

KIC 007456001

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})
007456001-01	OBS	1517.01	40.068572	151.809106	973.5	6.153	47.2	50.6	0.99	6026	3.39	23.31
007456001-02	OBS	No	397.168132	471.897603	530.5	5.195	9.6	6.2	0.99	6026	4.24	1.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007456001-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007456001-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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 007456001-01

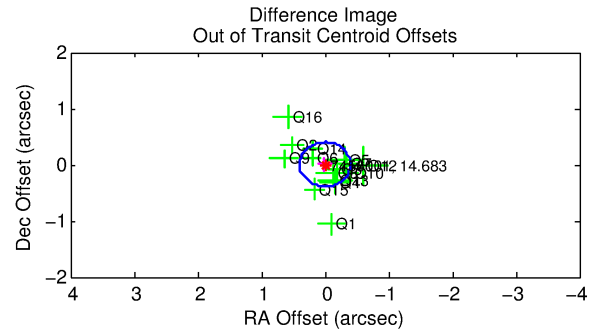
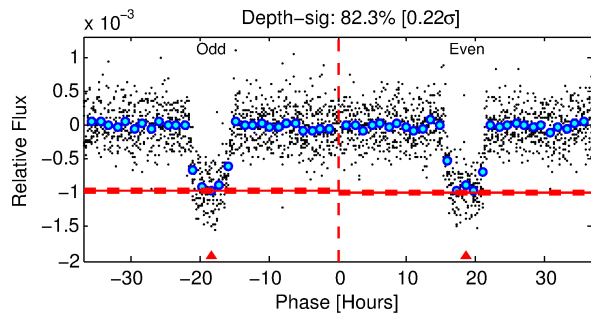
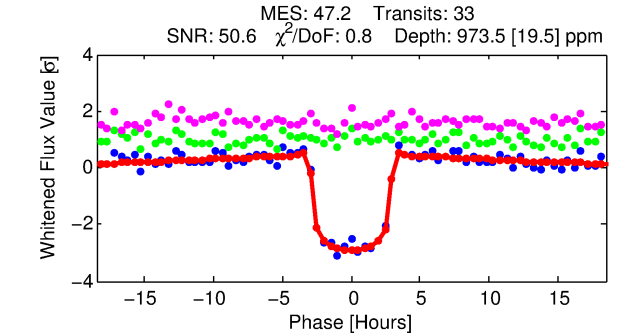
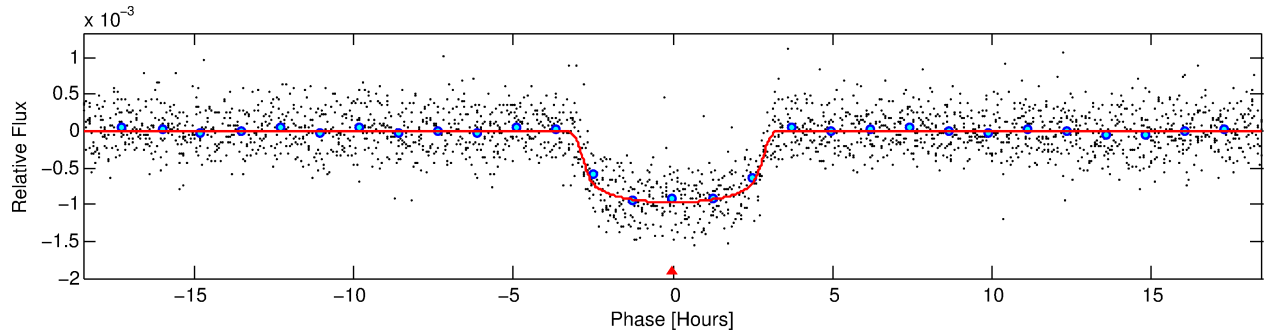
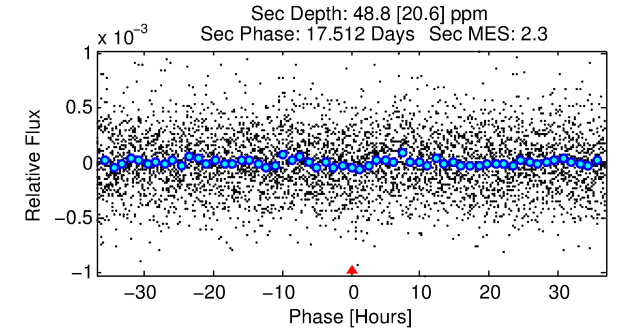
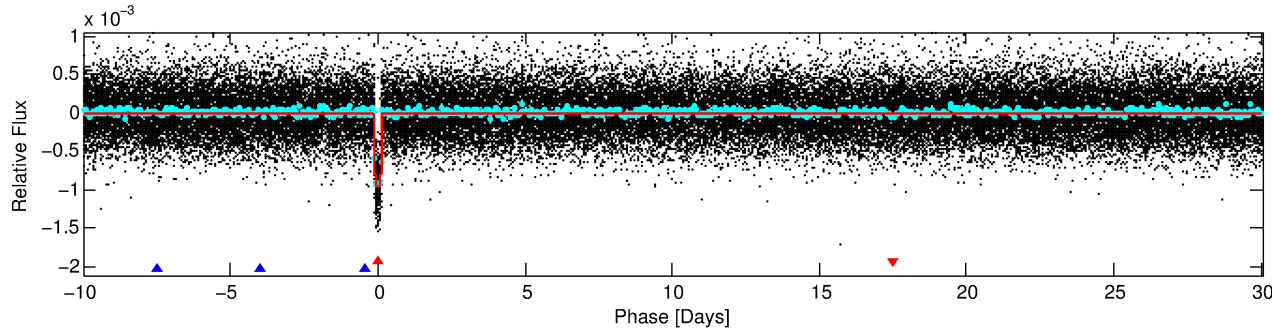
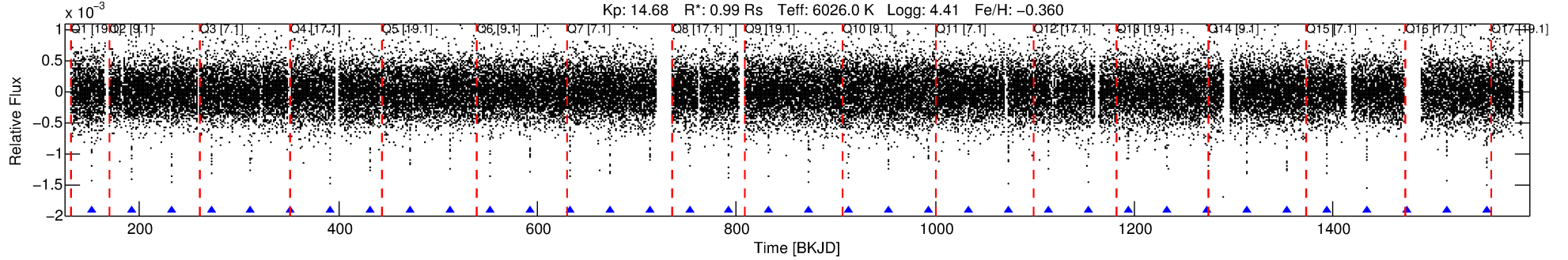
No Significant Match Found

DV One-Page Summary

KIC: 7456001 Candidate: 1 of 2 Period: 40.069 d

KOI: K01517.01 Corr: 0.992

Kp: 14.68 R*: 0.99 Rs Teff: 6026.0 K Logg: 4.41 Fe/H: -0.360



DV Fit Results:

Period = 40.06857 [0.00011] d
Epoch = 151.8091 [0.0021] BKJD
Rp/R* = 0.0314 [0.0017]
a/R* = 33.69 [8.81]
b = 0.78 [0.13]
Seff = 23.31 [8.66]
Teq = 560 [52] K
Rp = 3.39 [0.96] Re
a = 0.2233 [0.0530] AU
Ag = 116.27 [65.03] [1.77σ]
Teffp = 2845 [321] K [7.02σ]

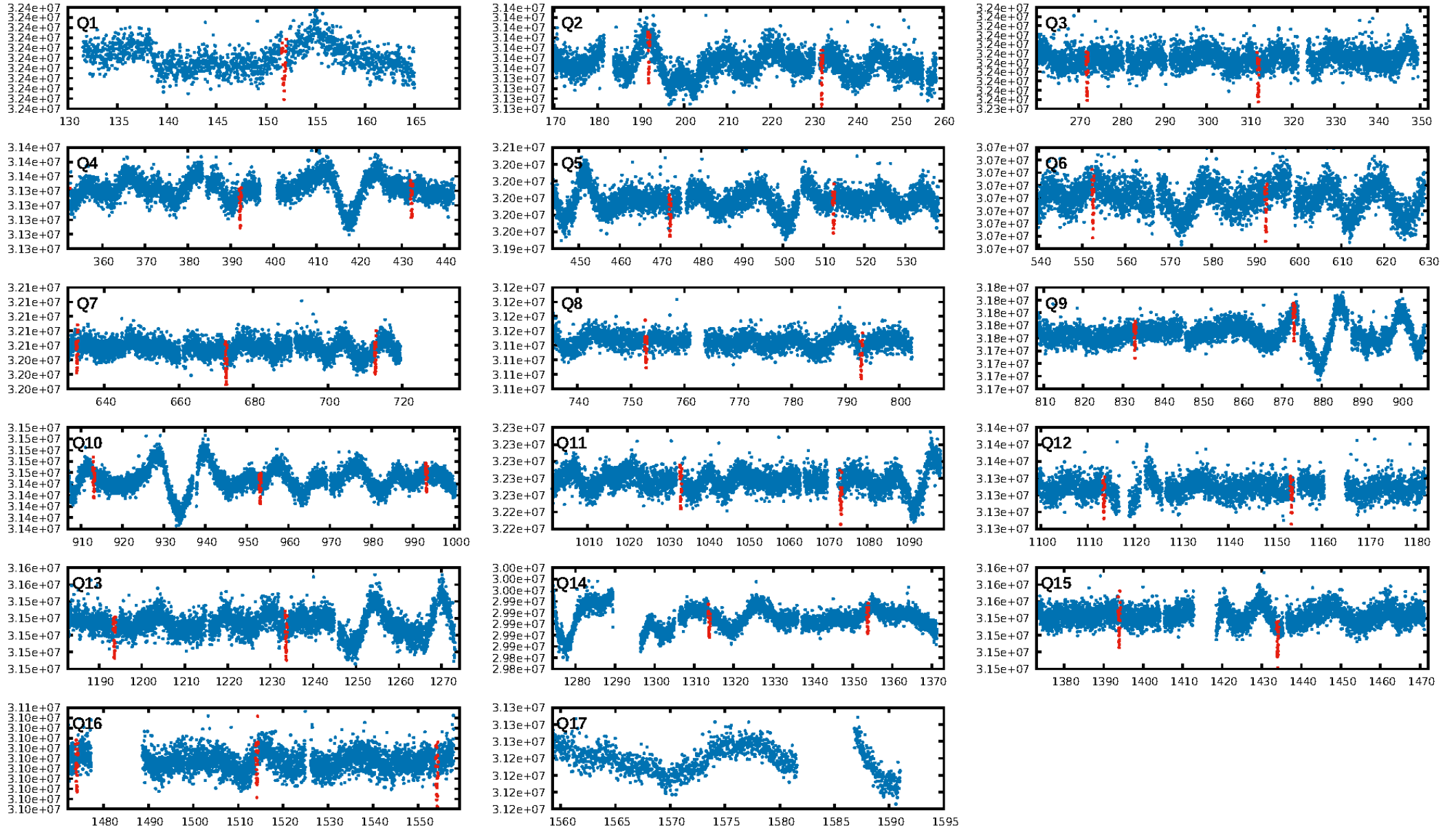
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1064.35σ]
ModelChiSquare2-sig: 97.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [32/32]
GhostDiagnostic-chr: 3.27
Centroid-sig: 0.0%
Centroid-so: 0.406 arcsec [1.90σ]
OotOffset-rm: 0.005 arcsec [0.03σ]
KicOffset-rm: 0.117 arcsec [0.85σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [15/15]

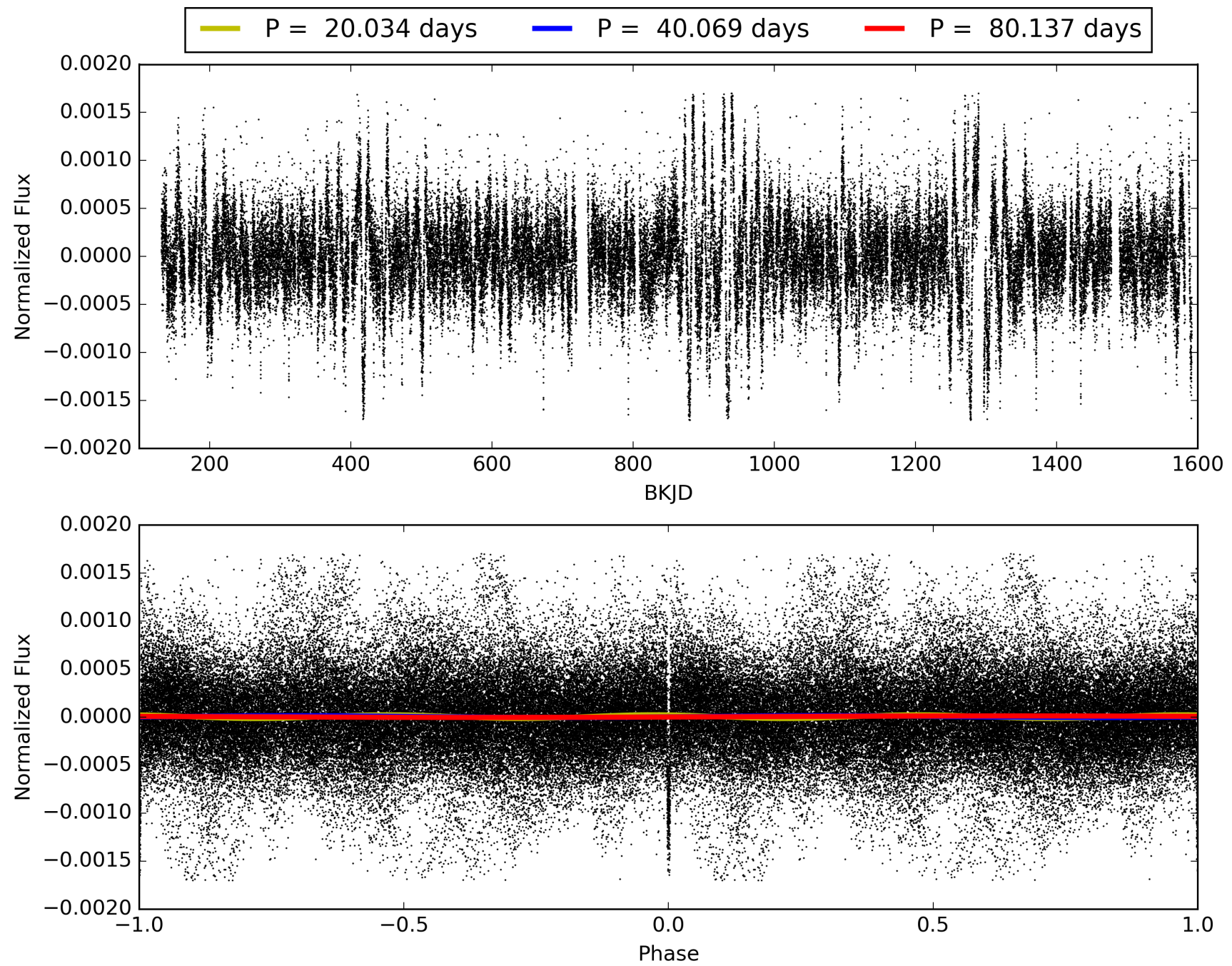
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:40:57 Z

