

KIC 012884589

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})
012884589-01	OBS	No	2.743953	134.062673	162.5	15.871	9.2	11.1	1.10	6147	2.72	928.08
012884589-02	OBS	No	245.307270	157.122651	2611.9	10.816	21.3	10.6	1.10	6147	9.73	2.32
012884589-03	OBS	No	231.603616	177.892992	2129.3	13.082	15.5	8.2	1.10	6147	6.29	2.51
012884589-04	OBS	No	124.039615	216.308911	952.1	3.708	13.5	6.1	1.10	6147	4.32	5.76
012884589-05	OBS	No	141.053722	238.598679	1875.2	22.307	14.0	6.9	1.10	6147	5.58	4.86
012884589-06	OBS	No	240.894583	234.492854	3309.6	46.356	12.4	9.5	1.10	6147	6.28	2.38
012884589-08	OBS	No	250.026448	371.517419	6728.1	75.963	9.7	6.5	1.10	6147	16.29	2.26
012884589-09	OBS	No	77.938471	208.698150	660.3	4.237	10.5	4.7	1.10	6147	3.16	10.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012884589-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

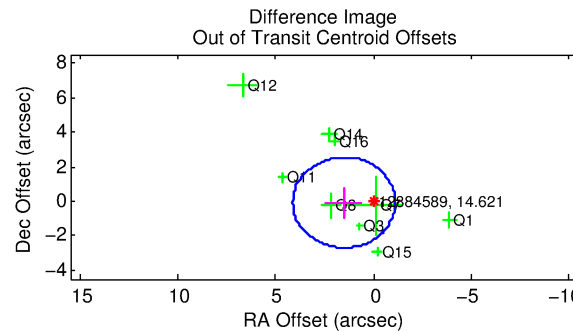
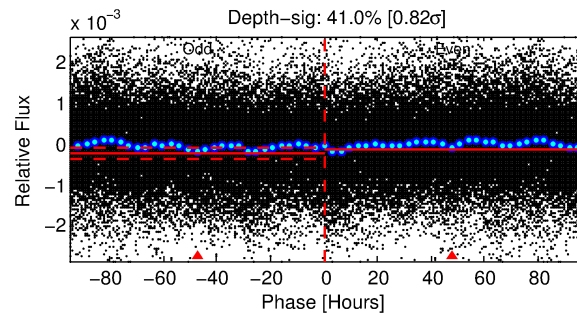
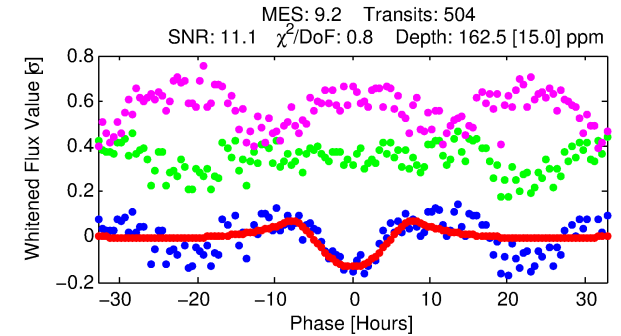
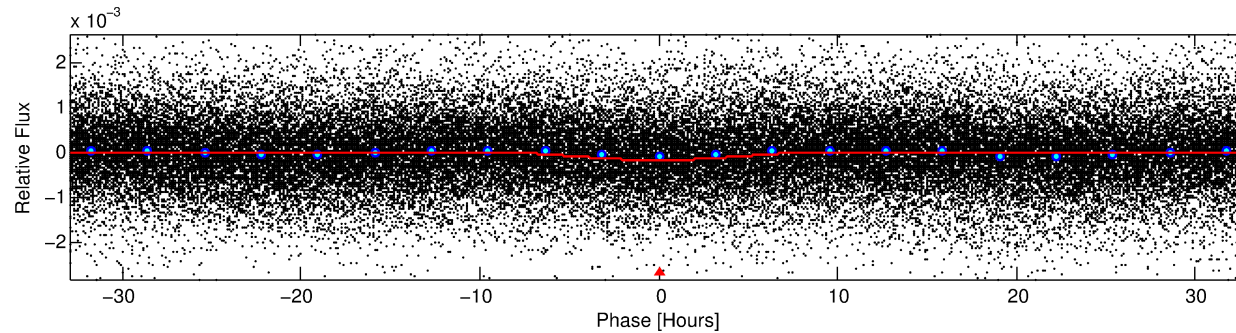
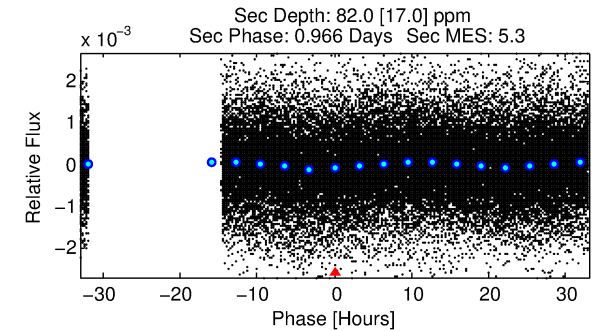
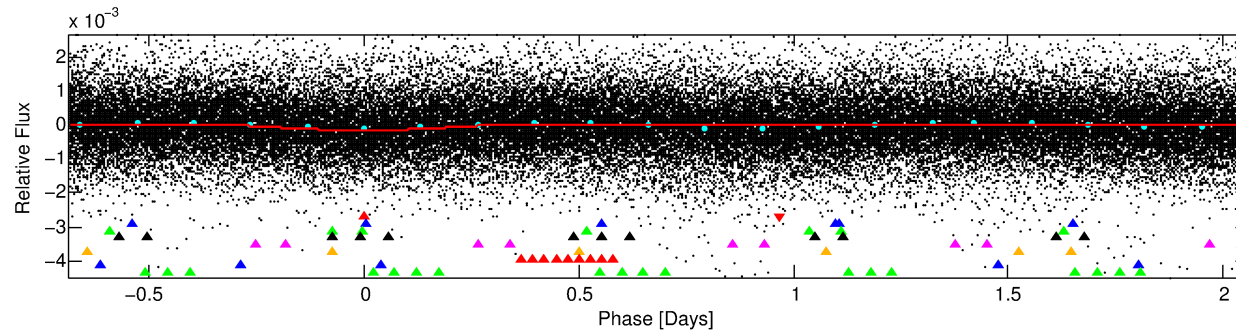
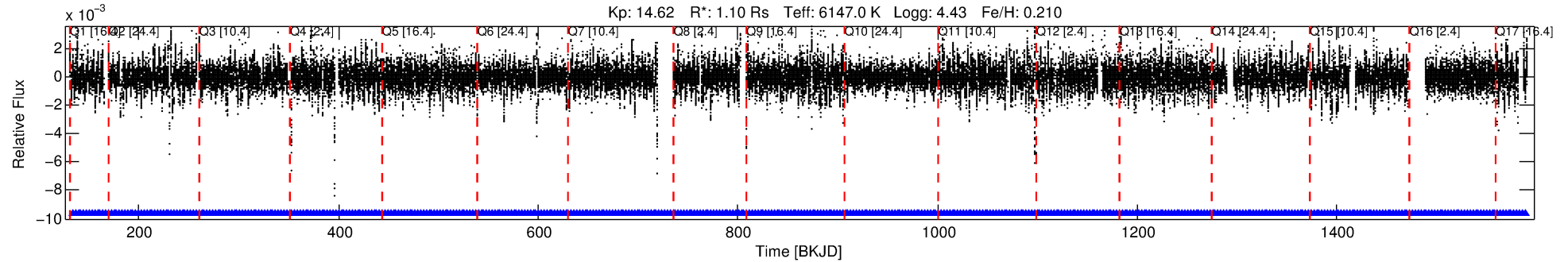
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-01

No Significant Match Found

DV One-Page Summary

KIC: 12884589 Candidate: 1 of 9 Period: 2.744 d



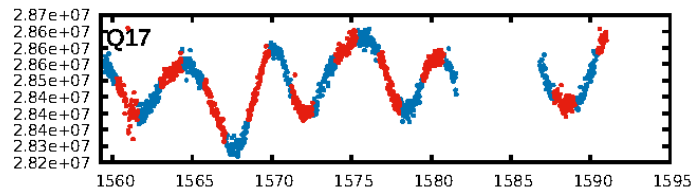
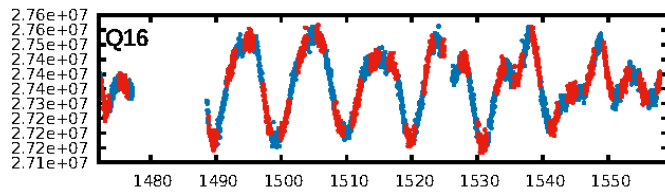
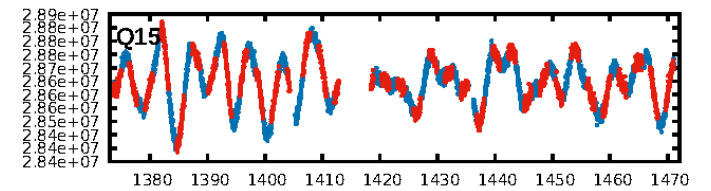
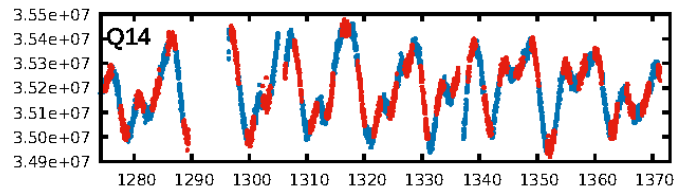
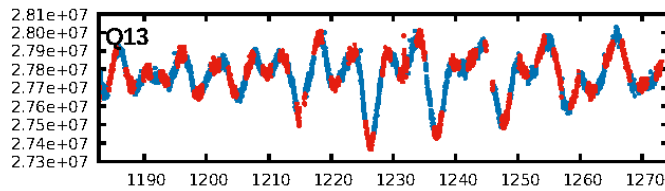
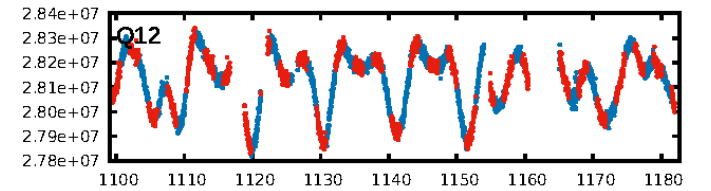
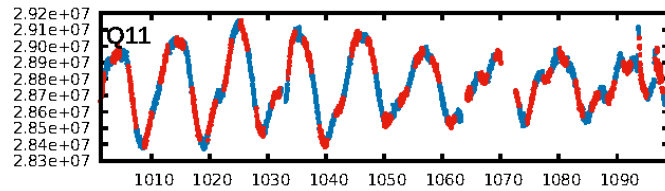
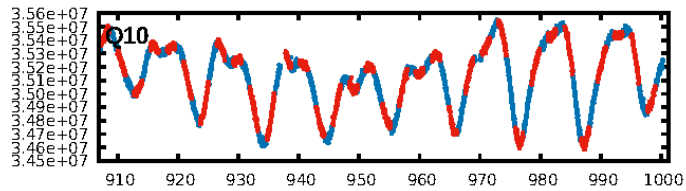
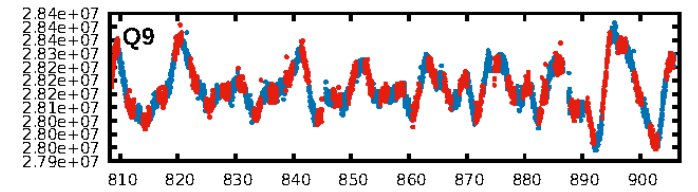
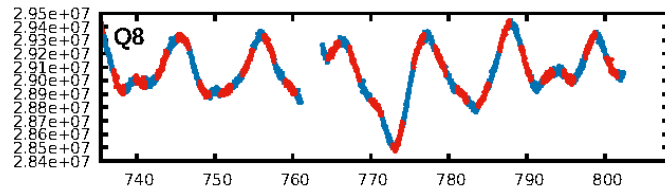
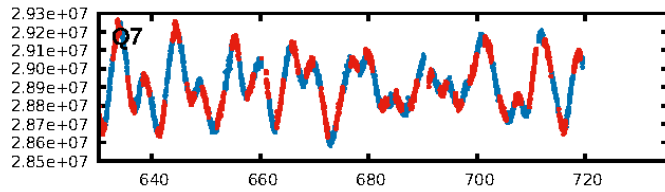
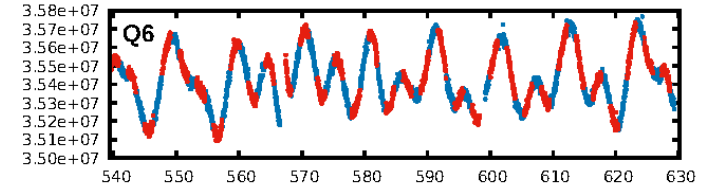
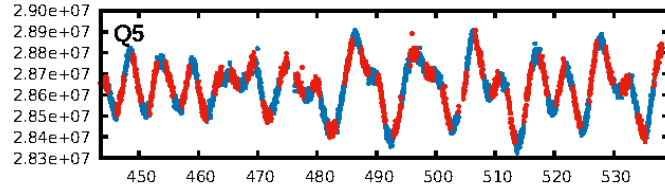
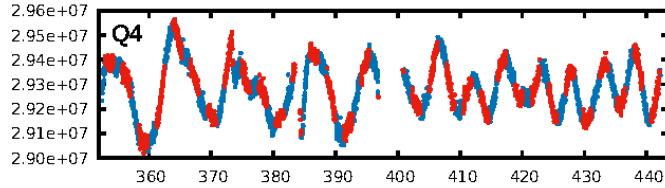
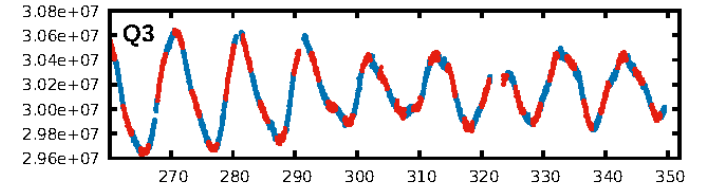
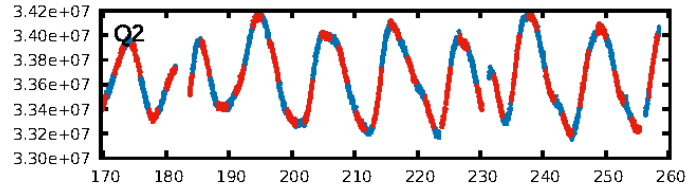
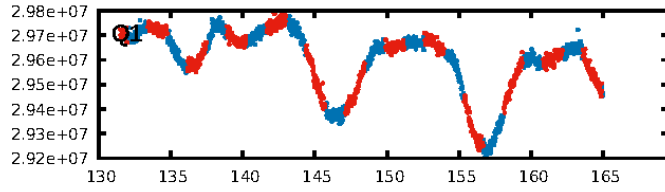
DV Fit Results:

Period = 2.74395 [0.00007] d
Epoch = 134.0627 [0.0211] BKJD
Rp/R* = 0.0227 [0.0290]
a/R* = 1.05 [0.01]
b = 1.00 [0.05]
Seff = 928.08 [397.75]
Teq = 1407 [151] K
Rp = 2.72 [3.58] Re
a = 0.0407 [0.0111] AU
Ag = 10.10 [26.19] [0.35σ]
Teffp = 3879 [2491] K [0.99σ]

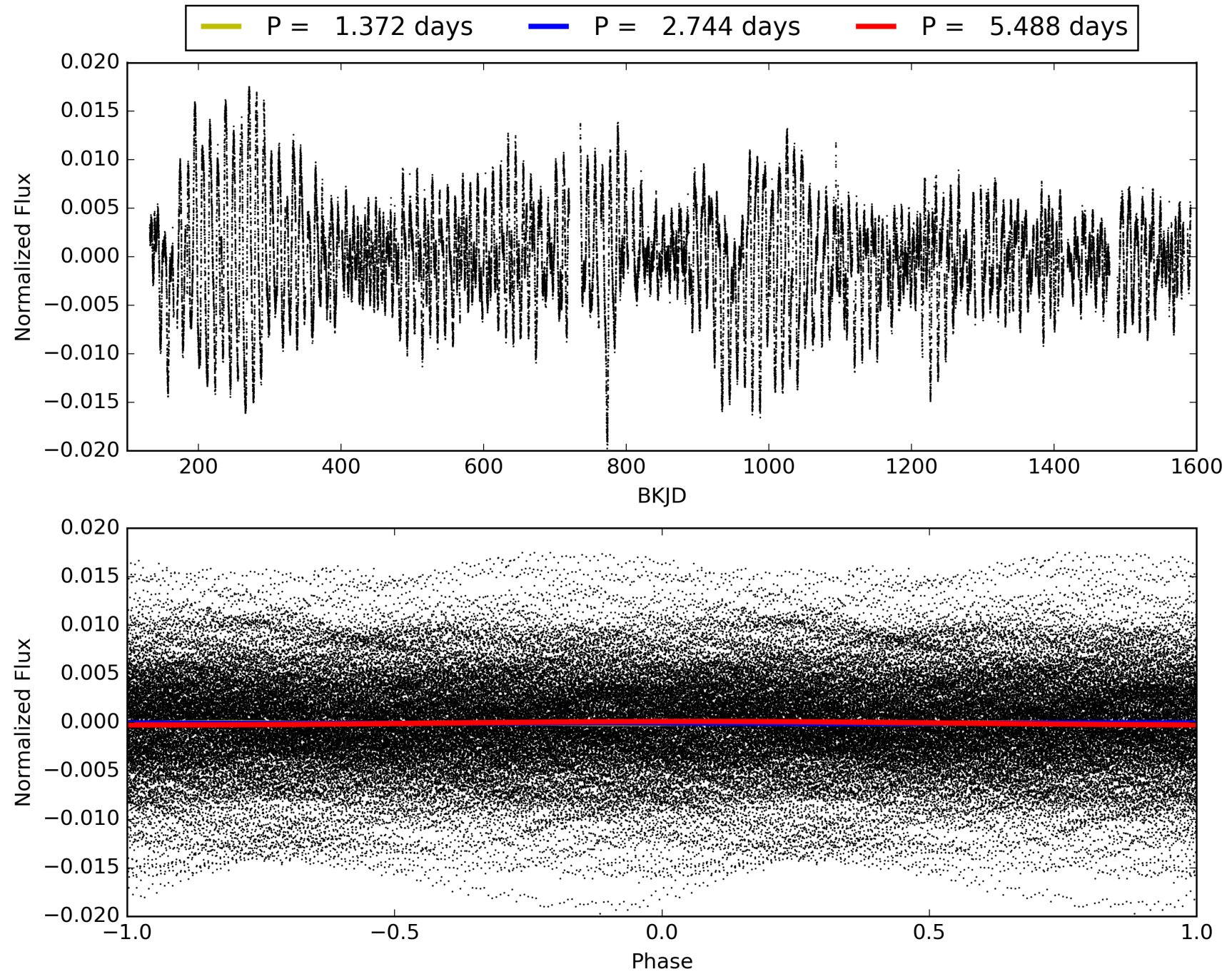
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [109.86σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [481/481]
GhostDiagnostic-chr: -0.7821
Centroid-sig: 0.8%
Centroid-so: 3.609 arcsec [8.64σ]
OotOffset-rm: 1.516 arcsec [1.74σ]
KicOffset-rm: 1.983 arcsec [1.51σ]
OotOffset-st: 1/4/3/1 [9]
KicOffset-st: 1/4/3/3 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012884589-01, PDC Light Curves

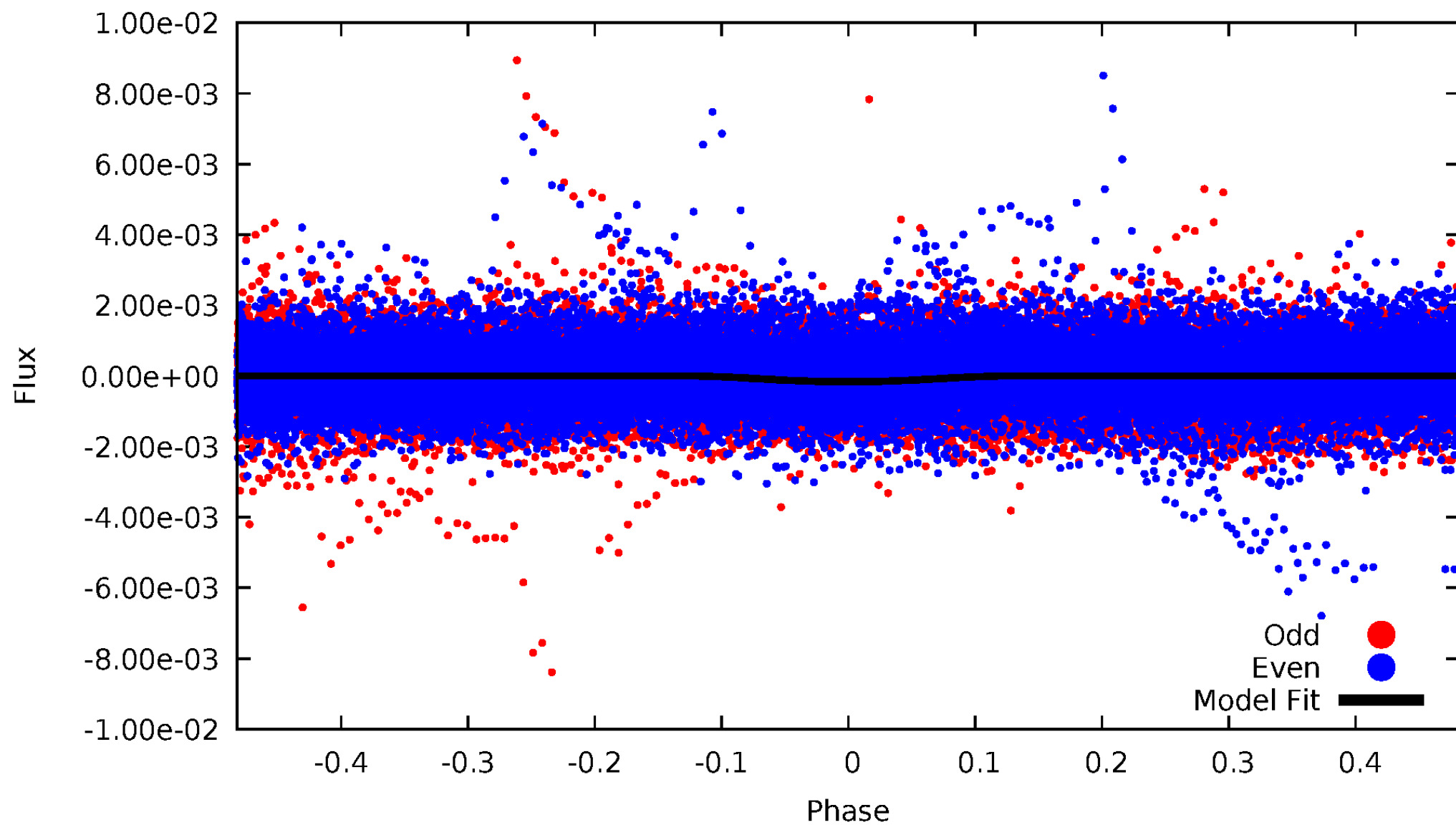


TCE 012884589-01



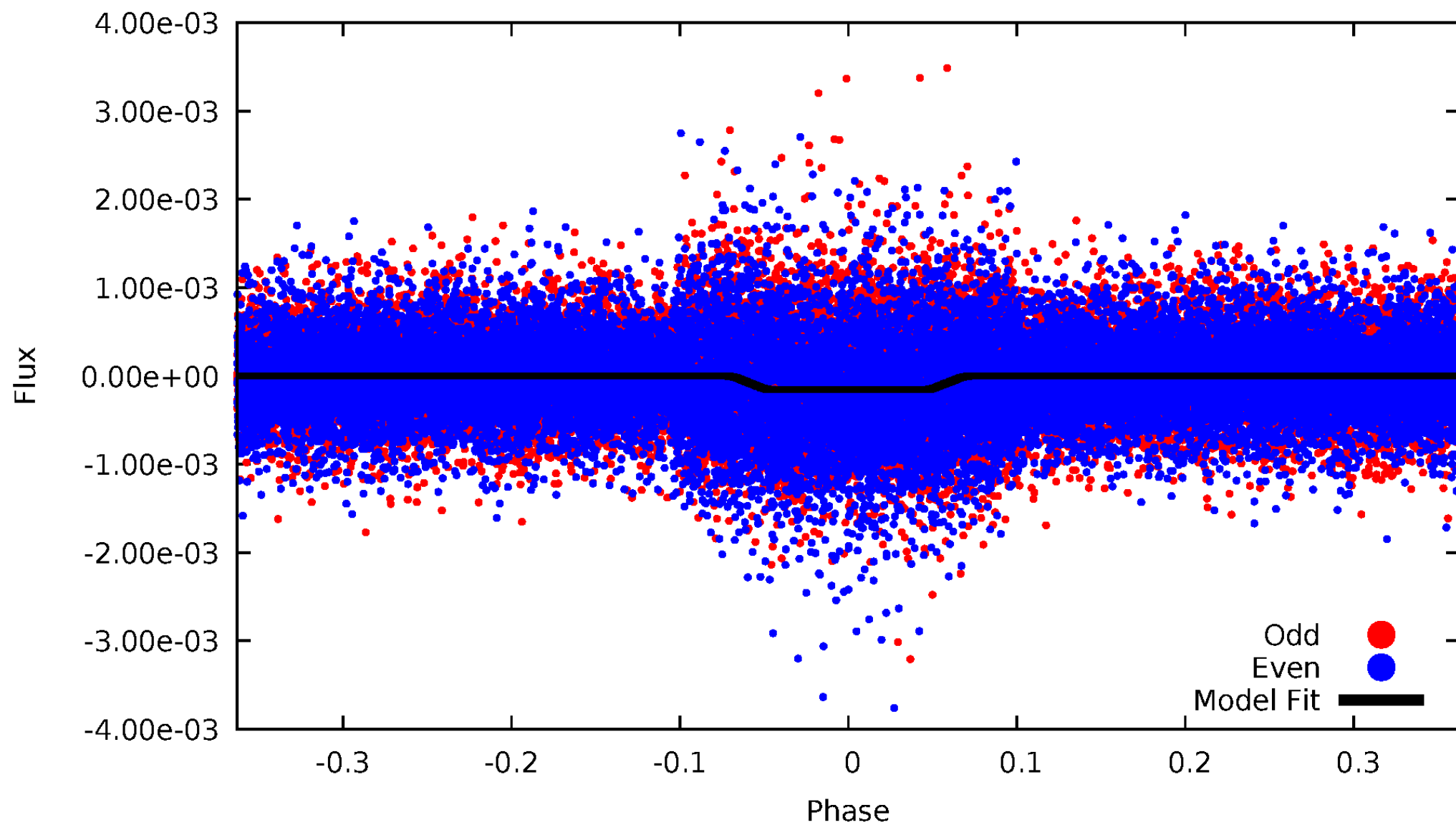
DV Odd/Even

TCE 012884589-01

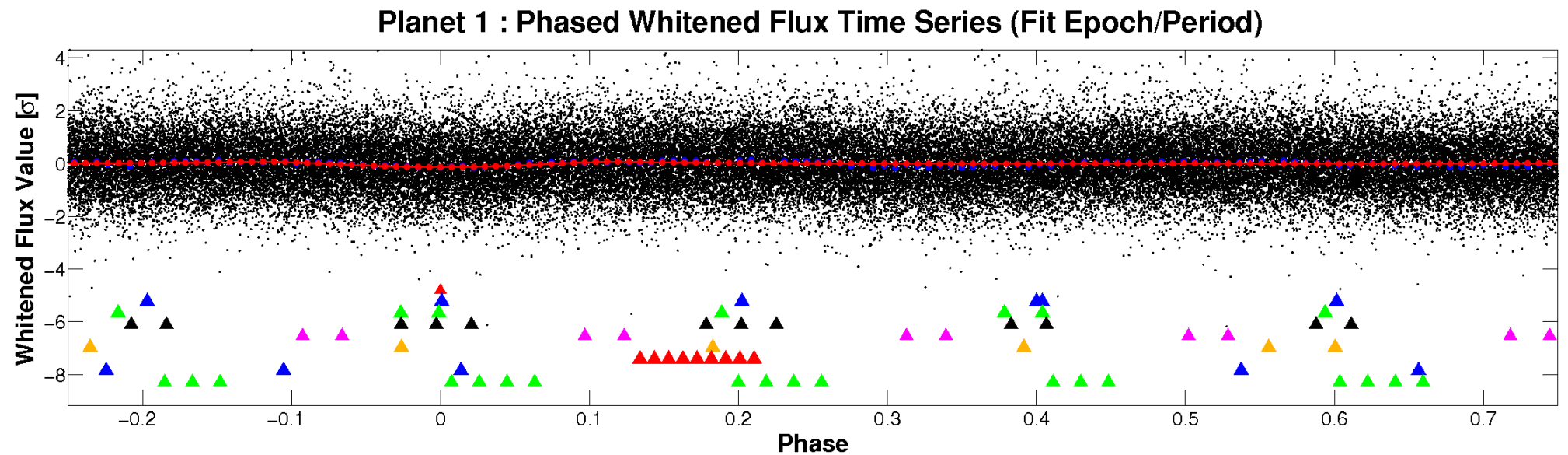
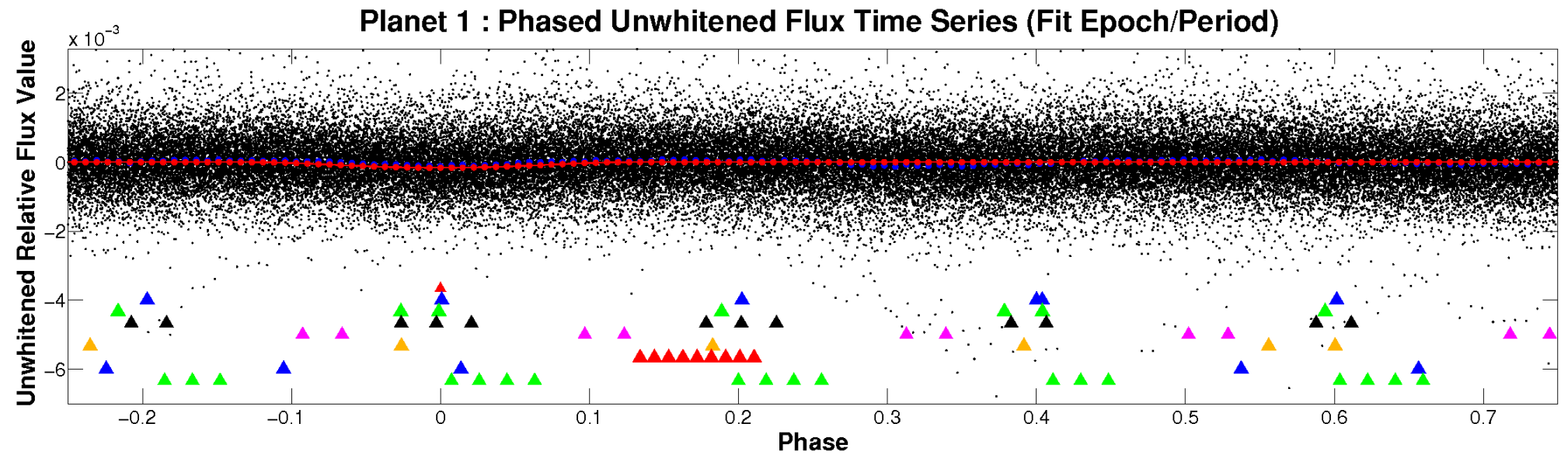


ALT Odd/Even

TCE 012884589-01

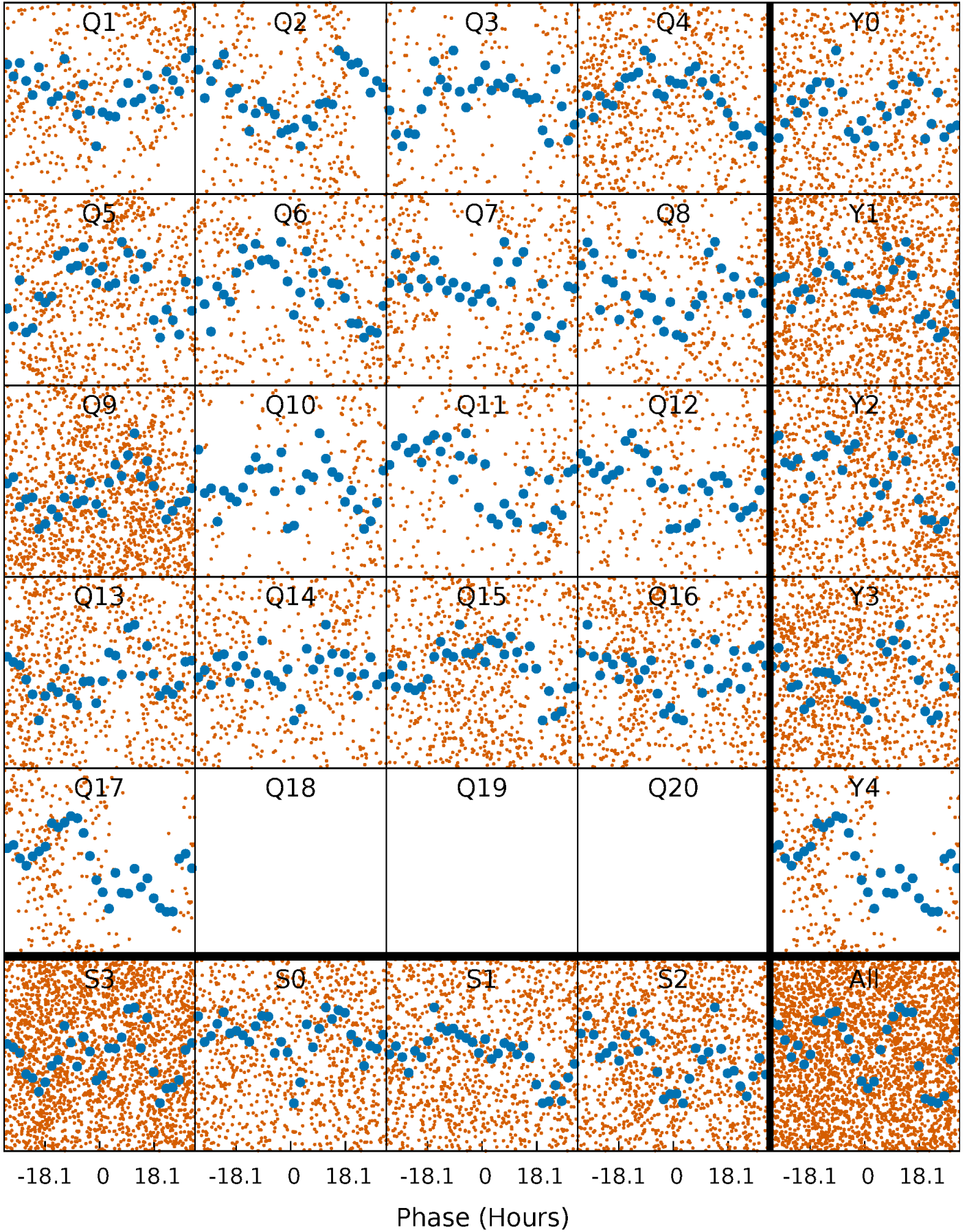


Non-Whitened Vs. Whitened Light Curve



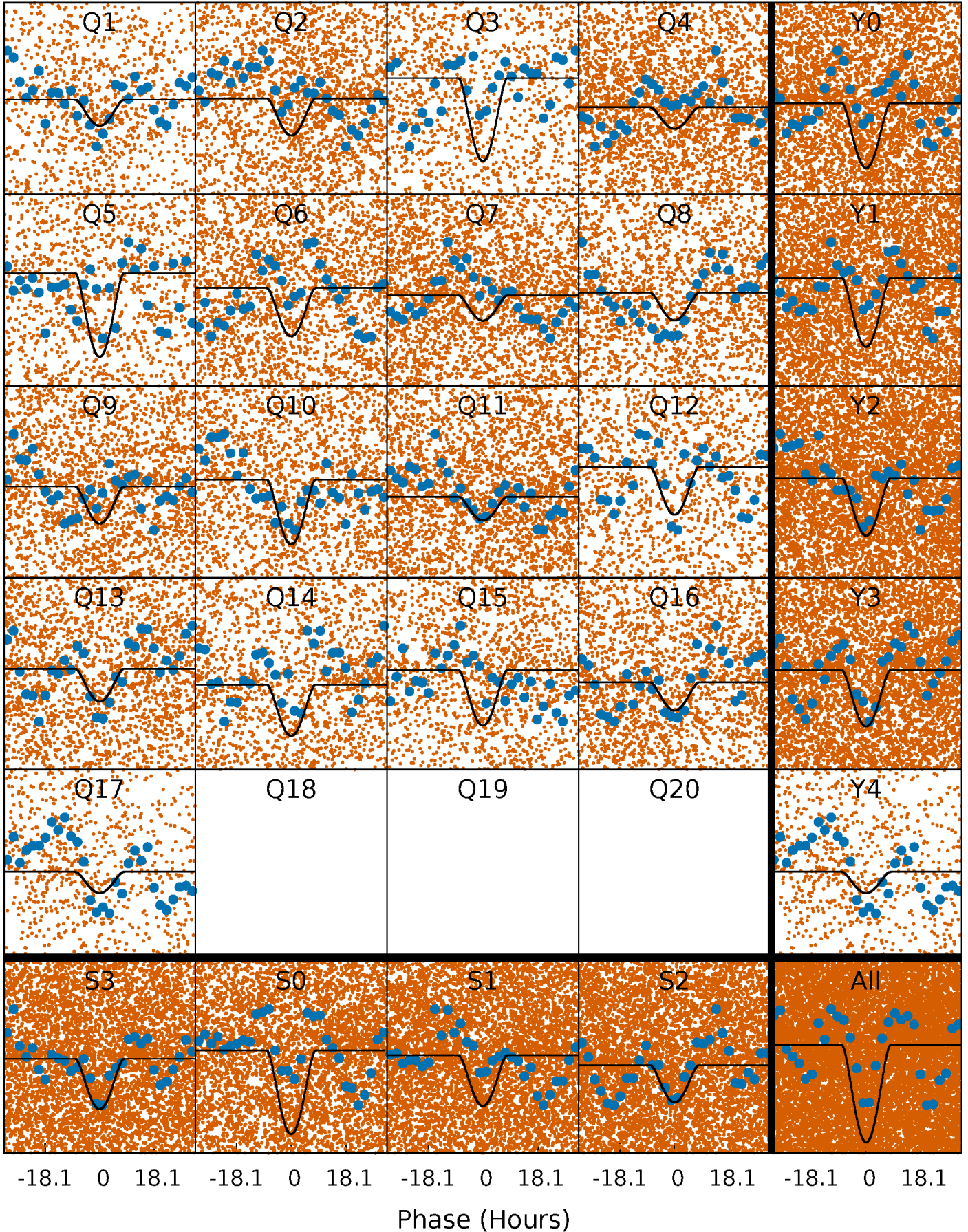
PDC Quarter-Phased Transit Curves

TCE 012884589-01 P= 2.743953 Days $T_0=134.062673$ (BKJD)



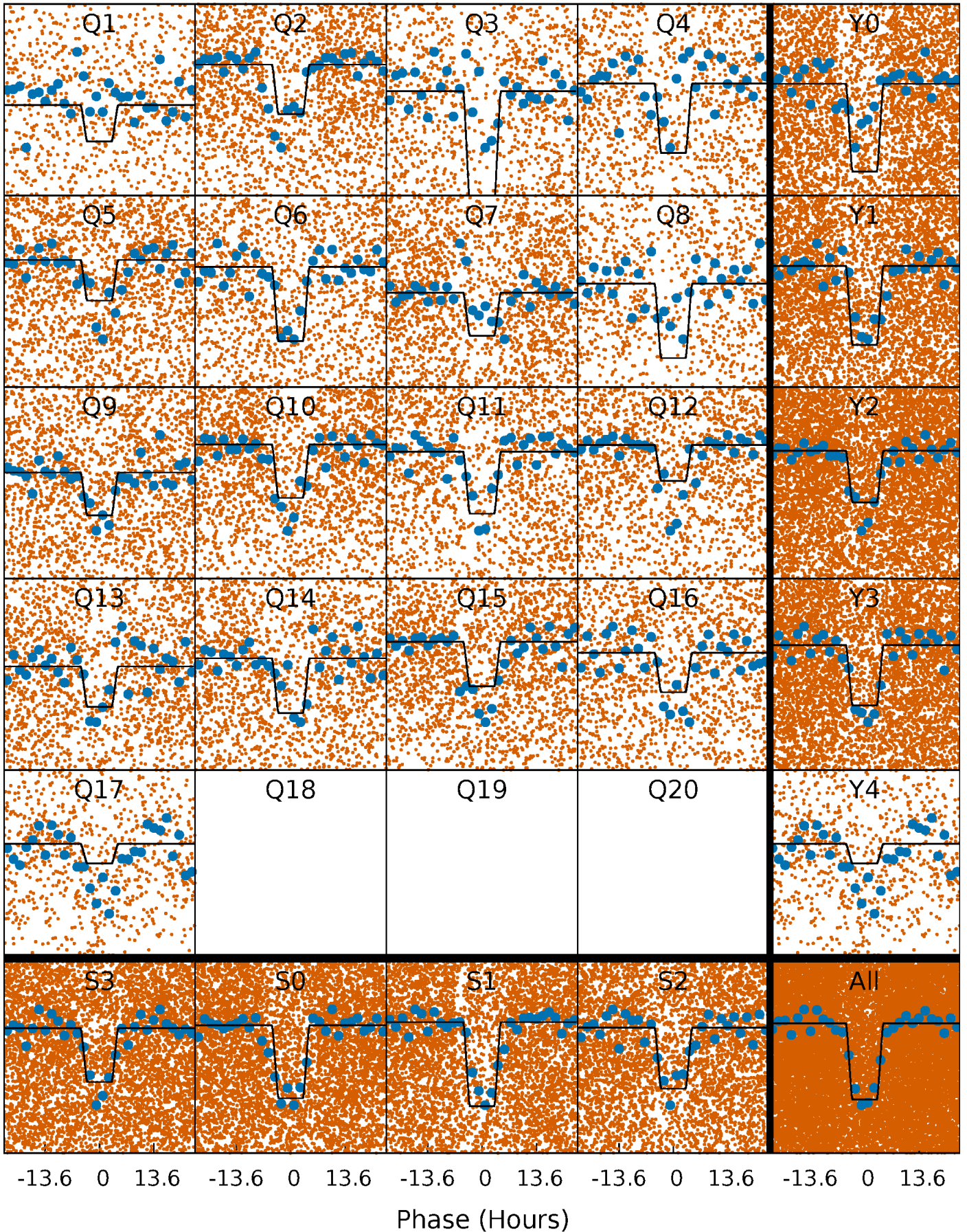
DV Quarter-Phased Transit Curves

TCE 012884589-01 P= 2.743953 Days $T_0=134.062673$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

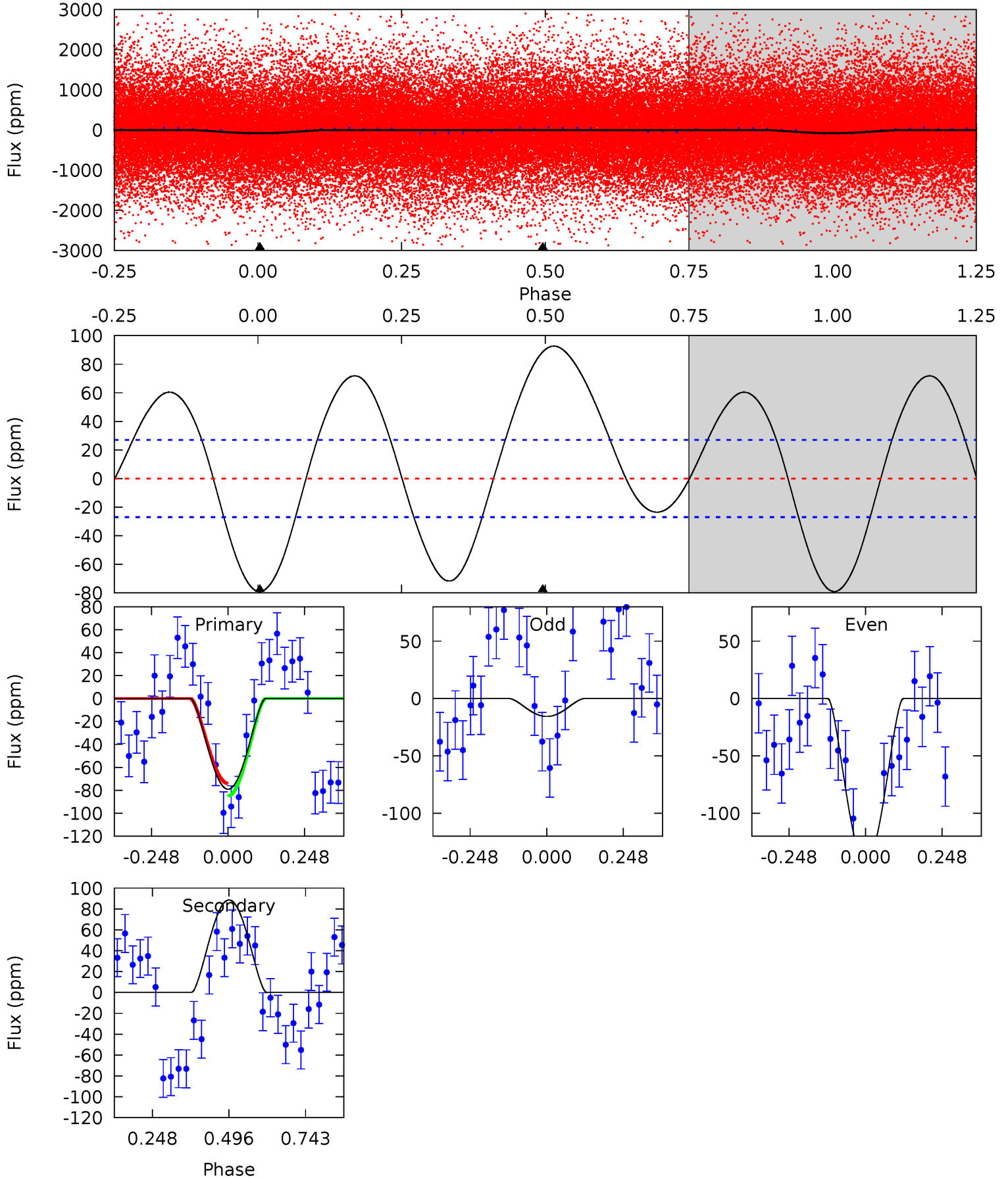
TCE 012884589-01 P= 2.743870 Days $T_0=134.090637$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-01, P = 2.743953 Days, E = 131.318720 Days

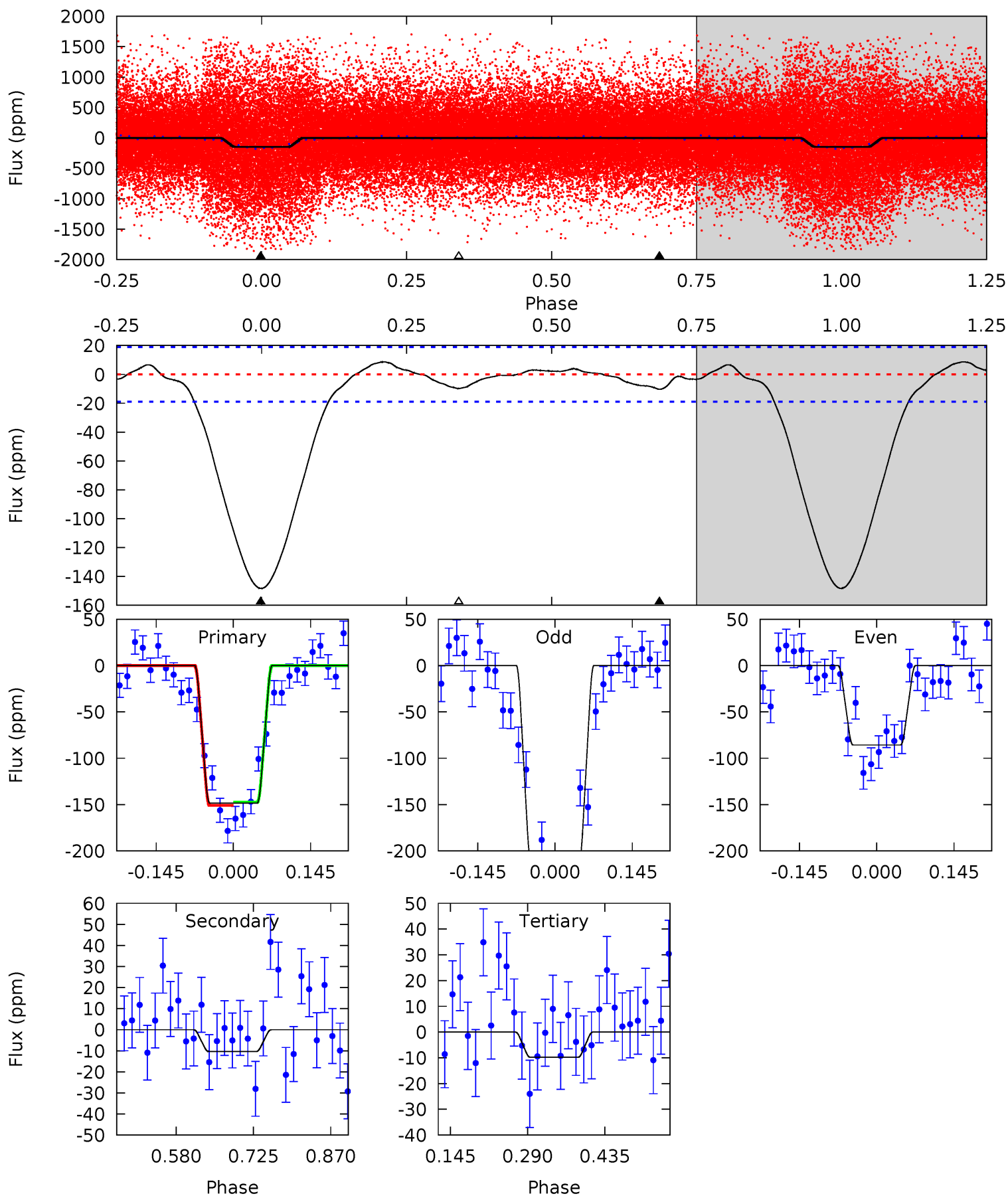
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	-14.4	0	0	4.37	1.16	2.37	12.8	12.8	-14.4	-14.4	10.6	0.83	0.54	0.90



Alt Model-Shift Uniqueness Test

012884589-01, P = 2.743870 Days, E = 131.346767 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.1	2.45	2.32	0	4.49	1.46	1.11	32.7	35.1	0.13	2.45	15.1	0.92	0.06	0.40



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	89 ± 6	$3.72^{+3.29}_{-2.52}$	2009^{+160}_{-103}	-3874^{+624}_{-2306}	$-5.877^{+4.250}_{-51.230}$
Alt.	-10 ± 4	$3.15^{+3.22}_{-2.10}$	2006^{+156}_{-110}	2674^{+1452}_{-4891}	$0.808^{+6.812}_{-0.615}$

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

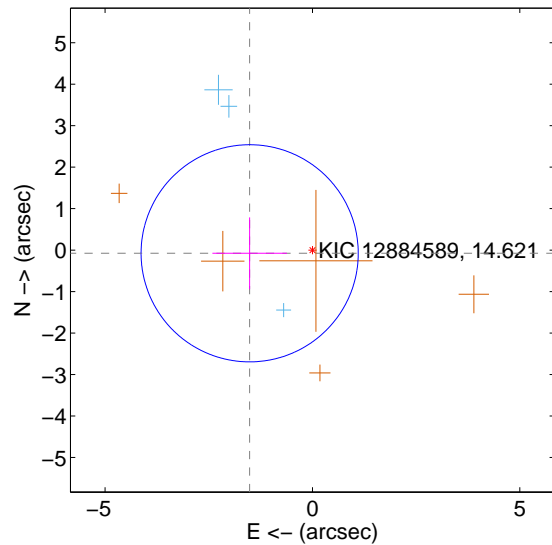
Supplemental centroid analysis for 012884589-01. Kepler magnitude: 14.62. Transit SNR 11.05

There are 4 quarters with good PRF difference image offsets

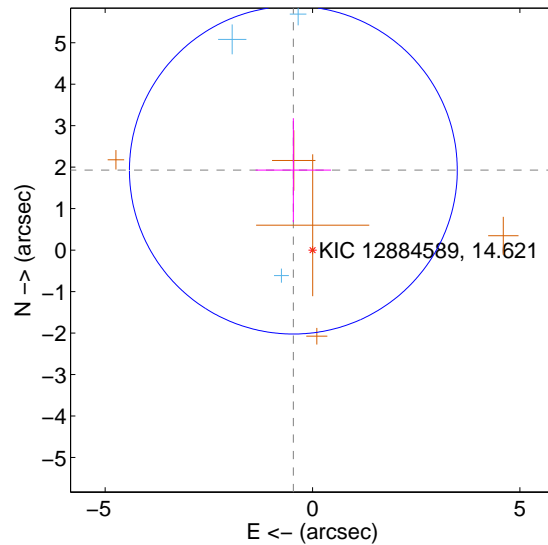
The OOT PRF centroid is offset from the target star catalog position by about 2.78 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.516 ± 0.873	1.74	1.514 ± 0.899	-0.077 ± 0.865
PRF-fit source offset from KIC position	1.983 ± 1.318	1.51	0.462 ± 0.908	1.929 ± 1.252
photometric centroid source offset	3.61 ± 0.42	8.64	0.26 ± 0.27	3.60 ± 0.42

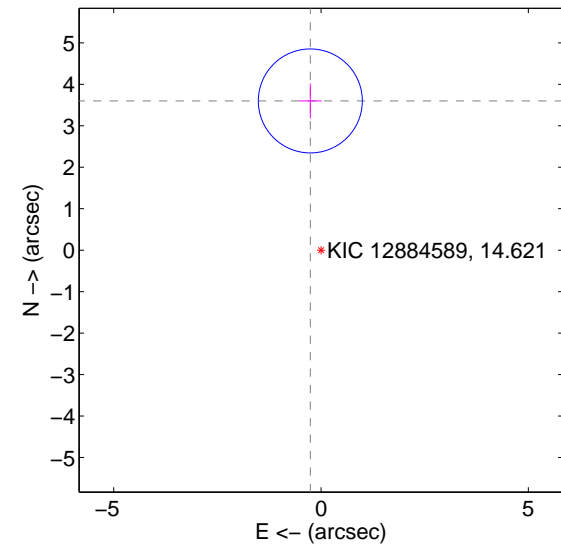
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

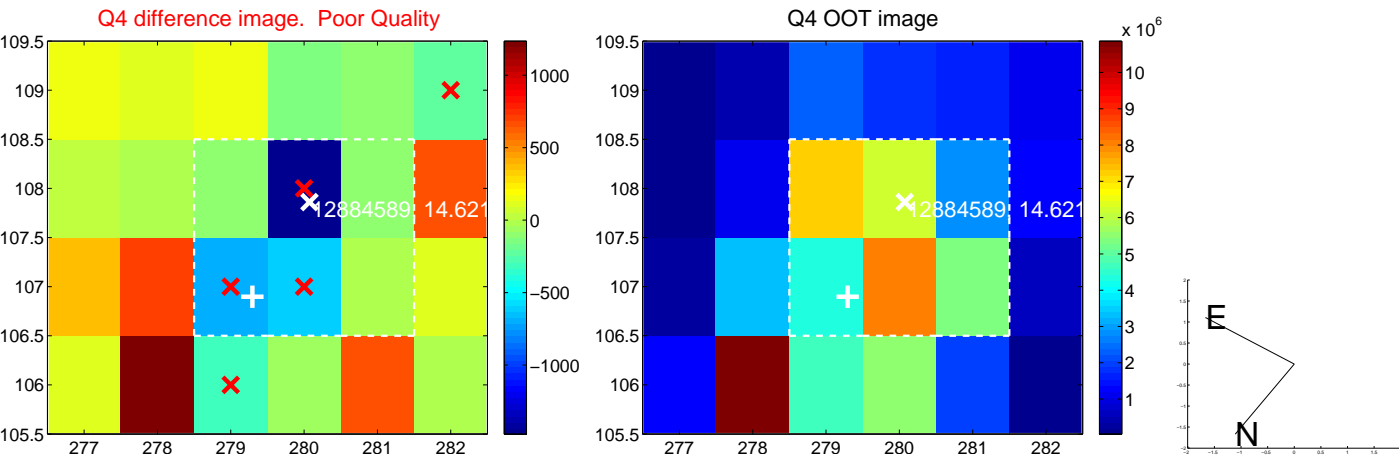
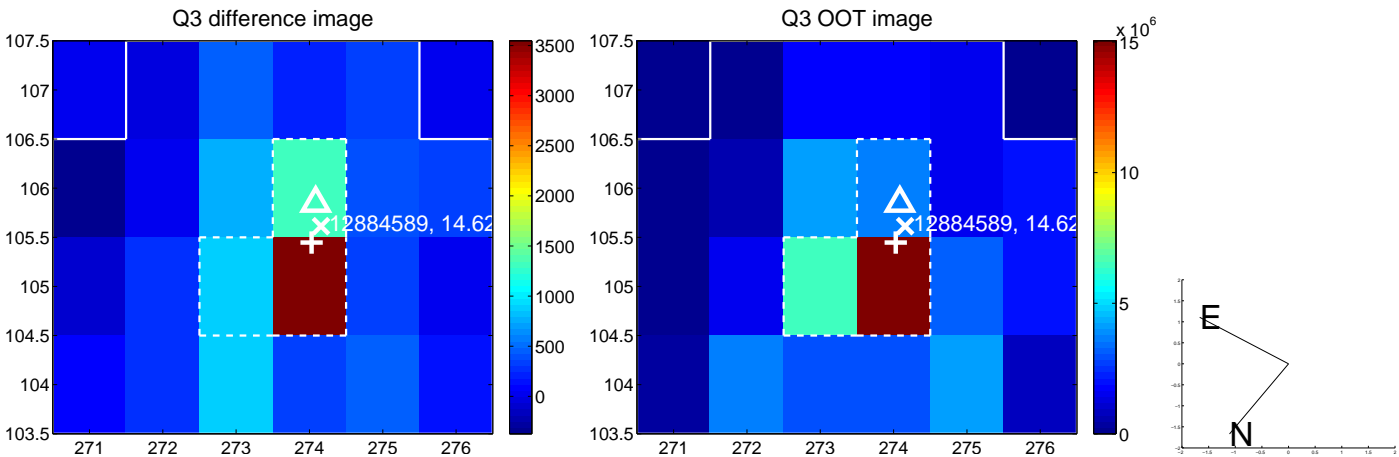
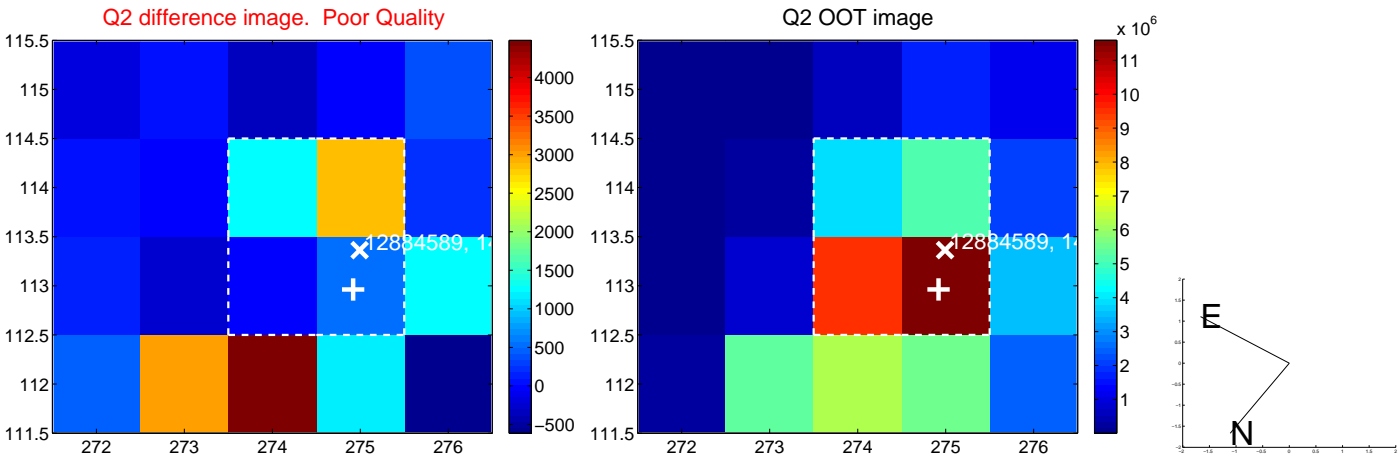
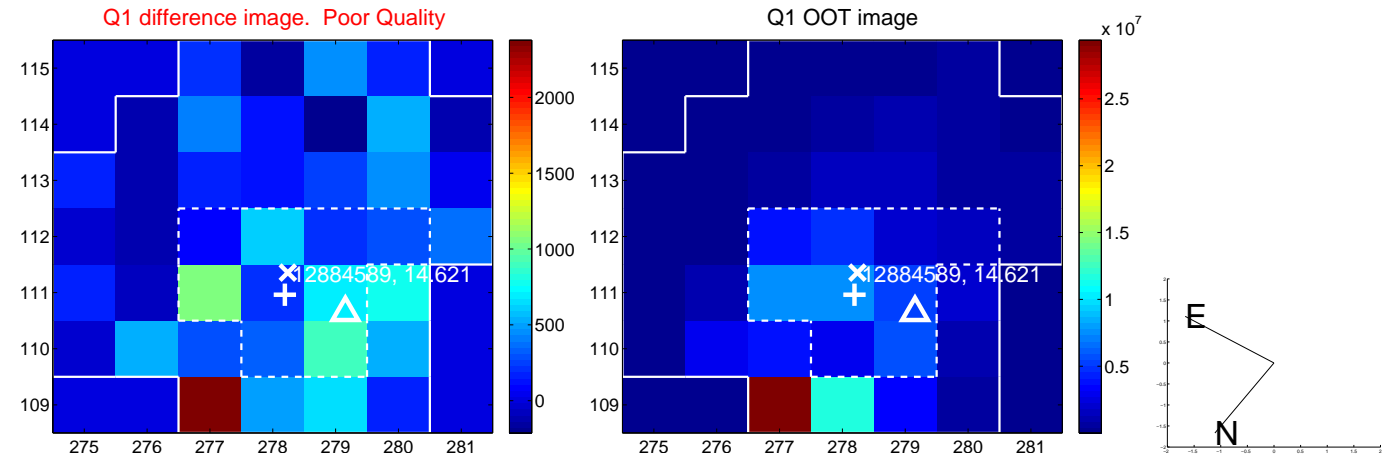


offset from photometric centroids

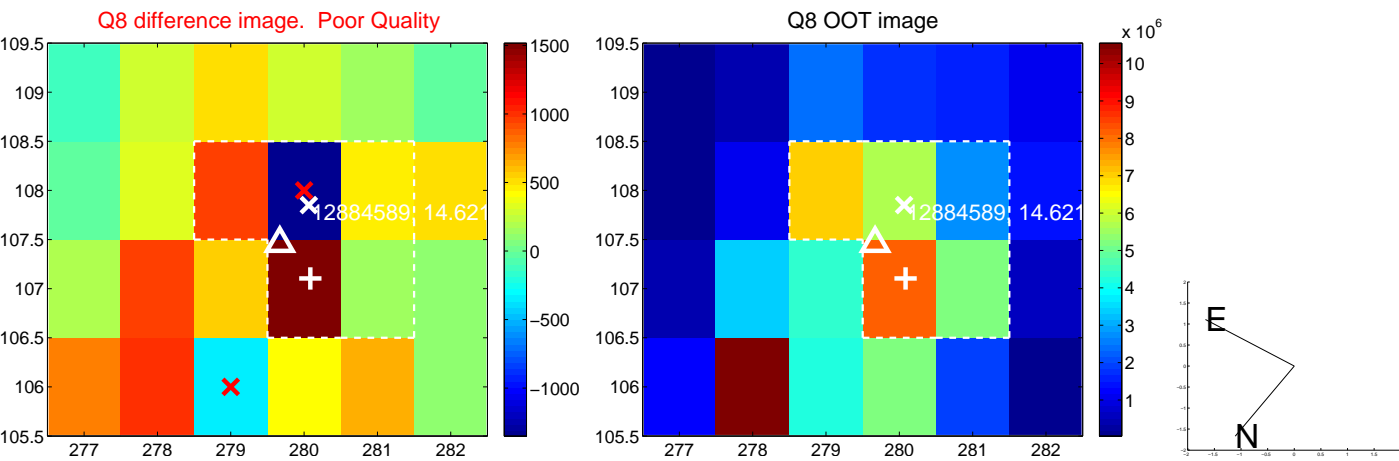
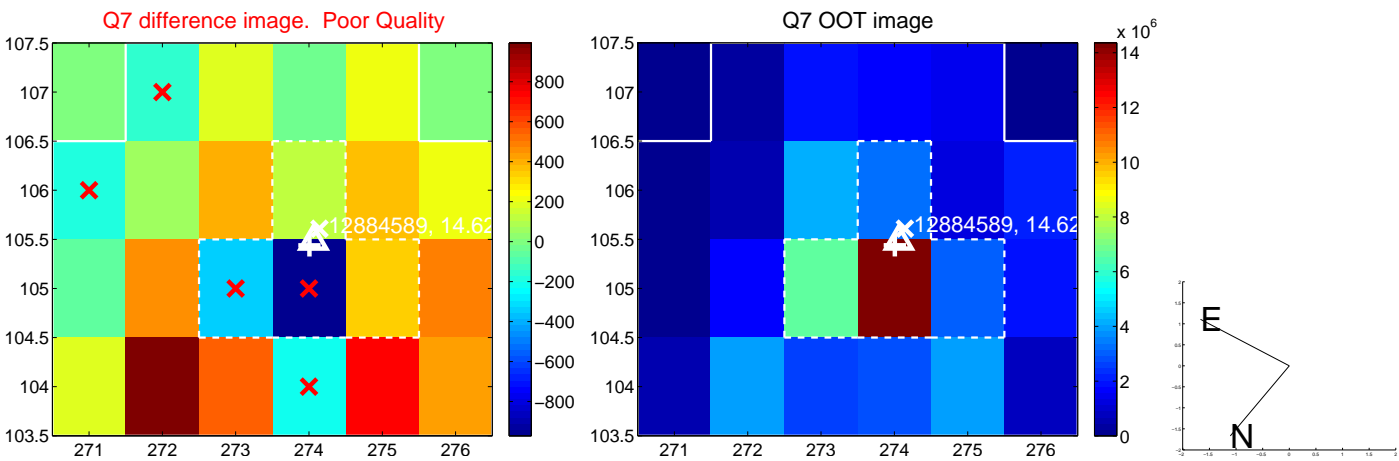
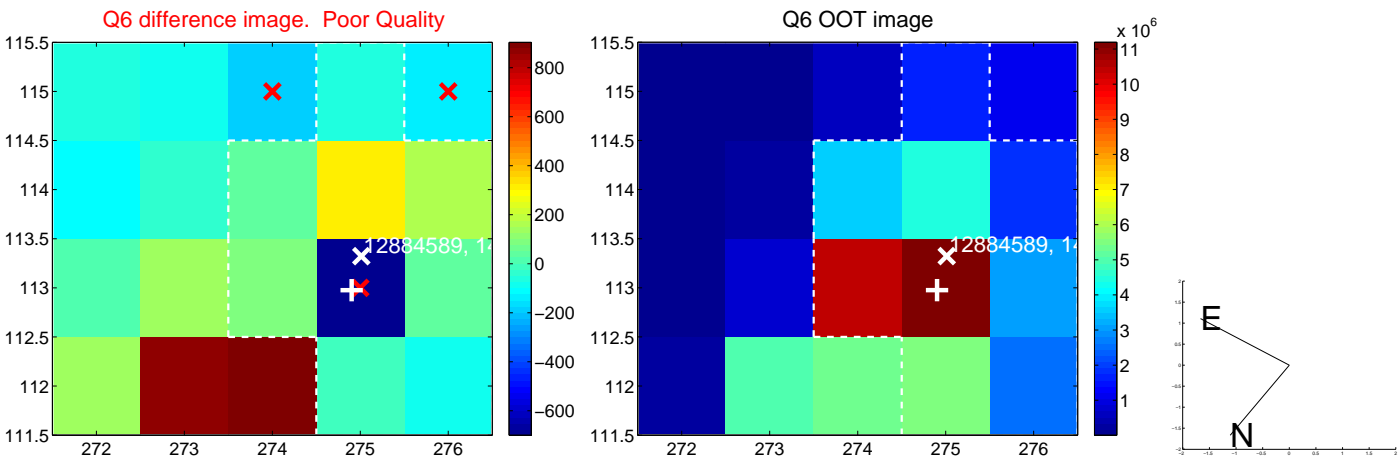
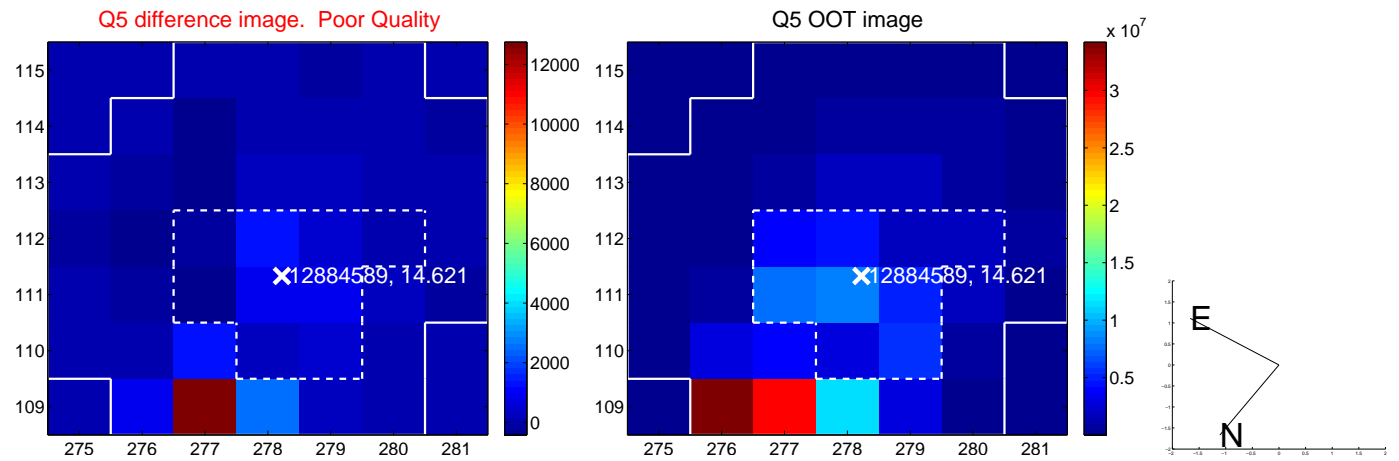


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

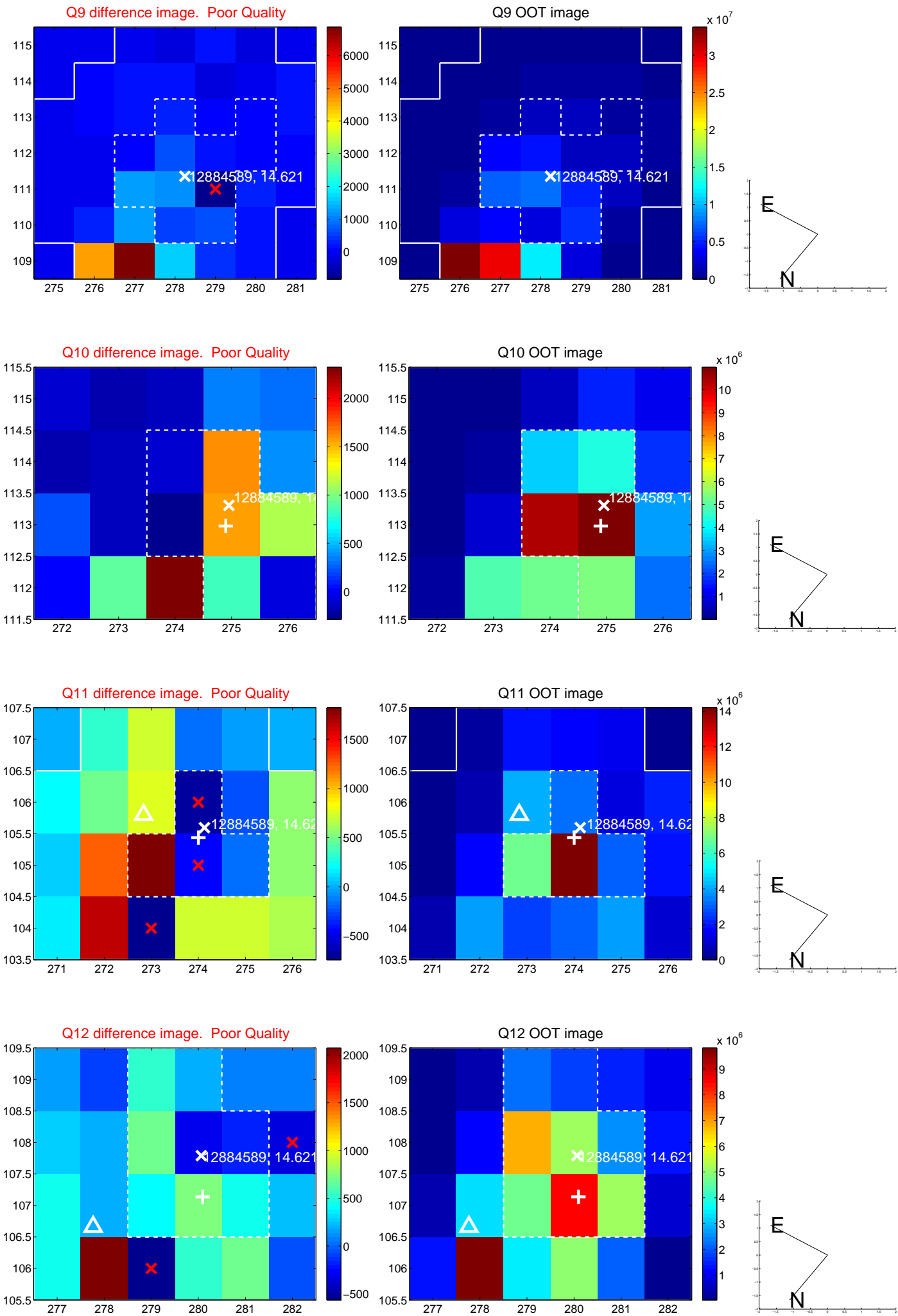
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



