

KIC 005516671

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})
005516671-01	OBS	No	411.375363	227.832381	1906.9	8.062	14.7	6.7	0.45	3605	1.92	0.04
005516671-02	OBS	No	371.655777	272.849158	1.6	0.714	14.7	0.0	0.45	3605	0.06	0.05
005516671-03	OBS	No	356.785773	273.334122	2479.9	4.712	12.3	8.3	0.45	3605	2.19	0.05
005516671-04	OBS	No	358.108674	390.412445	1798.7	12.249	11.2	6.1	0.45	3605	1.87	0.05
005516671-05	OBS	No	356.060948	398.953925	2163.8	5.111	12.7	7.3	0.45	3605	2.12	0.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005516671-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-02	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_FEW_DIFFS
005516671-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005516671-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

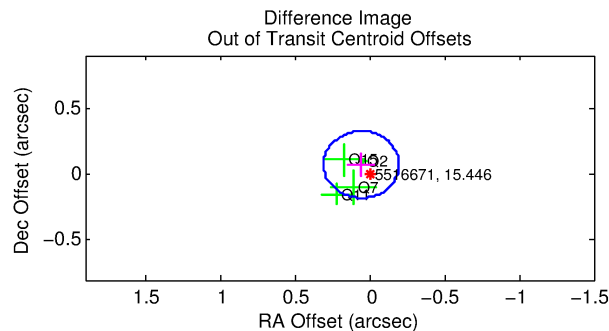
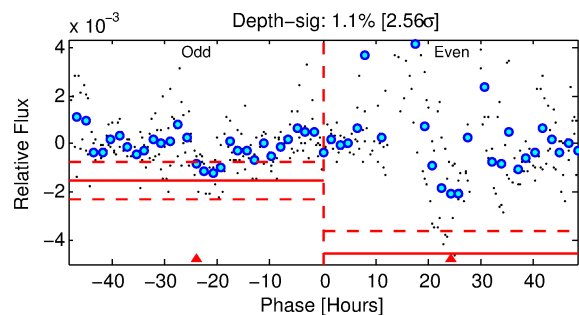
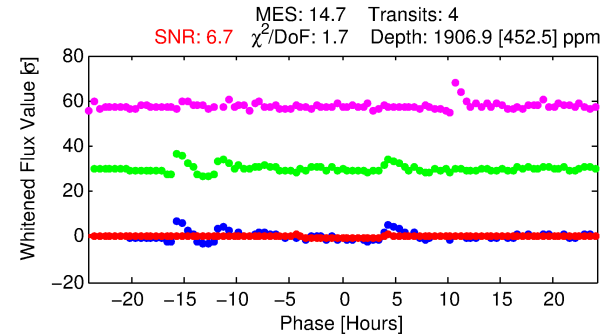
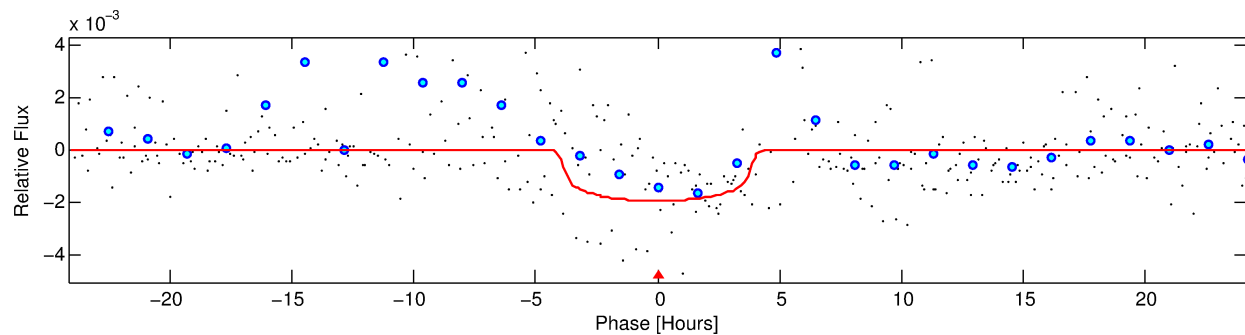
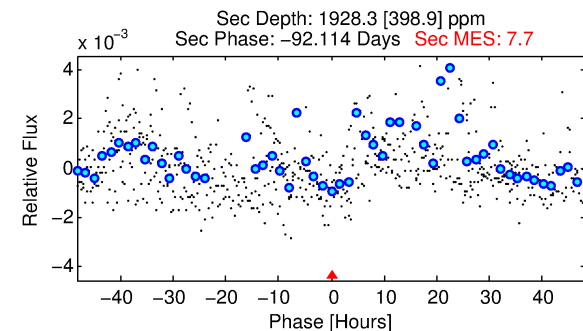
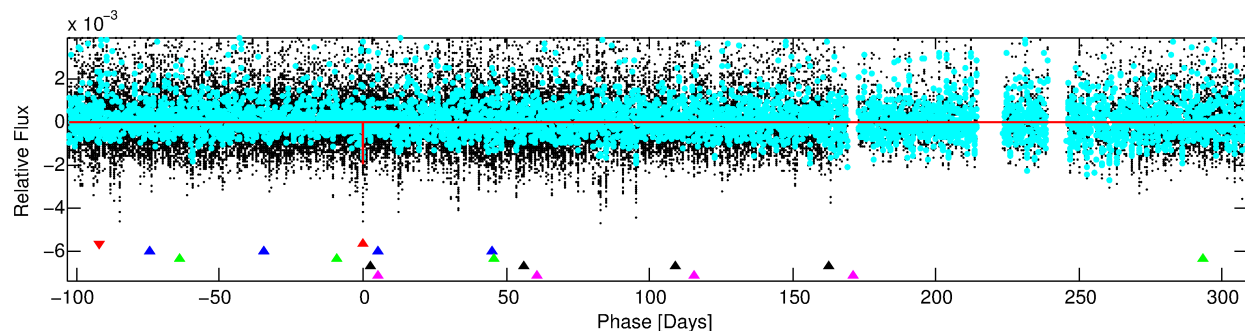
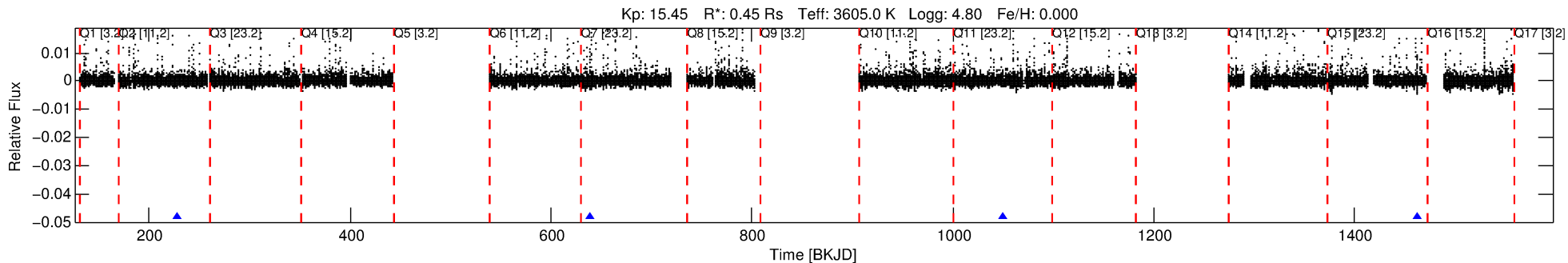
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005516671-01

No Significant Match Found

DV One-Page Summary

KIC: 5516671 Candidate: 1 of 5 Period: 411.375 d



DV Fit Results:

Period = 411.37536 [0.00636] d
Epoch = 227.8324 [0.0131] BKJD
Rp/R* = 0.0395 [0.0336]
a/R* = 405.13 [1429.45]
b = 0.02 [186.64]
Seff = 0.04 [0.01]
Teq = 116 [4] K
Rp = 1.92 [1.65] Re
a = 0.8345 [0.0651] AU
Ag = 200328.32 [344250.18] [0.58σ]
Teffp = 3803 [1632] K [2.26σ]

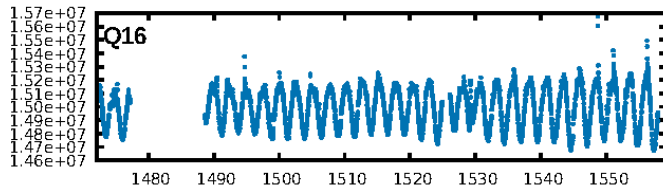
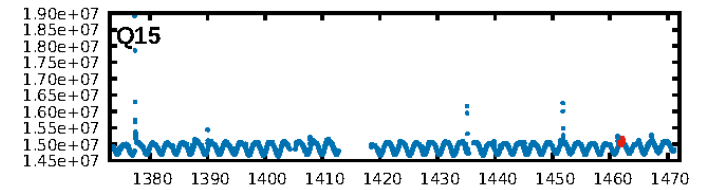
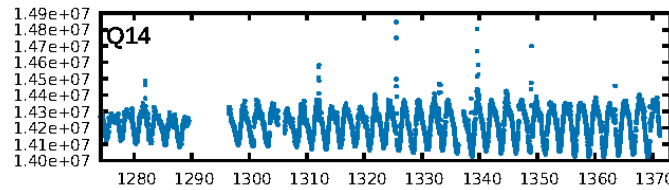
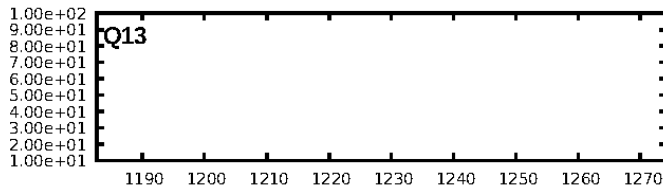
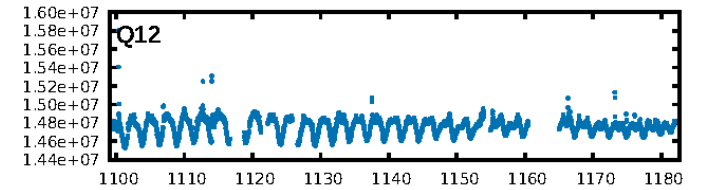
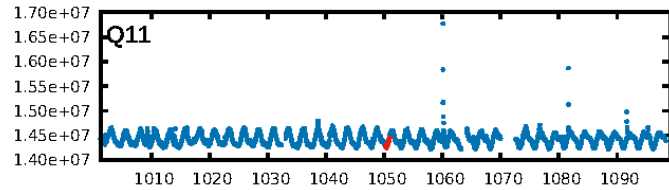
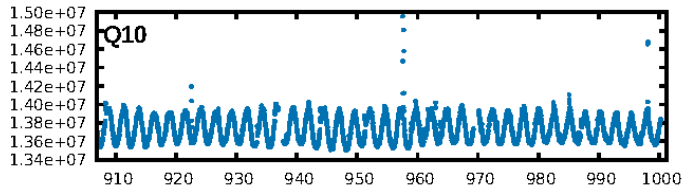
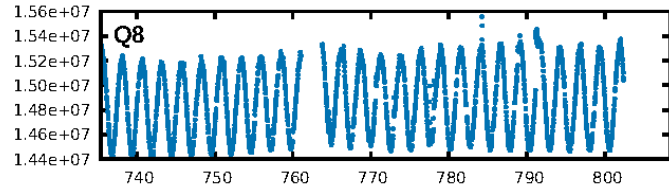
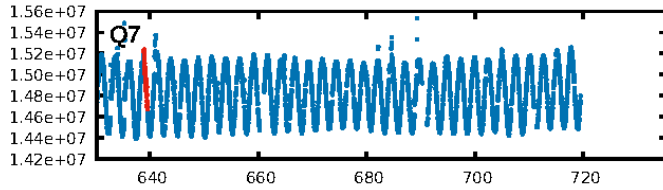
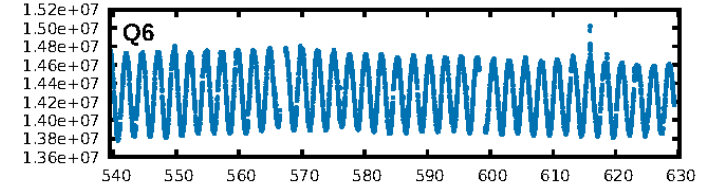
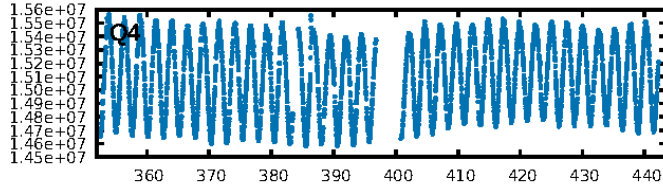
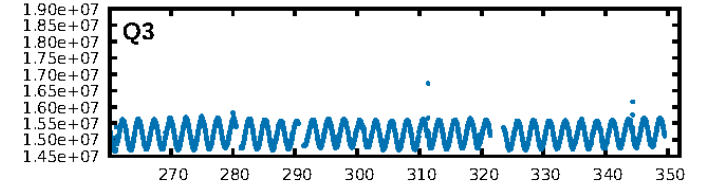
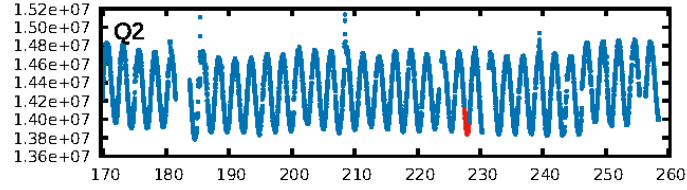
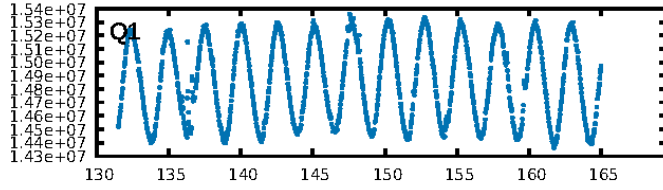
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [117.78σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 60.0%
Bootstrap-pfa: 1.06e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -2.184
Centroid-sig: 72.1%
Centroid-so: 0.410 arcsec [0.67σ]
OotOffset-rm: 0.092 arcsec [1.09σ]
KicOffset-rm: 0.052 arcsec [0.63σ]
OotOffset-st: 1/3/0/0 [4]
KicOffset-st: 1/3/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

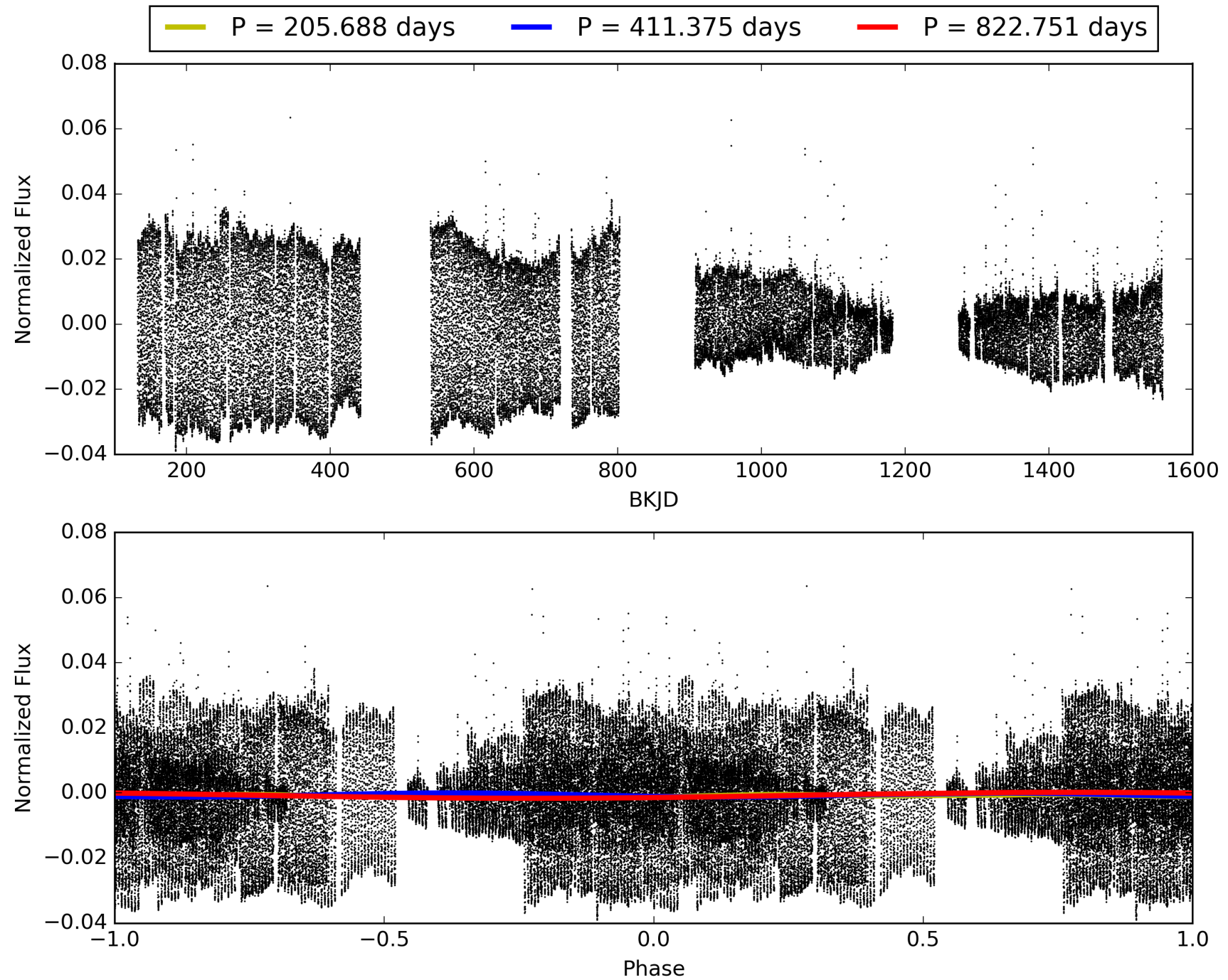
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 22:34:21 Z

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

TCE 005516671-01, PDC Light Curves

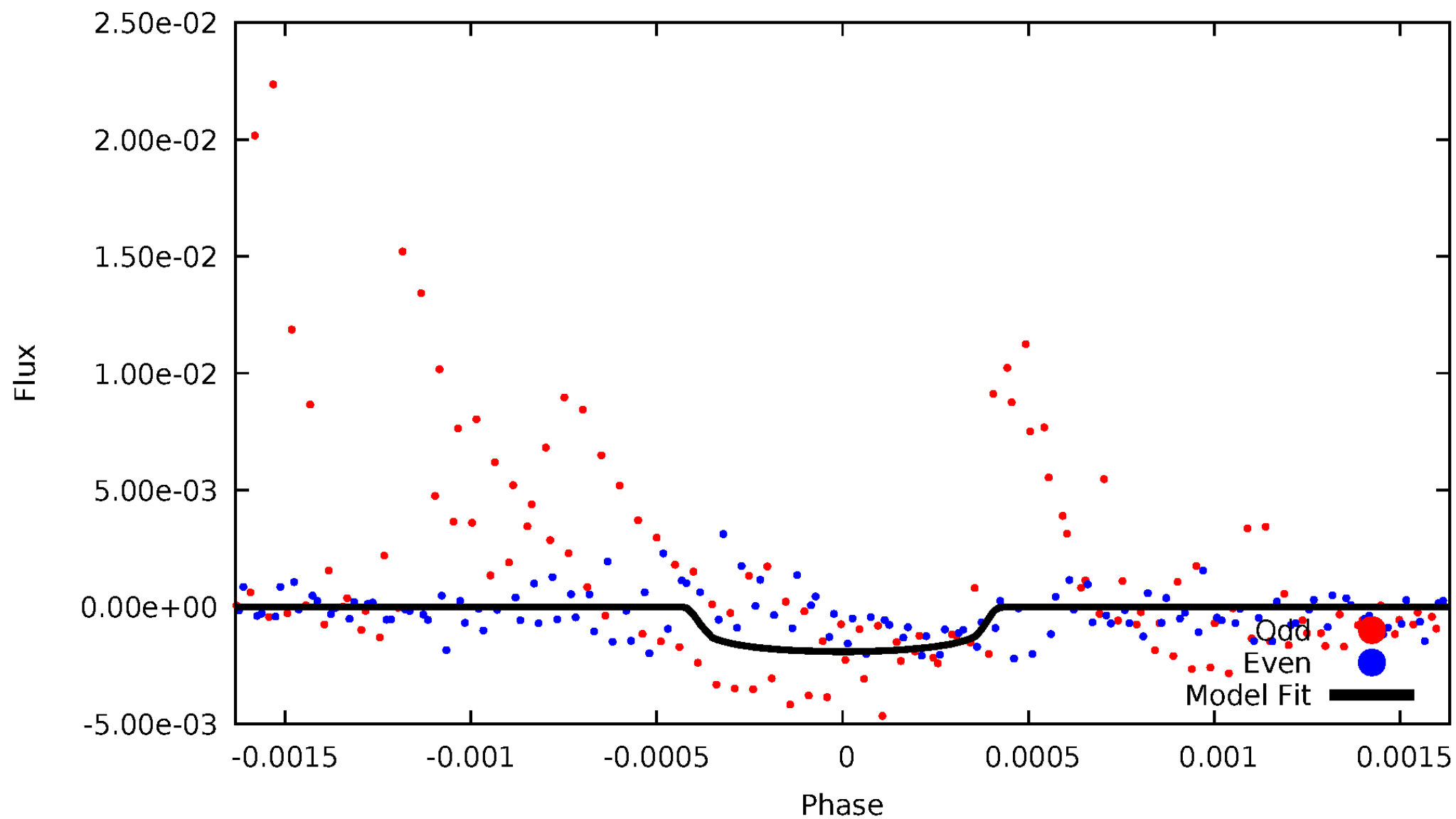


TCE 005516671-01



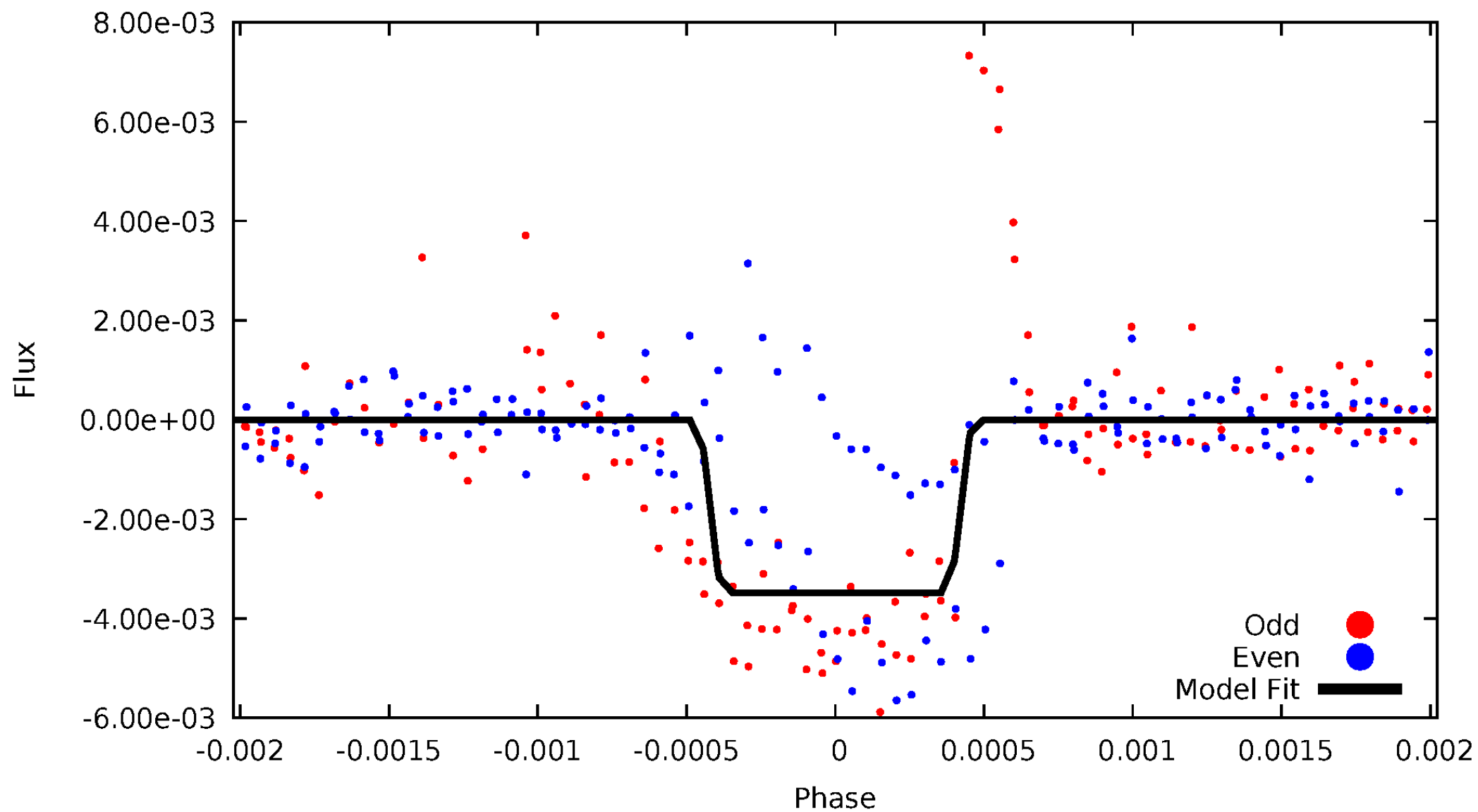
DV Odd/Even

TCE 005516671-01



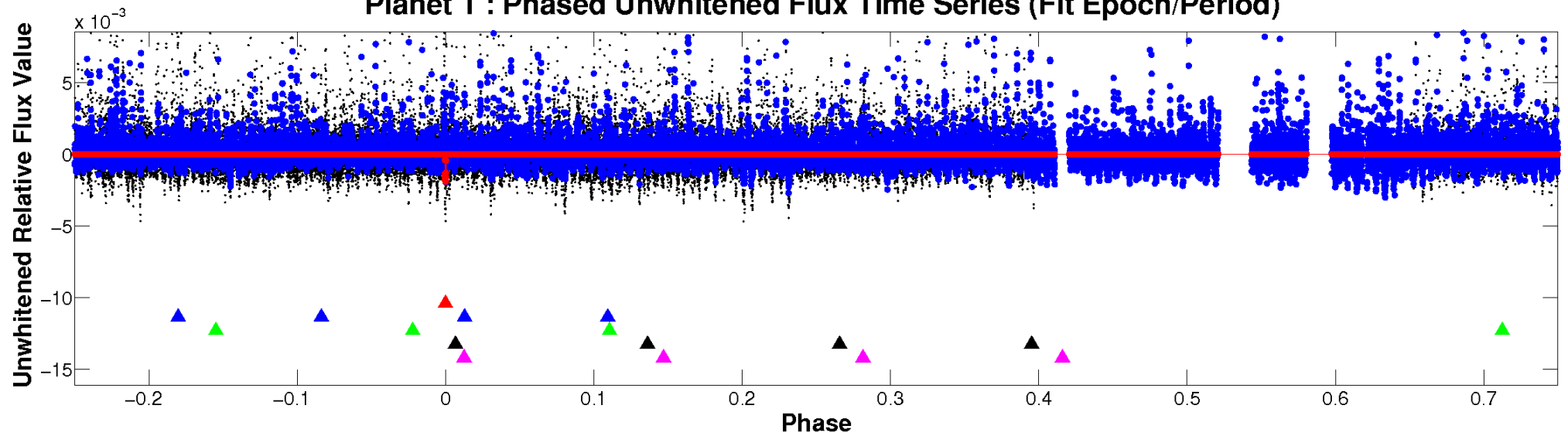
ALT Odd/Even

TCE 005516671-01

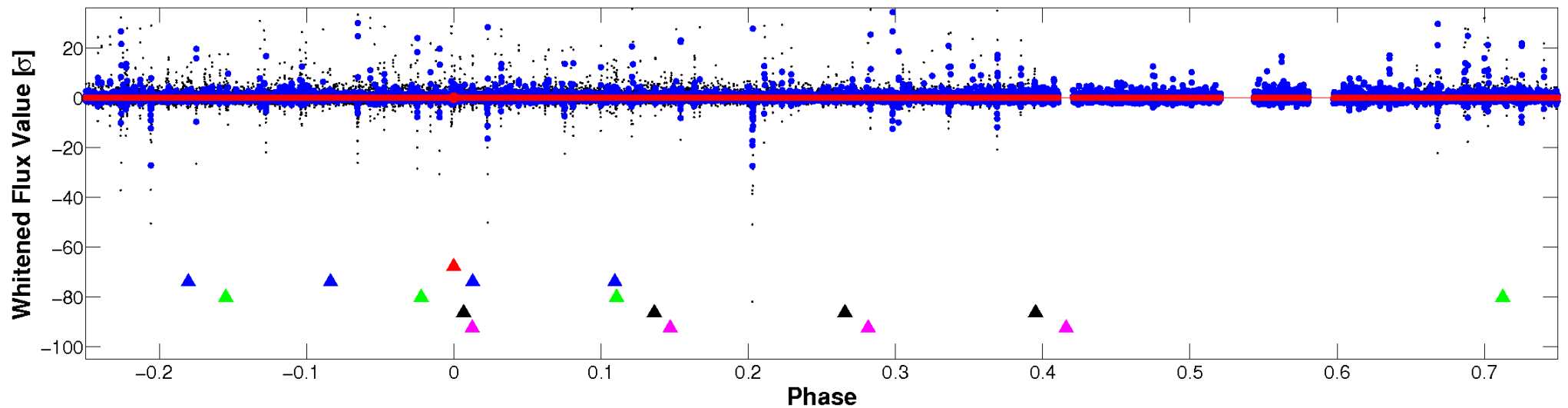


Non-Whitened Vs. Whitened Light Curve

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

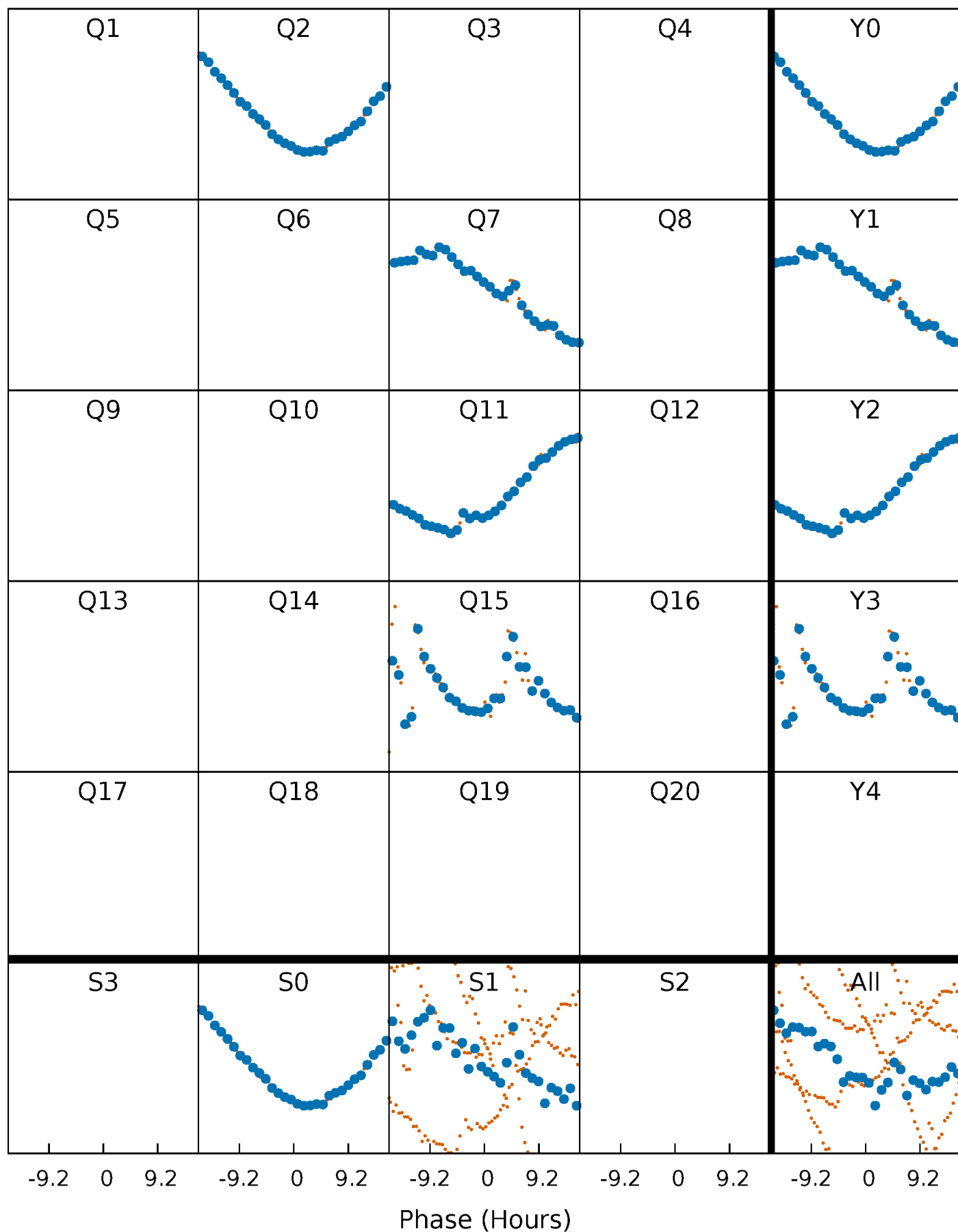


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



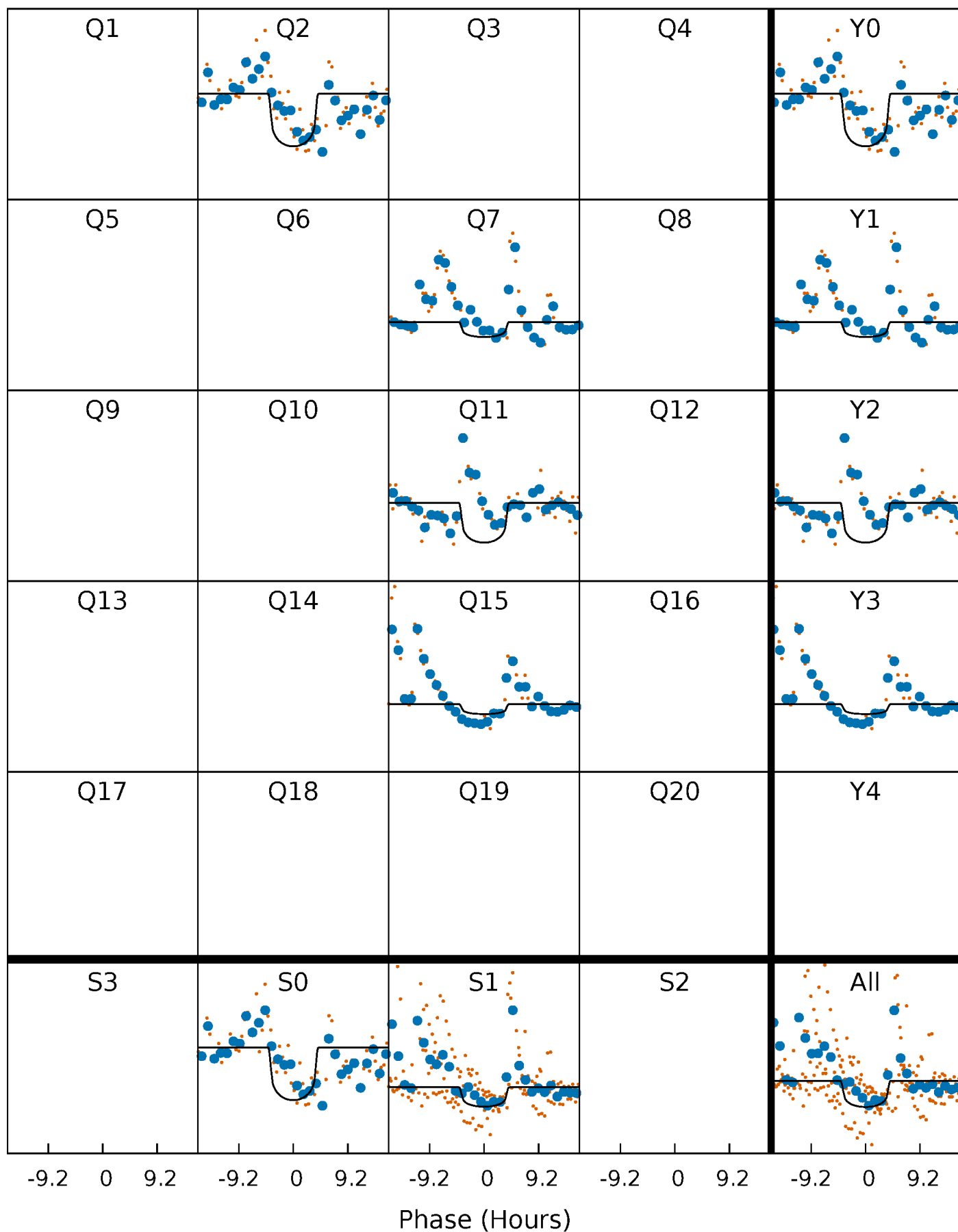
PDC Quarter-Phased Transit Curves

TCE 005516671-01 P=411.375363 Days $T_0=227.832381$ (BKJD)



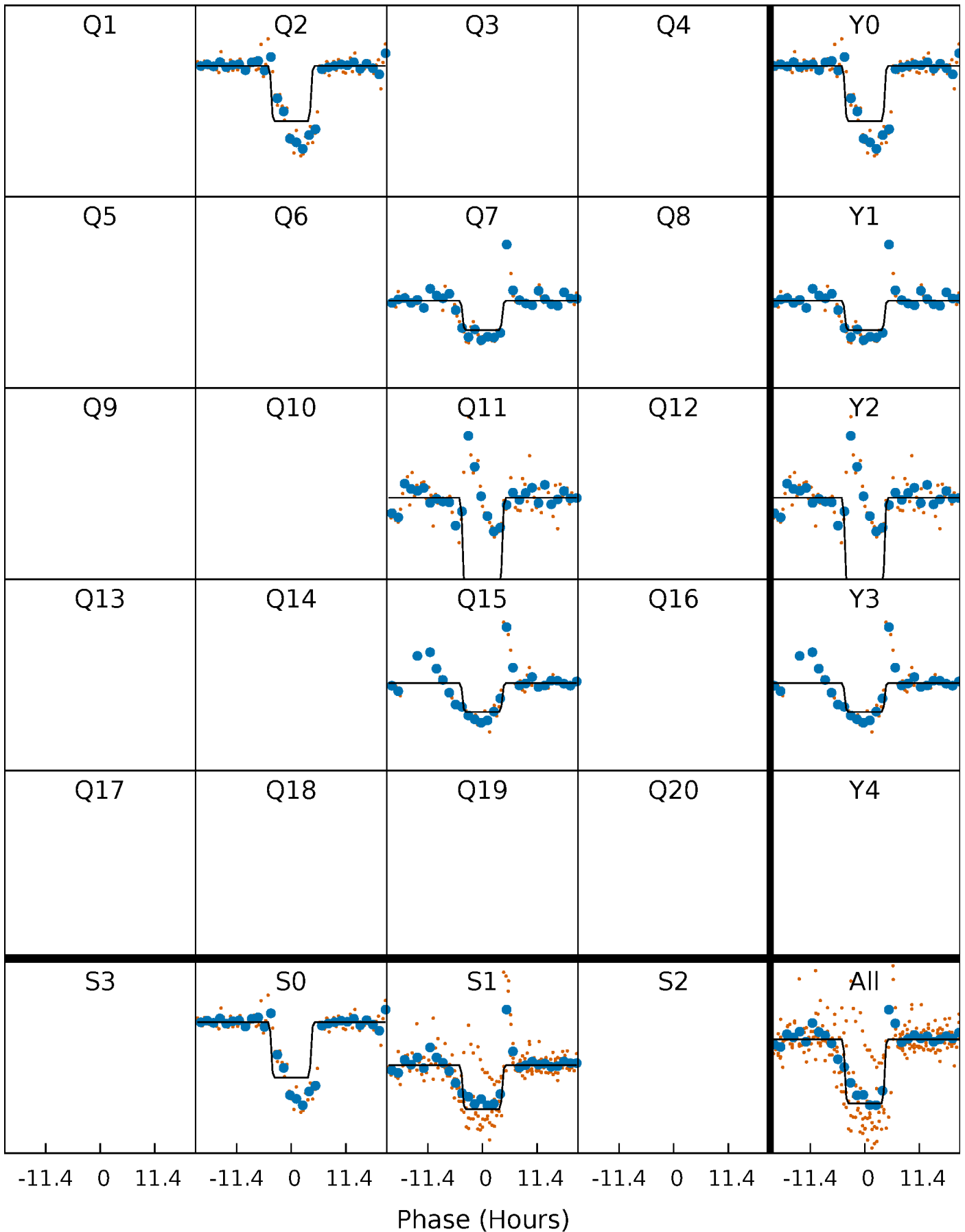
DV Quarter-Phased Transit Curves

TCE 005516671-01 P=411.375363 Days $T_0=227.832381$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

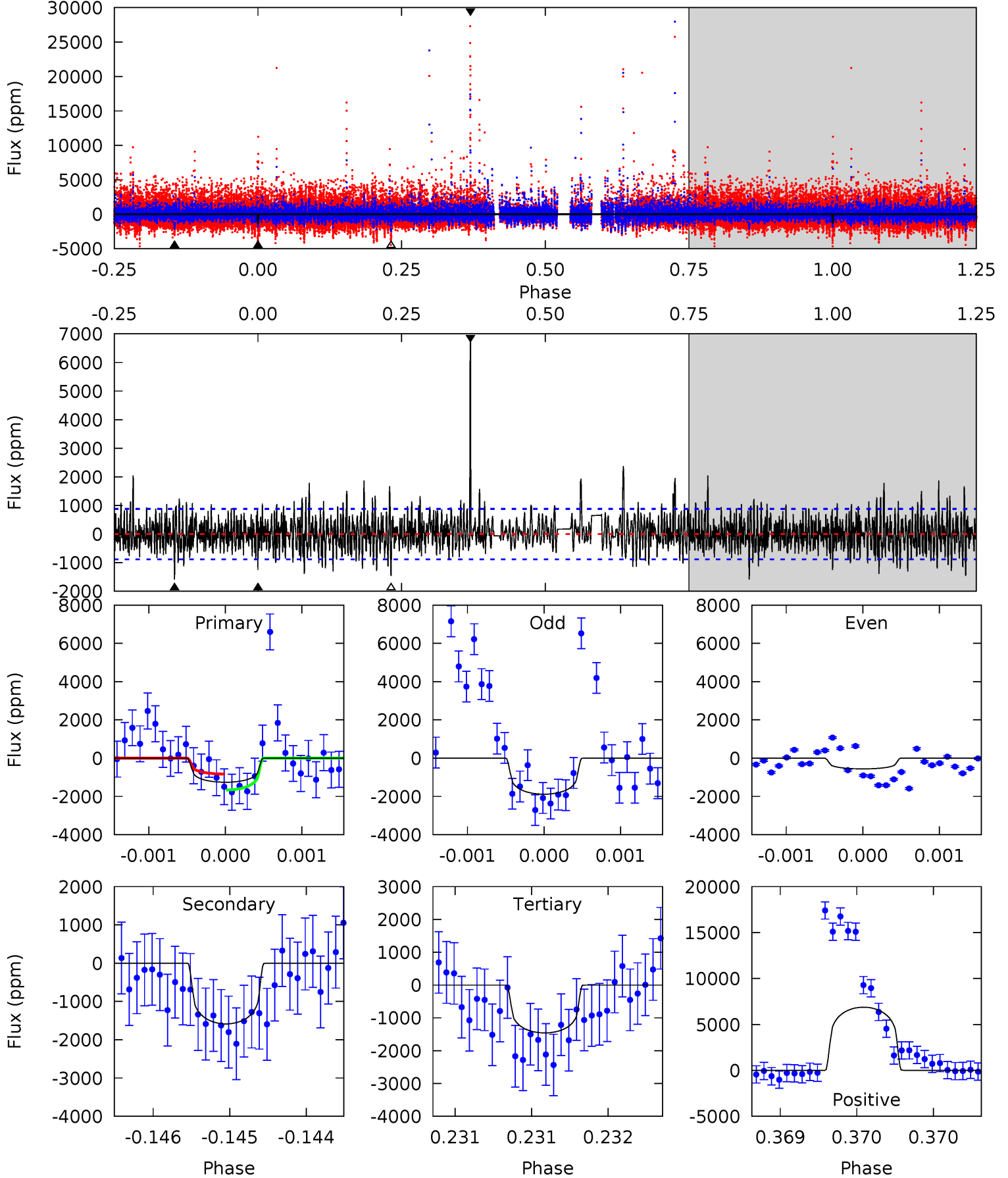
TCE 005516671-01 P=411.368430 Days $T_0=227.835108$ (BKJD)