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

TCE 007456001-01, PDC Light Curves

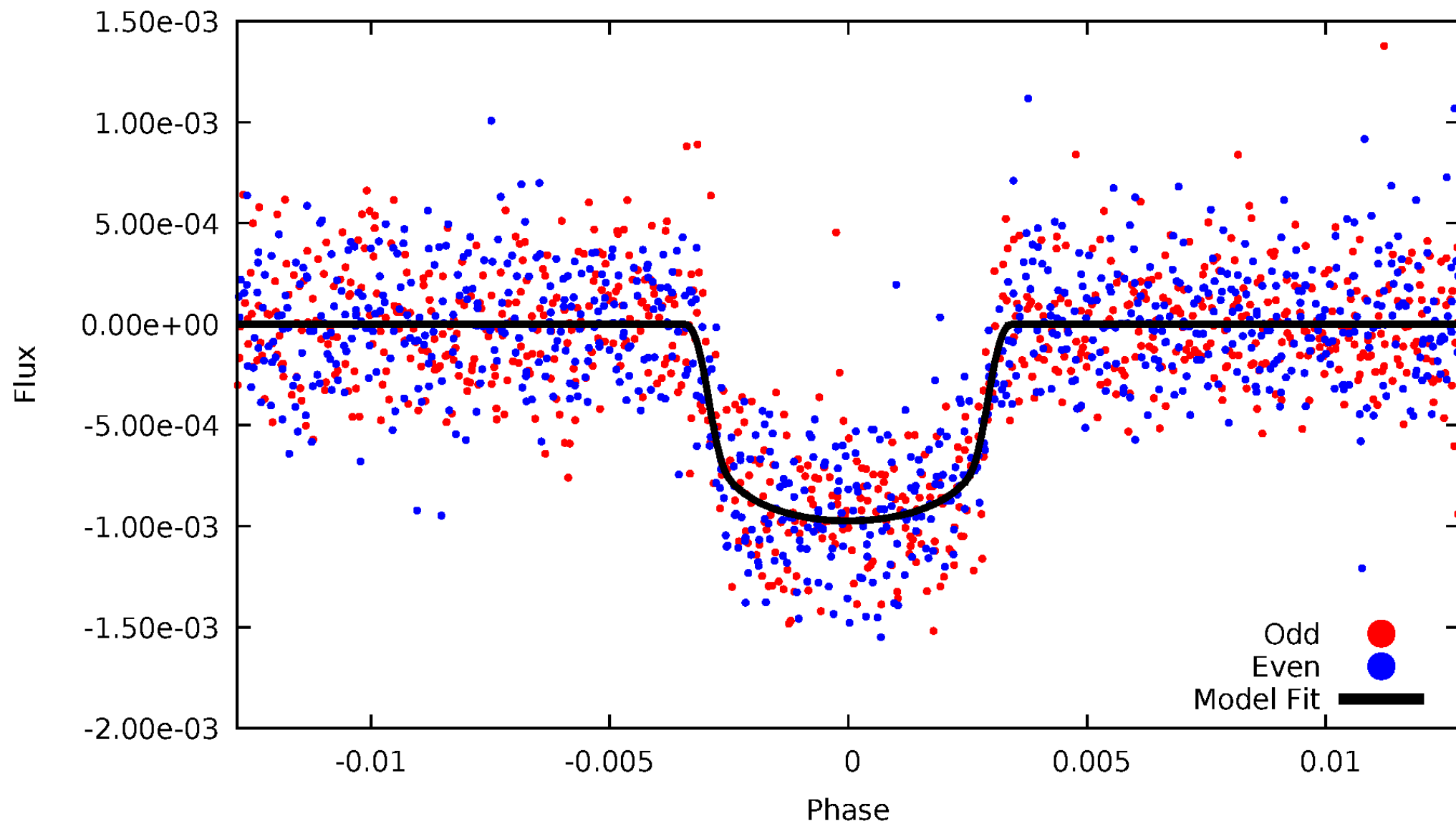


TCE 007456001-01



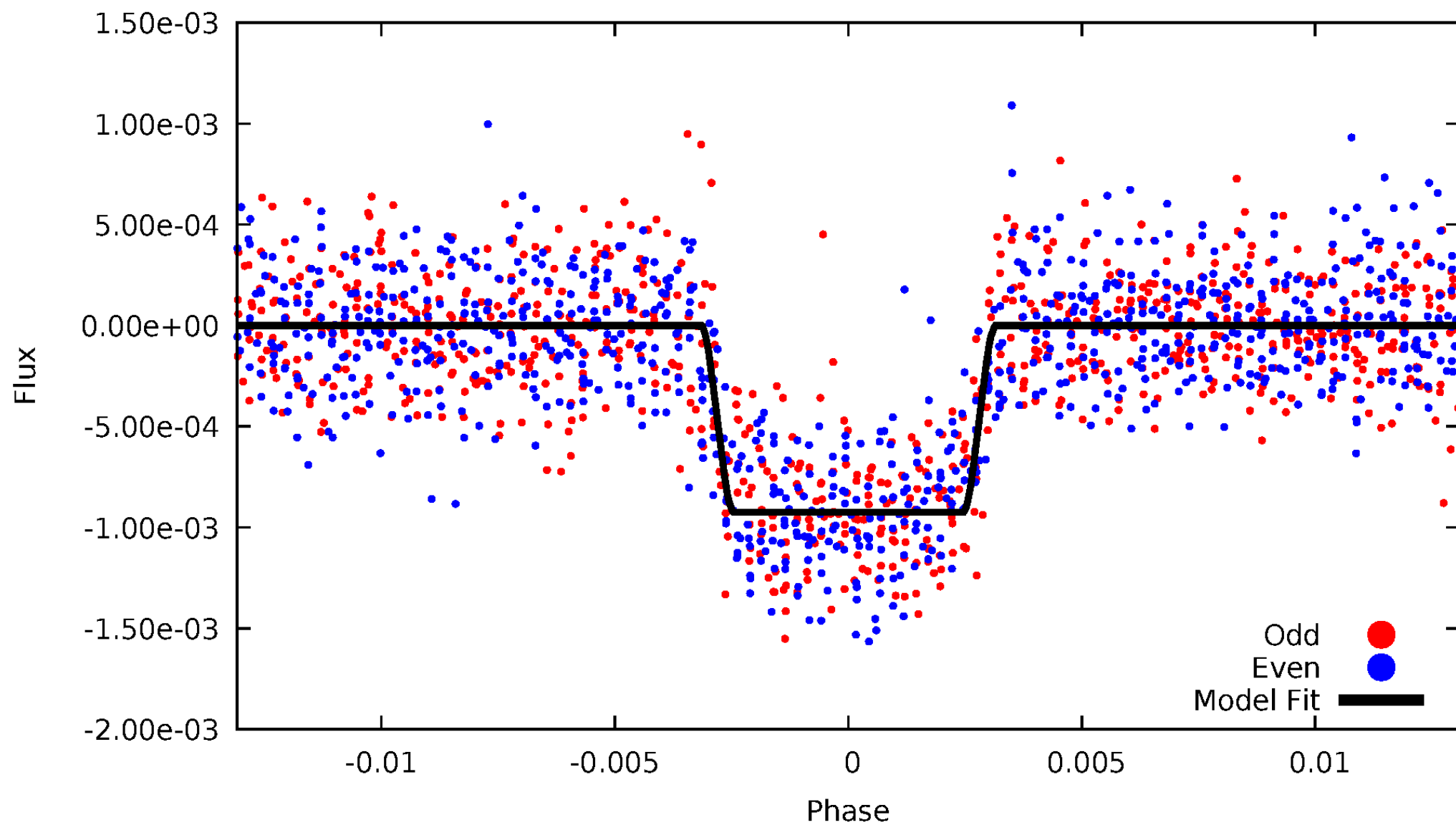
DV Odd/Even

TCE 007456001-01

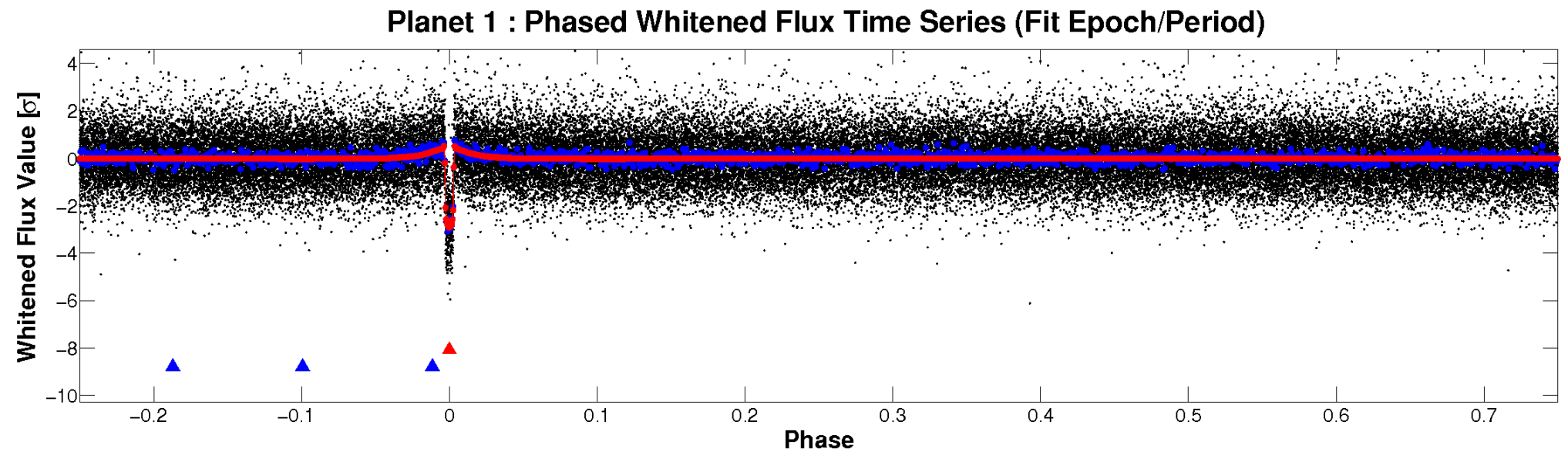
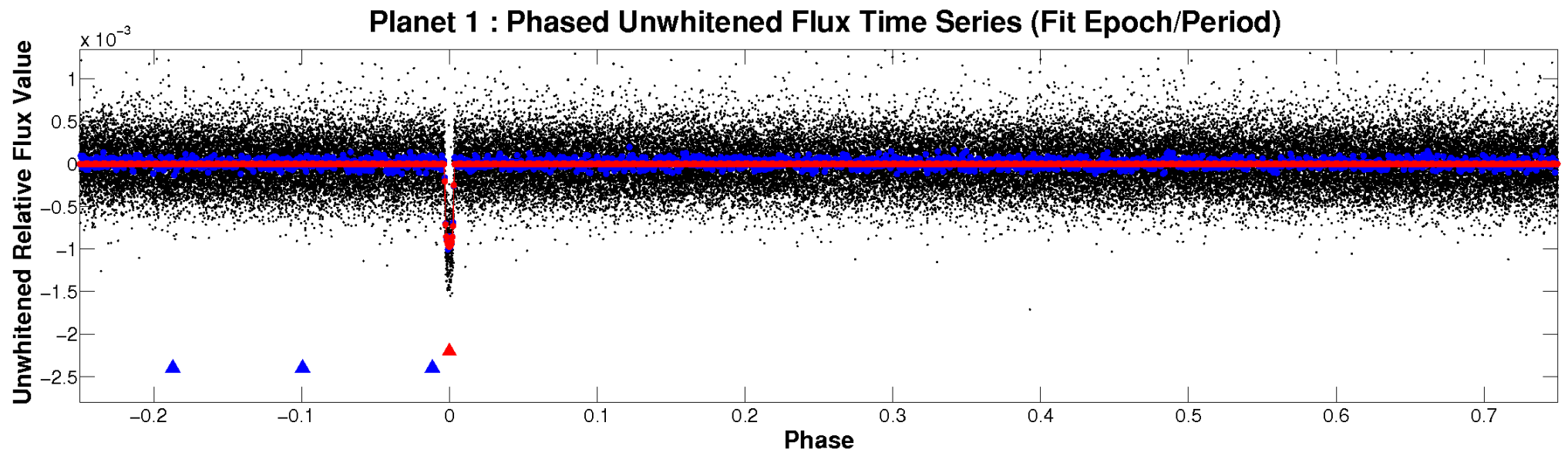


ALT Odd/Even

TCE 007456001-01

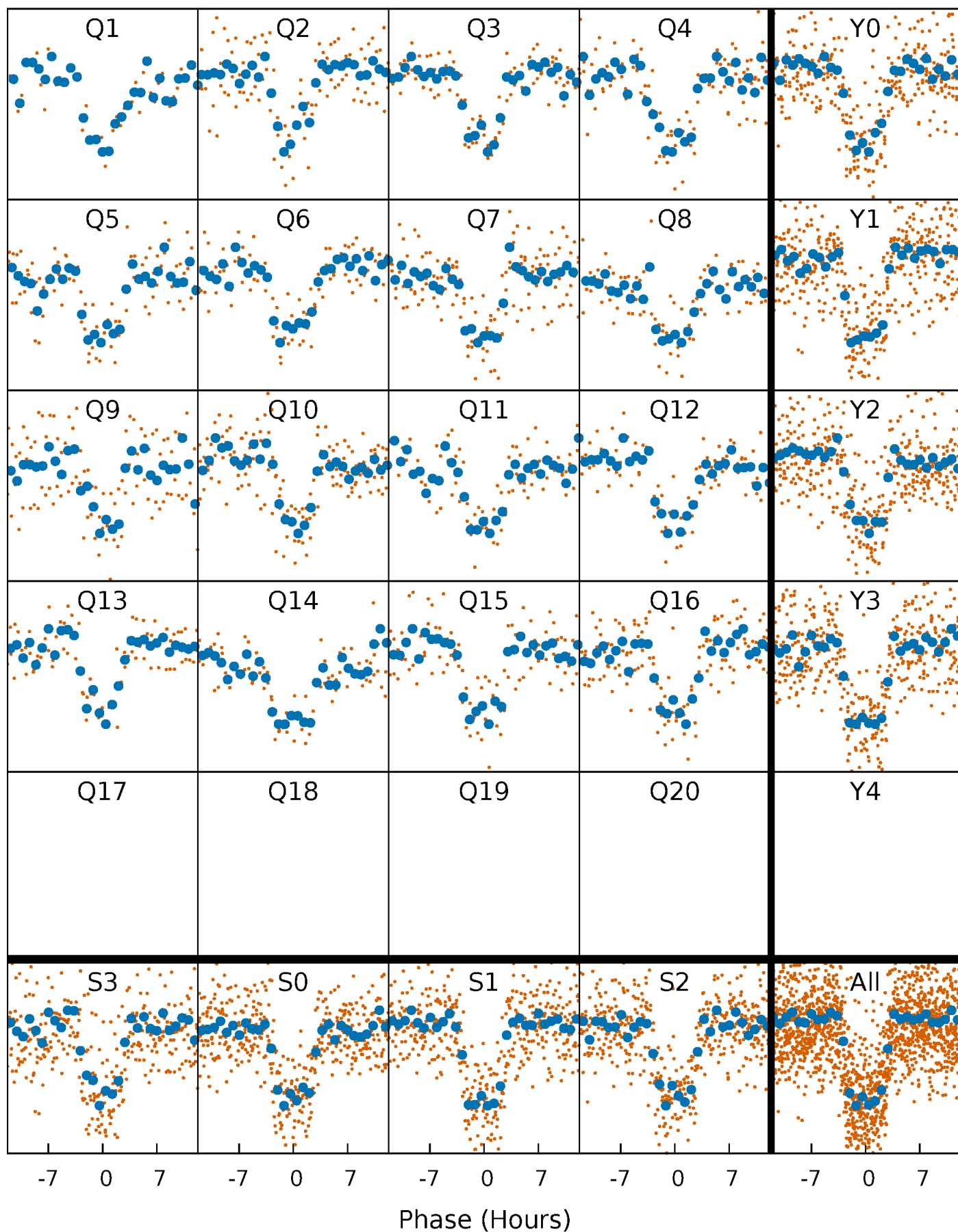


Non-Whitened Vs. Whitened Light Curve



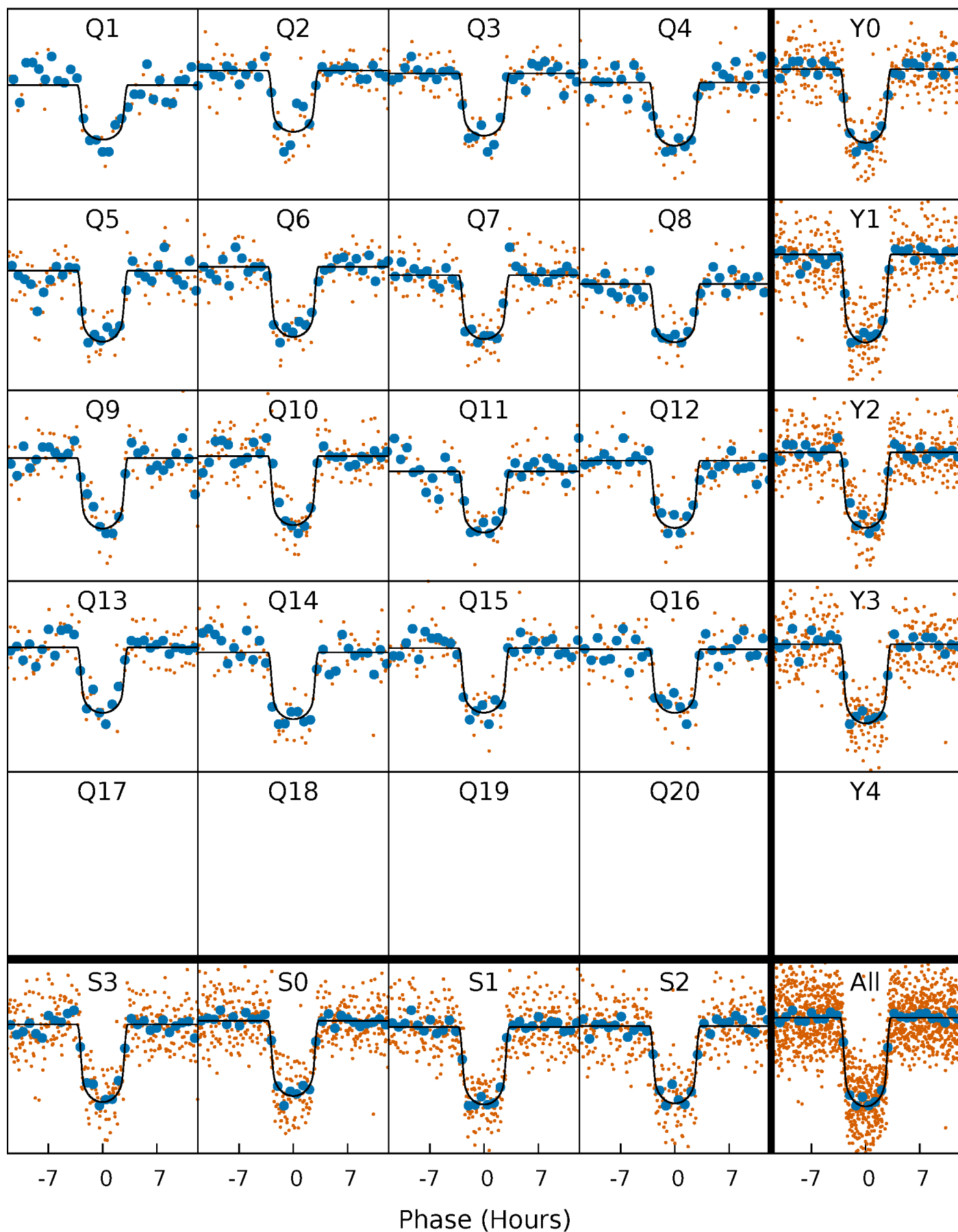
PDC Quarter-Phased Transit Curves

TCE 007456001-01 P= 40.068572 Days $T_0=151.809106$ (BKJD)



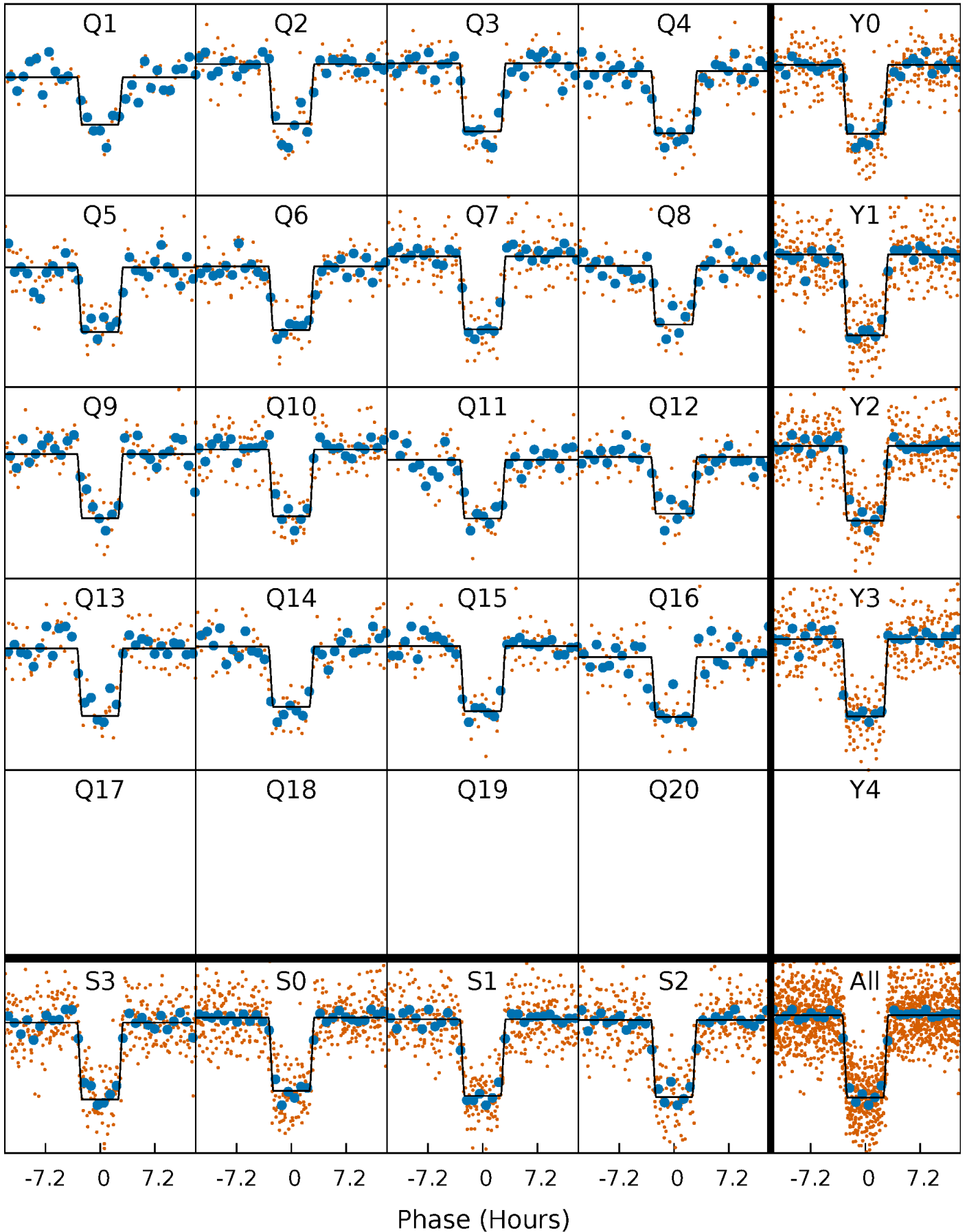
DV Quarter-Phased Transit Curves

TCE 007456001-01 P= 40.068572 Days $T_0=151.809106$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

