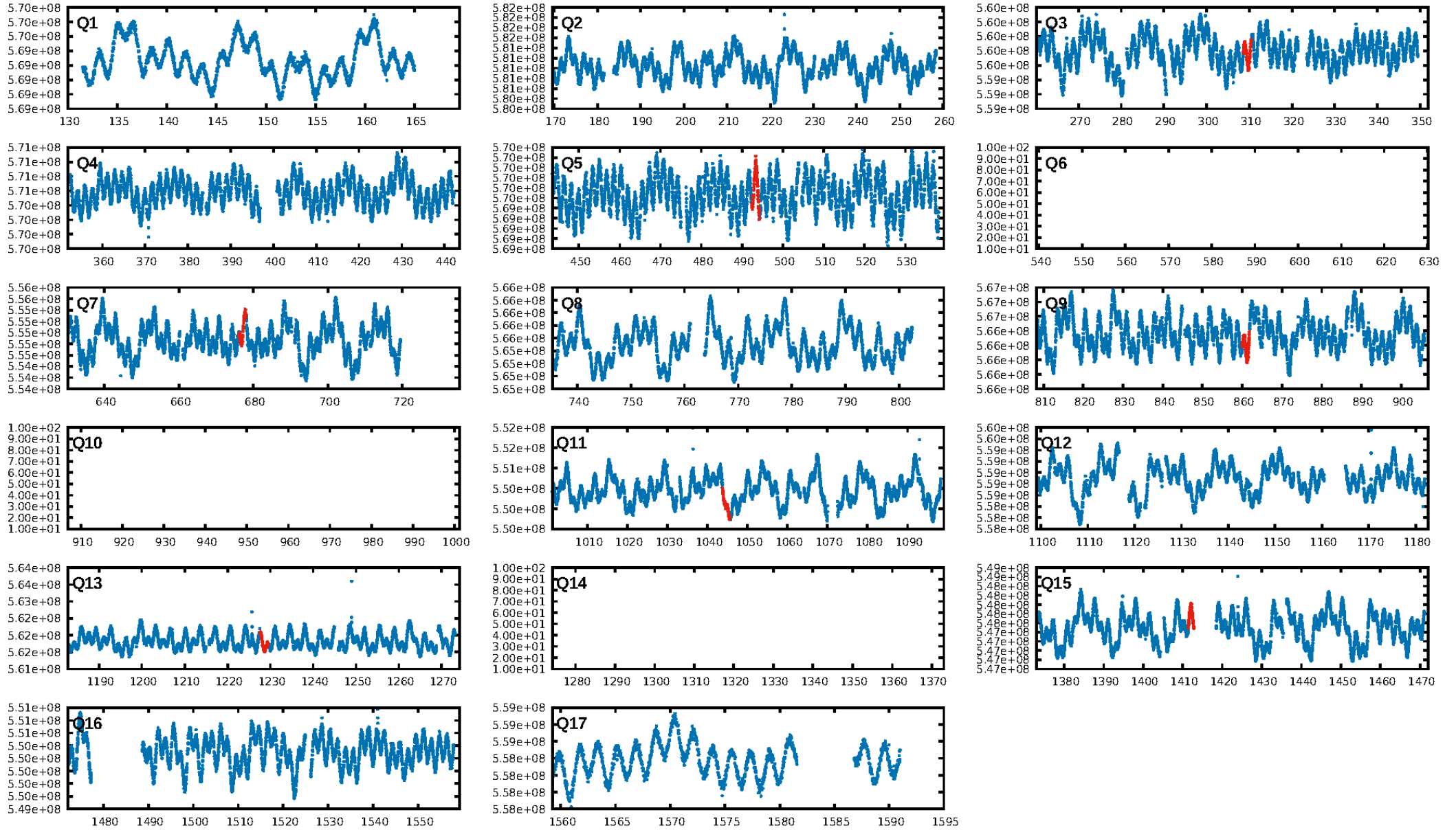
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.84 σ]
LongPeriod-sig: 100.0% [13.77 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 6.78e-37
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.267
Centroid-sig: 40.1%
Centroid-so: 0.342 arcsec [0.79 σ]
OotOffset-rm: 0.531 arcsec [0.34 σ]
KicOffset-rm: 0.410 arcsec [0.48 σ]
OotOffset-st: 0/3/0/2 [5]
KicOffset-st: 0/3/0/2 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.00 [0/5]

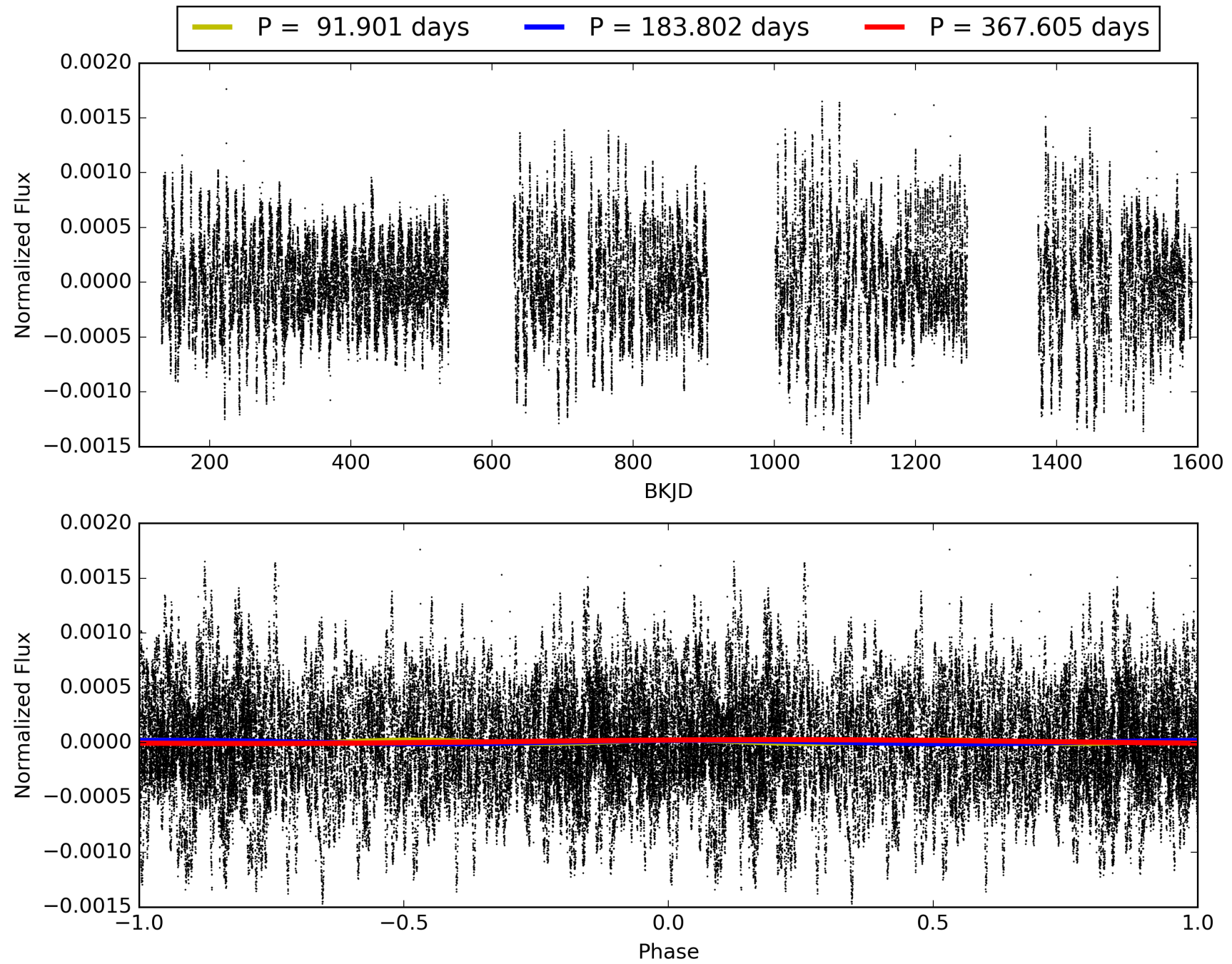
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:01:13 Z

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

TCE 004568729-04, PDC Light Curves

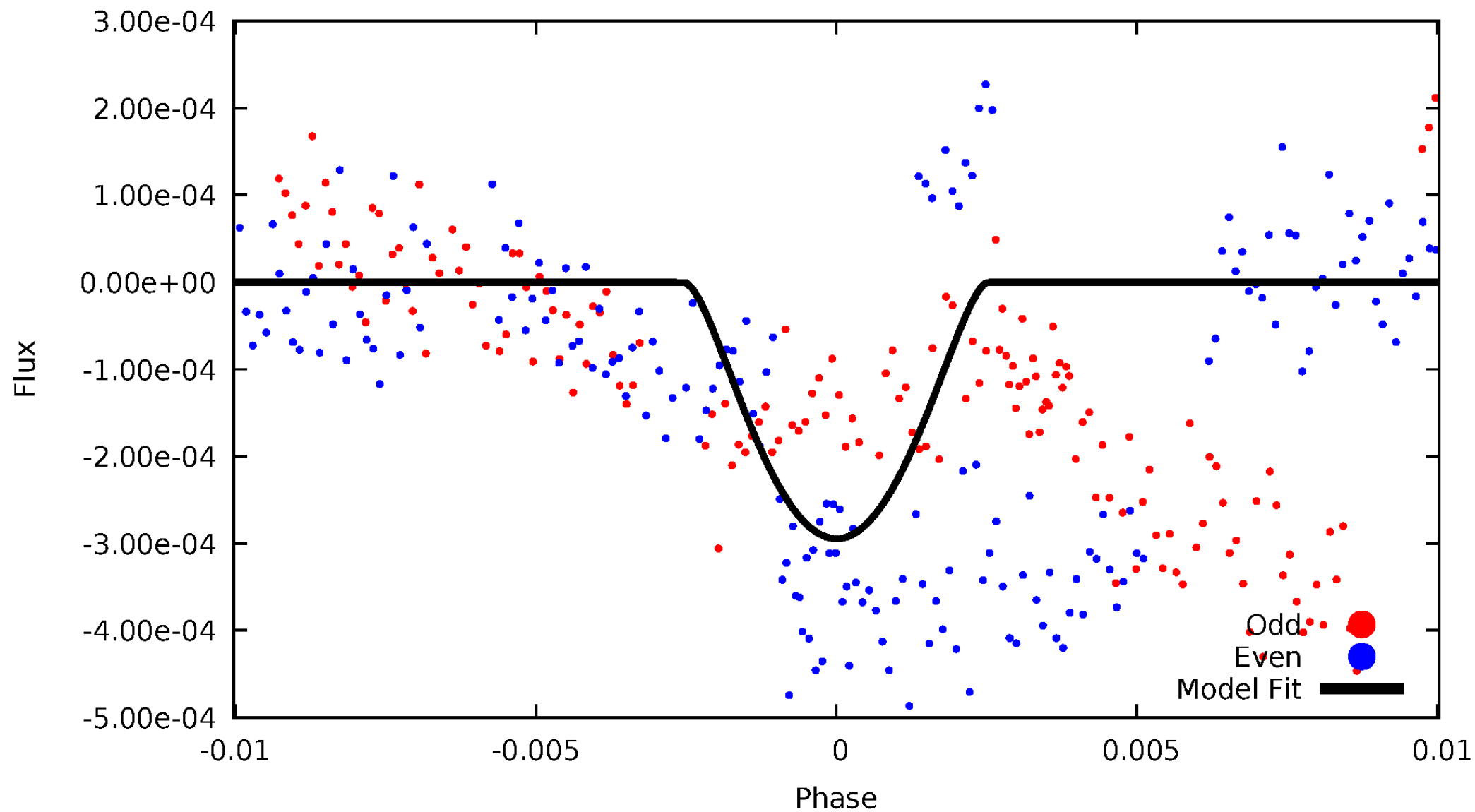


TCE 004568729-04



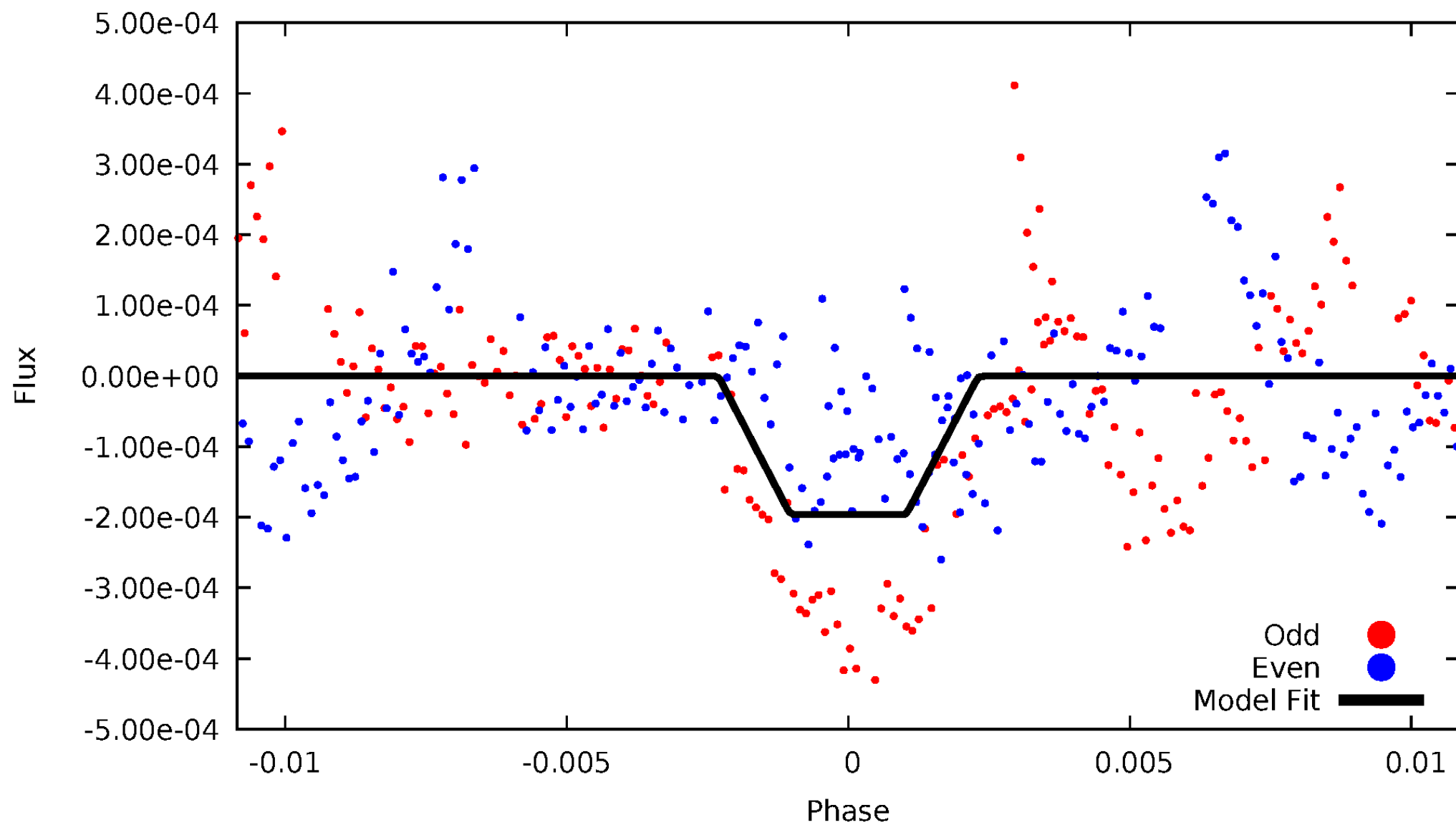
DV Odd/Even

TCE 004568729-04



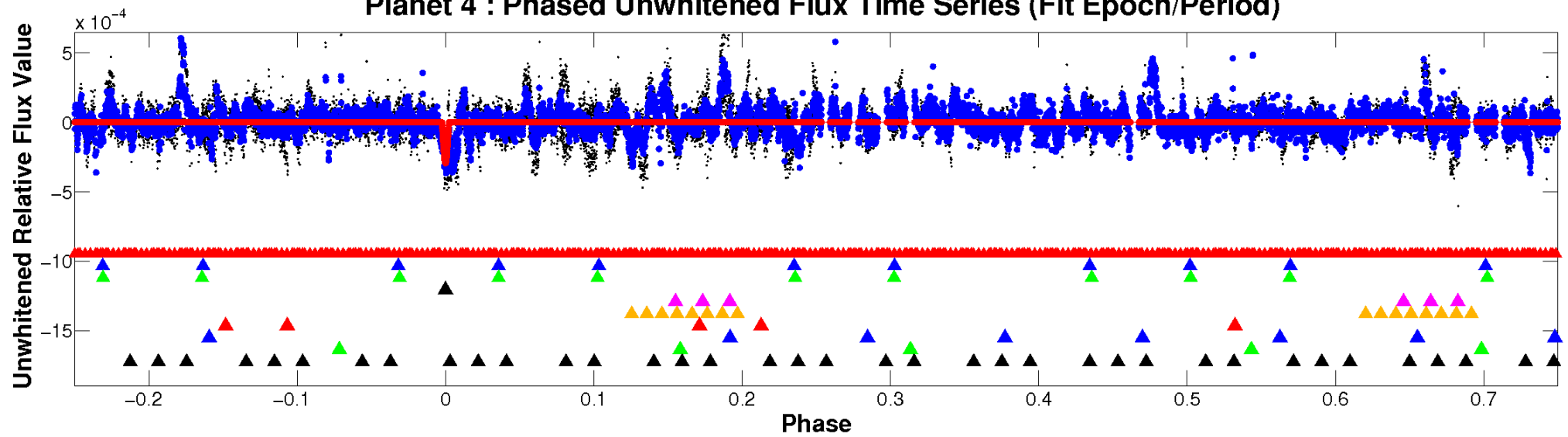
ALT Odd/Even

TCE 004568729-04

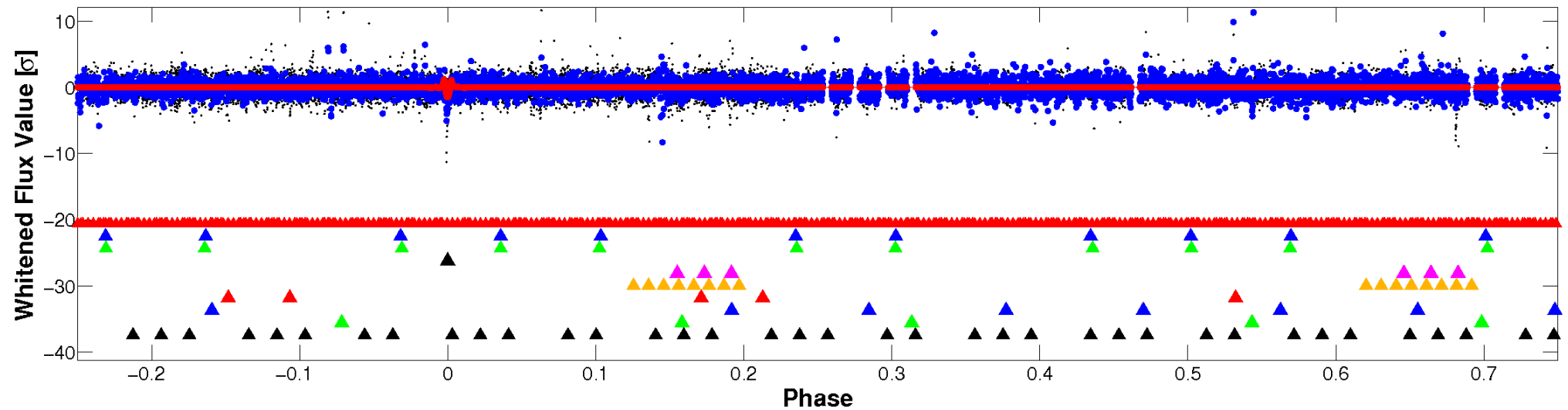


Non-Whitened Vs. Whitened Light Curve

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

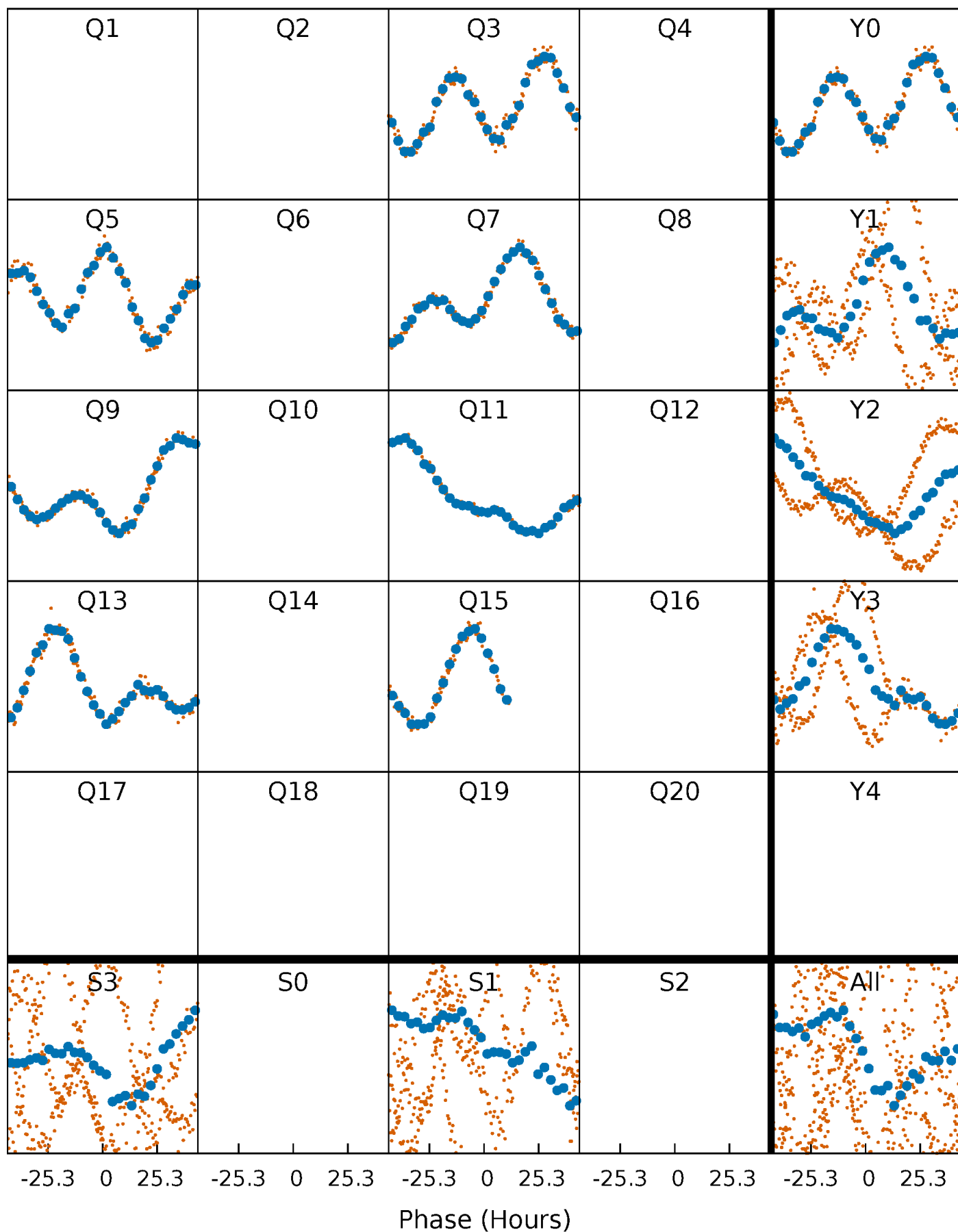


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



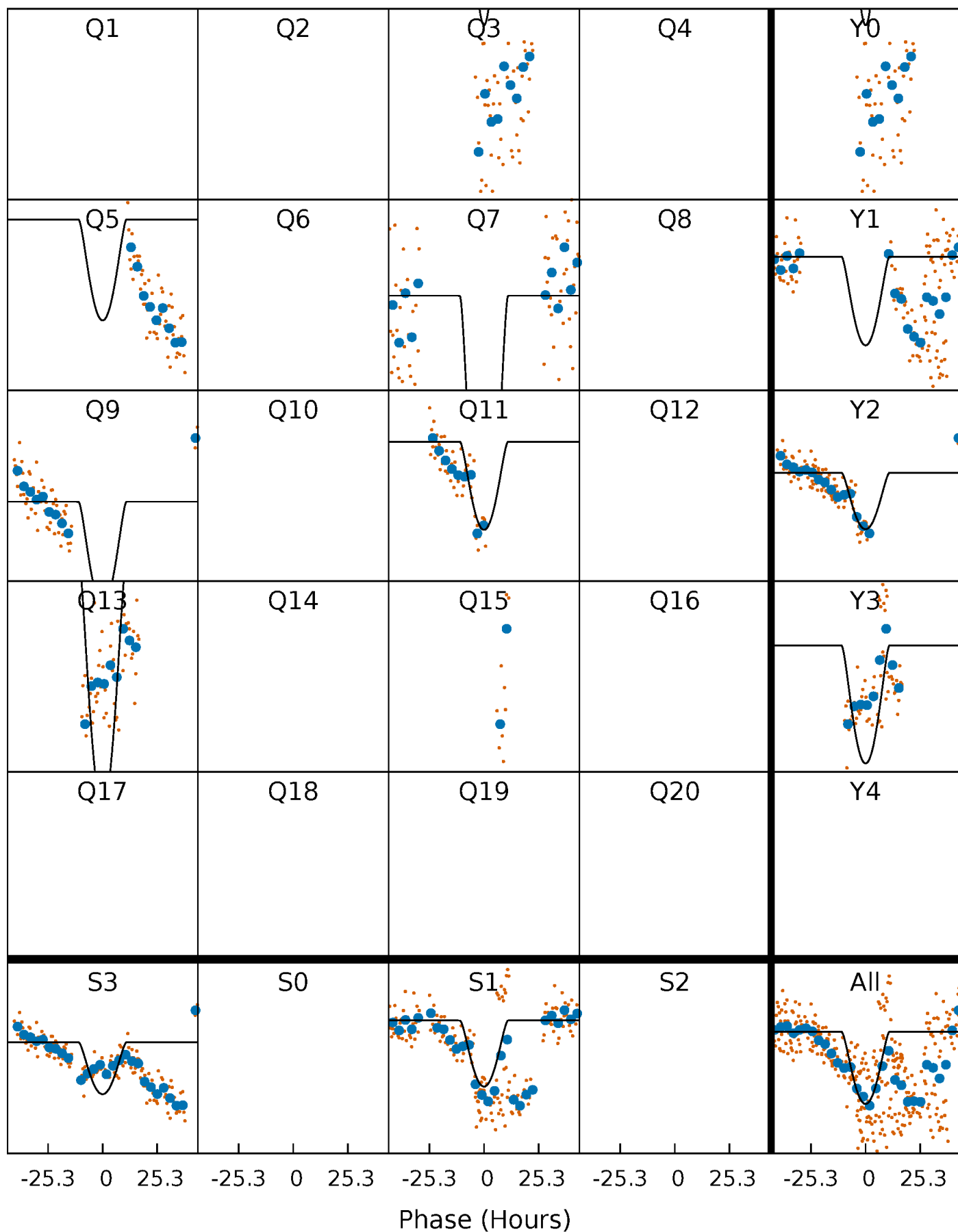
PDC Quarter-Phased Transit Curves

TCE 004568729-04 P=183.802337 Days $T_0=309.510506$ (BKJD)



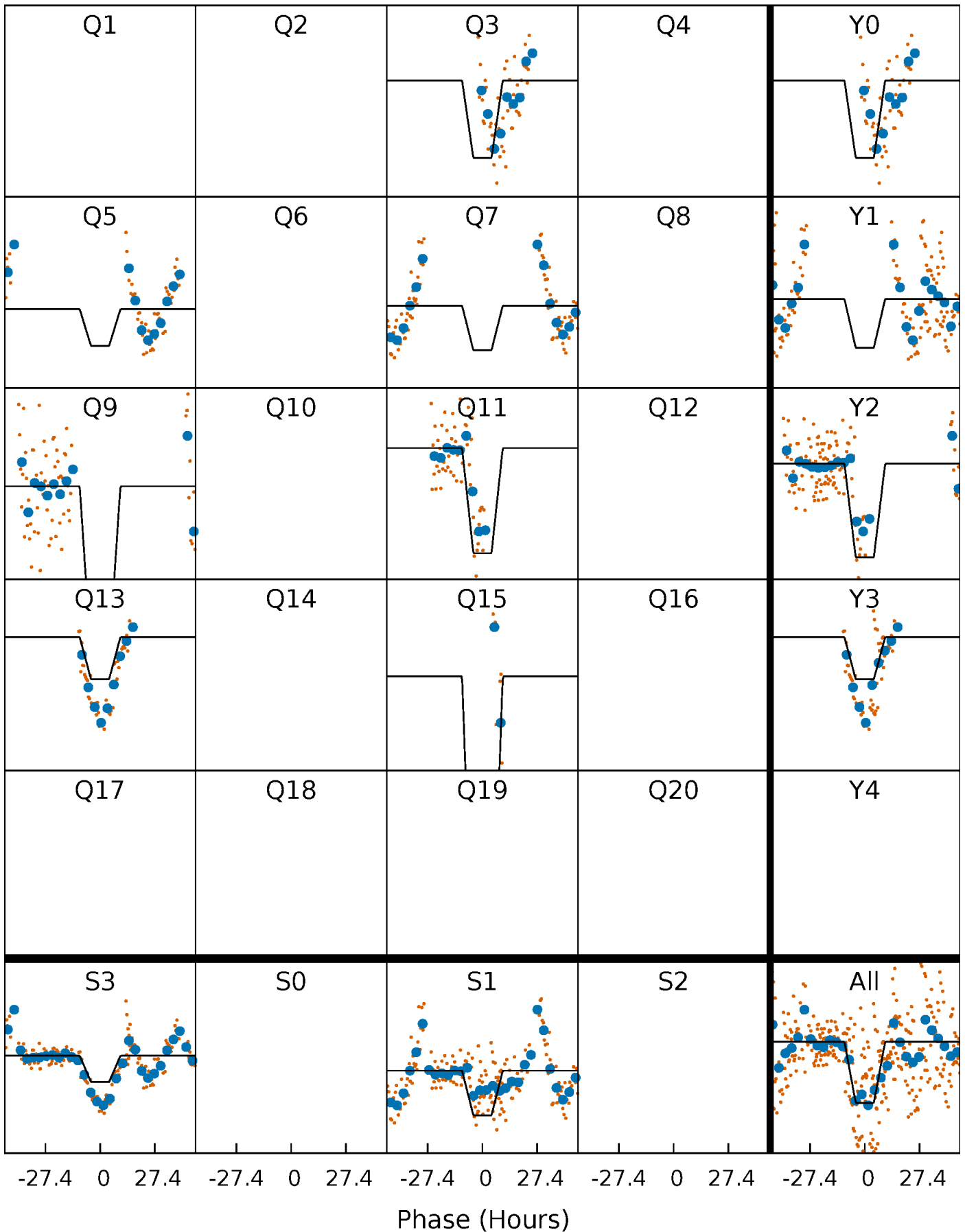
DV Quarter-Phased Transit Curves

TCE 004568729-04 $P=183.802337$ Days $T_0=309.510506$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

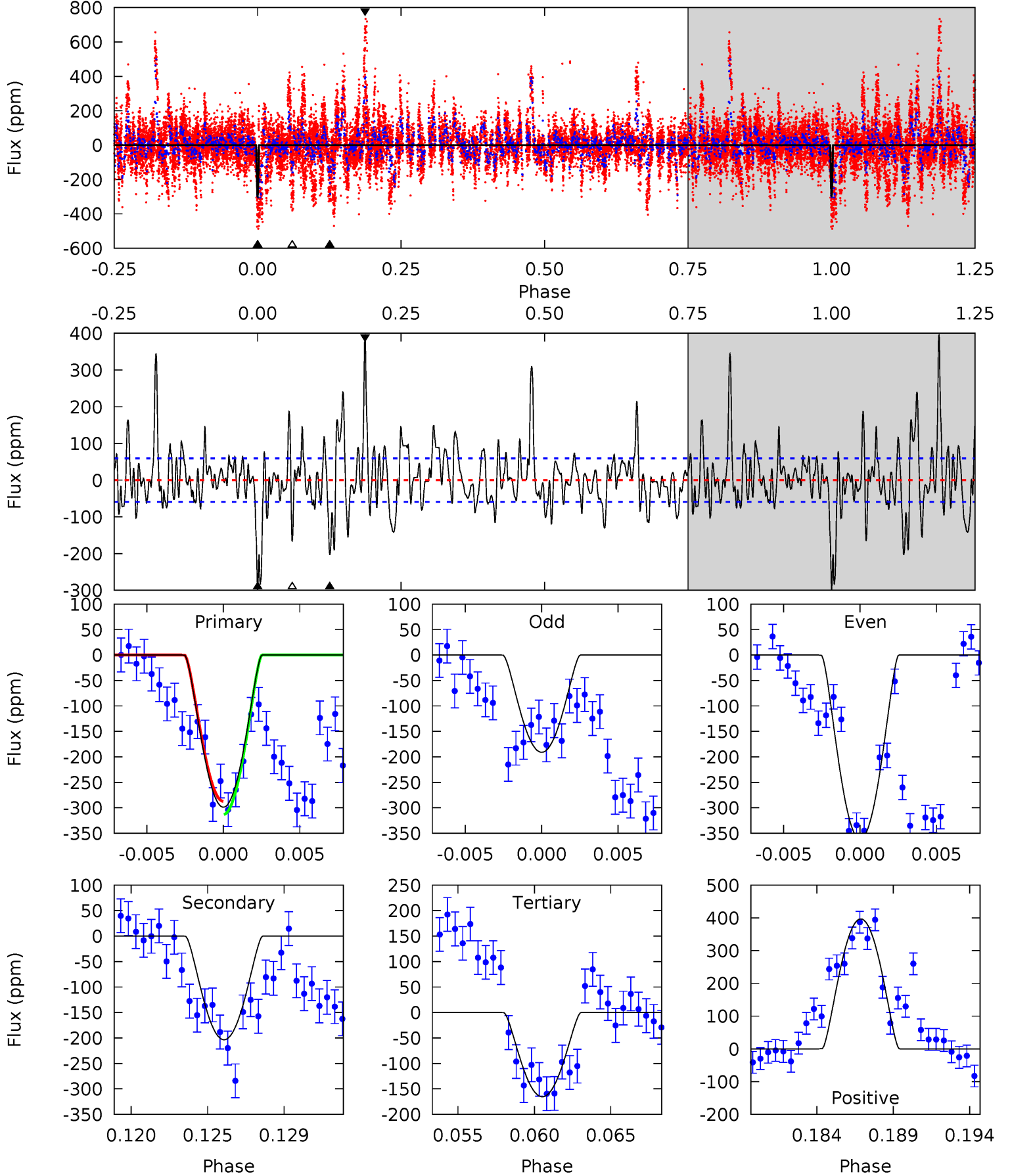
TCE 004568729-04 $P=183.827117$ Days $T_0=309.430192$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-04, P = 183.802337 Days, E = 125.708169 Days

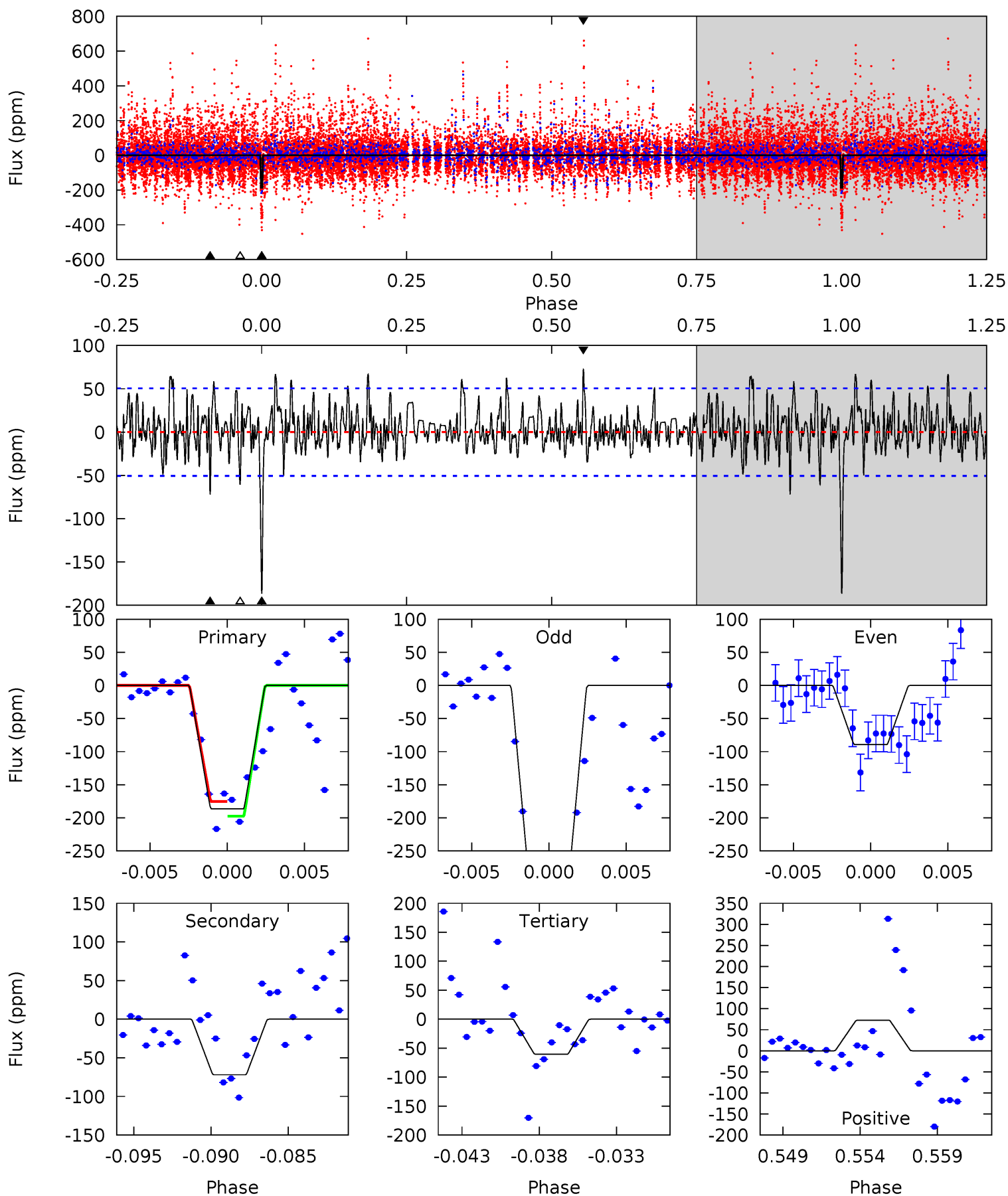
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.0	17.7	14.4	34.5	5.16	2.81	6.45	11.6	-8.53	3.32	-16.8	7.13	0.68	0.57	1.12



Alt Model-Shift Uniqueness Test

004568729-04, P = 183.827117 Days, E = 125.603075 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	7.36	6.19	7.41	5.17	2.82	1.96	12.9	11.7	1.17	-0.05	12.3	1.21	0.28	1.14



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-204 ± 11	$8.34^{+7.47}_{-5.71}$	695^{+49}_{-46}	4291^{+2804}_{-830}	816^{+6765}_{-592}
Alt.	-72 ± 10	$6.61^{+6.56}_{-4.43}$	692^{+58}_{-49}	3899^{+2379}_{-771}	472^{+3844}_{-358}

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

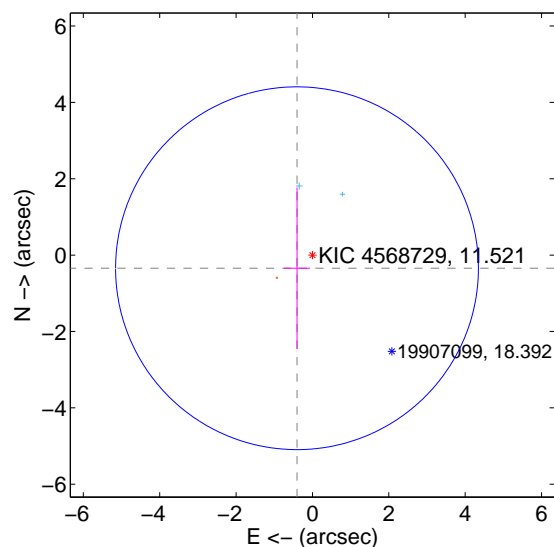
Supplemental centroid analysis for 004568729-04. **Kepler magnitude: 11.52.** Transit SNR 10.57

There are 2 quarters with good PRF difference image offsets

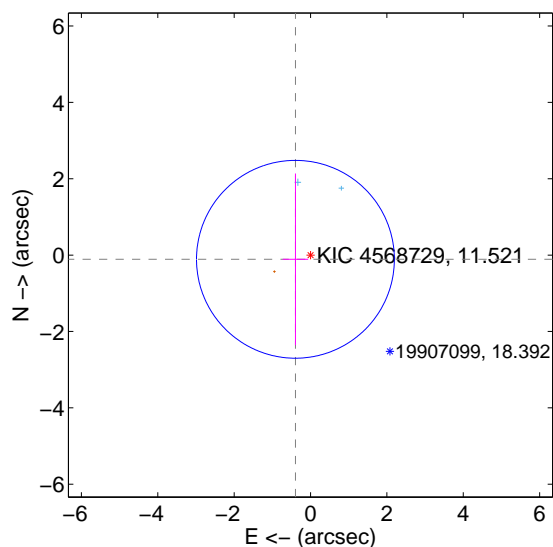
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.531 ± 1.583	0.34	0.404 ± 0.340	-0.344 ± 2.116
PRF-fit source offset from KIC position	0.410 ± 0.863	0.48	0.395 ± 0.333	-0.110 ± 2.247
photometric centroid source offset	0.34 ± 0.44	0.79	-0.01 ± 0.32	0.34 ± 0.44

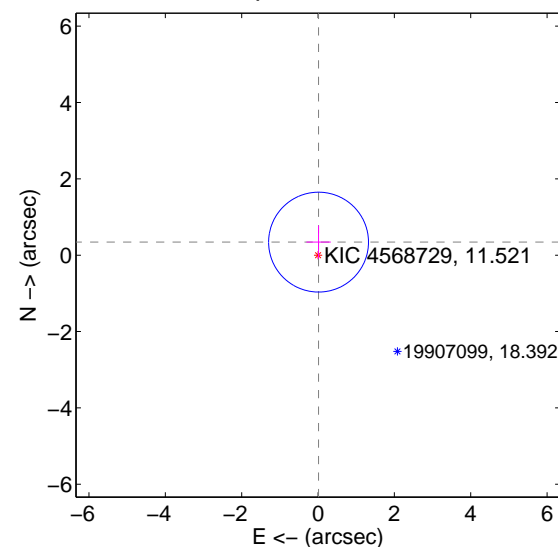
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

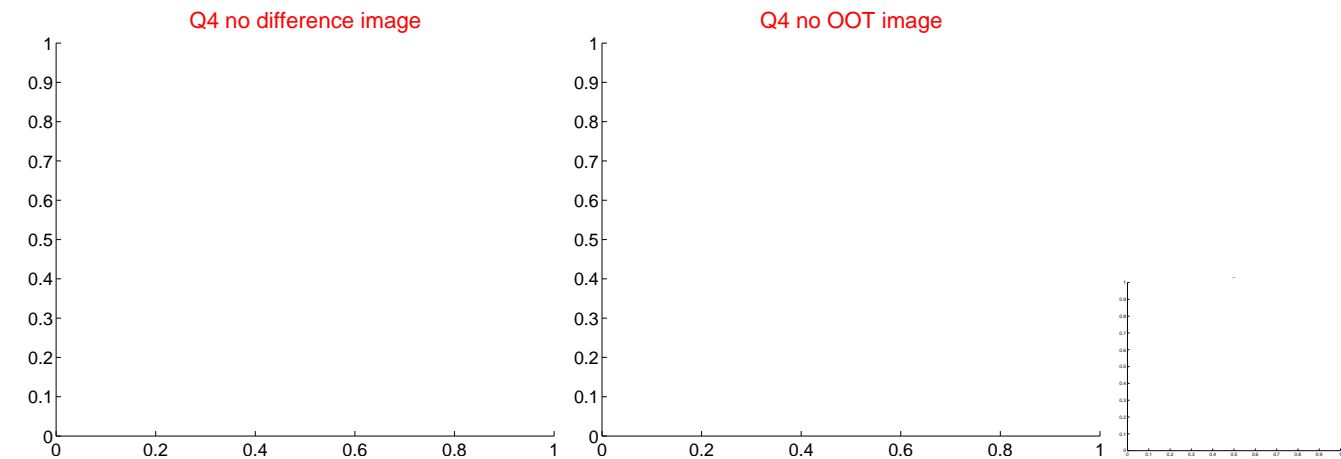
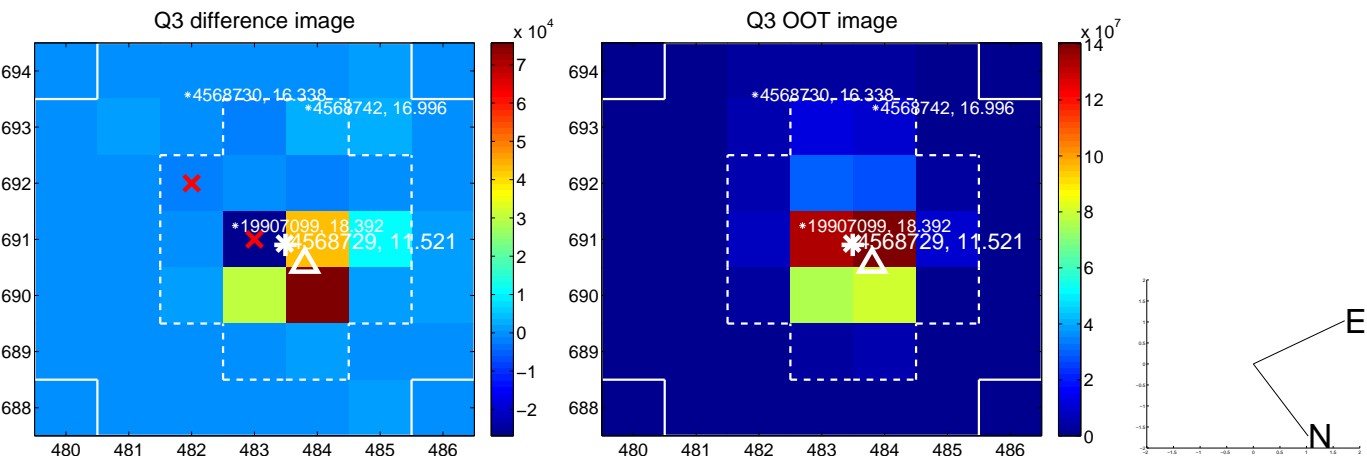
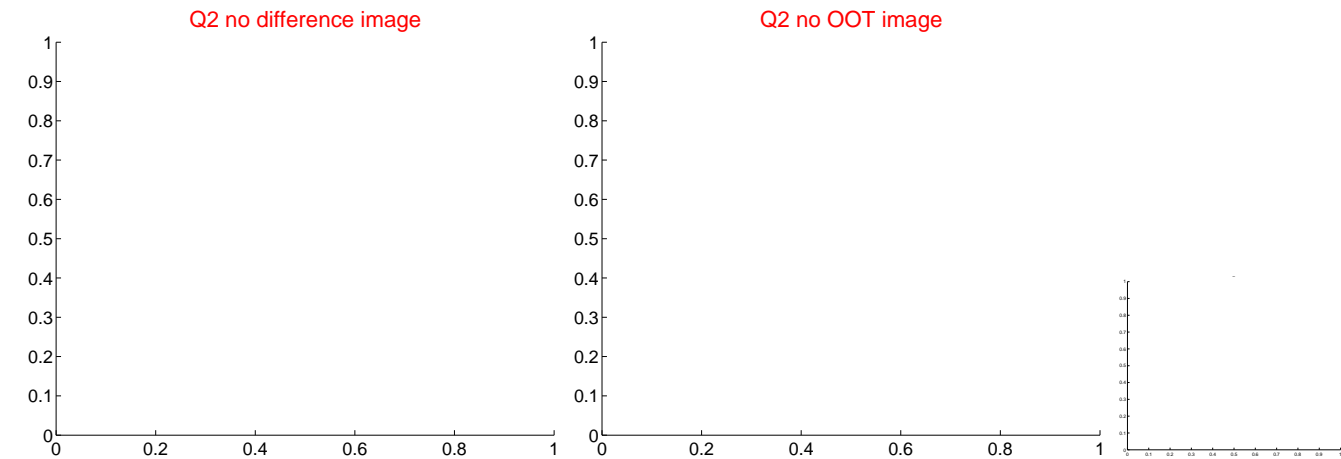


offset from photometric centroids

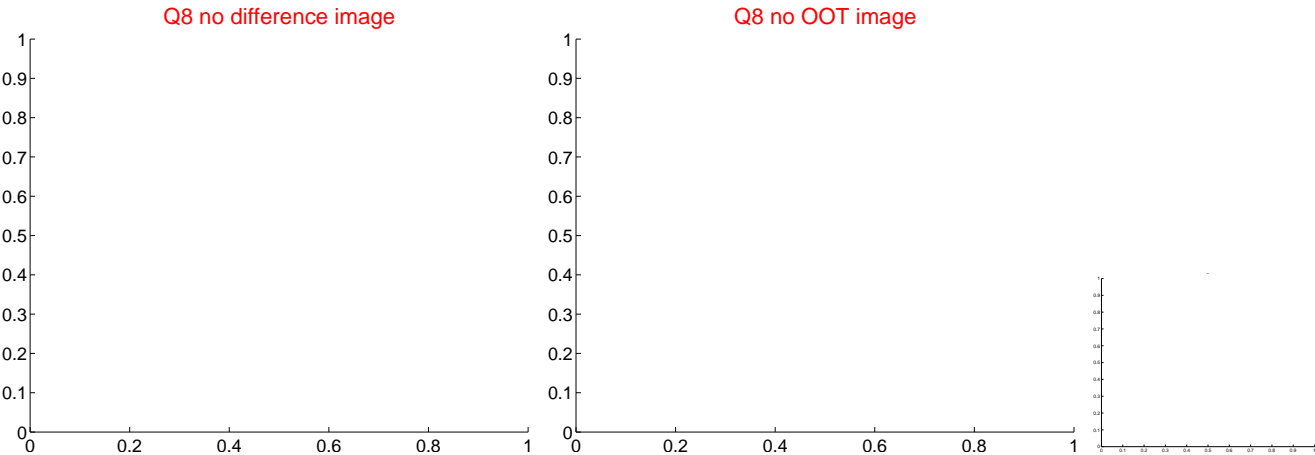
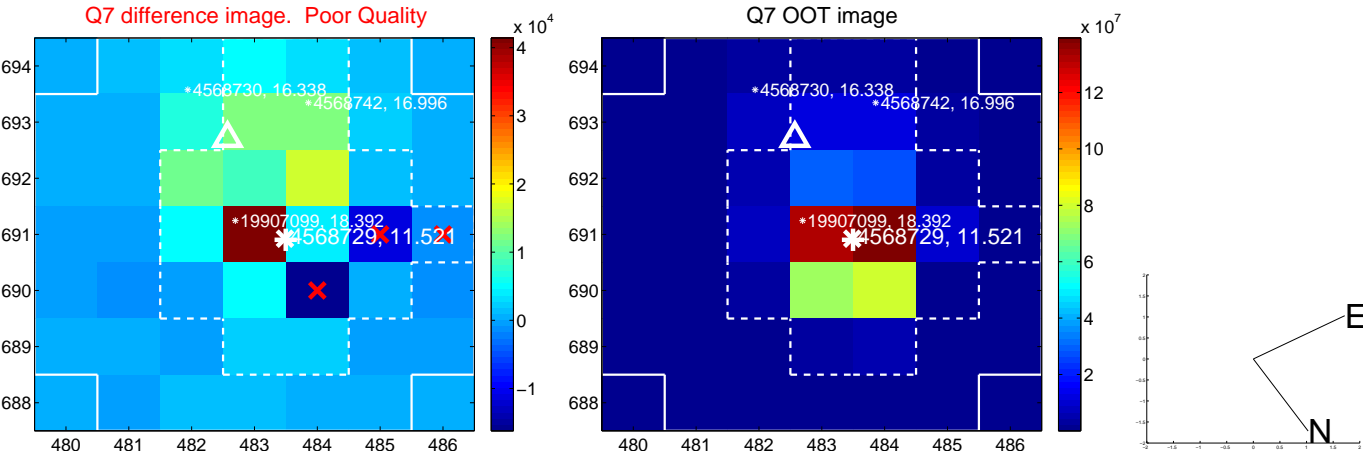
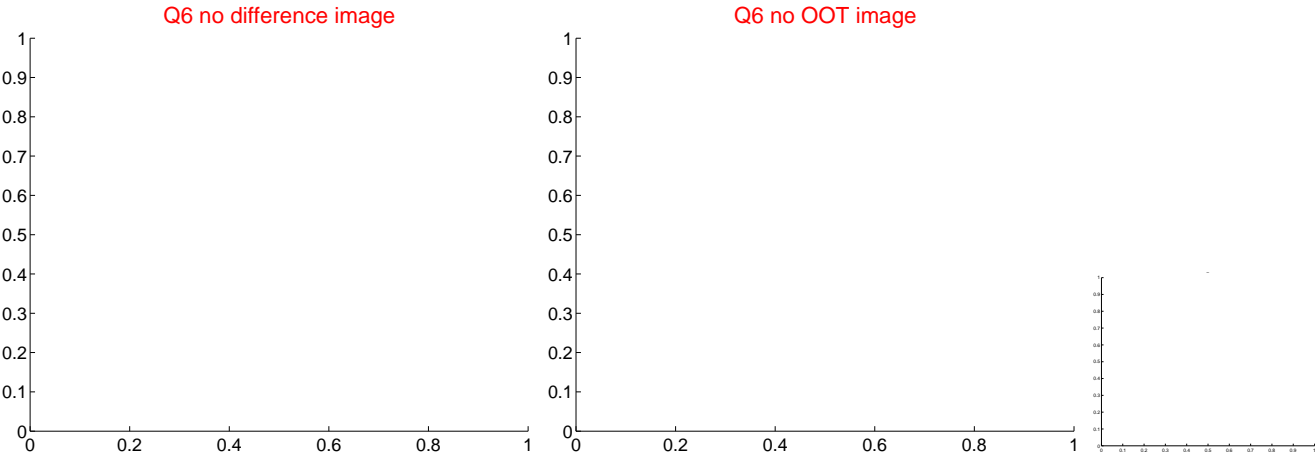
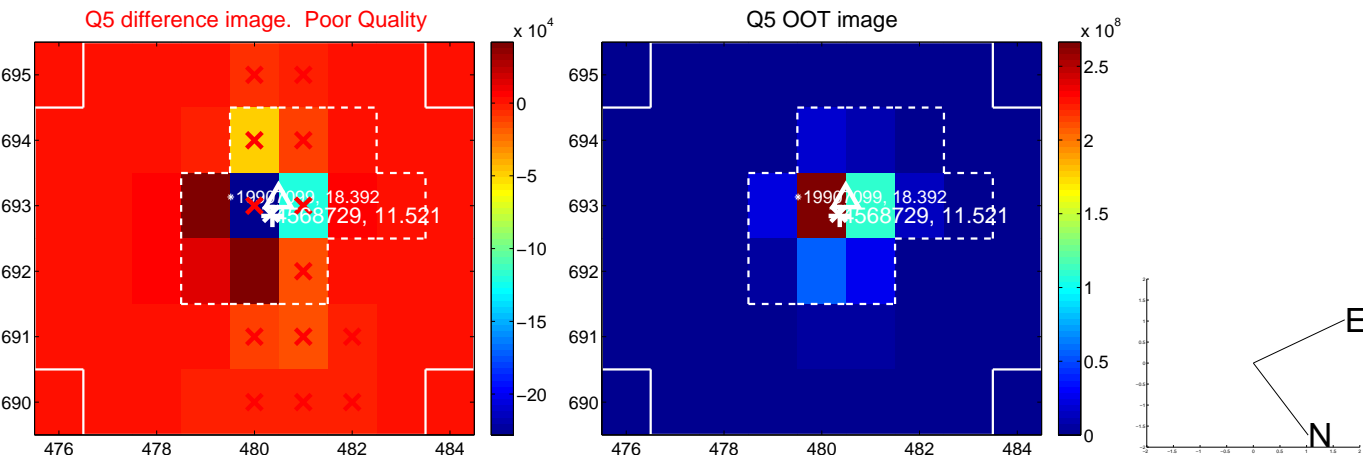


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

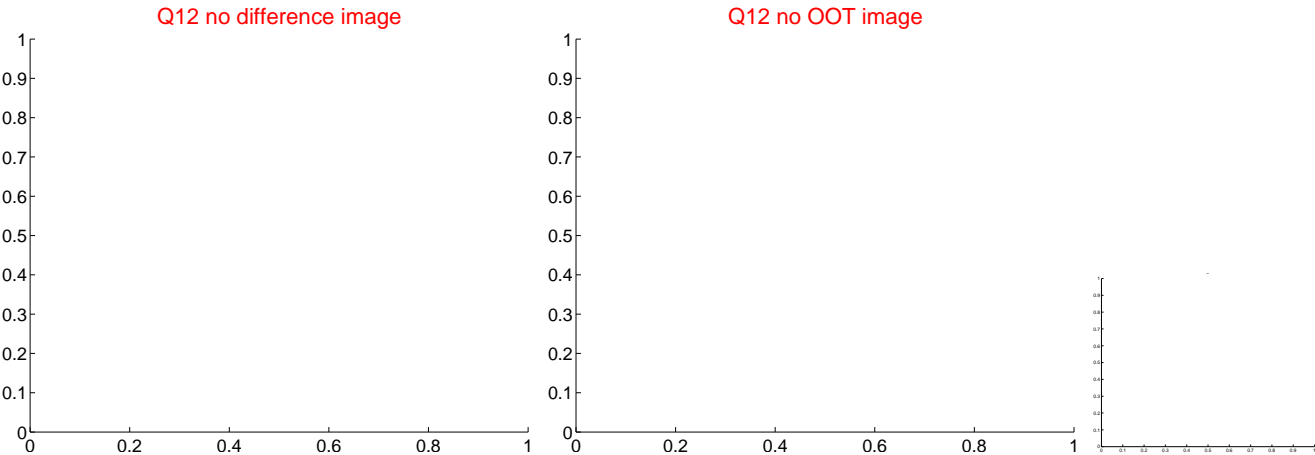
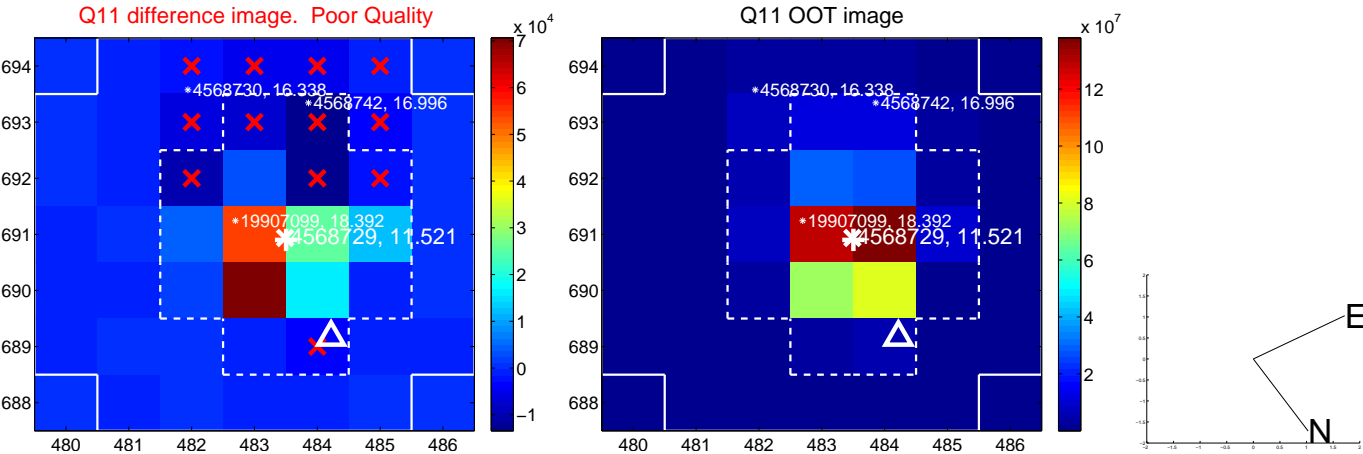
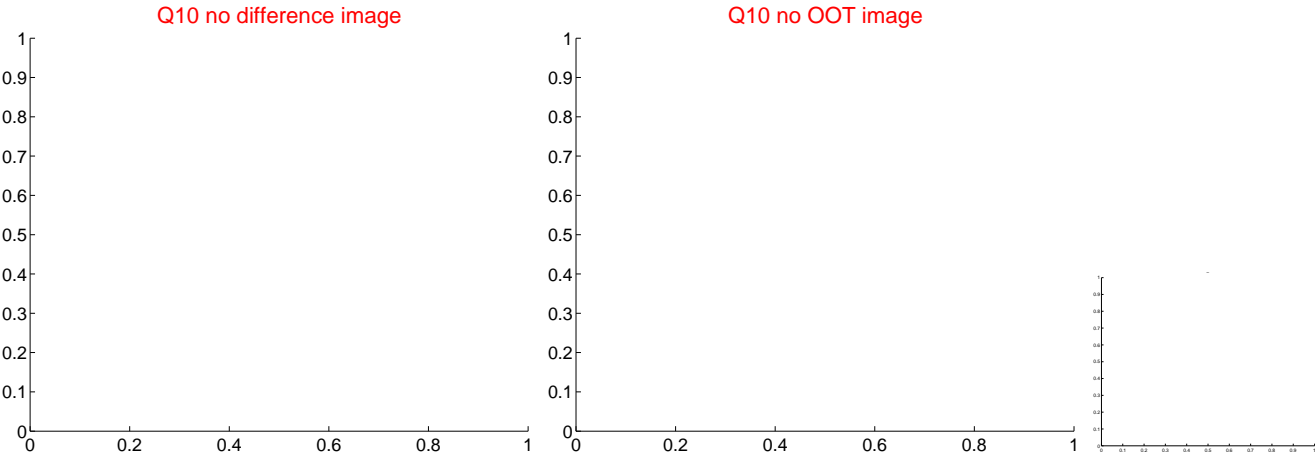
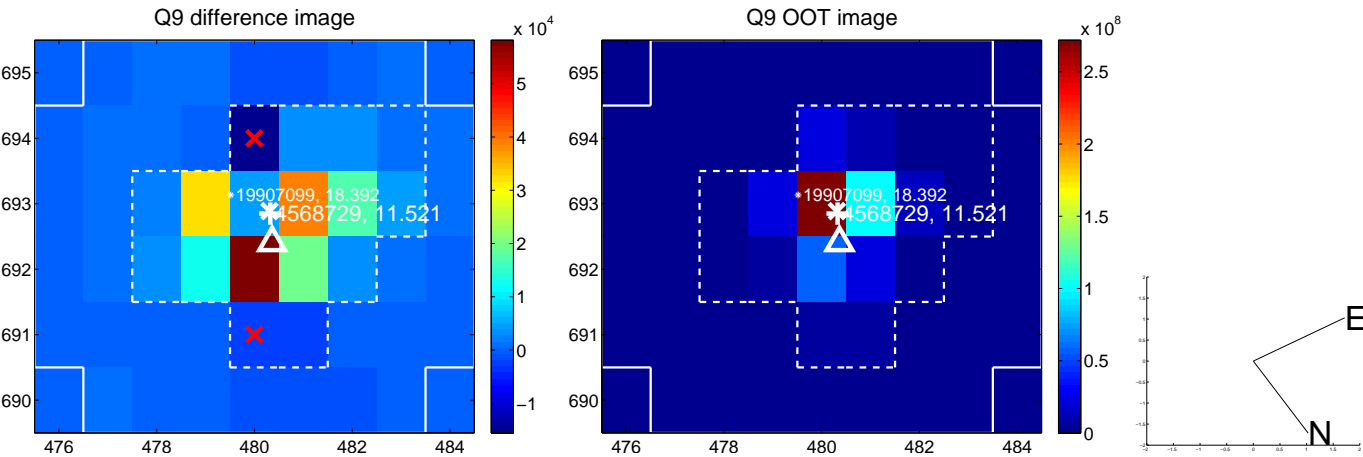
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



