

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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

Ephemeris Match Information For 005617510-01

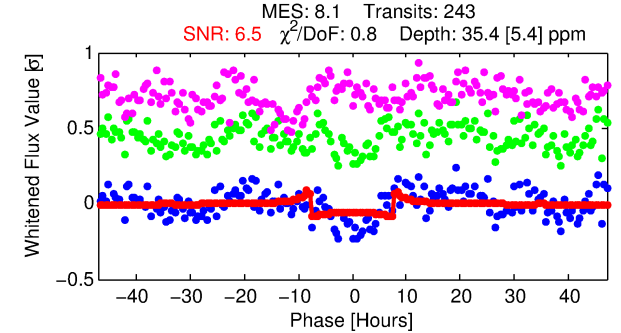
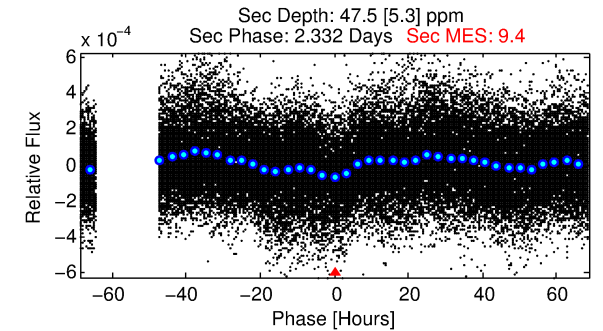
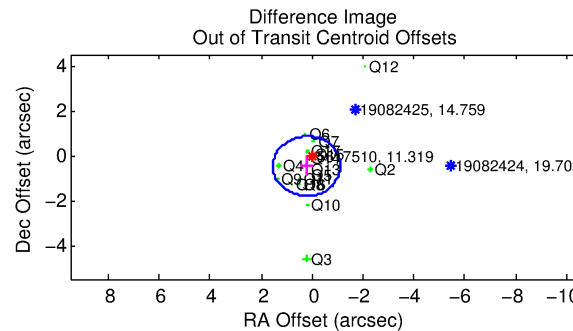
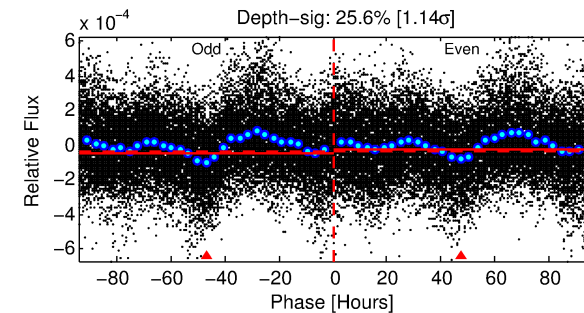
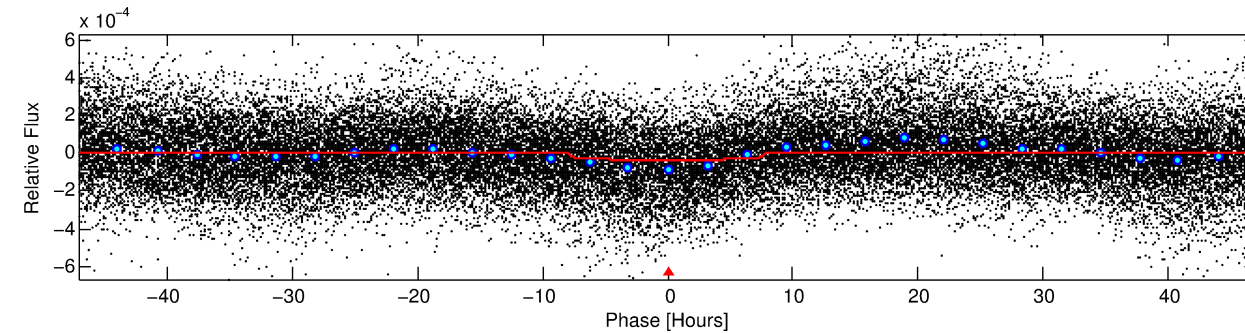
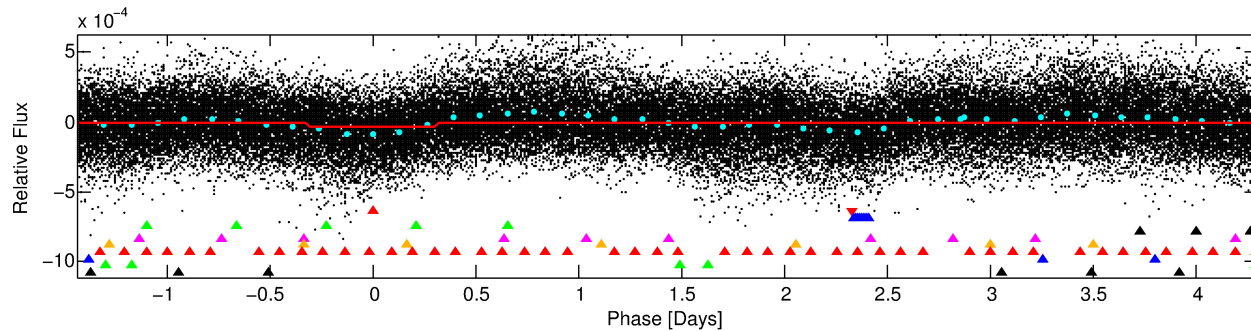
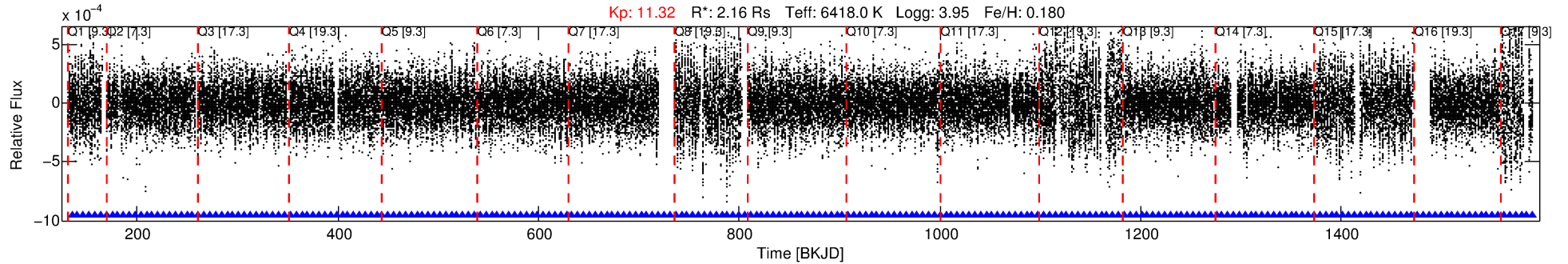
No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 1 of 10 Period: 5.731 d

KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



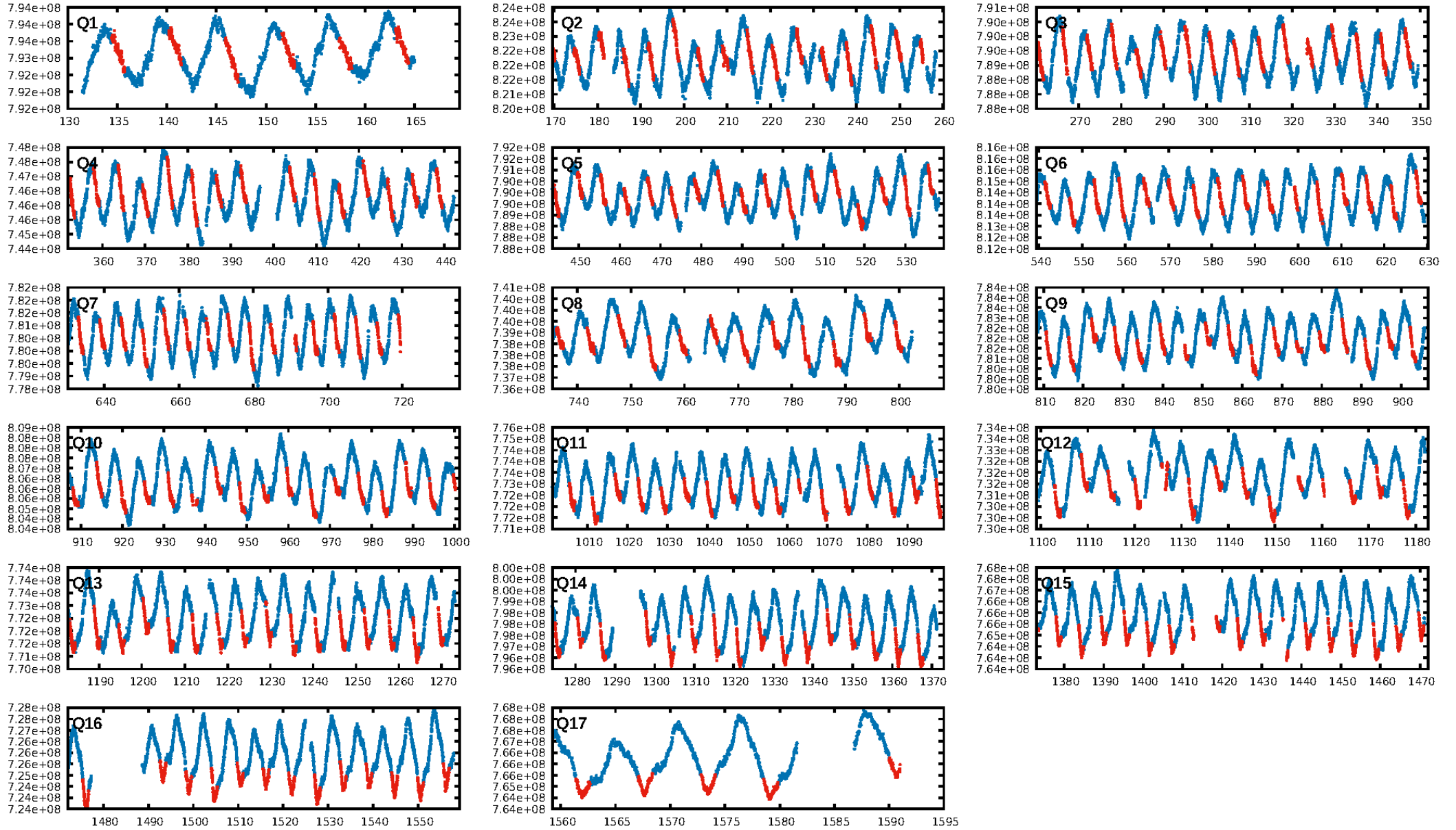
DV Fit Results:

Period = 5.73064 [0.00006] d
Epoch = 135.0795 [0.0068] BKJD
Rp/R* = 0.0060 [0.0009]
a/R* = 1.97 [0.99]
b = 0.78 [0.34]
Seff = 1358.49 [457.13]
Teq = 1548 [130] K
Rp = 1.41 [0.42] Re
a = 0.0722 [0.0160] AU
Ag = 68.68 [31.97] [2.12σ]
Teffp = 6890 [570] K [9.13σ]

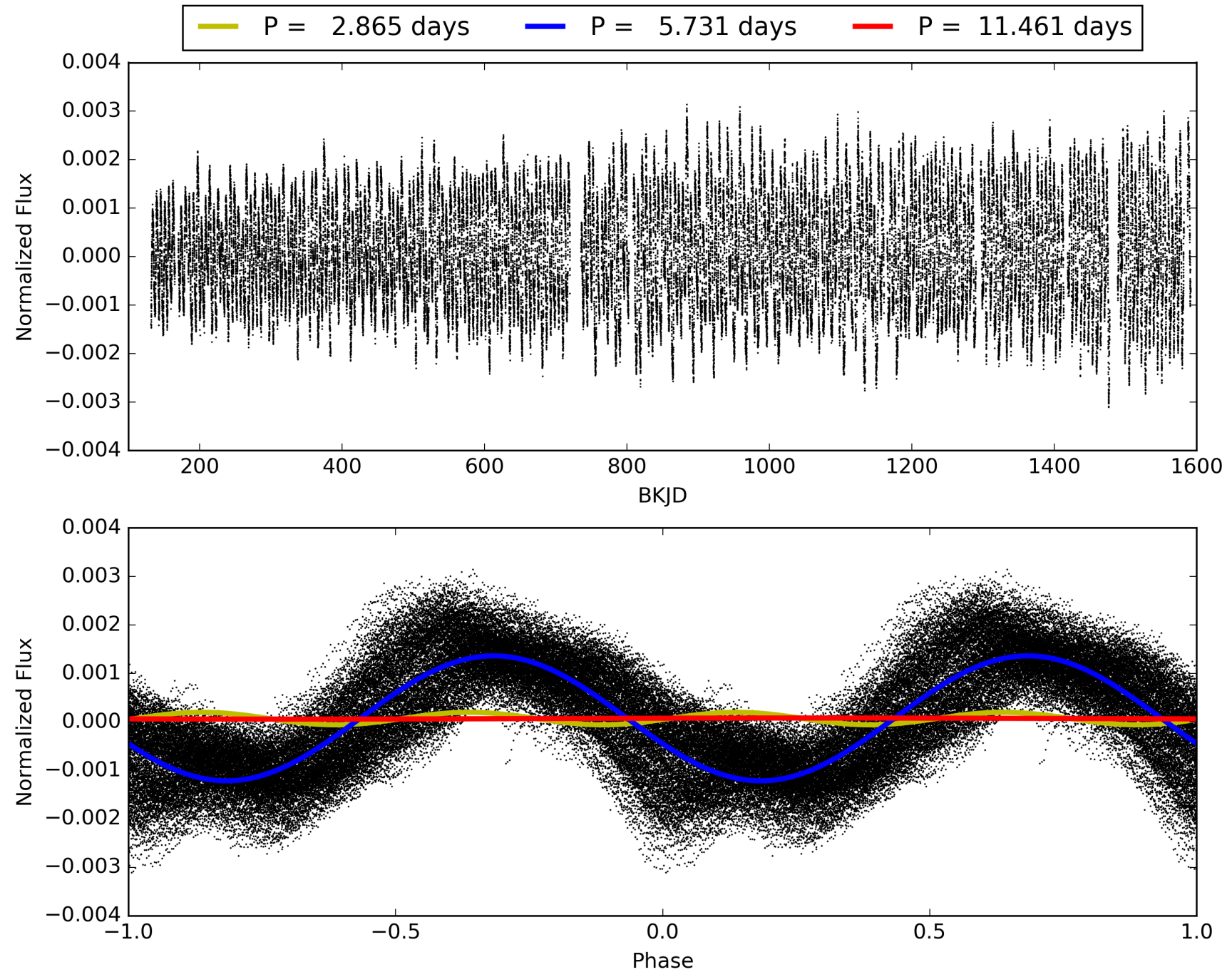
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [232/232]
GhostDiagnostic-chr: 0.8674
Centroid-sig: 8.1%
Centroid-so: 0.487 arcsec [0.88σ]
OotOffset-rm: 0.520 arcsec [1.18σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.351 arcsec [0.88σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005617510-01, PDC Light Curves

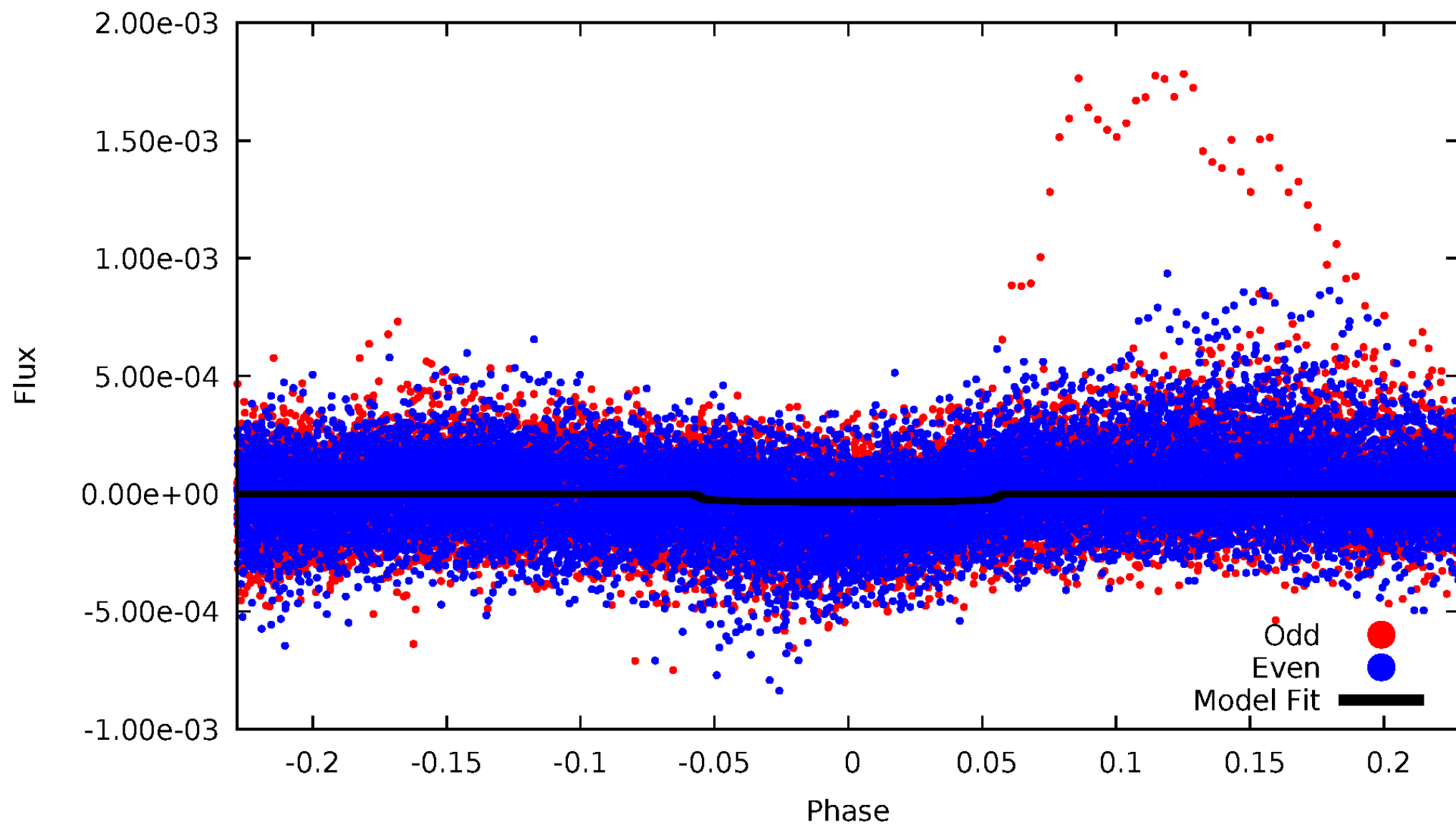


TCE 005617510-01



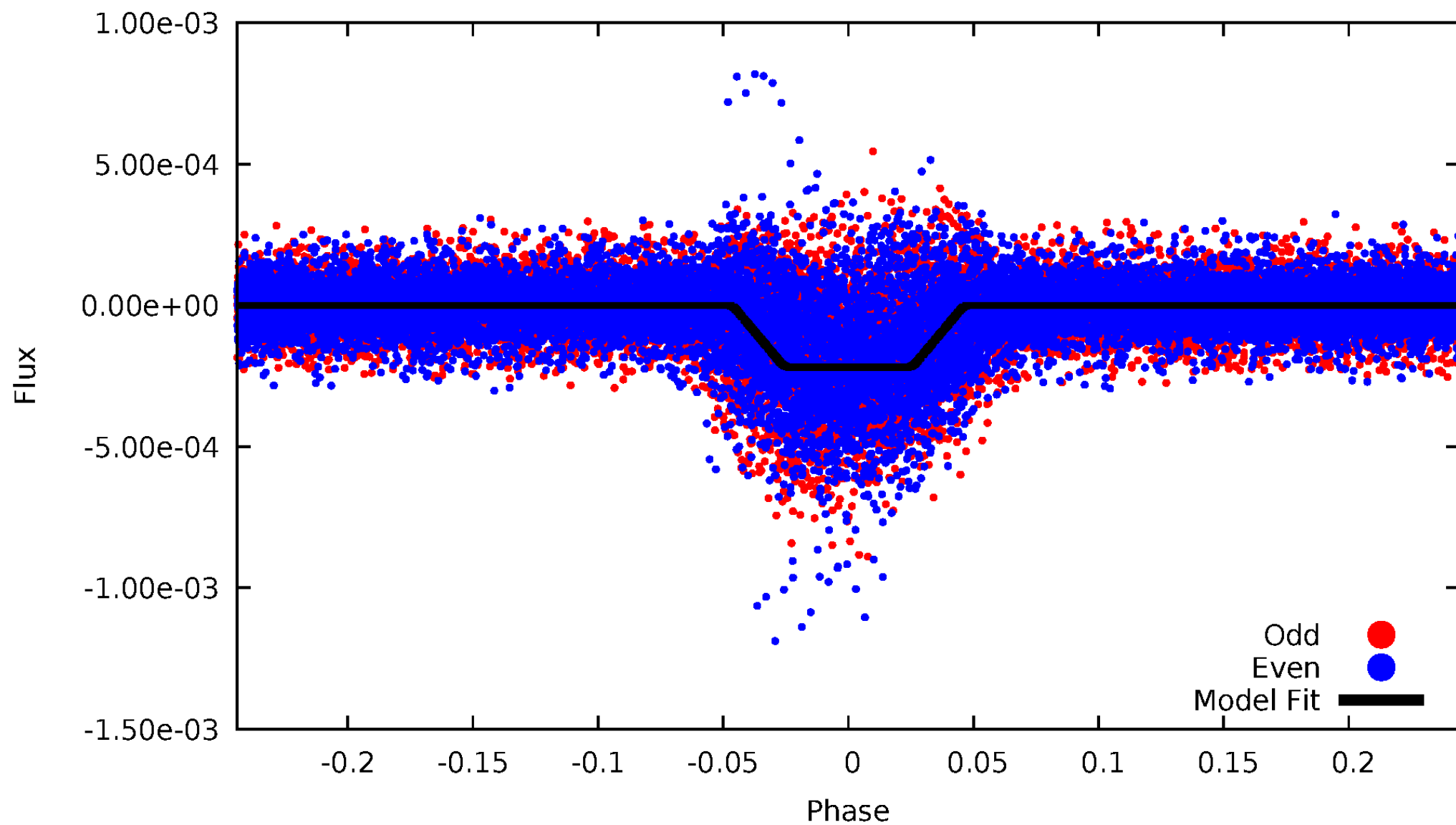
DV Odd/Even

TCE 005617510-01

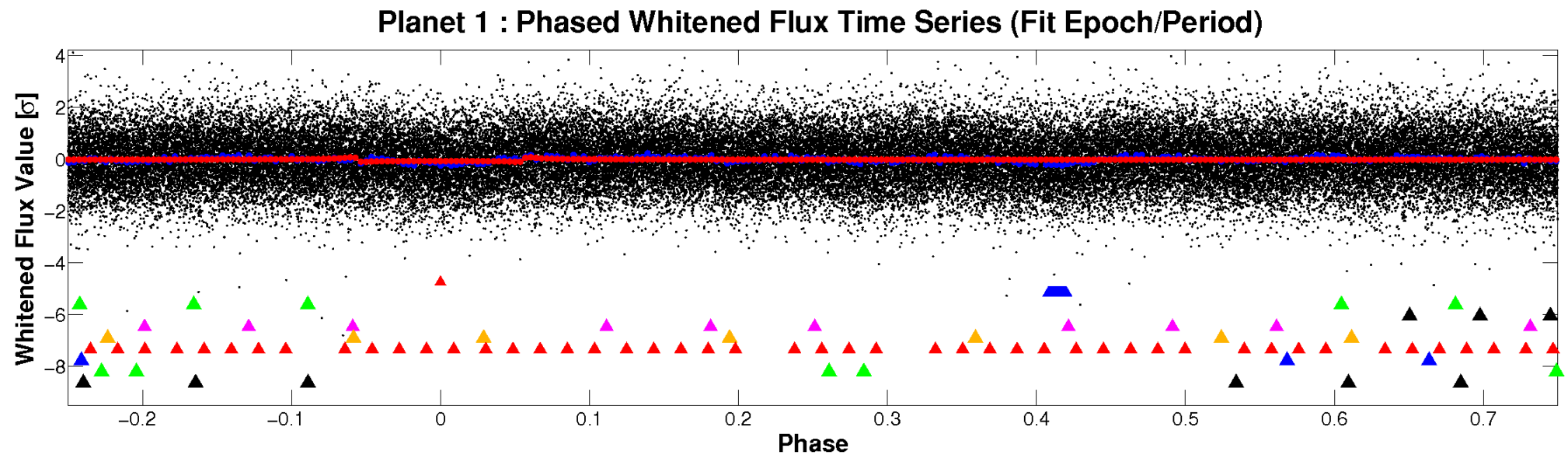
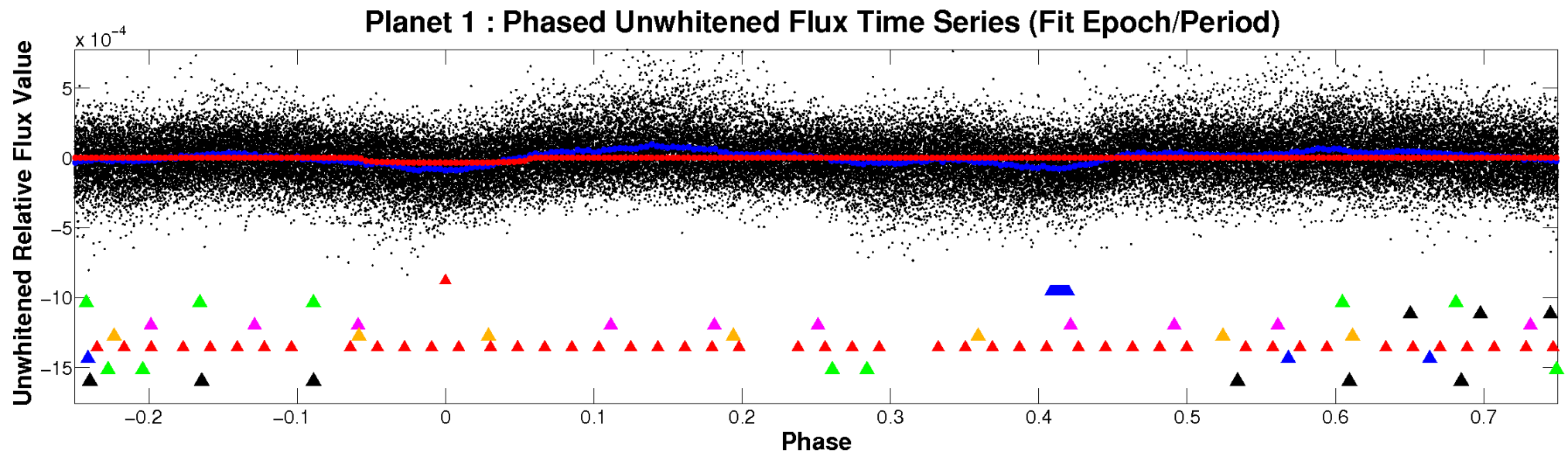


ALT Odd/Even

TCE 005617510-01

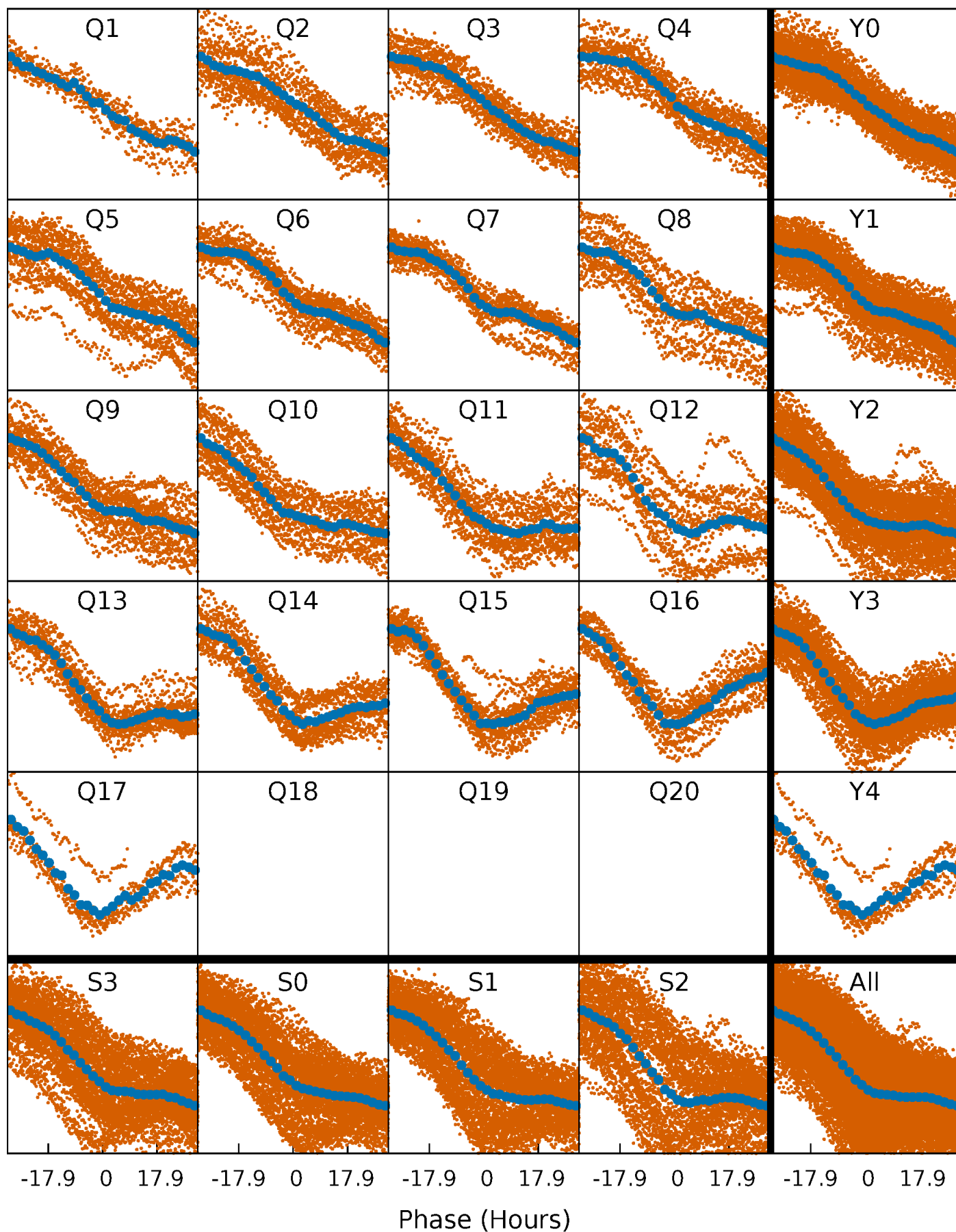


Non-Whitened Vs. Whitened Light Curve



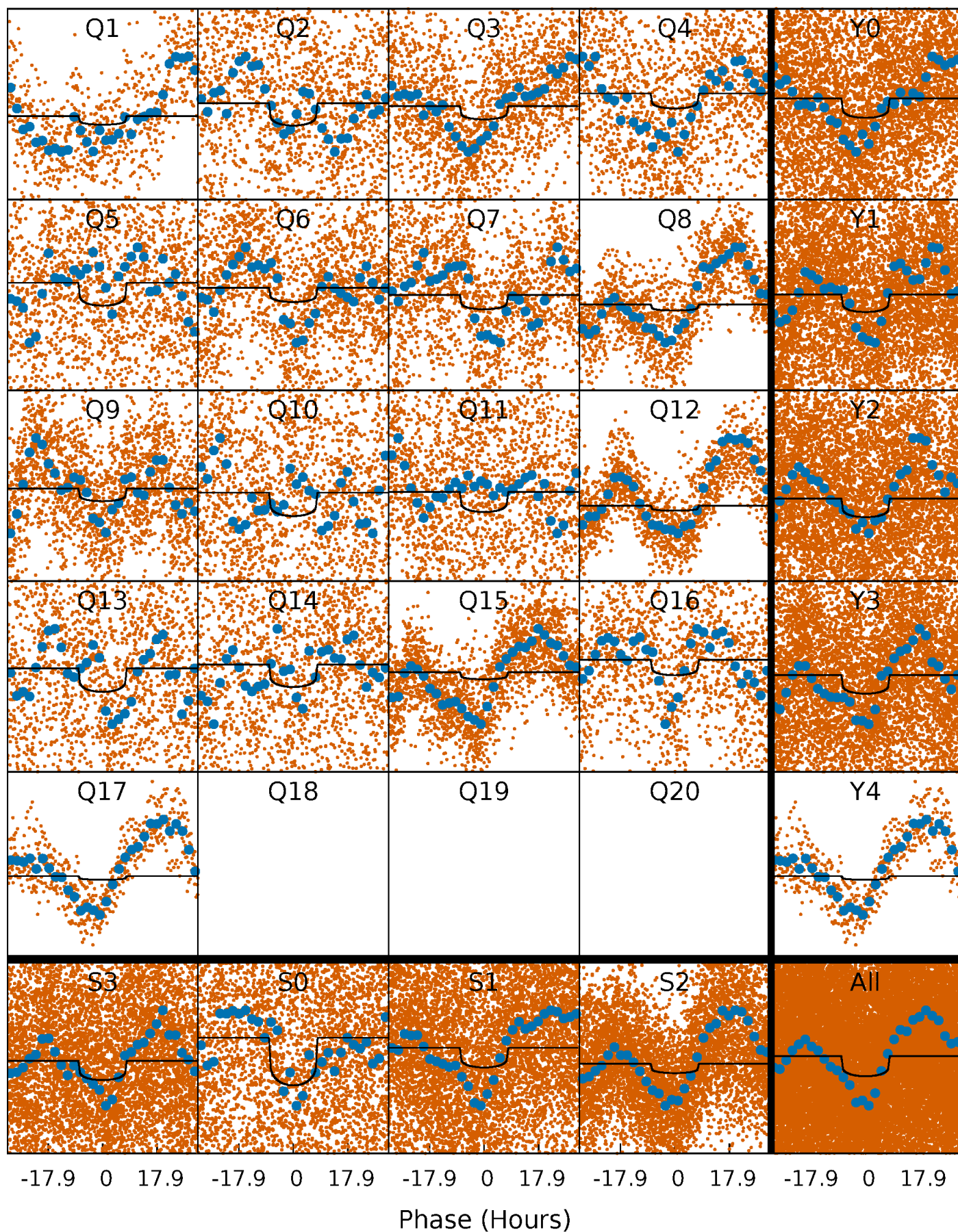
PDC Quarter-Phased Transit Curves

TCE 005617510-01 P= 5.730639 Days $T_0=135.079479$ (BKJD)



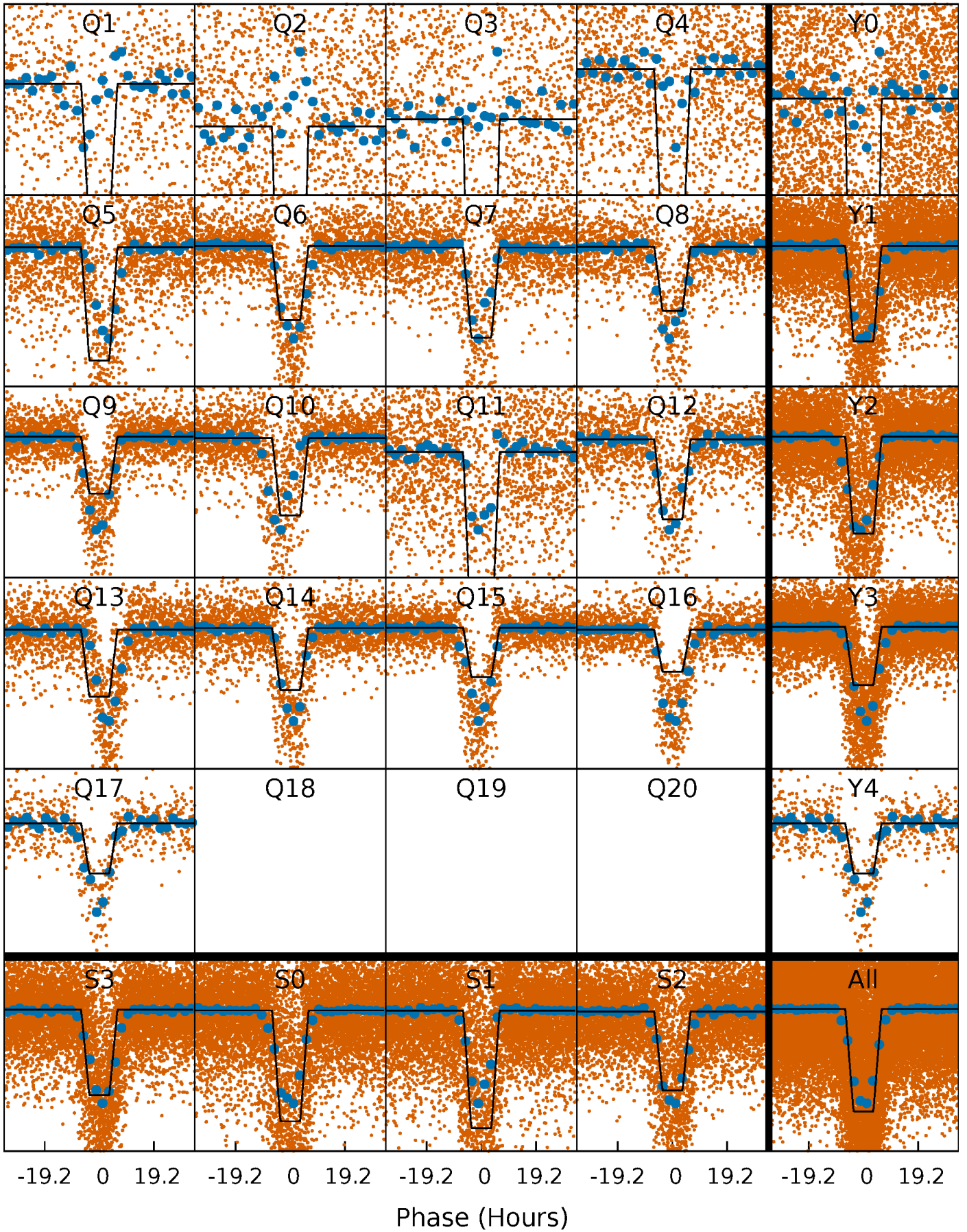
DV Quarter-Phased Transit Curves

TCE 005617510-01 P= 5.730639 Days $T_0=135.079479$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

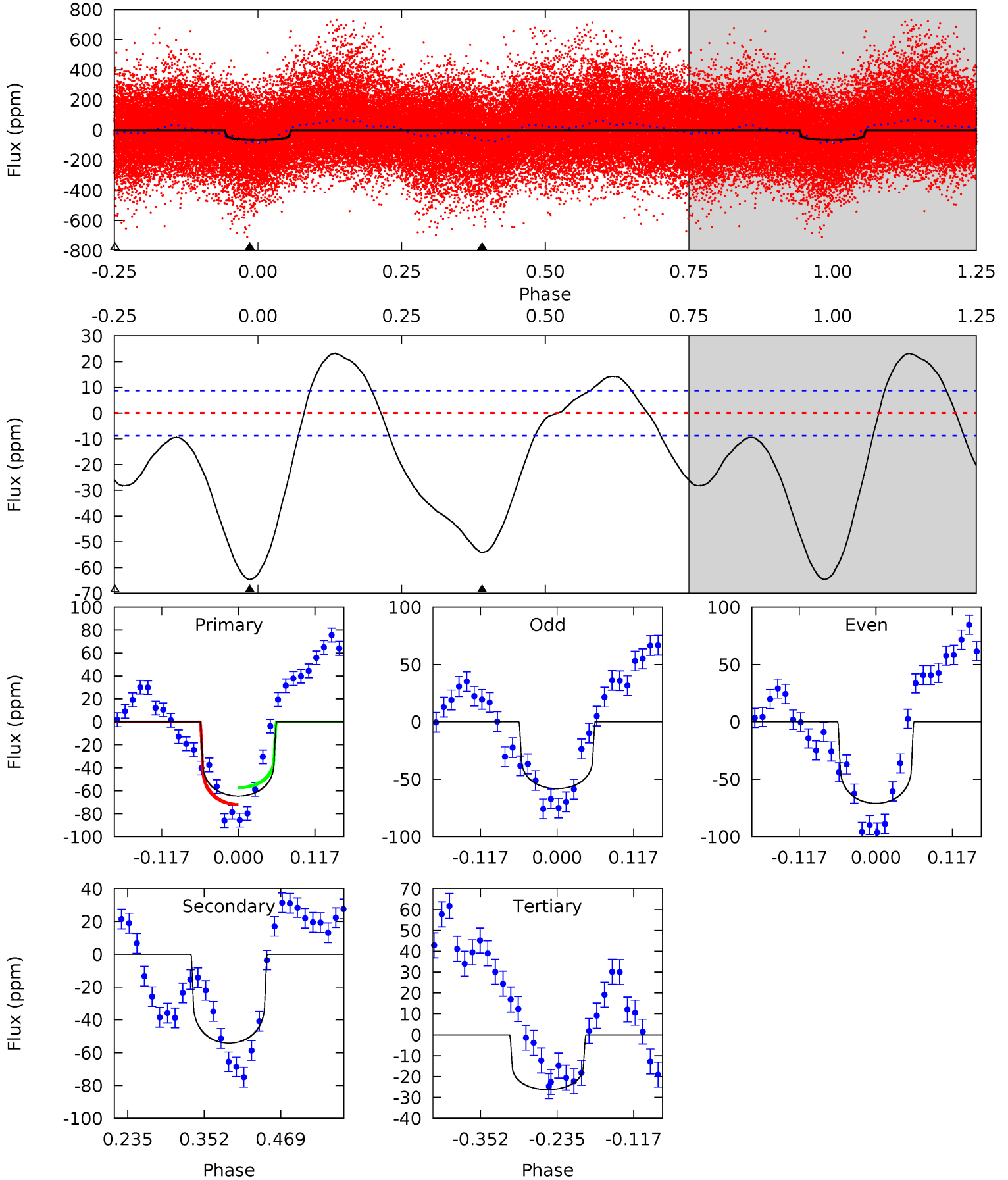
TCE 005617510-01 P= 5.730475 Days $T_0=135.109989$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-01, P = 5.730639 Days, E = 129.348840 Days

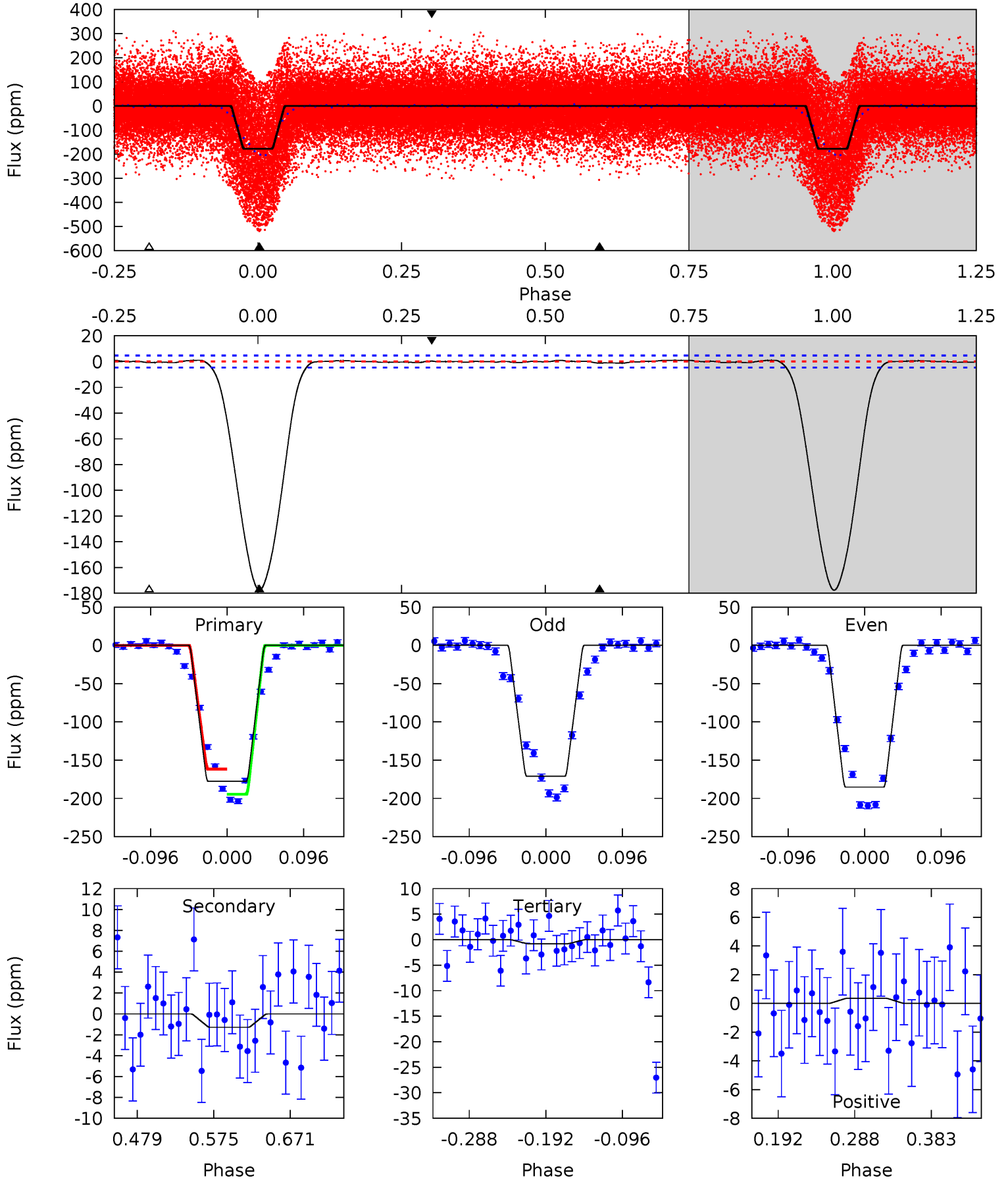
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.3	28.0	13.6	0	4.53	1.57	8.23	19.8	33.3	14.4	28.0	3.32	1.07	0.26	3.82



Alt Model-Shift Uniqueness Test

005617510-01, P = 5.730475 Days, E = 129.379514 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
174.6	1.26	0.79	0.35	4.57	1.67	0.50	173.9	174.3	0.47	0.91	6.92	1.03	0.01	16.0



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-54 ± 2	$1.37^{+0.25}_{-0.25}$	2150^{+111}_{-138}	7202^{+703}_{-565}	83^{+40}_{-24}
Alt.	-1 ± 1	$3.41^{+0.44}_{-0.47}$	2149^{+94}_{-129}	1863^{+672}_{-4362}	$0.317^{+0.255}_{-0.240}$

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

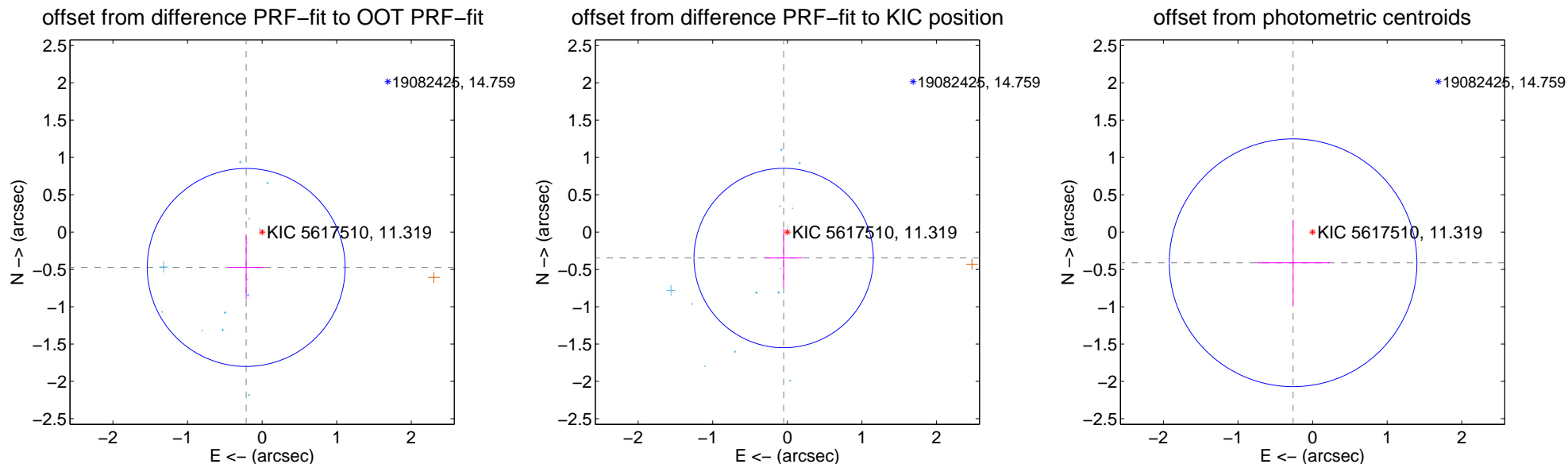
DV Centroid Data

Supplemental centroid analysis for 005617510-01. **Kepler magnitude: 11.32.** Transit SNR 6.48

There are 13 quarters with good PRF difference image offsets

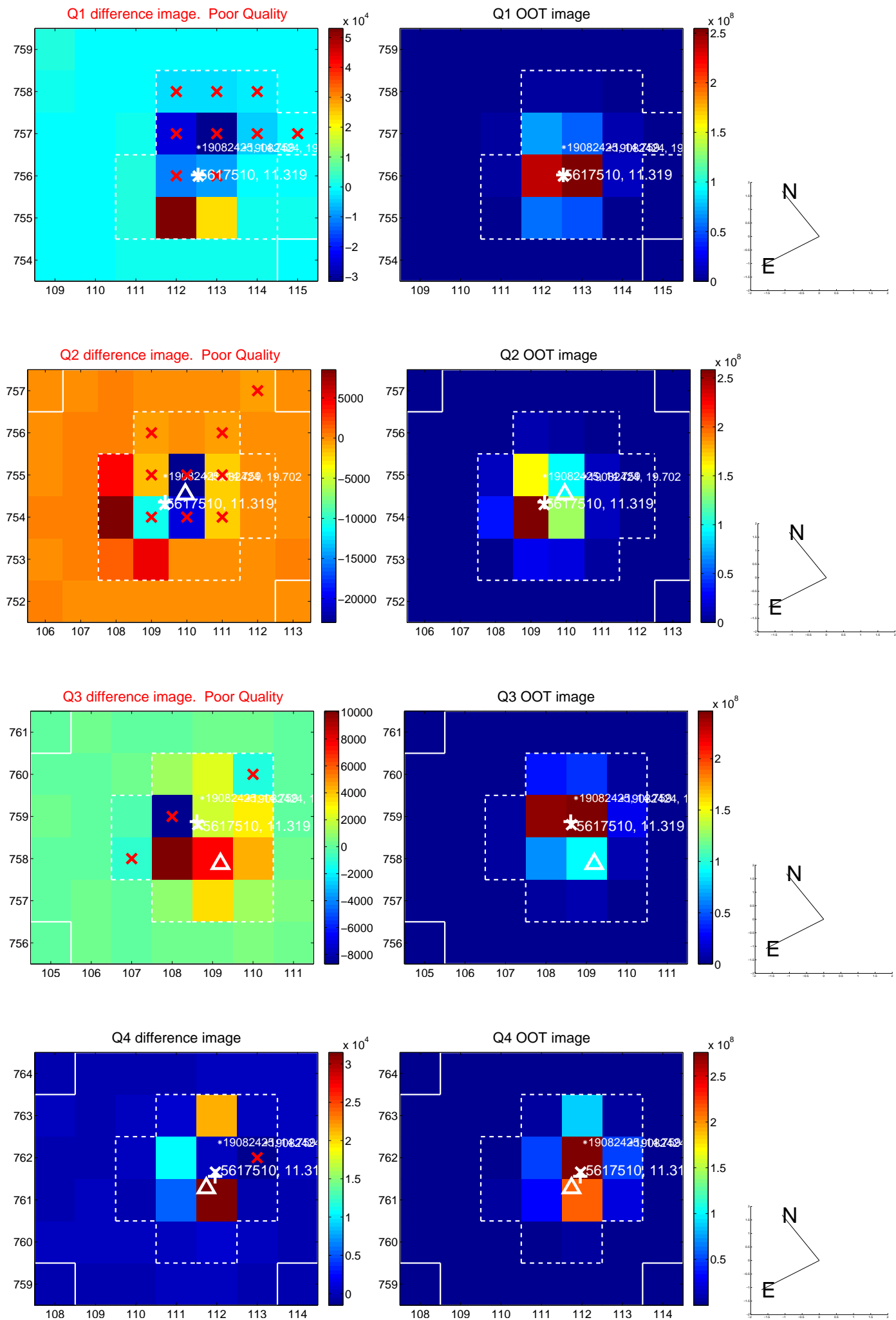
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.520 ± 0.442	1.18	0.214 ± 0.240	-0.474 ± 0.424
PRF-fit source offset from KIC position	0.351 ± 0.401	0.88	0.050 ± 0.248	-0.347 ± 0.390
photometric centroid source offset	0.49 ± 0.55	0.88	0.26 ± 0.49	-0.41 ± 0.58

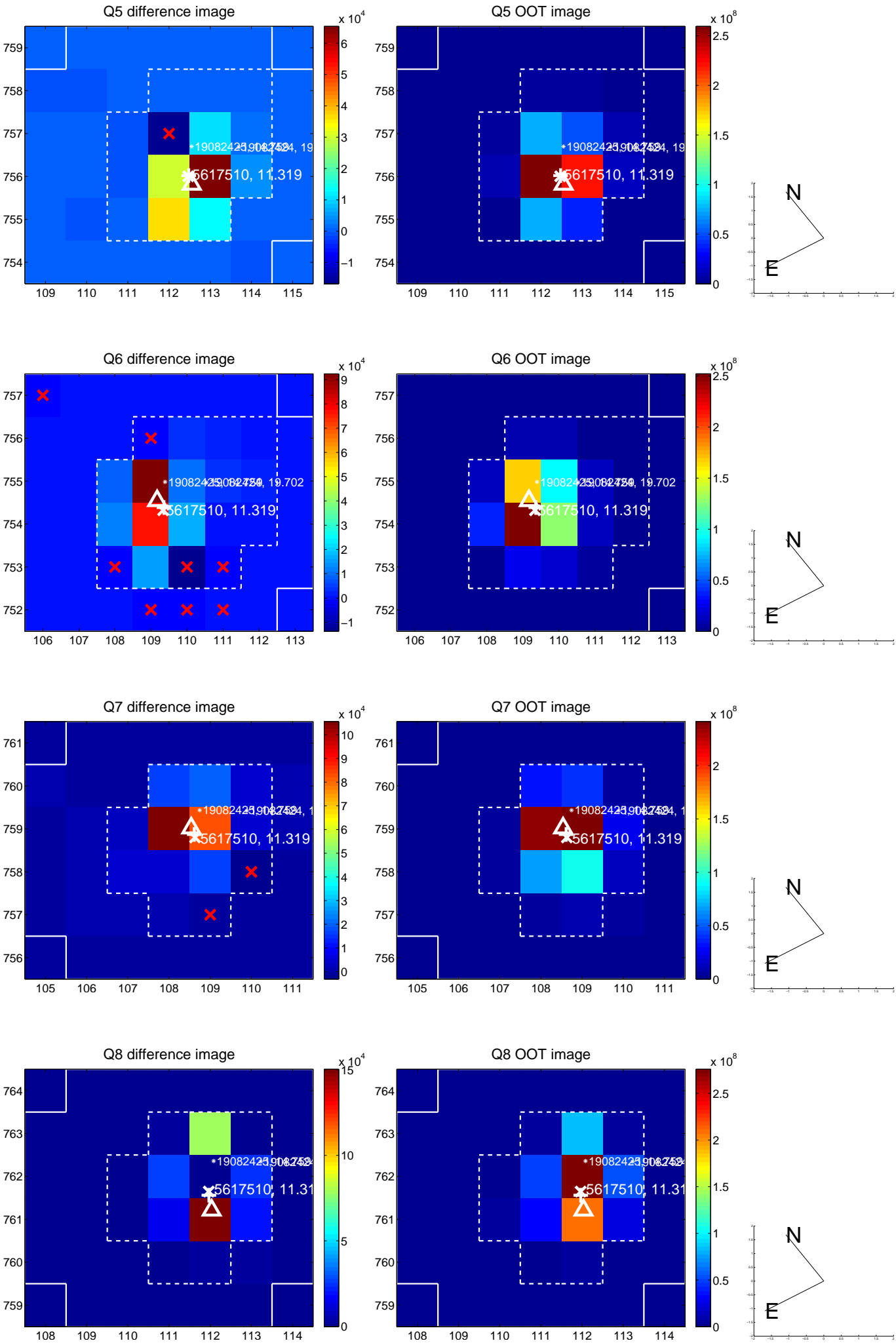


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

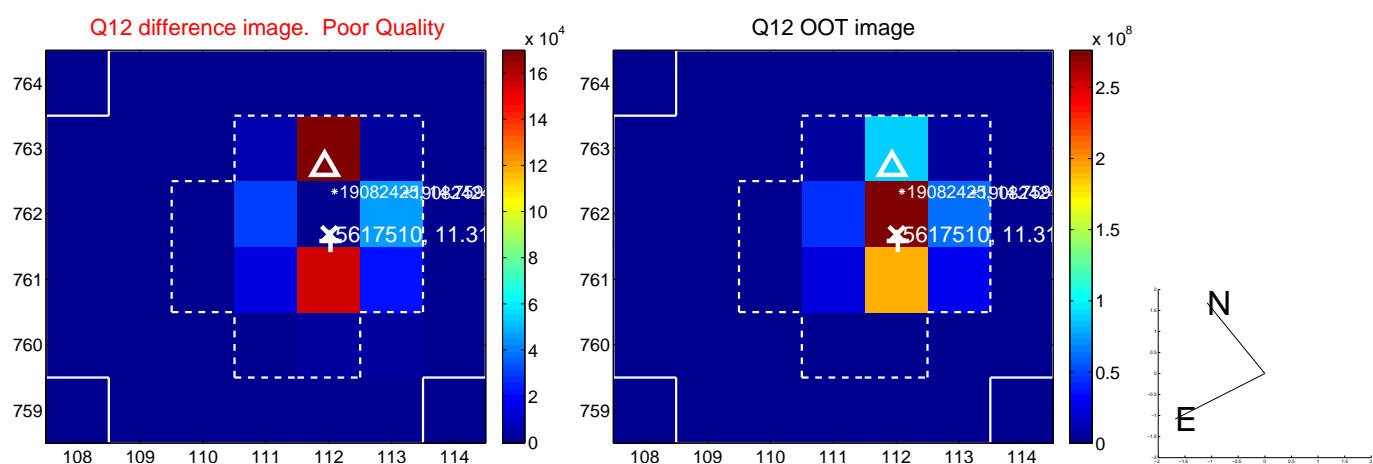
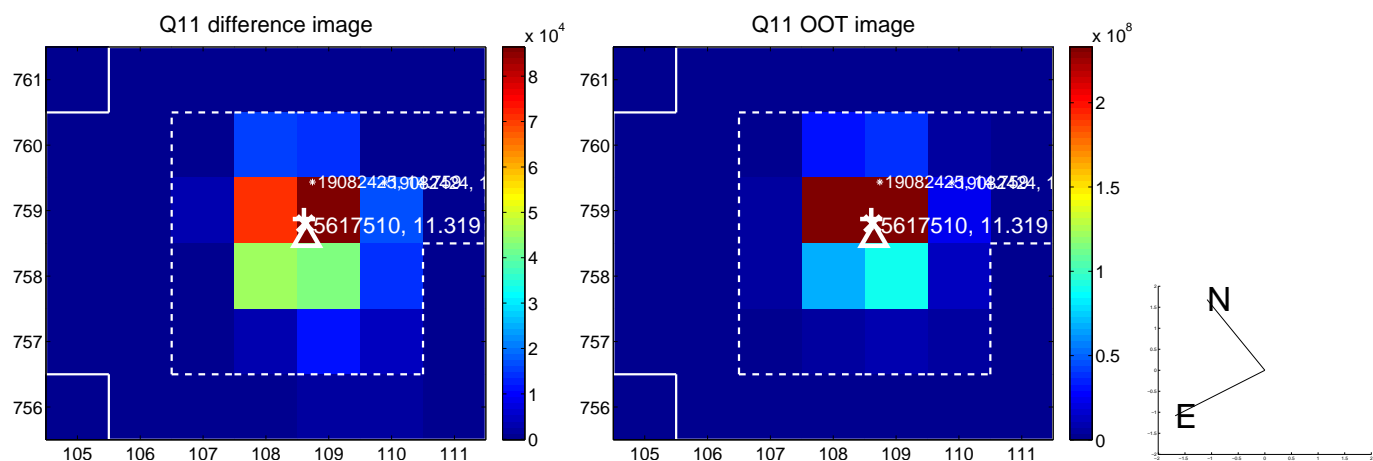
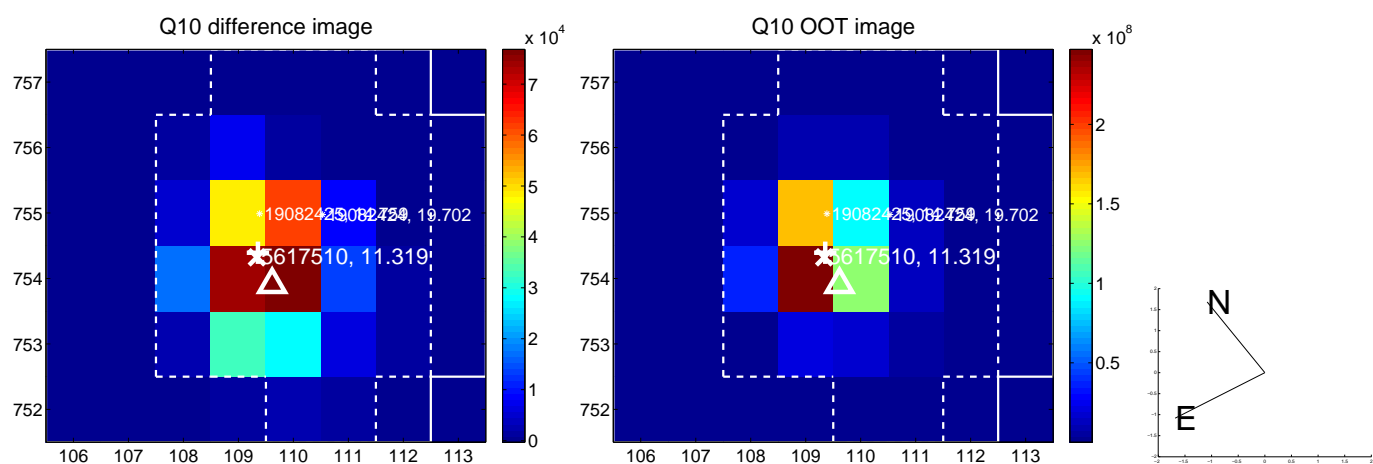
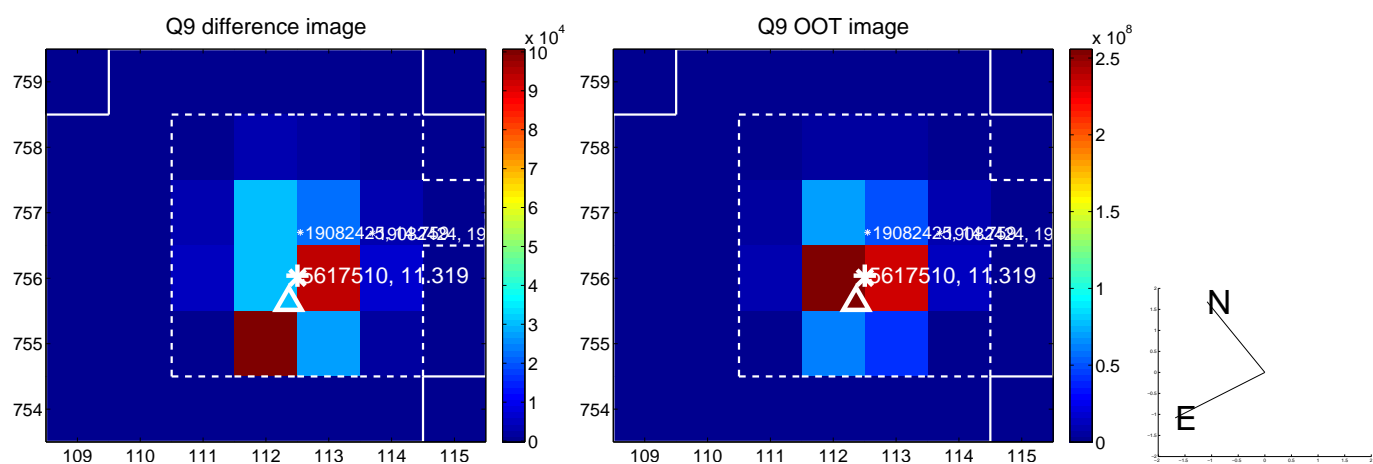
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



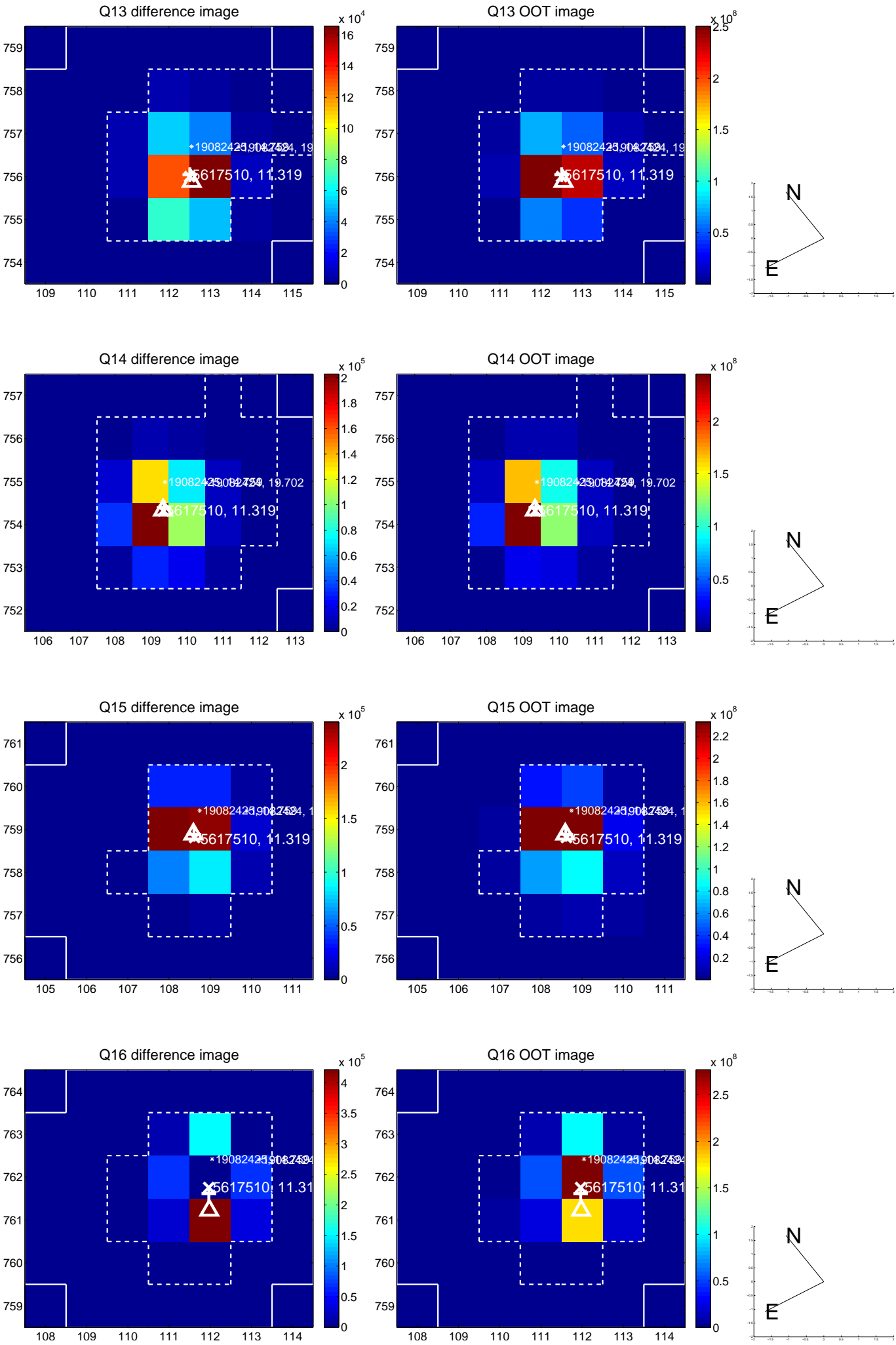
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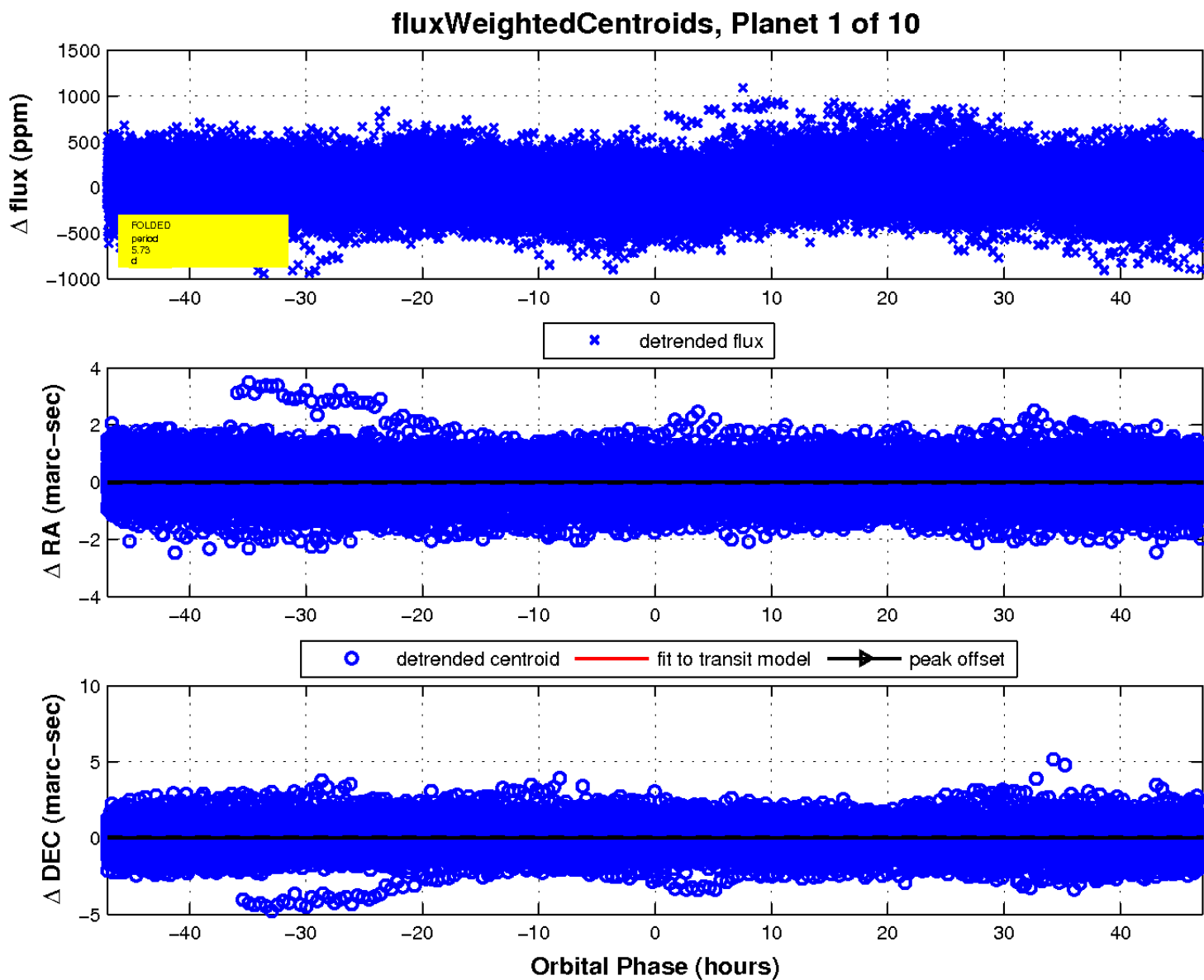
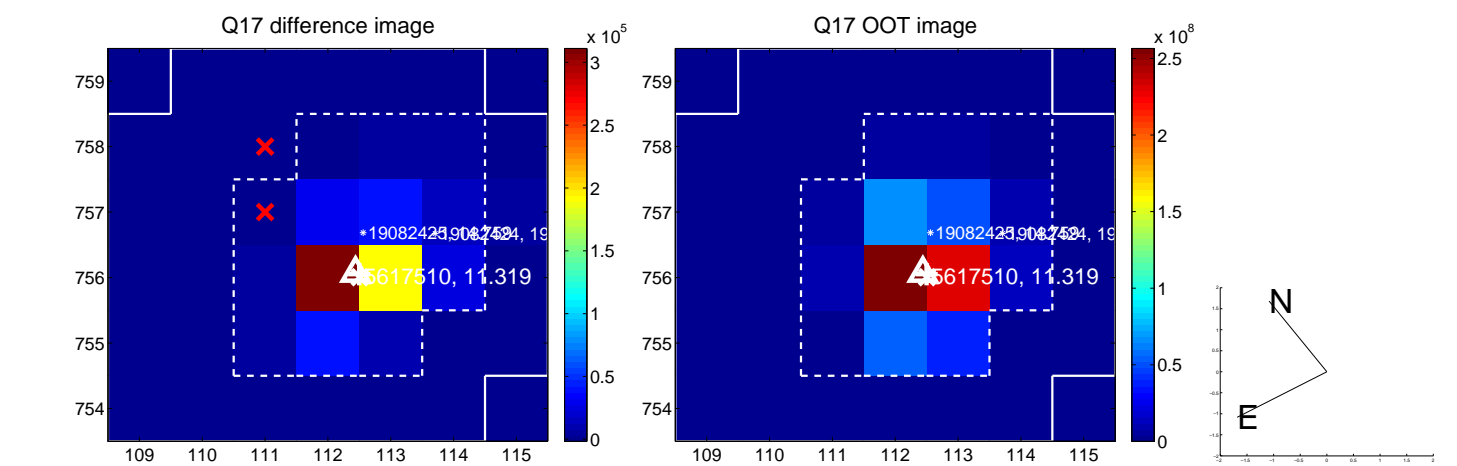
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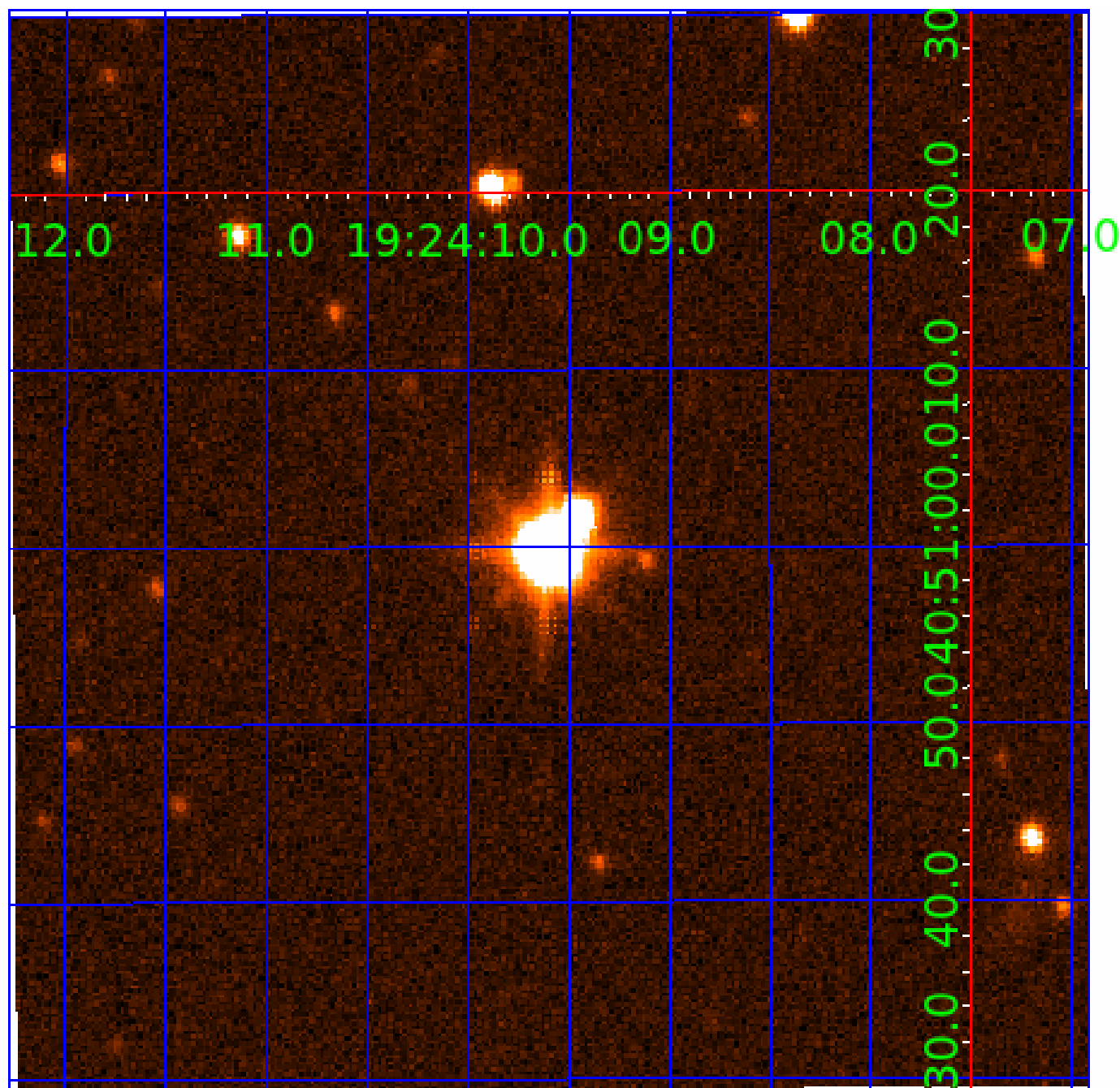


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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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})
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005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

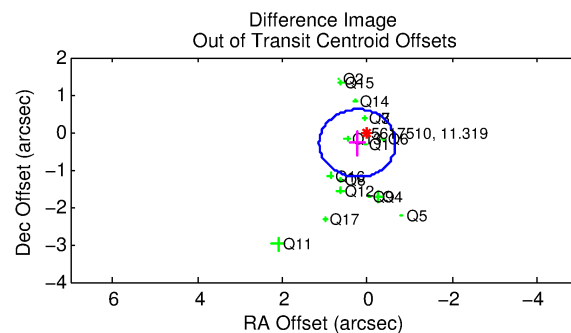
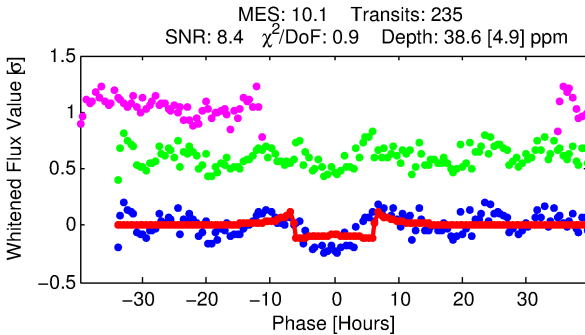
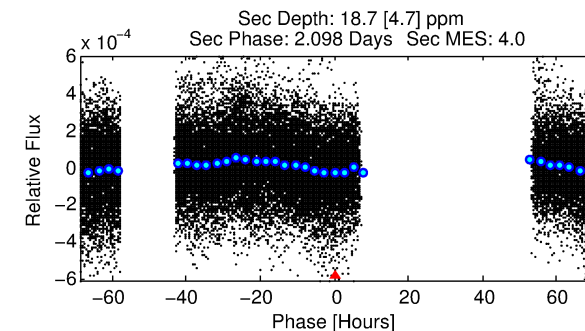
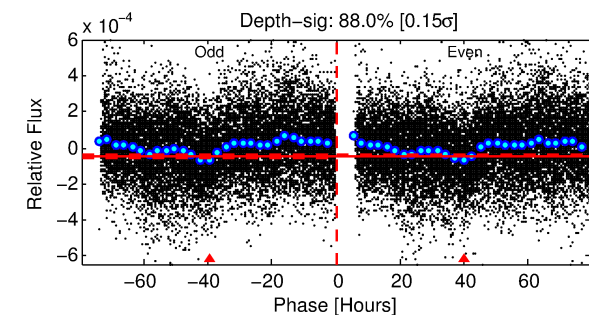
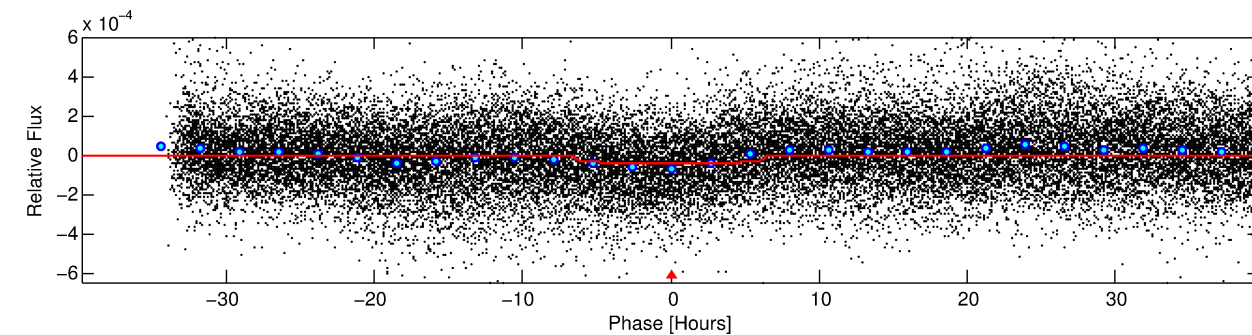
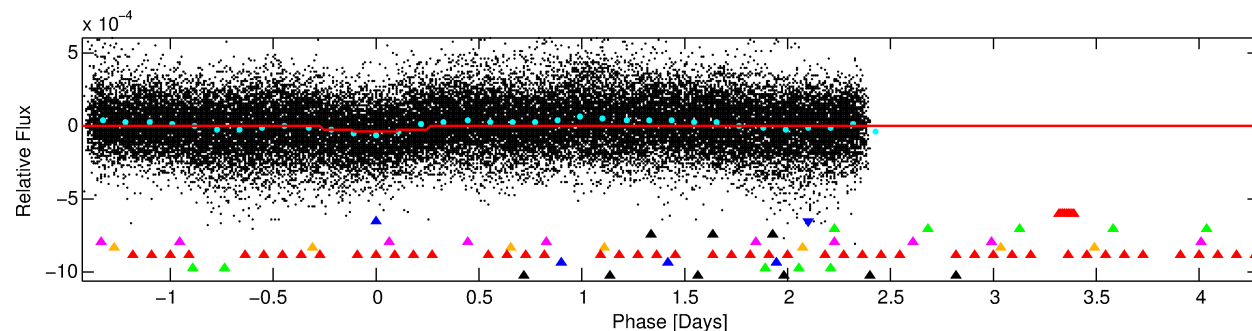
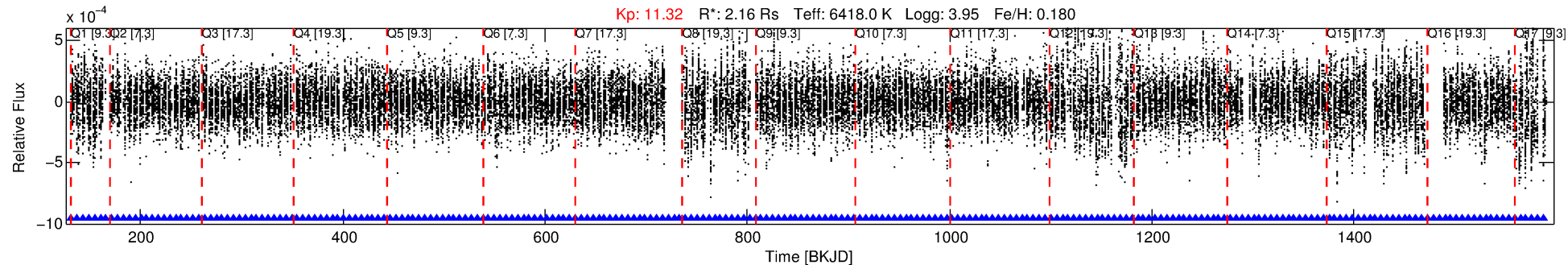
Ephemeris Match Information For 005617510-02

No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 2 of 10 Period: 5.731 d
KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



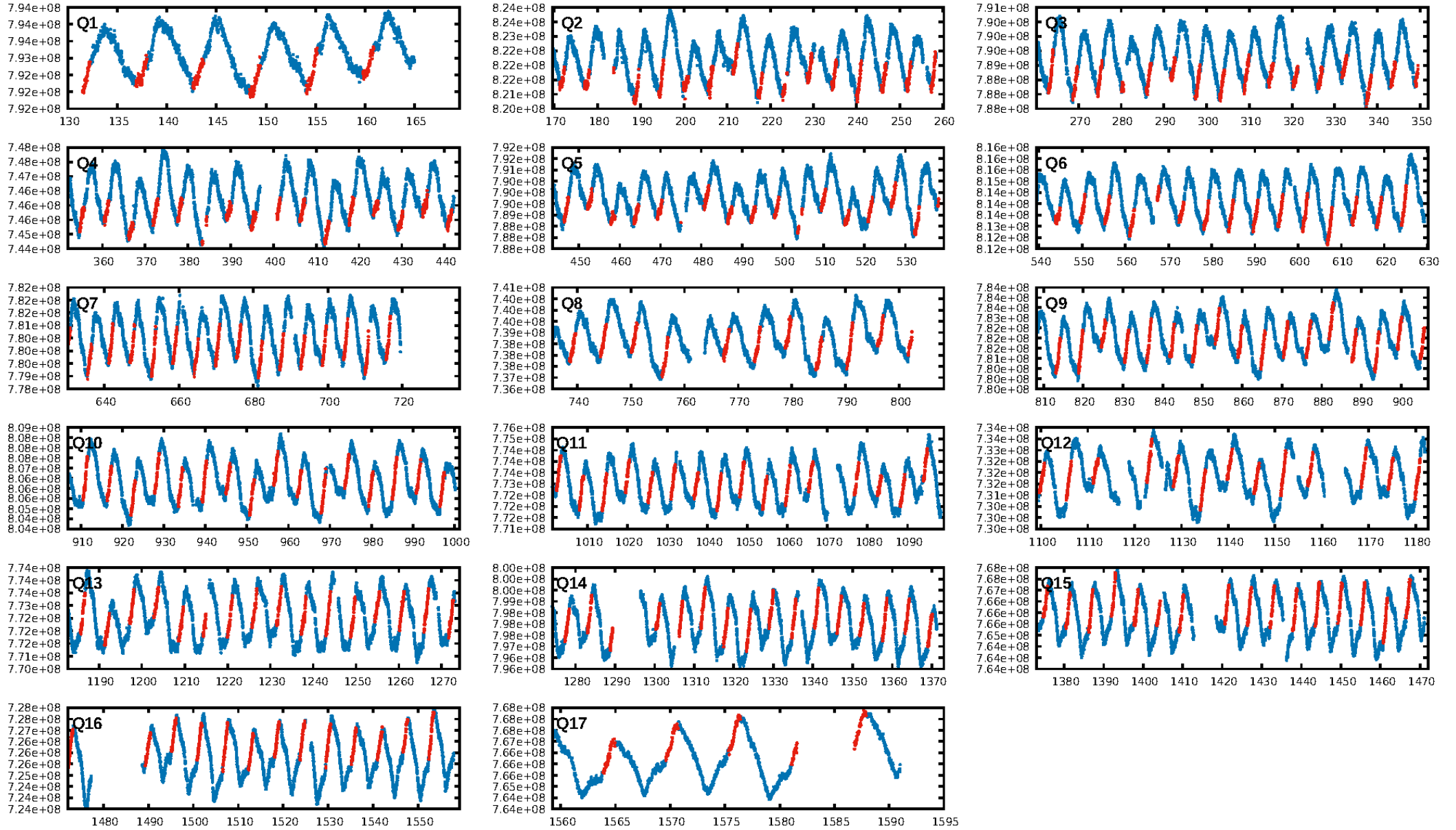
DV Fit Results:

Period = 5.73092 [0.00006] d
Epoch = 131.6865 [0.0074] BKJD
Rp/R* = 0.0068 [0.0007]
a/R* = 1.69 [0.46]
b = 0.91 [0.08]
Seff = 1358.41 [457.10]
Teq = 1548 [130] K
Rp = 1.59 [0.44] Re
a = 0.0722 [0.0160] AU
Ag = 21.16 [9.82] [2.05σ]
Teffp = 5134 [422] K [8.12σ]

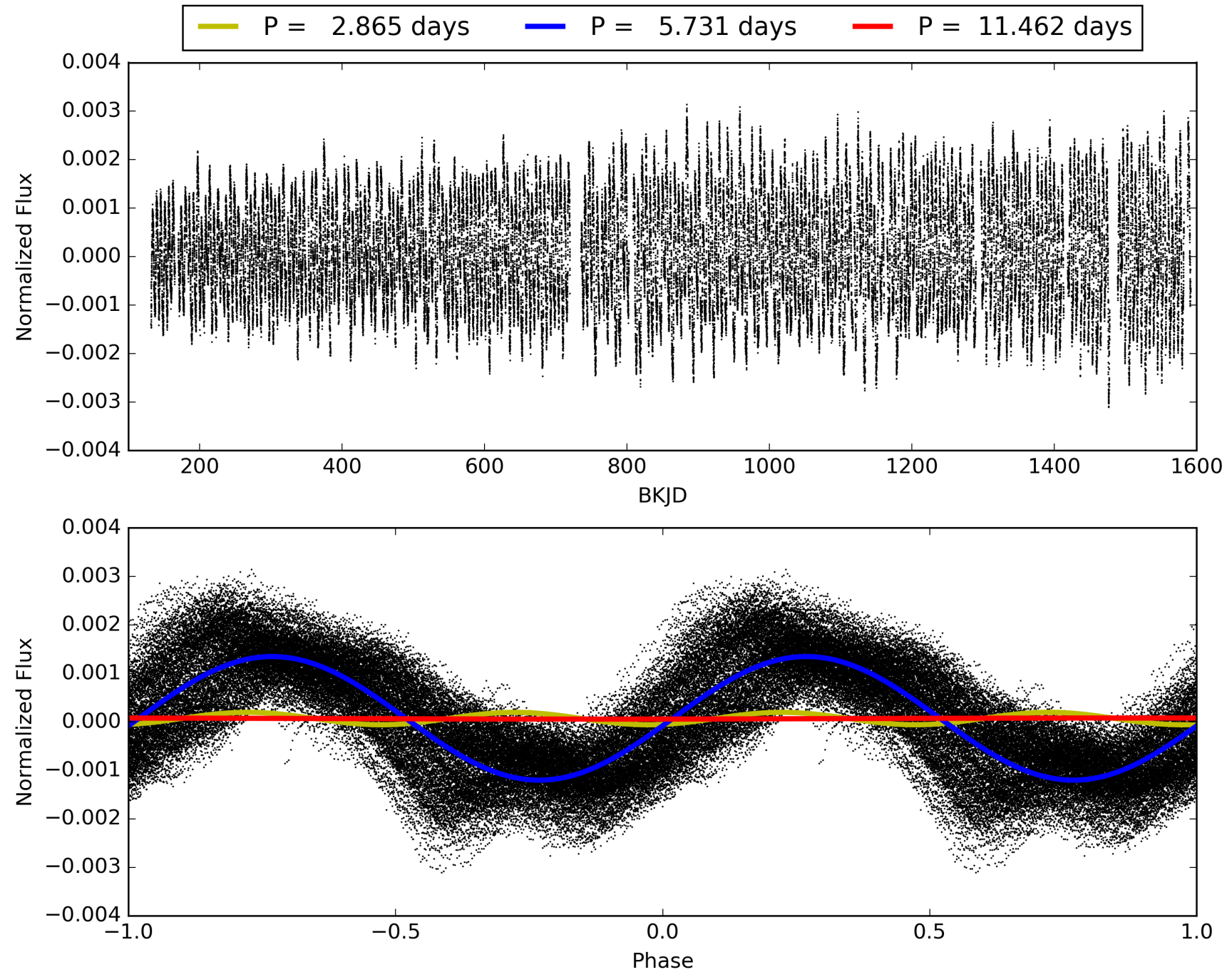
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [36.92σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [224/224]
GhostDiagnostic-chr: 1.298
Centroid-sig: 1.6%
Centroid-so: 0.649 arcsec [1.27σ]
OotOffset-rm: 0.372 arcsec [1.23σ]
KicOffset-rm: 0.232 arcsec [0.70σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005617510-02, PDC Light Curves

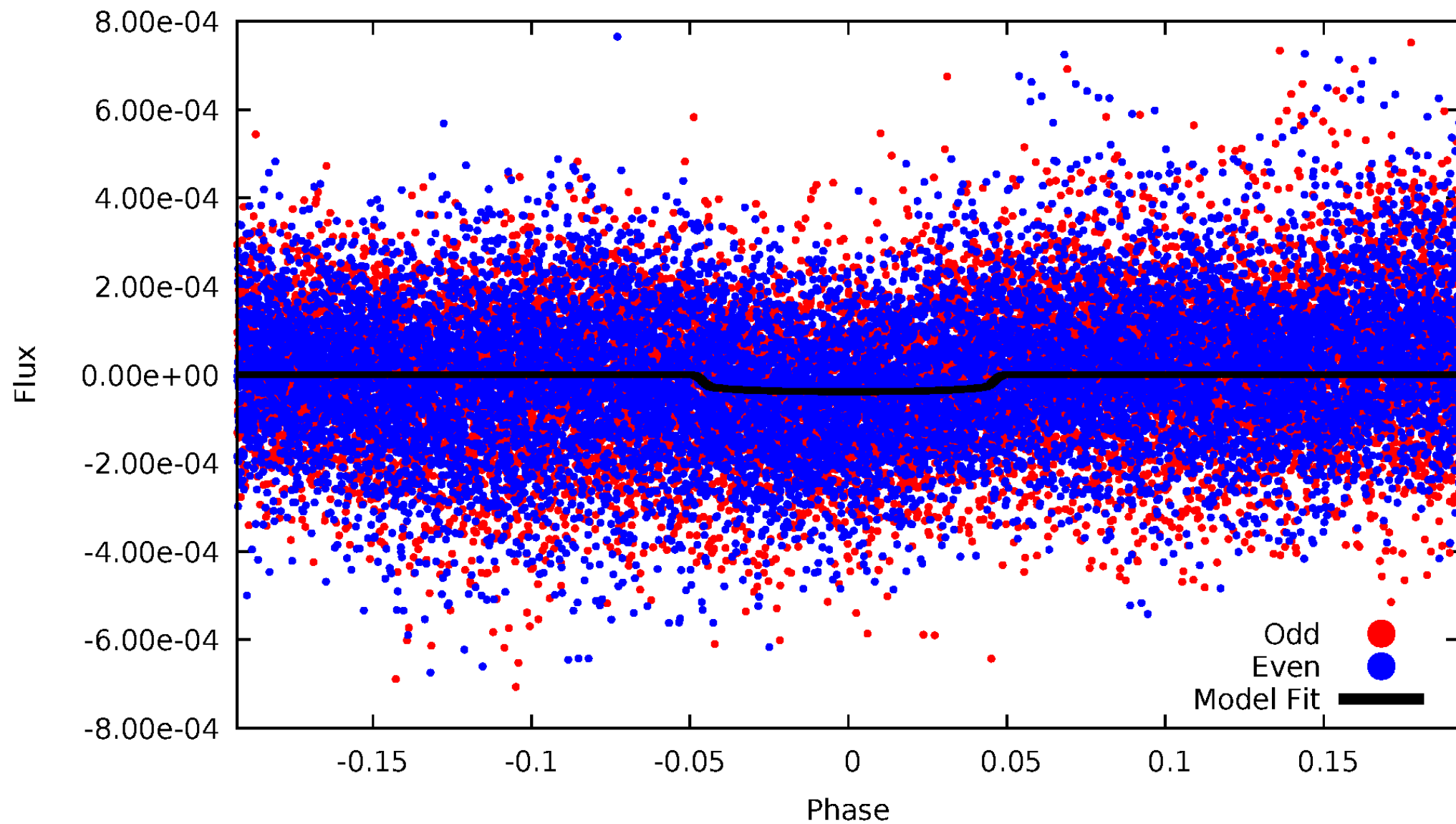


TCE 005617510-02



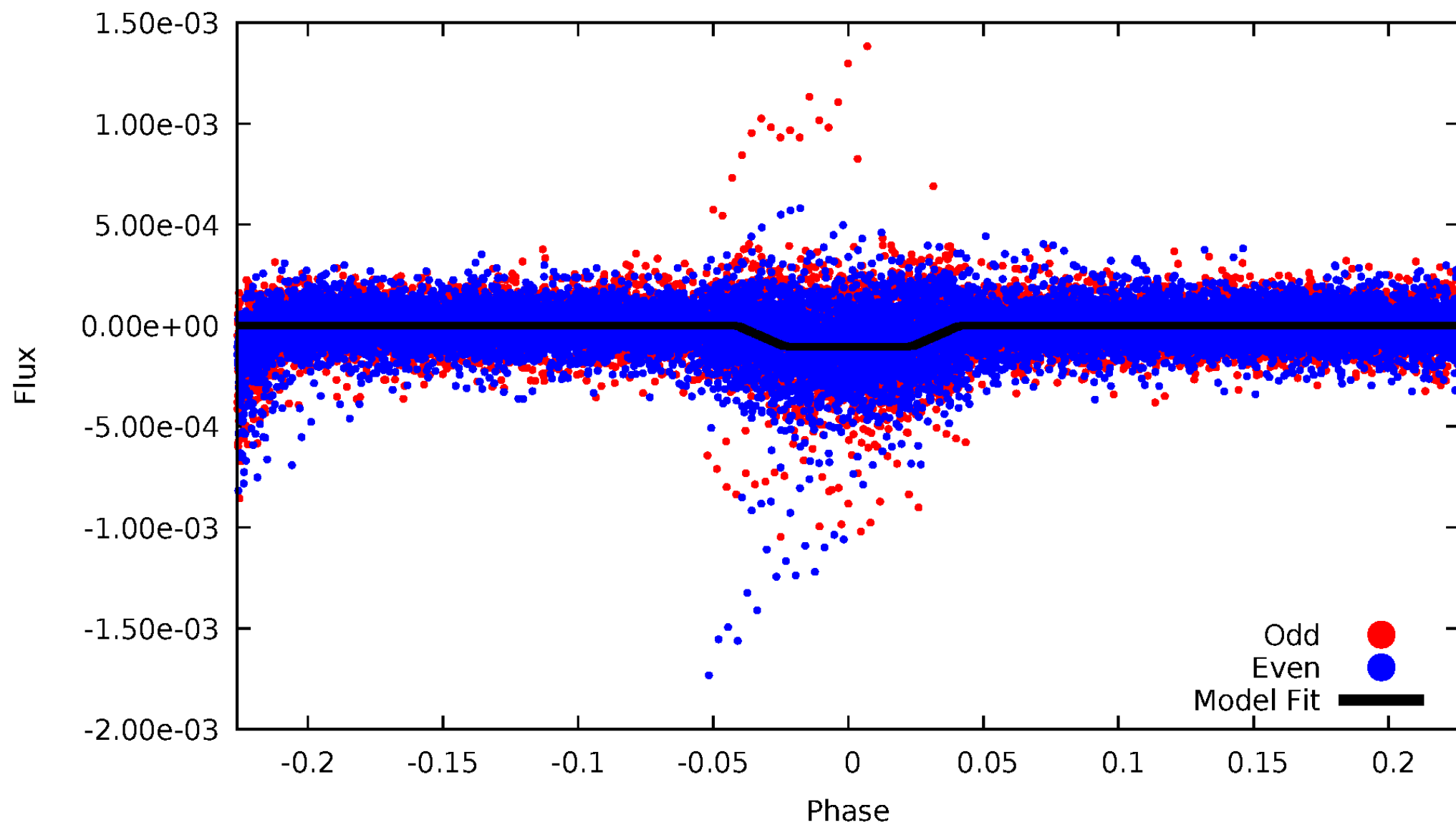
DV Odd/Even

TCE 005617510-02



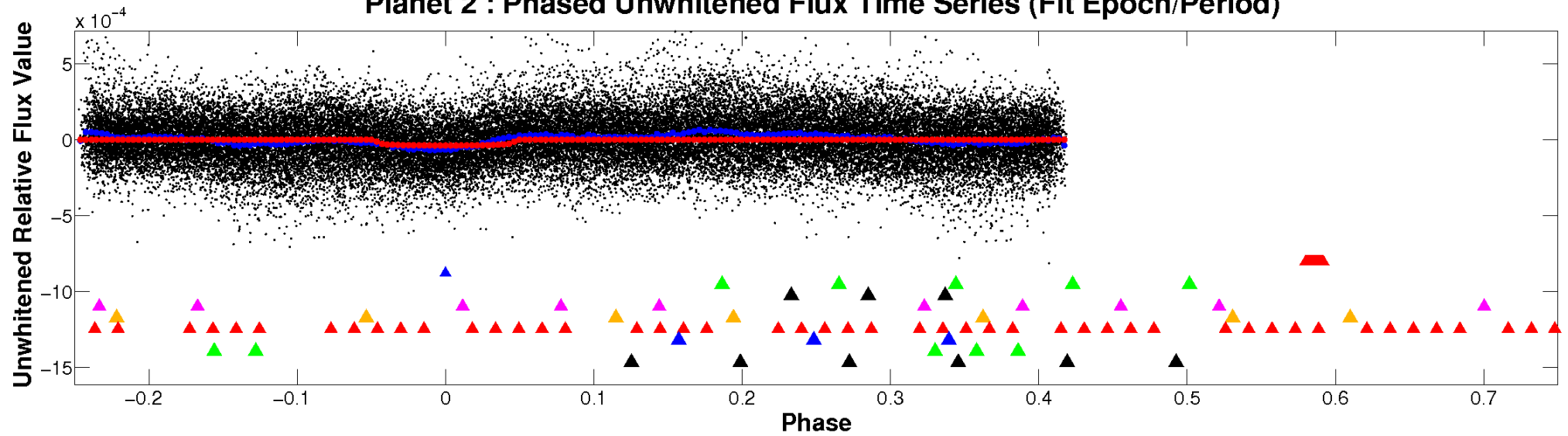
ALT Odd/Even

TCE 005617510-02

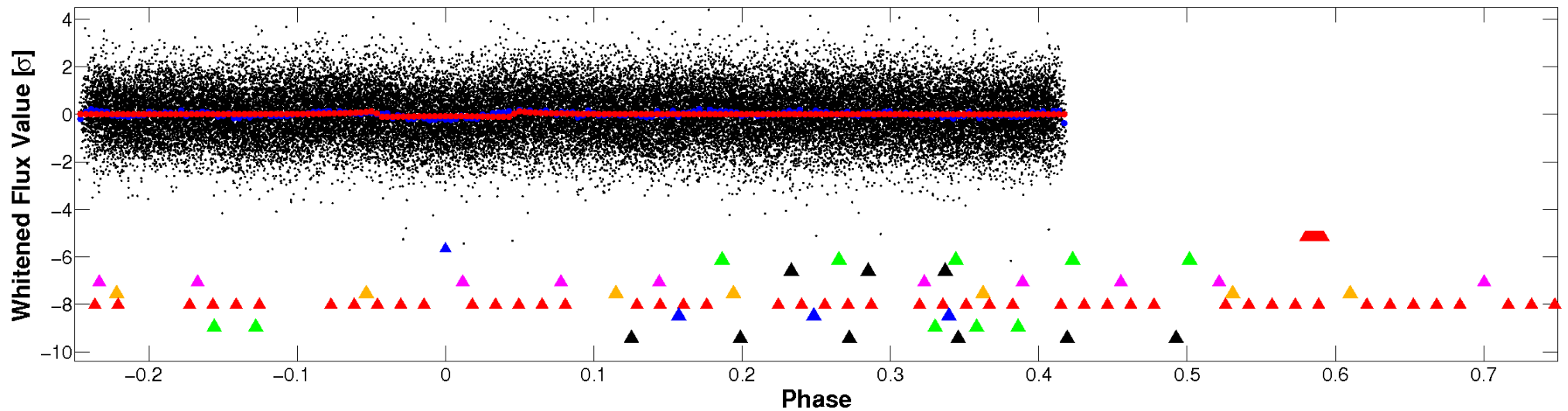


Non-Whitened Vs. Whitened Light Curve

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

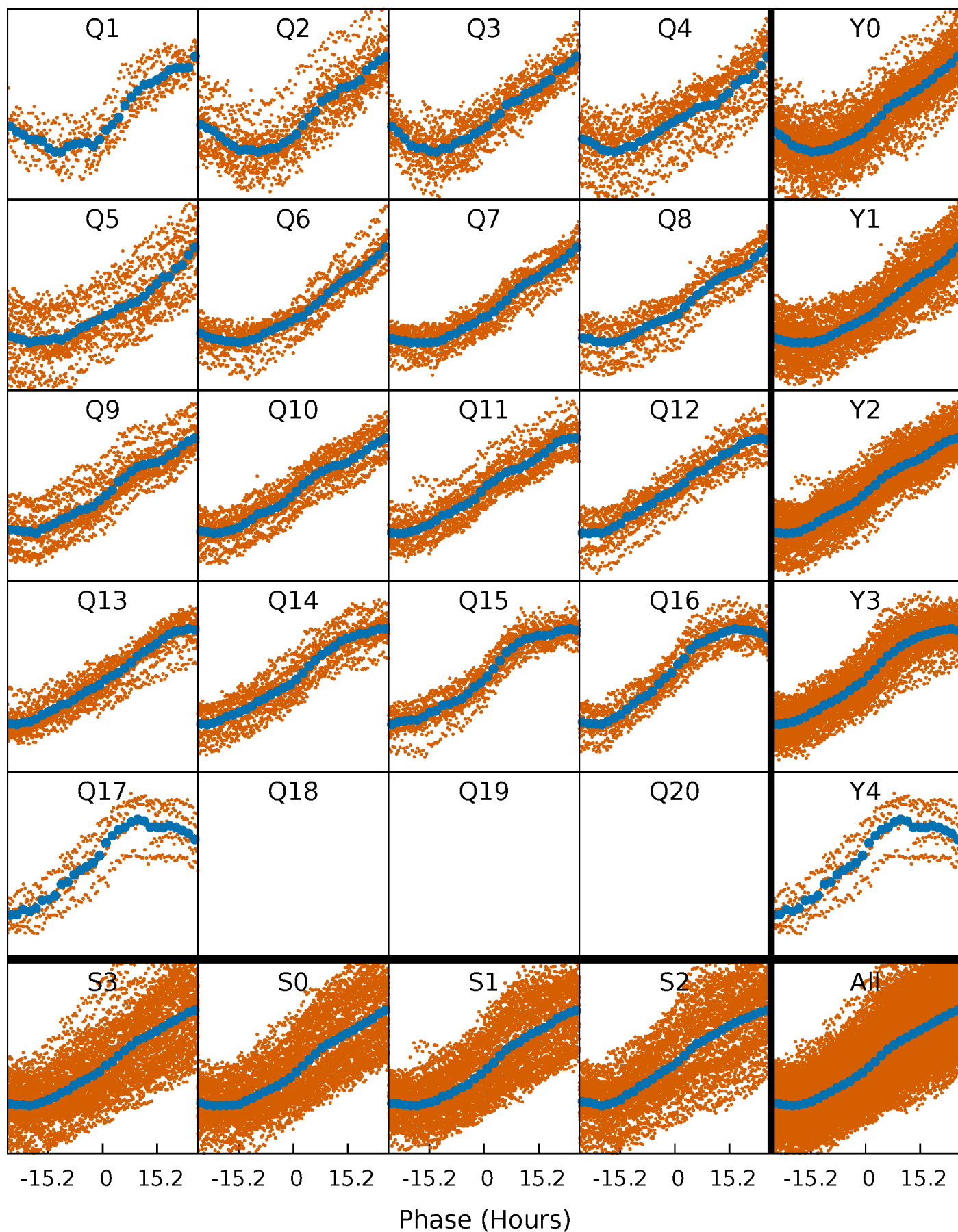


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



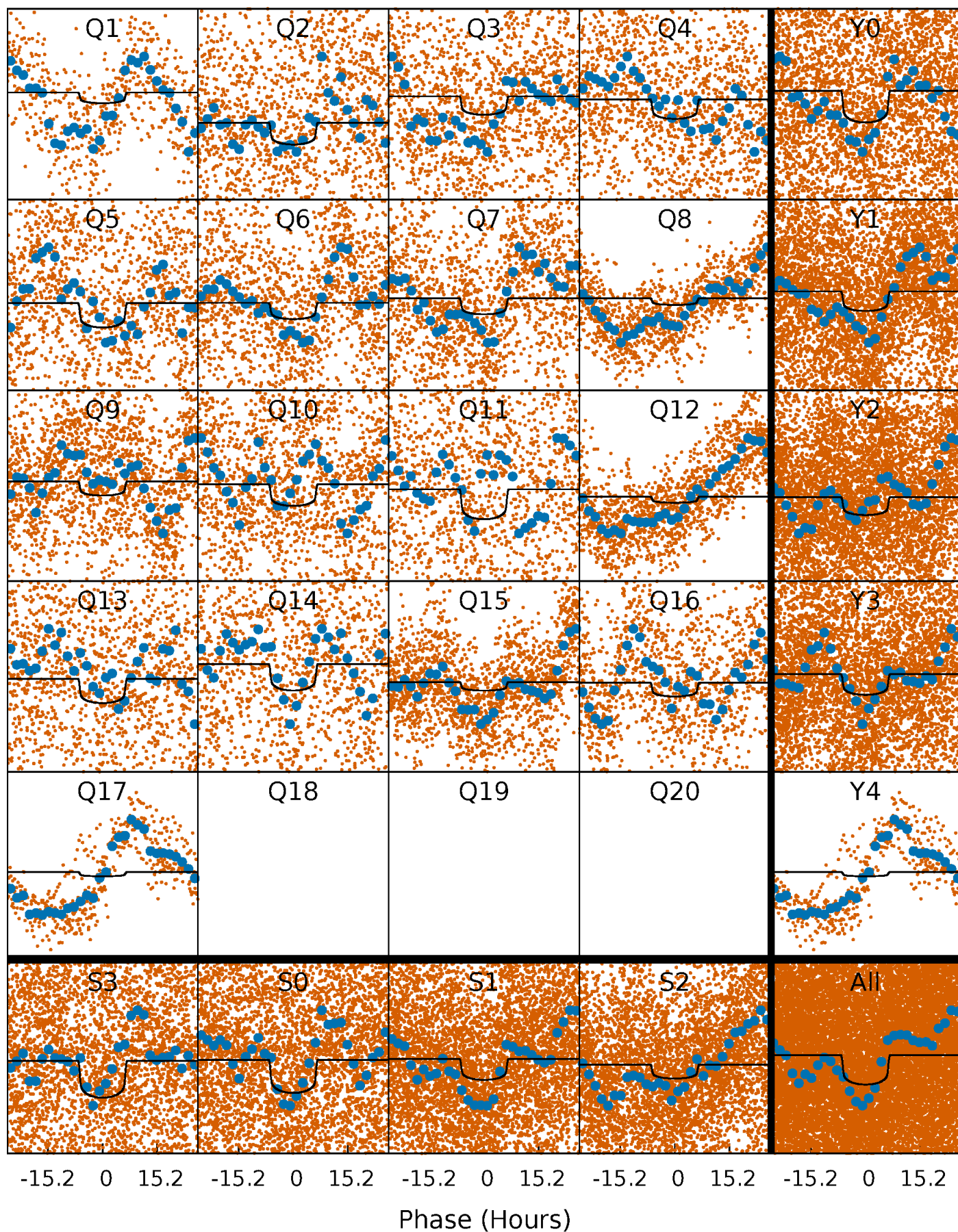
PDC Quarter-Phased Transit Curves

TCE 005617510-02 P= 5.730917 Days $T_0=131.686455$ (BKJD)



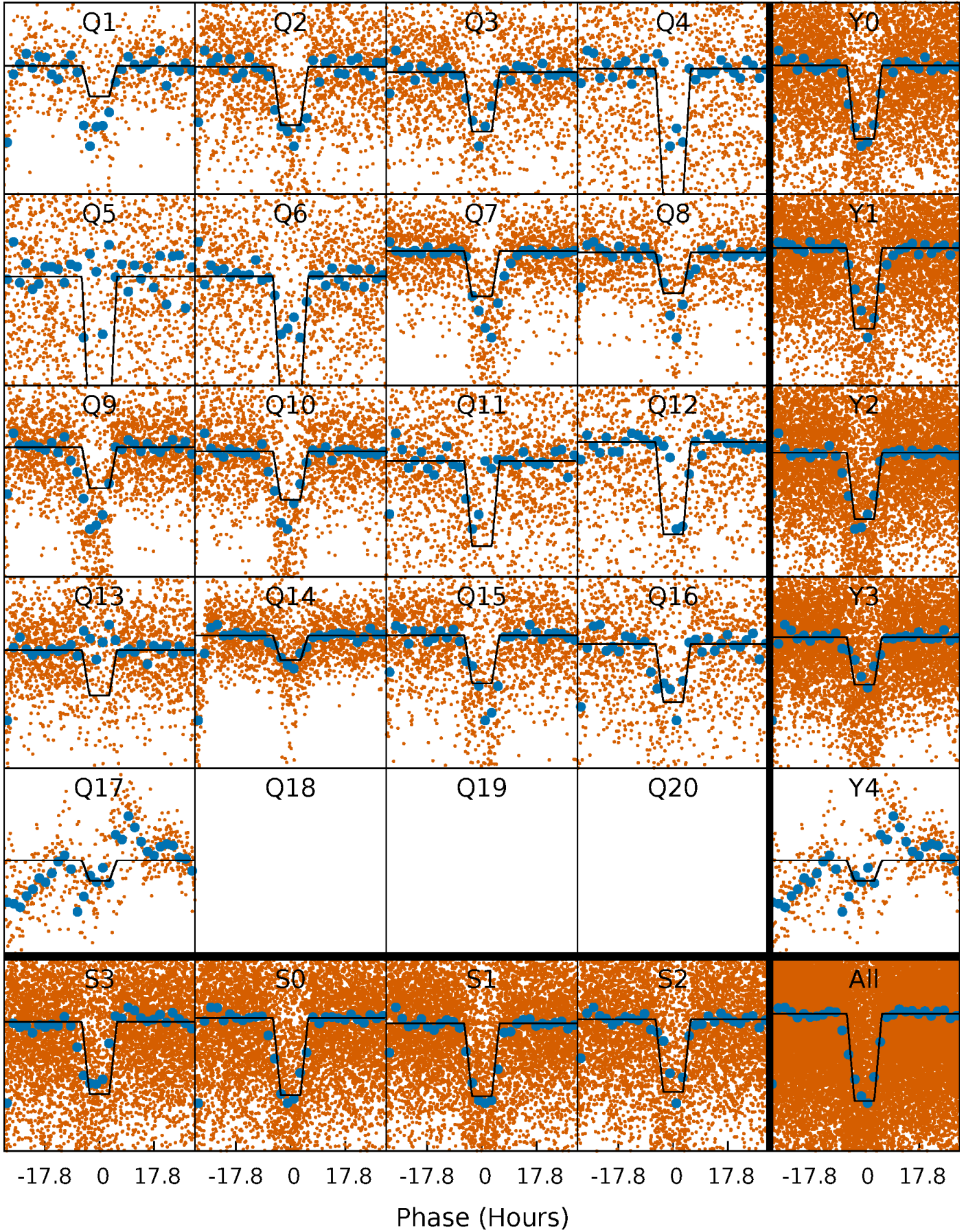
DV Quarter-Phased Transit Curves

TCE 005617510-02 P= 5.730917 Days $T_0=131.686455$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

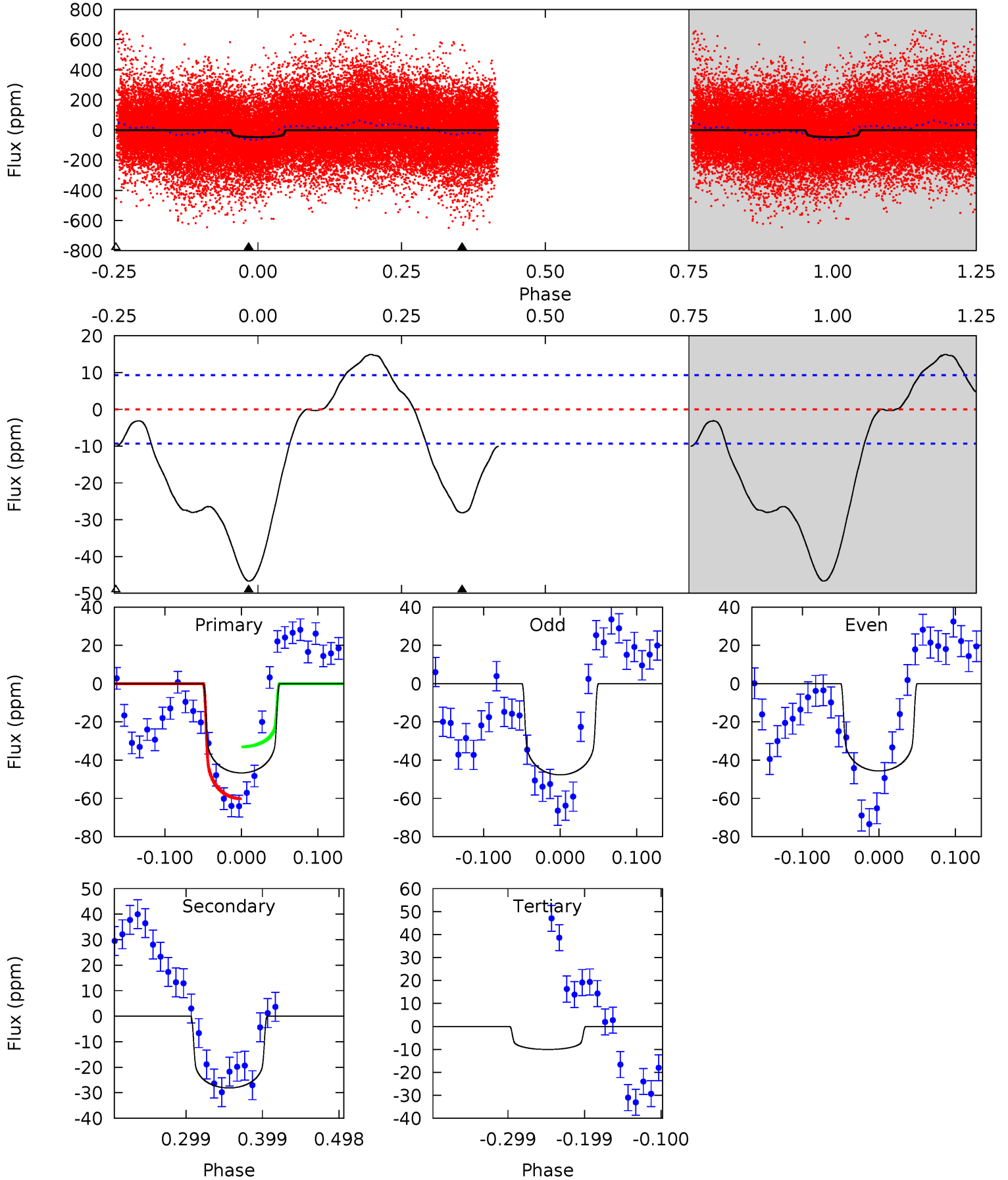
TCE 005617510-02 P= 5.730448 Days $T_0=131.737906$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-02, P = 5.730917 Days, E = 125.955538 Days

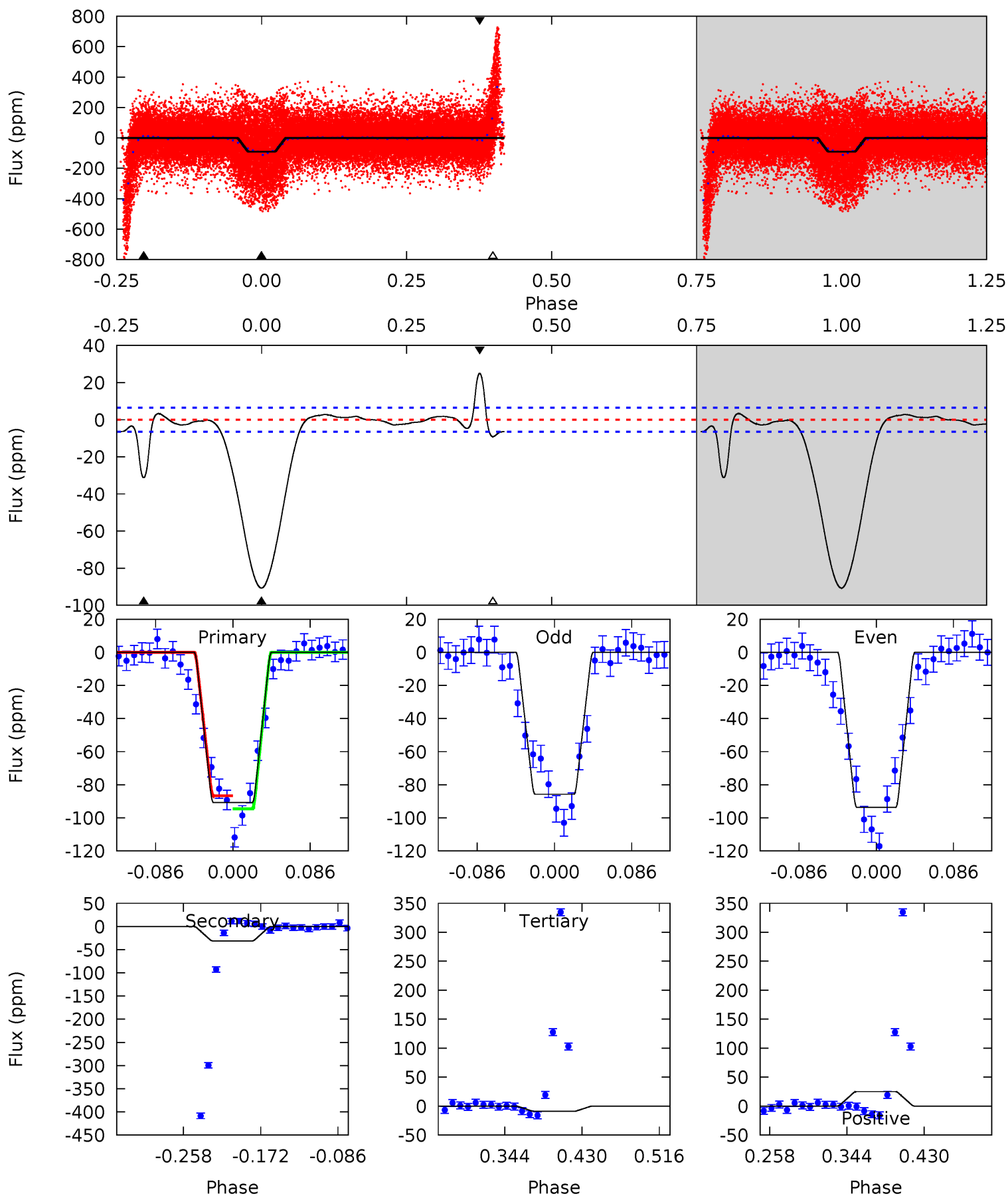
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	13.8	4.93	0	4.57	1.65	6.38	18.0	22.9	8.88	13.8	0.50	0.94	0.24	6.67



Alt Model-Shift Uniqueness Test

005617510-02, P = 5.730448 Days, E = 126.007458 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.1	22.1	6.45	17.6	4.60	1.72	3.72	57.6	46.4	15.6	4.41	2.82	1.14	0.22	3.30



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-28 ± 2	$1.55^{+0.25}_{-0.24}$	2150^{+102}_{-133}	5696^{+309}_{-289}	33^{+13}_{-8}
Alt.	-31 ± 1	$2.39^{+0.31}_{-0.31}$	2158^{+99}_{-132}	4824^{+161}_{-143}	16^{+5}_{-3}

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

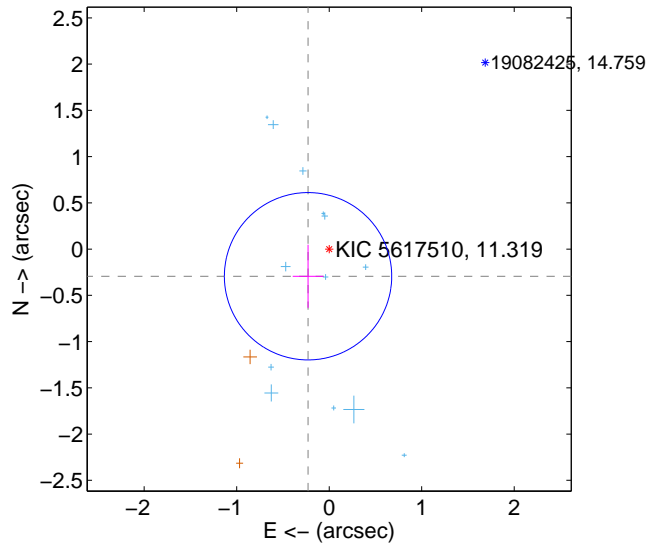
Supplemental centroid analysis for 005617510-02. **Kepler magnitude: 11.32.** Transit SNR 8.40

There are 13 quarters with good PRF difference image offsets

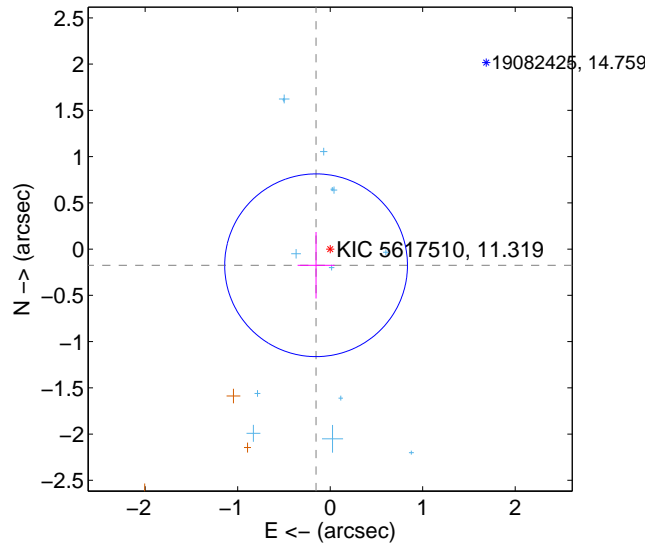
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.372 ± 0.302	1.23	0.229 ± 0.165	-0.294 ± 0.341
PRF-fit source offset from KIC position	0.232 ± 0.329	0.70	0.152 ± 0.199	-0.175 ± 0.360
photometric centroid source offset	0.65 ± 0.51	1.27	-0.28 ± 0.45	-0.59 ± 0.52

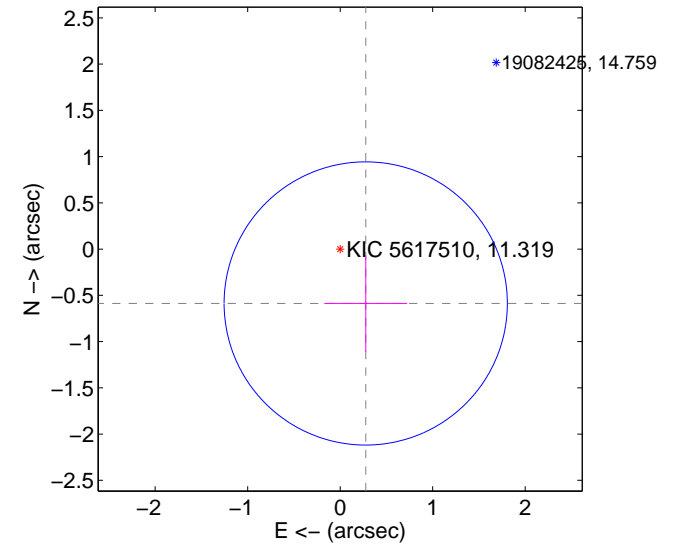
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

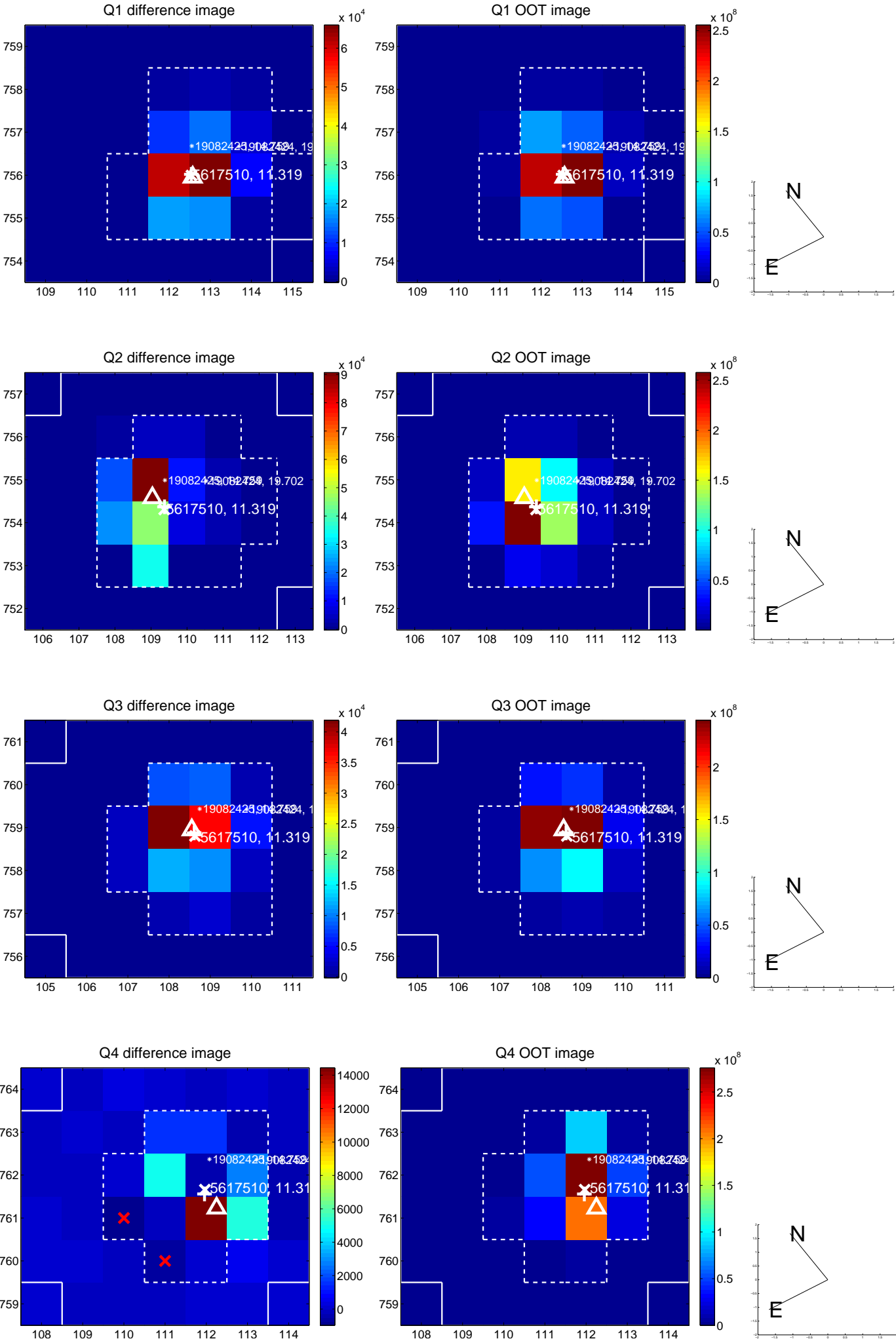


offset from photometric centroids

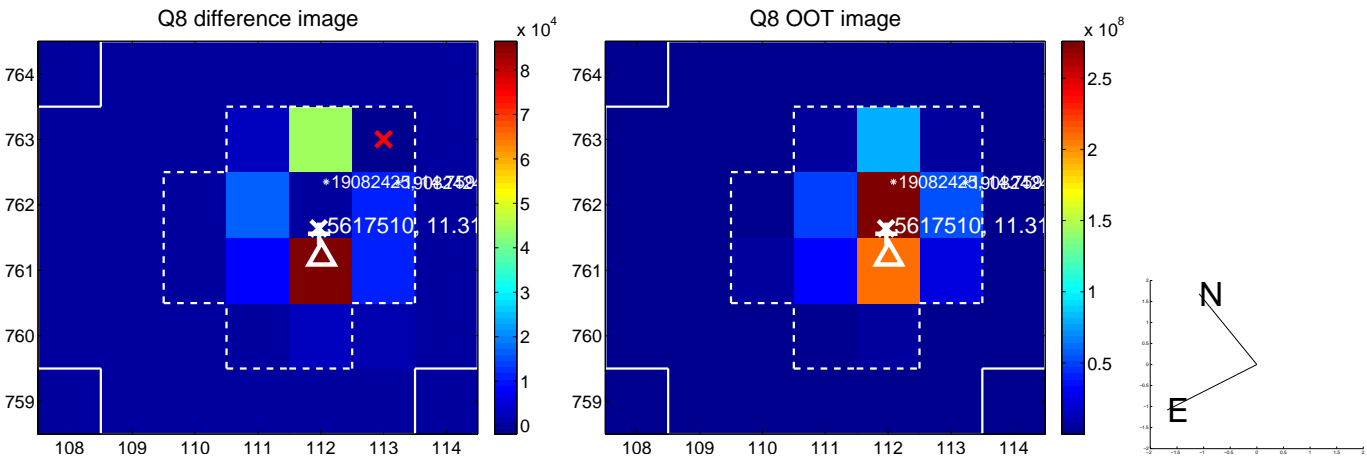
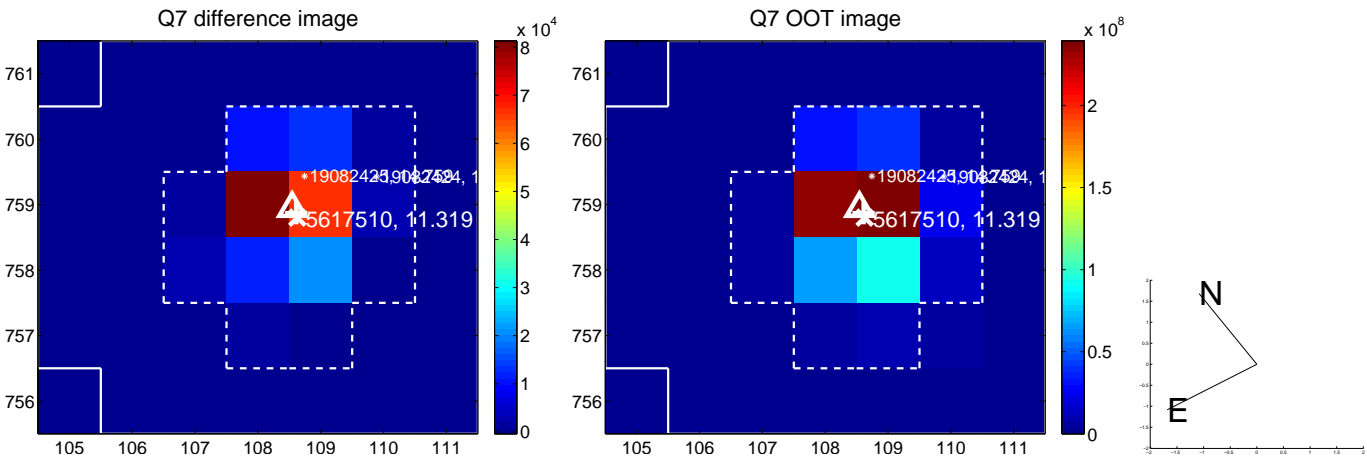
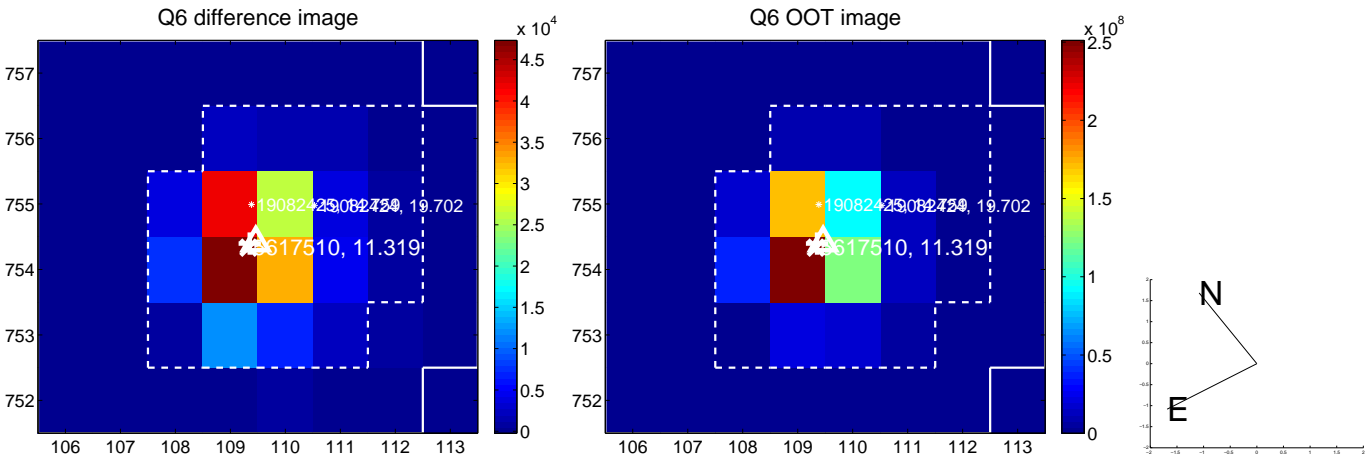
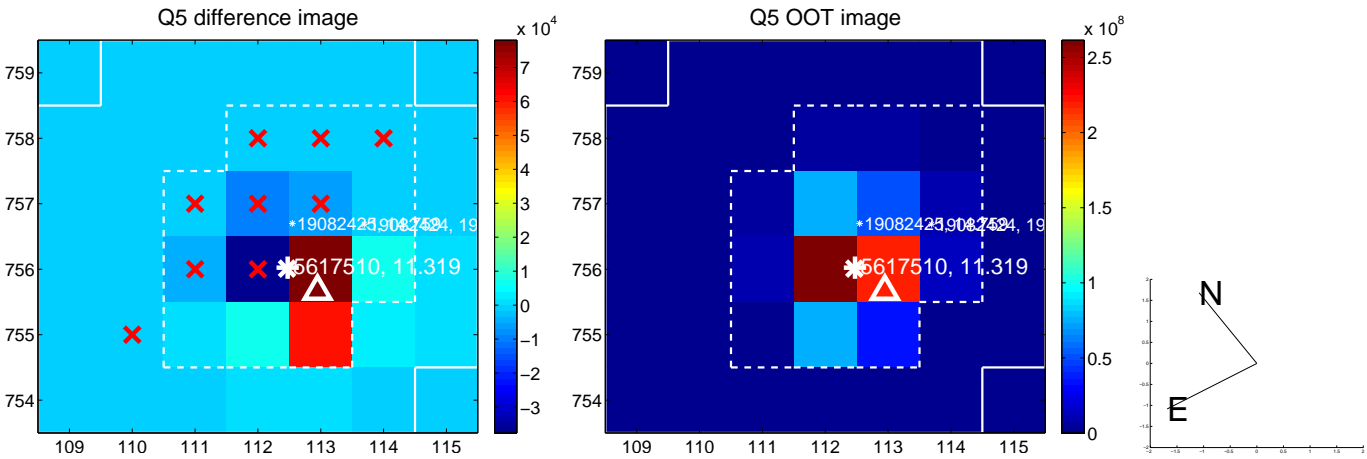


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

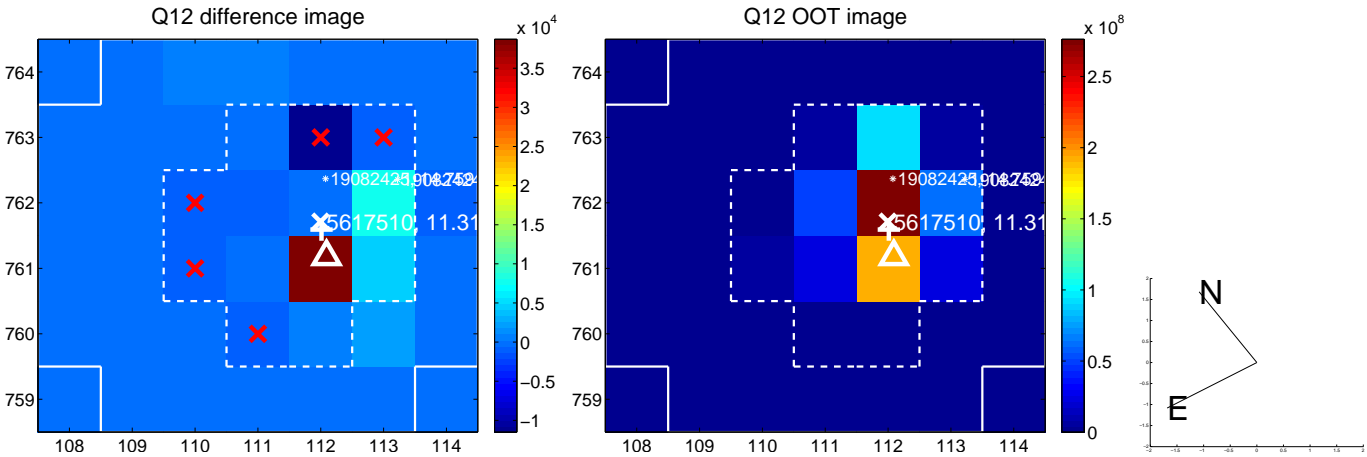
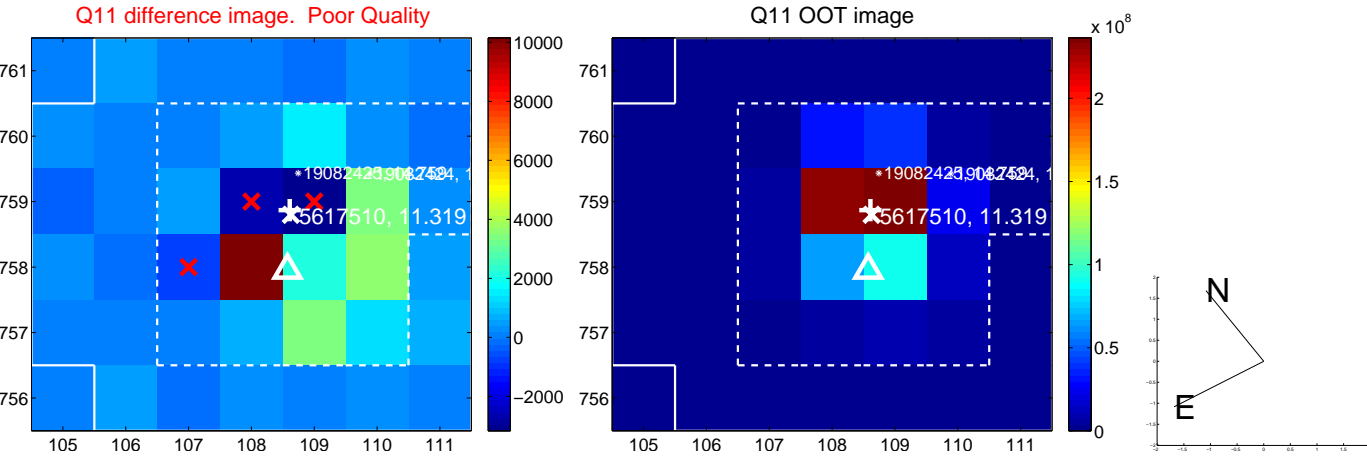
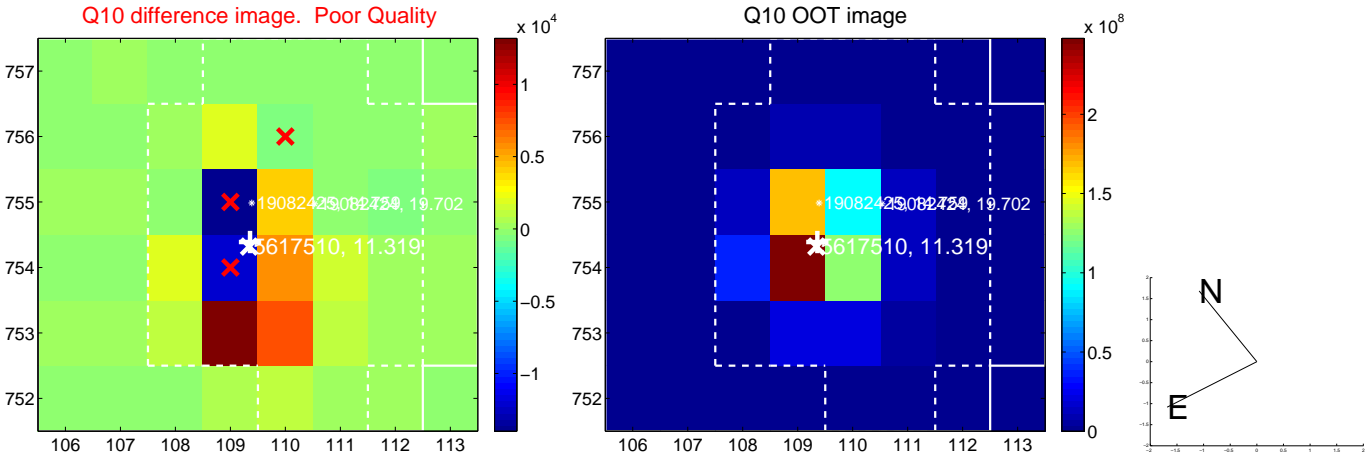
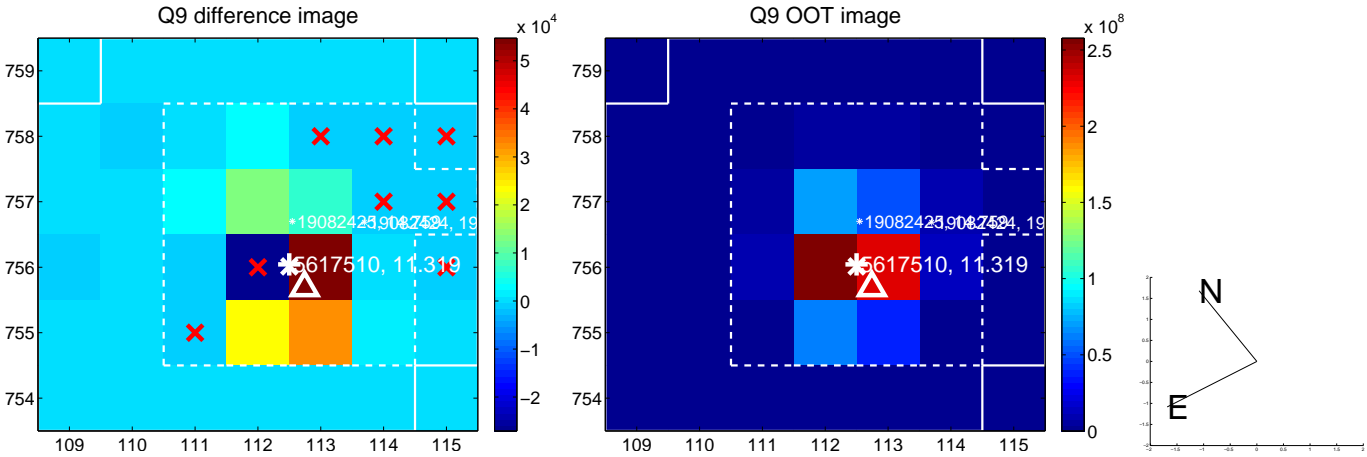
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



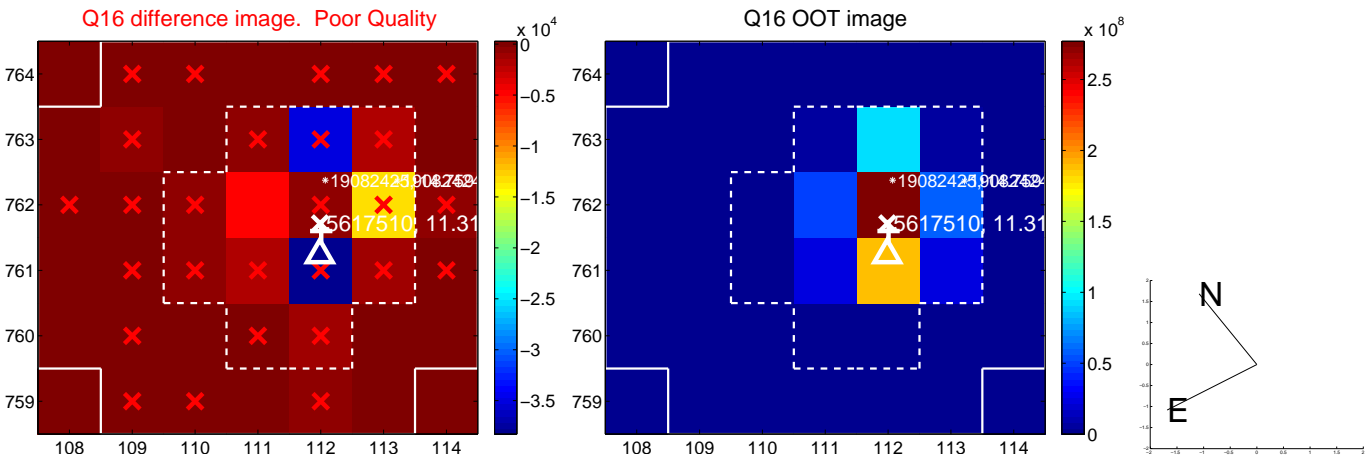
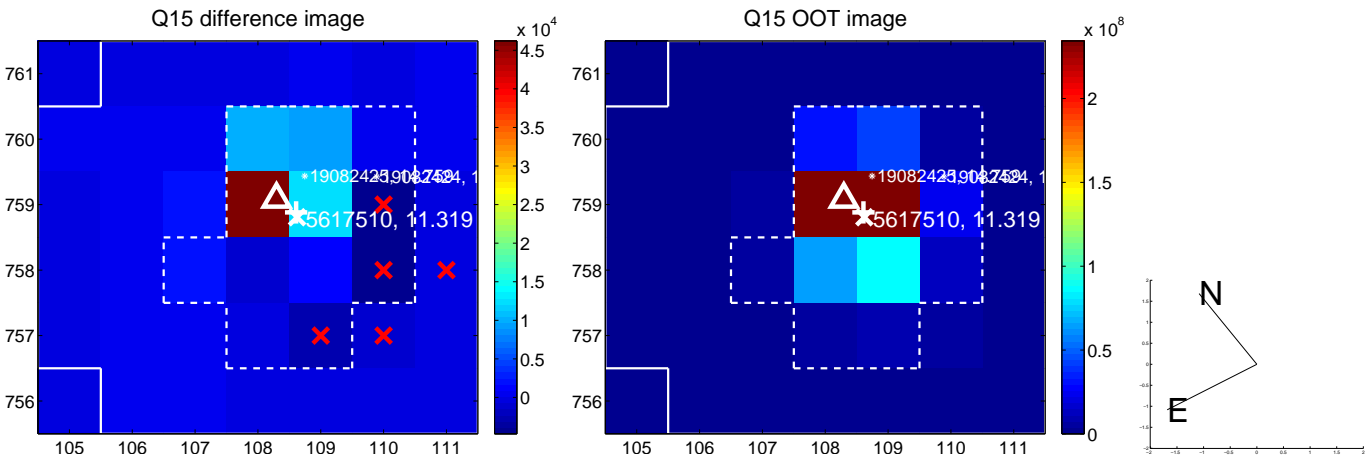
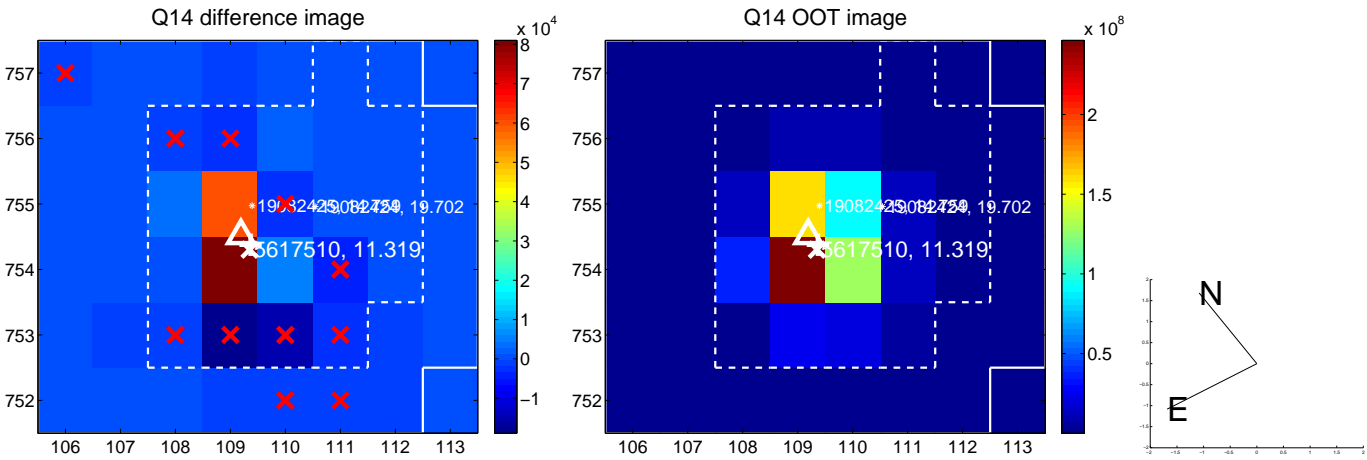
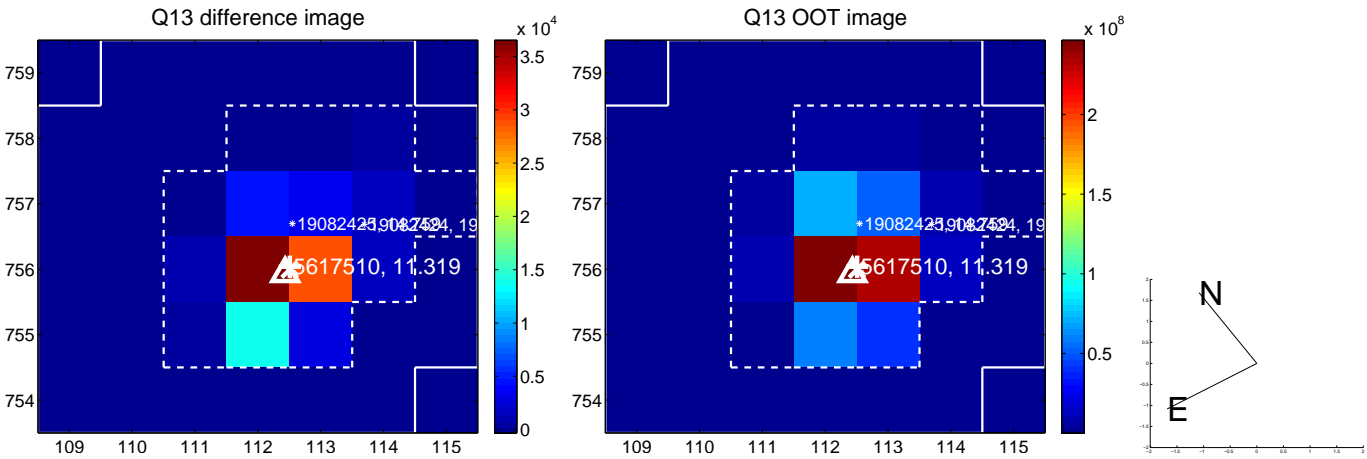
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



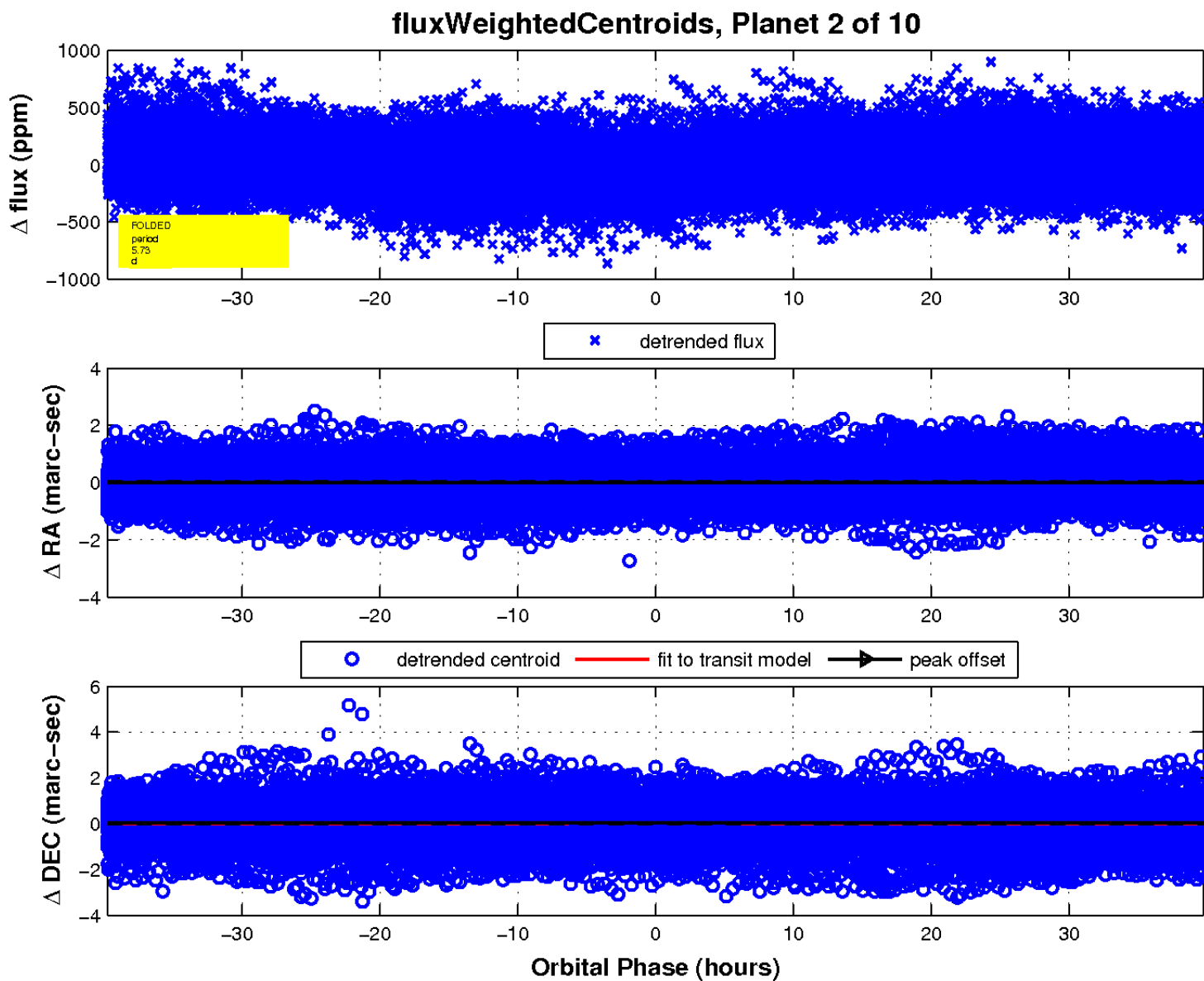
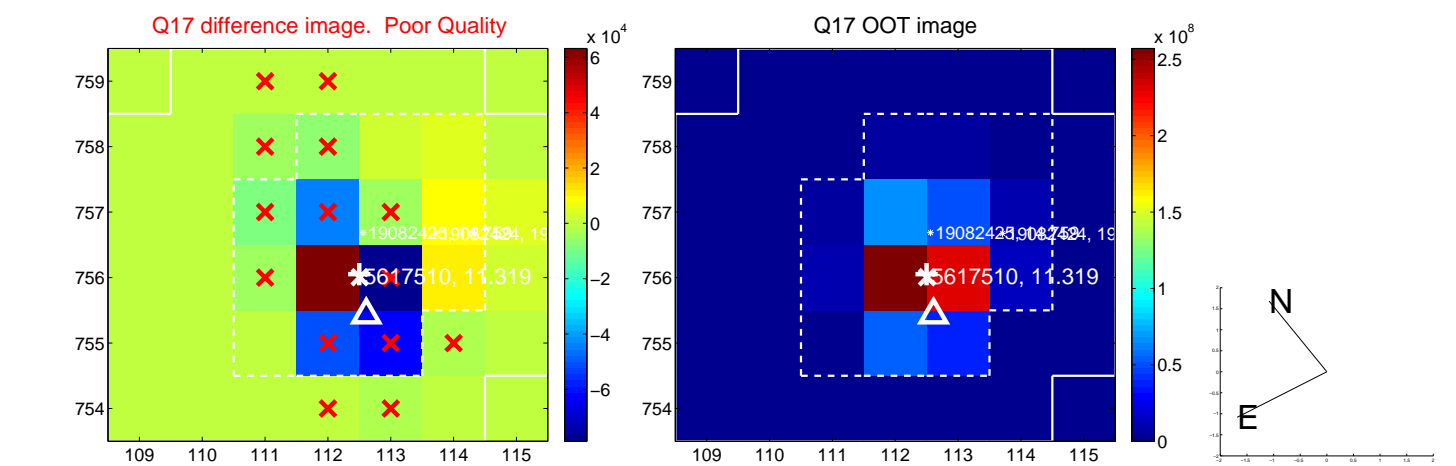
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

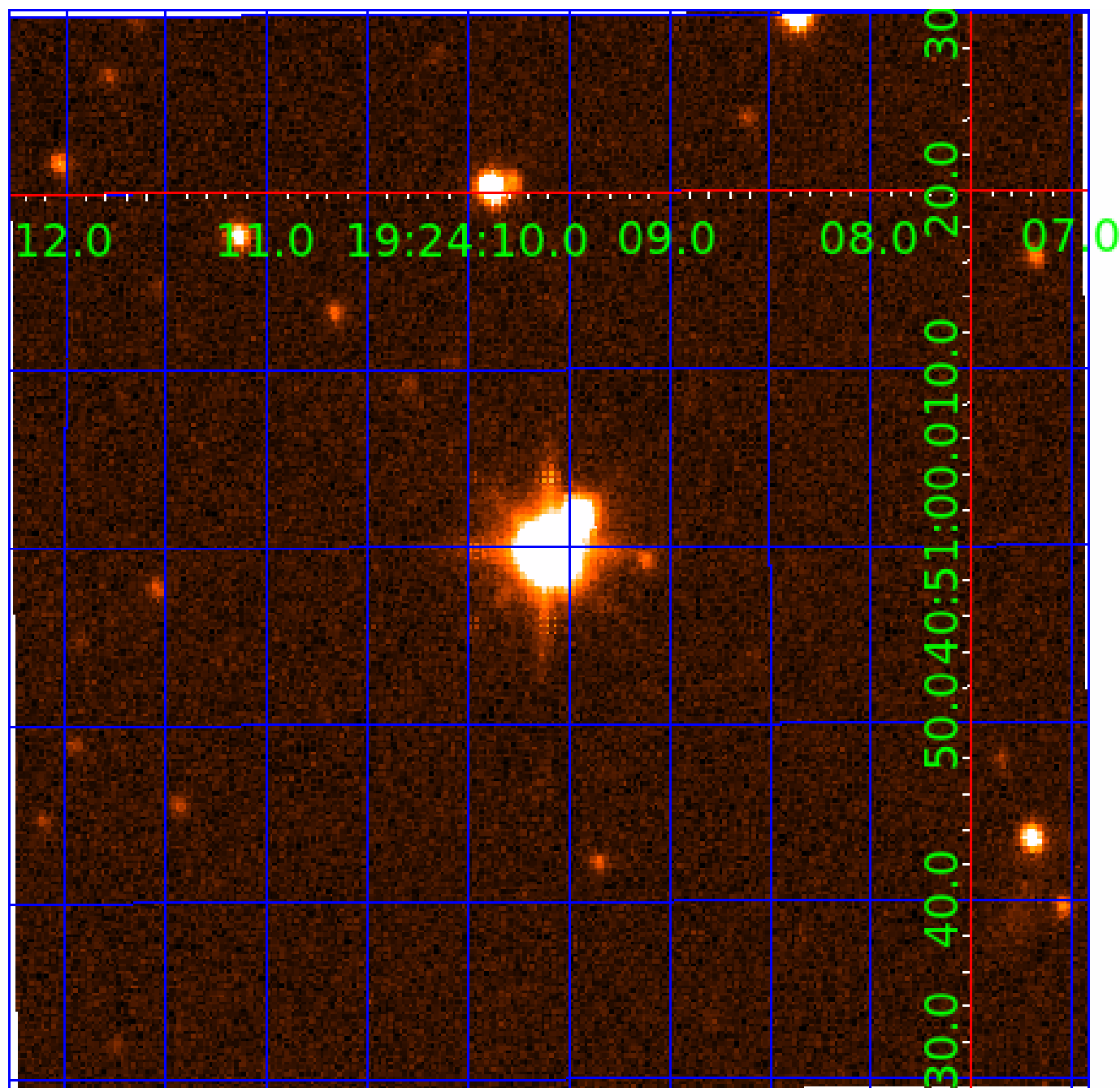


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

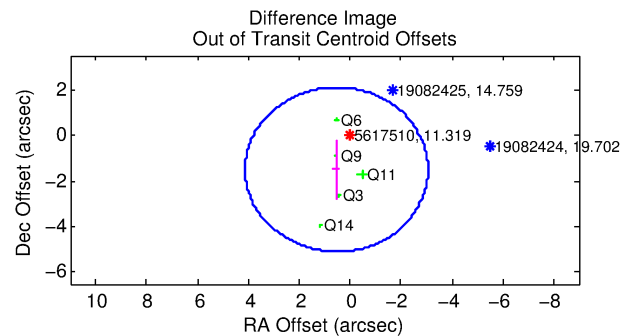
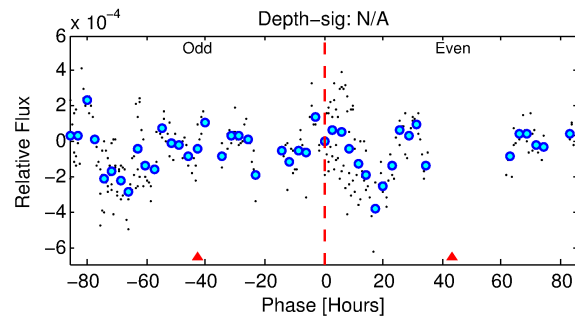
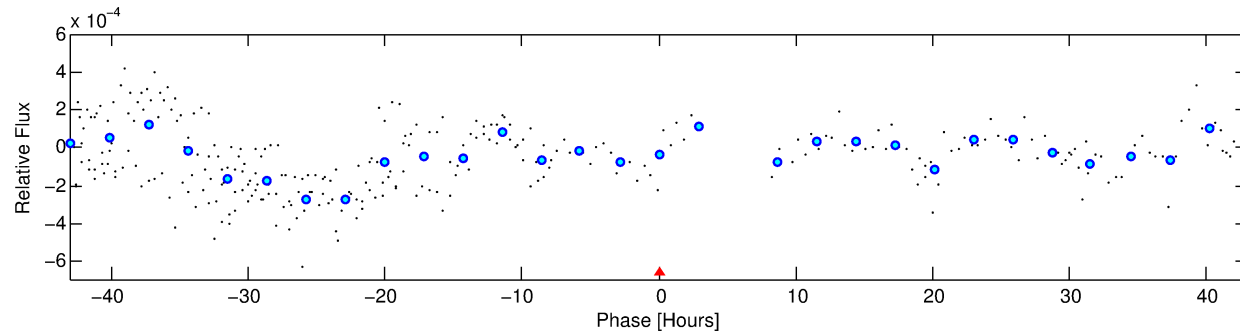
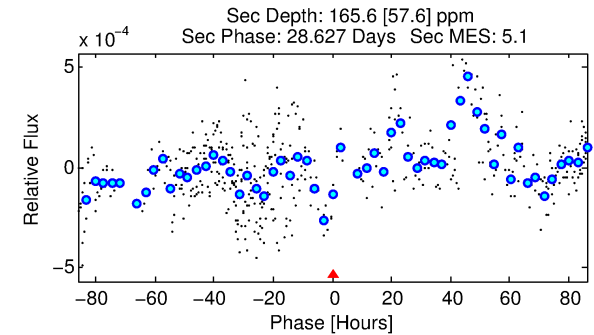
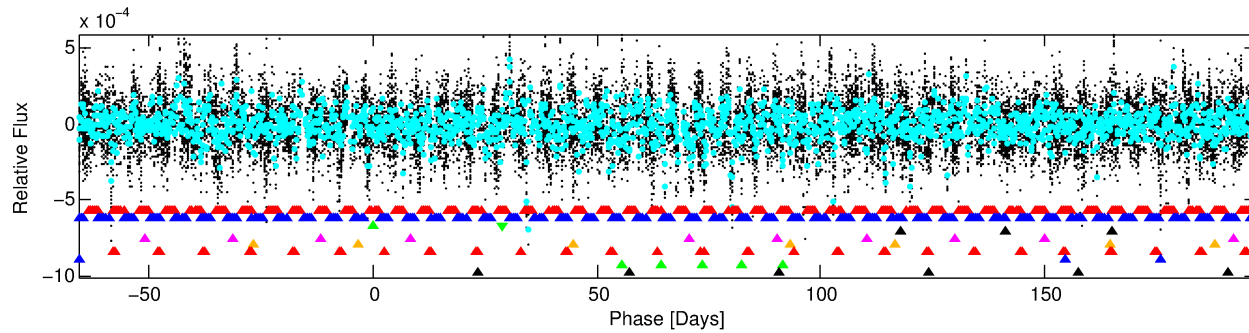
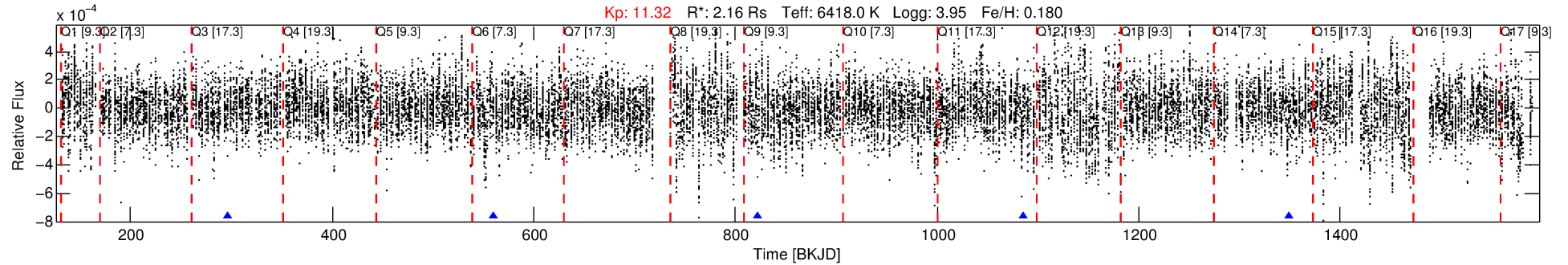
Ephemeris Match Information For 005617510-03

No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 3 of 10 Period: 263.171 d
KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



TPS TCE Results:

Period = 263.17063 d
Epoch = 295.0272 BKJD

DV fit results are unavailable

DV Diagnostic Results:

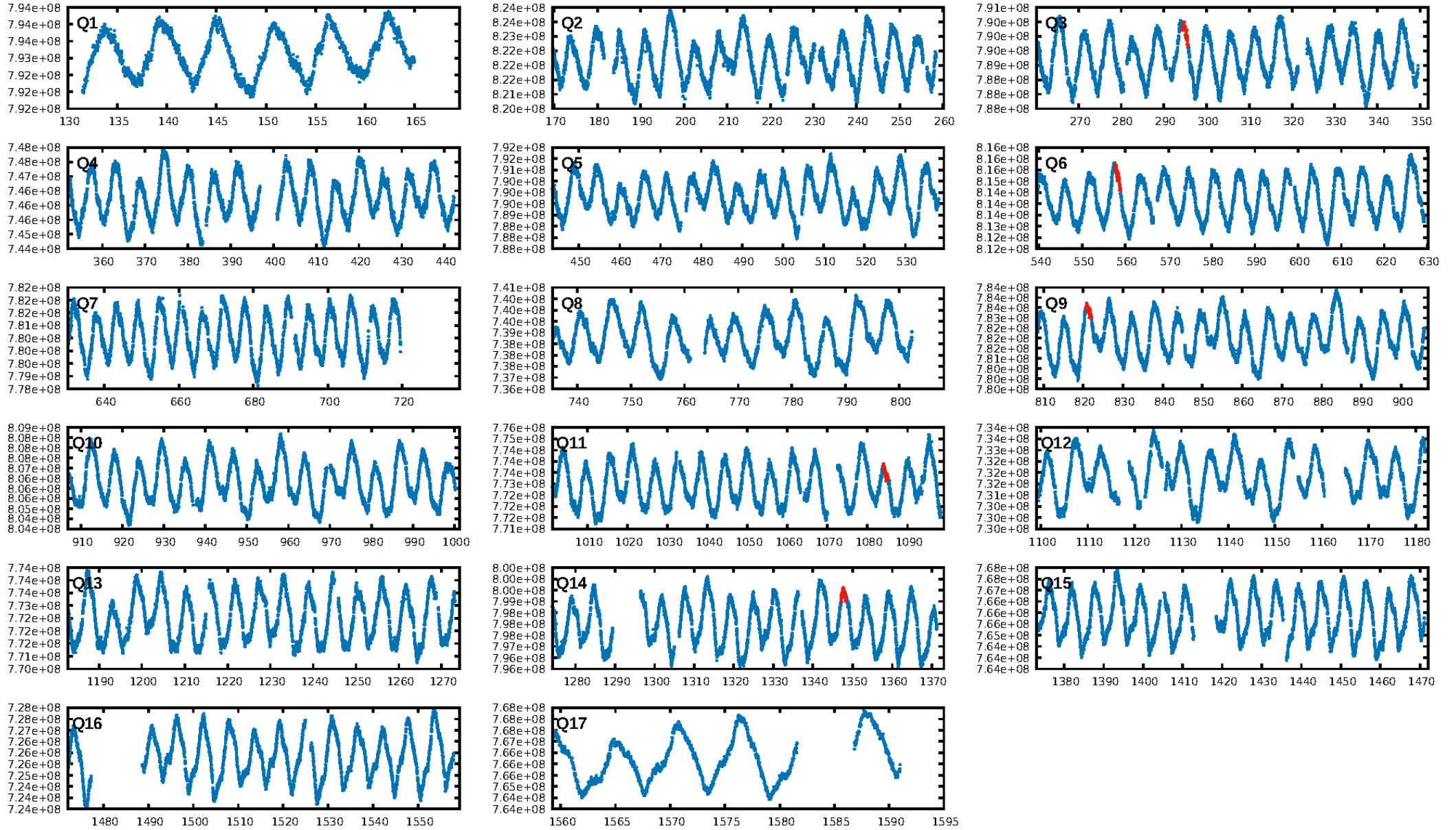
ShortPeriod-sig: 100.0% [43.30σ]
LongPeriod-sig: 100.0% [13.51σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: -1.035

Centroid-sig: 0.6%
Centroid-so: 18.641 arcsec [1.75σ]
OotOffset-rm: 1.583 arcsec [1.32σ]
KicOffset-rm: 1.377 arcsec [1.25σ]
OotOffset-st: 2/2/0/1 [5]
KicOffset-st: 2/2/0/1 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/5]