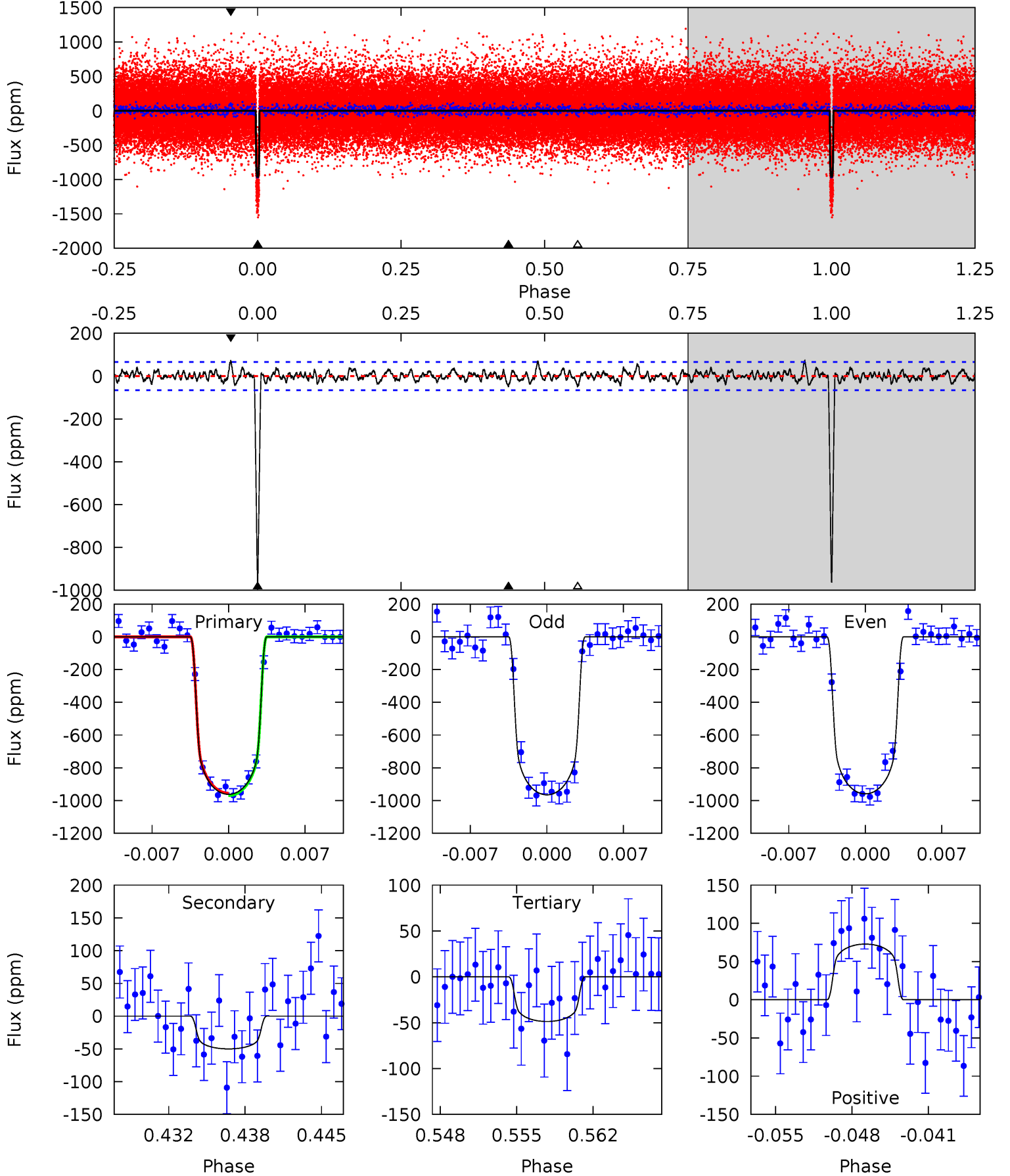
TCE 007456001-01 P= 40.069160 Days $T_0=151.799940$ (BKJD)



DV Model-Shift Uniqueness Test

007456001-01, P = 40.068572 Days, E = 111.740534 Days

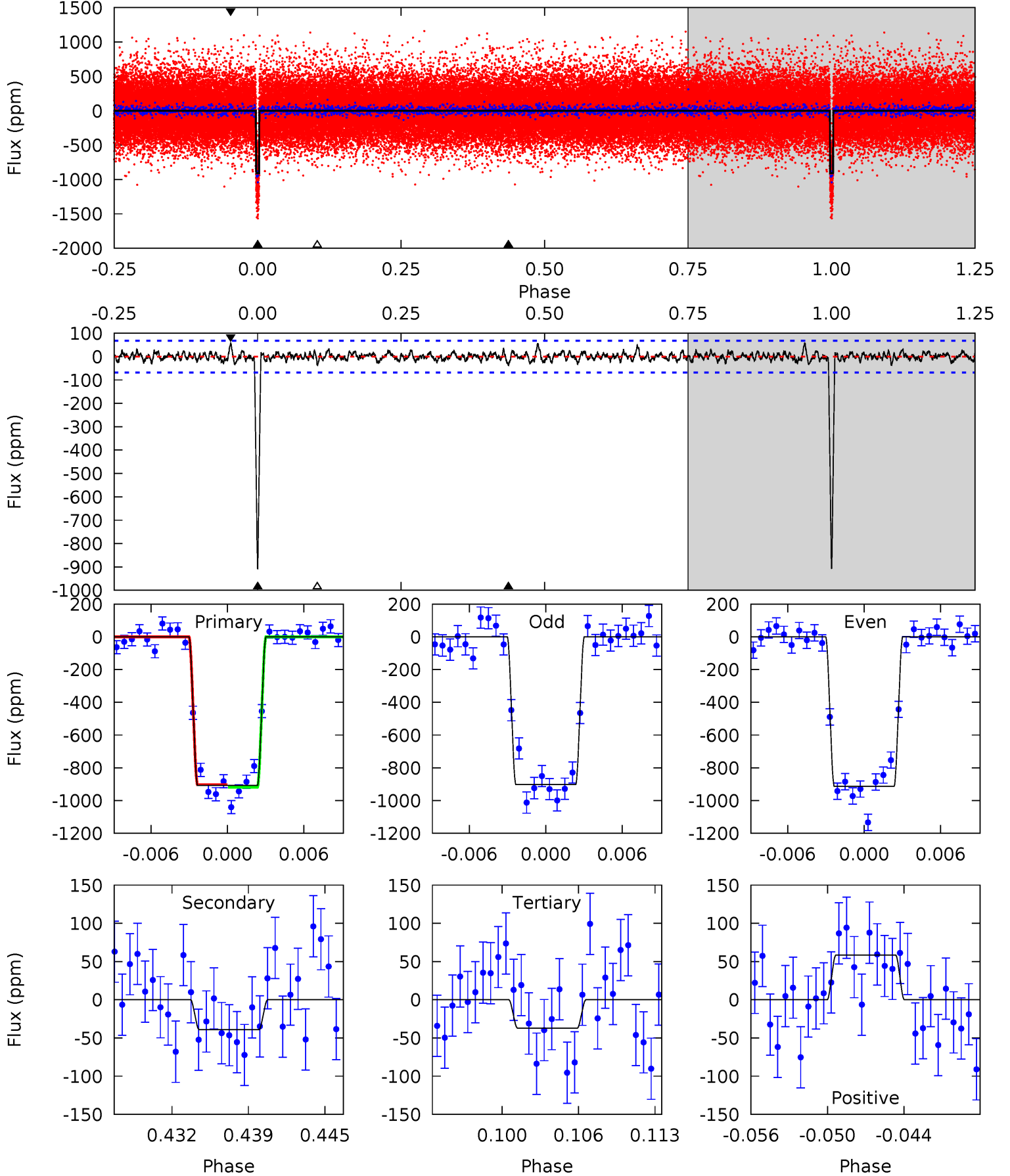
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
74.3	3.86	3.76	5.62	5.10	2.70	1.35	70.5	68.6	0.10	-1.76	0.23	0.99	0.07	0.54



Alt Model-Shift Uniqueness Test

007456001-01, P = 40.069160 Days, E = 111.730780 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.3	2.94	2.79	4.38	5.12	2.73	0.99	65.5	63.9	0.16	-1.44	0.42	0.98	0.06	0.56



Stellar Parameters For KIC 007456001

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6026^{+182}_{-182}	$4.411^{+0.105}_{-0.195}$	$-0.360^{+0.300}_{-0.300}$	$0.992^{+0.274}_{-0.147}$	$0.924^{+0.120}_{-0.098}$	$1.333^{+0.625}_{-0.686}$
	+3%/-3%	+2%/-4%	+83%/-83%	+28%/-15%	+13%/-11%	+47%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007456001-01 / KOI 1517.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-50 ± 13	$3.47^{+0.56}_{-0.38}$	792^{+58}_{-45}	3374^{+160}_{-161}	110^{+42}_{-36}
Alt.	-39 ± 13	$3.34^{+0.57}_{-0.38}$	791^{+61}_{-45}	3294^{+171}_{-216}	91^{+47}_{-35}

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

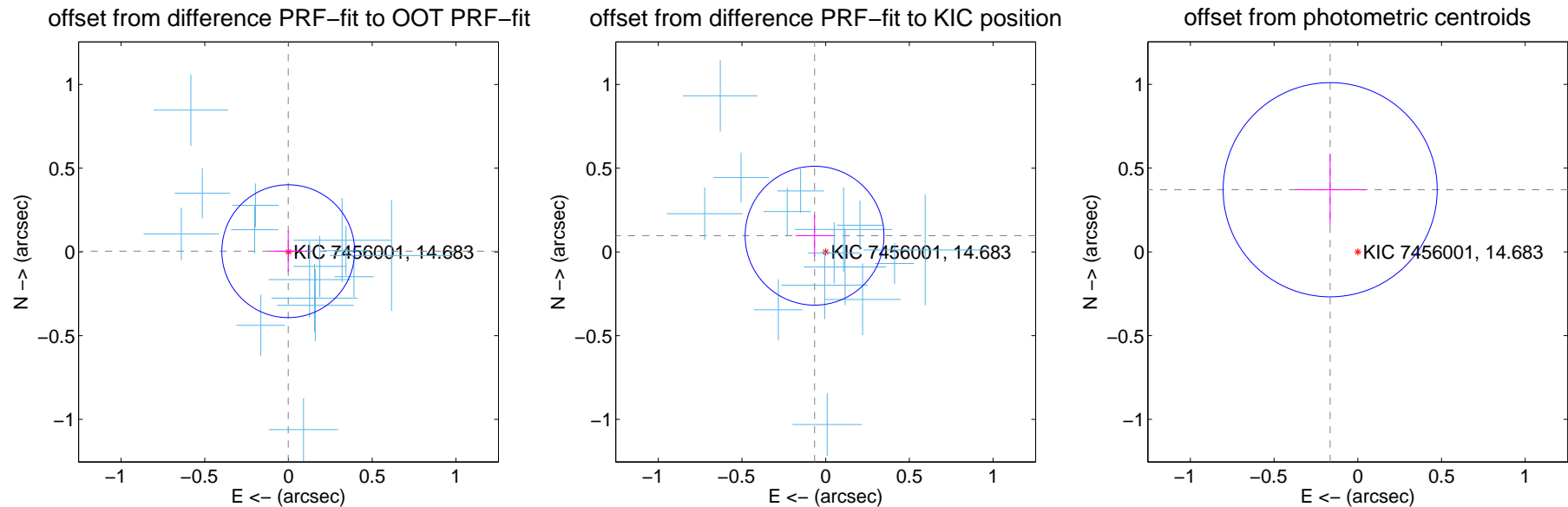
DV Centroid Data

Supplemental centroid analysis for 007456001-01. Kepler magnitude: 14.68. Transit SNR 50.62

There are 15 quarters with good PRF difference image offsets

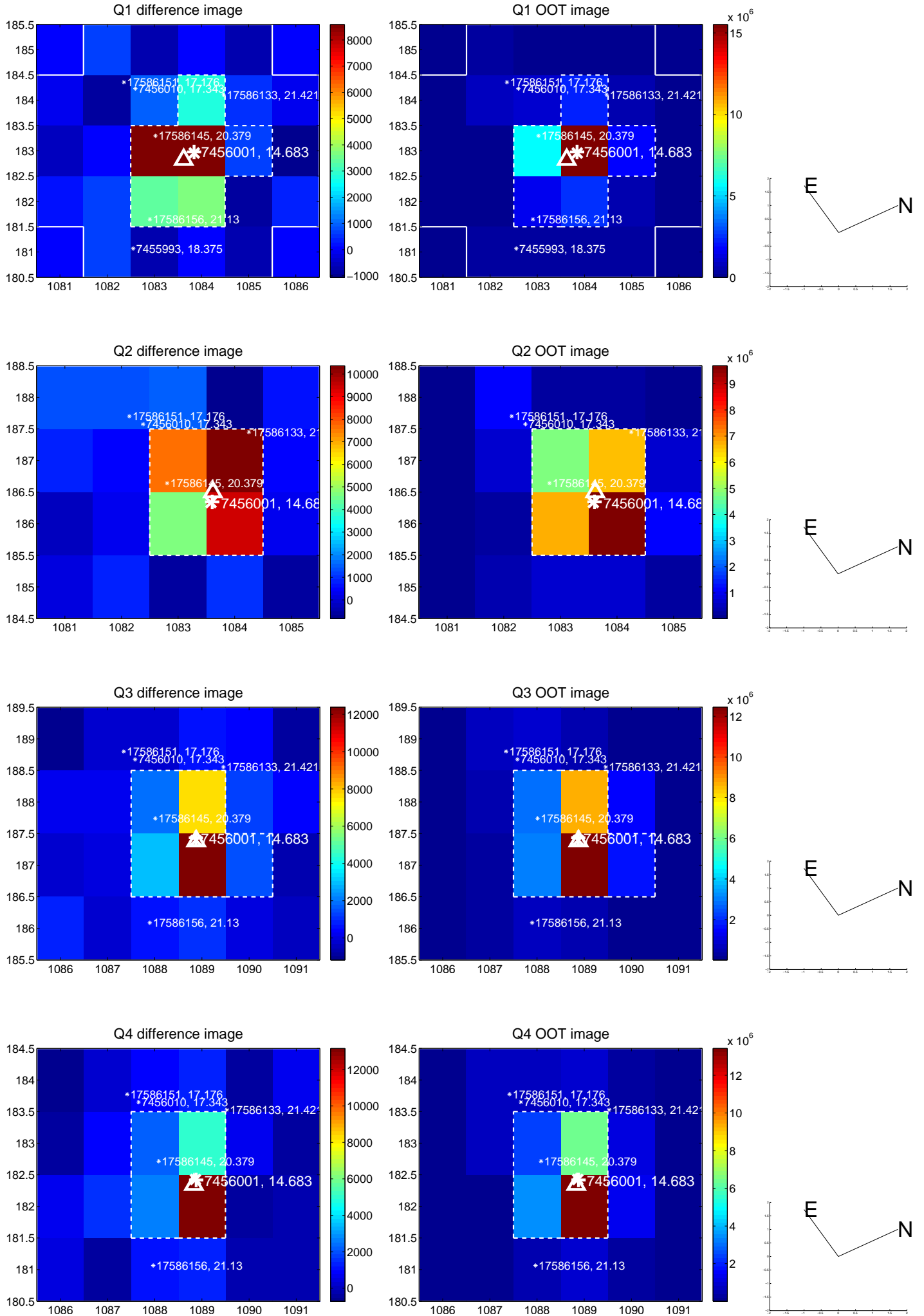
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.005 ± 0.132	0.03	0.002 ± 0.114	0.004 ± 0.123
PRF-fit source offset from KIC position	0.117 ± 0.138	0.85	0.066 ± 0.114	0.097 ± 0.125
photometric centroid source offset	0.41 ± 0.21	1.90	0.17 ± 0.21	0.37 ± 0.21

