

KIC 005215669

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})
005215669-01	OBS	No	0.949755	131.565715	115.2	3.752	9.3	11.2	0.73	5495	0.94	1420.41
005215669-02	OBS	No	480.768665	151.798775	2024.2	2.104	12.6	7.3	0.73	5495	3.32	0.35
005215669-03	OBS	No	263.862694	394.764557	2517.1	16.340	11.5	6.8	0.73	5495	4.61	0.78
005215669-04	OBS	No	463.512321	314.220631	1731.8	4.811	10.6	6.4	0.73	5495	3.25	0.37
005215669-05	OBS	No	213.320791	222.623288	1413.6	8.123	9.3	5.9	0.73	5495	2.81	1.04
005215669-06	OBS	No	196.435978	313.487044	2434.0	18.012	10.1	7.7	0.73	5495	4.33	1.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005215669-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005215669-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005215669-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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_KIC_POS
005215669-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

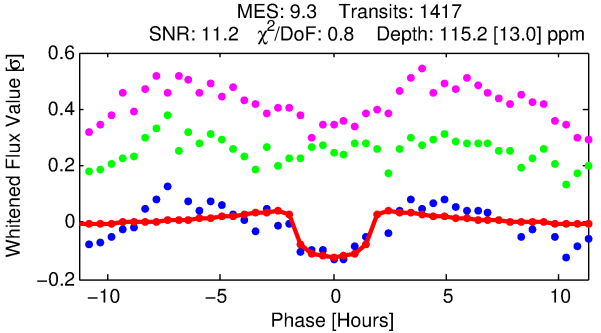
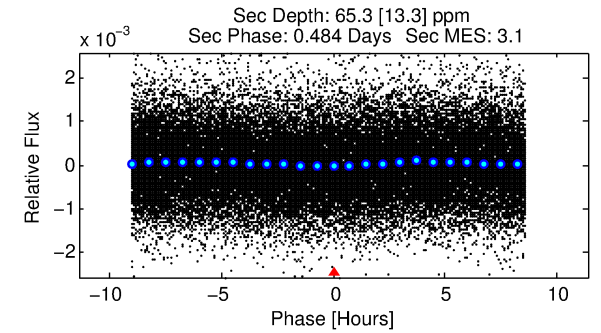
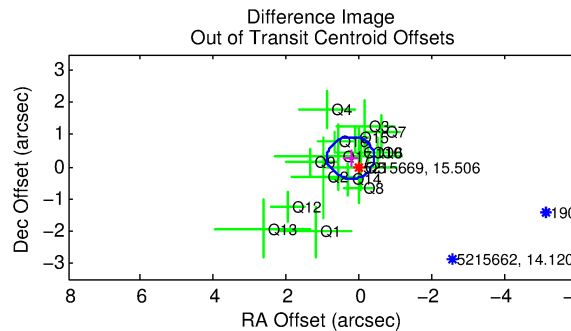
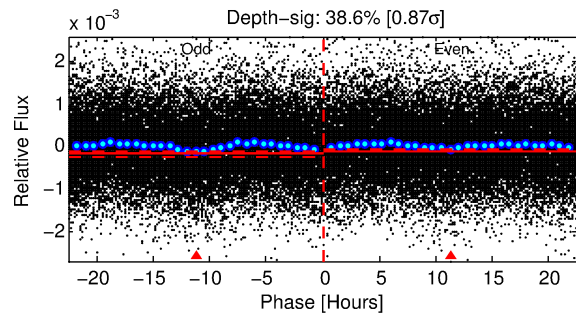
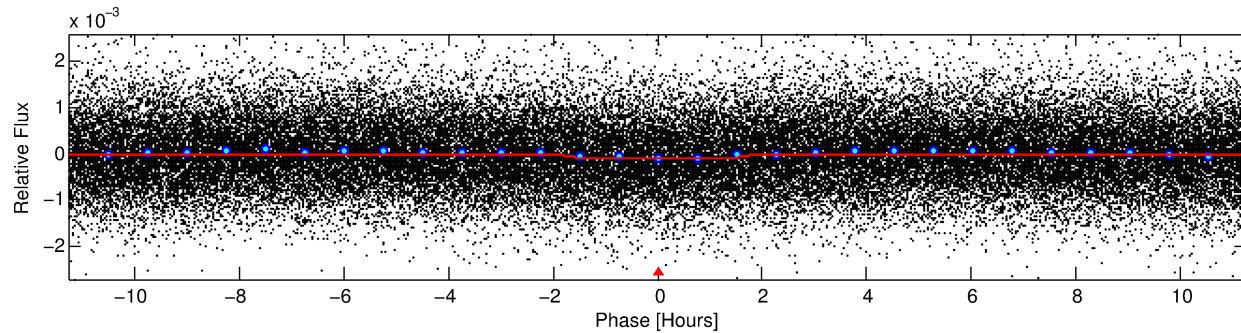
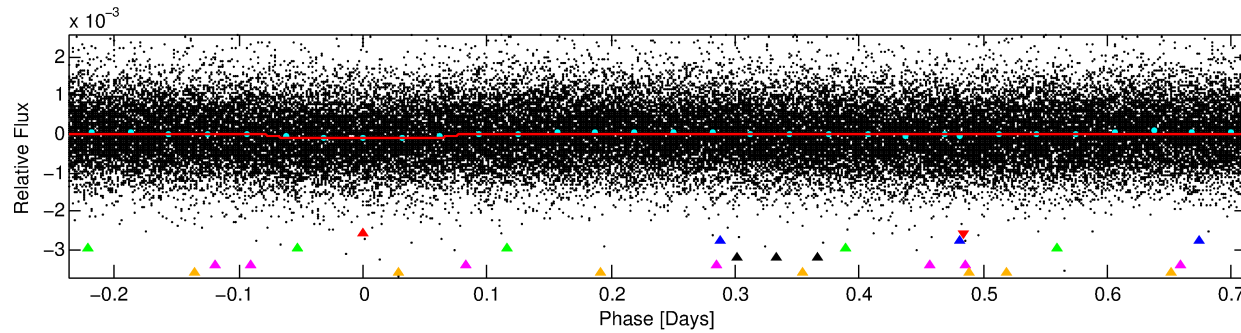
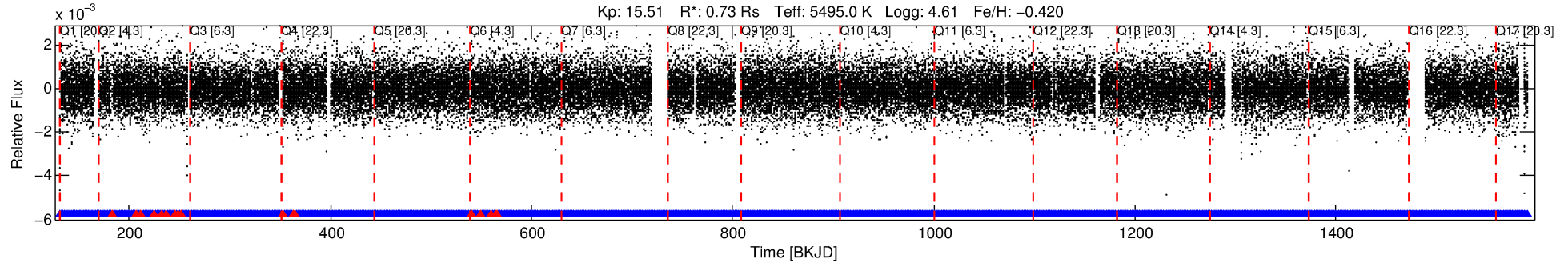
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005215669-01

No Significant Match Found

DV One-Page Summary

KIC: 5215669 Candidate: 1 of 6 Period: 0.950 d



DV Fit Results:

Period = 0.94976 [0.00001] d
Epoch = 131.5657 [0.0032] BKJD
Rp/R* = 0.0117 [0.0050]
a/R* = 1.30 [1.06]
b = 0.90 [0.43]
Seff = 1420.41 [340.96]
Teq = 1565 [94] K
Rp = 0.94 [0.44] Re
a = 0.0176 [0.0026] AU
Ag = 12.64 [11.51] [1.01 σ]
Teff = 4564 [1020] K [2.93 σ]

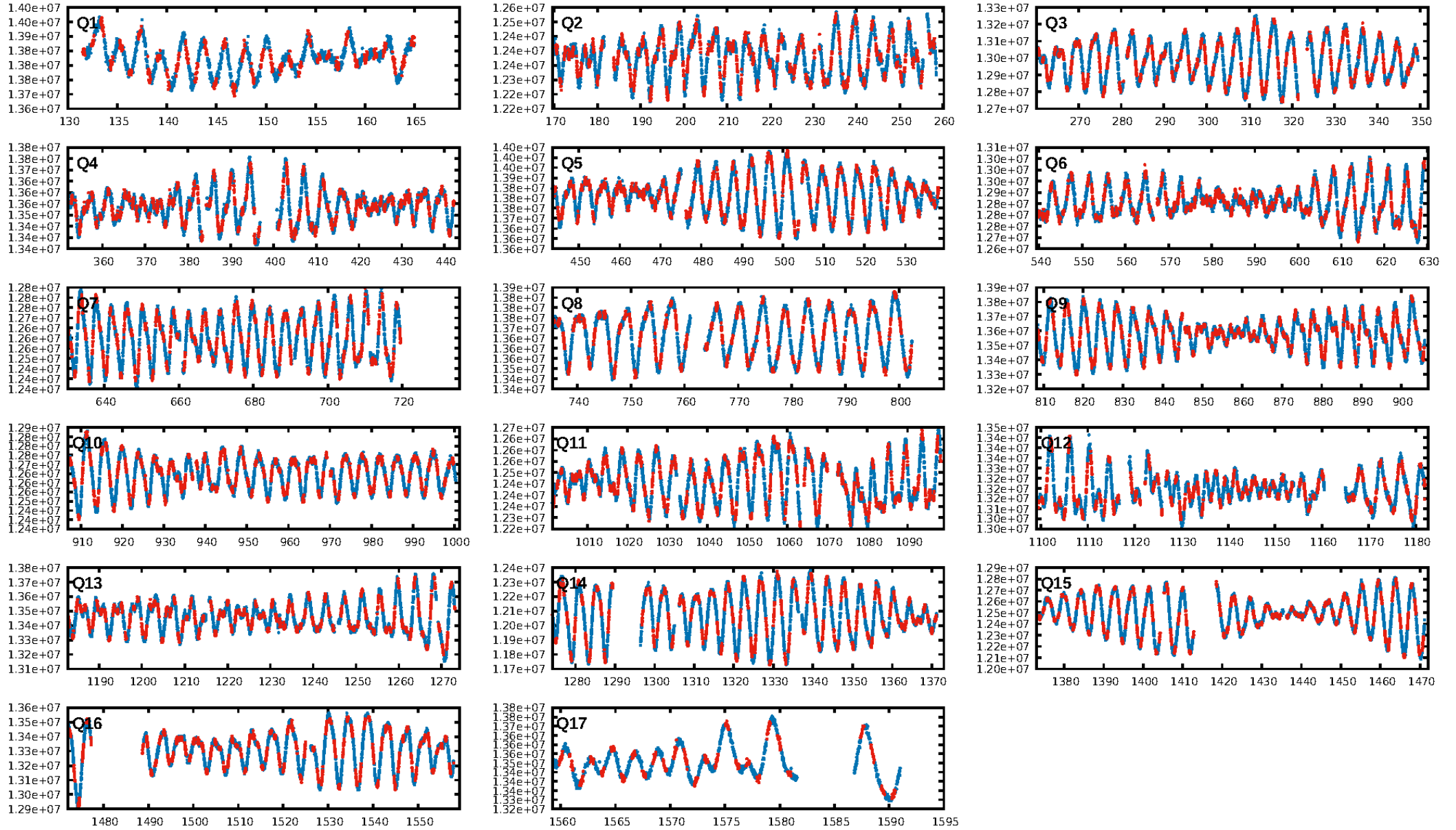
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [255.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1336/1354]
GhostDiagnostic-chr: 0.7439
Centroid-sig: 18.1%
Centroid-so: 1.626 arcsec [1.87 σ]
OotOffset-rm: 0.359 arcsec [1.65 σ]
KicOffset-rm: 0.143 arcsec [0.50 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.71 [12/17]
DiffImageOverlap-fno: 1.00 [17/17]

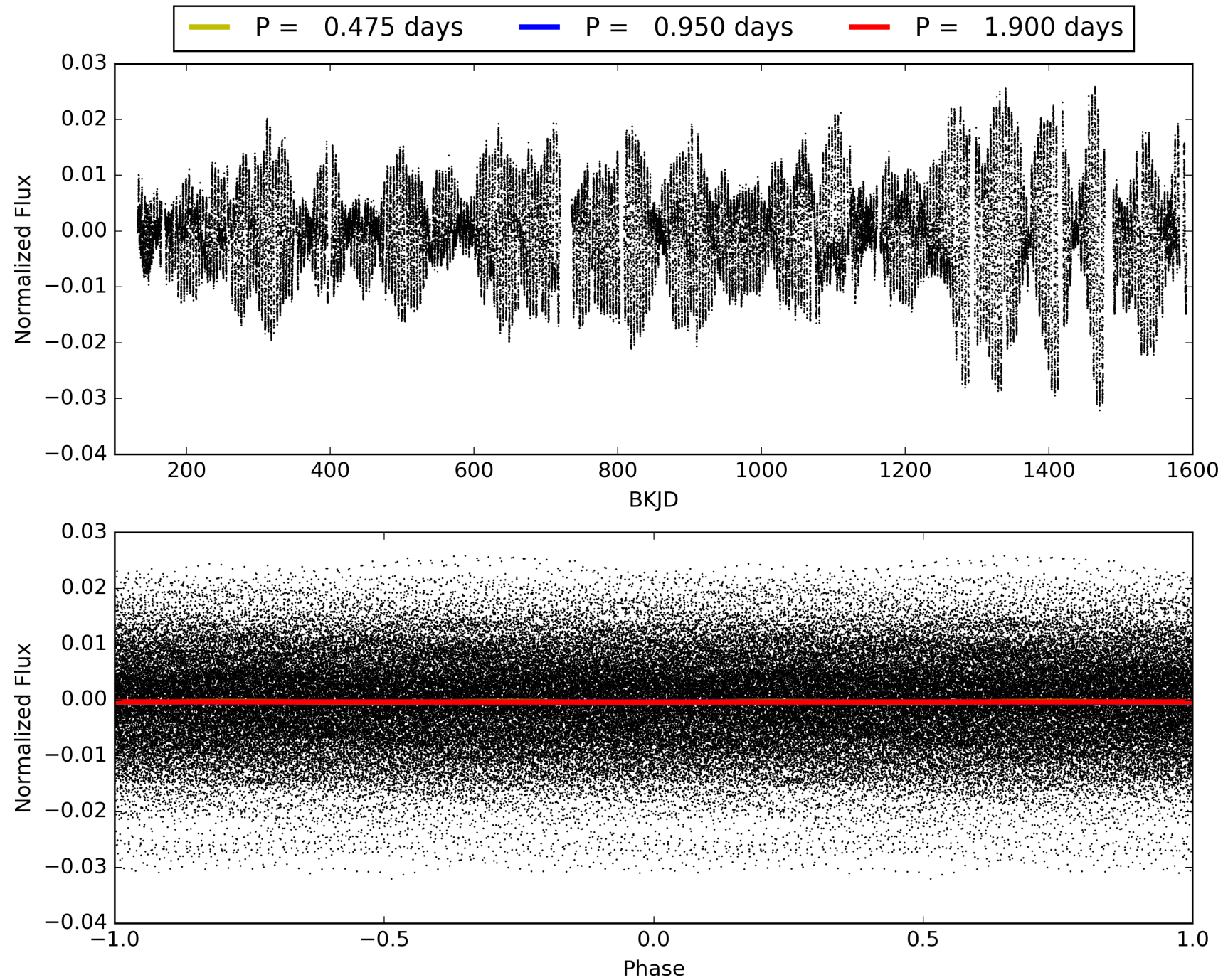
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:13:47 Z

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

TCE 005215669-01, PDC Light Curves

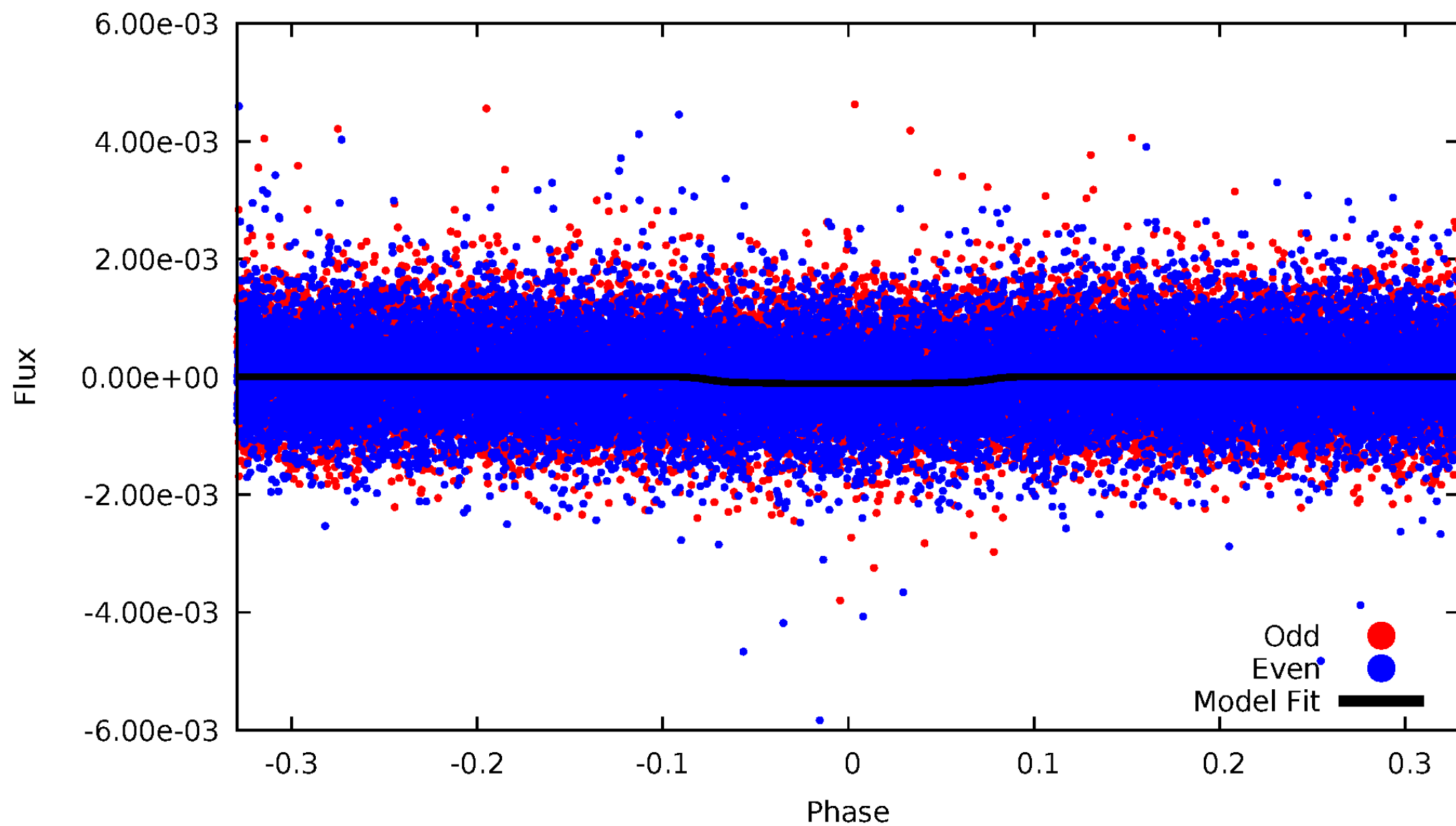


TCE 005215669-01



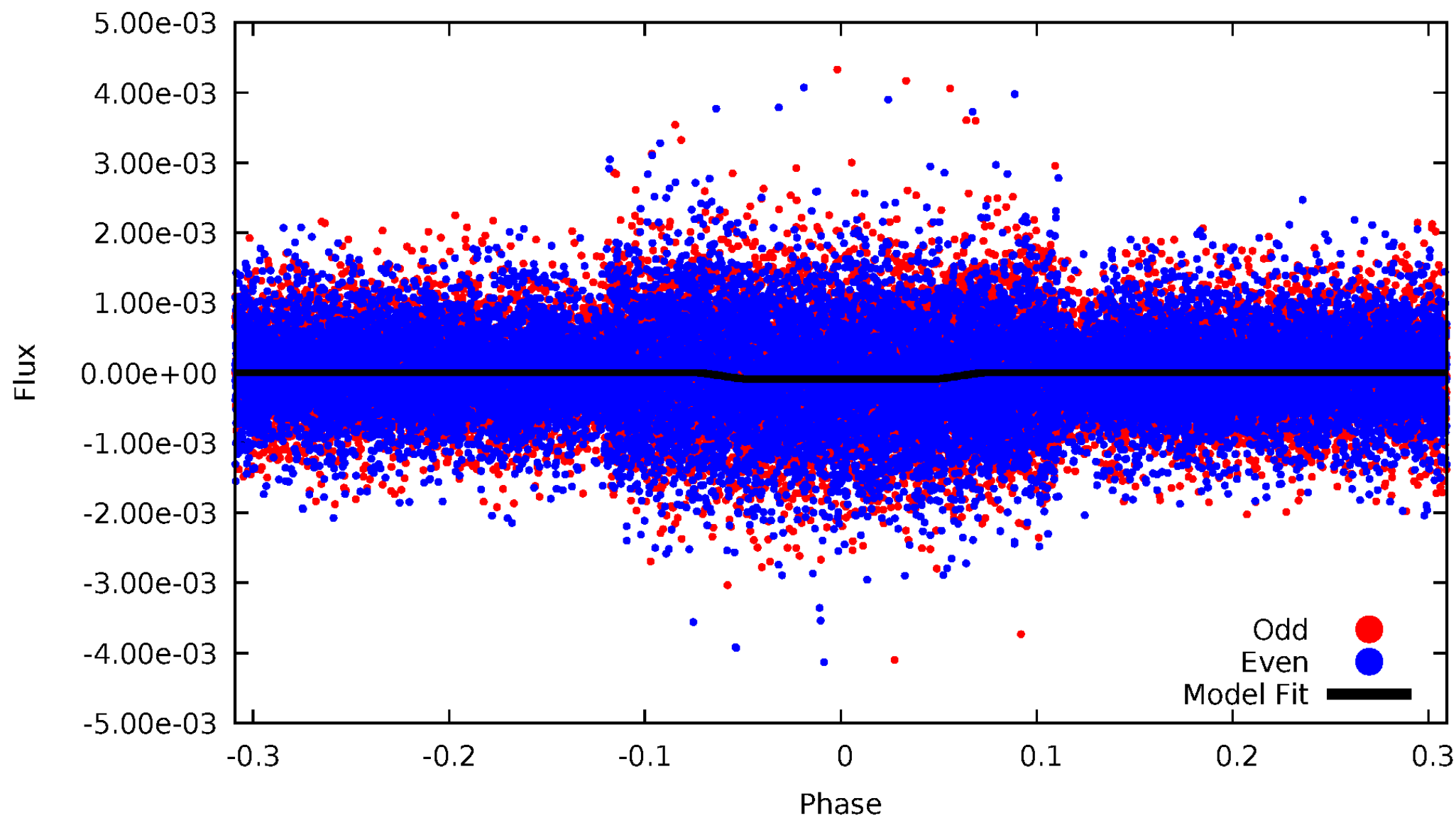
DV Odd/Even

TCE 005215669-01

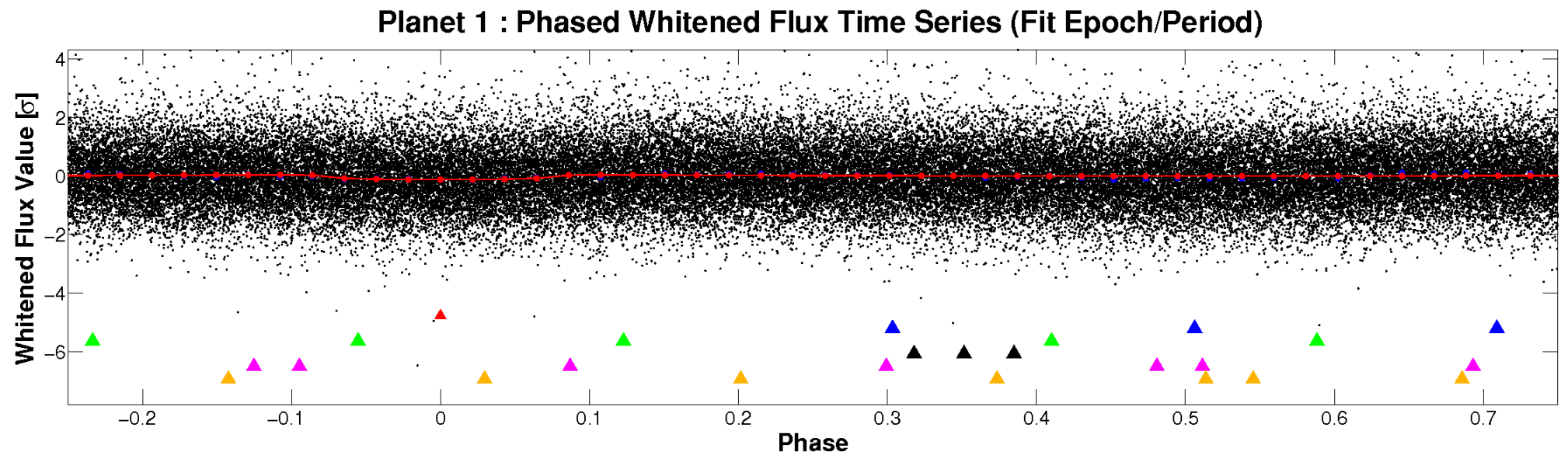
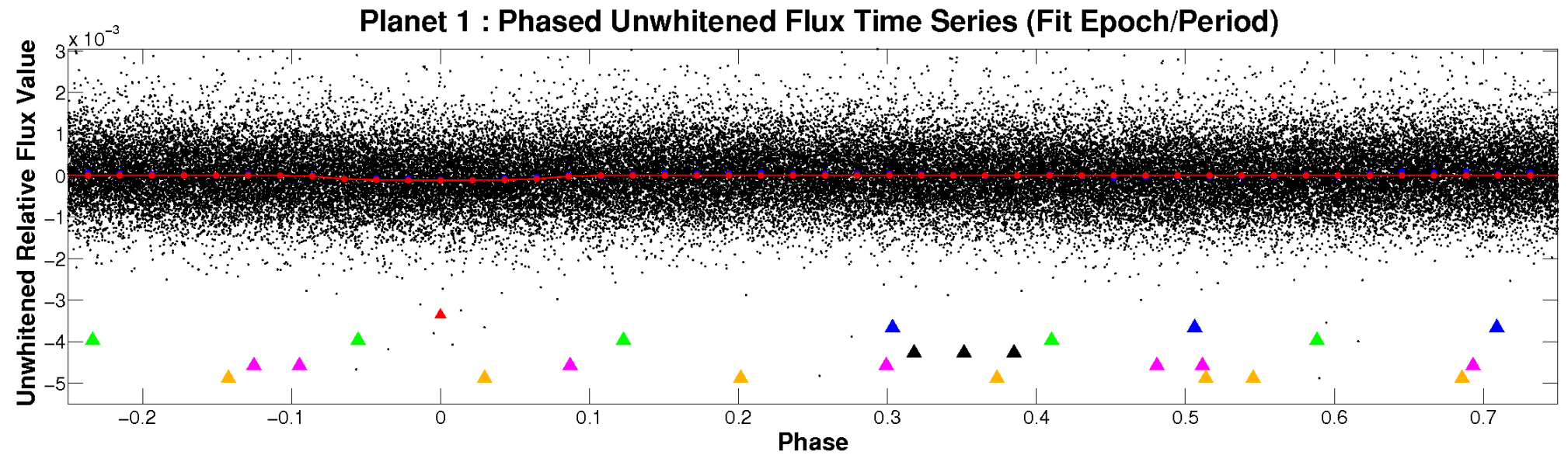


ALT Odd/Even

TCE 005215669-01

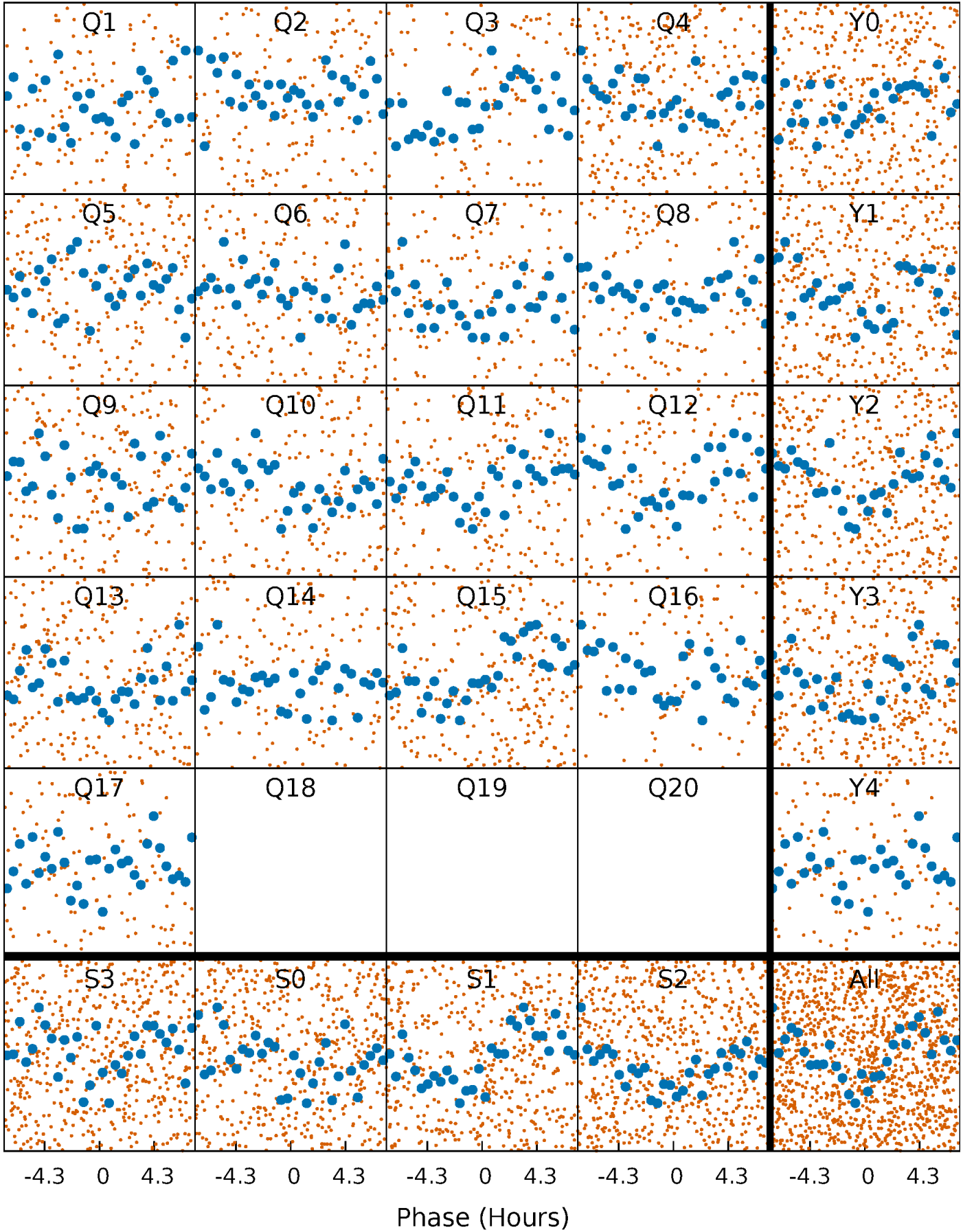


Non-Whitened Vs. Whitened Light Curve



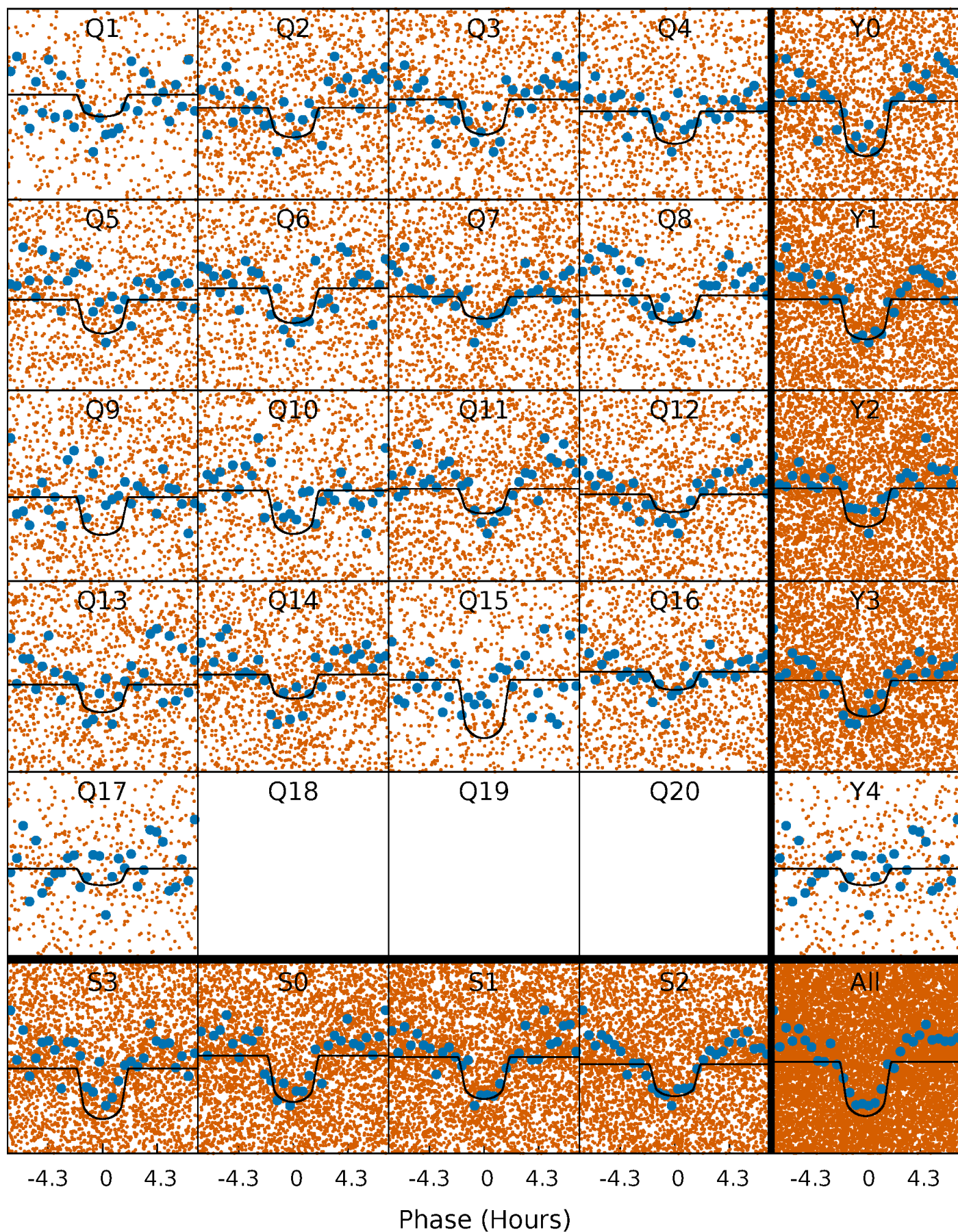
PDC Quarter-Phased Transit Curves

TCE 005215669-01 P= 0.949755 Days $T_0=131.565715$ (BKJD)



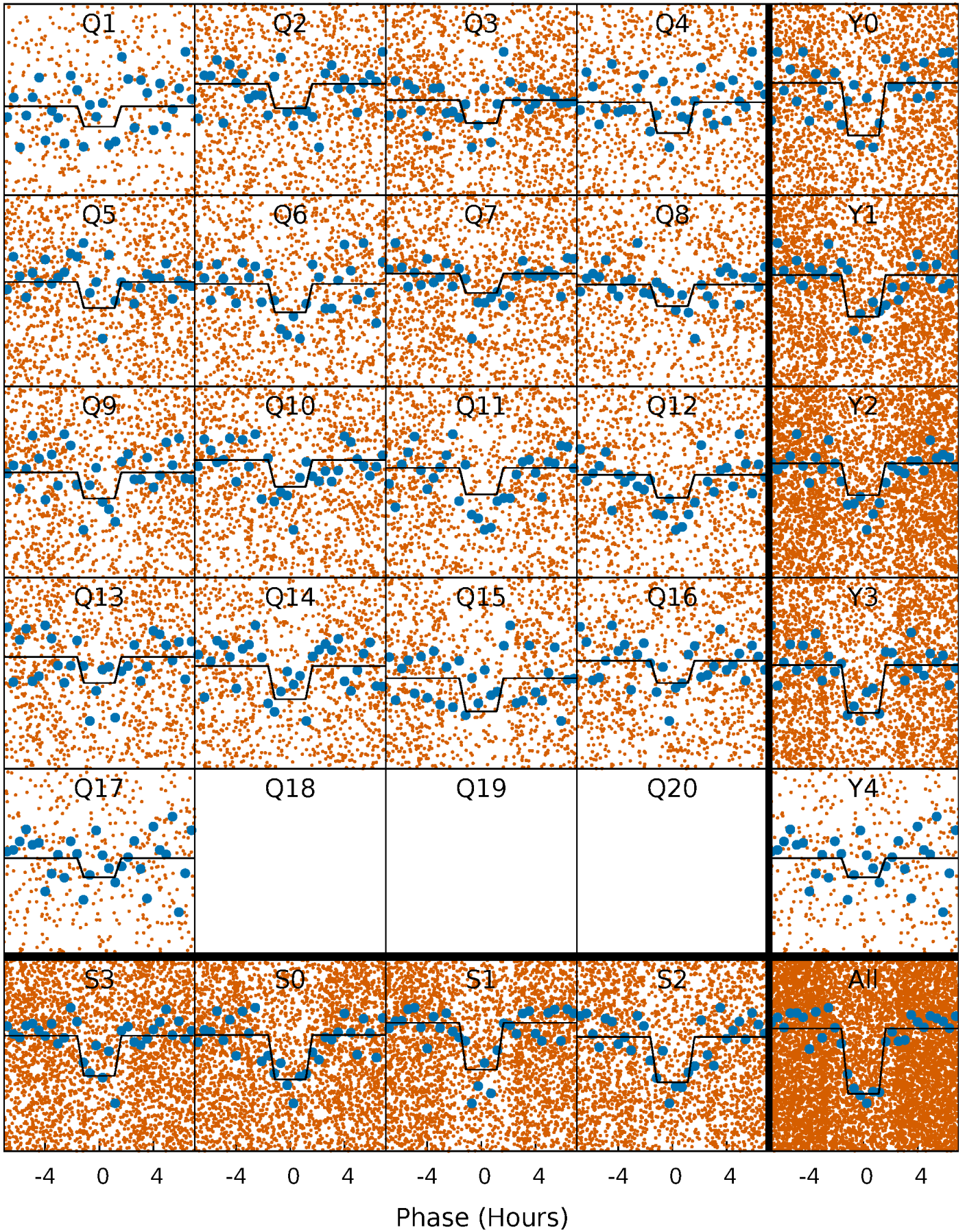
DV Quarter-Phased Transit Curves

TCE 005215669-01 P= 0.949755 Days $T_0=131.565715$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

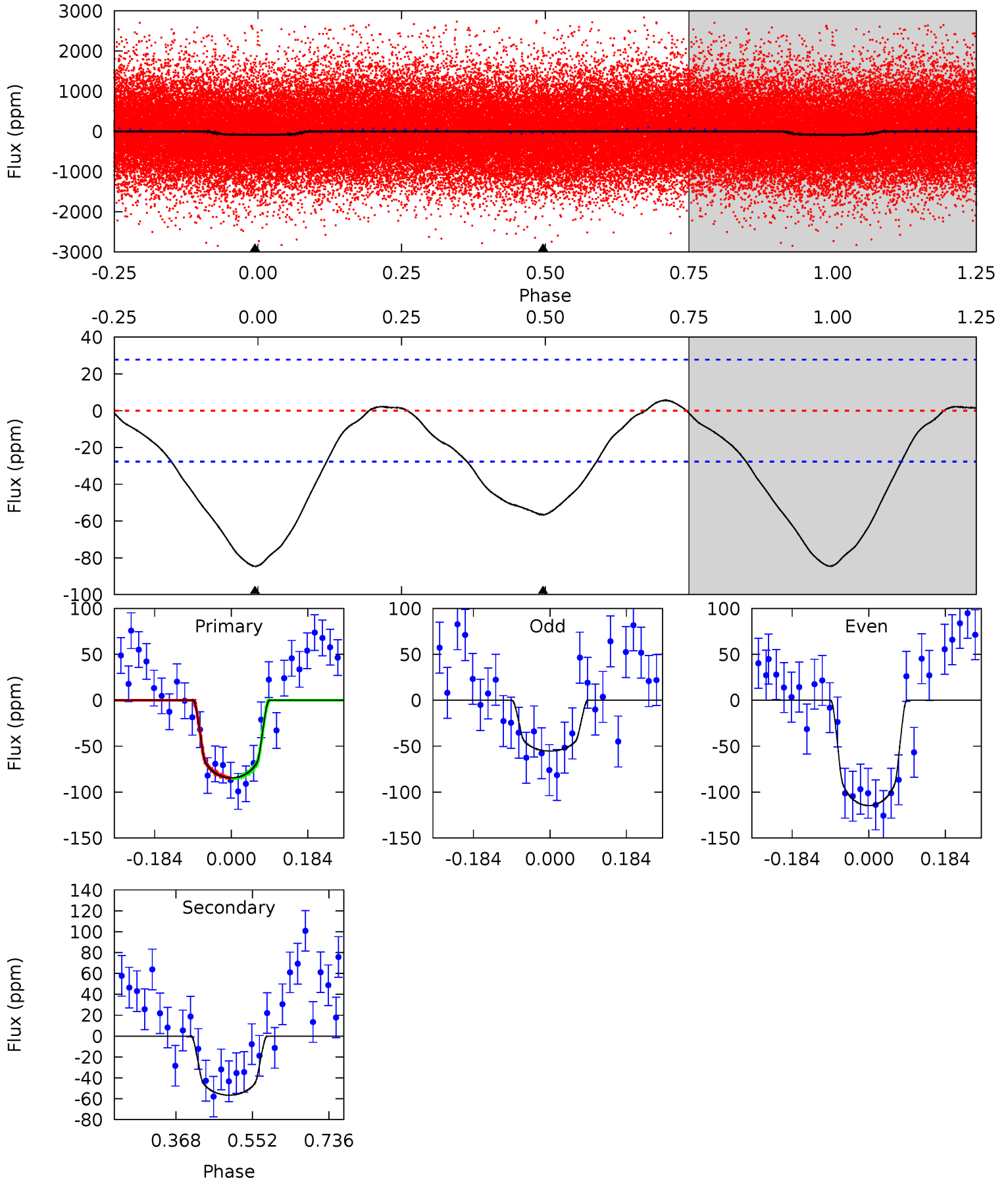
TCE 005215669-01 P= 0.949731 Days $T_0=131.577125$ (BKJD)



DV Model-Shift Uniqueness Test

005215669-01, P = 0.949755 Days, E = 130.615960 Days

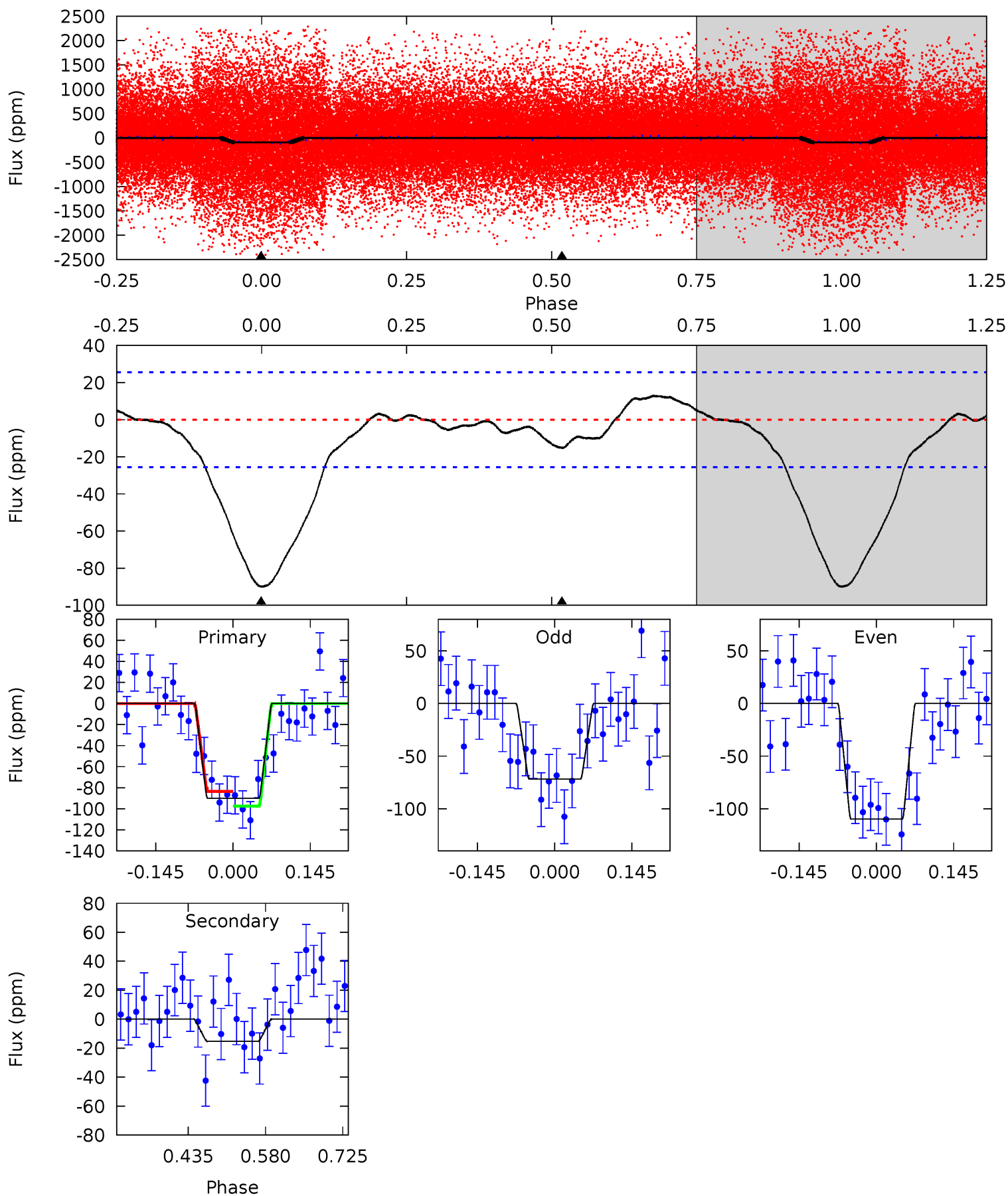
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	9.05	0	0	4.44	1.33	0.97	13.5	13.5	9.05	9.05	4.76	1.01	0.06	0.10



Alt Model-Shift Uniqueness Test

005215669-01, P = 0.949731 Days, E = 130.627394 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	2.67	0	0	4.49	1.46	1.00	15.8	15.8	2.67	2.67	3.32	1.18	0.13	1.22



Stellar Parameters For KIC 005215669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5495^{+162}_{-162}	$4.613^{+0.037}_{-0.112}$	$-0.420^{+0.300}_{-0.300}$	$0.734^{+0.131}_{-0.056}$	$0.814^{+0.083}_{-0.083}$	$2.905^{+0.453}_{-0.970}$
	+3%/-3%	+1%/-2%	+71%/-71%	+18%/-8%	+10%/-10%	+16%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005215669-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-57 ± 6	$0.99^{+0.43}_{-0.41}$	2217^{+104}_{-86}	4500^{+1229}_{-580}	$9.678^{+20.227}_{-4.906}$
Alt.	-15 ± 6	$0.77^{+0.44}_{-0.36}$	2212^{+110}_{-85}	3815^{+1114}_{-634}	$4.014^{+11.804}_{-2.456}$

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

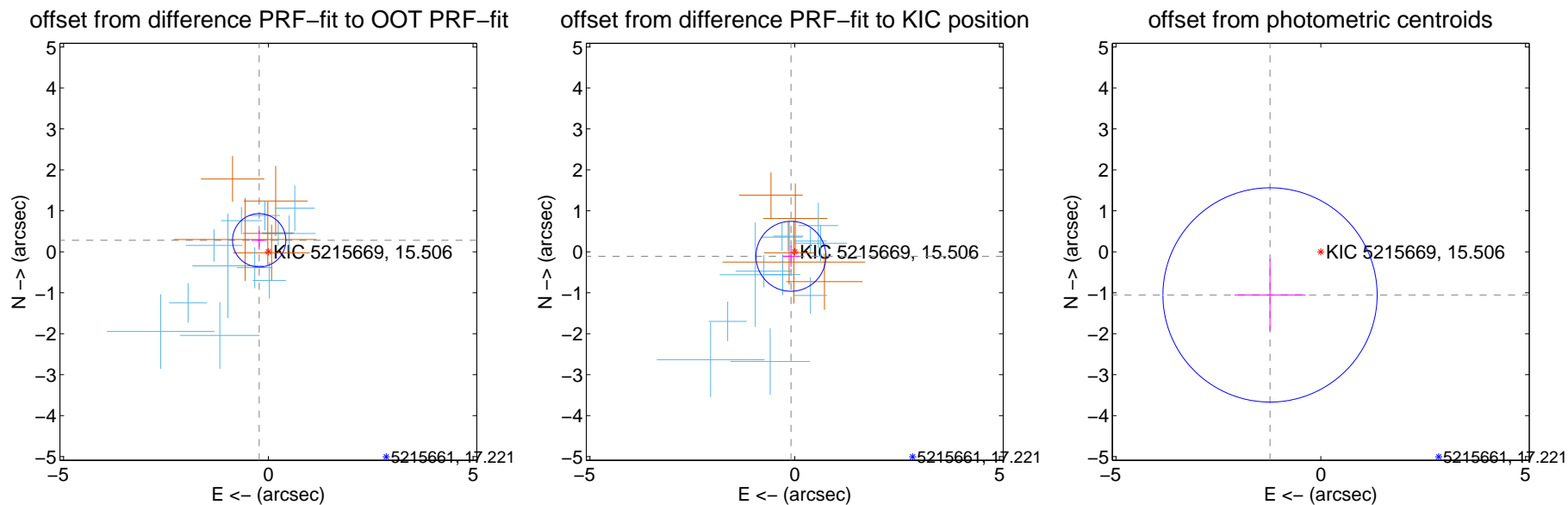
DV Centroid Data

Supplemental centroid analysis for 005215669-01. Kepler magnitude: 15.51. Transit SNR 11.18

There are 12 quarters with good PRF difference image offsets

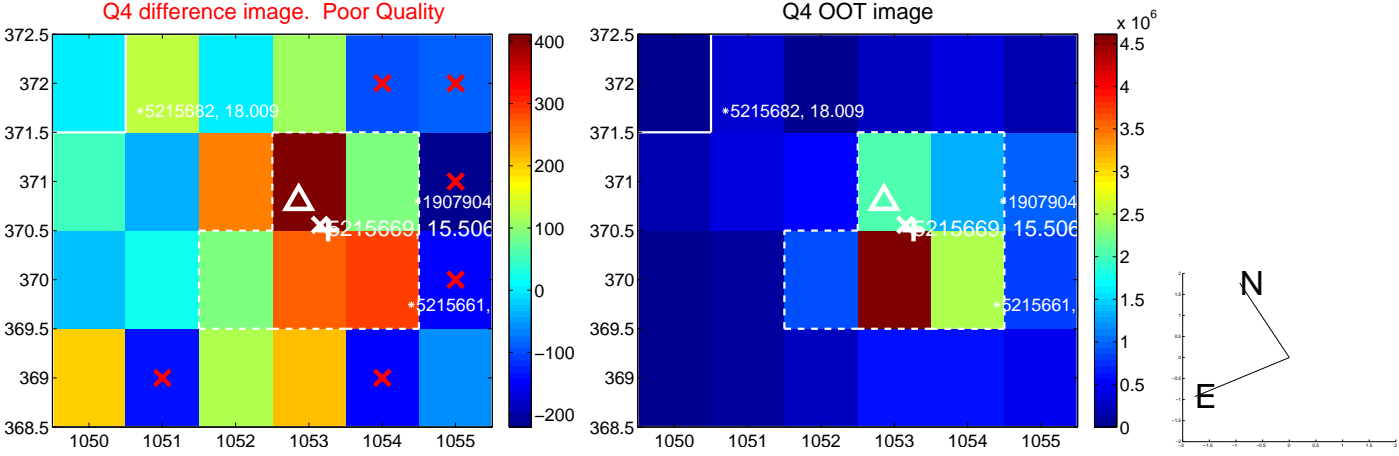
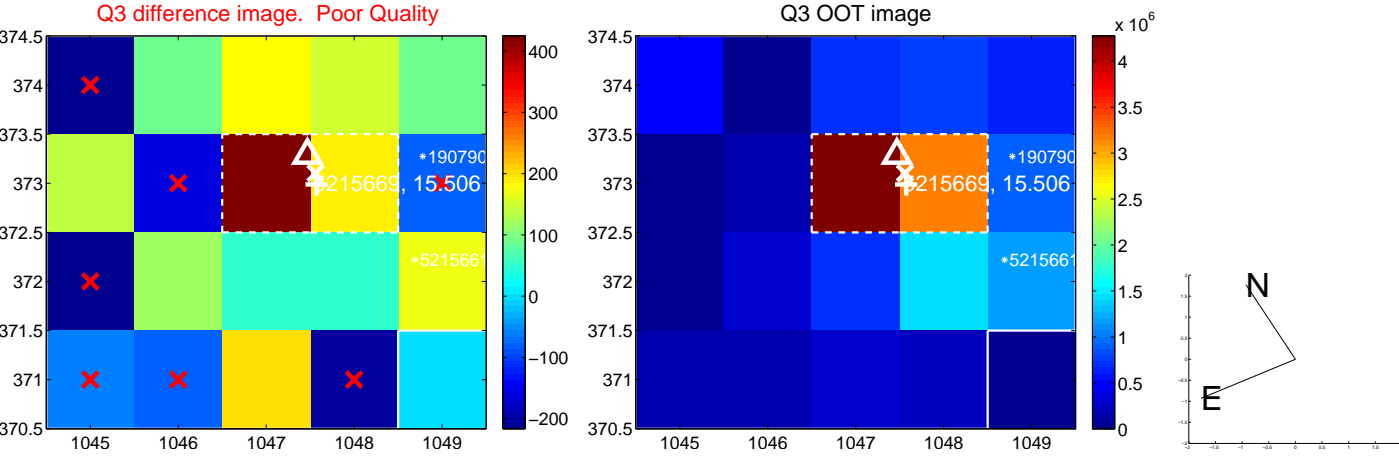
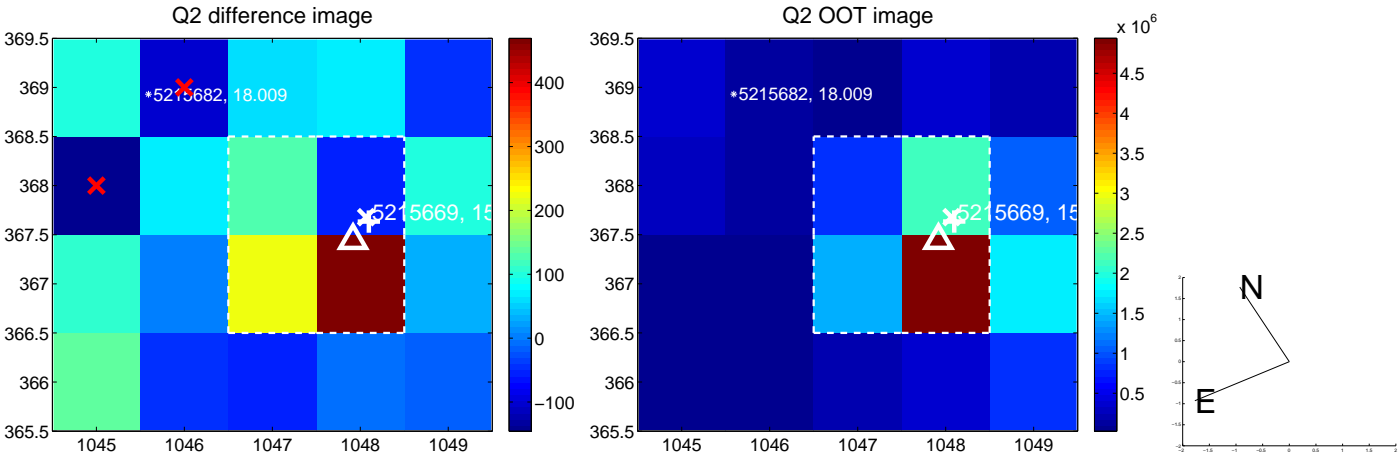
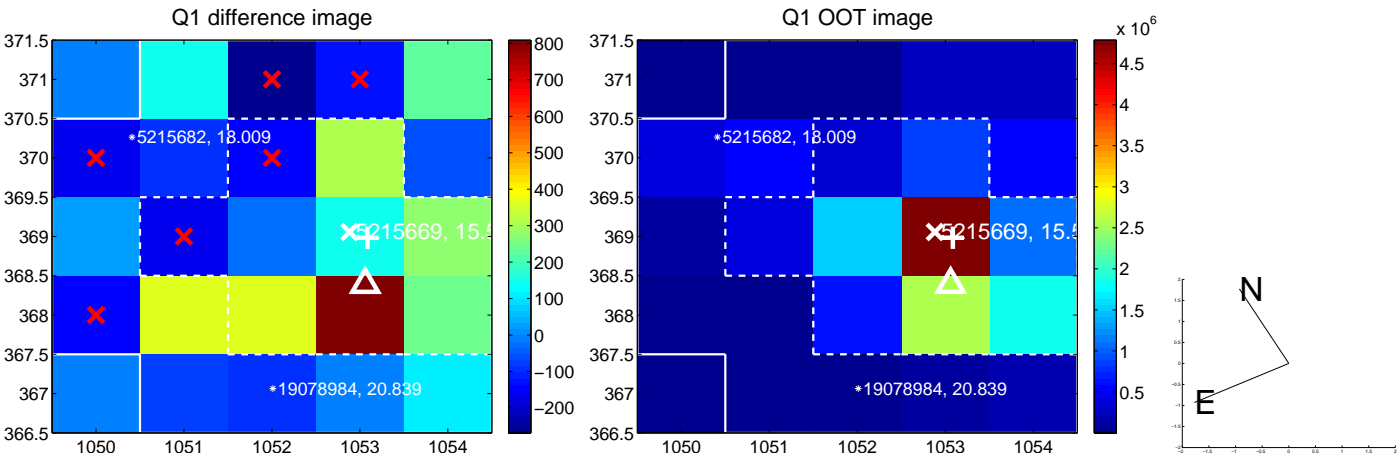
The direct PRF centroid is offset from the target star catalog position by about 0.78 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.359 ± 0.217	1.65	0.224 ± 0.189	0.280 ± 0.233
PRF-fit source offset from KIC position	0.143 ± 0.285	0.50	0.091 ± 0.199	-0.110 ± 0.257
photometric centroid source offset	1.63 ± 0.87	1.87	1.24 ± 0.87	-1.05 ± 0.88

