

KIC 008959288

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})
008959288-01	OBS	No	491.626083	394.340555	1340.5	5.480	15.9	7.9	0.72	5191	2.87	0.29
008959288-02	OBS	No	356.770109	202.939752	1275.1	3.867	14.4	8.2	0.72	5191	2.62	0.45
008959288-03	OBS	No	475.553173	561.079381	1064.1	9.219	14.6	5.9	0.72	5191	2.38	0.30
008959288-04	OBS	No	561.692185	392.350191	1312.0	14.264	14.9	7.3	0.72	5191	3.09	0.24
008959288-05	OBS	No	465.408211	356.446112	1363.6	12.423	11.1	8.1	0.72	5191	2.70	0.31
008959288-06	OBS	No	288.114980	293.686359	929.8	16.976	10.7	6.2	0.72	5191	2.16	0.59
008959288-07	OBS	No	309.337500	142.033948	1303.8	6.783	10.7	7.2	0.72	5191	5.13	0.54
008959288-08	OBS	No	483.757722	334.988384	920.5	4.500	10.0	-1.0	0.72	5191	2.14	0.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008959288-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008959288-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
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008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

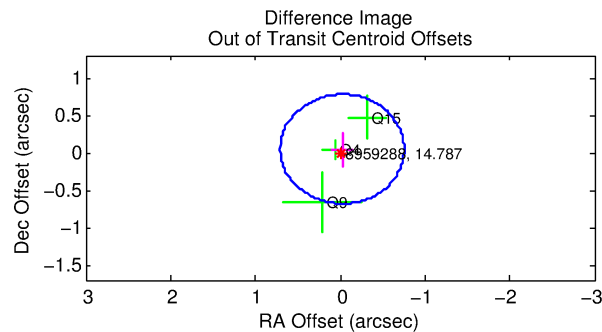
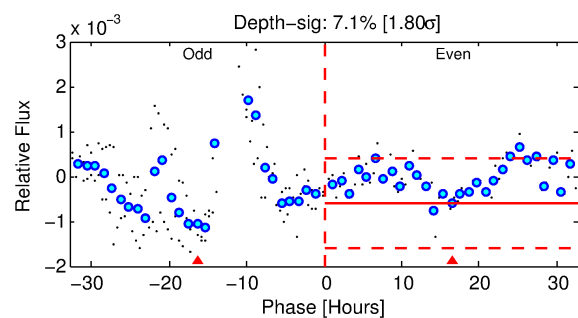
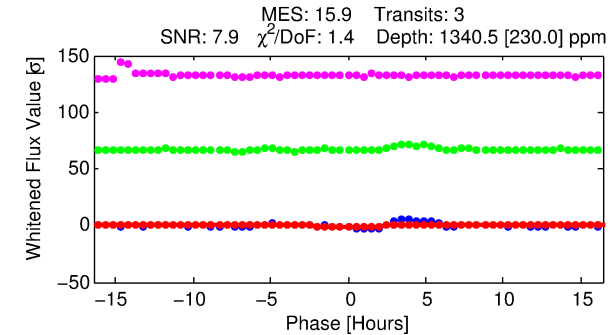
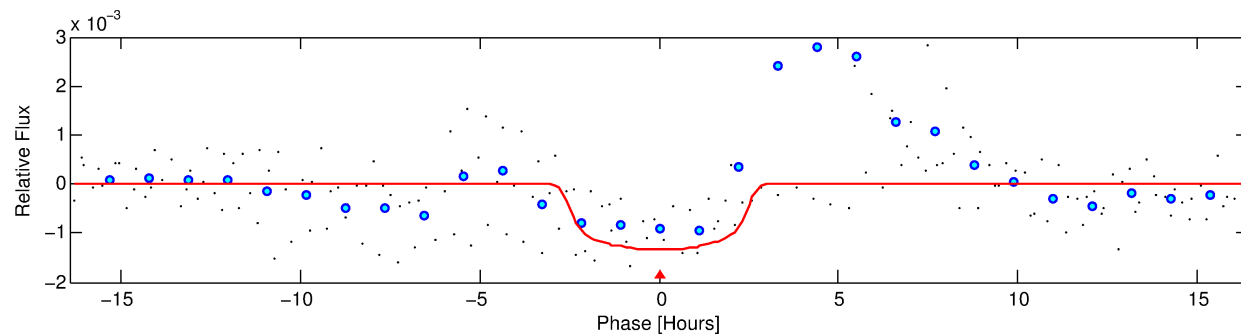
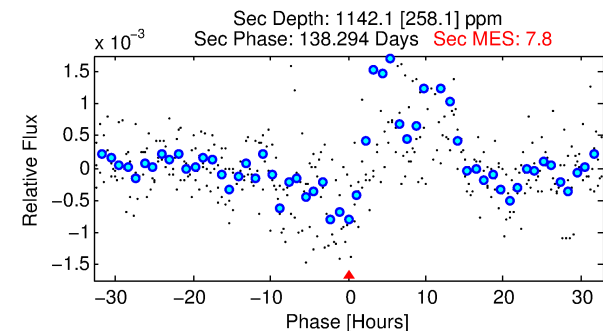
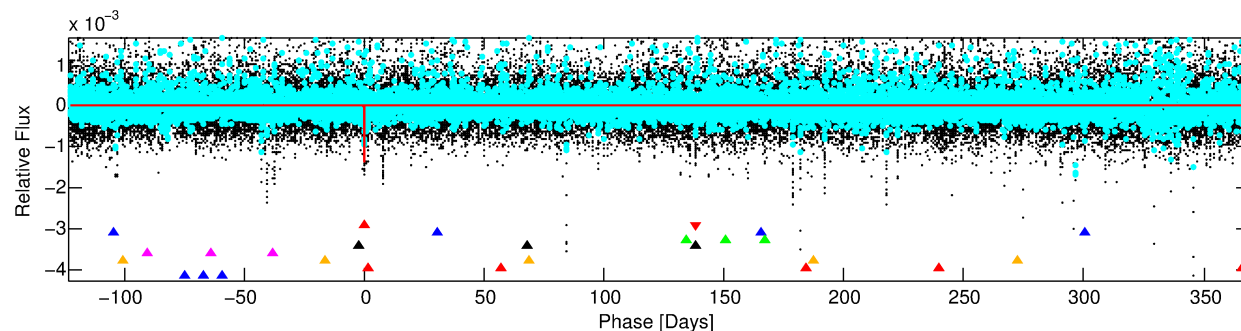
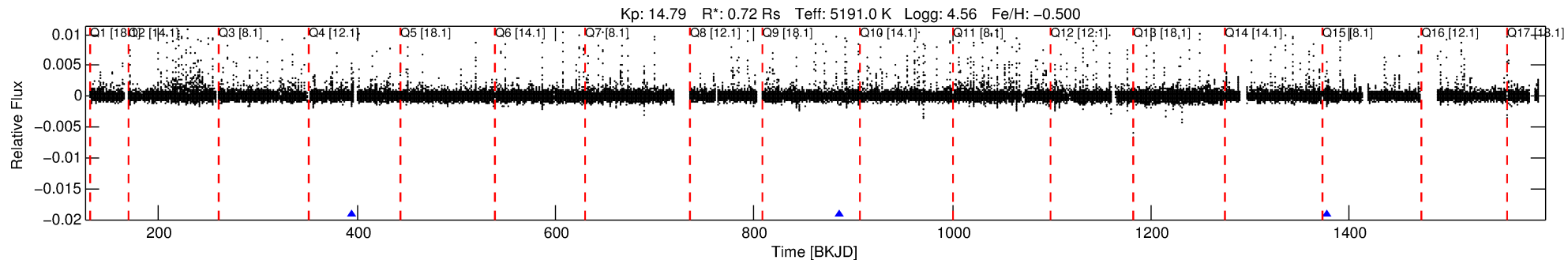
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-01

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 1 of 8 Period: 491.626 d



DV Fit Results:

Period = 491.62608 [0.00661] d
Epoch = 394.3406 [0.0089] BKJD
Rp/R* = 0.0366 [0.0175]
a/R* = 486.02 [875.13]
b = 0.76 [1.03]
Seff = 0.29 [0.06]
Teq = 187 [9] K
Rp = 2.87 [1.41] Re
a = 1.0748 [0.1060] AU
Ag = 87859.92 [87143.83] [1.01σ]
Teff = 4989 [1233] K [3.90σ]

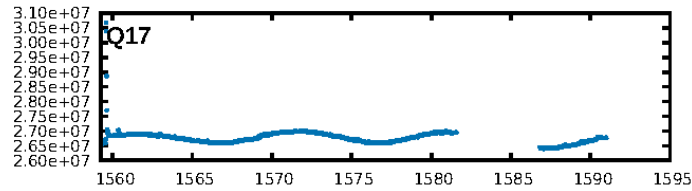
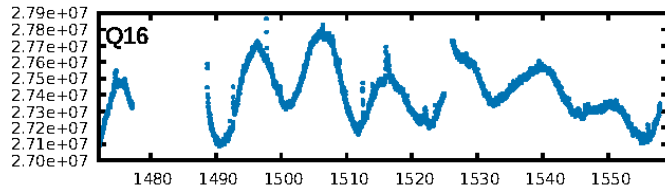
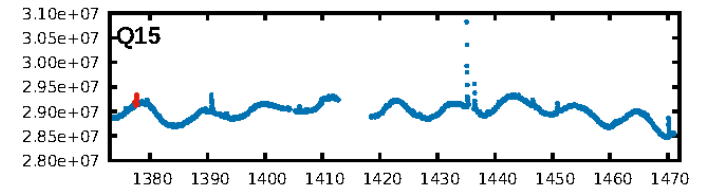
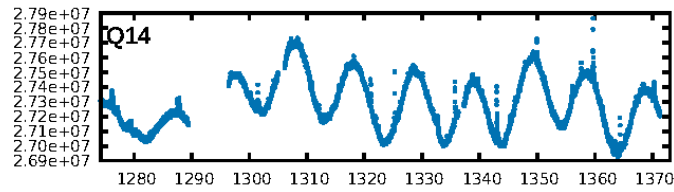
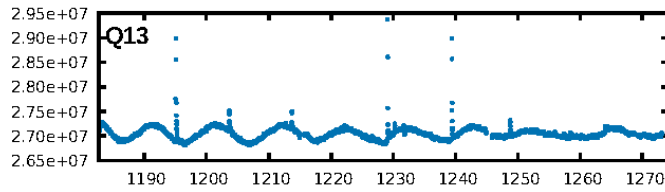
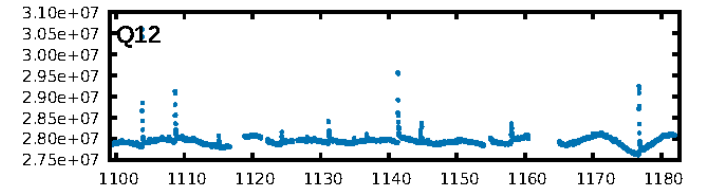
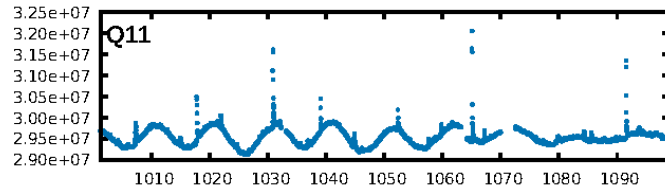
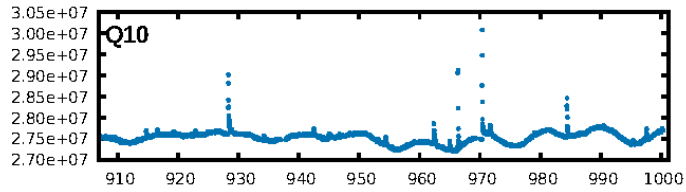
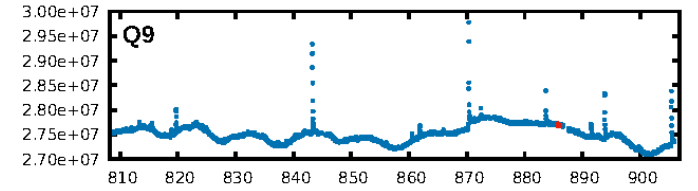
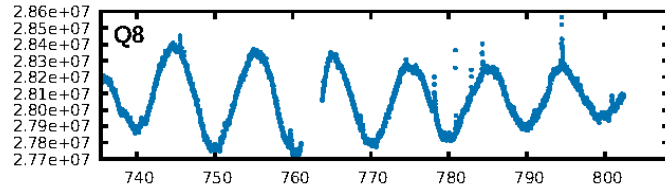
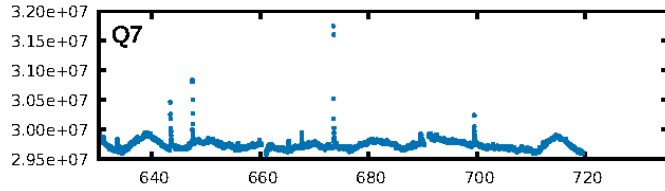
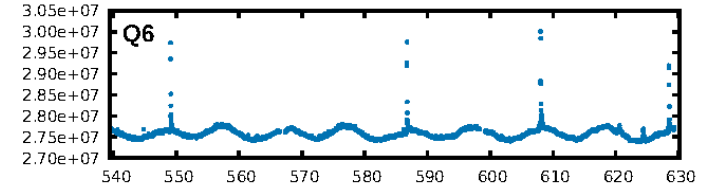
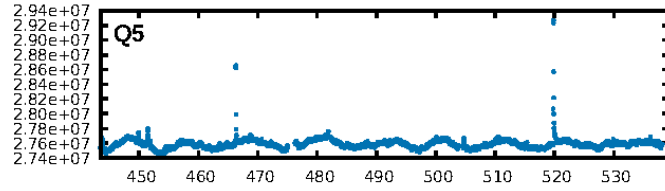
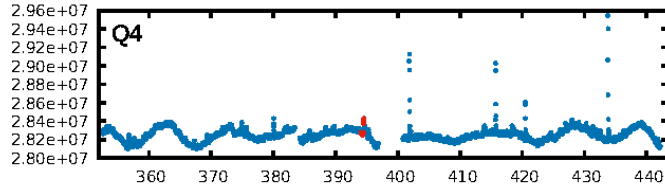
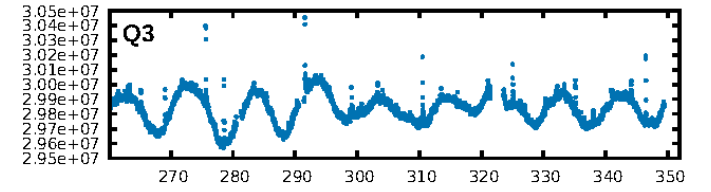
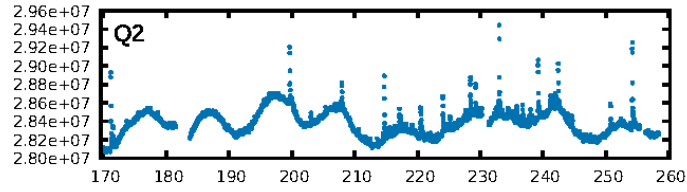
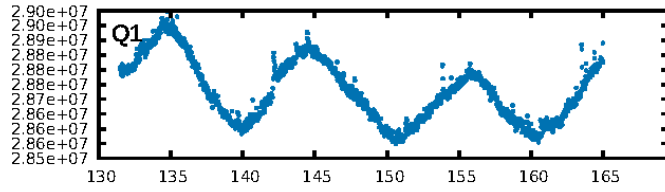
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.63σ]
LongPeriod-sig: 100.0% [110.05σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 51.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.518
Centroid-sig: 27.3%
Centroid-so: 0.784 arcsec [1.27σ]
OotOffset-rm: 0.054 arcsec [0.22σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.022 arcsec [0.07σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

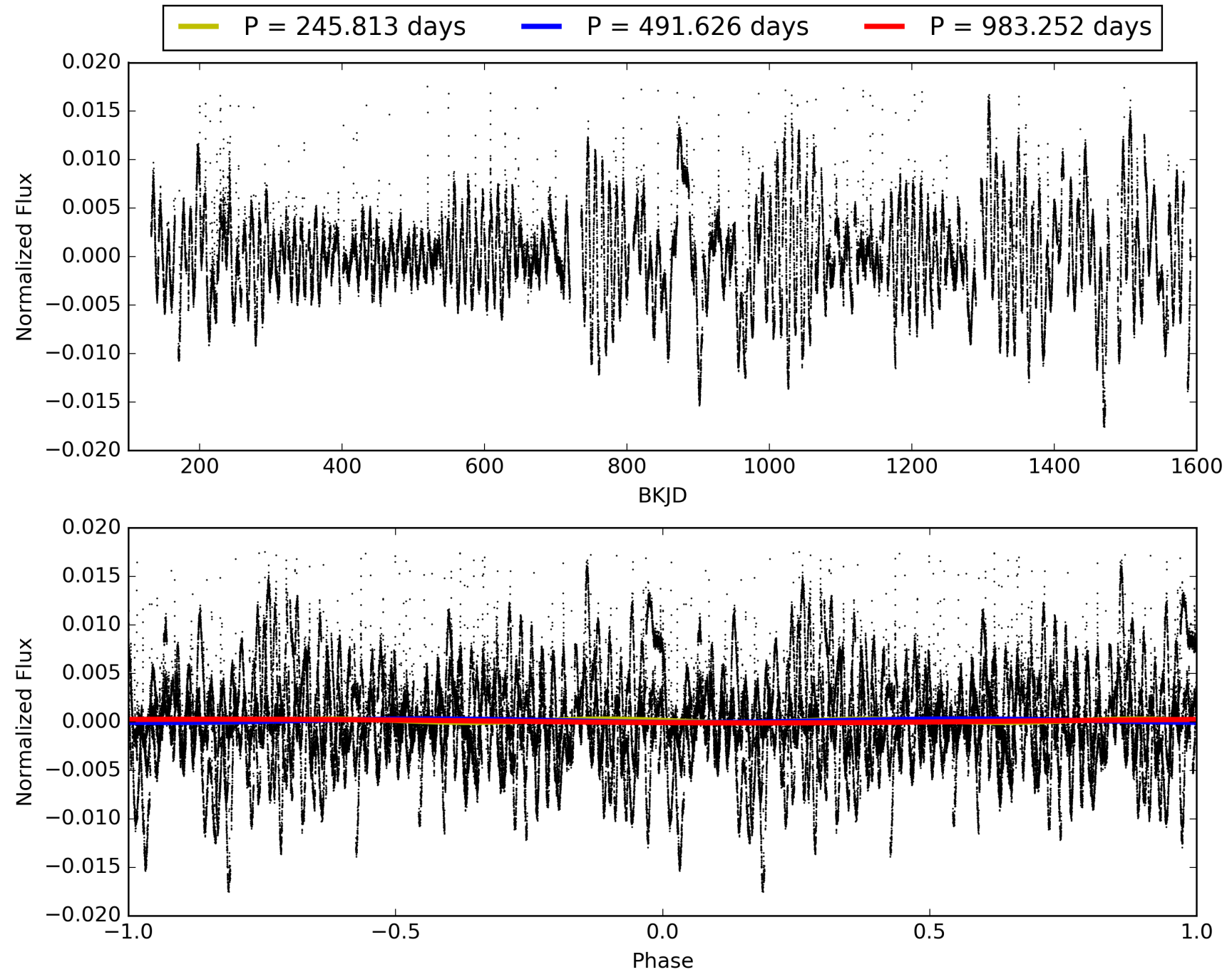
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:40:14 Z

