

KIC 010525592

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})
010525592-01	OBS	No	4.081397	135.356083	41.7	6.850	13.4	13.0	2.43	7110	1.88	3819.51
010525592-02	OBS	No	1.632478	133.050982	18.3	8.546	10.9	9.0	2.43	7110	1.21	12960.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010525592-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010525592-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

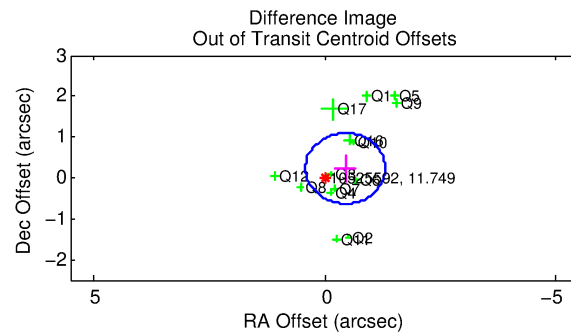
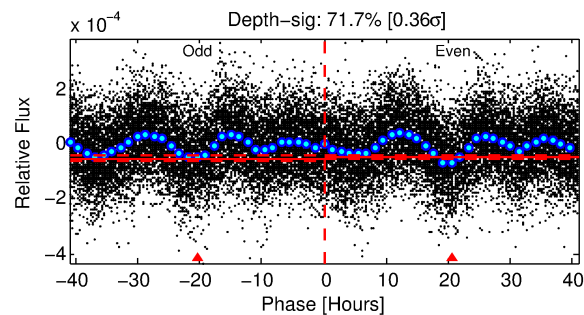
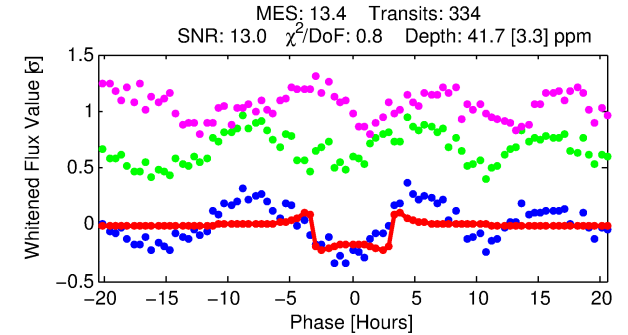
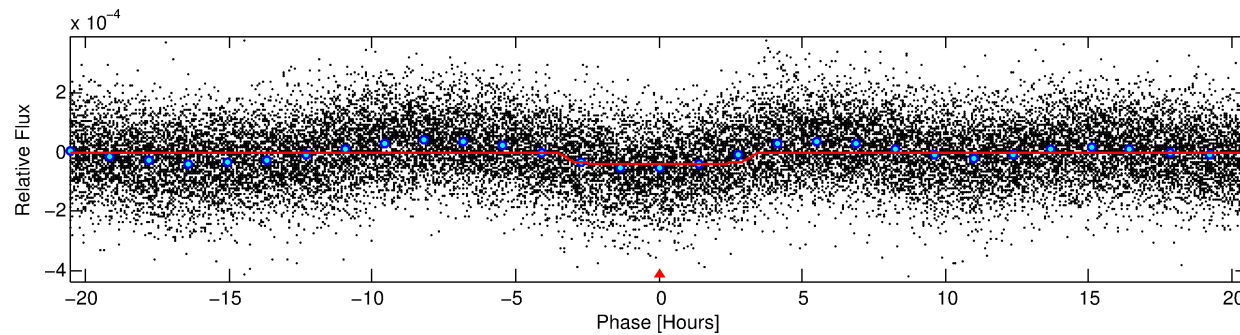
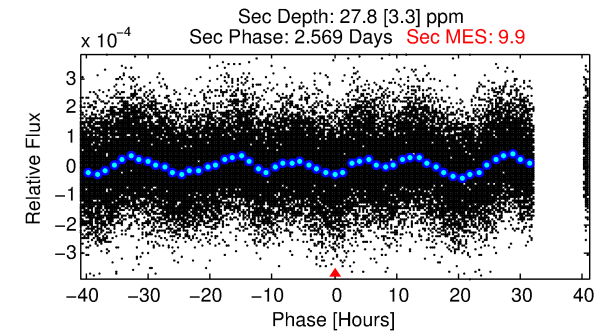
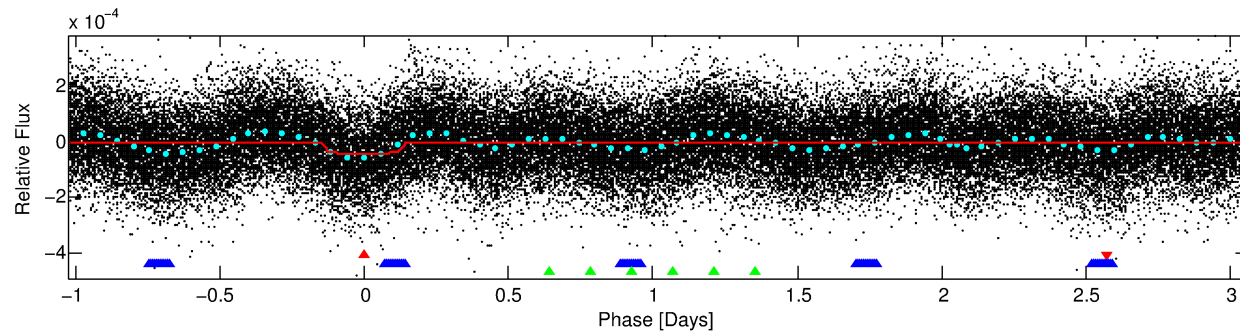
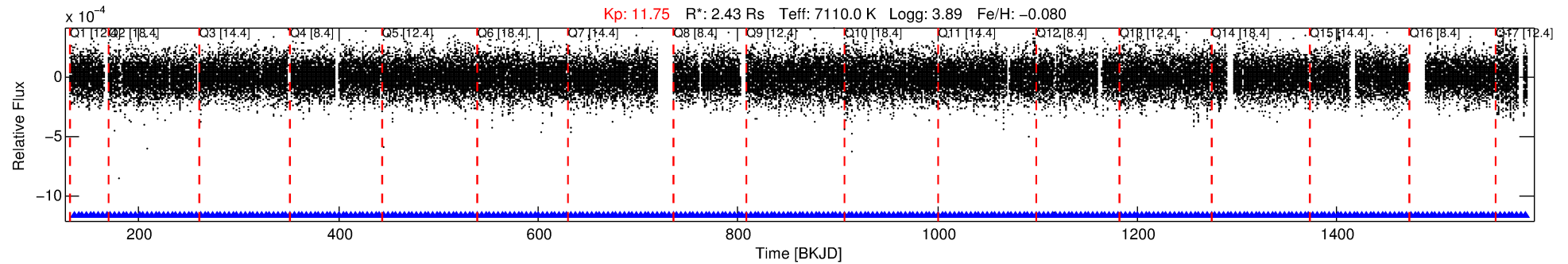
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010525592-01

No Significant Match Found

DV One-Page Summary

KIC: 10525592 Candidate: 1 of 3 Period: 4.081 d



DV Fit Results:

Period = 4.08140 [0.00002] d
Epoch = 135.3561 [0.0030] BKJD
Rp/R* = 0.0071 [0.0006]
a/R* = 1.96 [0.62]
b = 0.93 [0.06]
Seff = 3819.51 [1644.10]
Teff = 2005 [216] K
Rp = 1.88 [0.58] Re
a = 0.0594 [0.0159] AU
Ag = 15.33 [7.00] [2.05σ]
Teffp = 6132 [368] K [9.68σ]

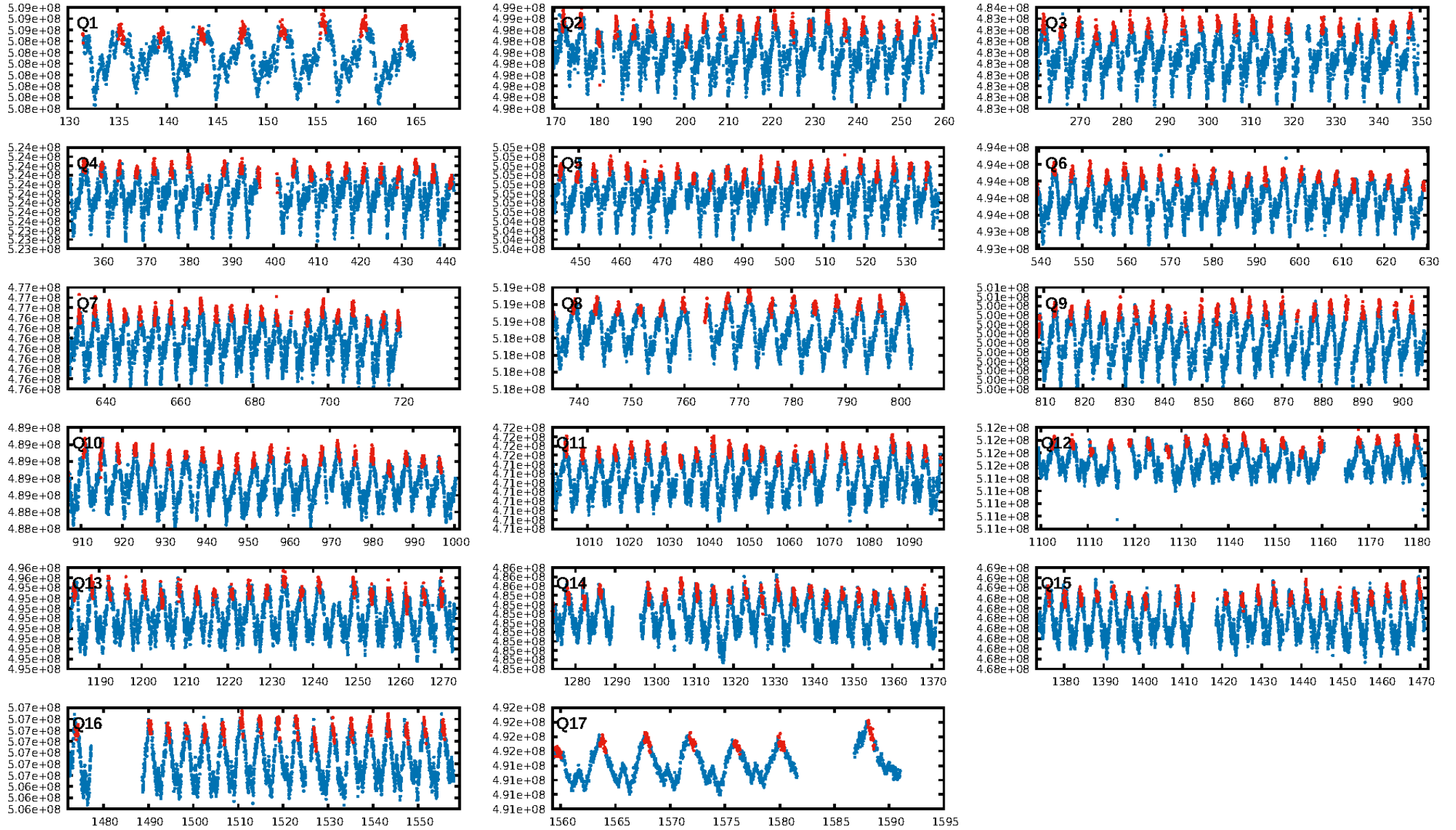
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.37σ]
LongPeriod-sig: 100.0% [461.92σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.18e-15
RollingBand-fgt: 1.00 [319/319]
GhostDiagnostic-chr: -6.514
Centroid-sig: 8.0%
Centroid-so: 0.474 arcsec [1.28σ]
OotOffset-rm: 0.501 arcsec [1.74σ]
KicOffset-rm: 0.509 arcsec [1.73σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.24 [4/17]

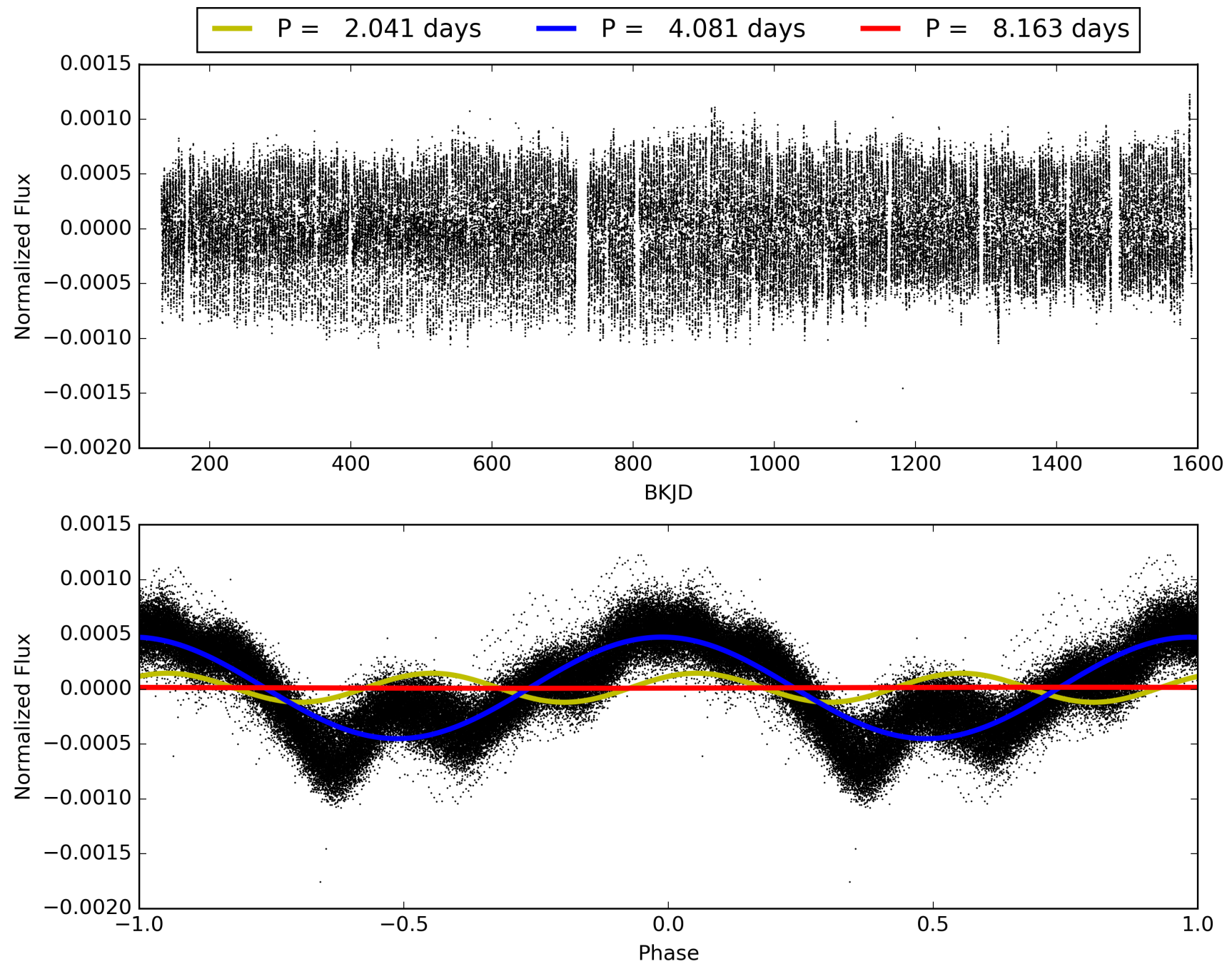
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:52:46 Z