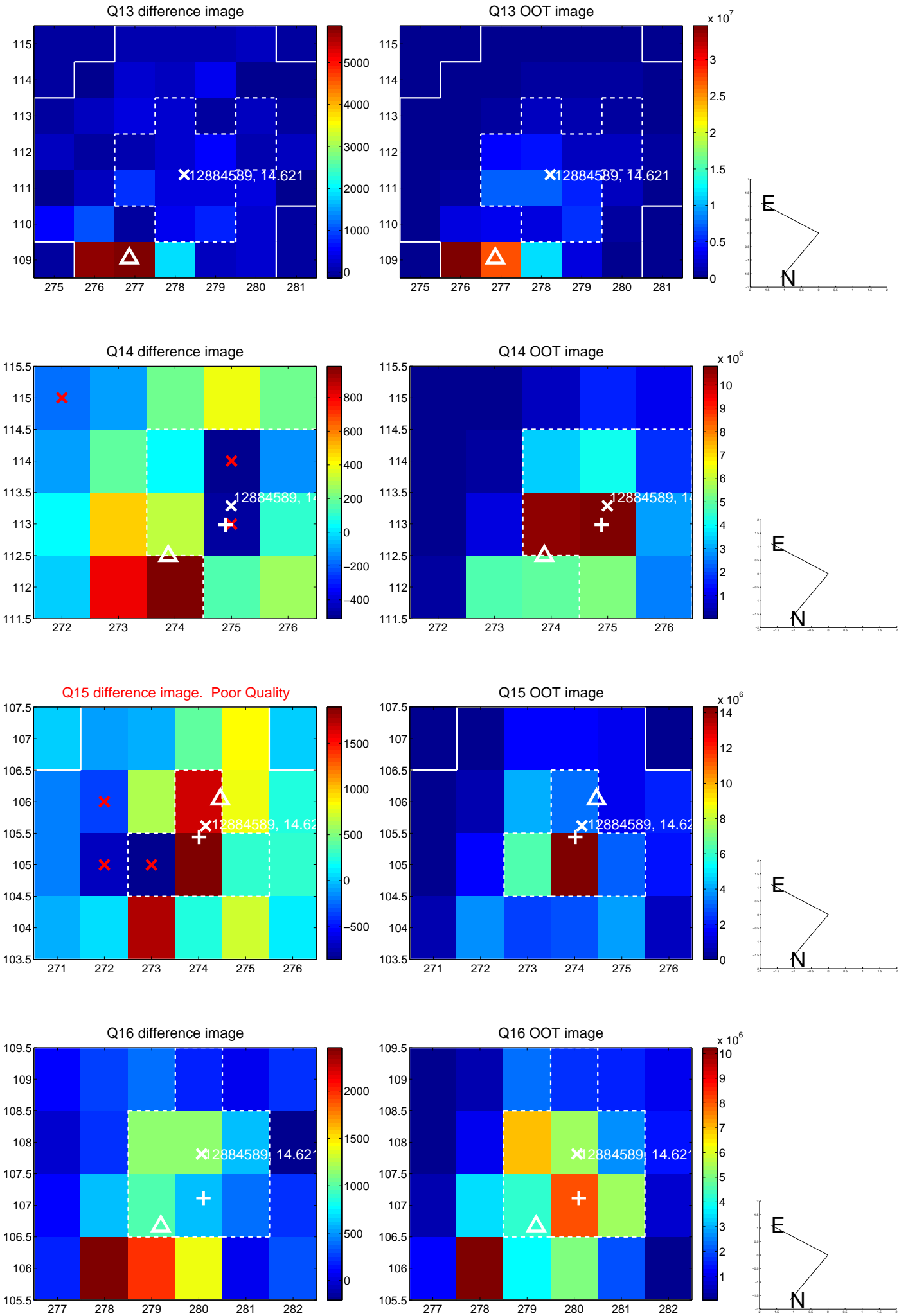
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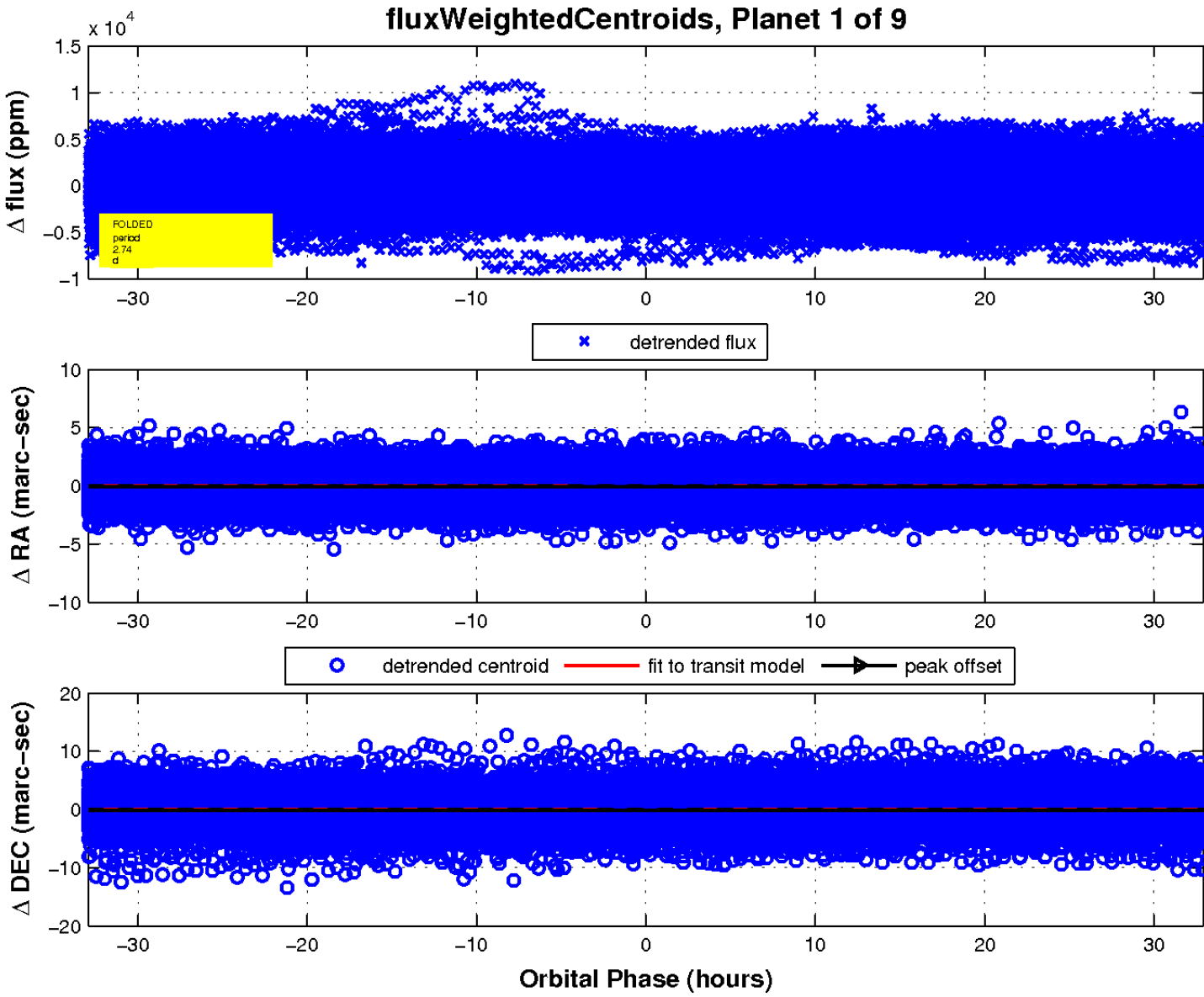
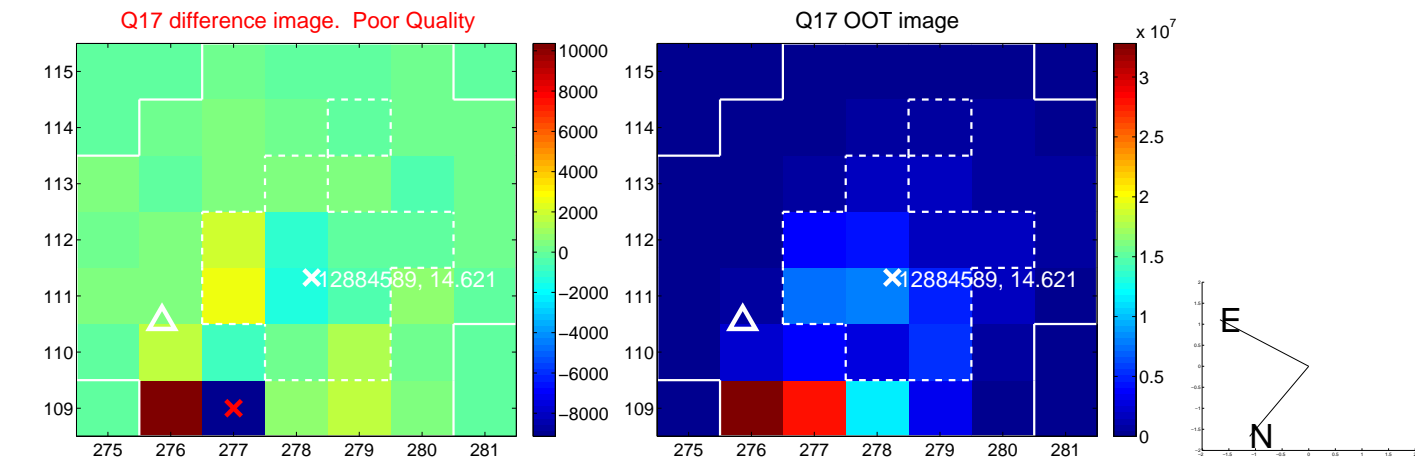
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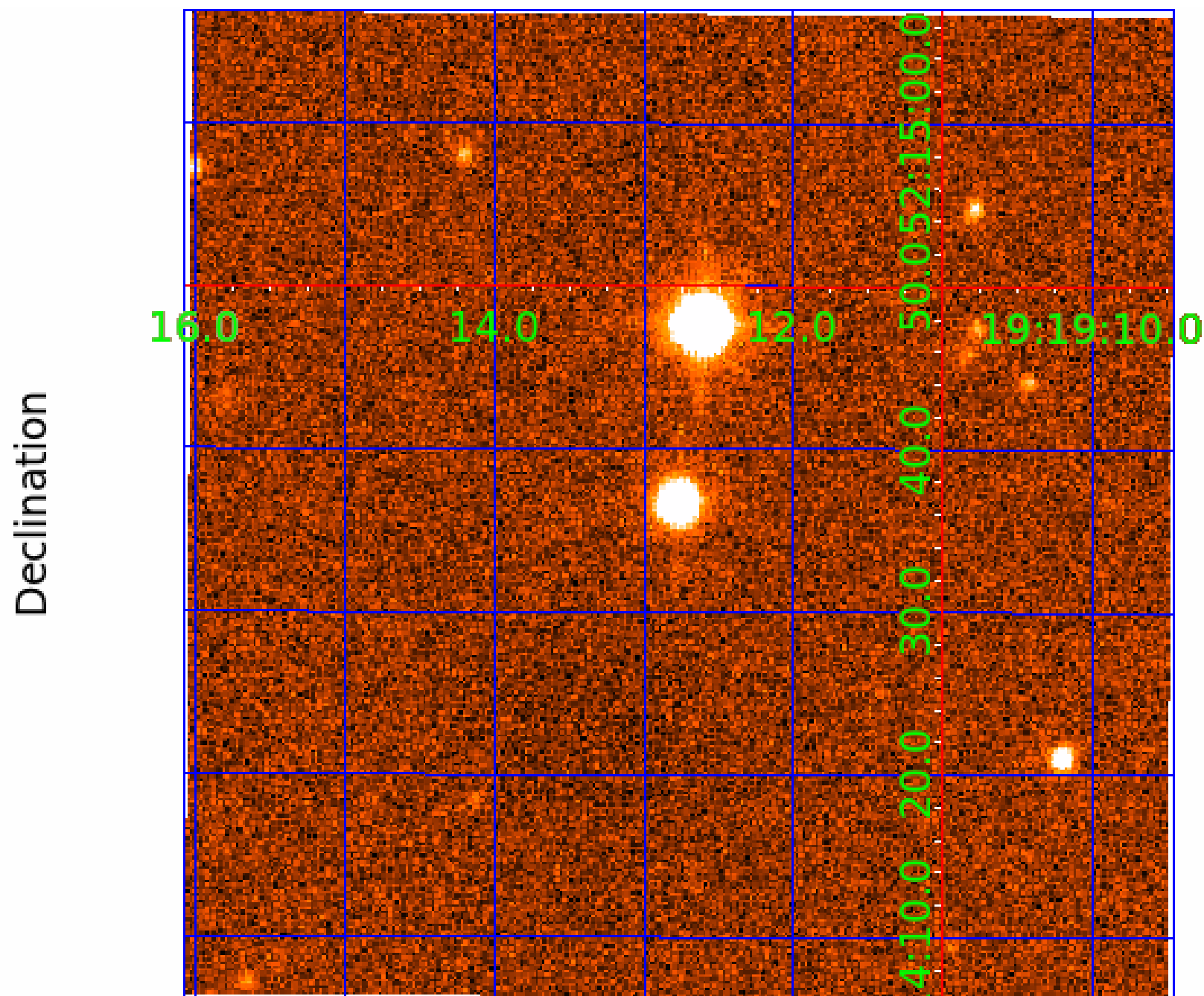
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UKIRT Image



KIC 012884589

Q1-17 DR25 TCE Parameters

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012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

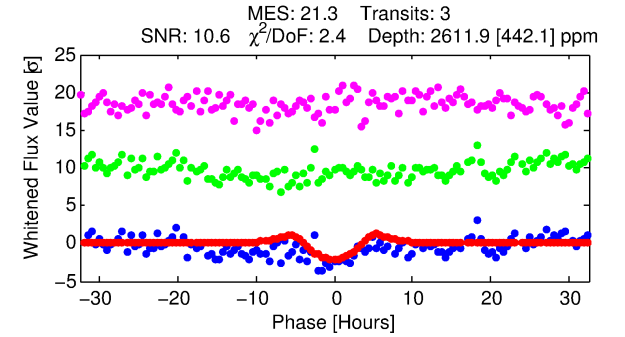
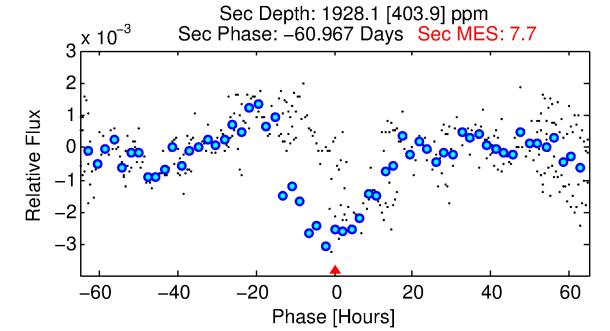
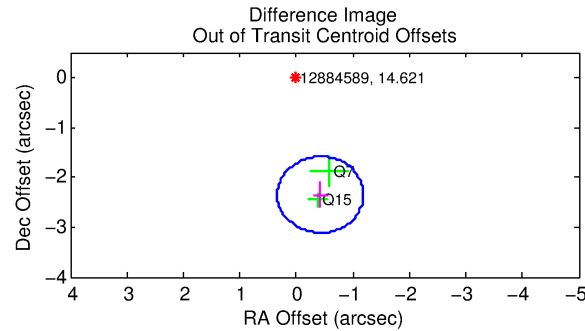
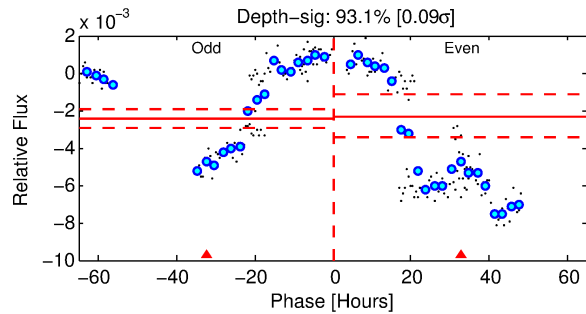
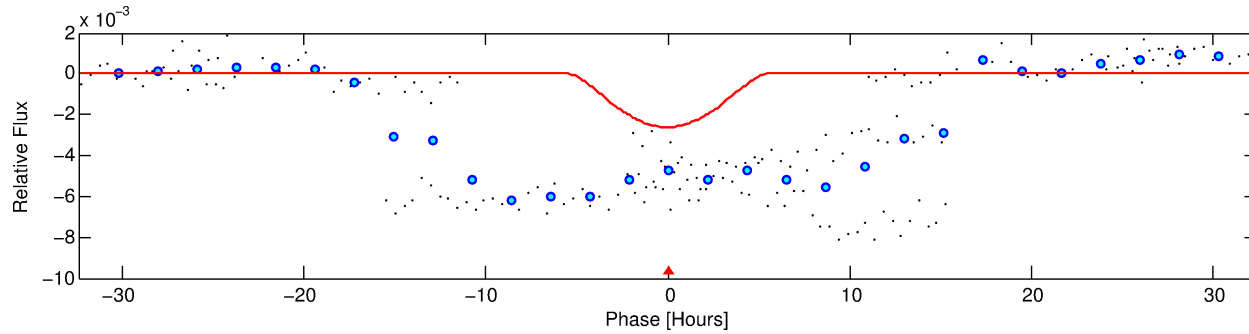
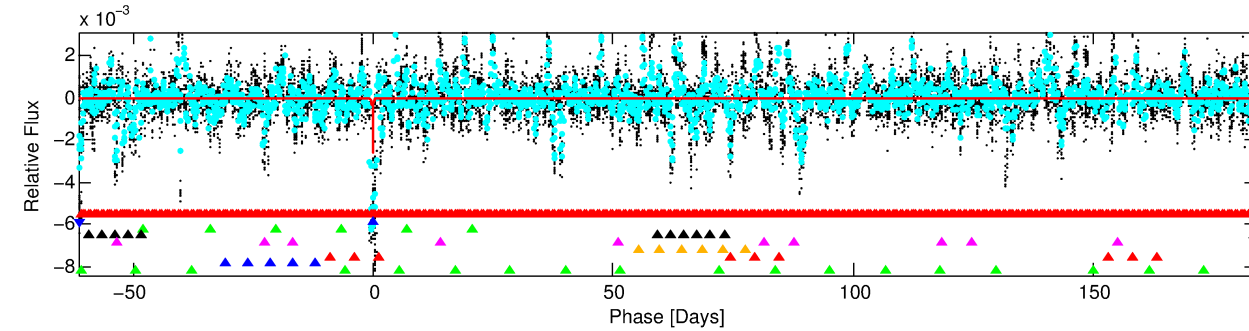
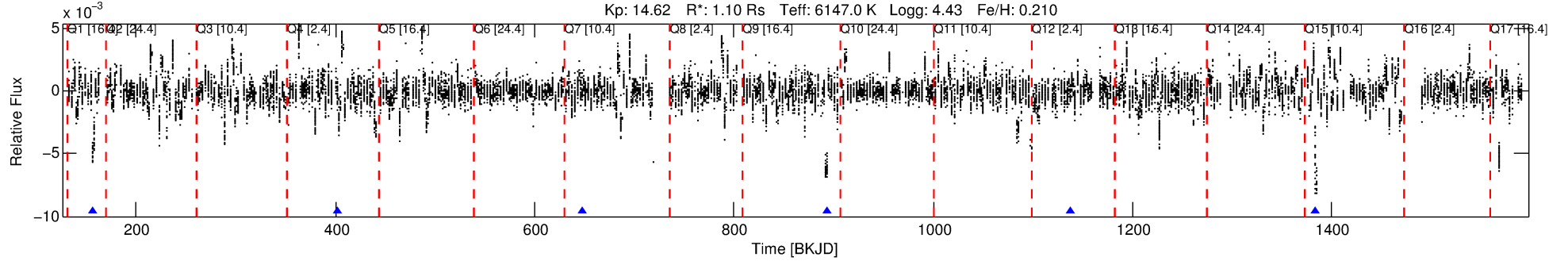
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-02

No Significant Match Found

DV One-Page Summary

KIC: 12884589 Candidate: 2 of 9 Period: 245.307 d



DV Fit Results:

Period = 245.30727 [0.00759] d
Epoch = 157.1227 [0.0244] BKJD
Rp/R* = 0.0813 [0.2177]
a/R* = 75.10 [49.24]
b = 0.99 [0.33]
Seff = 2.32 [1.00]
Teq = 315 [34] K
Rp = 9.73 [26.22] Re
a = 0.8135 [0.2215] AU
Ag = 7421.96 [39875.09] [0.19 σ]
Teffp = 4517 [6053] K [0.69 σ]

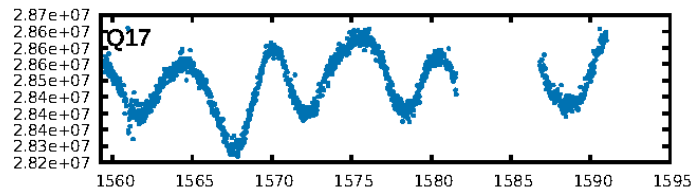
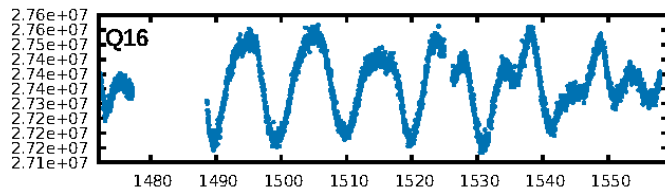
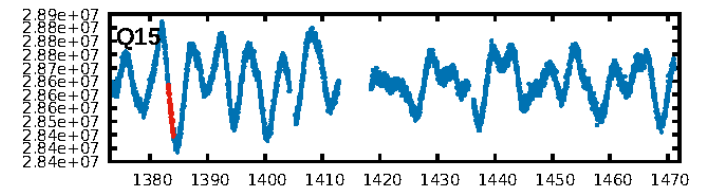
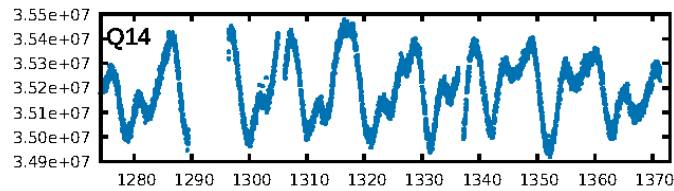
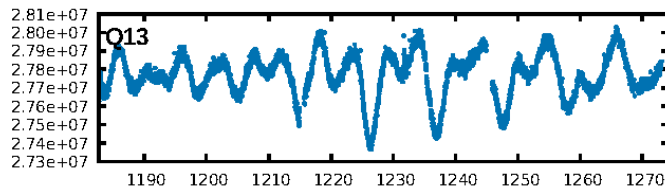
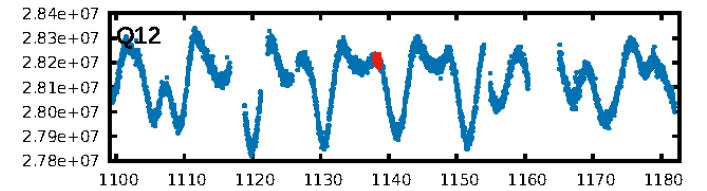
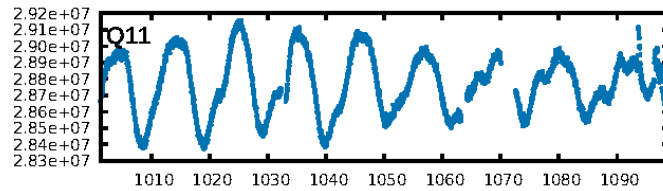
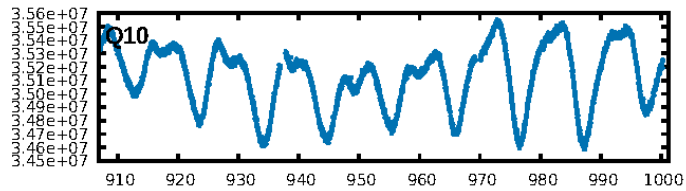
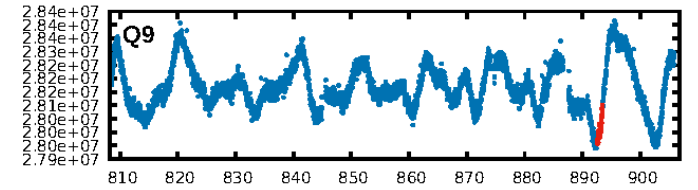
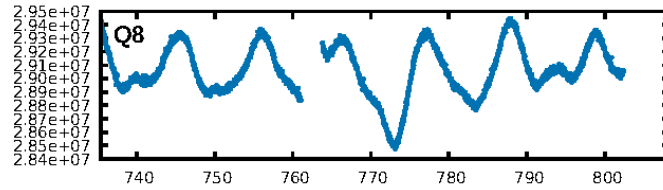
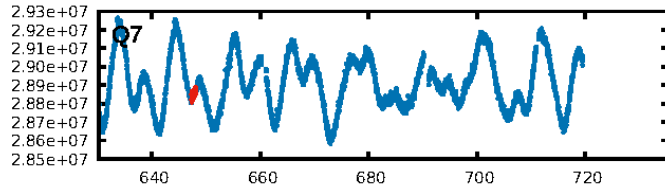
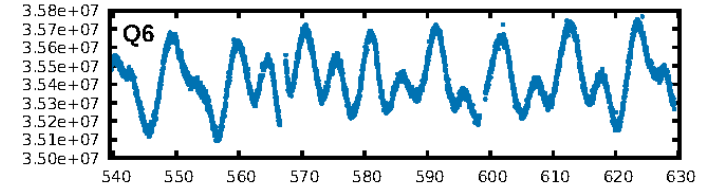
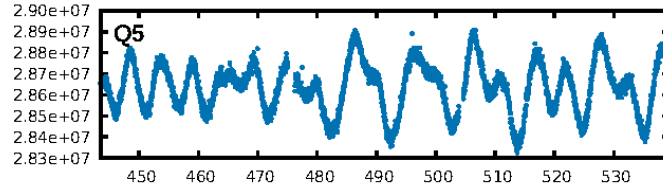
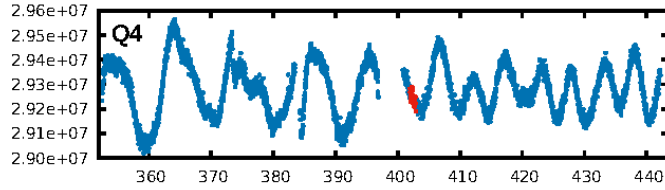
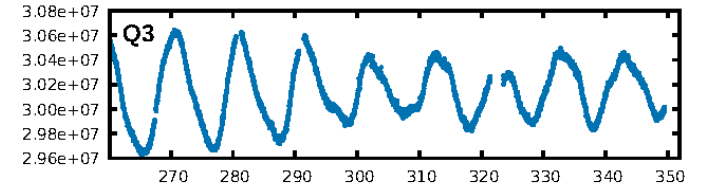
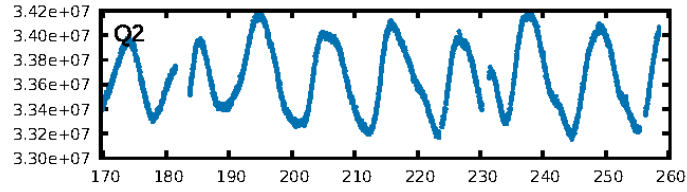
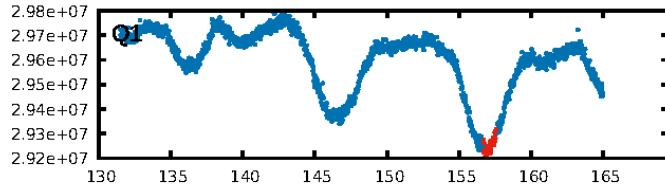
DV Diagnostic Results:

ShortPeriod-sig: 97.4% [2.22 σ]
LongPeriod-sig: 86.0% [1.48 σ]
ModelChiSquare2-sig: 69.7%
ModelChiSquareGof-sig: 10.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 3.459
Centroid-sig: 61.3%
Centroid-so: 3.047 arcsec [13.05 σ]
OotOffset-rm: 2.389 arcsec [9.40 σ]
KicOffset-rm: 1.304 arcsec [1.83 σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/5]

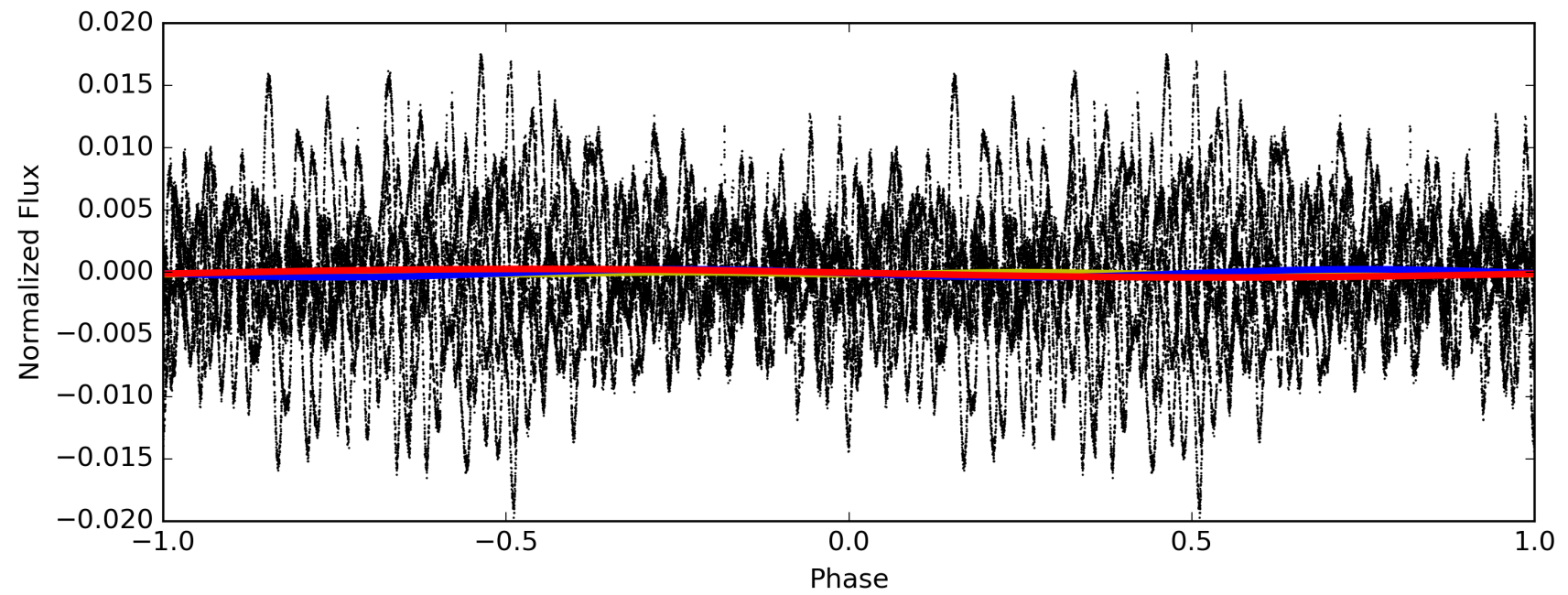
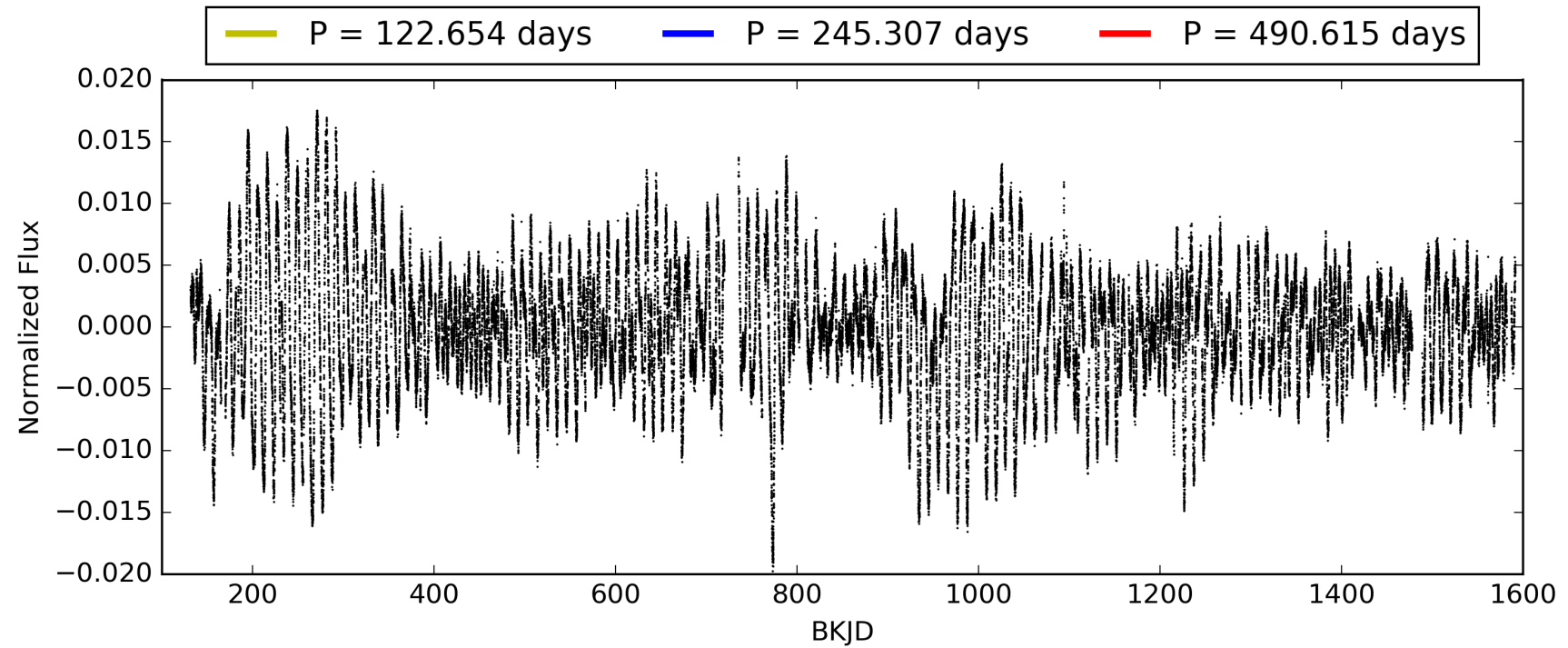
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:07:35 Z

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

TCE 012884589-02, PDC Light Curves

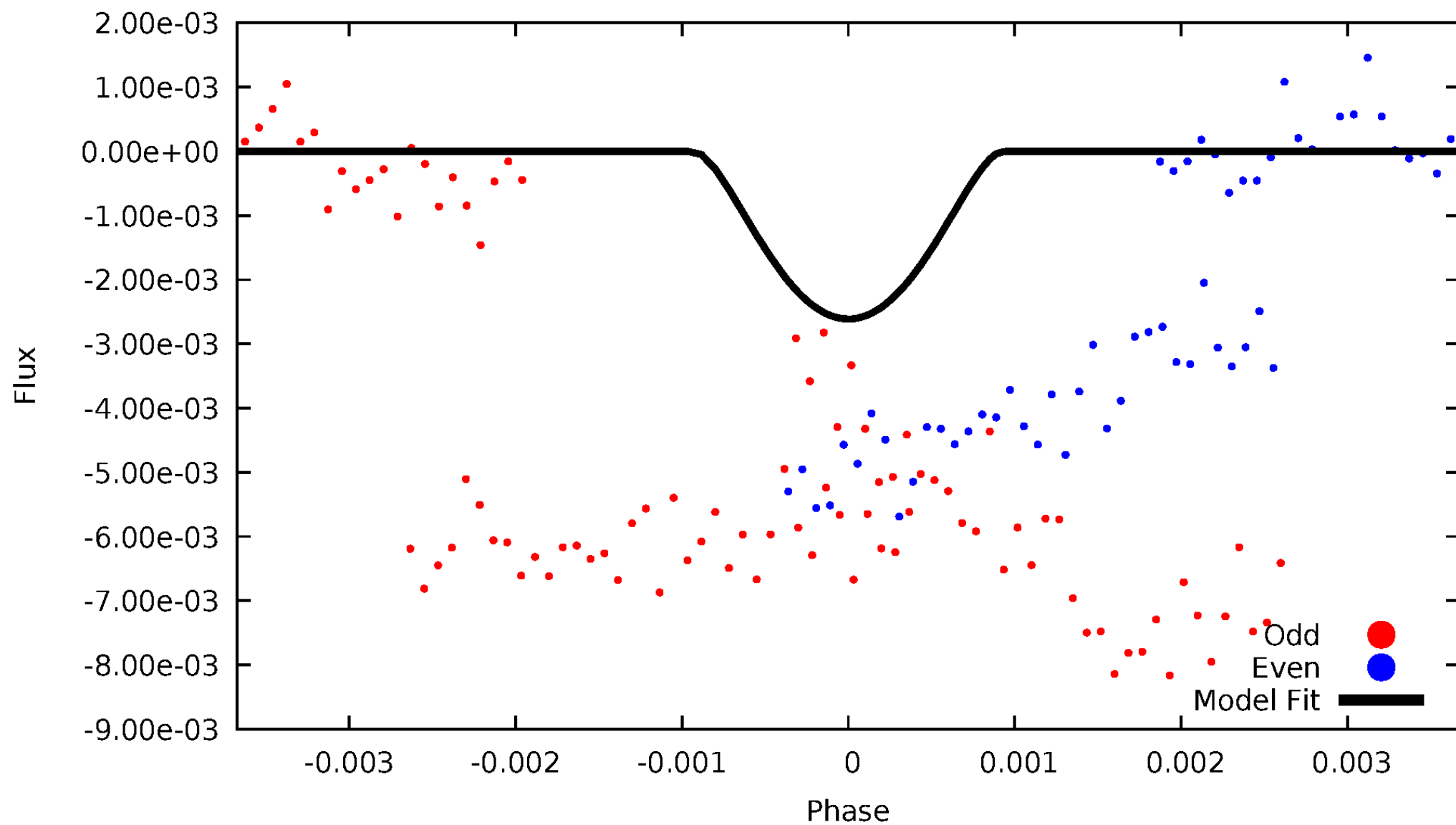


TCE 012884589-02



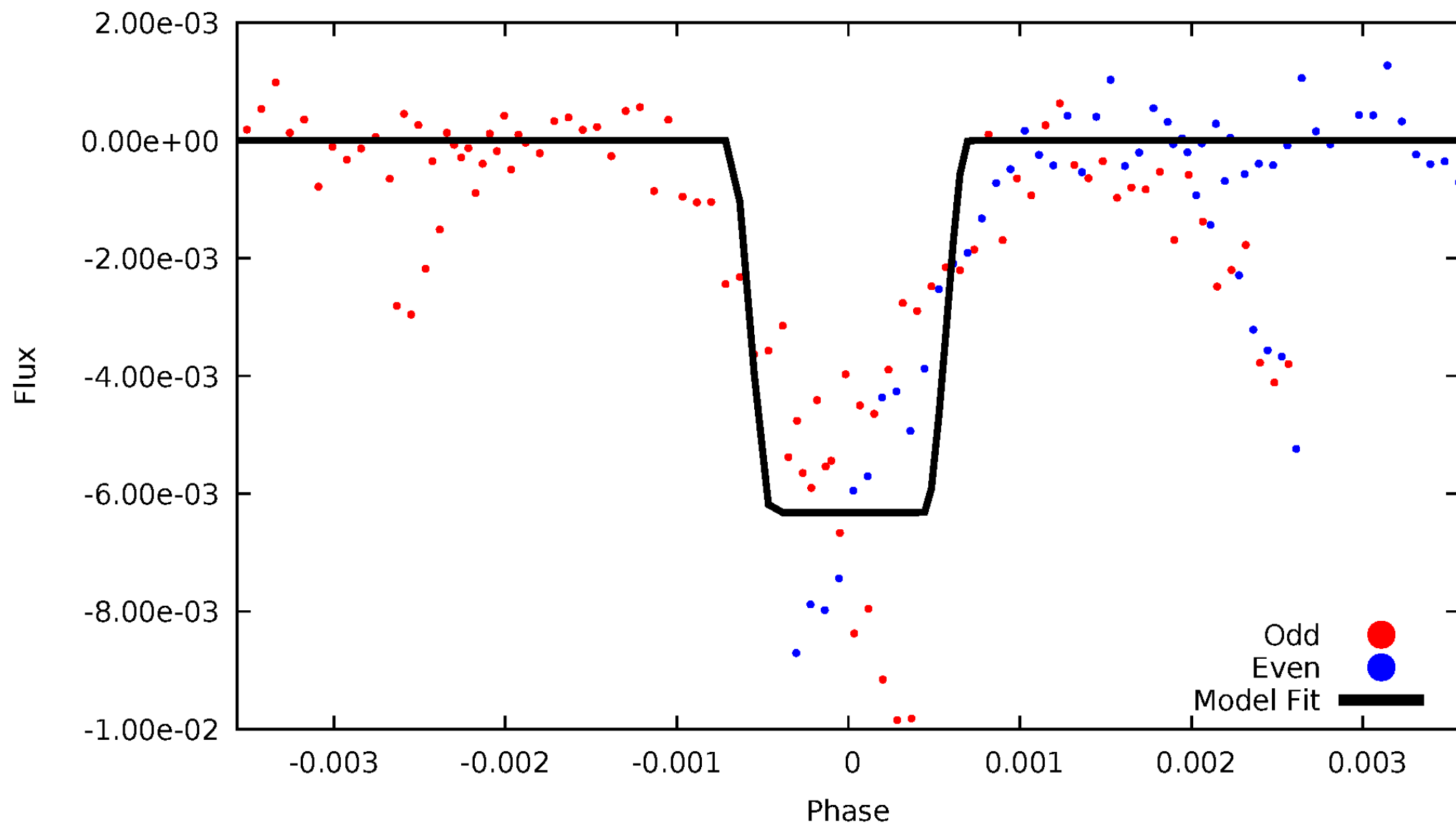
DV Odd/Even

TCE 012884589-02



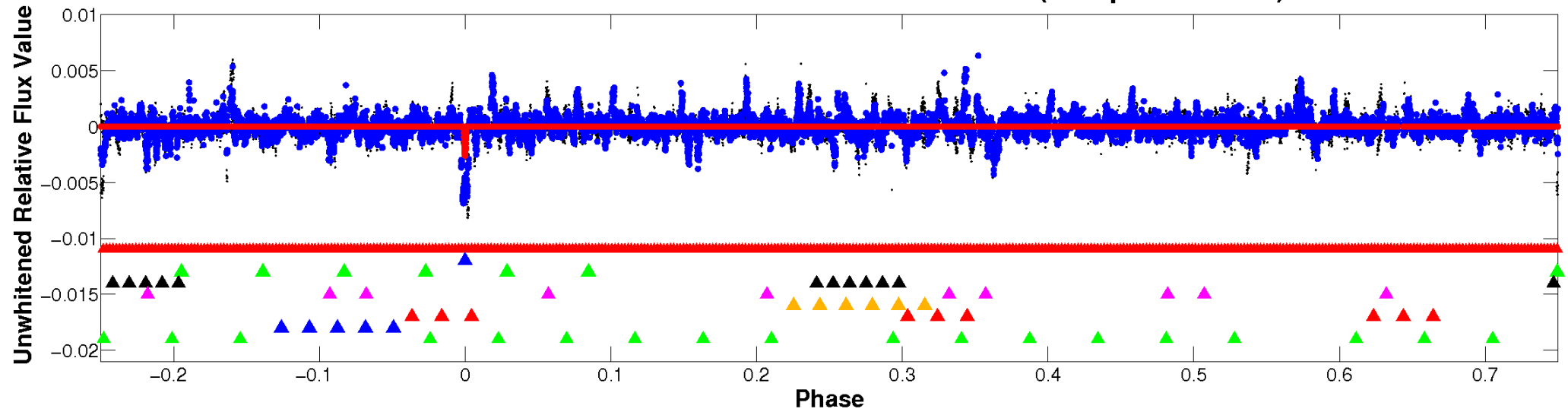
ALT Odd/Even

TCE 012884589-02

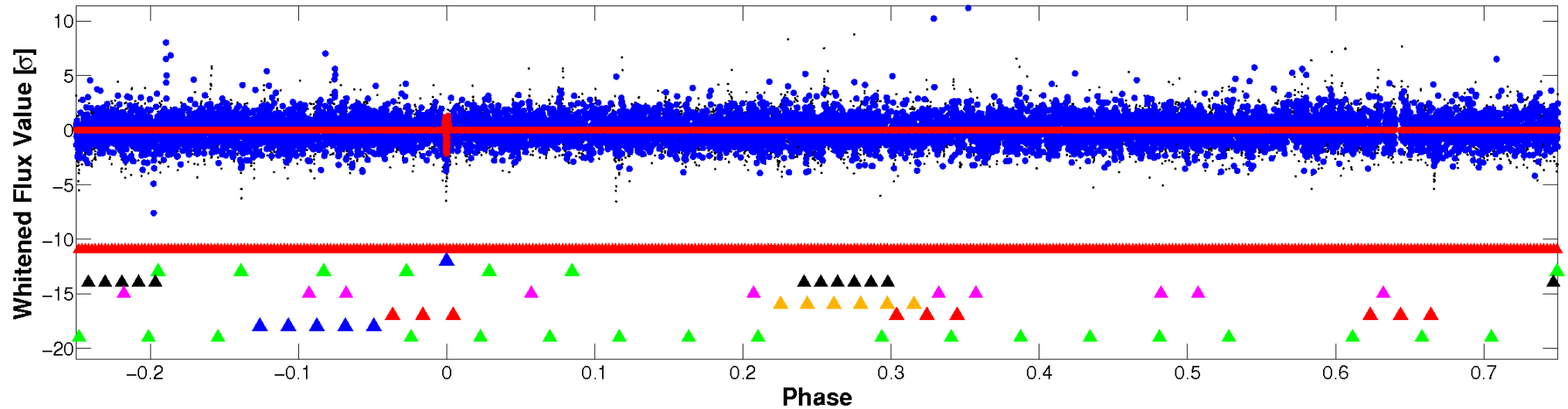


Non-Whitened Vs. Whitened Light Curve

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

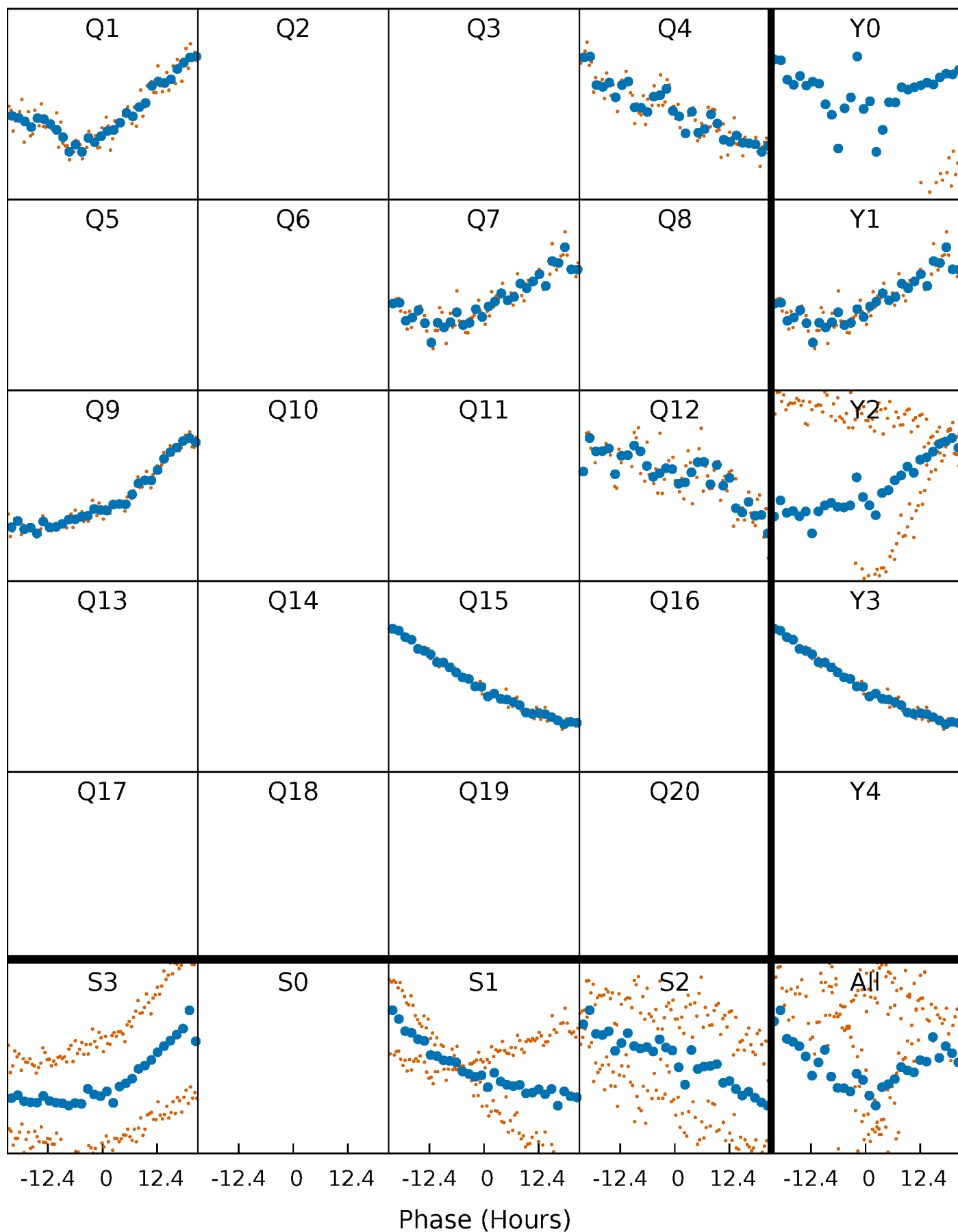


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



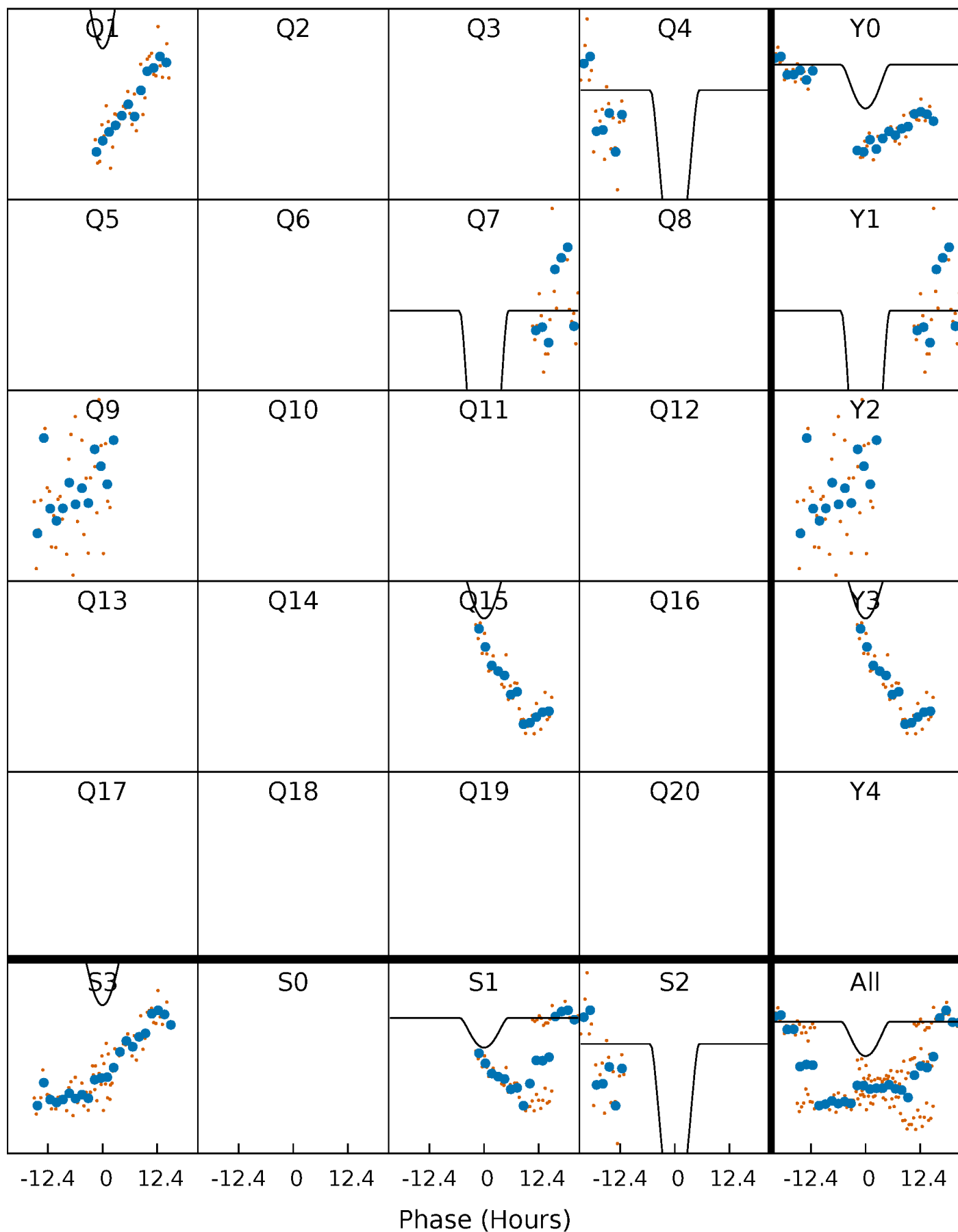
PDC Quarter-Phased Transit Curves

TCE 012884589-02 $P=245.307270$ Days $T_0=157.122651$ (BKJD)



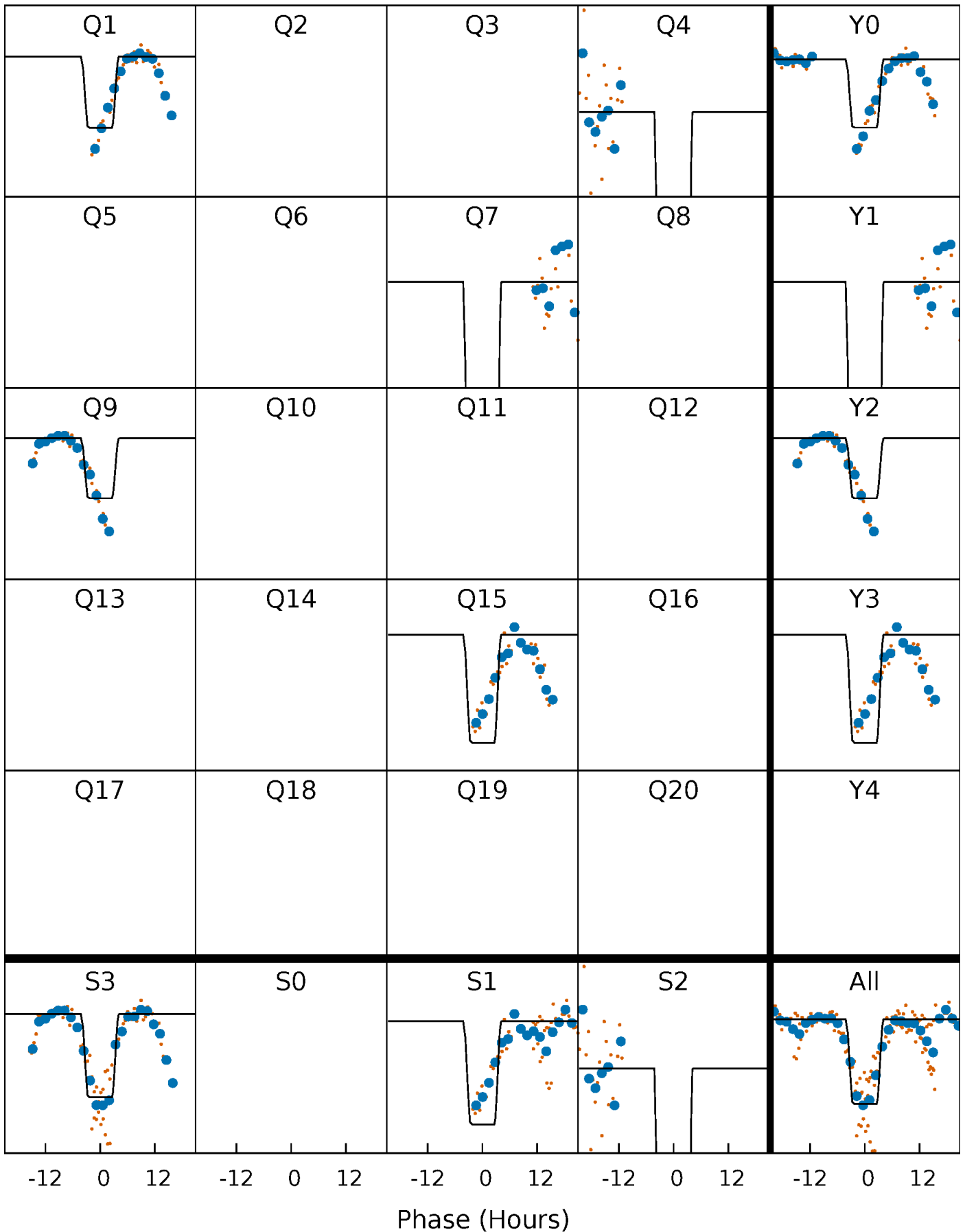
DV Quarter-Phased Transit Curves

TCE 012884589-02 $P=245.307270$ Days $T_0=157.122651$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

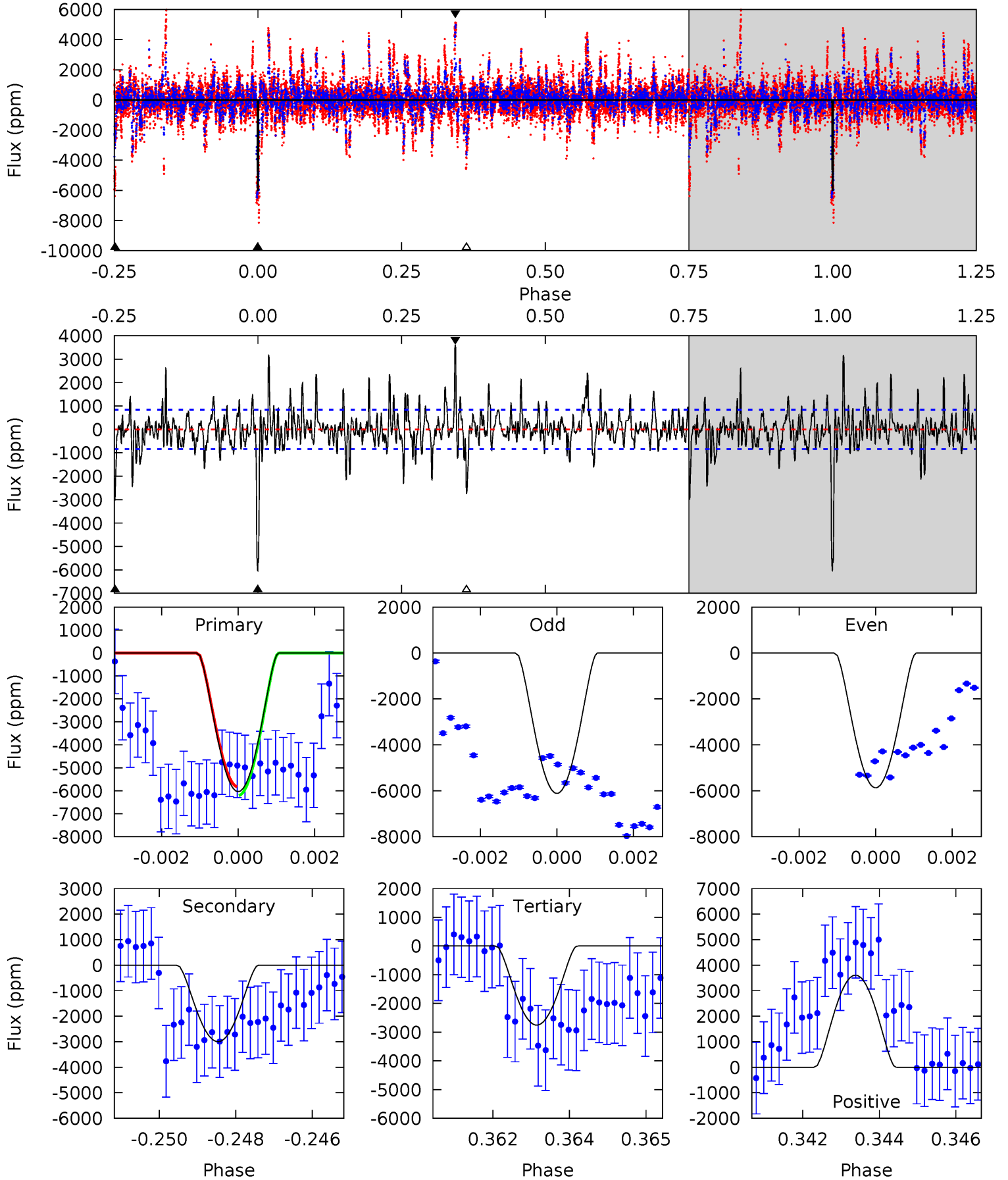
TCE 012884589-02 P=245.311699 Days $T_0=157.108852$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-02, P = 245.307270 Days, E = 157.122651 Days

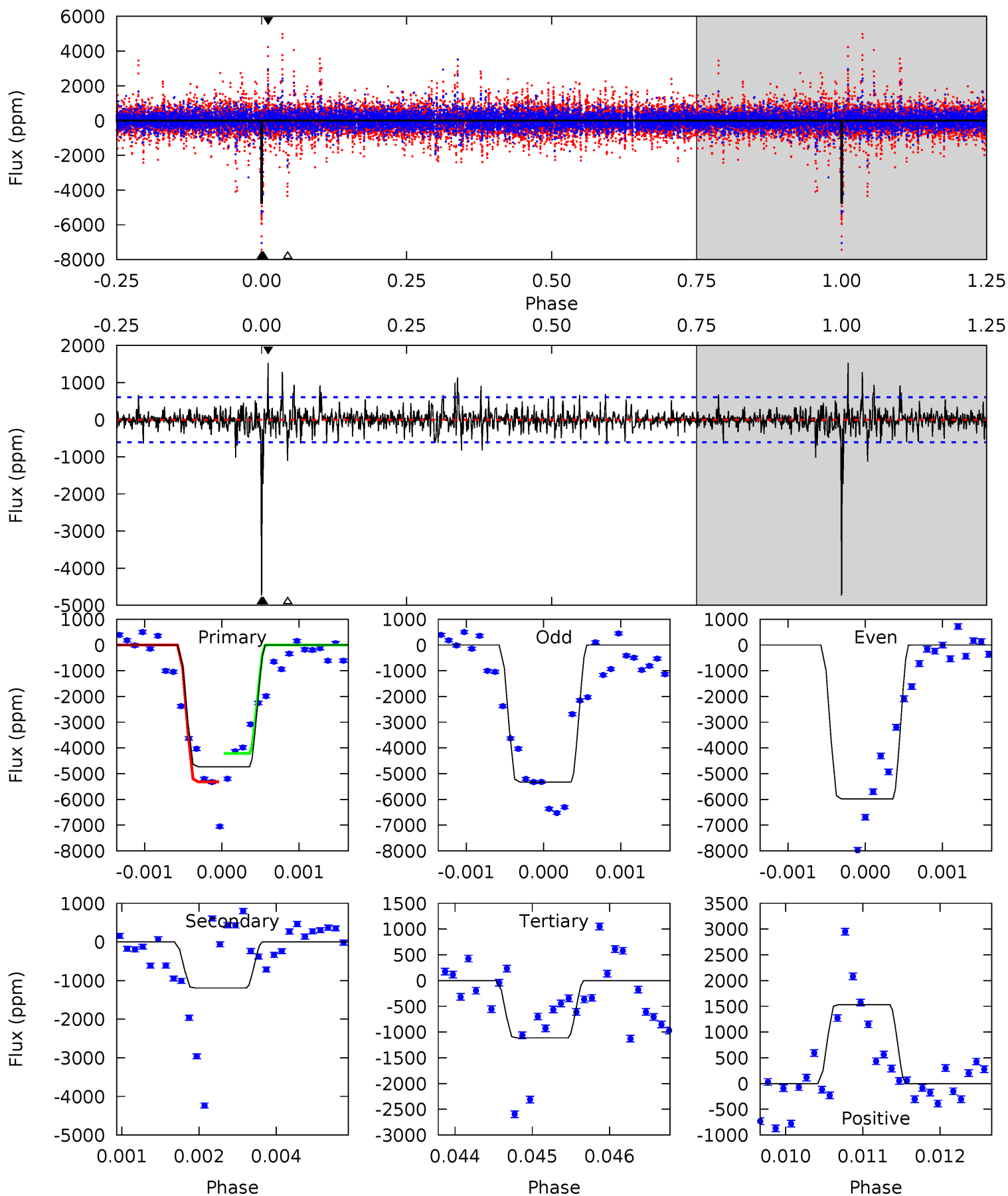
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.3	19.0	17.5	22.9	5.35	3.13	4.48	20.8	15.4	1.55	-3.88	0.74	1.03	0.37	1.18



Alt Model-Shift Uniqueness Test

012884589-02, P = 245.311699 Days, E = 157.108852 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.3	10.7	9.94	13.7	5.41	3.23	1.87	32.4	28.6	0.71	-3.04	3.11	0.95	0.24	0



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2997 ± 158	$22.28^{+21.86}_{-15.62}$	450^{+32}_{-26}	3786^{+2279}_{-721}	2143^{+20093}_{-1607}
Alt.	-1192 ± 112	$22.81^{+22.88}_{-15.73}$	450^{+36}_{-24}	3265^{+1645}_{-593}	834^{+7317}_{-639}

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

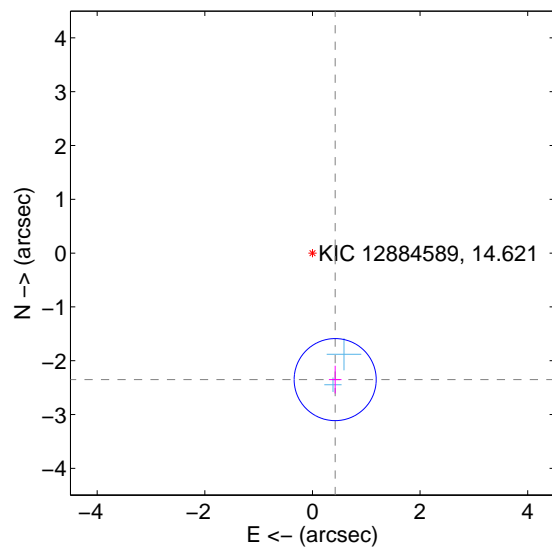
Supplemental centroid analysis for 012884589-02. Kepler magnitude: 14.62. Transit SNR 10.64

There are 2 quarters with good PRF difference image offsets

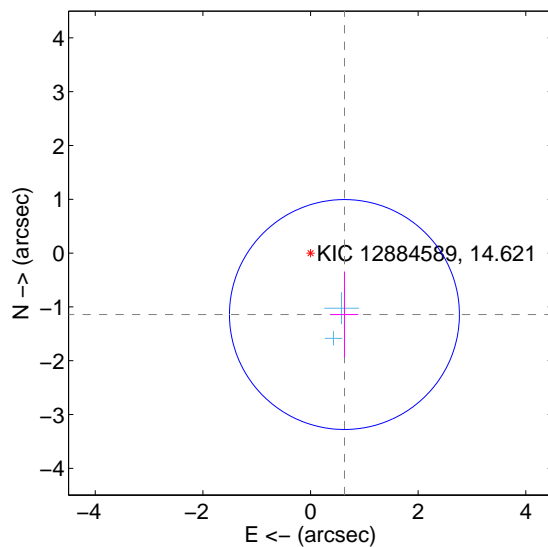
The direct PRF centroid is offset from the target star catalog position by about 0.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.389 ± 0.254	9.40	-0.423 ± 0.117	-2.351 ± 0.257
PRF-fit source offset from KIC position	1.304 ± 0.712	1.83	-0.630 ± 0.256	-1.142 ± 0.801
photometric centroid source offset	3.05 ± 0.23	13.05	-0.29 ± 0.17	3.03 ± 0.23

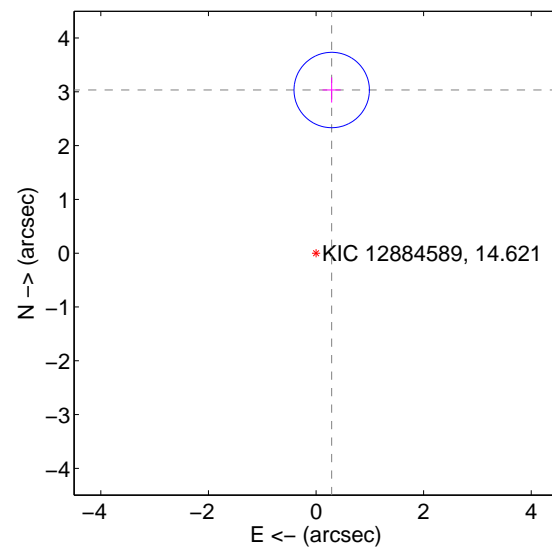
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

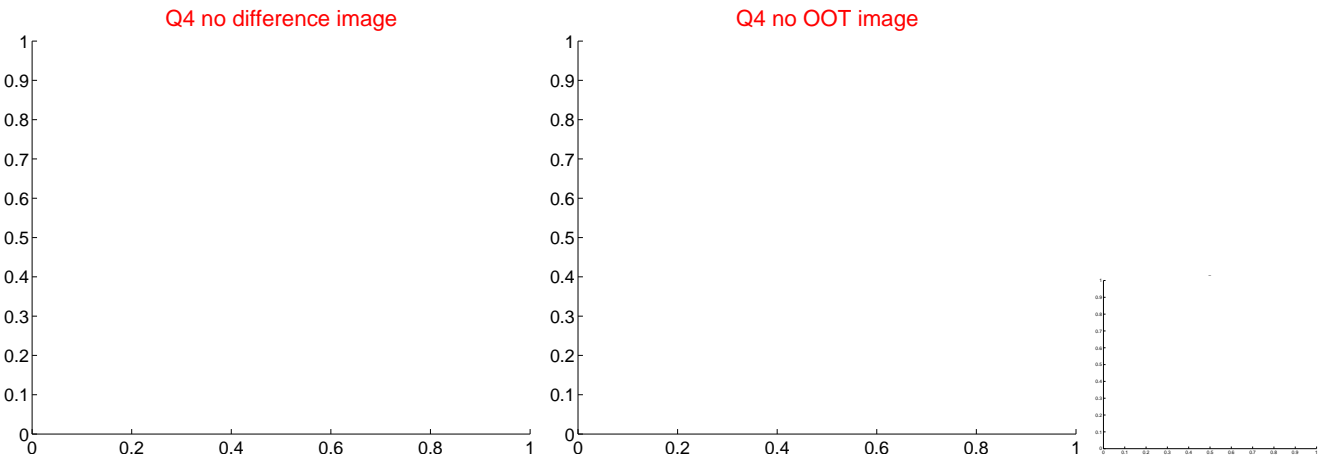
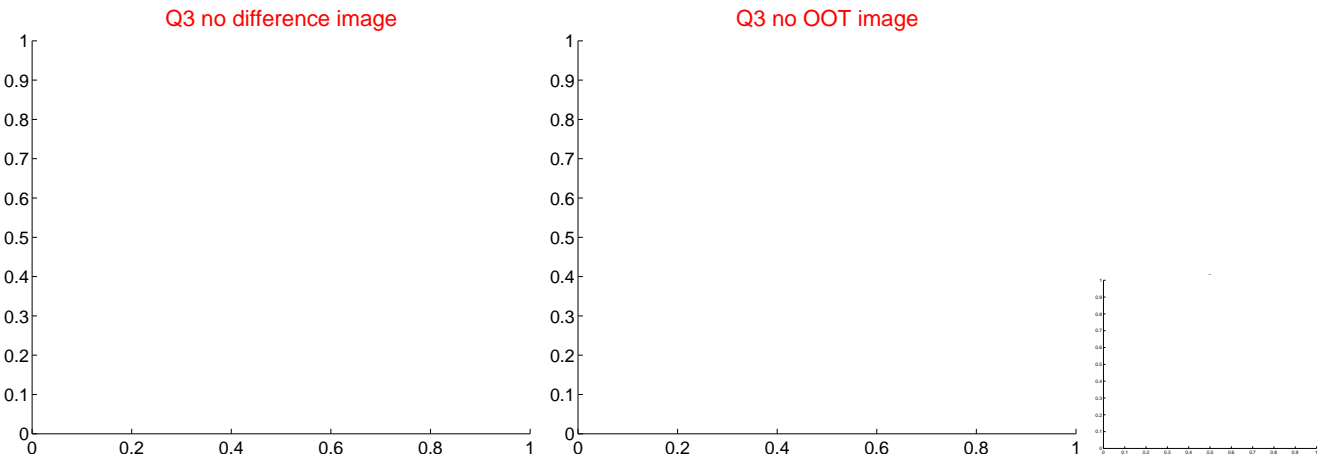
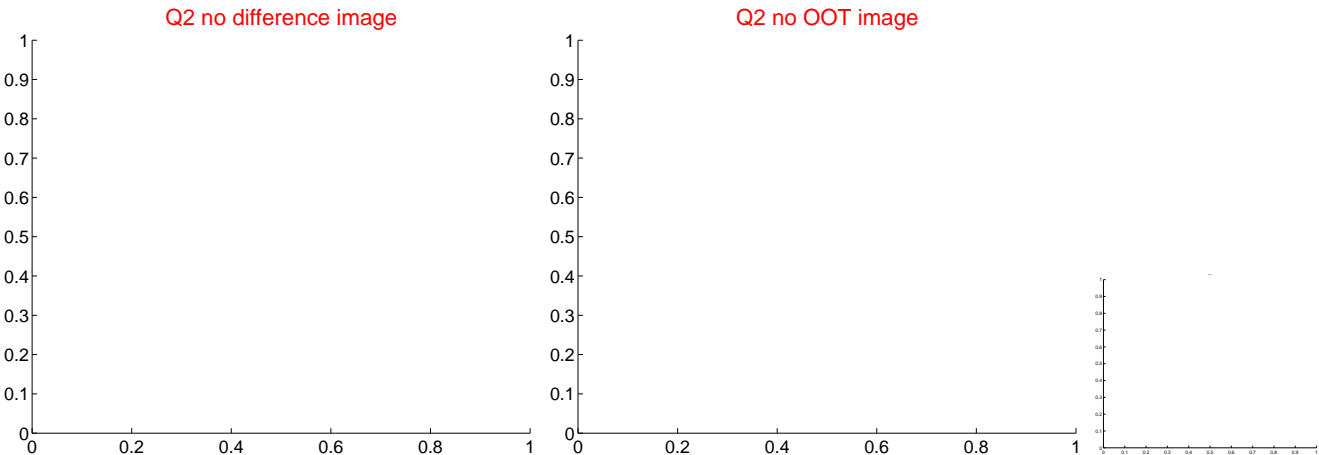
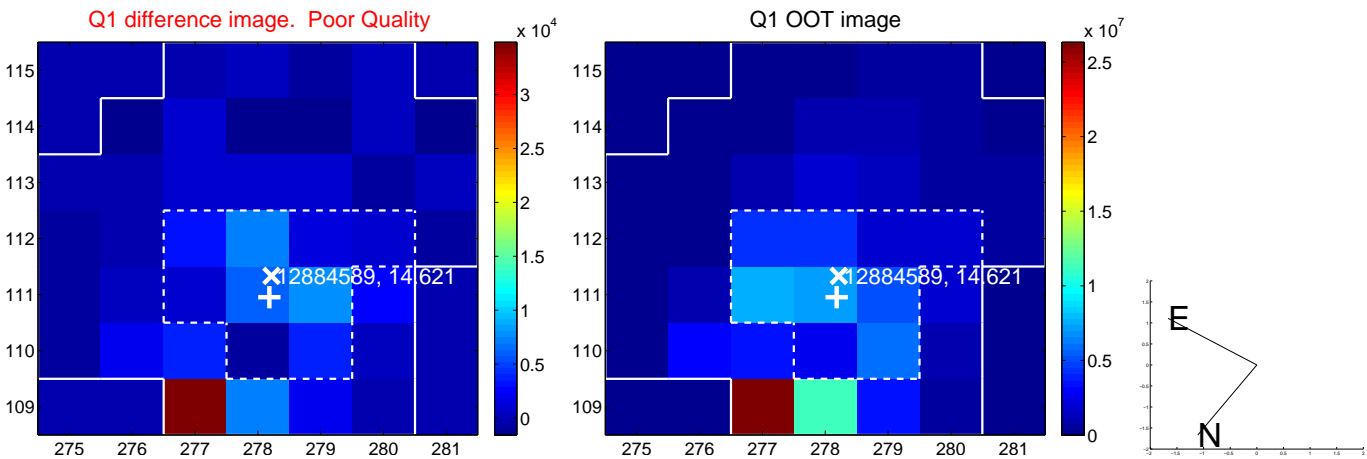


offset from photometric centroids

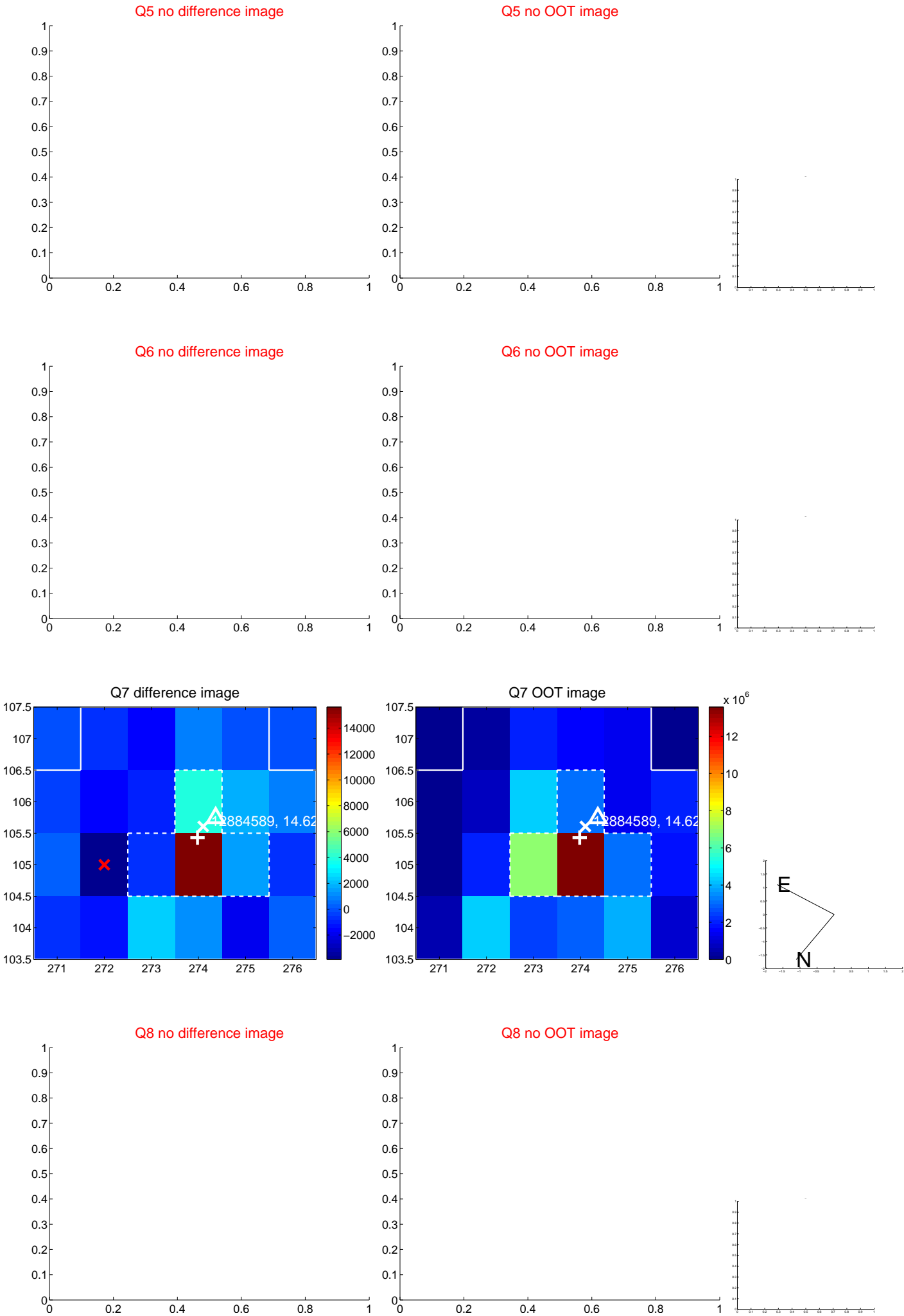


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

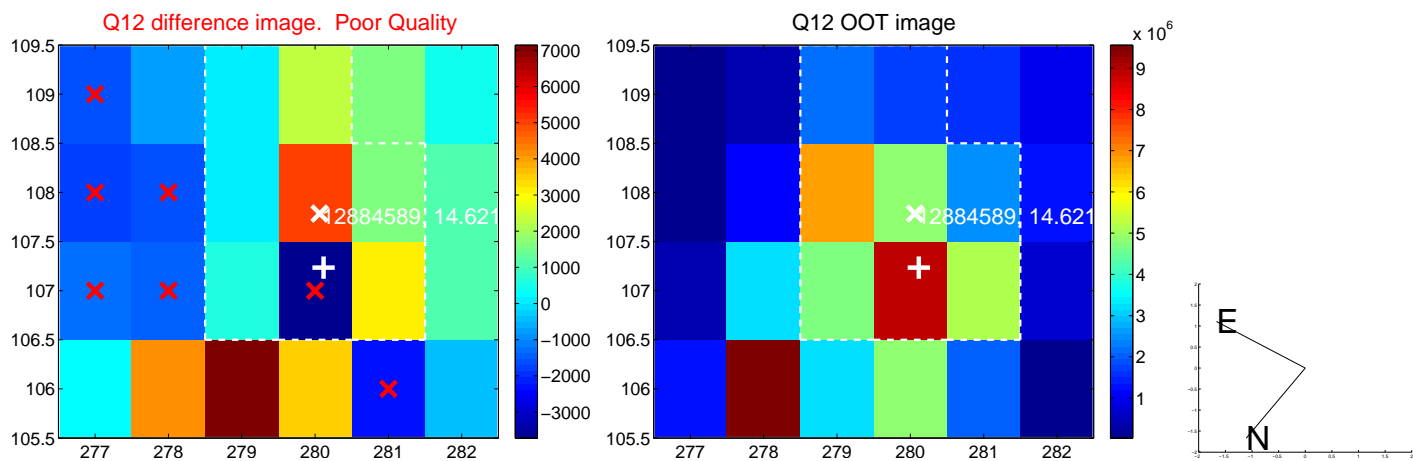
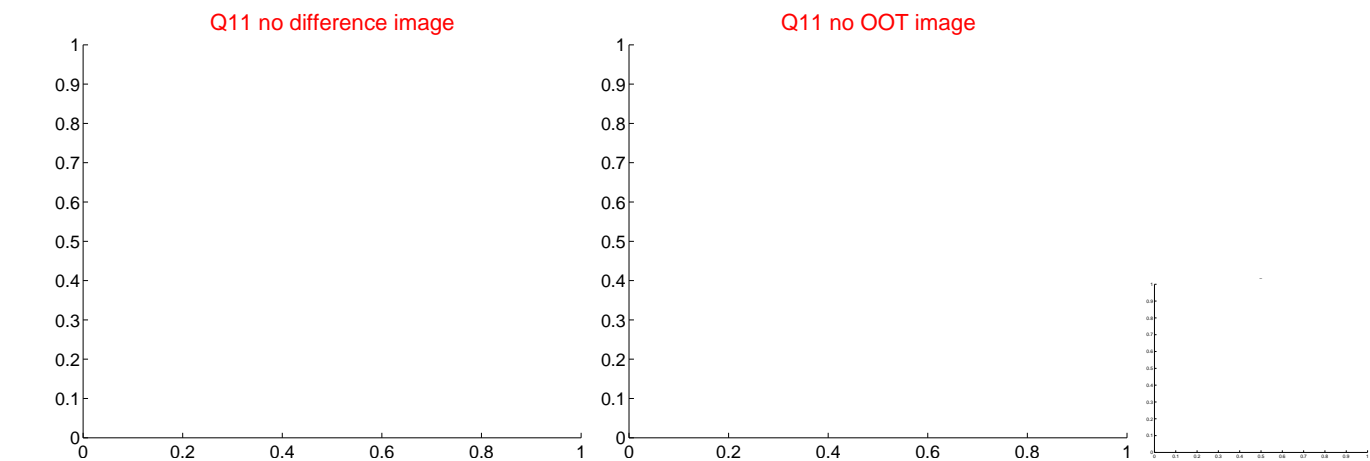
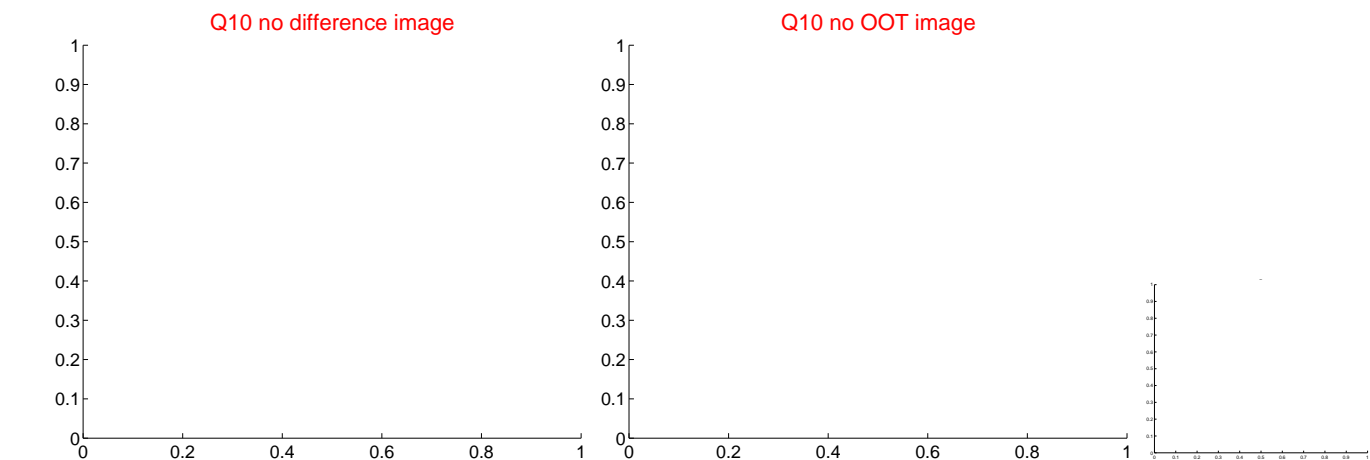
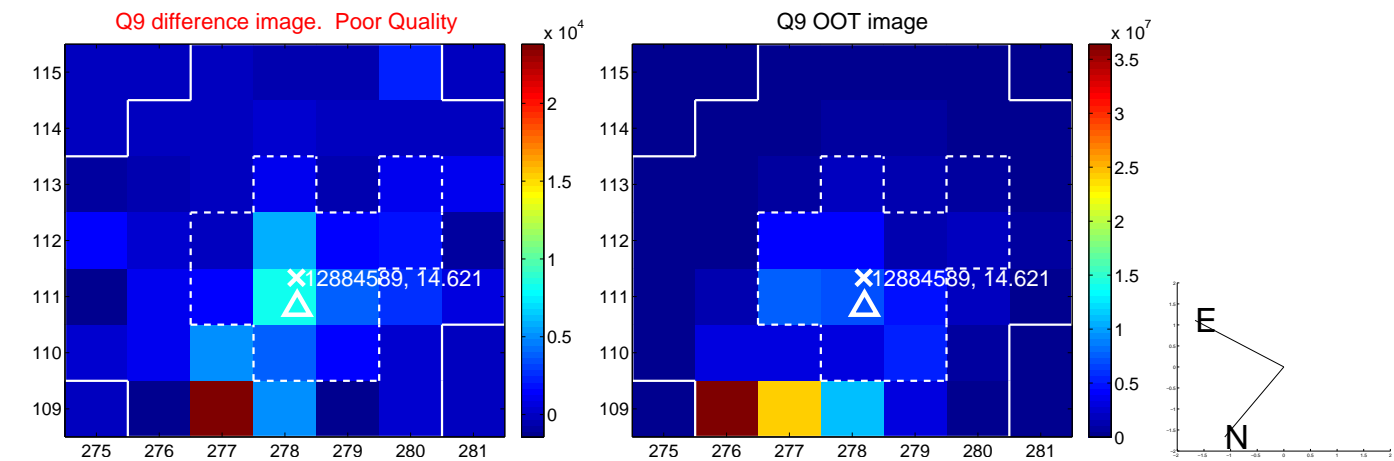
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



