

KIC 005471566

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})
005471566-01	OBS	4863.01	0.962828	132.185116	80.2	2.774	8.8	9.1	0.84	5559	0.89	1747.08
005471566-02	OBS	No	316.645721	229.922488	544.0	5.024	11.1	3.4	0.84	5559	2.22	0.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471566-01	OBS	FP	0.00	0	0	1	1	CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471566-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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 005471566-01

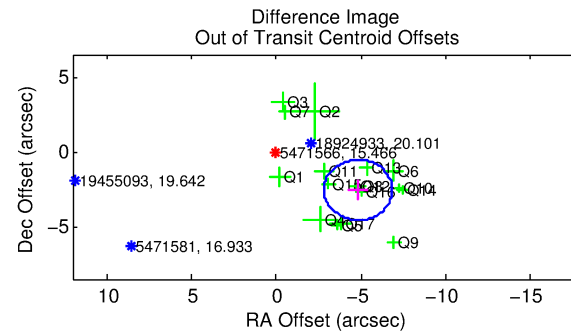
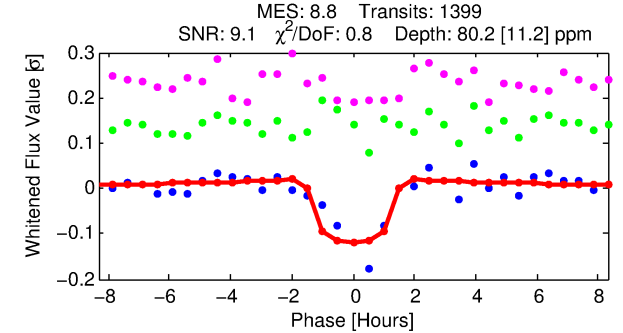
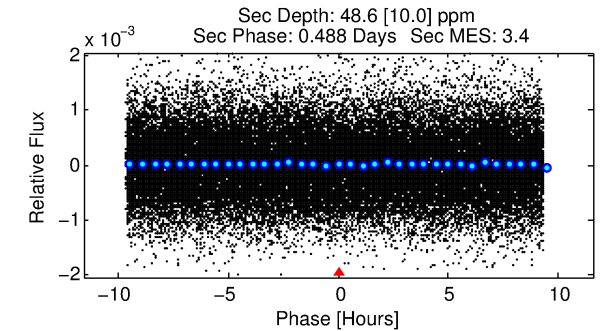
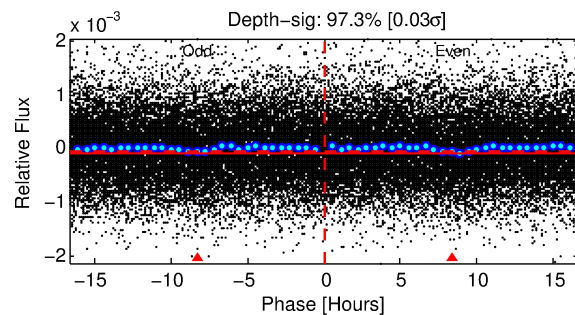
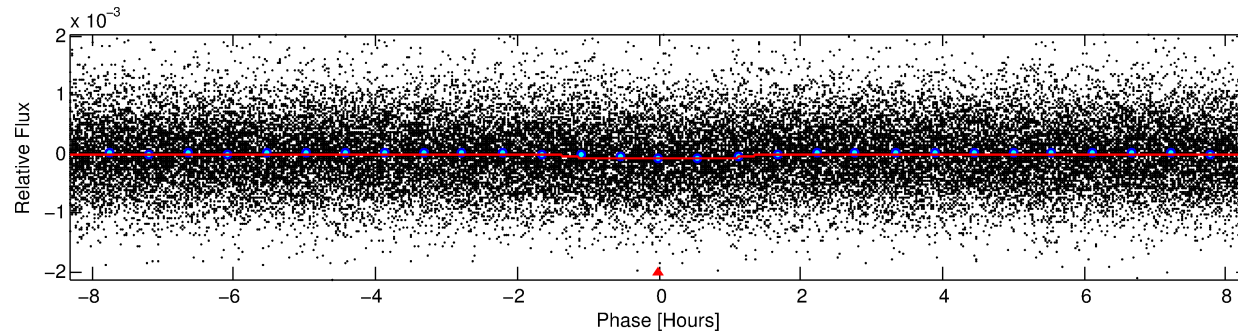
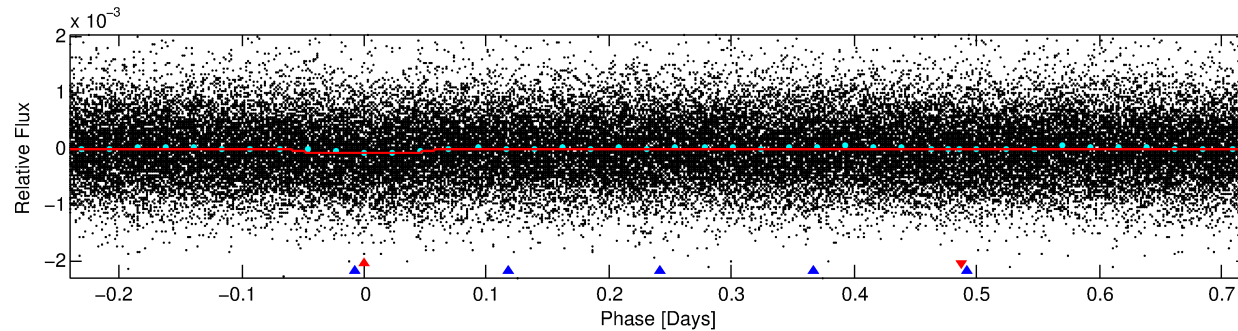
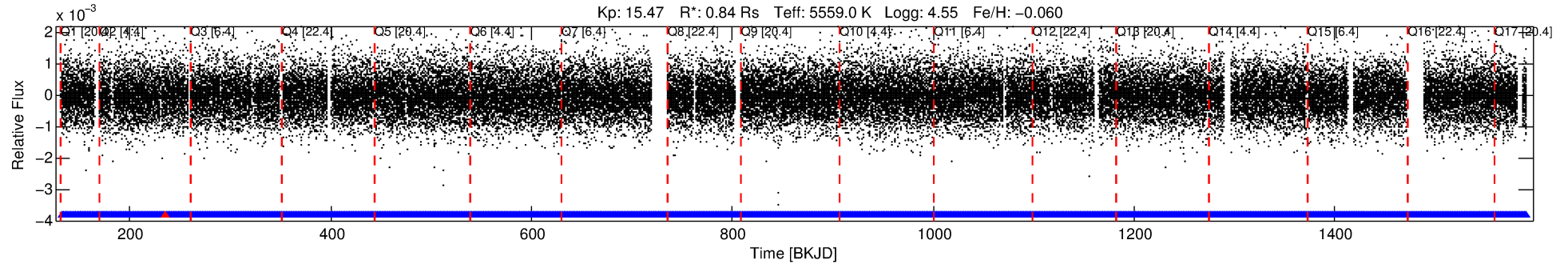
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471566-01	5471566	005471619-pri	5471619	1:1	109.3	28	2	12.37	15.47	5493.80	Direct-PRF	0	0.70	0.97

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5471566 Candidate: 1 of 2 Period: 0.963 d
KOI: K04863.01 Corr: 0.911

Kp: 15.47 R*: 0.84 Rs Teff: 5559.0 K Logg: 4.55 Fe/H: -0.060



DV Fit Results:

Period = 0.96283 [0.00001] d
Epoch = 132.1851 [0.0034] BKJD
Rp/R* = 0.0097 [0.0070]
a/R* = 1.57 [3.03]
b = 0.89 [0.78]
Seff = 1747.08 [585.65]
Teq = 1649 [138] K
Rp = 0.89 [0.68] Re
a = 0.0185 [0.0039] AU
Ag = 11.64 [17.22] [0.62σ]
Teffp = 4707 [1710] K [1.78σ]

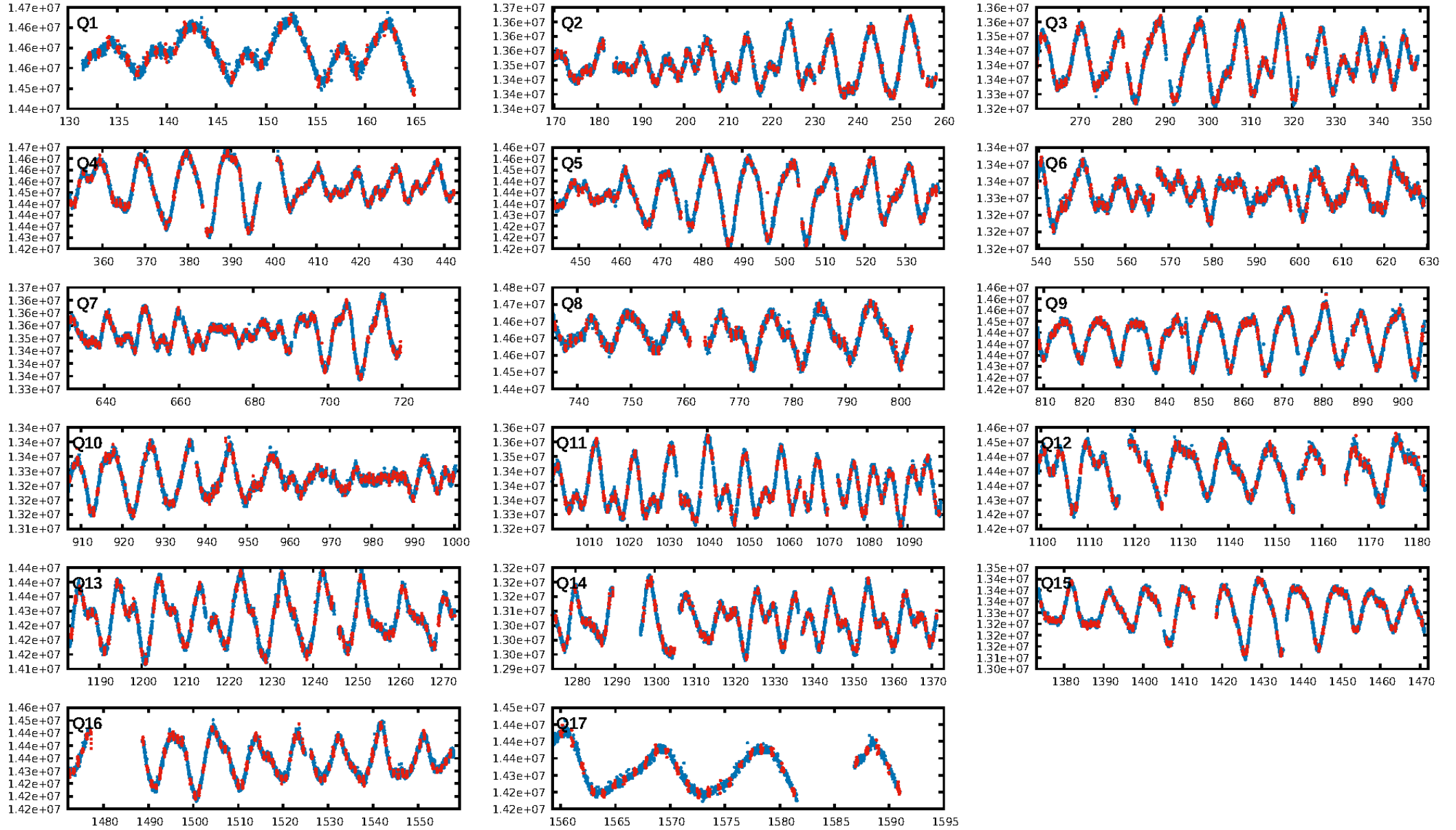
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1320.24σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.92e-19
RollingBand-fgt: 1.00 [1335/1336]
GhostDiagnostic-chr: 0.05227
Centroid-sig: 4.1%
Centroid-so: 1.969 arcsec [1.54σ]
OotOffset-rm: 5.453 arcsec [8.13σ]
KicOffset-rm: 5.441 arcsec [8.38σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 1.00 [17/17]

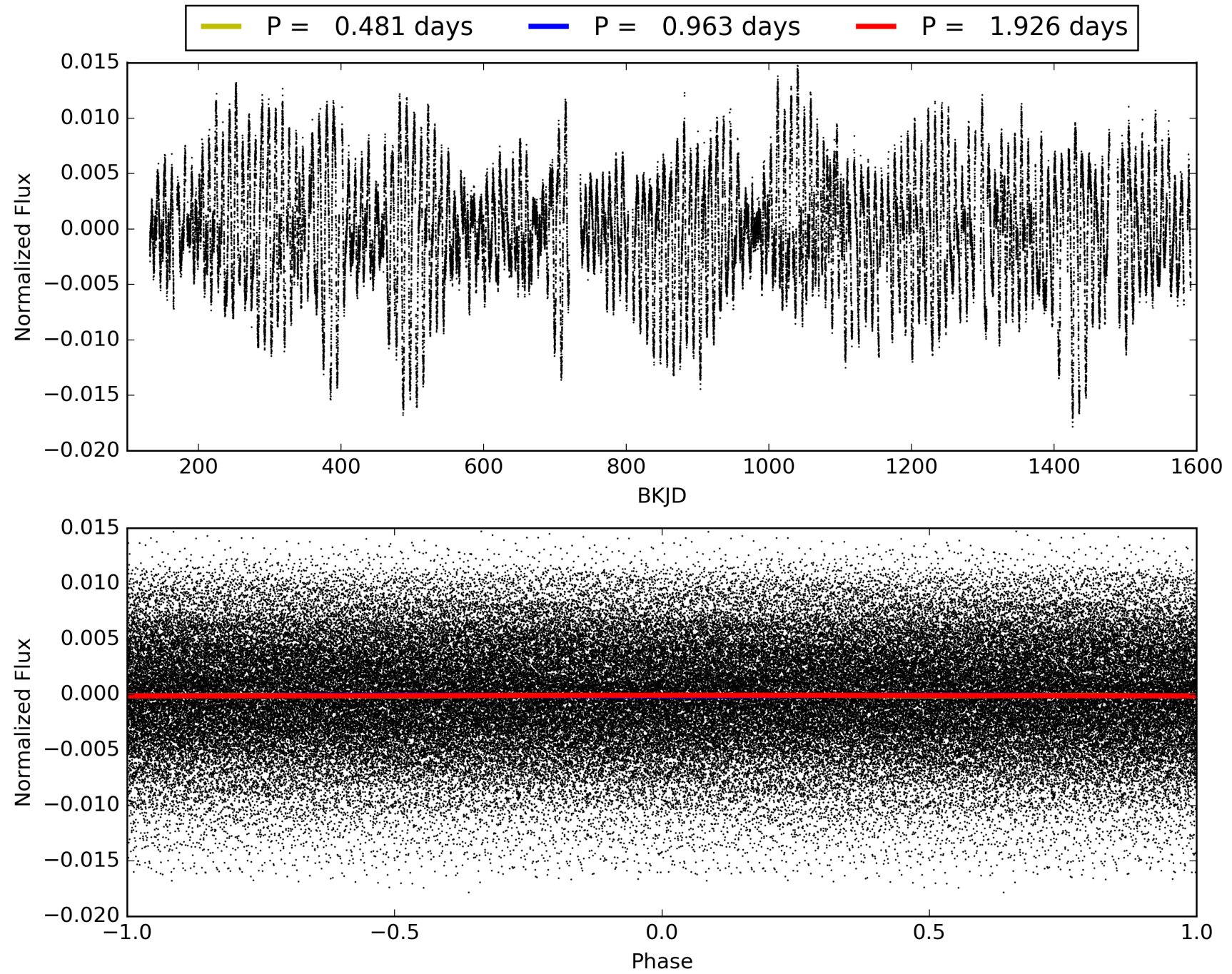
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:17:53 Z

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

TCE 005471566-01, PDC Light Curves

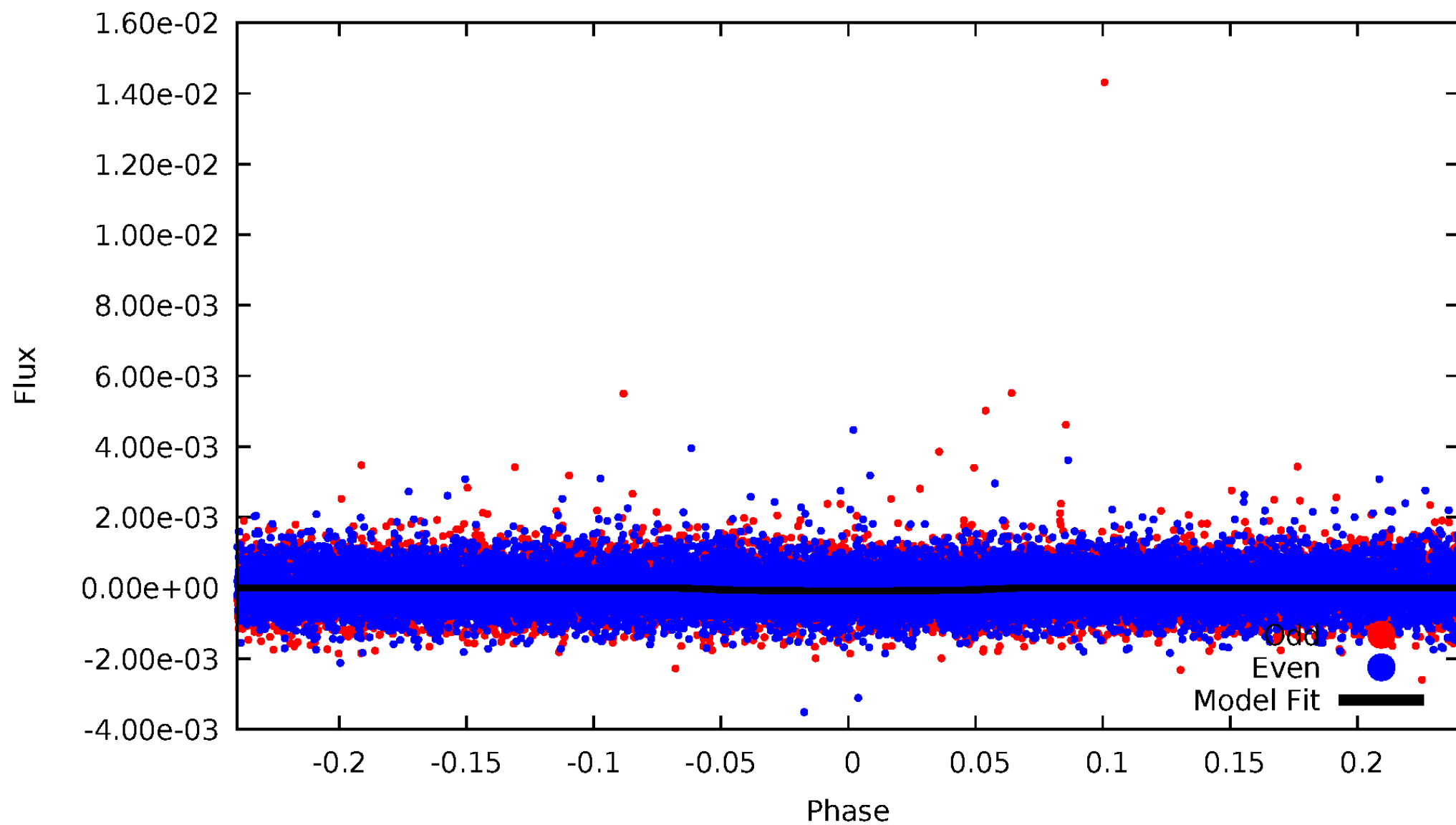


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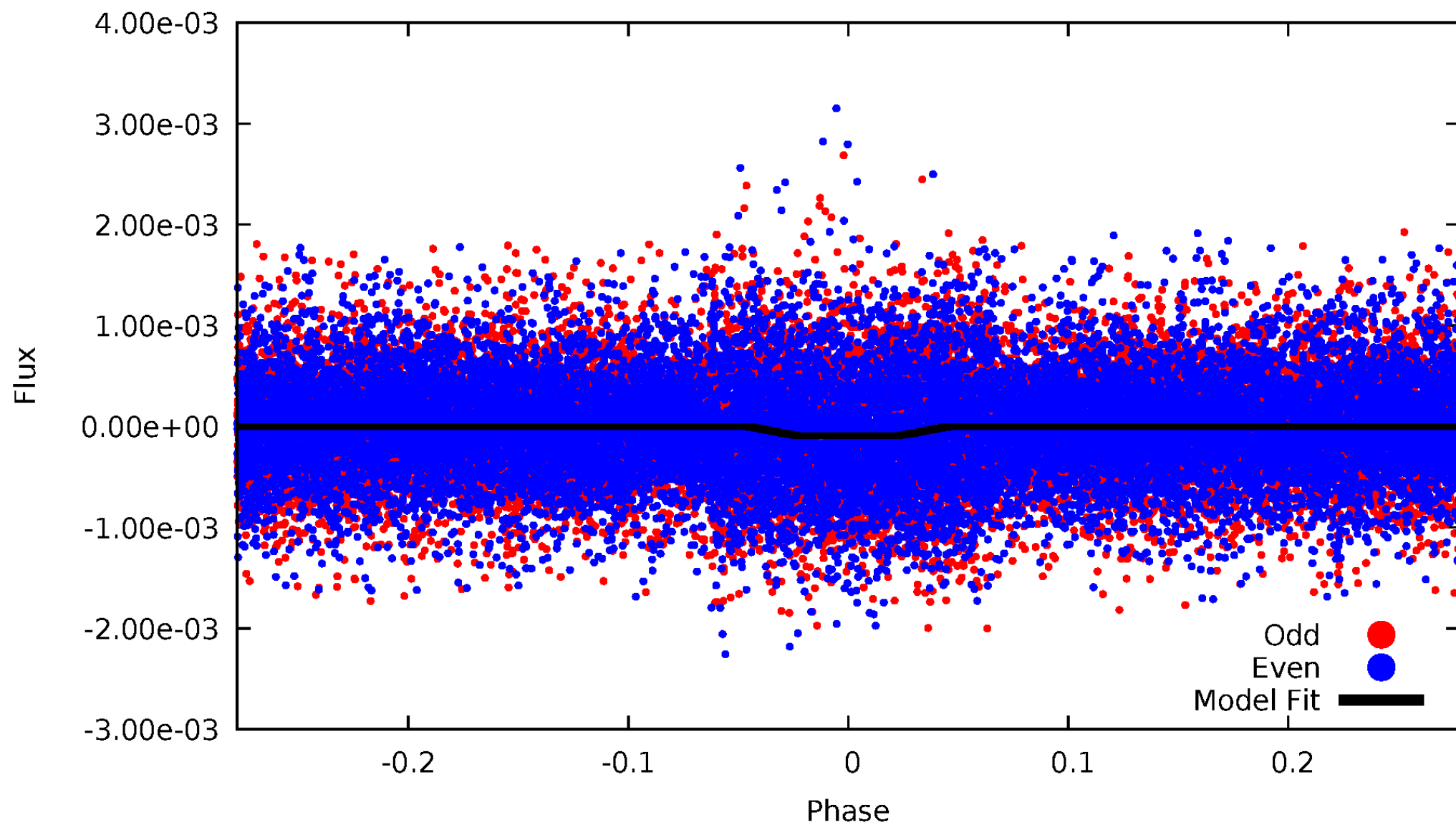
DV Odd/Even

