

KIC 010553884

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})
010553884-01	OBS	No	0.671797	131.756149	1.8	4.789	8.8	0.5	1.87	7209	0.26	28631.22
010553884-02	OBS	No	17.480590	134.039133	664.8	1.125	9.4	9.6	1.87	7209	6.85	371.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010553884-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
010553884-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

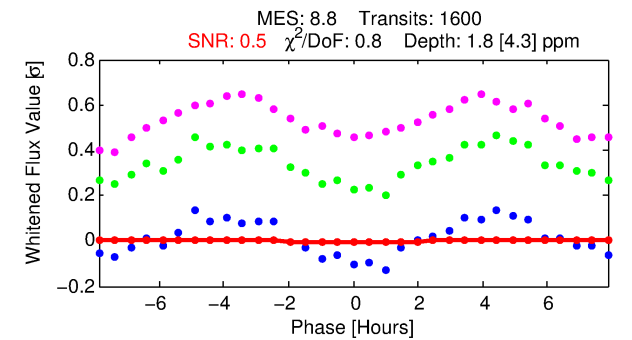
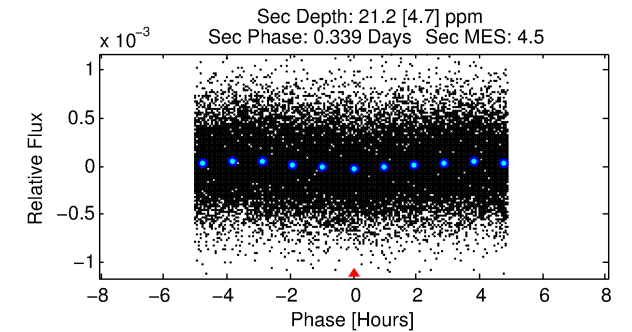
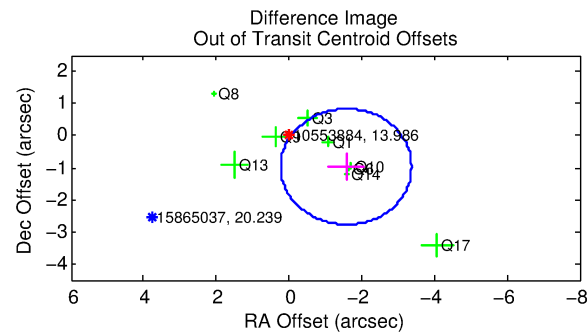
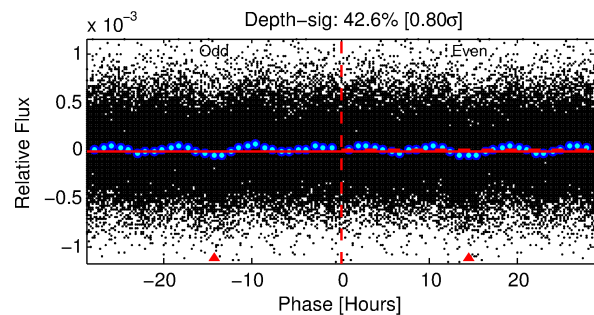
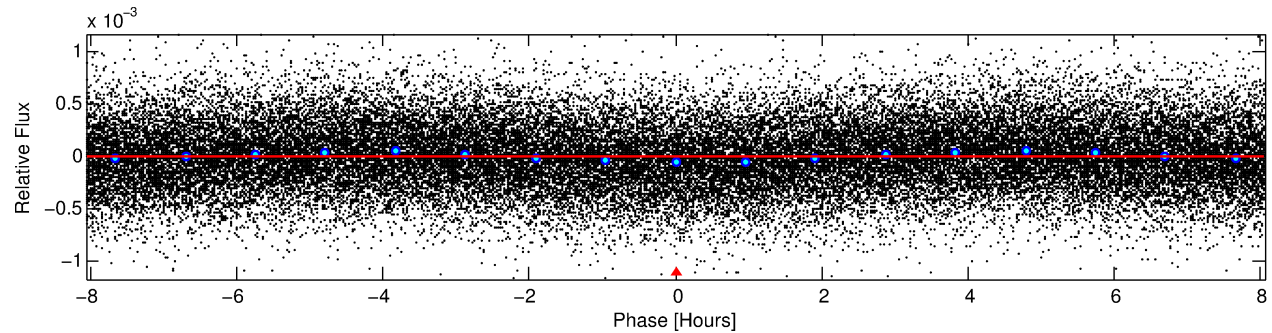
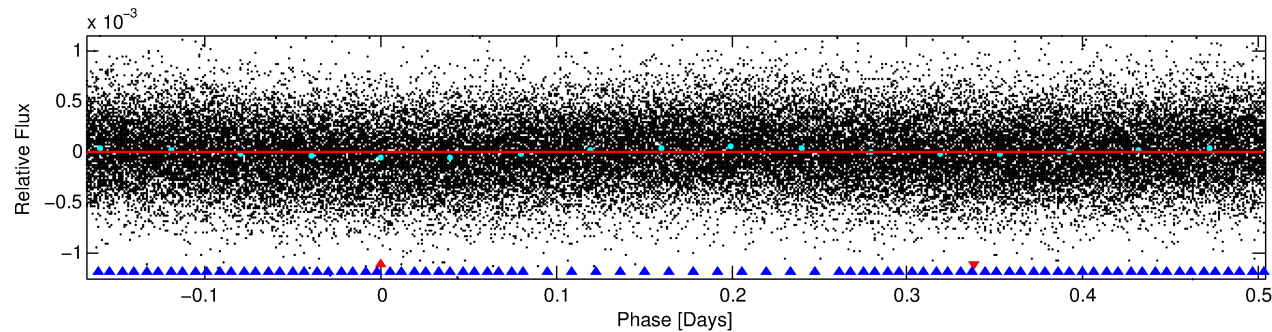
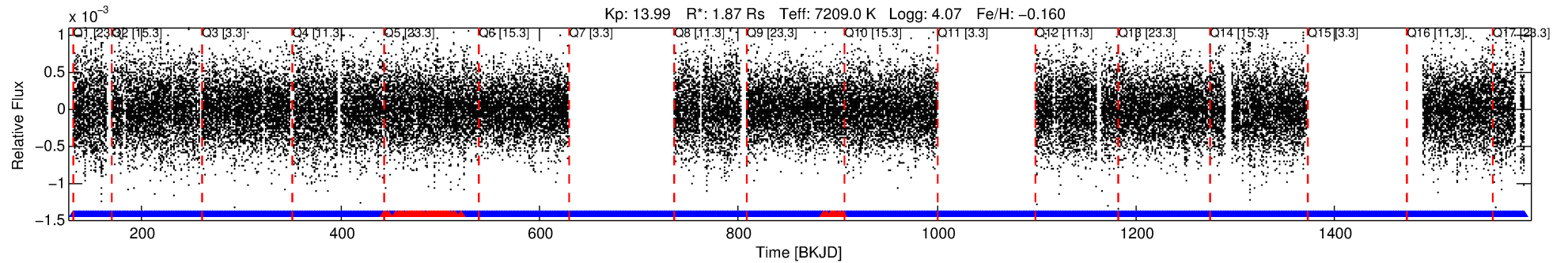
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010553884-01

No Significant Match Found

DV One-Page Summary

KIC: 10553884 Candidate: 1 of 2 Period: 0.672 d



DV Fit Results:

Period = 0.67180 [0.00024] d
Epoch = 131.7561 [0.0664] BKJD
Rp/R* = 0.0013 [0.0045]
a/R* = 1.19 [7.13]
b = 0.48 [32.05]
Seff = 28631.22 [11281.92]
Teff = 3317 [327] K
Rp = 0.26 [0.92] Re
a = 0.0172 [0.0043] AU
Ag = 49.95 [348.98] [0.14 σ]
Teffp = 13633 [23790] K [0.43 σ]

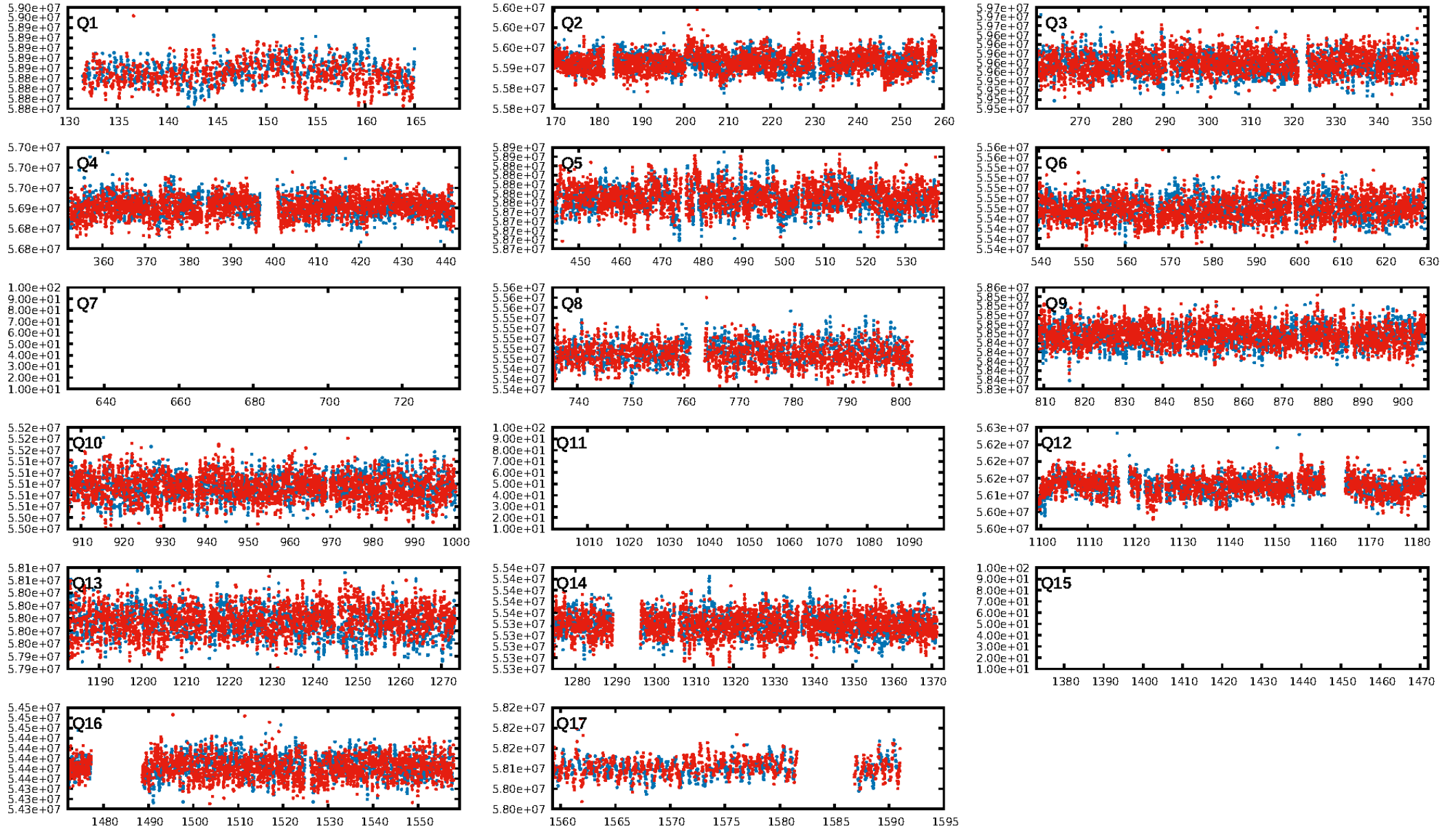
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [82.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.83e-17
RollingBand-fgt: 0.95 [1436/1509]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OOTOffset-rm: 1.845 arcsec [3.07 σ]
KicOffset-rm: 1.808 arcsec [2.71 σ]
OOTOffset-st: 3/1/1/4 [9]
KicOffset-st: 3/1/1/4 [9]
DiffImageQuality-fgm: 0.56 [5/9]
DiffImageOverlap-fno: 1.00 [14/14]

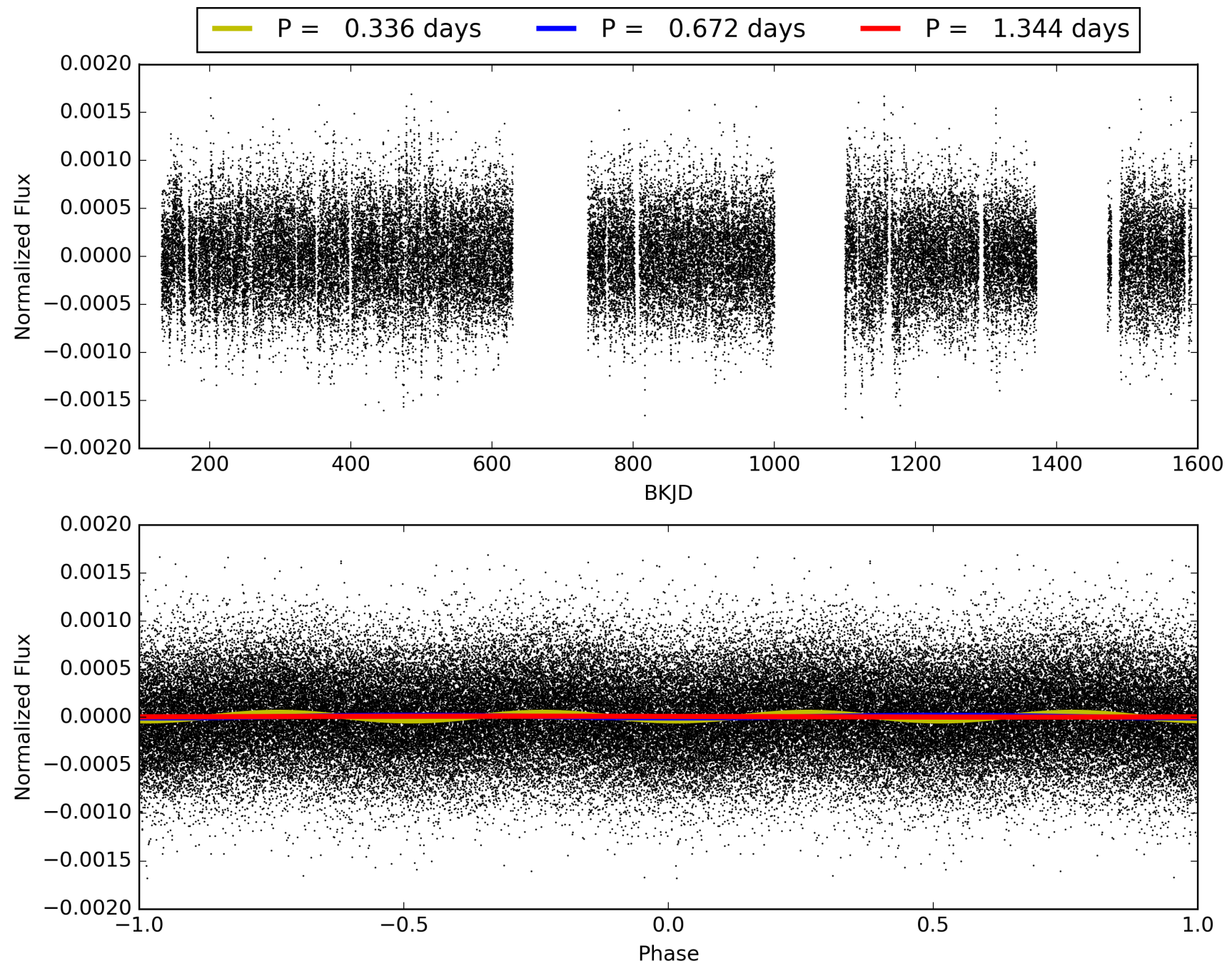
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010553884-01, PDC Light Curves