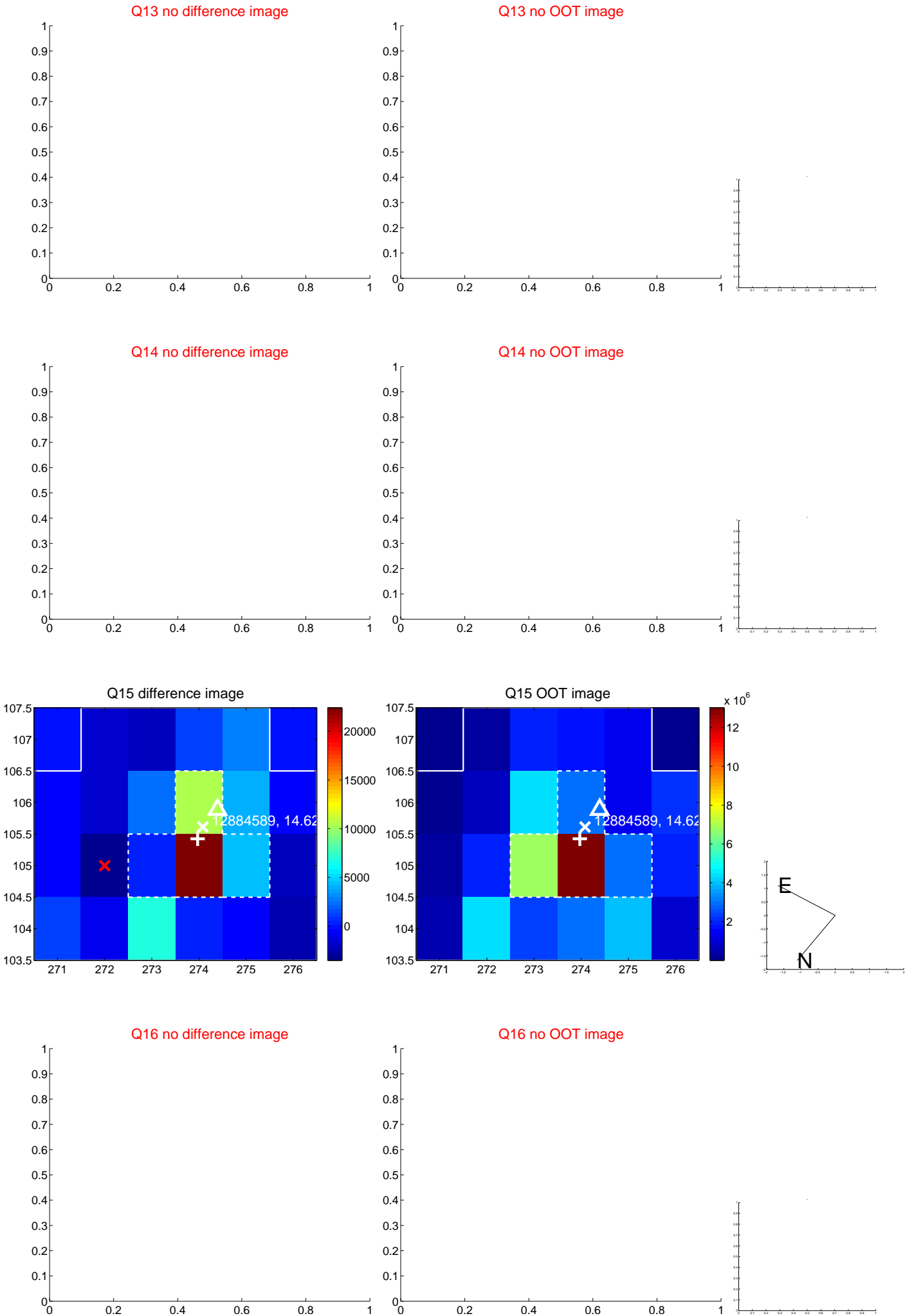
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



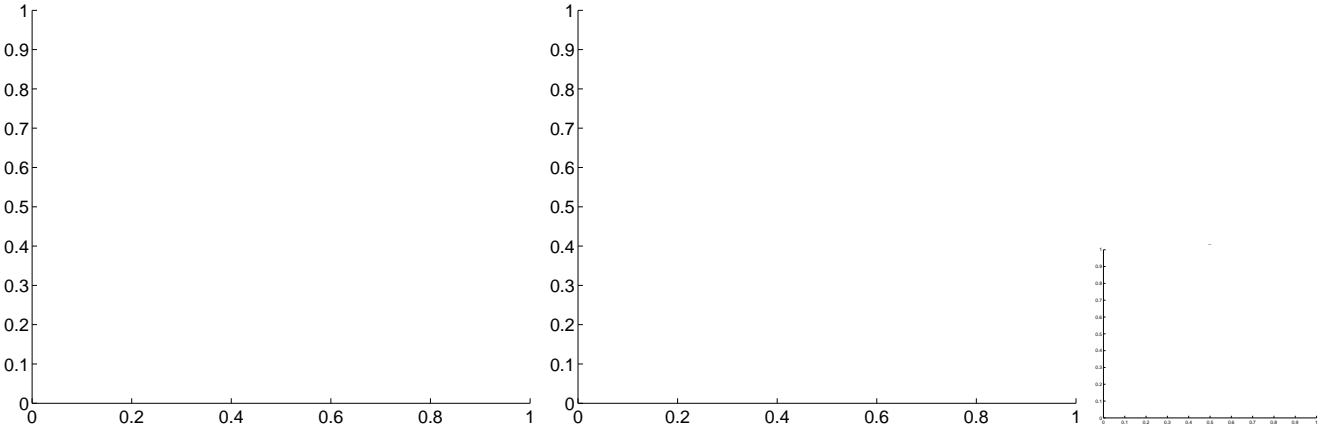
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



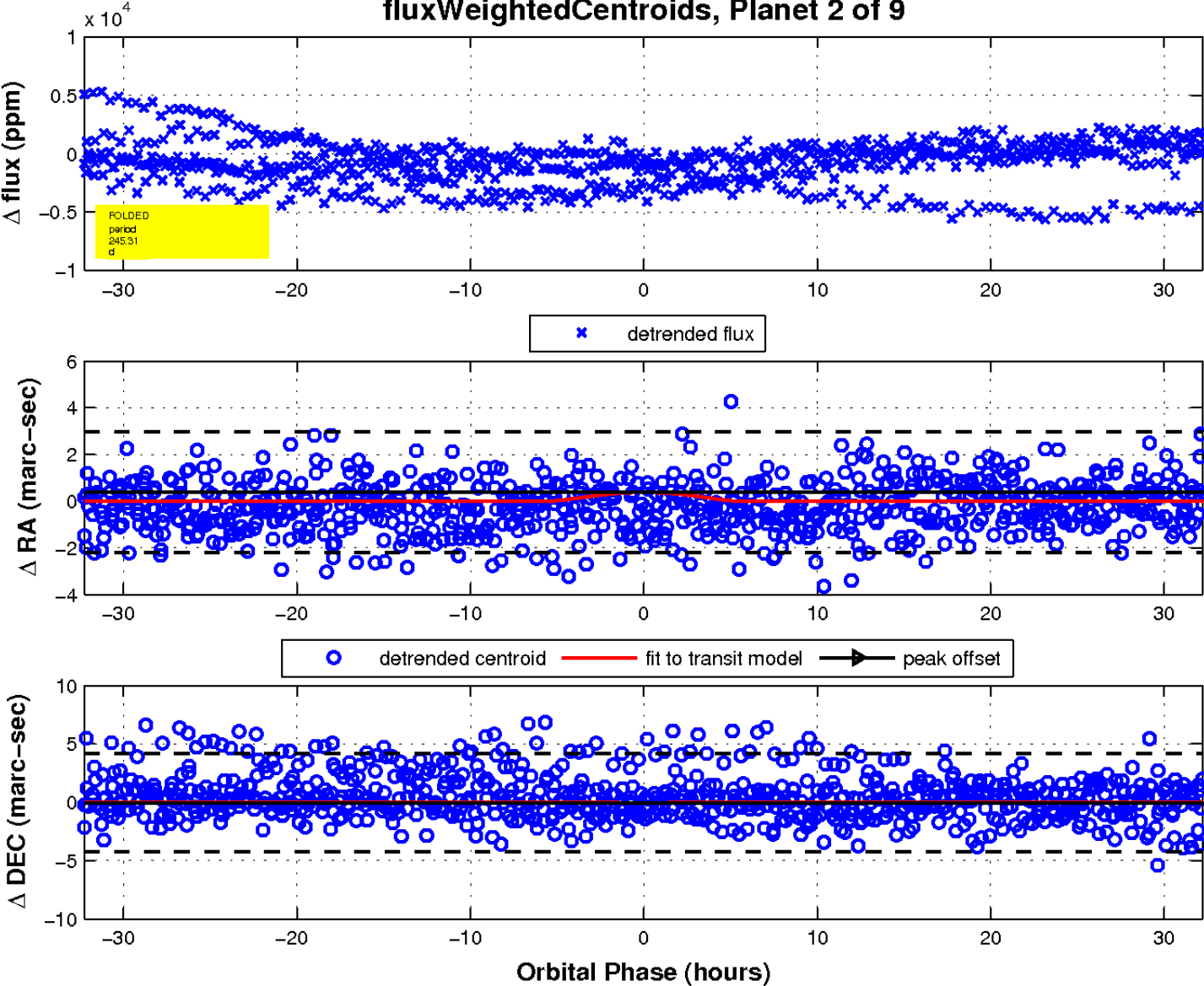
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

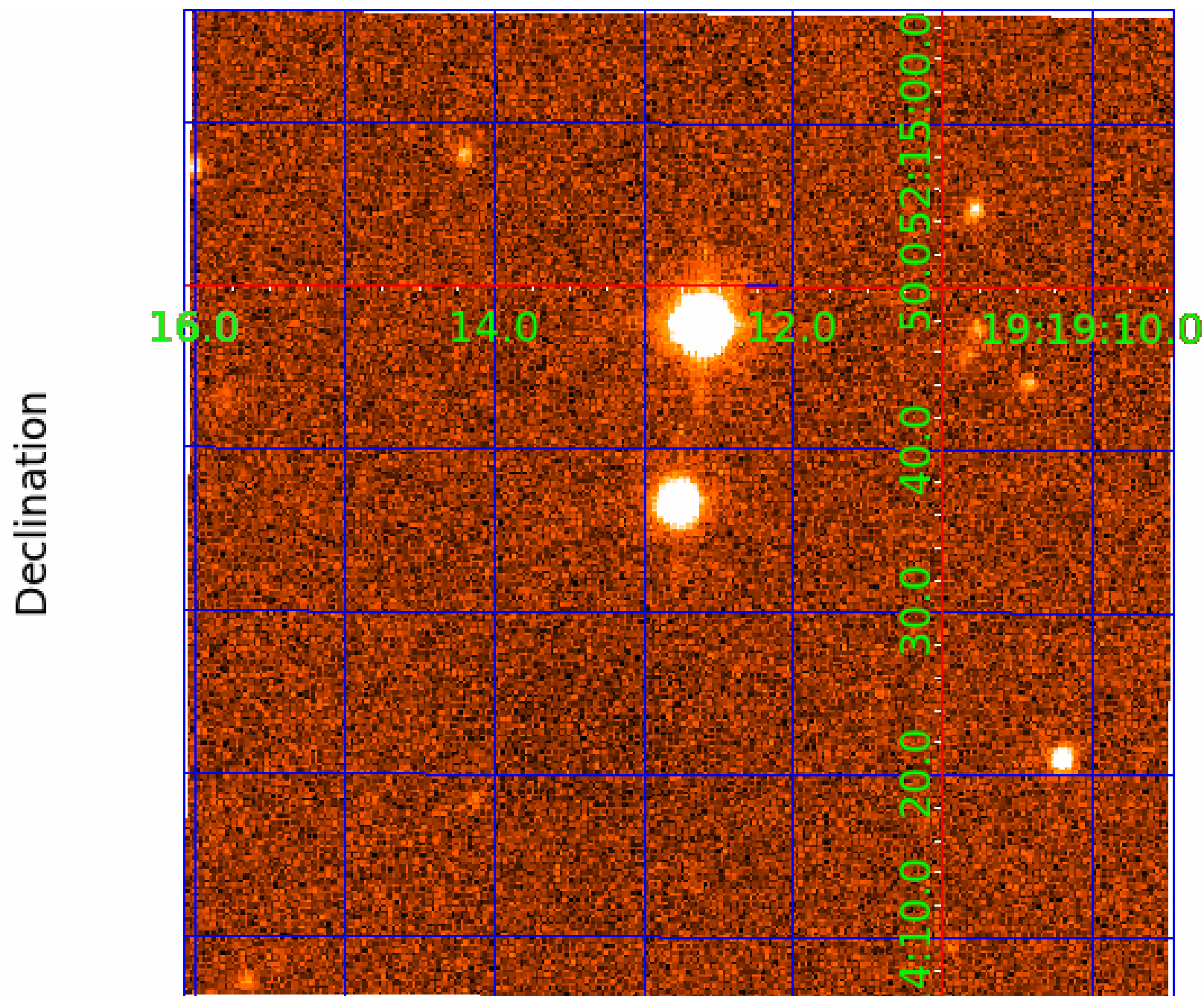
Q17 no OOT image



fluxWeightedCentroids, Planet 2 of 9



UKIRT Image



KIC 012884589

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})
012884589-01	OBS	No	2.743953	134.062673	162.5	15.871	9.2	11.1	1.10	6147	2.72	928.08
012884589-02	OBS	No	245.307270	157.122651	2611.9	10.816	21.3	10.6	1.10	6147	9.73	2.32
012884589-03	OBS	No	231.603616	177.892992	2129.3	13.082	15.5	8.2	1.10	6147	6.29	2.51
012884589-04	OBS	No	124.039615	216.308911	952.1	3.708	13.5	6.1	1.10	6147	4.32	5.76
012884589-05	OBS	No	141.053722	238.598679	1875.2	22.307	14.0	6.9	1.10	6147	5.58	4.86
012884589-06	OBS	No	240.894583	234.492854	3309.6	46.356	12.4	9.5	1.10	6147	6.28	2.38
012884589-08	OBS	No	250.026448	371.517419	6728.1	75.963	9.7	6.5	1.10	6147	16.29	2.26
012884589-09	OBS	No	77.938471	208.698150	660.3	4.237	10.5	4.7	1.10	6147	3.16	10.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012884589-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

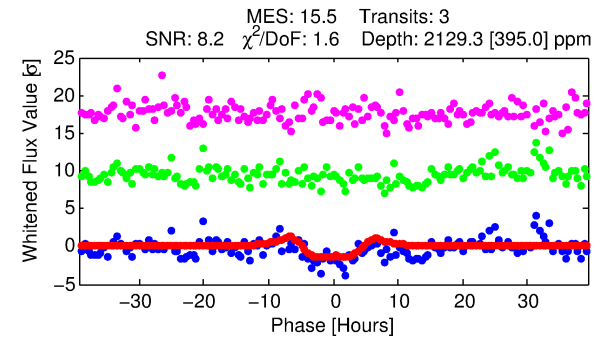
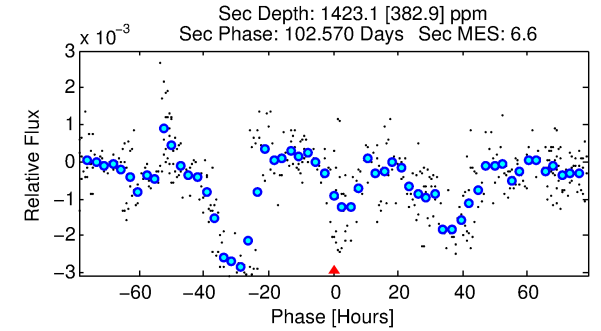
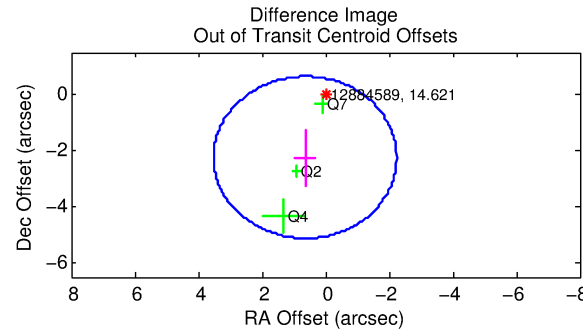
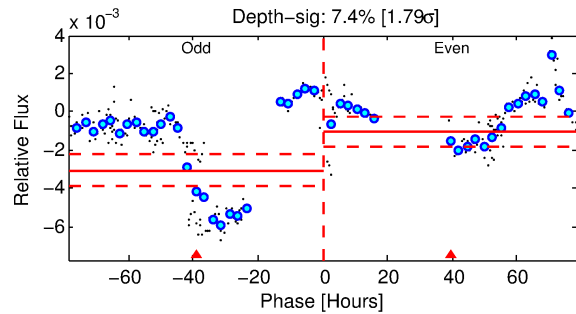
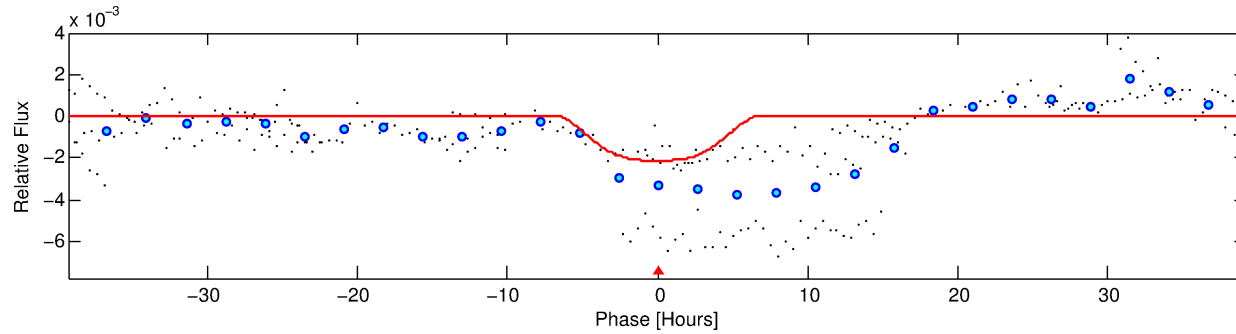
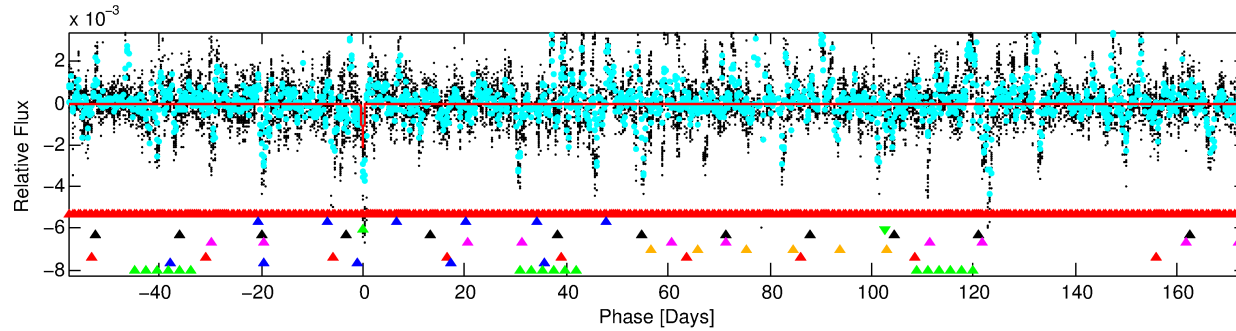
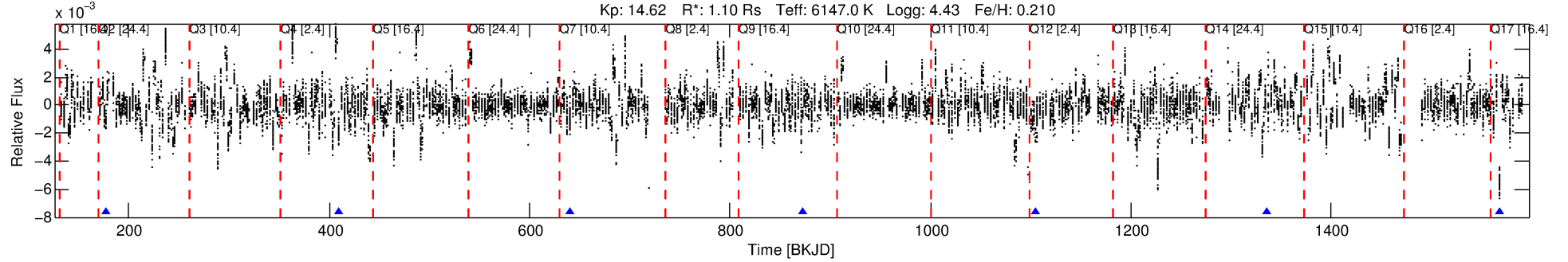
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-03

No Significant Match Found

DV One-Page Summary

KIC: 12884589 Candidate: 3 of 9 Period: 231.604 d



DV Fit Results:

Period = 231.60362 [0.00936] d
Epoch = 177.8930 [0.0396] BKJD
Rp/R* = 0.0526 [0.0057]
a/R* = 64.30 [10.45]
b = 0.94 [0.02]
Seff = 2.51 [1.07]
Teff = 321 [34] K
Rp = 6.29 [2.15] Re
a = 0.7830 [0.2131] AU
Ag = 12139.86 [6374.86] [1.90 σ]
Teffp = 5207 [498] K [9.79 σ]

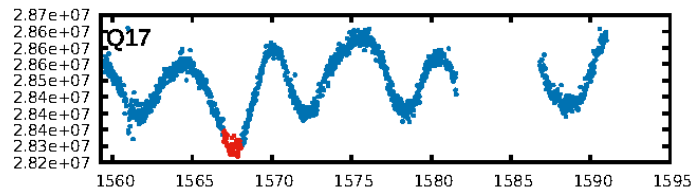
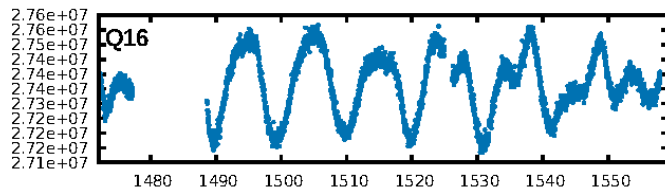
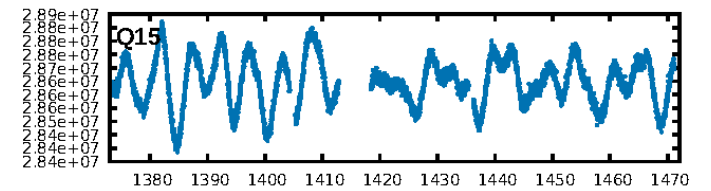
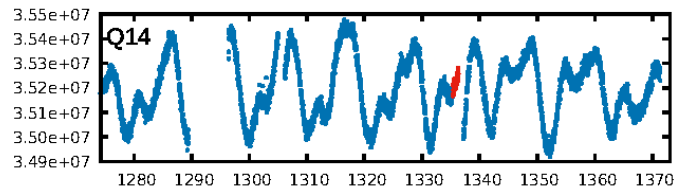
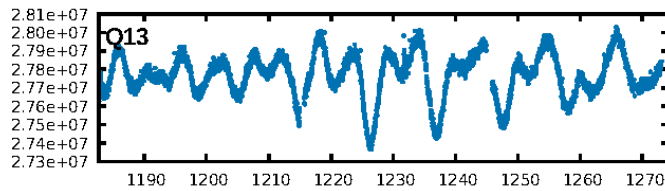
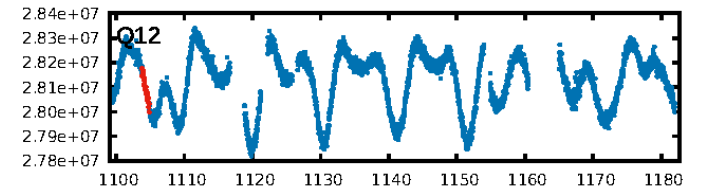
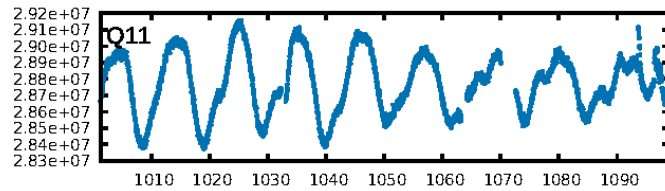
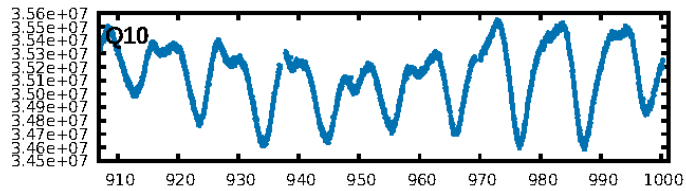
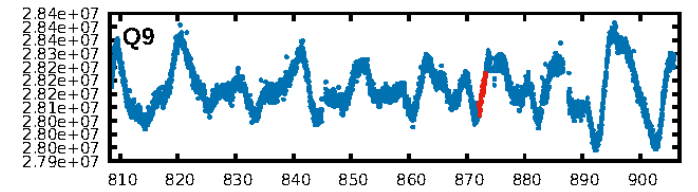
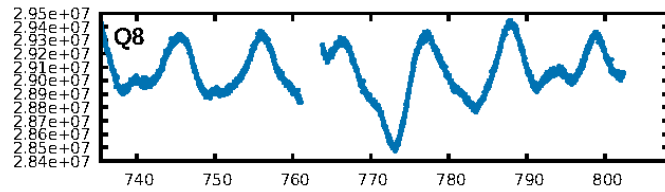
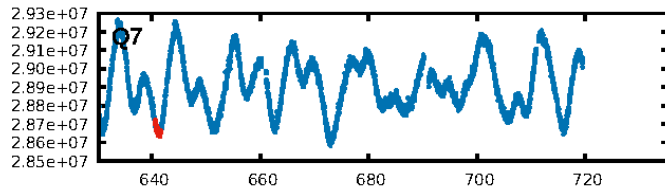
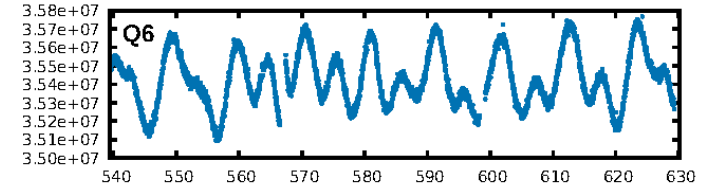
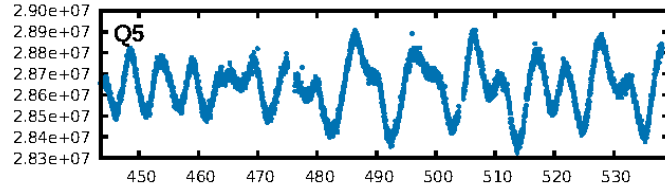
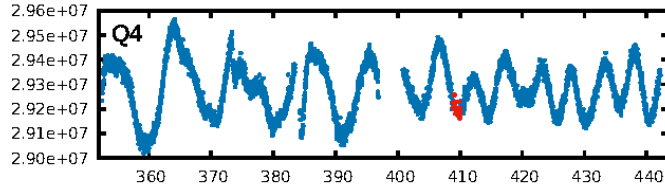
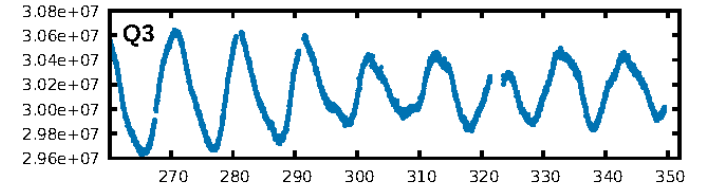
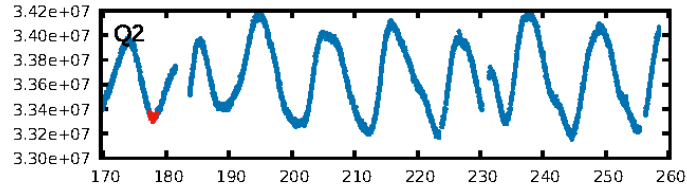
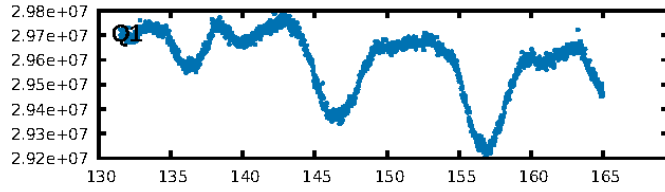
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.89 σ]
LongPeriod-sig: 100.0% [4.63 σ]
ModelChiSquare2-sig: 2.6%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -4.001
Centroid-sig: 20.4%
Centroid-so: 2.752 arcsec [9.61 σ]
OotOffset-rm: 2.332 arcsec [2.43 σ]
KicOffset-rm: 0.239 arcsec [0.69 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/5]

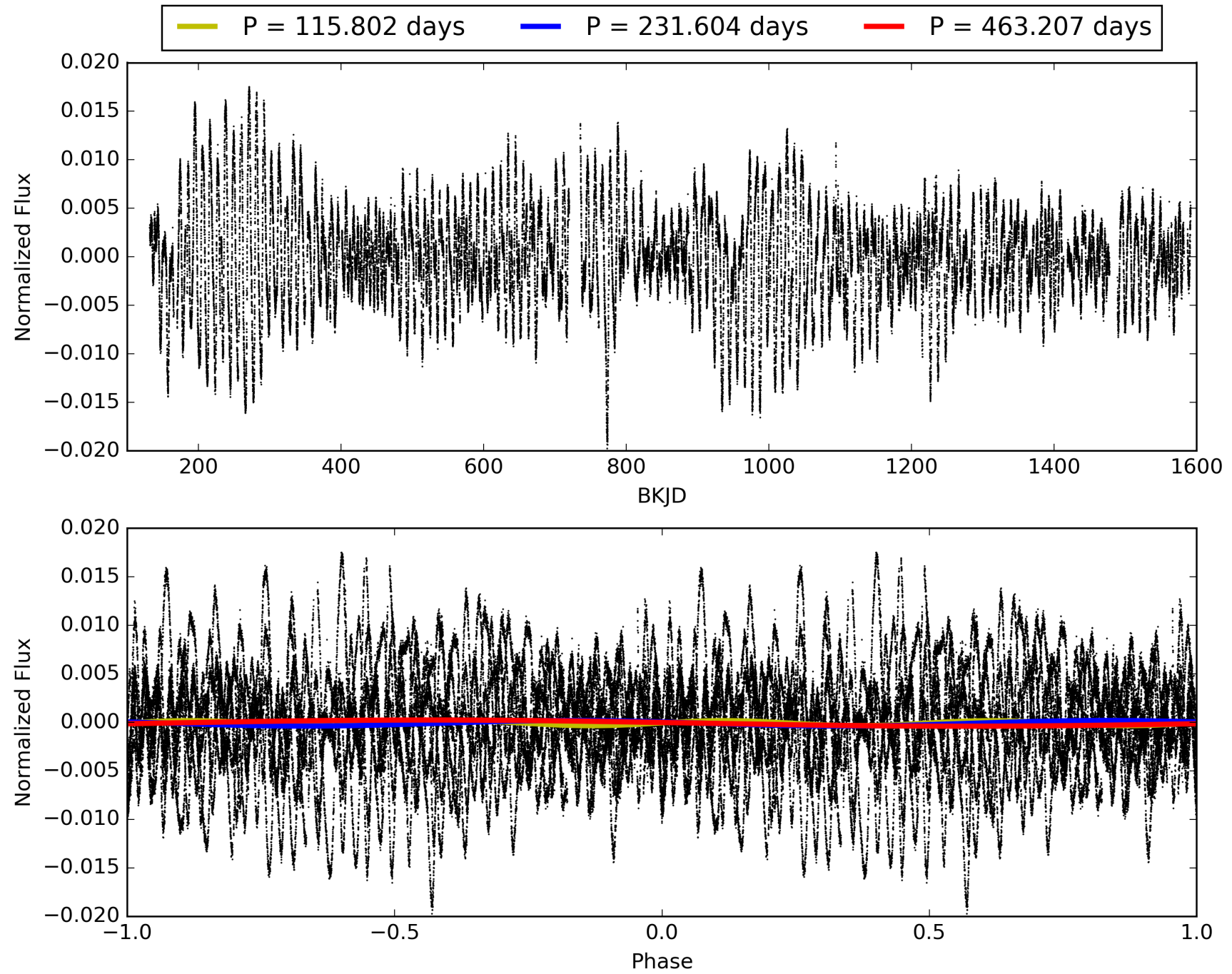
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:07:39 Z

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

TCE 012884589-03, PDC Light Curves

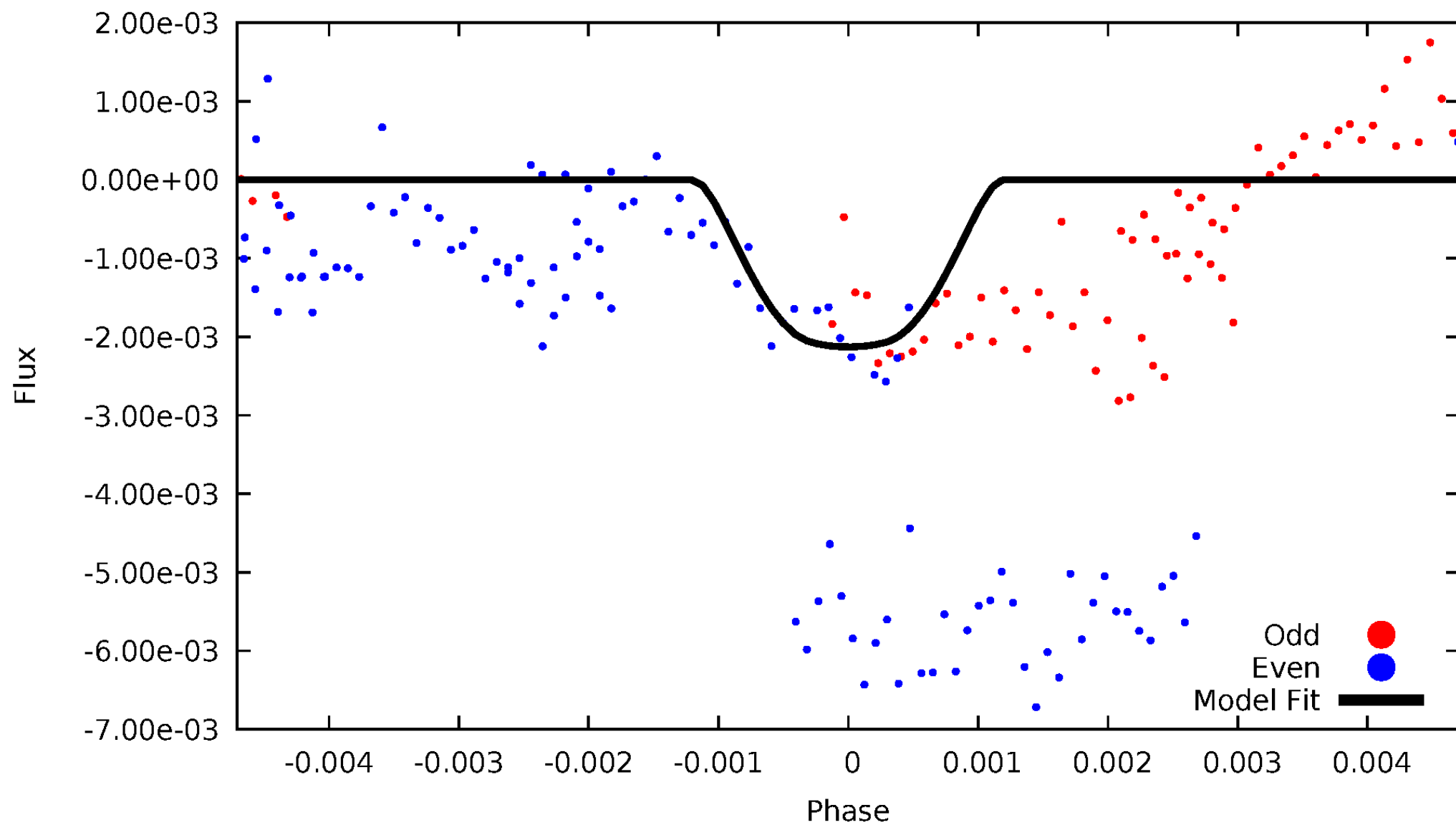


TCE 012884589-03



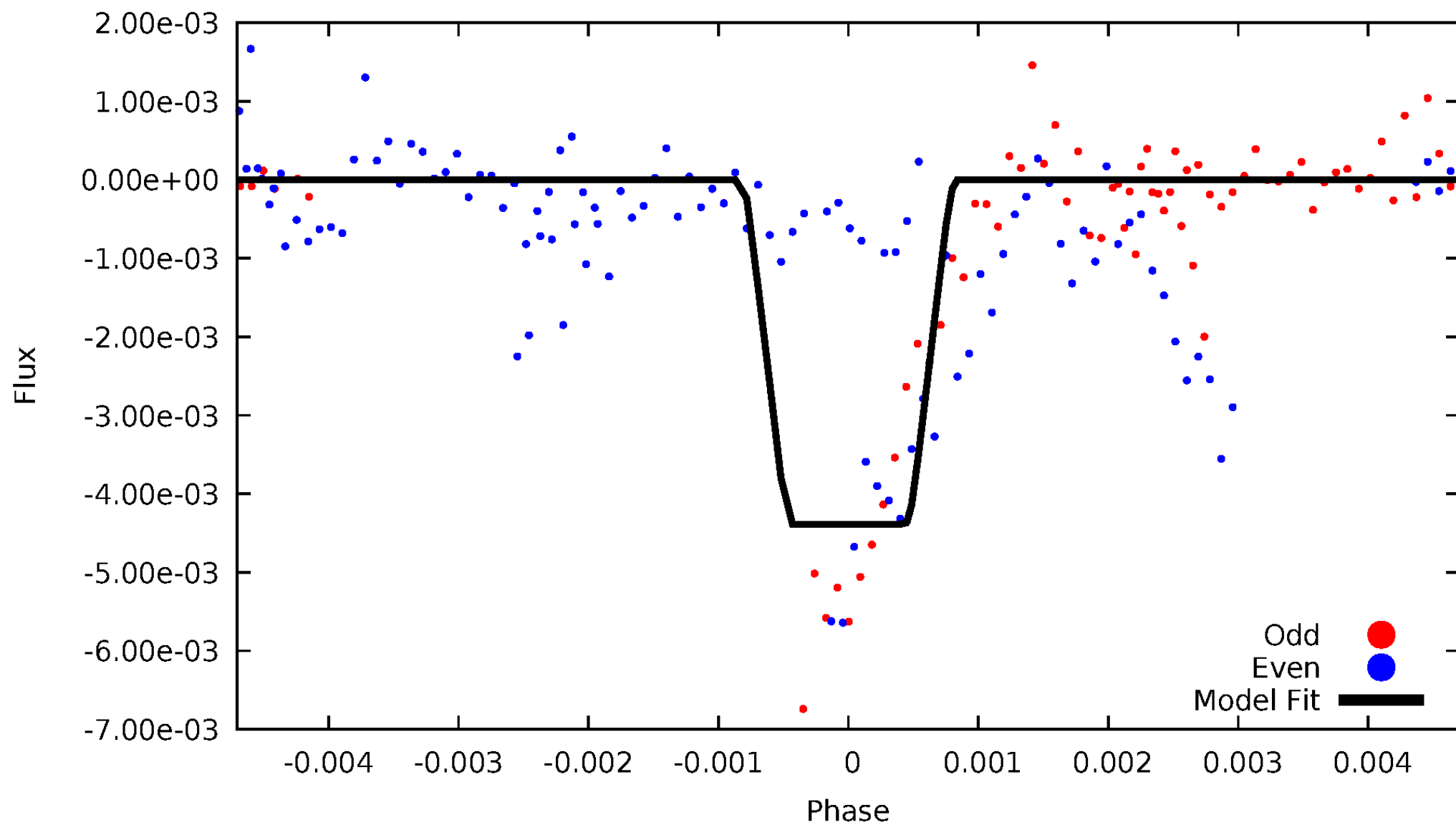
DV Odd/Even

TCE 012884589-03



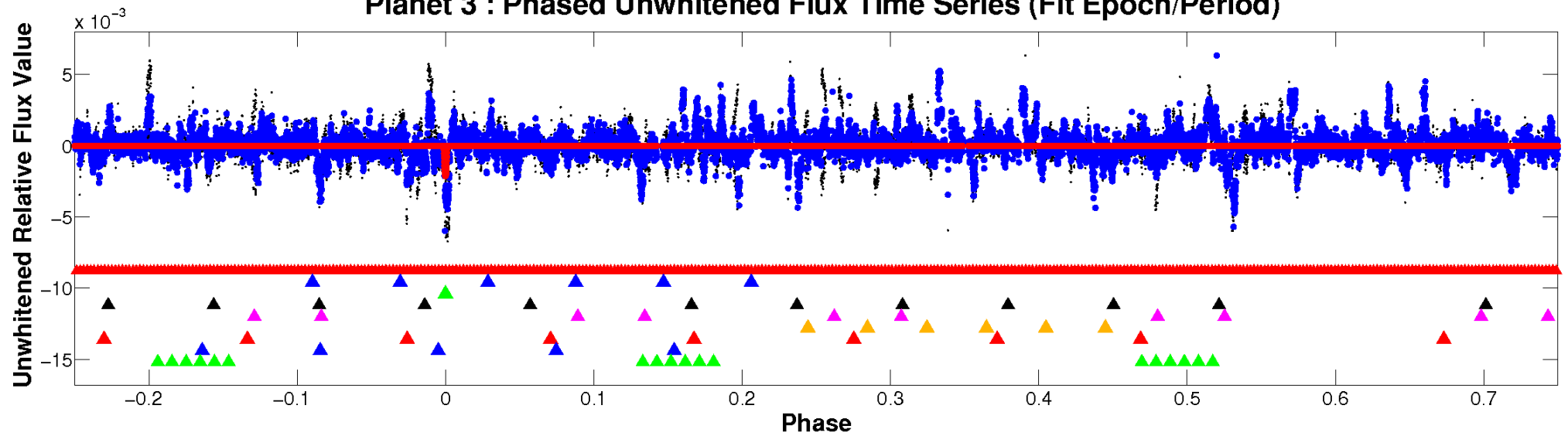
ALT Odd/Even

TCE 012884589-03

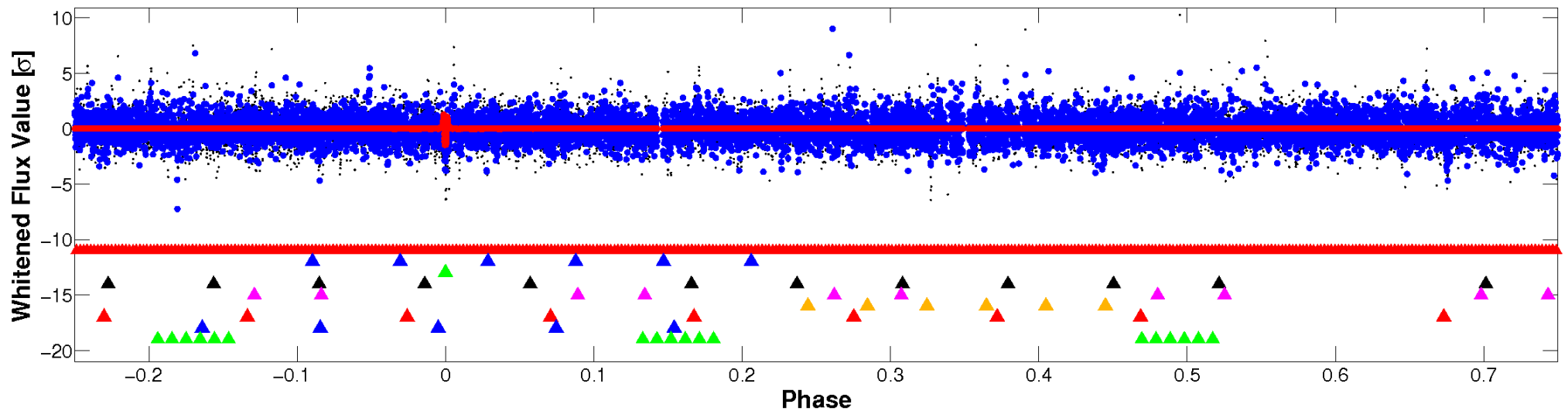


Non-Whitened Vs. Whitened Light Curve

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

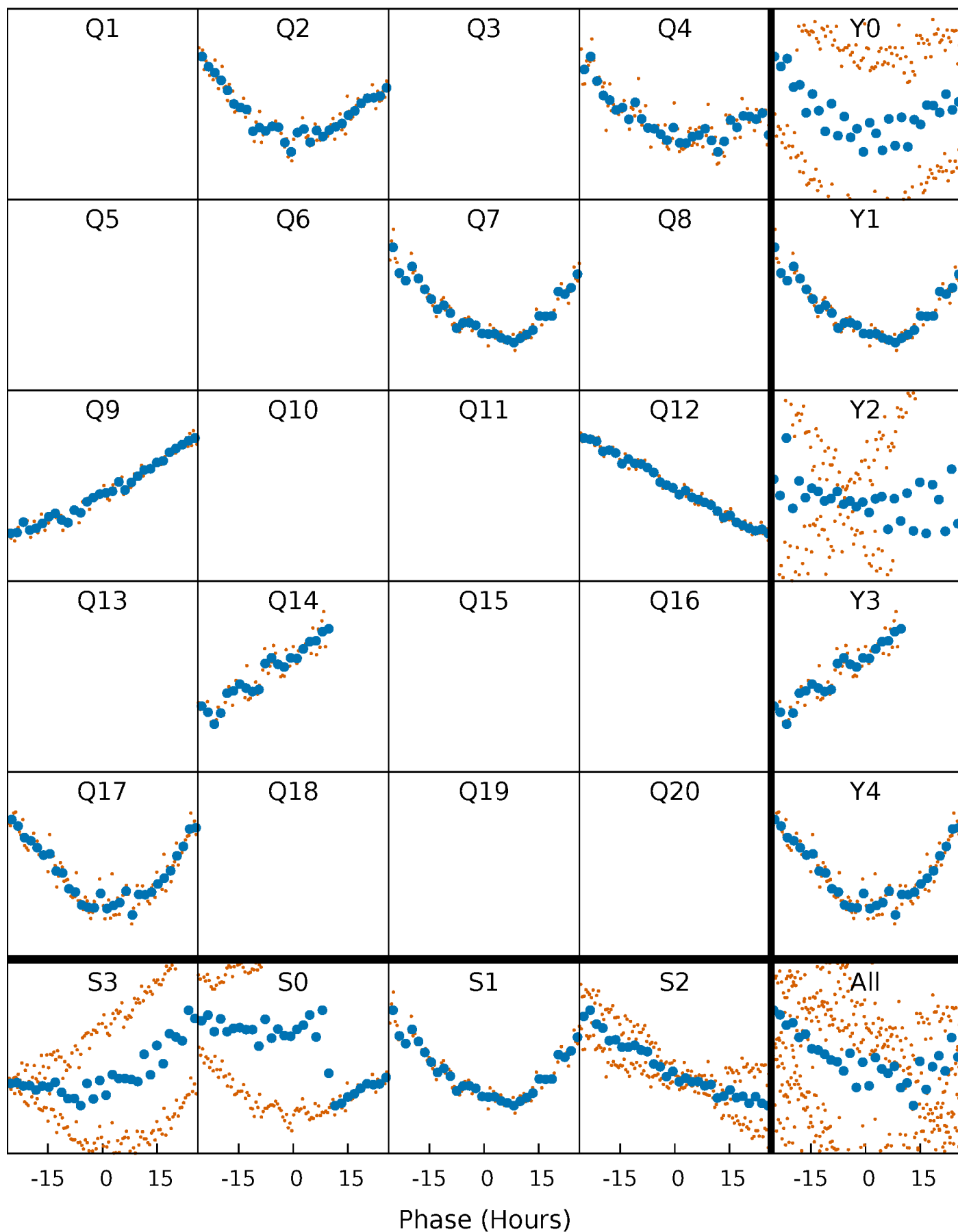


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



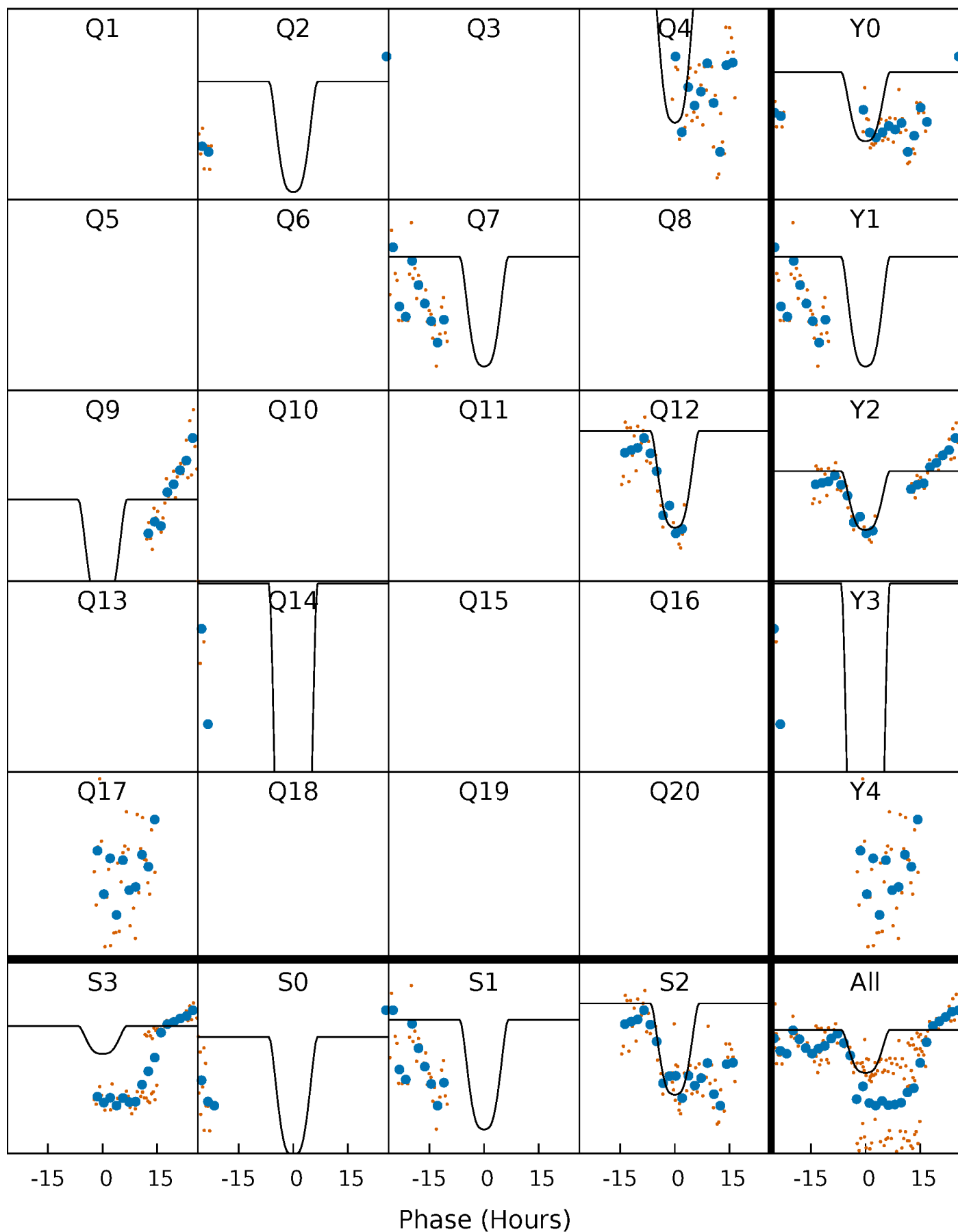
PDC Quarter-Phased Transit Curves

TCE 012884589-03 P=231.603616 Days $T_0=177.892992$ (BKJD)



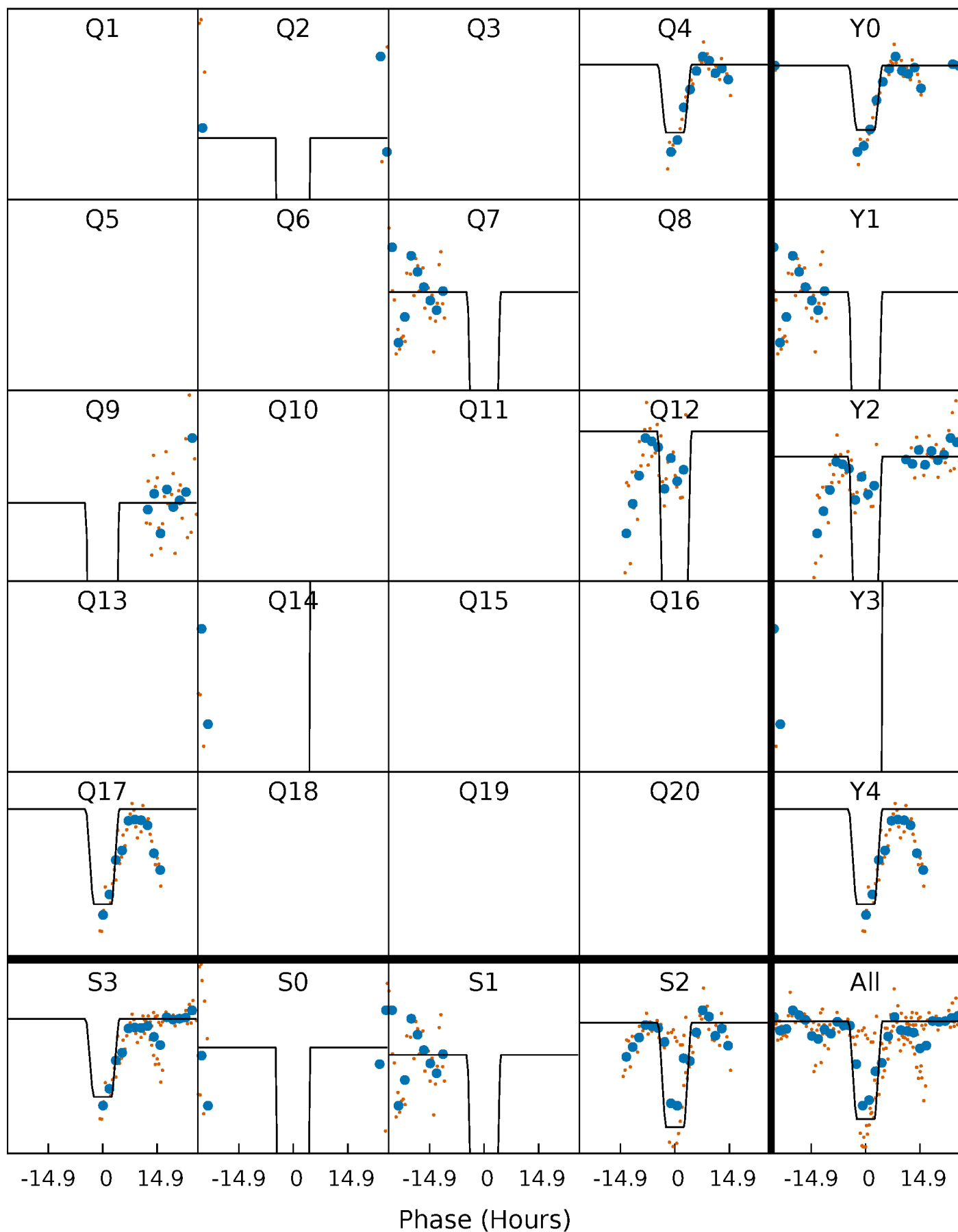
DV Quarter-Phased Transit Curves

TCE 012884589-03 $P=231.603616$ Days $T_0=177.892992$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

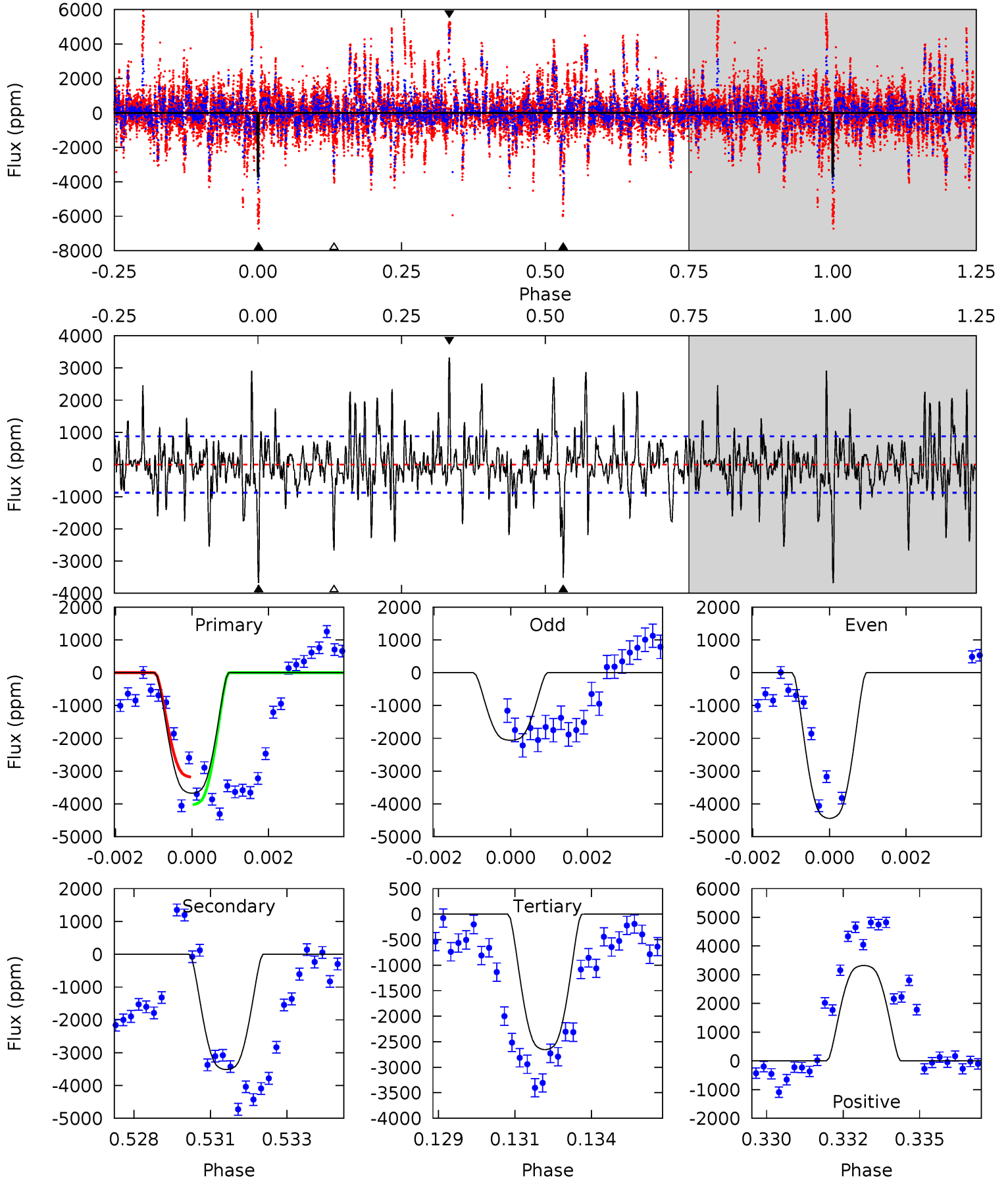
TCE 012884589-03 P=231.580347 Days $T_0=177.968599$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-03, P = 231.603616 Days, E = 177.892992 Days

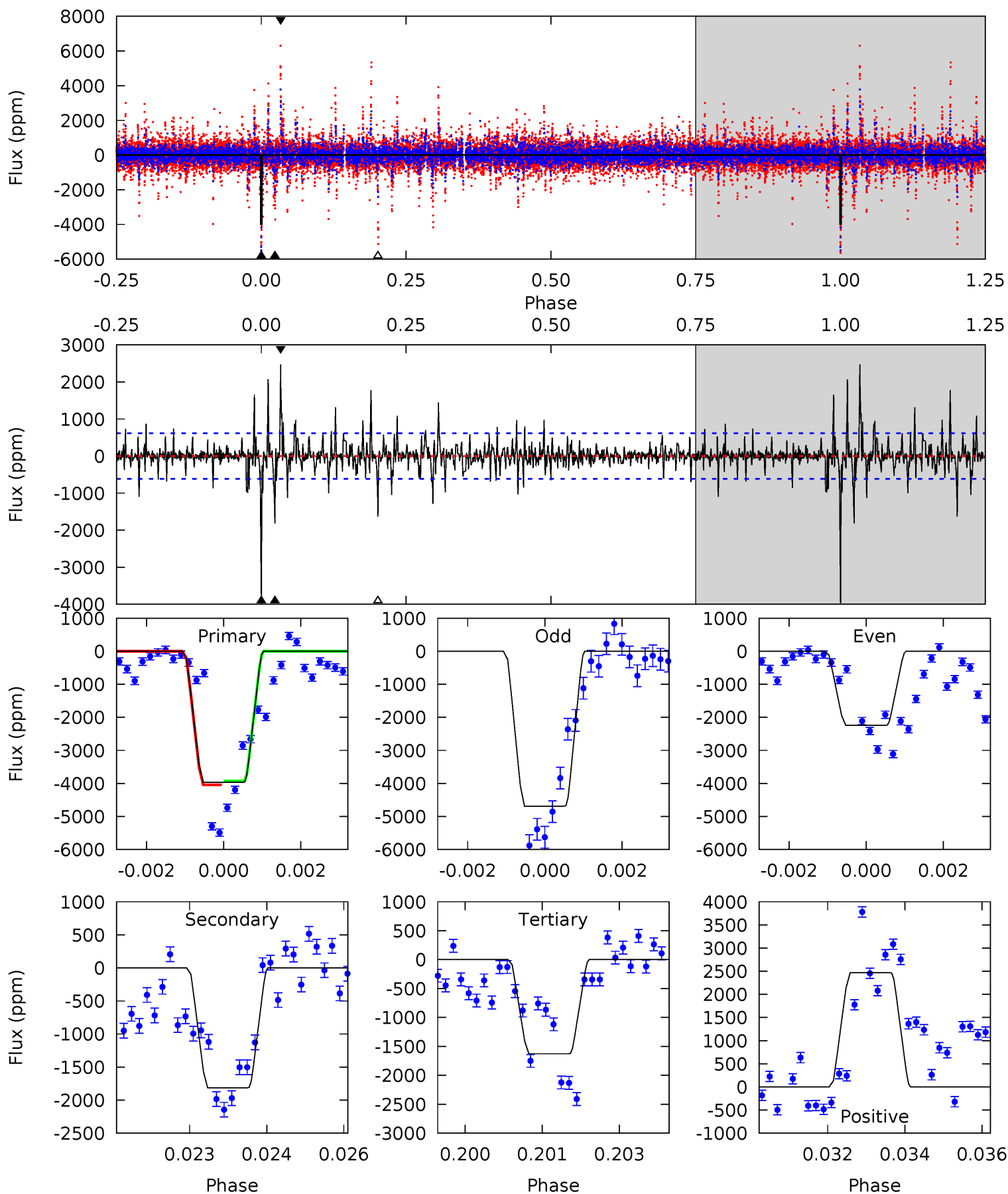
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	21.2	16.0	20.0	5.29	3.03	4.31	6.14	2.12	5.18	1.16	6.52	1.65	0.47	2.47



Alt Model-Shift Uniqueness Test

012884589-03, P = 231.580347 Days, E = 177.968599 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.7	15.8	14.2	21.6	5.36	3.15	2.48	20.4	13.1	1.63	-5.72	11.4	0.73	0.38	0.47



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3514 ± 166	$6.56^{+1.23}_{-1.04}$	458^{+33}_{-24}	6529^{+515}_{-443}	27171^{+9710}_{-7421}
Alt.	-1814 ± 115	$8.21^{+1.50}_{-0.95}$	457^{+35}_{-27}	4984^{+250}_{-203}	8799^{+2564}_{-2332}

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

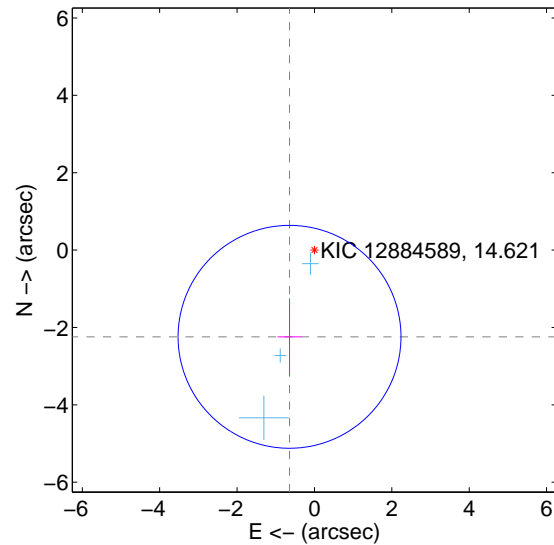
Supplemental centroid analysis for 012884589-03. Kepler magnitude: 14.62. Transit SNR 8.16

There are 3 quarters with good PRF difference image offsets

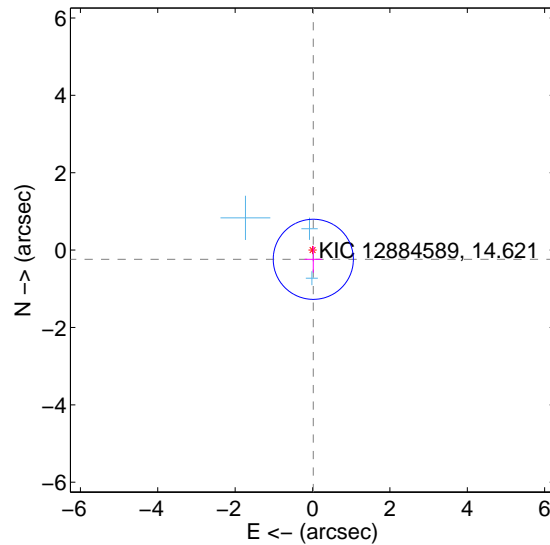
The direct PRF centroid is offset from the target star catalog position by about 0.90 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.332 ± 0.960	2.43	0.644 ± 0.311	-2.242 ± 0.995
PRF-fit source offset from KIC position	0.239 ± 0.345	0.69	-0.020 ± 0.226	-0.238 ± 0.346
photometric centroid source offset	2.75 ± 0.29	9.61	-0.09 ± 0.16	2.75 ± 0.29

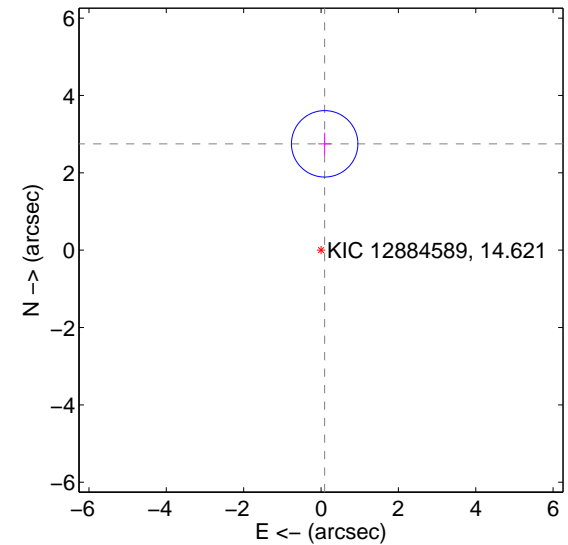
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

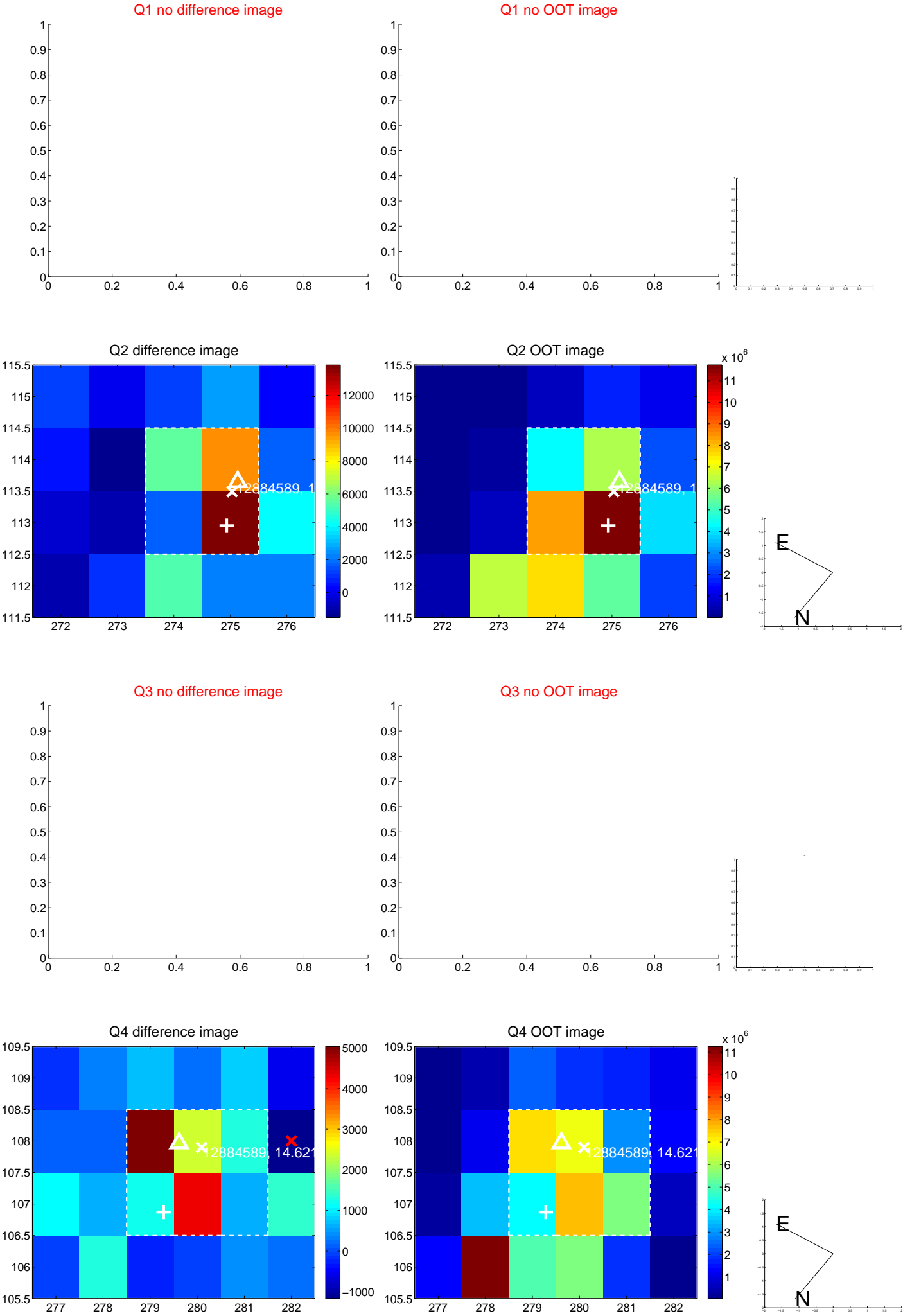


offset from photometric centroids

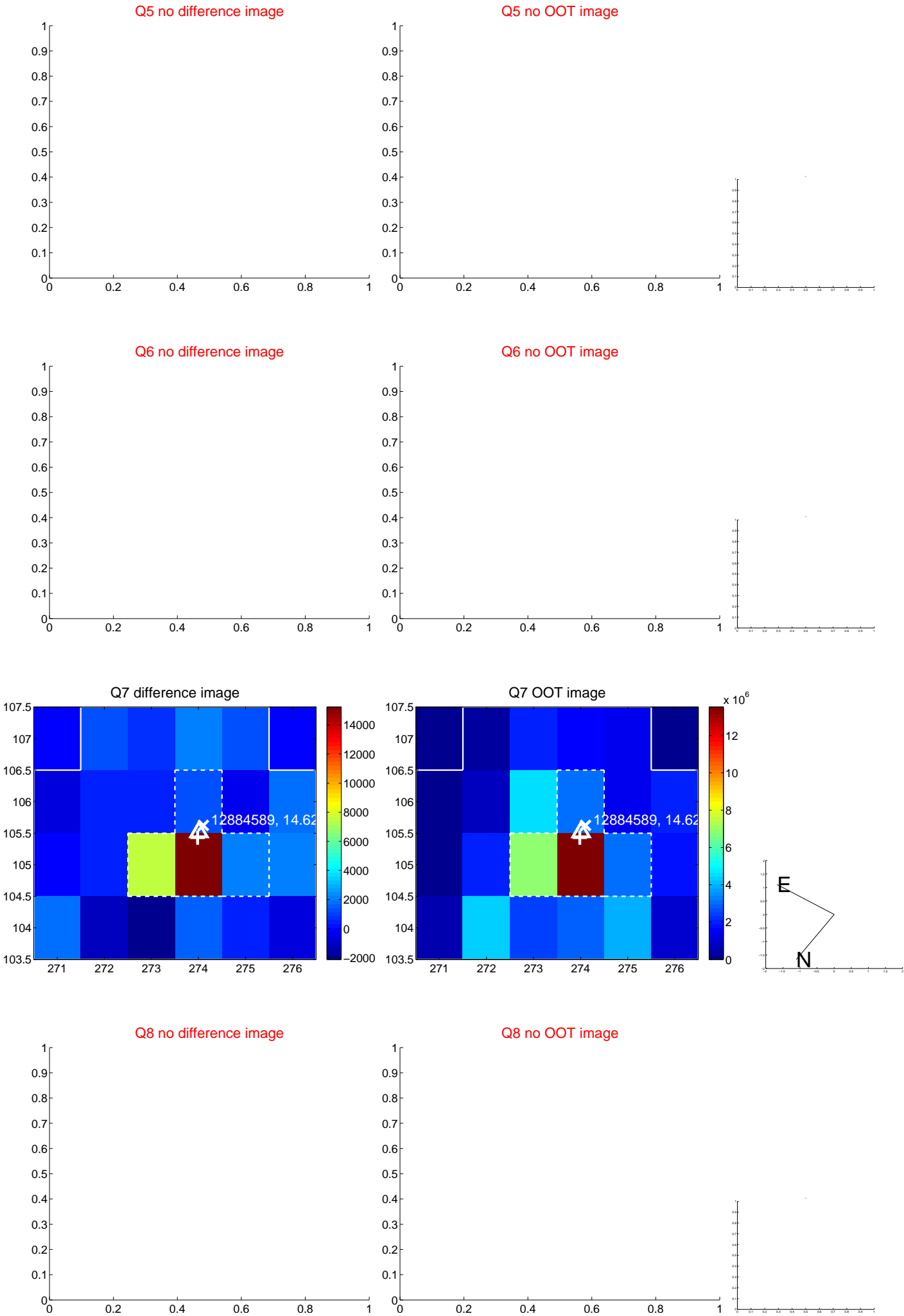


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

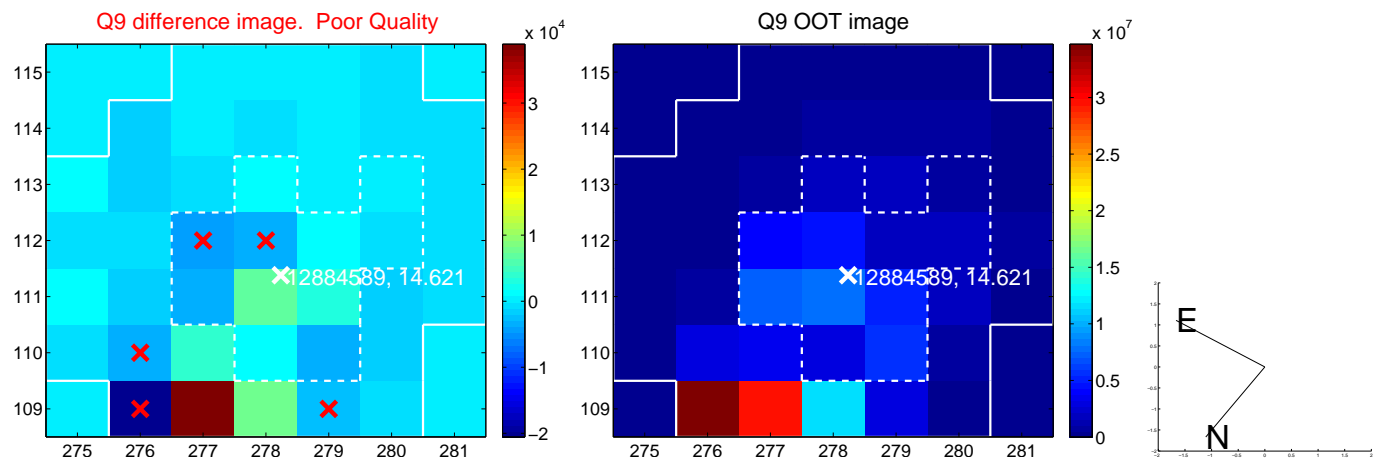
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