DV Model-Shift Uniqueness Test

005516671-01, P = 411.375363 Days, E = 227.832381 Days

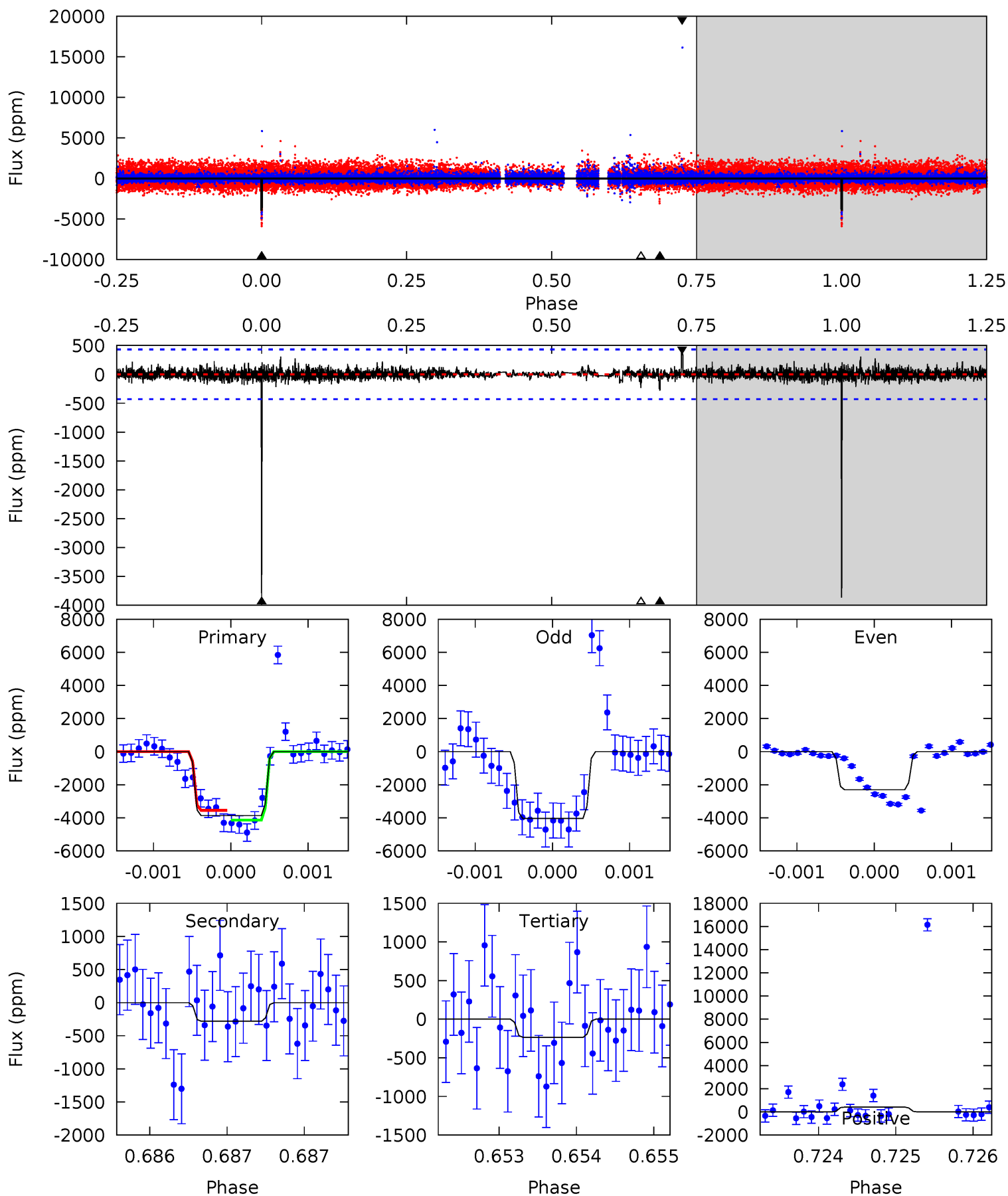
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.83	9.86	9.07	42.7	5.48	3.33	3.14	-1.24	-34.9	0.79	-32.9	3.22	1.31	0.81	2.62



Alt Model-Shift Uniqueness Test

005516671-01, P = 411.368430 Days, E = 227.835108 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.1	3.58	2.97	5.22	5.47	3.32	0.67	46.1	43.9	0.61	-1.65	11.7	0.78	0.10	3.72



Stellar Parameters For KIC 005516671

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3605^{+64}_{-64}	$4.800^{+0.048}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.446^{+0.035}_{-0.046}$	$0.458^{+0.037}_{-0.045}$	$7.261^{+1.812}_{-1.003}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+8%/-10%	+8%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 005516671-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1586 ± 161	$2.10^{+1.64}_{-1.24}$	162^{+4}_{-4}	3510^{+1332}_{-553}	$138477^{+676529}_{-96019}$
Alt.	-282 ± 79	$2.98^{+1.66}_{-1.44}$	162^{+4}_{-4}	2487^{+456}_{-250}	11818^{+31083}_{-7185}

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

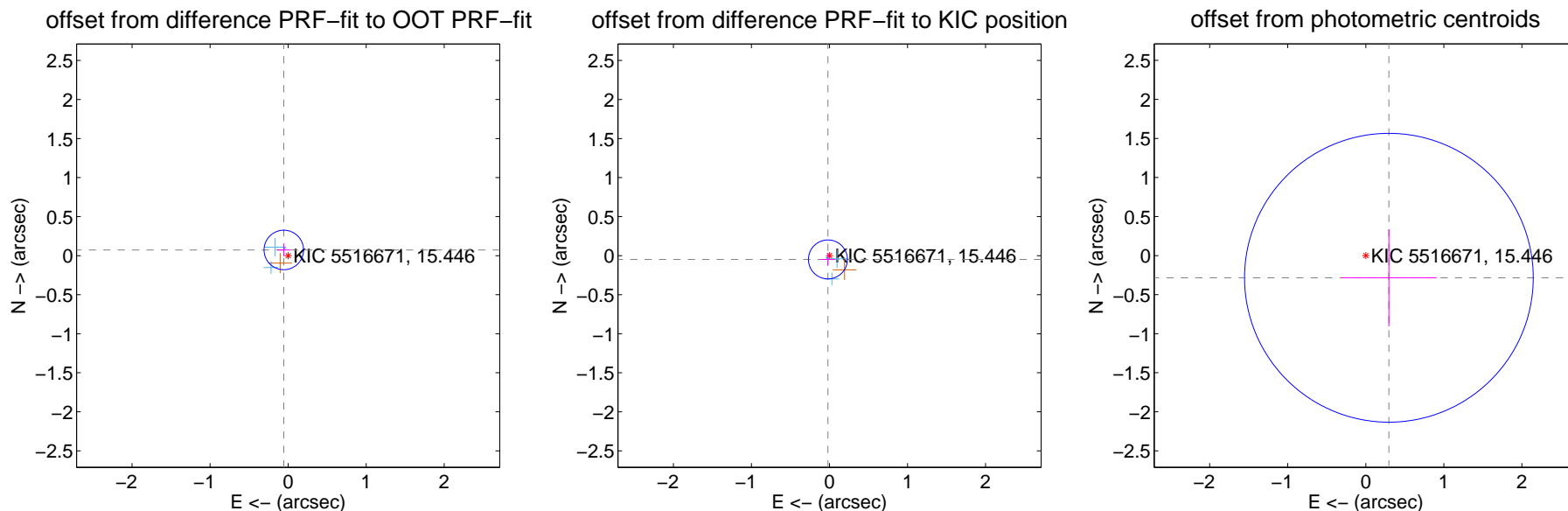
DV Centroid Data

Supplemental centroid analysis for 005516671-01. Kepler magnitude: 15.45. Transit SNR 6.74

There are 3 quarters with good PRF difference image offsets

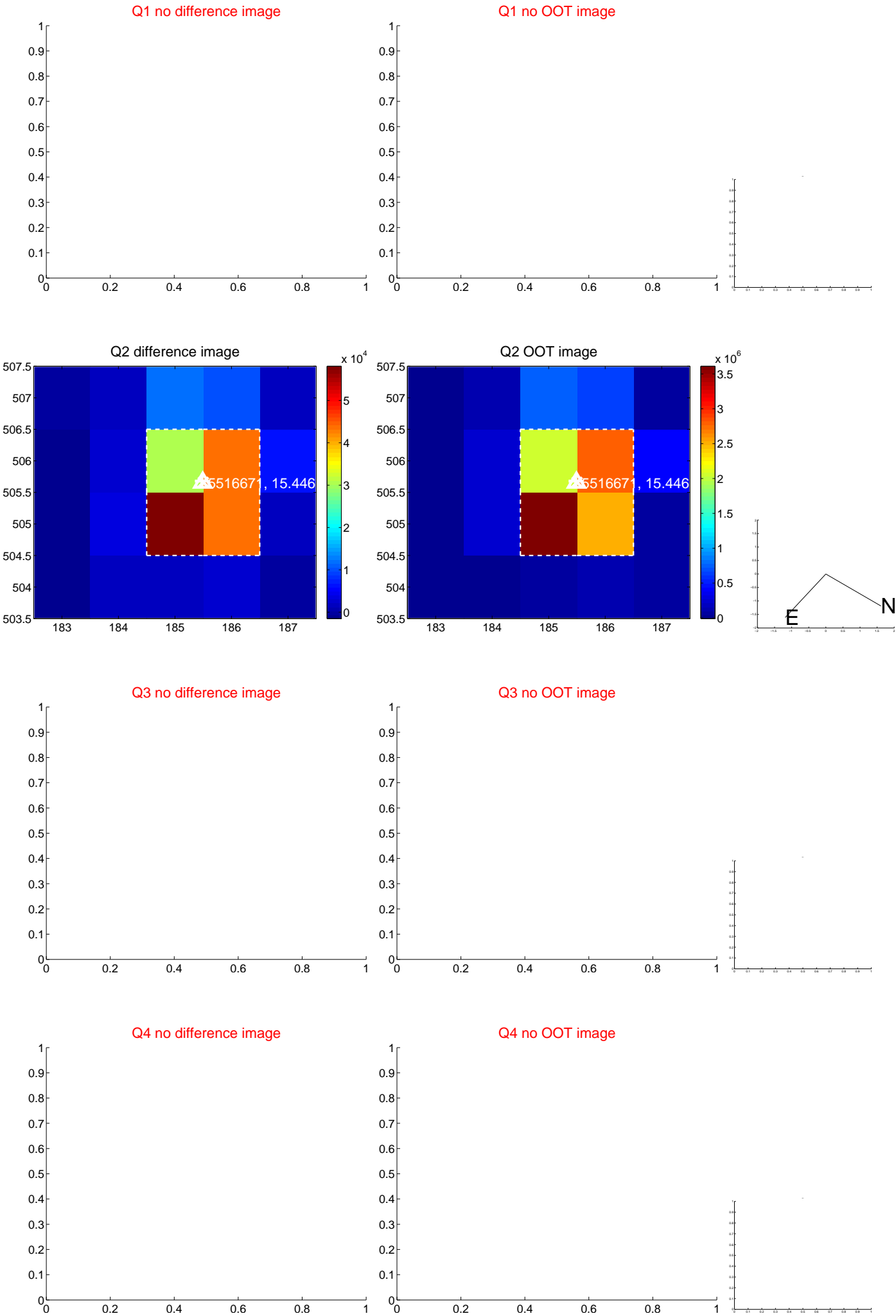
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.092 ± 0.084	1.09	0.055 ± 0.088	0.073 ± 0.082
PRF-fit source offset from KIC position	0.052 ± 0.083	0.63	0.020 ± 0.088	-0.048 ± 0.082
photometric centroid source offset	0.41 ± 0.62	0.67	-0.30 ± 0.61	-0.28 ± 0.62

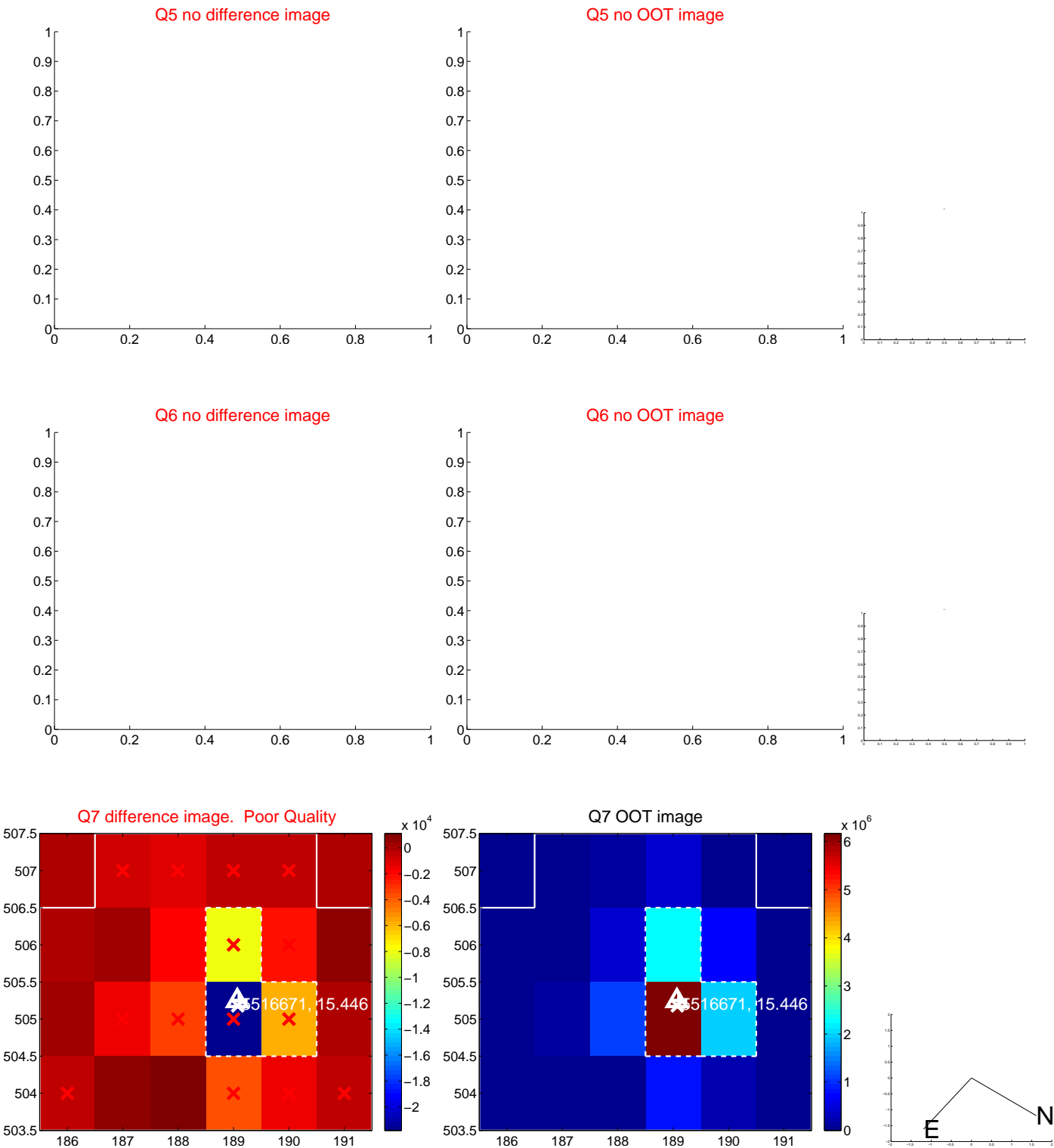


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

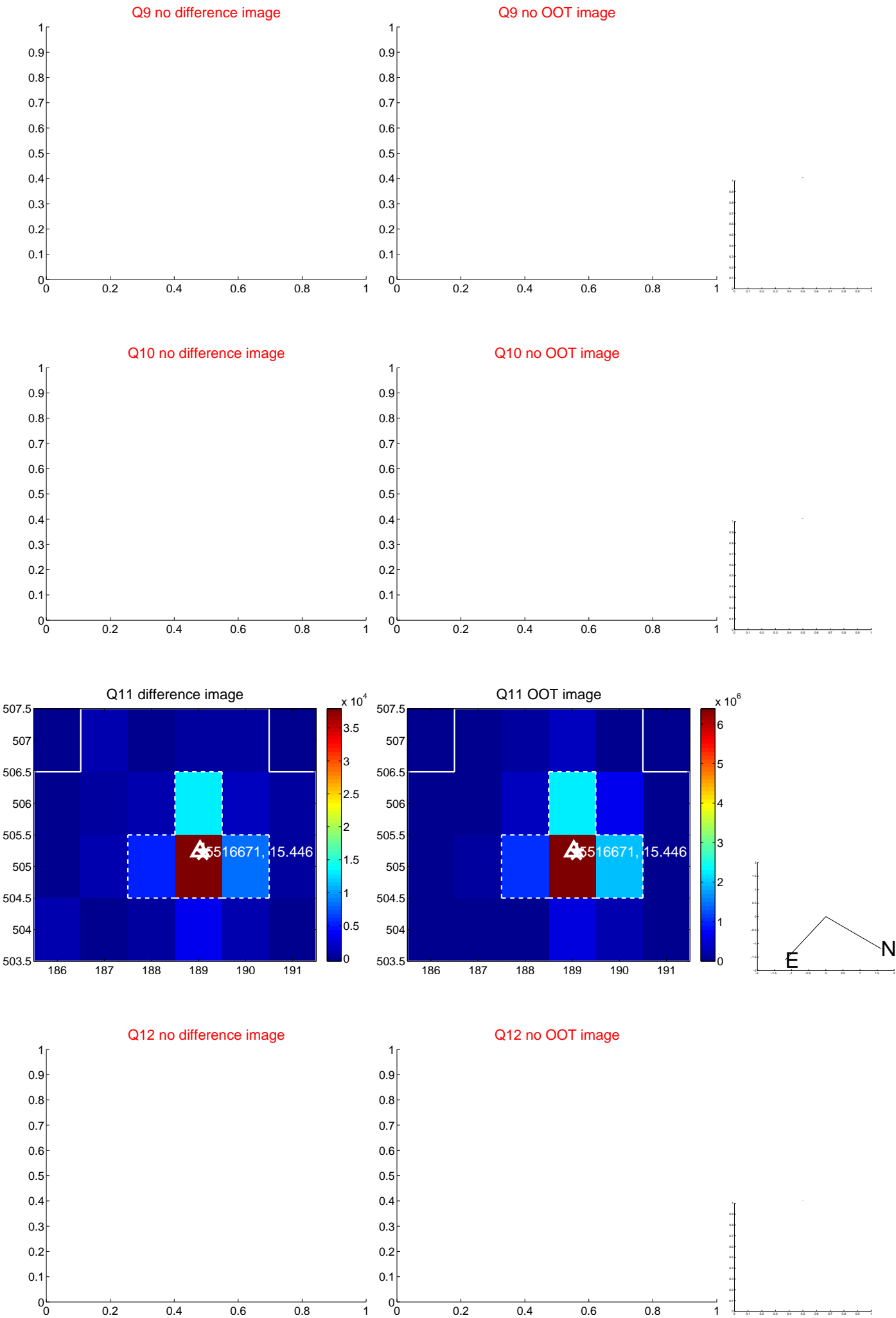
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



white \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.

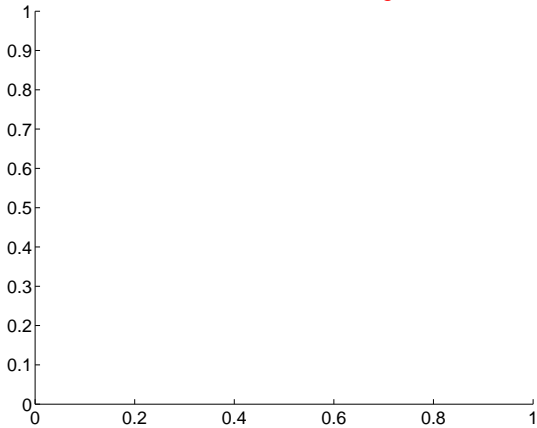
Q13 no difference image



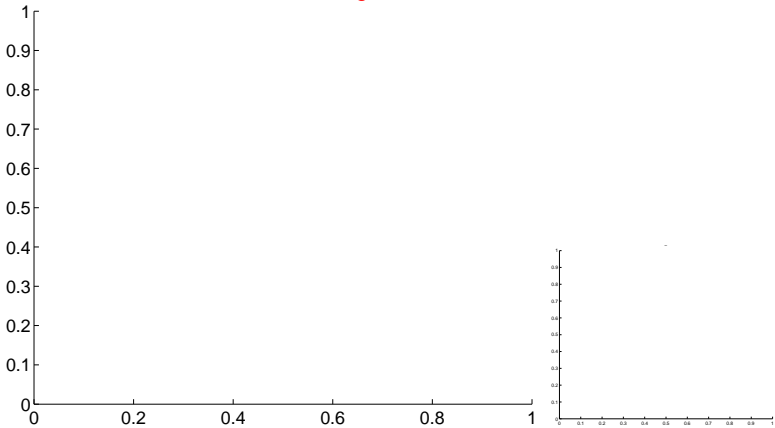
Q13 no OOT image



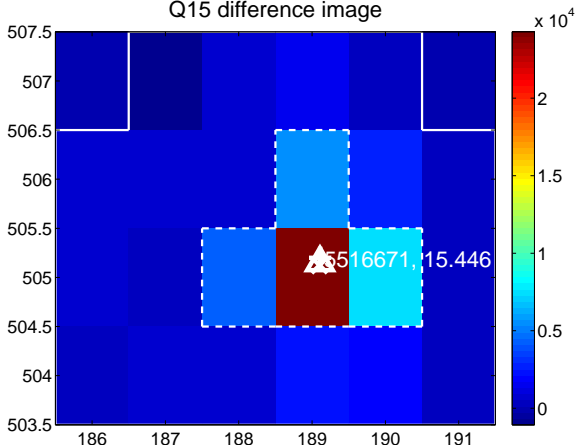
Q14 no difference image



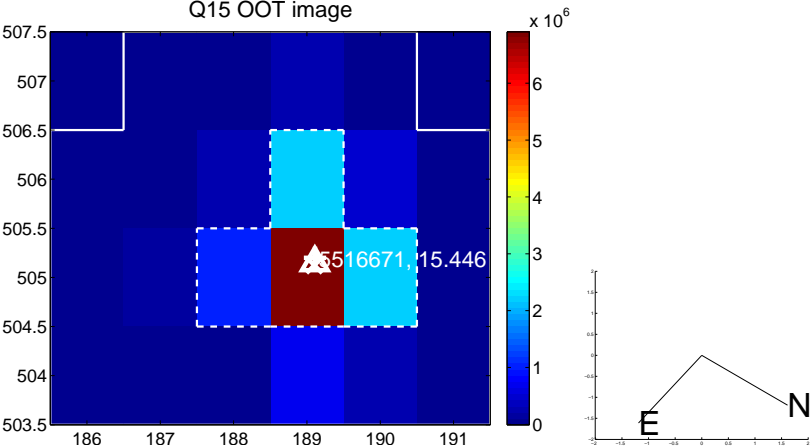
Q14 no OOT image



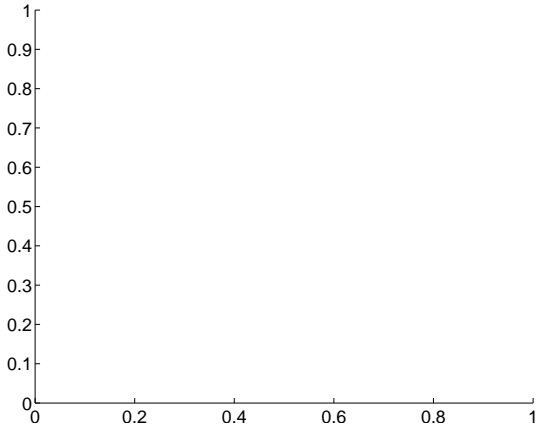
Q15 difference image



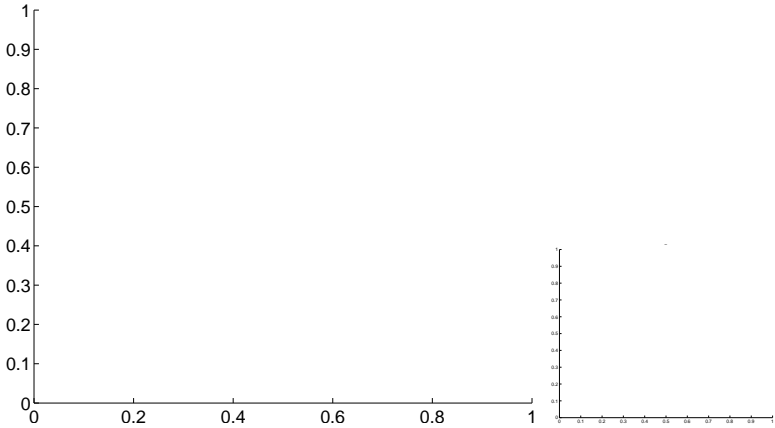
Q15 OOT image



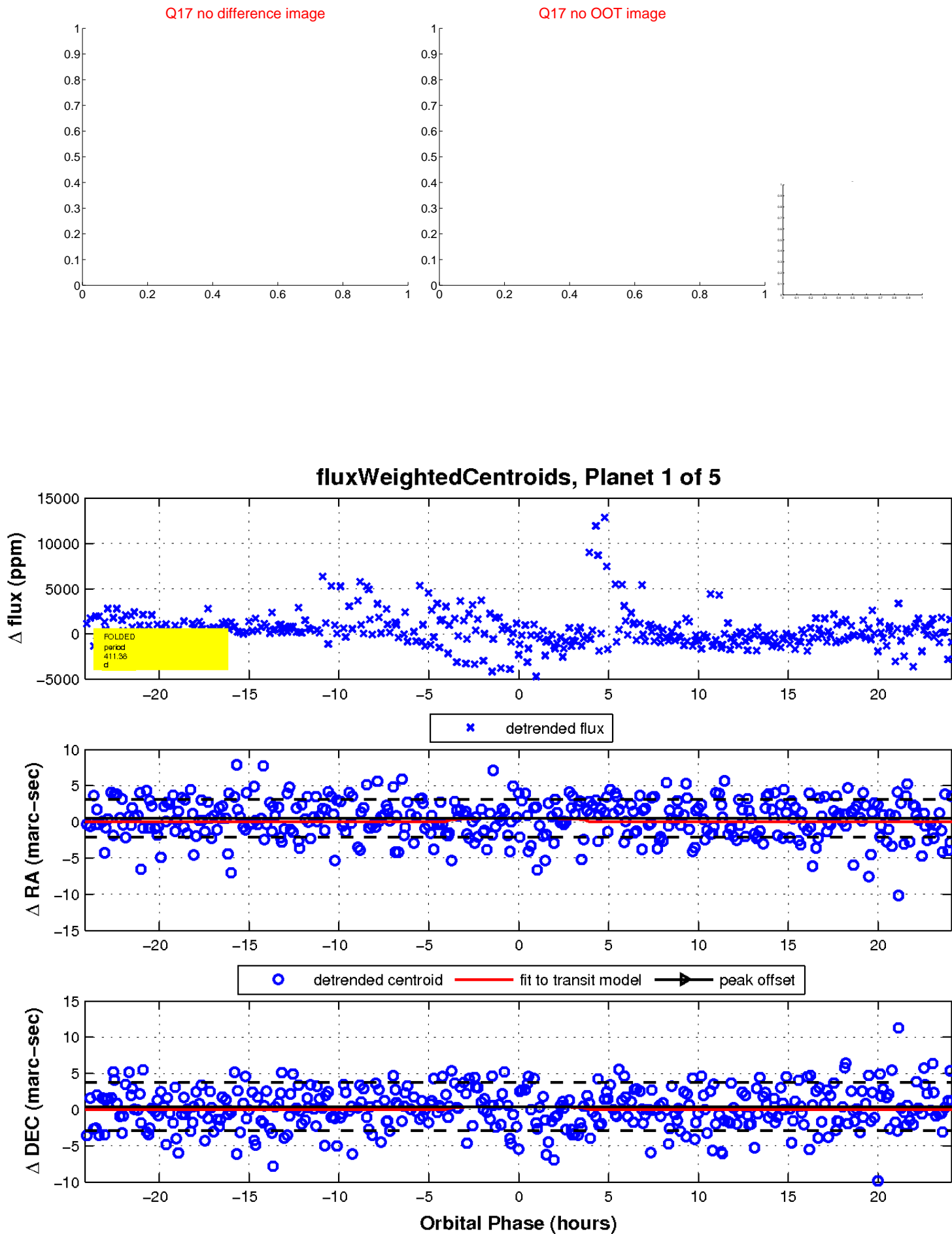
Q16 no difference image



Q16 no OOT image

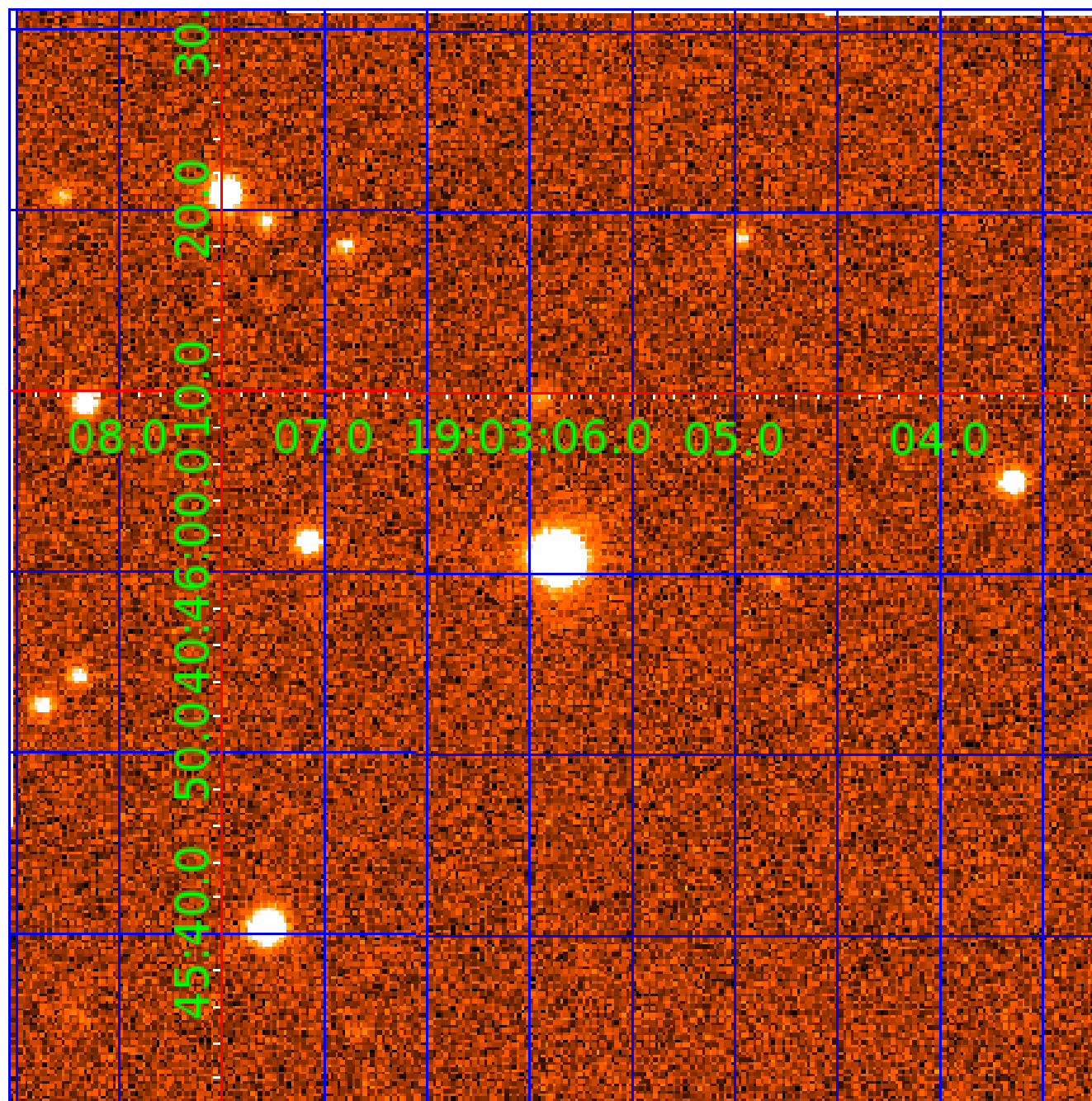


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005516671

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})
005516671-01	OBS	No	411.375363	227.832381	1906.9	8.062	14.7	6.7	0.45	3605	1.92	0.04
005516671-02	OBS	No	371.655777	272.849158	1.6	0.714	14.7	0.0	0.45	3605	0.06	0.05
005516671-03	OBS	No	356.785773	273.334122	2479.9	4.712	12.3	8.3	0.45	3605	2.19	0.05
005516671-04	OBS	No	358.108674	390.412445	1798.7	12.249	11.2	6.1	0.45	3605	1.87	0.05
005516671-05	OBS	No	356.060948	398.953925	2163.8	5.111	12.7	7.3	0.45	3605	2.12	0.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005516671-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-02	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_FEW_DIFFS
005516671-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005516671-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

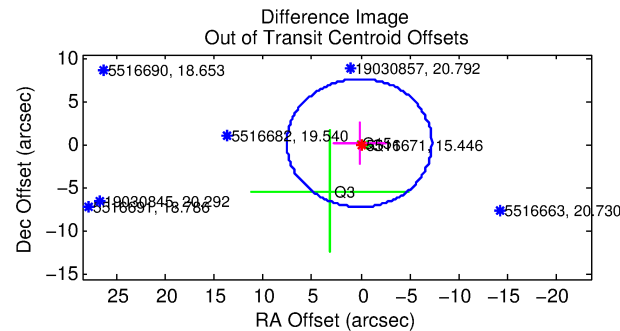
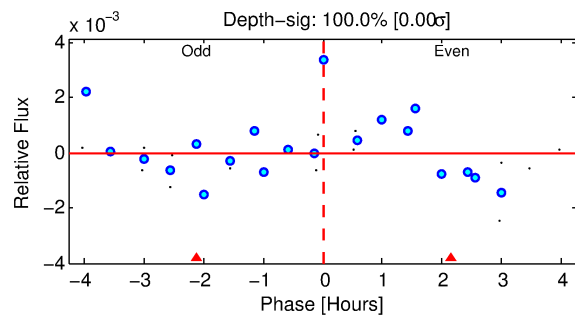
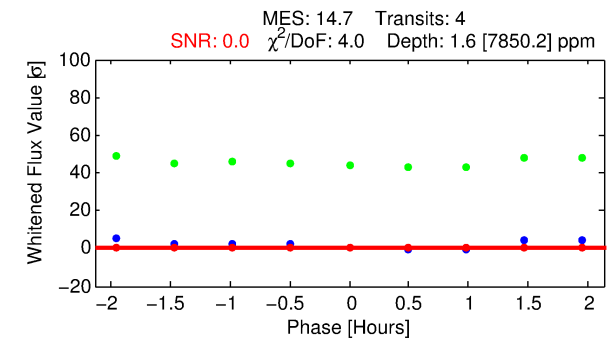
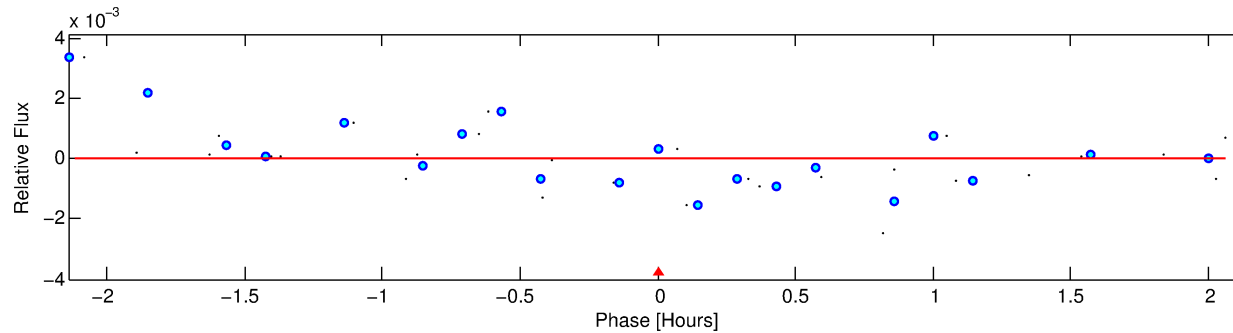
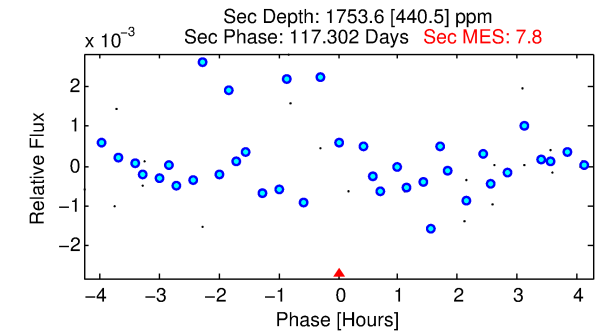
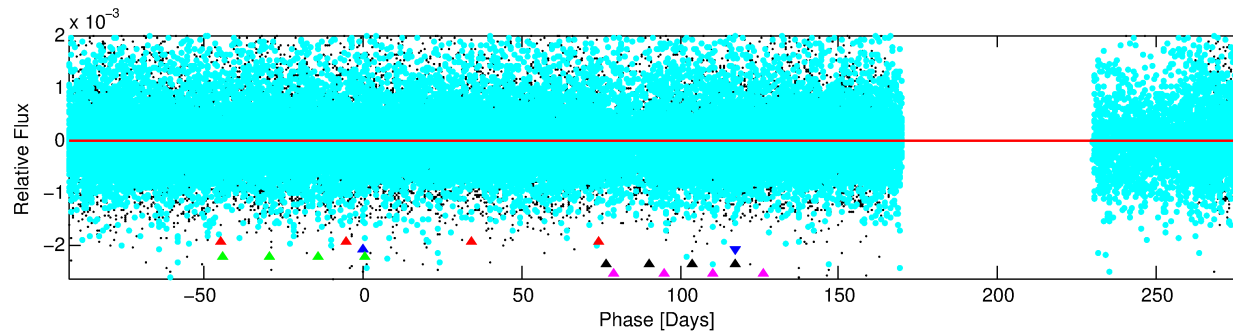
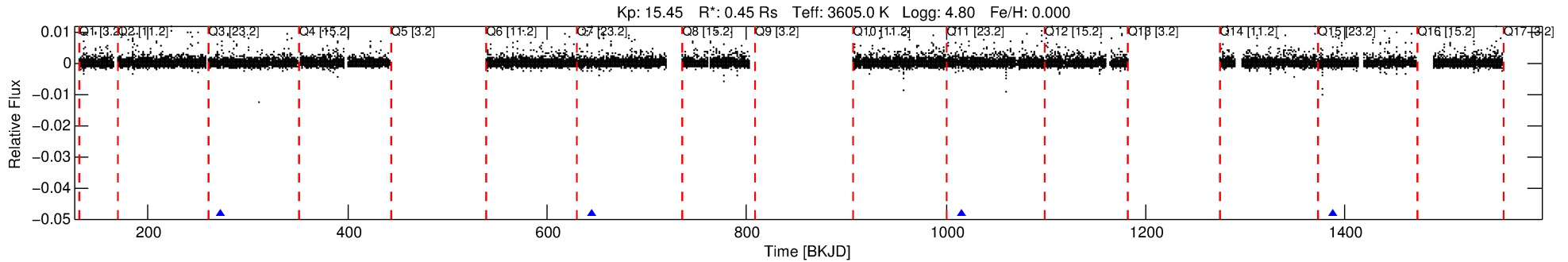
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005516671-02

No Significant Match Found

DV One-Page Summary

KIC: 5516671 Candidate: 2 of 5 Period: 371.656 d



DV Fit Results:

Period = 371.65578 [12.90486] d
Epoch = 272.8492 [14.1182] BKJD
Rp/R* = 0.0012 [406.2783]
a/R* = 3981.63 [5895987184.88]
b = 0.02 [59807750.60]
Seff = 0.05 [0.01]
Teq = 120 [4] K
Rp = 0.06 [19773.06] Re
a = 0.7799 [0.0635] AU
Ag = 175498571.20 [120030496055796.20] [0.00σ]
Teffp = 21403 [3659576253] K [0.00σ]

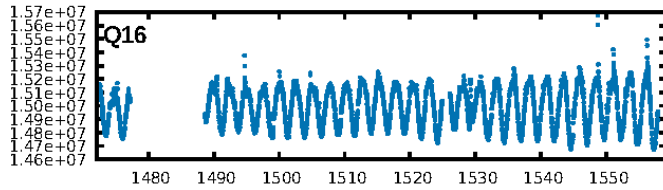
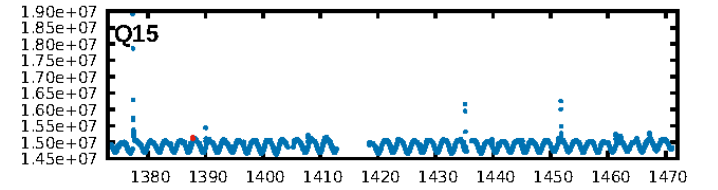
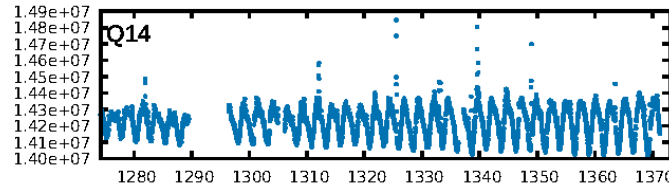
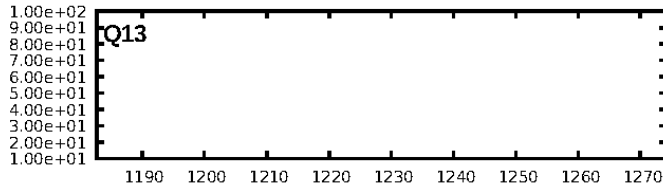
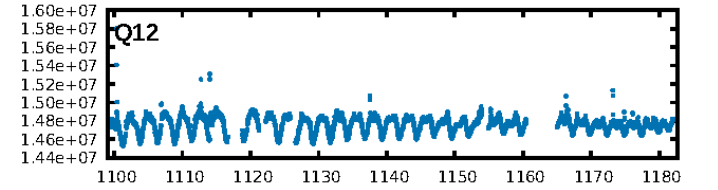
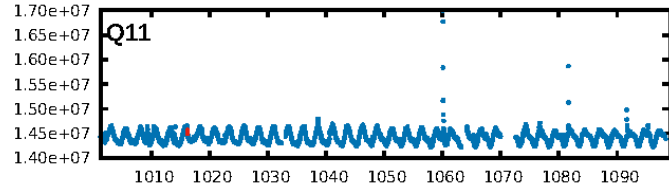
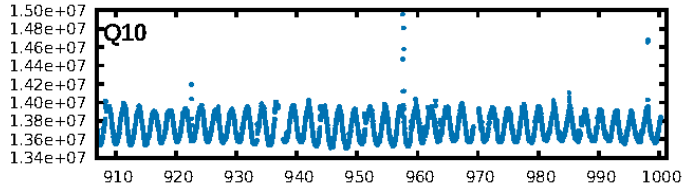
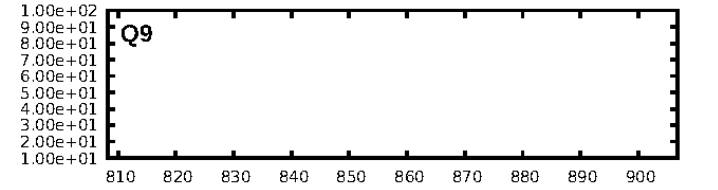
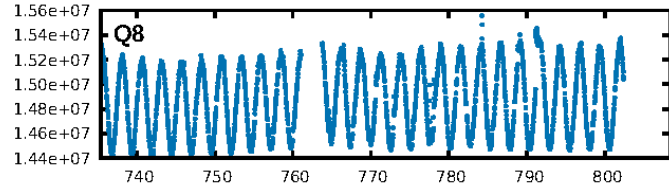
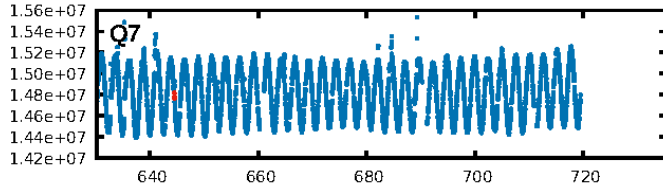
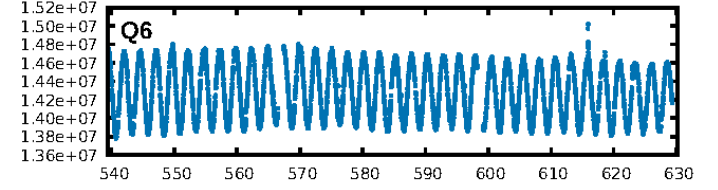
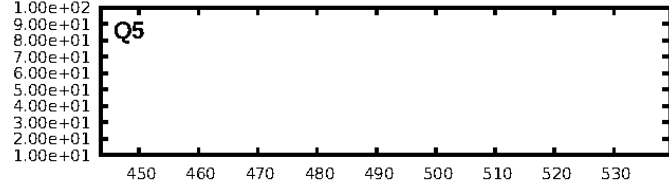
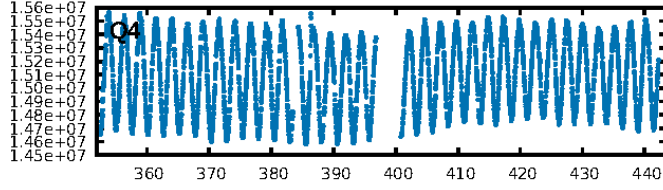
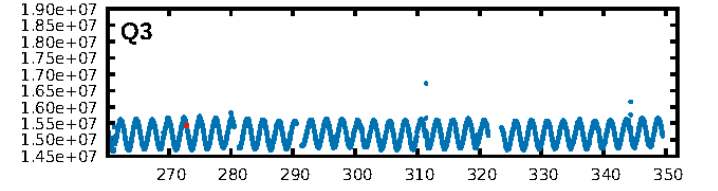
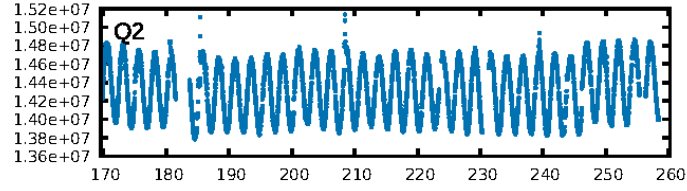
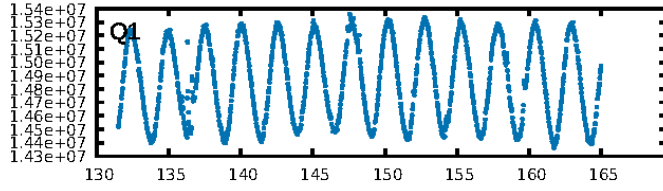
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.50σ]
LongPeriod-sig: 100.0% [117.78σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 1.8%
Bootstrap-pfa: 7.22e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.295 arcsec [0.12σ]
KicOffset-rm: 0.197 arcsec [0.08σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