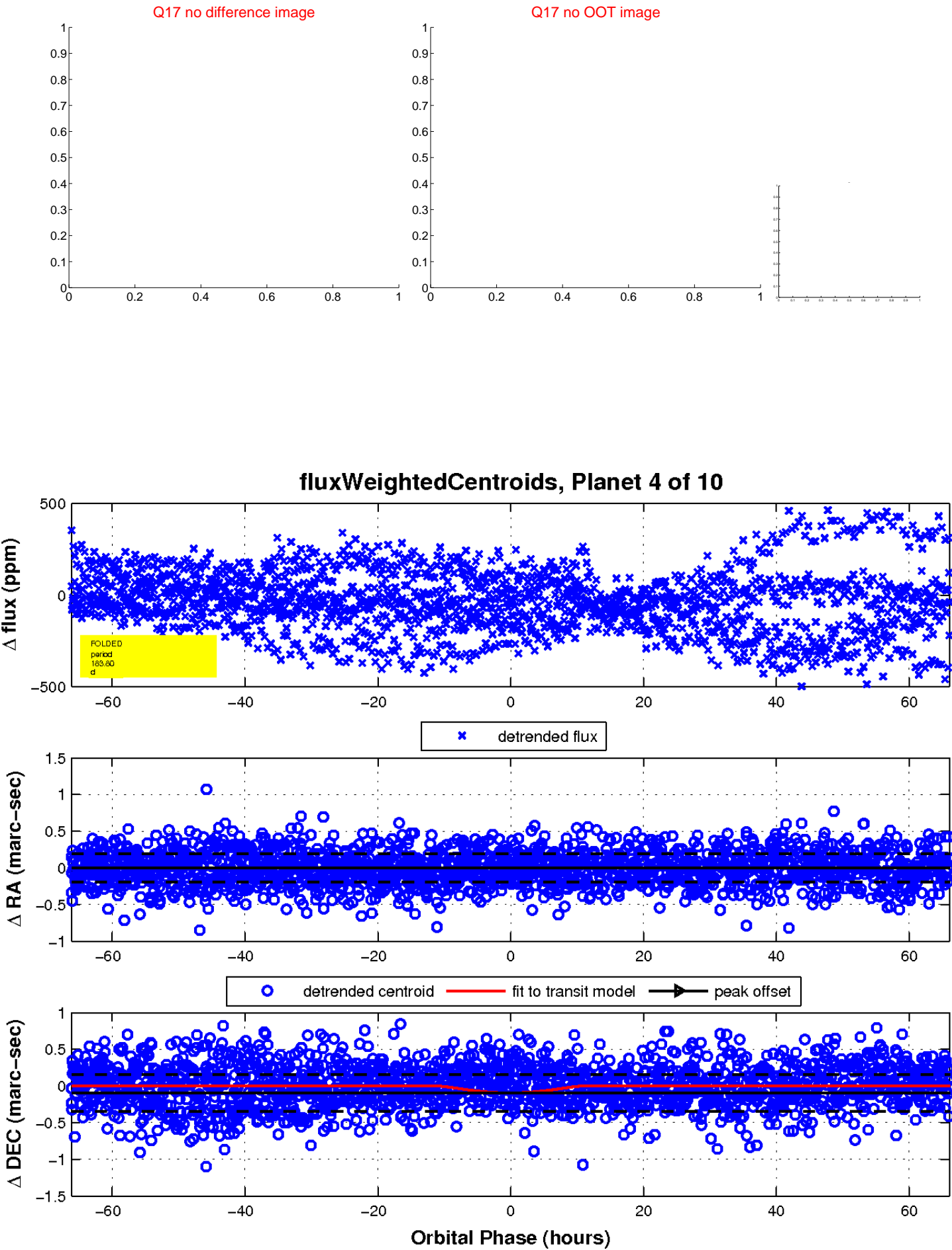
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

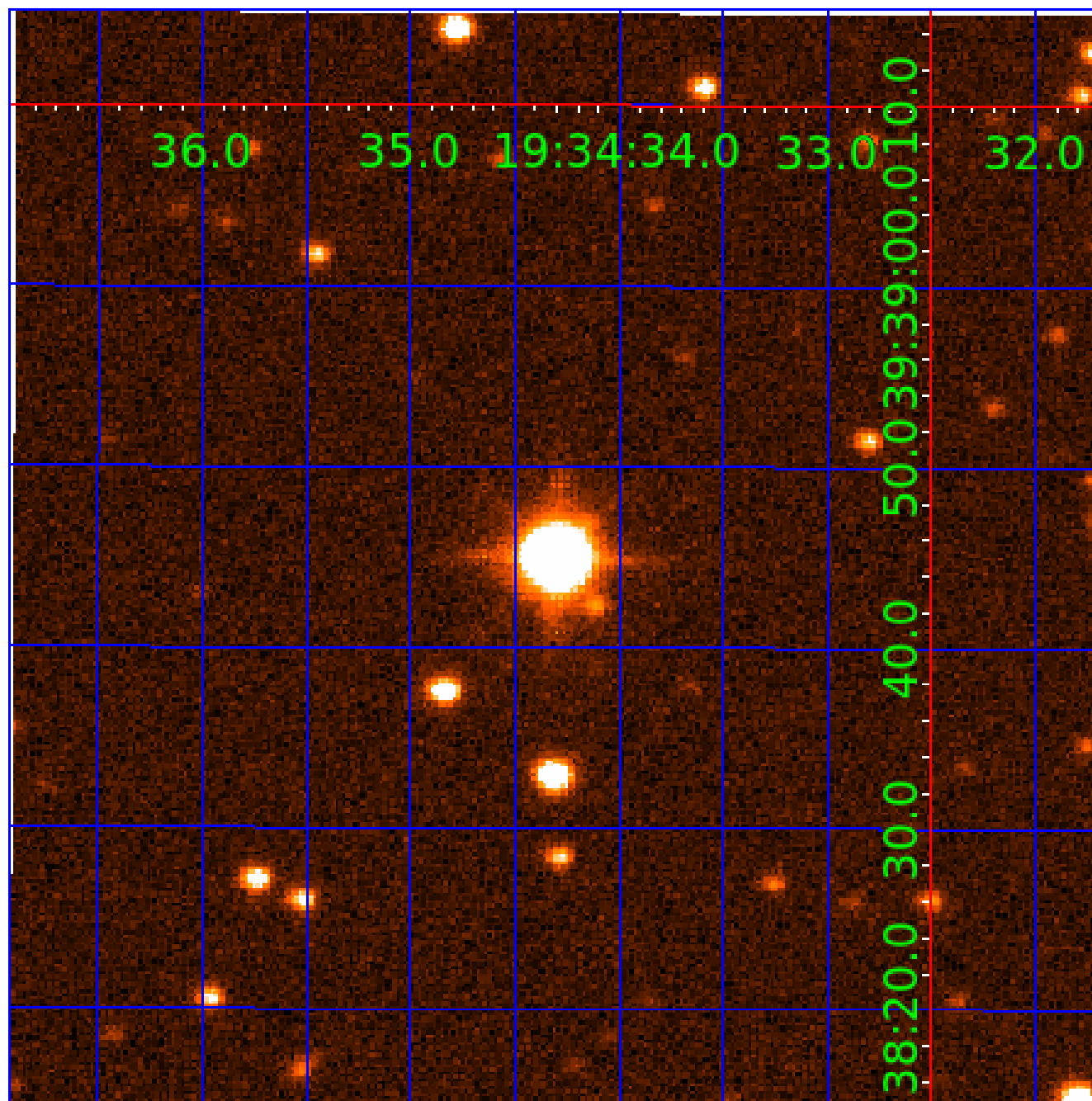


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
004568729-06	OBS	No	90.964616	161.891452	244.7	4.761	19.2	13.9	1.73	7210	3.05	36.13
004568729-07	OBS	No	308.882039	157.191871	170.0	18.520	12.5	6.6	1.73	7210	4.39	7.08
004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

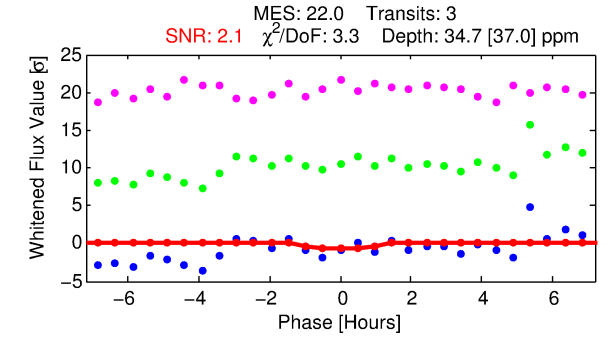
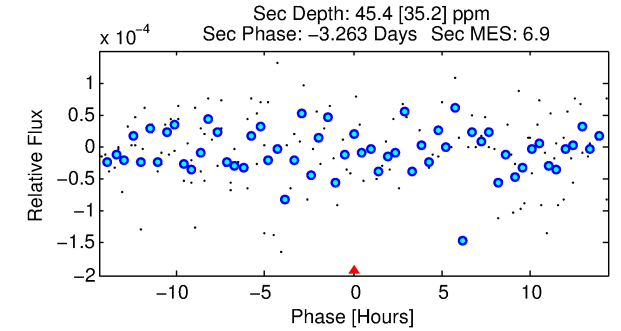
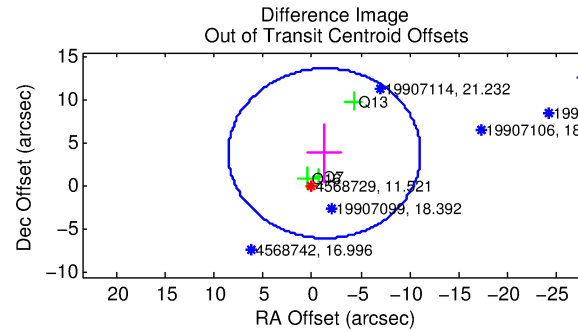
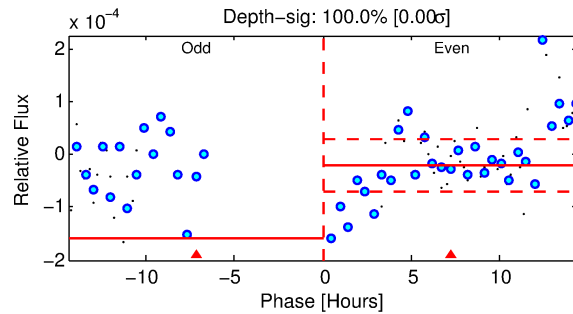
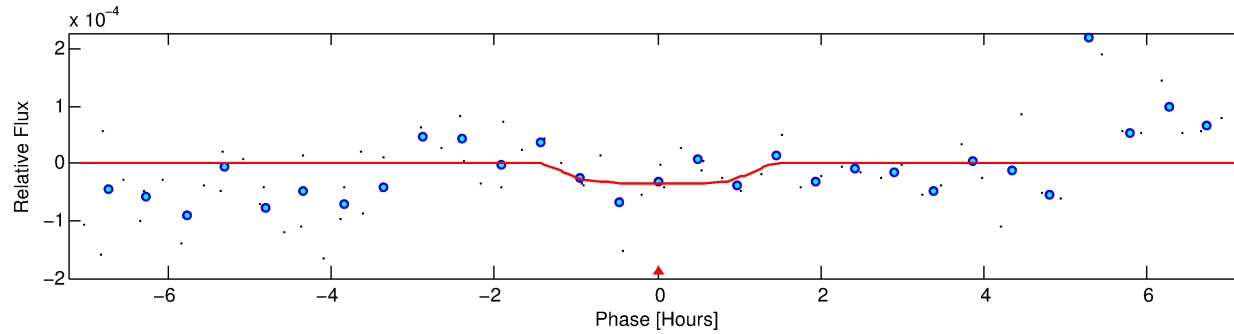
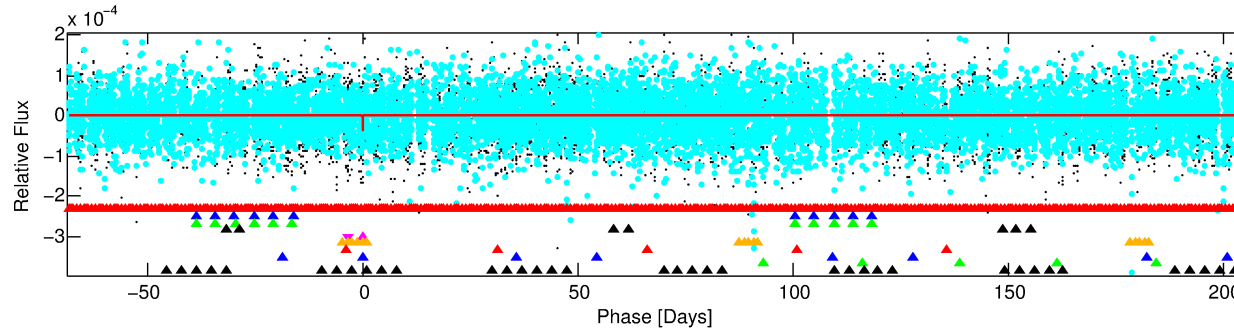
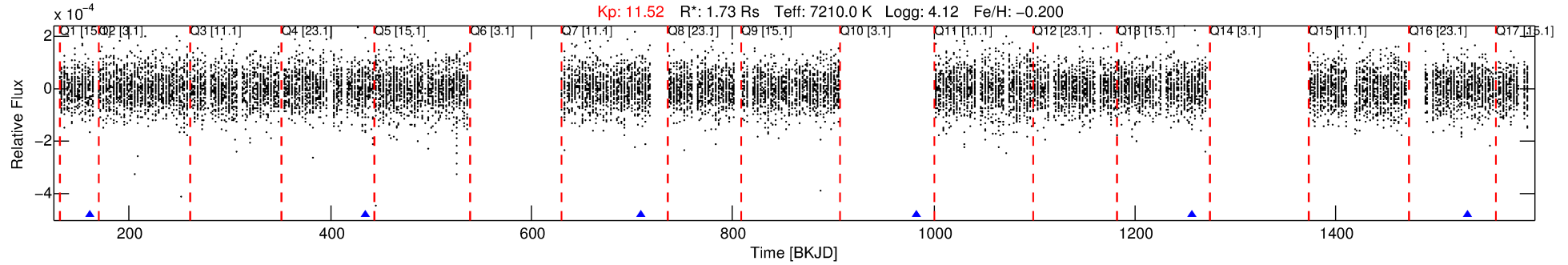
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-05

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 5 of 10 Period: 274.022 d



DV Fit Results:

Period = 274.02209 [0.01289] d
Epoch = 160.9449 [0.0469] BKJD
Rp/R* = 0.0061 [0.0267]
a/R* = 461.70 [12507.47]
b = 0.85 [8.54]
Seff = 8.30 [3.23]
Teq = 433 [42] K
Rp = 1.15 [5.05] Re
a = 0.9331 [0.2333] AU
Ag = 16440.78 [144678.64] [0.11 σ]
Teffp = 7578 [16661] K [0.43 σ]

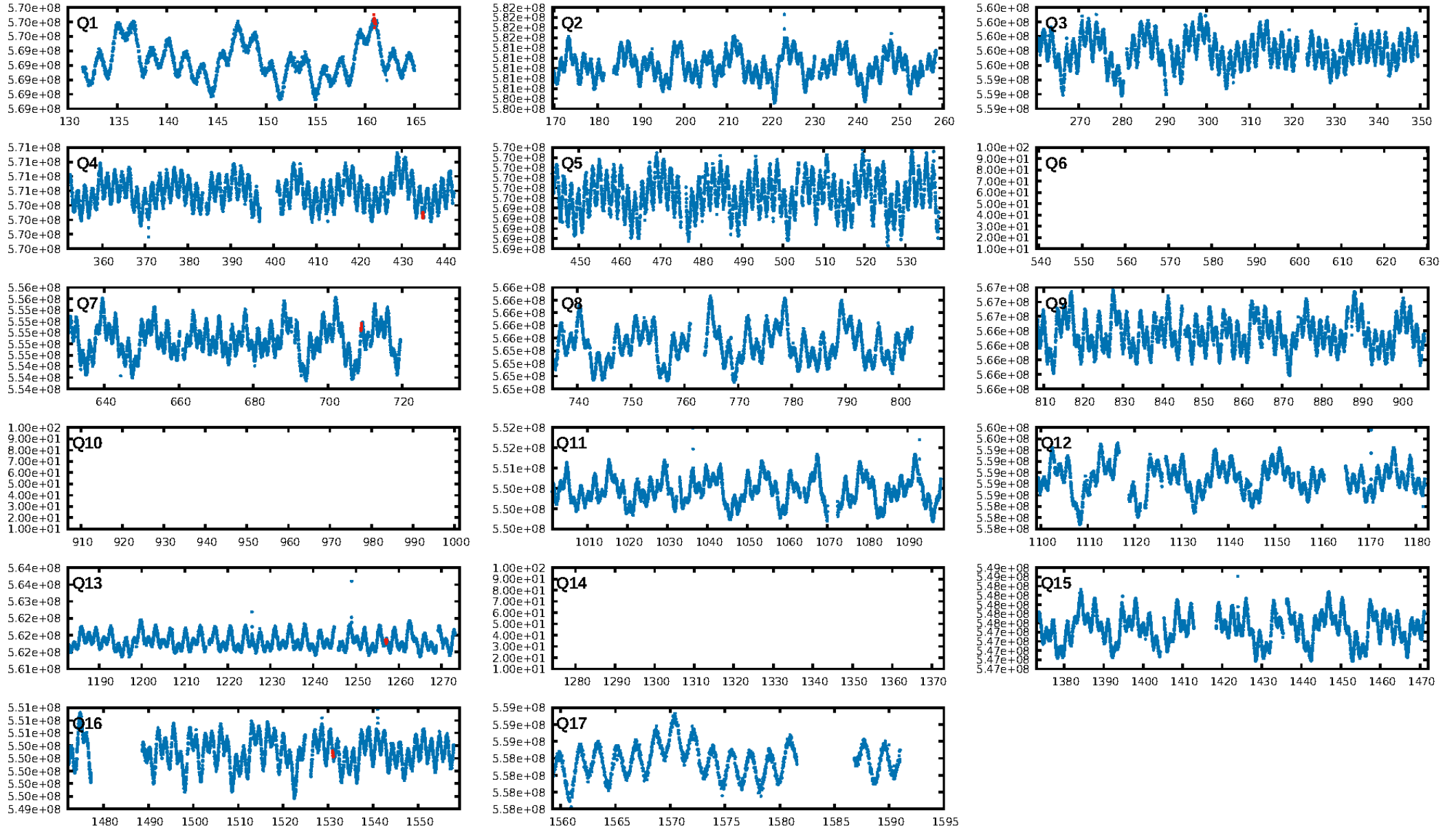
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [87.86 σ]
LongPeriod-sig: 100.0% [84.39 σ]
ModelChiSquare2-sig: 8.5%
ModelChiSquareGof-sig: 52.4%
Bootstrap-pfa: 2.41e-31
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.862
Centroid-sig: 18.0%
Centroid-so: 6.233 arcsec [1.31 σ]
OotOffset-rm: 4.014 arcsec [1.23 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 4.138 arcsec [1.26 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.40 [2/5]

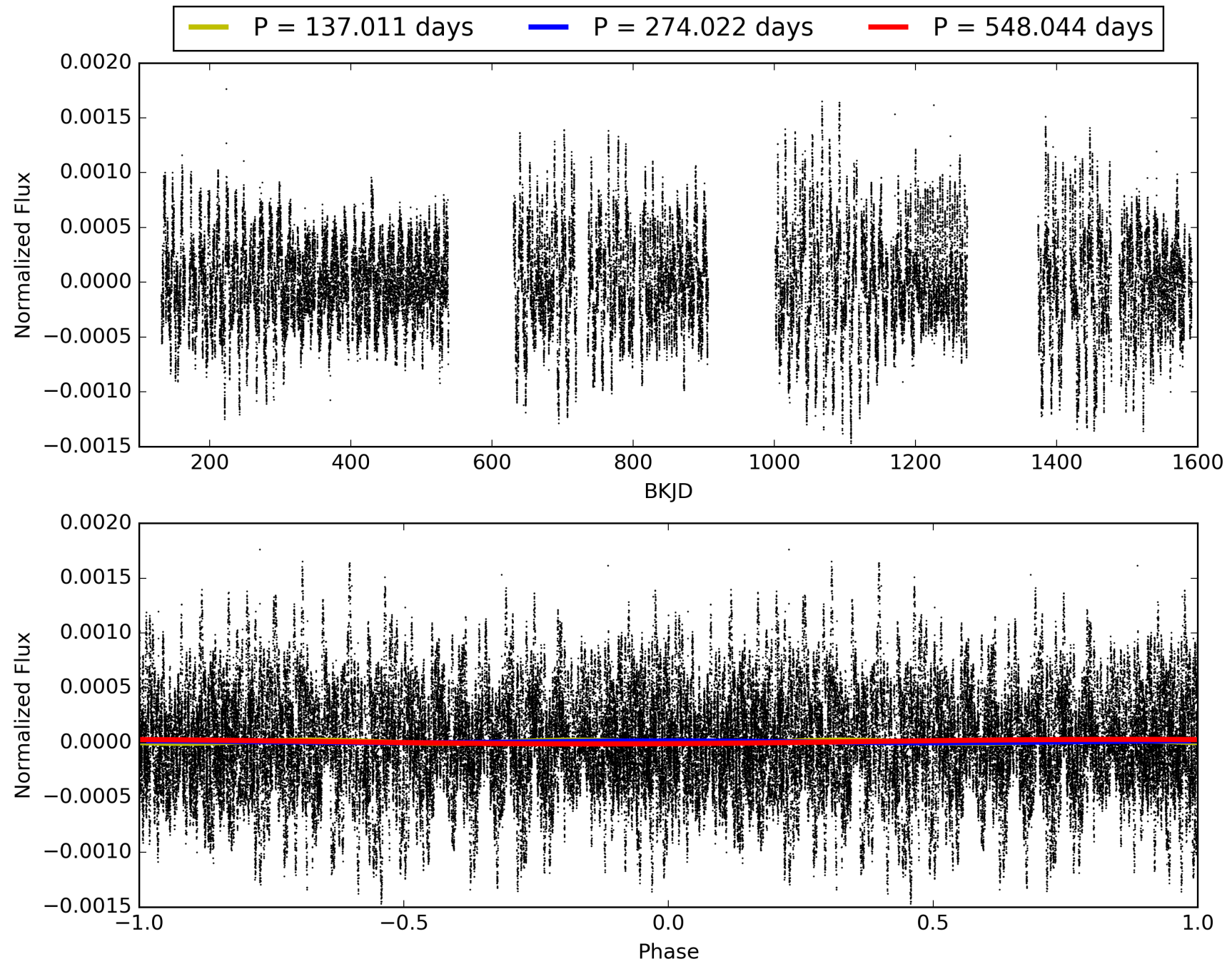
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:01:20 Z

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

TCE 004568729-05, PDC Light Curves

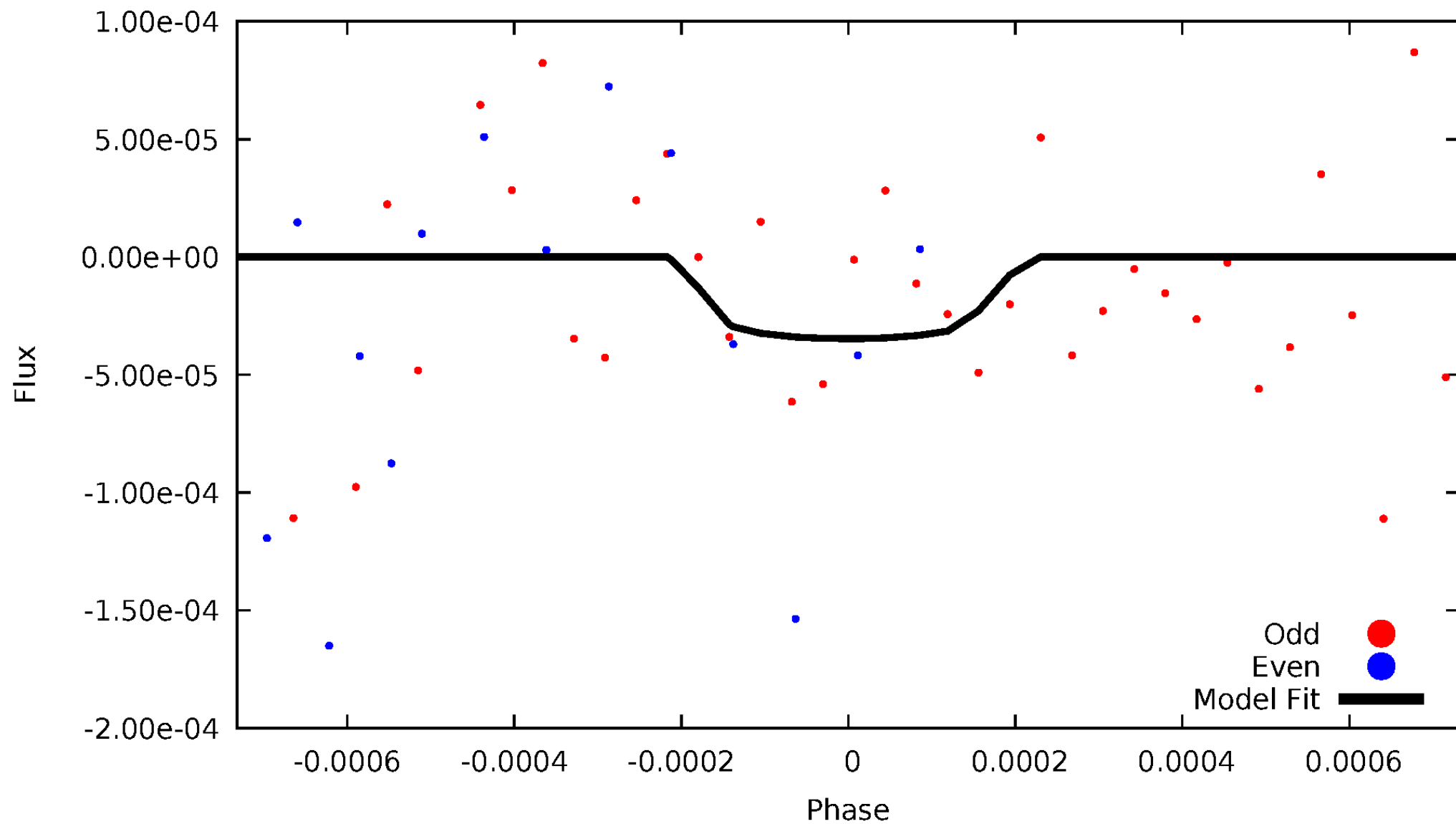


TCE 004568729-05



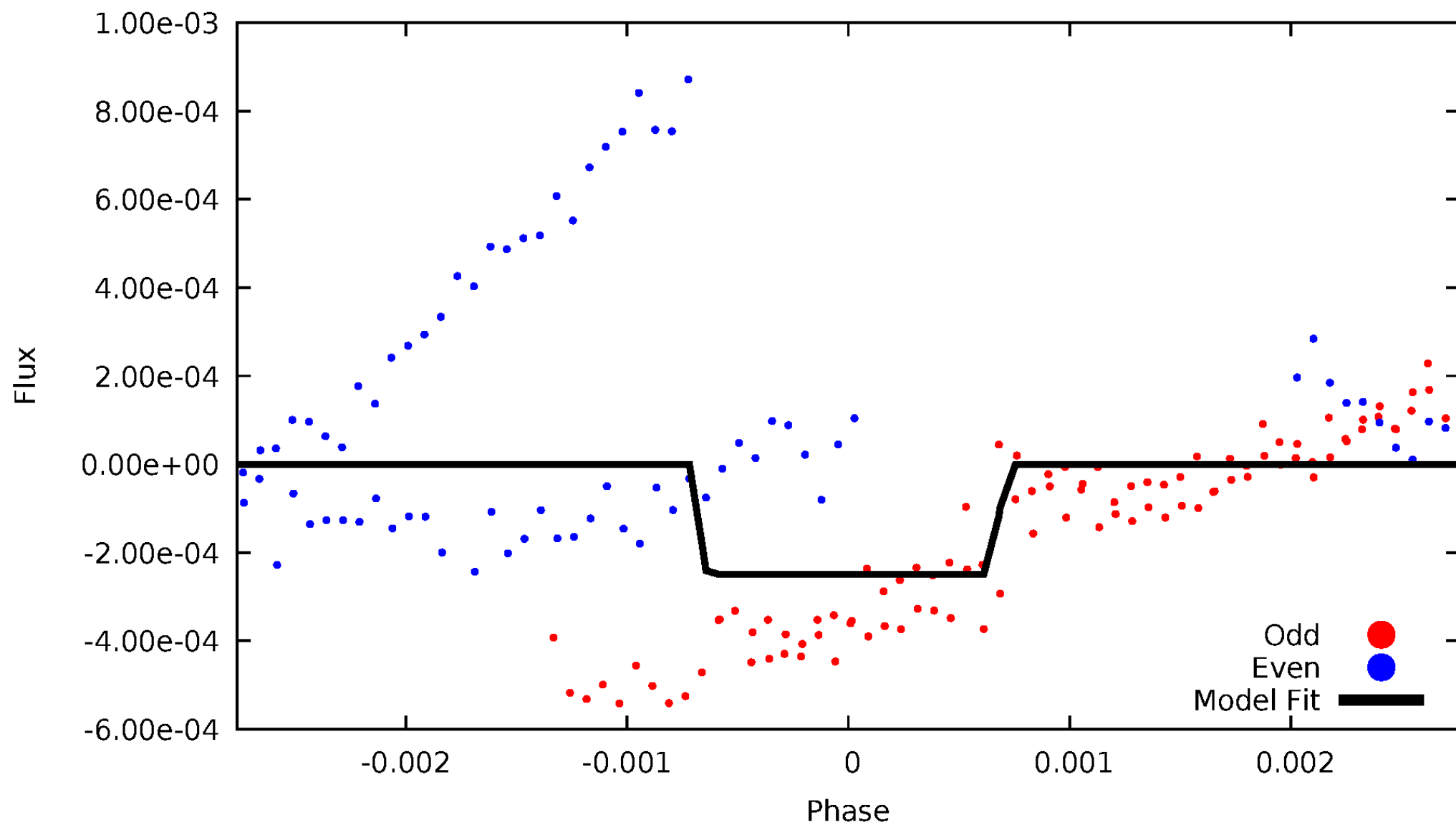
DV Odd/Even

TCE 004568729-05



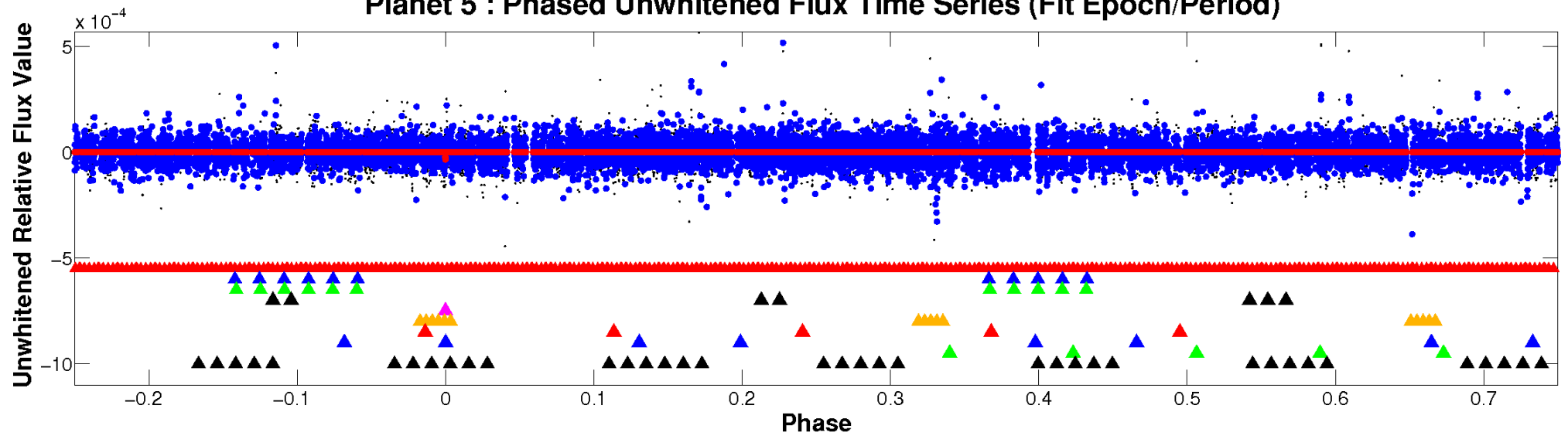
ALT Odd/Even

TCE 004568729-05

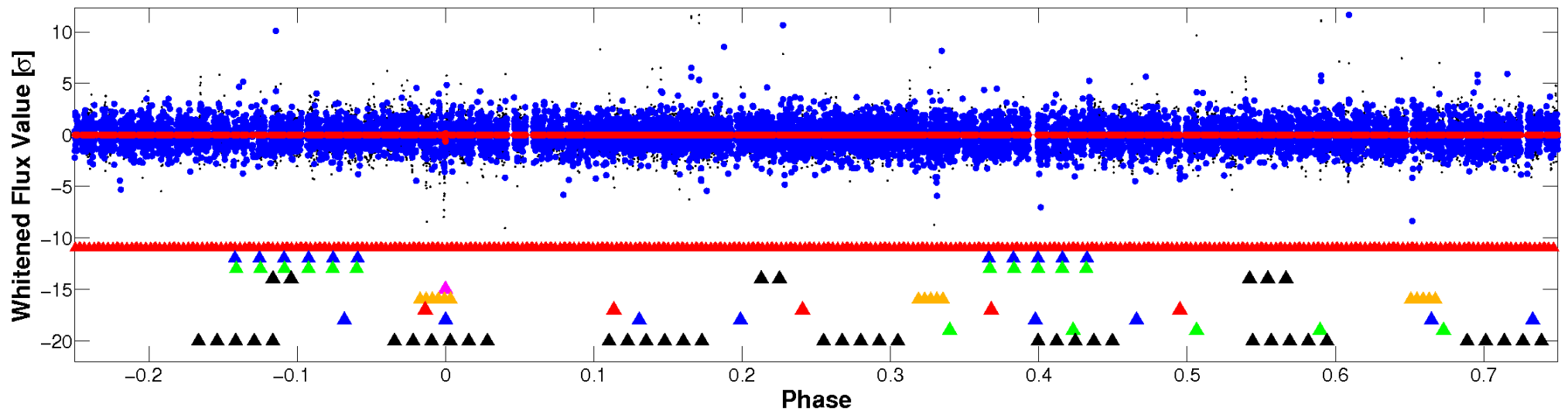


Non-Whitened Vs. Whitened Light Curve

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

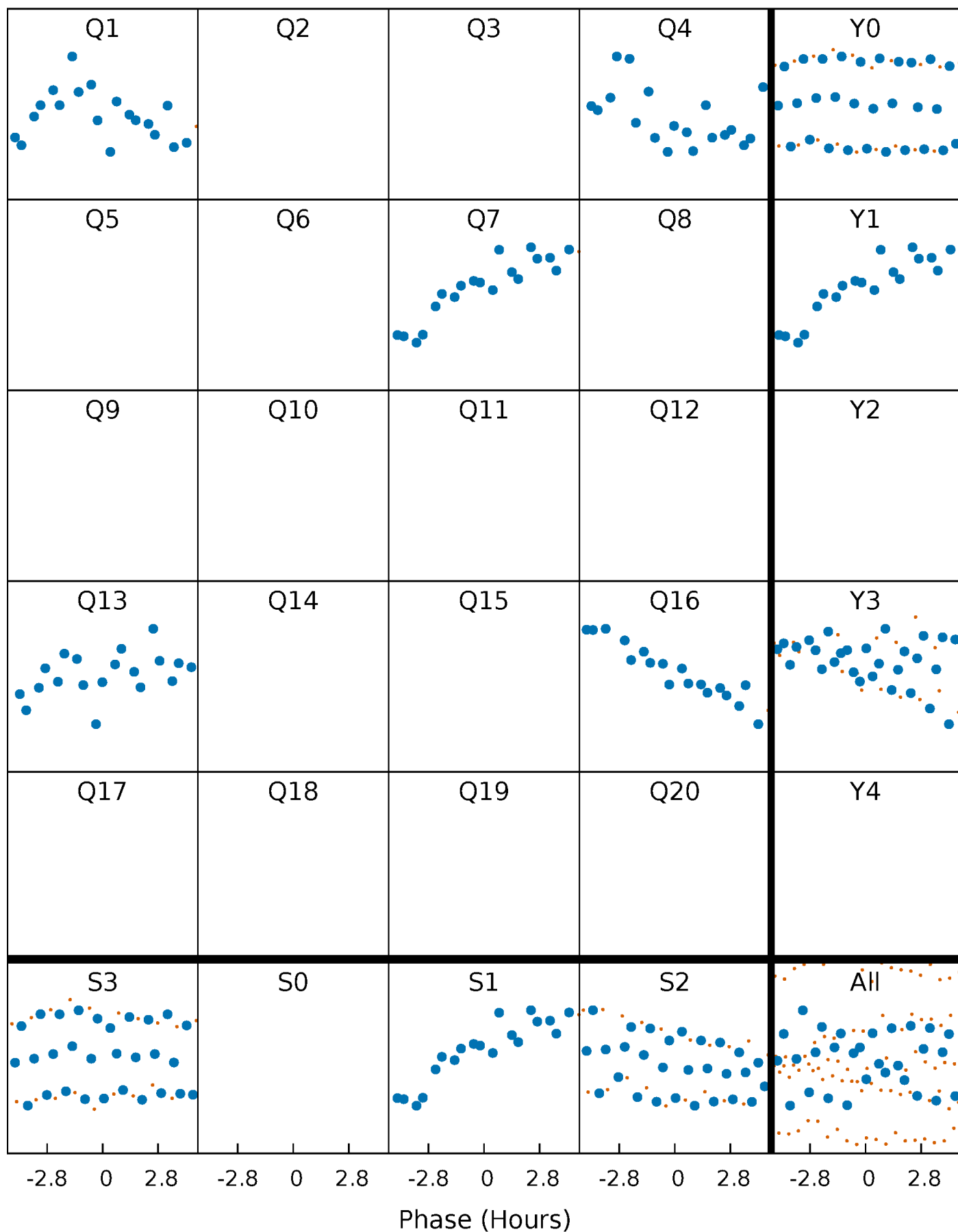


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



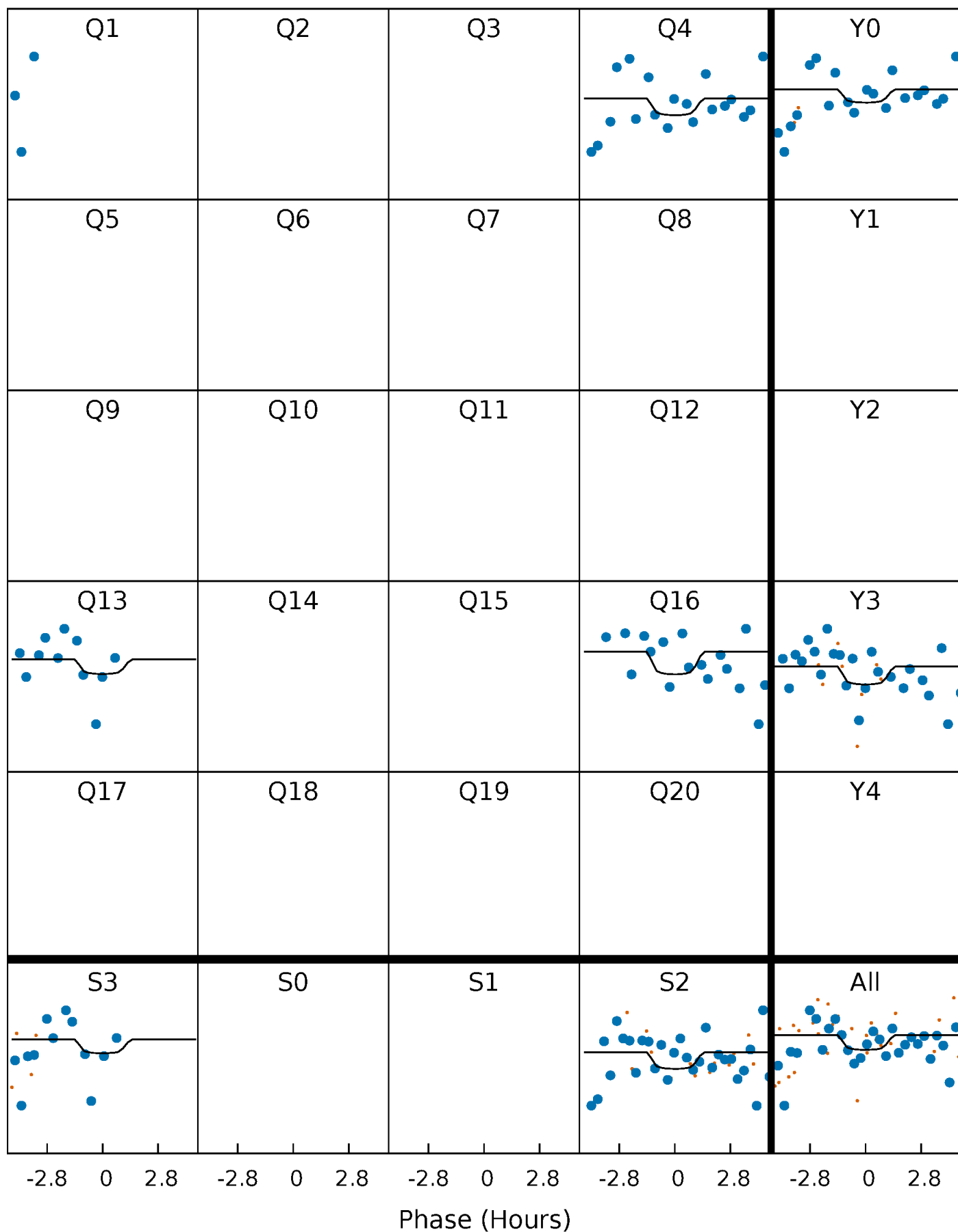
PDC Quarter-Phased Transit Curves

TCE 004568729-05 $P=274.022088$ Days $T_0=160.944921$ (BKJD)



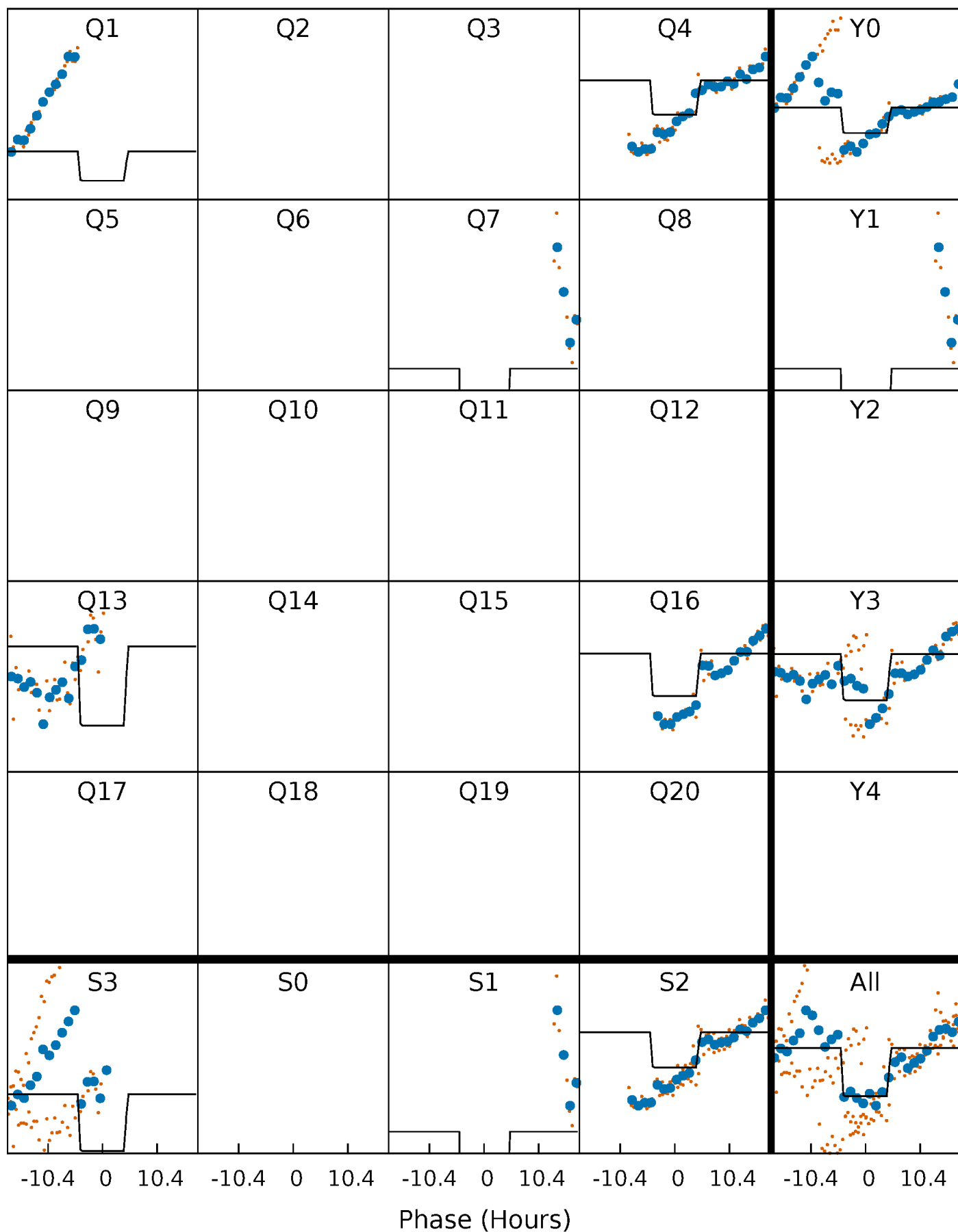
DV Quarter-Phased Transit Curves

TCE 004568729-05 $P=274.022088$ Days $T_0=160.944921$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

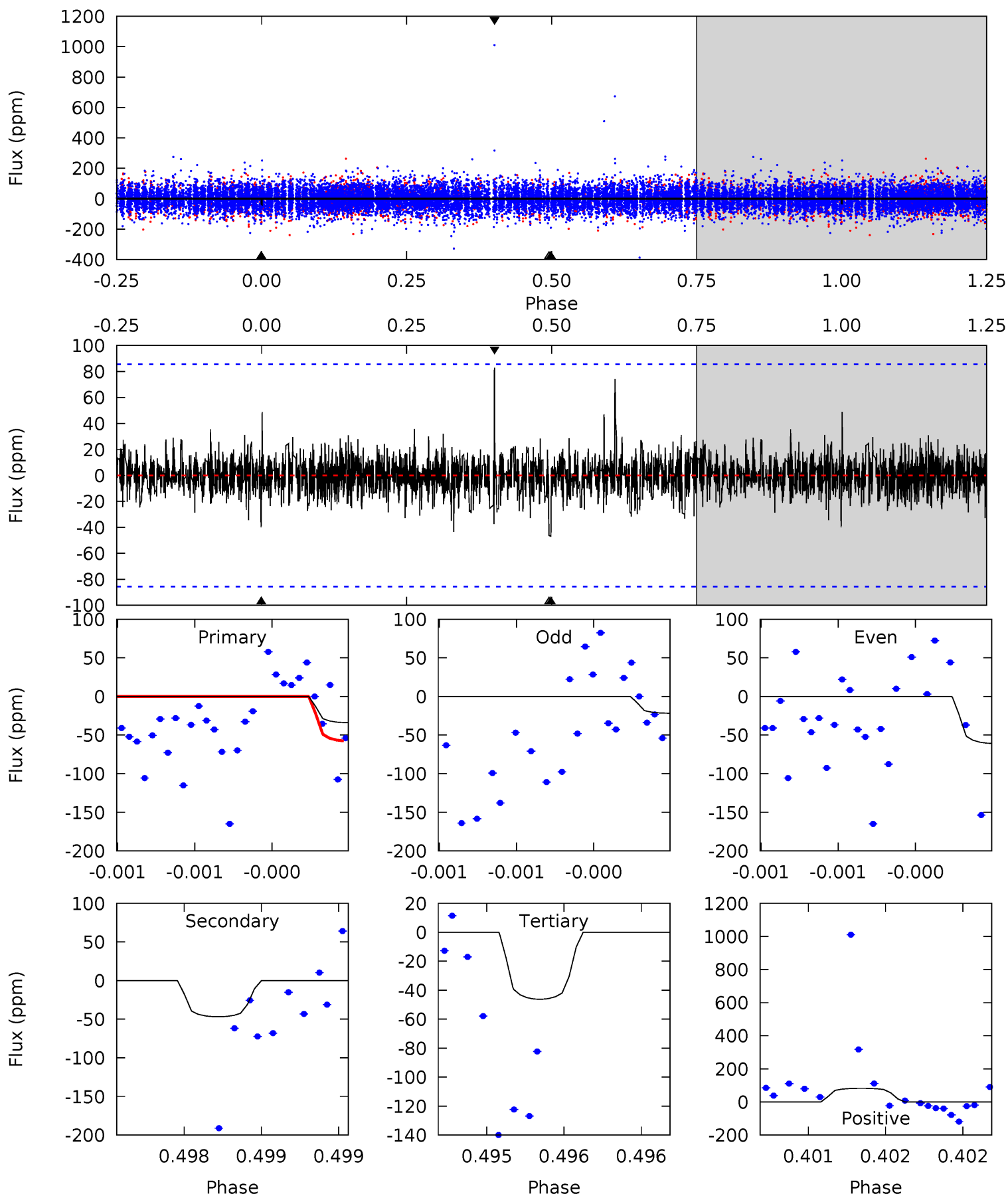
TCE 004568729-05 $P=274.014040$ Days $T_0=160.993084$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-05, P = 274.022088 Days, E = 160.944921 Days

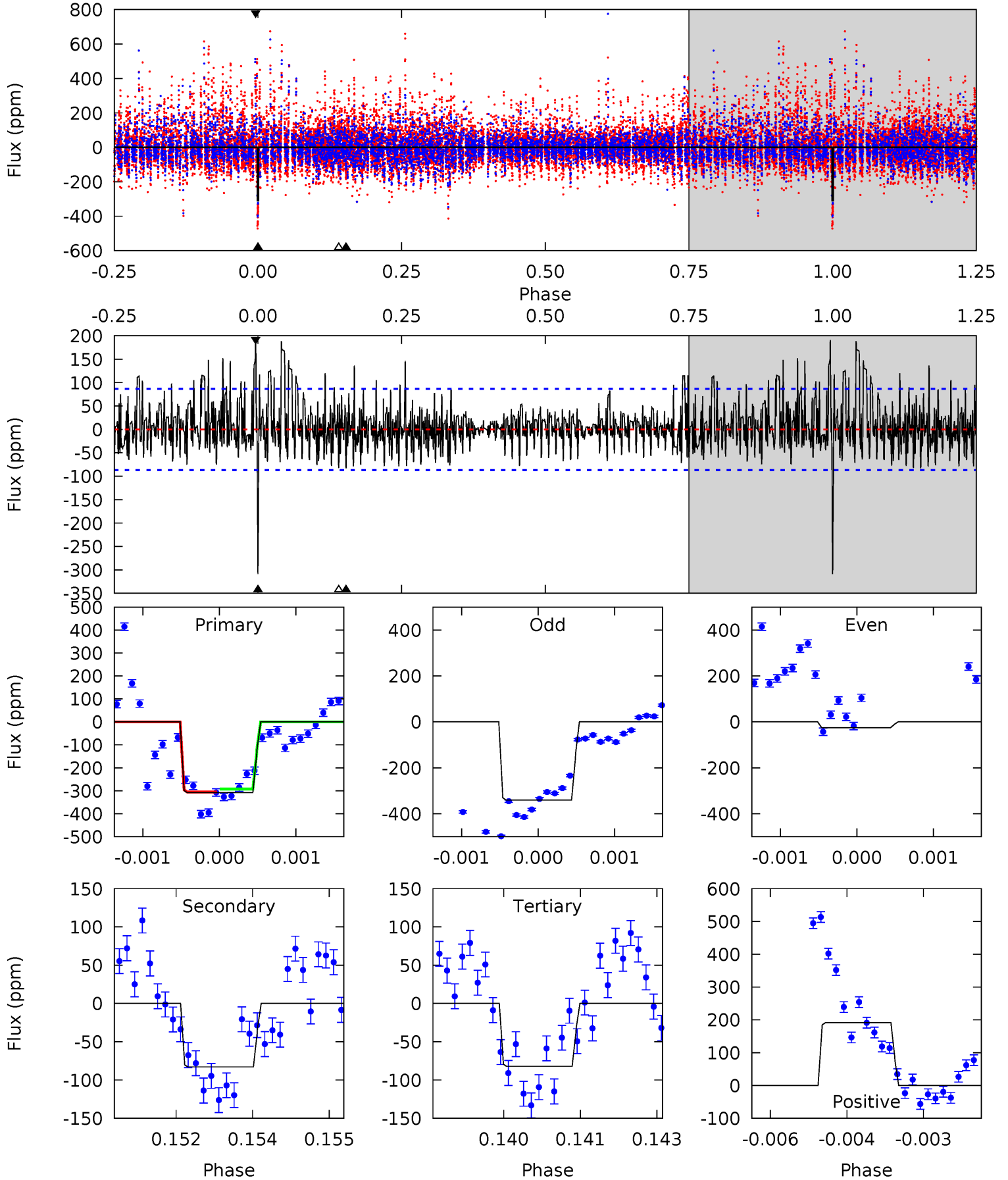
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.23	3.07	3.03	5.43	5.61	3.53	0.69	-0.80	-3.19	0.04	-2.35	1.16	1.05	0.64	1.46



Alt Model-Shift Uniqueness Test

004568729-05, P = 274.014040 Days, E = 160.993084 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	5.14	5.10	11.9	5.39	3.19	2.36	14.1	7.29	0.05	-6.72	8.17	0.70	0.38	0.42



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-47 ± 15	$4.05^{+3.95}_{-2.59}$	607^{+48}_{-40}	4223^{+2393}_{-875}	1243^{+8127}_{-936}
Alt.	-83 ± 16	$4.81^{+4.61}_{-3.10}$	605^{+49}_{-41}	4479^{+2536}_{-931}	1679^{+11020}_{-1248}

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 $A_{obs} \gg 1.0$

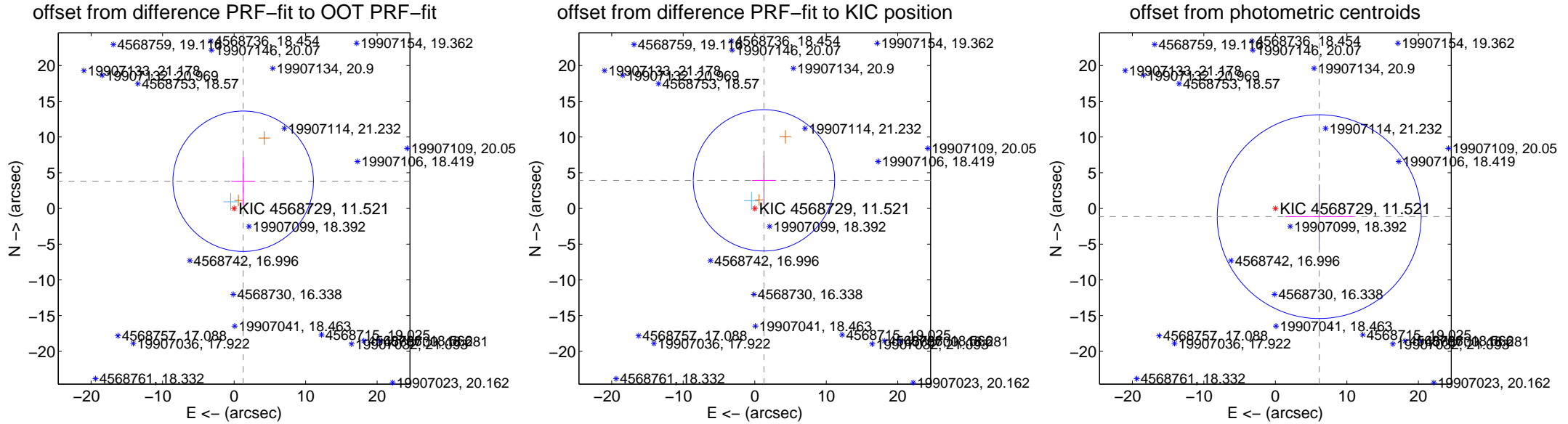
DV Centroid Data

Supplemental centroid analysis for 004568729-05. **Kepler magnitude: 11.52.** Transit SNR 2.15

There are 1 quarters with good PRF difference image offsets

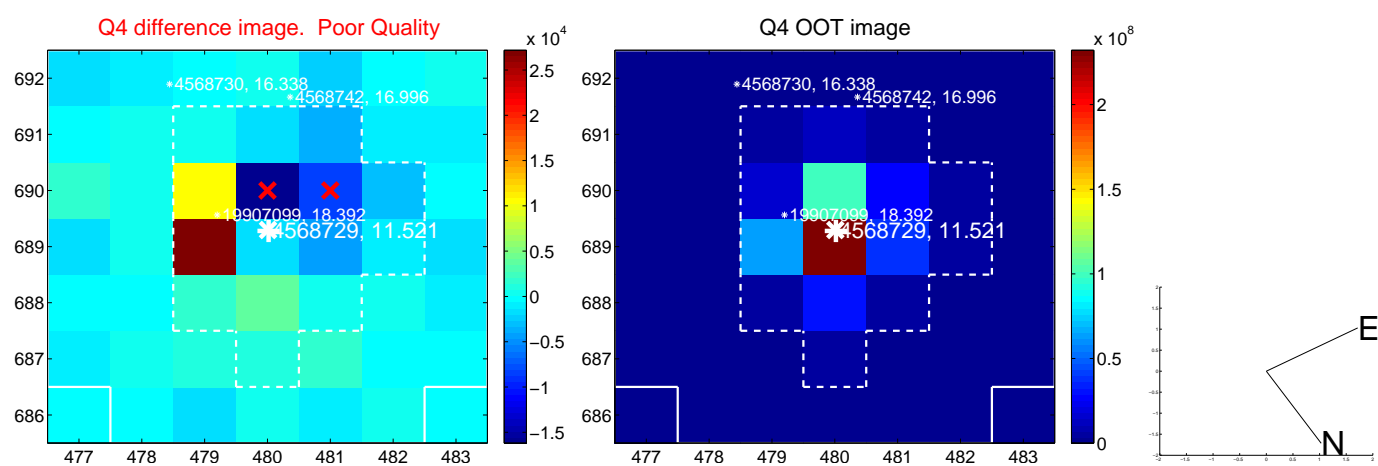
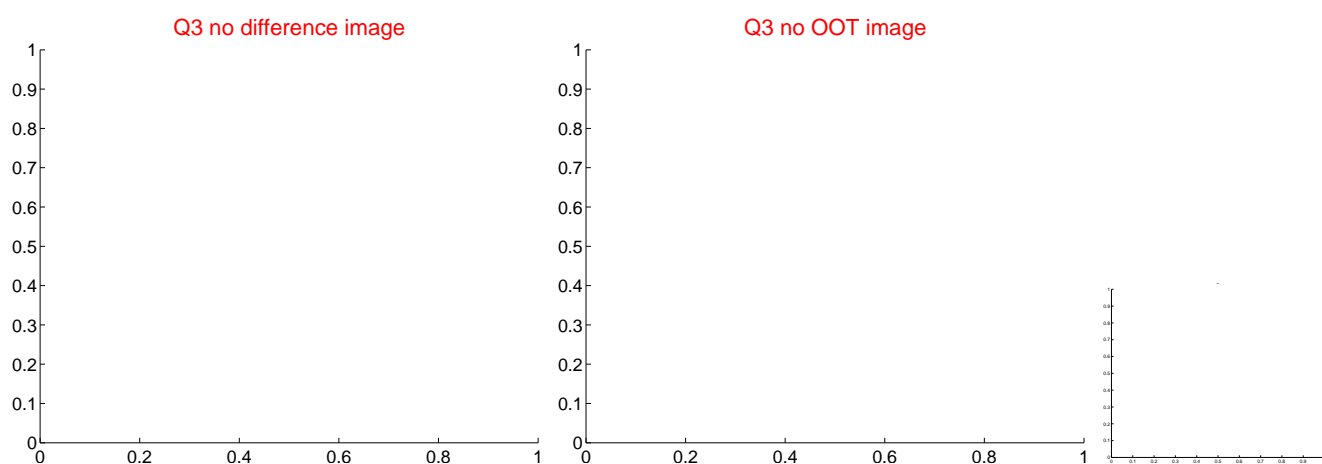
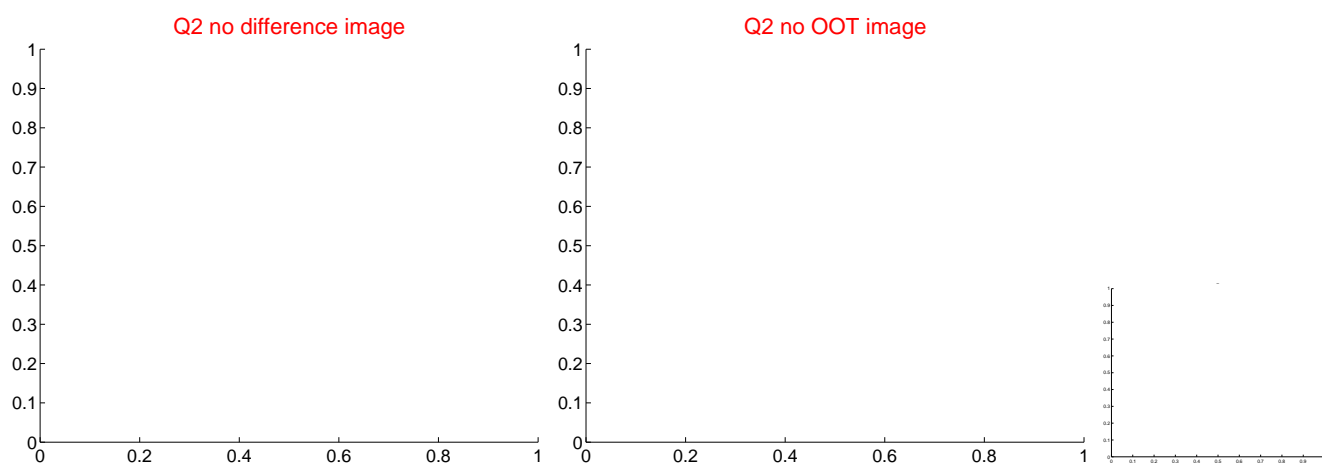
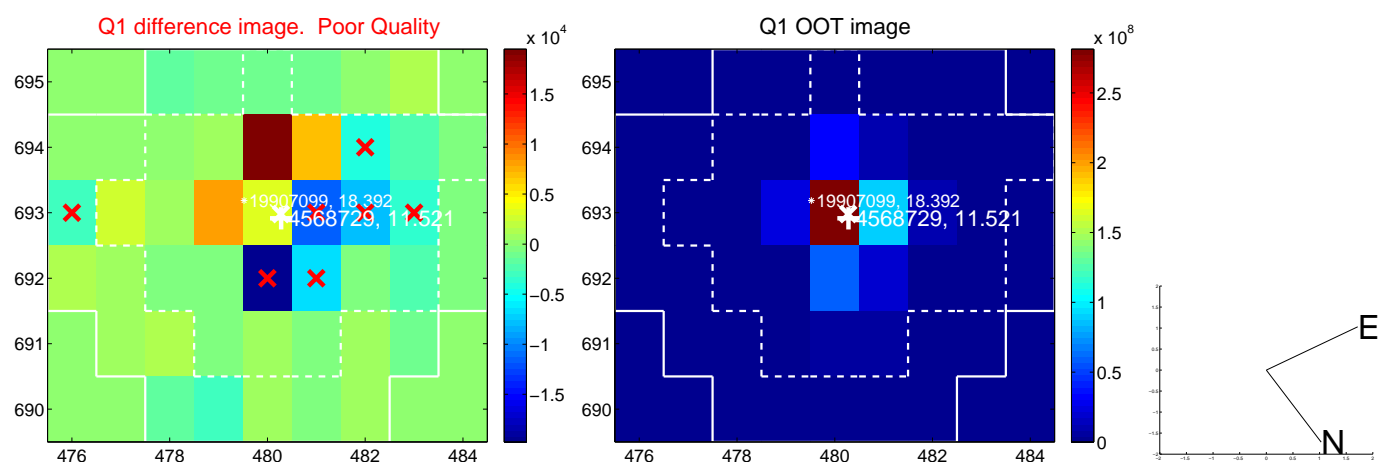
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.014 ± 3.275	1.23	-1.270 ± 1.654	3.808 ± 3.408
PRF-fit source offset from KIC position	4.138 ± 3.296	1.26	-1.288 ± 1.691	3.933 ± 3.424
photometric centroid source offset	6.23 ± 4.75	1.31	-6.13 ± 4.76	-1.15 ± 4.54



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.