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

TCE 010525592-01, PDC Light Curves

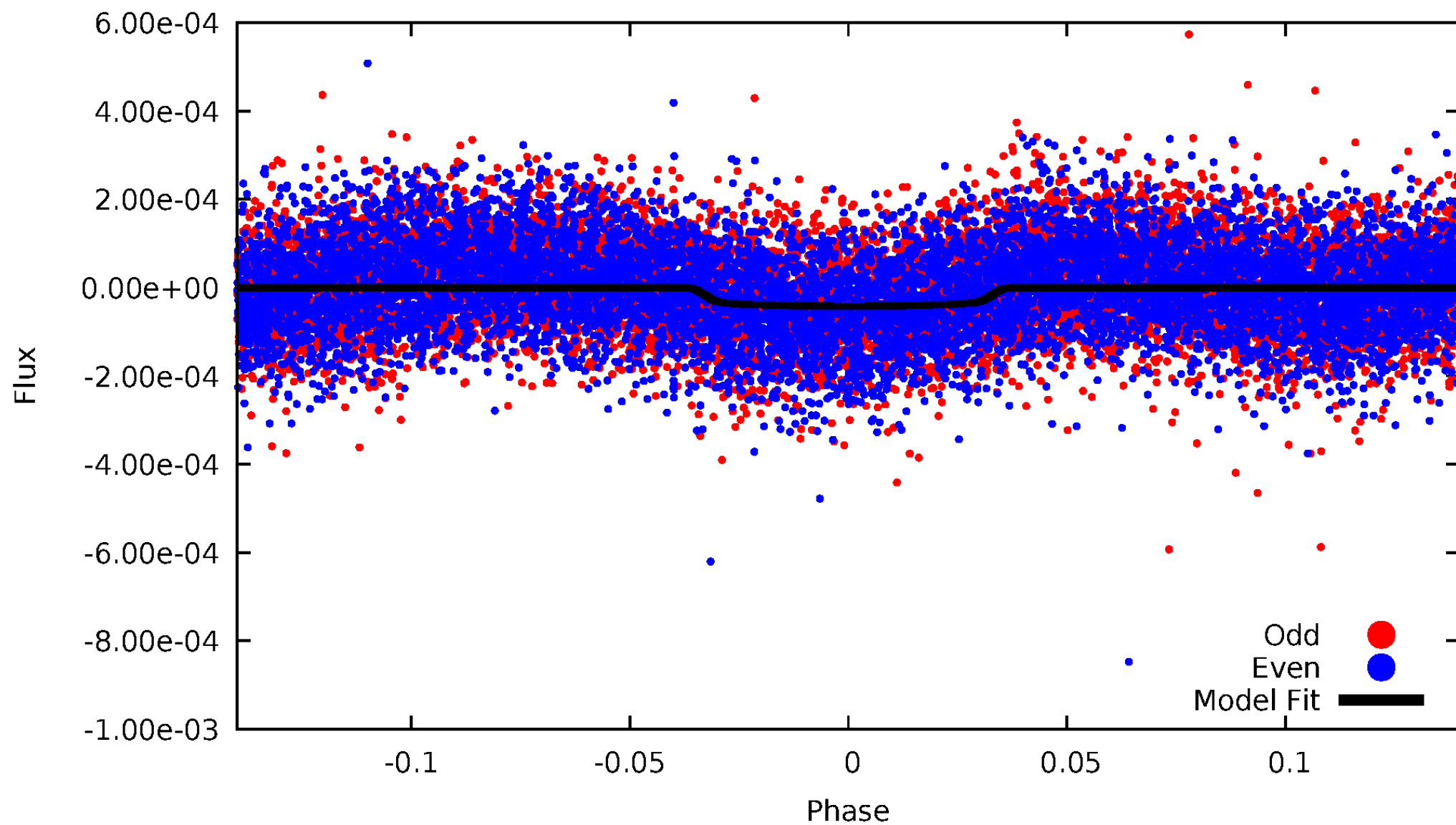


TCE 010525592-01



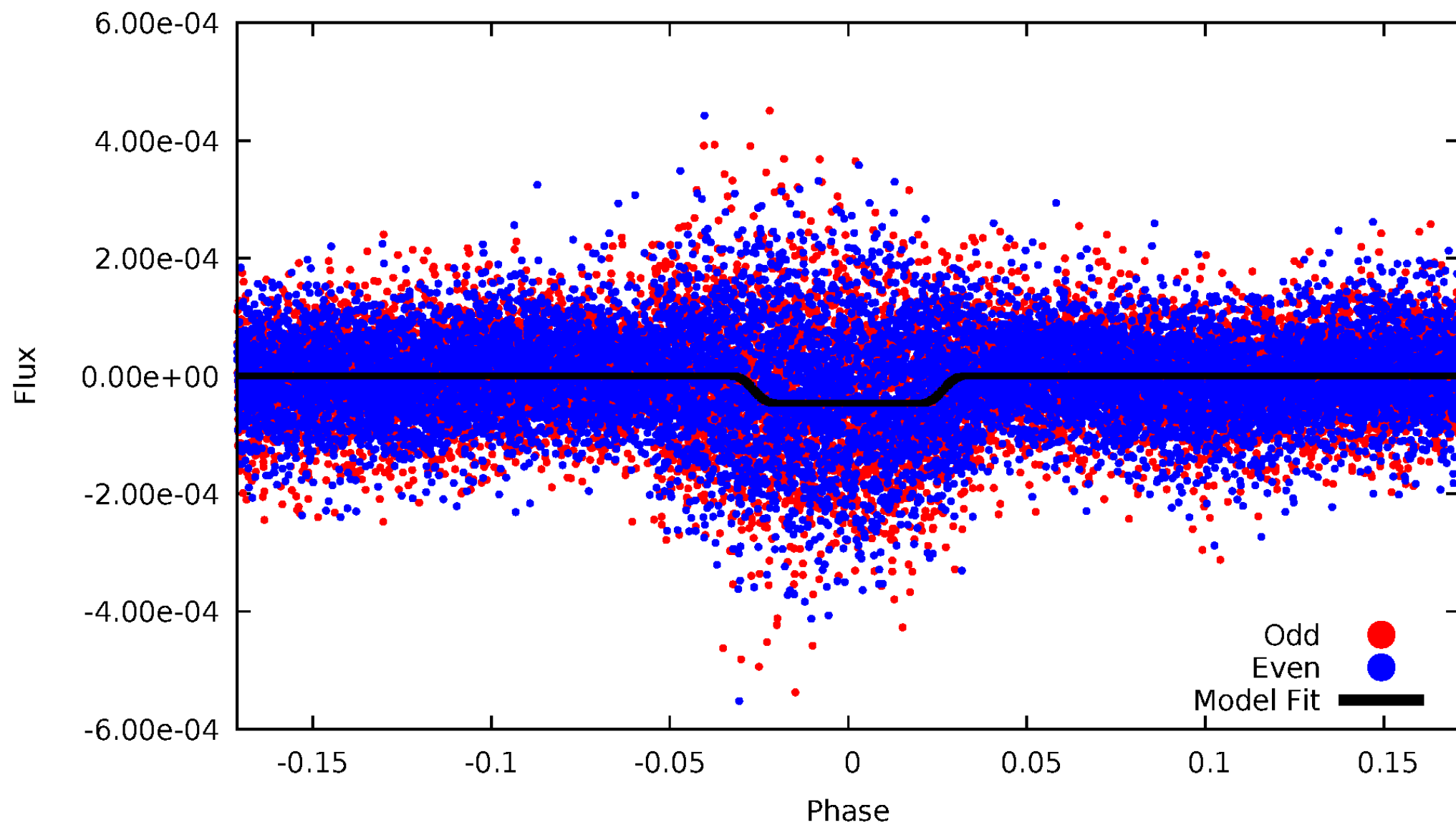
DV Odd/Even

TCE 010525592-01



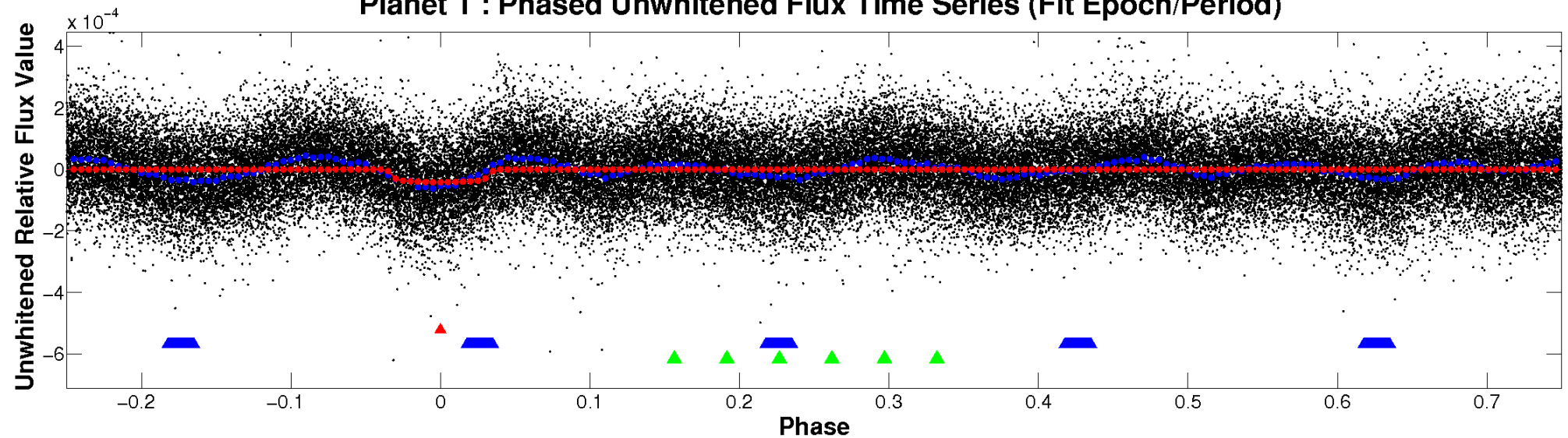
ALT Odd/Even

TCE 010525592-01

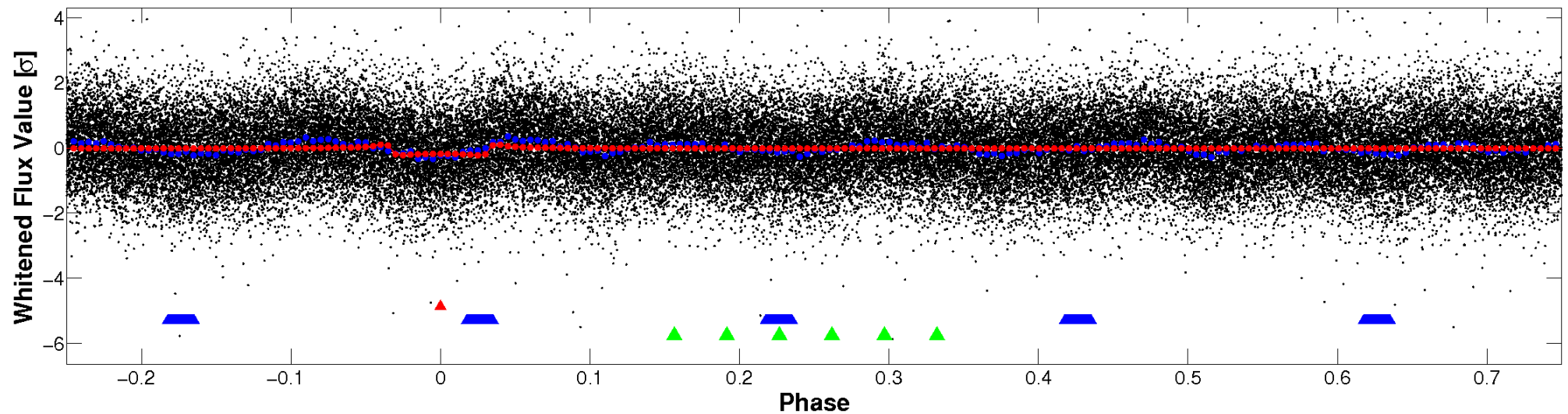


Non-Whitened Vs. Whitened Light Curve

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

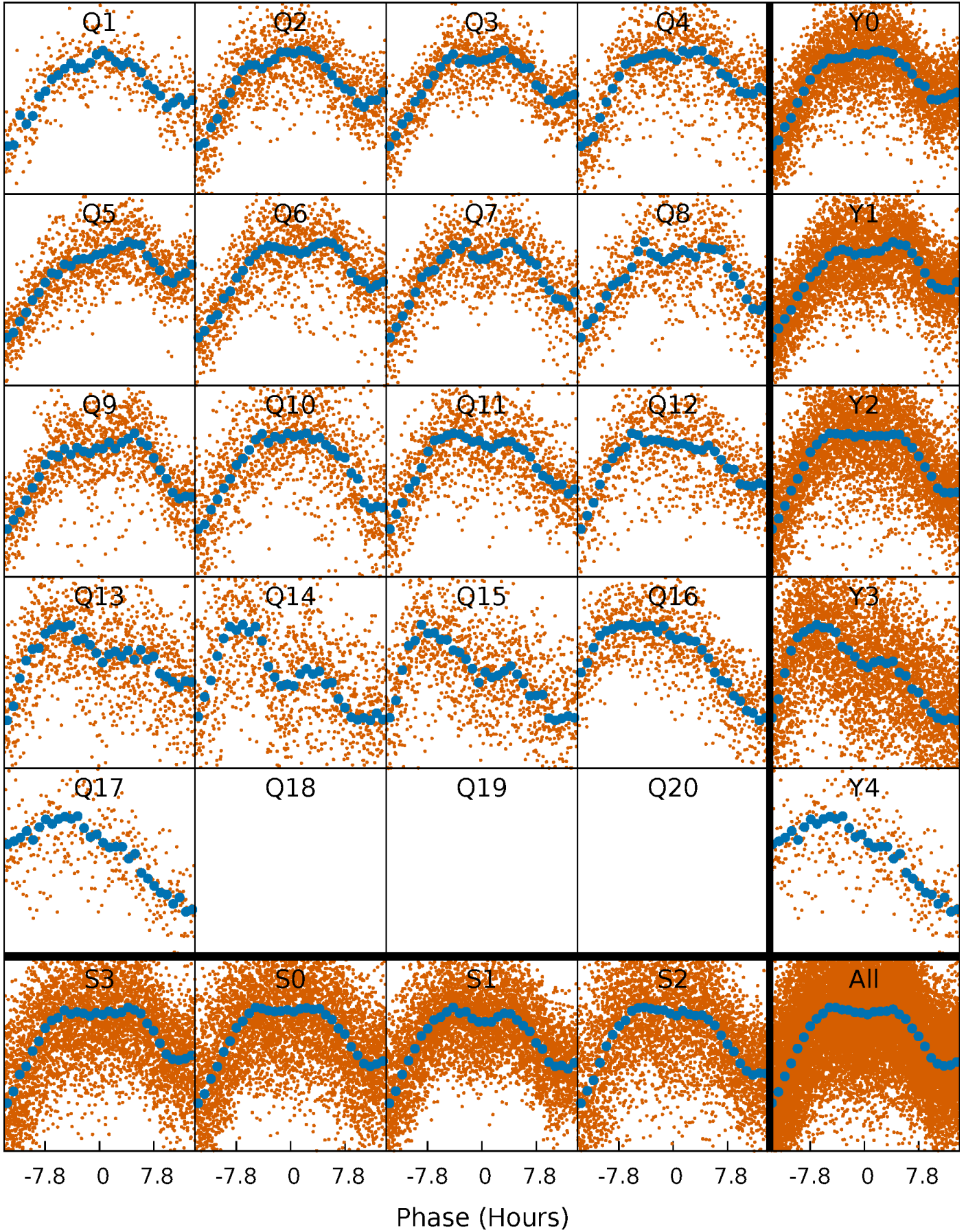


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



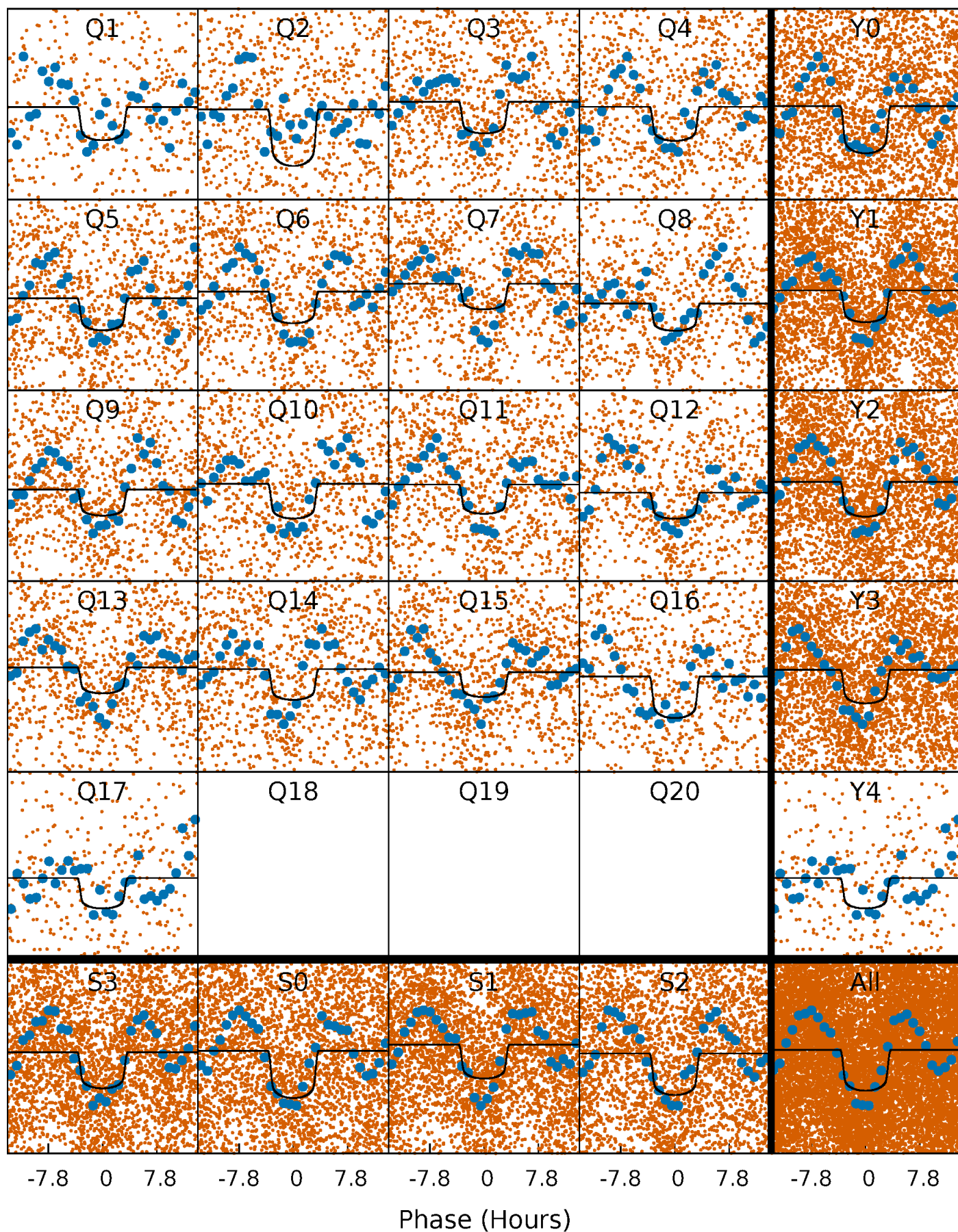
PDC Quarter-Phased Transit Curves

TCE 010525592-01 P= 4.081397 Days $T_0=135.356083$ (BKJD)



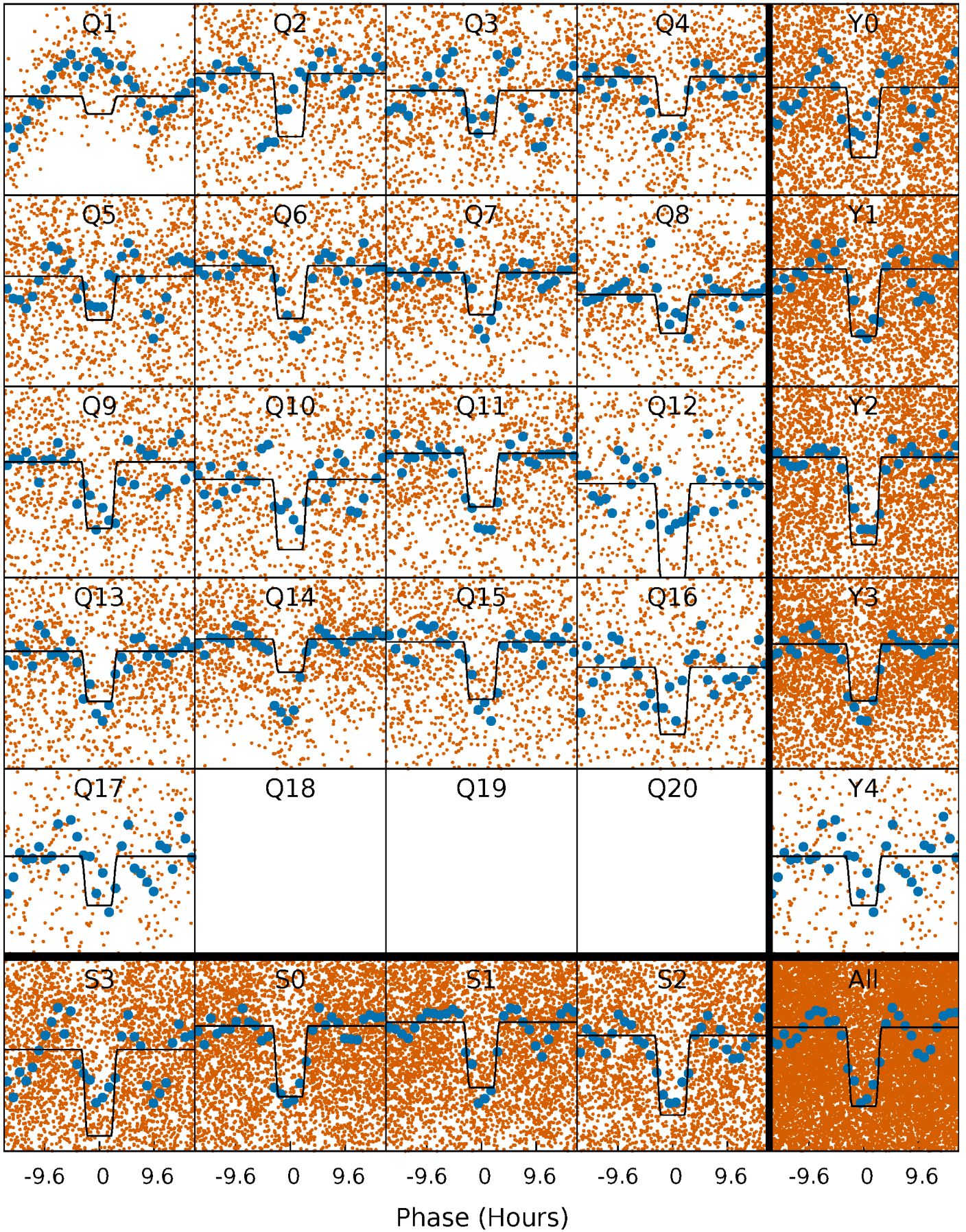
DV Quarter-Phased Transit Curves

TCE 010525592-01 P= 4.081397 Days $T_0=135.356083$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

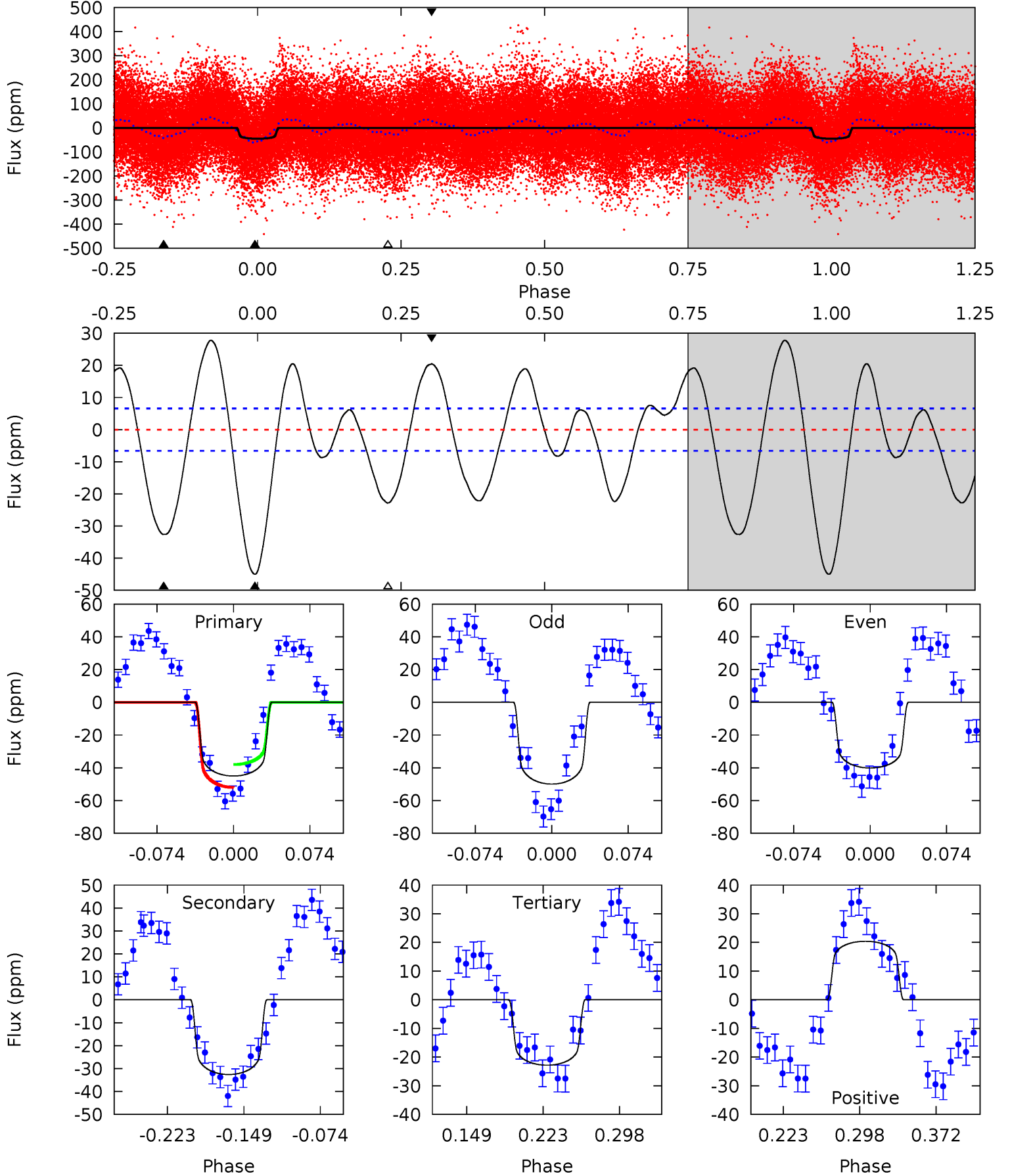
TCE 010525592-01 P= 4.081306 Days $T_0=135.369554$ (BKJD)