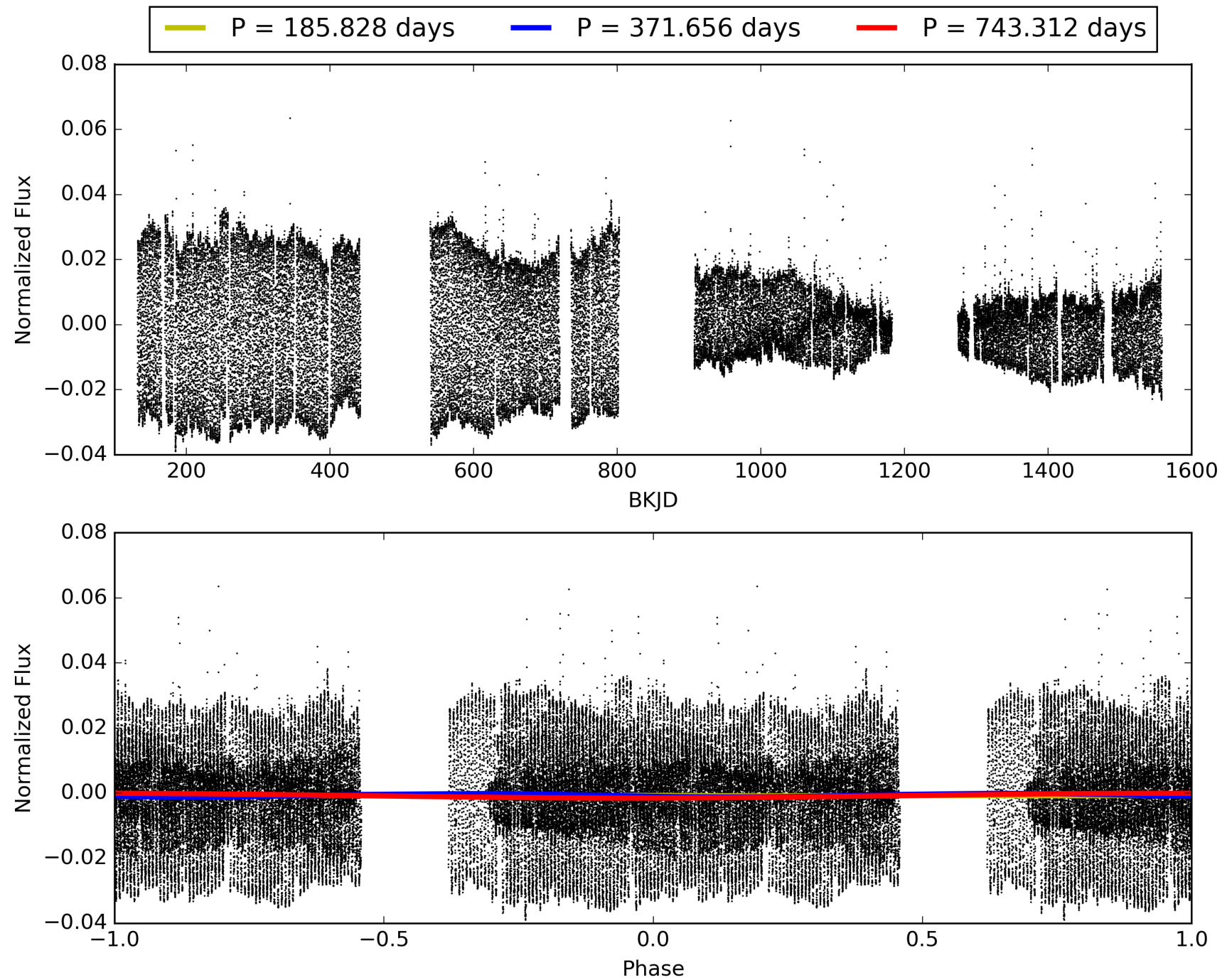
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 22:35:06 Z

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

TCE 005516671-02, PDC Light Curves

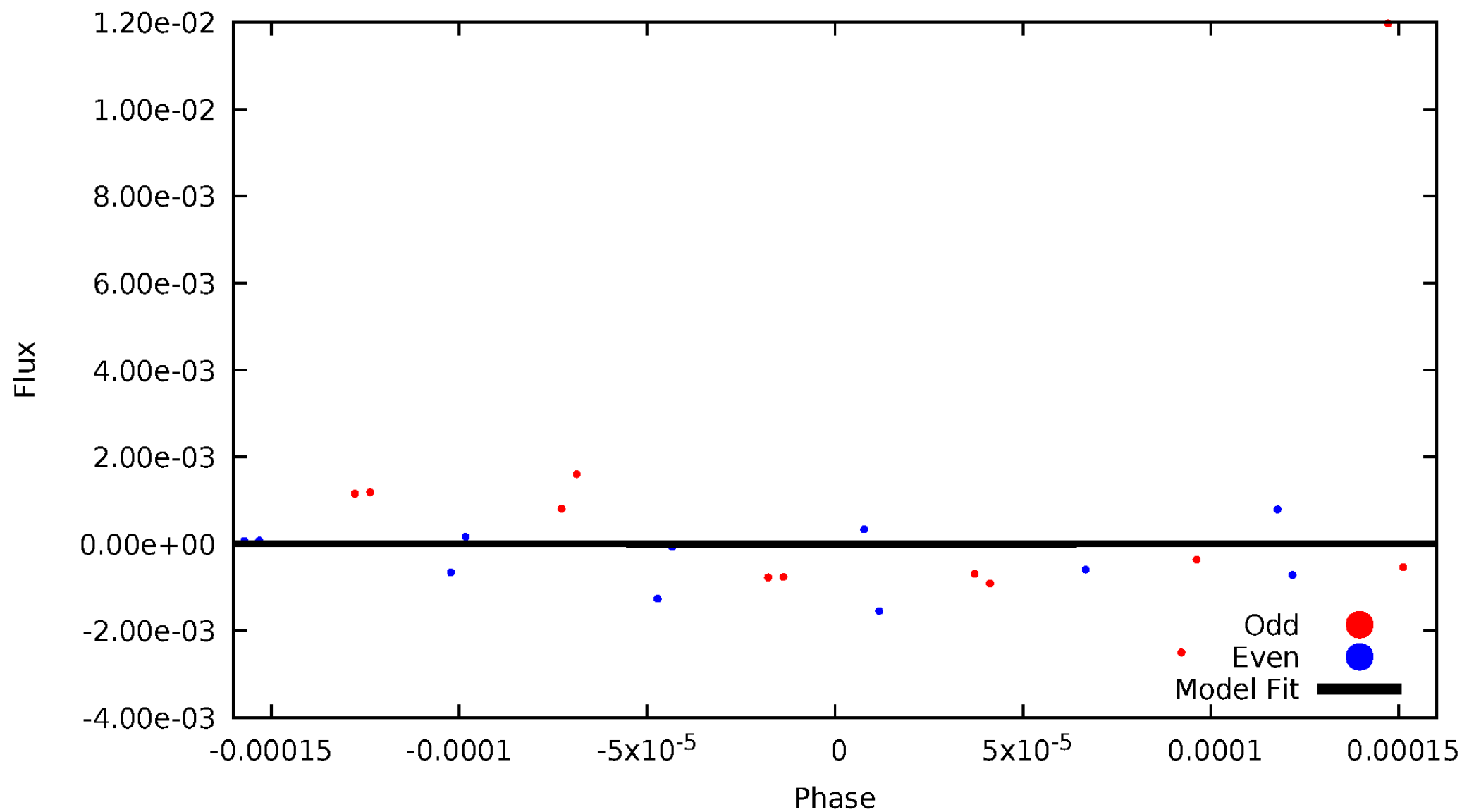


TCE 005516671-02



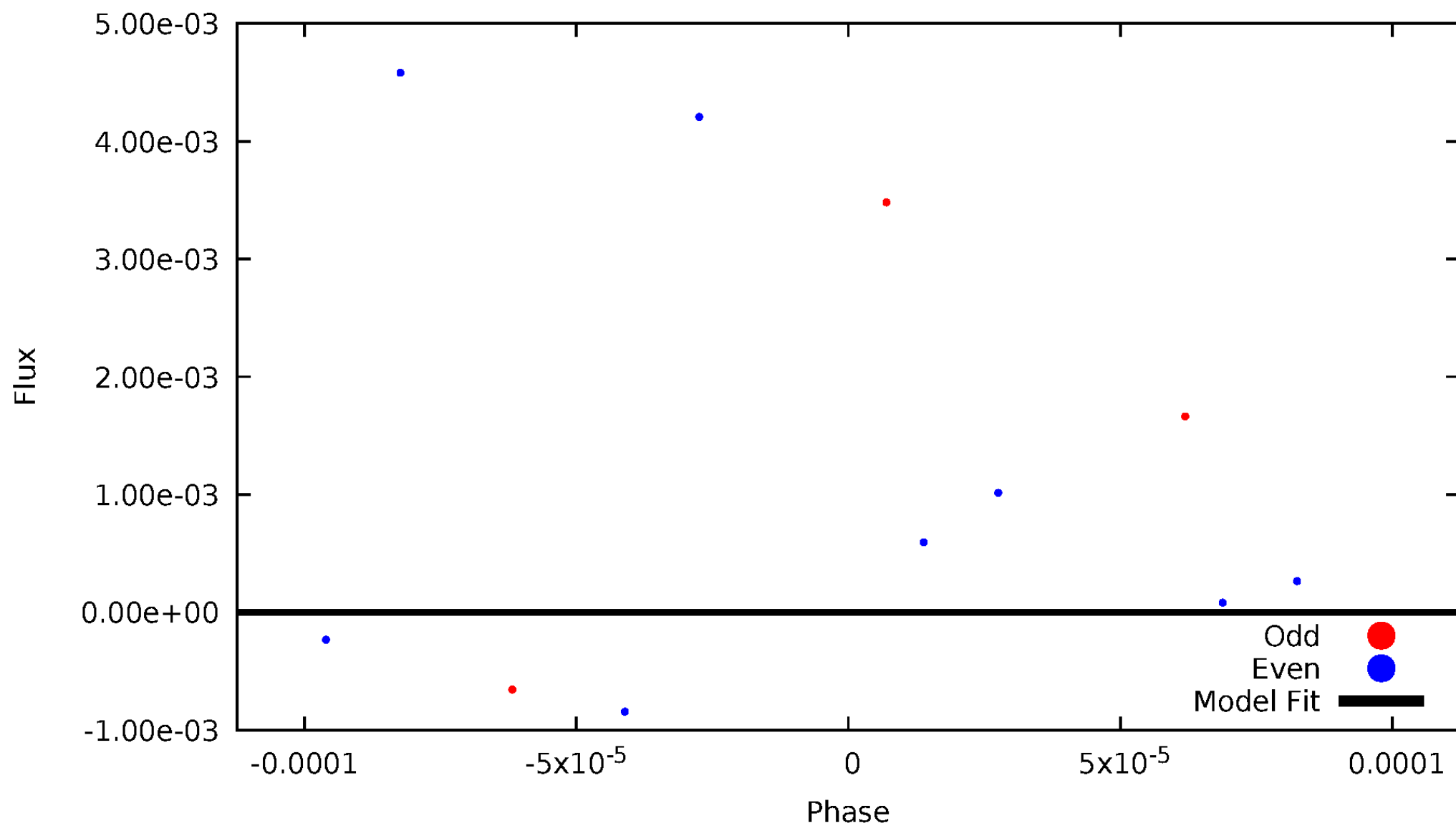
DV Odd/Even

TCE 005516671-02



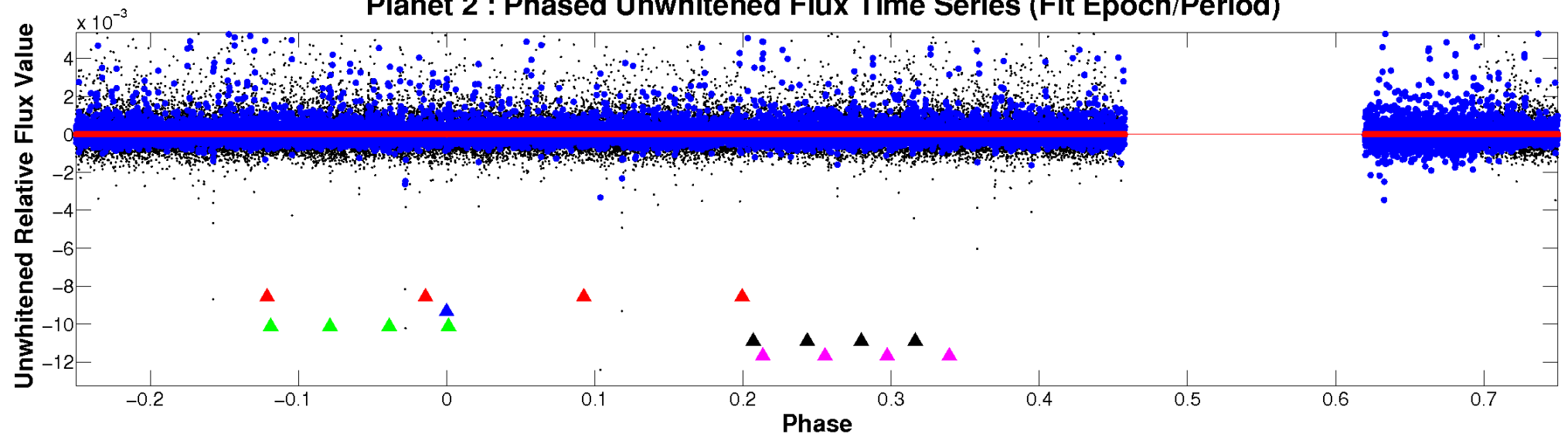
ALT Odd/Even

TCE 005516671-02

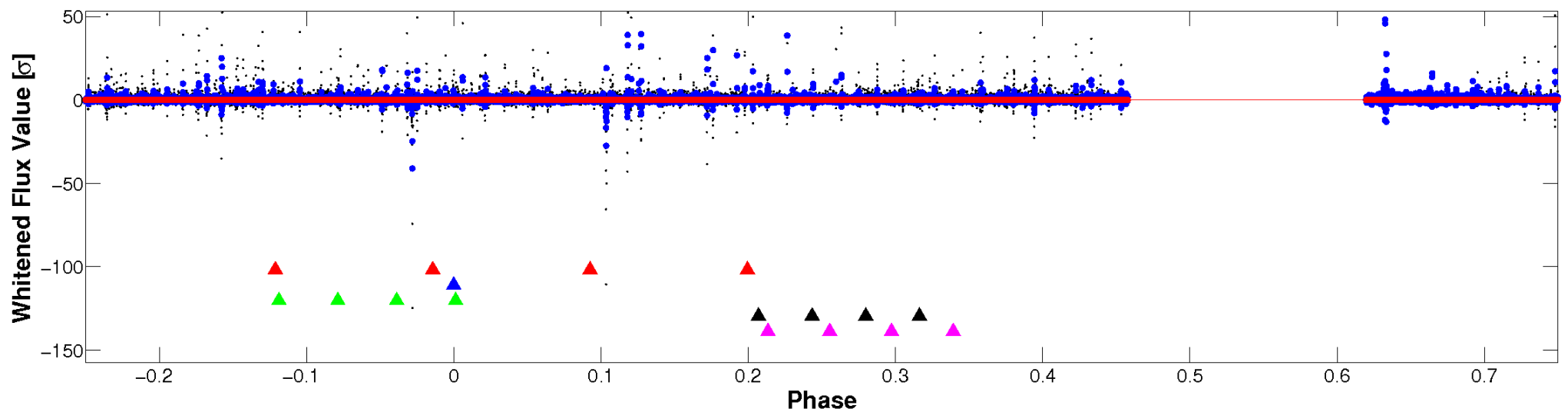


Non-Whitened Vs. Whitened Light Curve

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

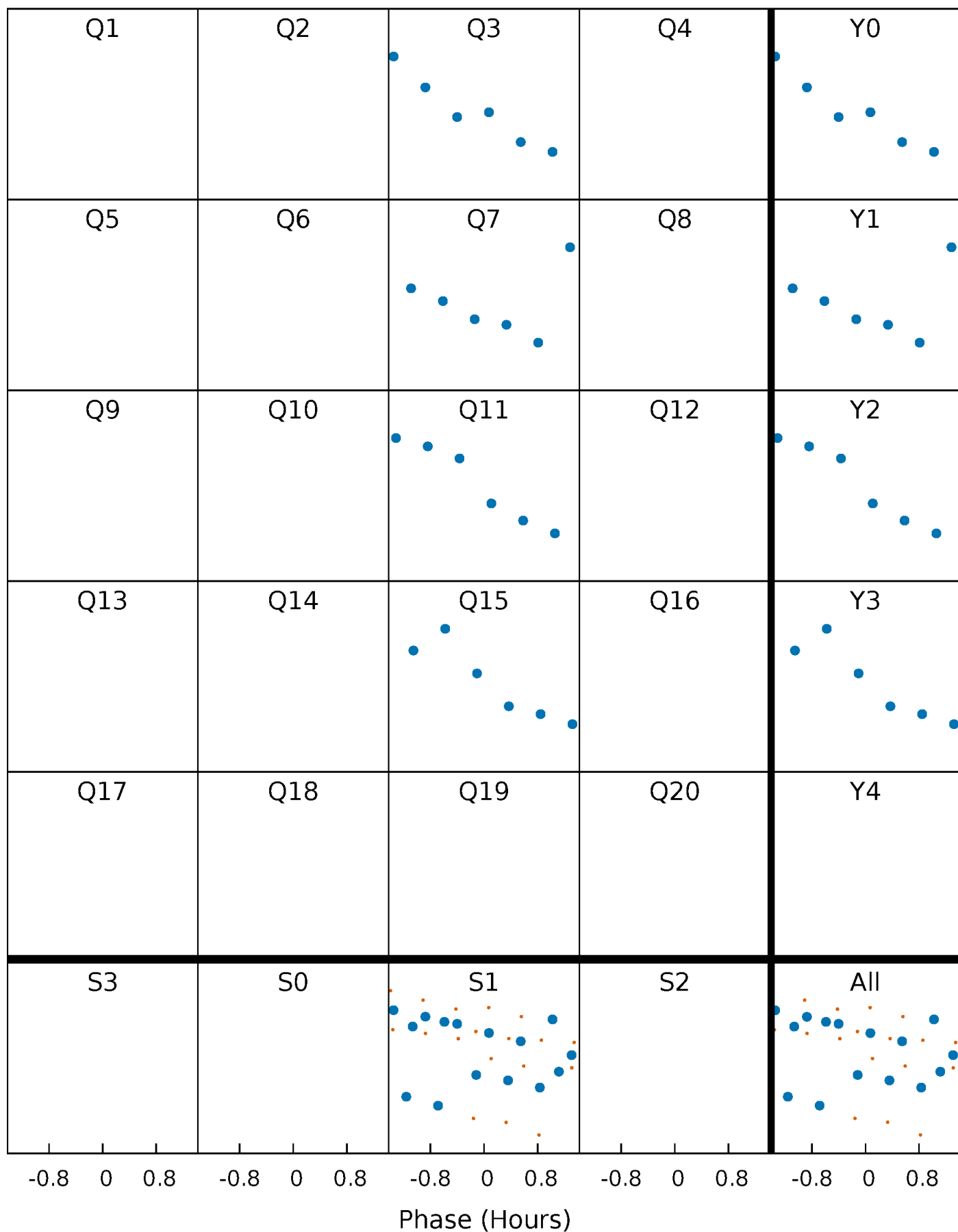


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



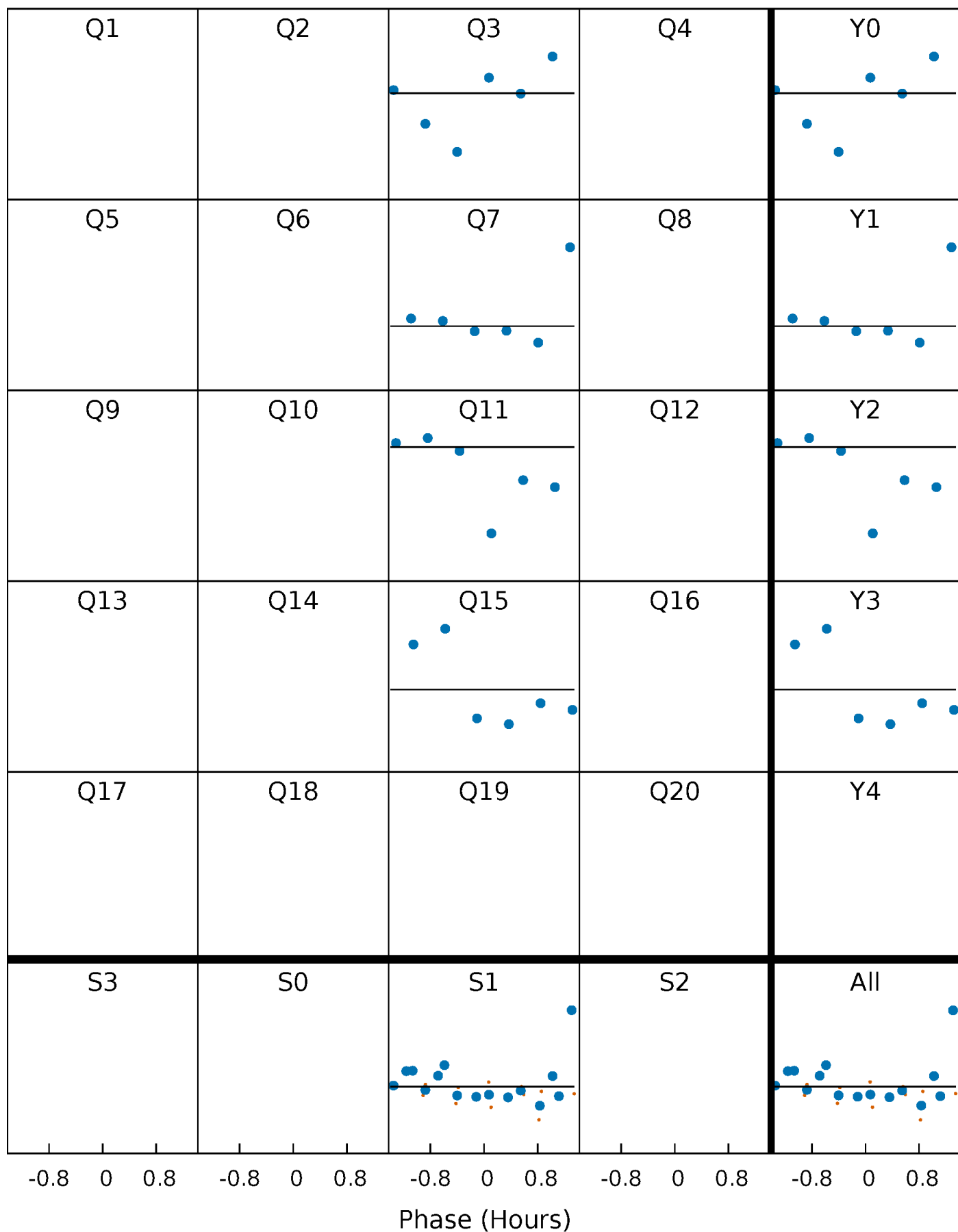
PDC Quarter-Phased Transit Curves

TCE 005516671-02 P=371.655777 Days $T_0=272.849158$ (BKJD)



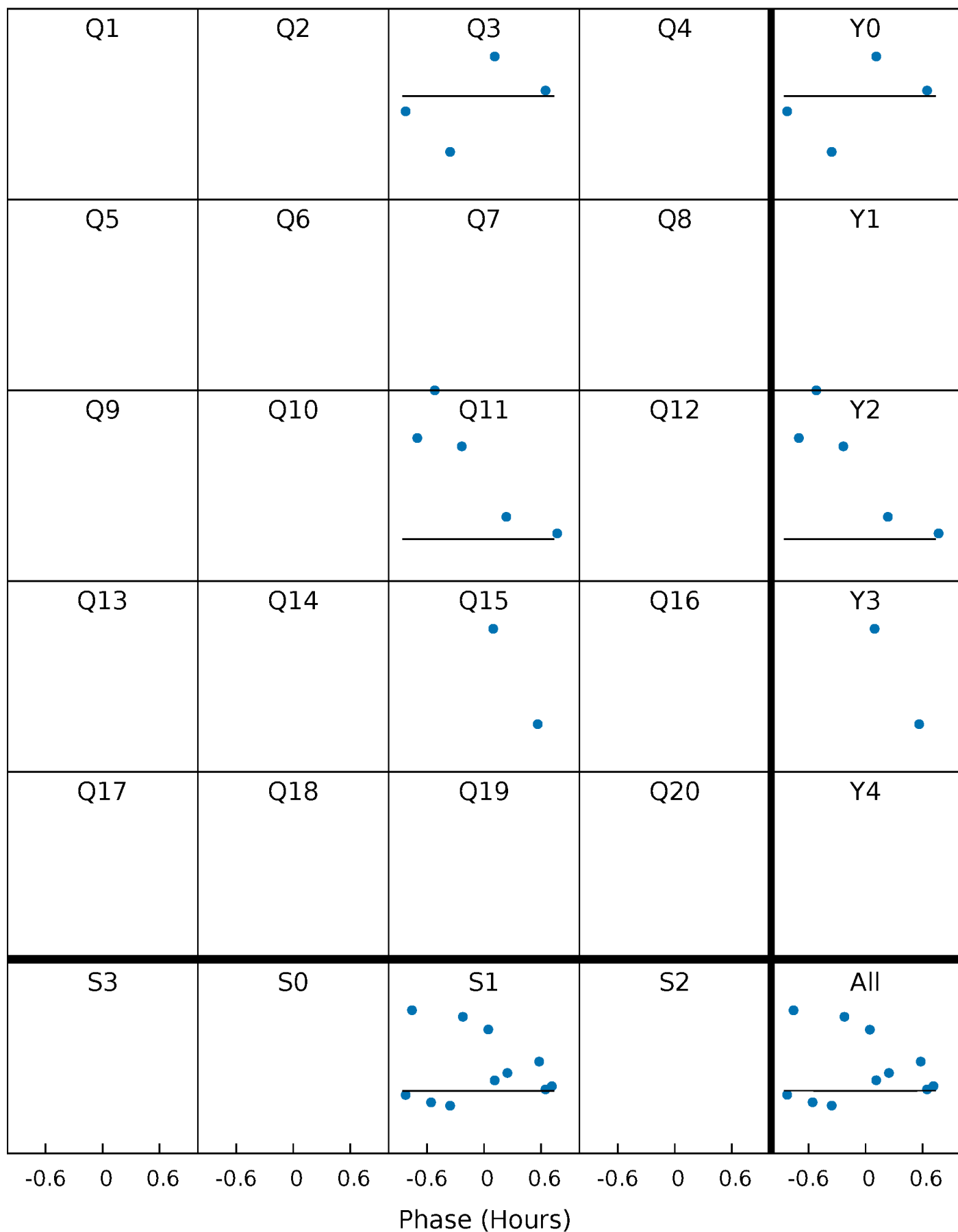
DV Quarter-Phased Transit Curves

TCE 005516671-02 P=371.655777 Days $T_0=272.849158$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

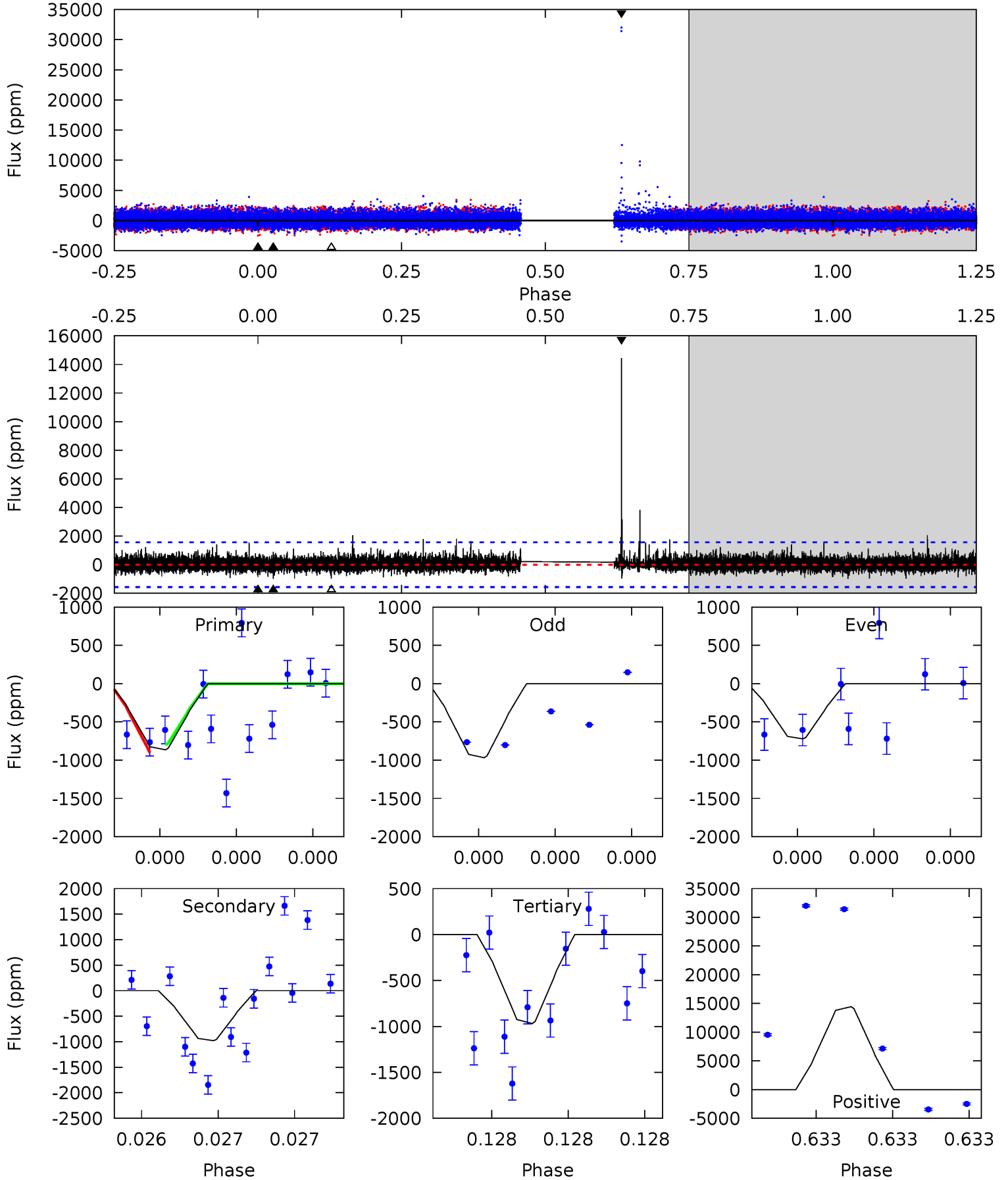
TCE 005516671-02 P=371.653966 Days $T_0=272.846889$ (BKJD)



DV Model-Shift Uniqueness Test

005516671-02, P = 371.655777 Days, E = 272.849158 Days

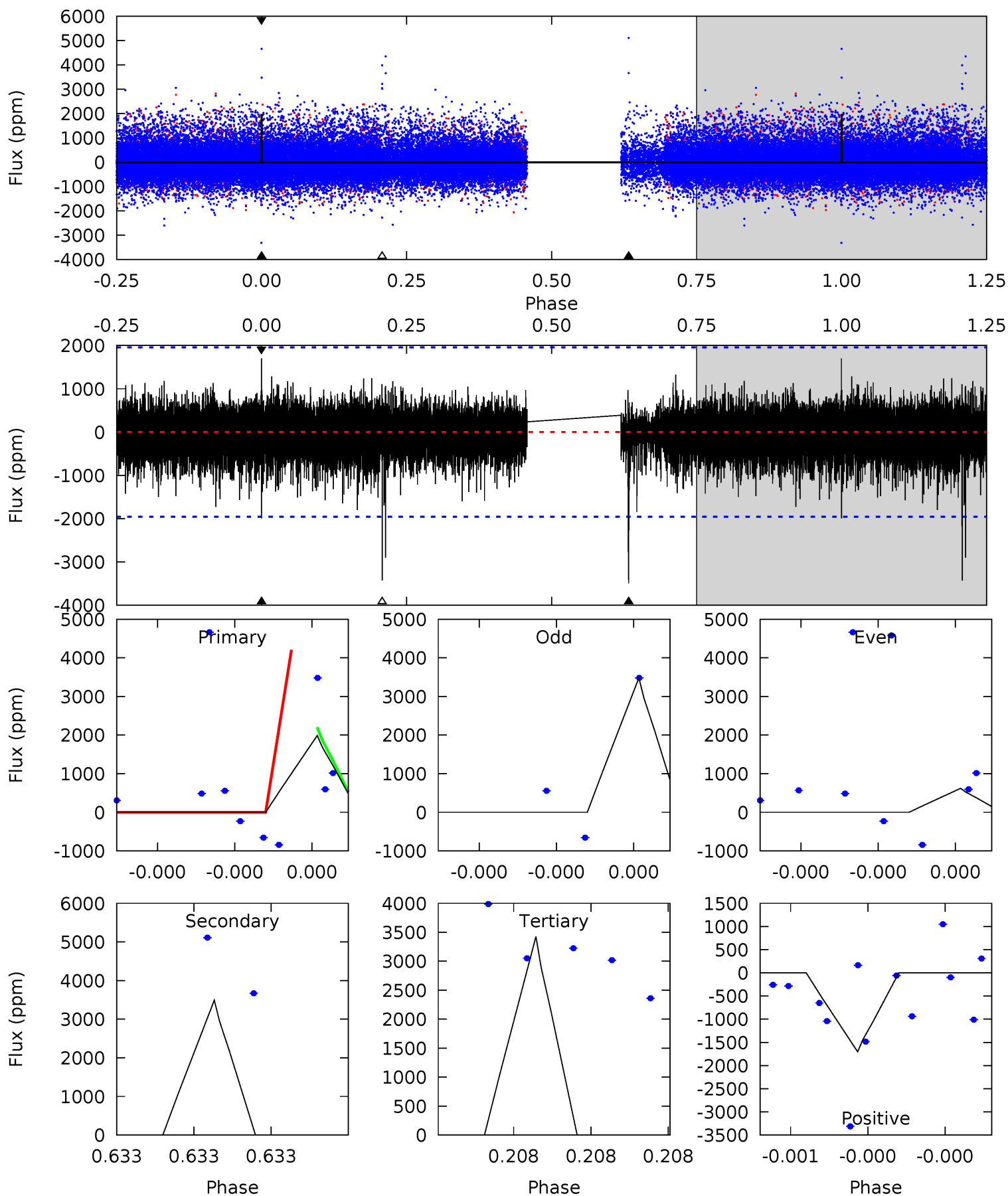
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.22	3.65	3.61	53.8	5.84	3.88	1.10	-0.39	-50.6	0.04	-50.1	0.39	0.86	0.94	0.18



Alt Model-Shift Uniqueness Test

005516671-02, P = 371.653966 Days, E = 272.846889 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.94	10.4	10.2	5.09	5.84	3.88	1.00	-4.30	0.85	0.19	5.34	4.21	1.00	0.33	2.99



Stellar Parameters For KIC 005516671

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3605^{+64}_{-64}	$4.800^{+0.048}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.446^{+0.035}_{-0.046}$	$0.458^{+0.037}_{-0.045}$	$7.261^{+1.812}_{-1.003}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+8%/-10%	+8%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 005516671-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-979 ± 268	$13574.35^{+14318.68}_{-9964.55}$	168^{+4}_{-5}	-1042^{+11}_{-9}	$0.002^{+0.024}_{-0.001}$
Alt.	-3491 ± 335	$12577.54^{+13499.96}_{-8996.48}$	168^{+4}_{-5}	-1040^{+22}_{-10}	$0.007^{+0.083}_{-0.006}$

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

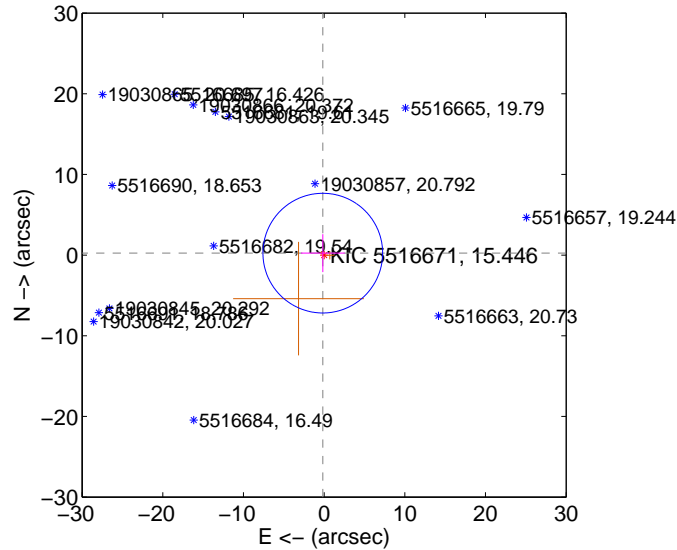
Supplemental centroid analysis for 005516671-02. Kepler magnitude: 15.45. Transit SNR 0.00

There are 0 quarters with good PRF difference image offsets

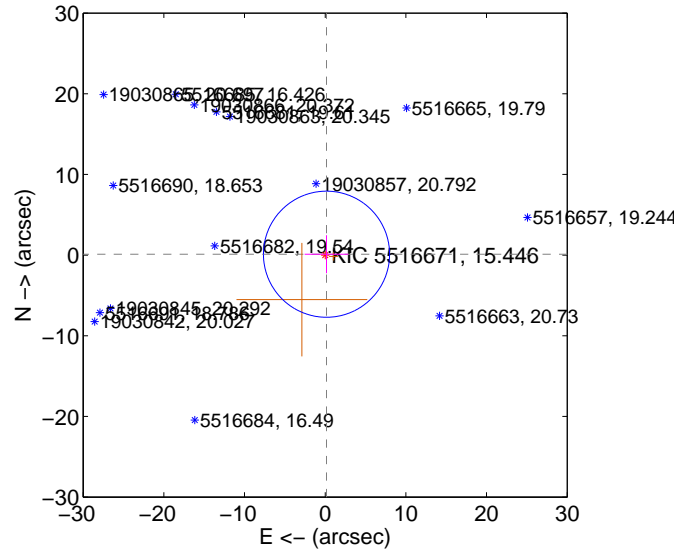
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.295 ± 2.473	0.12	0.167 ± 2.709	0.243 ± 2.353
PRF-fit source offset from KIC position	0.197 ± 2.605	0.08	-0.164 ± 2.709	0.109 ± 2.353
photometric centroid source offset	—	—	—	—

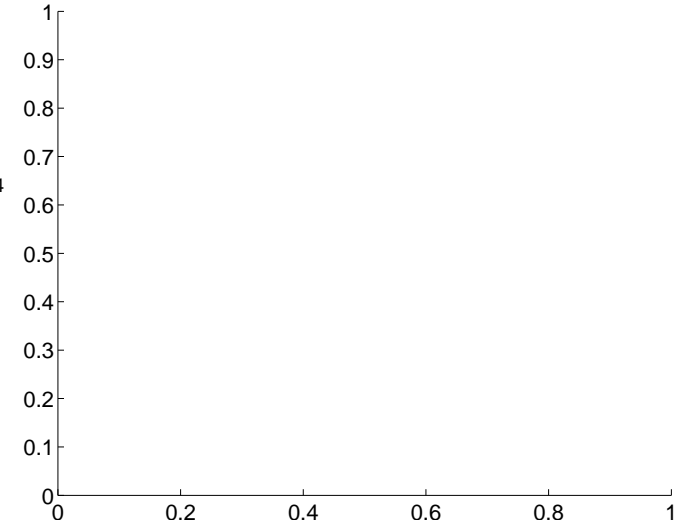
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



There are no 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.