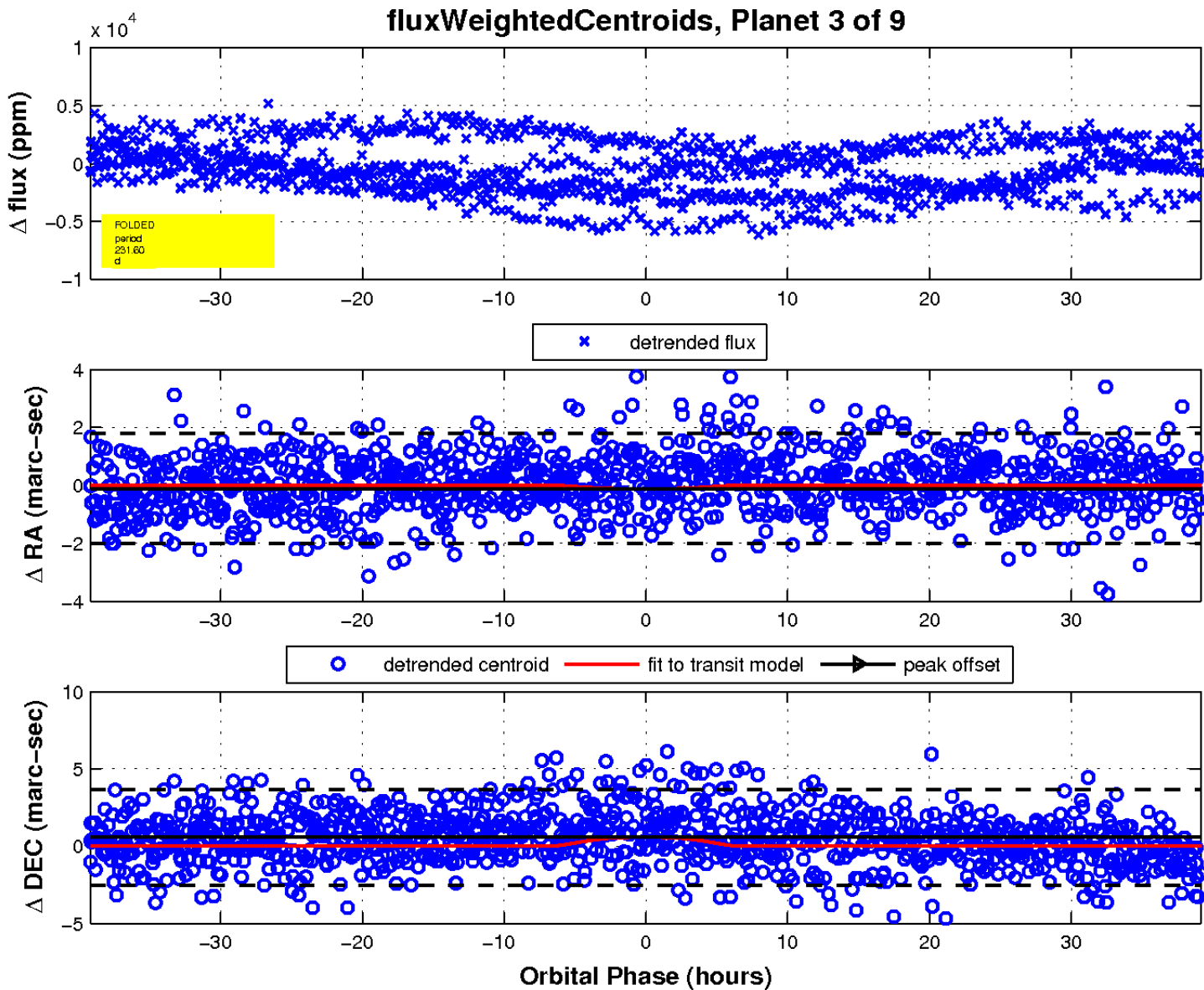
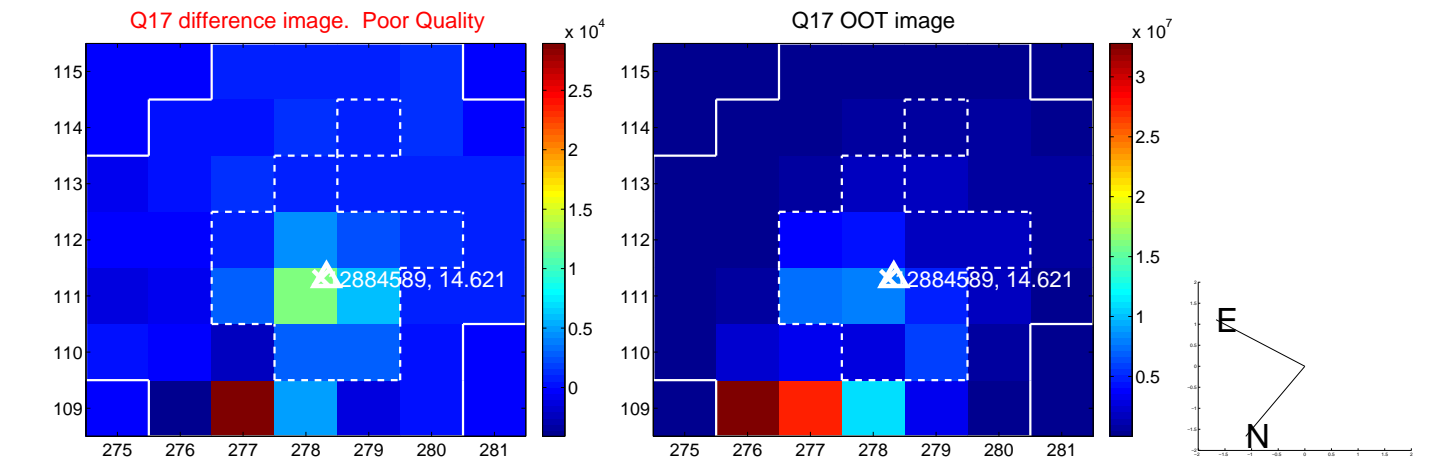
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



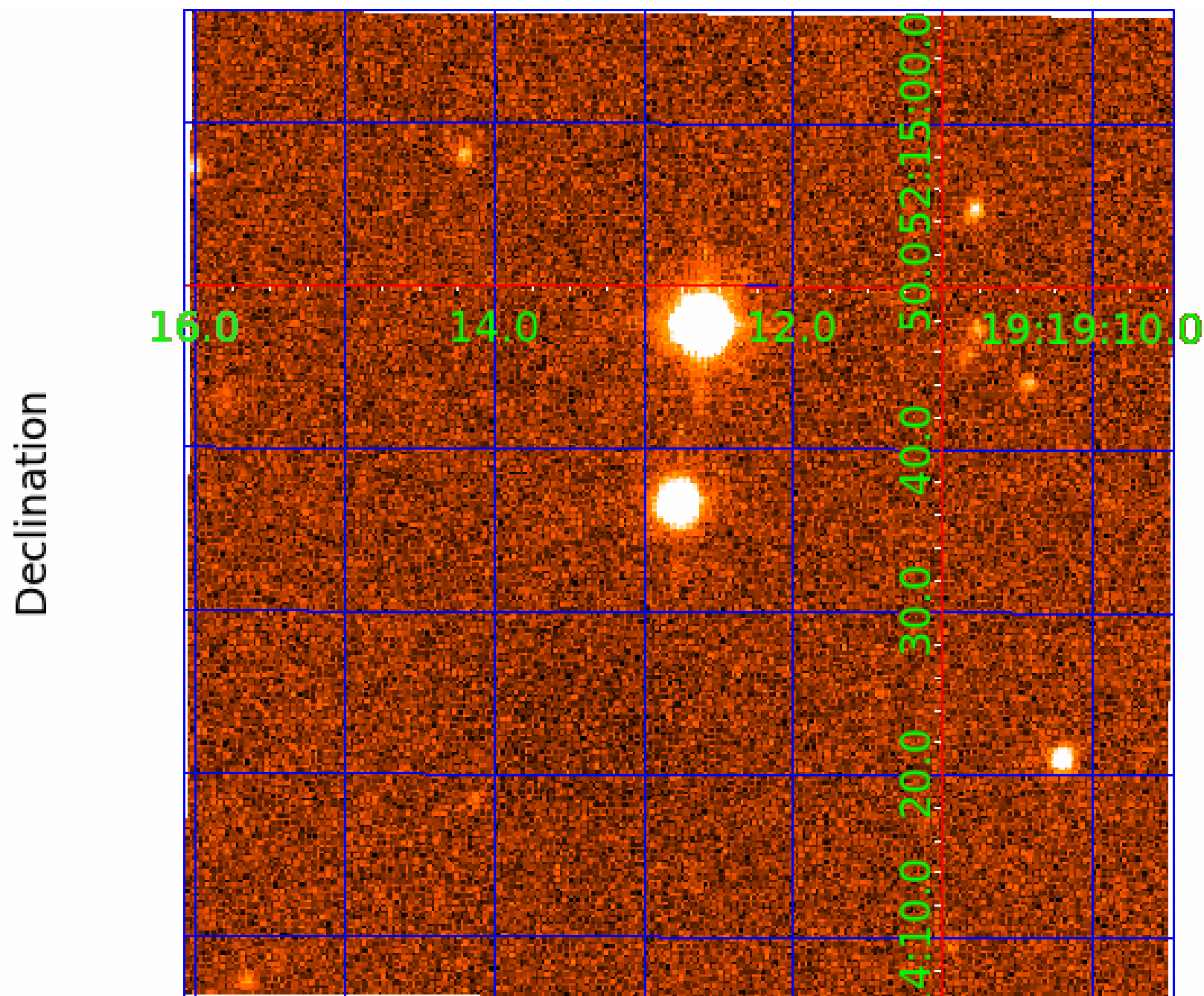
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 012884589

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})
012884589-01	OBS	No	2.743953	134.062673	162.5	15.871	9.2	11.1	1.10	6147	2.72	928.08
012884589-02	OBS	No	245.307270	157.122651	2611.9	10.816	21.3	10.6	1.10	6147	9.73	2.32
012884589-03	OBS	No	231.603616	177.892992	2129.3	13.082	15.5	8.2	1.10	6147	6.29	2.51
012884589-04	OBS	No	124.039615	216.308911	952.1	3.708	13.5	6.1	1.10	6147	4.32	5.76
012884589-05	OBS	No	141.053722	238.598679	1875.2	22.307	14.0	6.9	1.10	6147	5.58	4.86
012884589-06	OBS	No	240.894583	234.492854	3309.6	46.356	12.4	9.5	1.10	6147	6.28	2.38
012884589-08	OBS	No	250.026448	371.517419	6728.1	75.963	9.7	6.5	1.10	6147	16.29	2.26
012884589-09	OBS	No	77.938471	208.698150	660.3	4.237	10.5	4.7	1.10	6147	3.16	10.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012884589-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

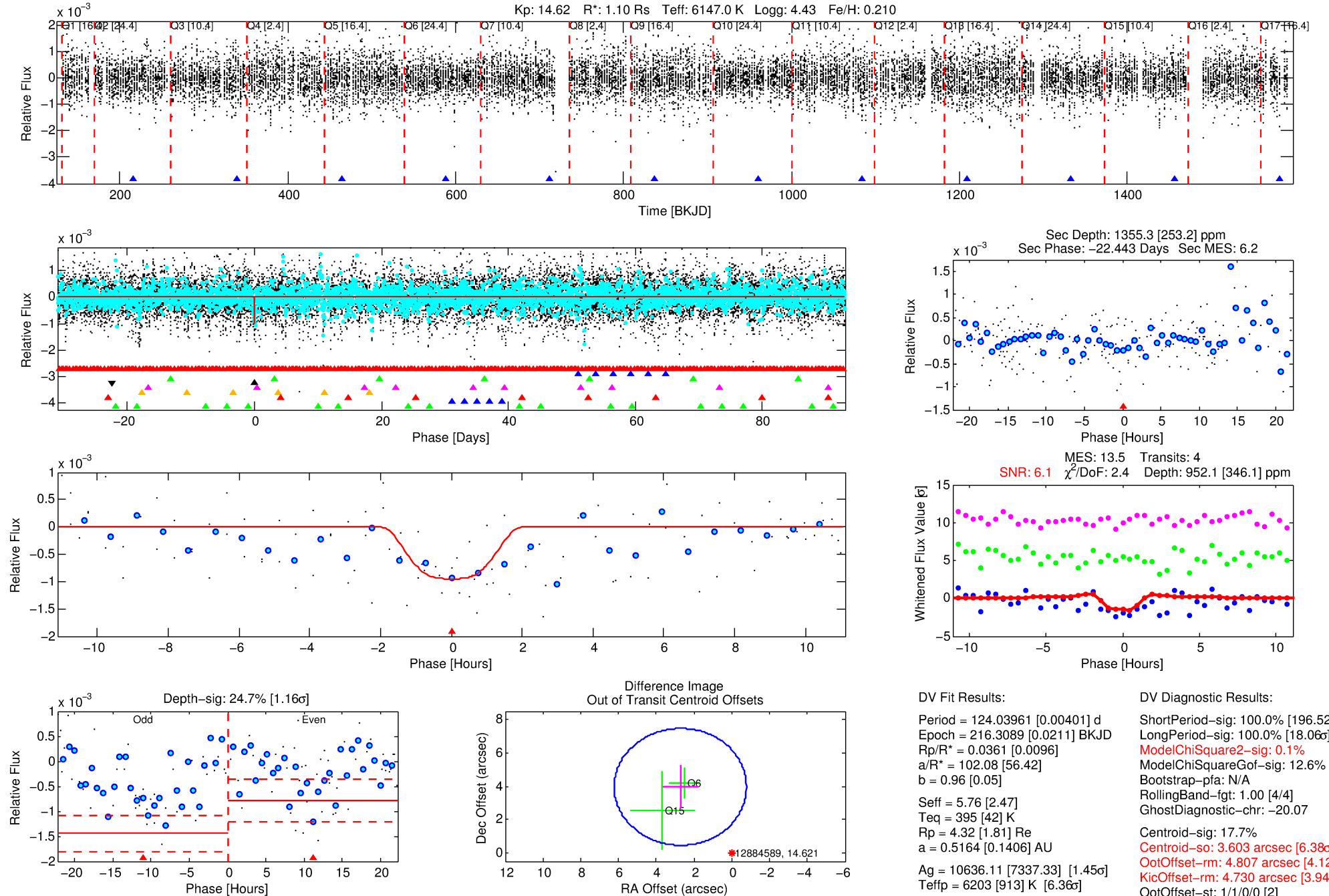
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-04

No Significant Match Found

DV One-Page Summary

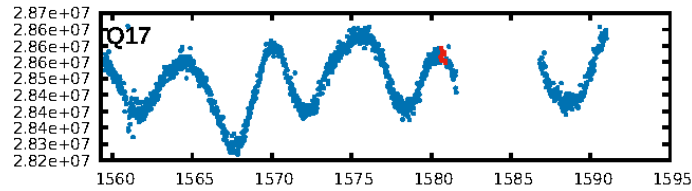
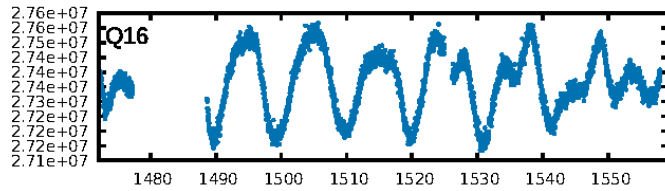
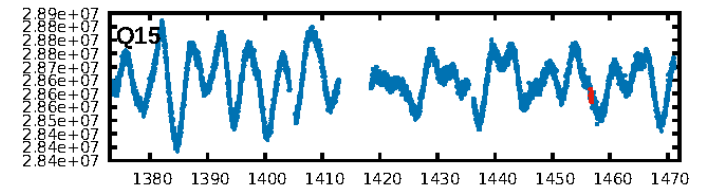
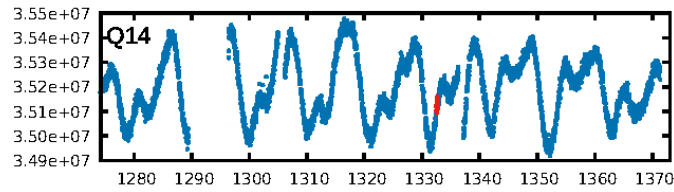
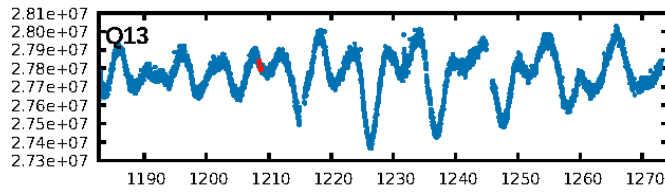
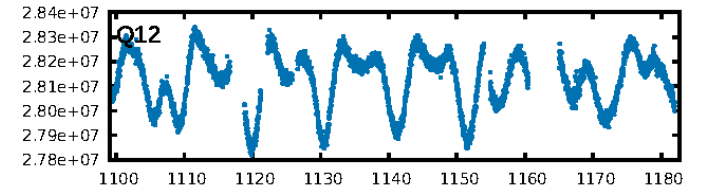
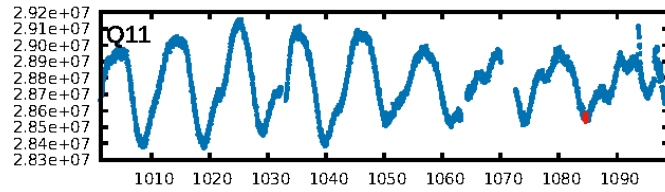
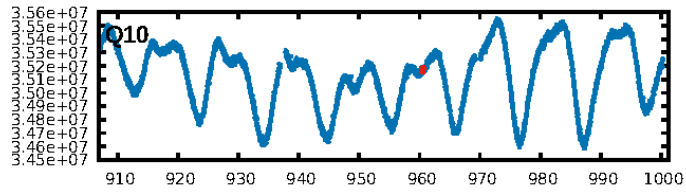
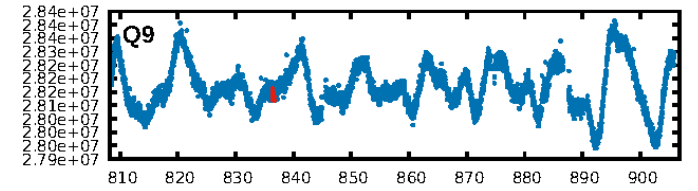
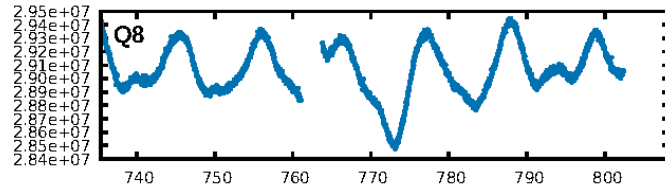
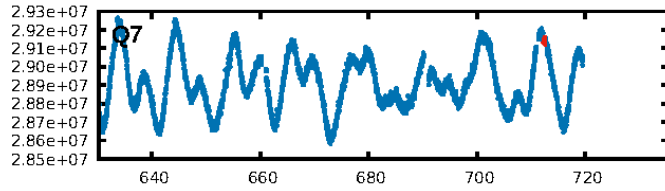
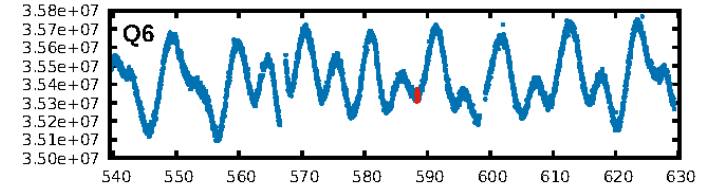
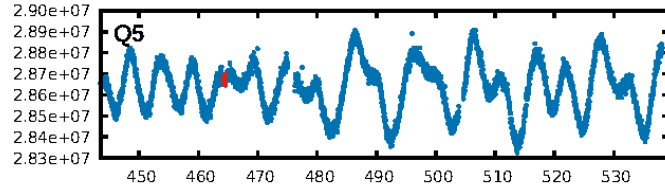
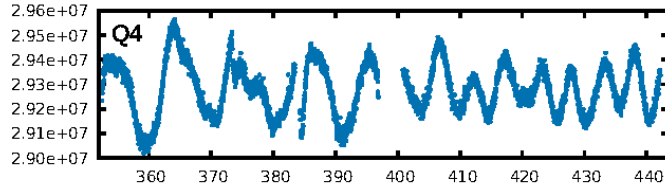
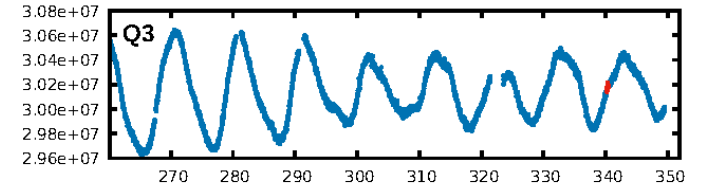
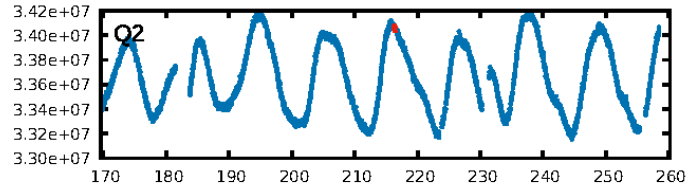
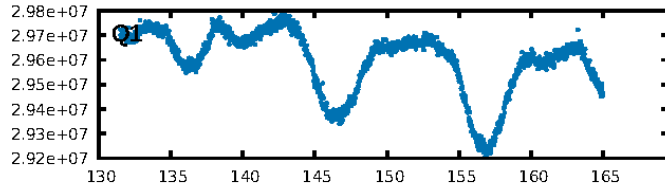
KIC: 12884589 Candidate: 4 of 9 Period: 124.040 d



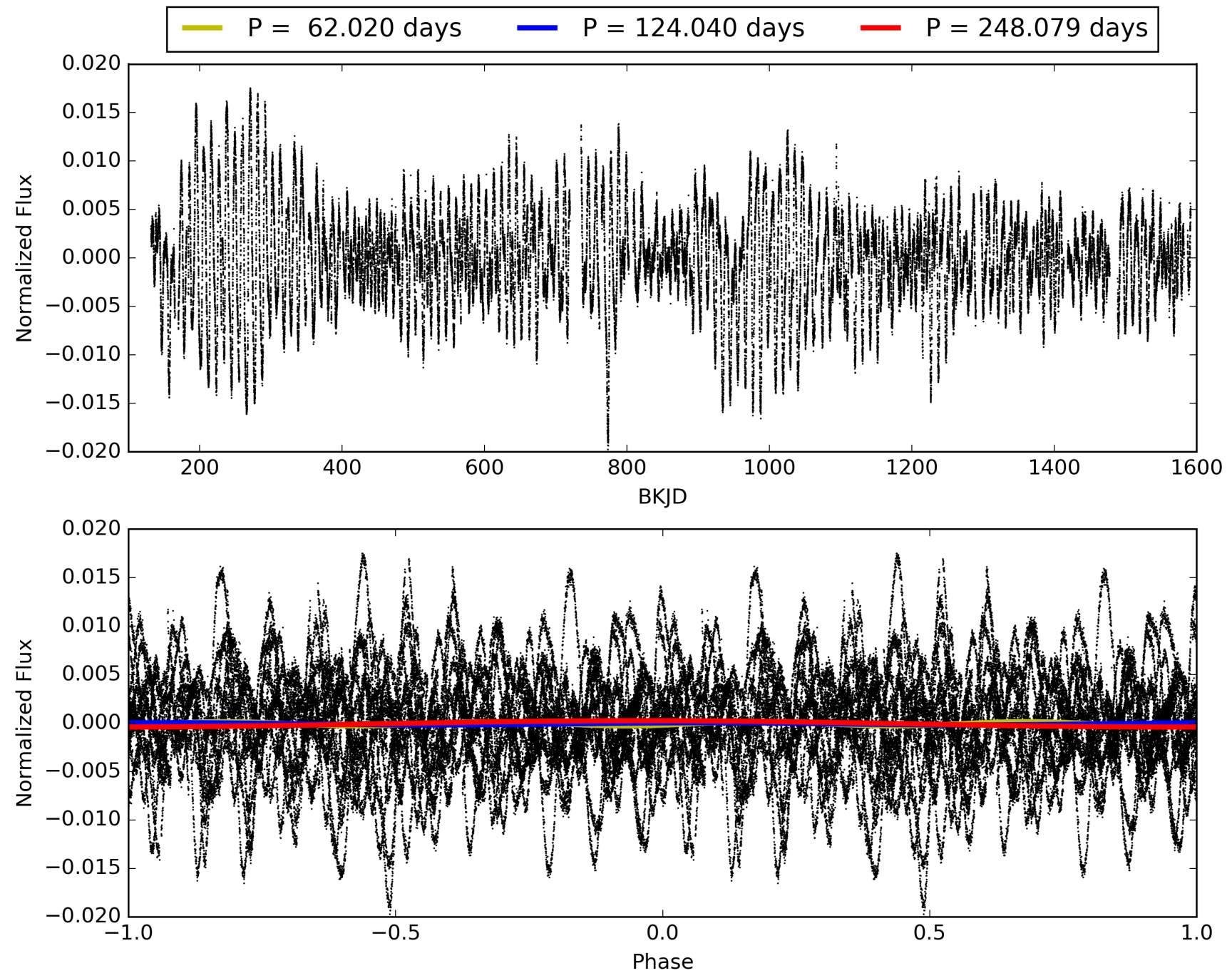
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:07:44 Z

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

TCE 012884589-04, PDC Light Curves

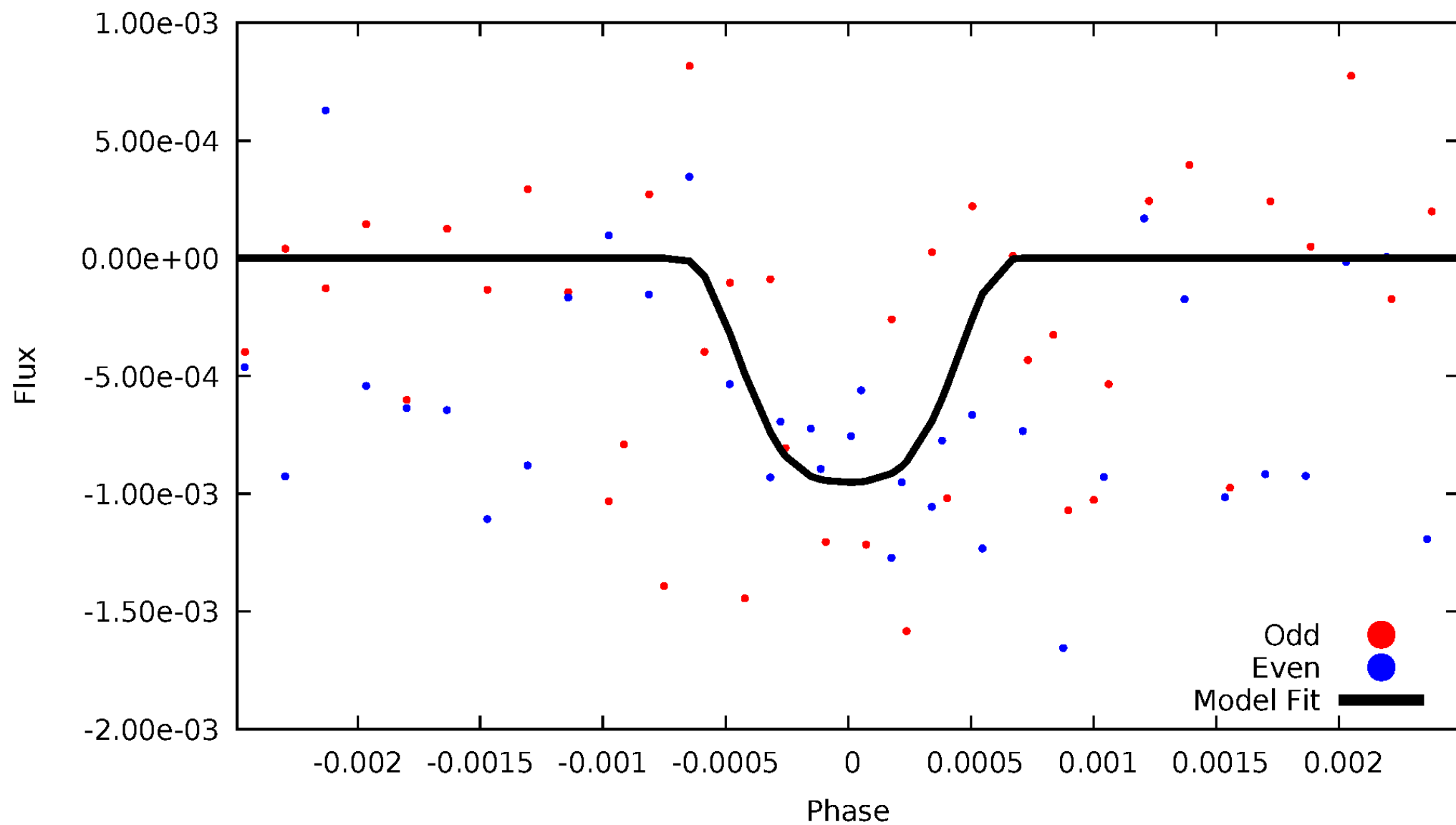


TCE 012884589-04



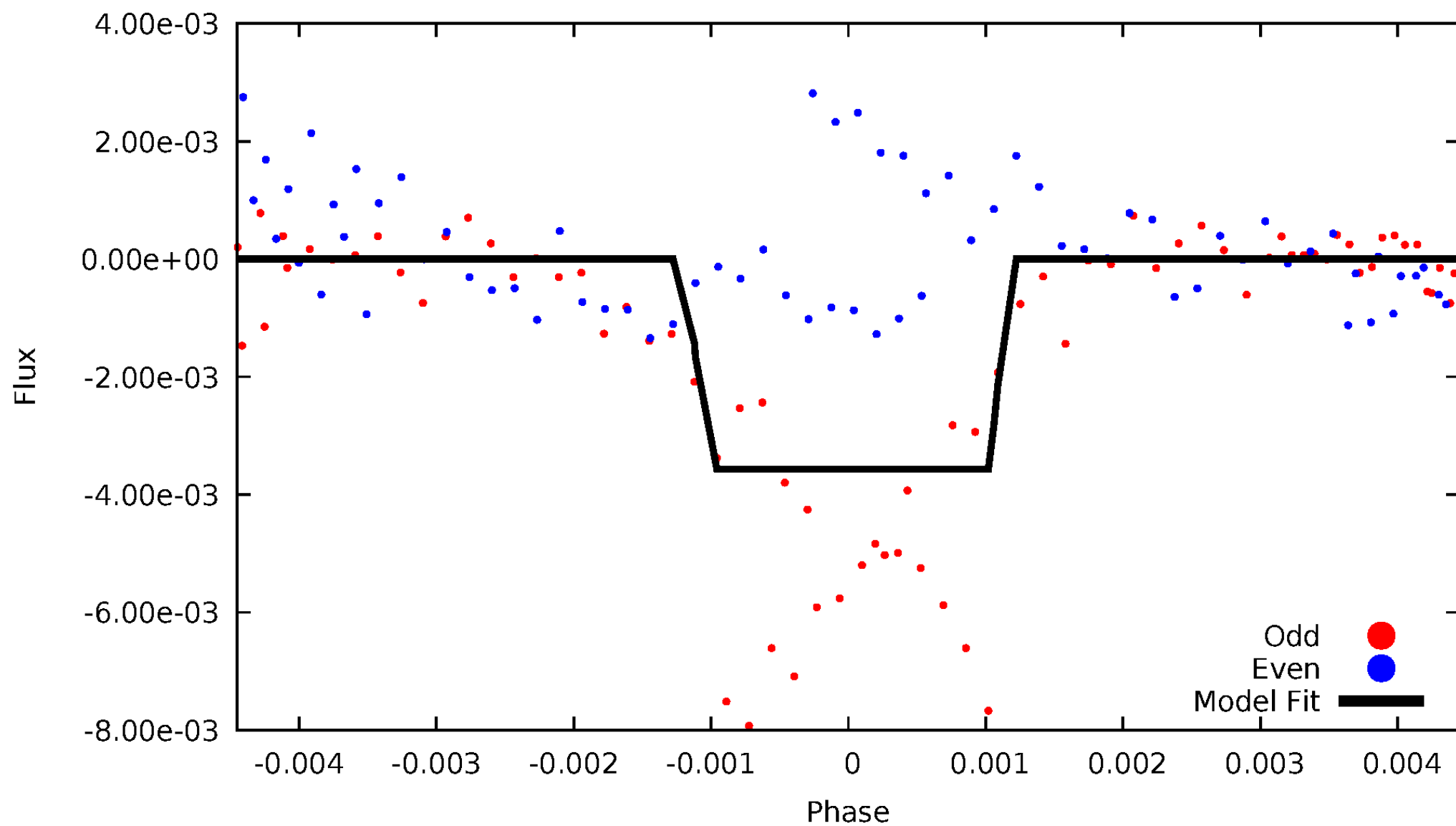
DV Odd/Even

TCE 012884589-04



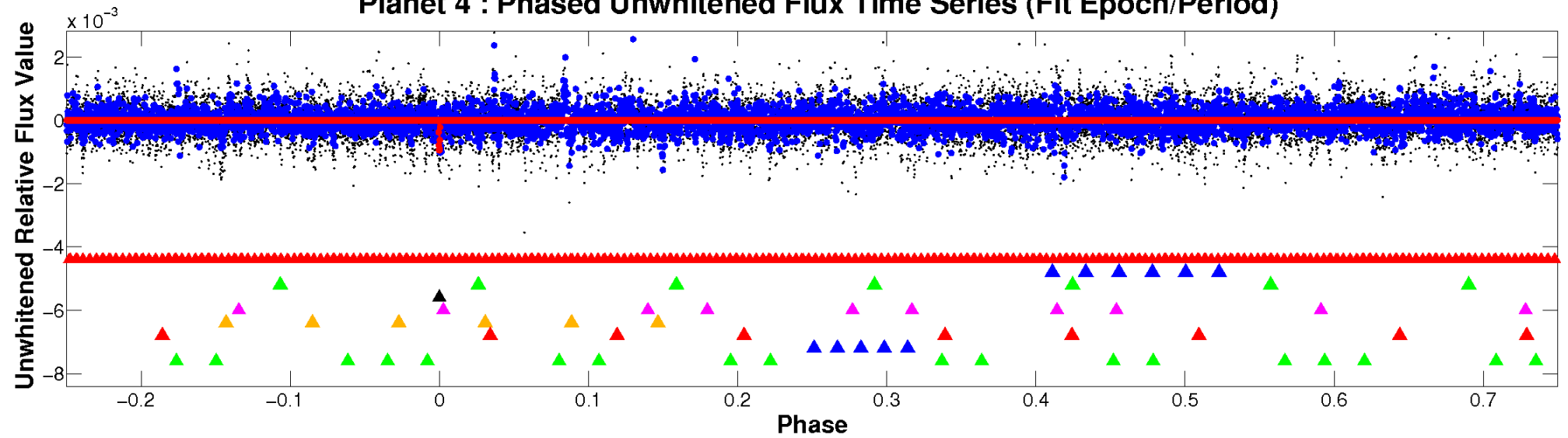
ALT Odd/Even

TCE 012884589-04

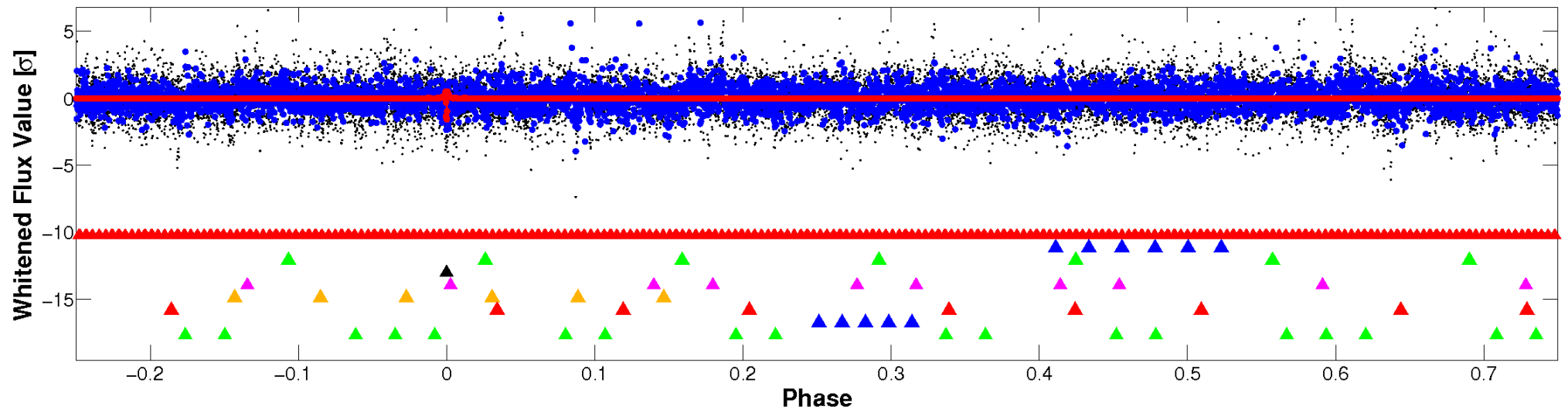


Non-Whitened Vs. Whitened Light Curve

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

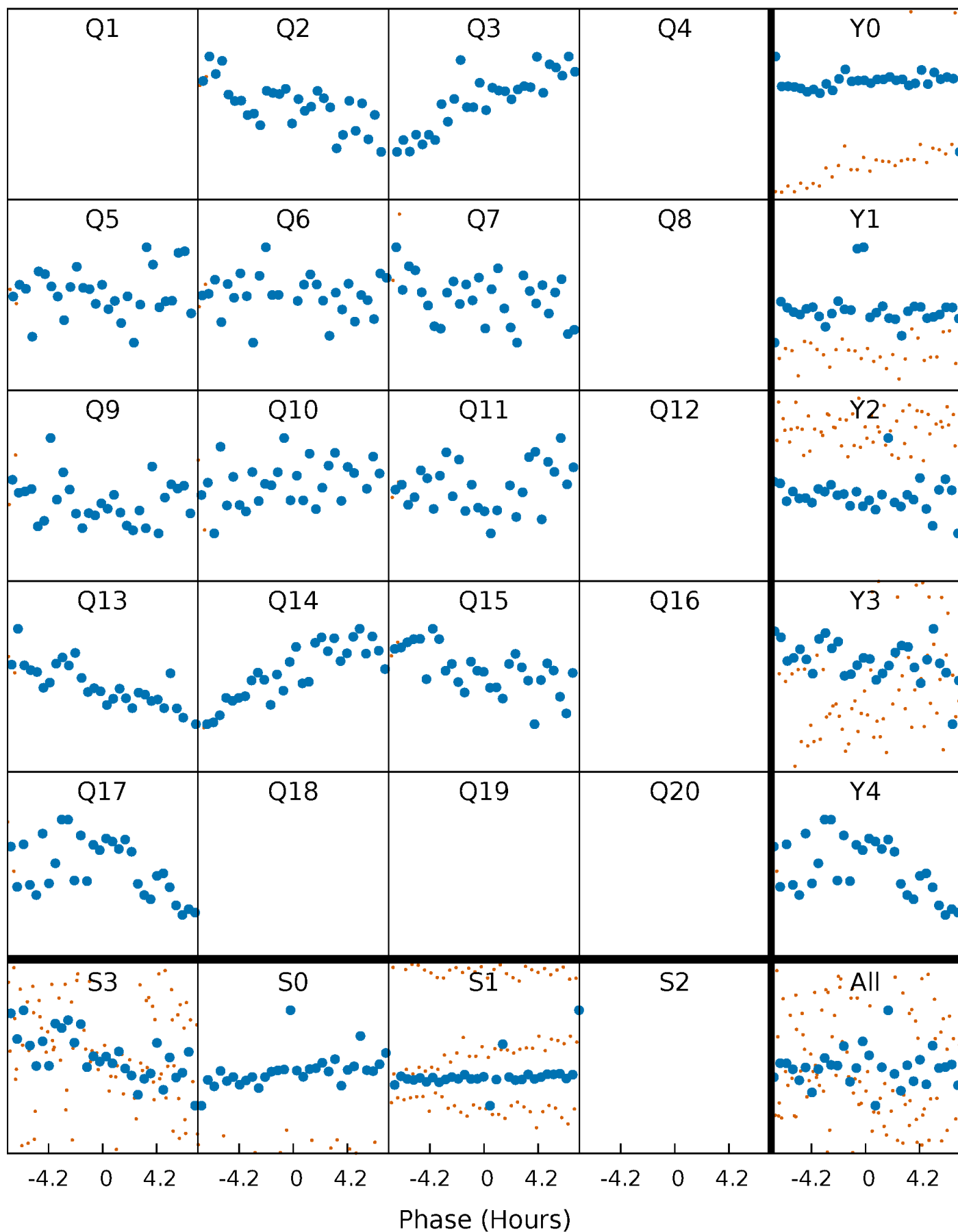


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 012884589-04 P=124.039615 Days $T_0=216.308911$ (BKJD)



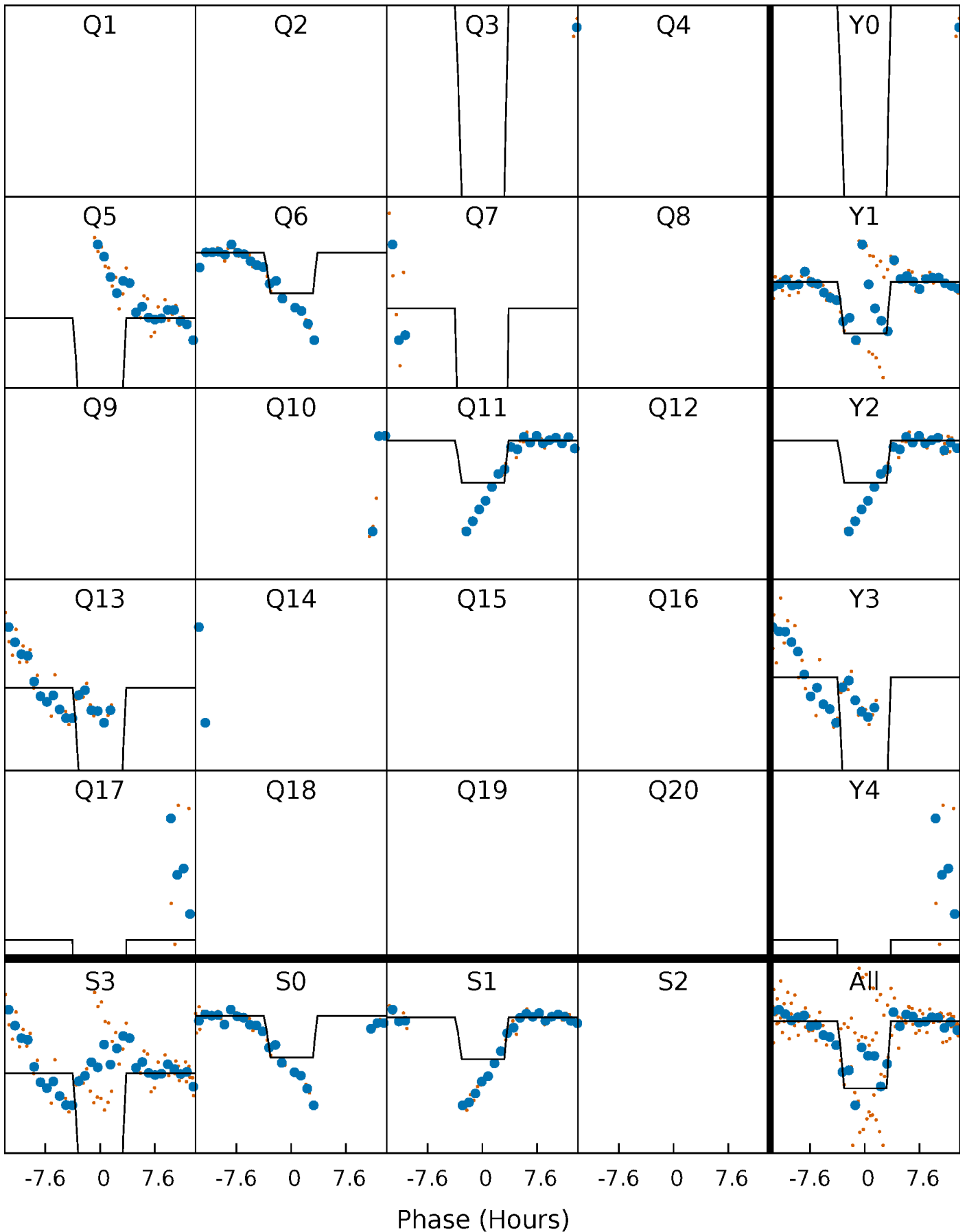
DV Quarter-Phased Transit Curves

TCE 012884589-04 $P=124.039615$ Days $T_0=216.308911$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

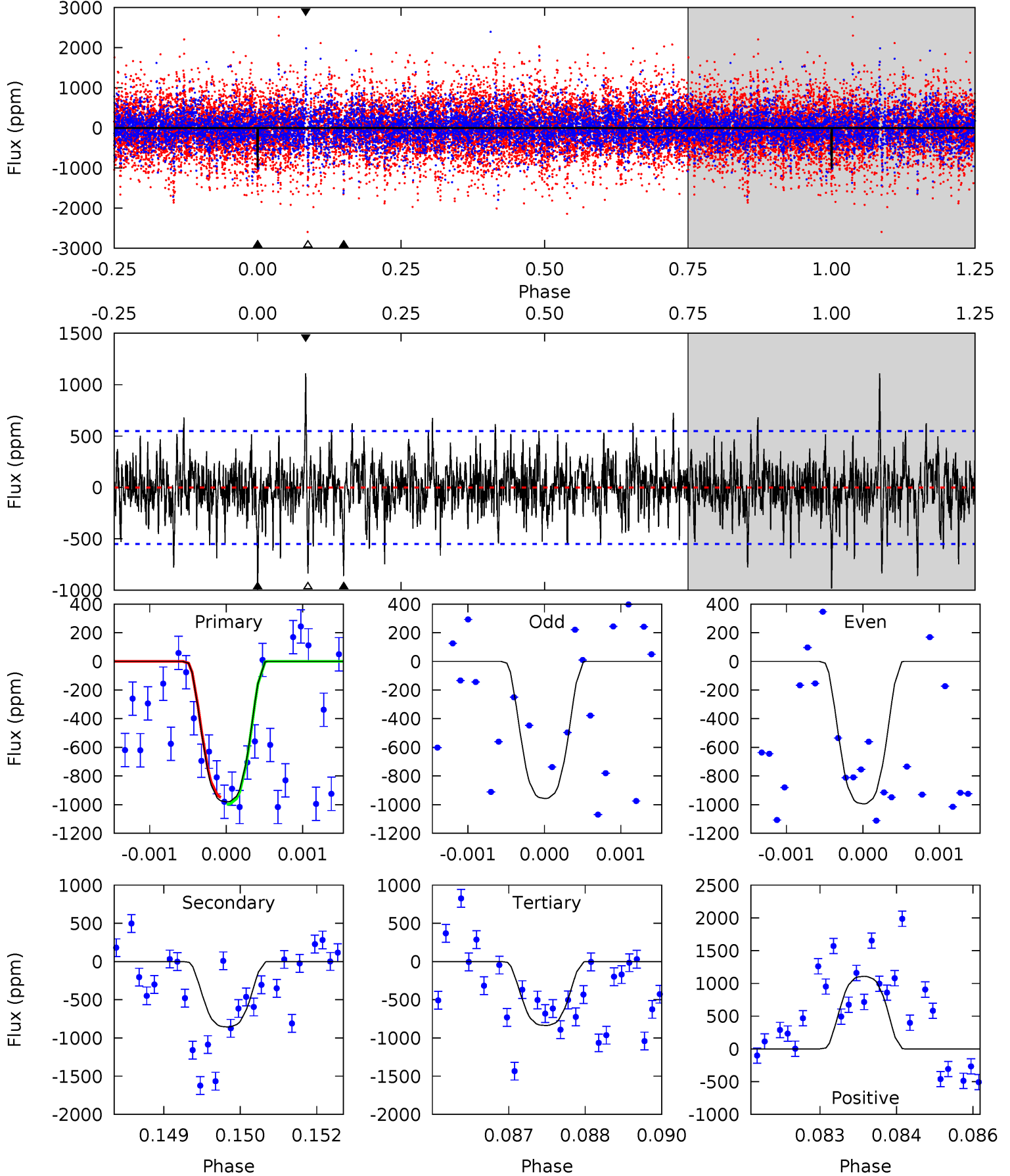
TCE 012884589-04 P=124.039395 Days $T_0=216.307057$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-04, P = 124.039615 Days, E = 92.269296 Days

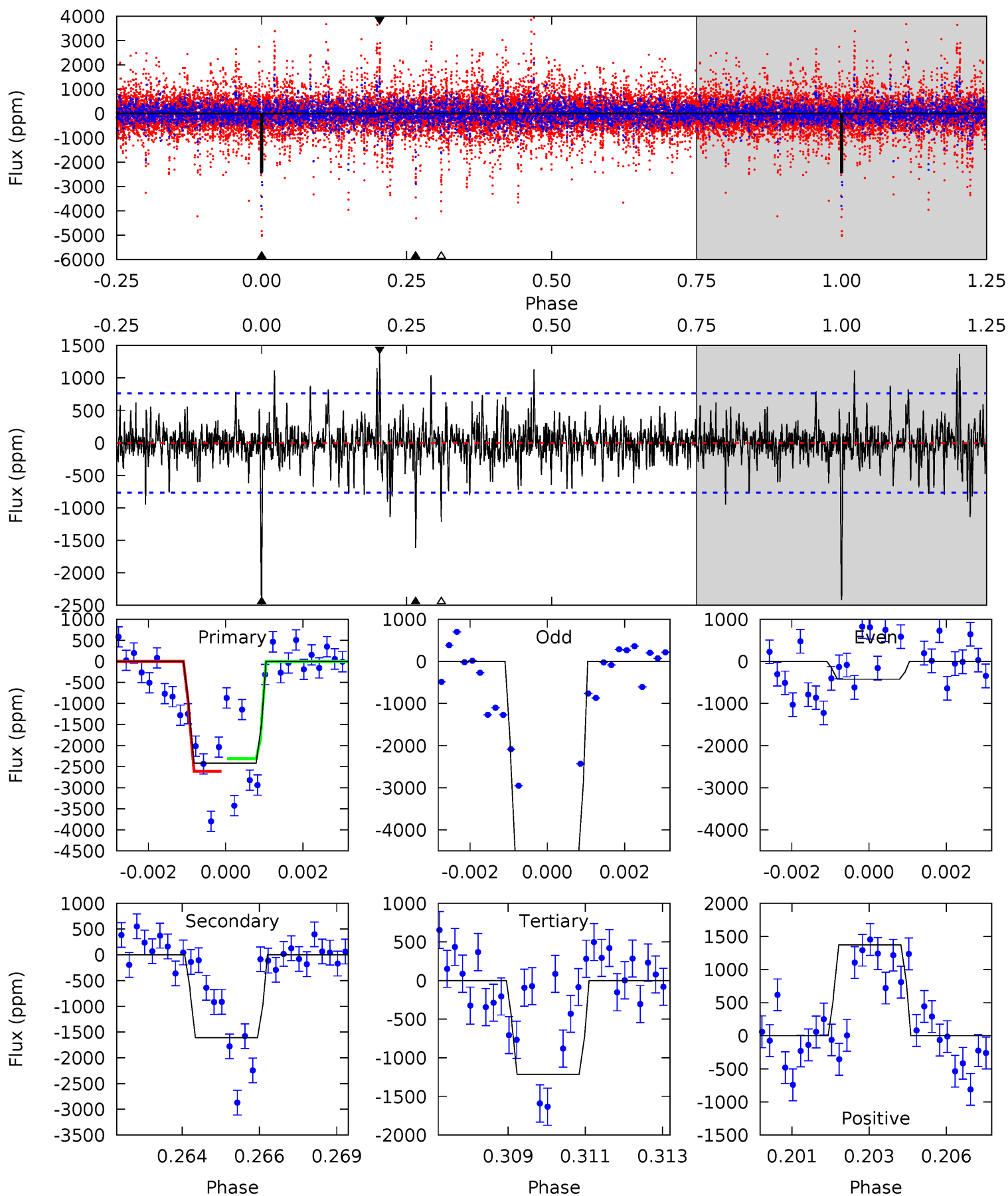
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.66	8.43	8.24	10.9	5.40	3.21	1.98	1.42	-1.25	0.19	-2.48	0.18	0.89	0.53	0.24



Alt Model-Shift Uniqueness Test

012884589-04, P = 124.039395 Days, E = 92.267662 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	11.1	8.39	9.49	5.30	3.04	1.66	8.35	7.26	2.76	1.66	18.7	0.85	0.36	0



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-856 ± 102	$4.45^{+1.39}_{-1.27}$	565^{+43}_{-33}	5588^{+960}_{-599}	6113^{+6038}_{-2553}
Alt.	-1611 ± 144	$7.55^{+1.77}_{-1.43}$	564^{+43}_{-33}	5061^{+468}_{-332}	4036^{+2029}_{-1271}

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 $A_{obs} \gg 1.0$

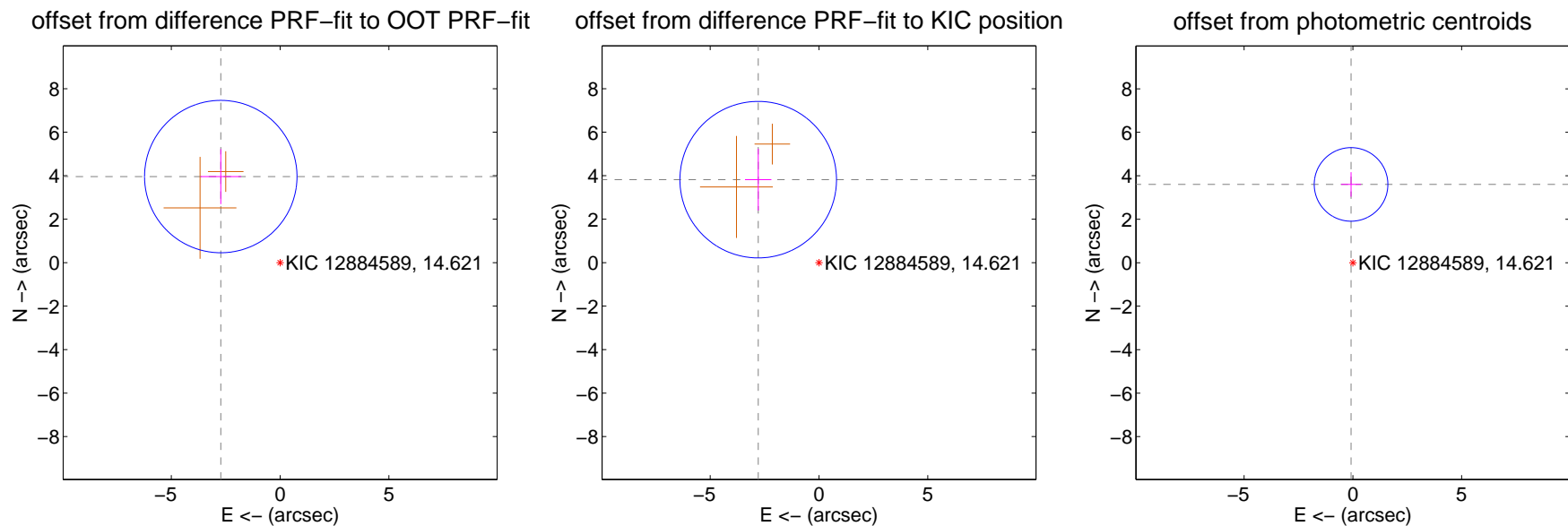
DV Centroid Data

Supplemental centroid analysis for 012884589-04. Kepler magnitude: 14.62. Transit SNR 6.10

There are 0 quarters with good PRF difference image offsets

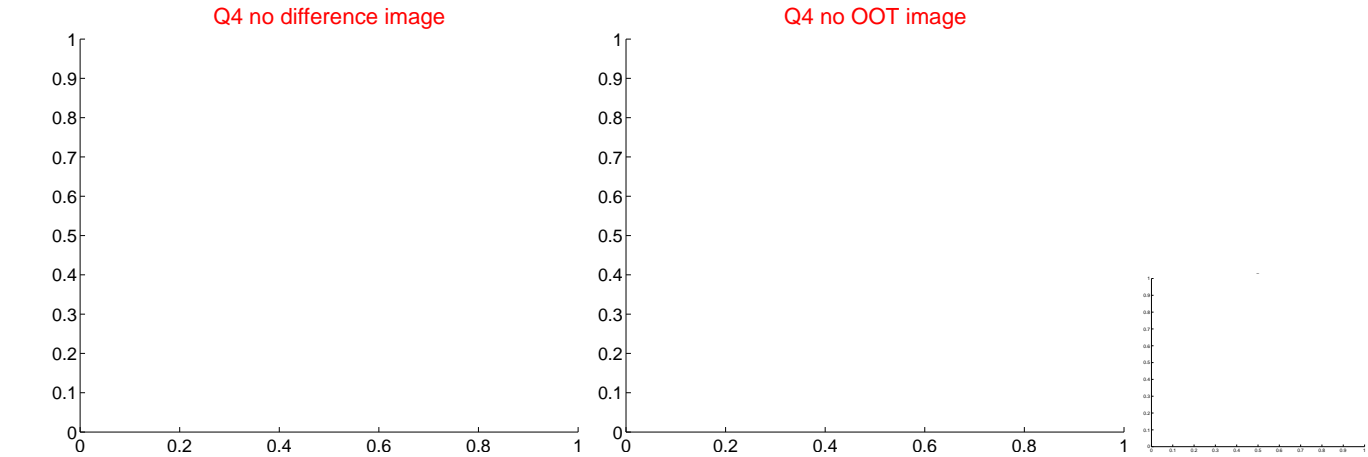
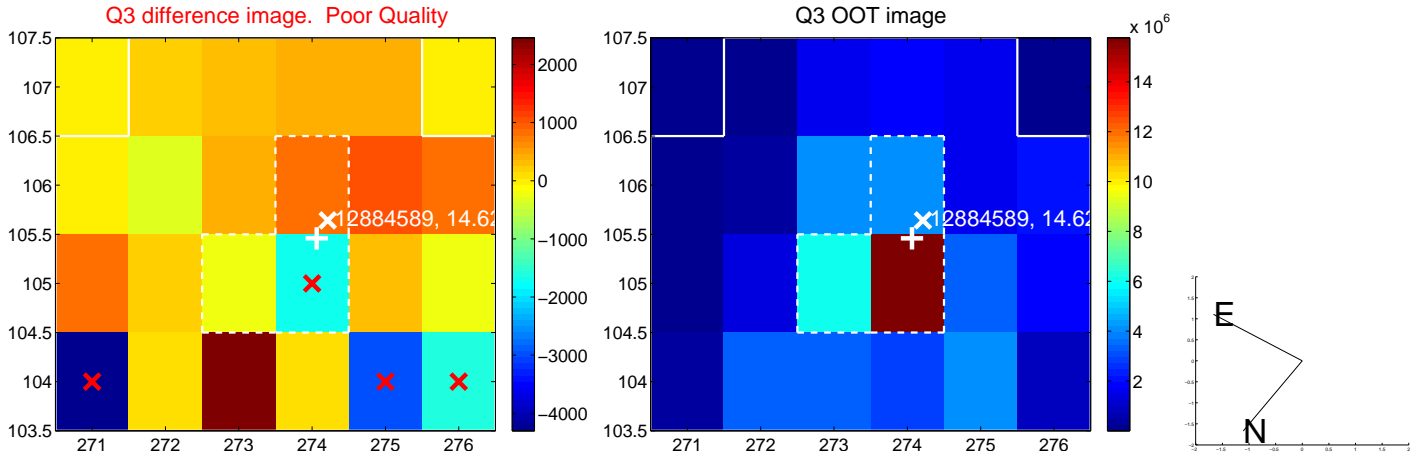
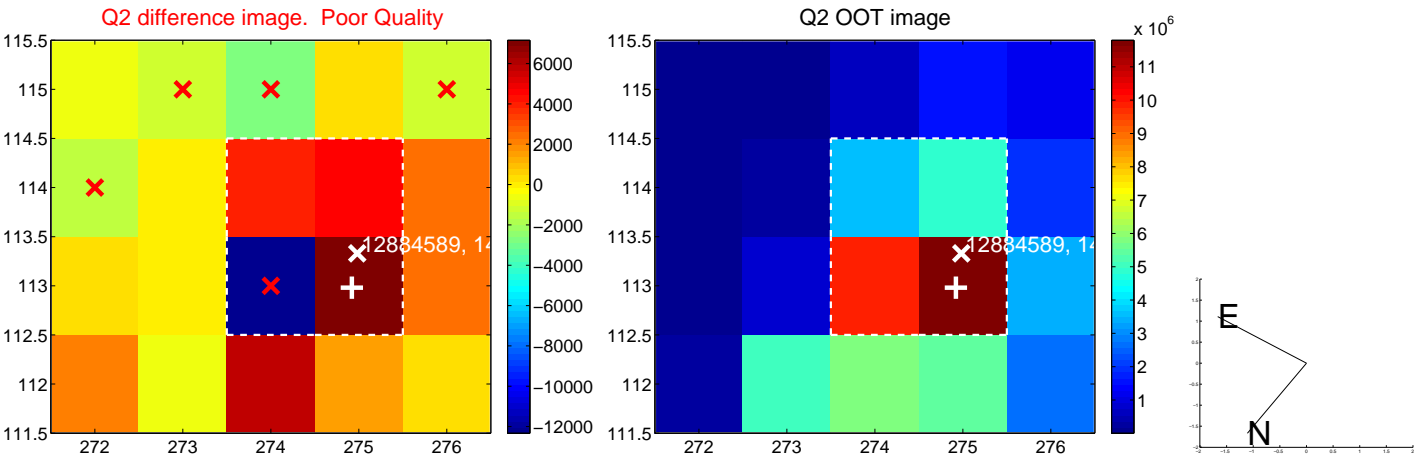
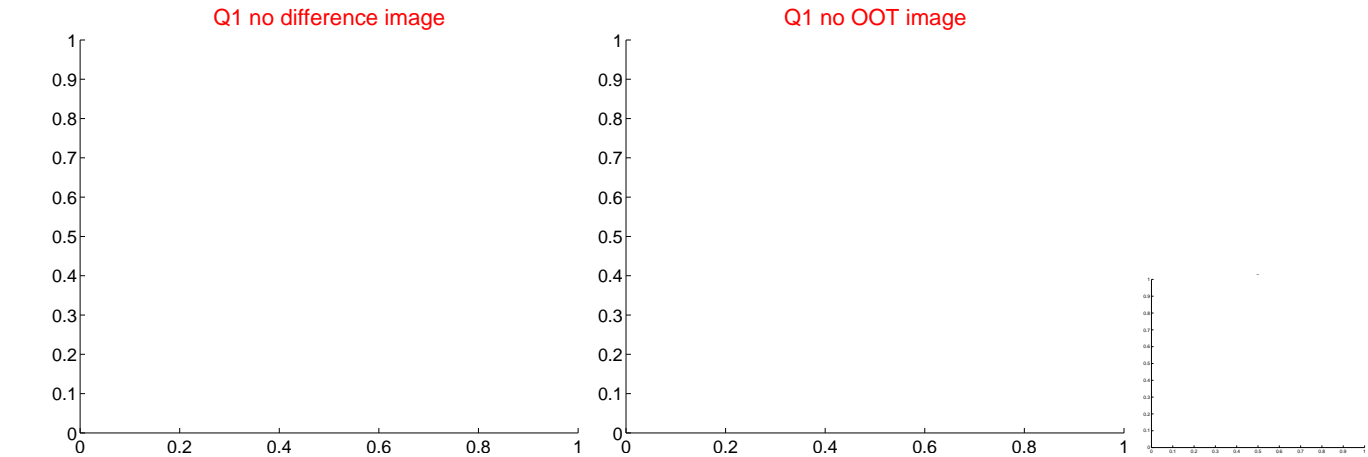
The direct PRF centroid is offset from the target star catalog position by about 0.97 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.807 ± 1.168	4.12	2.727 ± 0.934	3.959 ± 1.264
PRF-fit source offset from KIC position	4.730 ± 1.200	3.94	2.794 ± 0.606	3.816 ± 1.419
photometric centroid source offset	3.60 ± 0.56	6.38	0.08 ± 0.46	3.60 ± 0.56

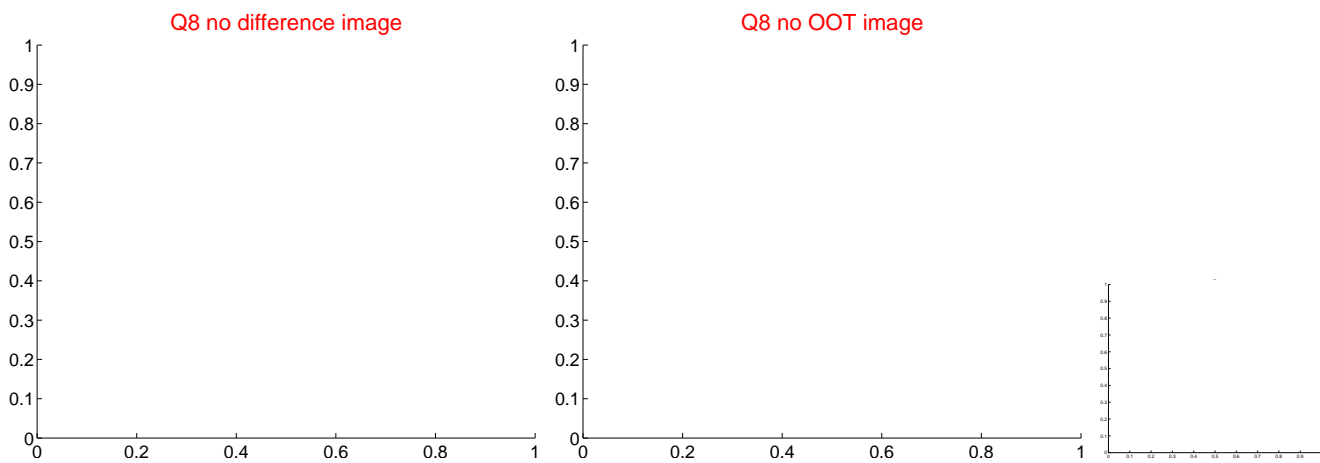
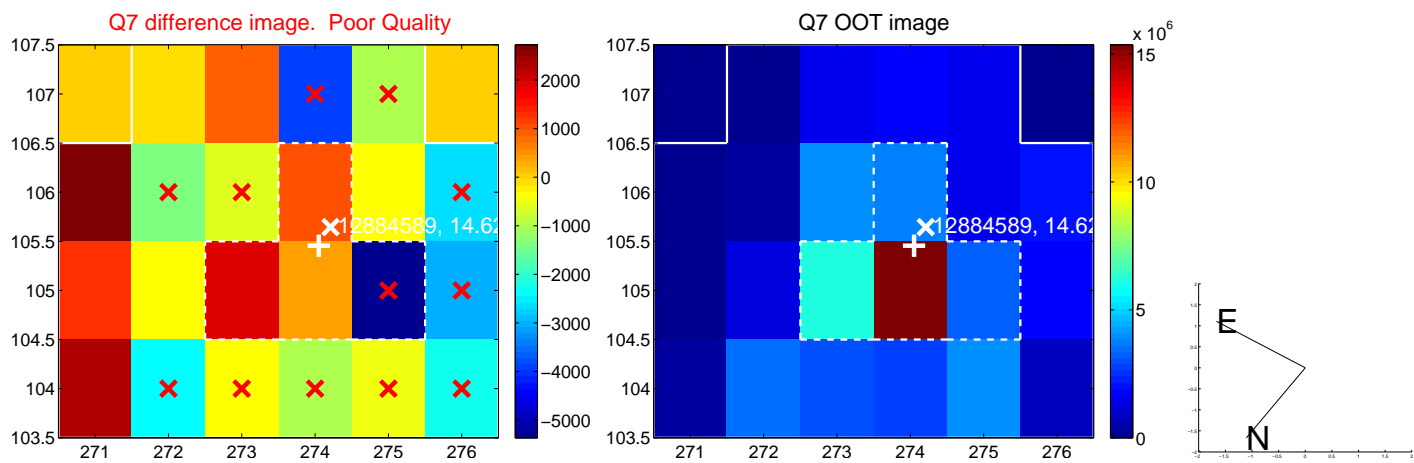
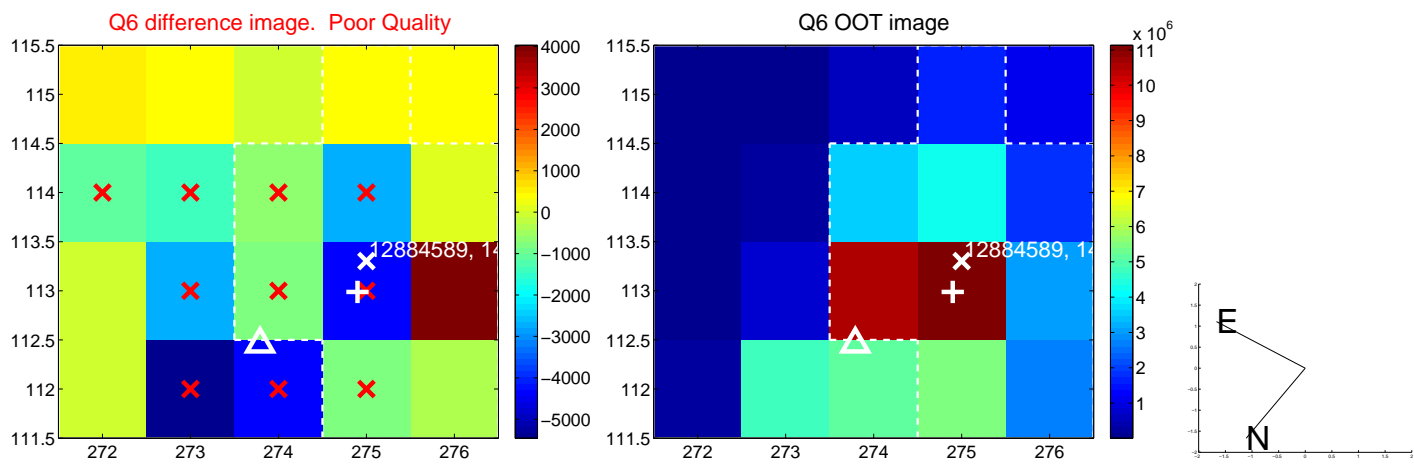
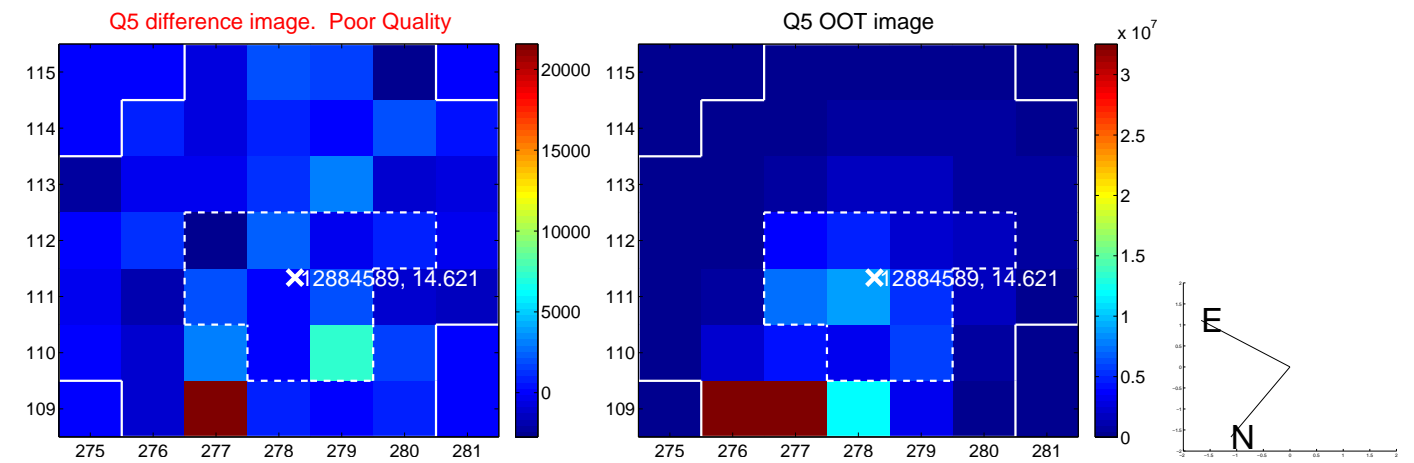