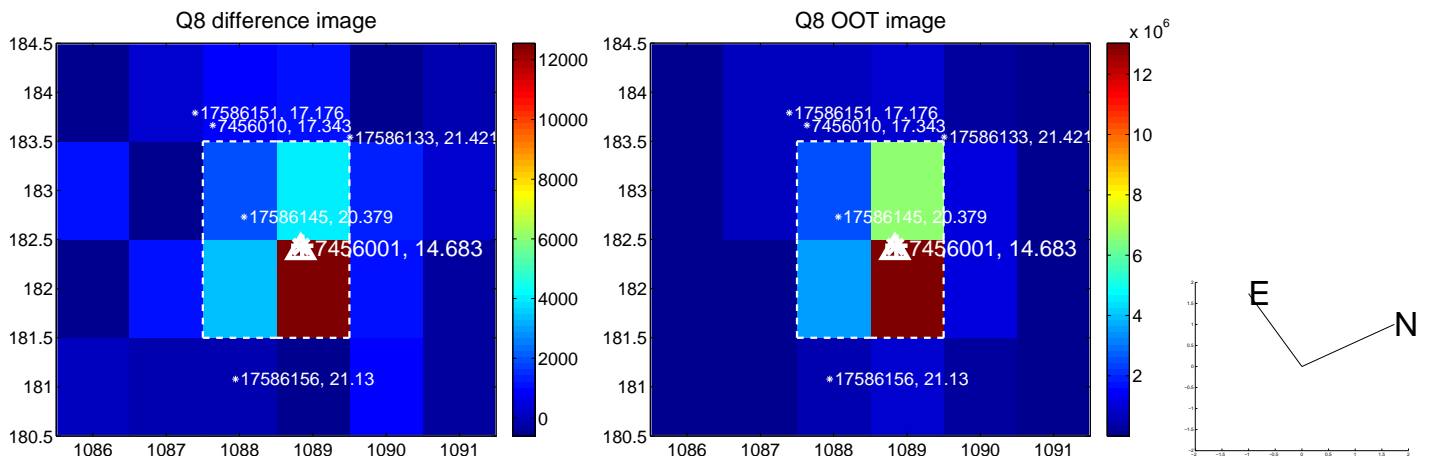
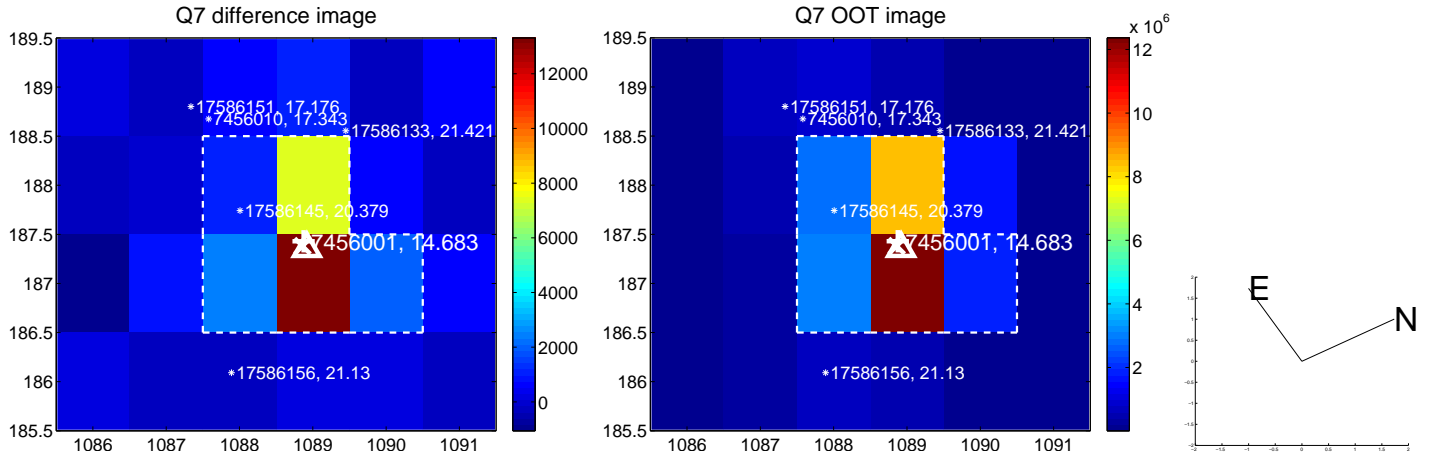
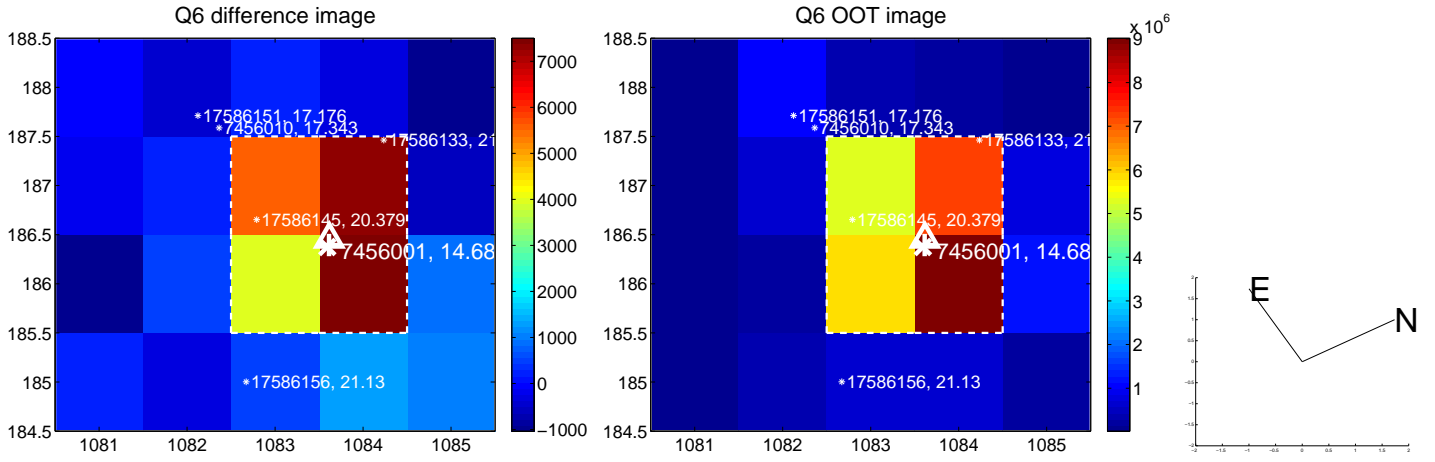
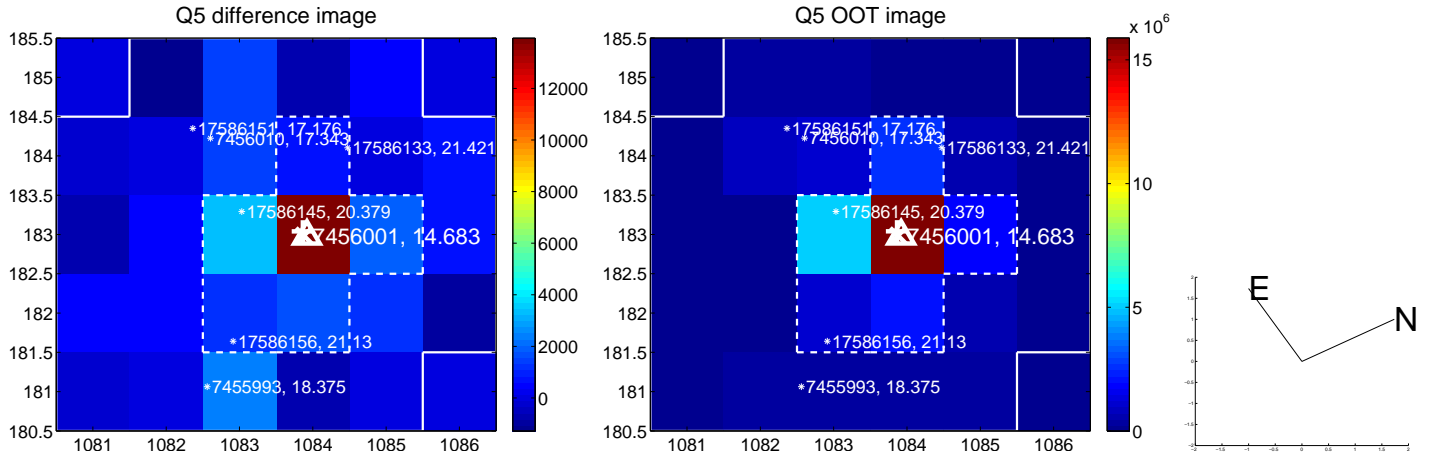


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

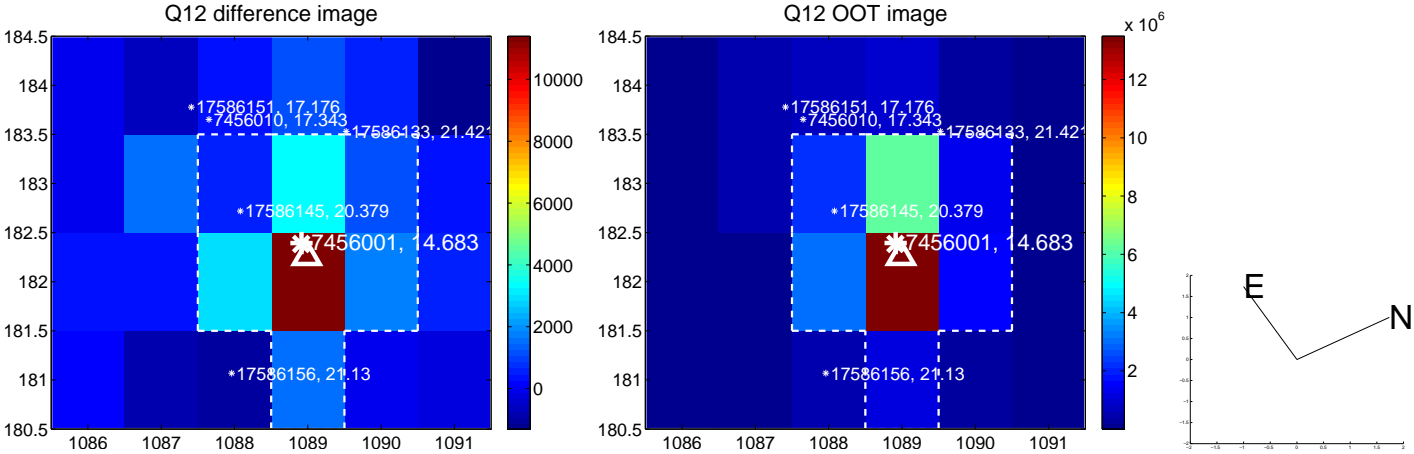
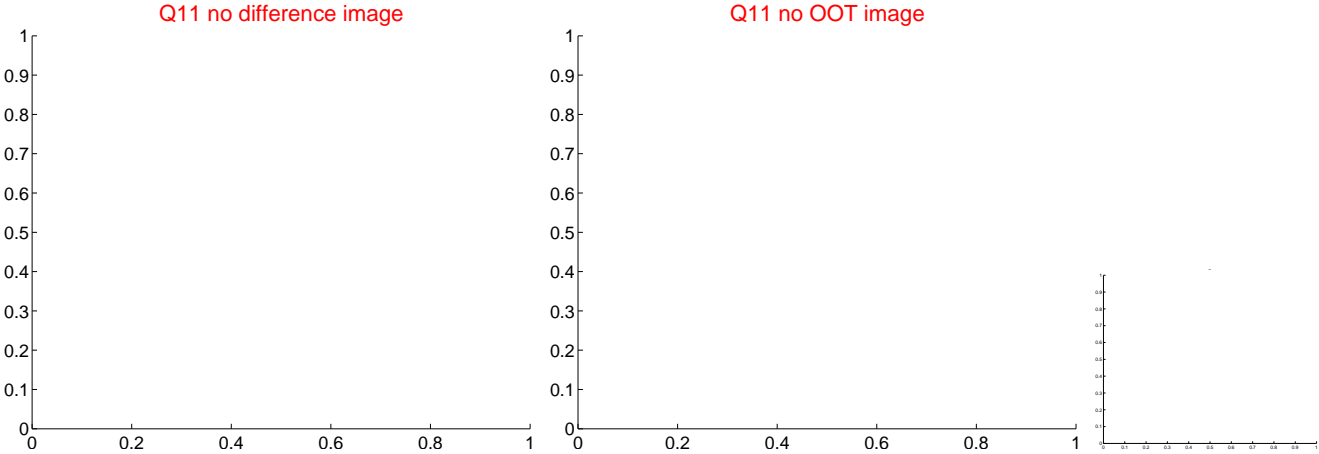
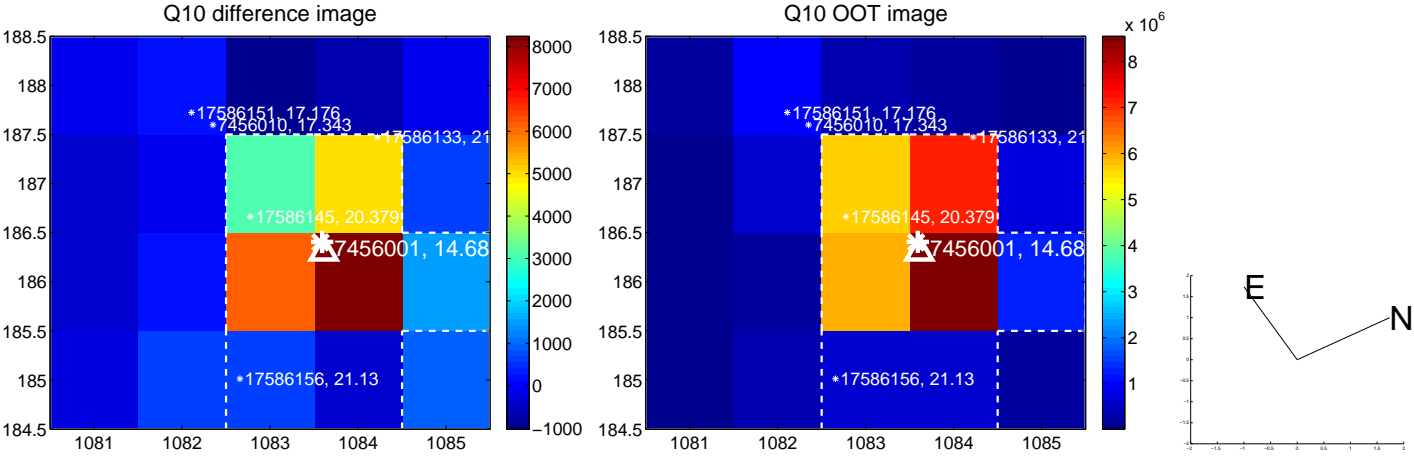
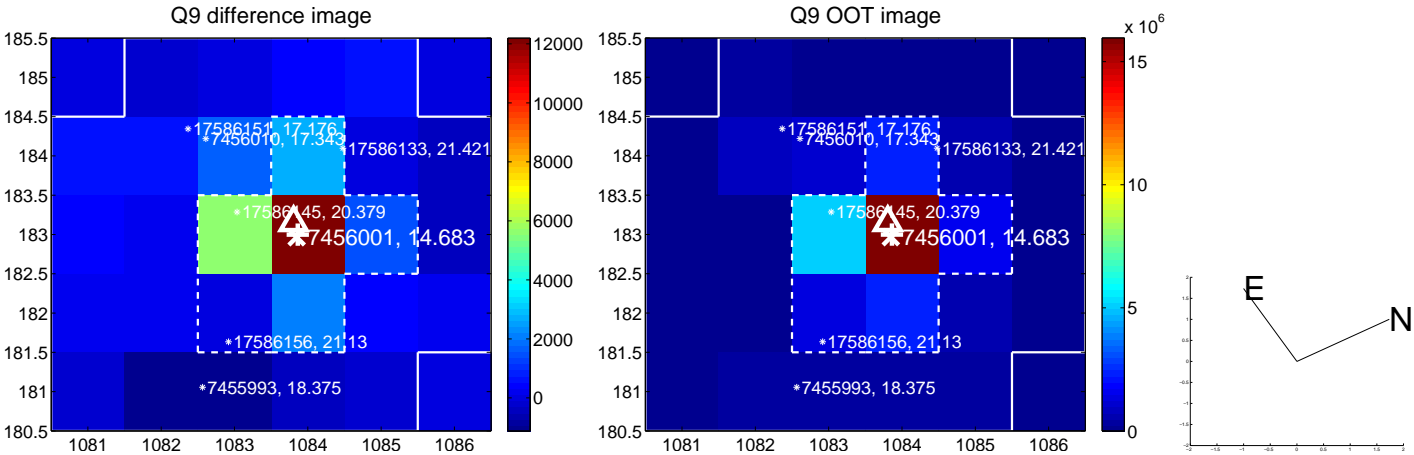
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



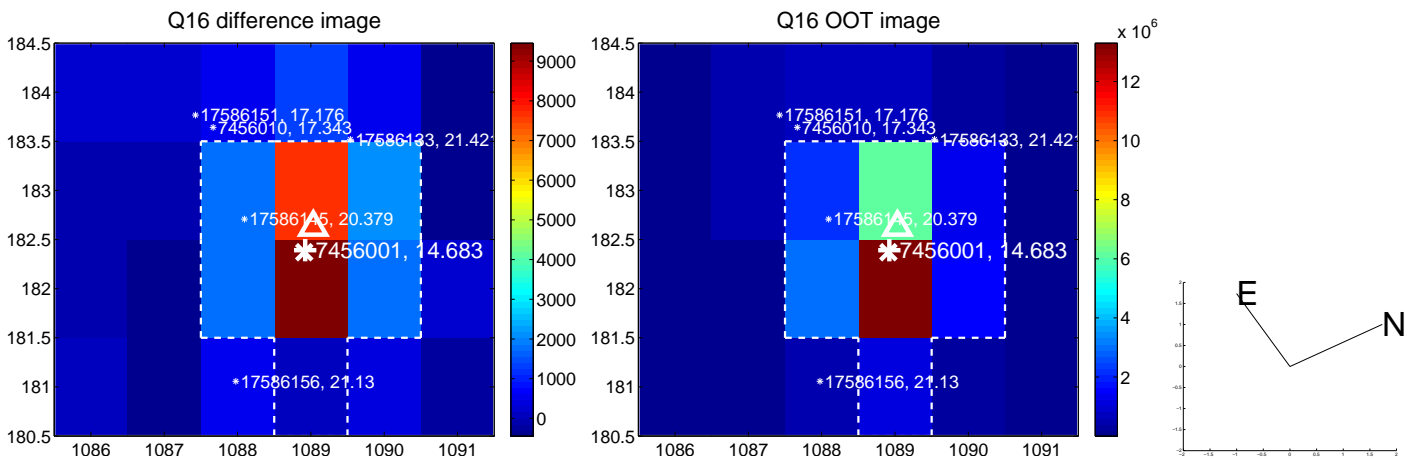
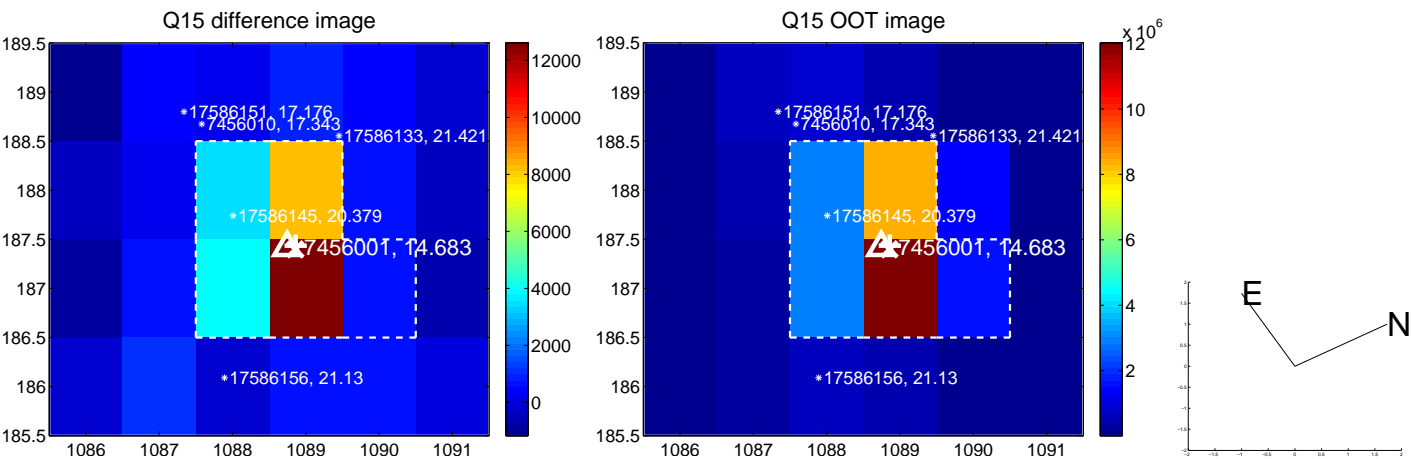
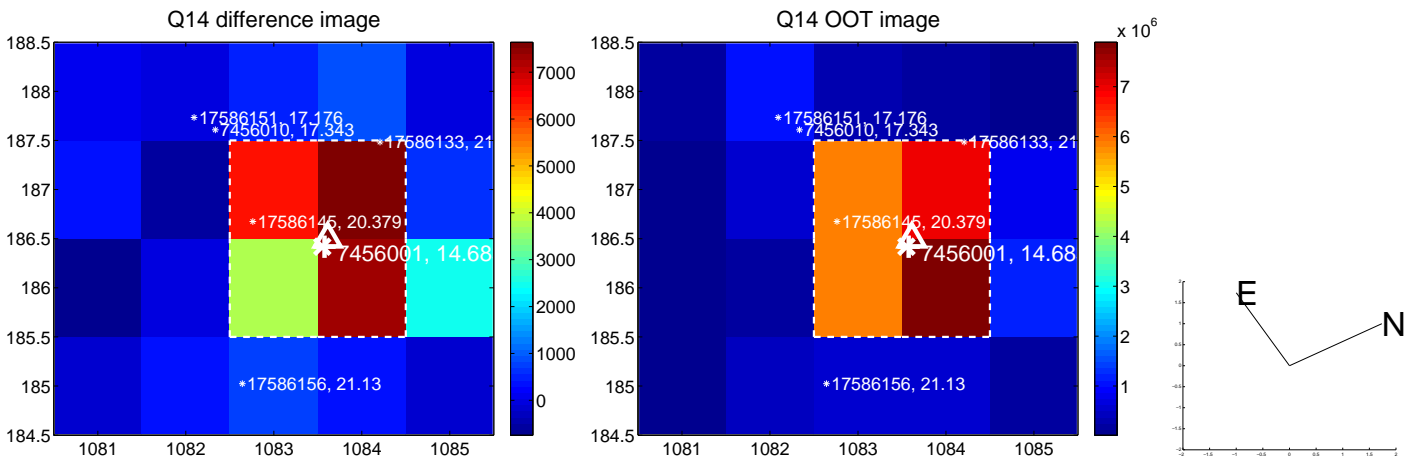
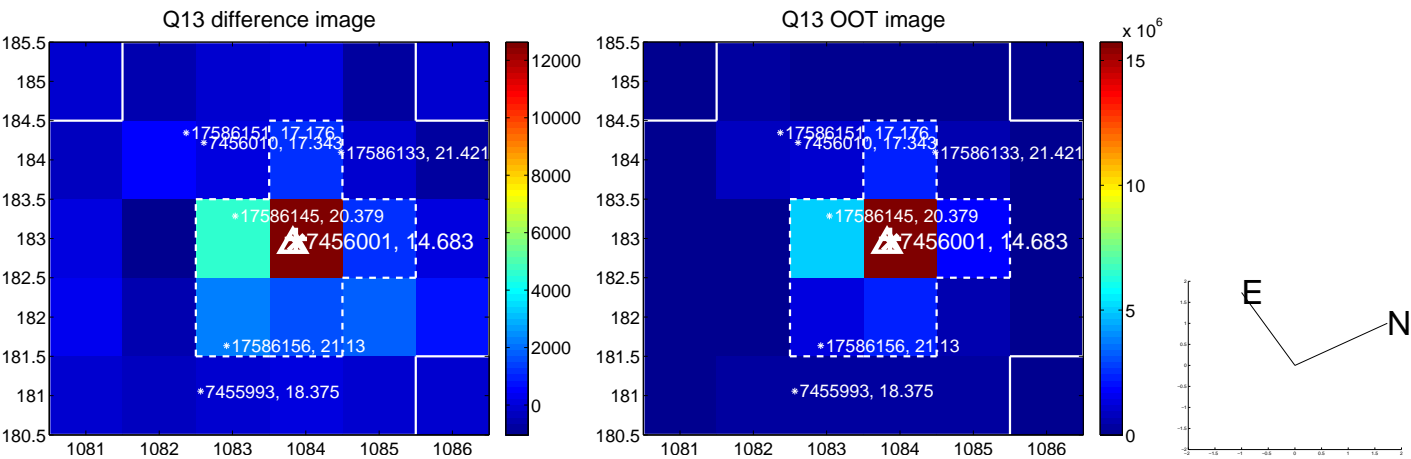
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