Q5 no difference image



Q5 no OOT image



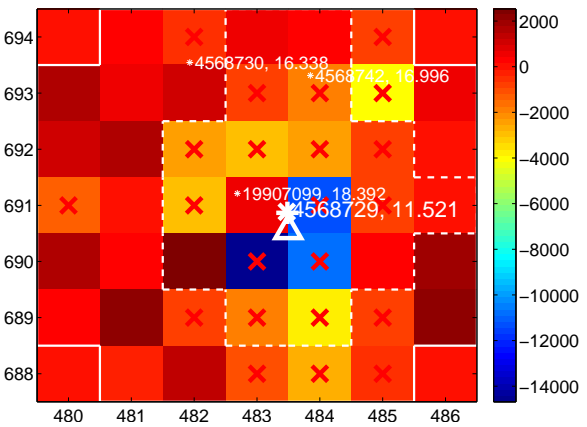
Q6 no difference image



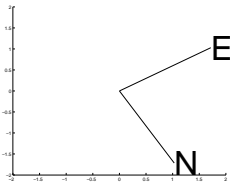
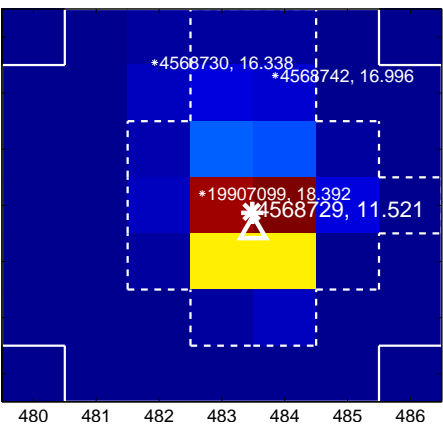
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



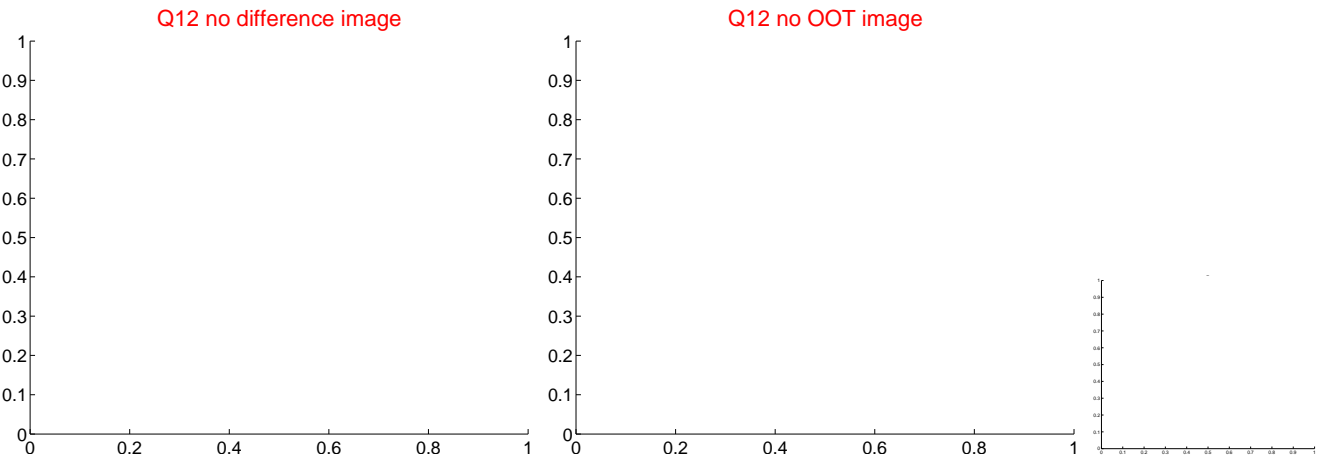
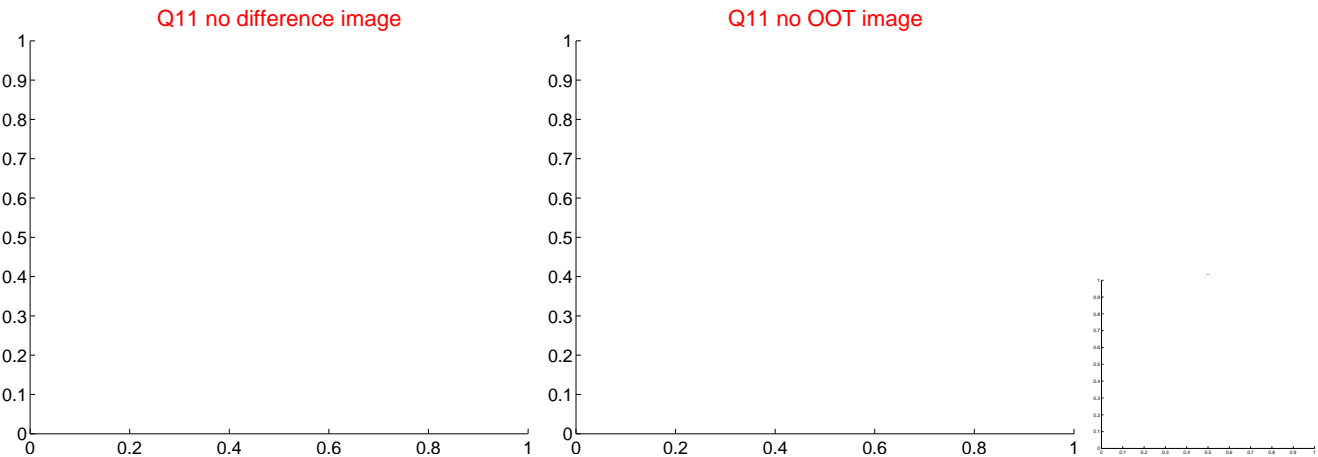
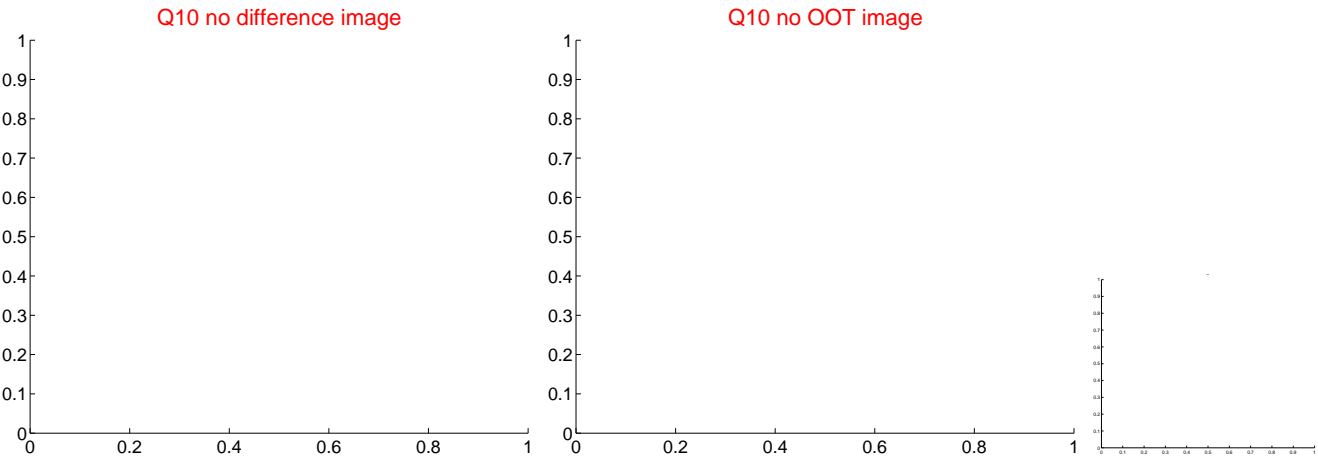
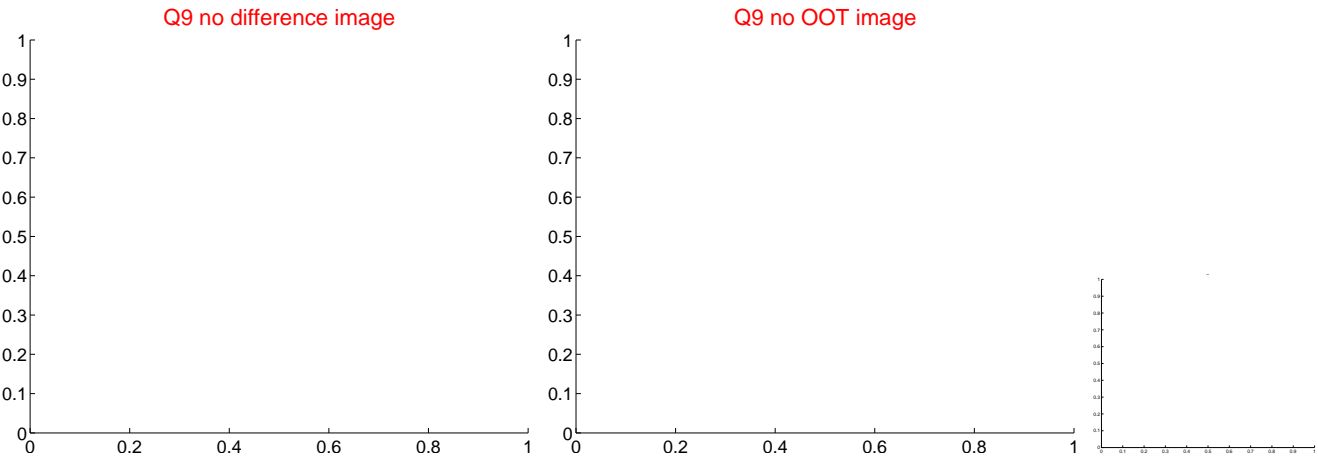
Q8 no difference image



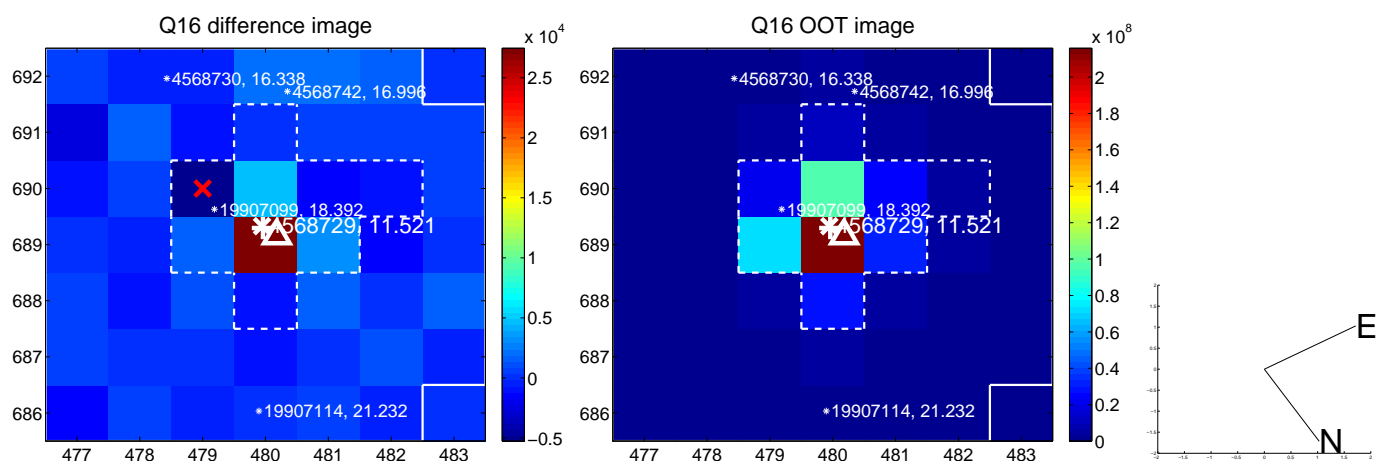
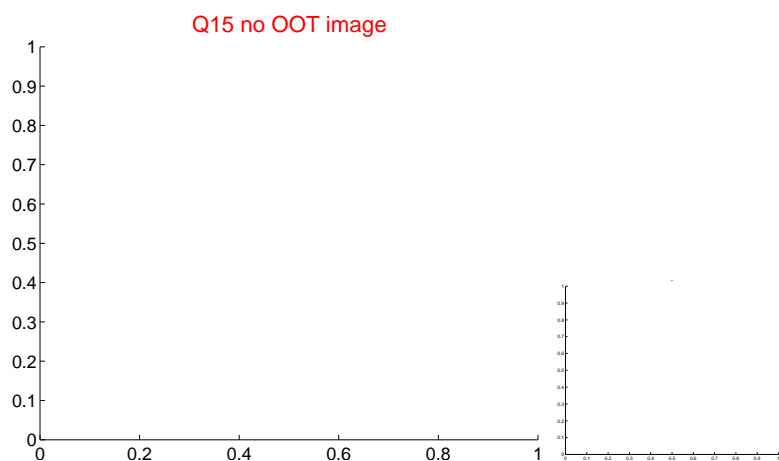
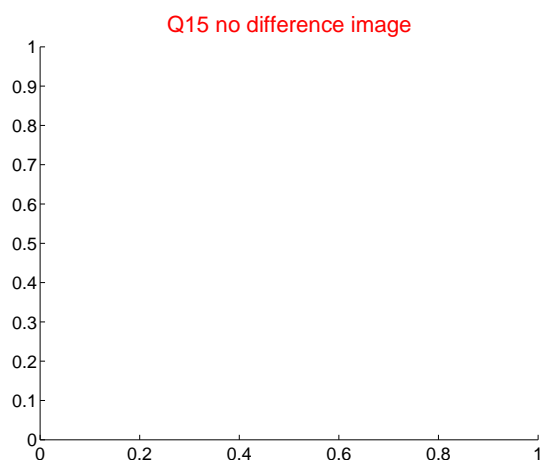
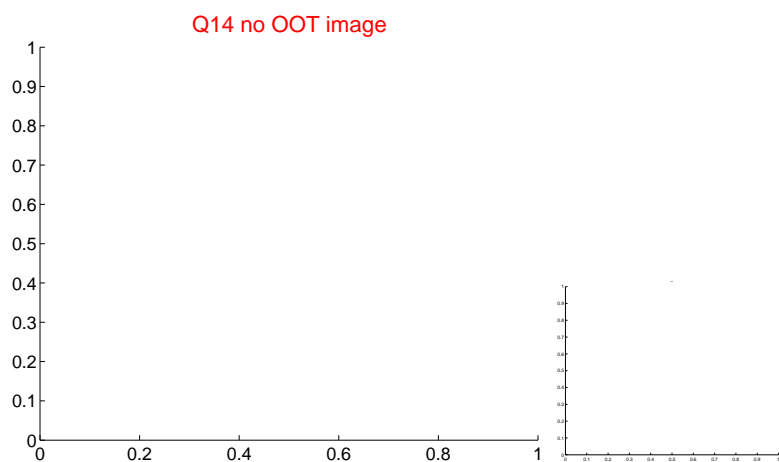
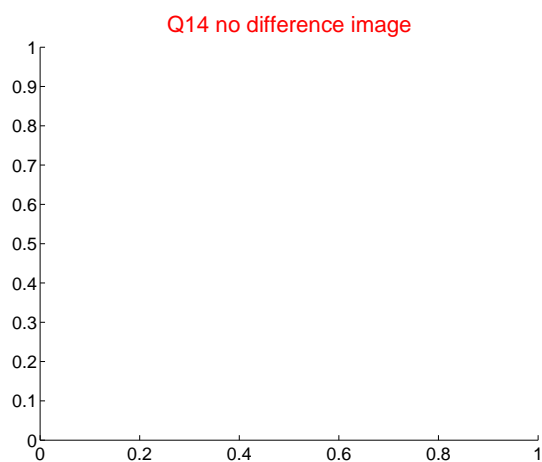
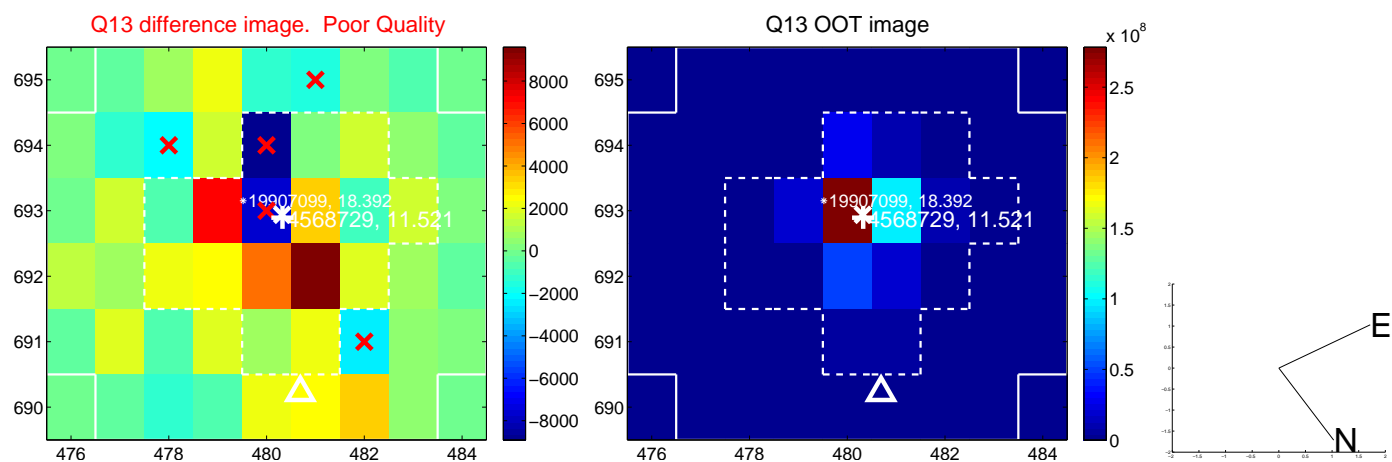
Q8 no OOT image



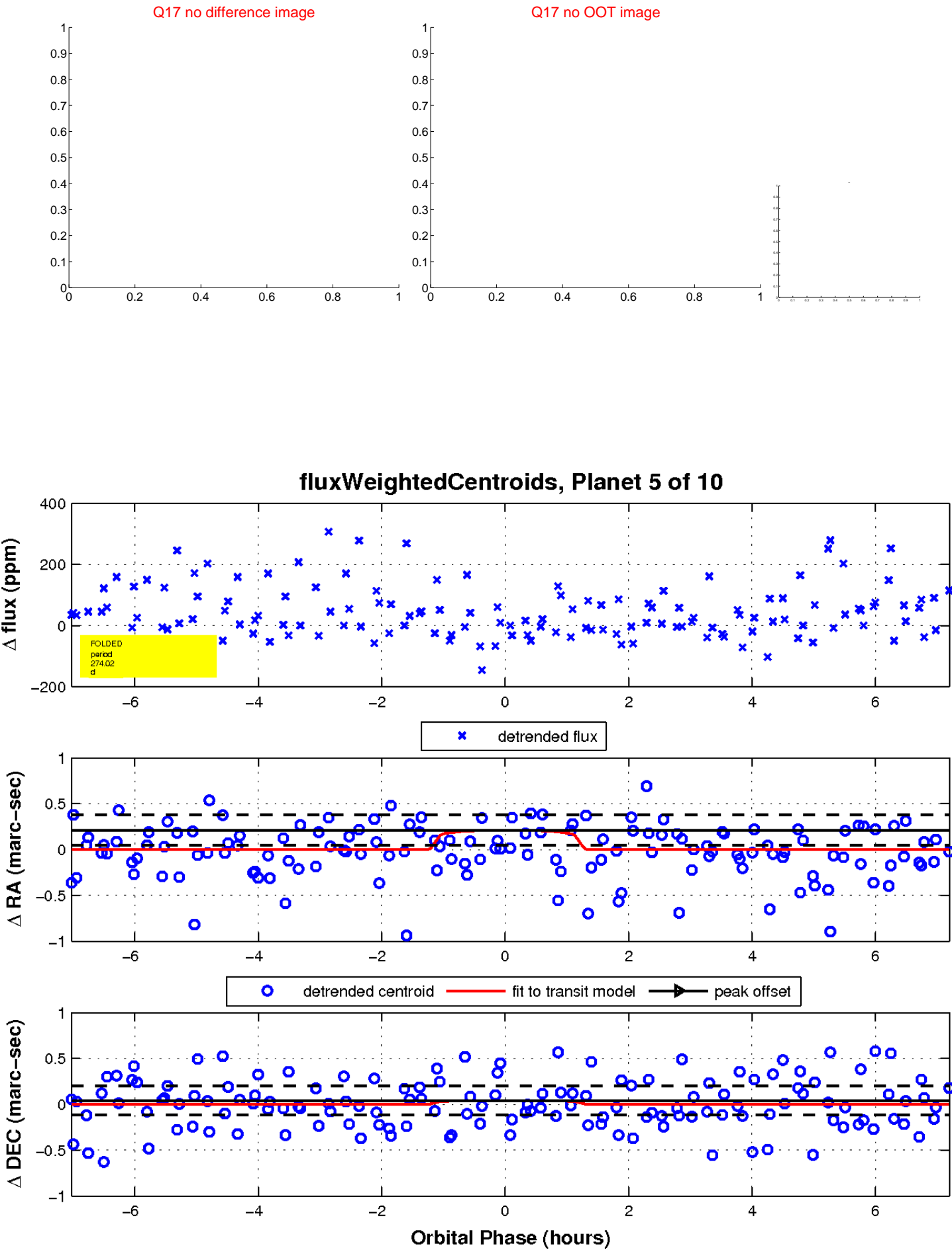
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

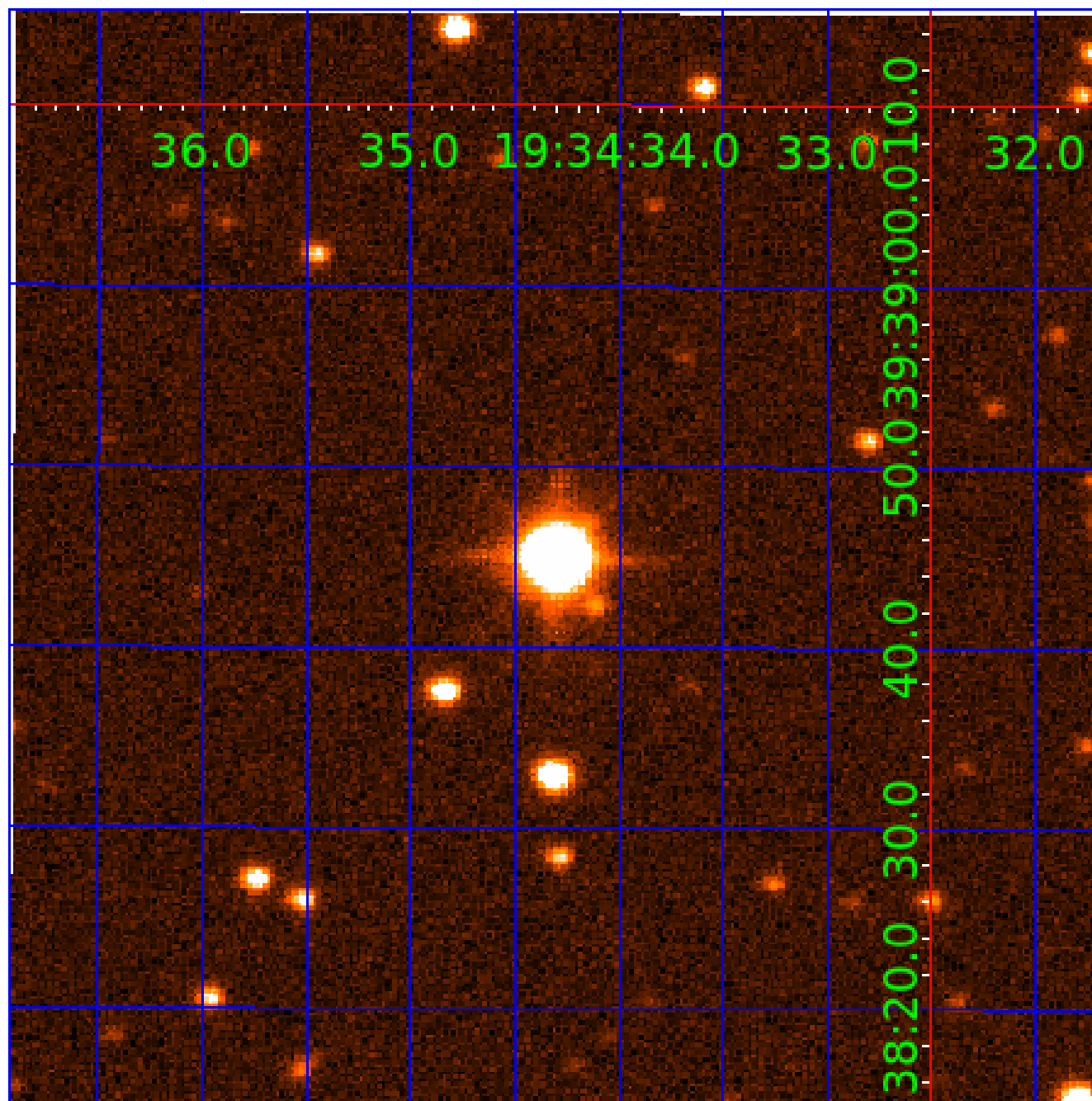


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
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004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

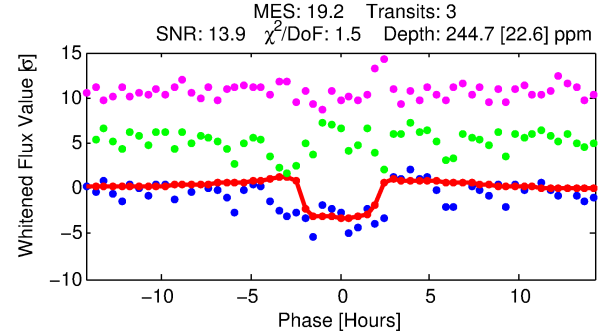
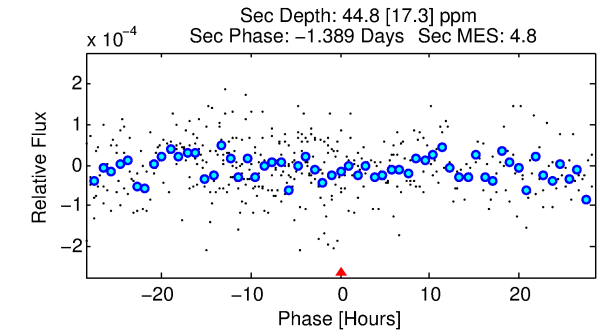
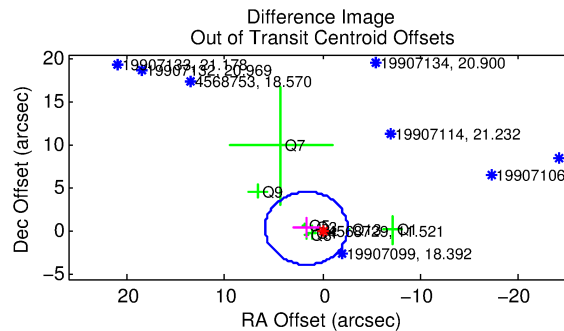
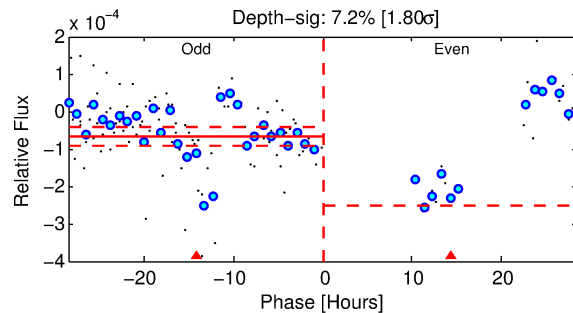
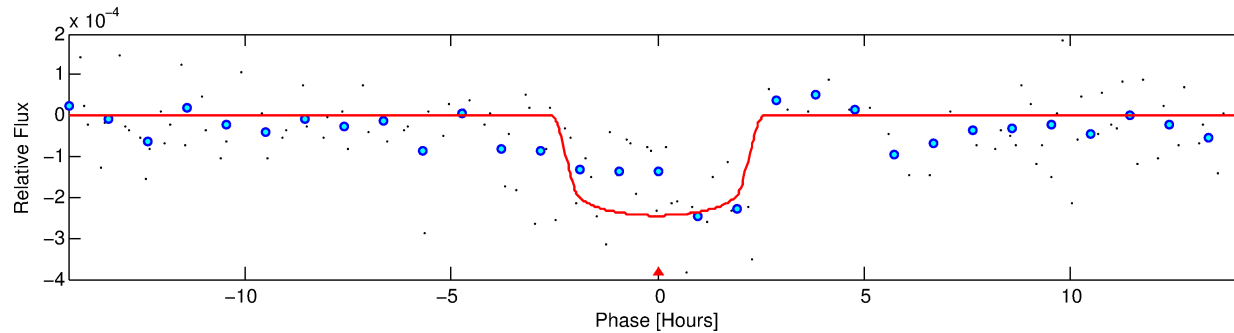
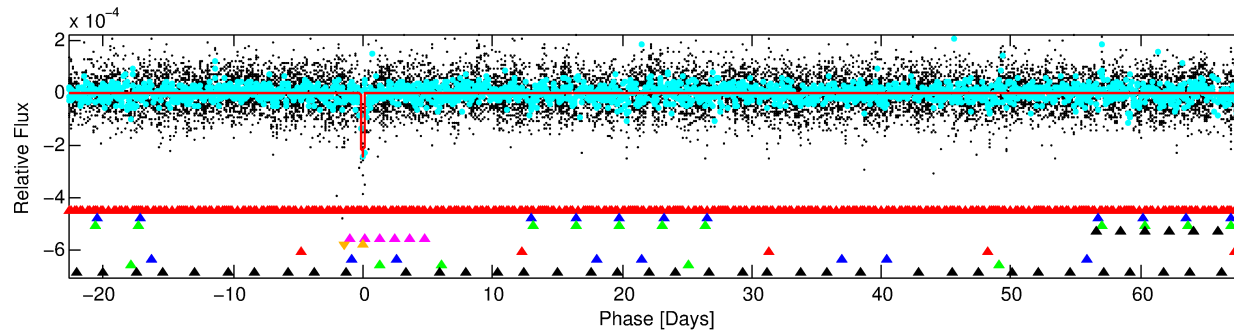
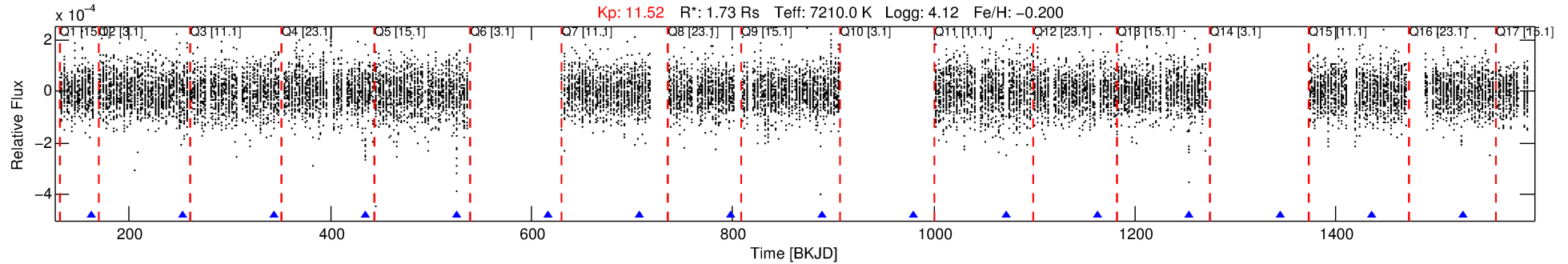
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-06

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 6 of 10 Period: 90.965 d



DV Fit Results:

Period = 90.96462 [0.00078] d
Epoch = 161.8915 [0.0073] BKJD
Rp/R* = 0.0162 [0.0050]
a/R* = 80.61 [153.19]
b = 0.85 [0.61]
Seff = 36.13 [14.06]
Teq = 625 [61] K
Rp = 3.05 [1.32] Re
a = 0.4473 [0.1118] AU
Ag = 531.24 [432.69] [1.23 σ]
Teffp = 4640 [867] K [4.62 σ]

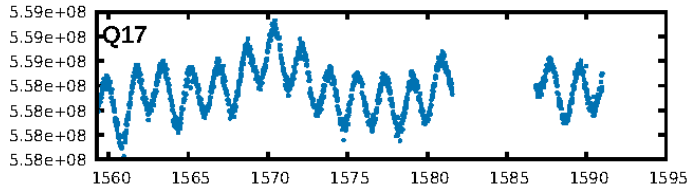
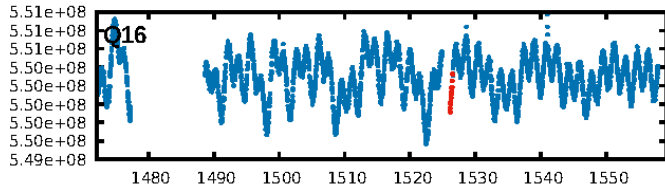
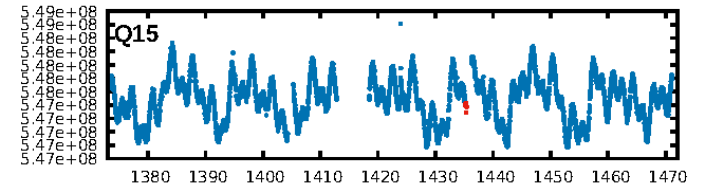
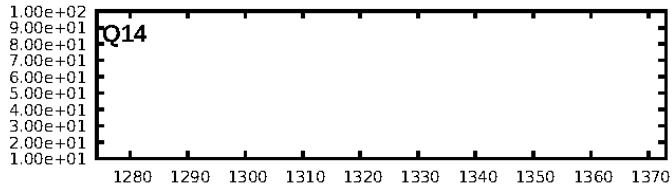
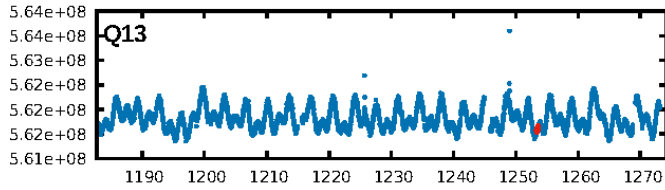
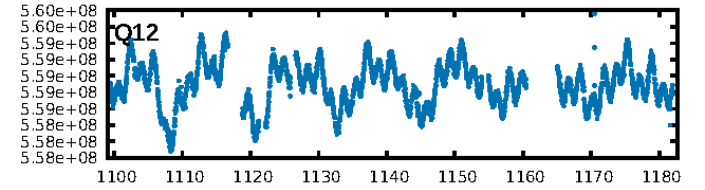
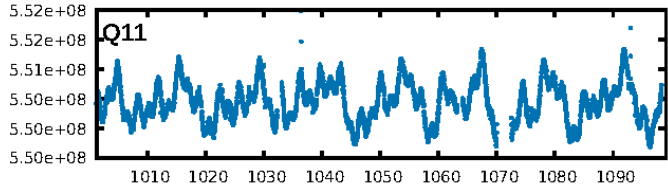
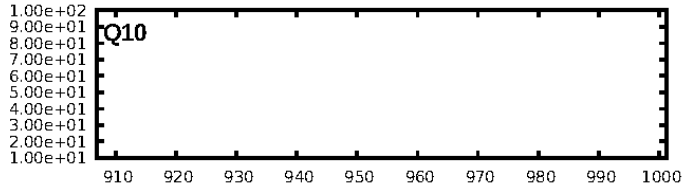
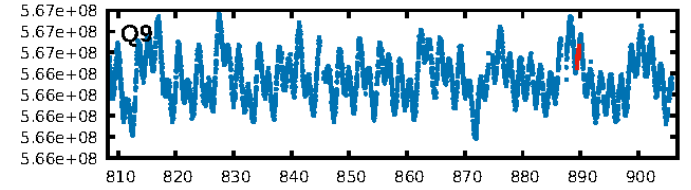
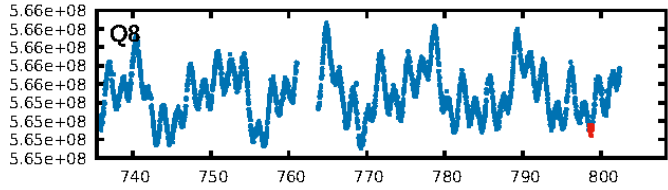
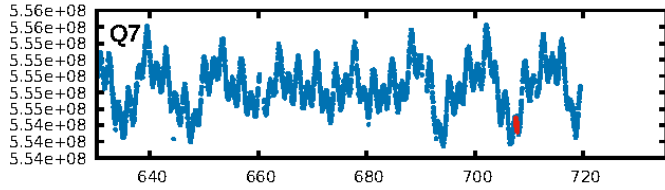
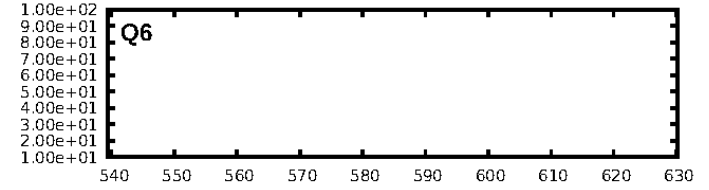
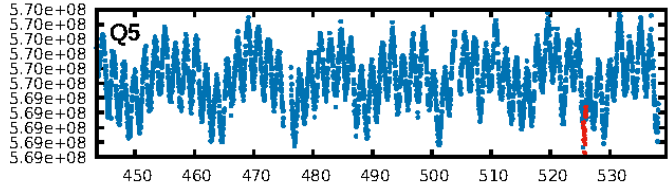
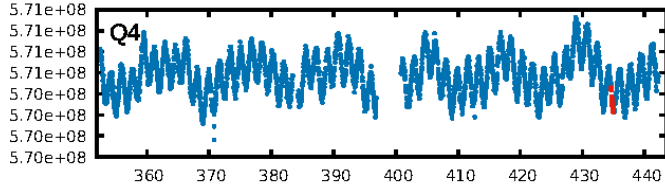
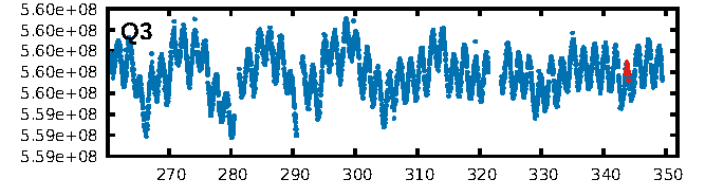
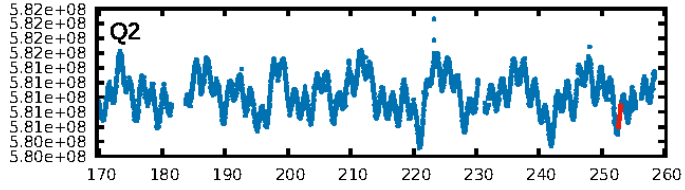
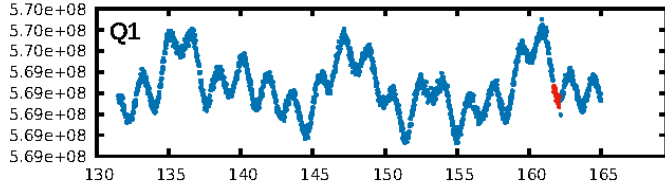
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.72 σ]
LongPeriod-sig: 100.0% [207.67 σ]
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 6.0%
Bootstrap-pfa: 4.05e-33
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 14.79
Centroid-sig: 70.5%
Centroid-so: 0.173 arcsec [0.47 σ]
OotOffset-rm: 1.690 arcsec [1.20 σ]
KicOffset-rm: 1.705 arcsec [1.07 σ]
OotOffset-st: 0/2/2/4 [8]
KicOffset-st: 0/2/2/4 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.33 [3/9]

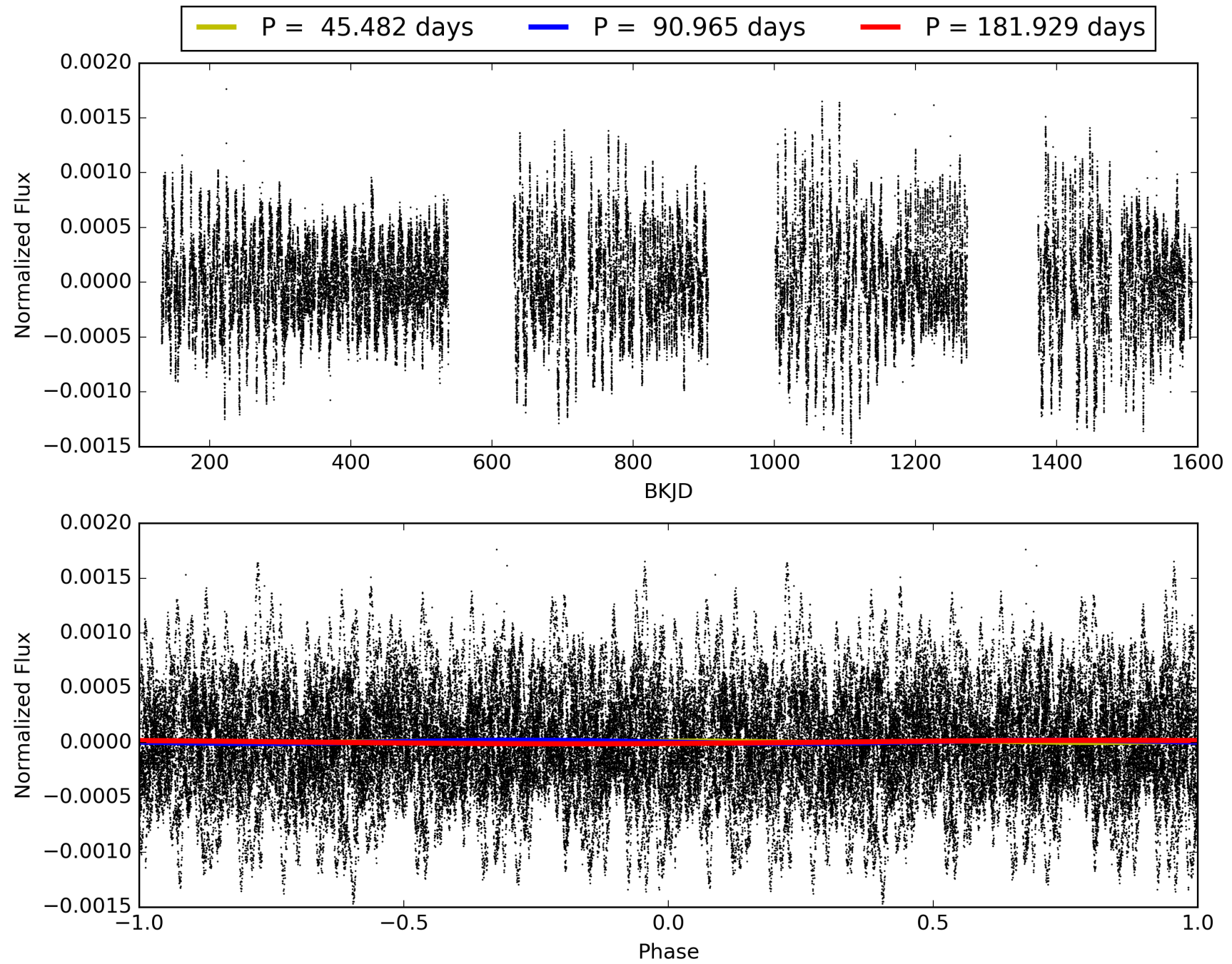
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:01:24 Z