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

TCE 008959288-01, PDC Light Curves

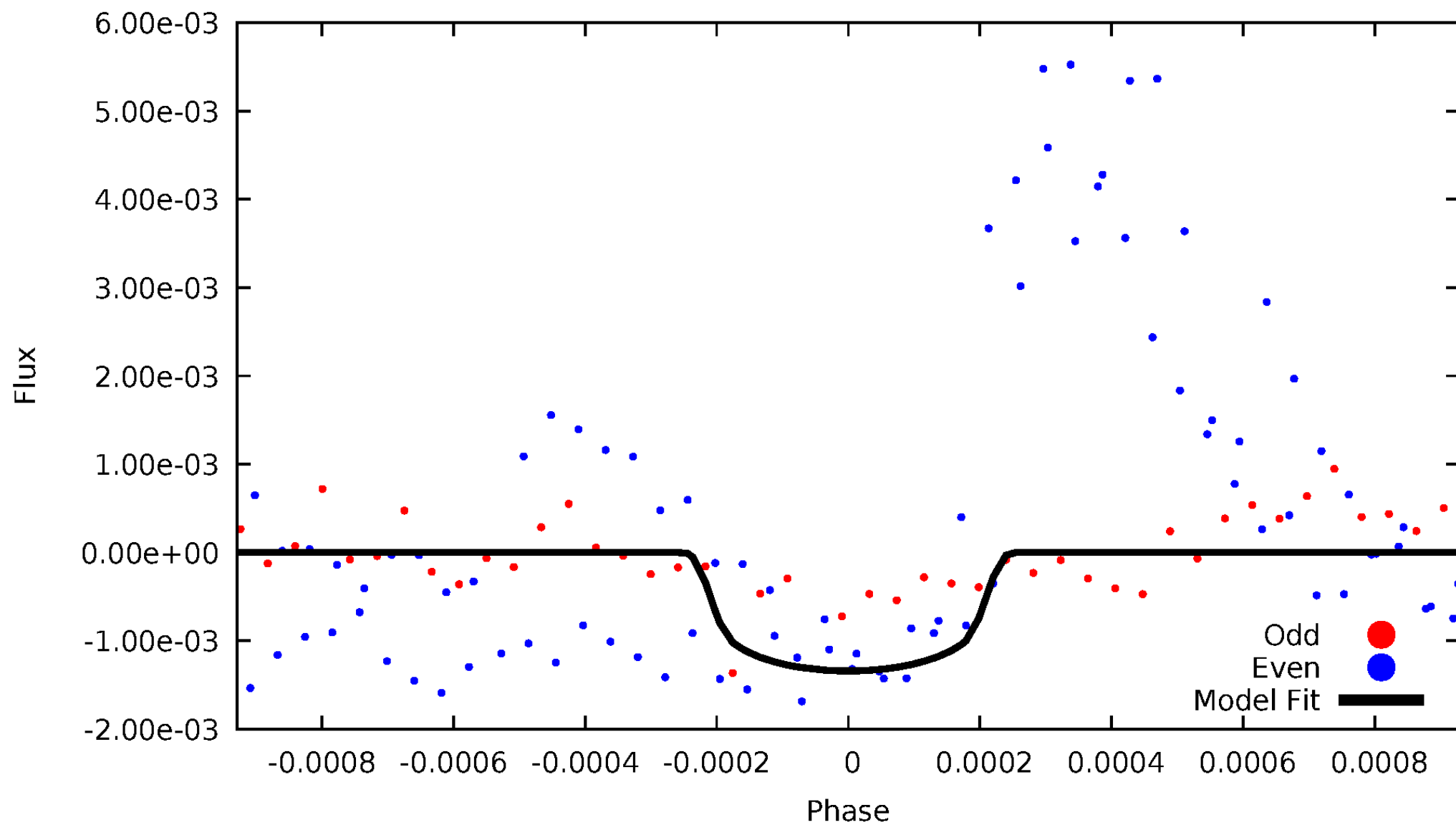


TCE 008959288-01



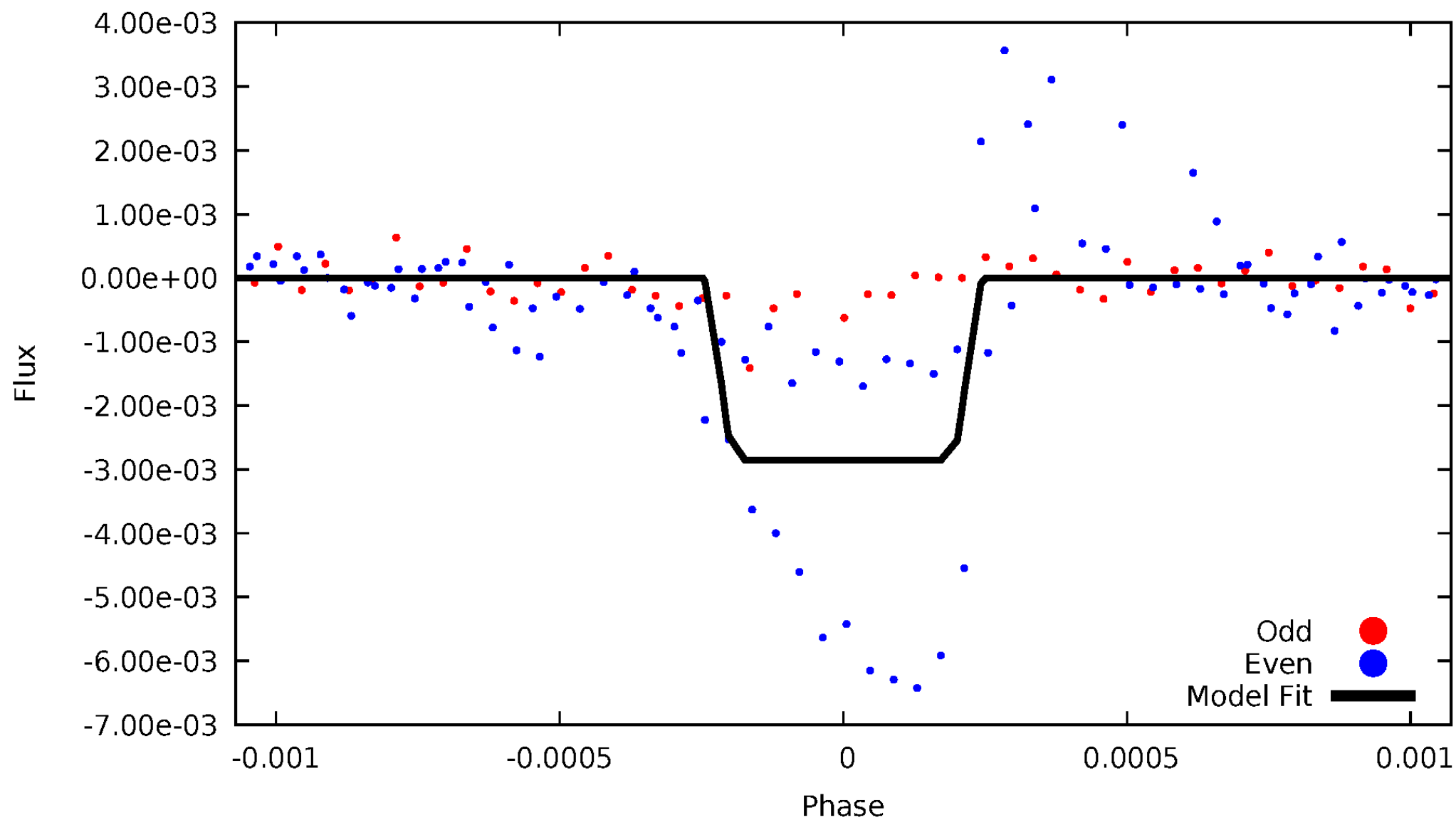
DV Odd/Even

TCE 008959288-01



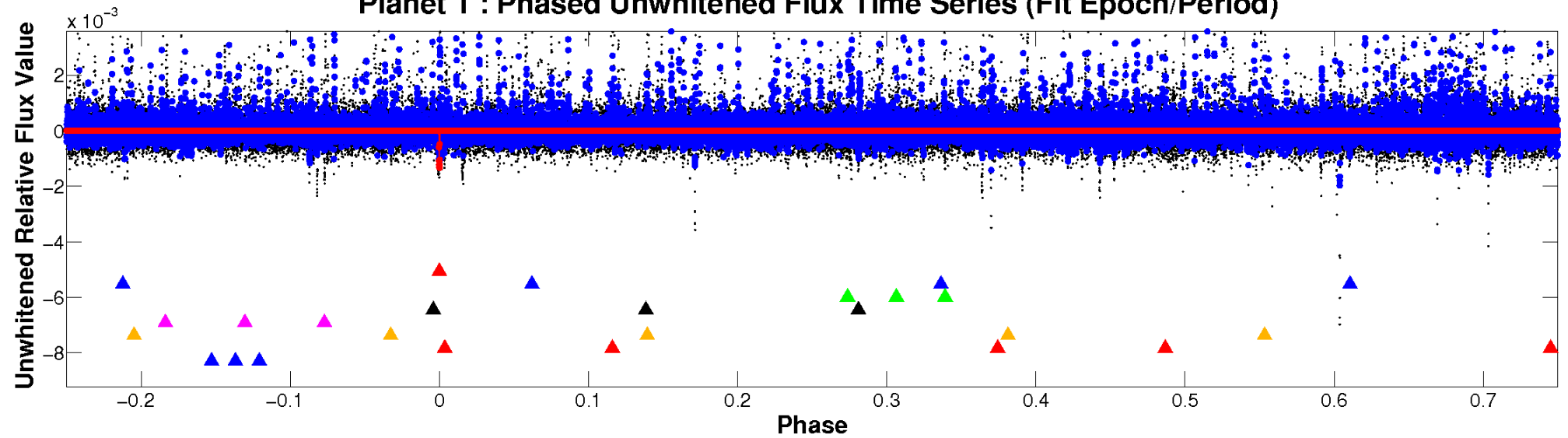
ALT Odd/Even

TCE 008959288-01

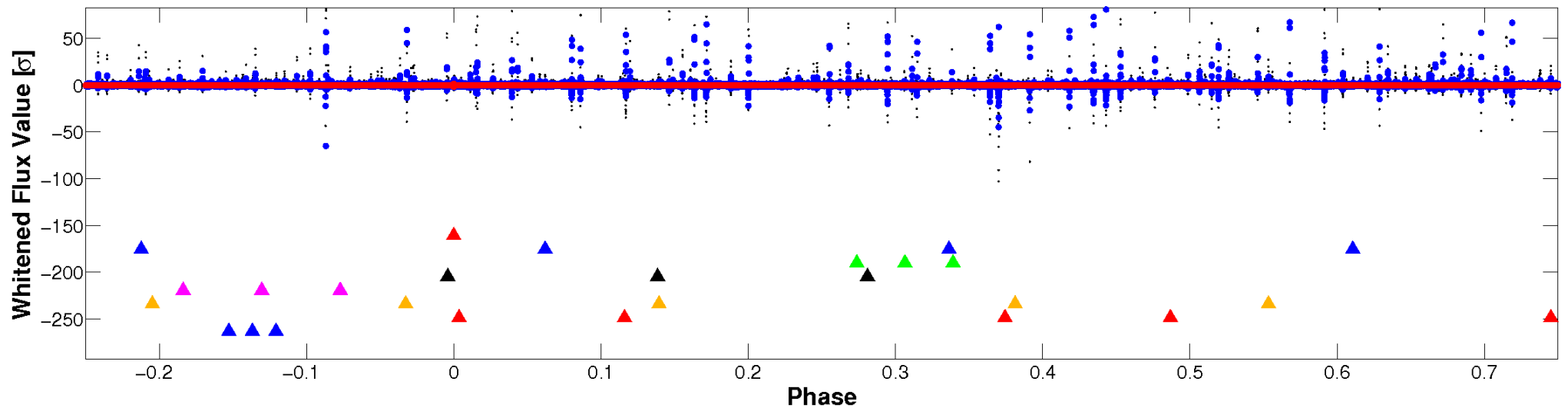


Non-Whitened Vs. Whitened Light Curve

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



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



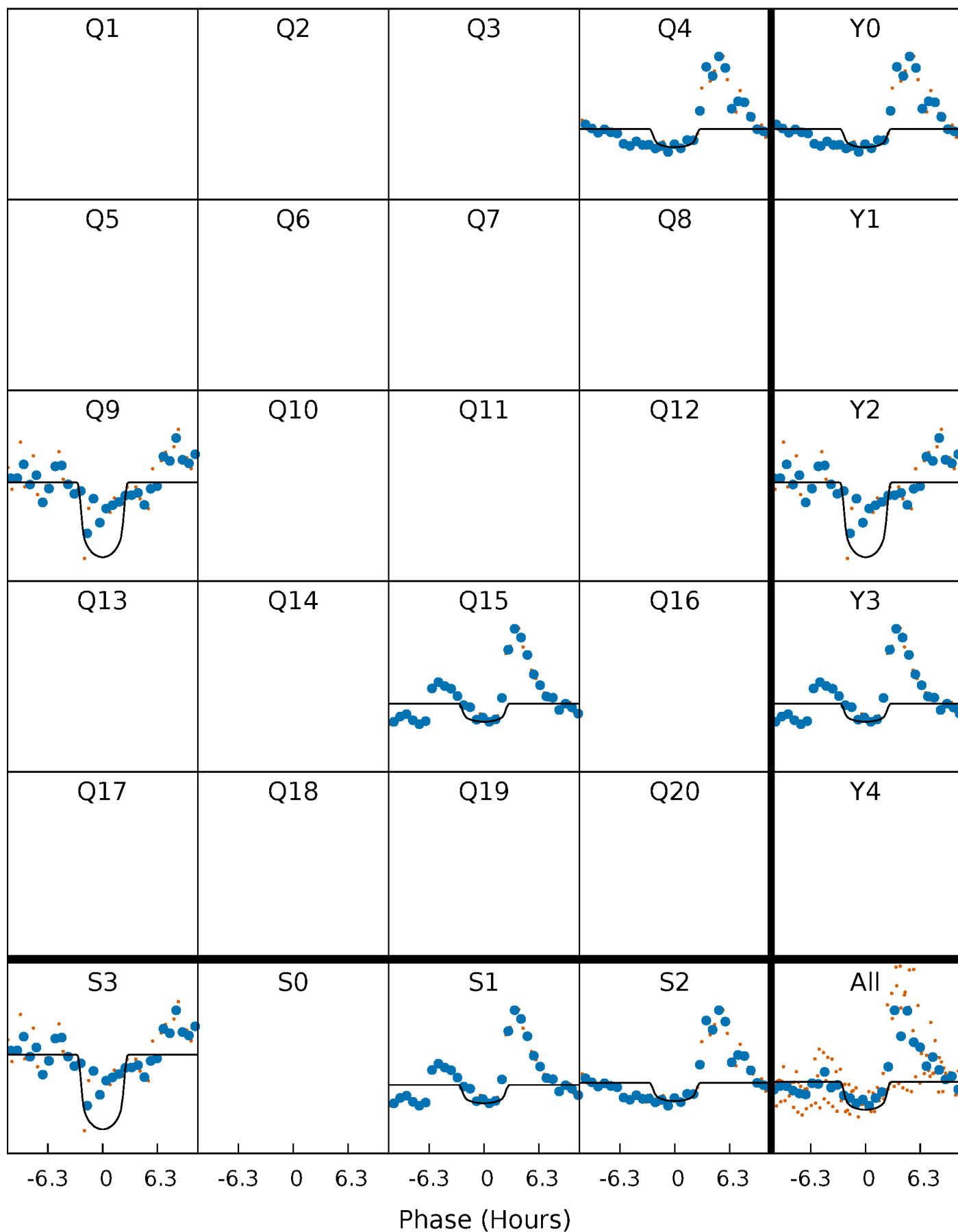
PDC Quarter-Phased Transit Curves

TCE 008959288-01 P=491.626083 Days $T_0=394.340555$ (BKJD)



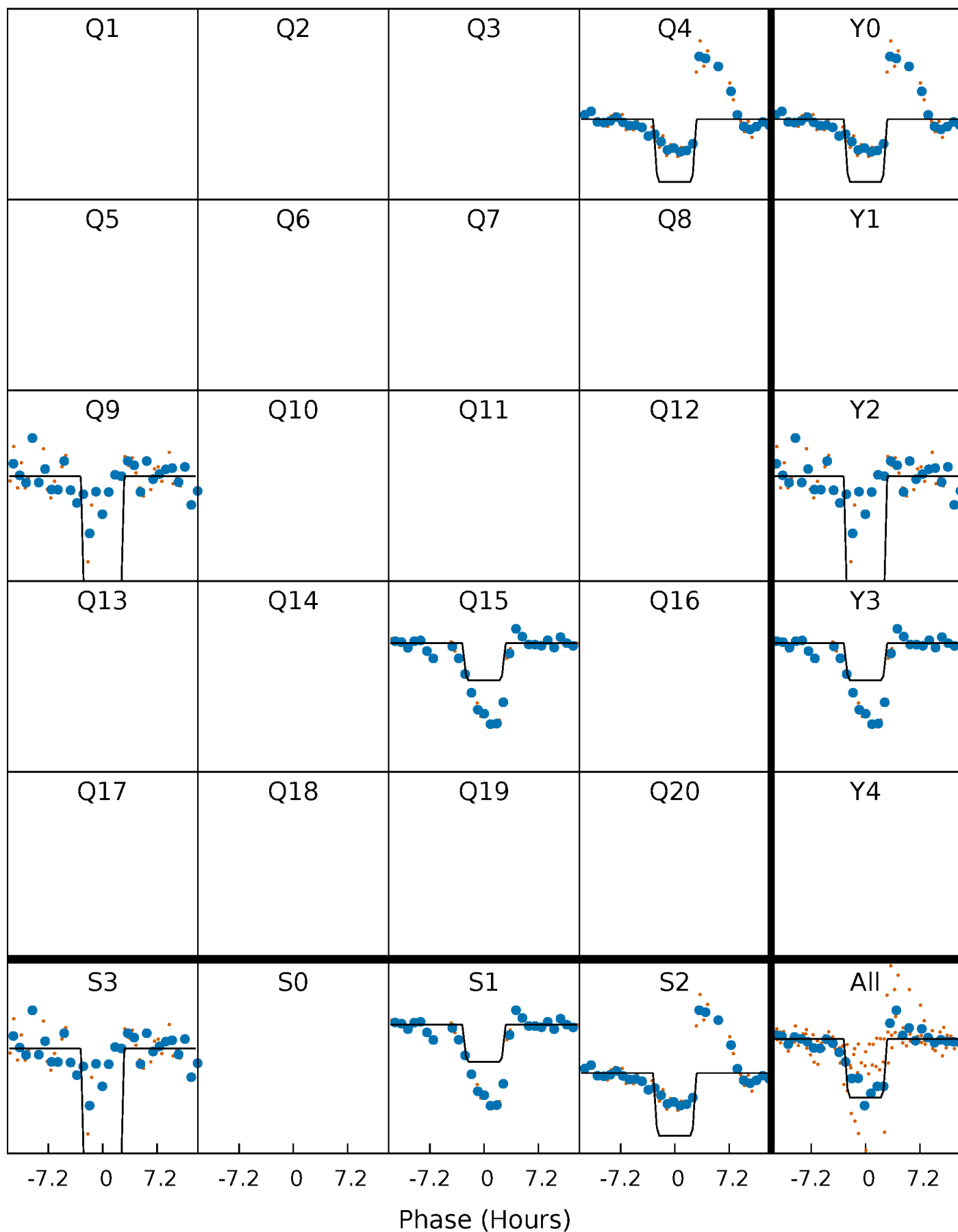
DV Quarter-Phased Transit Curves

TCE 008959288-01 P=491.626083 Days $T_0=394.340555$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

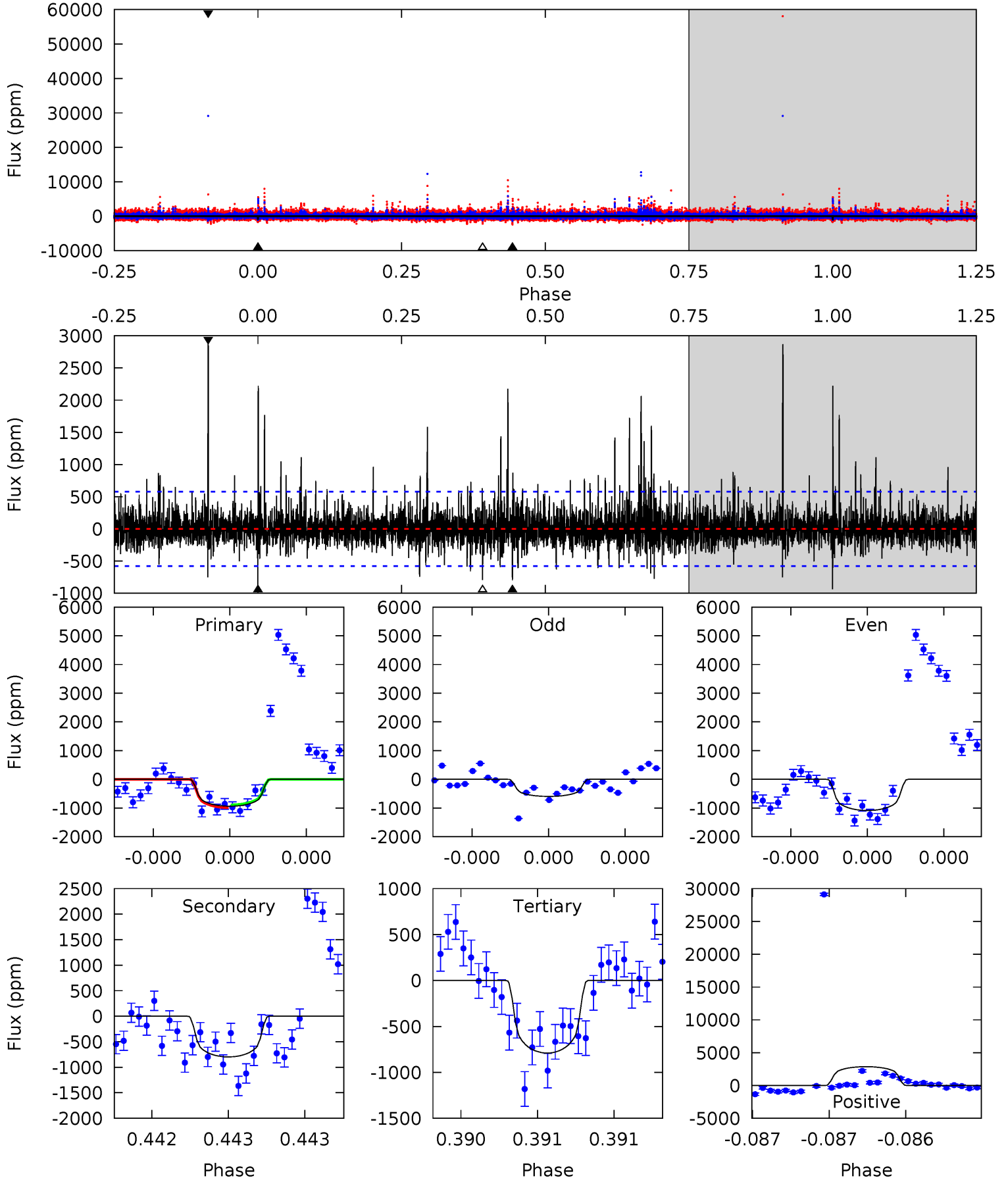
TCE 008959288-01 P=491.611020 Days $T_0=394.350159$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-01, P = 491.626083 Days, E = 394.340555 Days