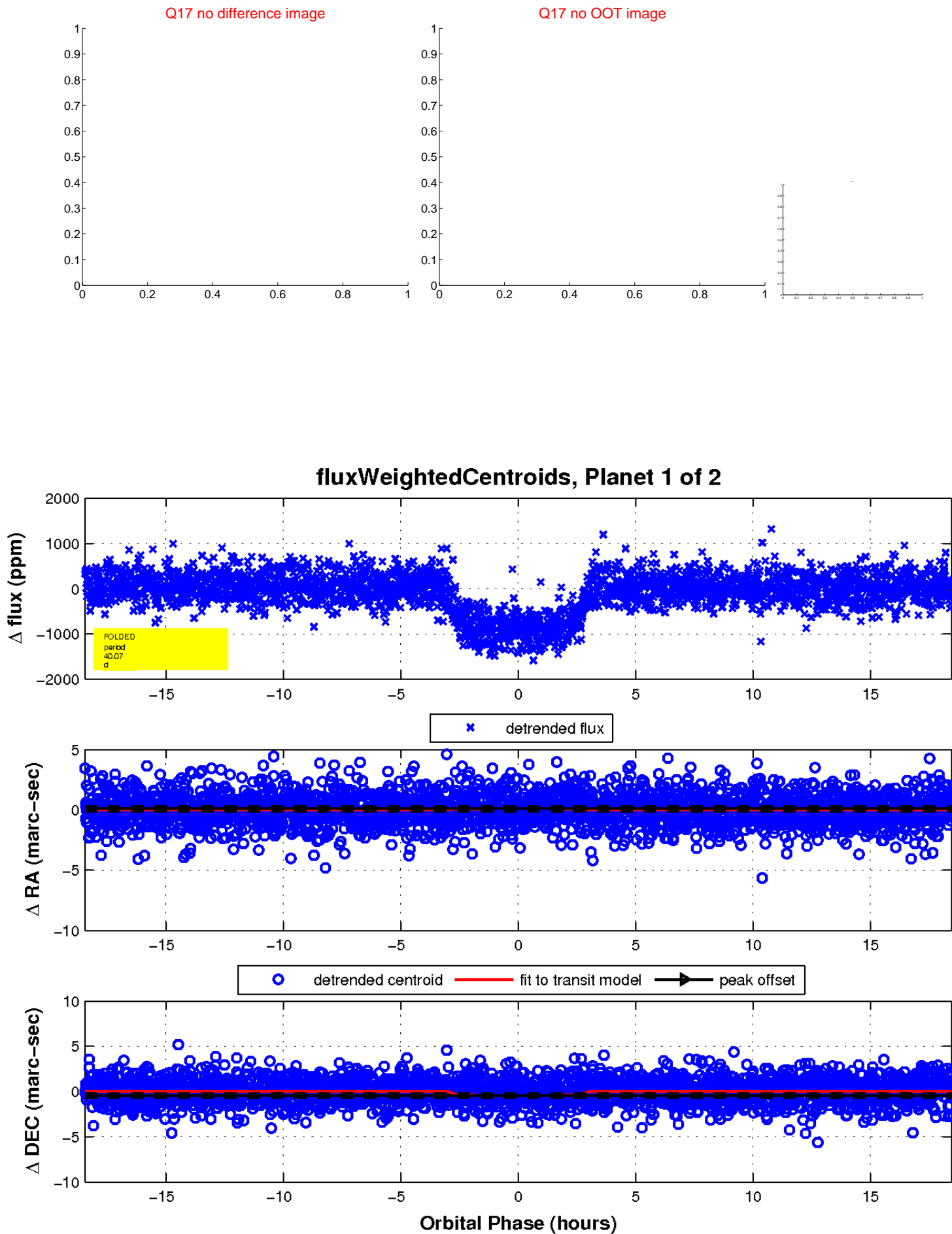
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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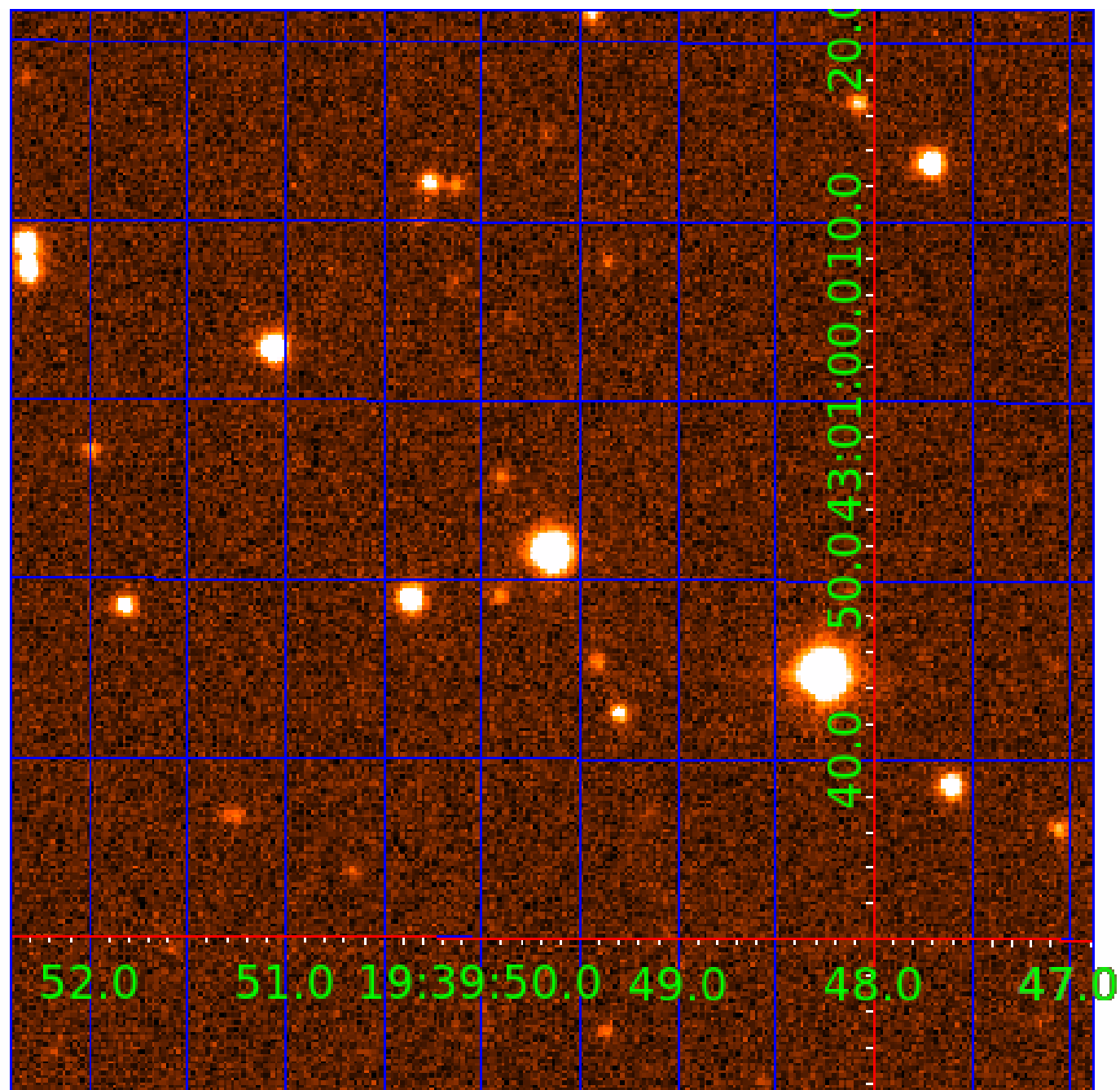


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007456001

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})
007456001-01	OBS	1517.01	40.068572	151.809106	973.5	6.153	47.2	50.6	0.99	6026	3.39	23.31
007456001-02	OBS	No	397.168132	471.897603	530.5	5.195	9.6	6.2	0.99	6026	4.24	1.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007456001-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007456001-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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.

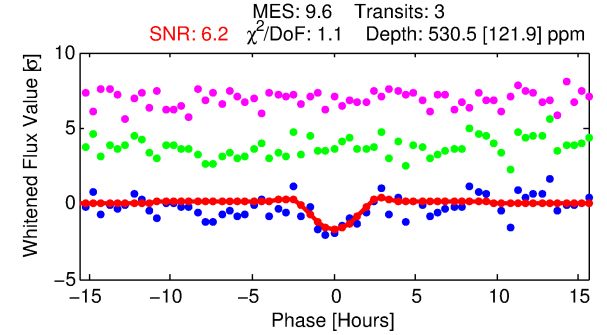
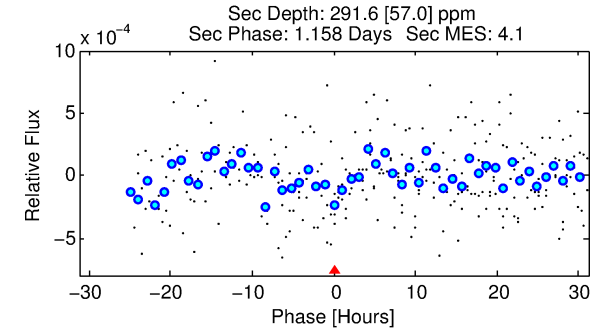
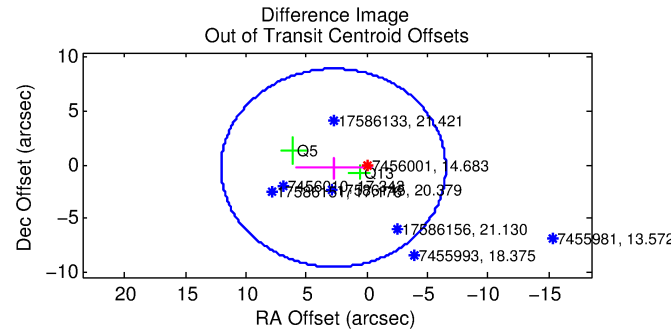
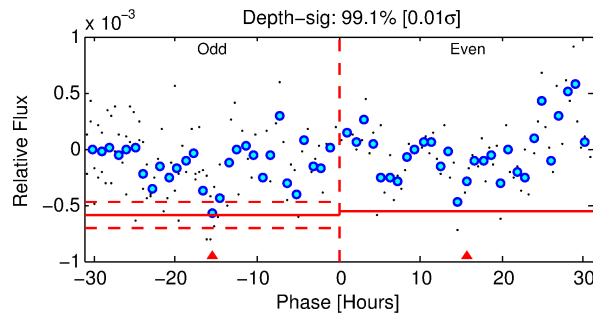
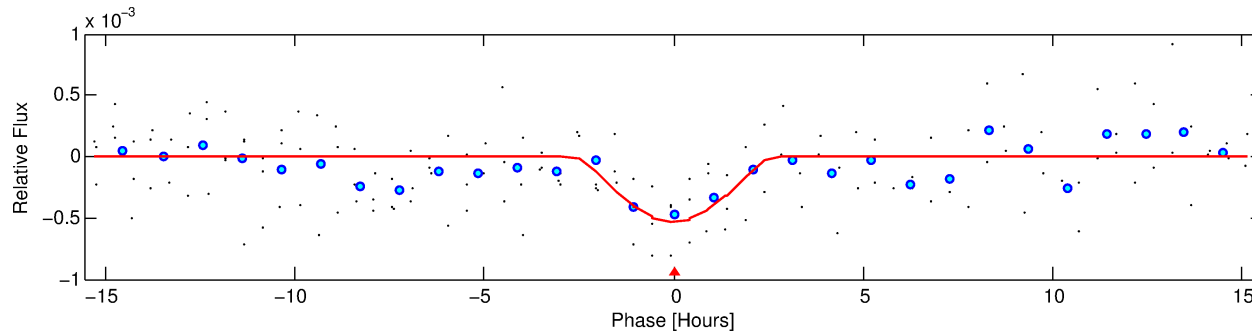
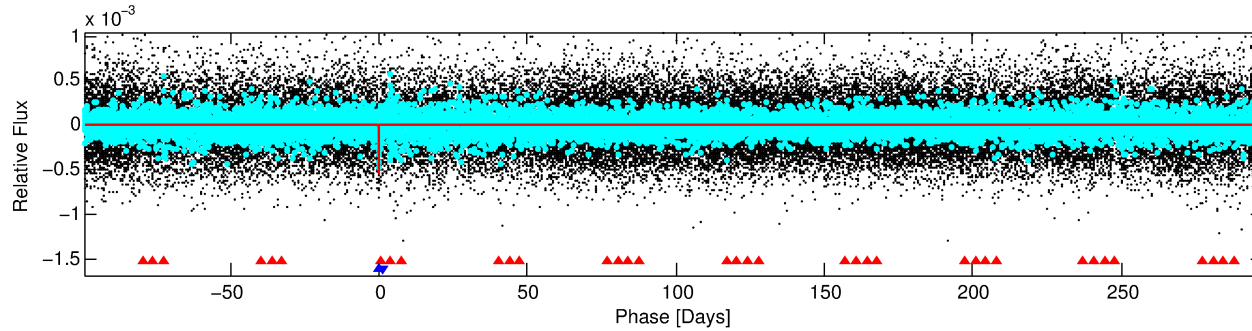
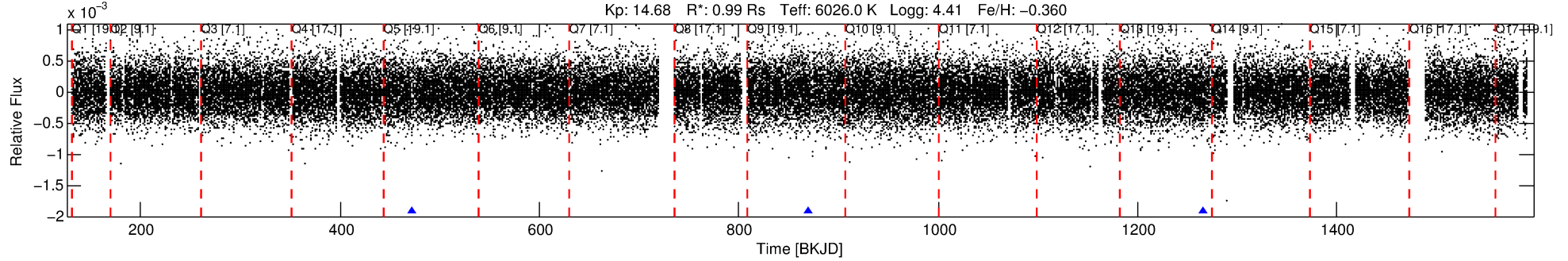
Ephemeris Match Information For 007456001-02

No Significant Match Found

DV One-Page Summary

KIC: 7456001 Candidate: 2 of 2 Period: 397.168 d
KOI: K01517 Corr: No Ephemeris Match

Kp: 14.68 R*: 0.99 Rs Teff: 6026.0 K Logg: 4.41 Fe/H: -0.360



DV Fit Results:

Period = 397.16813 [0.01298] d
Epoch = 471.8976 [0.0182] BKJD
Rp/R* = 0.0392 [0.2032]
a/R* = 171.35 [246.23]
b = 1.00 [0.31]
Seff = 1.09 [0.41]
Teq = 261 [24] K
Rp = 4.24 [22.02] Re
a = 1.0304 [0.2445] AU
Ag = 9478.66 [98428.61] [0.10σ]
Teffp = 3979 [10325] K [0.36σ]