Q1 no difference image



Q1 no OOT image



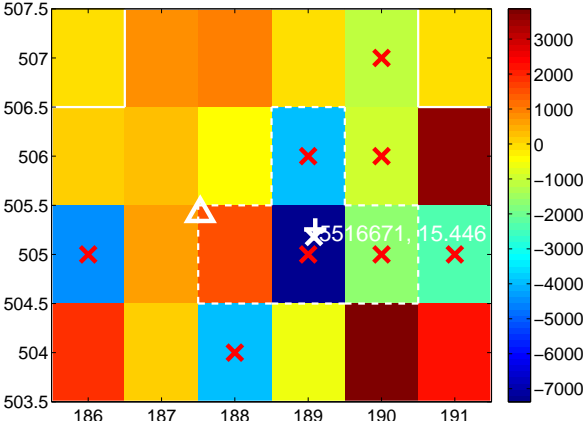
Q2 no difference image



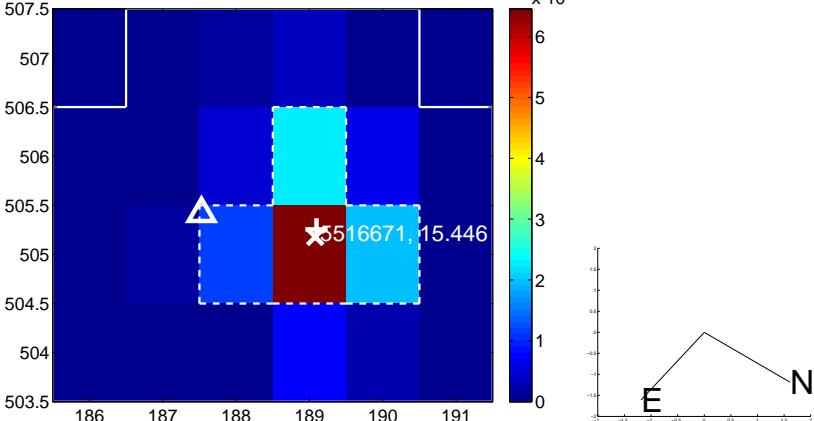
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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



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

Q9 no difference image



Q9 no OOT image



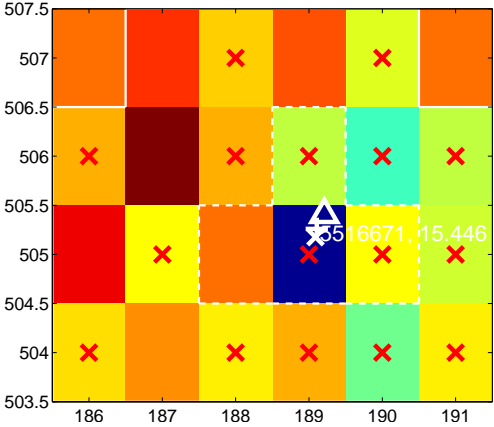
Q10 no difference image



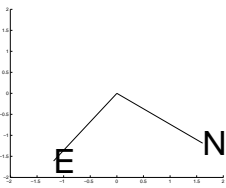
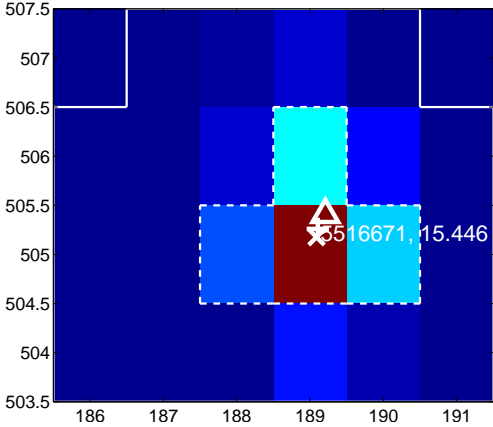
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



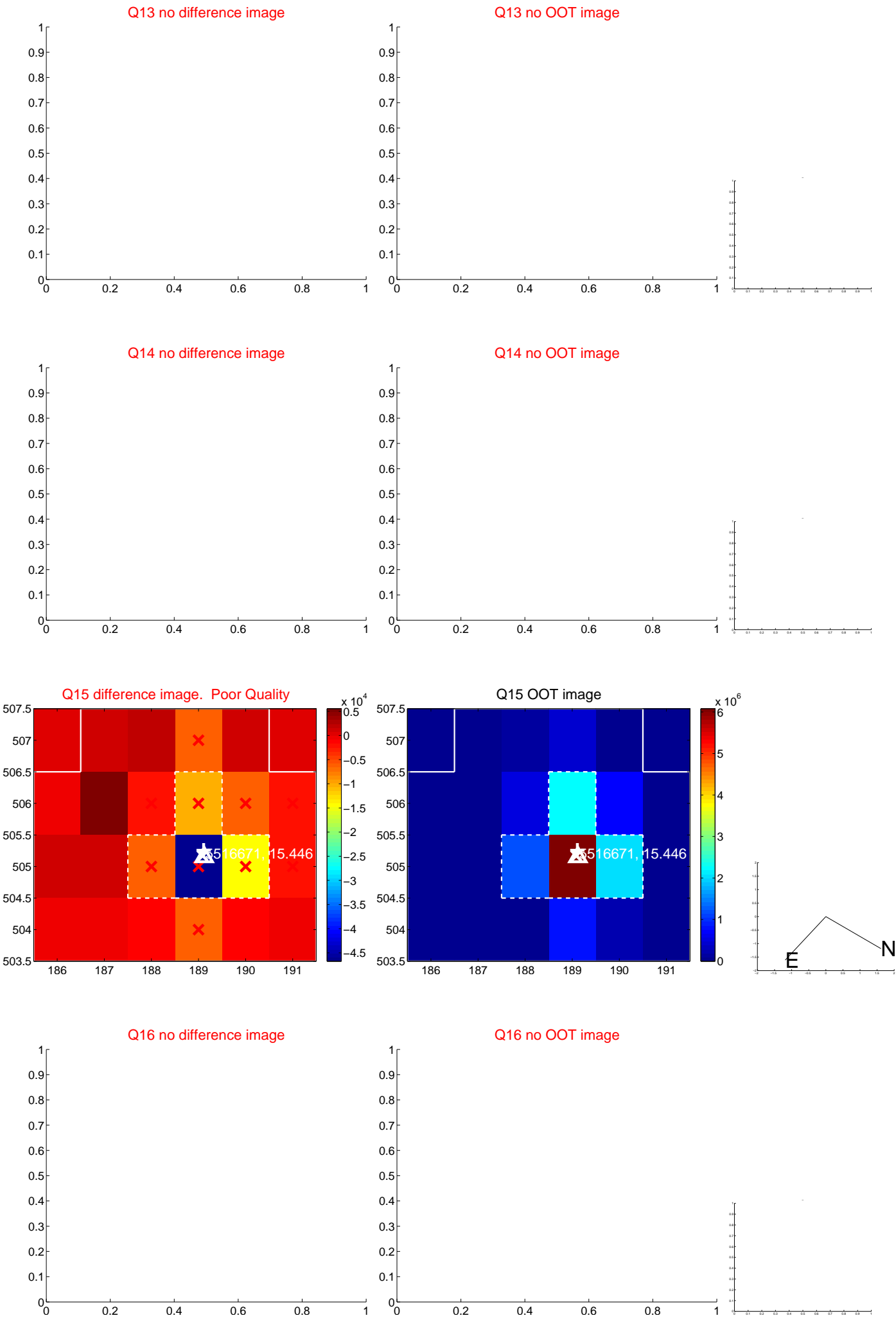
Q12 no difference image



Q12 no OOT image



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



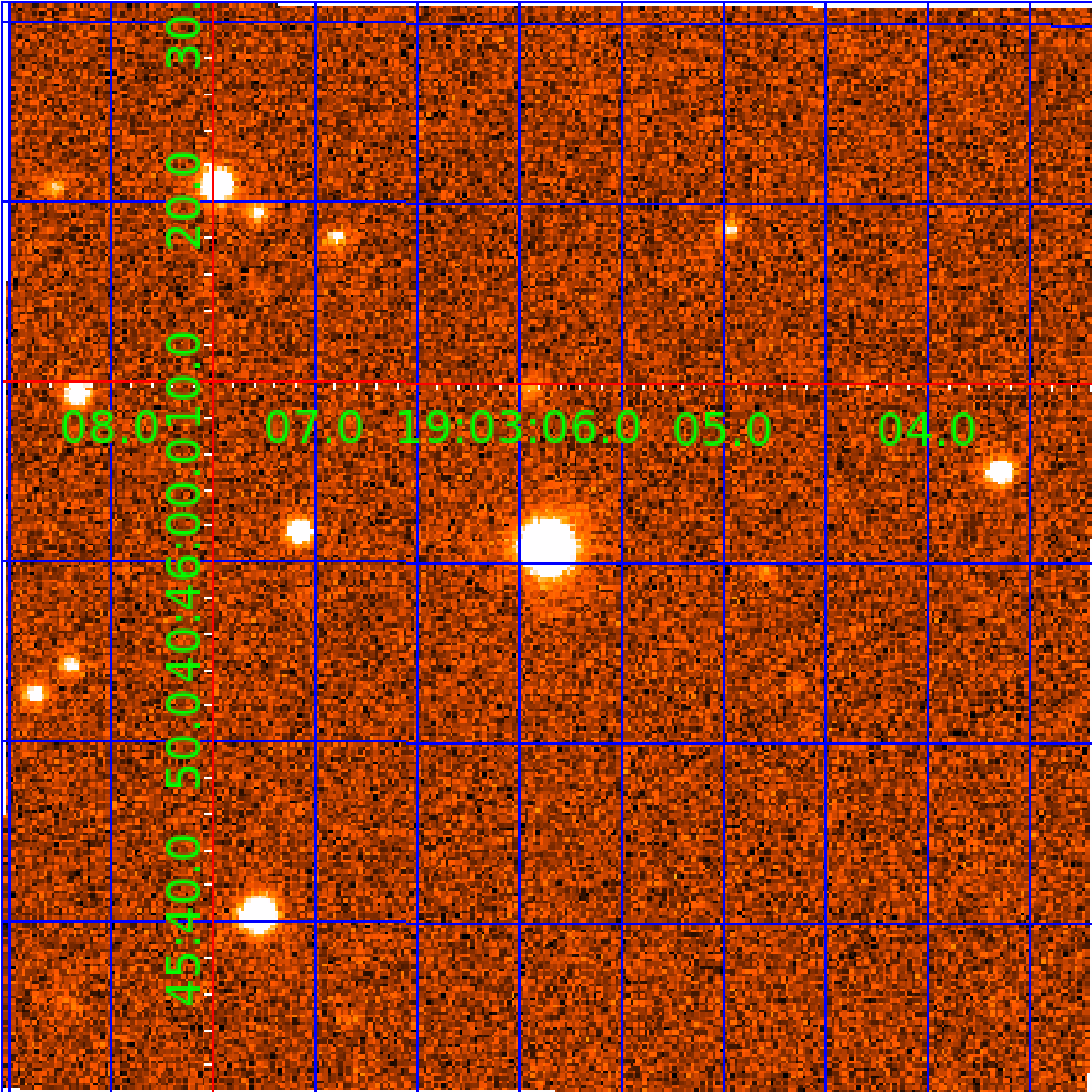
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 005516671

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})
005516671-01	OBS	No	411.375363	227.832381	1906.9	8.062	14.7	6.7	0.45	3605	1.92	0.04
005516671-02	OBS	No	371.655777	272.849158	1.6	0.714	14.7	0.0	0.45	3605	0.06	0.05
005516671-03	OBS	No	356.785773	273.334122	2479.9	4.712	12.3	8.3	0.45	3605	2.19	0.05
005516671-04	OBS	No	358.108674	390.412445	1798.7	12.249	11.2	6.1	0.45	3605	1.87	0.05
005516671-05	OBS	No	356.060948	398.953925	2163.8	5.111	12.7	7.3	0.45	3605	2.12	0.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005516671-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-02	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_FEW_DIFFS
005516671-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005516671-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

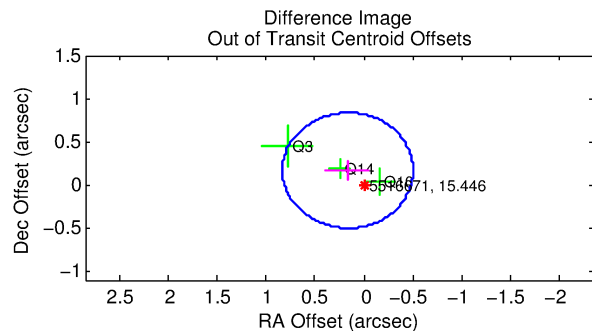
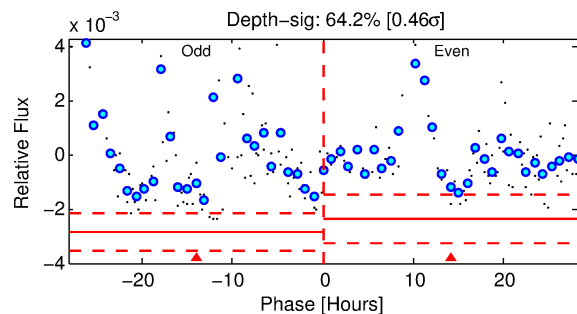
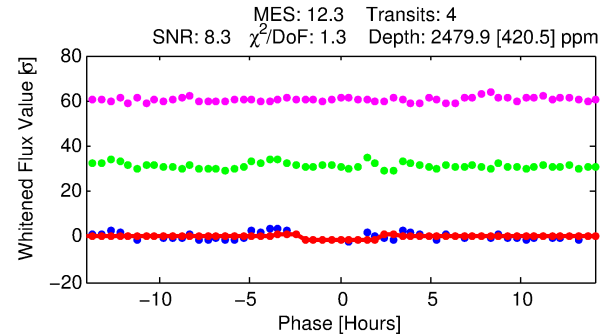
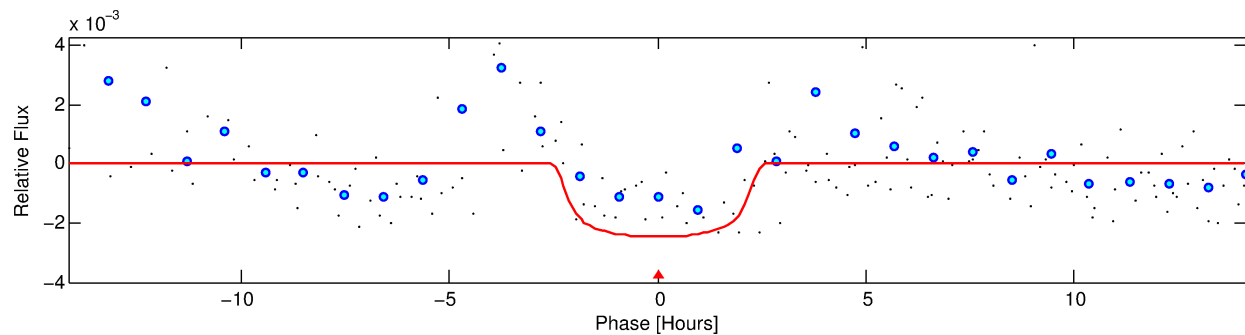
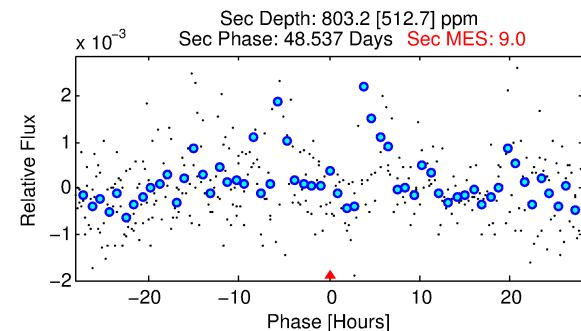
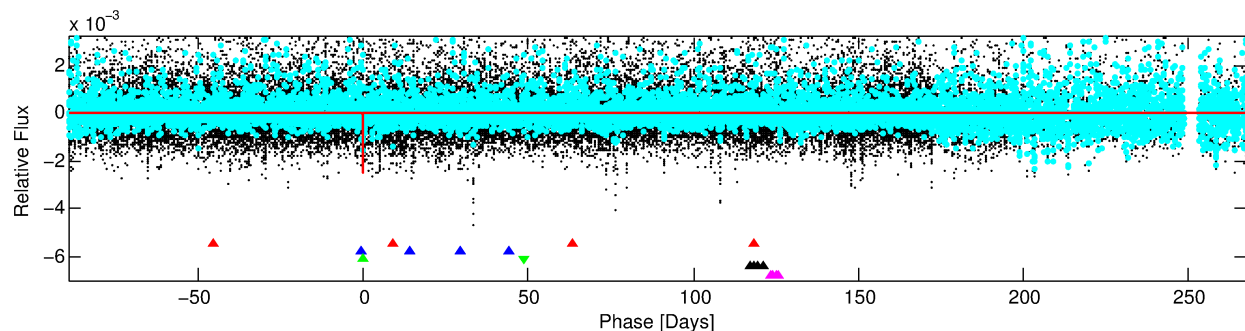
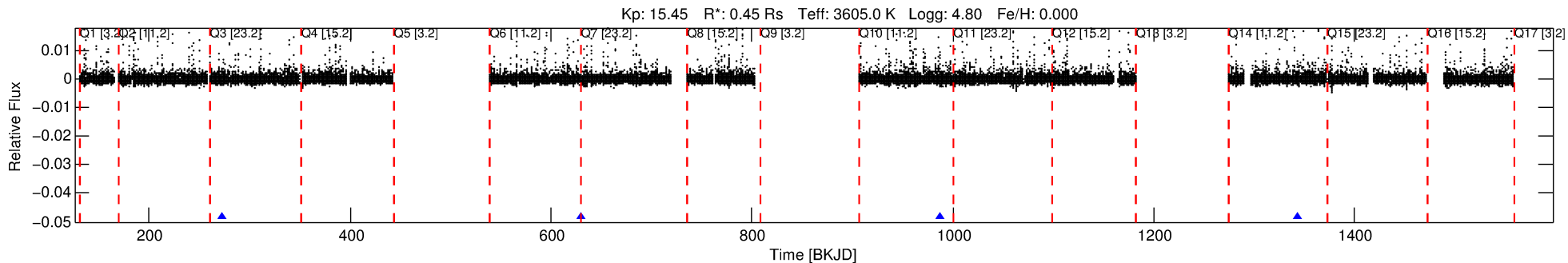
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005516671-03

No Significant Match Found

DV One-Page Summary

KIC: 5516671 Candidate: 3 of 5 Period: 356.786 d



DV Fit Results:

Period = 356.78577 [0.00347] d
Epoch = 273.3341 [0.0065] BKJD
Rp/R* = 0.0450 [0.0528]
a/R* = 604.46 [2996.42]
b = 0.01 [431.44]
Seff = 0.05 [0.01]
Teq = 122 [4] K
Rp = 2.19 [2.58] Re
a = 0.7589 [0.0592] AU
Ag = 53037.40 [128995.96] [0.41σ]
Teffp = 2861 [1739] K [1.58σ]

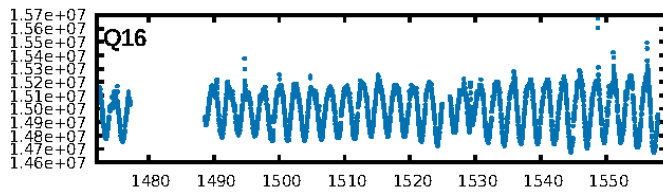
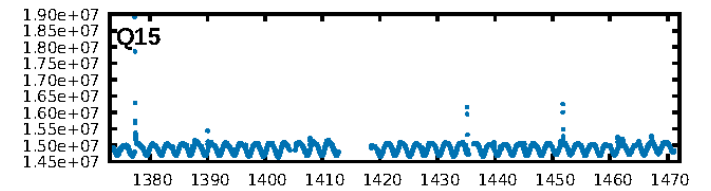
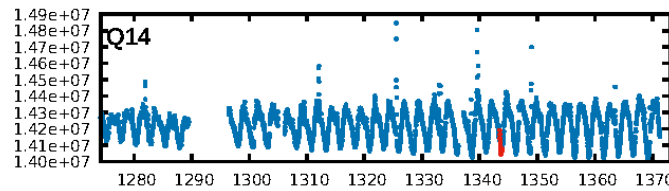
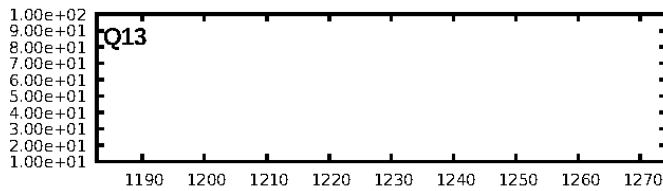
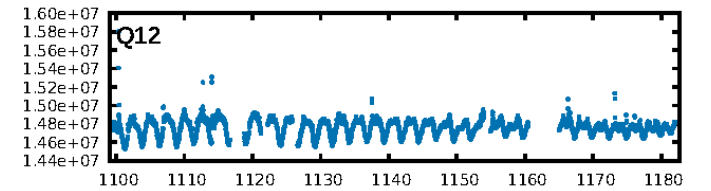
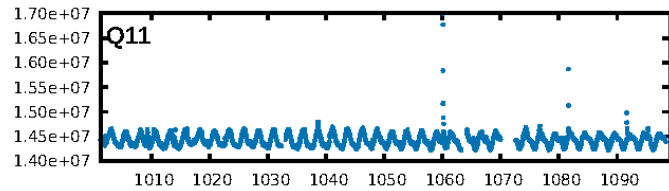
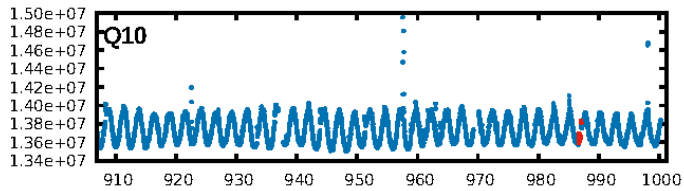
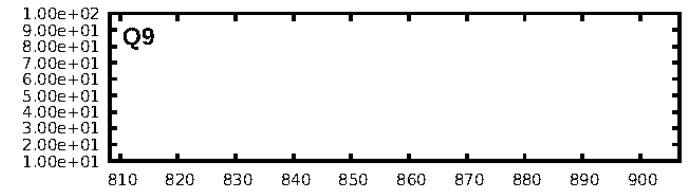
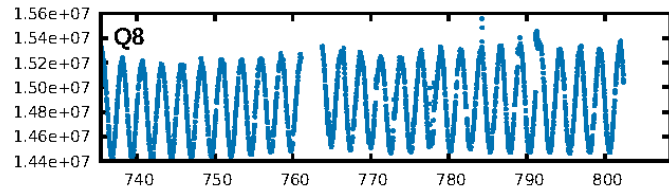
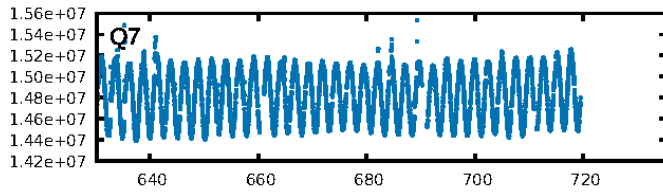
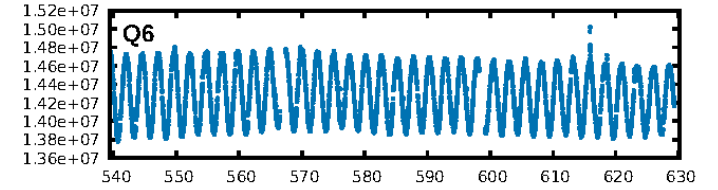
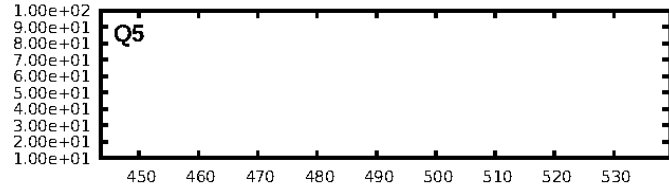
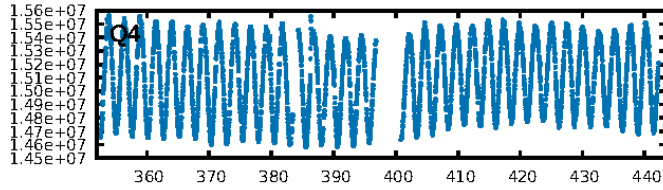
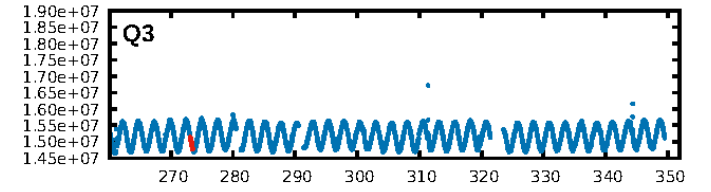
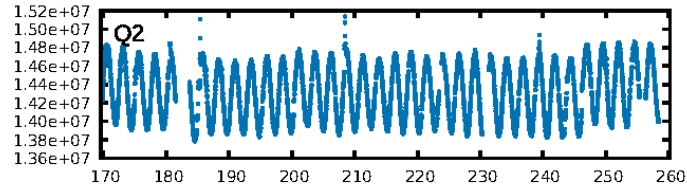
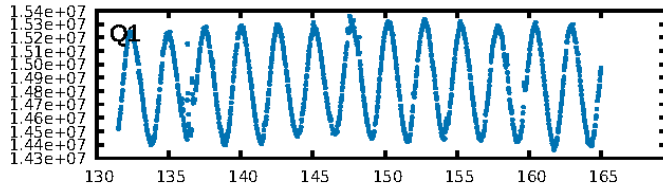
DV Diagnostic Results:

ShortPeriod-sig: 98.8% [2.50σ]
LongPeriod-sig: 98.4% [2.42σ]
ModelChiSquare2-sig: 52.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.07e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.218
Centroid-sig: 23.2%
Centroid-so: 0.733 arcsec [1.02σ]
OotOffset-rm: 0.236 arcsec [1.06σ]
KicOffset-rm: 0.084 arcsec [0.38σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

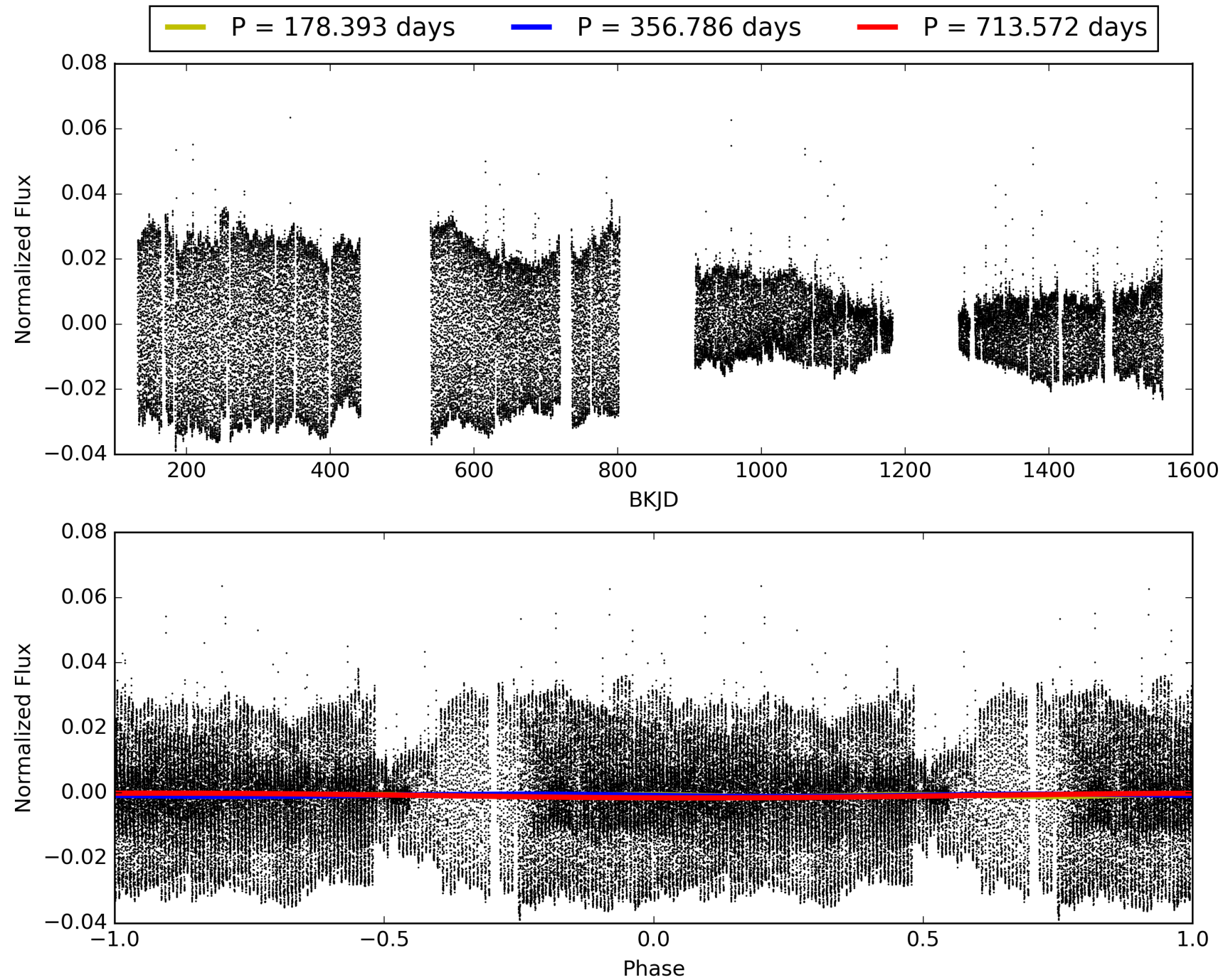
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 22:35:18 Z

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

TCE 005516671-03, PDC Light Curves

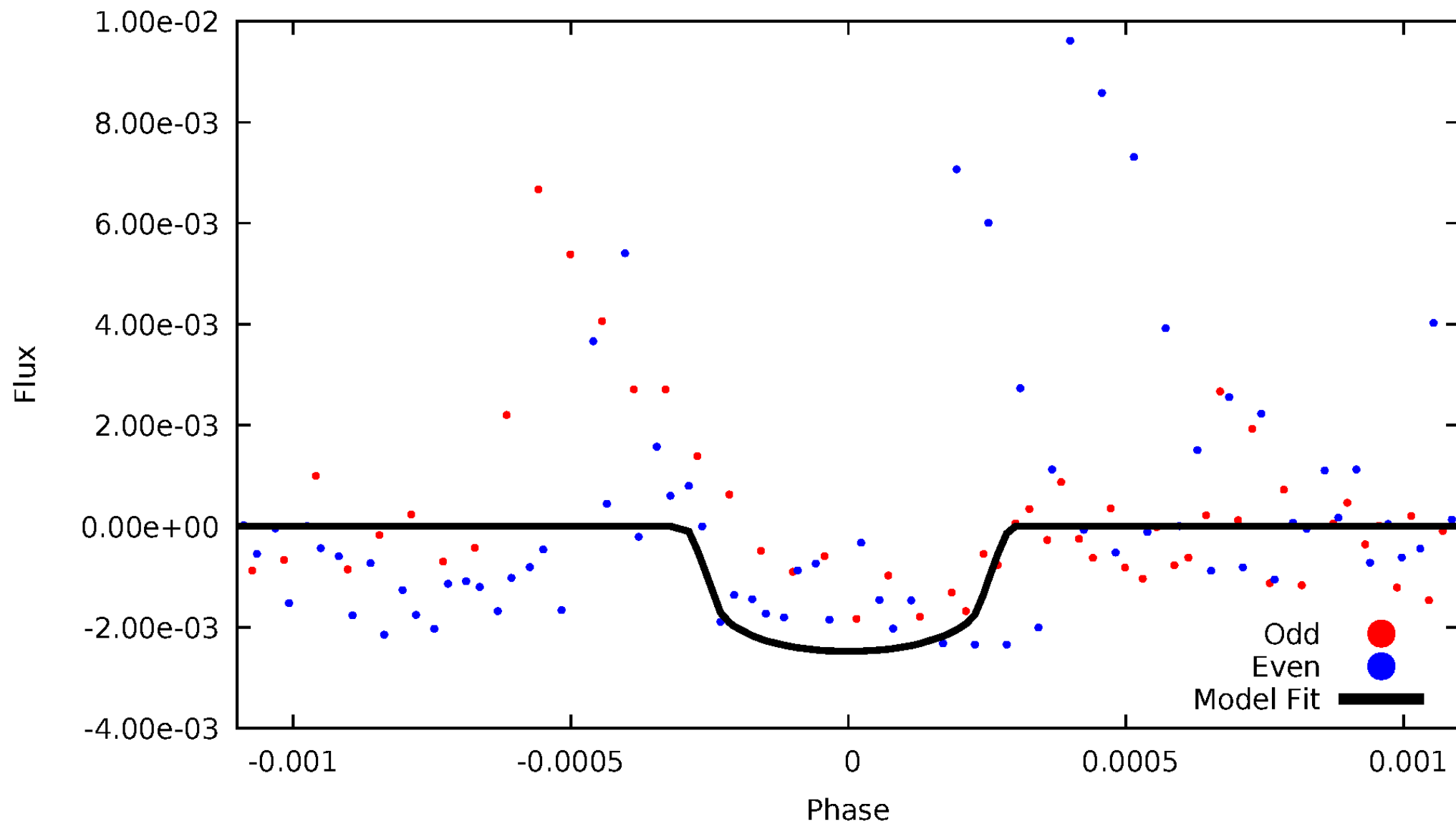


TCE 005516671-03



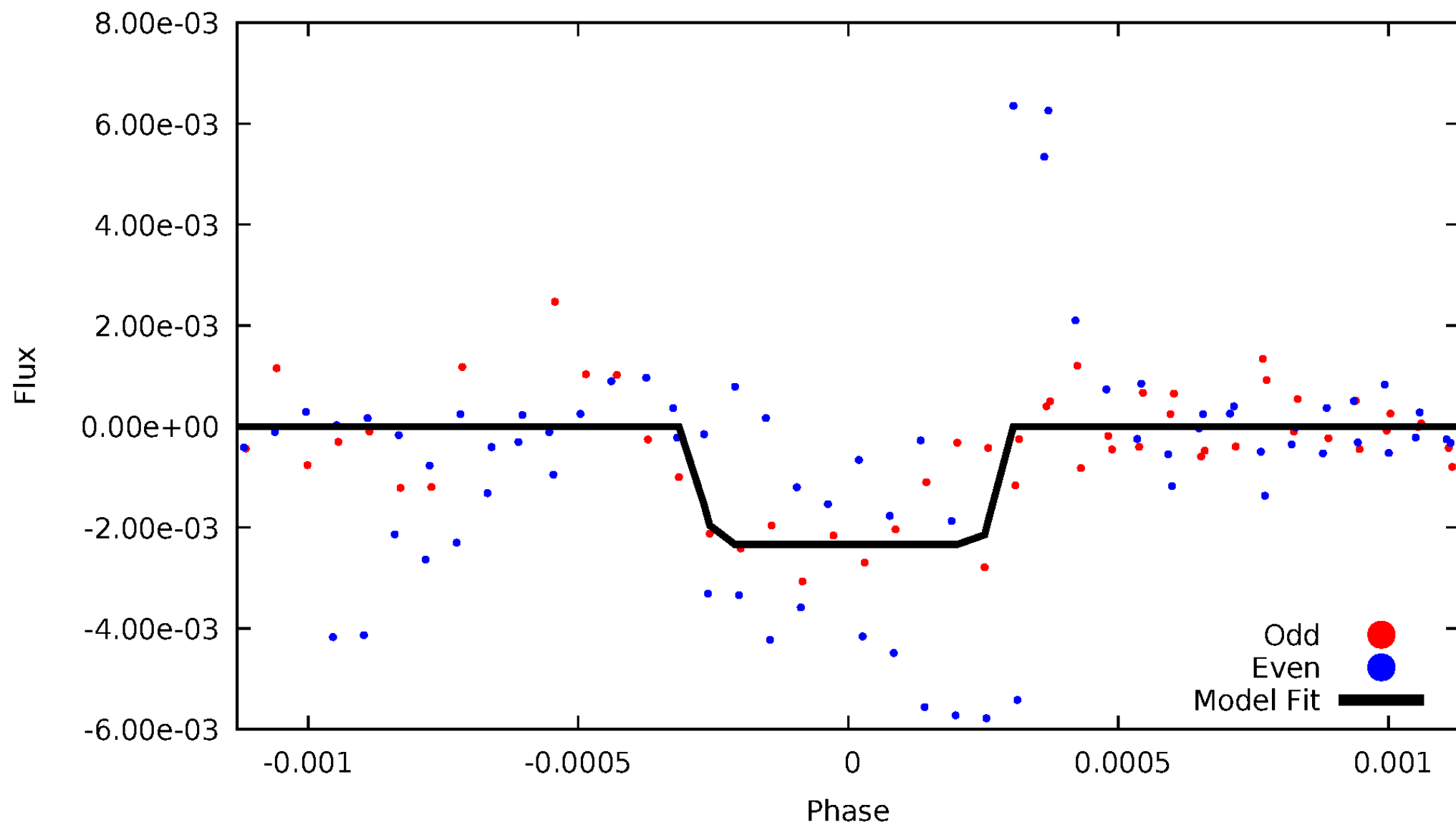
DV Odd/Even

TCE 005516671-03



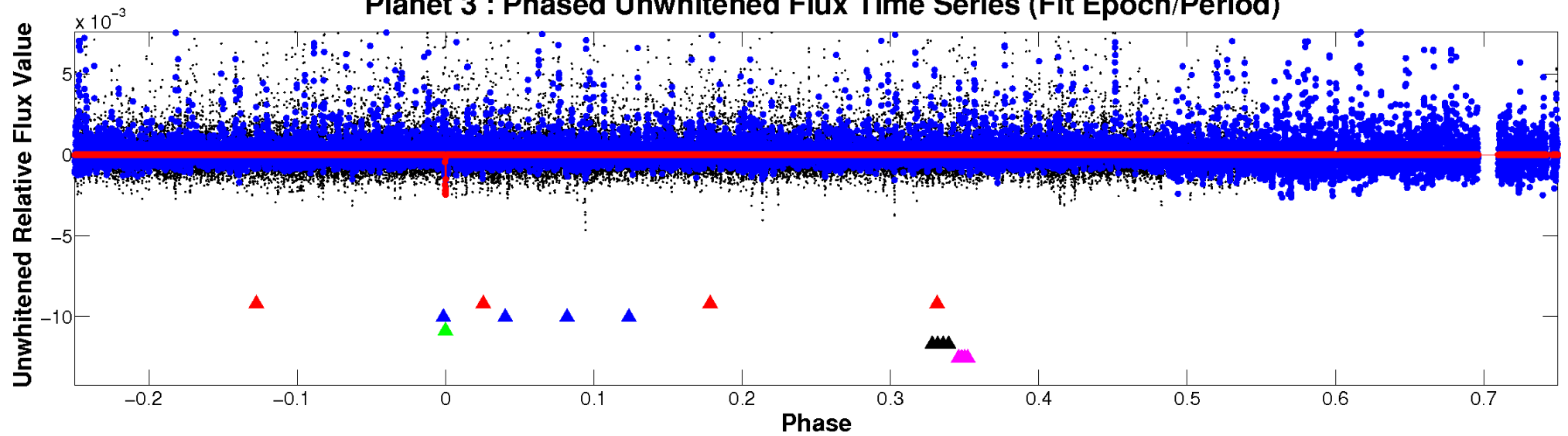
ALT Odd/Even

TCE 005516671-03

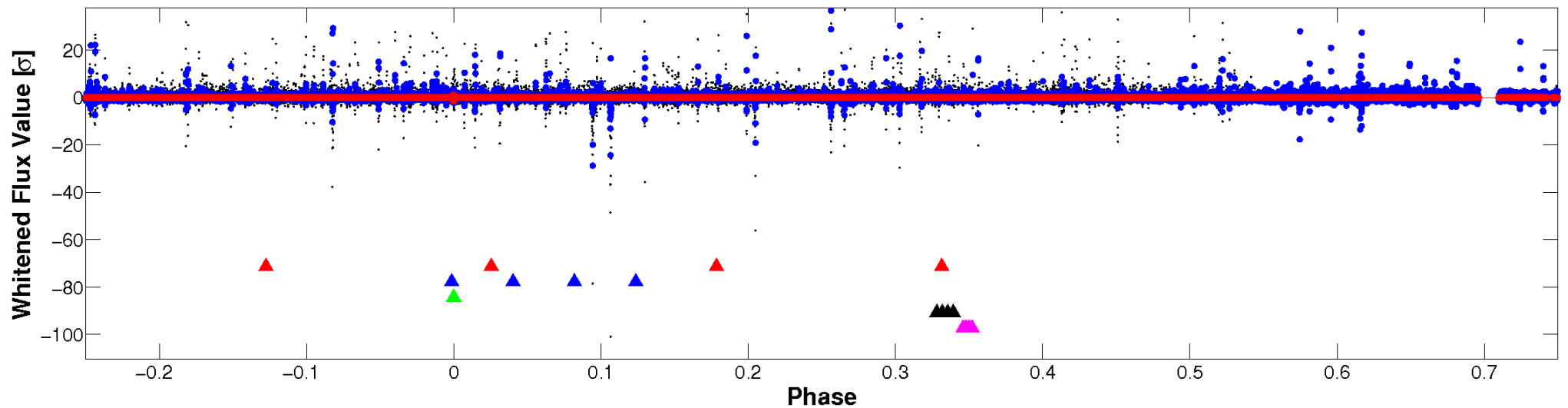


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

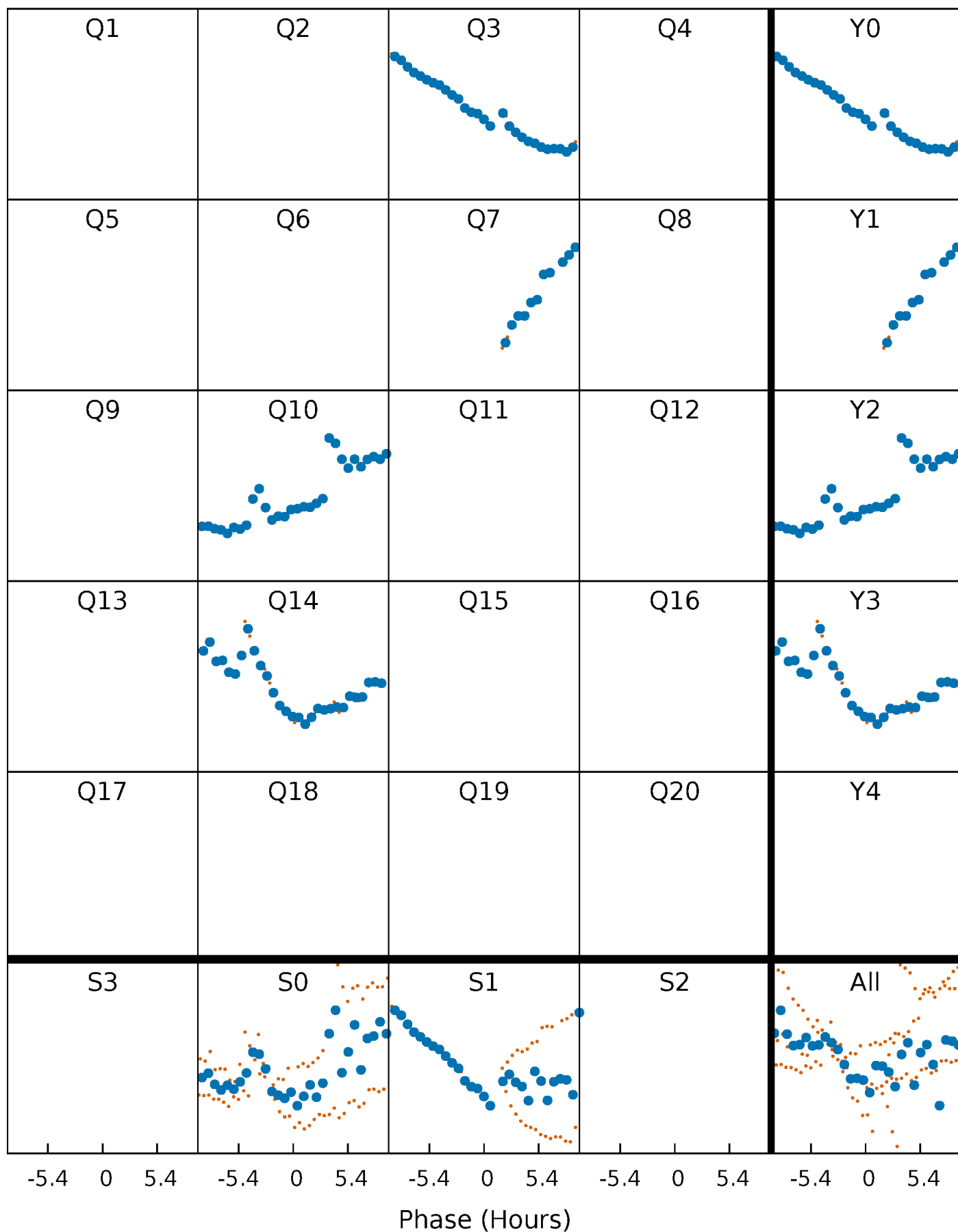


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



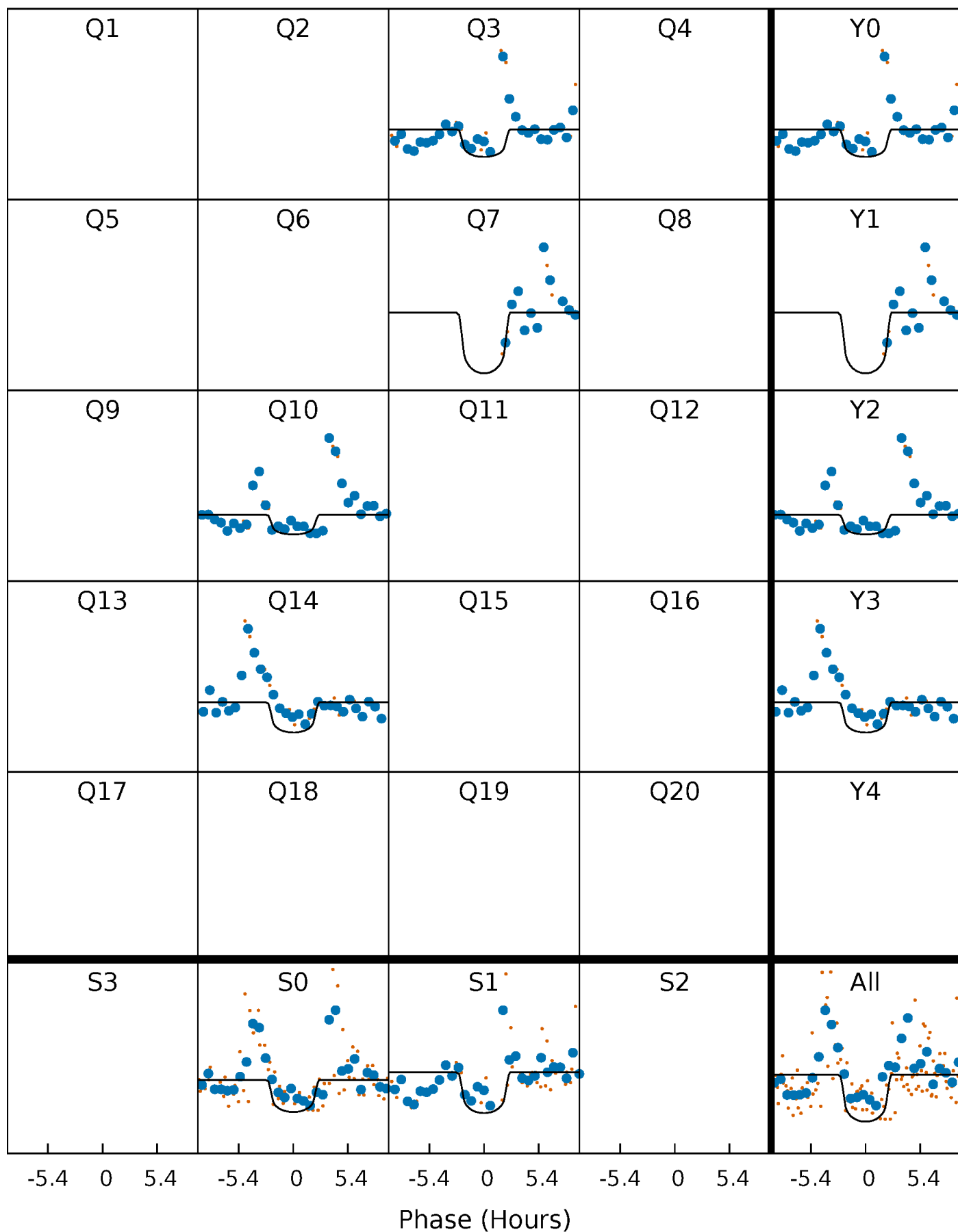
PDC Quarter-Phased Transit Curves

TCE 005516671-03 P=356.785773 Days $T_0=273.334122$ (BKJD)