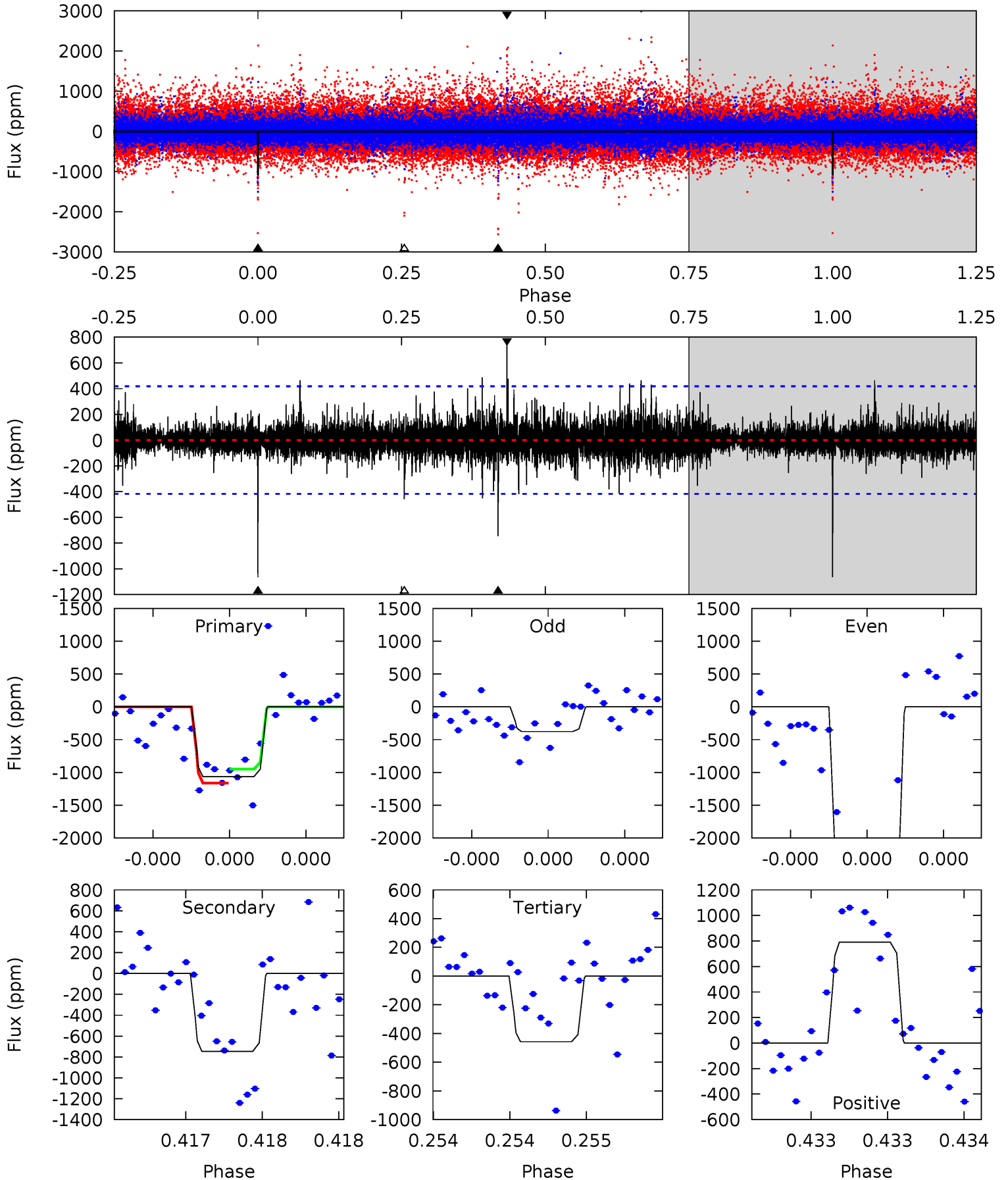
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.05	7.69	7.62	27.6	5.58	3.49	2.16	1.43	-18.6	0.07	-20.0	0.70	1.21	0.75	0.46



Alt Model-Shift Uniqueness Test

008959288-01, P = 491.611020 Days, E = 394.350159 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	9.95	6.11	10.5	5.57	3.48	1.09	8.10	3.67	3.85	-0.59	17.4	1.74	0.43	1.43



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-798 ± 104	$3.00^{+1.42}_{-1.47}$	261^{+11}_{-10}	4632^{+1490}_{-667}	$58991^{+154074}_{-32800}$
Alt.	-746 ± 75	$4.16^{+1.42}_{-1.32}$	263^{+10}_{-11}	3980^{+710}_{-358}	27177^{+32278}_{-12077}

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 $A_{obs} \gg 1.0$

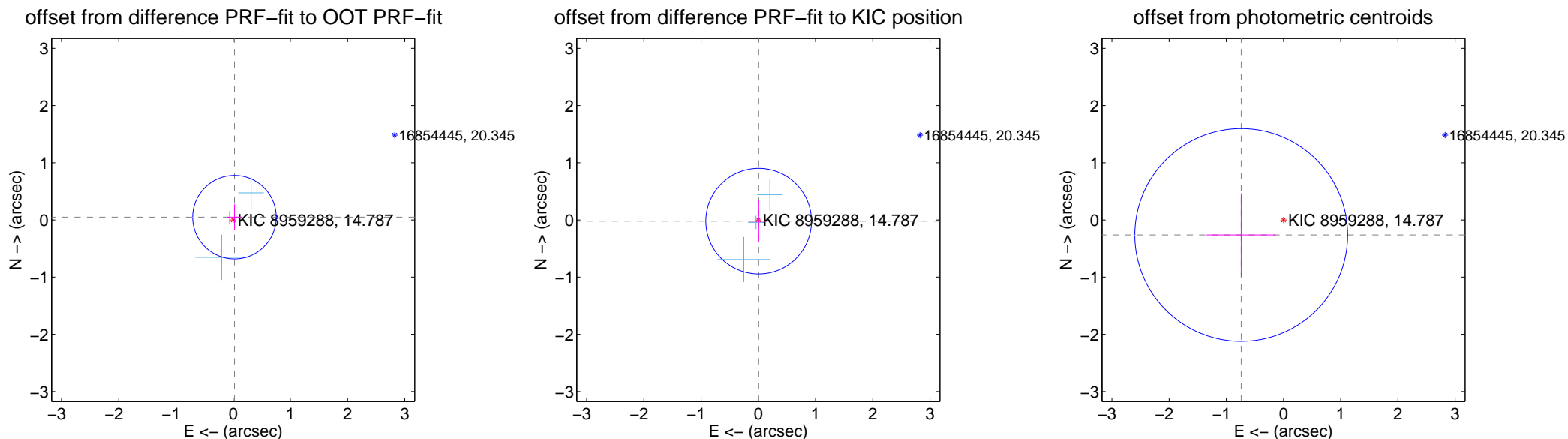
DV Centroid Data

Supplemental centroid analysis for 008959288-01. Kepler magnitude: 14.79. Transit SNR 7.95

There are 3 quarters with good PRF difference image offsets

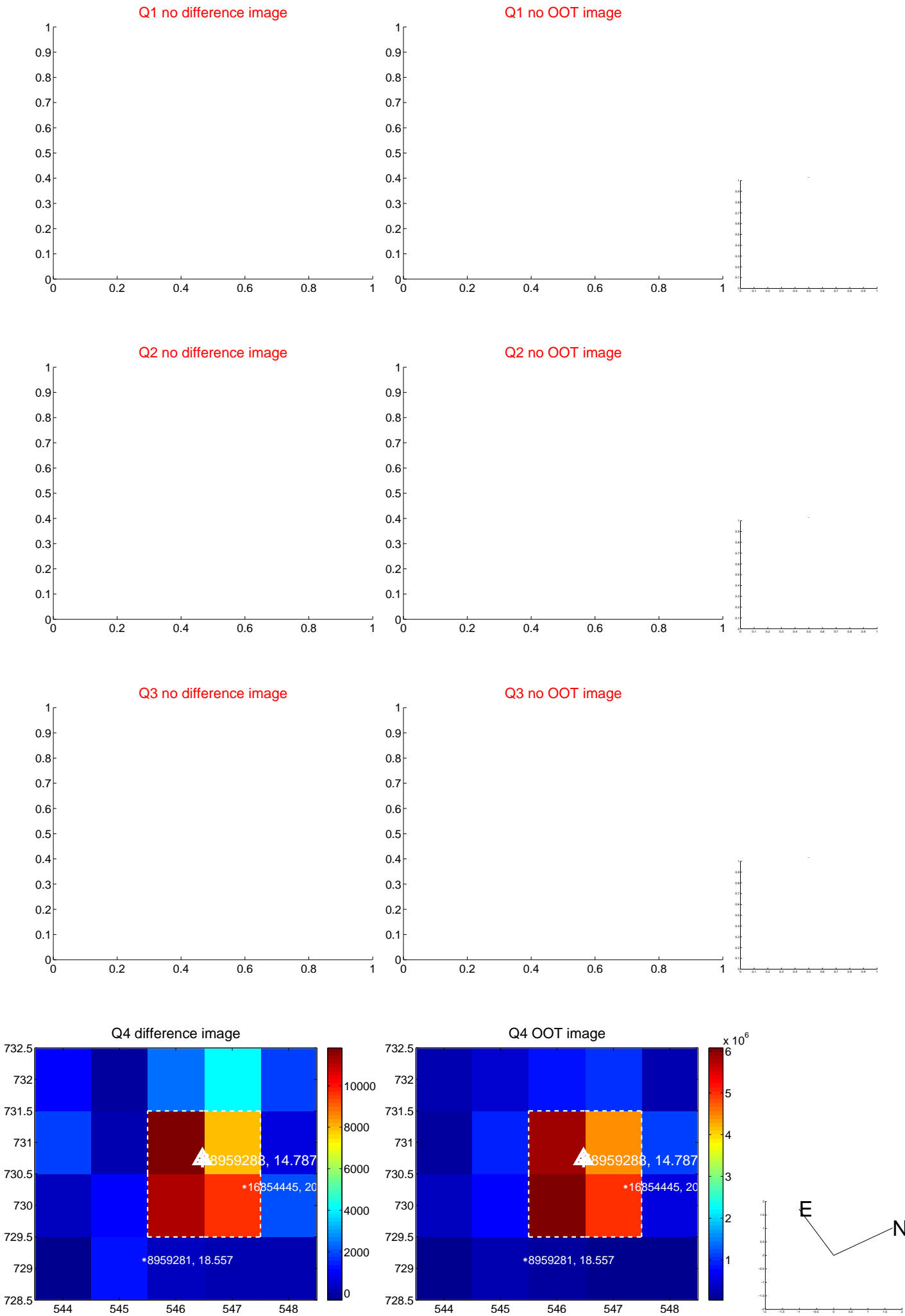
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.054 ± 0.243	0.22	-0.023 ± 0.121	0.049 ± 0.225
PRF-fit source offset from KIC position	0.022 ± 0.308	0.07	-0.006 ± 0.160	-0.021 ± 0.361
photometric centroid source offset	0.78 ± 0.62	1.27	0.74 ± 0.60	-0.26 ± 0.73

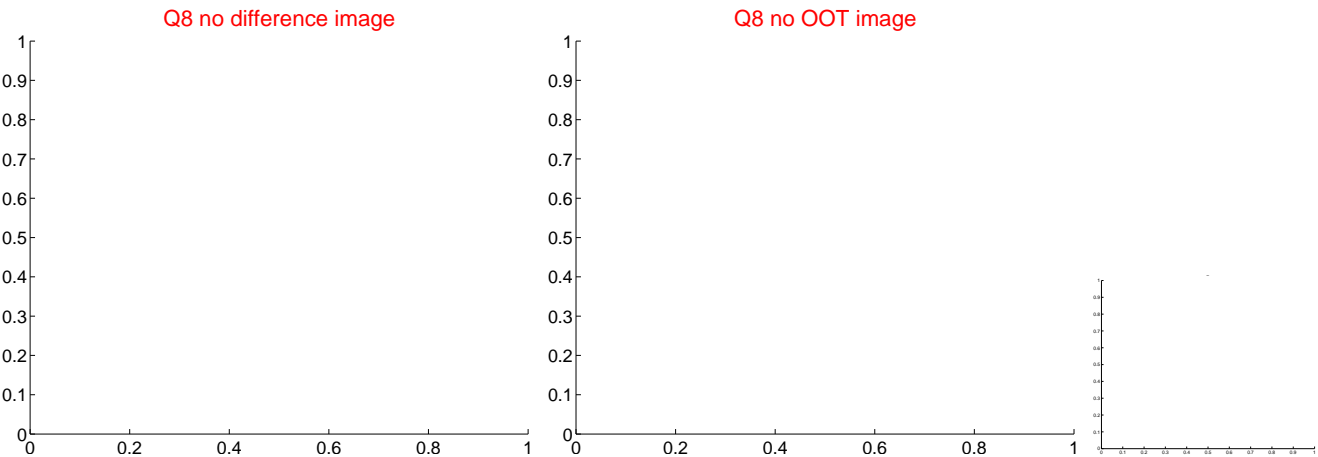
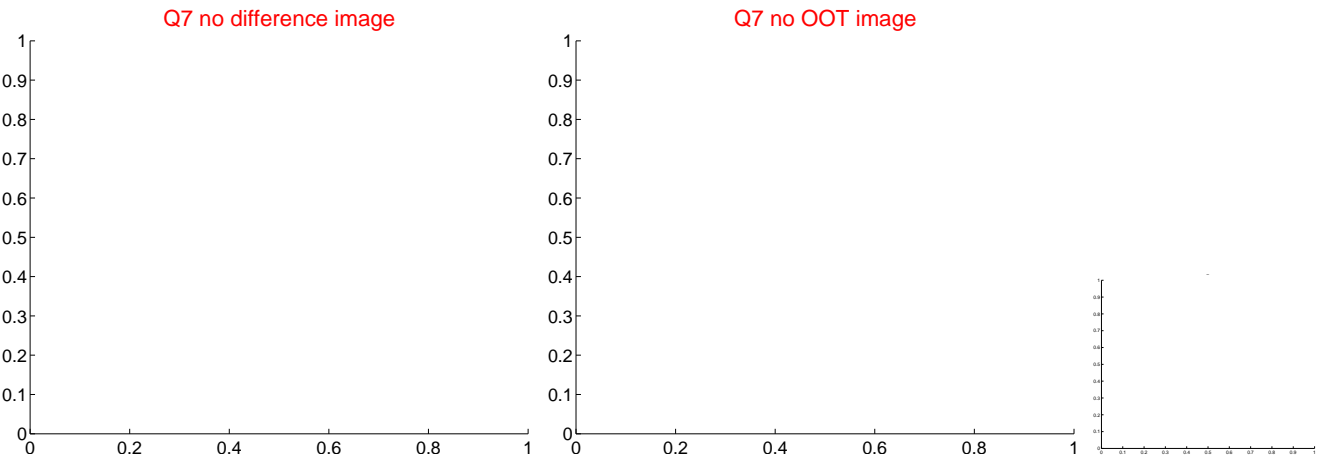
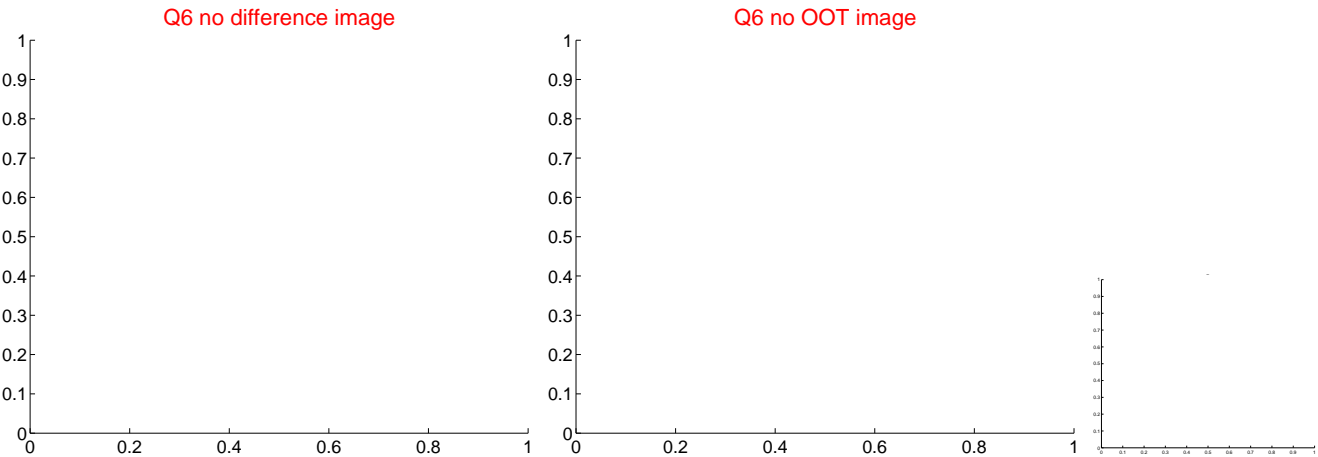
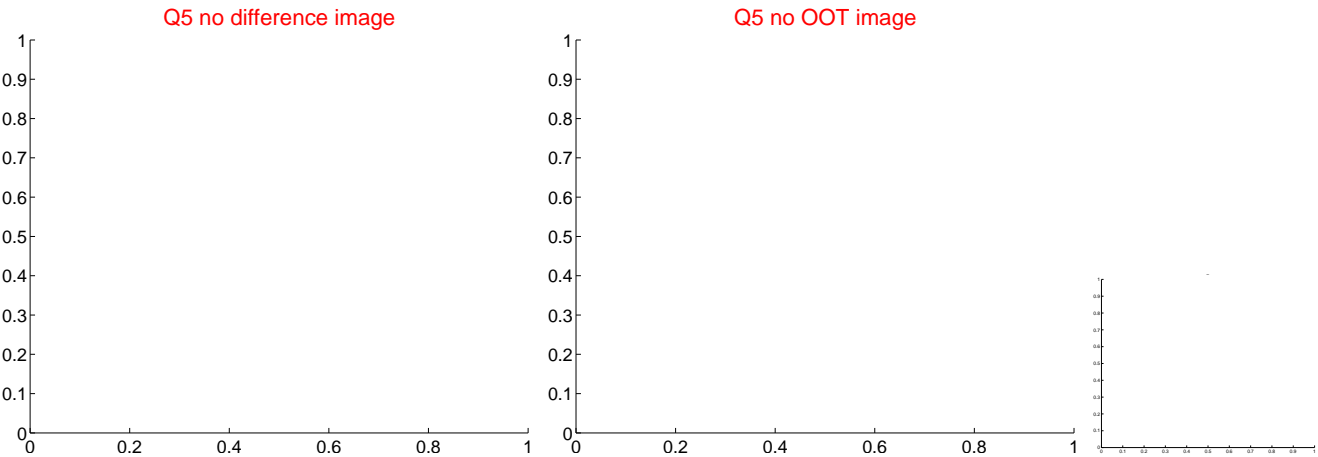


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

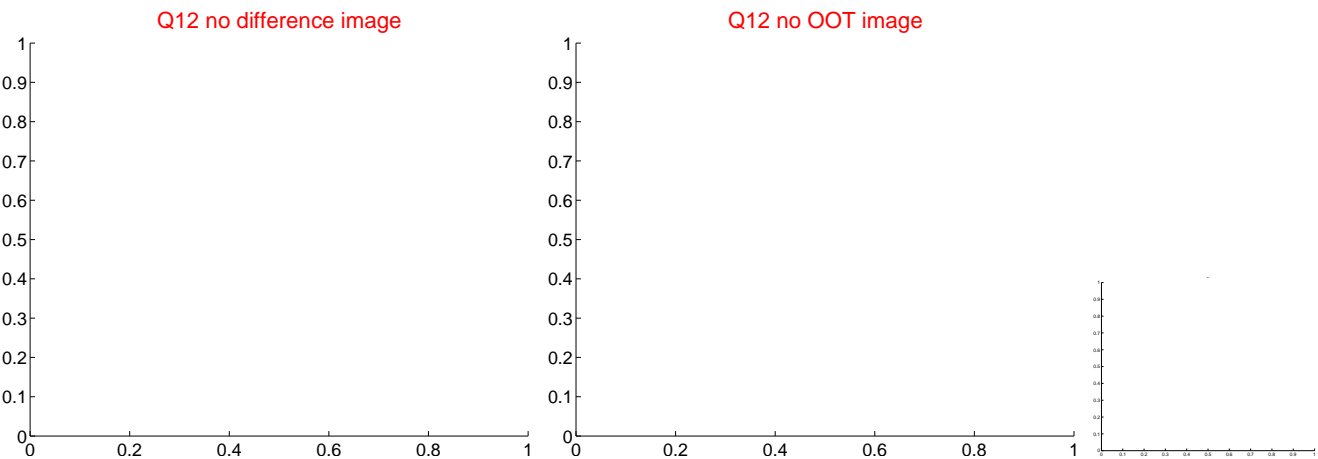
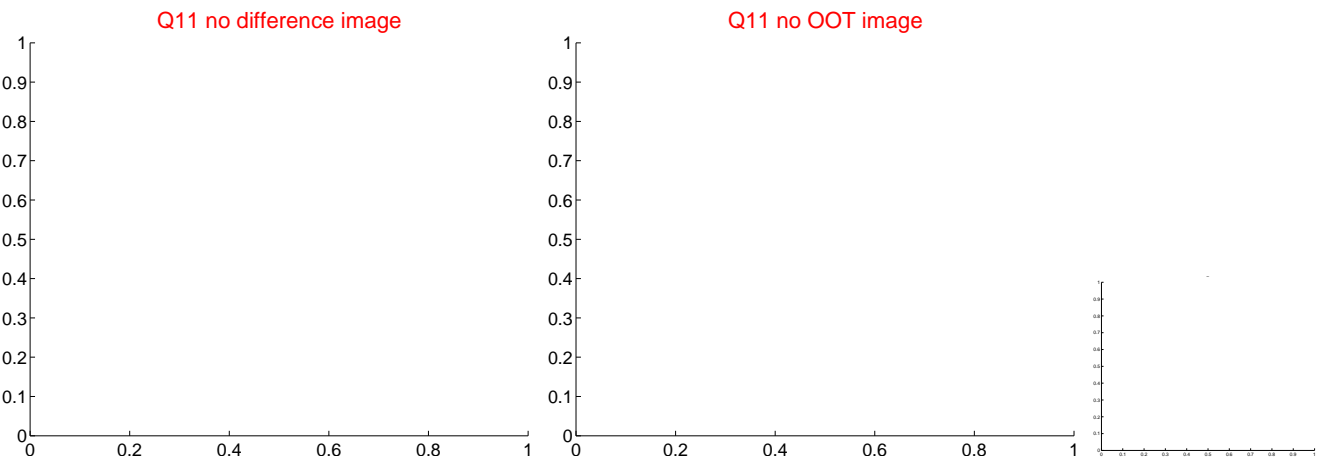
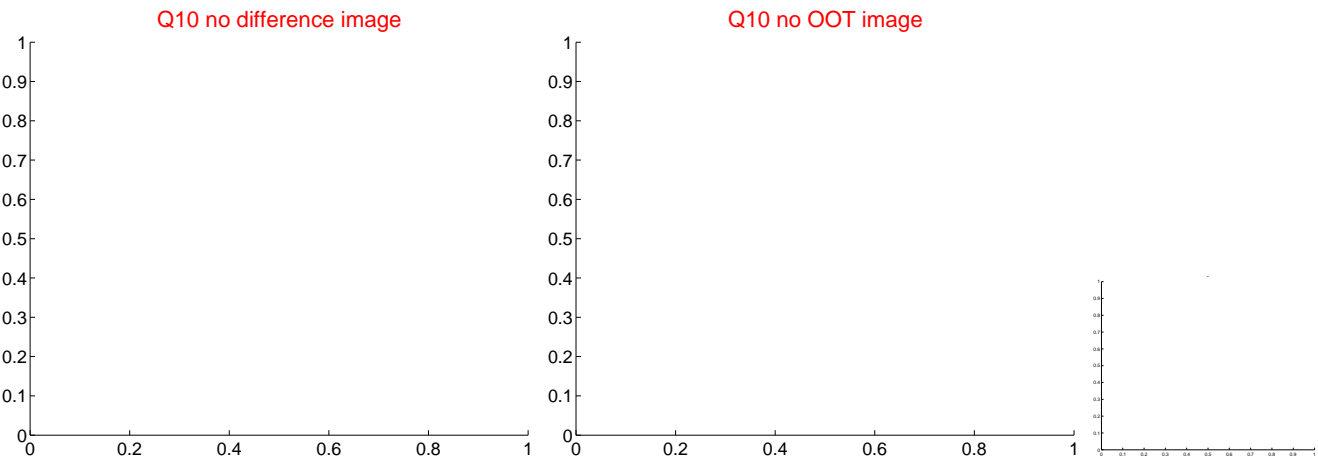
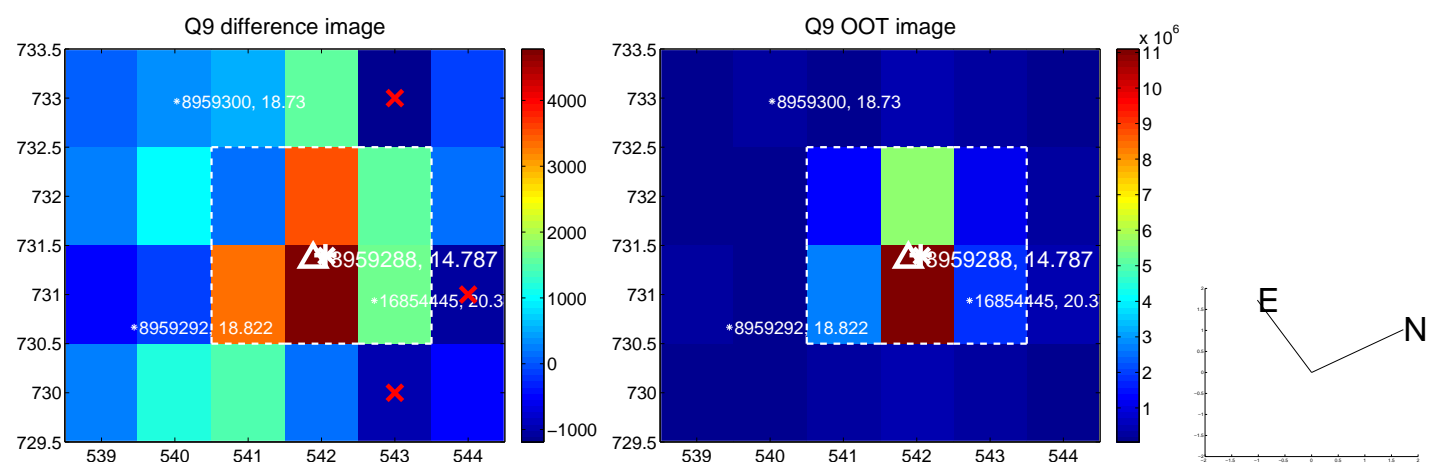
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