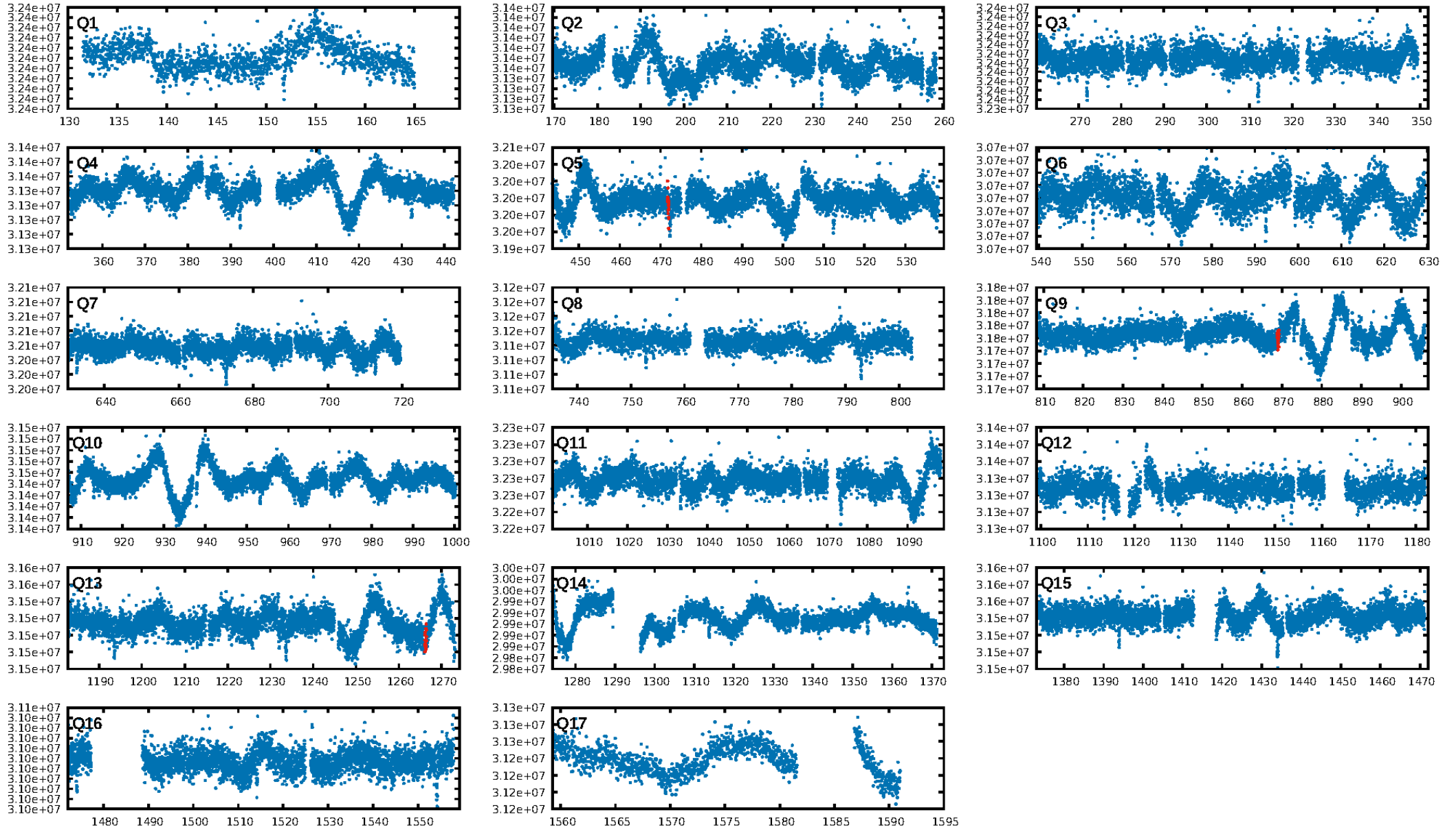
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1064.35σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.9%
ModelChiSquareGof-sig: 88.3%
Bootstrap-pfa: 3.00e-20
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.001
Centroid-sig: 18.8%
Centroid-so: 2.445 arcsec [1.22σ]
OotOffset-rm: 2.786 arcsec [0.90σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 2.976 arcsec [0.97σ]
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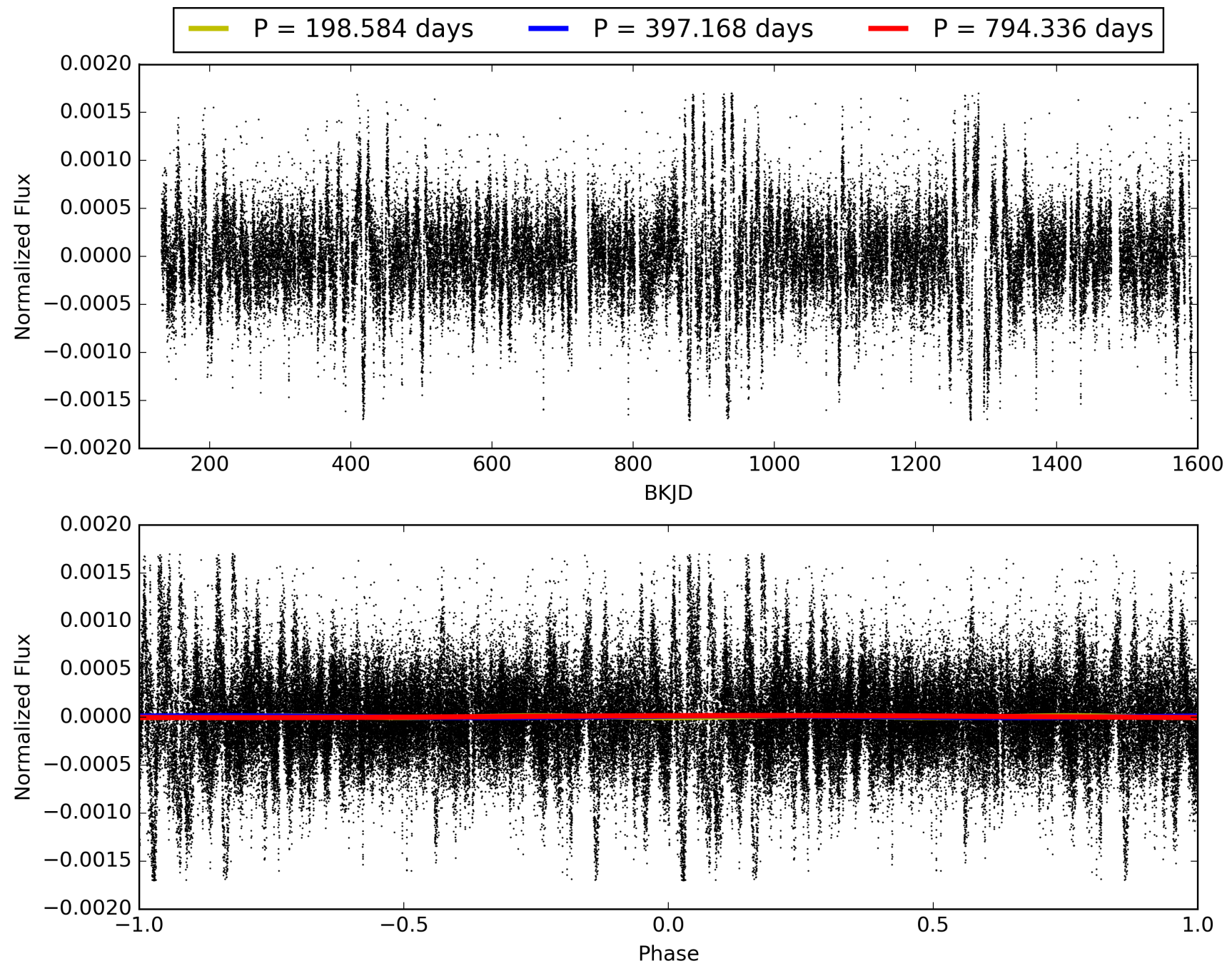
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:41:10 Z