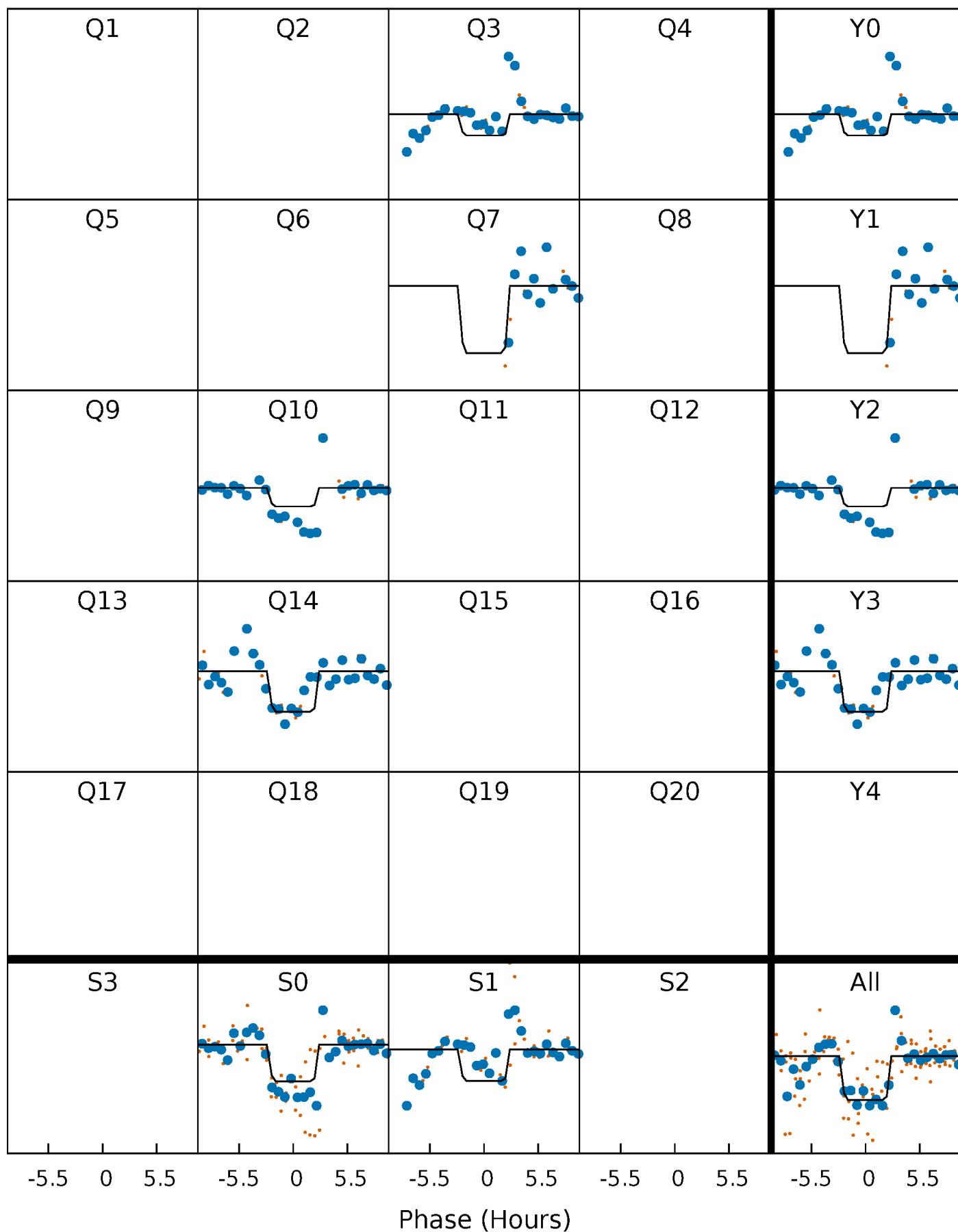
DV Quarter-Phased Transit Curves

TCE 005516671-03 P=356.785773 Days $T_0=273.334122$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

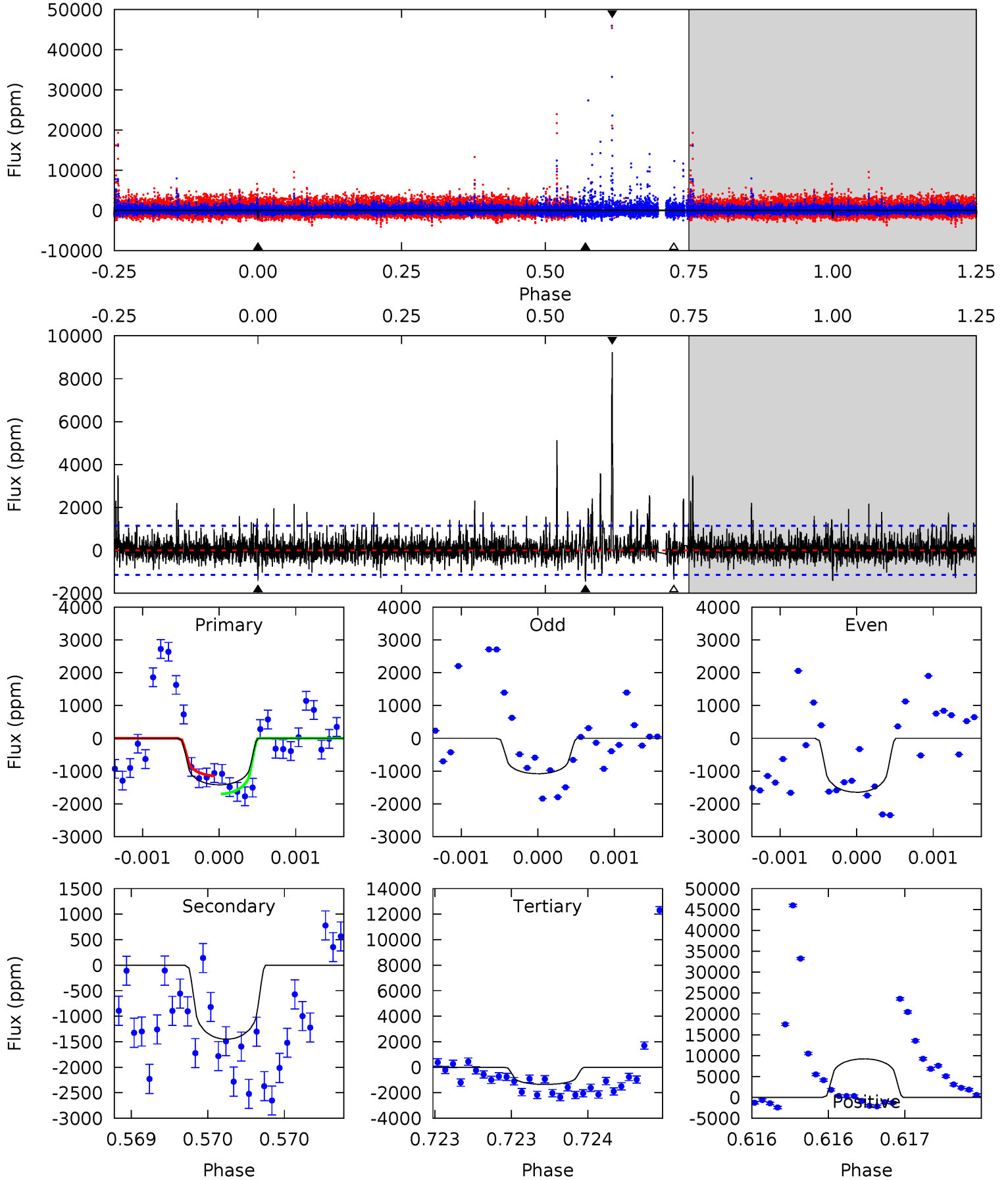
TCE 005516671-03 P=356.810745 Days $T_0=273.294656$ (BKJD)



DV Model-Shift Uniqueness Test

005516671-03, P = 356.785773 Days, E = 273.334122 Days

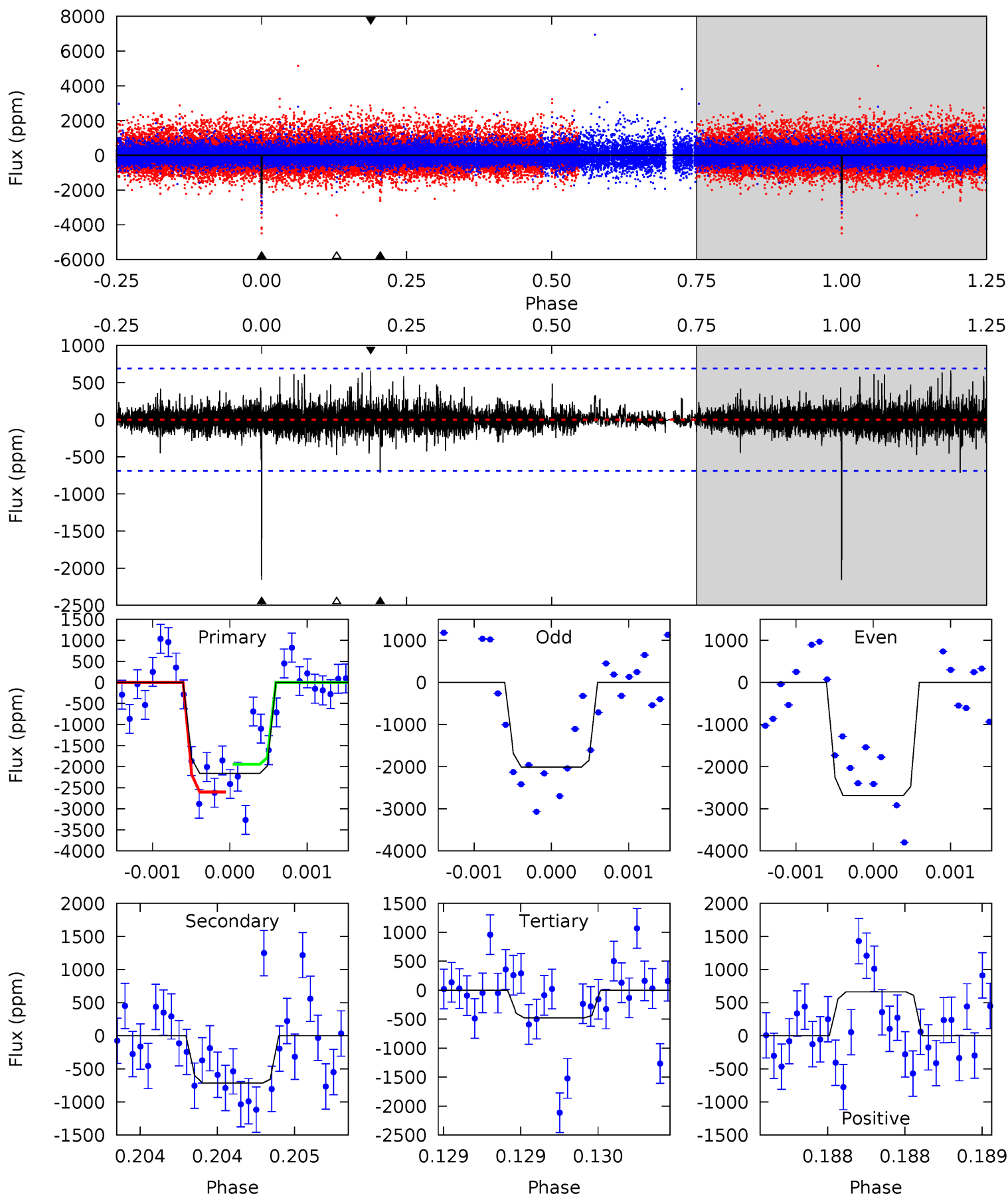
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.88	7.03	6.51	44.8	5.54	3.44	2.17	0.37	-37.9	0.52	-37.7	1.03	0.88	0.86	1.30



Alt Model-Shift Uniqueness Test

005516671-03, P = 356.810745 Days, E = 273.294656 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	5.76	3.83	5.34	5.57	3.47	0.85	13.6	12.1	1.93	0.42	2.83	1.27	0.23	2.62



Stellar Parameters For KIC 005516671

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3605^{+64}_{-64}	$4.800^{+0.048}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.446^{+0.035}_{-0.046}$	$0.458^{+0.037}_{-0.045}$	$7.261^{+1.812}_{-1.003}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+8%/-10%	+8%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 005516671-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1450 ± 206	$2.92^{+2.29}_{-1.92}$	170^{+4}_{-4}	3146^{+1325}_{-467}	$54529^{+432536}_{-37400}$
Alt.	-714 ± 124	$3.03^{+2.10}_{-1.96}$	169^{+5}_{-4}	2799^{+1057}_{-345}	$24691^{+163413}_{-16330}$

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

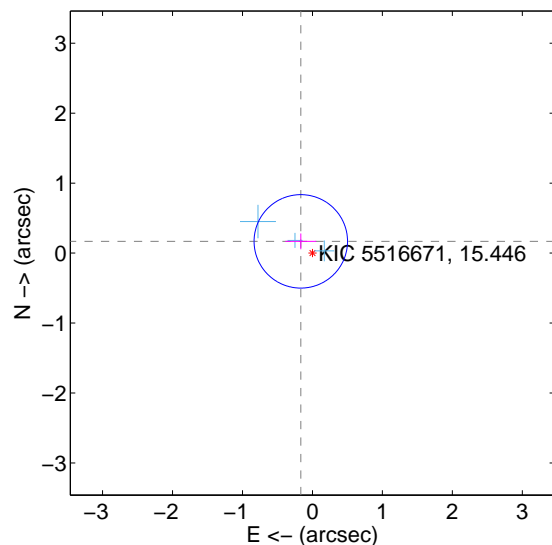
Supplemental centroid analysis for 005516671-03. Kepler magnitude: 15.45. Transit SNR 8.32

There are 3 quarters with good PRF difference image offsets

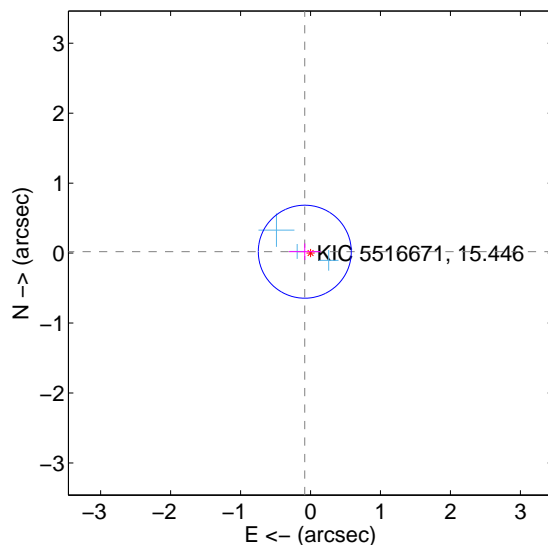
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.236 ± 0.223	1.06	0.166 ± 0.221	0.168 ± 0.113
PRF-fit source offset from KIC position	0.084 ± 0.222	0.38	0.082 ± 0.226	0.020 ± 0.118
photometric centroid source offset	0.73 ± 0.72	1.02	-0.32 ± 0.72	-0.66 ± 0.72

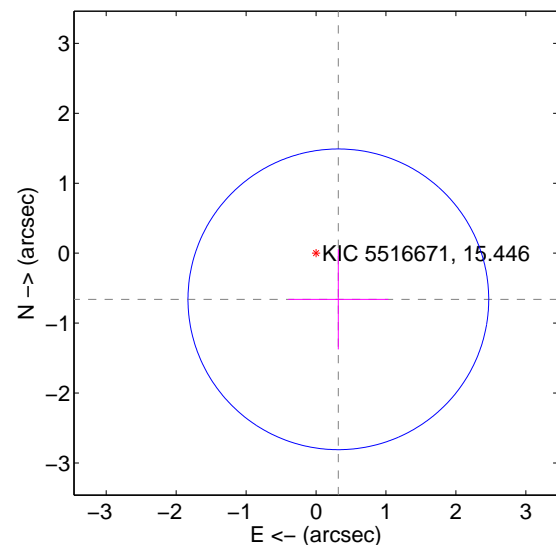
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

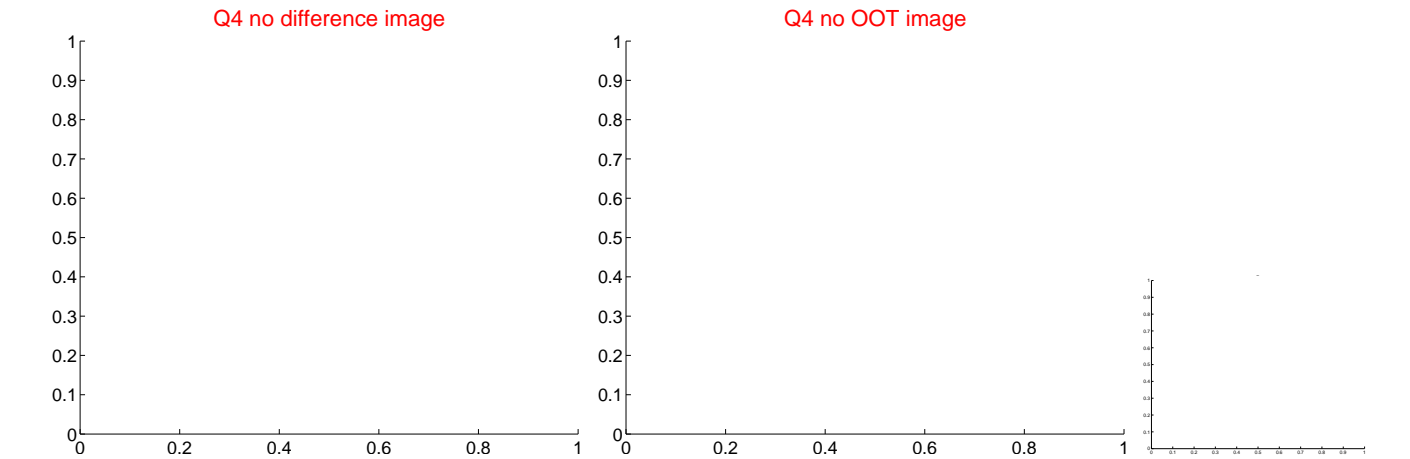
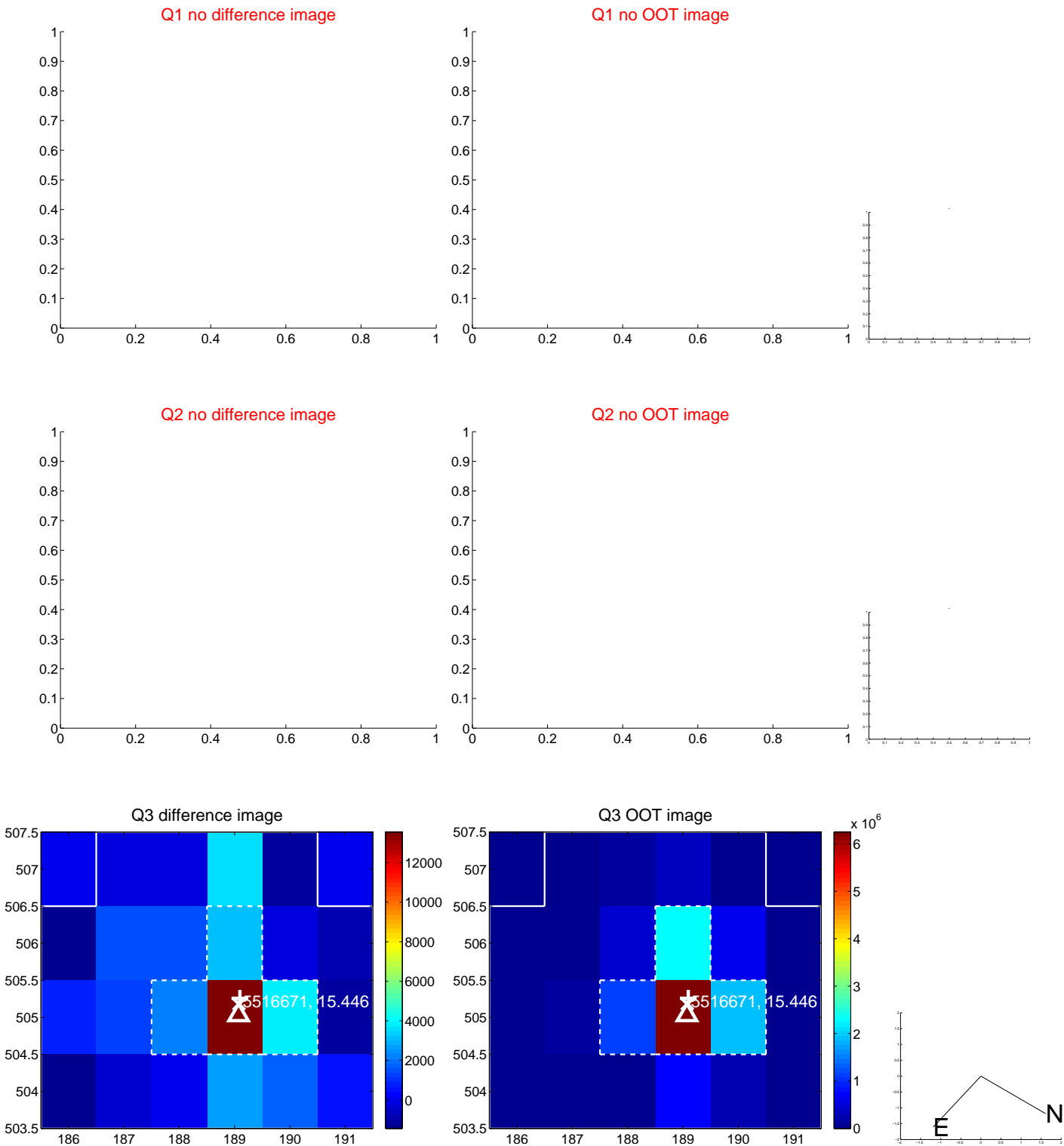


offset from photometric centroids



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.

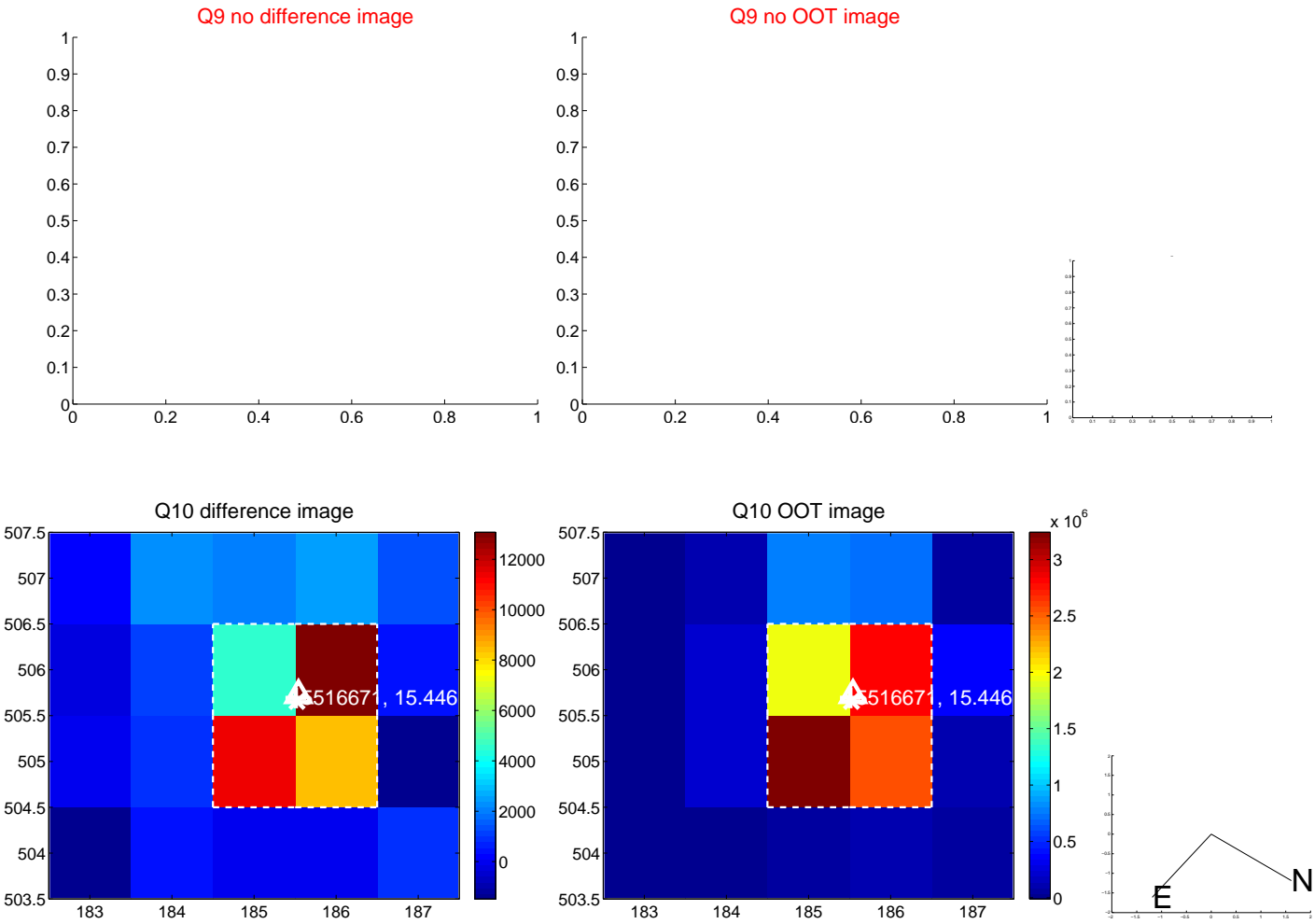
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



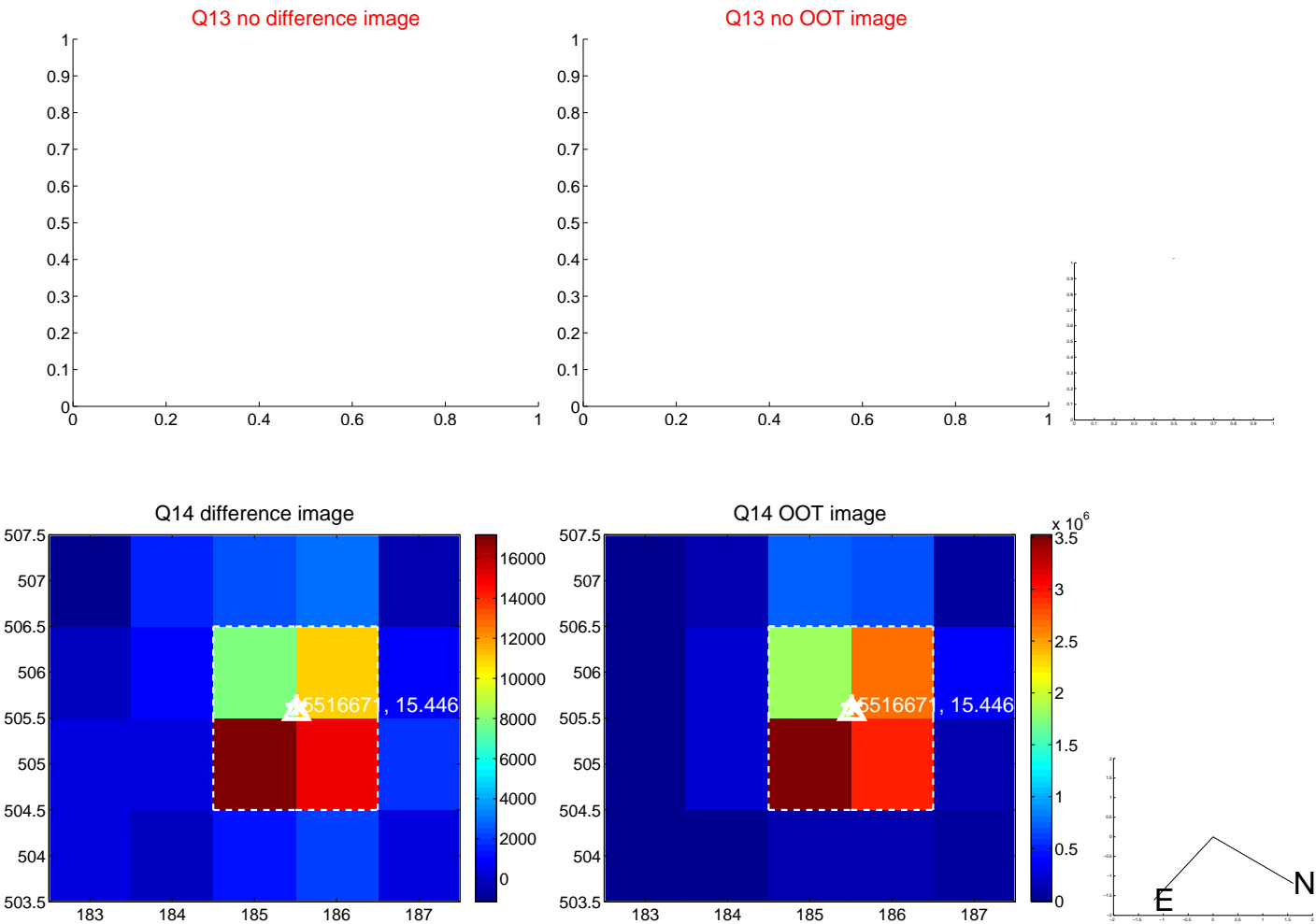
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



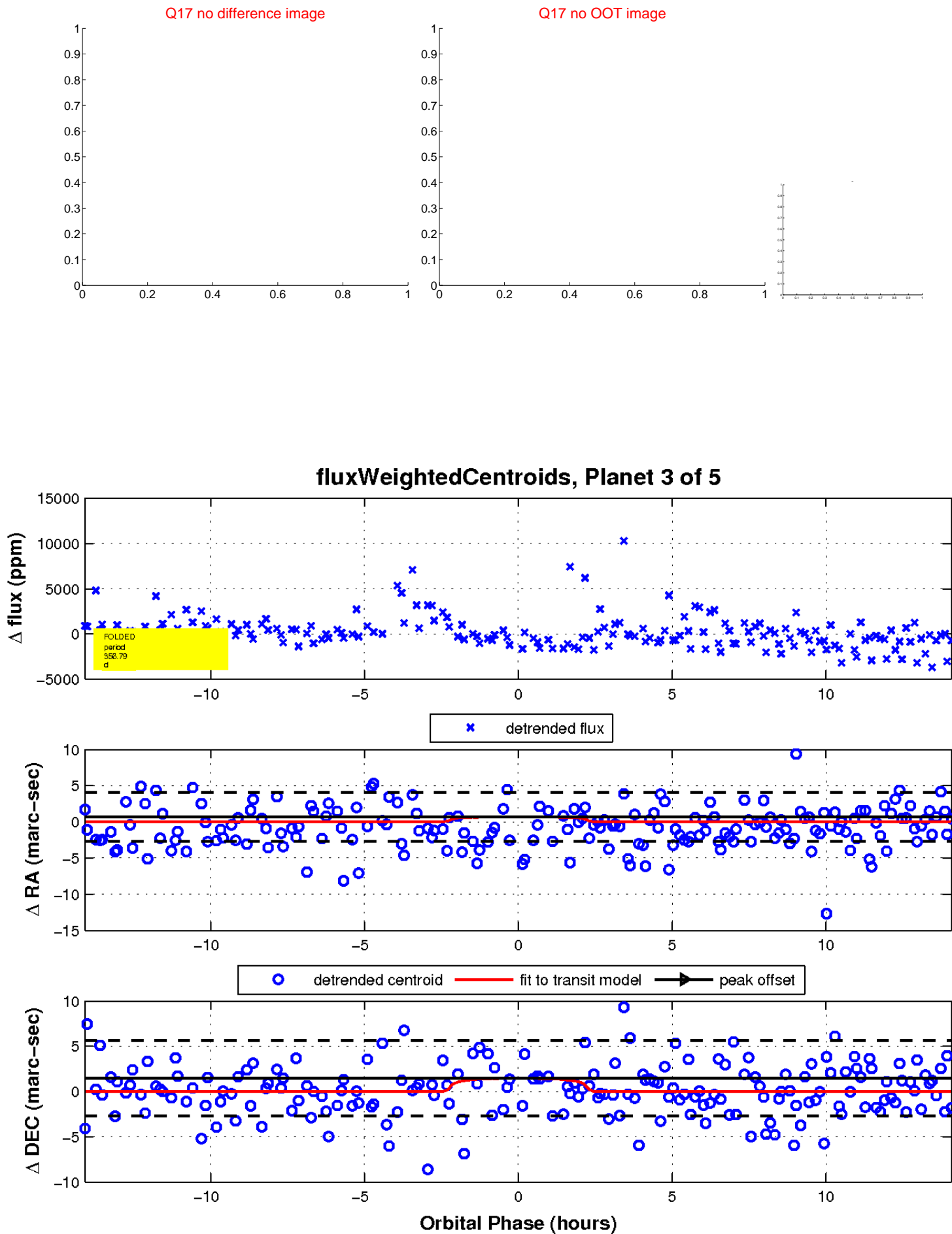
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

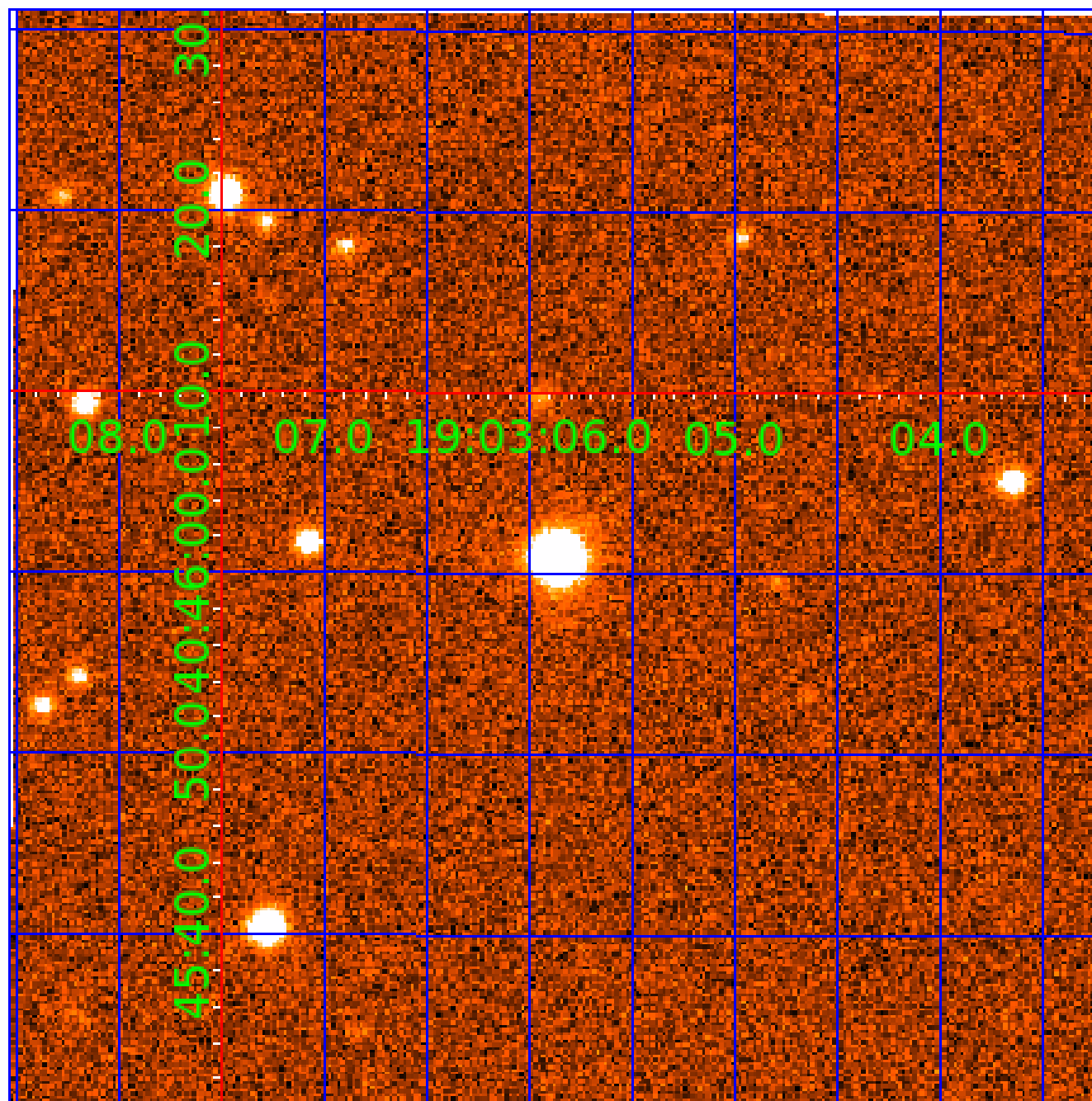


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005516671

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})
005516671-01	OBS	No	411.375363	227.832381	1906.9	8.062	14.7	6.7	0.45	3605	1.92	0.04
005516671-02	OBS	No	371.655777	272.849158	1.6	0.714	14.7	0.0	0.45	3605	0.06	0.05
005516671-03	OBS	No	356.785773	273.334122	2479.9	4.712	12.3	8.3	0.45	3605	2.19	0.05
005516671-04	OBS	No	358.108674	390.412445	1798.7	12.249	11.2	6.1	0.45	3605	1.87	0.05
005516671-05	OBS	No	356.060948	398.953925	2163.8	5.111	12.7	7.3	0.45	3605	2.12	0.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005516671-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-02	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_FEW_DIFFS
005516671-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005516671-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

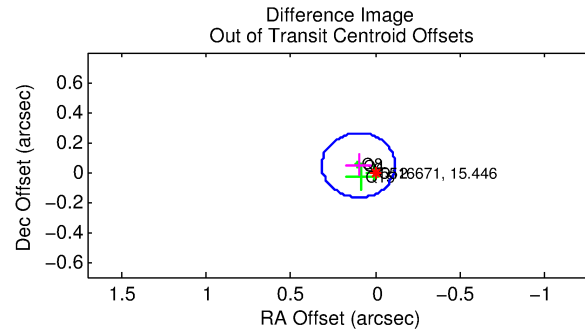
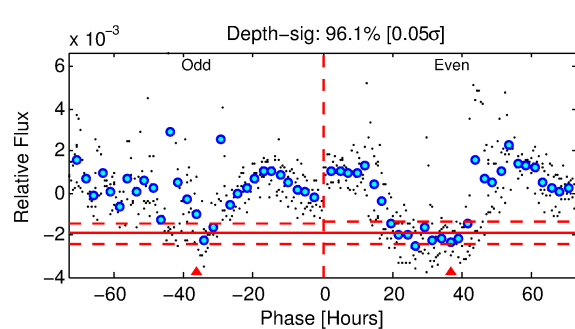
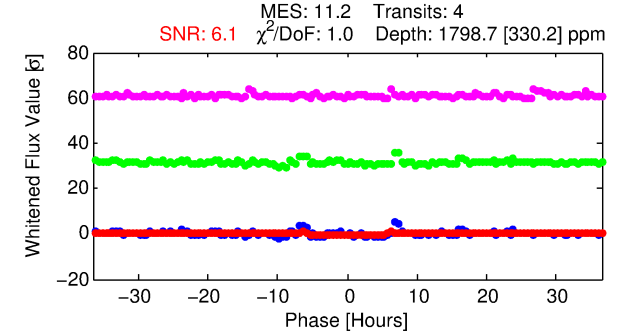
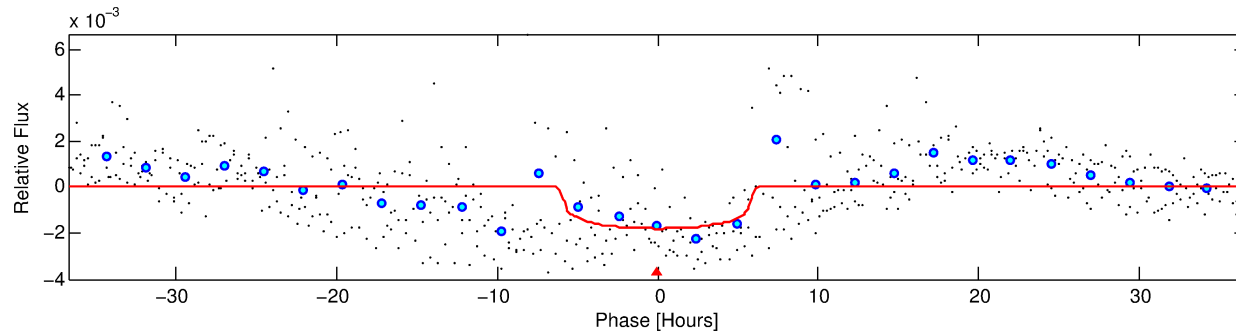
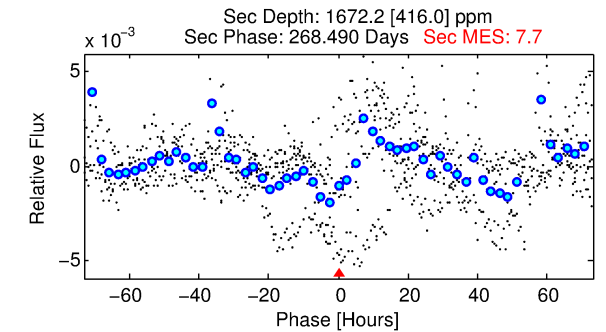
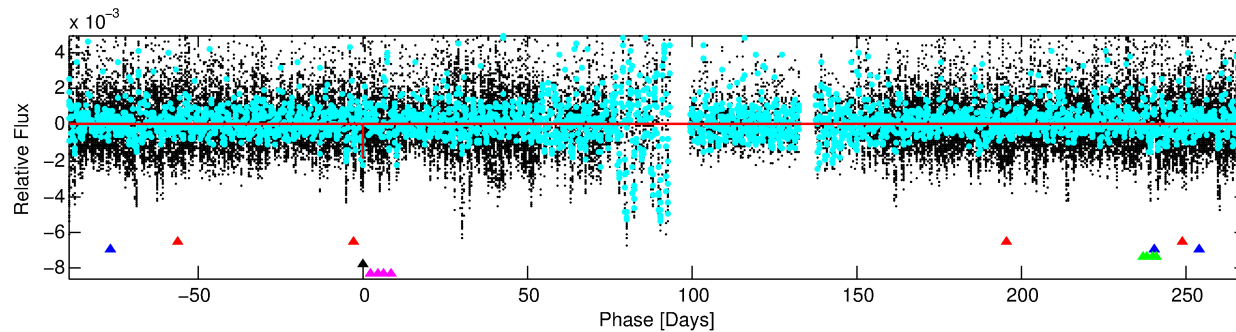
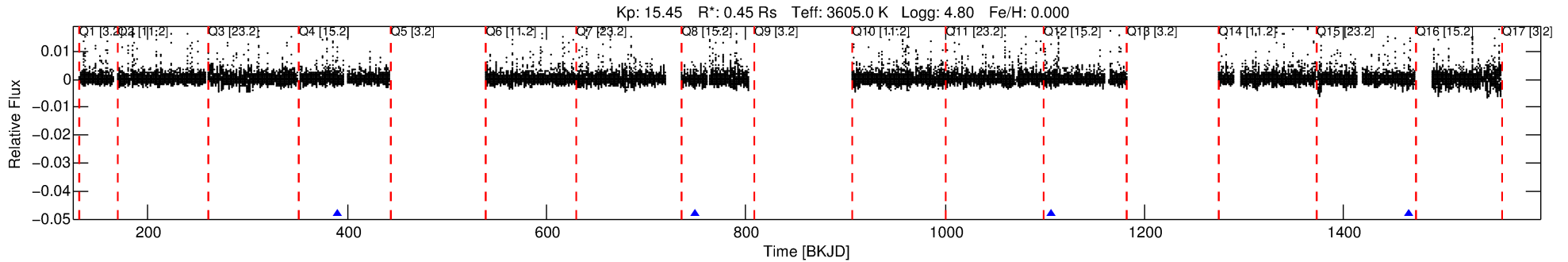
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005516671-04

No Significant Match Found

DV One-Page Summary

KIC: 5516671 Candidate: 4 of 5 Period: 358.109 d



DV Fit Results:

Period = 358.10867 [0.00558] d
Epoch = 390.4124 [0.0117] BKJD
Rp/R* = 0.0384 [0.0129]
a/R* = 230.78 [304.40]
b = 0.10 [12.75]
Seff = 0.05 [0.01]
Teq = 122 [4] K
Rp = 1.87 [0.66] Re
a = 0.7608 [0.0593] AU
Ag = 152750.19 [110547.55] [1.38σ]
Teffp = 3722 [670] K [5.37σ]