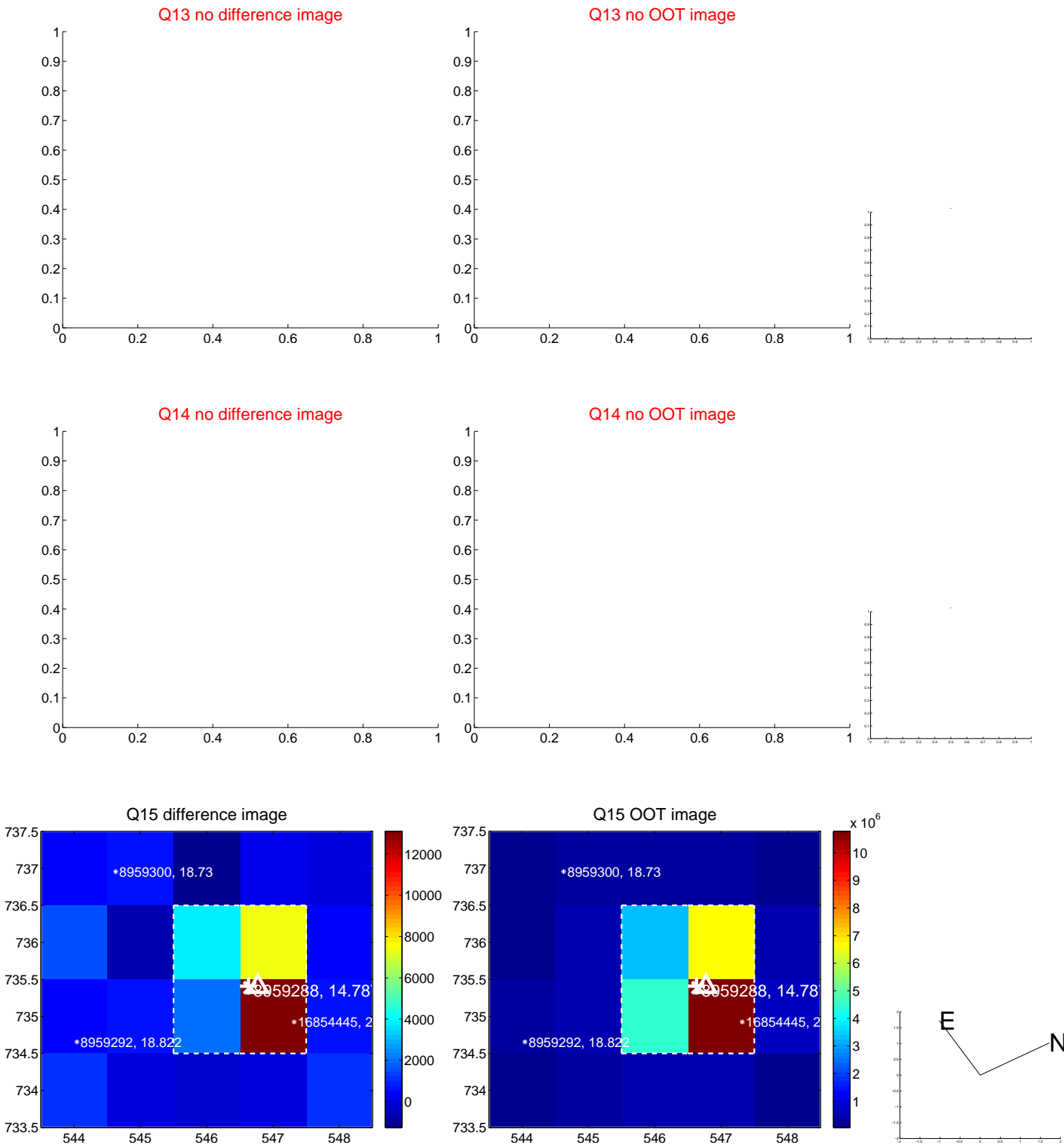
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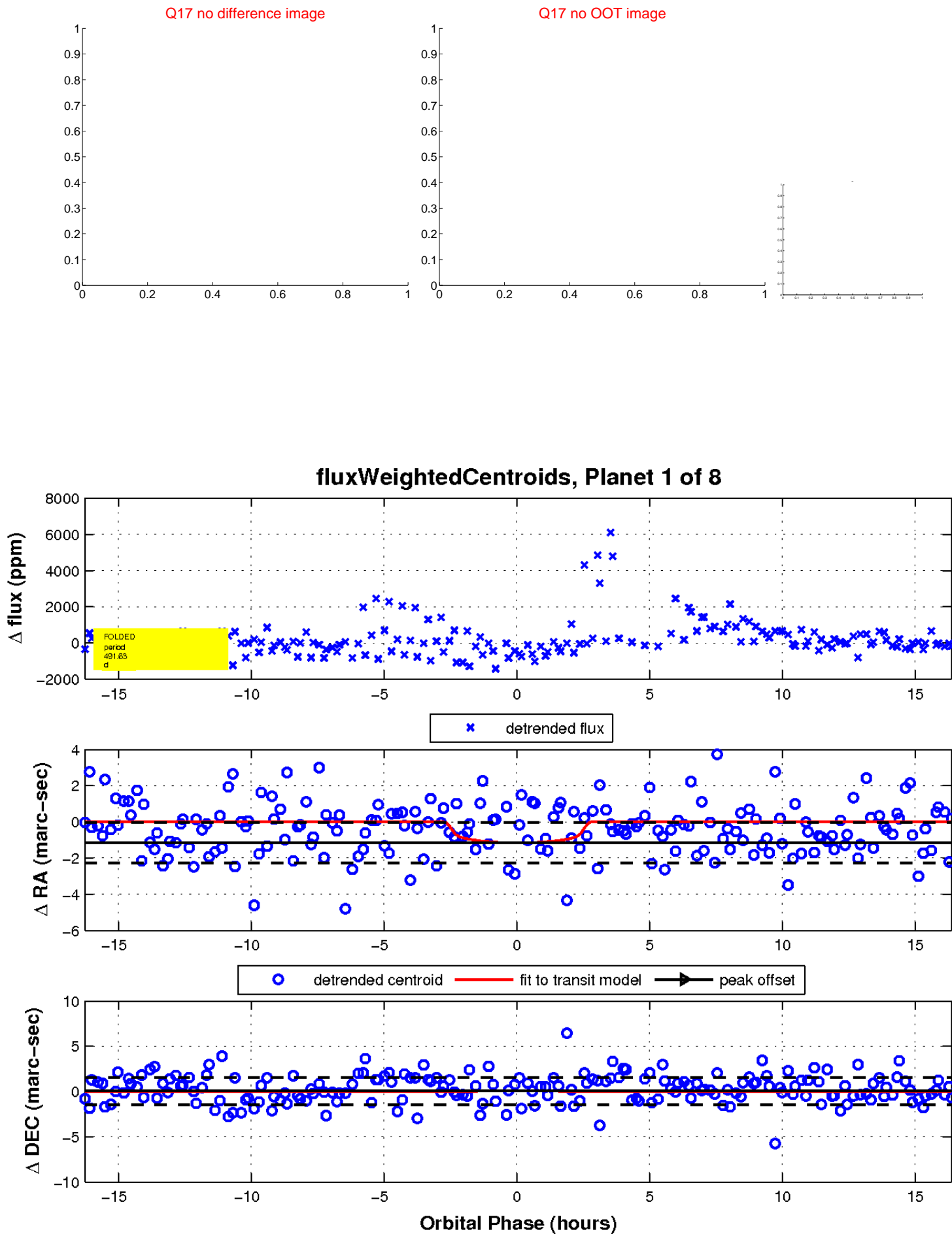
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white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

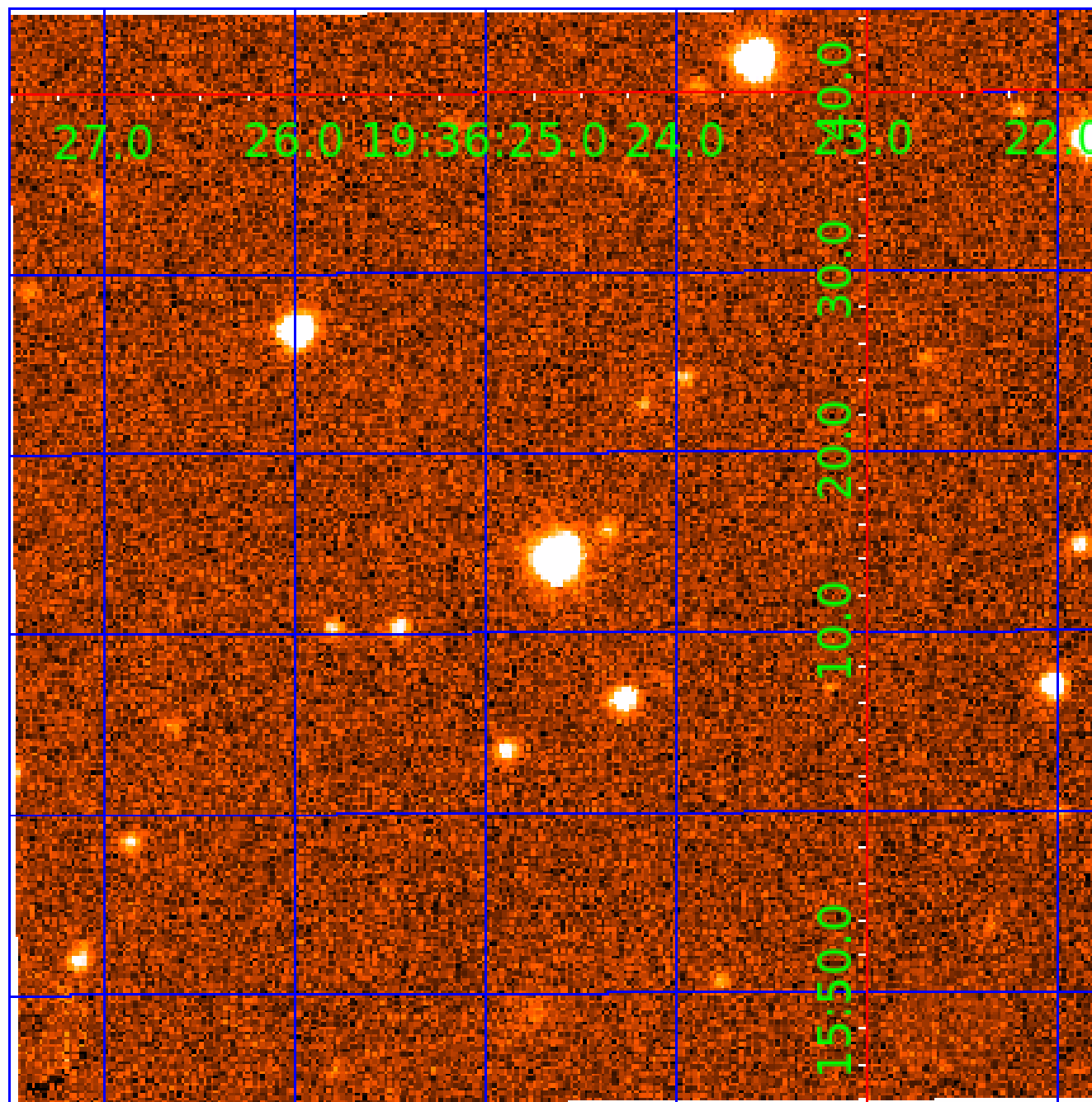


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UKIRT Image

Declination



KIC 008959288

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008959288-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV
008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

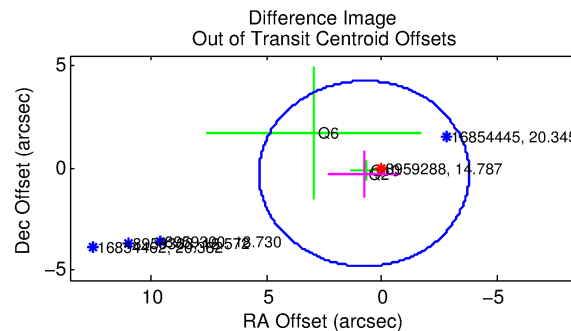
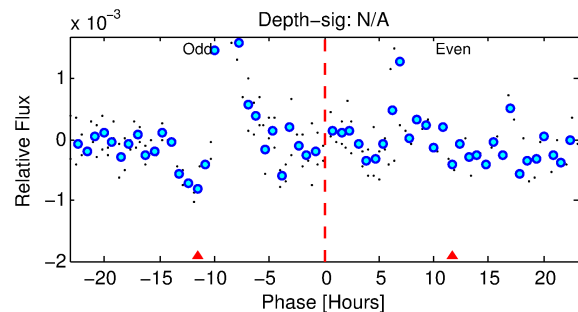
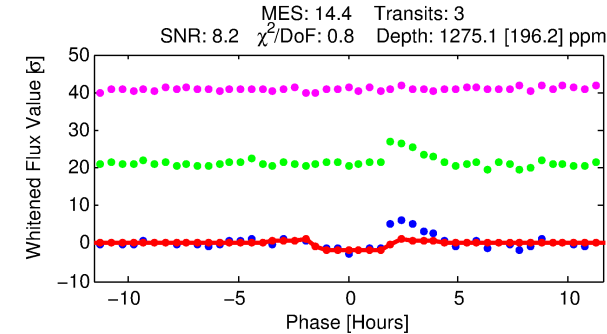
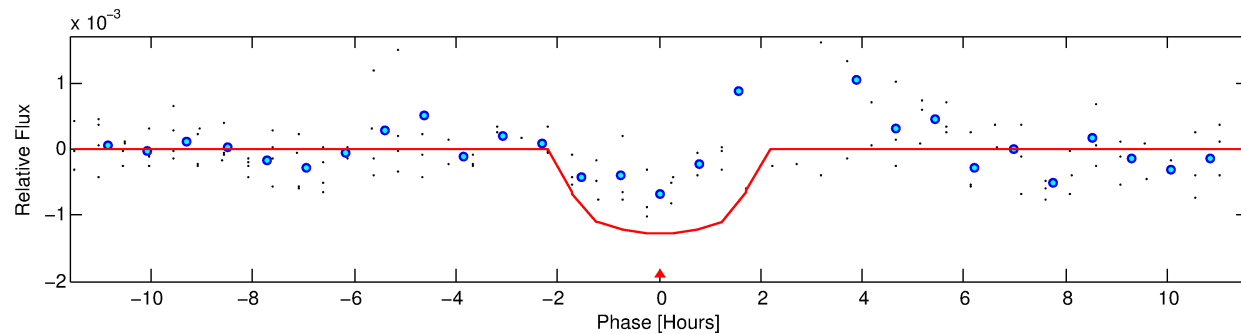
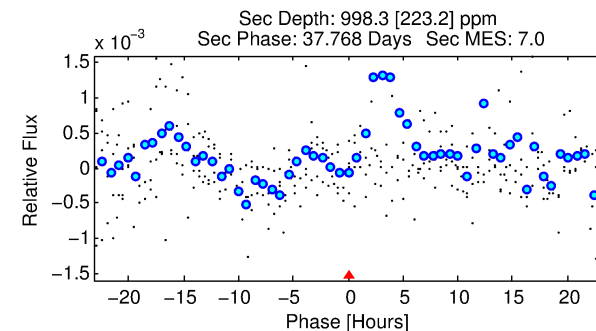
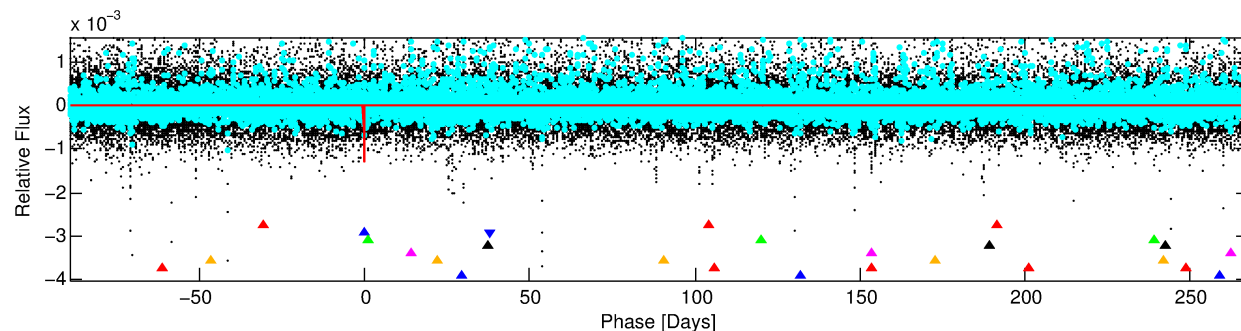
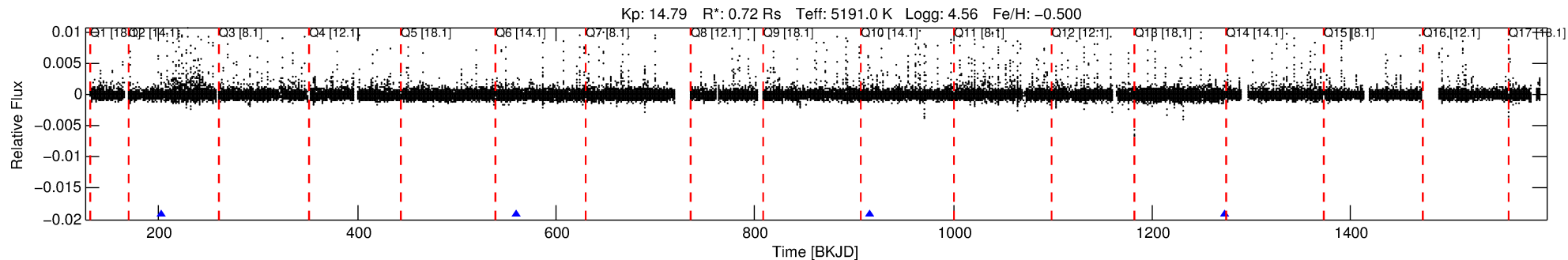
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-02

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 2 of 8 Period: 356.770 d



DV Fit Results:

Period = 356.77011 [0.00514] d
Epoch = 202.9398 [0.0057] BKJD
Rp/R* = 0.0333 [0.3104]
a/R* = 636.13 [23005.20]
b = 0.50 [54.49]
Seff = 0.45 [0.09]
Teq = 209 [10] K
Rp = 2.62 [24.39] Re
a = 0.8680 [0.0856] AU
Ag = 60322.61 [1123505.25] [0.05σ]
Teffp = 5054 [23532] K [0.21σ]