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

TCE 004568729-06, PDC Light Curves

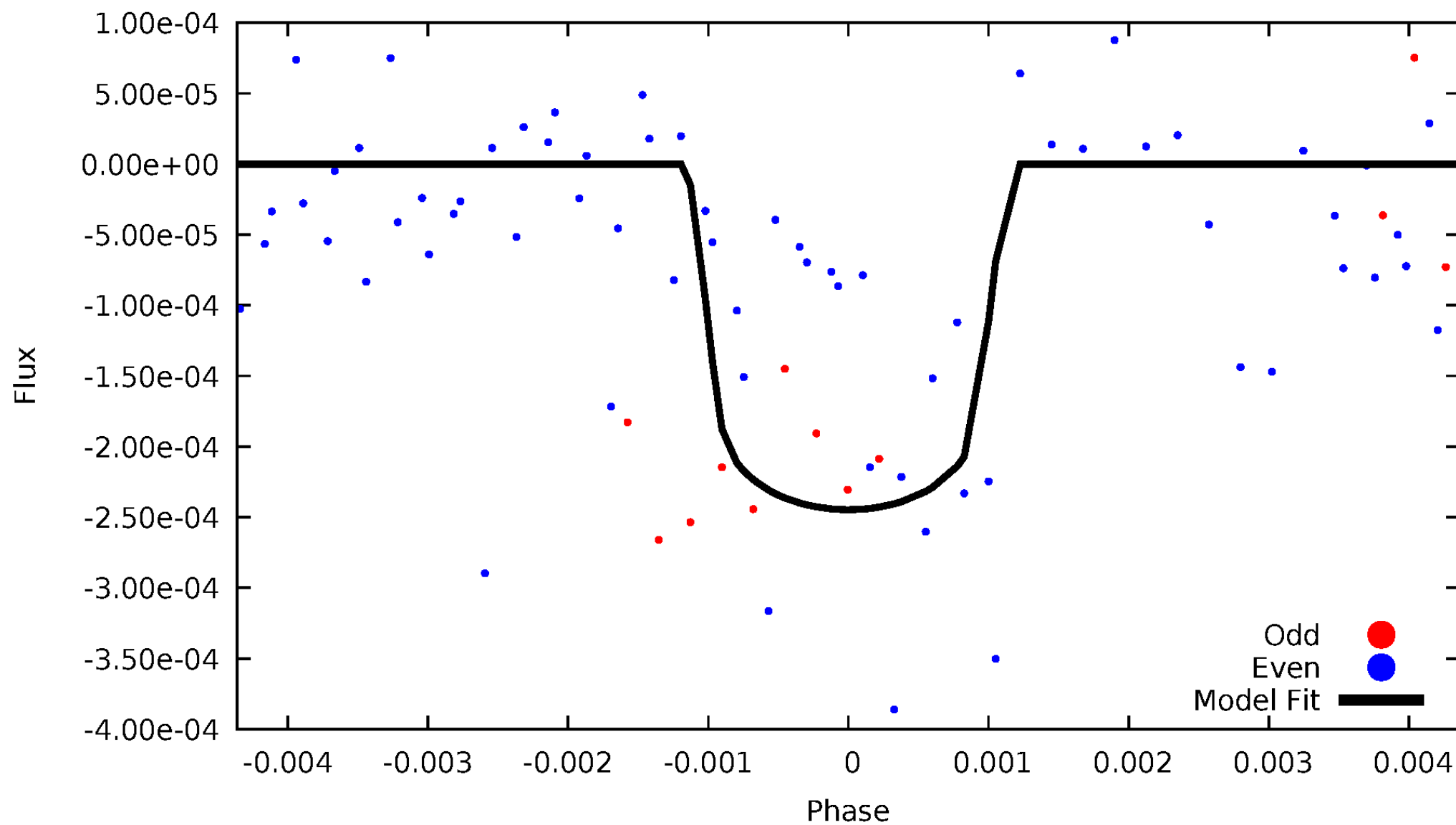


TCE 004568729-06



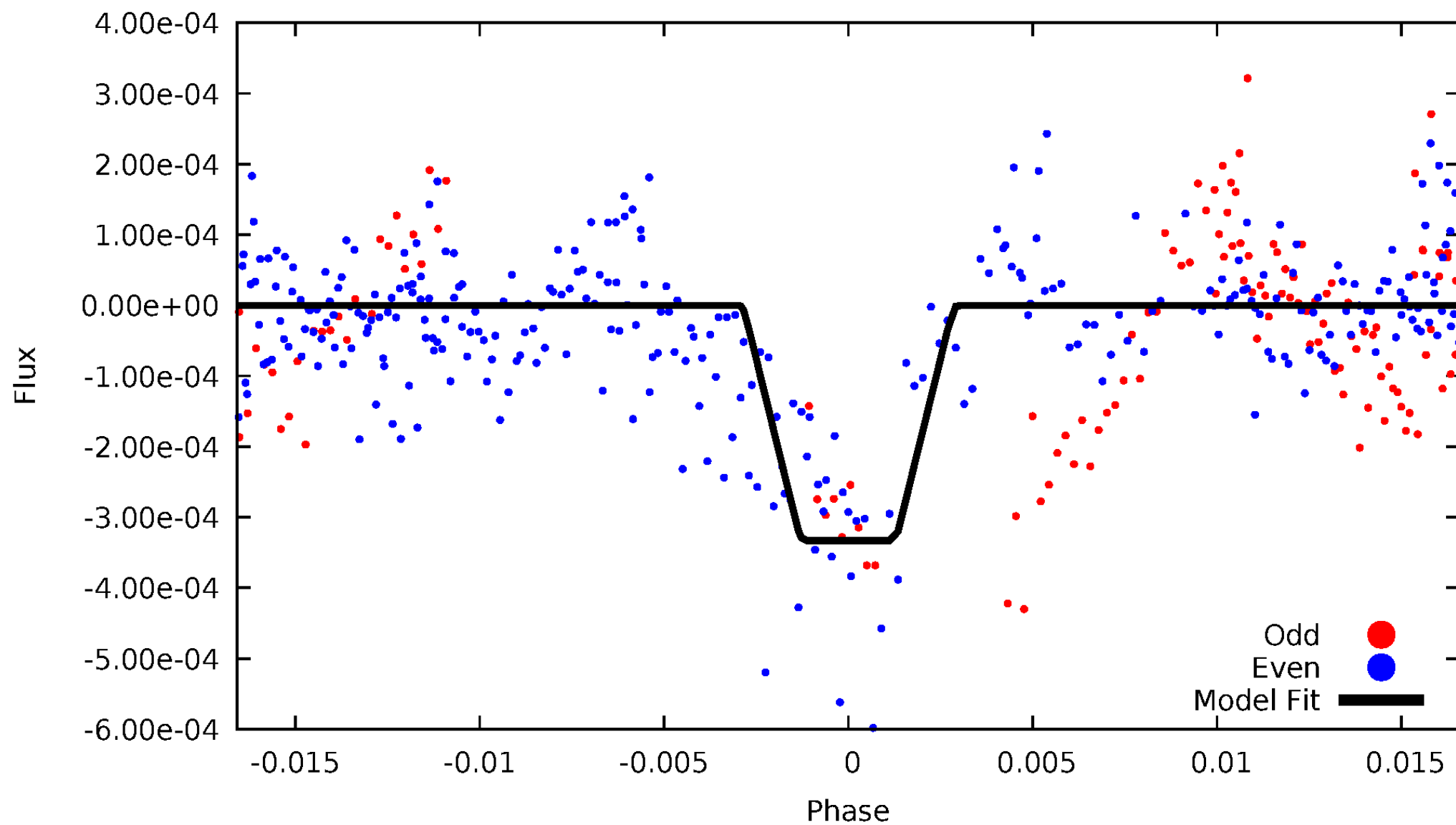
DV Odd/Even

TCE 004568729-06



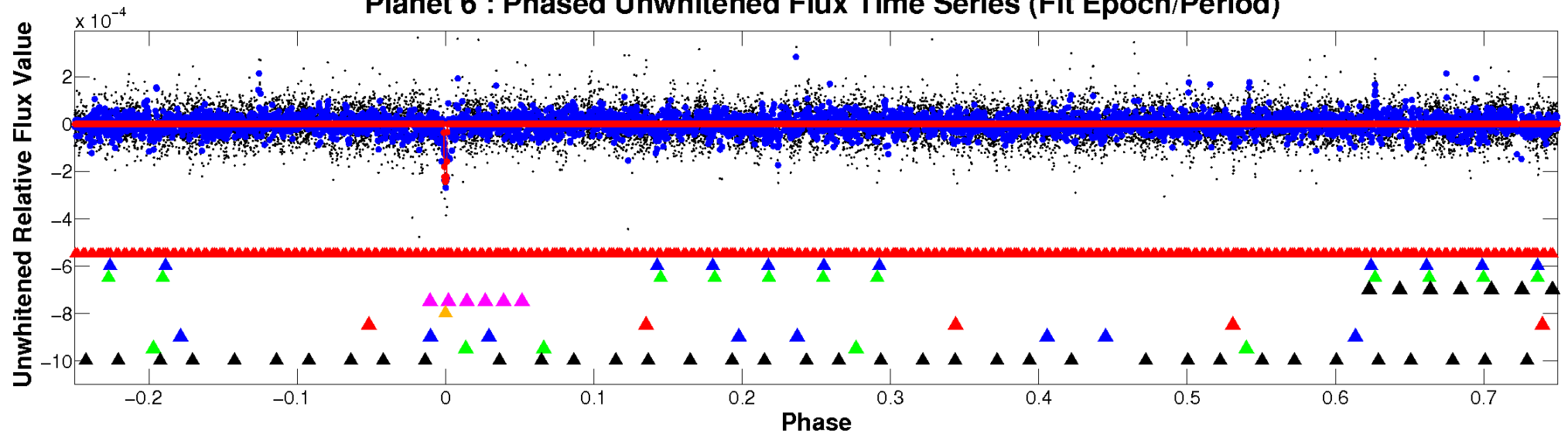
ALT Odd/Even

TCE 004568729-06

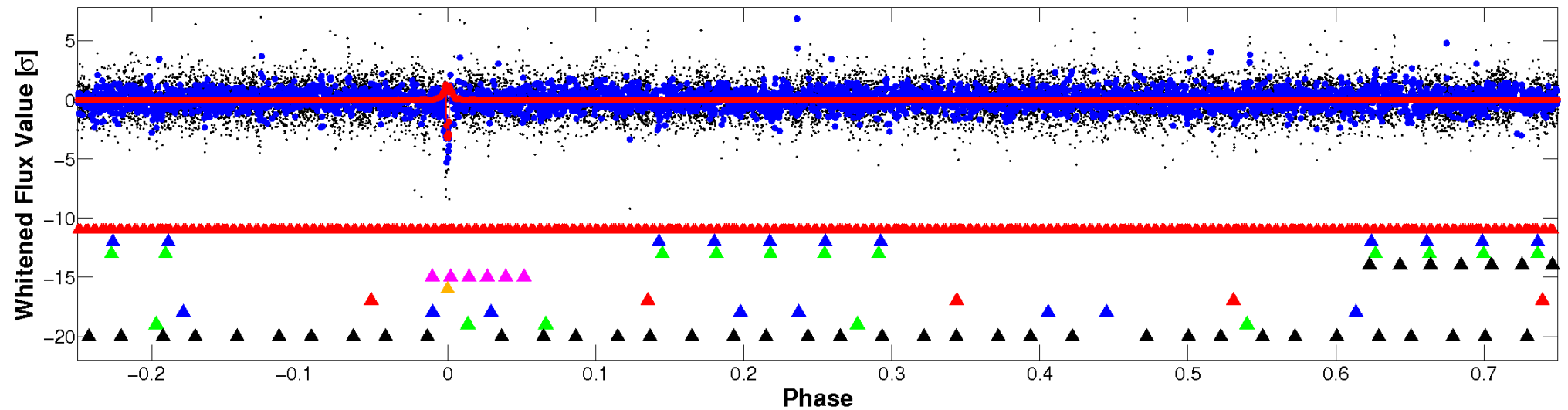


Non-Whitened Vs. Whitened Light Curve

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

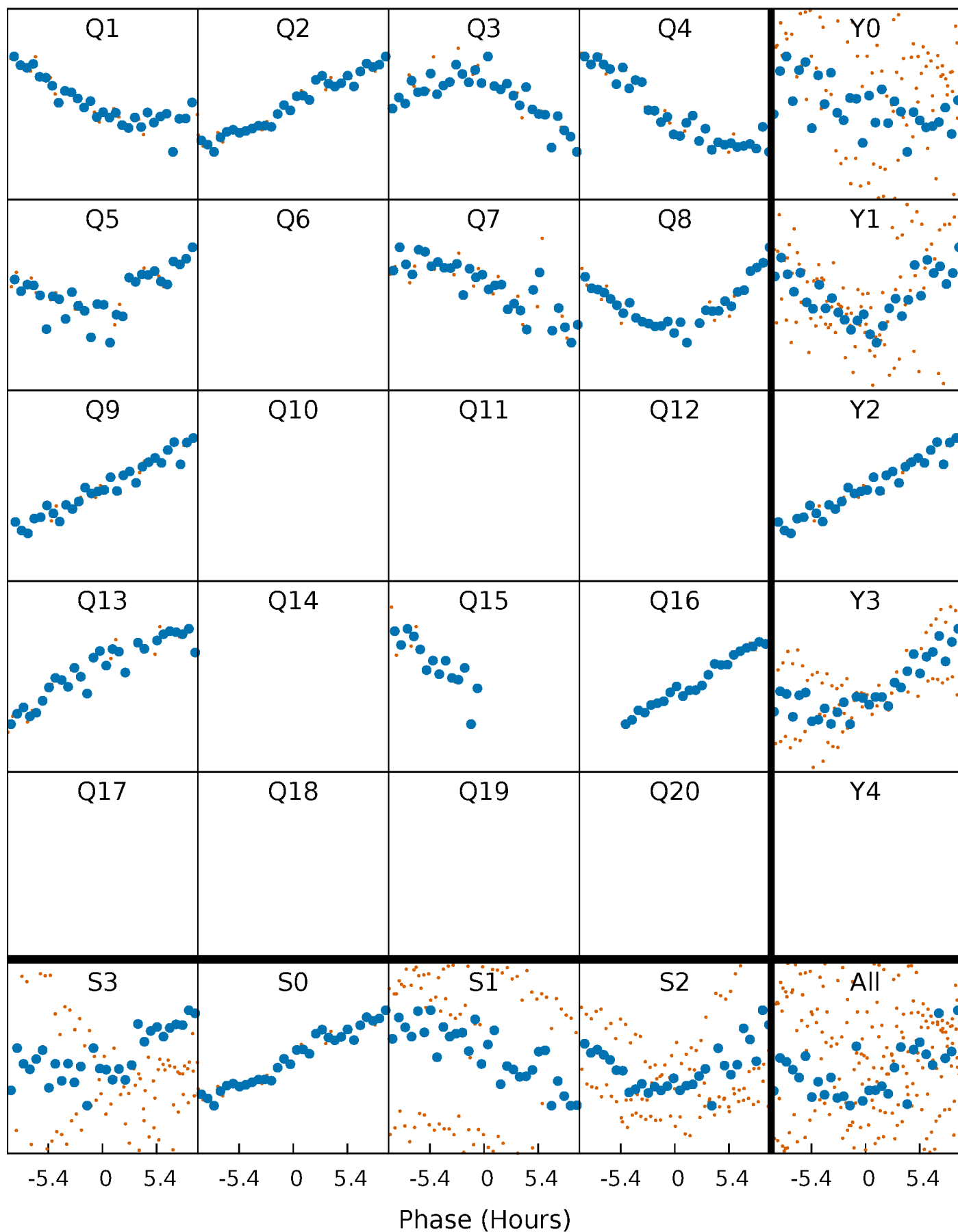


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



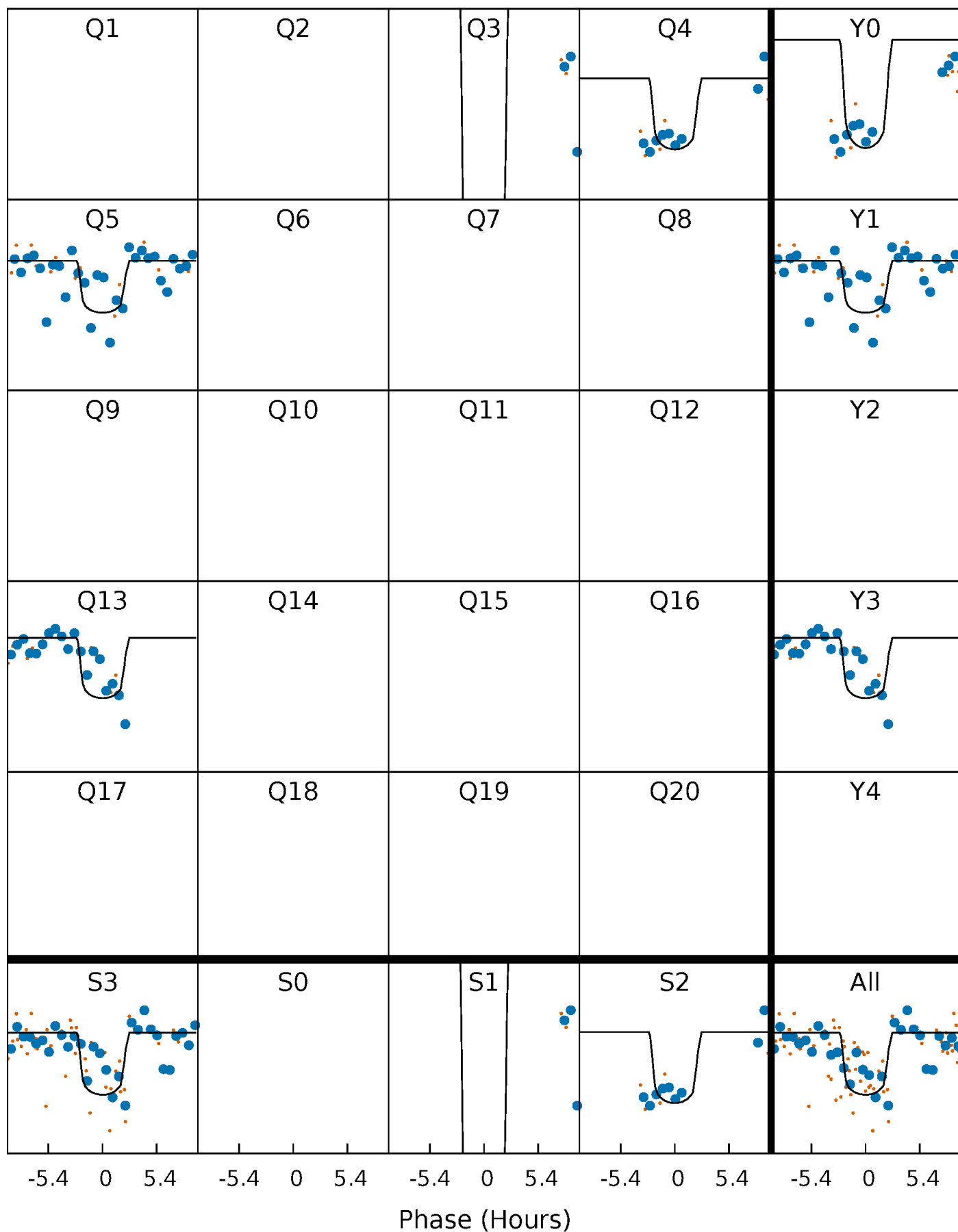
PDC Quarter-Phased Transit Curves

TCE 004568729-06 P= 90.964616 Days $T_0=161.891452$ (BKJD)



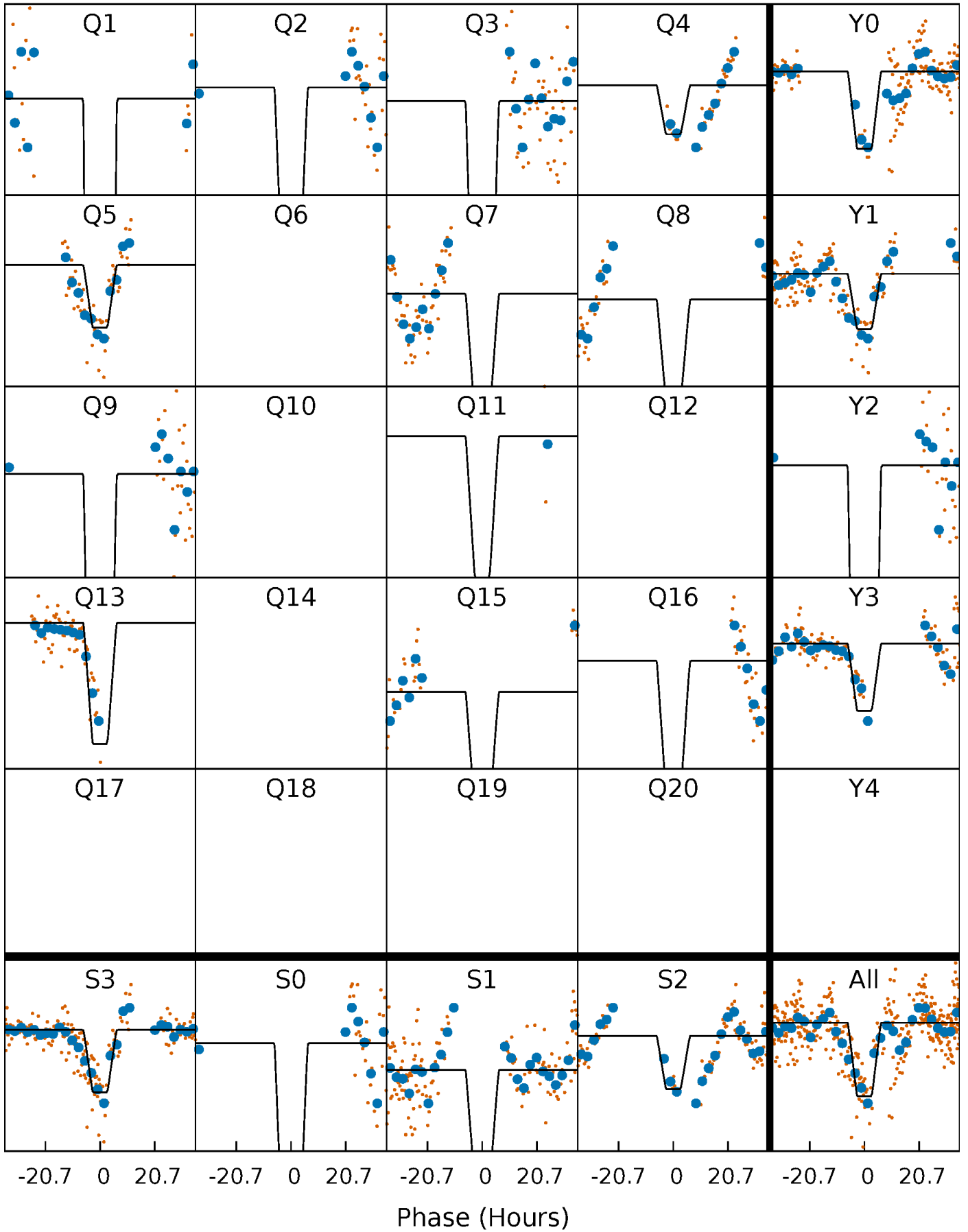
DV Quarter-Phased Transit Curves

TCE 004568729-06 P= 90.964616 Days $T_0=161.891452$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

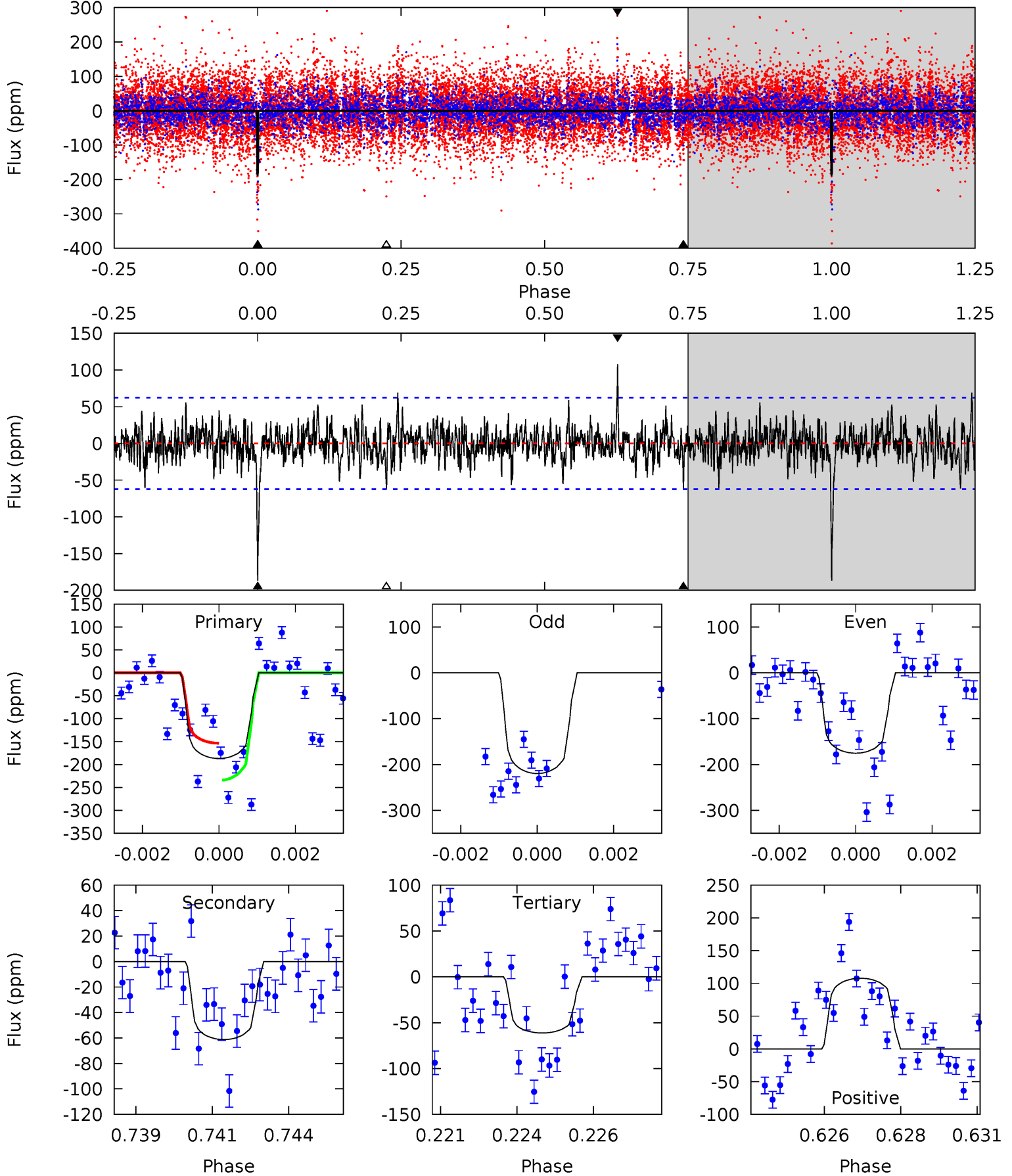
TCE 004568729-06 P= 90.979624 Days $T_0=161.800136$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-06, P = 90.964616 Days, E = 70.926836 Days

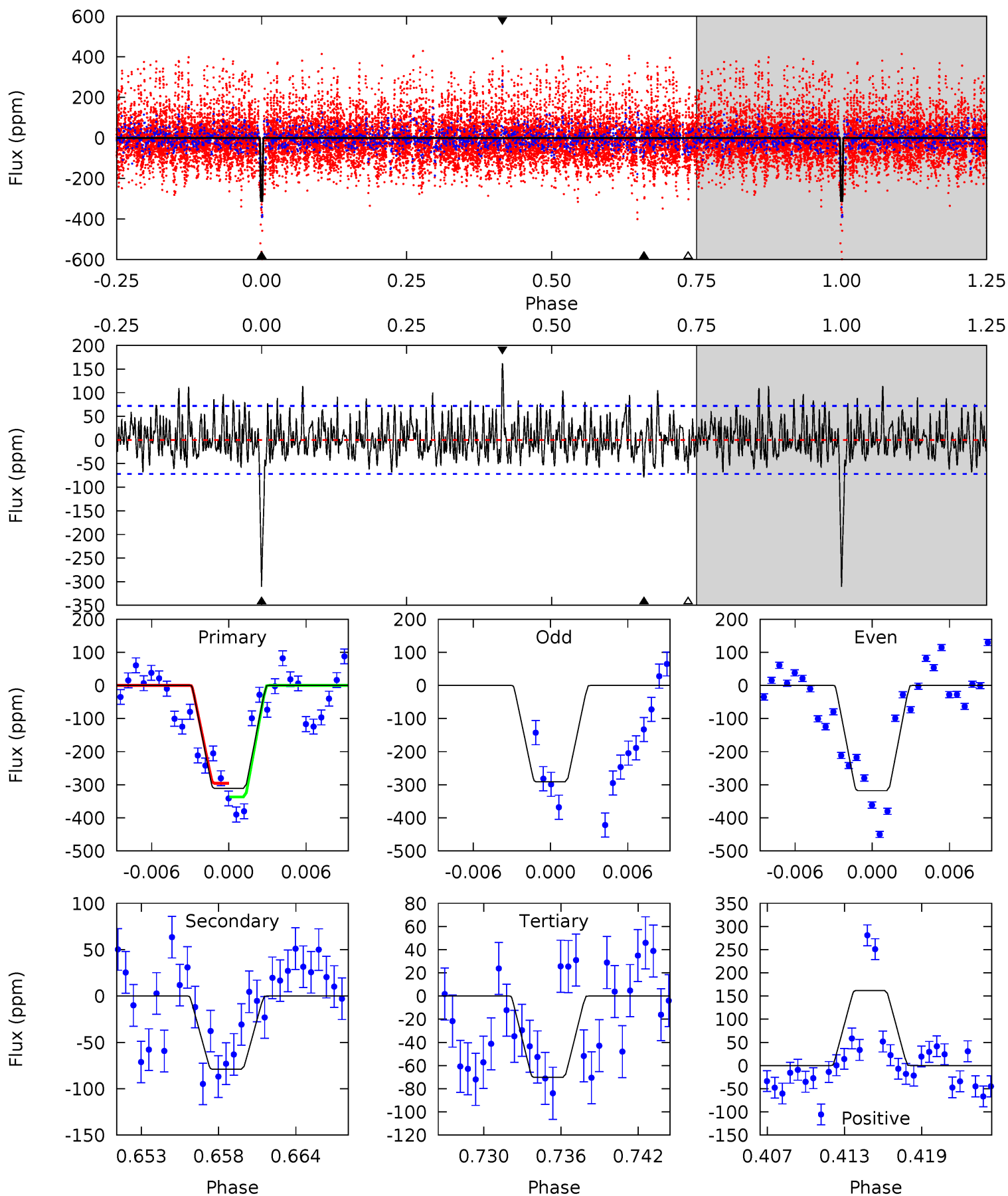
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	5.21	5.20	9.17	5.30	3.04	1.51	10.7	6.72	0.00	-3.96	1.58	1.00	0.37	3.41



Alt Model-Shift Uniqueness Test

004568729-06, P = 90.979624 Days, E = 70.820512 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	5.64	5.00	11.5	5.12	2.75	2.33	17.1	10.6	0.64	-5.89	0.69	1.02	0.34	1.44



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-61 ± 12	$3.00^{+1.15}_{-0.88}$	877^{+68}_{-66}	5066^{+896}_{-610}	726^{+825}_{-346}
Alt.	-79 ± 14	$3.44^{+1.10}_{-1.01}$	876^{+66}_{-58}	5059^{+871}_{-546}	722^{+755}_{-321}

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 $A_{obs} \gg 1.0$

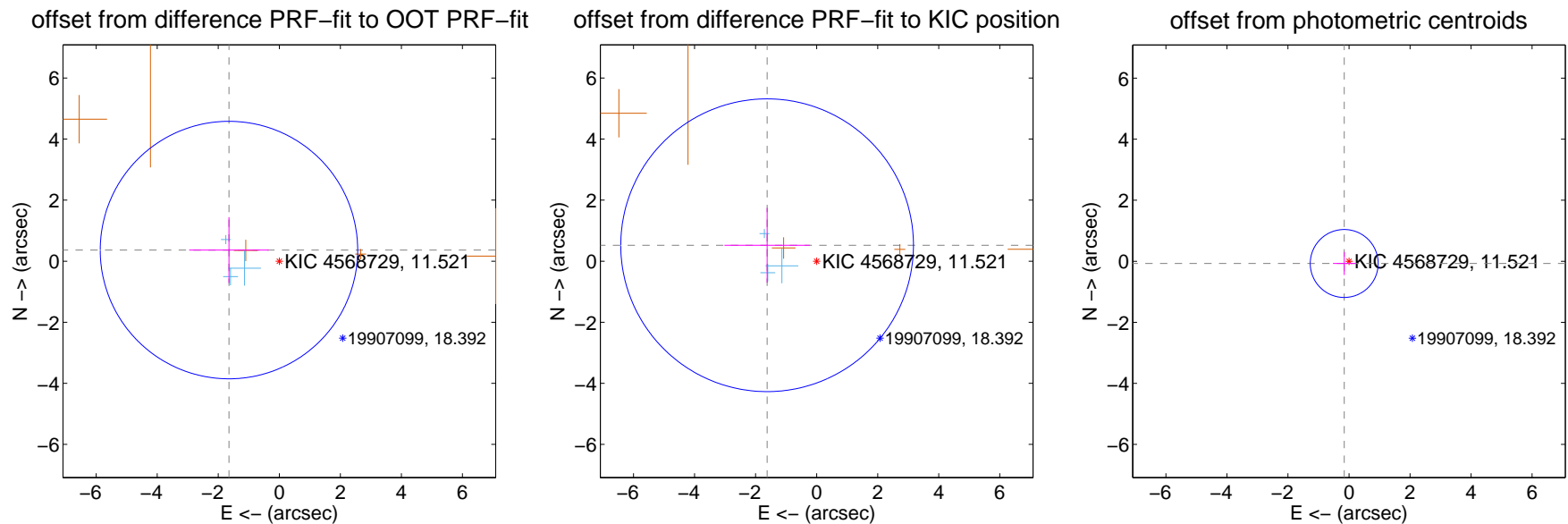
DV Centroid Data

Supplemental centroid analysis for 004568729-06. **Kepler magnitude: 11.52.** Transit SNR 13.95

There are 3 quarters with good PRF difference image offsets

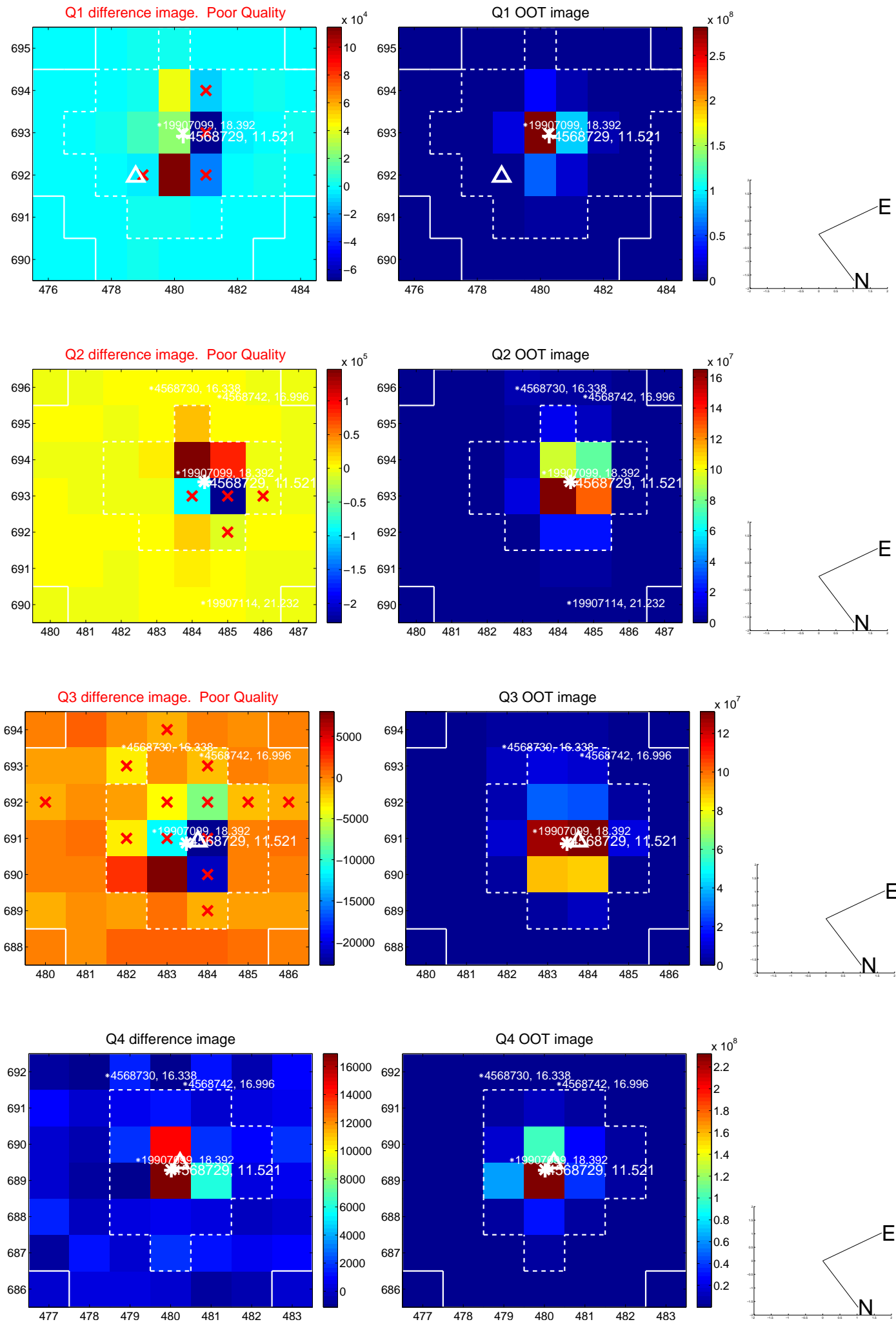
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.690 ± 1.406	1.20	1.650 ± 1.303	0.365 ± 1.079
PRF-fit source offset from KIC position	1.705 ± 1.598	1.07	1.623 ± 1.399	0.523 ± 1.224
photometric centroid source offset	0.17 ± 0.37	0.47	0.16 ± 0.37	-0.07 ± 0.38

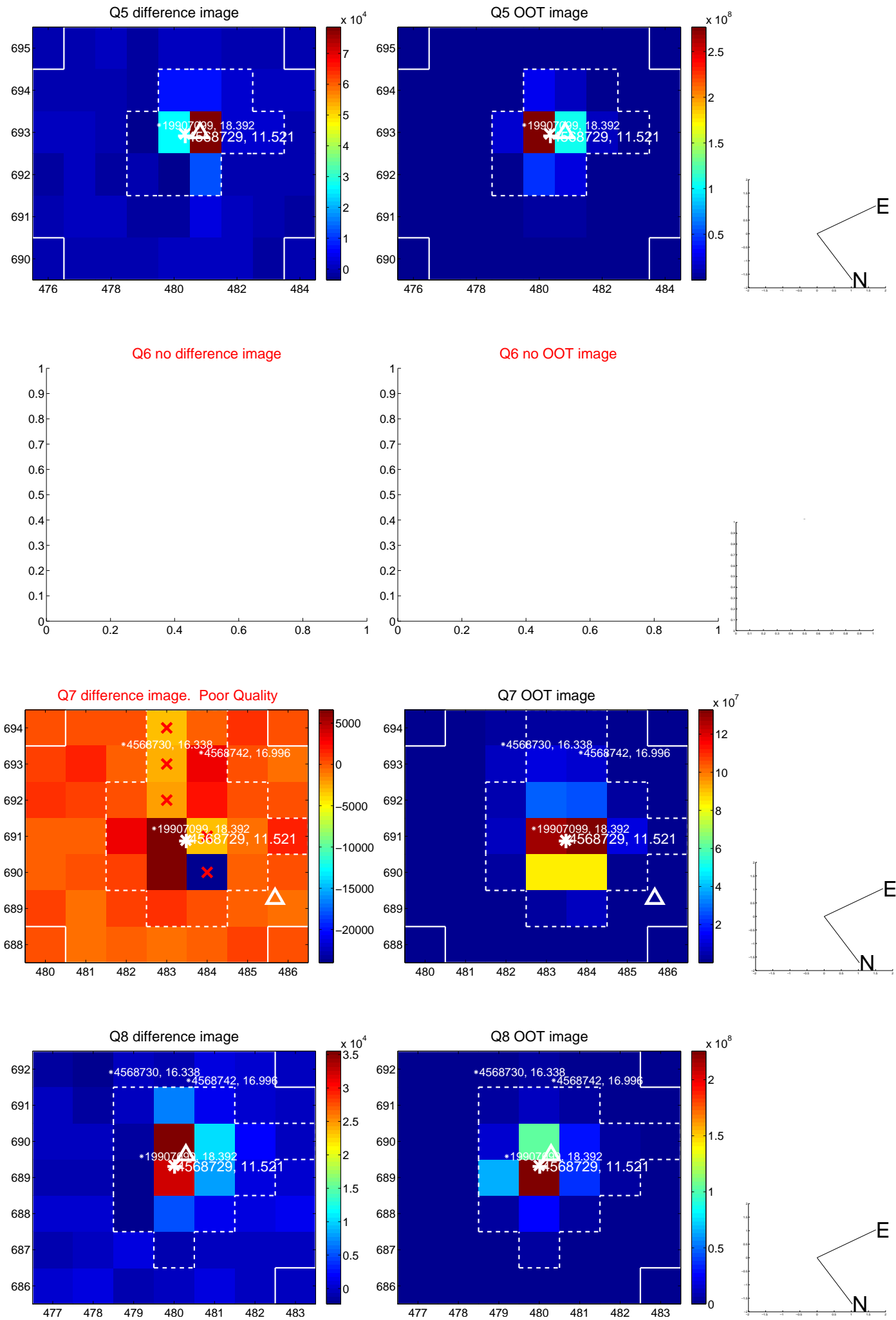


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

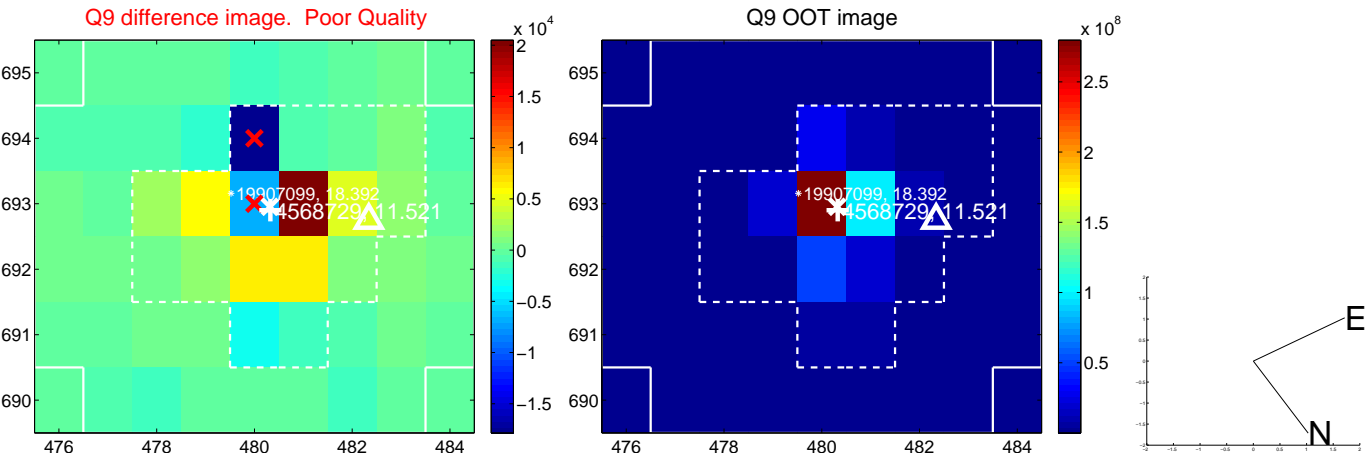
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



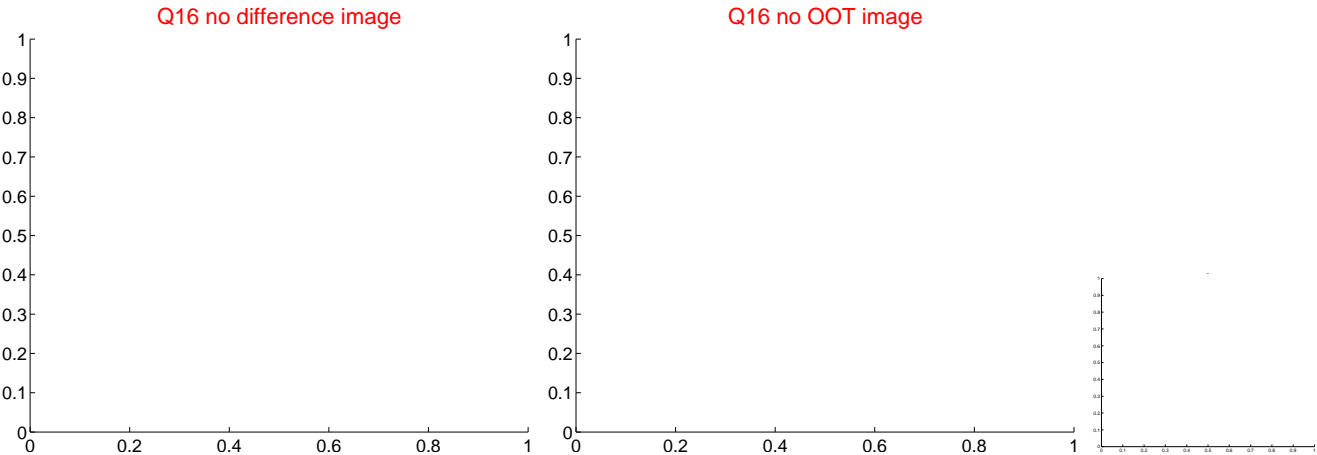
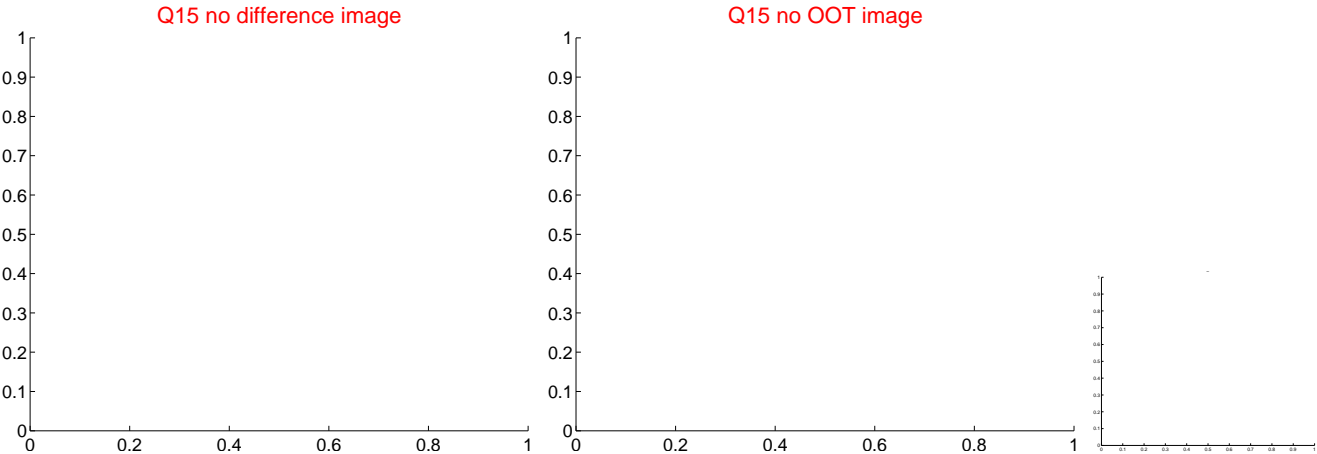
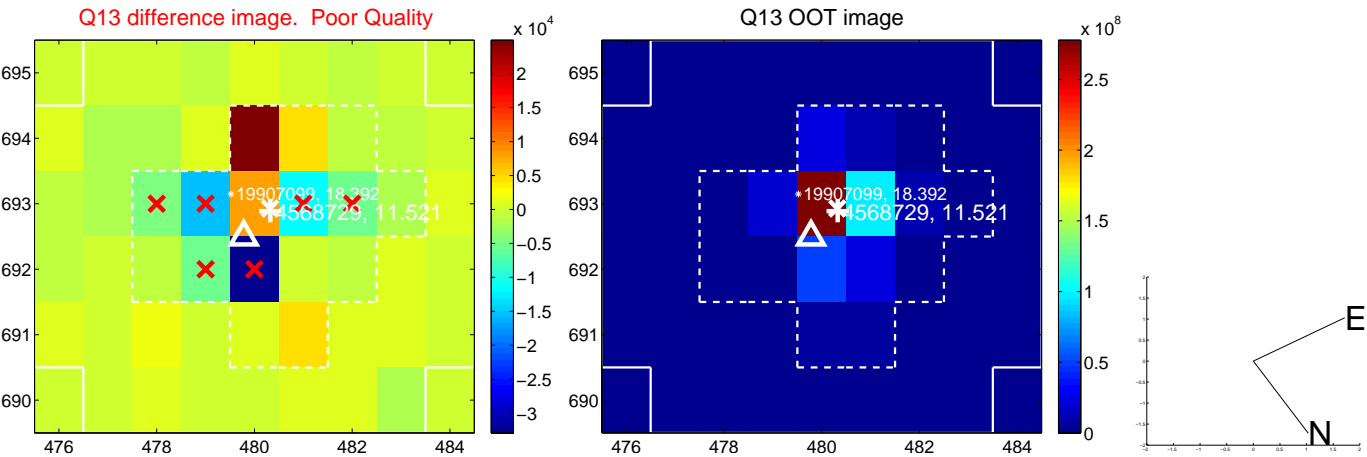
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



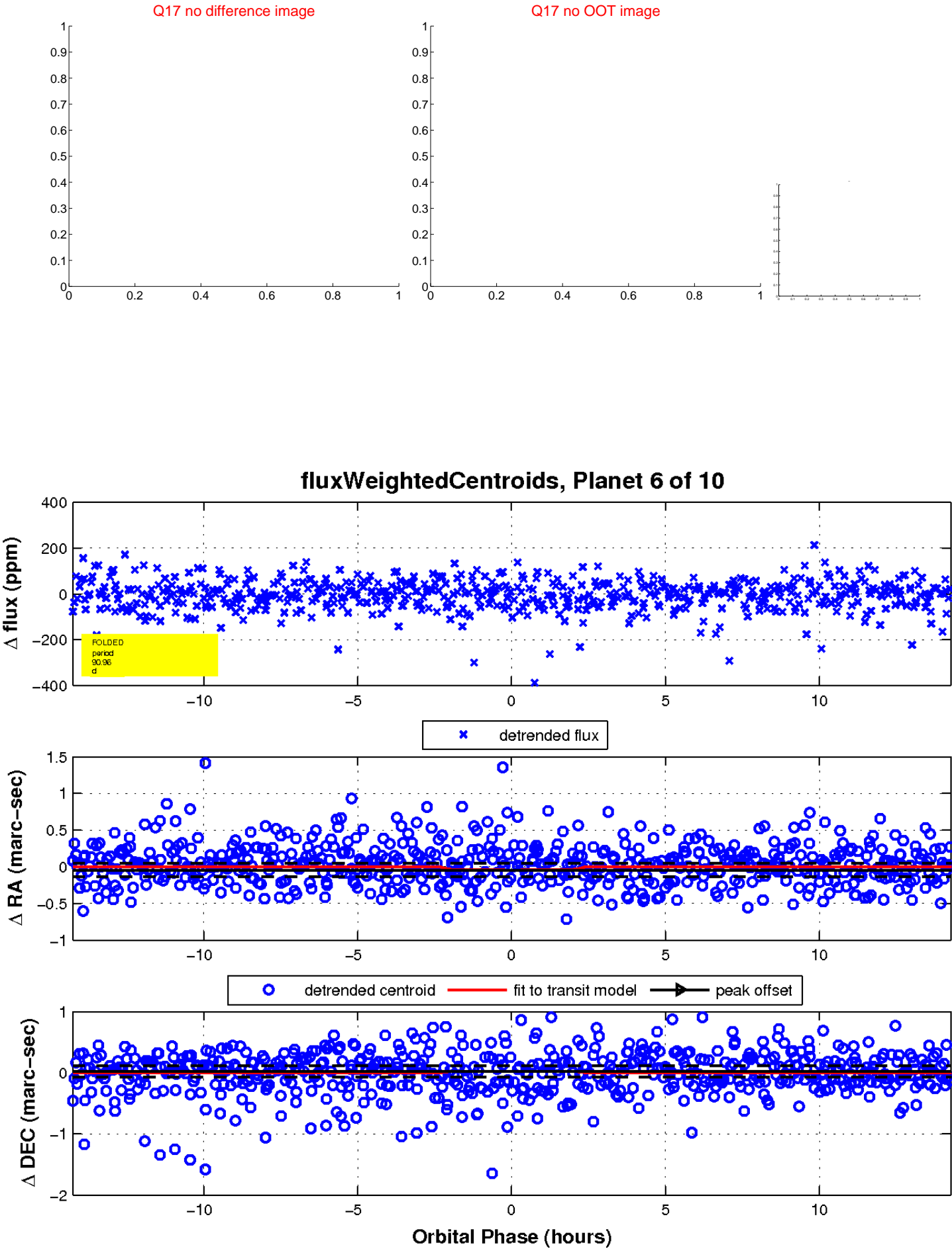
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

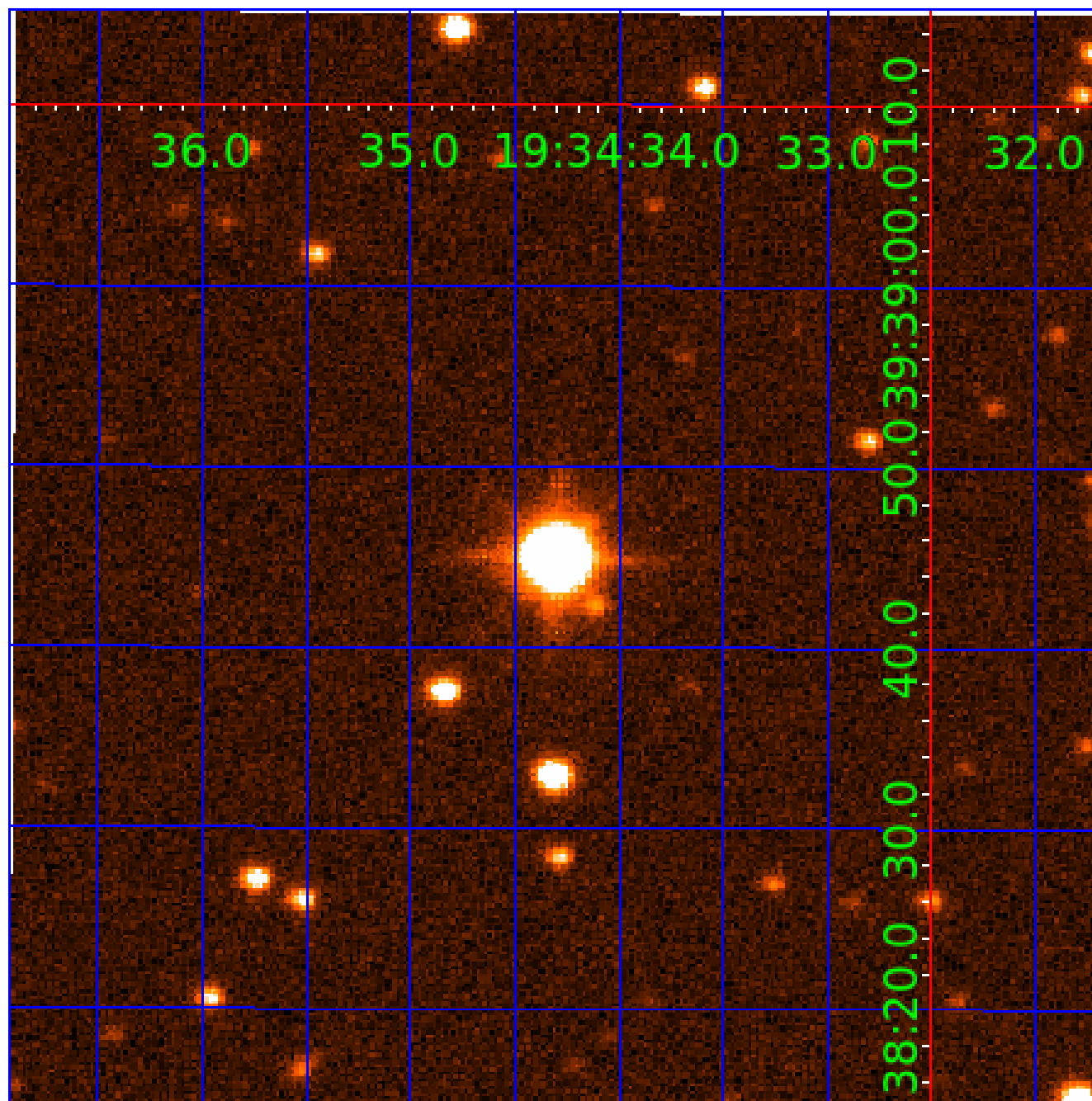


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
004568729-06	OBS	No	90.964616	161.891452	244.7	4.761	19.2	13.9	1.73	7210	3.05	36.13
004568729-07	OBS	No	308.882039	157.191871	170.0	18.520	12.5	6.6	1.73	7210	4.39	7.08
004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

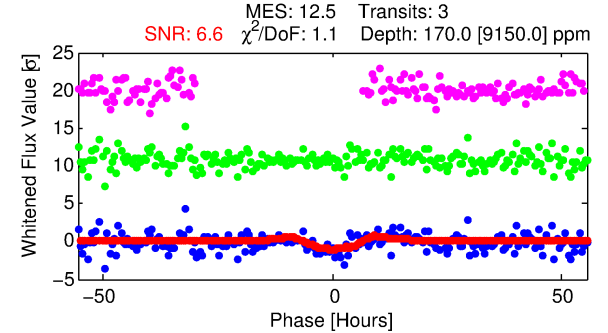
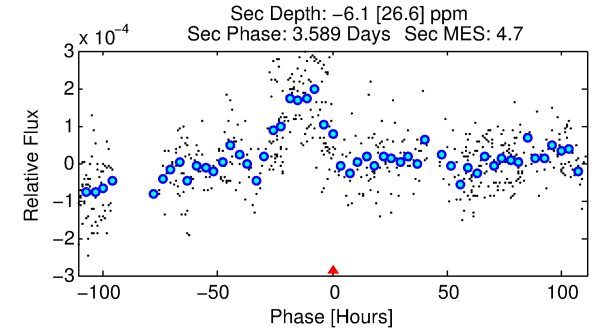
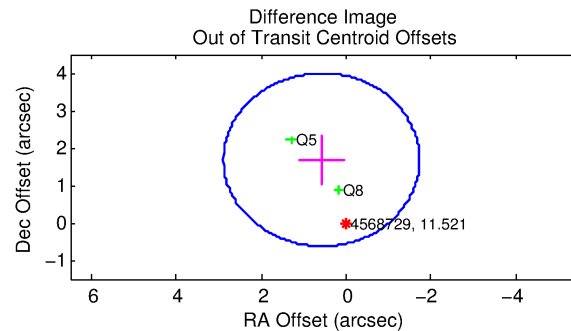
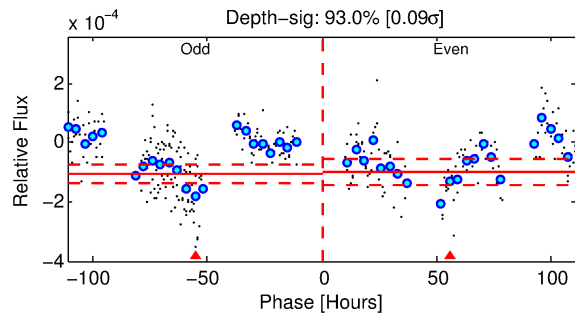
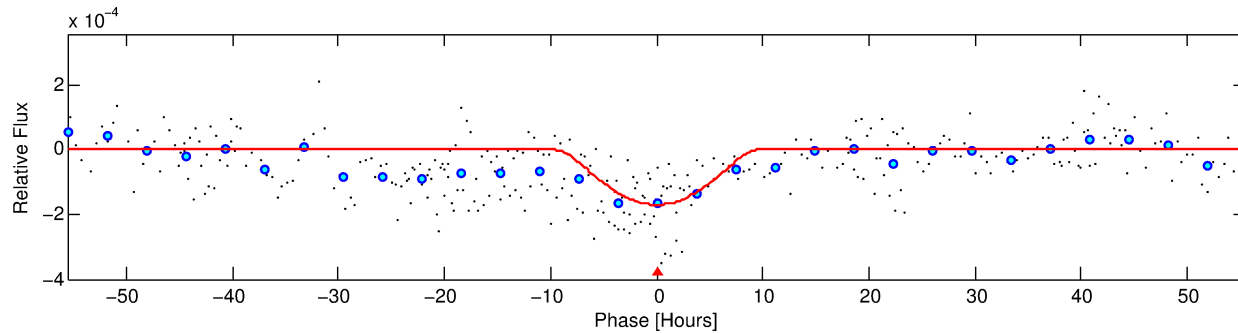
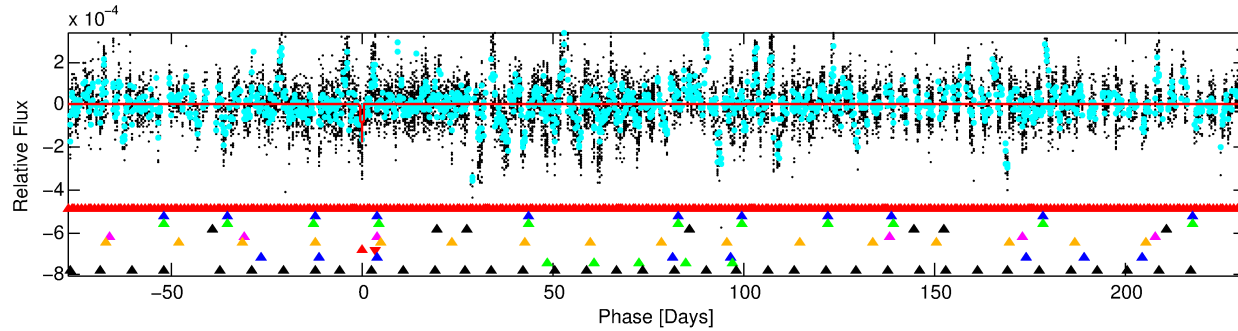
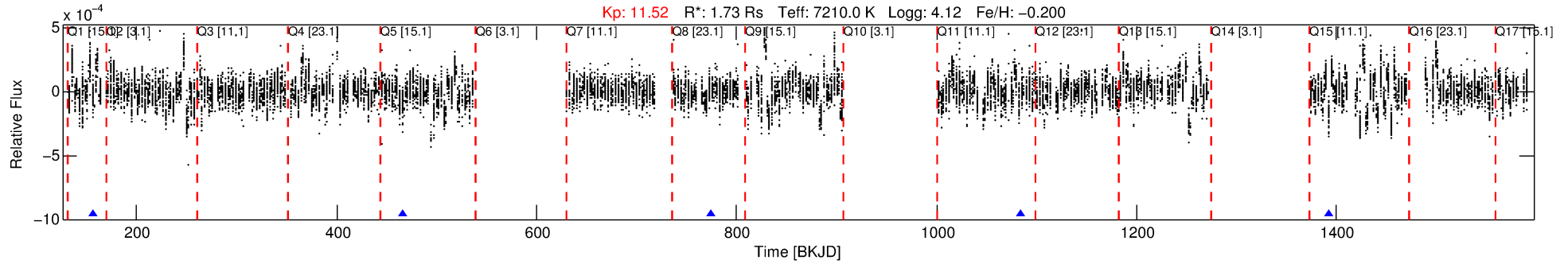
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-07

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 7 of 10 Period: 308.882 d



DV Fit Results:

Period = 308.88204 [0.01875] d
Epoch = 157.1919 [0.0449] BKJD
Rp/R* = 0.0233 [0.0633]
a/R* = 27.67 [20.65]
b = 1.00 [0.79]
Seff = 7.08 [2.75]
Teq = 416 [40] K
Rp = 4.39 [12.00] Re
a = 1.0106 [0.2527] AU
Ag = N/A
Teffp = N/A

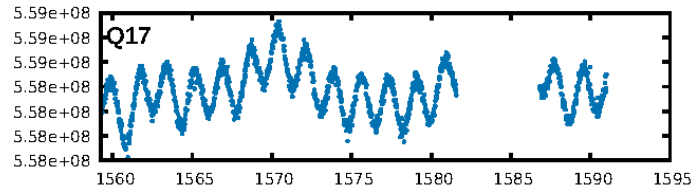
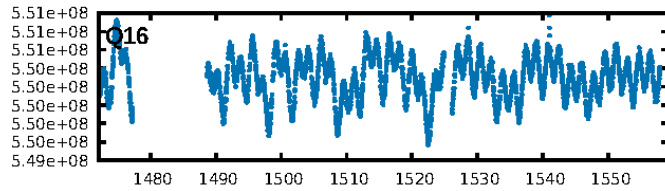
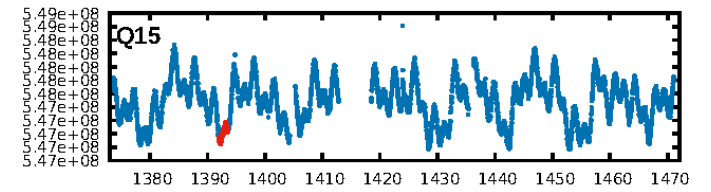
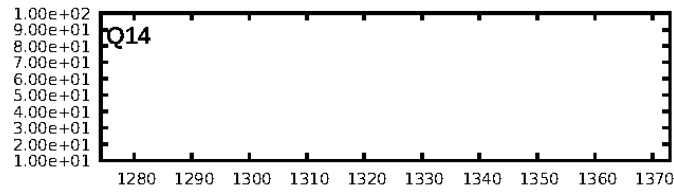
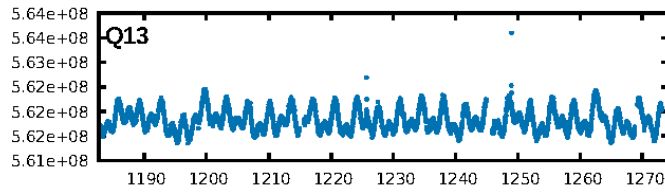
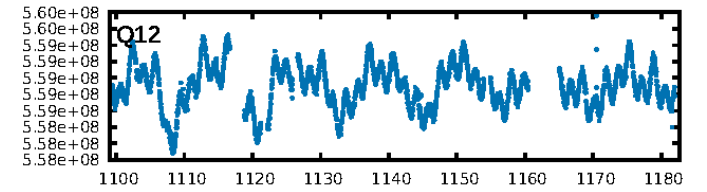
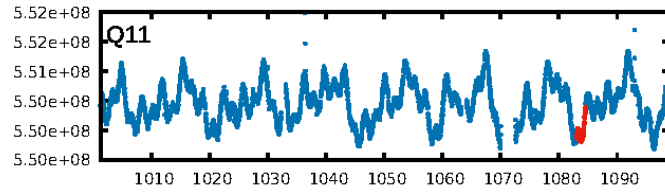
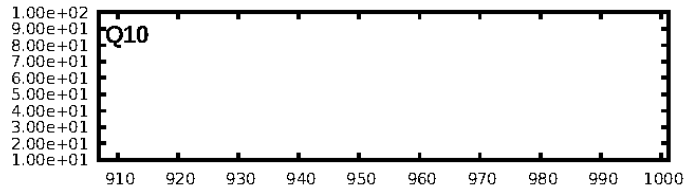
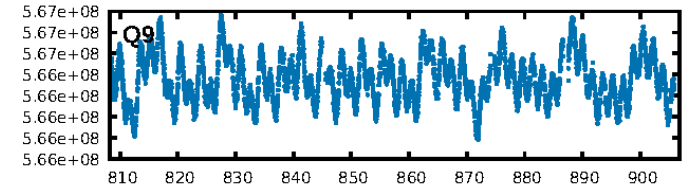
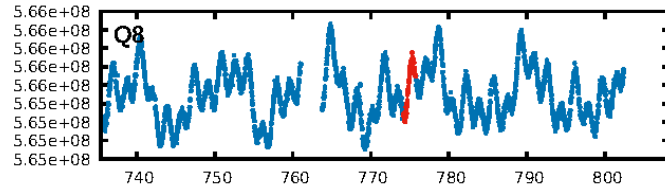
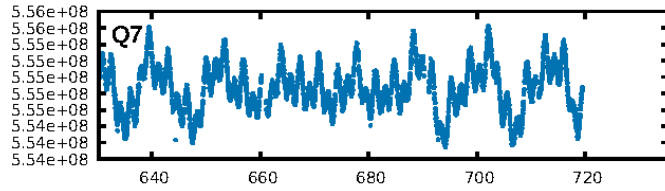
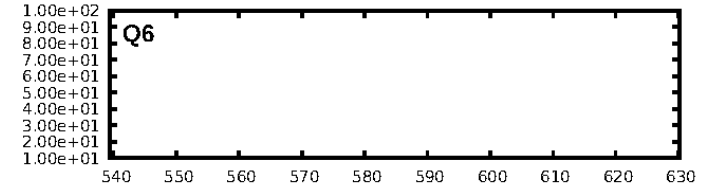
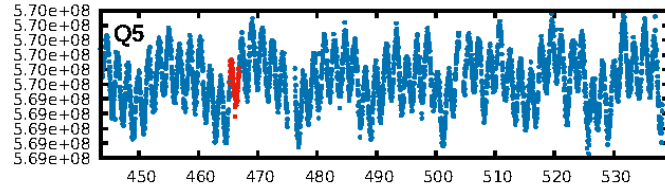
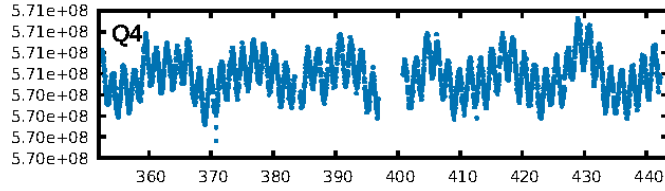
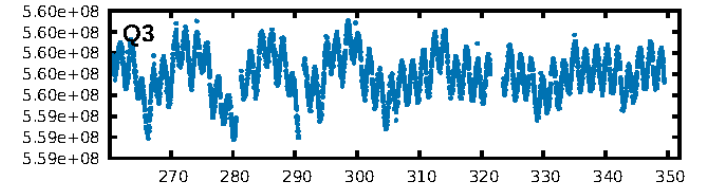
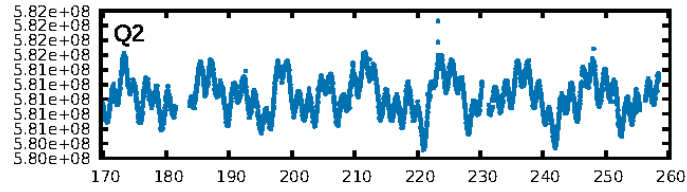
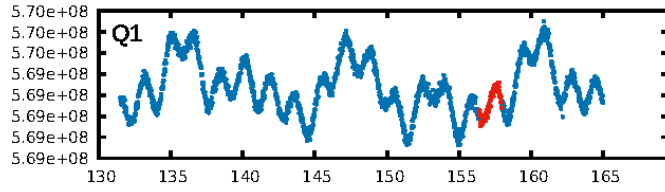
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.85 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 55.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.61e-14
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.6781
Centroid-sig: 94.8%
Centroid-so: 0.172 arcsec [0.23 σ]
OotOffset-rm: 1.779 arcsec [2.31 σ]
KicOffset-rm: 1.924 arcsec [2.53 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/3]