TCE 005471566-01



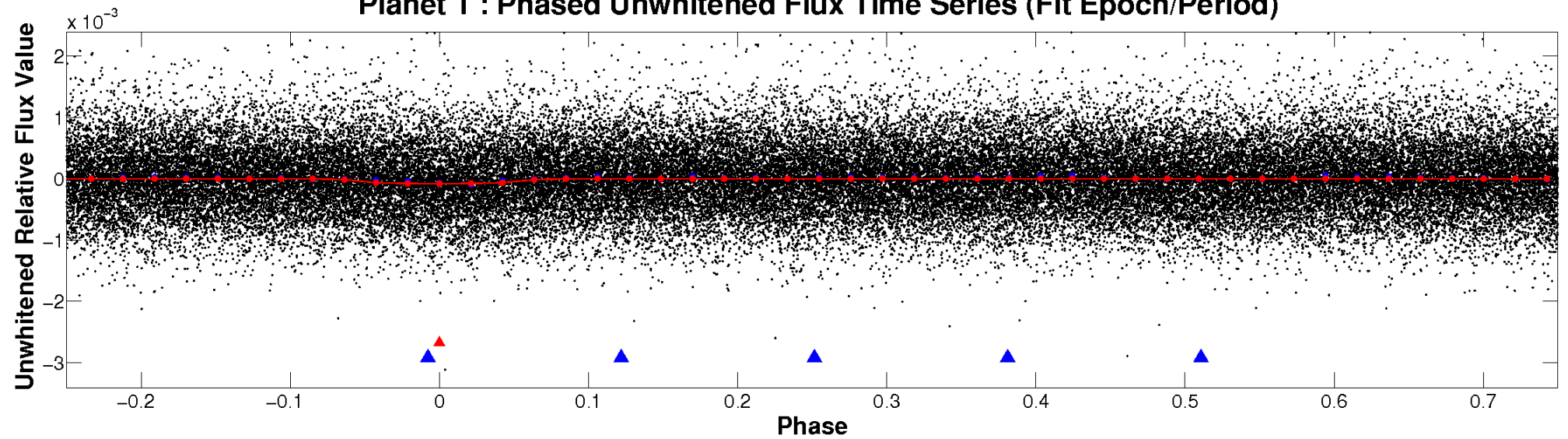
ALT Odd/Even

TCE 005471566-01

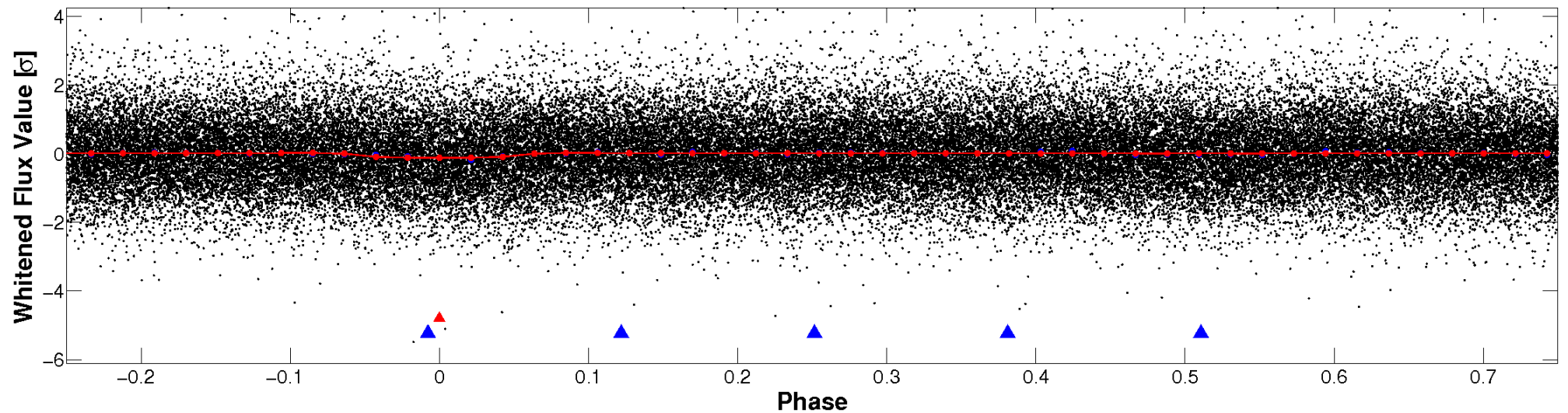


Non-Whitened Vs. Whitened Light Curve

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

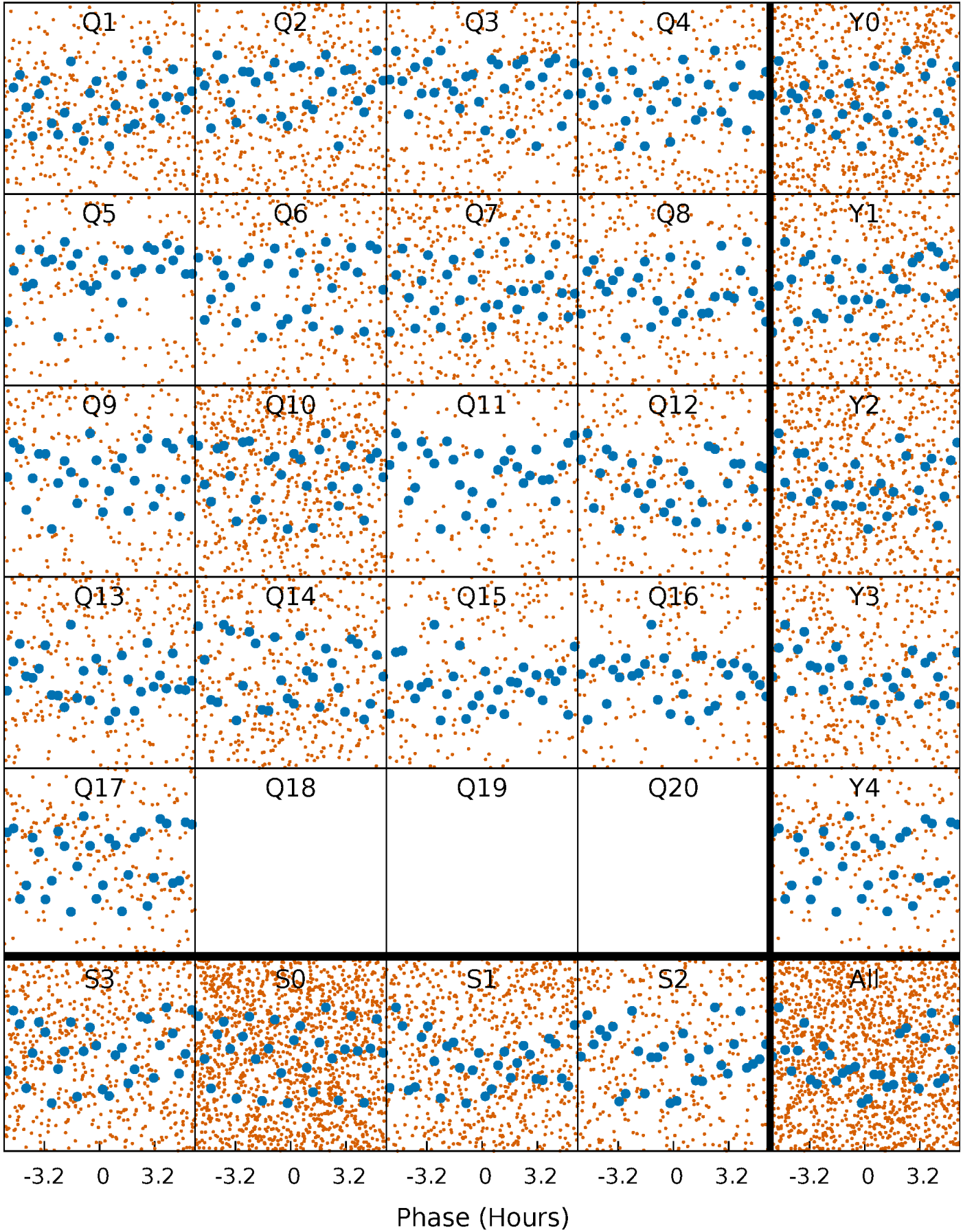


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



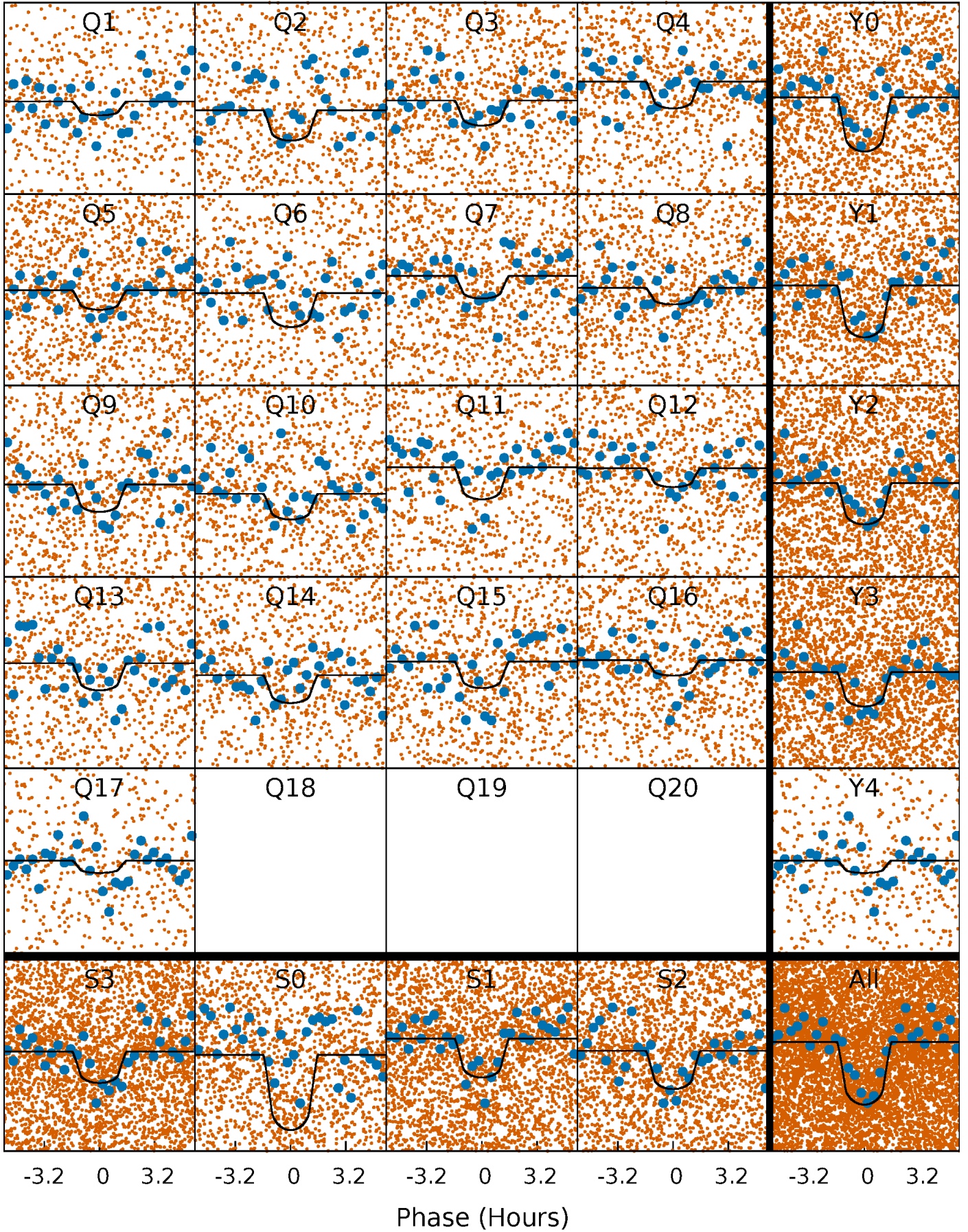
PDC Quarter-Phased Transit Curves

TCE 005471566-01 P= 0.962828 Days $T_0=132.185116$ (BKJD)



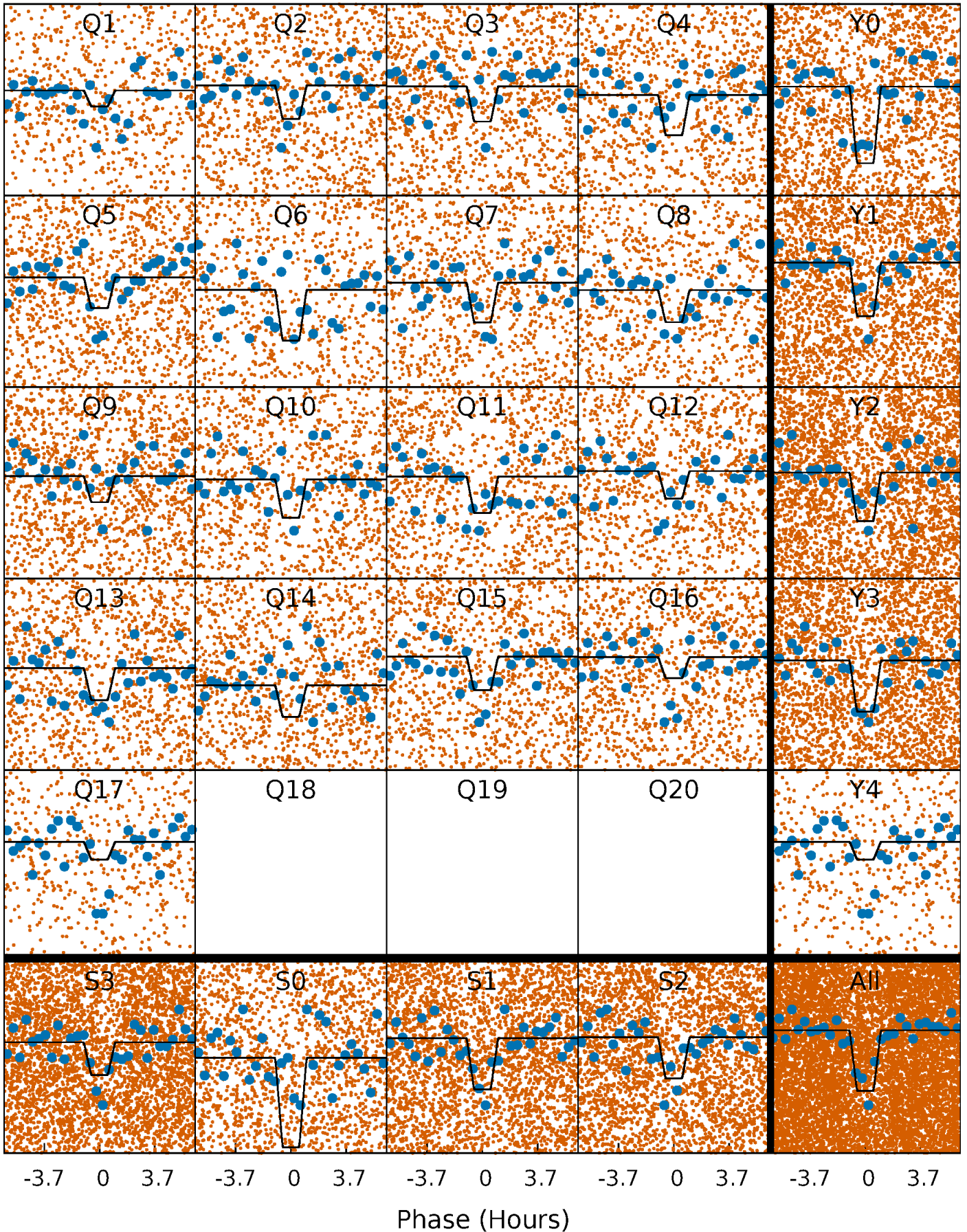
DV Quarter-Phased Transit Curves

TCE 005471566-01 P= 0.962828 Days $T_0=132.185116$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

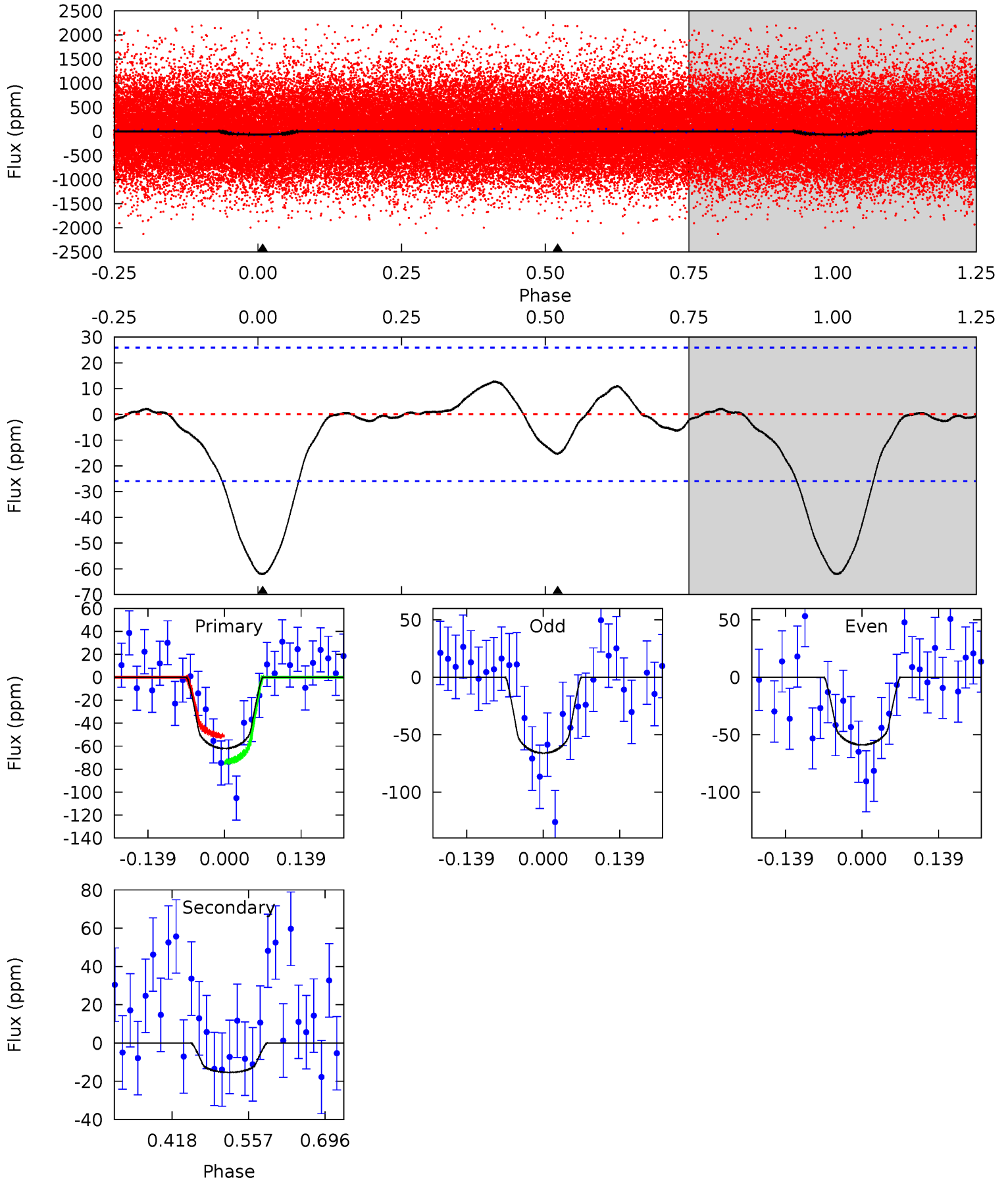
TCE 005471566-01 P= 0.962842 Days $T_0=132.184065$ (BKJD)