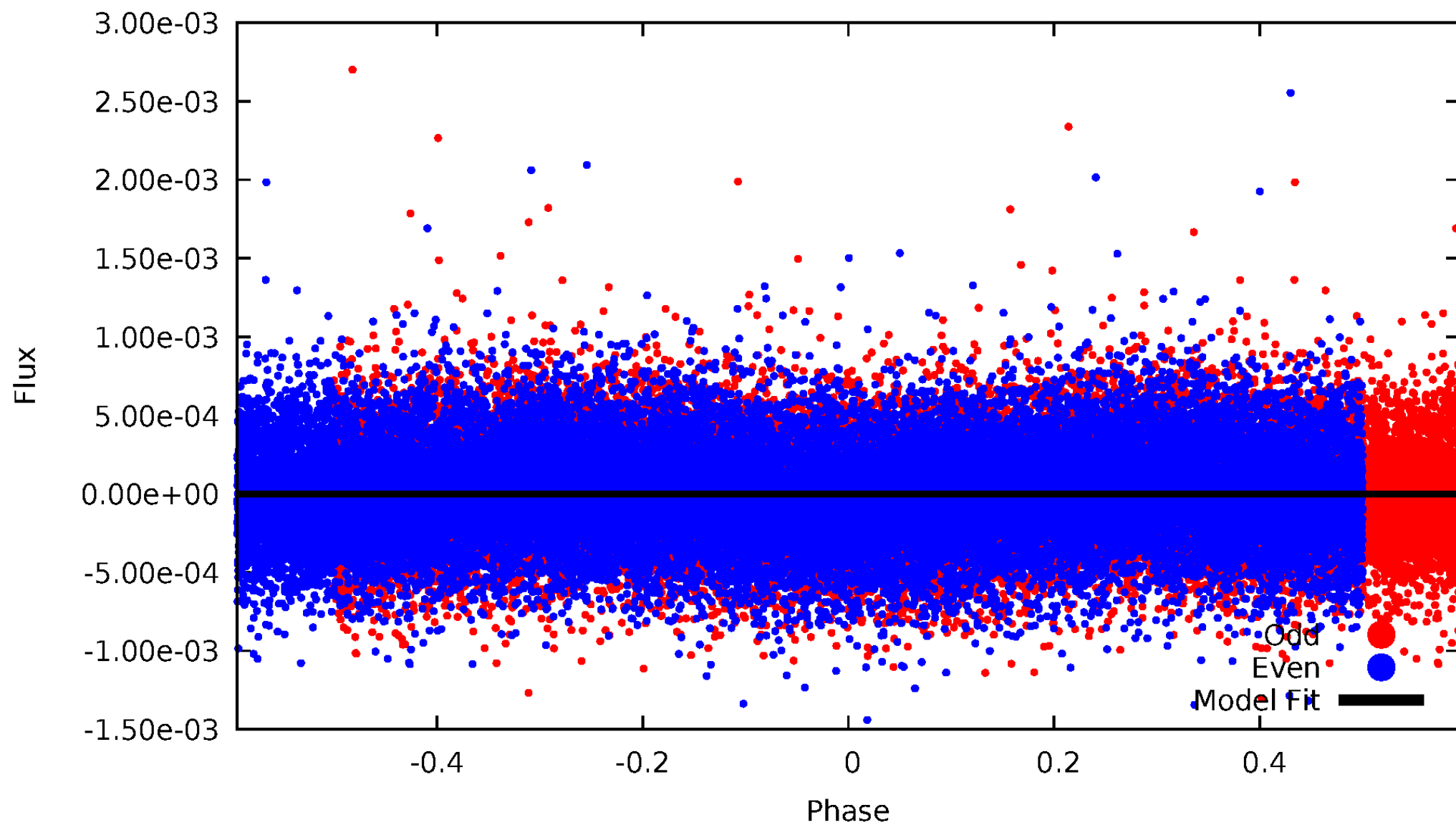


TCE 010553884-01



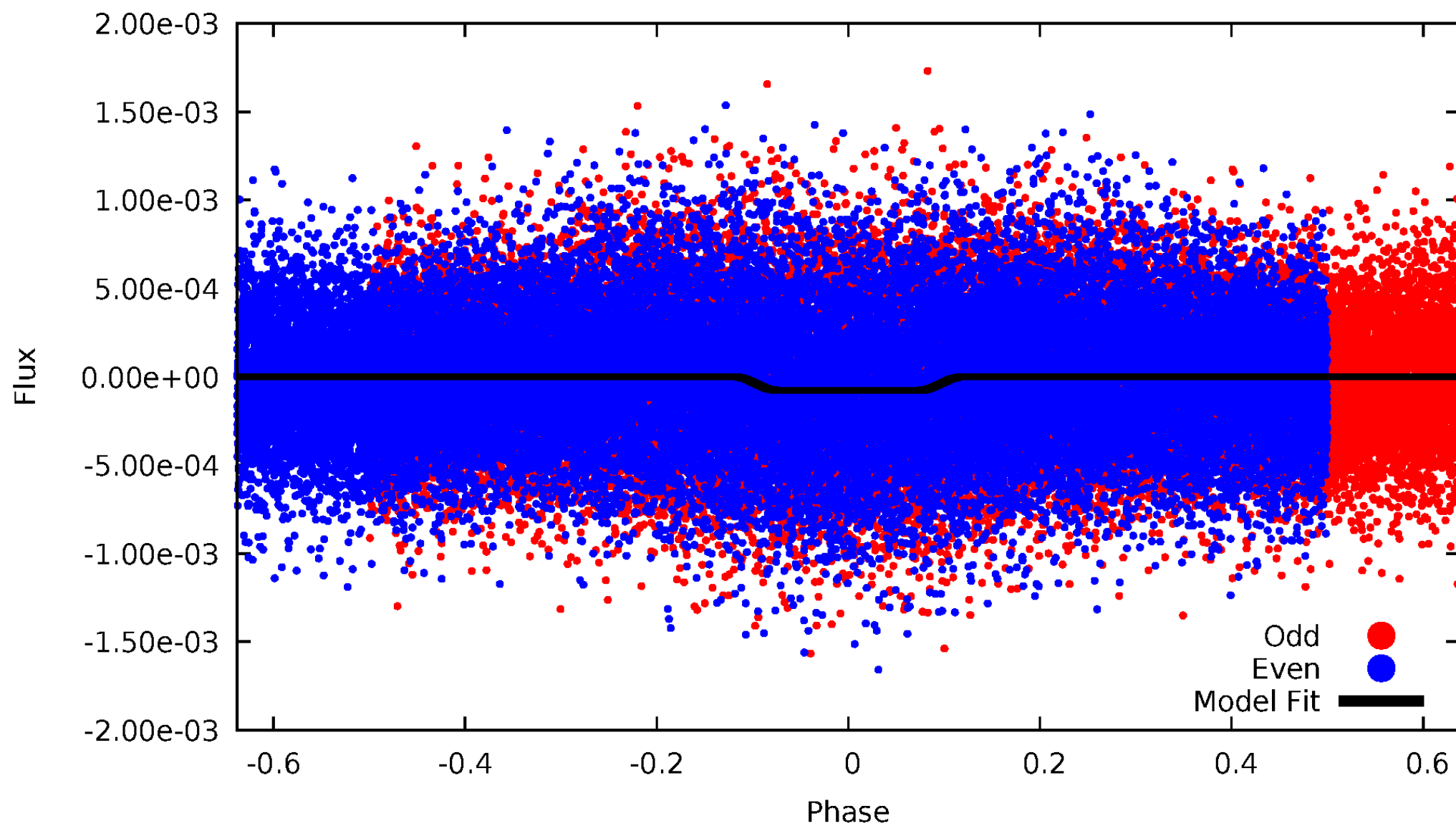
DV Odd/Even

TCE 010553884-01

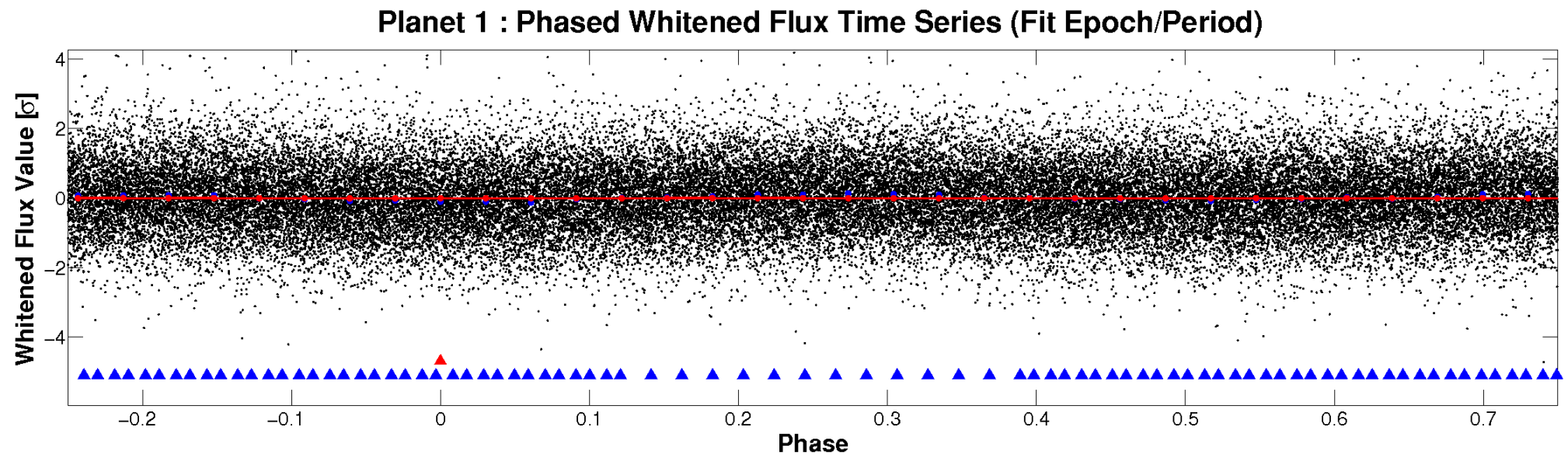
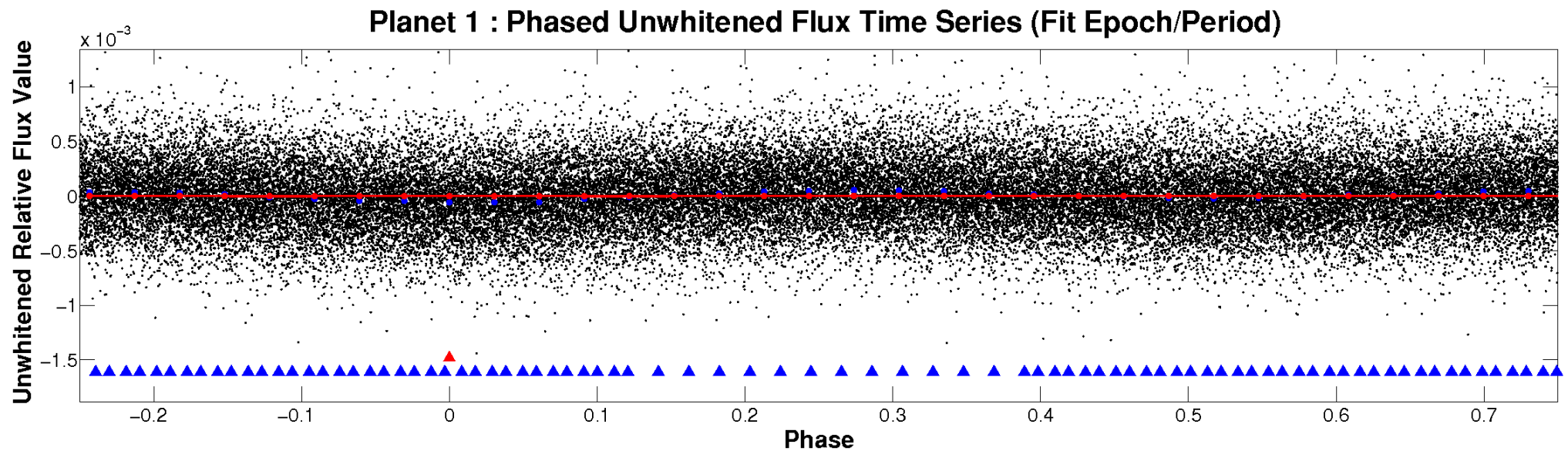


ALT Odd/Even

TCE 010553884-01

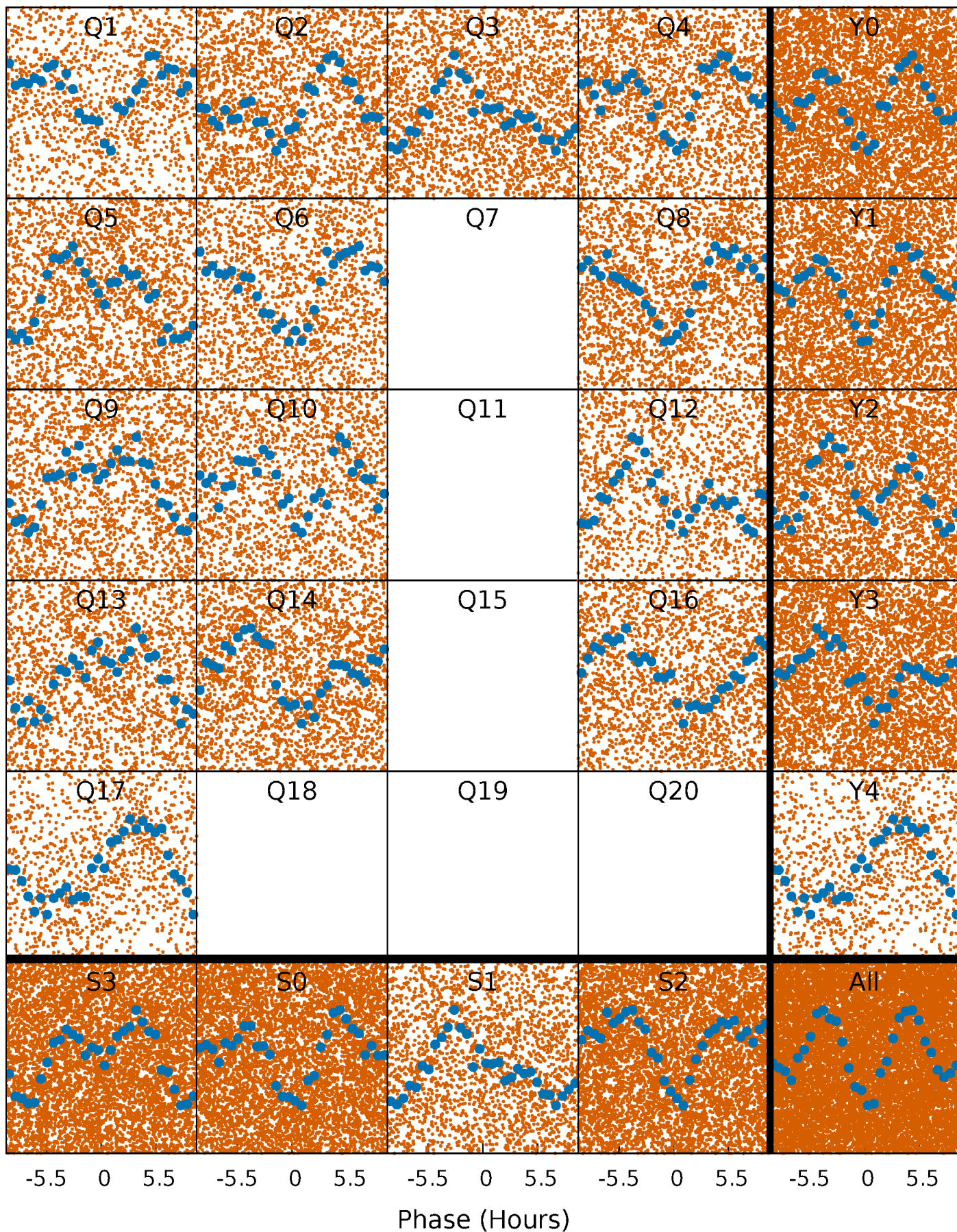


Non-Whitened Vs. Whitened Light Curve



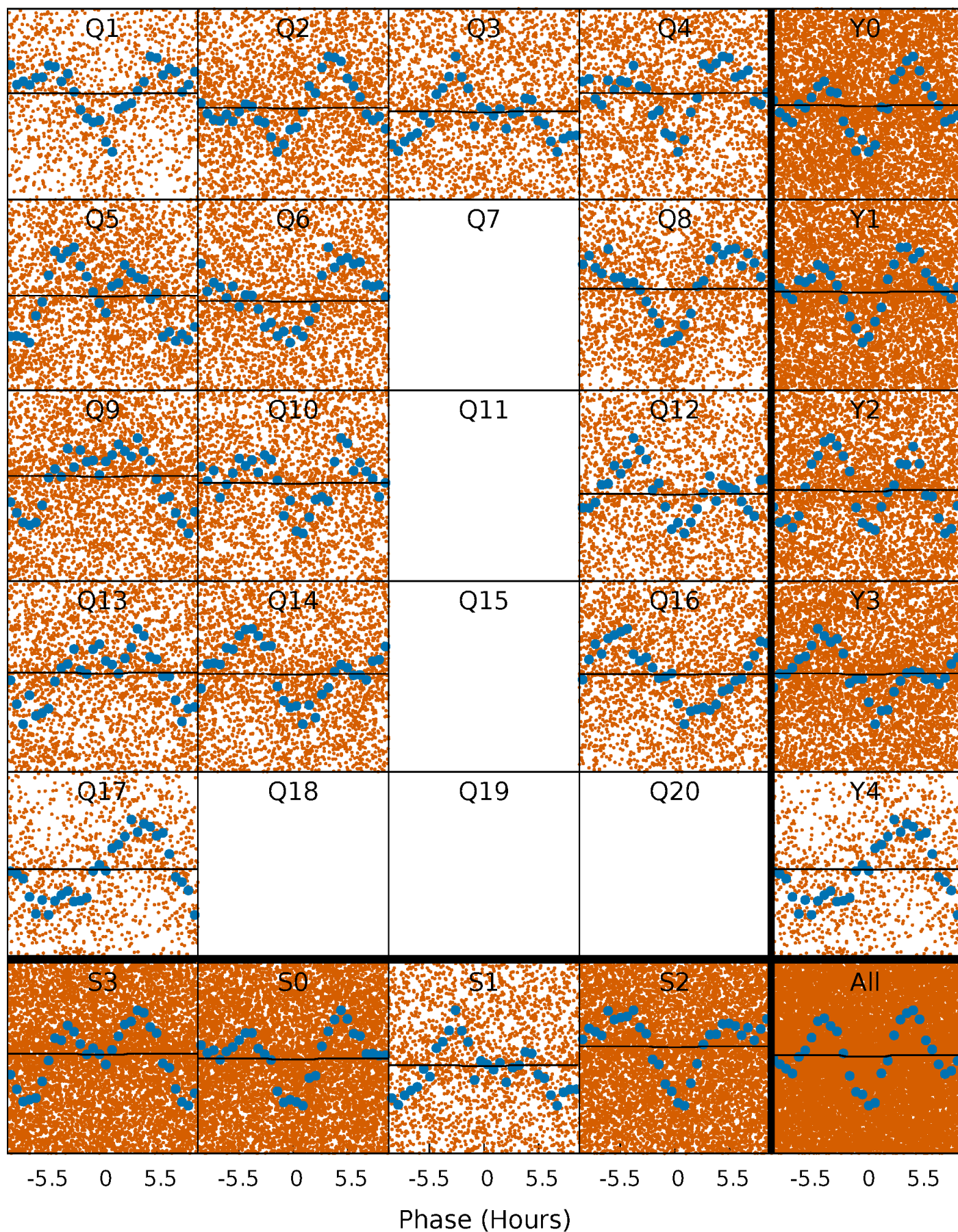
PDC Quarter-Phased Transit Curves

TCE 010553884-01 P= 0.671797 Days $T_0=131.756149$ (BKJD)



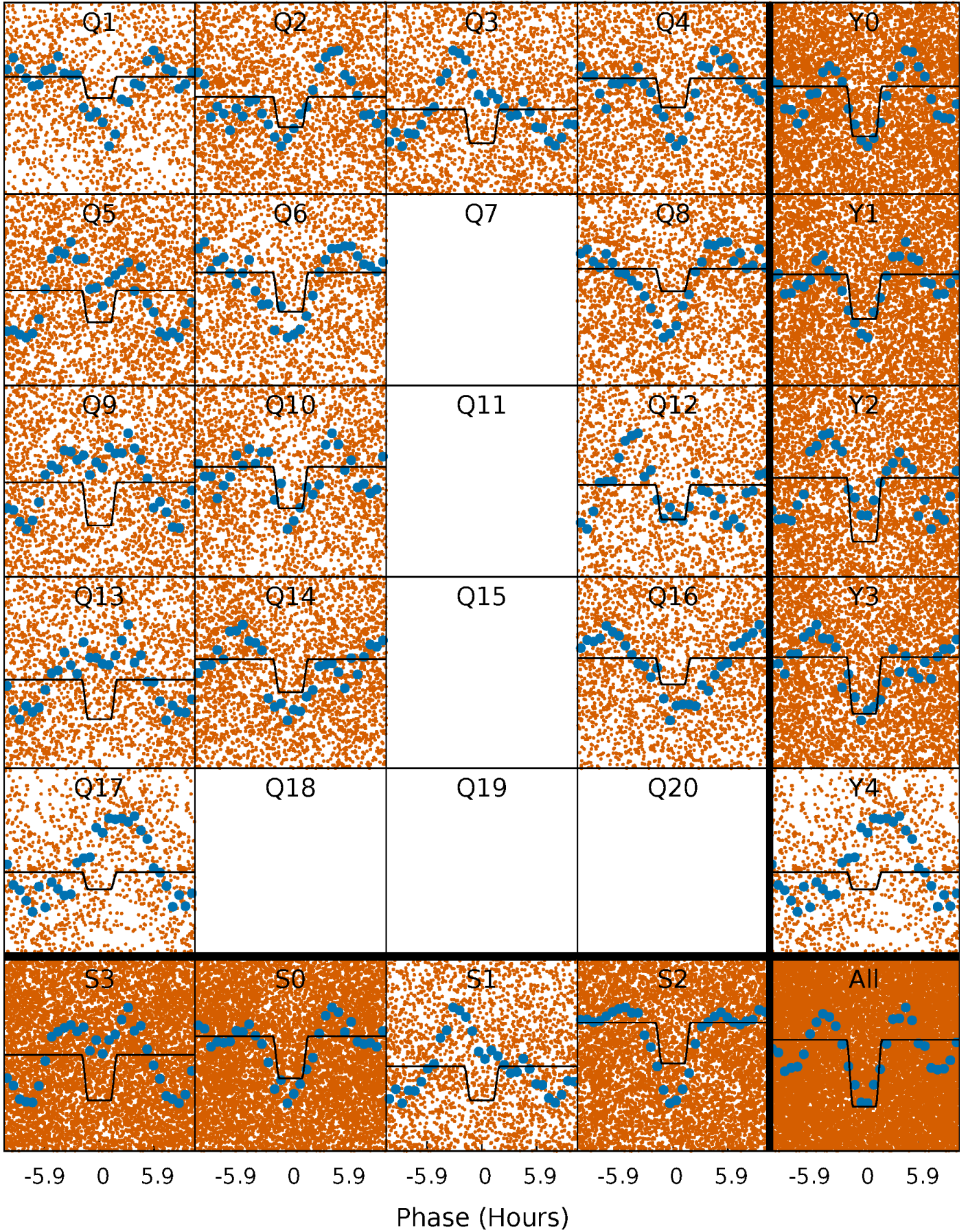
DV Quarter-Phased Transit Curves

TCE 010553884-01 P= 0.671797 Days $T_0=131.756149$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

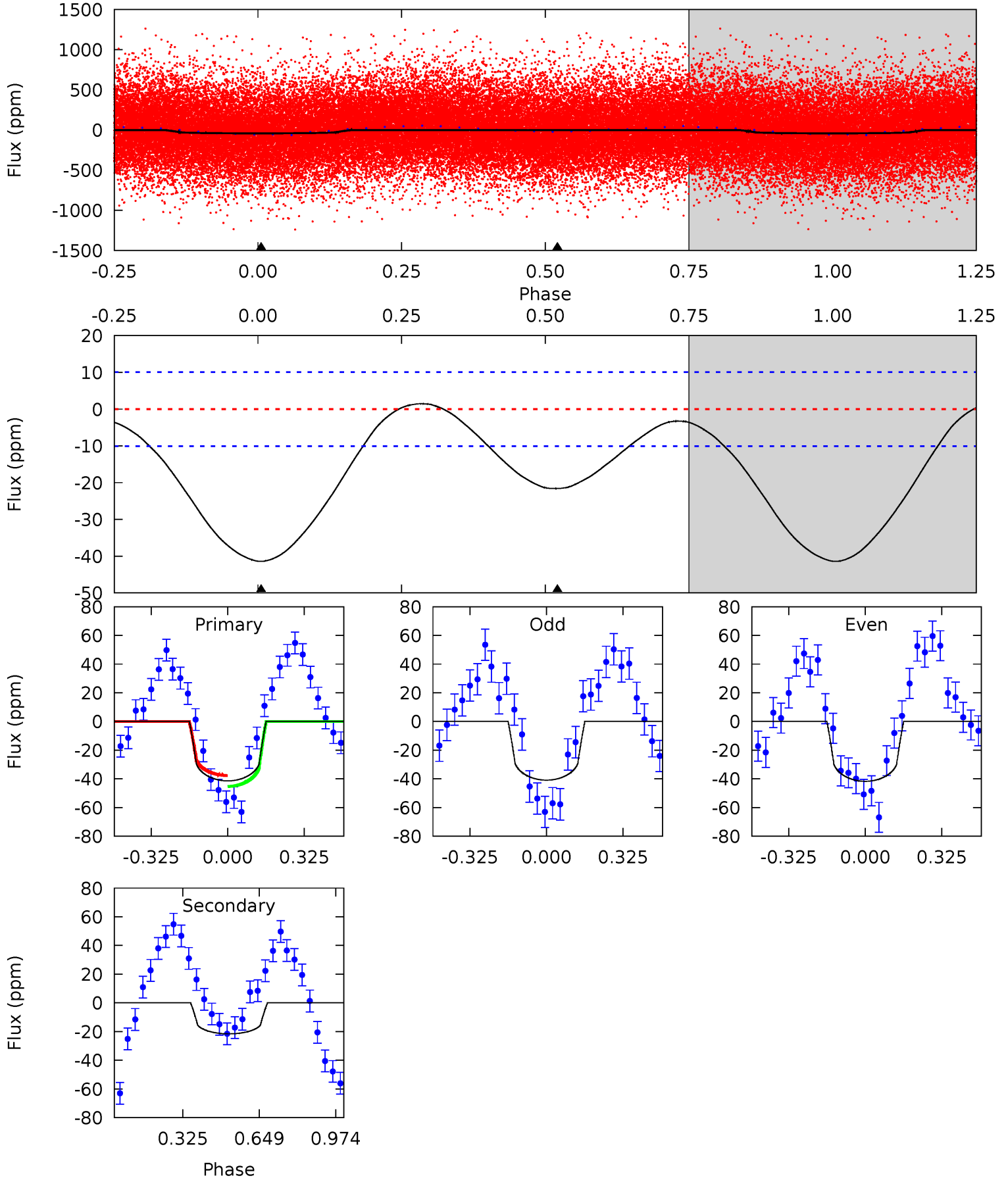
TCE 010553884-01 P= 0.671835 Days $T_0=131.732986$ (BKJD)