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

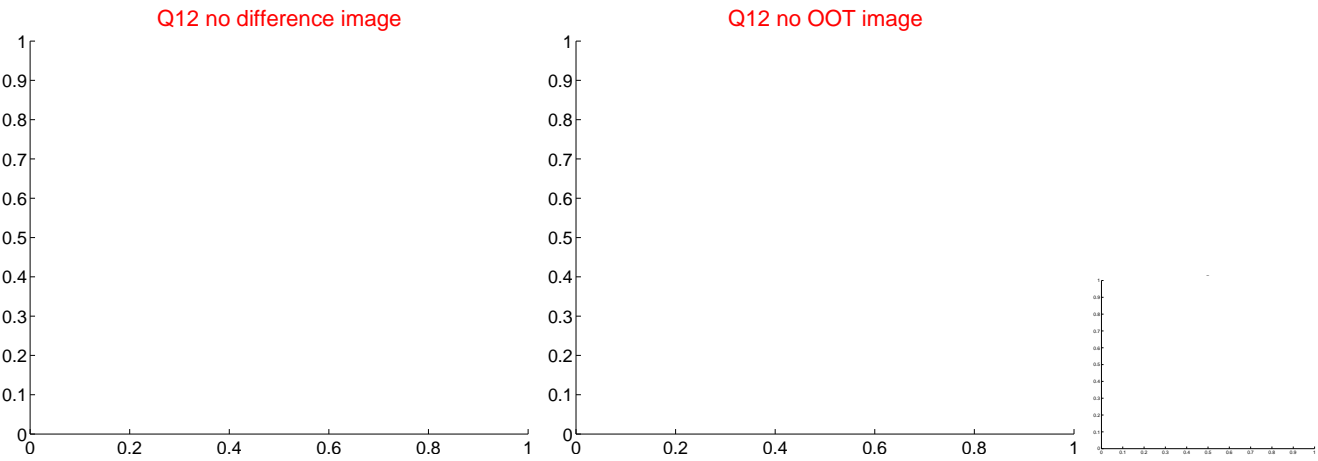
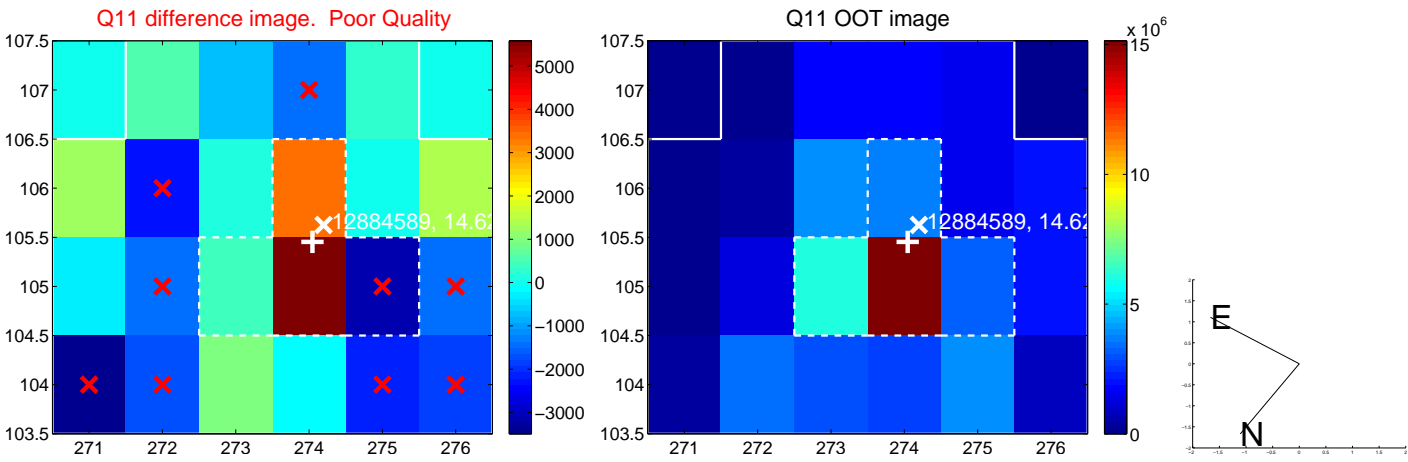
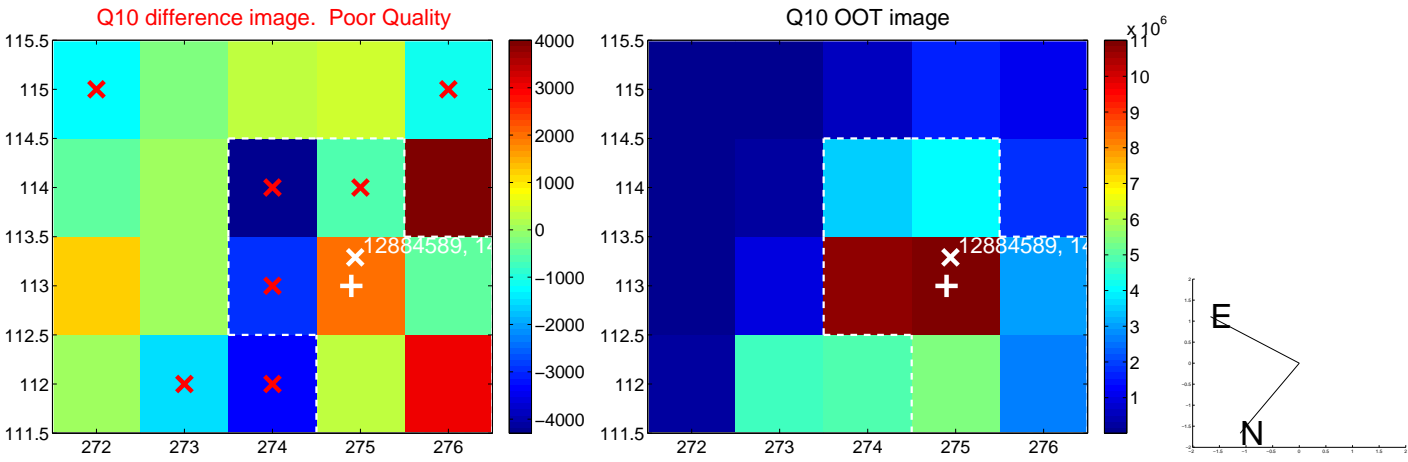
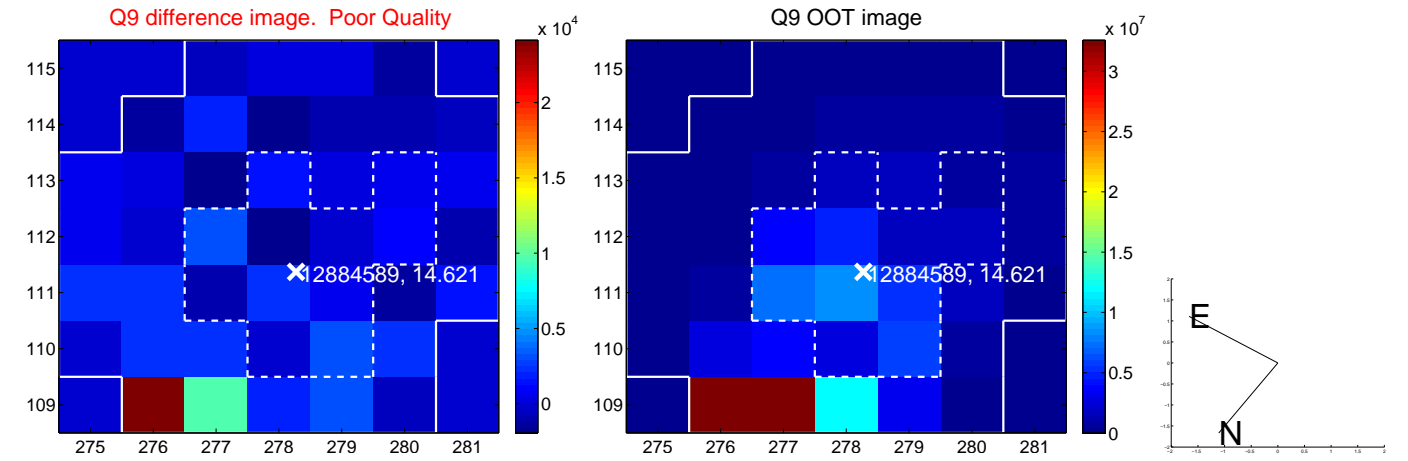
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



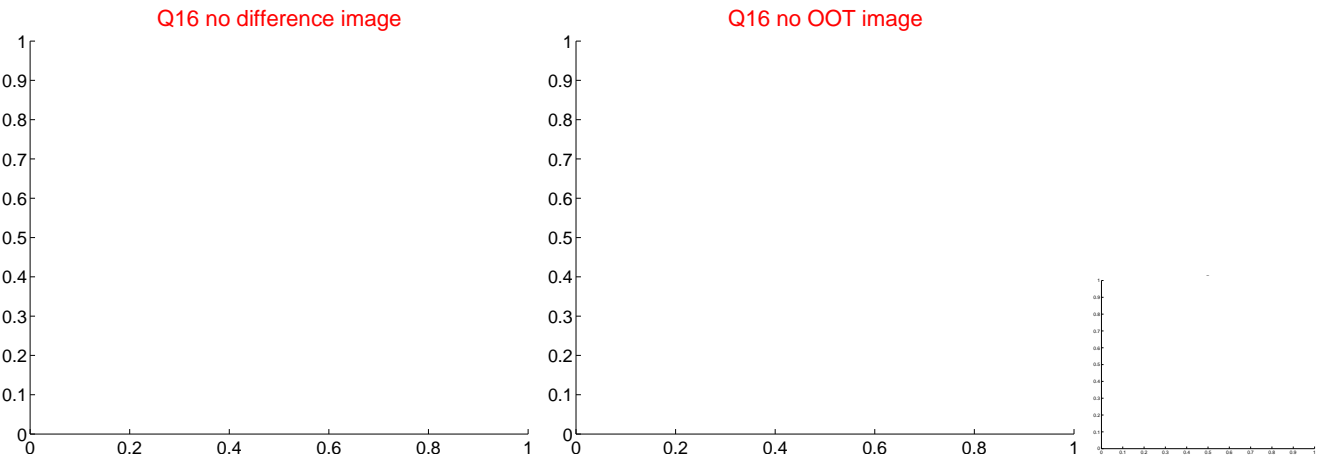
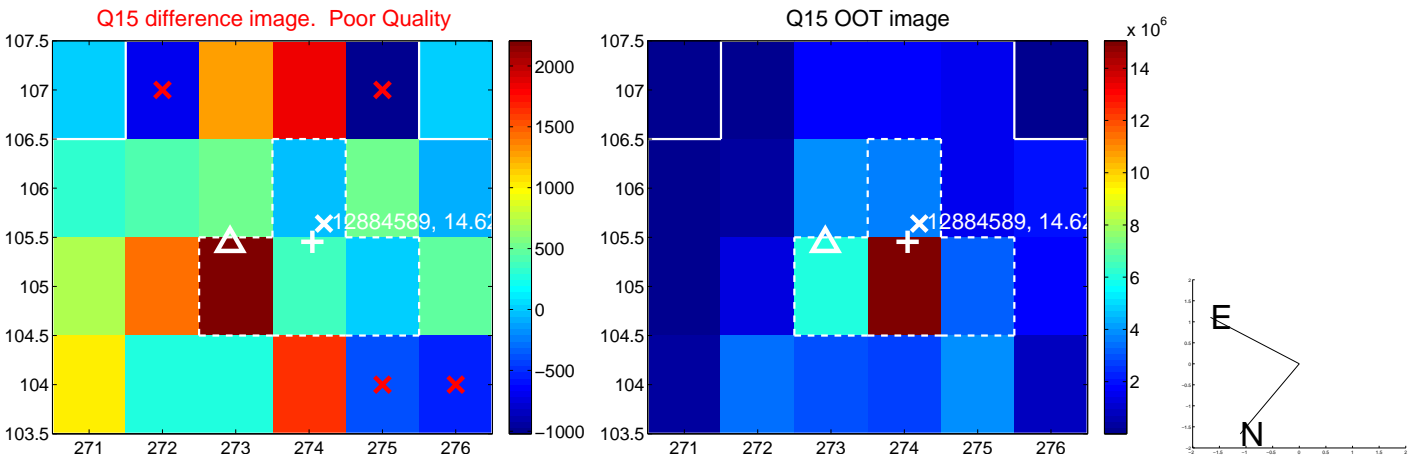
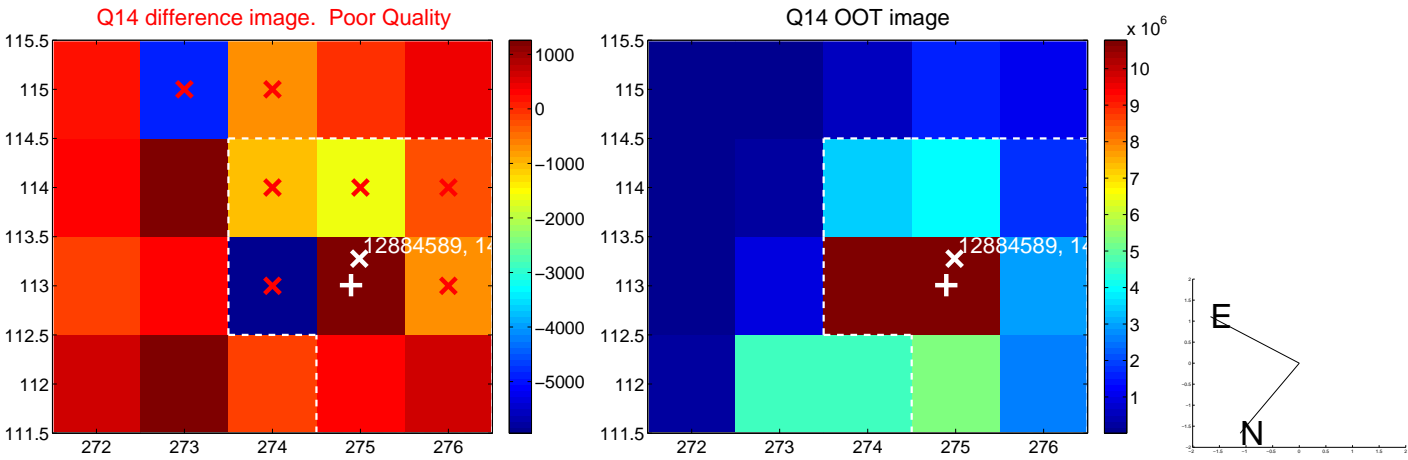
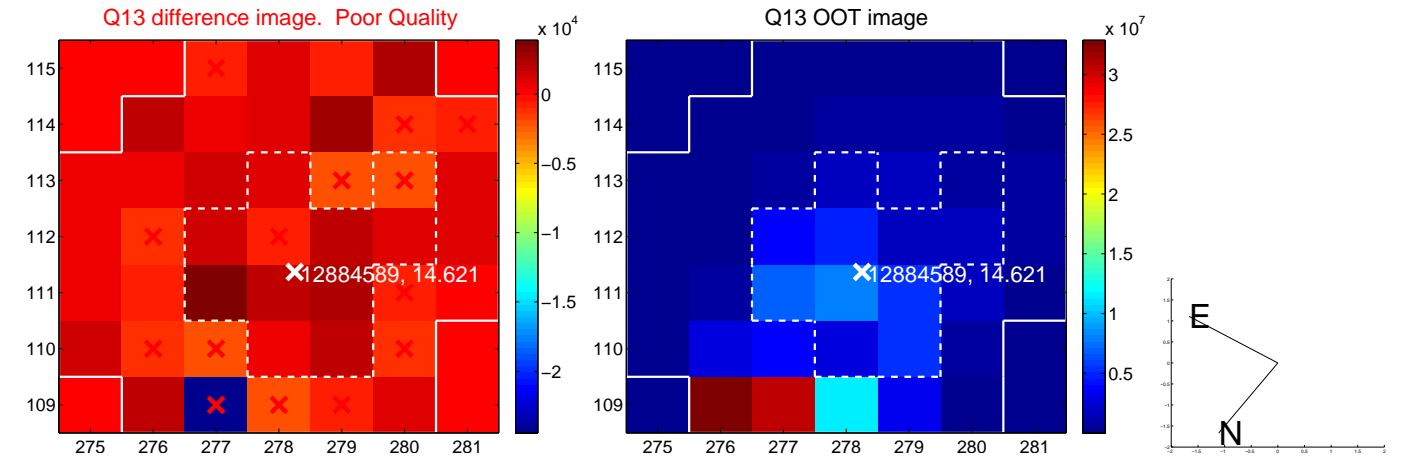
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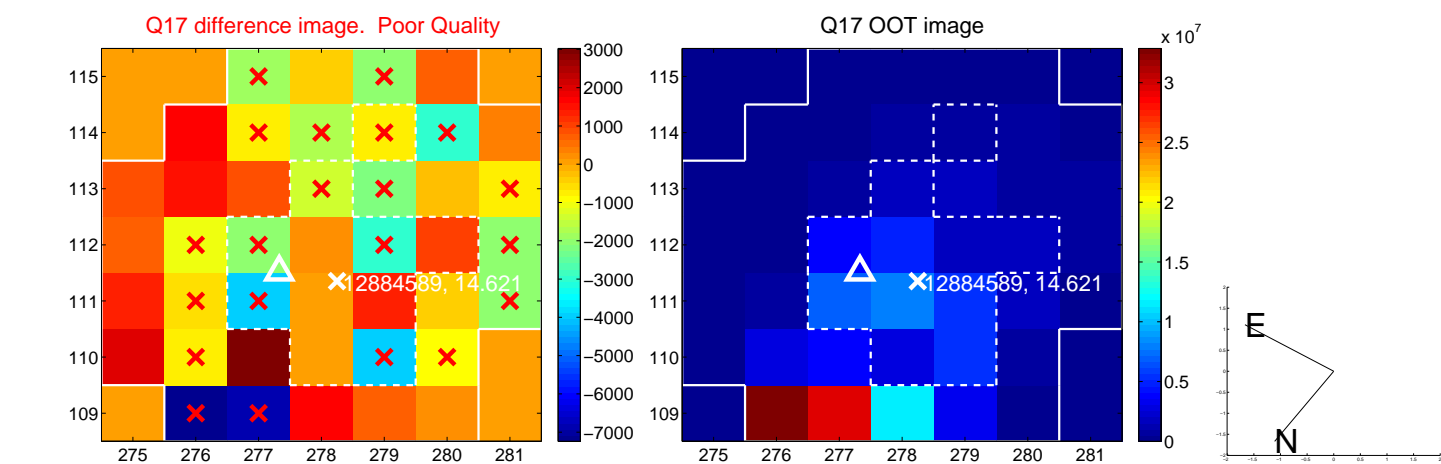
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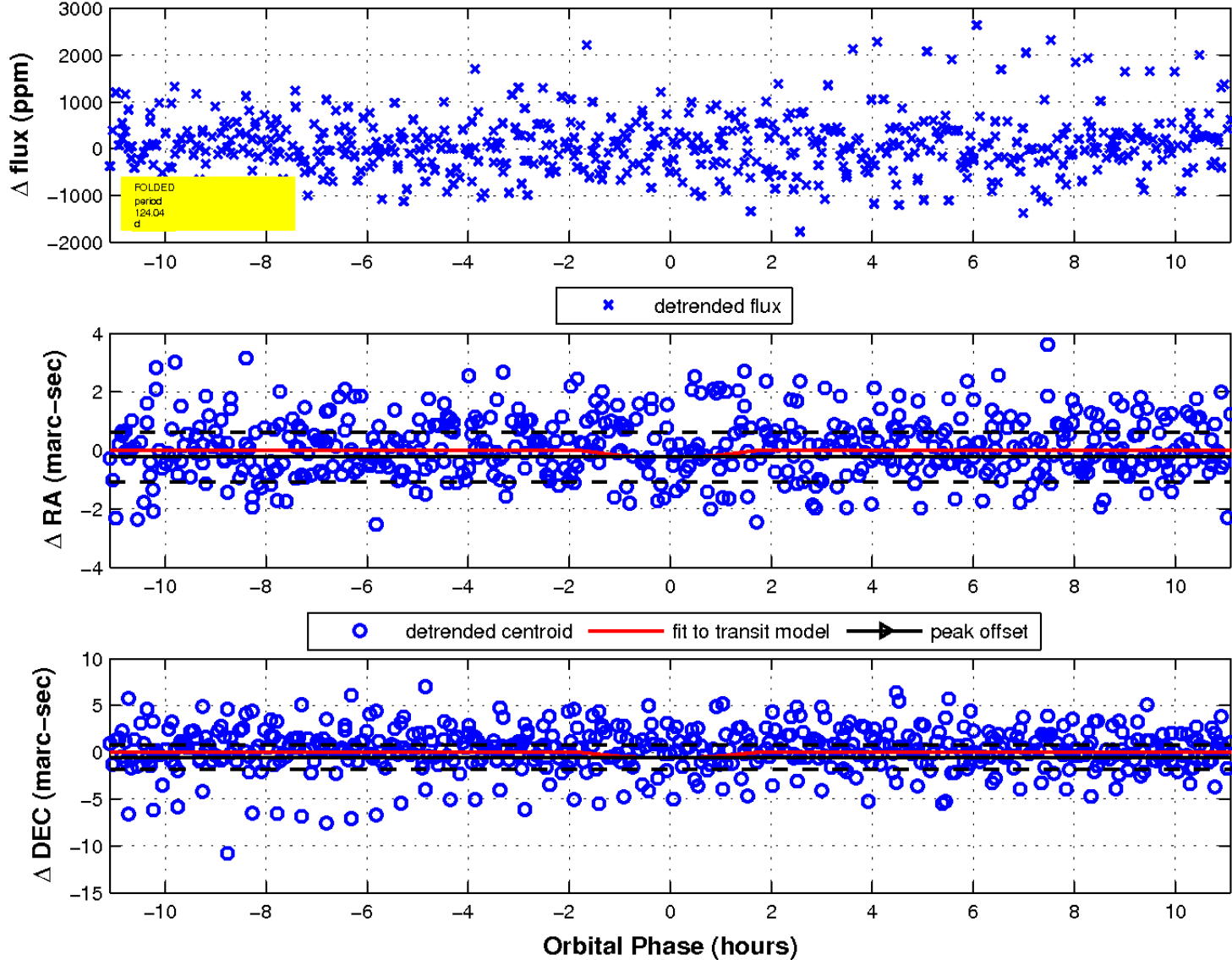
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



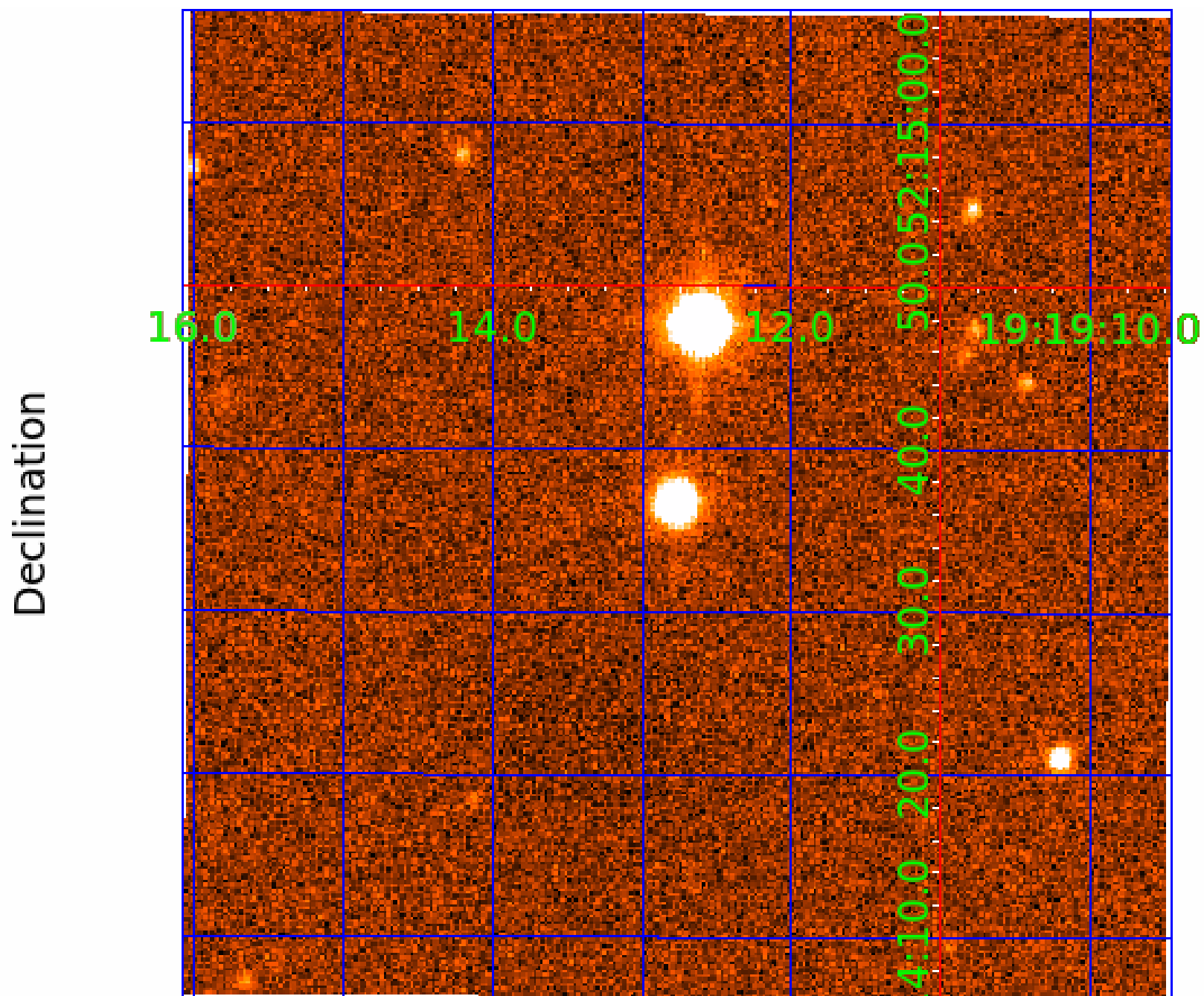
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 4 of 9



UKIRT Image



KIC 012884589

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})
012884589-01	OBS	No	2.743953	134.062673	162.5	15.871	9.2	11.1	1.10	6147	2.72	928.08
012884589-02	OBS	No	245.307270	157.122651	2611.9	10.816	21.3	10.6	1.10	6147	9.73	2.32
012884589-03	OBS	No	231.603616	177.892992	2129.3	13.082	15.5	8.2	1.10	6147	6.29	2.51
012884589-04	OBS	No	124.039615	216.308911	952.1	3.708	13.5	6.1	1.10	6147	4.32	5.76
012884589-05	OBS	No	141.053722	238.598679	1875.2	22.307	14.0	6.9	1.10	6147	5.58	4.86
012884589-06	OBS	No	240.894583	234.492854	3309.6	46.356	12.4	9.5	1.10	6147	6.28	2.38
012884589-08	OBS	No	250.026448	371.517419	6728.1	75.963	9.7	6.5	1.10	6147	16.29	2.26
012884589-09	OBS	No	77.938471	208.698150	660.3	4.237	10.5	4.7	1.10	6147	3.16	10.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012884589-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

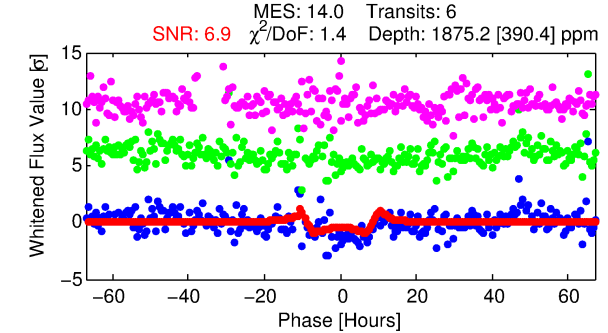
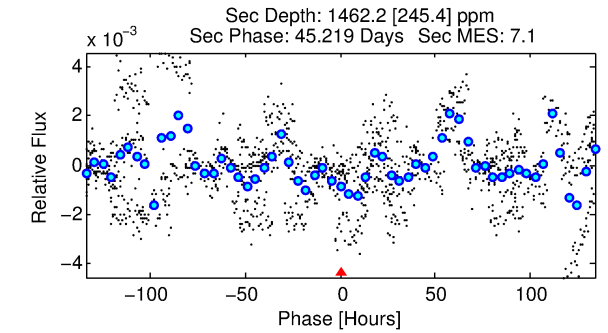
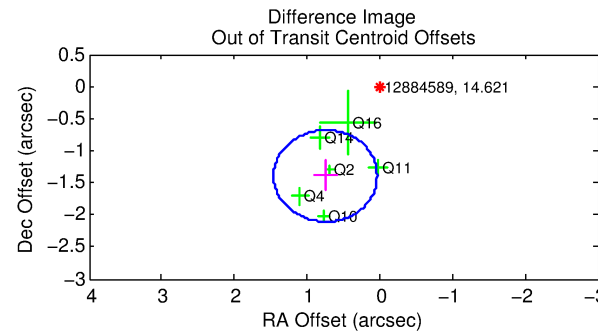
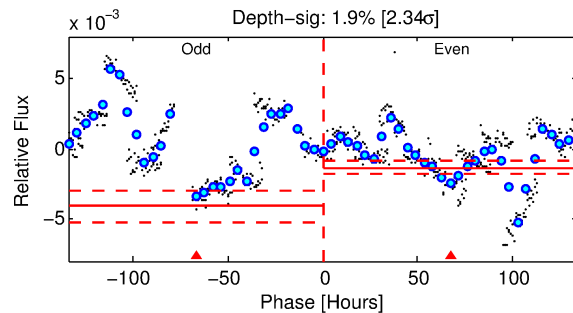
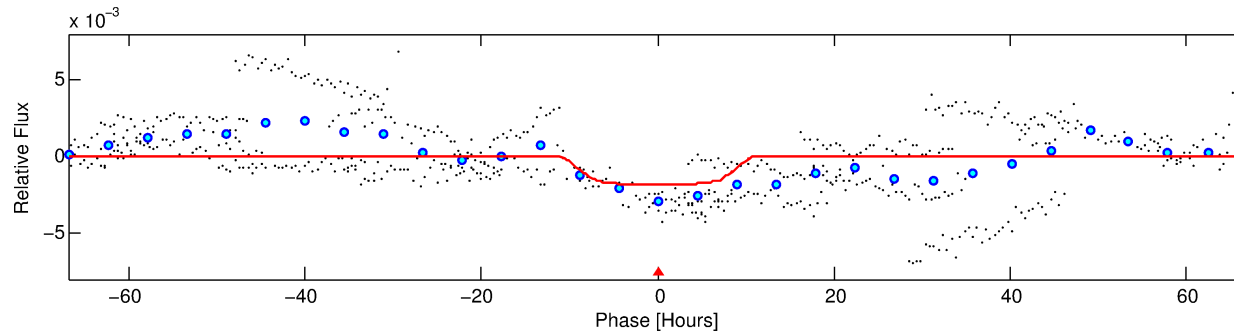
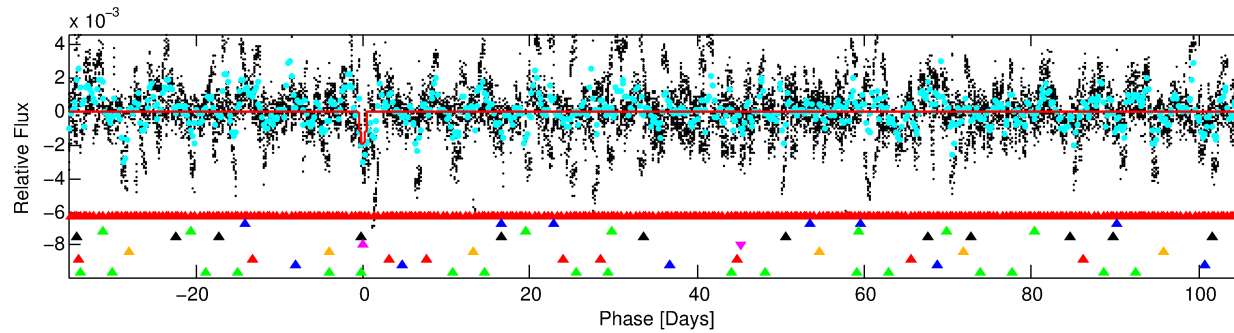
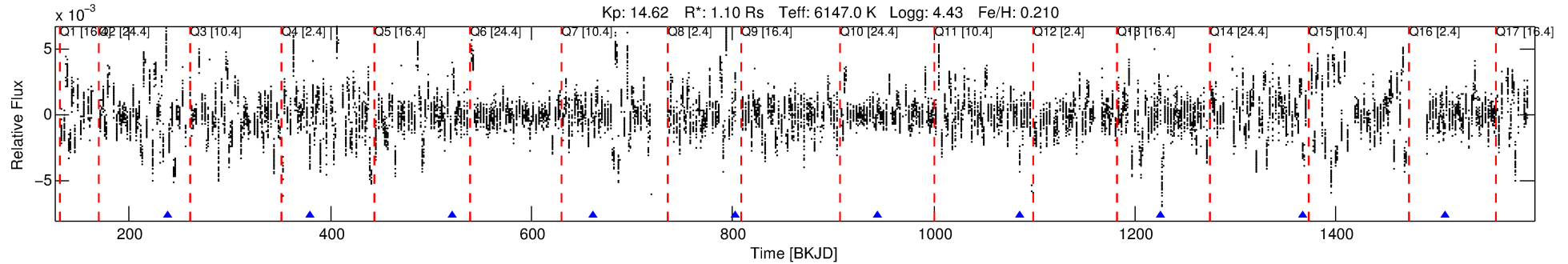
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-05

No Significant Match Found

DV One-Page Summary

KIC: 12884589 Candidate: 5 of 9 Period: 141.054 d



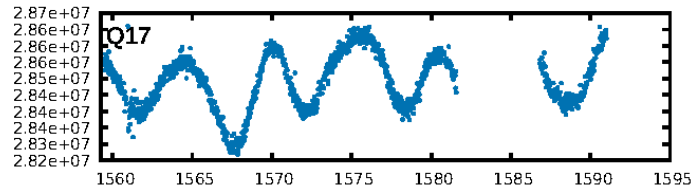
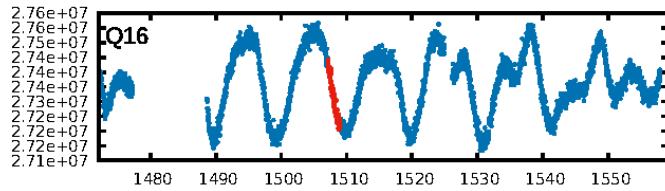
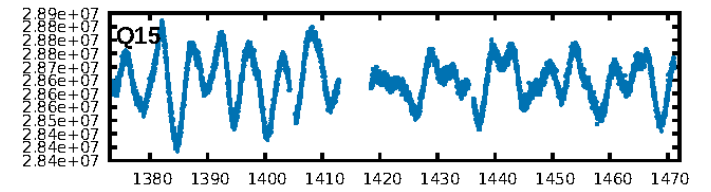
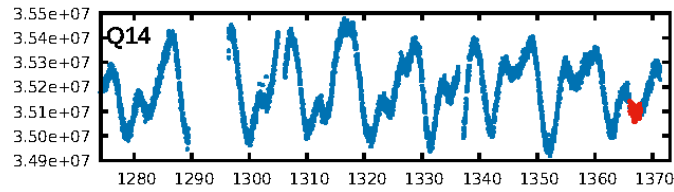
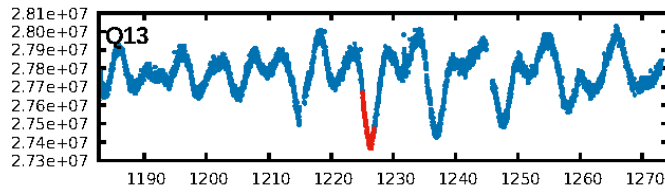
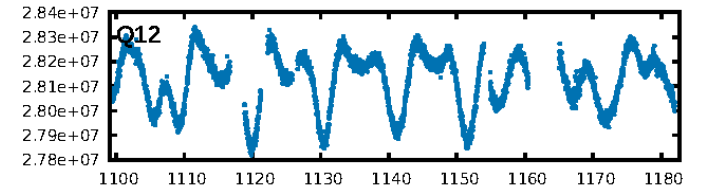
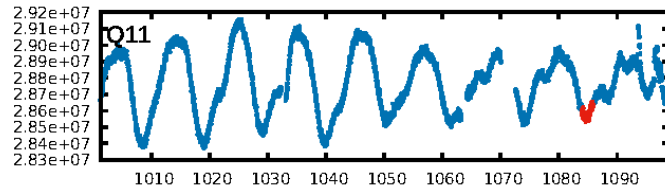
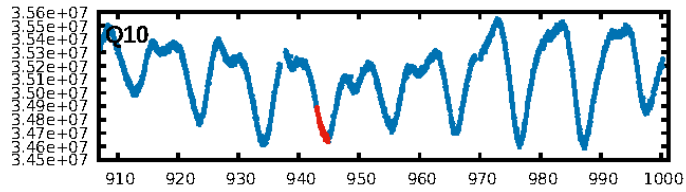
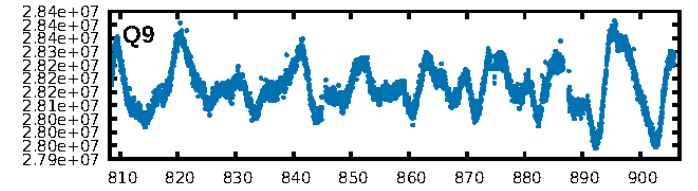
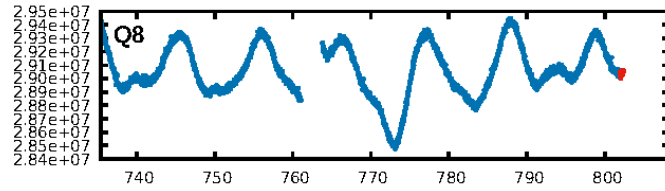
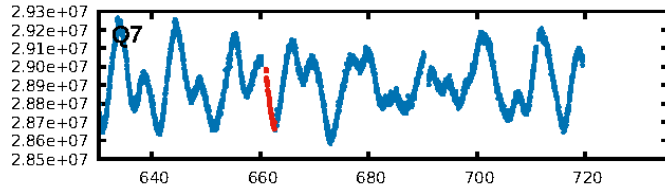
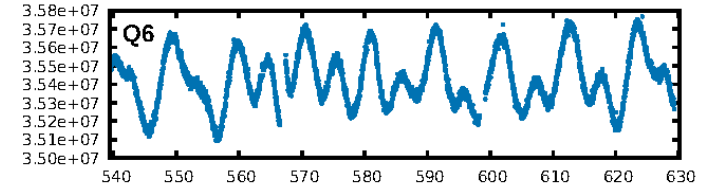
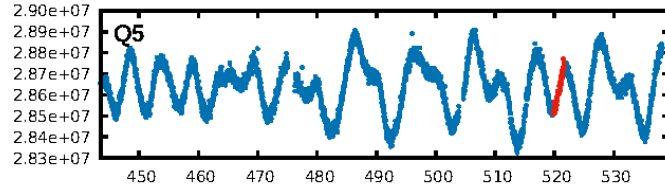
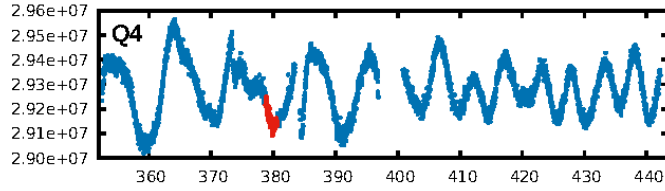
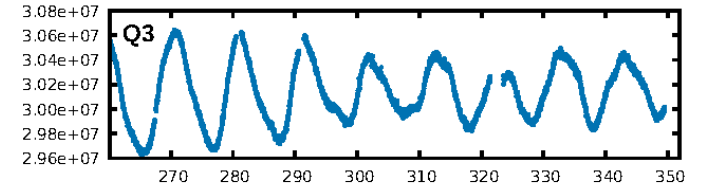
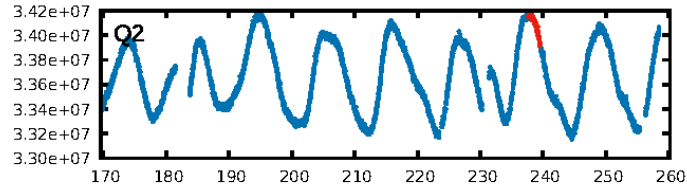
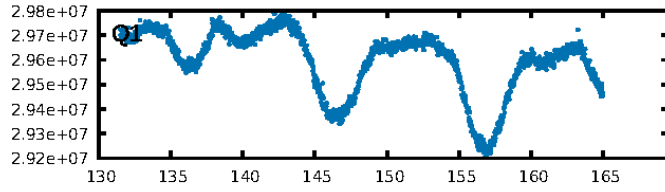
DV Fit Results:

Period = 141.05372 [0.00586] d
Epoch = 238.5987 [0.0381] BKJD
Rp/R* = 0.0467 [0.0054]
a/R* = 26.25 [4.51]
b = 0.89 [0.04]
Seff = 4.86 [2.08]
Teq = 379 [41] K
Rp = 5.59 [1.92] Re
a = 0.5625 [0.1531] AU
Ag = 8160.25 [3987.55] [2.05 σ]
Teffp = 5562 [460] K [11.23 σ]

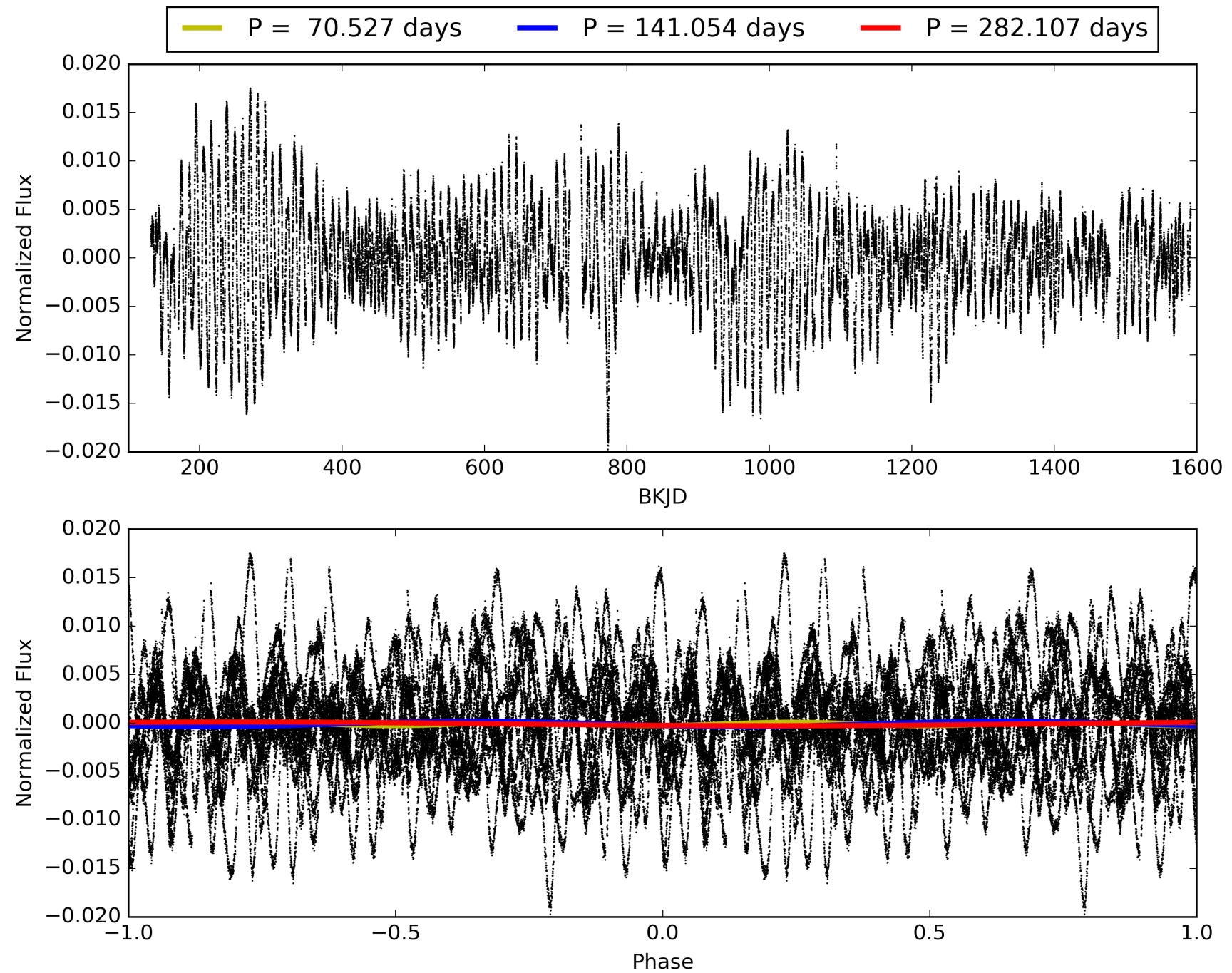
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.06 σ]
LongPeriod-sig: 100.0% [11.17 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.6252
Centroid-sig: 51.3%
Centroid-so: 2.899 arcsec [10.73 σ]
OotOffset-rm: 1.583 arcsec [6.66 σ]
KicOffset-rm: 0.278 arcsec [0.88 σ]
OotOffset-st: 3/1/2/0 [6]
KicOffset-st: 3/1/2/0 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.00 [0/7]

TCE 012884589-05, PDC Light Curves

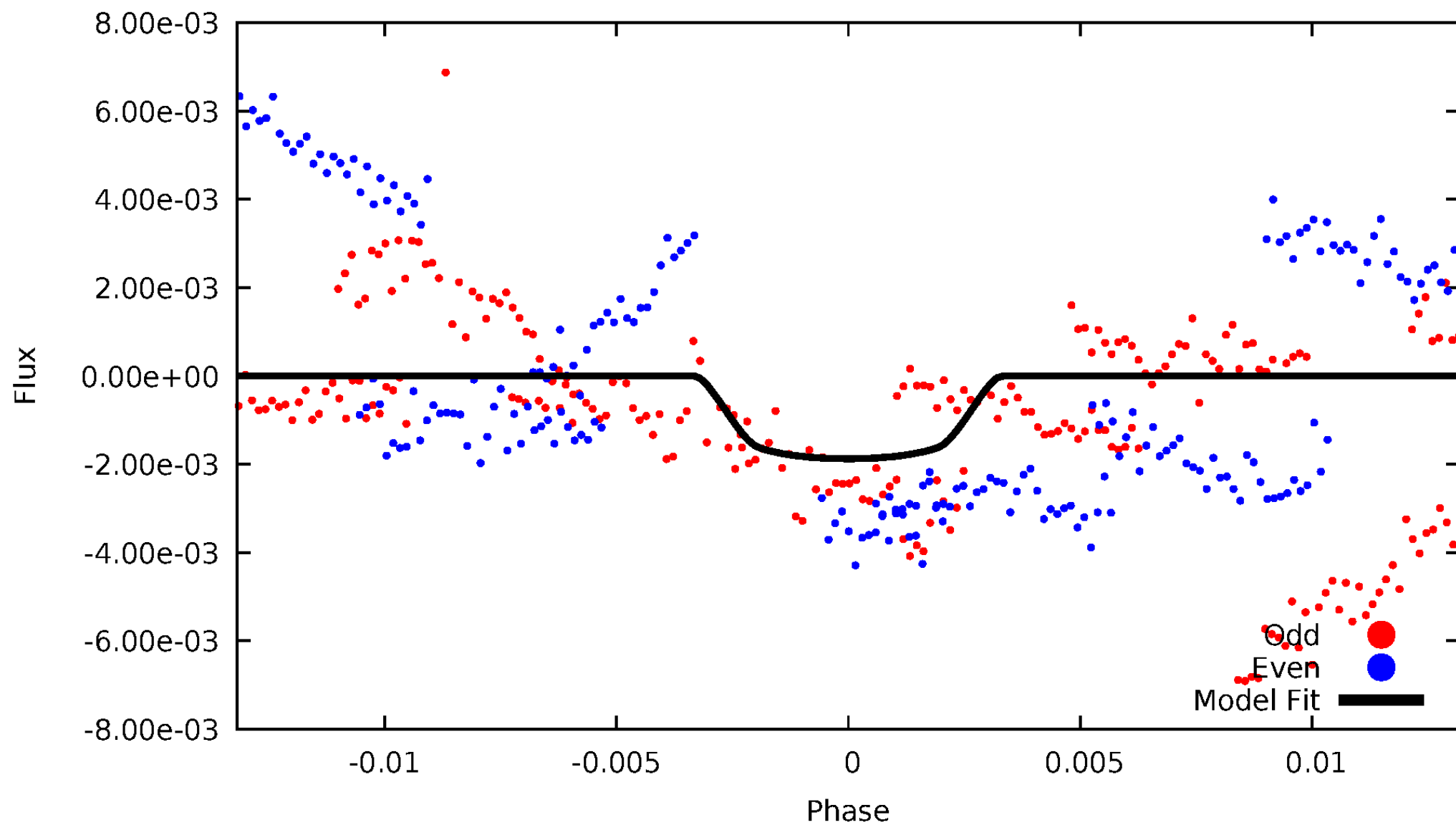


TCE 012884589-05



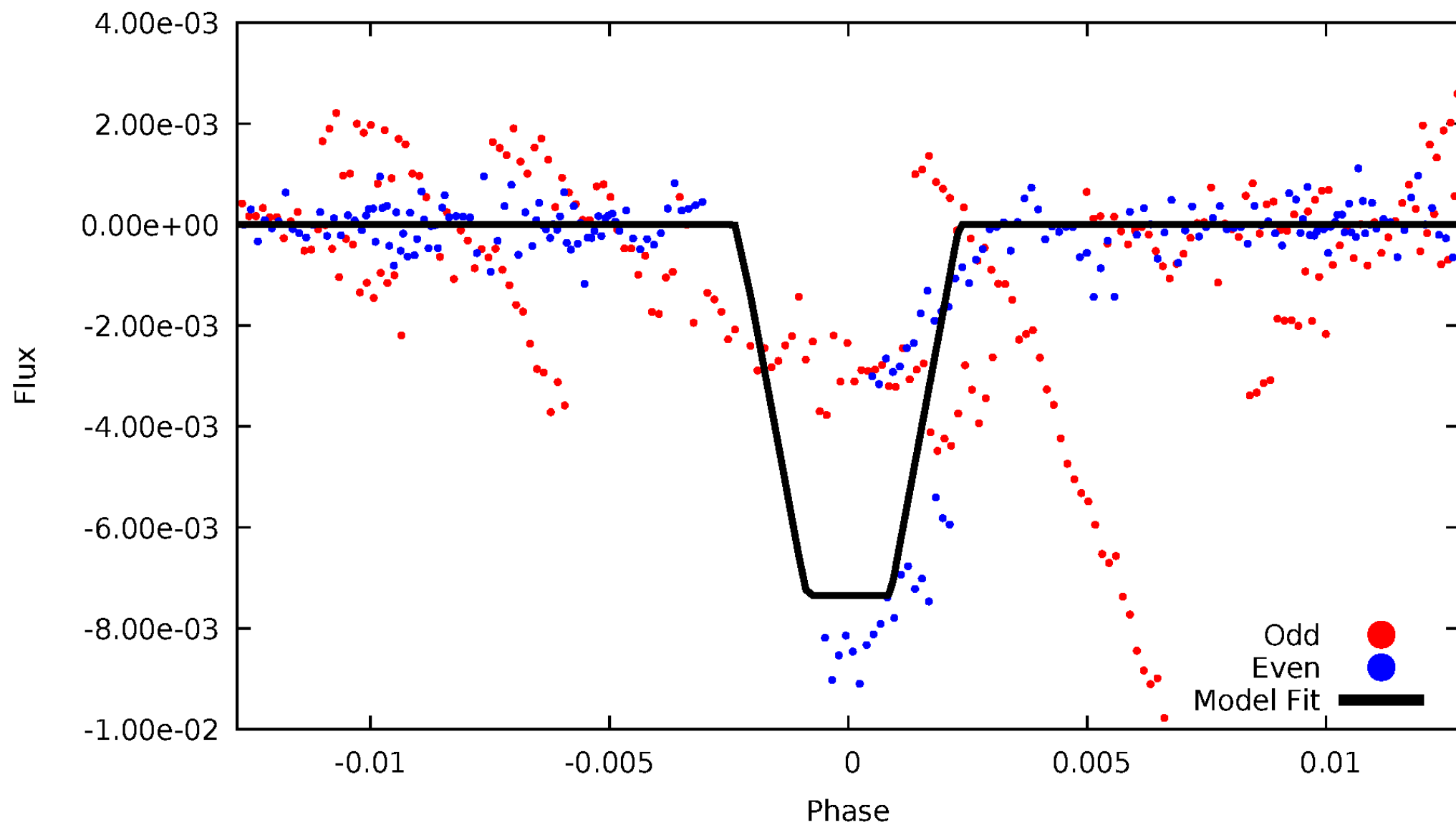
DV Odd/Even

TCE 012884589-05



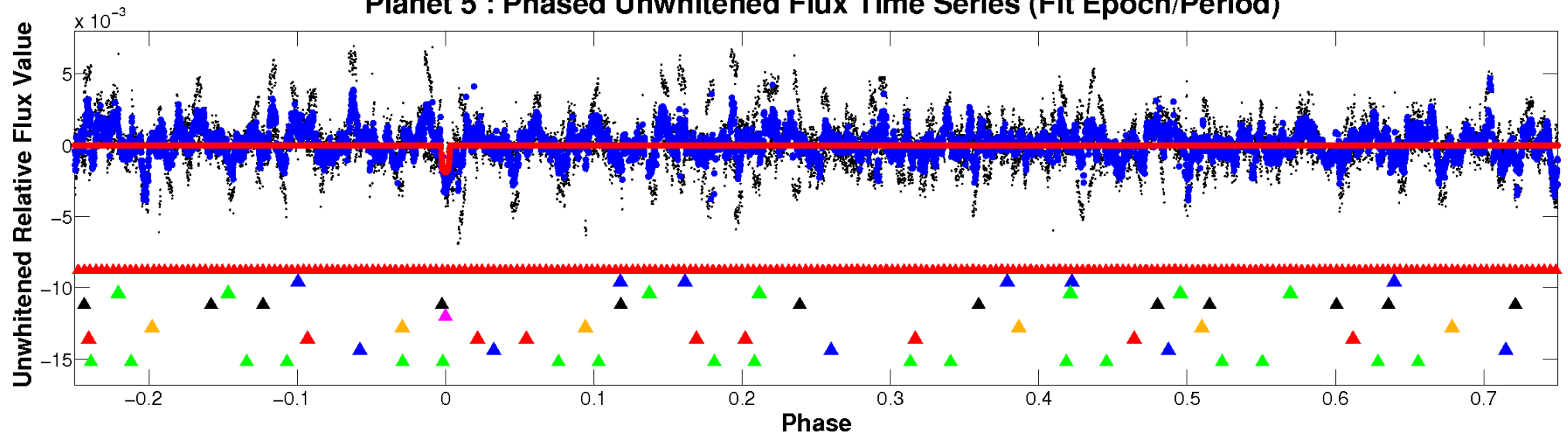
ALT Odd/Even

TCE 012884589-05

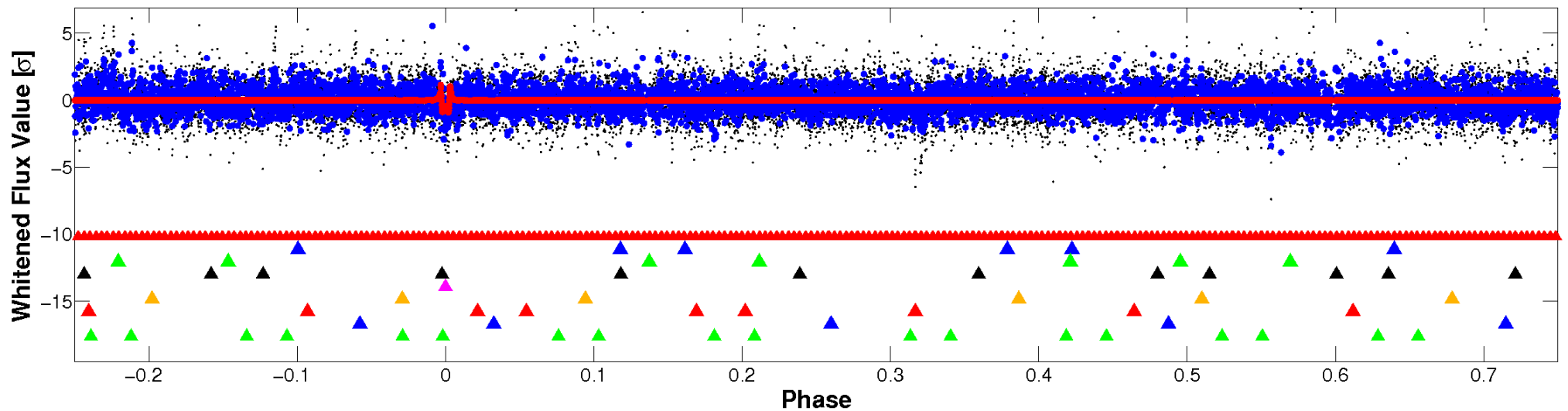


Non-Whitened Vs. Whitened Light Curve

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

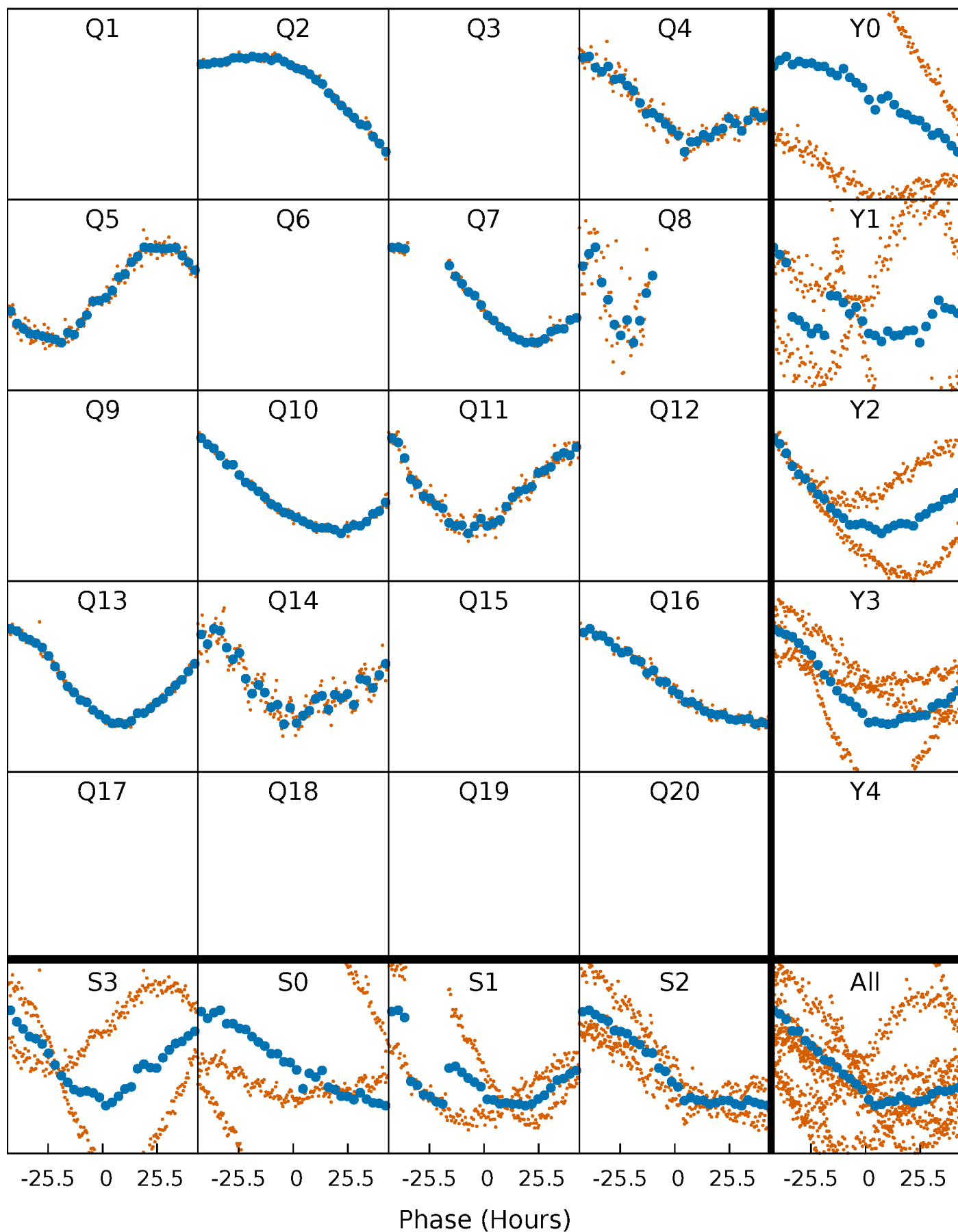


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



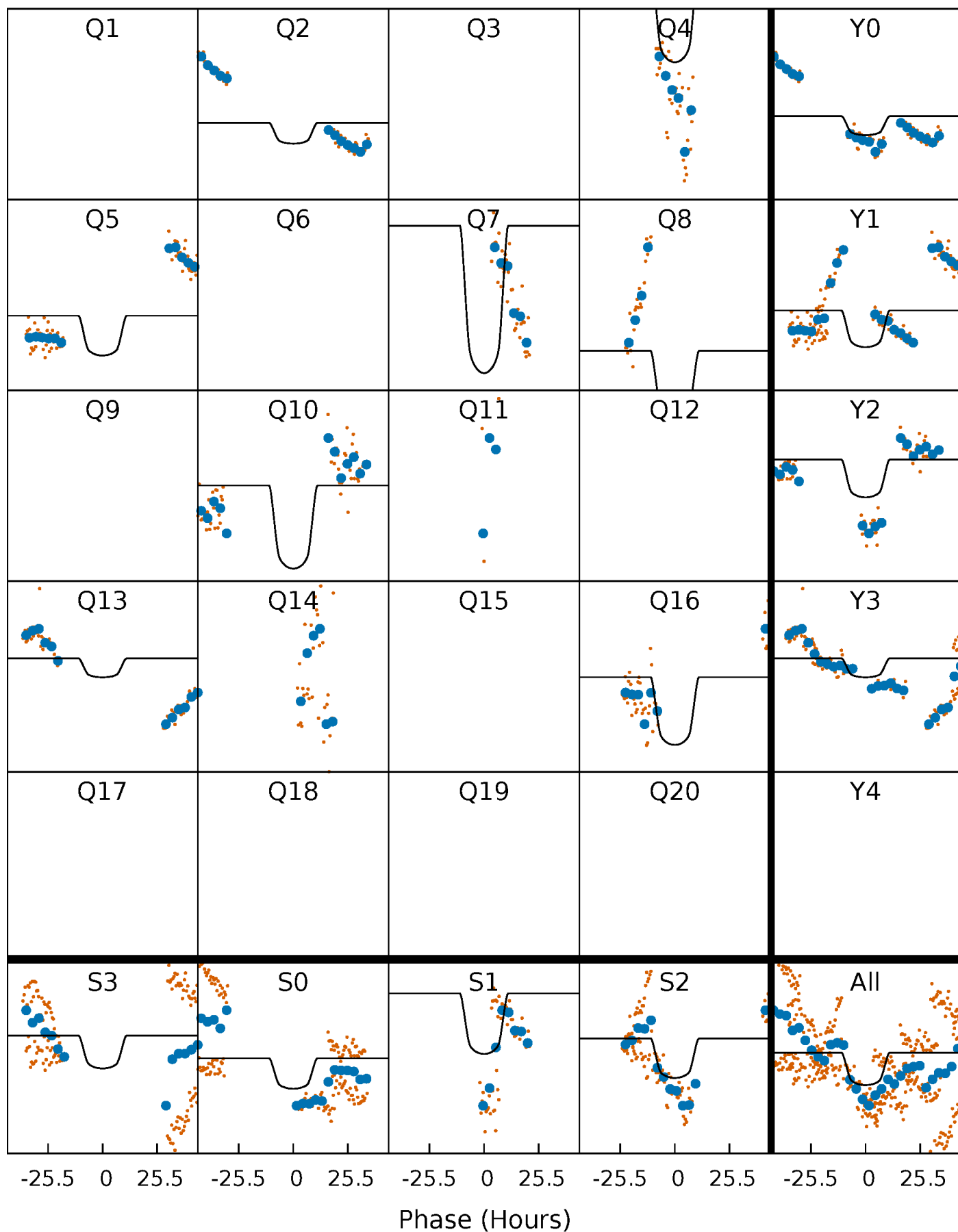
PDC Quarter-Phased Transit Curves

TCE 012884589-05 $P=141.053722$ Days $T_0=238.598679$ (BKJD)



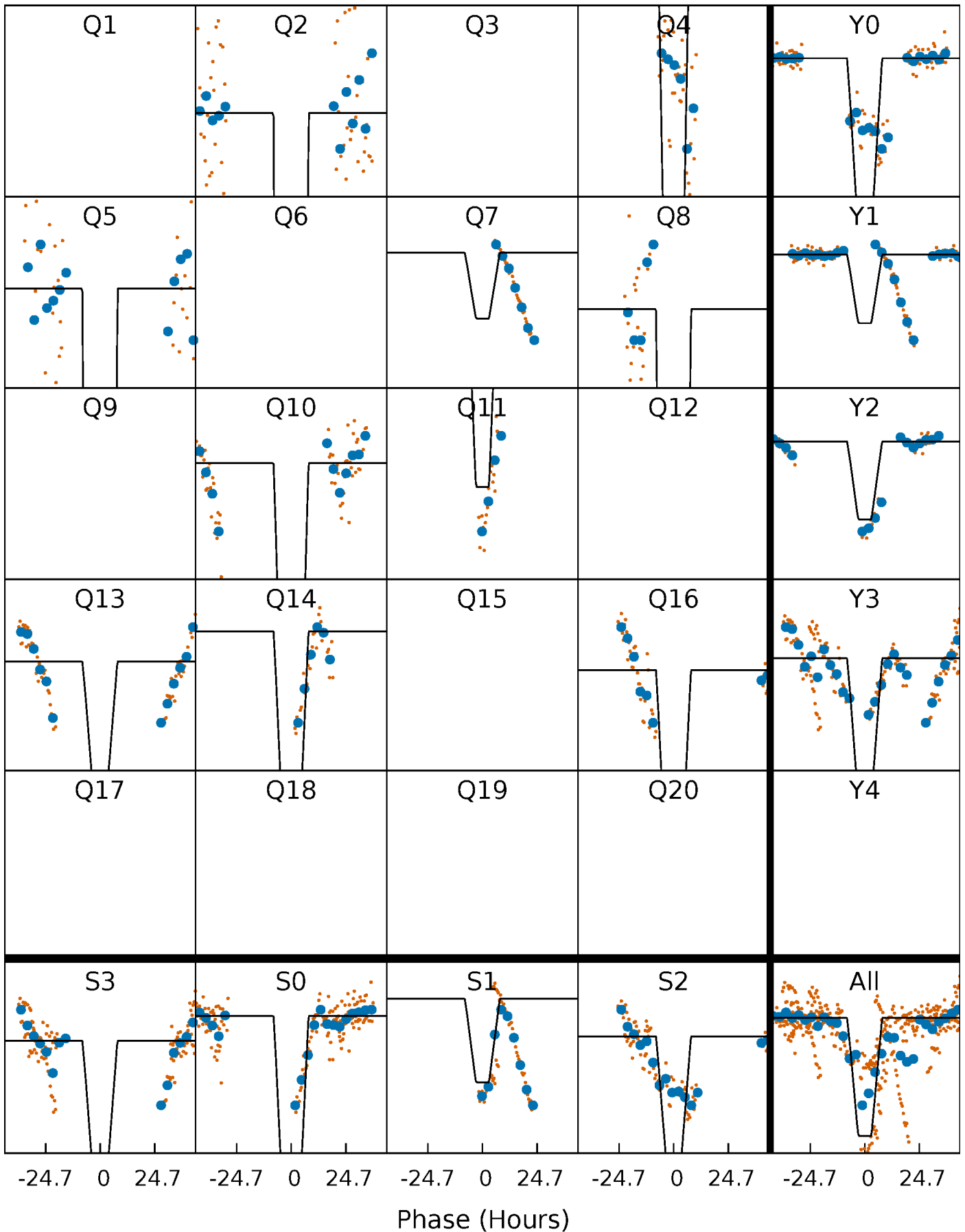
DV Quarter-Phased Transit Curves

TCE 012884589-05 $P=141.053722$ Days $T_0=238.598679$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

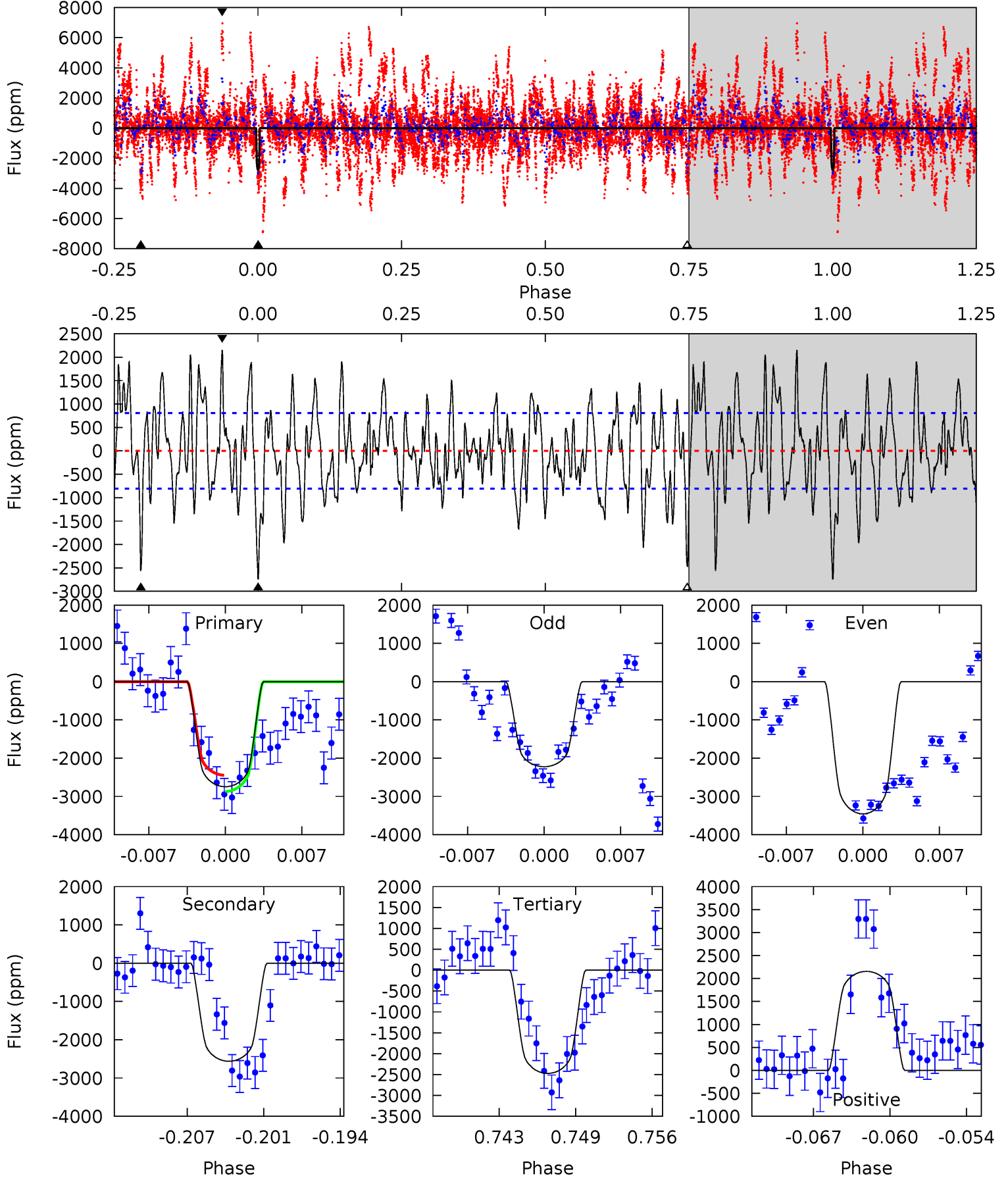
TCE 012884589-05 $P=141.066487$ Days $T_0=238.510187$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-05, $P = 141.053722$ Days, $E = 97.544957$ Days

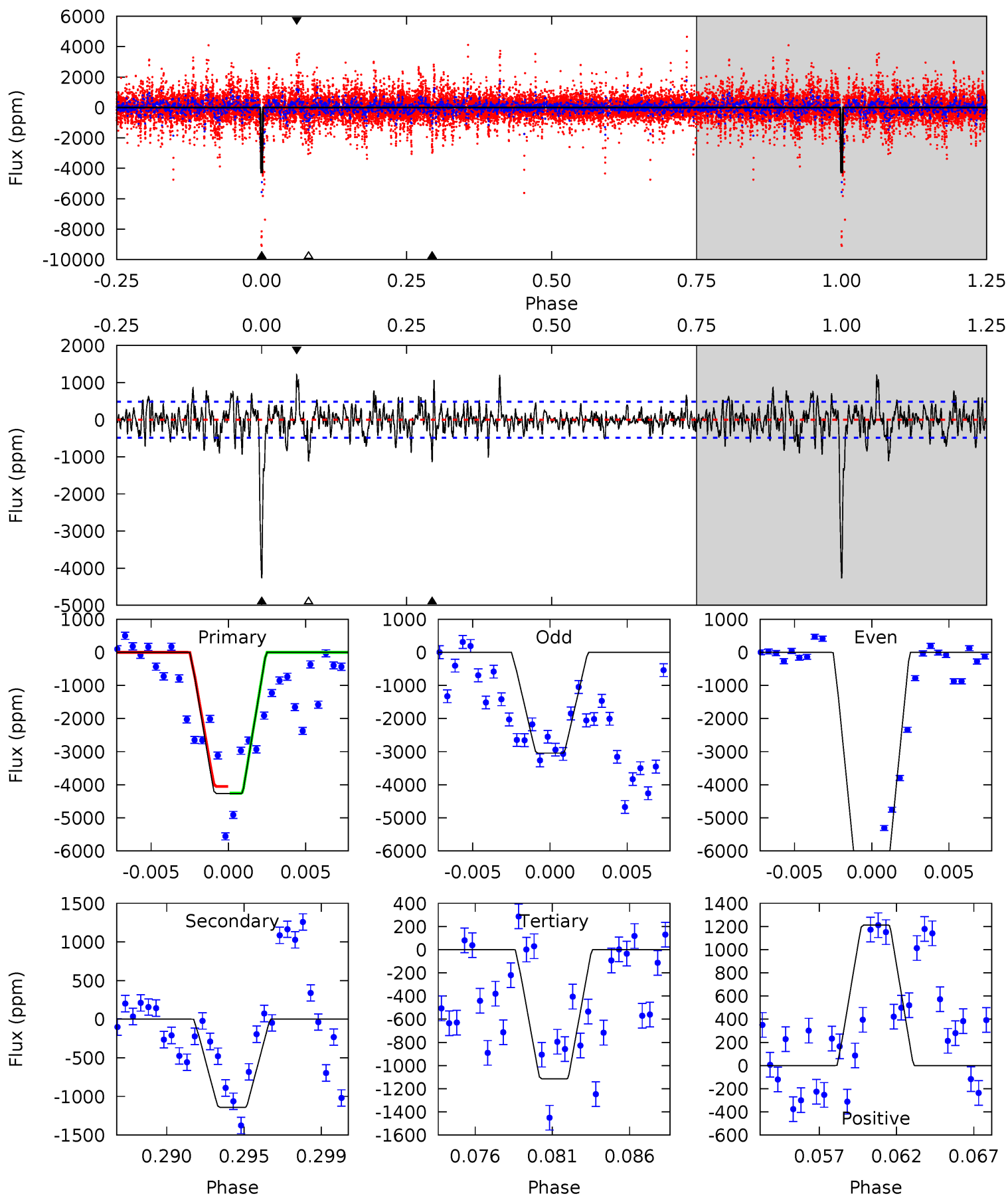
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	16.2	15.6	13.6	5.10	2.71	4.86	1.73	3.74	0.56	2.57	3.74	0.85	0.44	1.26



Alt Model-Shift Uniqueness Test

012884589-05, P = 141.066487 Days, E = 97.443700 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.3	12.1	11.8	12.9	5.17	2.82	2.90	33.4	32.4	0.28	-0.75	22.3	1.01	0.22	1.02



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2562 ± 158	$5.77^{+1.14}_{-0.79}$	539^{+41}_{-29}	6383^{+482}_{-431}	13035^{+4021}_{-3629}
Alt.	-1141 ± 94	$10.64^{+1.91}_{-1.15}$	539^{+46}_{-28}	4127^{+154}_{-144}	1718^{+428}_{-497}

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

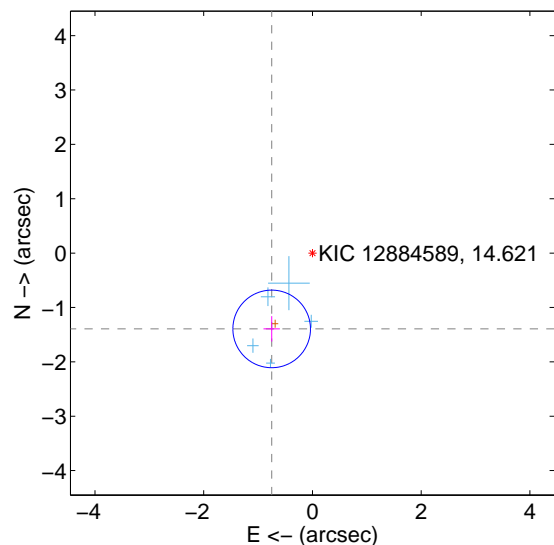
Supplemental centroid analysis for 012884589-05. Kepler magnitude: 14.62. Transit SNR 6.92

There are 5 quarters with good PRF difference image offsets

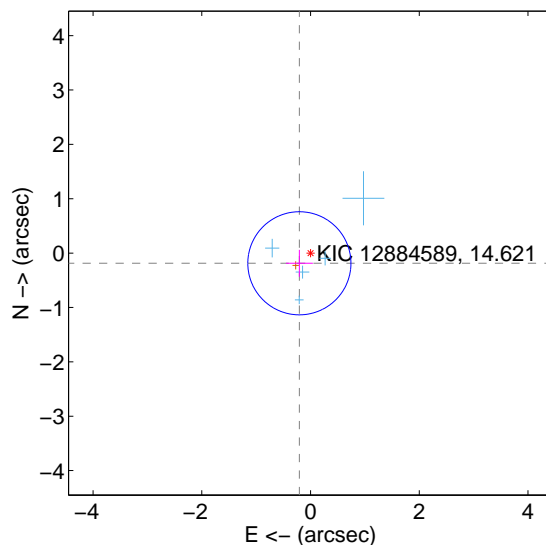
The OOT PRF centroid is offset from the target star catalog position by about 2.10 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.583 ± 0.238	6.66	0.750 ± 0.151	-1.394 ± 0.234
PRF-fit source offset from KIC position	0.278 ± 0.316	0.88	0.205 ± 0.248	-0.187 ± 0.247
photometric centroid source offset	2.90 ± 0.27	10.73	-0.24 ± 0.15	2.89 ± 0.27

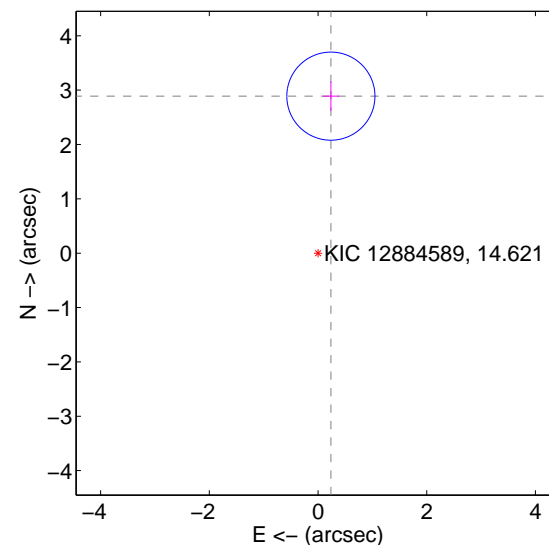
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