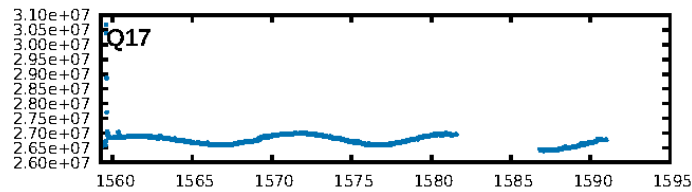
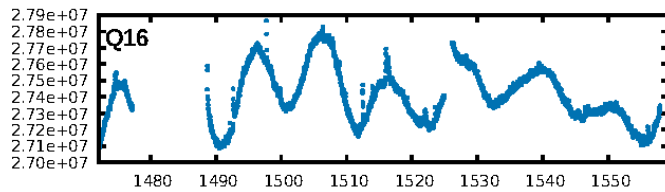
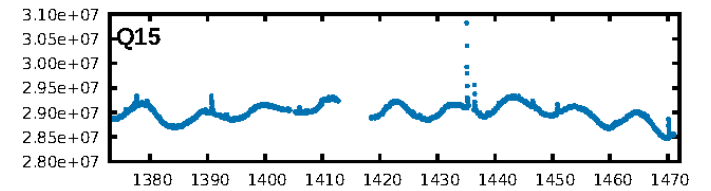
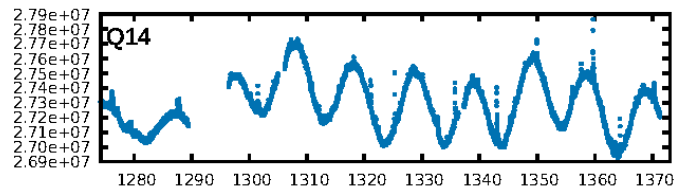
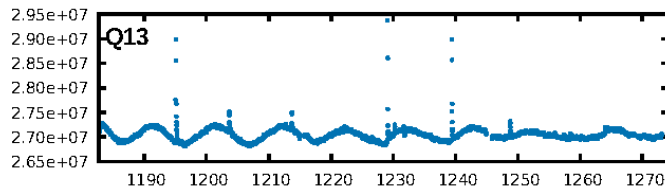
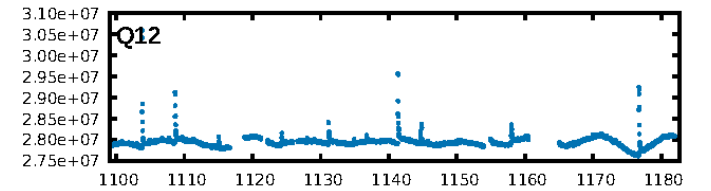
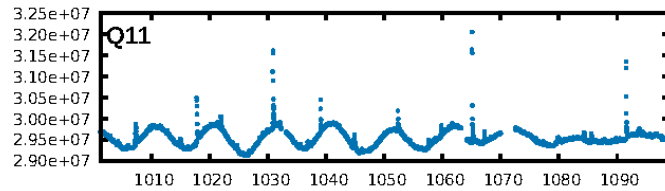
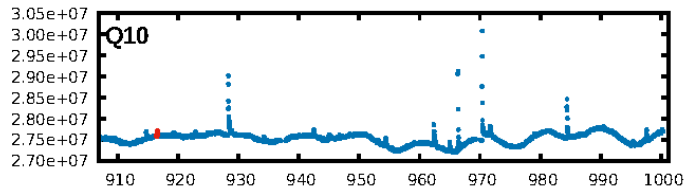
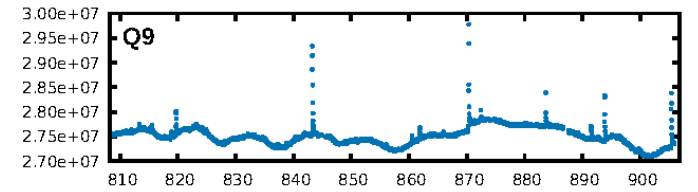
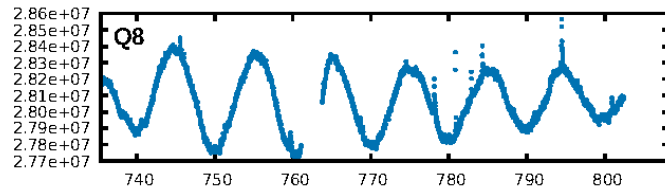
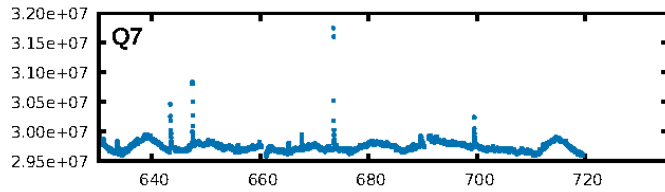
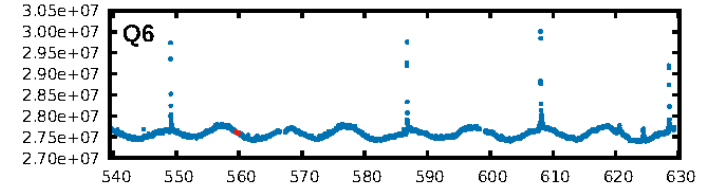
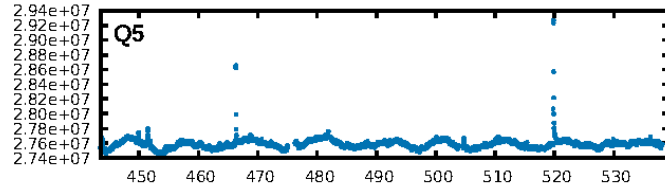
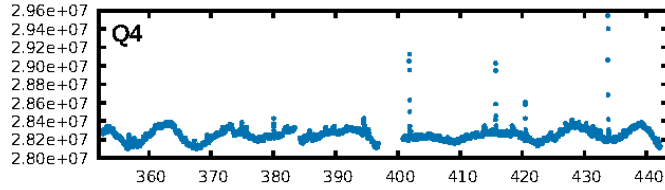
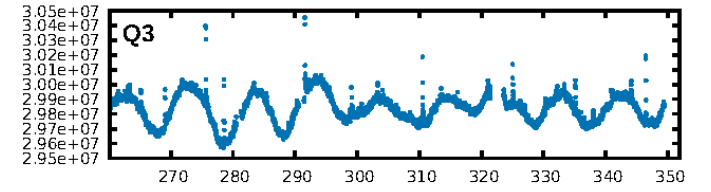
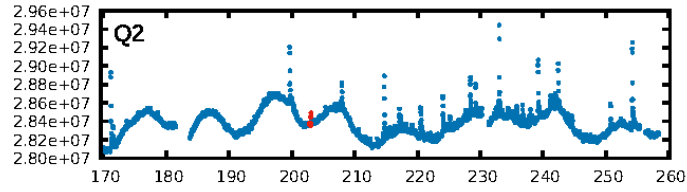
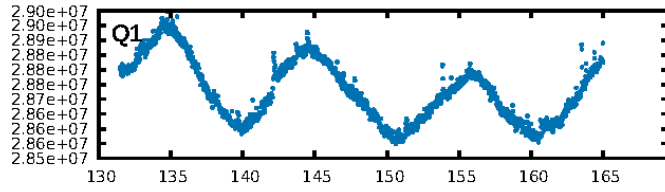
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [145.80σ]
LongPeriod-sig: 100.0% [200.39σ]
ModelChiSquare2-sig: 1.9%
ModelChiSquareGof-sig: 97.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 5.84
Centroid-sig: 20.6%
Centroid-so: 0.921 arcsec [1.10σ]
OotOffset-rm: 0.826 arcsec [0.55σ]
KicOffset-rm: 0.817 arcsec [0.55σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

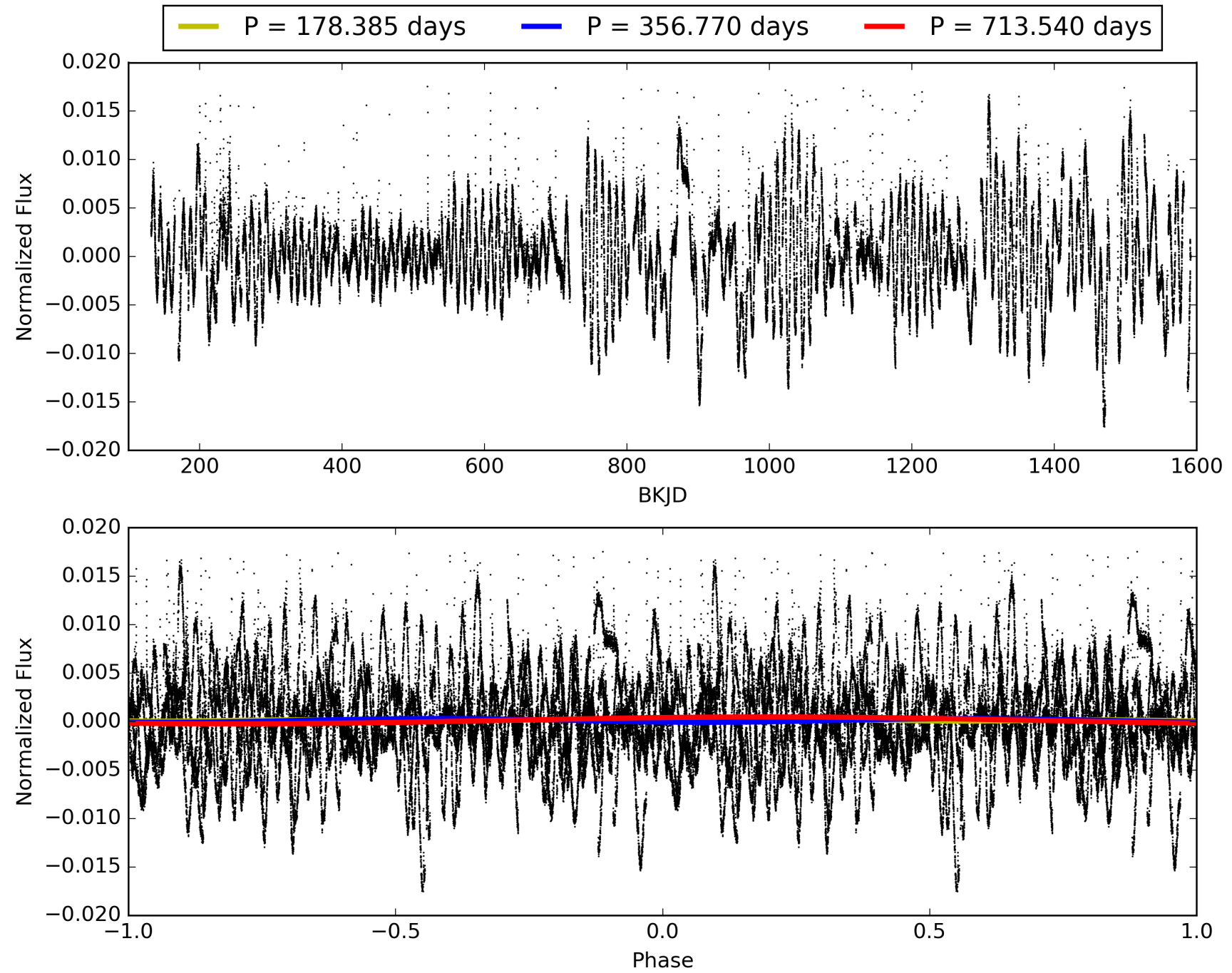
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:40:29 Z