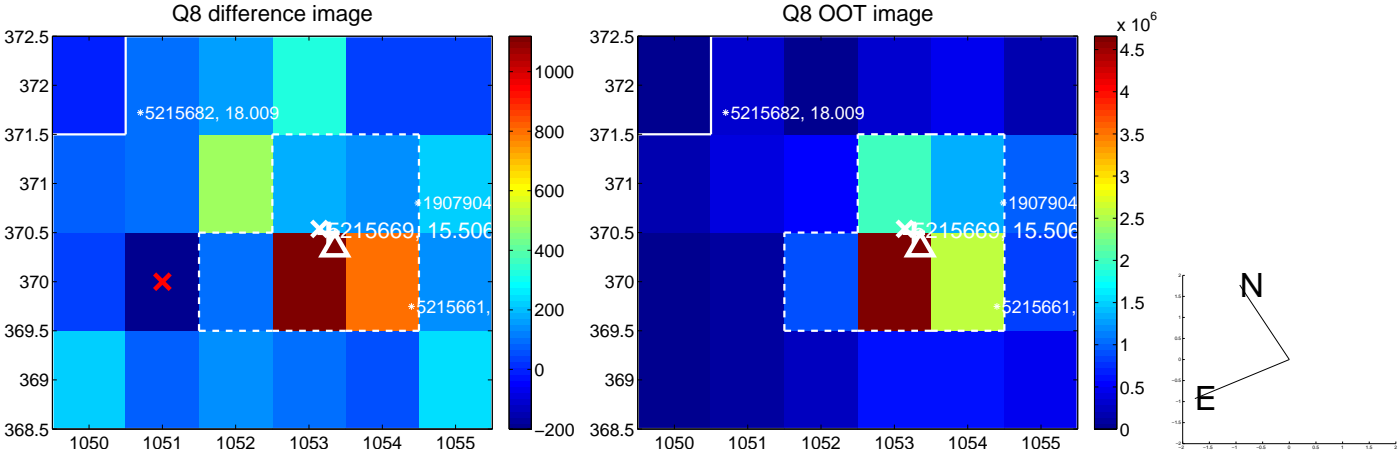
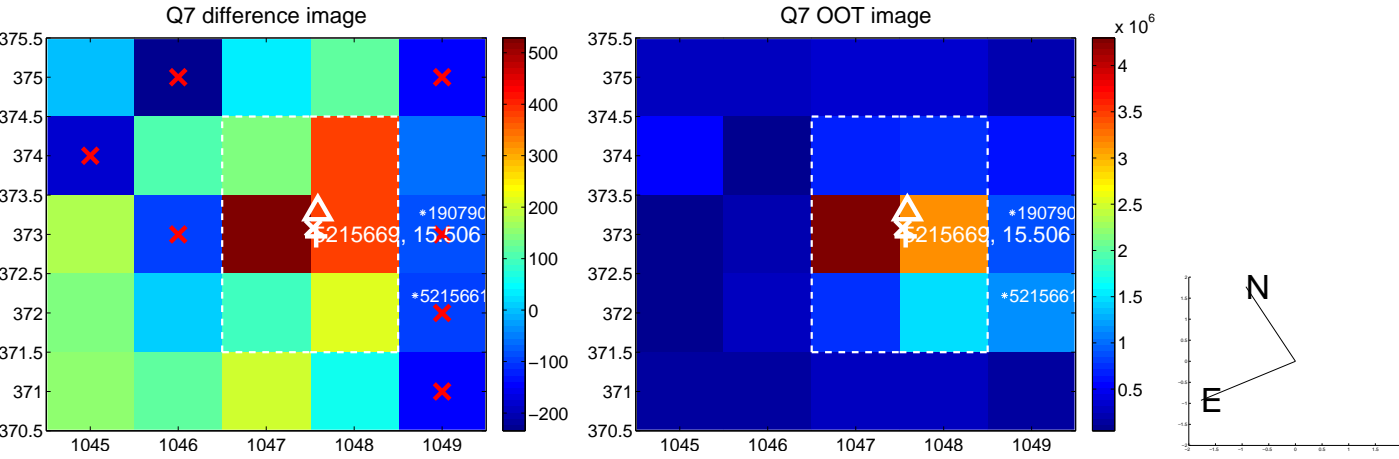
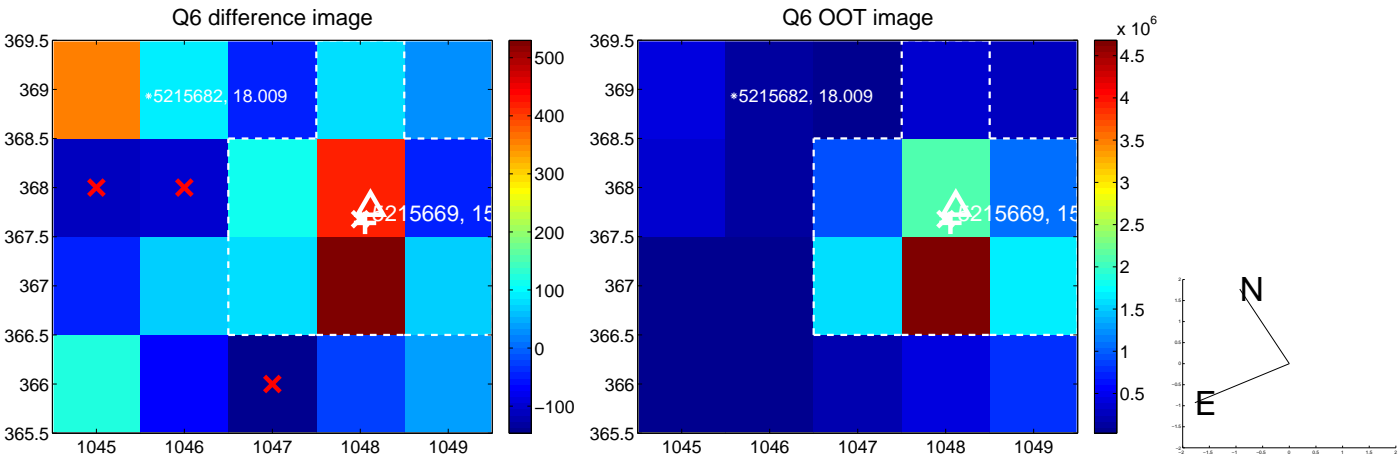
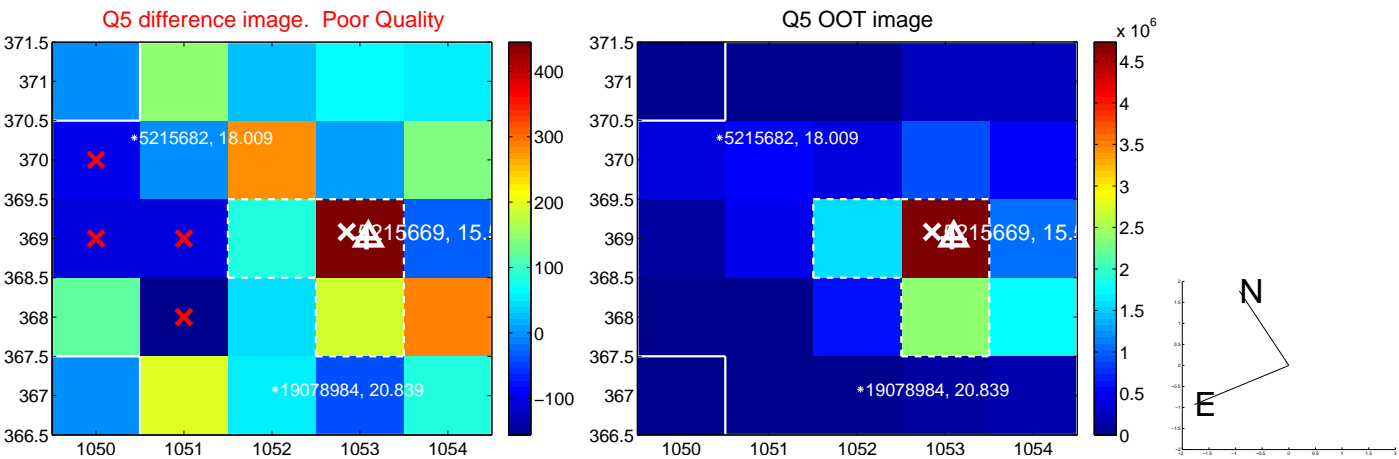


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

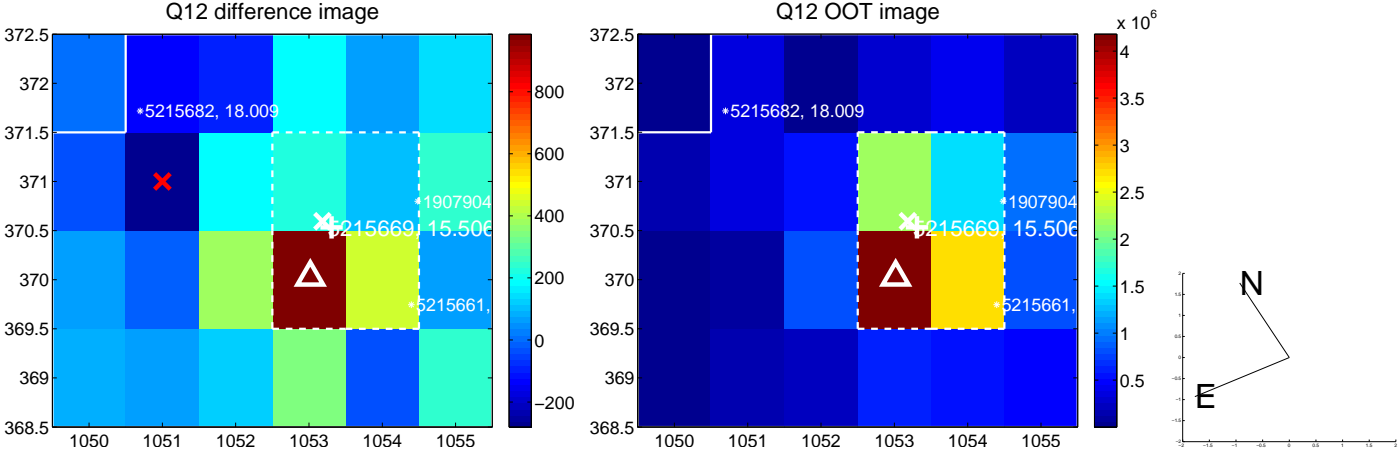
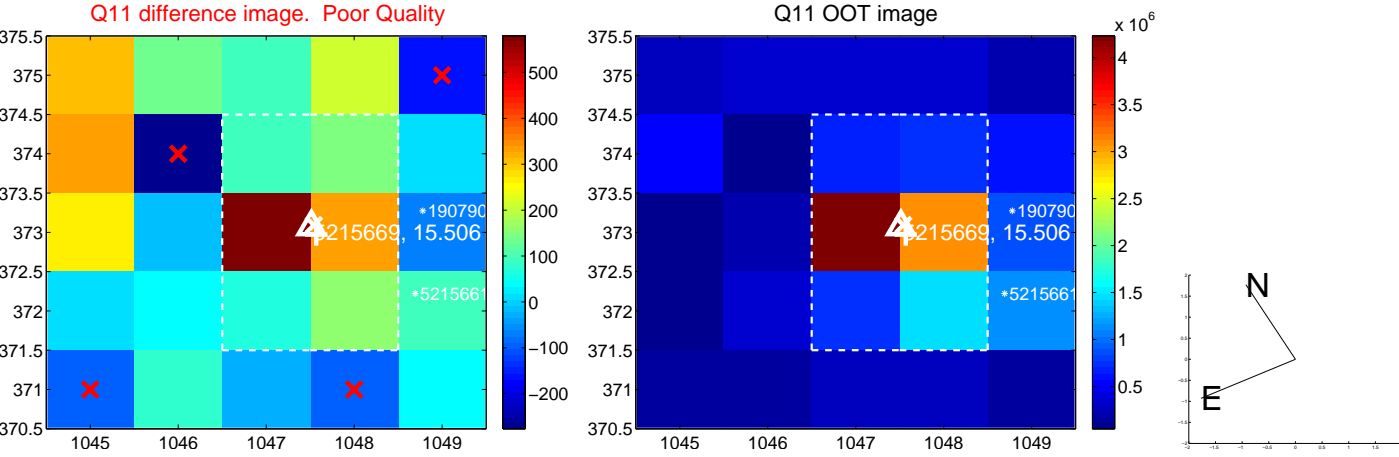
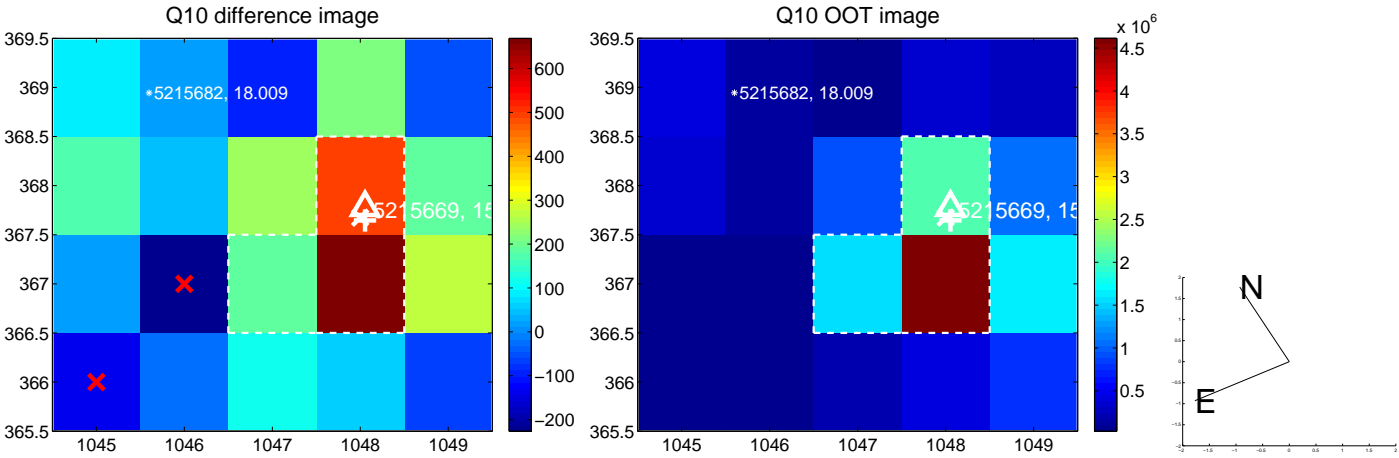
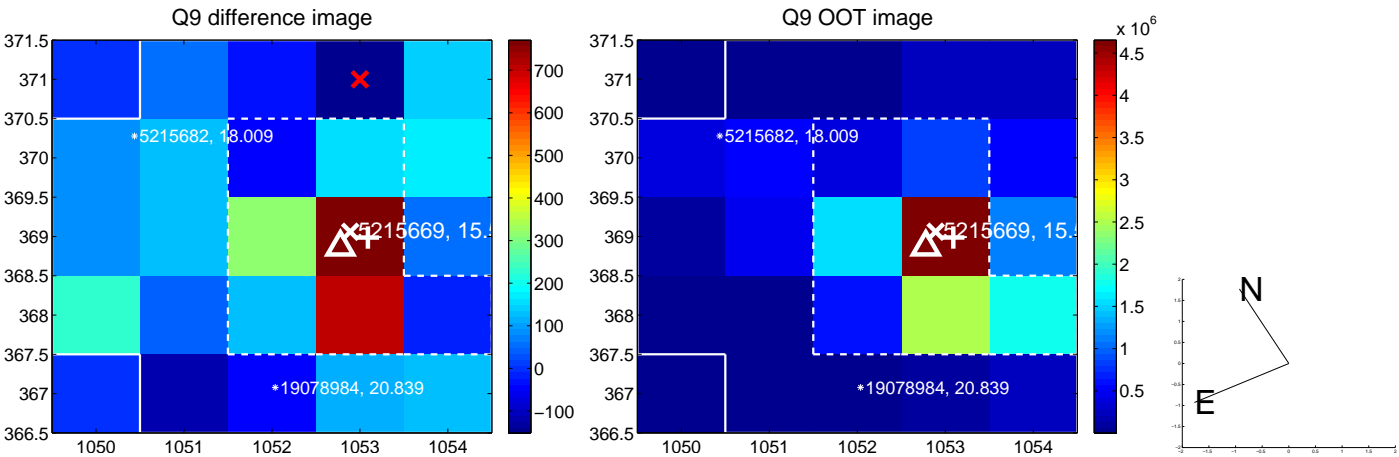
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



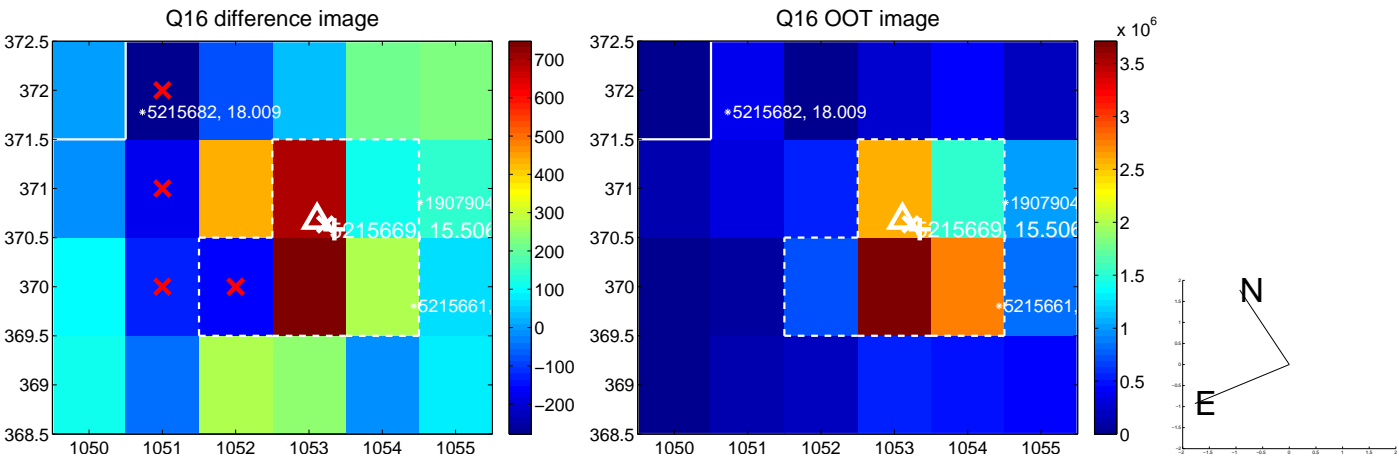
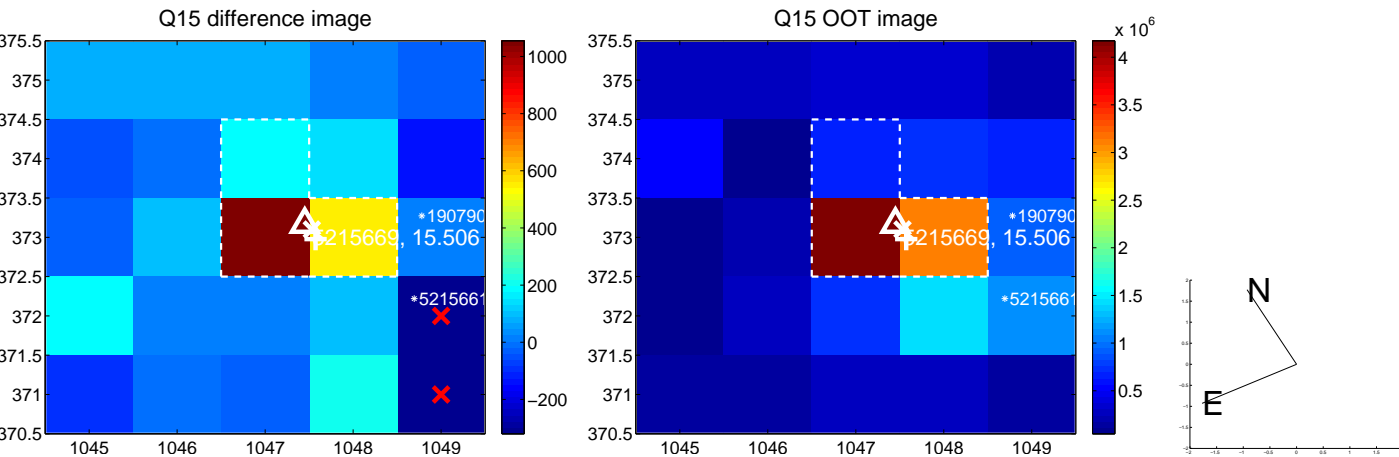
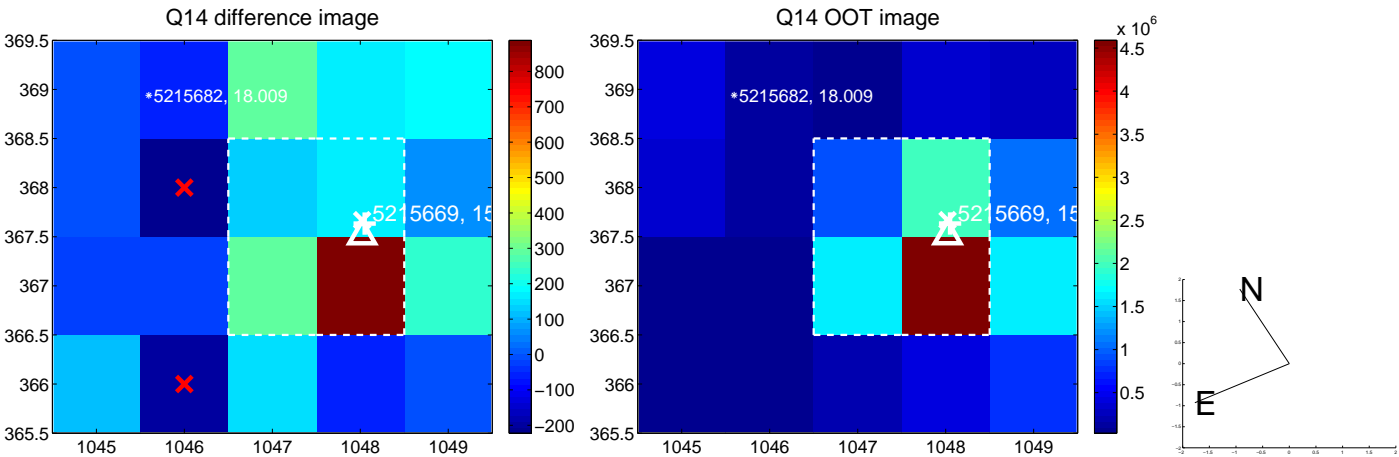
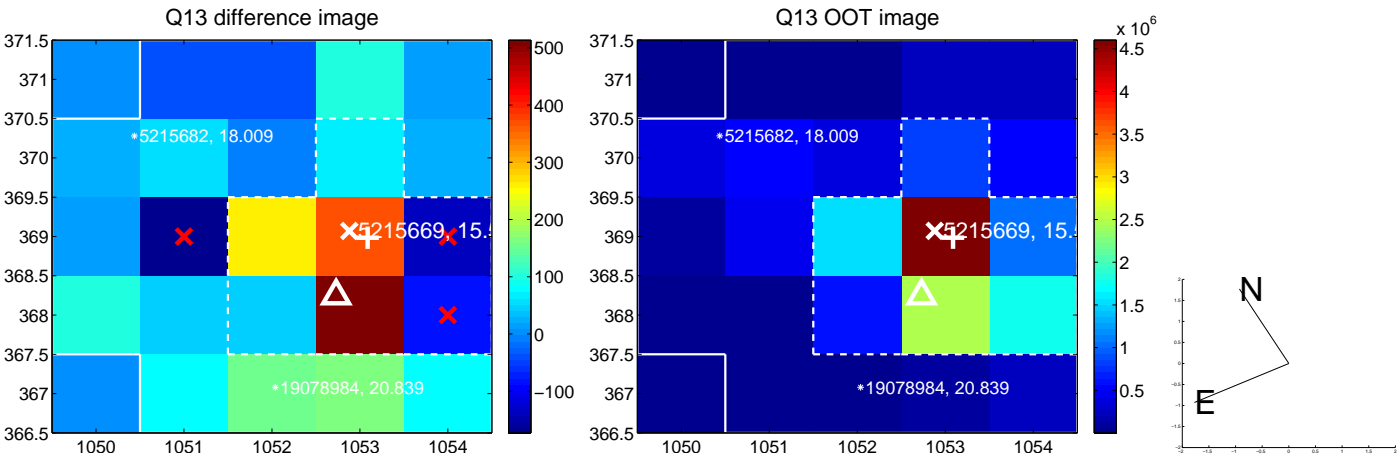
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



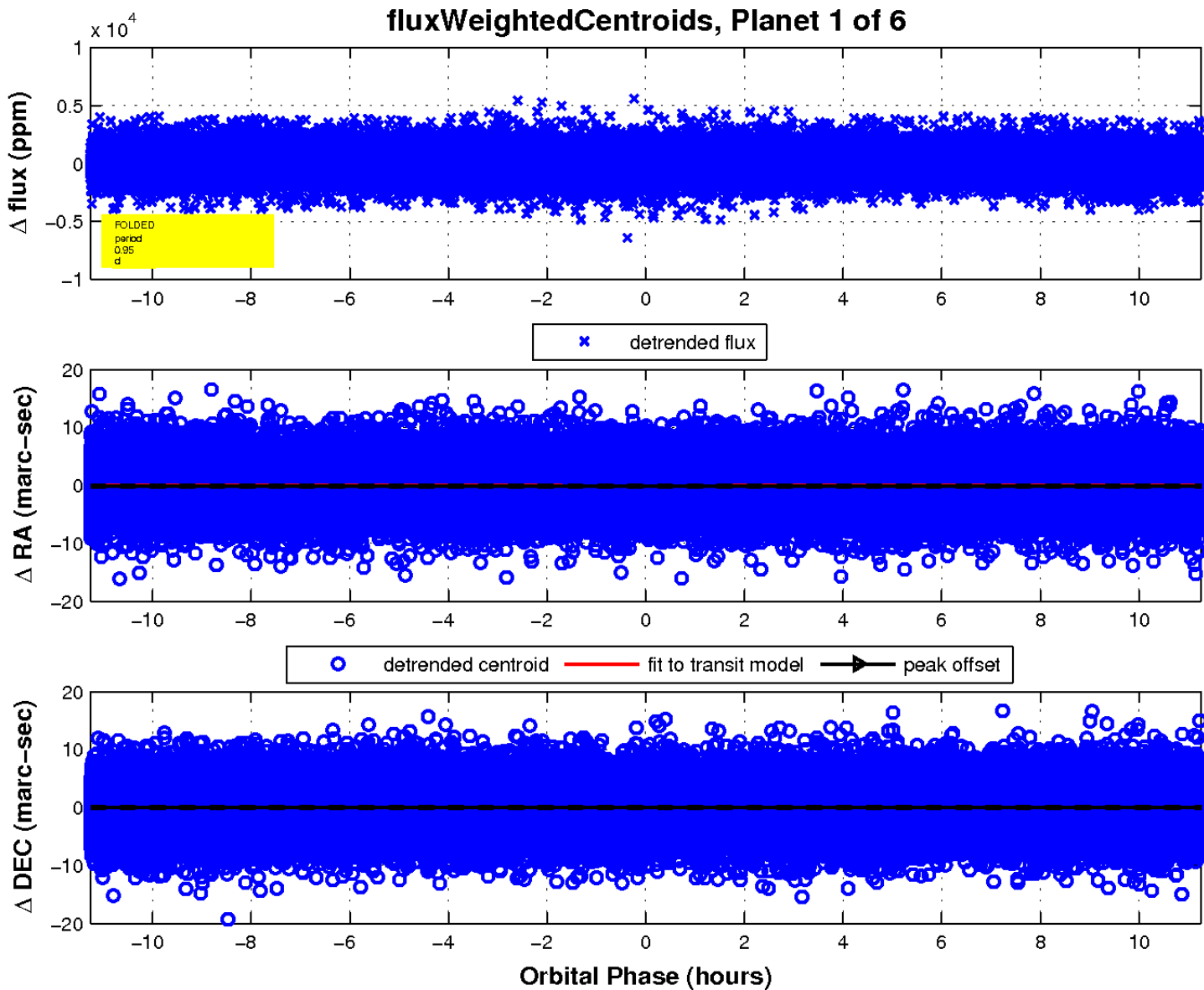
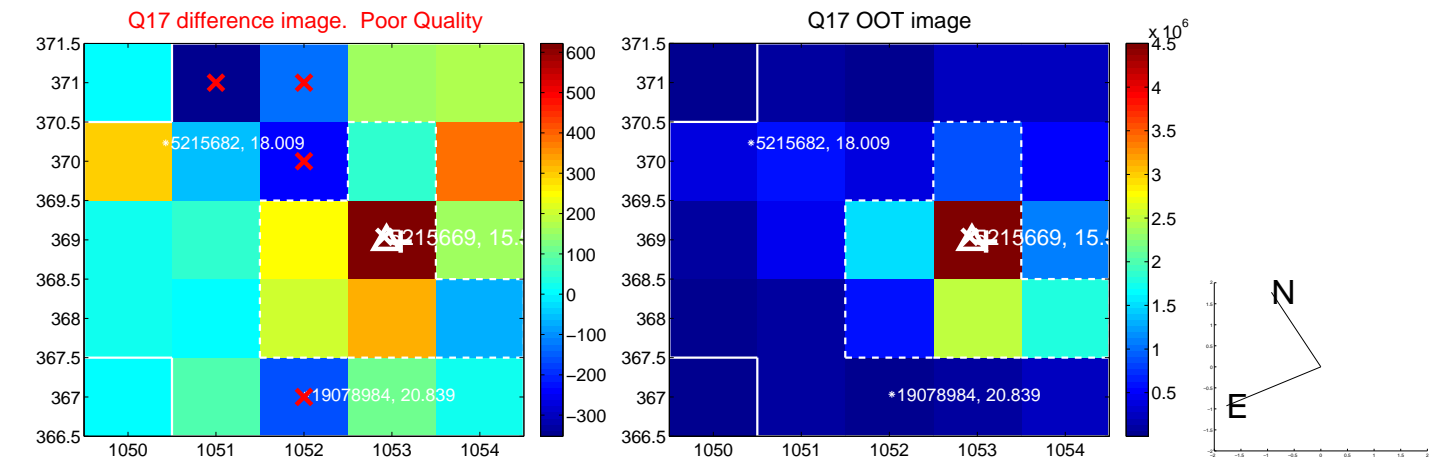
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

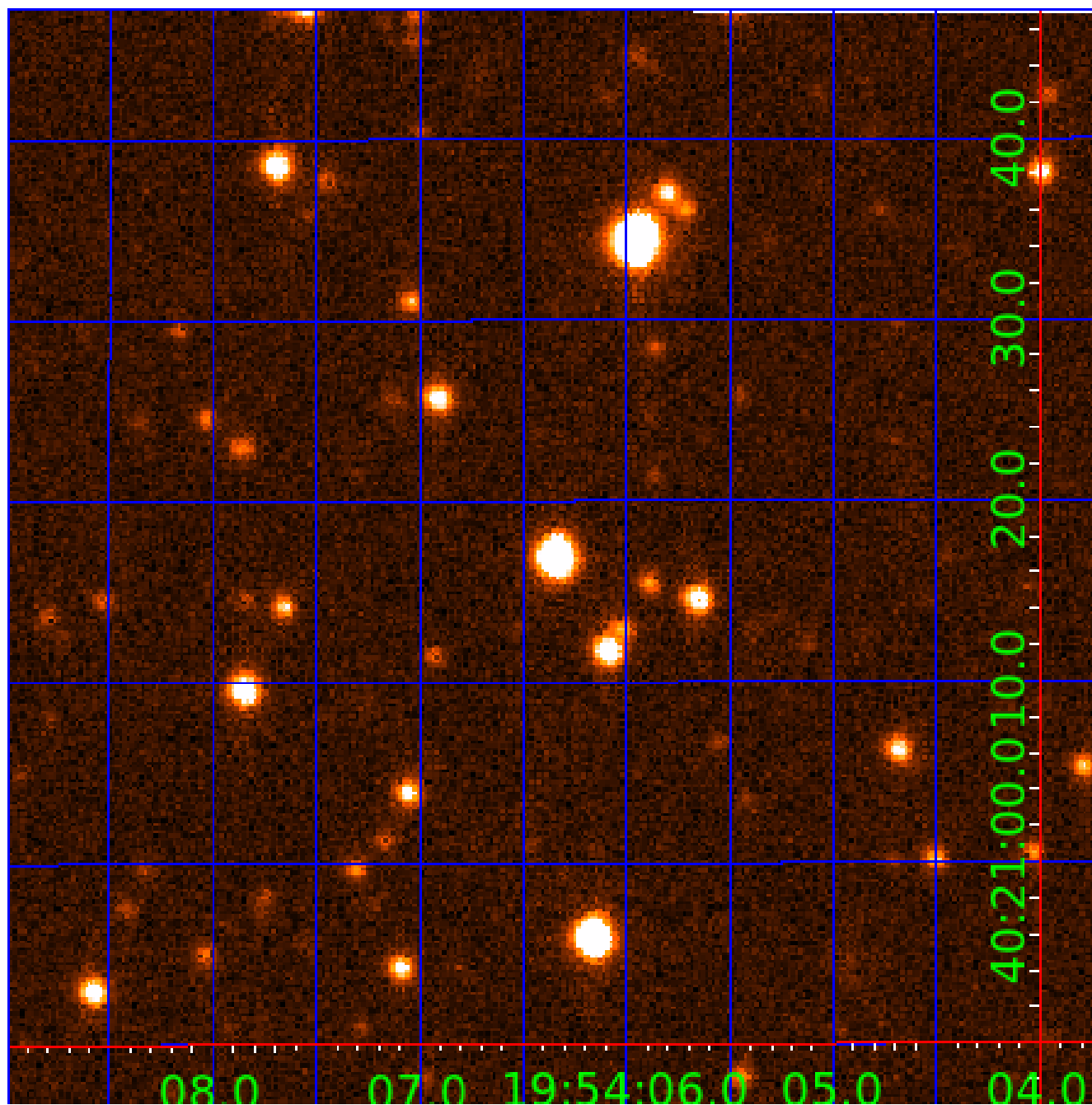


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005215669

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})
005215669-01	OBS	No	0.949755	131.565715	115.2	3.752	9.3	11.2	0.73	5495	0.94	1420.41
005215669-02	OBS	No	480.768665	151.798775	2024.2	2.104	12.6	7.3	0.73	5495	3.32	0.35
005215669-03	OBS	No	263.862694	394.764557	2517.1	16.340	11.5	6.8	0.73	5495	4.61	0.78
005215669-04	OBS	No	463.512321	314.220631	1731.8	4.811	10.6	6.4	0.73	5495	3.25	0.37
005215669-05	OBS	No	213.320791	222.623288	1413.6	8.123	9.3	5.9	0.73	5495	2.81	1.04
005215669-06	OBS	No	196.435978	313.487044	2434.0	18.012	10.1	7.7	0.73	5495	4.33	1.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005215669-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005215669-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005215669-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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_KIC_POS
005215669-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

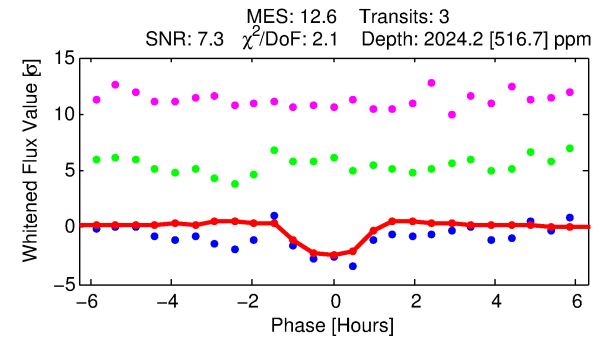
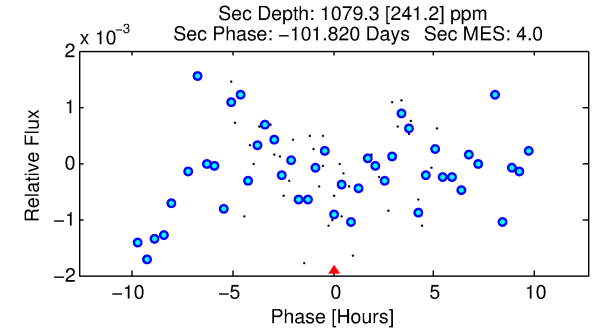
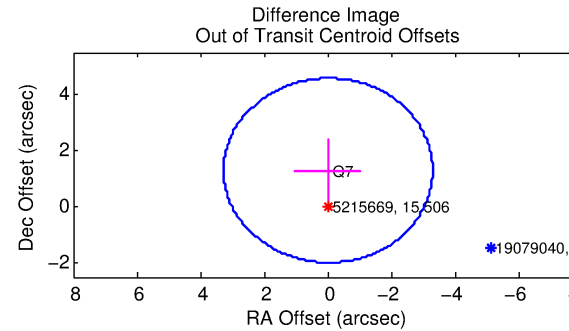
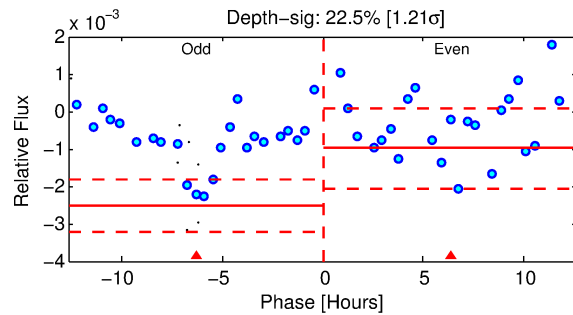
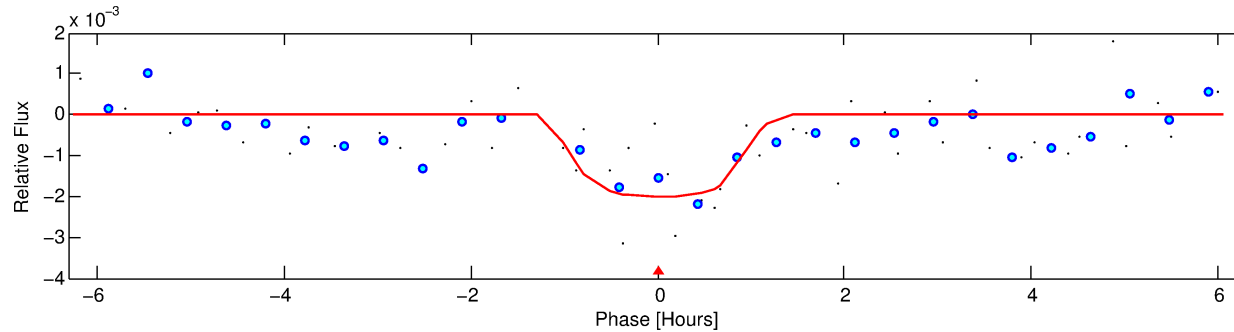
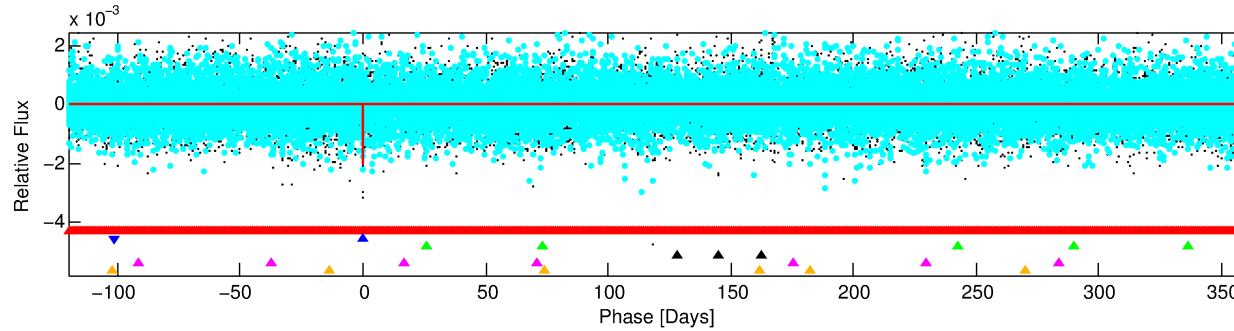
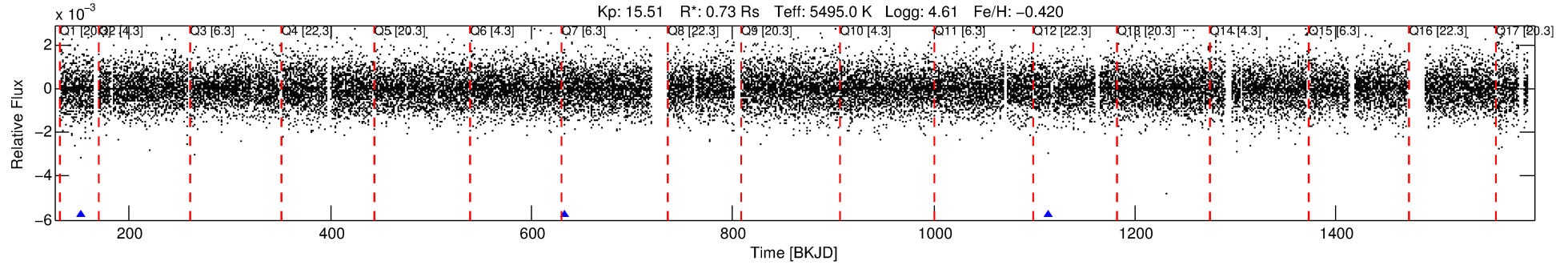
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005215669-02

No Significant Match Found

DV One-Page Summary

KIC: 5215669 Candidate: 2 of 6 Period: 480.769 d



DV Fit Results:

Period = 480.76866 [0.01208] d
Epoch = 151.7988 [0.0117] BKJD
Rp/R* = 0.0415 [0.3409]
a/R* = 1706.56 [59889.81]
b = 0.36 [86.33]
Seff = 0.35 [0.08]
Teq = 196 [12] K
Rp = 3.32 [27.31] Re
a = 1.1180 [0.1641] AU
Ag = 67315.87 [1107148.77] [0.06 σ]
Teff = 4892 [20112] K [0.23 σ]

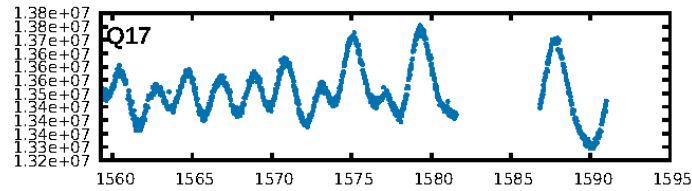
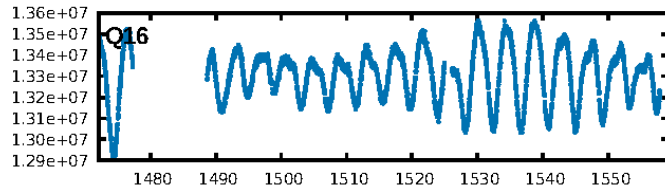
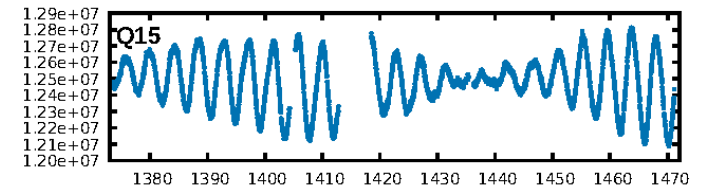
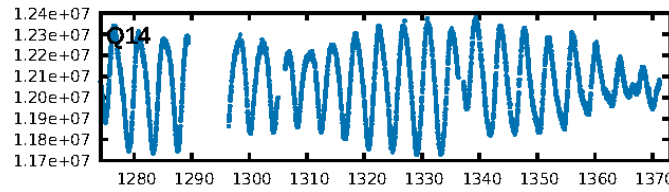
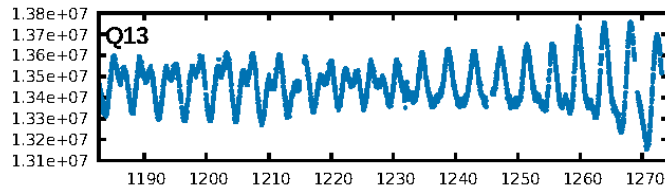
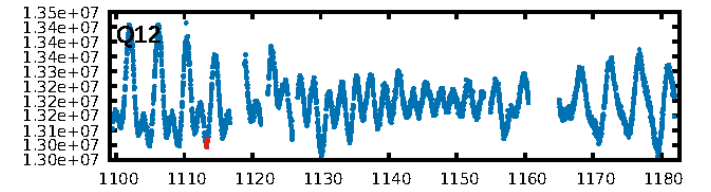
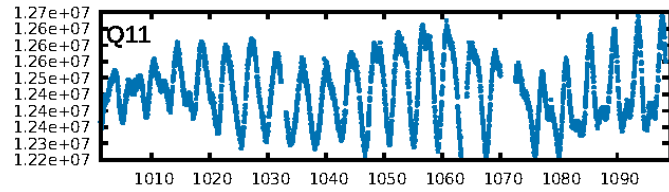
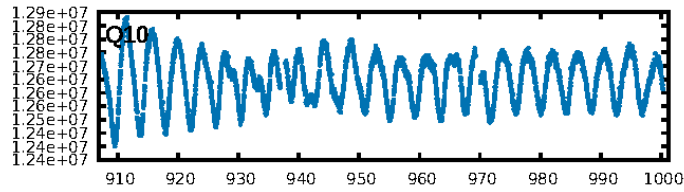
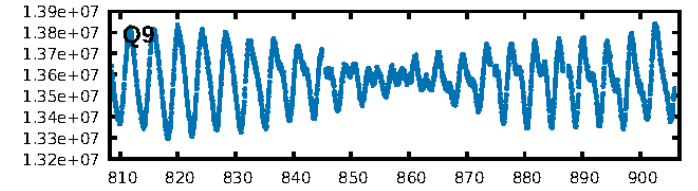
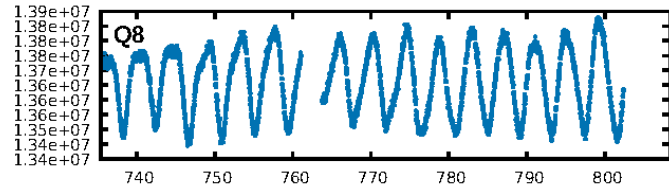
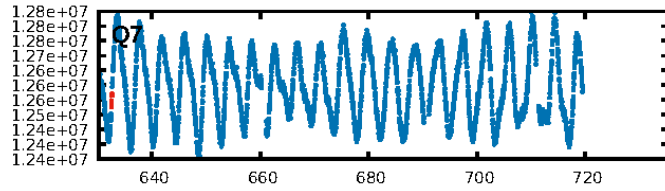
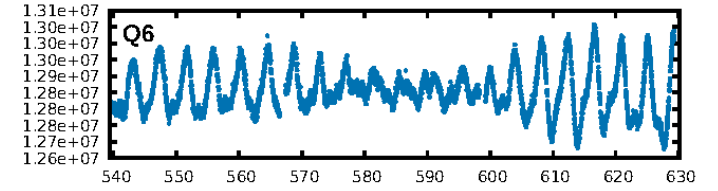
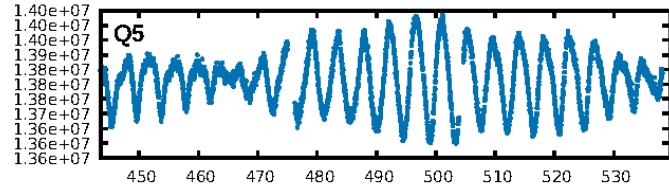
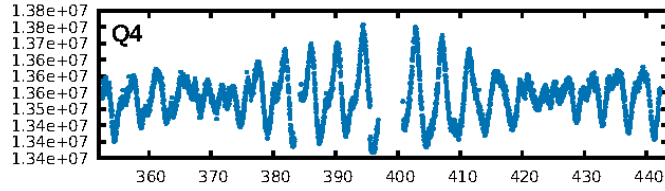
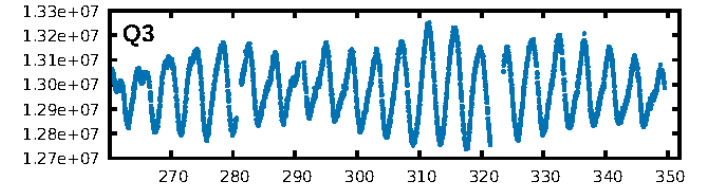
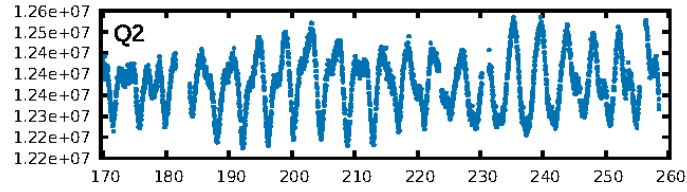
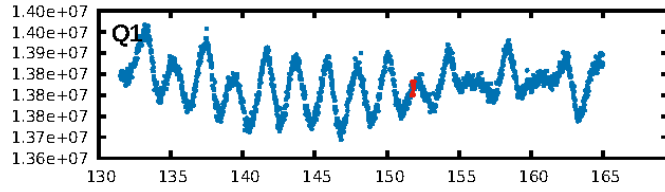
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [78.87 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.5%
ModelChiSquareGof-sig: 29.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.4545
Centroid-sig: 67.5%
Centroid-so: 0.957 arcsec [0.61 σ]
OotOffset-rm: 1.294 arcsec [1.18 σ]
KicOffset-rm: 0.818 arcsec [0.75 σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.50 [1/2]

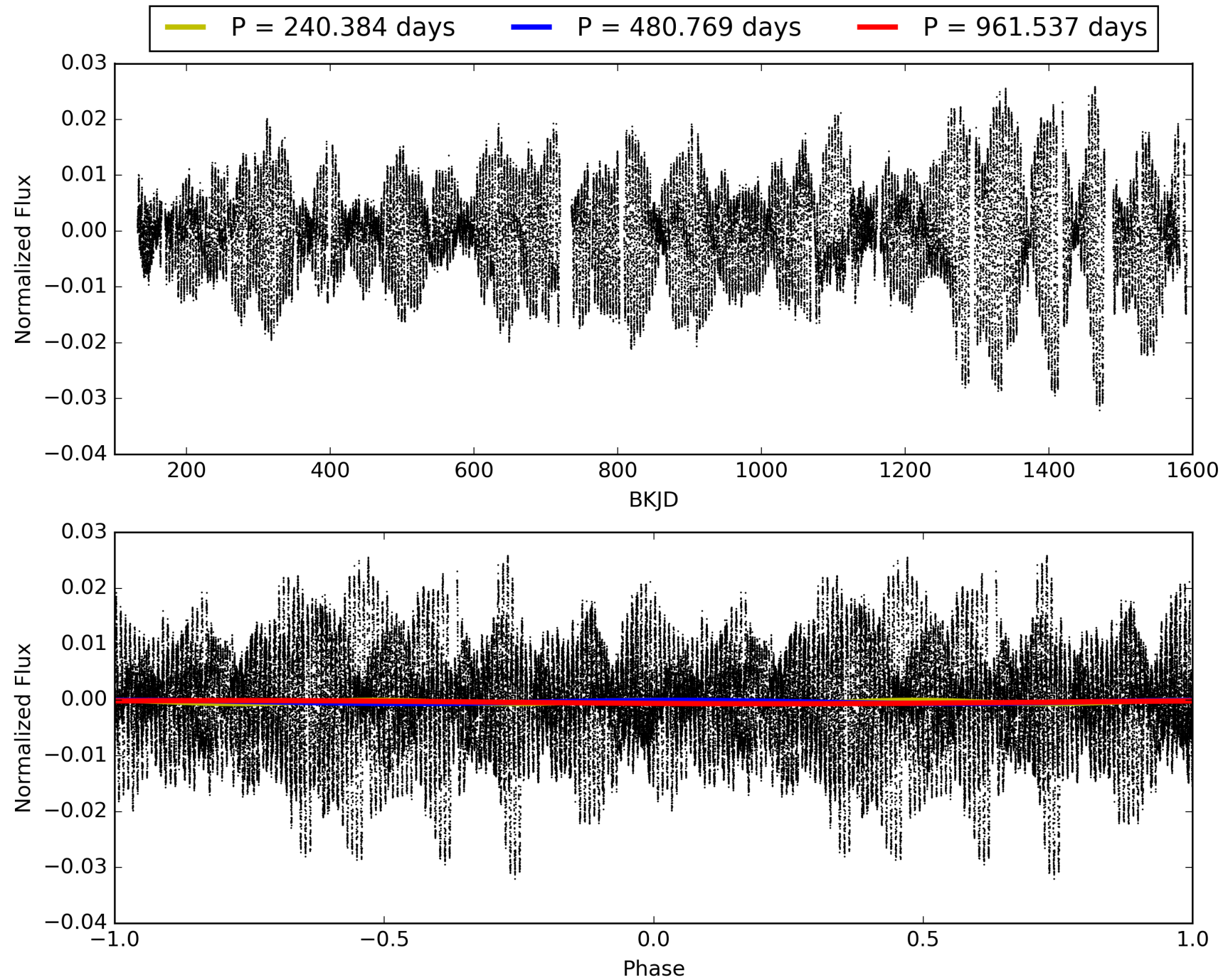
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:14:08 Z