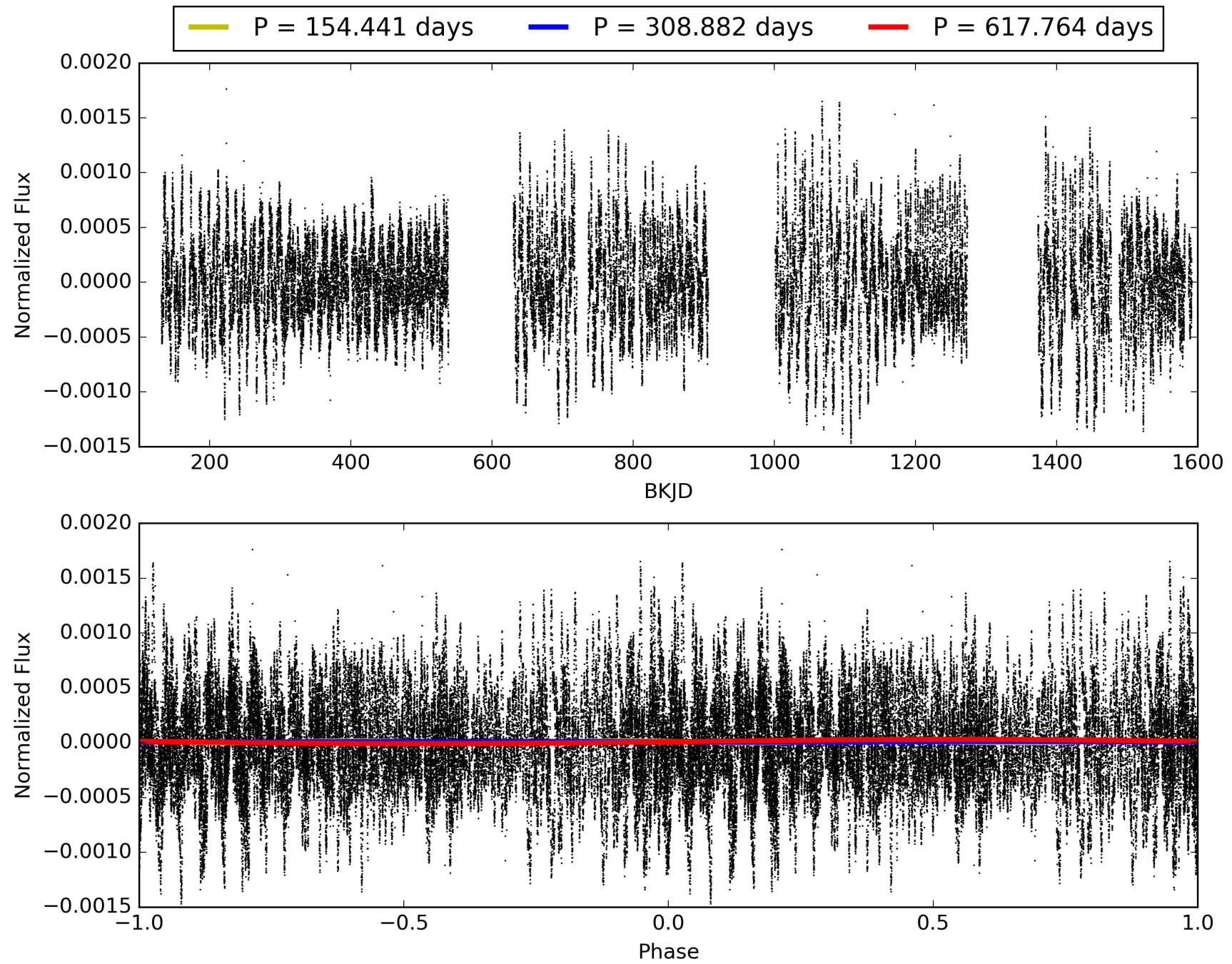
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:01:29 Z

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

TCE 004568729-07, PDC Light Curves

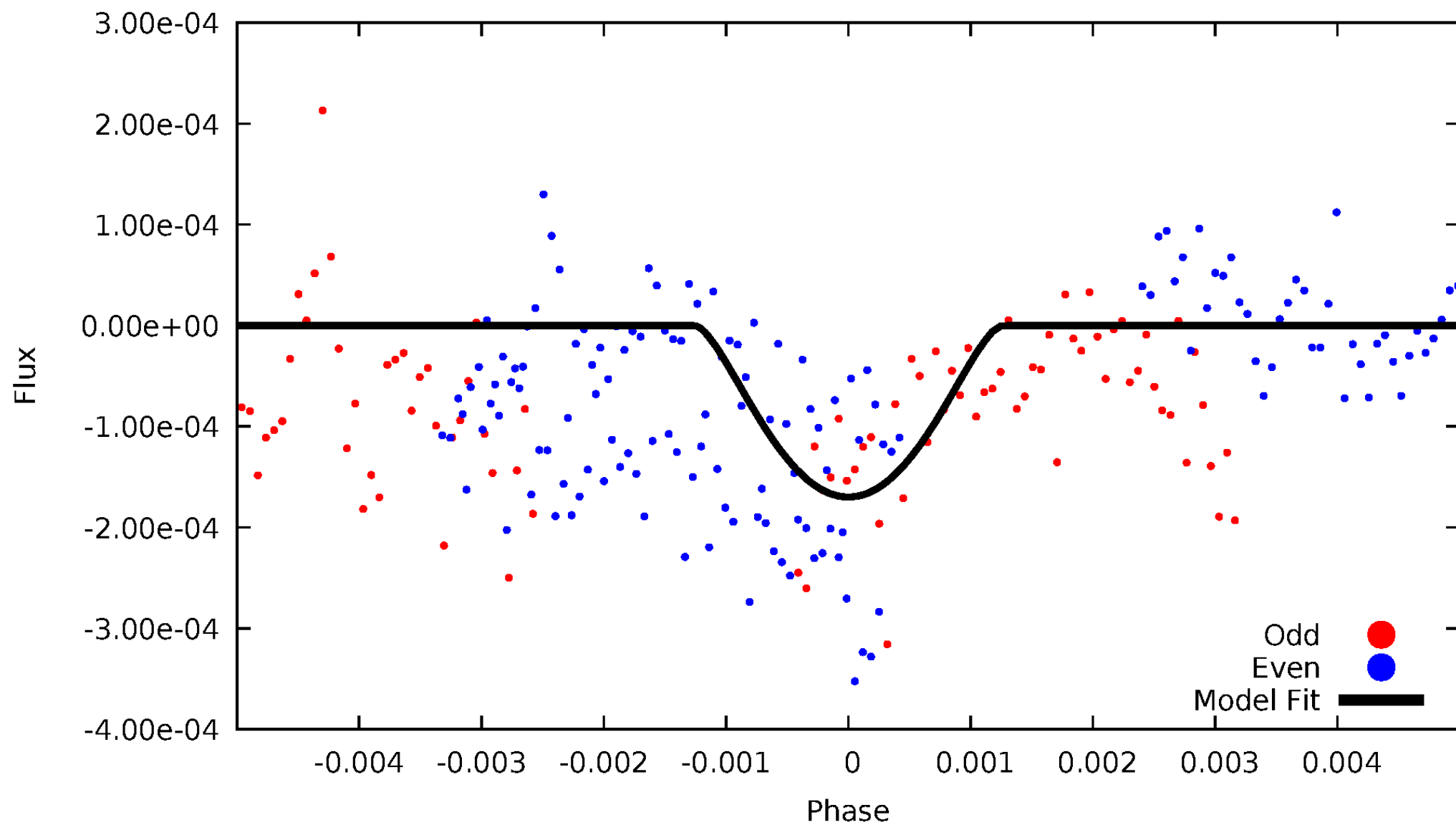


TCE 004568729-07



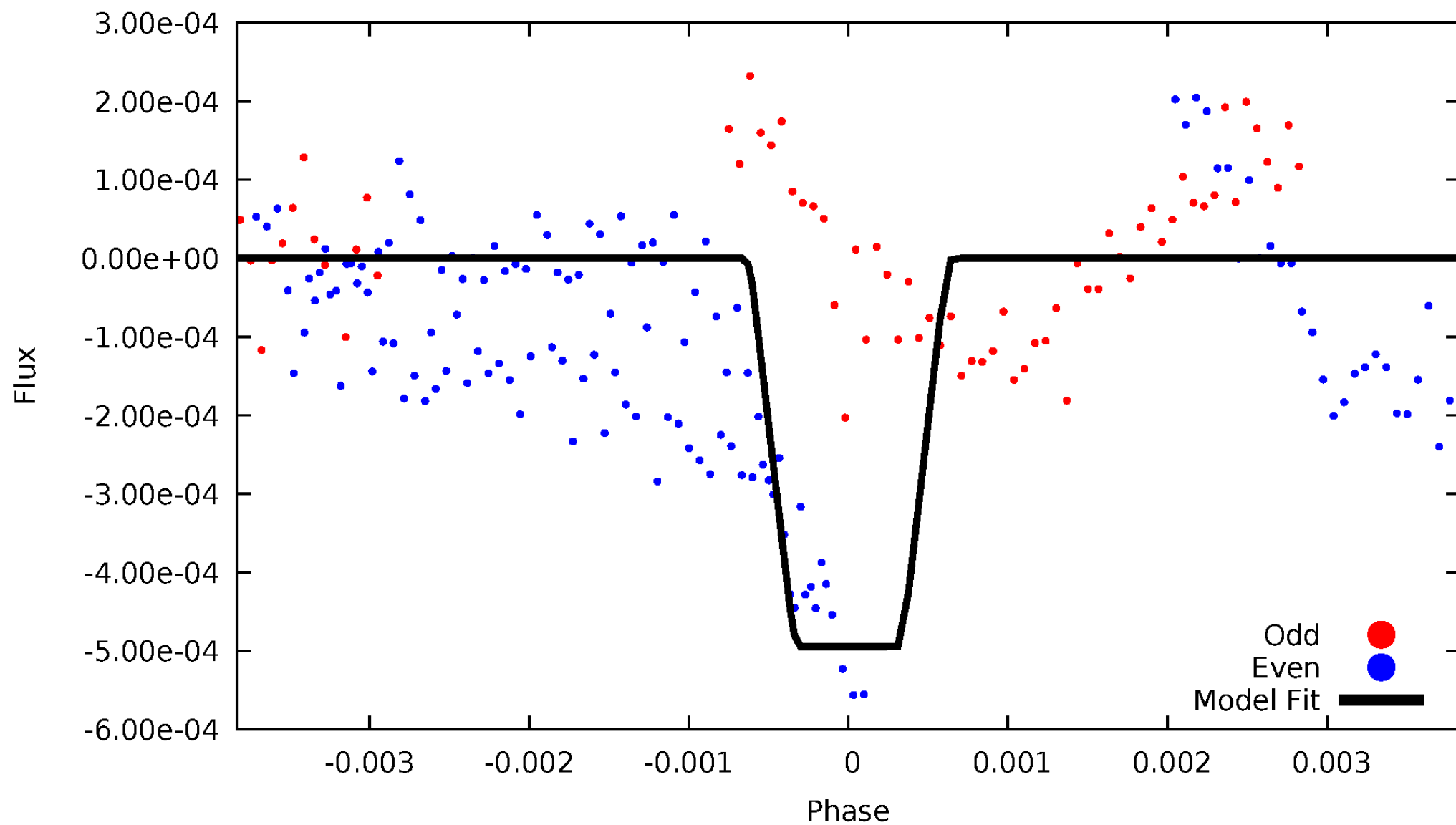
DV Odd/Even

TCE 004568729-07



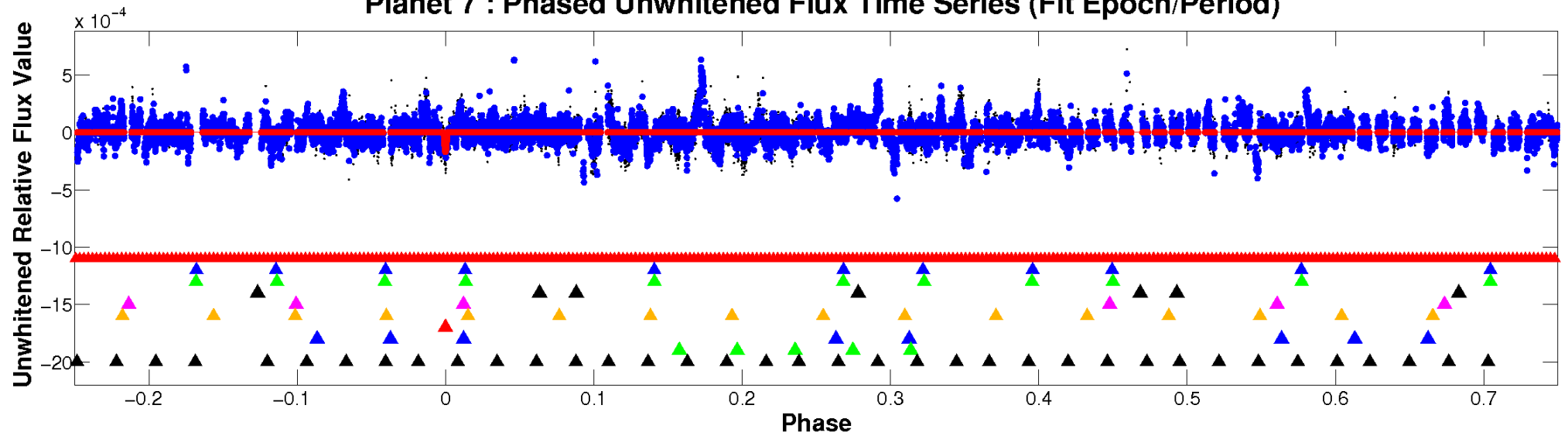
ALT Odd/Even

TCE 004568729-07

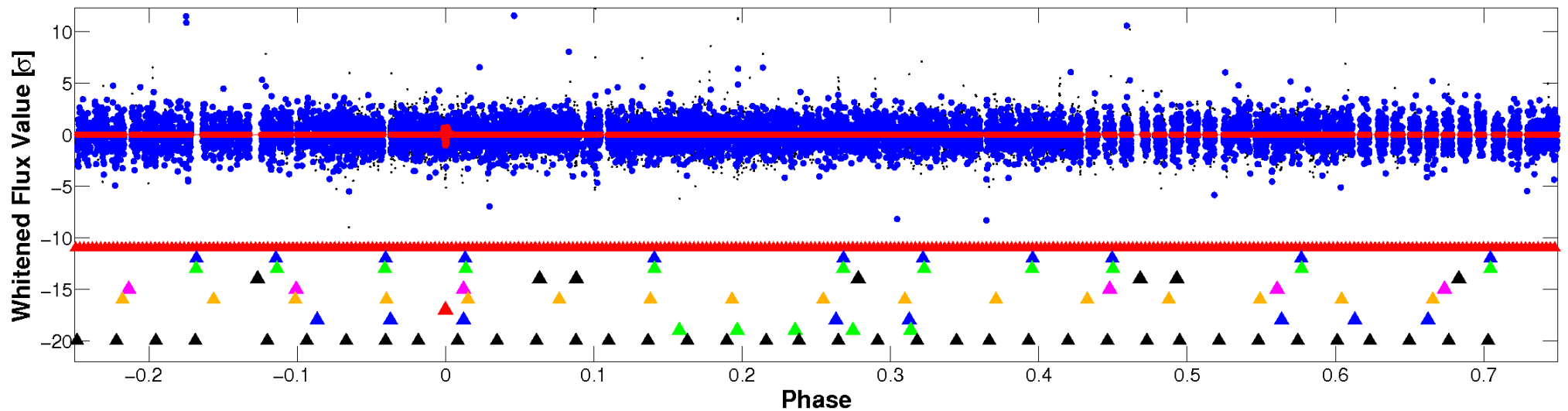


Non-Whitened Vs. Whitened Light Curve

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

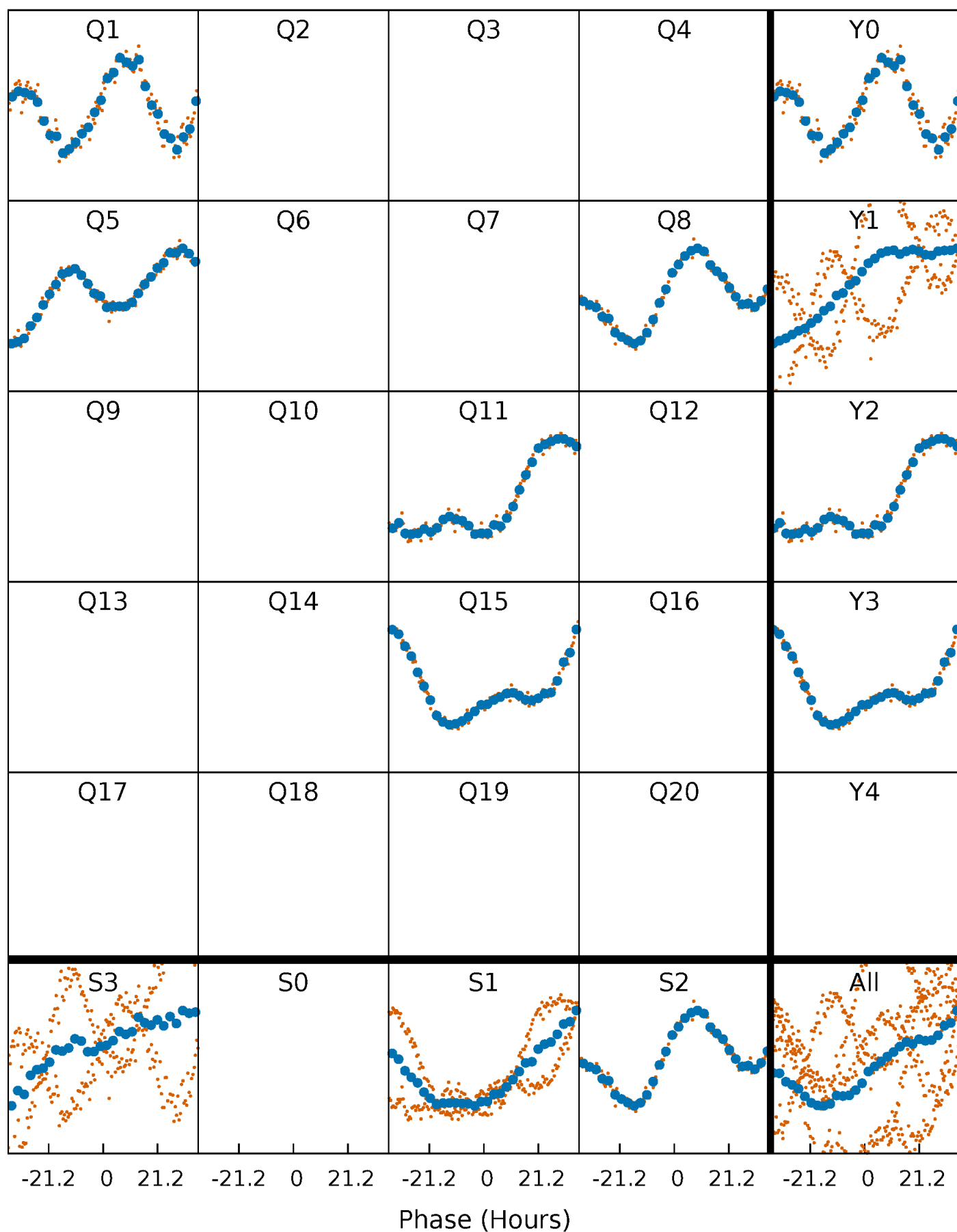


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



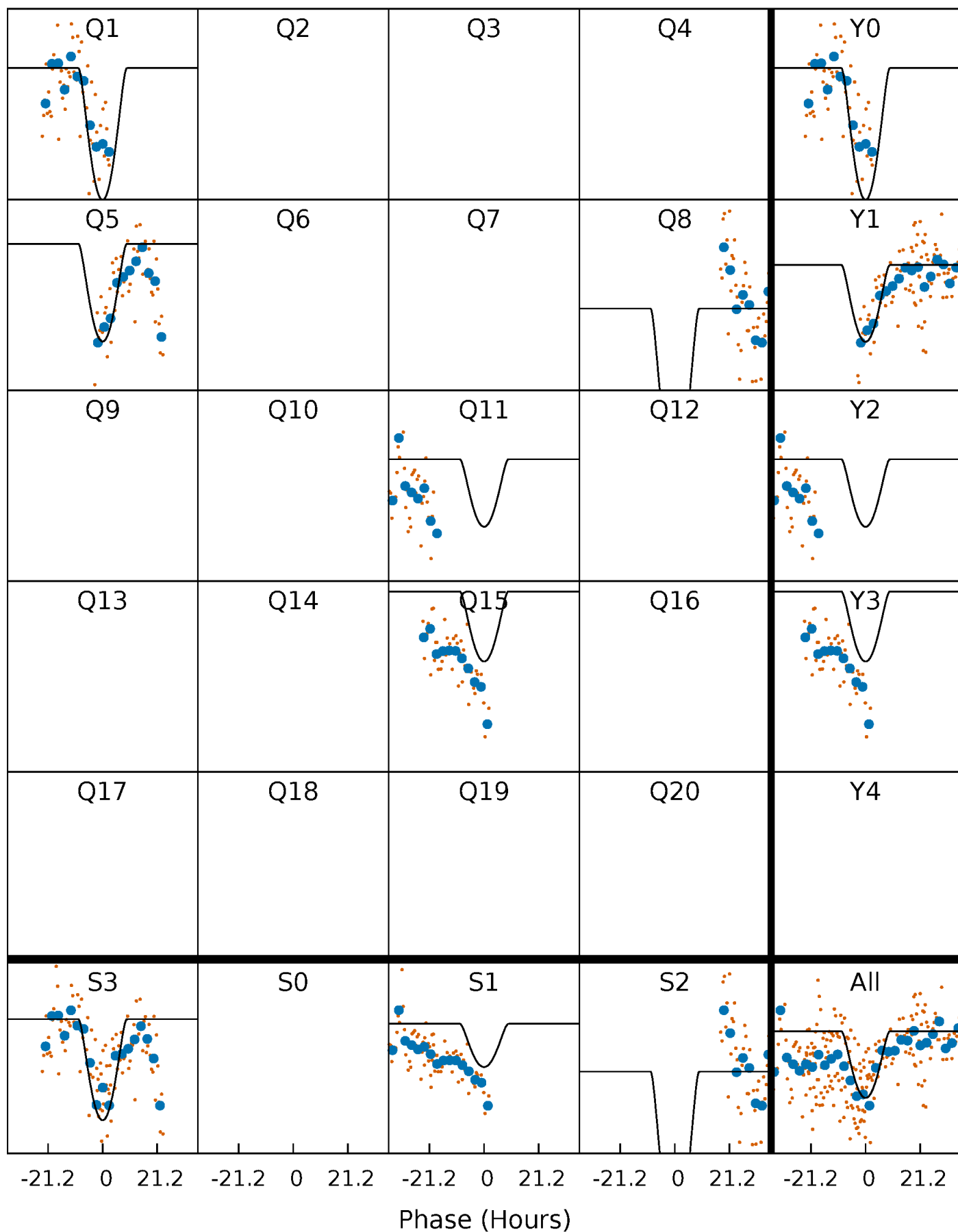
PDC Quarter-Phased Transit Curves

TCE 004568729-07 $P=308.882039$ Days $T_0=157.191871$ (BKJD)



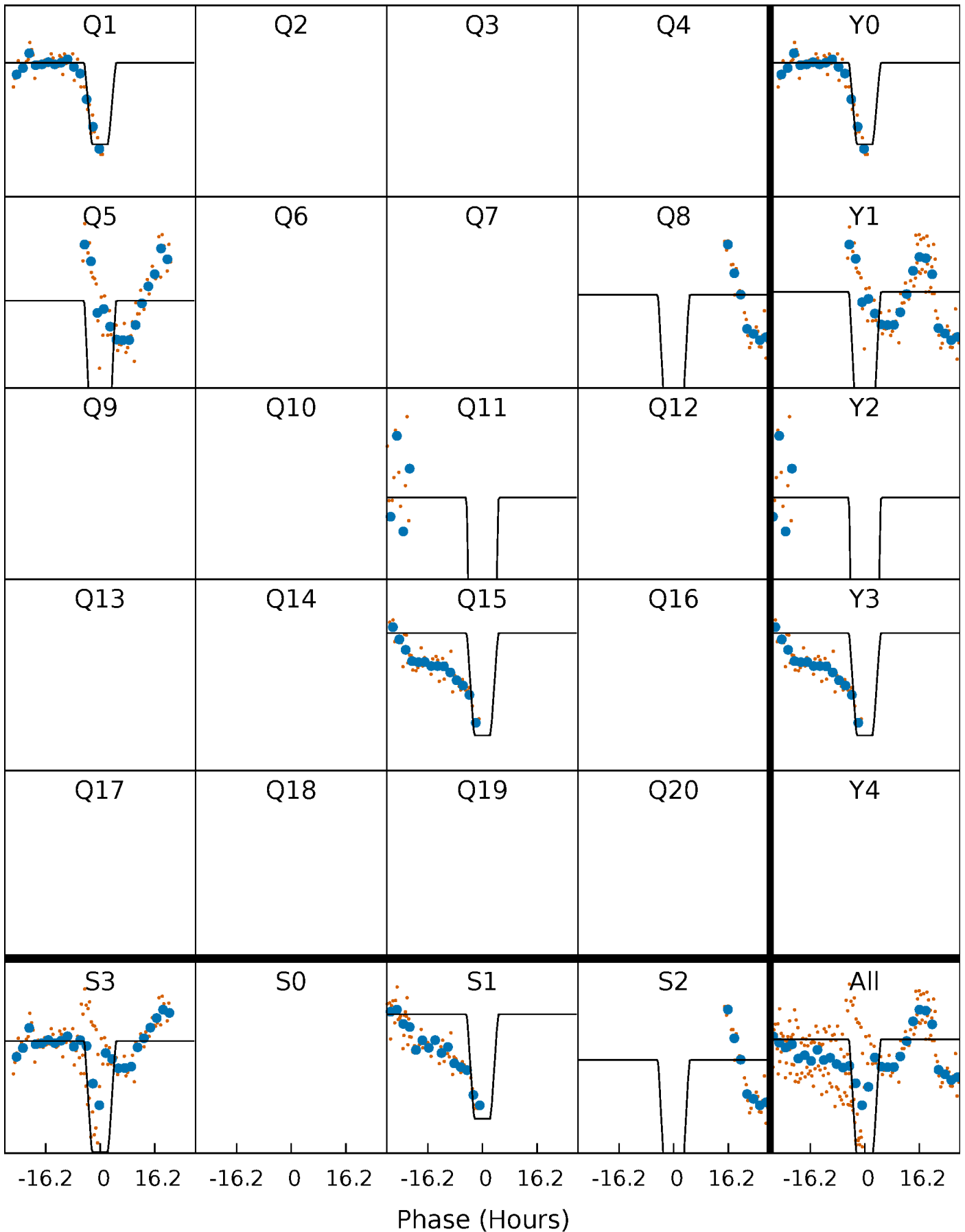
DV Quarter-Phased Transit Curves

TCE 004568729-07 $P=308.882039$ Days $T_0=157.191871$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

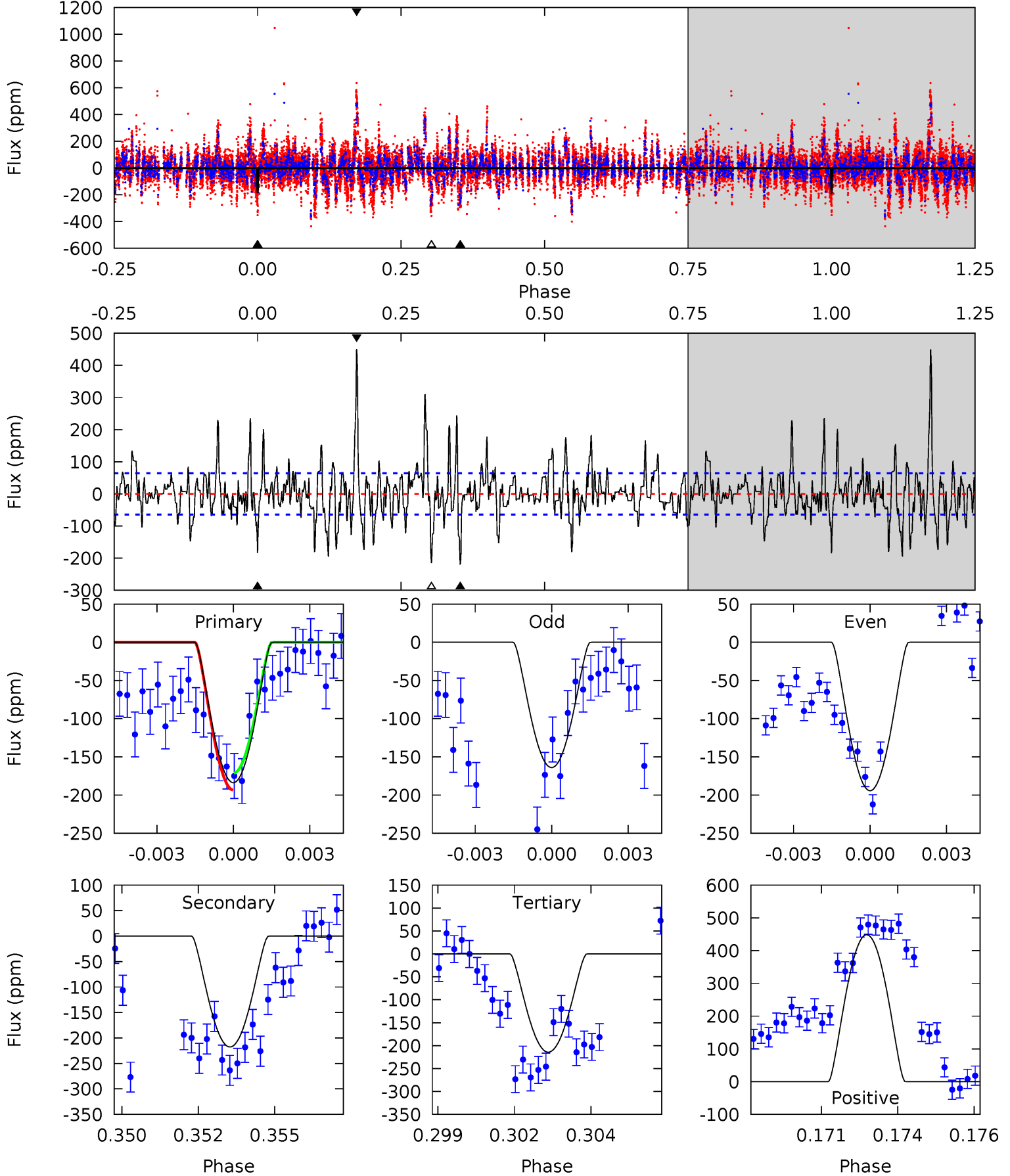
TCE 004568729-07 $P=308.887315$ Days $T_0=157.291080$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-07, P = 308.882039 Days, E = 157.191871 Days

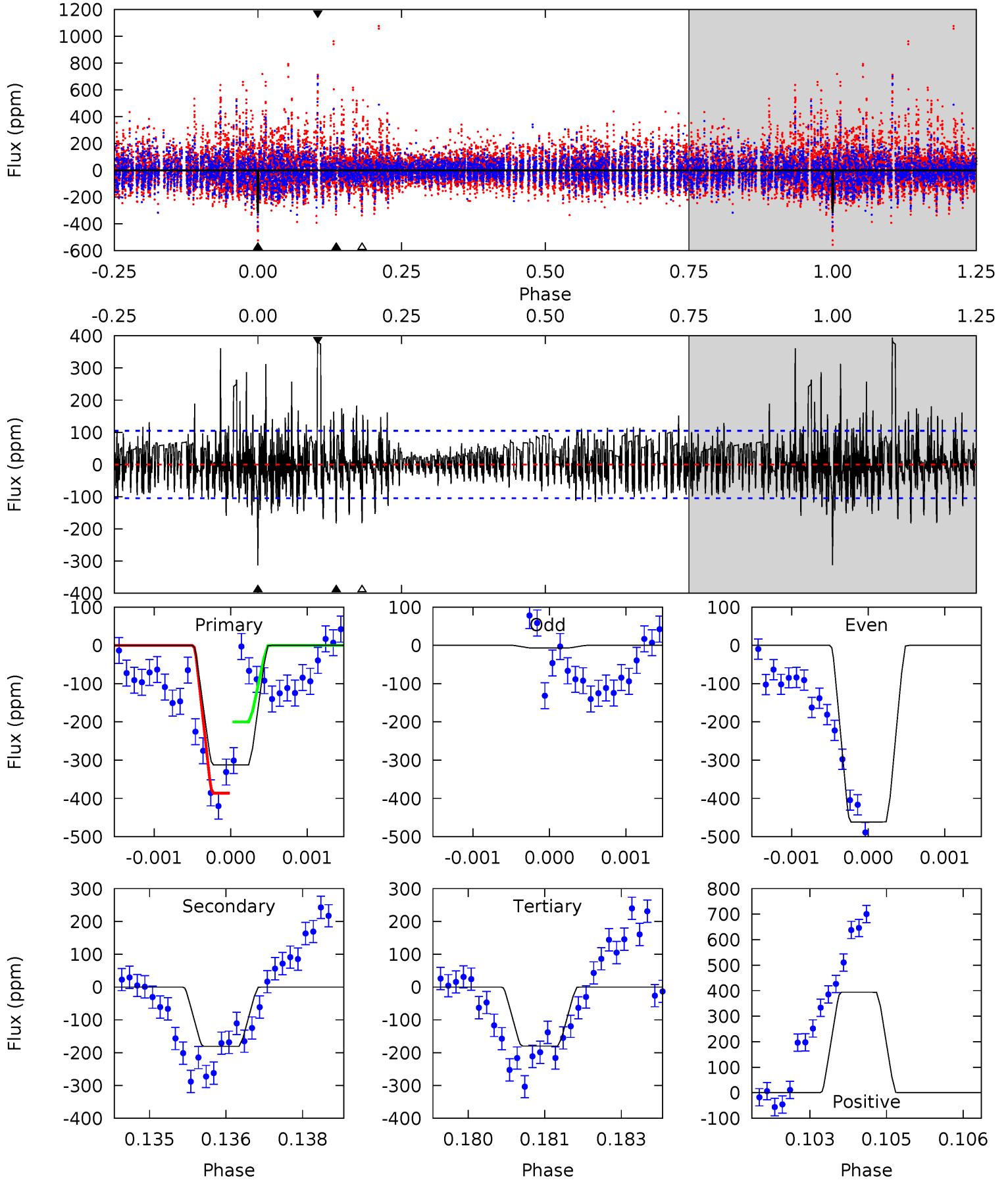
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	17.9	17.6	36.9	5.28	3.02	5.84	-2.51	-21.8	0.29	-19.0	1.23	1.15	0.67	0.88



Alt Model-Shift Uniqueness Test

004568729-07, P = 308.887315 Days, E = 157.291080 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	9.35	9.30	20.4	5.40	3.21	2.96	6.86	-4.22	0.05	-11.0	12.4	0.68	0.56	4.65



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-218 ± 12	$10.15^{+9.71}_{-6.43}$	583^{+48}_{-43}	4027^{+2178}_{-795}	1142^{+7471}_{-841}
Alt.	-181 ± 19	$9.31^{+10.08}_{-6.36}$	582^{+48}_{-39}	3985^{+2618}_{-795}	1135^{+10351}_{-862}

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

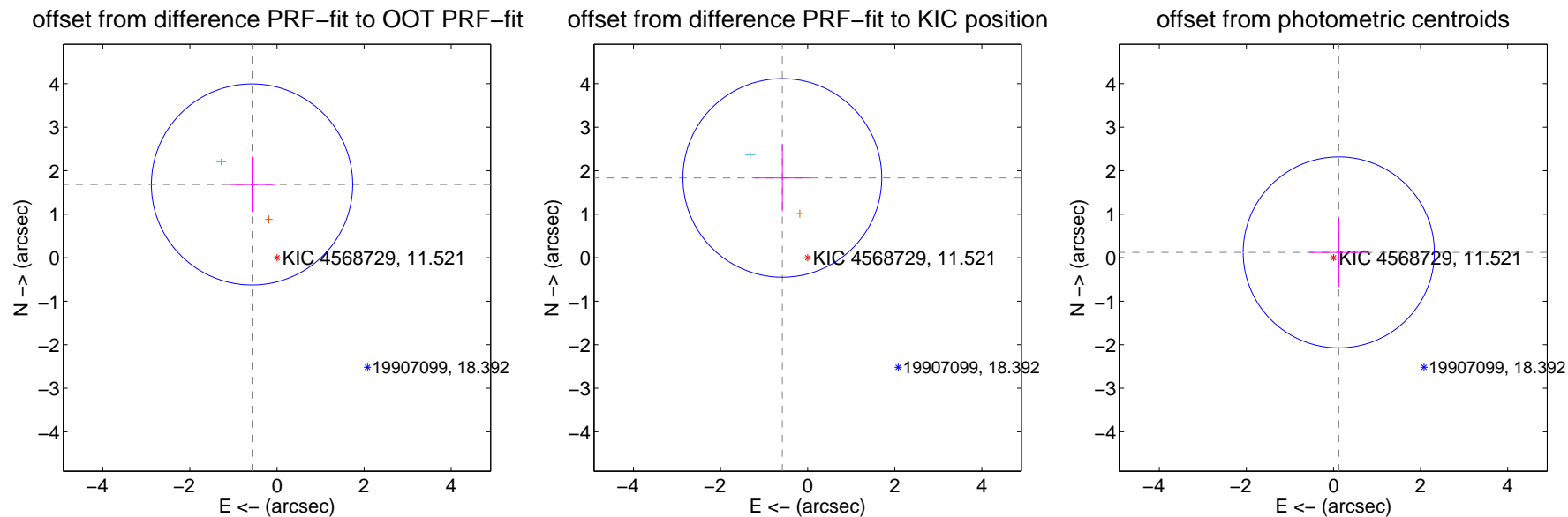
DV Centroid Data

Supplemental centroid analysis for 004568729-07. **Kepler magnitude: 11.52.** Transit SNR 6.61

There are 1 quarters with good PRF difference image offsets

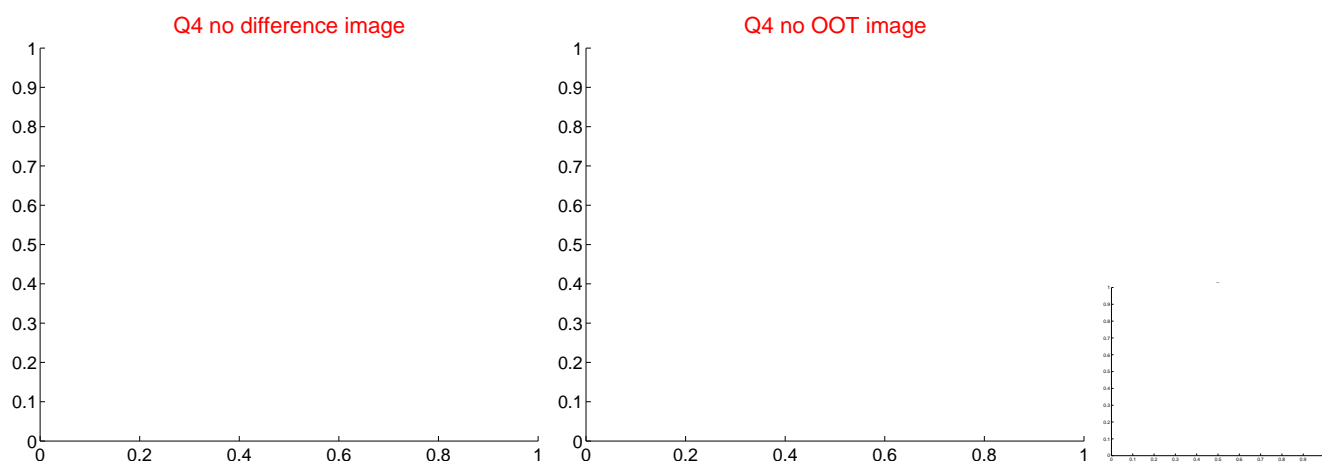
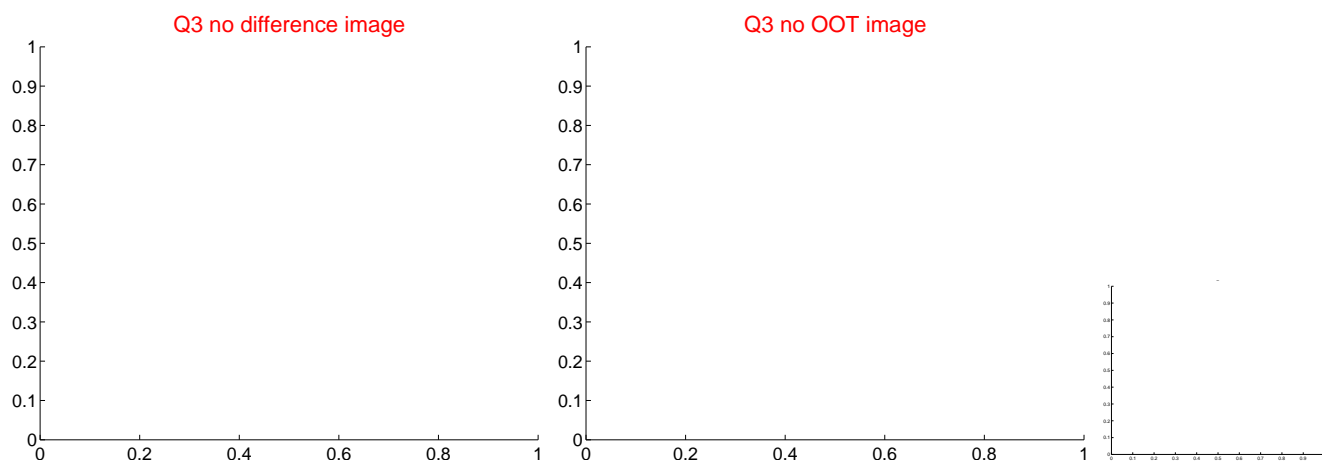
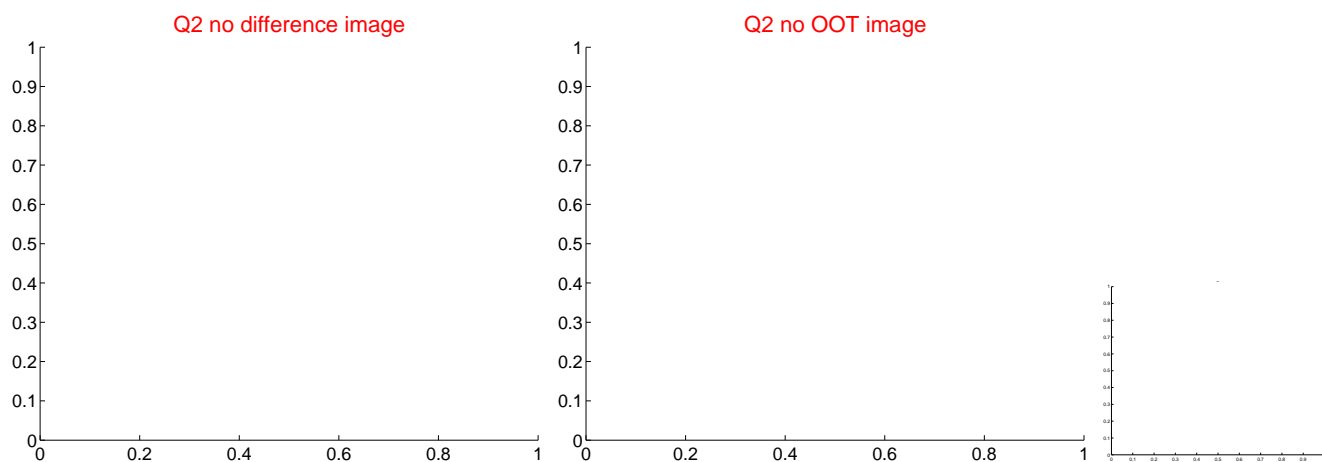
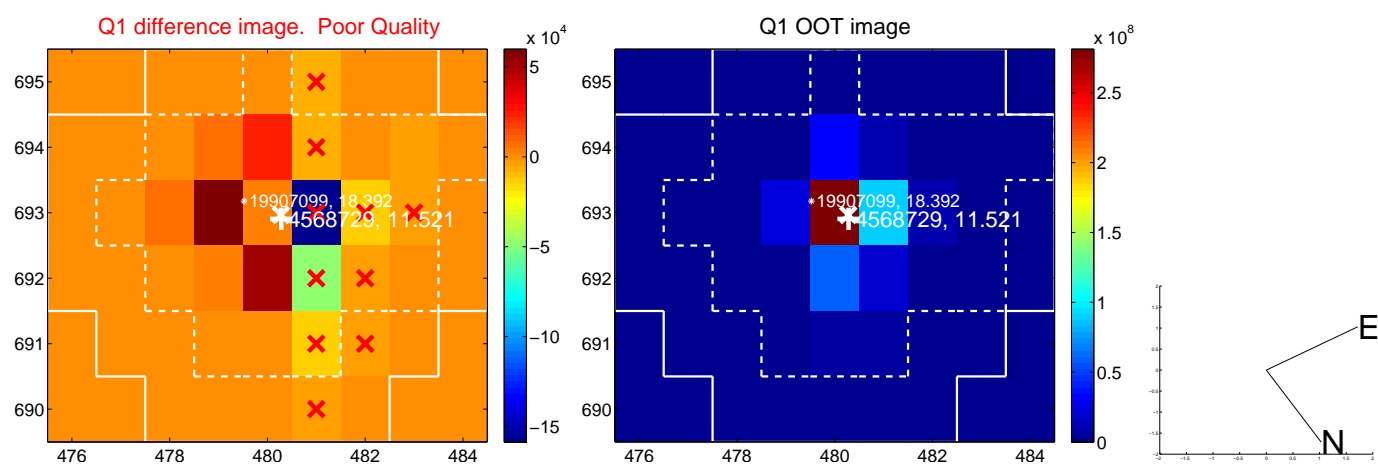
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.779 ± 0.770	2.31	0.573 ± 0.530	1.684 ± 0.635
PRF-fit source offset from KIC position	1.924 ± 0.761	2.53	0.581 ± 0.639	1.834 ± 0.772
photometric centroid source offset	0.17 ± 0.73	0.23	-0.12 ± 0.68	0.12 ± 0.78

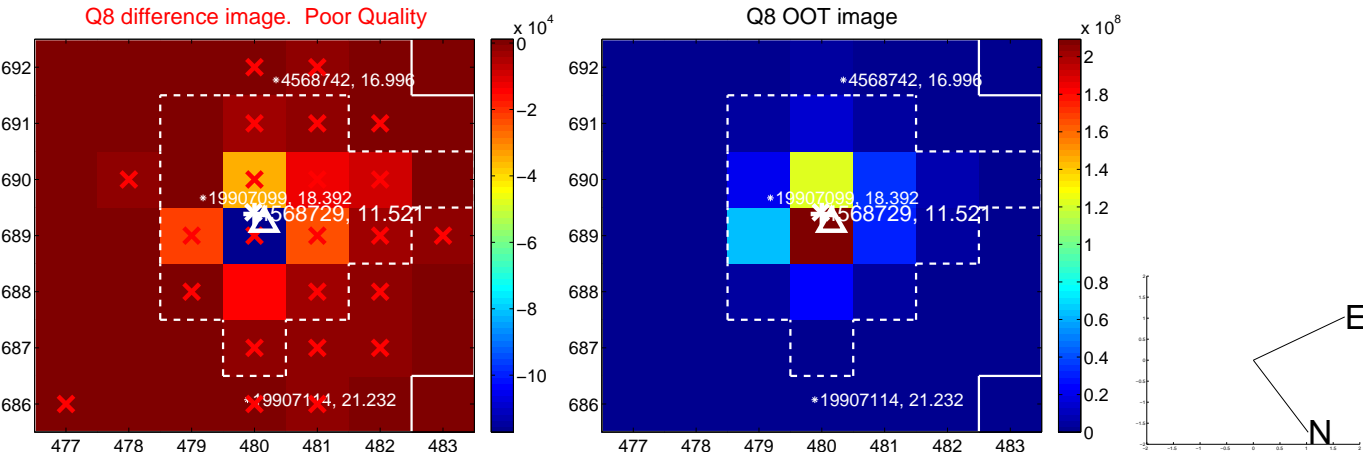
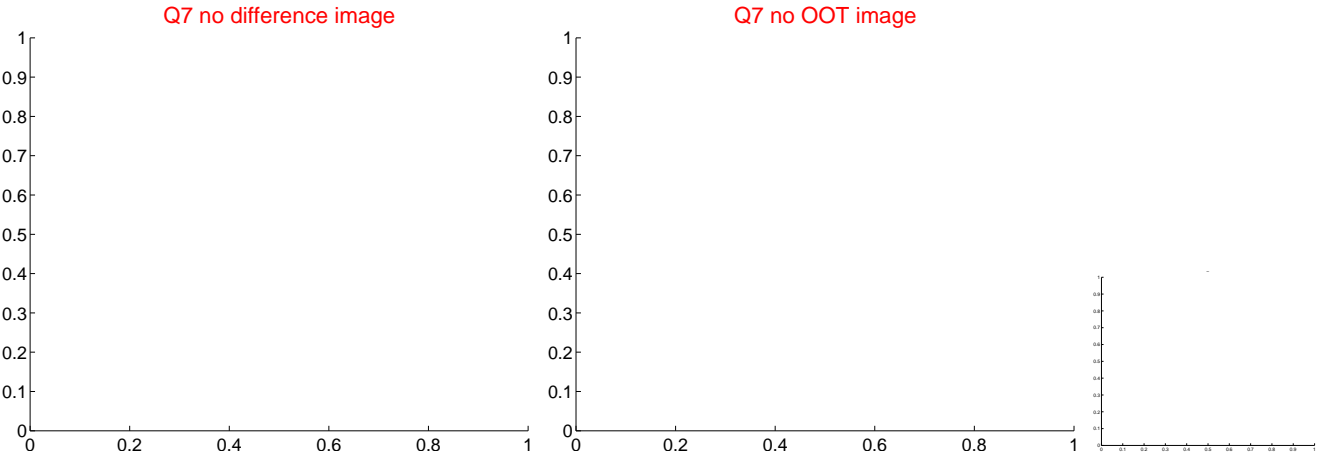
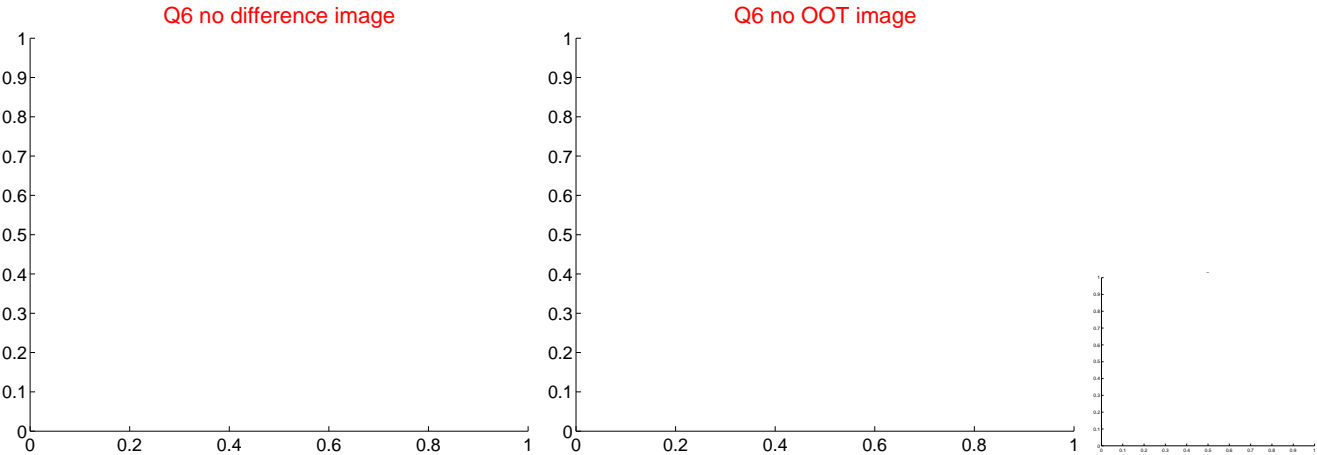
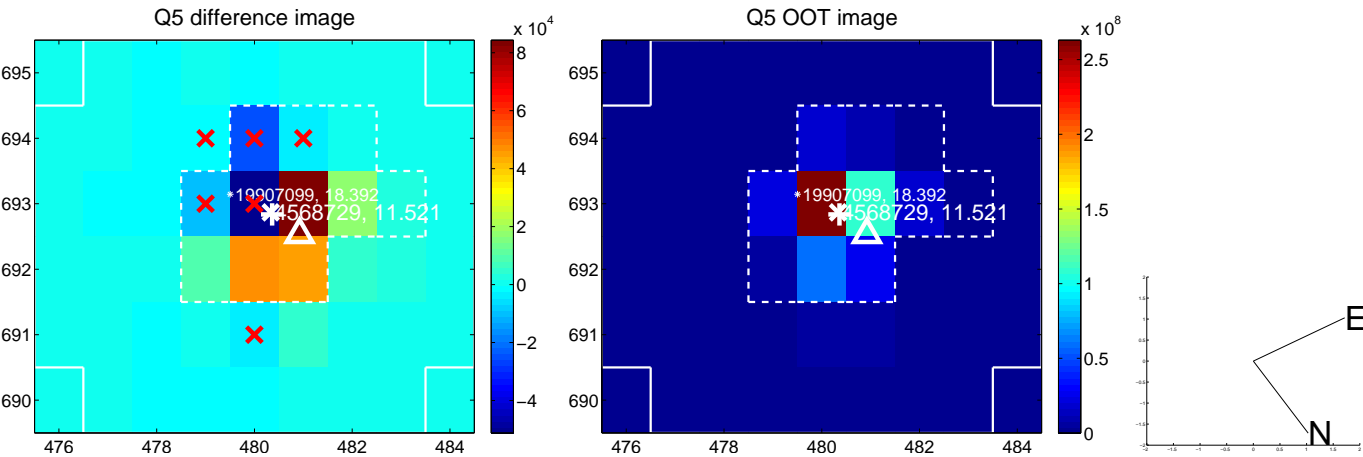


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

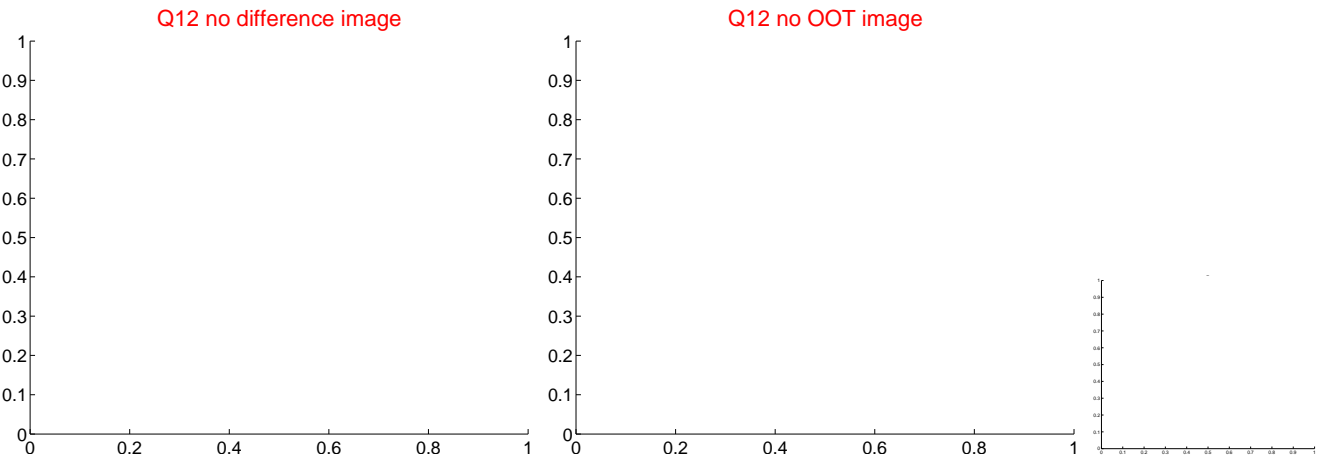
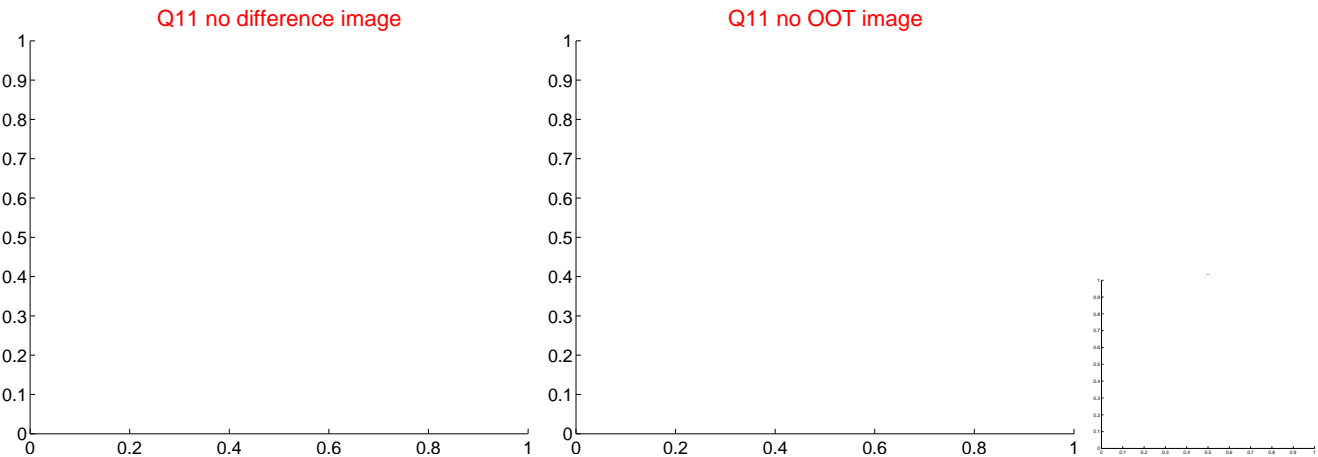
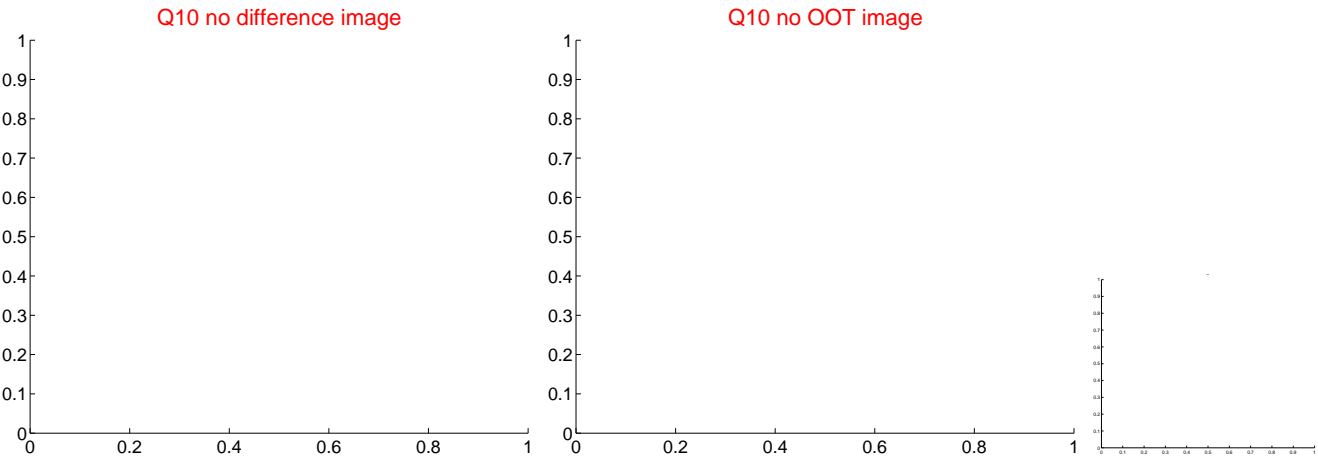
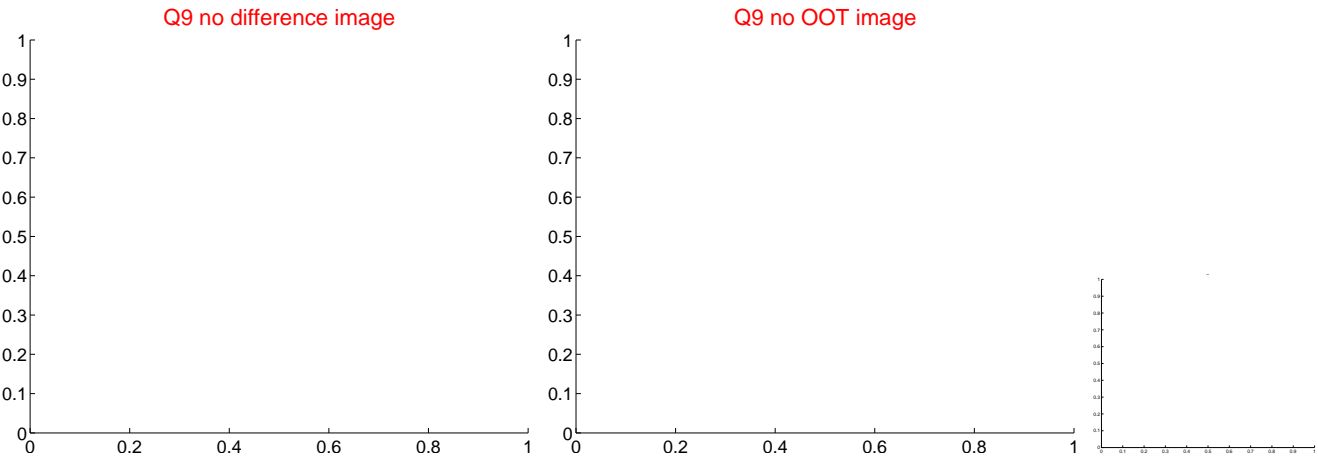
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