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

TCE 008959288-02, PDC Light Curves

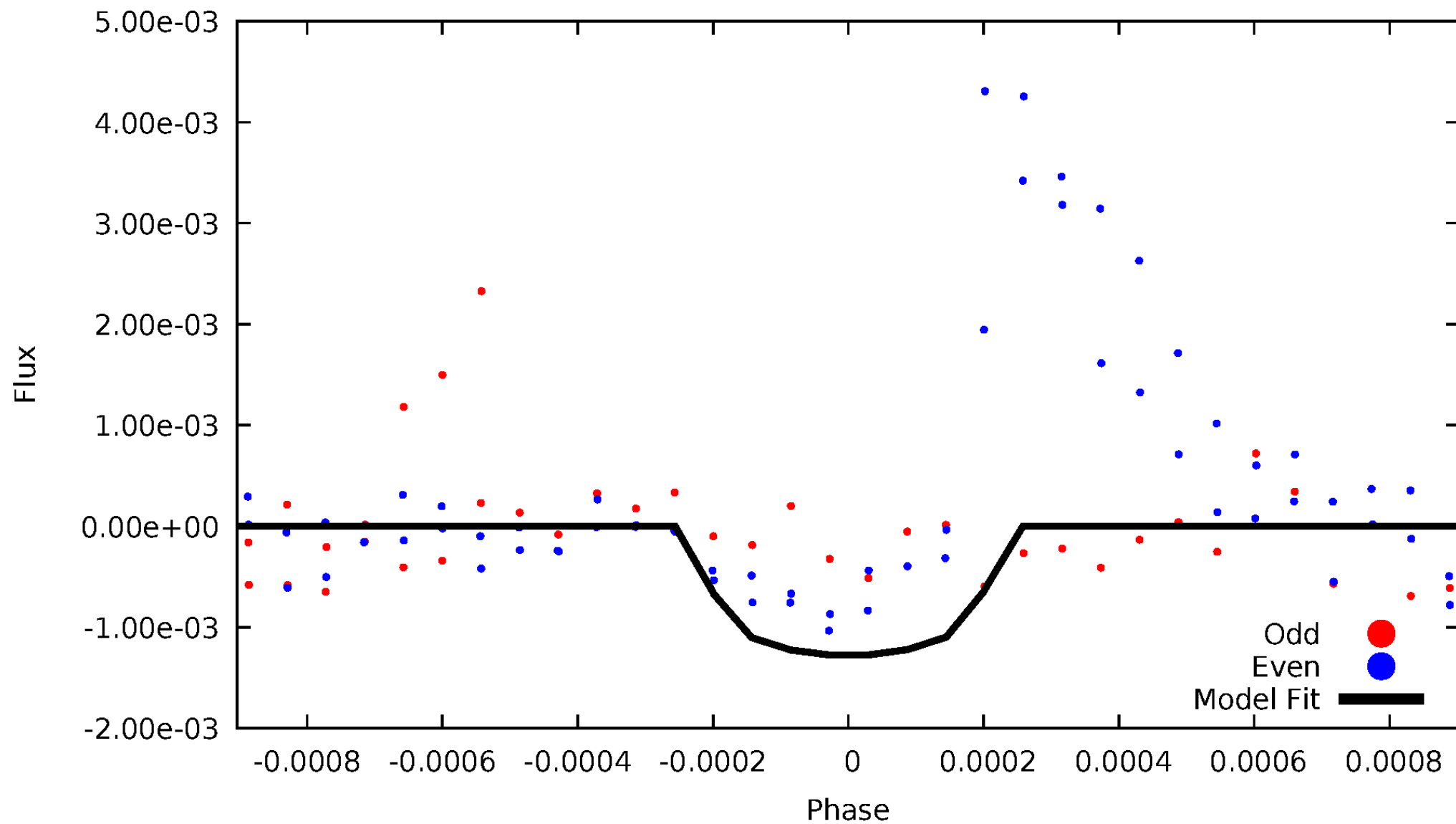


TCE 008959288-02



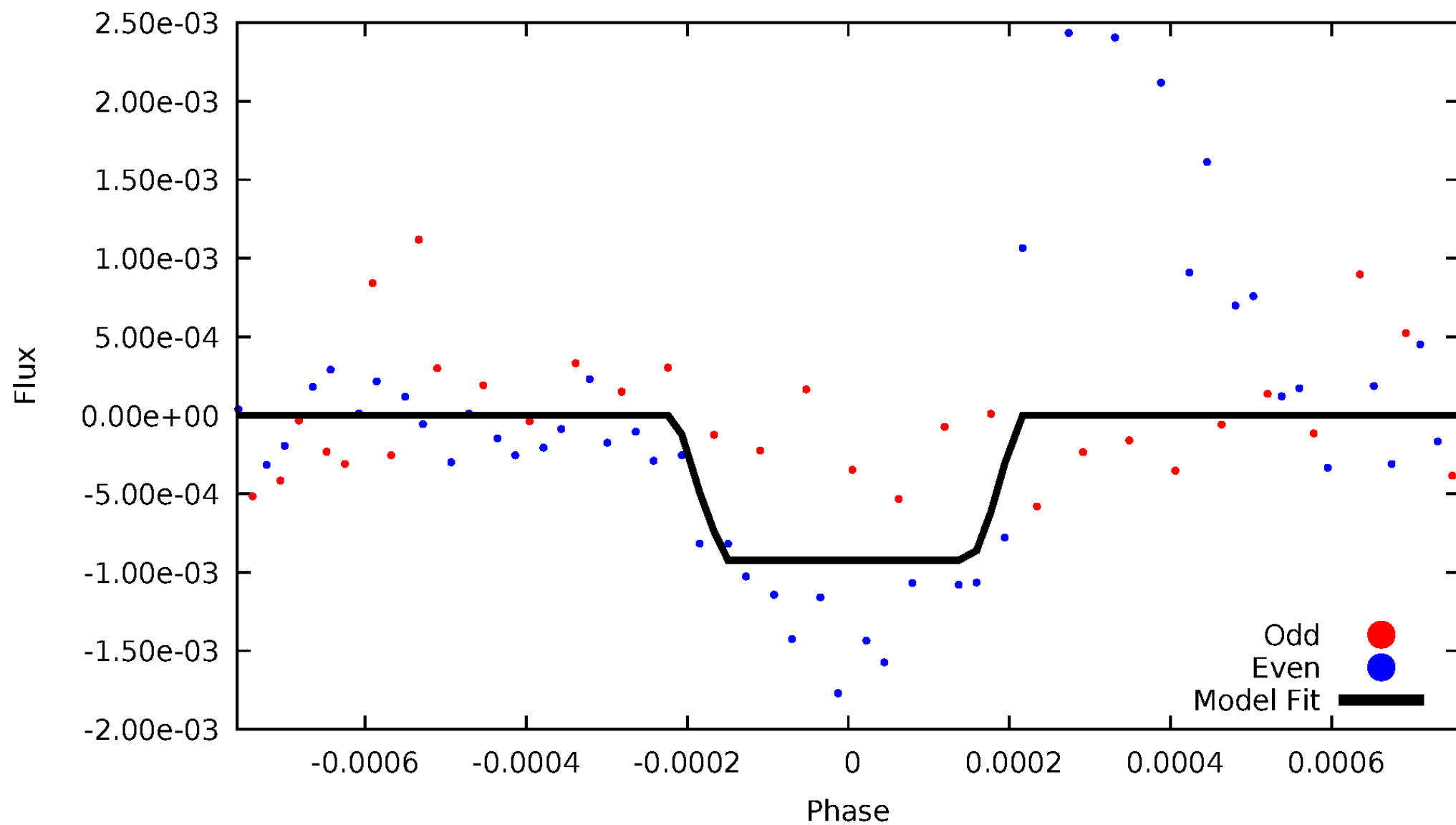
DV Odd/Even

TCE 008959288-02



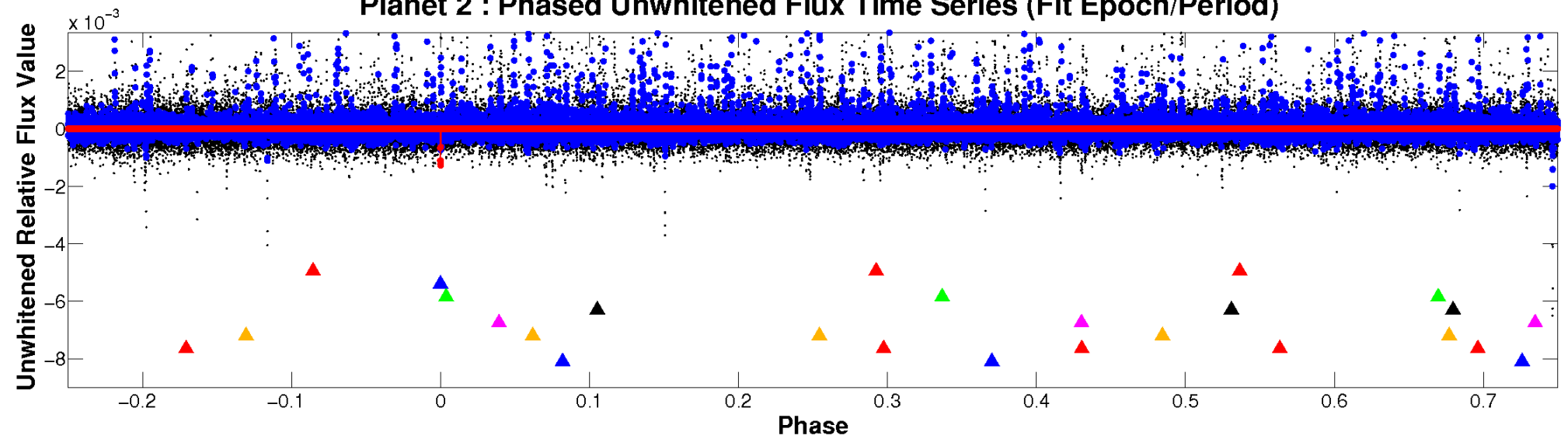
ALT Odd/Even

TCE 008959288-02

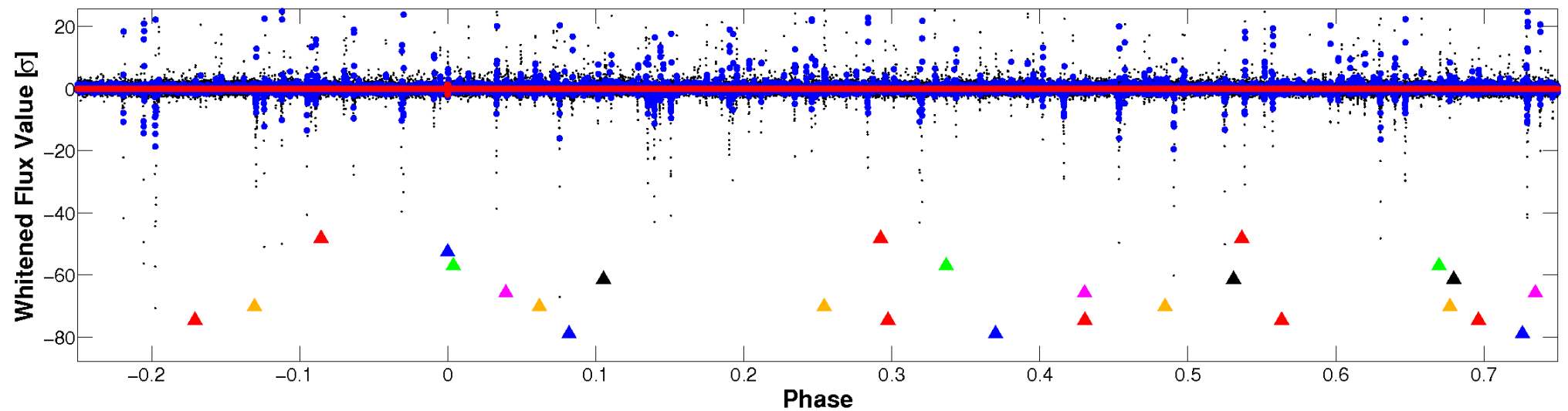


Non-Whitened Vs. Whitened Light Curve

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

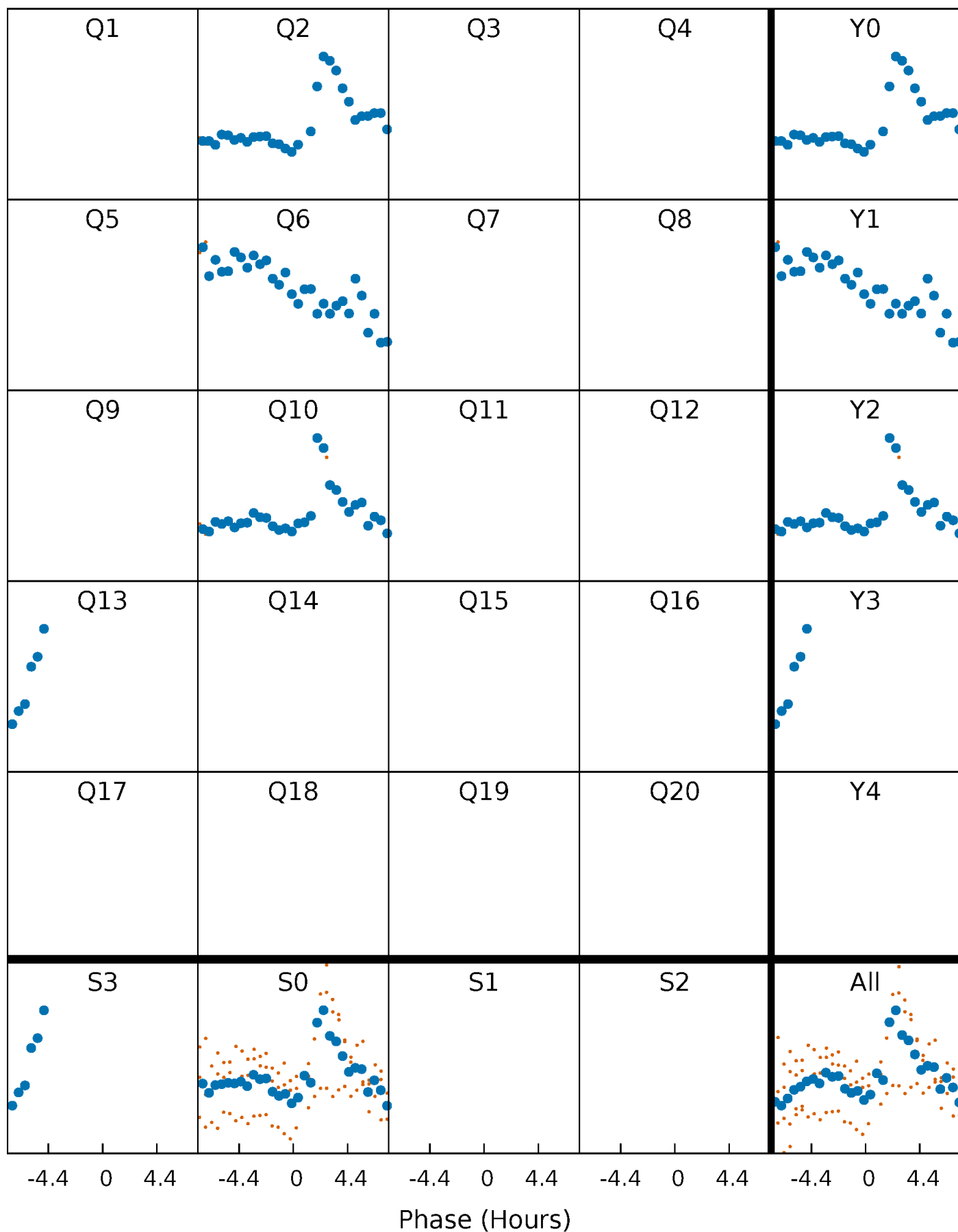


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



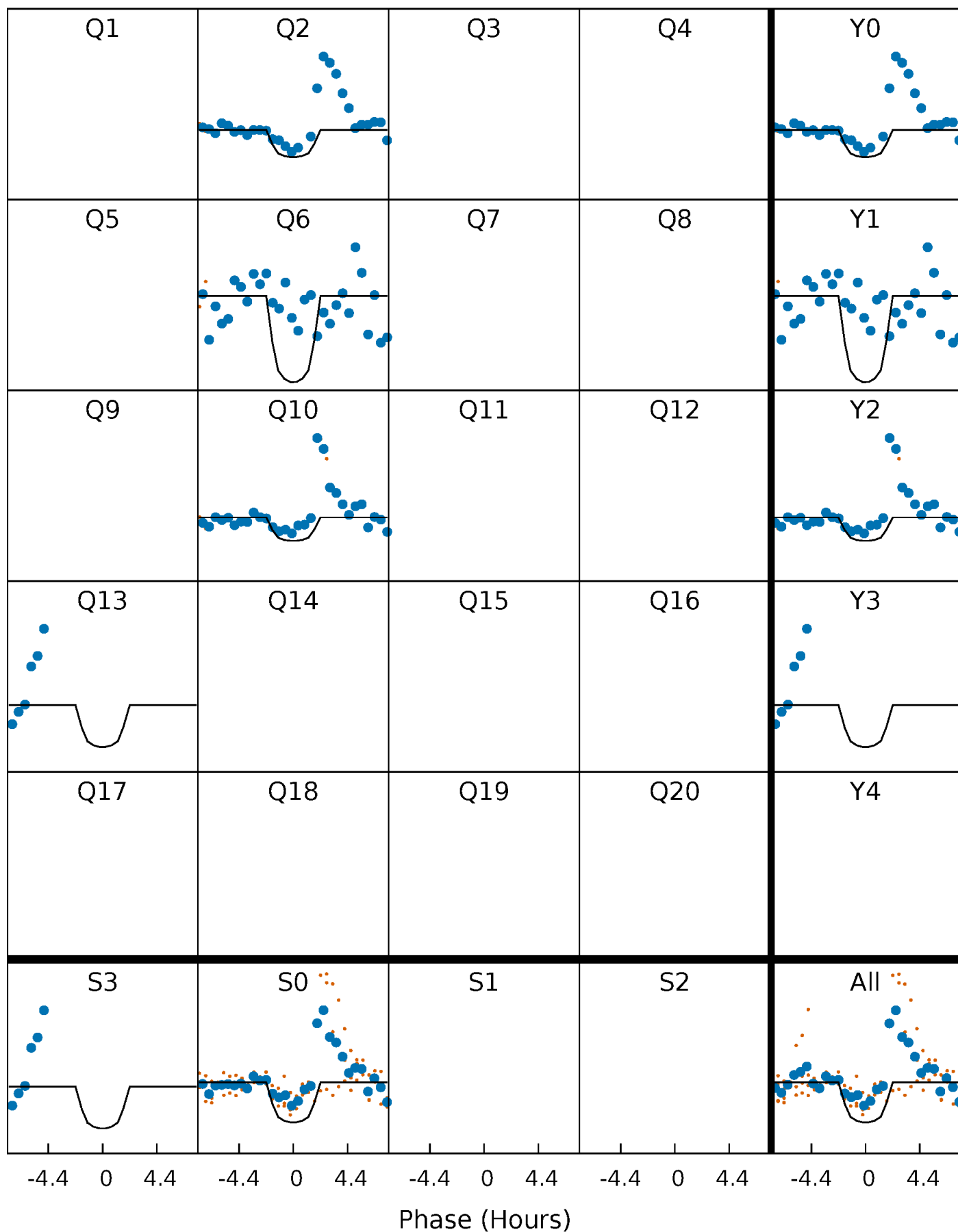
PDC Quarter-Phased Transit Curves

TCE 008959288-02 $P=356.770109$ Days $T_0=202.939752$ (BKJD)



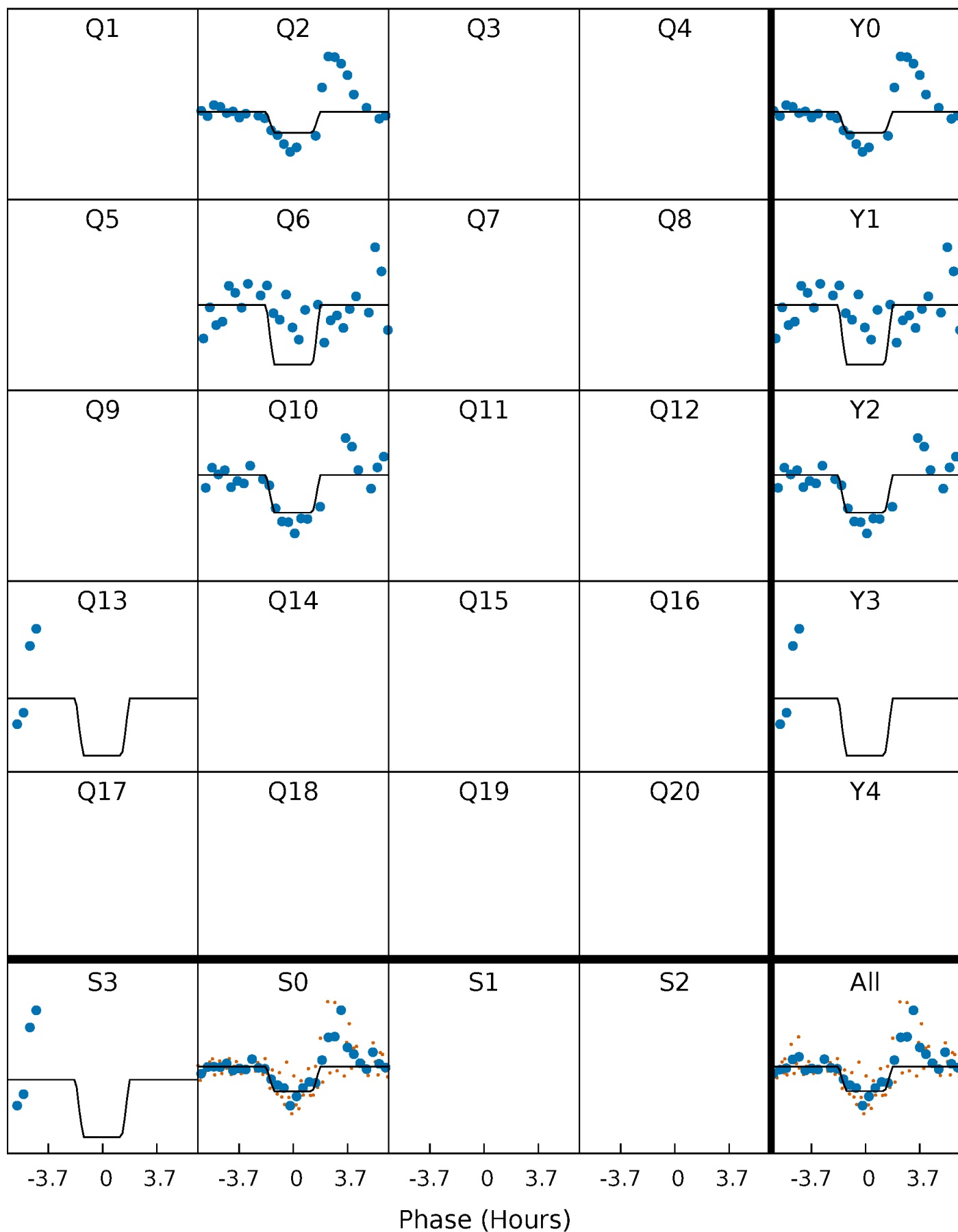
DV Quarter-Phased Transit Curves

TCE 008959288-02 P=356.770109 Days $T_0=202.939752$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

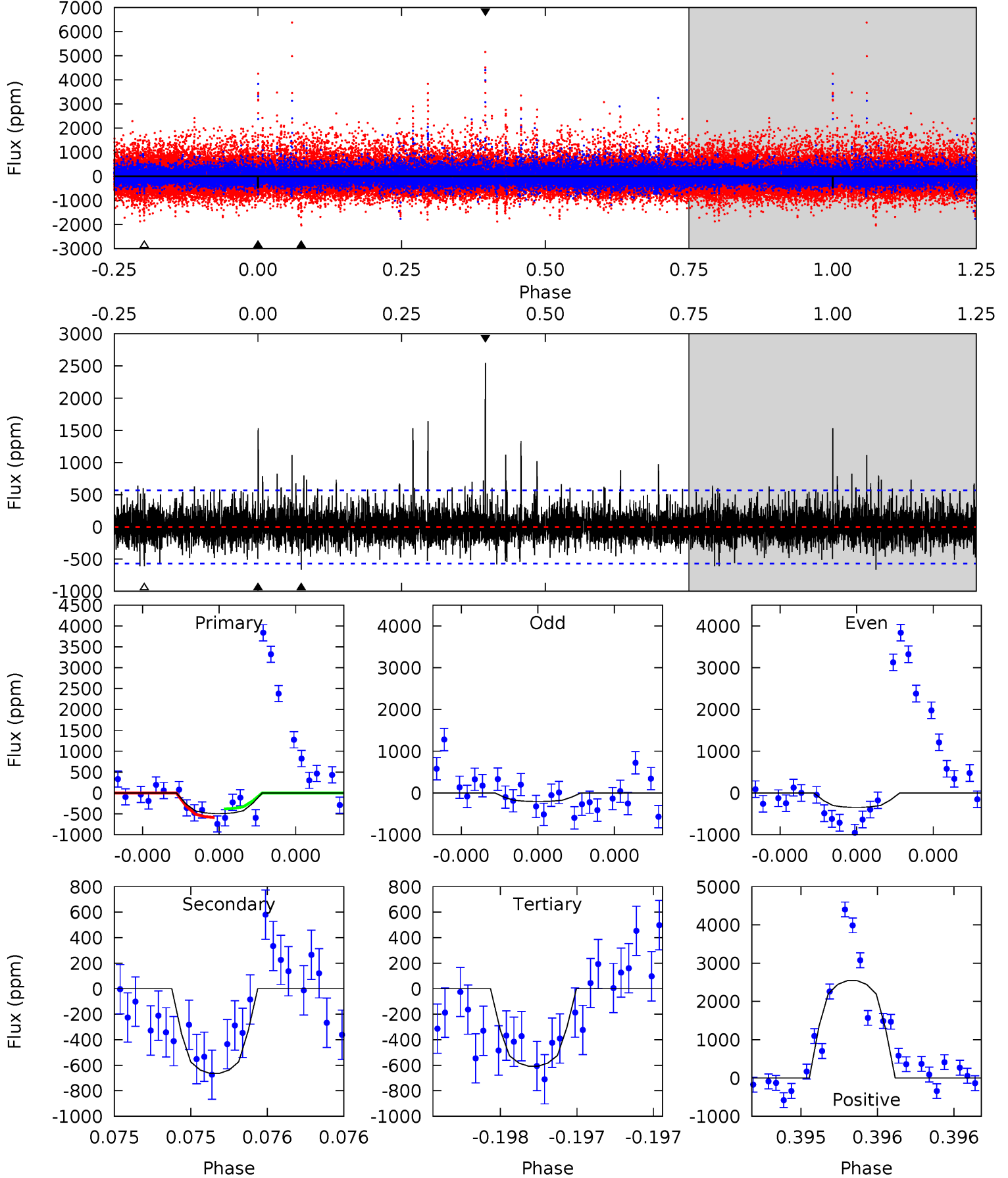
TCE 008959288-02 P=356.764078 Days $T_0=202.934119$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-02, P = 356.770109 Days, E = 202.939752 Days

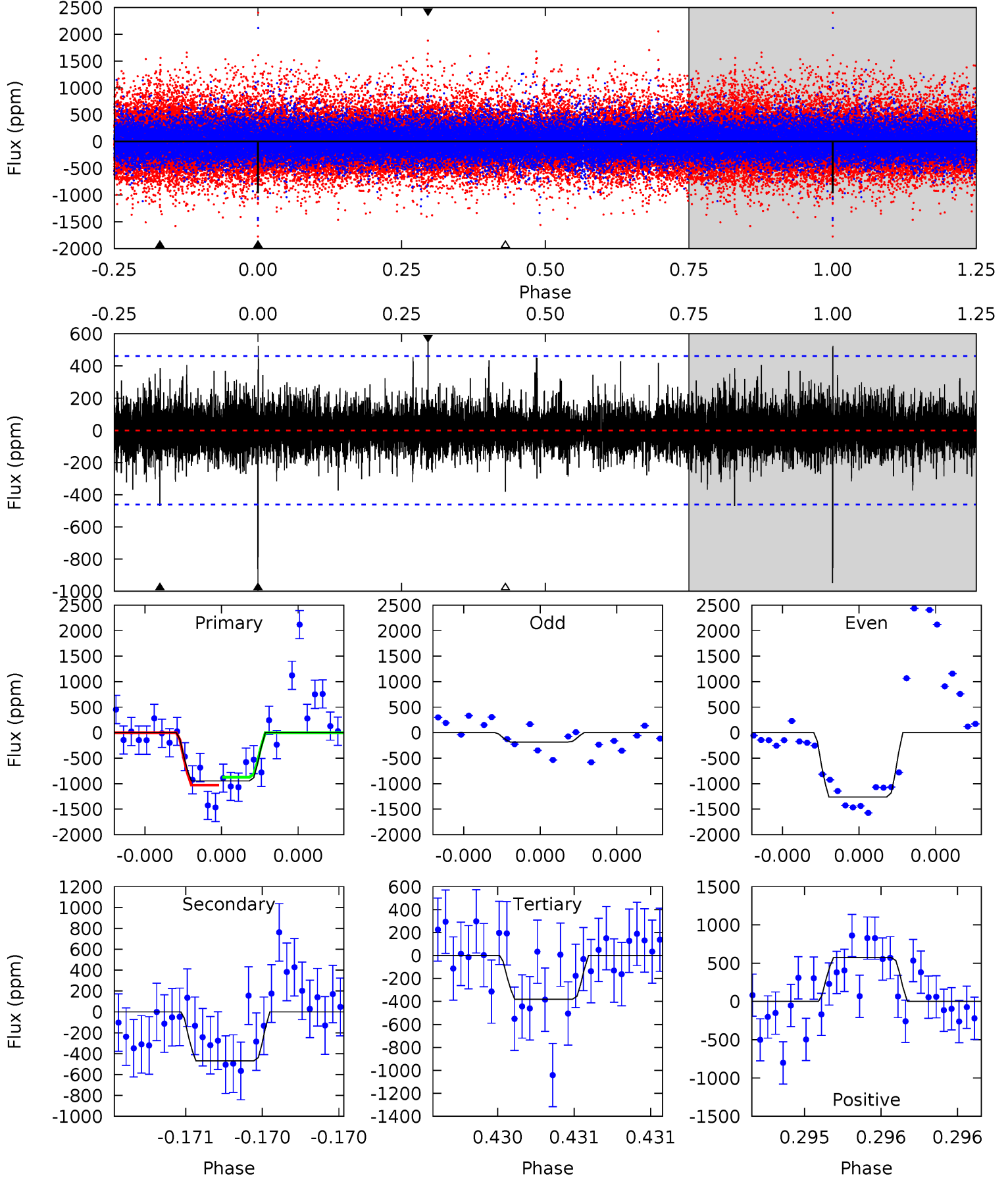
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.88	6.53	5.97	25.0	5.59	3.50	1.84	-1.09	-20.2	0.56	-18.5	0.44	1.50	0.79	1.01



Alt Model-Shift Uniqueness Test

008959288-02, P = 356.764078 Days, E = 202.934119 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	5.71	4.62	6.97	5.62	3.55	1.11	6.91	4.56	1.08	-1.26	6.30	0.80	0.38	0.93



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-664 ± 102	$17.40^{+17.62}_{-12.07}$	291^{+13}_{-12}	2595^{+1032}_{-409}	955^{+8755}_{-734}
Alt.	-469 ± 82	$16.70^{+19.89}_{-11.39}$	292^{+12}_{-12}	2497^{+892}_{-414}	700^{+5837}_{-559}

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

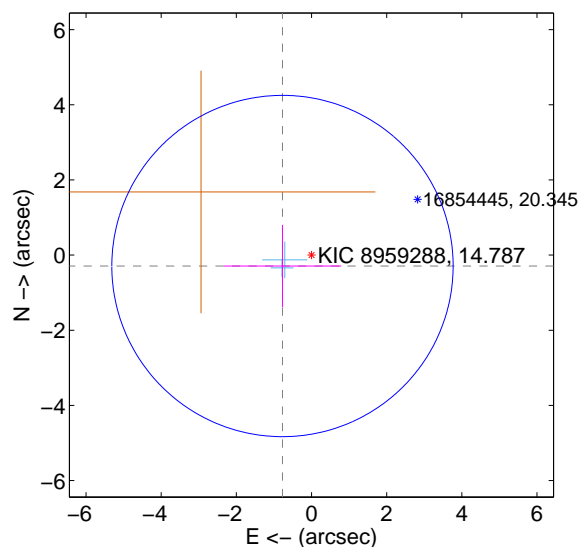
Supplemental centroid analysis for 008959288-02. Kepler magnitude: 14.79. Transit SNR 8.15

There are 2 quarters with good PRF difference image offsets

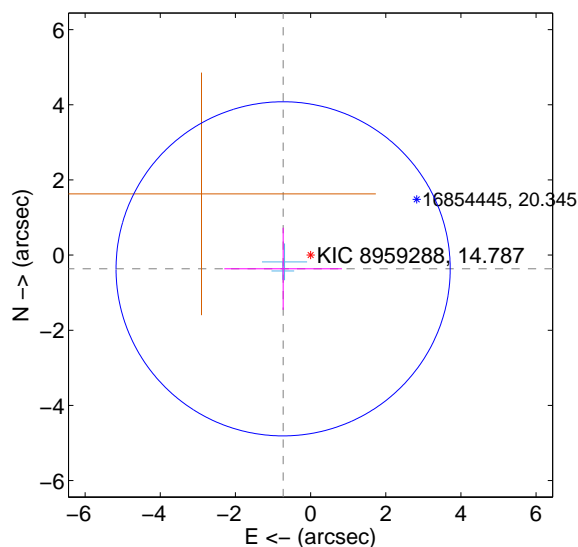
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.826 ± 1.514	0.55	0.773 ± 1.564	-0.290 ± 1.093
PRF-fit source offset from KIC position	0.817 ± 1.482	0.55	0.731 ± 1.564	-0.365 ± 1.093
photometric centroid source offset	0.92 ± 0.83	1.10	0.66 ± 0.78	-0.64 ± 0.89