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

TCE 005215669-02, PDC Light Curves

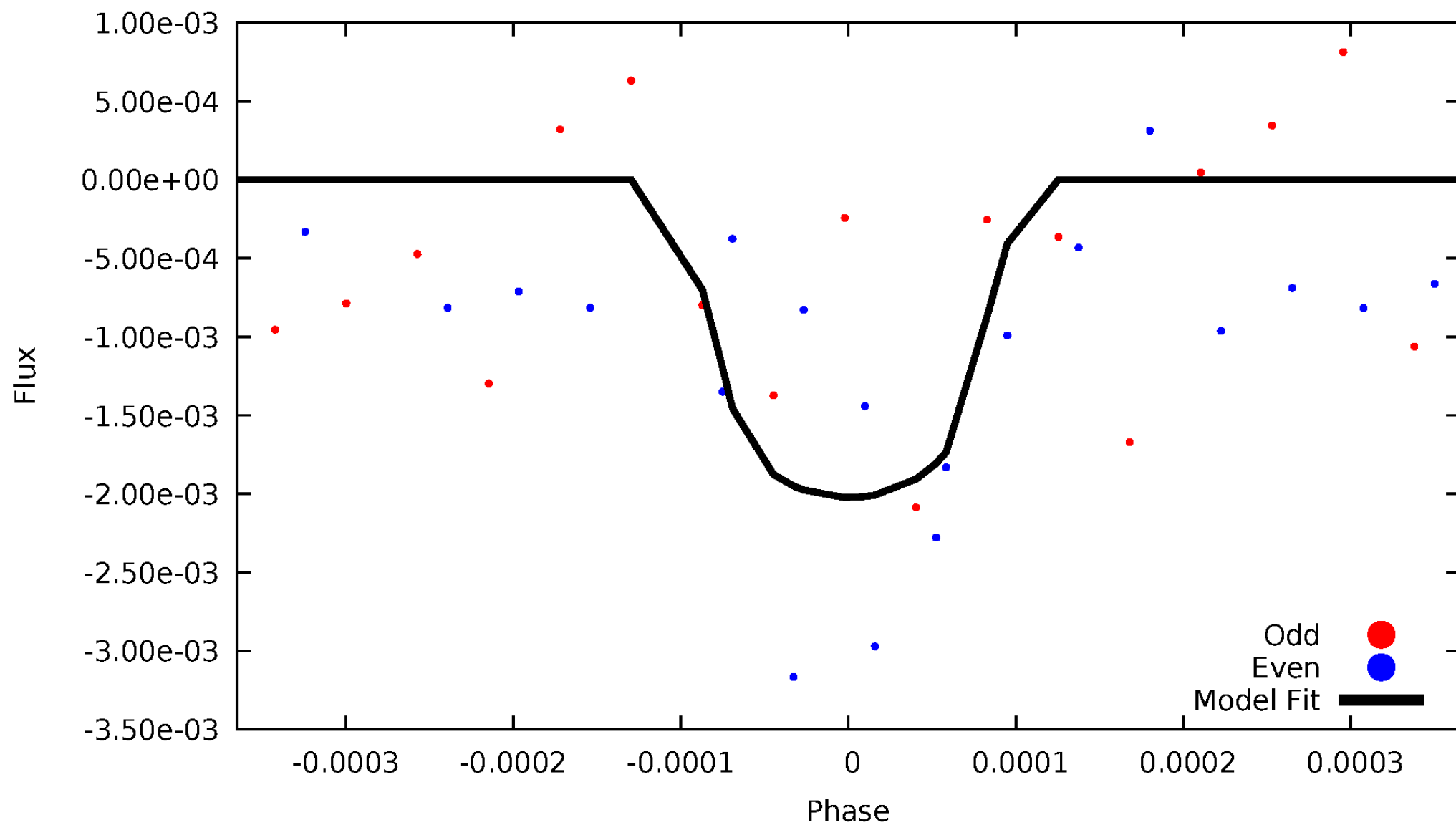


TCE 005215669-02



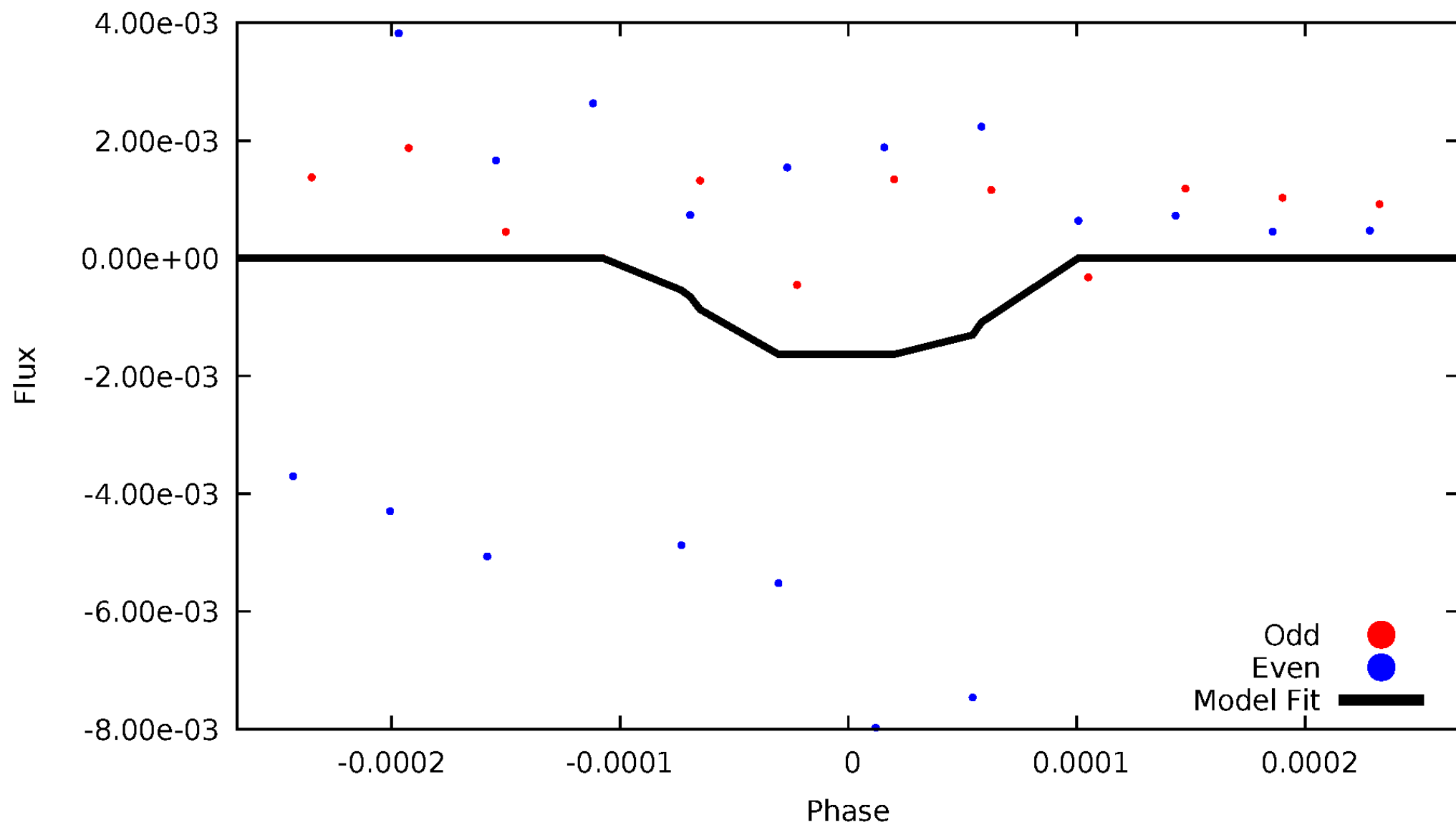
DV Odd/Even

TCE 005215669-02



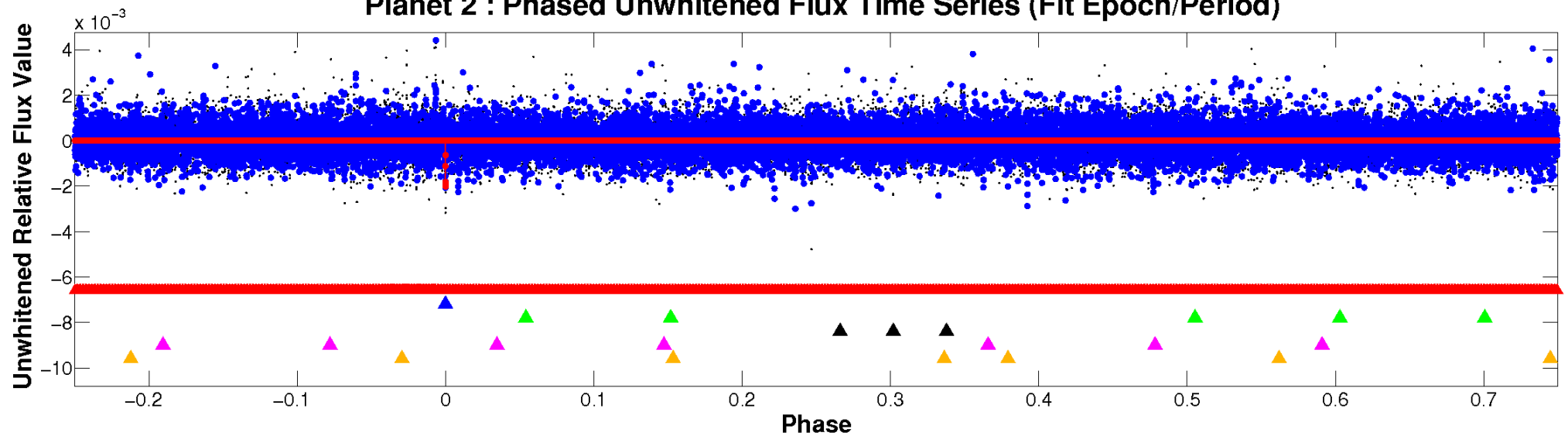
ALT Odd/Even

TCE 005215669-02

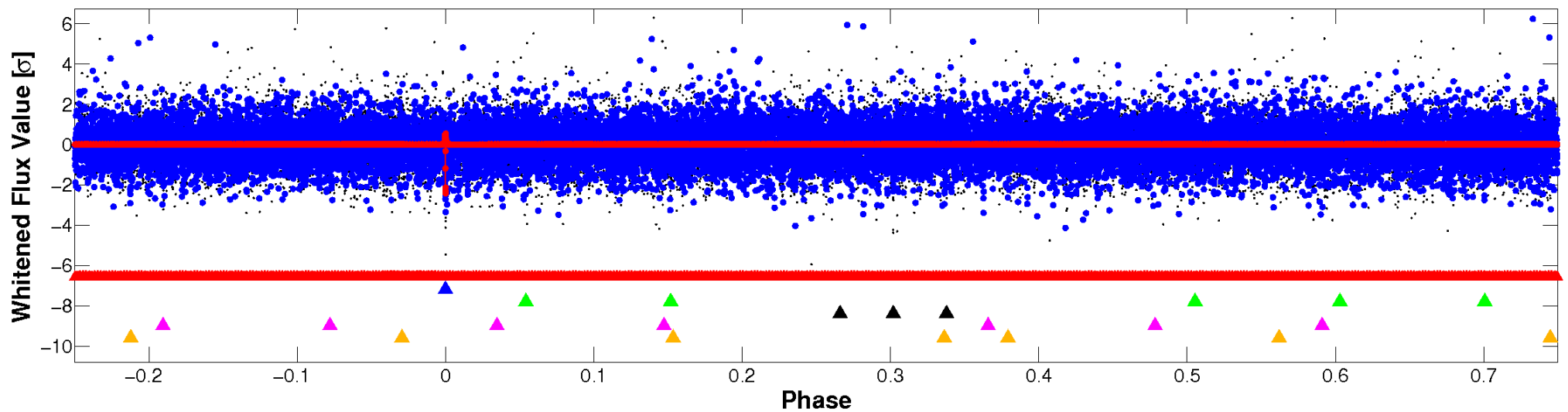


Non-Whitened Vs. Whitened Light Curve

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

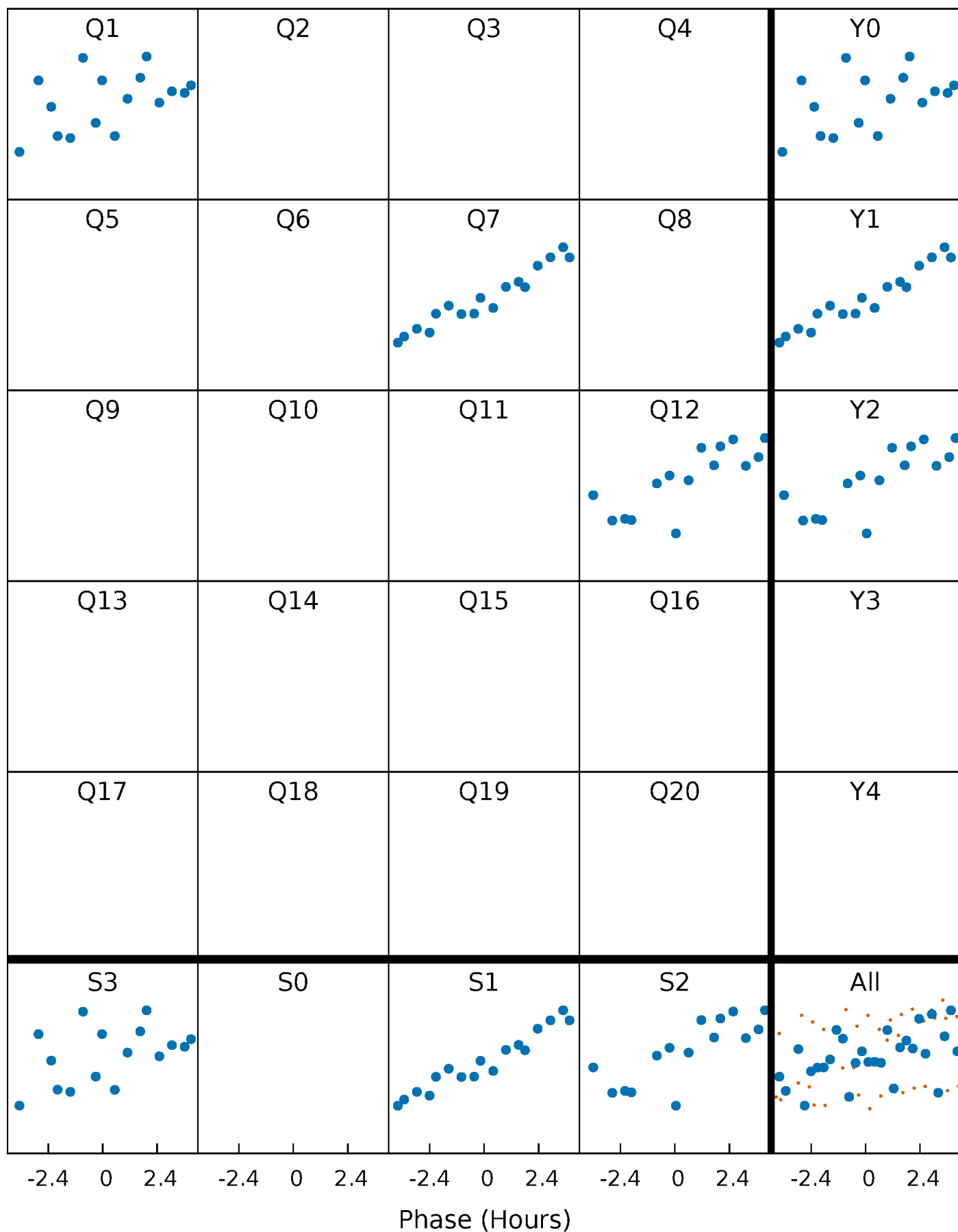


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



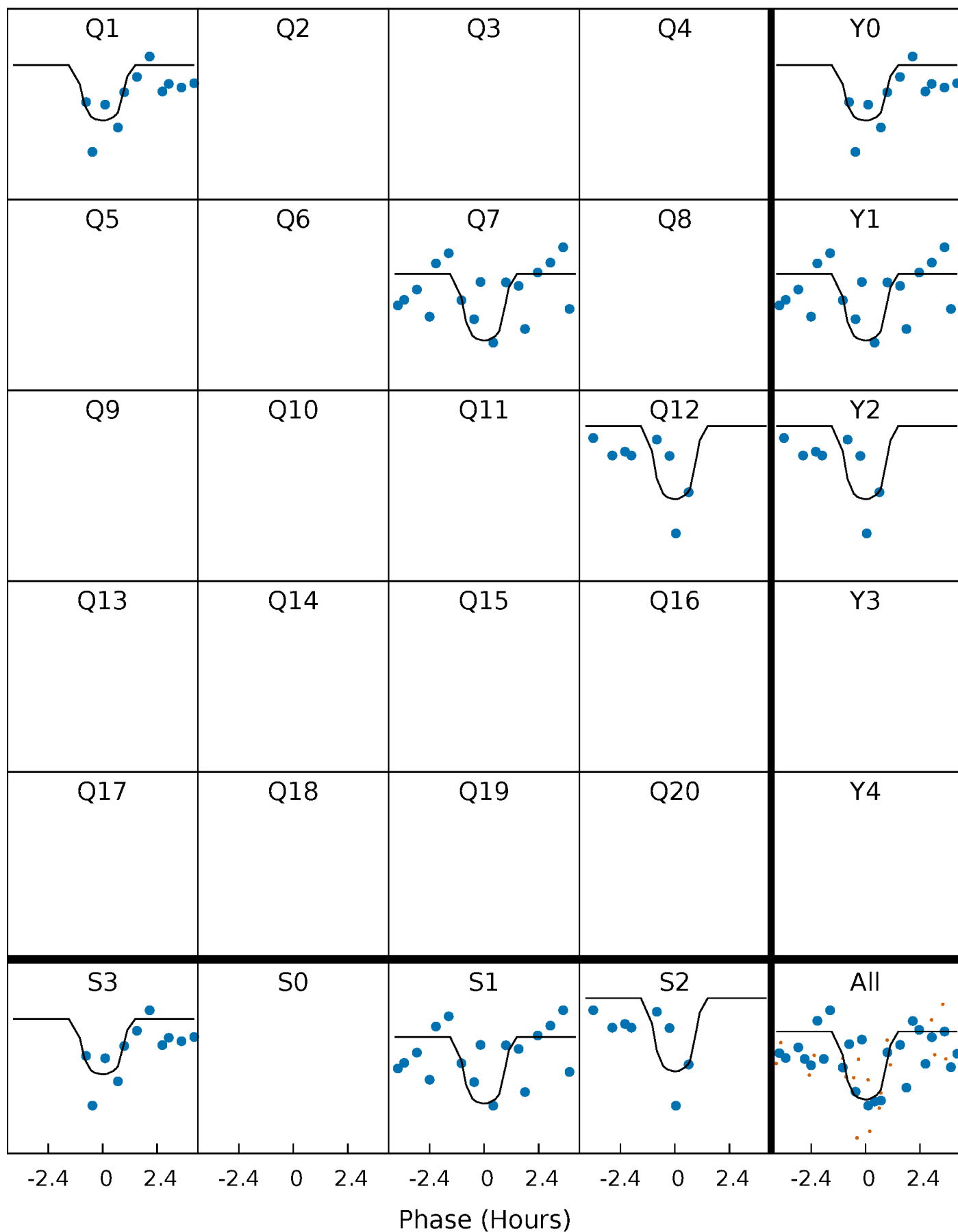
PDC Quarter-Phased Transit Curves

TCE 005215669-02 P=480.768665 Days $T_0=151.798775$ (BKJD)



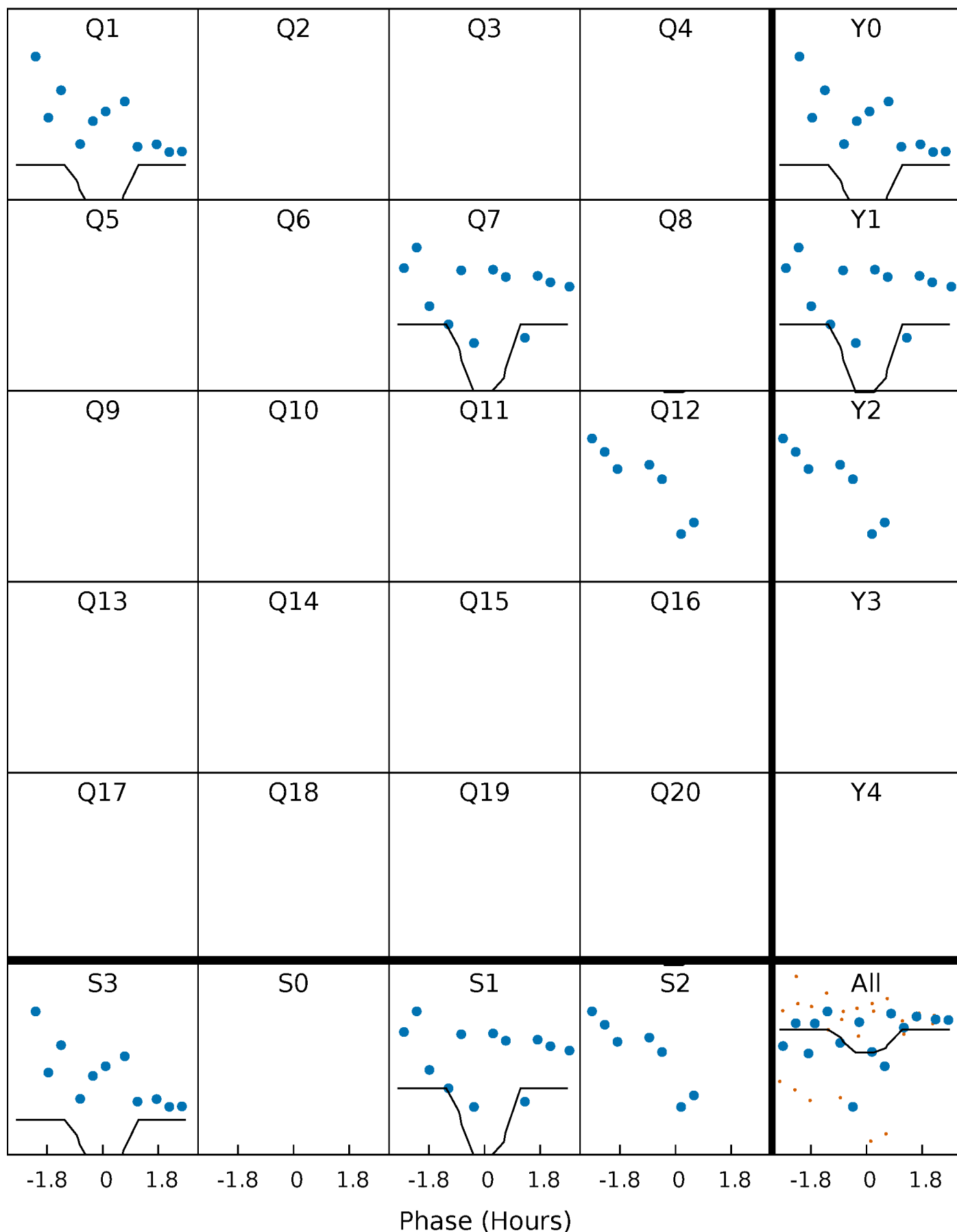
DV Quarter-Phased Transit Curves

TCE 005215669-02 P=480.768665 Days $T_0=151.798775$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

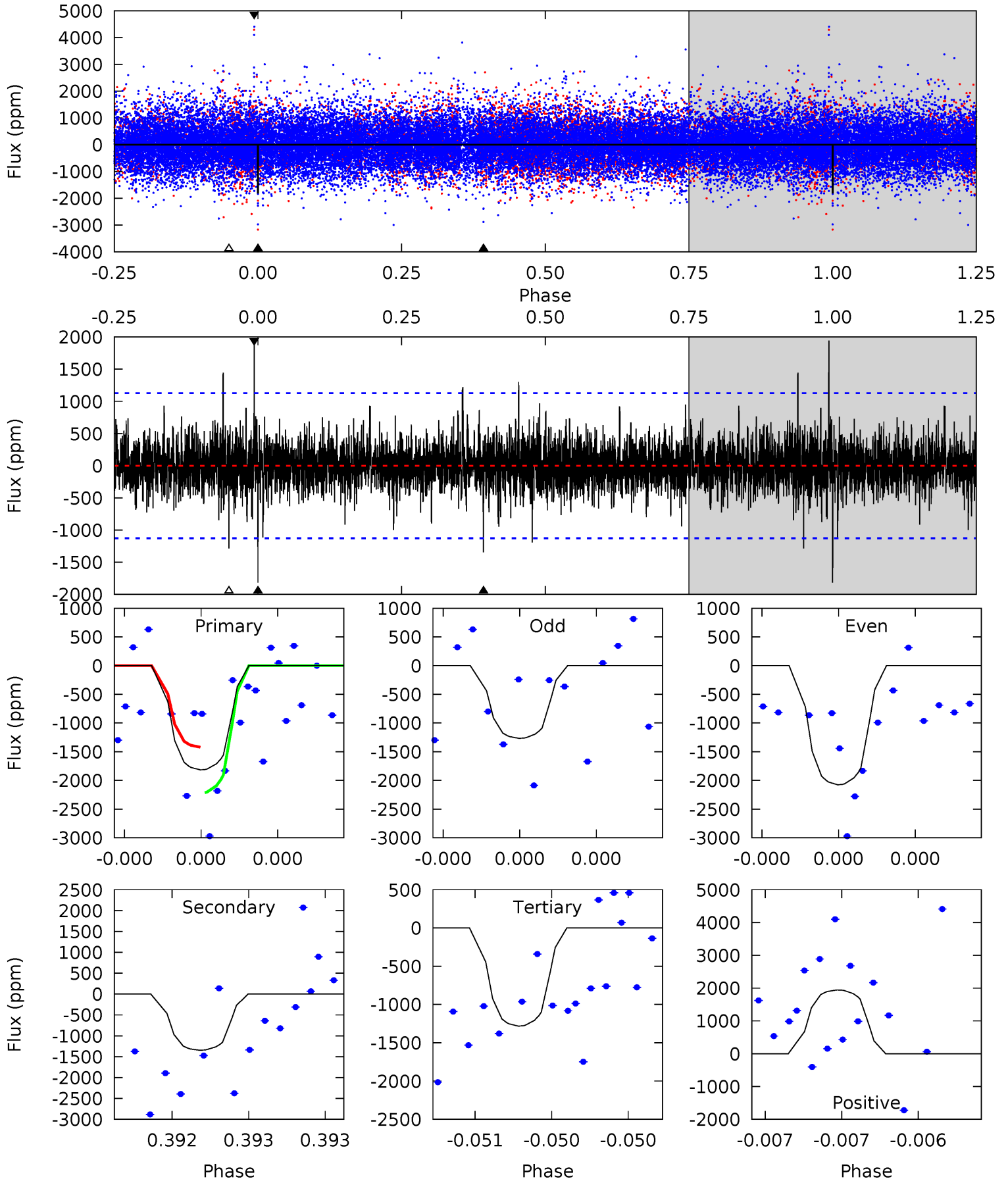
TCE 005215669-02 P=480.740366 Days $T_0=151.857278$ (BKJD)



DV Model-Shift Uniqueness Test

005215669-02, P = 480.768665 Days, E = 151.798775 Days

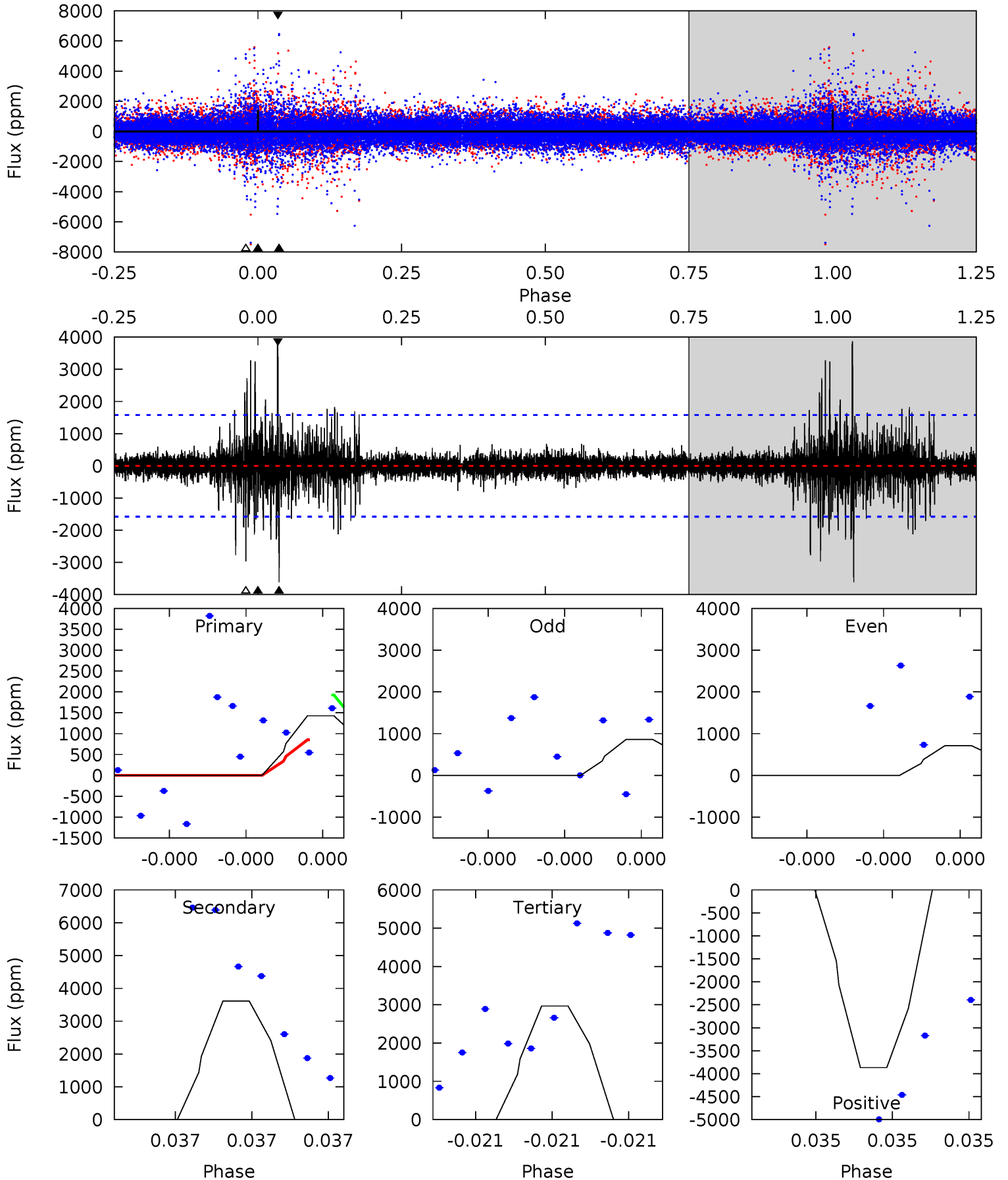
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.23	6.83	6.51	9.88	5.73	3.72	1.31	2.71	-0.65	0.31	-3.05	1.93	1.03	0.52	1.99



Alt Model-Shift Uniqueness Test

005215669-02, P = 480.740366 Days, E = 151.857278 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.24	13.3	10.9	14.2	5.80	3.82	1.10	-5.66	-8.96	2.36	-0.94	0.26	-1.85	0.52	1.94



Stellar Parameters For KIC 005215669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5495^{+162}_{-162}	$4.613^{+0.037}_{-0.112}$	$-0.420^{+0.300}_{-0.300}$	$0.734^{+0.131}_{-0.056}$	$0.814^{+0.083}_{-0.083}$	$2.905^{+0.453}_{-0.970}$
	+3%/-3%	+1%/-2%	+71%/-71%	+18%/-8%	+10%/-10%	+16%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005215669-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1344 ± 197	$19.66^{+21.56}_{-13.73}$	278^{+12}_{-11}	2850^{+1343}_{-480}	2366^{+24772}_{-1829}
Alt.	-3612 ± 272	$19.49^{+20.21}_{-13.37}$	279^{+12}_{-12}	3308^{+1707}_{-601}	6451^{+56423}_{-4910}

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

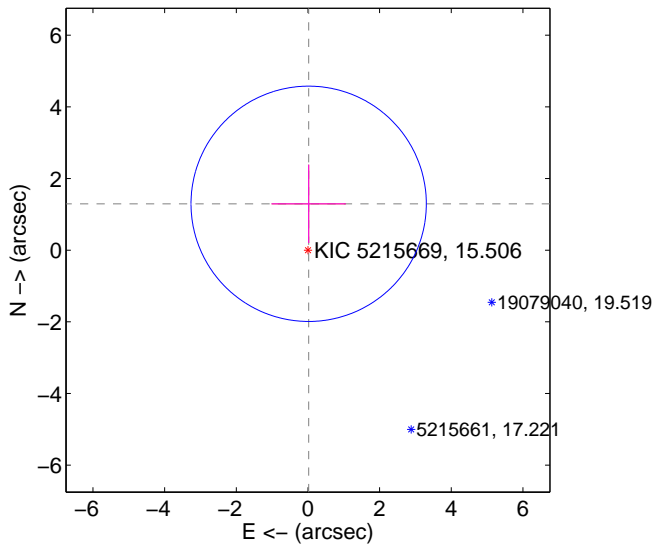
Supplemental centroid analysis for 005215669-02. Kepler magnitude: 15.51. Transit SNR 7.28

There are 0 quarters with good PRF difference image offsets

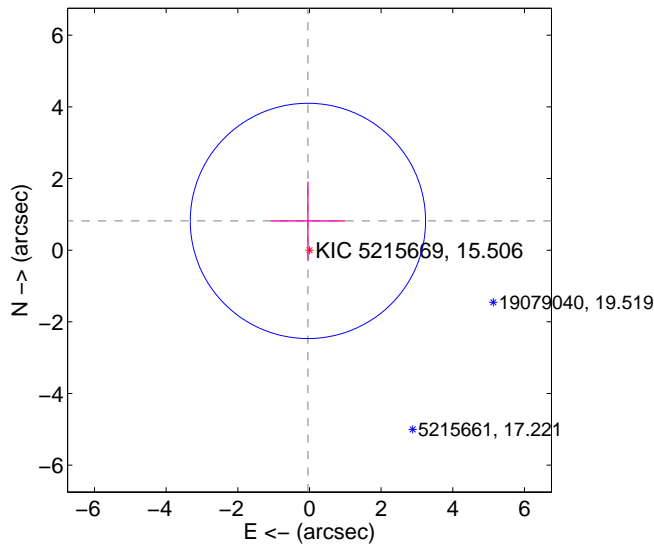
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.294 ± 1.095	1.18	-0.020 ± 1.037	1.294 ± 1.095
PRF-fit source offset from KIC position	0.818 ± 1.095	0.75	0.043 ± 1.037	0.817 ± 1.095
photometric centroid source offset	0.96 ± 1.56	0.61	-0.72 ± 1.55	-0.63 ± 1.56

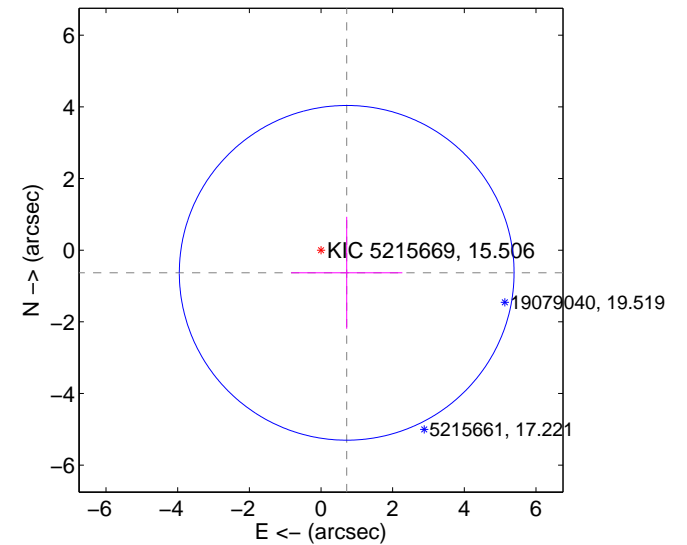
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

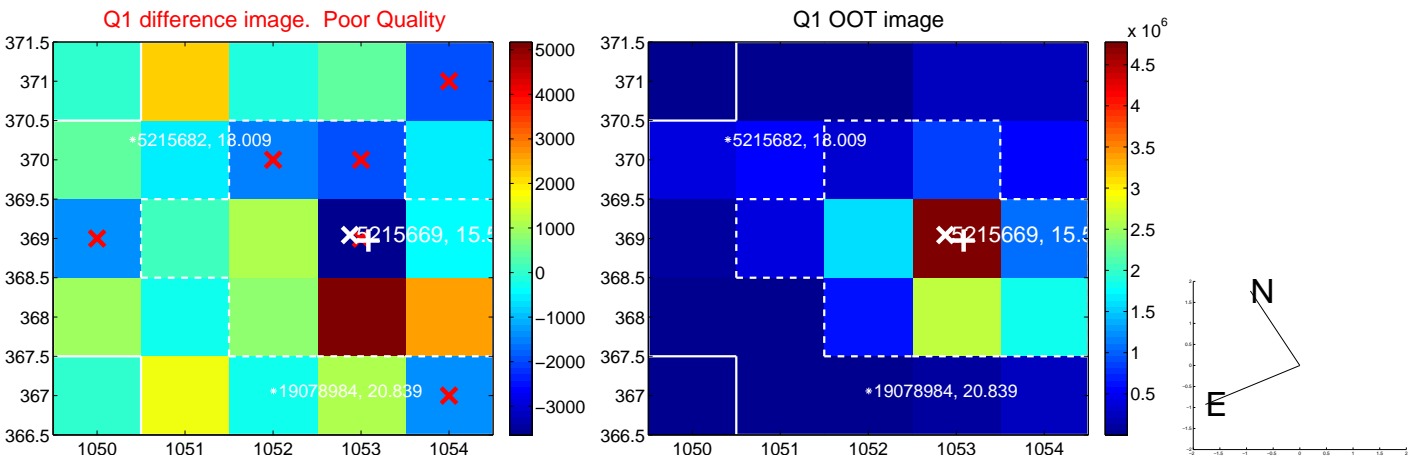


offset from photometric centroids



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.

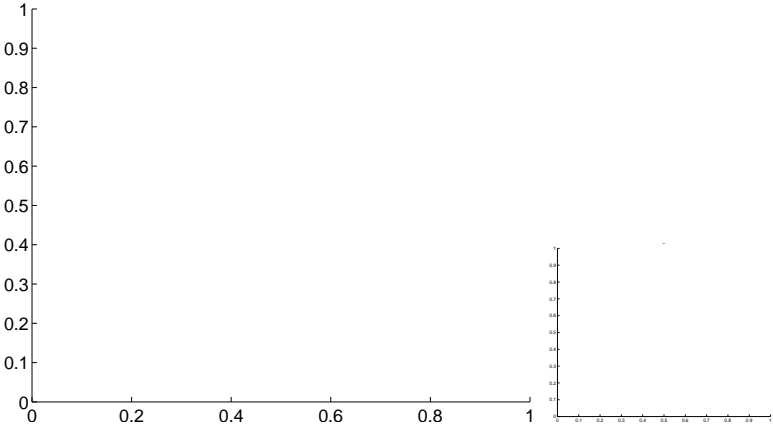


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

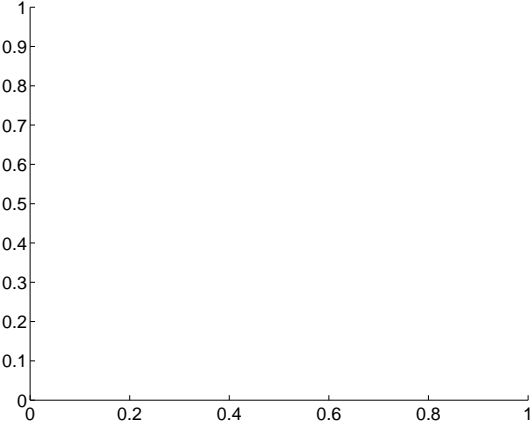
Q5 no difference image



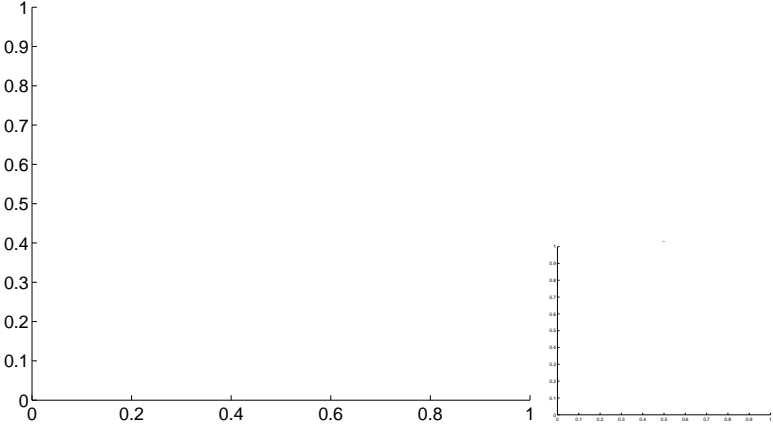
Q5 no OOT image



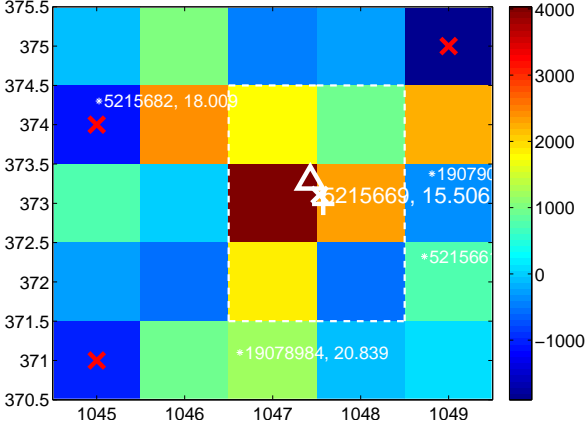
Q6 no difference image



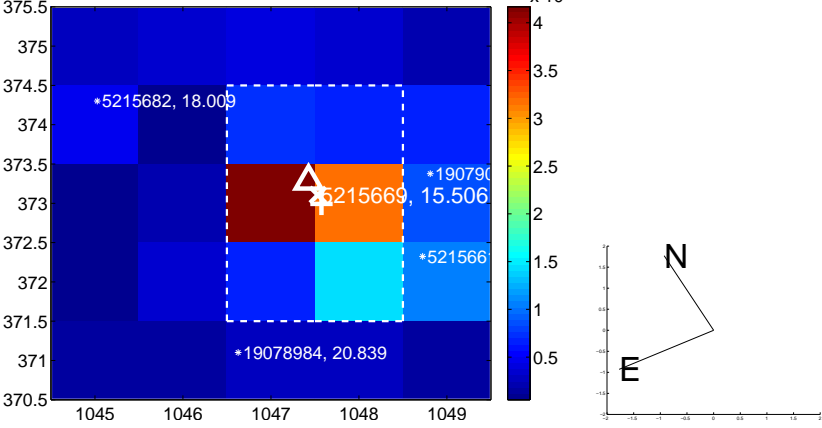
Q6 no OOT image



Q7 difference image. Poor Quality



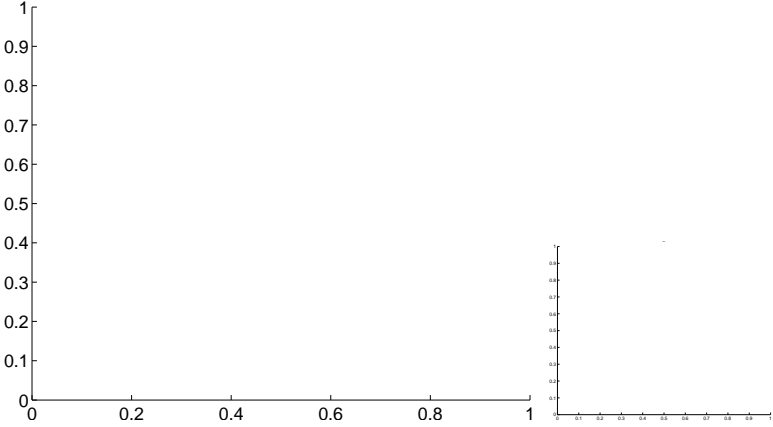
Q7 OOT image



Q8 no difference image



Q8 no OOT image



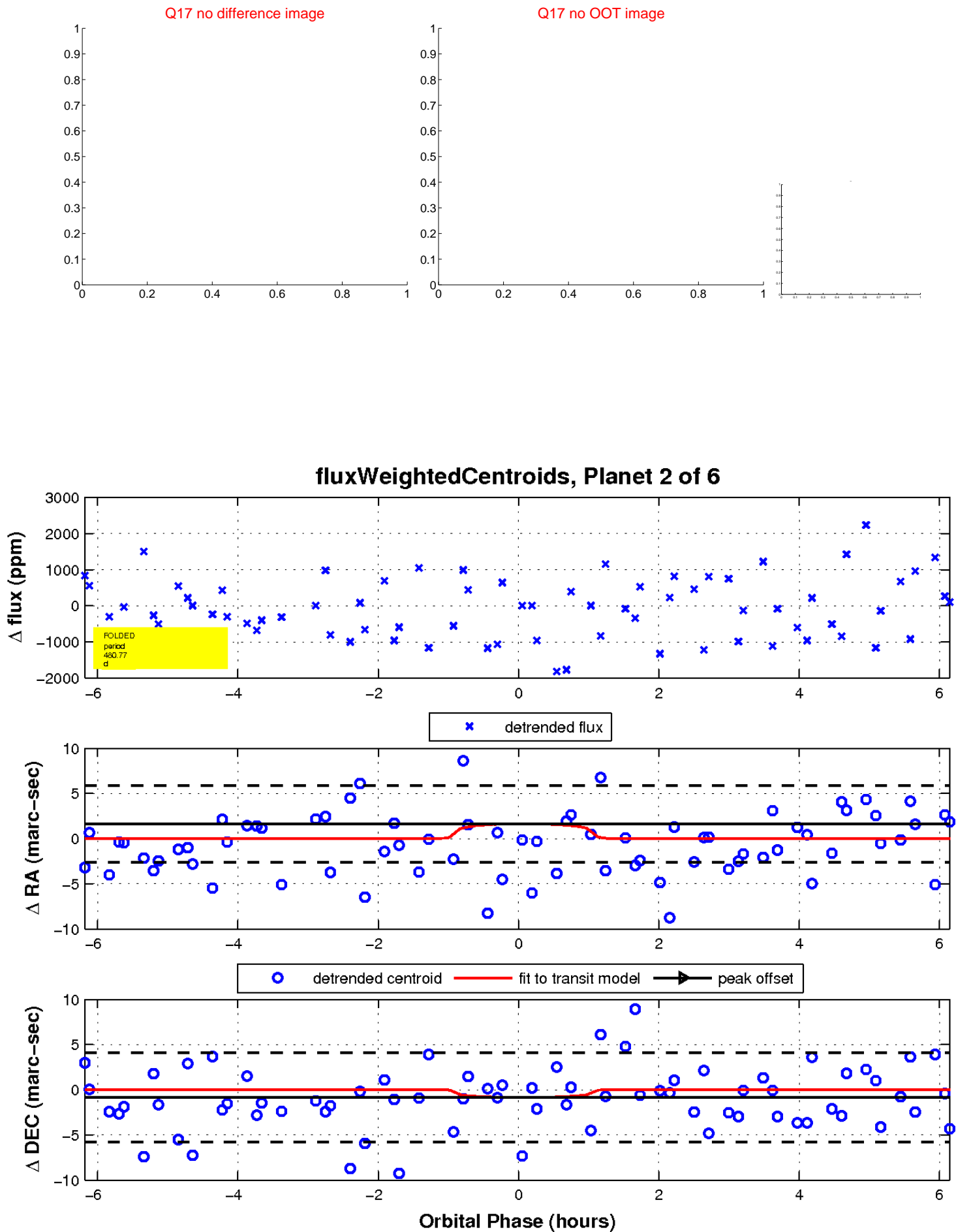
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

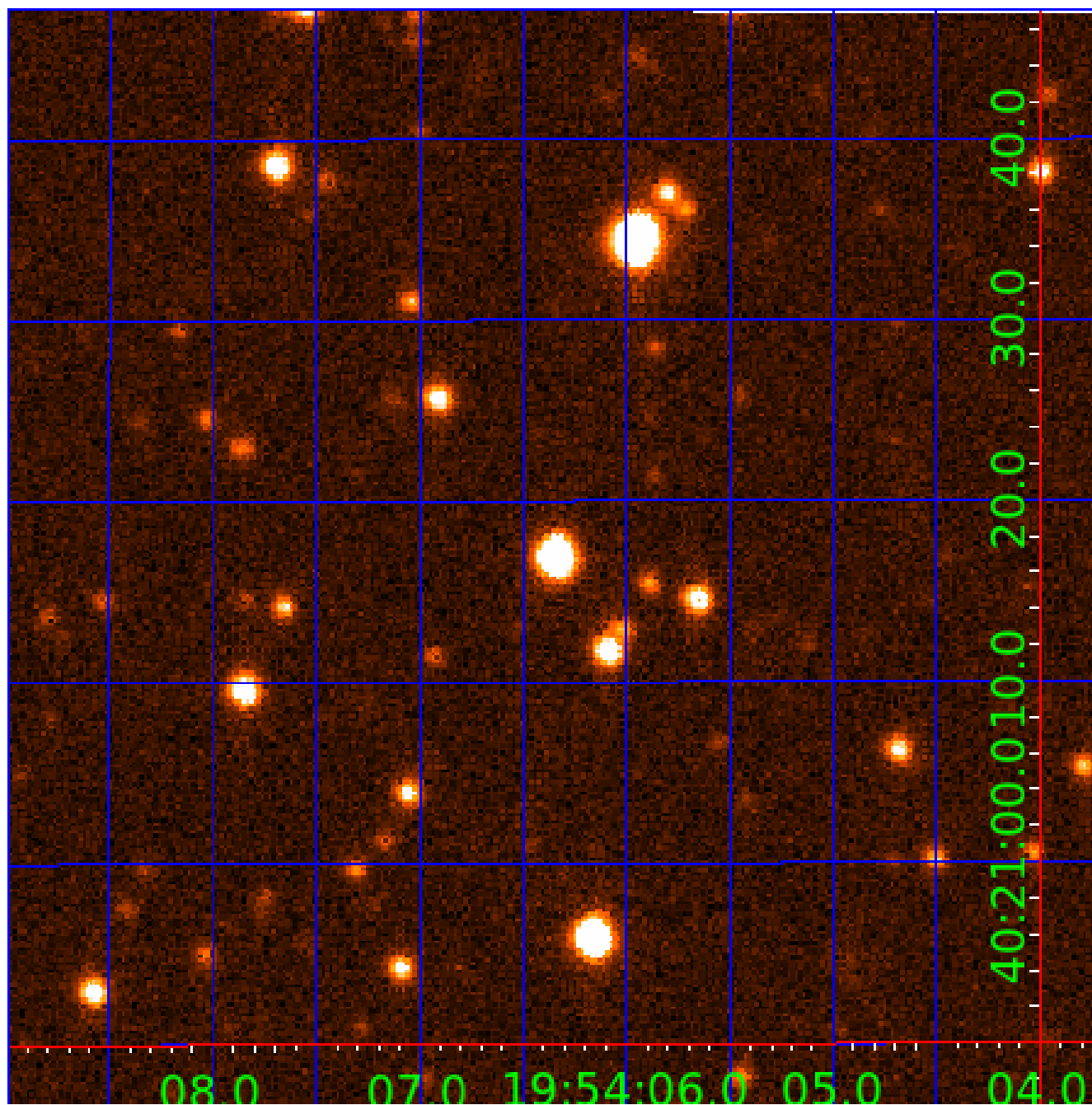


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005215669

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})
005215669-01	OBS	No	0.949755	131.565715	115.2	3.752	9.3	11.2	0.73	5495	0.94	1420.41
005215669-02	OBS	No	480.768665	151.798775	2024.2	2.104	12.6	7.3	0.73	5495	3.32	0.35
005215669-03	OBS	No	263.862694	394.764557	2517.1	16.340	11.5	6.8	0.73	5495	4.61	0.78
005215669-04	OBS	No	463.512321	314.220631	1731.8	4.811	10.6	6.4	0.73	5495	3.25	0.37
005215669-05	OBS	No	213.320791	222.623288	1413.6	8.123	9.3	5.9	0.73	5495	2.81	1.04
005215669-06	OBS	No	196.435978	313.487044	2434.0	18.012	10.1	7.7	0.73	5495	4.33	1.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005215669-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005215669-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005215669-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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_KIC_POS
005215669-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

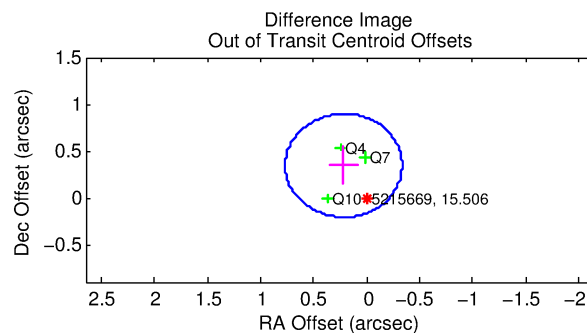
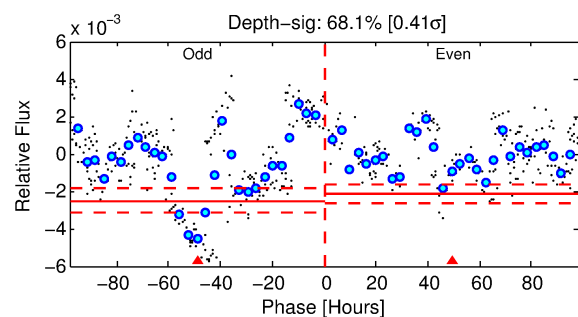
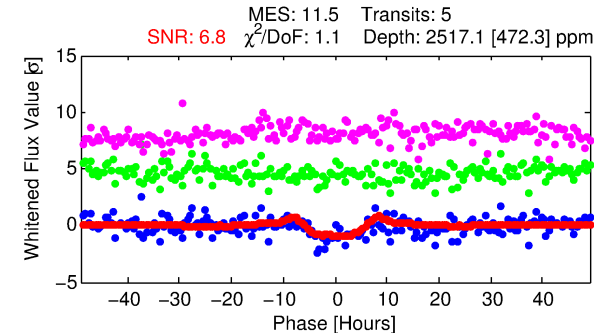
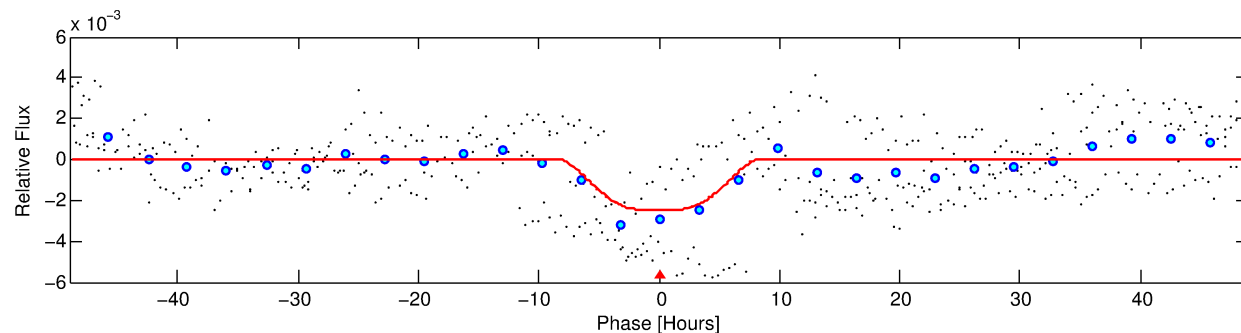
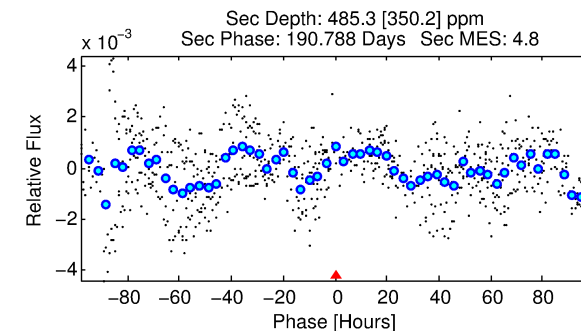
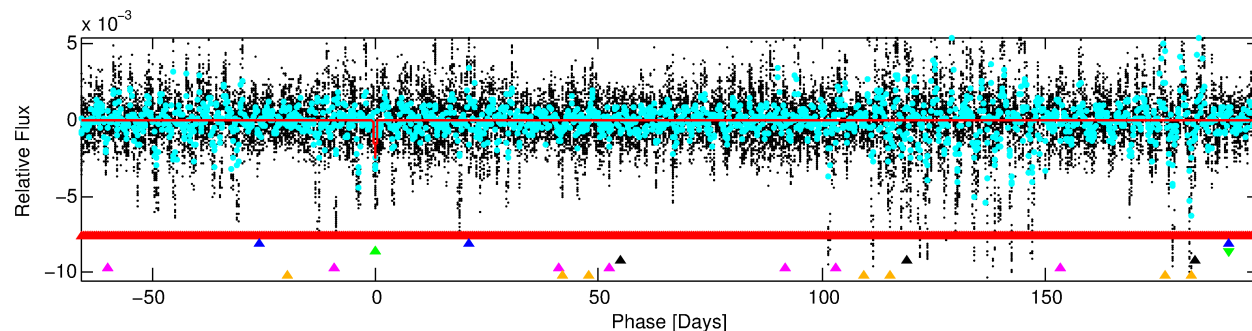
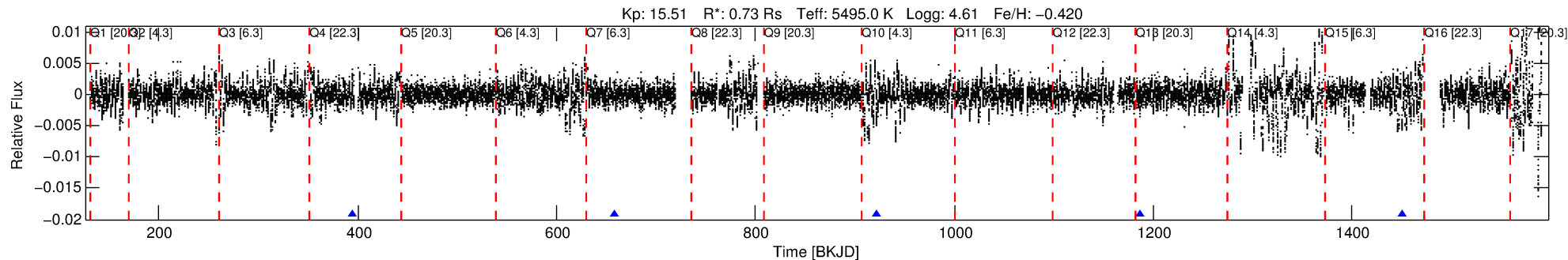
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005215669-03

No Significant Match Found

DV One-Page Summary

KIC: 5215669 Candidate: 3 of 6 Period: 263.863 d



DV Fit Results:

Period = 263.86269 [0.01370] d
Epoch = 394.7646 [0.0287] BKJD
Rp/R* = 0.0575 [0.0063]
a/R* = 61.11 [7.34]
b = 0.93 [0.02]
Seff = 0.78 [0.19]
Teq = 240 [14] K
Rp = 4.61 [0.97] Re
a = 0.7495 [0.1100] AU
Ag = 7070.47 [5535.89] [1.28σ]
Teff = 3401 [649] K [4.87σ]