DV Model-Shift Uniqueness Test

010525592-01, P = 4.081397 Days, E = 131.274686 Days

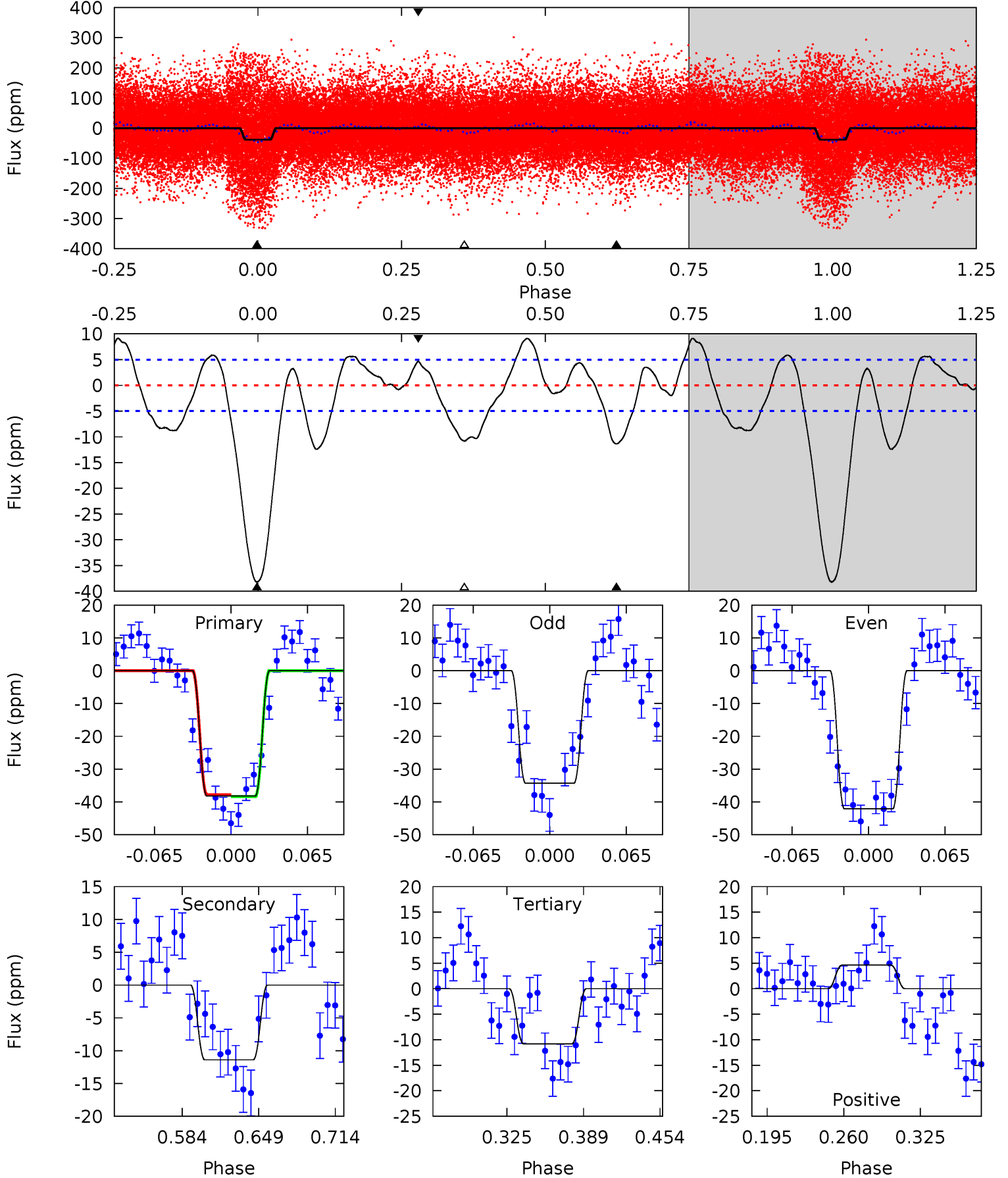
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.6	22.9	16.0	14.3	4.63	1.78	8.94	15.6	17.3	6.86	8.56	3.45	1.05	0.38	4.85



Alt Model-Shift Uniqueness Test

010525592-01, P = 4.081306 Days, E = 131.288248 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.7	10.7	10.1	4.32	4.65	1.85	5.22	25.6	31.4	0.55	6.33	3.63	0.93	0.19	0.27



Stellar Parameters For KIC 010525592

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7110^{+169}_{-232}	$3.893^{+0.234}_{-0.108}$	$-0.080^{+0.250}_{-0.300}$	$2.427^{+0.481}_{-0.721}$	$1.678^{+0.172}_{-0.295}$	$0.165^{+0.247}_{-0.053}$
	+2%/-3%	+6%/-3%	+312%/-375%	+20%/-30%	+10%/-18%	+150%/-32%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010525592-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-33 ± 1	$1.83^{+0.27}_{-0.30}$	2769^{+159}_{-208}	6282^{+331}_{-277}	19^{+8}_{-4}
Alt.	-11 ± 1	$1.75^{+0.25}_{-0.29}$	2747^{+180}_{-205}	4990^{+254}_{-228}	$7.242^{+2.882}_{-1.758}$

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

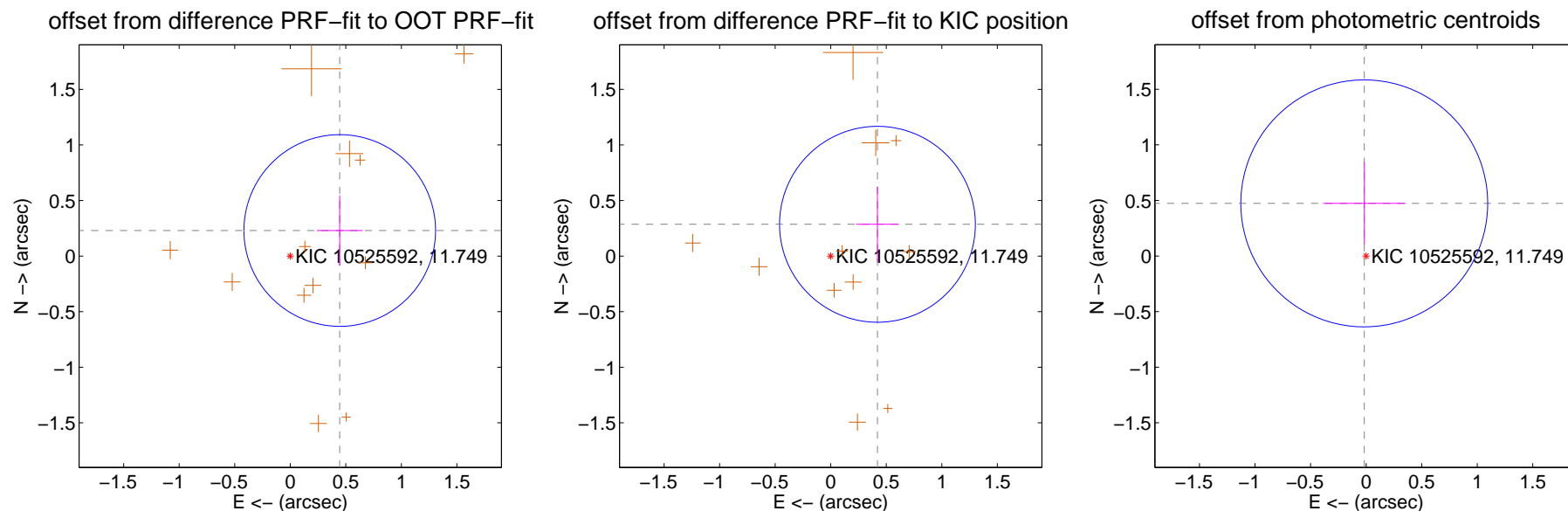
DV Centroid Data

Supplemental centroid analysis for 010525592-01. **Kepler magnitude: 11.75.** Transit SNR 13.01

There are 0 quarters with good PRF difference image offsets

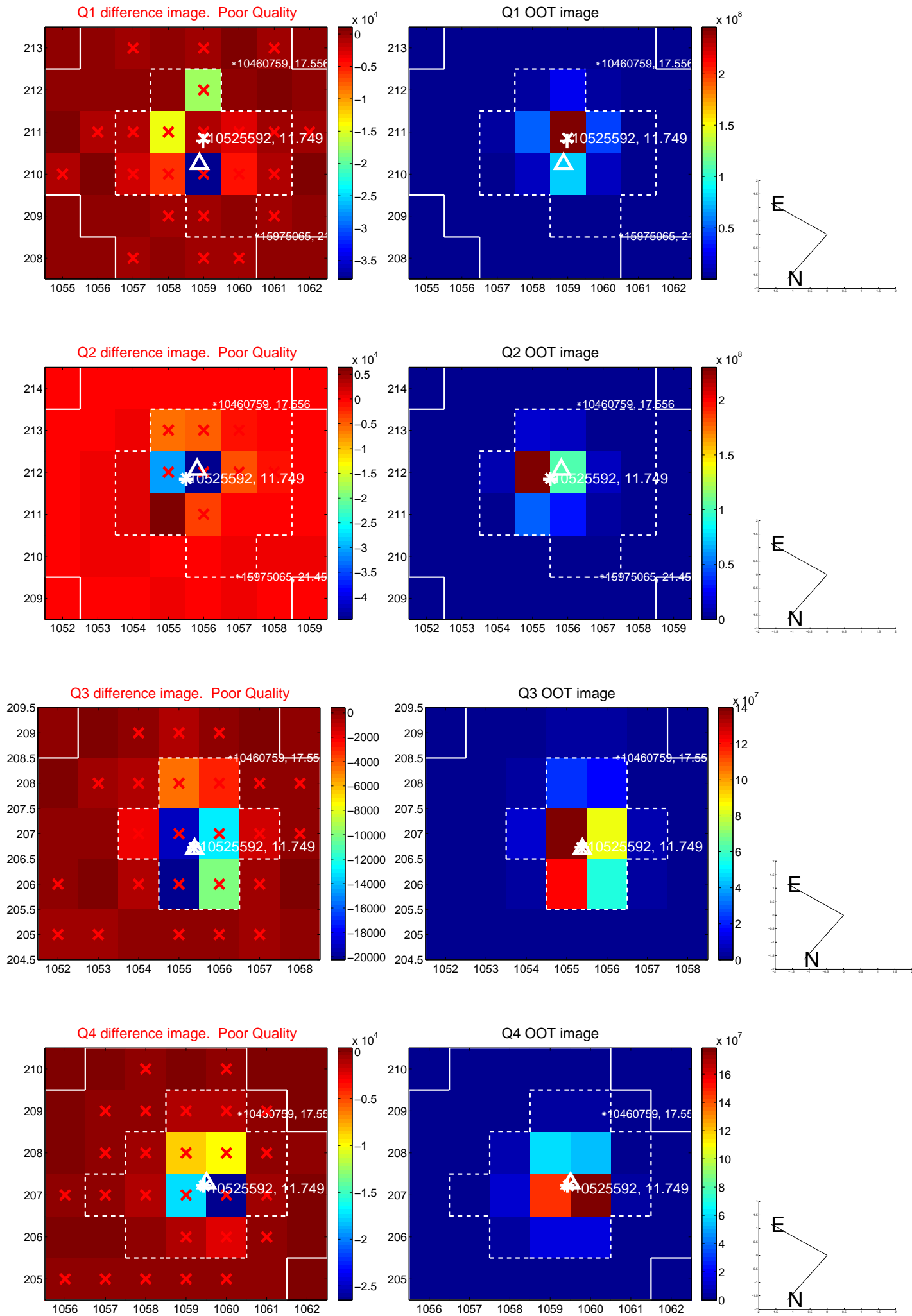
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.501 ± 0.287	1.74	-0.445 ± 0.206	0.230 ± 0.316
PRF-fit source offset from KIC position	0.509 ± 0.294	1.73	-0.421 ± 0.192	0.286 ± 0.338
photometric centroid source offset	0.47 ± 0.37	1.28	0.02 ± 0.37	0.47 ± 0.37

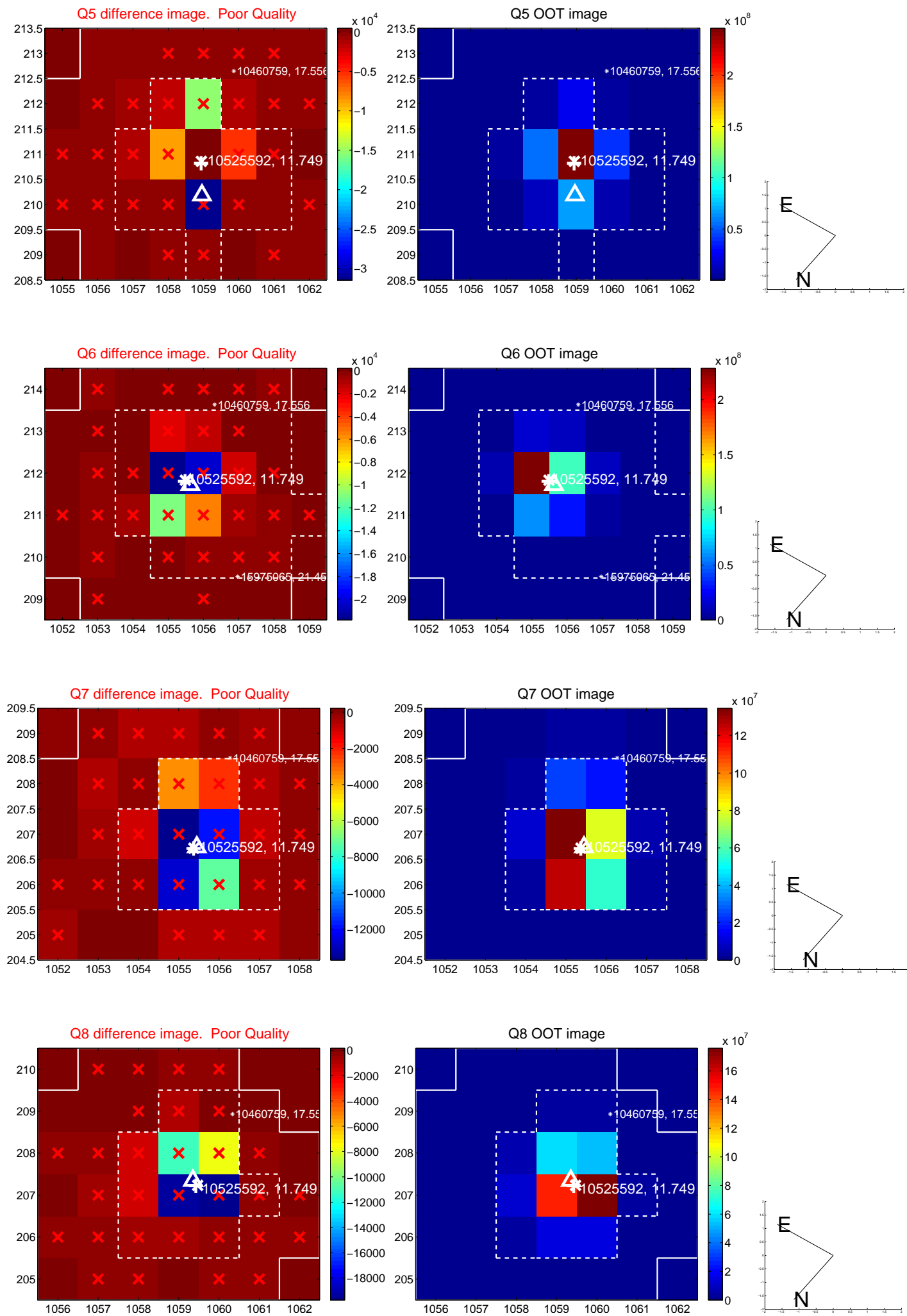


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

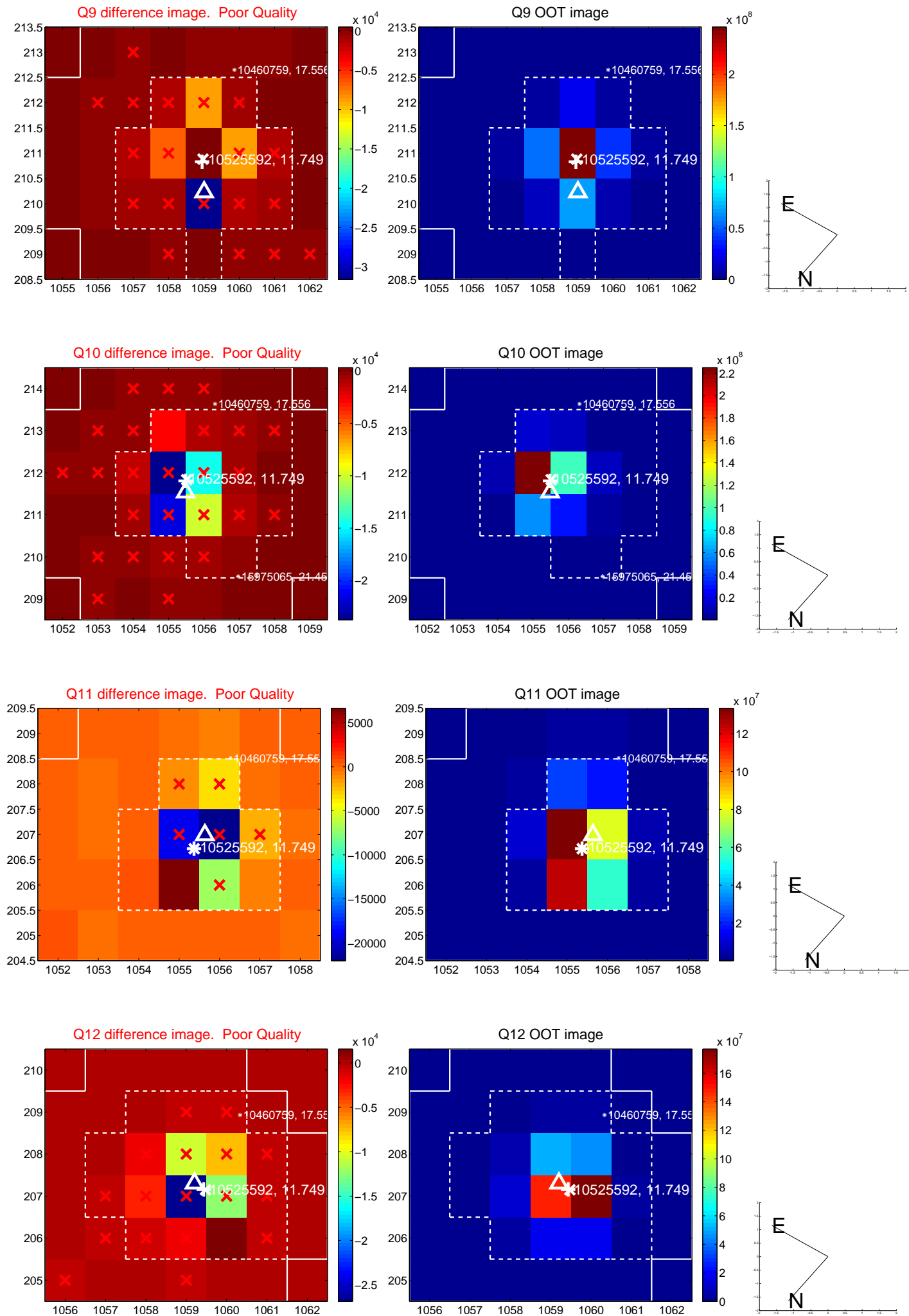
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