DV Model-Shift Uniqueness Test

005471566-01, P = 0.962828 Days, E = 131.222288 Days

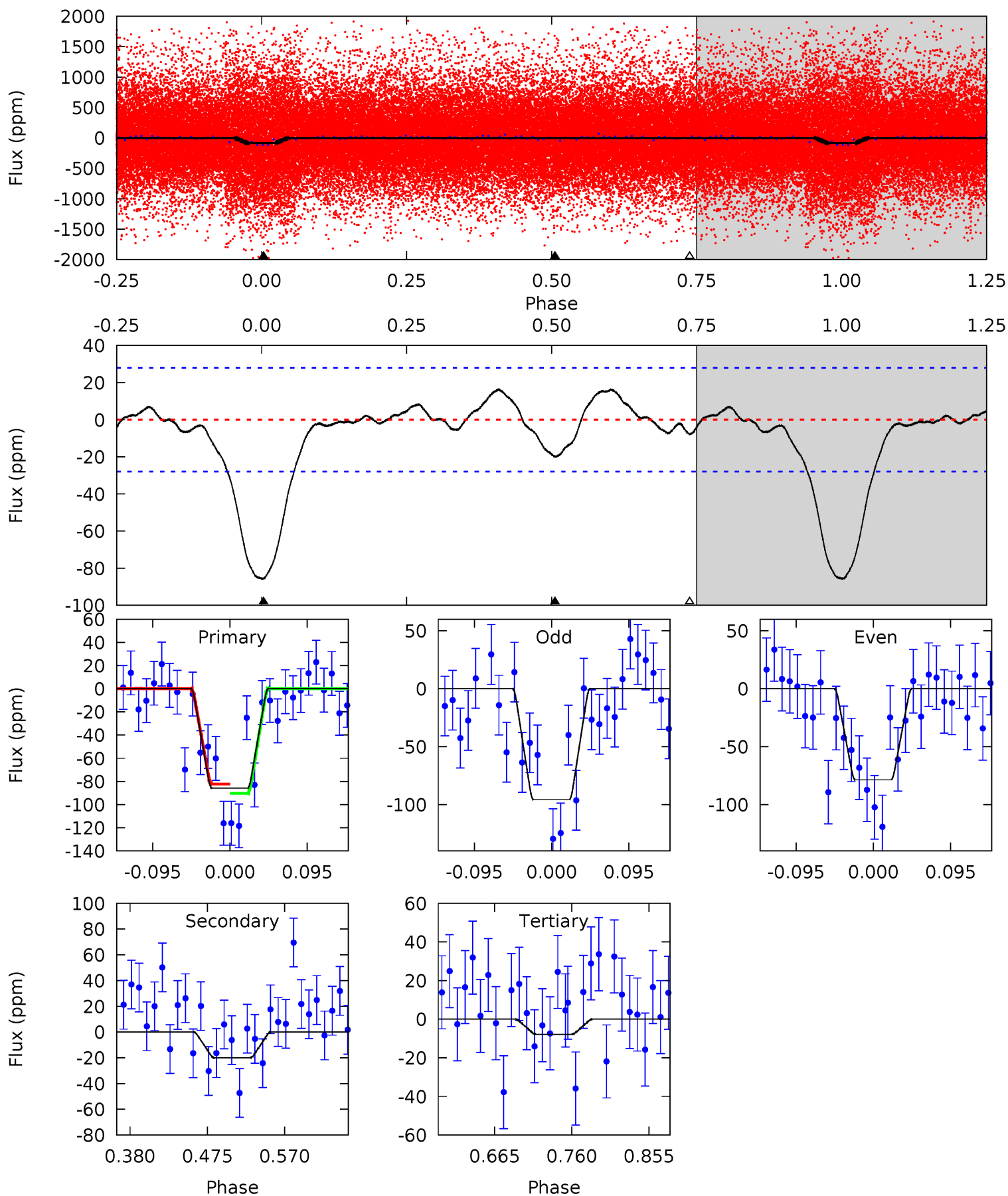
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	2.66	0	0	4.49	1.48	0.52	10.8	10.8	2.66	2.66	0.62	0.99	0.17	1.96



Alt Model-Shift Uniqueness Test

005471566-01, P = 0.962842 Days, E = 131.221223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	3.27	1.28	0	4.58	1.67	0.89	12.8	14.1	1.99	3.27	1.41	0.79	0.16	0.65



Stellar Parameters For KIC 005471566

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5559^{+166}_{-182}	$4.554^{+0.042}_{-0.168}$	$-0.060^{+0.300}_{-0.300}$	$0.838^{+0.213}_{-0.071}$	$0.917^{+0.092}_{-0.102}$	$2.196^{+0.386}_{-1.002}$
	+3%/-3%	+1%/-4%	+500%/-500%	+25%/-8%	+10%/-11%	+18%/-46%
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 005471566-01 / KOI 4863.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-15 ± 6	$1.00^{+0.66}_{-0.59}$	2347^{+138}_{-103}	3637^{+1667}_{-667}	$2.622^{+14.011}_{-1.705}$
Alt.	-20 ± 6	$0.94^{+0.62}_{-0.51}$	2352^{+148}_{-106}	3971^{+1561}_{-765}	$4.071^{+15.858}_{-2.724}$

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 $A_{obs} \gg 1.0$

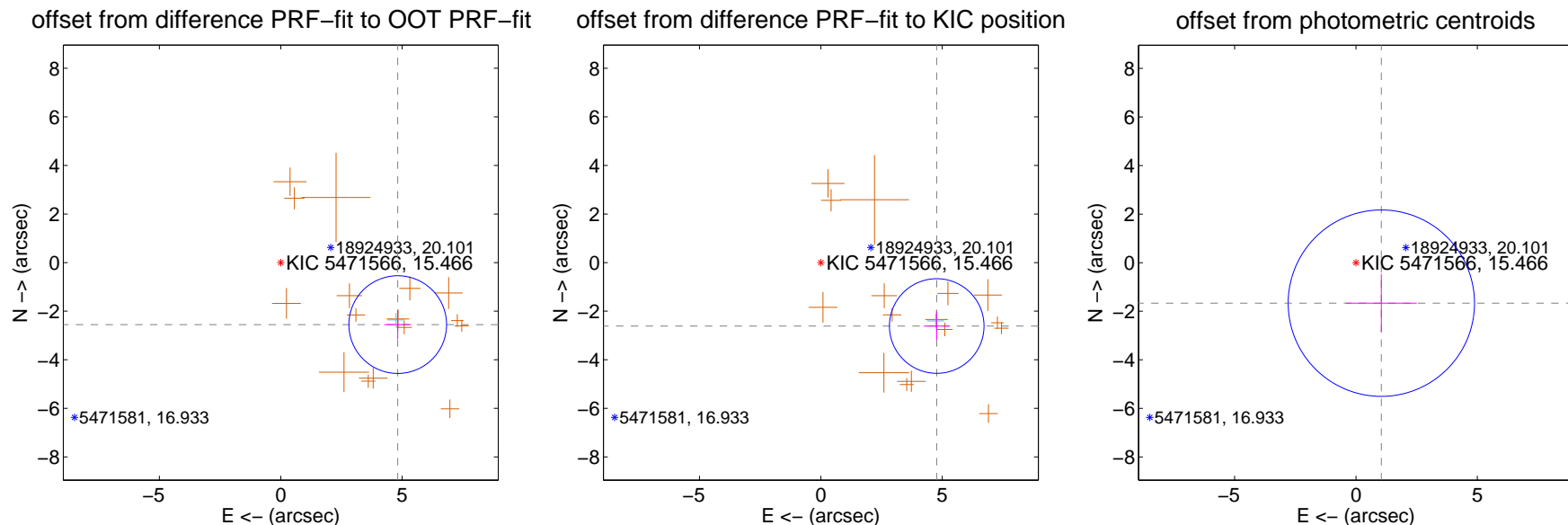
DV Centroid Data

Supplemental centroid analysis for 005471566-01. Kepler magnitude: 15.47. Transit SNR 9.05

There are 1 quarters with good PRF difference image offsets

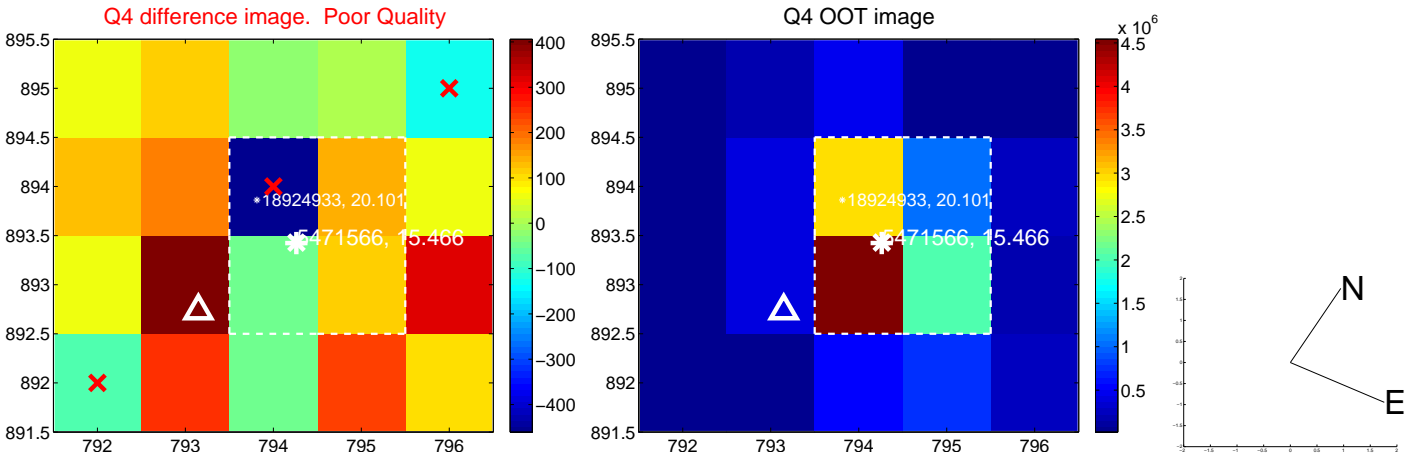
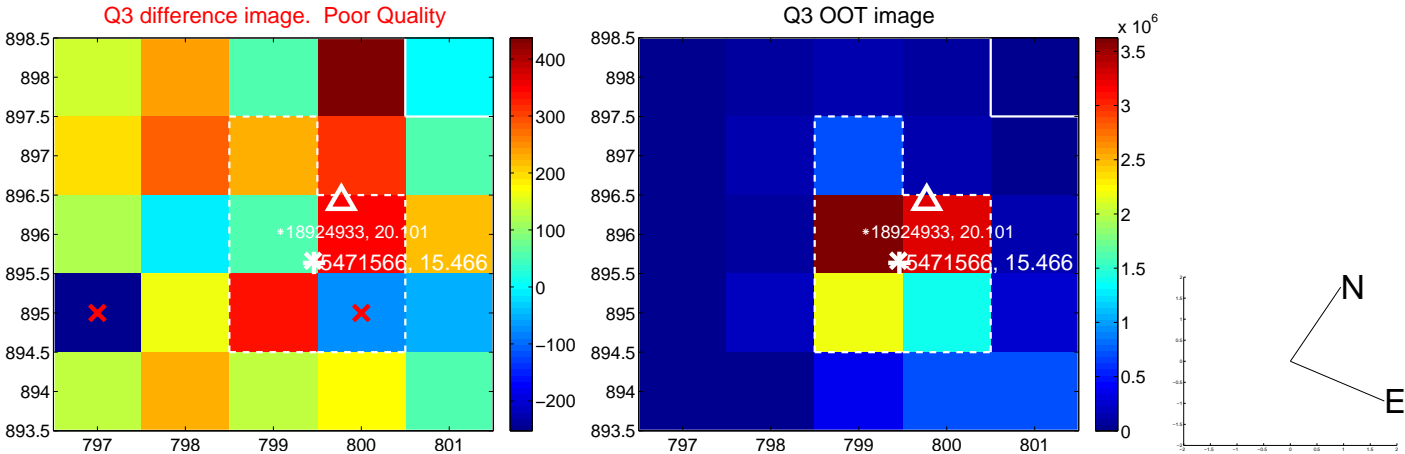
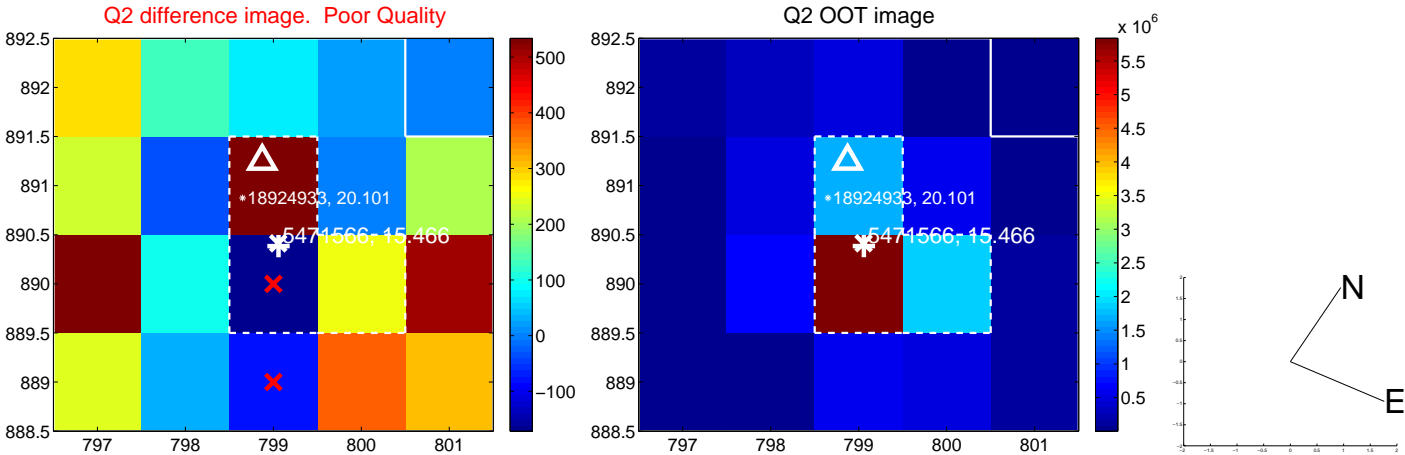
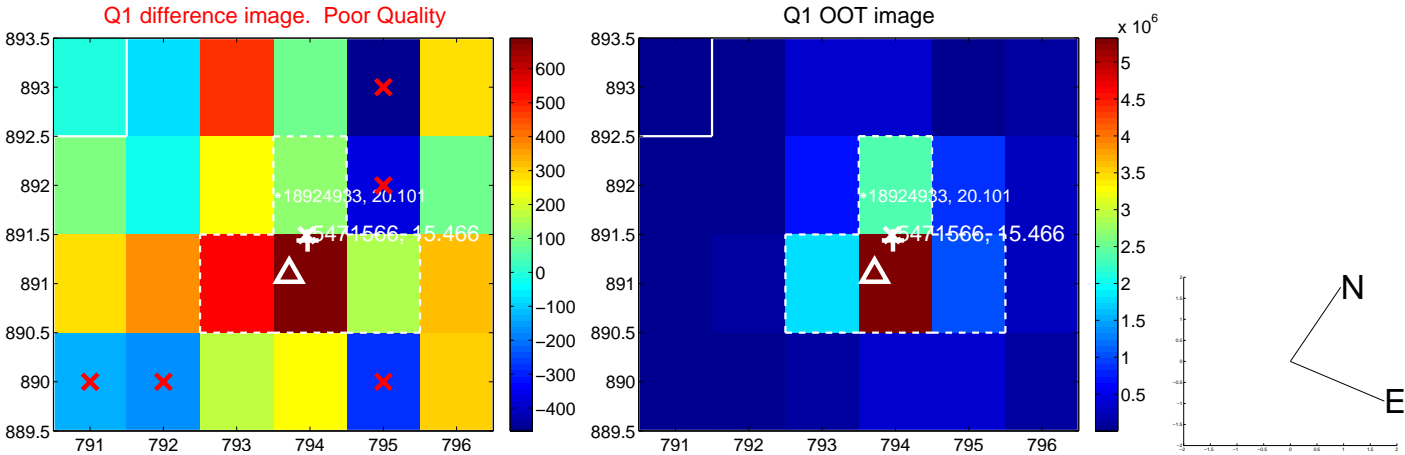
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.453 ± 0.671	8.13	-4.819 ± 0.557	-2.553 ± 0.591
PRF-fit source offset from KIC position	5.441 ± 0.649	8.38	-4.773 ± 0.534	-2.612 ± 0.583
photometric centroid source offset	1.97 ± 1.28	1.54	-1.05 ± 1.46	-1.67 ± 1.20

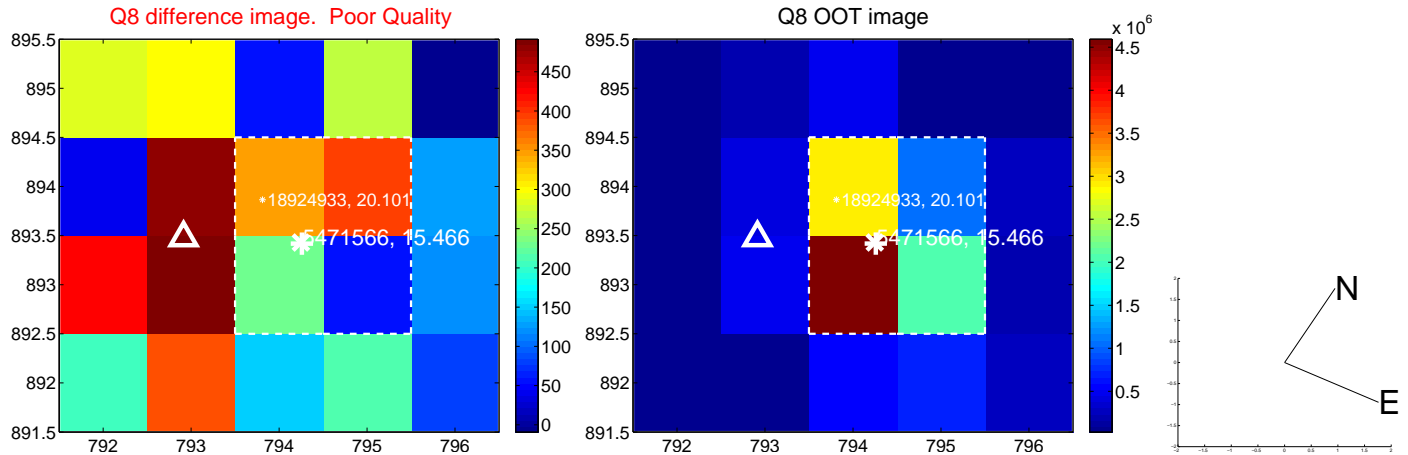
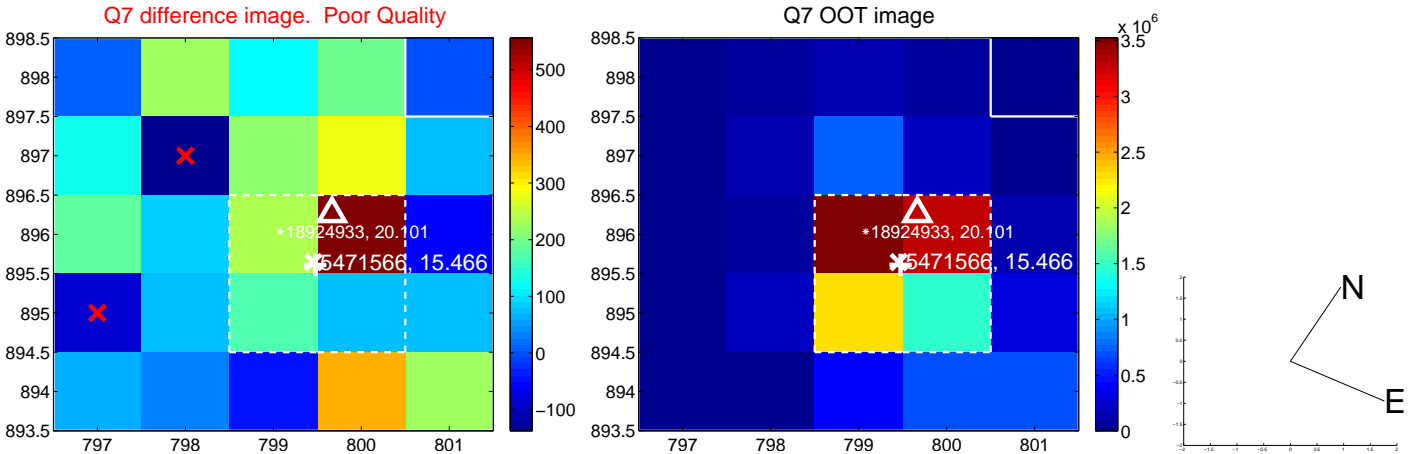
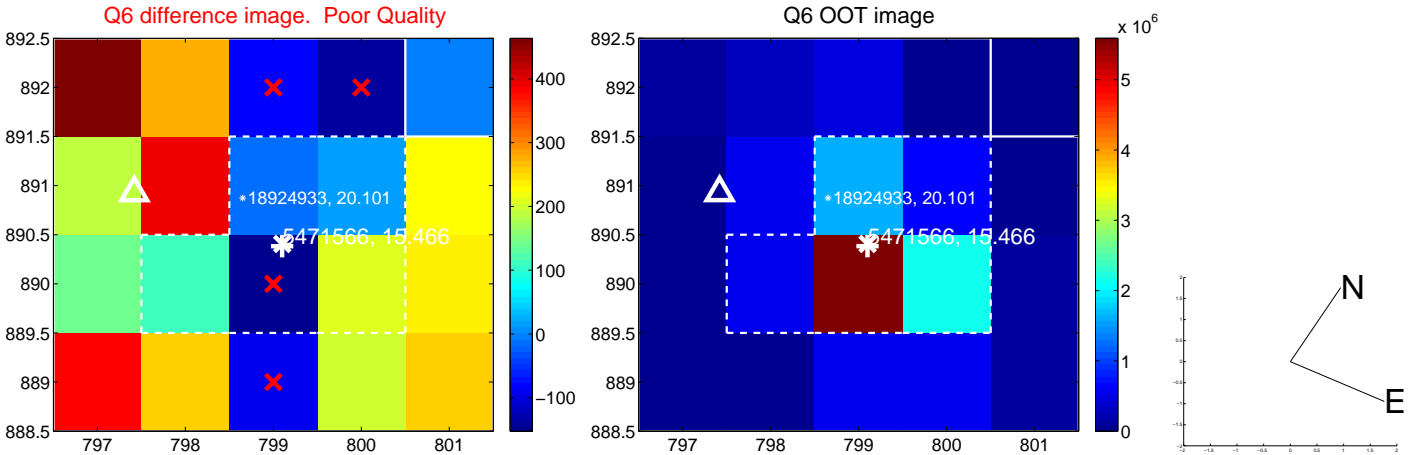
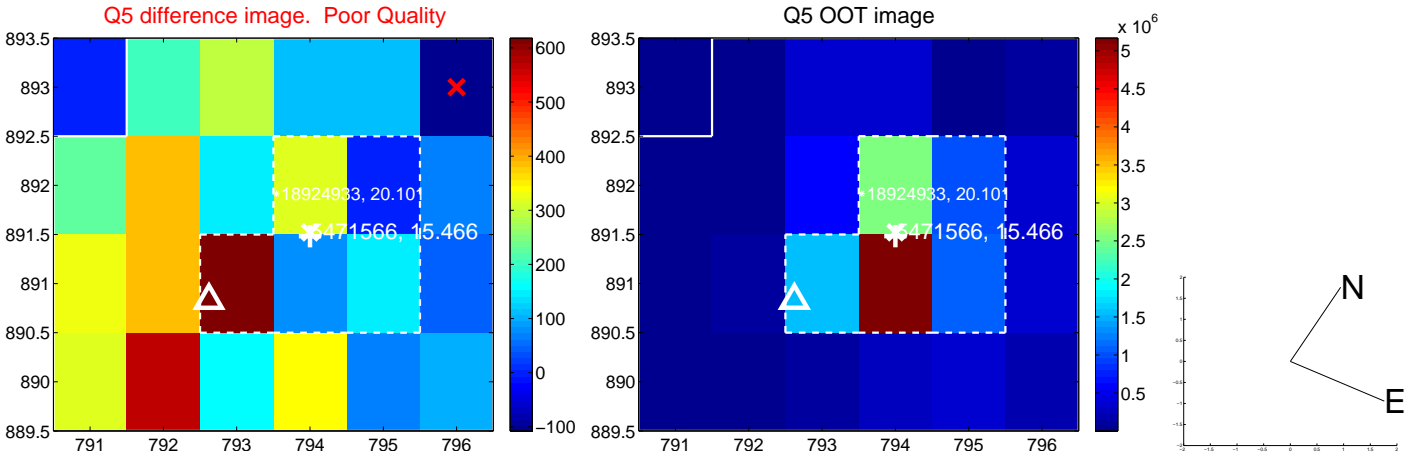