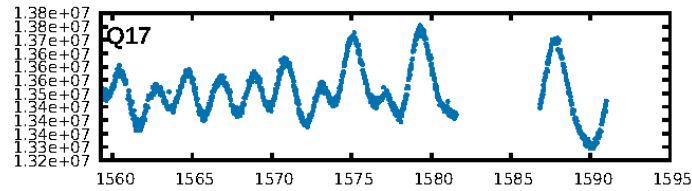
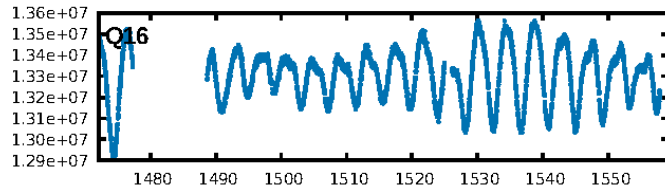
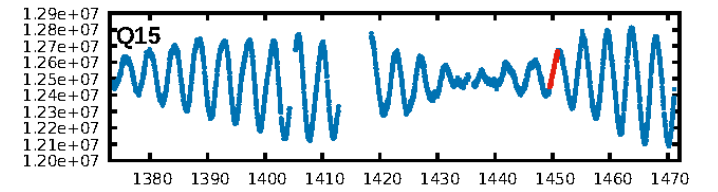
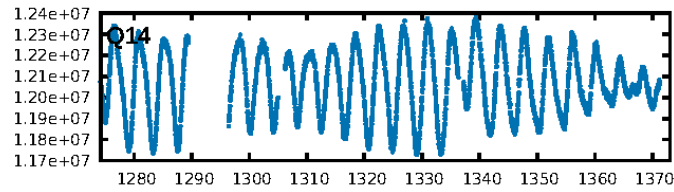
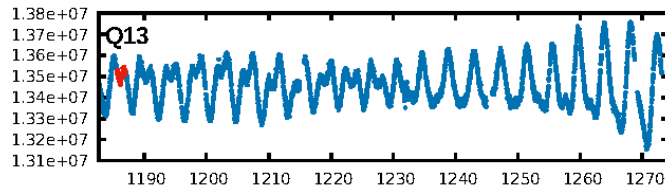
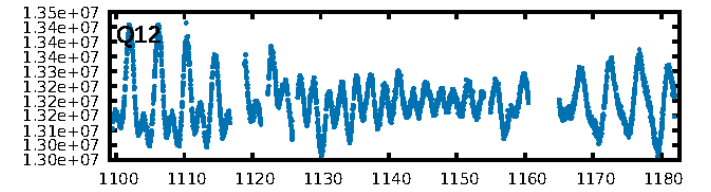
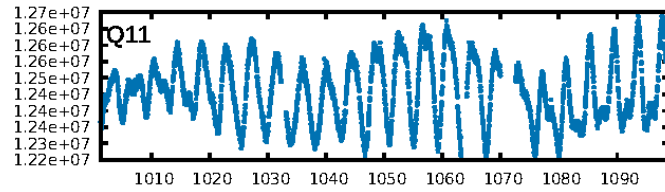
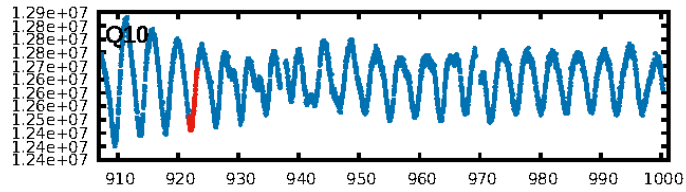
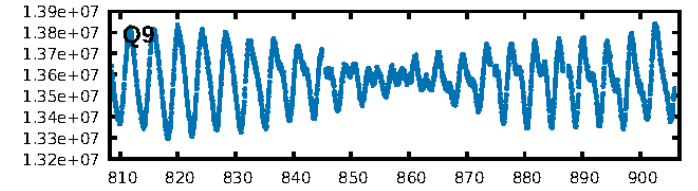
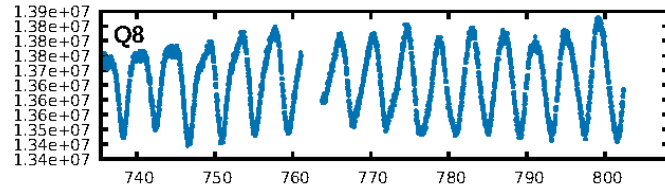
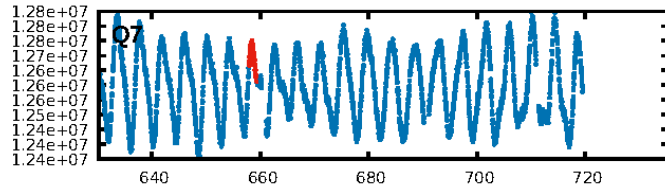
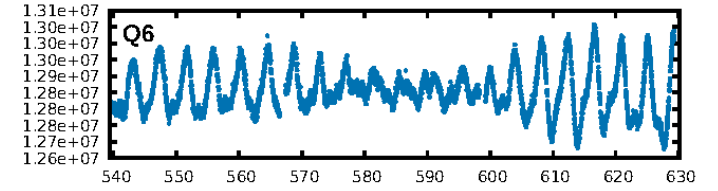
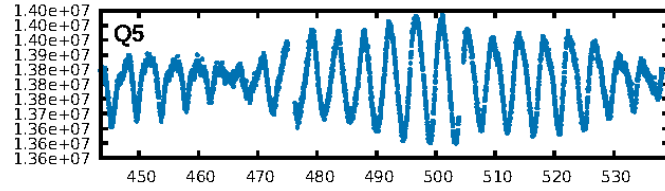
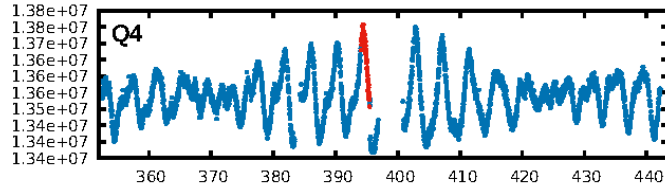
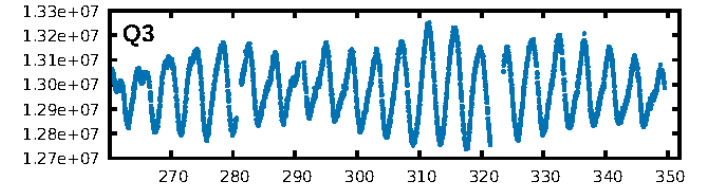
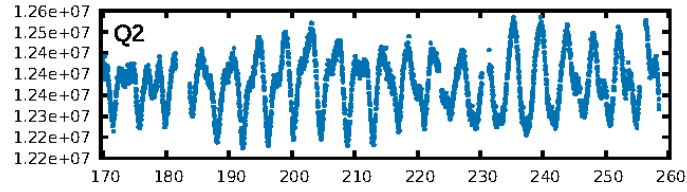
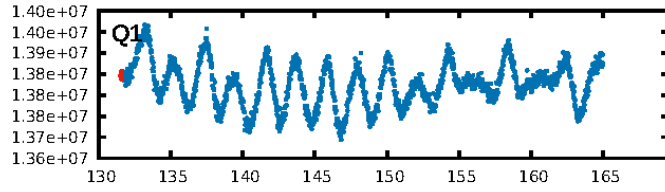
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [66.48σ]
LongPeriod-sig: 100.0% [281.31σ]
ModelChiSquare2-sig: 55.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -4.73
Centroid-sig: 38.0%
Centroid-so: 1.506 arcsec [2.46σ]
OotOffset-rm: 0.407 arcsec [2.21σ]
KicOffset-rm: 0.081 arcsec [0.77σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

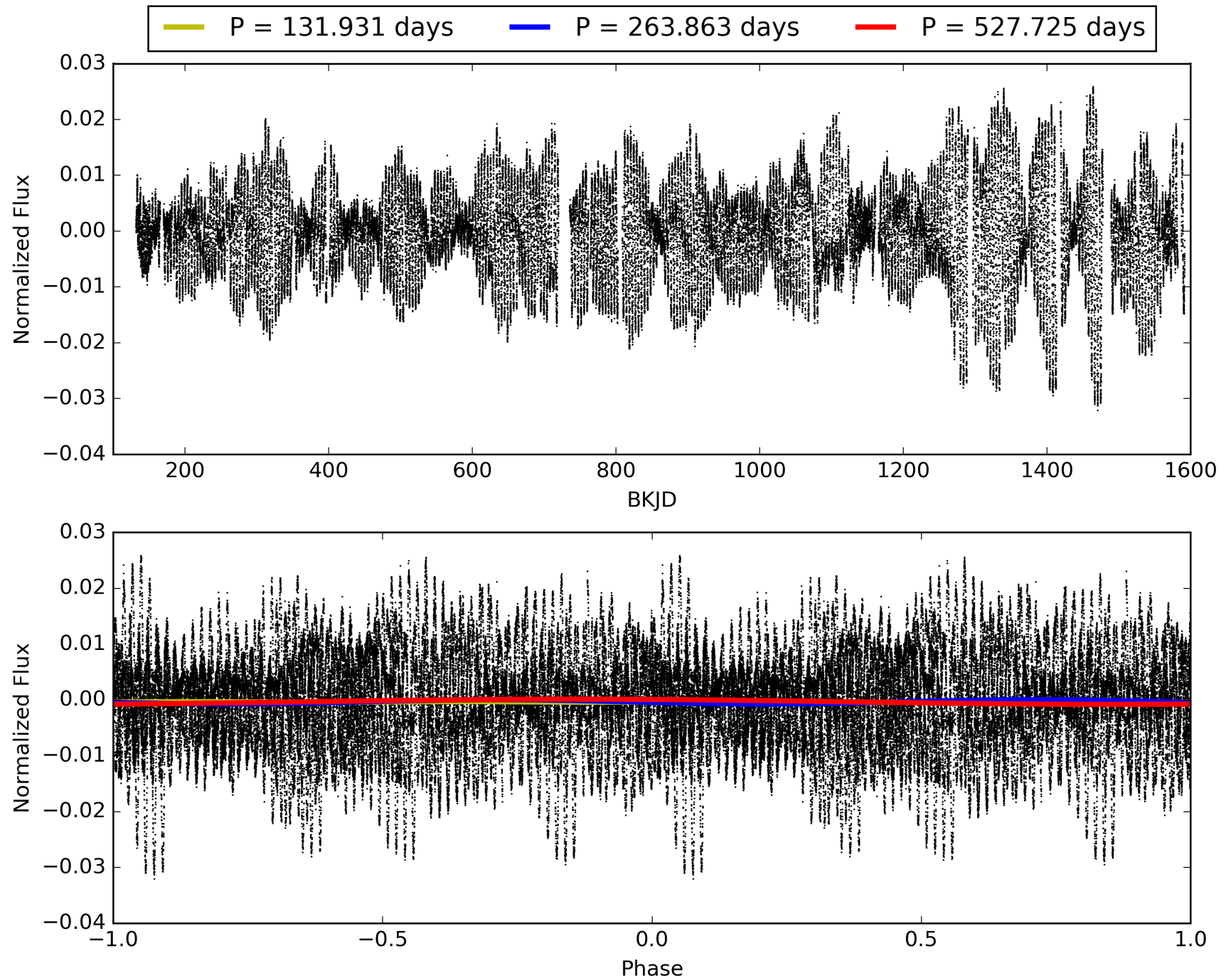
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:14:15 Z

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

TCE 005215669-03, PDC Light Curves

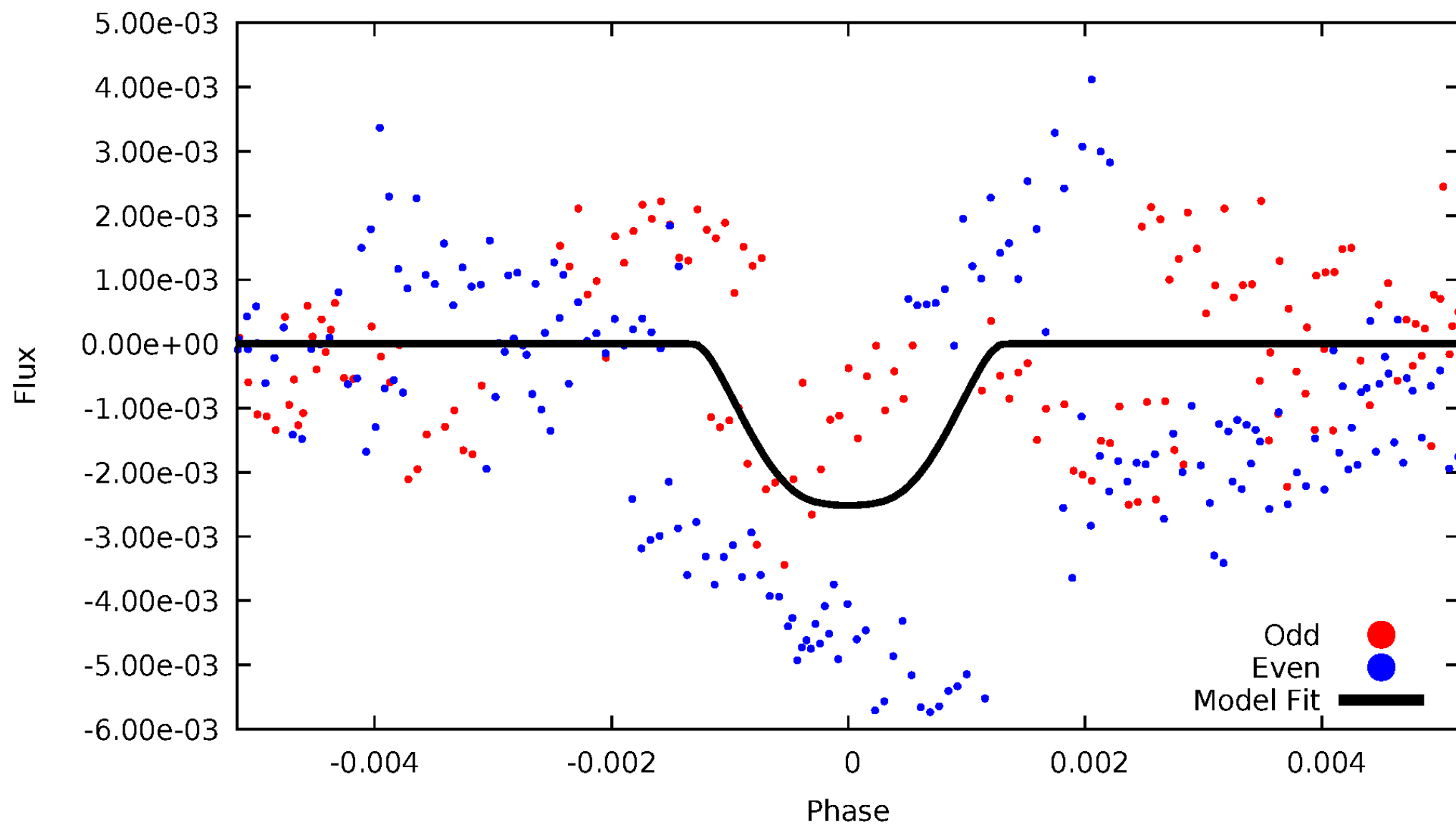


TCE 005215669-03



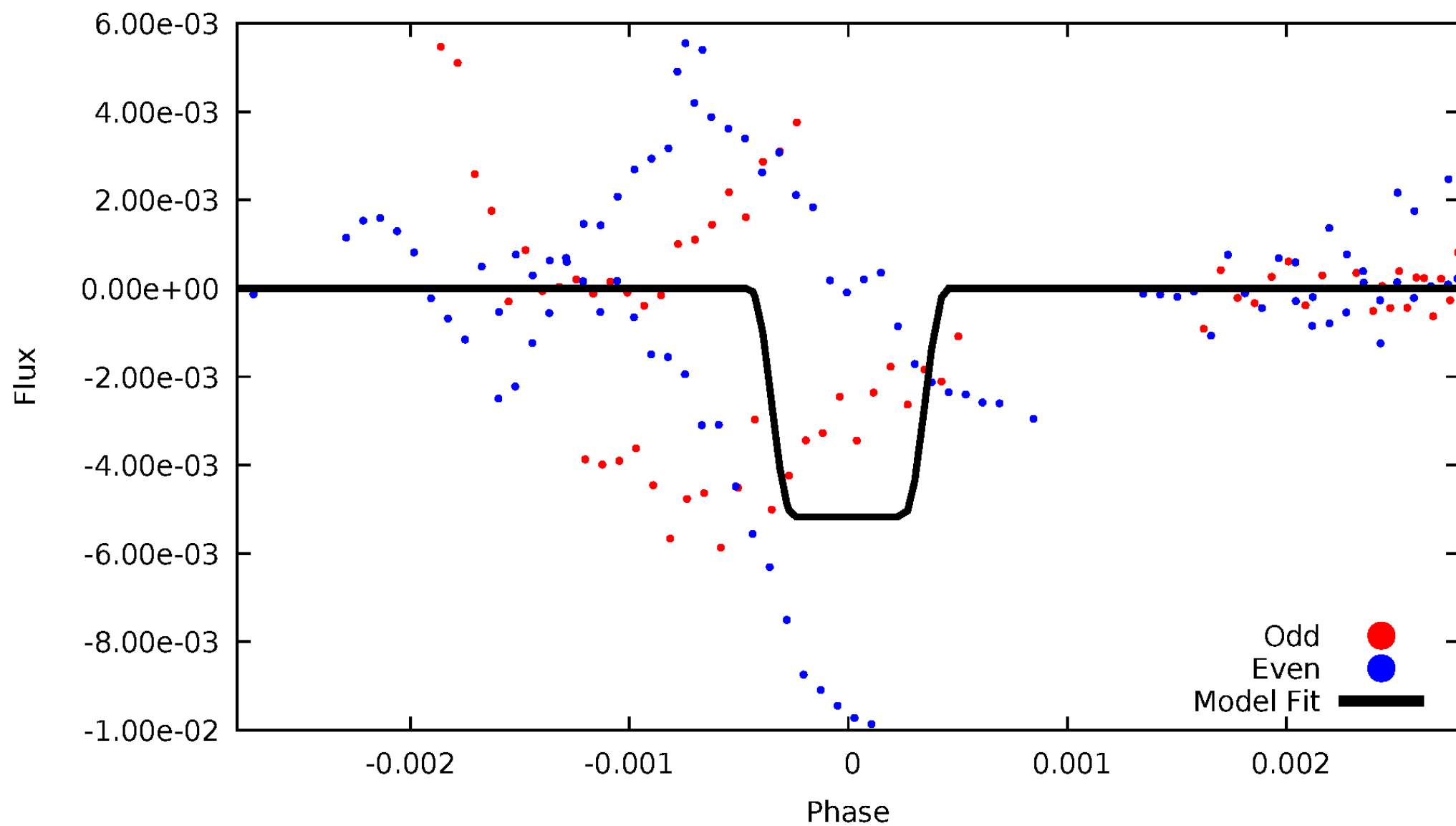
DV Odd/Even

TCE 005215669-03



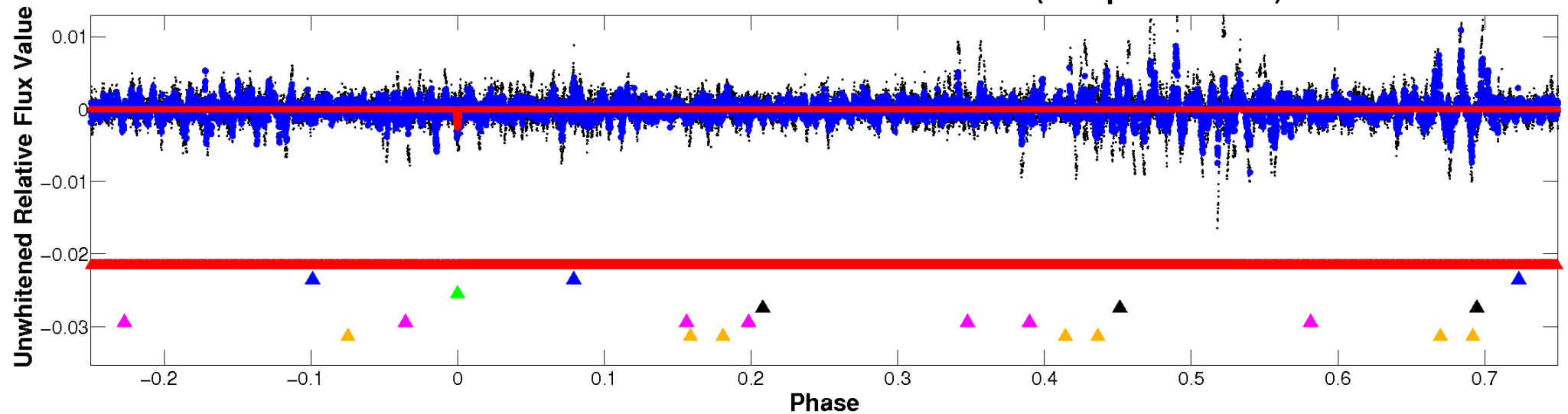
ALT Odd/Even

TCE 005215669-03

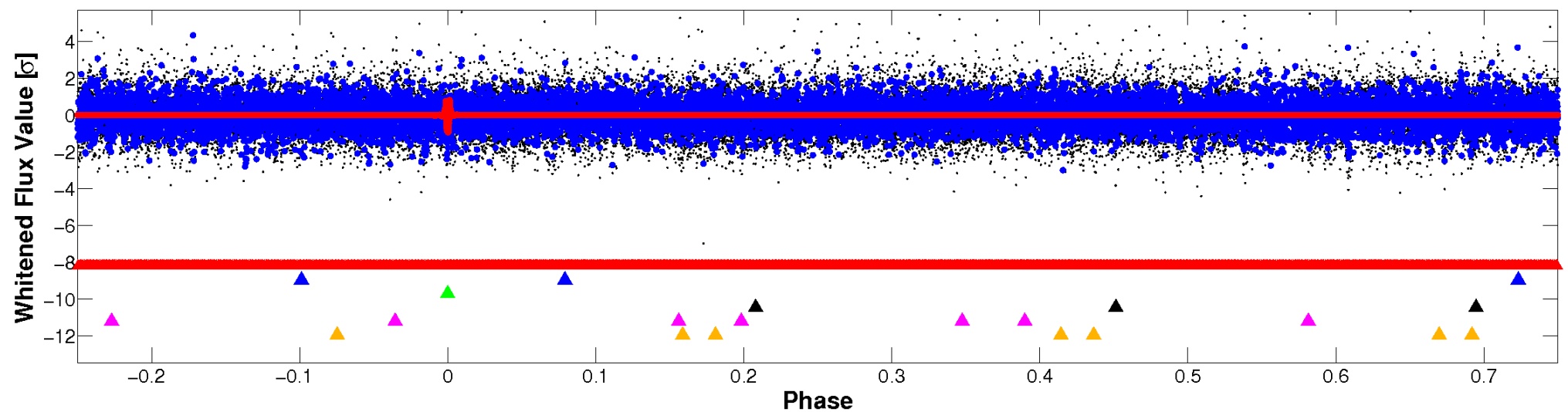


Non-Whitened Vs. Whitened Light Curve

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

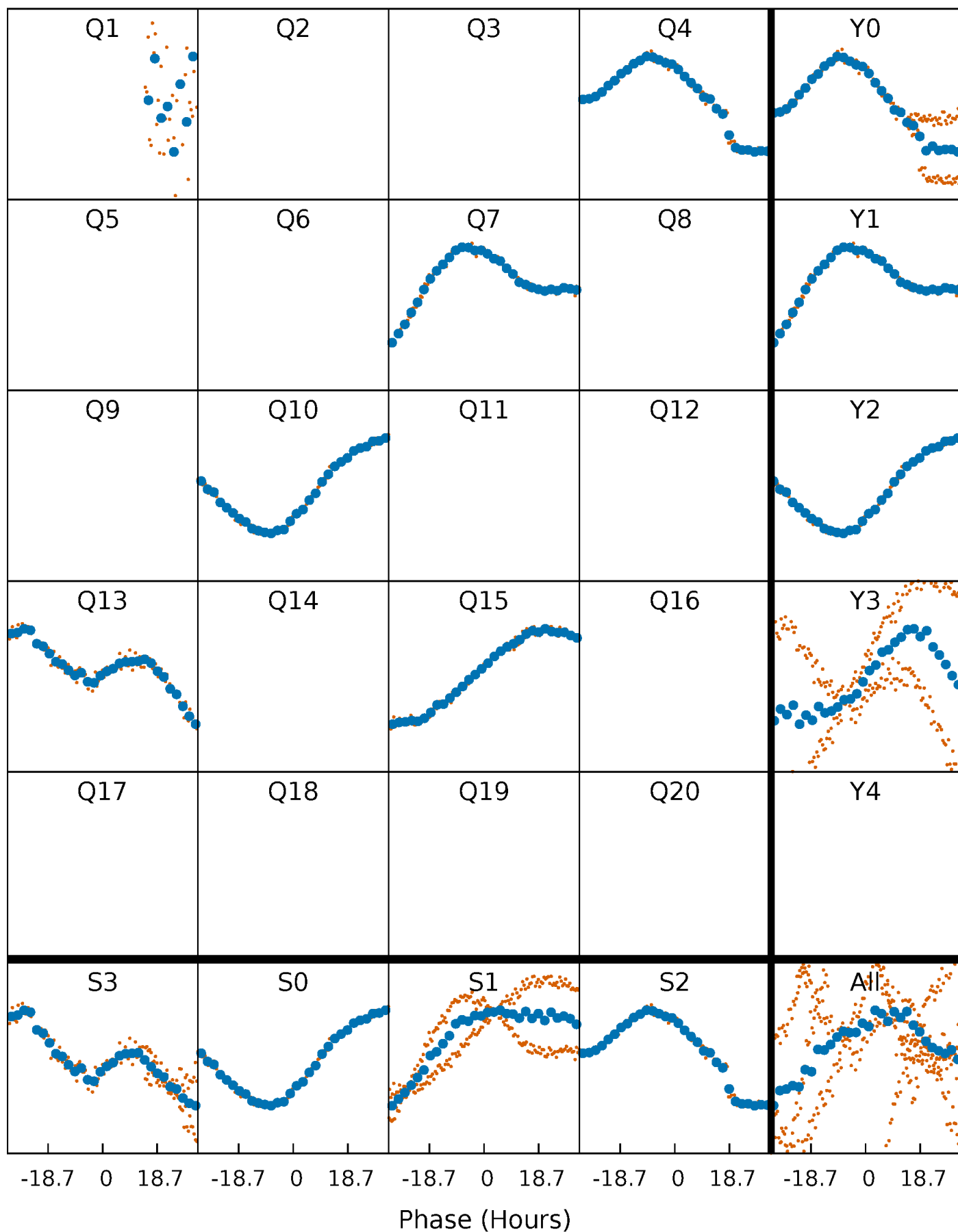


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



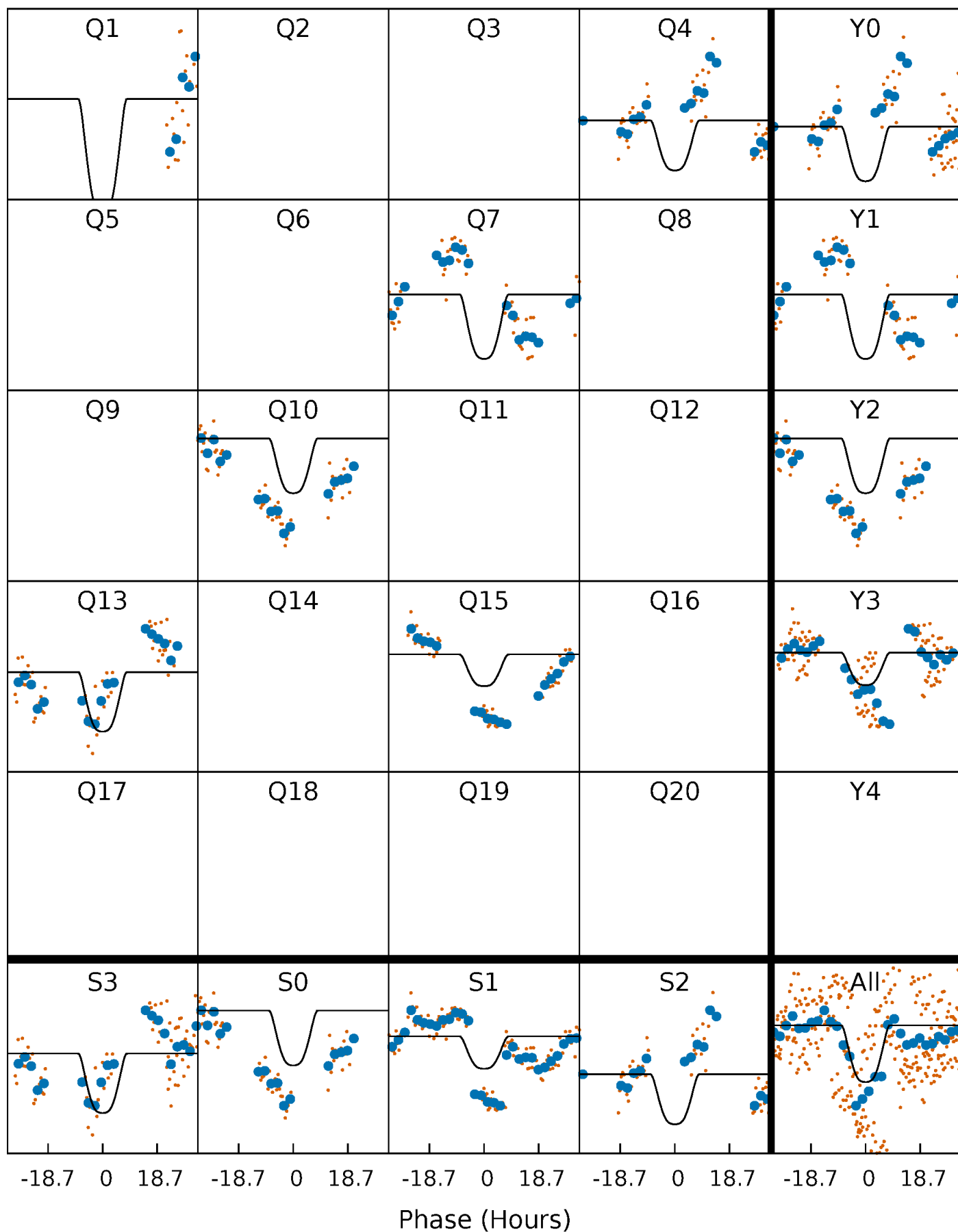
PDC Quarter-Phased Transit Curves

TCE 005215669-03 $P=263.862694$ Days $T_0=394.764557$ (BKJD)



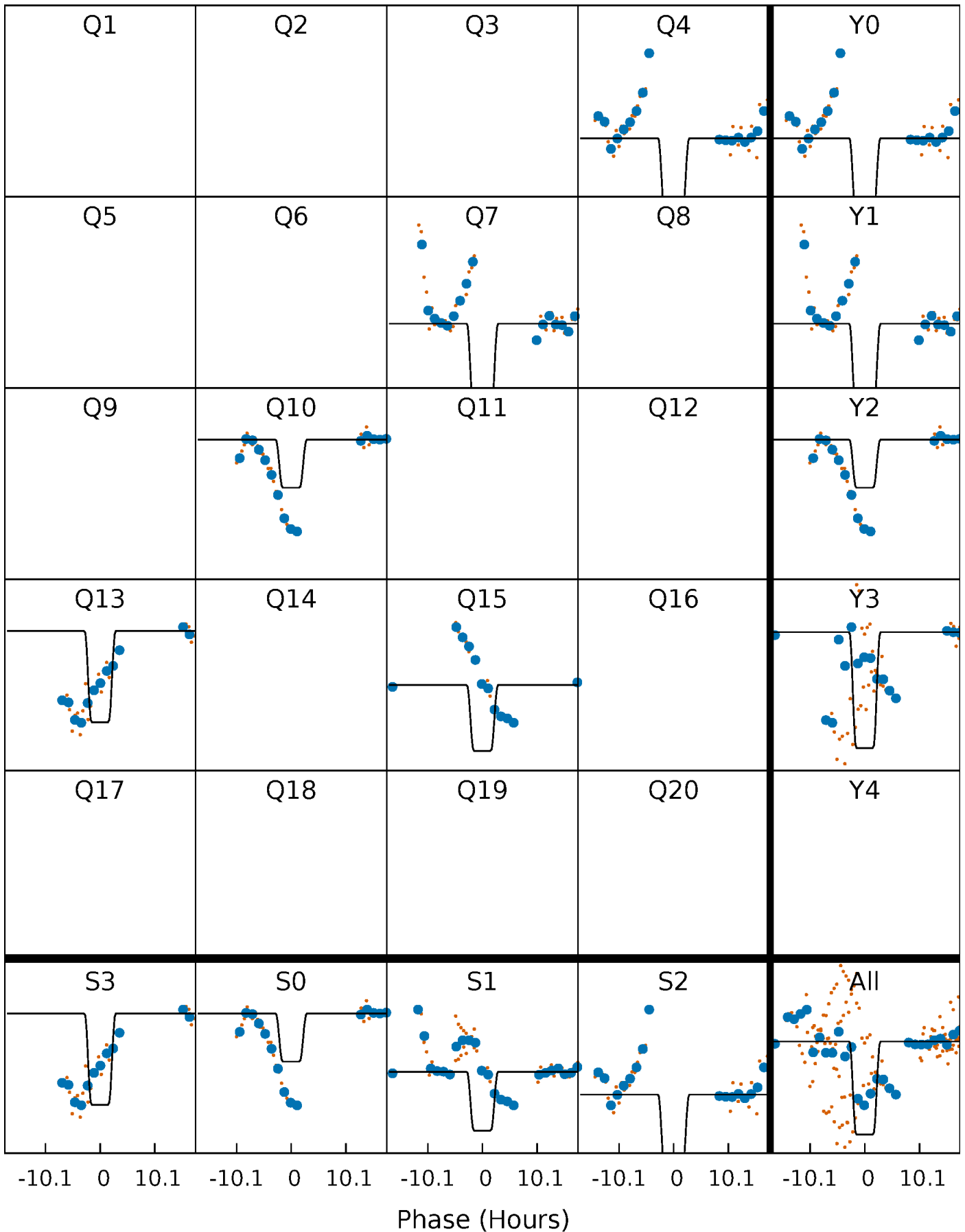
DV Quarter-Phased Transit Curves

TCE 005215669-03 P=263.862694 Days $T_0=394.764557$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

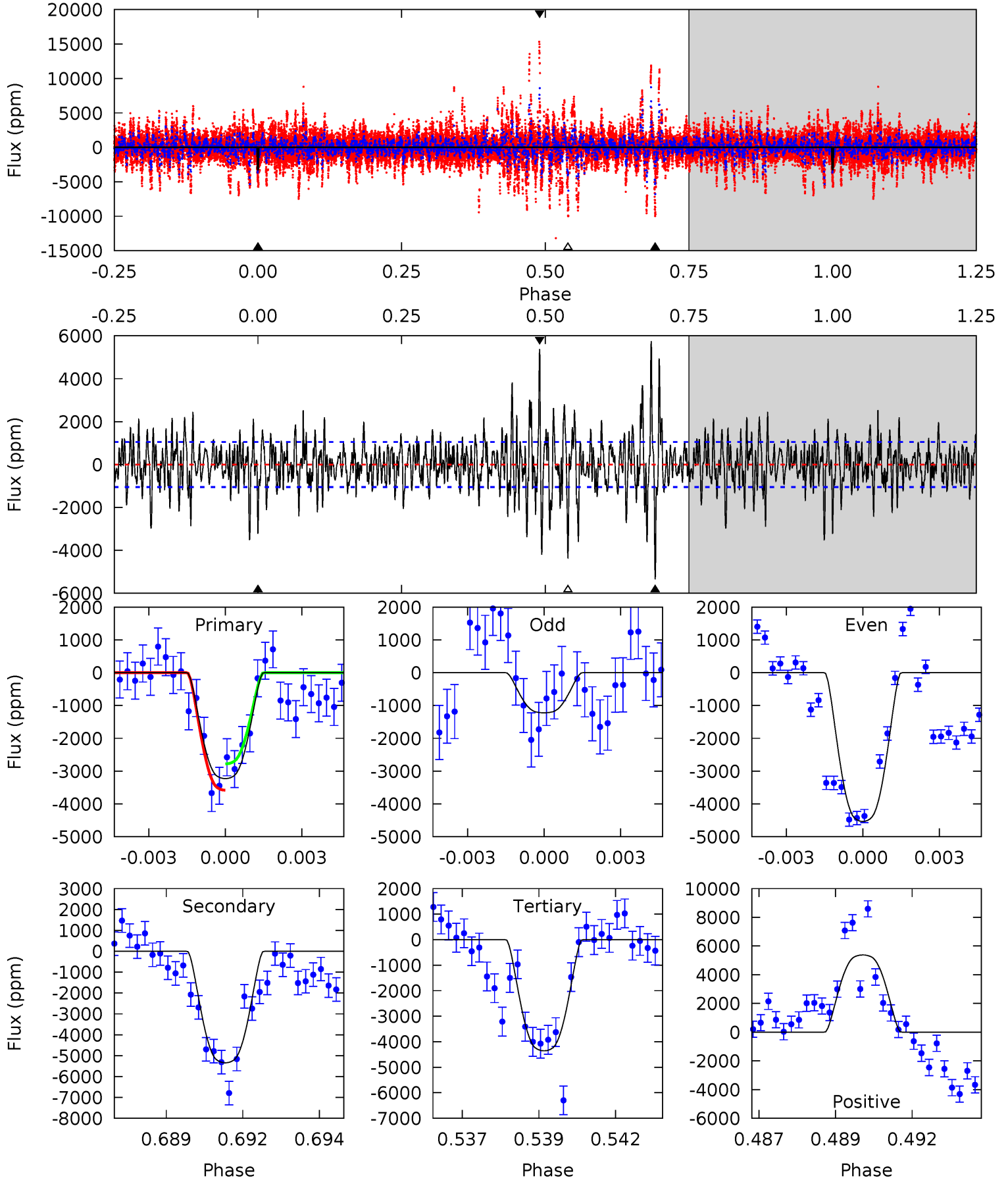
TCE 005215669-03 P=263.933483 Days $T_0=394.563009$ (BKJD)



DV Model-Shift Uniqueness Test

005215669-03, P = 263.862694 Days, E = 130.901863 Days

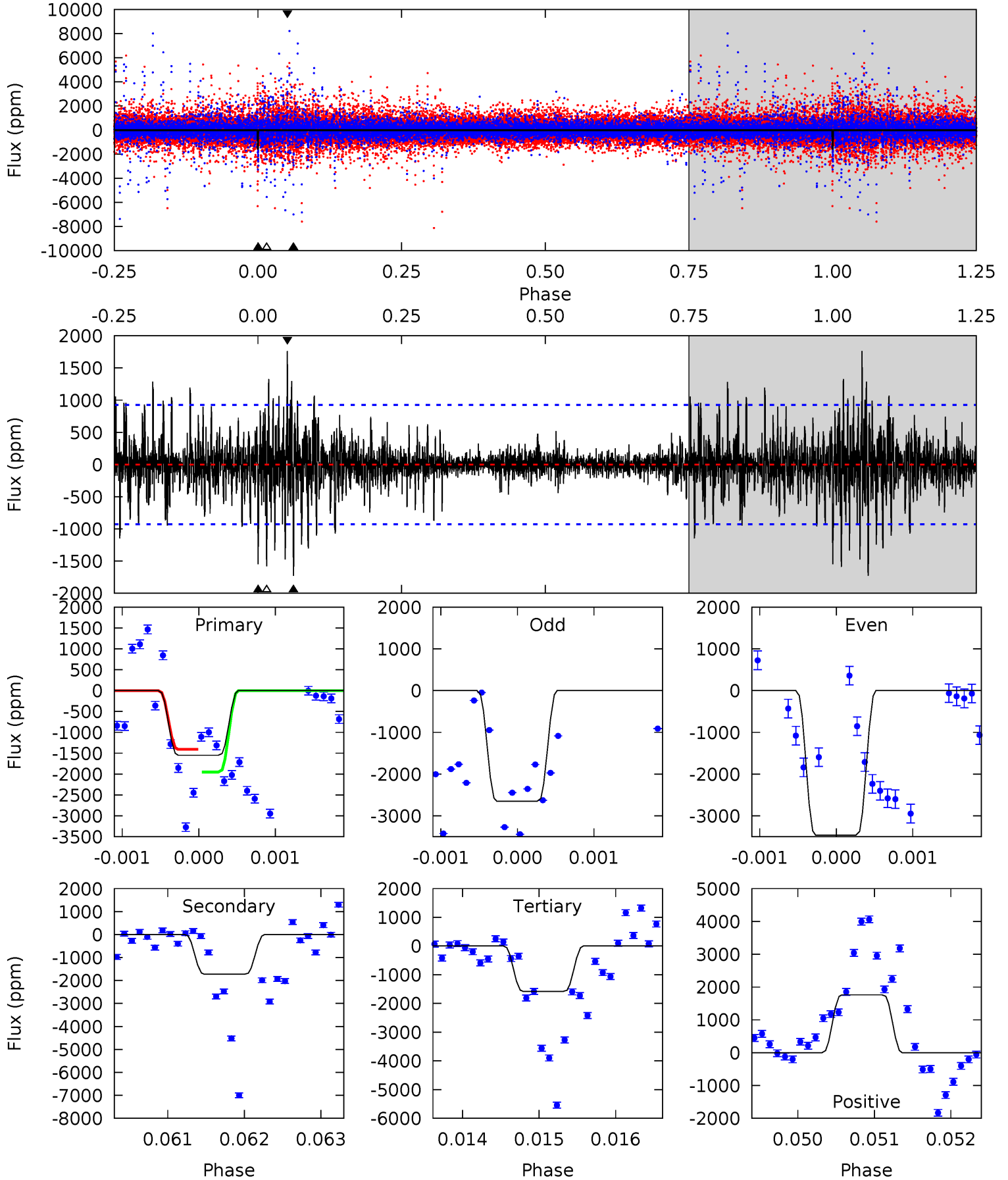
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	26.8	21.9	27.0	5.28	3.01	5.26	-5.66	-10.8	4.95	-0.19	7.70	1.07	0.52	2.03



Alt Model-Shift Uniqueness Test

005215669-03, P = 263.933483 Days, E = 130.629526 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.14	10.2	9.33	10.4	5.47	3.32	1.33	-0.19	-1.27	0.87	-0.21	2.50	1.48	0.51	1.57



Stellar Parameters For KIC 005215669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5495^{+162}_{-162}	$4.613^{+0.037}_{-0.112}$	$-0.420^{+0.300}_{-0.300}$	$0.734^{+0.131}_{-0.056}$	$0.814^{+0.083}_{-0.083}$	$2.905^{+0.453}_{-0.970}$
	+3%/-3%	+1%/-2%	+71%/-71%	+18%/-8%	+10%/-10%	+16%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005215669-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5343 ± 199	$4.71^{+0.68}_{-0.61}$	339^{+15}_{-12}	6204^{+424}_{-409}	74438^{+23552}_{-17425}
Alt.	-1727 ± 169	$5.93^{+0.76}_{-0.67}$	340^{+15}_{-13}	4380^{+218}_{-198}	15238^{+4267}_{-3234}

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 $A_{obs} \gg 1.0$

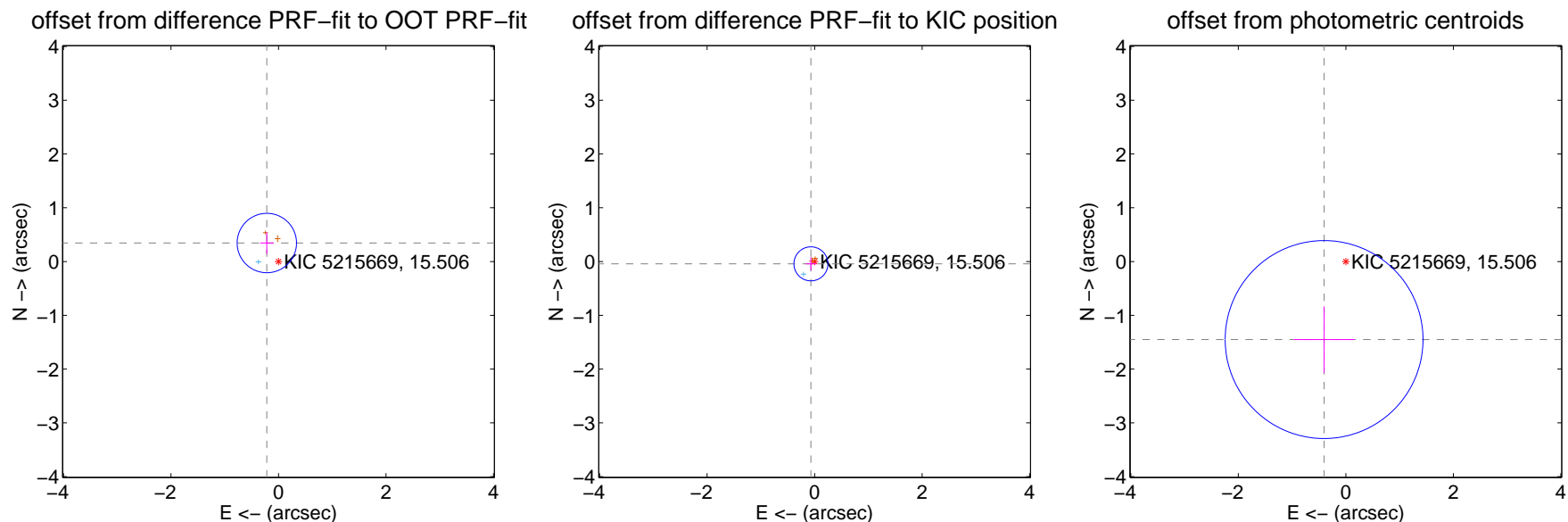
DV Centroid Data

Supplemental centroid analysis for 005215669-03. Kepler magnitude: 15.51. Transit SNR 6.80

There are 1 quarters with good PRF difference image offsets

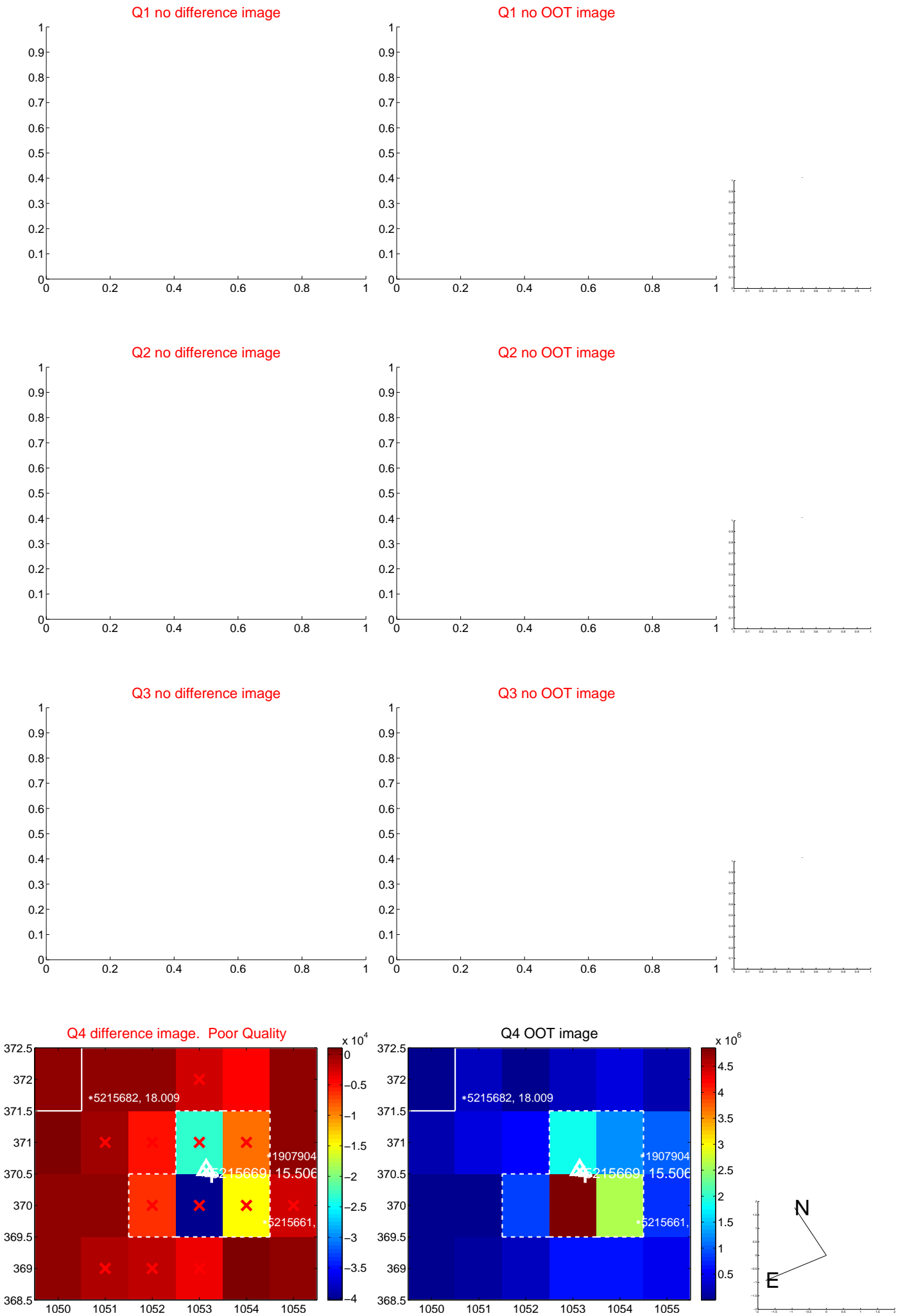
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.407 ± 0.184	2.21	0.217 ± 0.127	0.344 ± 0.202
PRF-fit source offset from KIC position	0.081 ± 0.105	0.77	0.069 ± 0.097	-0.043 ± 0.124
photometric centroid source offset	1.51 ± 0.61	2.46	0.40 ± 0.56	-1.45 ± 0.62

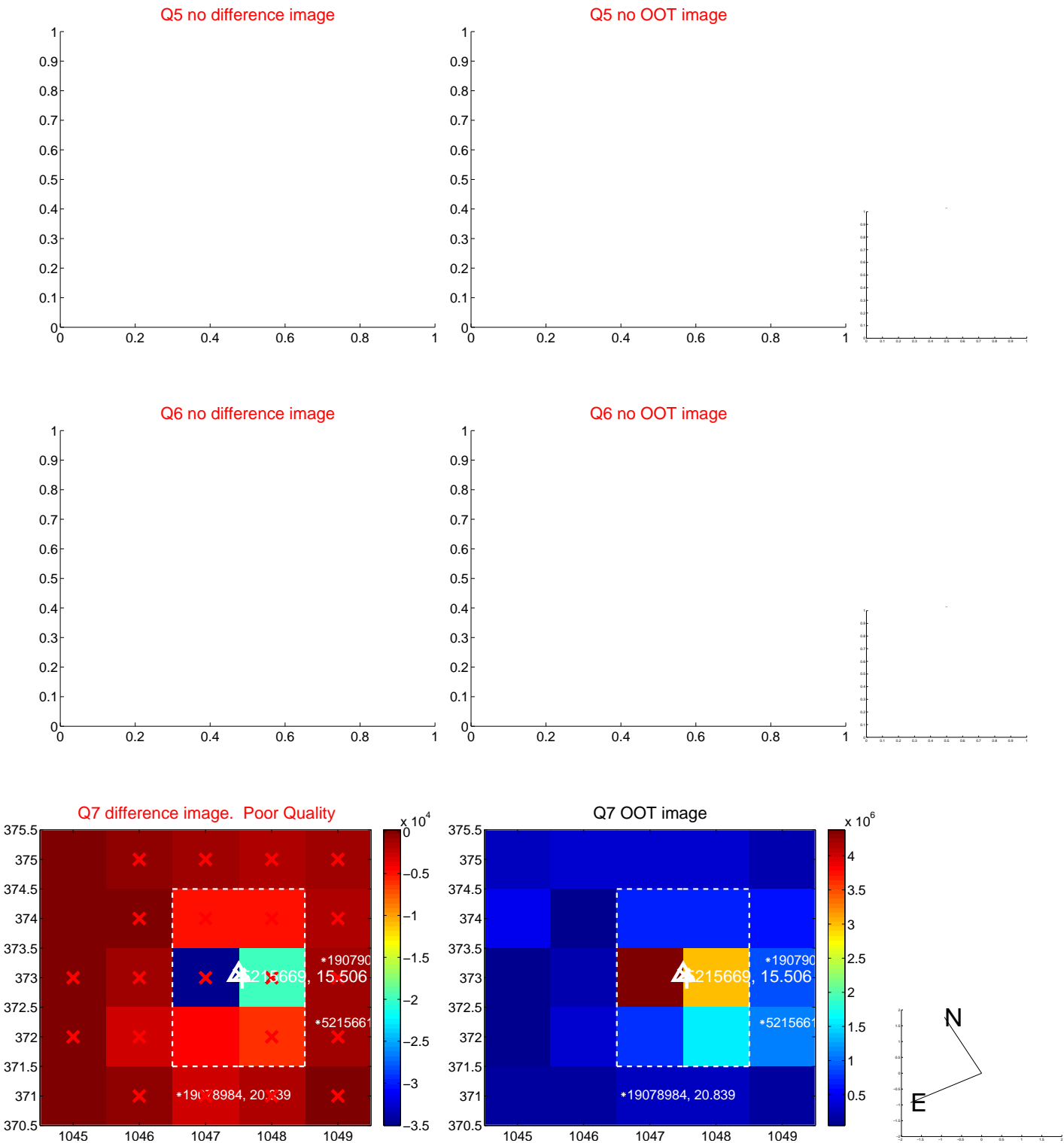


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

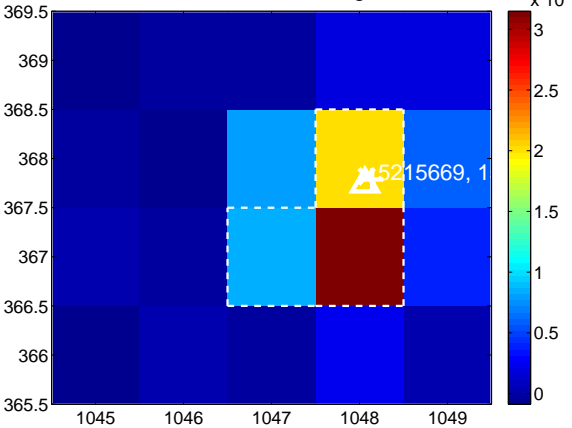
Q9 no difference image



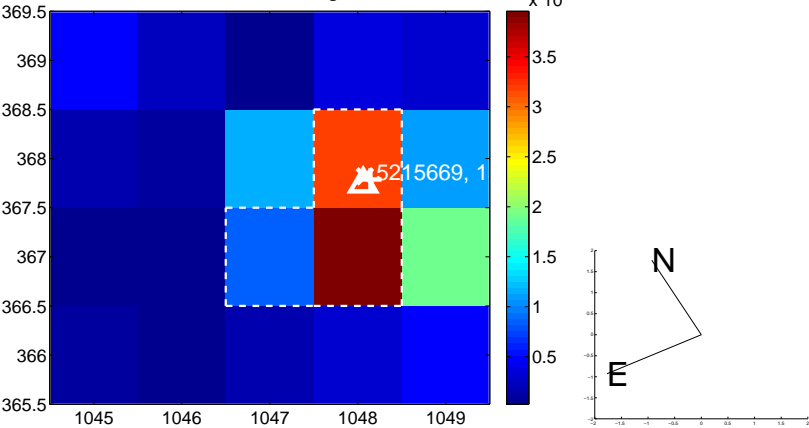
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



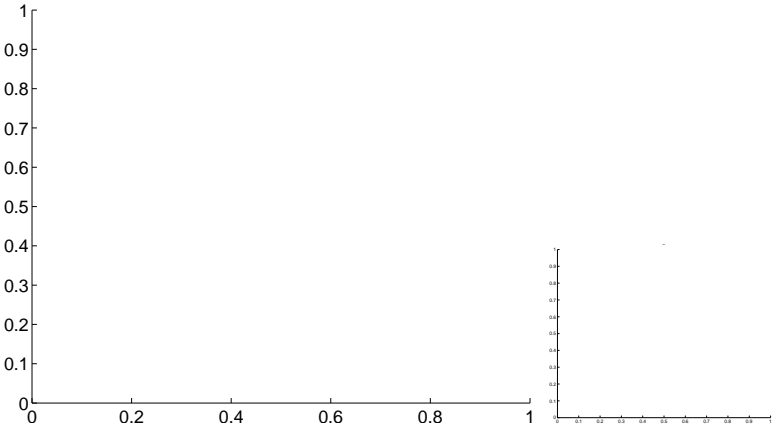
Q11 no OOT image



Q12 no difference image



Q12 no OOT image



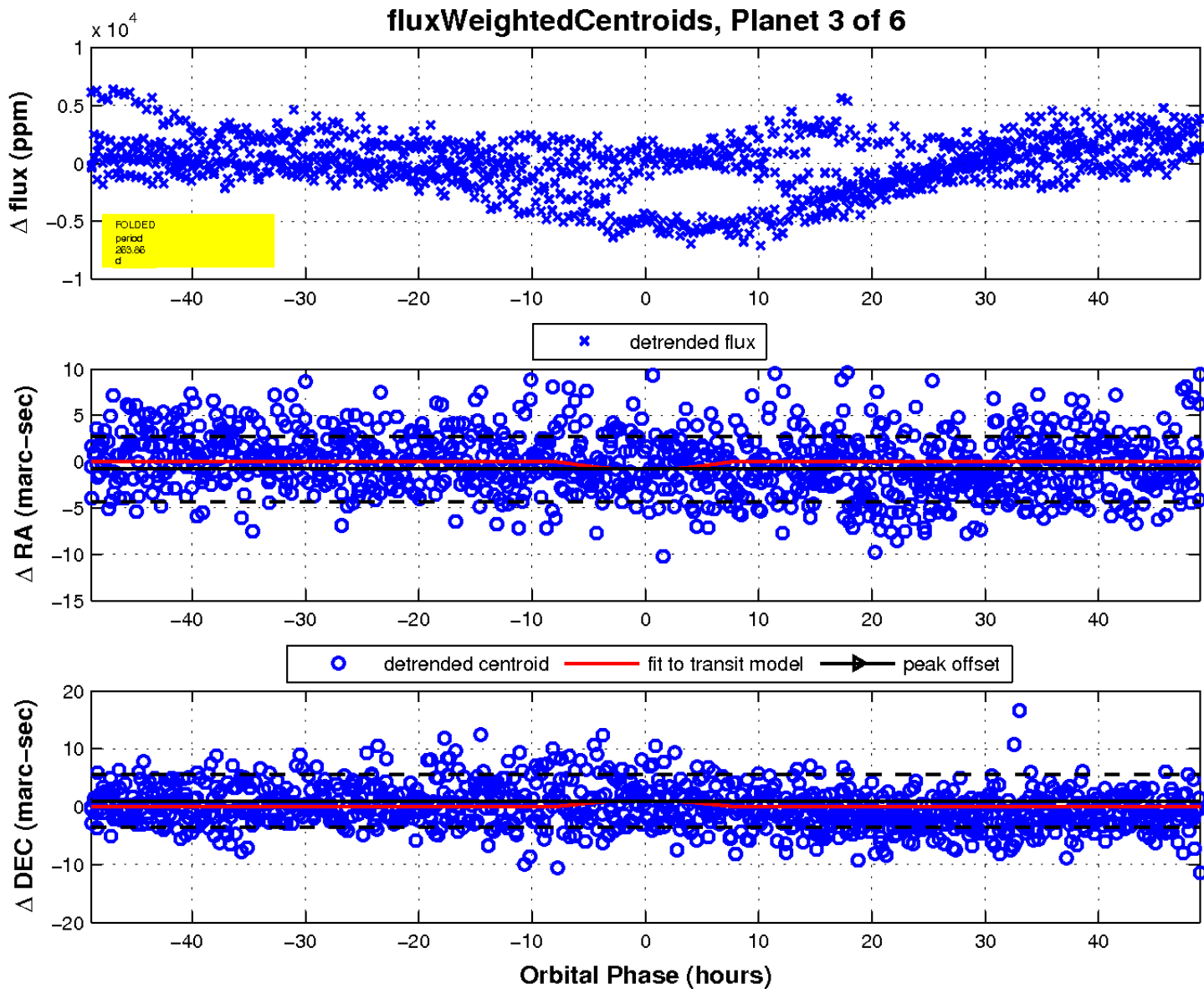
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