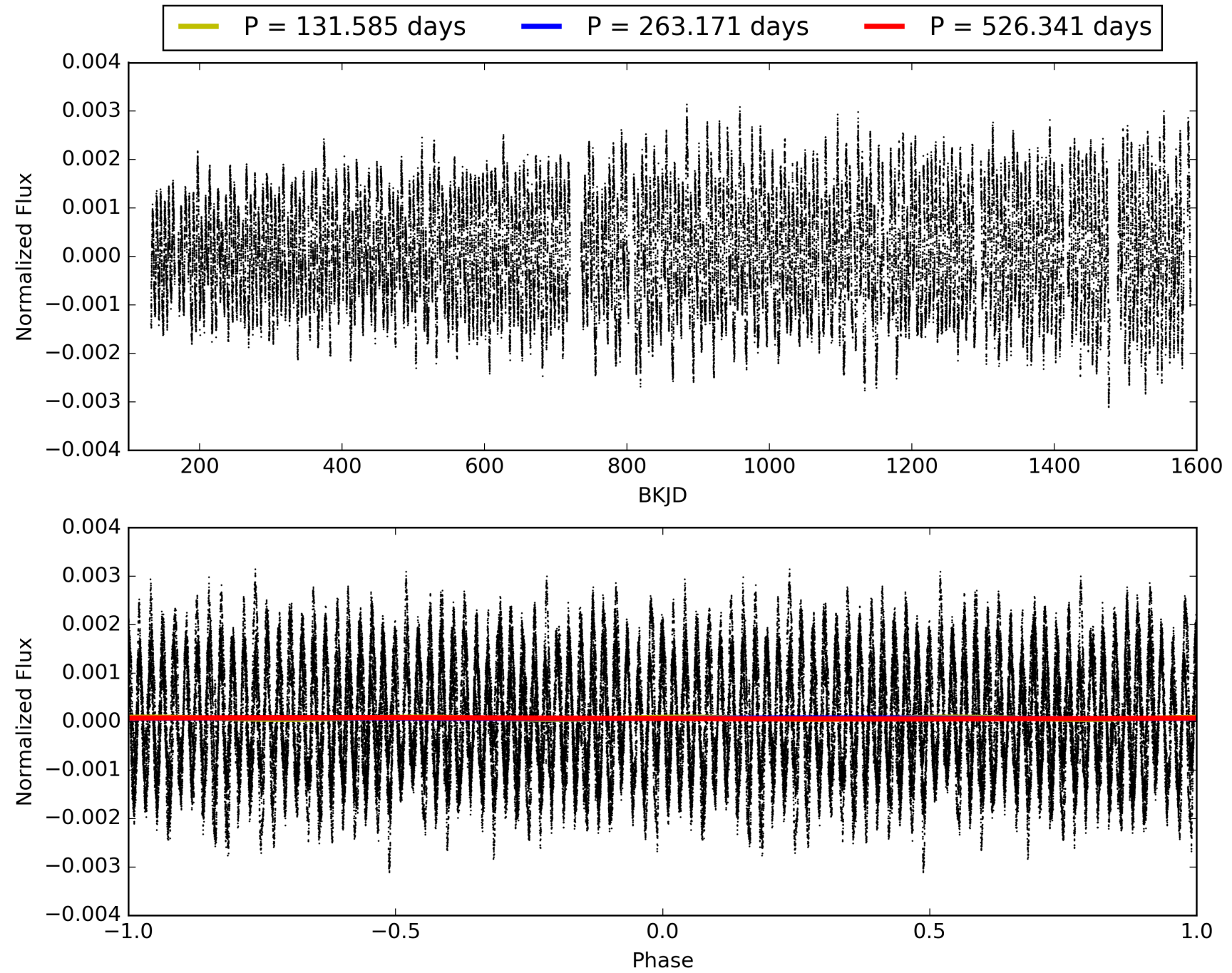
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:31:23 Z

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

TCE 005617510-03, PDC Light Curves

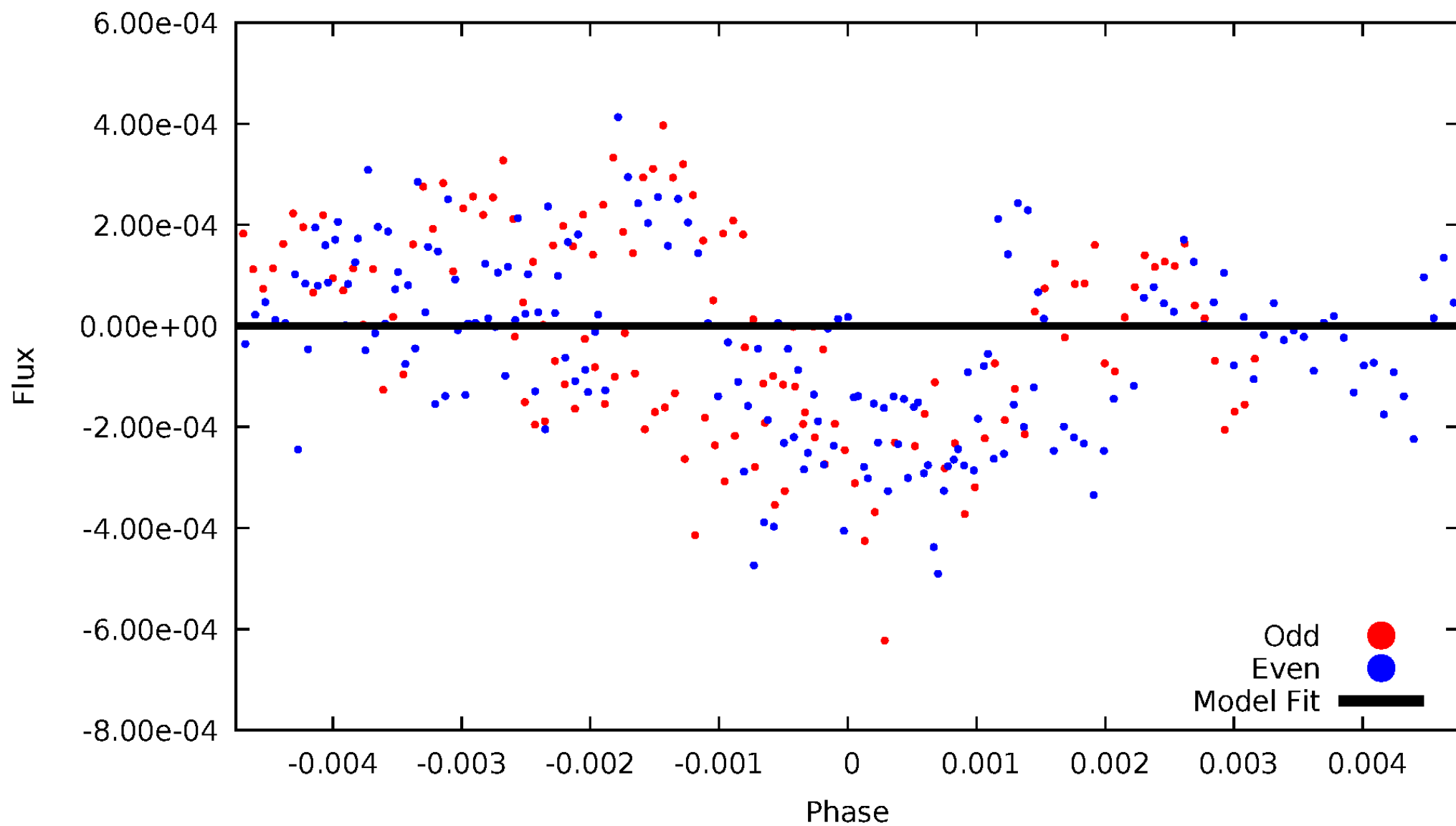


TCE 005617510-03



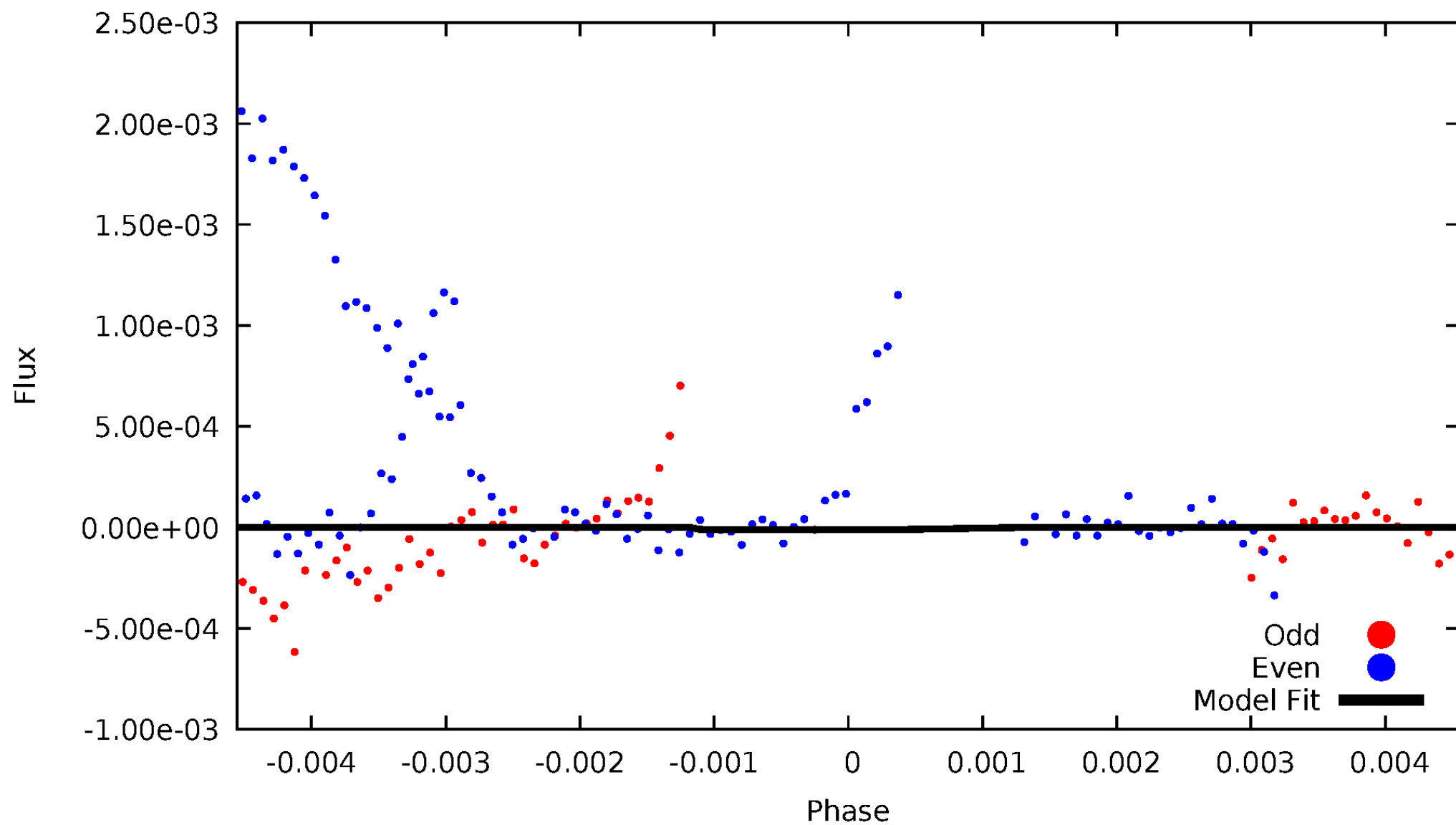
DV Odd/Even

TCE 005617510-03

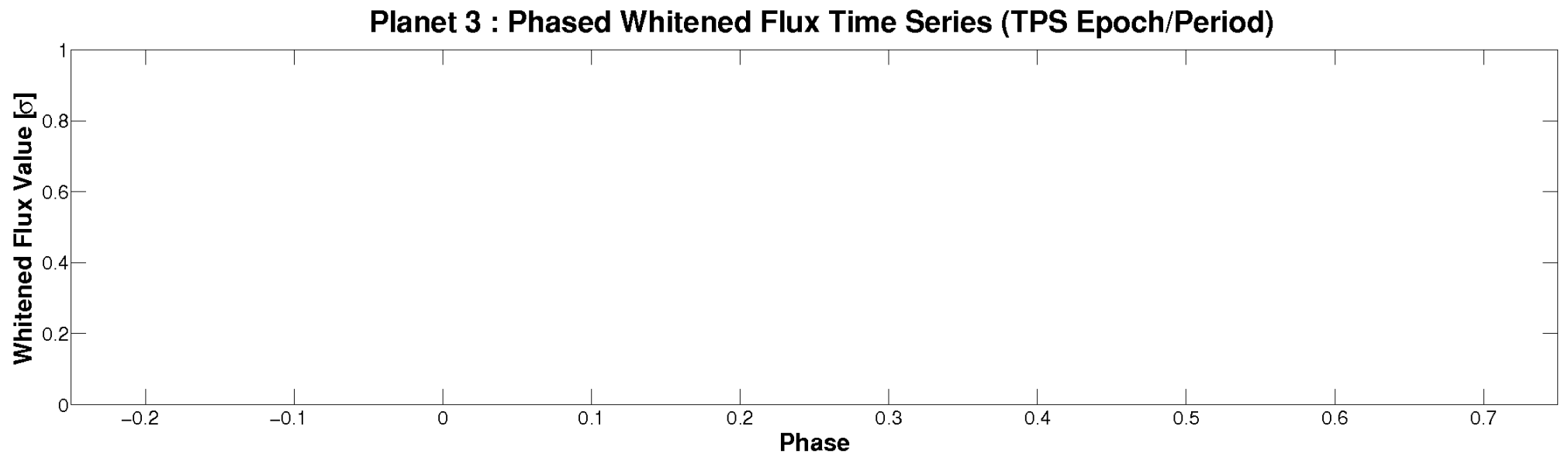
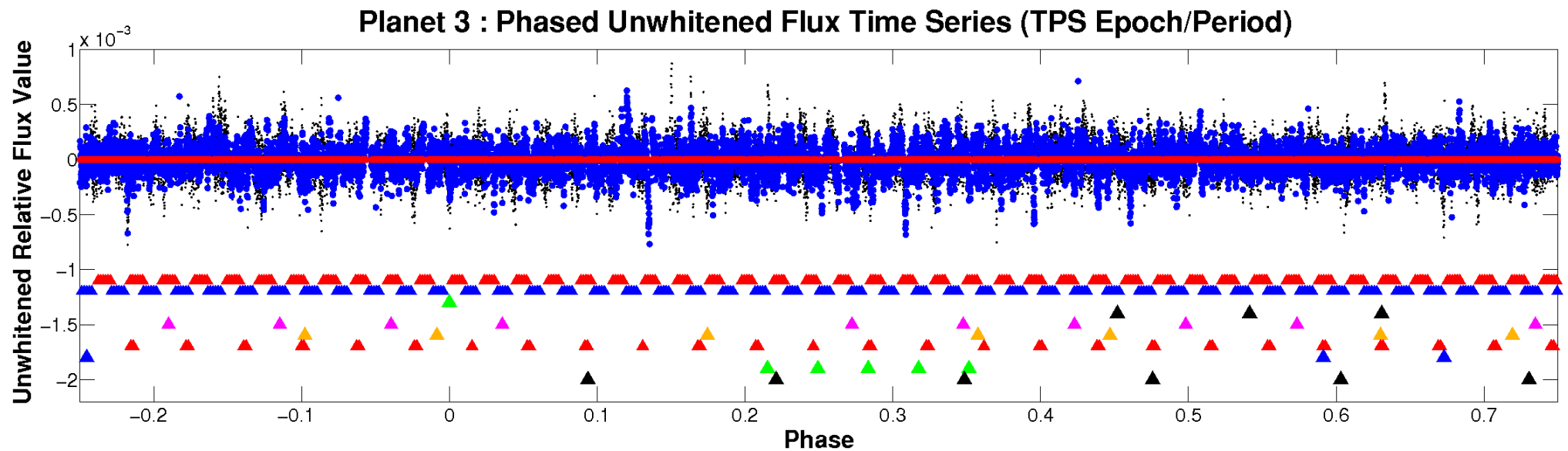


ALT Odd/Even

TCE 005617510-03

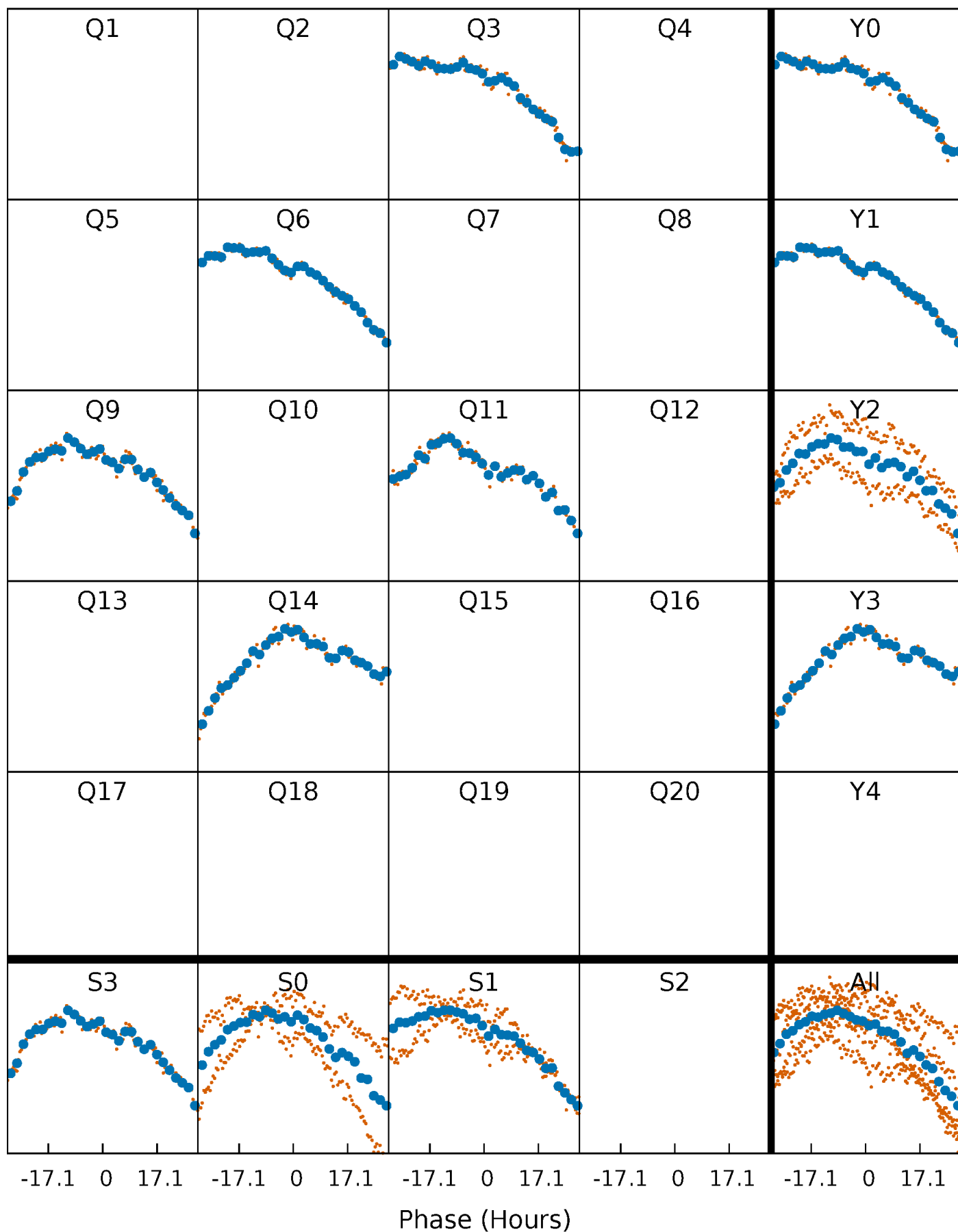


Non-Whitened Vs. Whitened Light Curve



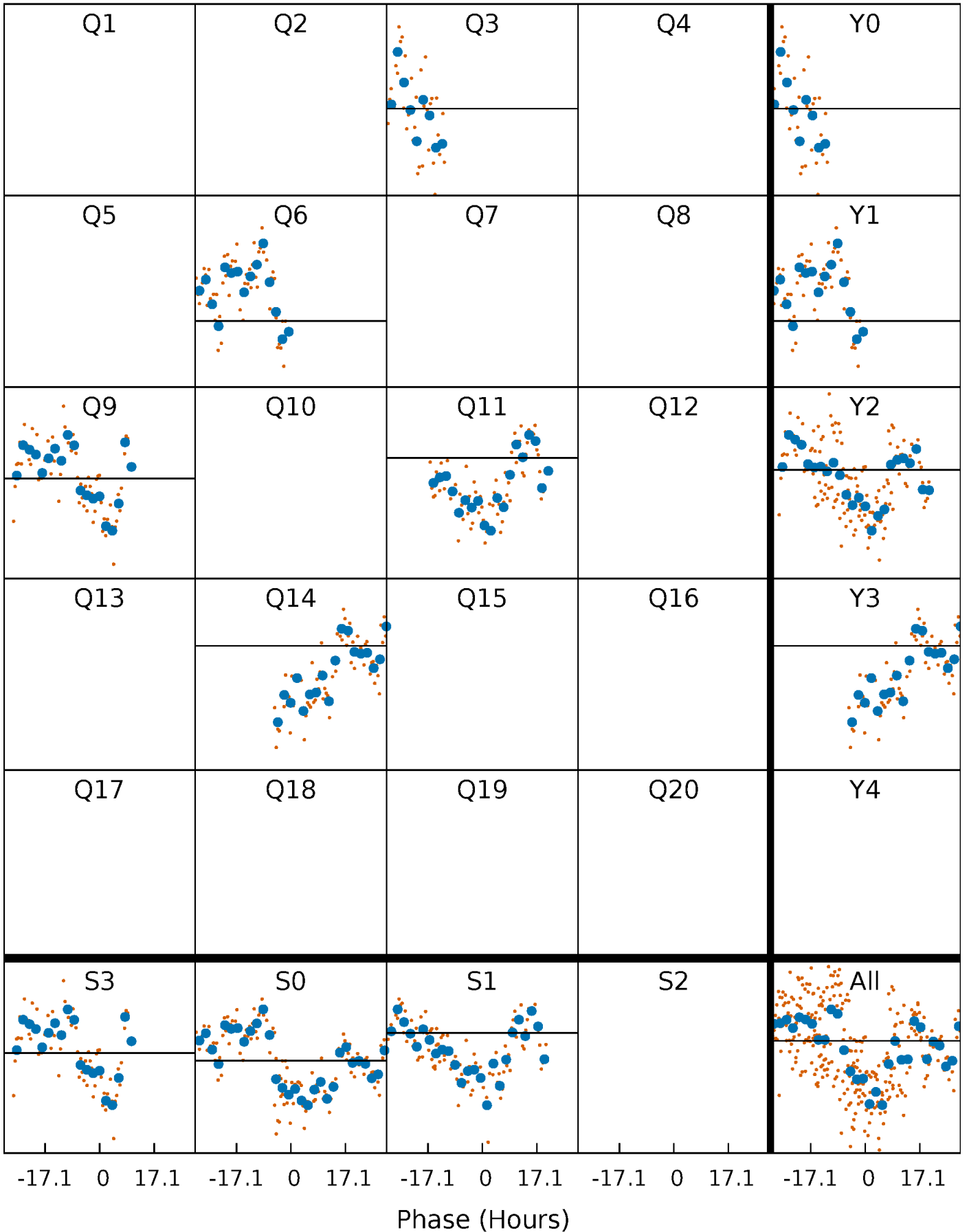
PDC Quarter-Phased Transit Curves

TCE 005617510-03 P=263.170630 Days $T_0=295.027152$ (BKJD)



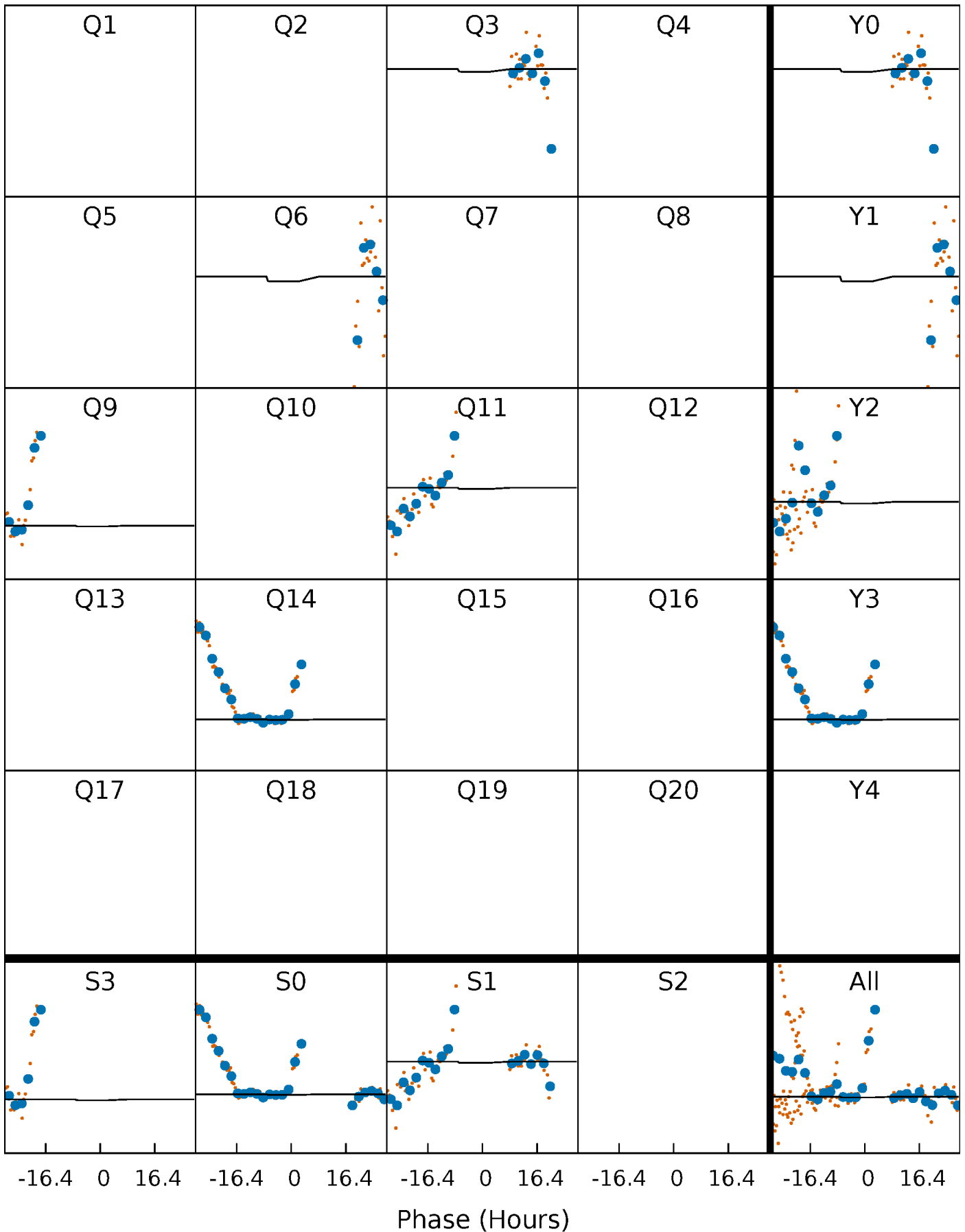
DV Quarter-Phased Transit Curves

TCE 005617510-03 $P=263.170630$ Days $T_0=295.027152$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

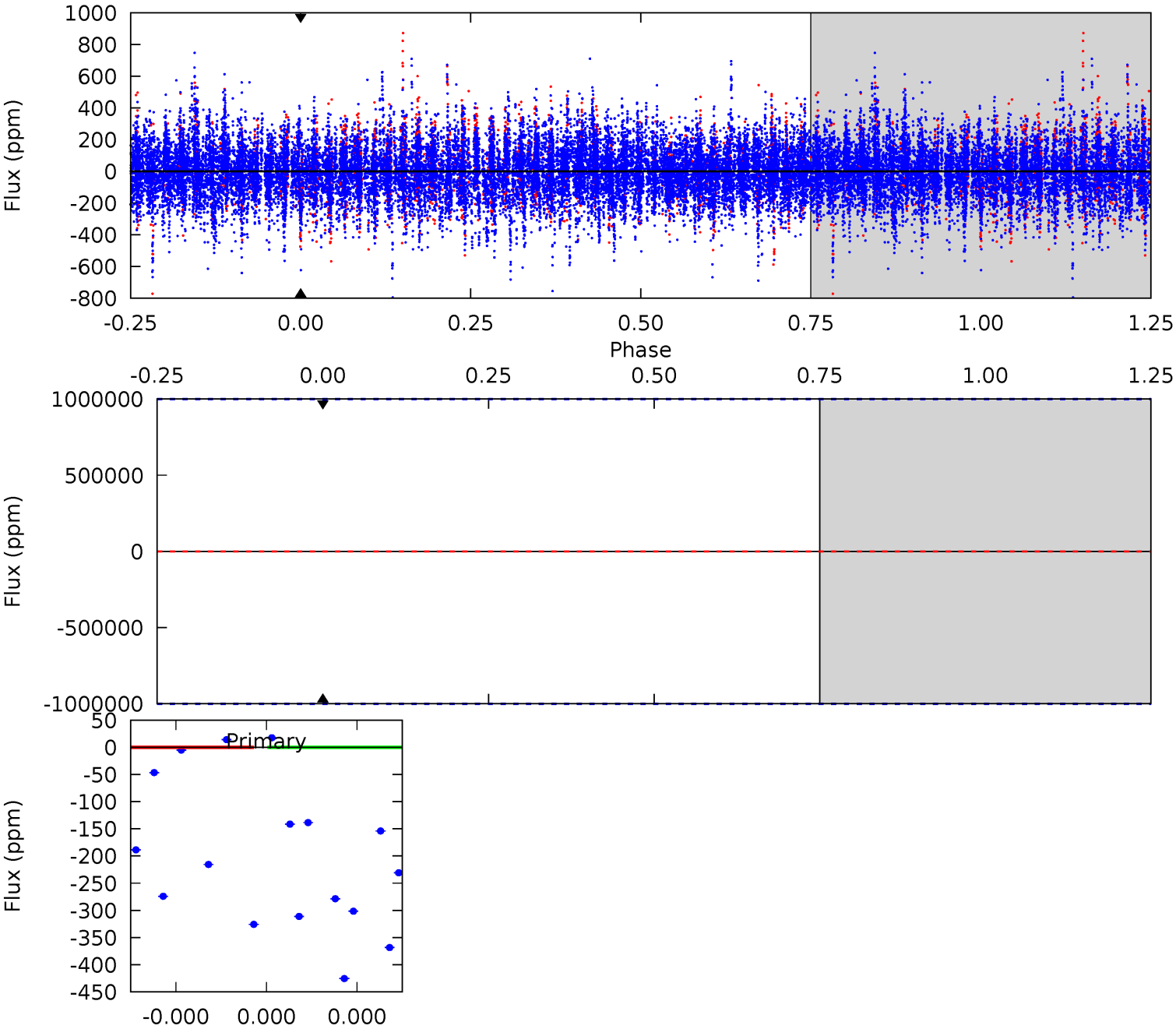
TCE 005617510-03 P=263.170630 Days $T_0=296.188708$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-03, P = 263.170630 Days, E = 31.856522 Days

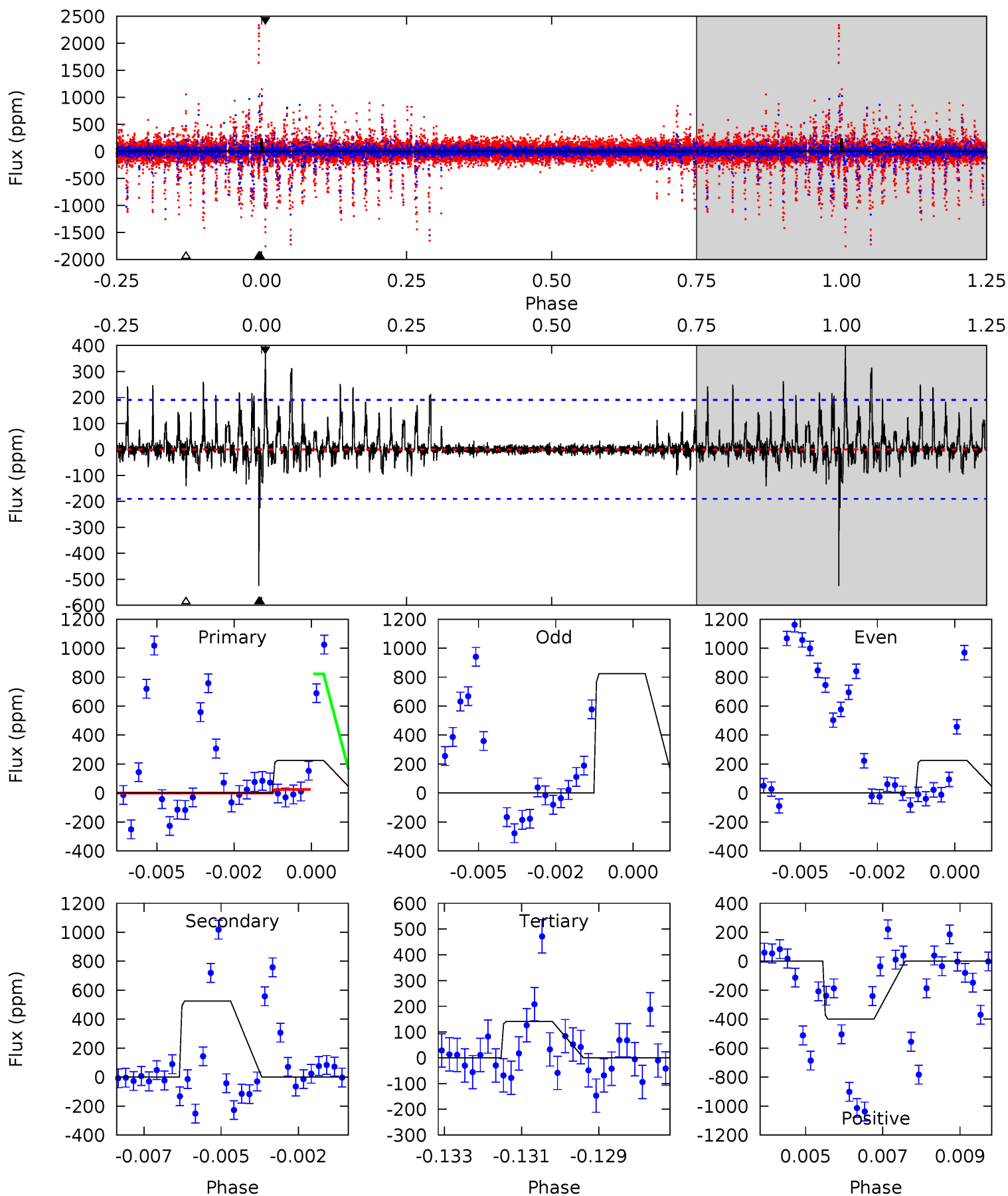
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005617510-03, P = 263.170630 Days, E = 33.018078 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.26	14.6	3.93	11.1	5.30	3.04	1.03	2.33	-4.82	10.7	3.52	7.23	1.00	0.43	9.81



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$16.47^{+18.30}_{-11.62}$	599^{+30}_{-37}	3944^{+30479}_{-31527}	$772^{+435514}_{-300761}$
Alt.	-525 ± 36	$14.55^{+18.16}_{-9.98}$	601^{+27}_{-38}	4163^{+2869}_{-965}	1173^{+10805}_{-942}

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 $A_{obs} \gg 1.0$

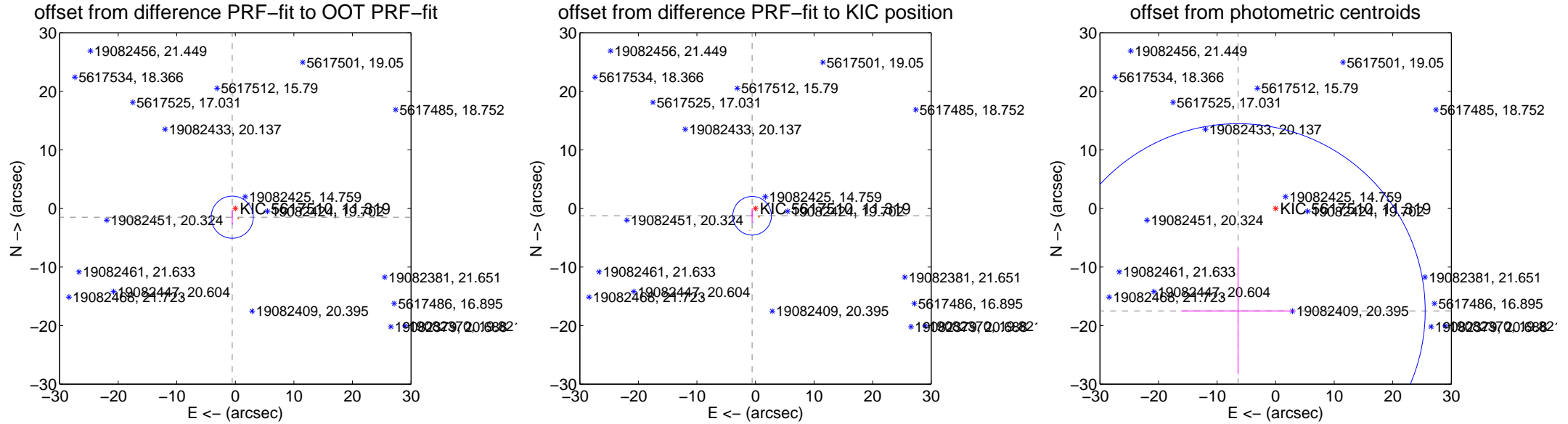
DV Centroid Data

Supplemental centroid analysis for 005617510-03. **Kepler magnitude: 11.32.** Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

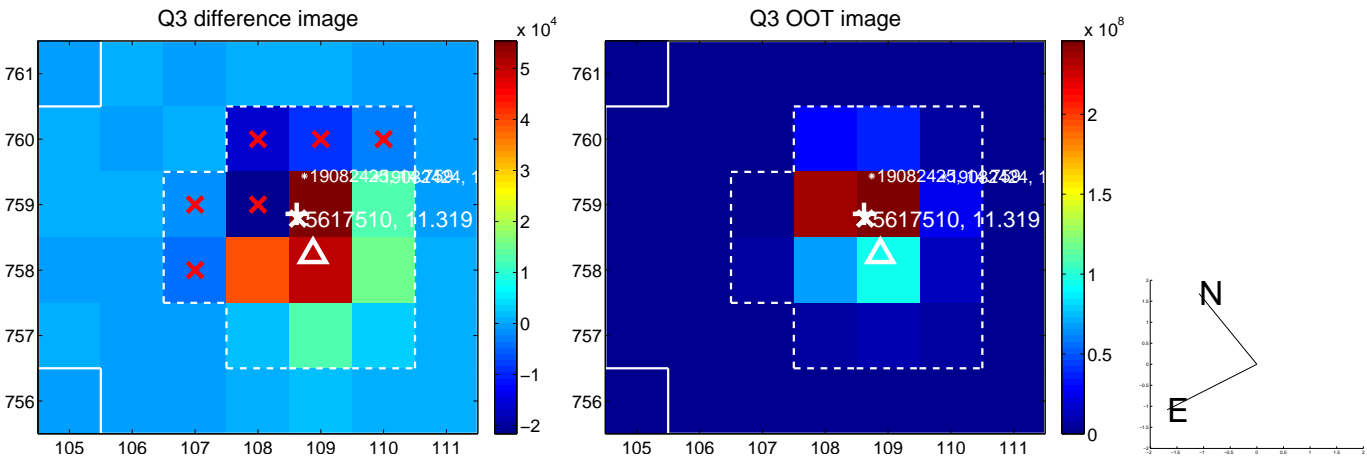
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.583 ± 1.199	1.32	0.531 ± 0.103	-1.491 ± 1.272
PRF-fit source offset from KIC position	1.377 ± 1.099	1.25	0.578 ± 0.192	-1.249 ± 1.208
photometric centroid source offset	18.64 ± 10.66	1.75	6.43 ± 9.71	-17.50 ± 10.78

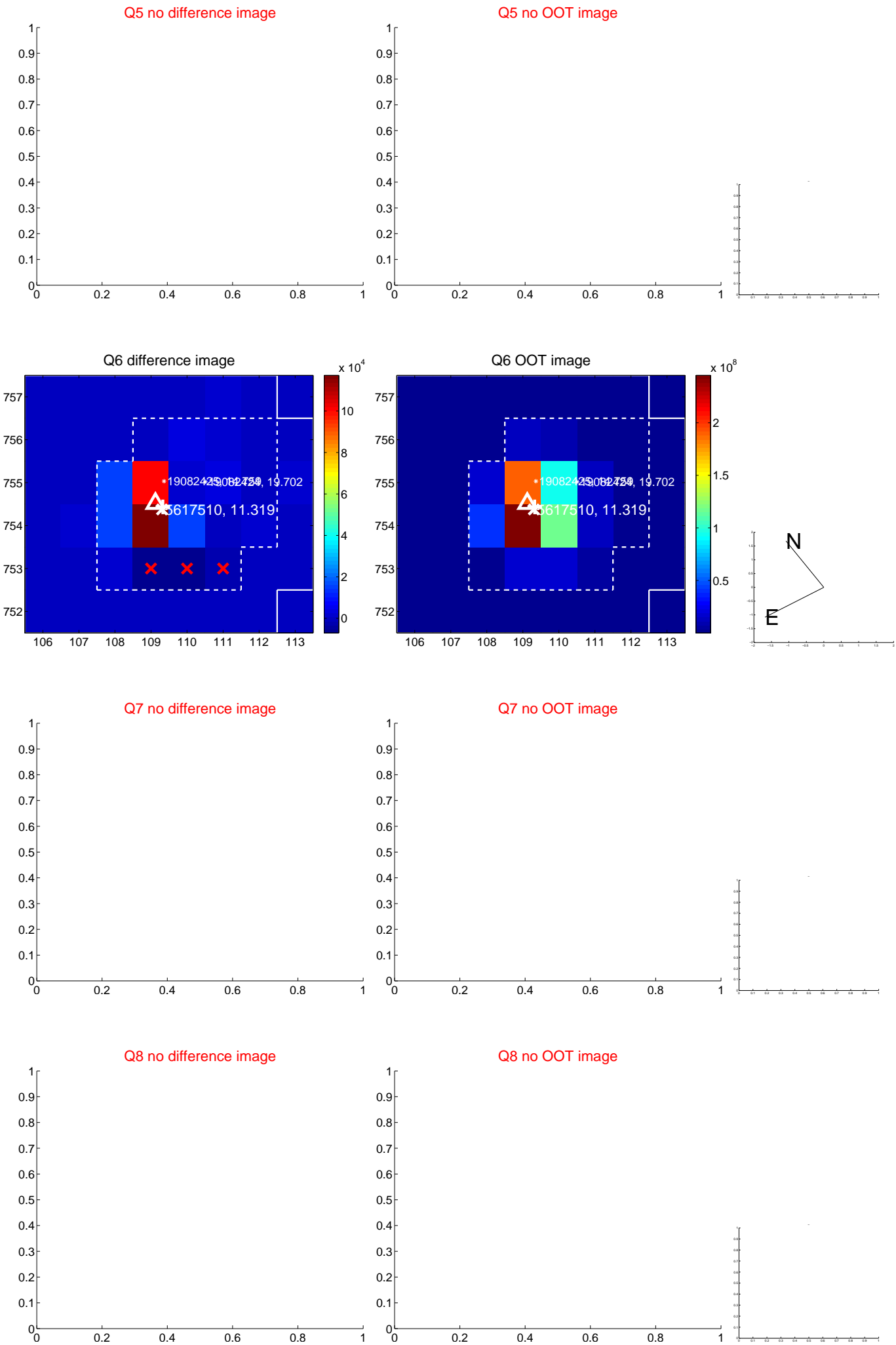


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

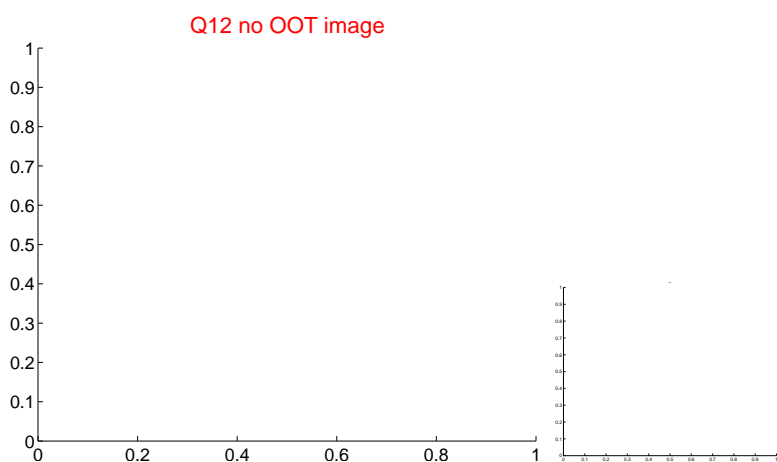
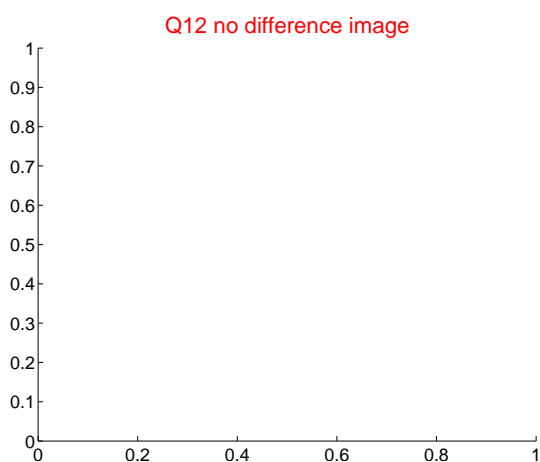
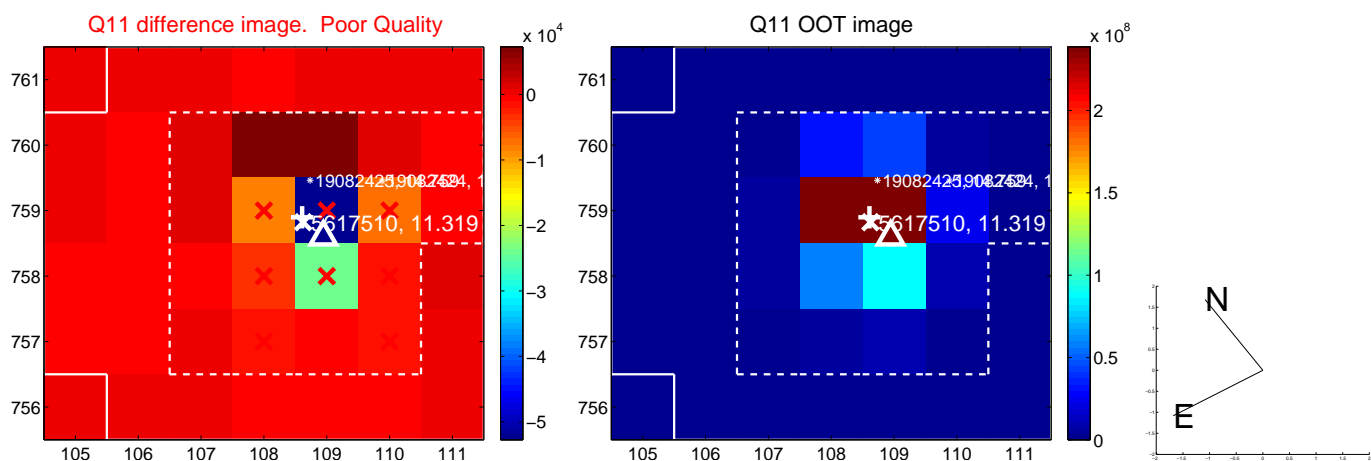
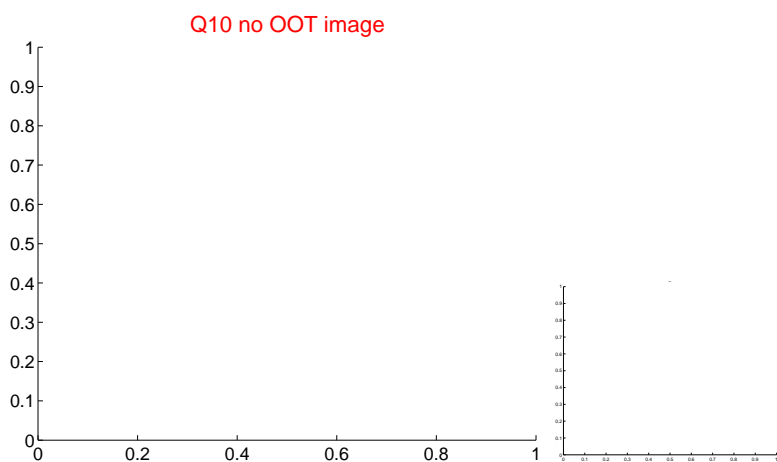
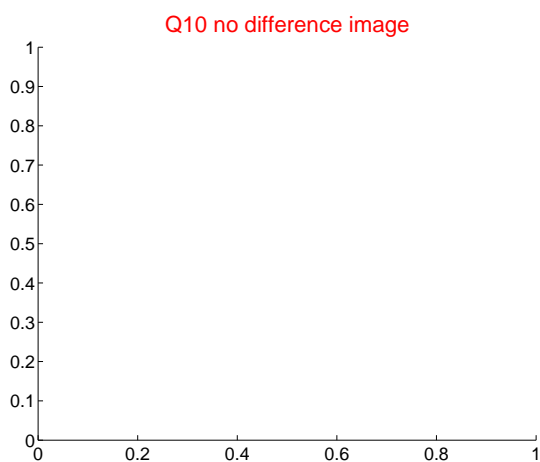
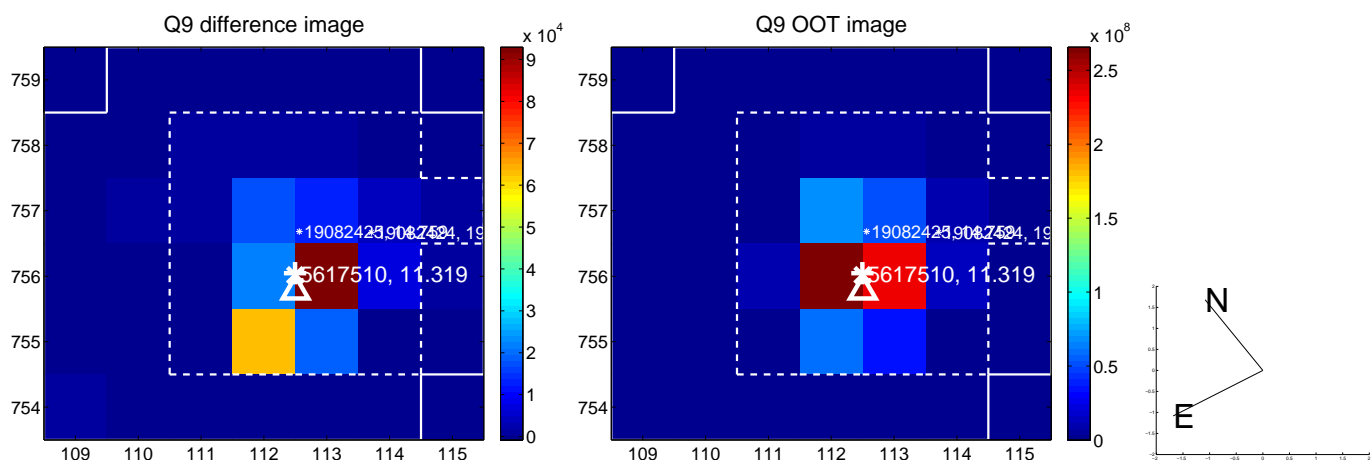
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



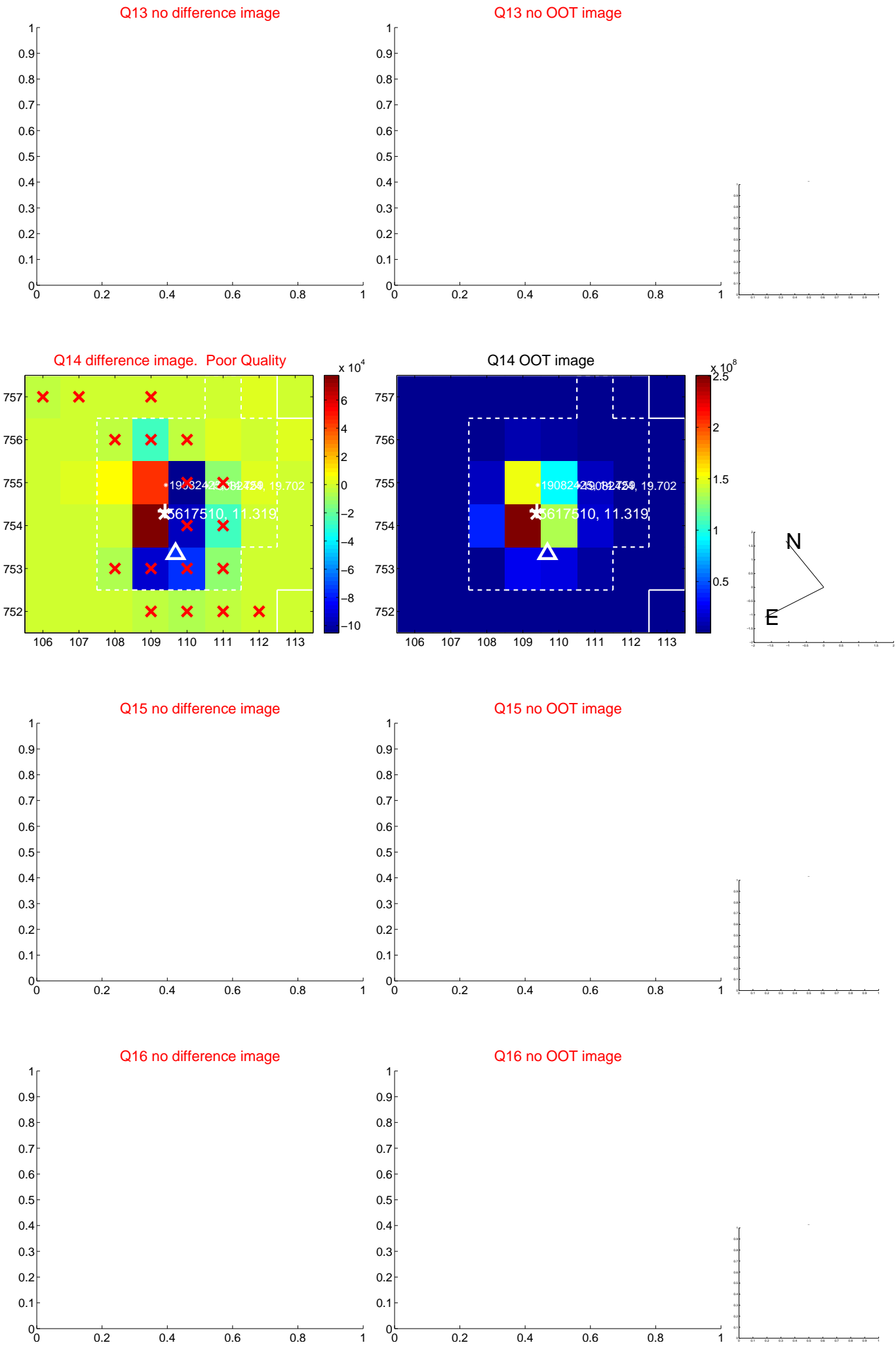
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



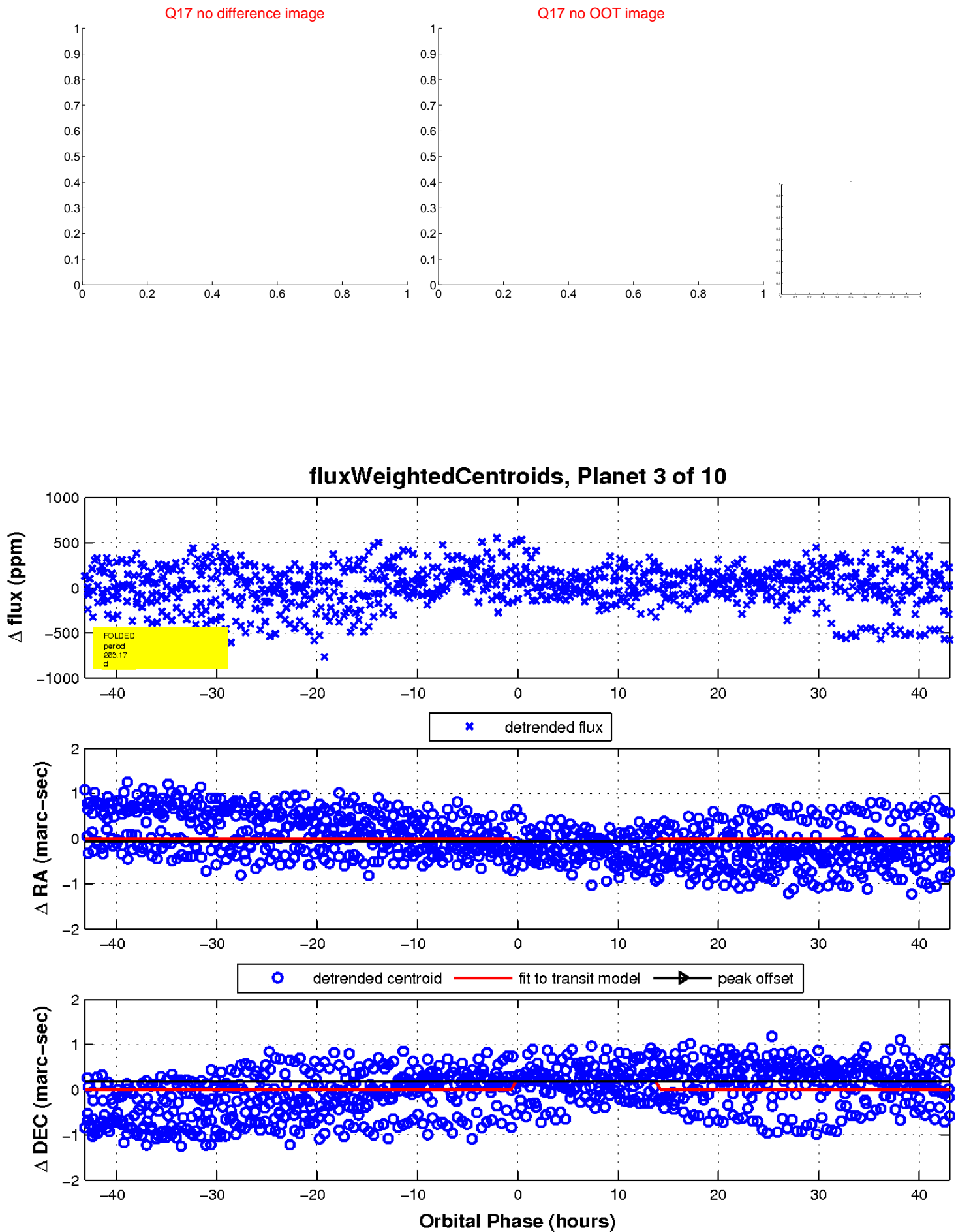
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

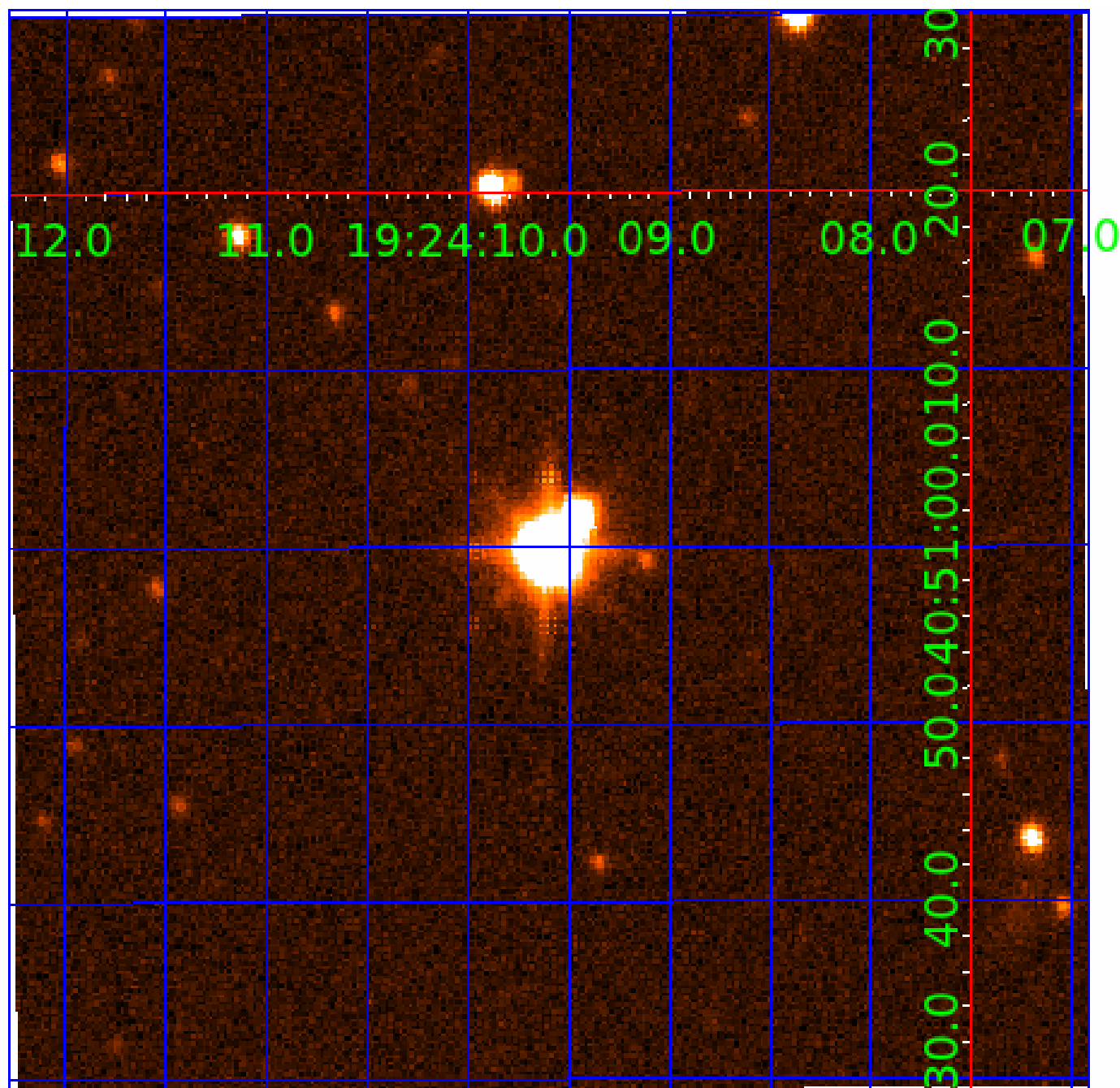


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

Ephemeris Match Information For 005617510-04

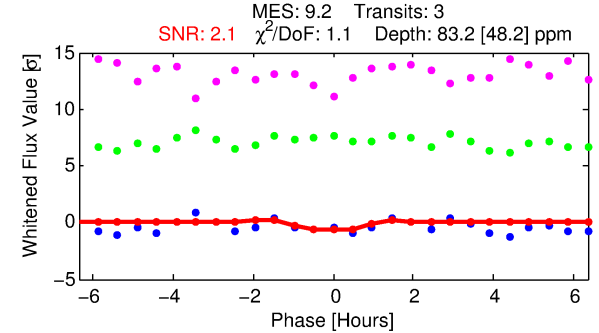
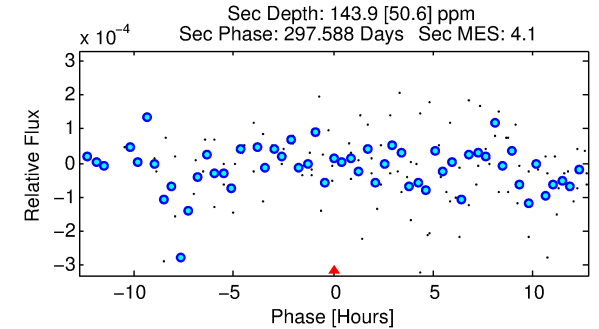
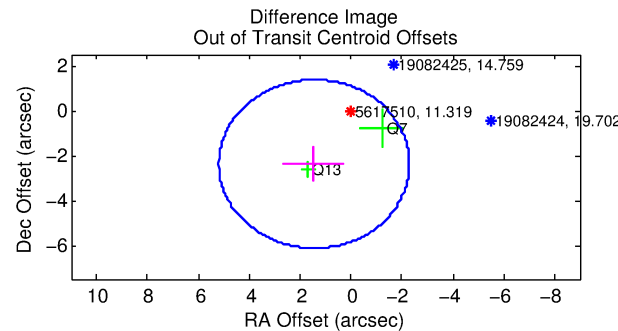
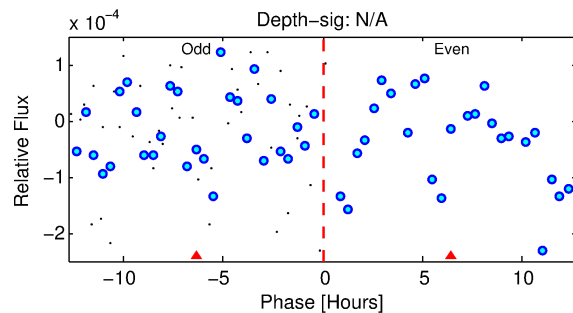
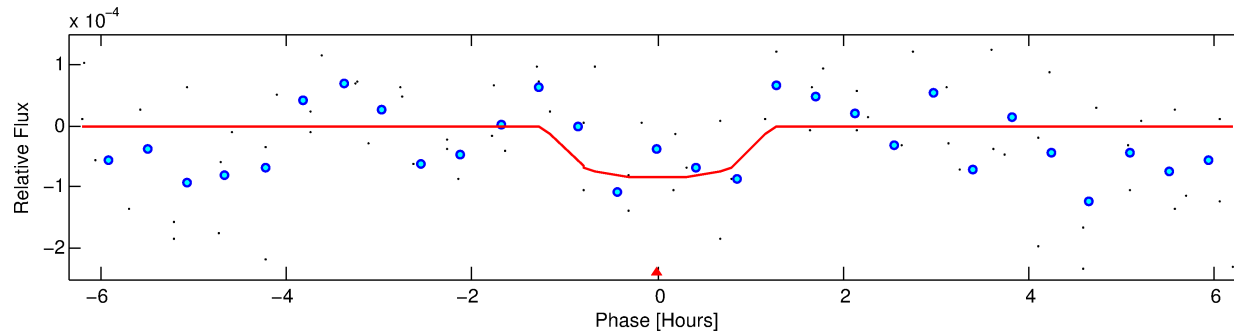
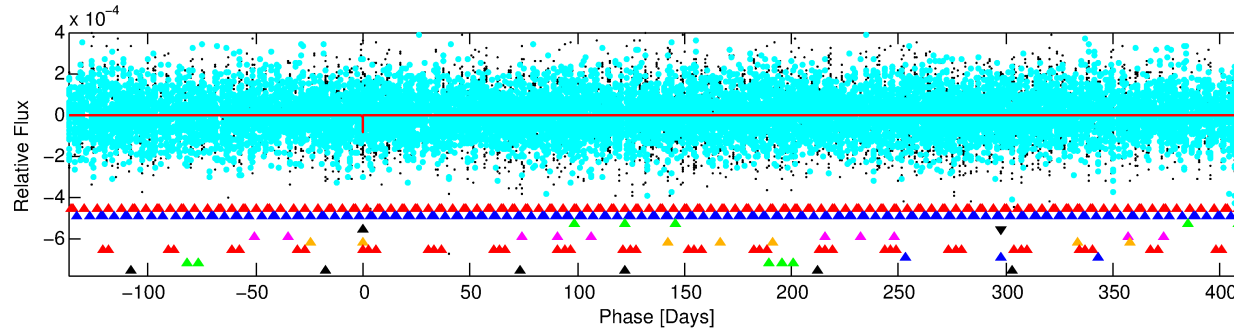
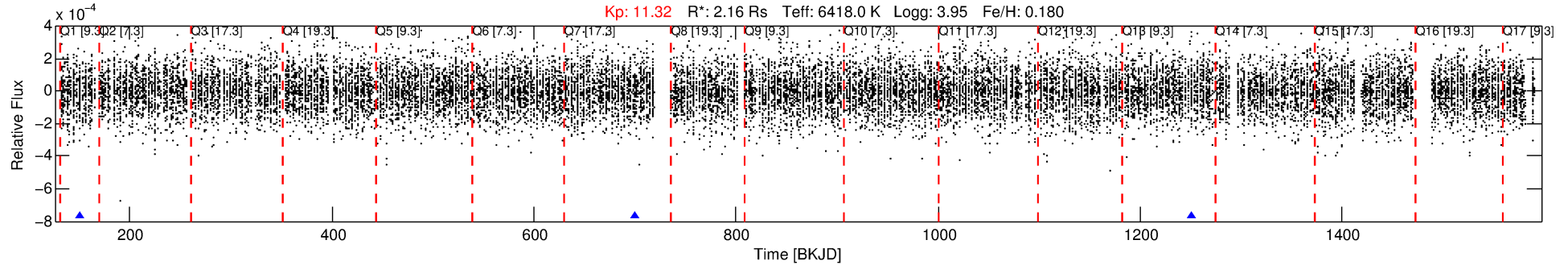
No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 4 of 10 Period: 549.871 d

KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



DV Fit Results:

Period = 549.87062 [0.01998] d
Epoch = 150.8101 [0.0254] BKJD
Rp/R* = 0.0093 [0.0731]
a/R* = 1178.61 [49824.71]
b = 0.82 [17.45]
Seff = 3.09 [1.04]
Teq = 338 [28] K
Rp = 2.20 [17.23] Re
a = 1.5137 [0.3351] AU
Ag = 37436.35 [586179.06] [0.06σ]
Teffp = 7272 [28461] K [0.24σ]

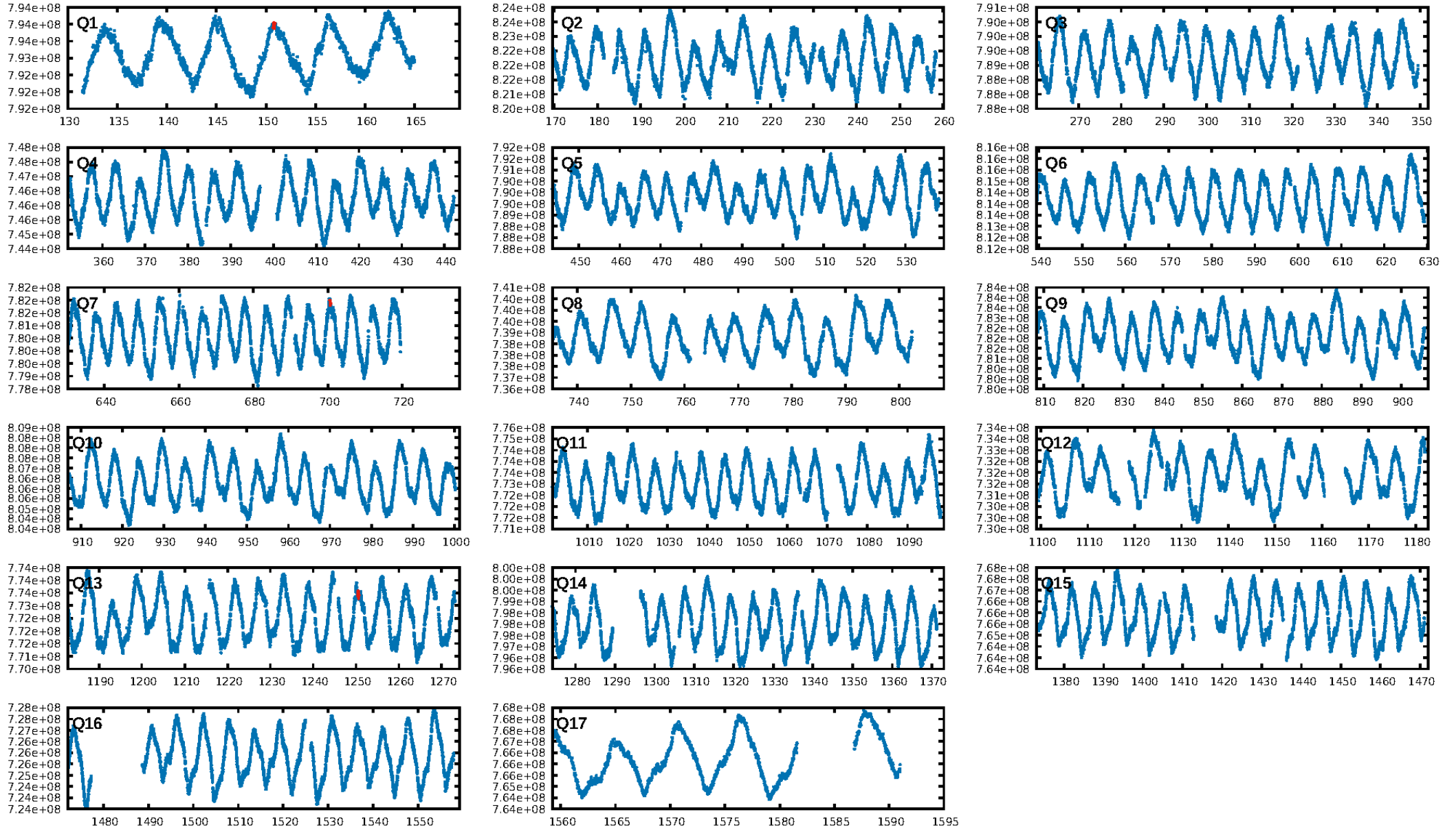
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [286.97σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.9%
ModelChiSquareGof-sig: 82.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 2.263
Centroid-sig: 69.8%
Centroid-so: 1.023 arcsec [0.48σ]
OotOffset-rm: 2.787 arcsec [2.23σ]
KicOffset-rm: 2.602 arcsec [2.01σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.67 [2/3]

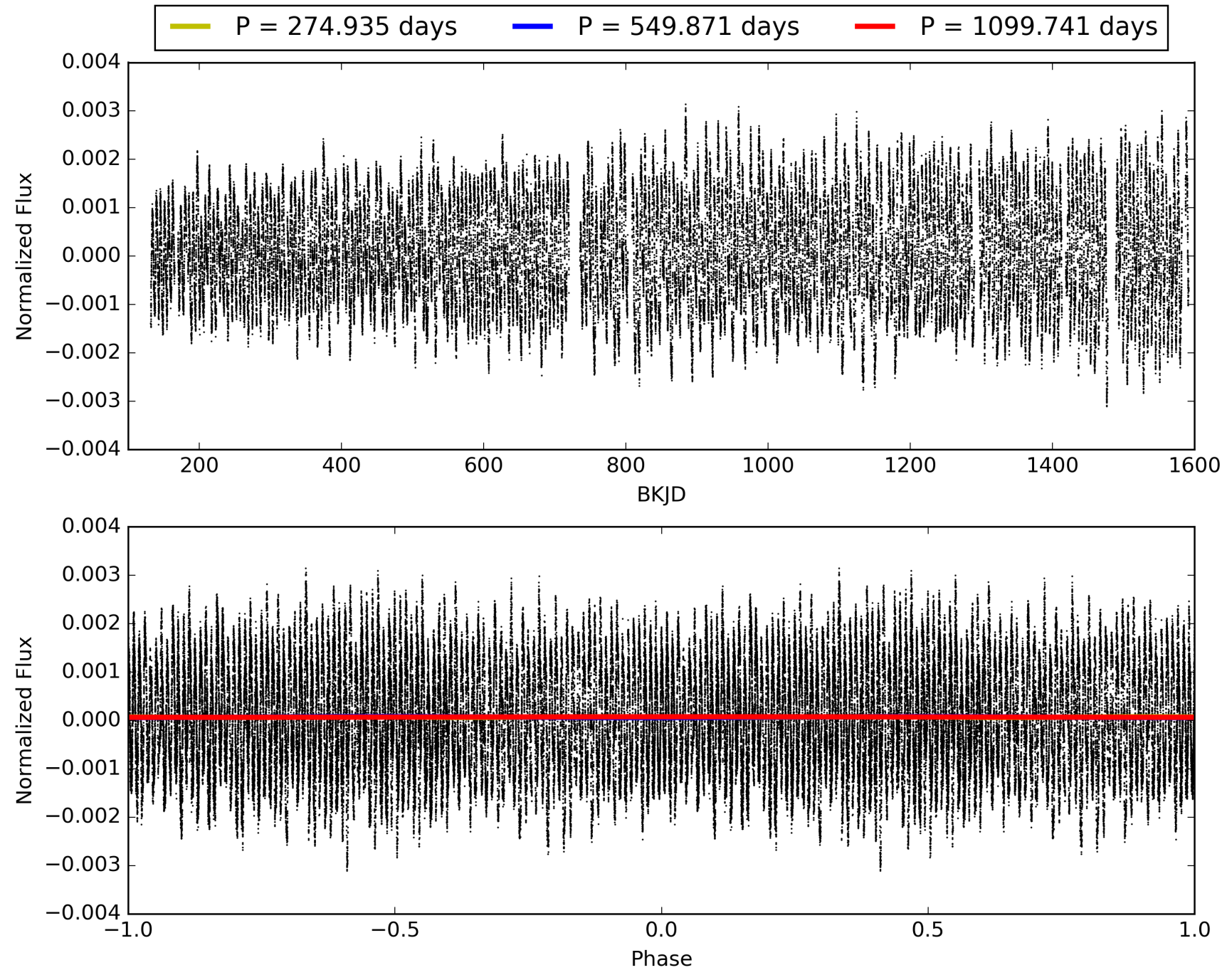
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:31:37 Z

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

TCE 005617510-04, PDC Light Curves

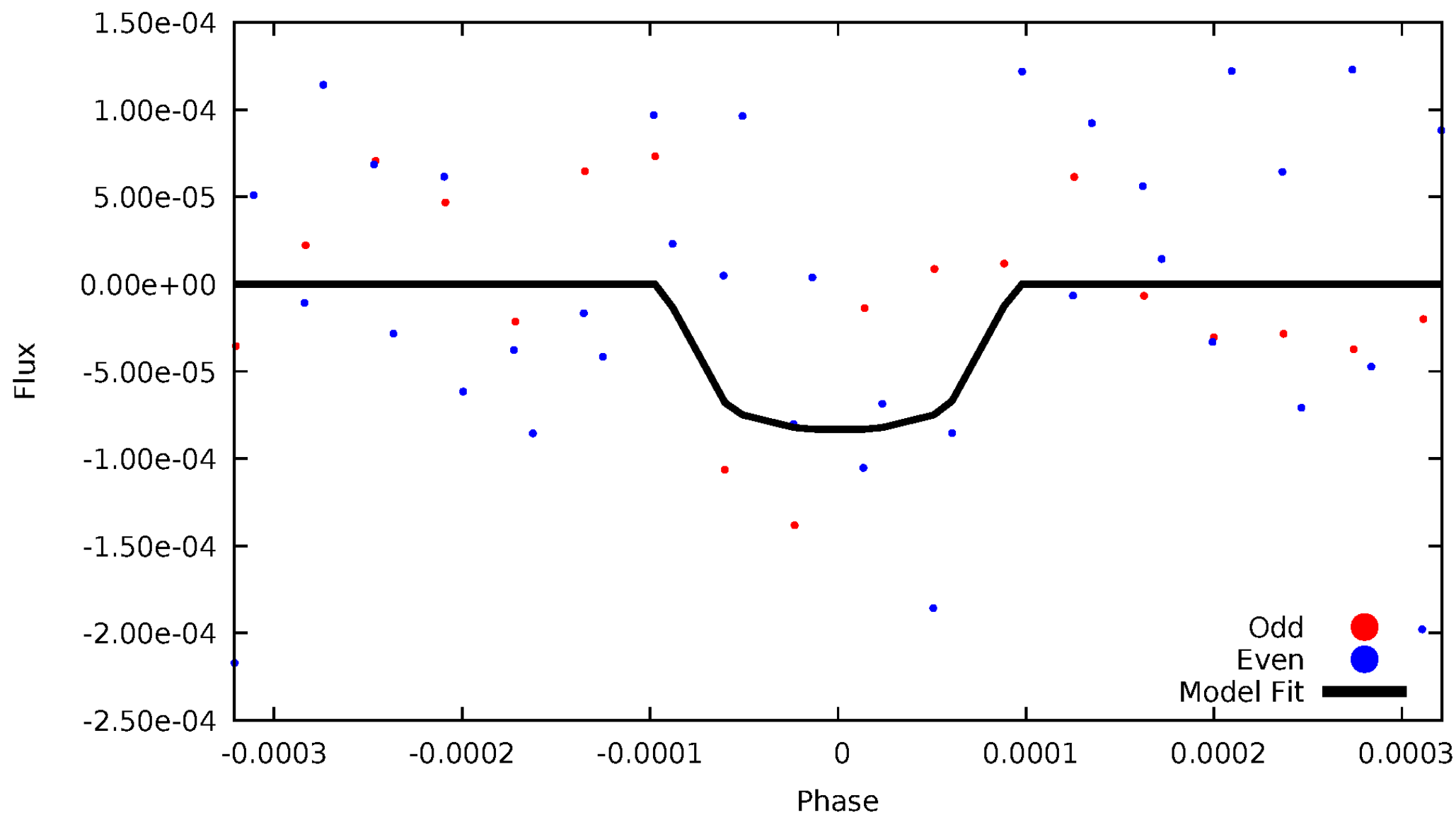


TCE 005617510-04



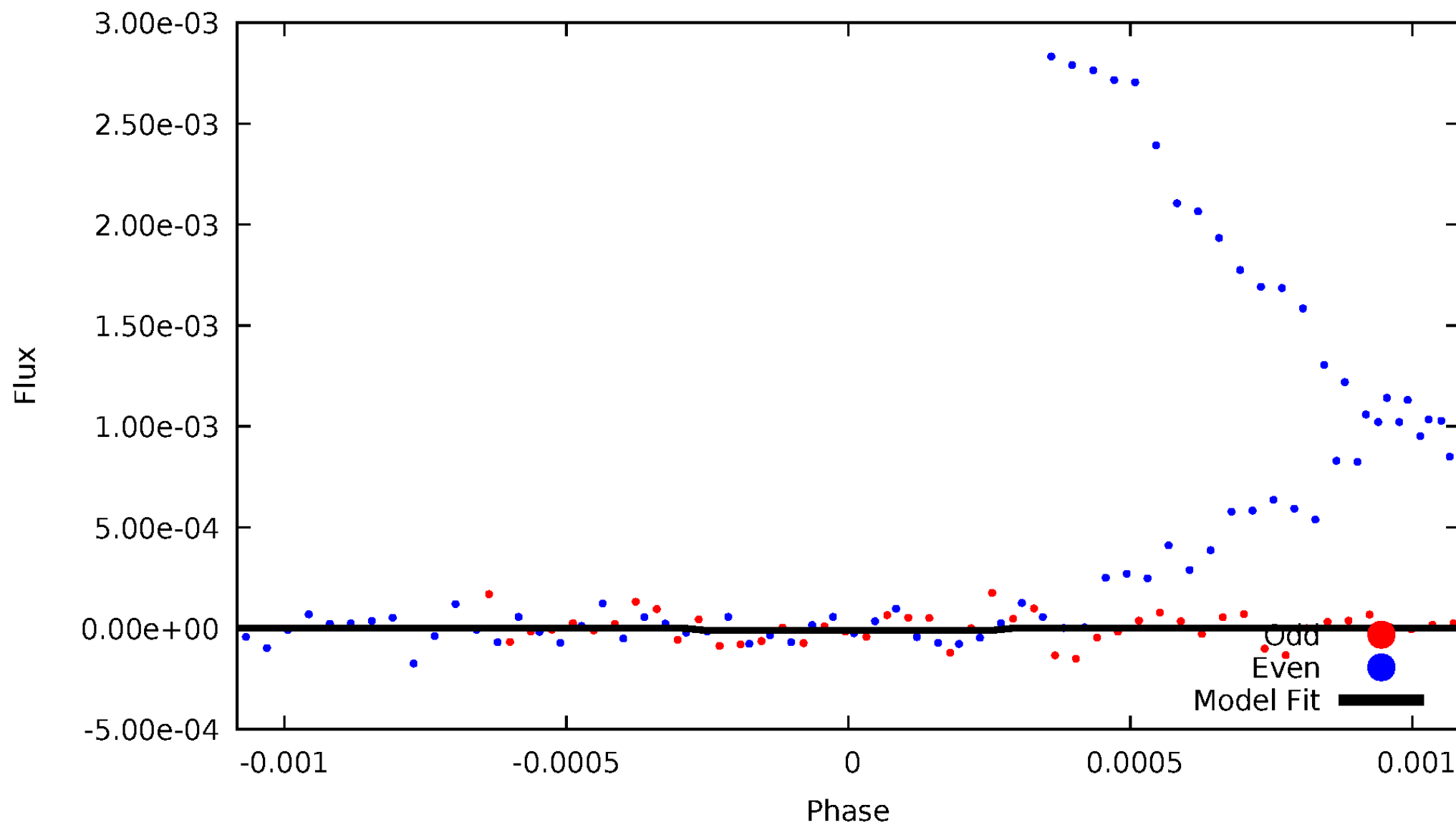
DV Odd/Even

TCE 005617510-04



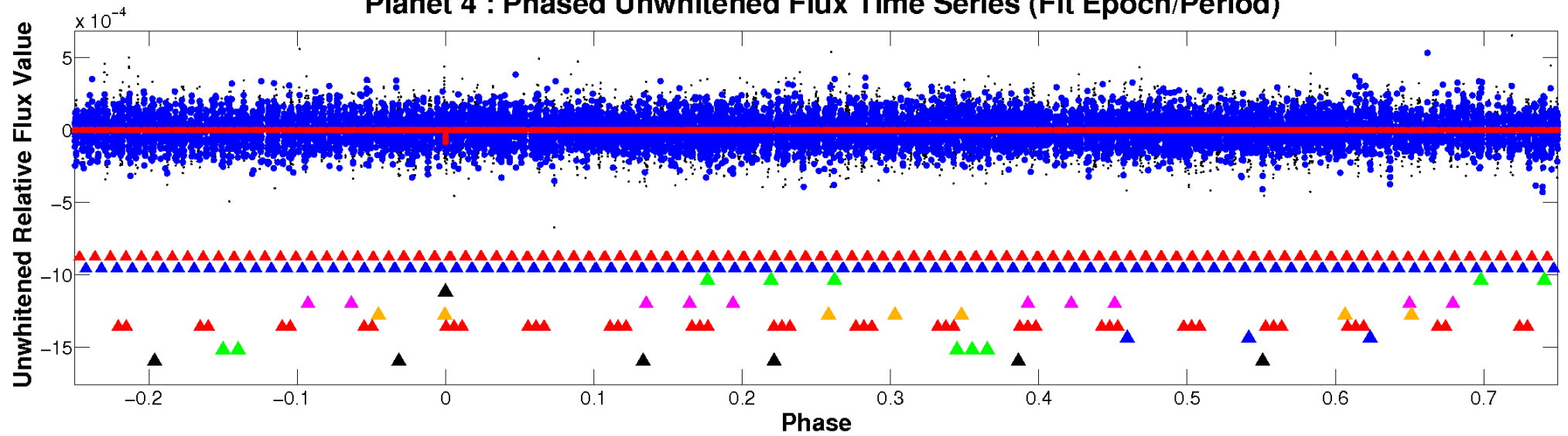
ALT Odd/Even

TCE 005617510-04

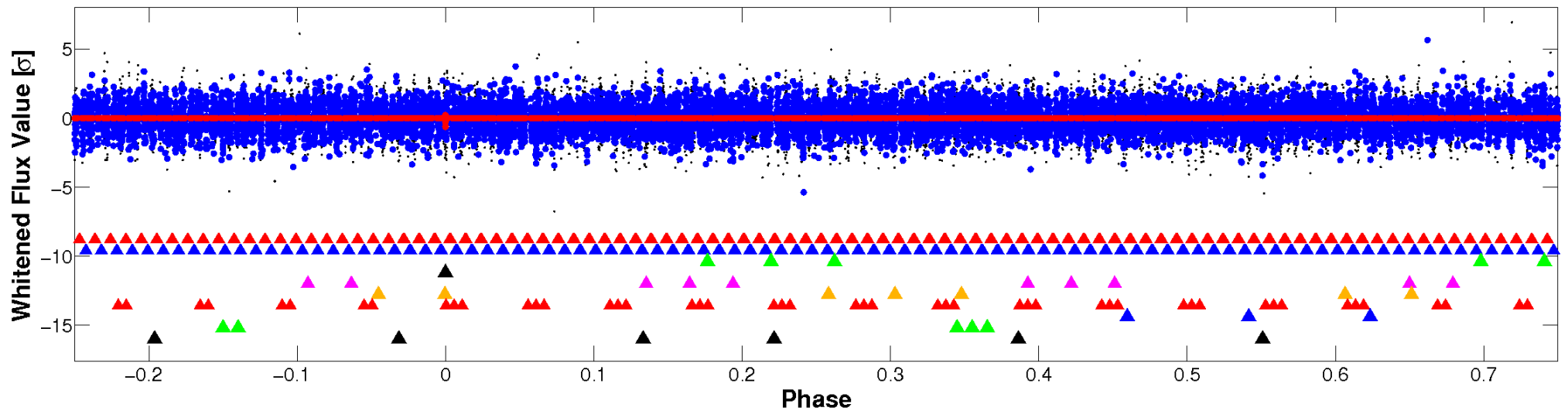


Non-Whitened Vs. Whitened Light Curve

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

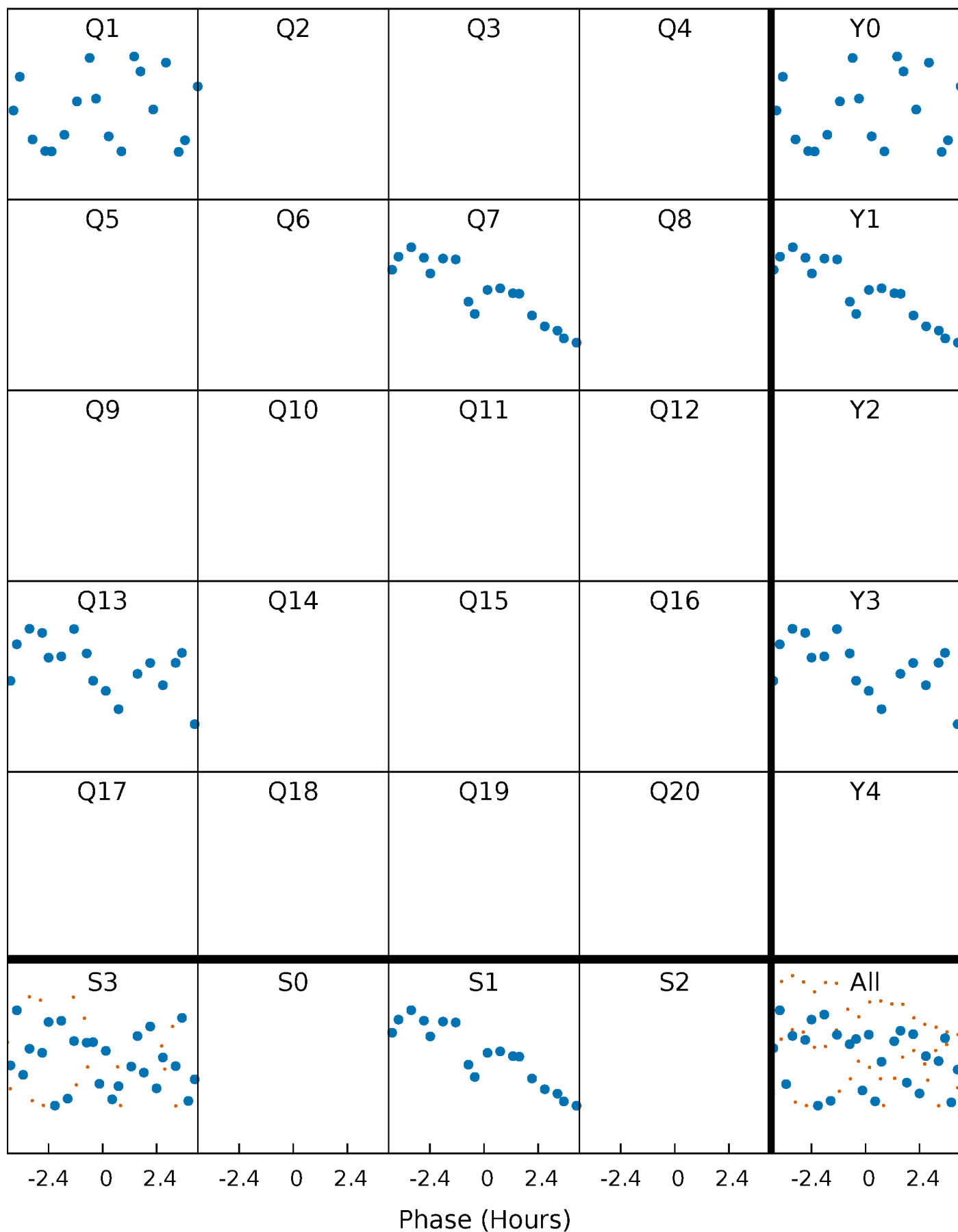


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



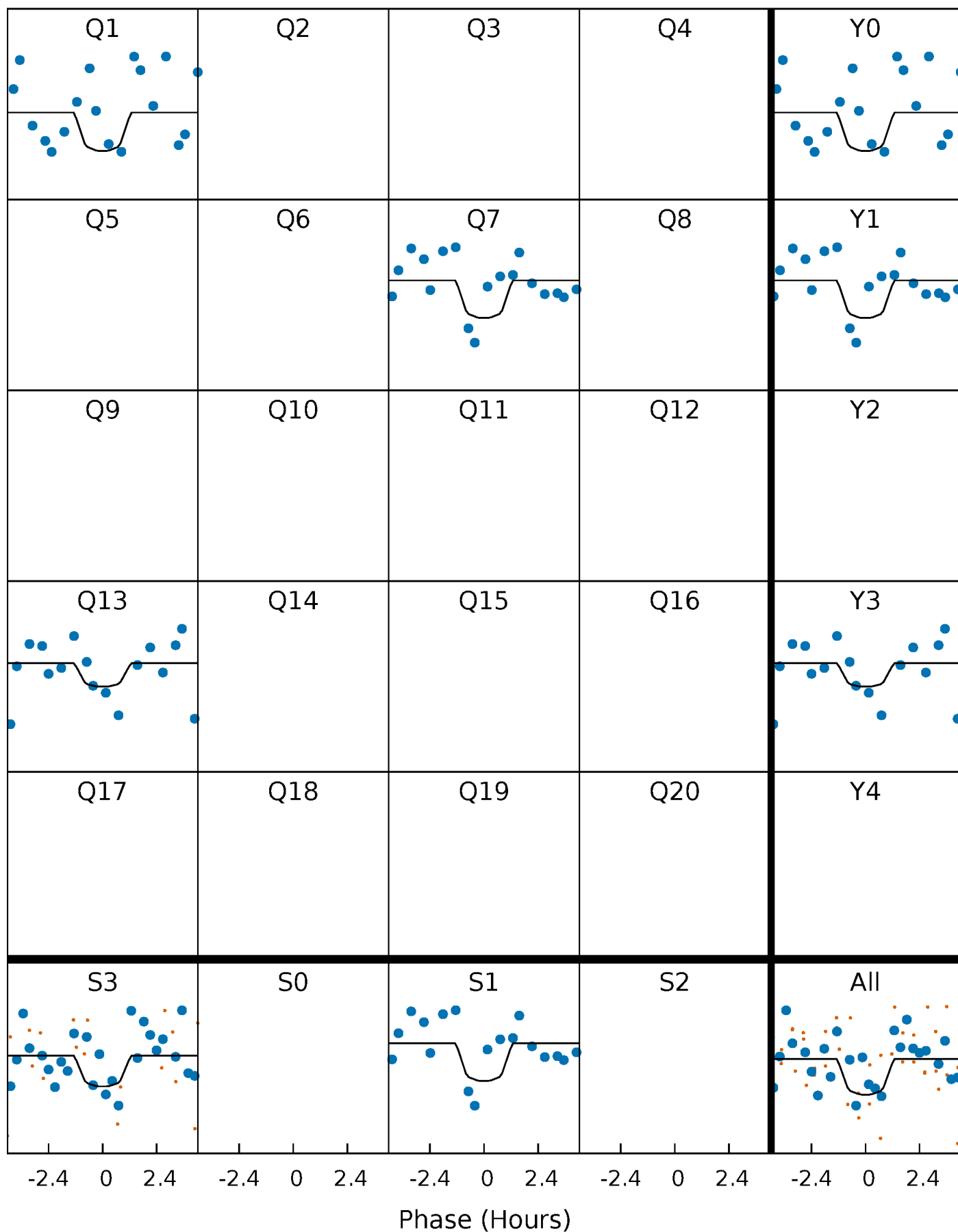
PDC Quarter-Phased Transit Curves

TCE 005617510-04 P=549.870619 Days $T_0=150.810135$ (BKJD)