DV Model-Shift Uniqueness Test

010553884-01, P = 0.671797 Days, E = 131.084352 Days

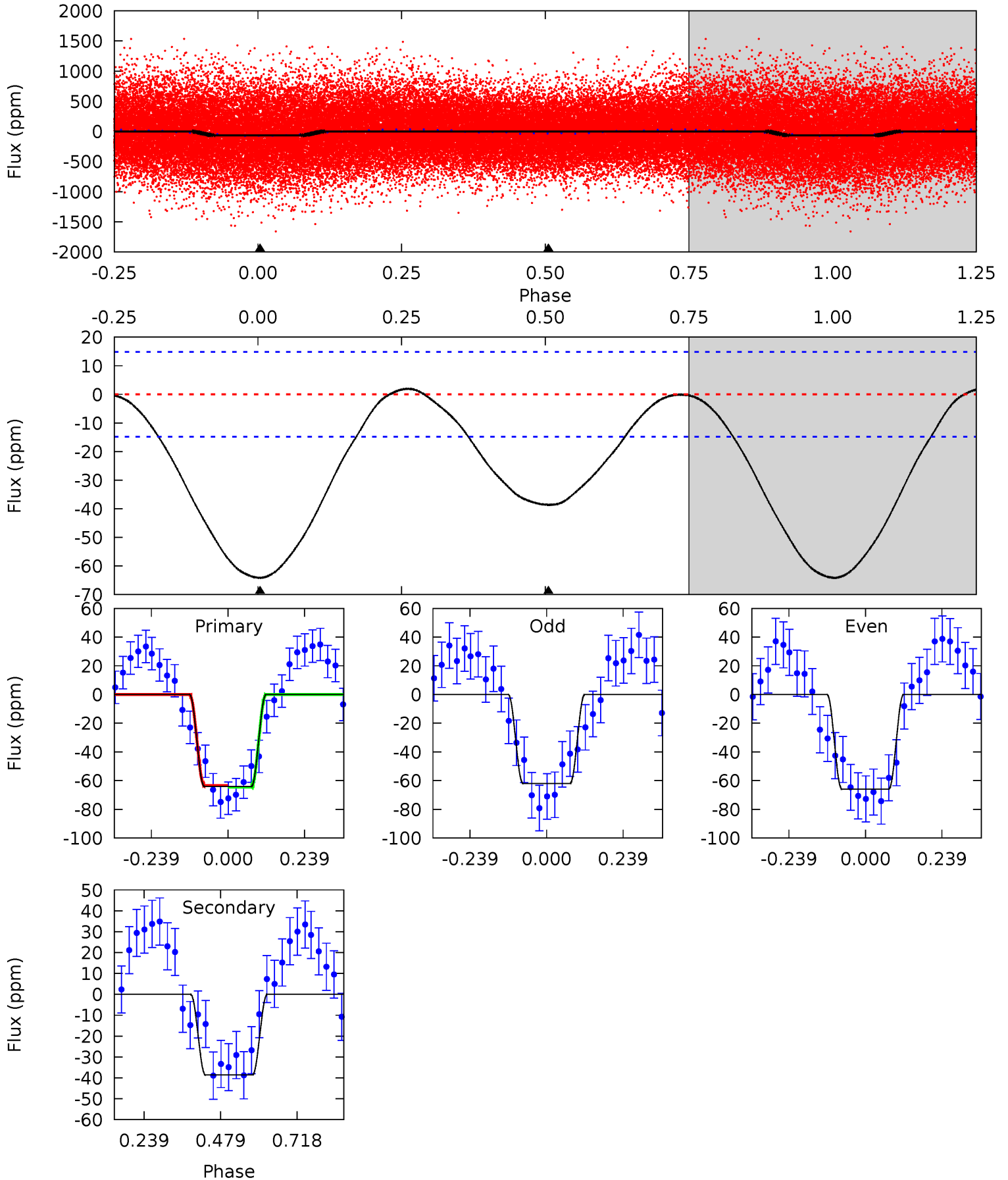
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	9.23	0	0	4.31	0.98	1.13	17.7	17.7	9.23	9.23	0.17	1.01	0.03	1.61



Alt Model-Shift Uniqueness Test

010553884-01, P = 0.671835 Days, E = 131.061151 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	11.4	0	0	4.38	1.18	0.41	18.9	18.9	11.4	11.4	0.58	1.02	0.03	0.17



Stellar Parameters For KIC 010553884

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7209^{+226}_{-302}	$4.070^{+0.193}_{-0.175}$	$-0.160^{+0.250}_{-0.350}$	$1.867^{+0.556}_{-0.505}$	$1.492^{+0.212}_{-0.259}$	$0.323^{+0.366}_{-0.149}$
	+3%/-4%	+5%/-4%	+156%/-219%	+30%/-27%	+14%/-17%	+113%/-46%
Source	KIC0	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 010553884-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-22 ± 2	$0.71^{+0.73}_{-0.48}$	4630^{+389}_{-375}	8242^{+15613}_{-2754}	$6.639^{+57.705}_{-4.998}$
Alt.	-39 ± 3	$1.82^{+0.98}_{-0.95}$	4620^{+355}_{-351}	5700^{+2889}_{-1227}	$1.913^{+6.395}_{-1.116}$

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

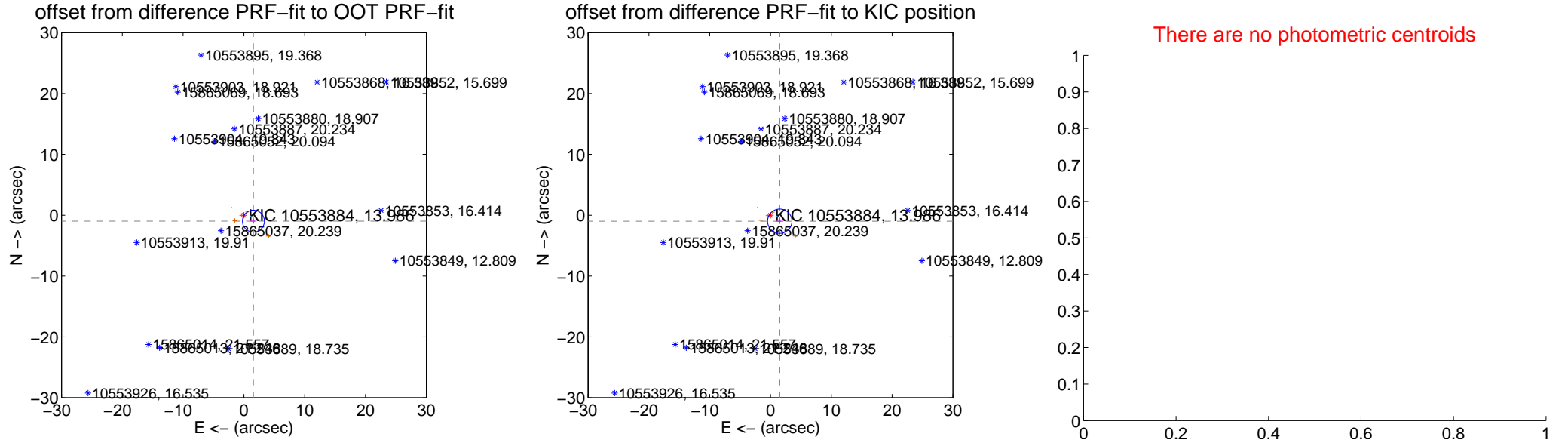
DV Centroid Data

Supplemental centroid analysis for 010553884-01. Kepler magnitude: 13.99. Transit SNR 0.47

There are 5 quarters with good PRF difference image offsets

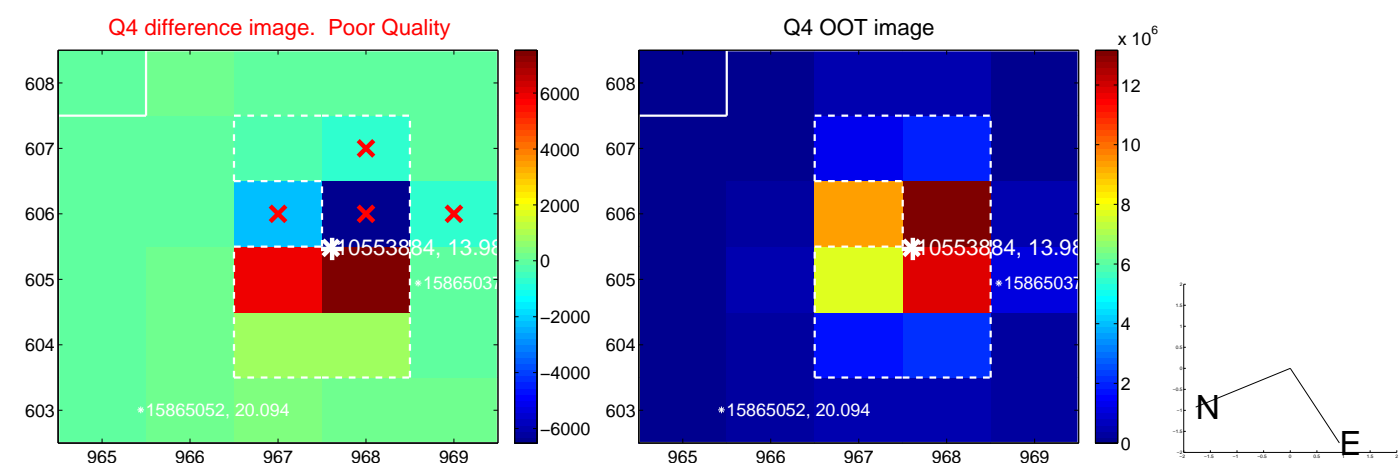
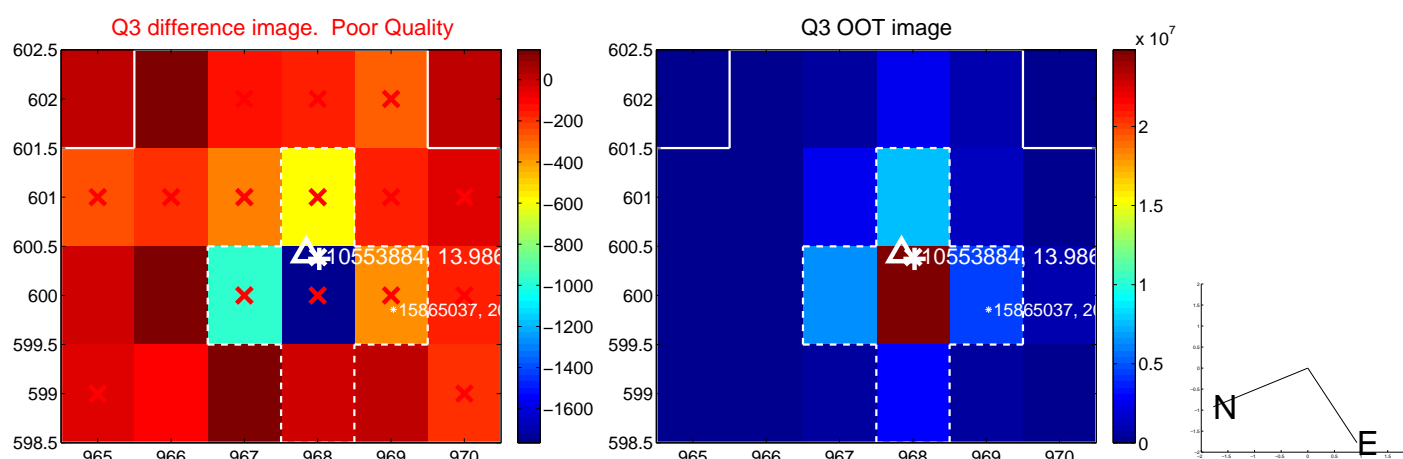
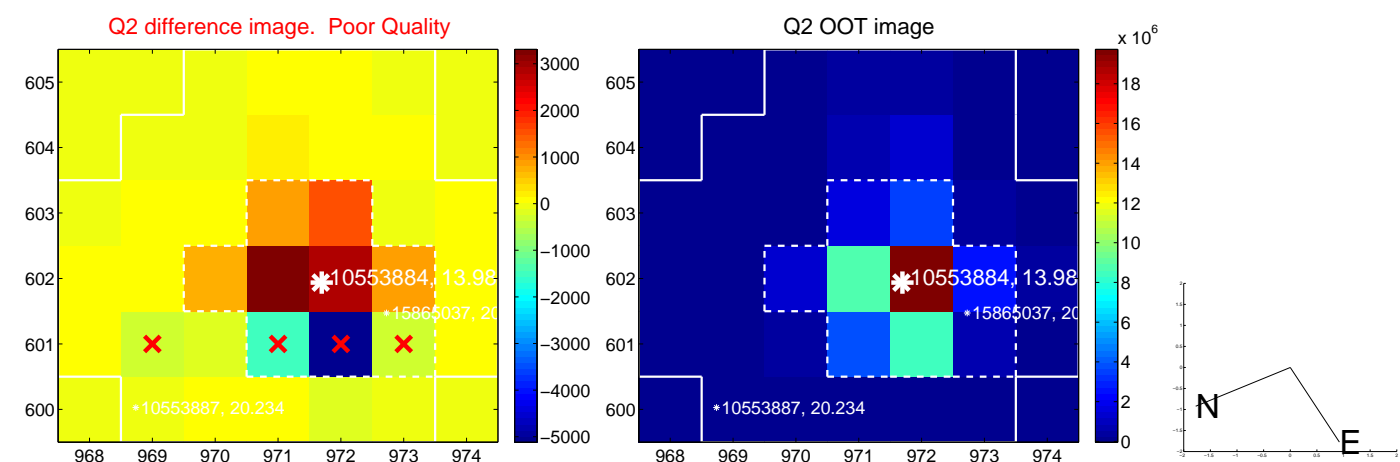
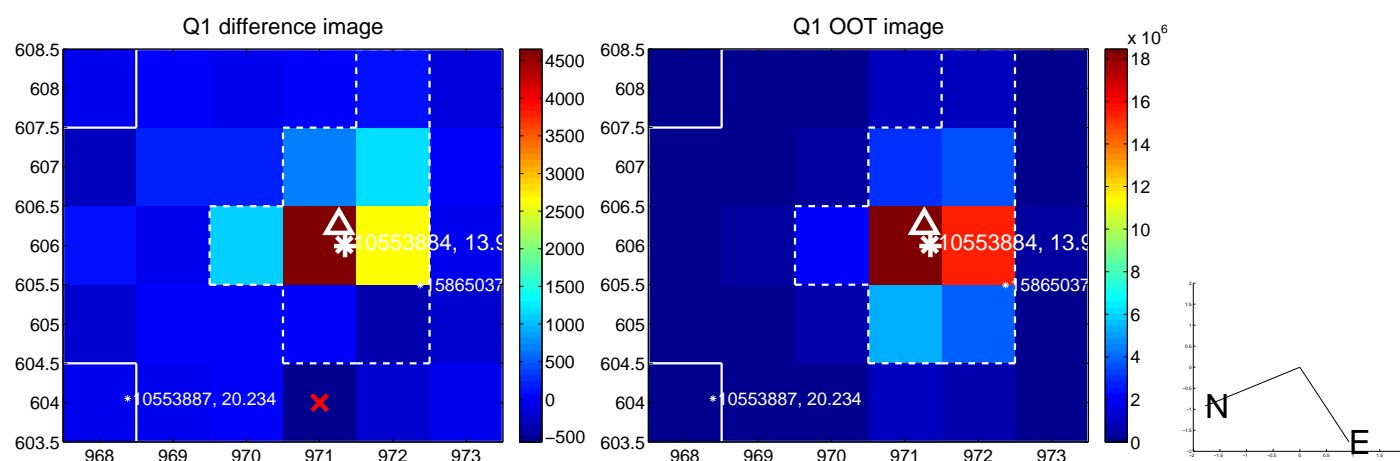
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.845 \pm 0.601	3.07	-1.569 \pm 0.510	-0.972 \pm 0.387
PRF-fit source offset from KIC position	1.808 \pm 0.667	2.71	-1.519 \pm 0.574	-0.980 \pm 0.399
photometric centroid source offset	—	—	—	—

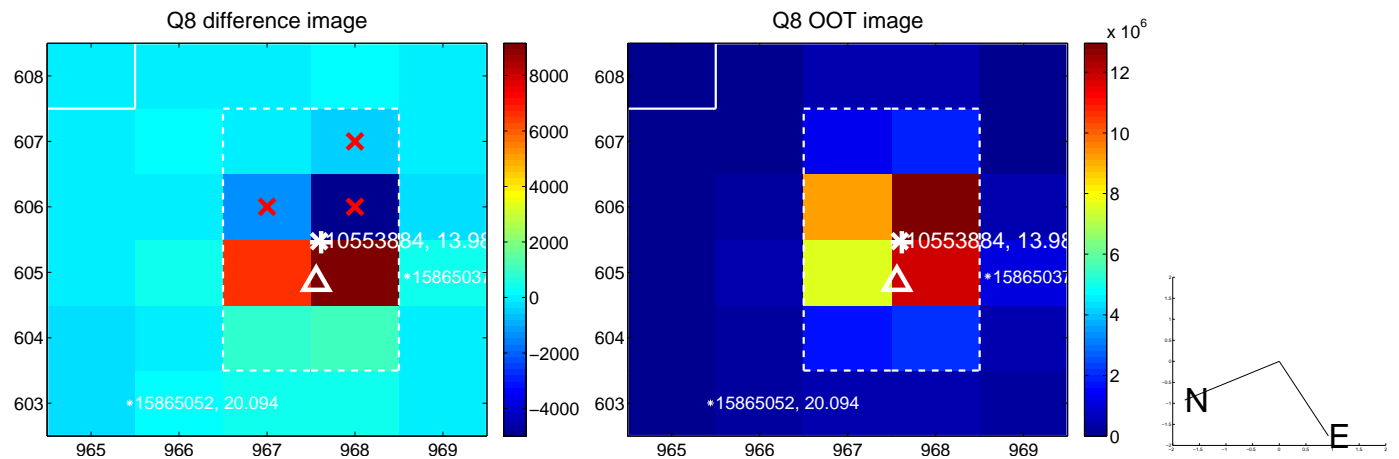
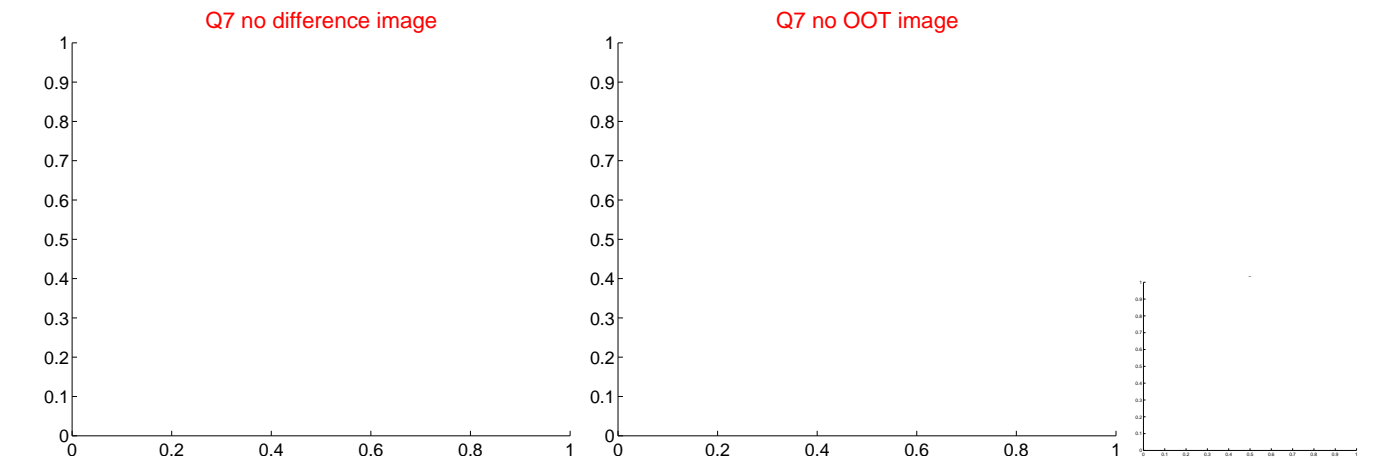
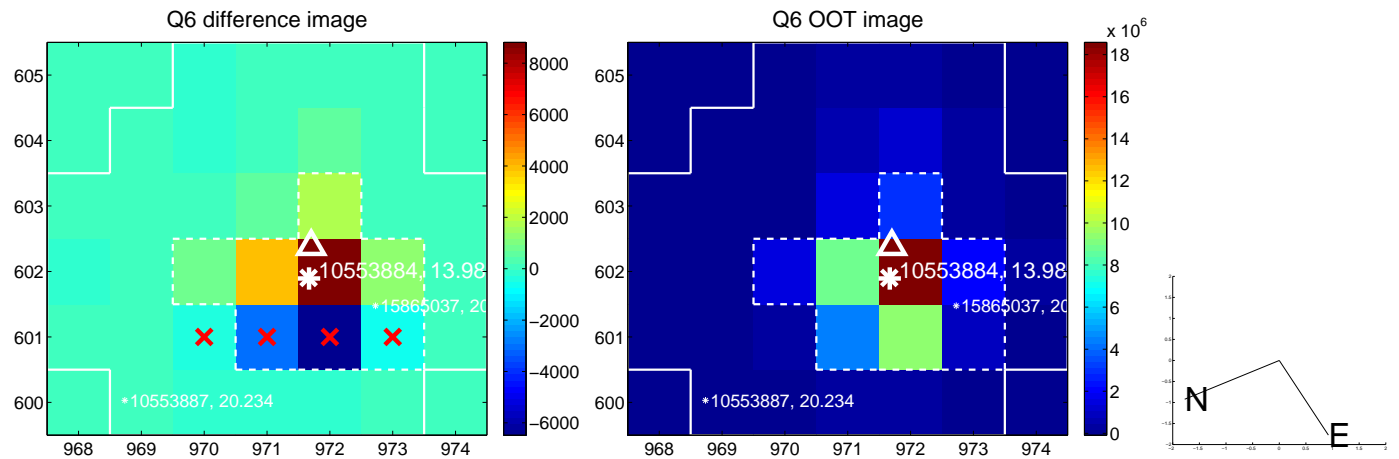
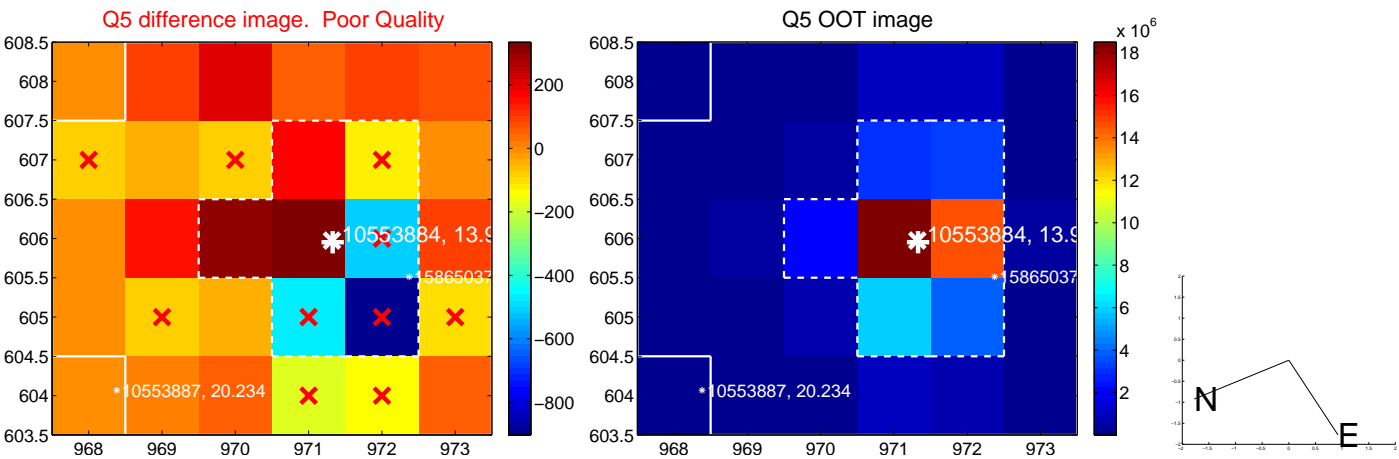