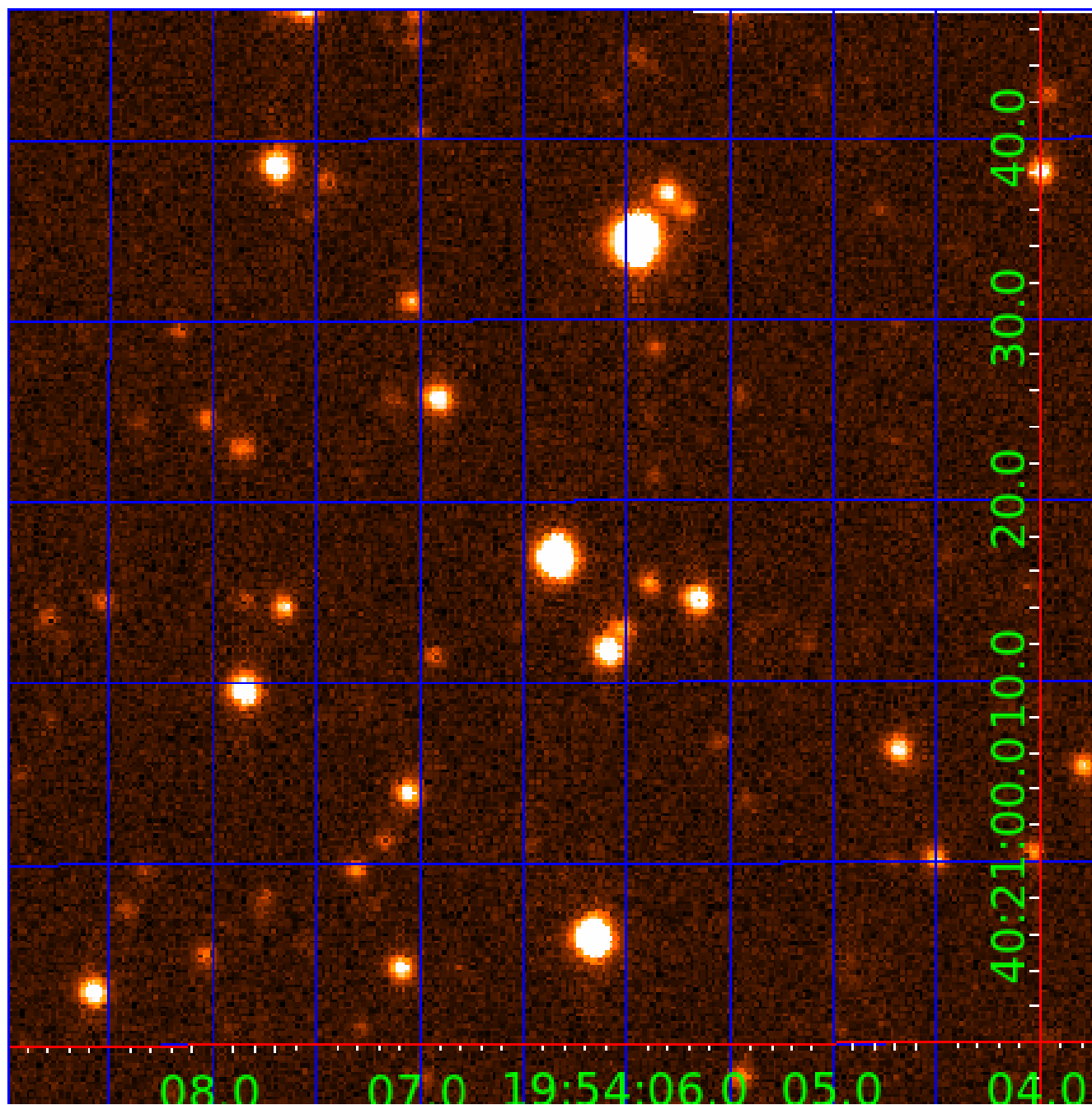
Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination



KIC 005215669

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})
005215669-01	OBS	No	0.949755	131.565715	115.2	3.752	9.3	11.2	0.73	5495	0.94	1420.41
005215669-02	OBS	No	480.768665	151.798775	2024.2	2.104	12.6	7.3	0.73	5495	3.32	0.35
005215669-03	OBS	No	263.862694	394.764557	2517.1	16.340	11.5	6.8	0.73	5495	4.61	0.78
005215669-04	OBS	No	463.512321	314.220631	1731.8	4.811	10.6	6.4	0.73	5495	3.25	0.37
005215669-05	OBS	No	213.320791	222.623288	1413.6	8.123	9.3	5.9	0.73	5495	2.81	1.04
005215669-06	OBS	No	196.435978	313.487044	2434.0	18.012	10.1	7.7	0.73	5495	4.33	1.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005215669-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005215669-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005215669-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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_KIC_POS
005215669-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

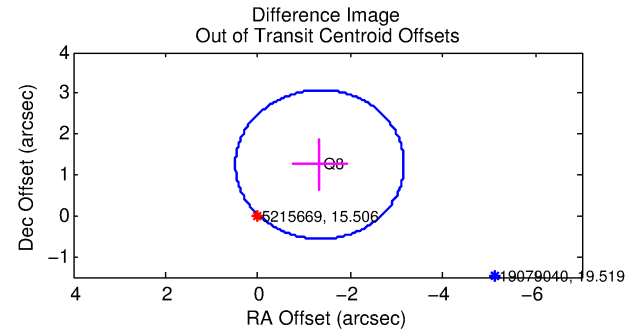
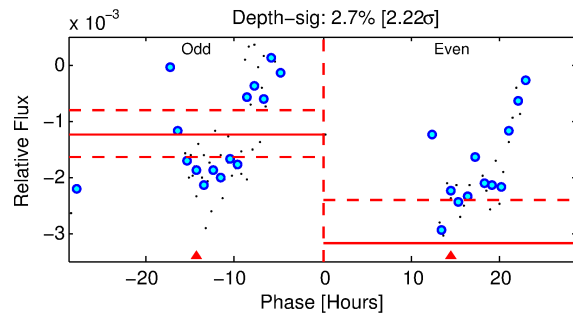
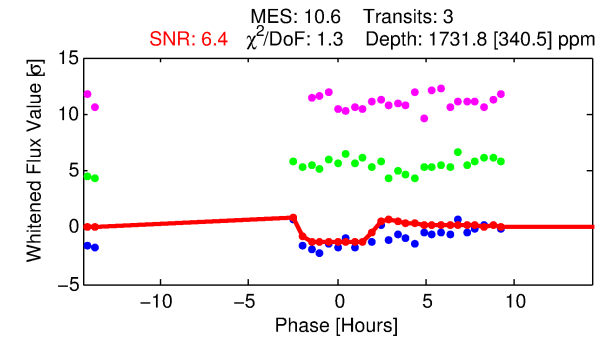
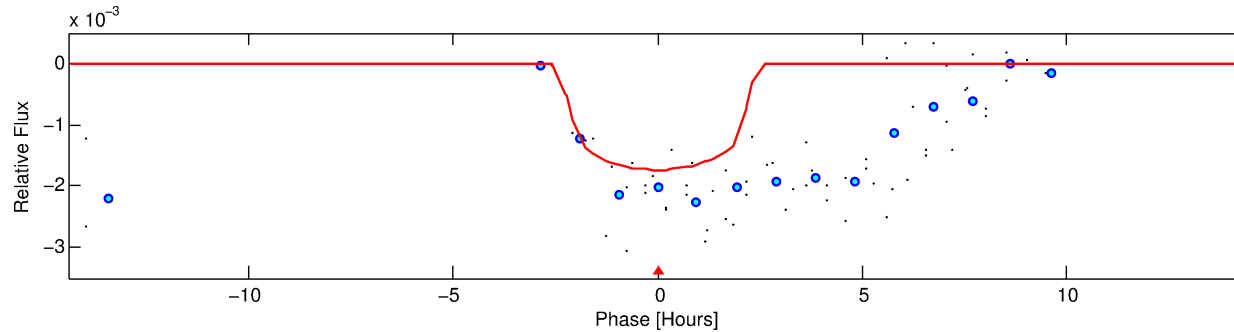
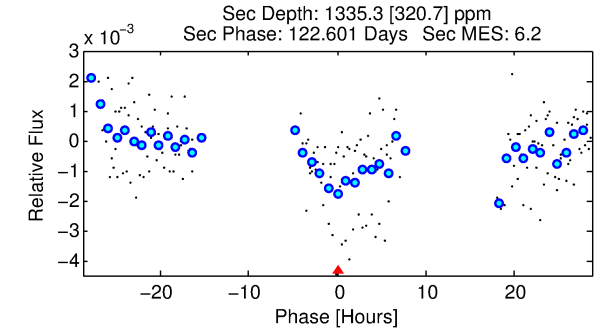
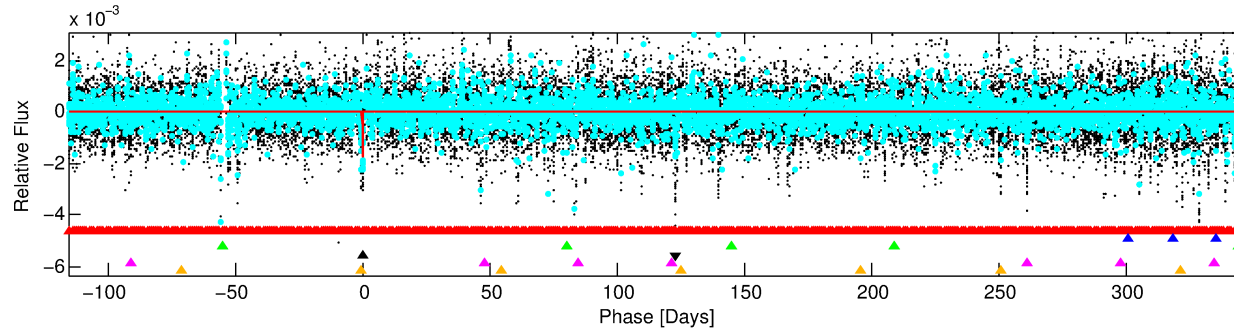
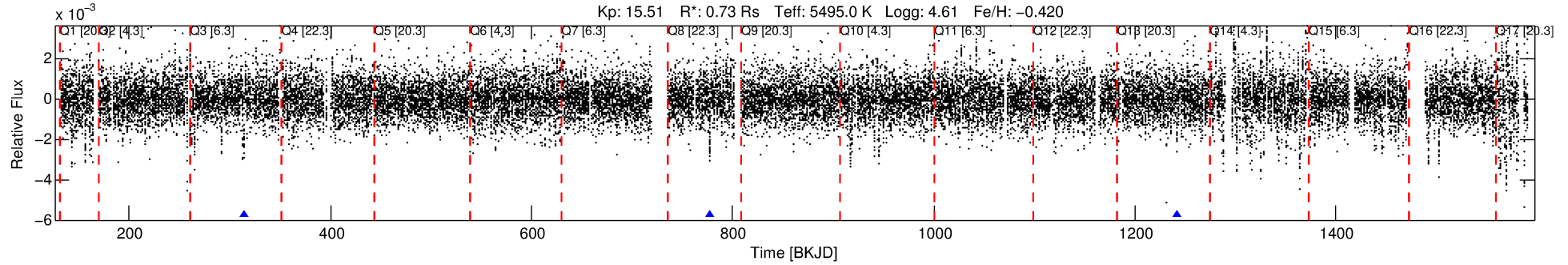
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005215669-04

No Significant Match Found

DV One-Page Summary

KIC: 5215669 Candidate: 4 of 6 Period: 463.512 d



DV Fit Results:

Period = 463.51232 [0.01001] d
Epoch = 314.2206 [0.0172] BKJD
Rp/R* = 0.0405 [0.0716]
a/R* = 576.47 [4333.96]
b = 0.68 [5.87]
Seff = 0.37 [0.09]
Teq = 199 [12] K
Rp = 3.25 [5.76] Re
a = 1.0911 [0.1602] AU
Ag = 82950.85 [294217.00] [0.28σ]
Teffp = 5217 [4621] K [1.09σ]

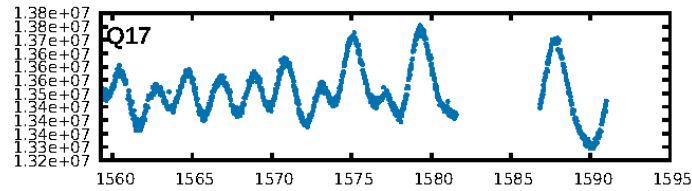
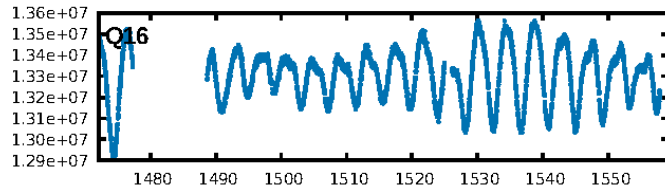
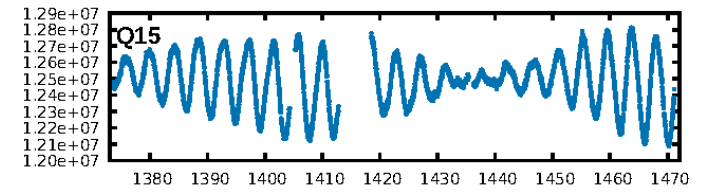
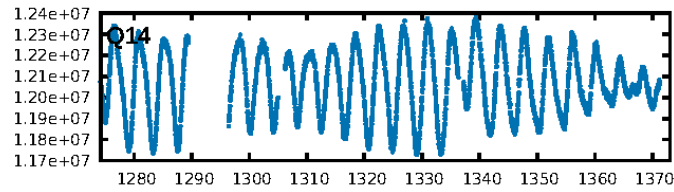
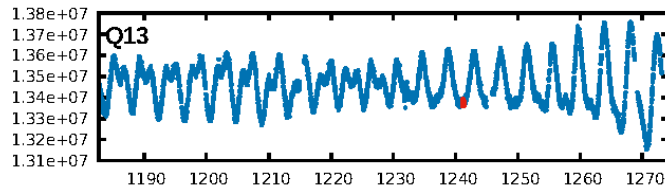
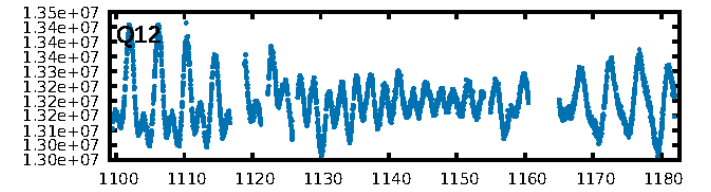
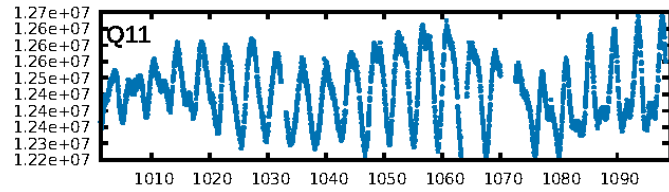
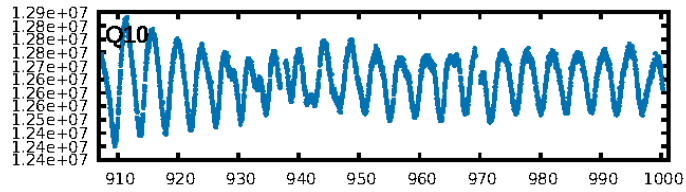
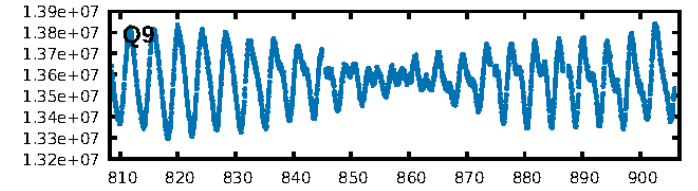
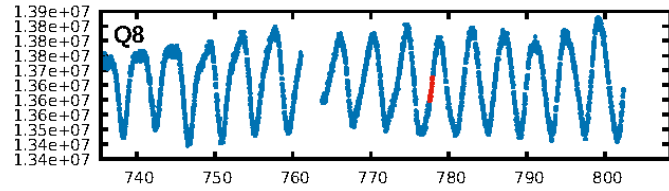
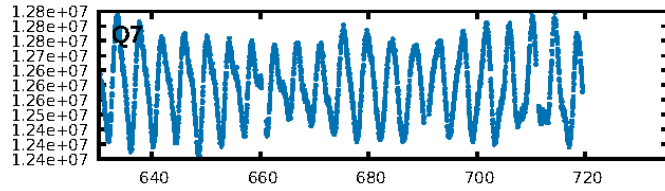
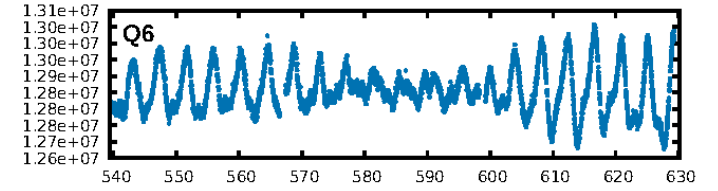
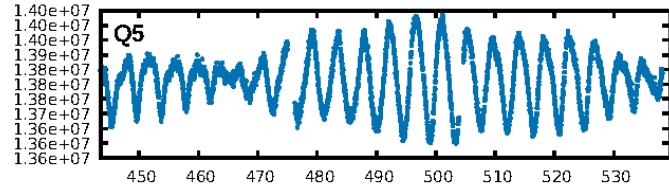
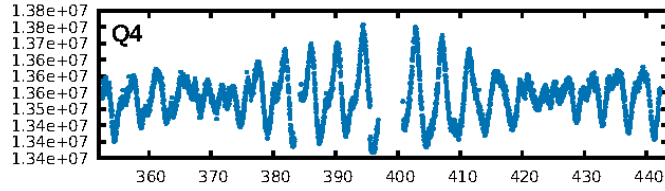
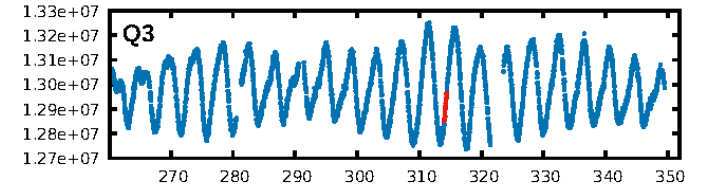
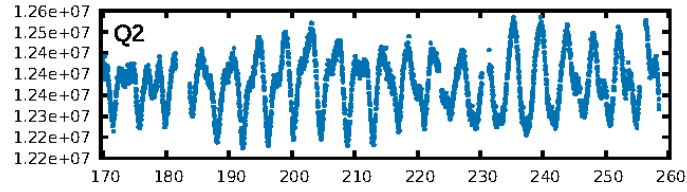
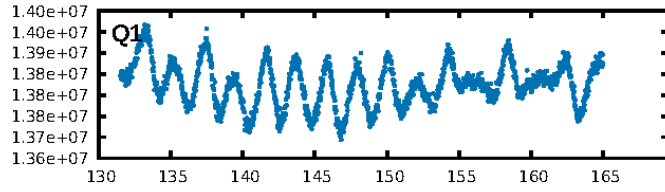
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [281.31σ]
LongPeriod-sig: 100.0% [78.87σ]
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 98.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4847
Centroid-sig: 19.3%
Centroid-so: 1.015 arcsec [0.77σ]
OotOffset-rm: 1.830 arcsec [3.01σ]
KicOffset-rm: 1.868 arcsec [3.15σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/2]

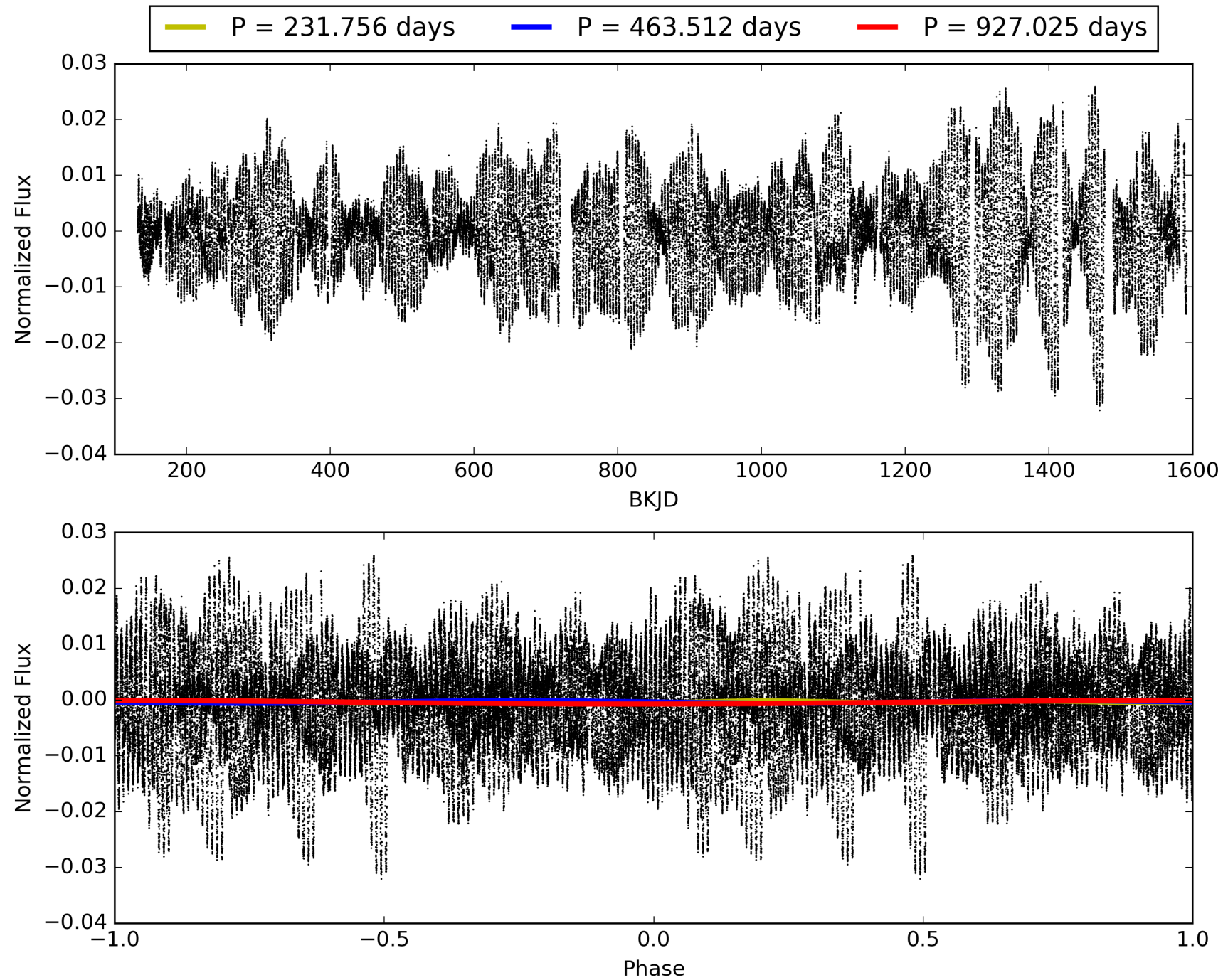
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:14:24 Z

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

TCE 005215669-04, PDC Light Curves

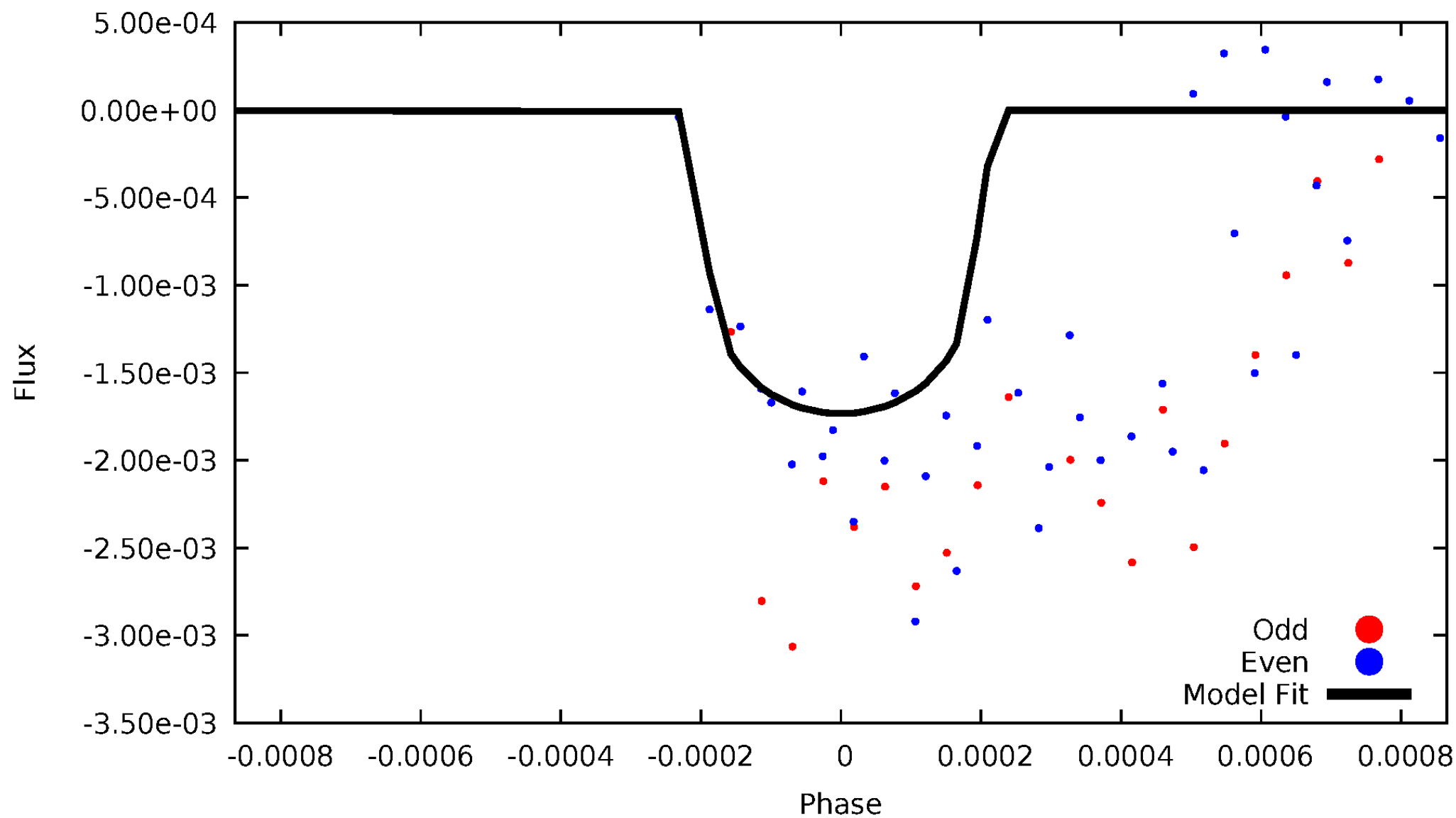


TCE 005215669-04



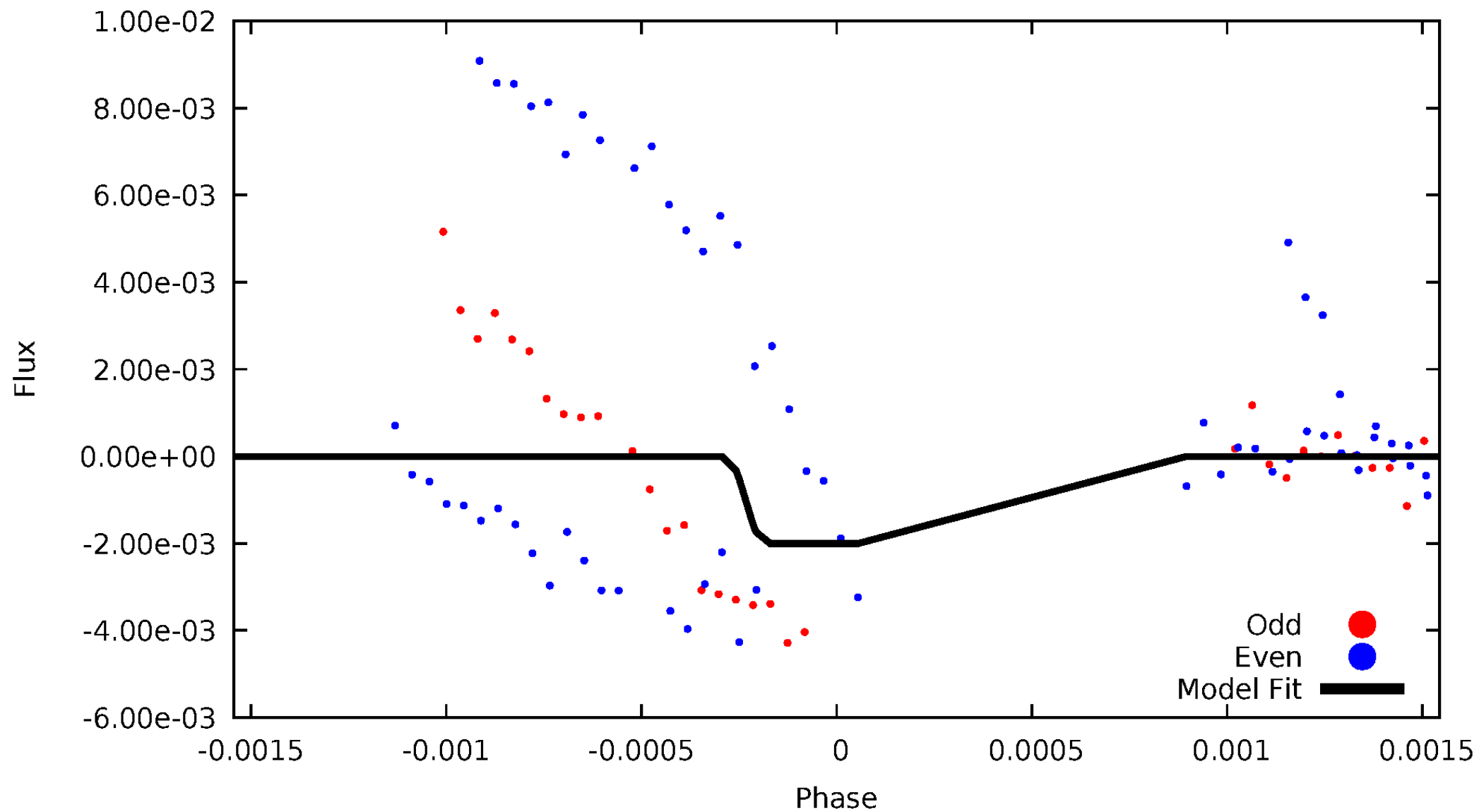
DV Odd/Even

TCE 005215669-04



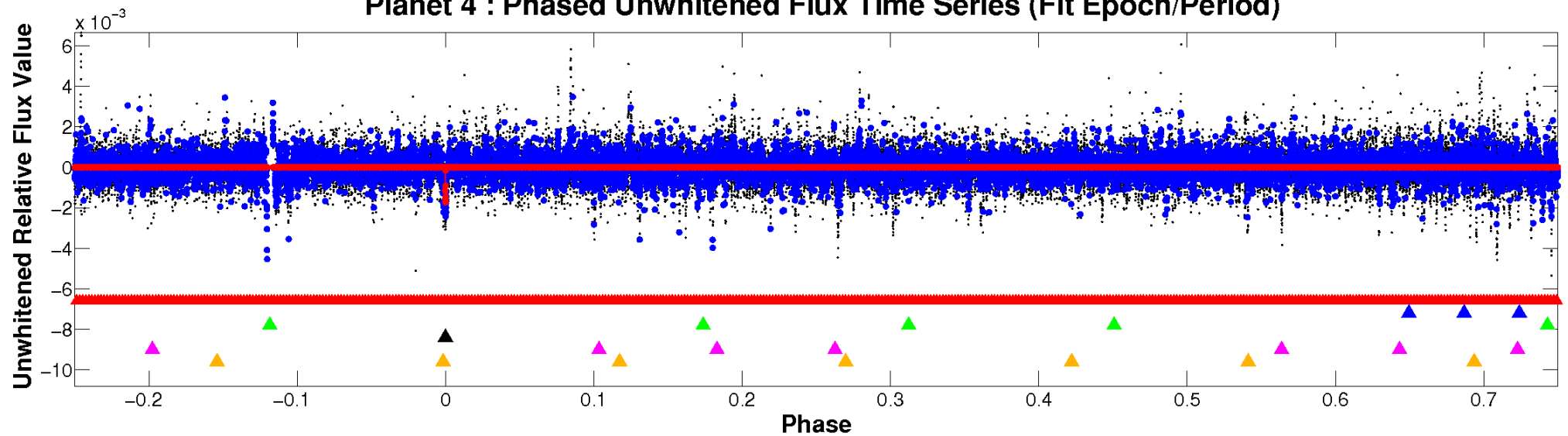
ALT Odd/Even

TCE 005215669-04

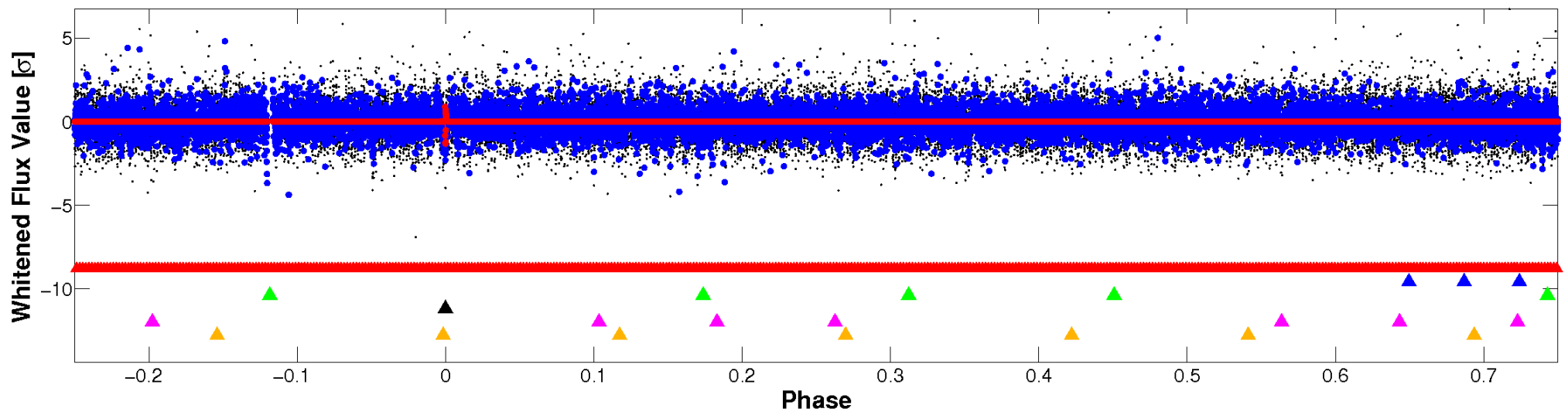


Non-Whitened Vs. Whitened Light Curve

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

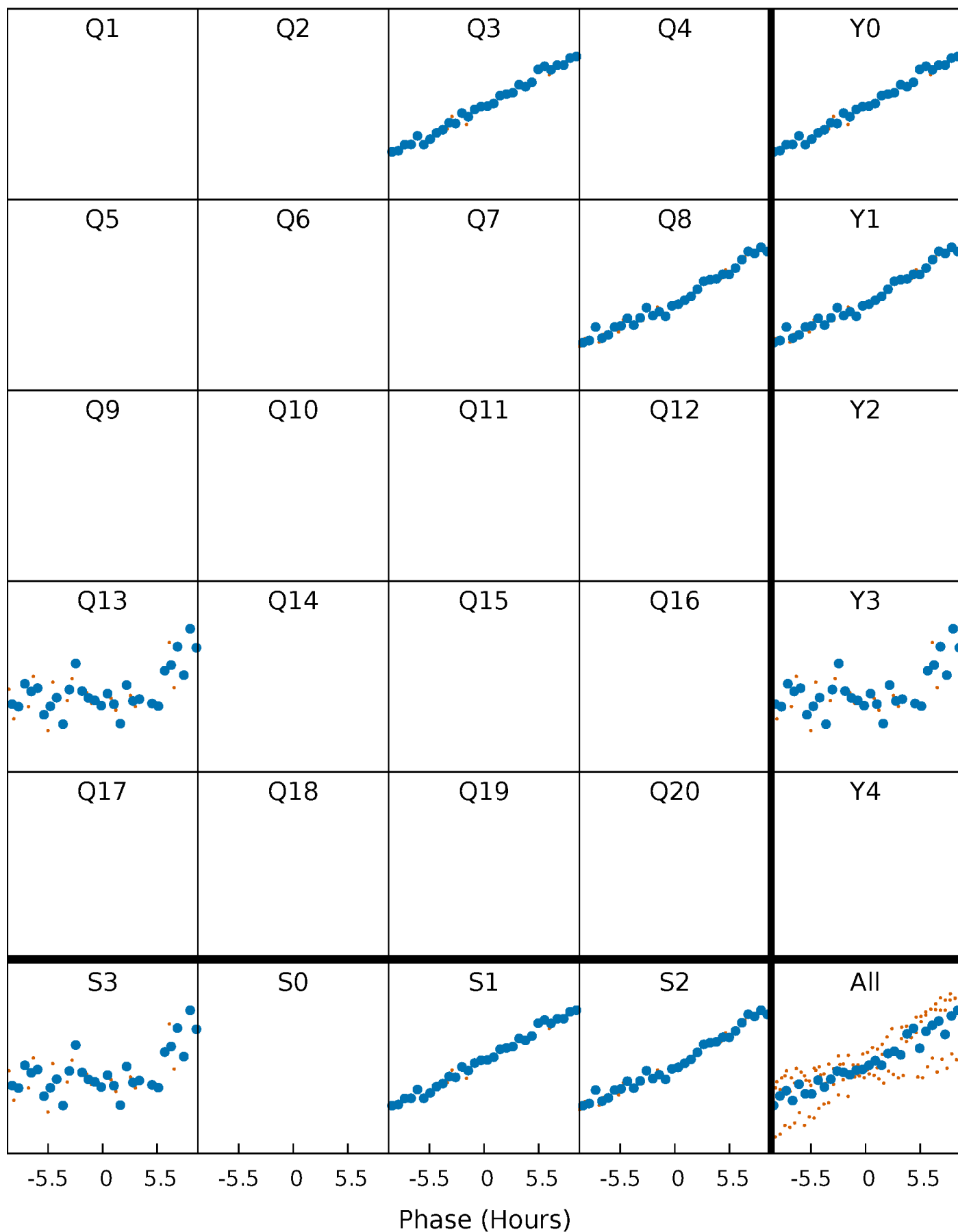


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



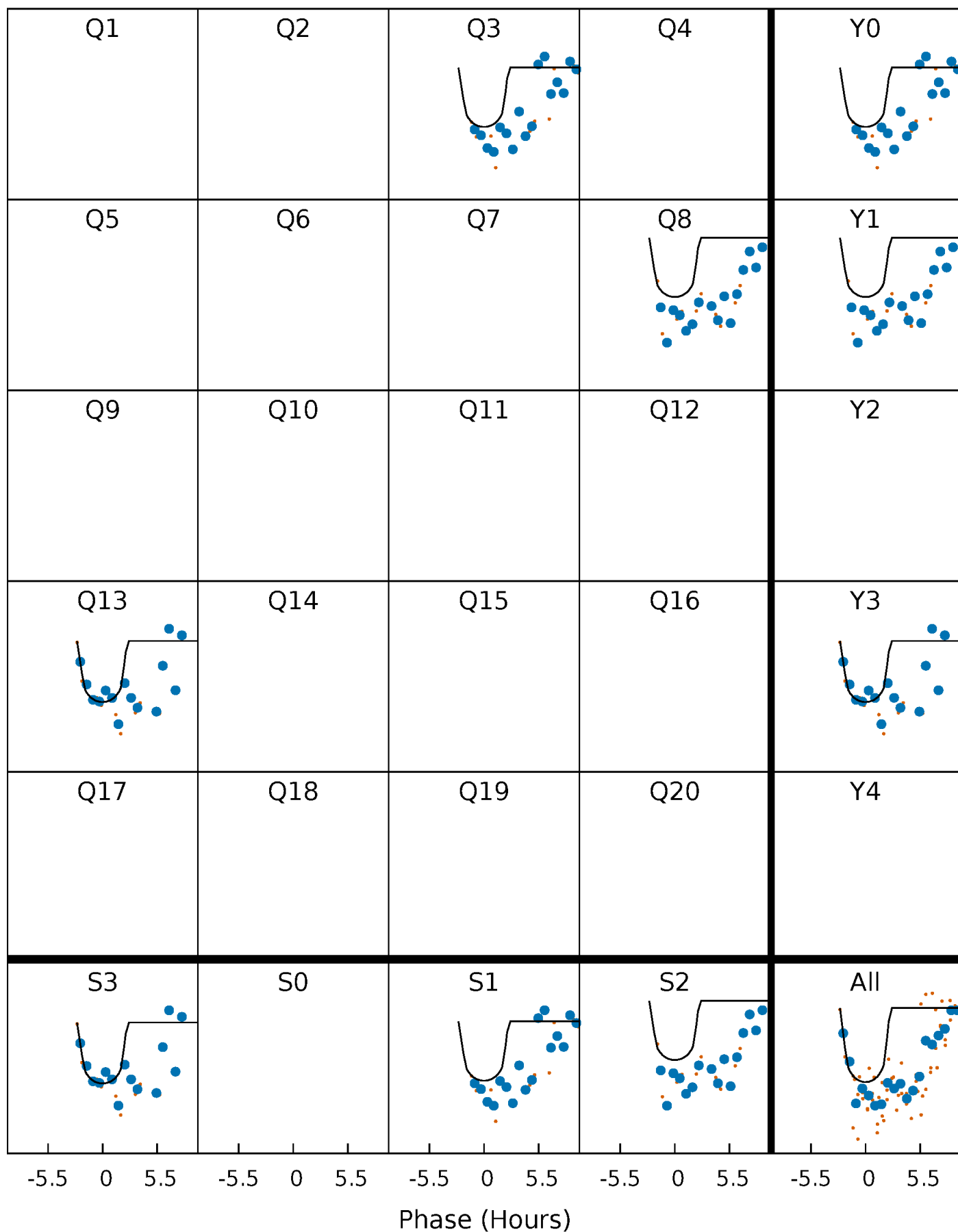
PDC Quarter-Phased Transit Curves

TCE 005215669-04 P=463.512321 Days $T_0=314.220631$ (BKJD)



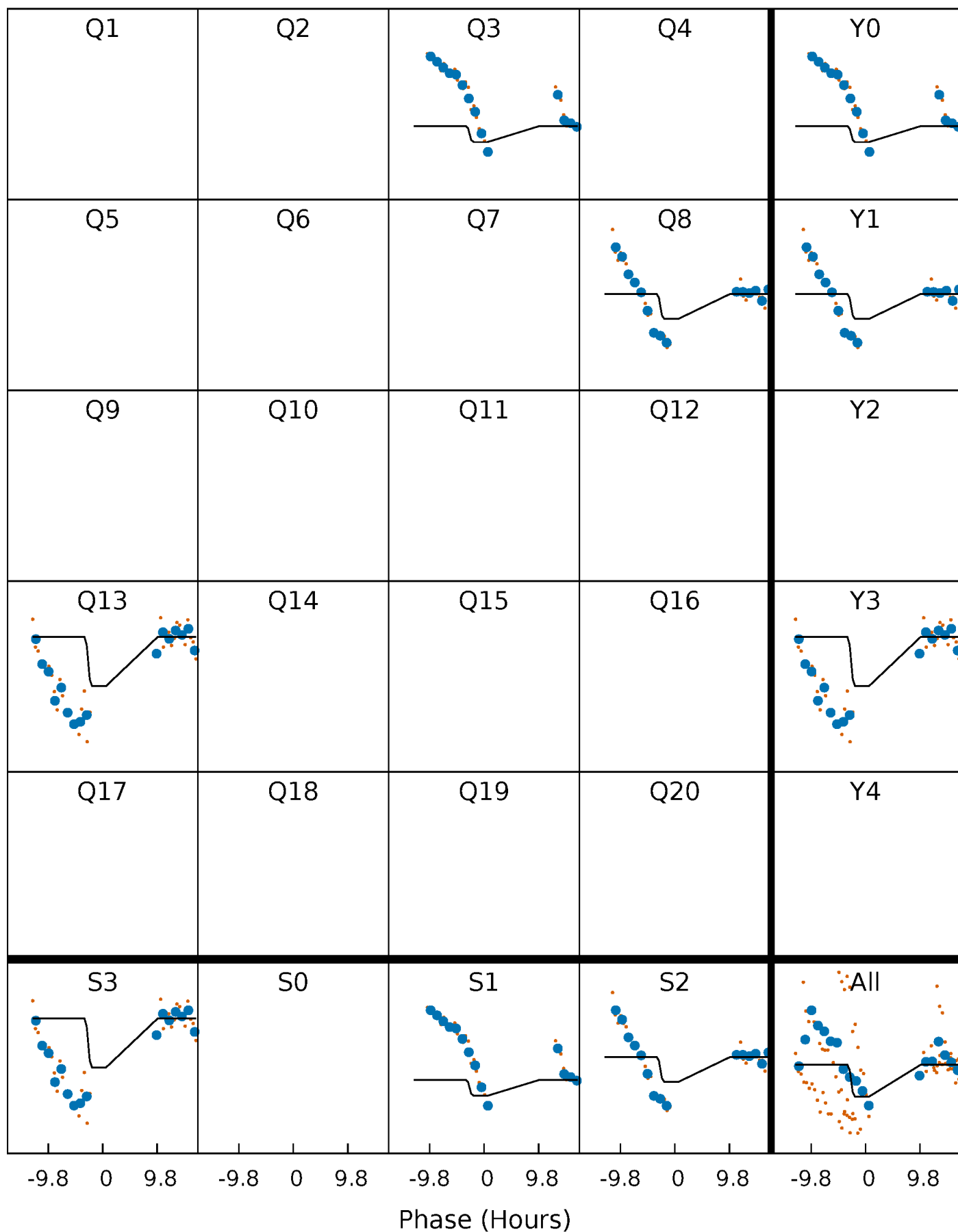
DV Quarter-Phased Transit Curves

TCE 005215669-04 P=463.512321 Days $T_0=314.220631$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

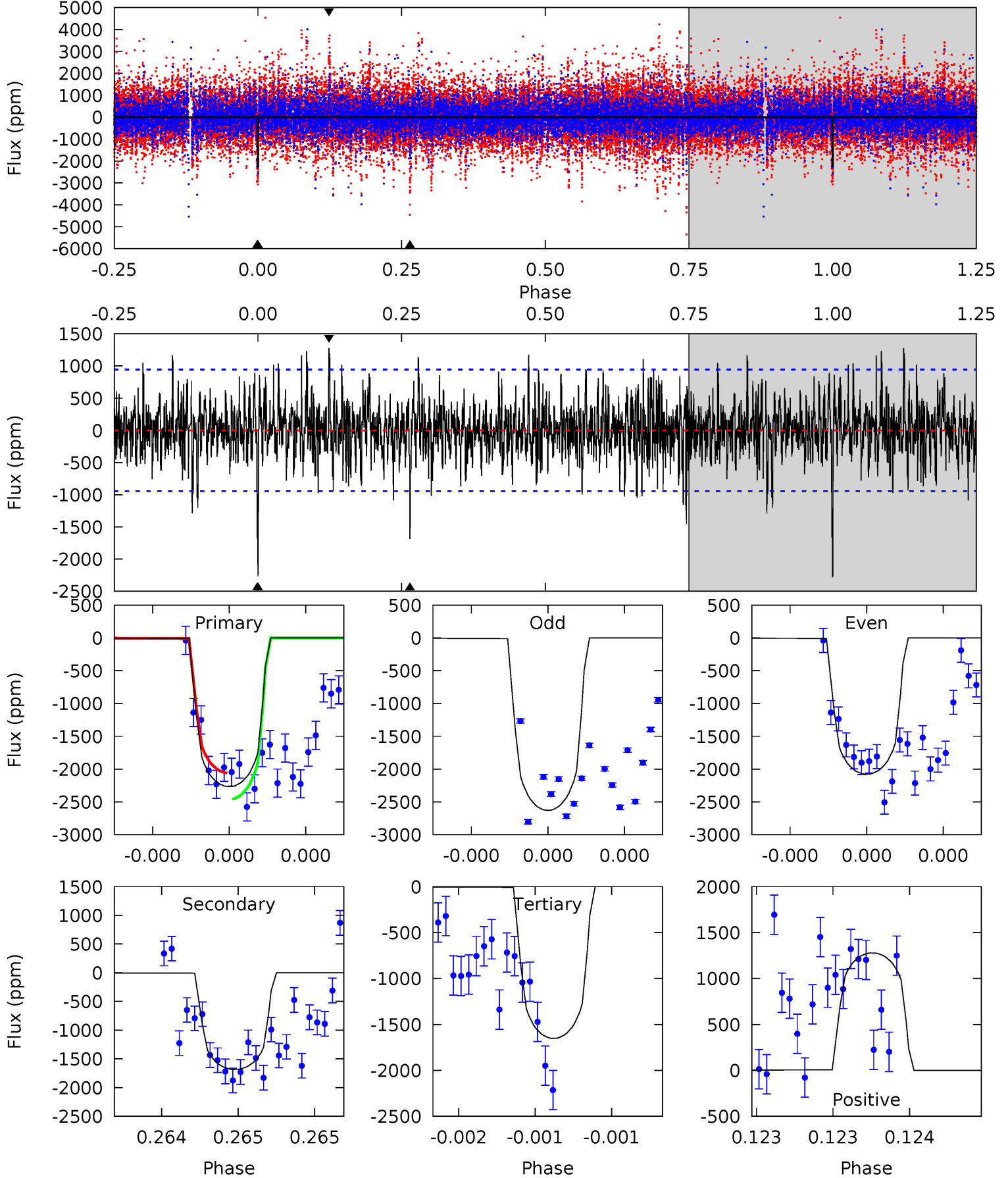
TCE 005215669-04 $P=463.535309$ Days $T_0=314.591813$ (BKJD)



DV Model-Shift Uniqueness Test

005215669-04, P = 463.512321 Days, E = 314.220631 Days

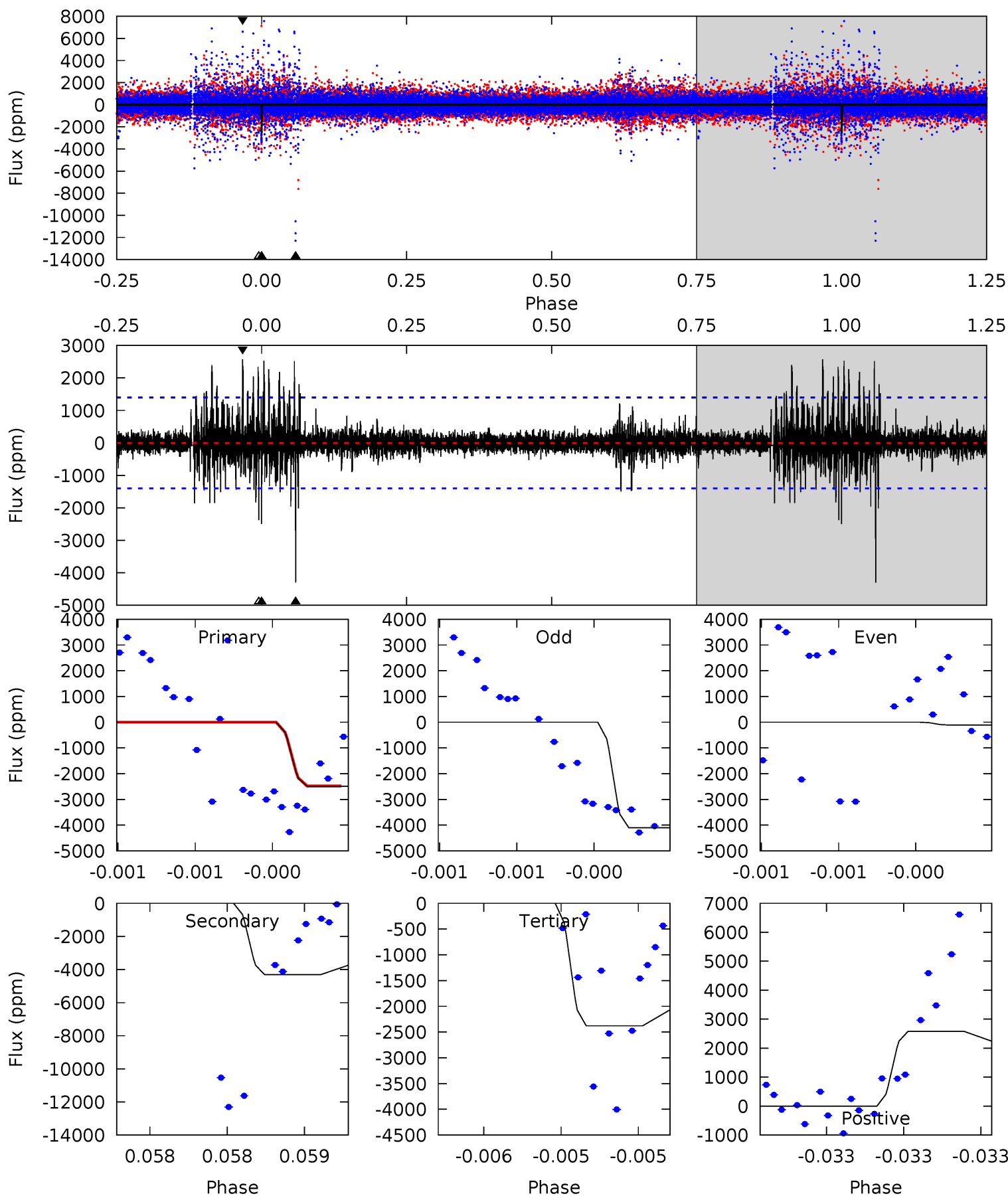
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	9.97	9.77	7.56	5.60	3.51	2.04	3.64	5.85	0.19	2.40	1.51	1.00	0.36	1.18



Alt Model-Shift Uniqueness Test

005215669-04, P = 463.535309 Days, E = 314.591813 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	17.4	9.64	10.4	5.66	3.61	1.05	0.47	-0.33	7.79	6.99	8.06	0.70	0.37	0.10



Stellar Parameters For KIC 005215669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5495^{+162}_{-162}	$4.613^{+0.037}_{-0.112}$	$-0.420^{+0.300}_{-0.300}$	$0.734^{+0.131}_{-0.056}$	$0.814^{+0.083}_{-0.083}$	$2.905^{+0.453}_{-0.970}$
	+3%/-3%	+1%/-2%	+71%/-71%	+18%/-8%	+10%/-10%	+16%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005215669-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1684 ± 169	$5.53^{+5.03}_{-3.73}$	281^{+13}_{-10}	4466^{+3028}_{-930}	$35910^{+282406}_{-25968}$
Alt.	-4302 ± 247	$5.72^{+4.98}_{-3.91}$	282^{+13}_{-11}	5336^{+4902}_{-1172}	$84853^{+773254}_{-60372}$

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 $A_{obs} \gg 1.0$

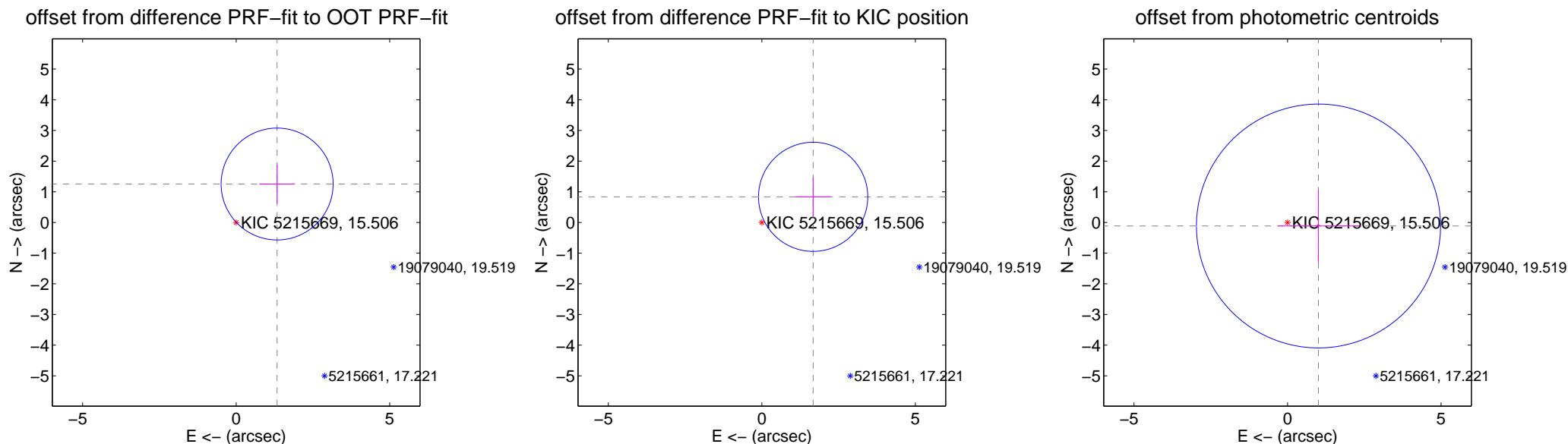
DV Centroid Data

Supplemental centroid analysis for 005215669-04. Kepler magnitude: 15.51. Transit SNR 6.41