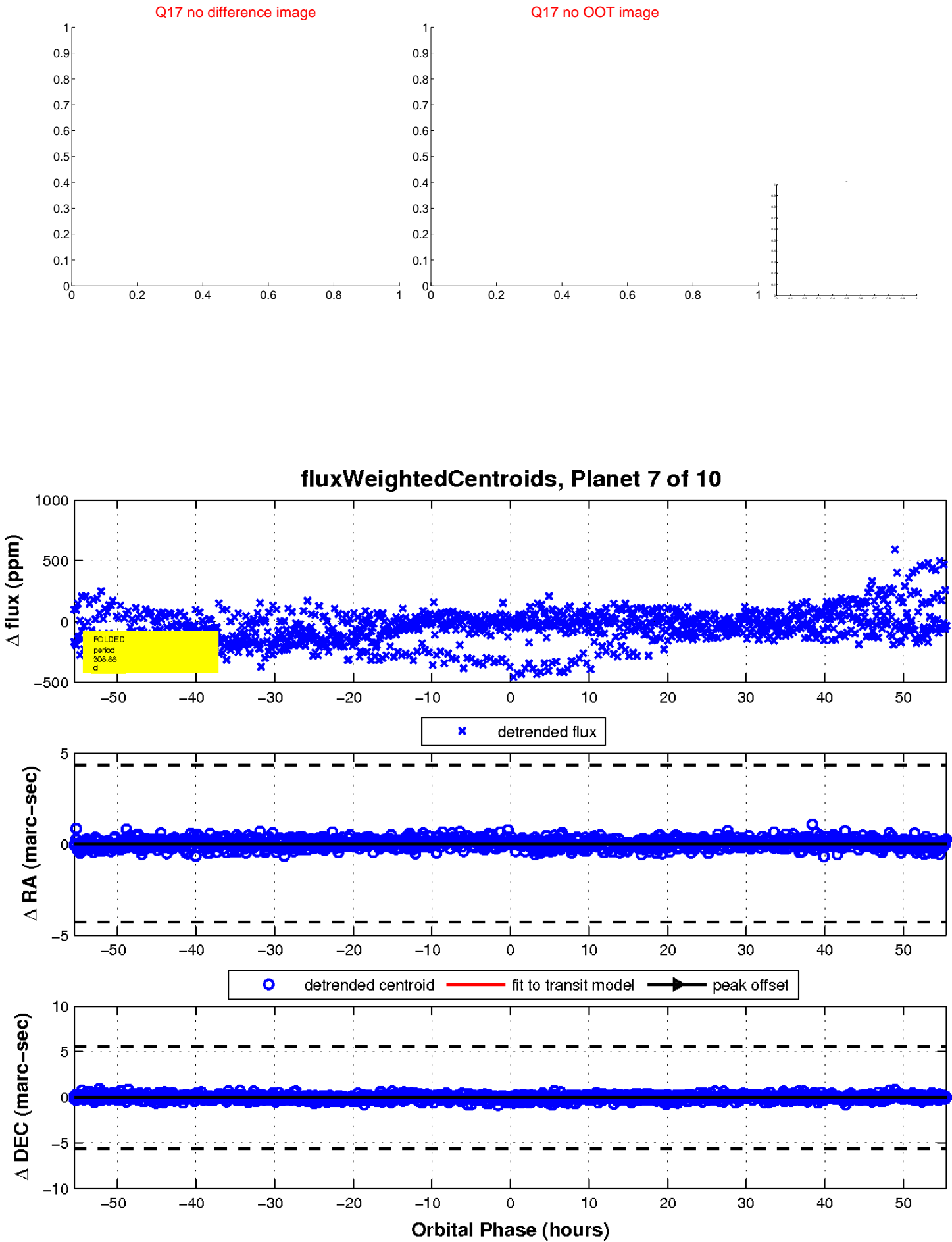
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

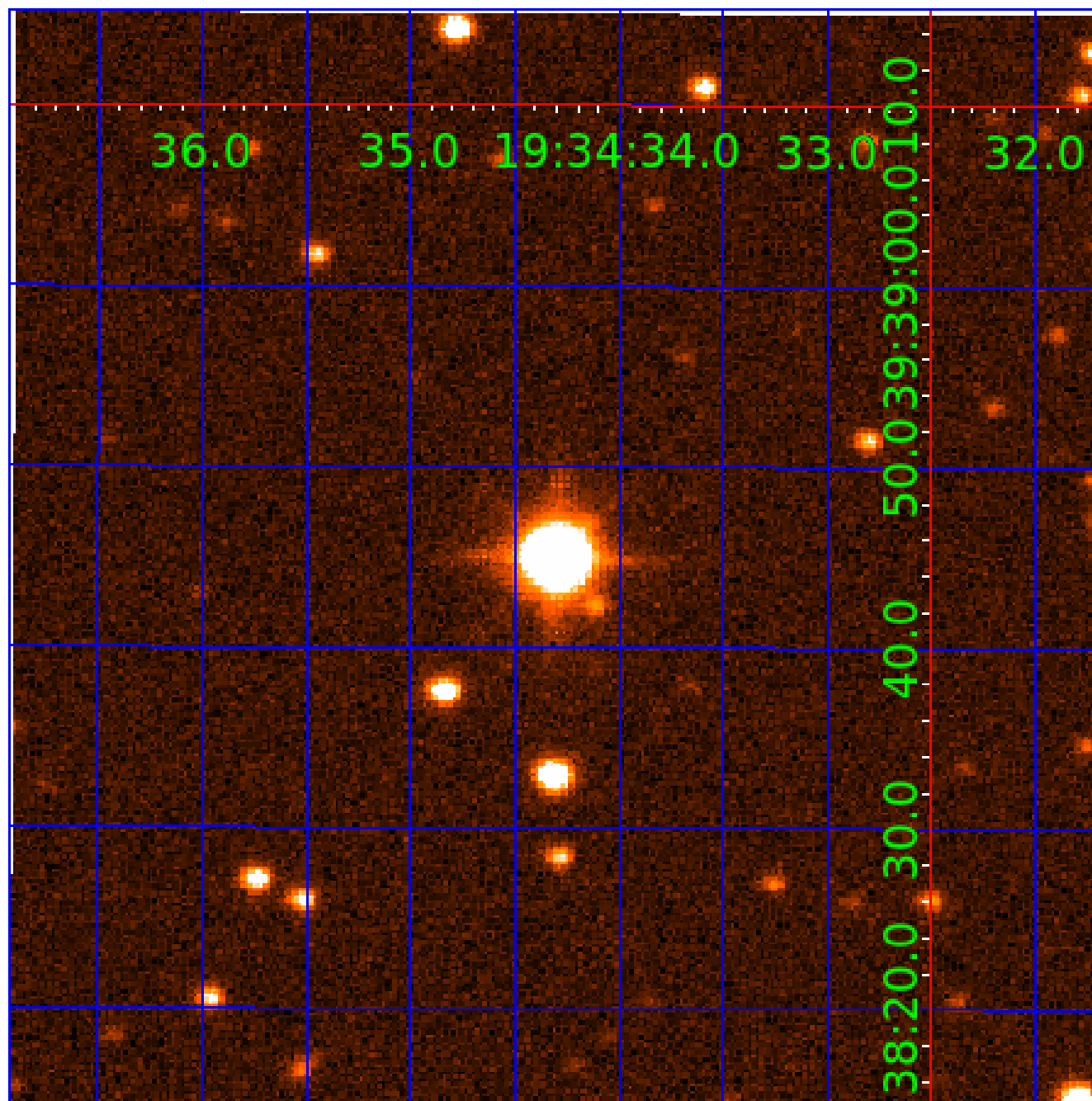


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
004568729-06	OBS	No	90.964616	161.891452	244.7	4.761	19.2	13.9	1.73	7210	3.05	36.13
004568729-07	OBS	No	308.882039	157.191871	170.0	18.520	12.5	6.6	1.73	7210	4.39	7.08
004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

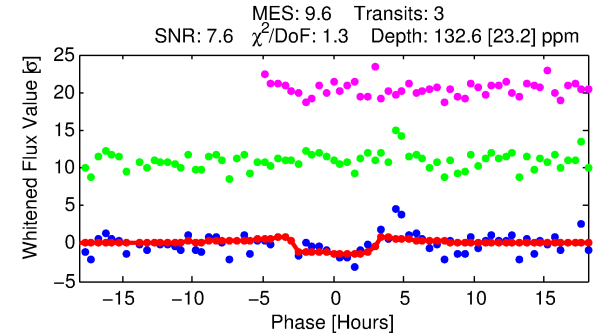
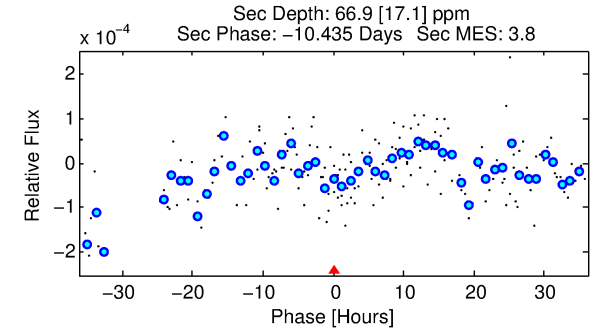
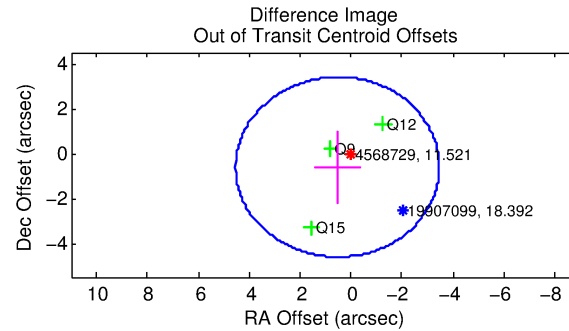
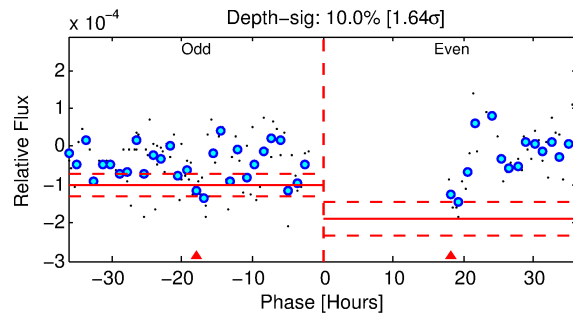
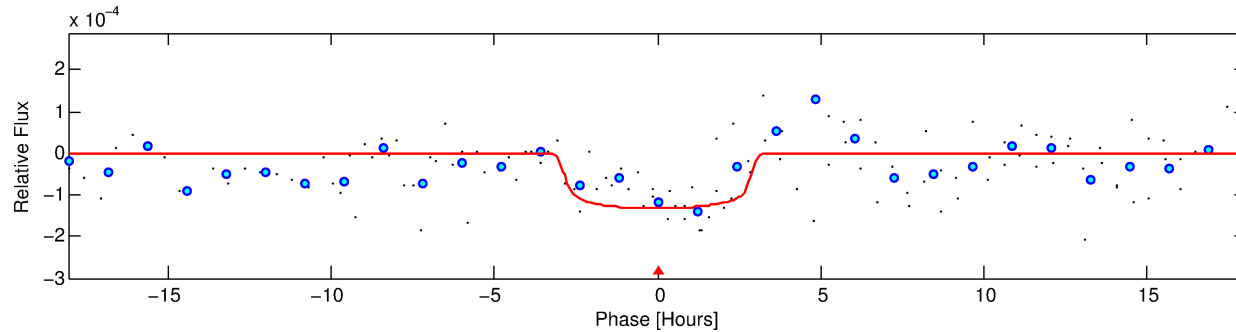
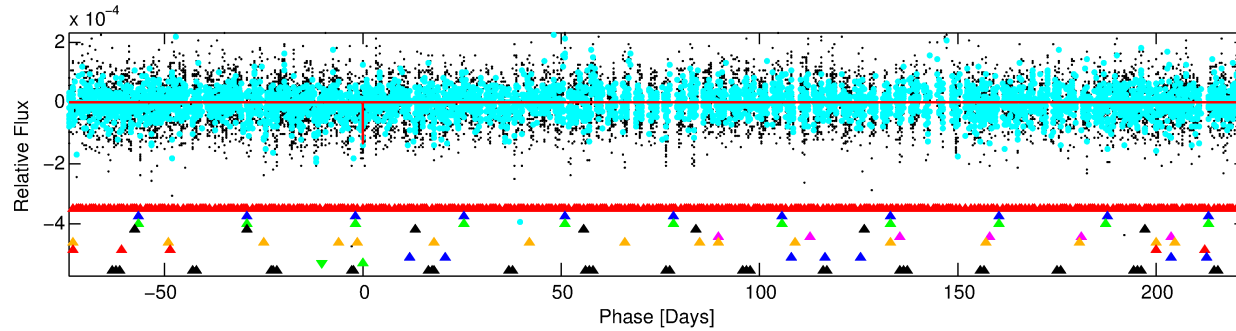
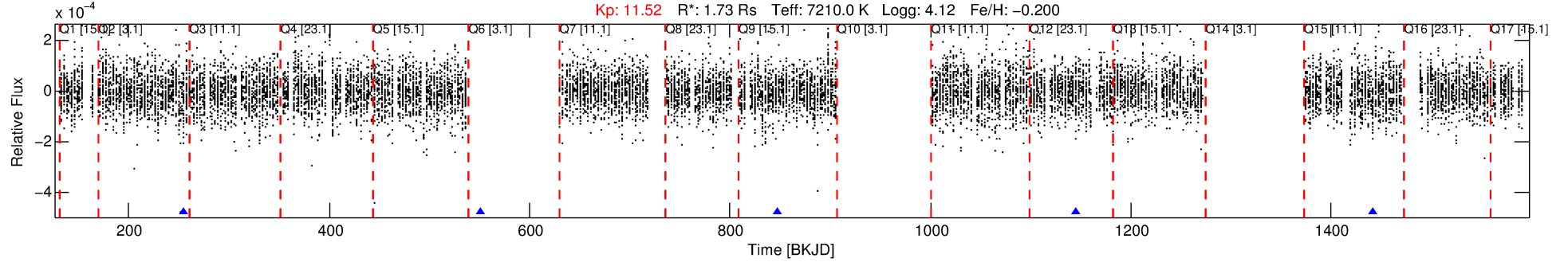
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-09

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 9 of 10 Period: 296.831 d



DV Fit Results:

Period = 296.83082 [0.00440] d
Epoch = 254.1006 [0.0137] BKJD
Rp/R* = 0.0119 [0.0087]
a/R* = 199.58 [898.75]
b = 0.86 [1.36]
Seff = 7.46 [2.90]
Teq = 421 [41] K
Rp = 2.25 [1.77] Re
a = 0.9842 [0.2460] AU
Ag = 7022.38 [10648.89] [0.66 σ]
Teffp = 5965 [2209] K [2.51 σ]

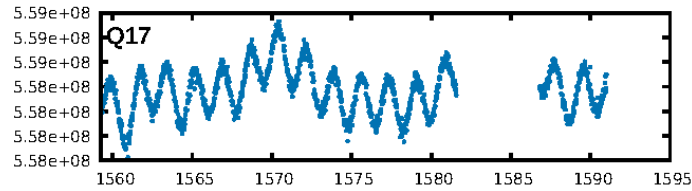
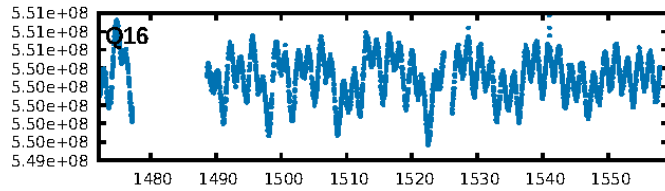
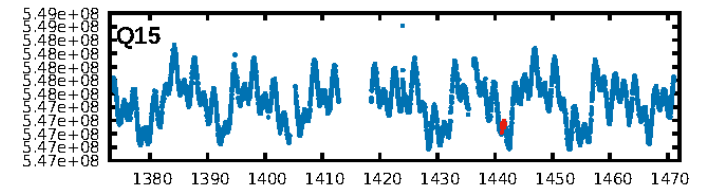
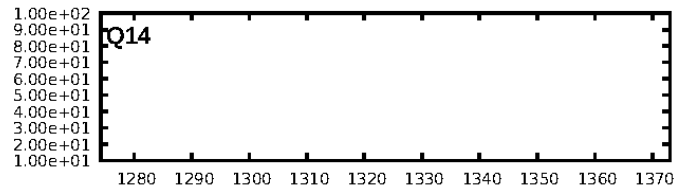
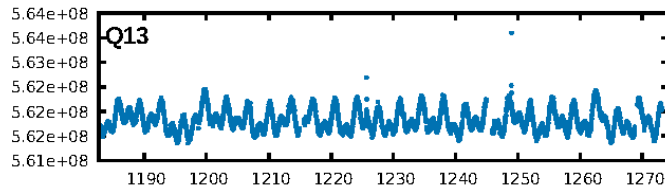
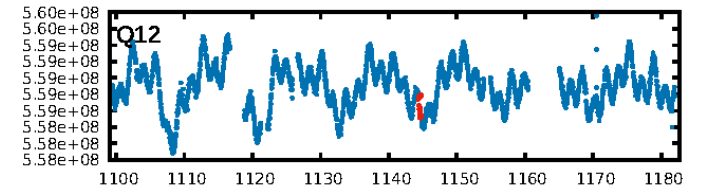
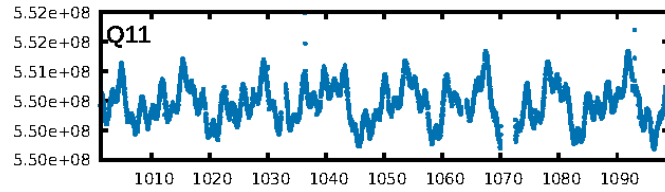
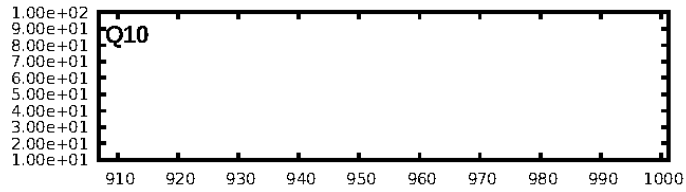
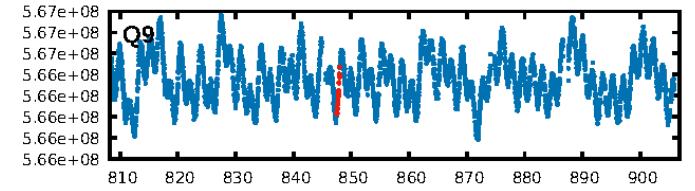
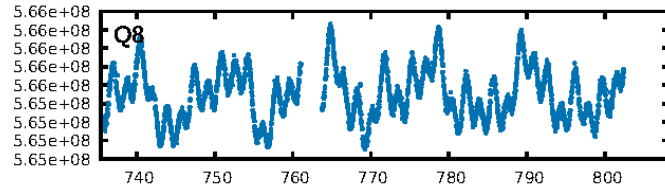
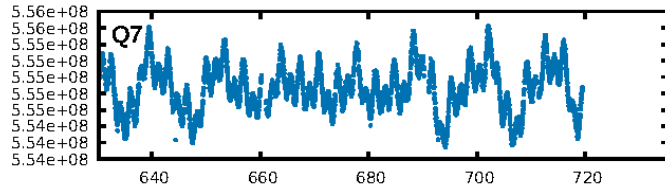
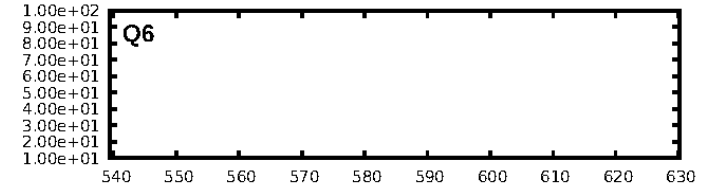
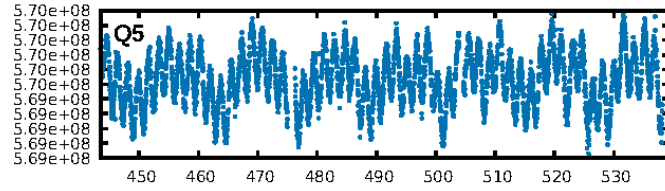
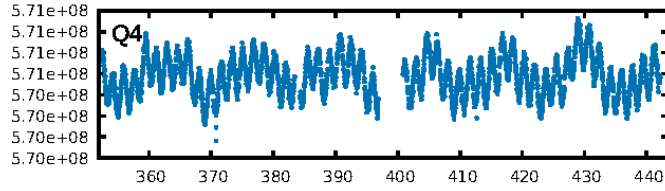
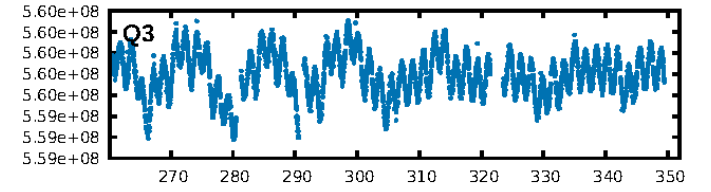
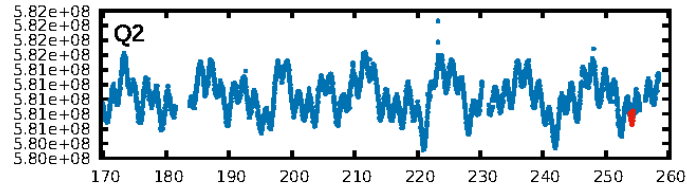
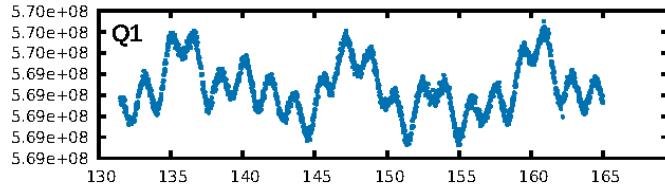
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [84.39 σ]
LongPeriod-sig: 100.0% [14.85 σ]
ModelChiSquare2-sig: 2.0%
ModelChiSquareGof-sig: 93.7%
Bootstrap-pfa: 1.79e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.51
Centroid-sig: 84.7%
Centroid-so: 0.406 arcsec [0.38 σ]
OotOffset-rm: 0.806 arcsec [0.60 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.704 arcsec [0.52 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.75 [3/4]

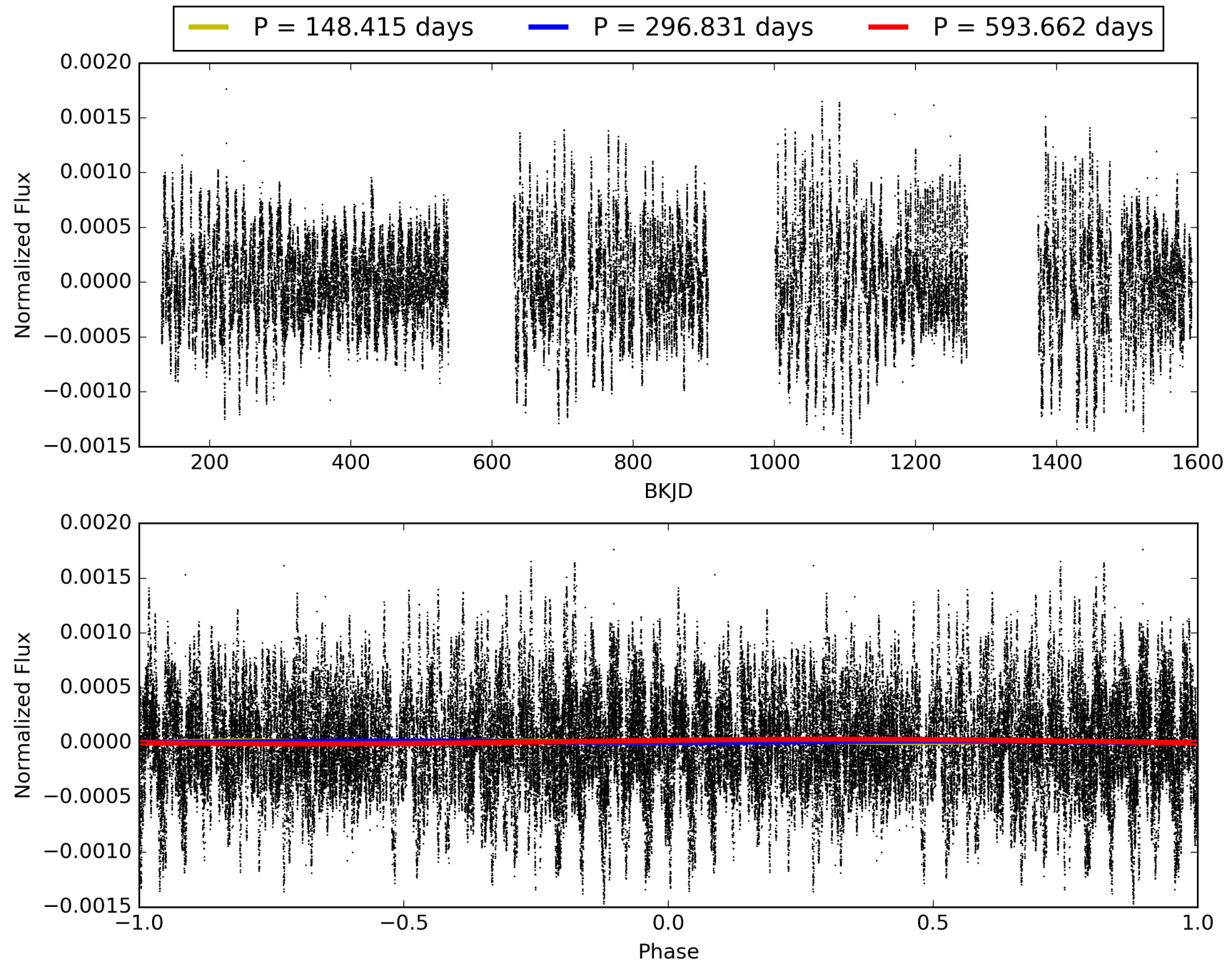
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:01:38 Z

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

TCE 004568729-09, PDC Light Curves

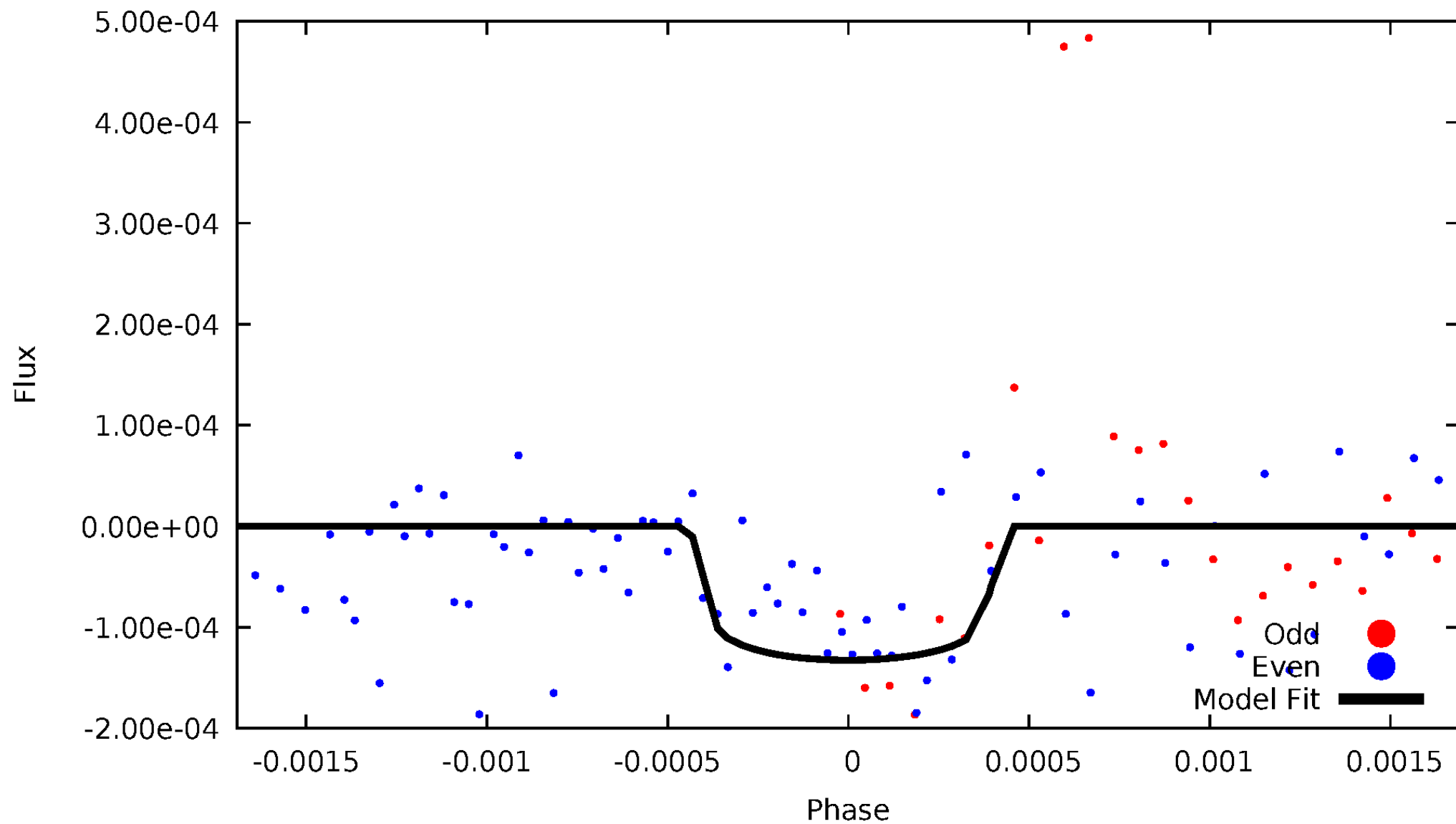


TCE 004568729-09



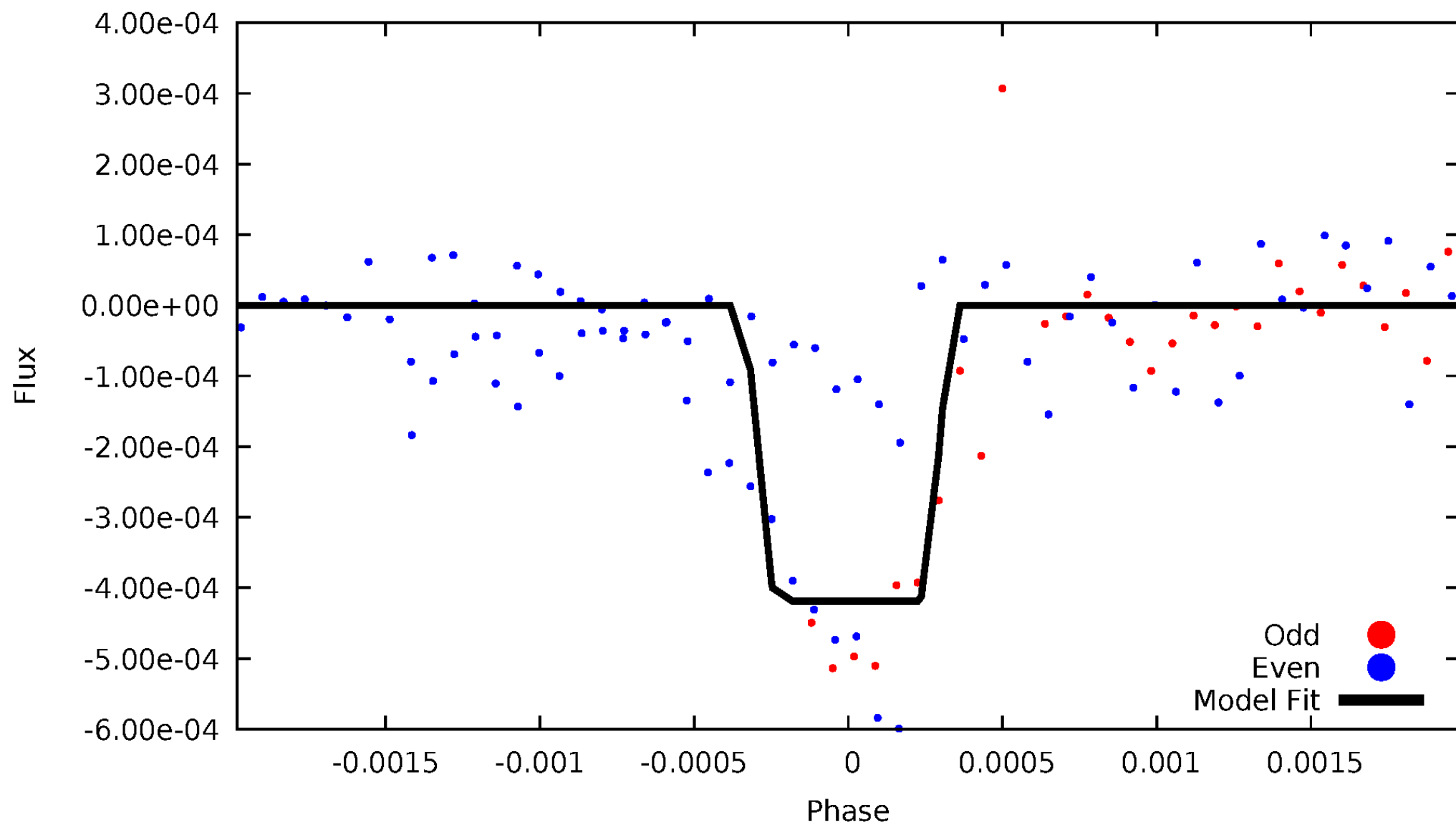
DV Odd/Even

TCE 004568729-09



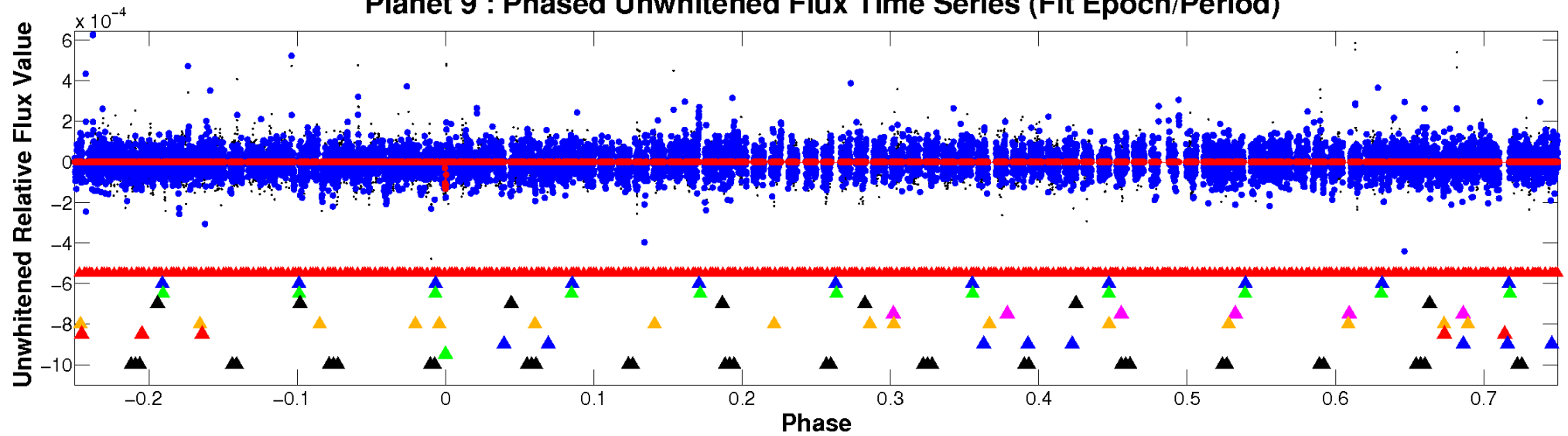
ALT Odd/Even

TCE 004568729-09

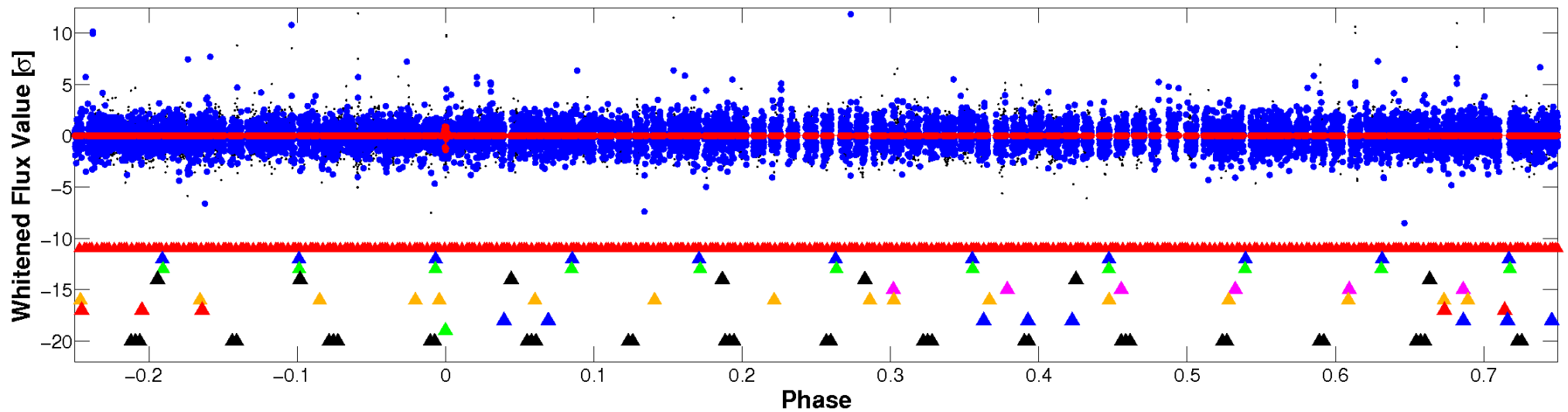


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

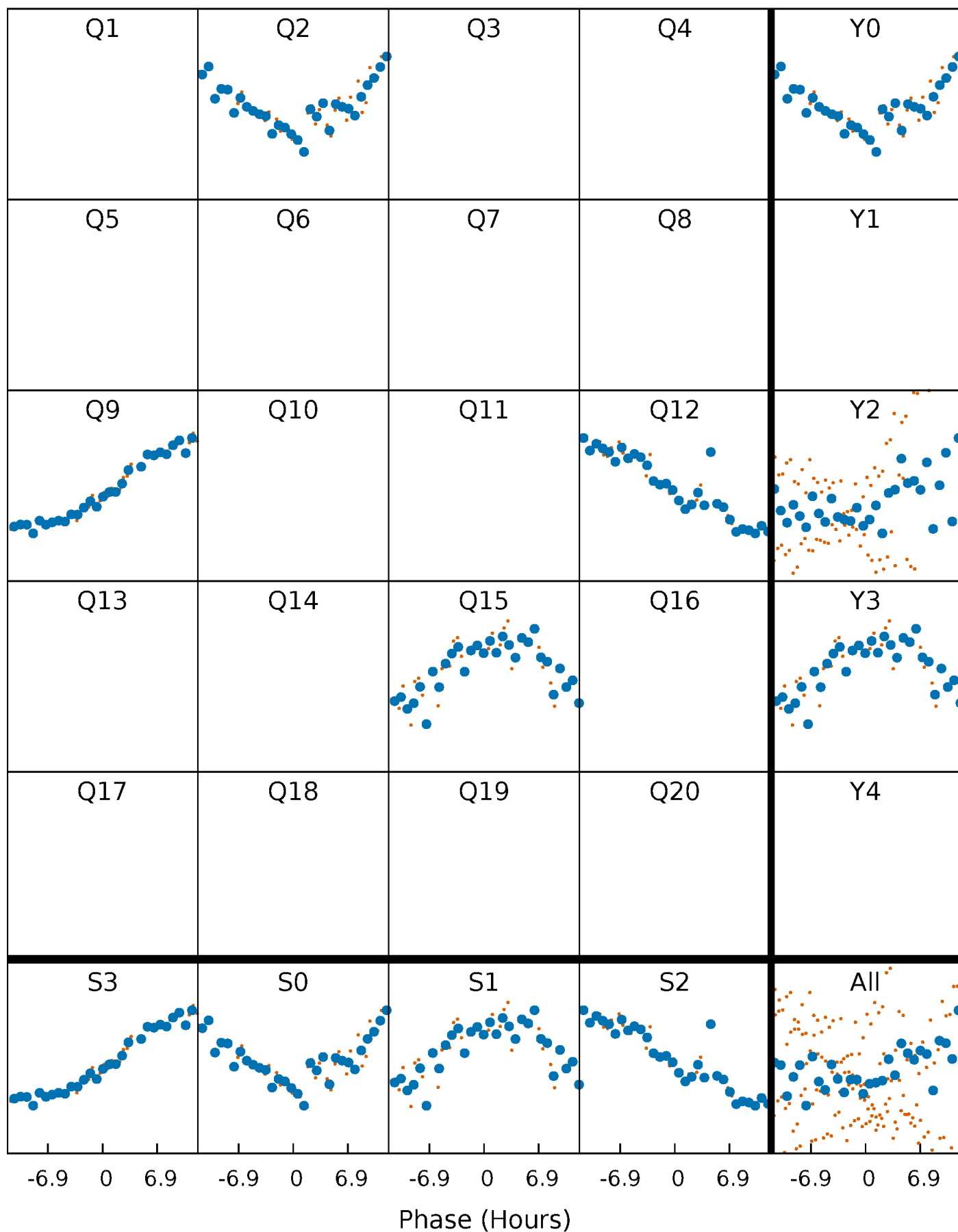


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



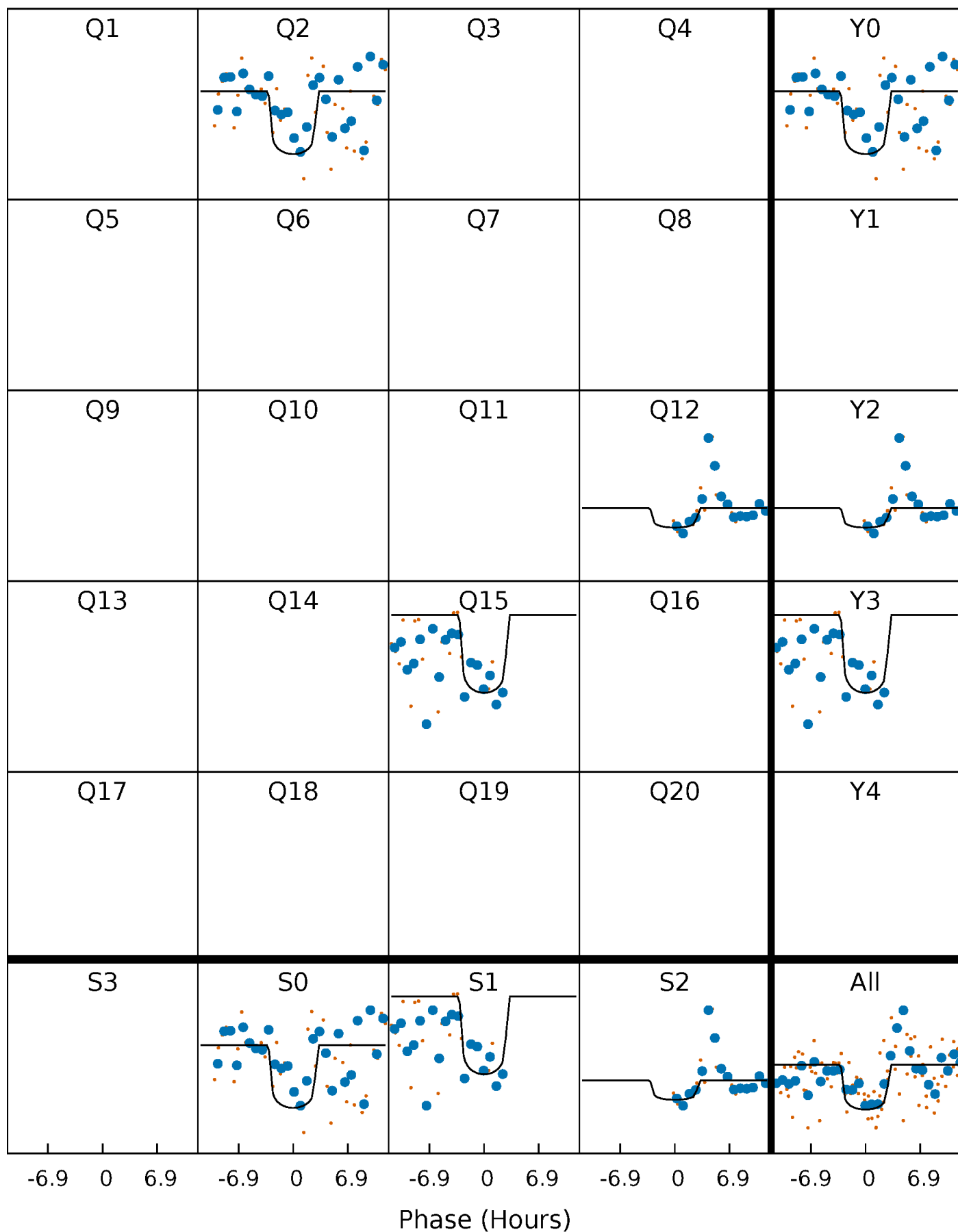
PDC Quarter-Phased Transit Curves

TCE 004568729-09 $P=296.830824$ Days $T_0=254.100591$ (BKJD)



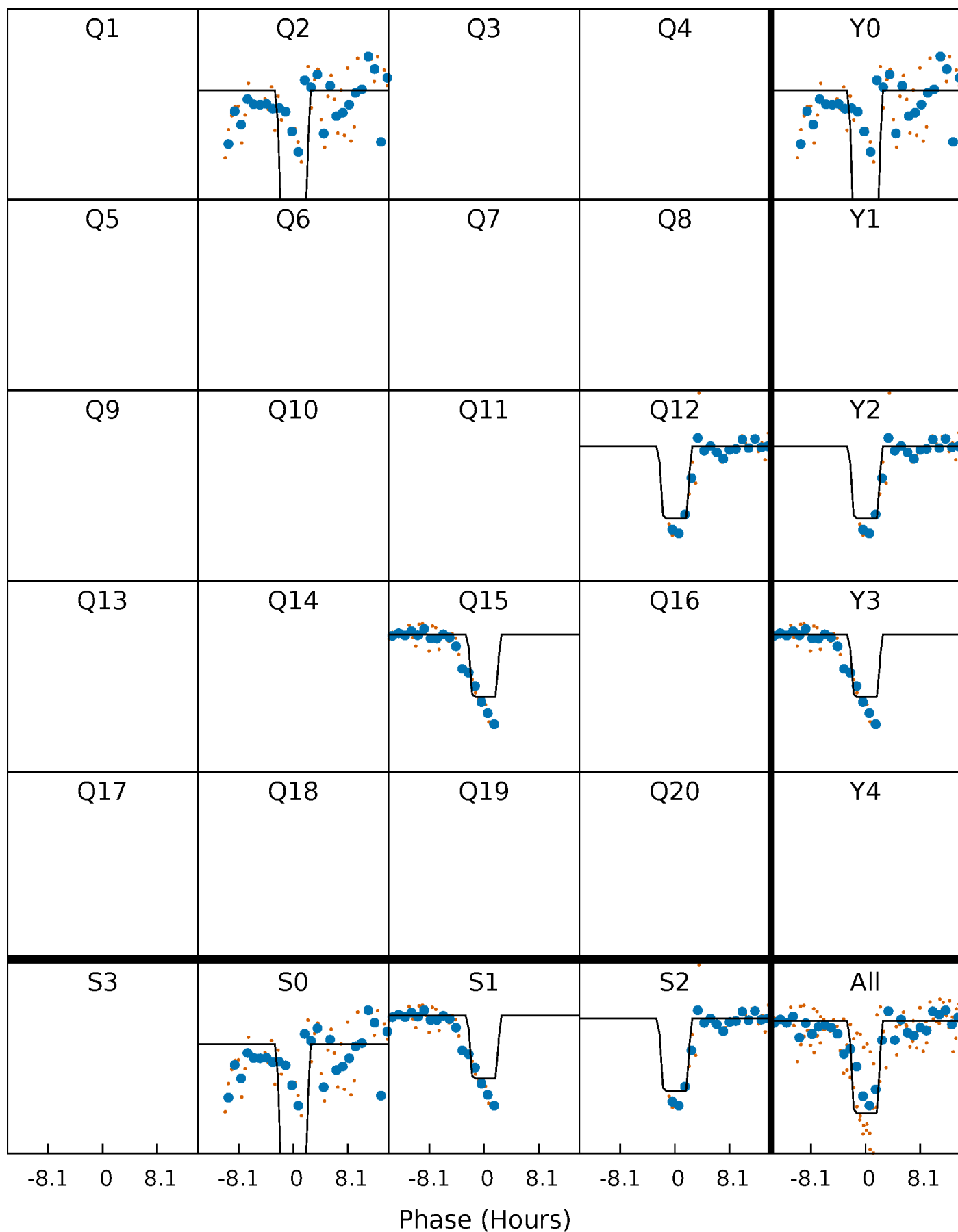
DV Quarter-Phased Transit Curves

TCE 004568729-09 $P=296.830824$ Days $T_0=254.100591$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

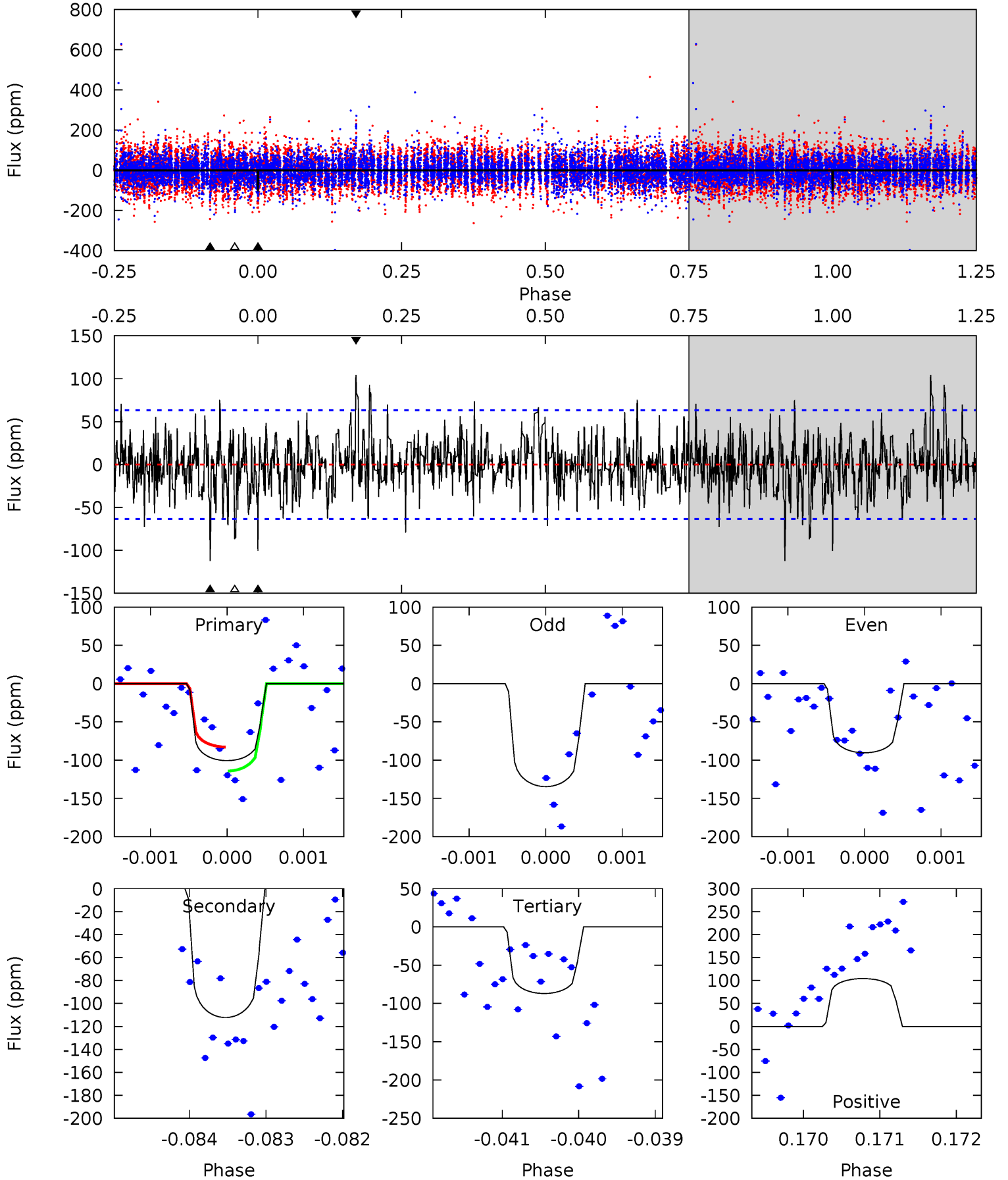
TCE 004568729-09 $P=296.838326$ Days $T_0=254.106770$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-09, P = 296.830824 Days, E = 254.100591 Days

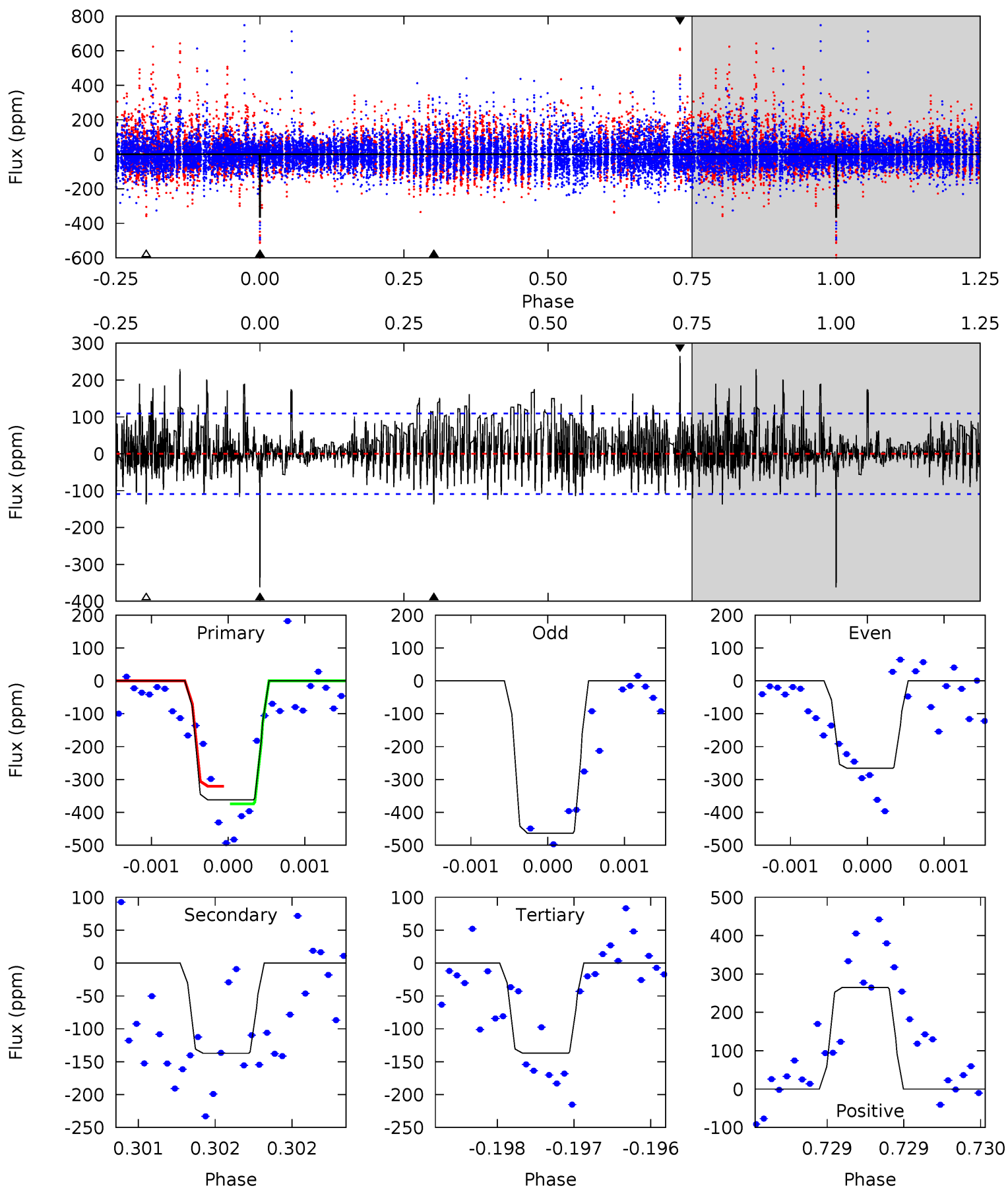
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.69	9.70	7.52	9.00	5.47	3.32	2.00	1.18	-0.31	2.18	0.70	1.56	0.89	0.48	1.34



Alt Model-Shift Uniqueness Test

004568729-09, P = 296.838326 Days, E = 254.106770 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	6.94	6.93	13.4	5.52	3.40	2.33	11.4	4.91	0.01	-6.45	4.69	0.74	0.42	1.39



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-112 ± 12	$2.43^{+1.56}_{-1.37}$	588^{+43}_{-40}	6433^{+4140}_{-1298}	10115^{+38881}_{-6466}
Alt.	-137 ± 20	$3.97^{+1.80}_{-1.63}$	592^{+47}_{-43}	5386^{+1546}_{-740}	4582^{+7913}_{-2391}