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

TCE 007456001-02, PDC Light Curves

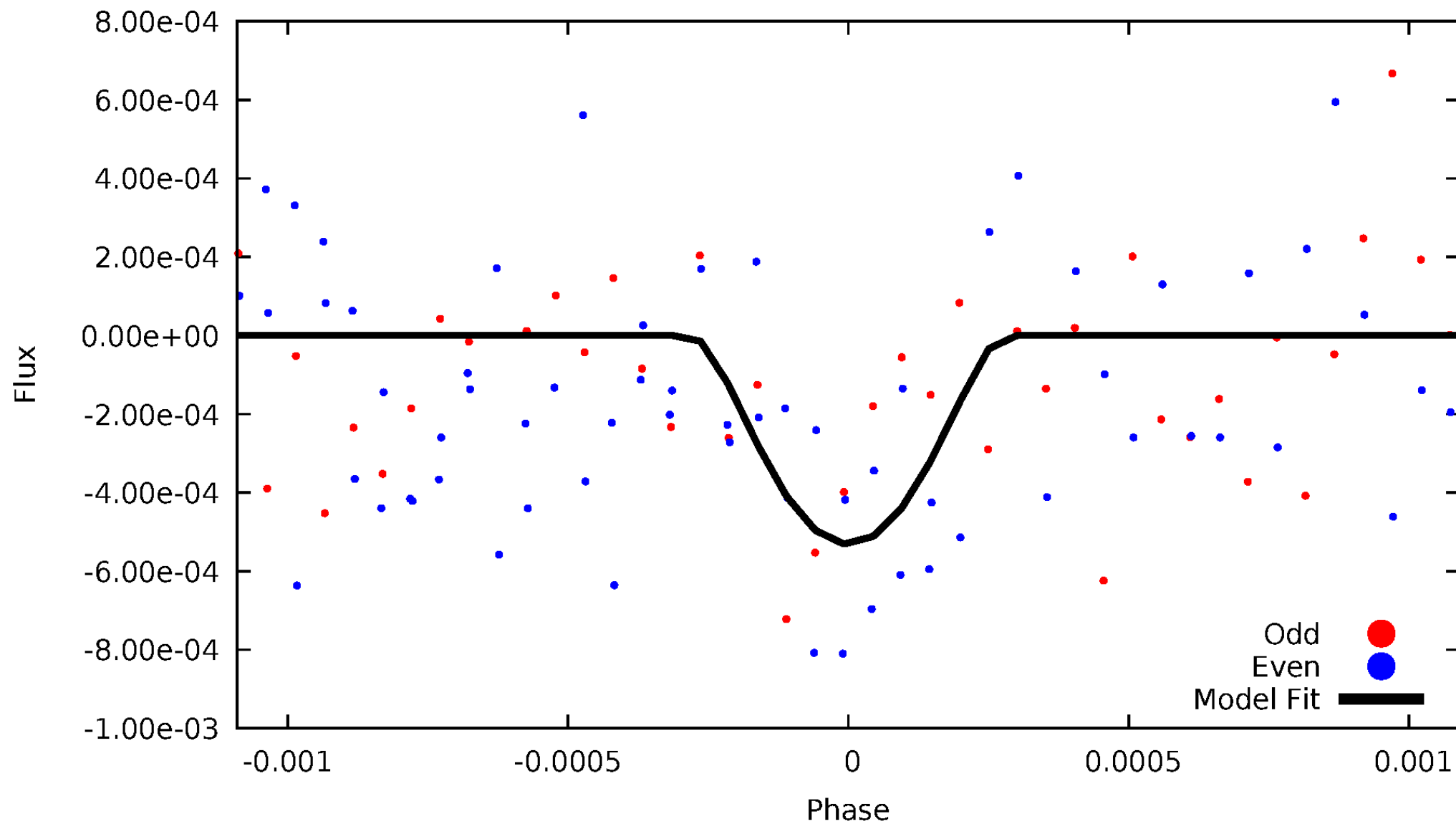


TCE 007456001-02



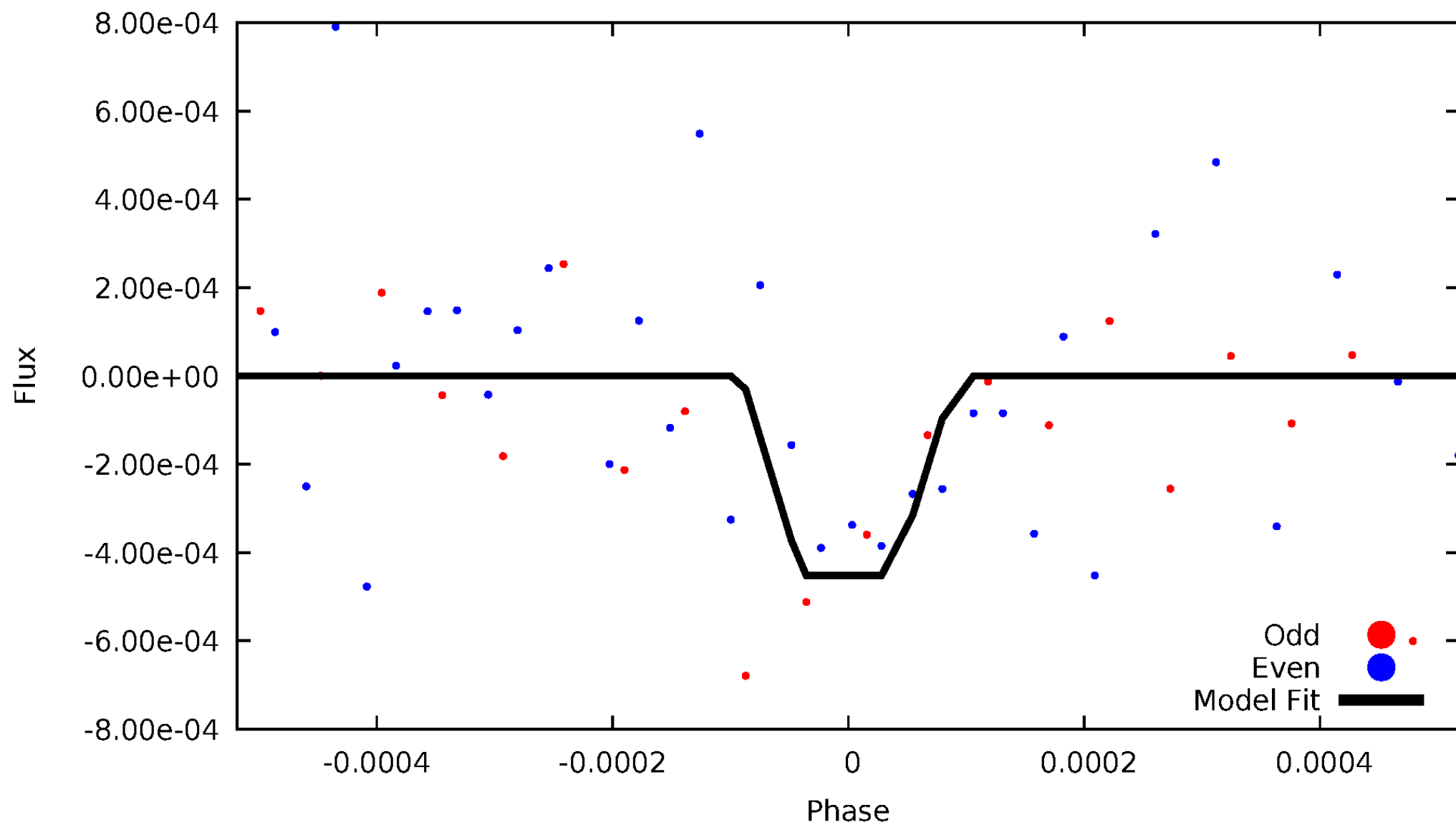
DV Odd/Even

TCE 007456001-02



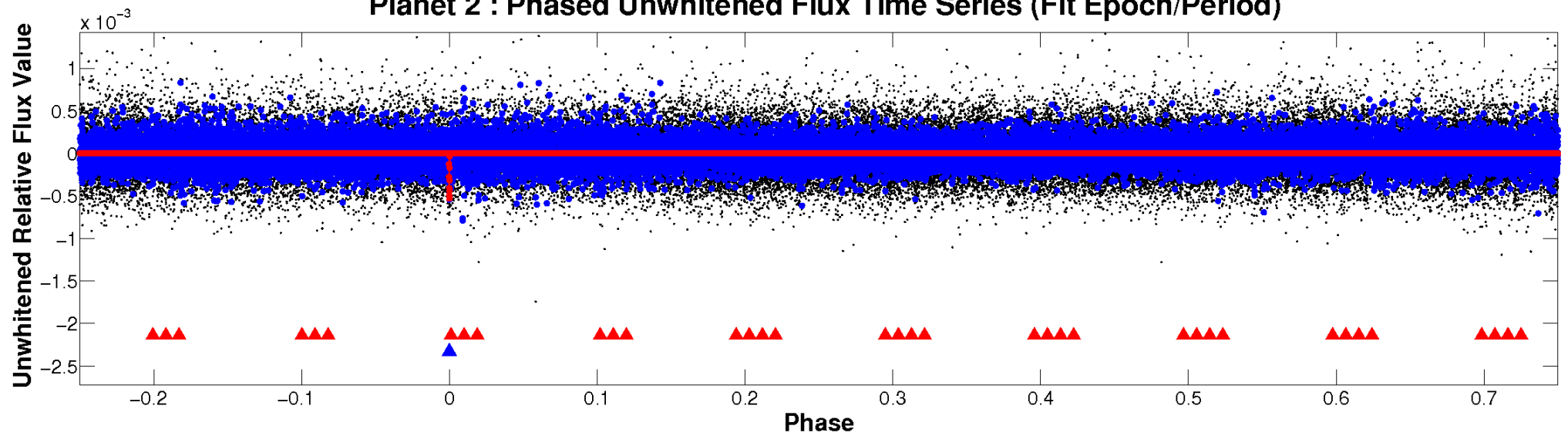
ALT Odd/Even

TCE 007456001-02

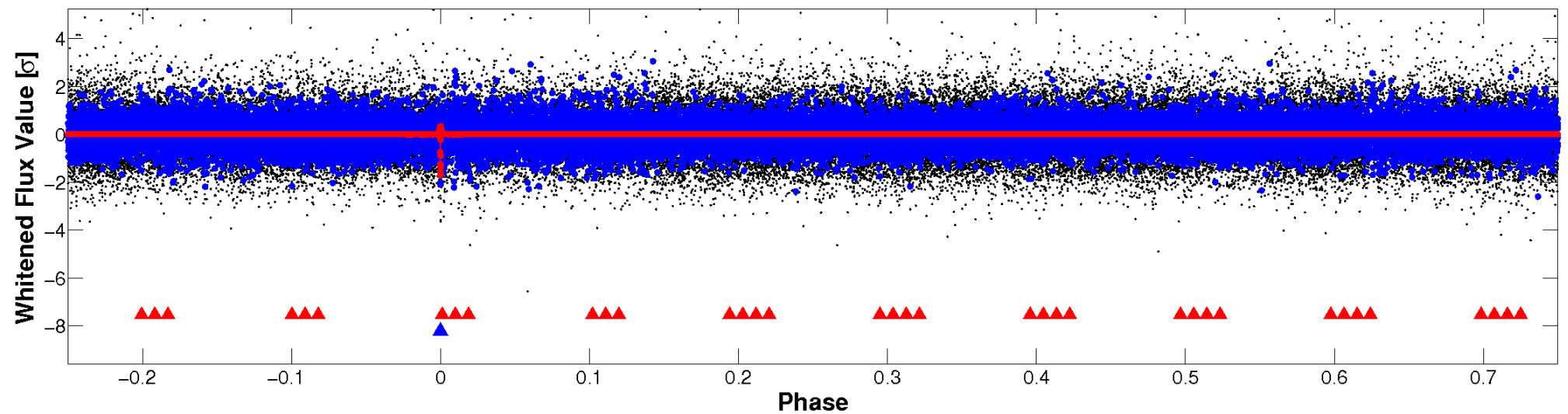


Non-Whitened Vs. Whitened Light Curve

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

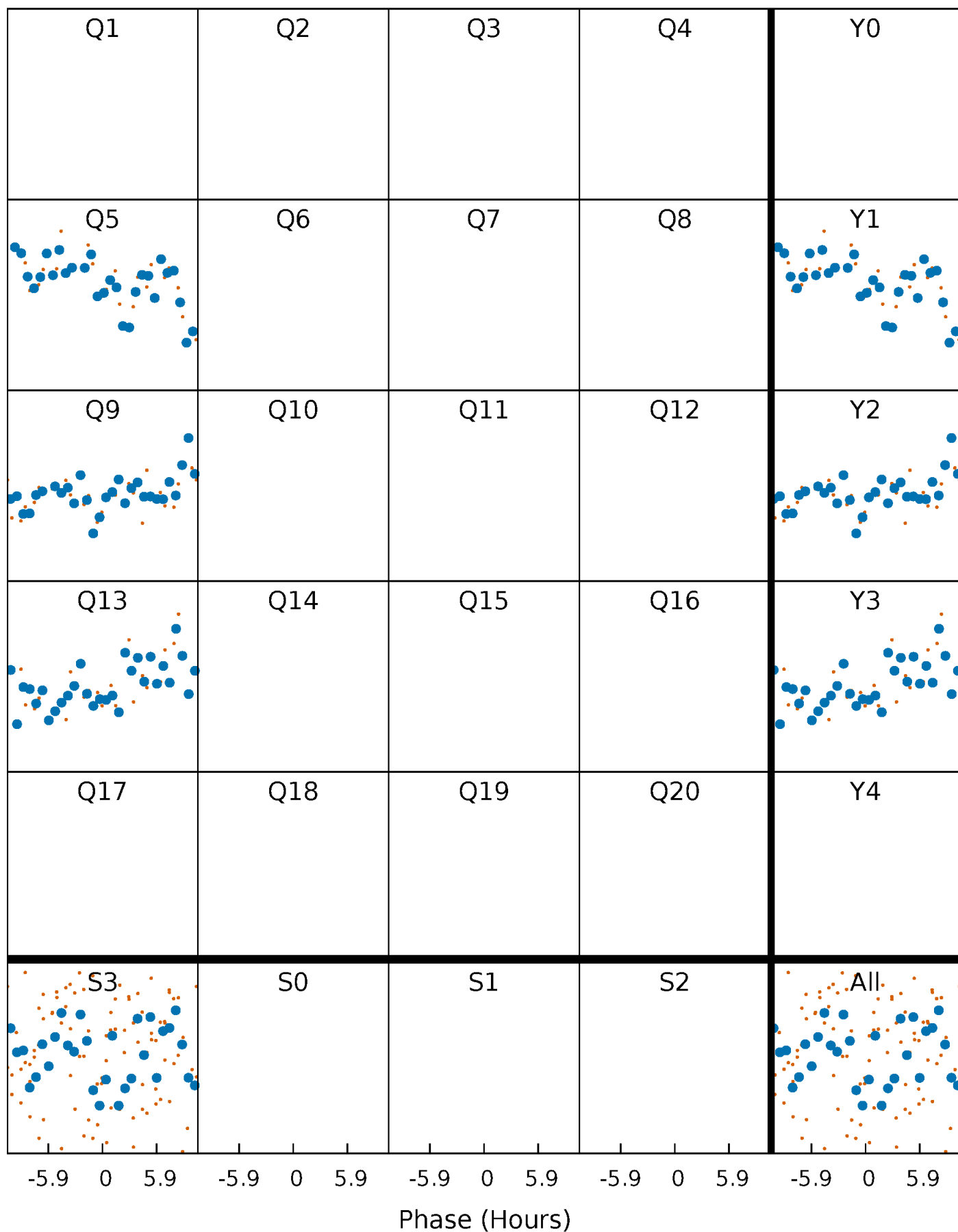


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



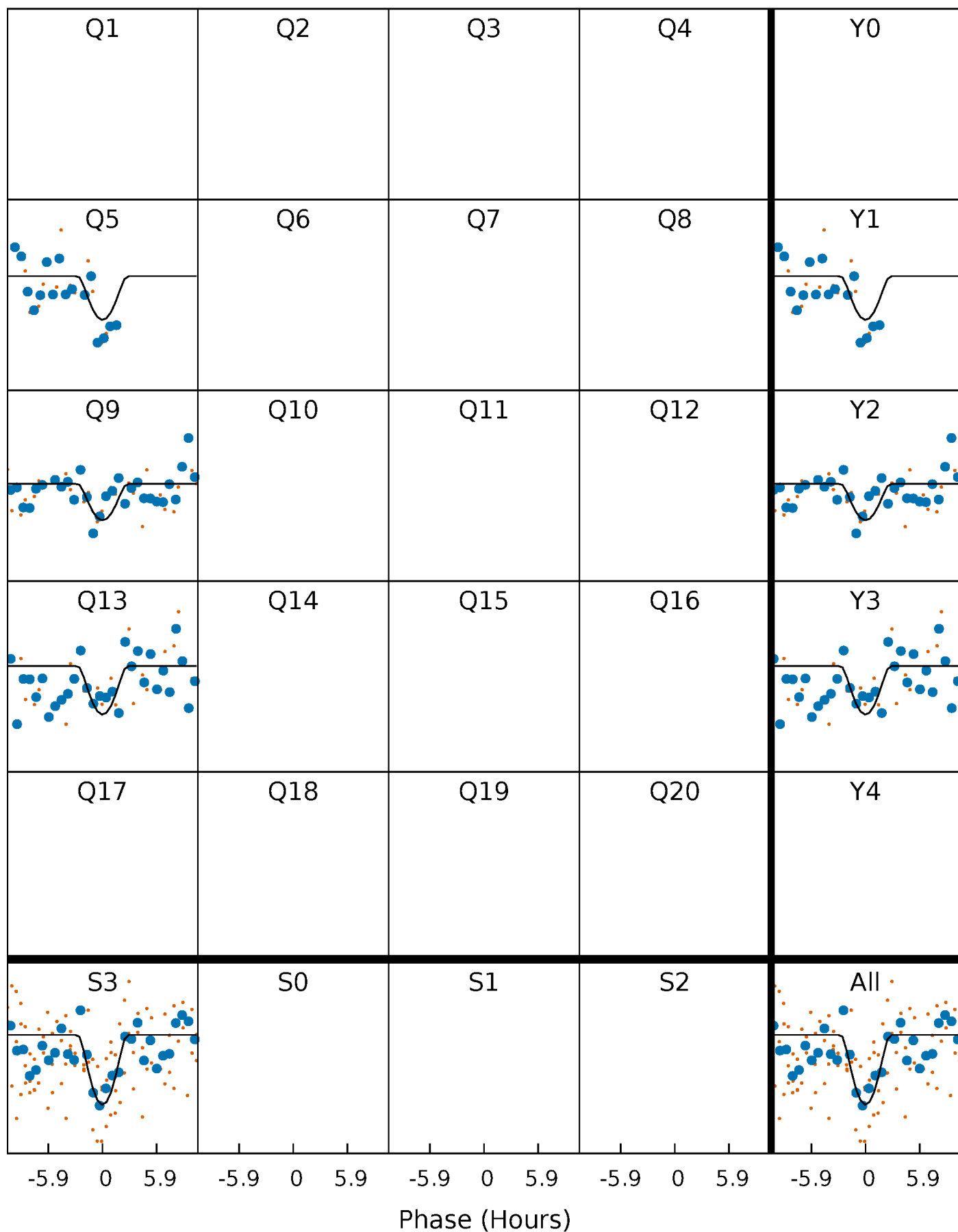
PDC Quarter-Phased Transit Curves

TCE 007456001-02 $P=397.168132$ Days $T_0=471.897603$ (BKJD)



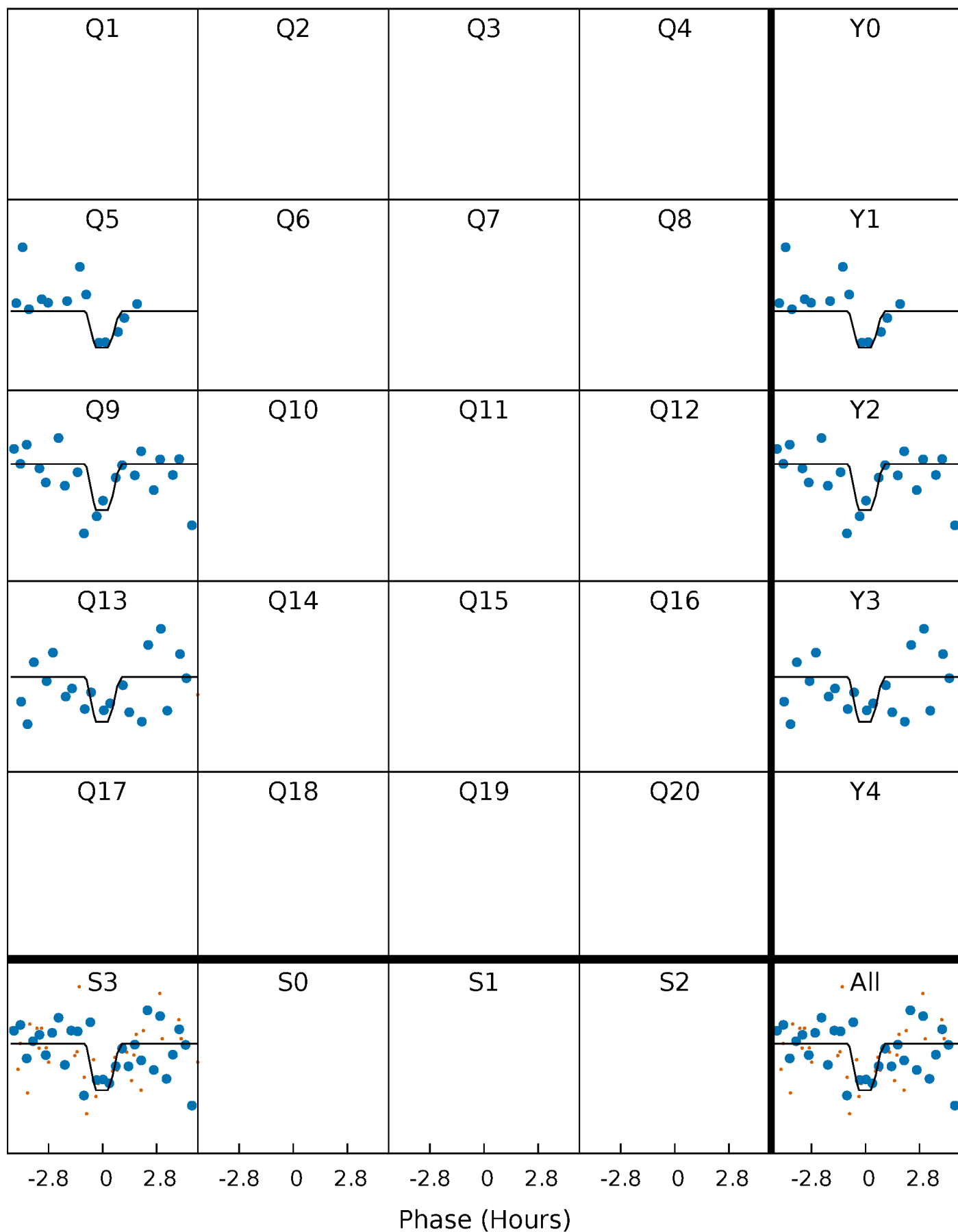
DV Quarter-Phased Transit Curves

TCE 007456001-02 $P=397.168132$ Days $T_0=471.897603$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

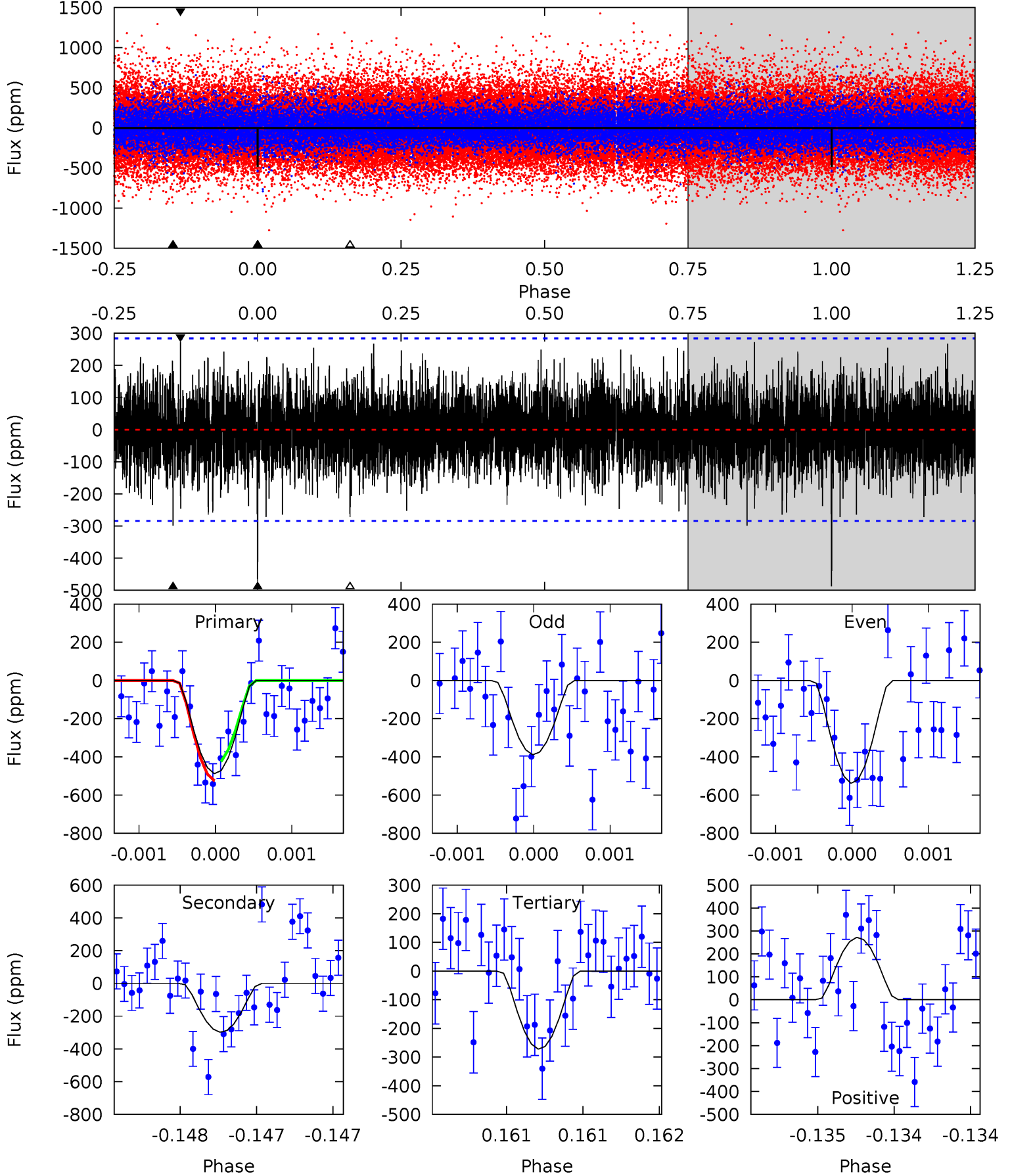
TCE 007456001-02 $P=397.173917$ Days $T_0=471.882489$ (BKJD)



DV Model-Shift Uniqueness Test

007456001-02, $P = 397.168132$ Days, $E = 74.729471$ Days

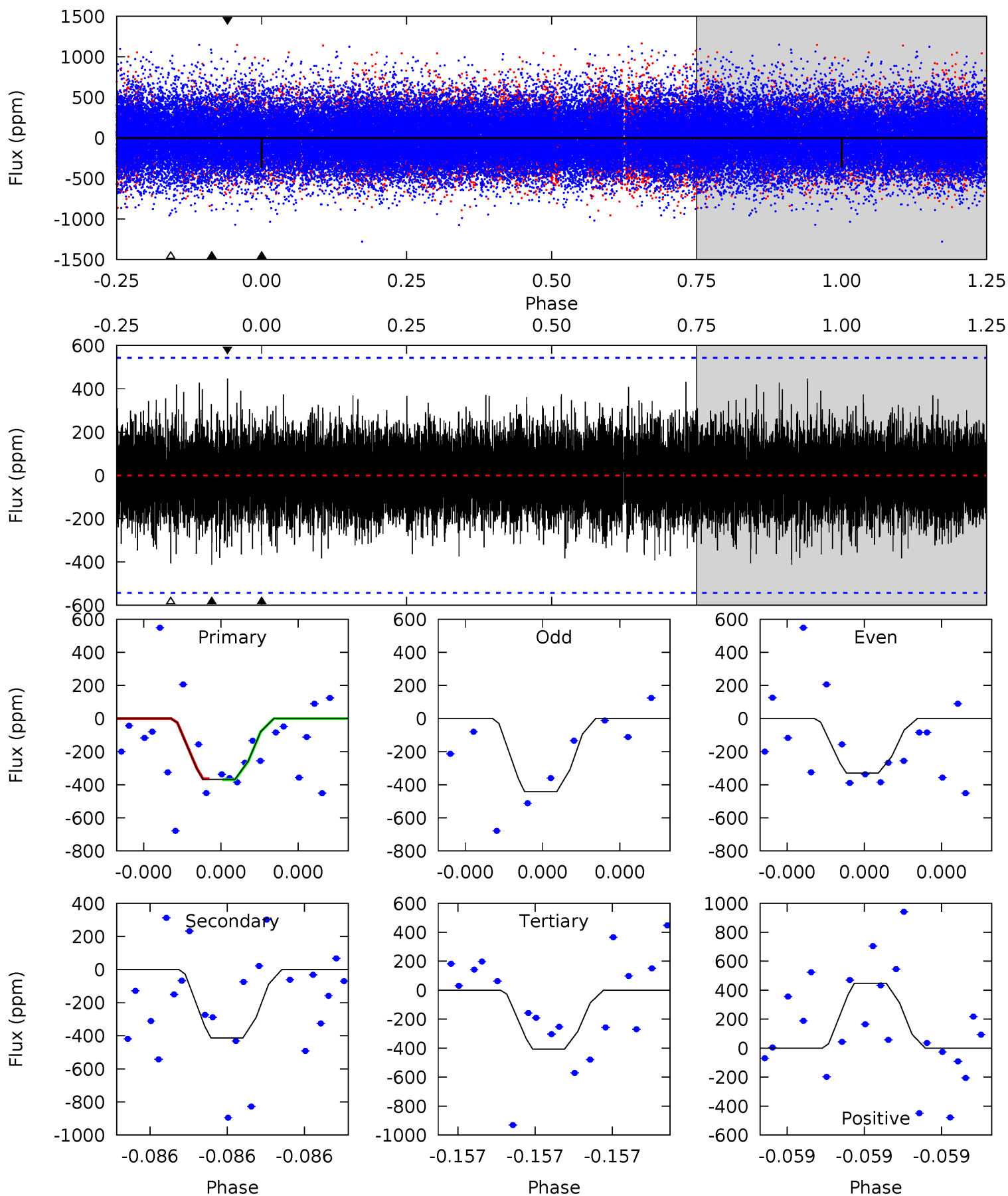
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.53	5.82	5.31	5.31	5.55	3.45	1.45	4.22	4.22	0.51	0.52	1.40	1.21	0.36	0.98



Alt Model-Shift Uniqueness Test

007456001-02, P = 397.173917 Days, E = 74.708572 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.91	4.40	4.32	4.76	5.77	3.78	1.11	-0.41	-0.85	0.08	-0.36	0.58	1.03	0.52	0.03



Stellar Parameters For KIC 007456001

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6026^{+182}_{-182}	$4.411^{+0.105}_{-0.195}$	$-0.360^{+0.300}_{-0.300}$	$0.992^{+0.274}_{-0.147}$	$0.924^{+0.120}_{-0.098}$	$1.333^{+0.625}_{-0.686}$
	+3%/-3%	+2%/-4%	+83%/-83%	+28%/-15%	+13%/-11%	+47%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007456001-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-298 ± 51	$16.91^{+17.31}_{-11.04}$	369^{+24}_{-20}	2768^{+1091}_{-424}	609^{+4658}_{-464}
Alt.	-414 ± 94	$16.70^{+17.45}_{-11.53}$	368^{+25}_{-21}	2908^{+1264}_{-489}	884^{+8291}_{-684}