There are 1 quarters with good PRF difference image offsets

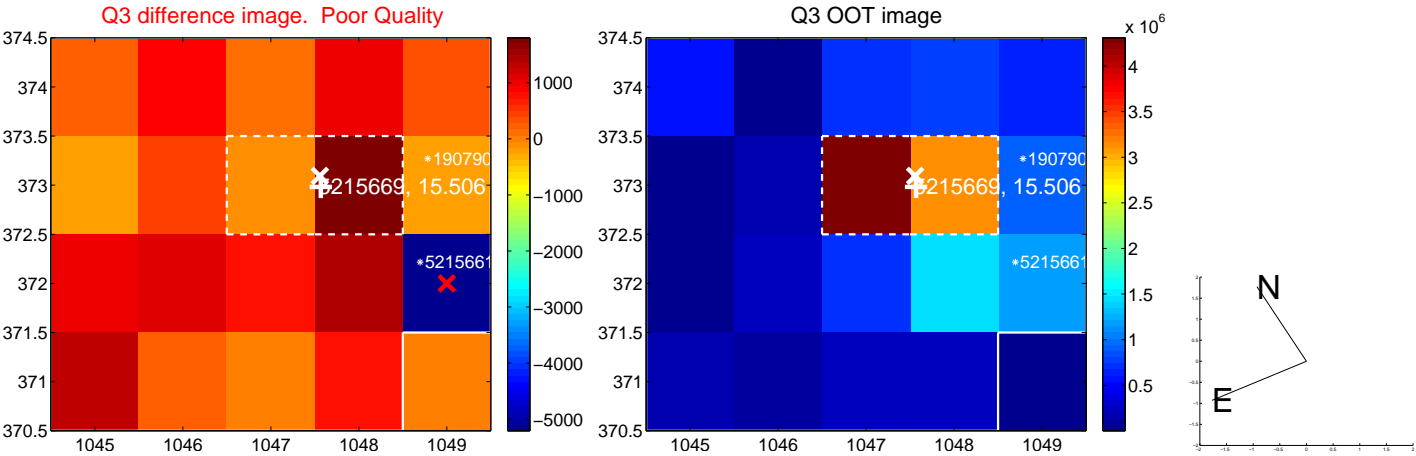
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.830 ± 0.608	3.01	-1.334 ± 0.582	1.253 ± 0.636
PRF-fit source offset from KIC position	1.868 ± 0.593	3.15	-1.671 ± 0.582	0.836 ± 0.636
photometric centroid source offset	1.02 ± 1.32	0.77	-1.01 ± 1.33	-0.12 ± 1.18

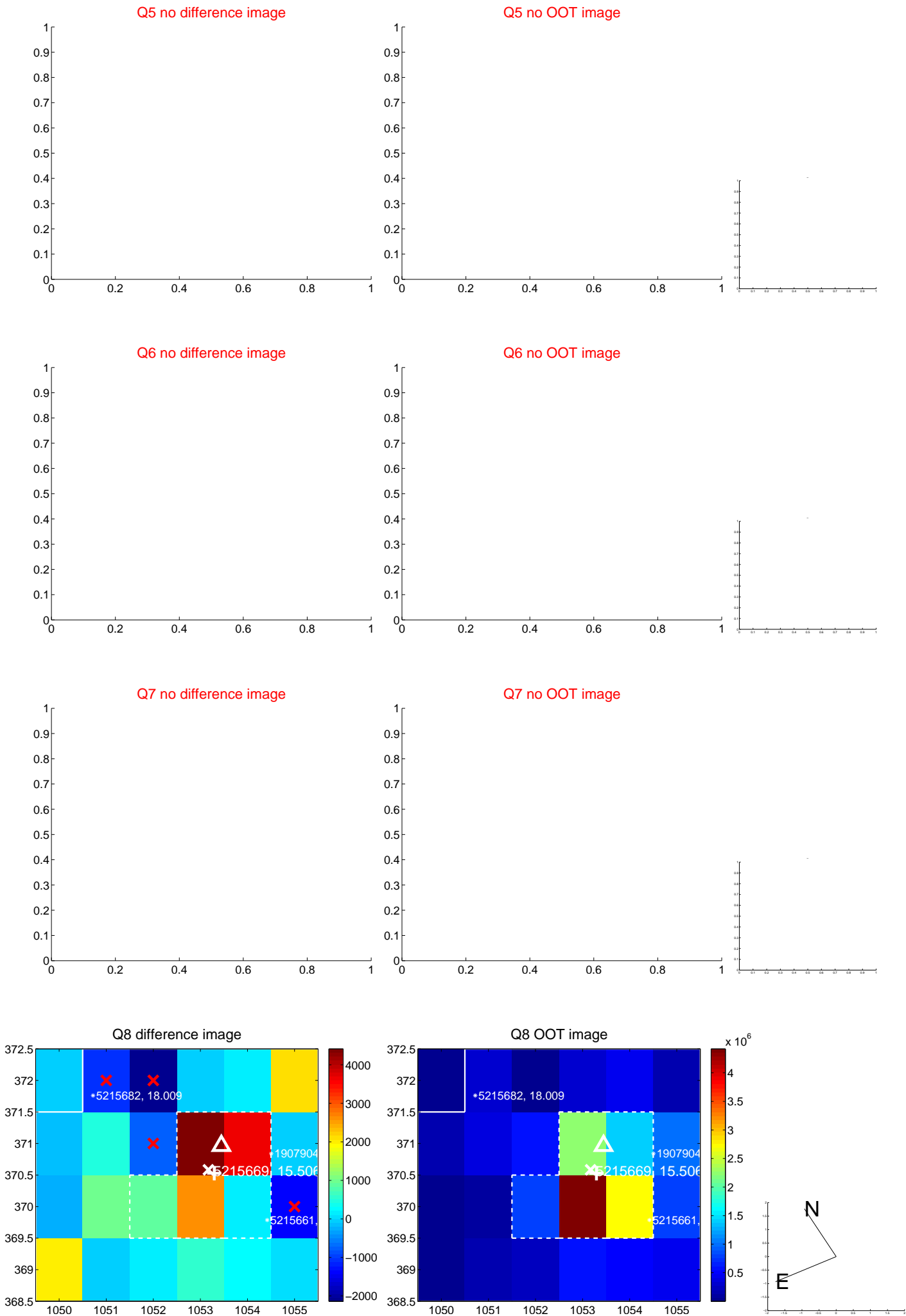


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



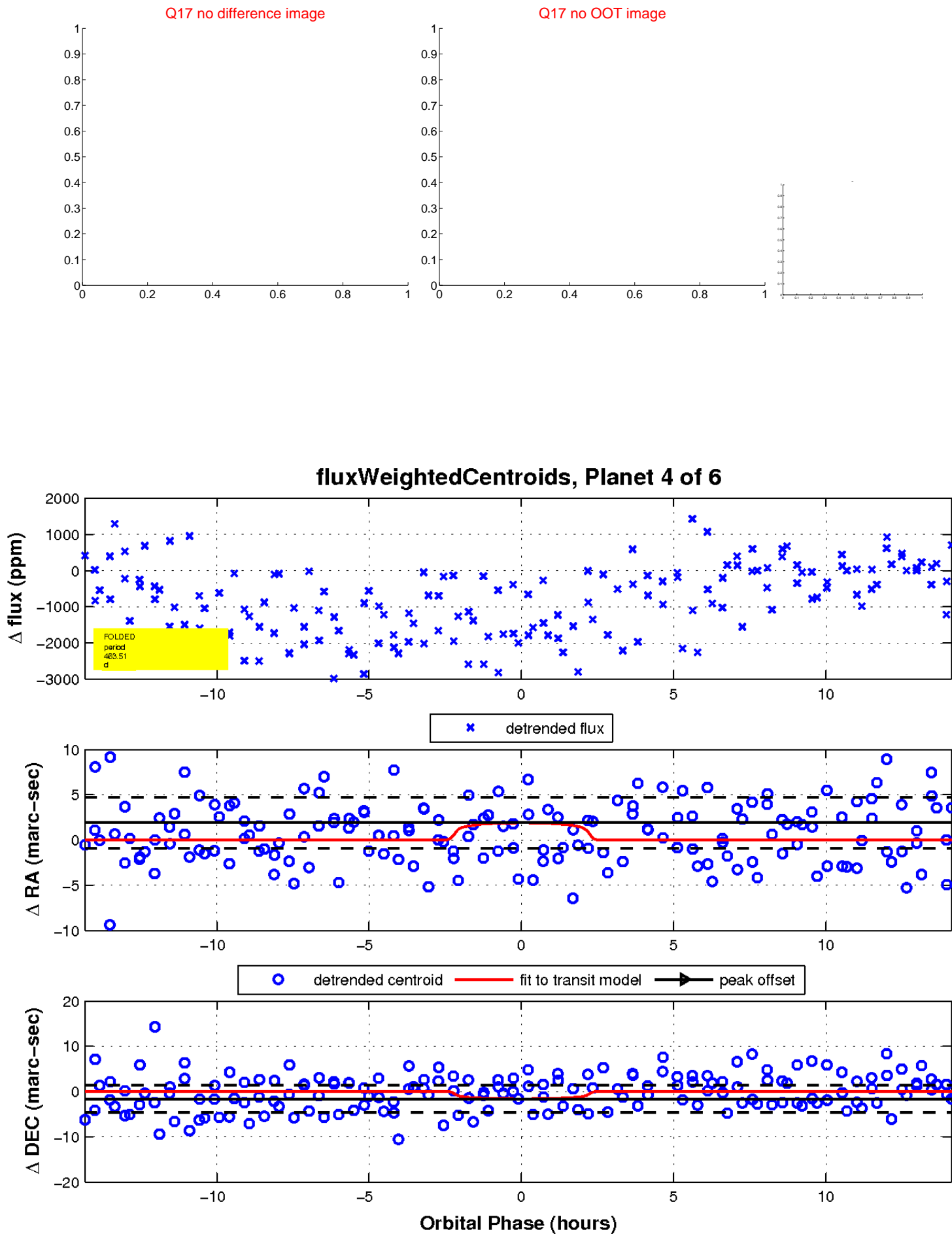
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

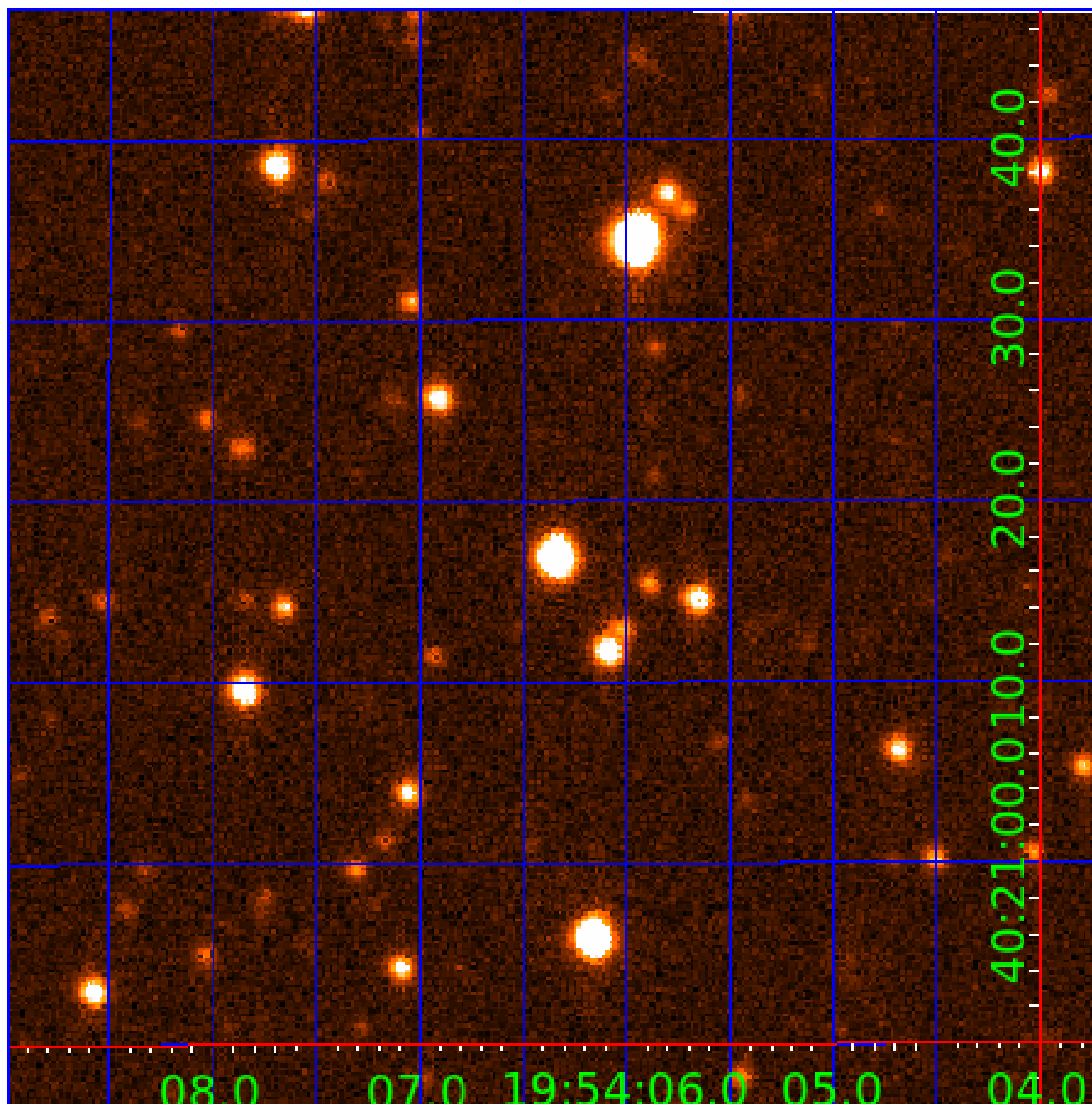


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005215669

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})
005215669-01	OBS	No	0.949755	131.565715	115.2	3.752	9.3	11.2	0.73	5495	0.94	1420.41
005215669-02	OBS	No	480.768665	151.798775	2024.2	2.104	12.6	7.3	0.73	5495	3.32	0.35
005215669-03	OBS	No	263.862694	394.764557	2517.1	16.340	11.5	6.8	0.73	5495	4.61	0.78
005215669-04	OBS	No	463.512321	314.220631	1731.8	4.811	10.6	6.4	0.73	5495	3.25	0.37
005215669-05	OBS	No	213.320791	222.623288	1413.6	8.123	9.3	5.9	0.73	5495	2.81	1.04
005215669-06	OBS	No	196.435978	313.487044	2434.0	18.012	10.1	7.7	0.73	5495	4.33	1.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005215669-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005215669-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005215669-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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_KIC_POS
005215669-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

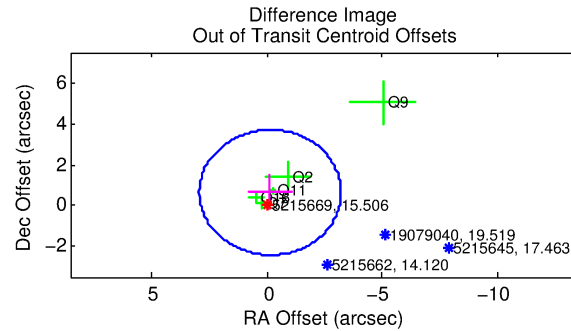
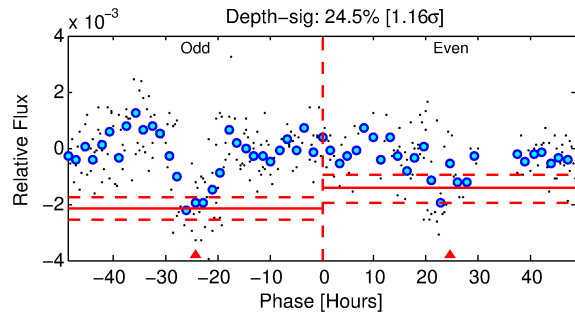
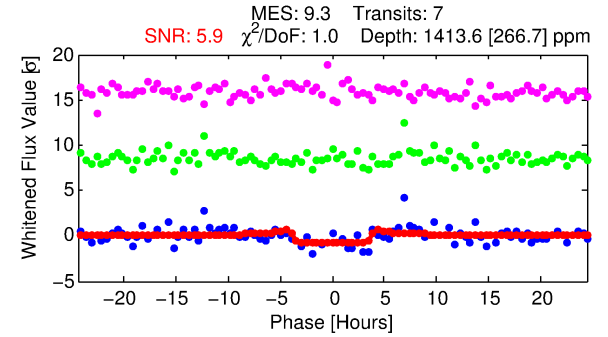
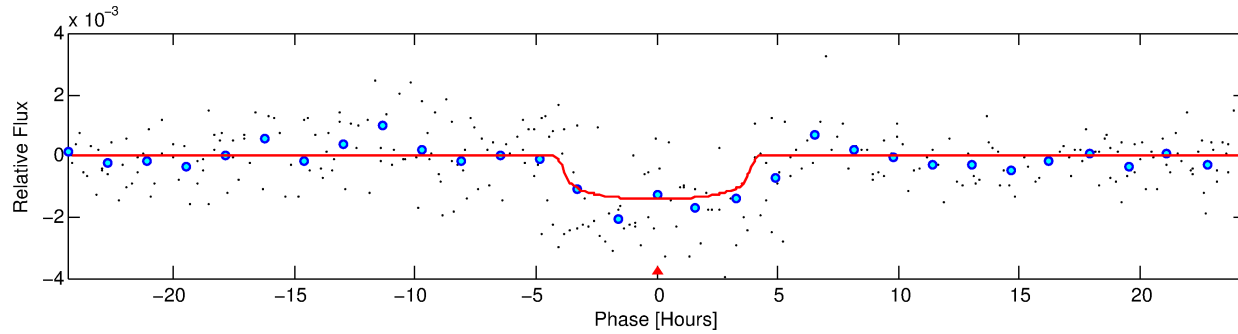
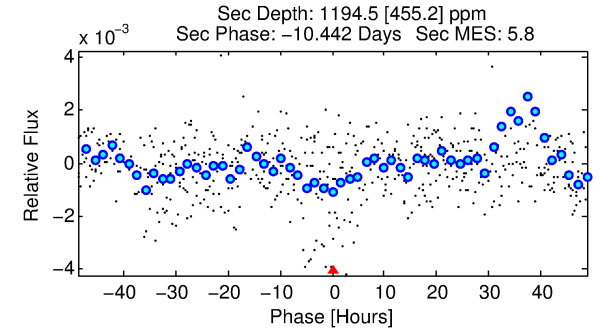
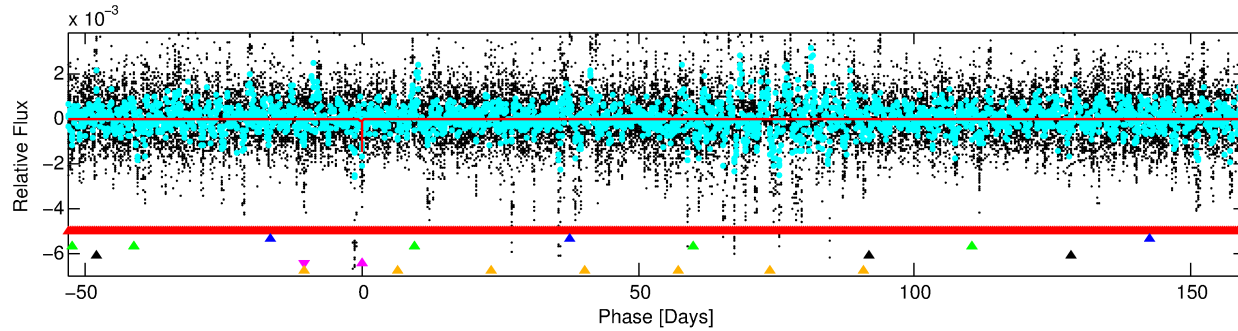
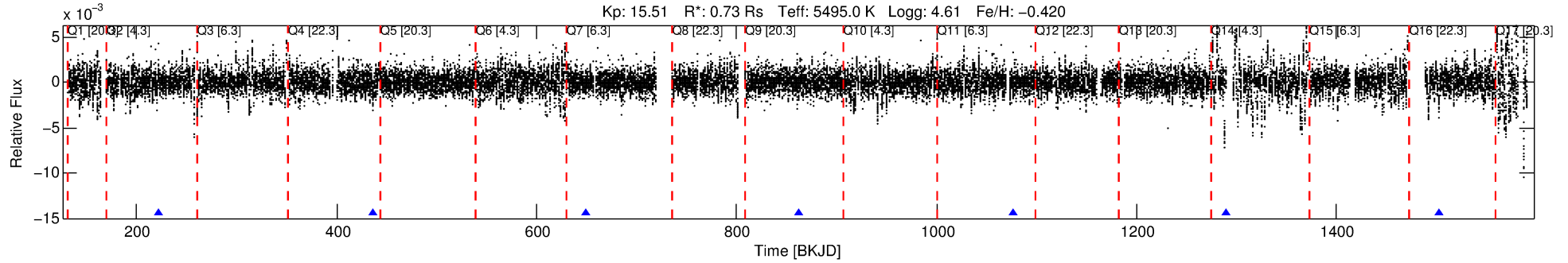
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005215669-05

No Significant Match Found

DV One-Page Summary

KIC: 5215669 Candidate: 5 of 6 Period: 213.321 d



DV Fit Results:

Period = 213.32079 [0.00344] d
Epoch = 222.6233 [0.0131] BKJD
Rp/R* = 0.0351 [0.0255]
a/R* = 183.30 [552.11]
b = 0.49 [4.80]
Seff = 1.04 [0.25]
Teq = 258 [15] K
Rp = 2.81 [2.10] Re
a = 0.6504 [0.0955] AU
Ag = 35180.59 [53329.53] [0.66σ]
Teffp = 5453 [2053] K [2.53σ]

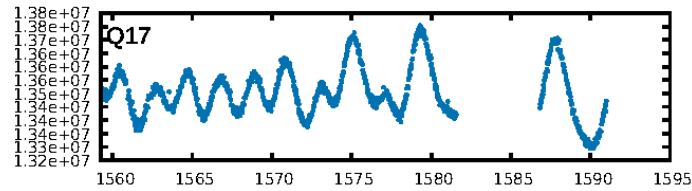
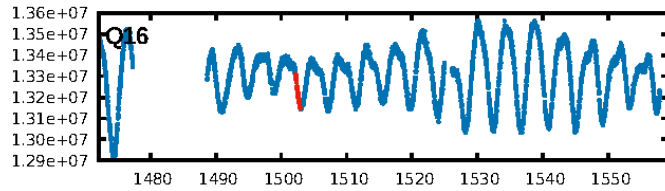
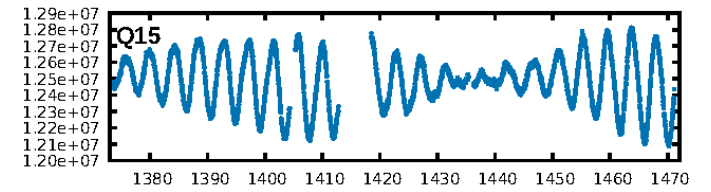
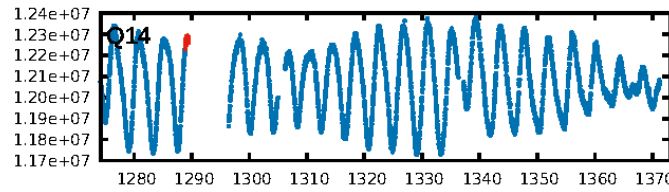
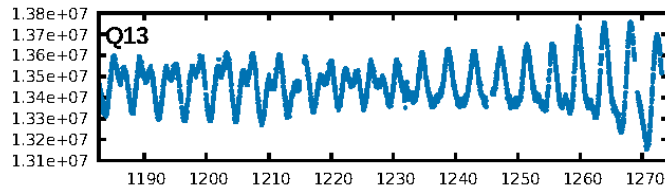
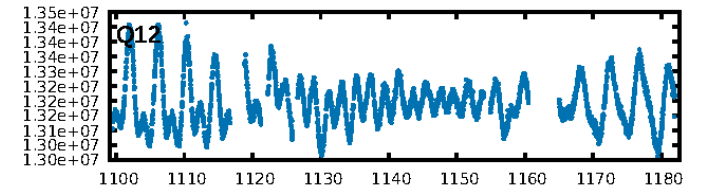
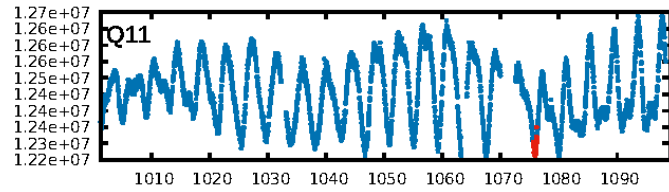
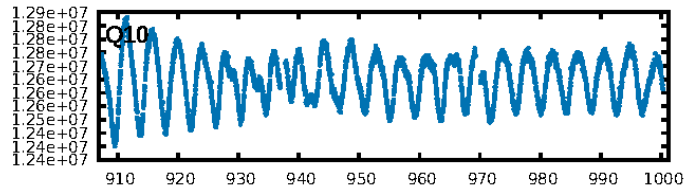
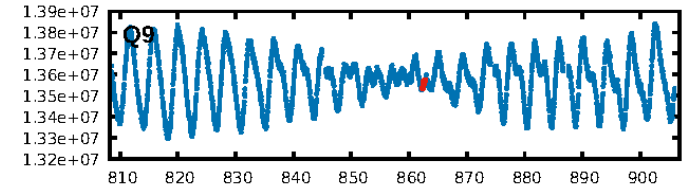
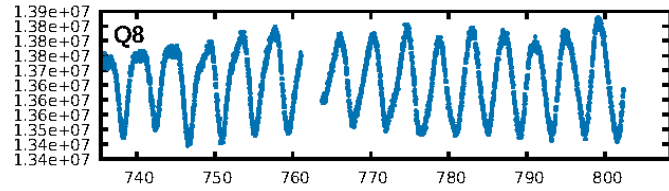
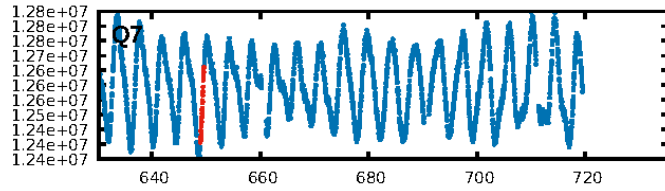
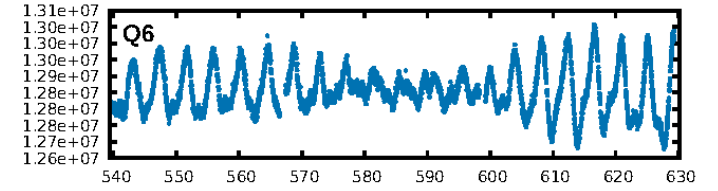
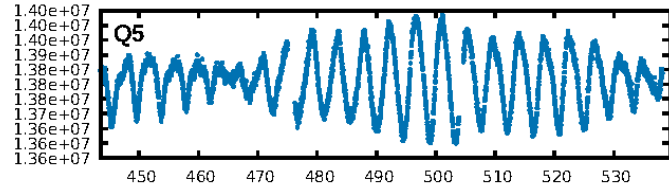
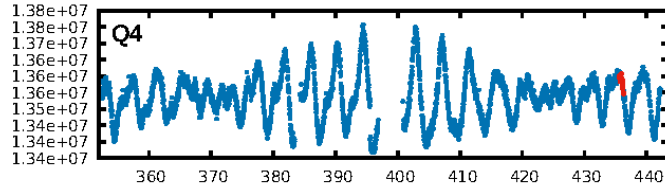
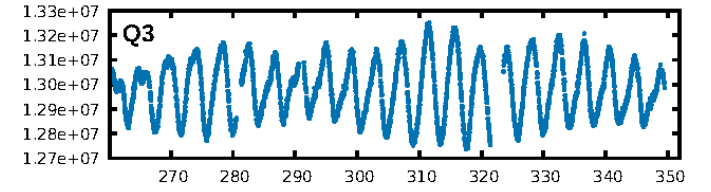
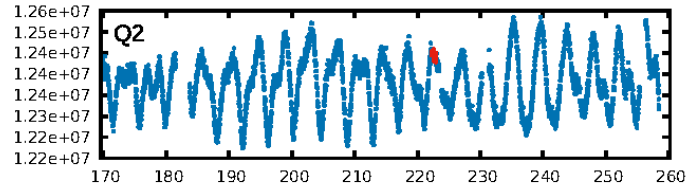
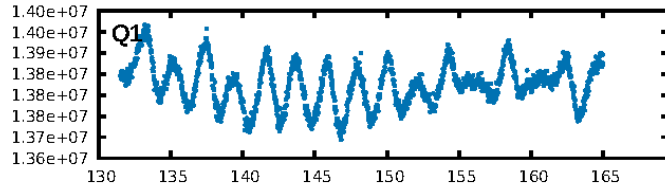
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.51σ]
LongPeriod-sig: 100.0% [66.48σ]
ModelChiSquare2-sig: 23.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 10.09
Centroid-sig: 50.6%
Centroid-so: 0.629 arcsec [0.67σ]
OotOffset-rm: 0.655 arcsec [0.64σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-rm: 0.194 arcsec [0.23σ]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/5]

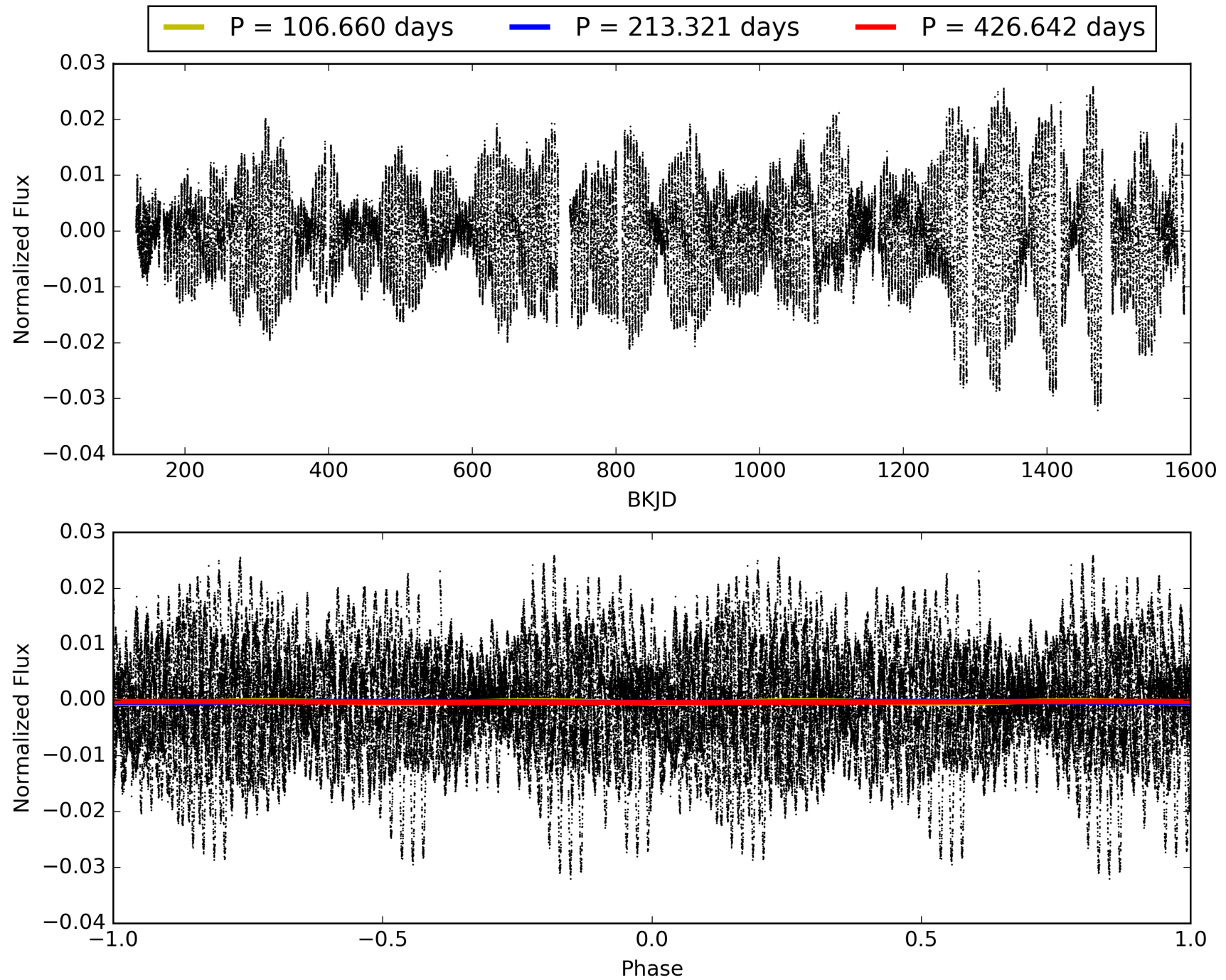
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:14:30 Z

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

TCE 005215669-05, PDC Light Curves

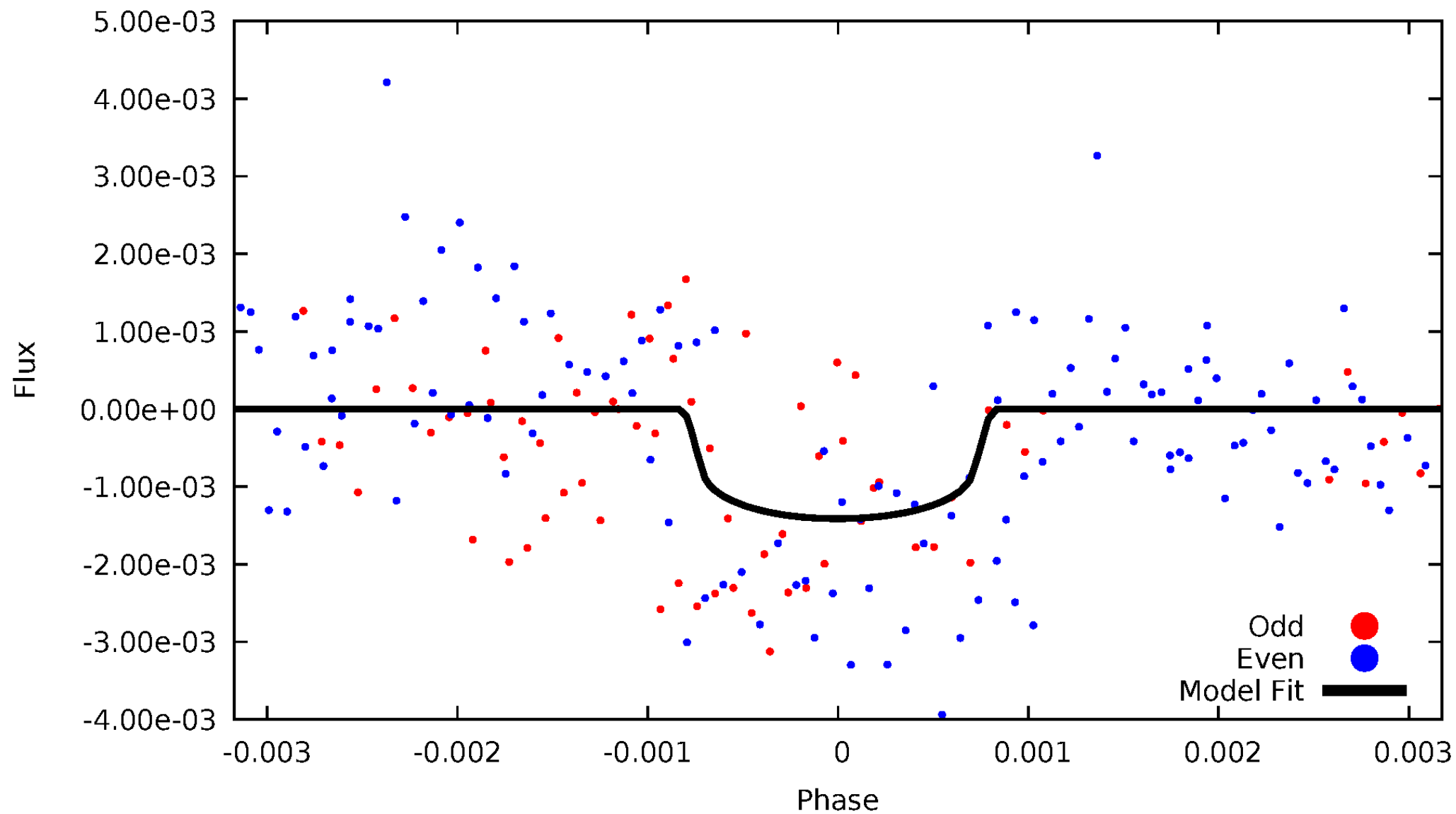


TCE 005215669-05



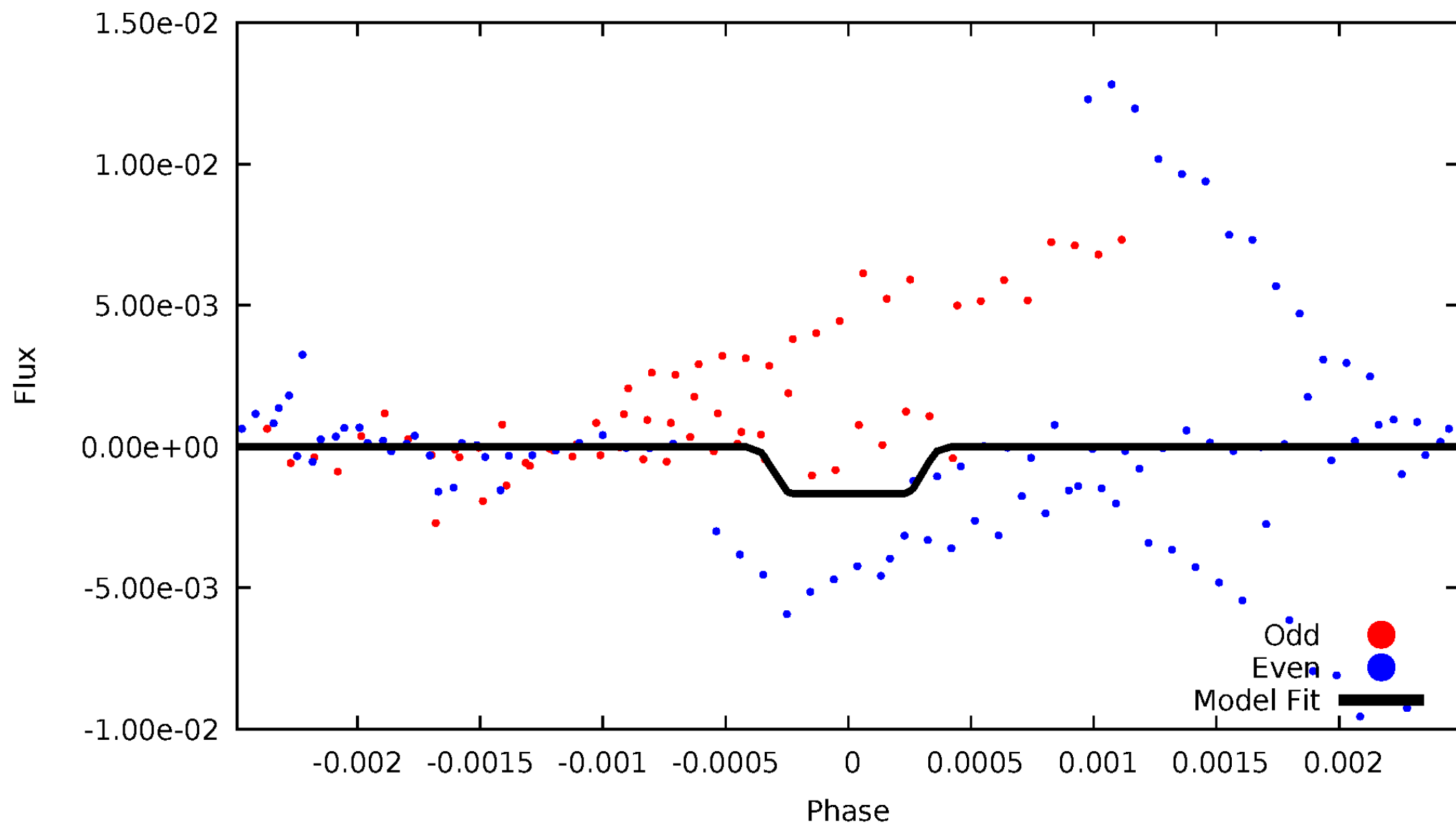
DV Odd/Even

TCE 005215669-05



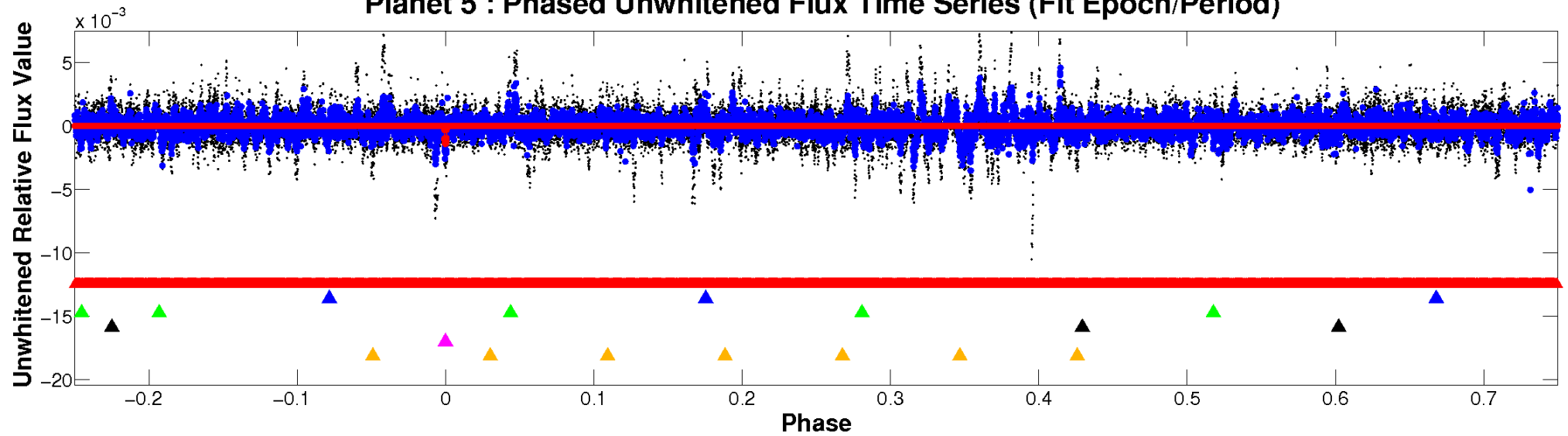
ALT Odd/Even

TCE 005215669-05

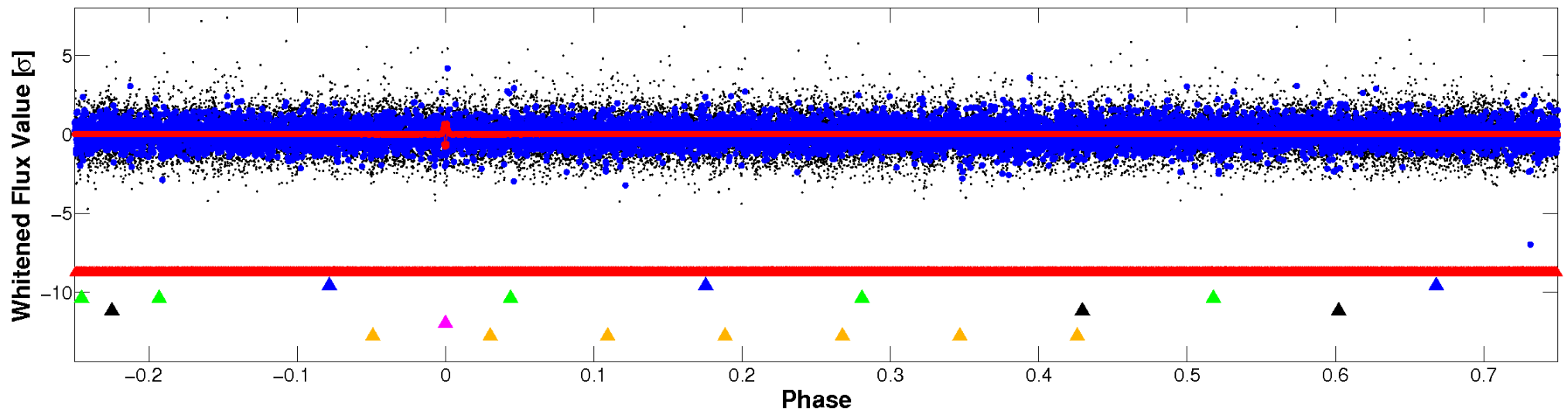


Non-Whitened Vs. Whitened Light Curve

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

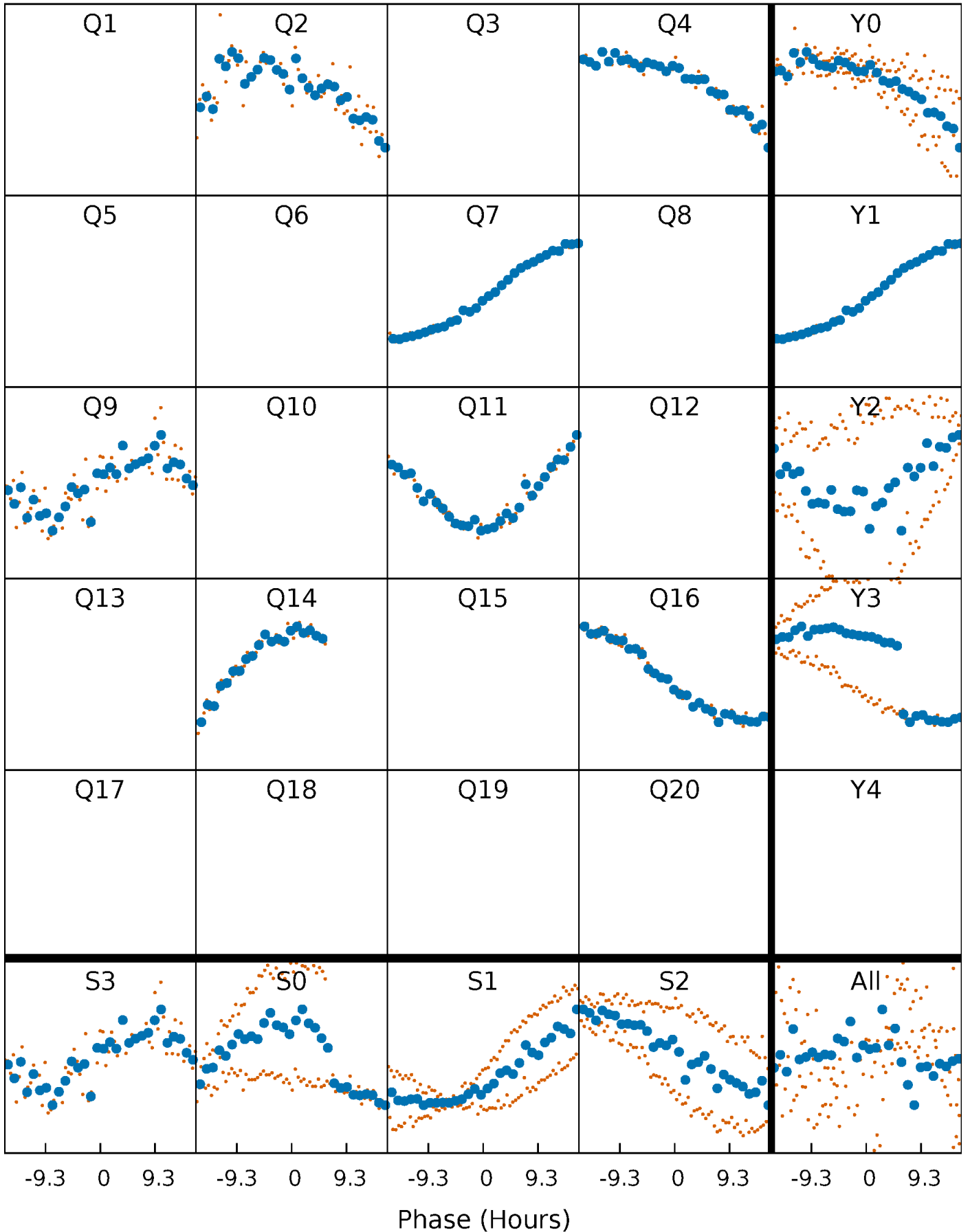


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



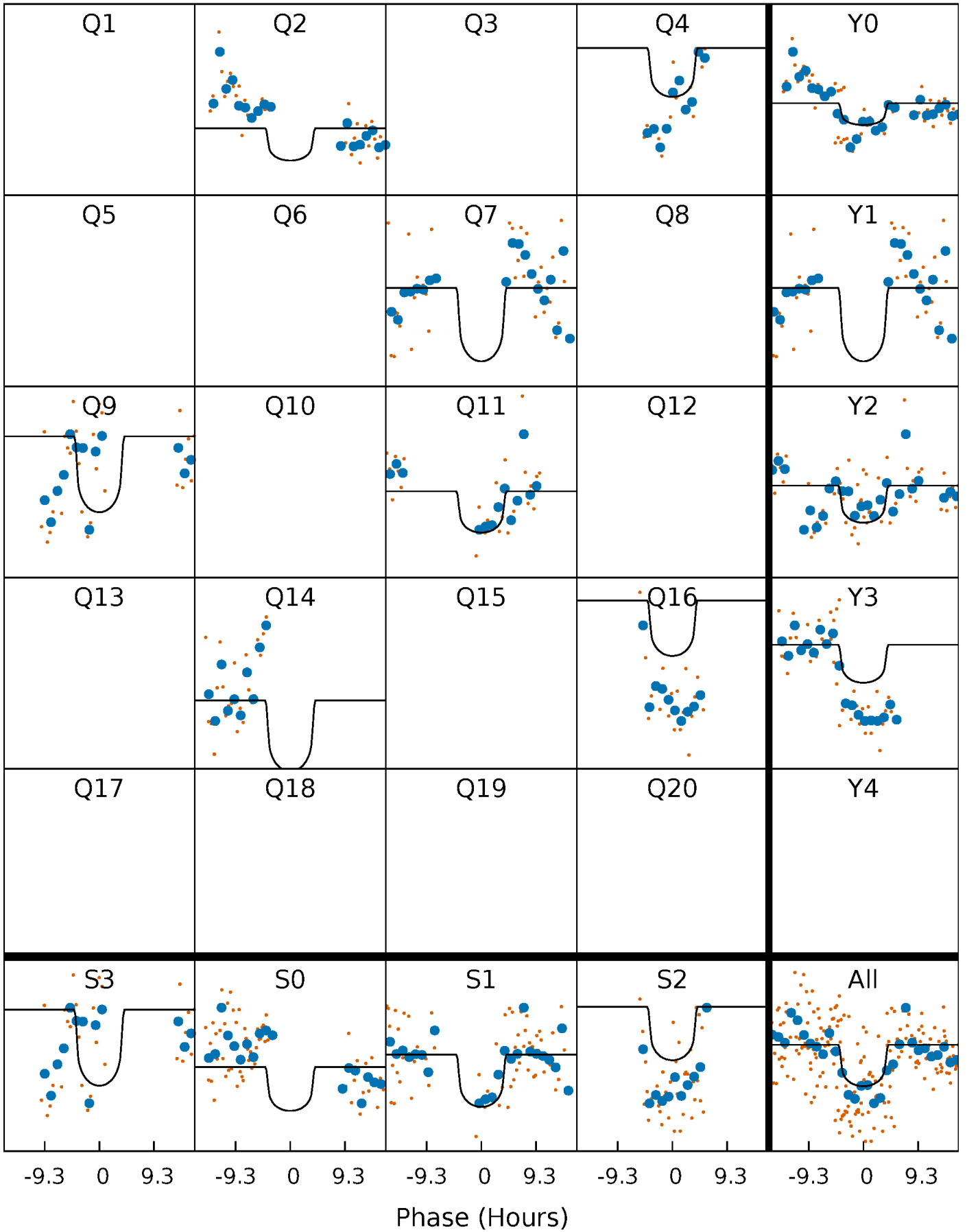
PDC Quarter-Phased Transit Curves

TCE 005215669-05 $P=213.320791$ Days $T_0=222.623288$ (BKJD)



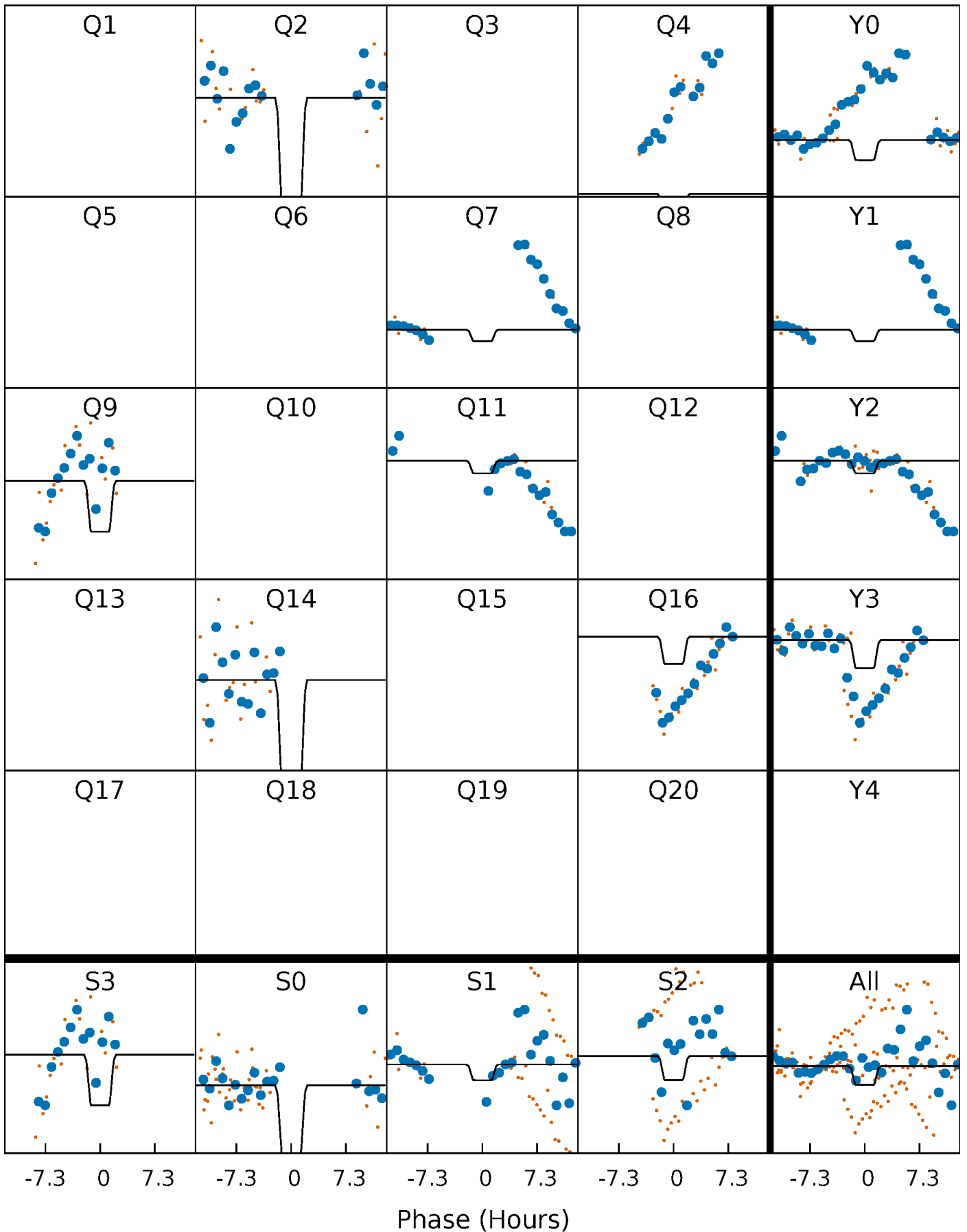
DV Quarter-Phased Transit Curves

TCE 005215669-05 $P=213.320791$ Days $T_0=222.623288$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

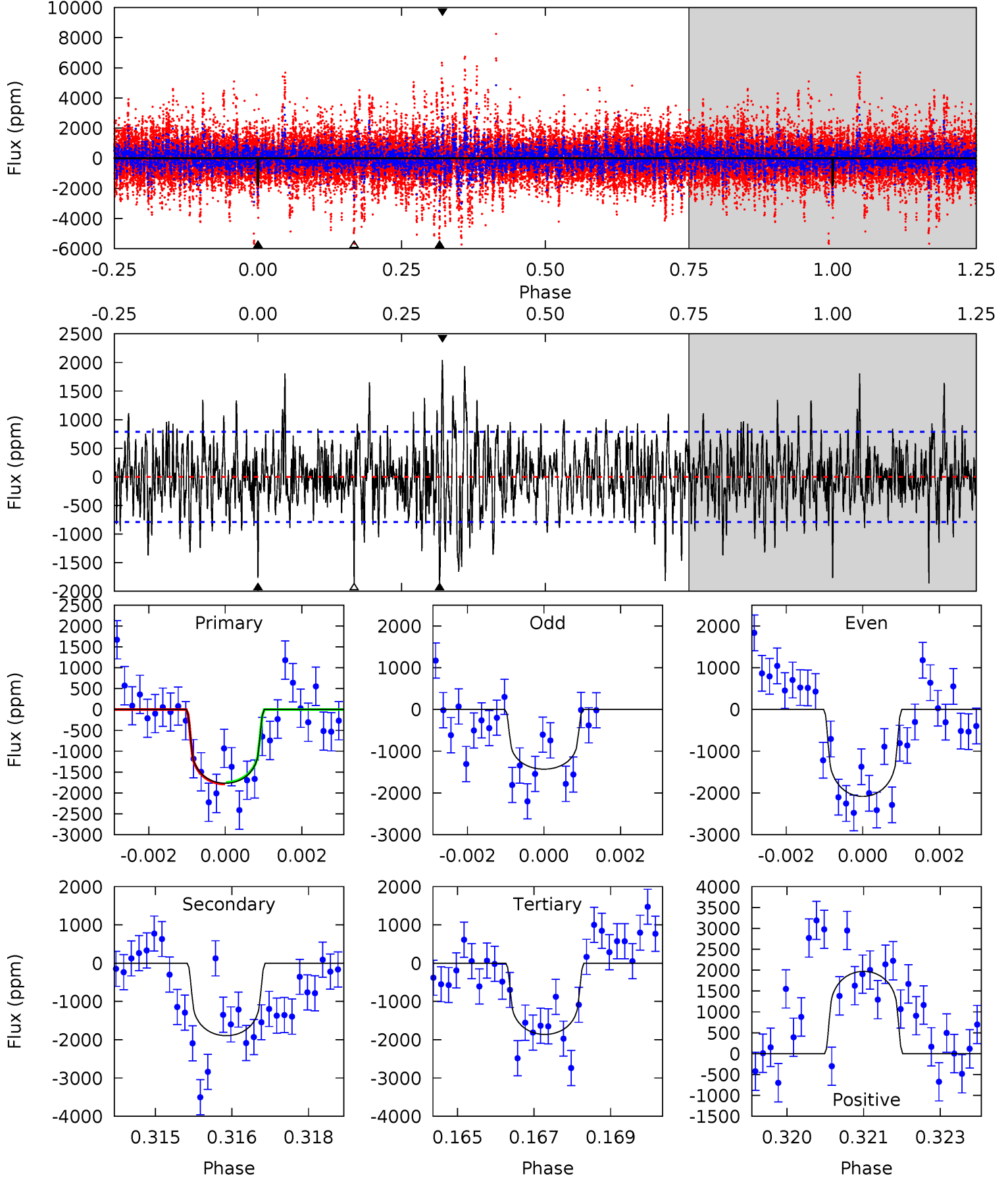
TCE 005215669-05 $P=213.299122$ Days $T_0=222.637336$ (BKJD)