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

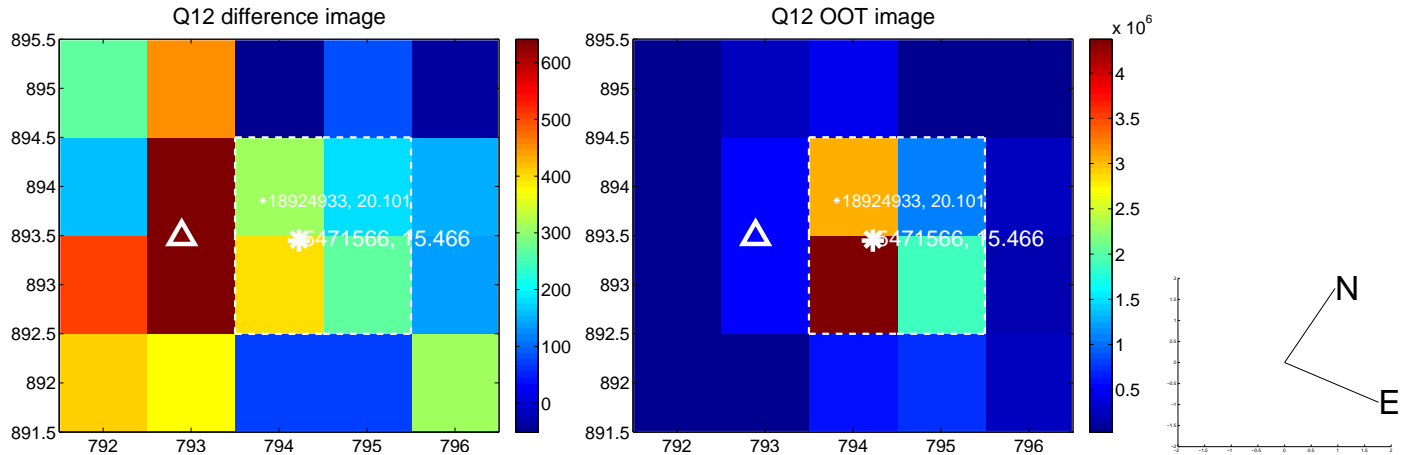
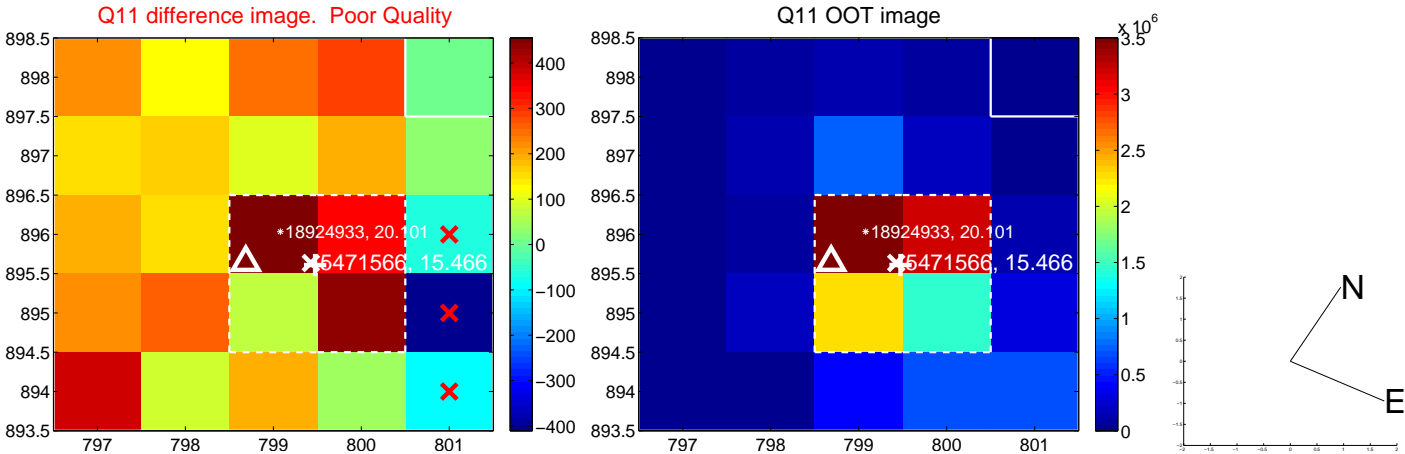
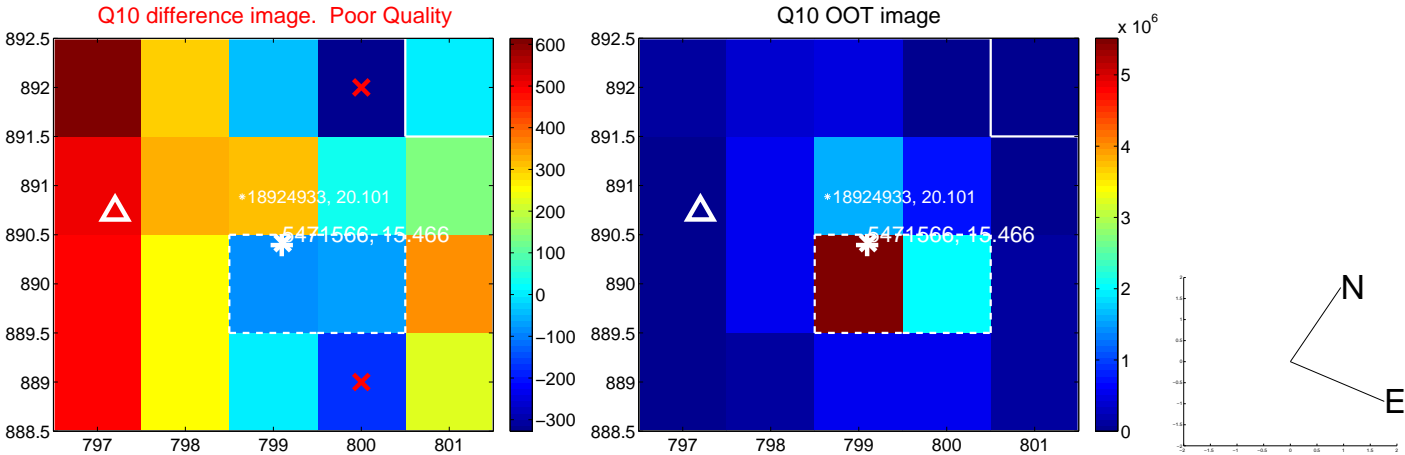
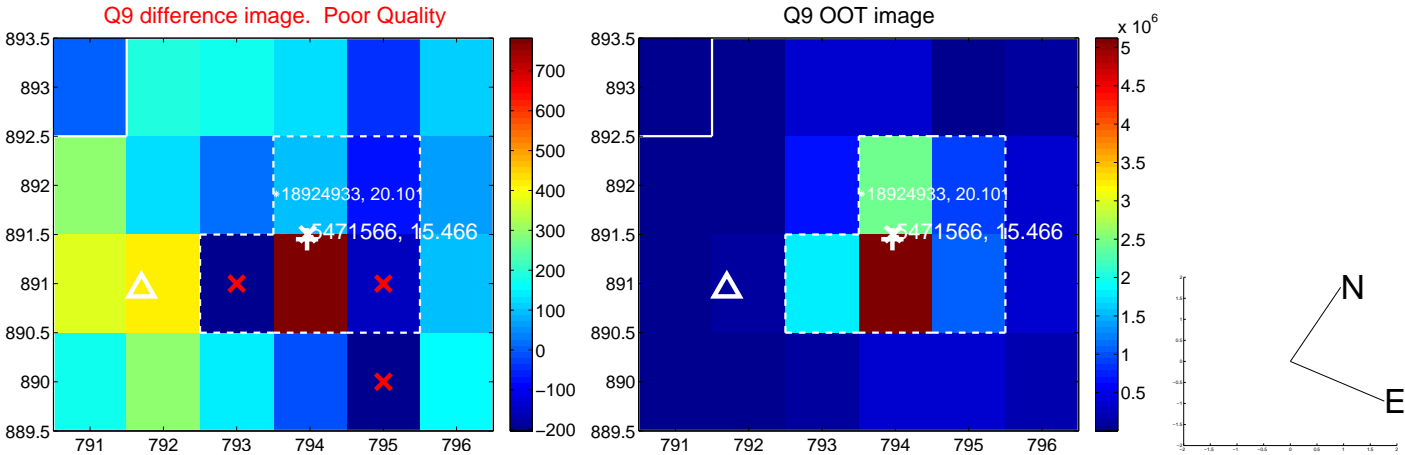
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



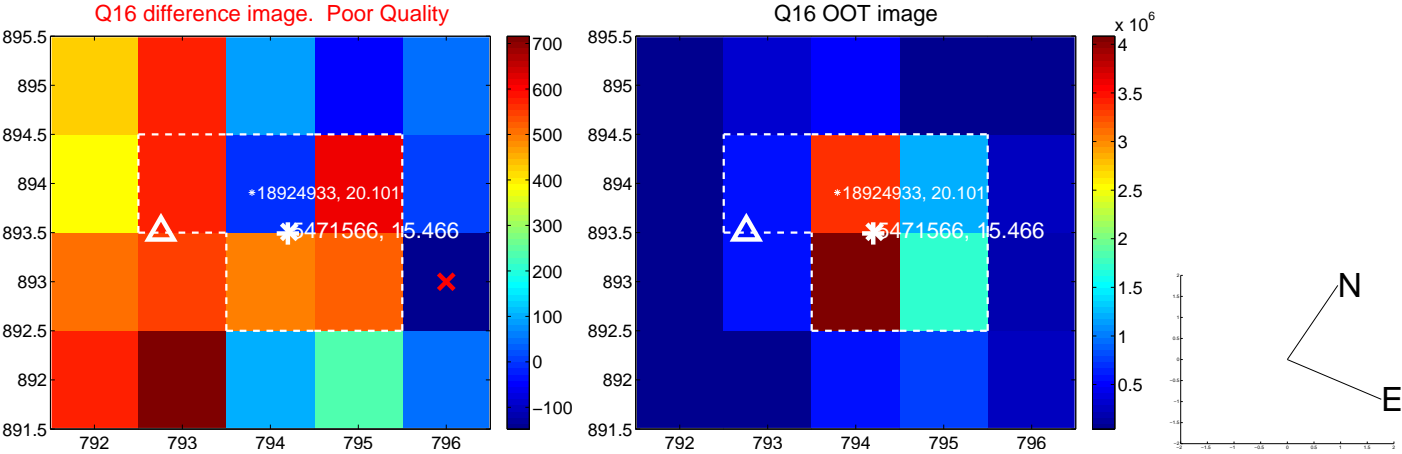
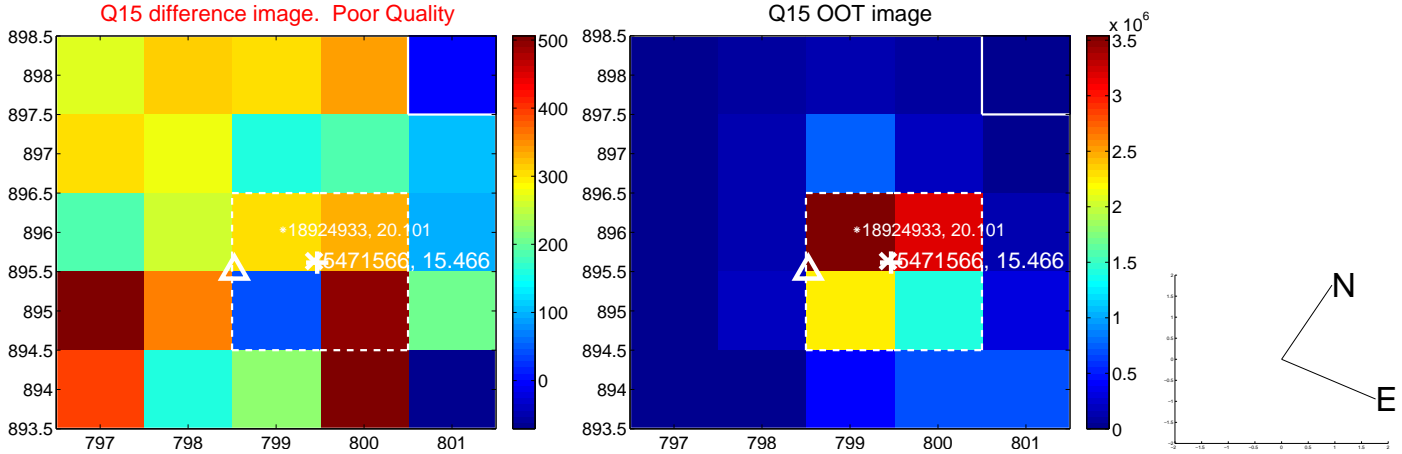
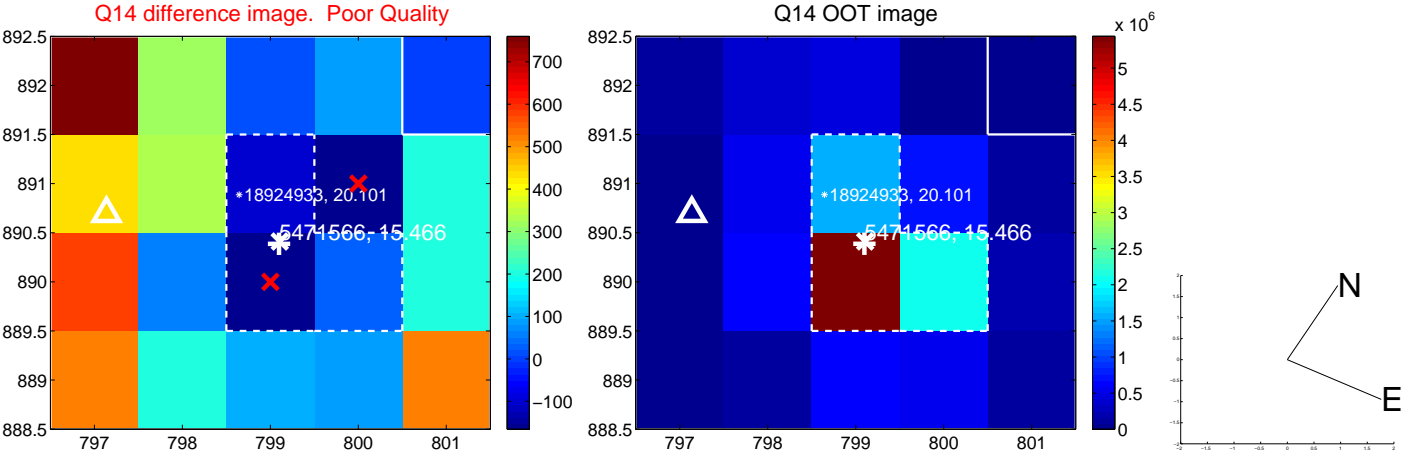
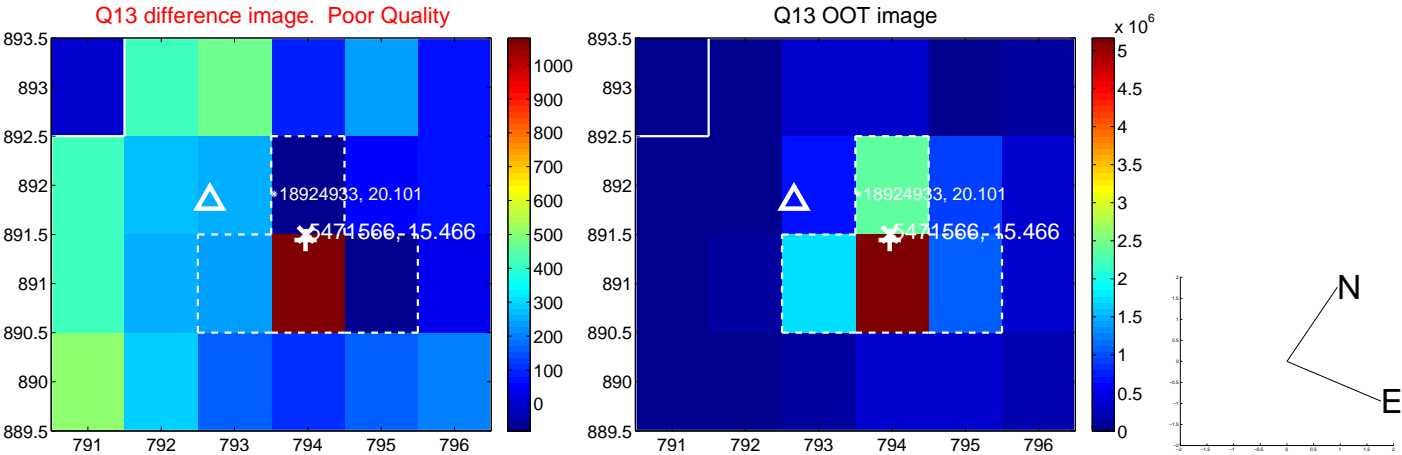
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



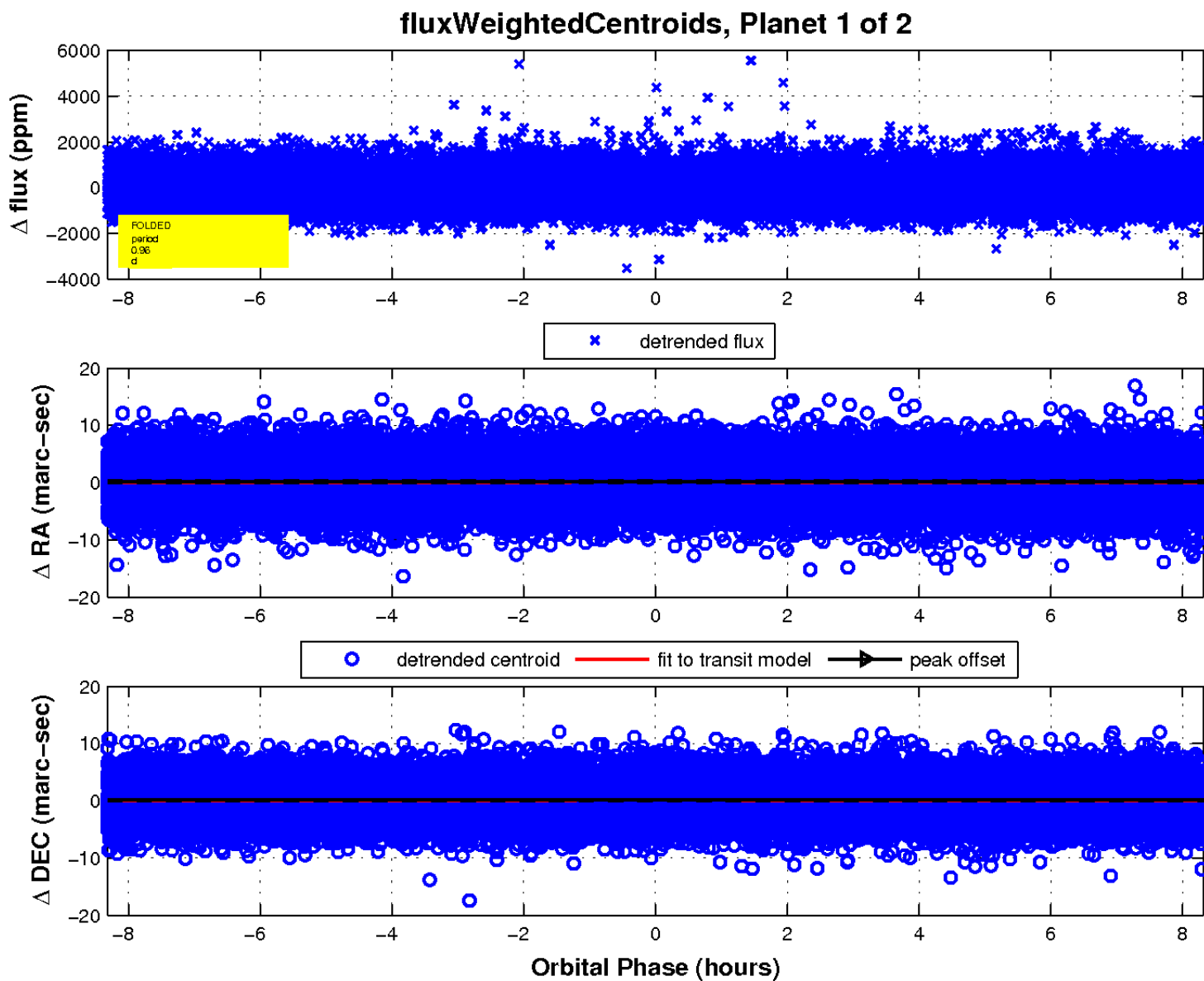
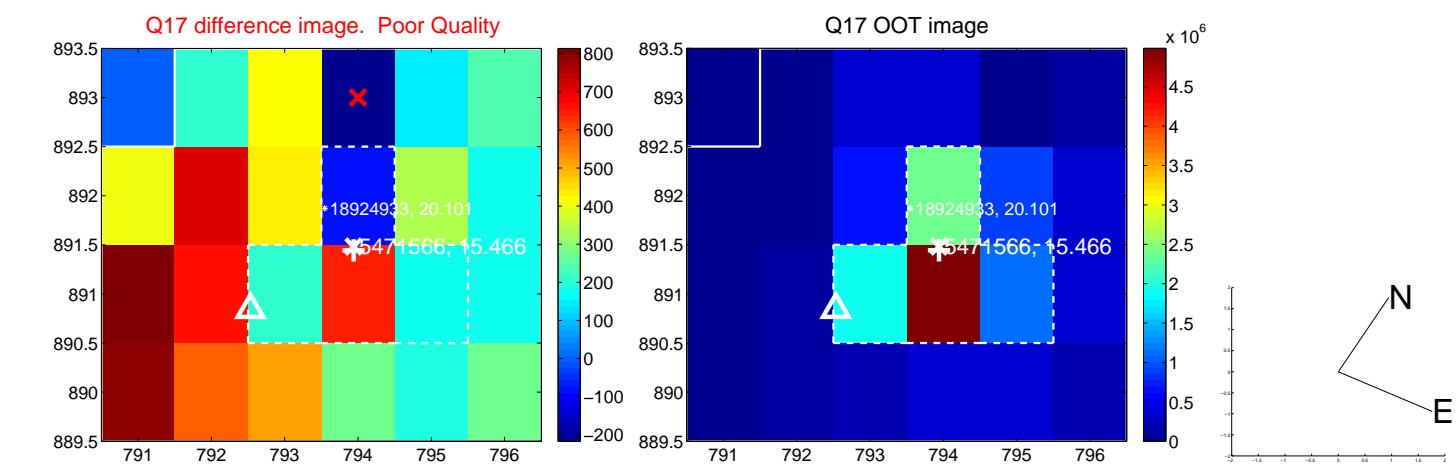
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