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 $A_{obs} \gg 1.0$

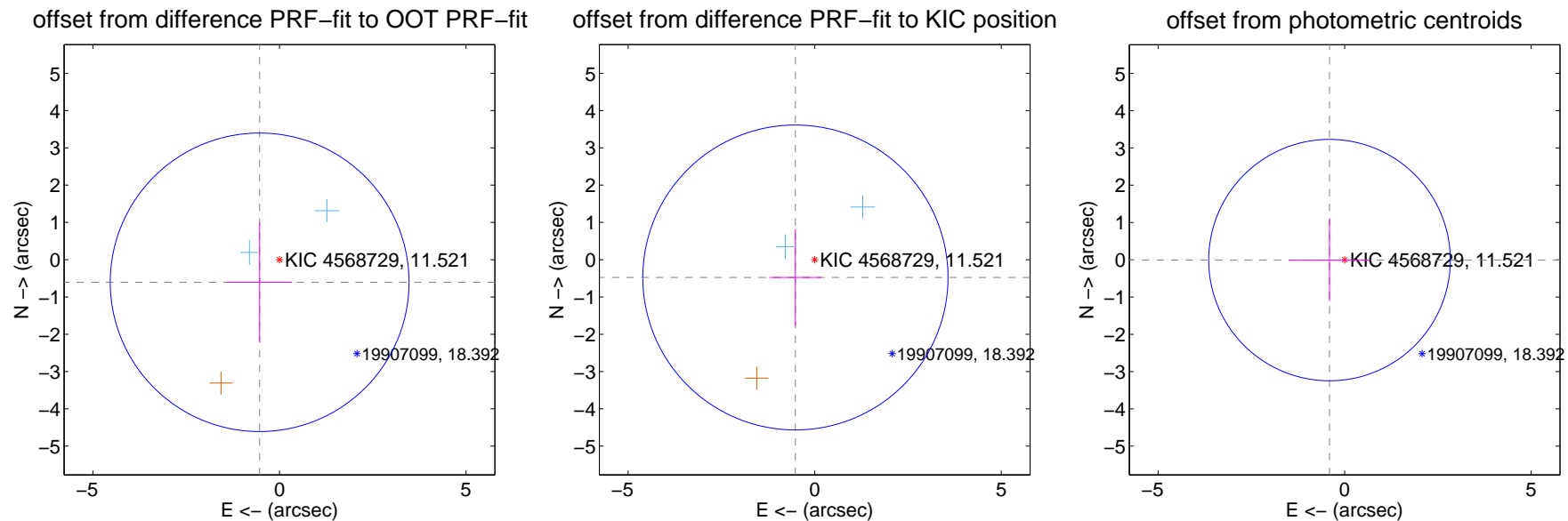
DV Centroid Data

Supplemental centroid analysis for 004568729-09. **Kepler magnitude: 11.52.** Transit SNR 7.59

There are 2 quarters with good PRF difference image offsets

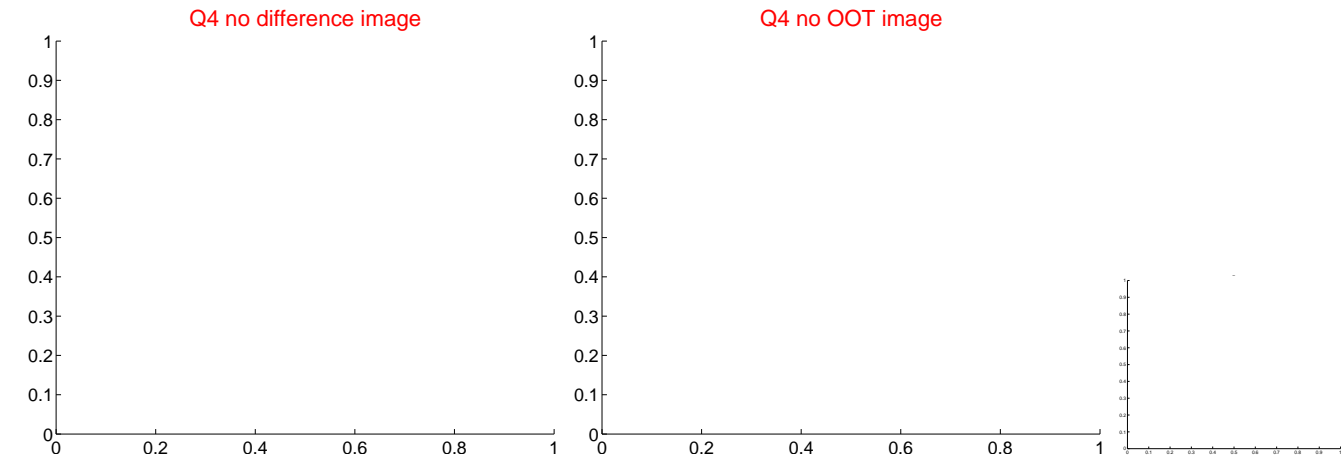
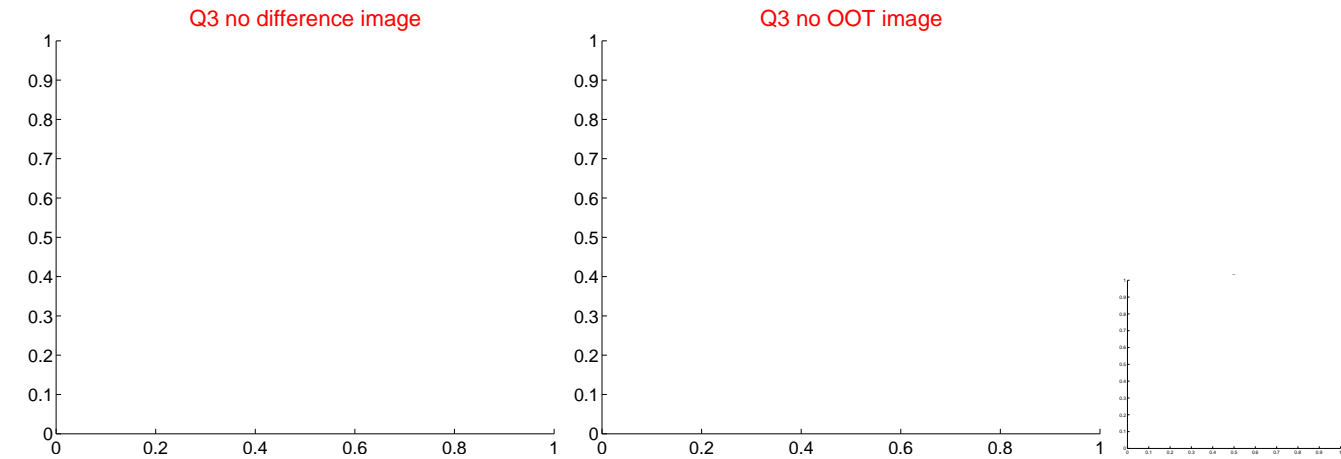
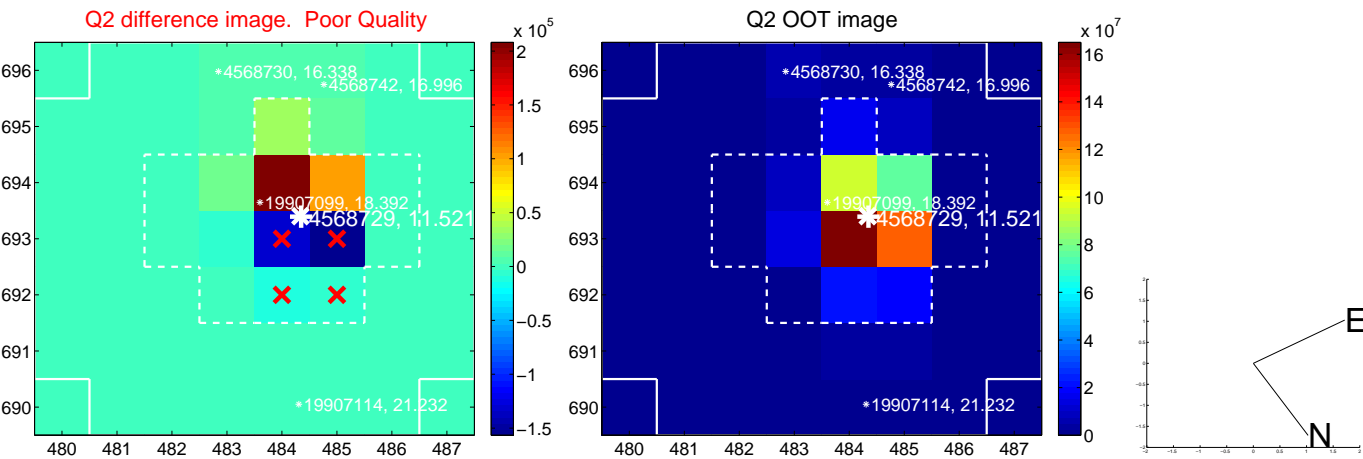
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.806 ± 1.335	0.60	0.531 ± 0.871	-0.606 ± 1.603
PRF-fit source offset from KIC position	0.704 ± 1.363	0.52	0.517 ± 0.690	-0.477 ± 1.295
photometric centroid source offset	0.41 ± 1.08	0.38	0.41 ± 1.08	-0.01 ± 1.10

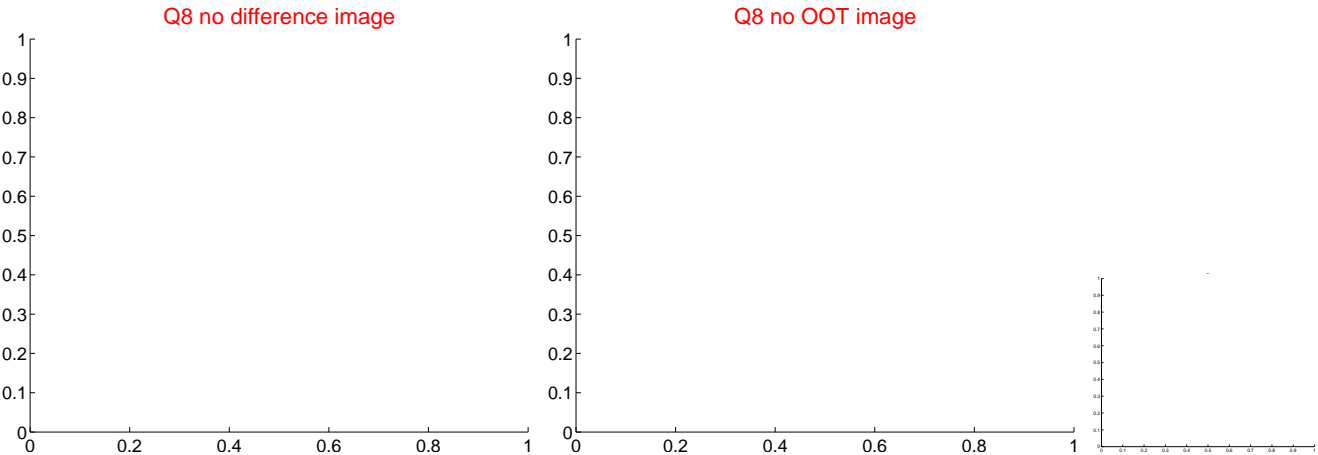
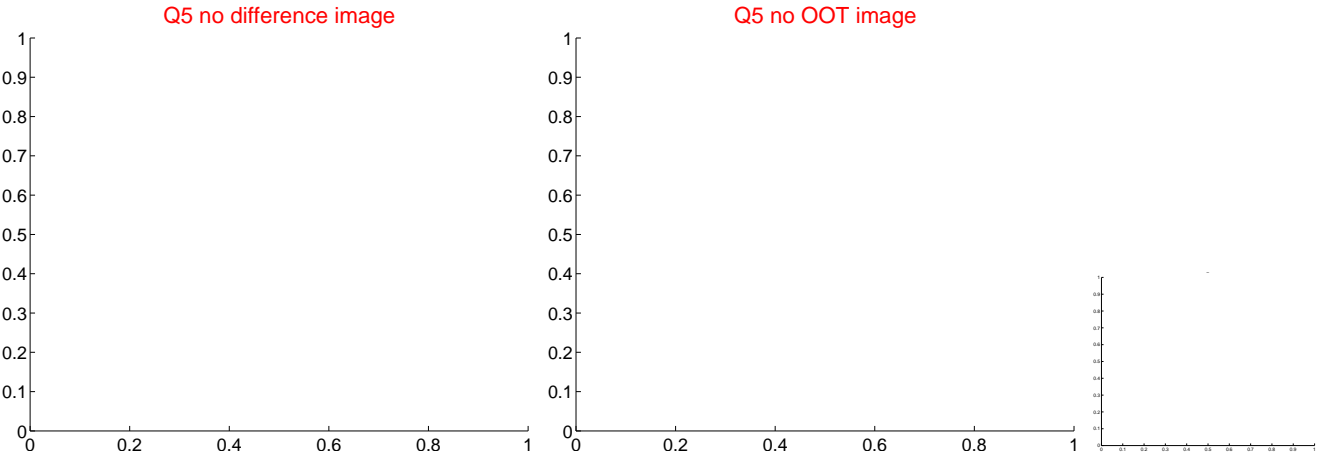


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

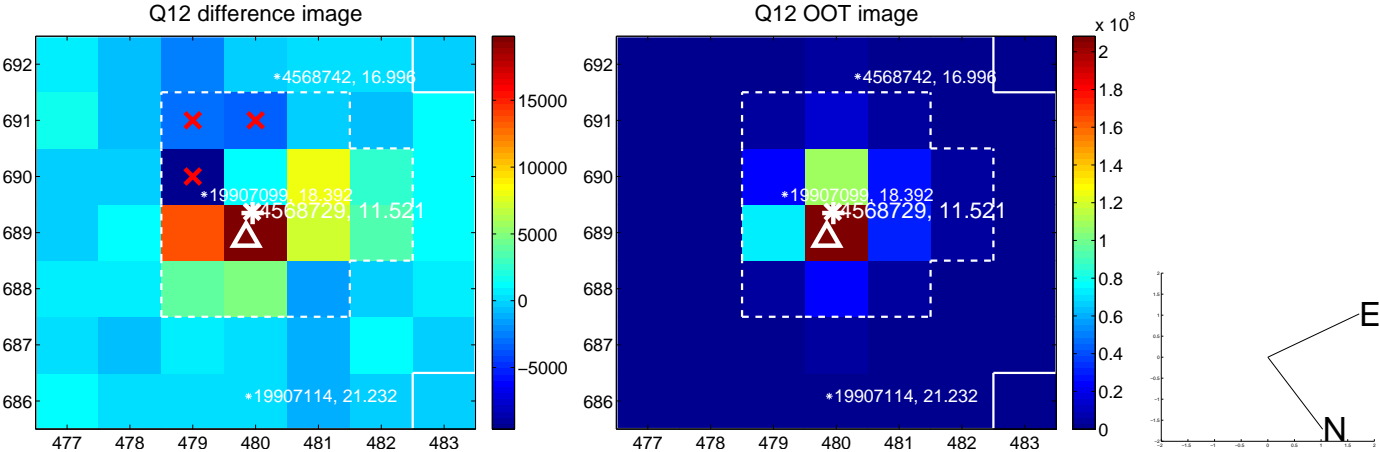
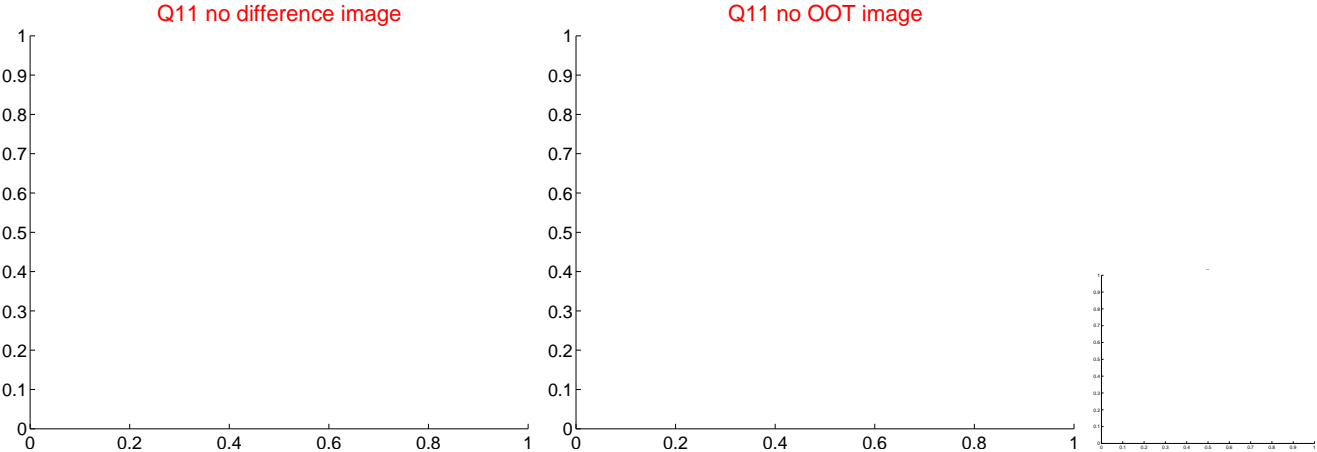
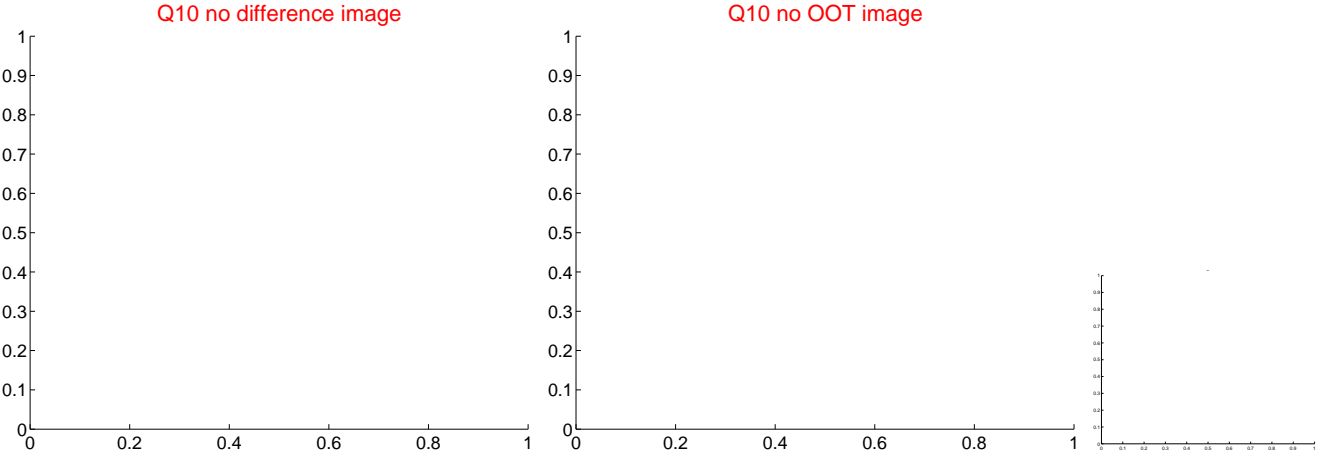
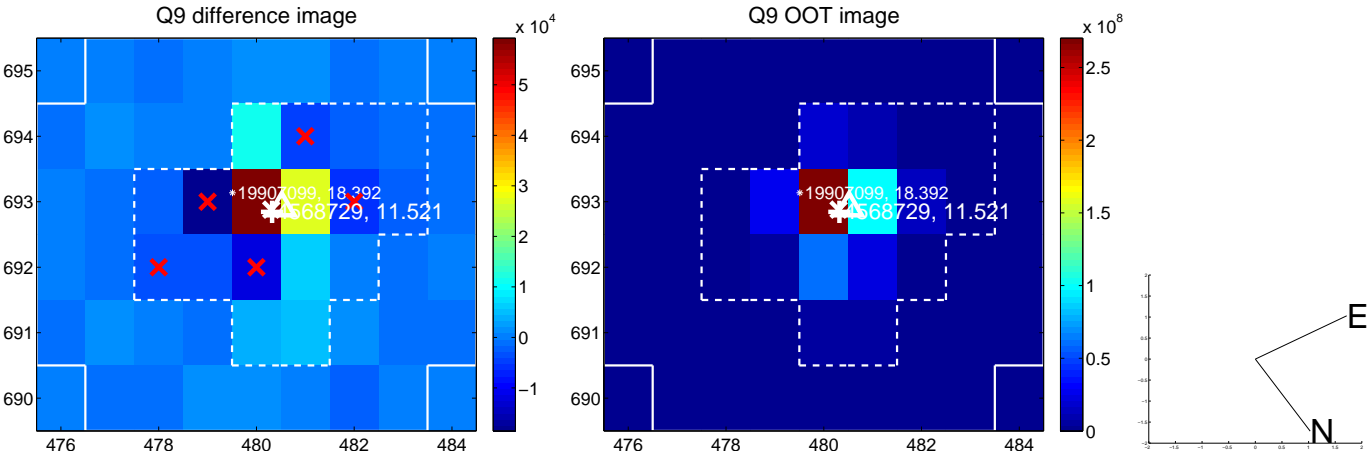
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



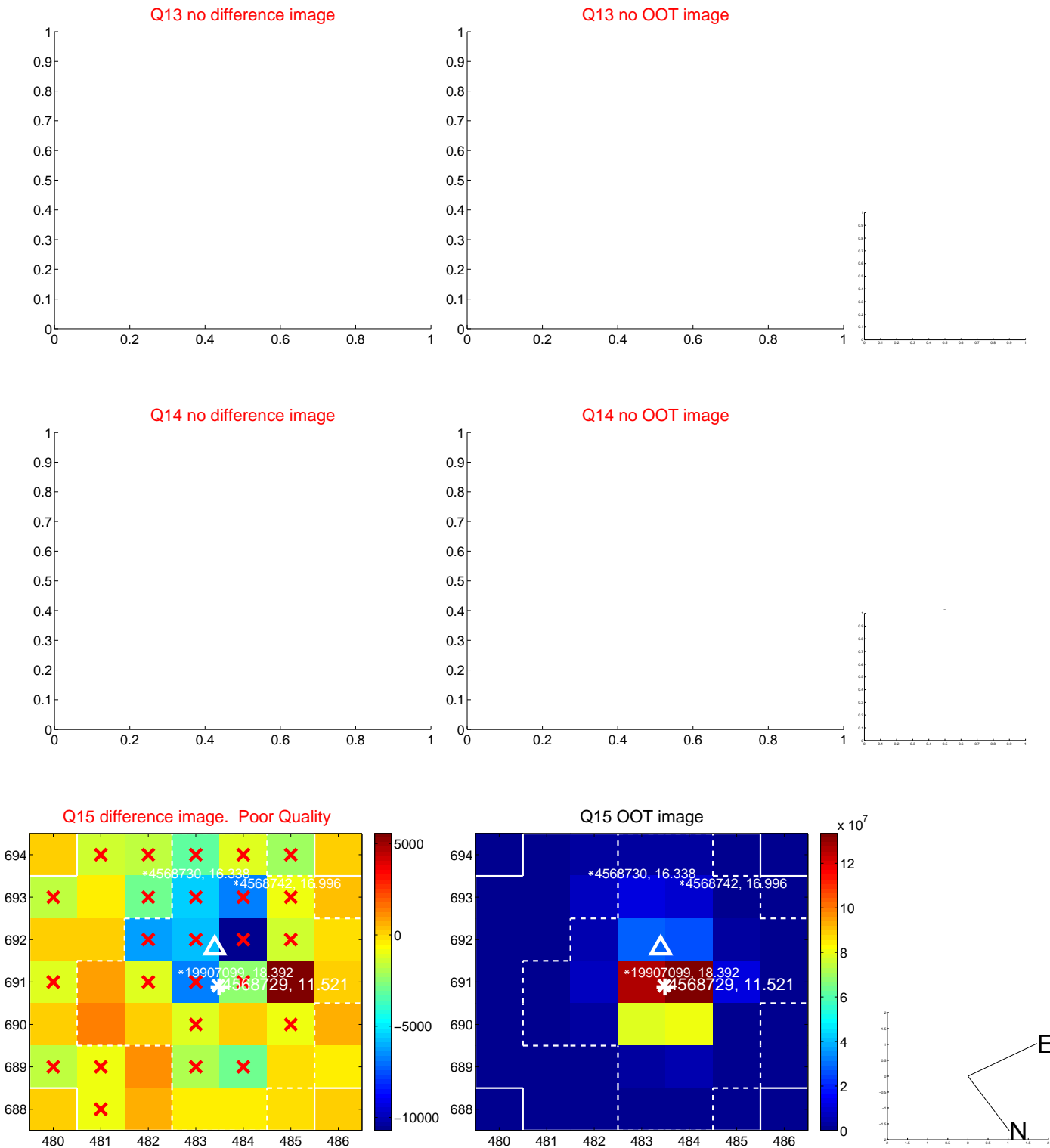
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



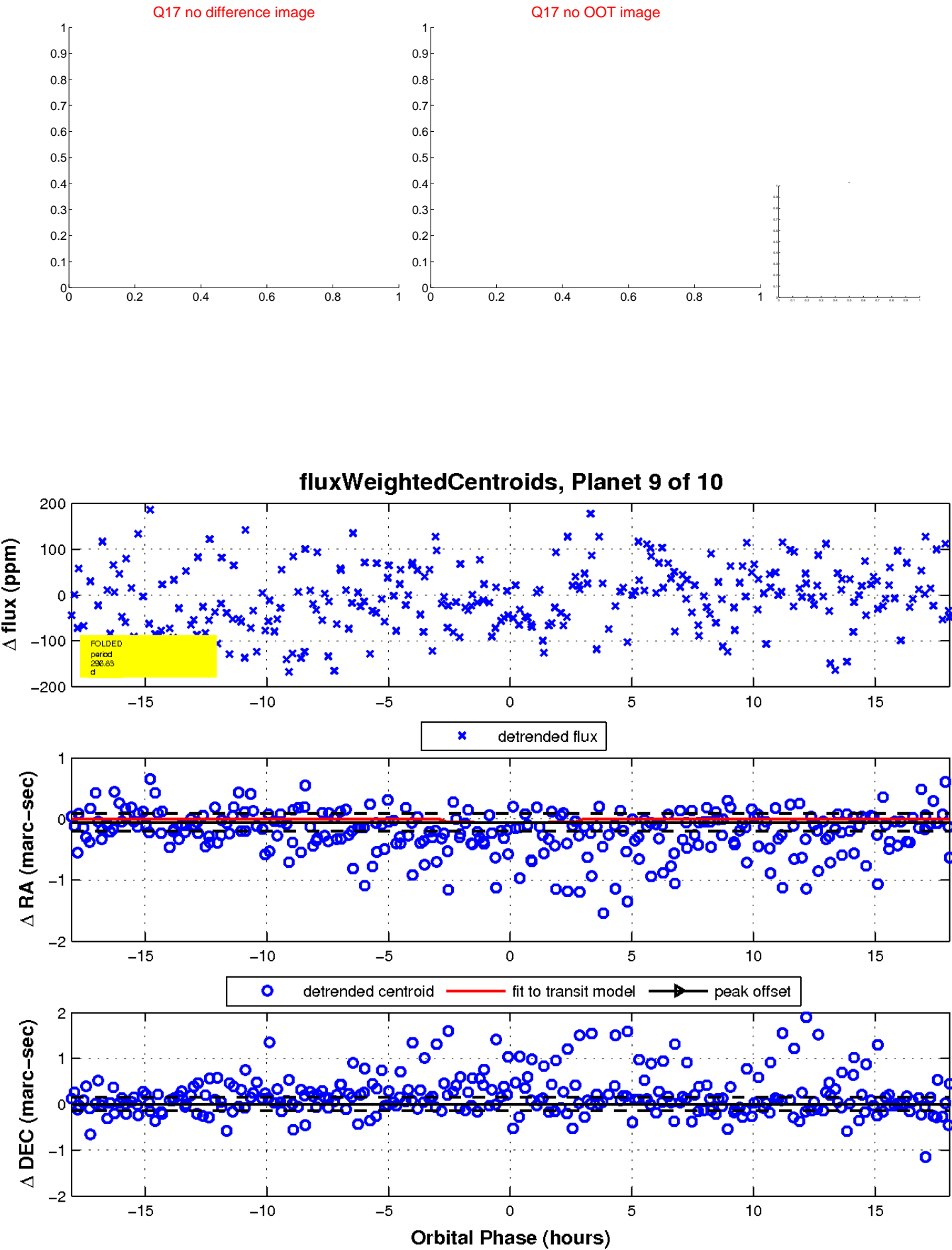
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

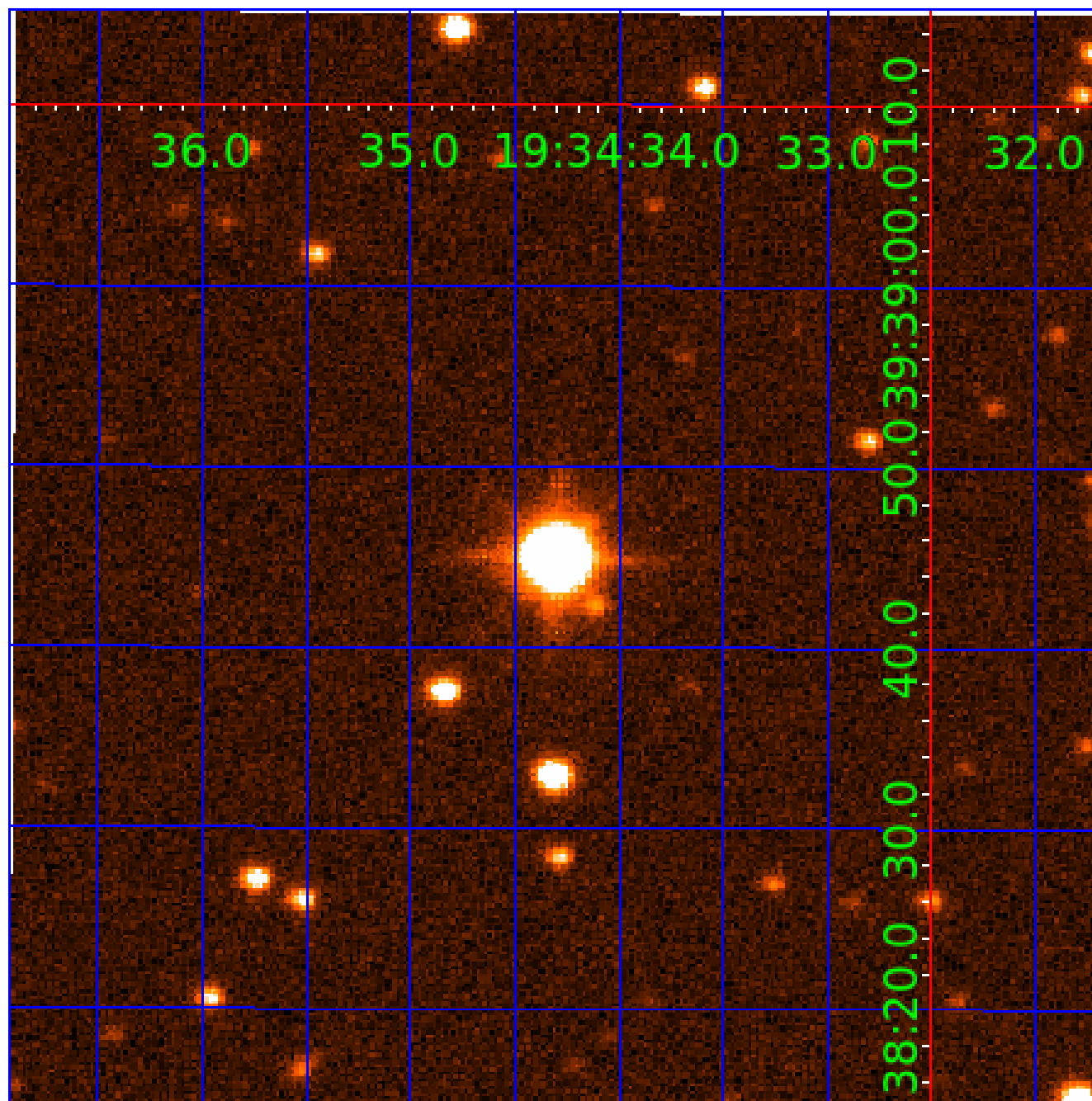


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
004568729-01	OBS	No	3.480216	134.142958	21.2	18.720	11.6	12.6	1.73	7210	0.88	2802.35
004568729-02	OBS	No	134.743758	144.724252	117.1	1.713	41.9	5.8	1.73	7210	2.17	21.39
004568729-03	OBS	No	134.785673	144.552132	72.8	20.719	41.3	3.3	1.73	7210	1.51	21.39
004568729-04	OBS	No	183.802337	309.510506	294.5	22.095	23.9	10.6	1.73	7210	5.70	14.14
004568729-05	OBS	No	274.022088	160.944921	34.7	2.406	22.0	2.1	1.73	7210	1.15	8.30
004568729-06	OBS	No	90.964616	161.891452	244.7	4.761	19.2	13.9	1.73	7210	3.05	36.13
004568729-07	OBS	No	308.882039	157.191871	170.0	18.520	12.5	6.6	1.73	7210	4.39	7.08
004568729-09	OBS	No	296.830824	254.100591	132.6	6.024	9.6	7.6	1.73	7210	2.25	7.46
004568729-10	OBS	No	39.636139	151.529130	46.9	11.400	9.1	5.7	1.73	7210	1.37	109.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004568729-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
004568729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD
004568729-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
004568729-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET
004568729-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004568729-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—HALO_GHOST

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

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

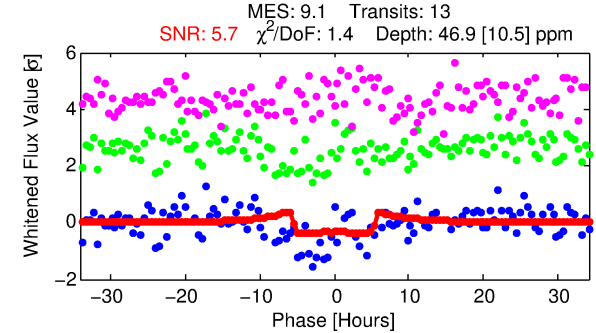
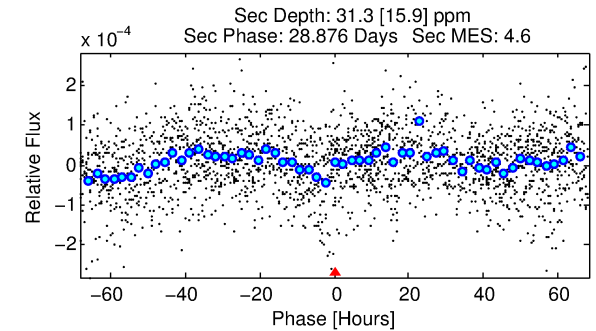
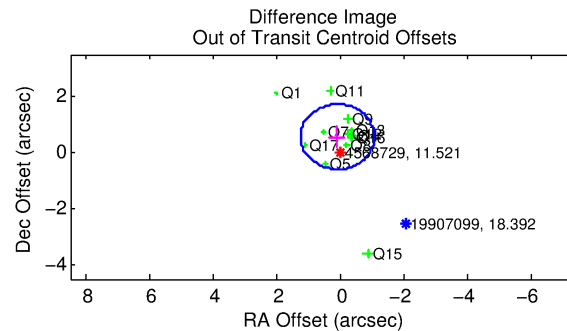
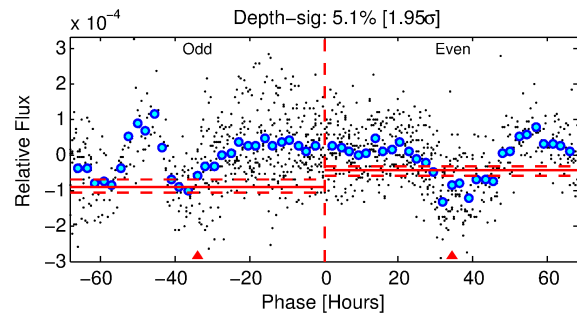
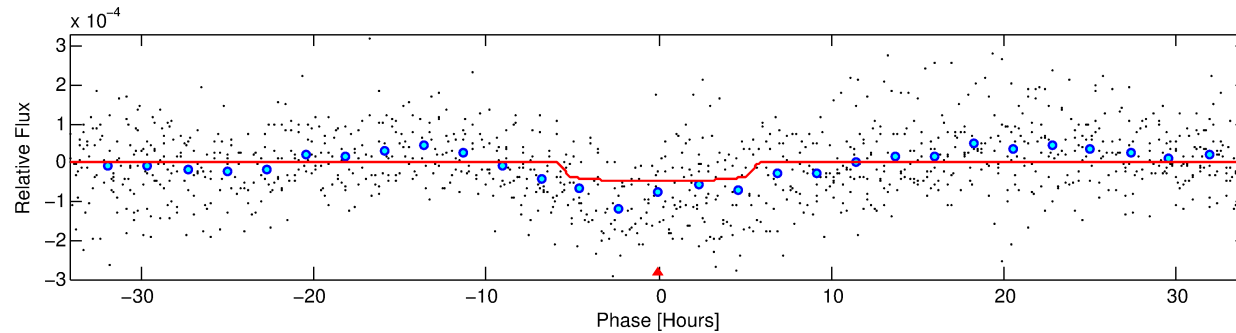
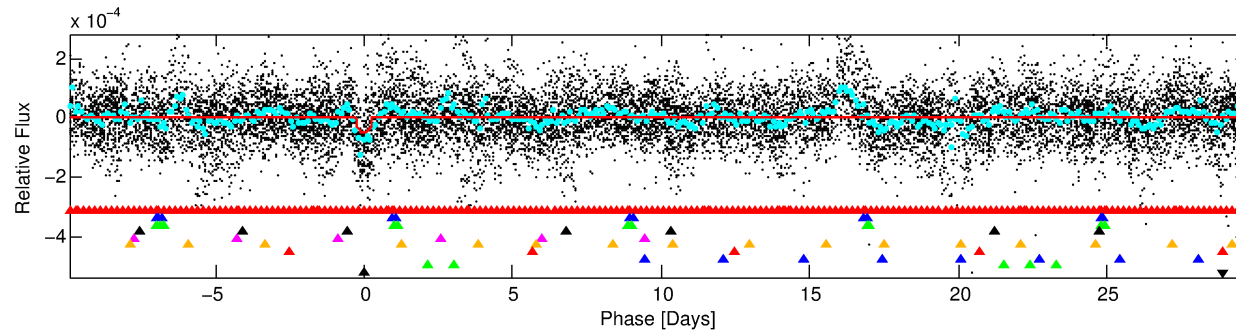
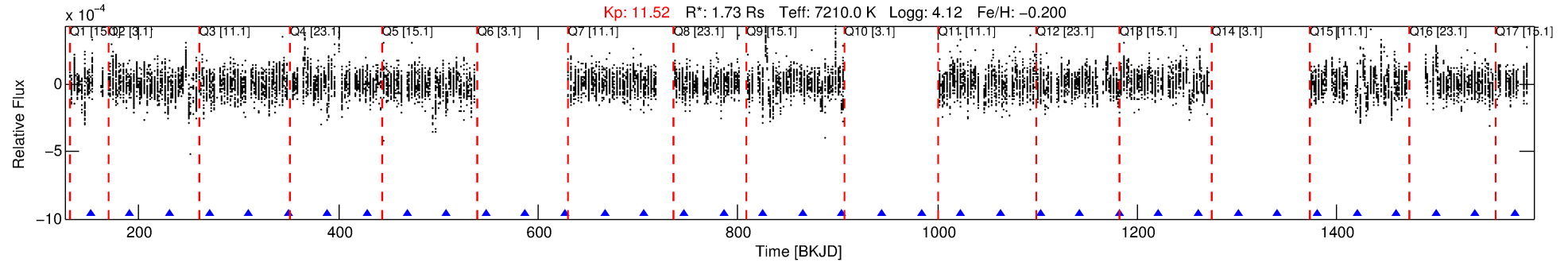
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004568729-10

No Significant Match Found

DV One-Page Summary

KIC: 4568729 Candidate: 10 of 10 Period: 39.636 d



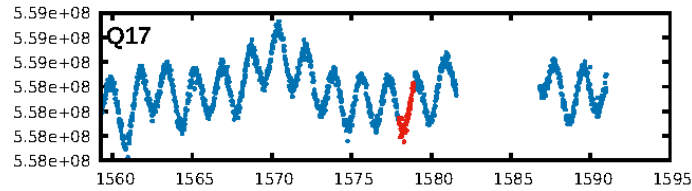
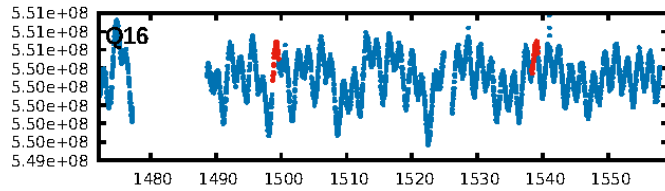
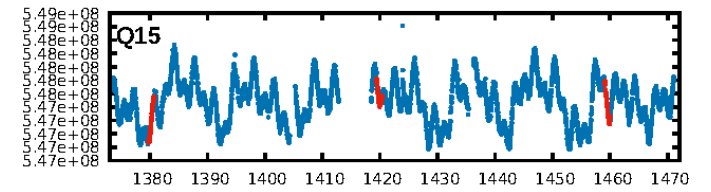
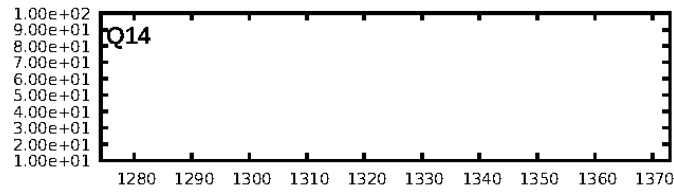
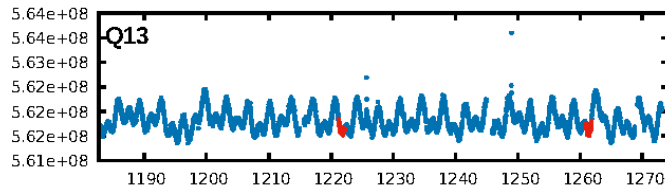
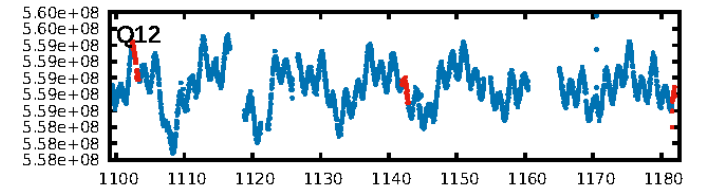
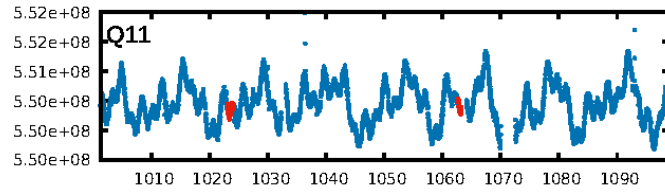
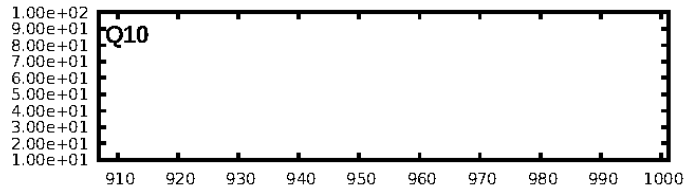
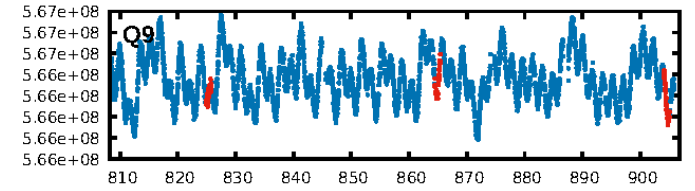
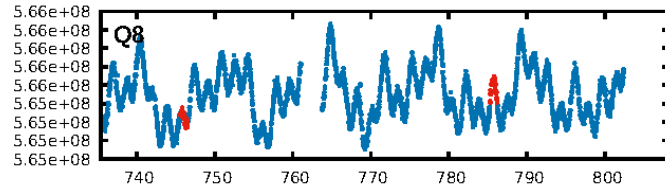
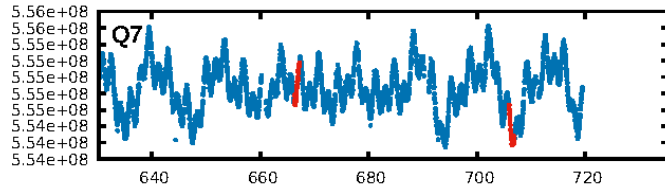
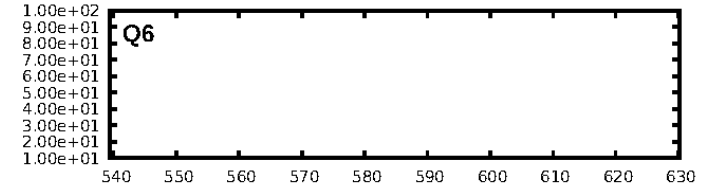
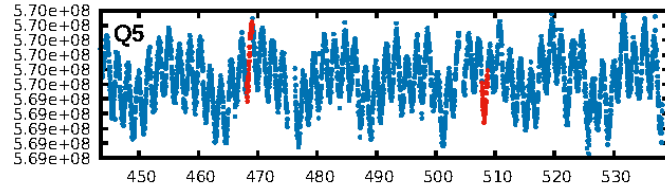
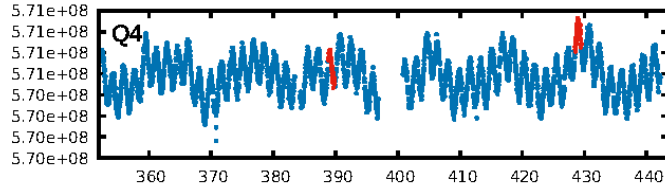
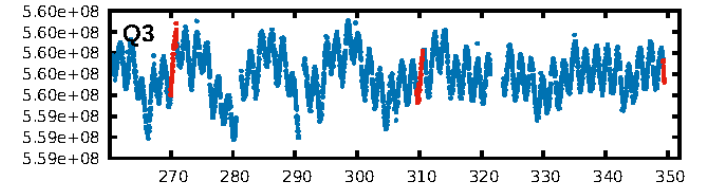
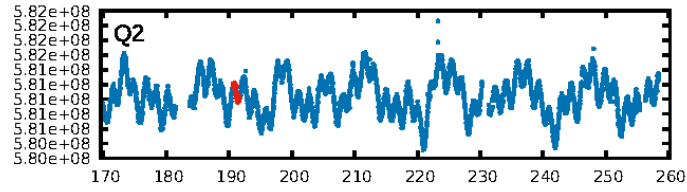
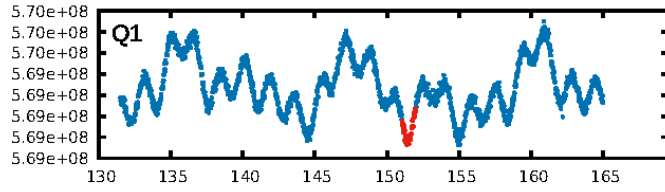
DV Fit Results:

Period = 39.63614 [0.00108] d
Epoch = 151.5291 [0.0228] BKJD
Rp/R* = 0.0072 [0.0017]
a/R* = 12.34 [14.48]
b = 0.89 [0.27]
Seff = 109.36 [42.56]
Teq = 825 [80] K
Rp = 1.37 [0.52] Re
a = 0.2571 [0.0643] AU
Ag = 610.91 [472.60] [1.29 σ]
Teffp = 6338 [1113] K [4.94 σ]

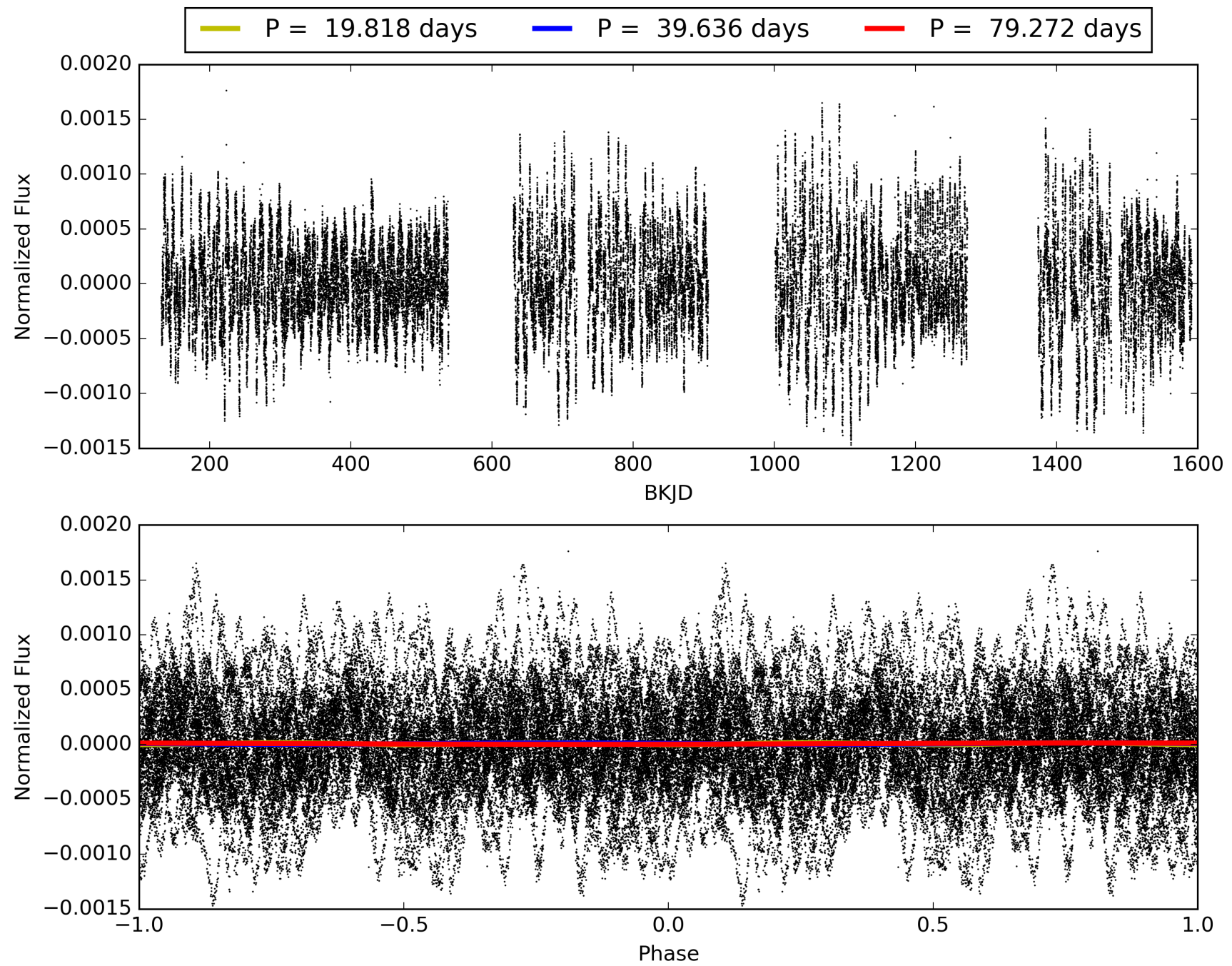
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.59 σ]
LongPeriod-sig: 100.0% [99.72 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.99e-10
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: 0.02418
Centroid-sig: 32.7%
Centroid-so: 0.875 arcsec [0.92 σ]
OotOffset-rm: 0.574 arcsec [1.48 σ]
OotOffset-st: 0/3/4/5 [12]
KicOffset-rm: 0.701 arcsec [1.72 σ]
KicOffset-st: 0/3/4/5 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 0.43 [6/14]

TCE 004568729-10, PDC Light Curves

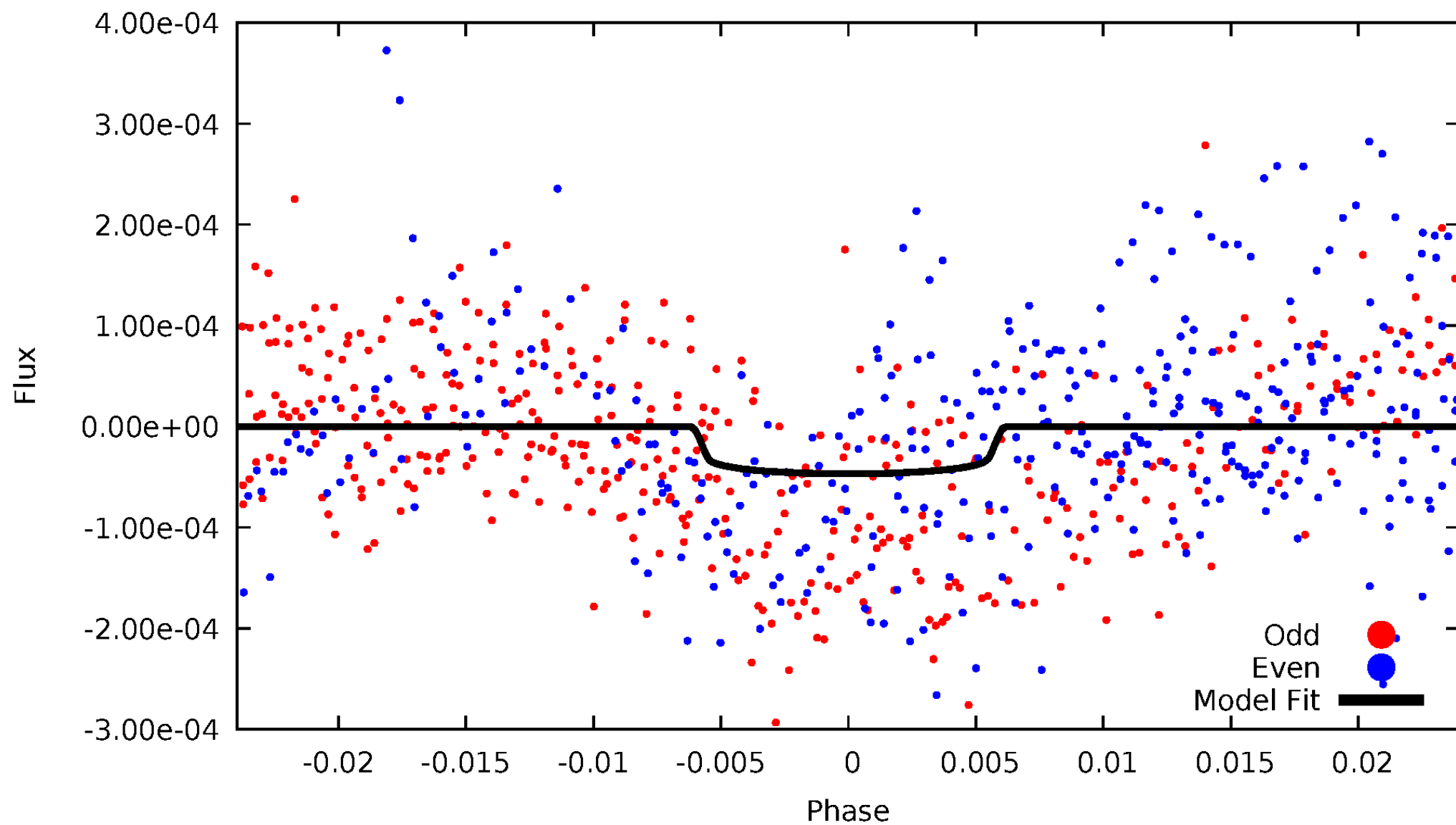


TCE 004568729-10



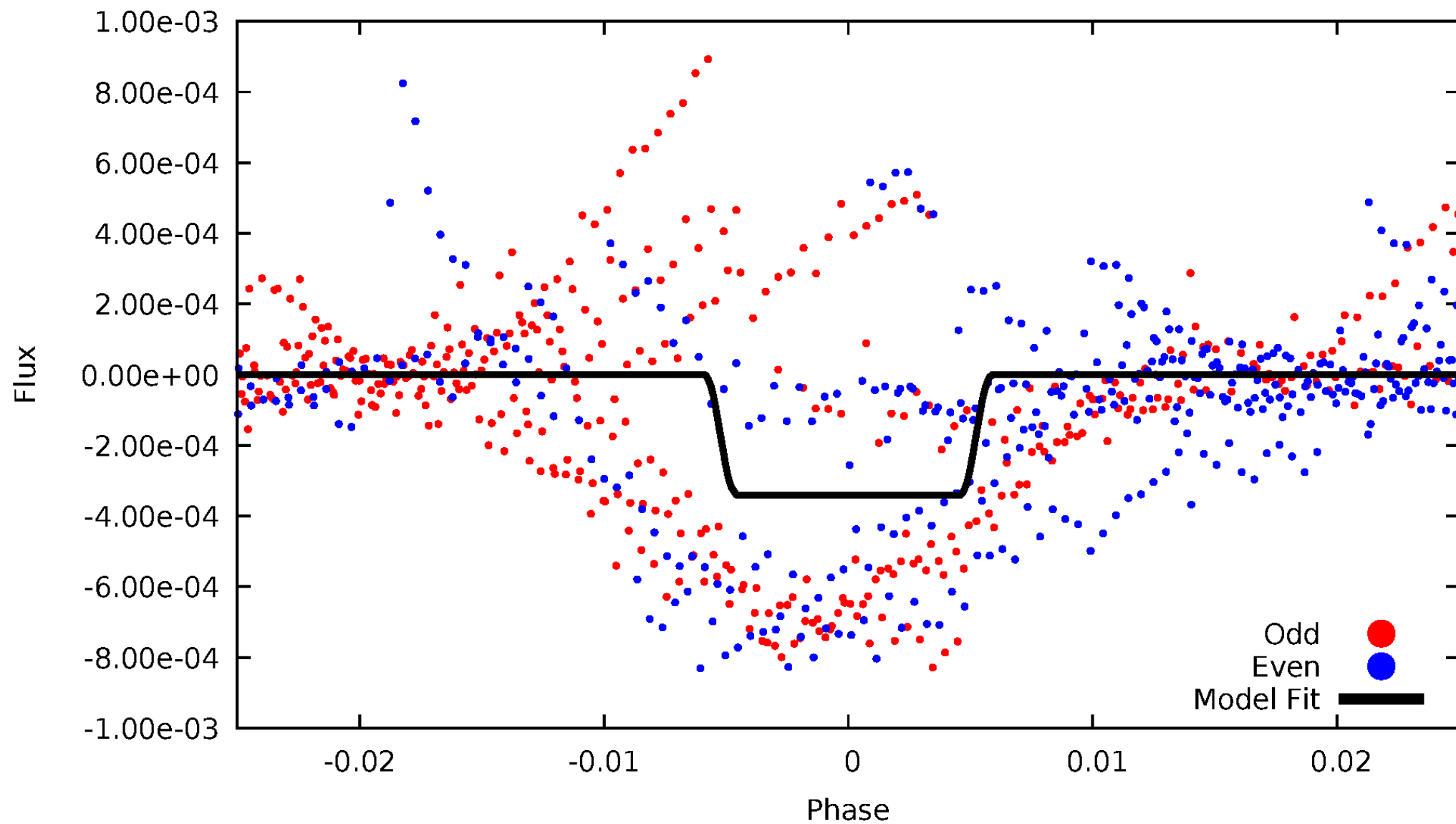
DV Odd/Even

TCE 004568729-10



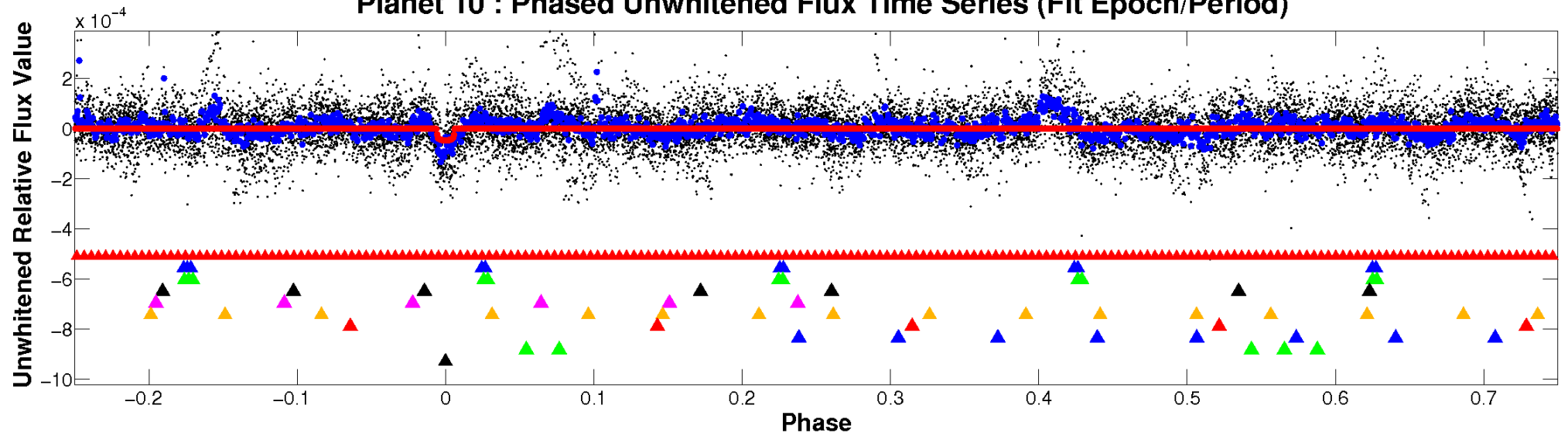
ALT Odd/Even

TCE 004568729-10

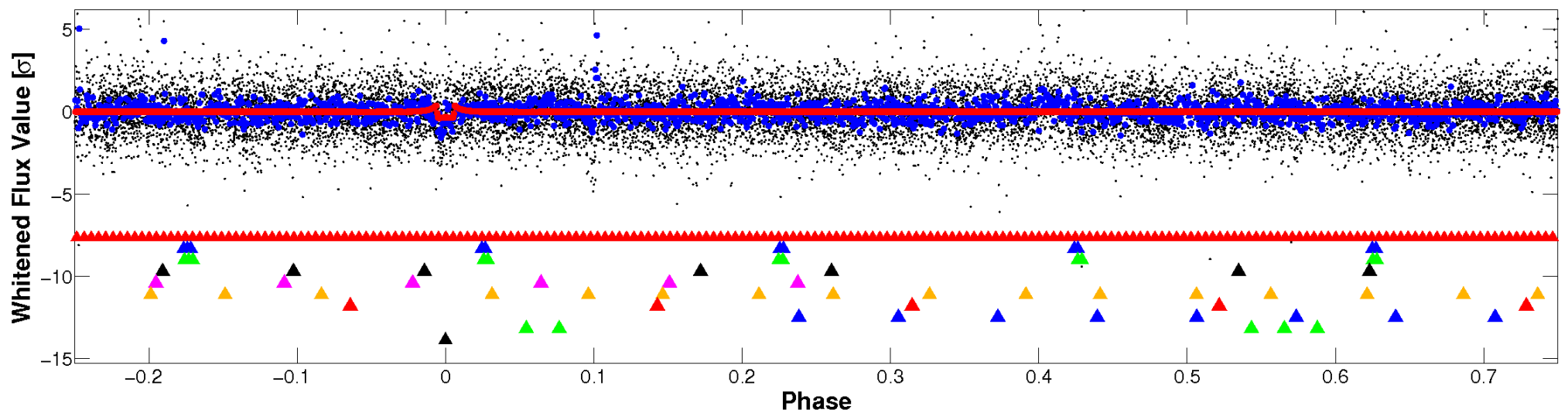


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

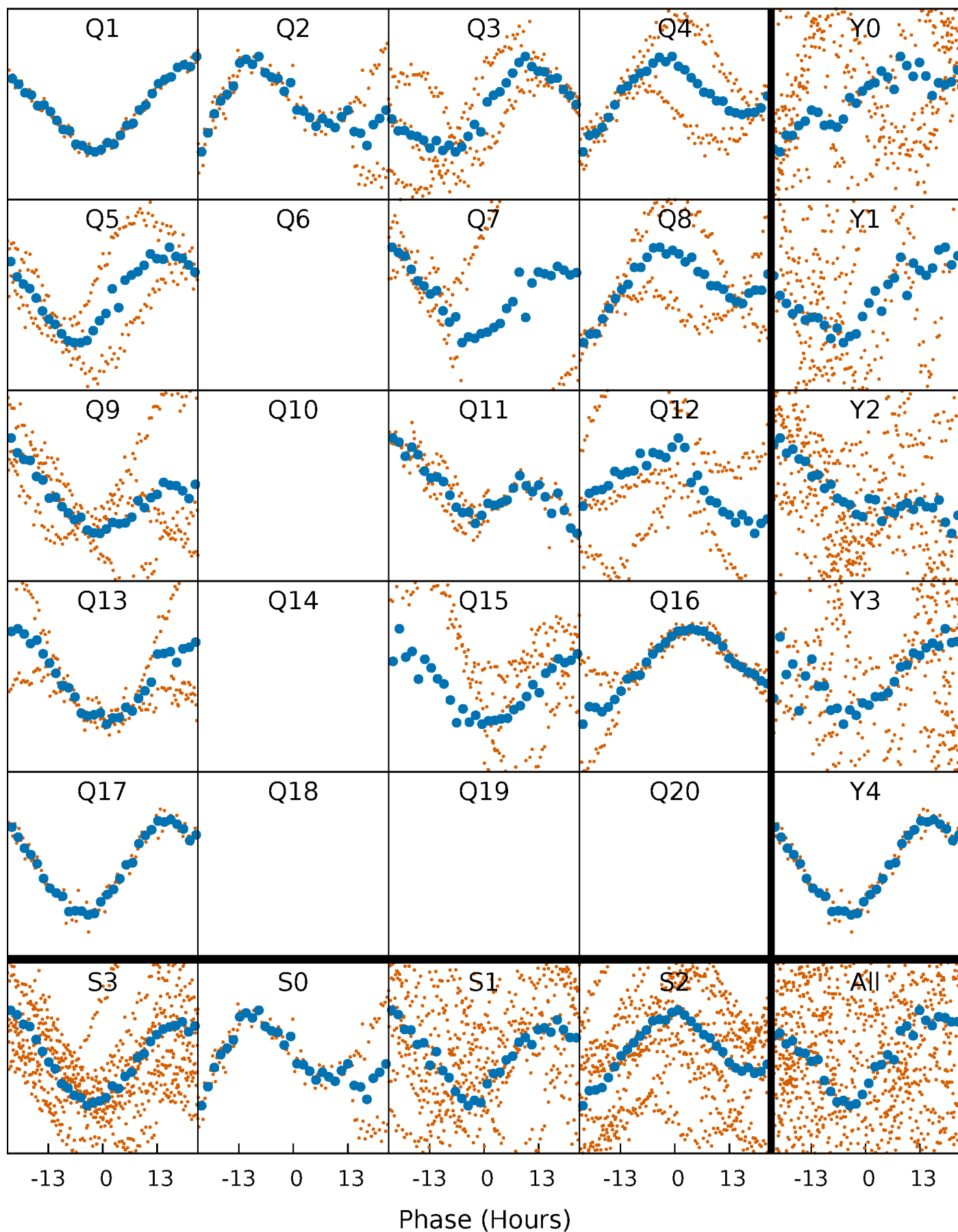


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



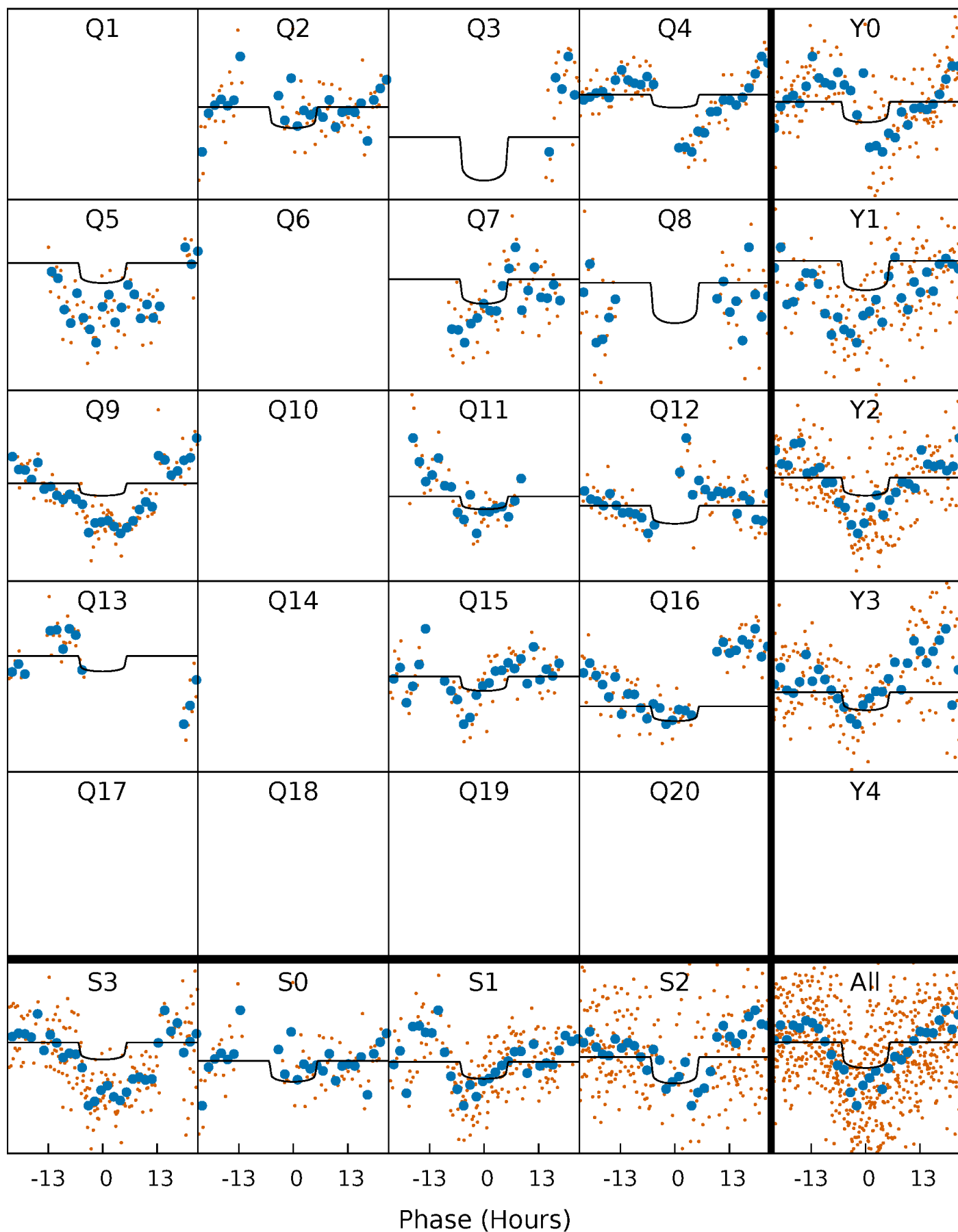
PDC Quarter-Phased Transit Curves

TCE 004568729-10 P= 39.636139 Days $T_0=151.529130$ (BKJD)