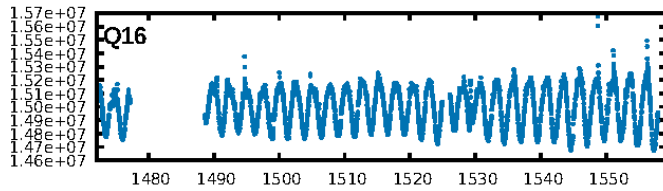
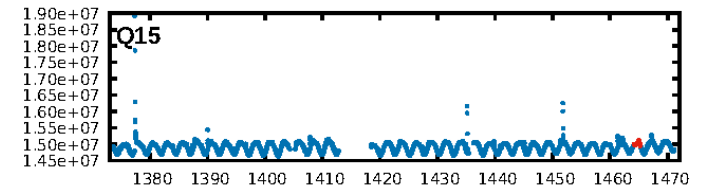
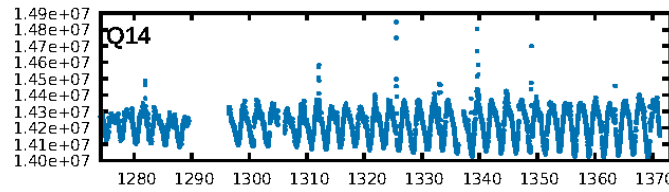
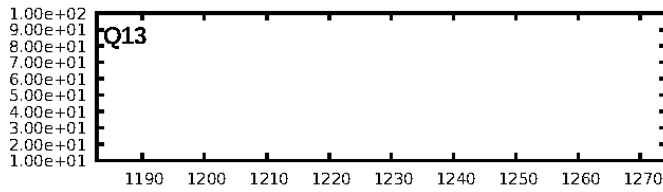
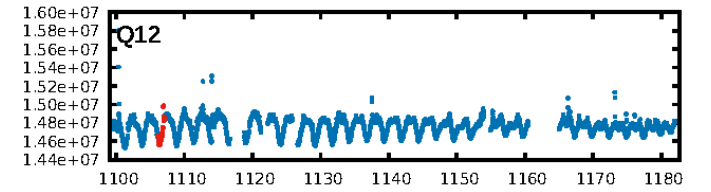
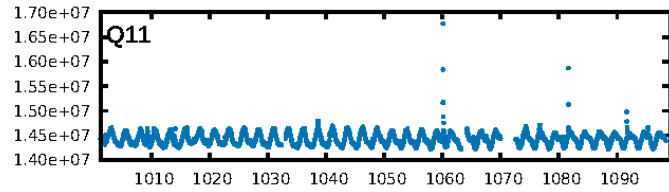
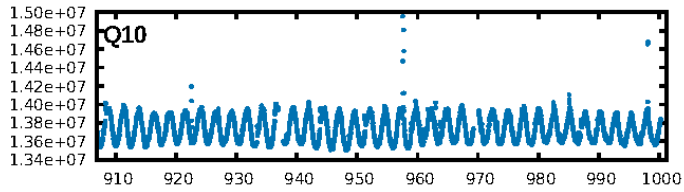
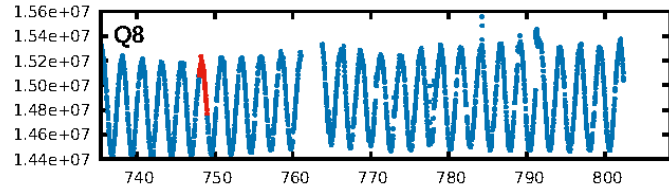
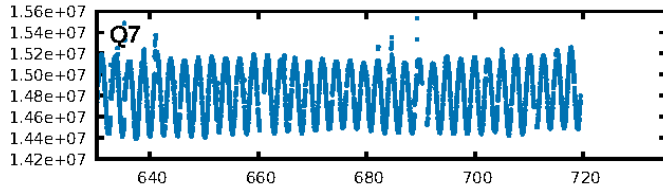
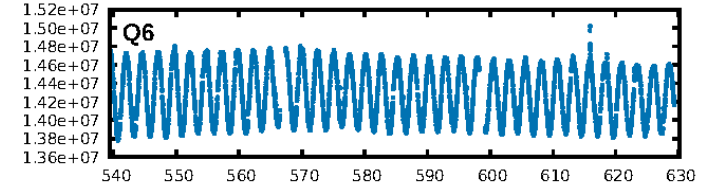
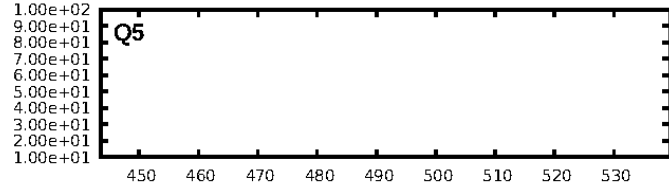
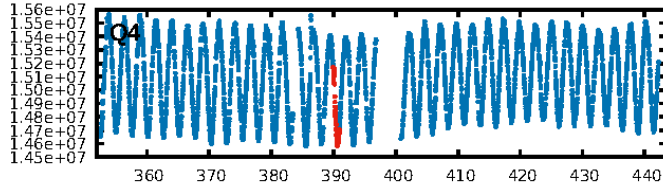
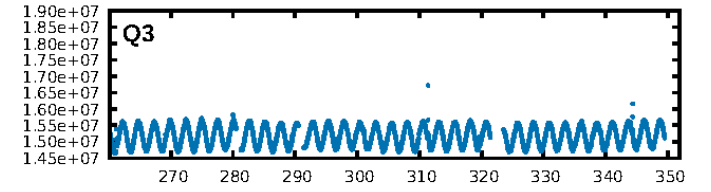
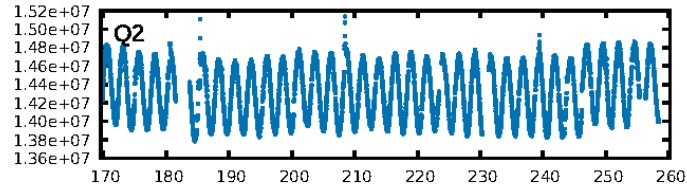
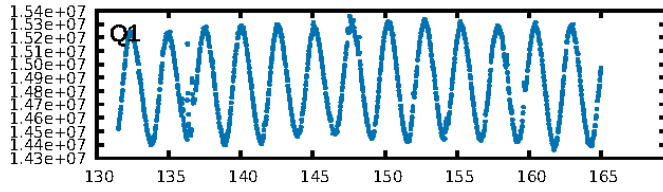
DV Diagnostic Results:

ShortPeriod-sig: 98.4% [2.42σ]
LongPeriod-sig: 100.0% [26.50σ]
ModelChiSquare2-sig: 33.6%
ModelChiSquareGof-sig: 96.9%
Bootstrap-pfa: 1.66e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.458
Centroid-sig: 0.2%
Centroid-so: 1.099 arcsec [2.00σ]
OotOffset-rm: 0.111 arcsec [1.54σ]
KicOffset-rm: 0.096 arcsec [1.34σ]
OotOffset-st: 0/1/3/0 [4]
KicOffset-st: 0/1/3/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

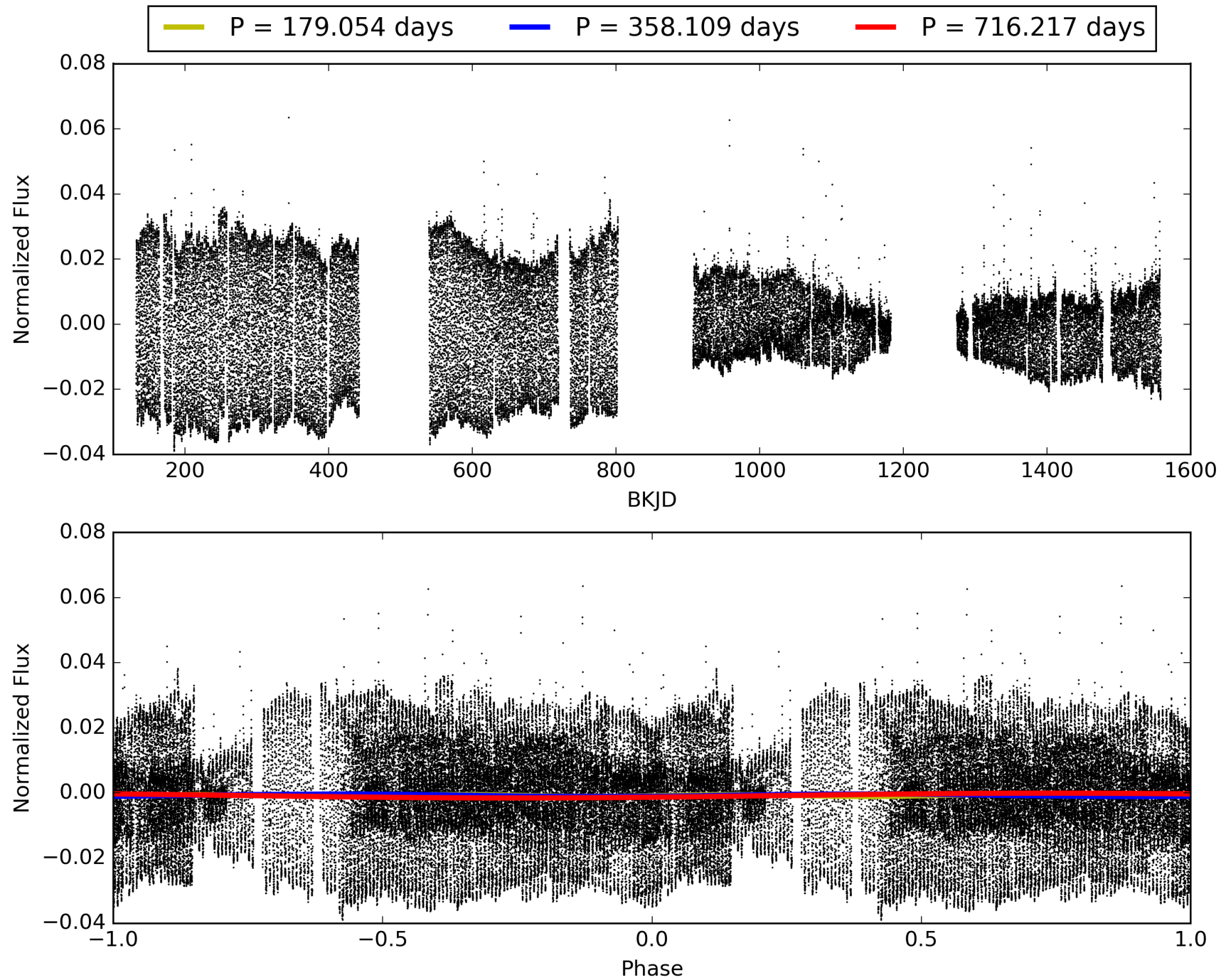
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 22:35:25 Z

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

TCE 005516671-04, PDC Light Curves

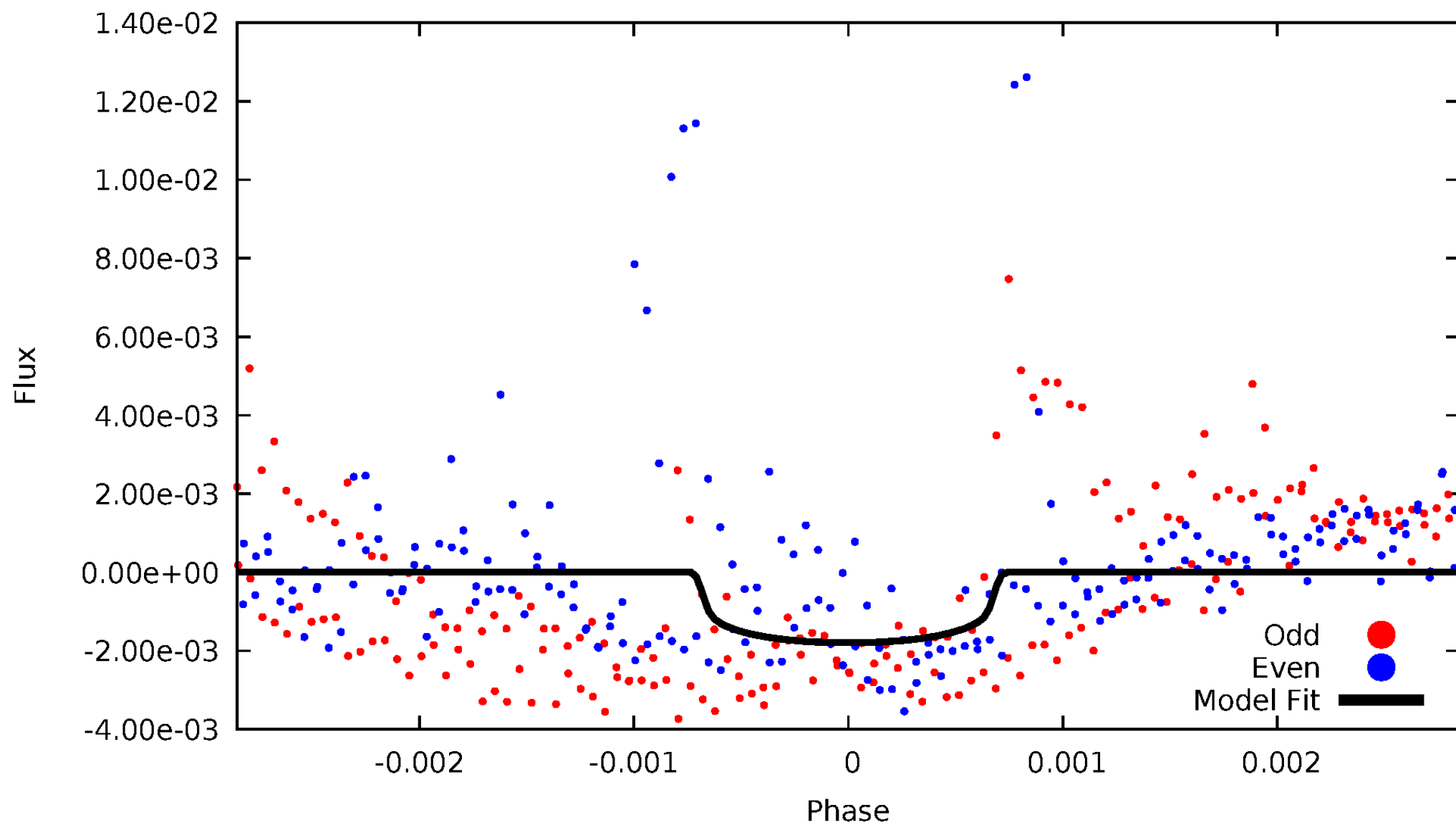


TCE 005516671-04



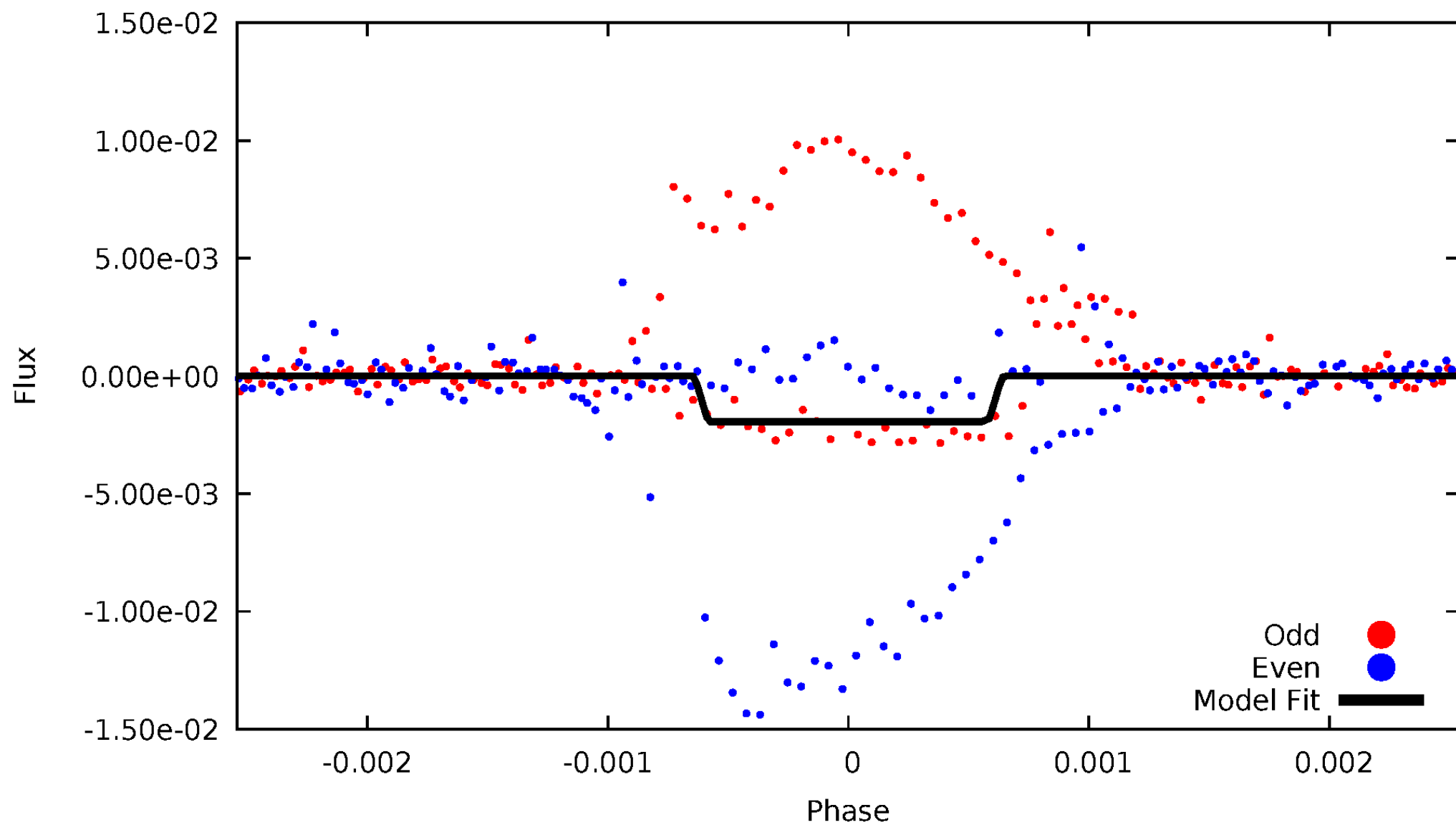
DV Odd/Even

TCE 005516671-04



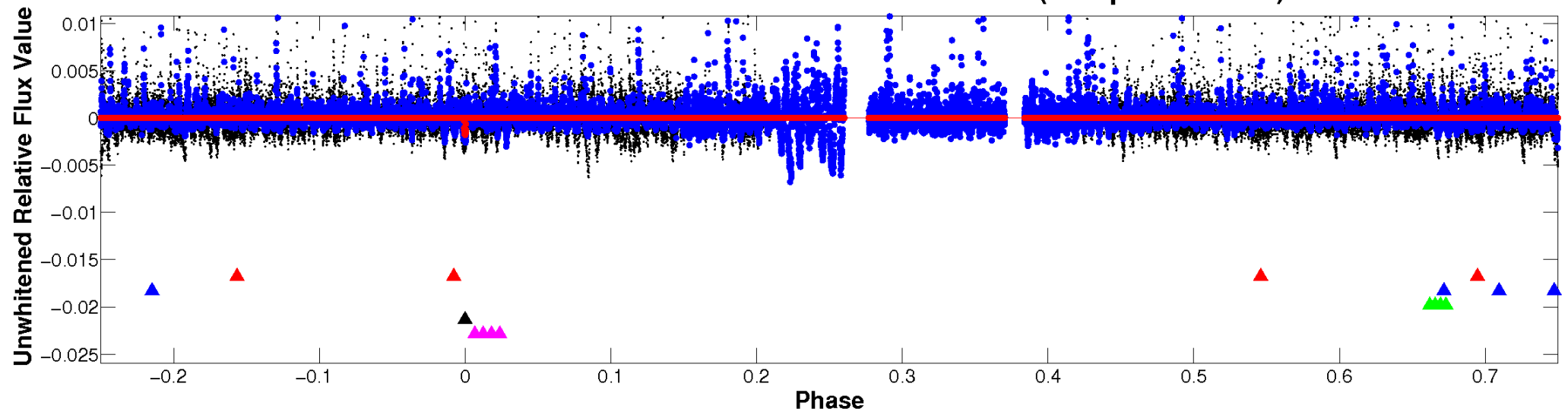
ALT Odd/Even

TCE 005516671-04

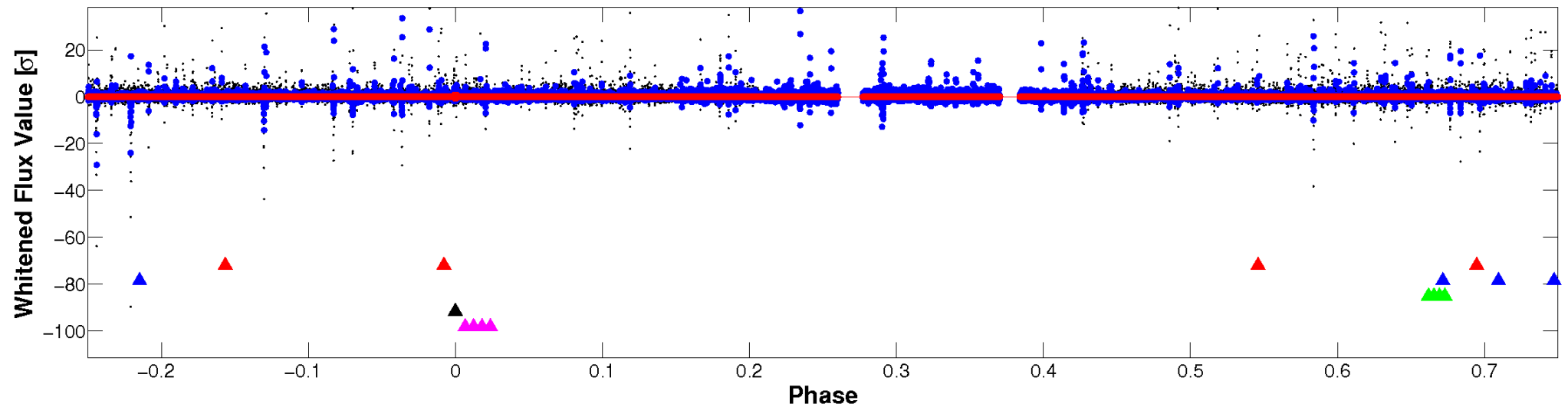


Non-Whitened Vs. Whitened Light Curve

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

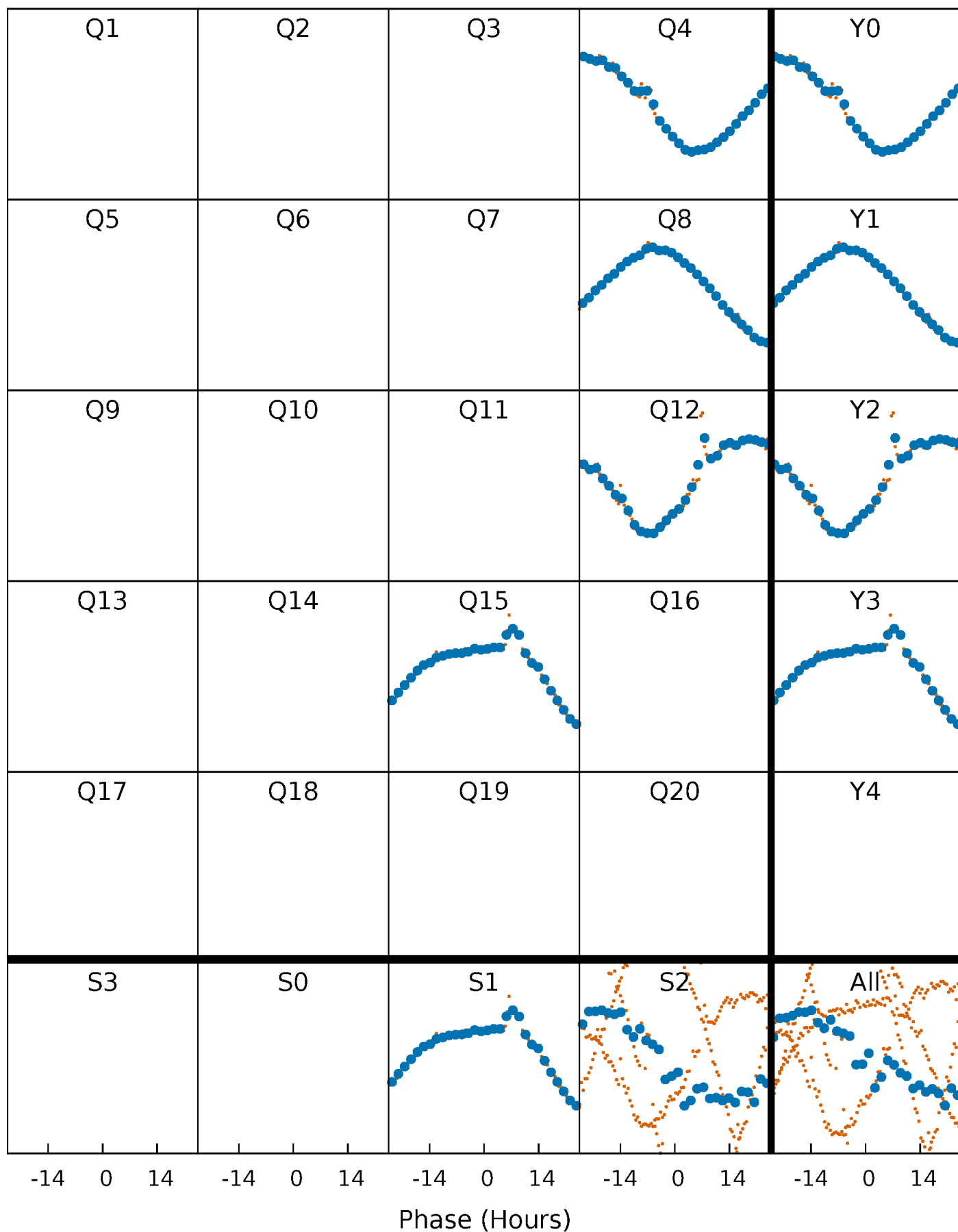


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



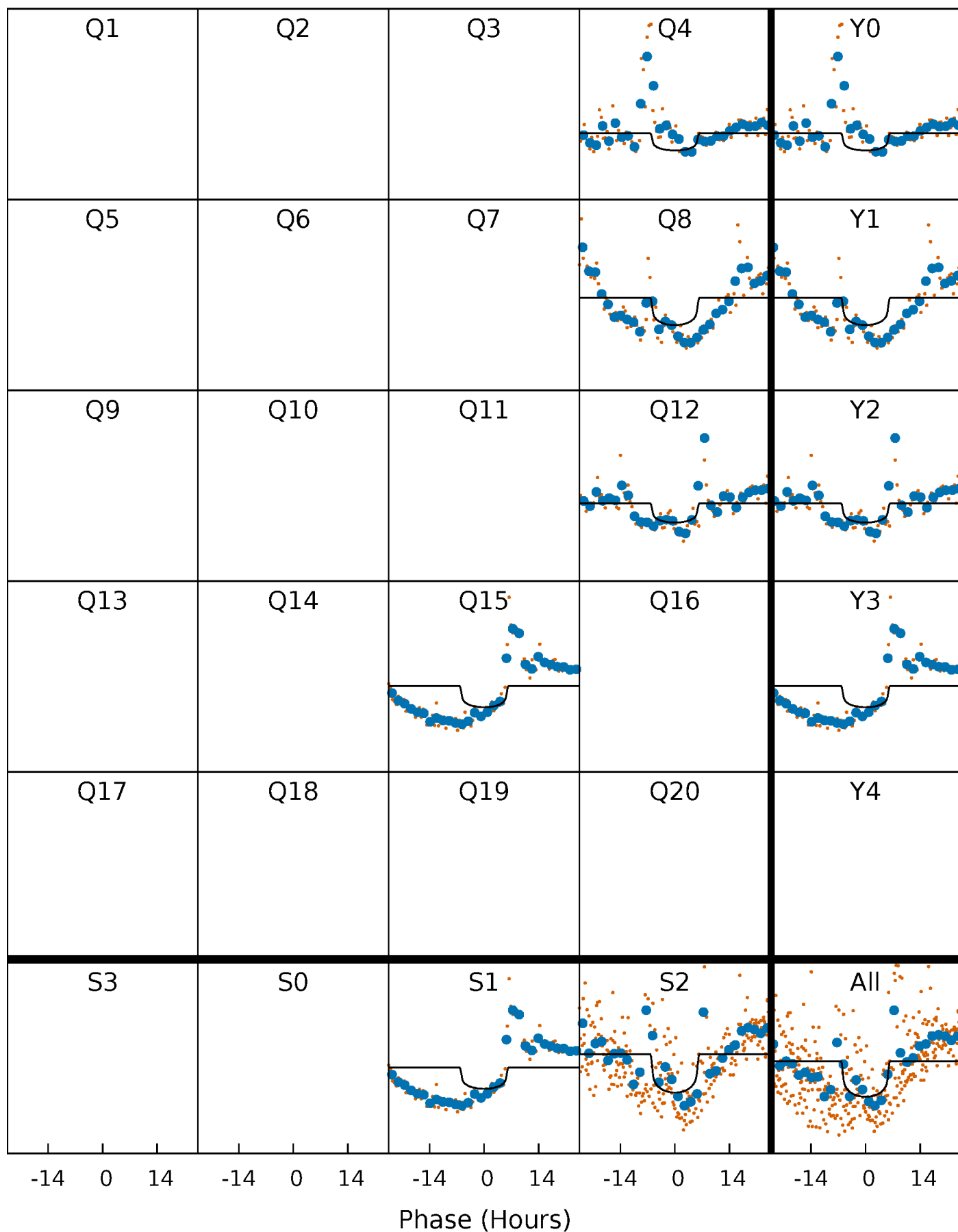
PDC Quarter-Phased Transit Curves

TCE 005516671-04 P=358.108674 Days $T_0=390.412445$ (BKJD)



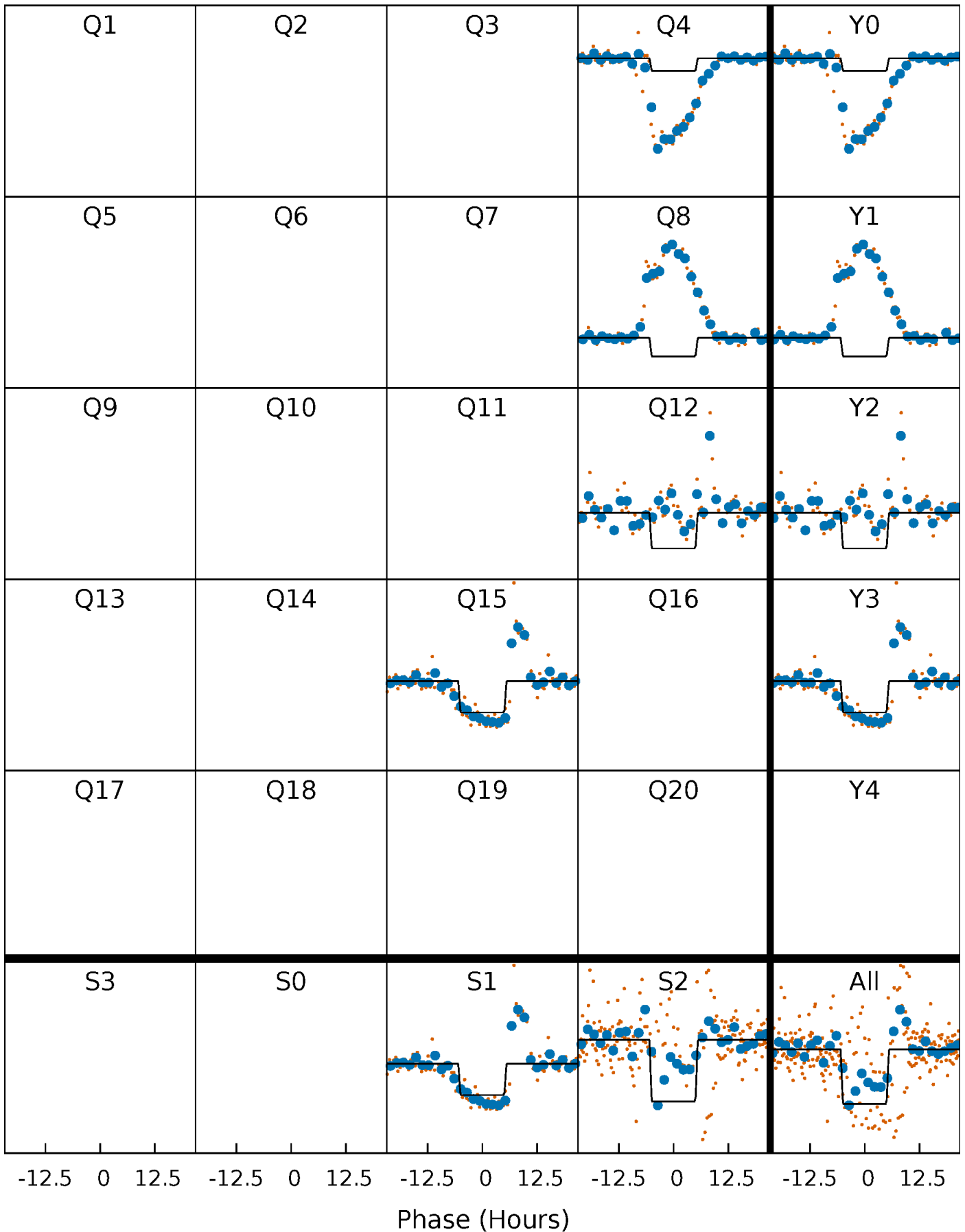
DV Quarter-Phased Transit Curves

TCE 005516671-04 P=358.108674 Days $T_0=390.412445$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

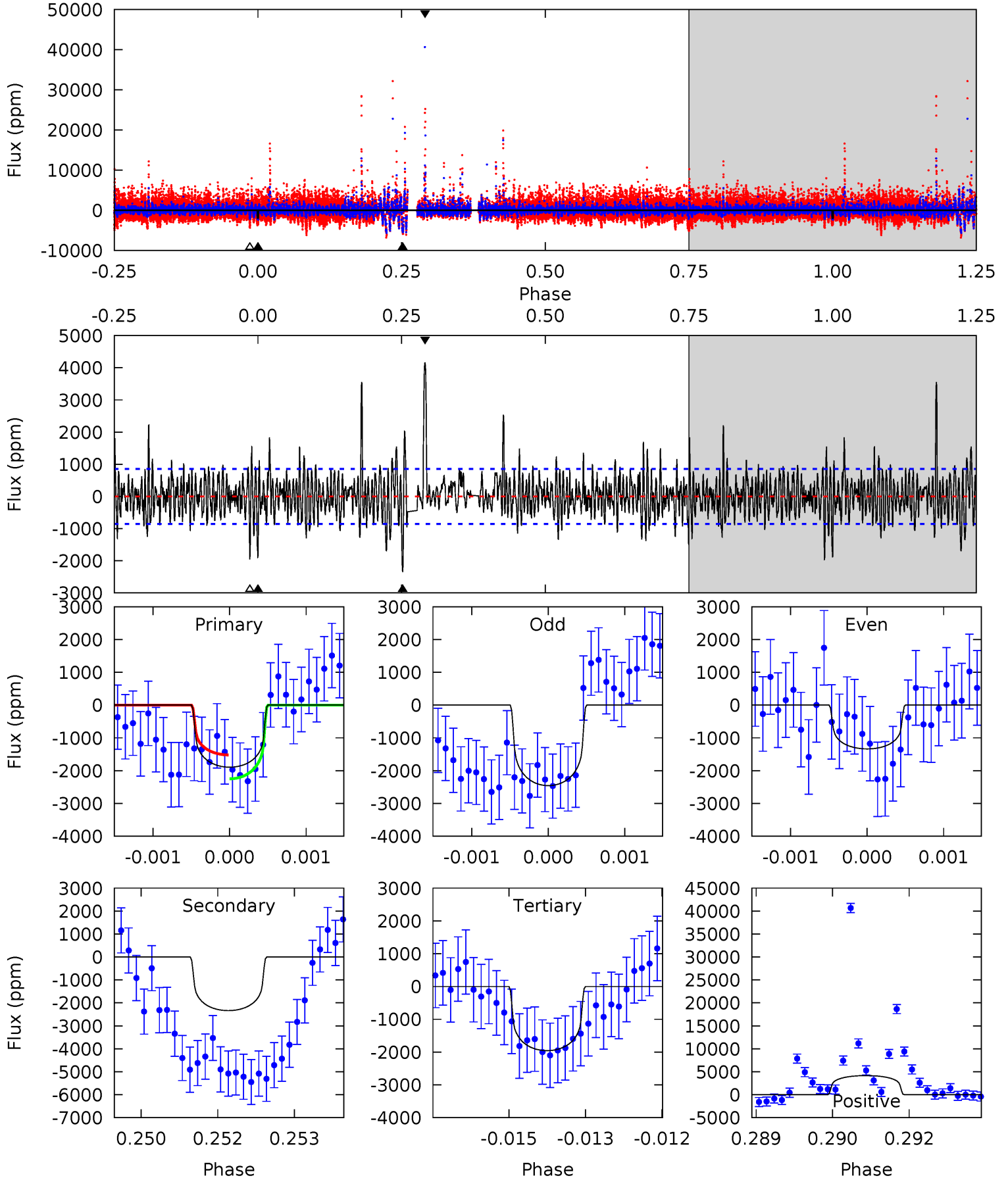
TCE 005516671-04 $P=358.104950$ Days $T_0=390.391207$ (BKJD)



DV Model-Shift Uniqueness Test

005516671-04, P = 358.108674 Days, E = 32.303771 Days

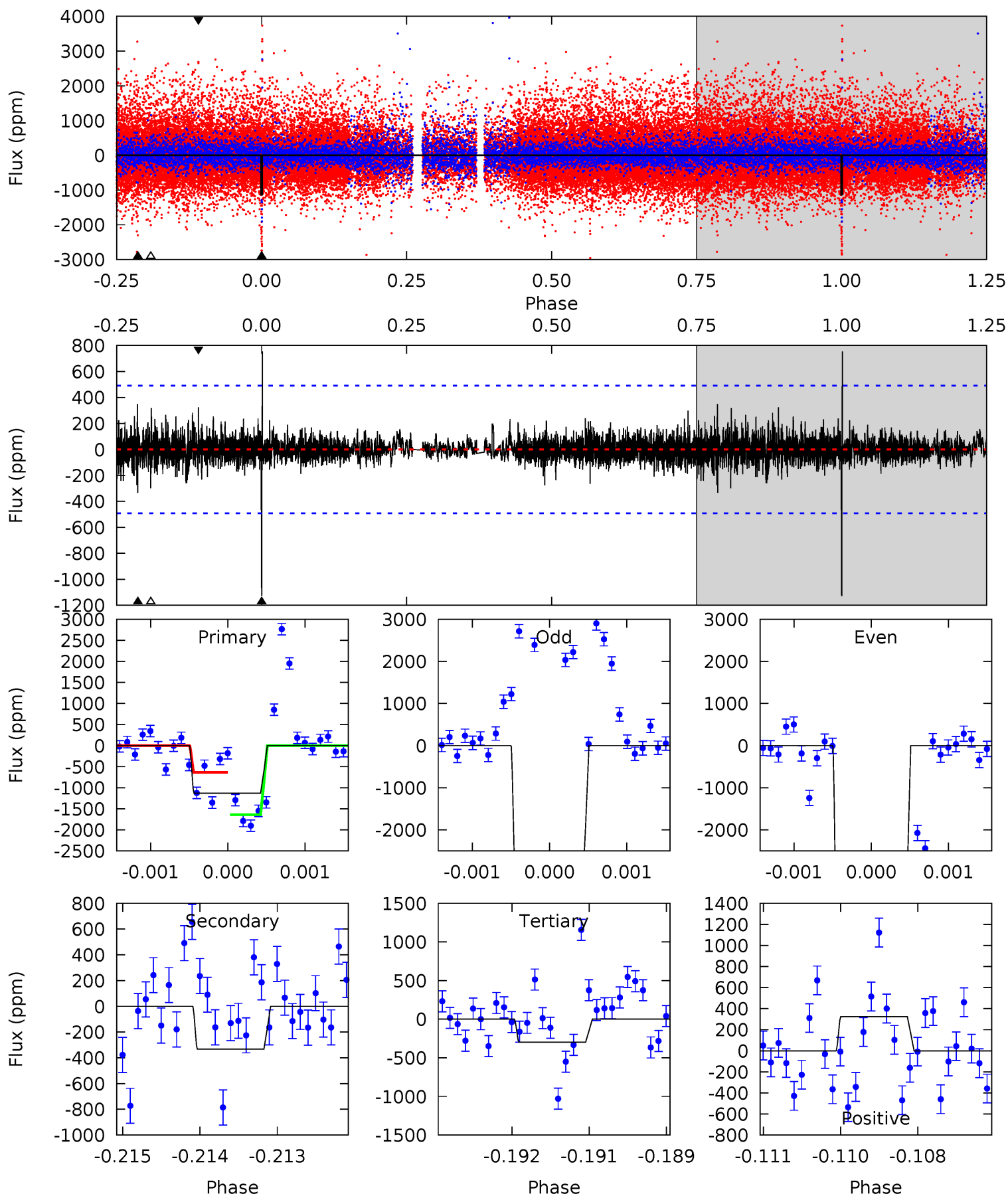
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	14.7	12.3	26.2	5.38	3.18	3.52	-0.39	-14.3	2.40	-11.5	2.98	0.82	0.64	2.22



Alt Model-Shift Uniqueness Test

005516671-04, P = 358.104950 Days, E = 32.286257 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	3.65	3.29	3.56	5.40	3.21	0.70	9.12	8.86	0.36	0.10	15.3	1.24	0.40	5.61



Stellar Parameters For KIC 005516671

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3605^{+64}_{-64}	$4.800^{+0.048}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.446^{+0.035}_{-0.046}$	$0.458^{+0.037}_{-0.045}$	$7.261^{+1.812}_{-1.003}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+8%/-10%	+8%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 005516671-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2337 ± 159	$1.86^{+0.60}_{-0.62}$	169^{+4}_{-4}	3892^{+625}_{-354}	$219133^{+263161}_{-96723}$
Alt.	-332 ± 91	$2.13^{+0.62}_{-0.58}$	170^{+4}_{-4}	2770^{+287}_{-204}	22266^{+22551}_{-9810}

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

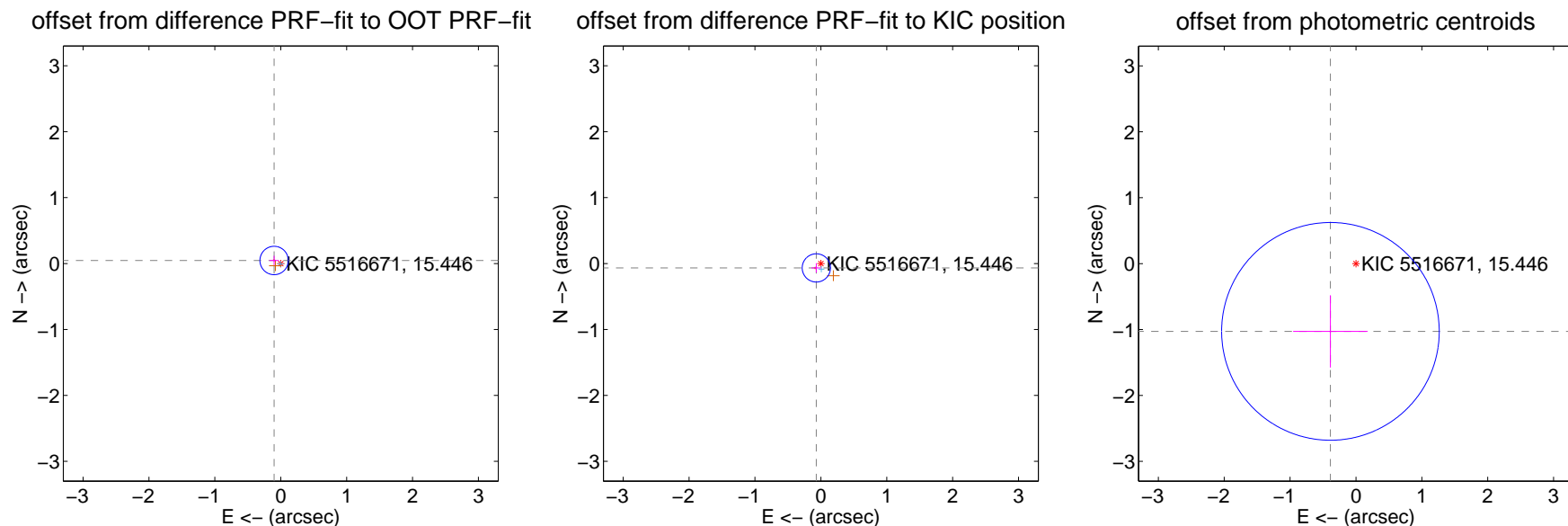
DV Centroid Data

Supplemental centroid analysis for 005516671-04. Kepler magnitude: 15.45. Transit SNR 6.07

There are 2 quarters with good PRF difference image offsets

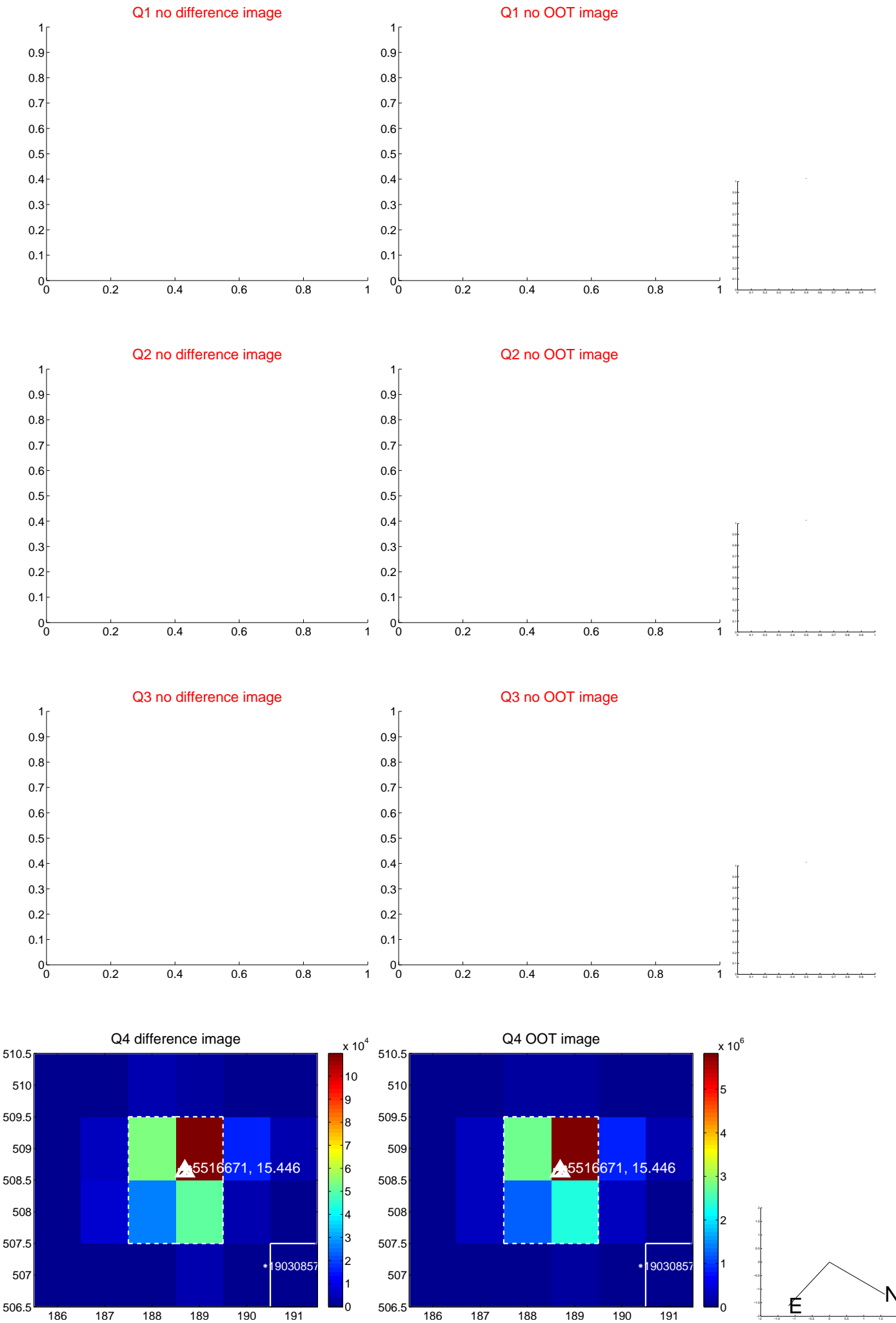
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.111 ± 0.072	1.54	0.101 ± 0.072	0.046 ± 0.071
PRF-fit source offset from KIC position	0.096 ± 0.071	1.34	0.069 ± 0.072	-0.066 ± 0.071
photometric centroid source offset	1.10 ± 0.55	2.00	0.39 ± 0.57	-1.03 ± 0.55