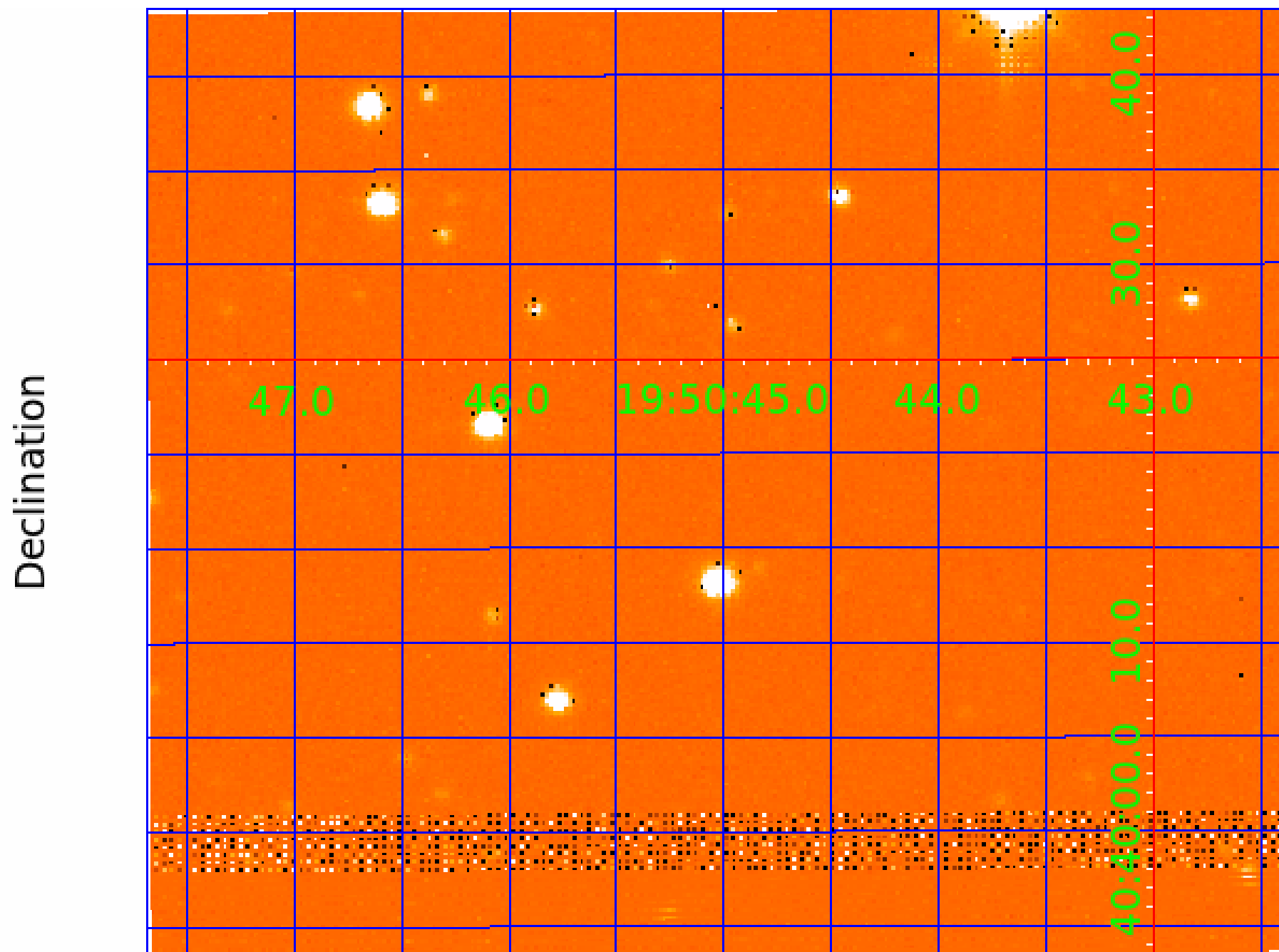
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005471566

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})
005471566-01	OBS	4863.01	0.962828	132.185116	80.2	2.774	8.8	9.1	0.84	5559	0.89	1747.08
005471566-02	OBS	No	316.645721	229.922488	544.0	5.024	11.1	3.4	0.84	5559	2.22	0.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471566-01	OBS	FP	0.00	0	0	1	1	CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471566-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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.

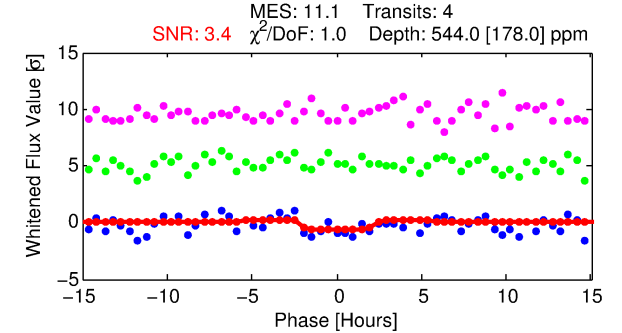
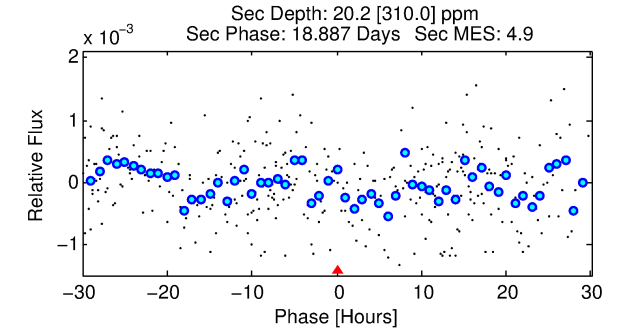
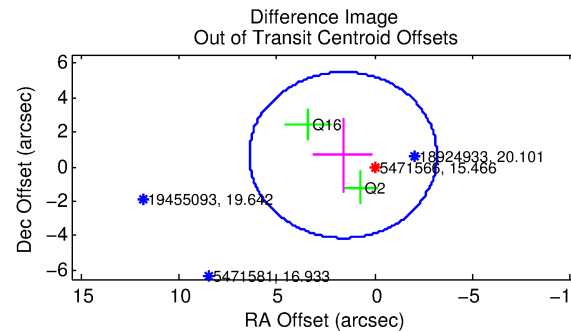
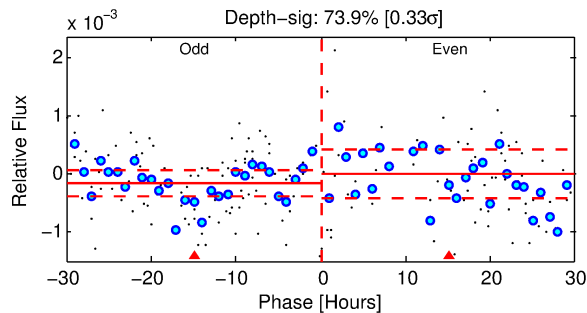
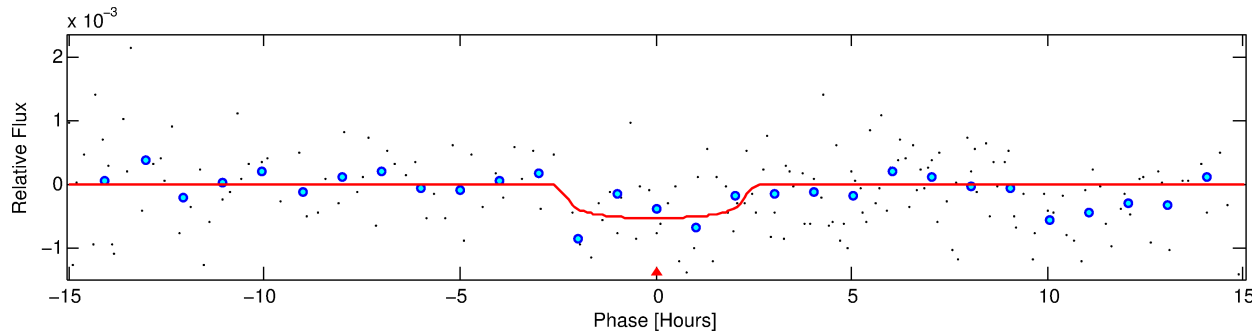
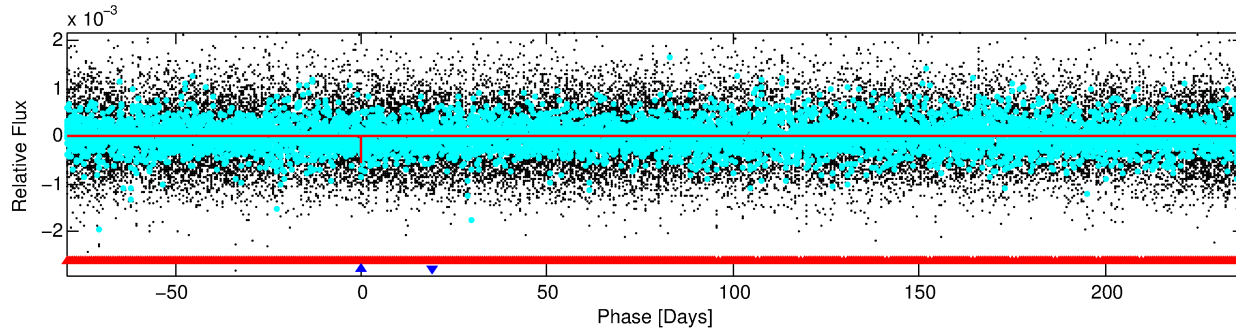
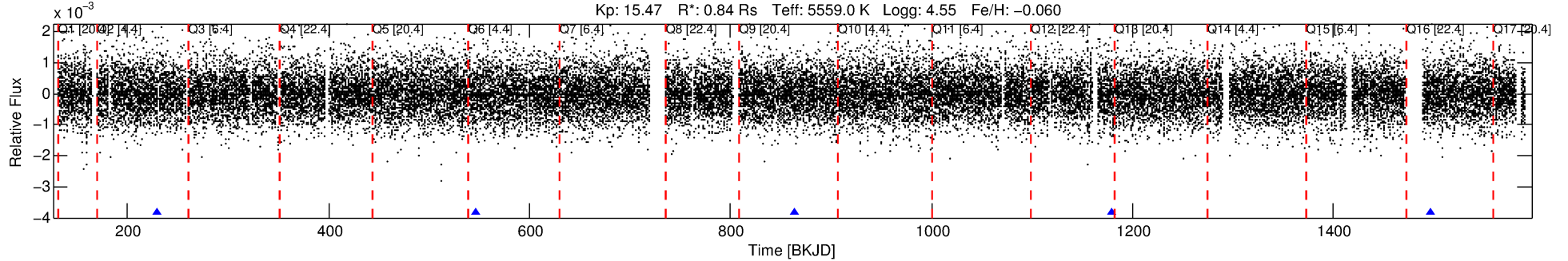
Ephemeris Match Information For 005471566-02

No Significant Match Found

DV One-Page Summary

KIC: 5471566 Candidate: 2 of 2 Period: 316.646 d
KOI: K04863 Corr: No Ephemeris Match

Kp: 15.47 R*: 0.84 Rs Teff: 5559.0 K Logg: 4.55 Fe/H: -0.060



DV Fit Results:

Period = 316.64572 [0.01501] d
Epoch = 229.9225 [0.0269] BKJD
Rp/R* = 0.0243 [0.0291]
a/R* = 284.61 [1450.26]
b = 0.84 [1.85]
Seff = 0.77 [0.26]
Teq = 239 [20] K
Rp = 2.22 [2.72] Re
a = 0.8836 [0.1881] AU
Ag = 1760.48 [27341.96] [0.06σ]
Teff = 2392 [9286] K [0.23σ]

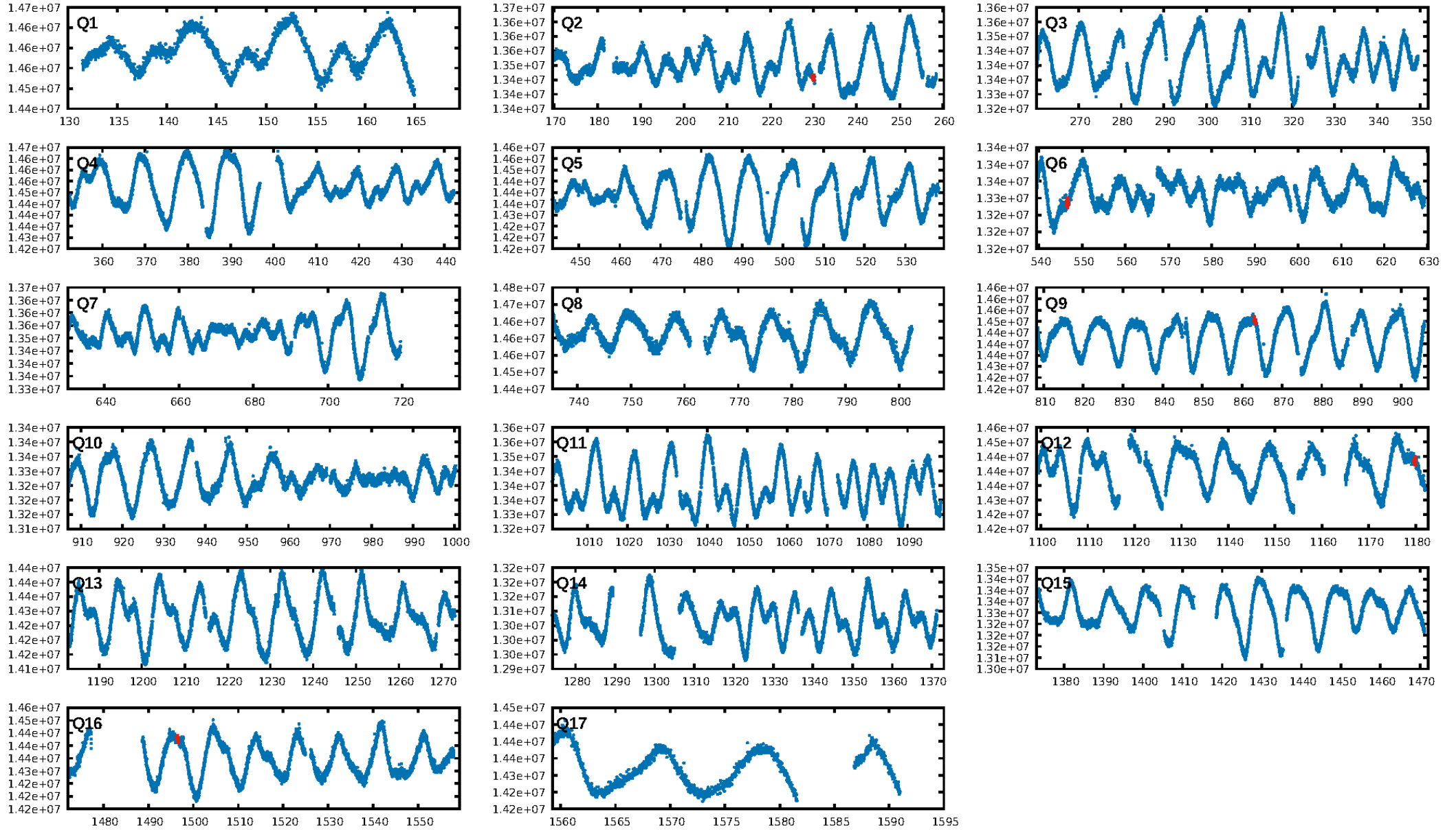
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1320.24σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 55.1%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 5.84e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.8614
Centroid-sig: 34.9%
Centroid-so: 2.520 arcsec [1.02σ]
OotOffset-rm: 1.751 arcsec [1.09σ]
KicOffset-rm: 1.775 arcsec [1.06σ]
OotOffset-st: 1/0/1/0 [2]
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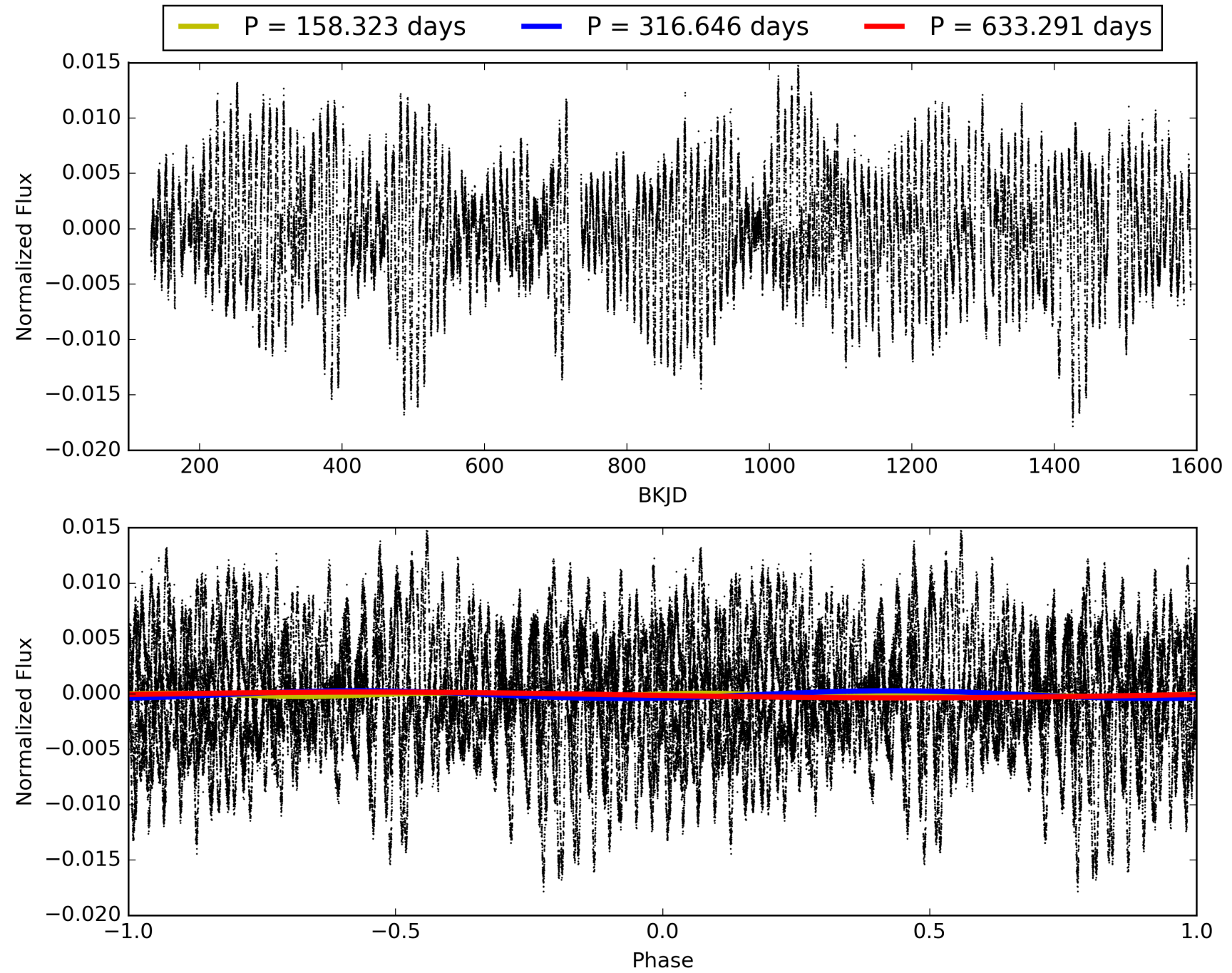
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471566-02, PDC Light Curves