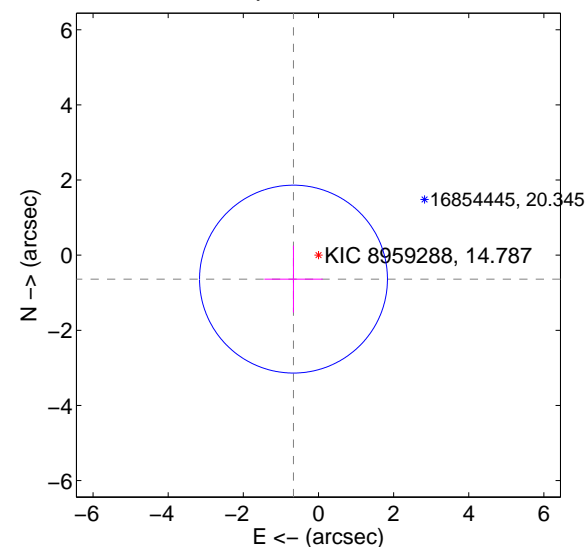
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



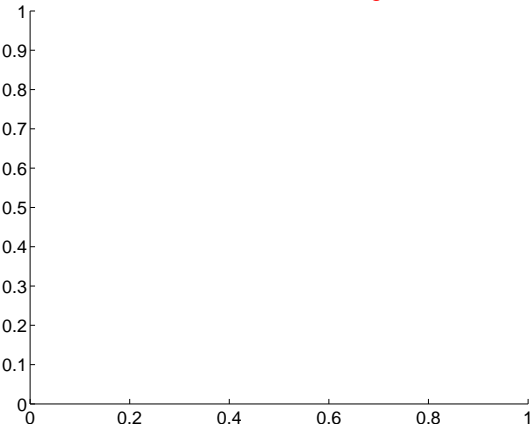
offset from photometric centroids



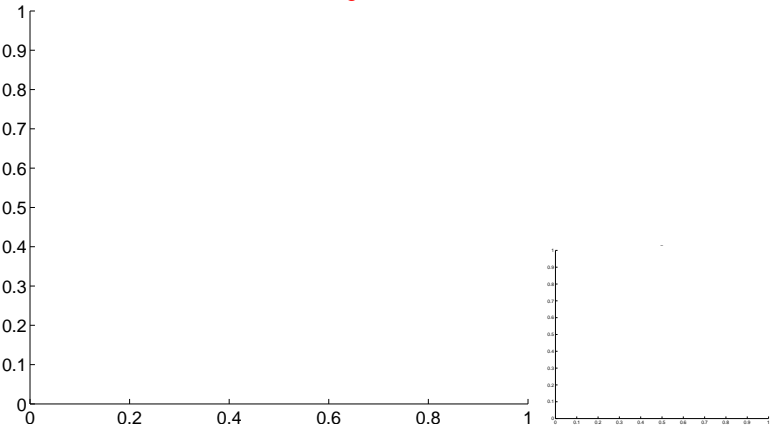
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

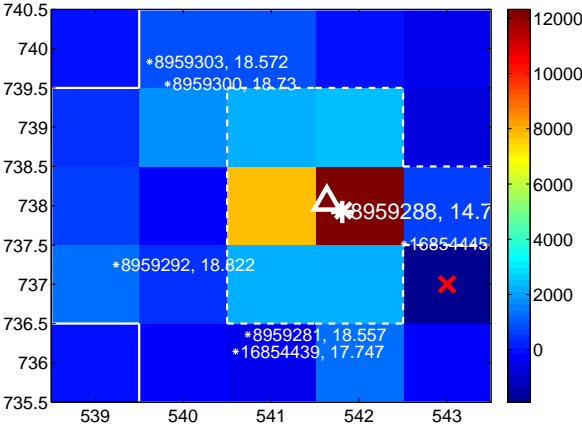
Q1 no difference image



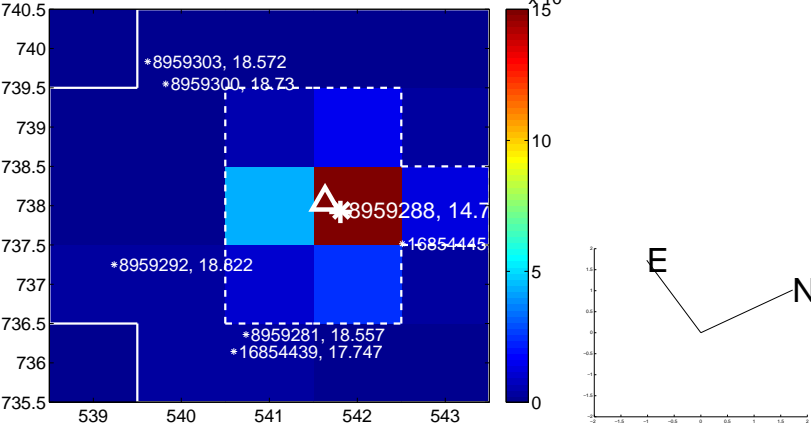
Q1 no OOT image



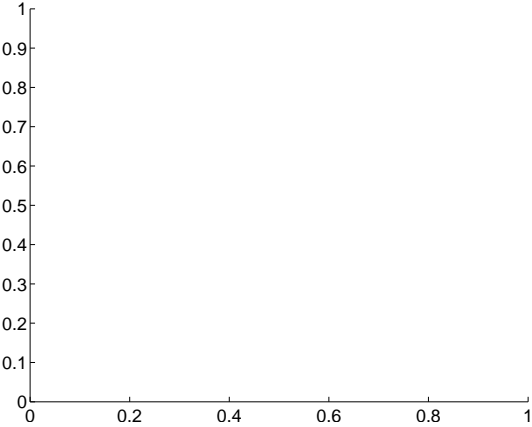
Q2 difference image



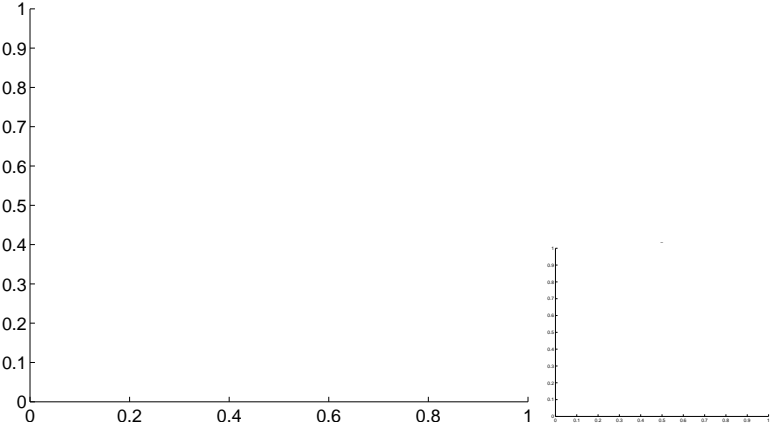
Q2 OOT image



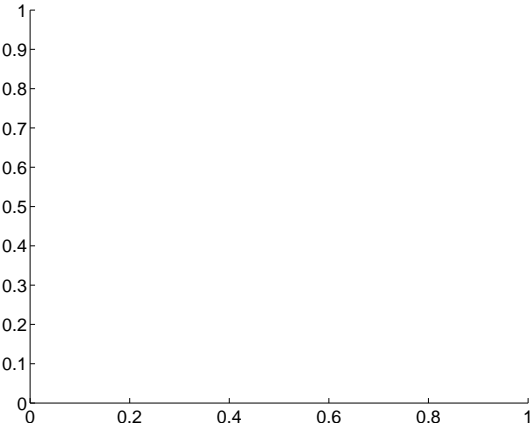
Q3 no difference image



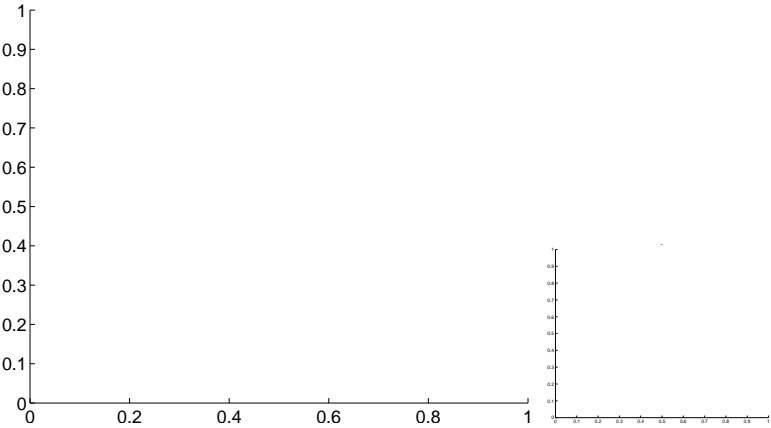
Q3 no OOT image



Q4 no difference image

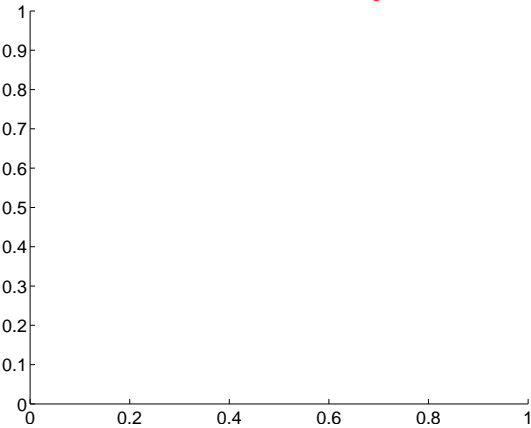


Q4 no OOT image

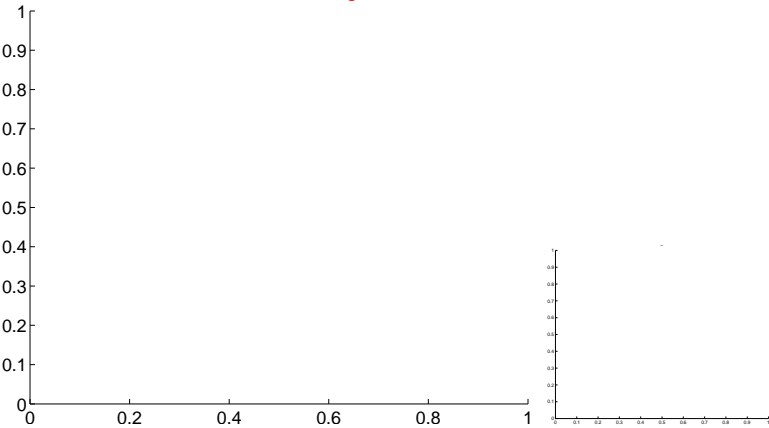


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

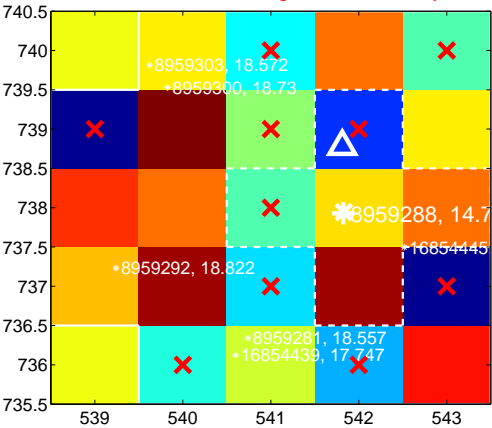
Q5 no difference image



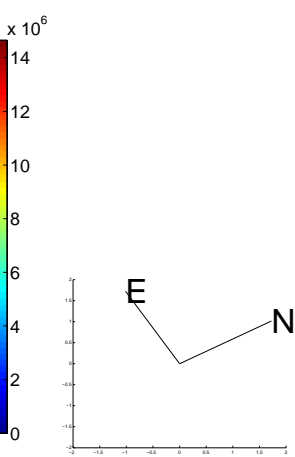
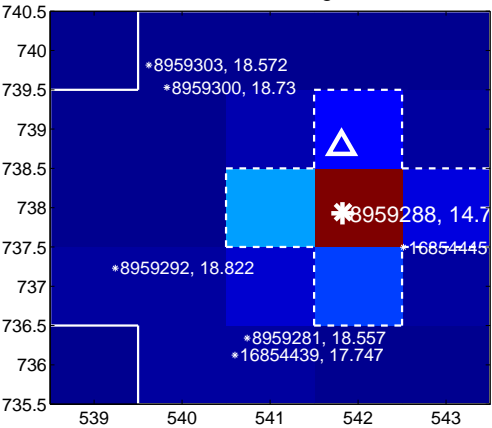
Q5 no OOT image



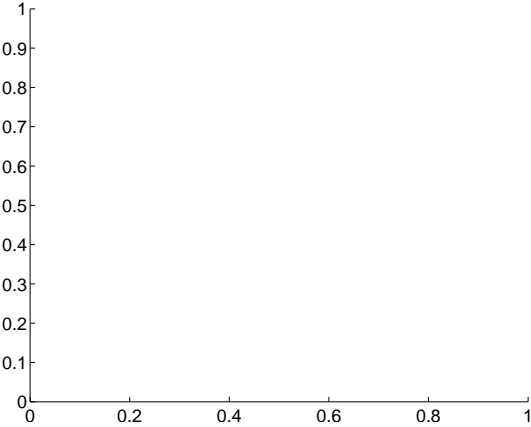
Q6 difference image. Poor Quality



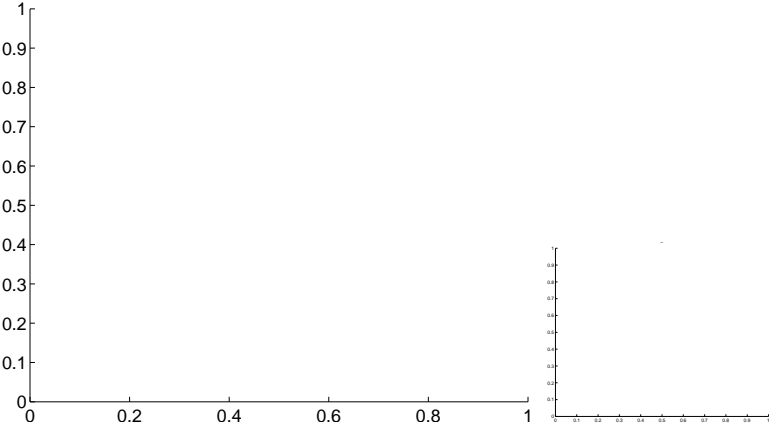
Q6 OOT image



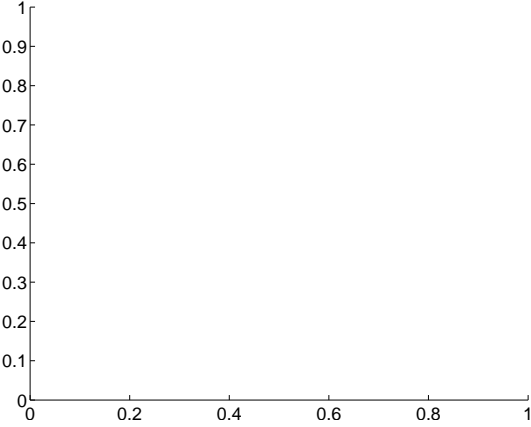
Q7 no difference image



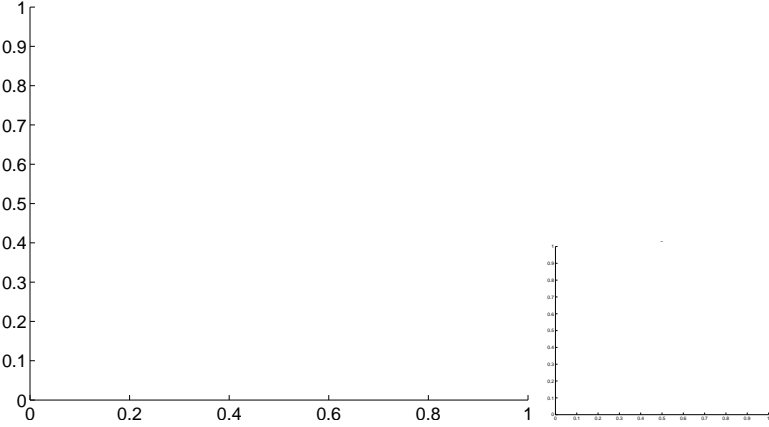
Q7 no OOT image



Q8 no difference image

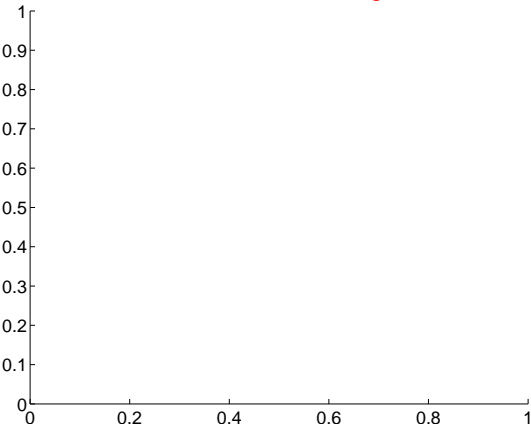


Q8 no OOT image

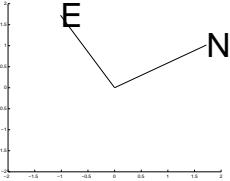
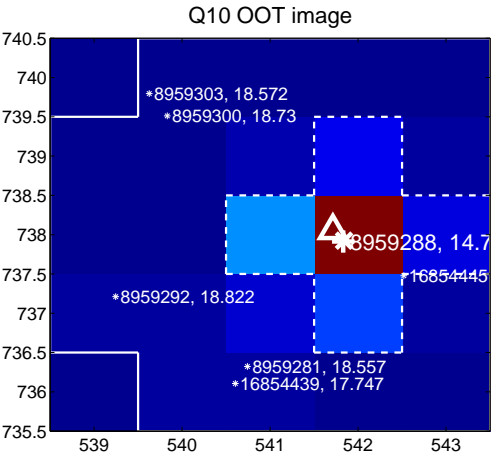
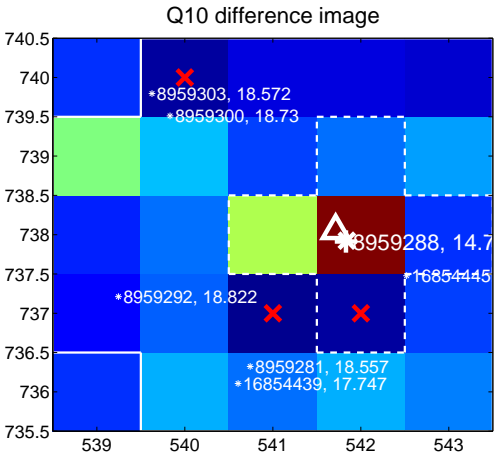
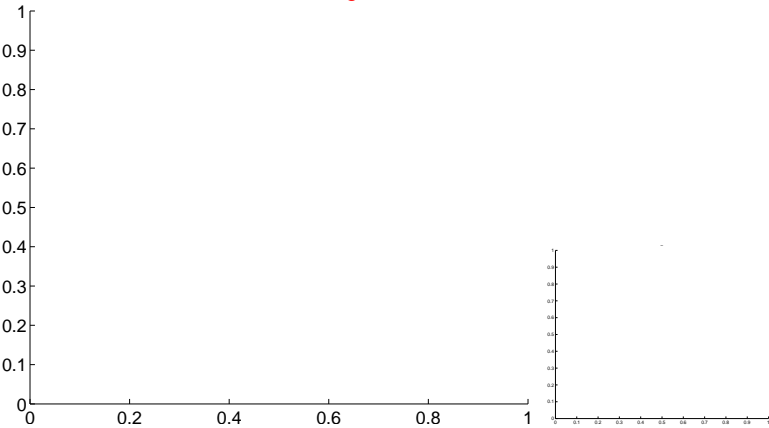