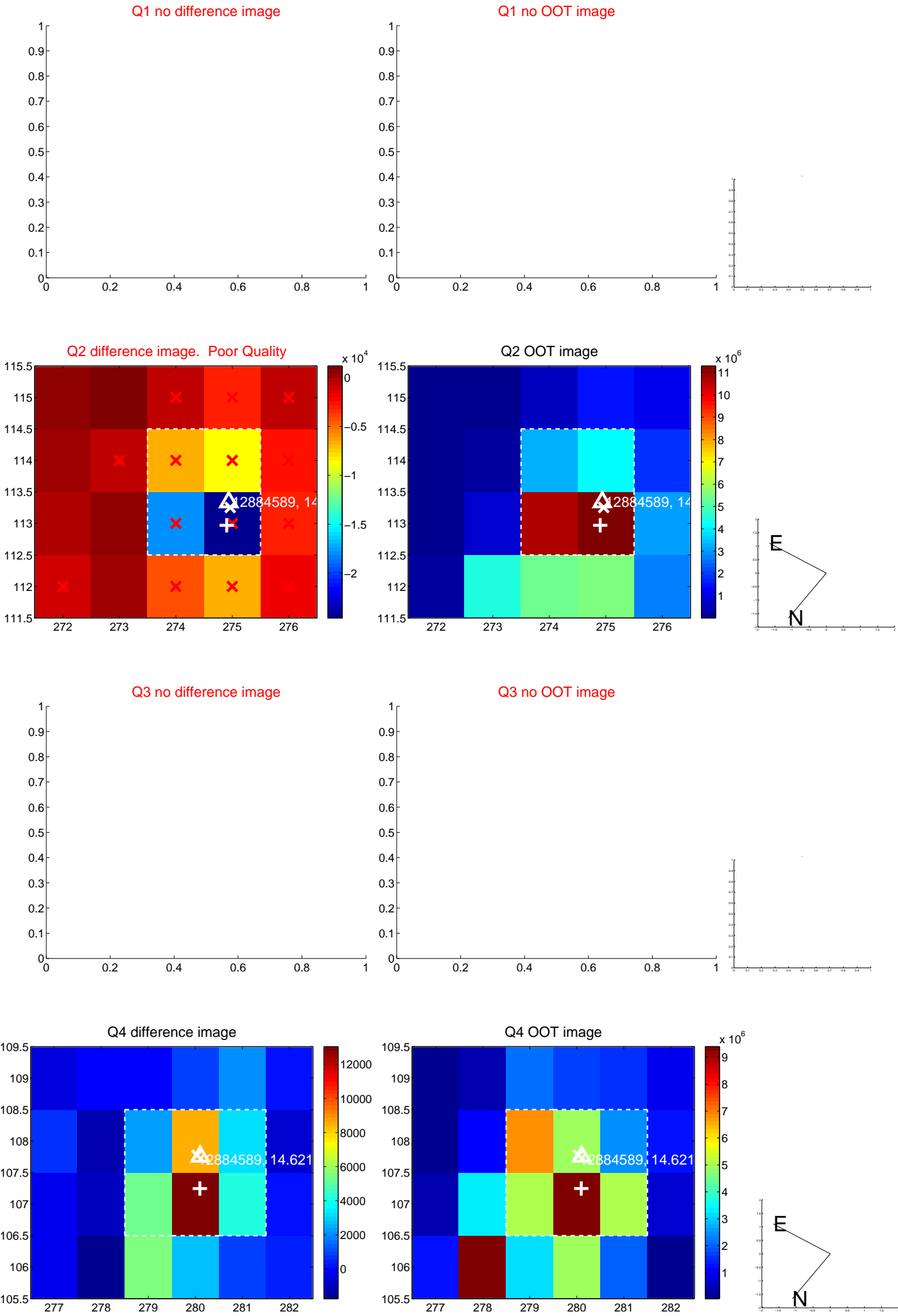


offset from photometric centroids

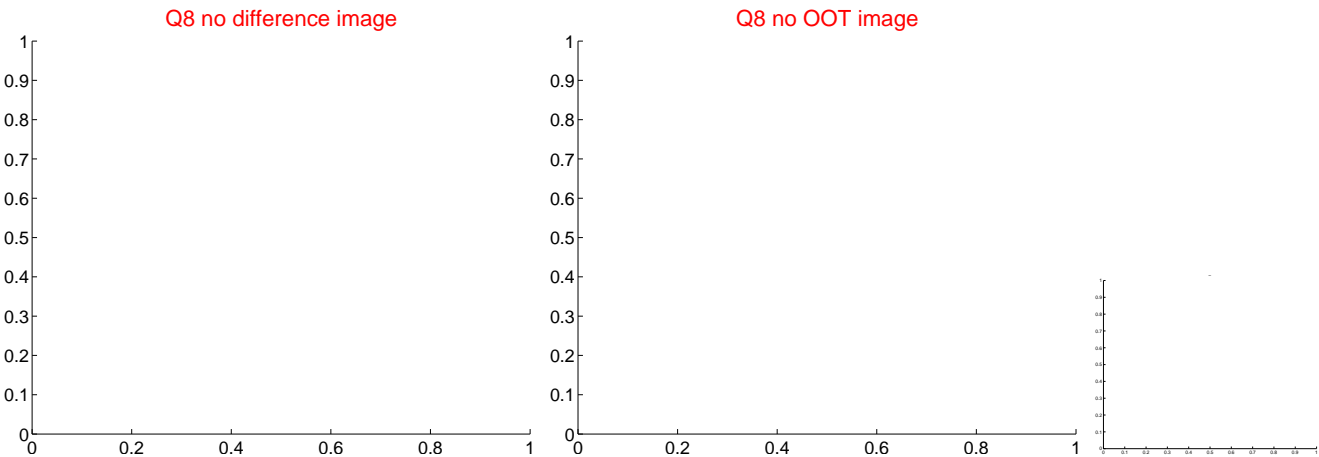
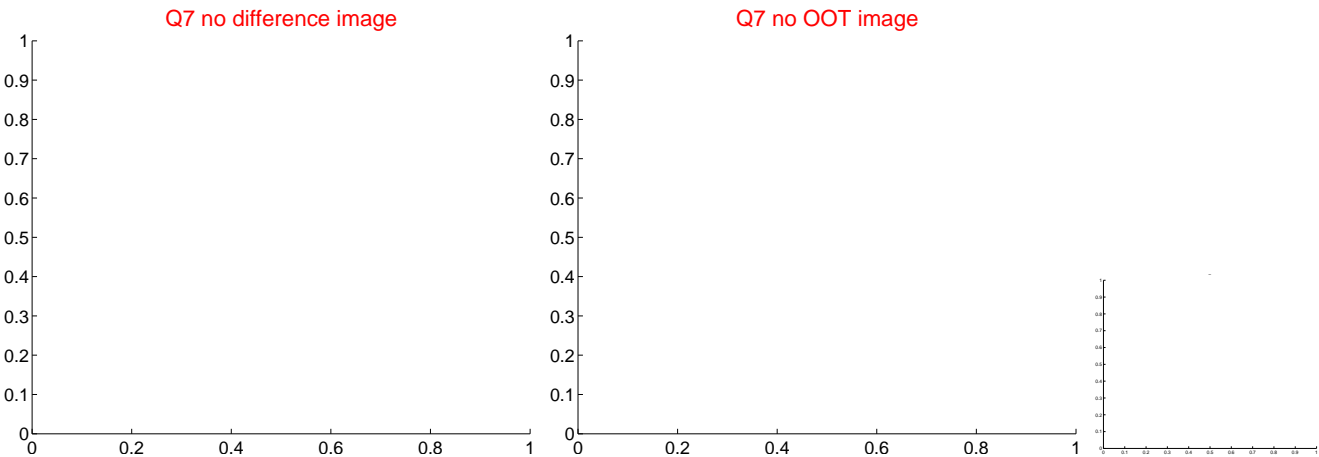
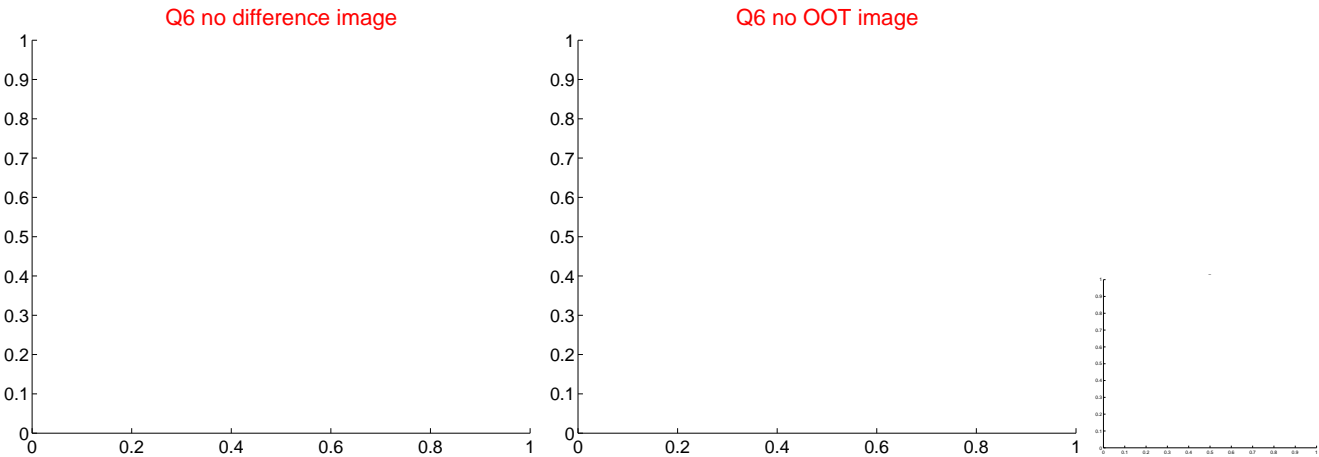
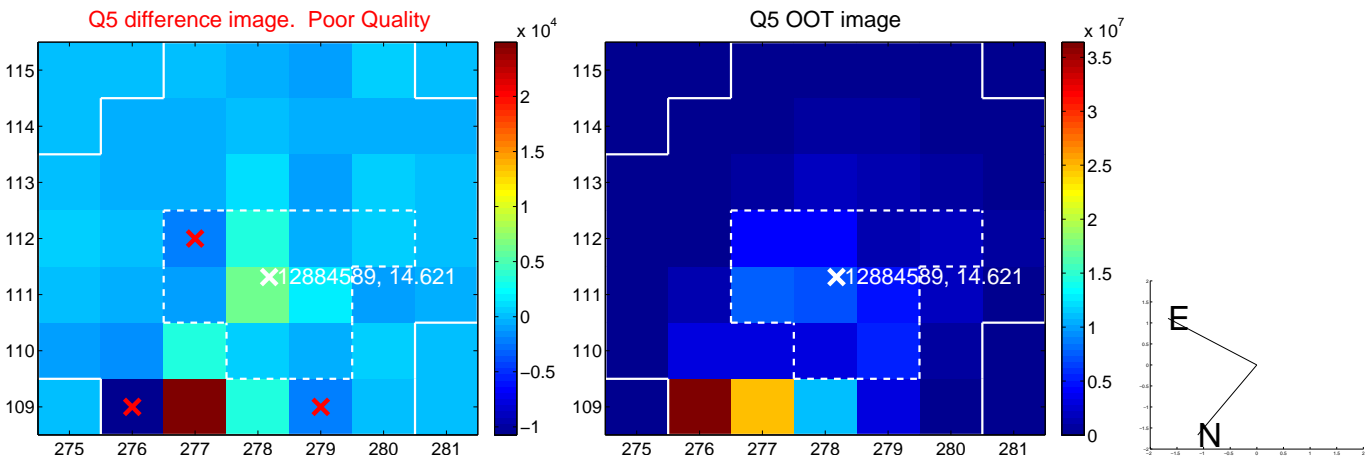


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

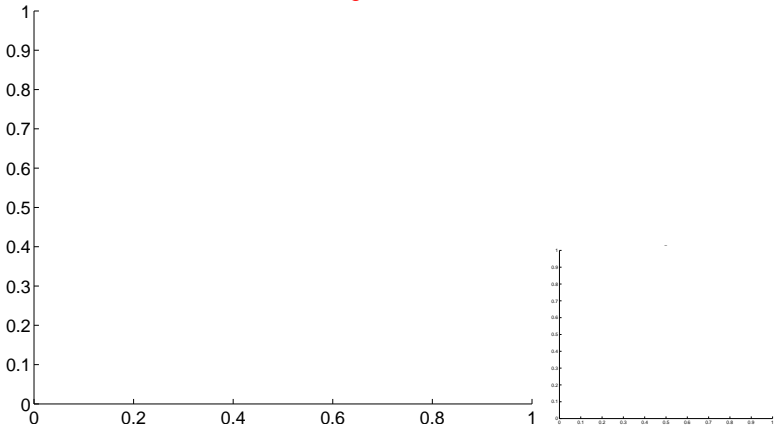


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

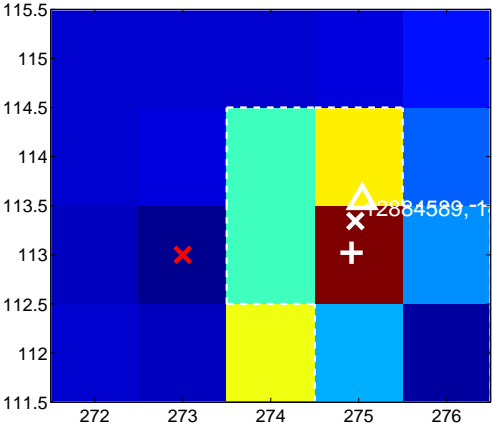
Q9 no difference image



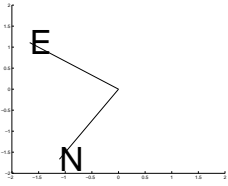
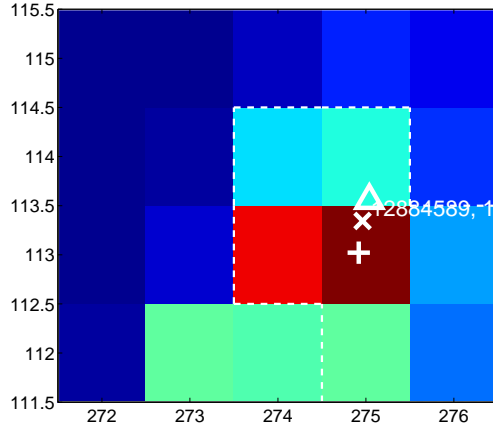
Q9 no OOT image



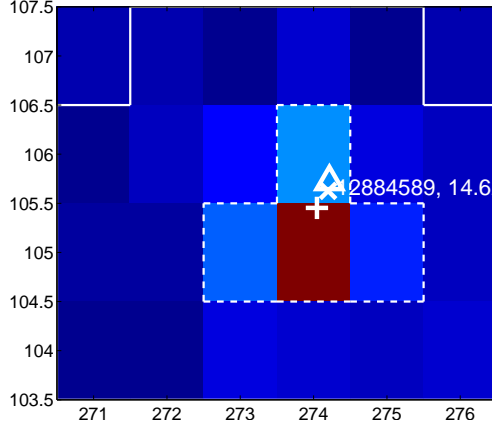
Q10 difference image



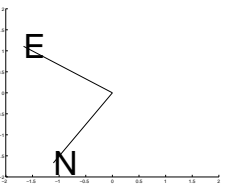
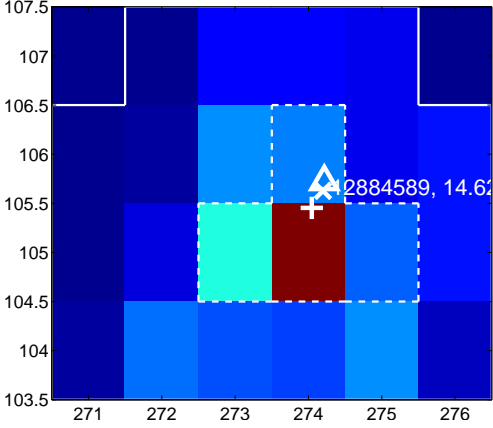
Q10 OOT image



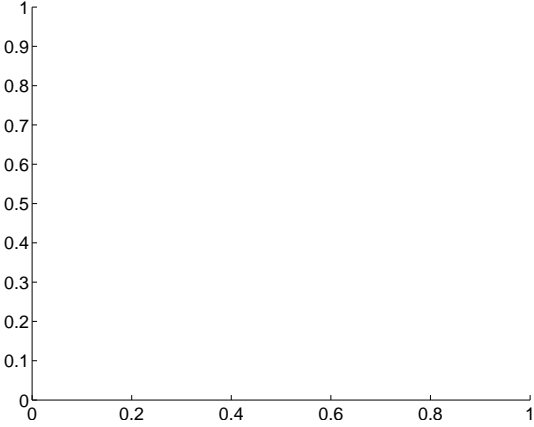
Q11 difference image



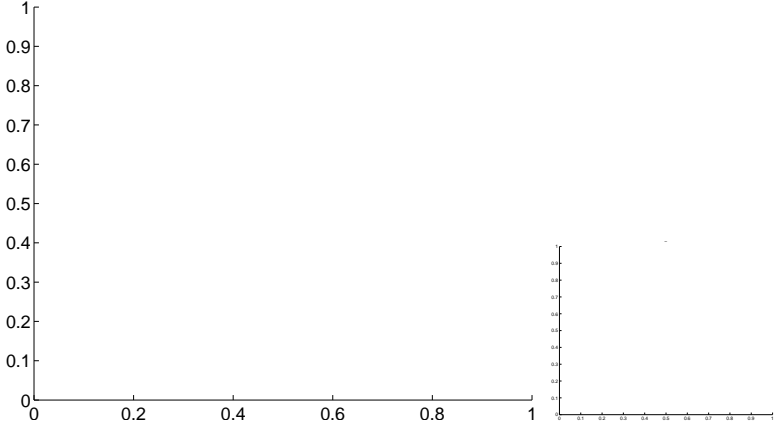
Q11 OOT image



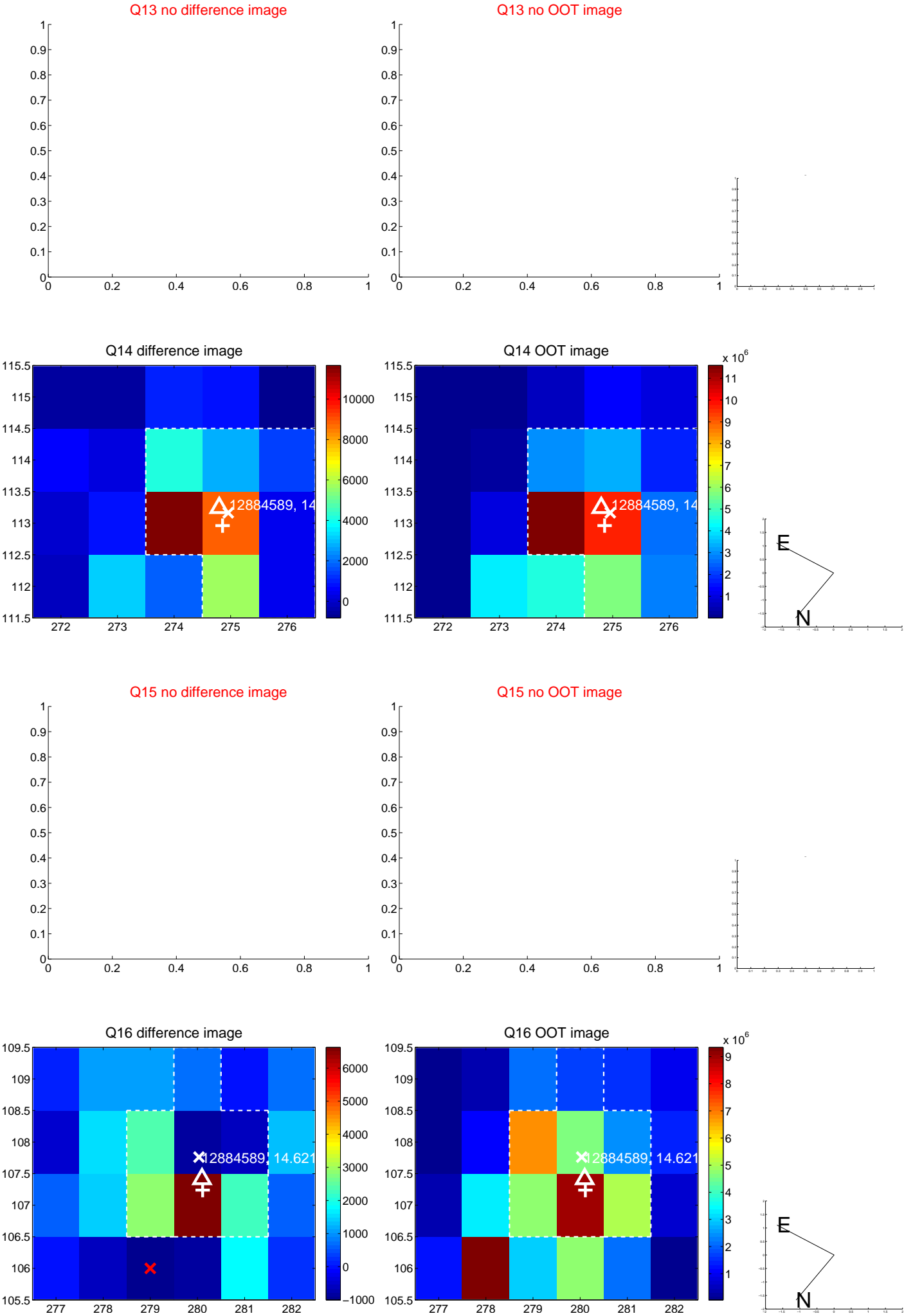
Q12 no difference image



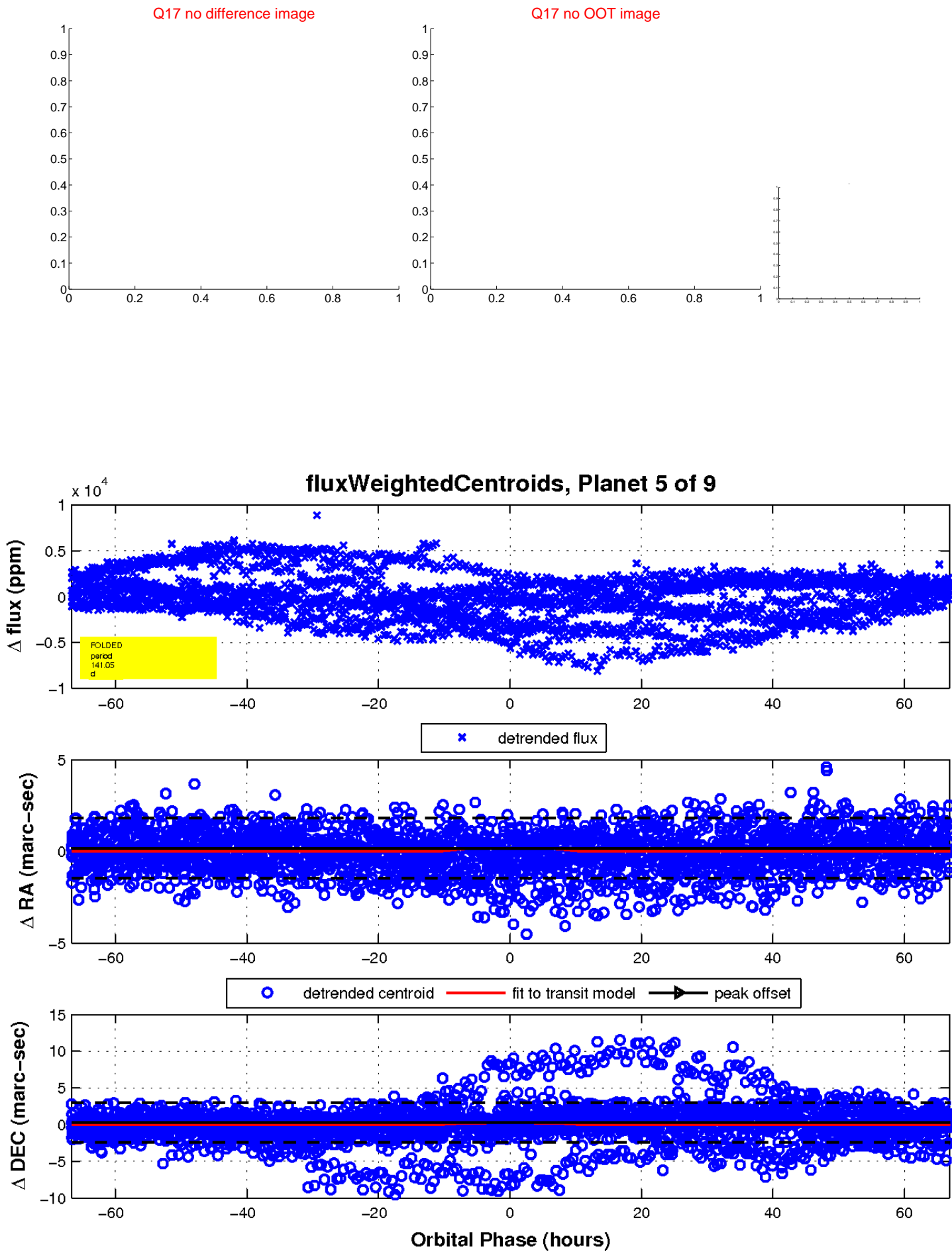
Q12 no OOT image



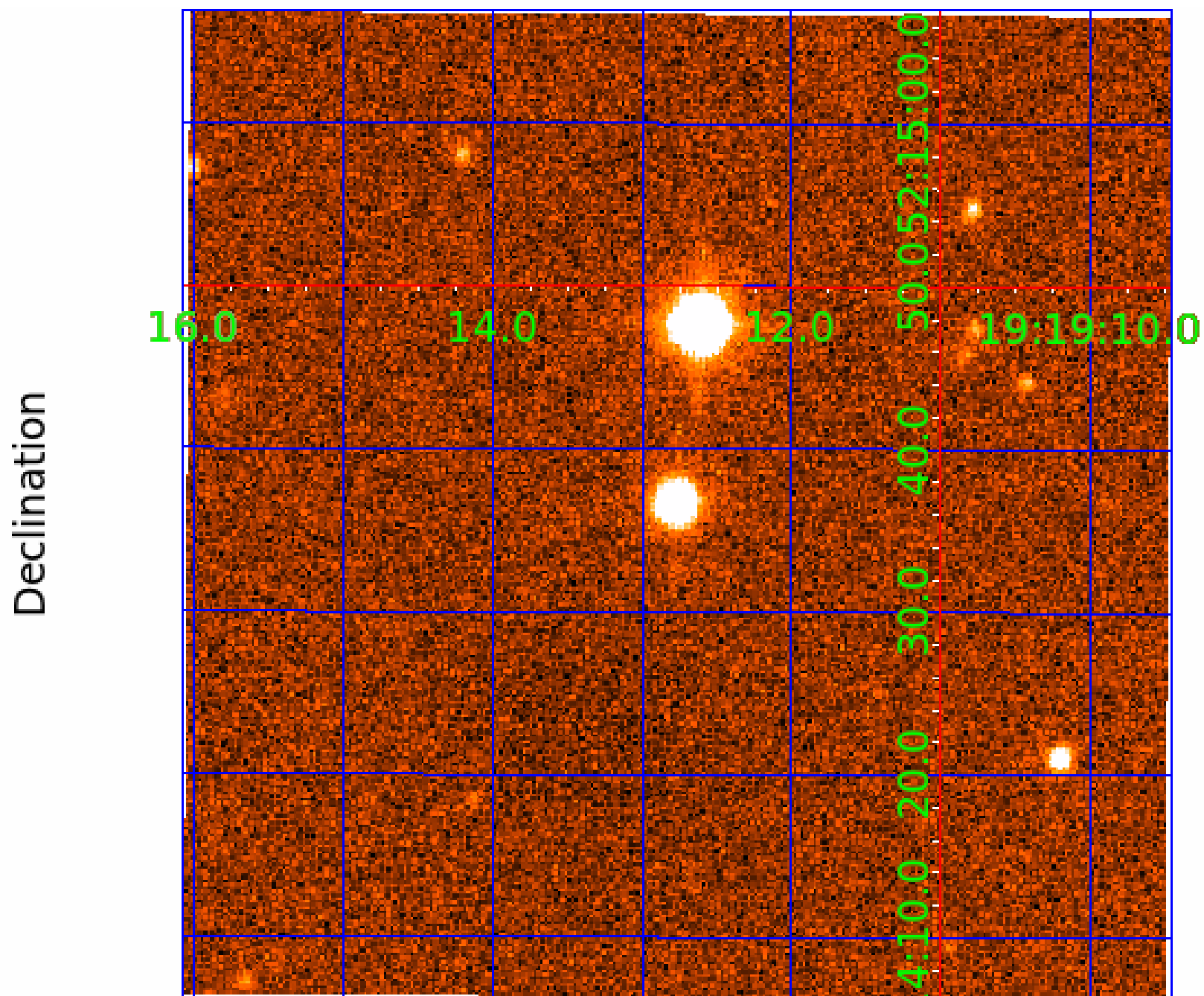
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 012884589

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})
012884589-01	OBS	No	2.743953	134.062673	162.5	15.871	9.2	11.1	1.10	6147	2.72	928.08
012884589-02	OBS	No	245.307270	157.122651	2611.9	10.816	21.3	10.6	1.10	6147	9.73	2.32
012884589-03	OBS	No	231.603616	177.892992	2129.3	13.082	15.5	8.2	1.10	6147	6.29	2.51
012884589-04	OBS	No	124.039615	216.308911	952.1	3.708	13.5	6.1	1.10	6147	4.32	5.76
012884589-05	OBS	No	141.053722	238.598679	1875.2	22.307	14.0	6.9	1.10	6147	5.58	4.86
012884589-06	OBS	No	240.894583	234.492854	3309.6	46.356	12.4	9.5	1.10	6147	6.28	2.38
012884589-08	OBS	No	250.026448	371.517419	6728.1	75.963	9.7	6.5	1.10	6147	16.29	2.26
012884589-09	OBS	No	77.938471	208.698150	660.3	4.237	10.5	4.7	1.10	6147	3.16	10.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012884589-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

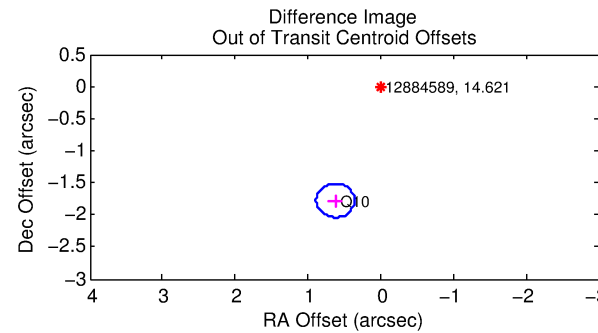
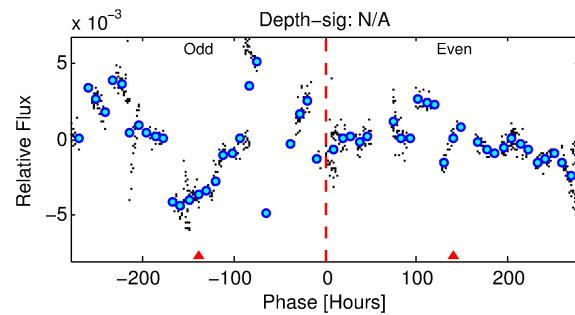
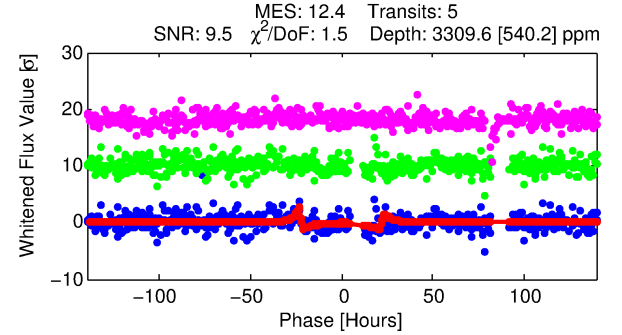
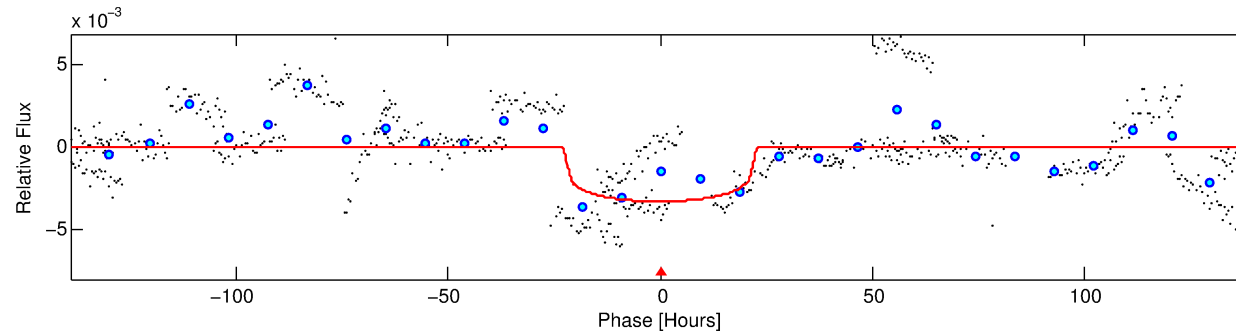
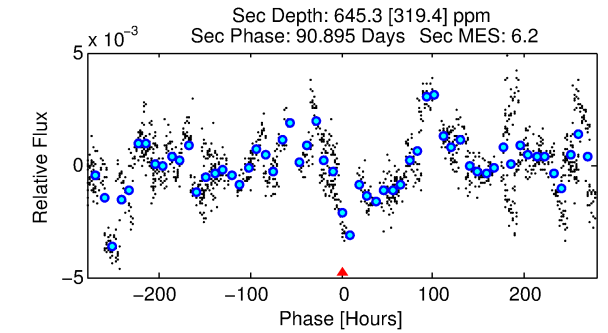
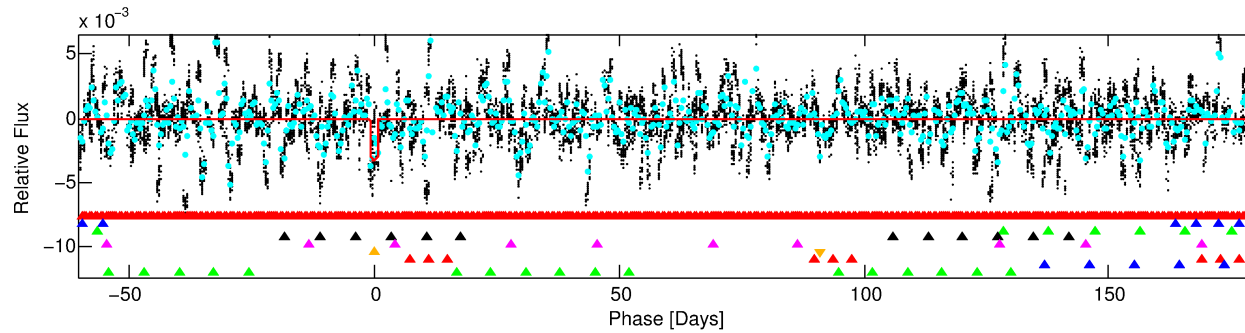
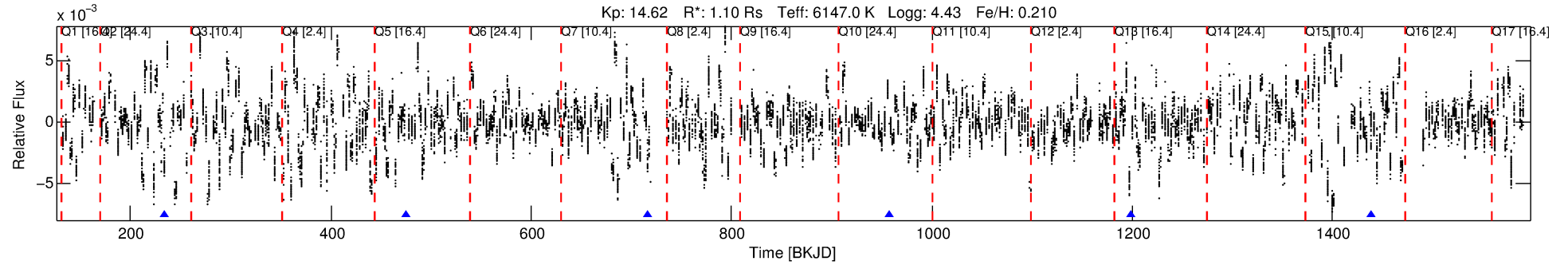
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-06

No Significant Match Found

DV One-Page Summary

KIC: 12884589 Candidate: 6 of 9 Period: 240.895 d



DV Fit Results:

Period = 240.89458 [0.03036] d
Epoch = 234.4929 [0.0861] BKJD
Rp/R* = 0.0525 [0.0054]
a/R* = 41.79 [8.49]
b = 0.00 [71.39]
Seff = 2.38 [1.02]
Teq = 317 [34] K
Rp = 6.27 [2.13] Re
a = 0.8038 [0.2188] AU
Ag = 5825.00 [3879.24] [1.50σ]
Teffp = 4277 [599] K [6.60σ]

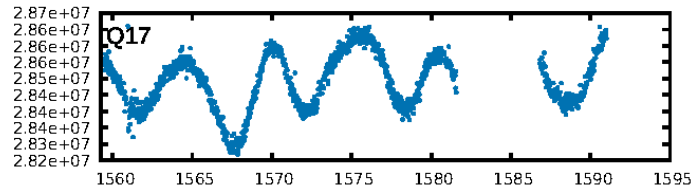
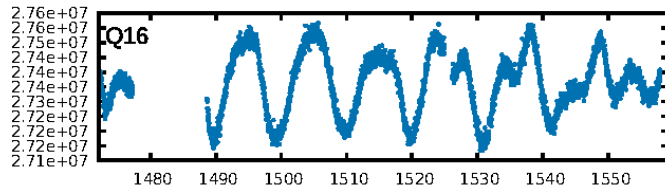
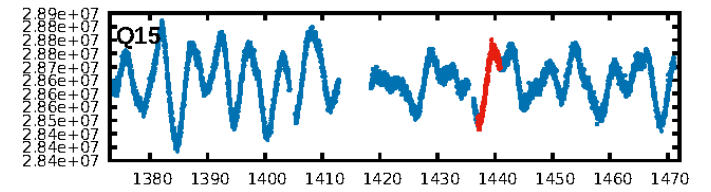
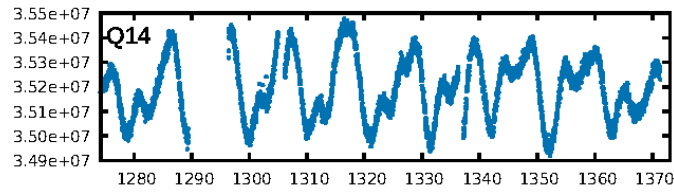
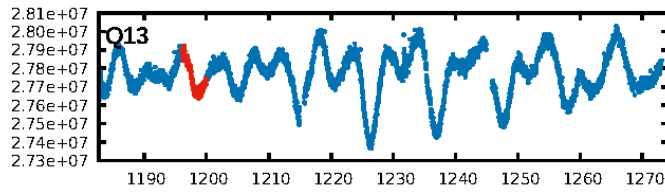
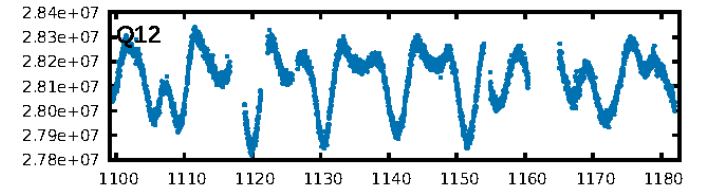
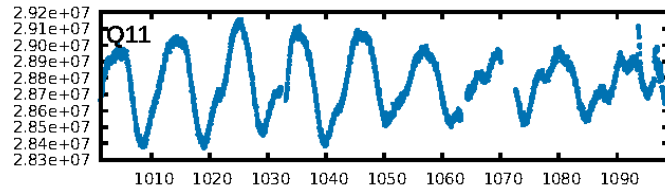
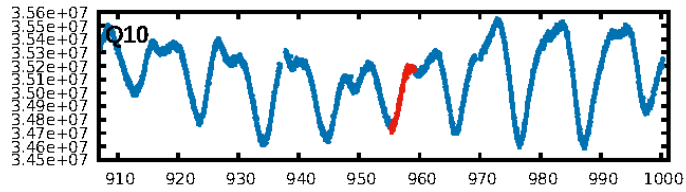
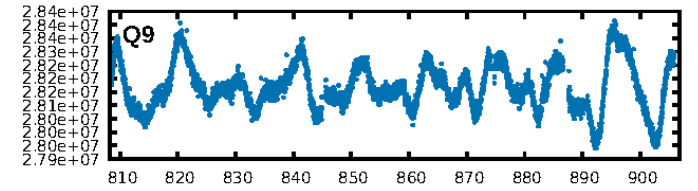
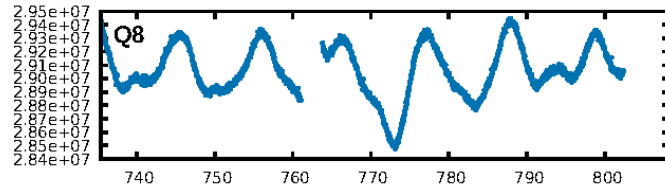
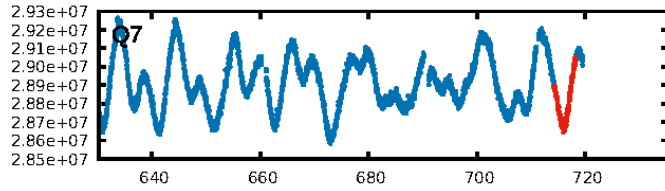
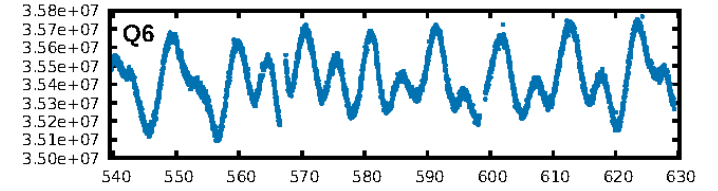
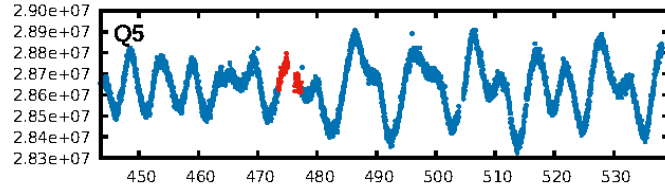
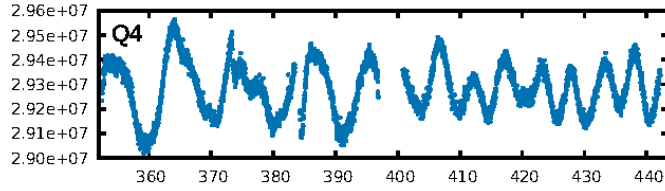
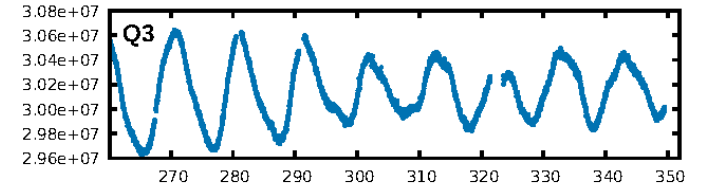
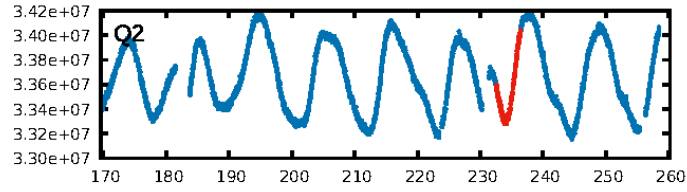
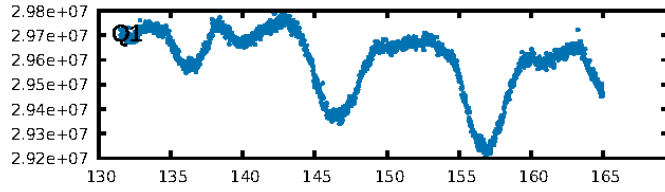
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.63σ]
LongPeriod-sig: 97.4% [2.22σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.2242
Centroid-sig: 0.0%
Centroid-so: 2.681 arcsec [17.14σ]
OotOffset-rm: 1.885 arcsec [21.41σ]
KicOffset-rm: 0.699 arcsec [7.90σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/1]

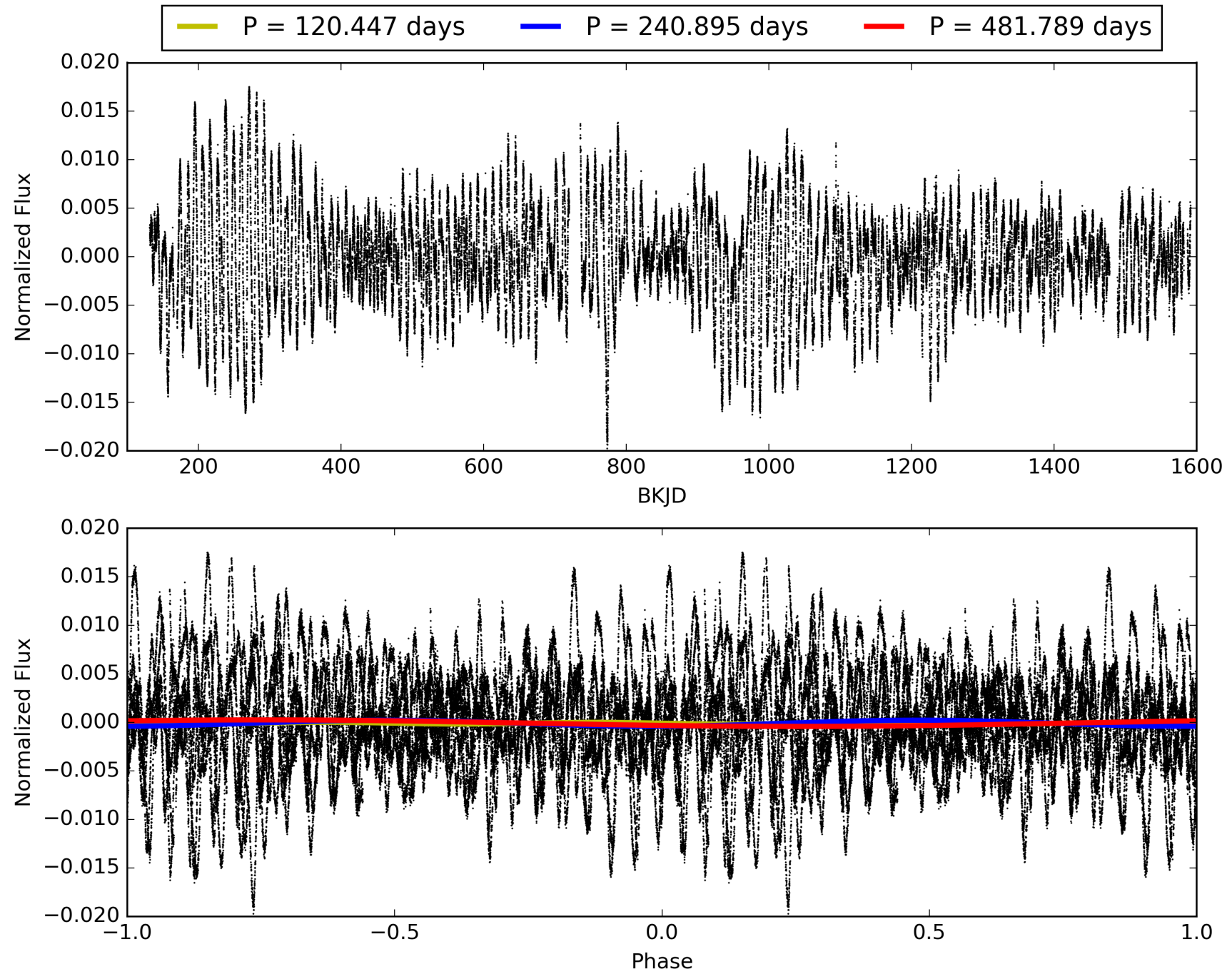
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:07:53 Z

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

TCE 012884589-06, PDC Light Curves

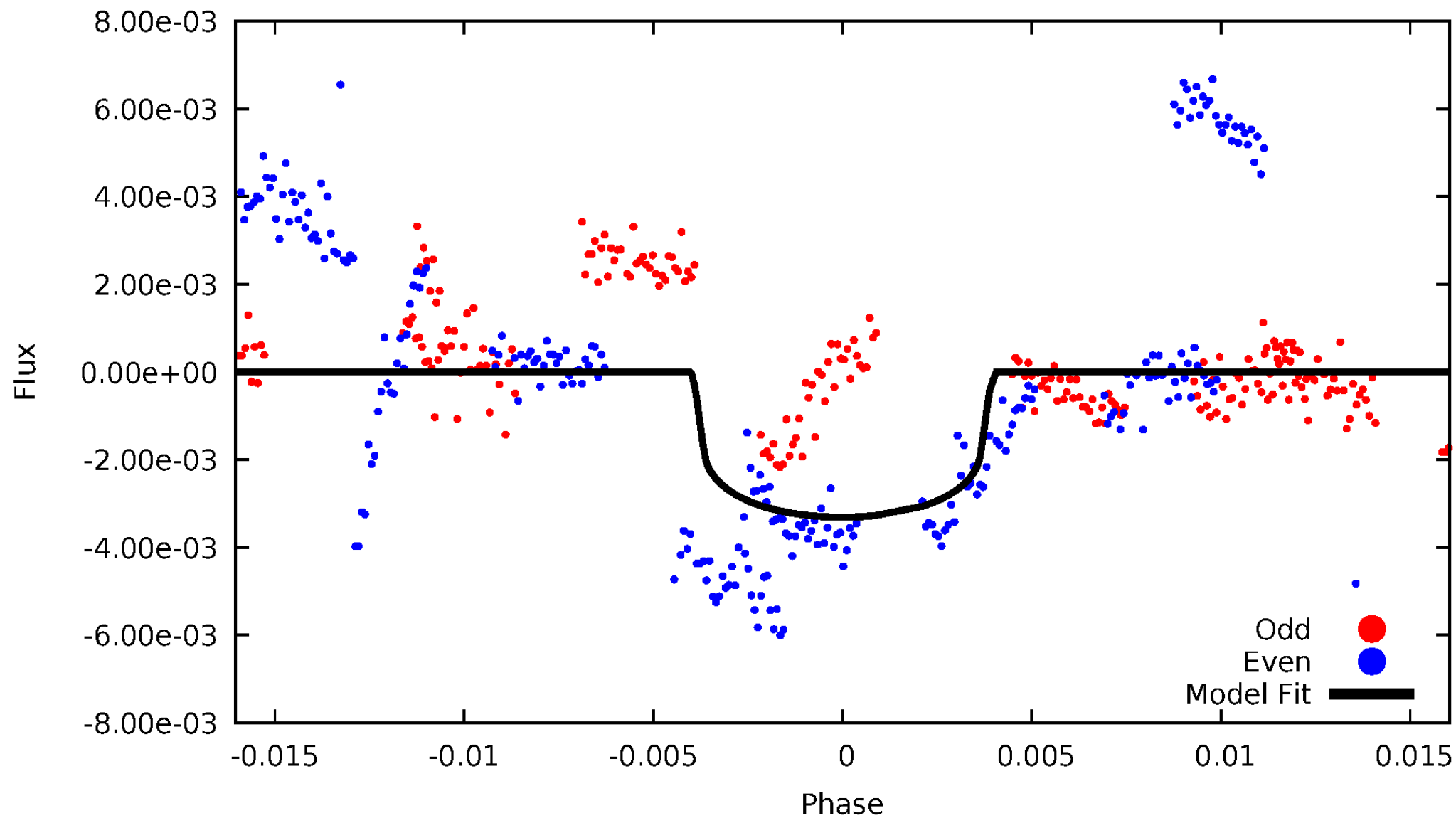


TCE 012884589-06



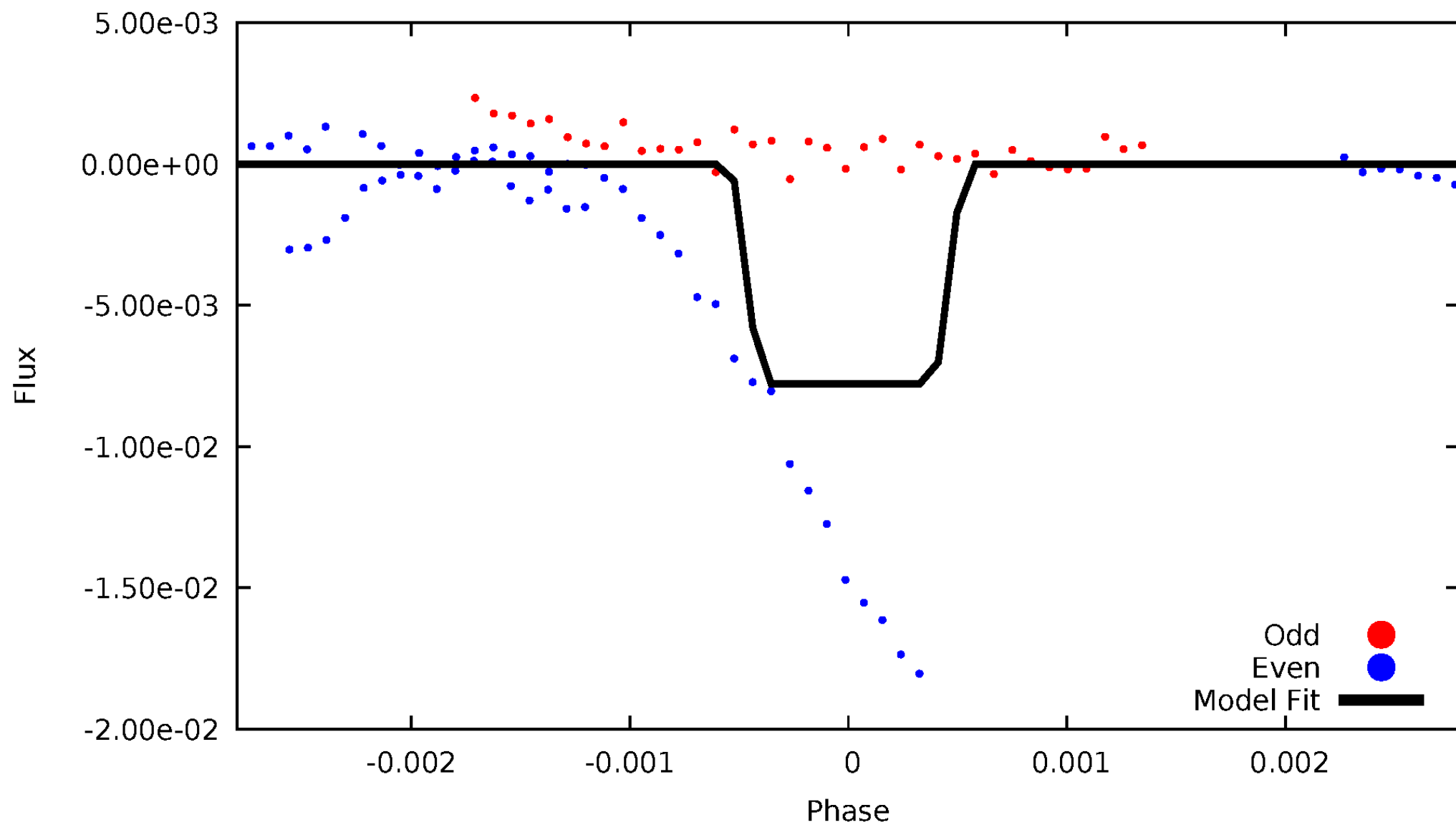
DV Odd/Even

TCE 012884589-06



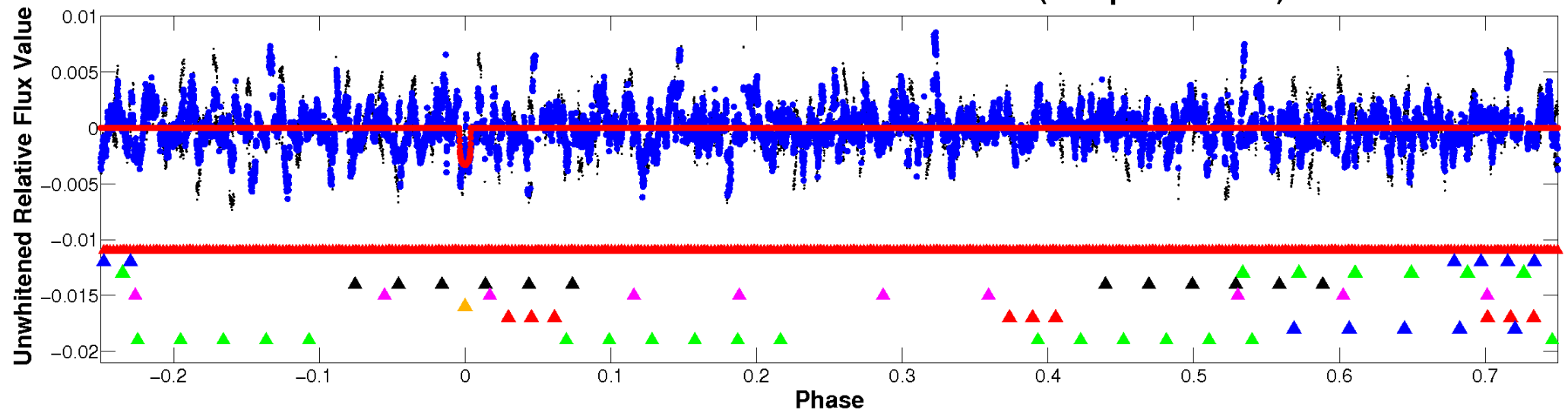
ALT Odd/Even

TCE 012884589-06

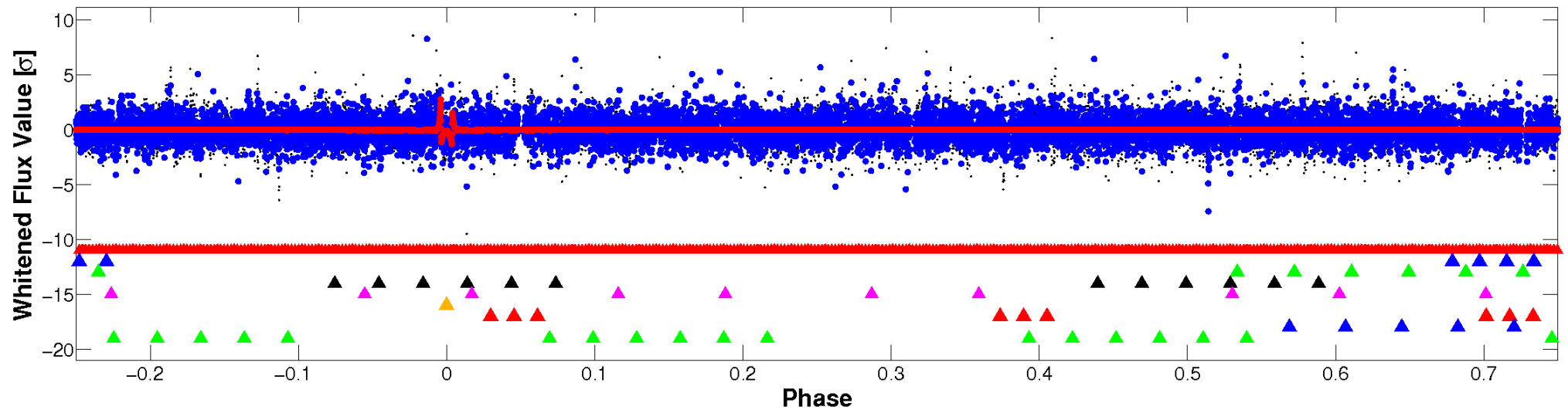


Non-Whitened Vs. Whitened Light Curve

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

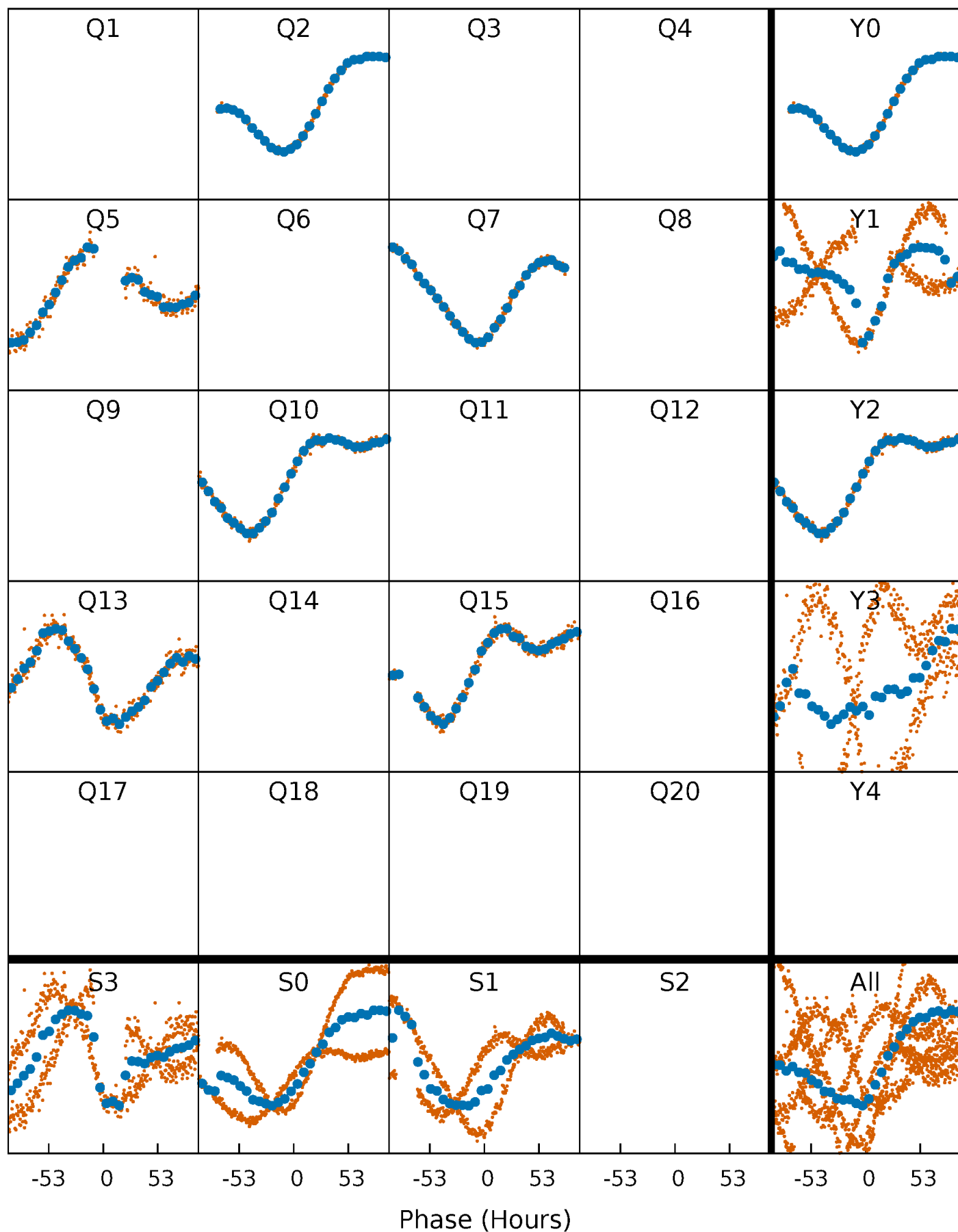


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



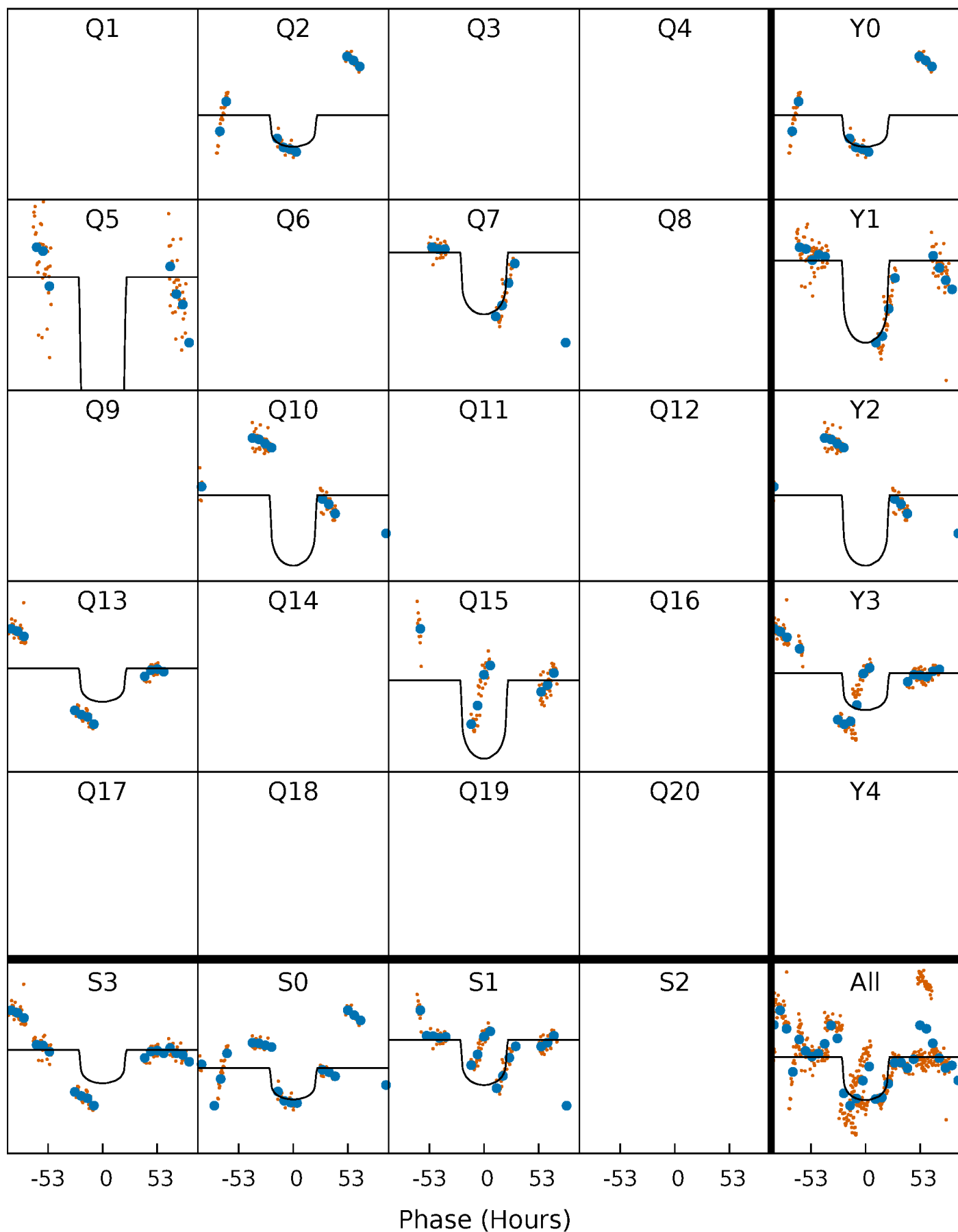
PDC Quarter-Phased Transit Curves

TCE 012884589-06 P=240.894583 Days $T_0=234.492854$ (BKJD)



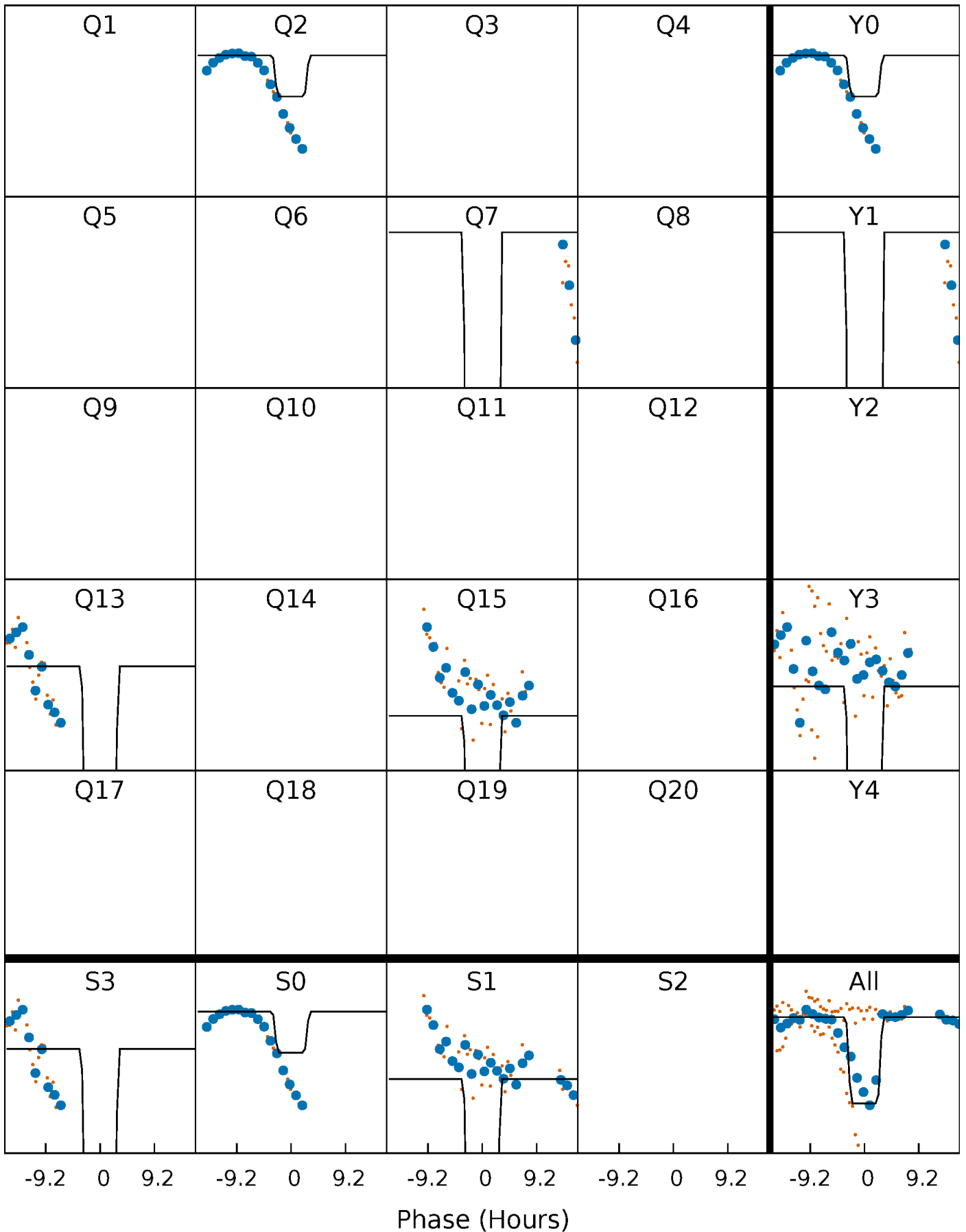
DV Quarter-Phased Transit Curves

TCE 012884589-06 P=240.894583 Days $T_0=234.492854$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

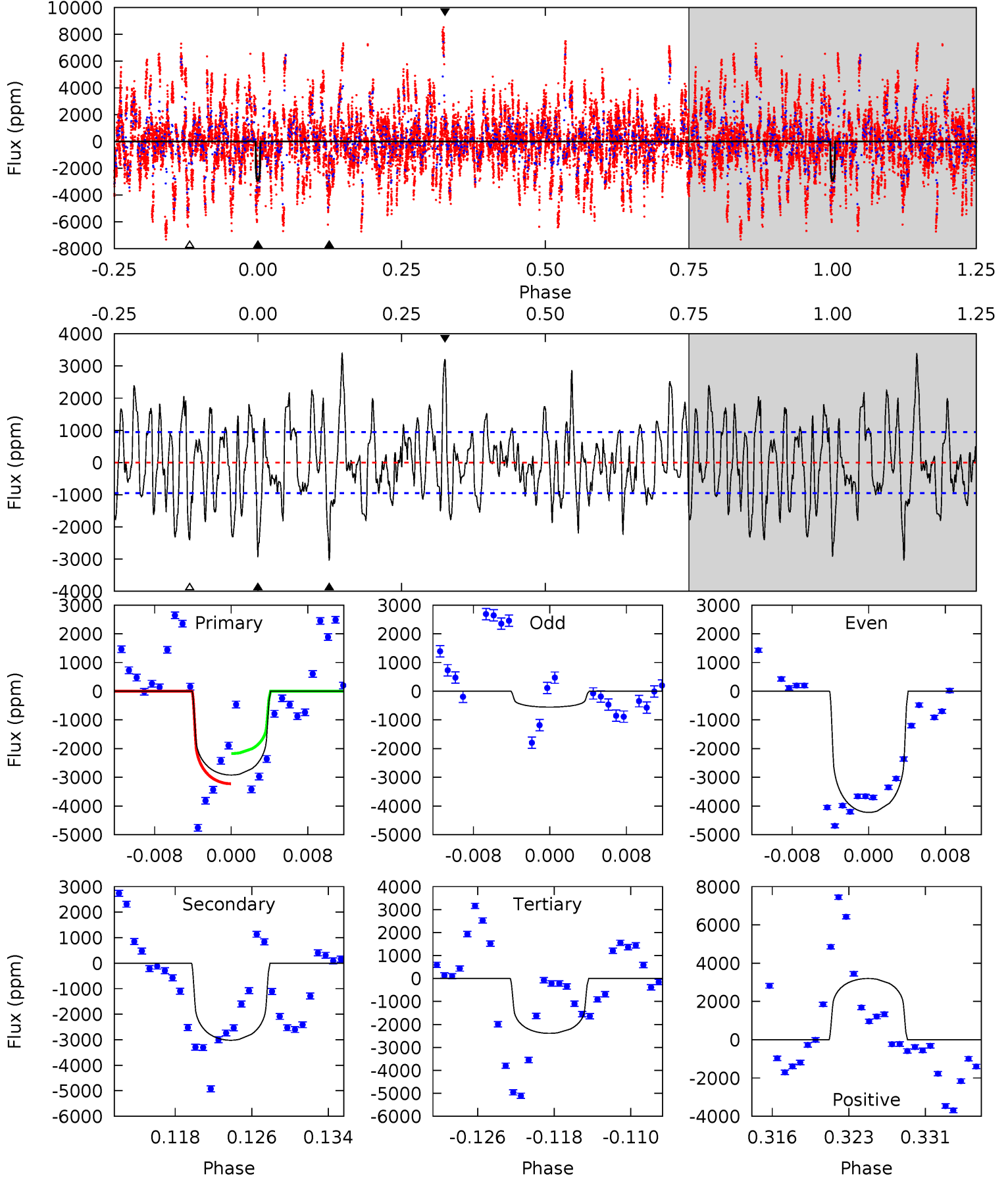
TCE 012884589-06 P=240.870805 Days $T_0=234.502062$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-06, P = 240.894583 Days, E = 234.492854 Days

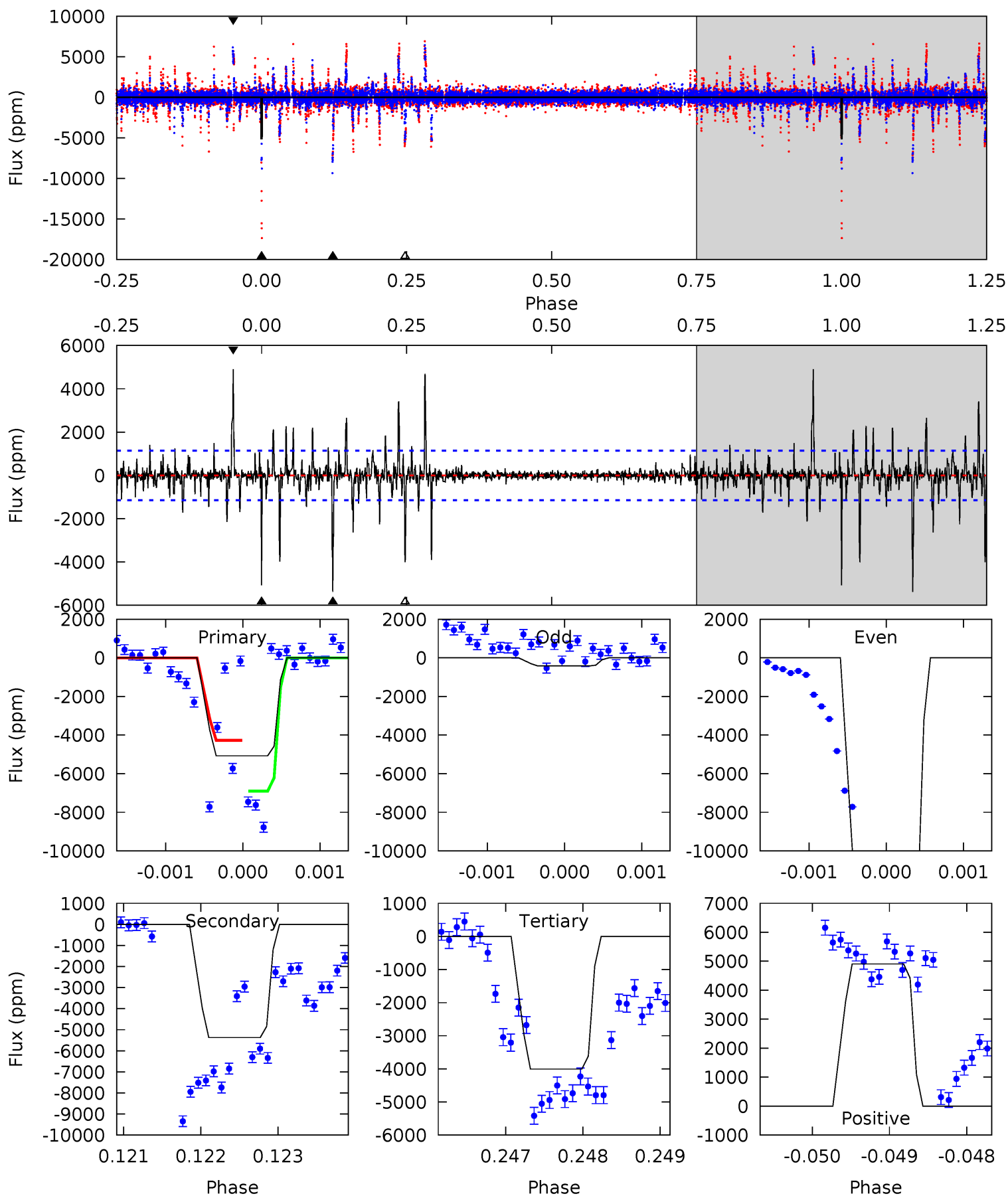
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	16.2	12.8	17.1	5.07	2.66	5.40	2.85	-1.49	3.37	-0.97	9.14	-0.90	0.53	2.67



Alt Model-Shift Uniqueness Test

012884589-06, P = 240.870805 Days, E = 234.502062 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	25.5	19.0	23.3	5.45	3.29	2.47	5.08	0.80	6.48	2.21	33.1	1.00	0.48	5.82



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3019 \pm 187	$6.52^{+1.17}_{-0.85}$	450^{+36}_{-26}	6268^{+451}_{-369}	24828^{+7786}_{-6496}
Alt.	-5371 \pm 210	$10.96^{+1.76}_{-1.25}$	453^{+33}_{-25}	5627^{+251}_{-261}	15587^{+3725}_{-3939}

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

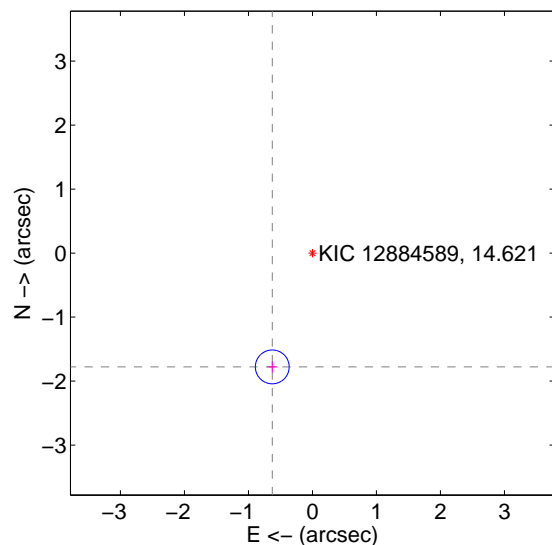
Supplemental centroid analysis for 012884589-06. Kepler magnitude: 14.62. Transit SNR 9.54

There are 0 quarters with good PRF difference image offsets

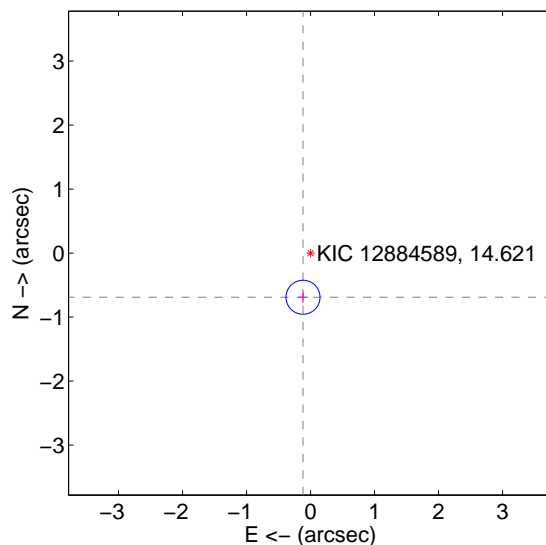
The direct PRF centroid is offset from the target star catalog position by about 1.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.885 ± 0.088	21.41	0.628 ± 0.082	-1.777 ± 0.089
PRF-fit source offset from KIC position	0.699 ± 0.089	7.90	0.117 ± 0.082	-0.690 ± 0.089
photometric centroid source offset	2.68 ± 0.16	17.14	-0.12 ± 0.08	2.68 ± 0.16