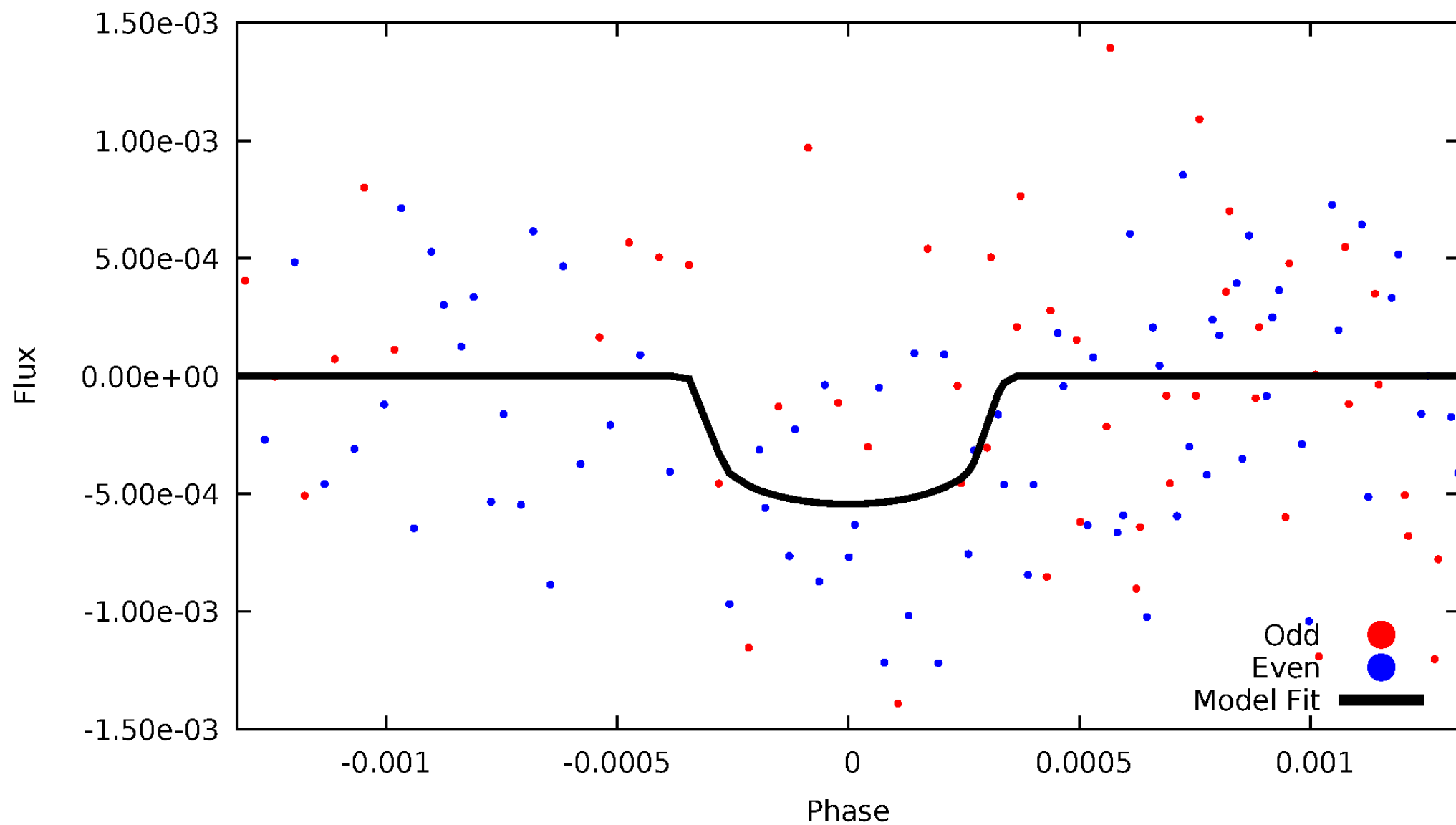


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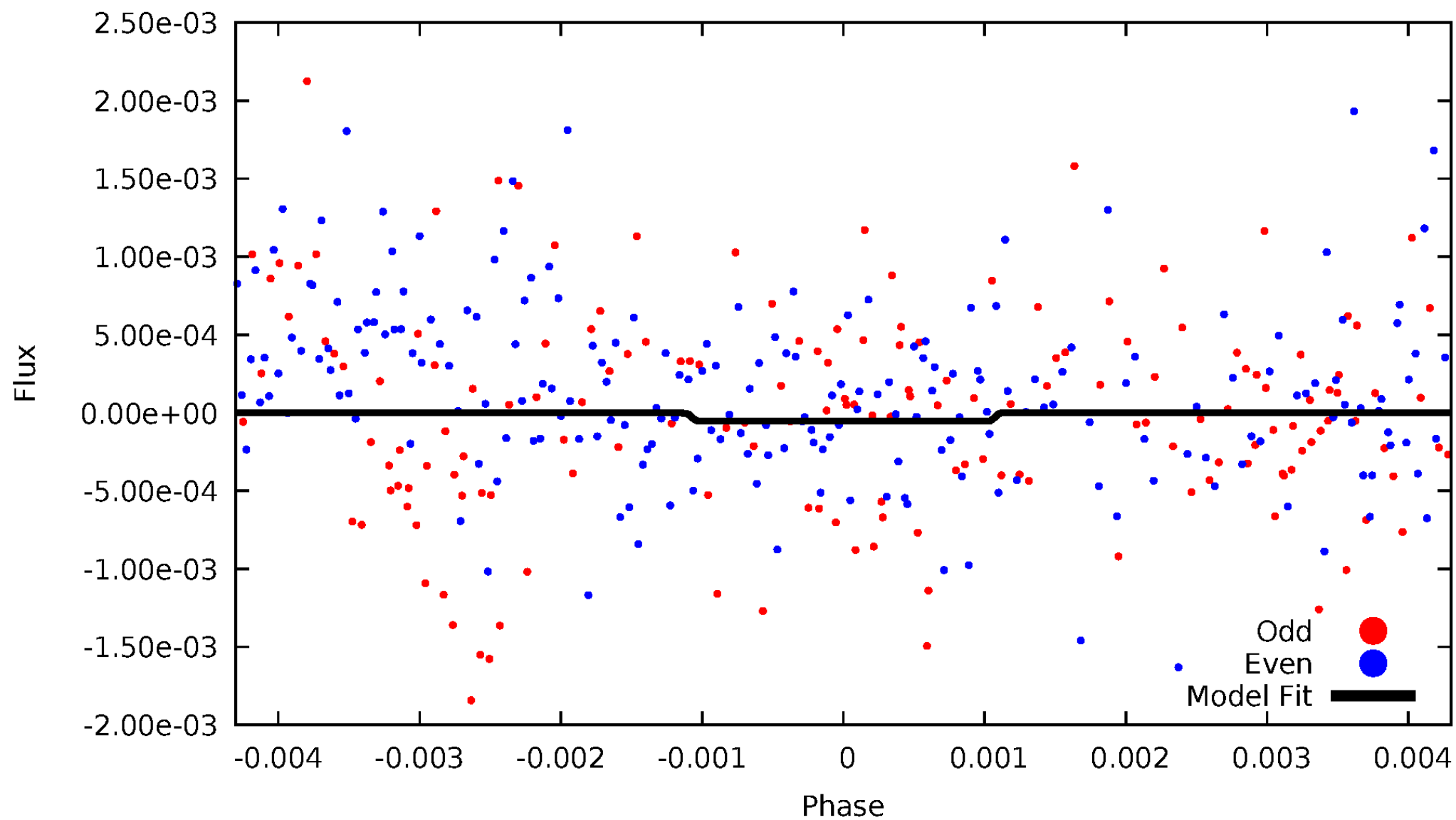
DV Odd/Even

TCE 005471566-02



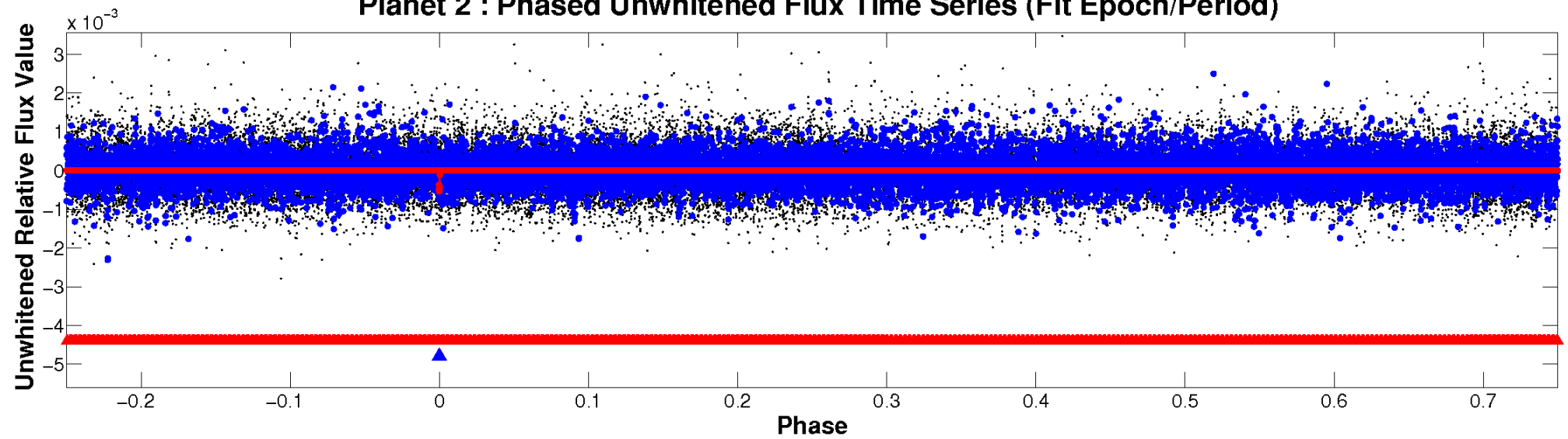
ALT Odd/Even

TCE 005471566-02

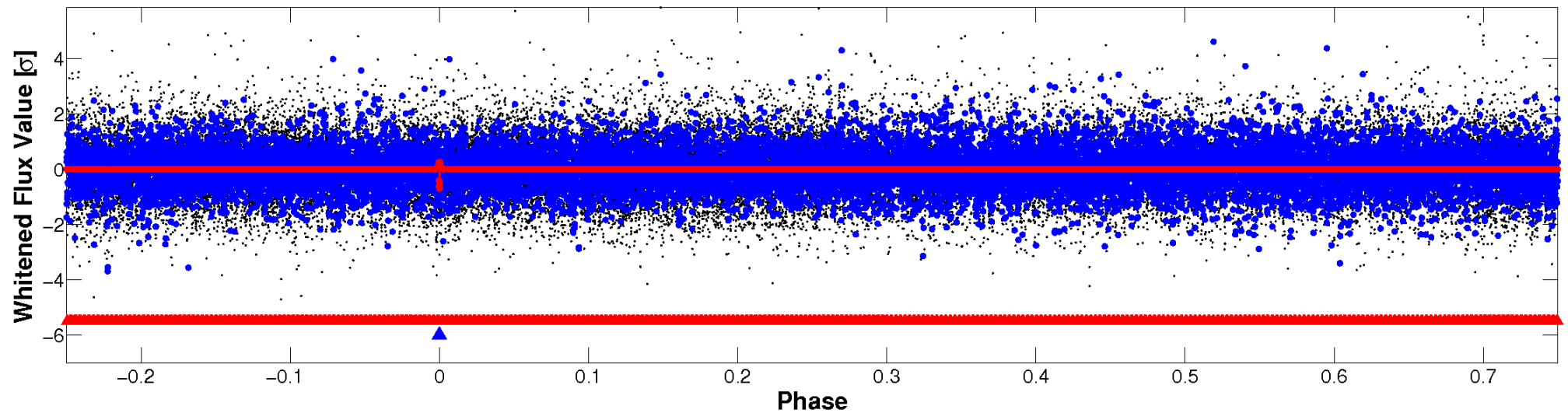


Non-Whitened Vs. Whitened Light Curve

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

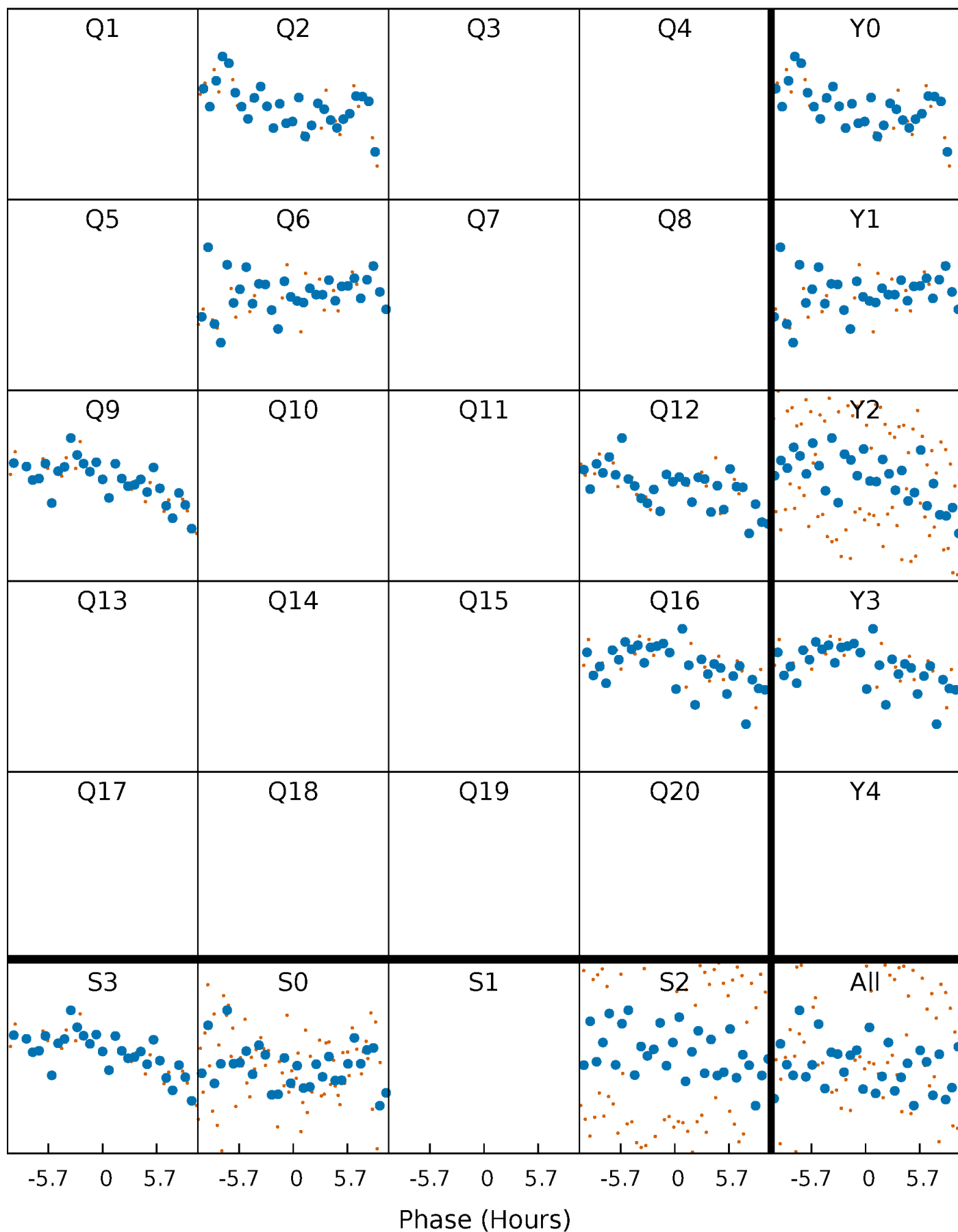


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



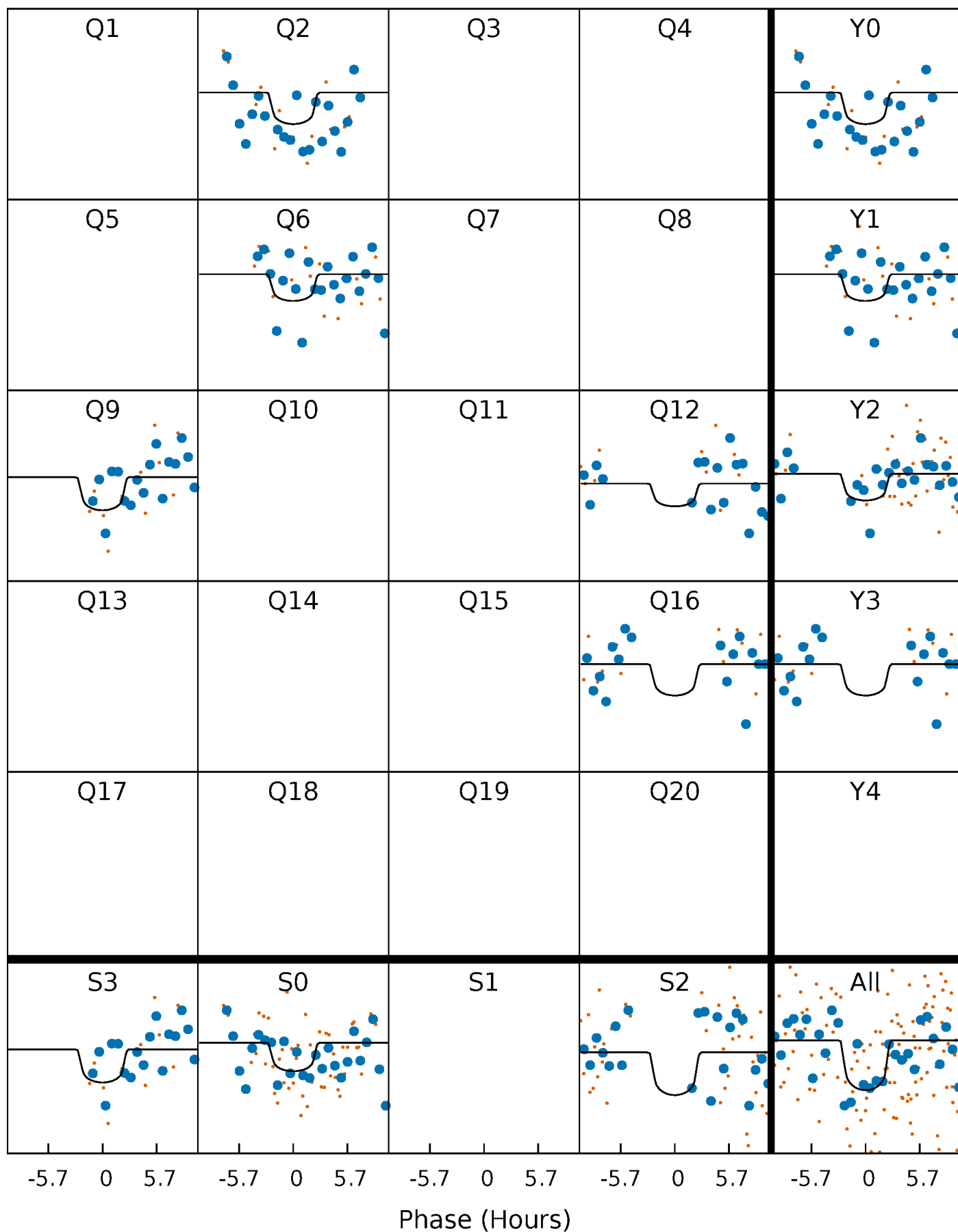
PDC Quarter-Phased Transit Curves

TCE 005471566-02 P=316.645721 Days $T_0=229.922488$ (BKJD)



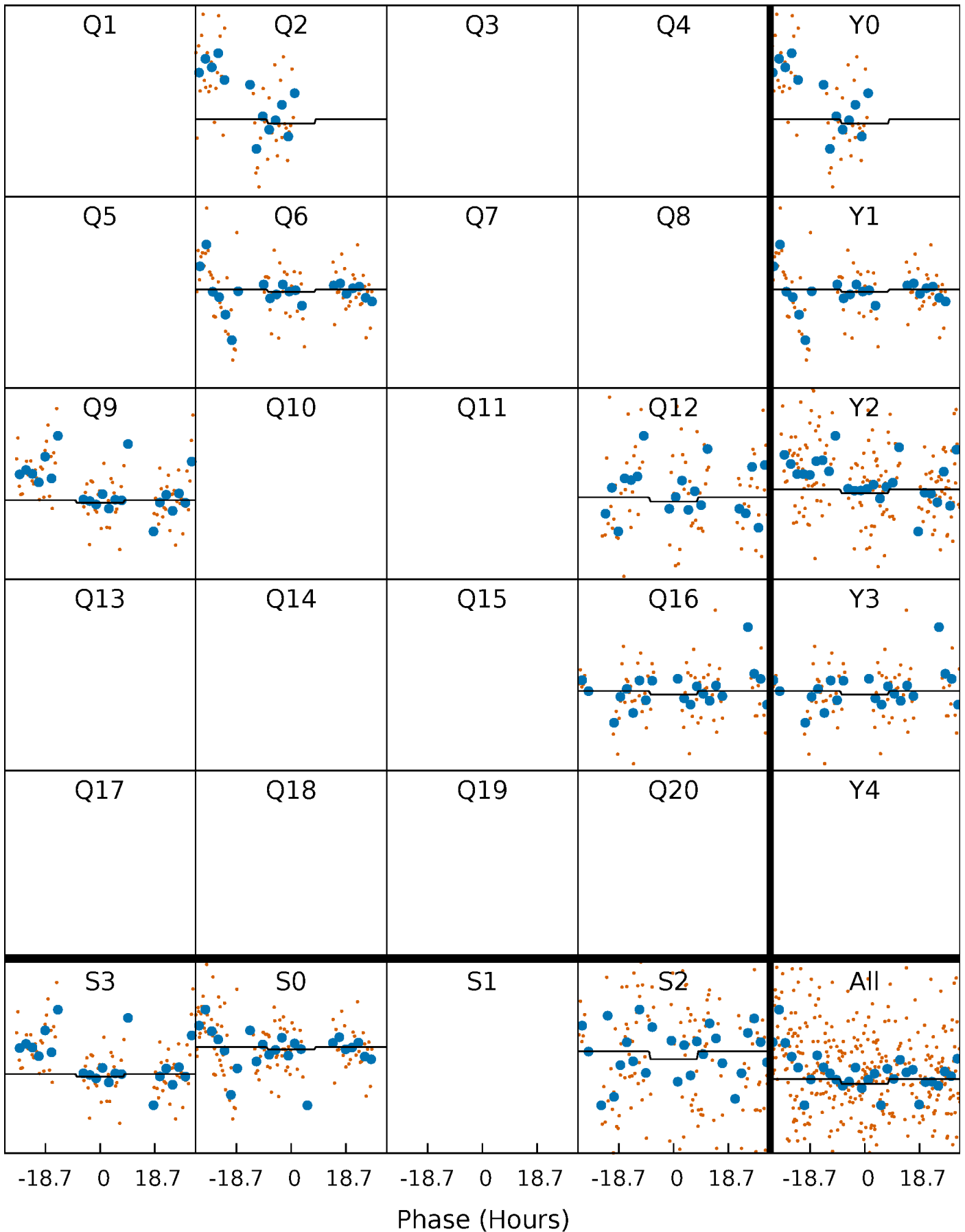
DV Quarter-Phased Transit Curves

TCE 005471566-02 P=316.645721 Days $T_0=229.922488$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