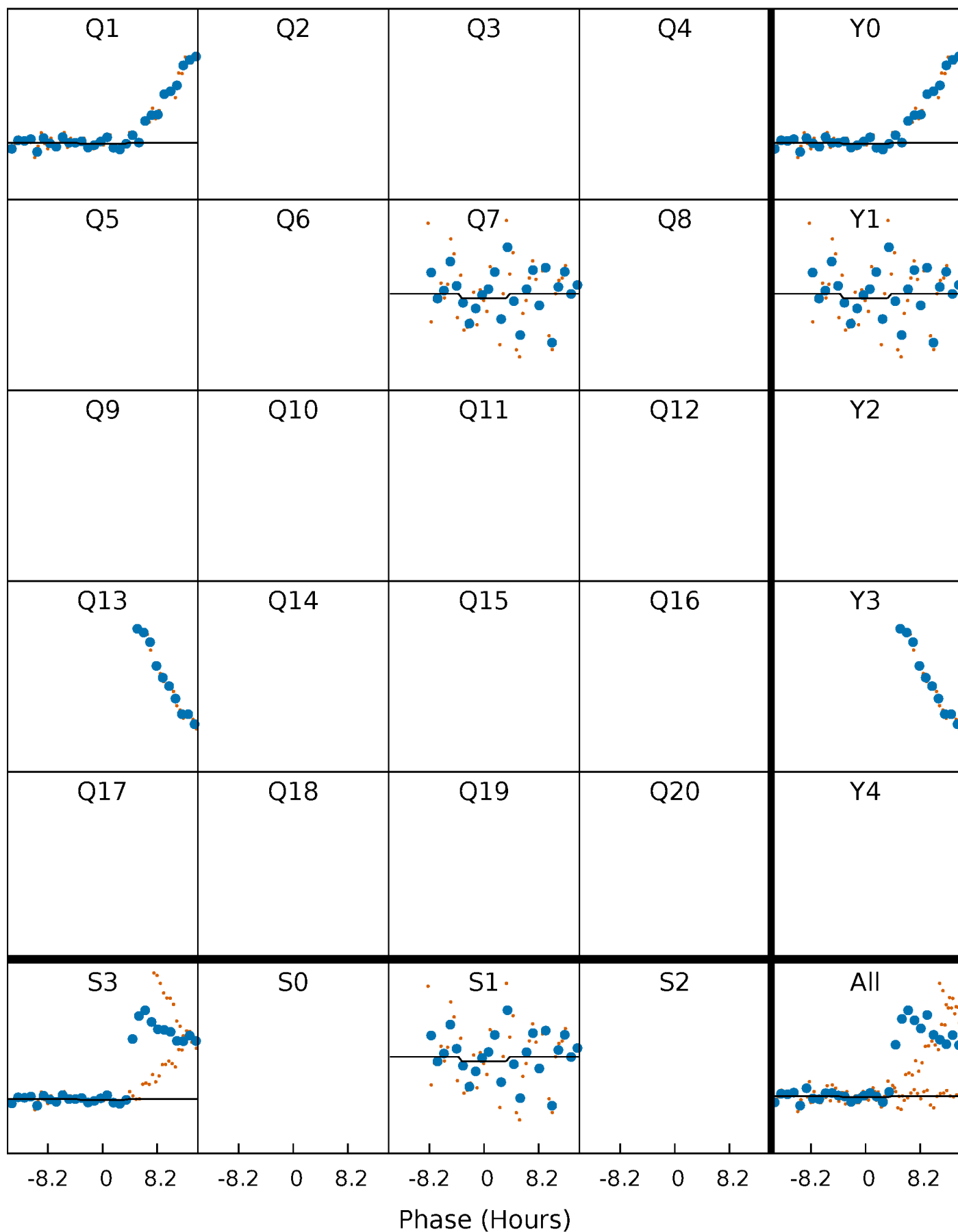
DV Quarter-Phased Transit Curves

TCE 005617510-04 P=549.870619 Days $T_0=150.810135$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

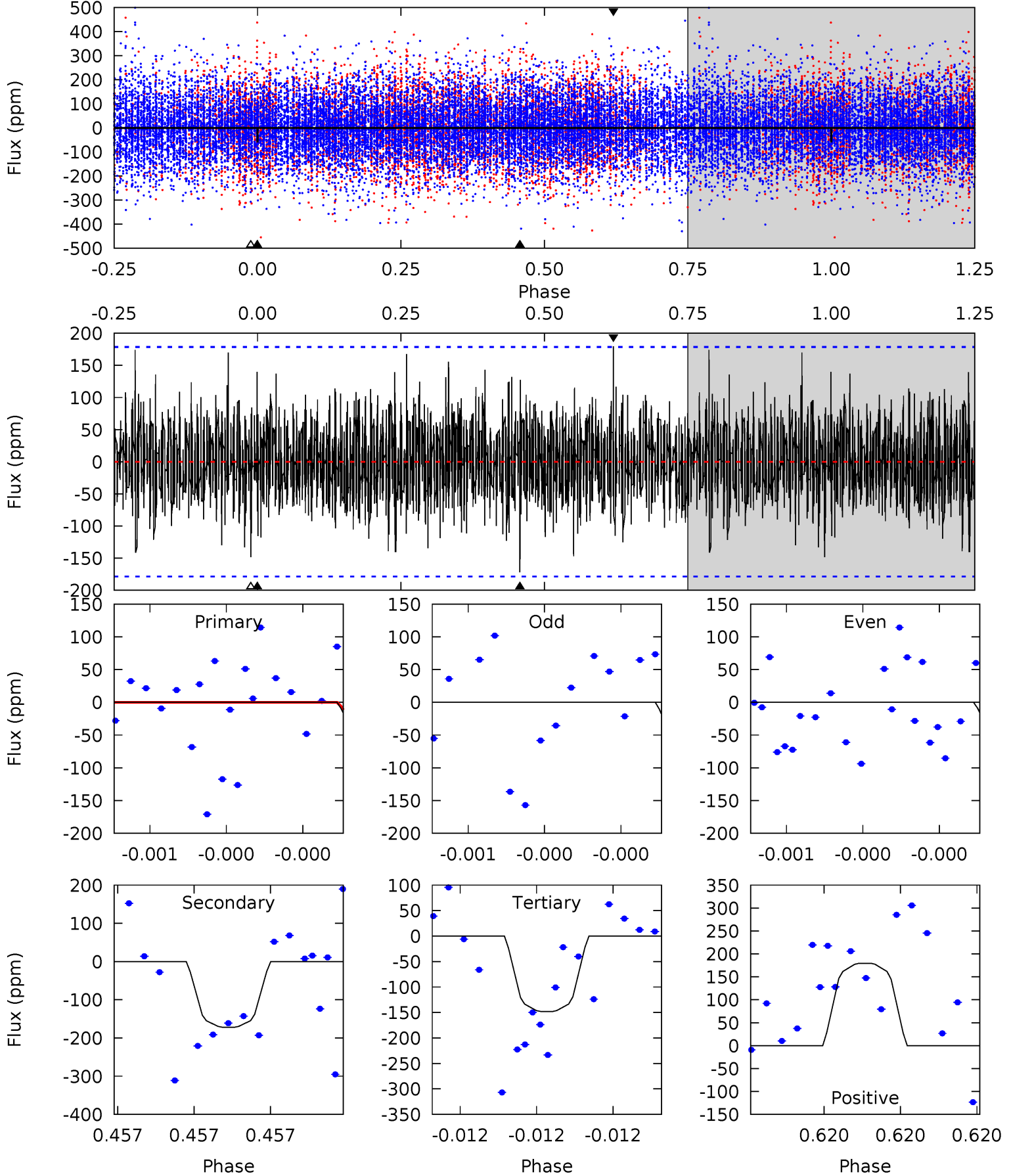
TCE 005617510-04 P=549.628708 Days $T_0=150.613152$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-04, P = 549.870619 Days, E = 150.810135 Days

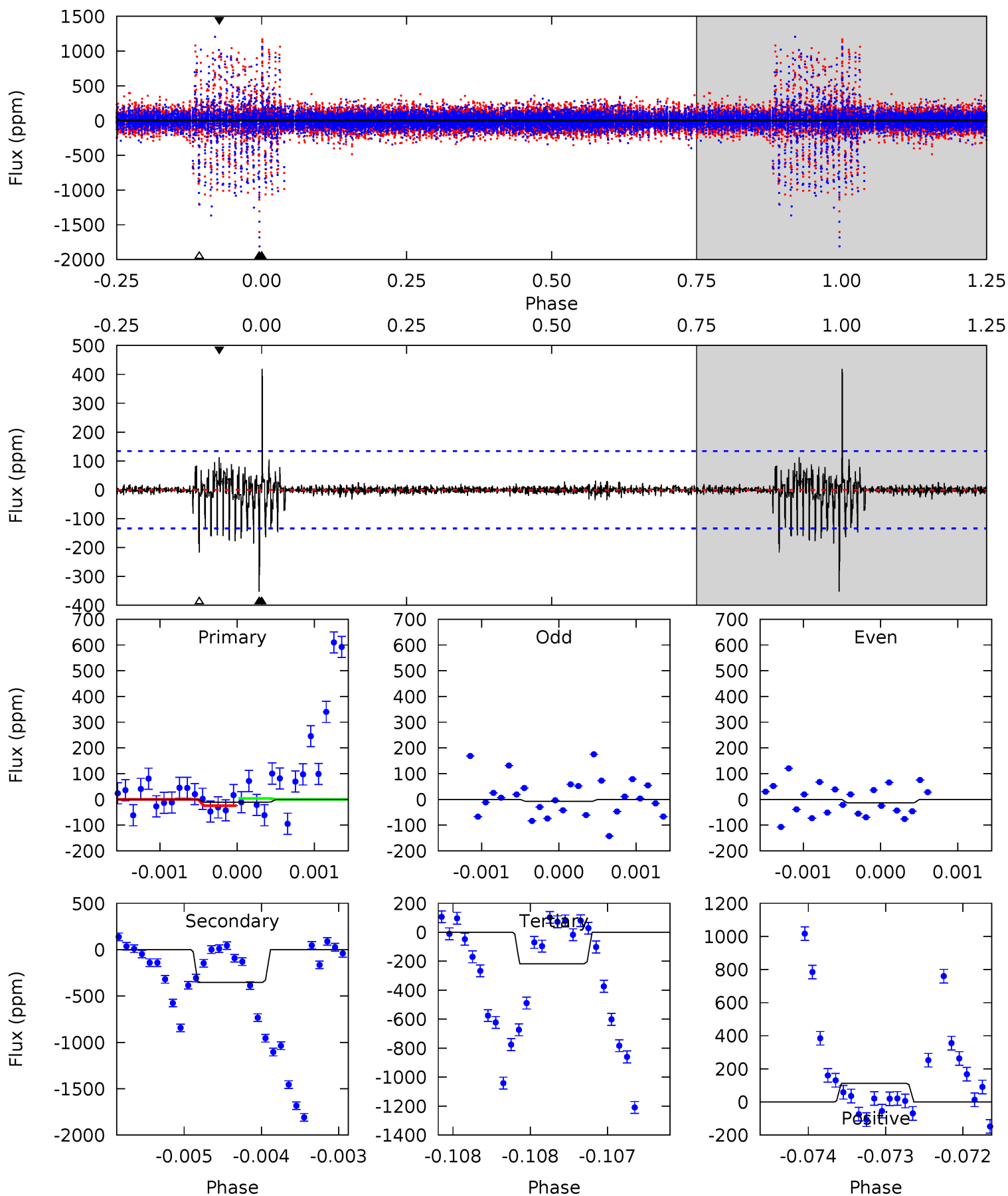
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.92	5.54	4.77	5.79	5.75	3.75	1.28	-2.85	-3.87	0.77	-0.25	0.14	0.91	0.51	0.62



Alt Model-Shift Uniqueness Test

005617510-04, P = 549.628708 Days, E = 150.613152 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.43	14.6	8.98	4.68	5.55	3.44	1.06	-8.55	-4.25	5.62	9.92	0.11	1.00	0.54	0.43



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-172 ± 31	$12.13^{+13.51}_{-8.54}$	469^{+25}_{-29}	3652^{+2162}_{-744}	1461^{+16209}_{-1138}
Alt.	-353 ± 24	$11.17^{+12.79}_{-7.59}$	469^{+24}_{-27}	4219^{+2820}_{-941}	3517^{+31103}_{-2753}

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 $A_{obs} \gg 1.0$

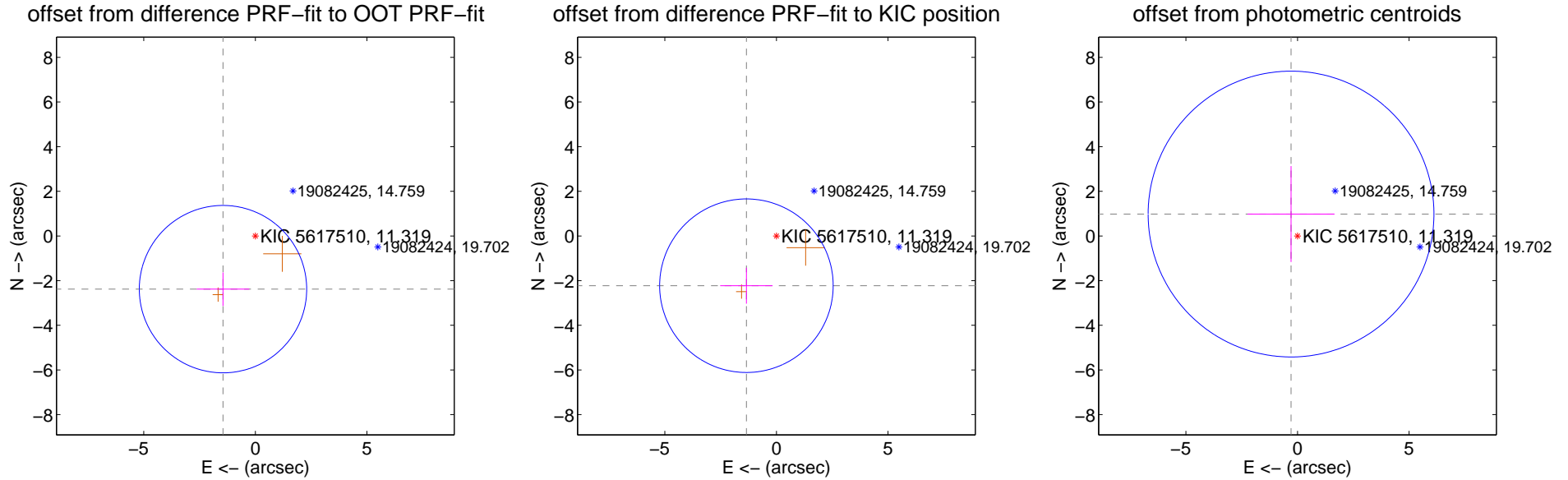
DV Centroid Data

Supplemental centroid analysis for 005617510-04. **Kepler magnitude: 11.32.** Transit SNR 2.08

There are 0 quarters with good PRF difference image offsets

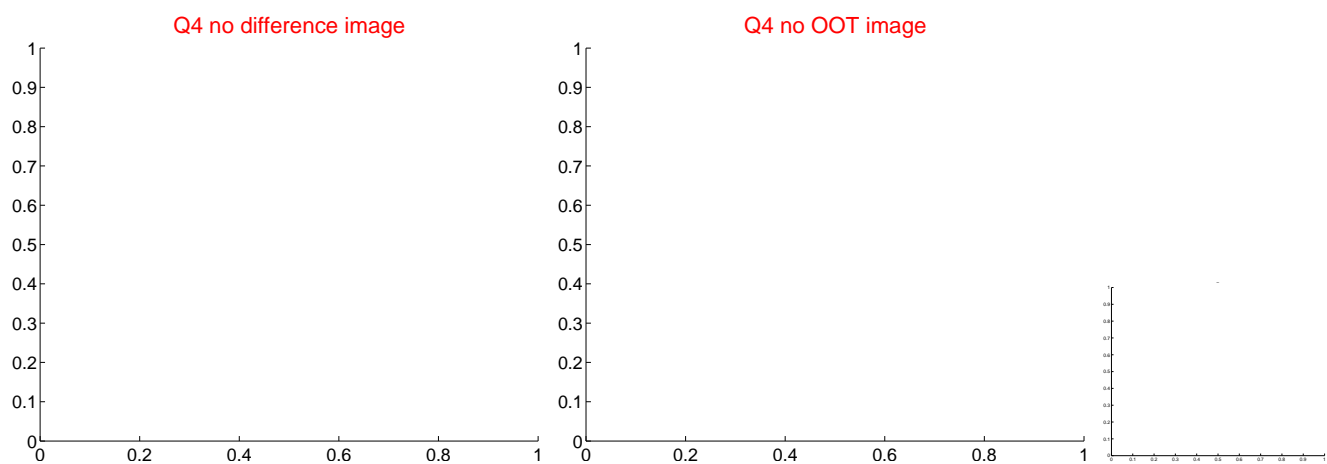
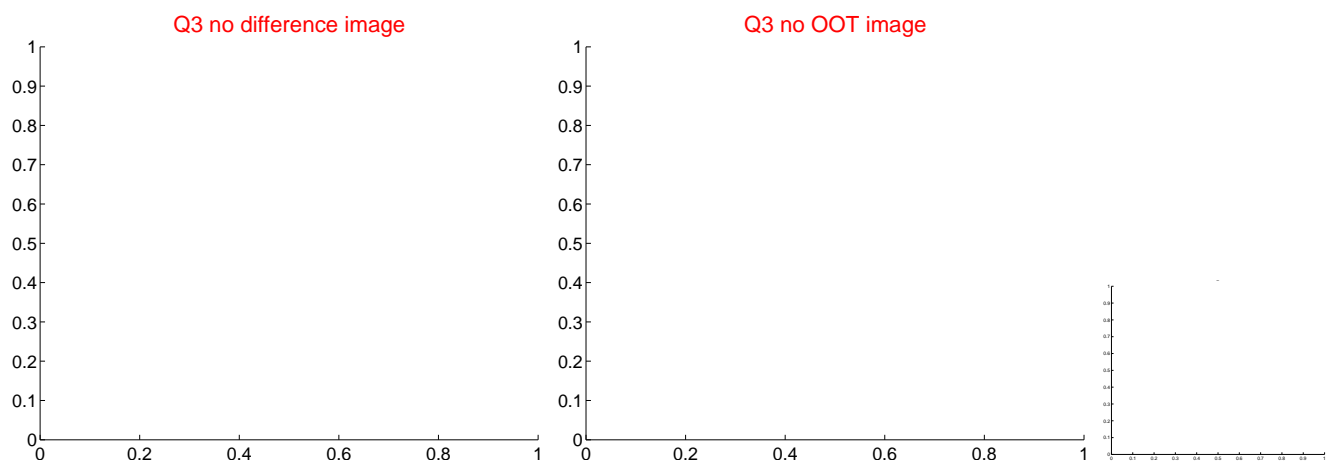
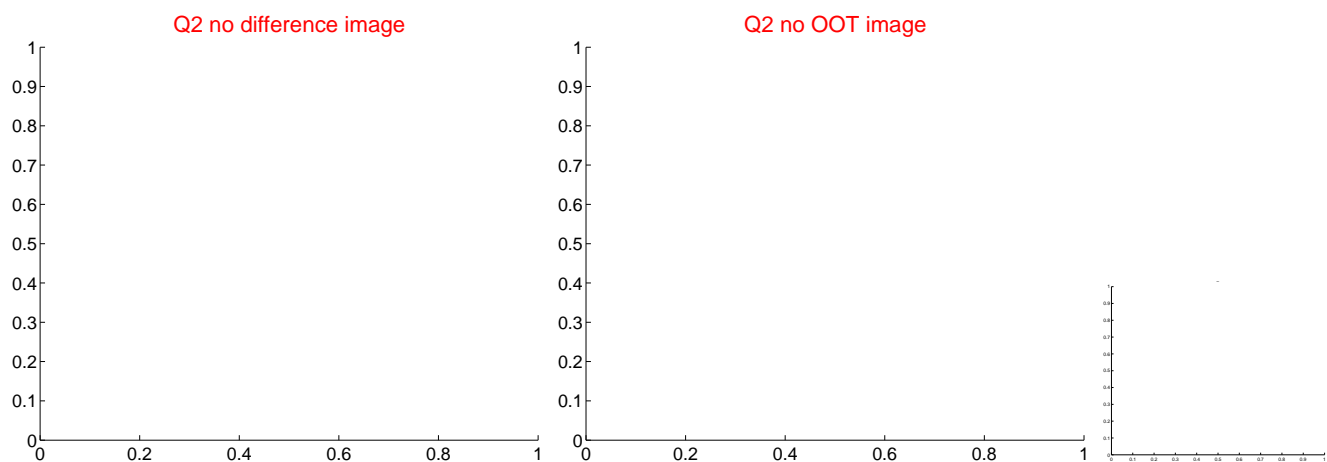
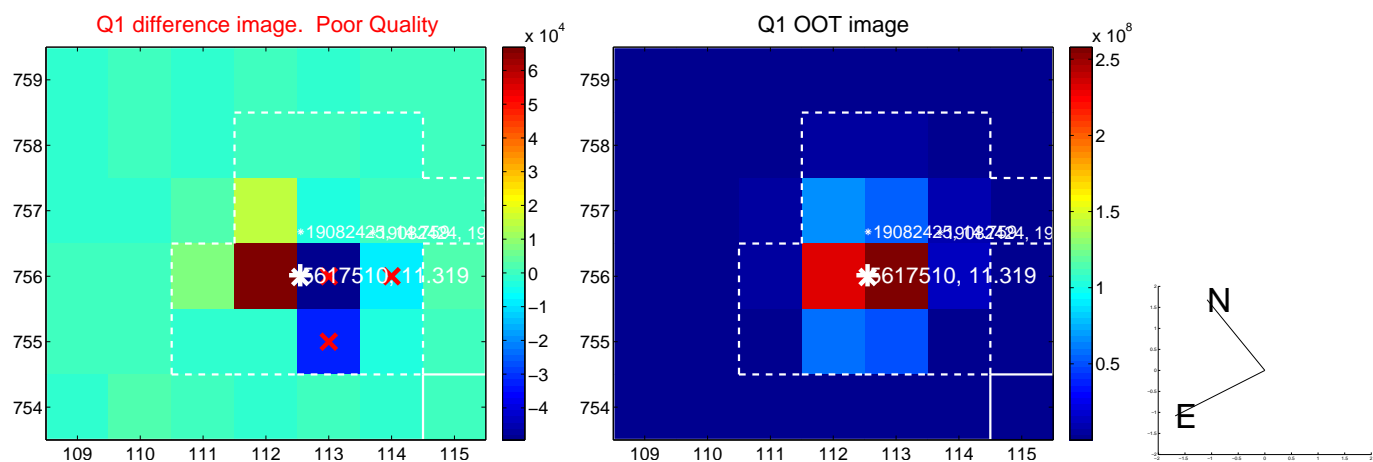
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.787 ± 1.249	2.23	1.449 ± 1.176	-2.381 ± 0.749
PRF-fit source offset from KIC position	2.602 ± 1.295	2.01	1.344 ± 1.174	-2.227 ± 0.806
photometric centroid source offset	1.02 ± 2.13	0.48	0.29 ± 1.95	0.98 ± 2.15

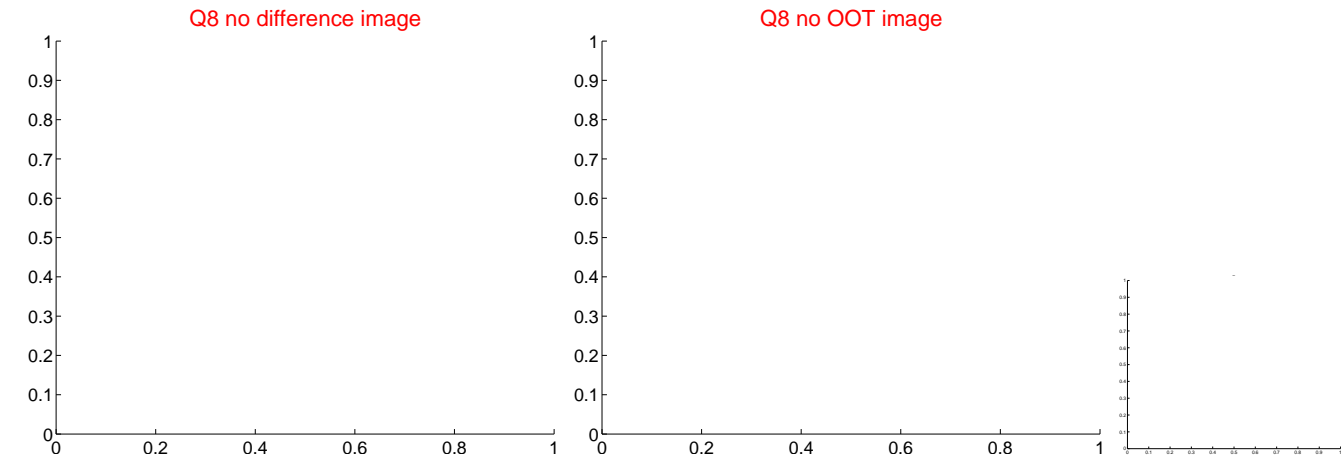
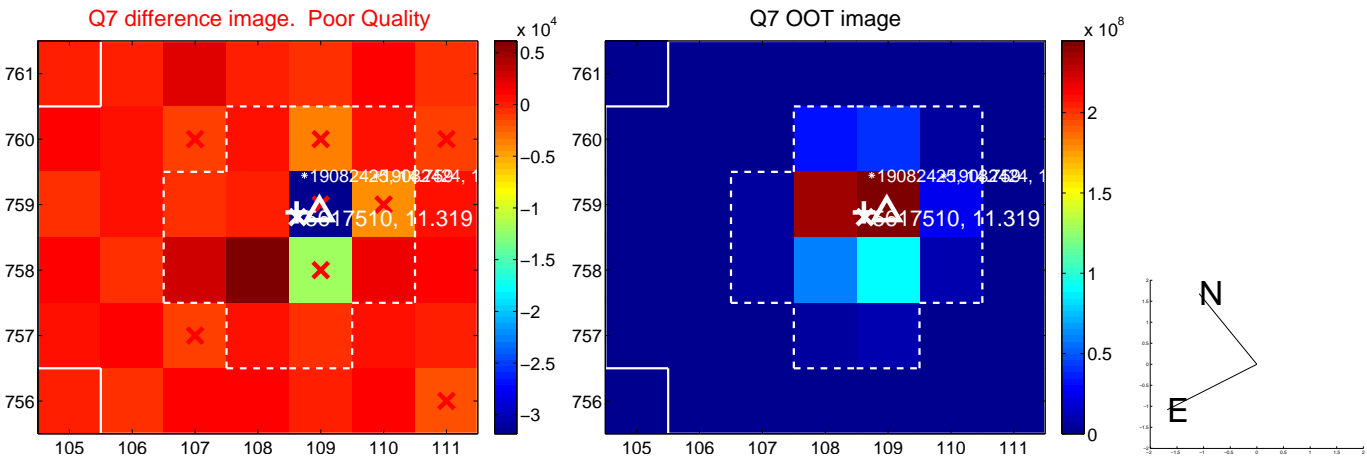
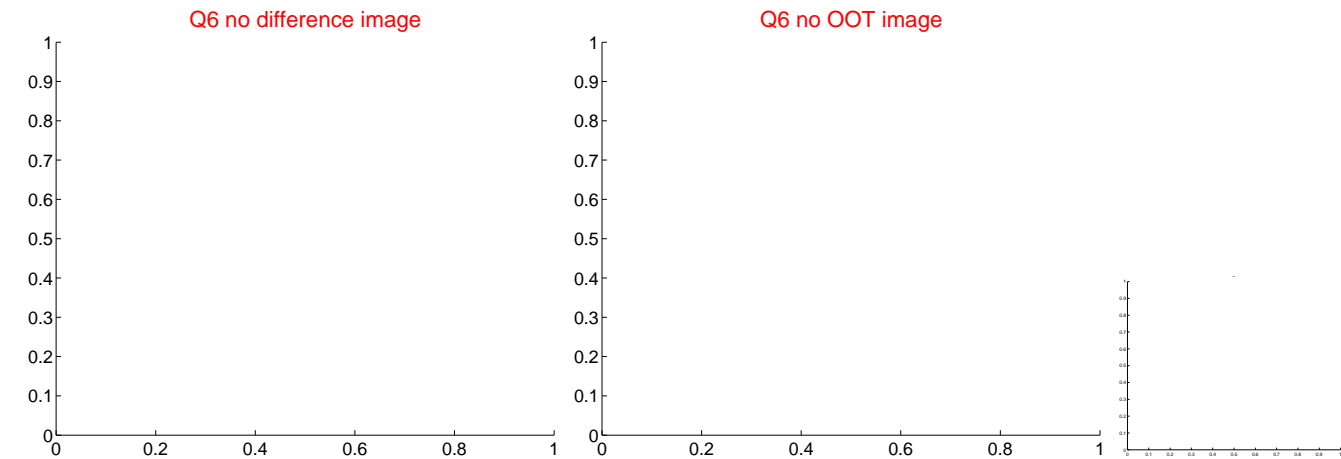
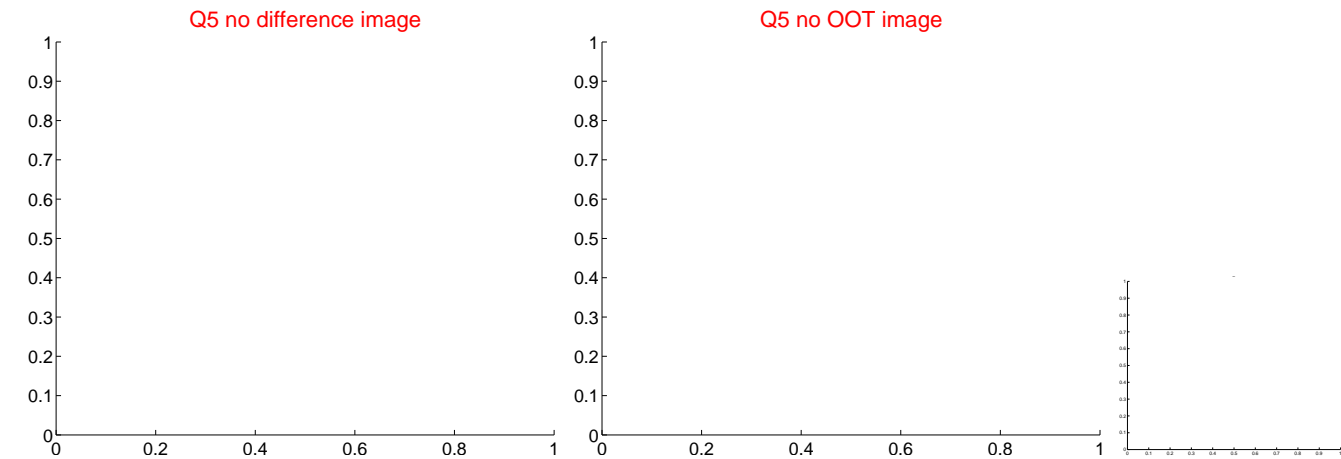


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



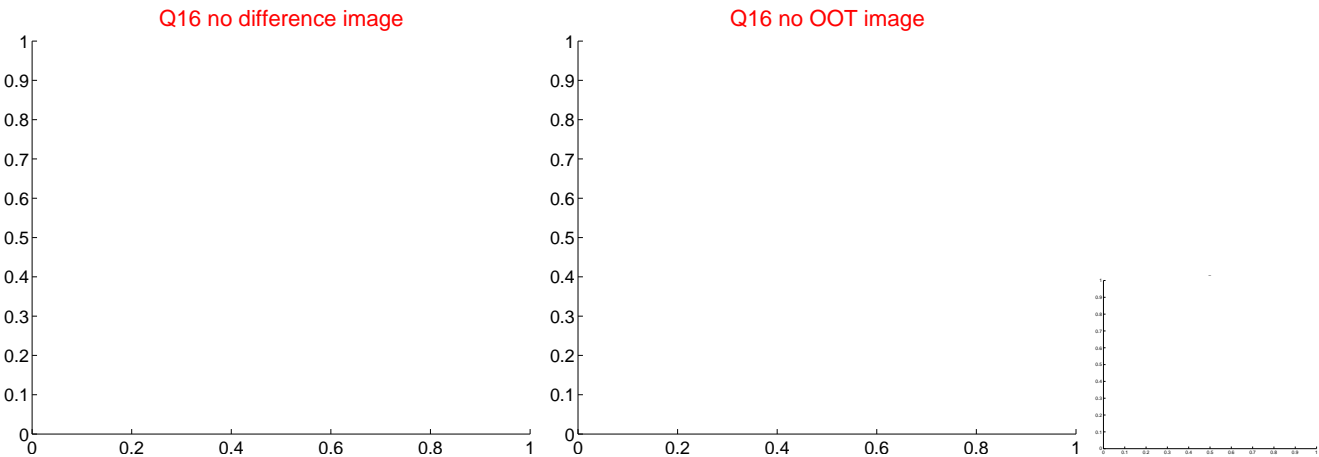
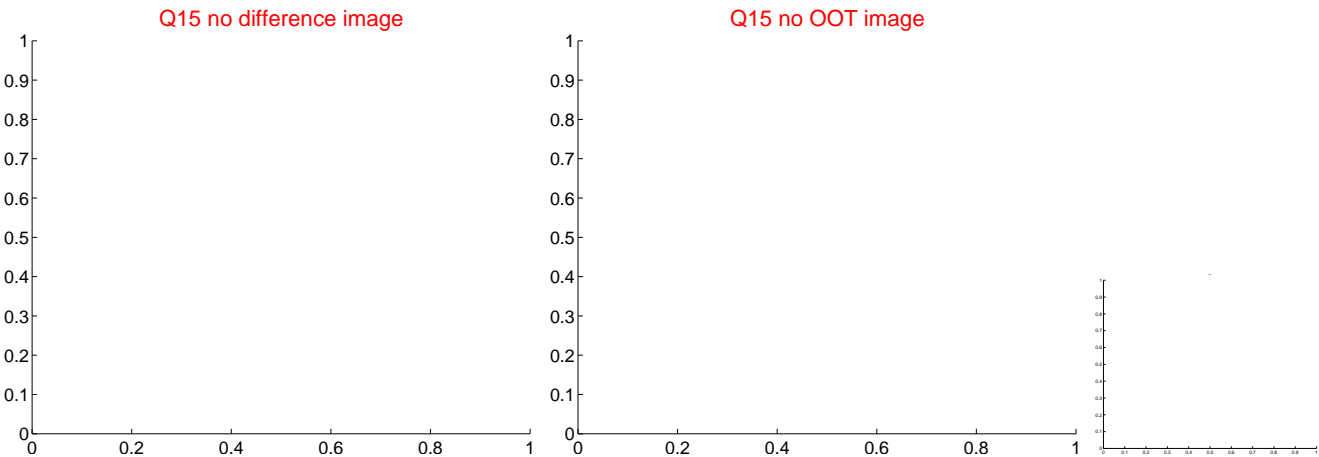
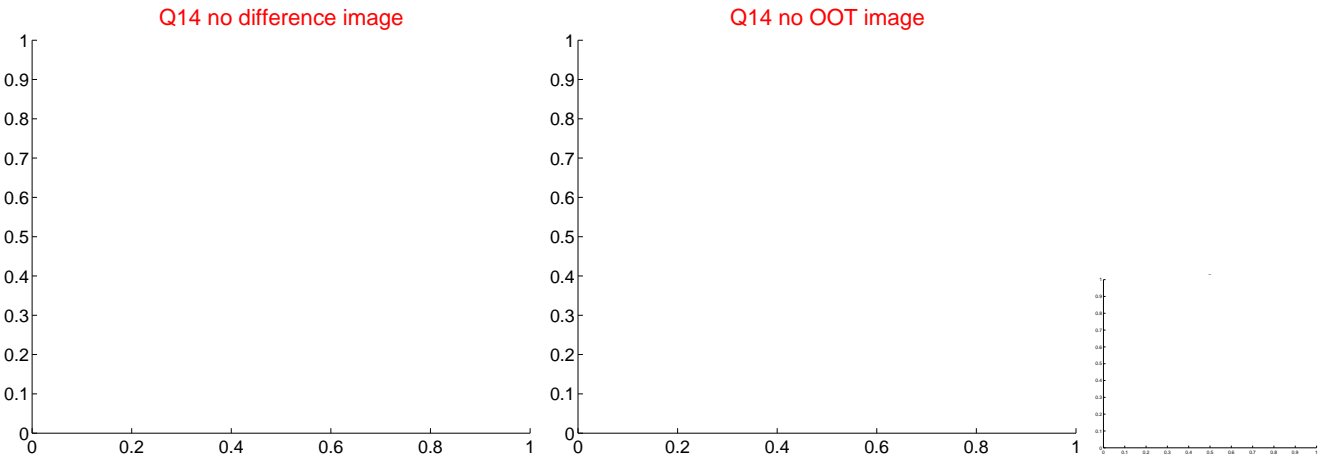
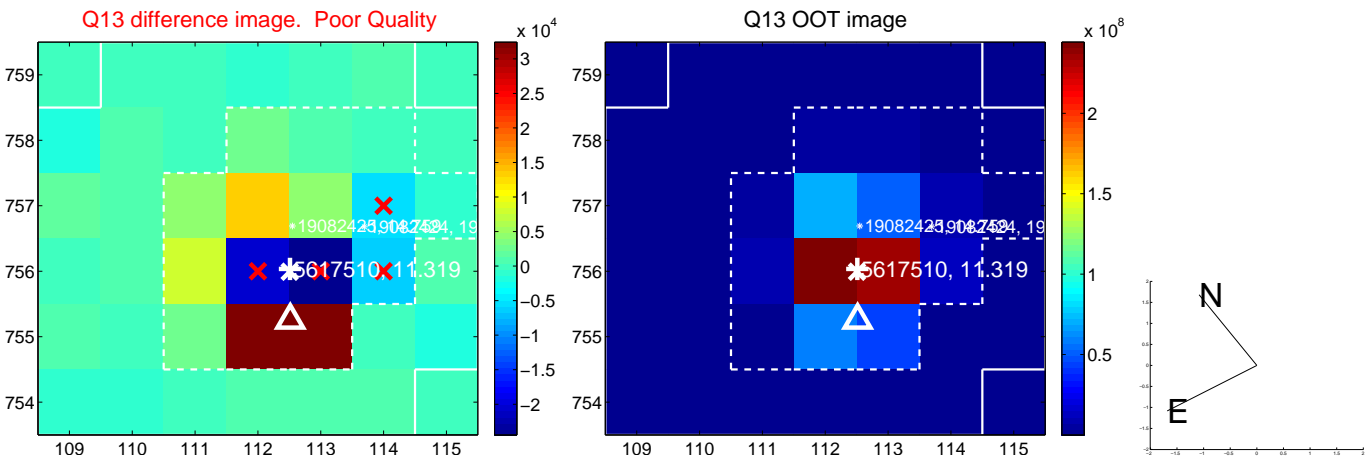
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



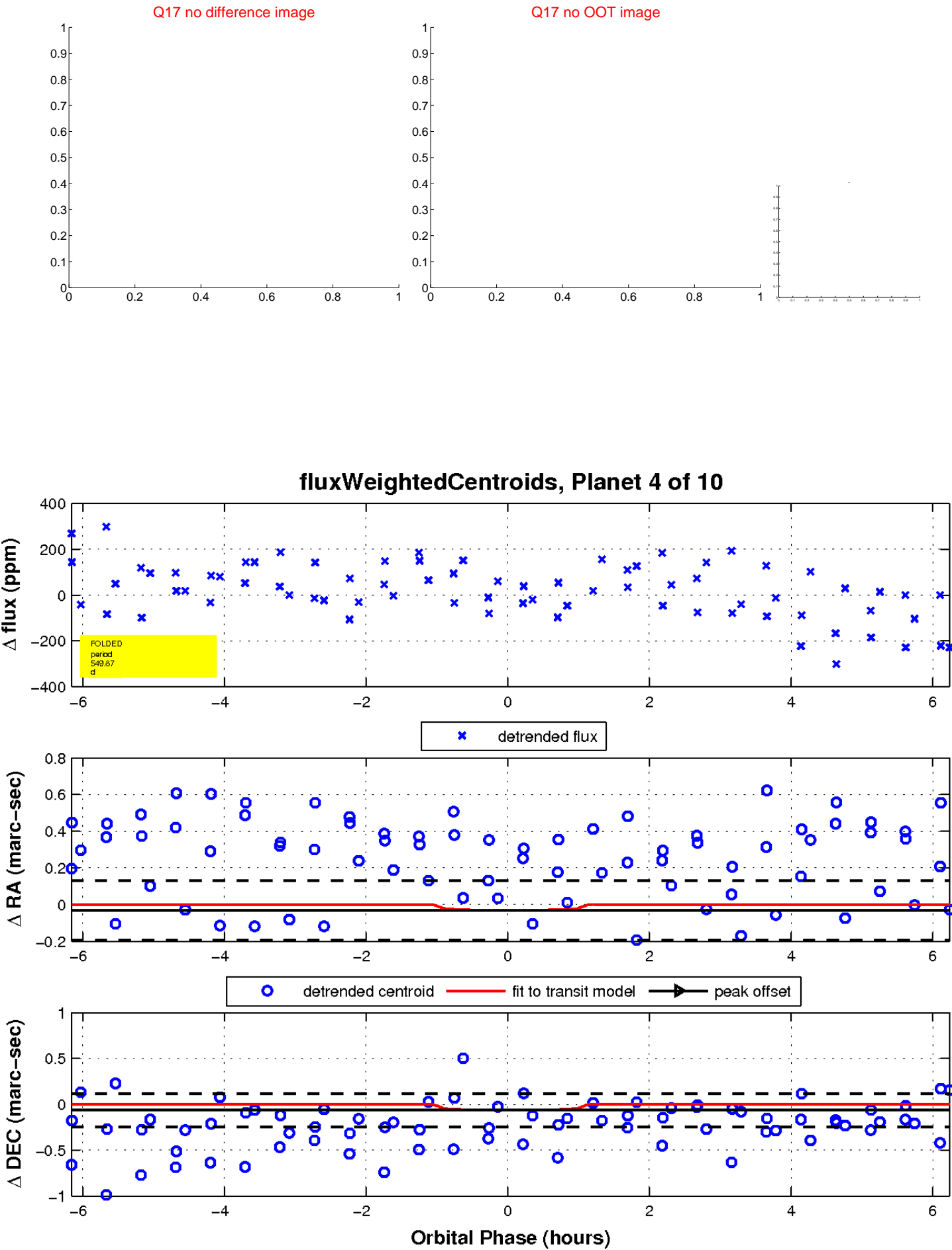
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

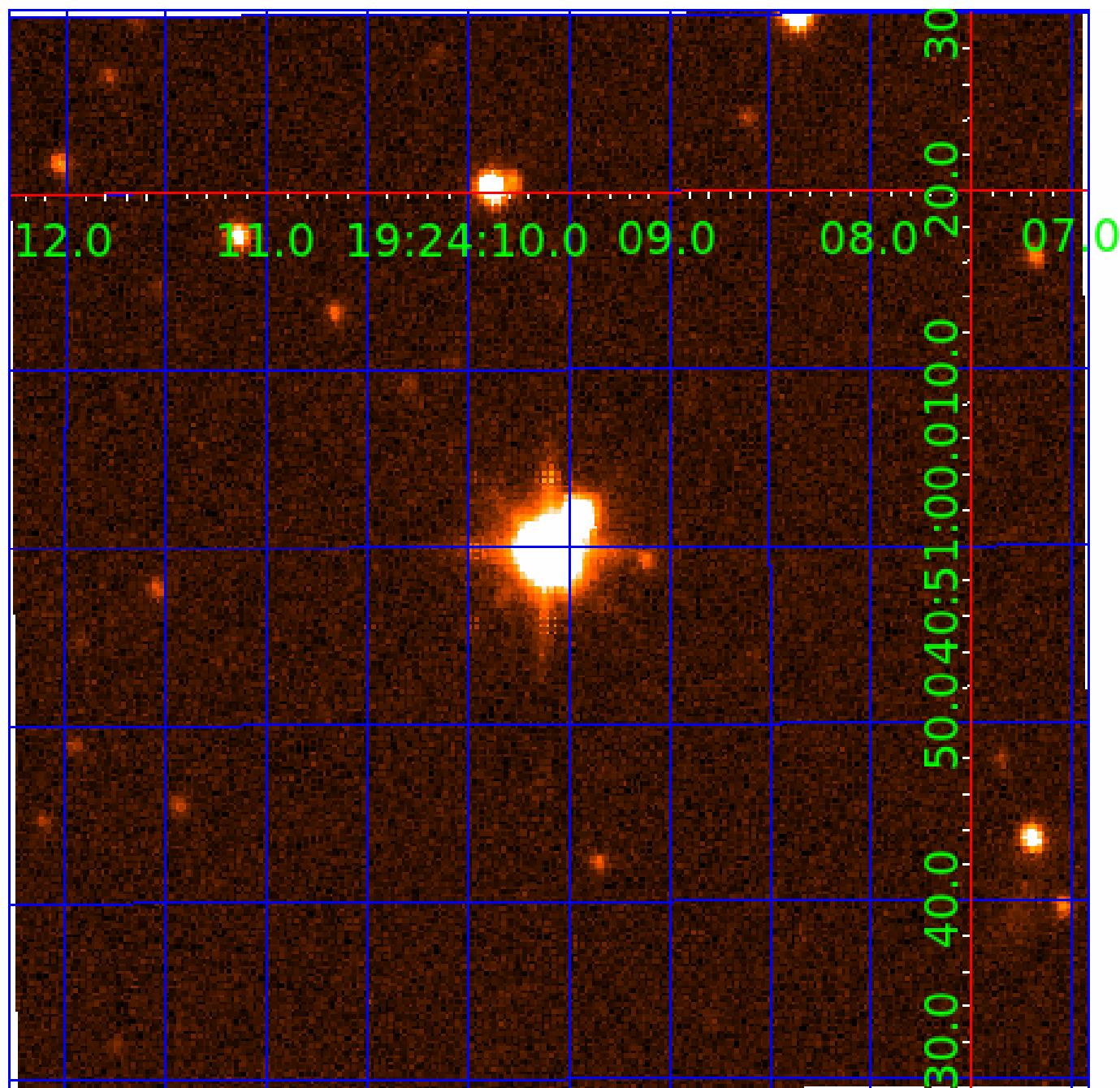


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

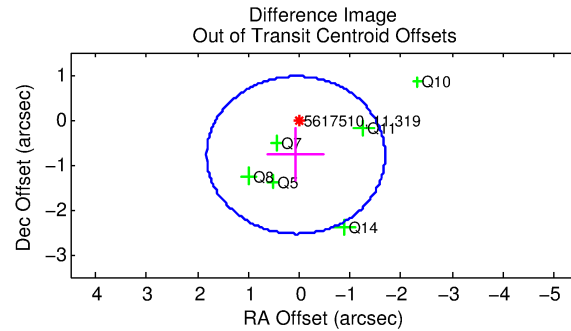
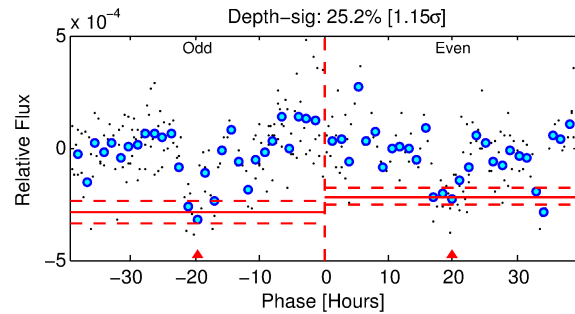
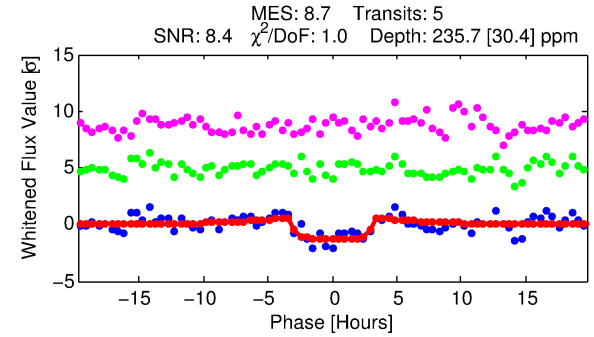
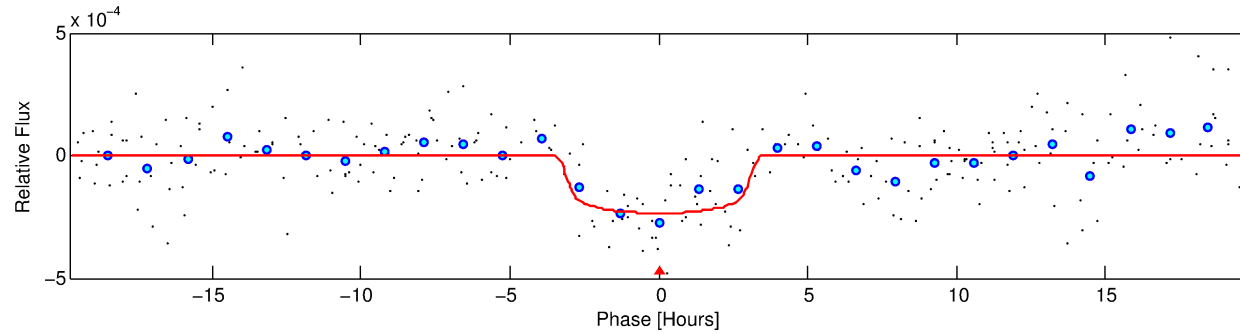
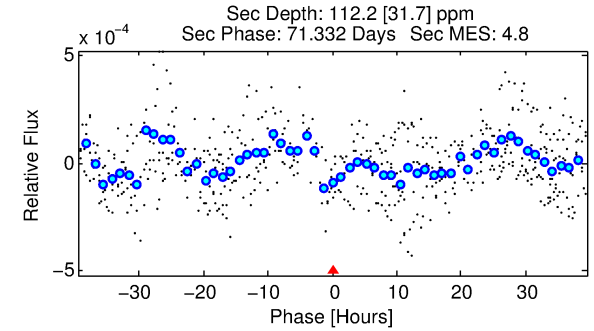
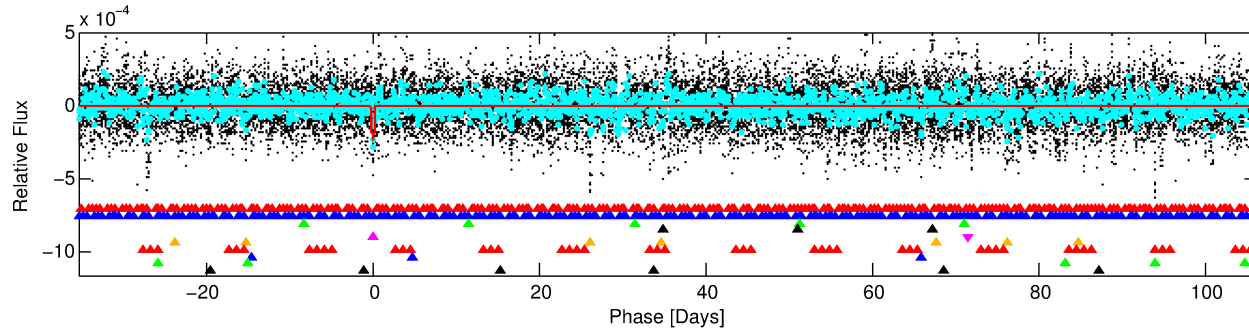
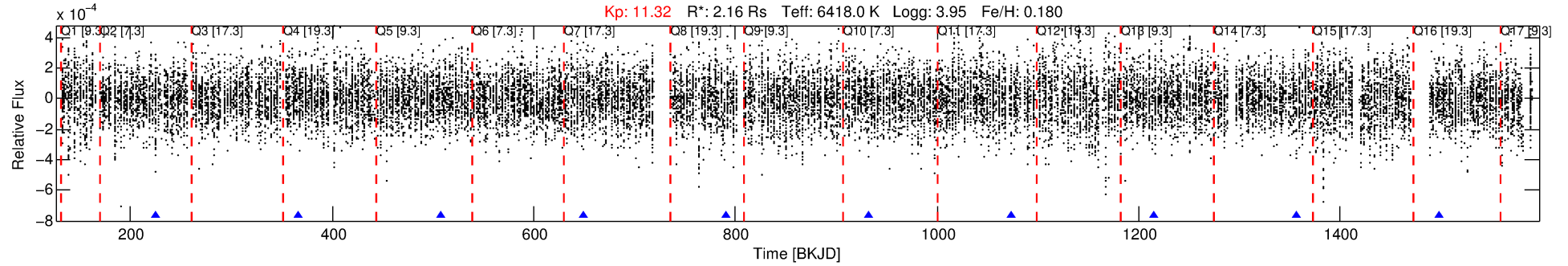
Ephemeris Match Information For 005617510-05

No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 5 of 10 Period: 141.489 d

KOI: K06605 Corr: No Ephemeris Match



DV Fit Results:

Period = 141.48920 [0.00181] d
Epoch = 225.2313 [0.0094] BKJD
Rp/R* = 0.0160 [0.0056]
a/R* = 88.82 [164.28]
b = 0.86 [0.56]
Seff = 18.90 [6.36]
Teff = 532 [45] K
Rp = 3.77 [1.64] Re
a = 0.6124 [0.1356] AU
Ag = 1625.19 [1346.70] [1.21σ]
Teffp = 5219 [993] K [4.71σ]

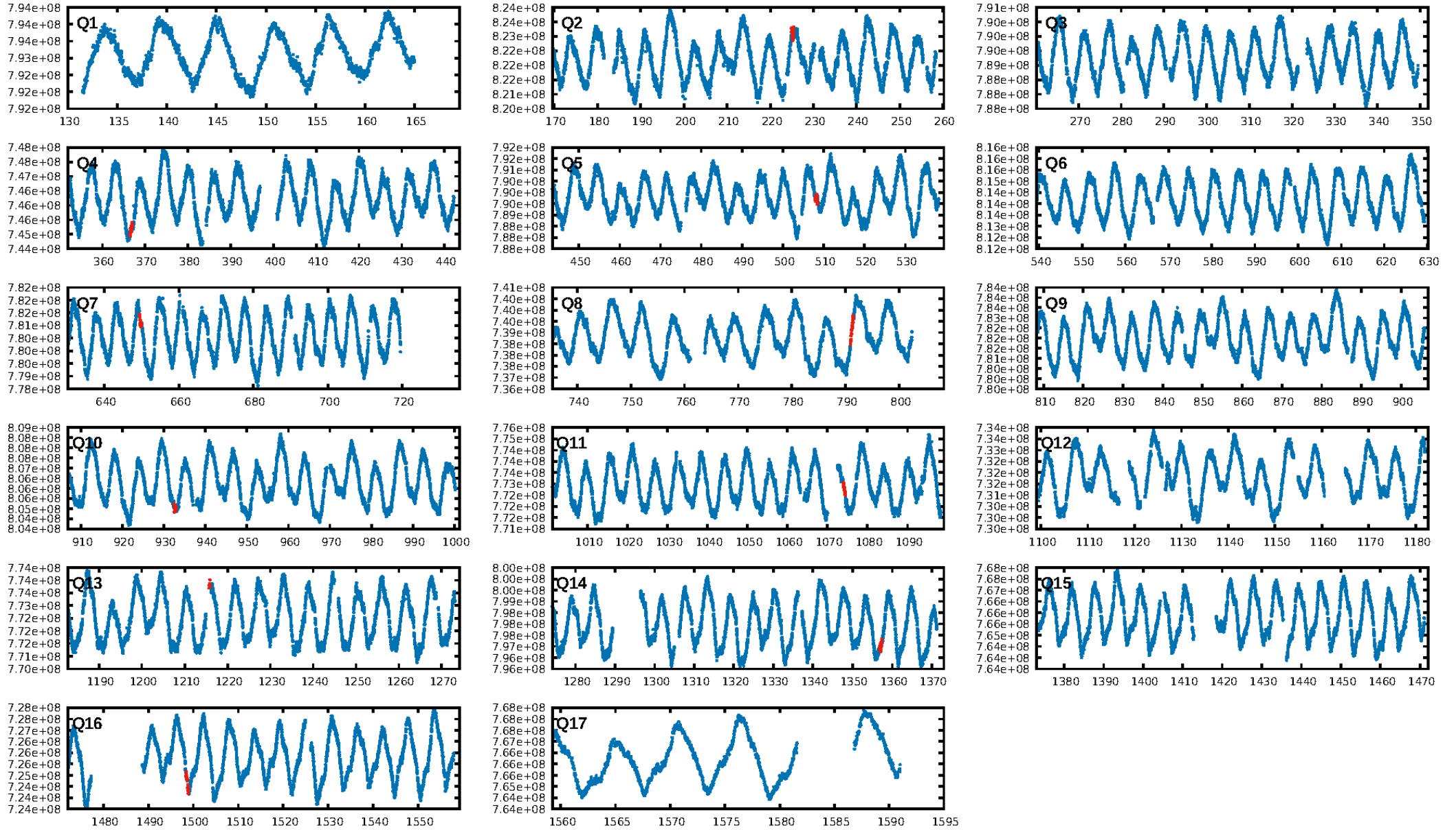
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [238.98σ]
LongPeriod-sig: 100.0% [145.92σ]
ModelChiSquare2-sig: 57.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.0752
Centroid-sig: 56.2%
Centroid-so: 0.395 arcsec [0.87σ]
OotOffset-rm: 0.791 arcsec [1.35σ]
KicOffset-rm: 0.498 arcsec [0.84σ]
OotOffset-st: 2/2/1/1 [6]
KicOffset-st: 2/2/1/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.50 [4/8]

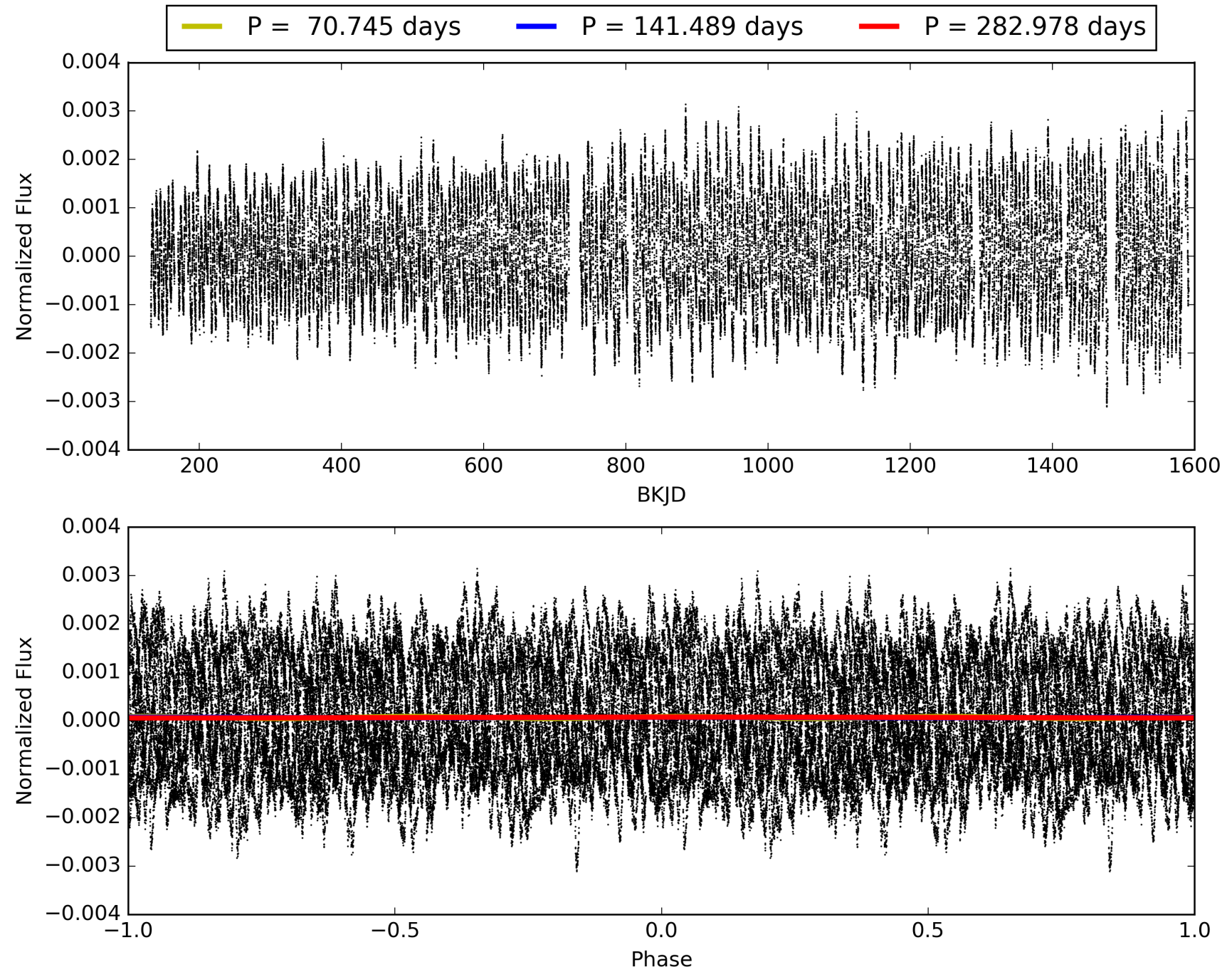
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:31:42 Z

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

TCE 005617510-05, PDC Light Curves

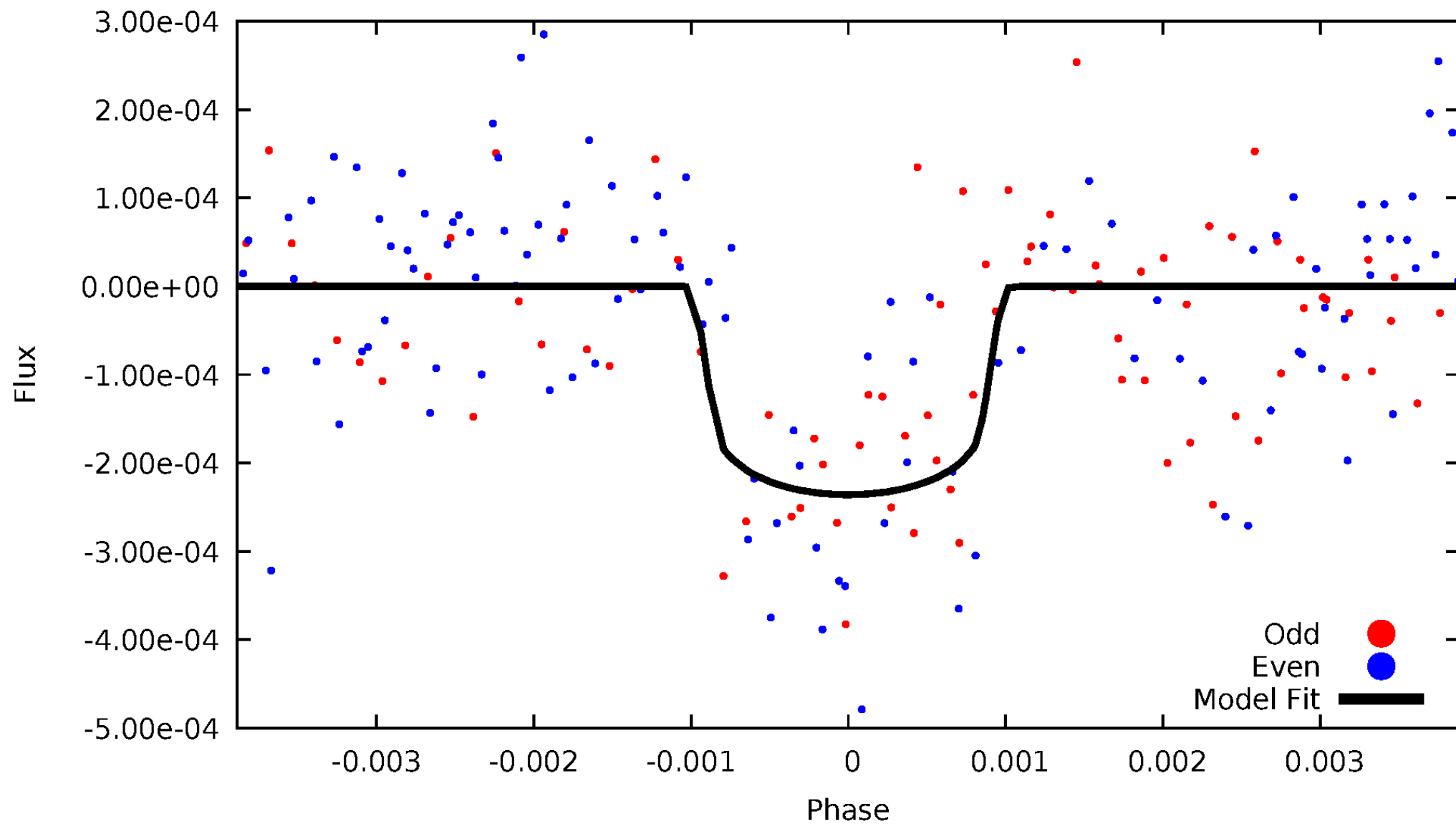


TCE 005617510-05



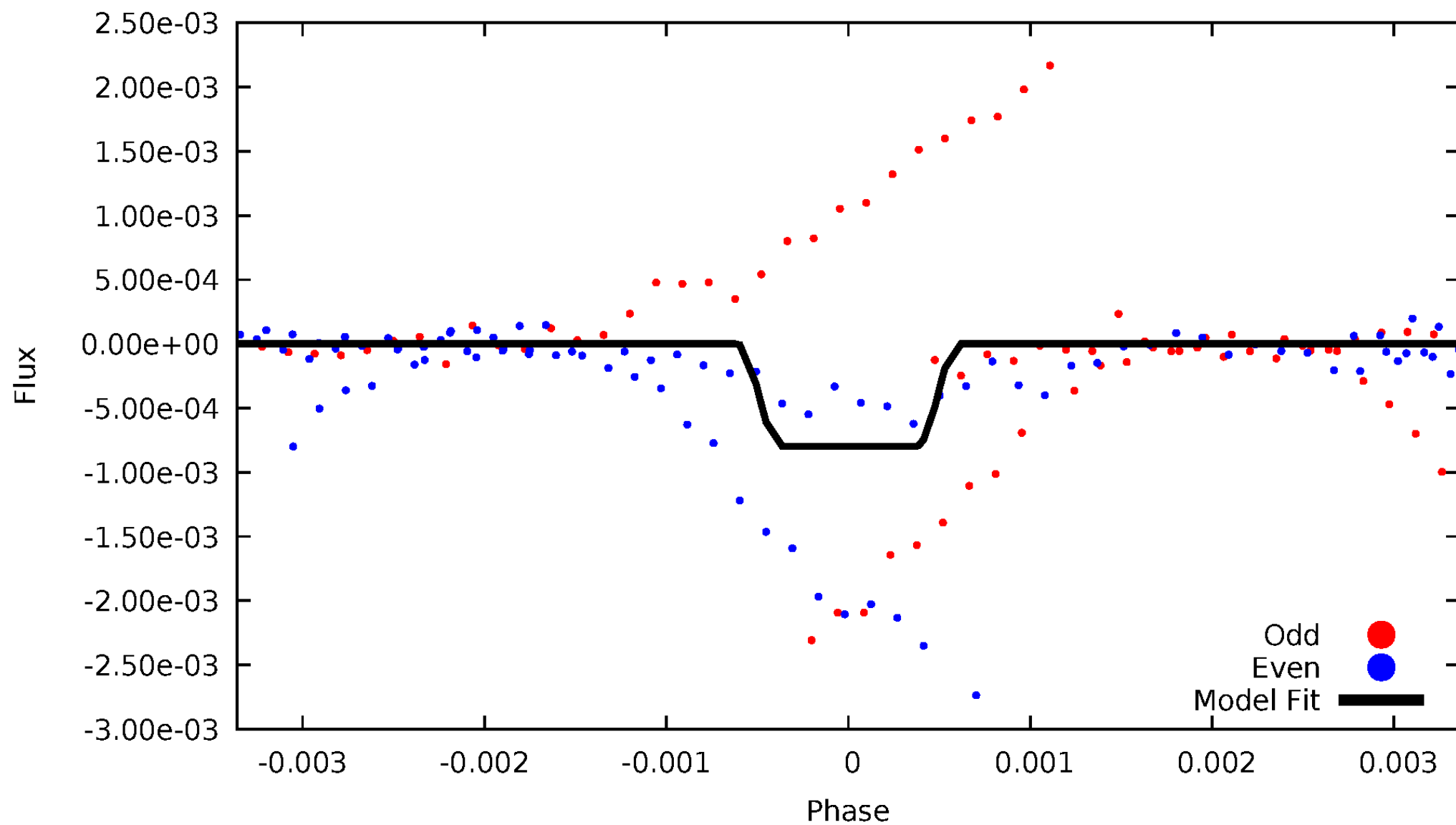
DV Odd/Even

TCE 005617510-05



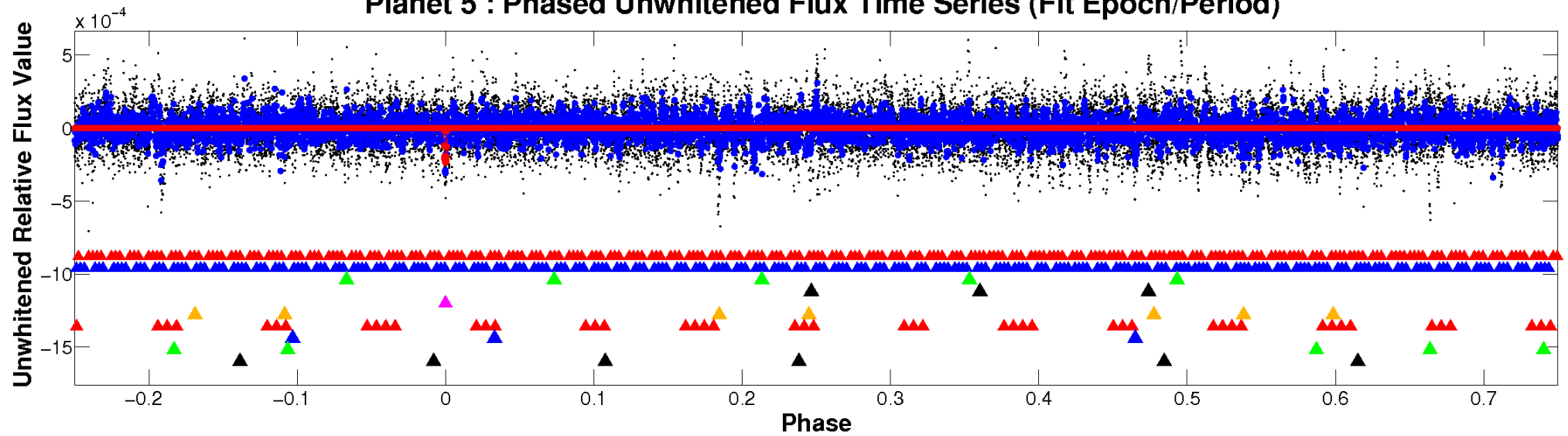
ALT Odd/Even

TCE 005617510-05

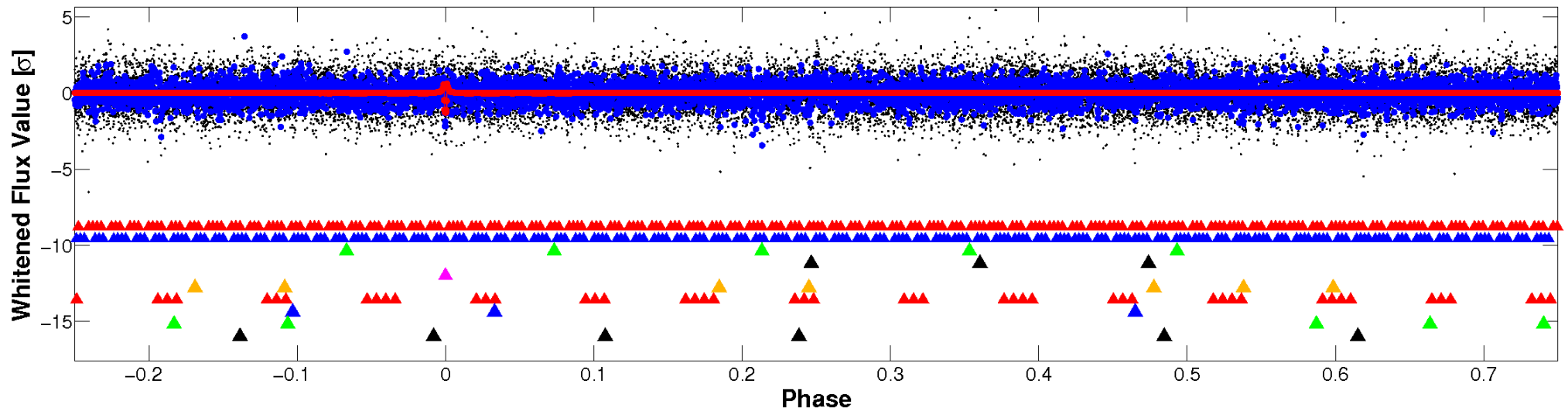


Non-Whitened Vs. Whitened Light Curve

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

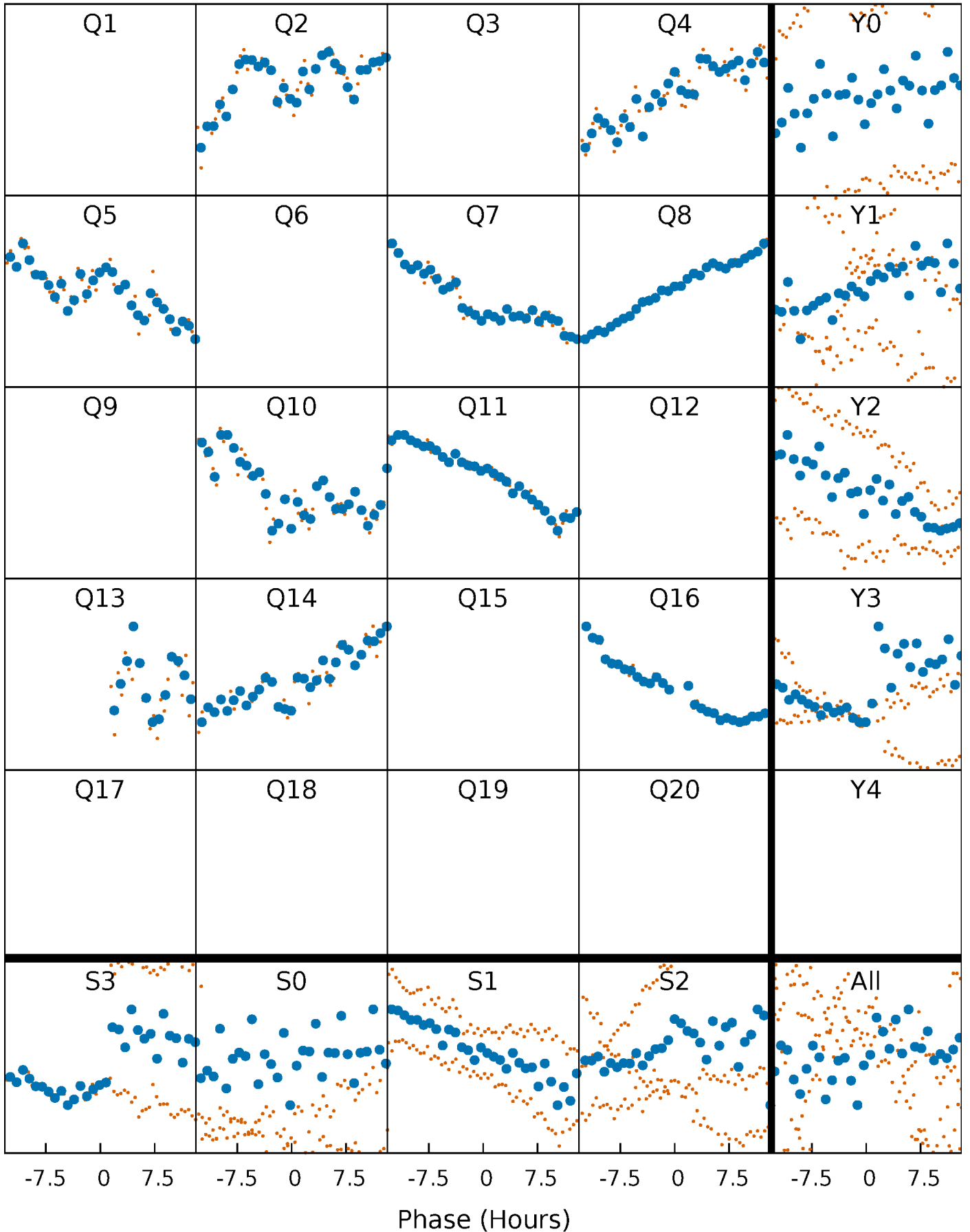


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



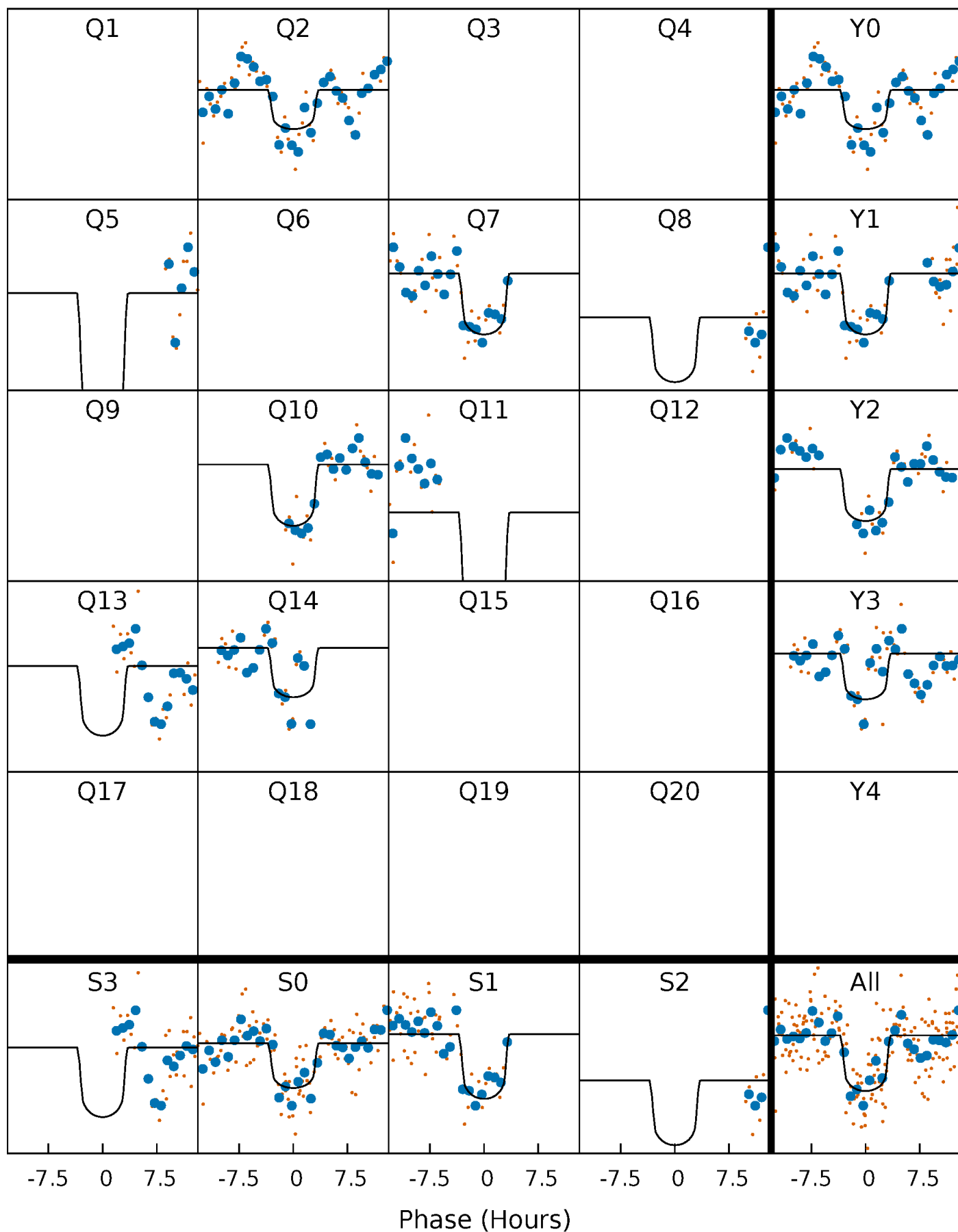
PDC Quarter-Phased Transit Curves

TCE 005617510-05 P=141.489200 Days $T_0=225.231255$ (BKJD)