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

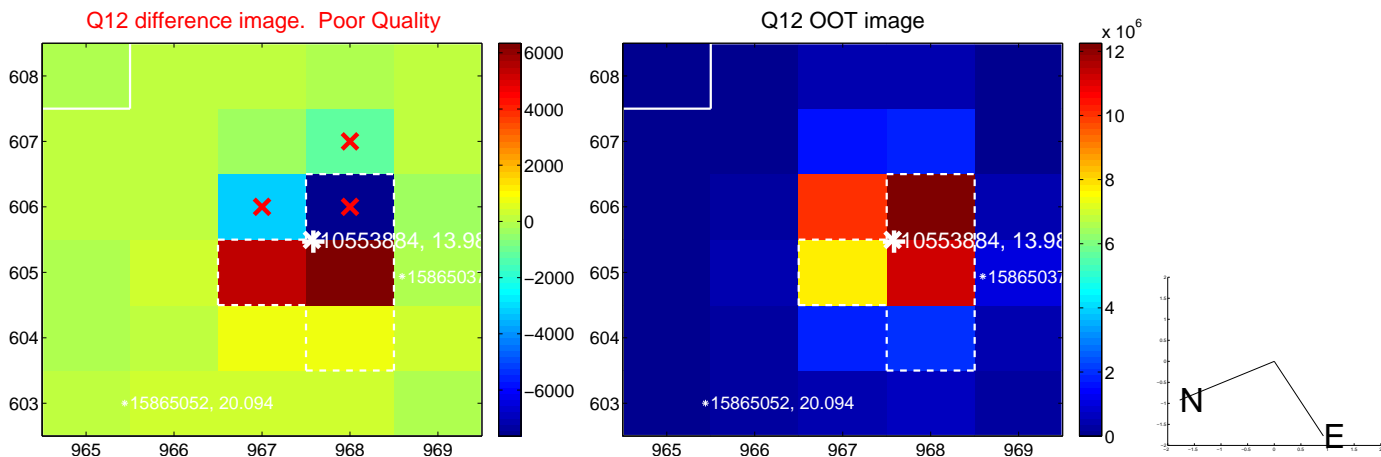
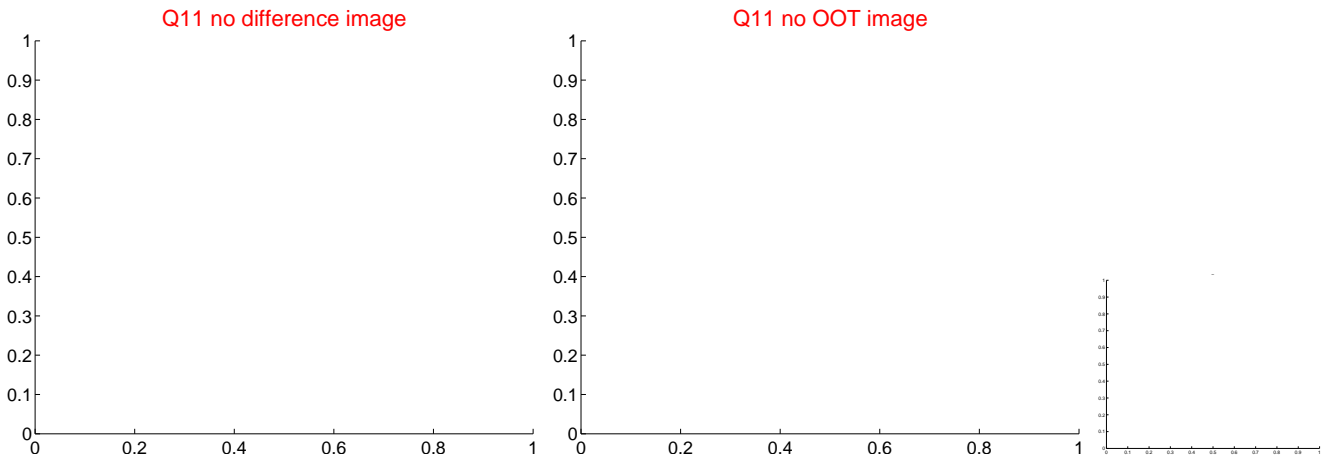
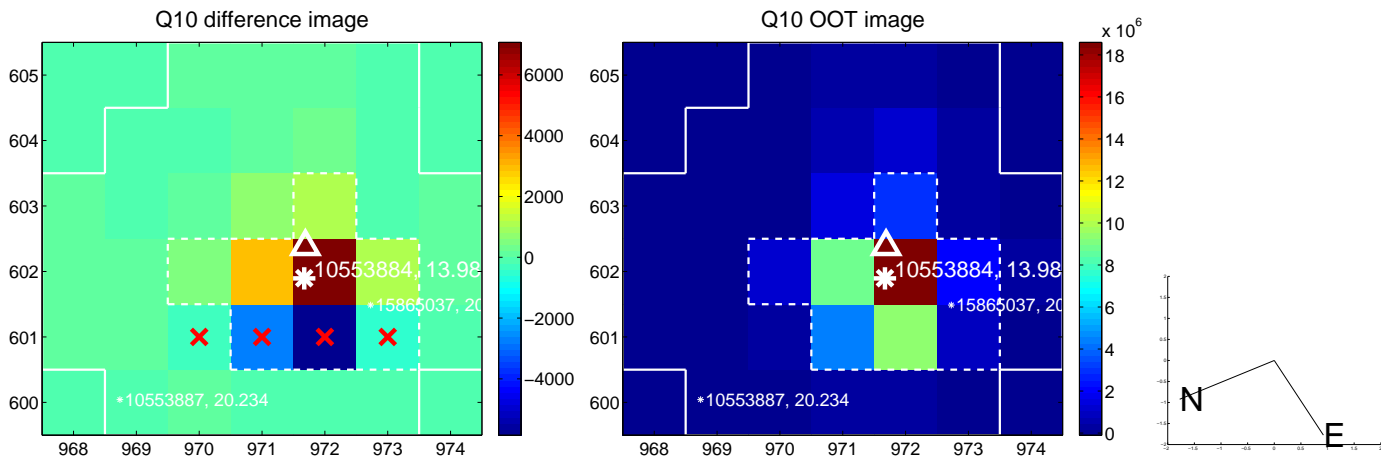
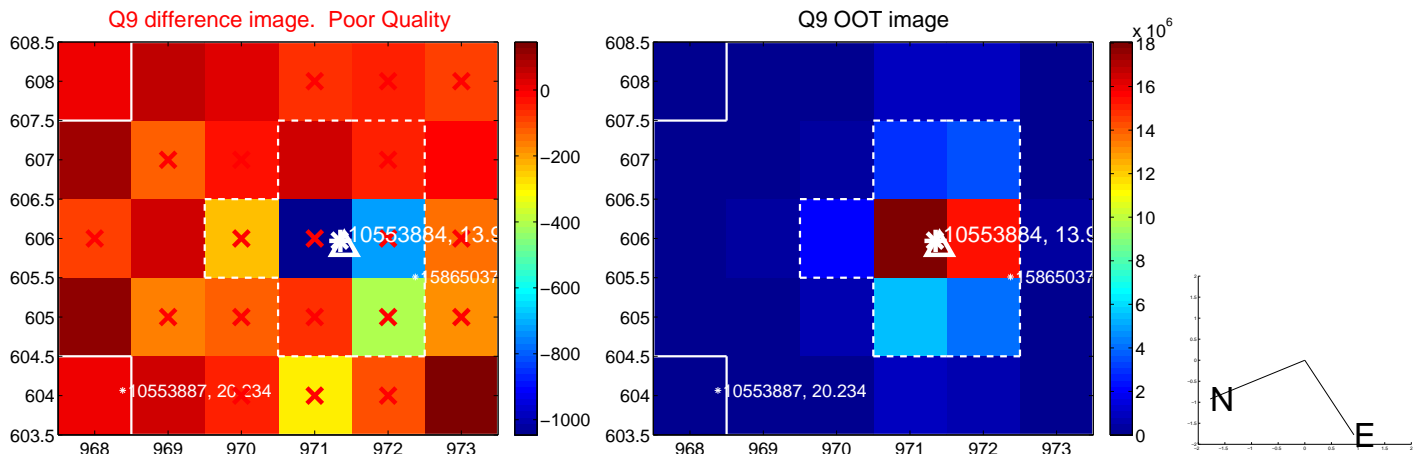
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



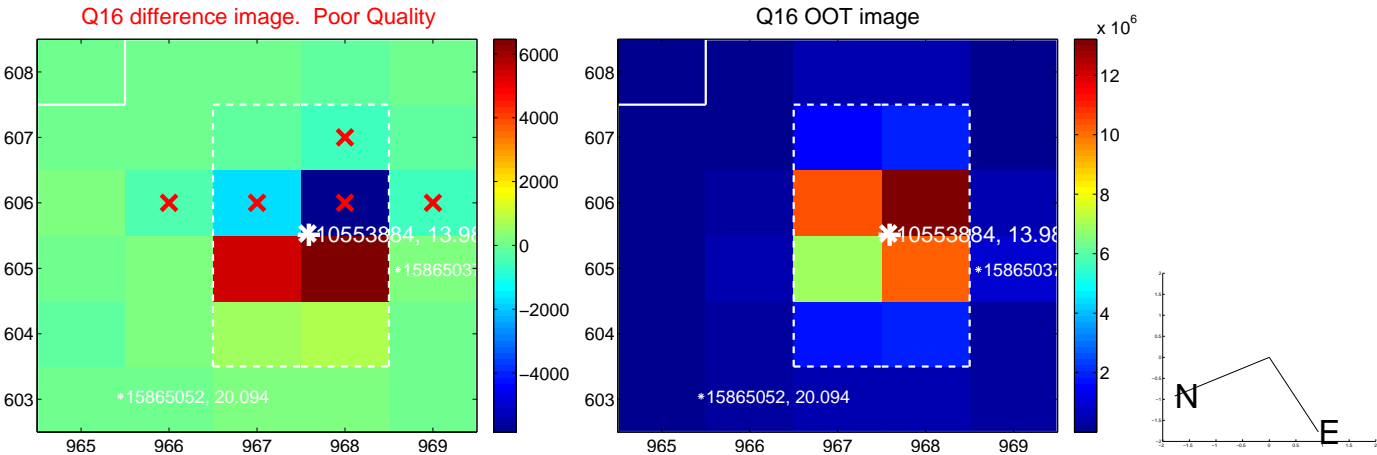
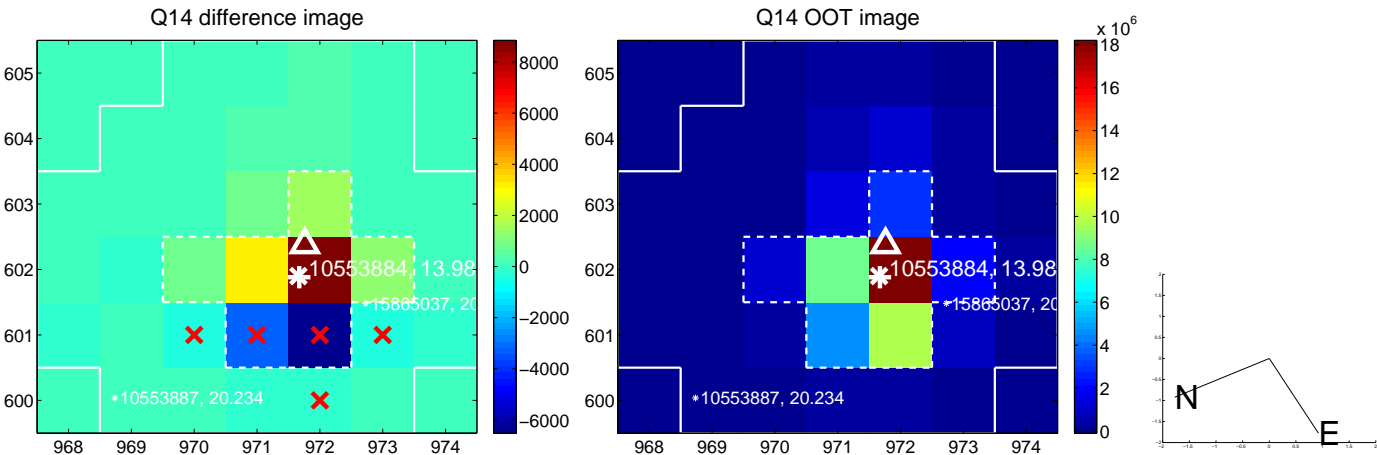
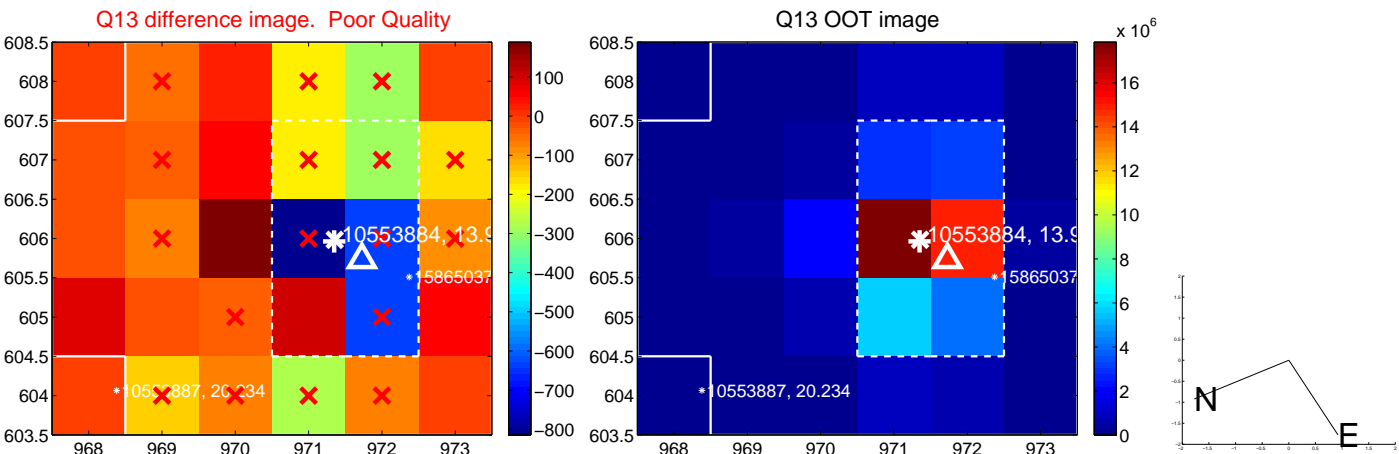
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



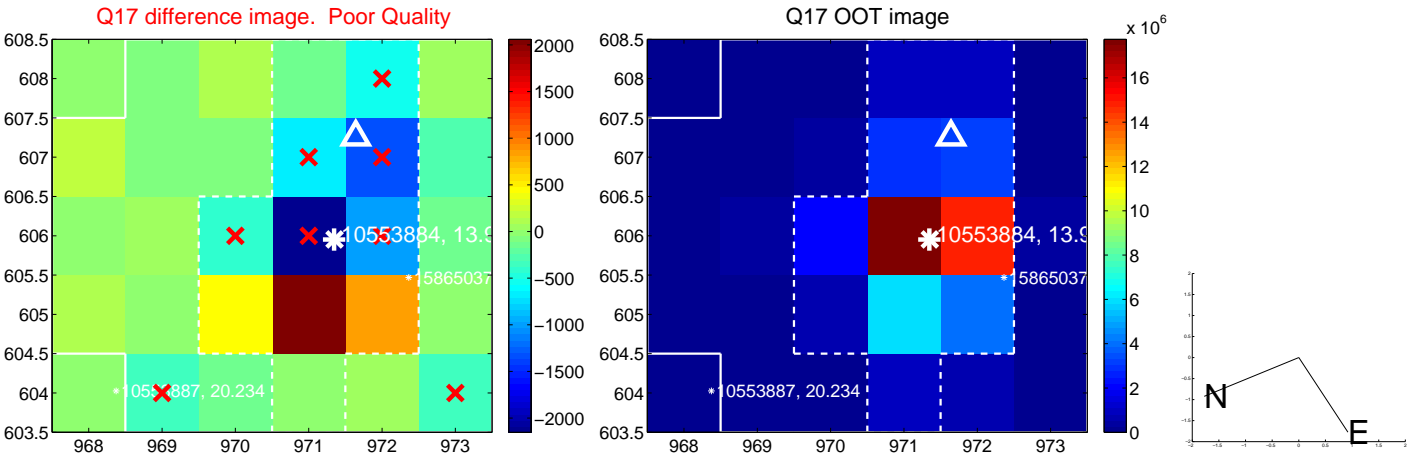
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



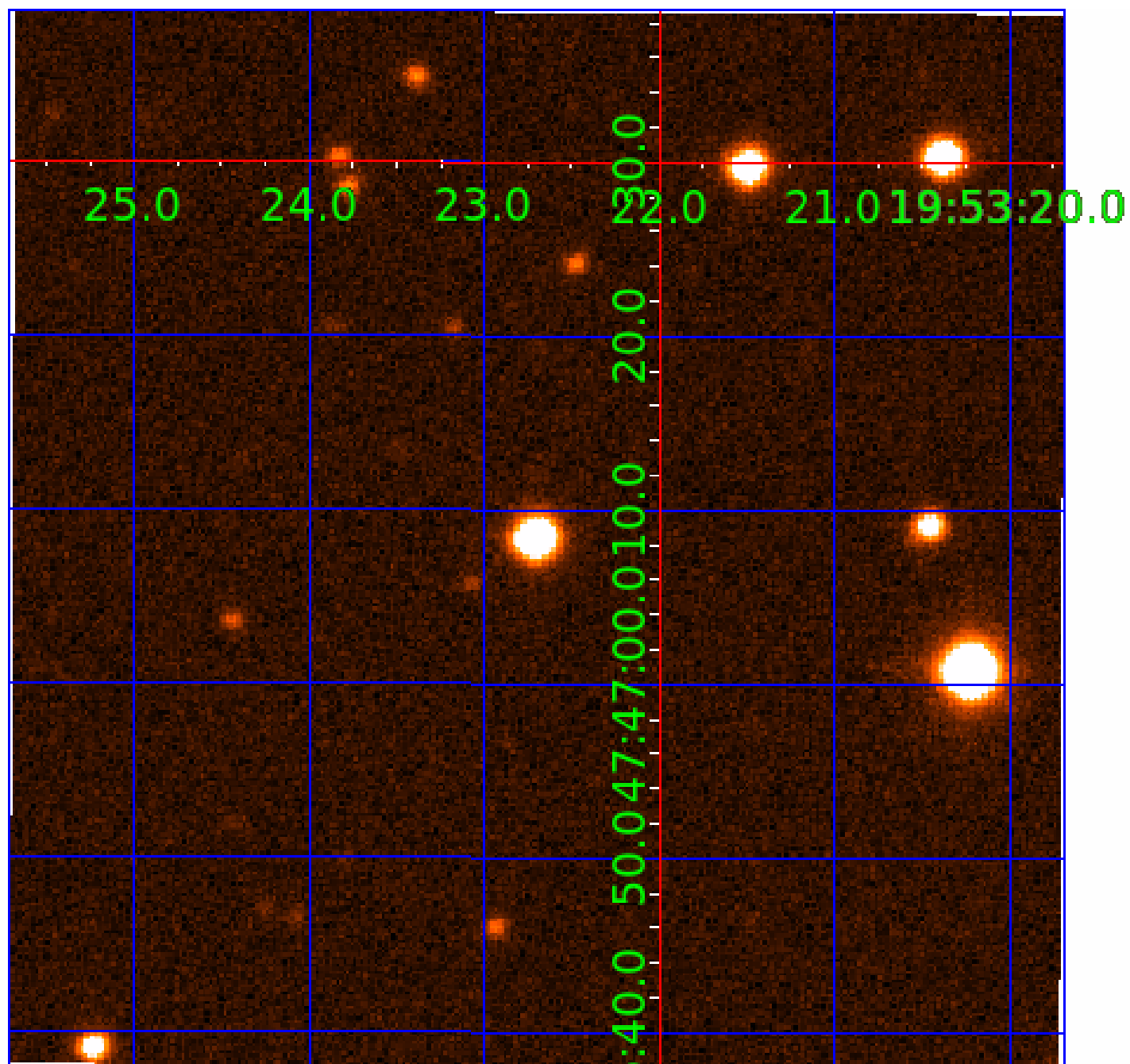
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 010553884

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})
010553884-01	OBS	No	0.671797	131.756149	1.8	4.789	8.8	0.5	1.87	7209	0.26	28631.22
010553884-02	OBS	No	17.480590	134.039133	664.8	1.125	9.4	9.6	1.87	7209	6.85	371.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010553884-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
010553884-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