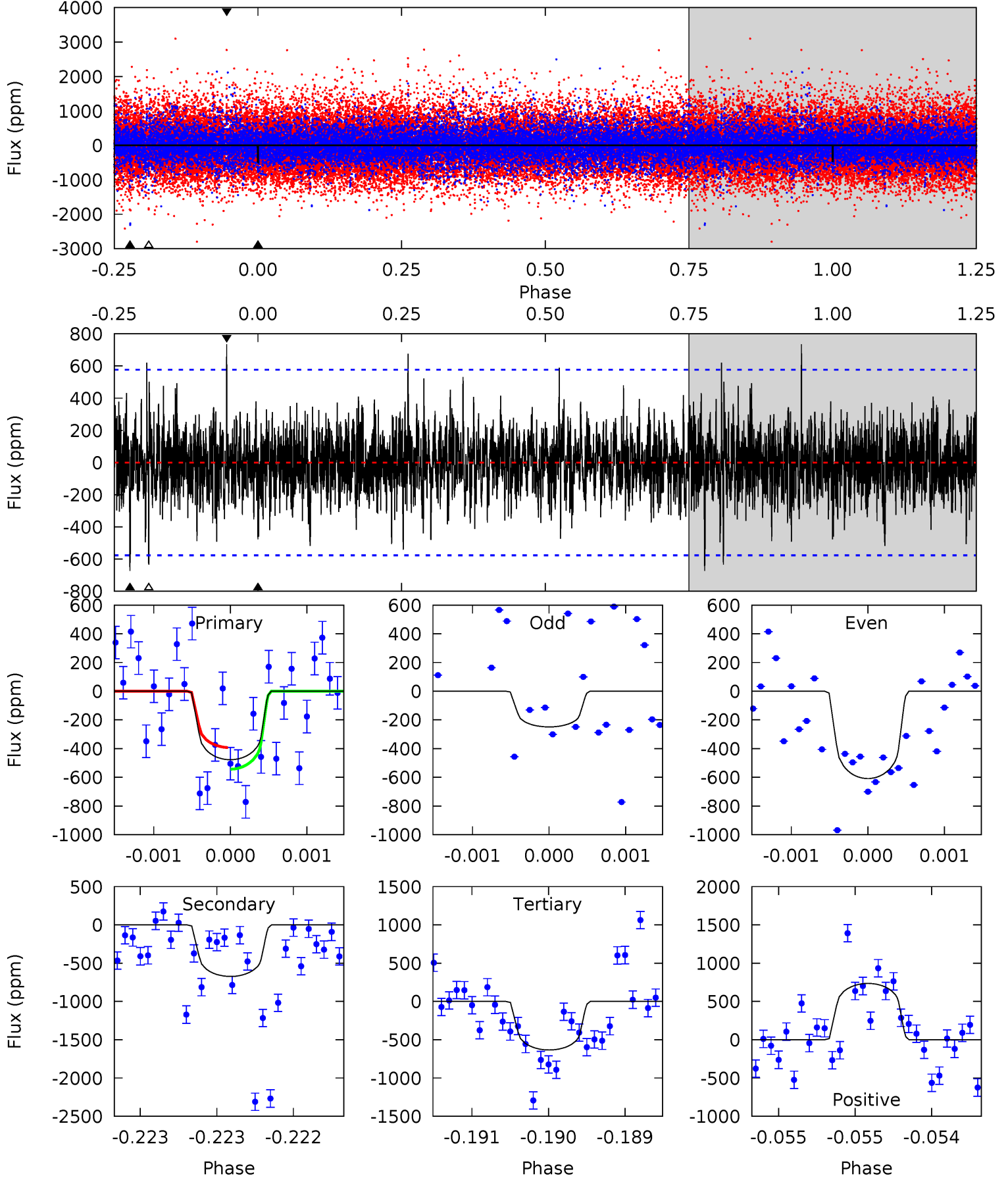
TCE 005471566-02 P=316.604390 Days $T_0=230.178087$ (BKJD)



DV Model-Shift Uniqueness Test

005471566-02, P = 316.645721 Days, E = 229.922488 Days

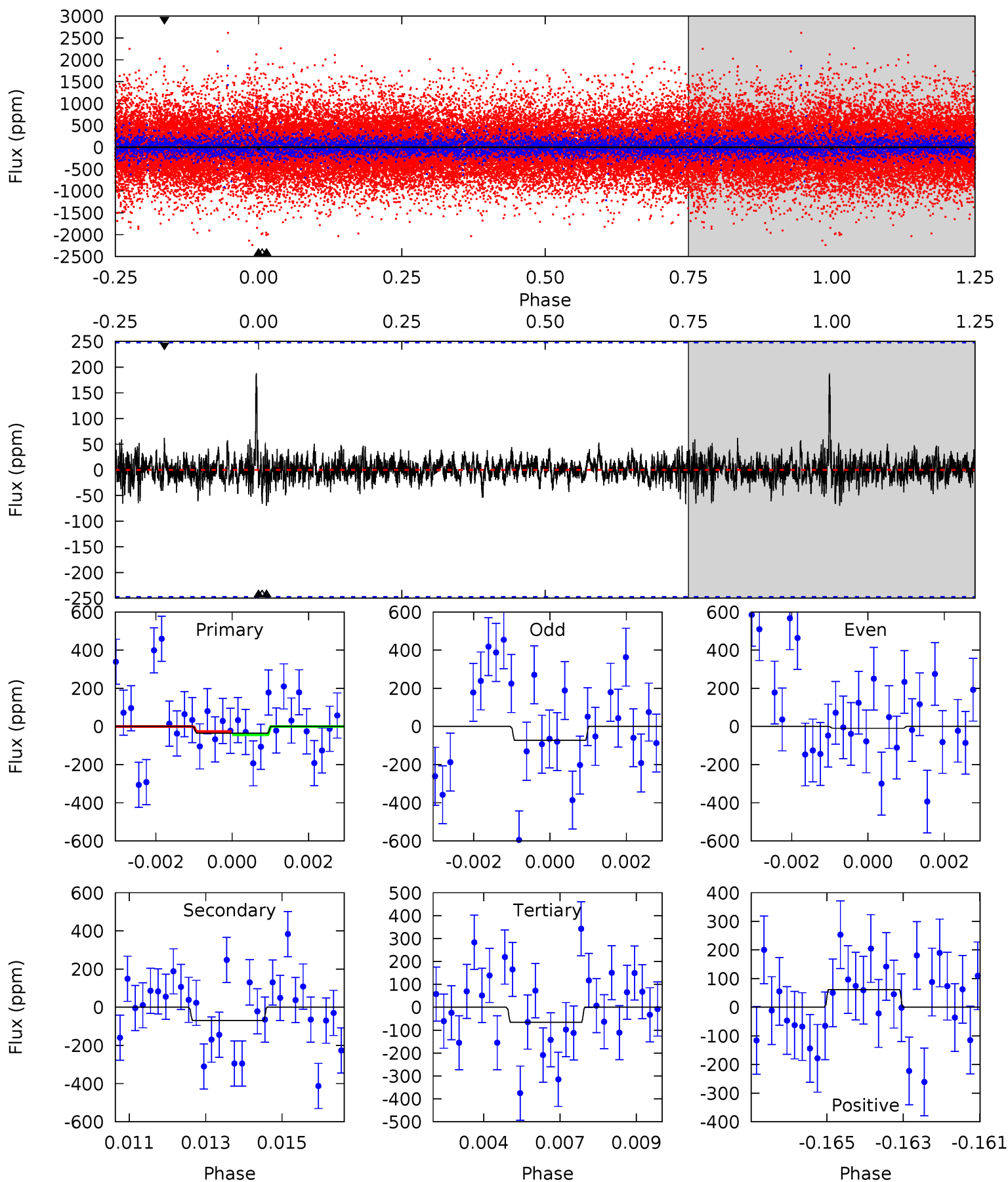
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.57	6.44	6.06	7.04	5.52	3.40	1.40	-1.49	-2.47	0.38	-0.60	1.69	1.27	0.52	0.71



Alt Model-Shift Uniqueness Test

005471566-02, P = 316.604390 Days, E = 230.178087 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.77	1.49	1.41	1.33	5.31	3.06	0.39	-0.65	-0.56	0.08	0.16	0.66	7.58	0.73	0.17



Stellar Parameters For KIC 005471566

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5559^{+166}_{-182}	$4.554^{+0.042}_{-0.168}$	$-0.060^{+0.300}_{-0.300}$	$0.838^{+0.213}_{-0.071}$	$0.917^{+0.092}_{-0.102}$	$2.196^{+0.386}_{-1.002}$
	+3%/-3%	+1%/-4%	+500%/-500%	+25%/-8%	+10%/-11%	+18%/-46%
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 005471566-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-673 ± 104	$3.08^{+2.37}_{-1.90}$	339^{+21}_{-15}	5054^{+2949}_{-1034}	$29151^{+170866}_{-19813}$
Alt.	-70 ± 47	$2.13^{+2.32}_{-1.47}$	339^{+19}_{-14}	3648^{+2056}_{-866}	5462^{+49756}_{-4610}

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

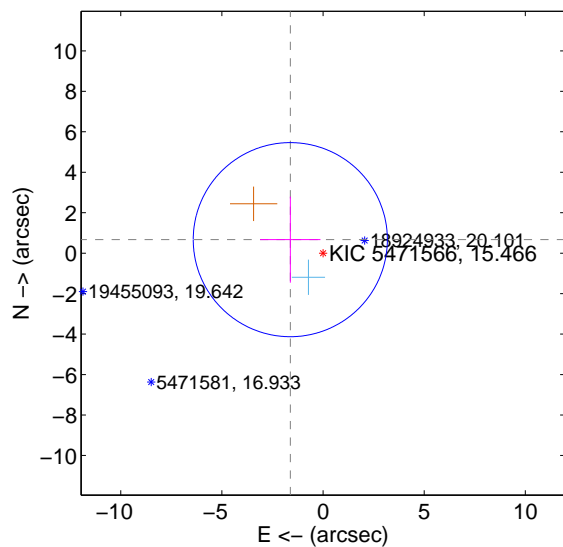
Supplemental centroid analysis for 005471566-02. Kepler magnitude: 15.47. Transit SNR 3.38

There are 1 quarters with good PRF difference image offsets

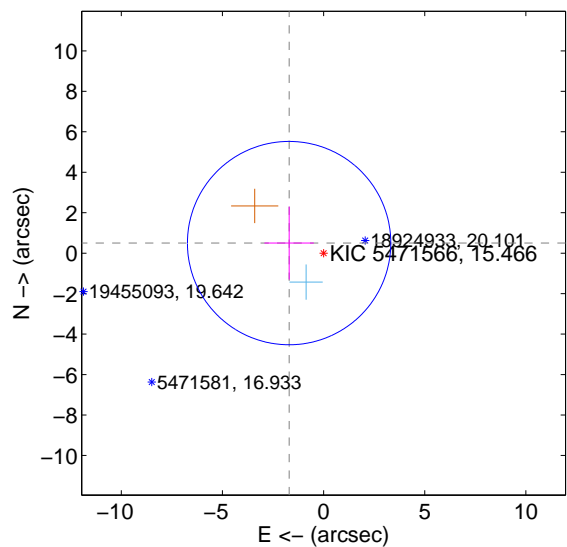
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.751 ± 1.599	1.09	1.618 ± 1.491	0.668 ± 2.123
PRF-fit source offset from KIC position	1.775 ± 1.675	1.06	1.704 ± 1.219	0.498 ± 1.805
photometric centroid source offset	2.52 ± 2.48	1.02	1.01 ± 3.01	-2.31 ± 2.37

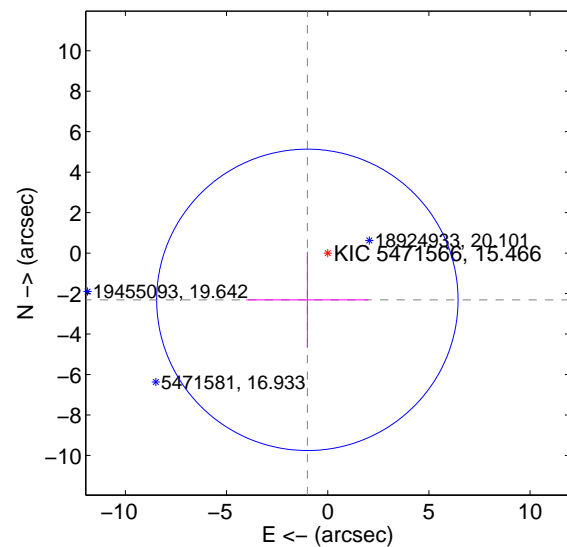
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



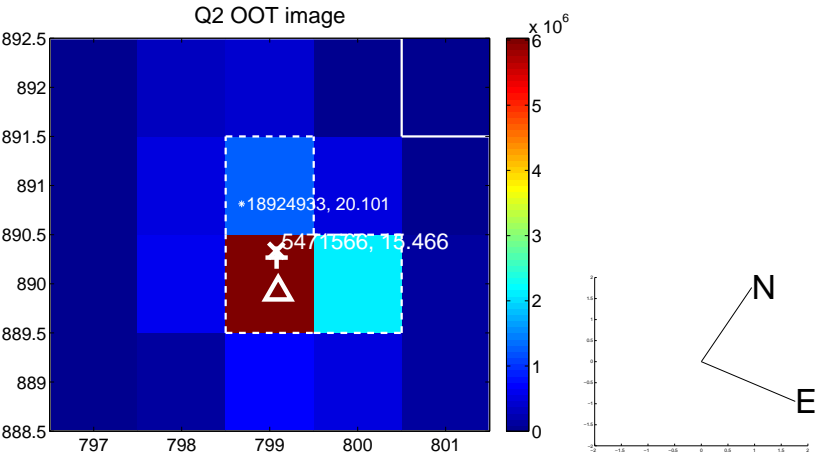
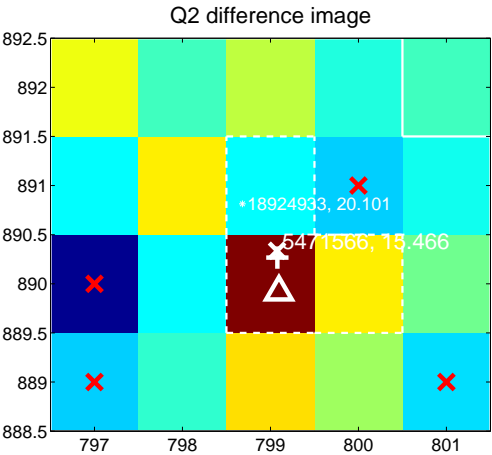
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

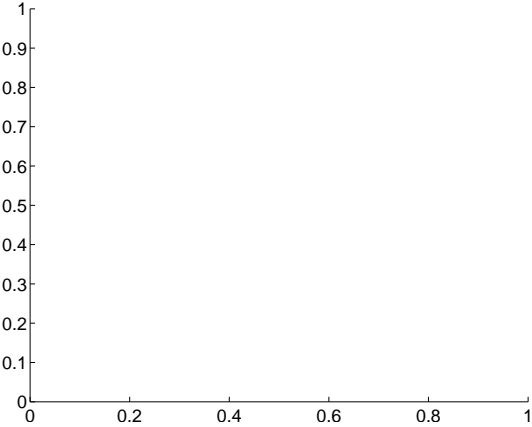
Q1 no difference image



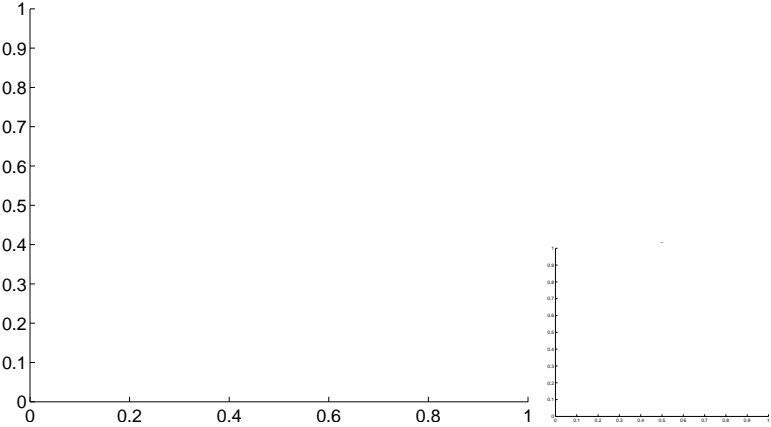
Q1 no OOT image



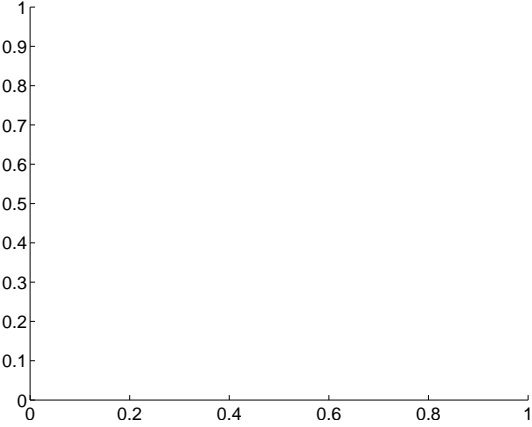
Q3 no difference image



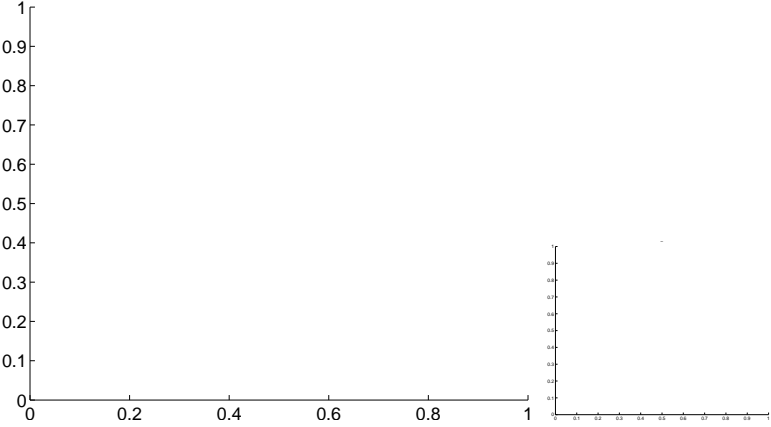
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

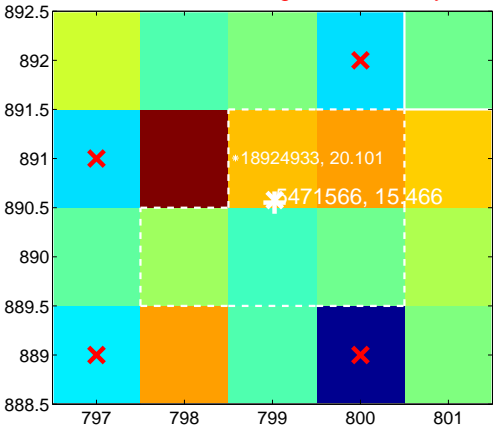
Q5 no difference image



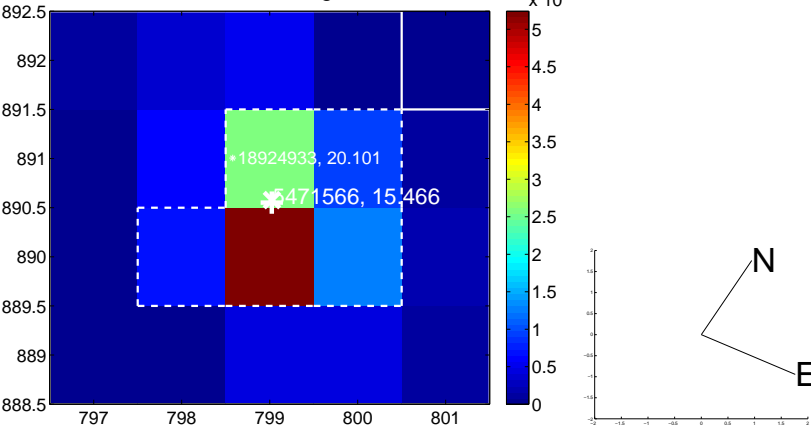
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