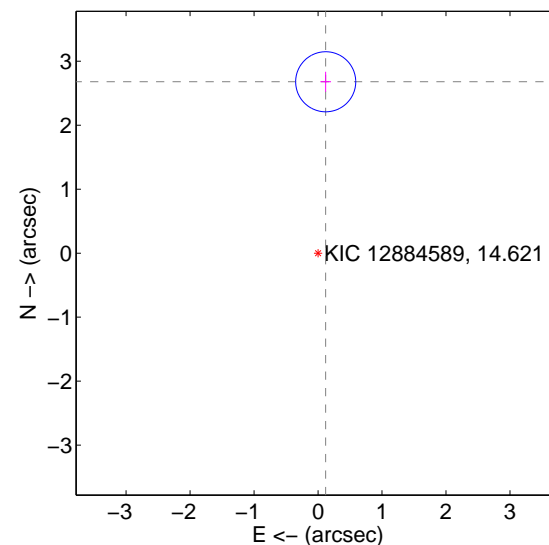
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

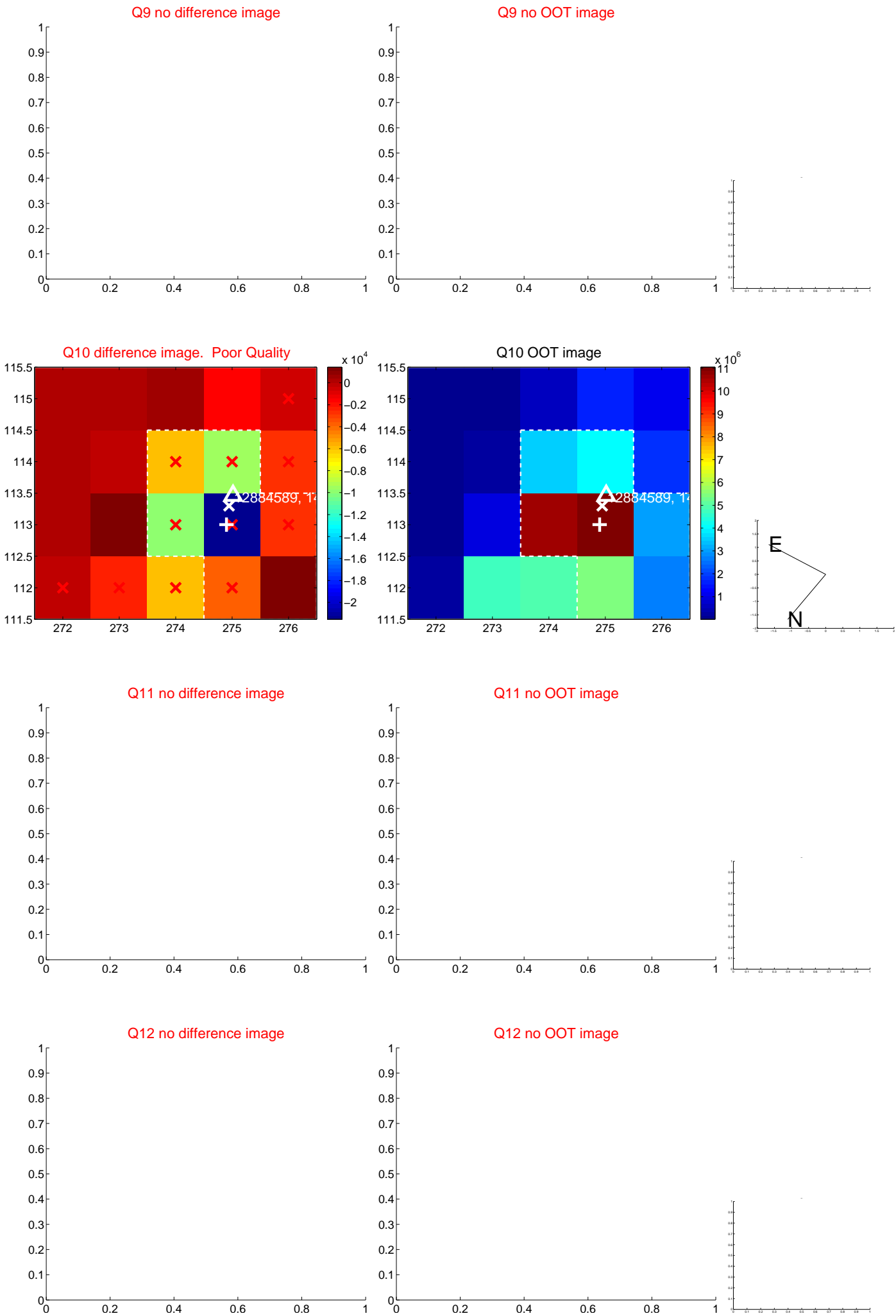
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



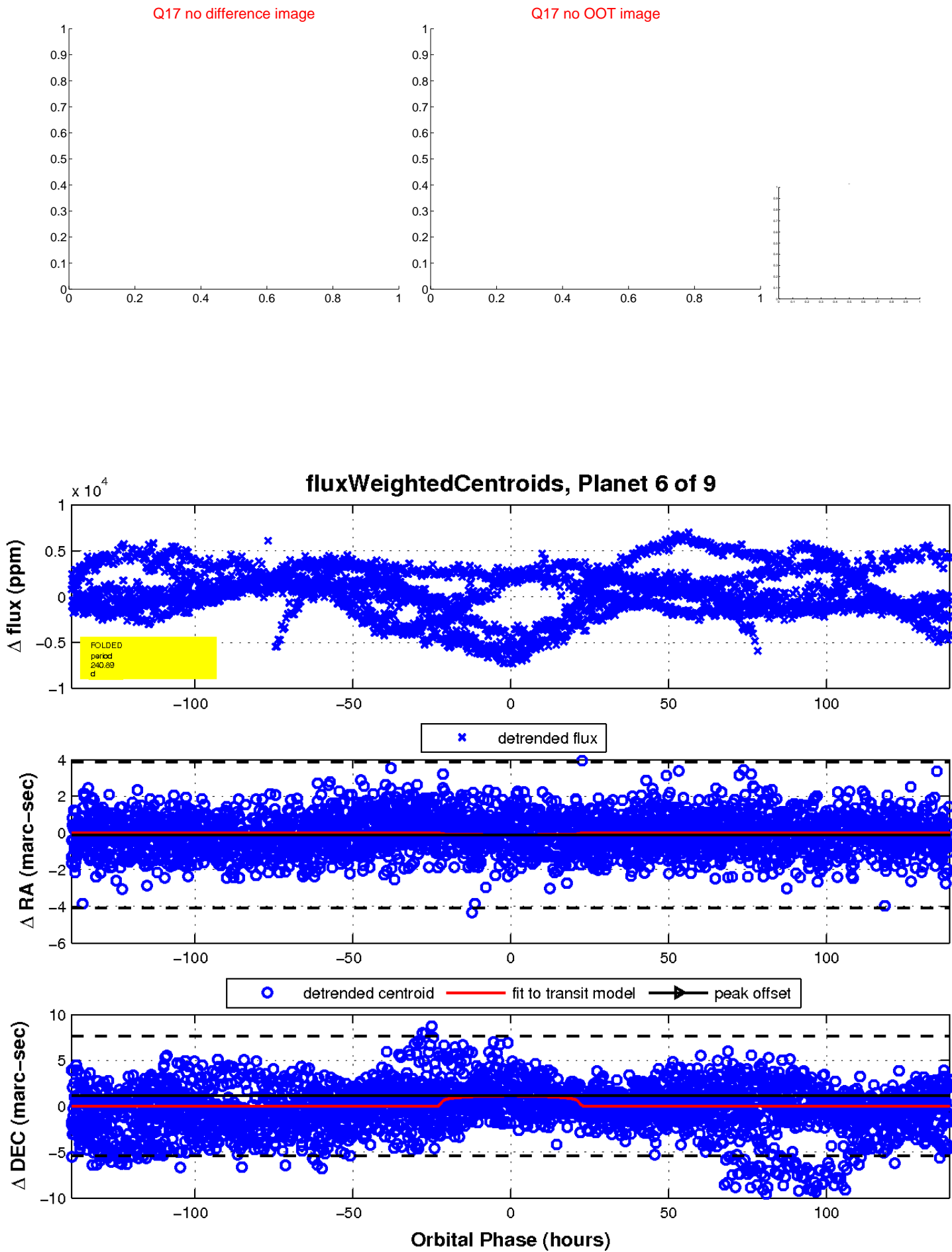
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



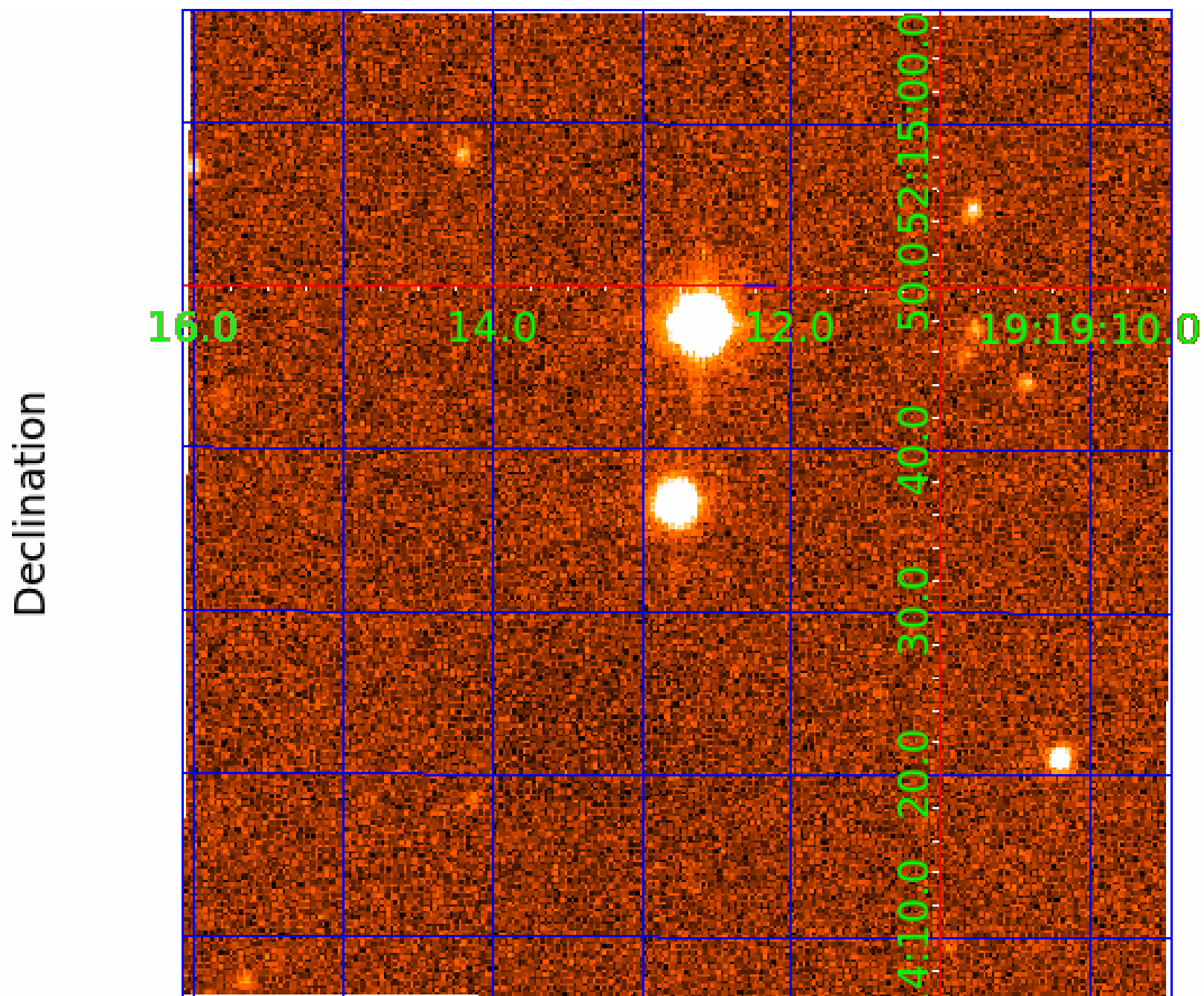
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 012884589

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})
012884589-01	OBS	No	2.743953	134.062673	162.5	15.871	9.2	11.1	1.10	6147	2.72	928.08
012884589-02	OBS	No	245.307270	157.122651	2611.9	10.816	21.3	10.6	1.10	6147	9.73	2.32
012884589-03	OBS	No	231.603616	177.892992	2129.3	13.082	15.5	8.2	1.10	6147	6.29	2.51
012884589-04	OBS	No	124.039615	216.308911	952.1	3.708	13.5	6.1	1.10	6147	4.32	5.76
012884589-05	OBS	No	141.053722	238.598679	1875.2	22.307	14.0	6.9	1.10	6147	5.58	4.86
012884589-06	OBS	No	240.894583	234.492854	3309.6	46.356	12.4	9.5	1.10	6147	6.28	2.38
012884589-08	OBS	No	250.026448	371.517419	6728.1	75.963	9.7	6.5	1.10	6147	16.29	2.26
012884589-09	OBS	No	77.938471	208.698150	660.3	4.237	10.5	4.7	1.10	6147	3.16	10.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012884589-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

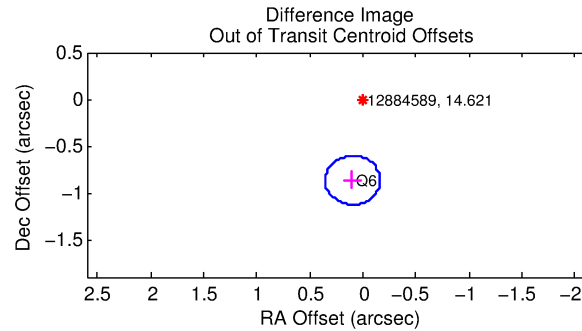
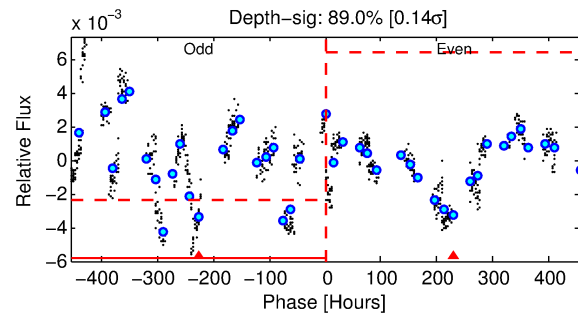
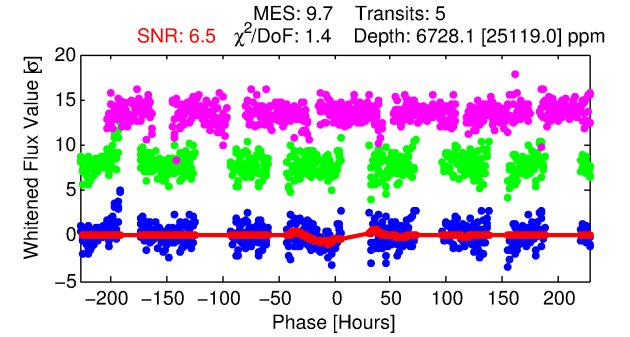
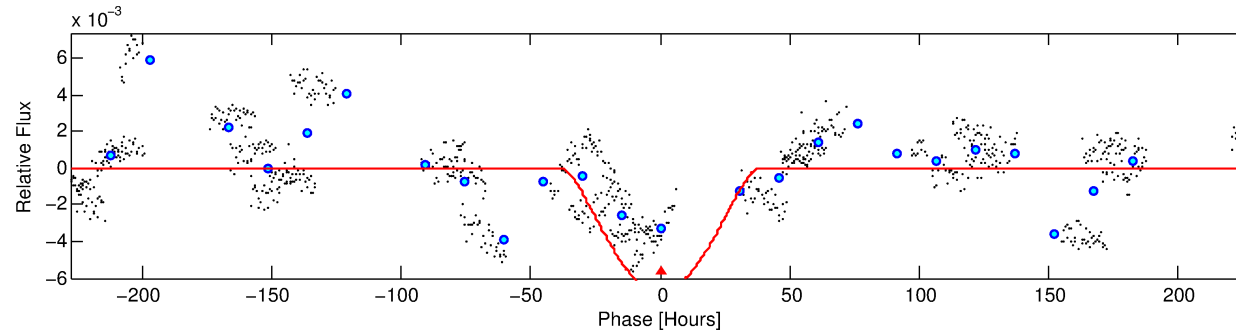
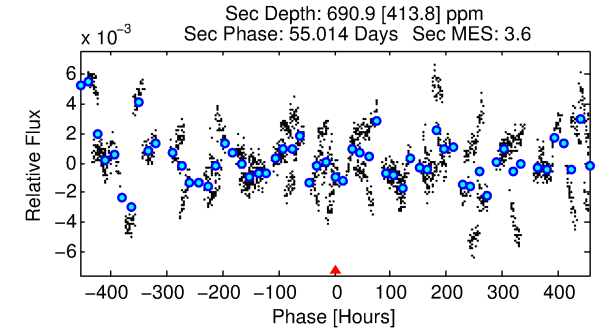
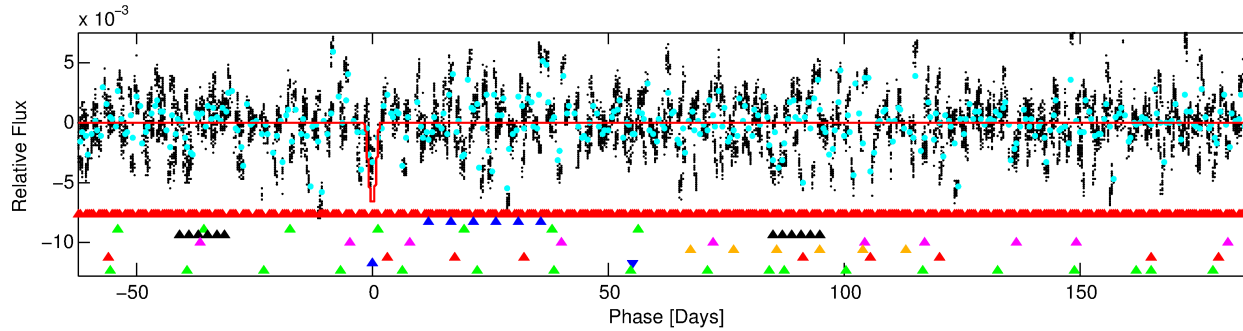
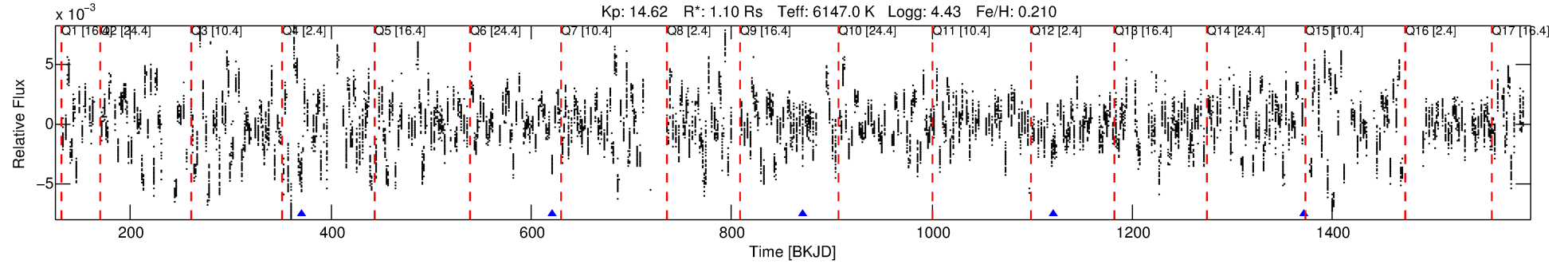
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-08

No Significant Match Found

DV One-Page Summary

KIC: 12884589 Candidate: 8 of 9 Period: 250.026 d



DV Fit Results:

Period = 250.02645 [0.11242] d
Epoch = 371.5174 [0.3530] BKJD
Rp/R* = 0.1362 [0.2275]
a/R* = 13.60 [3.63]
b = 1.00 [0.02]
Seff = 2.26 [0.97]
Teq = 313 [34] K
Rp = 16.29 [27.72] Re
a = 0.8239 [0.2243] AU
Ag = 972.18 [3321.83] [0.29σ]
Teffp = 2700 [2294] K [1.04σ]

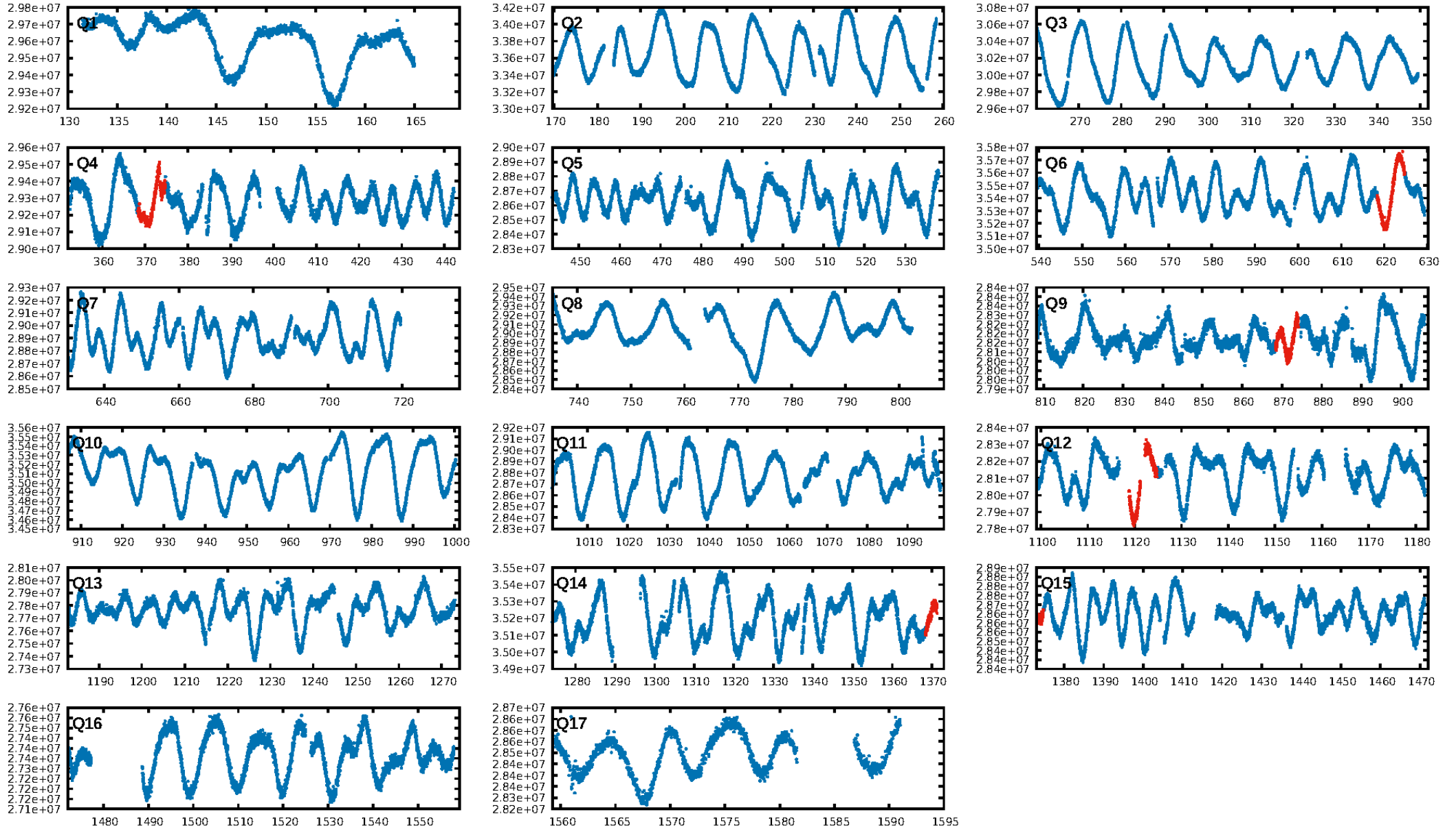
DV Diagnostic Results:

ShortPeriod-sig: 86.0% [1.48σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -16.77
Centroid-sig: 54.3%
Centroid-so: 3.063 arcsec [23.94σ]
OotOffset-rm: 0.871 arcsec [10.05σ]
KicOffset-rm: 0.150 arcsec [1.85σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/1]

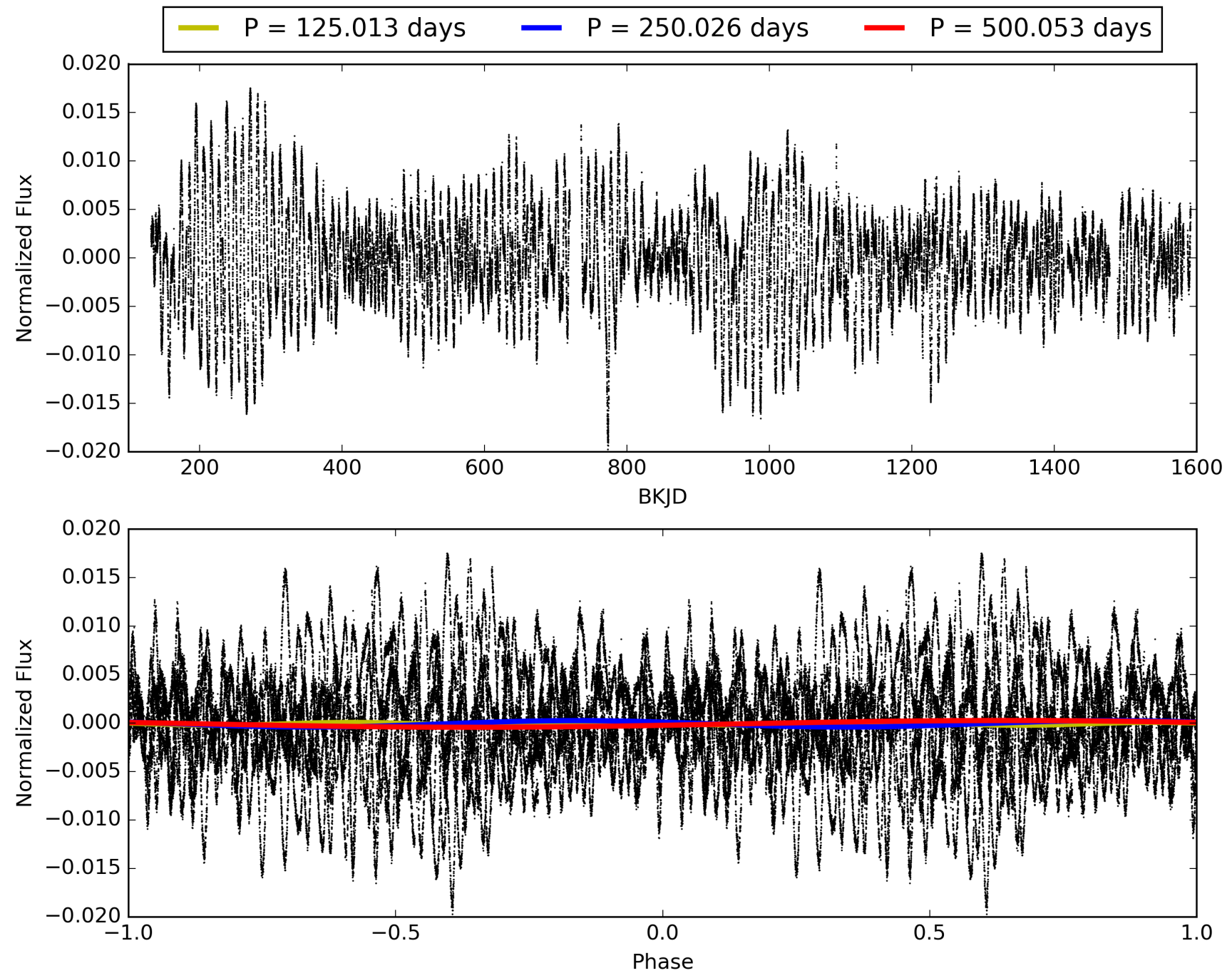
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:08:04 Z

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

TCE 012884589-08, PDC Light Curves

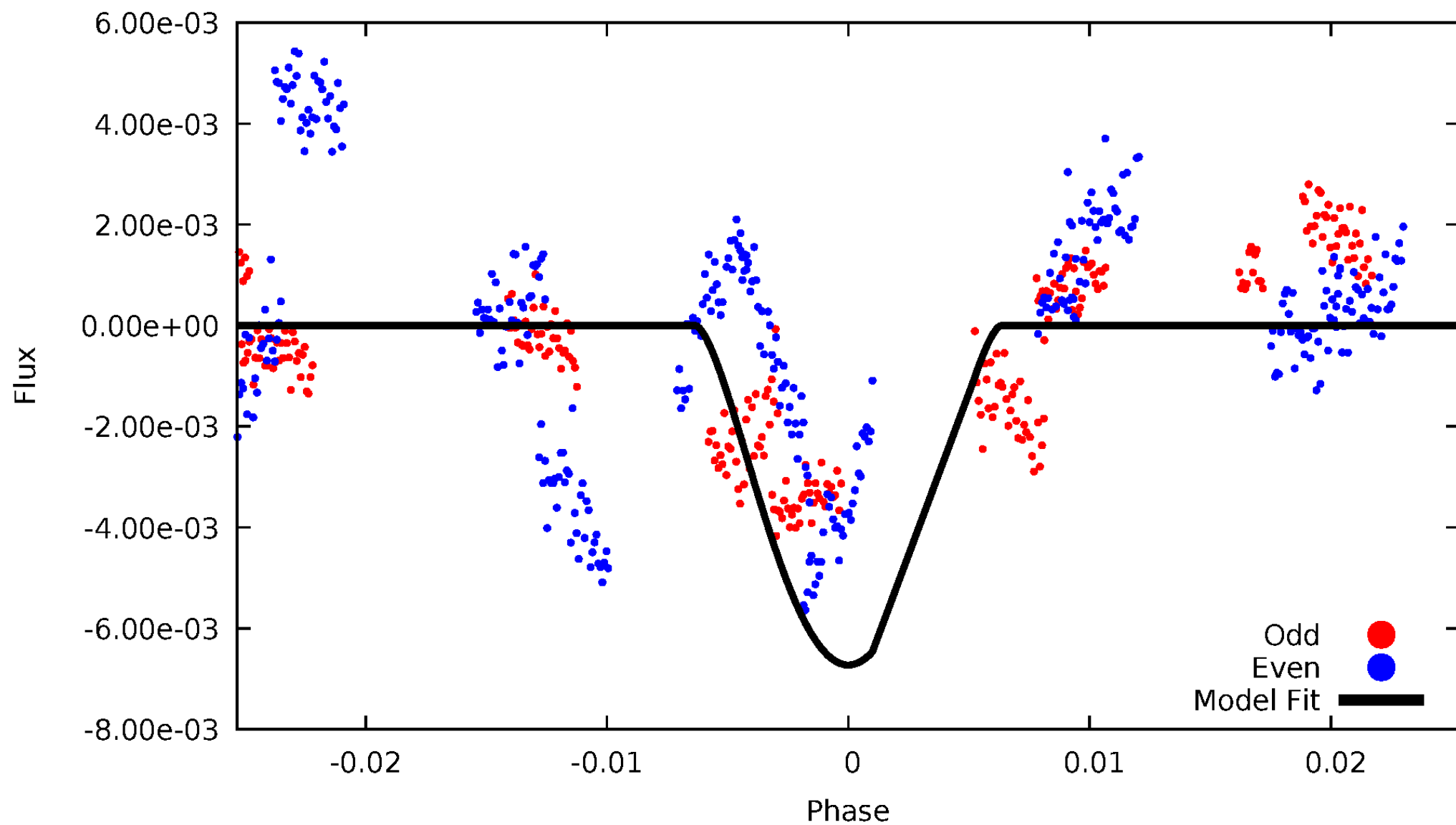


TCE 012884589-08



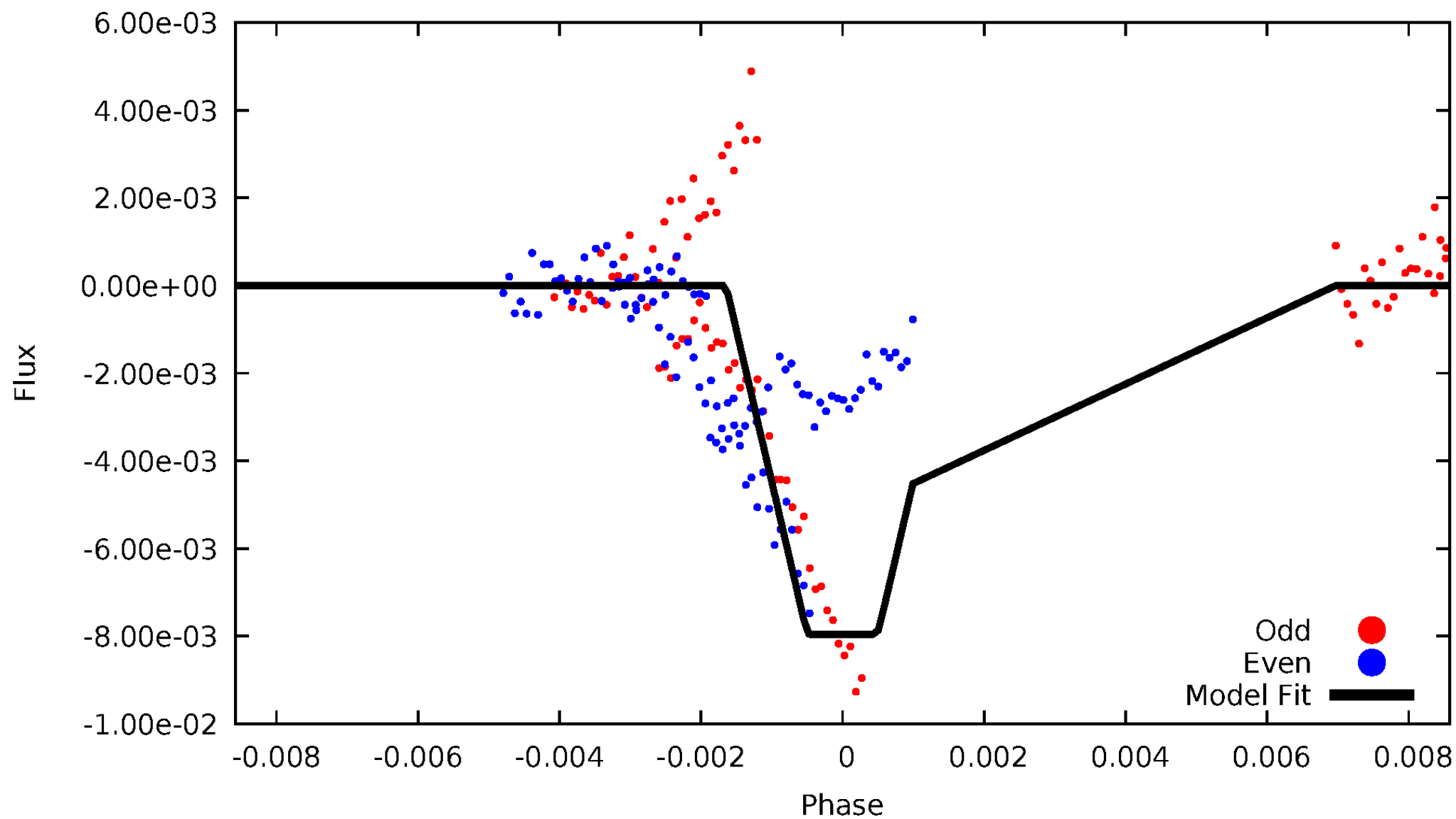
DV Odd/Even

TCE 012884589-08



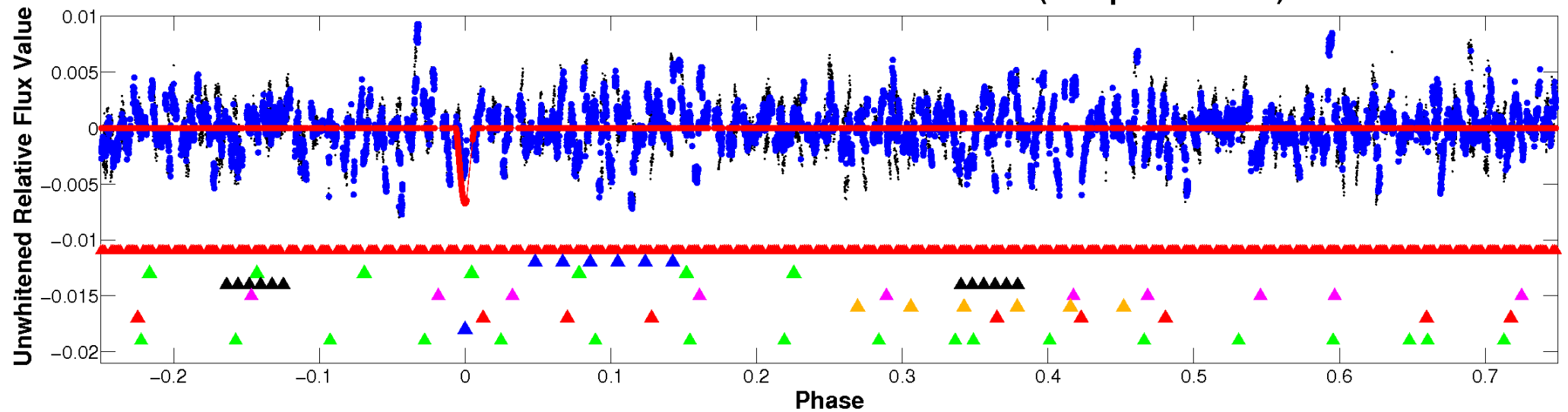
ALT Odd/Even

TCE 012884589-08

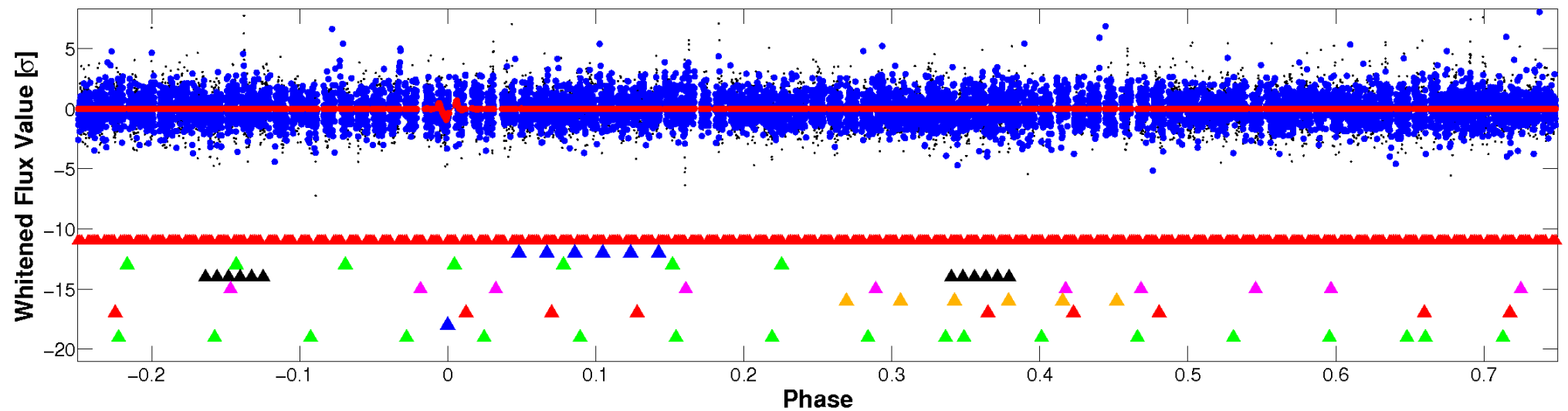


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

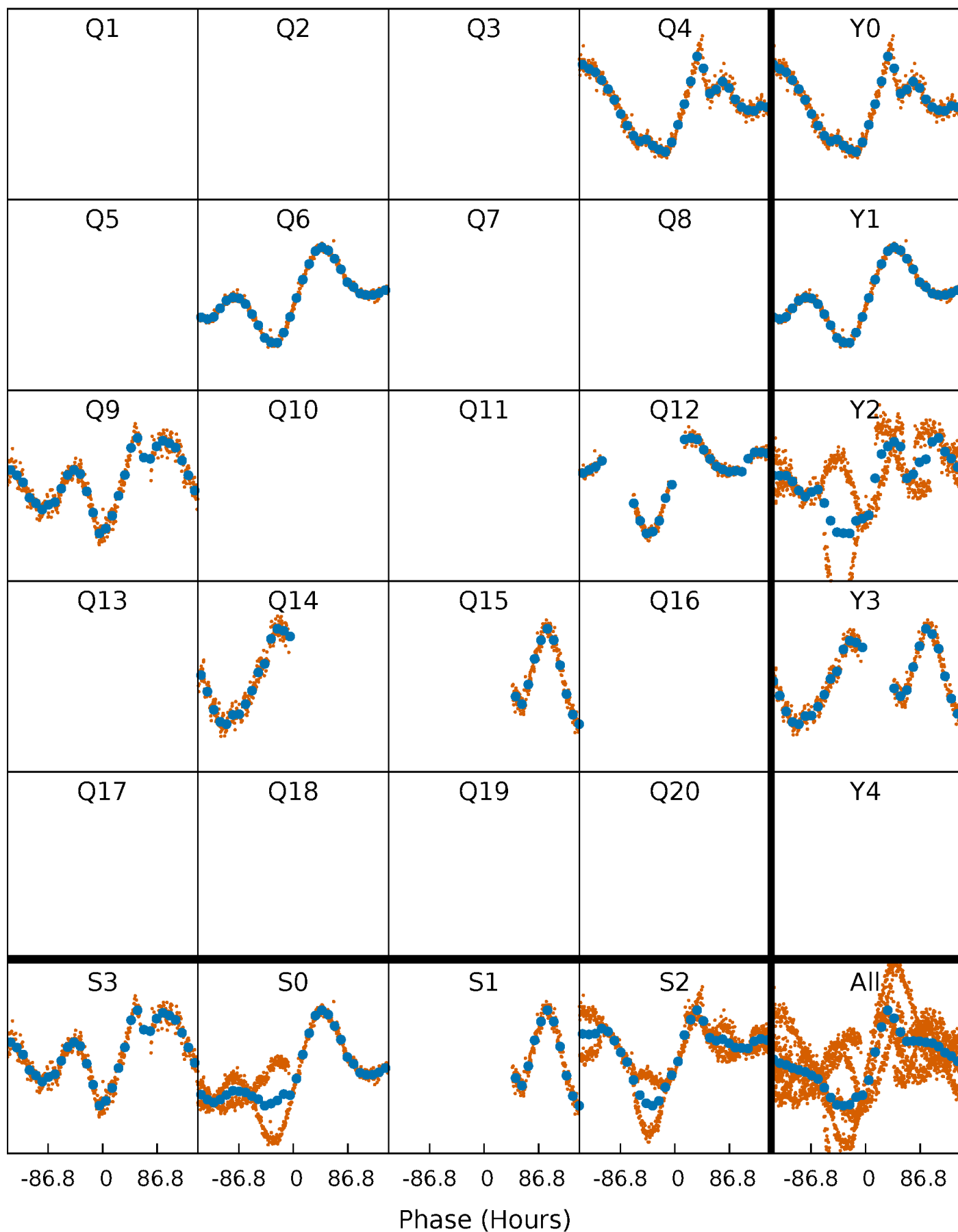


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



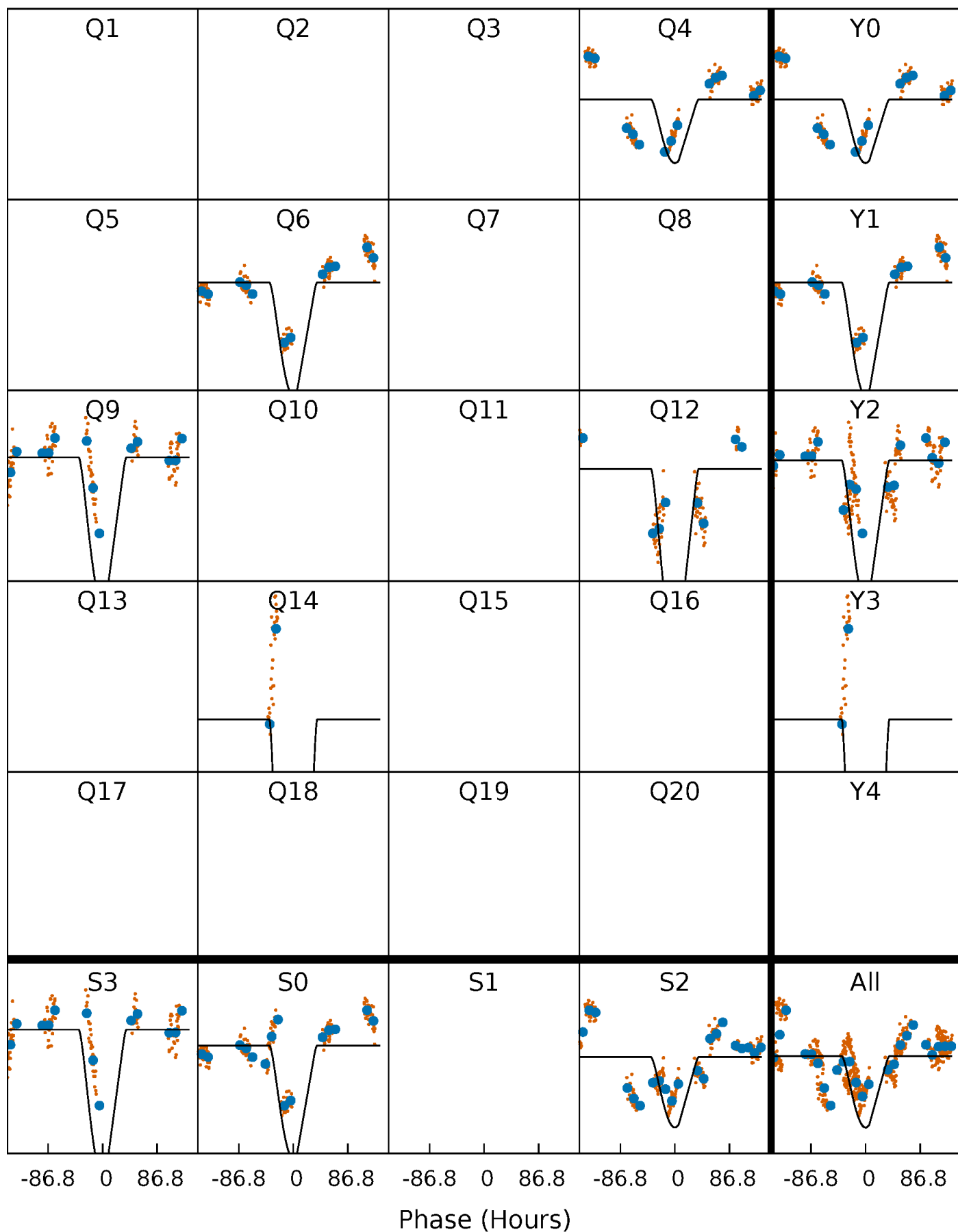
PDC Quarter-Phased Transit Curves

TCE 012884589-08 P=250.026448 Days $T_0=371.517419$ (BKJD)



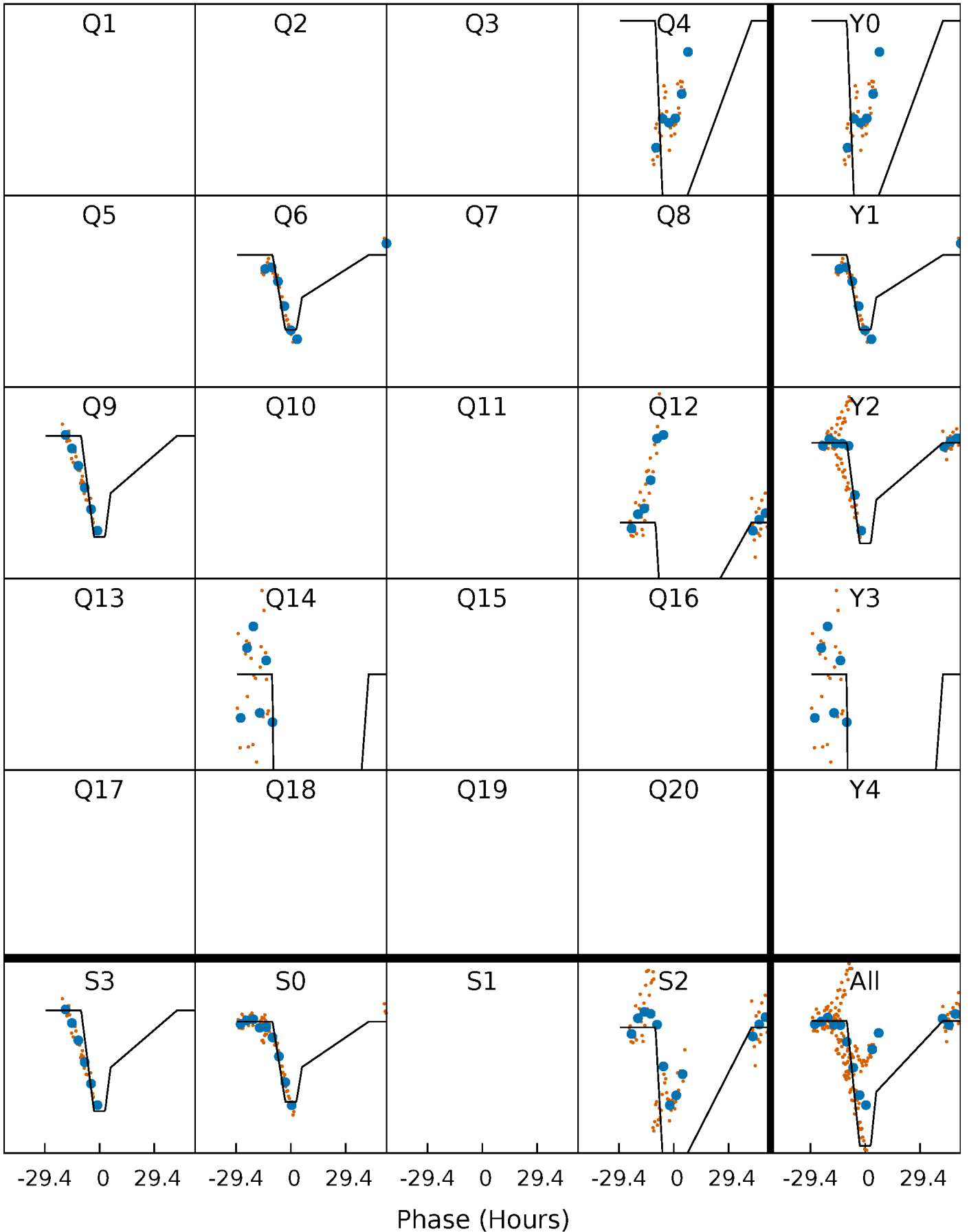
DV Quarter-Phased Transit Curves

TCE 012884589-08 $P=250.026448$ Days $T_0=371.517419$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

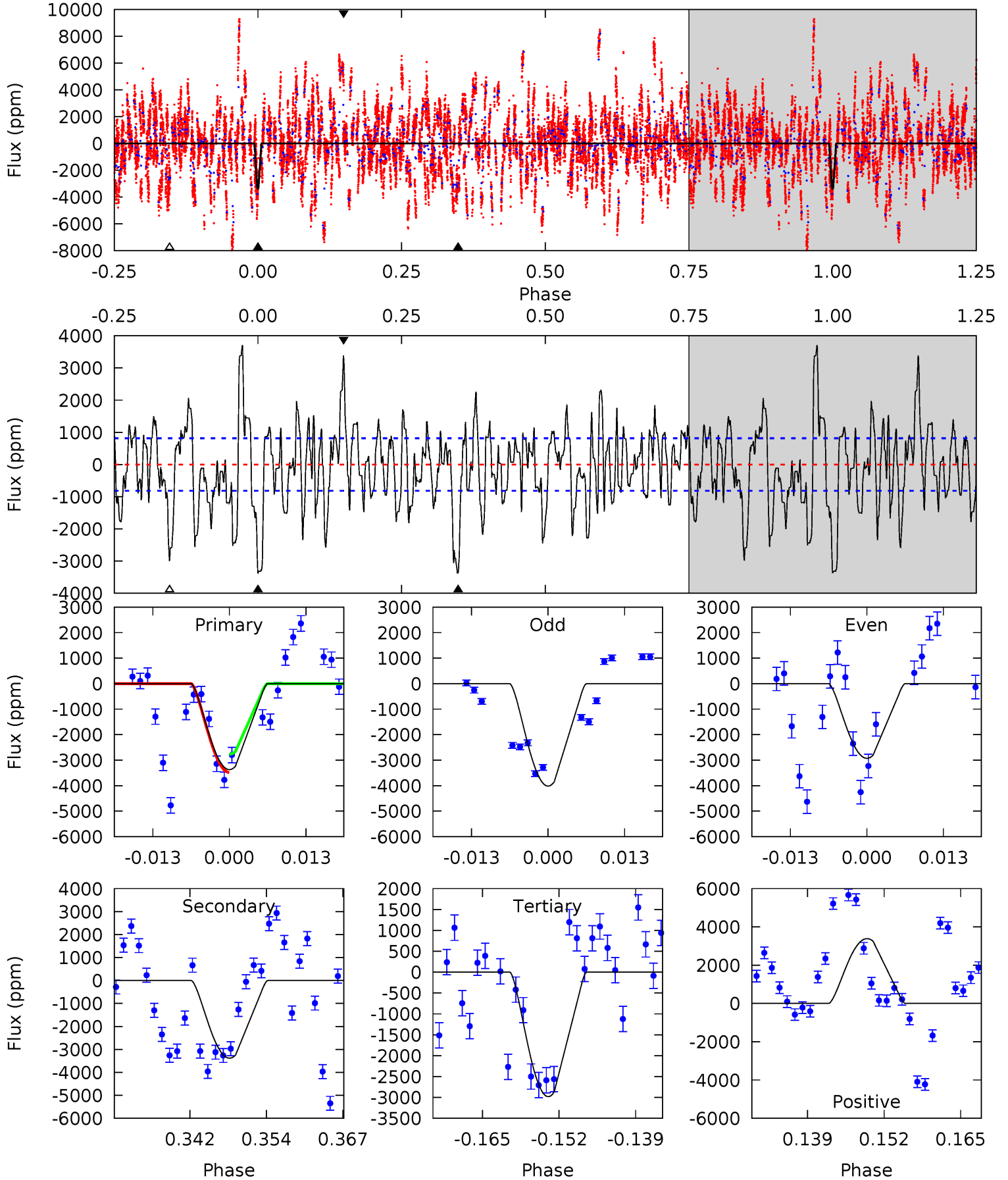
TCE 012884589-08 P=249.882005 Days $T_0=371.520115$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-08, P = 250.026448 Days, E = 121.490971 Days

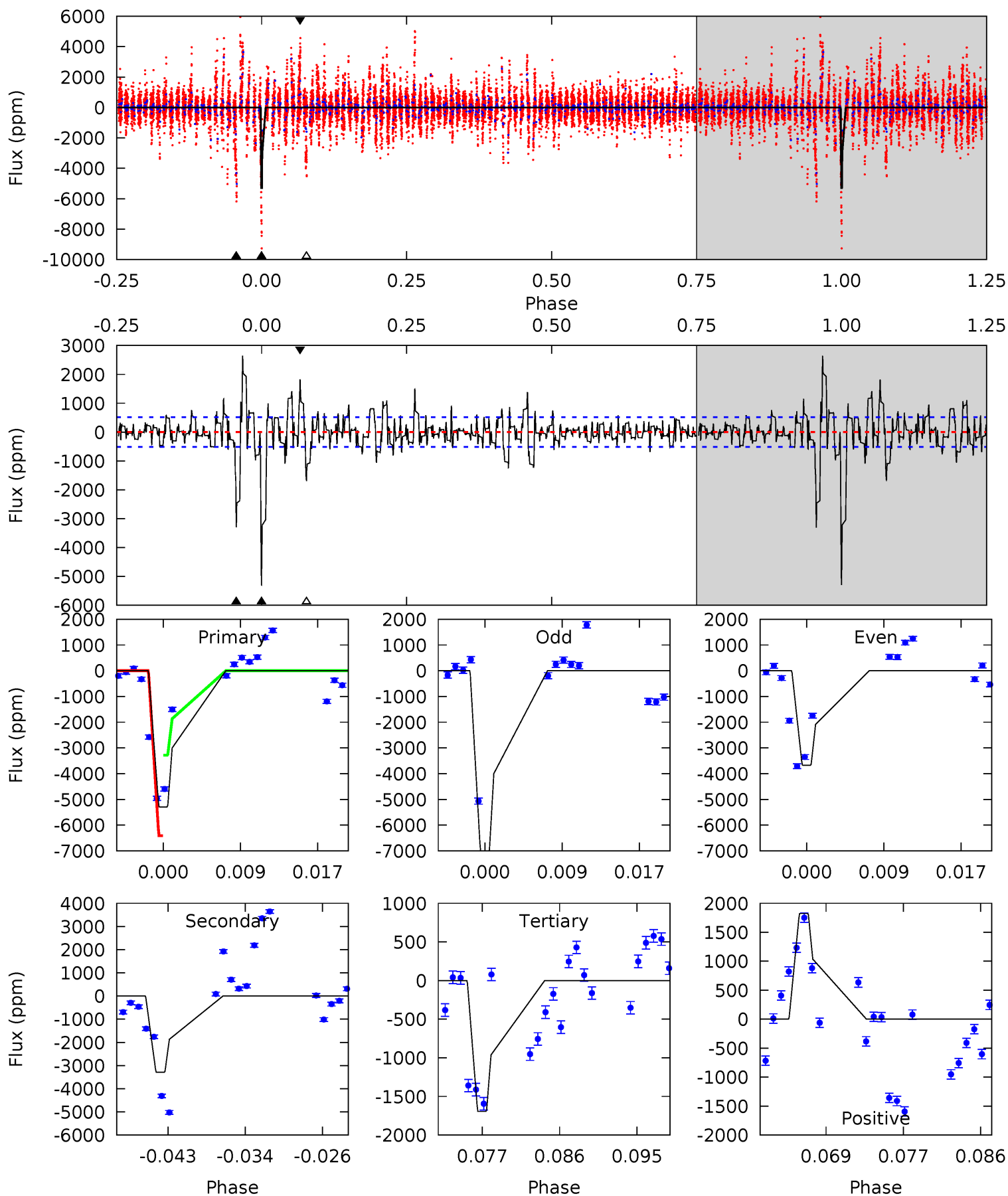
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	20.7	18.2	20.7	4.98	2.49	6.38	2.38	-0.09	2.45	-0.02	3.43	0.45	0.52	1.49



Alt Model-Shift Uniqueness Test

012884589-08, P = 249.882005 Days, E = 121.638110 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.9	32.3	16.6	17.9	5.06	2.63	3.59	35.3	34.0	15.6	14.4	16.1	0.24	0.33	11.6



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3382 ± 164	$27.90^{+24.37}_{-17.56}$	447^{+34}_{-23}	3598^{+1573}_{-613}	1646^{+9848}_{-1190}
Alt.	-3290 ± 102	$23.52^{+23.96}_{-15.54}$	447^{+35}_{-25}	3802^{+2089}_{-747}	2120^{+16767}_{-1574}

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 $A_{obs} \gg 1.0$

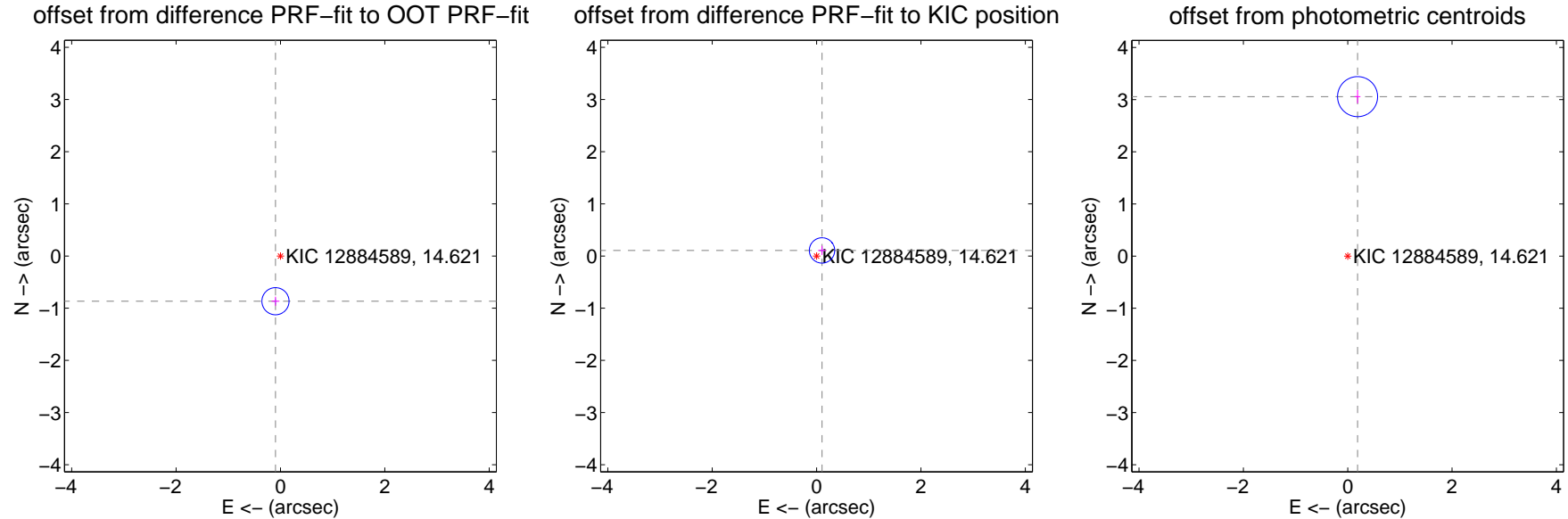
DV Centroid Data

Supplemental centroid analysis for 012884589-08. Kepler magnitude: 14.62. Transit SNR 6.49

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.99 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.871 ± 0.087	10.05	0.095 ± 0.074	-0.866 ± 0.087
PRF-fit source offset from KIC position	0.150 ± 0.081	1.85	-0.104 ± 0.074	0.107 ± 0.087
photometric centroid source offset	3.06 ± 0.13	23.94	-0.19 ± 0.05	3.06 ± 0.13

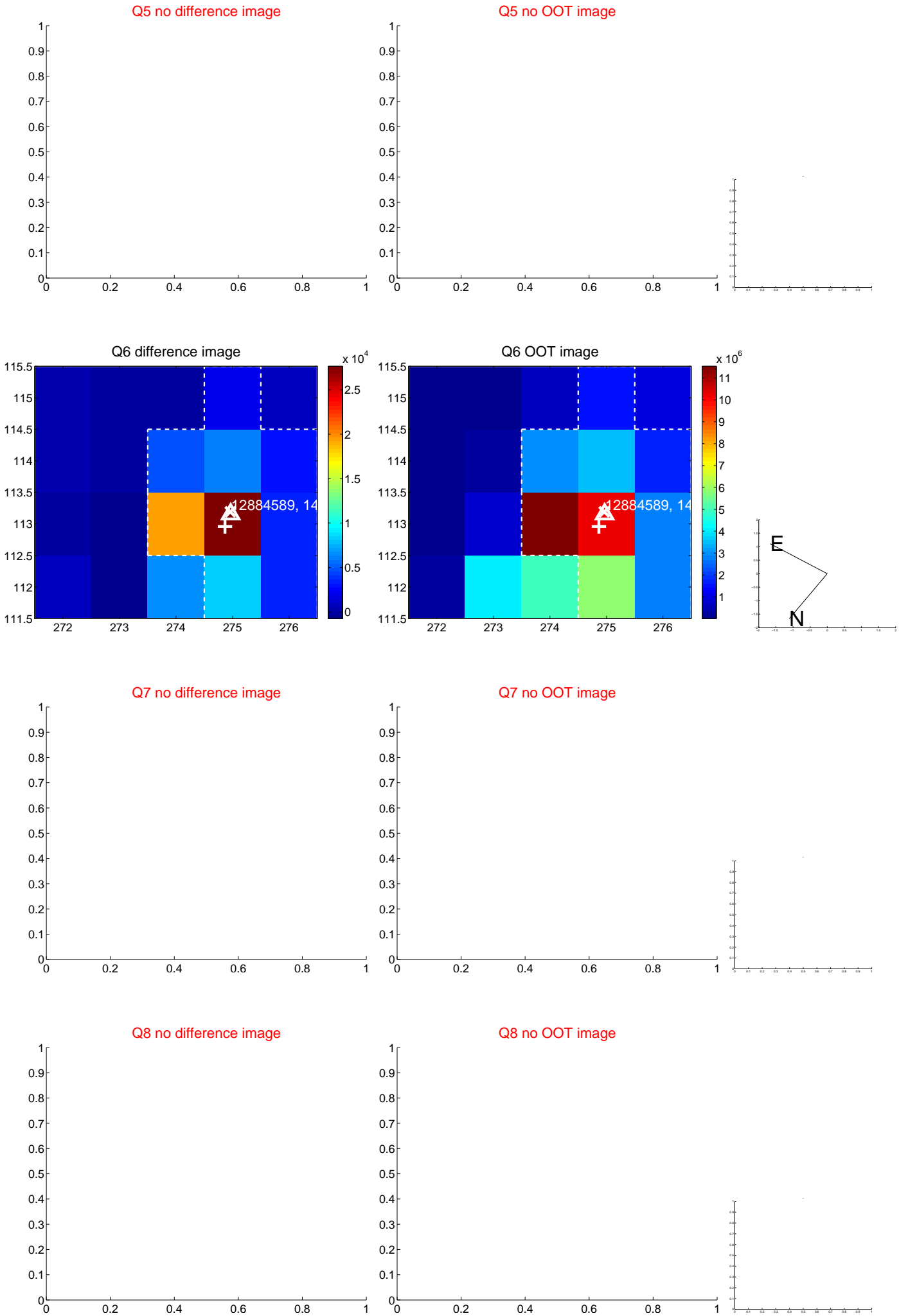


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



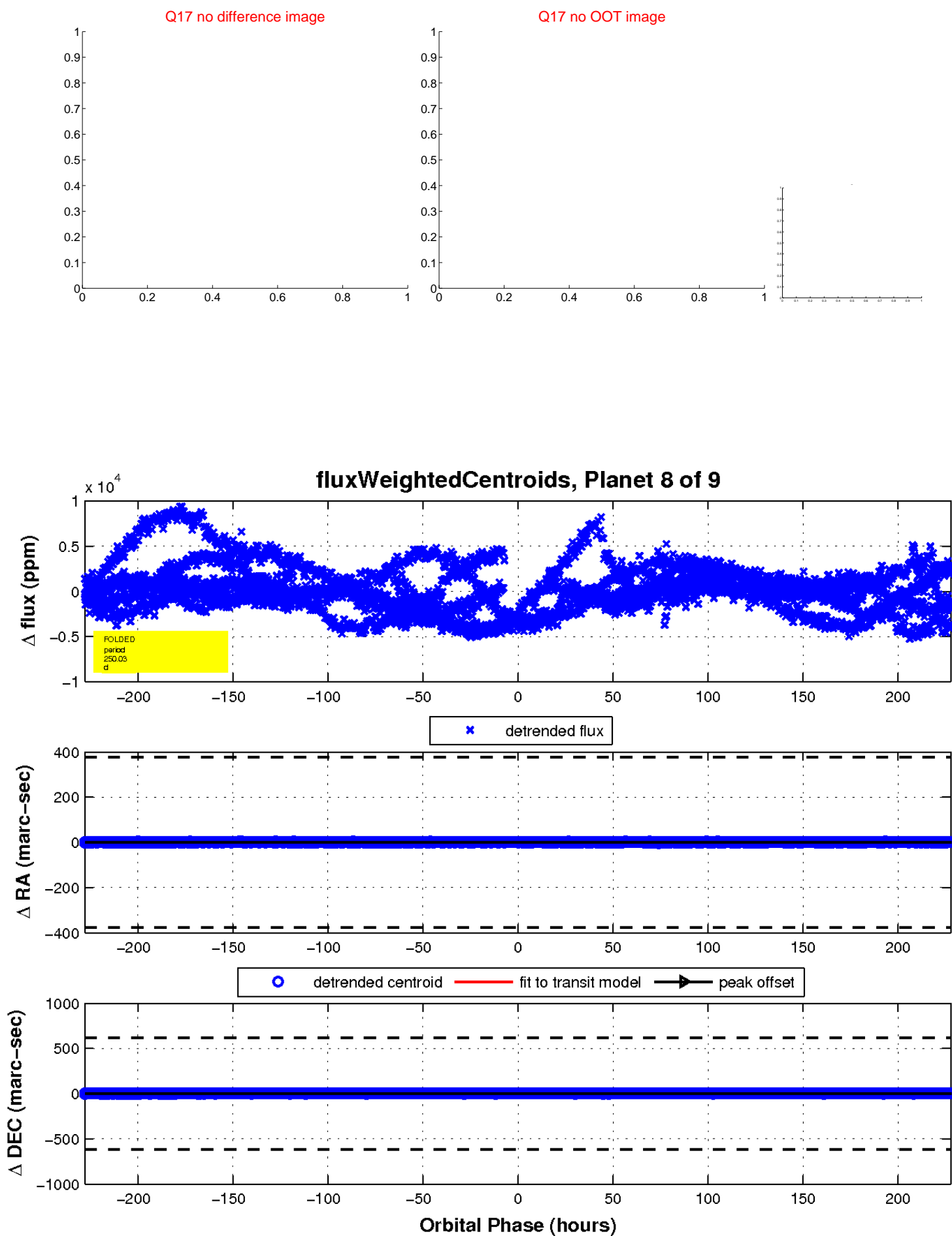
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



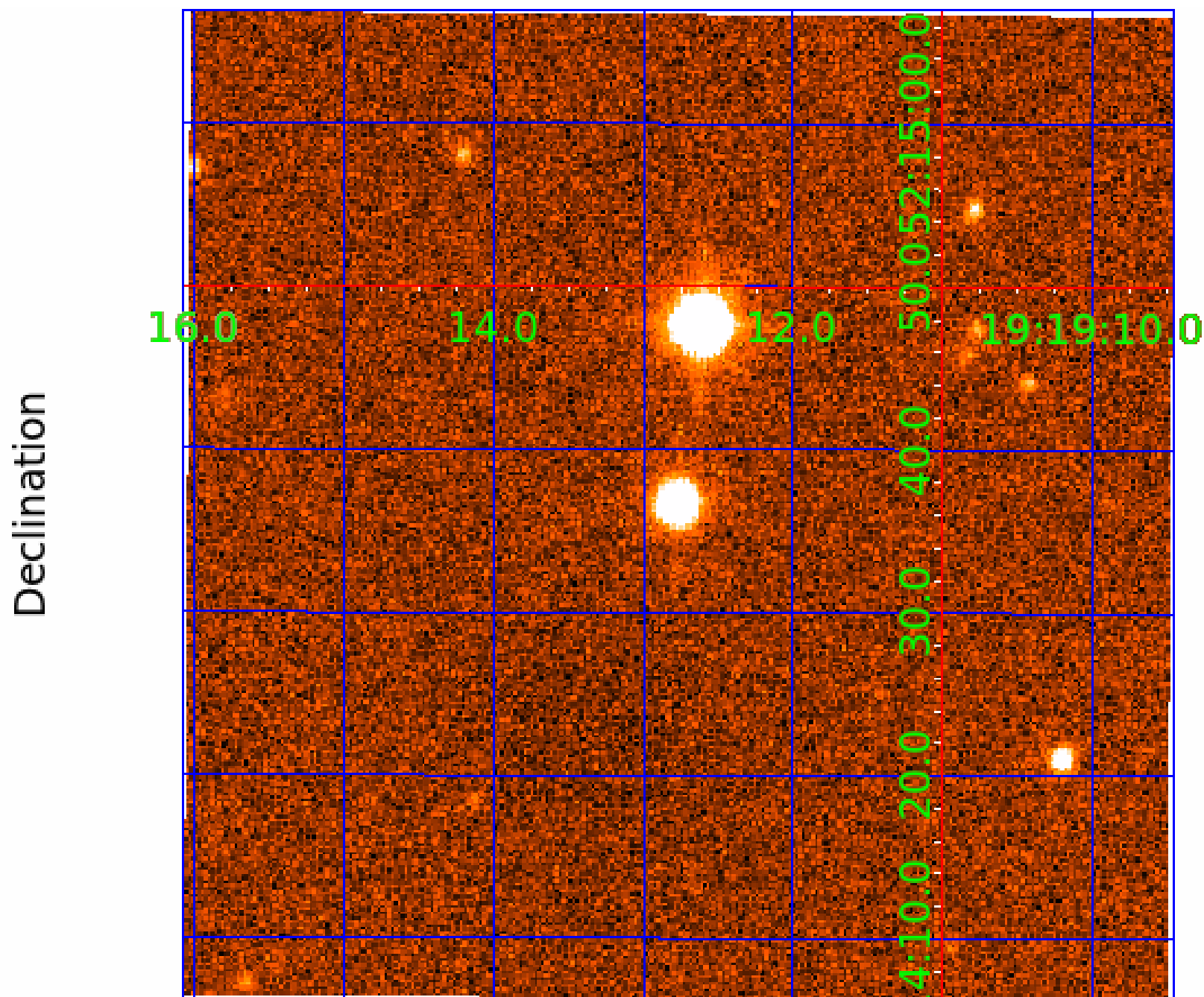
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 012884589

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})
012884589-01	OBS	No	2.743953	134.062673	162.5	15.871	9.2	11.1	1.10	6147	2.72	928.08
012884589-02	OBS	No	245.307270	157.122651	2611.9	10.816	21.3	10.6	1.10	6147	9.73	2.32
012884589-03	OBS	No	231.603616	177.892992	2129.3	13.082	15.5	8.2	1.10	6147	6.29	2.51
012884589-04	OBS	No	124.039615	216.308911	952.1	3.708	13.5	6.1	1.10	6147	4.32	5.76
012884589-05	OBS	No	141.053722	238.598679	1875.2	22.307	14.0	6.9	1.10	6147	5.58	4.86
012884589-06	OBS	No	240.894583	234.492854	3309.6	46.356	12.4	9.5	1.10	6147	6.28	2.38
012884589-08	OBS	No	250.026448	371.517419	6728.1	75.963	9.7	6.5	1.10	6147	16.29	2.26
012884589-09	OBS	No	77.938471	208.698150	660.3	4.237	10.5	4.7	1.10	6147	3.16	10.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012884589-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
012884589-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS
012884589-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
012884589-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS
012884589-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
012884589-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
012884589-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—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—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.