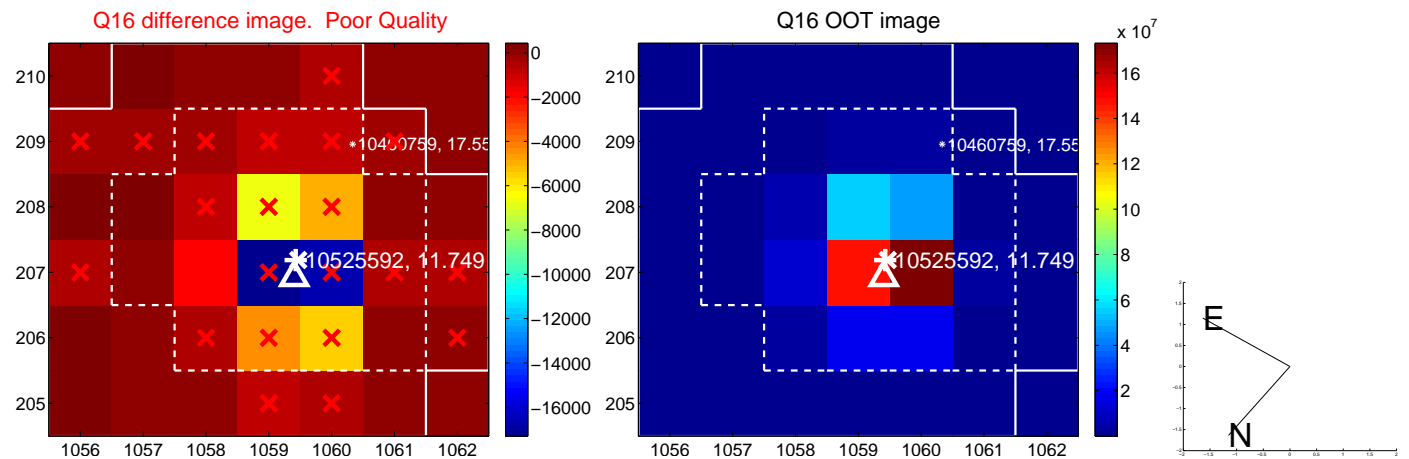
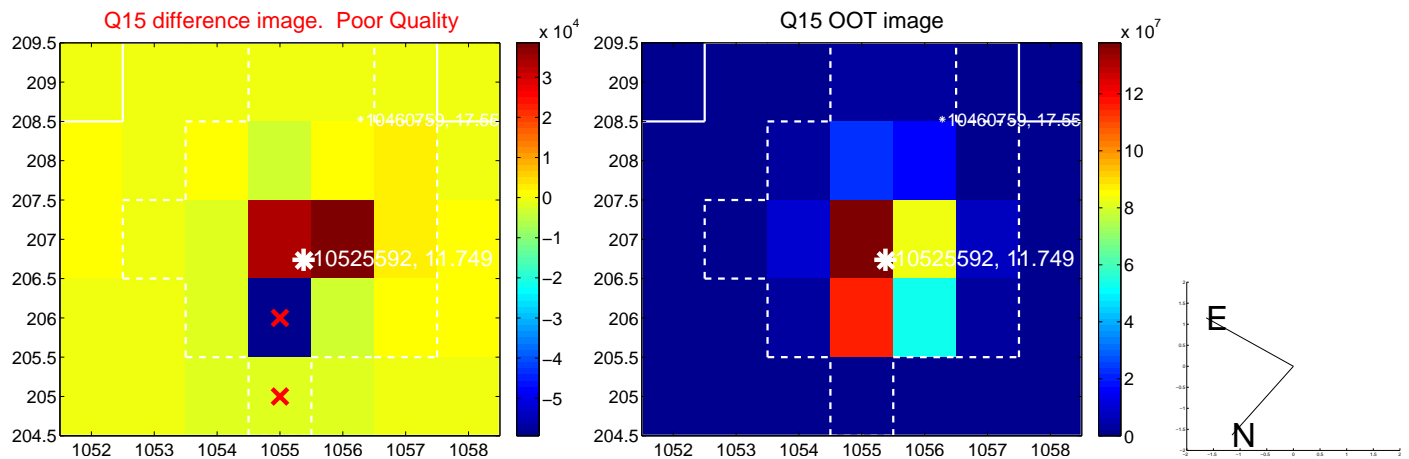
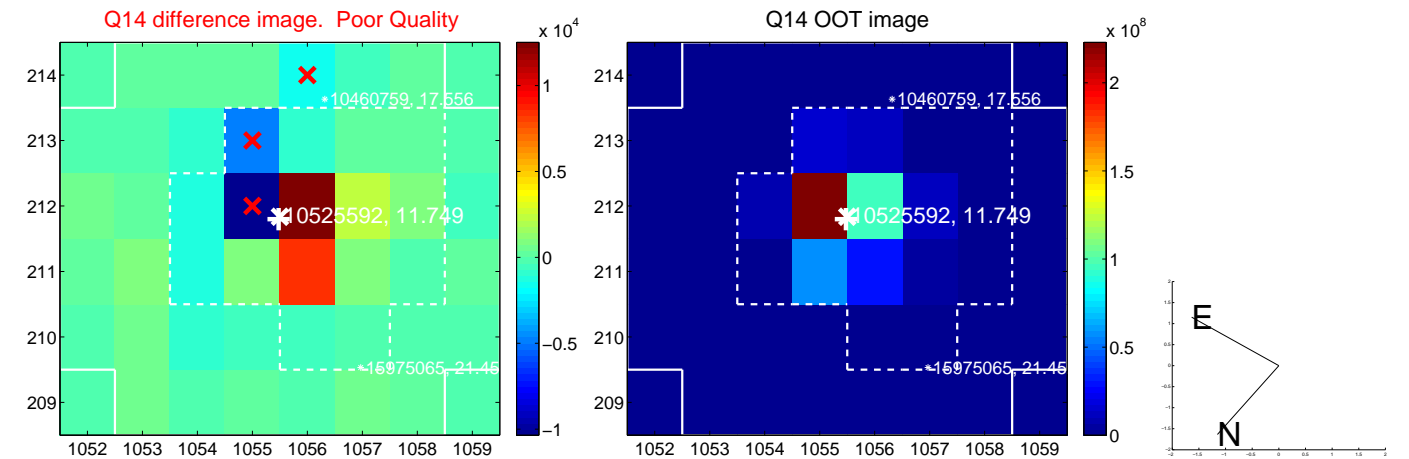
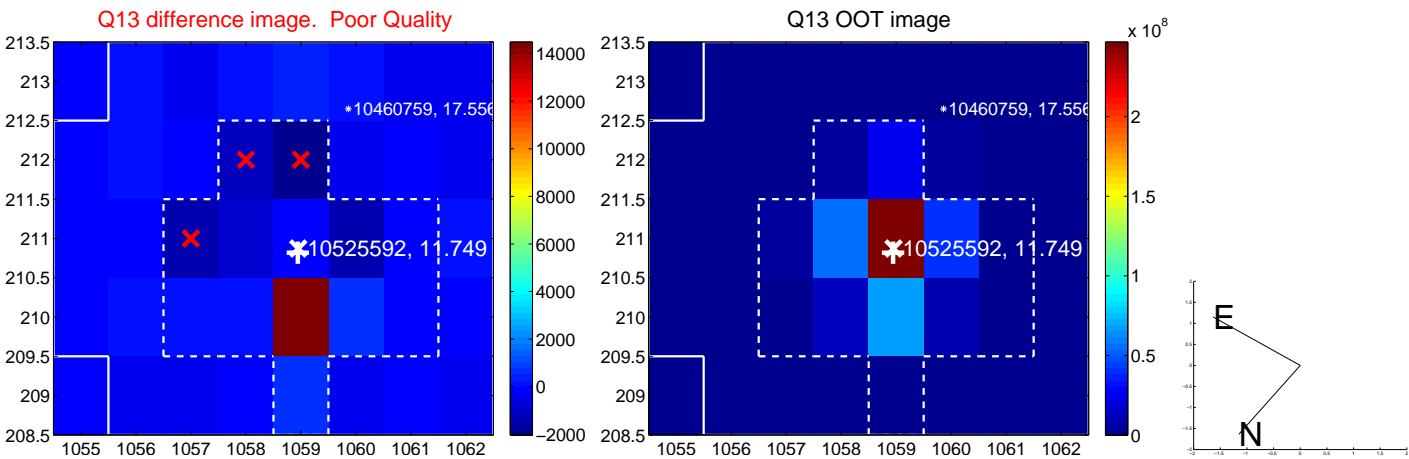
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



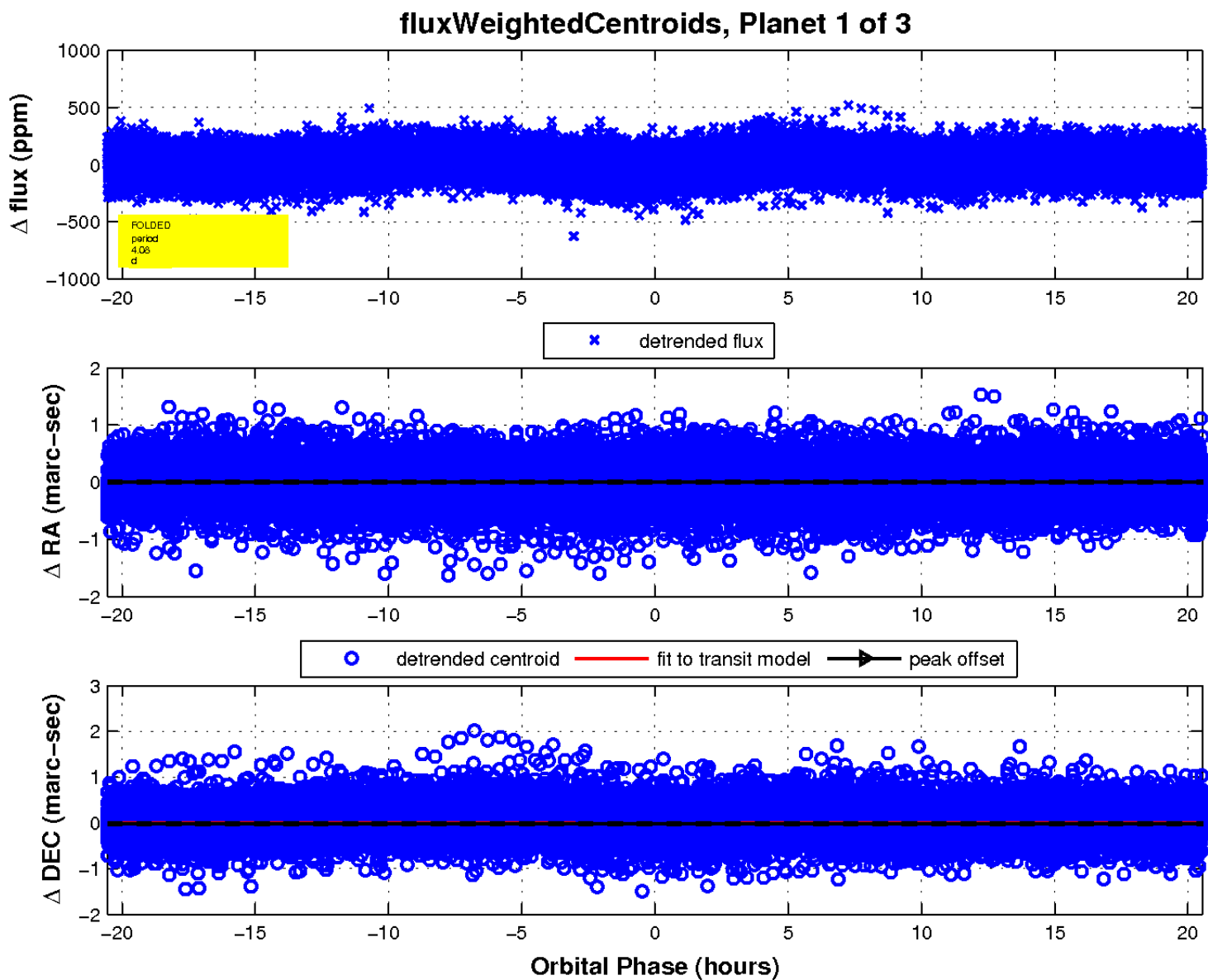
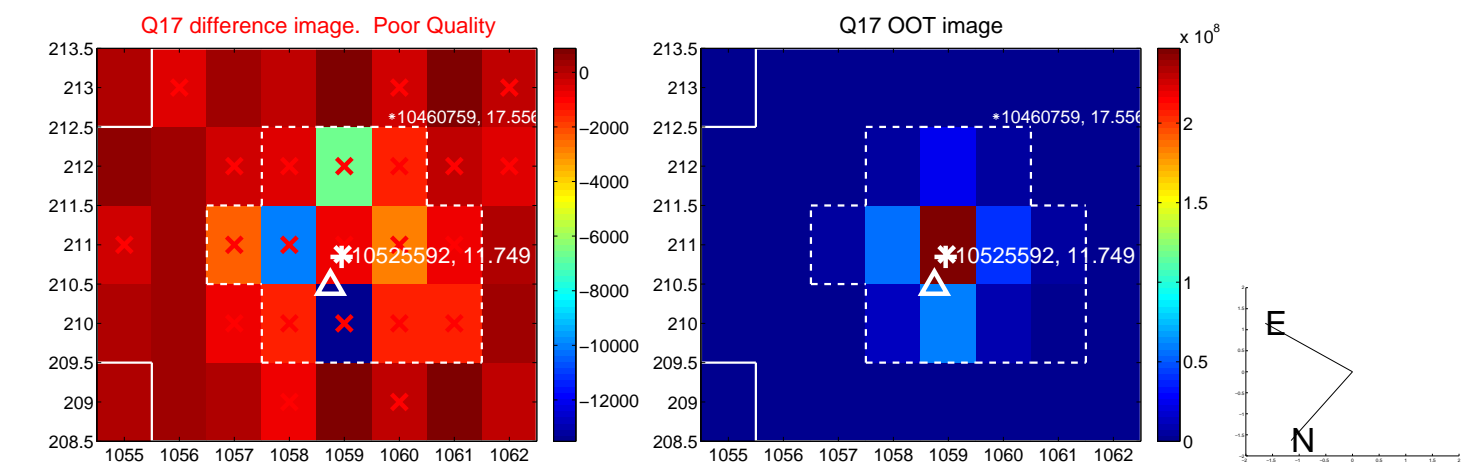
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

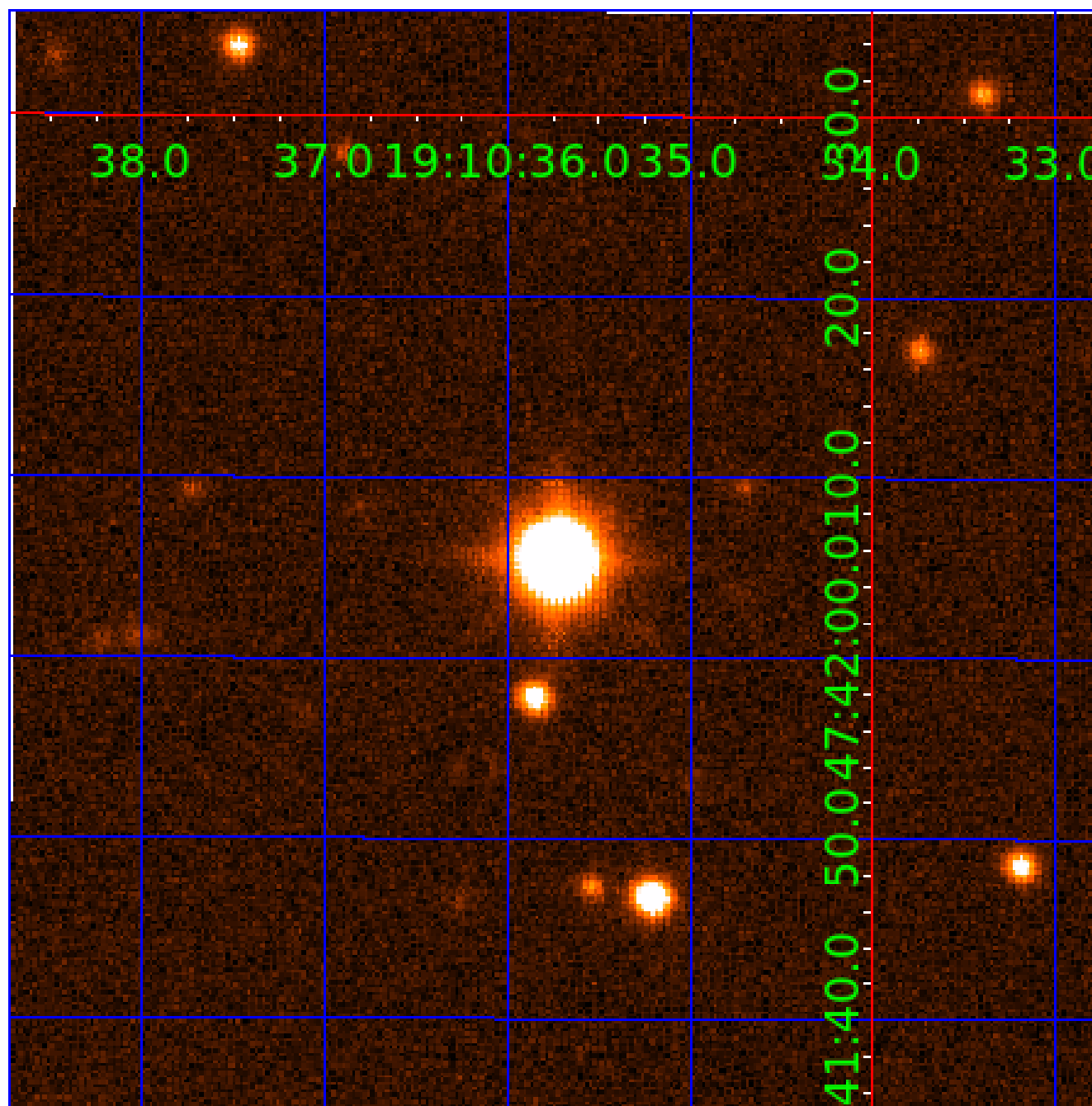


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010525592

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})
010525592-01	OBS	No	4.081397	135.356083	41.7	6.850	13.4	13.0	2.43	7110	1.88	3819.51
010525592-02	OBS	No	1.632478	133.050982	18.3	8.546	10.9	9.0	2.43	7110	1.21	12960.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010525592-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010525592-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