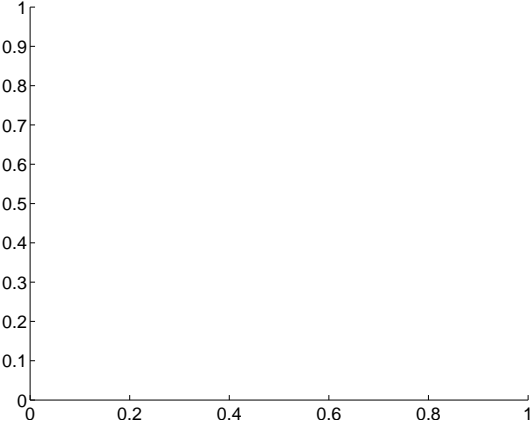
Q7 no difference image



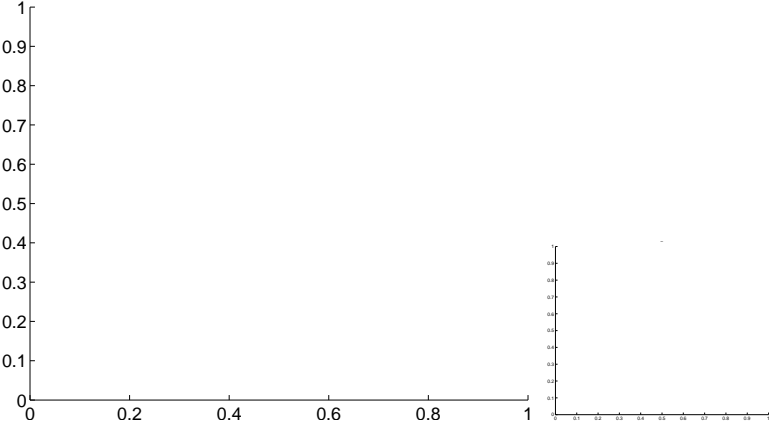
Q7 no OOT image



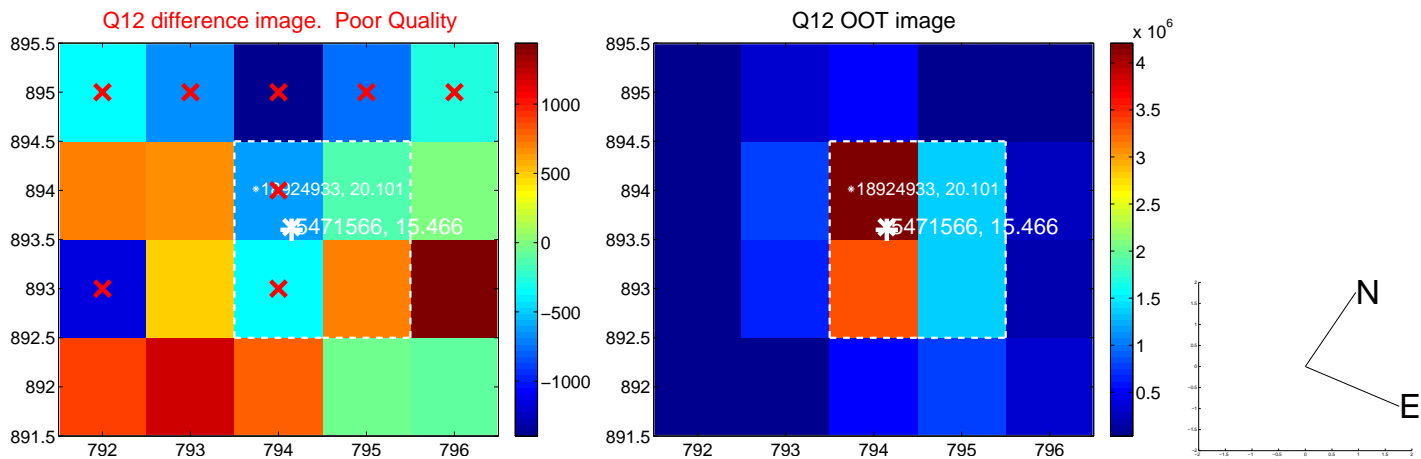
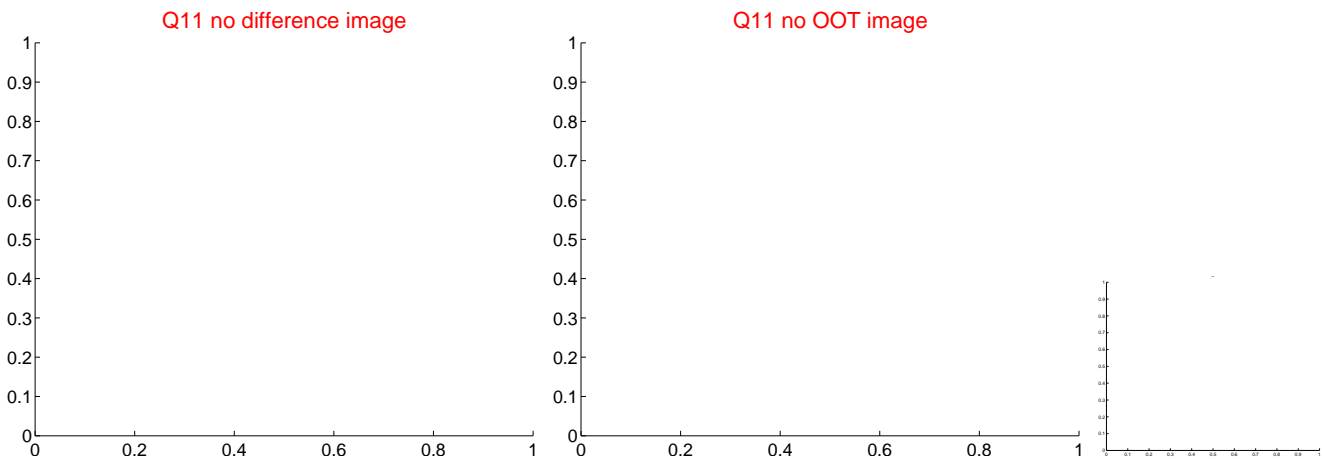
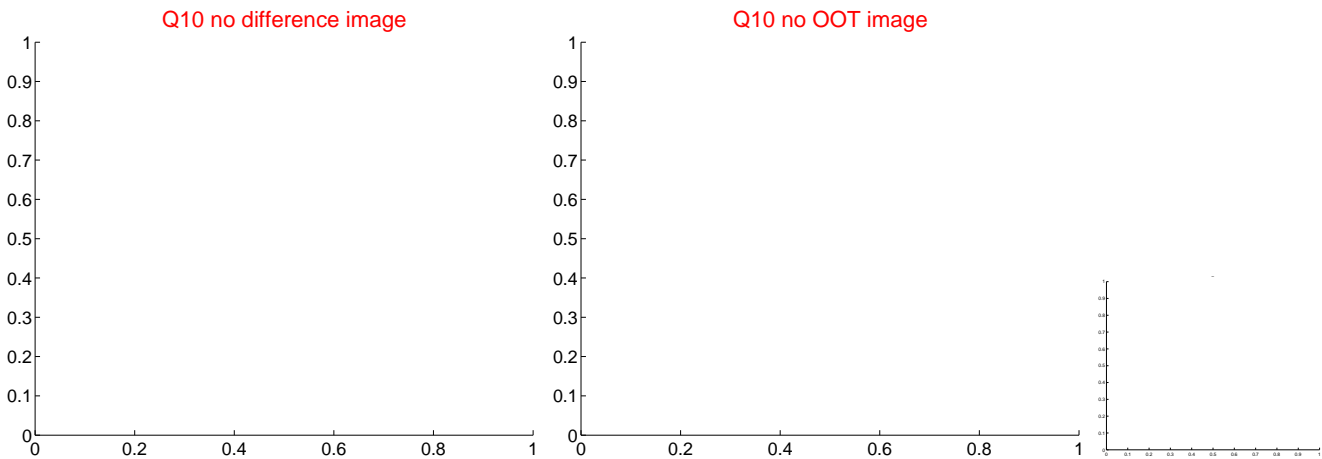
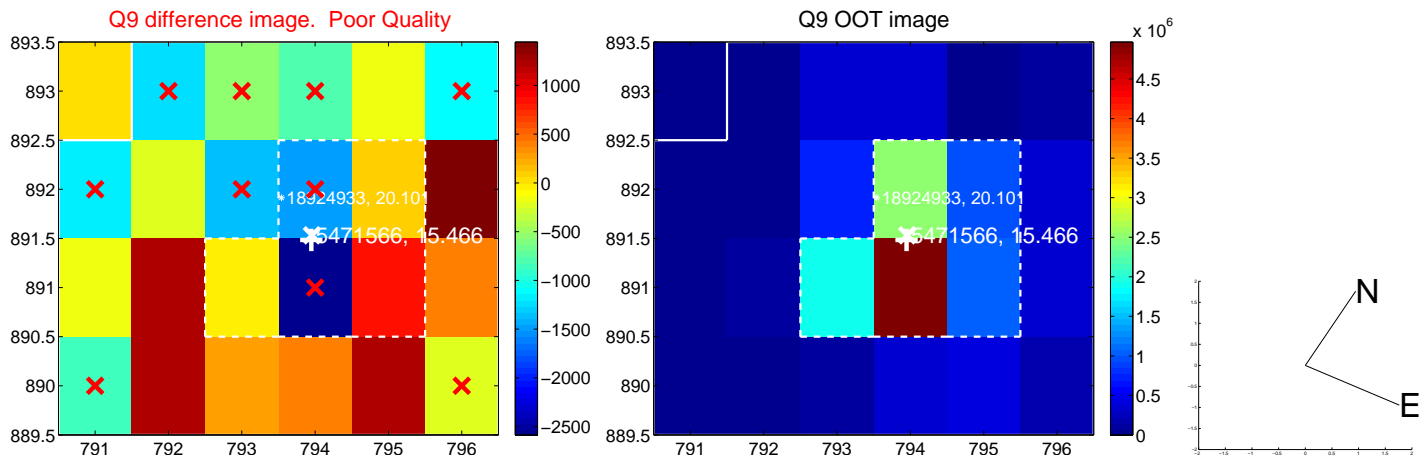
Q8 no difference image



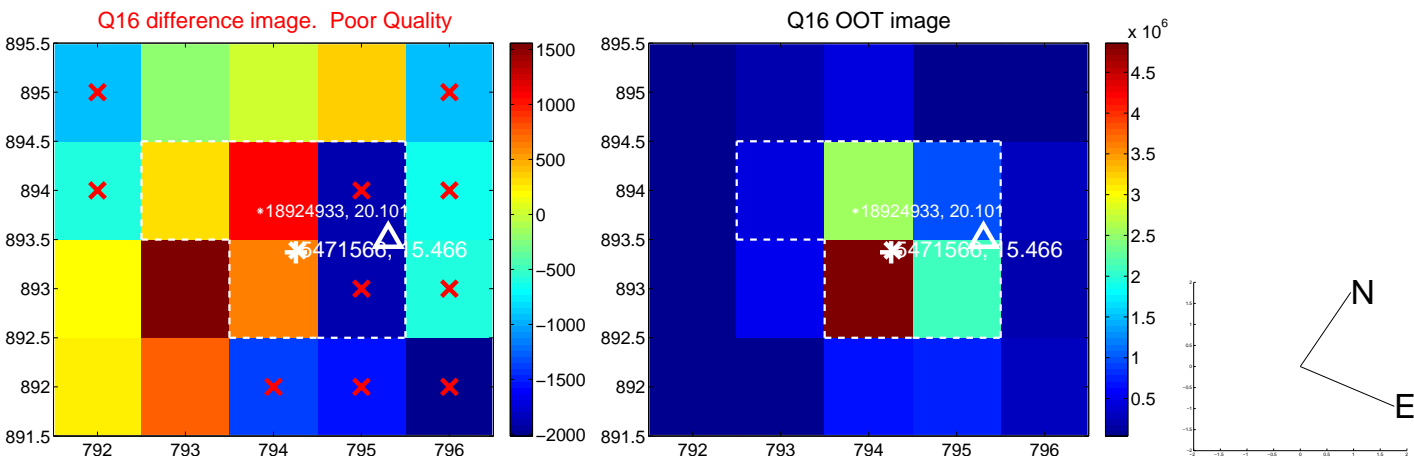
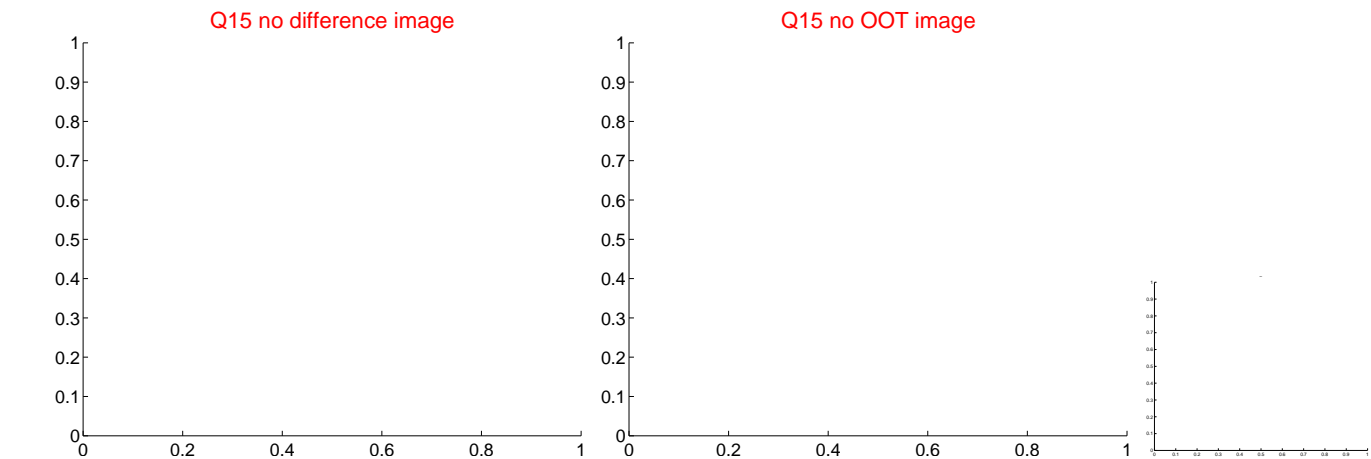
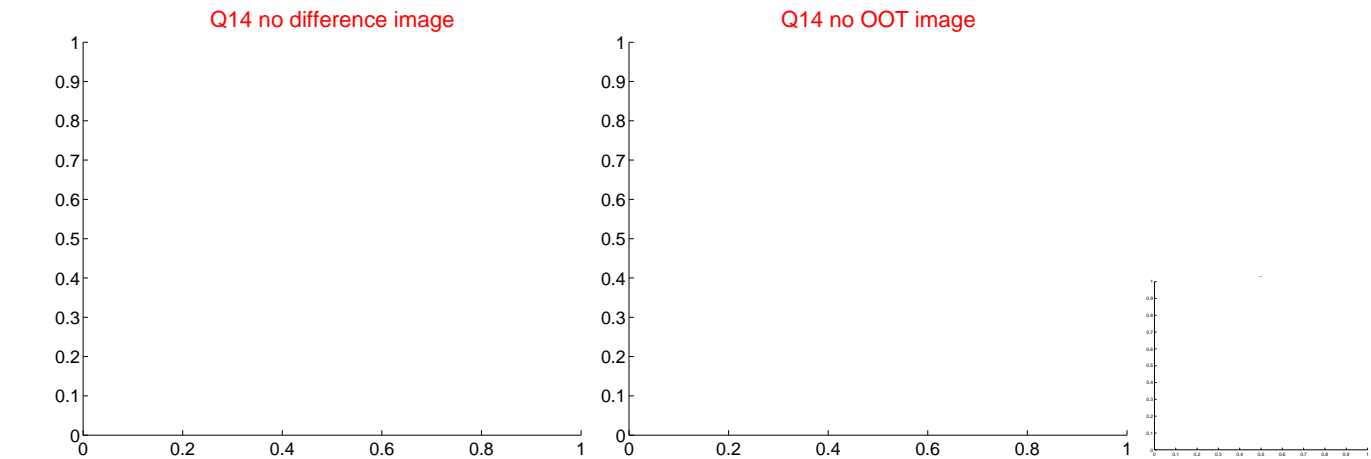
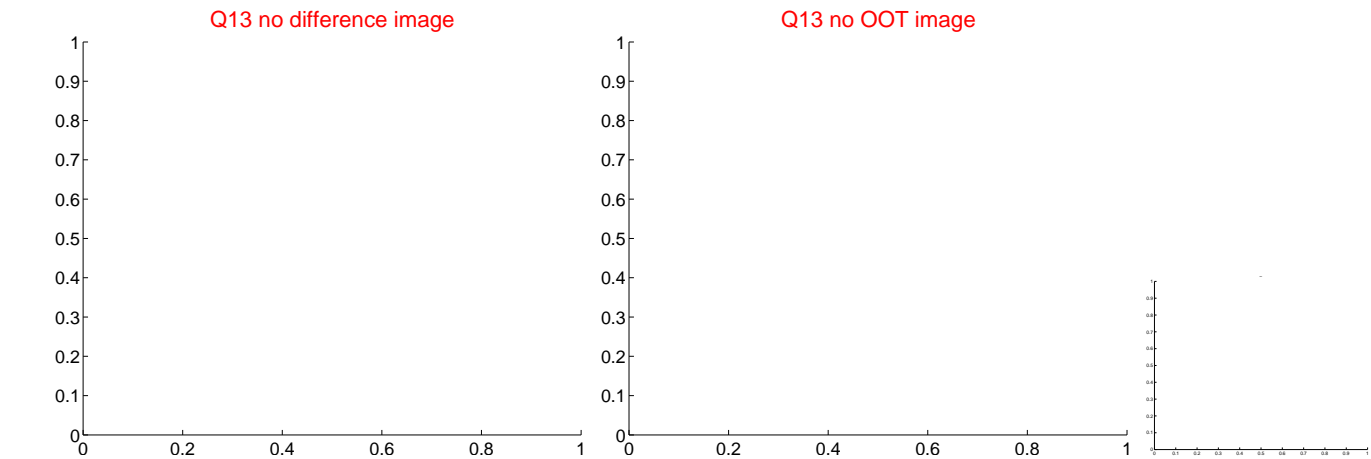
Q8 no OOT image



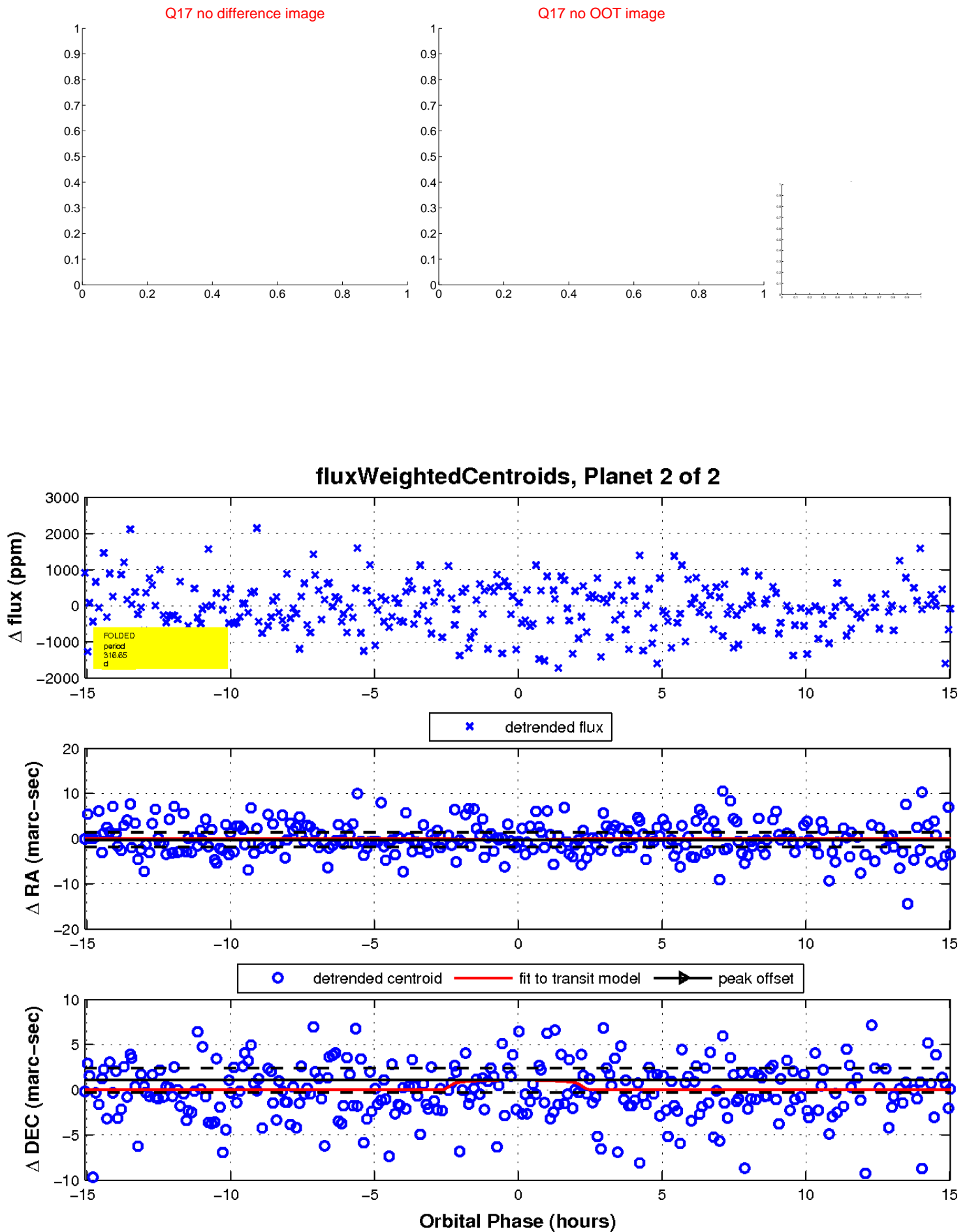
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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.



UKIRT Image