DV Model-Shift Uniqueness Test

005215669-05, P = 213.320791 Days, E = 9.302497 Days

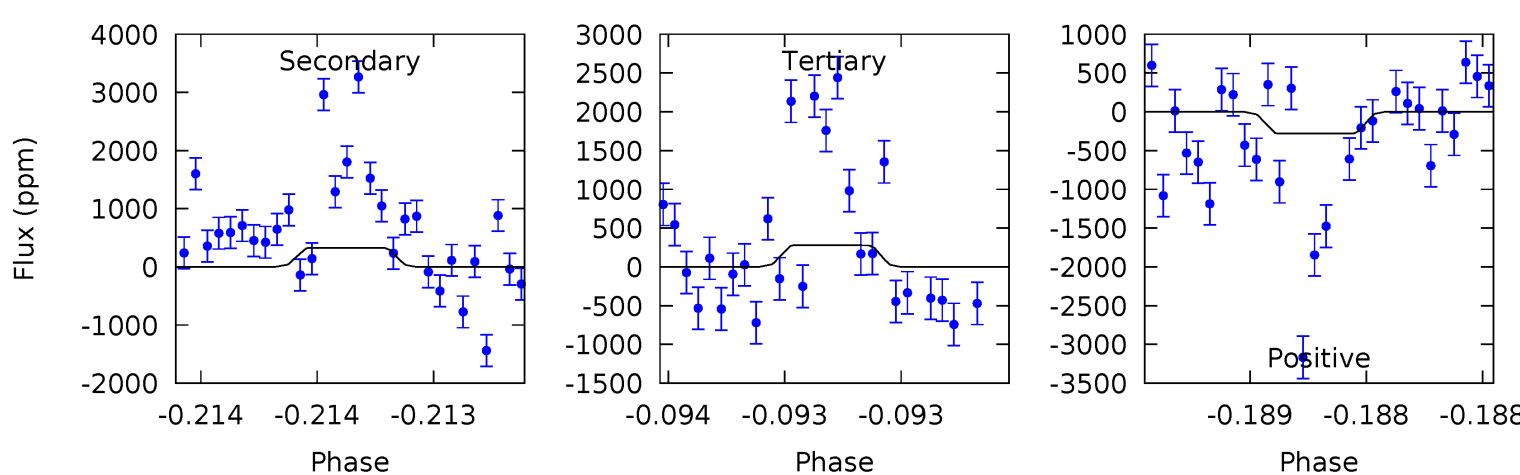
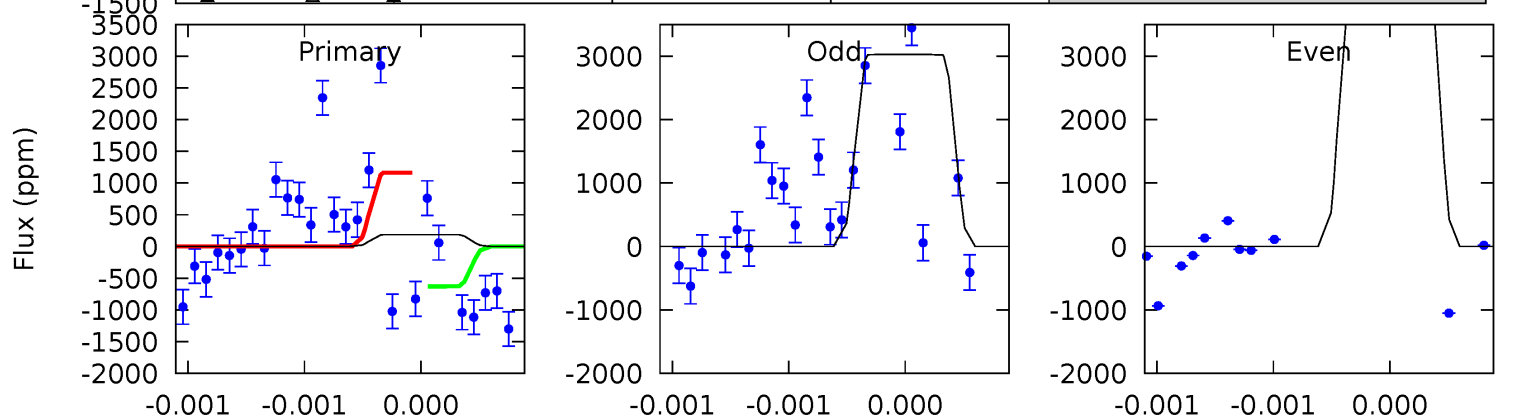
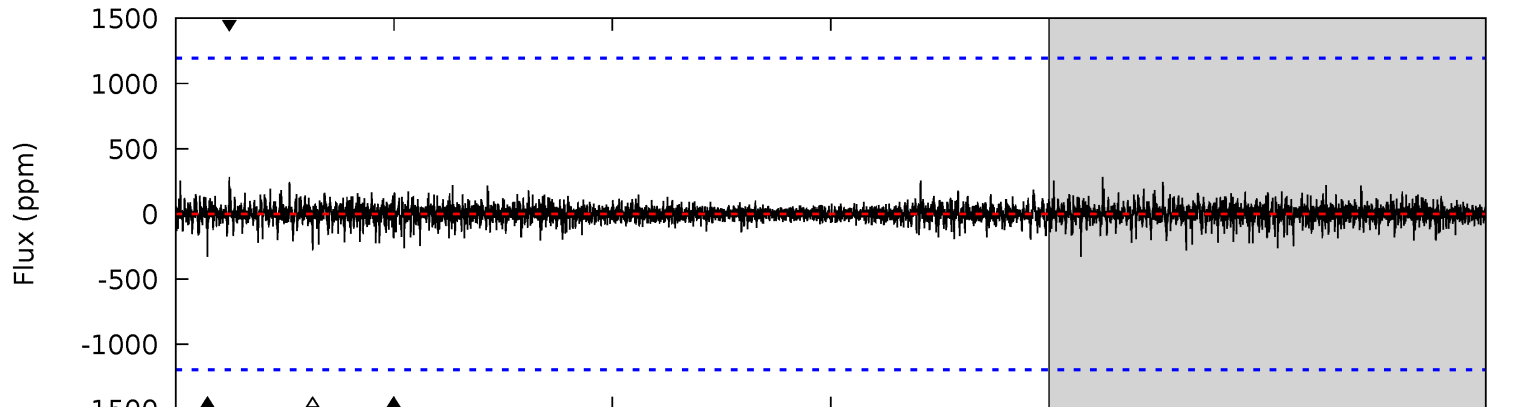
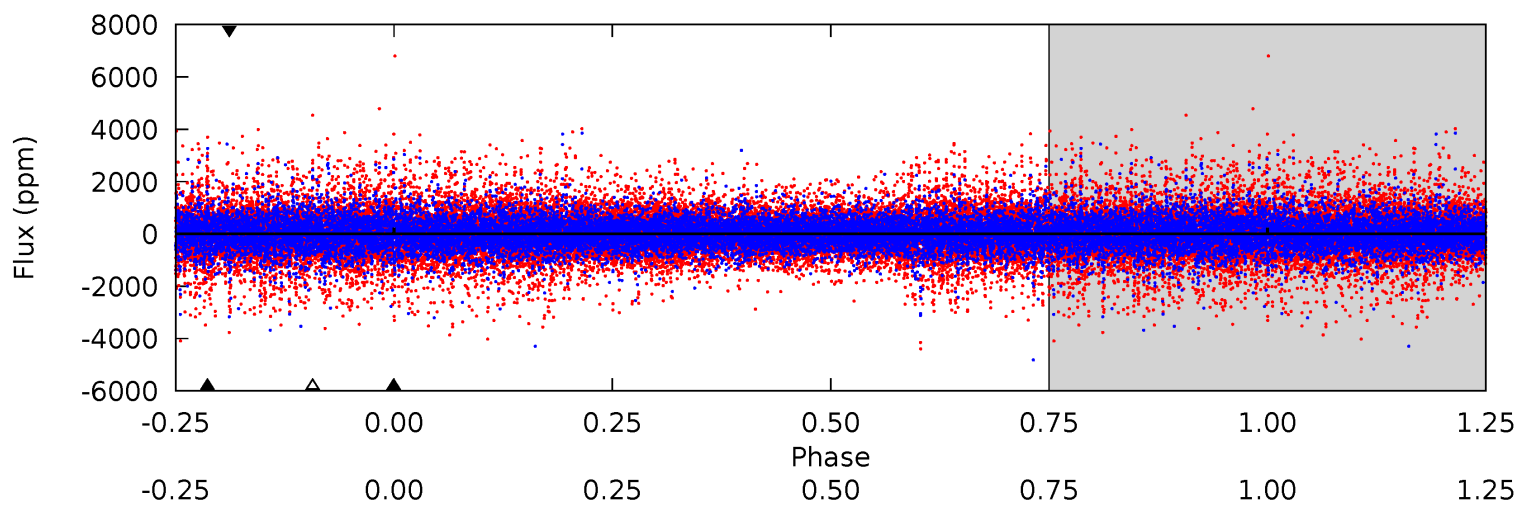
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	12.9	12.7	13.4	5.36	3.15	3.31	-0.64	-1.39	0.22	-0.53	2.12	0.90	0.52	0.13



Alt Model-Shift Uniqueness Test

005215669-05, P = 213.299122 Days, E = 9.338214 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.86	1.52	1.28	1.30	5.51	3.39	0.23	-0.43	-0.44	0.23	0.22	3.74	0.47	0.46	0



Stellar Parameters For KIC 005215669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5495^{+162}_{-162}	$4.613^{+0.037}_{-0.112}$	$-0.420^{+0.300}_{-0.300}$	$0.734^{+0.131}_{-0.056}$	$0.814^{+0.083}_{-0.083}$	$2.905^{+0.453}_{-0.970}$
	+3%/-3%	+1%/-2%	+71%/-71%	+18%/-8%	+10%/-10%	+16%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005215669-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1894 ± 147	$3.10^{+1.92}_{-1.73}$	365^{+15}_{-14}	5872^{+3539}_{-1140}	$45978^{+186161}_{-28440}$
Alt.	-329 ± 217	$3.52^{+2.13}_{-1.96}$	363^{+17}_{-13}	3834^{+1521}_{-773}	5478^{+24217}_{-4133}

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 $A_{obs} \gg 1.0$

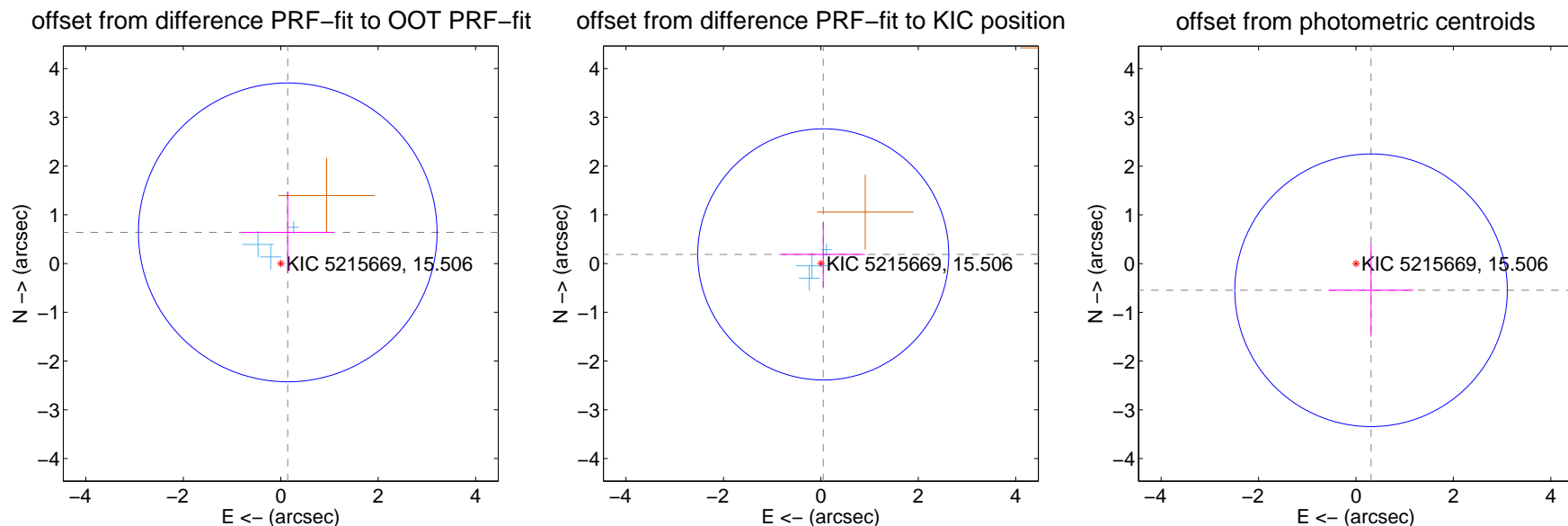
DV Centroid Data

Supplemental centroid analysis for 005215669-05. Kepler magnitude: 15.51. Transit SNR 5.89

There are 3 quarters with good PRF difference image offsets

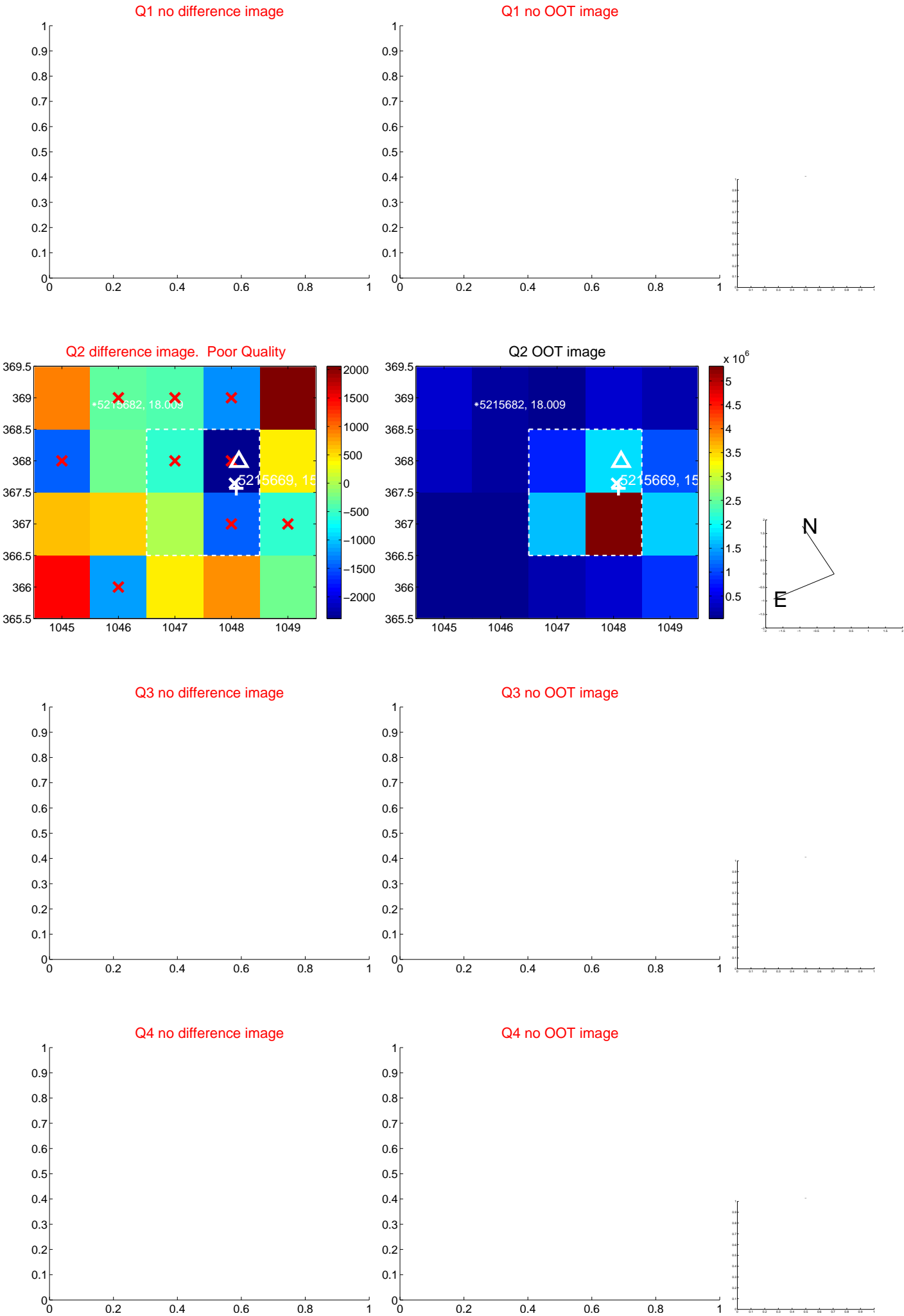
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.655 ± 1.021	0.64	-0.143 ± 0.940	0.639 ± 0.838
PRF-fit source offset from KIC position	0.194 ± 0.859	0.23	-0.049 ± 0.854	0.188 ± 0.667
photometric centroid source offset	0.63 ± 0.93	0.67	-0.31 ± 0.87	-0.55 ± 0.95

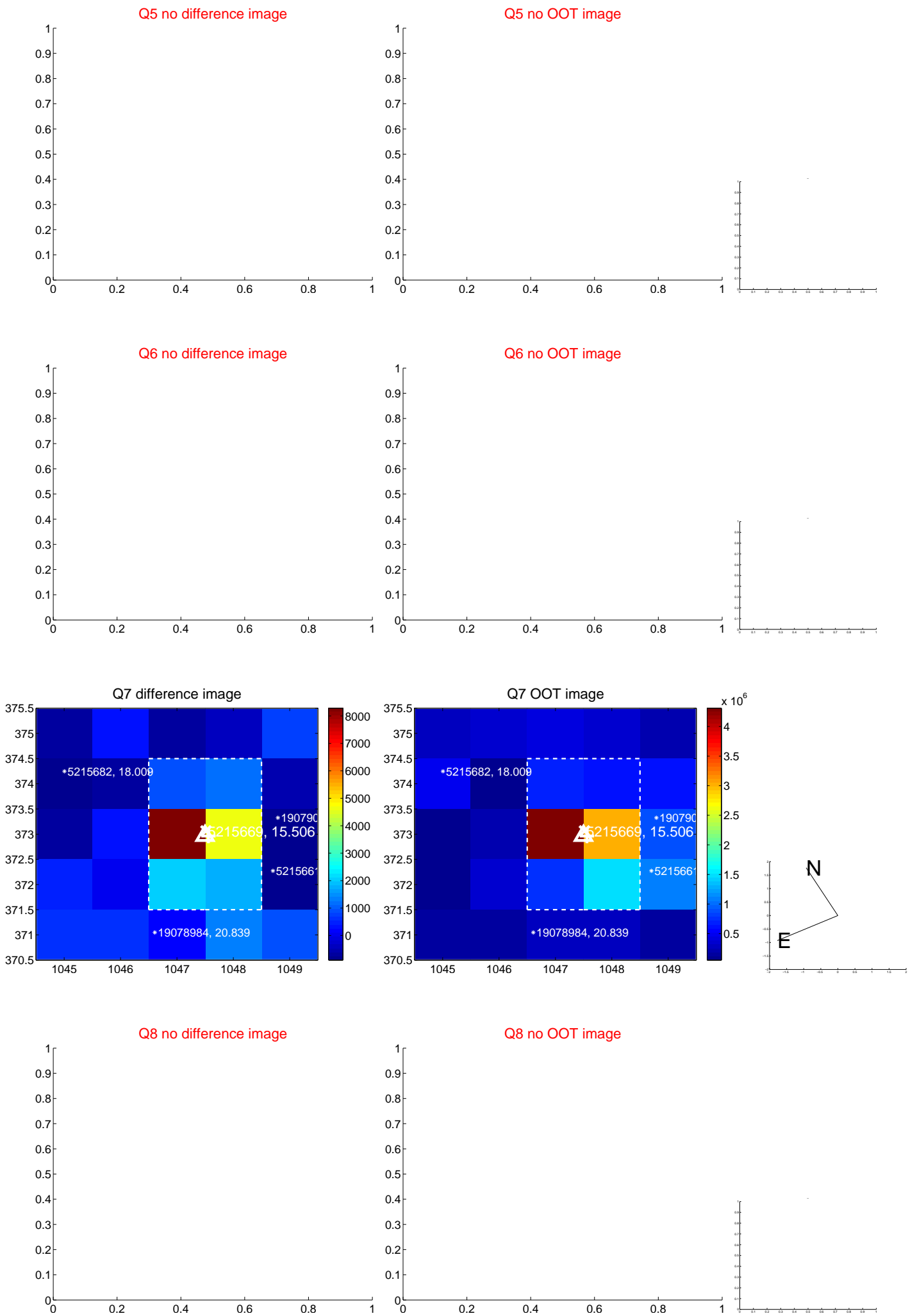


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

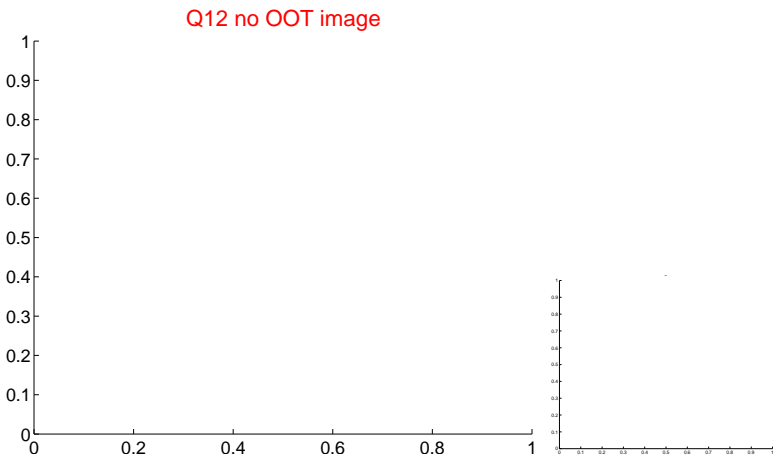
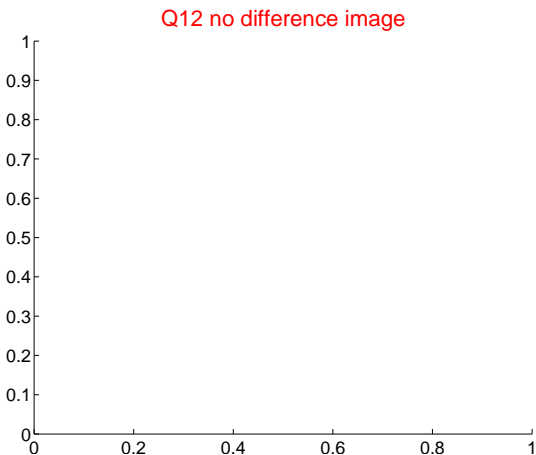
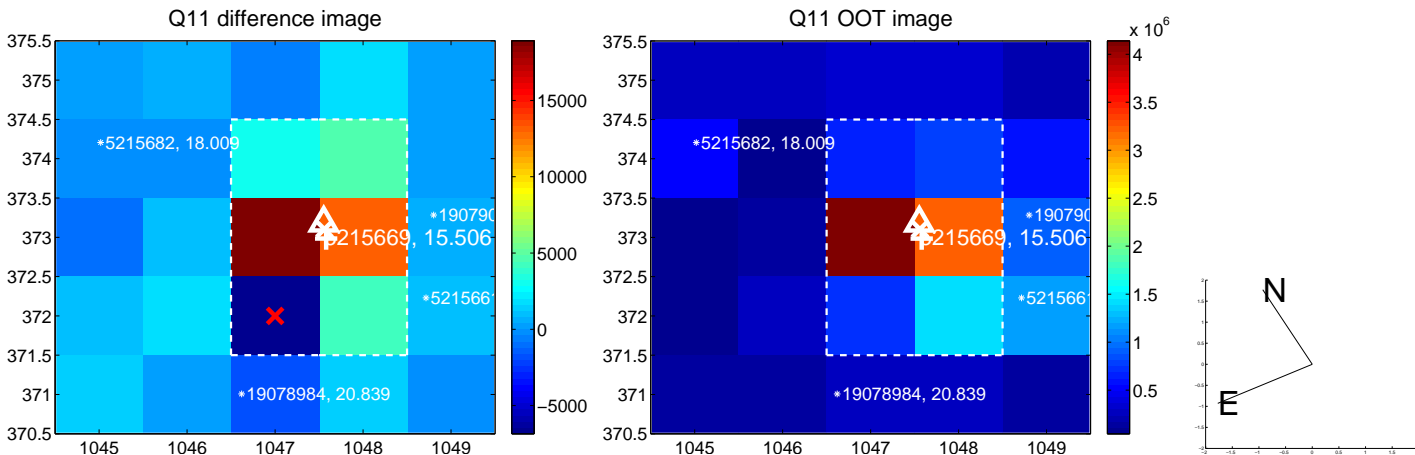
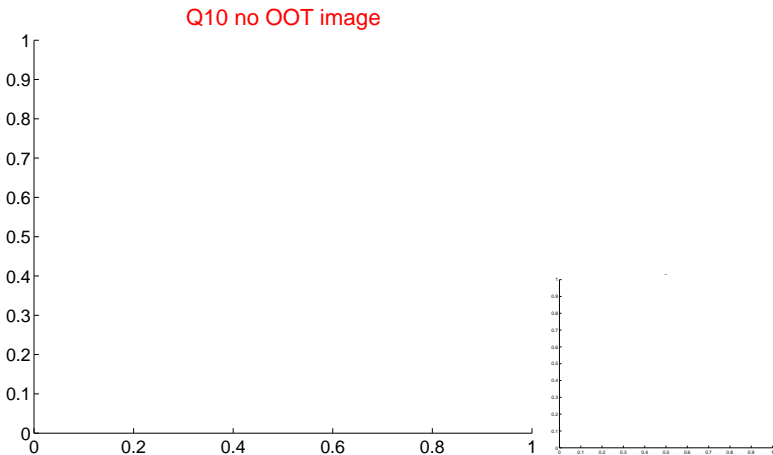
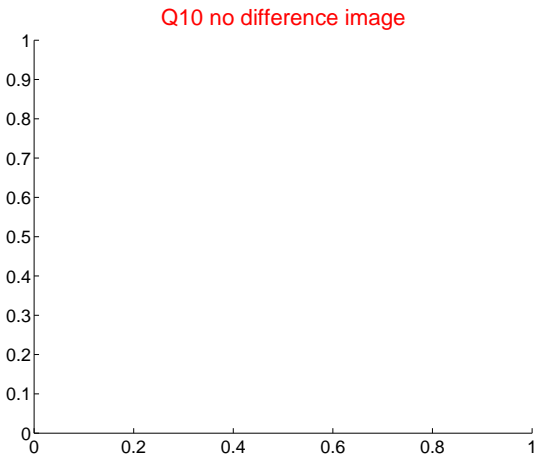
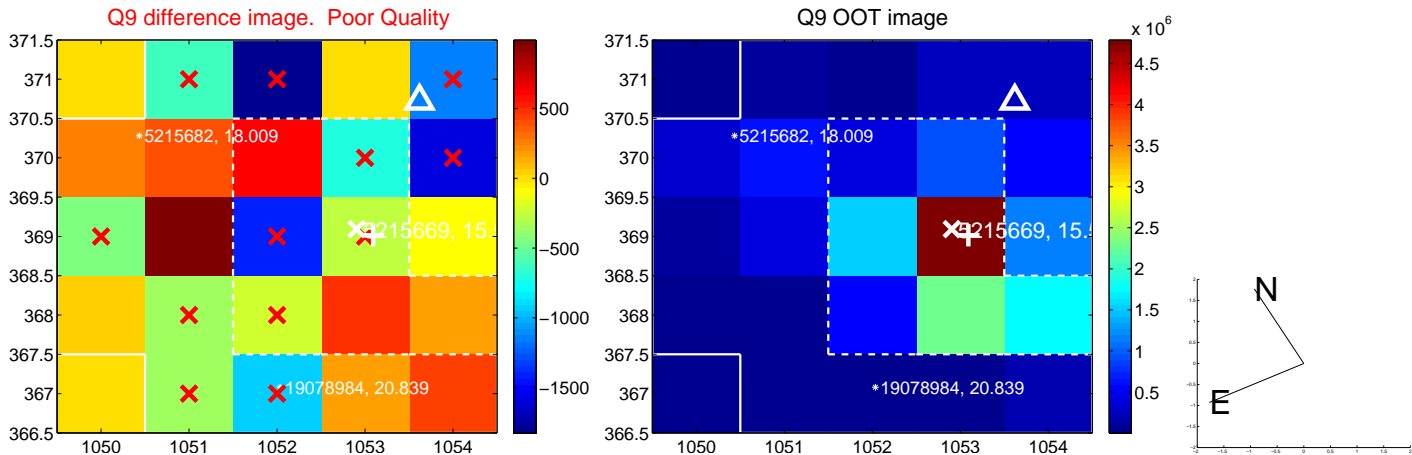
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



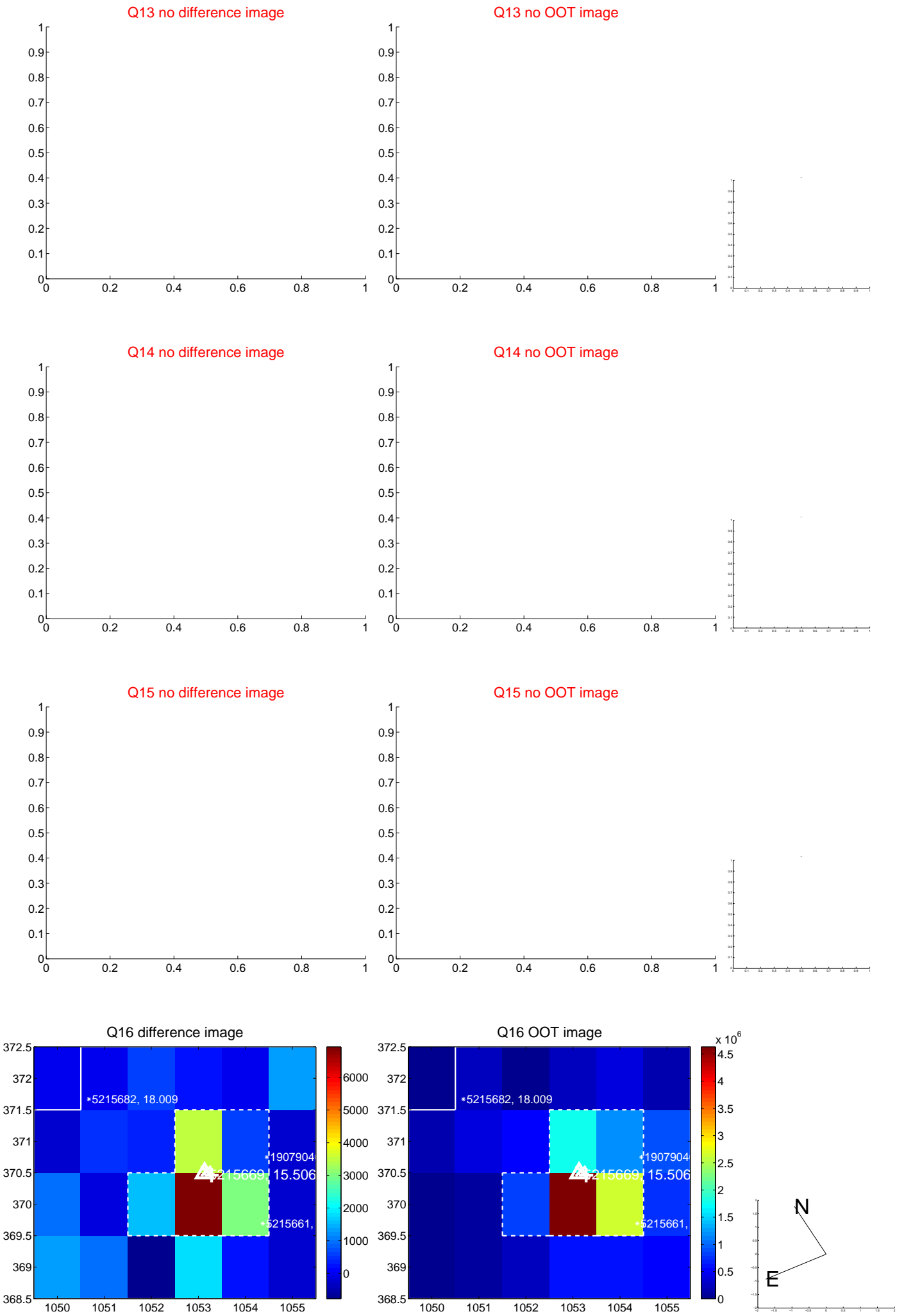
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



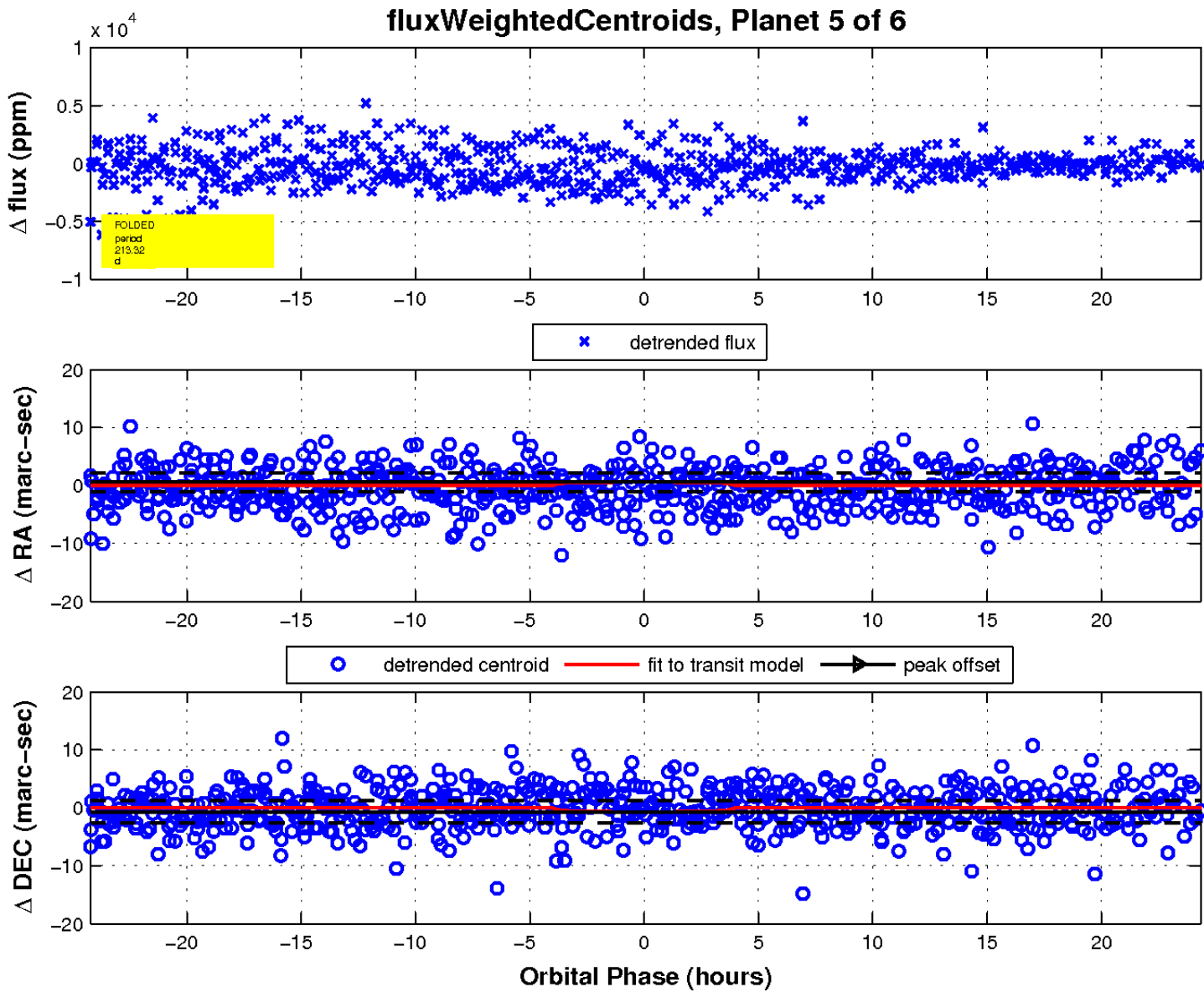
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

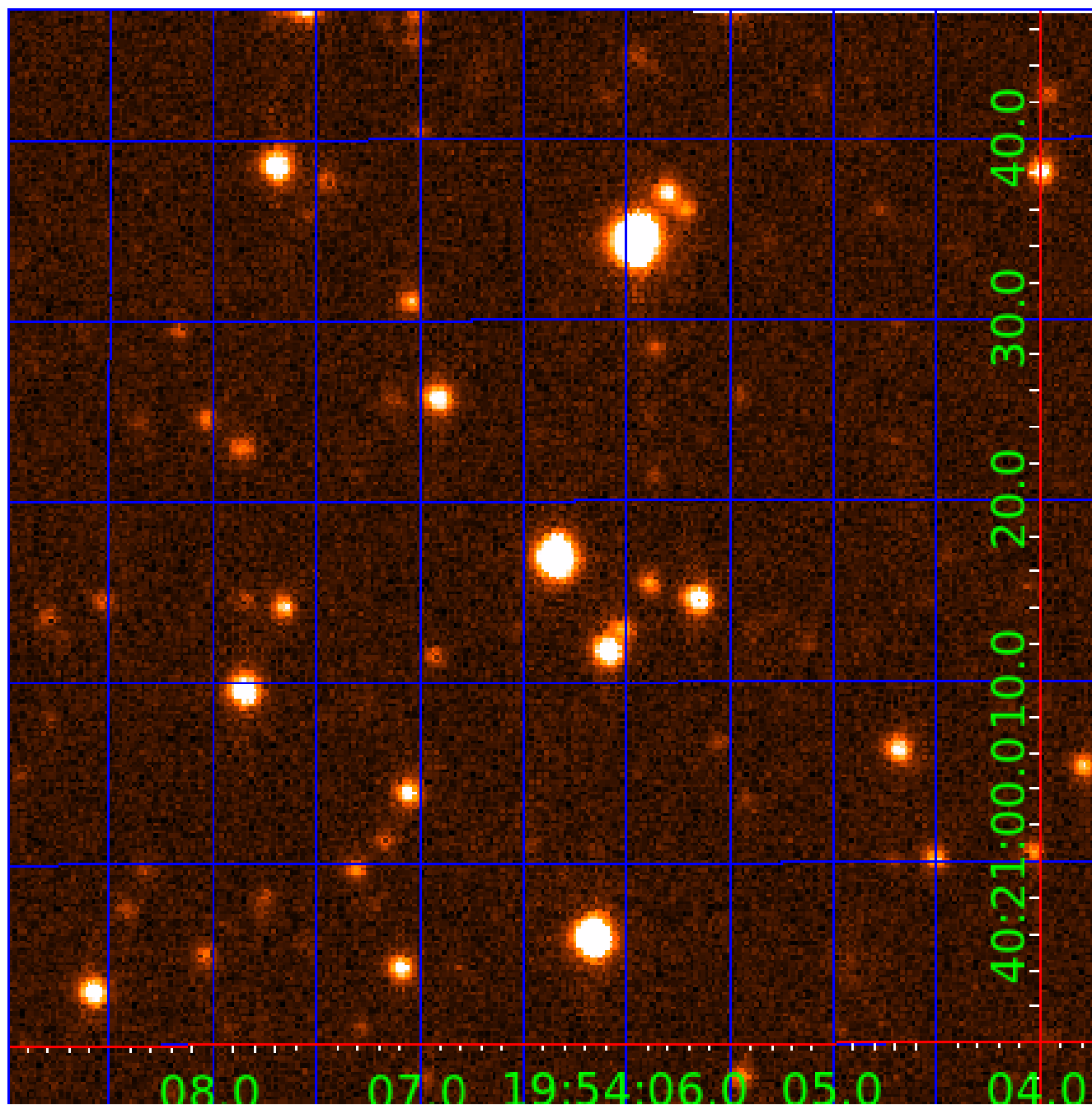
Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination



KIC 005215669

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})
005215669-01	OBS	No	0.949755	131.565715	115.2	3.752	9.3	11.2	0.73	5495	0.94	1420.41
005215669-02	OBS	No	480.768665	151.798775	2024.2	2.104	12.6	7.3	0.73	5495	3.32	0.35
005215669-03	OBS	No	263.862694	394.764557	2517.1	16.340	11.5	6.8	0.73	5495	4.61	0.78
005215669-04	OBS	No	463.512321	314.220631	1731.8	4.811	10.6	6.4	0.73	5495	3.25	0.37
005215669-05	OBS	No	213.320791	222.623288	1413.6	8.123	9.3	5.9	0.73	5495	2.81	1.04
005215669-06	OBS	No	196.435978	313.487044	2434.0	18.012	10.1	7.7	0.73	5495	4.33	1.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005215669-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005215669-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005215669-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005215669-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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_KIC_POS
005215669-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

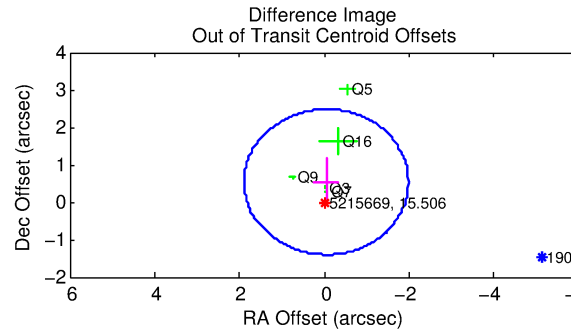
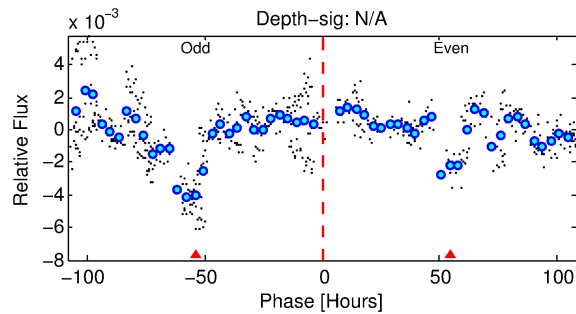
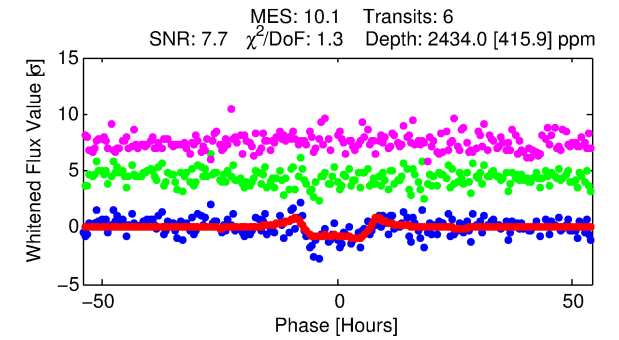
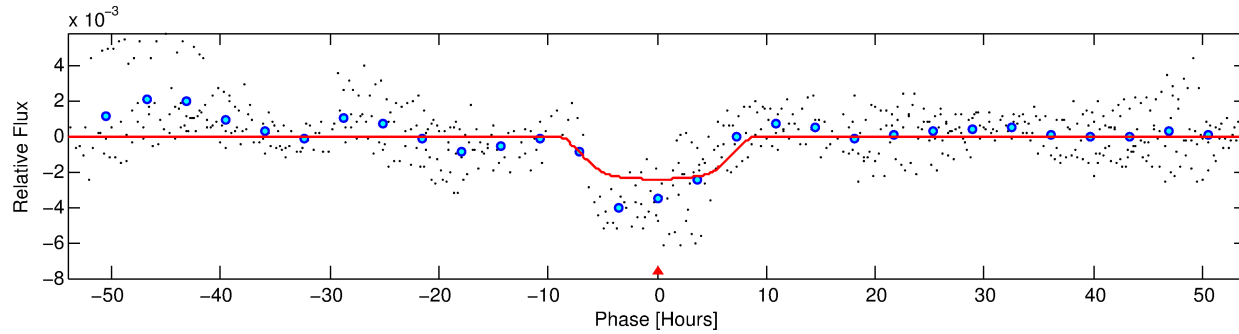
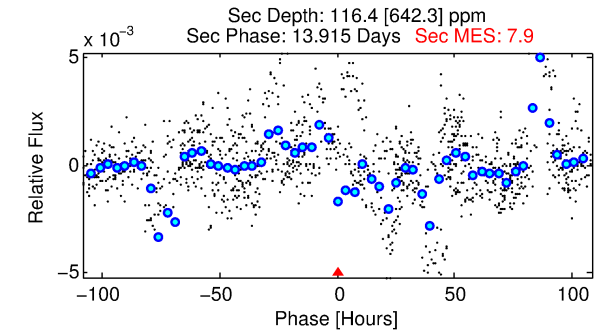
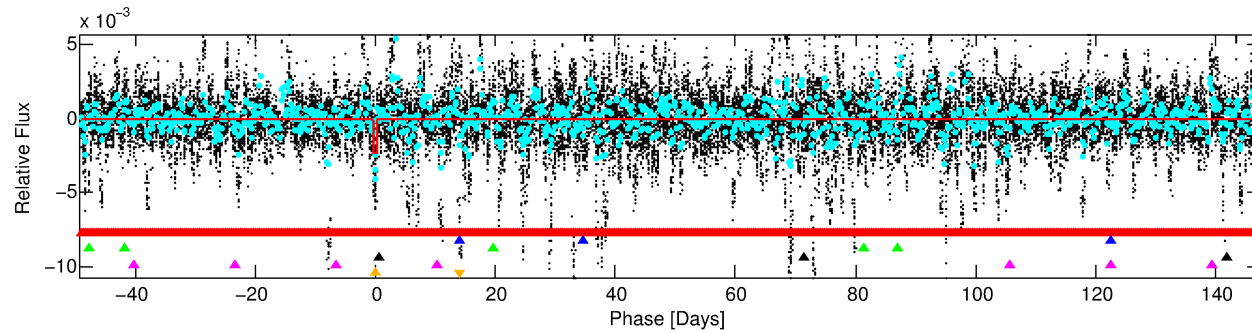
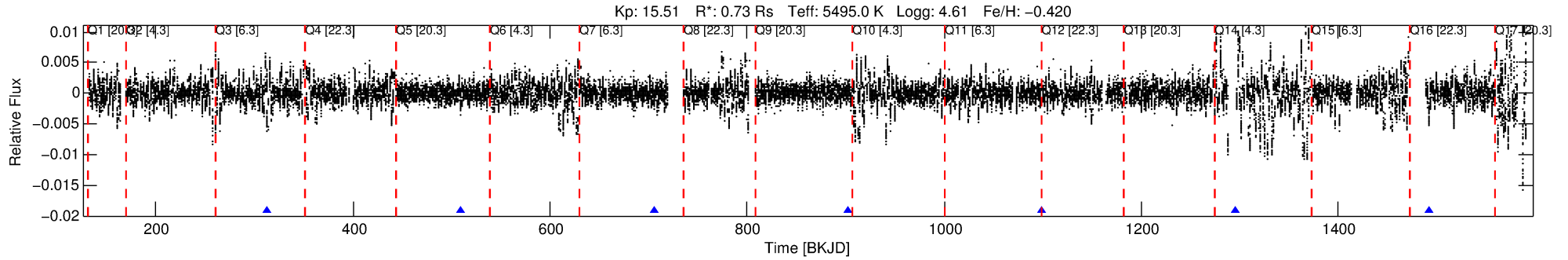
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005215669-06

No Significant Match Found

DV One-Page Summary

KIC: 5215669 Candidate: 6 of 6 Period: 196.436 d



DV Fit Results:

Period = 196.43598 [0.01561] d
Epoch = 313.4870 [0.0402] BKJD
Rp/R* = 0.0541 [0.0053]
a/R* = 45.39 [7.89]
b = 0.90 [0.04]
Seff = 1.16 [0.28]
Teq = 265 [16] K
Rp = 4.33 [0.88] Re
a = 0.6156 [0.0904] AU
Ag = 1291.09 [7135.84] [0.18σ]
Teffp = 2453 [3388] K [0.65σ]

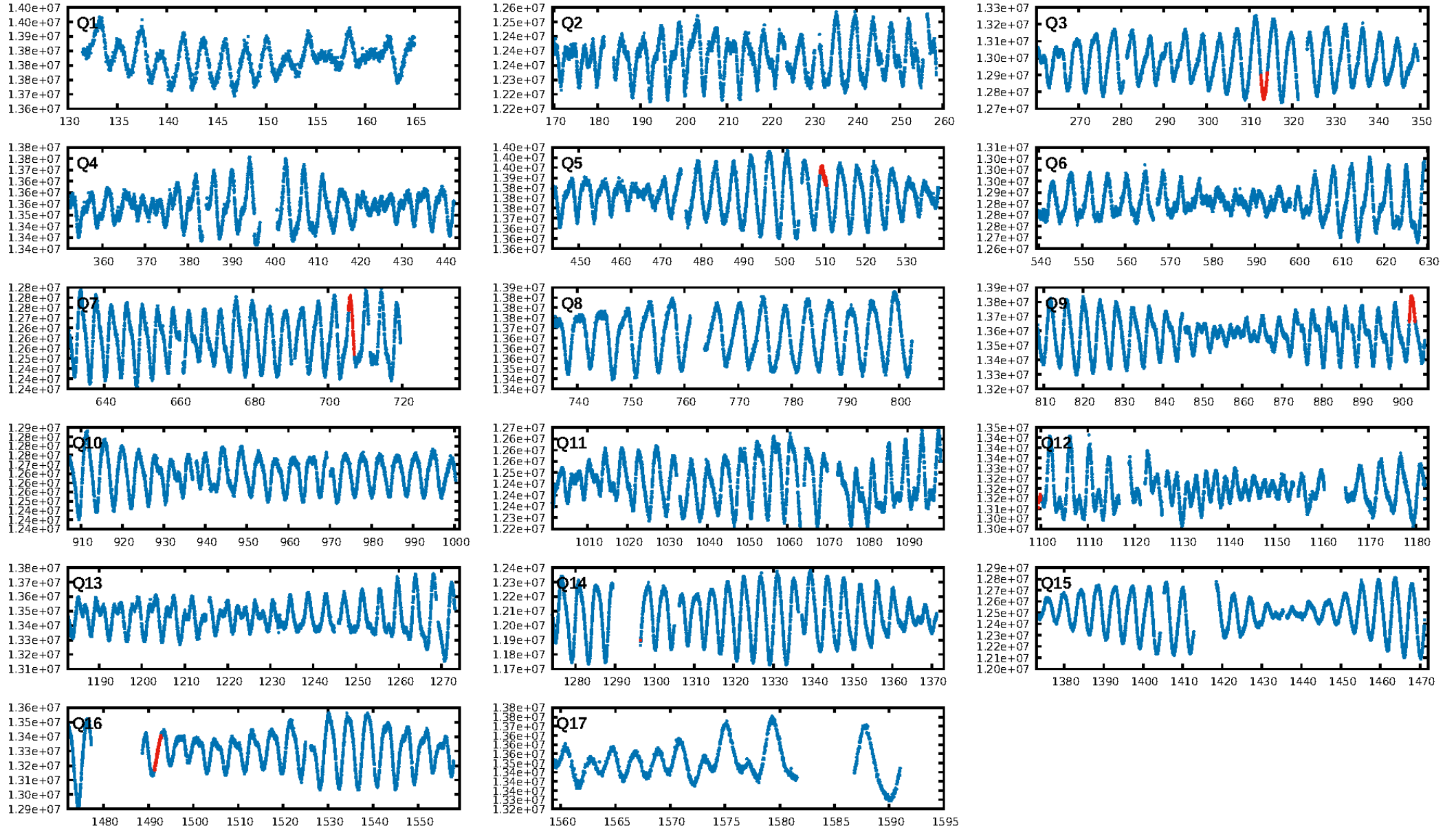
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [255.00σ]
LongPeriod-sig: 100.0% [20.51σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 12.13
Centroid-sig: 0.2%
Centroid-so: 1.971 arcsec [3.38σ]
OotOffset-rm: 0.538 arcsec [0.83σ]
KicOffset-rm: 0.093 arcsec [0.16σ]
OotOffset-st: 0/2/1/2 [5]
KicOffset-st: 0/2/1/2 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.00 [0/5]

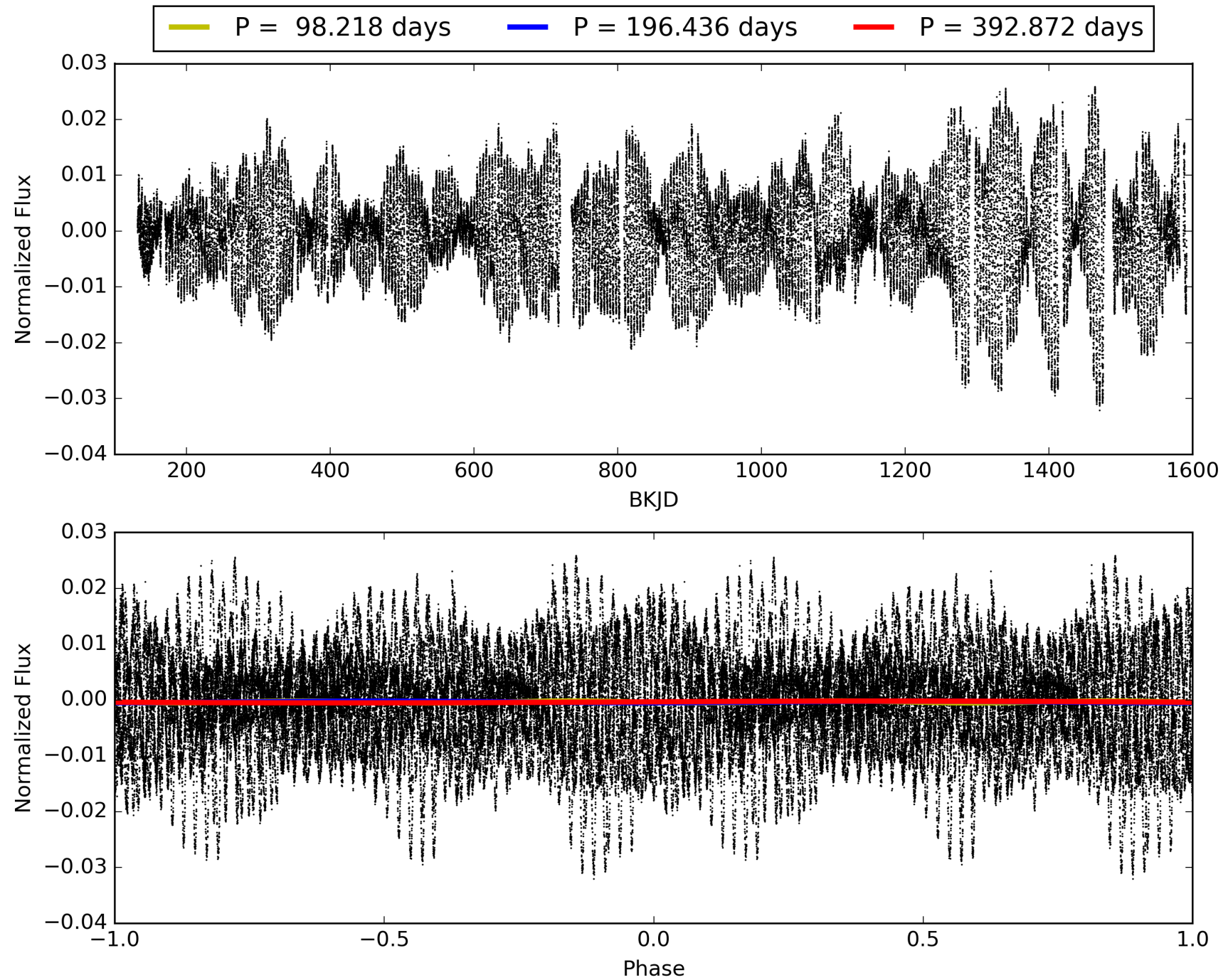
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:14:35 Z