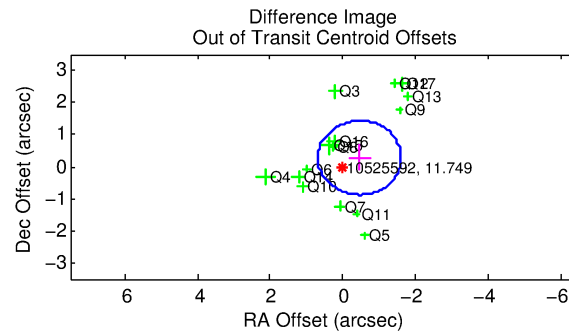
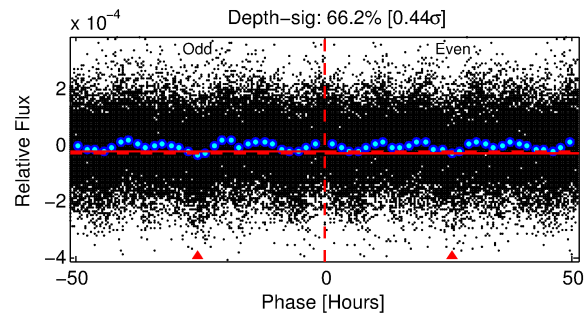
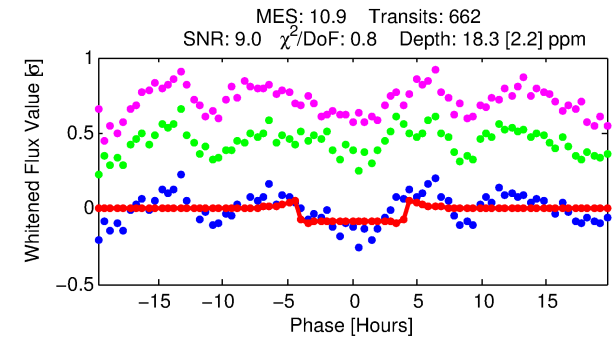
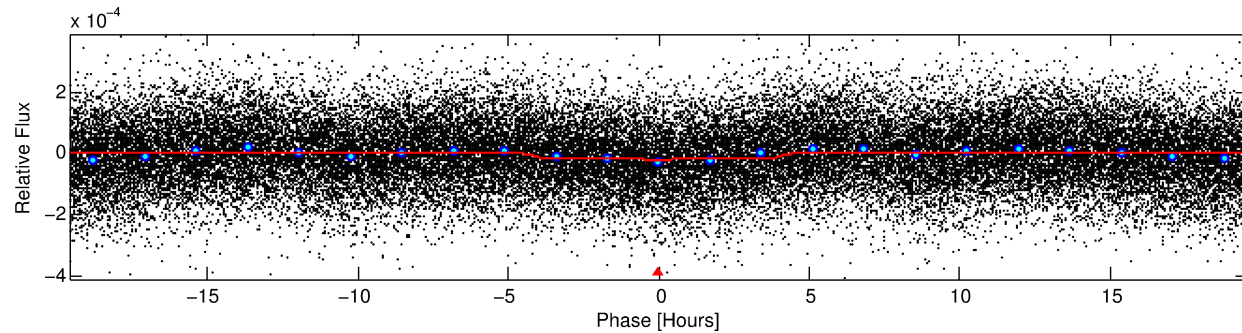
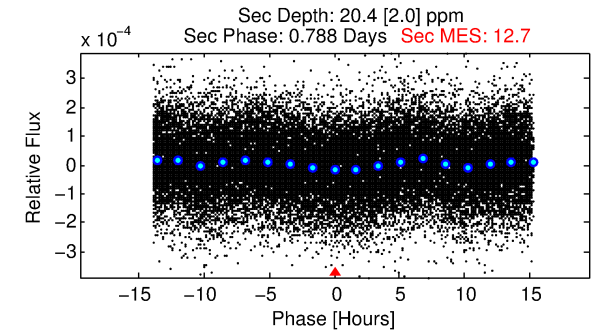
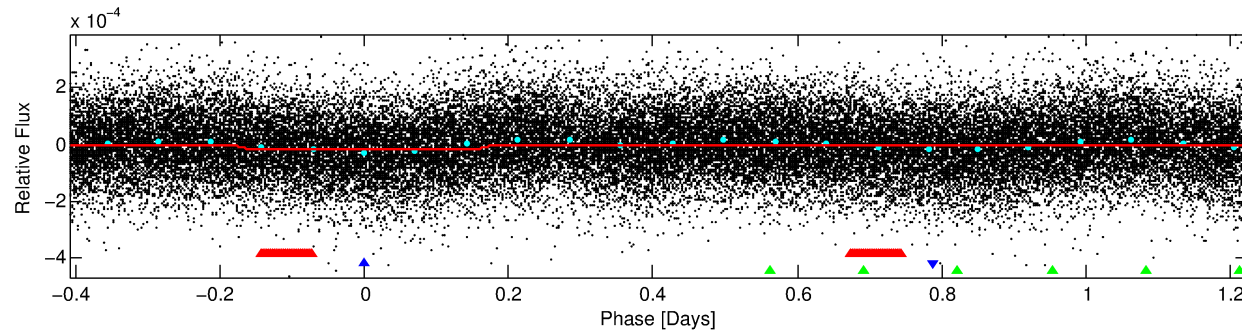
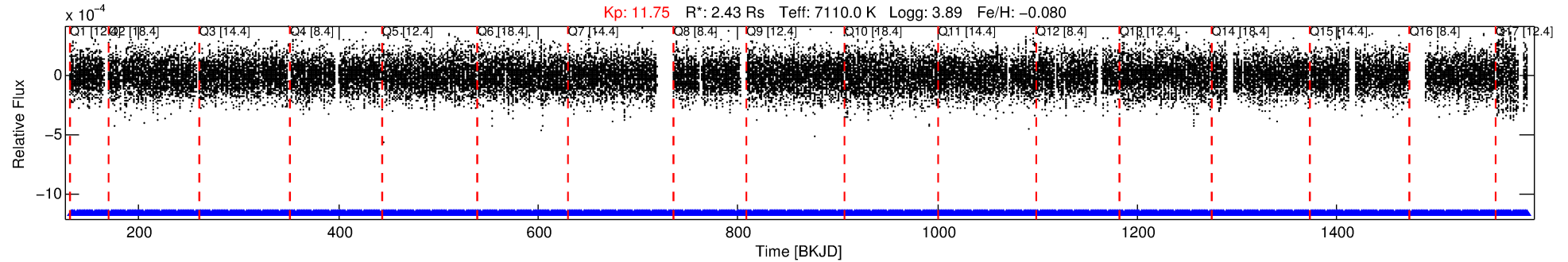
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010525592-02

No Significant Match Found

DV One-Page Summary

KIC: 10525592 Candidate: 2 of 3 Period: 1.632 d



DV Fit Results:

Period = 1.63248 [0.00002] d
Epoch = 133.0510 [0.0041] BKJD
 $R_p/R^* = 0.0046$ [0.0008]
 $a/R^* = 1.14$ [0.29]
 $b = 0.90$ [0.23]
 $\text{Seff} = 12960.53$ [5578.85]
 $T_{\text{eq}} = 2721$ [293] K
 $R_p = 1.21$ [0.42] R_{e}
 $a = 0.0323$ [0.0086] AU
 $A_g = 8.04$ [4.47] [1.57σ]
 $T_{\text{eff}} = 7083$ [704] K [5.72σ]

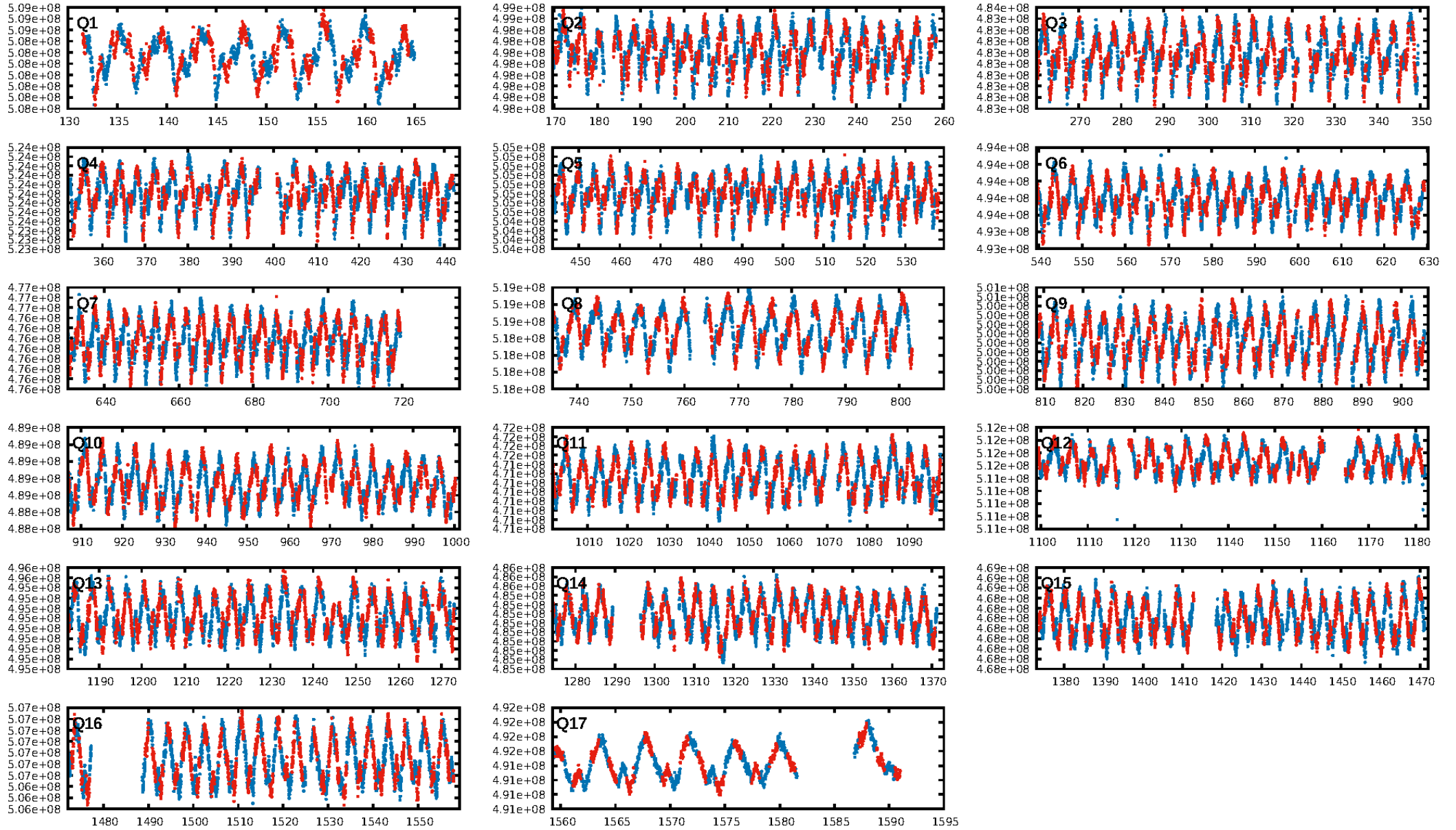
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.37σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.69e-11
RollingBand-fgt: 1.00 [632/632]
GhostDiagnostic-chr: 2.694
Centroid-sig: 64.9%
Centroid-so: 0.447 arcsec [0.94σ]
OotOffset-rm: 0.535 arcsec [1.39σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-rm: 0.601 arcsec [1.45σ]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 1.00 [17/17]

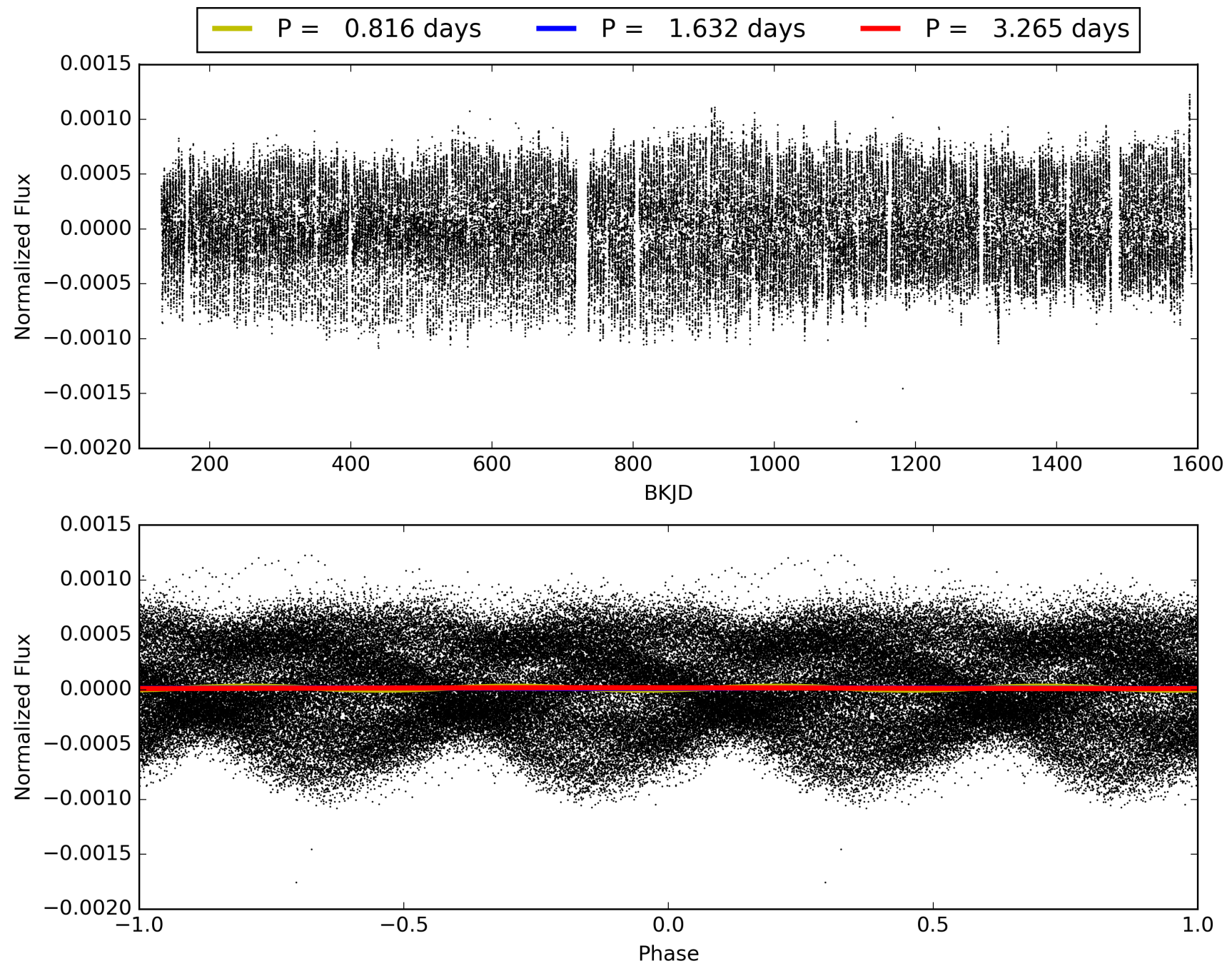
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:52:57 Z