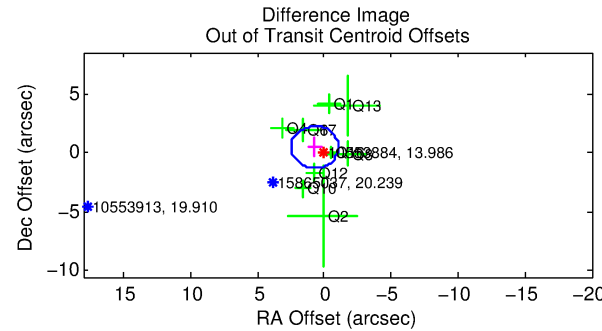
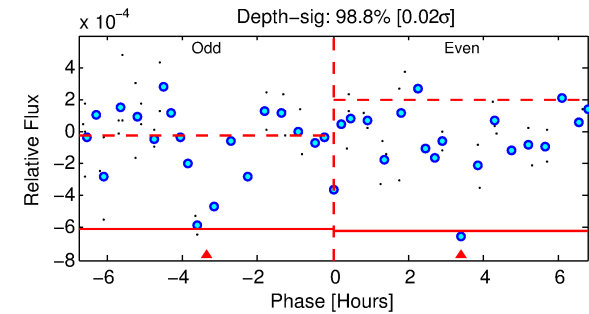
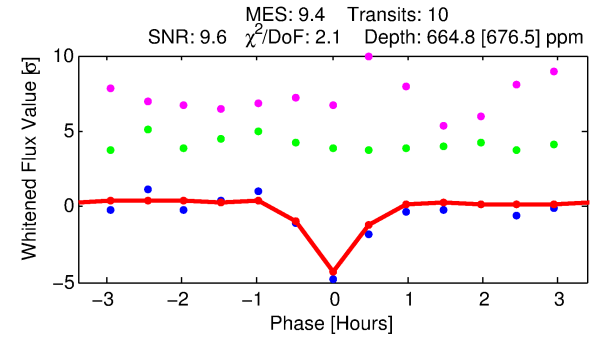
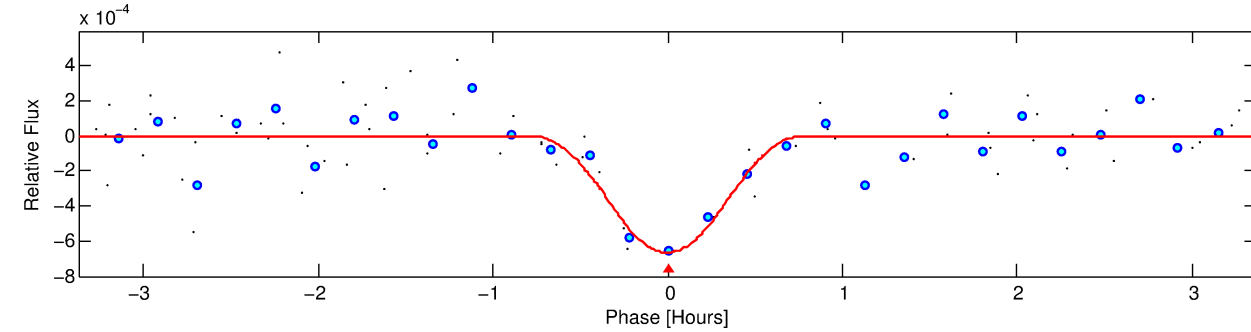
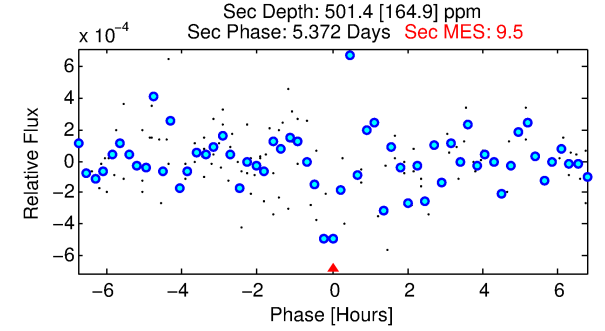
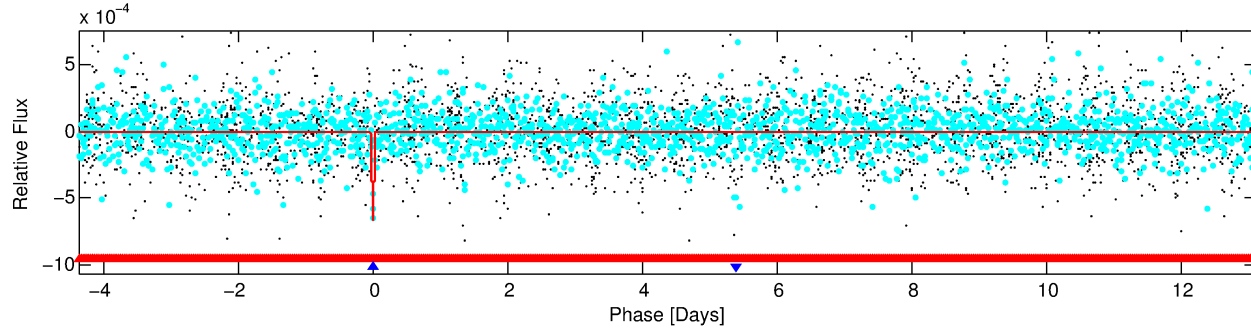
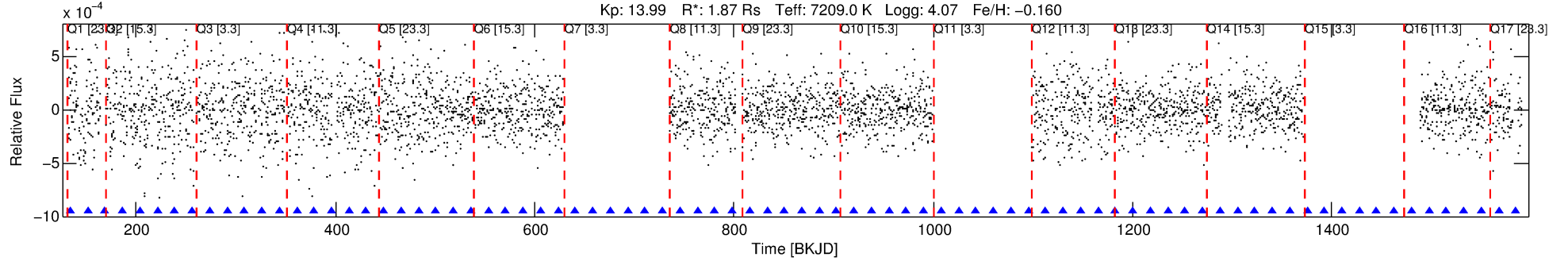
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010553884-02

No Significant Match Found

DV One-Page Summary

KIC: 10553884 Candidate: 2 of 2 Period: 17.481 d



DV Fit Results:

Period = 17.48059 [0.00016] d
Epoch = 134.0391 [0.0025] BKJD
Rp/R* = 0.0336 [0.1590]
a/R* = 39.94 [107.18]
b = 0.98 [0.38]
Seff = 371.32 [146.32]
Teq = 1119 [110] K
Rp = 6.85 [32.45] Re
a = 0.1507 [0.0373] AU
Ag = 133.54 [1264.46] [0.10 σ]
Teffp = 5883 [13919] K [0.34 σ]

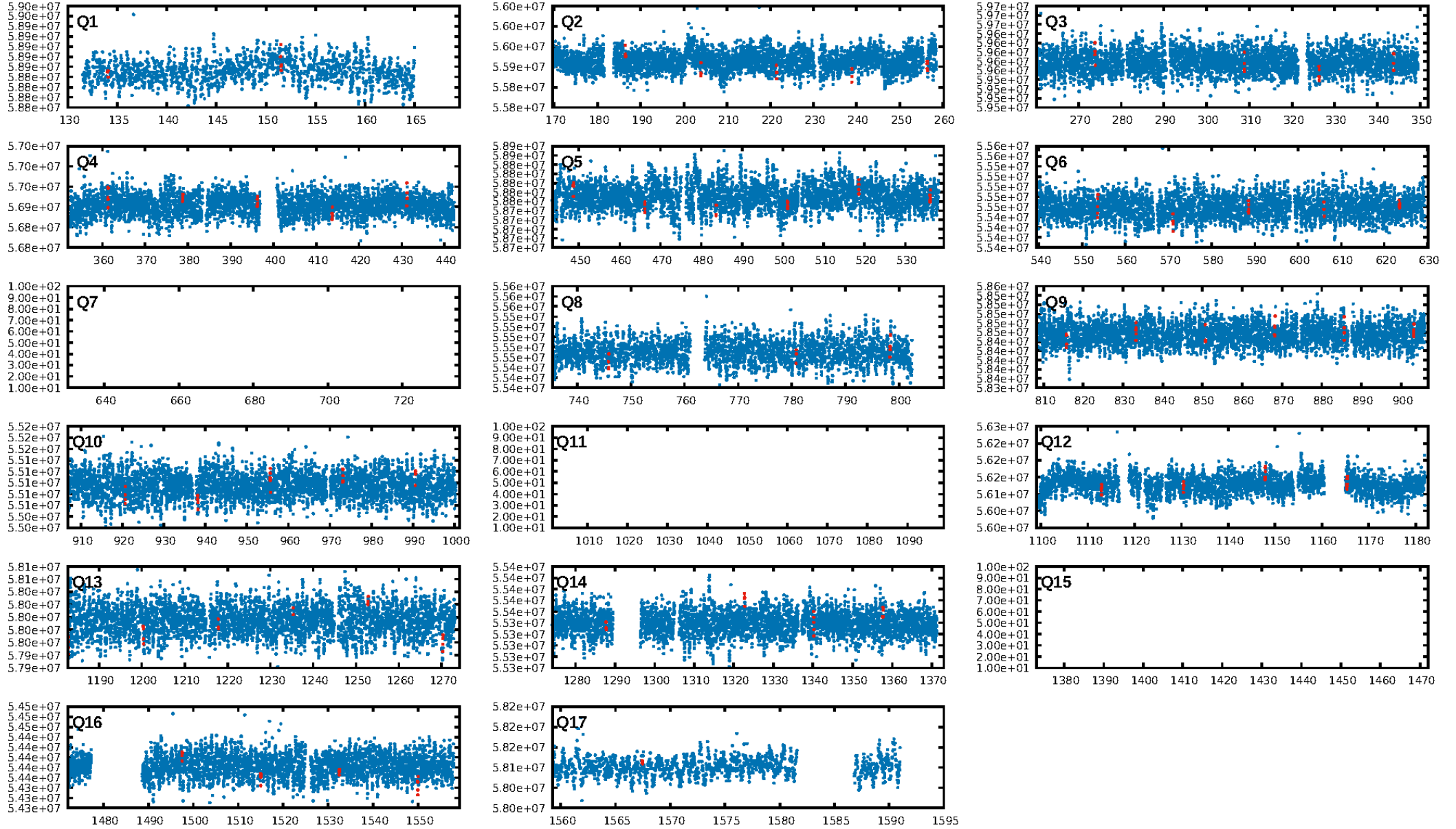
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [82.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.14e-10
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.4236
Centroid-sig: 87.1%
Centroid-so: 0.364 arcsec [0.60 σ]
OotOffset-rm: 0.847 arcsec [1.44 σ]
OotOffset-st: 3/0/4/3 [10]
KicOffset-rm: 0.891 arcsec [1.57 σ]
KicOffset-st: 3/0/4/3 [10]
DiffImageQuality-fgm: 0.20 [2/10]
DiffImageOverlap-fno: 0.00 [0/14]

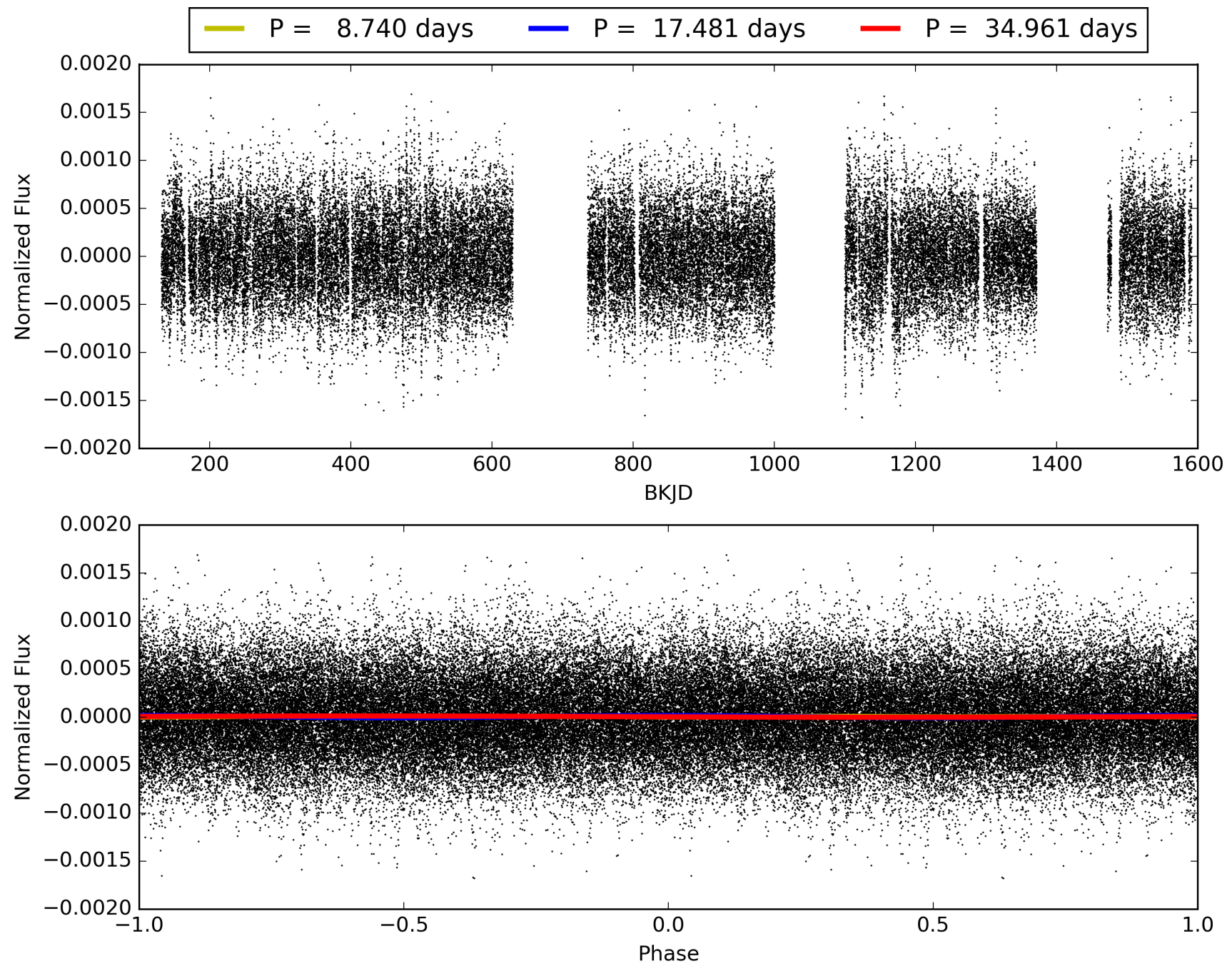
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:04:12 Z