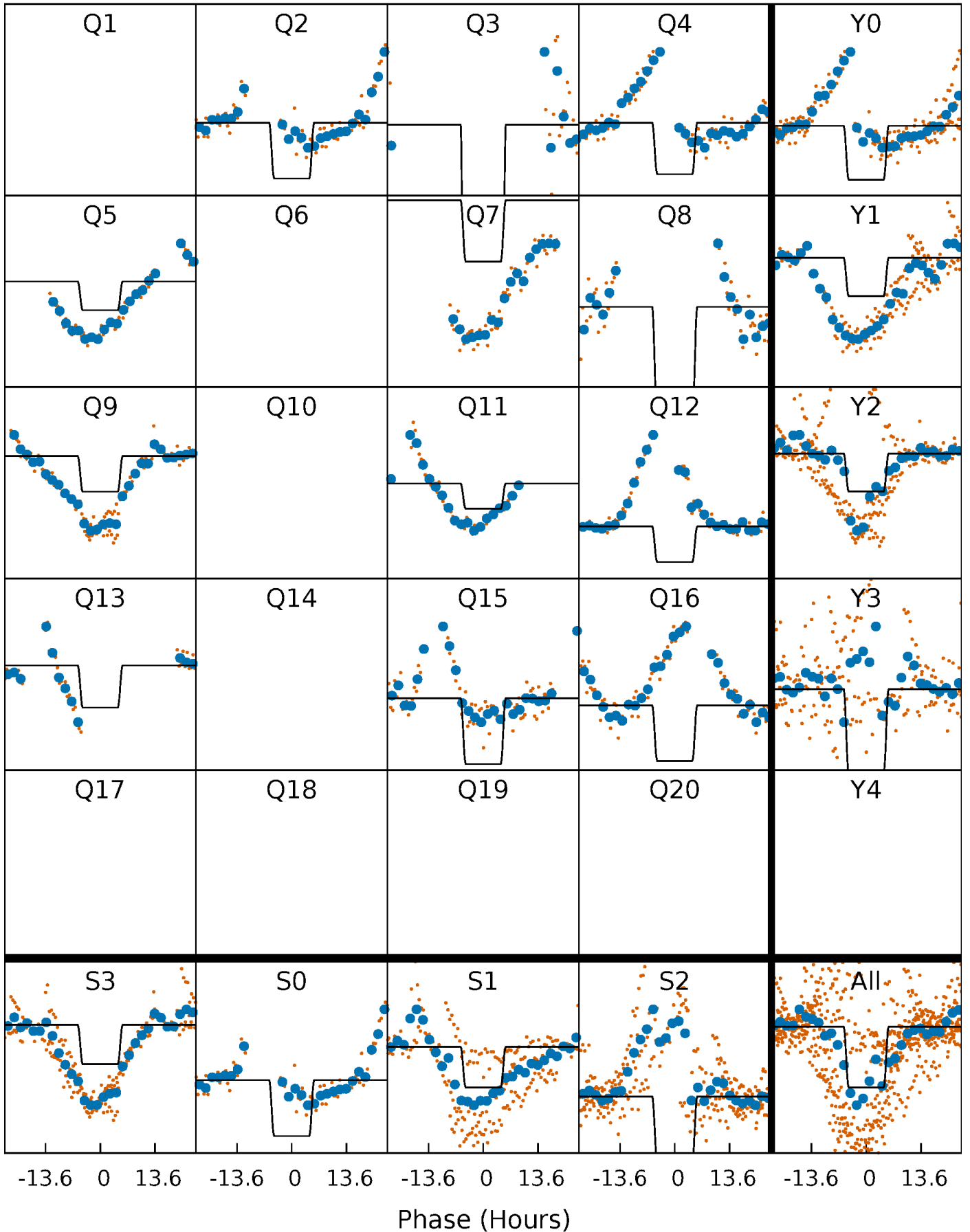
DV Quarter-Phased Transit Curves

TCE 004568729-10 P= 39.636139 Days $T_0=151.529130$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

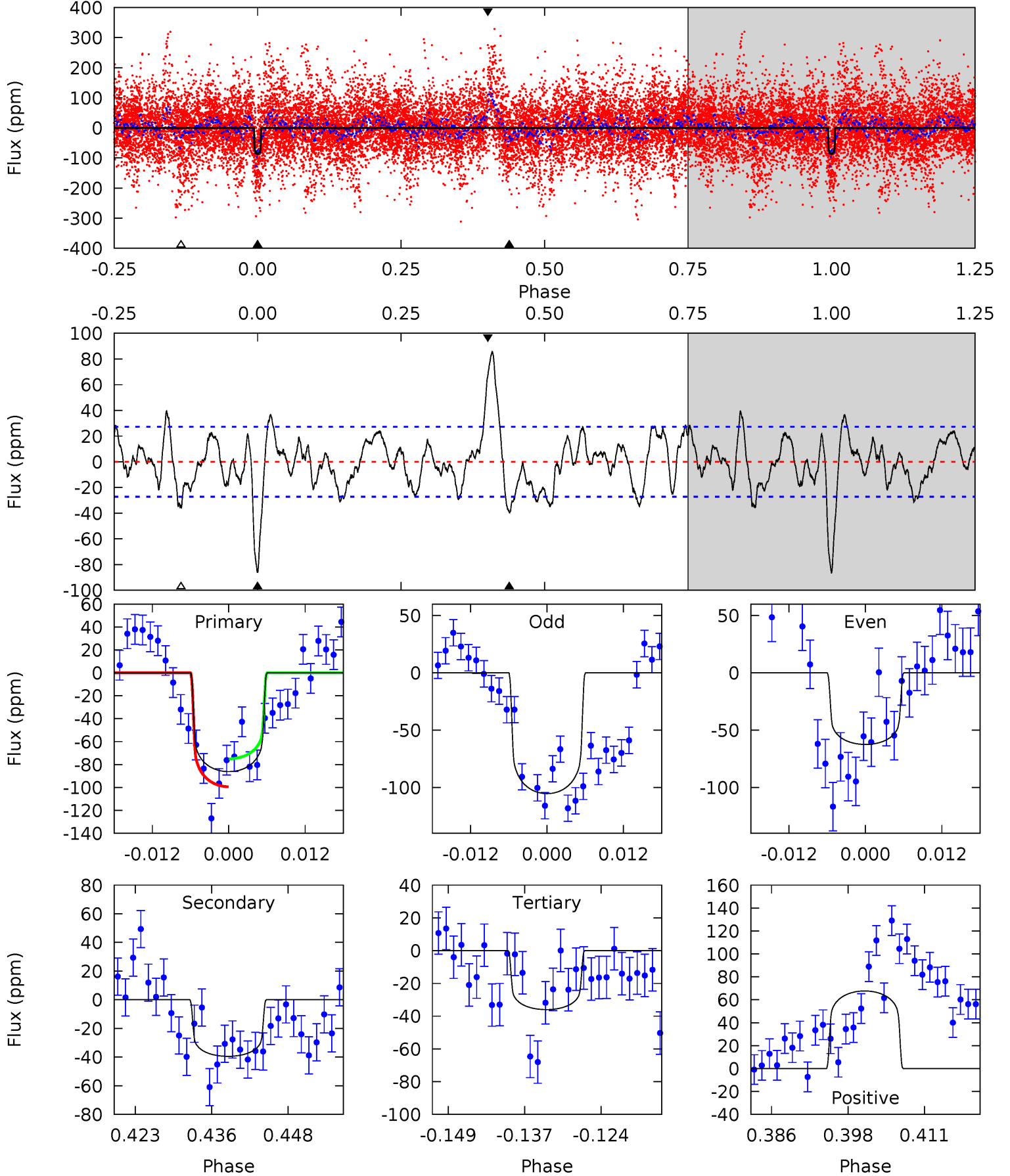
TCE 004568729-10 P= 39.638008 Days $T_0=151.493216$ (BKJD)



DV Model-Shift Uniqueness Test

004568729-10, $P = 39.636139$ Days, $E = 111.892991$ Days

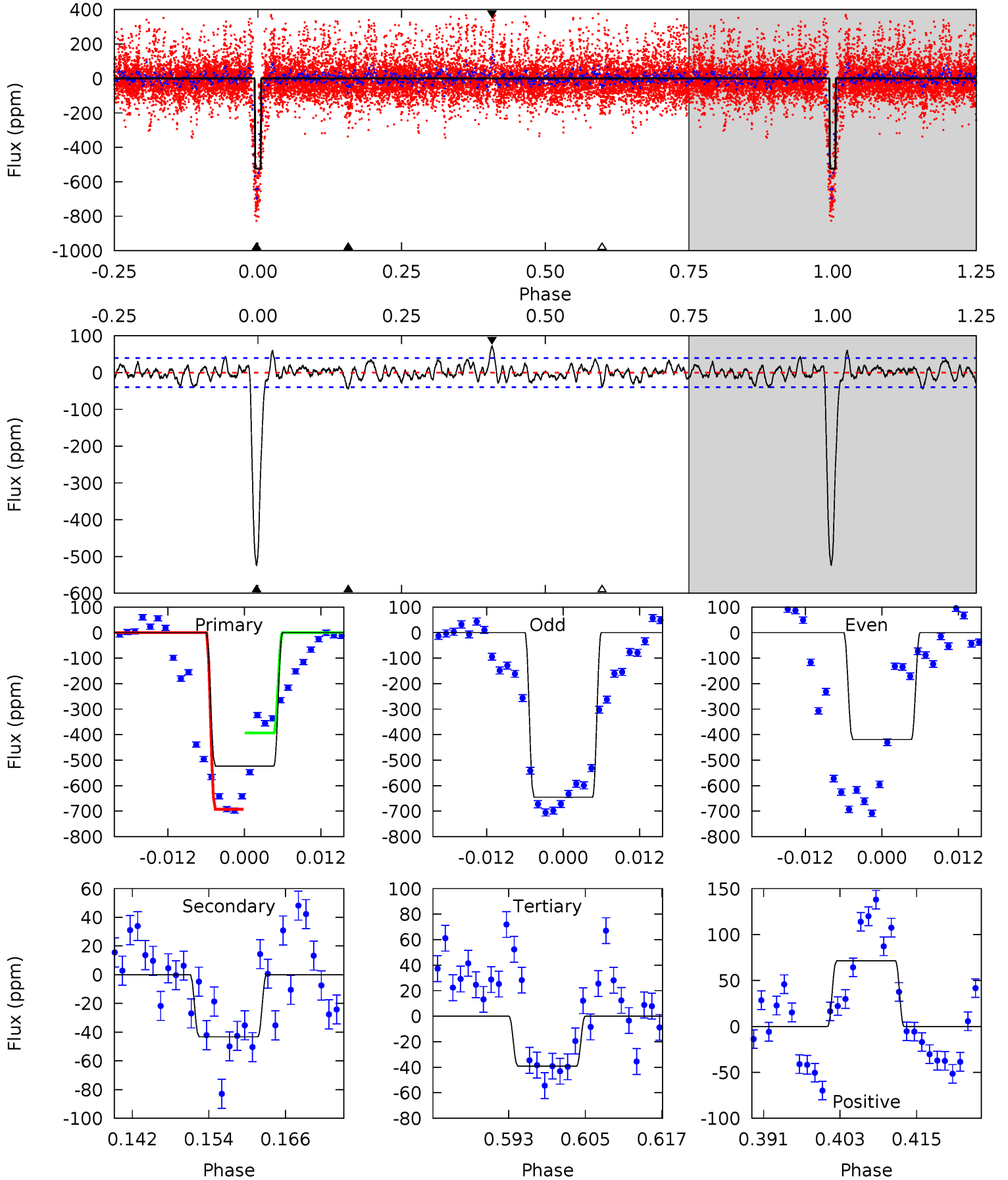
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	7.23	6.60	12.4	4.98	2.50	3.29	9.19	3.40	0.63	-5.16	3.93	0.99	0.50	2.25



Alt Model-Shift Uniqueness Test

004568729-10, P = 39.638008 Days, E = 111.855208 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.0	5.46	4.94	9.03	4.99	2.52	1.99	61.1	57.0	0.52	-3.57	12.6	0.81	0.12	18.7



Stellar Parameters For KIC 004568729

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7210^{+174}_{-274}	$4.122^{+0.158}_{-0.193}$	$-0.200^{+0.250}_{-0.350}$	$1.728^{+0.522}_{-0.427}$	$1.441^{+0.205}_{-0.251}$	$0.394^{+0.330}_{-0.208}$
	+2%/-4%	+4%/-5%	+125%/-175%	+30%/-25%	+14%/-17%	+84%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004568729-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-39 ± 5	$1.36^{+0.38}_{-0.35}$	1160^{+86}_{-82}	6637^{+1090}_{-717}	763^{+643}_{-317}
Alt.	-43 ± 8	$3.51^{+0.65}_{-0.57}$	1152^{+89}_{-72}	4437^{+245}_{-248}	125^{+54}_{-39}

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

DV Centroid Data

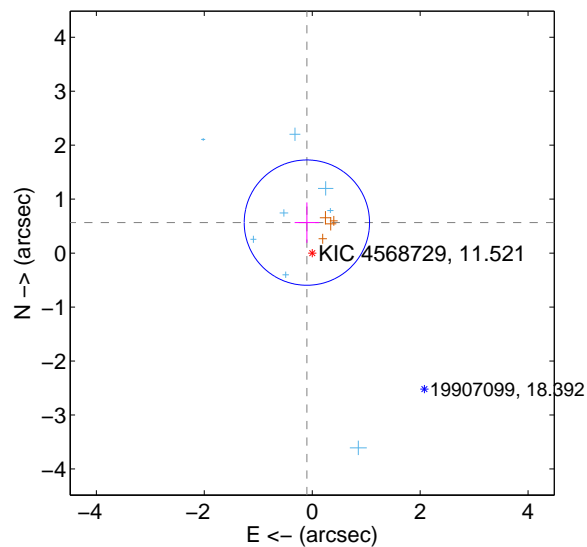
Supplemental centroid analysis for 004568729-10. **Kepler magnitude: 11.52**. Transit SNR 5.71

There are 8 quarters with good PRF difference image offsets

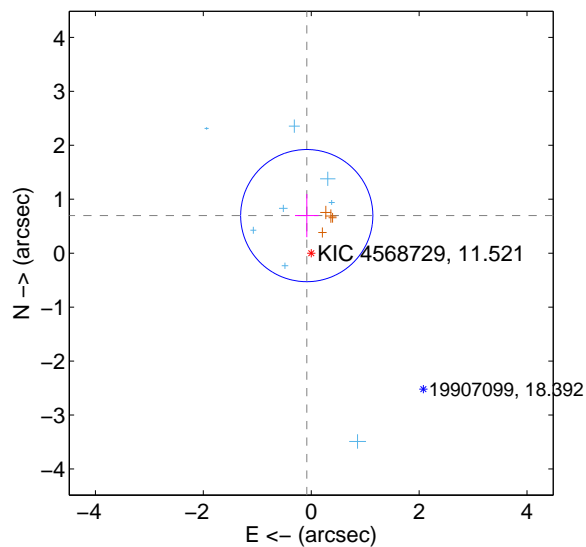
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.574 ± 0.387	1.48	0.099 ± 0.228	0.565 ± 0.374
PRF-fit source offset from KIC position	0.701 ± 0.408	1.72	0.083 ± 0.218	0.697 ± 0.400
photometric centroid source offset	0.88 ± 0.95	0.92	0.64 ± 0.95	-0.59 ± 0.96

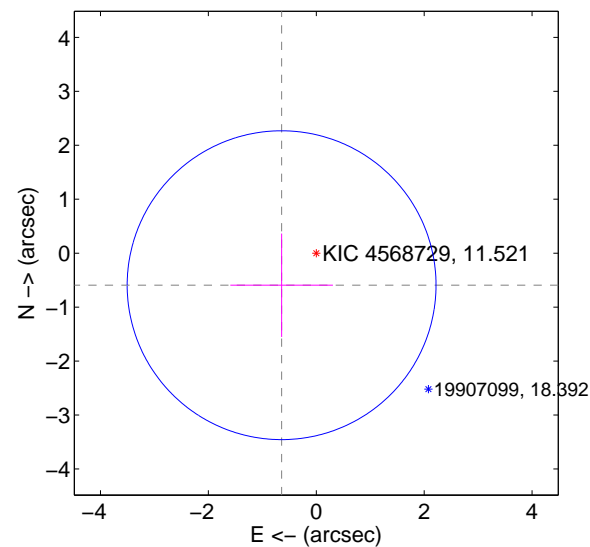
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

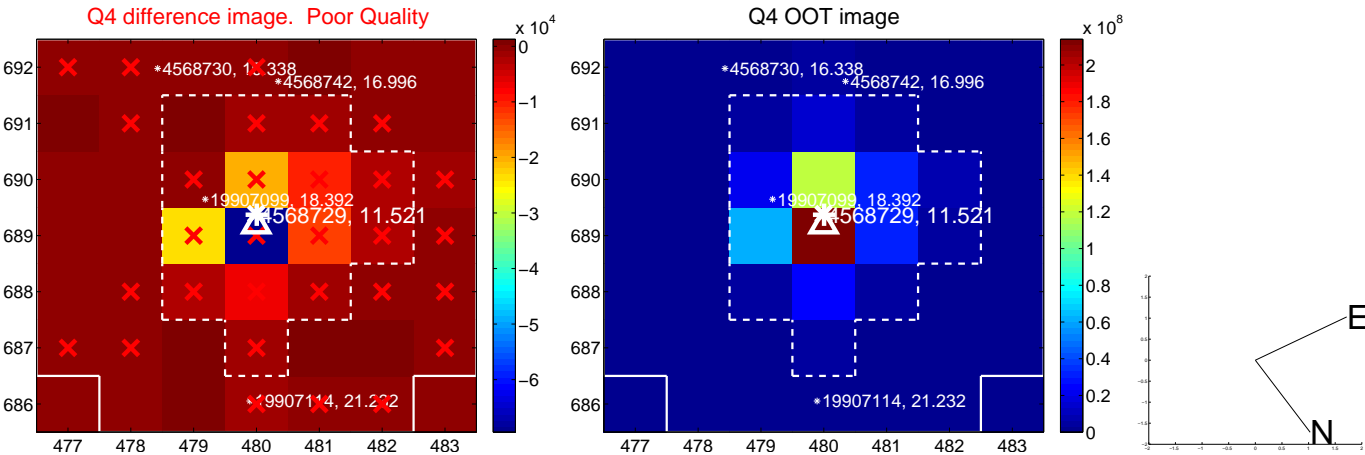
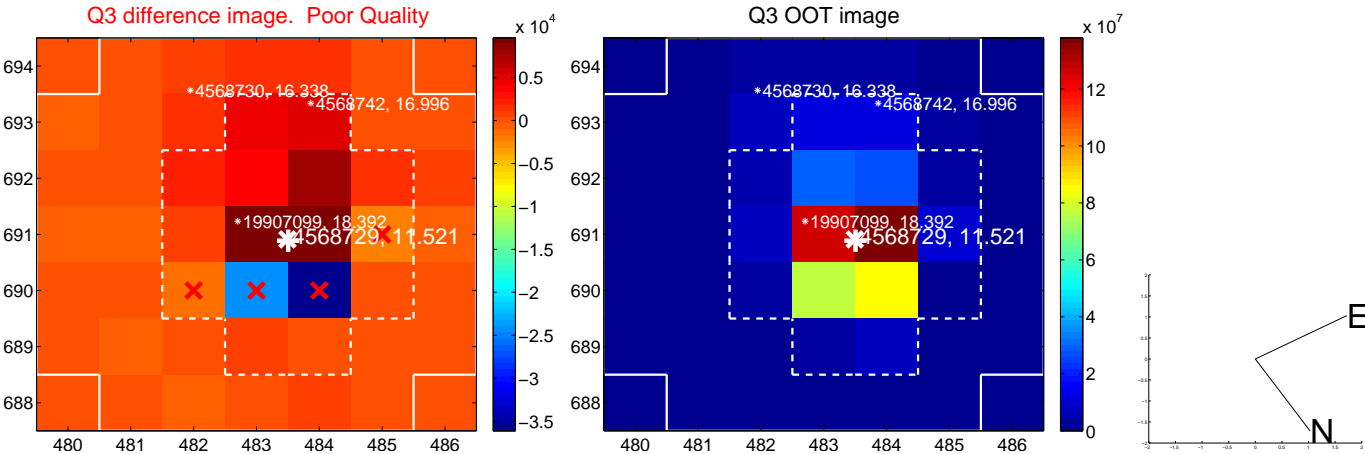
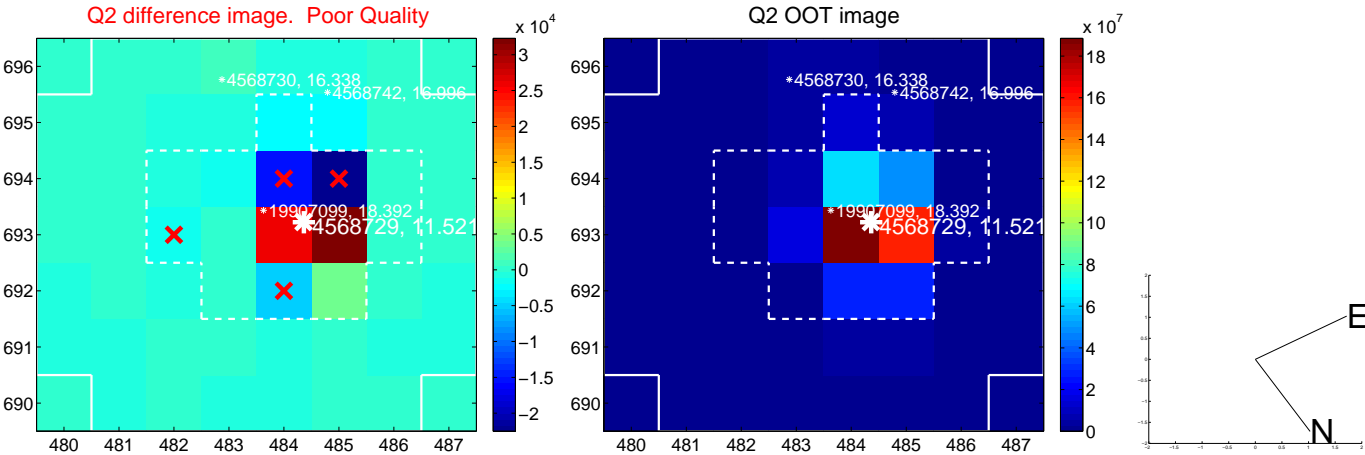
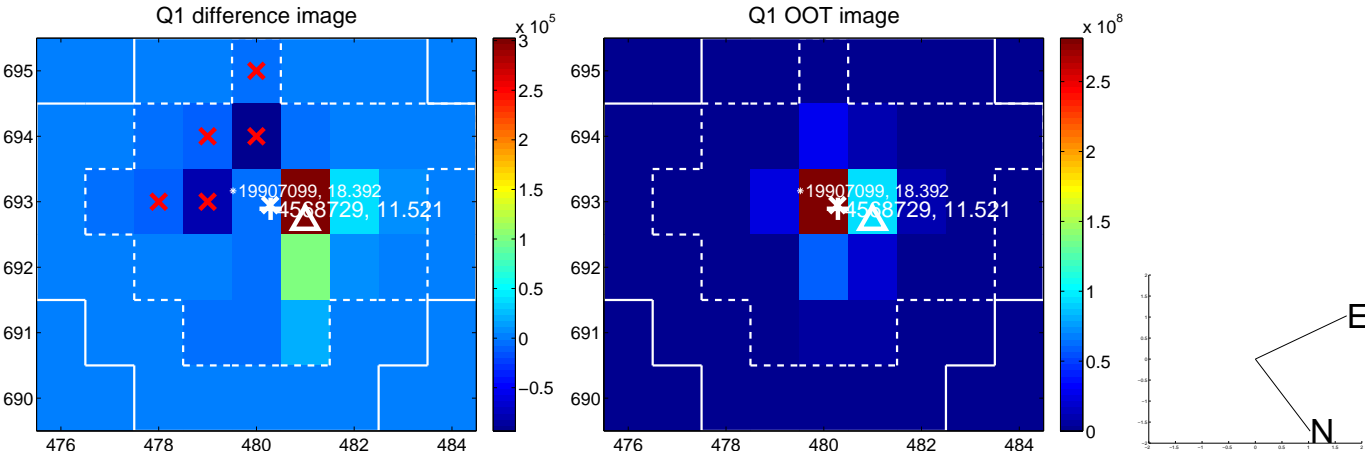


offset from photometric centroids

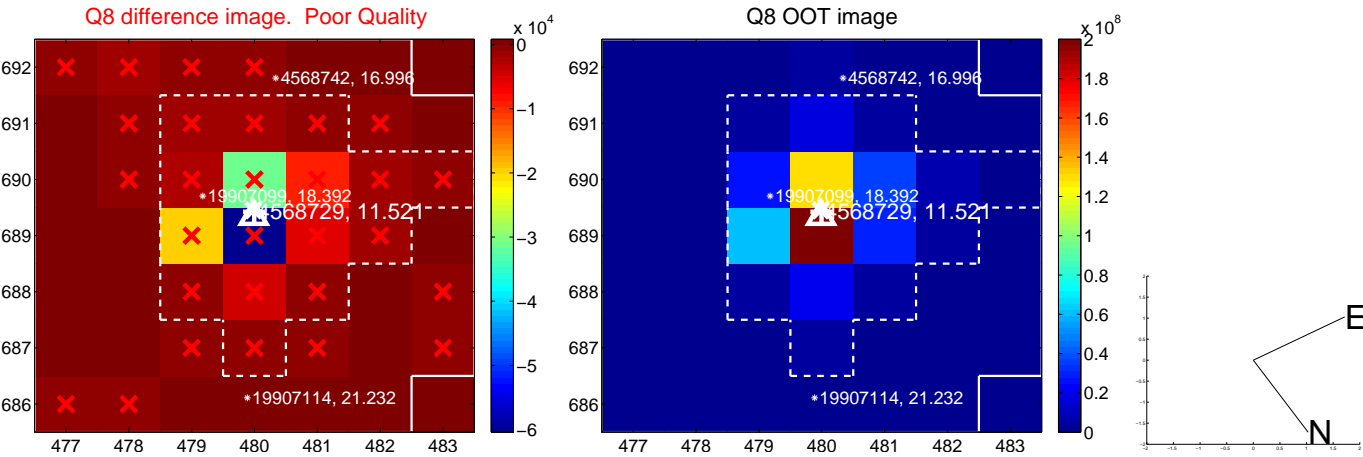
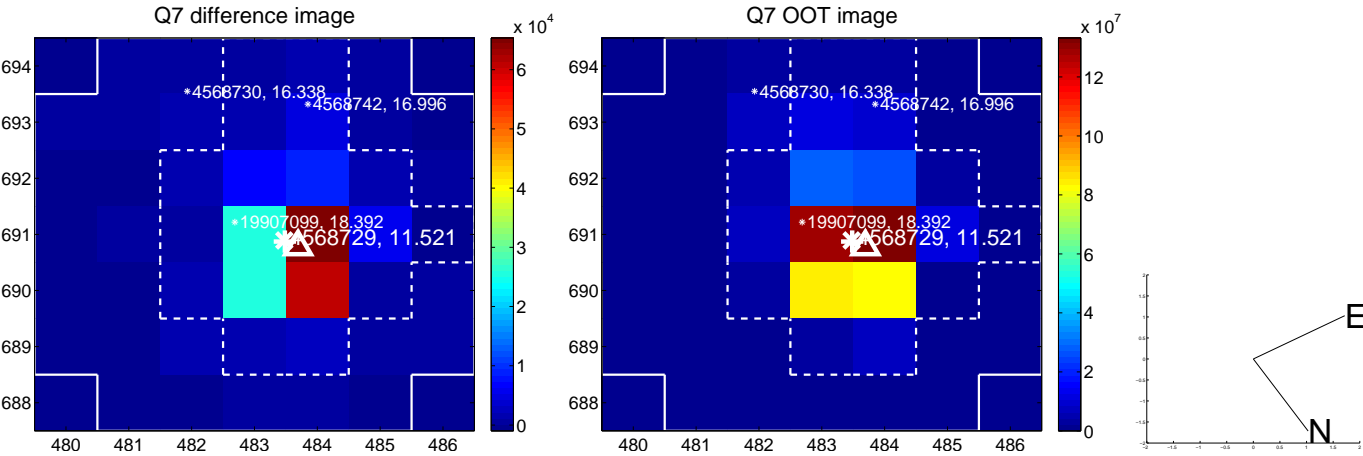
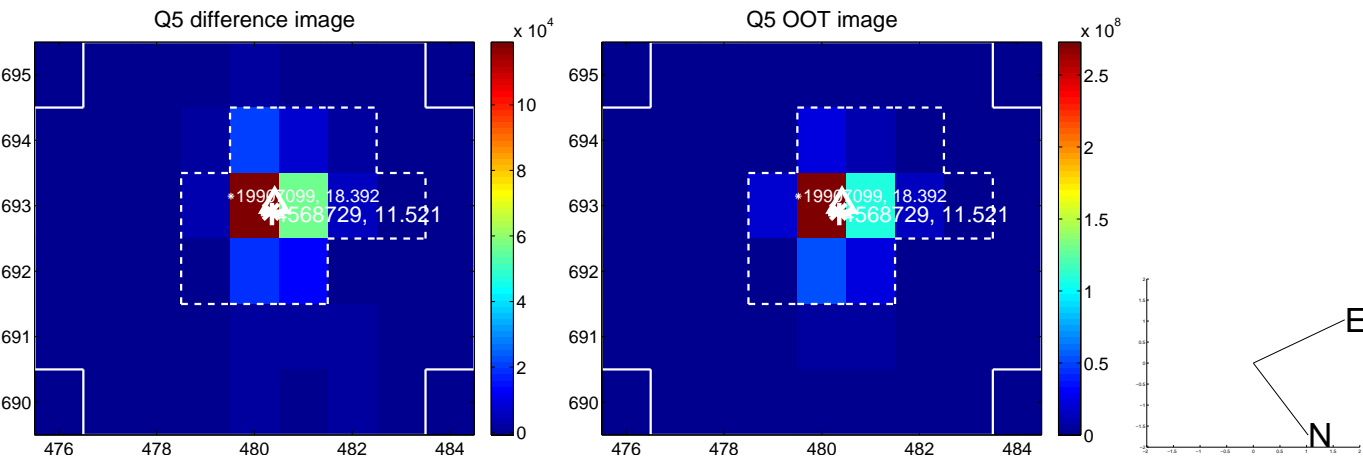


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

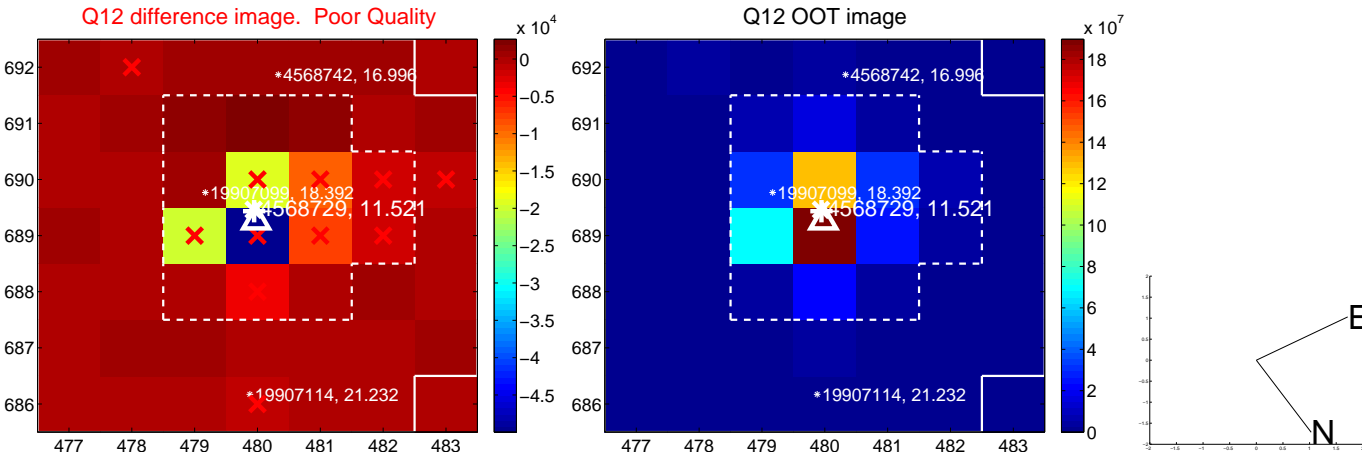
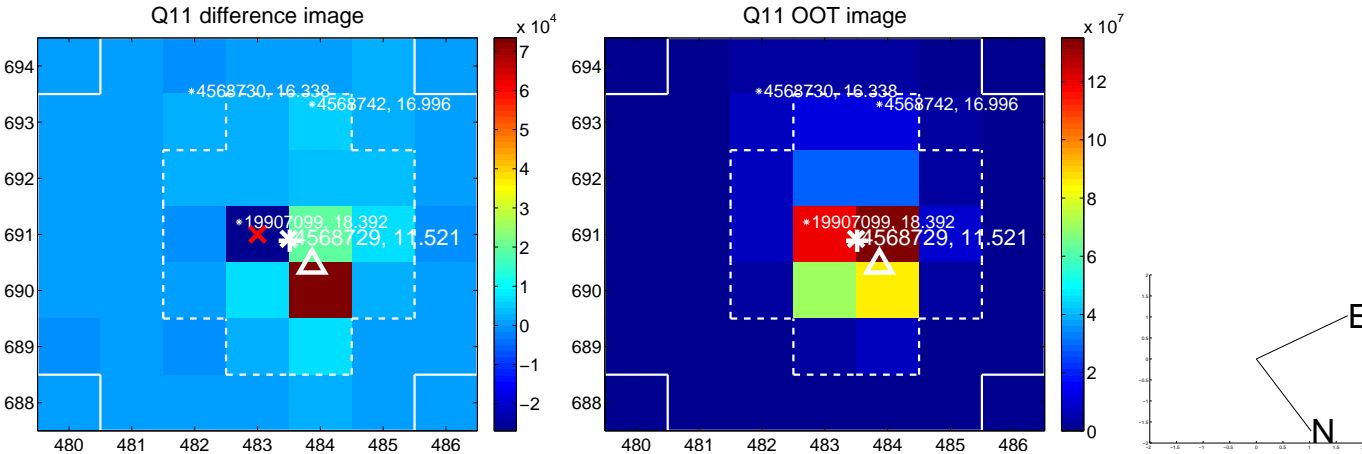
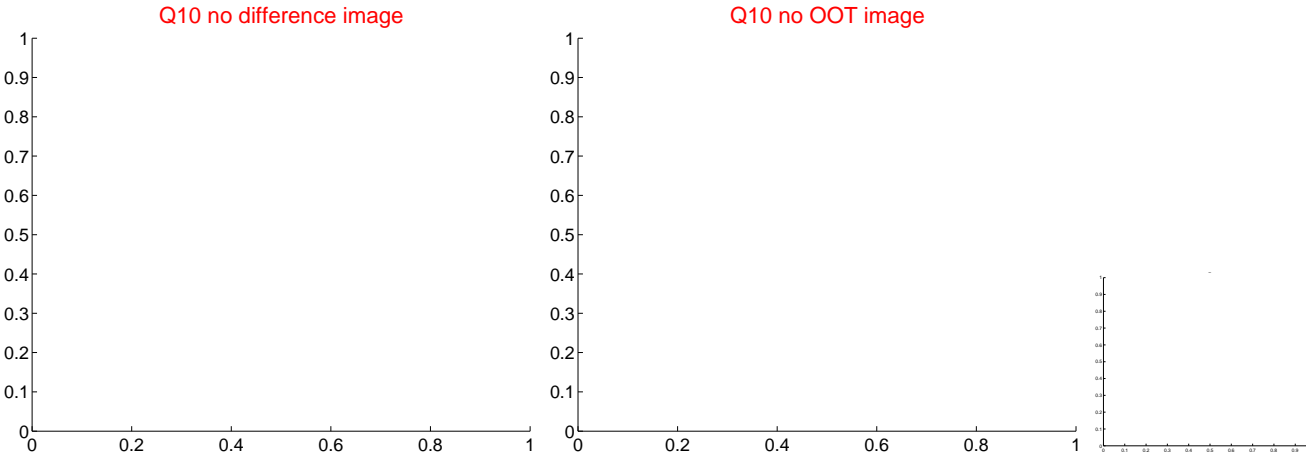
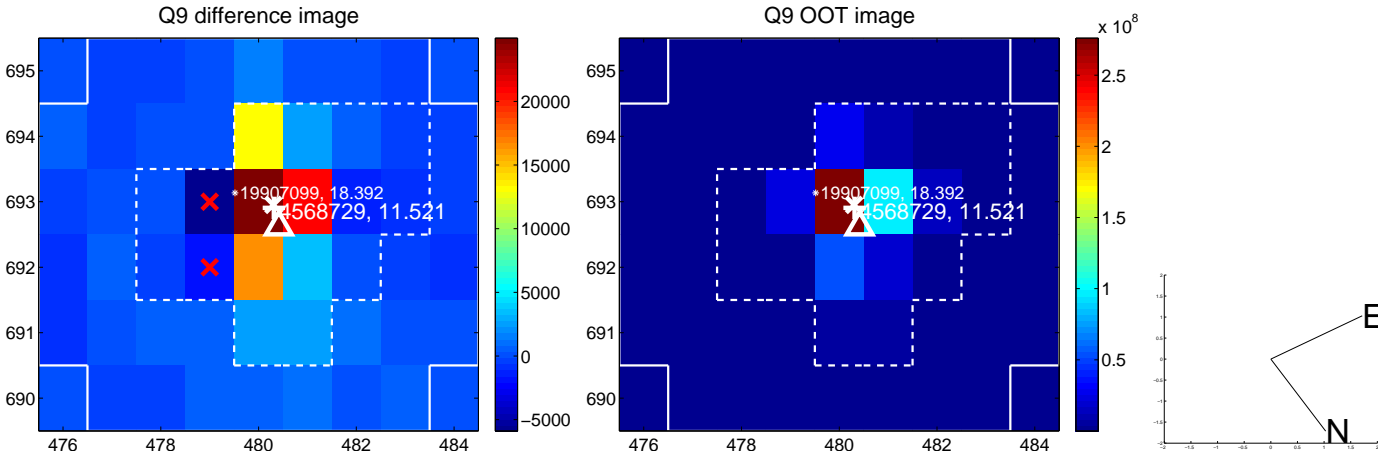
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



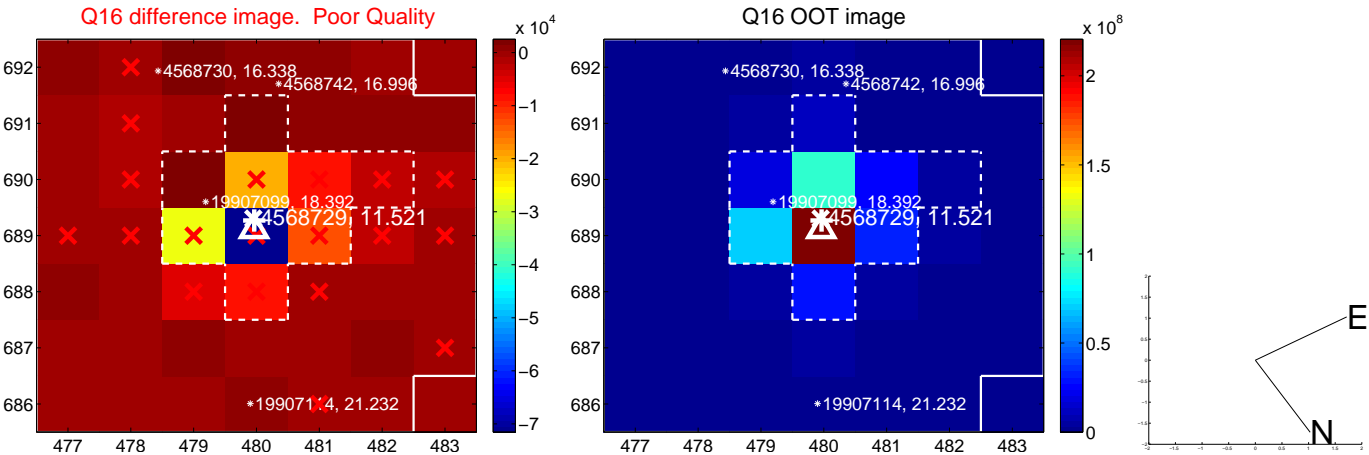
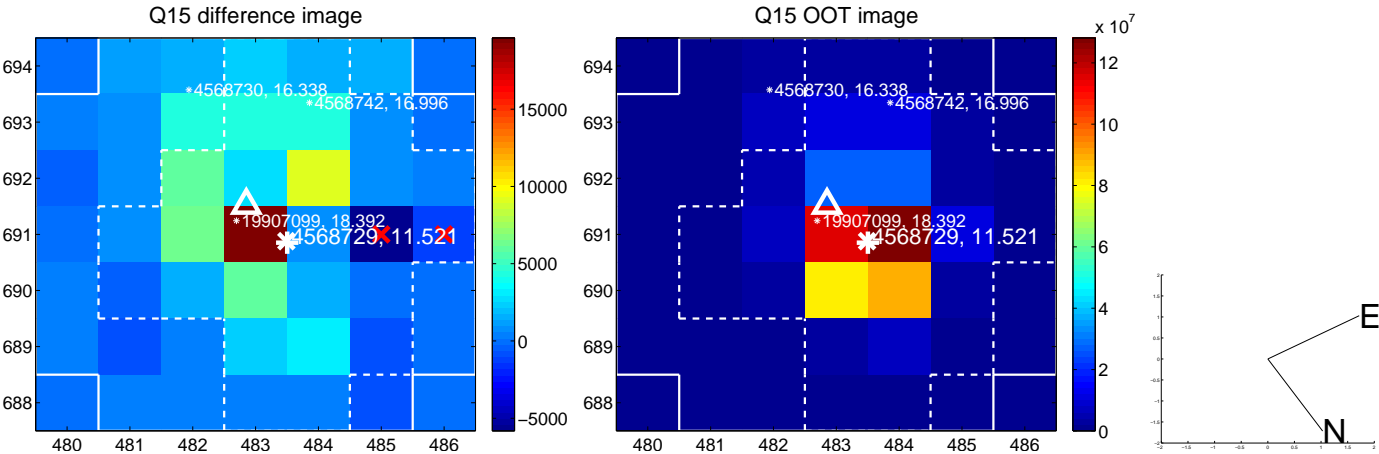
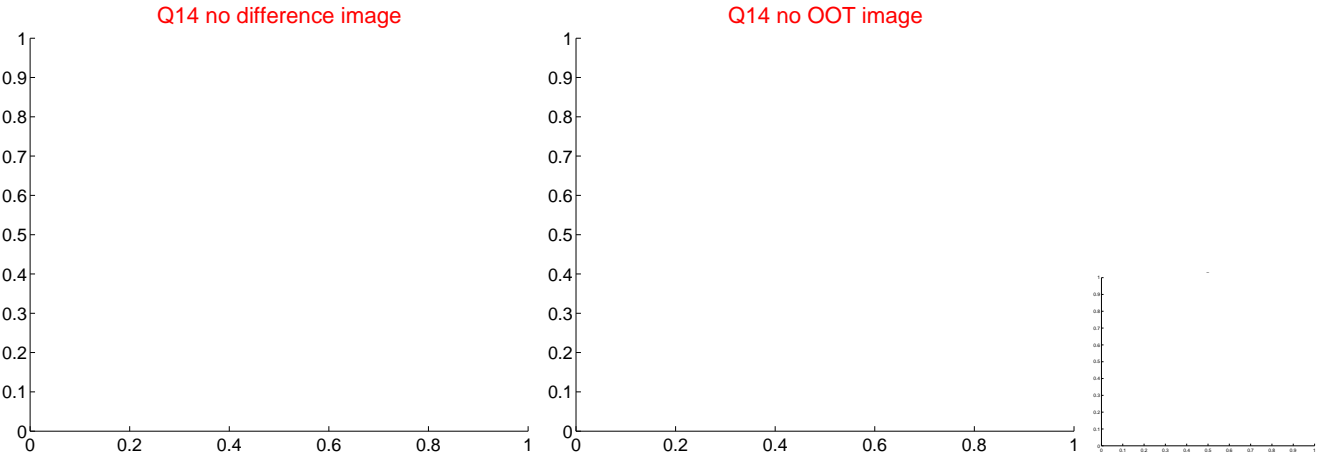
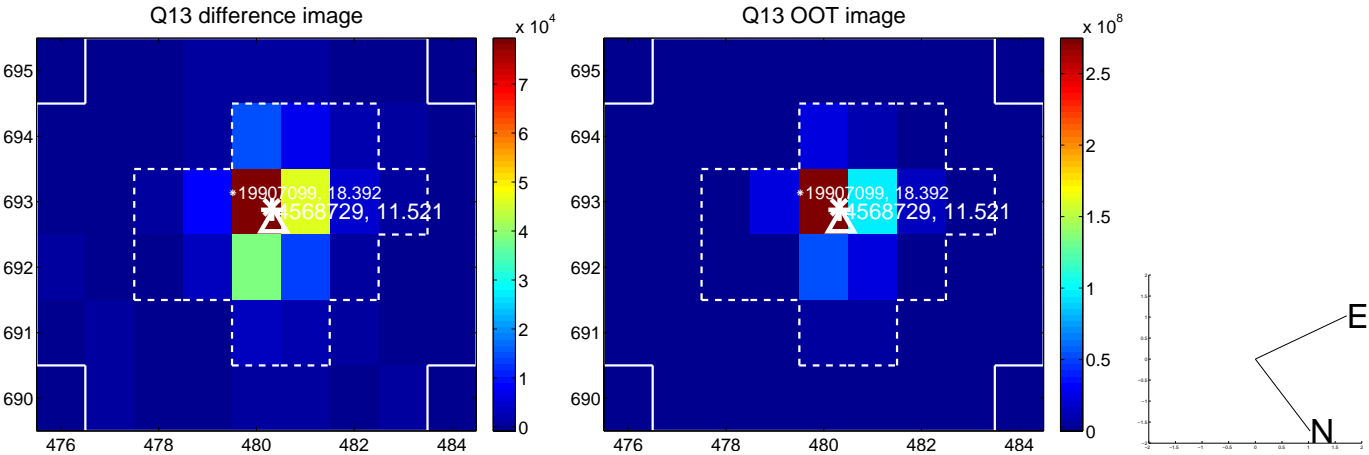
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



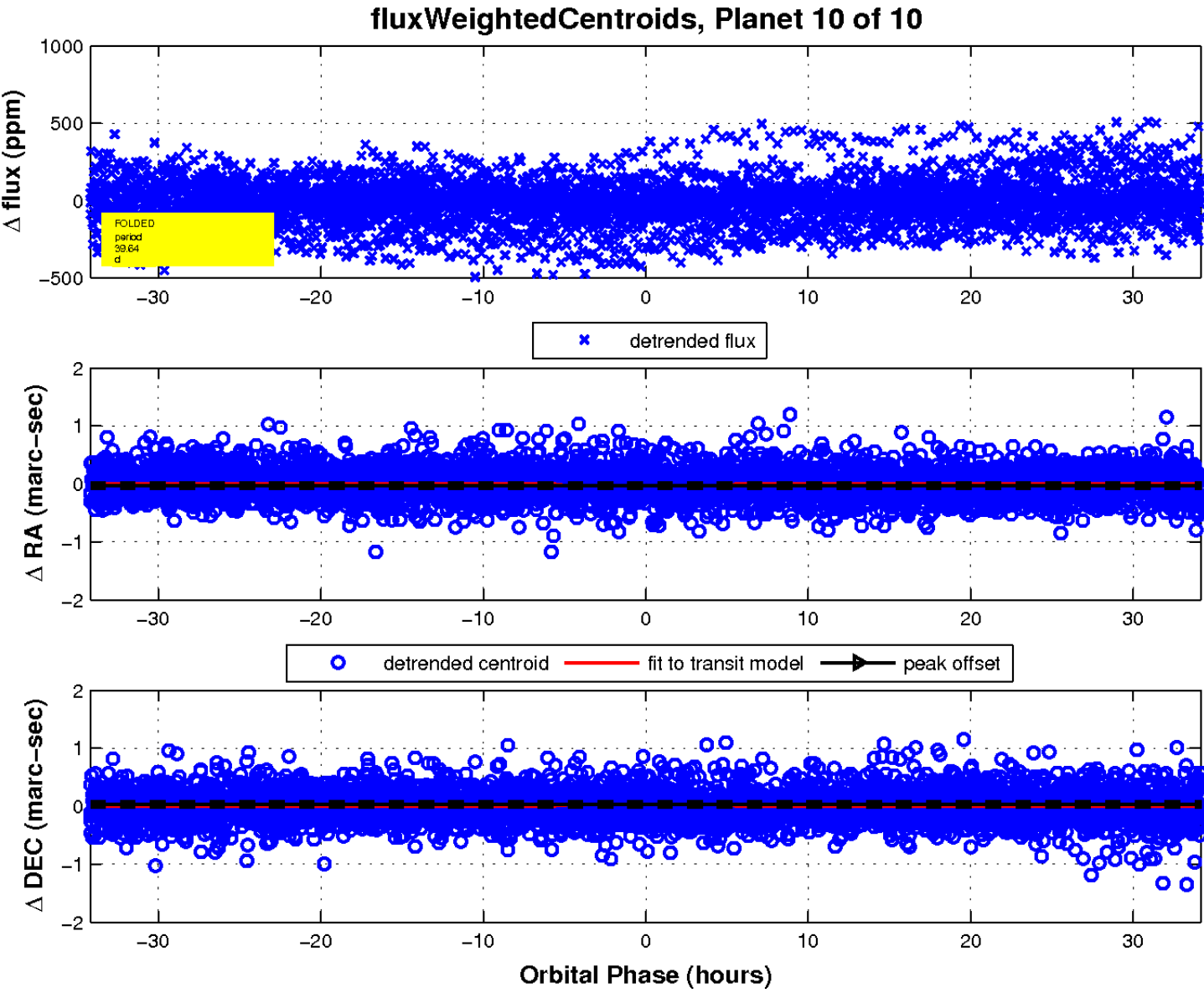
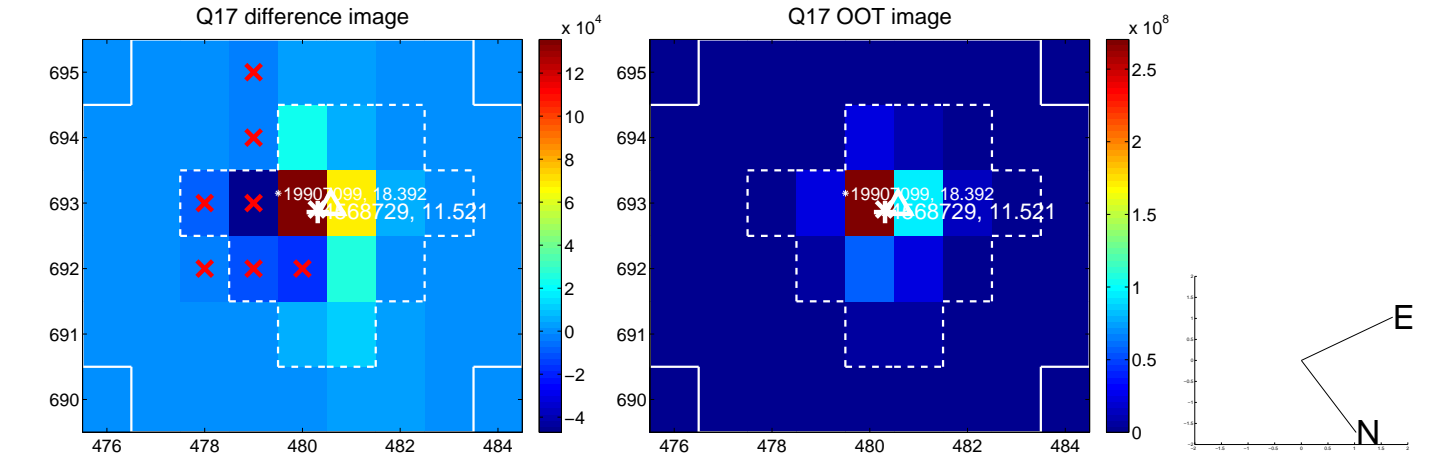
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