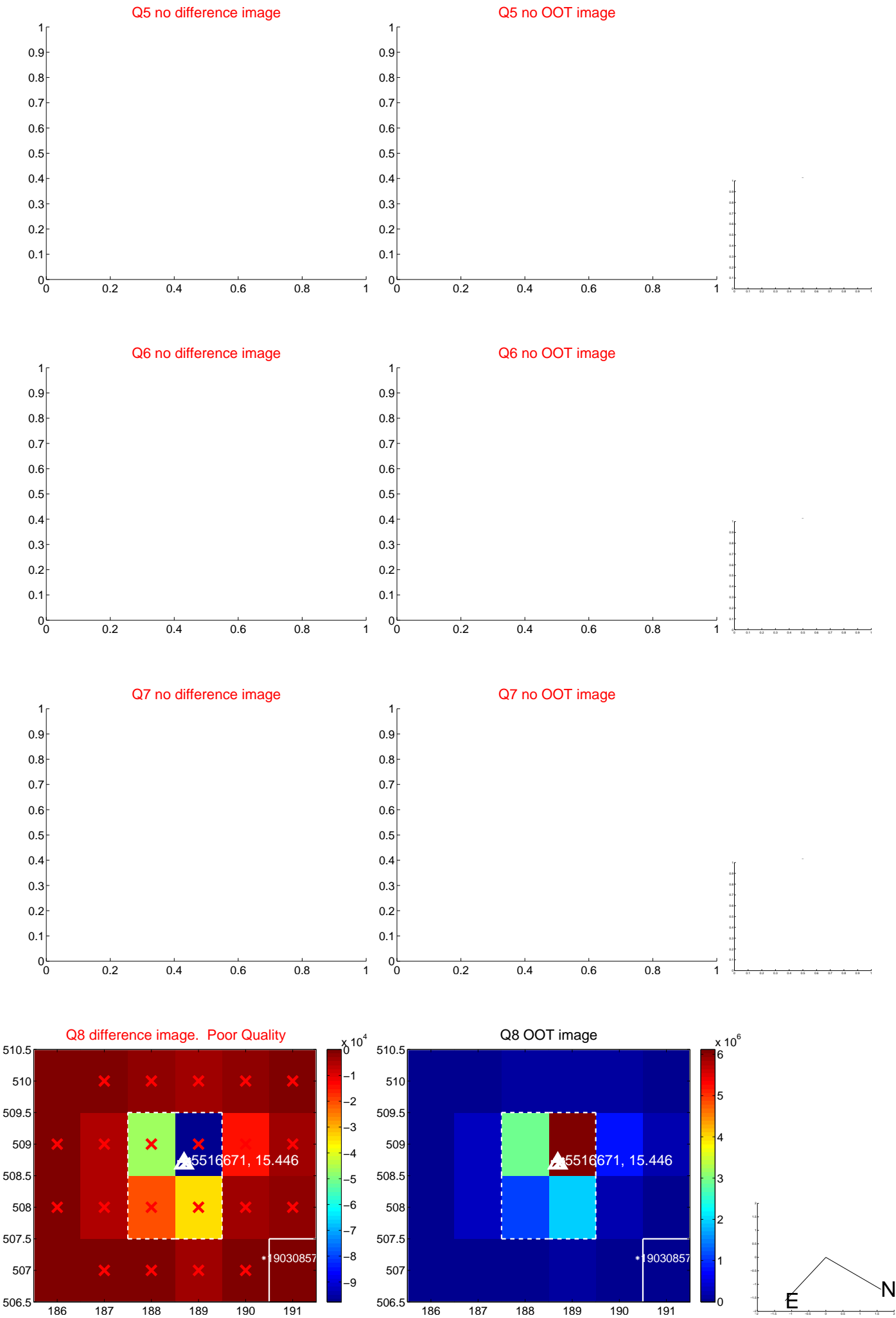


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

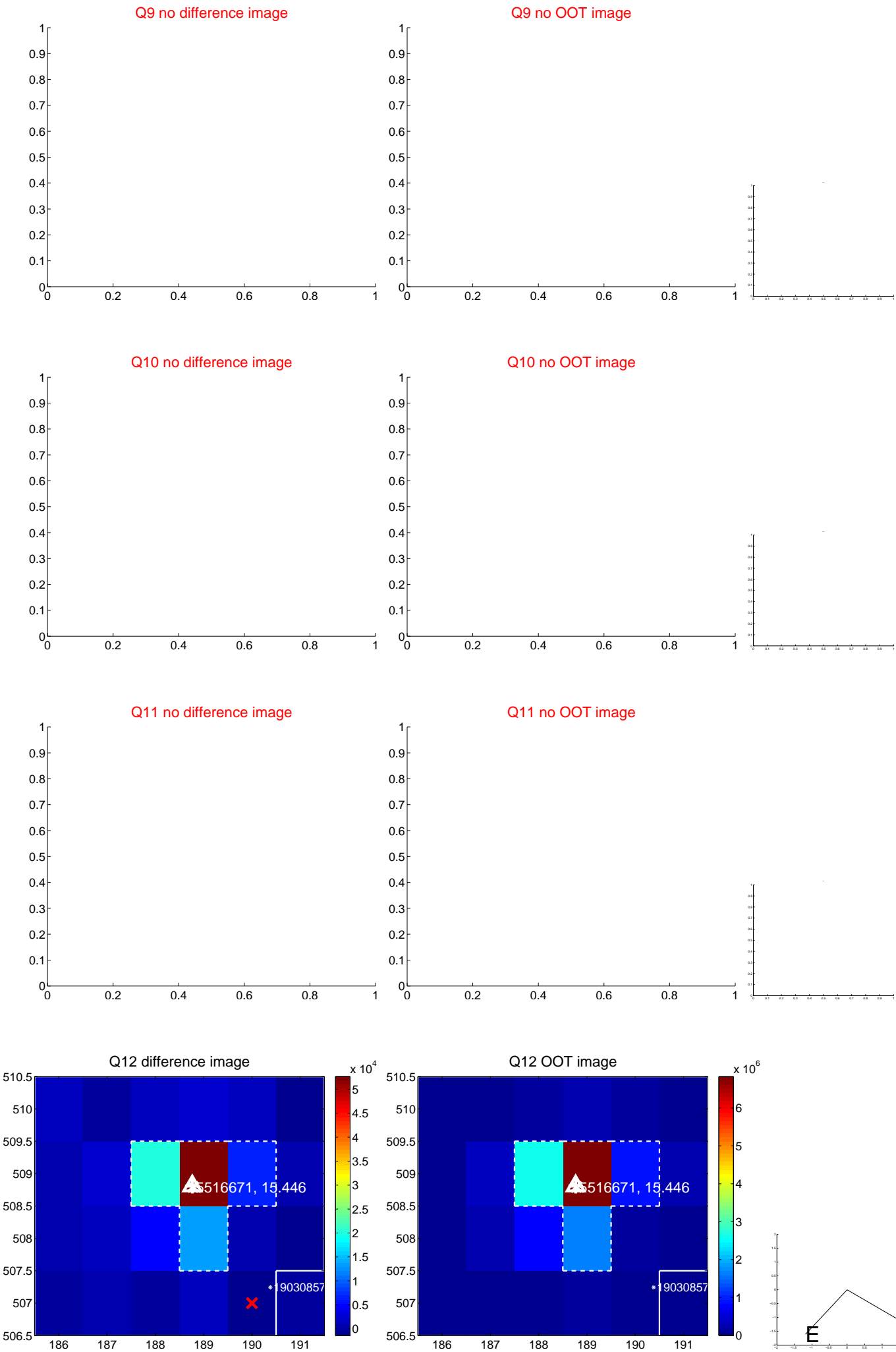
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



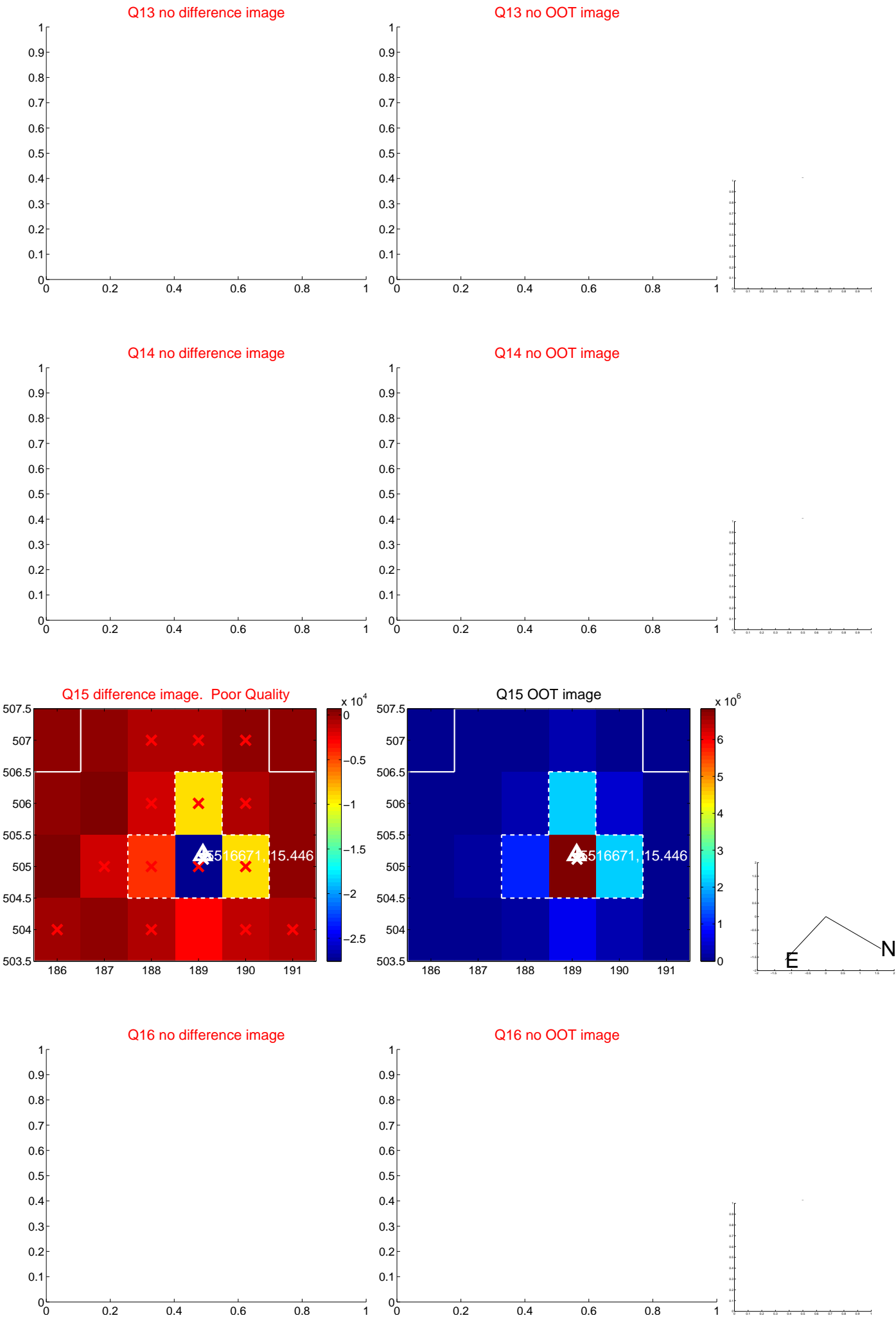
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



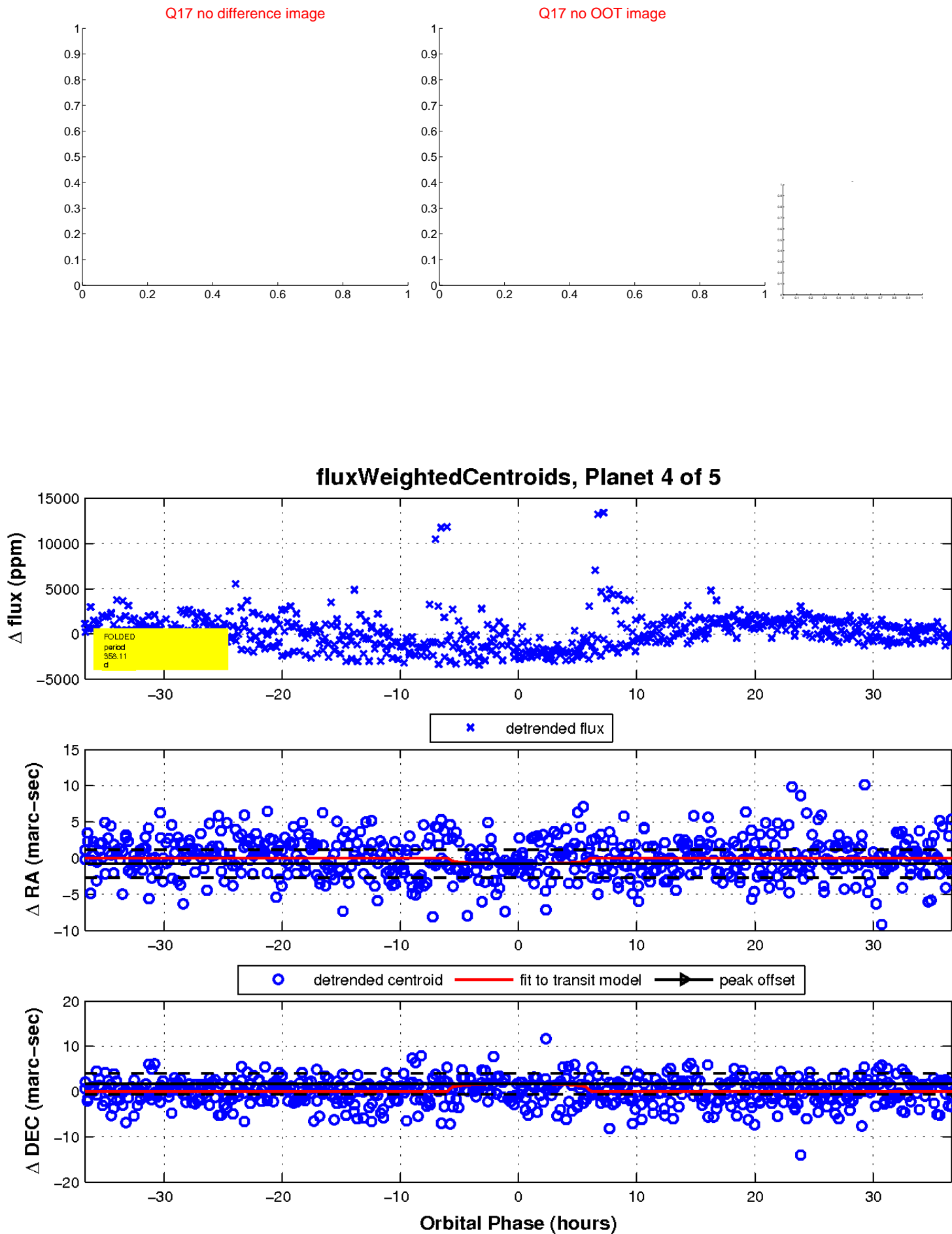
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

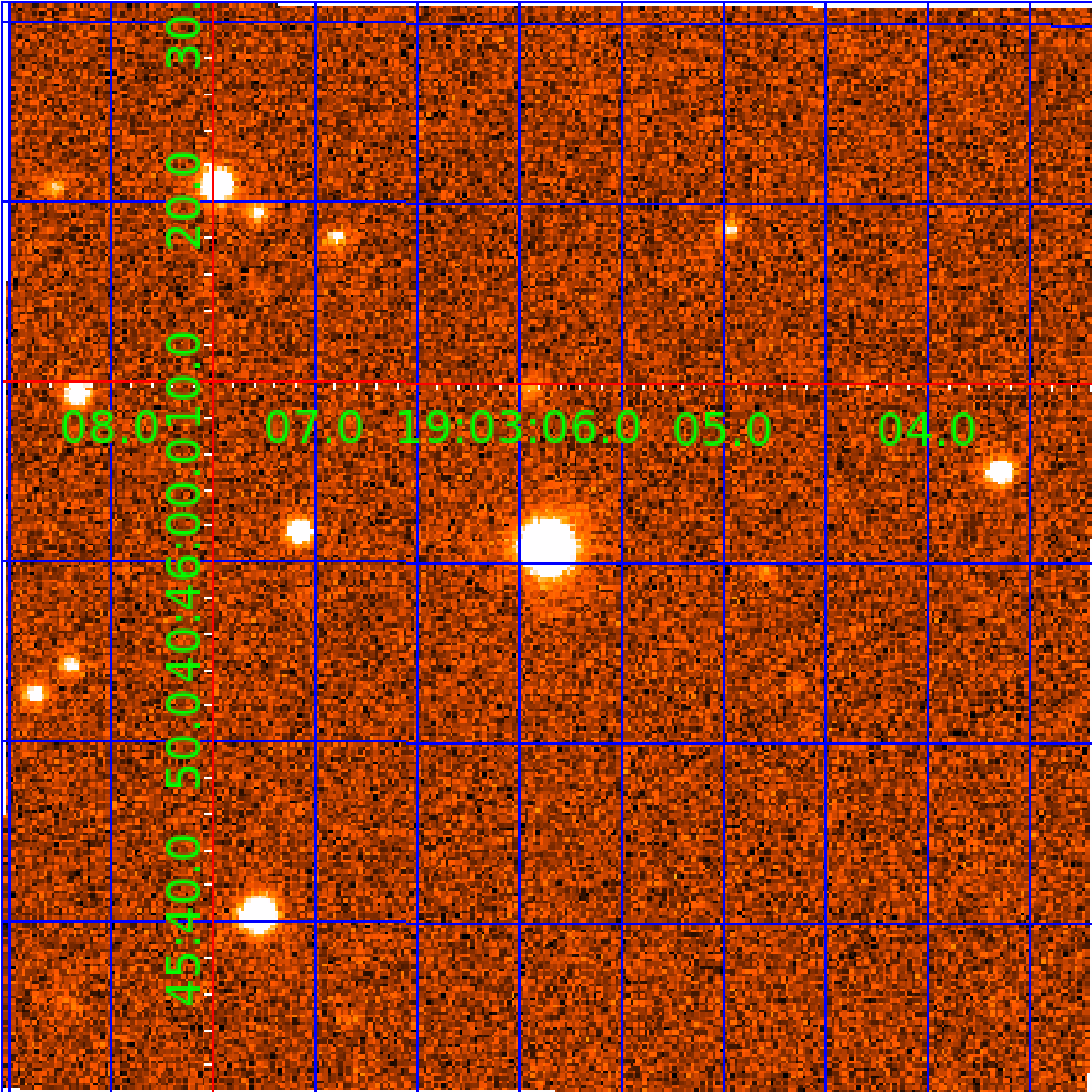


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005516671

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})
005516671-01	OBS	No	411.375363	227.832381	1906.9	8.062	14.7	6.7	0.45	3605	1.92	0.04
005516671-02	OBS	No	371.655777	272.849158	1.6	0.714	14.7	0.0	0.45	3605	0.06	0.05
005516671-03	OBS	No	356.785773	273.334122	2479.9	4.712	12.3	8.3	0.45	3605	2.19	0.05
005516671-04	OBS	No	358.108674	390.412445	1798.7	12.249	11.2	6.1	0.45	3605	1.87	0.05
005516671-05	OBS	No	356.060948	398.953925	2163.8	5.111	12.7	7.3	0.45	3605	2.12	0.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005516671-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-02	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_FEW_DIFFS
005516671-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005516671-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005516671-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

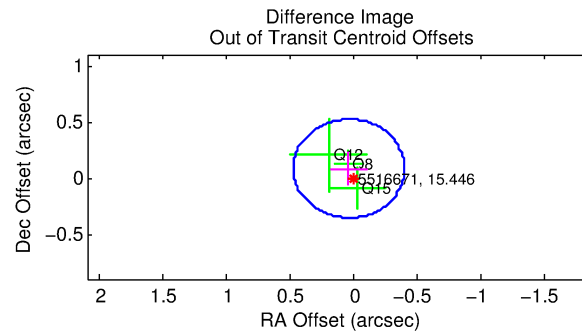
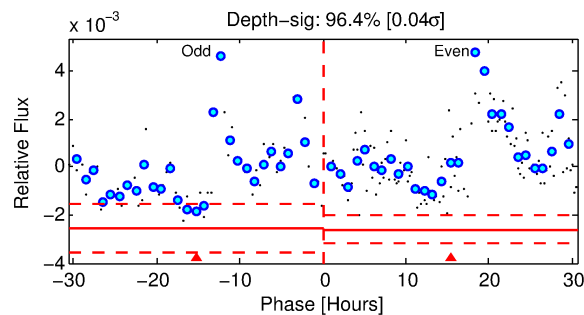
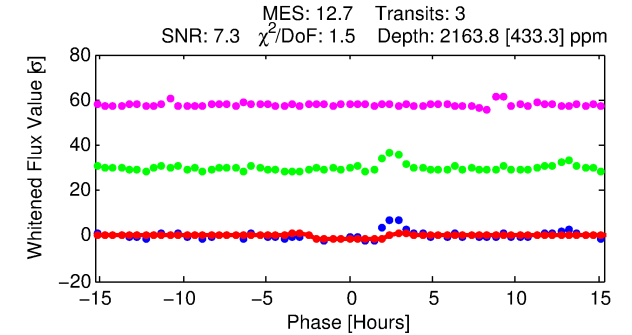
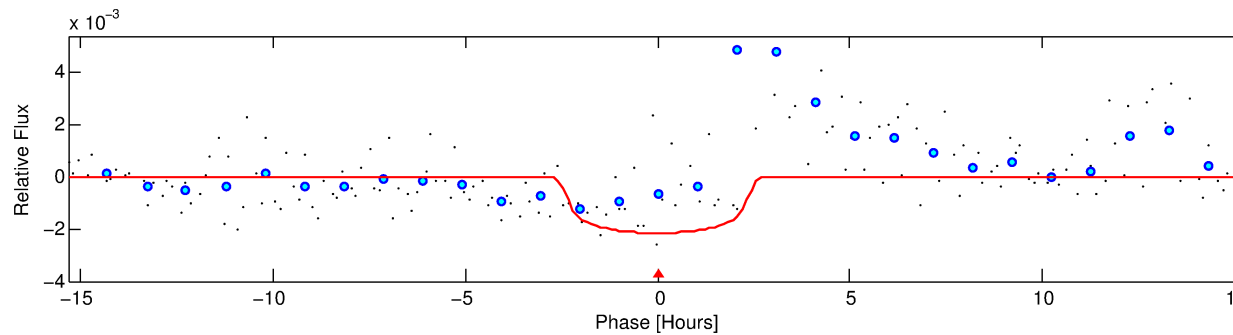
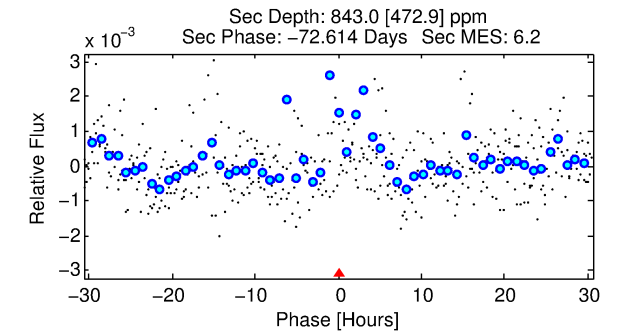
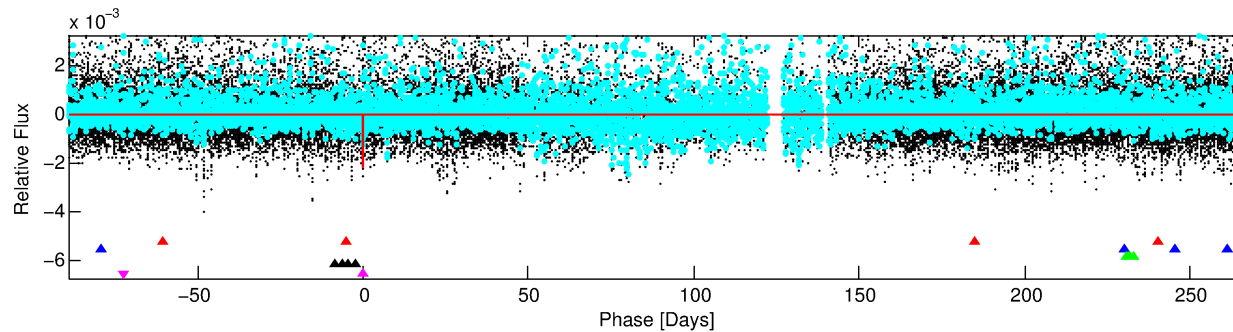
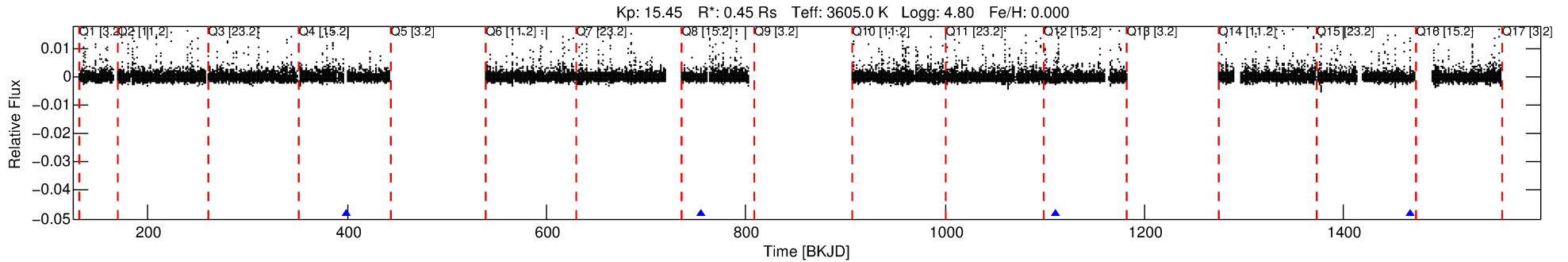
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005516671-05

No Significant Match Found

DV One-Page Summary

KIC: 5516671 Candidate: 5 of 5 Period: 356.061 d



DV Fit Results:

Period = 356.06095 [0.00743] d
Epoch = 398.9539 [0.0161] BKJD
Rp/R* = 0.0436 [0.0426]
a/R* = 479.68 [1954.39]
b = 0.53 [5.66]
Seff = 0.05 [0.01]
Teq = 122 [4] K
Rp = 2.12 [2.08] Re
a = 0.7579 [0.0591] AU
Ag = 59074.03 [120051.23] [0.49σ]
Teffp = 2941 [1493] K [1.89σ]

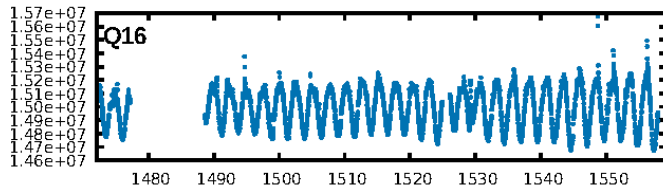
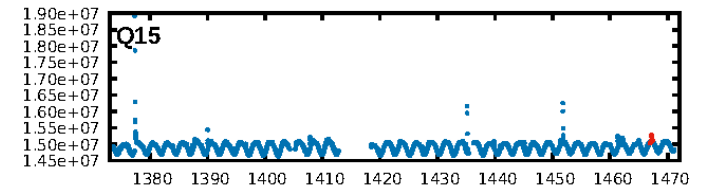
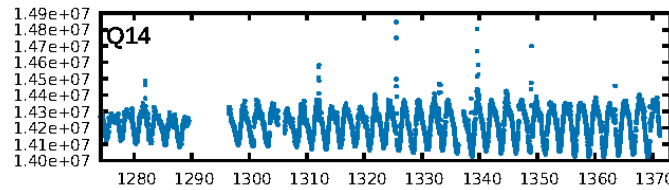
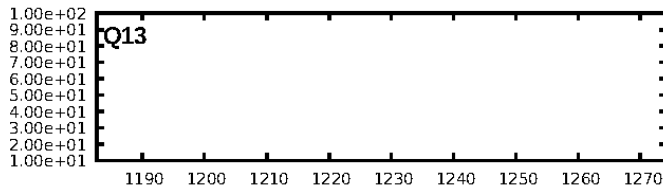
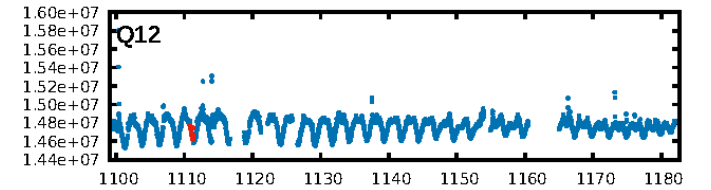
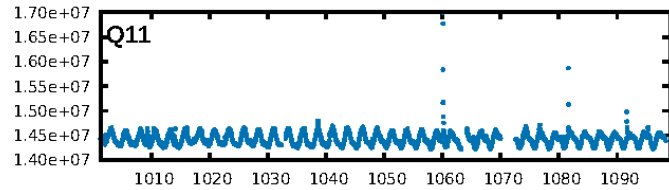
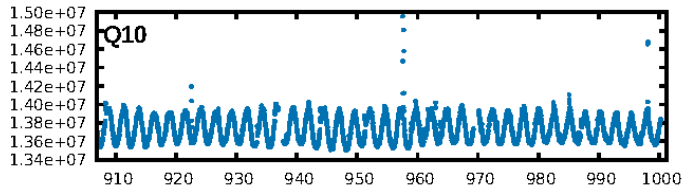
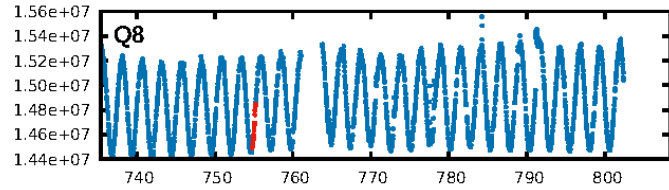
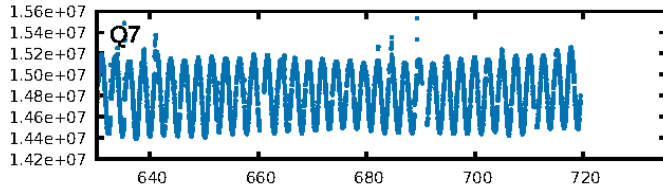
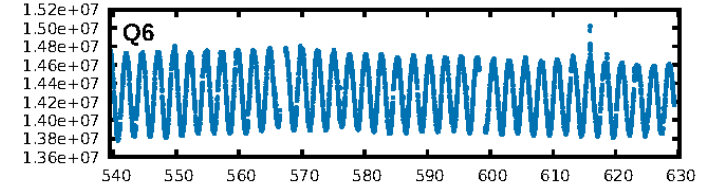
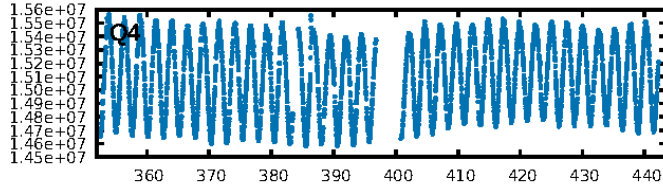
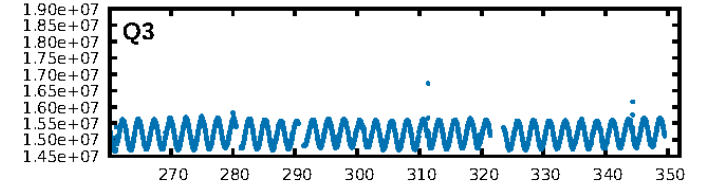
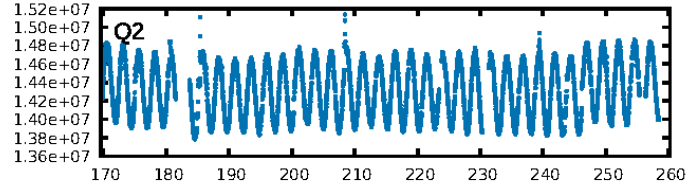
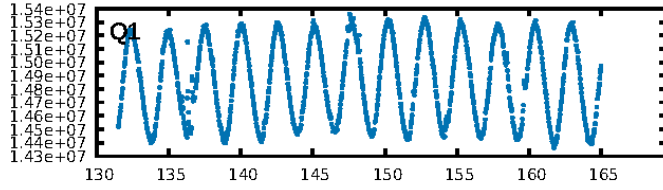
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 98.8% [2.50σ]
ModelChiSquare2-sig: 10.3%
ModelChiSquareGof-sig: 82.0%
Bootstrap-pfa: 1.48e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.02097
Centroid-sig: 23.3%
Centroid-so: 0.667 arcsec [0.83σ]
OotOffset-rm: 0.093 arcsec [0.64σ]
KicOffset-rm: 0.045 arcsec [0.24σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

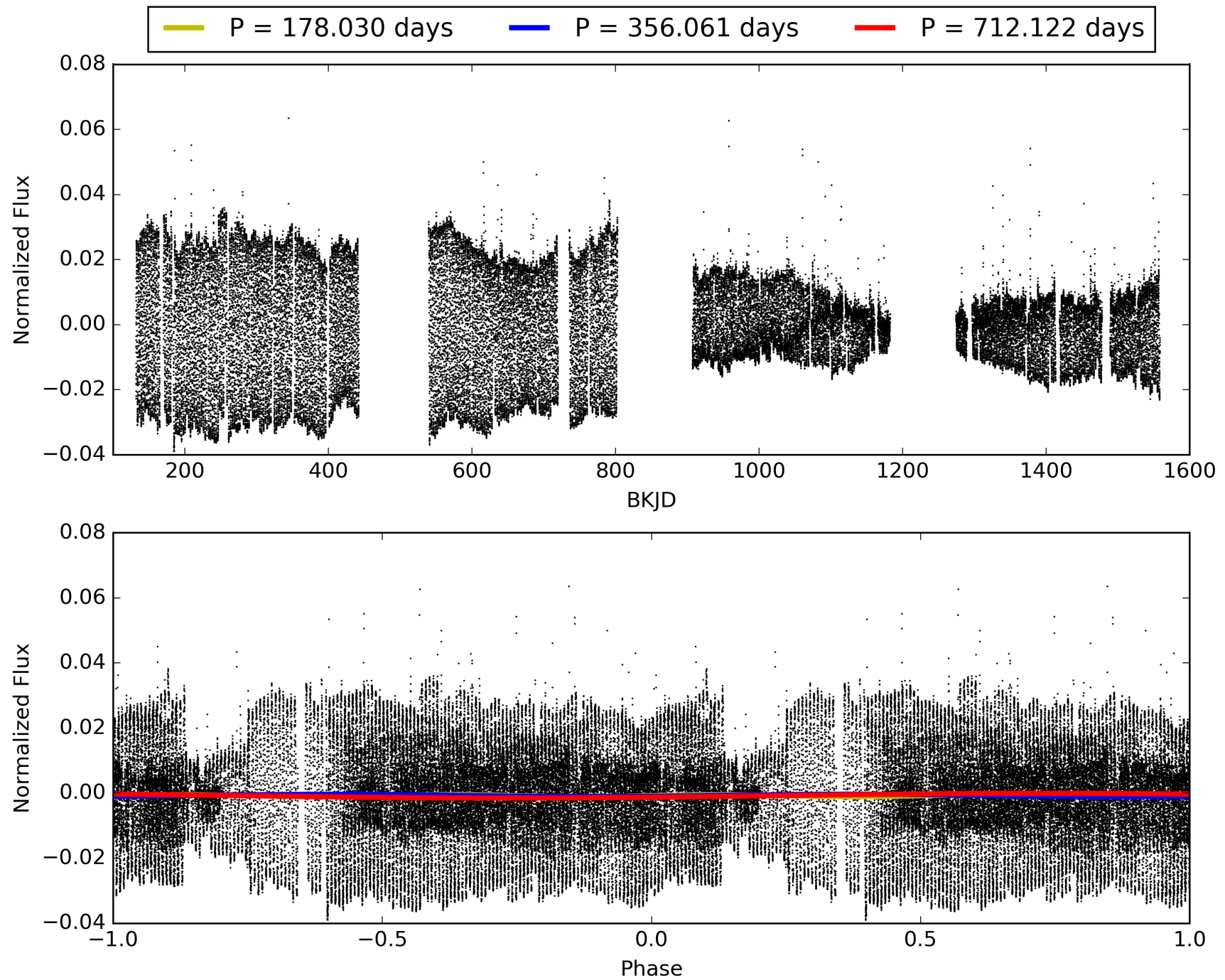
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 22:35:35 Z