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

TCE 005215669-06, PDC Light Curves

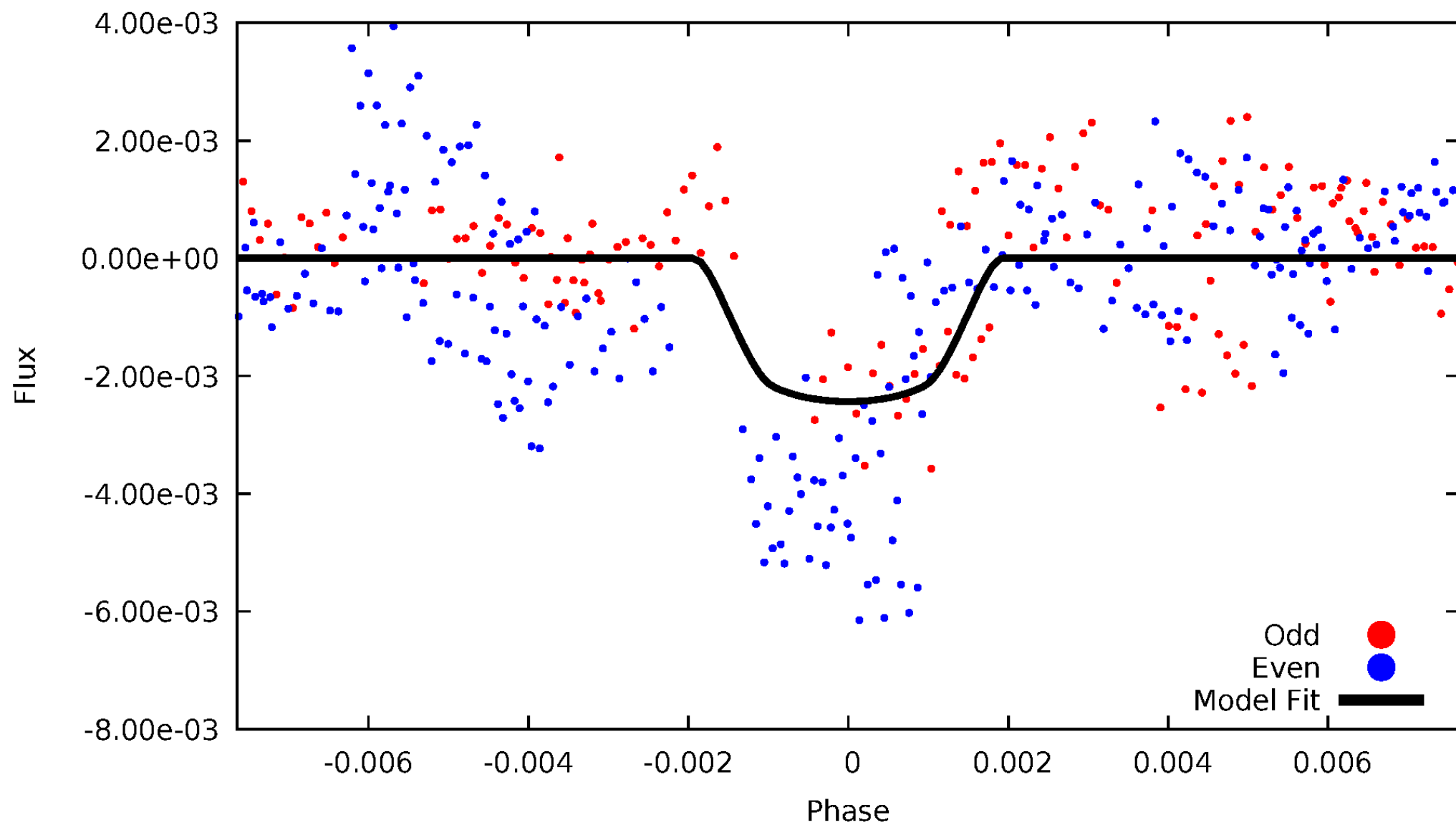


TCE 005215669-06



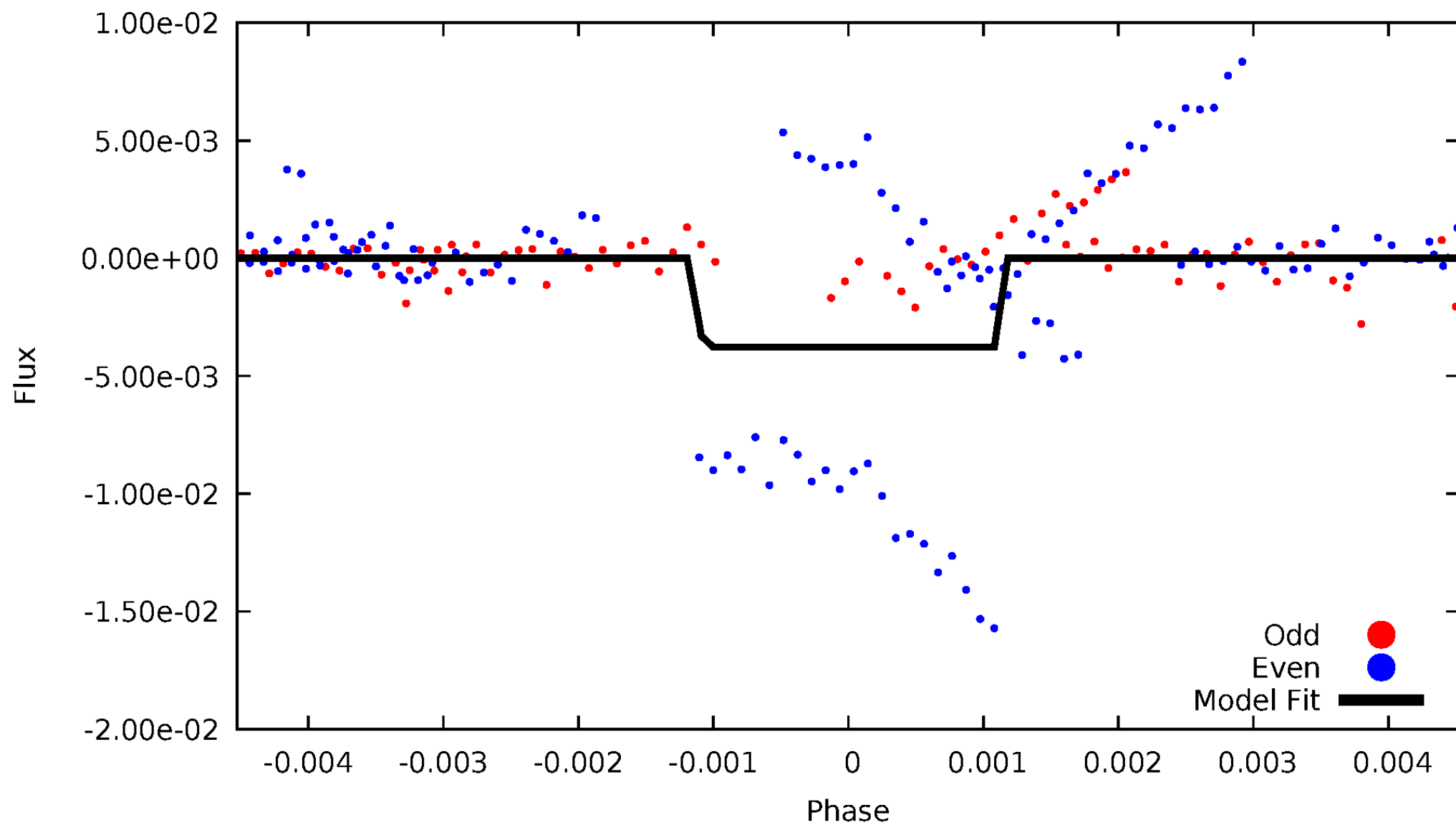
DV Odd/Even

TCE 005215669-06



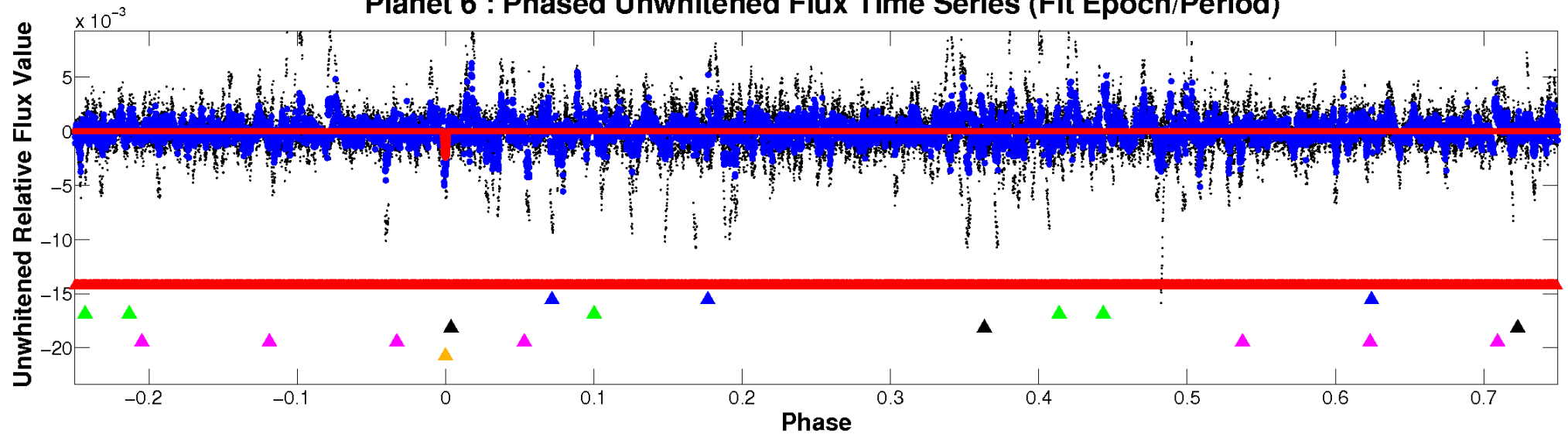
ALT Odd/Even

TCE 005215669-06

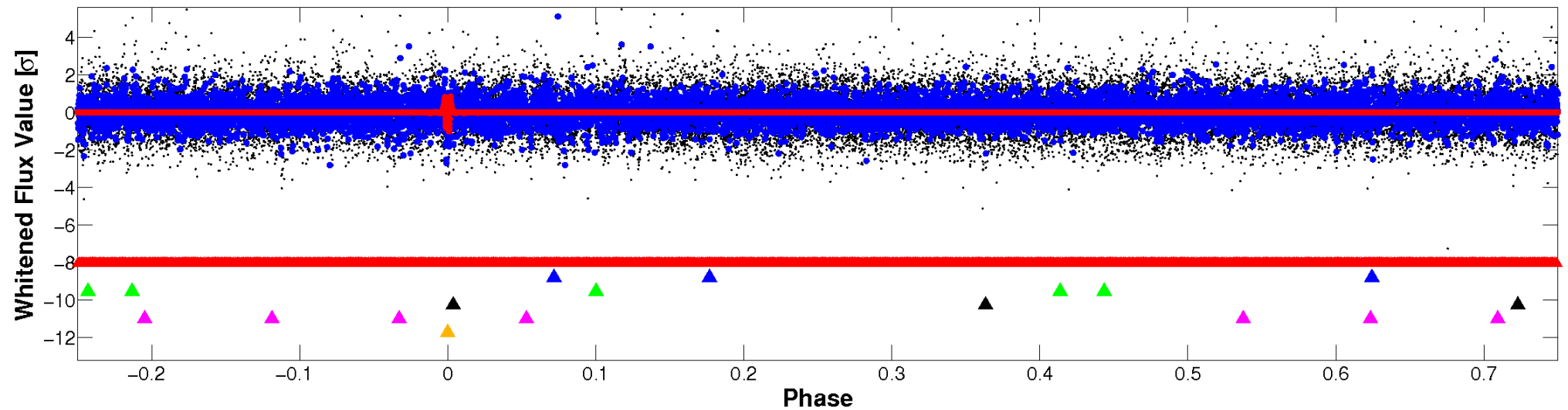


Non-Whitened Vs. Whitened Light Curve

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

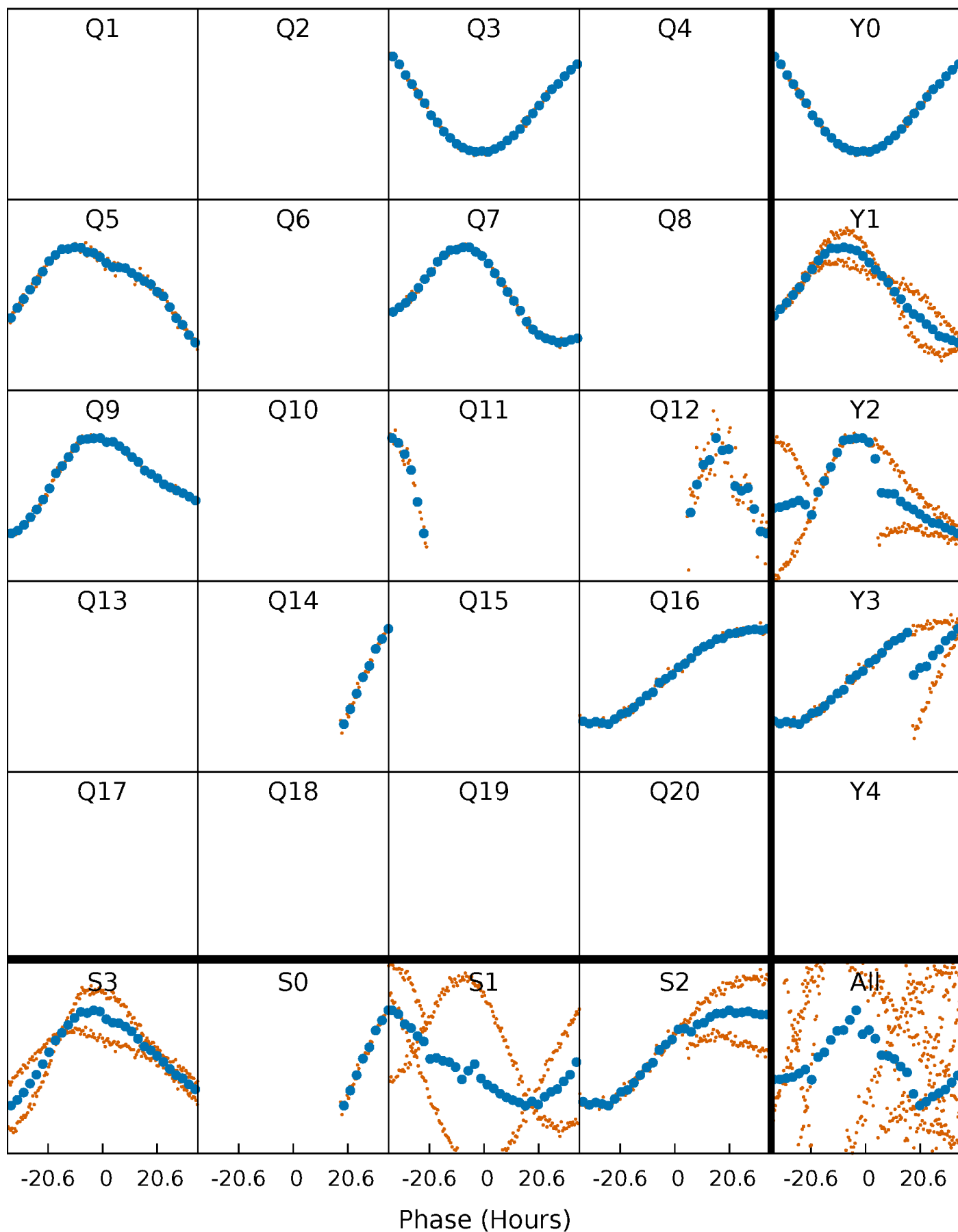


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



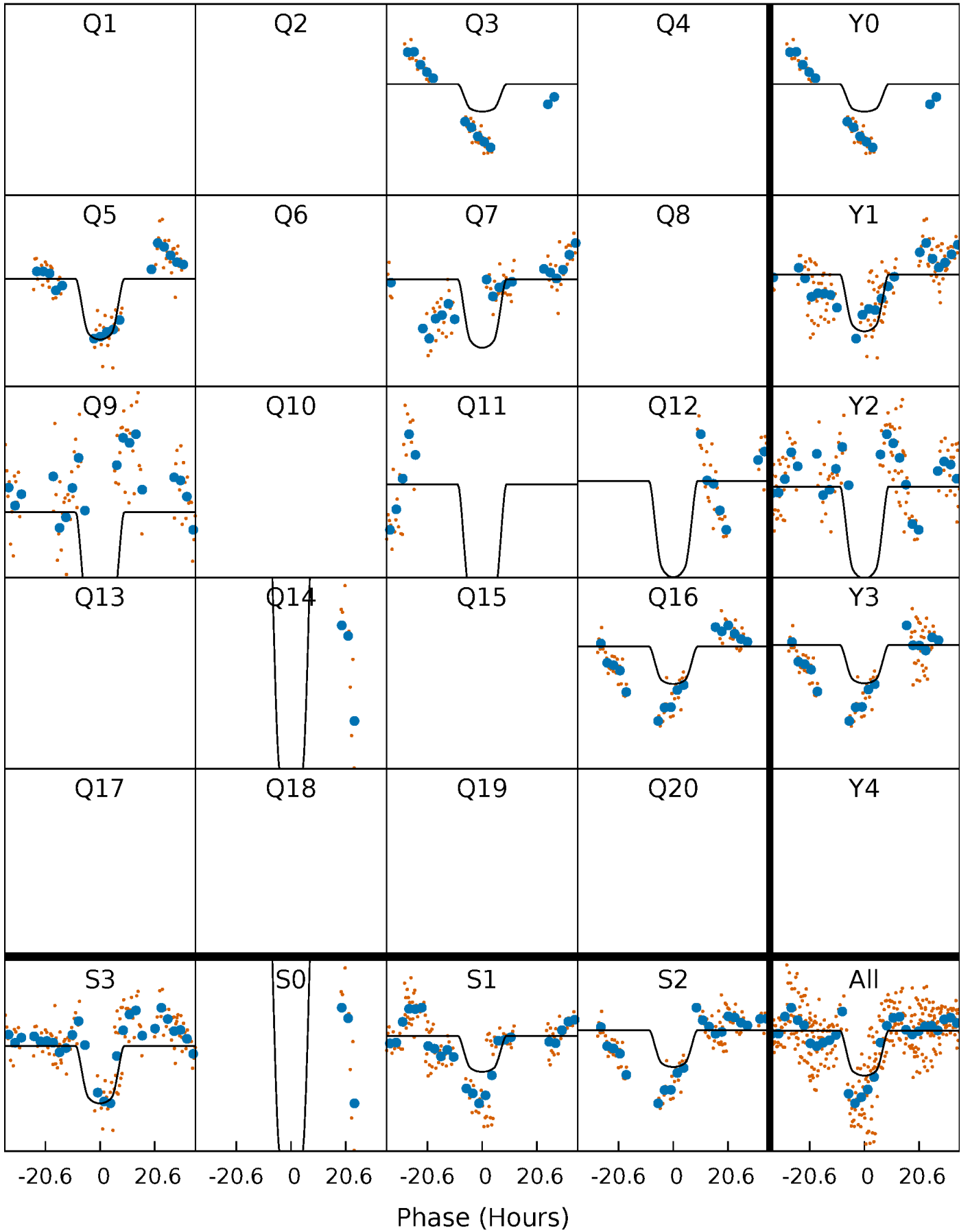
PDC Quarter-Phased Transit Curves

TCE 005215669-06 P=196.435978 Days $T_0=313.487044$ (BKJD)



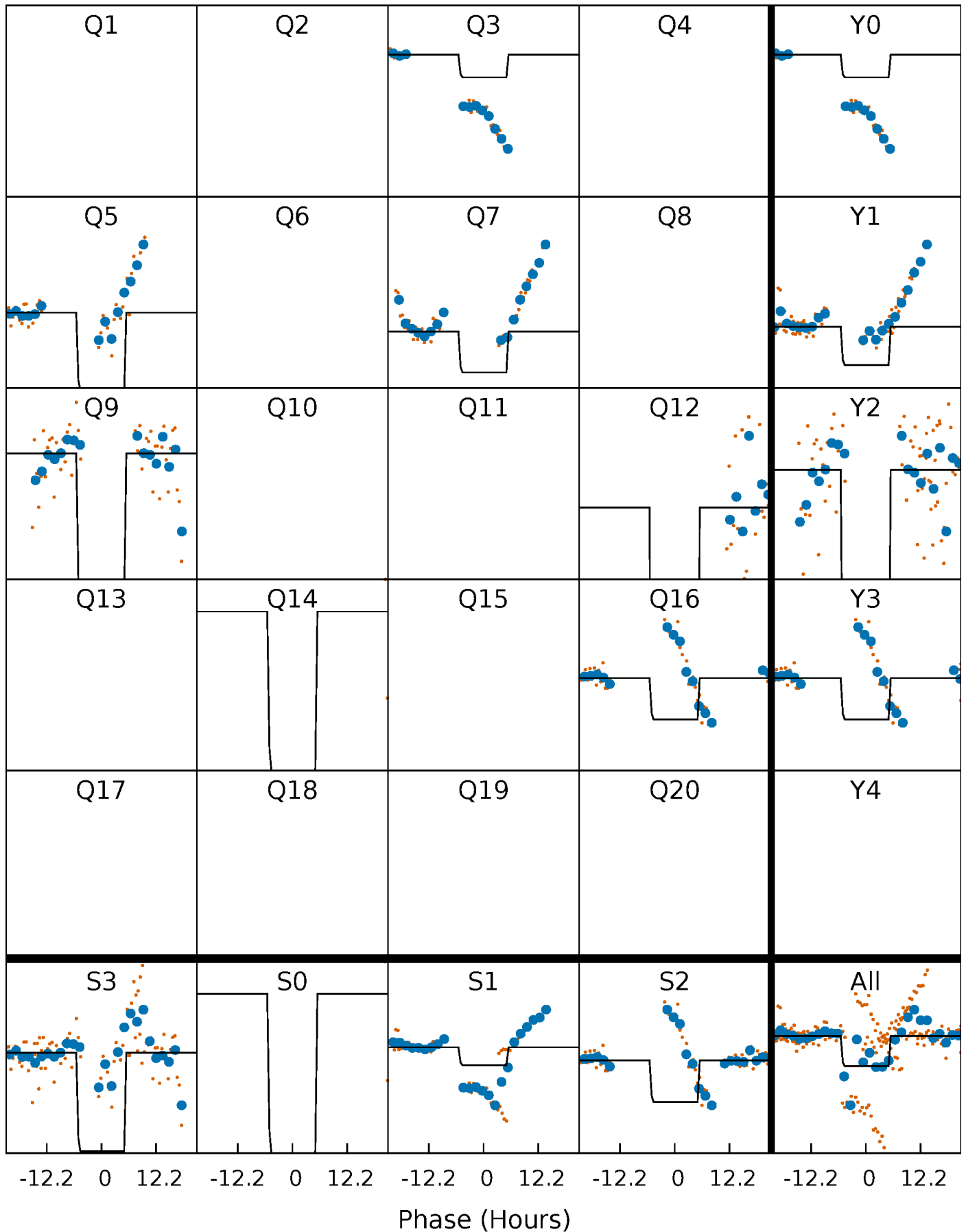
DV Quarter-Phased Transit Curves

TCE 005215669-06 $P=196.435978$ Days $T_0=313.487044$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

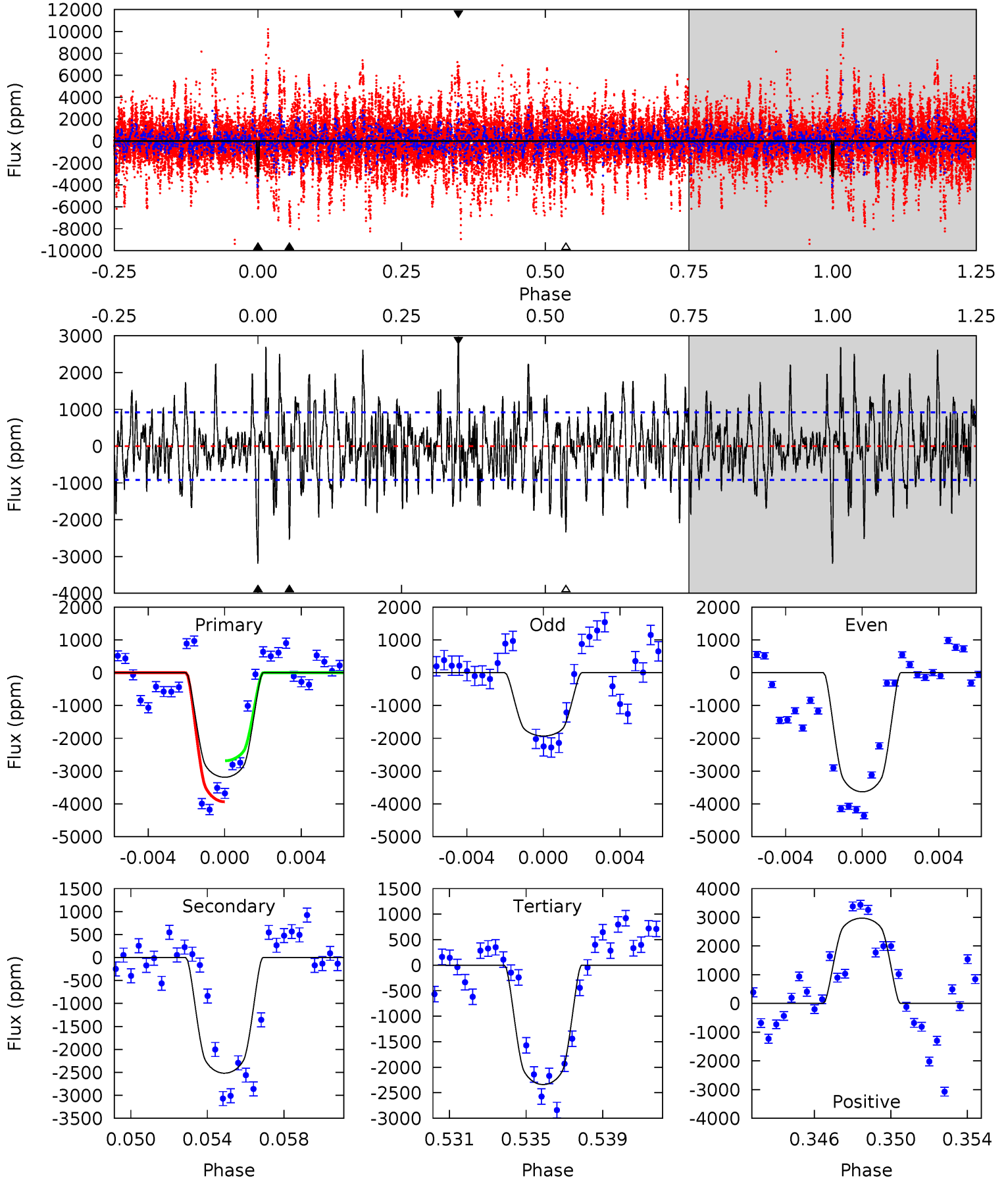
TCE 005215669-06 P=196.421001 Days $T_0=313.444668$ (BKJD)



DV Model-Shift Uniqueness Test

005215669-06, P = 196.435978 Days, E = 117.051066 Days

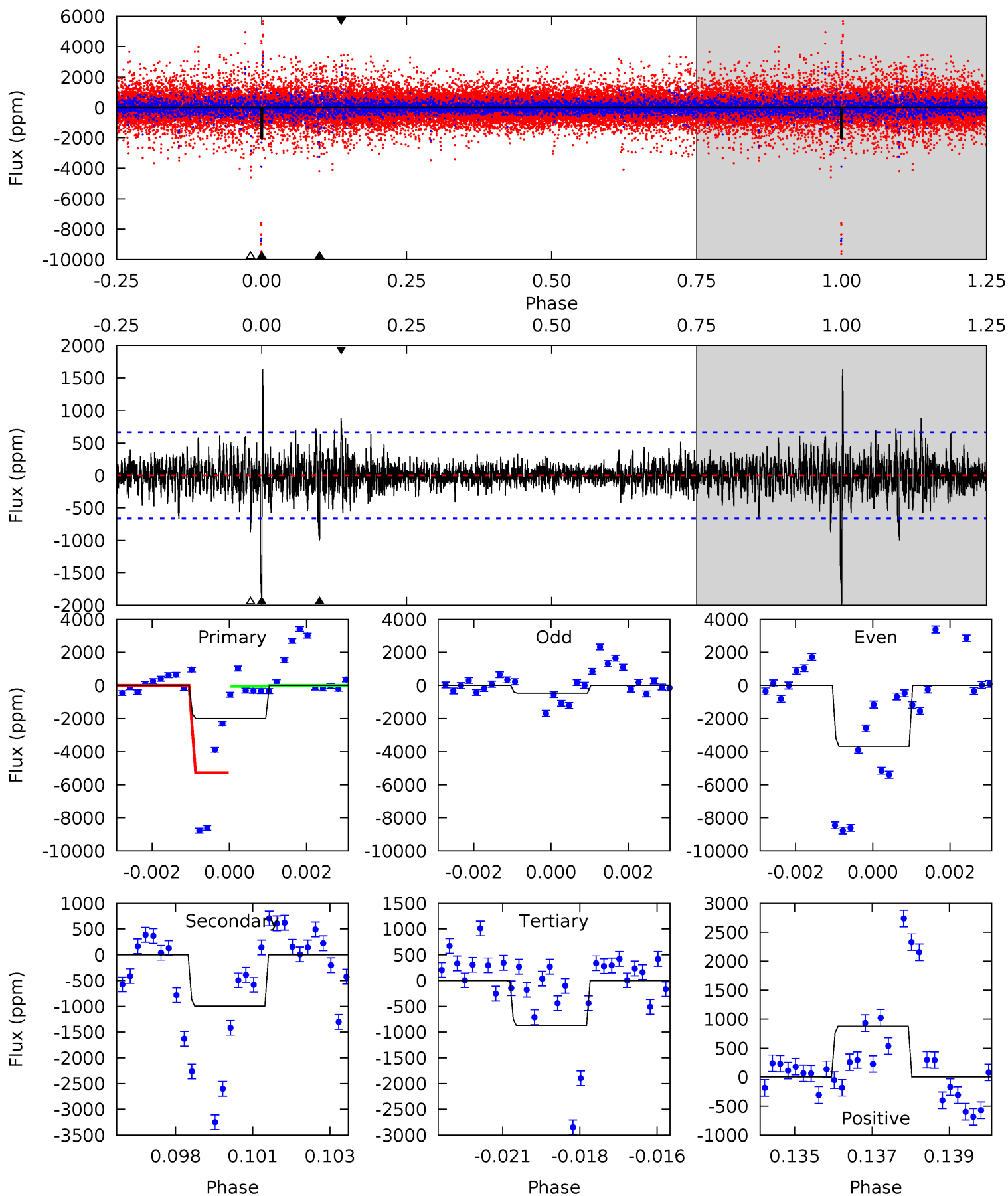
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	14.2	13.2	16.8	5.21	2.89	4.27	4.80	1.22	1.01	-2.56	4.08	0.80	0.48	3.48



Alt Model-Shift Uniqueness Test

005215669-06, P = 196.421001 Days, E = 117.023667 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	7.98	6.97	7.04	5.30	3.05	1.29	8.91	8.84	1.01	0.94	13.1	3.37	0.45	19.6



Stellar Parameters For KIC 005215669

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5495^{+162}_{-162}	$4.613^{+0.037}_{-0.112}$	$-0.420^{+0.300}_{-0.300}$	$0.734^{+0.131}_{-0.056}$	$0.814^{+0.083}_{-0.083}$	$2.905^{+0.453}_{-0.970}$
	+3%/-3%	+1%/-2%	+71%/-71%	+18%/-8%	+10%/-10%	+16%/-33%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005215669-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2518 ± 177	$4.43^{+0.60}_{-0.55}$	375^{+17}_{-14}	5324^{+311}_{-262}	26406^{+7514}_{-5569}
Alt.	-999 ± 125	$5.05^{+0.59}_{-0.56}$	375^{+18}_{-15}	4190^{+220}_{-206}	8113^{+2339}_{-1789}

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

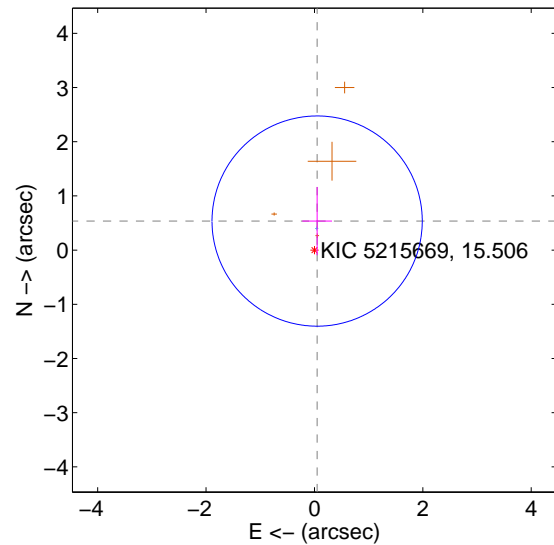
Supplemental centroid analysis for 005215669-06. Kepler magnitude: 15.51. Transit SNR 7.69

There are 1 quarters with good PRF difference image offsets

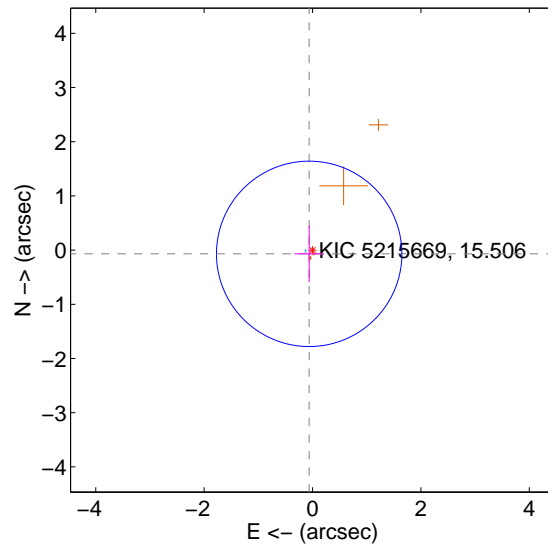
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.538 ± 0.647	0.83	-0.050 ± 0.274	0.536 ± 0.630
PRF-fit source offset from KIC position	0.093 ± 0.570	0.16	0.062 ± 0.275	-0.069 ± 0.527
photometric centroid source offset	1.97 ± 0.58	3.38	-1.13 ± 0.53	-1.62 ± 0.61

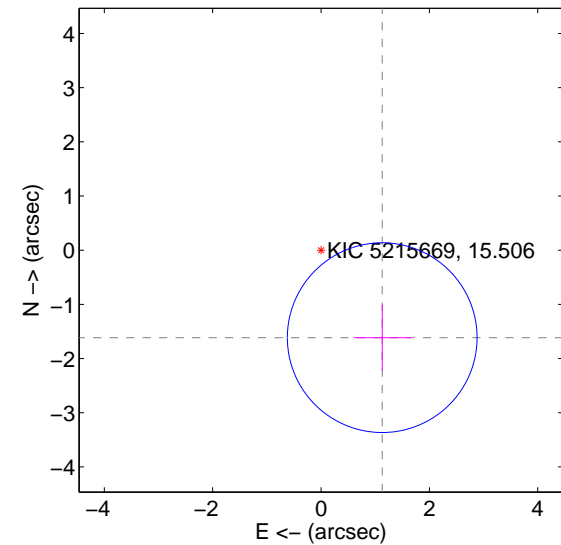
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

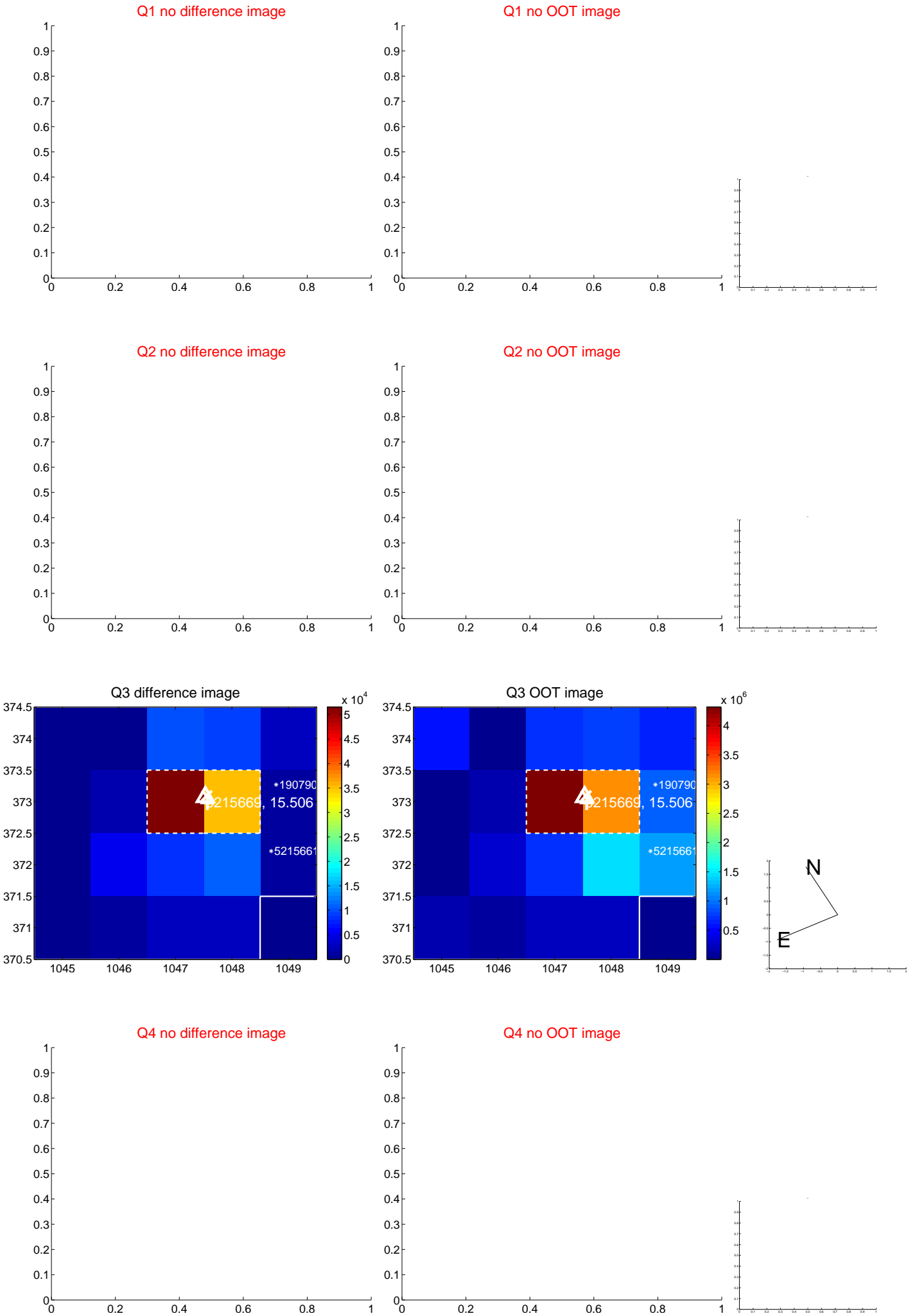


offset from photometric centroids

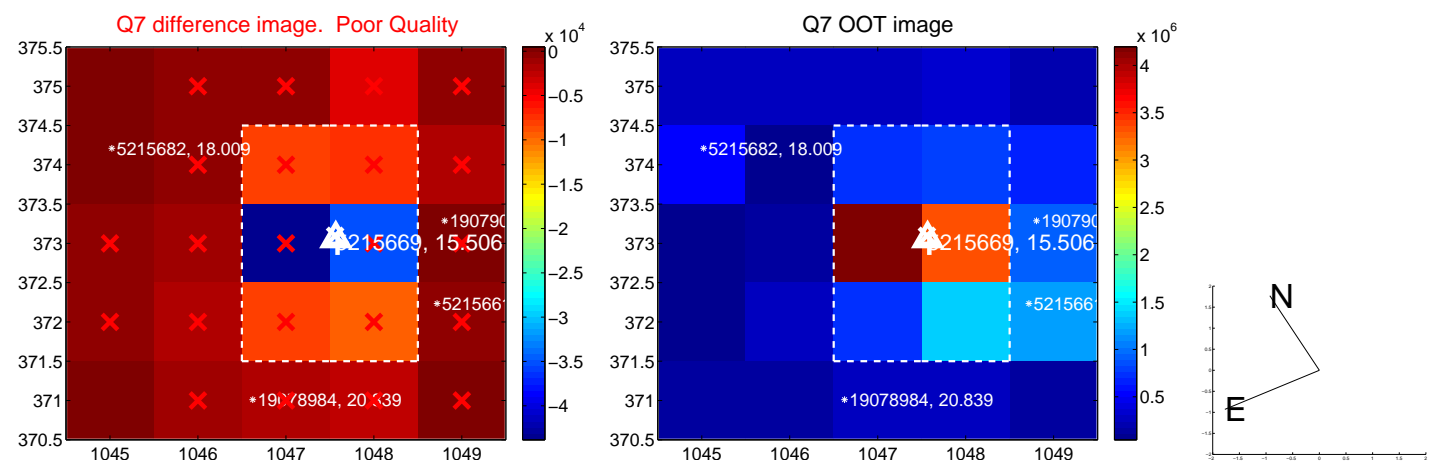
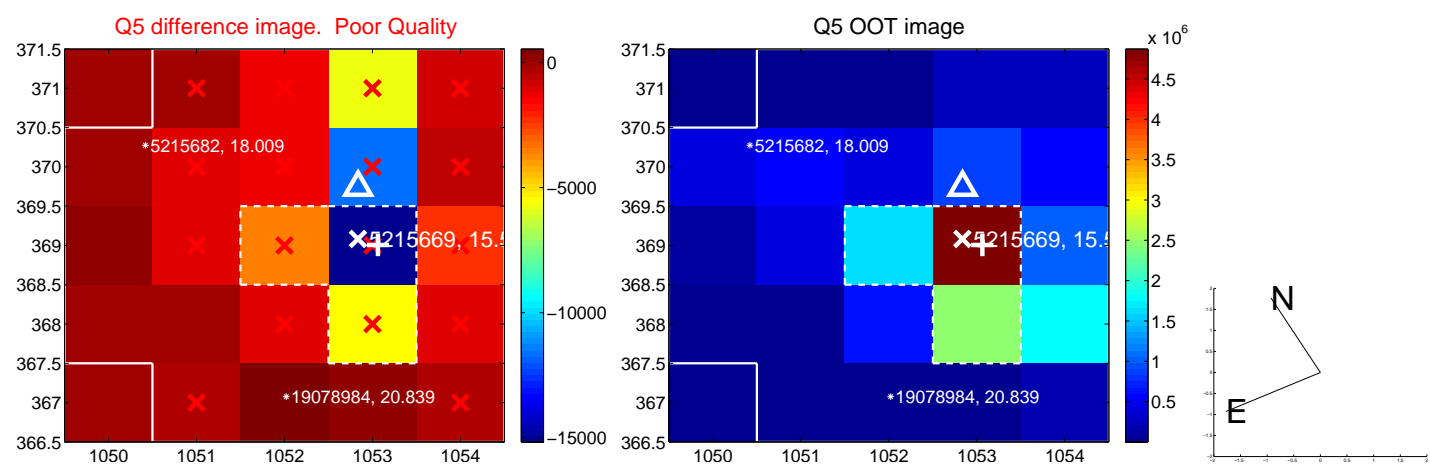


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

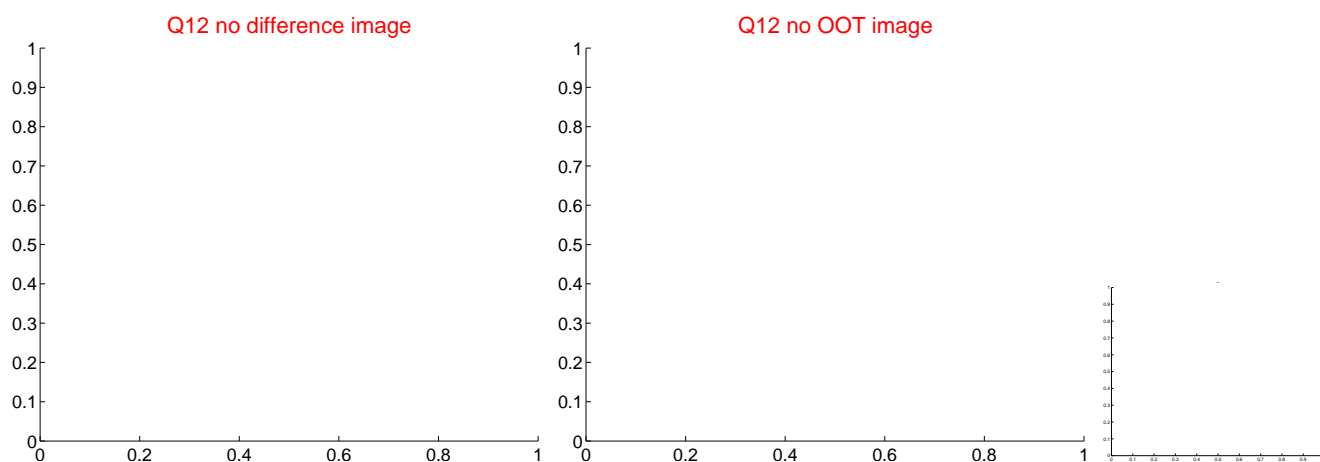
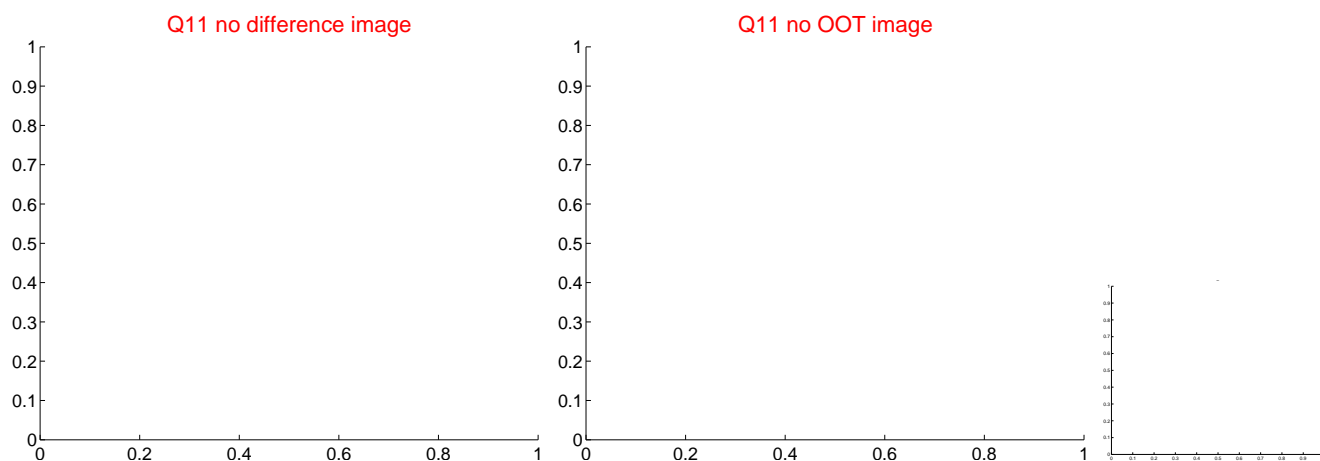
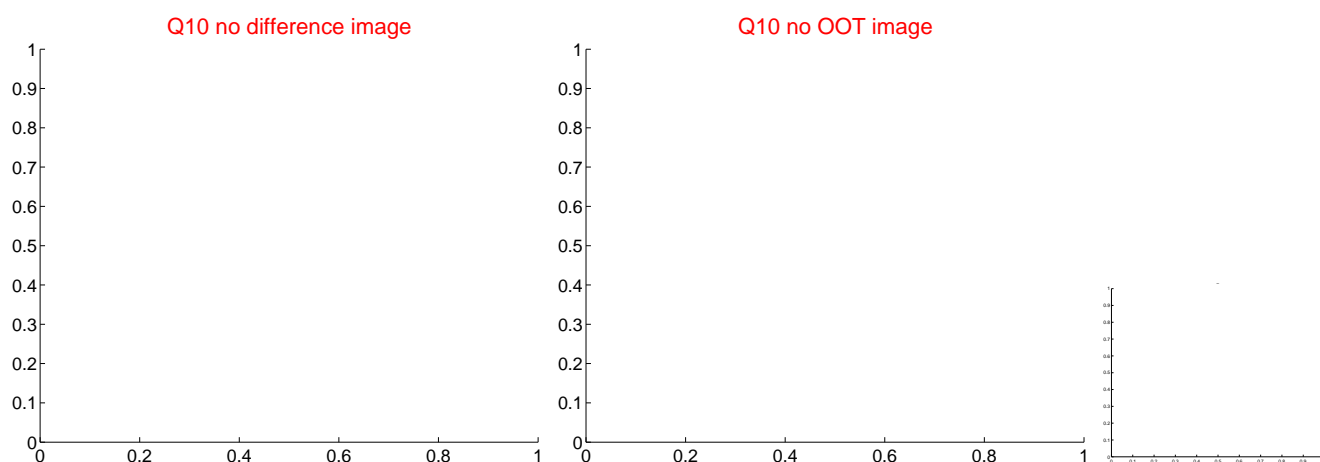
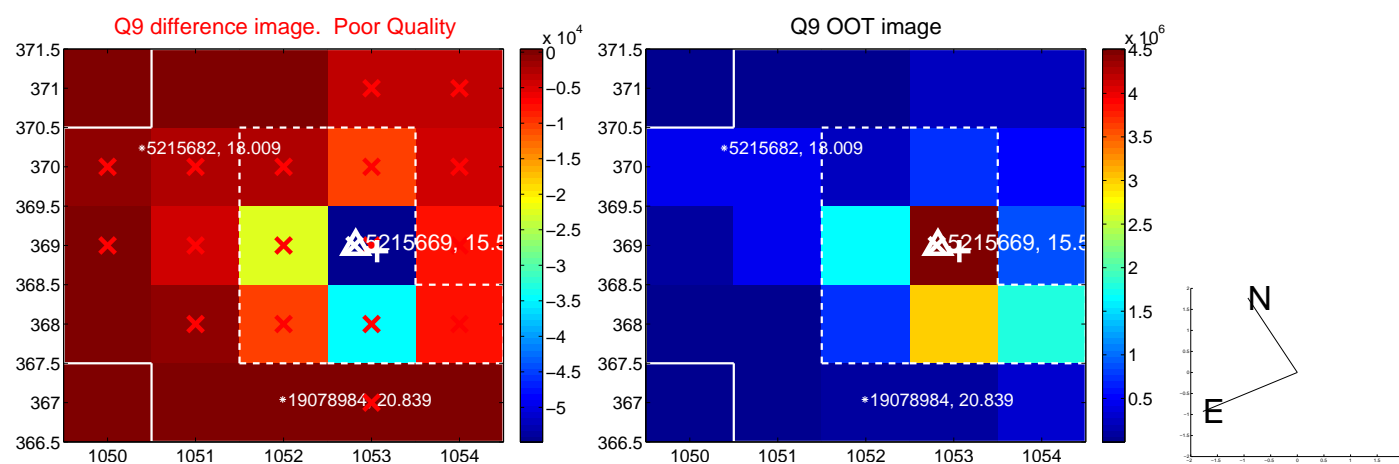
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



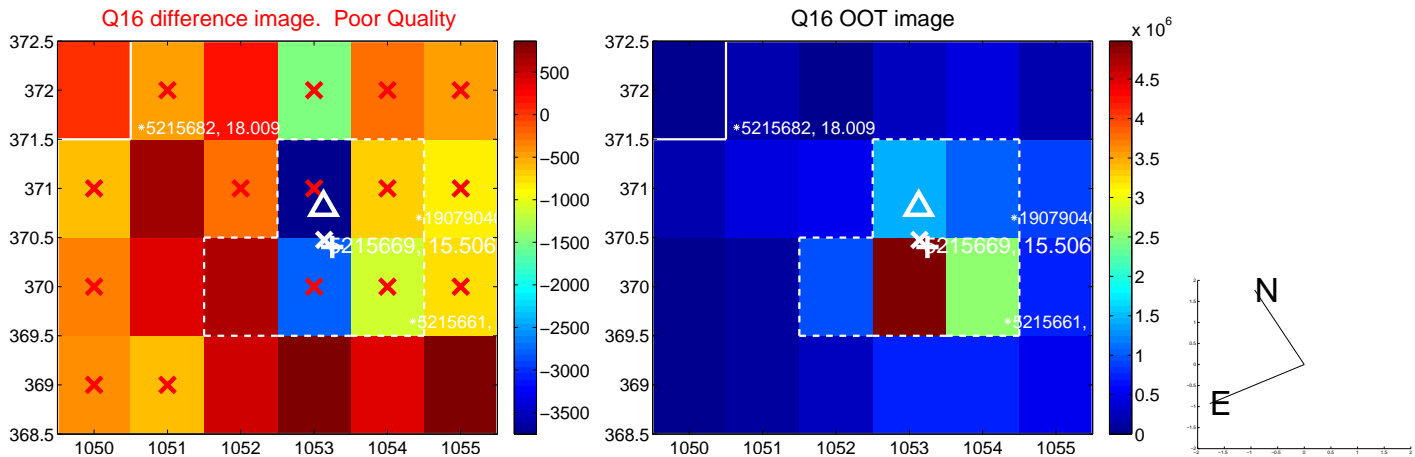
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



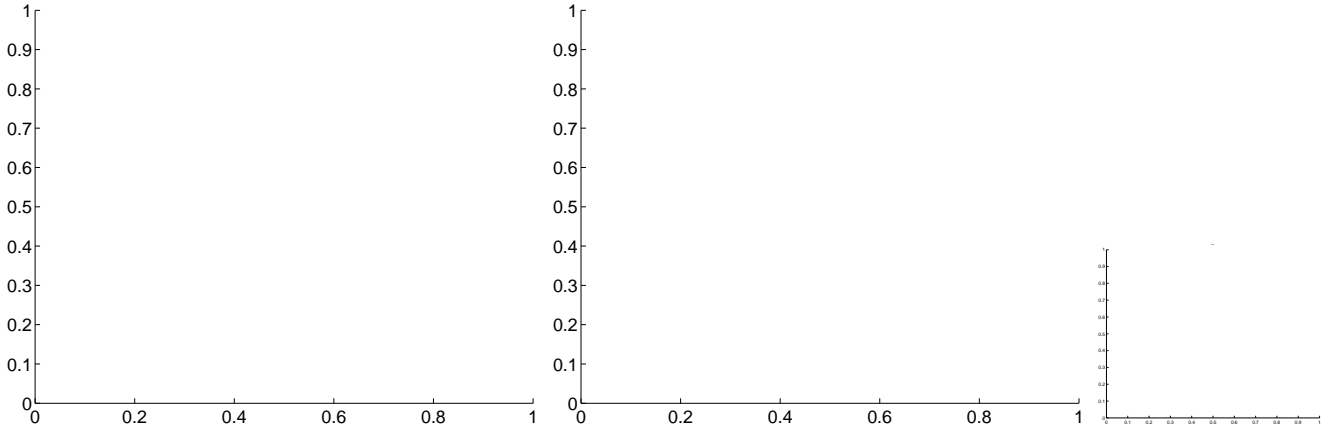
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



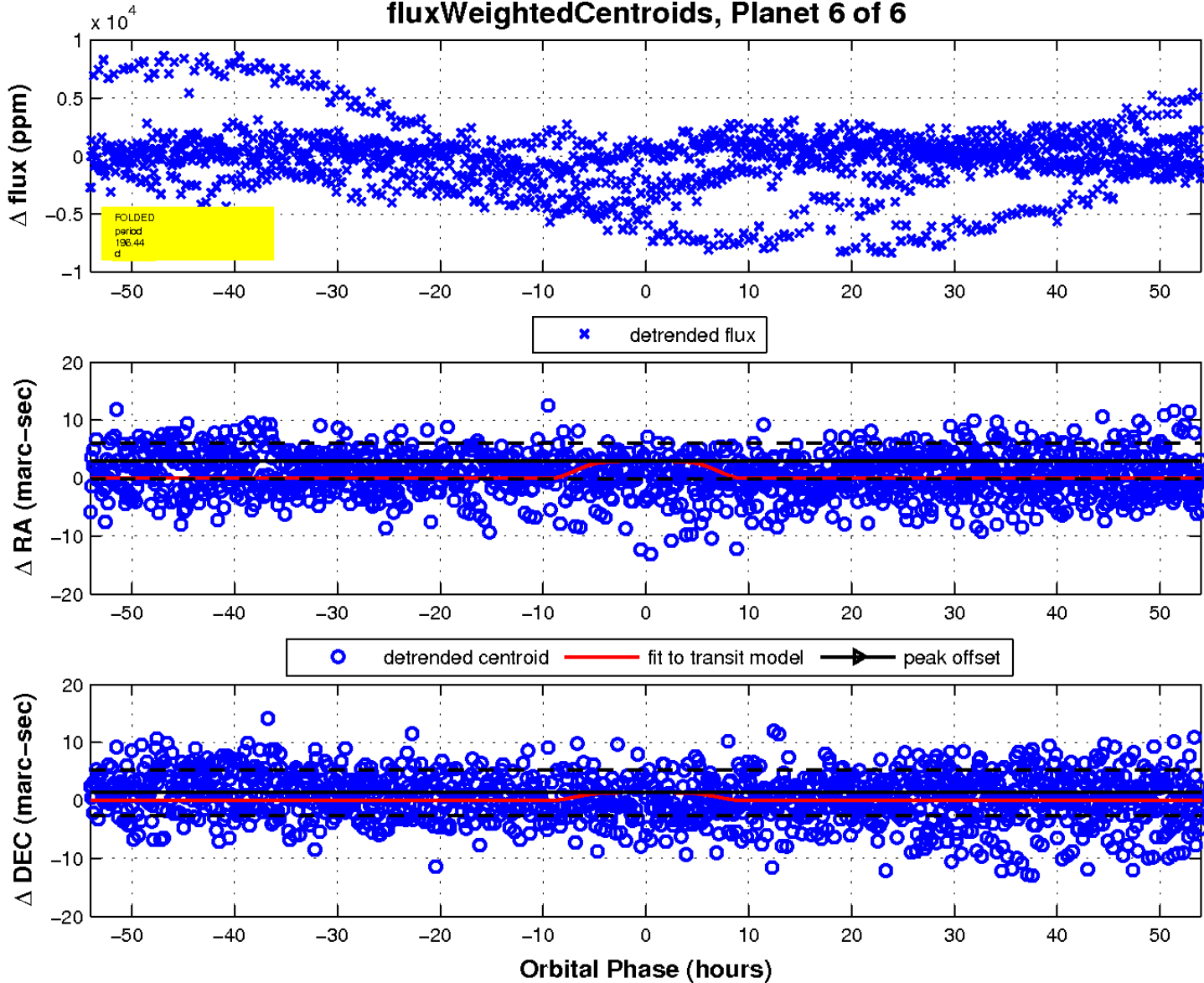
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 6 of 6



UKIRT Image

Declination