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

TCE 010525592-02, PDC Light Curves

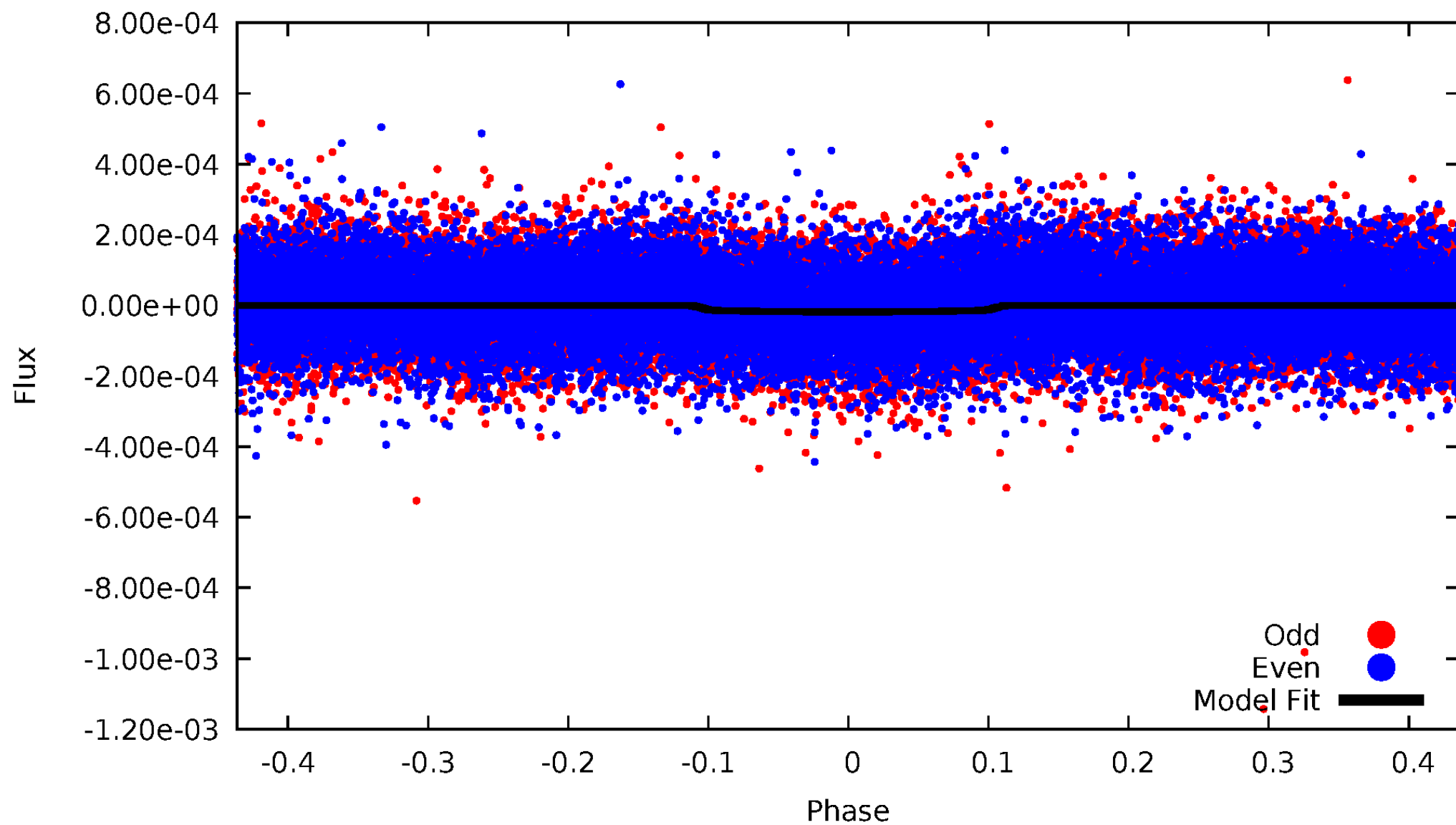


TCE 010525592-02



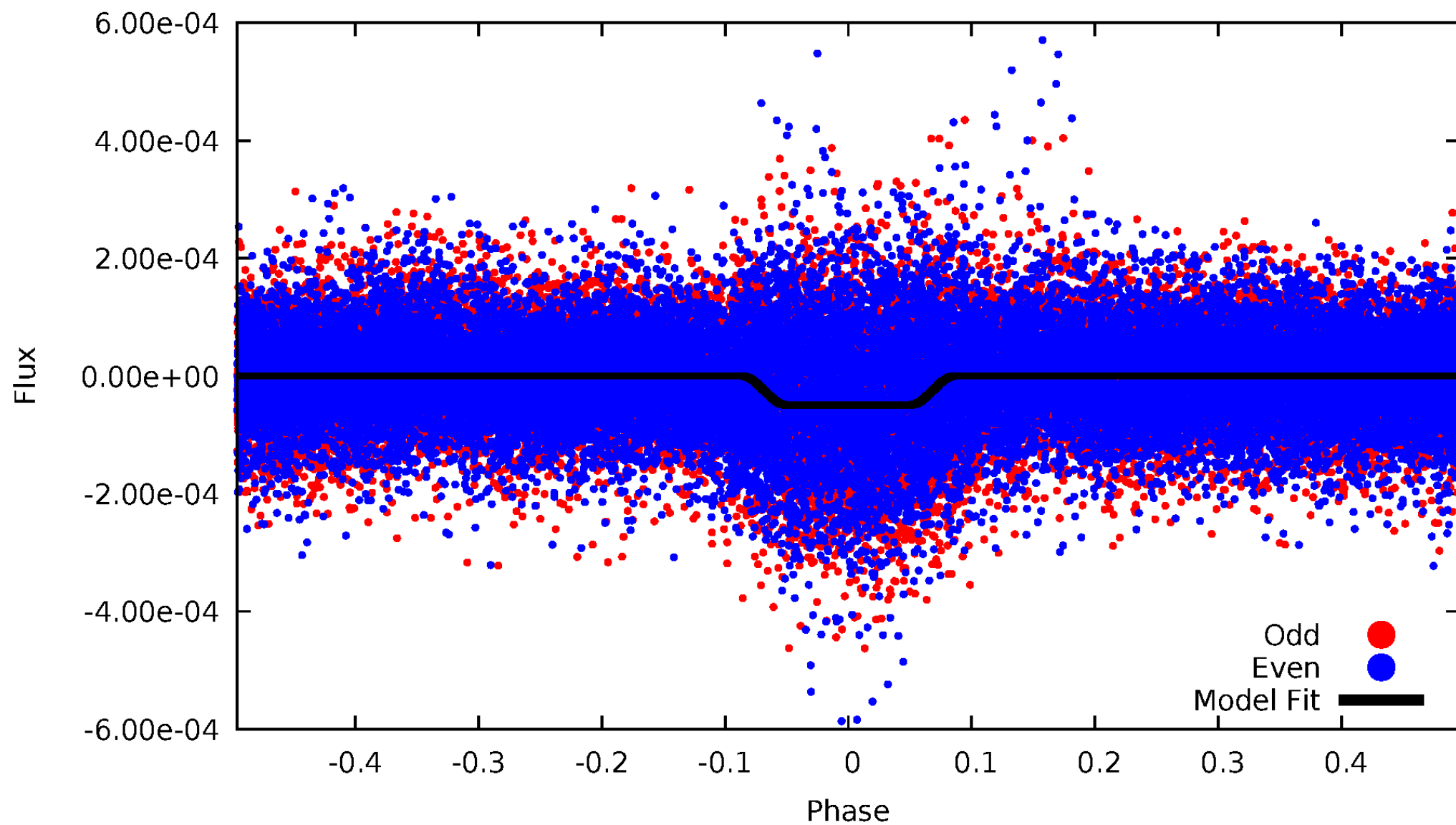
DV Odd/Even

TCE 010525592-02



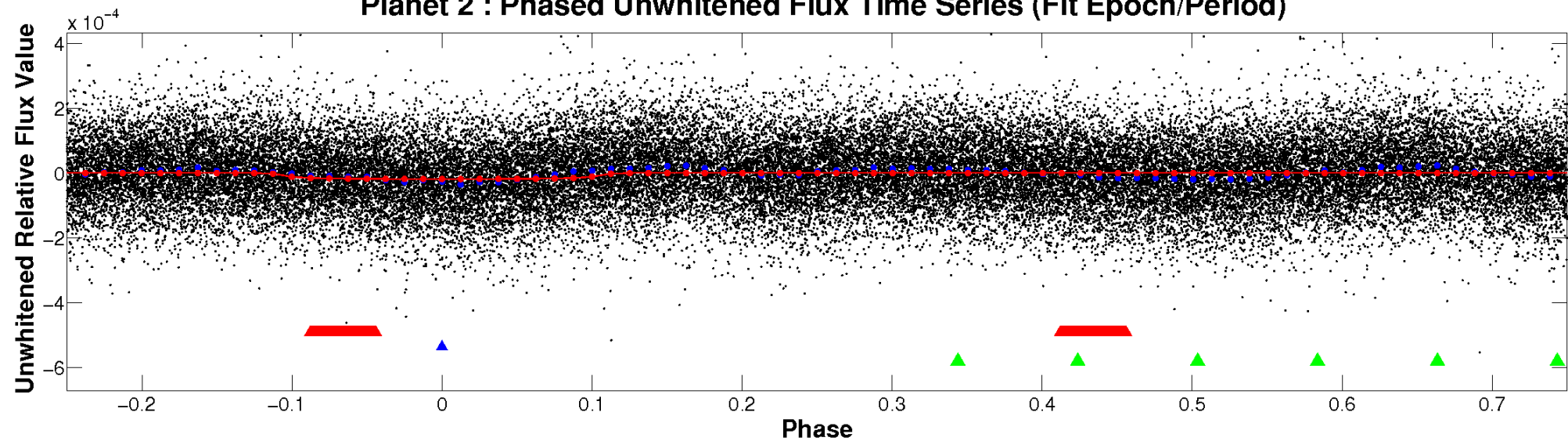
ALT Odd/Even

TCE 010525592-02

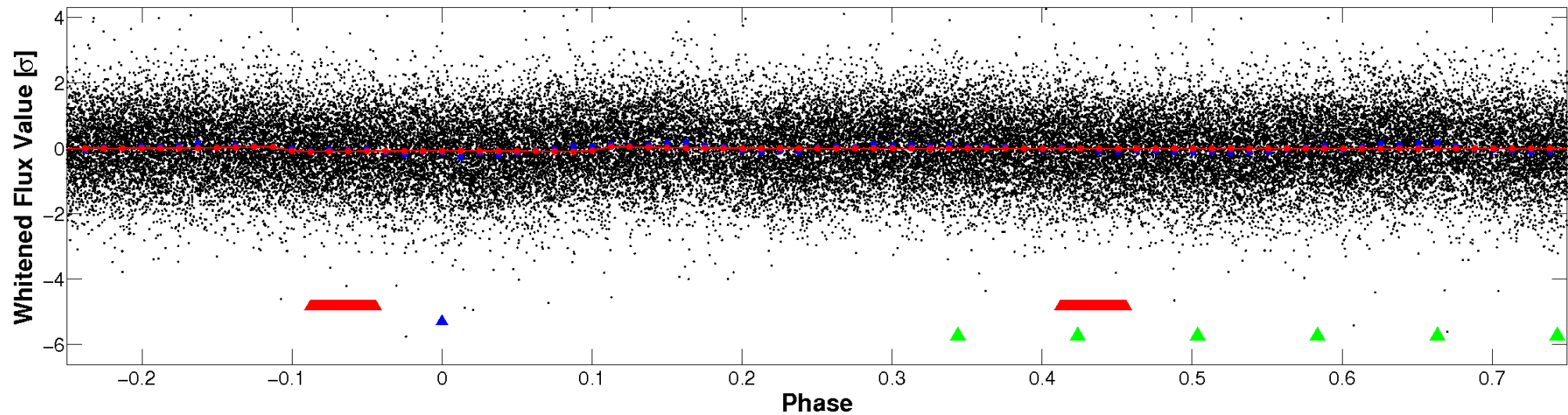


Non-Whitened Vs. Whitened Light Curve

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

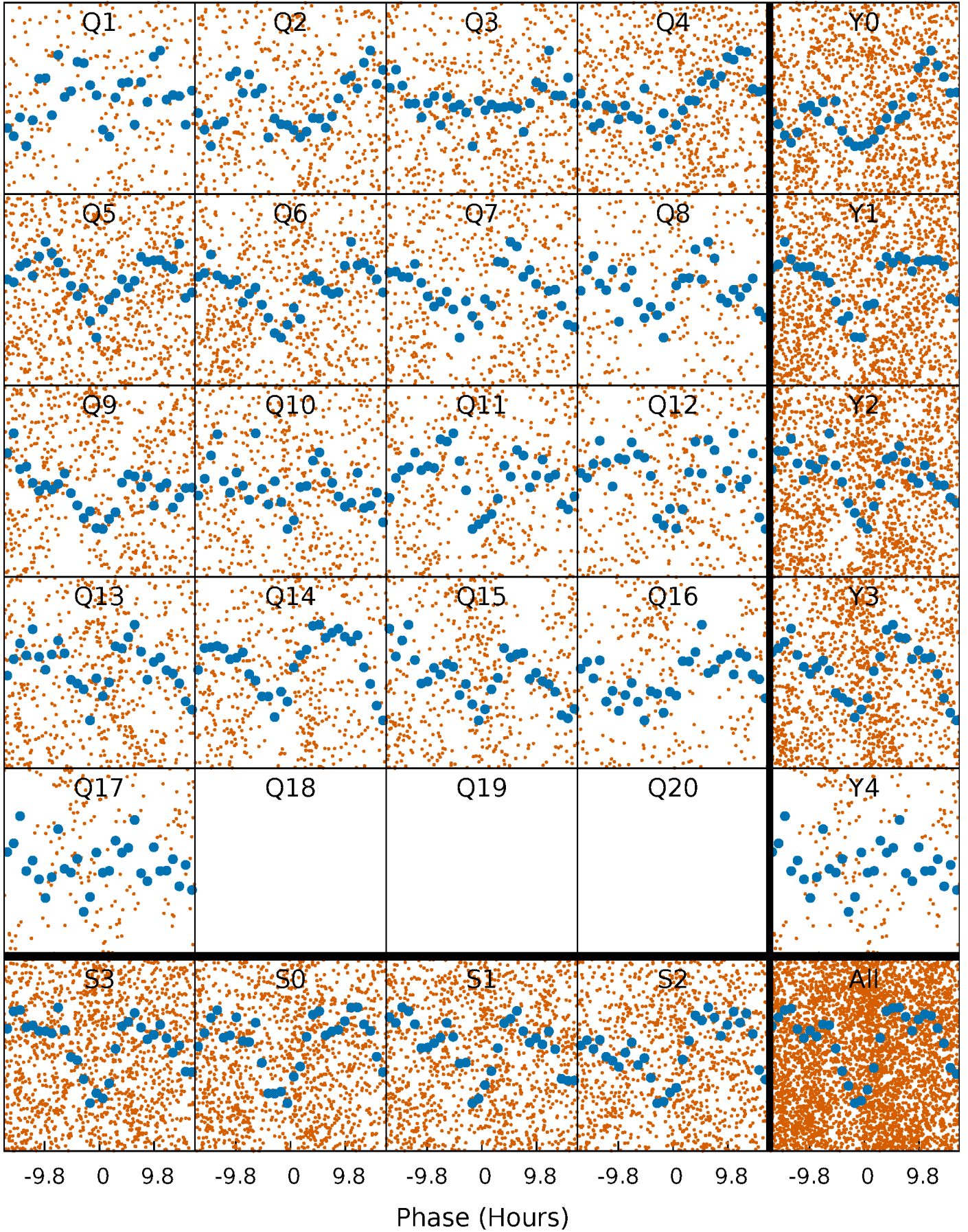


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



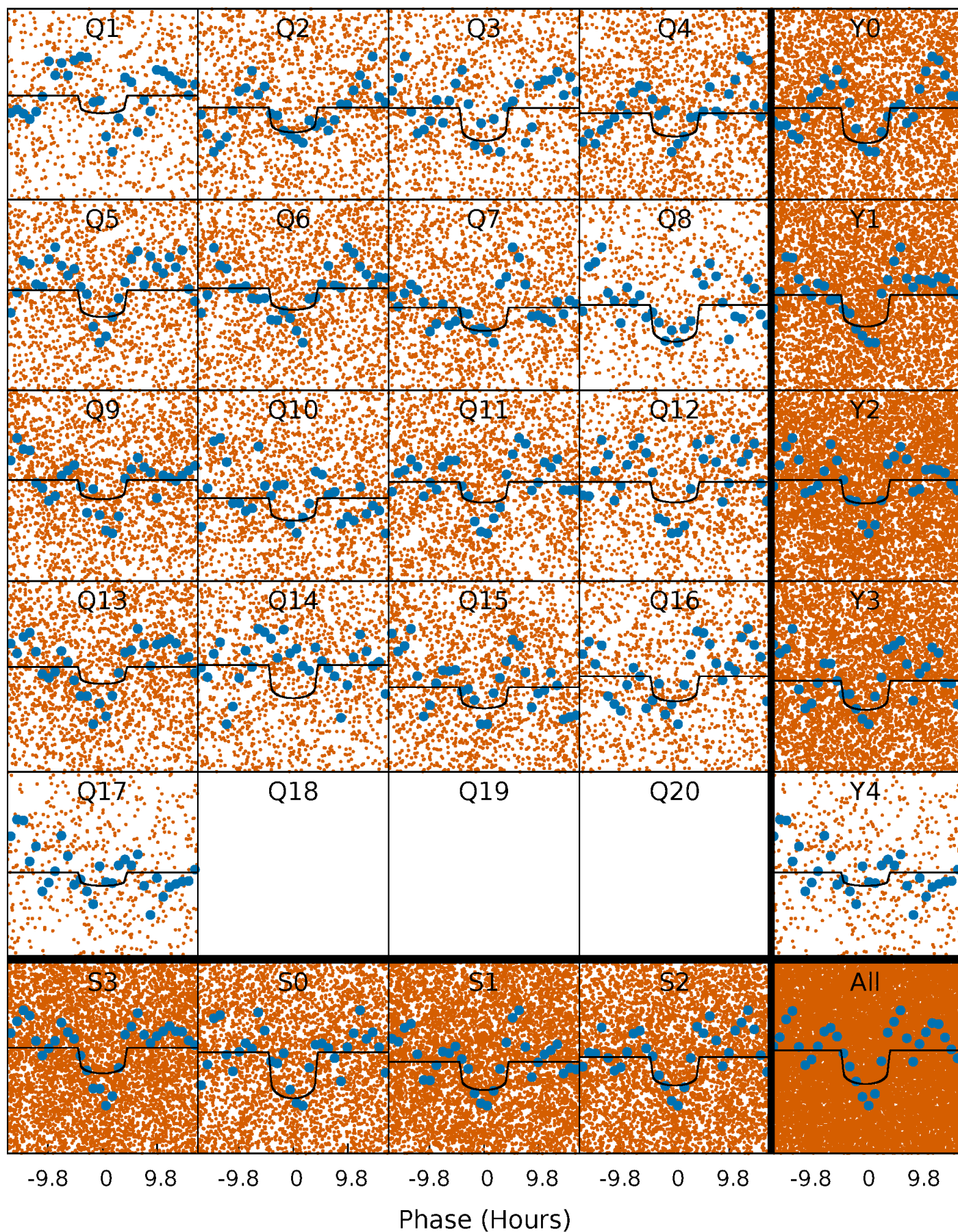
PDC Quarter-Phased Transit Curves

TCE 010525592-02 P= 1.632478 Days $T_0=133.050982$ (BKJD)



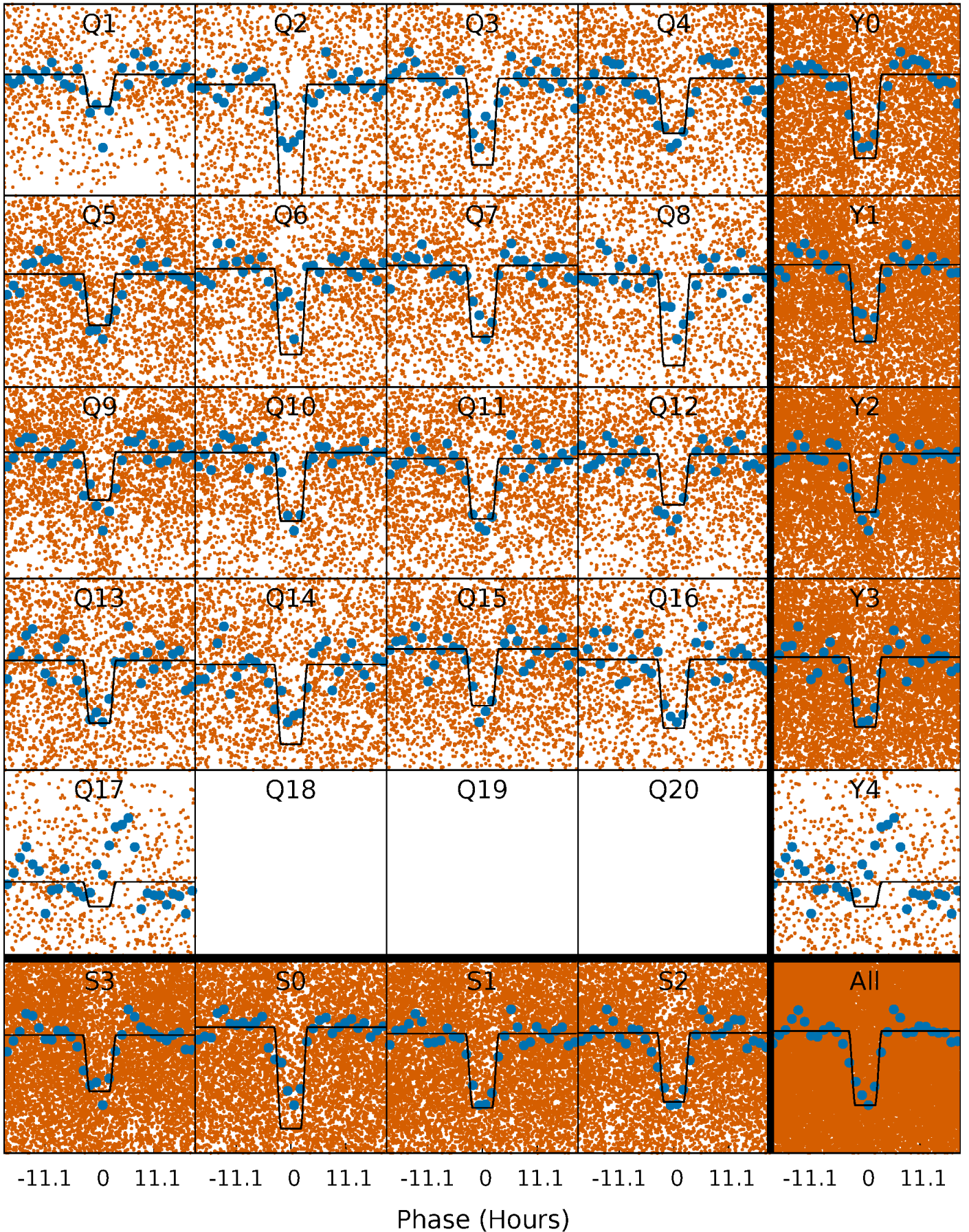
DV Quarter-Phased Transit Curves

TCE 010525592-02 P= 1.632478 Days $T_0=133.050982$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

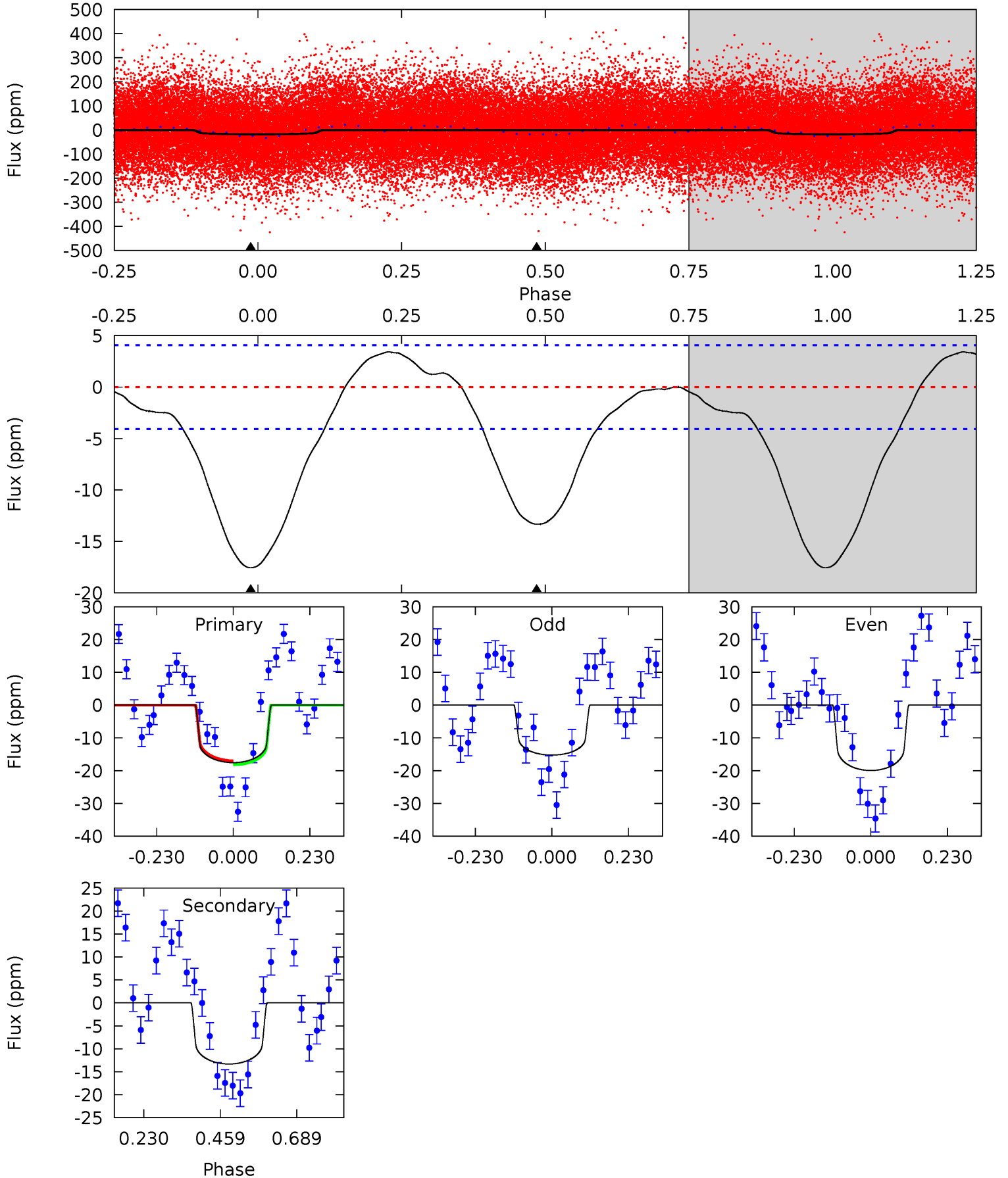
TCE 010525592-02 P= 1.632472 Days $T_0=133.064812$ (BKJD)