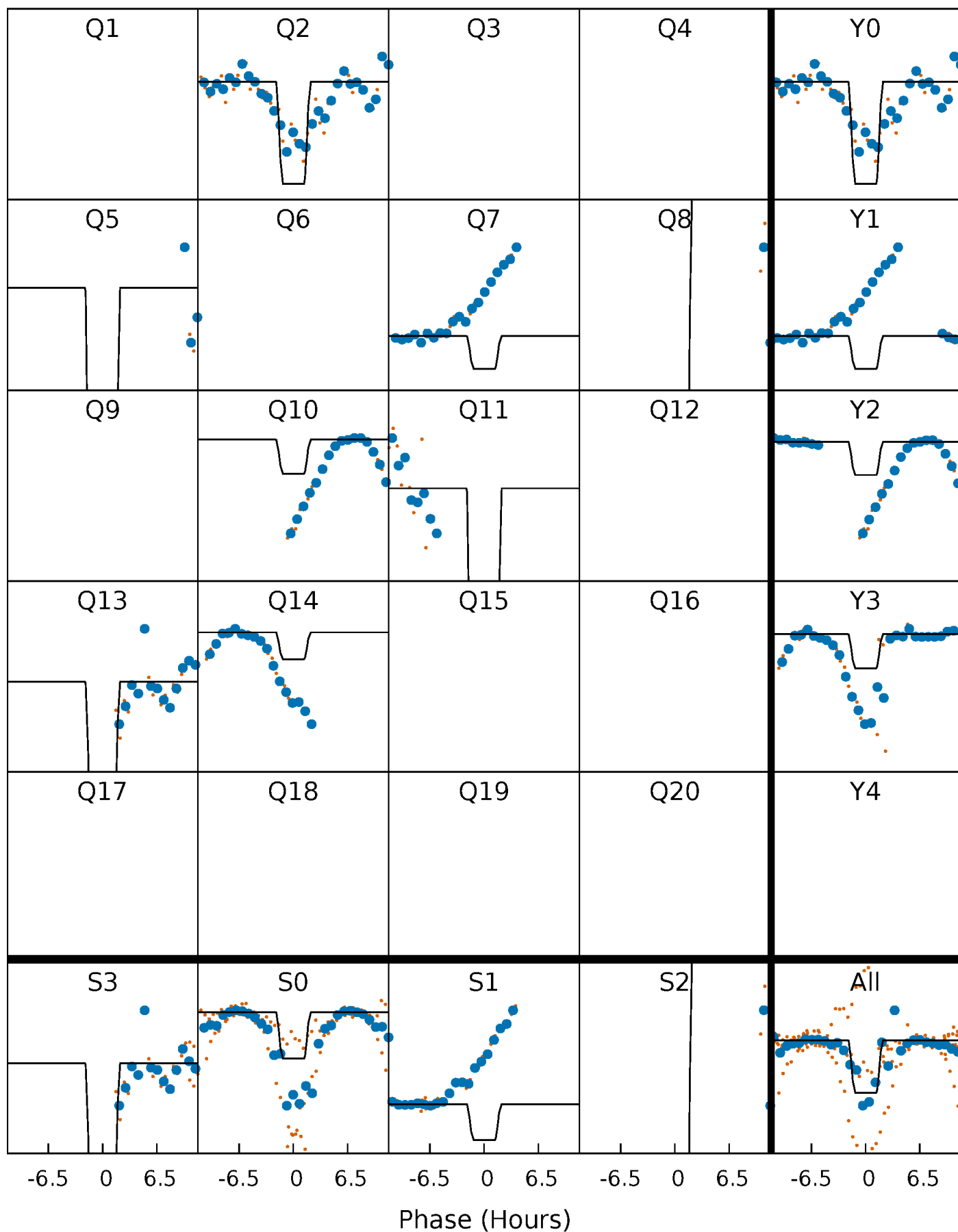
DV Quarter-Phased Transit Curves

TCE 005617510-05 P=141.489200 Days $T_0=225.231255$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

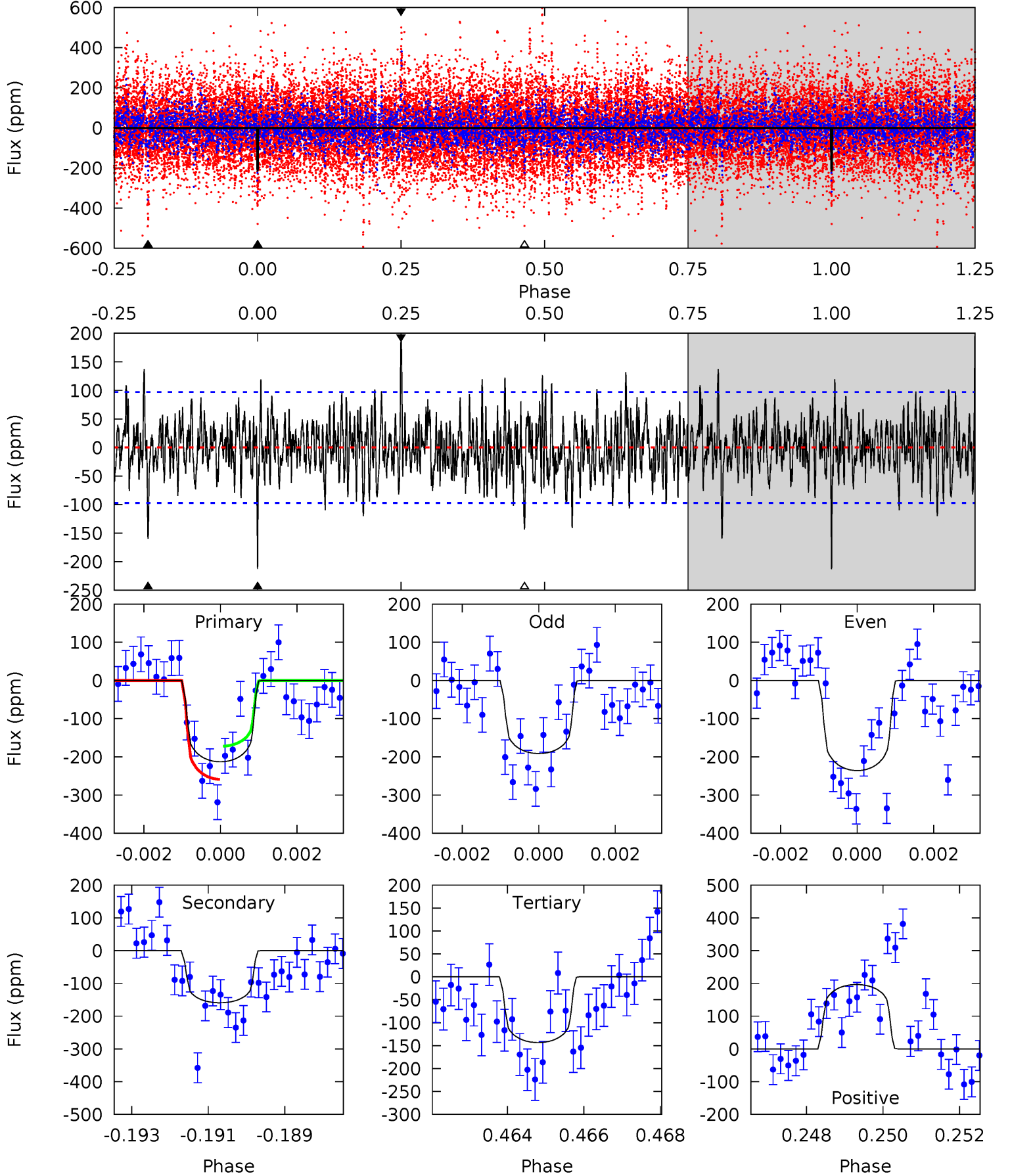
TCE 005617510-05 P=141.493994 Days $T_0=225.192689$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-05, $P = 141.489200$ Days, $E = 83.742055$ Days

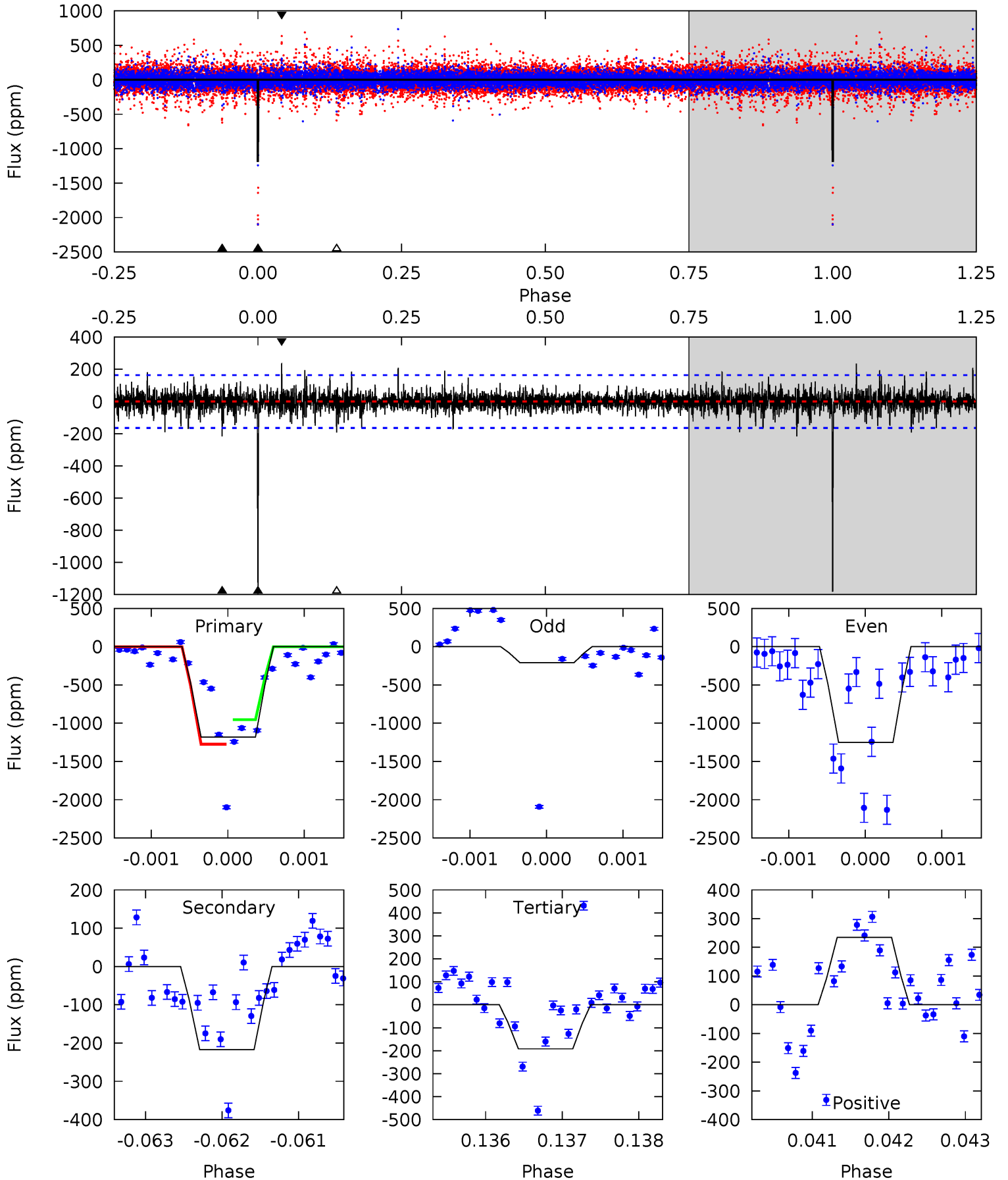
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	8.73	7.86	10.8	5.32	3.08	2.26	3.81	0.90	0.87	-2.04	1.21	0.80	0.48	2.36



Alt Model-Shift Uniqueness Test

005617510-05, P = 141.493994 Days, E = 83.698695 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.1	7.19	6.36	7.76	5.44	3.28	1.27	32.8	31.4	0.83	-0.57	16.4	0.68	0.17	4.61



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-159 ± 18	$3.62^{+1.46}_{-1.24}$	740^{+37}_{-45}	5700^{+1331}_{-729}	2470^{+3160}_{-1205}
Alt.	-217 ± 30	$6.45^{+1.53}_{-1.47}$	738^{+37}_{-41}	4787^{+478}_{-390}	1086^{+720}_{-409}

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 $A_{obs} \gg 1.0$

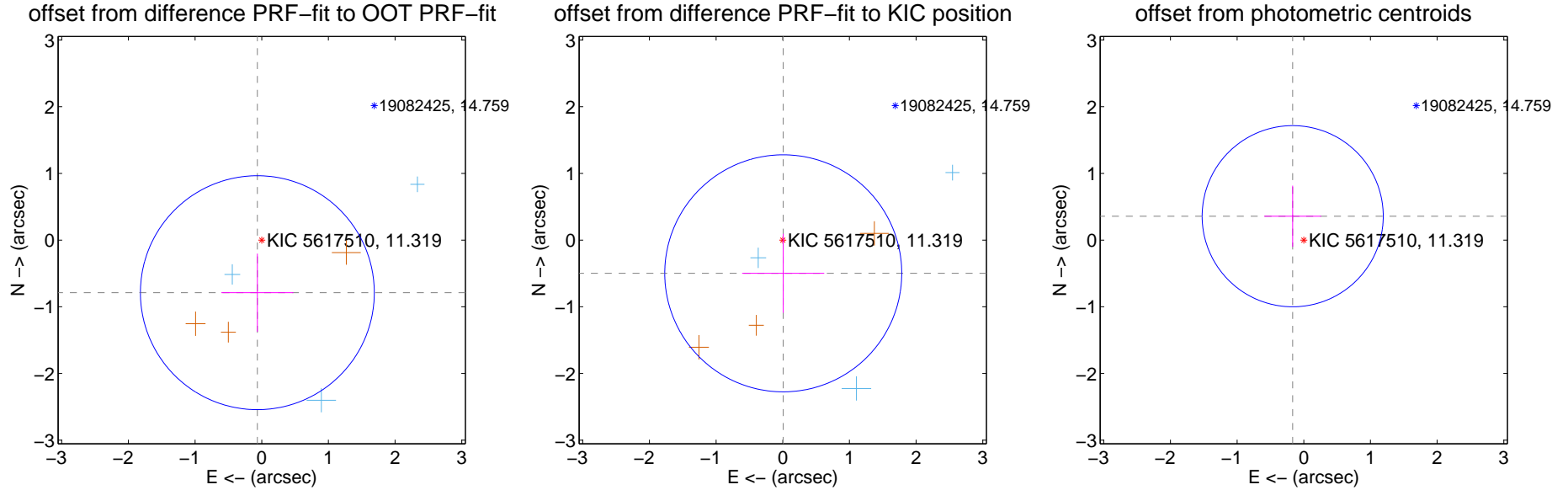
DV Centroid Data

Supplemental centroid analysis for 005617510-05. **Kepler magnitude: 11.32.** Transit SNR 8.44

There are 3 quarters with good PRF difference image offsets

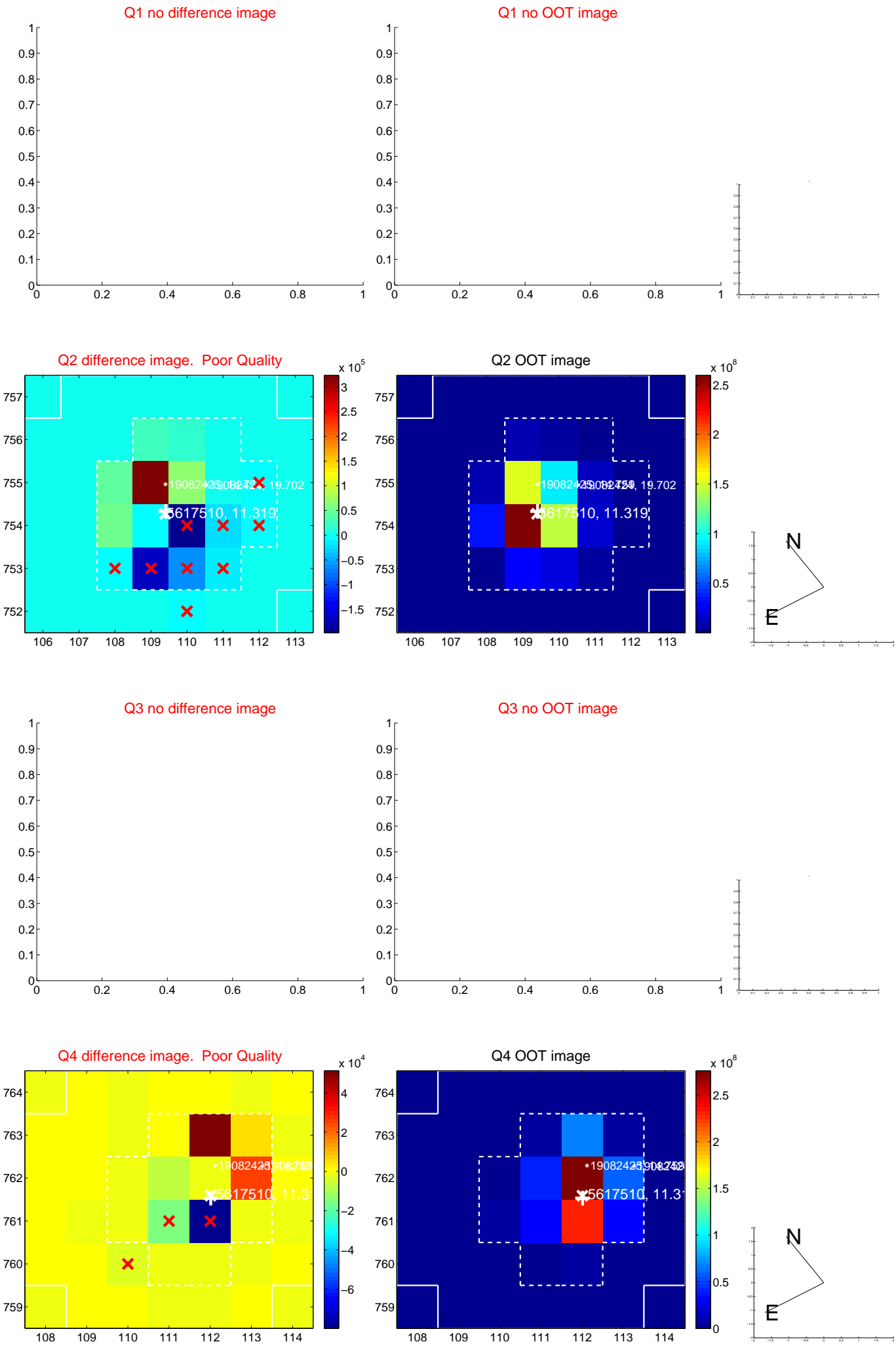
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.791 ± 0.585	1.35	0.066 ± 0.541	-0.789 ± 0.585
PRF-fit source offset from KIC position	0.498 ± 0.592	0.84	-0.007 ± 0.616	-0.498 ± 0.592
photometric centroid source offset	0.39 ± 0.45	0.87	0.17 ± 0.43	0.36 ± 0.46

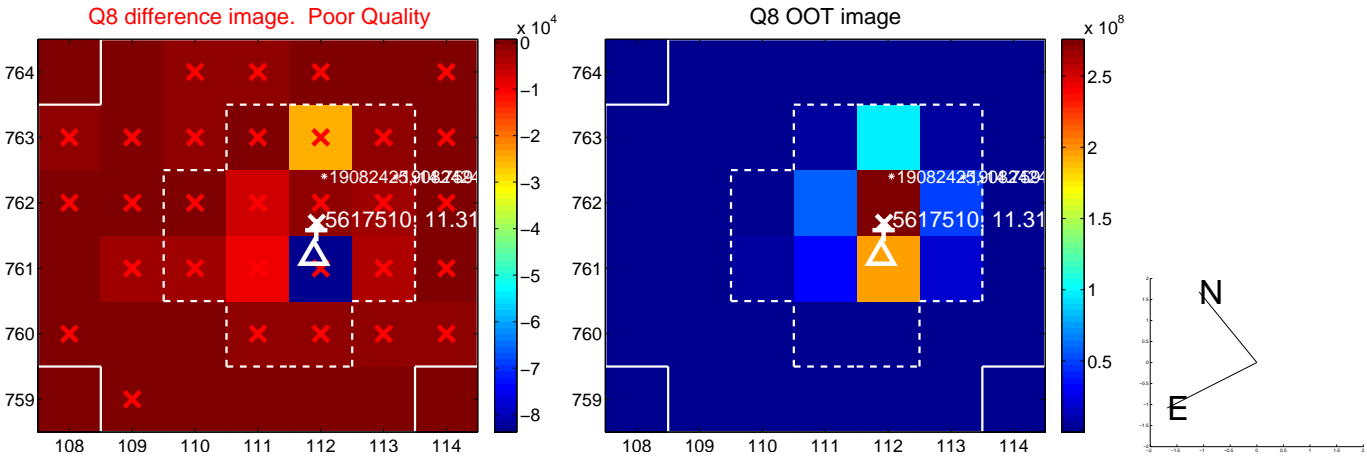
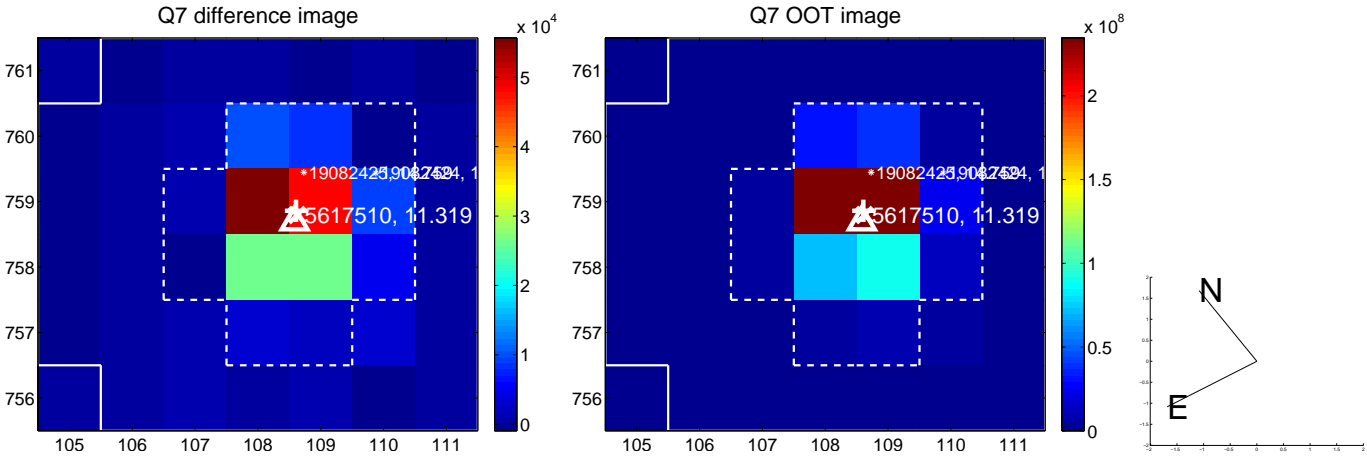
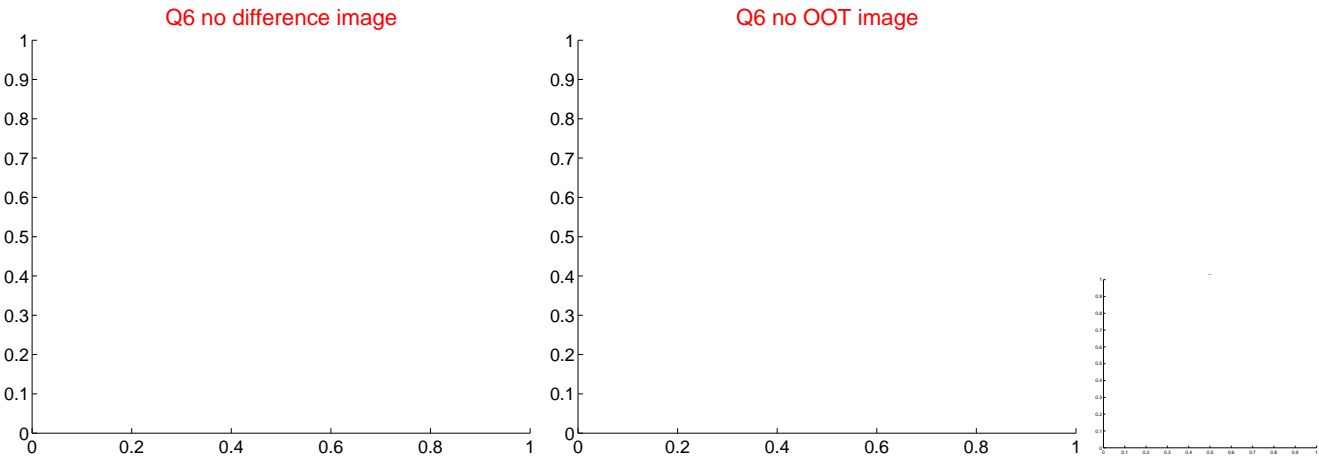
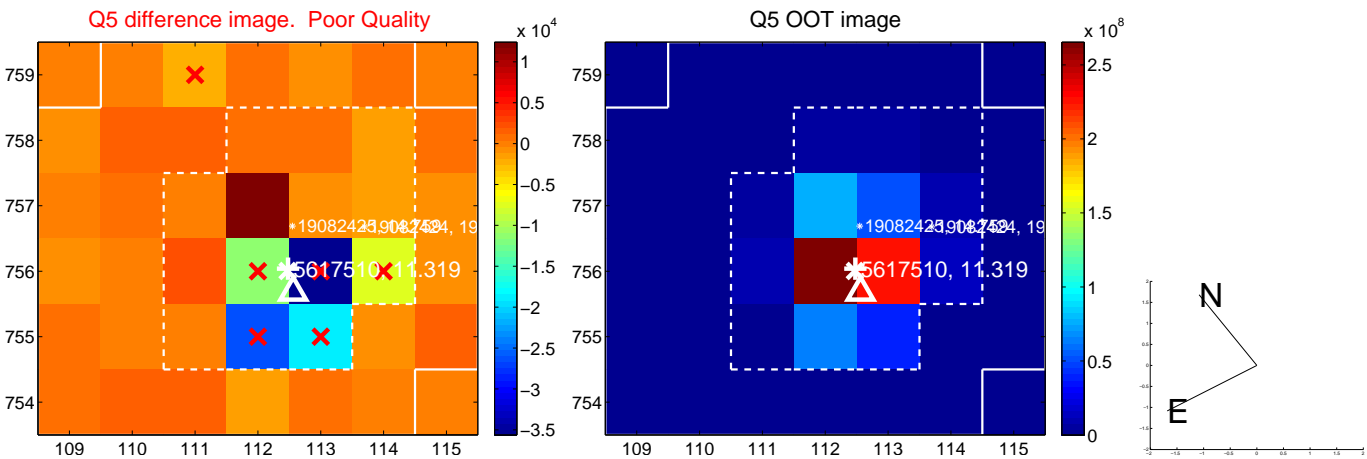


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

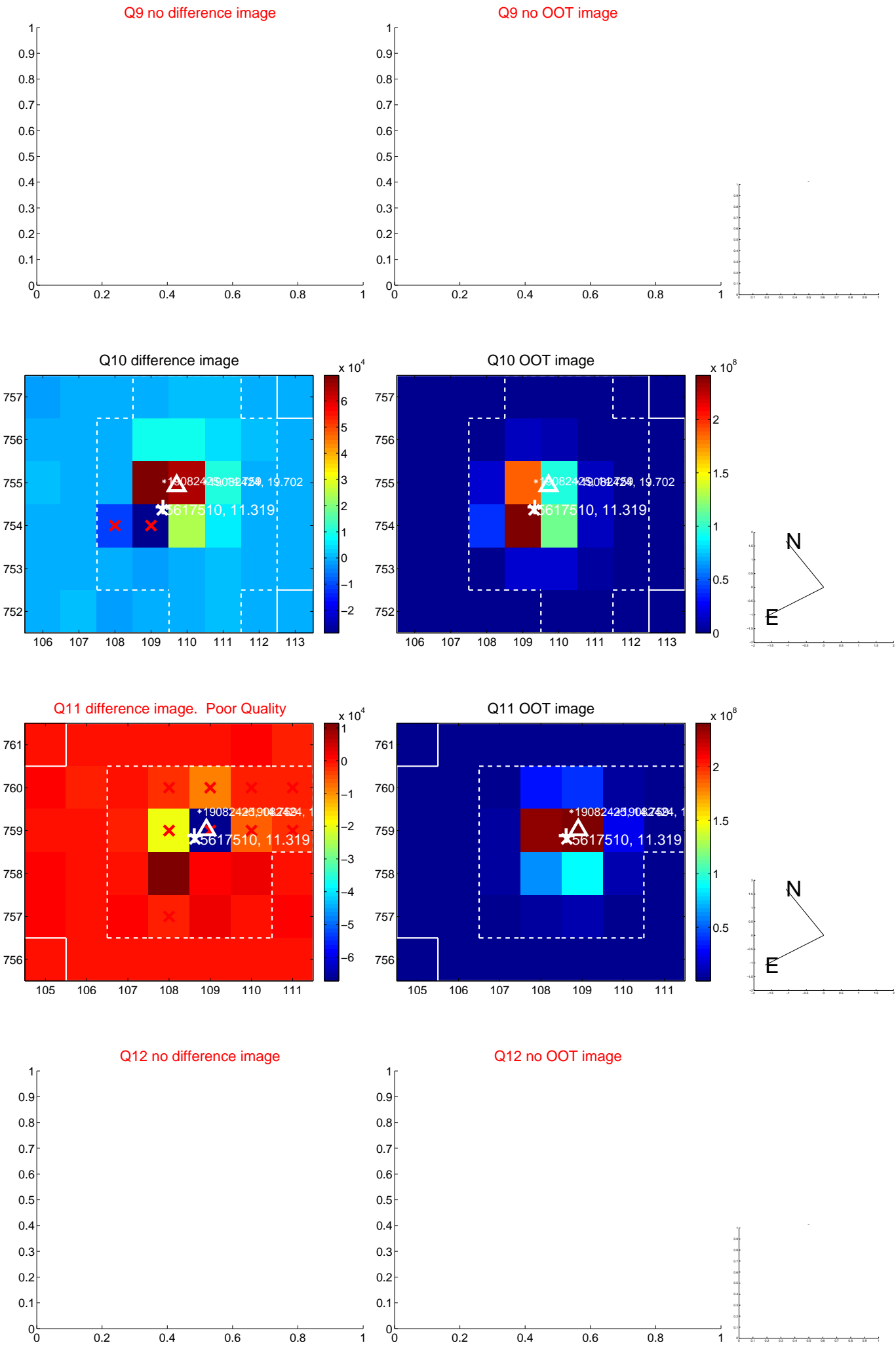
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



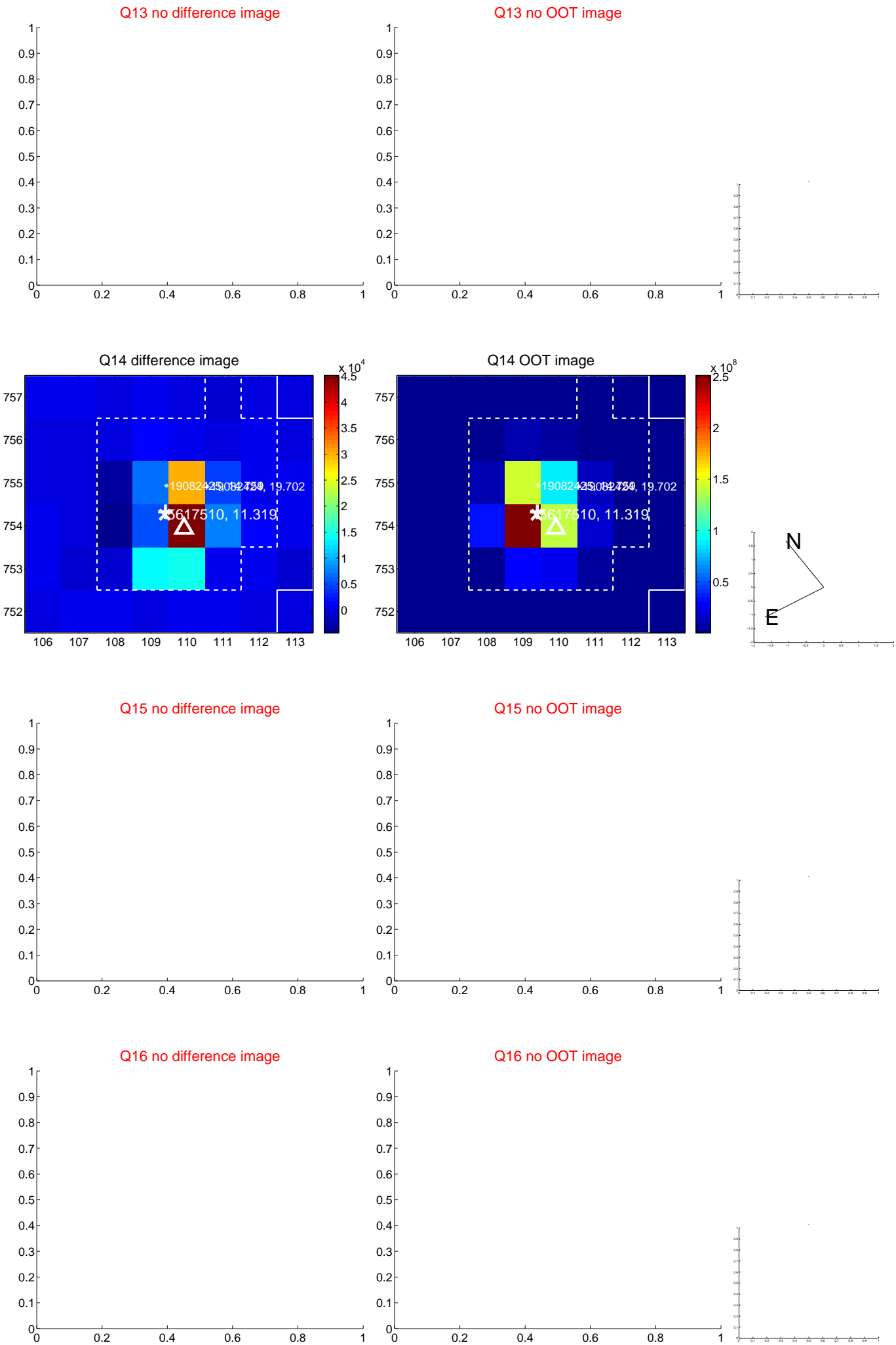
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



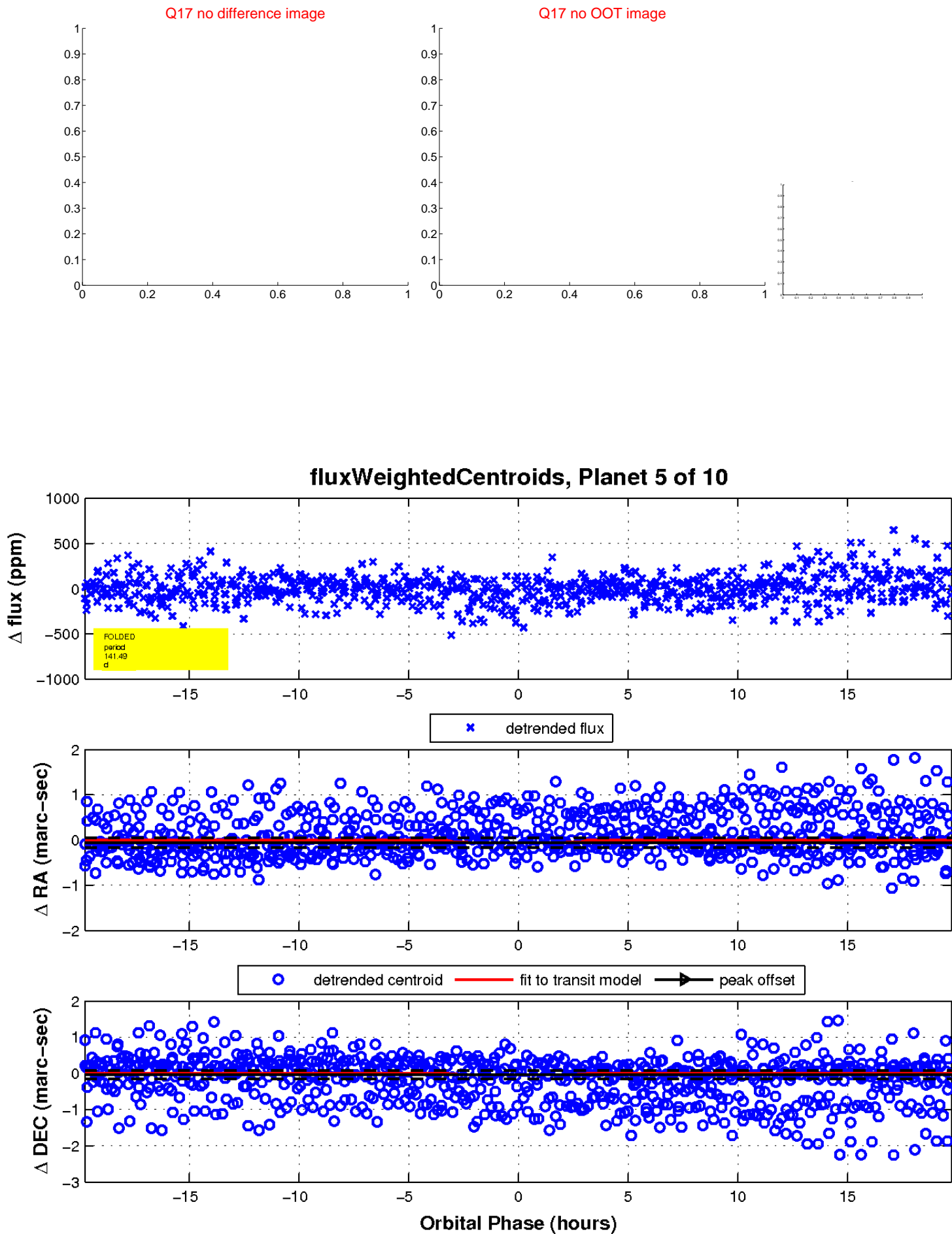
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

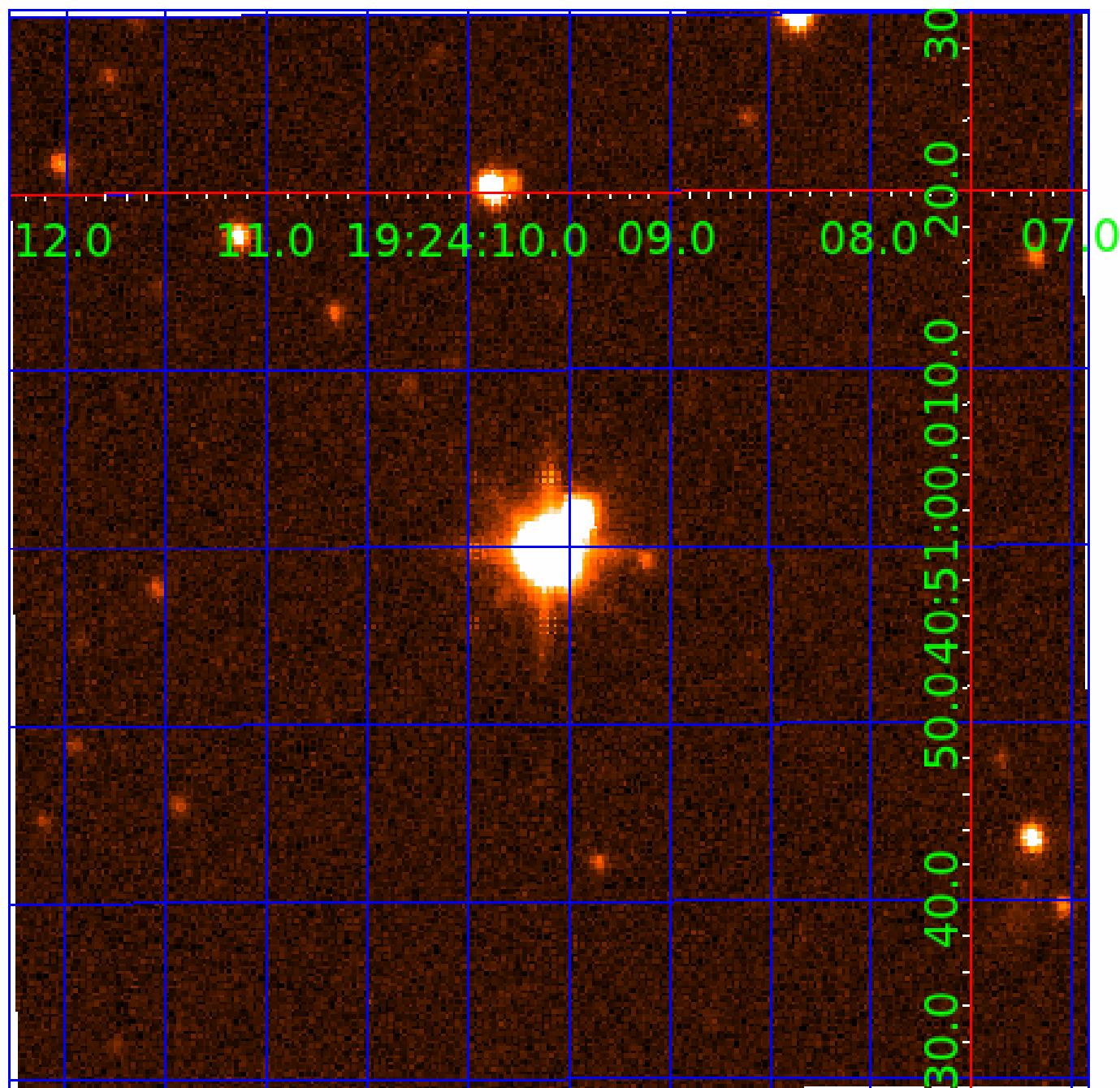


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

Ephemeris Match Information For 005617510-06

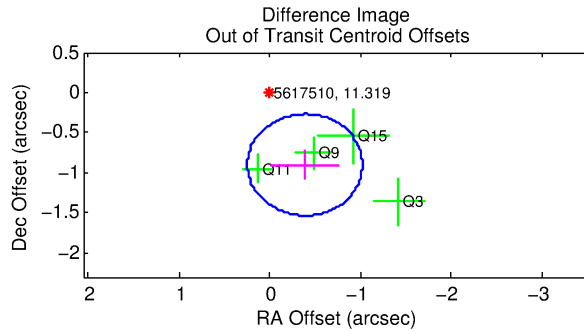
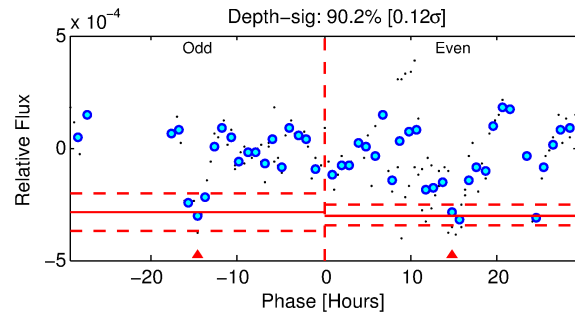
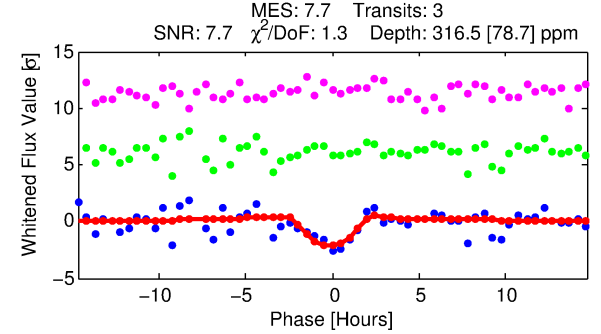
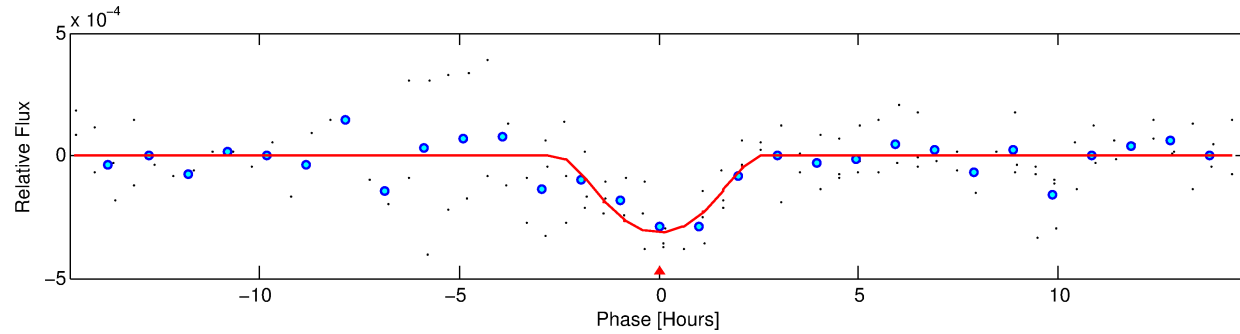
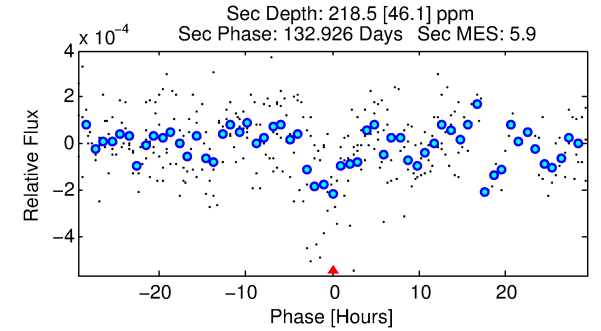
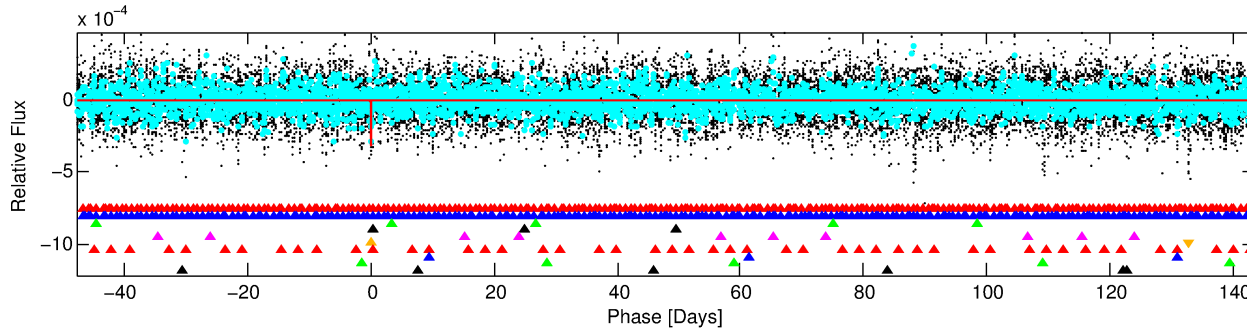
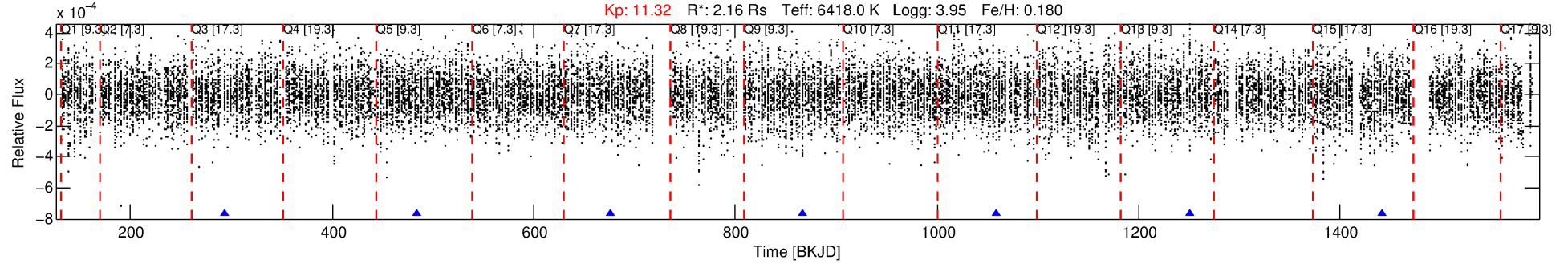
No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 6 of 10 Period: 191.503 d

KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



DV Fit Results:

Period = 191.50345 [0.00993] d
Epoch = 292.8107 [0.0389] BKJD
Rp/R* = 0.0276 [0.0653]
a/R* = 79.11 [64.73]
b = 0.99 [0.11]
Seff = 12.62 [4.25]
Teq = 481 [40] K
Rp = 6.50 [15.48] Re
a = 0.7493 [0.1659] AU
Ag = 1595.08 [7574.39] [0.21σ]
Teffp = 4696 [5562] K [0.76σ]

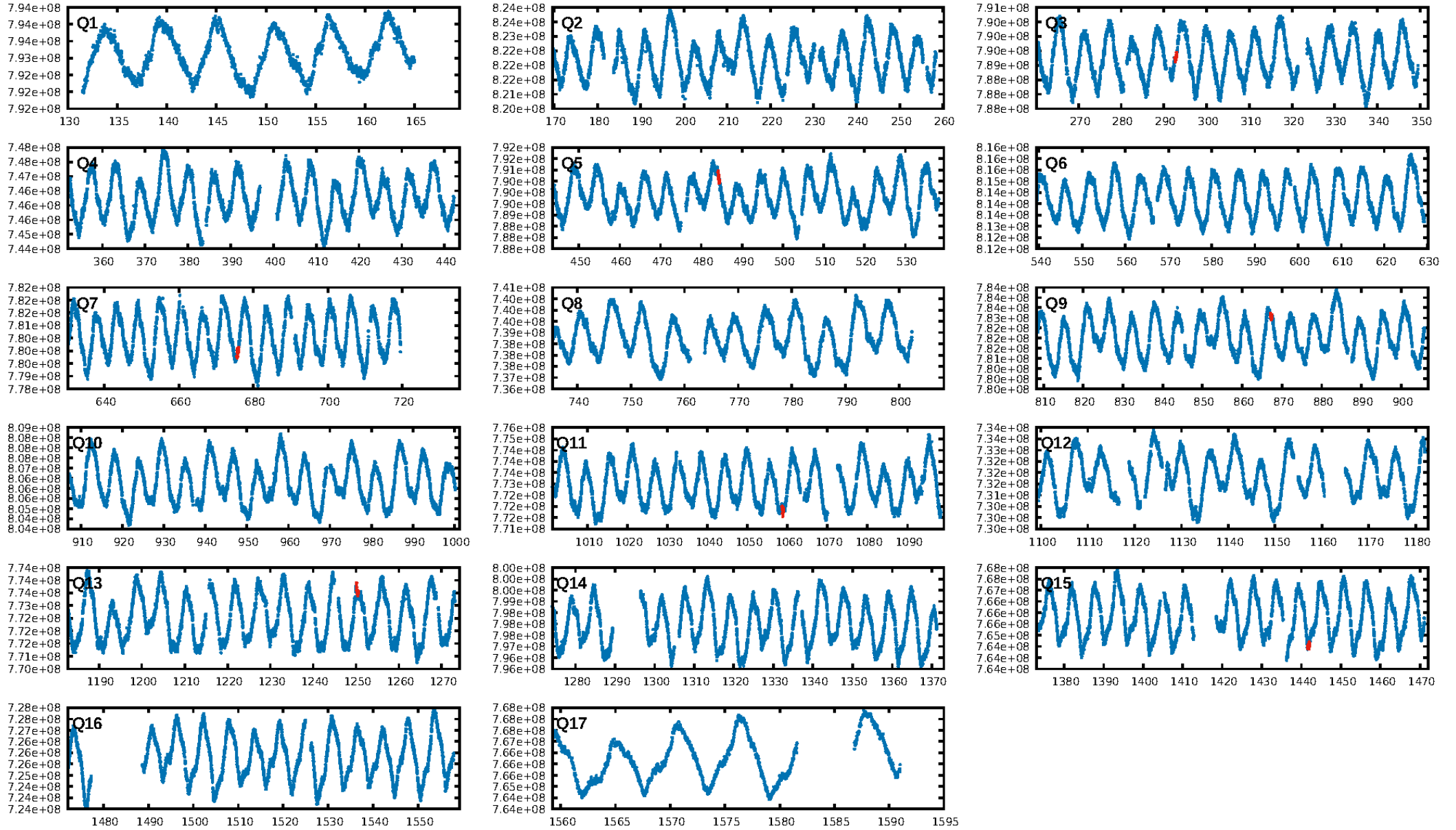
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [145.92σ]
LongPeriod-sig: 100.0% [76.24σ]
ModelChiSquare2-sig: 99.3%
ModelChiSquareGof-sig: 93.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -12.15
Centroid-sig: 4.1%
Centroid-so: 0.401 arcsec [1.01σ]
OotOffset-rm: 0.983 arcsec [4.66σ]
KicOffset-rm: 0.826 arcsec [2.97σ]
OotOffset-st: 0/3/0/1 [4]
KicOffset-st: 0/3/0/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.29 [2/7]

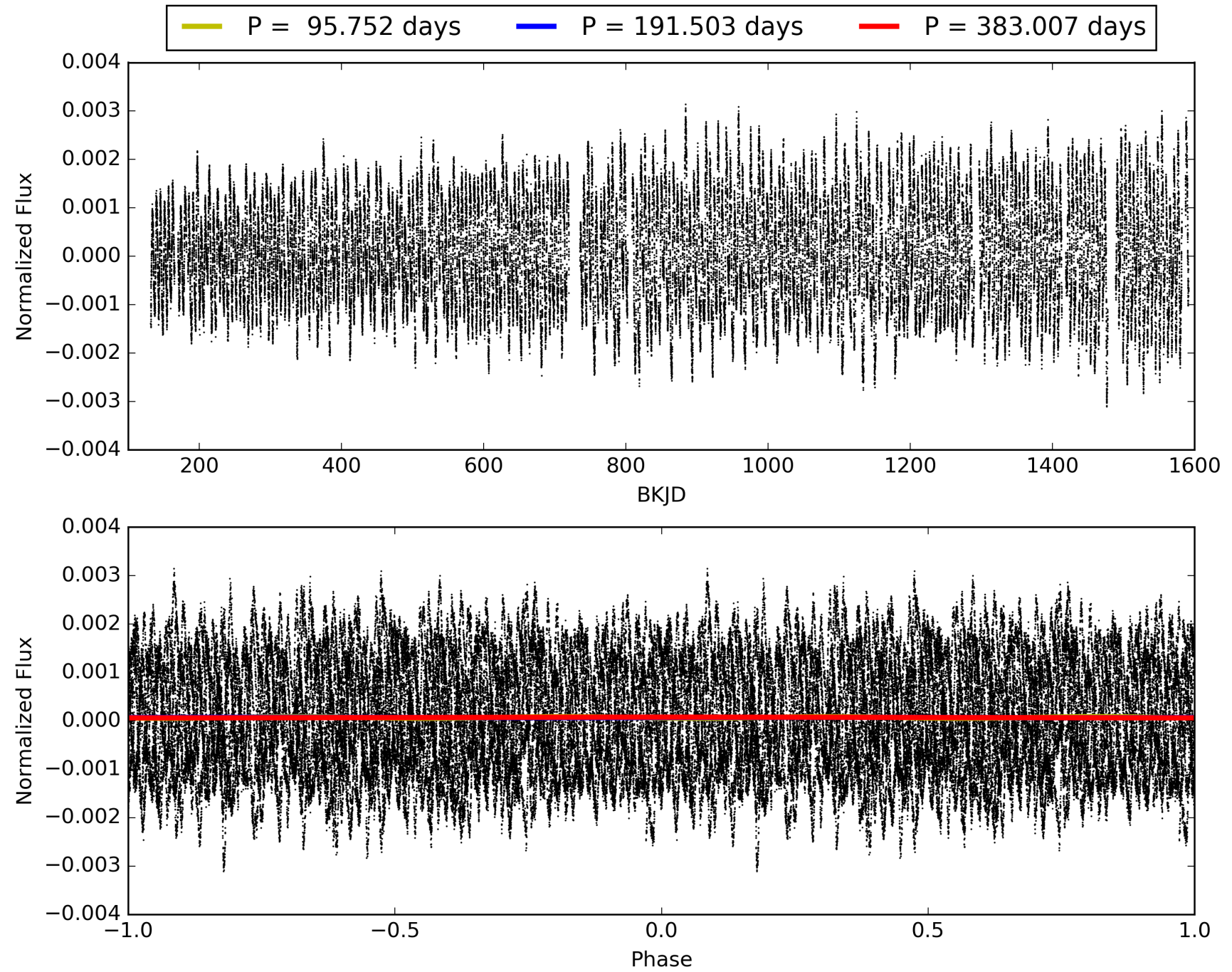
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:31:47 Z

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

TCE 005617510-06, PDC Light Curves

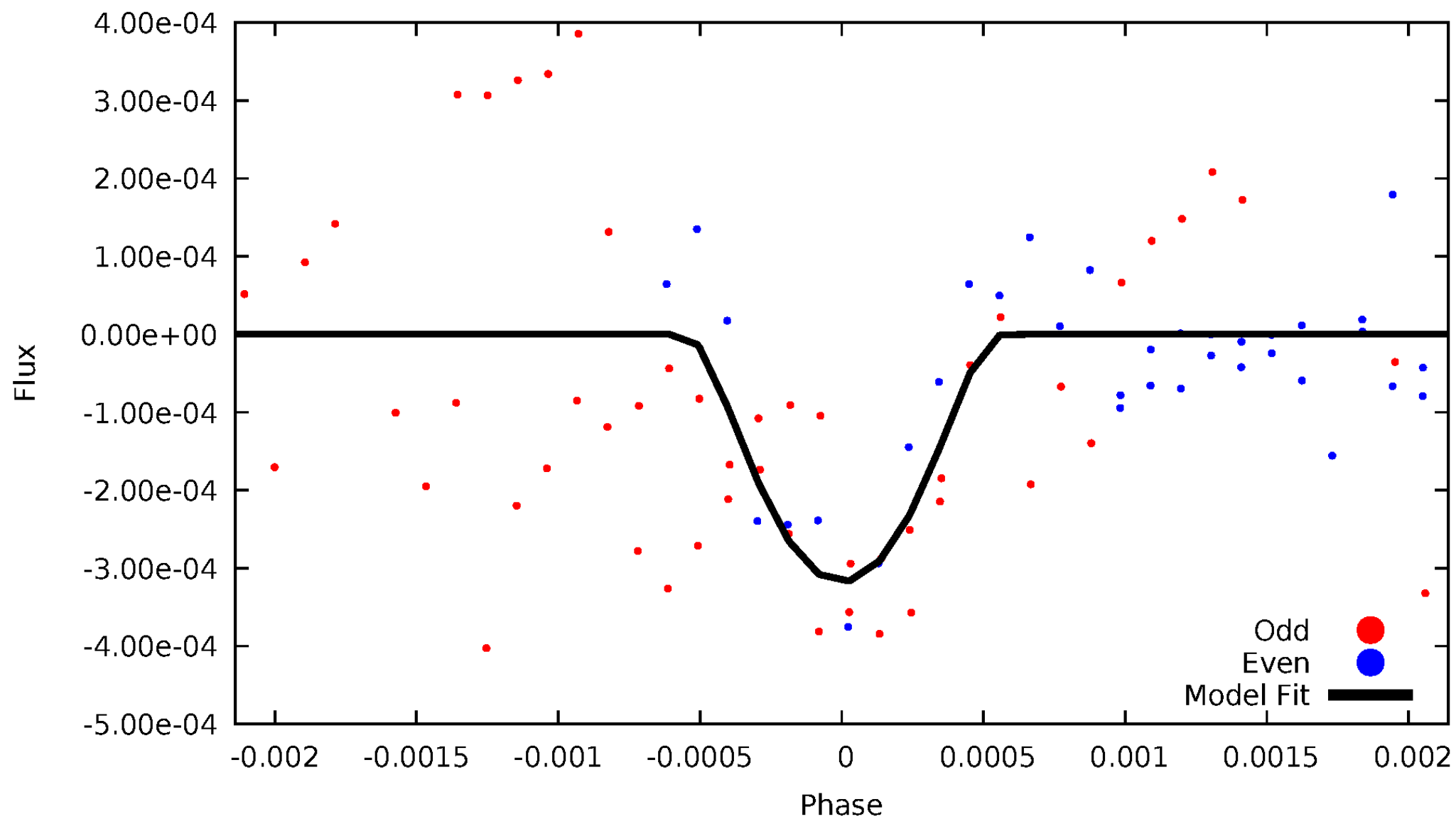


TCE 005617510-06



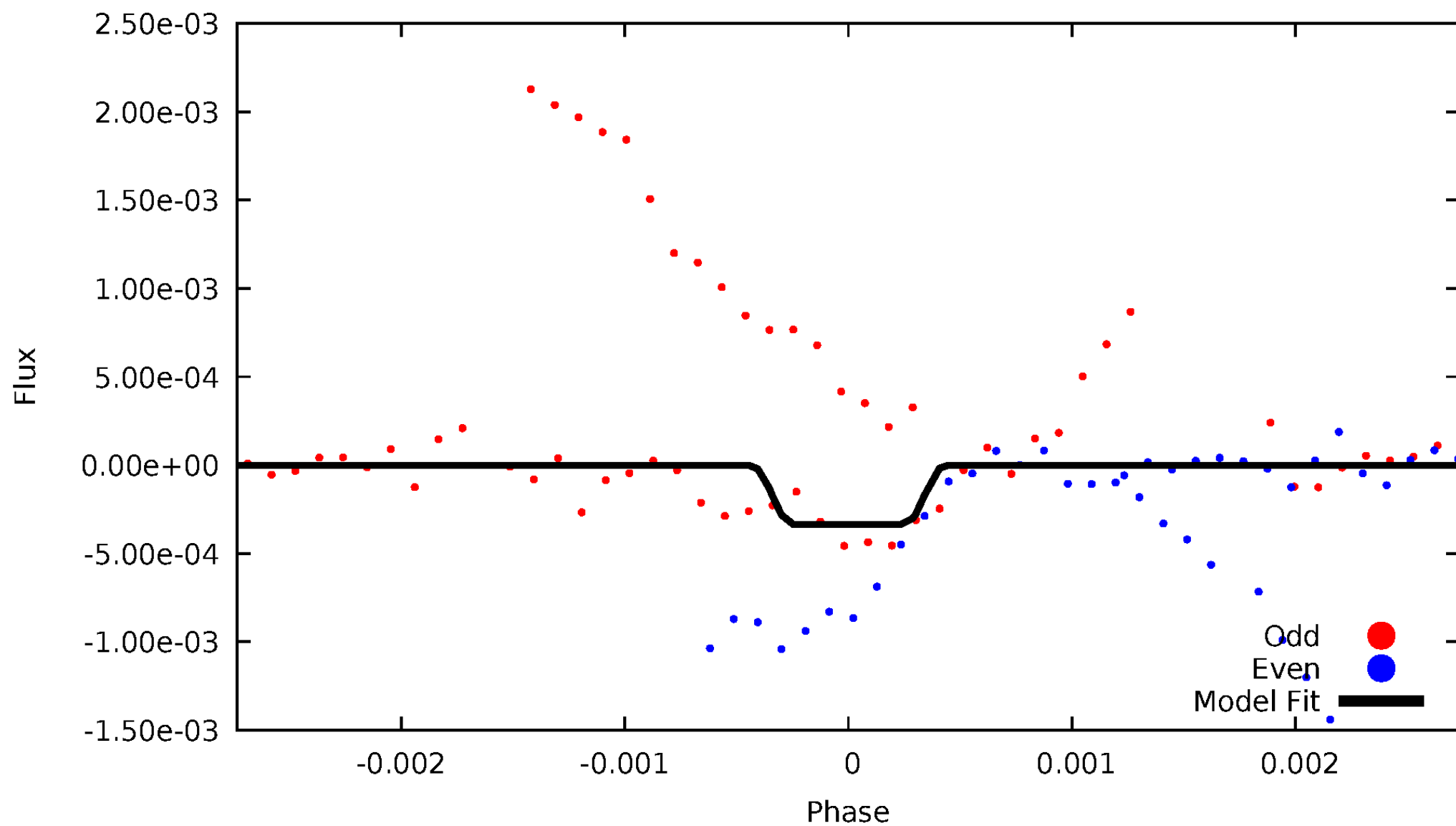
DV Odd/Even

TCE 005617510-06



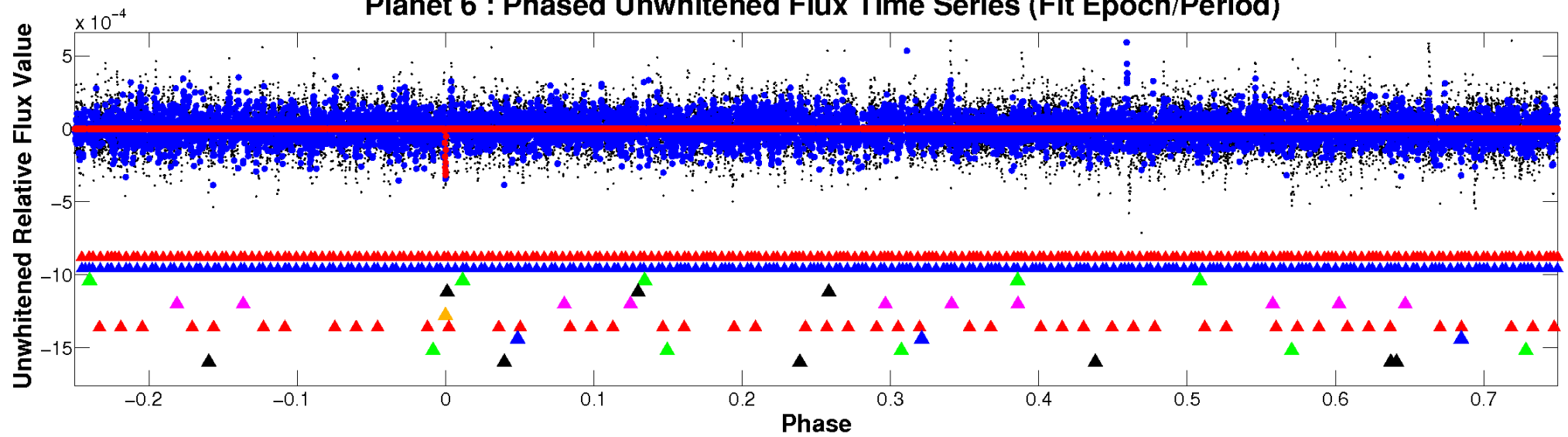
ALT Odd/Even

TCE 005617510-06

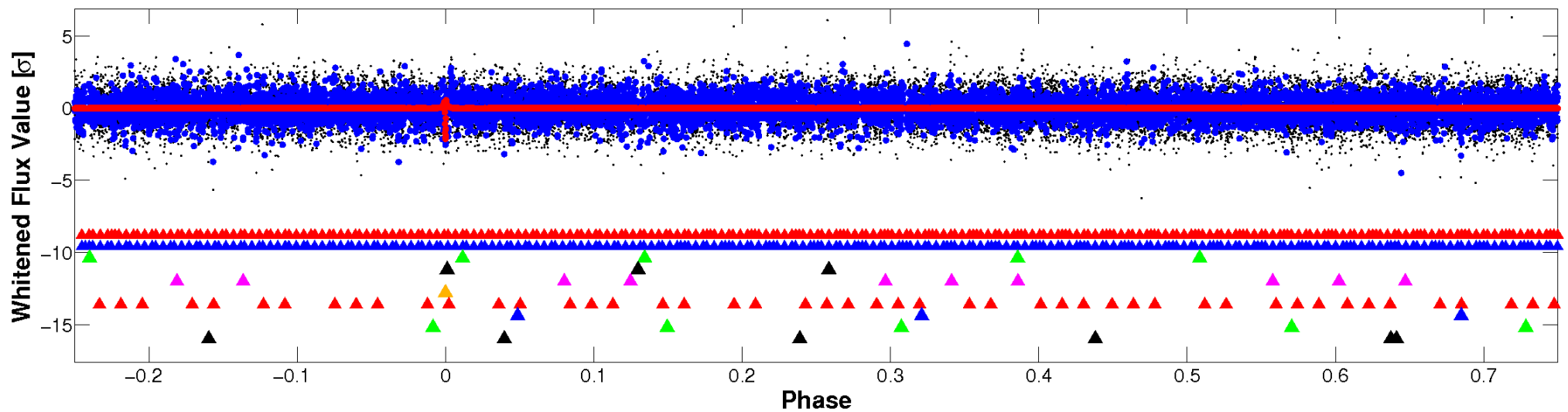


Non-Whitened Vs. Whitened Light Curve

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

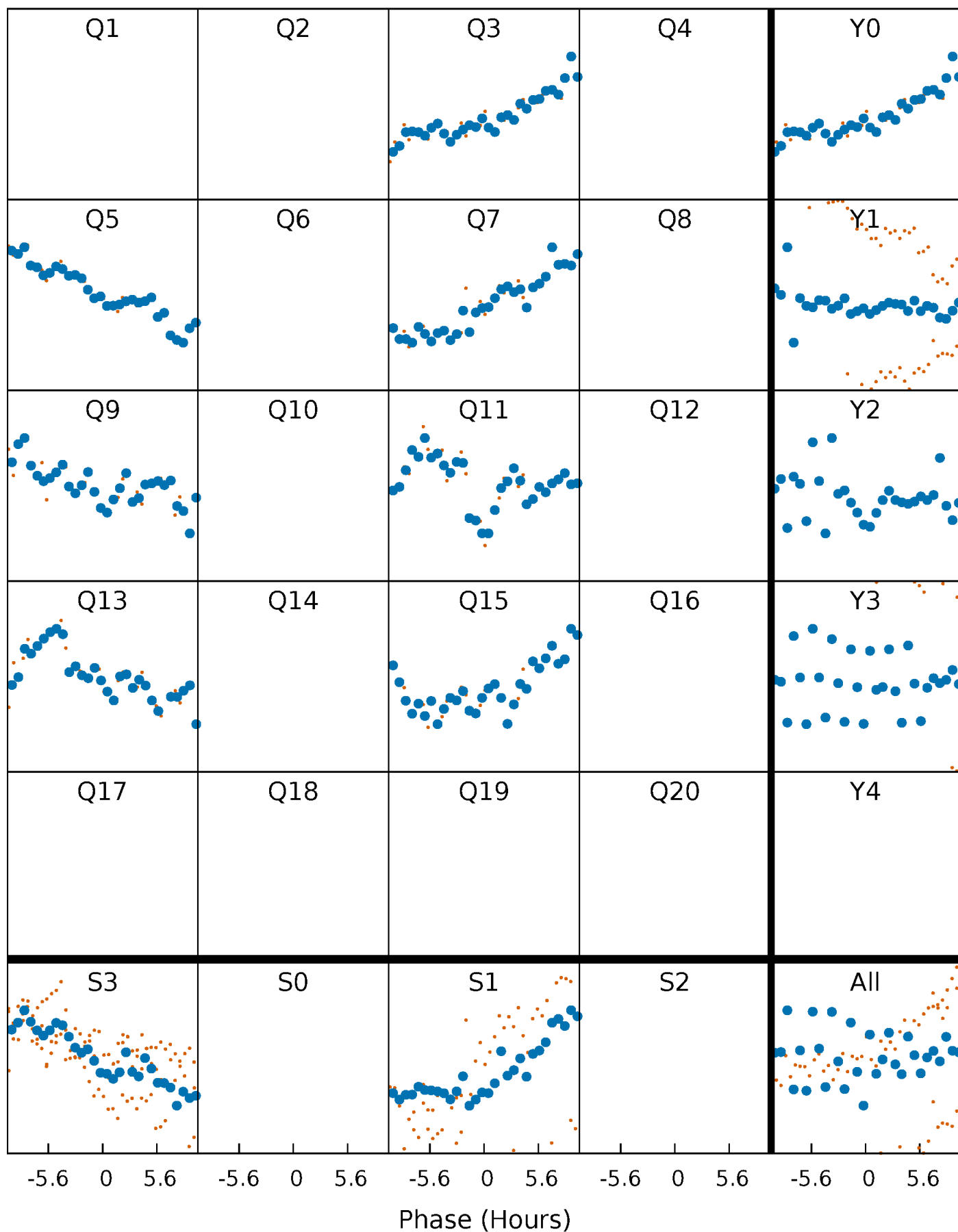


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



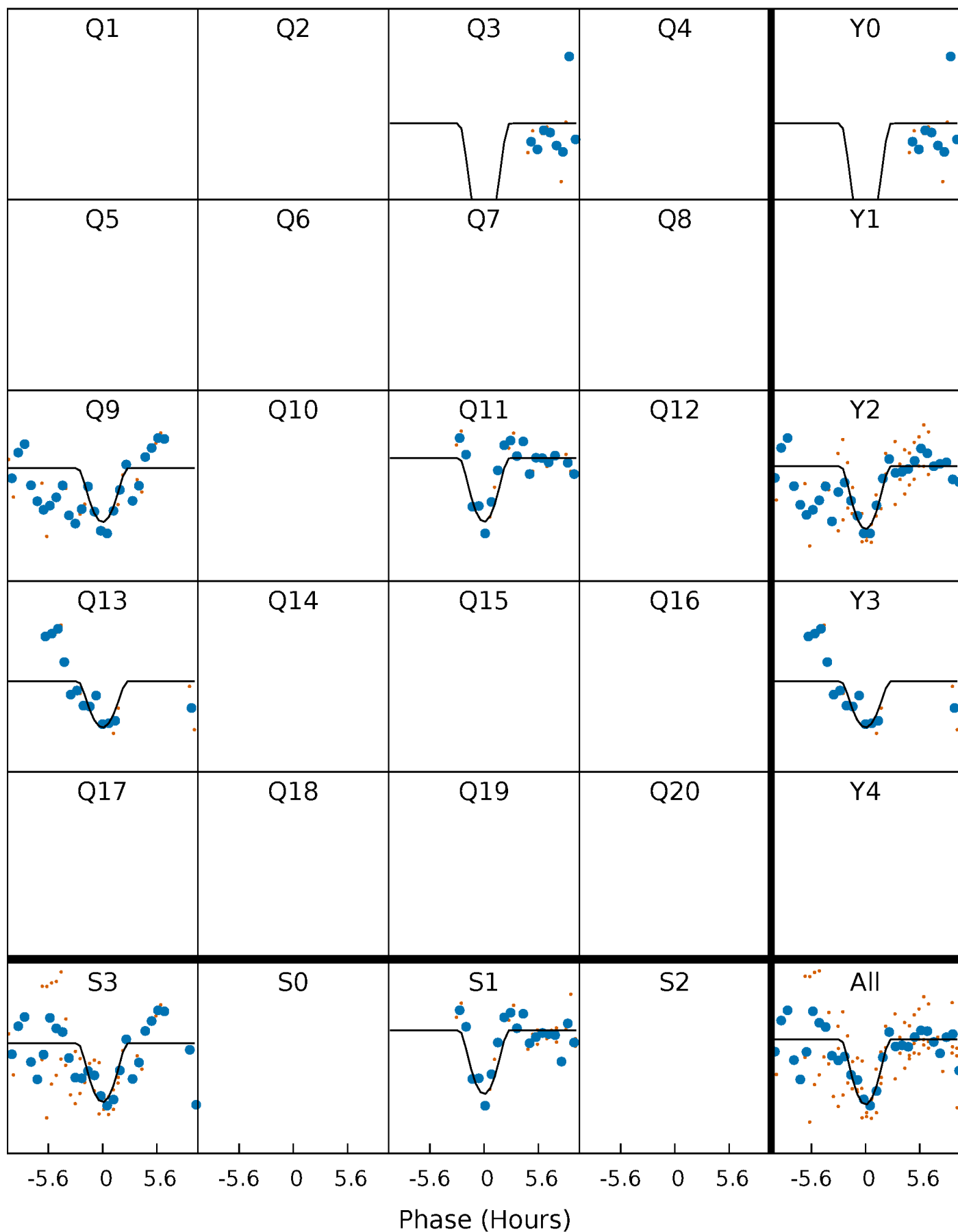
PDC Quarter-Phased Transit Curves

TCE 005617510-06 P=191.503452 Days $T_0=292.810670$ (BKJD)



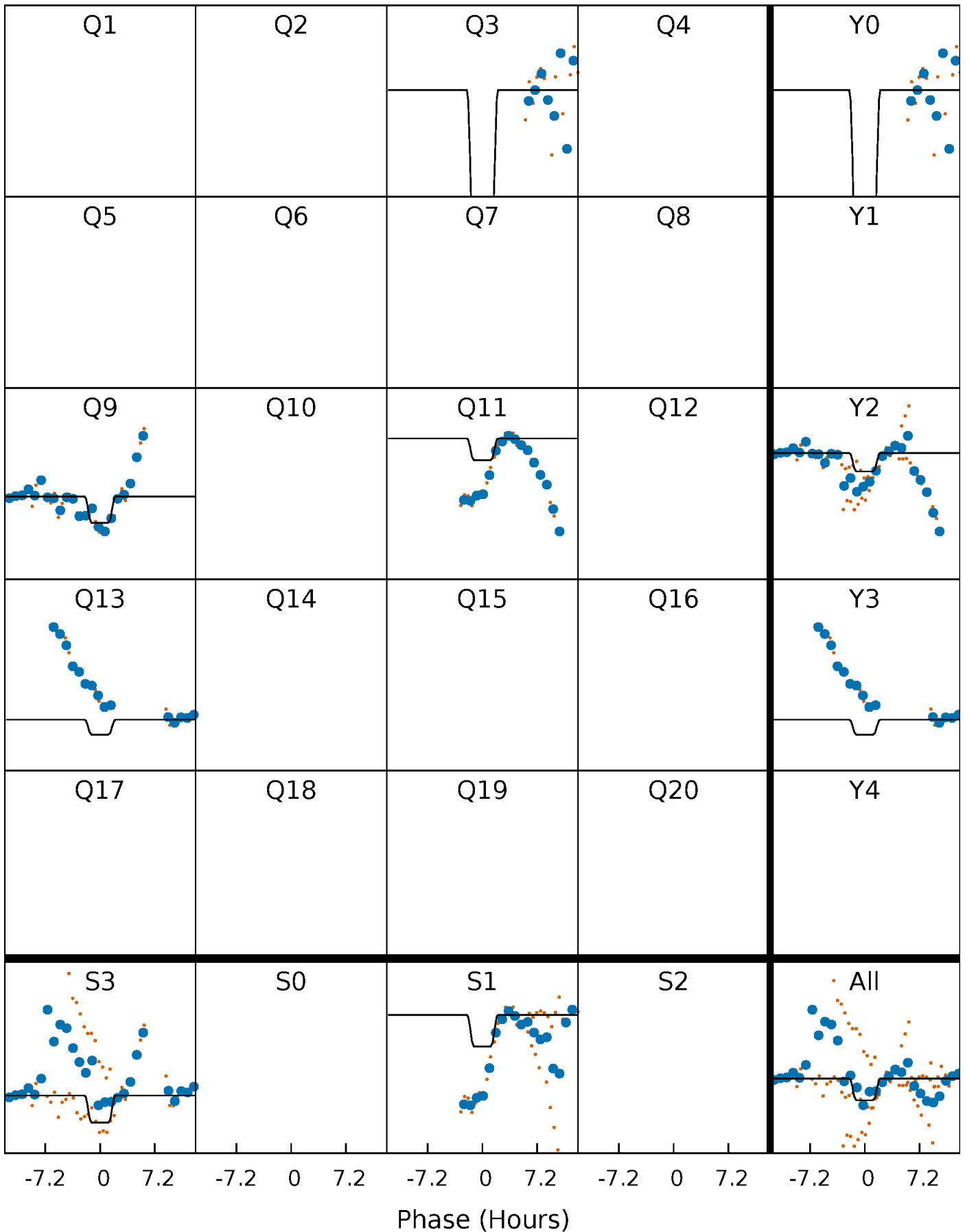
DV Quarter-Phased Transit Curves

TCE 005617510-06 P=191.503452 Days $T_0=292.810670$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

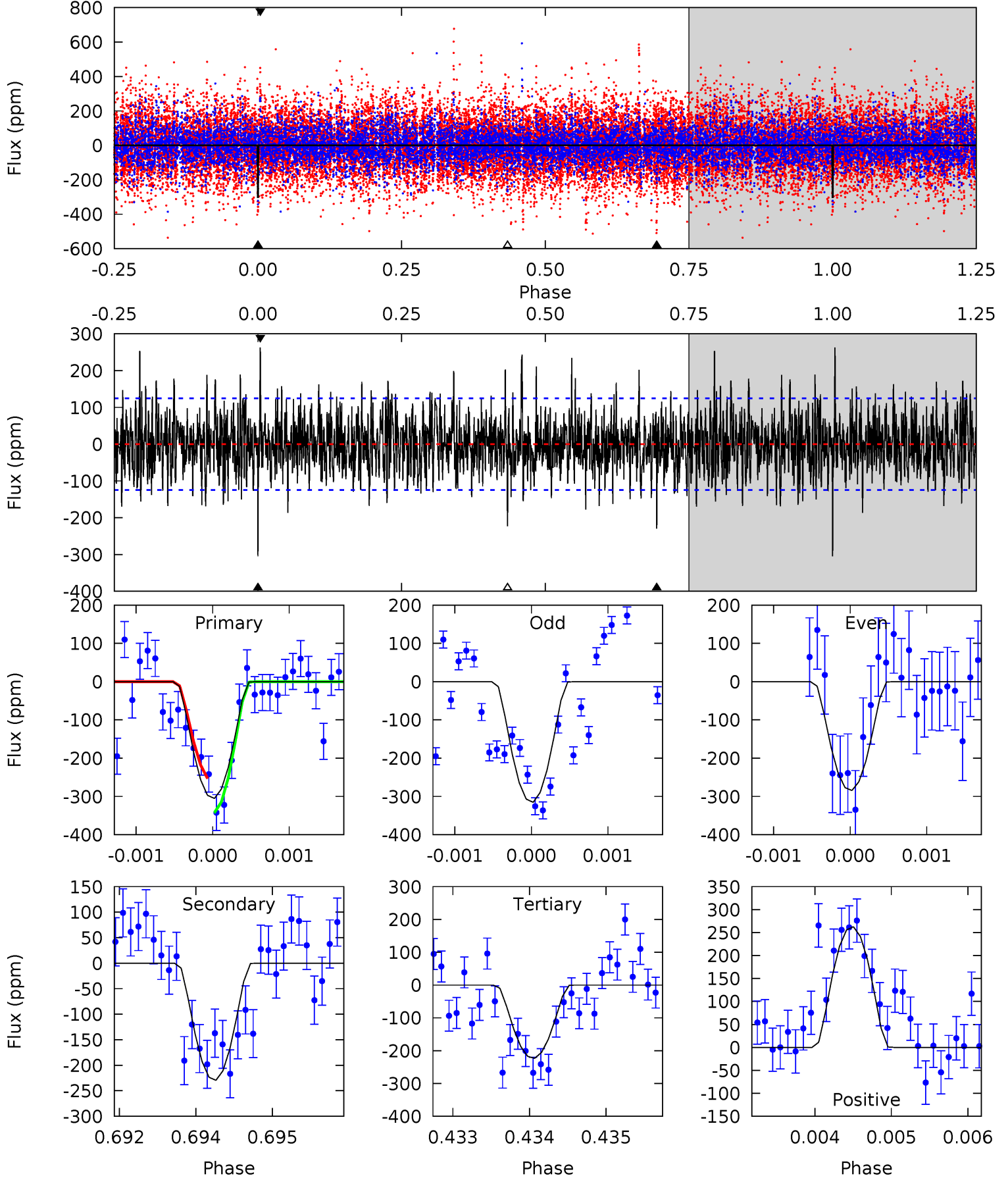
TCE 005617510-06 P=191.515496 Days $T_0=292.762767$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-06, P = 191.503452 Days, E = 101.307218 Days

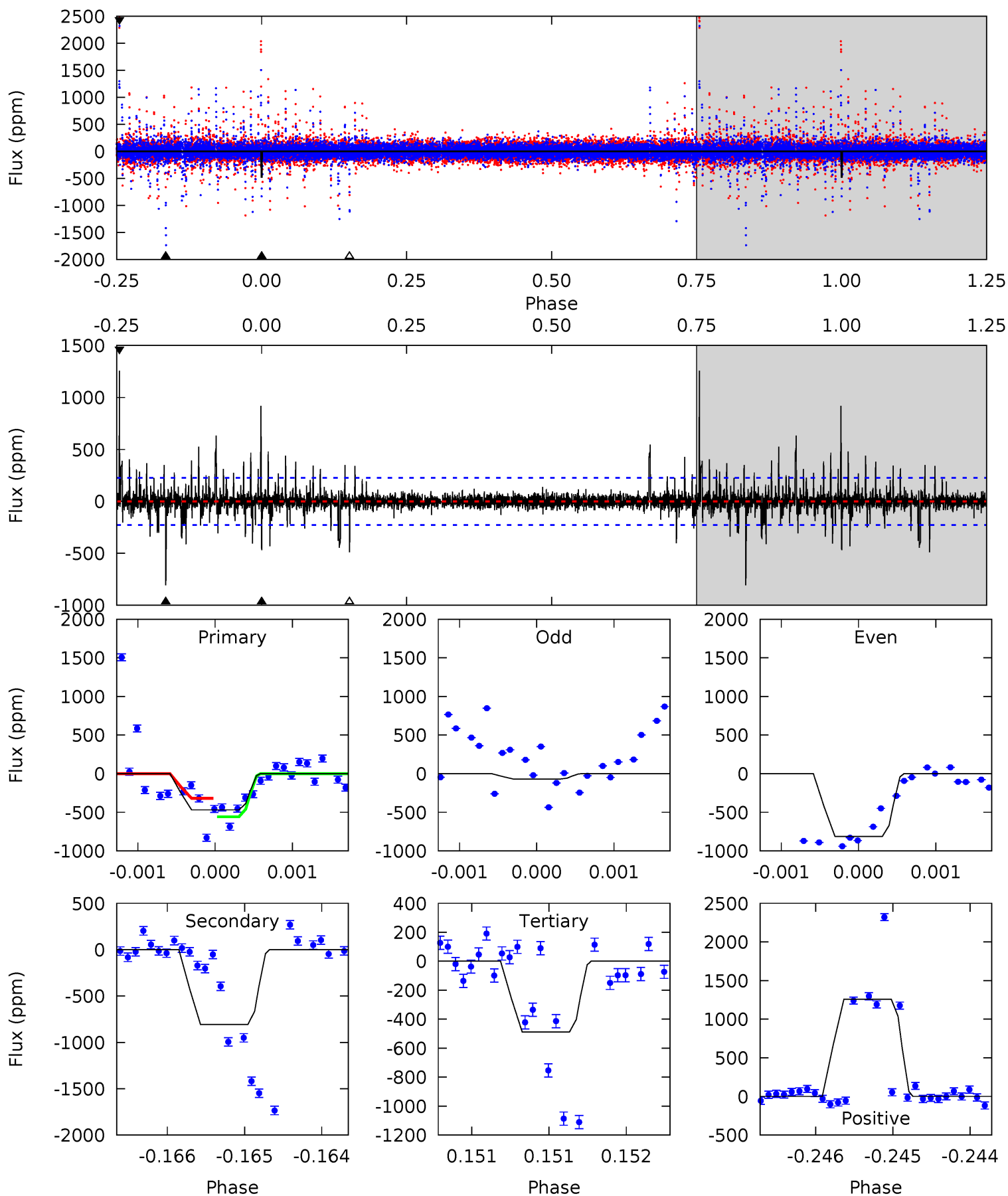
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	9.97	9.70	11.4	5.42	3.25	2.63	3.56	1.85	0.27	-1.44	0.65	1.07	0.46	1.93



Alt Model-Shift Uniqueness Test

005617510-06, P = 191.515496 Days, E = 101.247271 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	19.5	11.8	30.5	5.50	3.37	1.67	-0.46	-19.1	7.73	-10.9	10.4	0.61	0.61	2.70



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-229 ± 23	$13.15^{+11.62}_{-8.52}$	666^{+31}_{-41}	3694^{+1863}_{-636}	410^{+2993}_{-297}
Alt.	-807 ± 41	$11.78^{+11.89}_{-8.17}$	668^{+31}_{-41}	4878^{+4556}_{-1143}	1764^{+18363}_{-1325}