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

TCE 010553884-02, PDC Light Curves

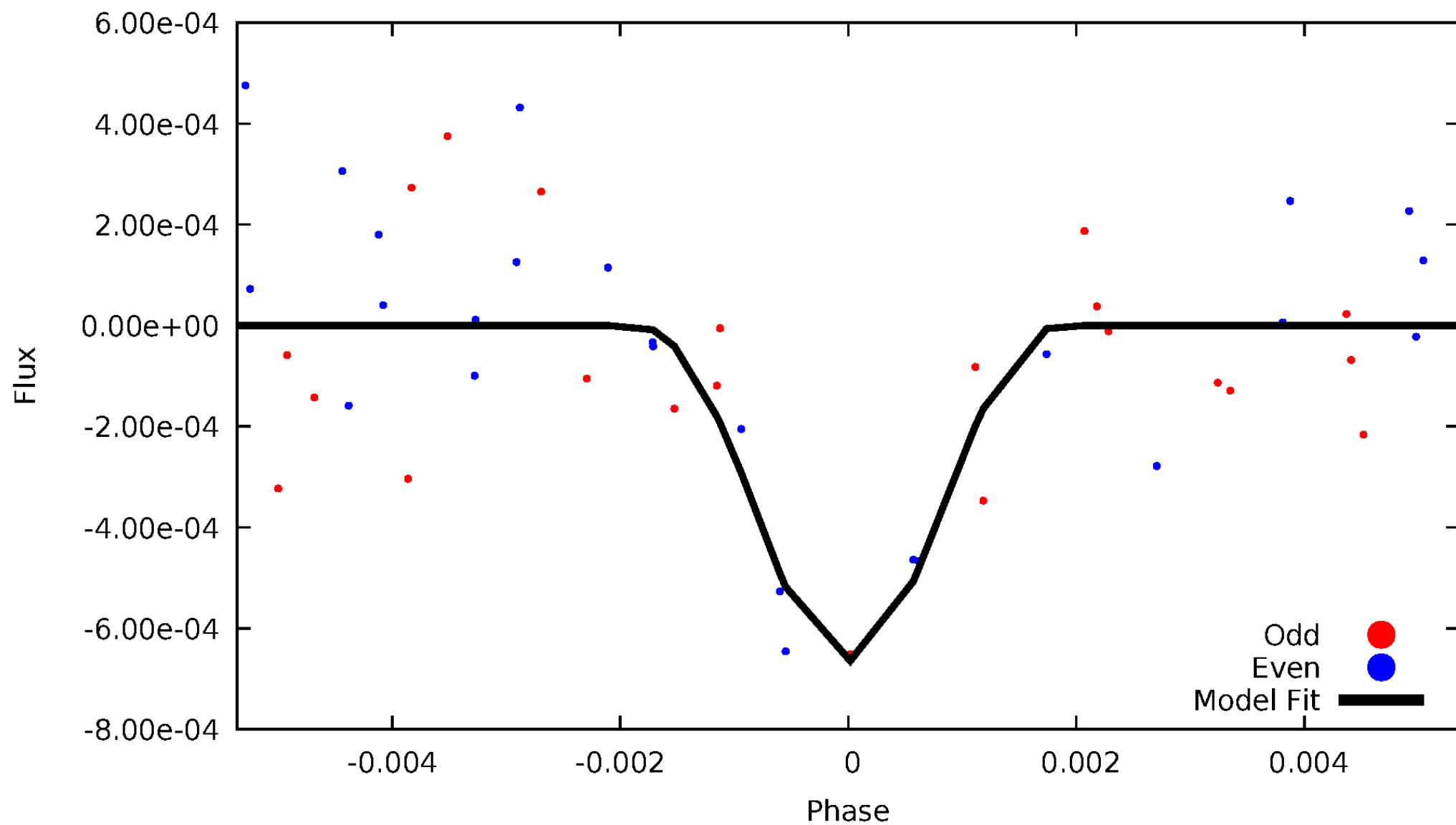


TCE 010553884-02



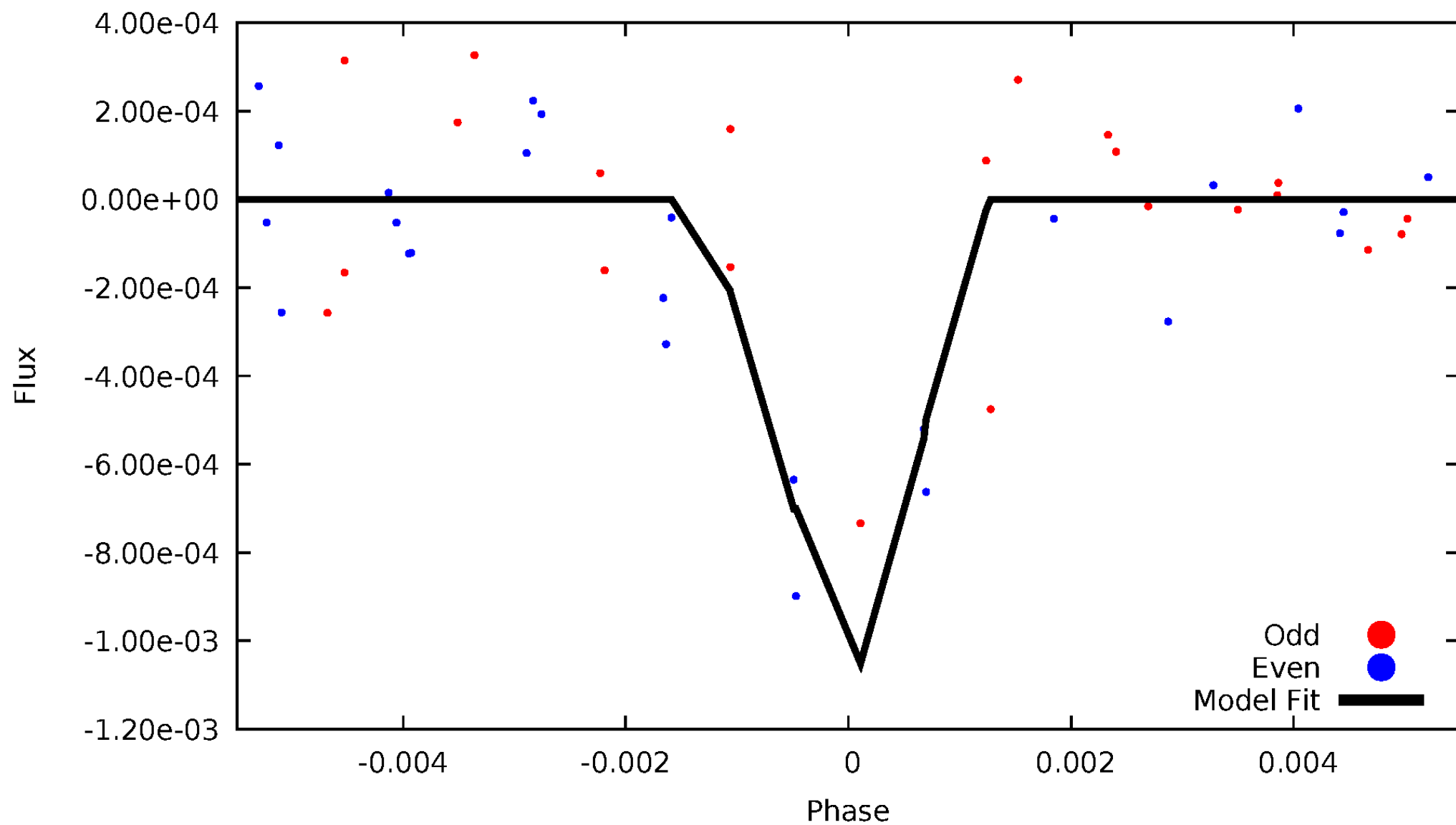
DV Odd/Even

TCE 010553884-02



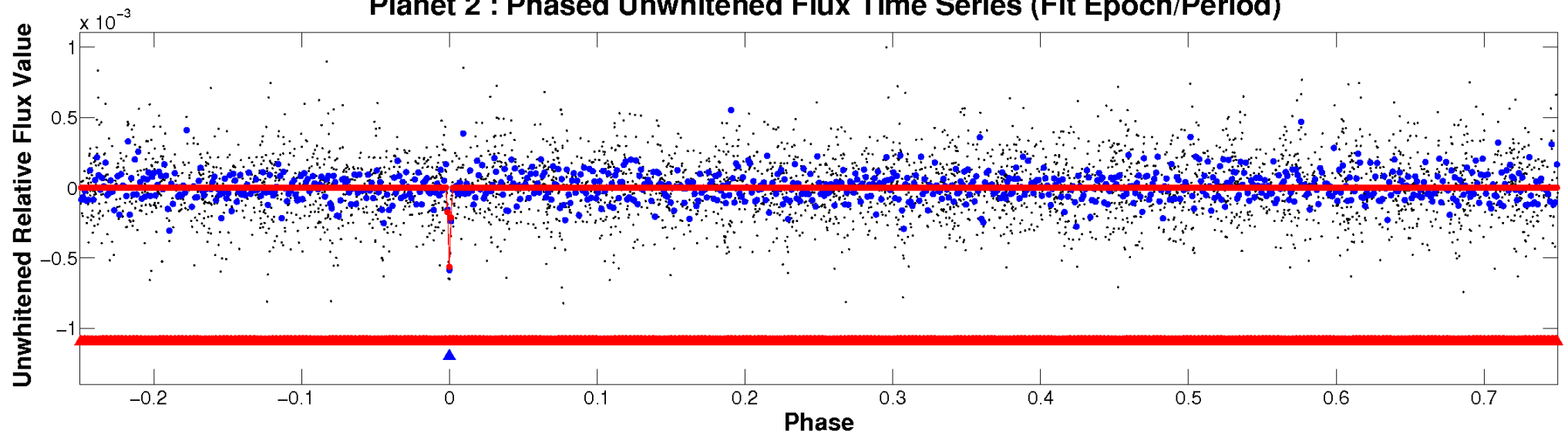
ALT Odd/Even

TCE 010553884-02

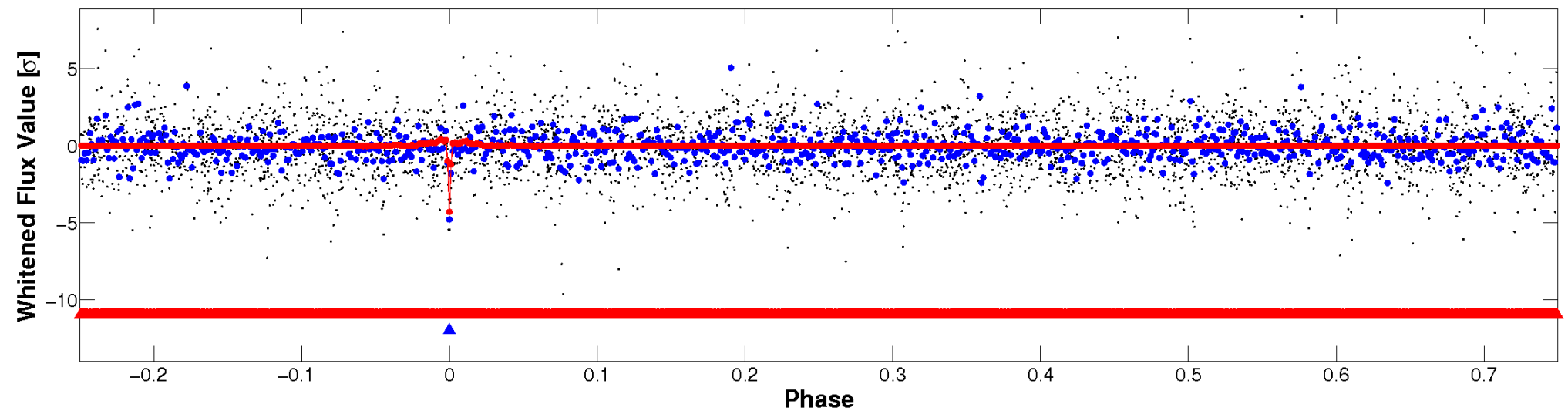


Non-Whitened Vs. Whitened Light Curve

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

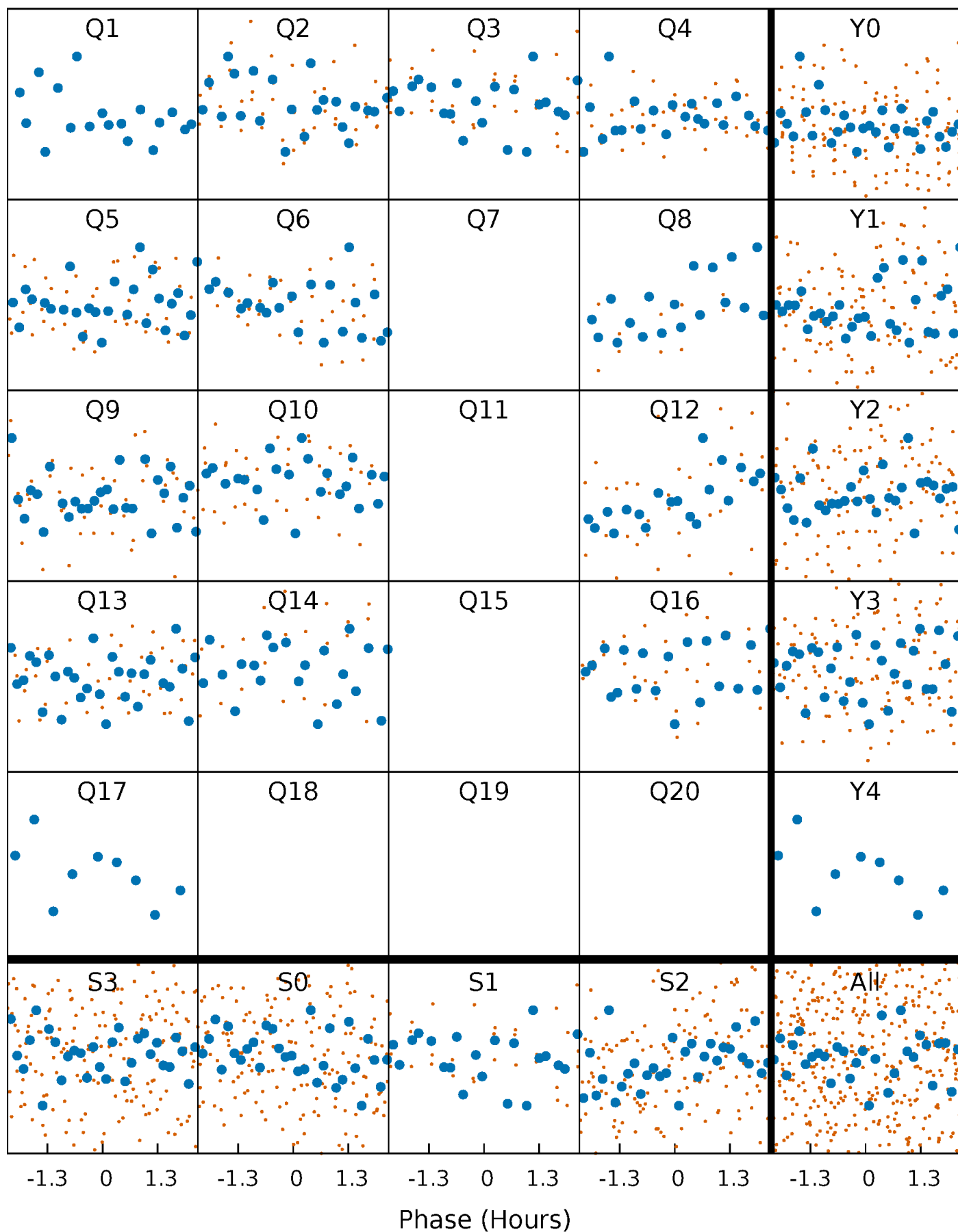


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



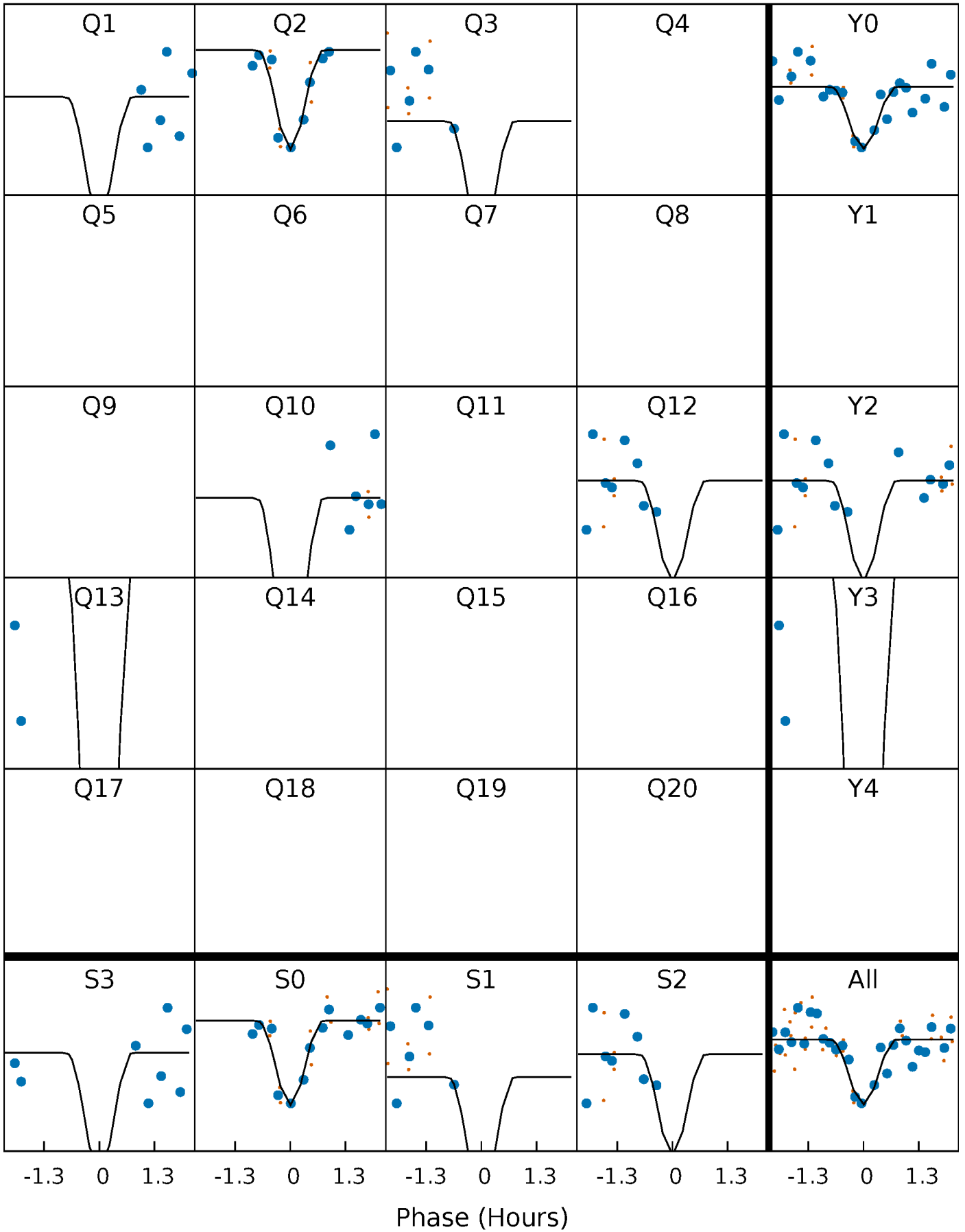
PDC Quarter-Phased Transit Curves

TCE 010553884-02 P= 17.480590 Days $T_0=134.039133$ (BKJD)



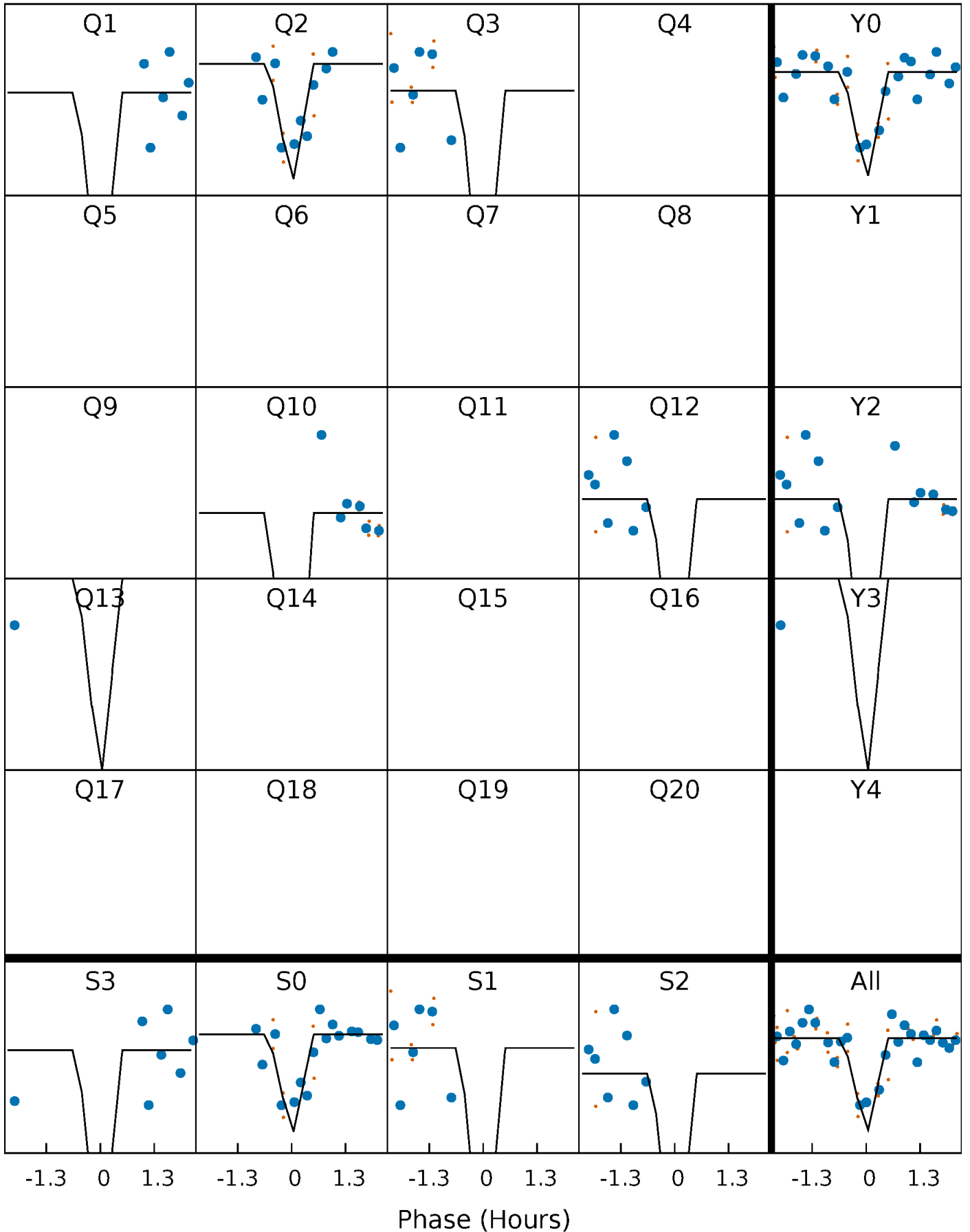
DV Quarter-Phased Transit Curves

TCE 010553884-02 P= 17.480590 Days $T_0=134.039133$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

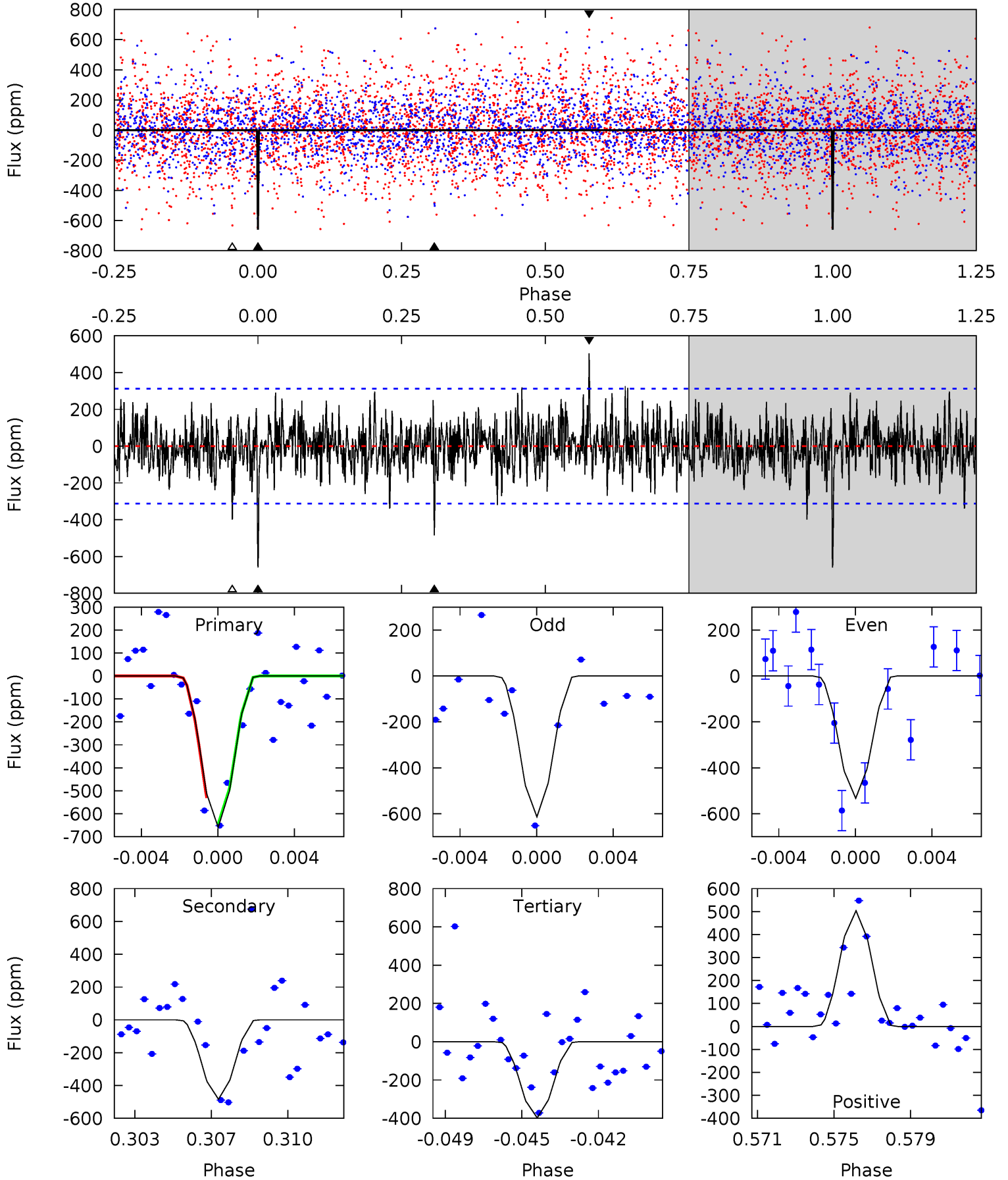
TCE 010553884-02 P= 17.480844 Days $T_0=134.036223$ (BKJD)