DV Model-Shift Uniqueness Test

010525592-02, P = 1.632478 Days, E = 131.418504 Days

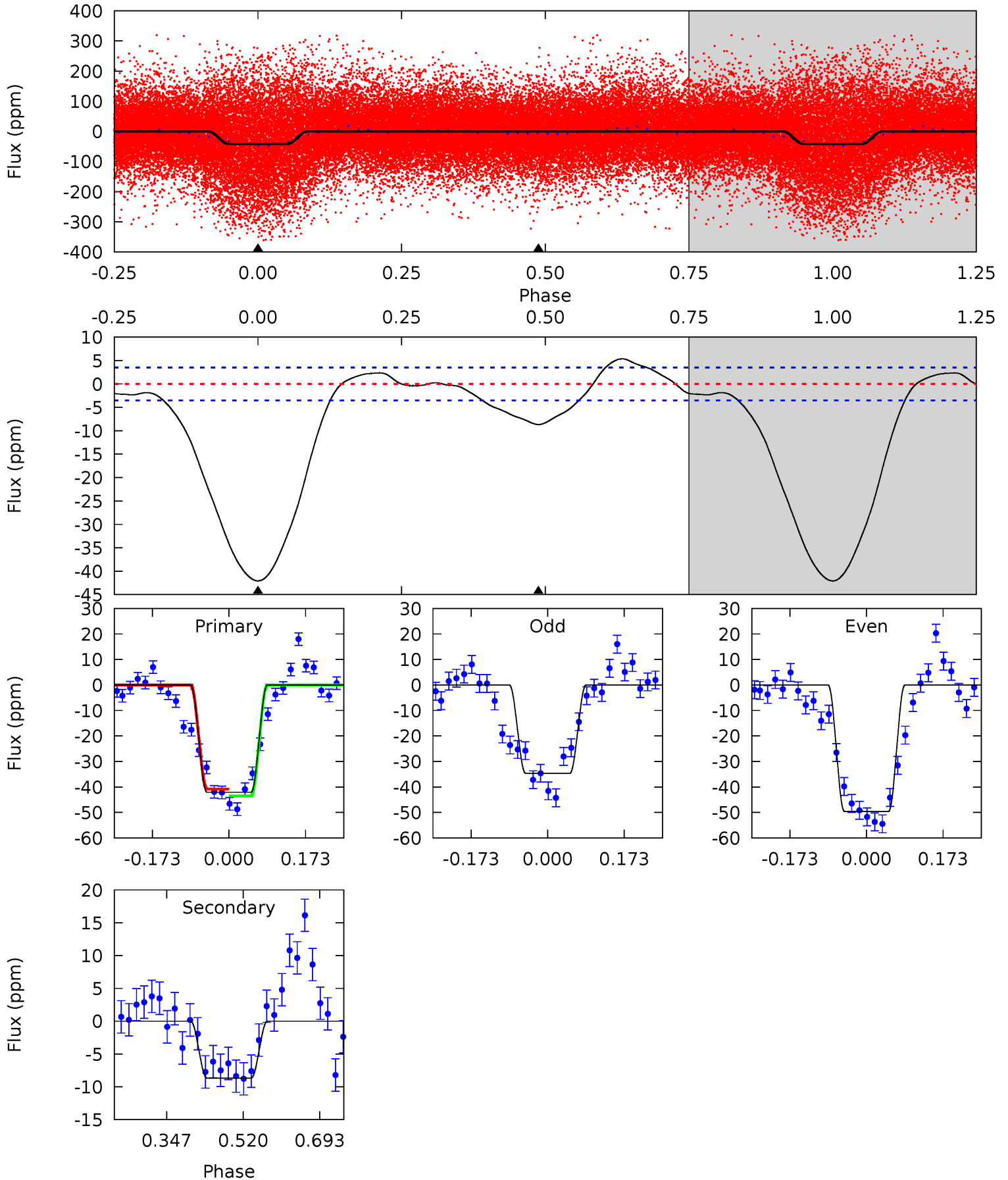
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	14.3	0	0	4.39	1.20	1.90	18.9	18.9	14.3	14.3	2.54	1.10	0.16	0.63



Alt Model-Shift Uniqueness Test

010525592-02, P = 1.632472 Days, E = 131.432340 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.1	10.9	0	0	4.45	1.36	2.35	53.1	53.1	10.9	10.9	9.47	0.98	0.11	1.70



Stellar Parameters For KIC 010525592

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7110^{+169}_{-232}	$3.893^{+0.234}_{-0.108}$	$-0.080^{+0.250}_{-0.300}$	$2.427^{+0.481}_{-0.721}$	$1.678^{+0.172}_{-0.295}$	$0.165^{+0.247}_{-0.053}$
	+2%/-3%	+6%/-3%	+312%/-375%	+20%/-30%	+10%/-18%	+150%/-32%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010525592-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-13 ± 1	$1.18^{+0.25}_{-0.26}$	3762^{+218}_{-256}	6211^{+718}_{-545}	$5.505^{+3.396}_{-1.814}$
Alt.	-9 ± 1	$1.79^{+0.33}_{-0.31}$	3744^{+213}_{-273}	4498^{+293}_{-285}	$1.534^{+0.697}_{-0.442}$

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

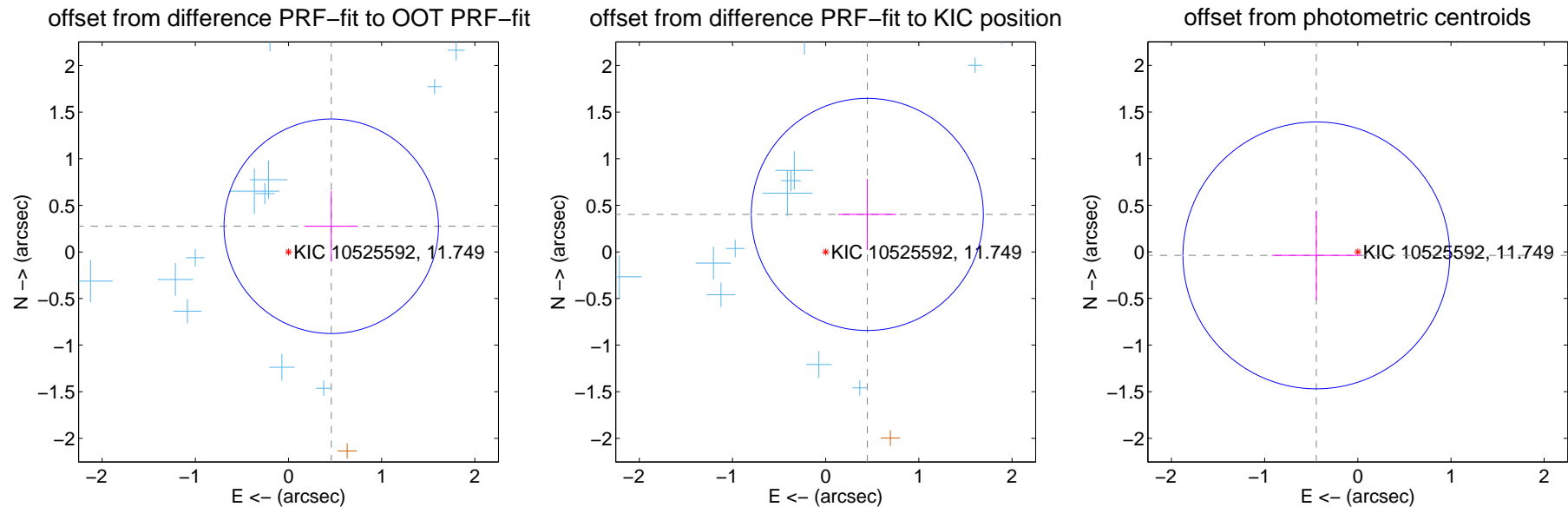
DV Centroid Data

Supplemental centroid analysis for 010525592-02. **Kepler magnitude: 11.75.** Transit SNR 9.02

There are 14 quarters with good PRF difference image offsets

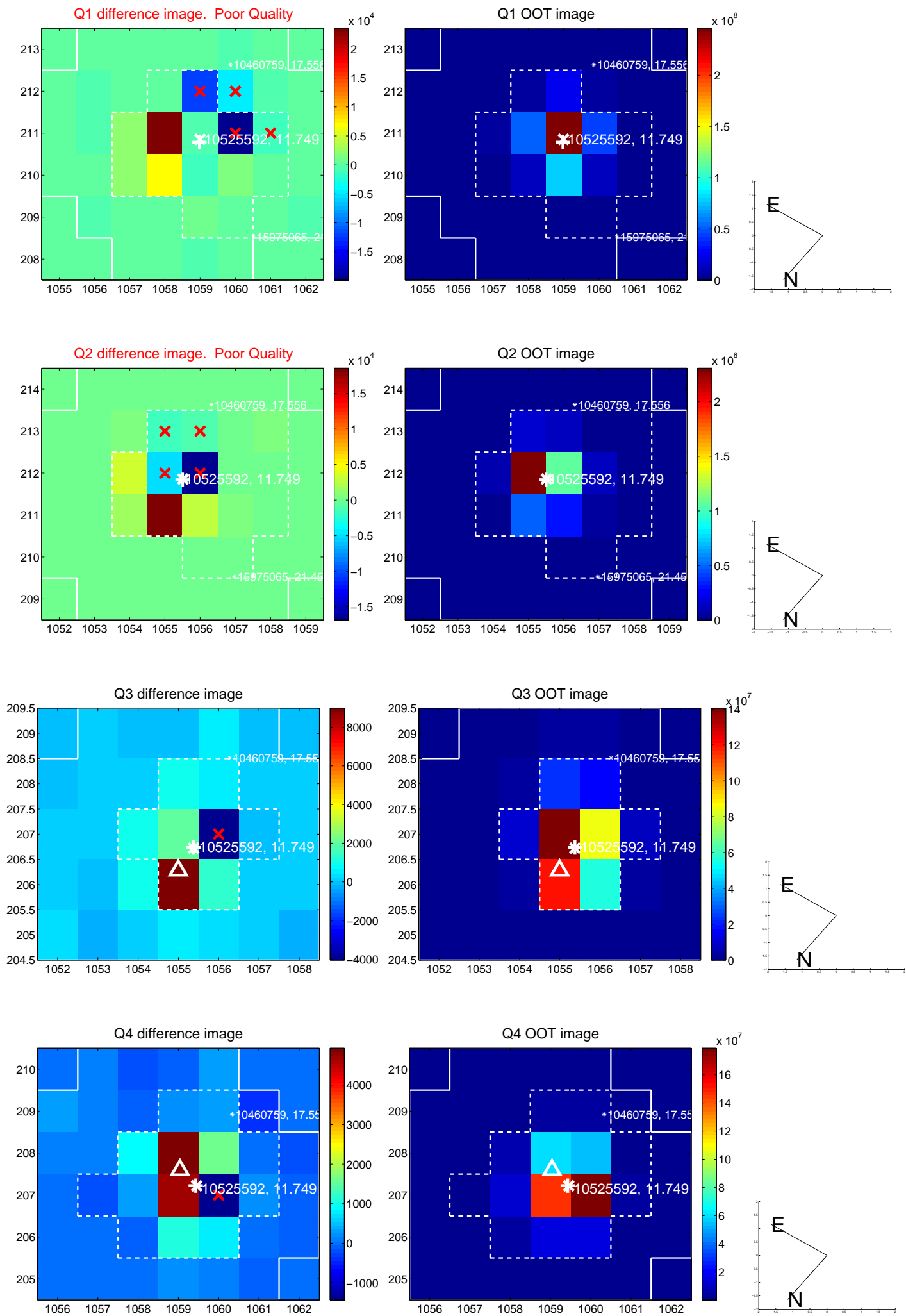
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.535 ± 0.384	1.39	-0.459 ± 0.288	0.275 ± 0.377
PRF-fit source offset from KIC position	0.601 ± 0.415	1.45	-0.447 ± 0.311	0.402 ± 0.383
photometric centroid source offset	0.45 ± 0.48	0.94	0.45 ± 0.48	-0.04 ± 0.48

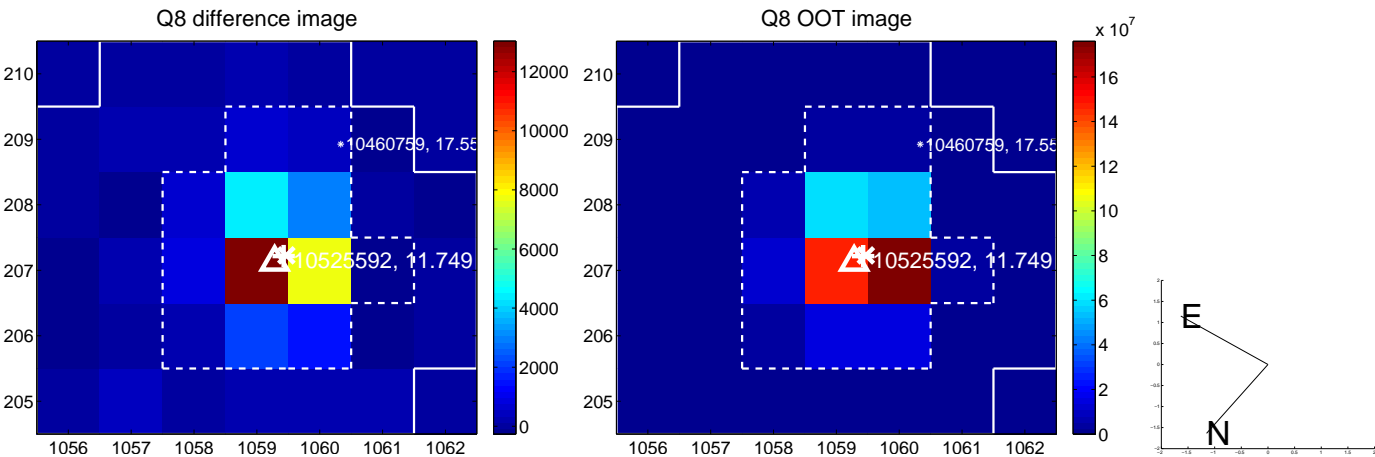
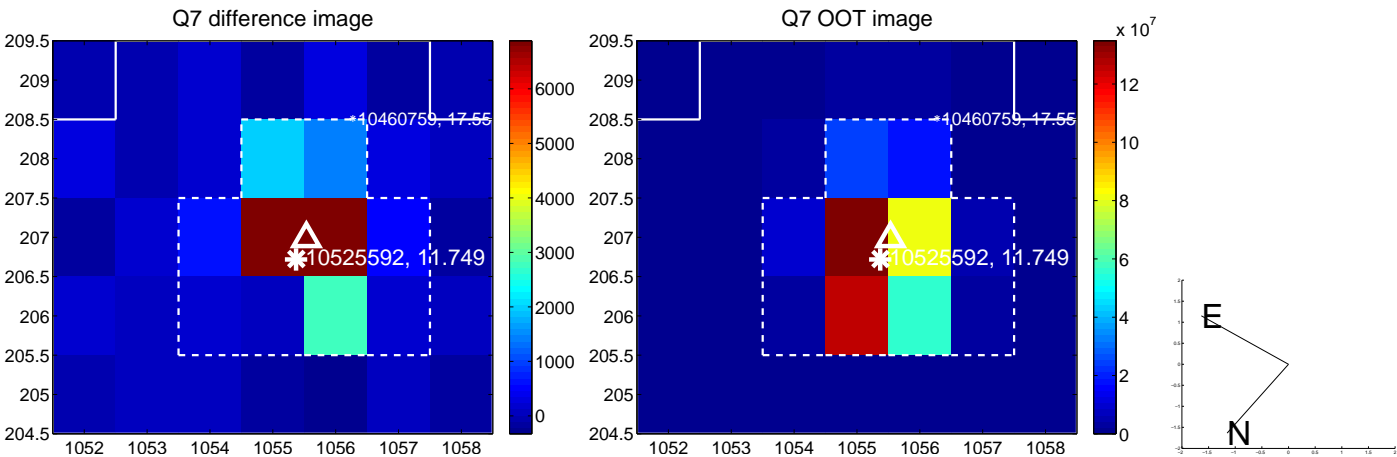
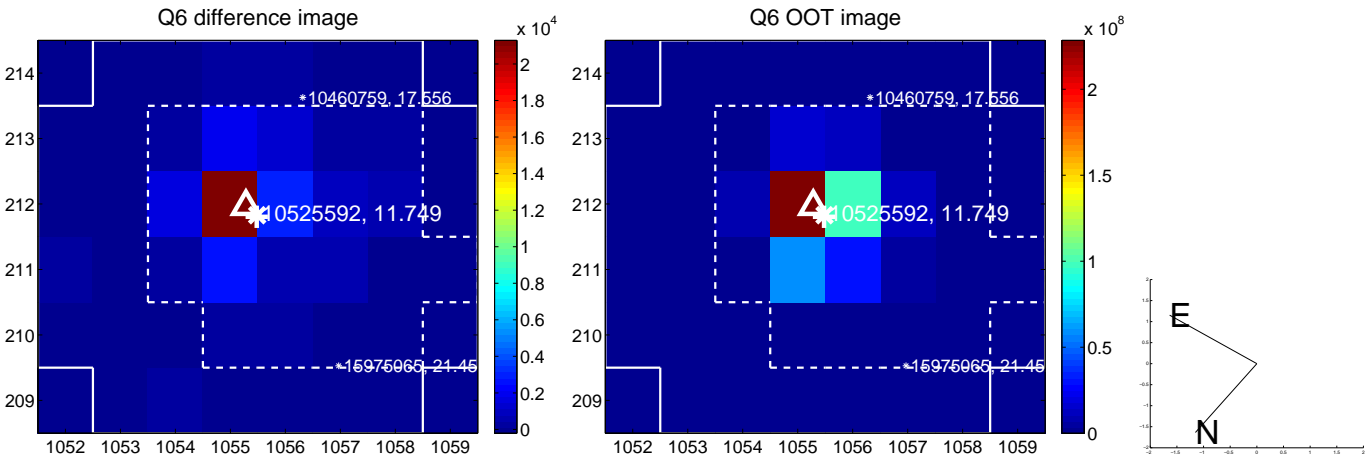
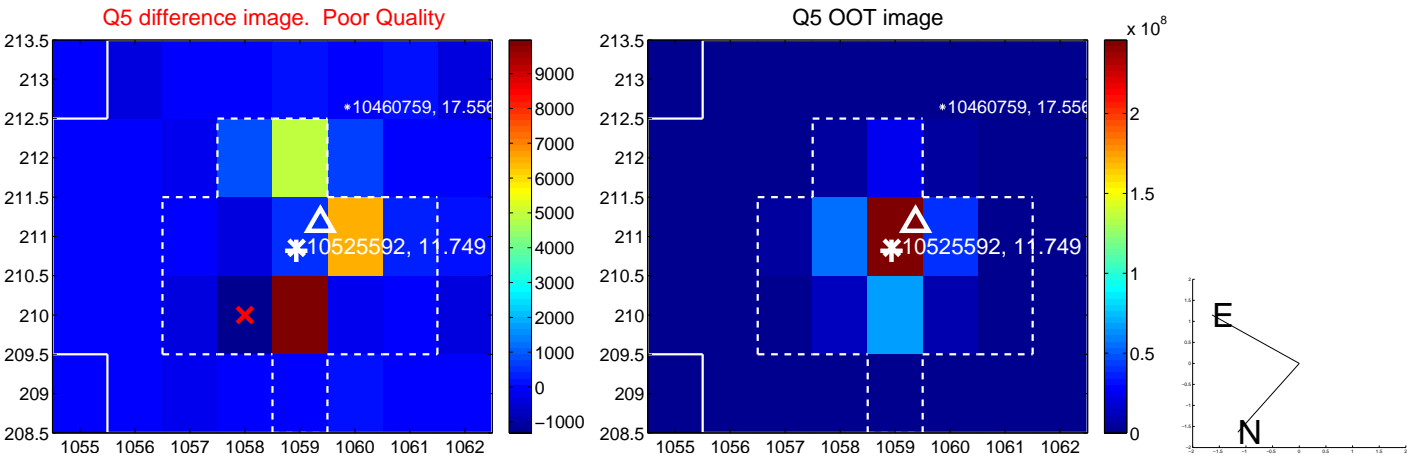