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 $A_{obs} \gg 1.0$

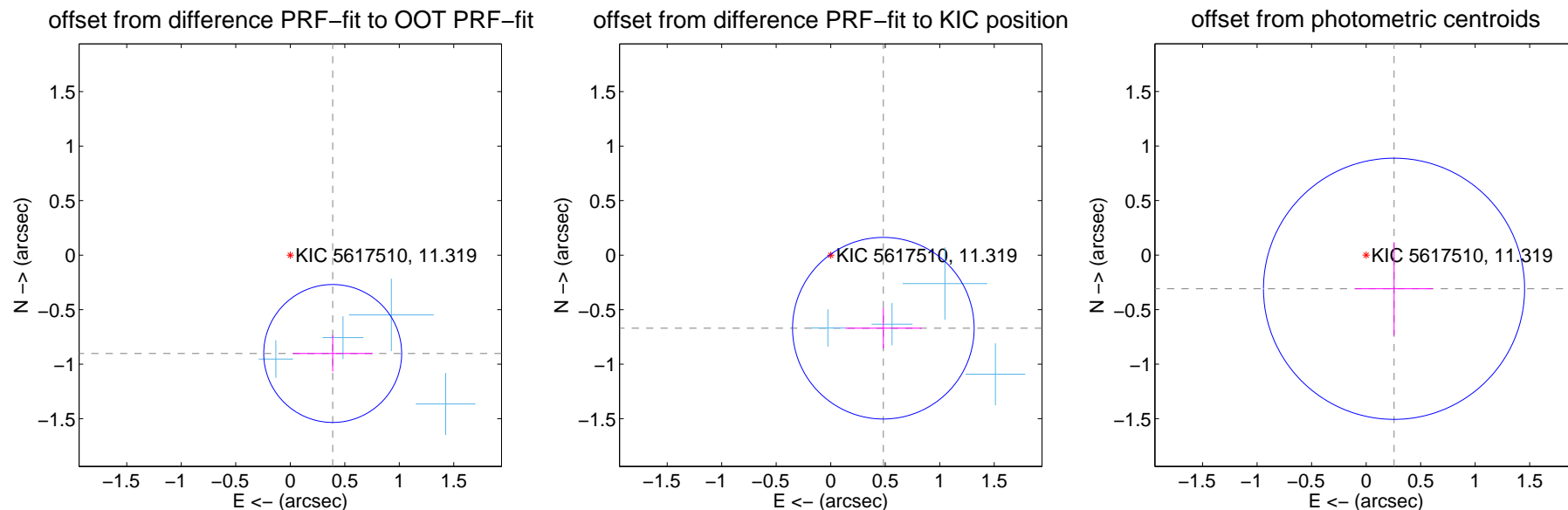
DV Centroid Data

Supplemental centroid analysis for 005617510-06. **Kepler magnitude: 11.32**. Transit SNR 7.75

There are 4 quarters with good PRF difference image offsets

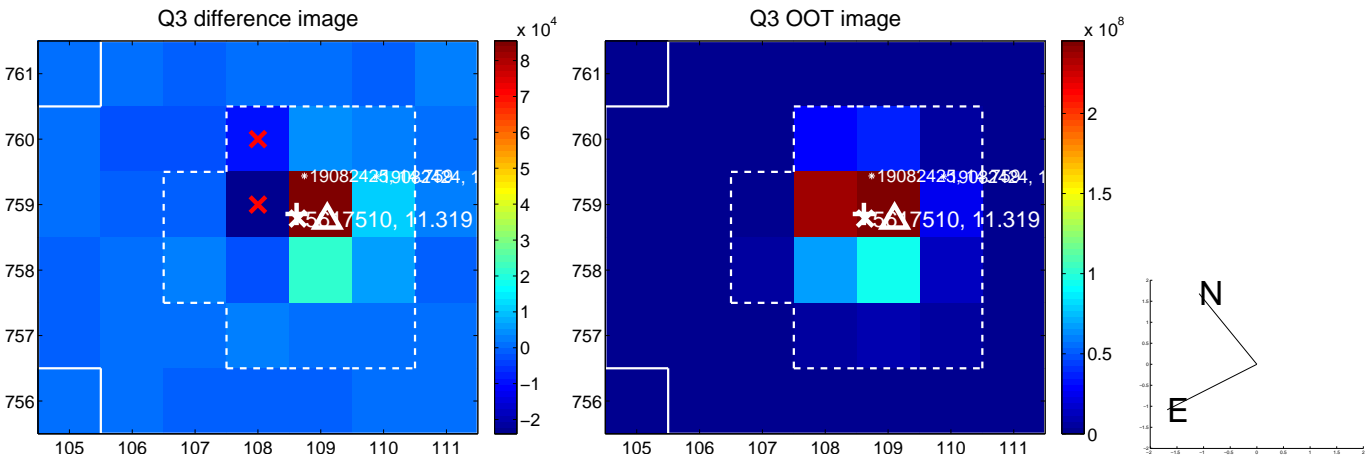
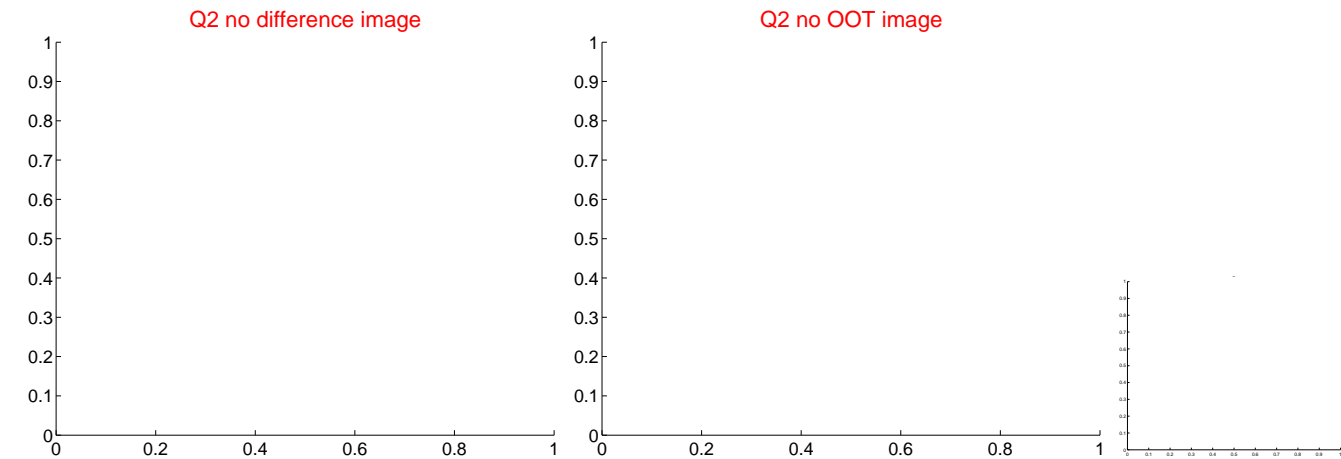
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.983 ± 0.211	4.66	-0.389 ± 0.368	-0.902 ± 0.166
PRF-fit source offset from KIC position	0.826 ± 0.278	2.97	-0.483 ± 0.351	-0.670 ± 0.185
photometric centroid source offset	0.40 ± 0.40	1.01	-0.26 ± 0.35	-0.31 ± 0.43

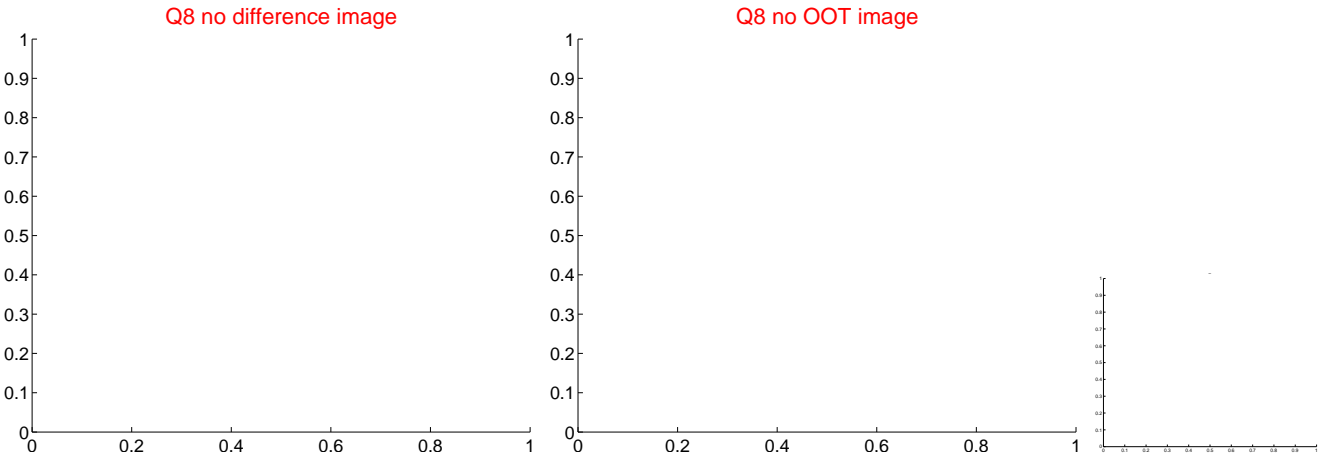
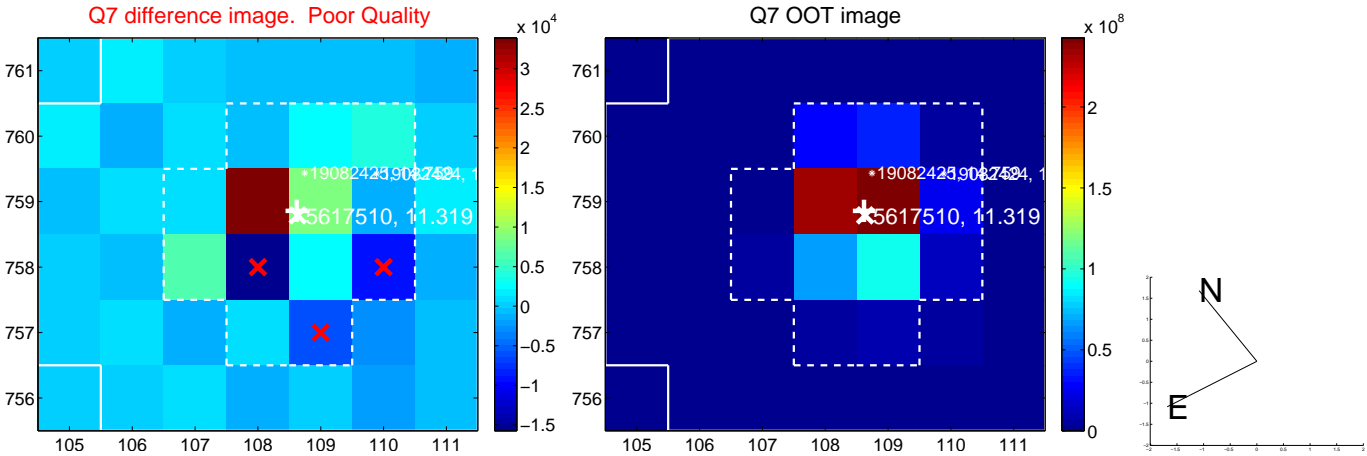
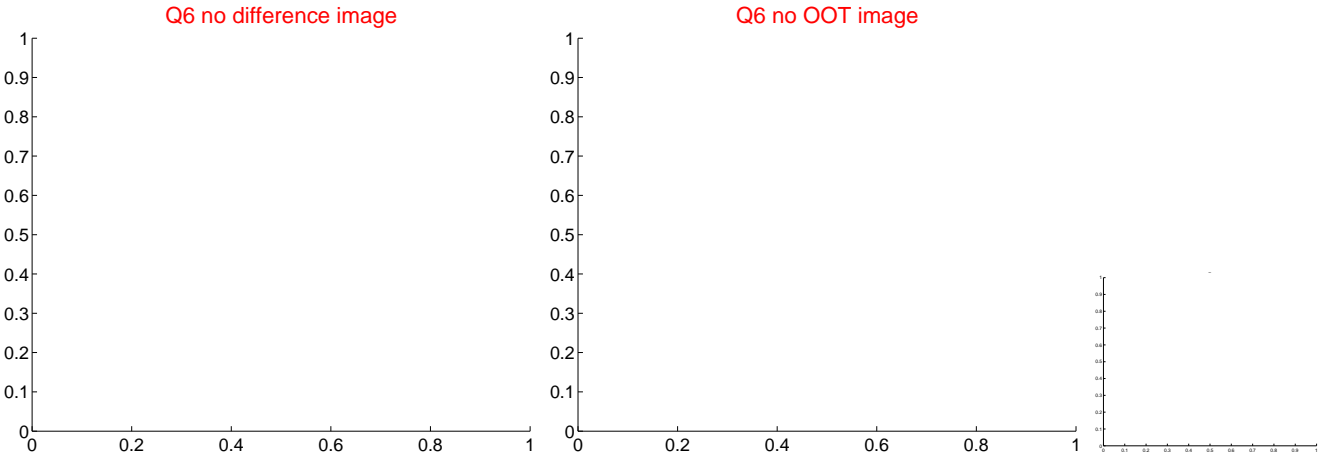
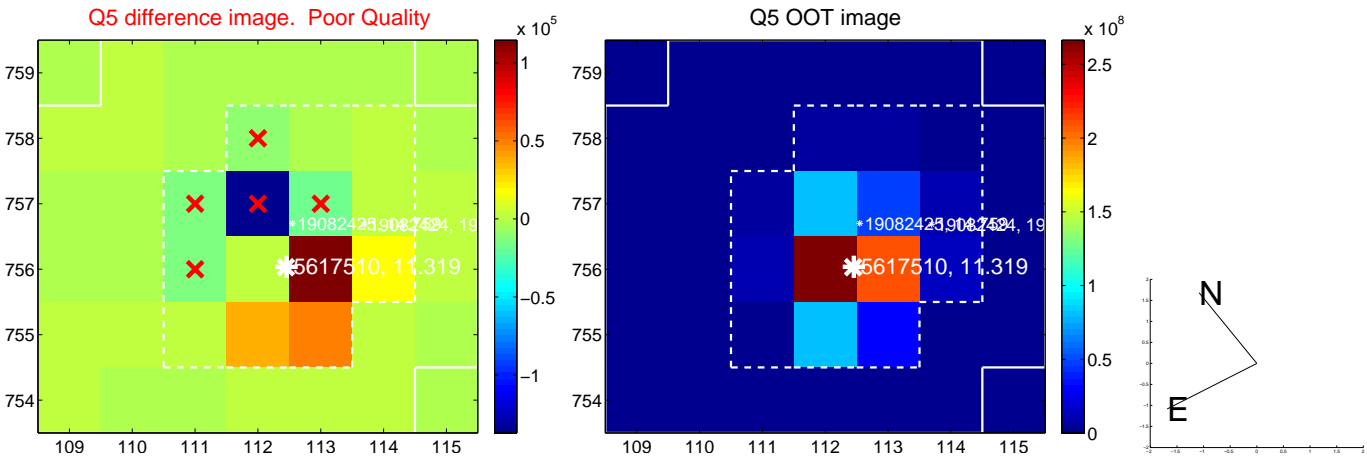


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

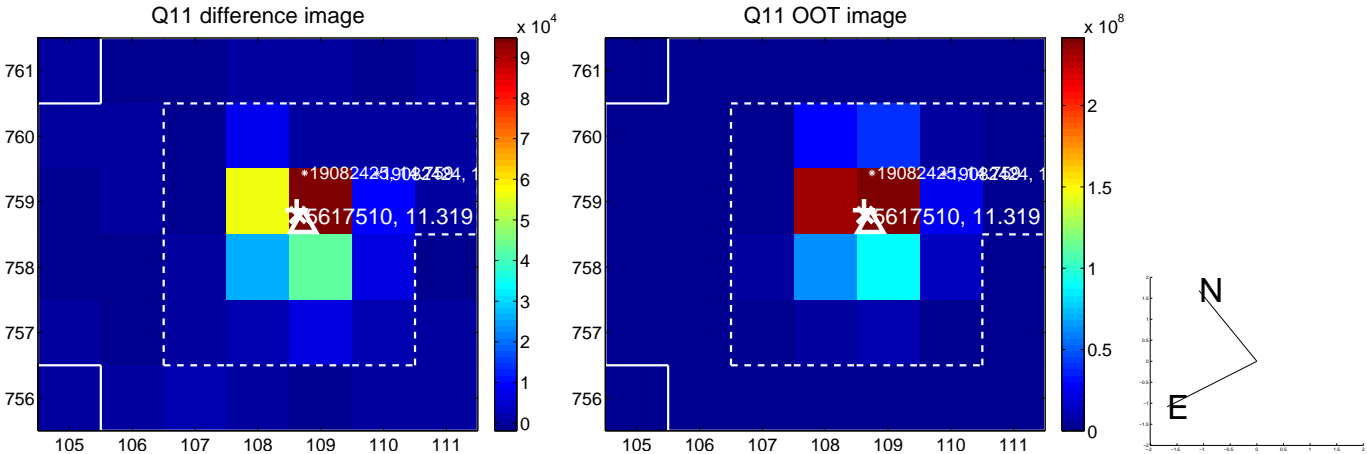
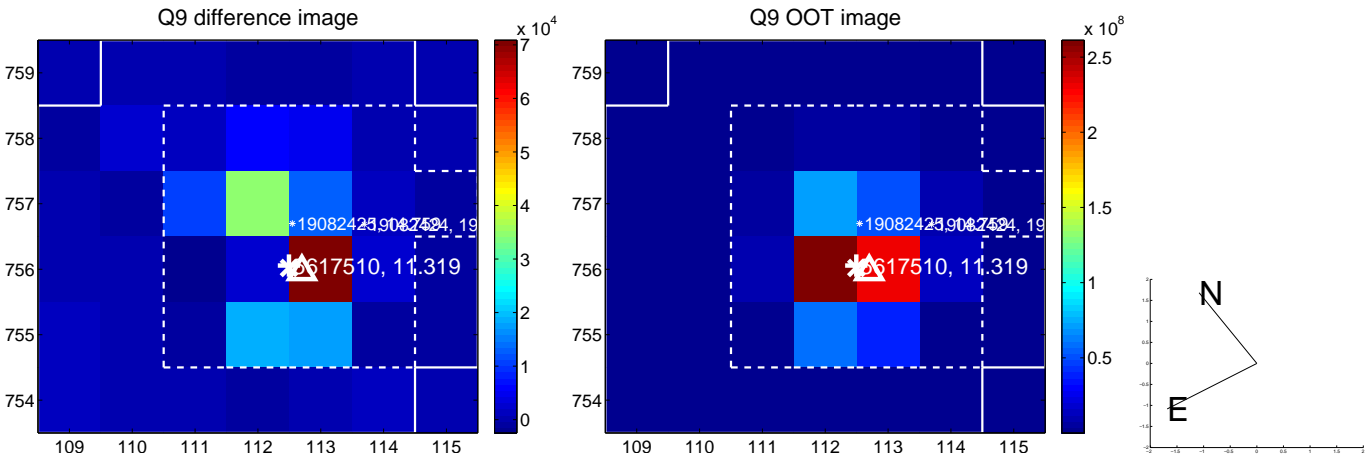
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



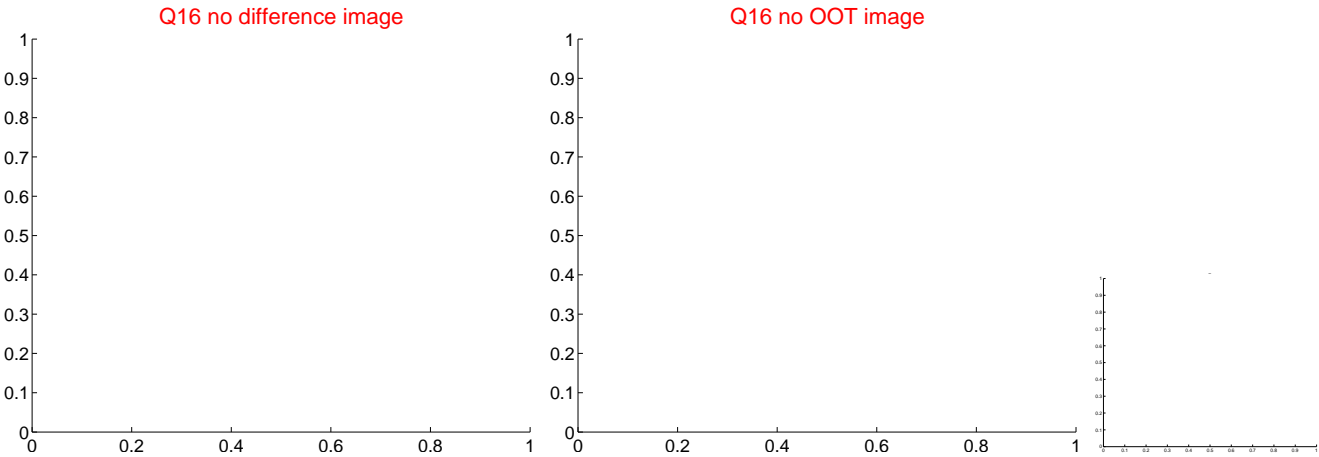
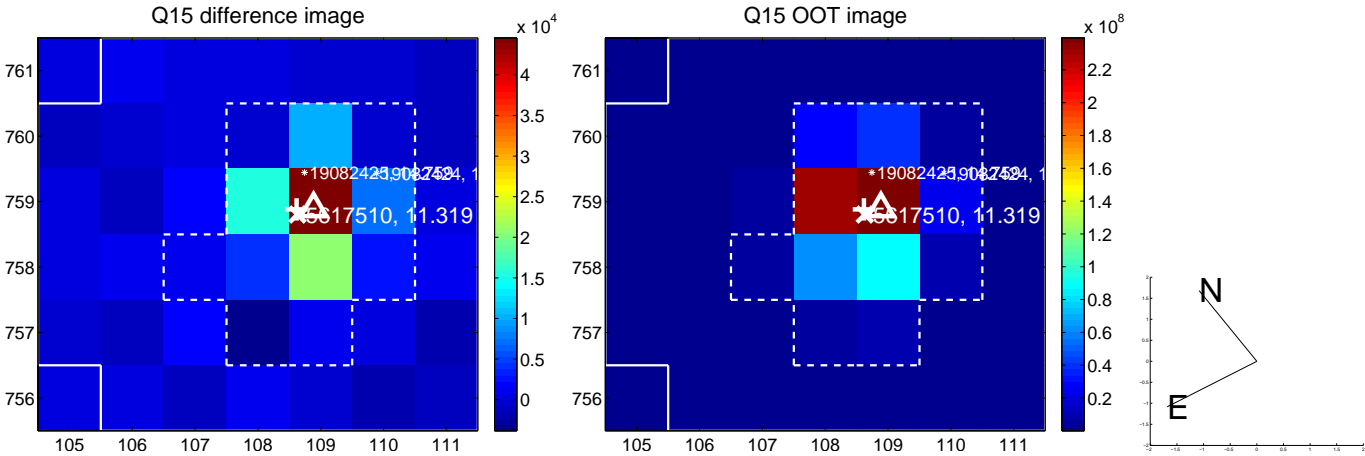
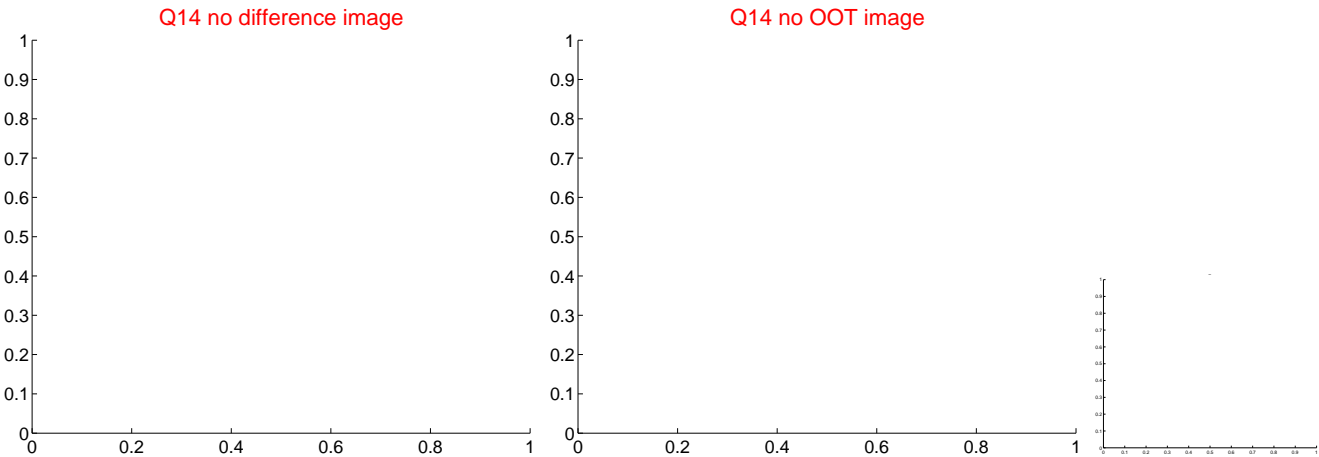
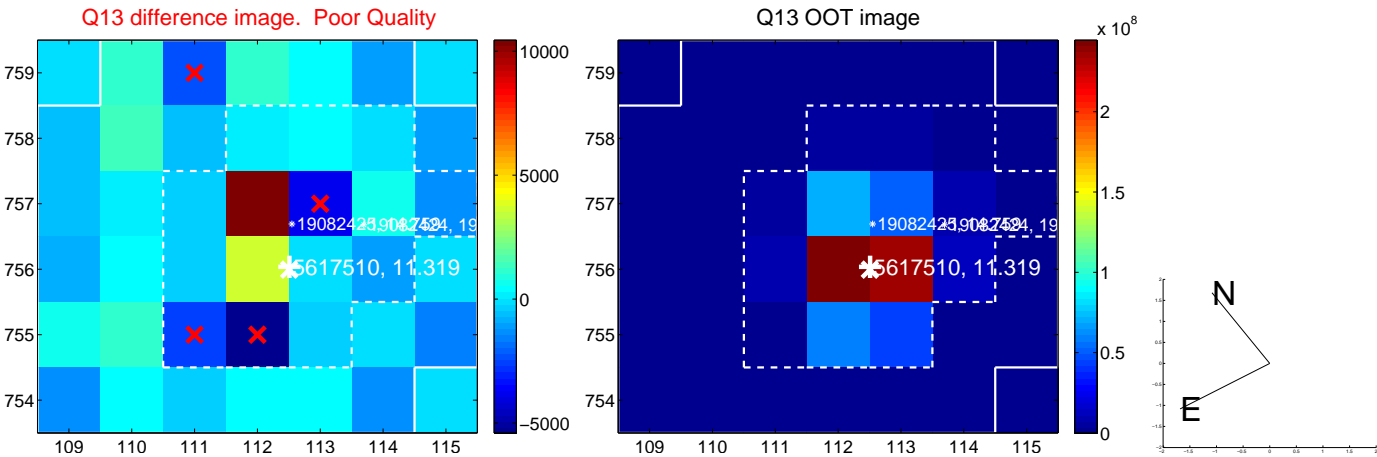
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



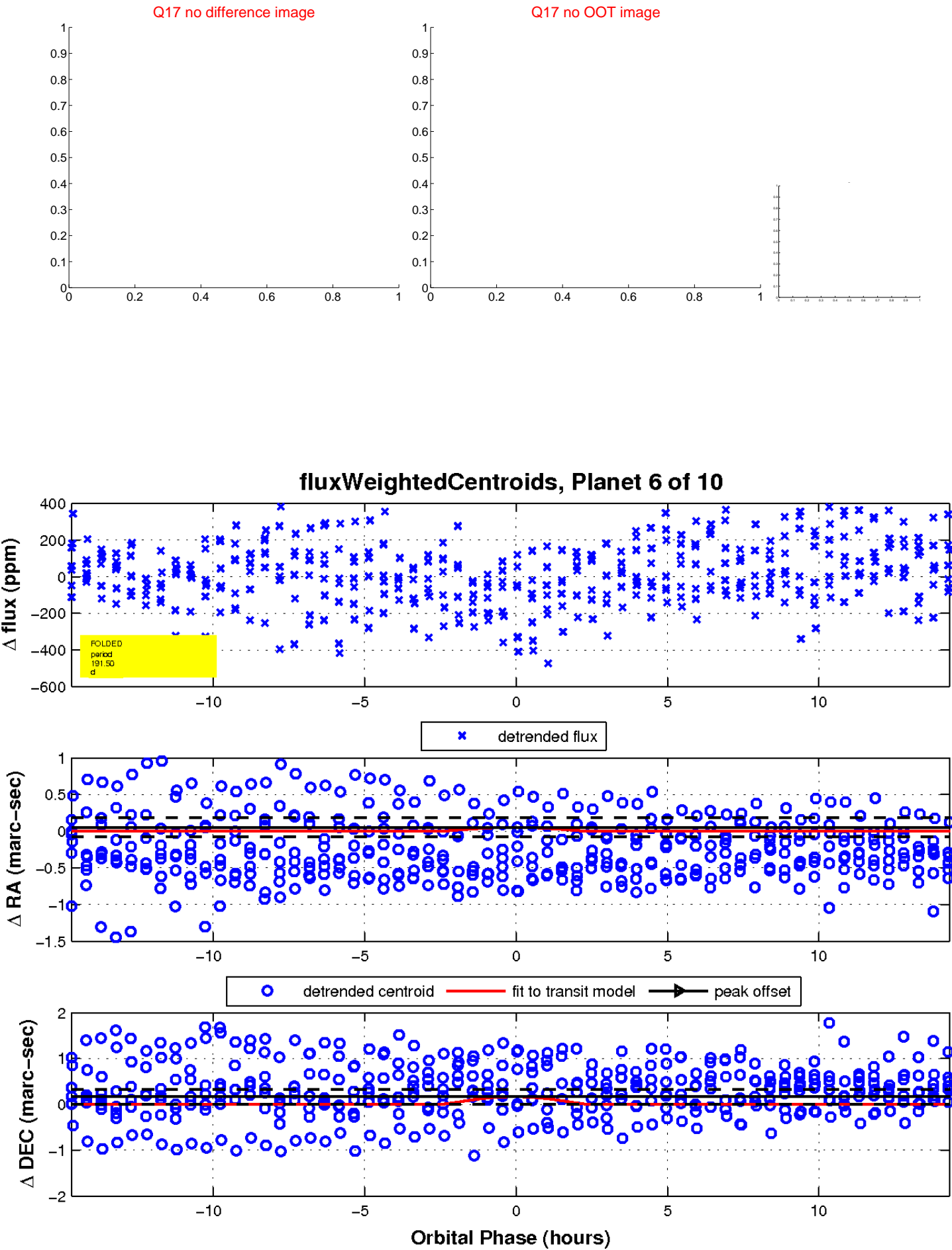
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

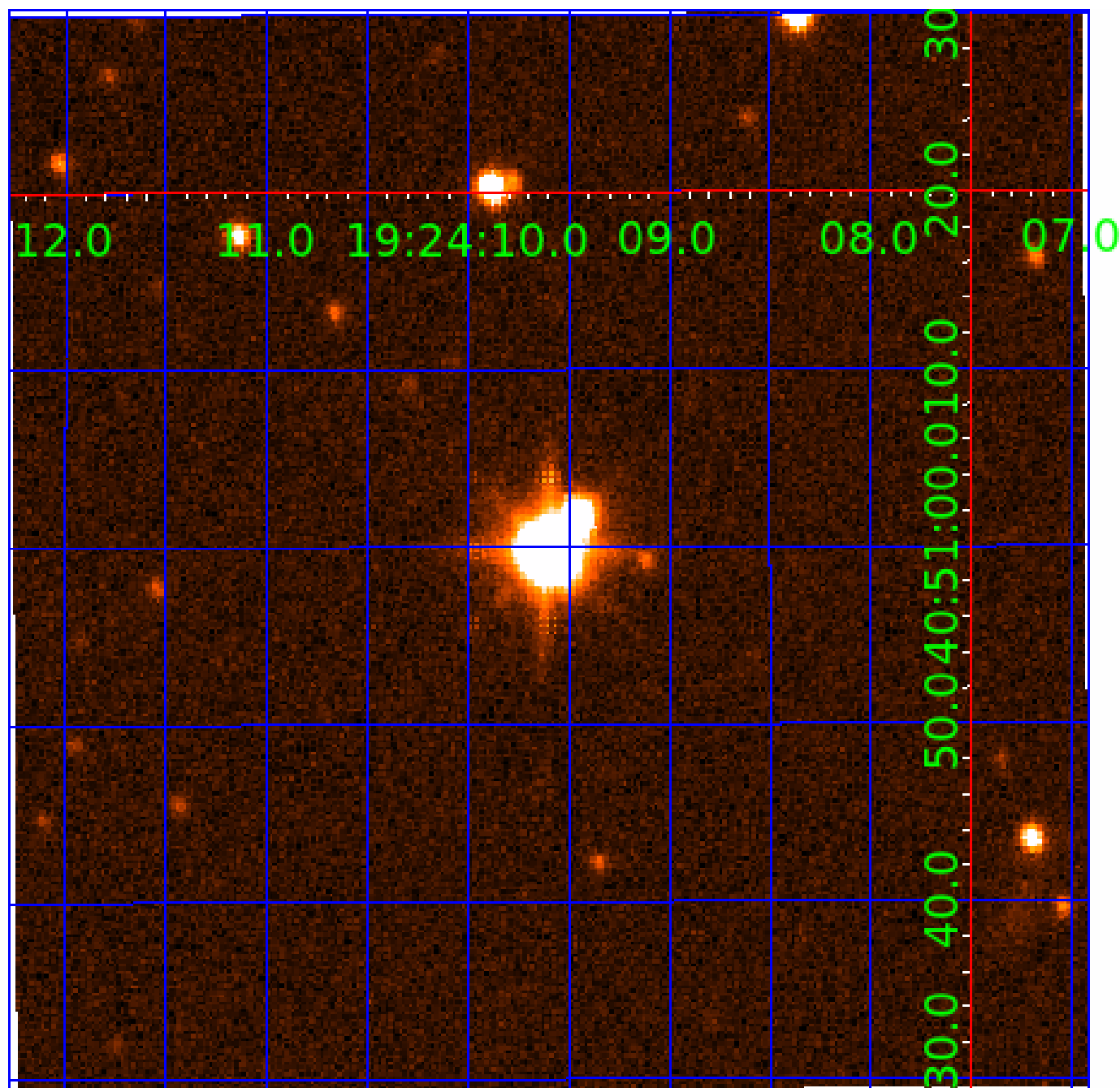


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

Ephemeris Match Information For 005617510-07

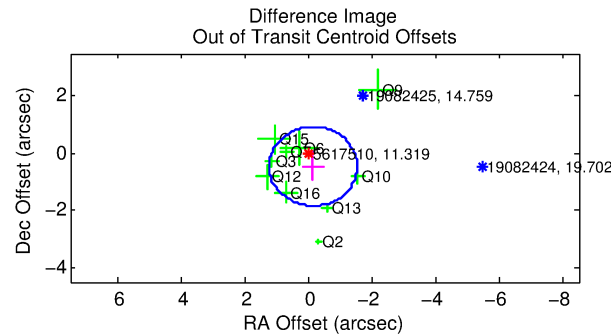
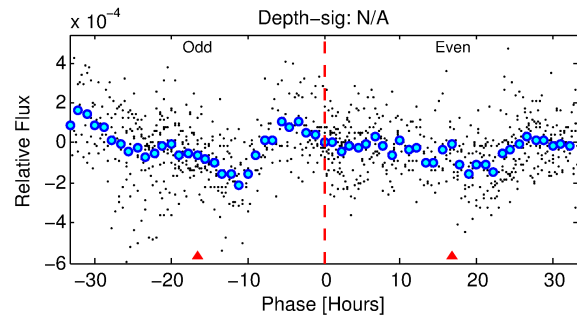
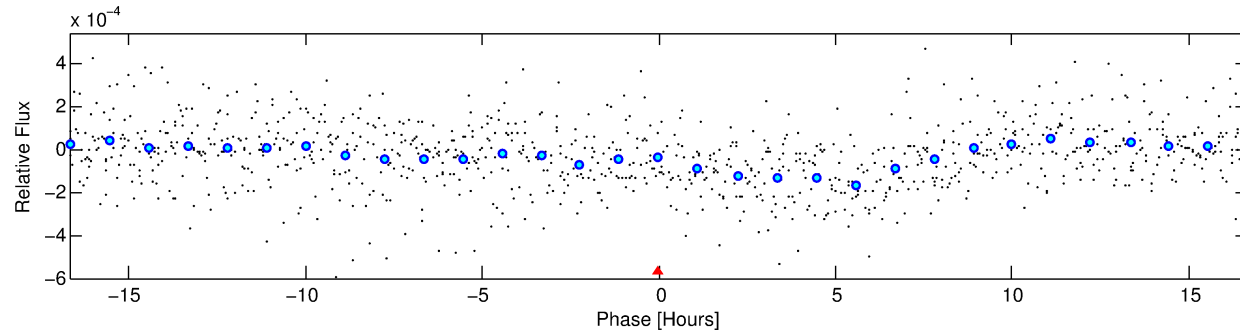
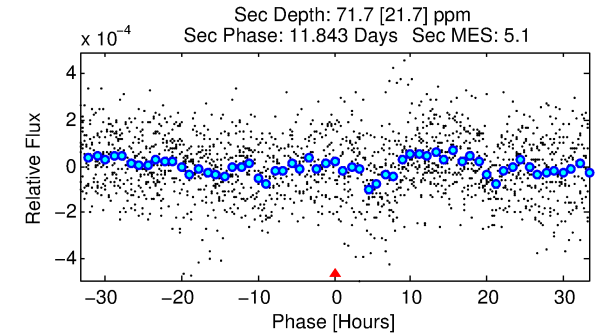
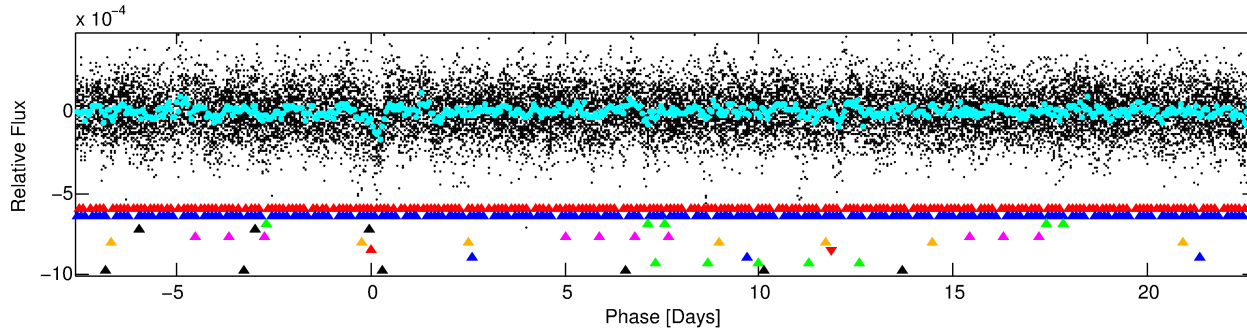
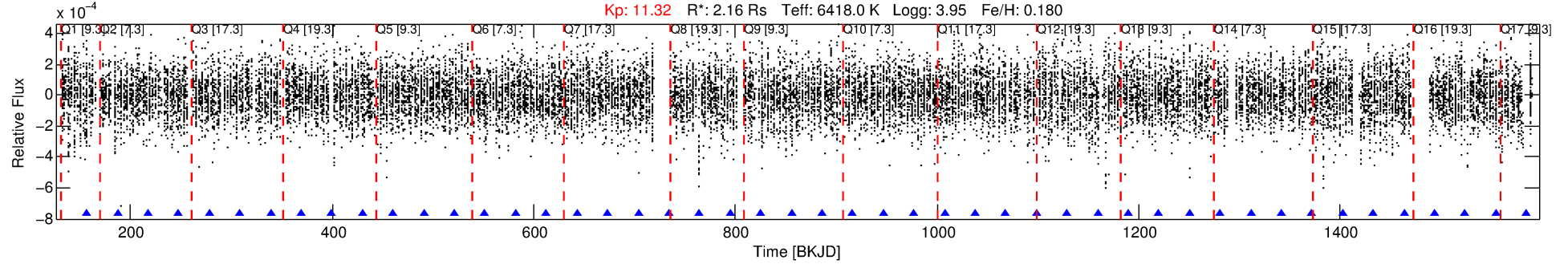
No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 7 of 10 Period: 30.383 d

KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



TPS TCE Results:

Period = 30.38285 d
Epoch = 156.9882 BKJD

DV fit results are unavailable

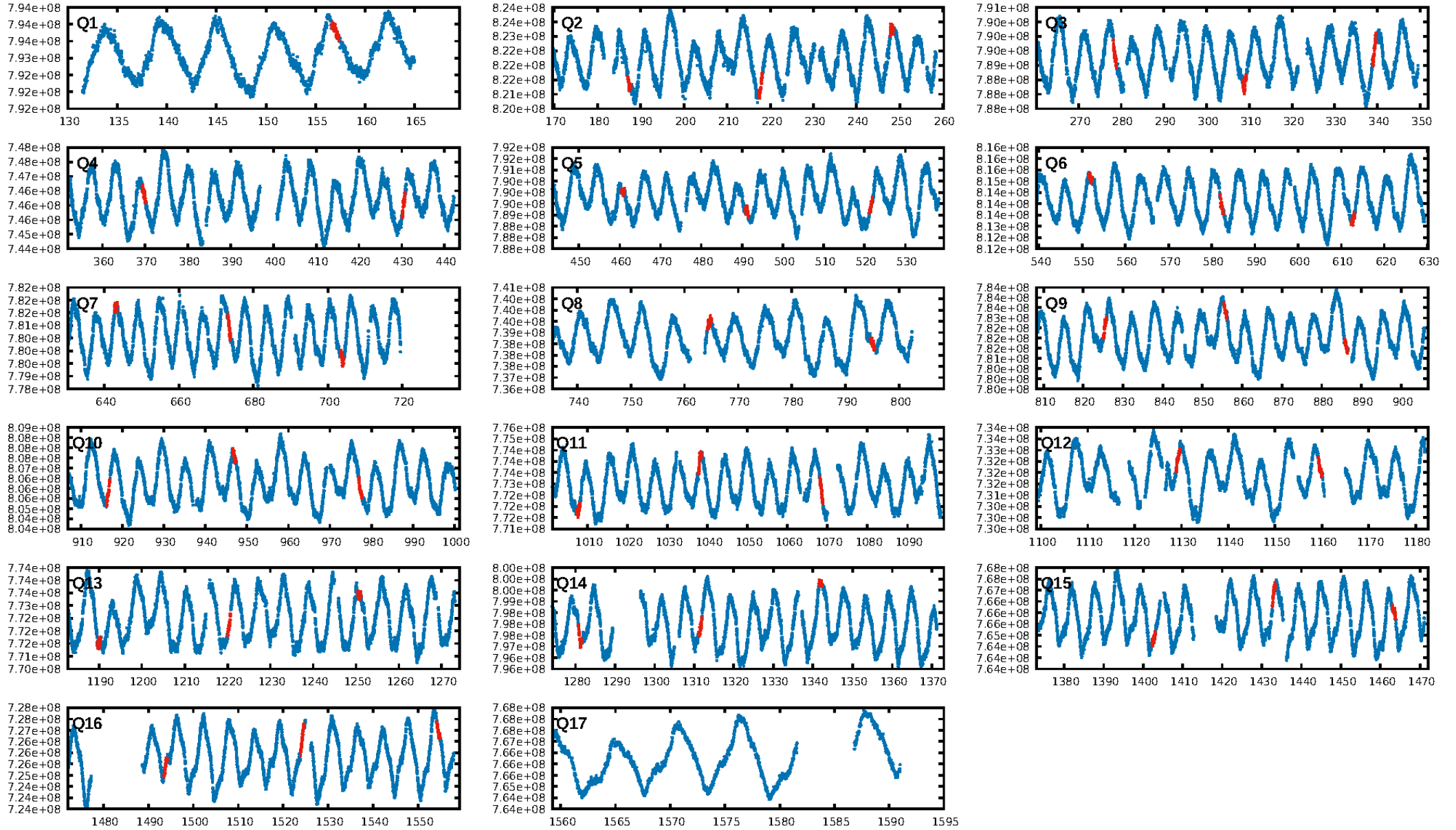
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.92σ]
LongPeriod-sig: 100.0% [238.98σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [18/18]
GhostDiagnostic-chr: 0.2254
Centroid-sig: 90.6%
Centroid-so: 0.167 arcsec [0.57σ]
OotOffset-rm: 0.468 arcsec [1.01σ]
KicOffset-rm: 0.717 arcsec [1.80σ]
OotOffset-st: 3/3/2/2 [10]
KicOffset-st: 3/3/2/2 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 0.81 [13/16]

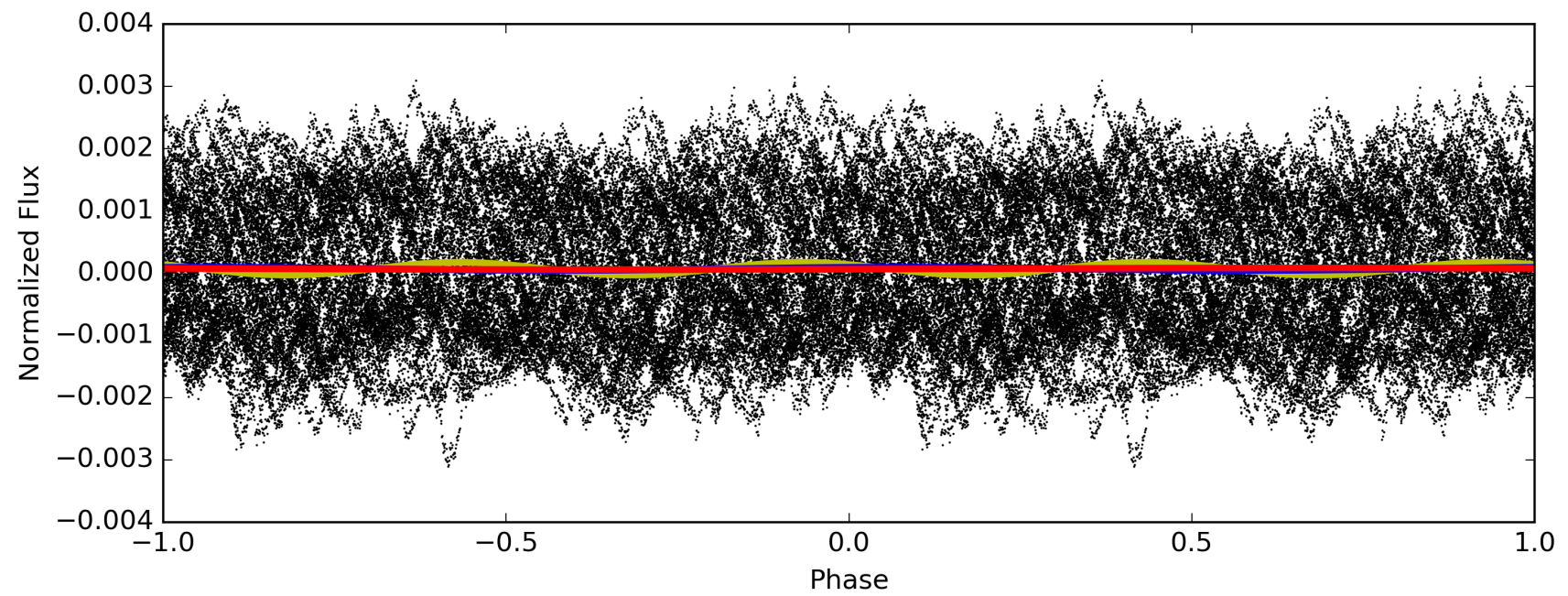
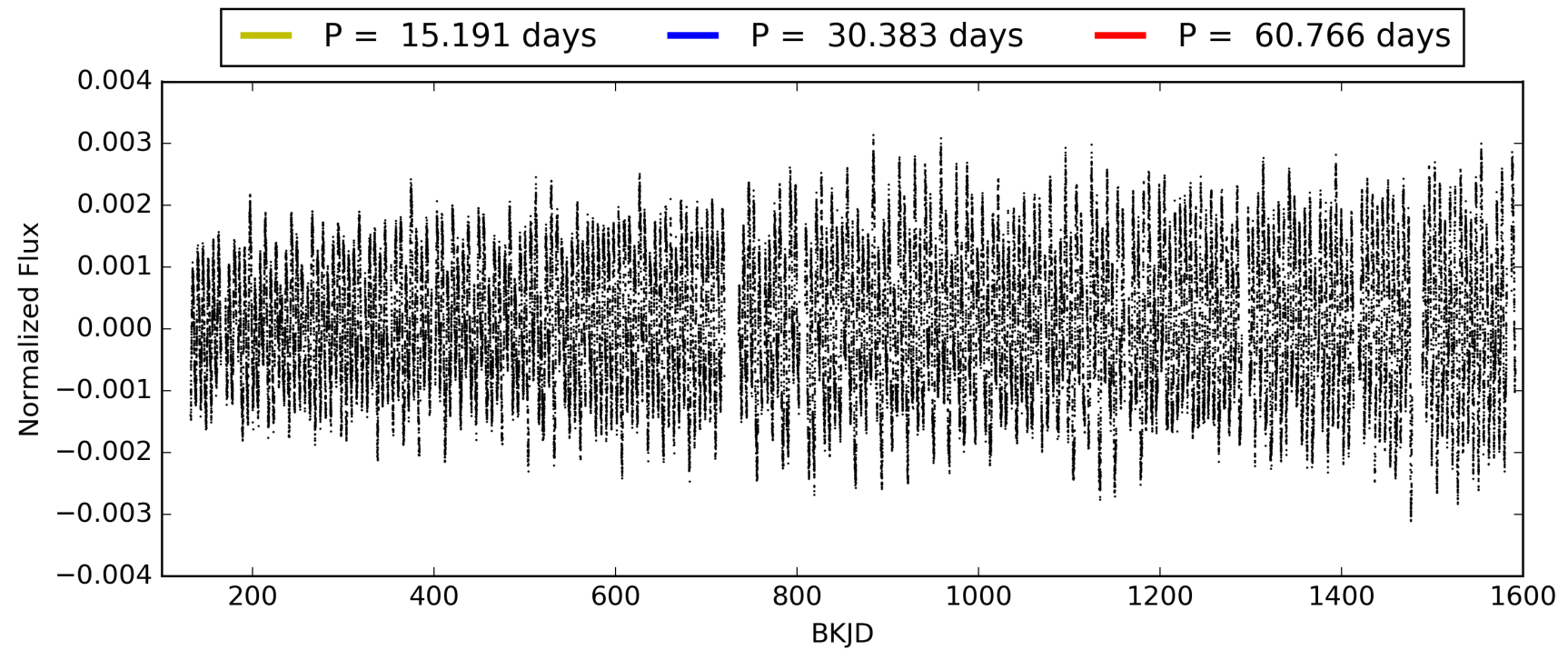
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:31:52 Z

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

TCE 005617510-07, PDC Light Curves

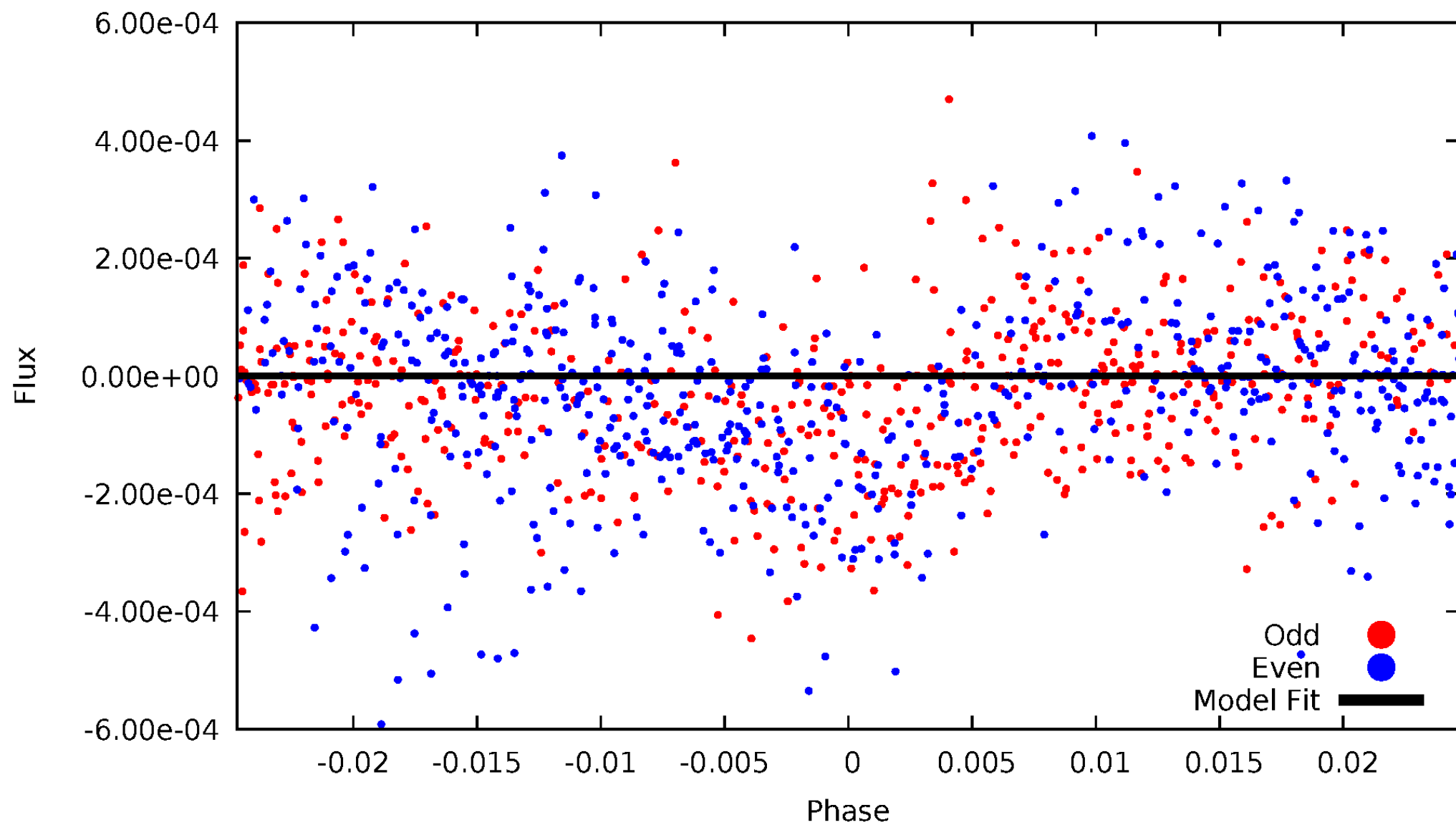


TCE 005617510-07



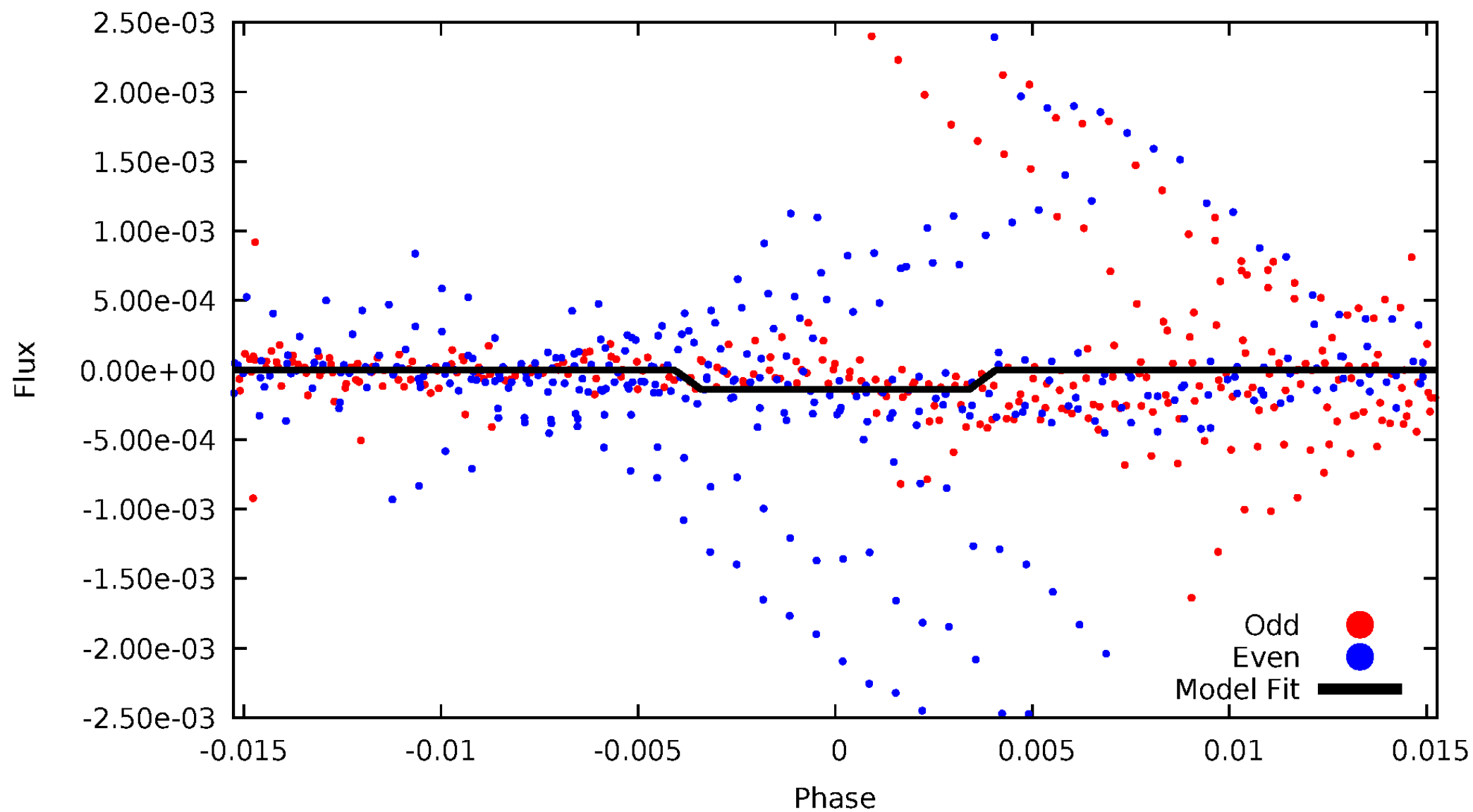
DV Odd/Even

TCE 005617510-07

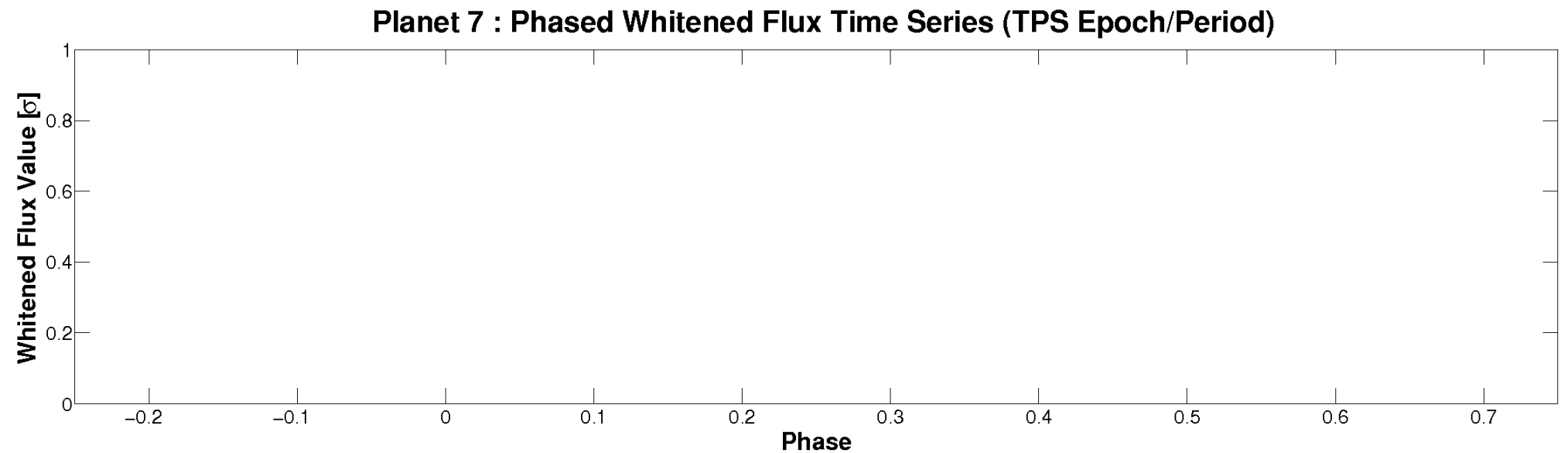
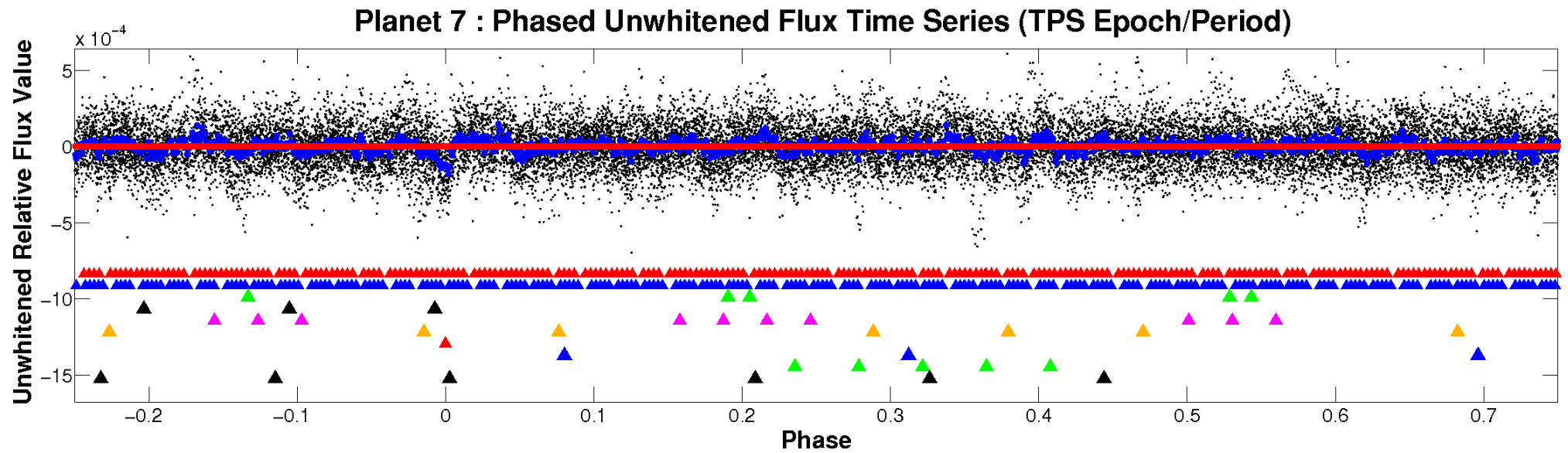


ALT Odd/Even

TCE 005617510-07

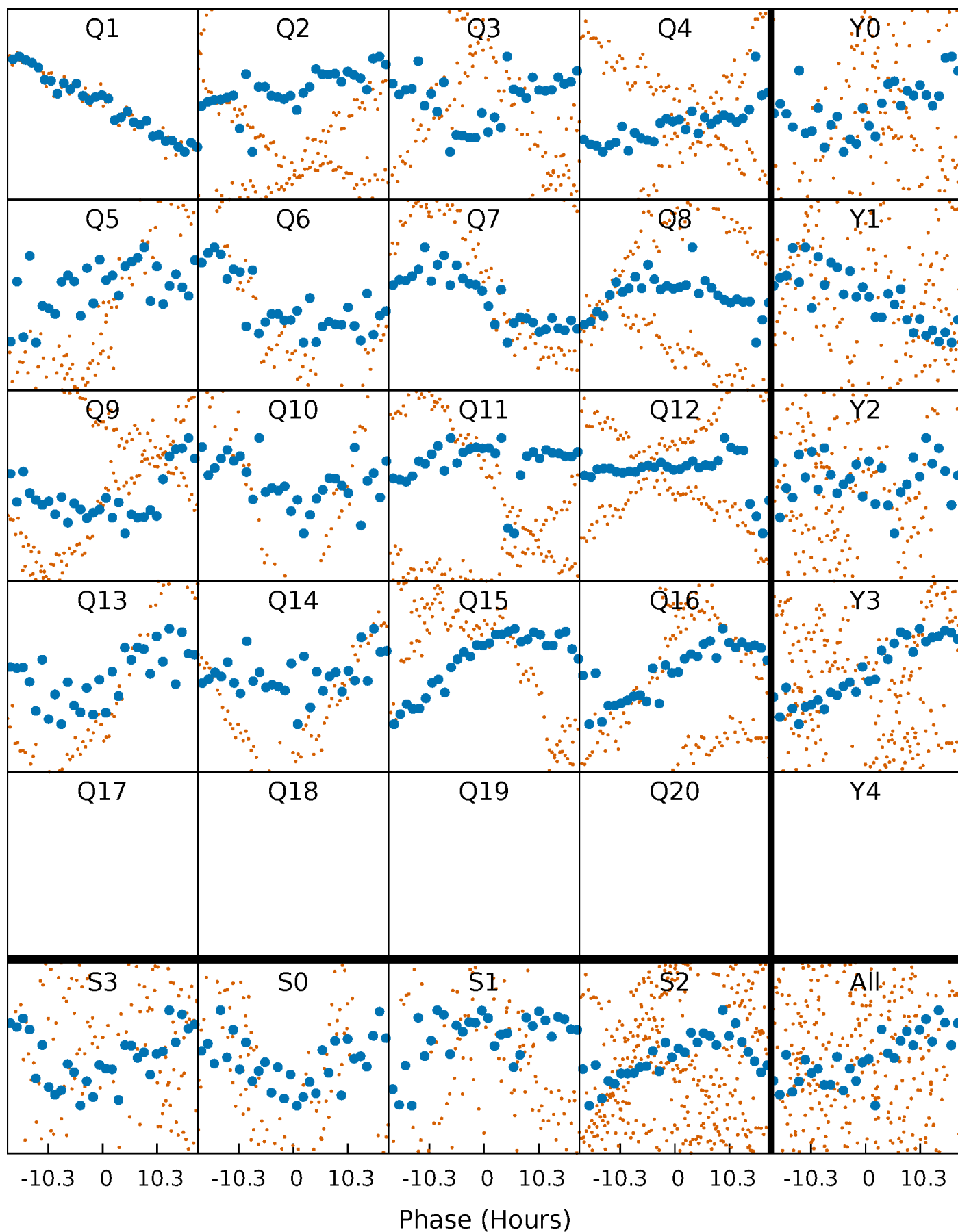


Non-Whitened Vs. Whitened Light Curve



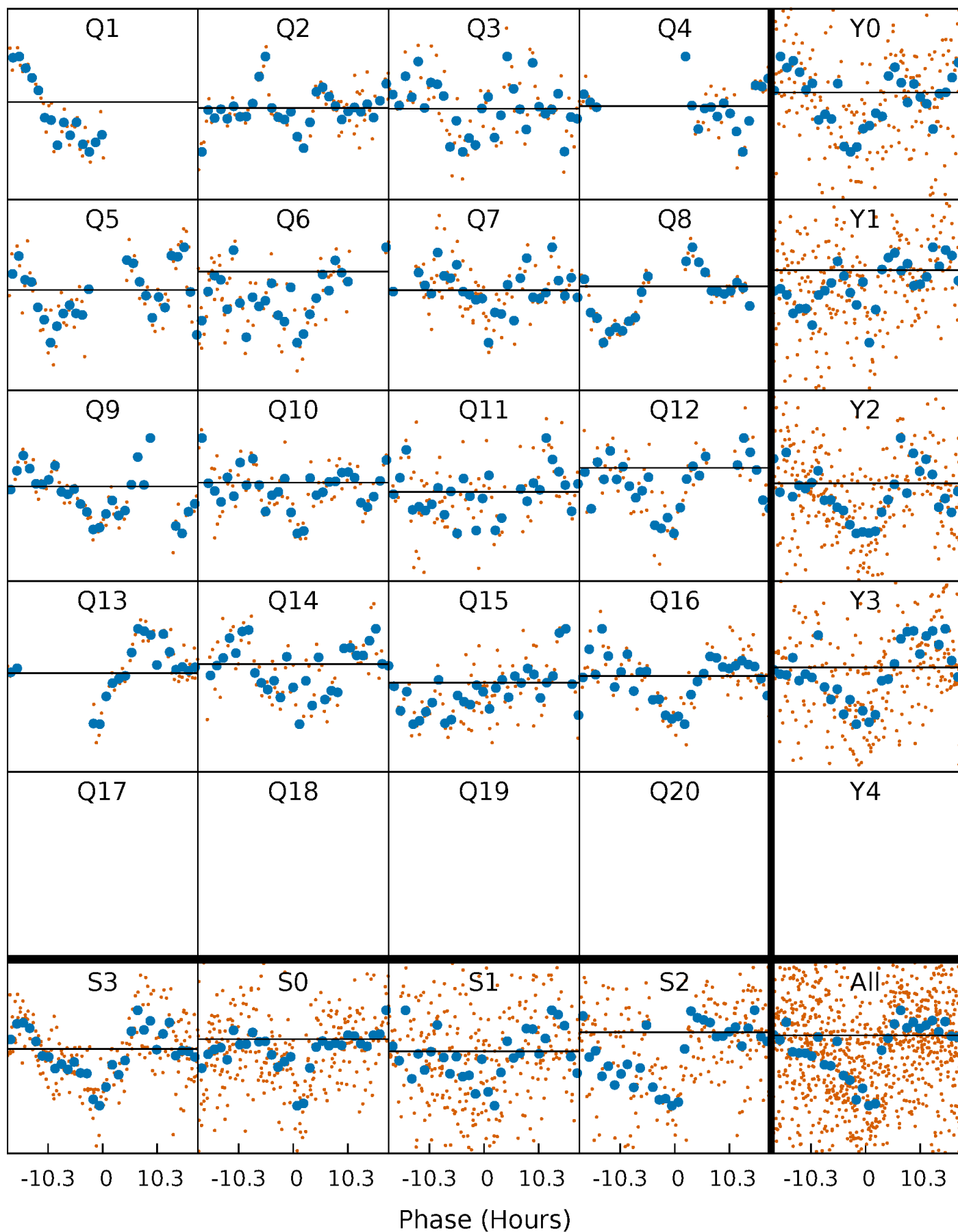
PDC Quarter-Phased Transit Curves

TCE 005617510-07 P= 30.382848 Days $T_0=156.988237$ (BKJD)



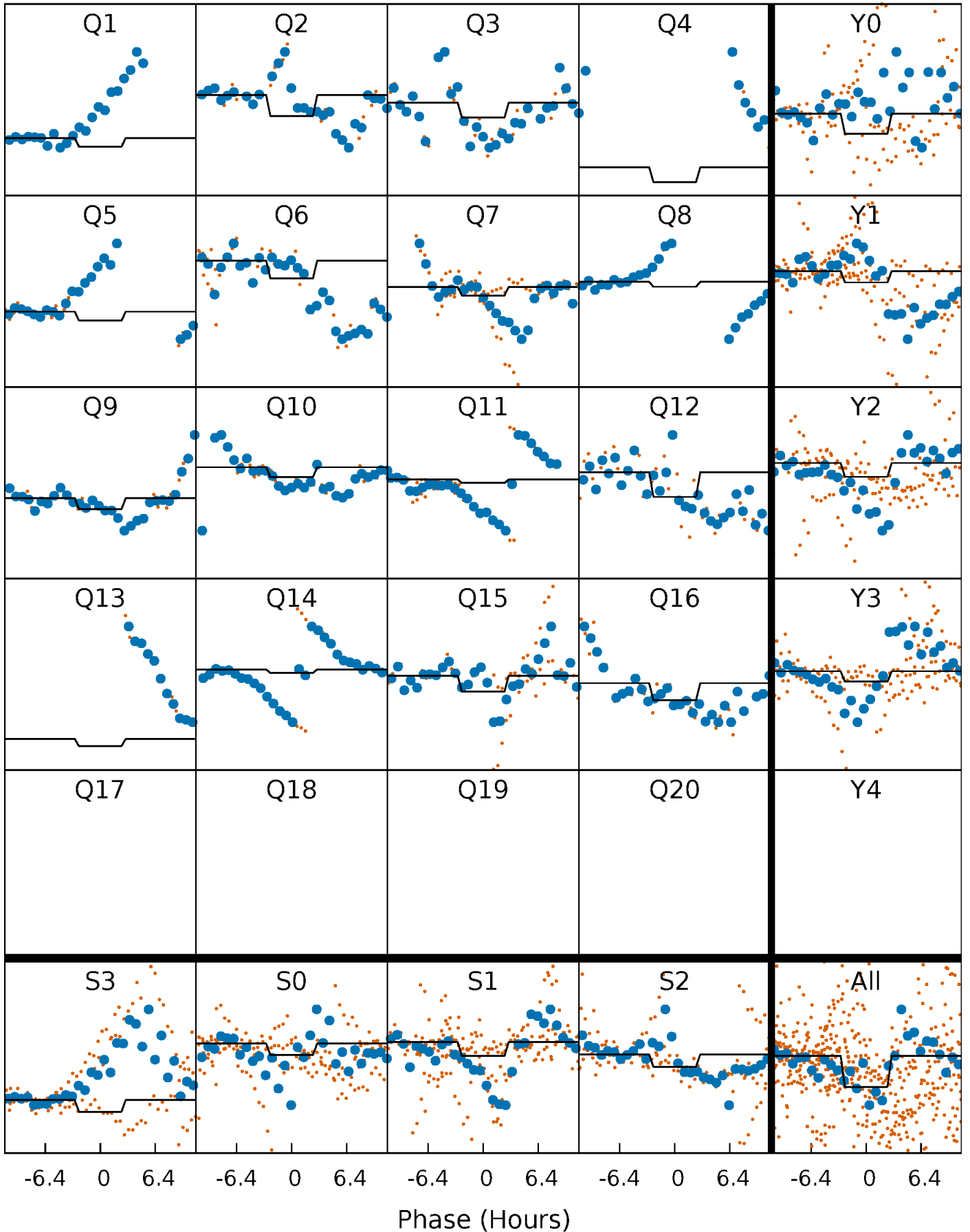
DV Quarter-Phased Transit Curves

TCE 005617510-07 $P = 30.382848$ Days $T_0 = 156.988237$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

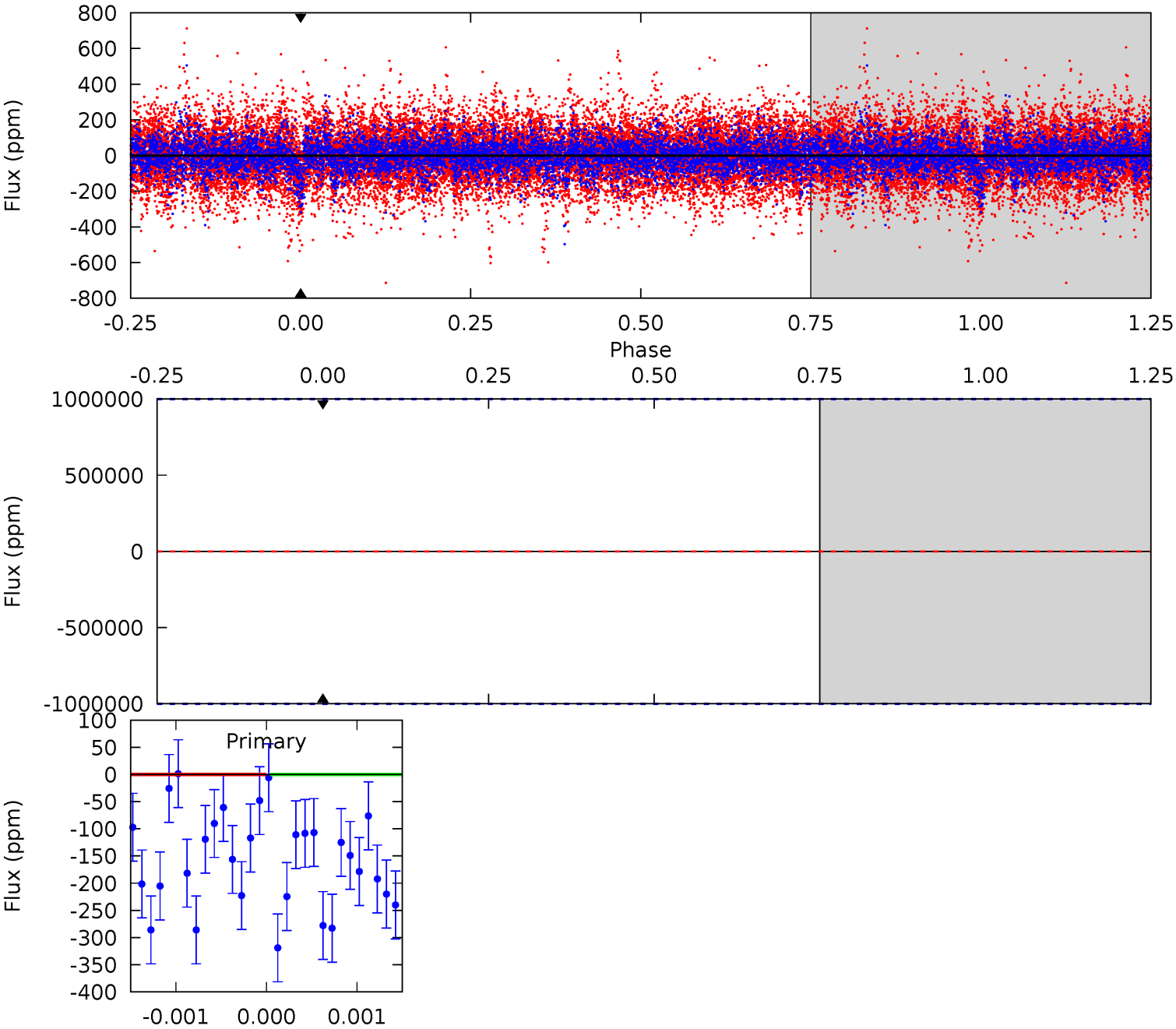
TCE 005617510-07 $P = 30.382848$ Days $T_0 = 156.796551$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-07, P = 30.382848 Days, E = 126.605389 Days

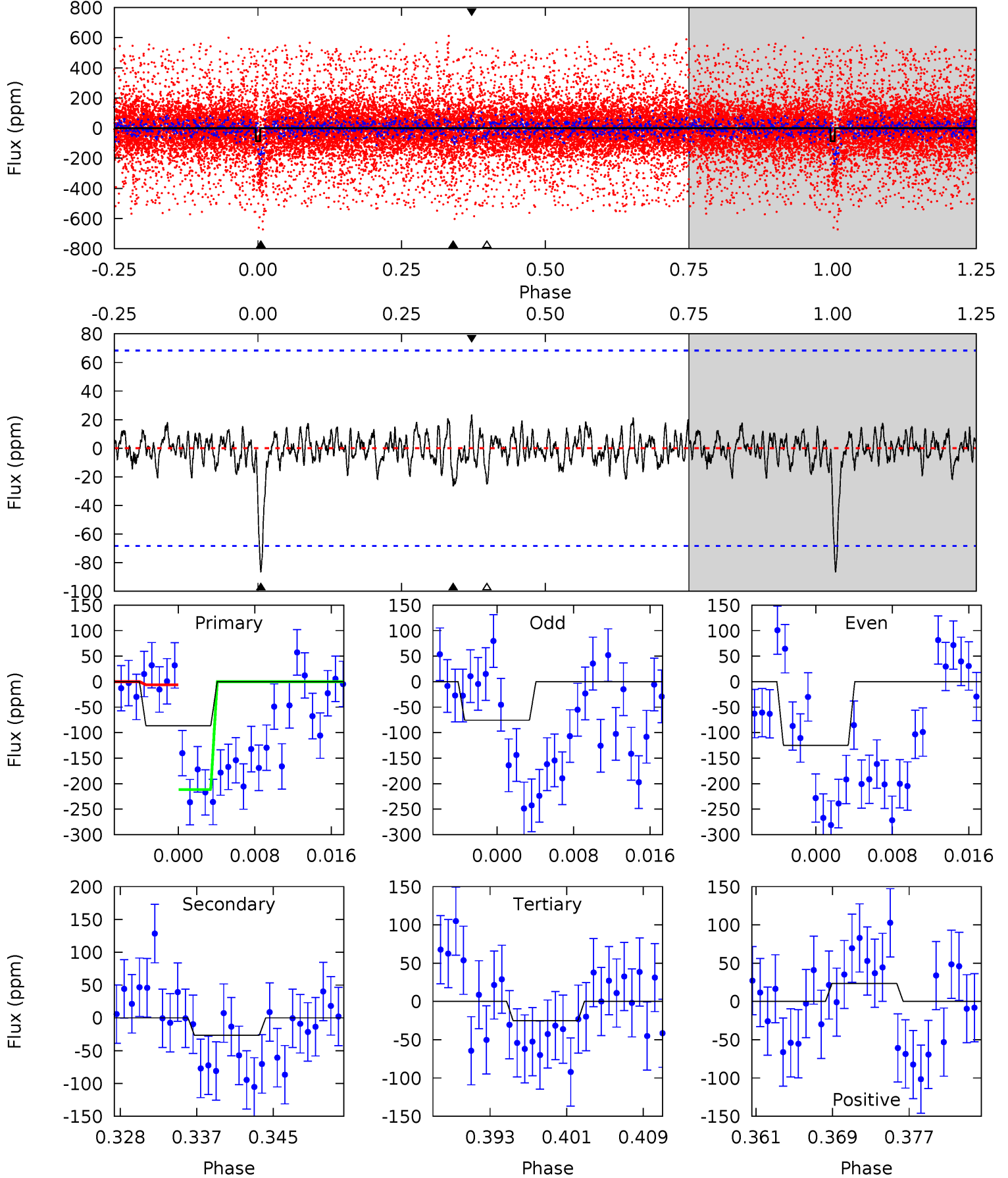
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005617510-07, $P = 30.382848$ Days, $E = 126.413703$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.43	1.97	1.86	1.75	5.07	2.65	0.61	4.57	4.68	0.11	0.23	1.82	0.78	0.21	7.62



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$15.45^{+17.92}_{-10.96}$	1232^{+61}_{-71}	4542^{+26460}_{-34673}	102^{+19273}_{-19716}
Alt.	-27 ± 13	$16.78^{+19.03}_{-11.97}$	1231^{+64}_{-75}	2447^{+1052}_{-682}	$2.121^{+23.620}_{-1.734}$

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 $A_{obs} \gg 1.0$

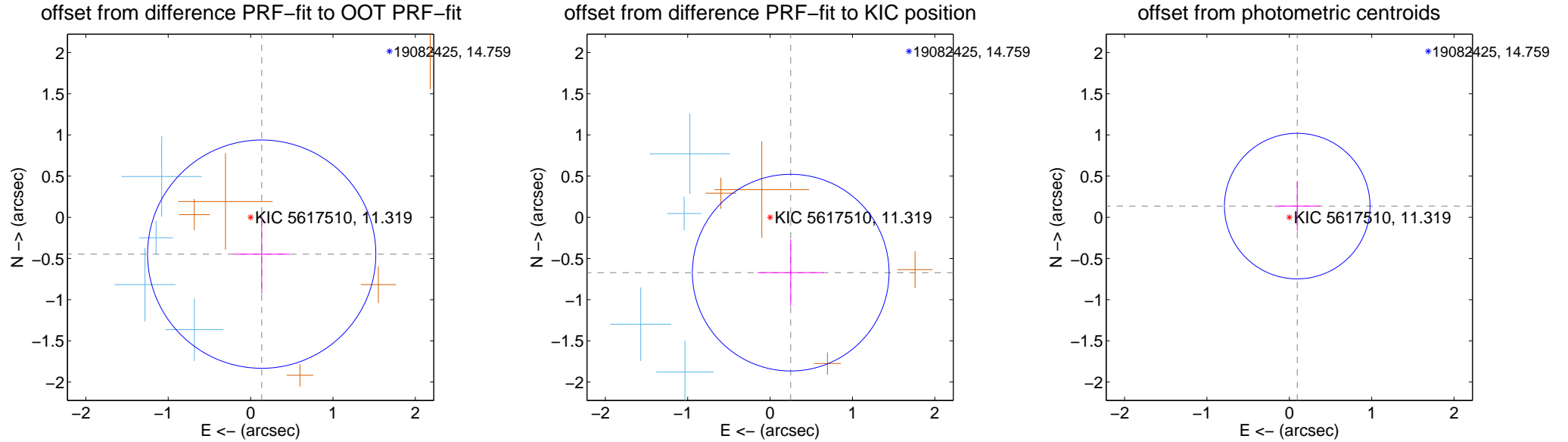
DV Centroid Data

Supplemental centroid analysis for 005617510-07. **Kepler magnitude: 11.32.** Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

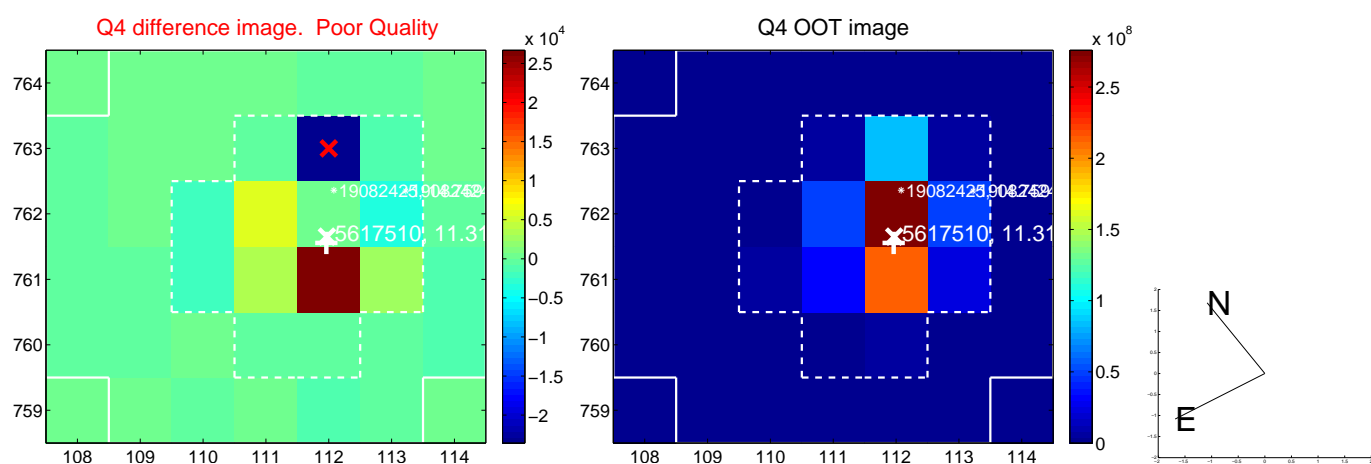
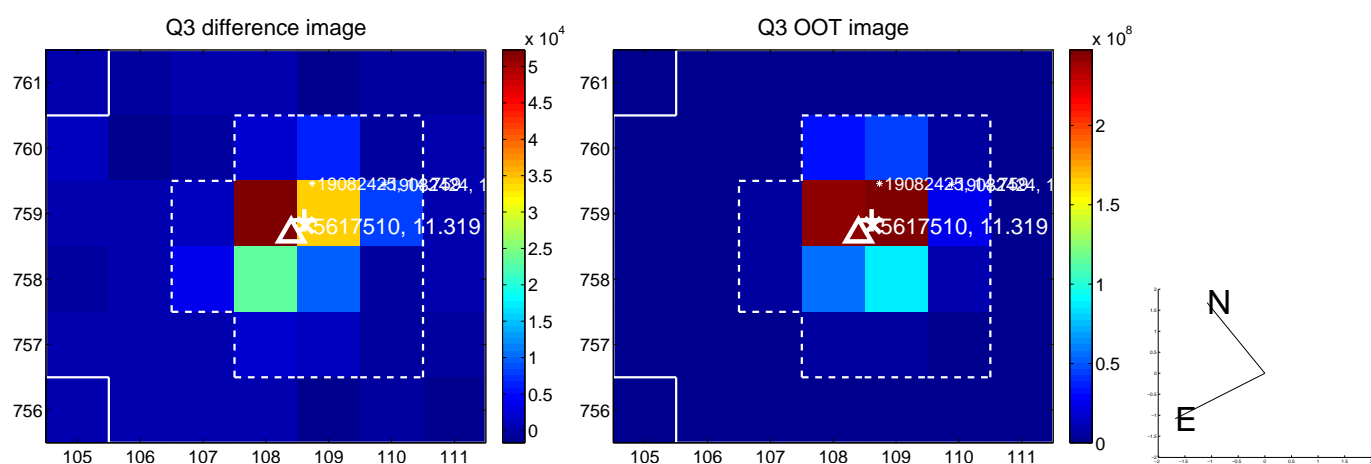
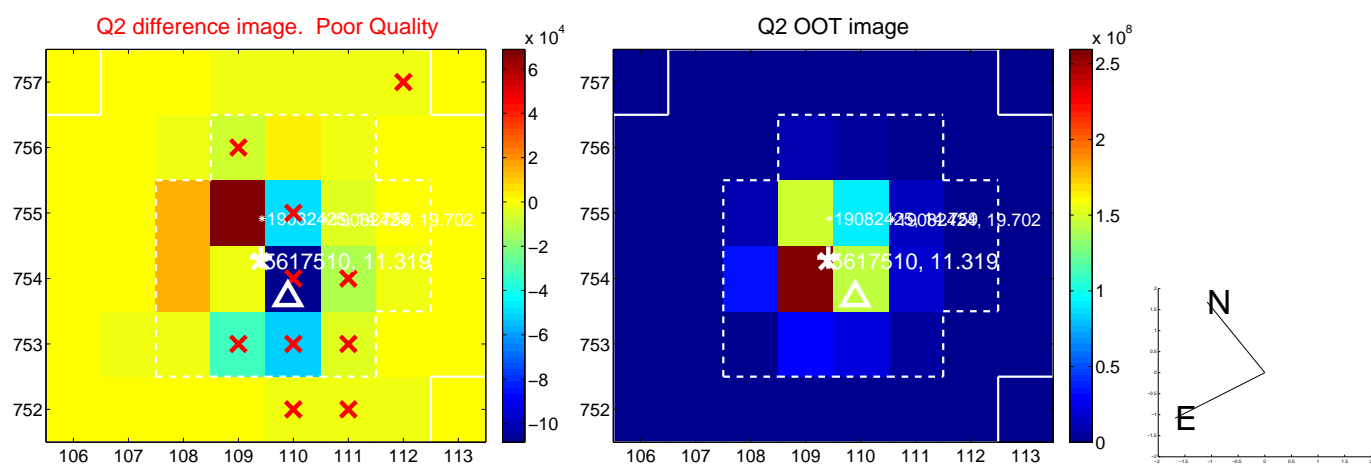
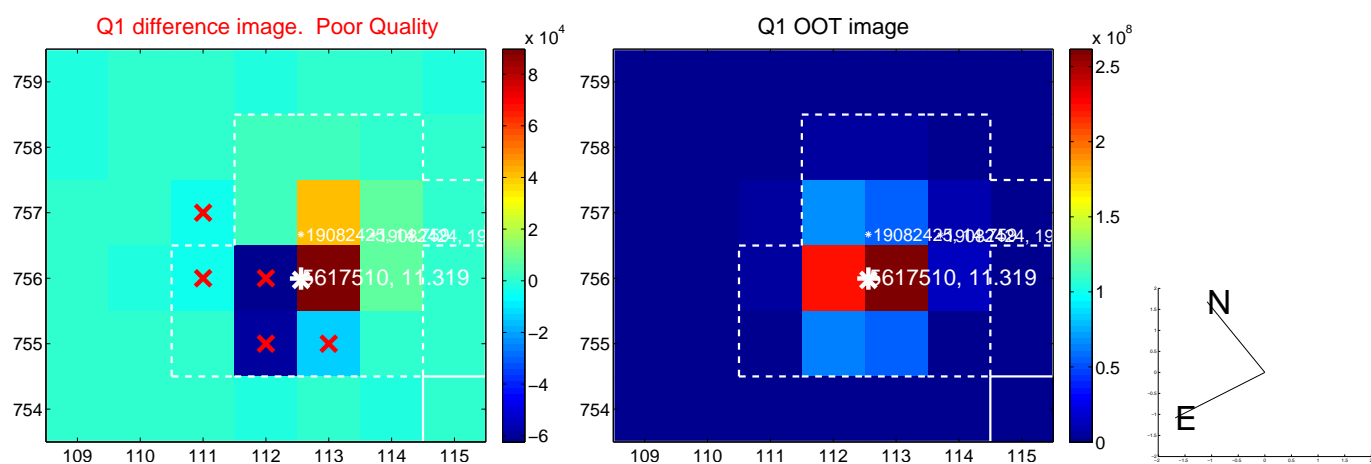
The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.468 ± 0.462	1.01	-0.135 ± 0.341	-0.448 ± 0.480
PRF-fit source offset from KIC position	0.717 ± 0.398	1.80	-0.250 ± 0.402	-0.672 ± 0.407
photometric centroid source offset	0.17 ± 0.29	0.57	-0.10 ± 0.28	0.14 ± 0.30