DV Model-Shift Uniqueness Test

010553884-02, $P = 17.480590$ Days, $E = 116.558543$ Days

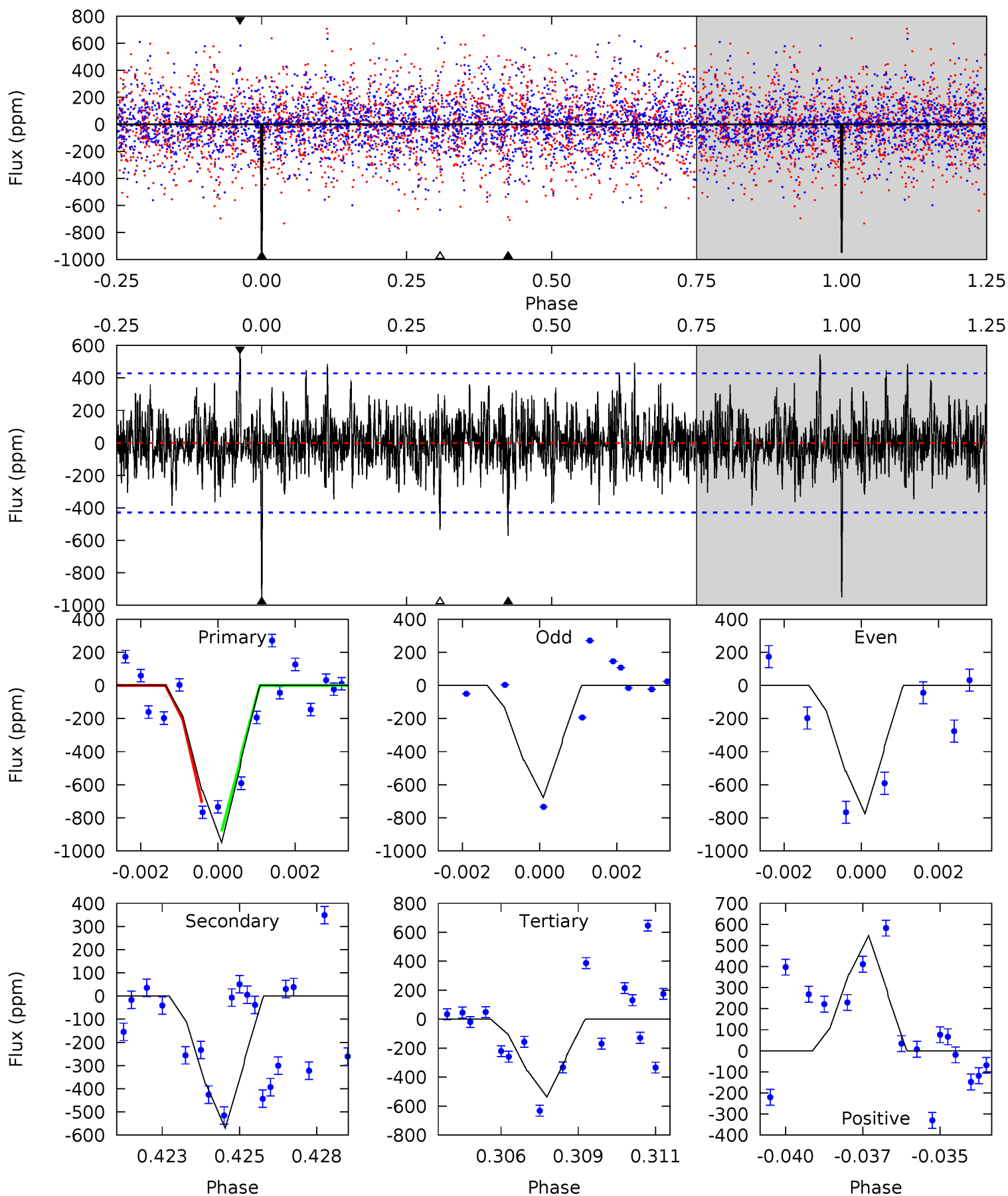
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	8.08	6.64	8.41	5.21	2.90	1.70	4.36	2.59	1.44	-0.33	0.68	1.02	0.43	0.96



Alt Model-Shift Uniqueness Test

010553884-02, P = 17.480844 Days, E = 116.555379 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	7.05	6.63	6.76	5.30	3.04	1.53	5.10	4.98	0.41	0.29	0.55	1.05	0.37	1.05



Stellar Parameters For KIC 010553884

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7209^{+226}_{-302}	$4.070^{+0.193}_{-0.175}$	$-0.160^{+0.250}_{-0.350}$	$1.867^{+0.556}_{-0.505}$	$1.492^{+0.212}_{-0.259}$	$0.323^{+0.366}_{-0.149}$
	+3%/-4%	+5%/-4%	+156%/-219%	+30%/-27%	+14%/-17%	+113%/-46%
Source	KIC0	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 010553884-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-484 ± 60	$25.44^{+24.96}_{-18.01}$	1562^{+121}_{-115}	3447^{+2066}_{-655}	$9.218^{+97.243}_{-6.879}$
Alt.	-570 ± 81	$24.31^{+26.49}_{-16.84}$	1556^{+123}_{-124}	3583^{+2082}_{-734}	12^{+113}_{-9}

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

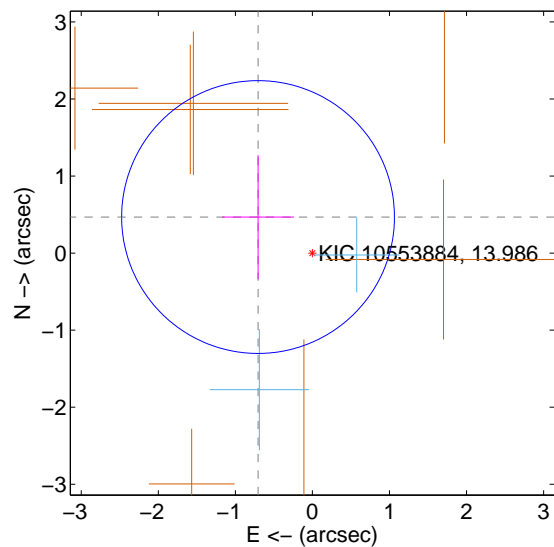
Supplemental centroid analysis for 010553884-02. Kepler magnitude: 13.99. Transit SNR 9.60

There are 2 quarters with good PRF difference image offsets

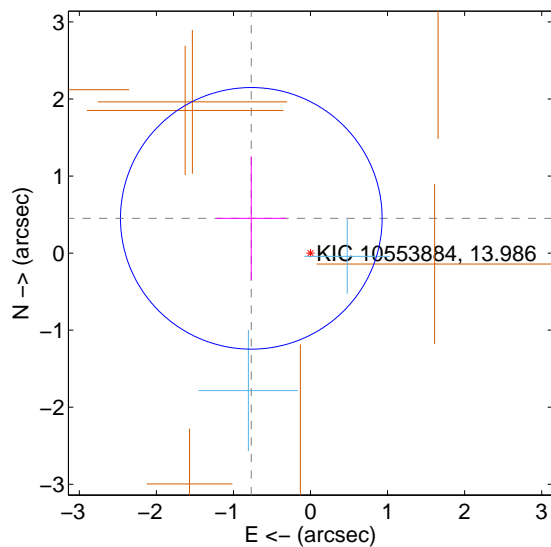
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.847 ± 0.590	1.44	0.706 ± 0.467	0.468 ± 0.803
PRF-fit source offset from KIC position	0.891 ± 0.566	1.57	0.768 ± 0.456	0.451 ± 0.803
photometric centroid source offset	0.36 ± 0.60	0.60	0.36 ± 0.60	0.06 ± 0.54

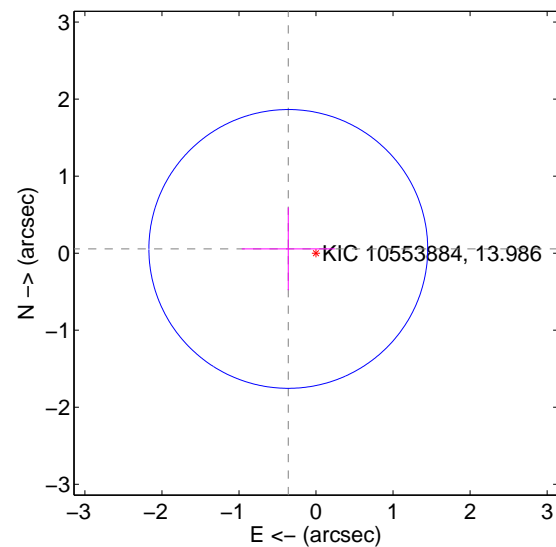
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

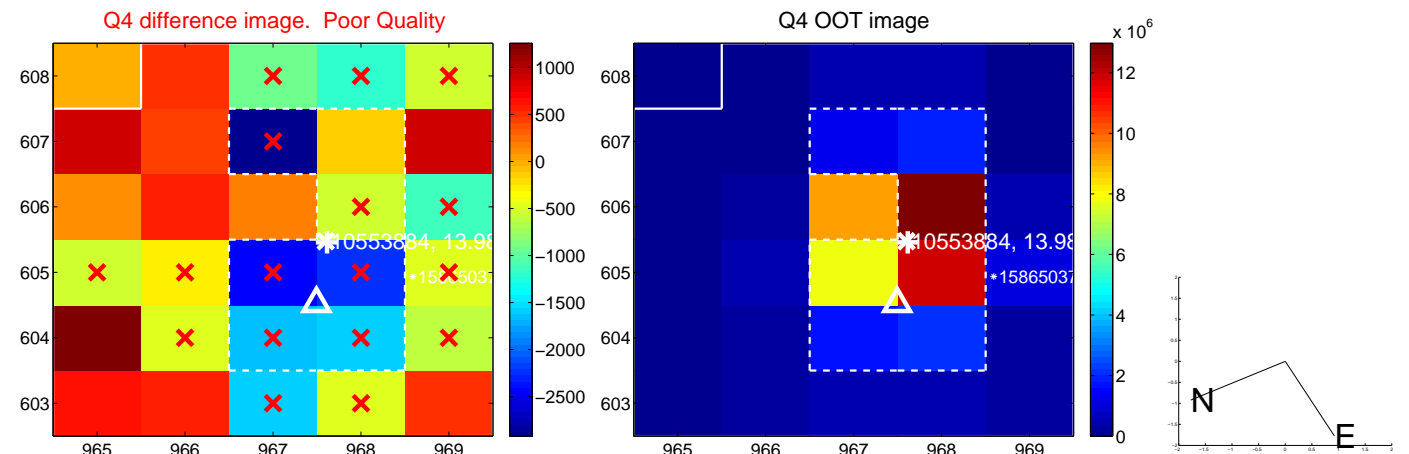
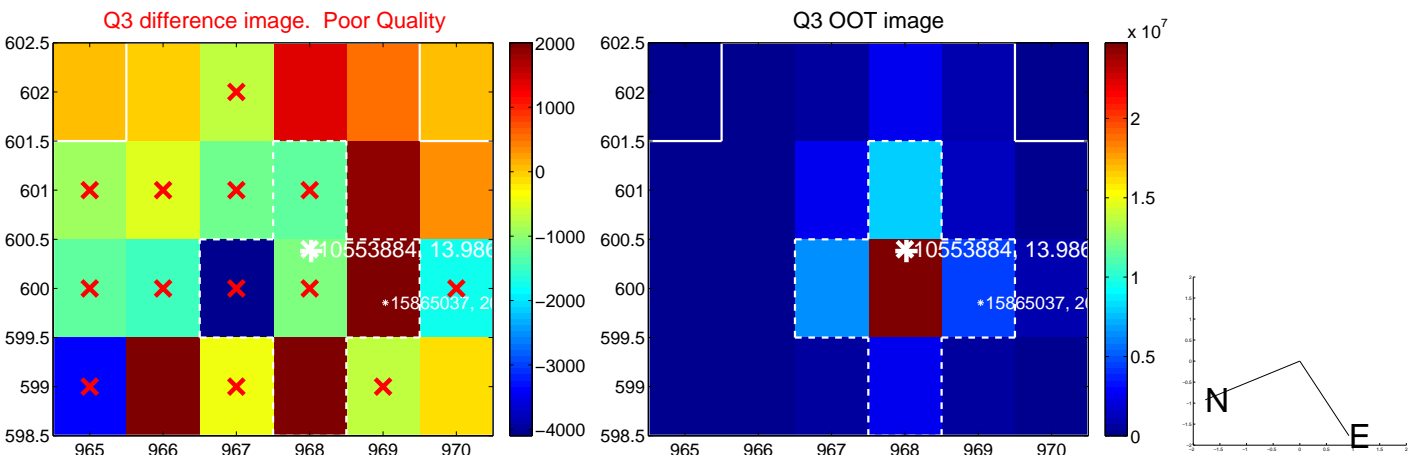
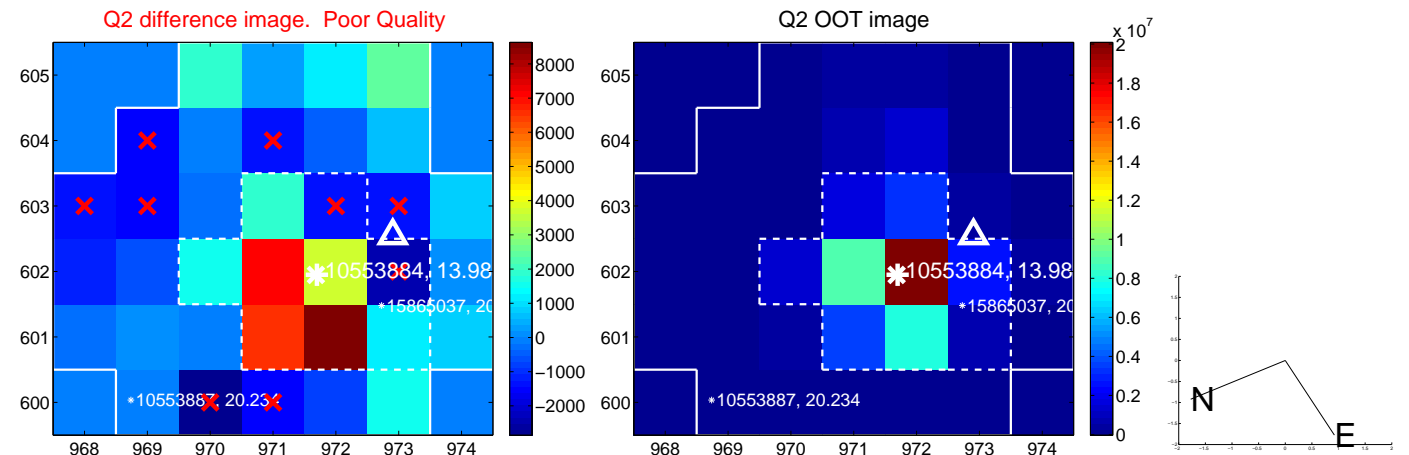
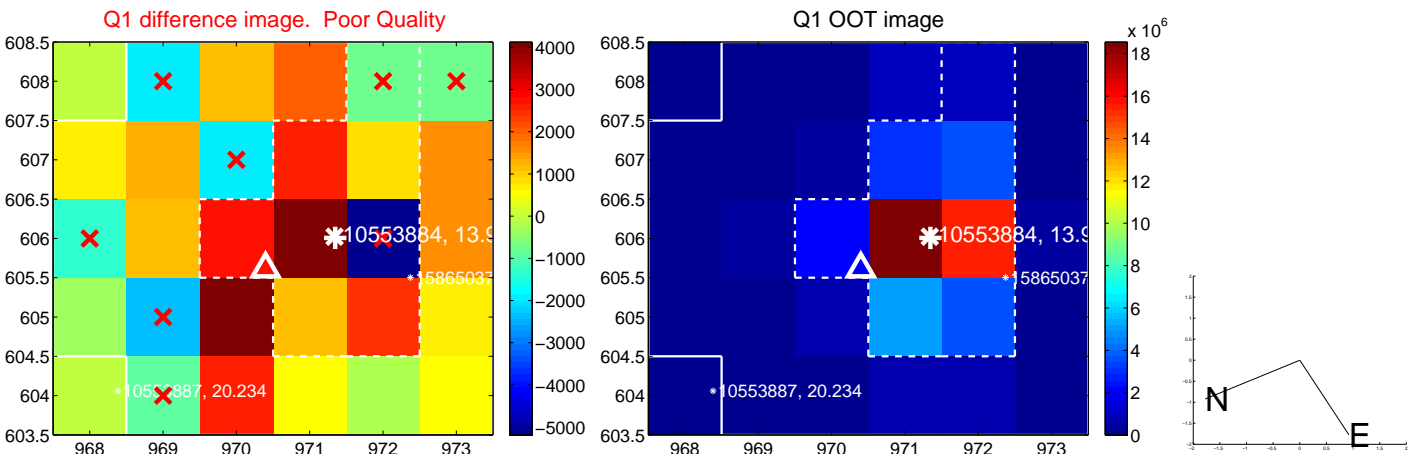


offset from photometric centroids

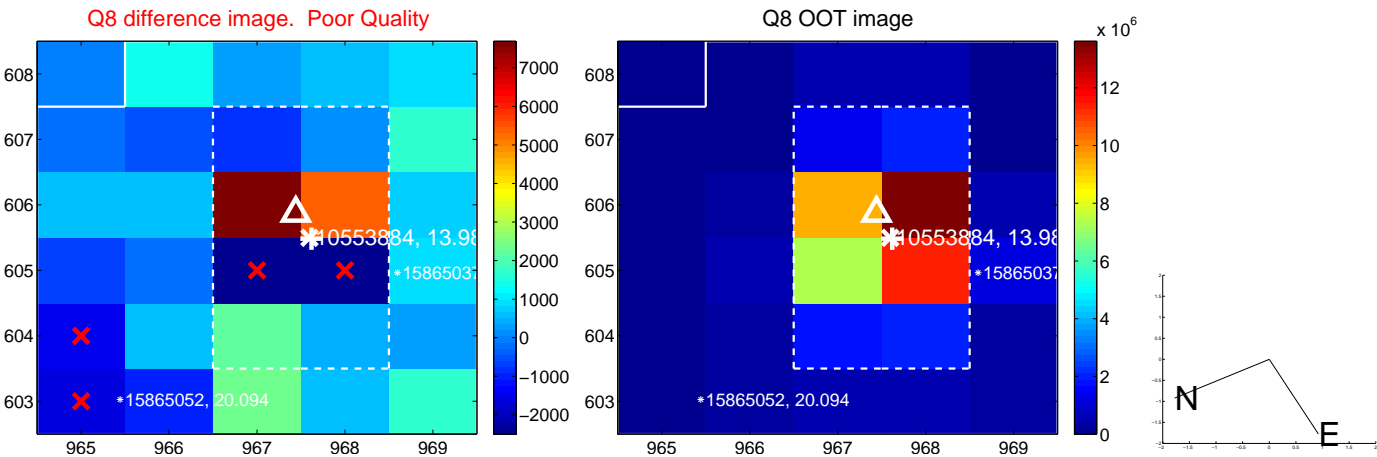
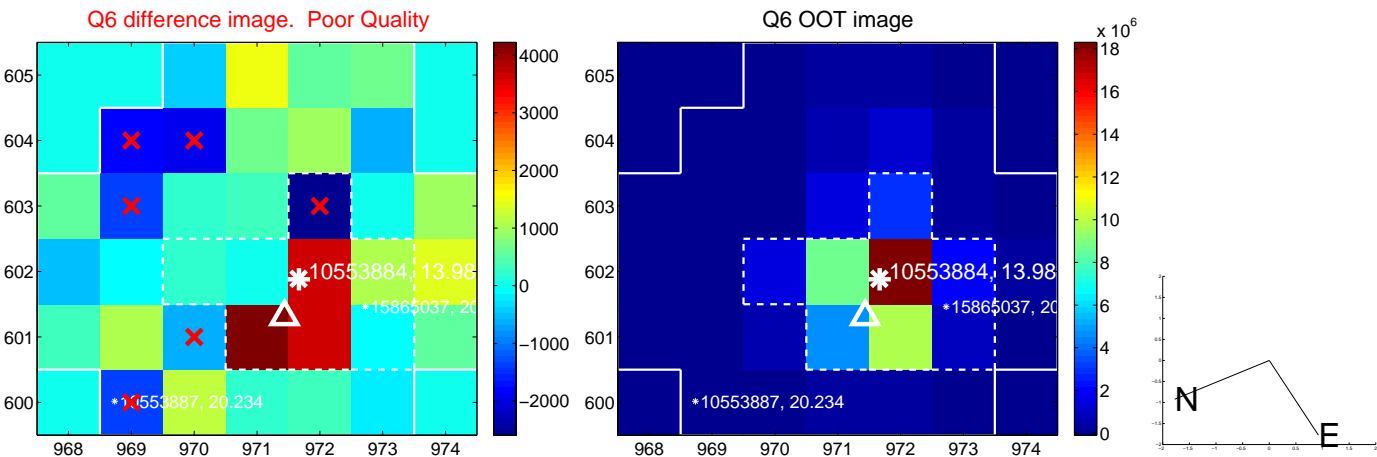
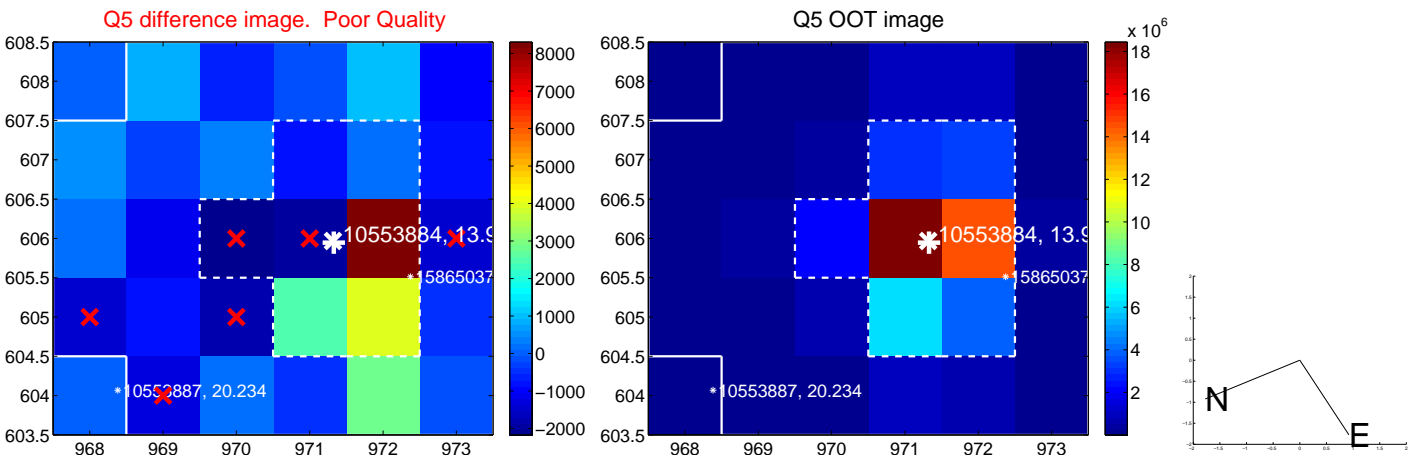