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

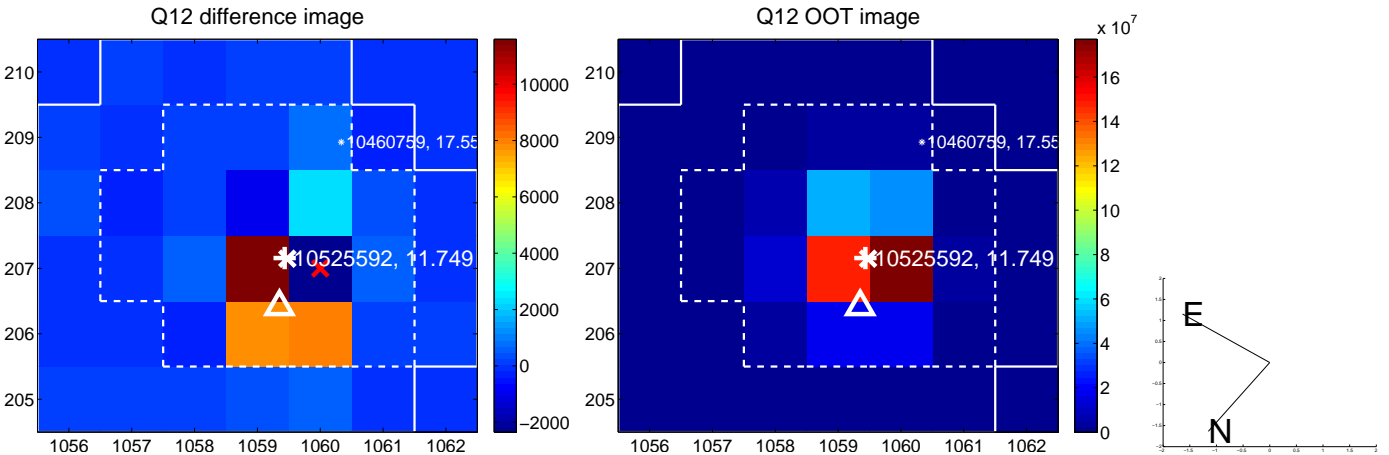
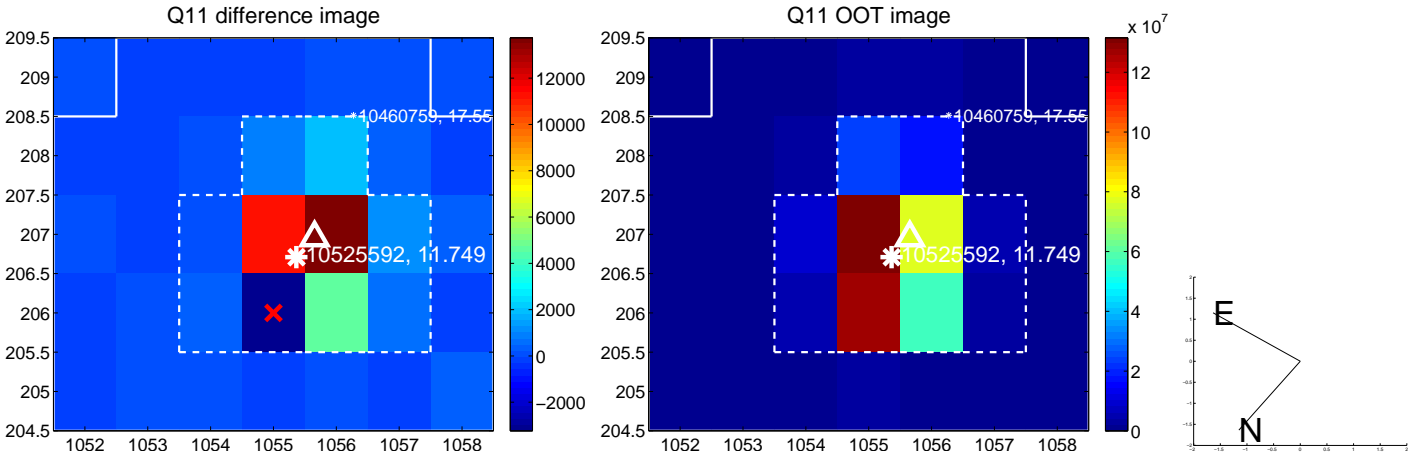
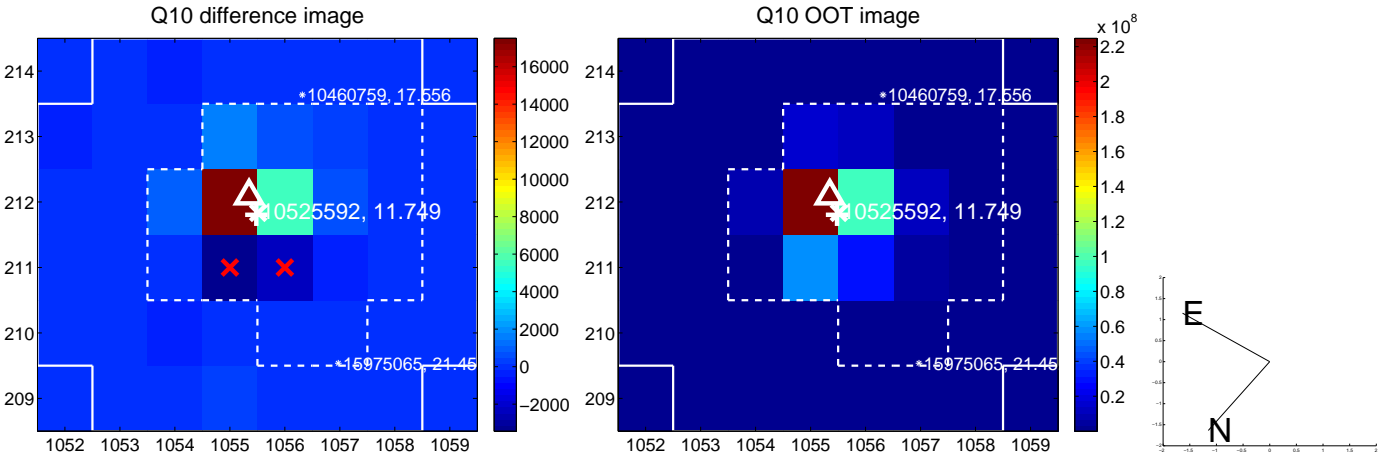
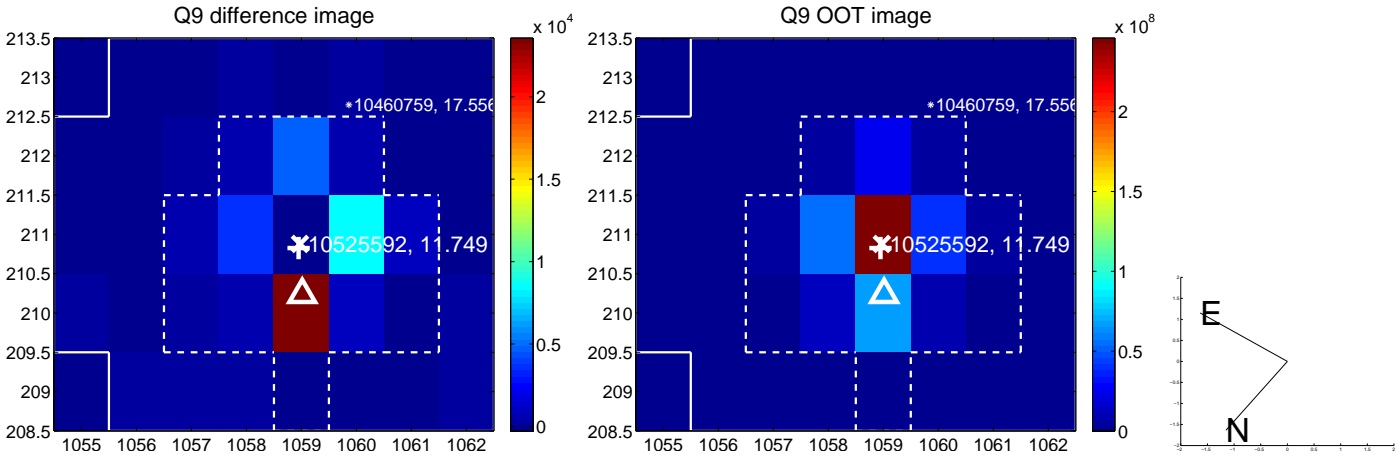
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



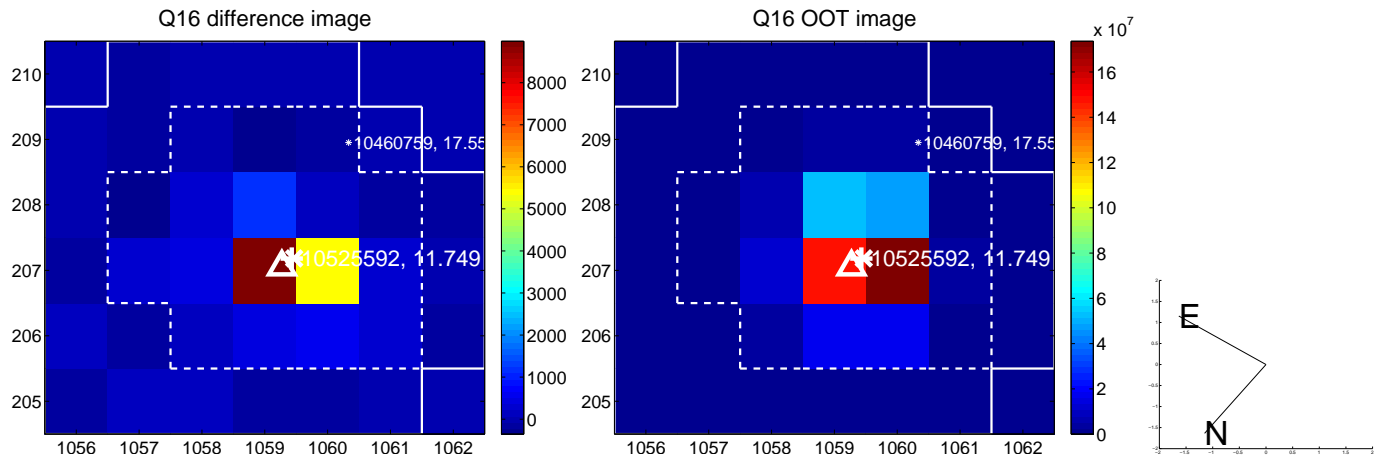
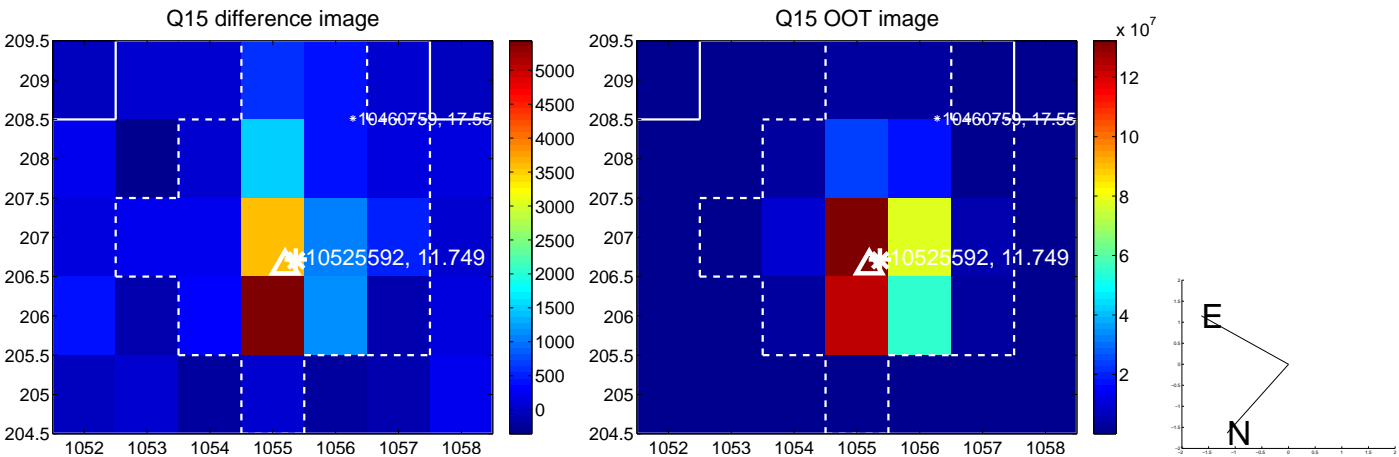
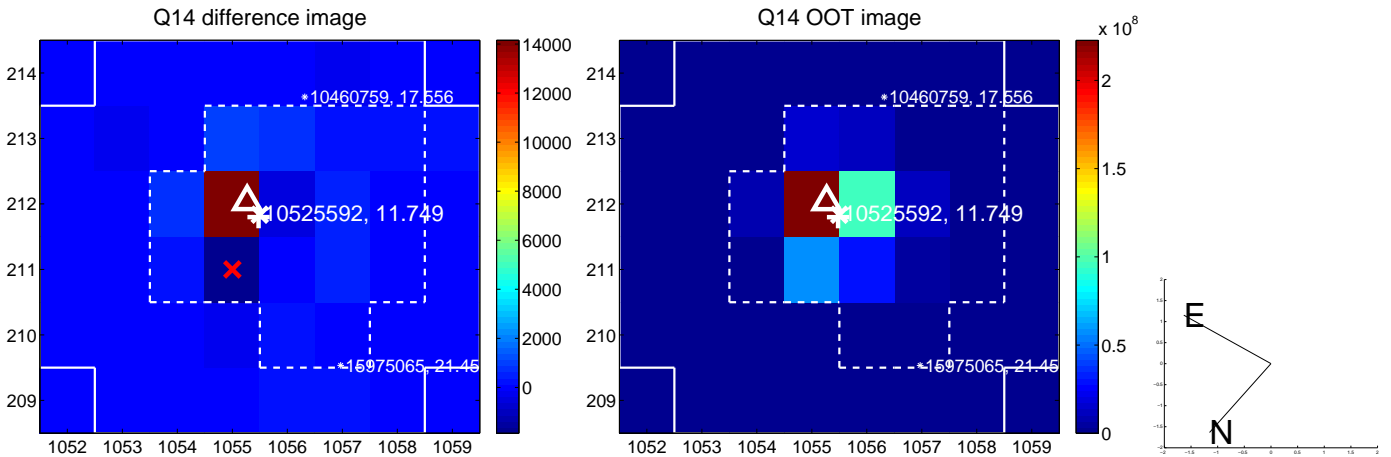
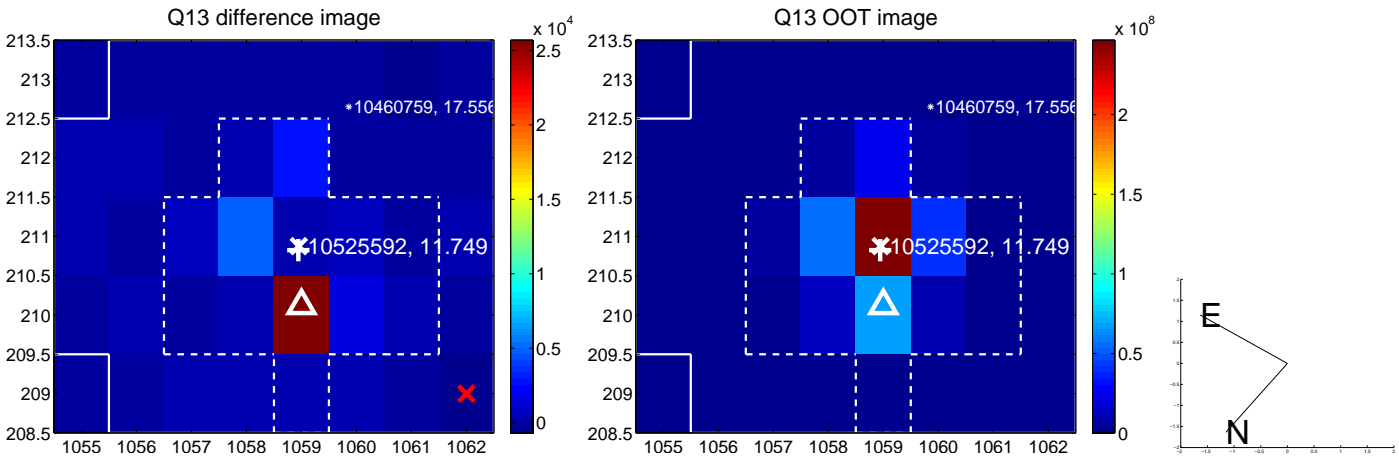
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



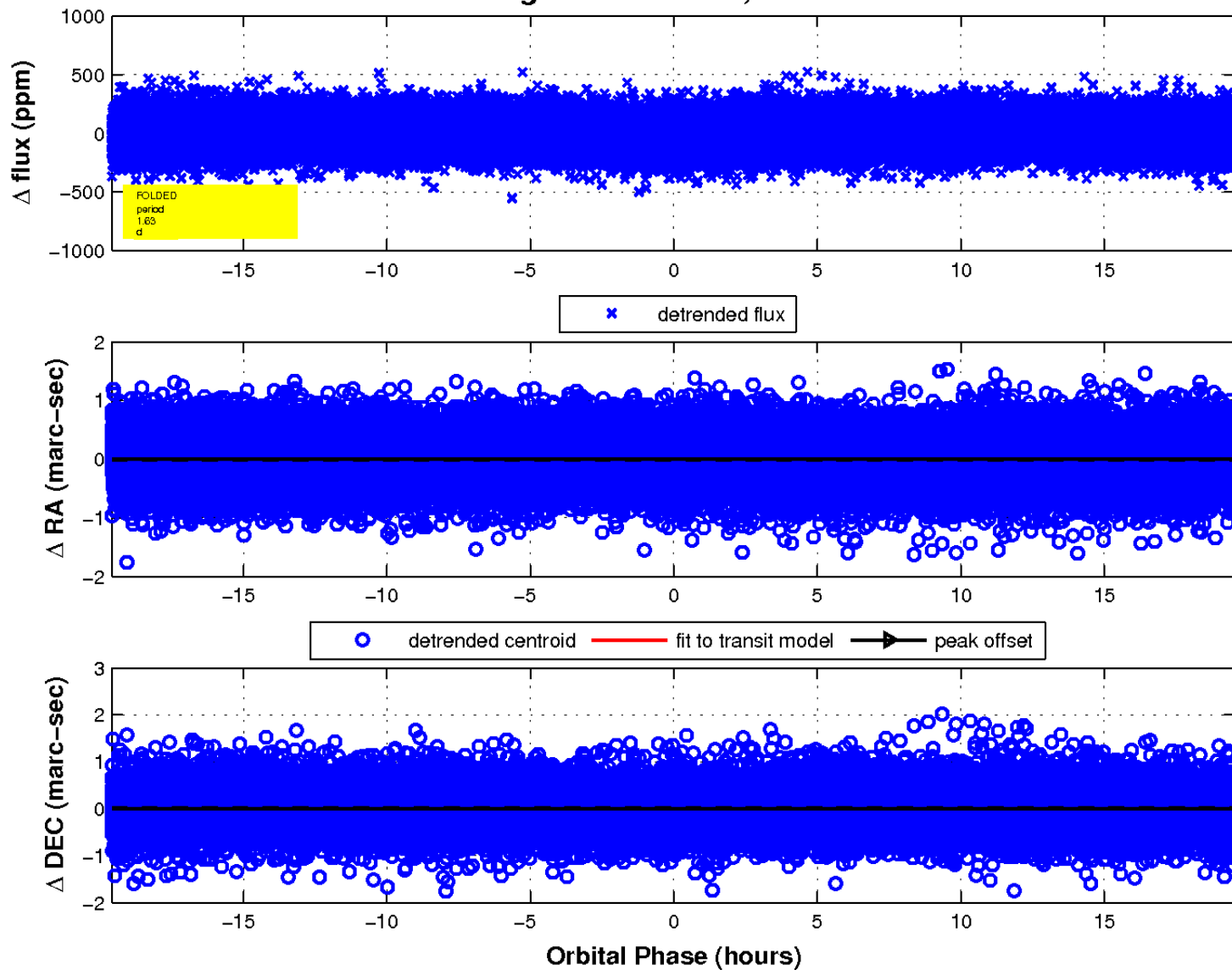
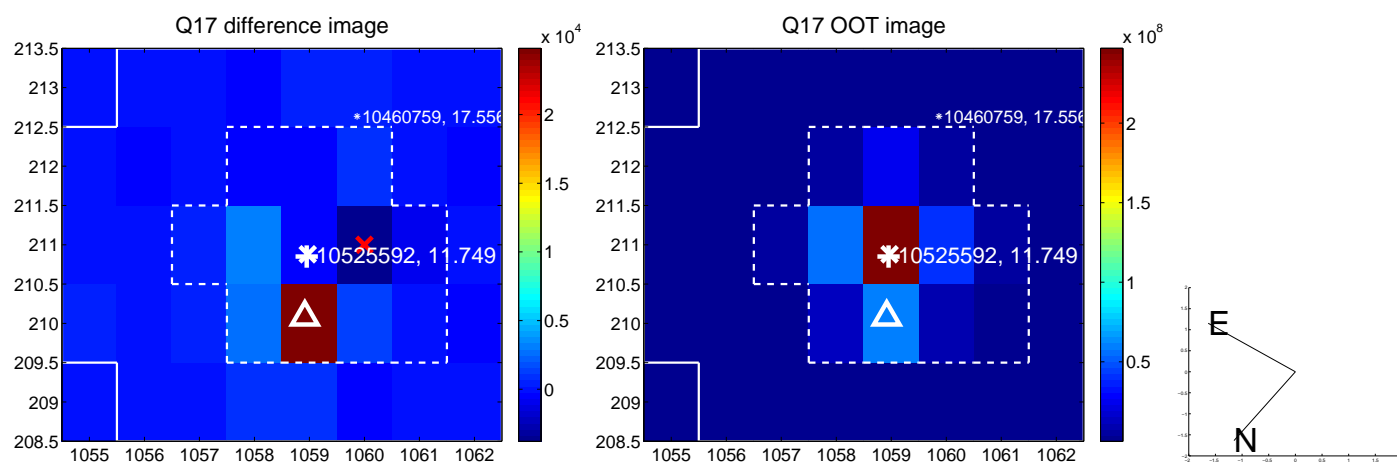
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