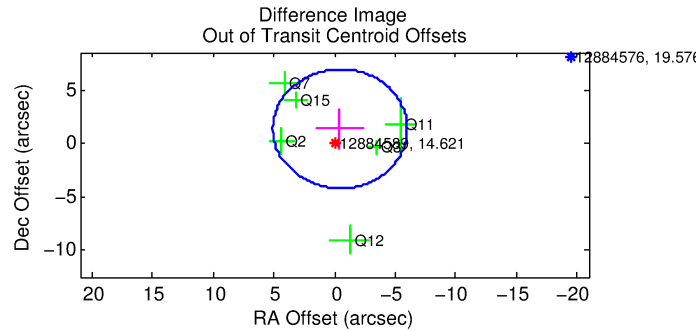
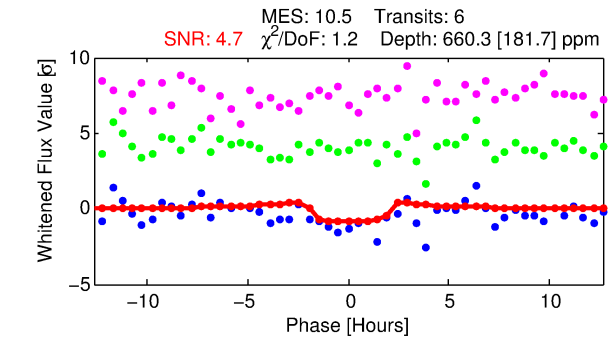
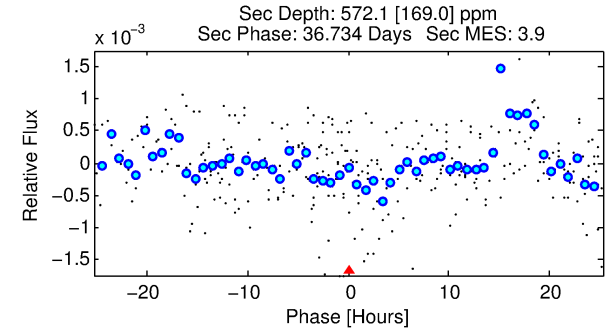
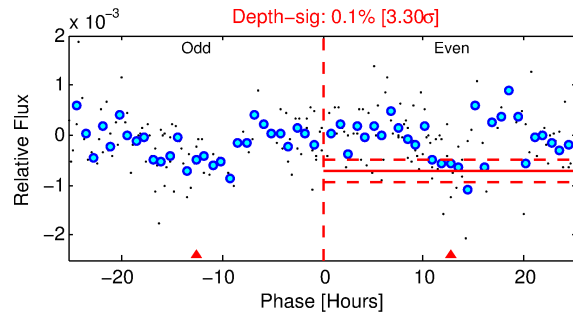
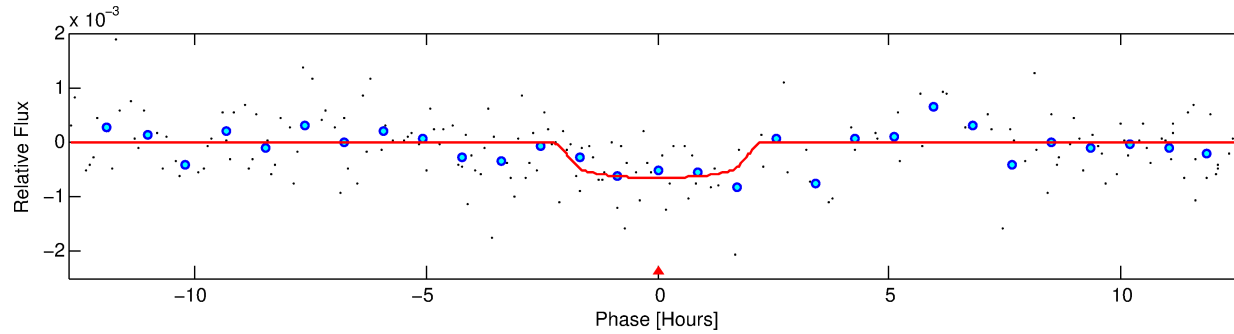
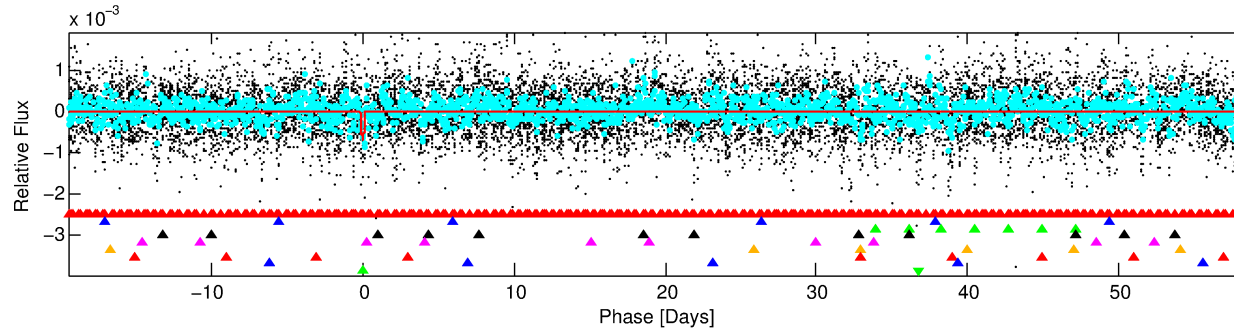
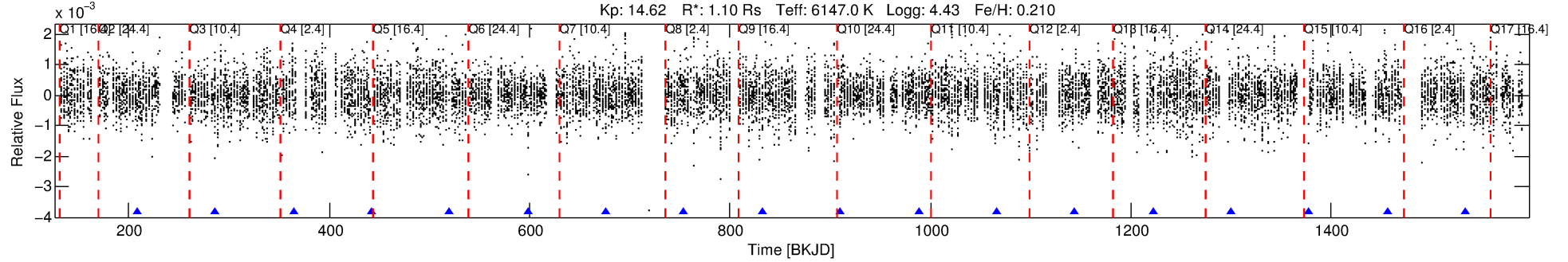
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012884589-09

No Significant Match Found

DV One-Page Summary

KIC: 12884589 Candidate: 9 of 9 Period: 77.938 d



DV Fit Results:

Period = 77.93847 [0.00182] d
Epoch = 208.6981 [0.0191] BKJD
Rp/R* = 0.0264 [0.0206]
a/R* = 86.21 [312.62]
b = 0.82 [1.43]
Seff = 10.71 [4.59]
Teq = 461 [49] K
Rp = 3.16 [2.67] Re
a = 0.3788 [0.1031] AU
Ag = 4535.00 [7438.82] [0.61σ]
Teffp = 5853 [2342] K [2.30σ]

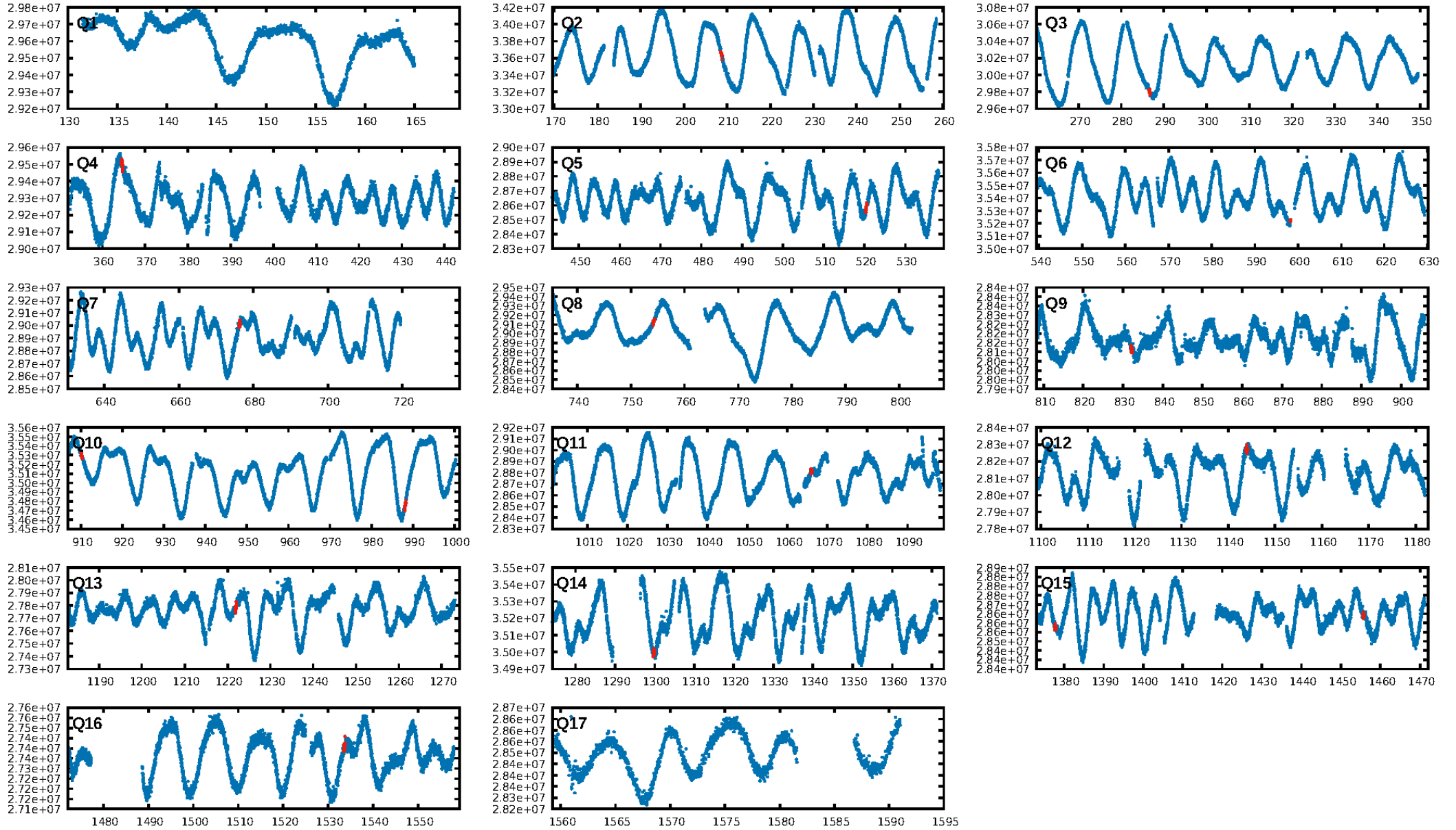
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [109.86σ]
LongPeriod-sig: 100.0% [196.52σ]
ModelChiSquare2-sig: 42.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.9607
Centroid-sig: 7.5%
Centroid-so: 2.993 arcsec [5.29σ]
OotOffset-rm: 1.420 arcsec [0.77σ]
KicOffset-rm: 1.529 arcsec [1.02σ]
OotOffset-st: 1/4/1/0 [6]
KicOffset-st: 1/4/1/2 [8]
DiffImageQuality-fgm: 0.00 [0/8]
DiffImageOverlap-fno: 0.46 [6/13]

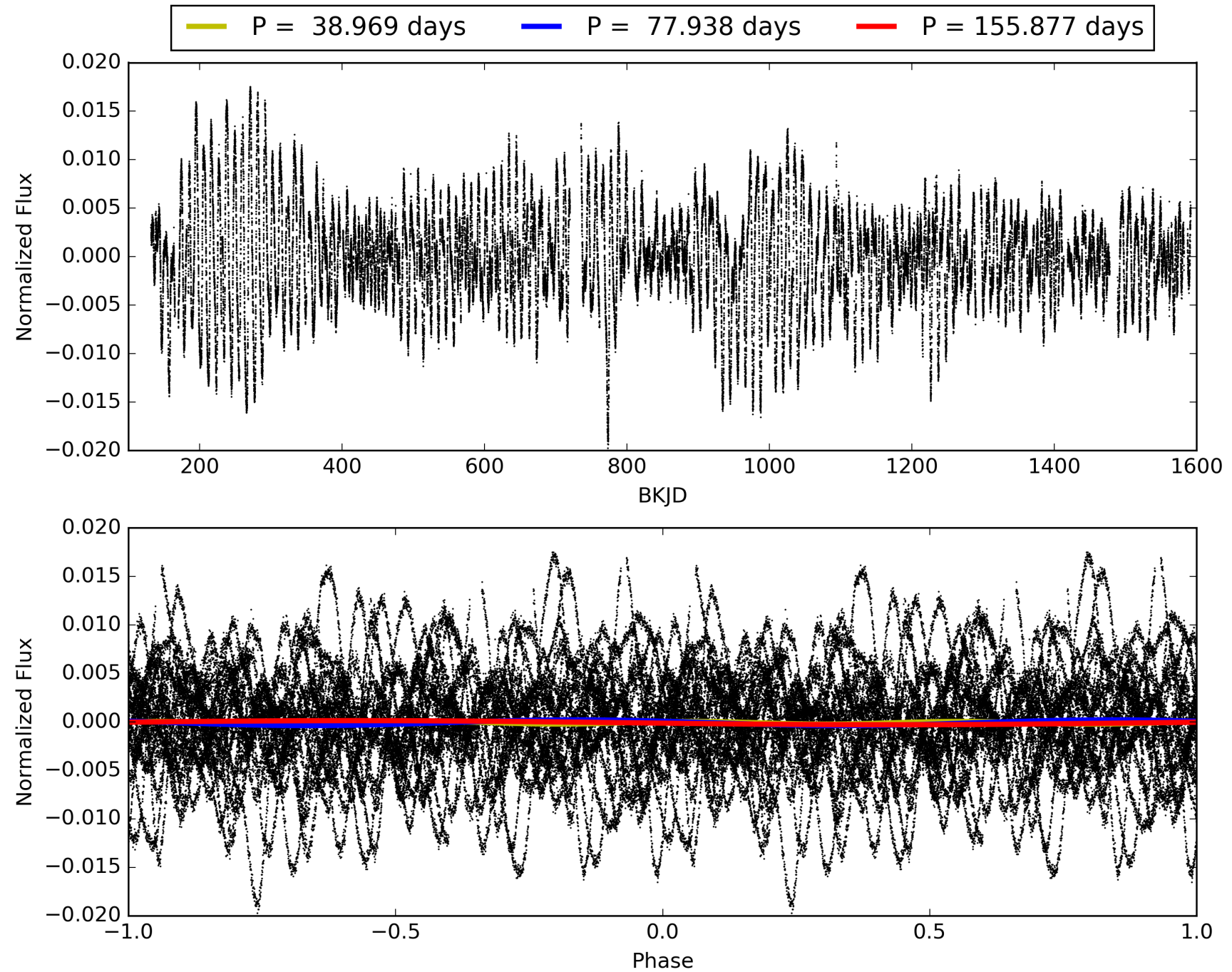
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:08:08 Z

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

TCE 012884589-09, PDC Light Curves

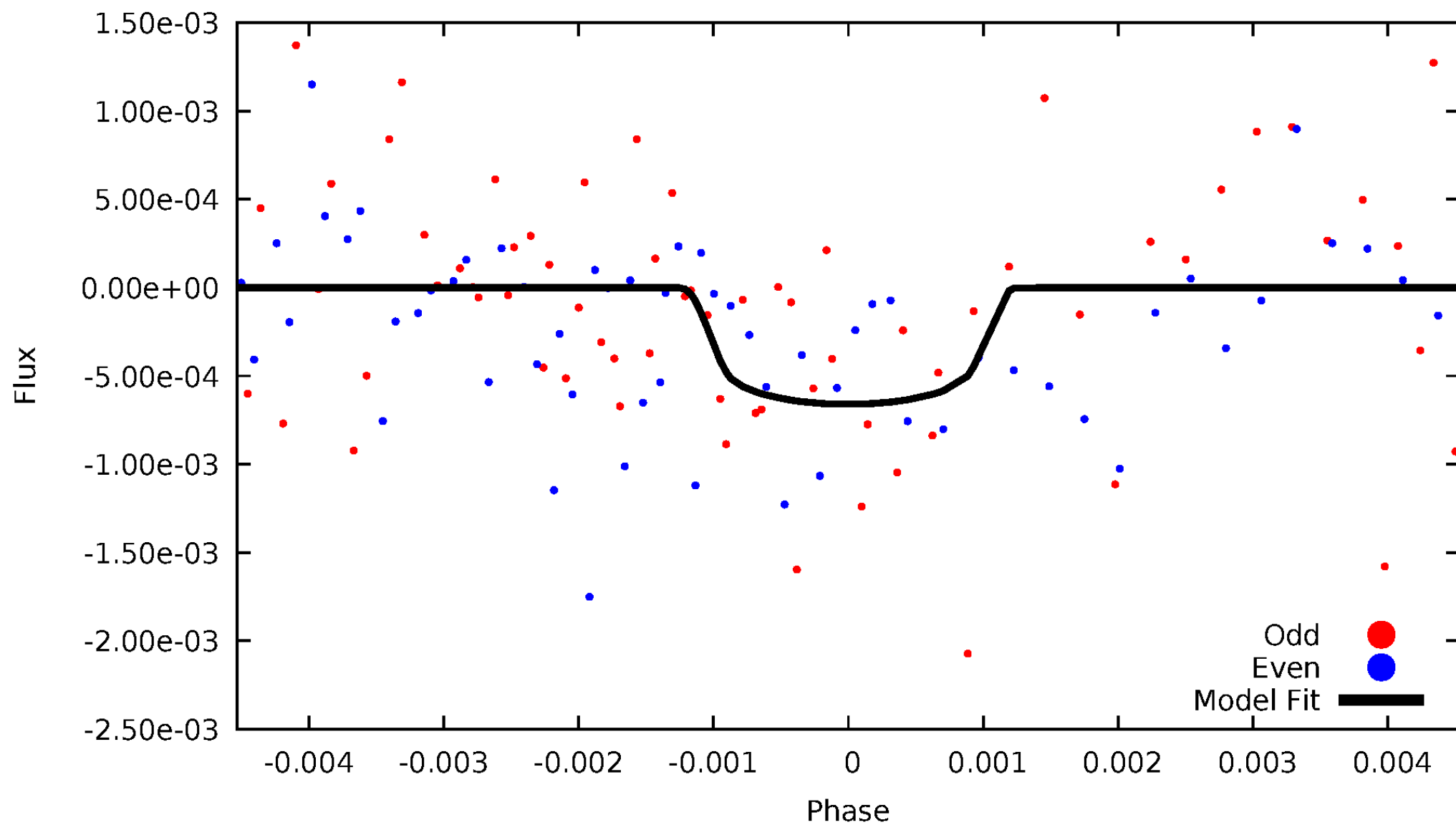


TCE 012884589-09



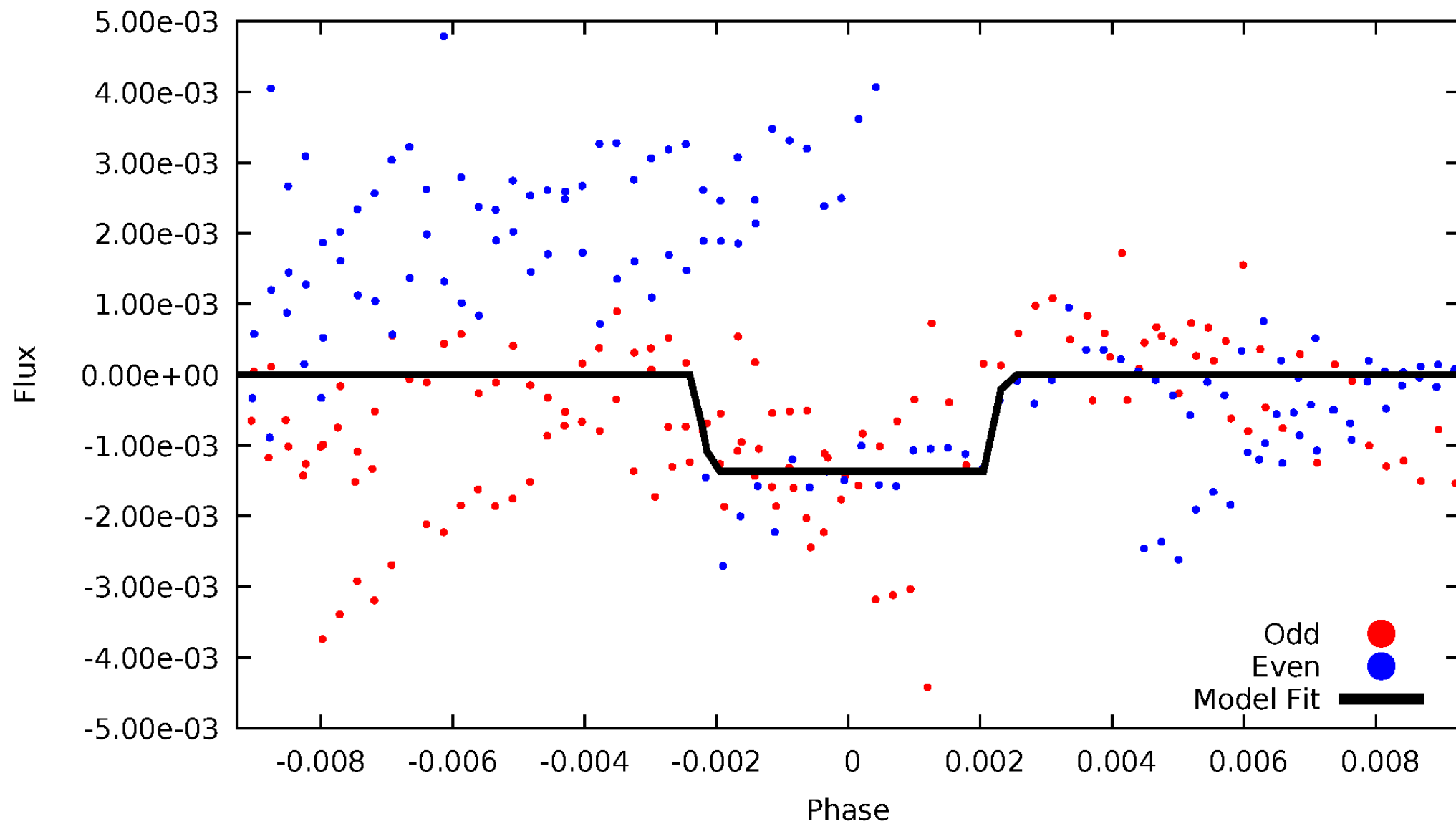
DV Odd/Even

TCE 012884589-09



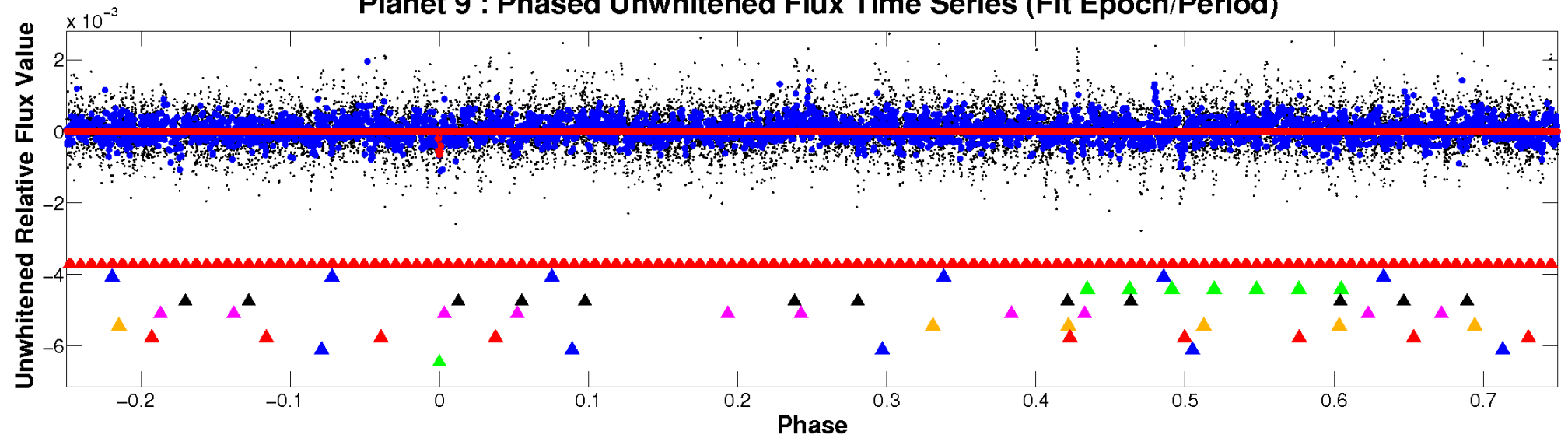
ALT Odd/Even

TCE 012884589-09

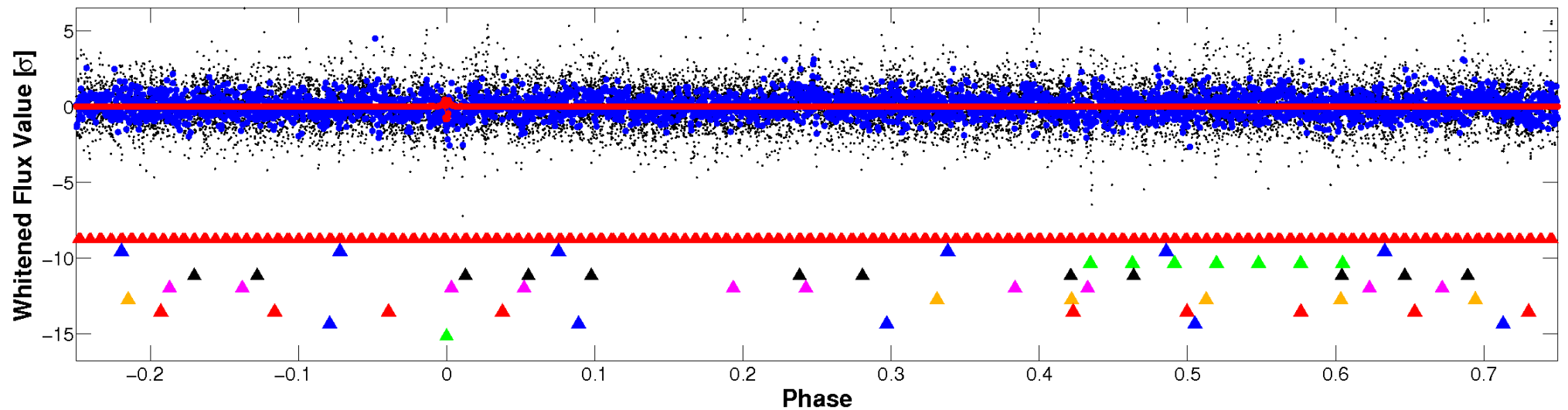


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

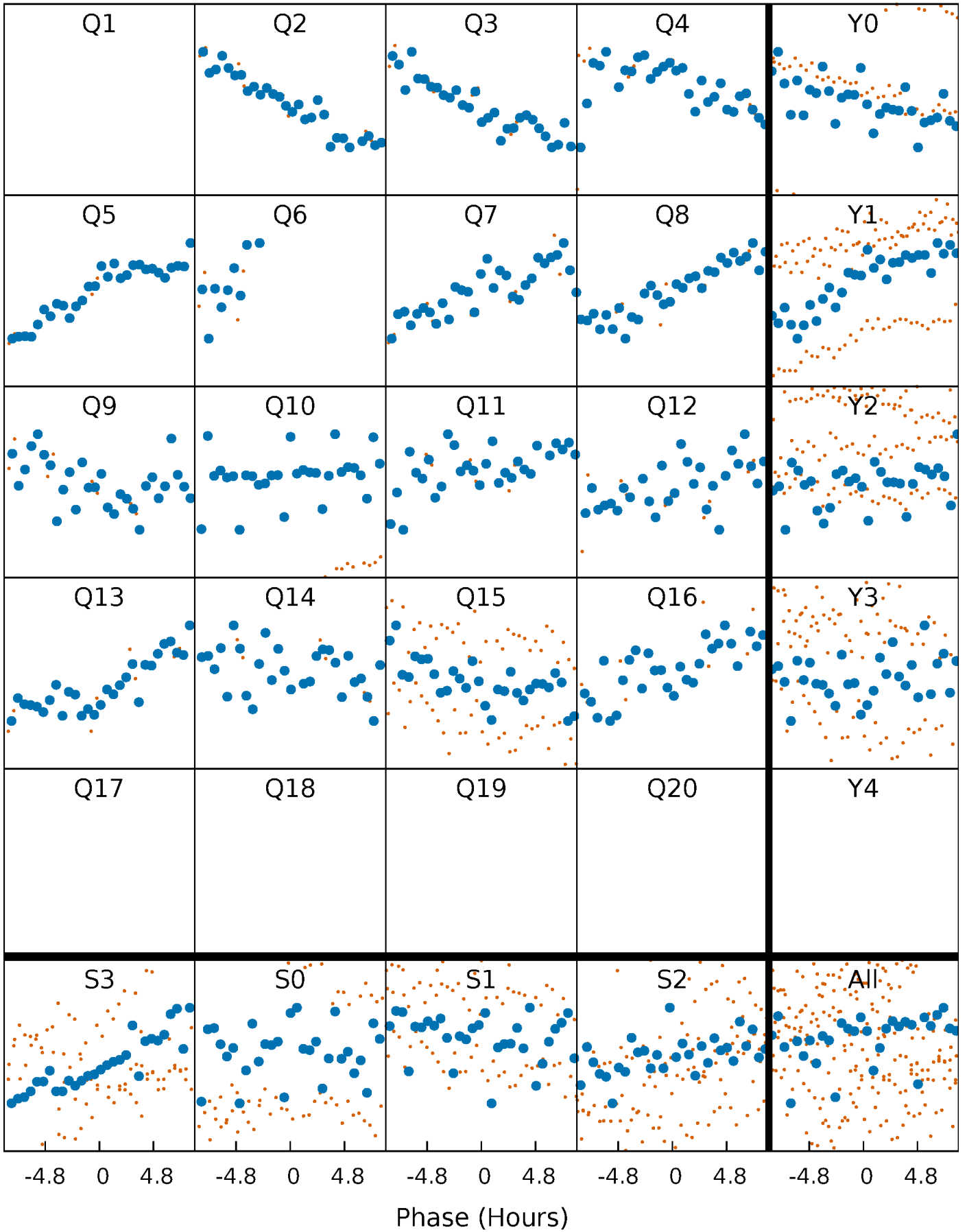


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



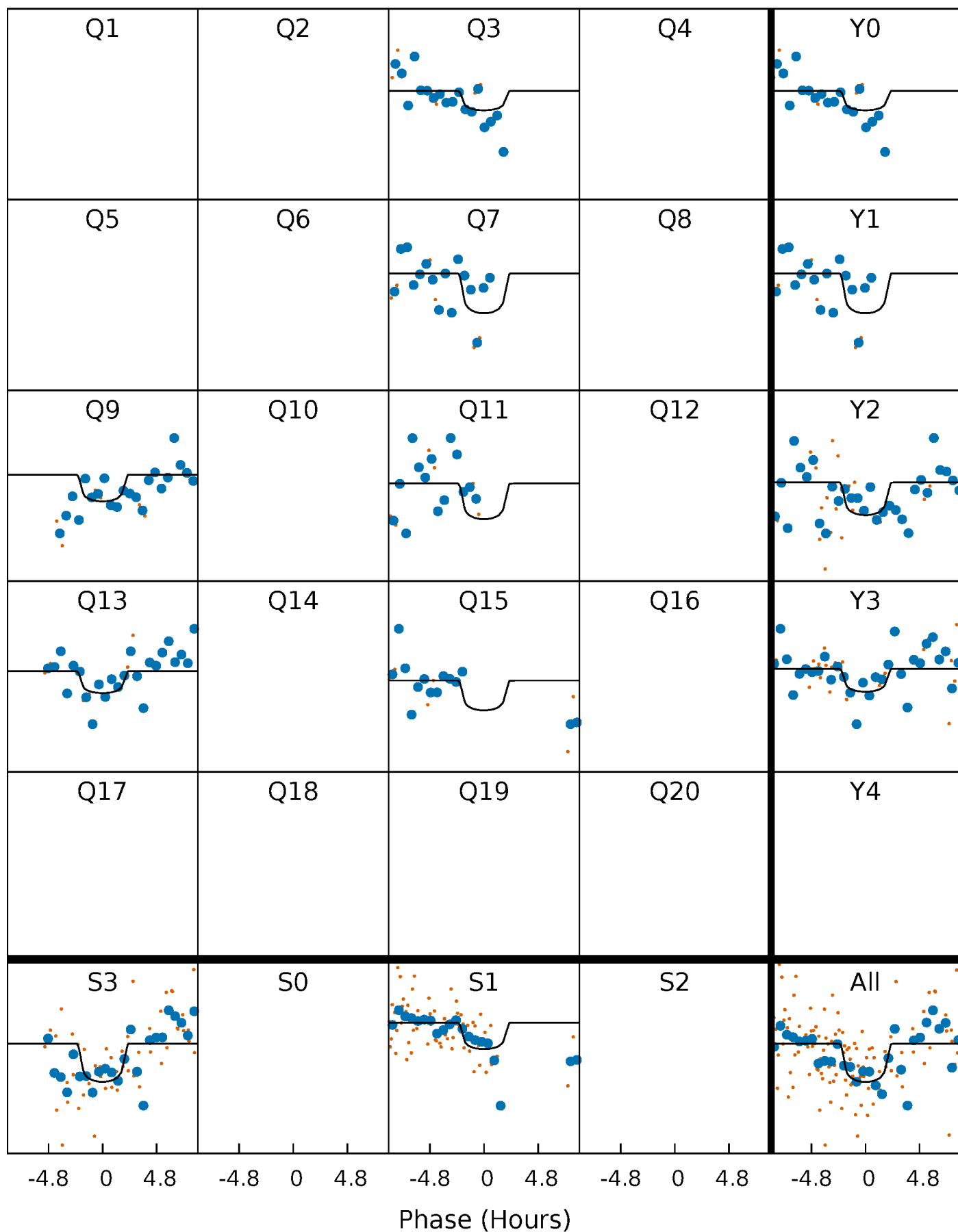
PDC Quarter-Phased Transit Curves

TCE 012884589-09 P= 77.938471 Days $T_0=208.698150$ (BKJD)



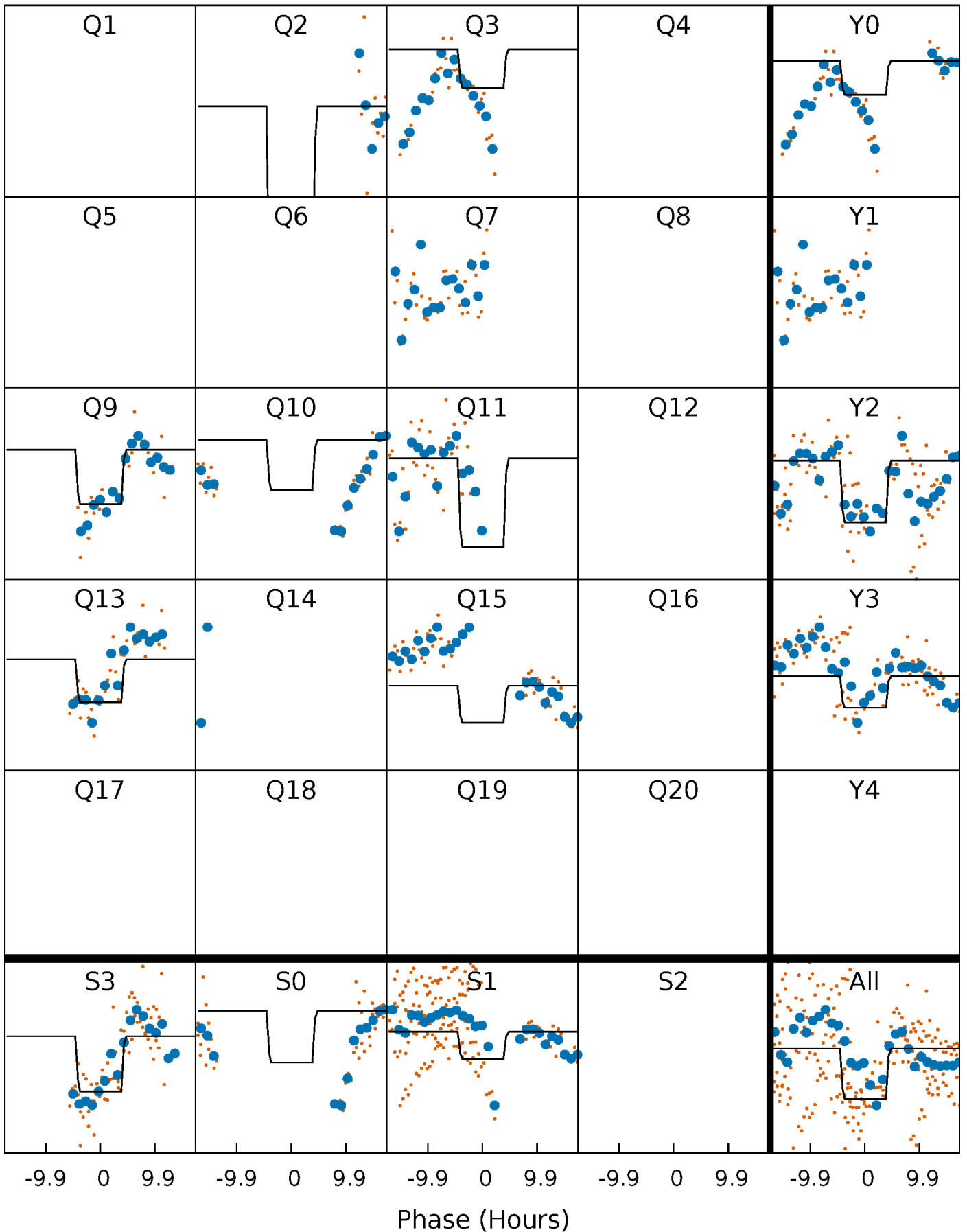
DV Quarter-Phased Transit Curves

TCE 012884589-09 $P = 77.938471$ Days $T_0 = 208.698150$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

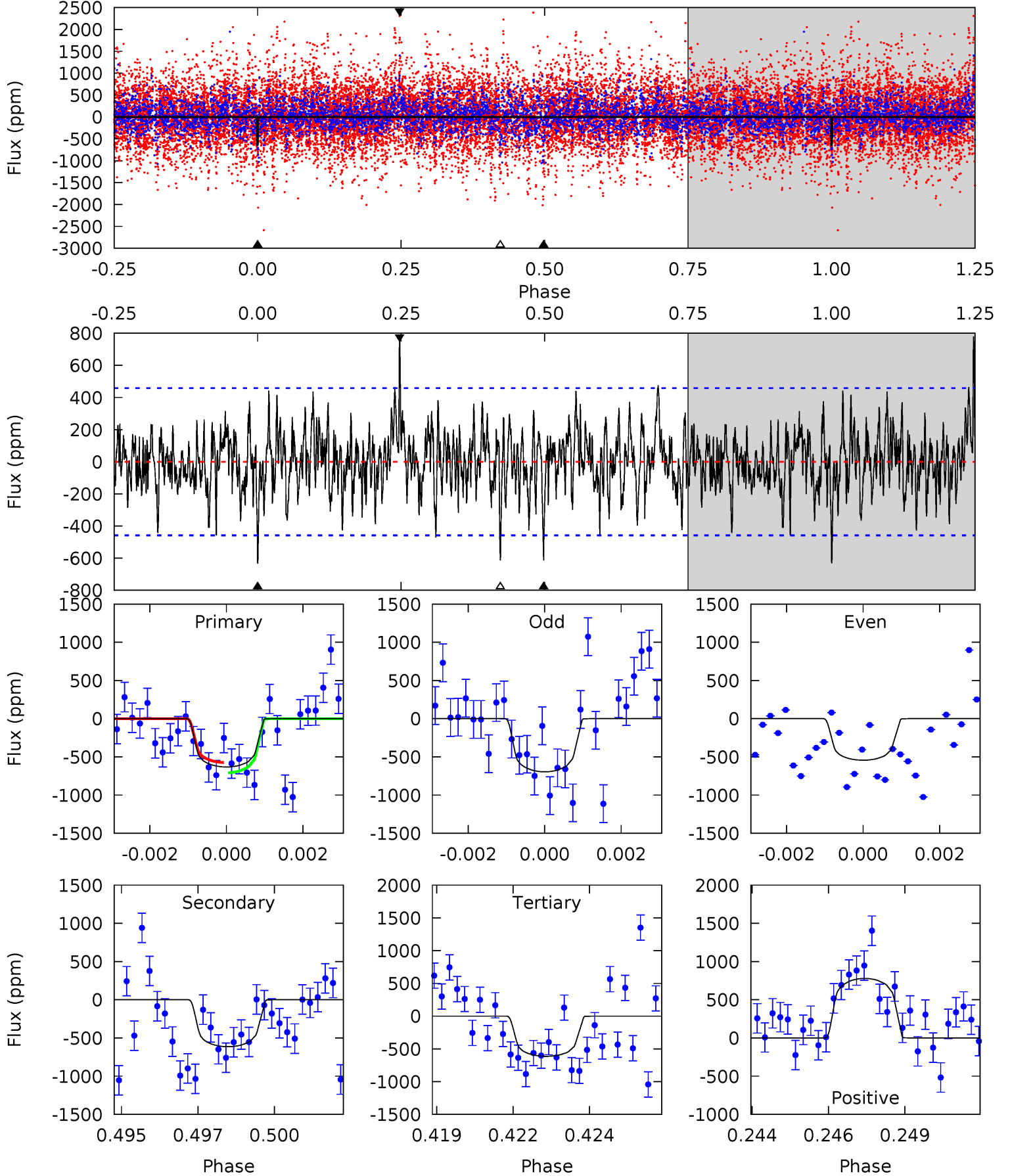
TCE 012884589-09 P= 77.941752 Days $T_0=208.670255$ (BKJD)



DV Model-Shift Uniqueness Test

012884589-09, $P = 77.938471$ Days, $E = 130.759679$ Days

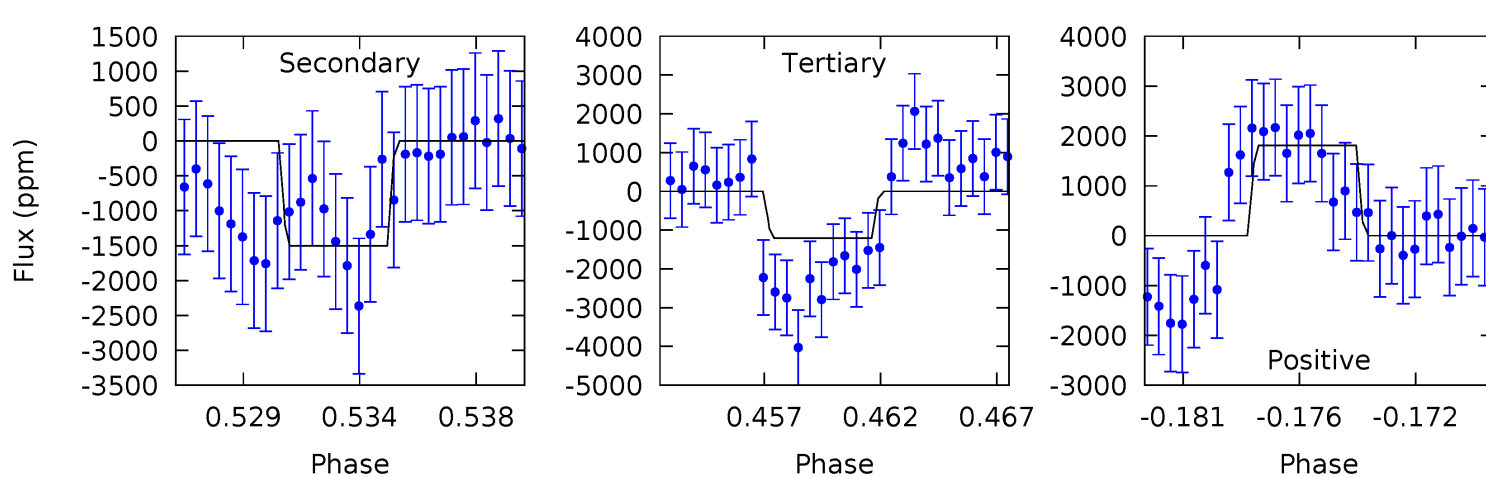
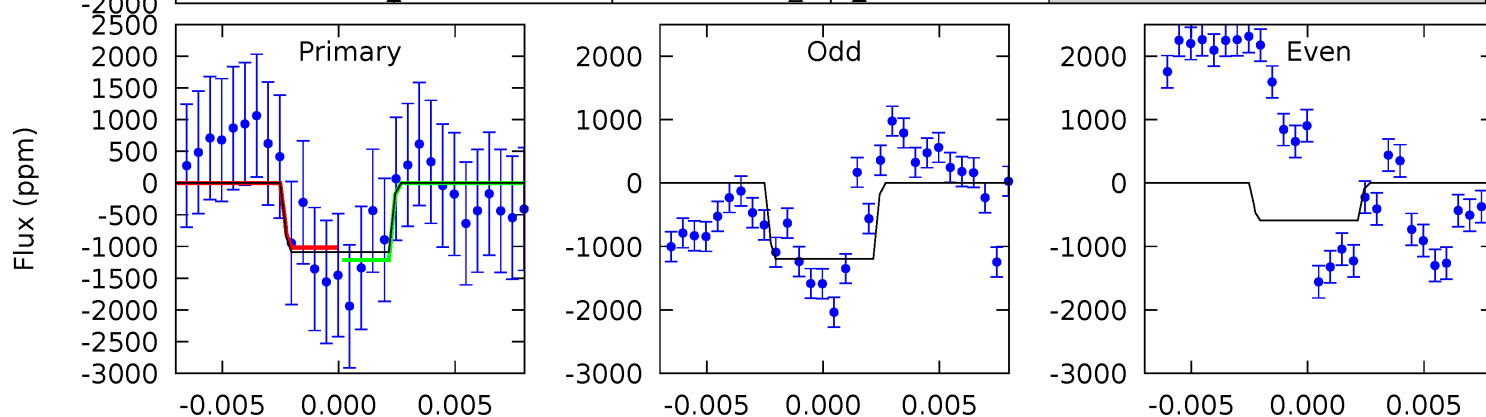
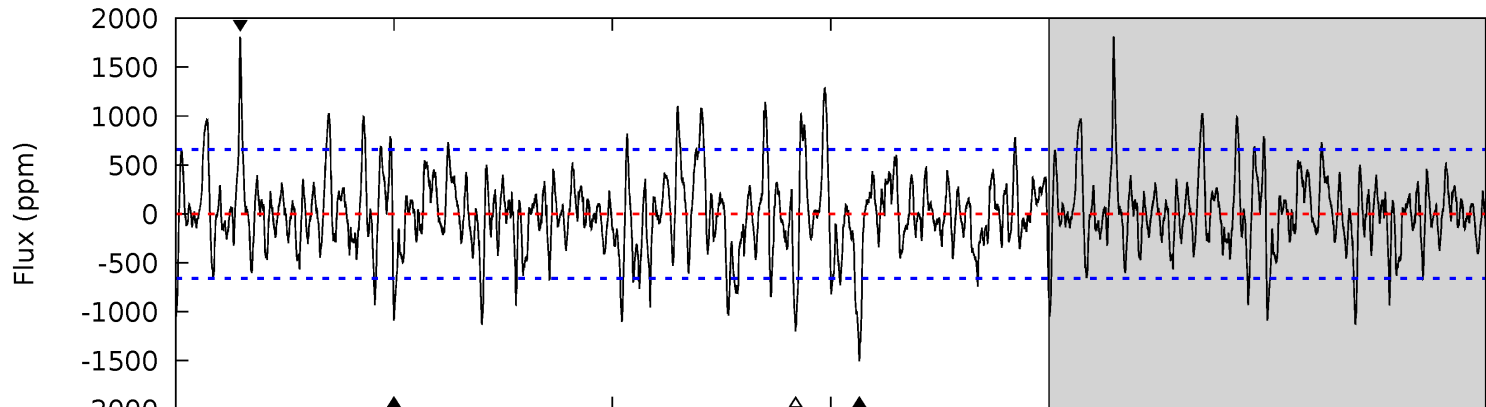
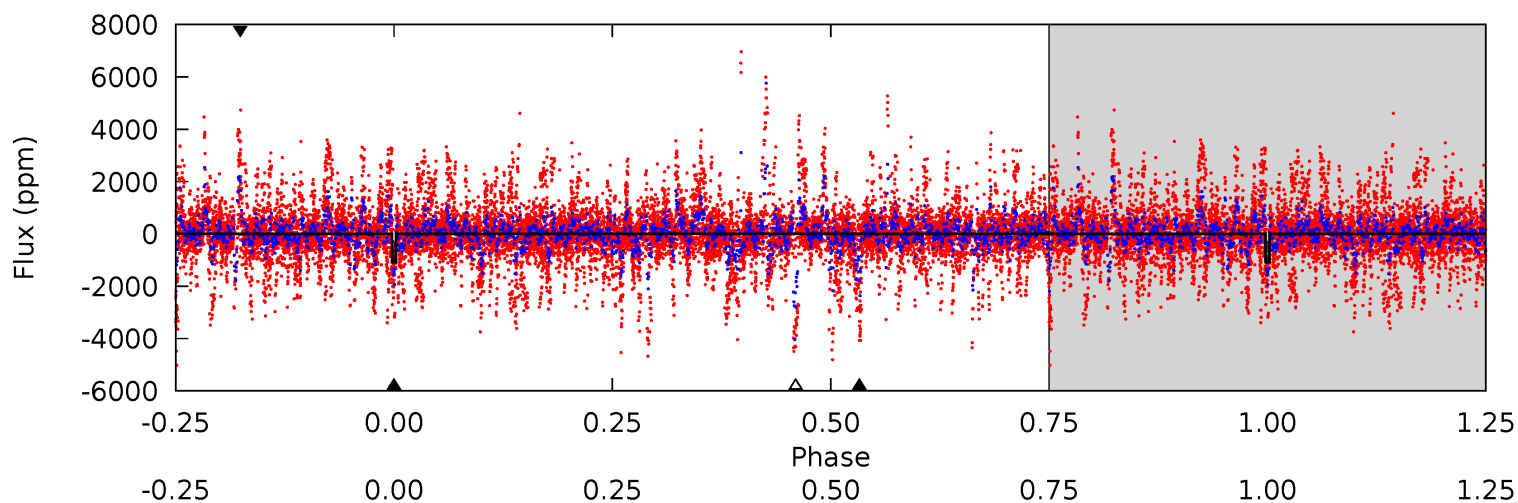
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.30	7.09	7.08	8.99	5.29	3.03	1.87	0.22	-1.69	0.01	-1.91	0.86	1.02	0.55	0.76



Alt Model-Shift Uniqueness Test

012884589-09, P = 77.941752 Days, E = 130.728503 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.53	11.8	9.43	14.2	5.17	2.82	2.86	-0.90	-5.67	2.37	-2.40	1.94	-0.04	0.55	0.75



Stellar Parameters For KIC 012884589

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6147^{+190}_{-253}	$4.435^{+0.054}_{-0.216}$	$0.210^{+0.150}_{-0.300}$	$1.096^{+0.355}_{-0.118}$	$1.193^{+0.147}_{-0.164}$	$1.275^{+0.292}_{-0.693}$
	+3%/-4%	+1%/-5%	+71%/-143%	+32%/-11%	+12%/-14%	+23%/-54%
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 012884589-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-614 \pm 87	$3.61^{+2.34}_{-2.18}$	660^{+47}_{-36}	5683^{+3742}_{-1106}	3647^{+18216}_{-2352}
Alt.	-1504 \pm 128	$4.77^{+2.59}_{-2.58}$	660^{+47}_{-39}	6284^{+3456}_{-1192}	5177^{+19780}_{-2982}

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

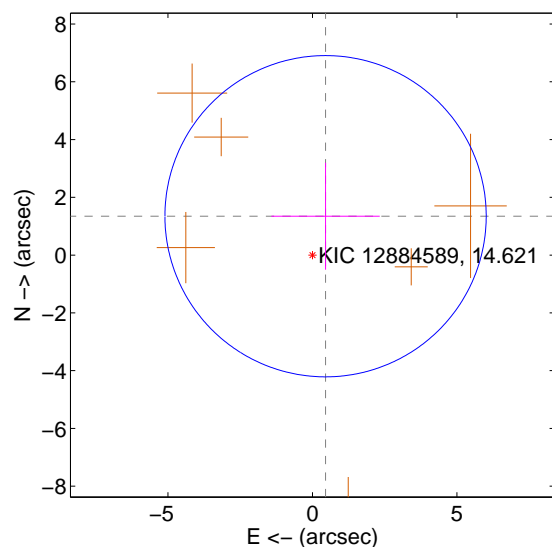
Supplemental centroid analysis for 012884589-09. Kepler magnitude: 14.62. Transit SNR 4.68

There are 0 quarters with good PRF difference image offsets

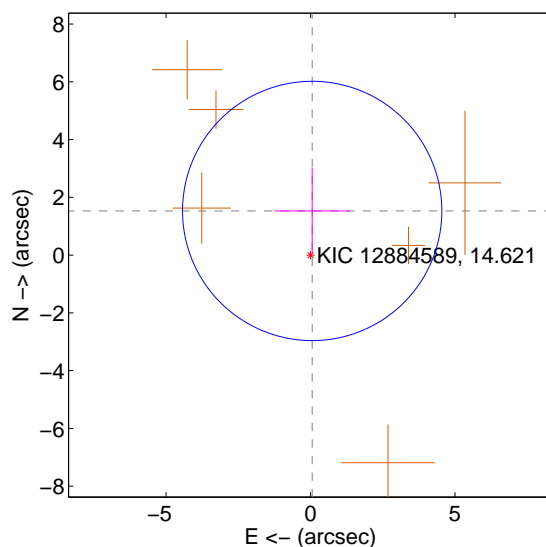
The direct PRF centroid is offset from the target star catalog position by about 0.96 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.420 ± 1.853	0.77	-0.454 ± 1.874	1.346 ± 1.851
PRF-fit source offset from KIC position	1.529 ± 1.496	1.02	-0.057 ± 1.305	1.528 ± 1.496
photometric centroid source offset	2.99 ± 0.57	5.29	-1.06 ± 0.49	2.80 ± 0.58

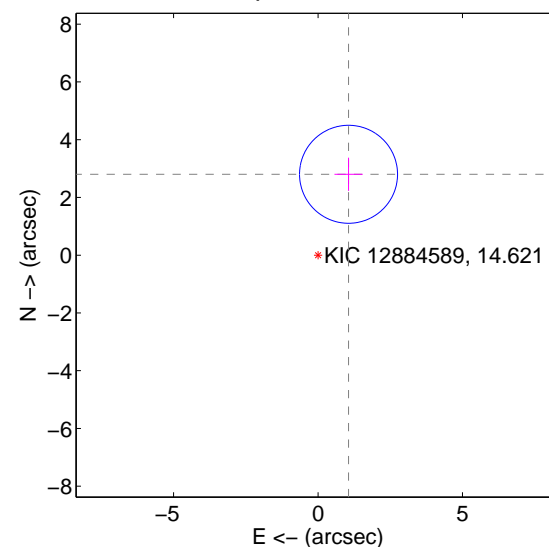
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

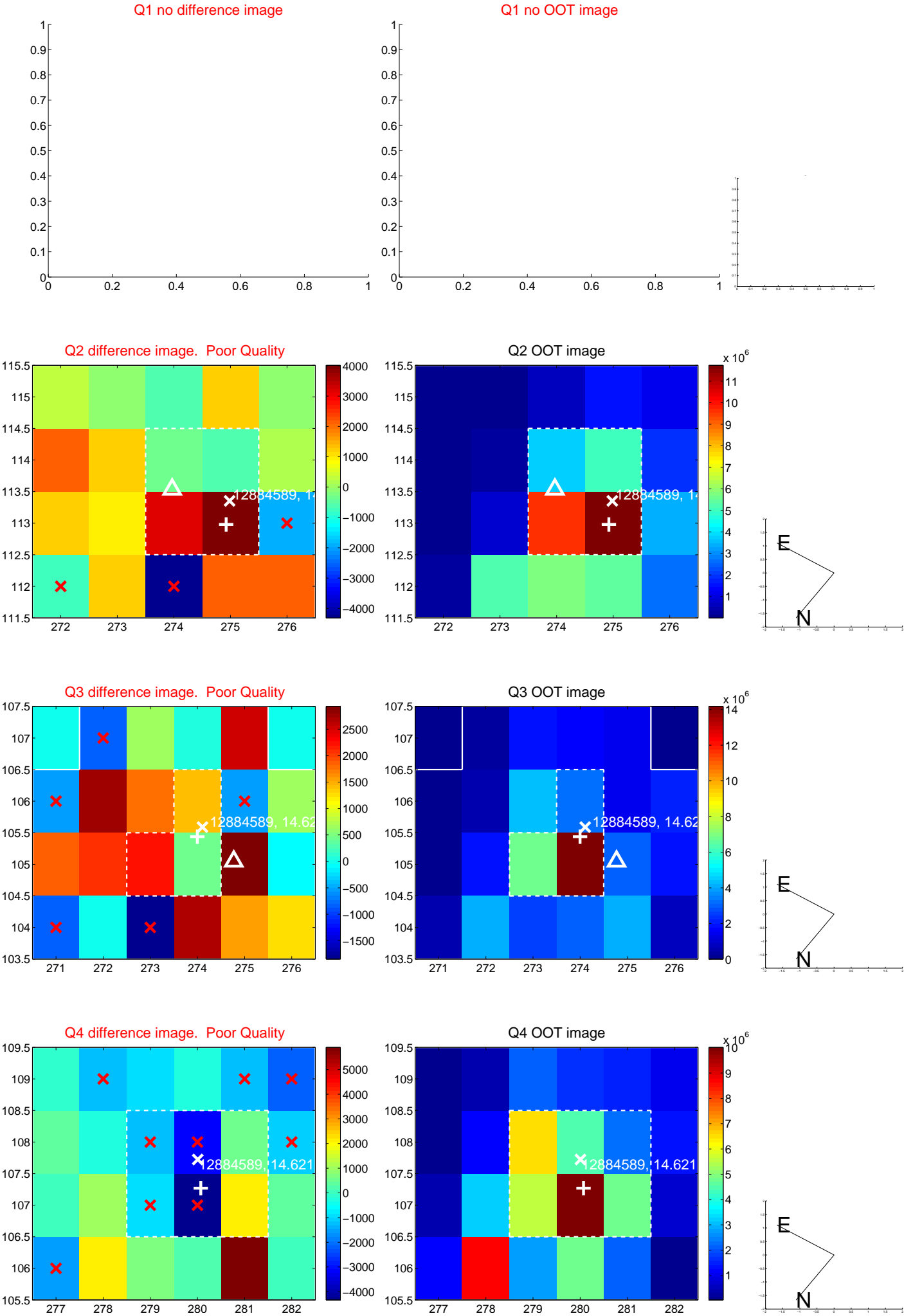


offset from photometric centroids

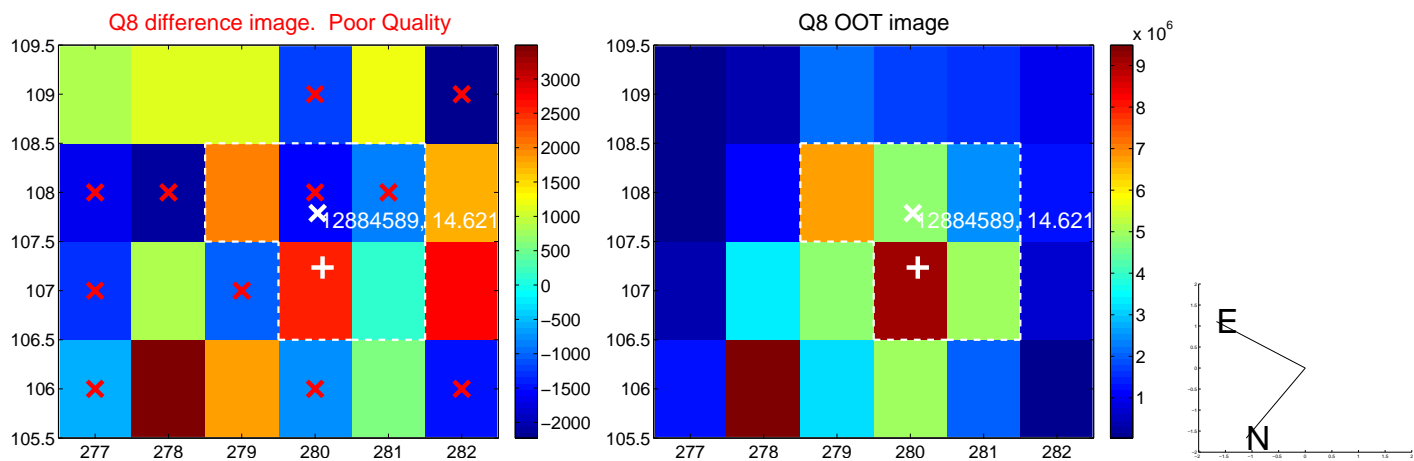
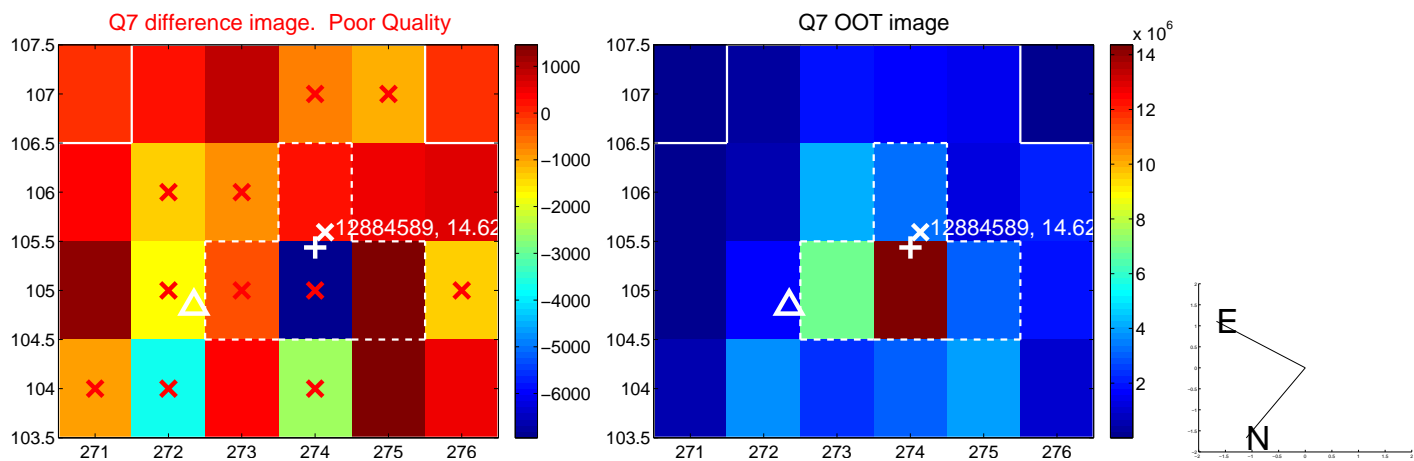
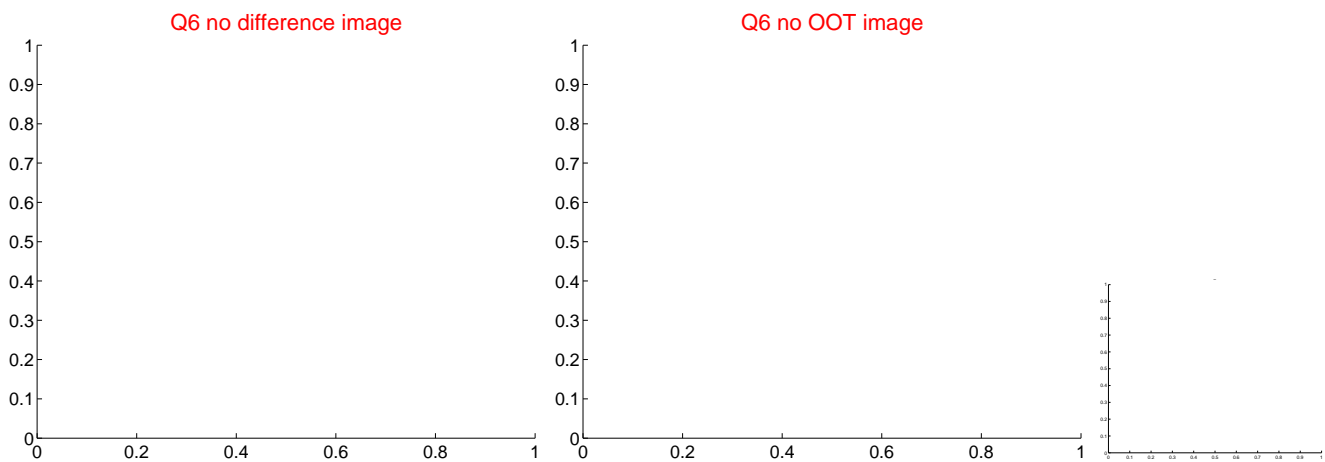
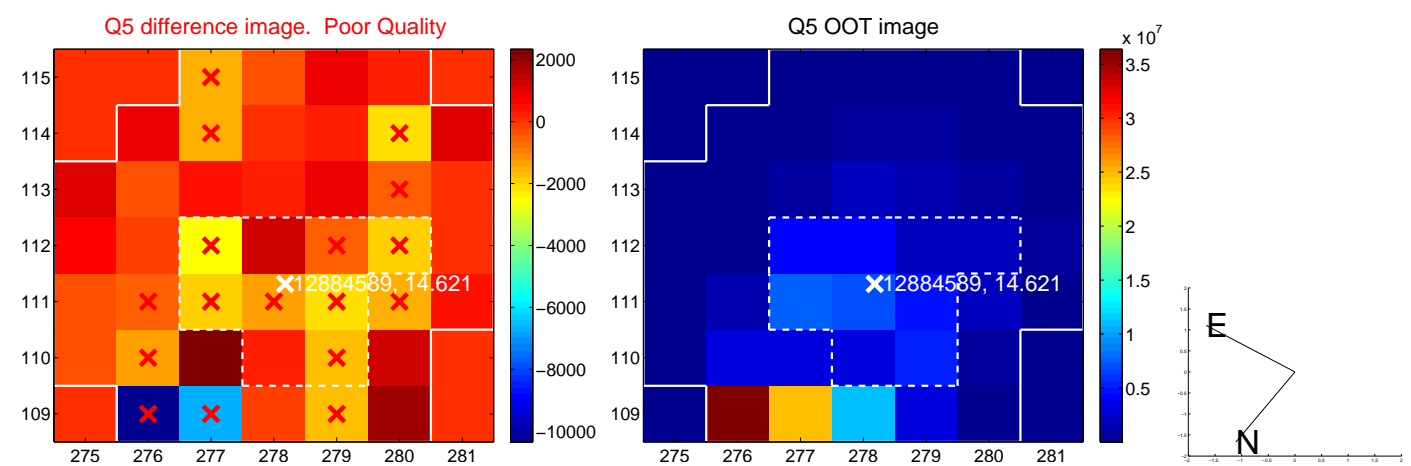


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

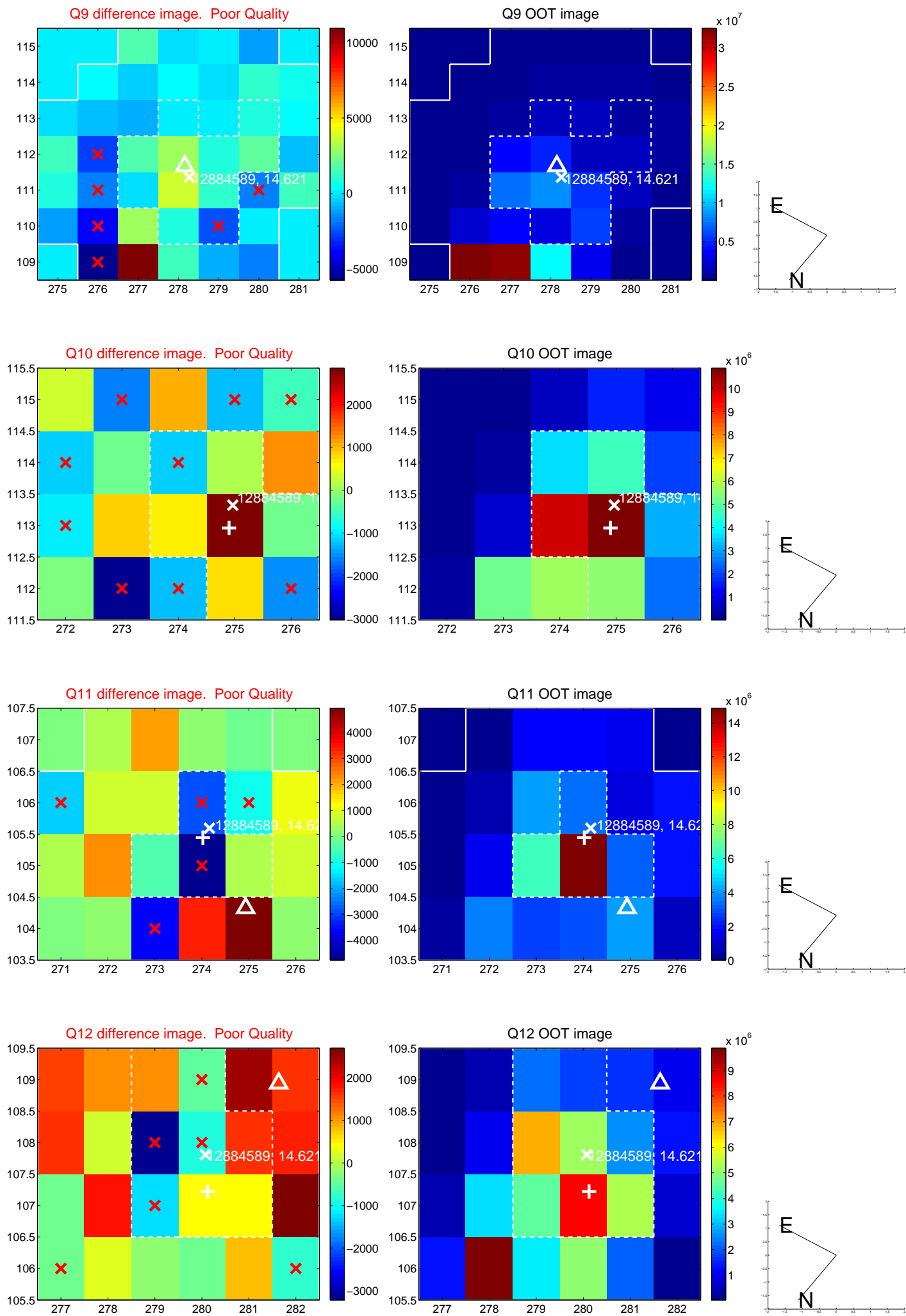
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



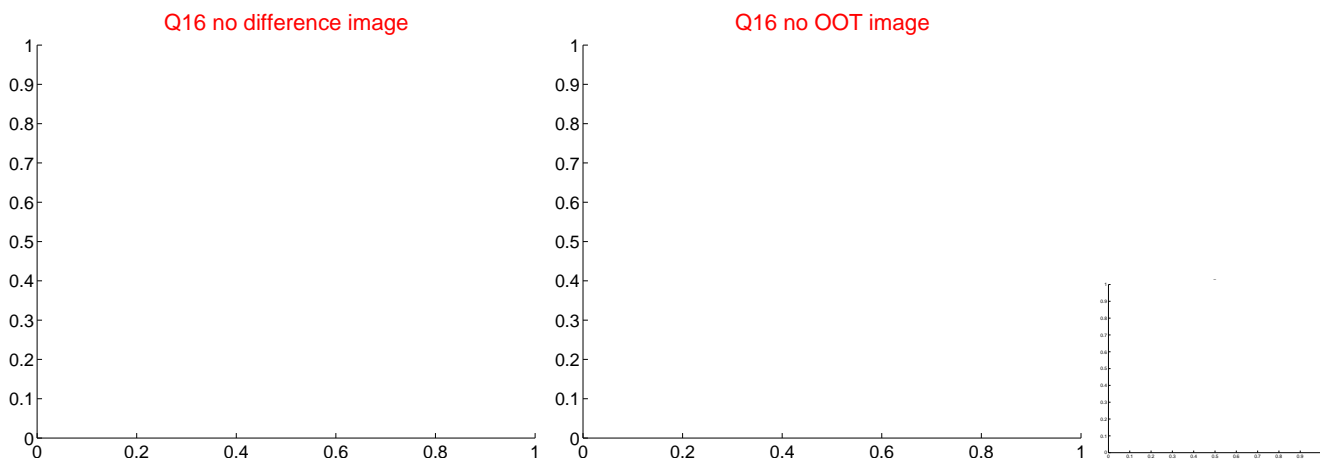
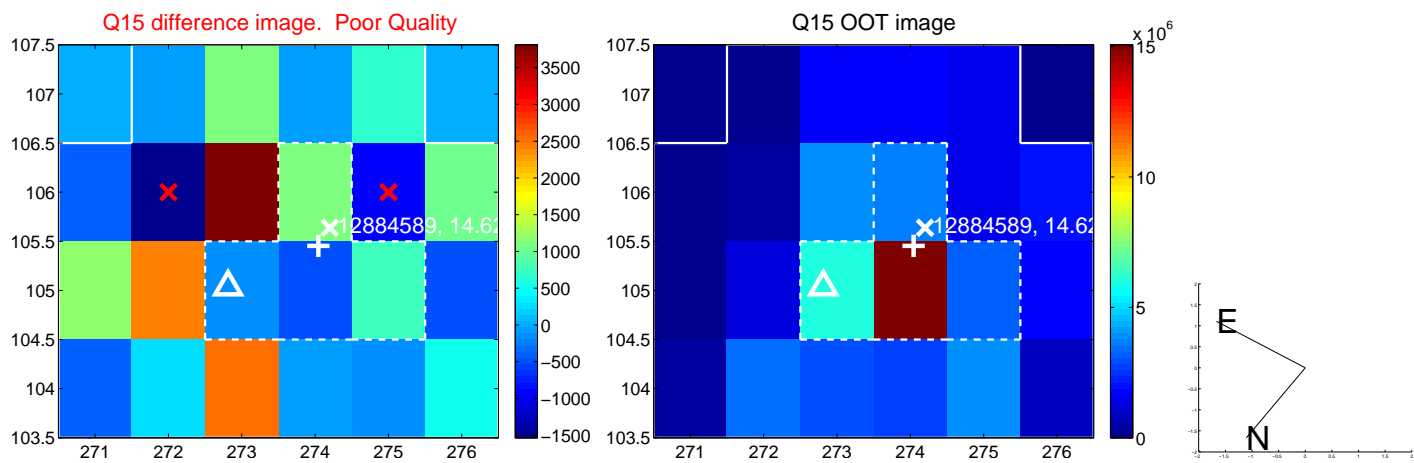
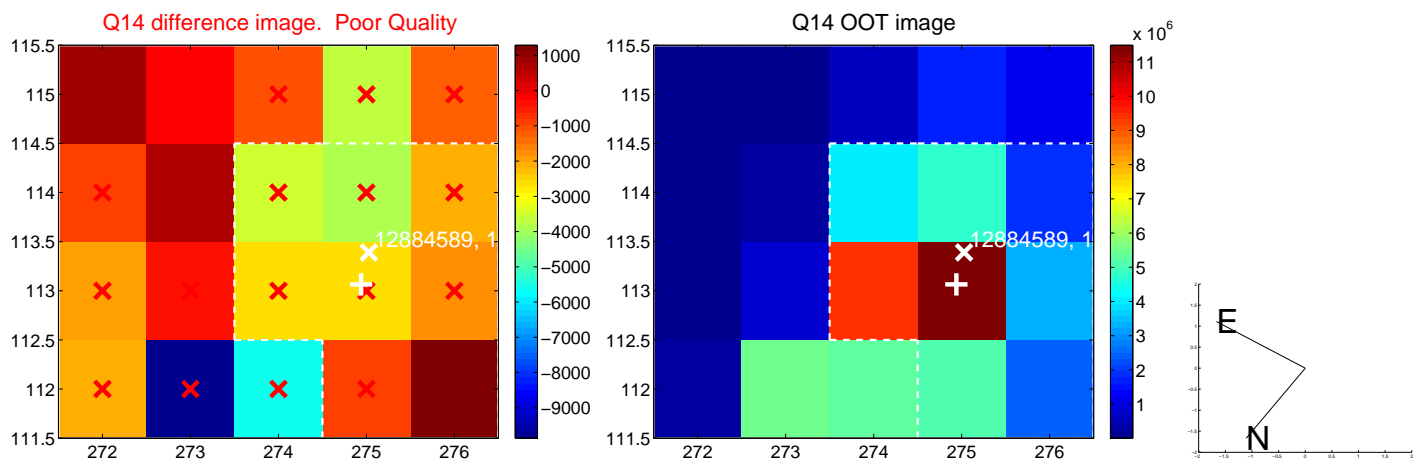
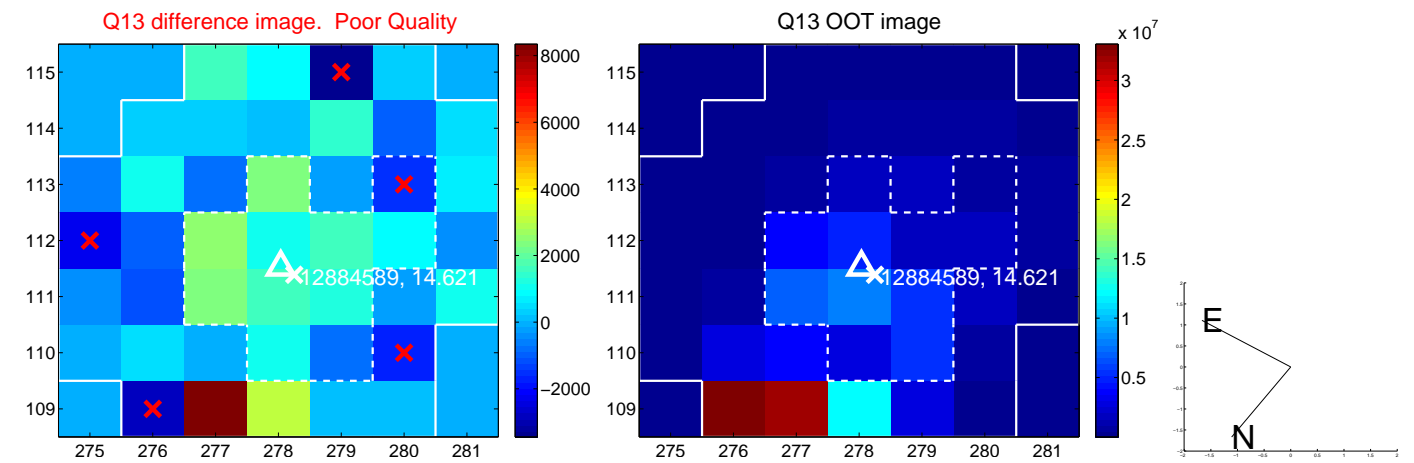
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



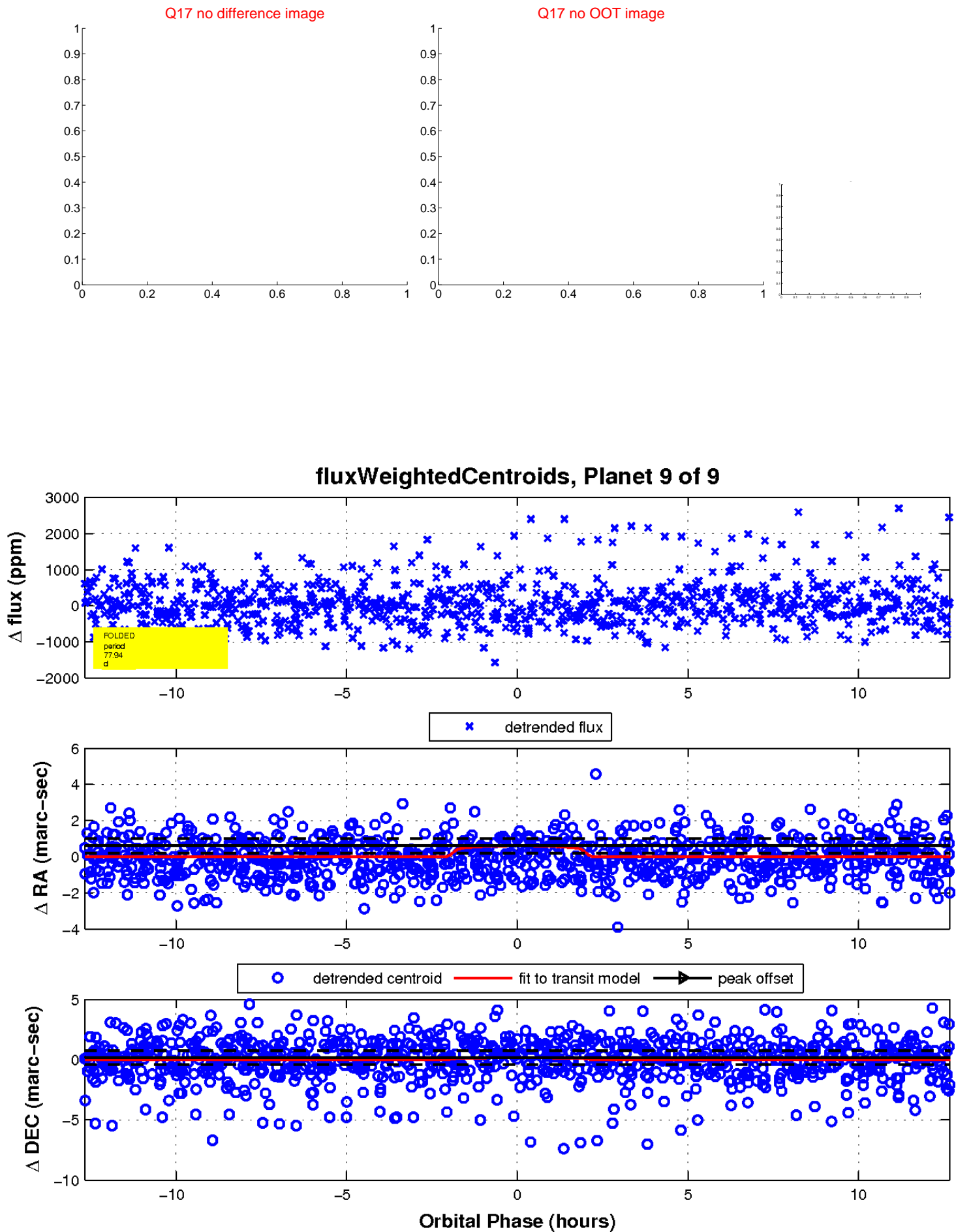
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