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

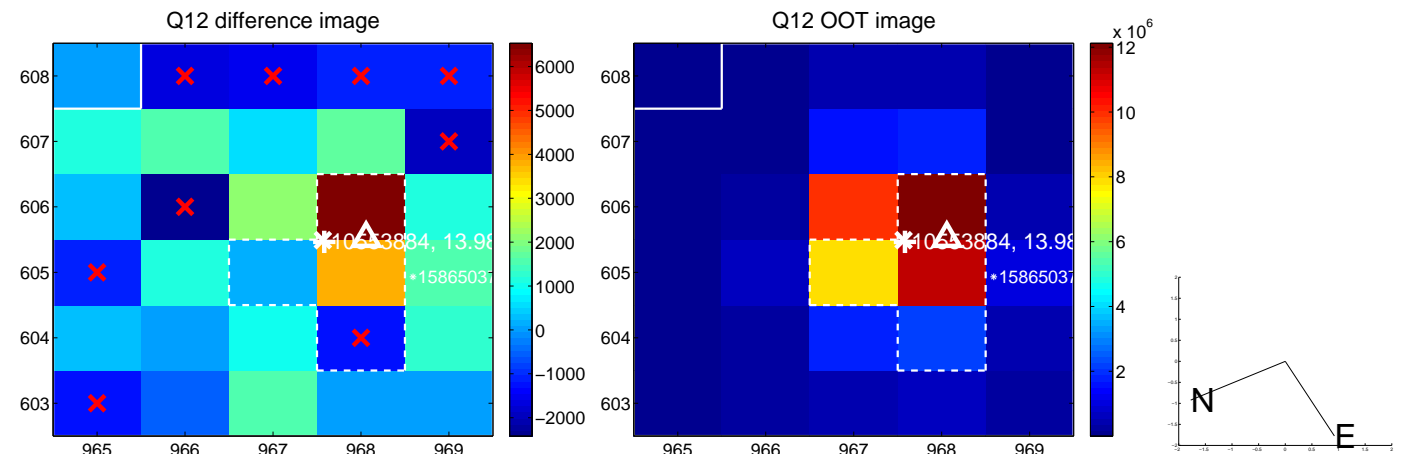
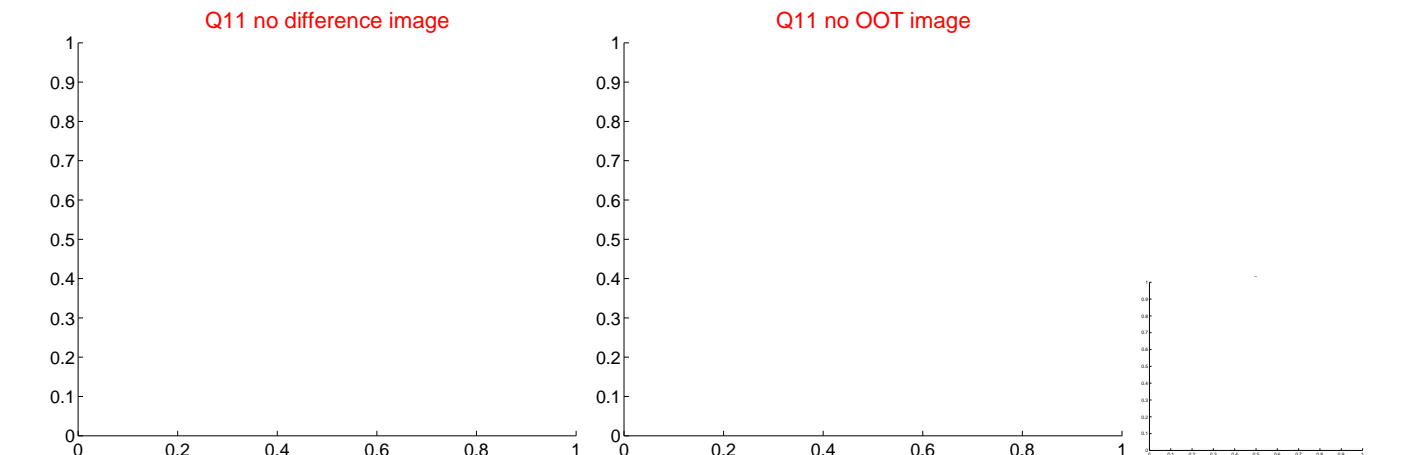
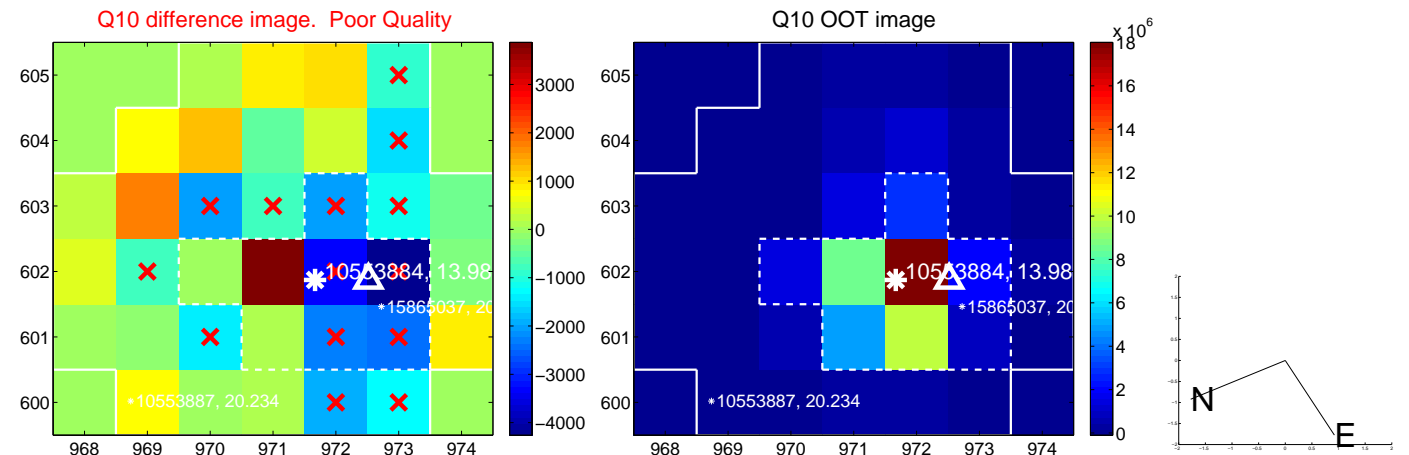
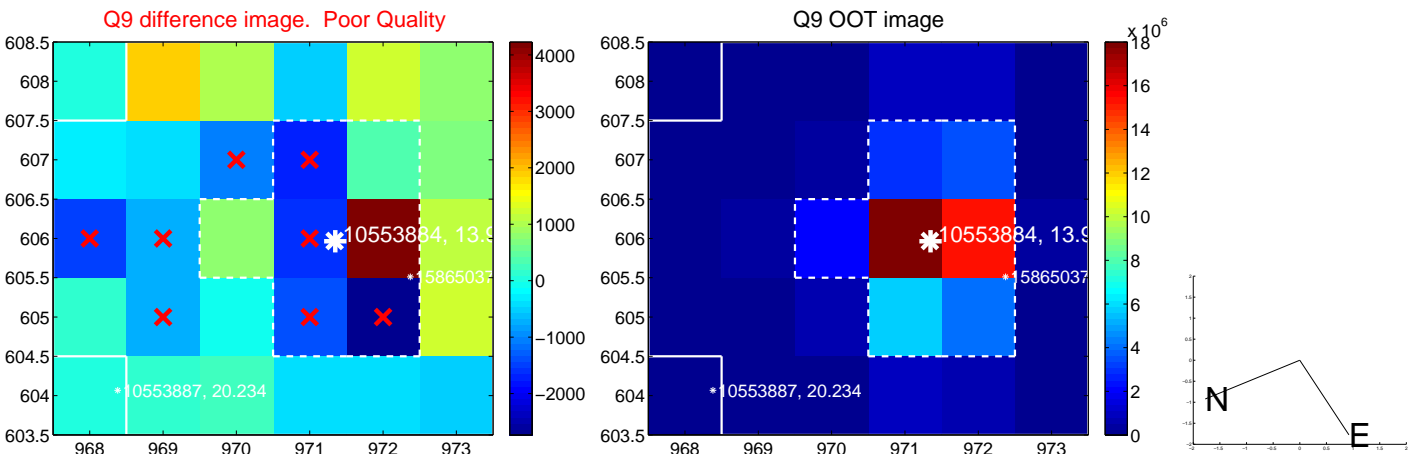
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



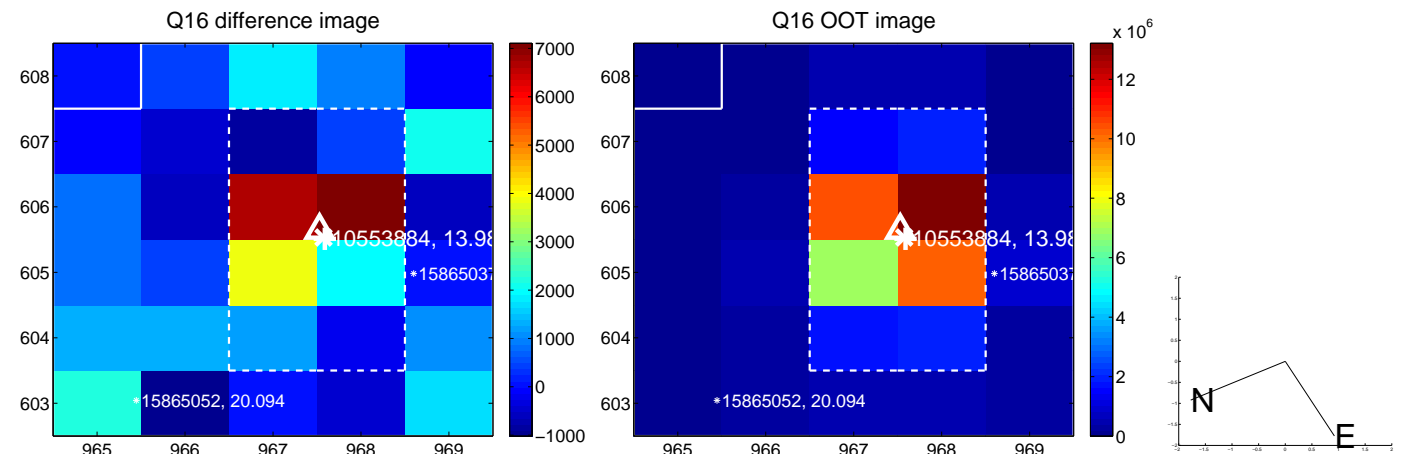
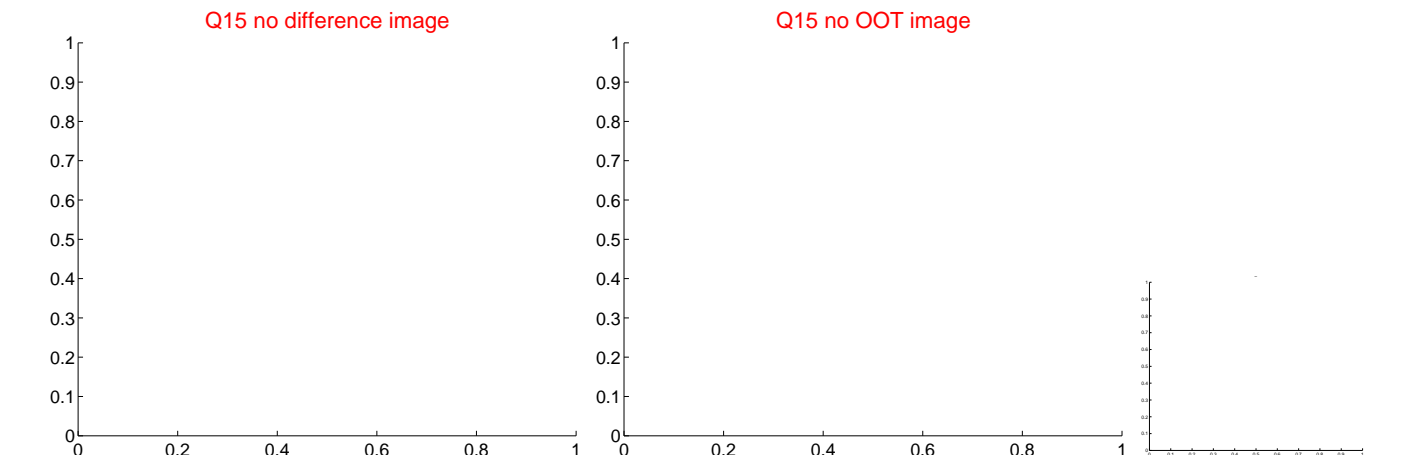
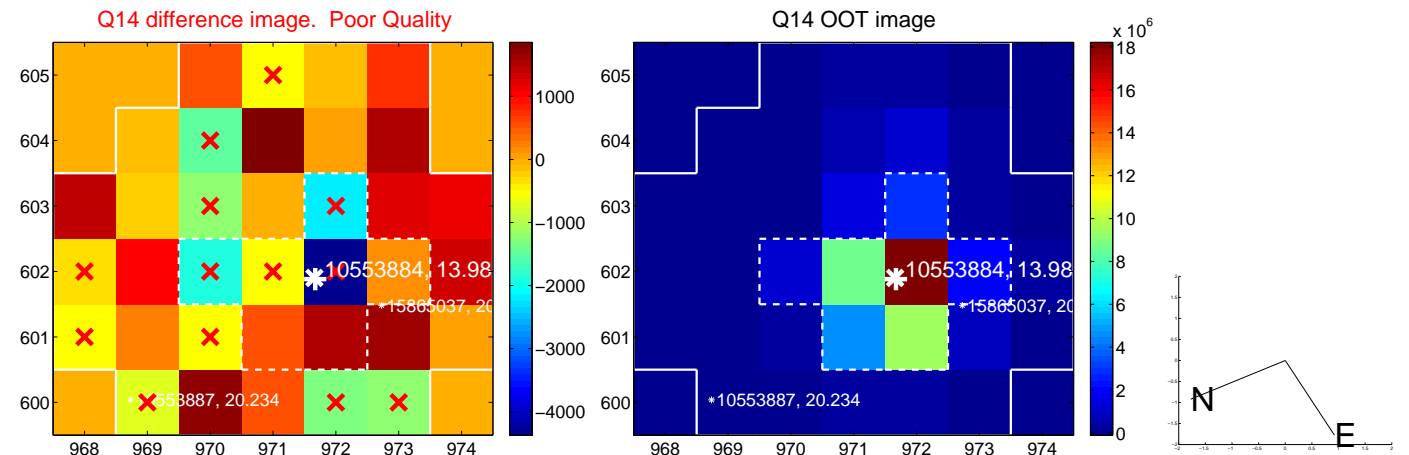
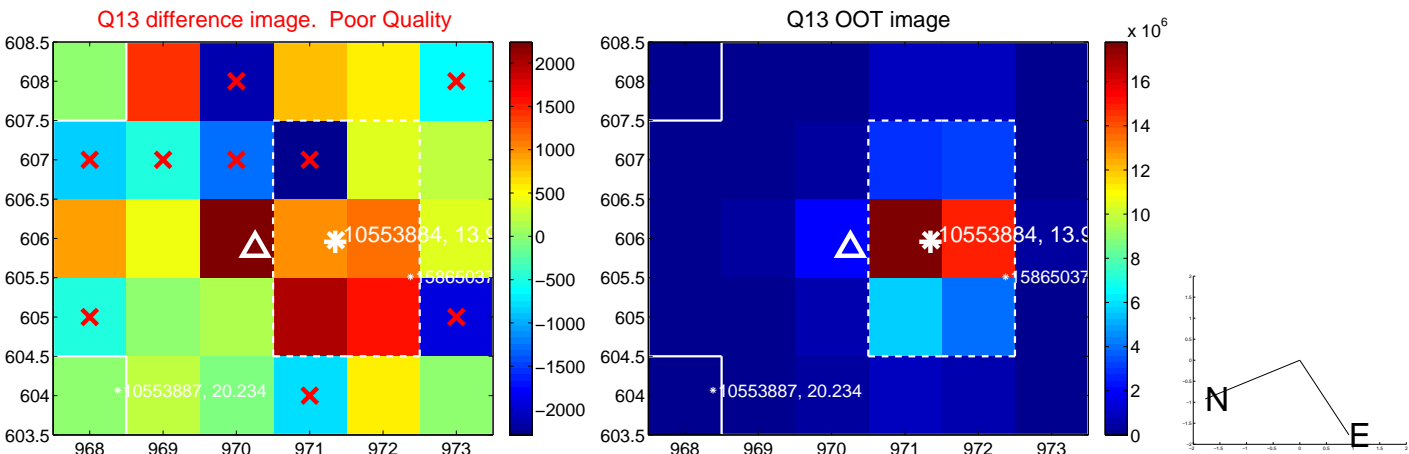
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



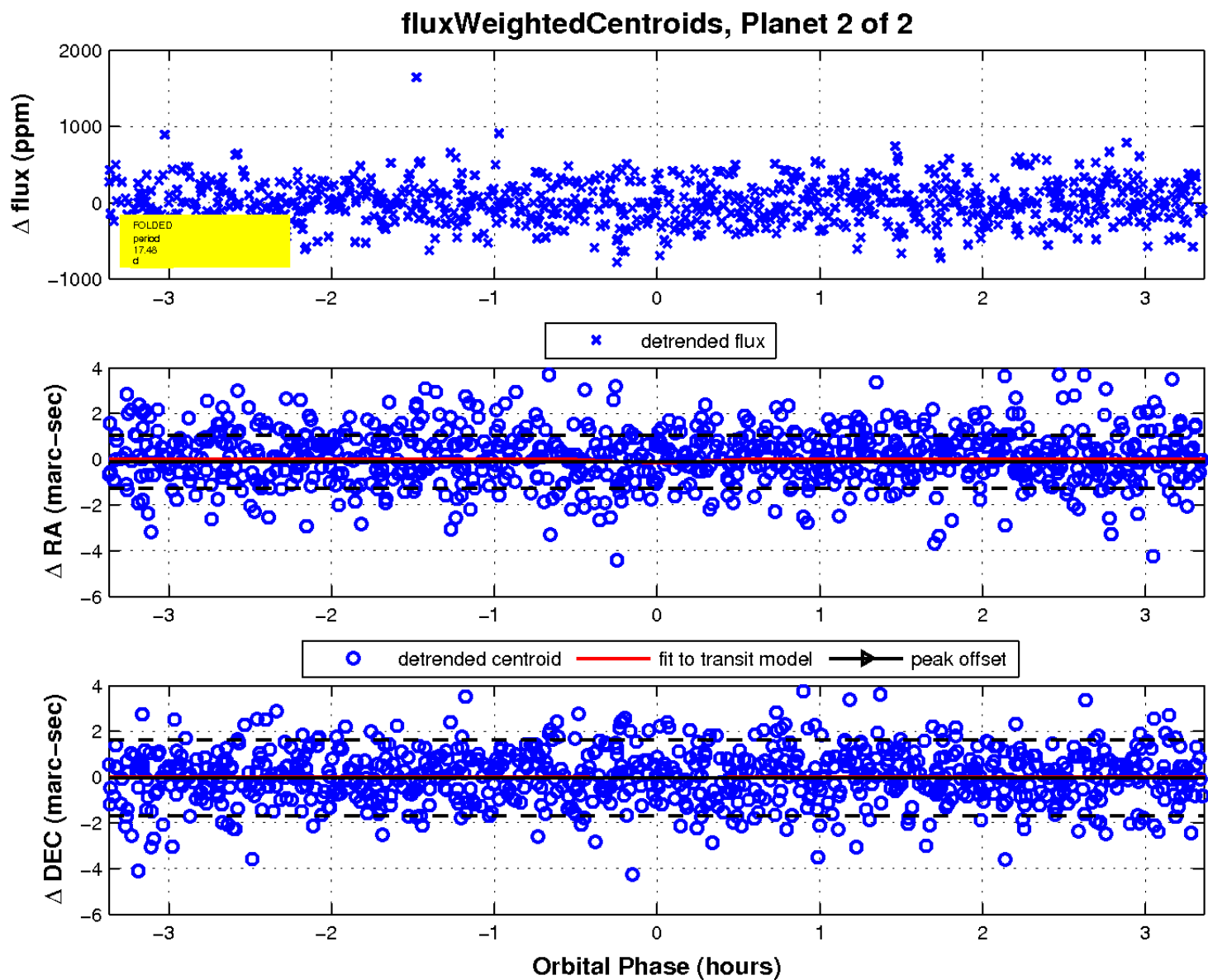
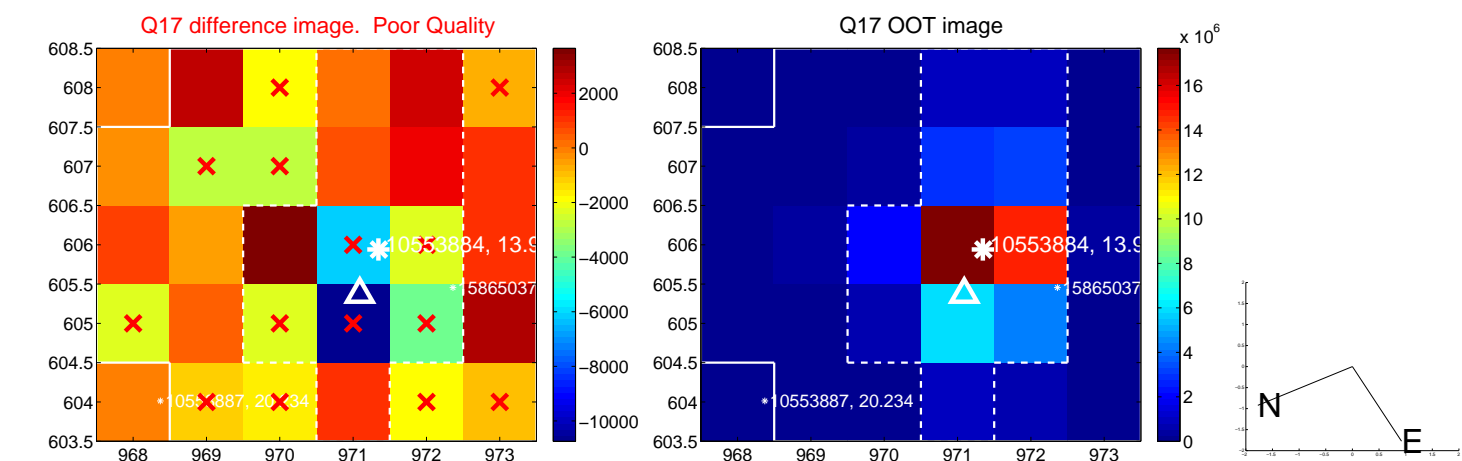
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