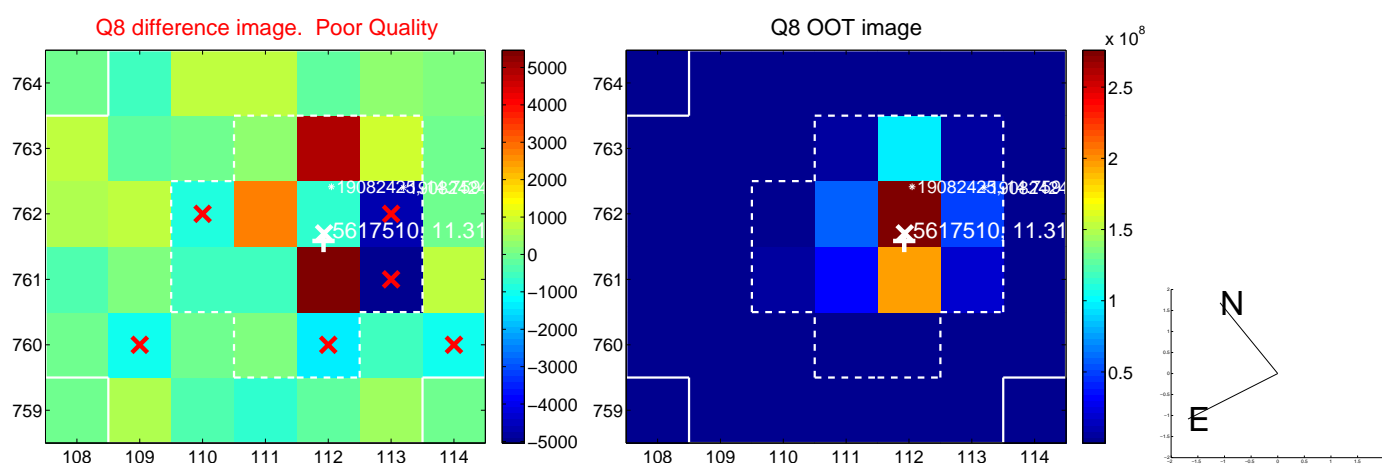
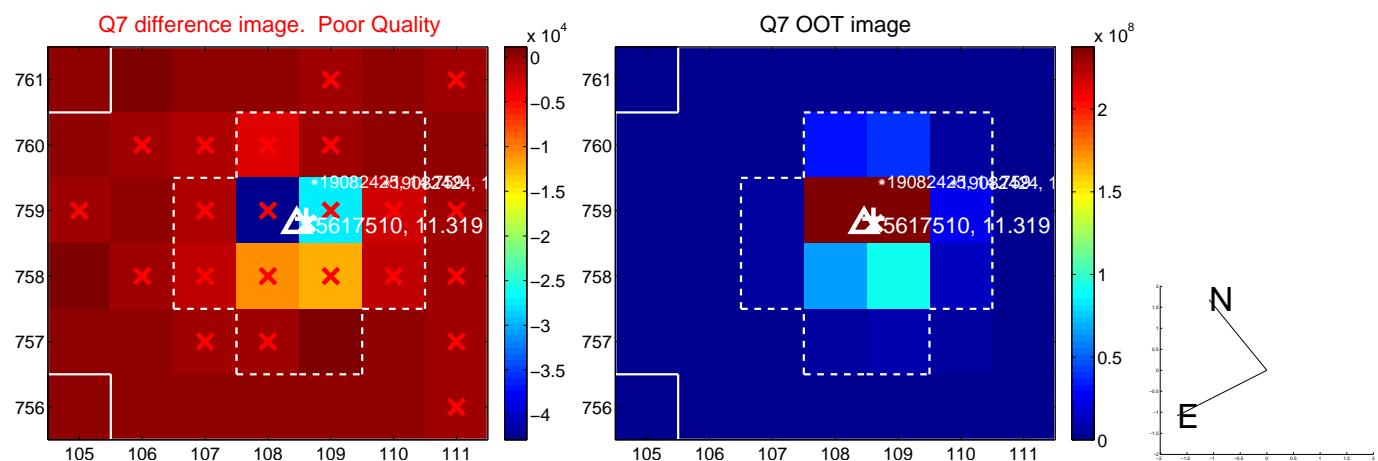
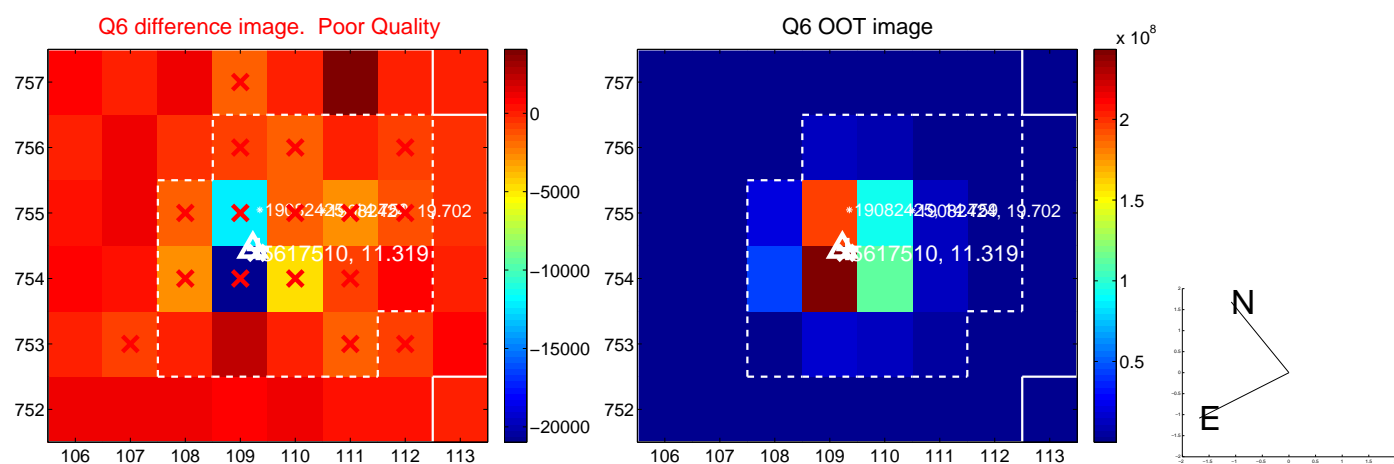
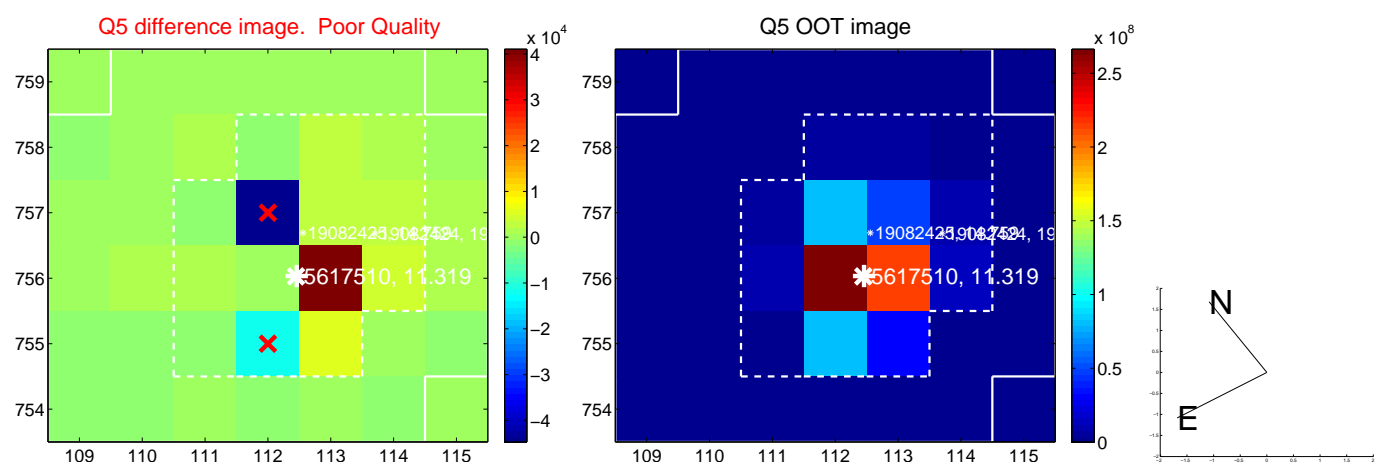


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

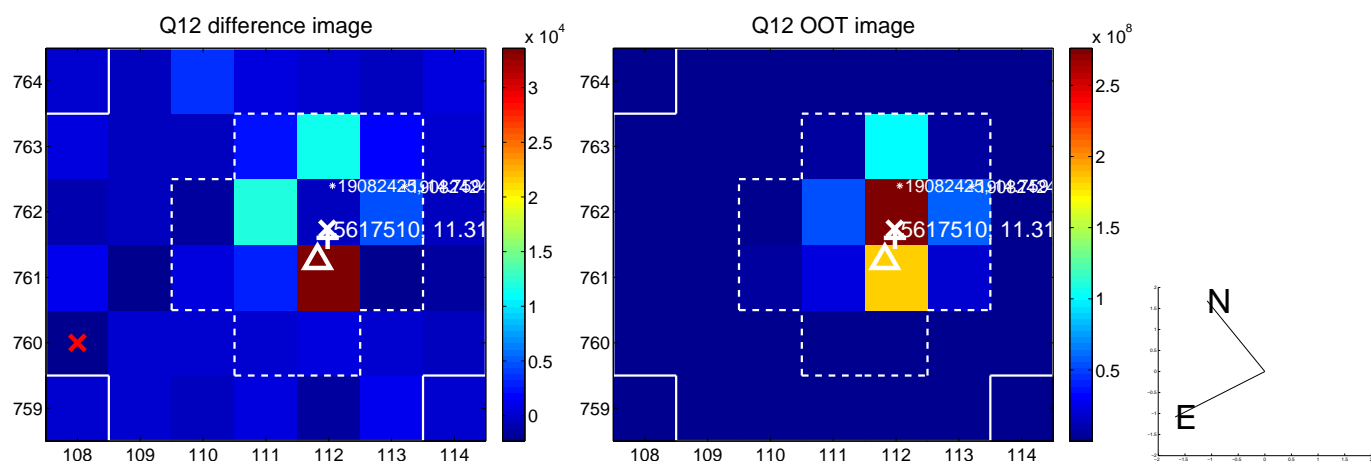
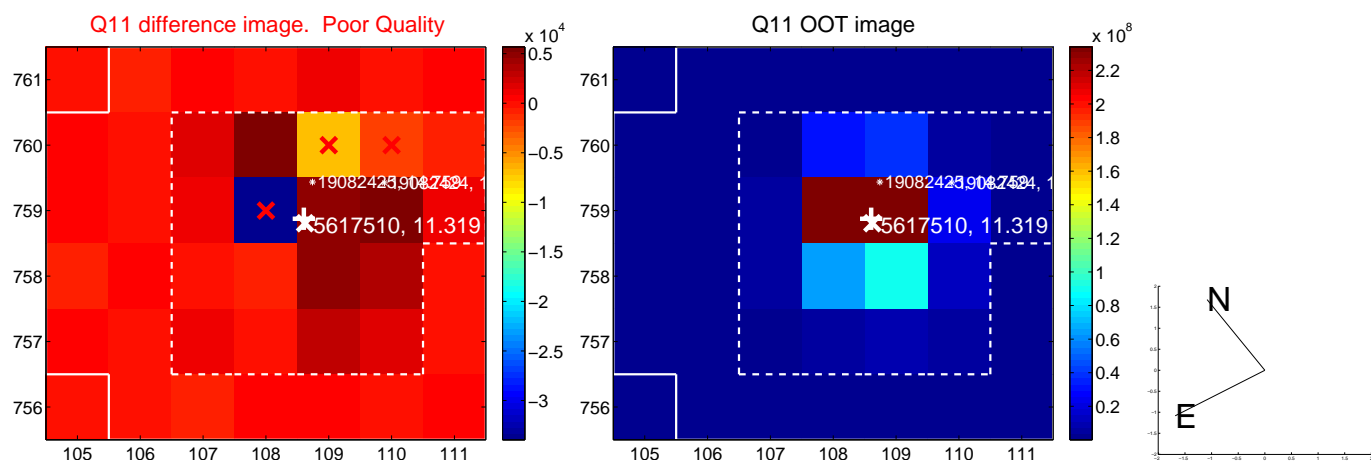
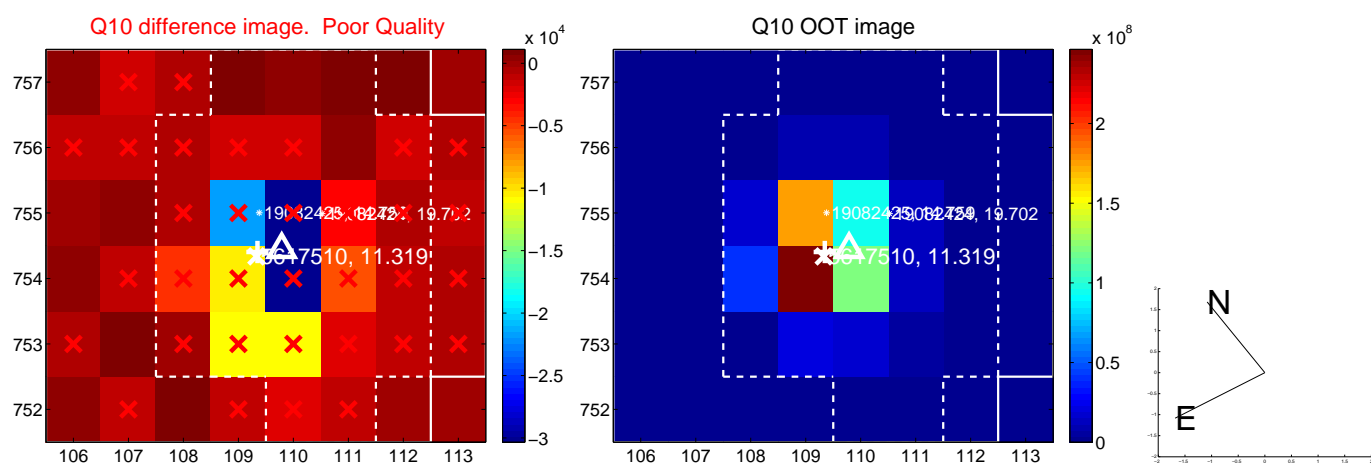
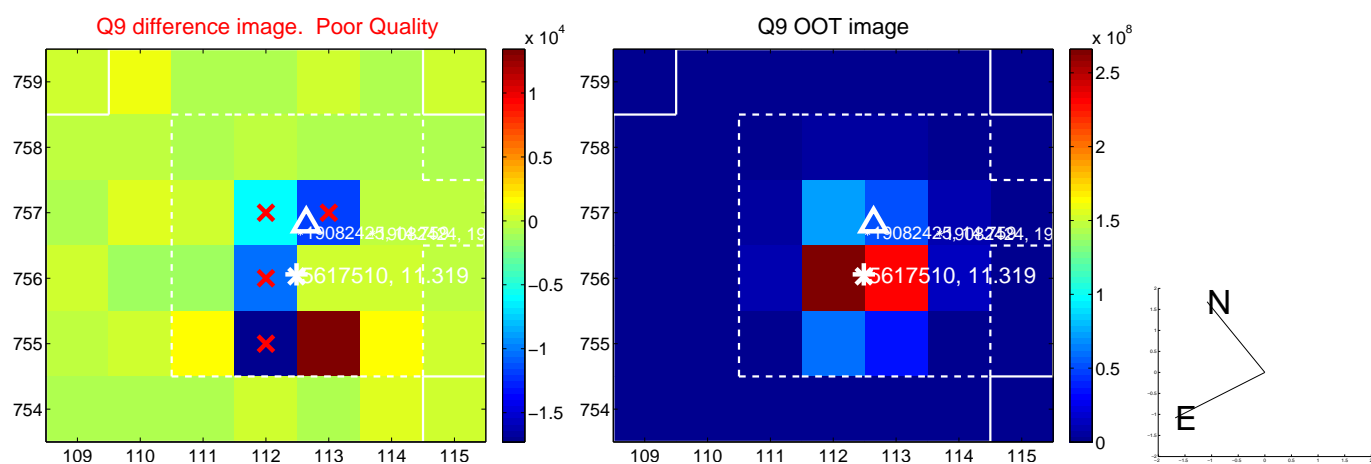
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



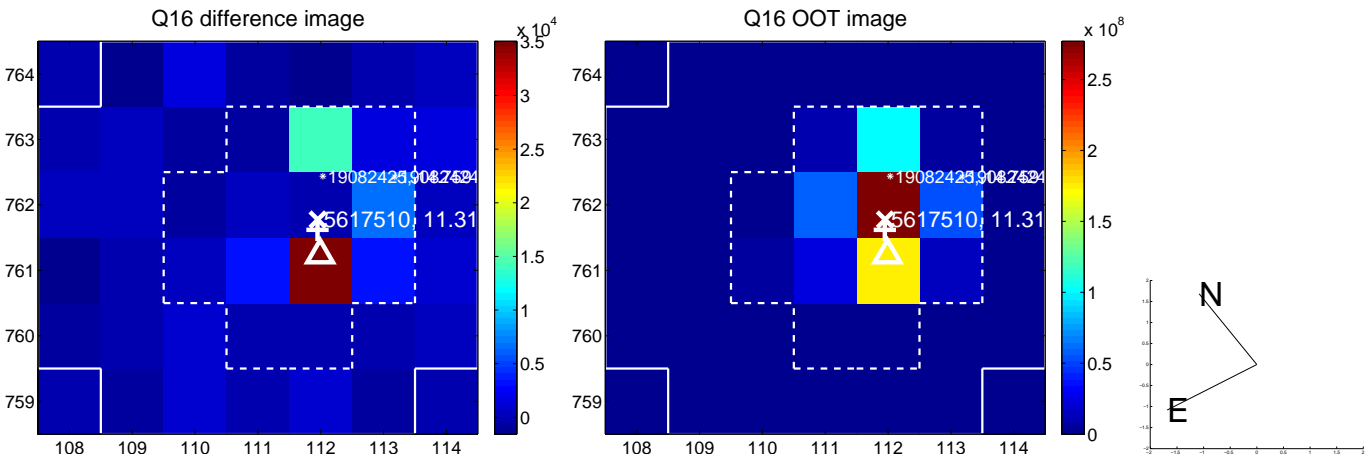
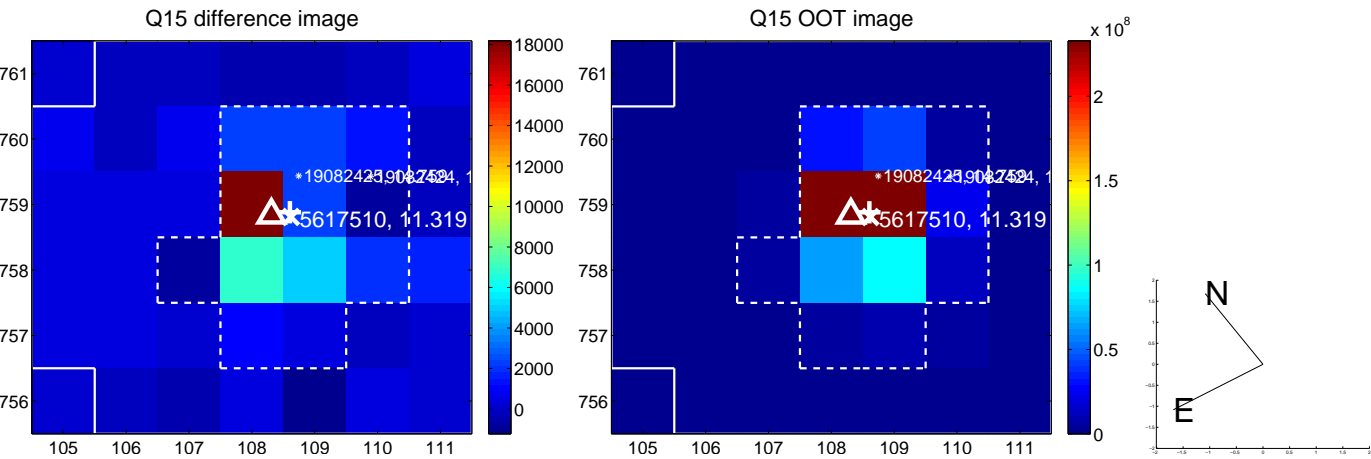
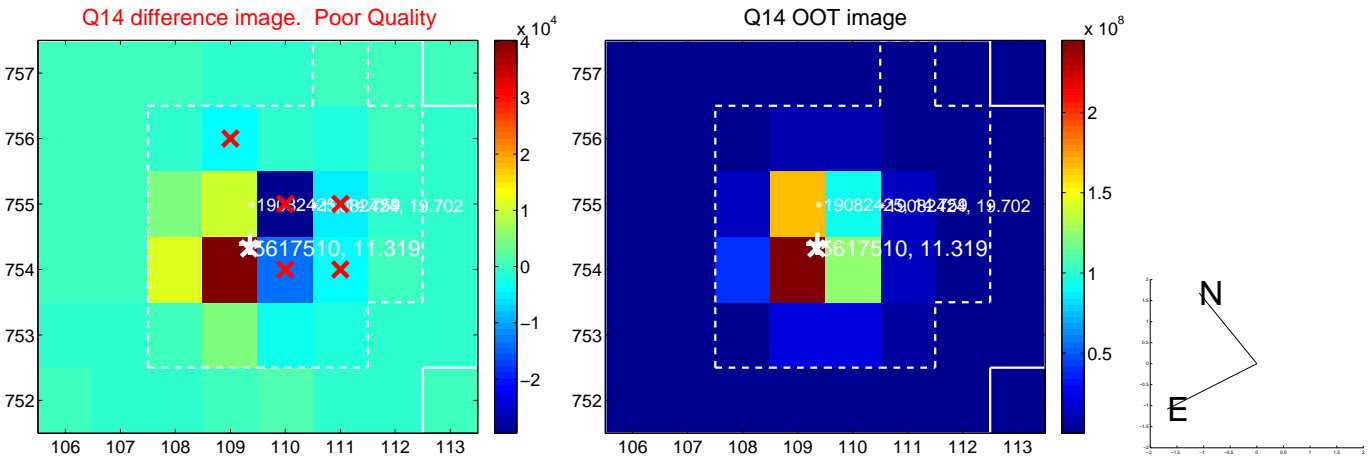
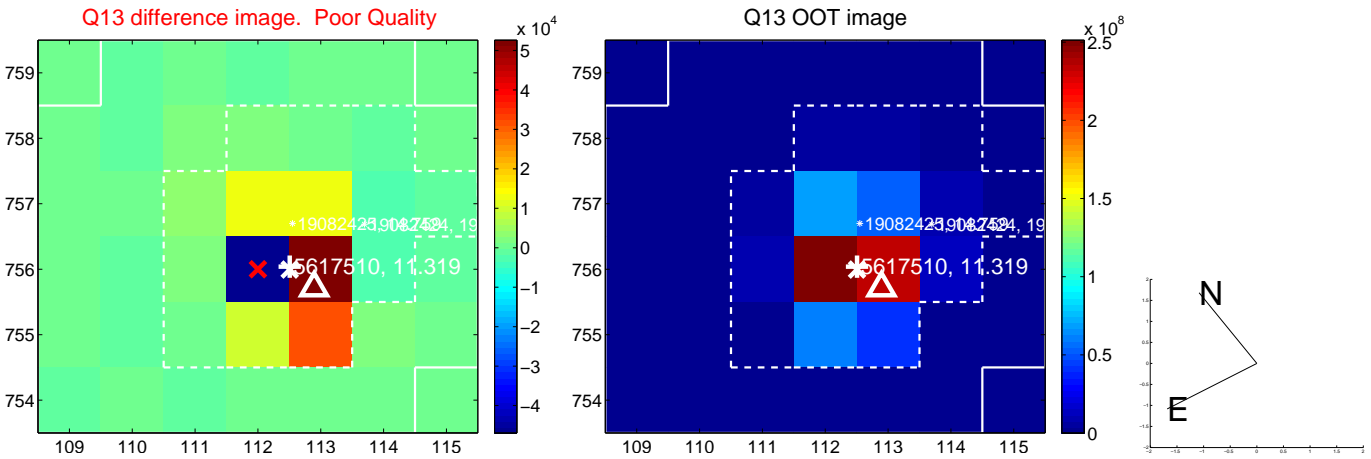
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



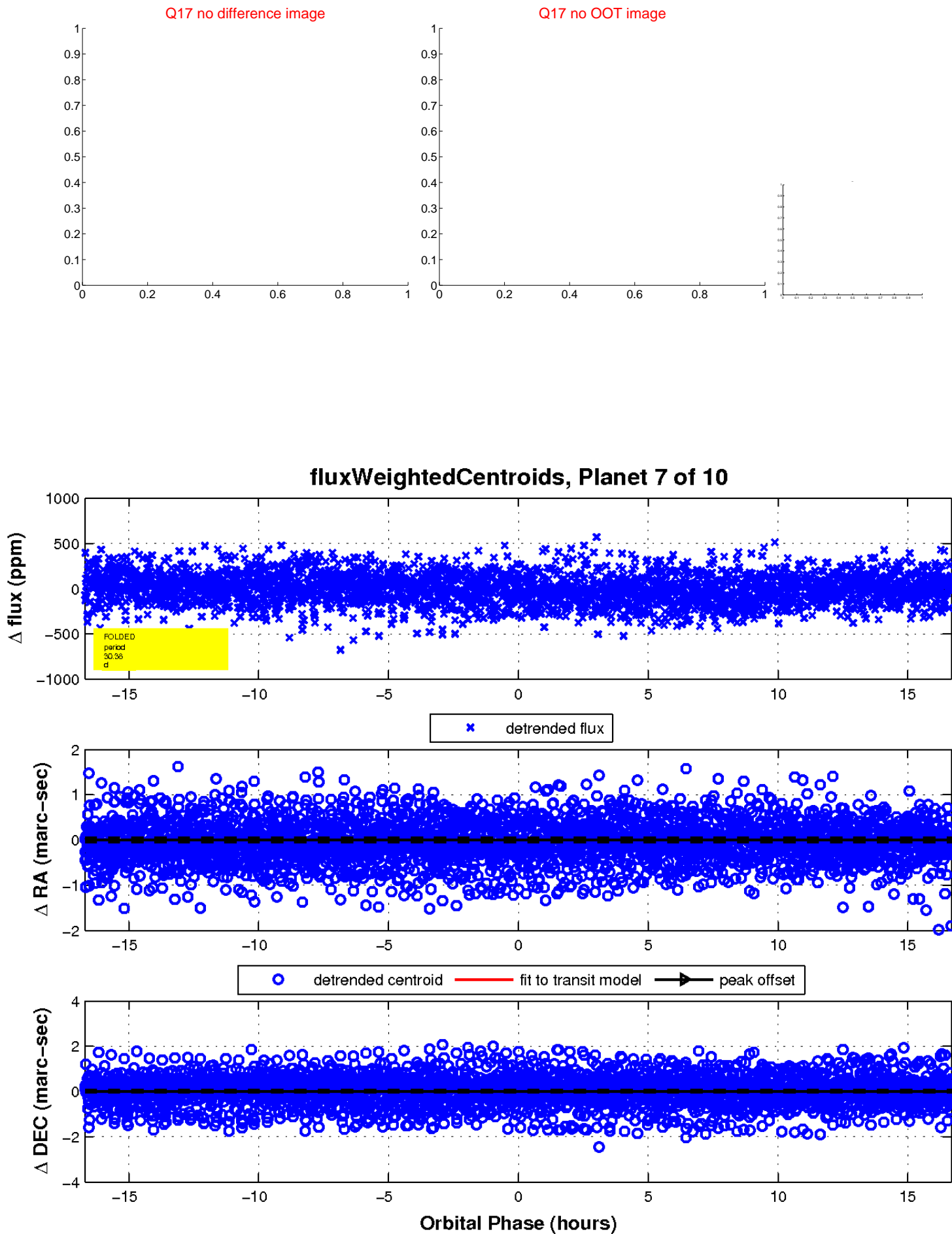
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

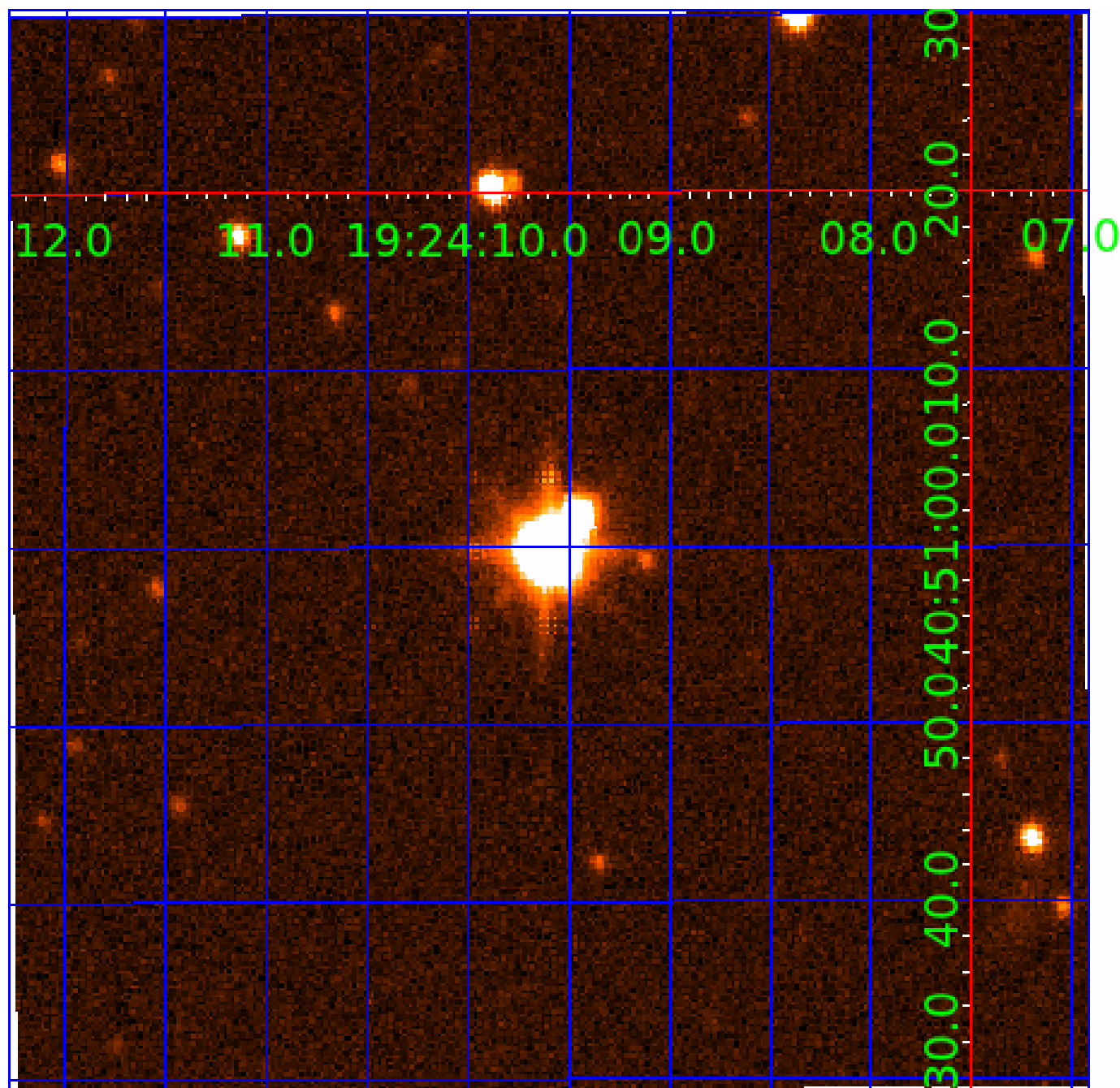


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

Ephemeris Match Information For 005617510-09

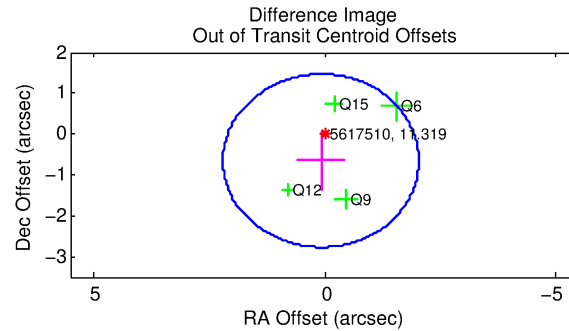
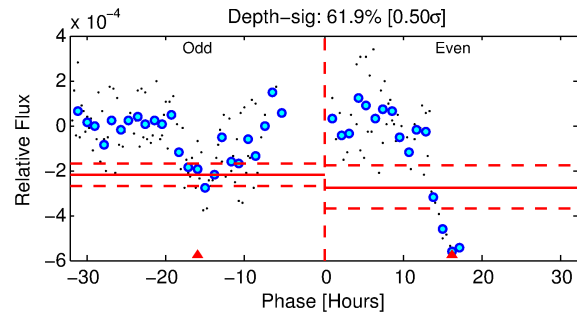
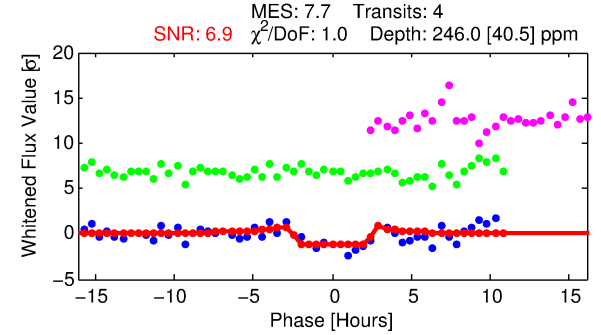
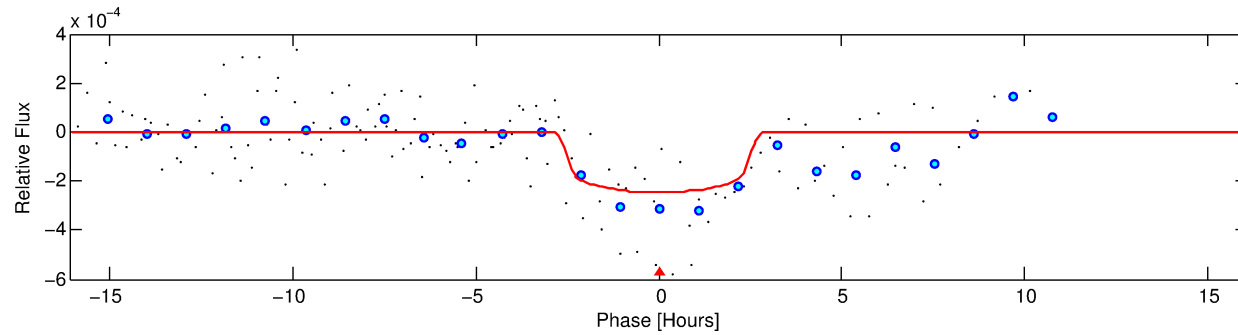
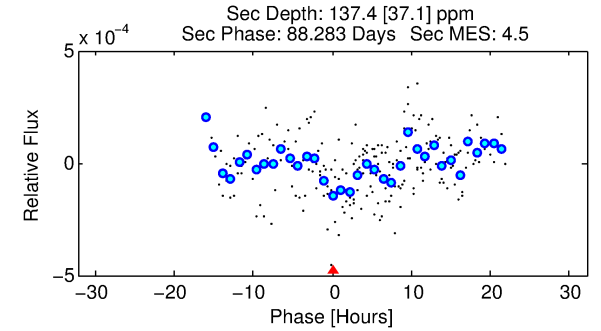
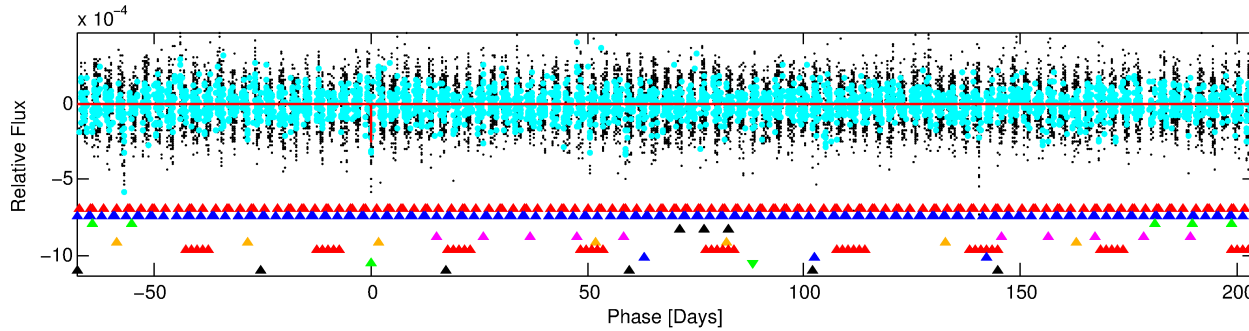
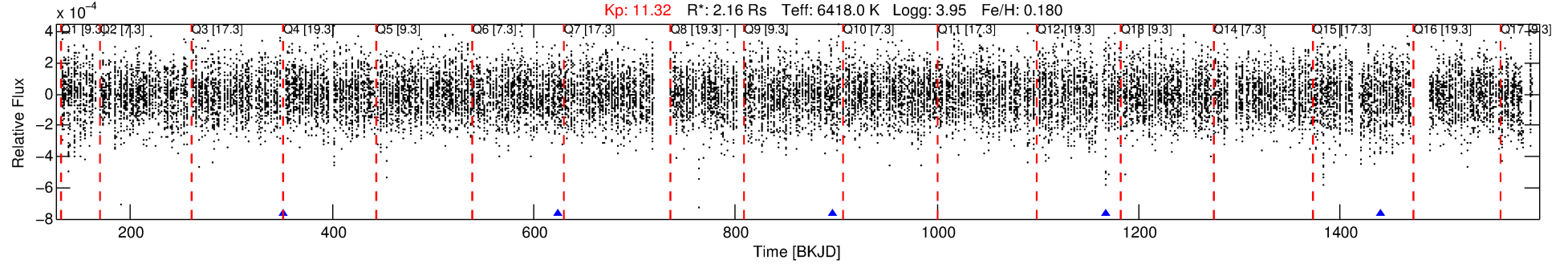
No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 9 of 10 Period: 272.138 d

KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



DV Fit Results:

Period = 272.13837 [0.00532] d
Epoch = 351.6739 [0.0156] BKJD
Rp/R* = 0.0163 [0.0065]
a/R* = 217.69 [457.27]
b = 0.85 [0.70]
Seff = 7.90 [2.66]
Teq = 427 [36] K
Rp = 3.83 [1.82] Re
a = 0.9471 [0.2097] AU
Ag = 4622.66 [4213.77] [1.10σ]
Teffp = 5450 [1159] K [4.33σ]

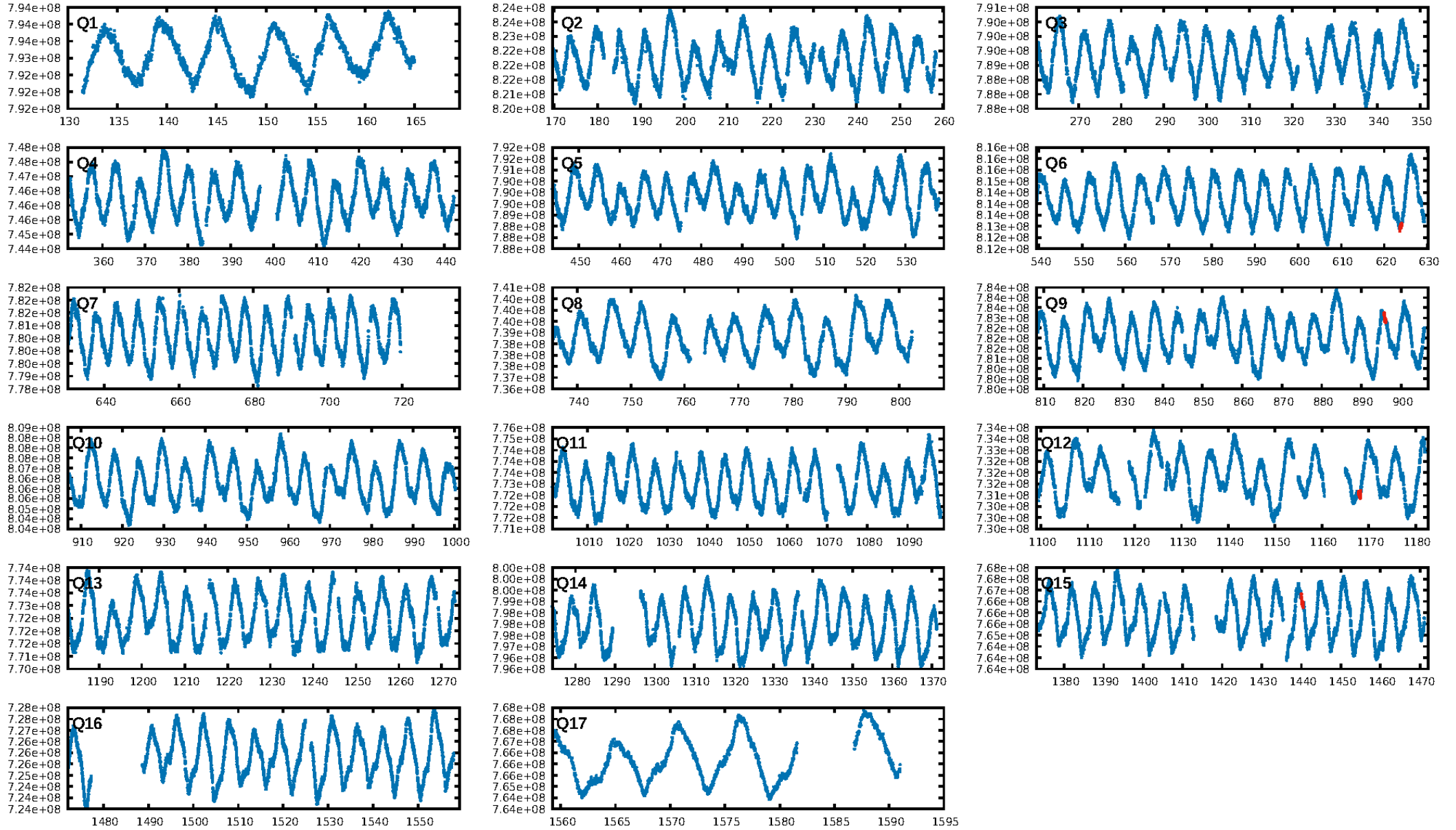
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.51σ]
LongPeriod-sig: 100.0% [900.95σ]
ModelChiSquare2-sig: 36.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 20.18
Centroid-sig: 45.6%
Centroid-so: 0.663 arcsec [1.08σ]
OotOffset-rm: 0.658 arcsec [0.93σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-rm: 0.764 arcsec [0.87σ]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.75 [3/4]

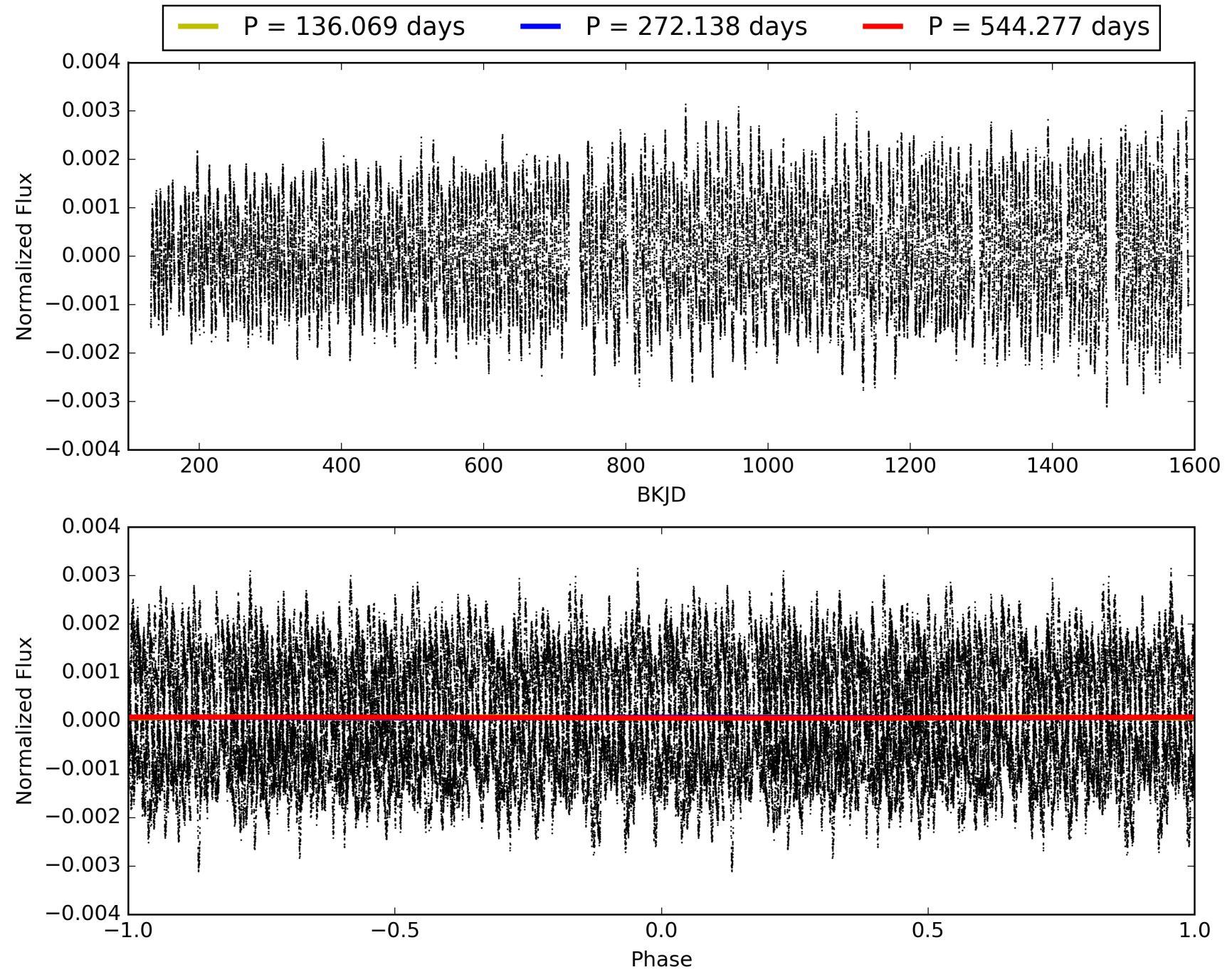
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:32:08 Z

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

TCE 005617510-09, PDC Light Curves

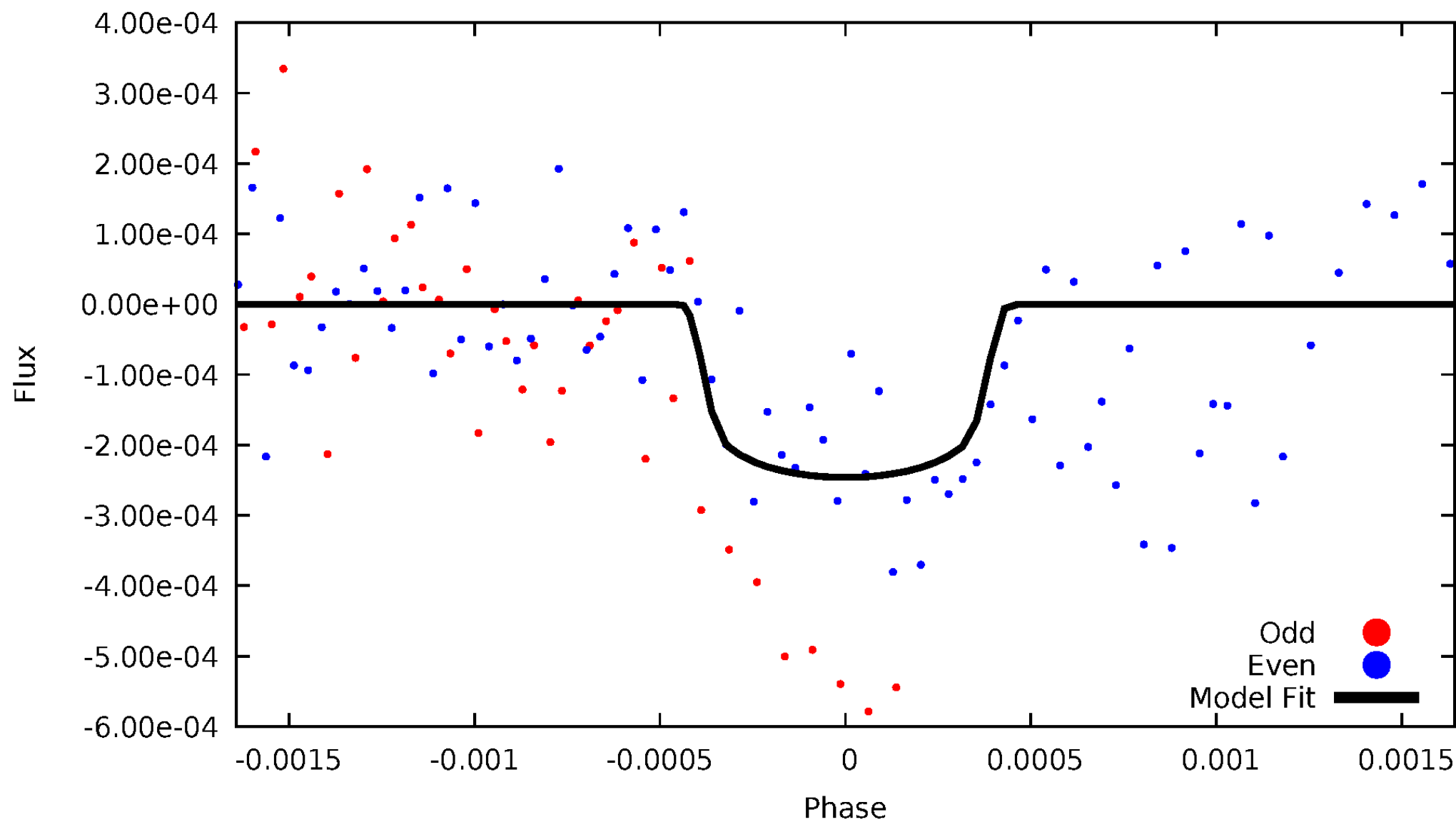


TCE 005617510-09



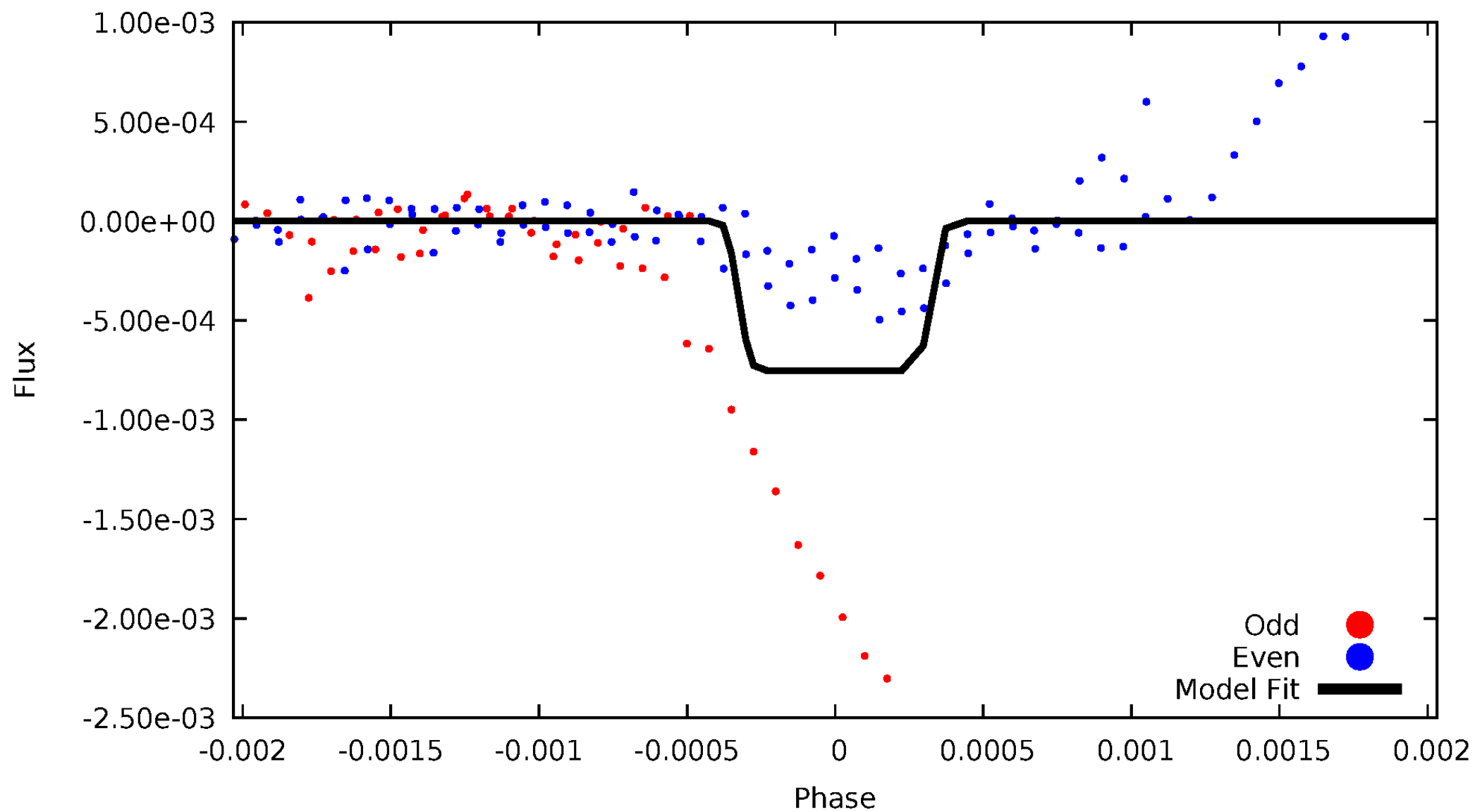
DV Odd/Even

TCE 005617510-09



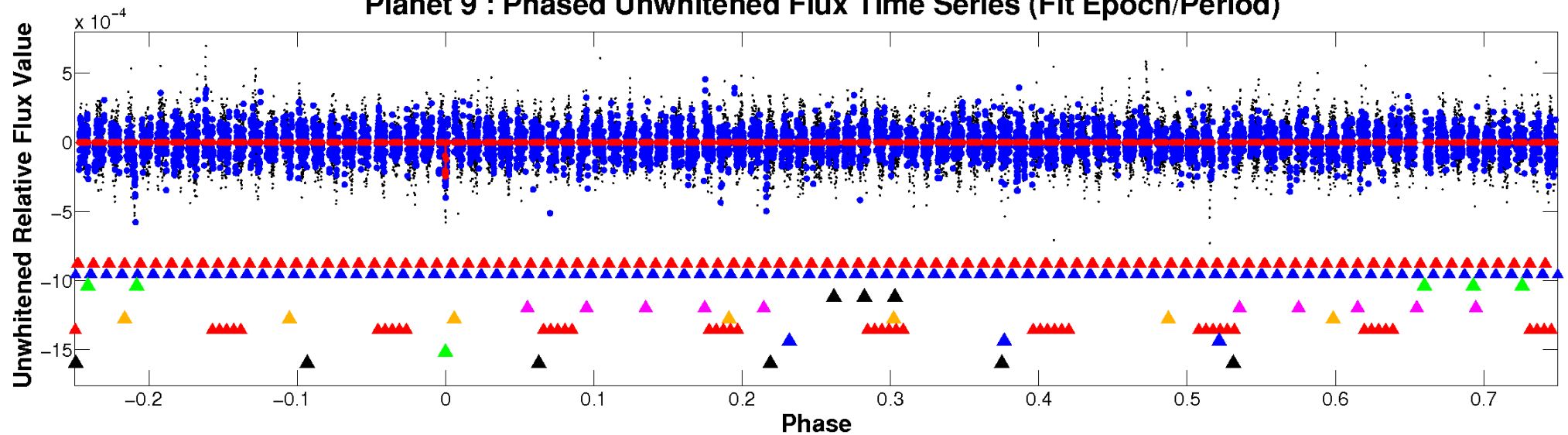
ALT Odd/Even

TCE 005617510-09

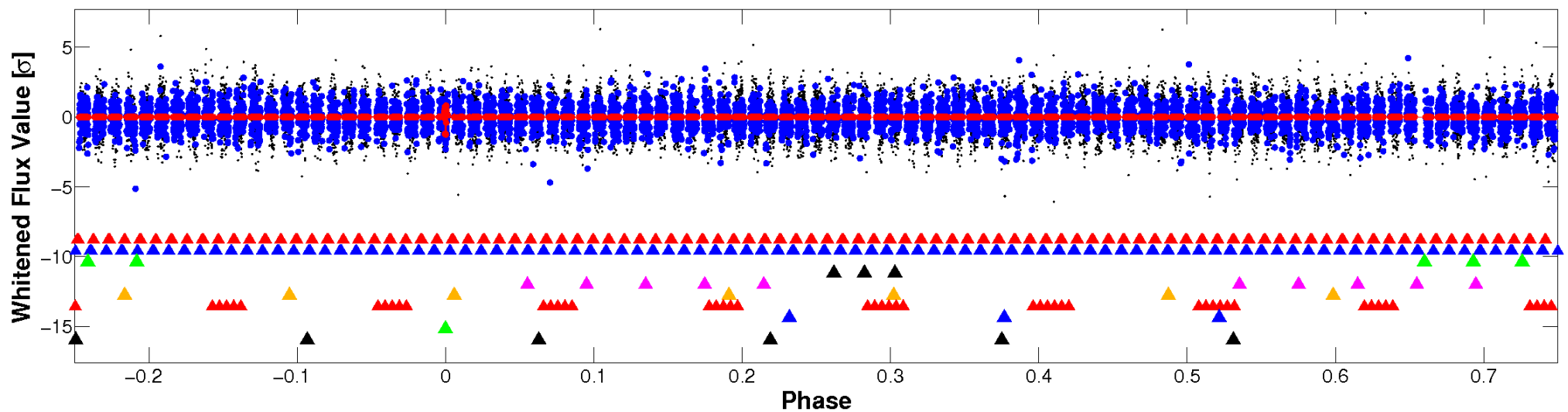


Non-Whitened Vs. Whitened Light Curve

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

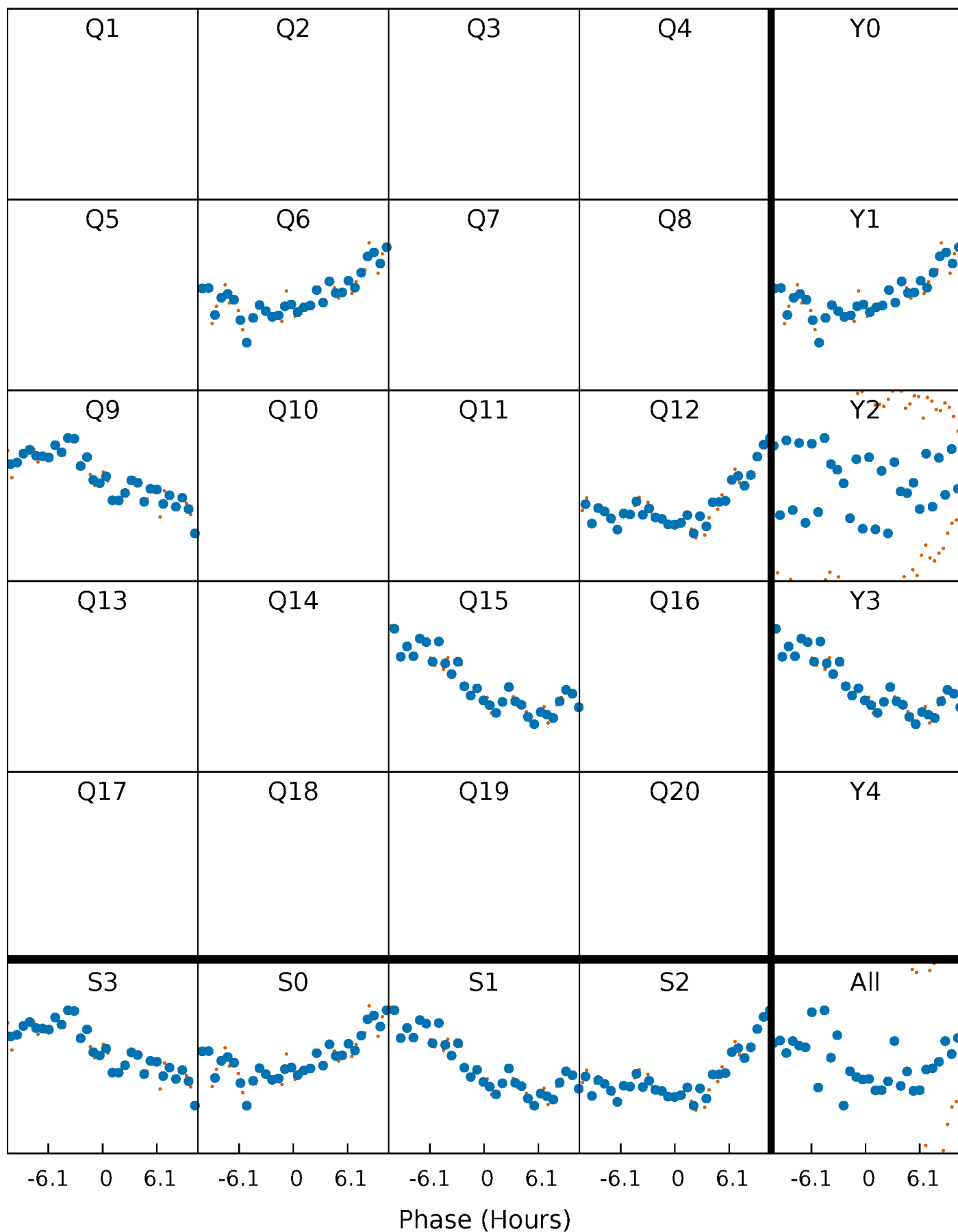


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



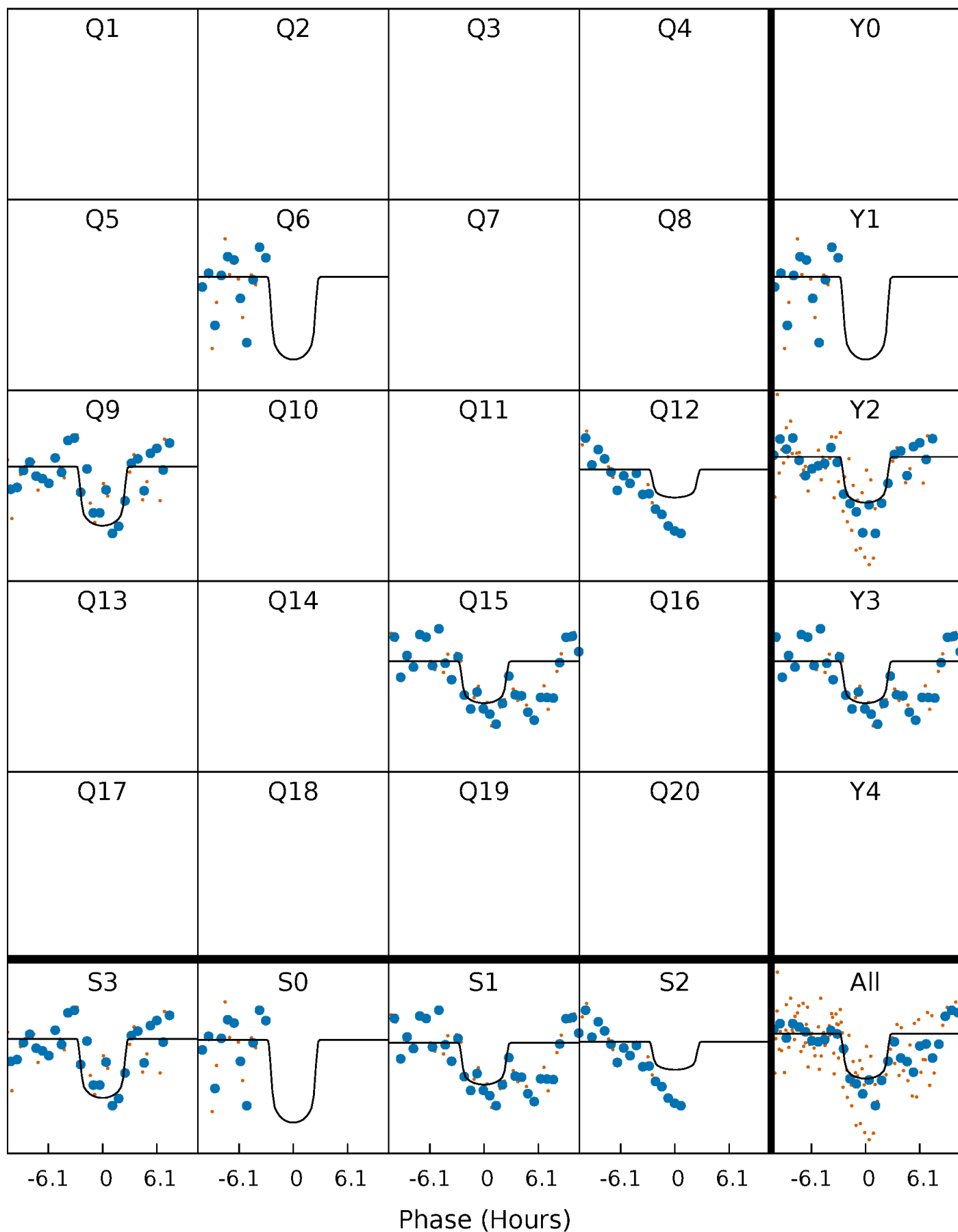
PDC Quarter-Phased Transit Curves

TCE 005617510-09 $P=272.138368$ Days $T_0=351.673939$ (BKJD)



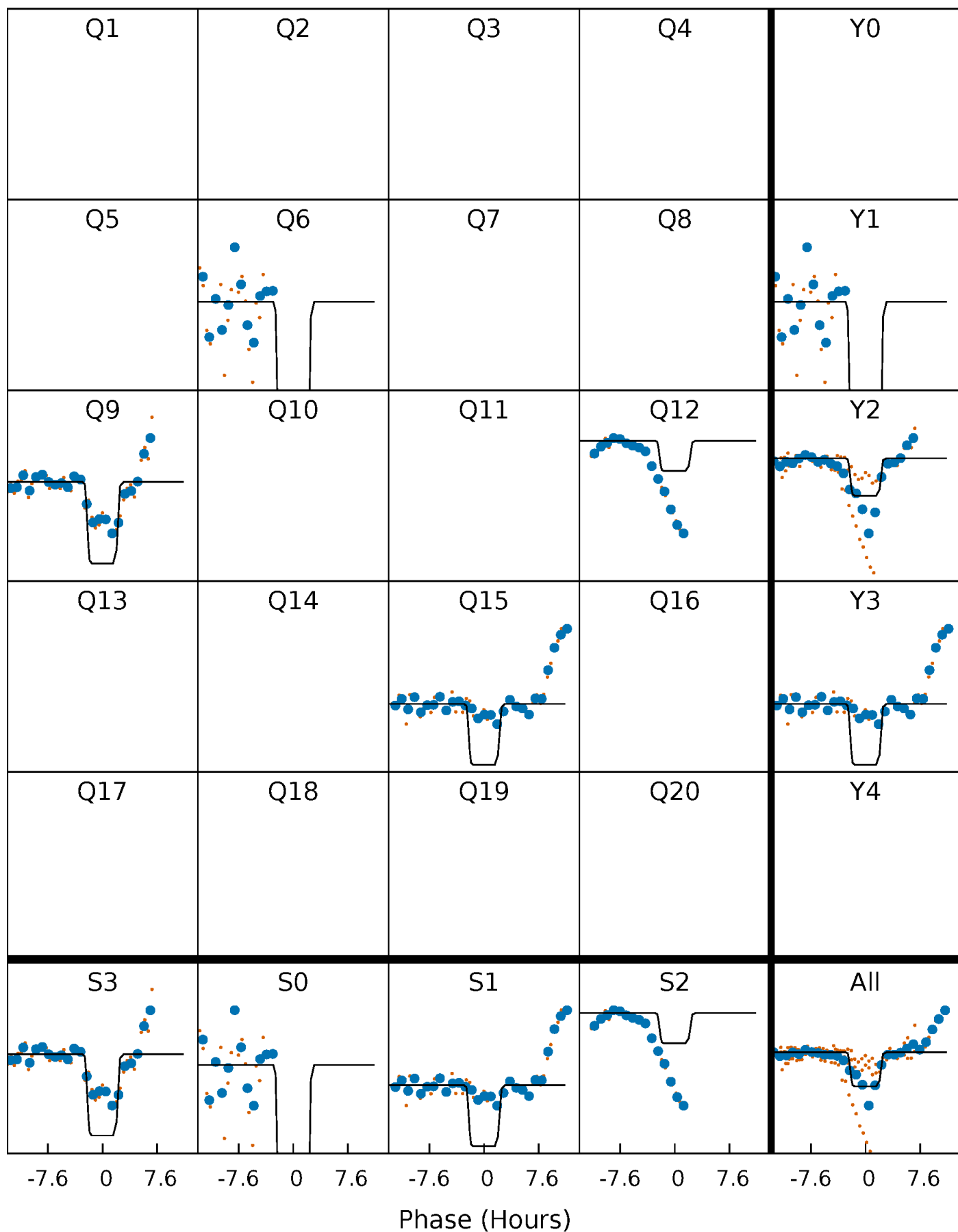
DV Quarter-Phased Transit Curves

TCE 005617510-09 $P=272.138368$ Days $T_0=351.673939$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

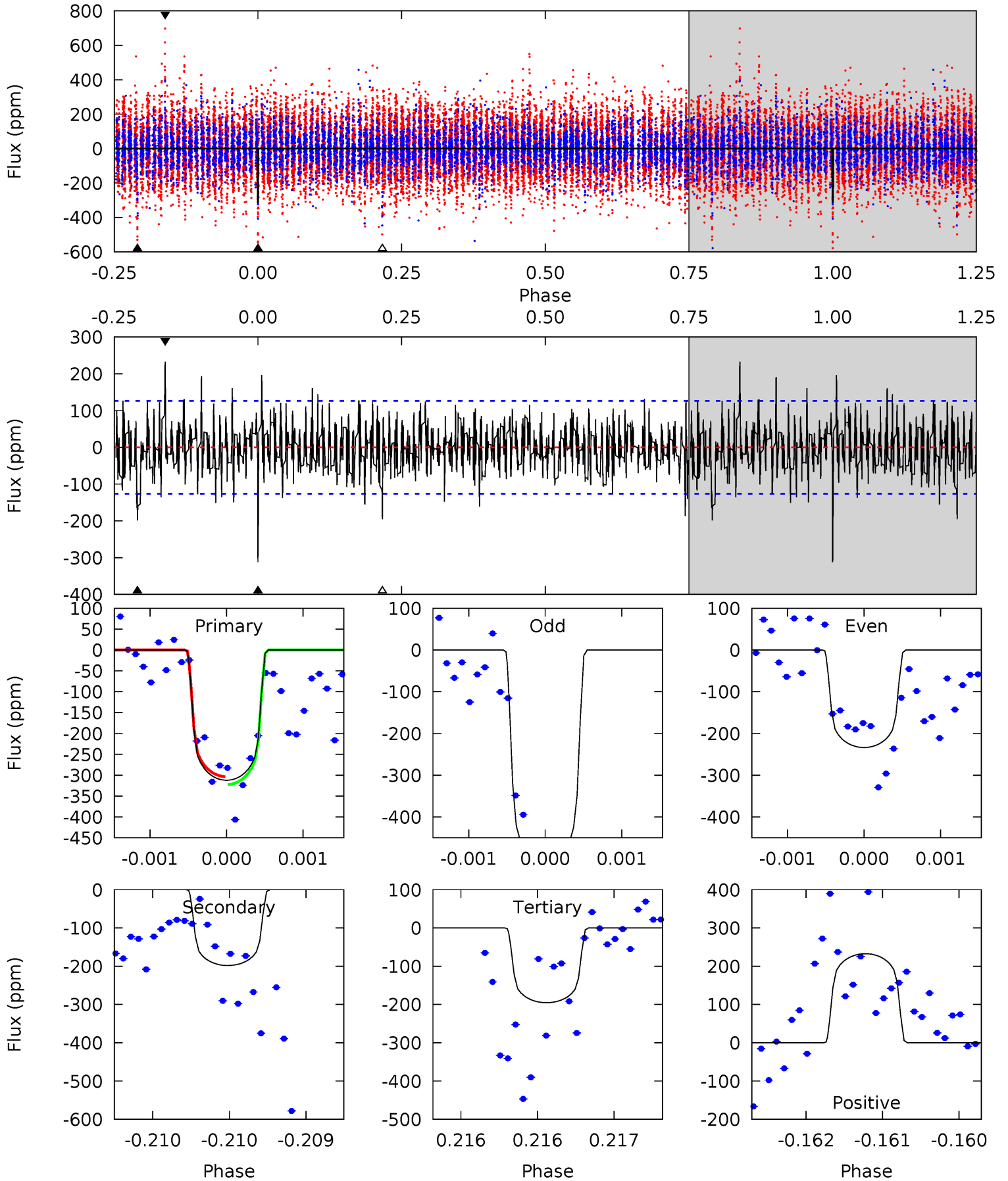
TCE 005617510-09 P=272.123551 Days $T_0=351.707948$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-09, P = 272.138368 Days, E = 79.535571 Days

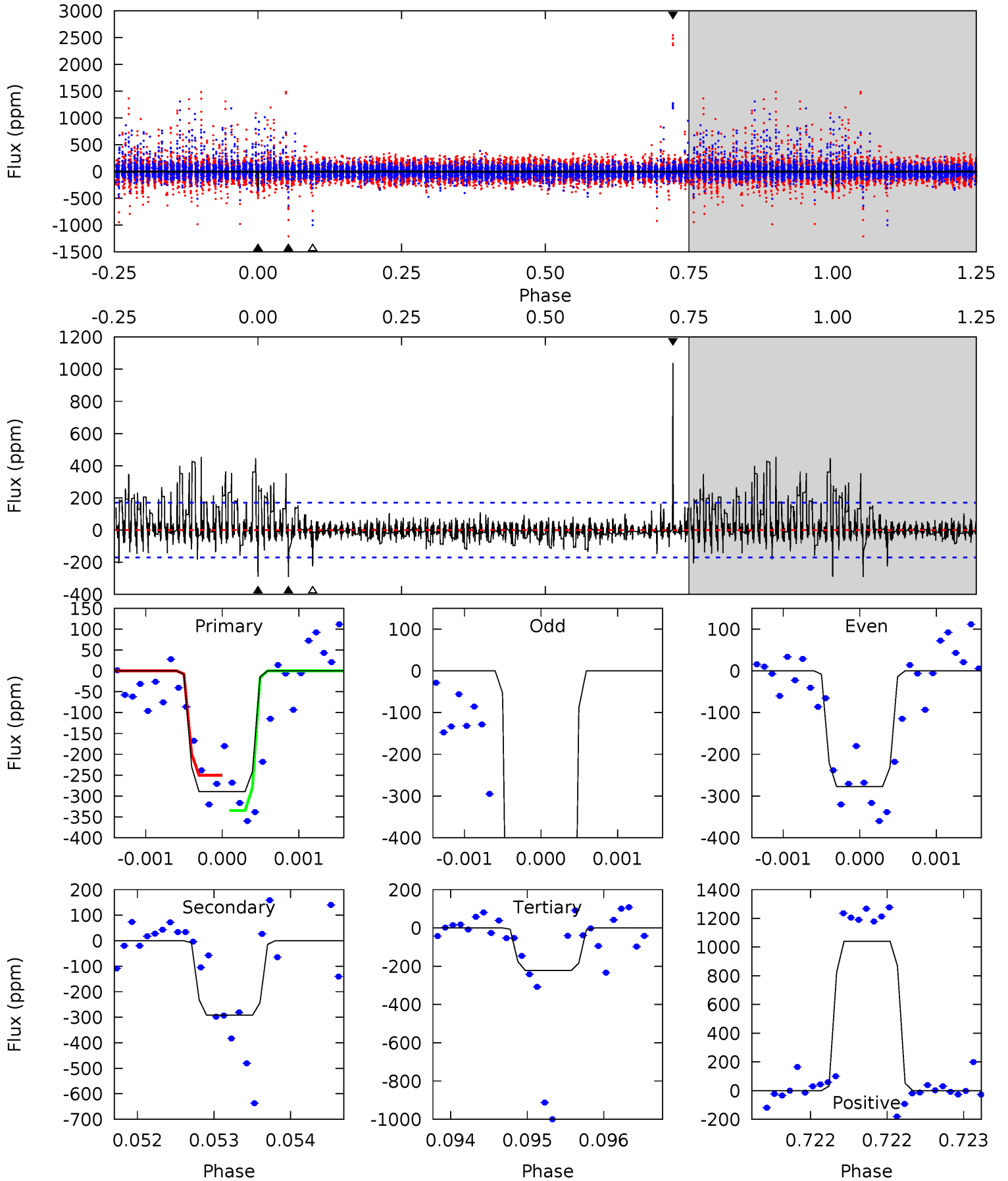
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	8.60	8.48	10.1	5.48	3.34	2.15	5.07	3.45	0.13	-1.50	5.42	1.17	0.43	0.41



Alt Model-Shift Uniqueness Test

005617510-09, P = 272.123551 Days, E = 79.584397 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.35	9.43	7.16	33.6	5.50	3.37	1.84	2.19	-24.3	2.27	-24.2	22.3	2.01	0.78	1.37



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-198 ± 23	$3.78^{+1.52}_{-1.50}$	594^{+28}_{-38}	5871^{+1800}_{-816}	6808^{+11842}_{-3418}
Alt.	-292 ± 31	$6.15^{+1.61}_{-1.41}$	591^{+28}_{-33}	5158^{+613}_{-456}	3744^{+2752}_{-1435}

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 $A_{obs} \gg 1.0$

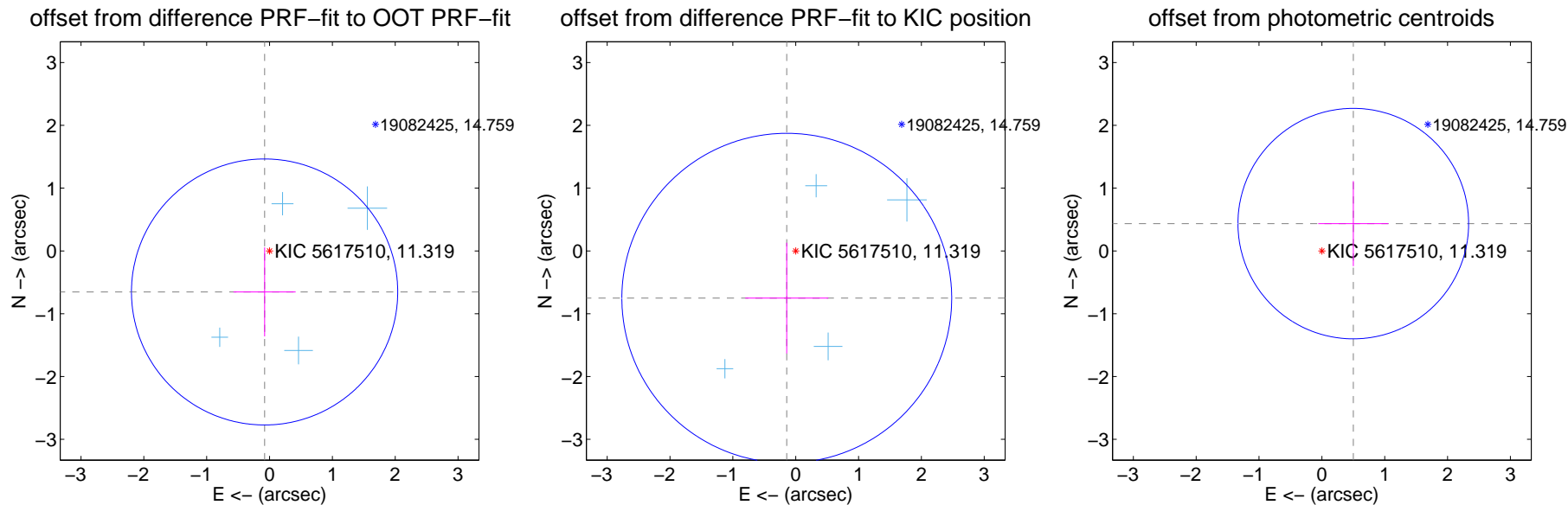
DV Centroid Data

Supplemental centroid analysis for 005617510-09. **Kepler magnitude: 11.32.** Transit SNR 6.85

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.658 ± 0.706	0.93	0.079 ± 0.495	-0.653 ± 0.709
PRF-fit source offset from KIC position	0.764 ± 0.875	0.87	0.142 ± 0.659	-0.751 ± 0.881
photometric centroid source offset	0.66 ± 0.61	1.08	-0.50 ± 0.56	0.44 ± 0.68