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

DV Centroid Data

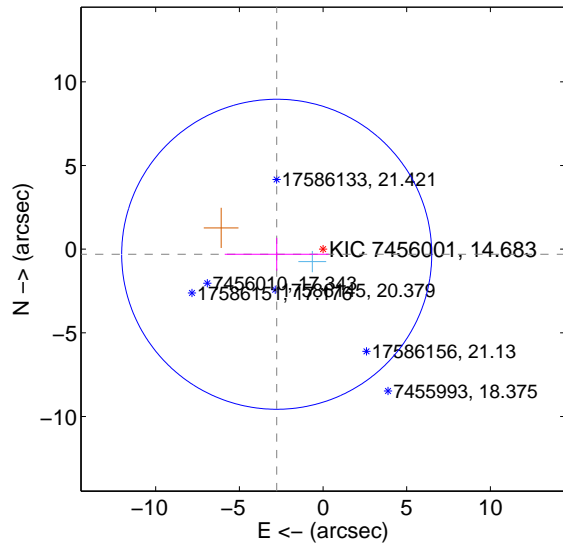
Supplemental centroid analysis for 007456001-02. Kepler magnitude: 14.68. Transit SNR 6.21

There are 1 quarters with good PRF difference image offsets

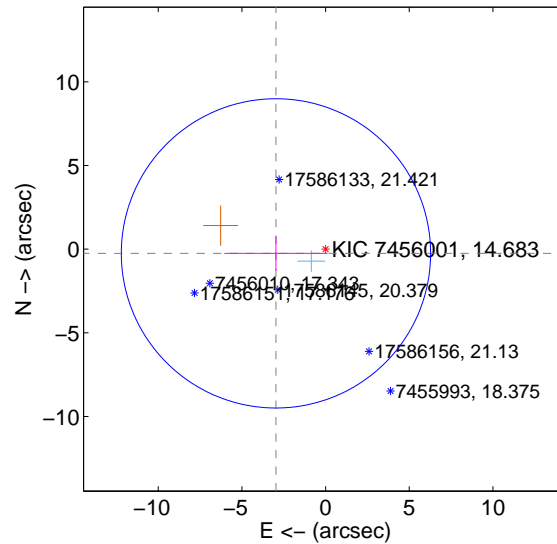
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.786 ± 3.088	0.90	2.769 ± 3.105	-0.304 ± 0.976
PRF-fit source offset from KIC position	2.976 ± 3.081	0.97	2.966 ± 3.090	-0.251 ± 1.029
photometric centroid source offset	2.44 ± 2.01	1.22	1.48 ± 1.87	-1.95 ± 2.09

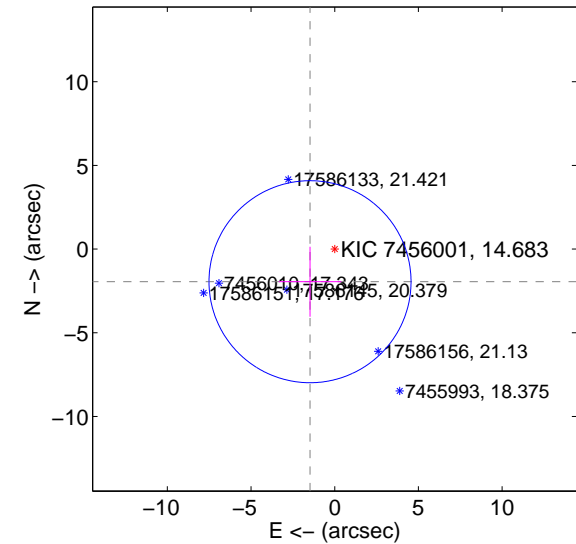
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

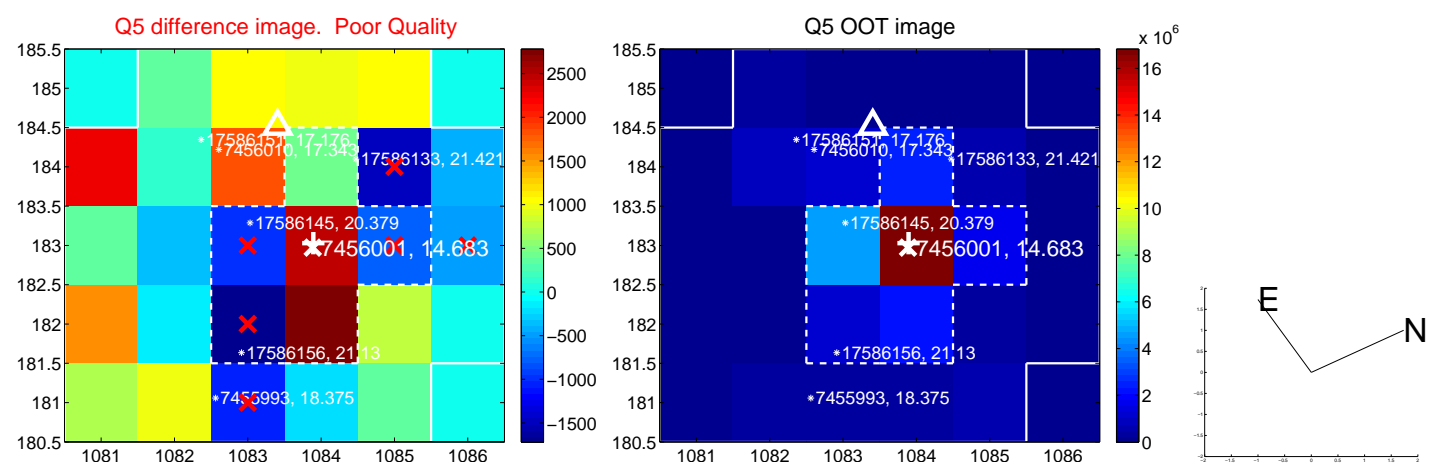


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

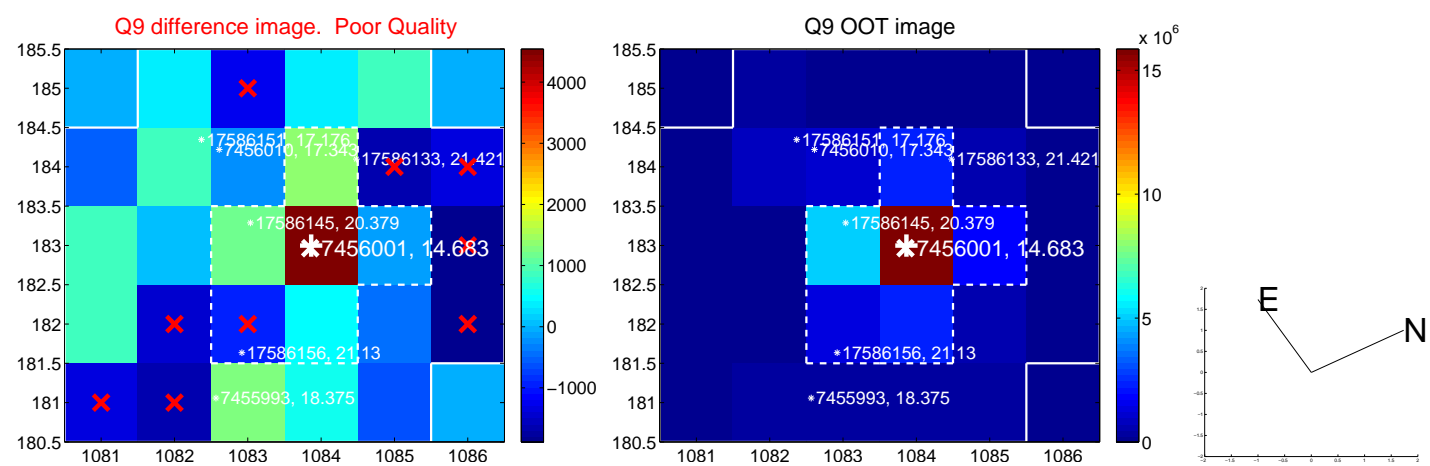
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



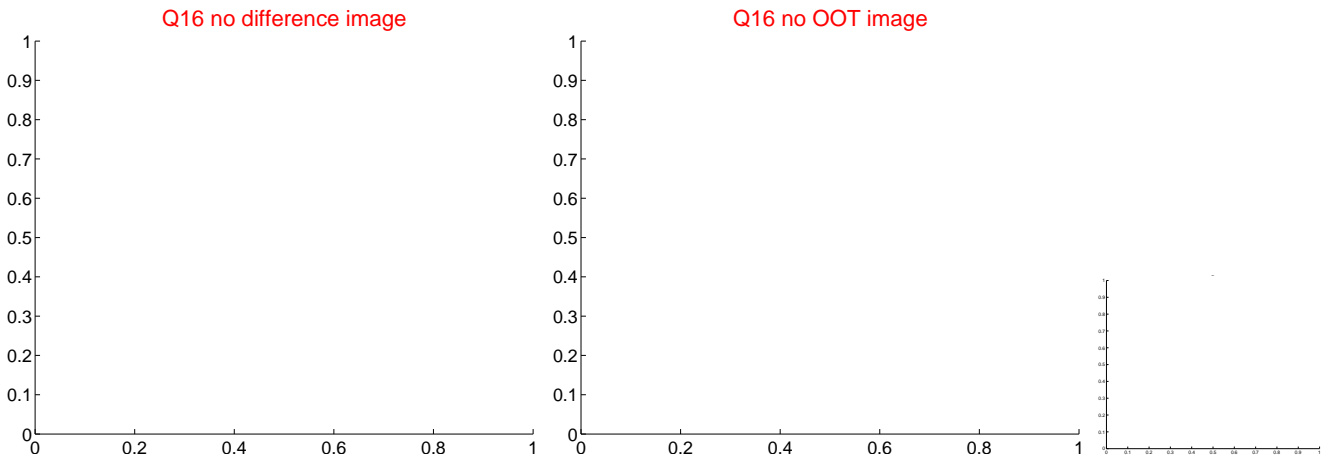
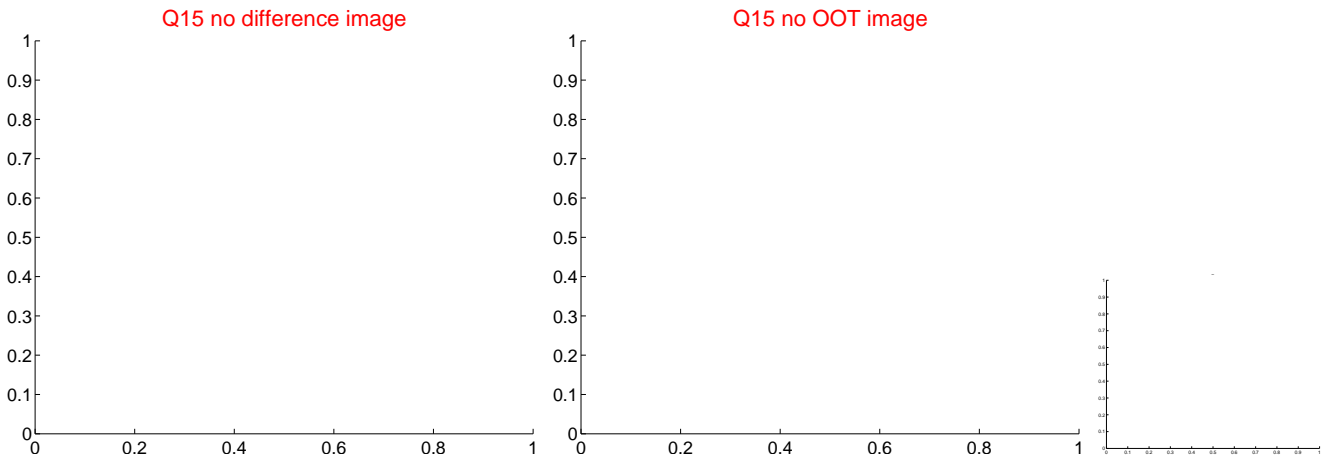
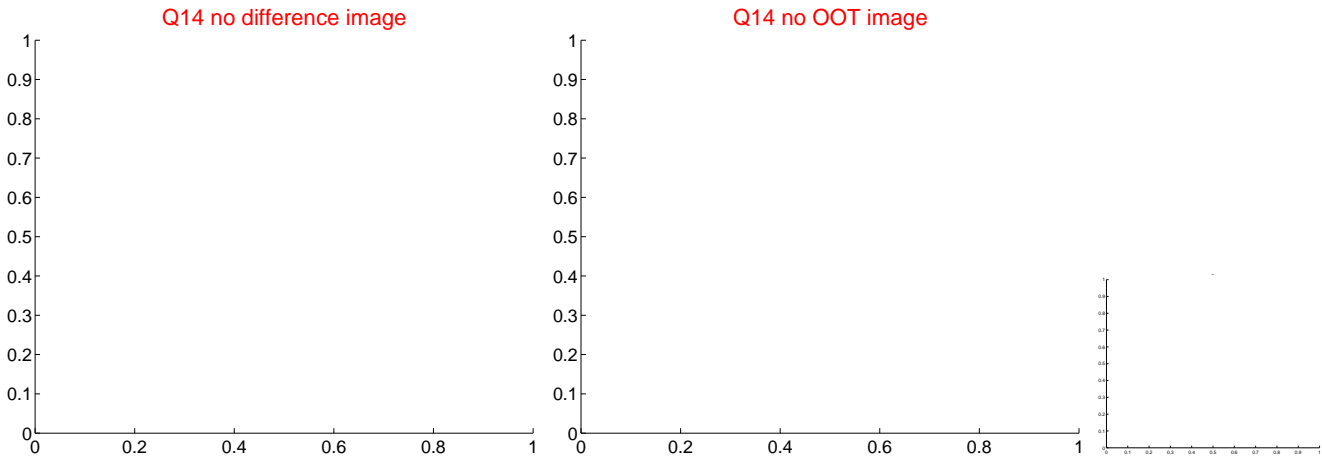
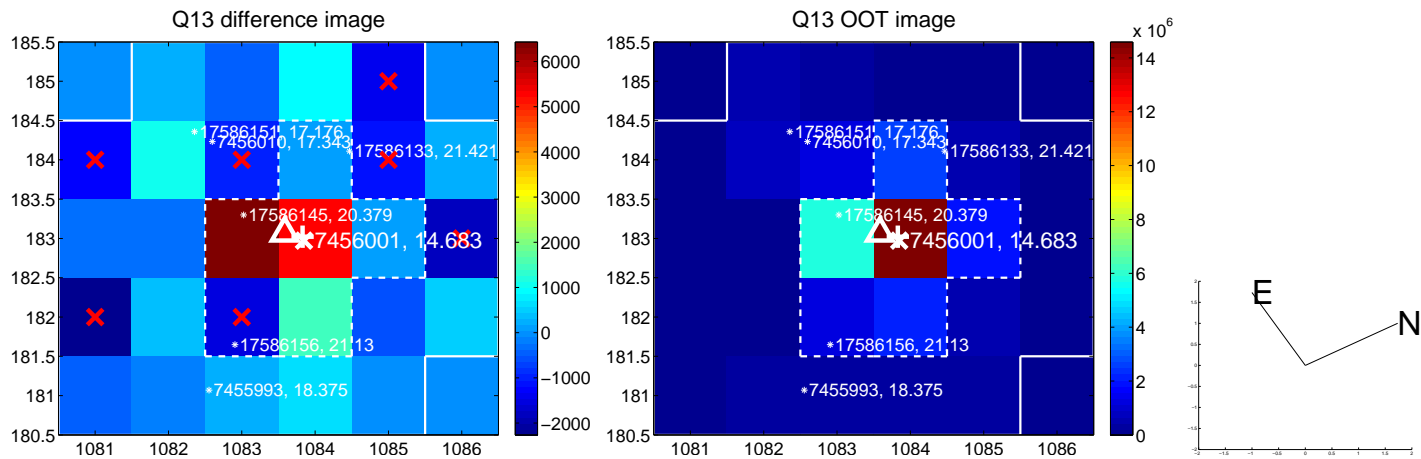
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



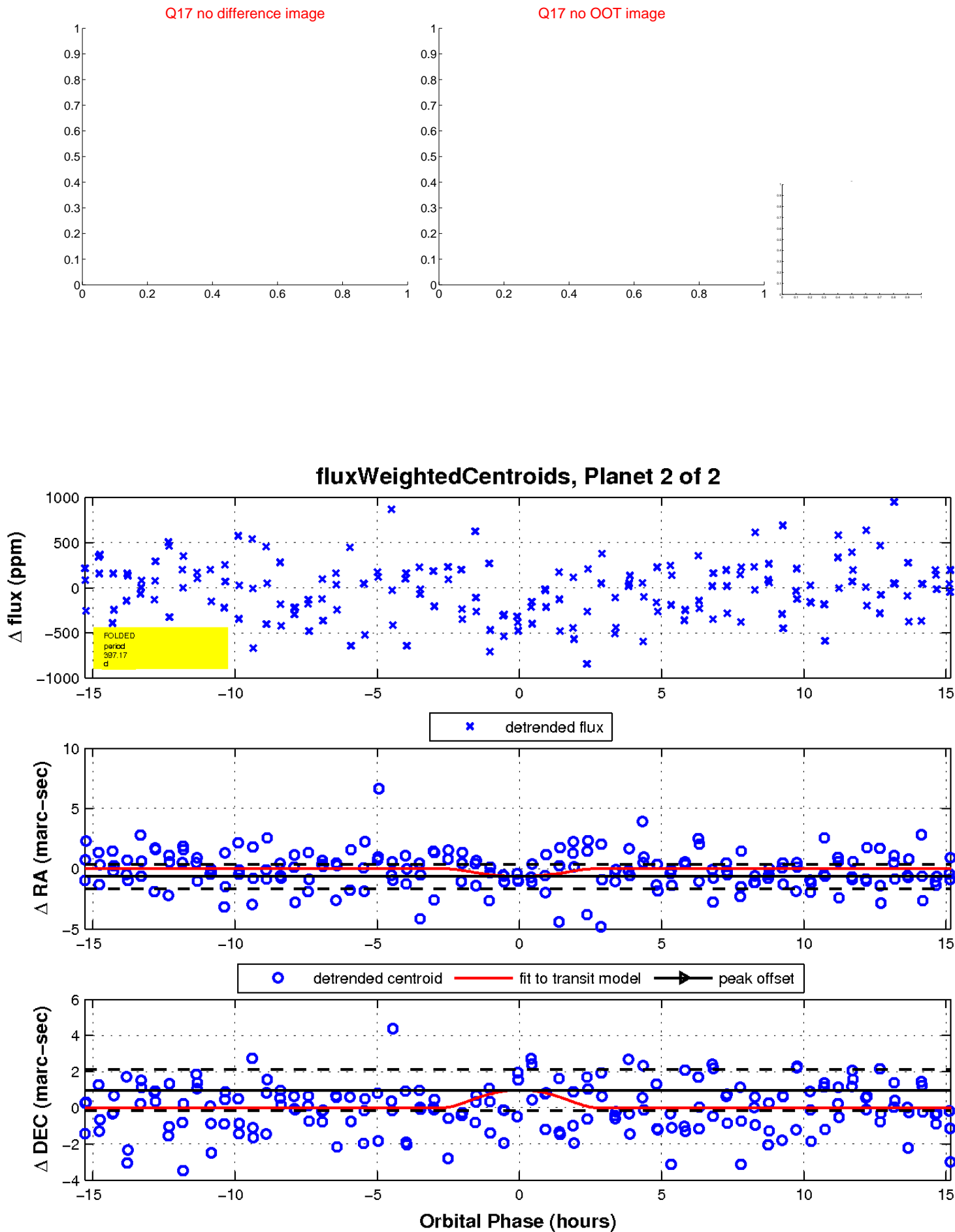
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