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

TCE 005516671-05, PDC Light Curves

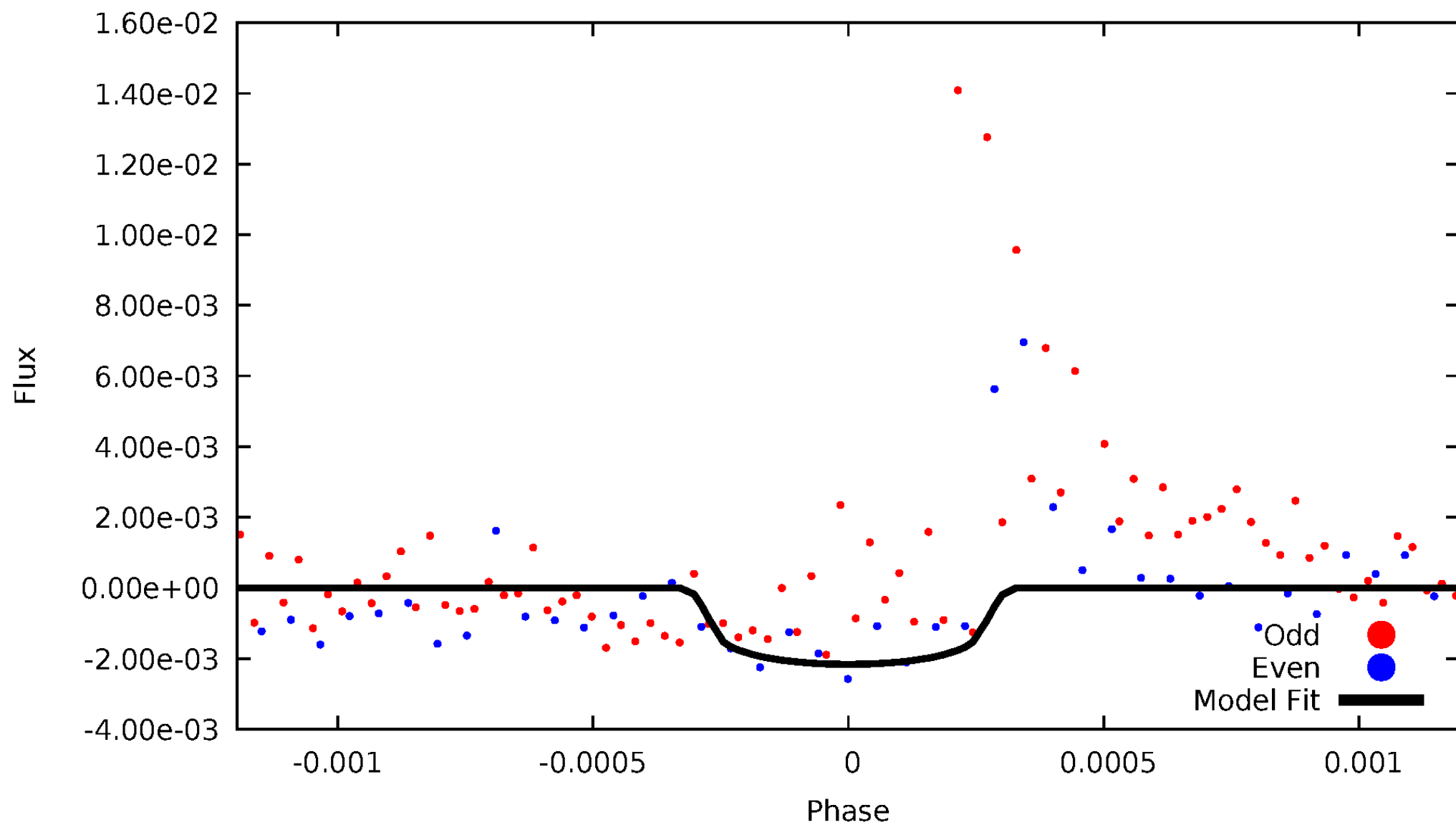


TCE 005516671-05



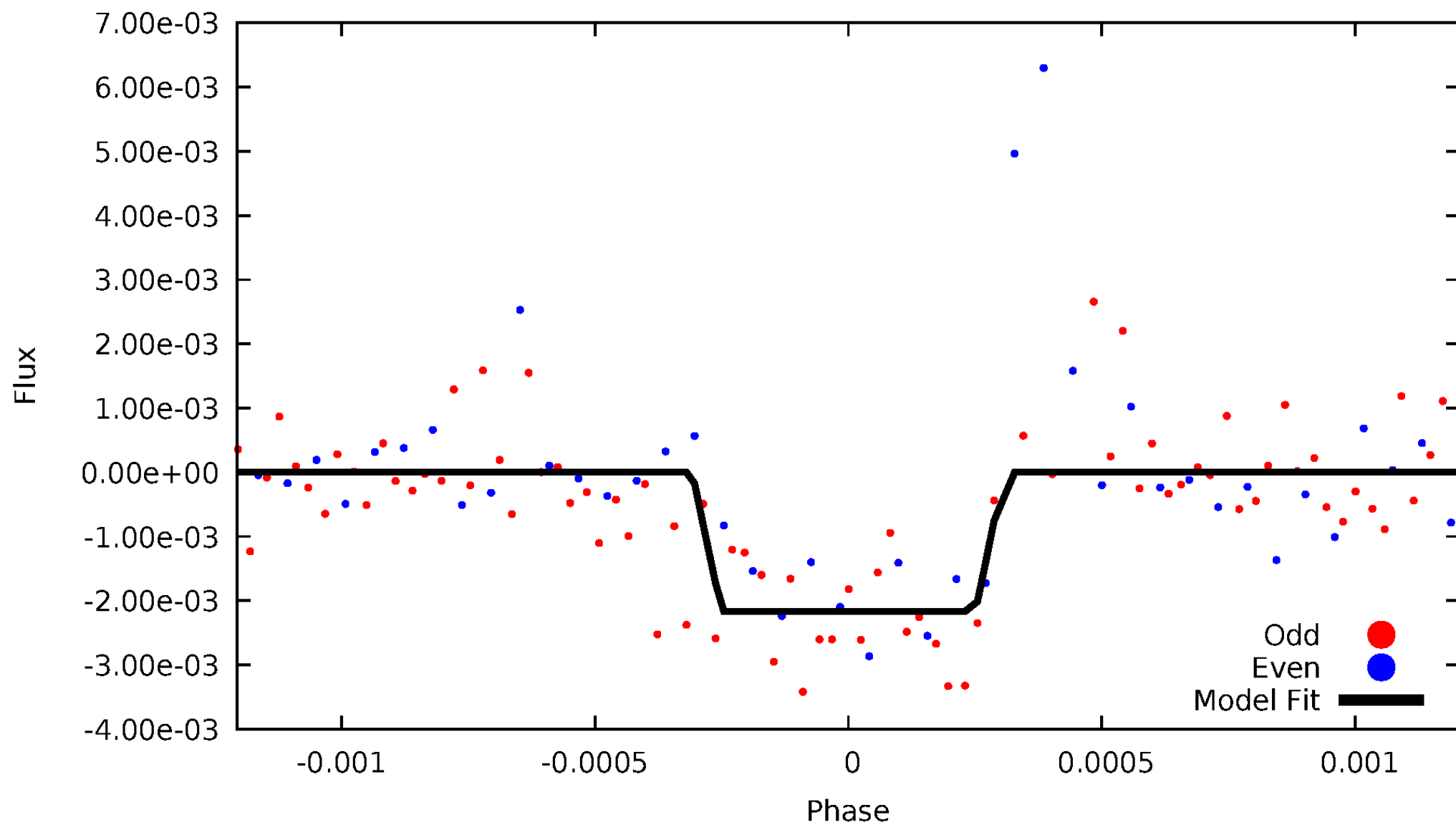
DV Odd/Even

TCE 005516671-05



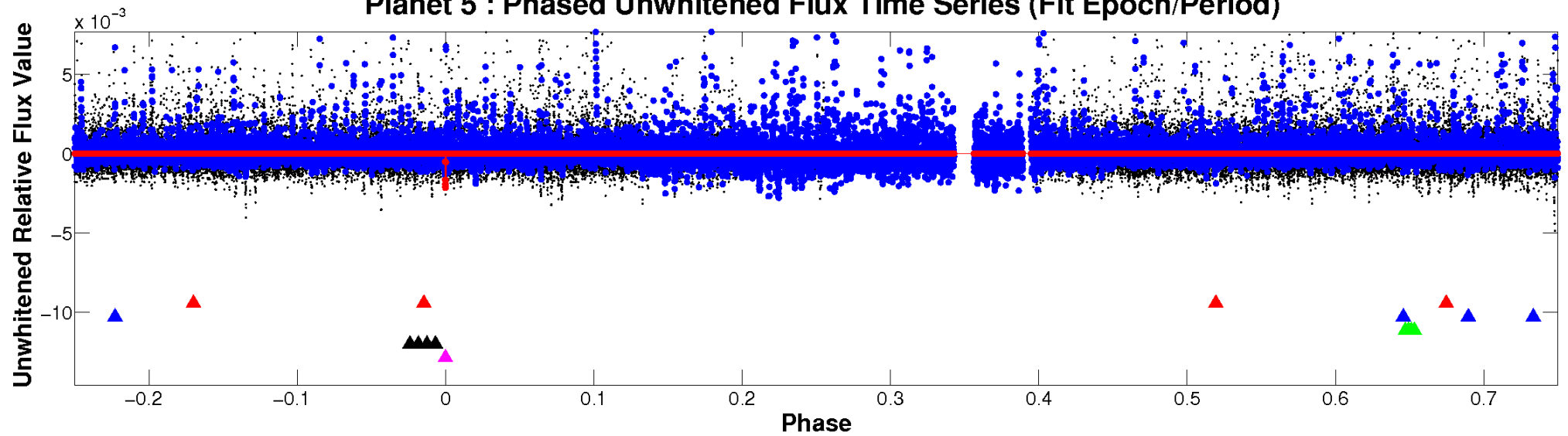
ALT Odd/Even

TCE 005516671-05

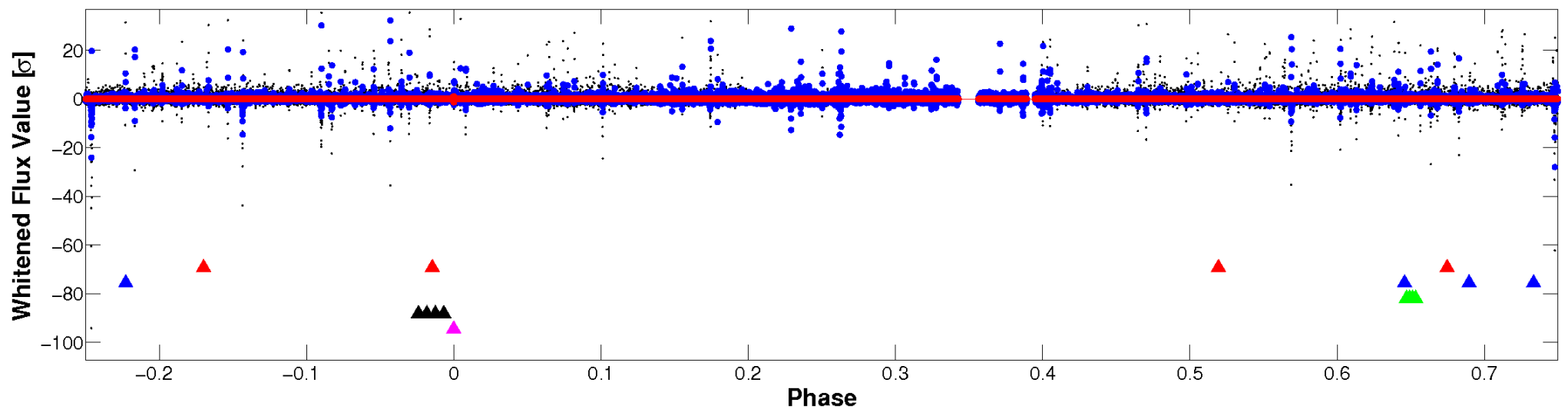


Non-Whitened Vs. Whitened Light Curve

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

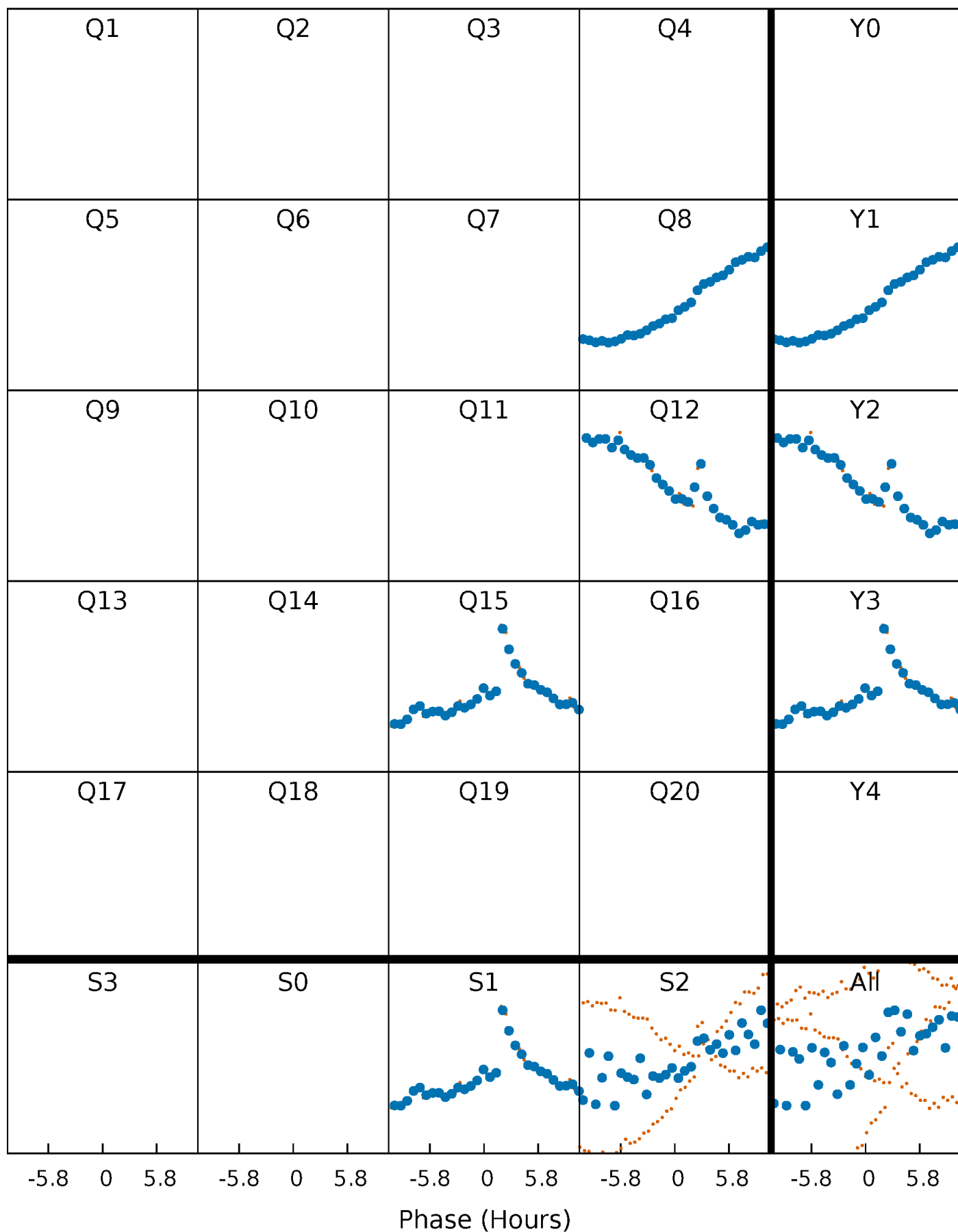


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



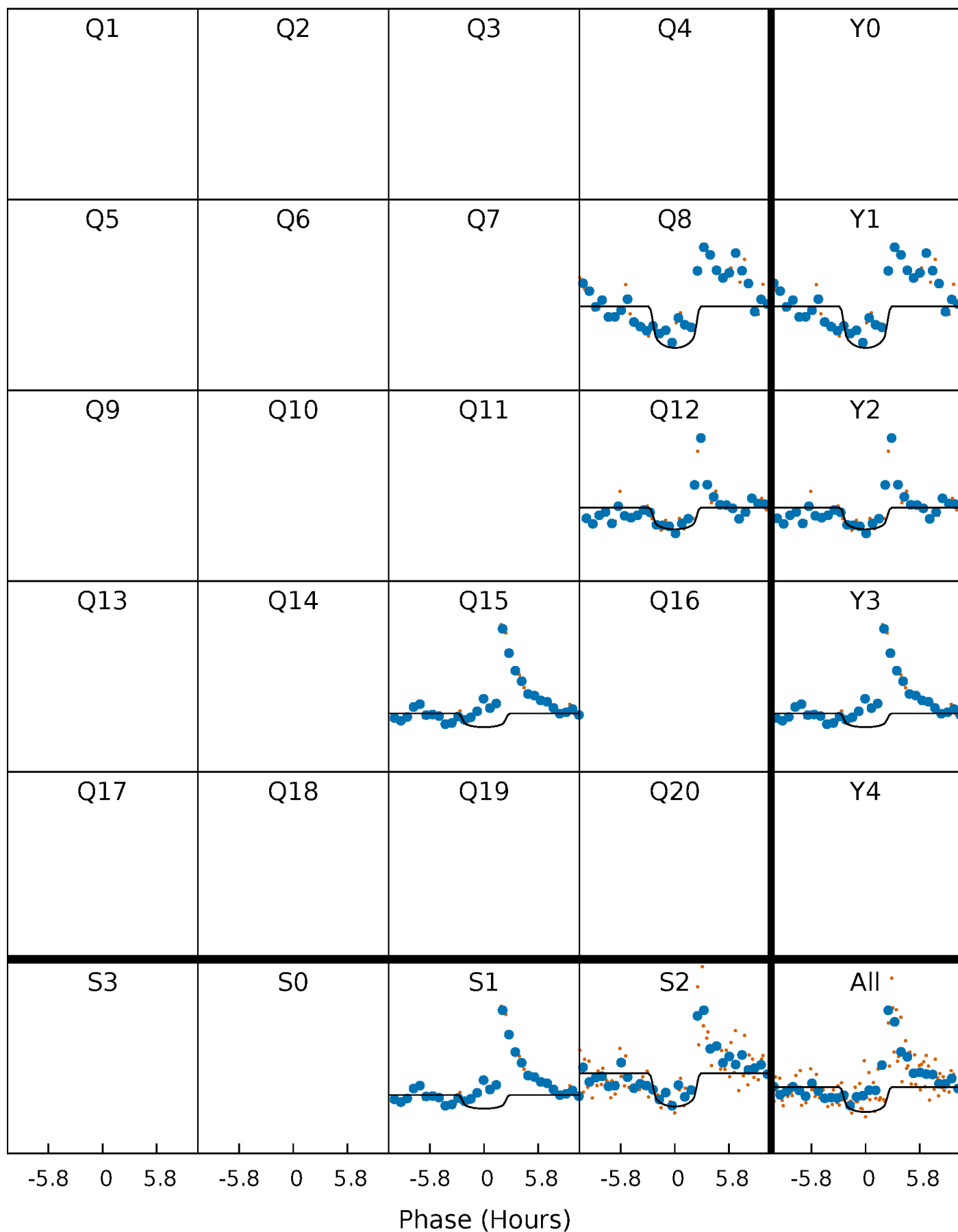
PDC Quarter-Phased Transit Curves

TCE 005516671-05 $P=356.060948$ Days $T_0=398.953925$ (BKJD)



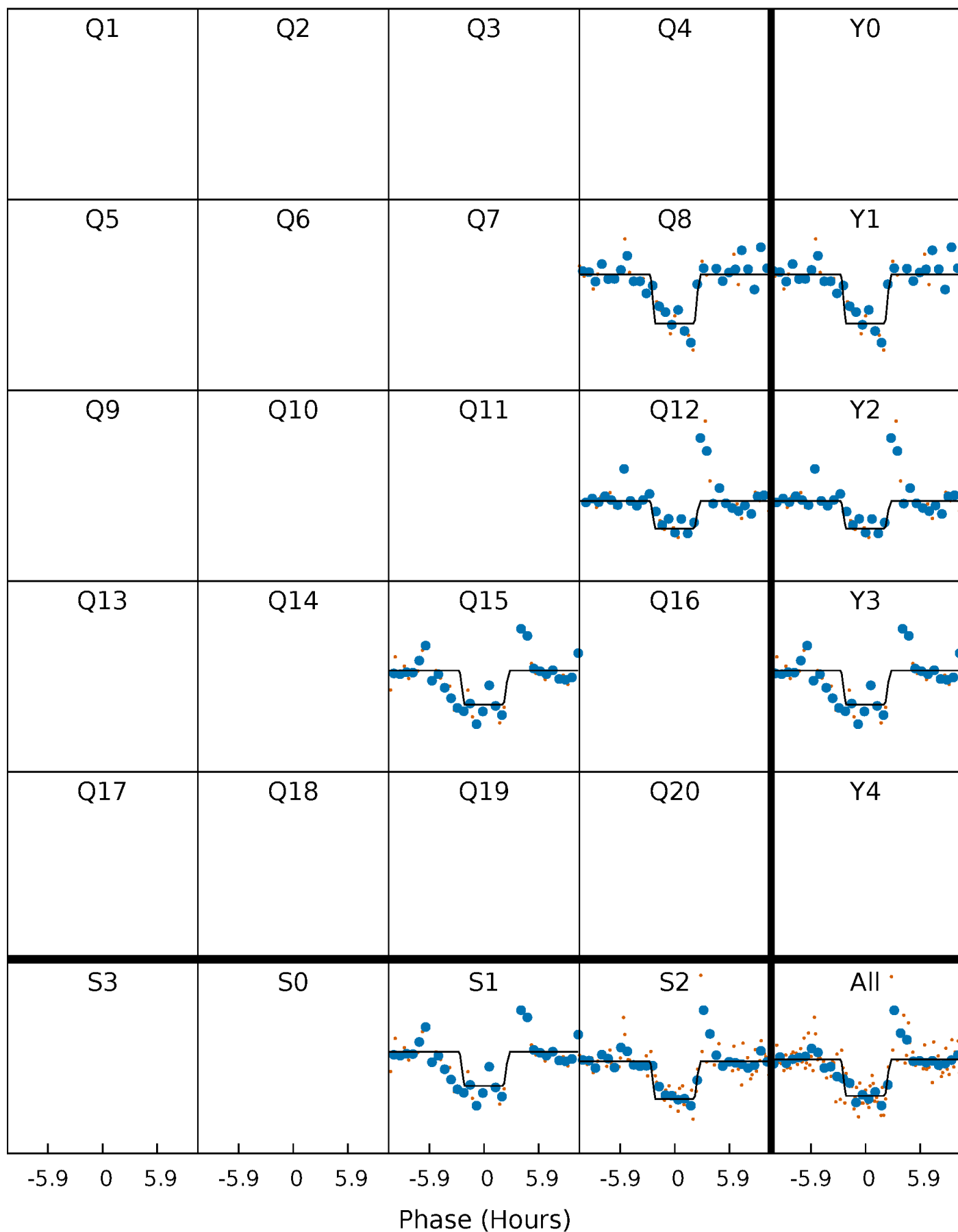
DV Quarter-Phased Transit Curves

TCE 005516671-05 $P=356.060948$ Days $T_0=398.953925$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

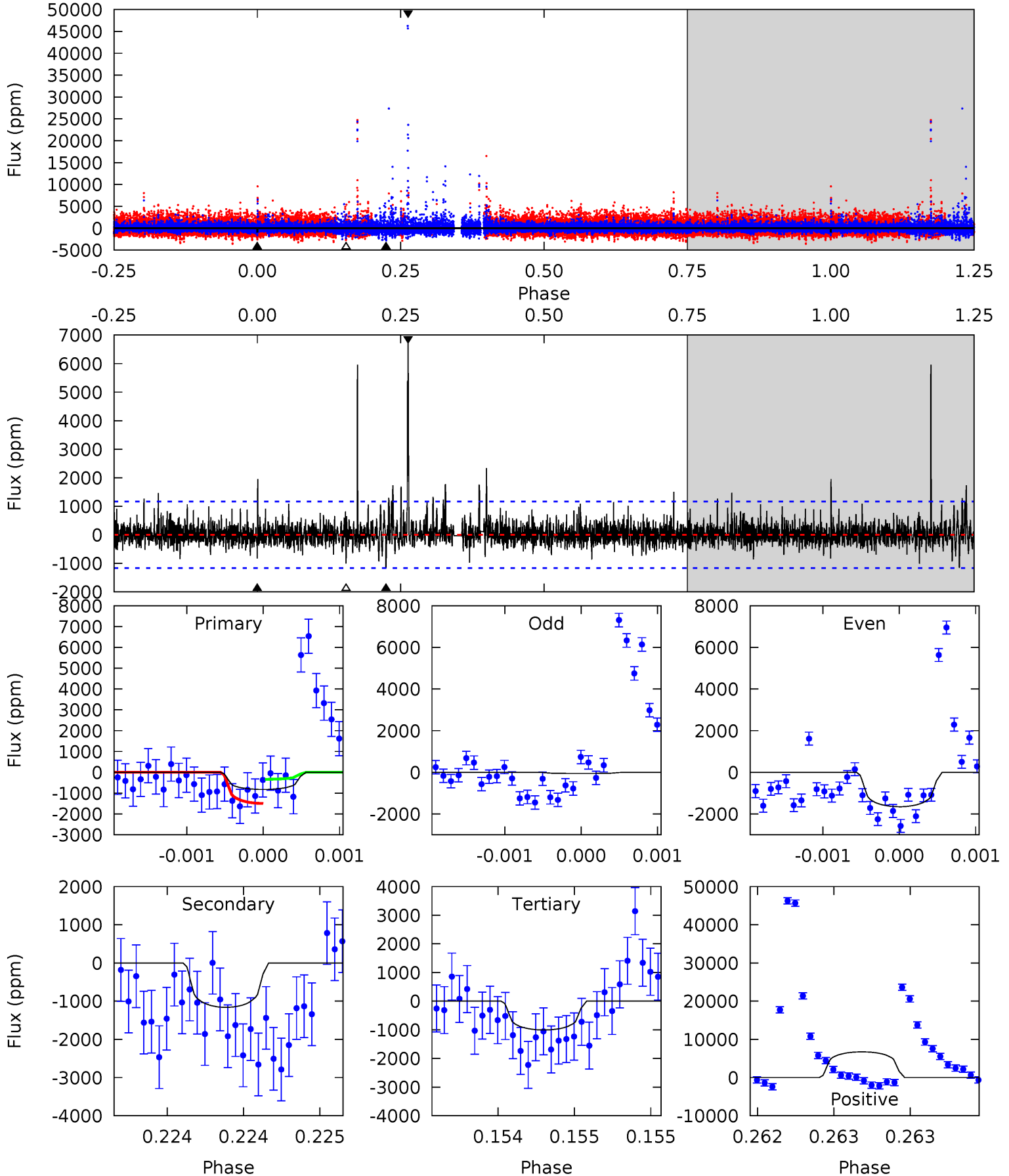
TCE 005516671-05 $P=356.041161$ Days $T_0=398.978506$ (BKJD)



DV Model-Shift Uniqueness Test

005516671-05, P = 356.060948 Days, E = 42.892977 Days

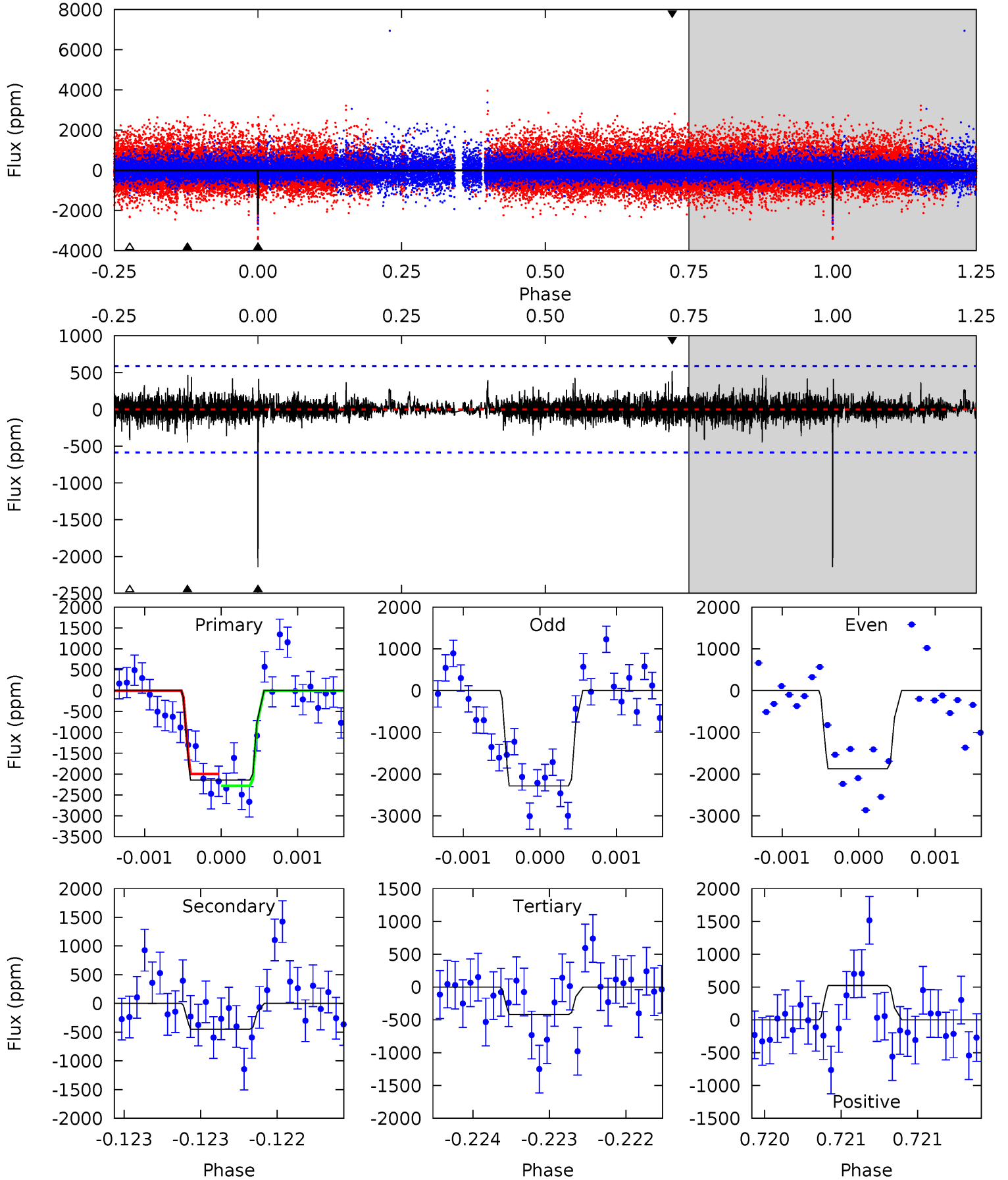
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.92	5.53	4.78	32.0	5.54	3.44	1.61	-0.86	-28.1	0.75	-26.5	2.90	0.05	0.85	2.54



Alt Model-Shift Uniqueness Test

005516671-05, P = 356.041161 Days, E = 42.937345 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	4.22	3.95	4.92	5.54	3.43	0.80	16.3	15.3	0.27	-0.70	1.74	1.03	0.20	1.36



Stellar Parameters For KIC 005516671

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3605^{+64}_{-64}	$4.800^{+0.048}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.446^{+0.035}_{-0.046}$	$0.458^{+0.037}_{-0.045}$	$7.261^{+1.812}_{-1.003}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+8%/-10%	+8%/-10%	+25%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 005516671-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1162 ± 210	$2.50^{+1.82}_{-1.60}$	170^{+4}_{-4}	3146^{+1309}_{-437}	$57153^{+401028}_{-38141}$
Alt.	-447 ± 106	$2.90^{+1.75}_{-1.81}$	170^{+4}_{-4}	2664^{+892}_{-311}	$16540^{+116011}_{-10589}$

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

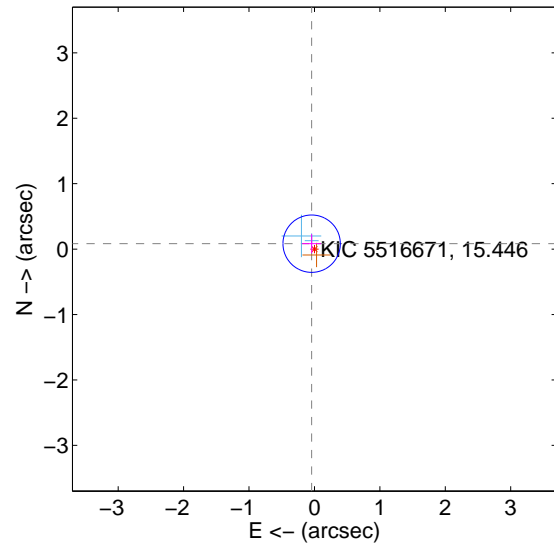
Supplemental centroid analysis for 005516671-05. Kepler magnitude: 15.45. Transit SNR 7.29

There are 2 quarters with good PRF difference image offsets

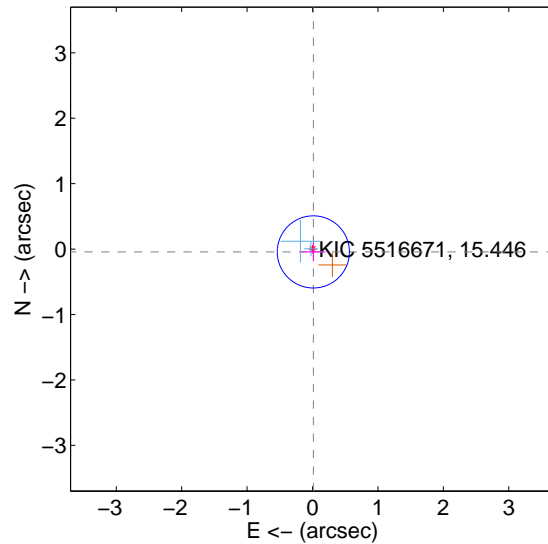
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.093 ± 0.146	0.64	0.043 ± 0.145	0.083 ± 0.146
PRF-fit source offset from KIC position	0.045 ± 0.184	0.24	-0.013 ± 0.185	-0.043 ± 0.144
photometric centroid source offset	0.67 ± 0.81	0.83	0.45 ± 0.78	0.49 ± 0.82

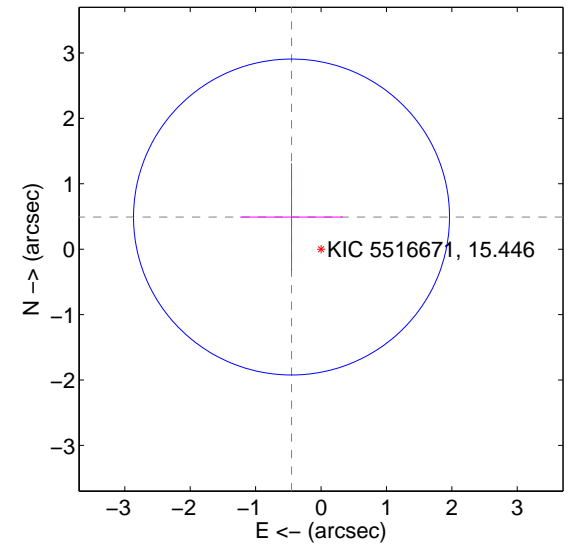
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

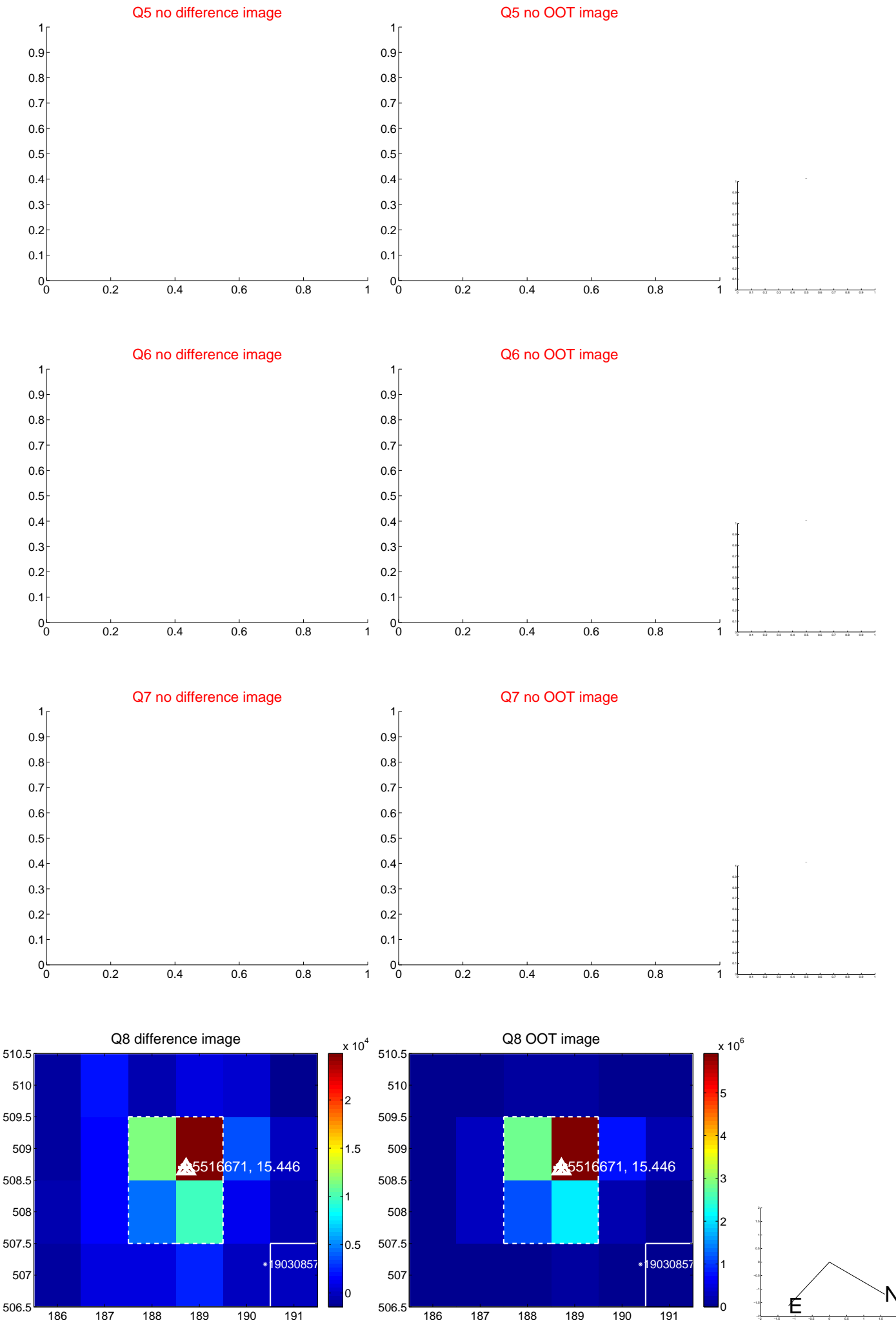


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

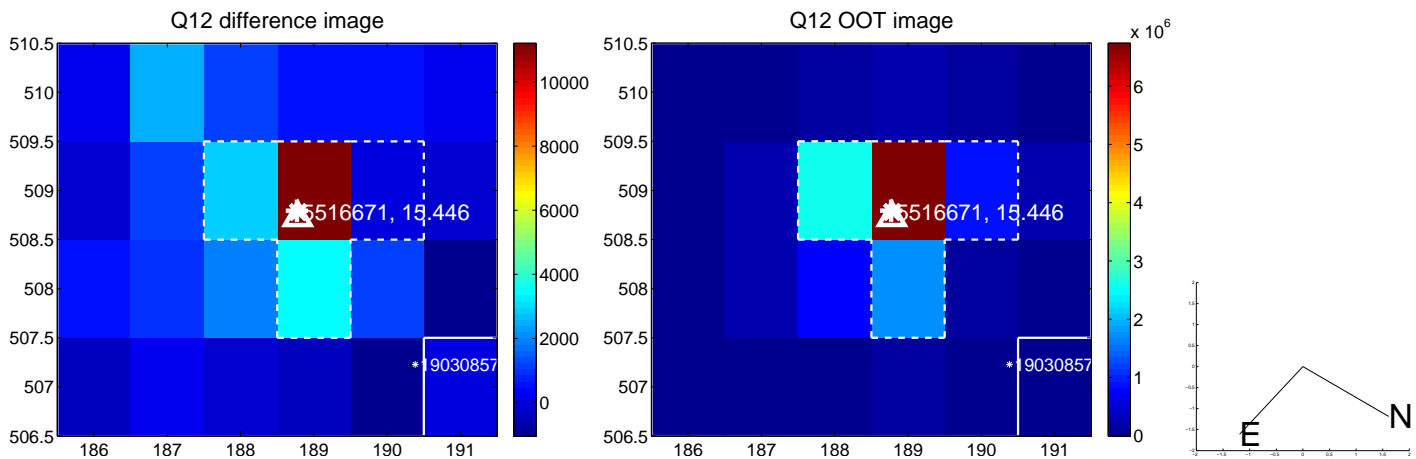
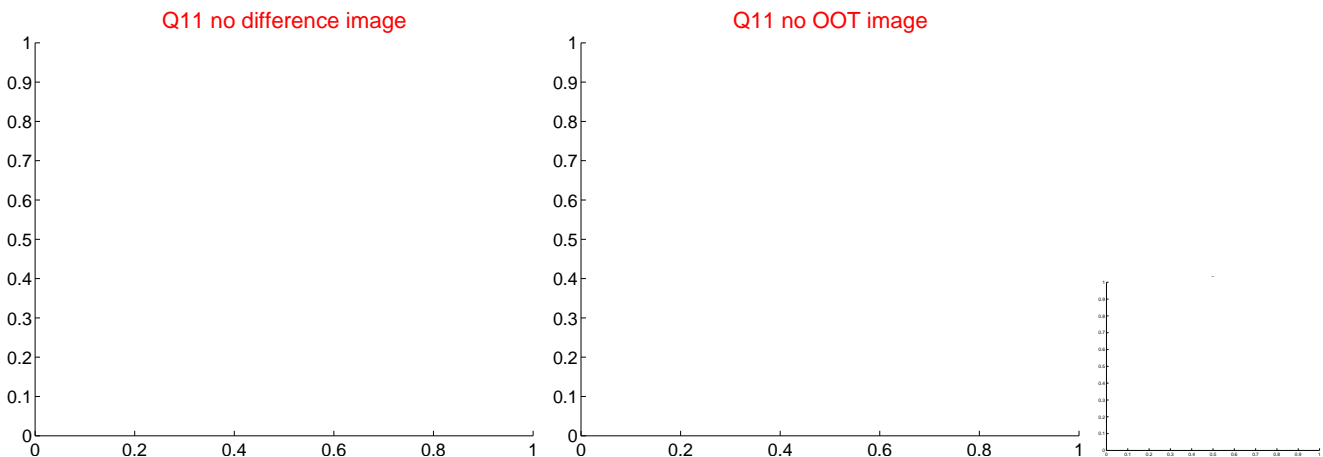
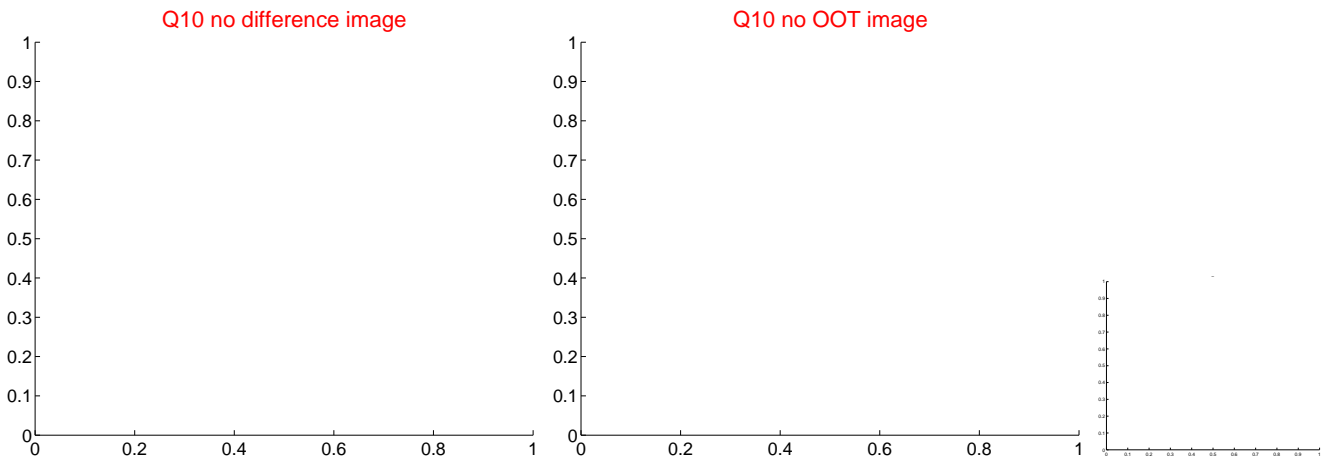
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



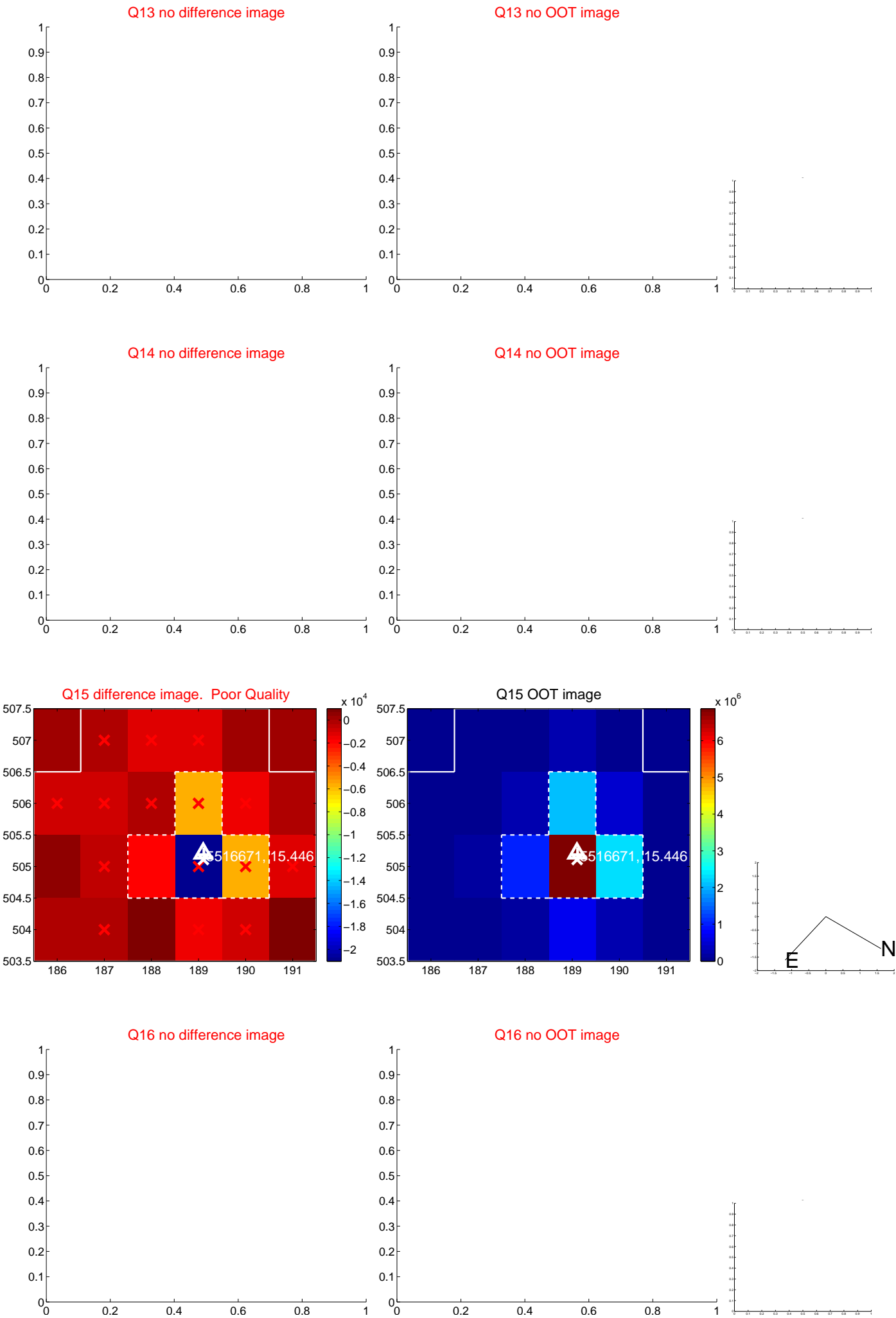
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



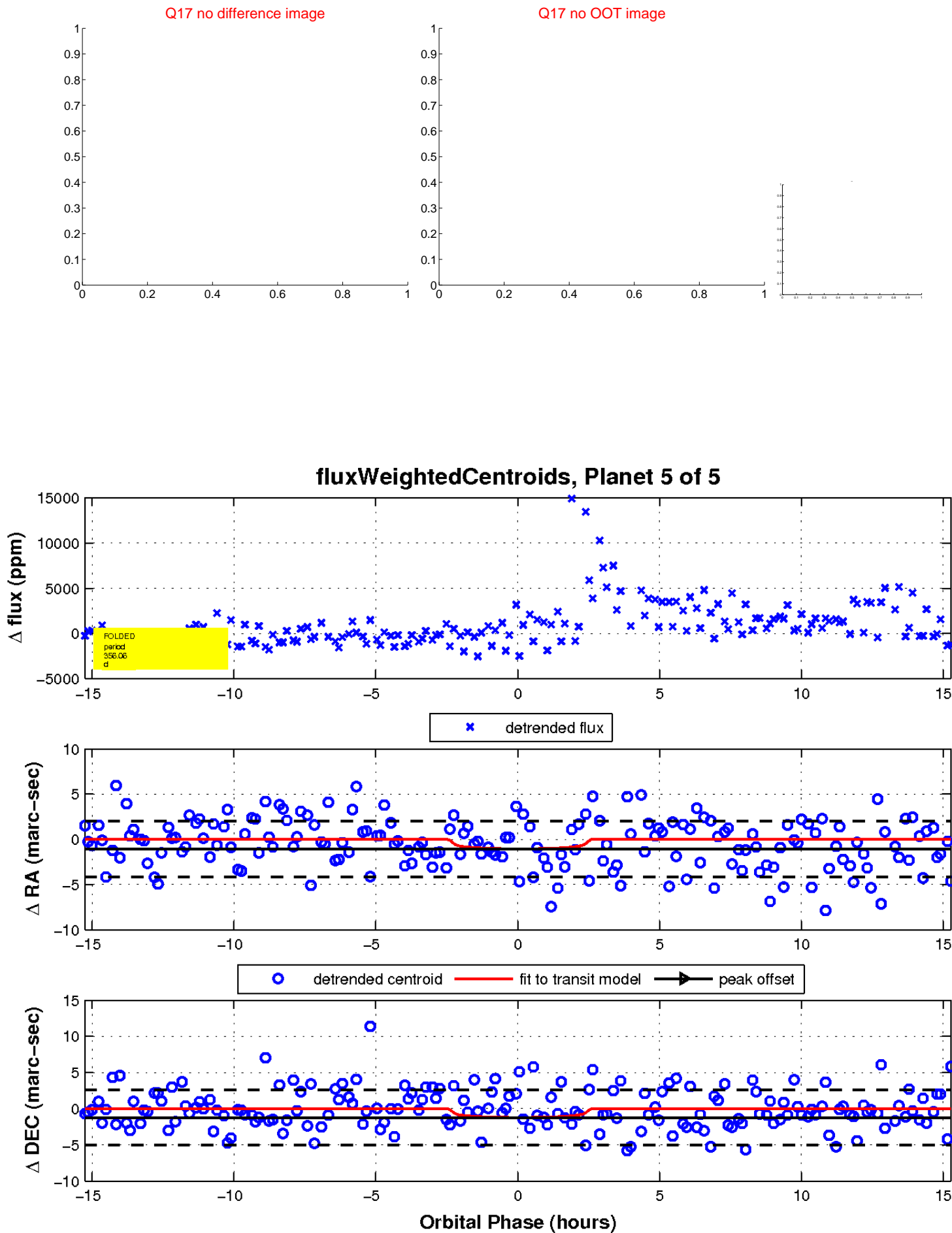
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