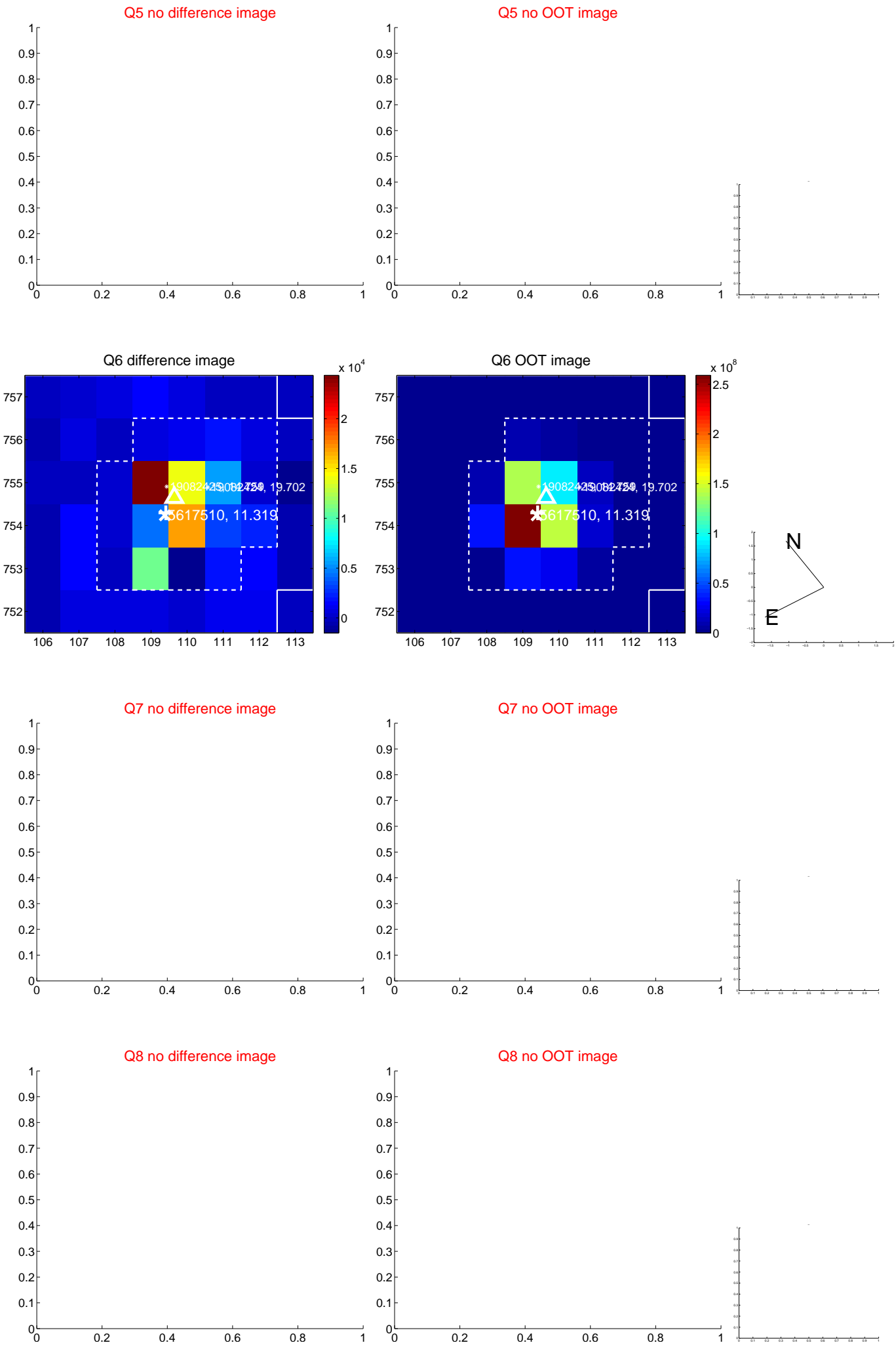


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

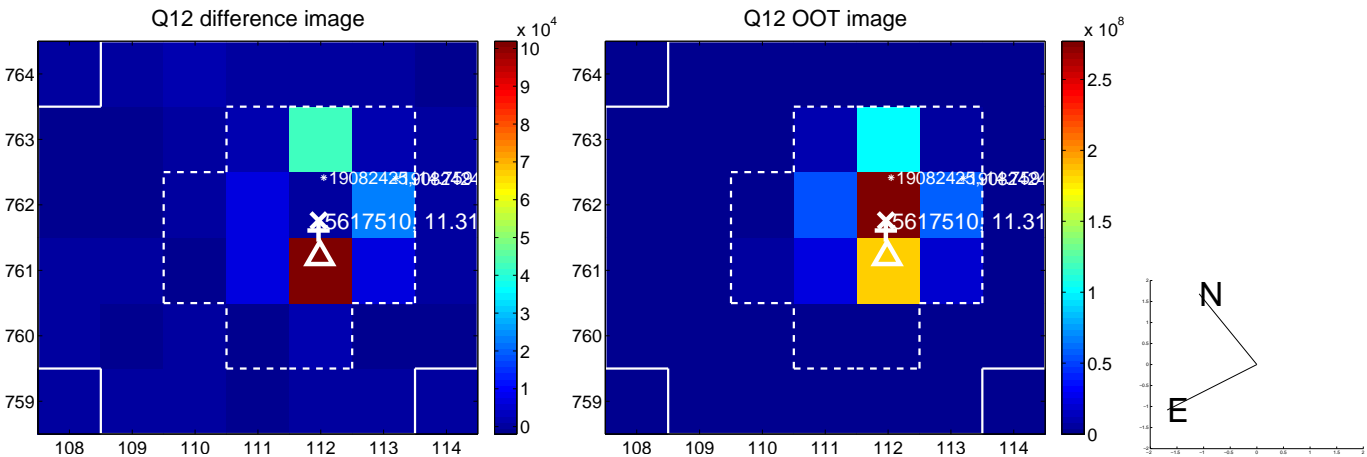
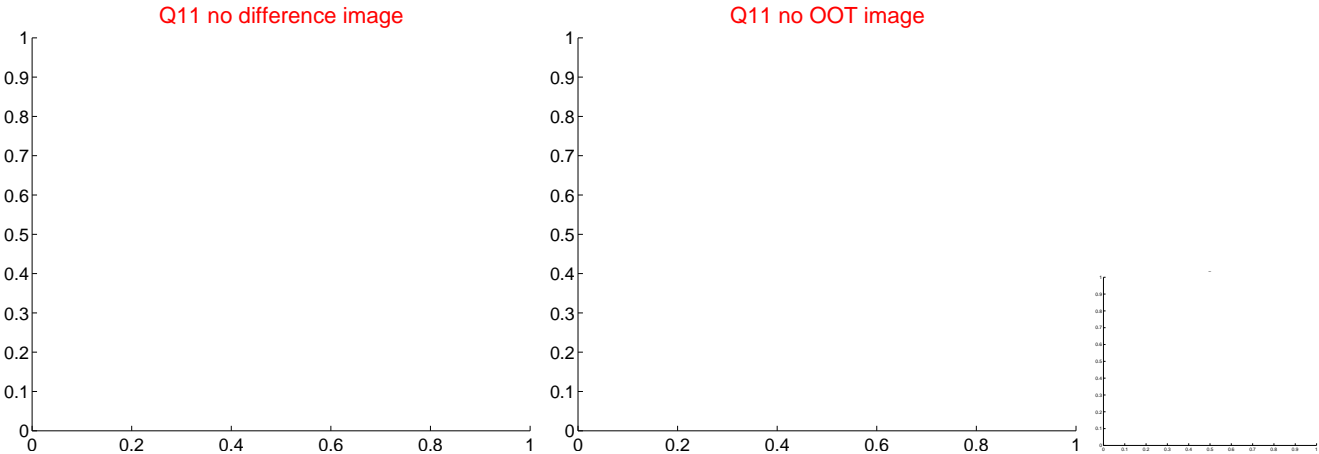
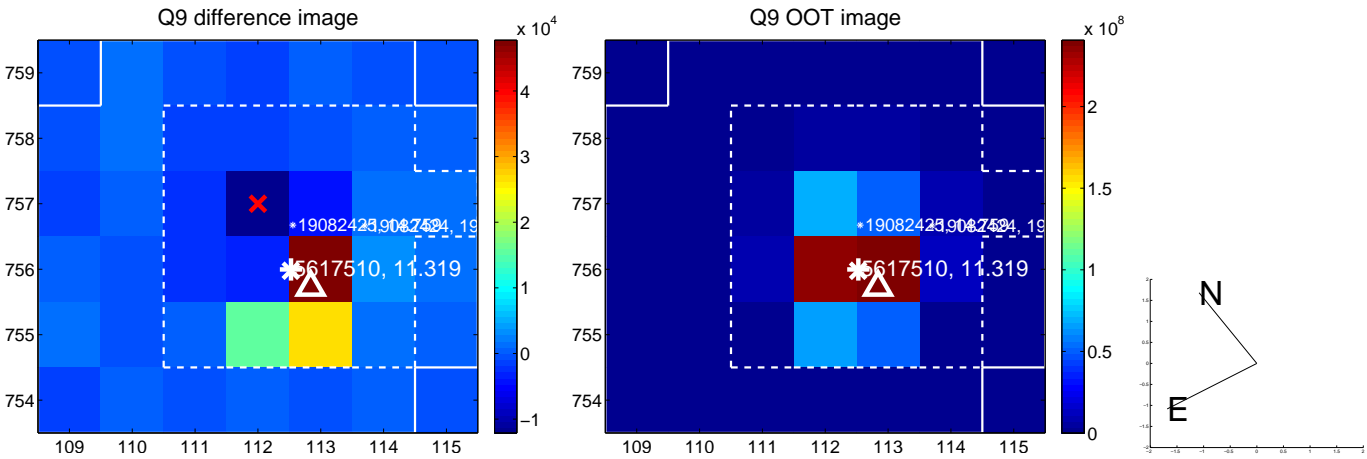
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



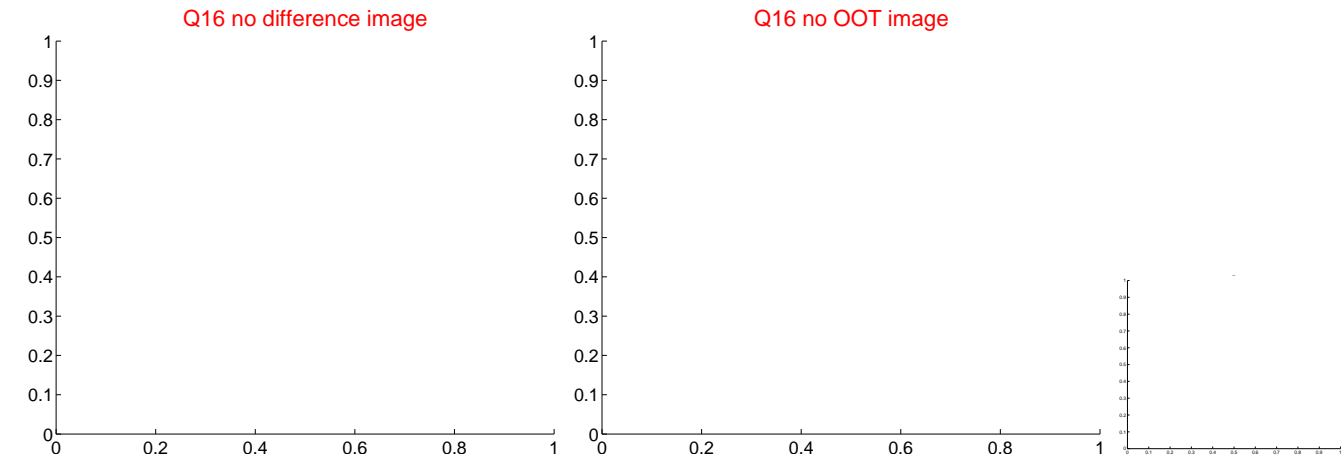
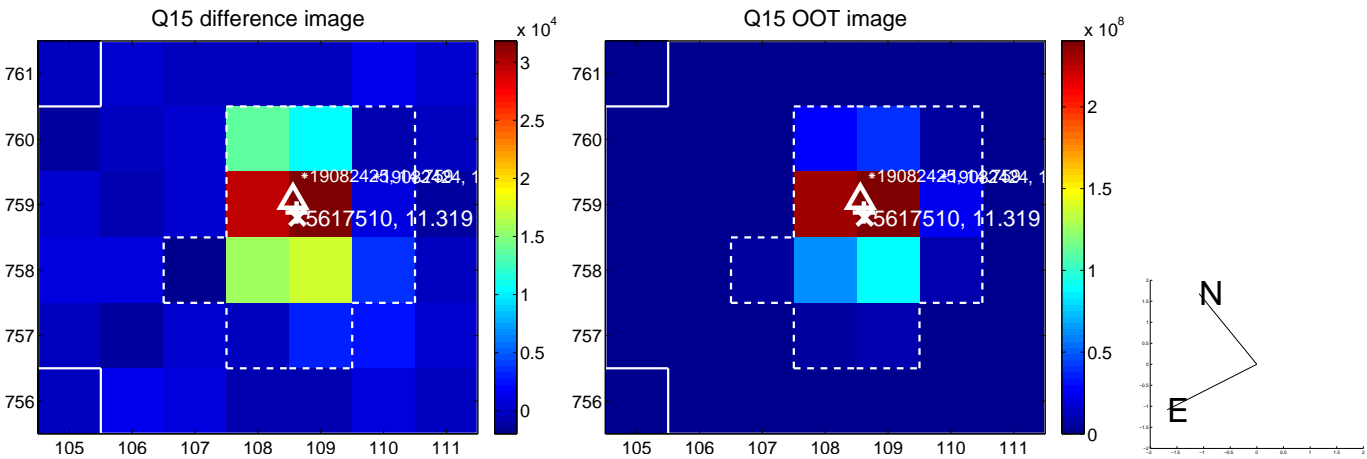
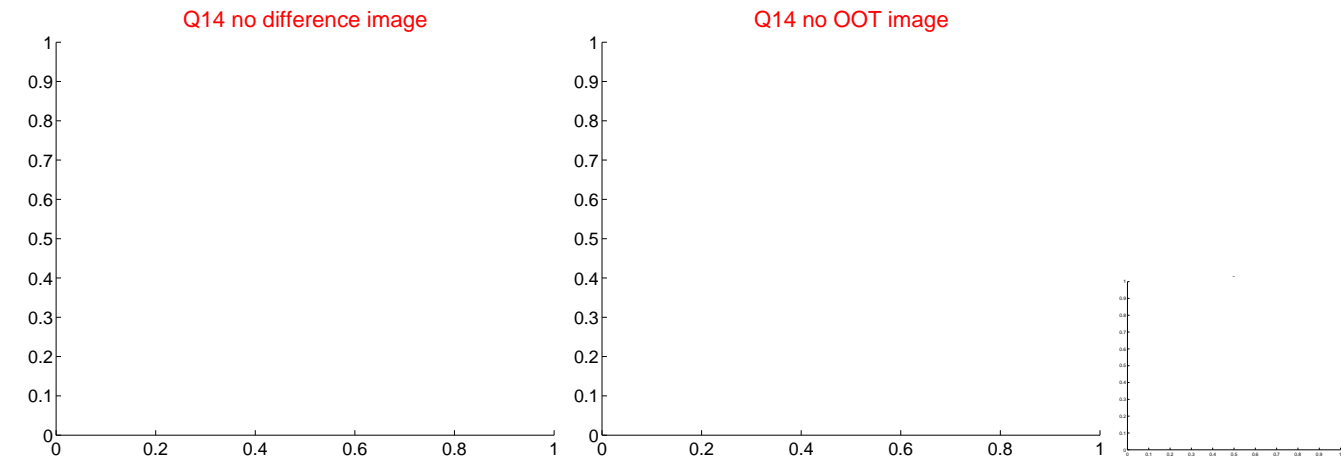
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



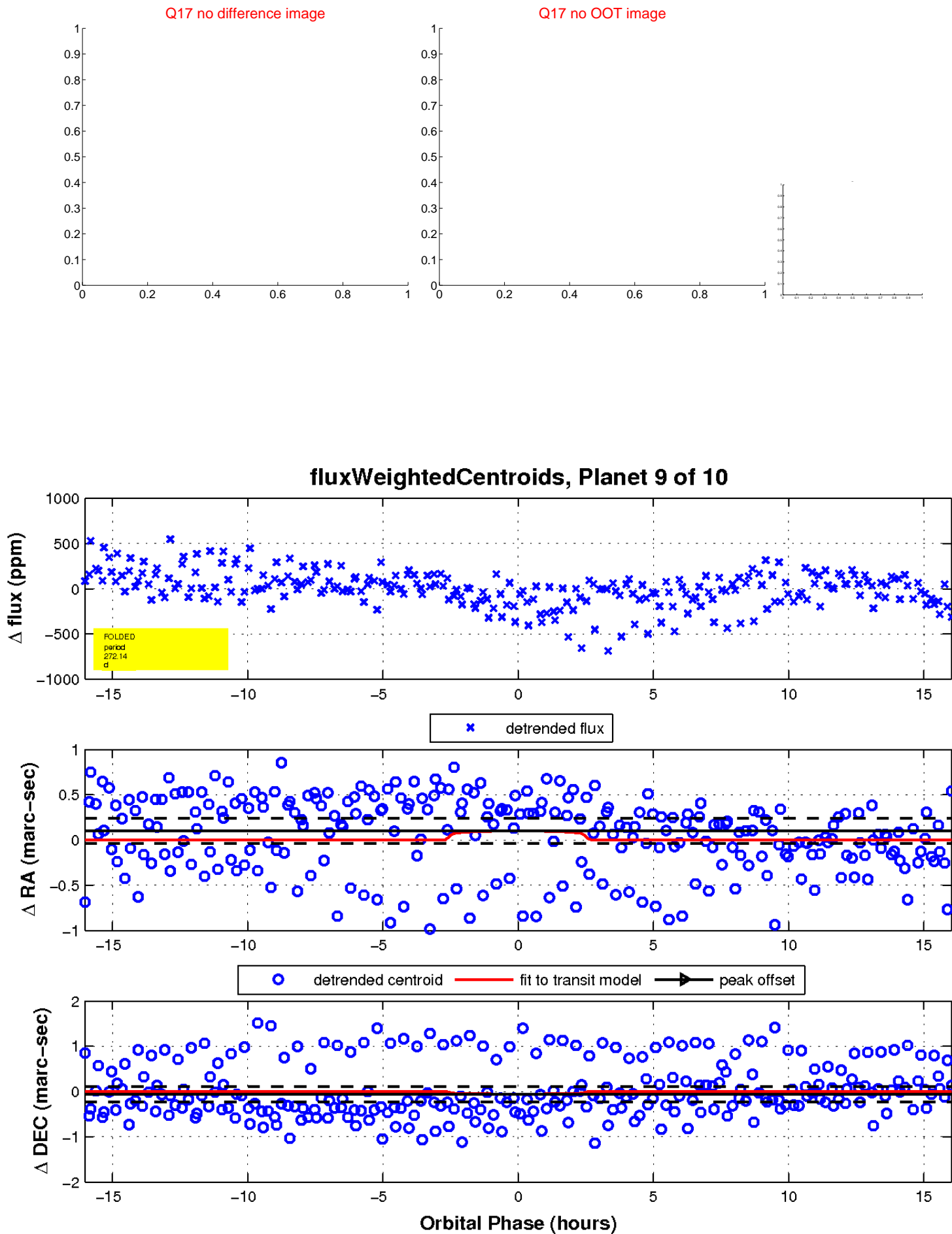
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

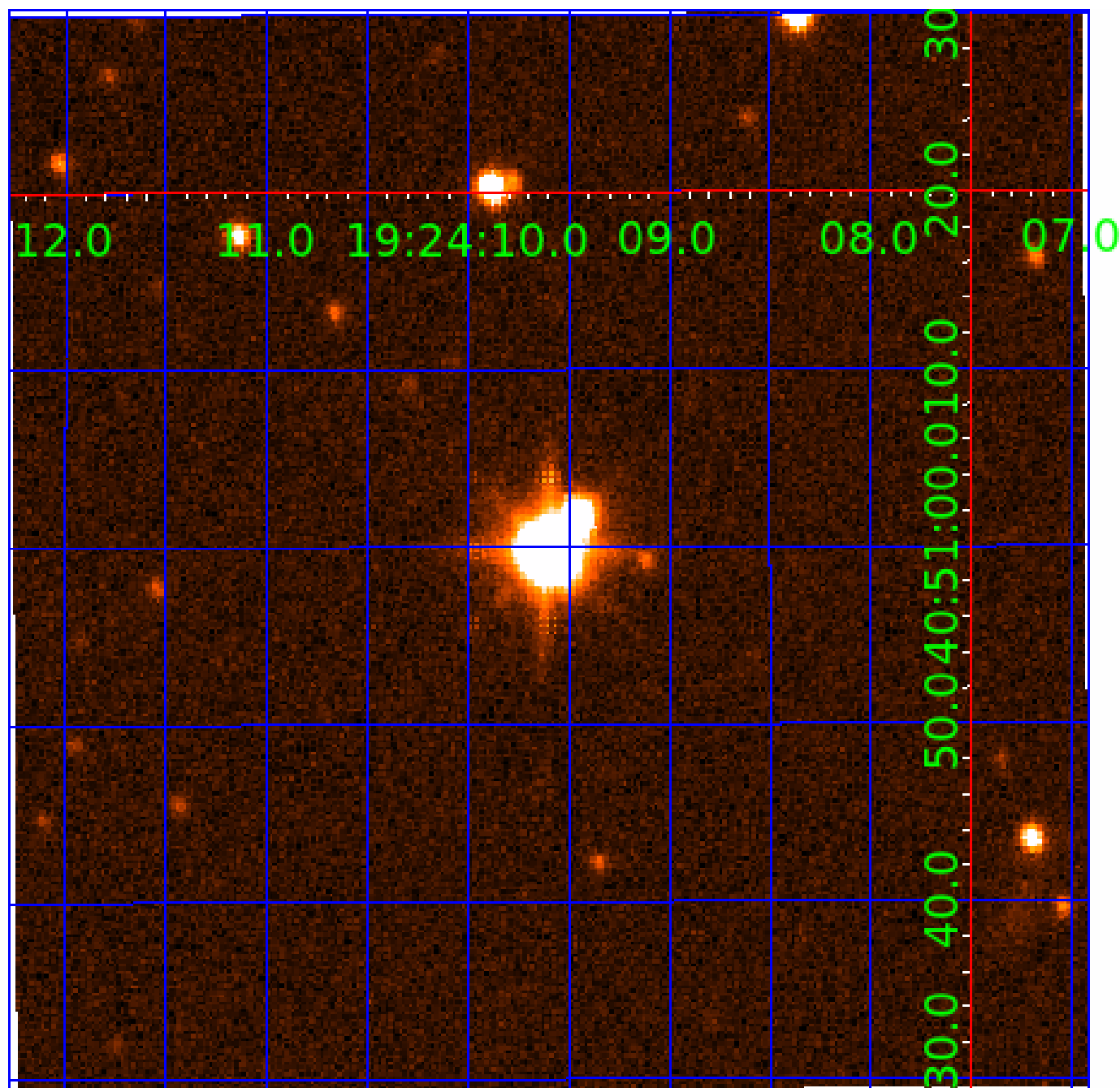


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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})
005617510-01	OBS	No	5.730639	135.079479	35.4	15.688	8.1	6.5	2.16	6418	1.41	1358.49
005617510-02	OBS	No	5.730917	131.686455	38.6	13.261	10.1	8.4	2.16	6418	1.59	1358.41
005617510-03	OBS	No	263.170630	295.027152	72.7	15.000	10.6	-1.0	2.16	6418	1.84	8.26
005617510-04	OBS	No	549.870619	150.810134	83.2	2.119	9.2	2.1	2.16	6418	2.20	3.09
005617510-05	OBS	No	141.489200	225.231254	235.7	6.595	8.7	8.4	2.16	6418	3.77	18.90
005617510-06	OBS	No	191.503452	292.810670	316.5	4.916	7.7	7.7	2.16	6418	6.50	12.62
005617510-07	OBS	No	30.382848	156.988238	54.3	9.000	8.9	-1.0	2.16	6418	1.59	146.95
005617510-09	OBS	No	272.138368	351.673939	246.0	5.361	7.7	6.9	2.16	6418	3.83	7.90
005617510-10	OBS	No	229.657626	224.099611	142.6	10.959	7.7	5.1	2.16	6418	2.72	9.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005617510-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
005617510-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
005617510-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005617510-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—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—CENT_SATURATED
005617510-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_SATURATED—HALO_GHOST
005617510-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-07	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
005617510-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005617510-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

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

Ephemeris Match Information For 005617510-10

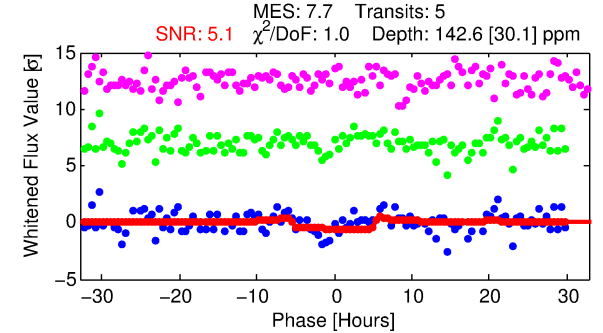
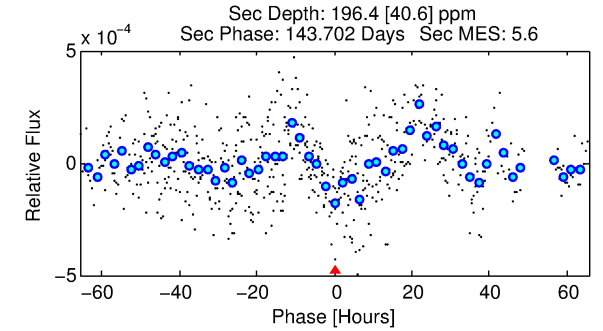
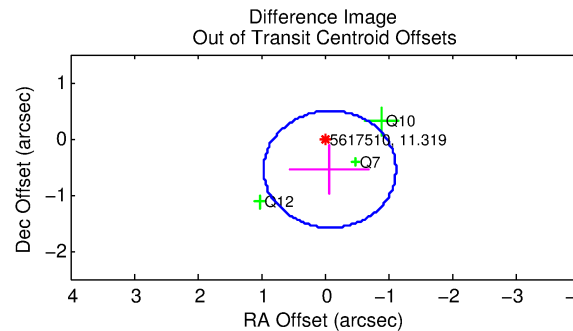
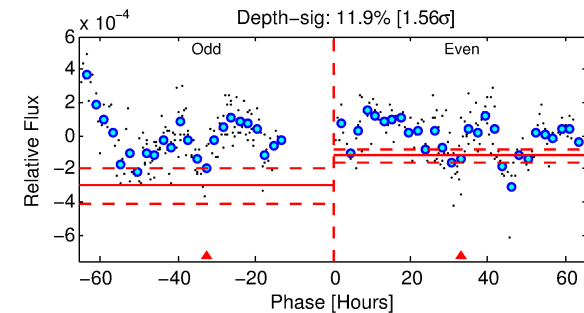
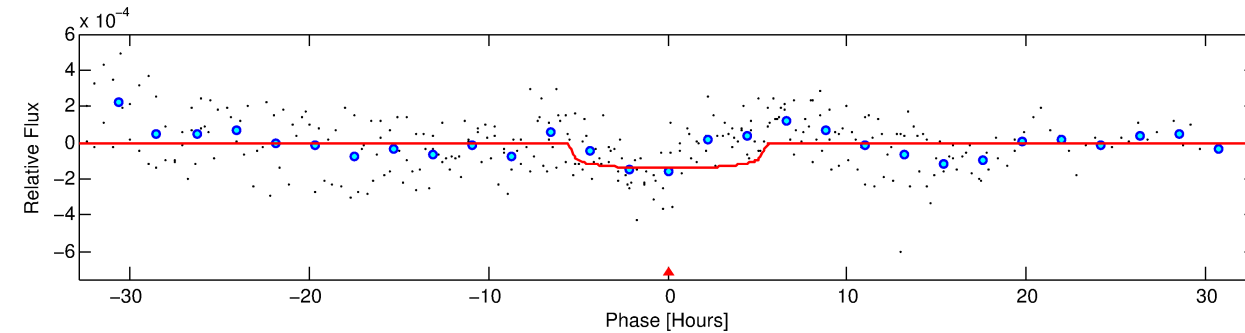
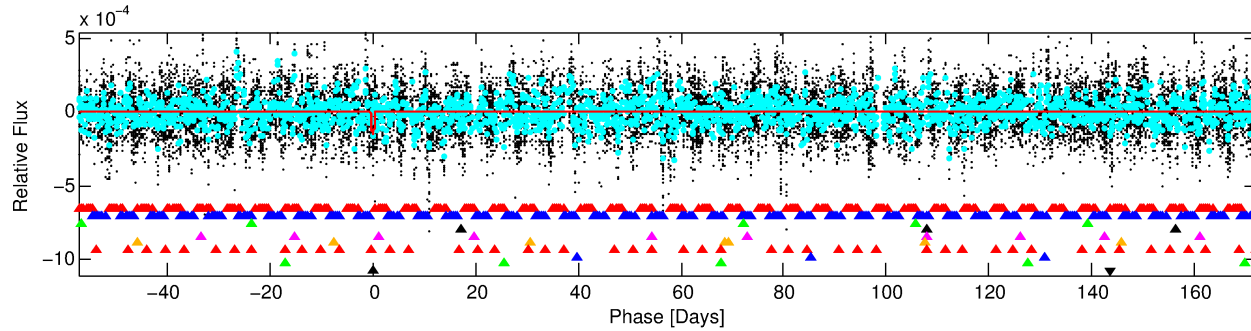
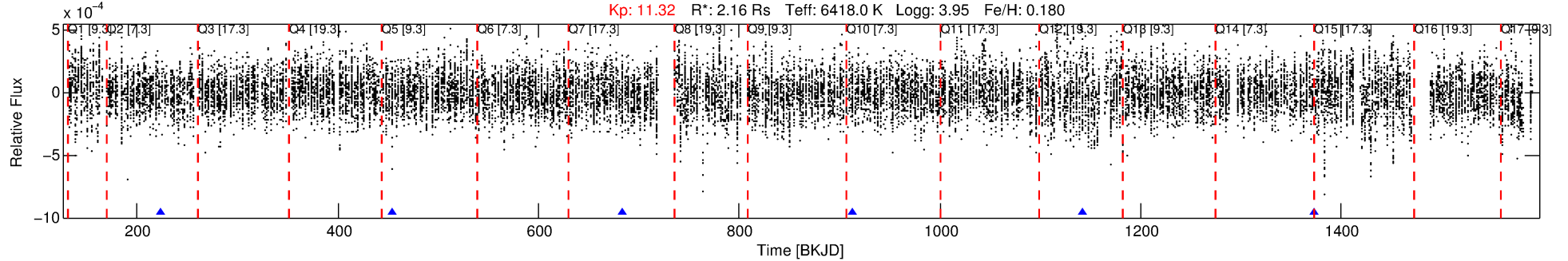
No Significant Match Found

DV One-Page Summary

KIC: 5617510 Candidate: 10 of 10 Period: 229.658 d

KOI: K06605 Corr: No Ephemeris Match

Kp: 11.32 R*: 2.16 Rs Teff: 6418.0 K Logg: 3.95 Fe/H: 0.180



DV Fit Results:

Period = 229.65763 [0.00898] d
Epoch = 224.0996 [0.0201] BKJD
Rp/R* = 0.0115 [0.0073]
a/R* = 125.75 [404.30]
b = 0.64 [3.01]
Seff = 9.91 [3.33]
Teq = 452 [38] K
Rp = 2.72 [1.86] Re
a = 0.8458 [0.1872] AU
Ag = 10470.96 [13920.01] [0.75σ]
Teffp = 7075 [2279] K [2.91σ]

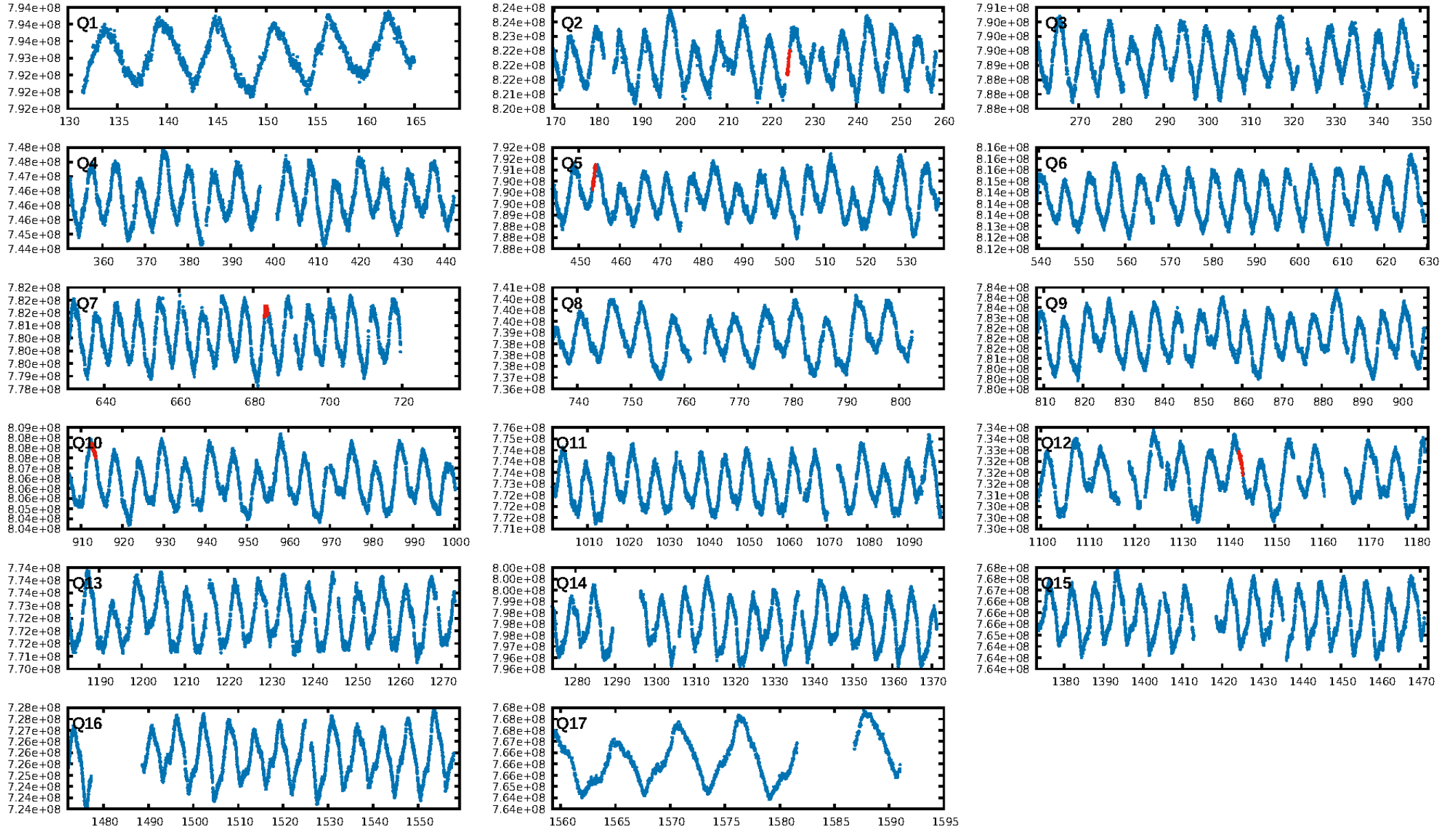
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [76.24σ]
LongPeriod-sig: 100.0% [43.30σ]
ModelChiSquare2-sig: 95.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.6984
Centroid-sig: 0.3%
Centroid-so: 2.456 arcsec [2.64σ]
OotOffset-rm: 0.552 arcsec [1.59σ]
KicOffset-rm: 0.455 arcsec [0.90σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.75 [3/4]

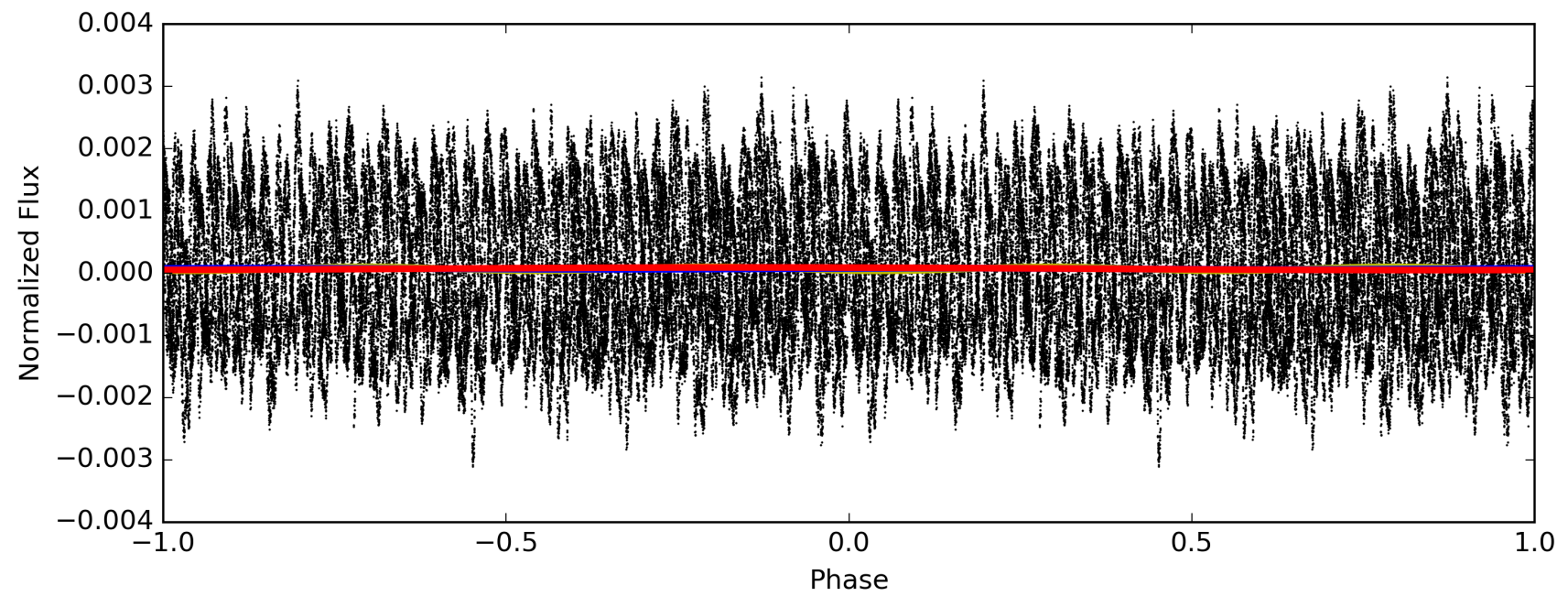
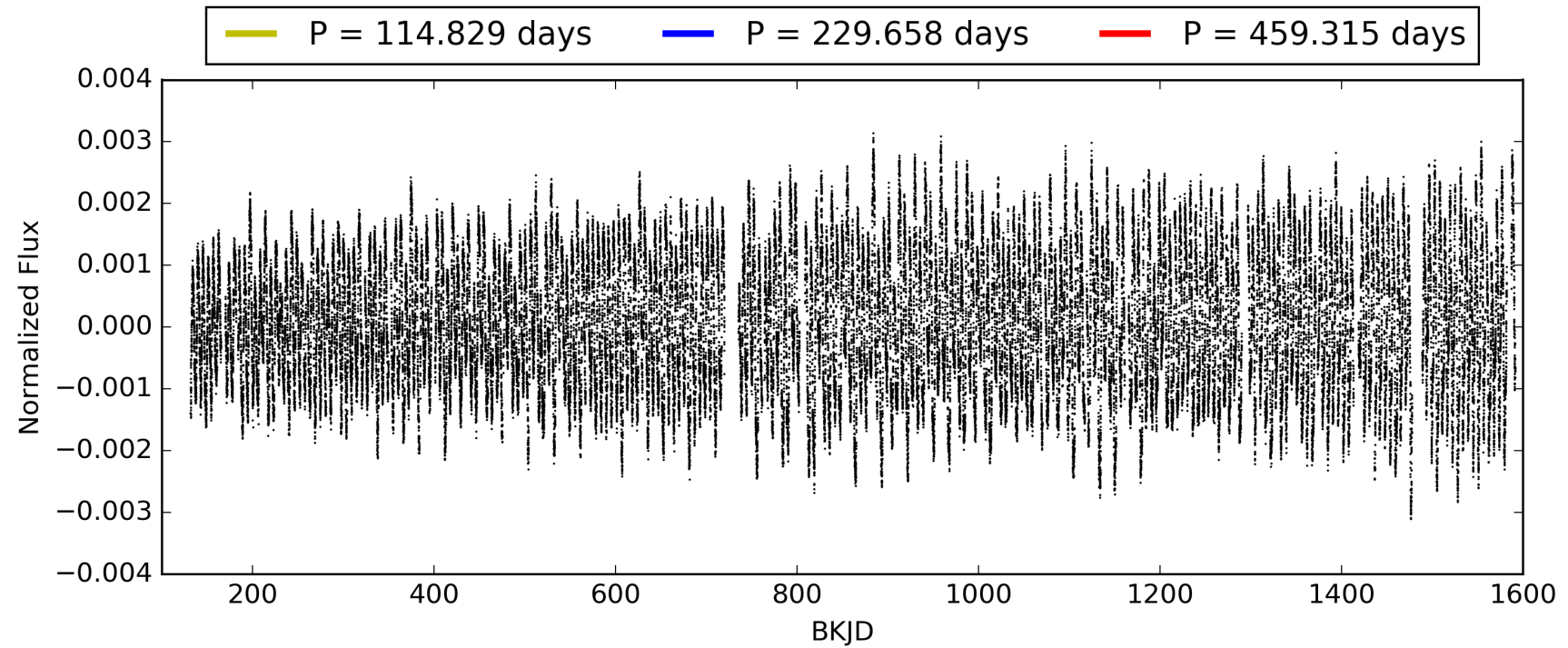
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:32:12 Z

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

TCE 005617510-10, PDC Light Curves

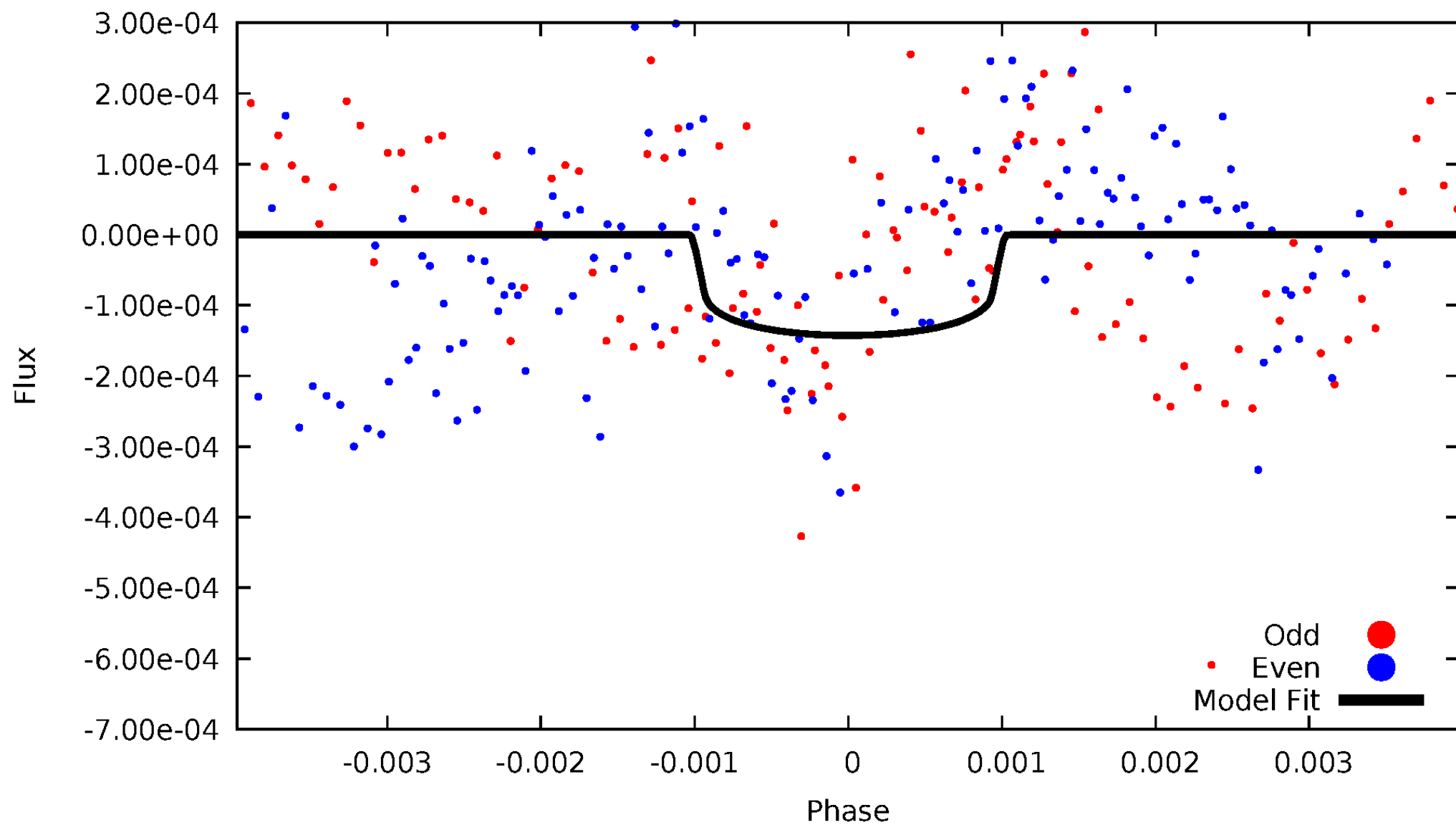


TCE 005617510-10



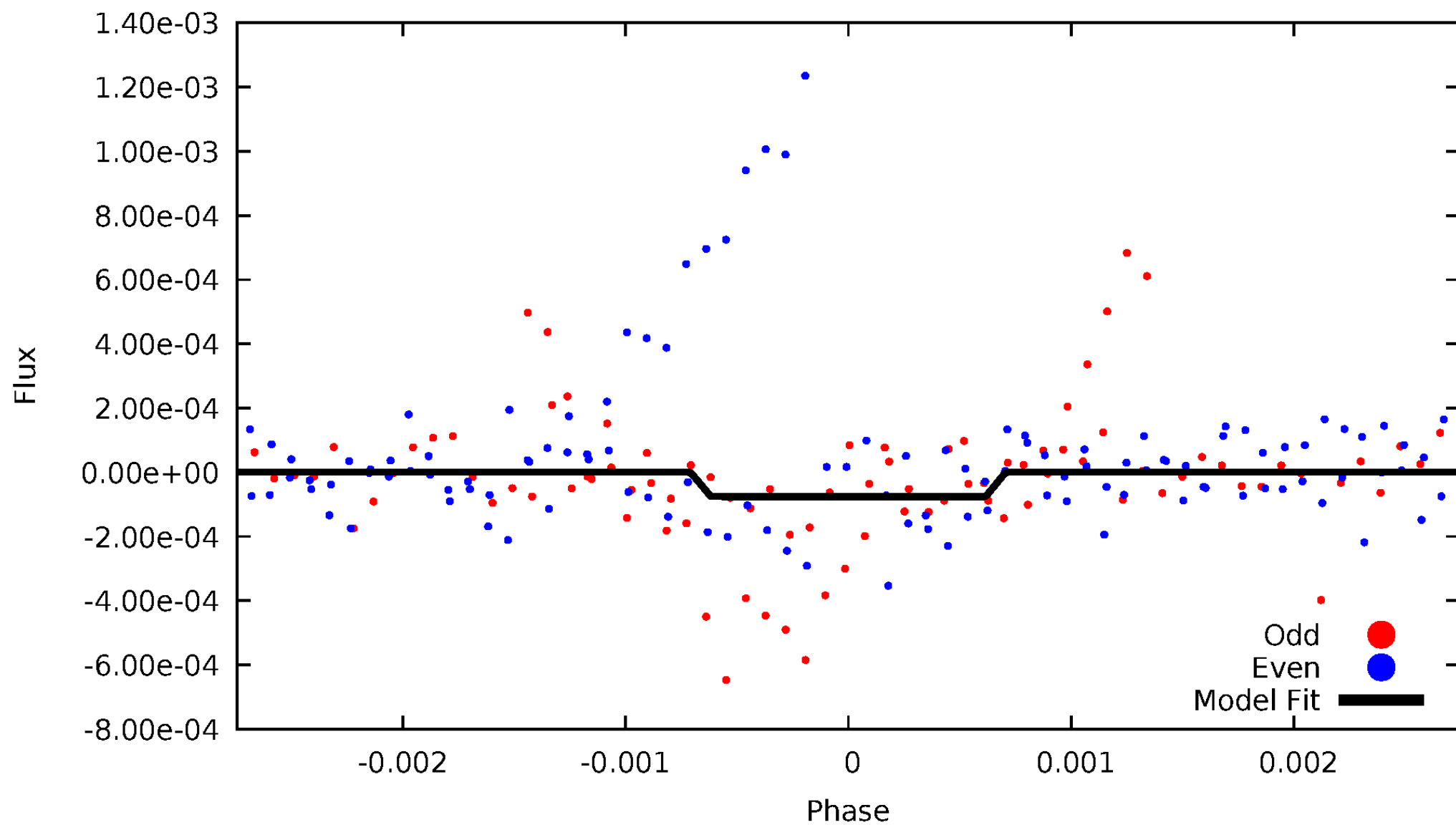
DV Odd/Even

TCE 005617510-10



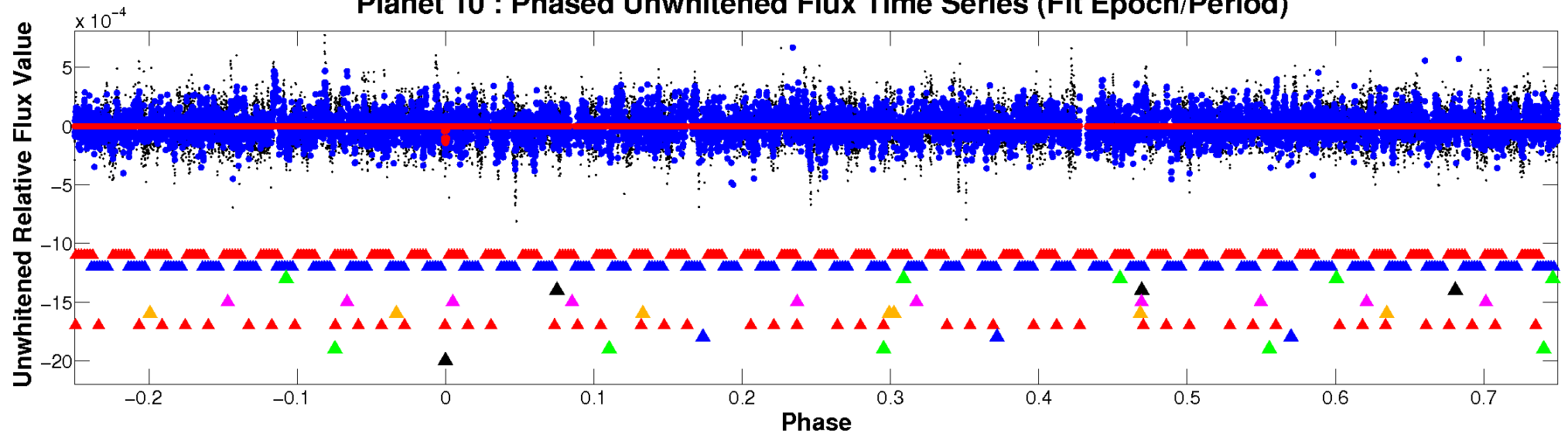
ALT Odd/Even

TCE 005617510-10

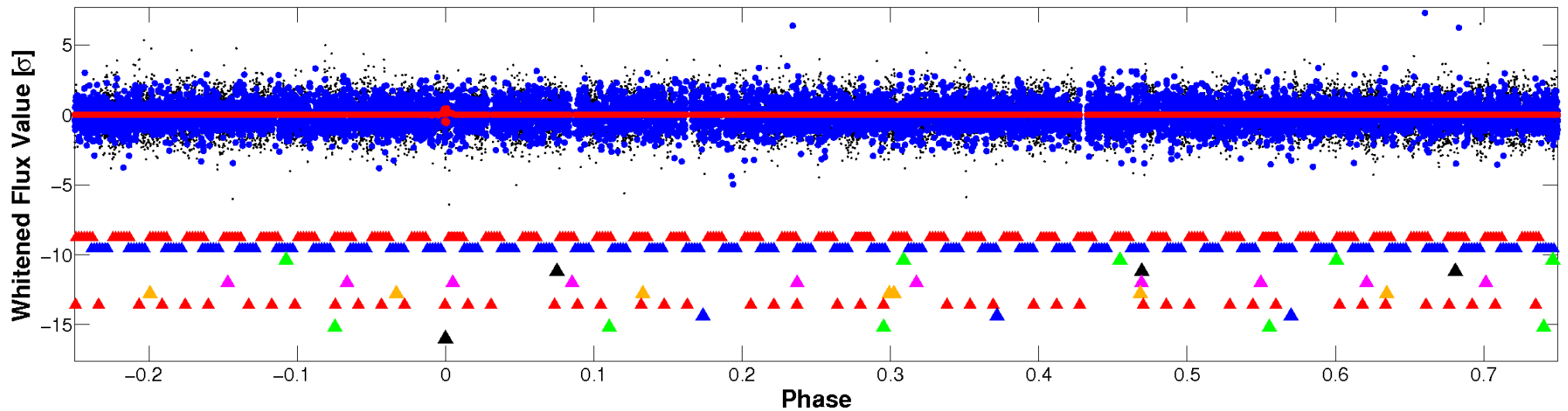


Non-Whitened Vs. Whitened Light Curve

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

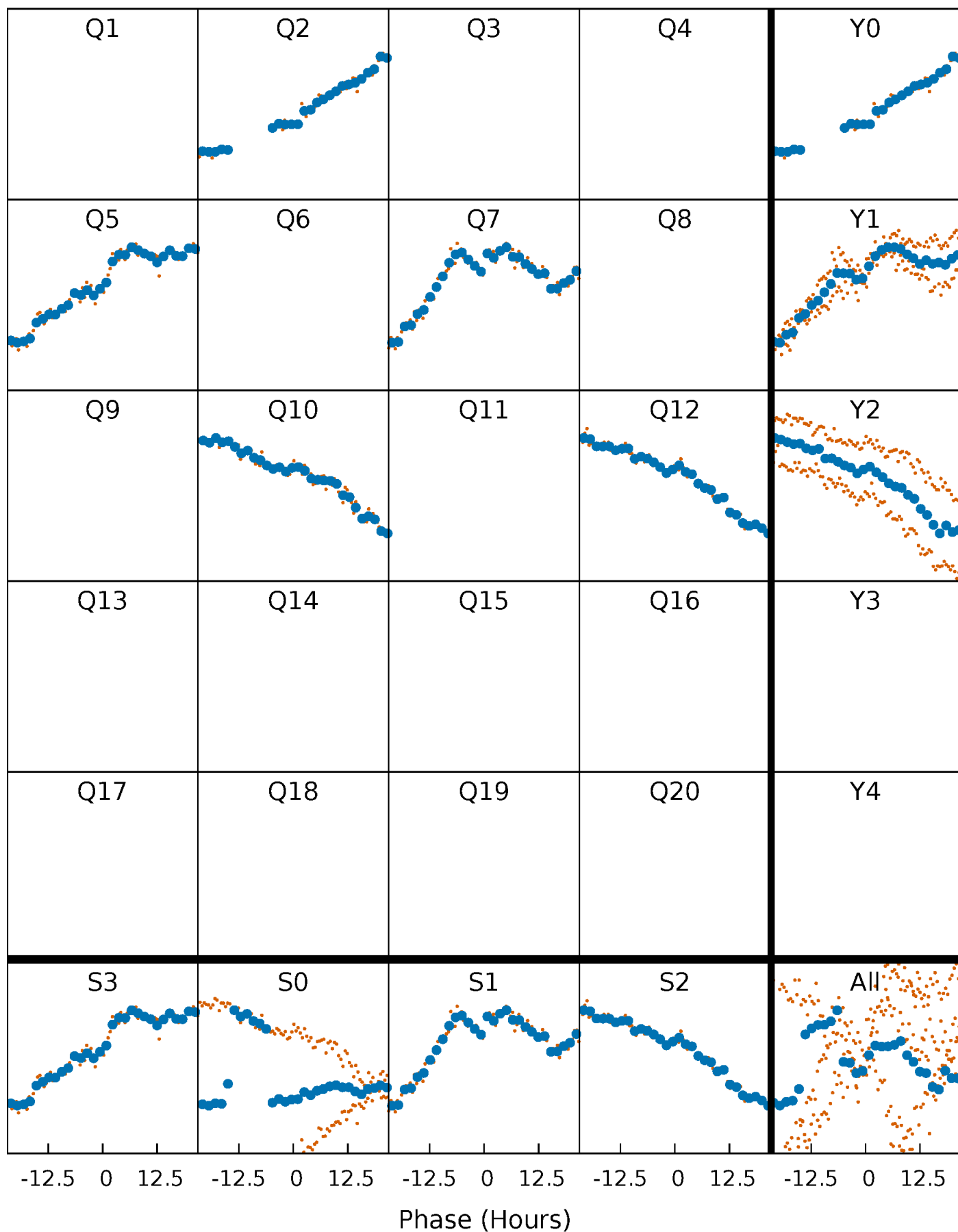


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



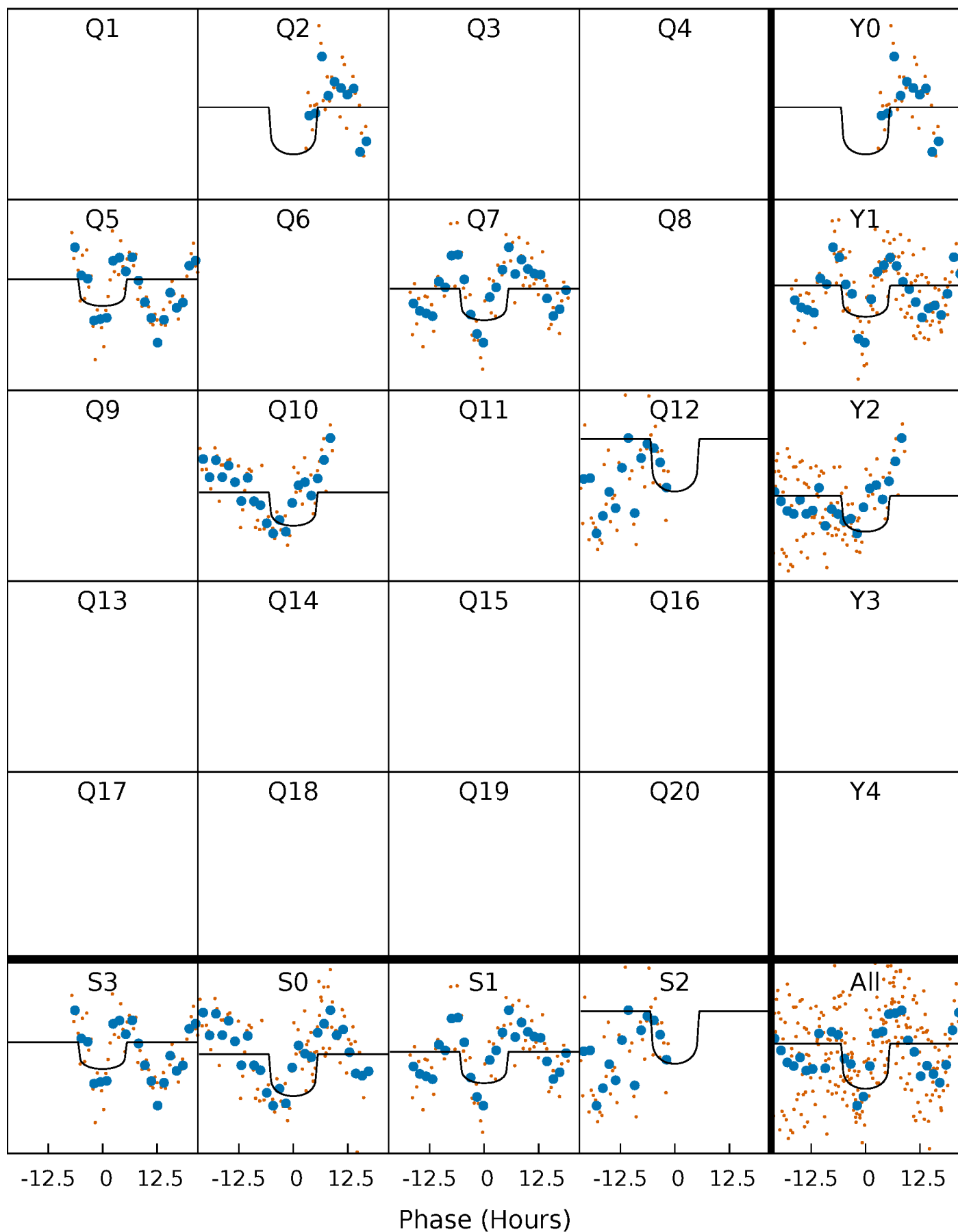
PDC Quarter-Phased Transit Curves

TCE 005617510-10 $P=229.657626$ Days $T_0=224.099611$ (BKJD)



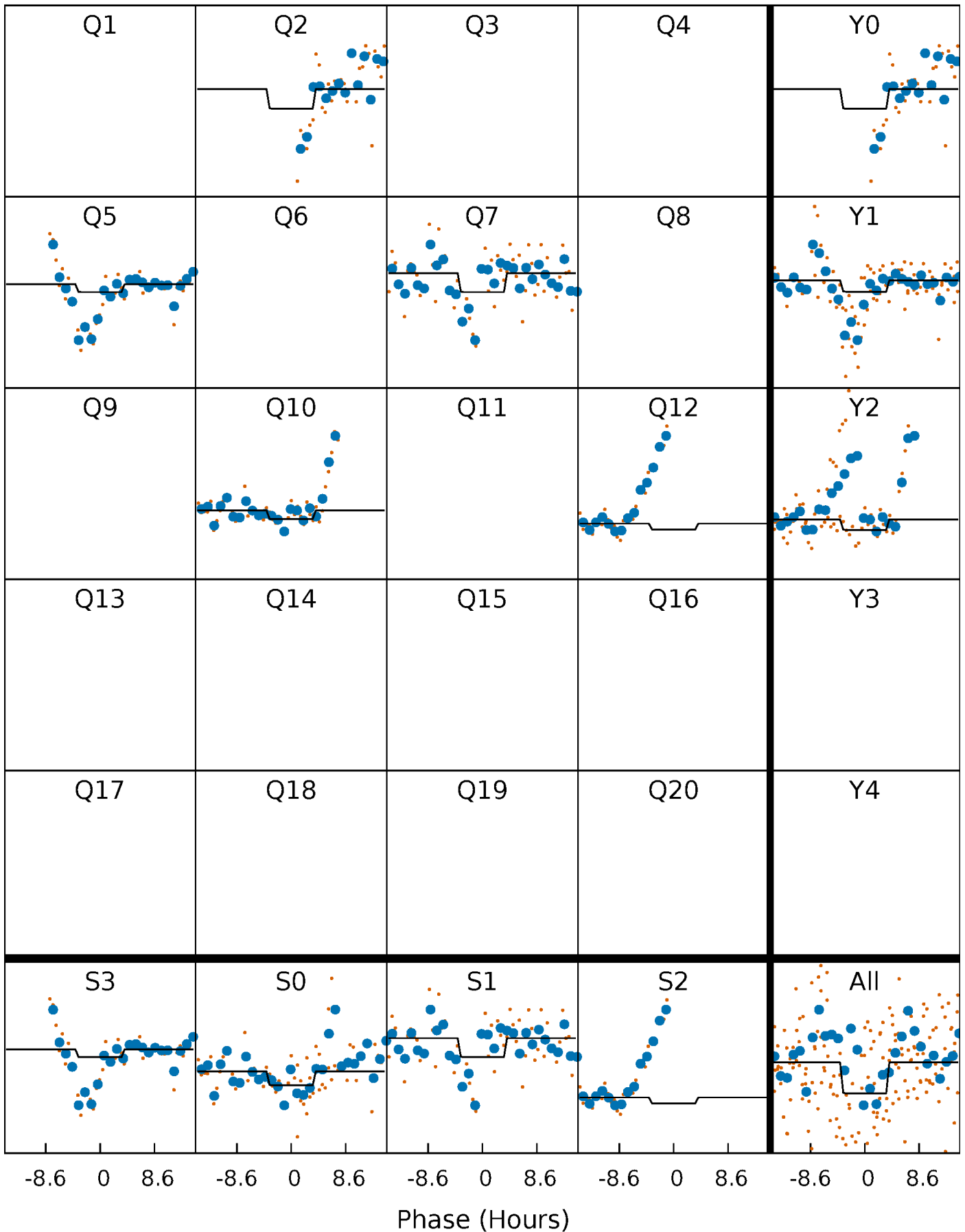
DV Quarter-Phased Transit Curves

TCE 005617510-10 $P=229.657626$ Days $T_0=224.099611$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

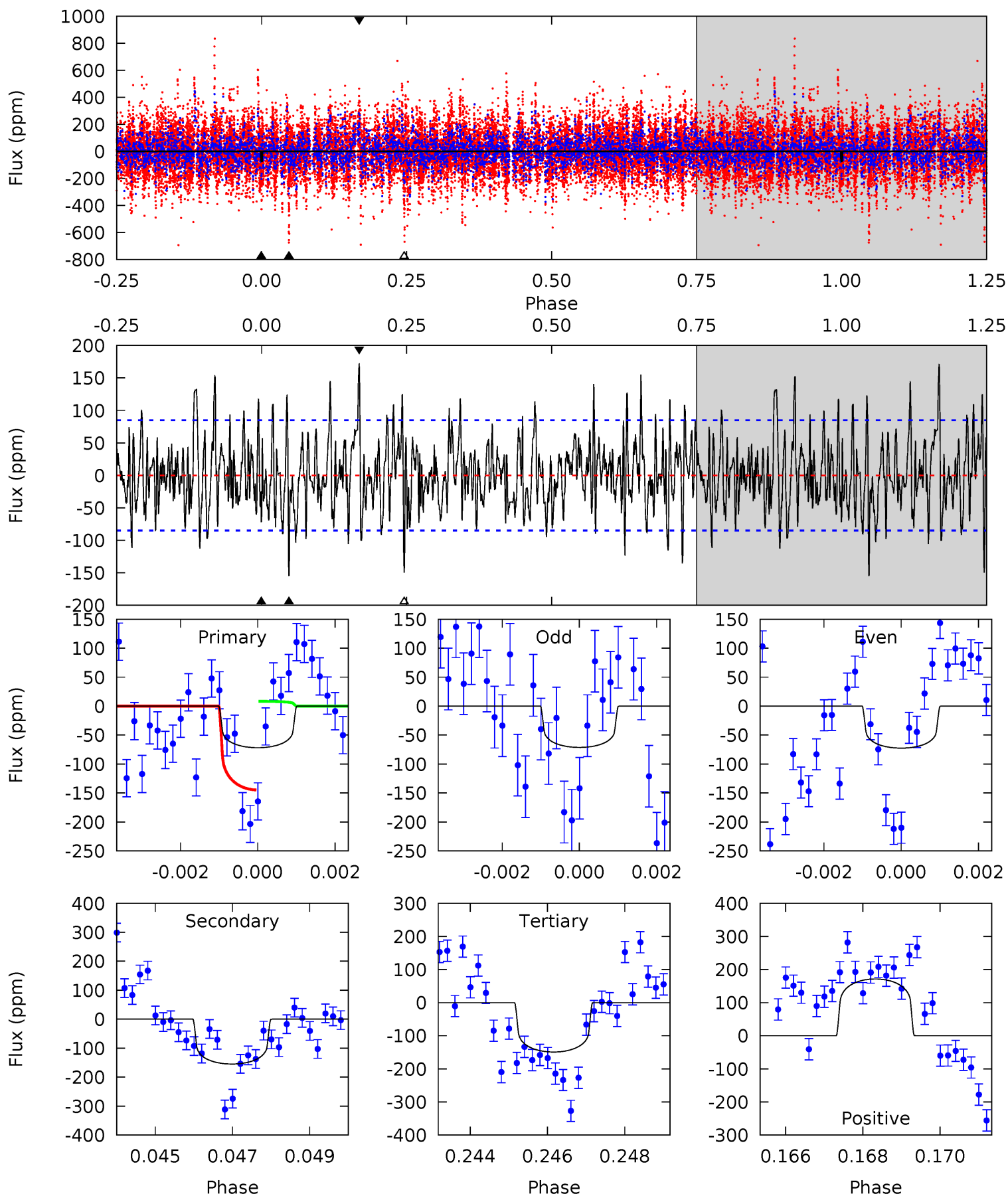
TCE 005617510-10 P=229.632381 Days $T_0=224.180475$ (BKJD)



DV Model-Shift Uniqueness Test

005617510-10, P = 229.657626 Days, E = 224.099611 Days

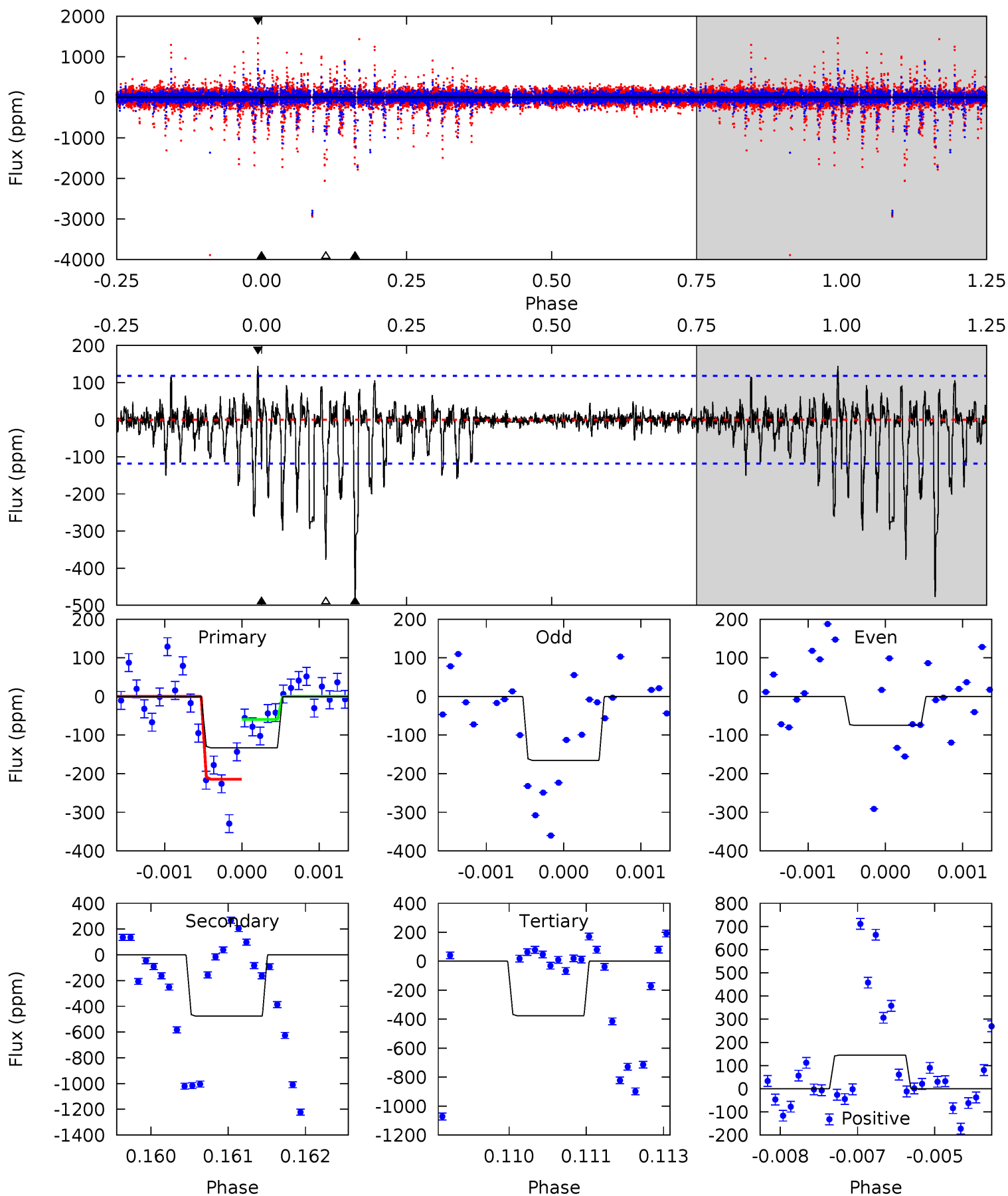
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.50	9.69	9.34	10.7	5.32	3.08	3.00	-4.84	-6.23	0.35	-1.04	0.04	0.95	0.53	4.26



Alt Model-Shift Uniqueness Test

005617510-10, P = 229.632381 Days, E = 224.180475 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.08	21.8	17.2	6.63	5.40	3.21	2.03	-11.2	-0.55	4.56	15.2	1.86	-0.91	0.23	3.53



Stellar Parameters For KIC 005617510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6418^{+70}_{-89}	$3.954^{+0.186}_{-0.109}$	$0.180^{+0.150}_{-0.150}$	$2.159^{+0.411}_{-0.548}$	$1.527^{+0.134}_{-0.184}$	$0.214^{+0.211}_{-0.078}$
	+1%/-1%	+5%/-3%	+83%/-83%	+19%/-25%	+9%/-12%	+99%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005617510-10 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-155 ± 16	$2.73^{+1.70}_{-1.43}$	629^{+29}_{-39}	6584^{+3974}_{-1394}	8228^{+28156}_{-5181}
Alt.	-477 ± 22	$2.35^{+1.56}_{-1.40}$	628^{+32}_{-44}	10080^{+14447}_{-2659}	$33572^{+164869}_{-21323}$

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 $A_{obs} \gg 1.0$

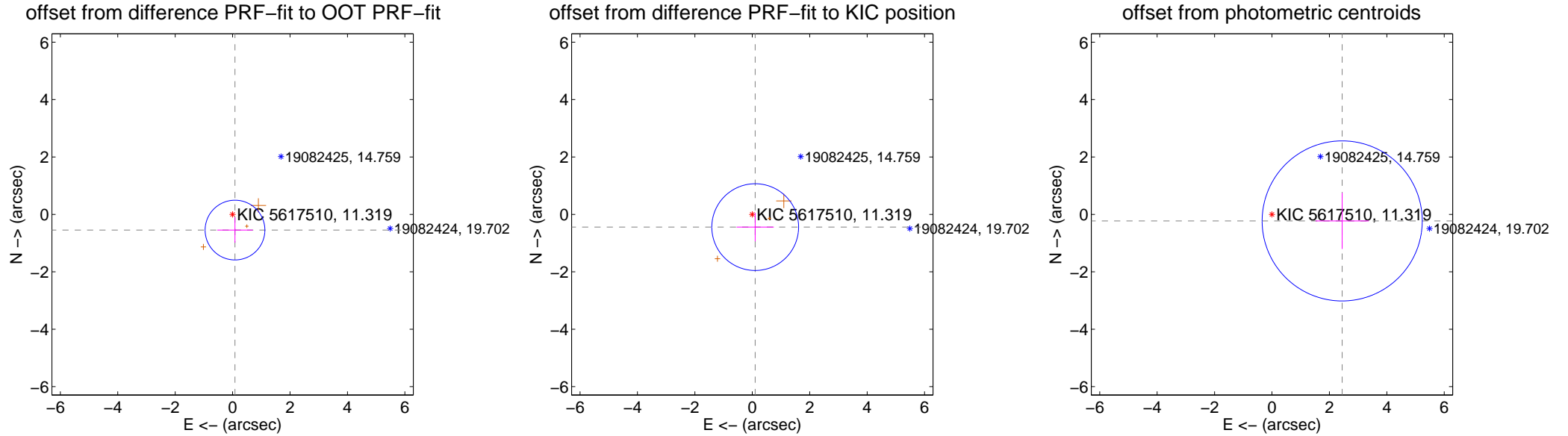
DV Centroid Data

Supplemental centroid analysis for 005617510-10. **Kepler magnitude: 11.32.** Transit SNR 5.11

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.552 ± 0.347	1.59	-0.083 ± 0.617	-0.546 ± 0.441
PRF-fit source offset from KIC position	0.455 ± 0.504	0.90	-0.101 ± 0.647	-0.443 ± 0.495
photometric centroid source offset	2.46 ± 0.93	2.64	-2.44 ± 0.93	-0.23 ± 0.98

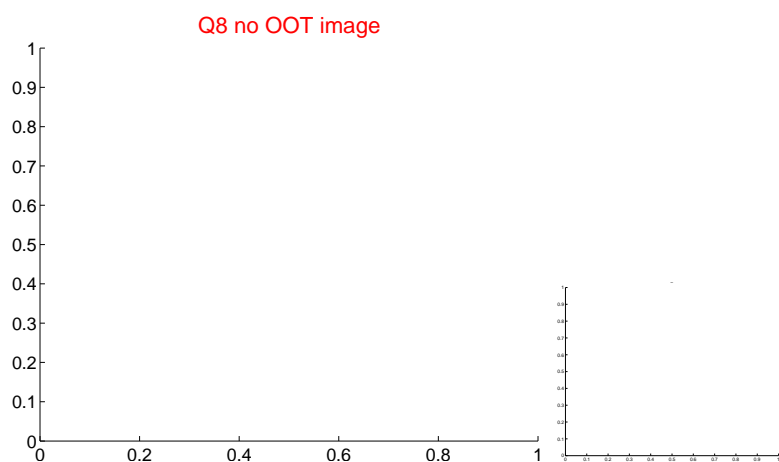
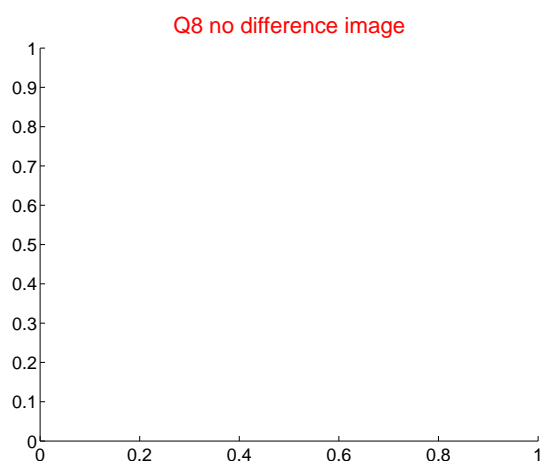
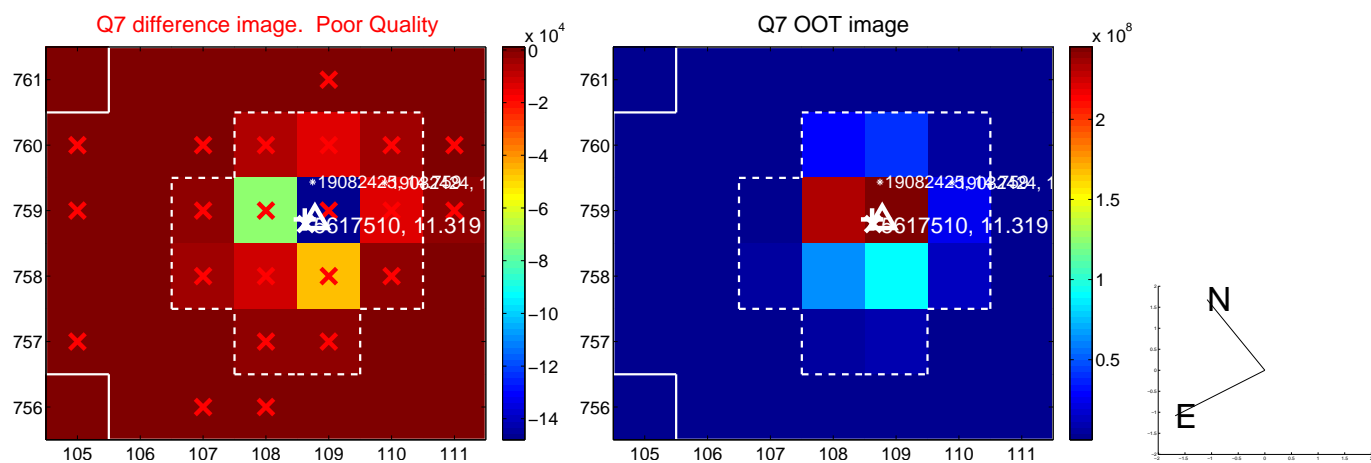
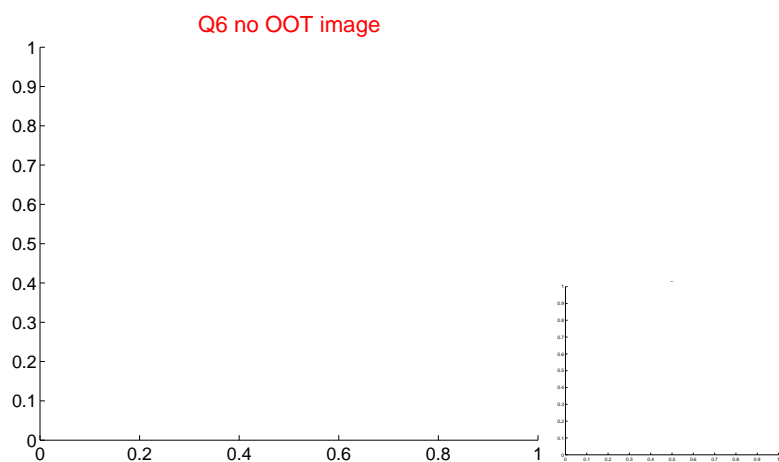
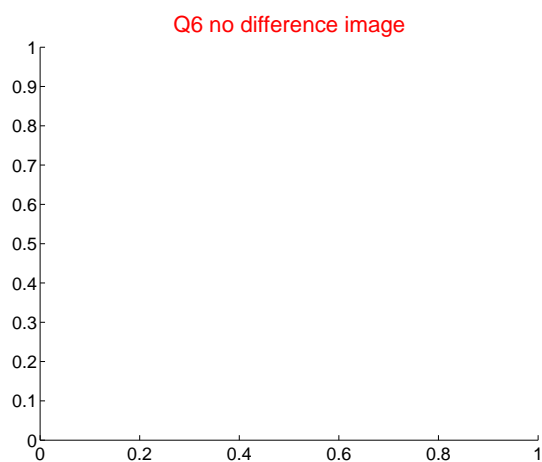
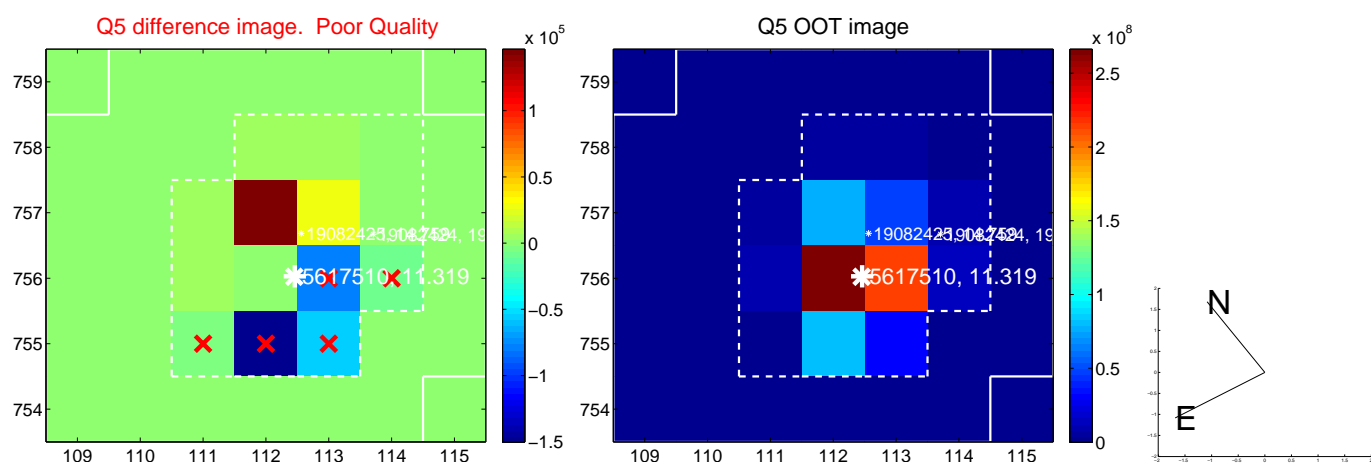


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

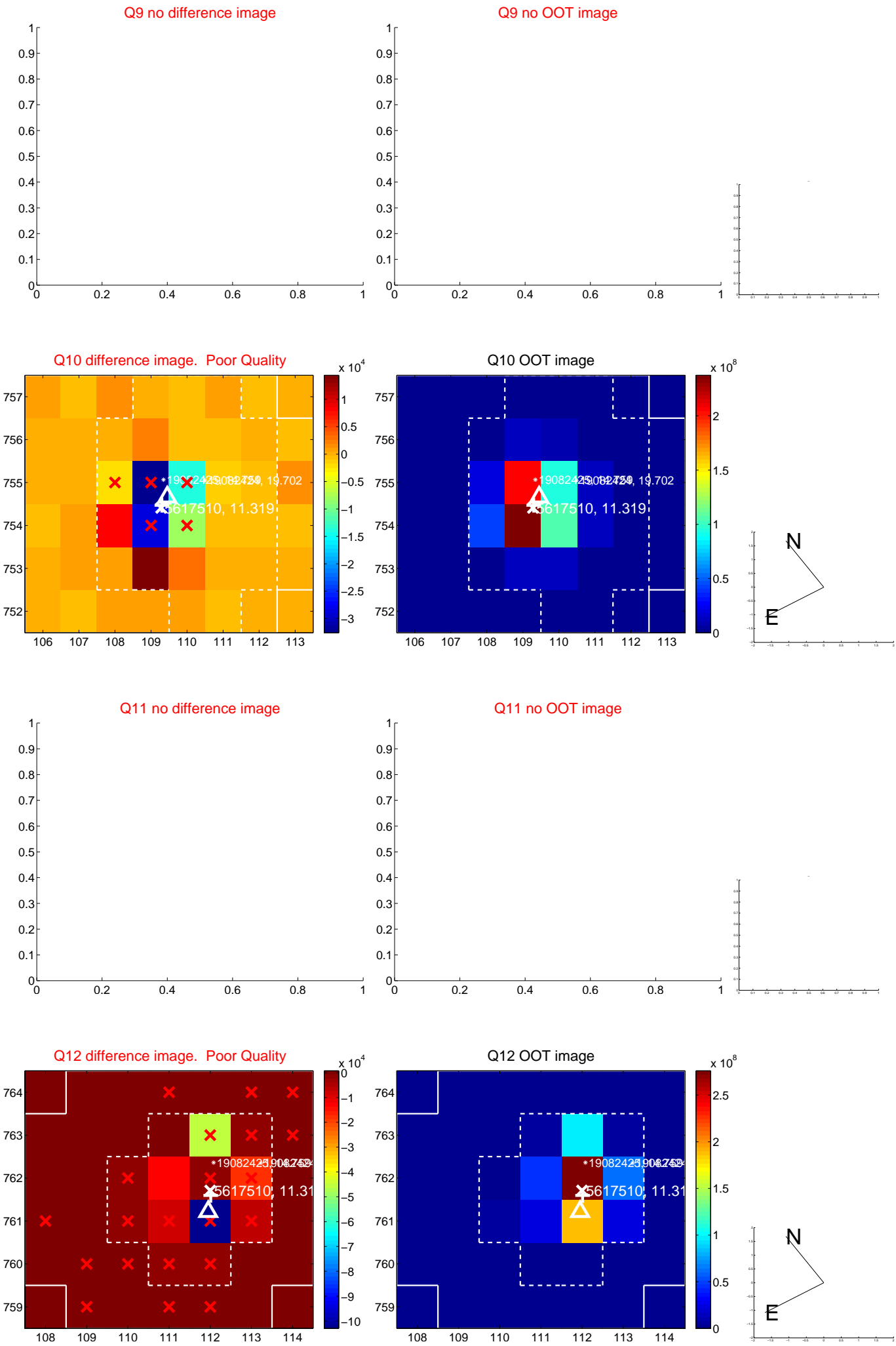
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



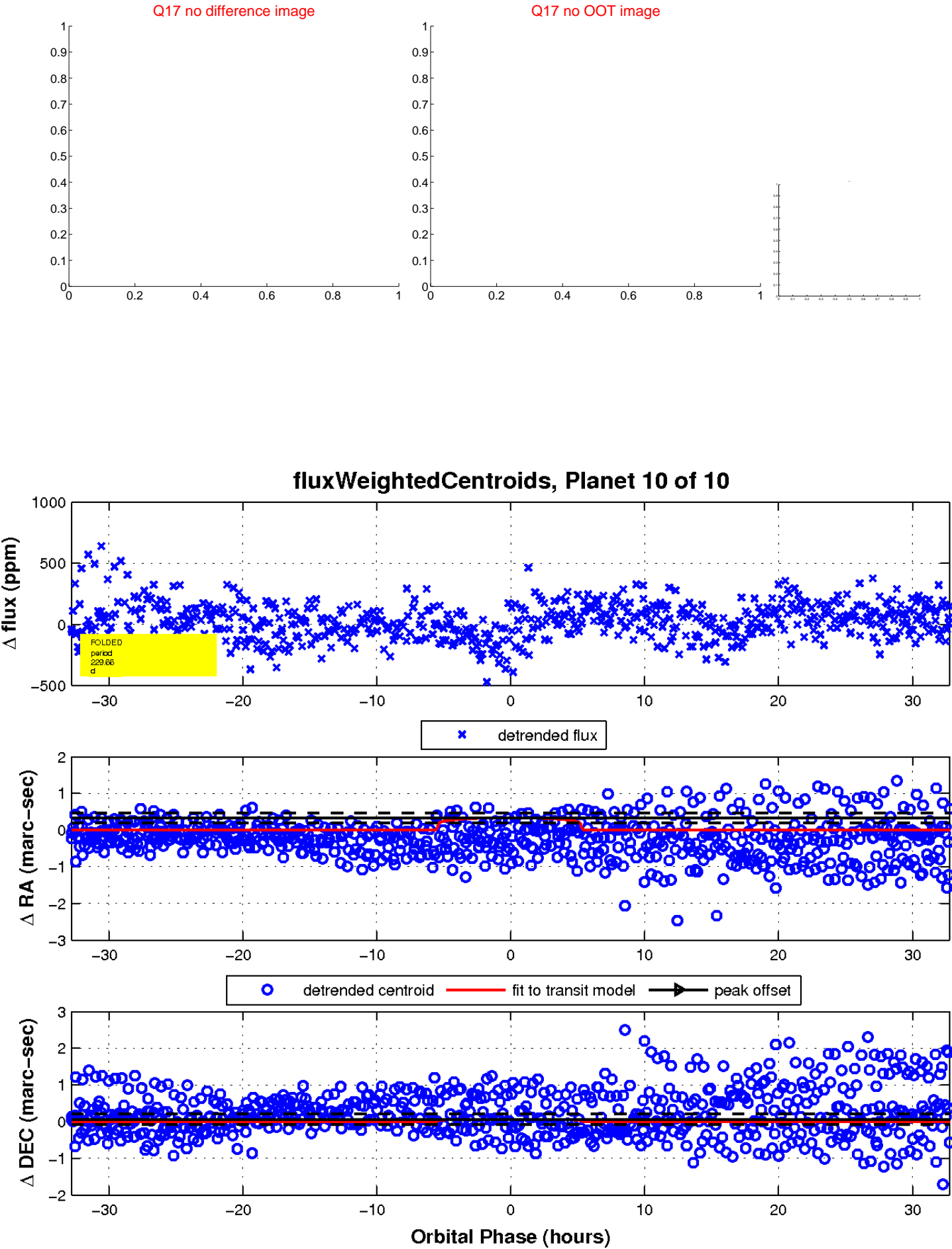
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