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

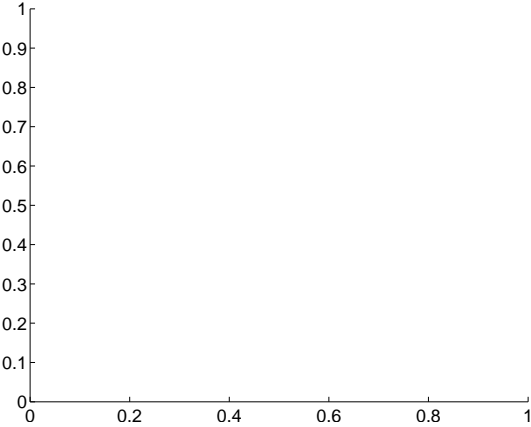
Q9 no difference image



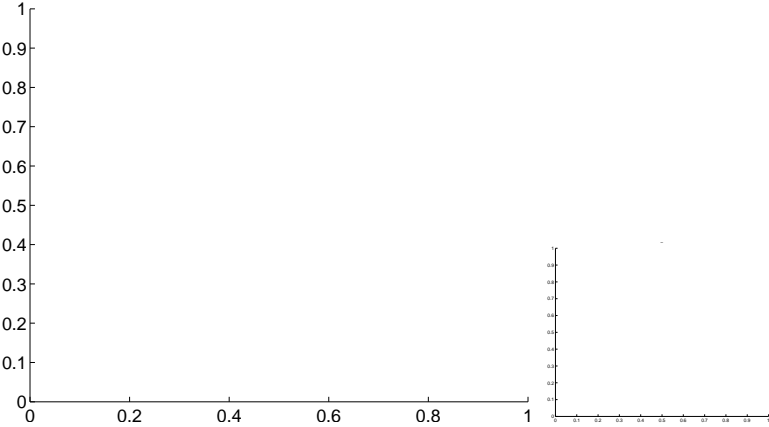
Q9 no OOT image



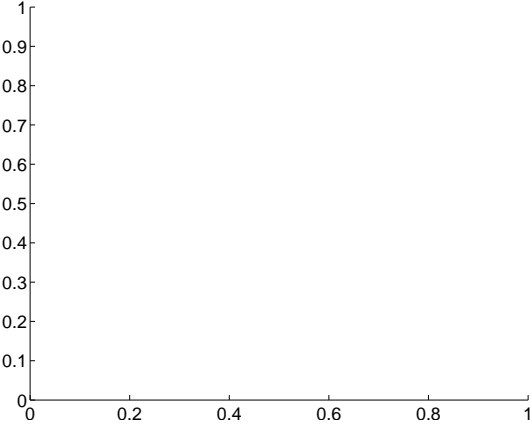
Q11 no difference image



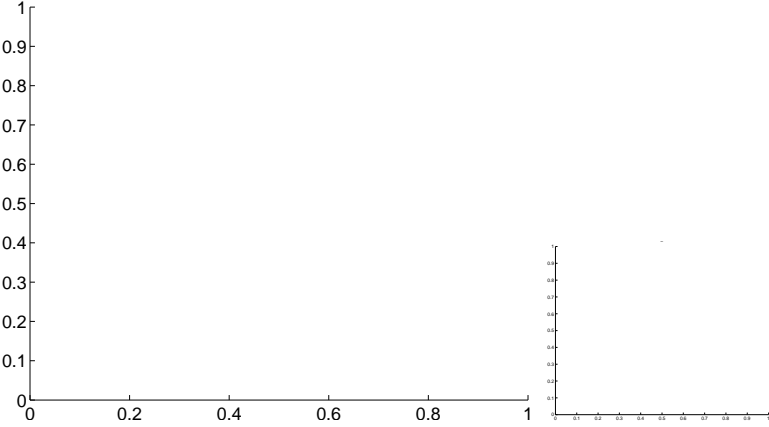
Q11 no OOT image



Q12 no difference image



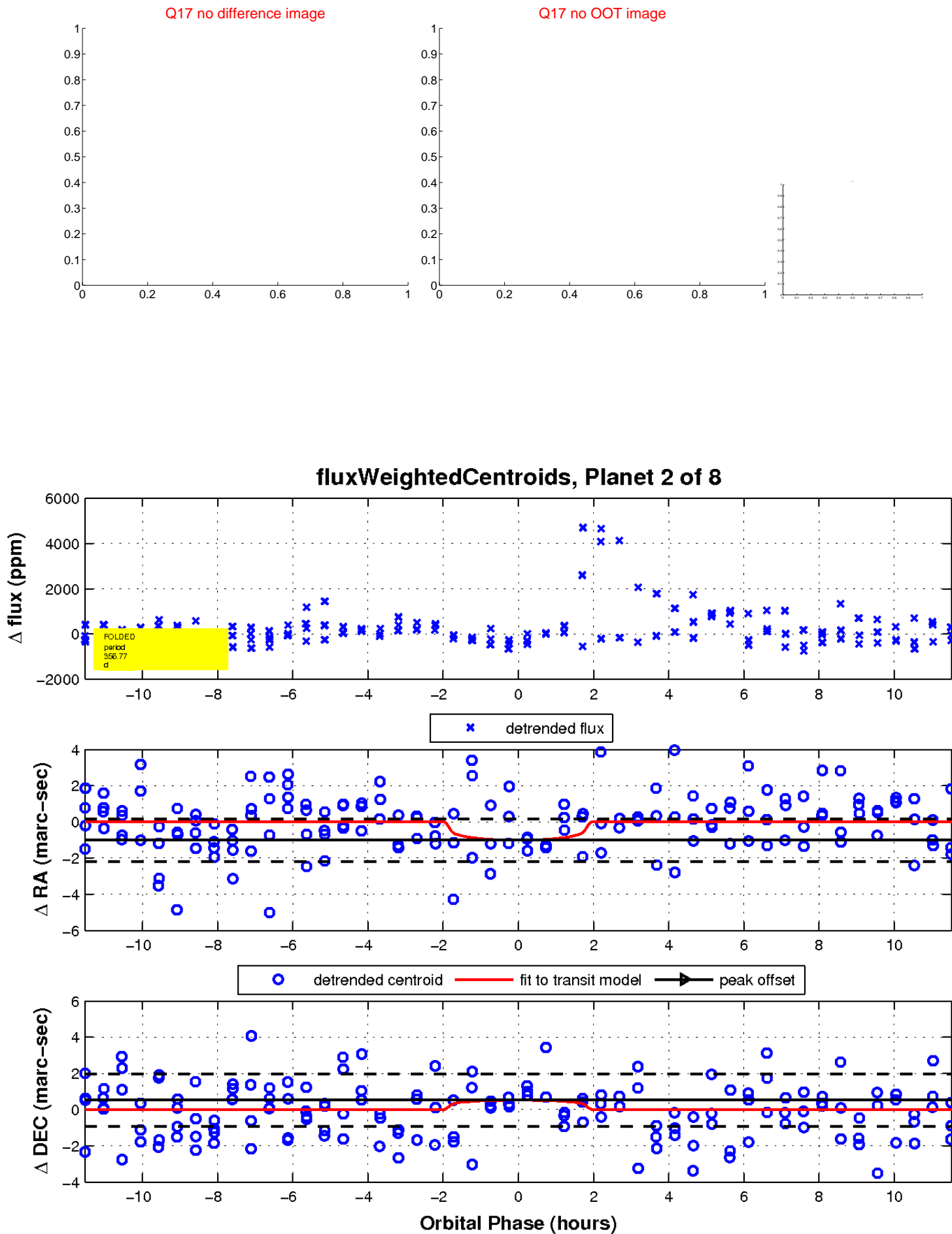
Q12 no OOT image



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

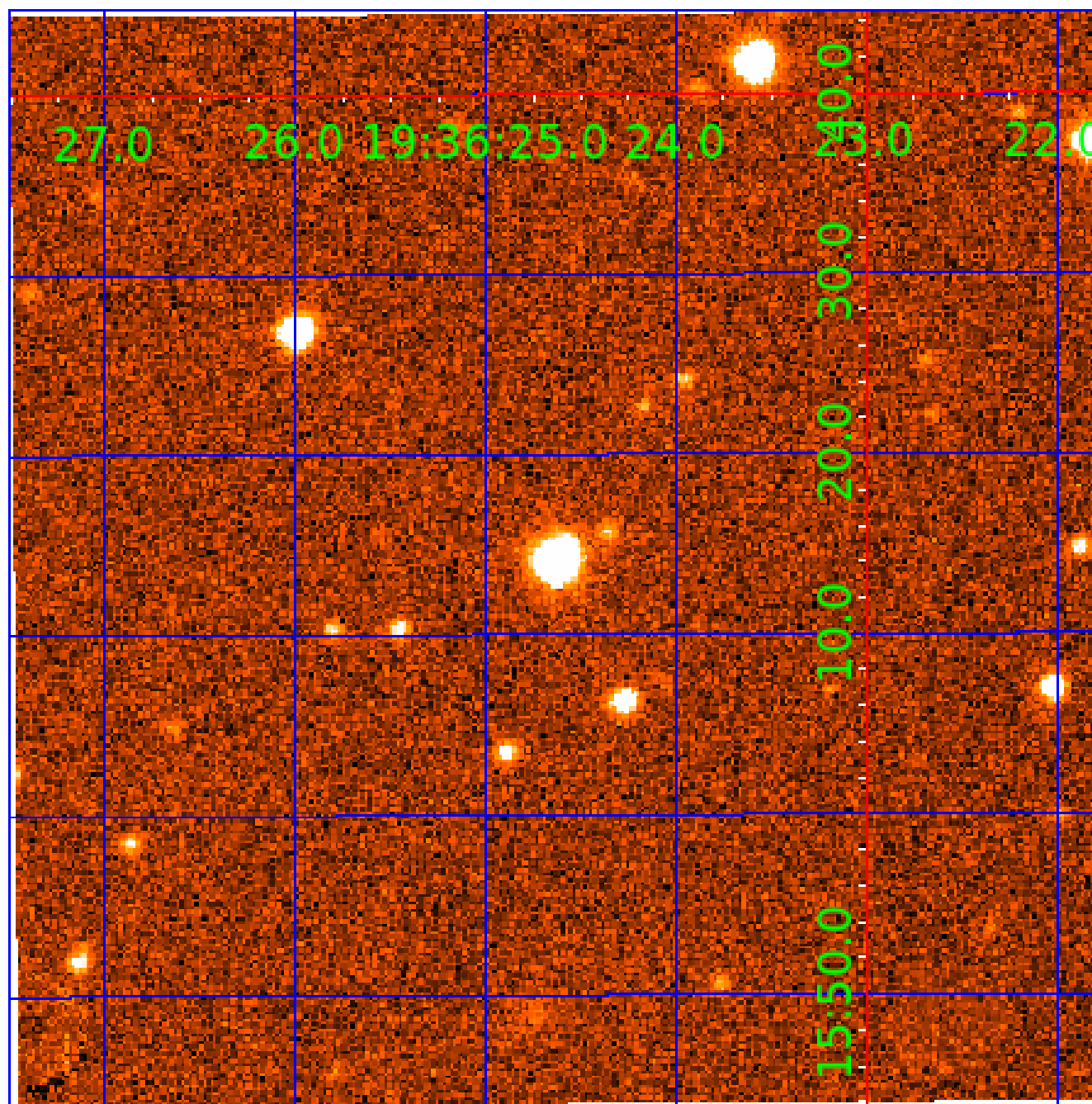


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008959288

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})
008959288-01	OBS	No	491.626083	394.340555	1340.5	5.480	15.9	7.9	0.72	5191	2.87	0.29
008959288-02	OBS	No	356.770109	202.939752	1275.1	3.867	14.4	8.2	0.72	5191	2.62	0.45
008959288-03	OBS	No	475.553173	561.079381	1064.1	9.219	14.6	5.9	0.72	5191	2.38	0.30
008959288-04	OBS	No	561.692185	392.350191	1312.0	14.264	14.9	7.3	0.72	5191	3.09	0.24
008959288-05	OBS	No	465.408211	356.446112	1363.6	12.423	11.1	8.1	0.72	5191	2.70	0.31
008959288-06	OBS	No	288.114980	293.686359	929.8	16.976	10.7	6.2	0.72	5191	2.16	0.59
008959288-07	OBS	No	309.337500	142.033948	1303.8	6.783	10.7	7.2	0.72	5191	5.13	0.54
008959288-08	OBS	No	483.757722	334.988384	920.5	4.500	10.0	-1.0	0.72	5191	2.14	0.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008959288-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008959288-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV
008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

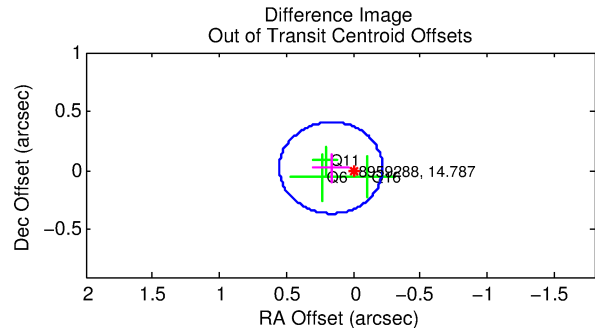
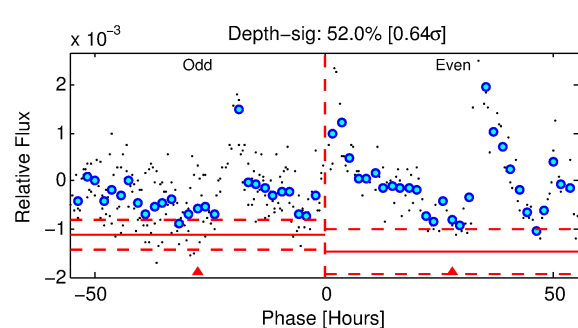
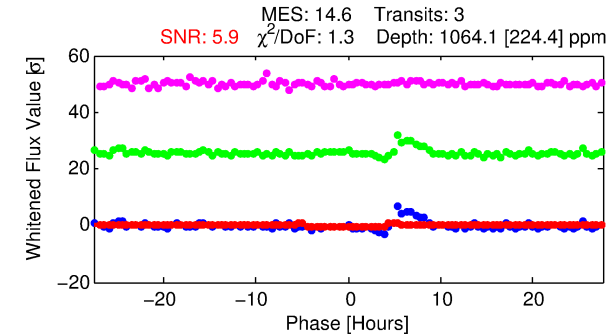
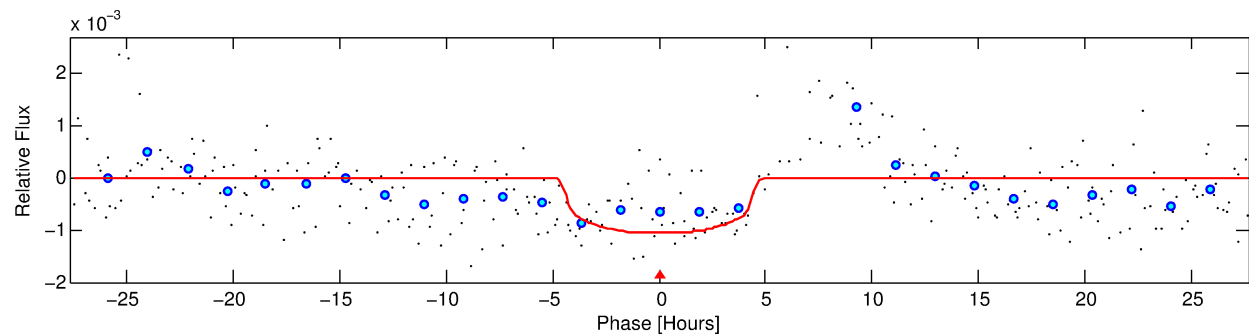
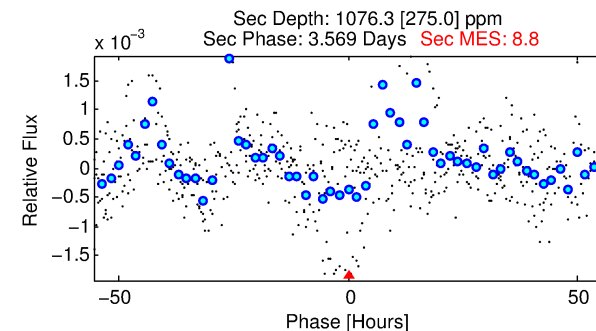
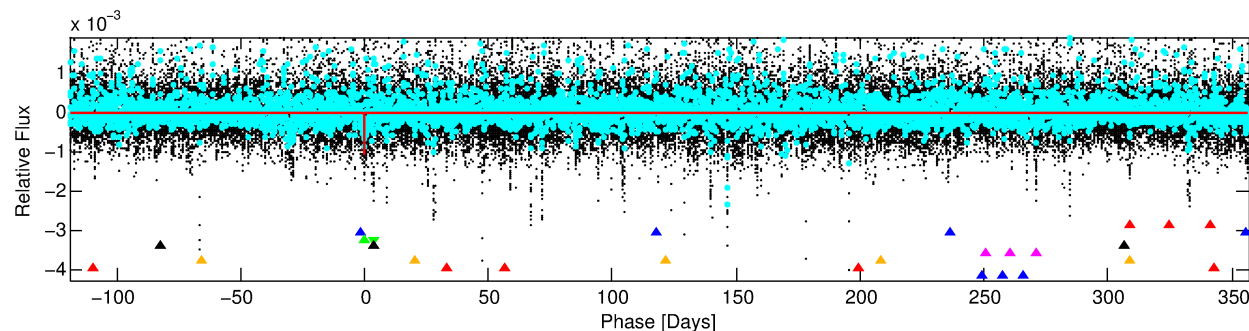
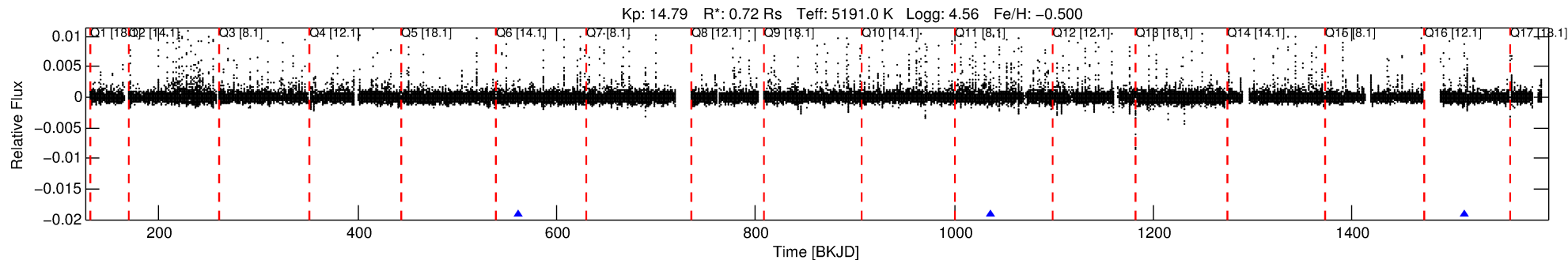
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-03

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 3 of 8 Period: 475.553 d



DV Fit Results:

Period = 475.55317 [0.01045] d
Epoch = 561.0794 [0.0152] BKJD
Rp/R* = 0.0303 [0.0201]
a/R* = 358.77 [898.69]
b = 0.48 [4.02]
Seff = 0.31 [0.06]
Teq = 190 [9] K
Rp = 2.38 [1.60] Re
a = 1.0513 [0.1037] AU
Ag = 115716.40 [157110.72] [0.74σ]
Teff = 5404 [1831] K [2.85σ]

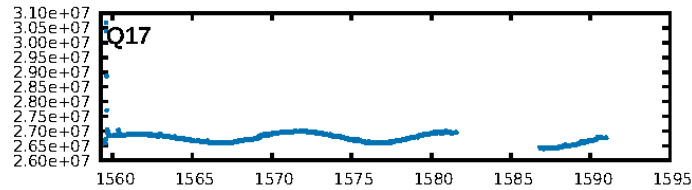
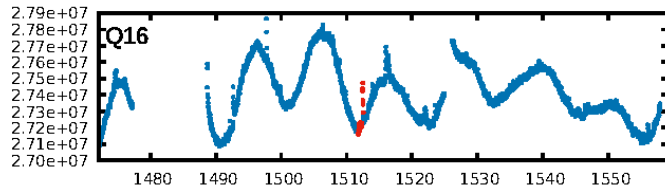
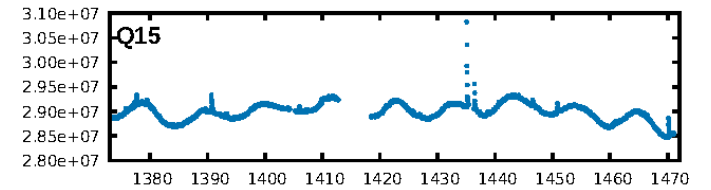
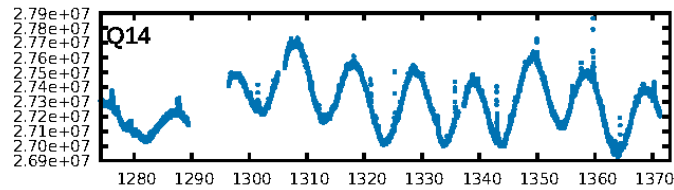
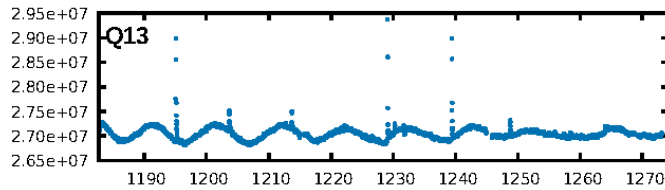
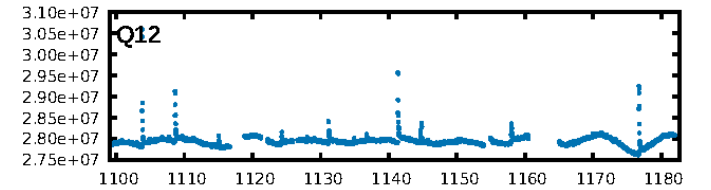
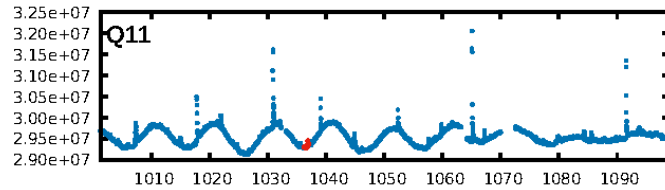
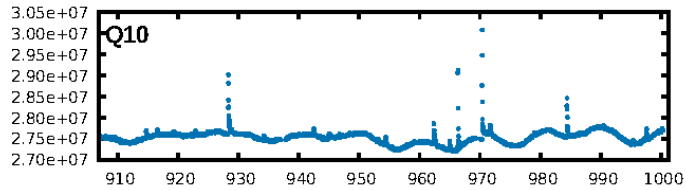
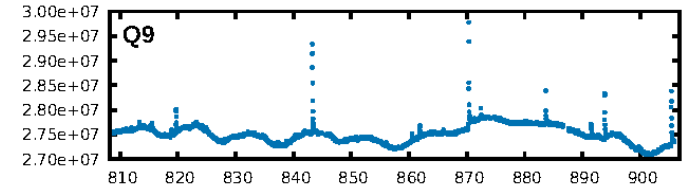
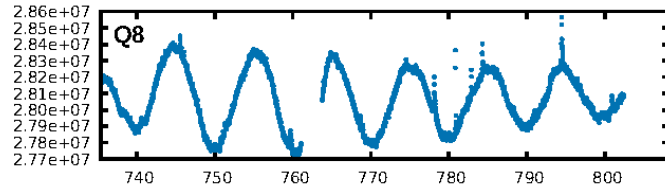
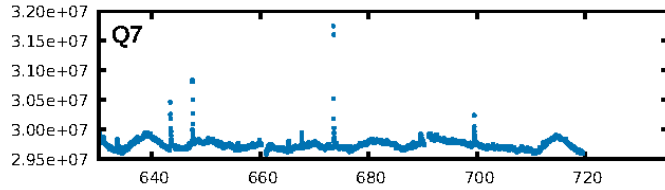
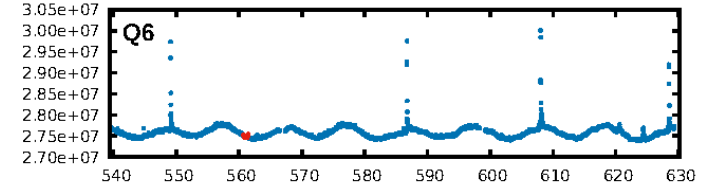
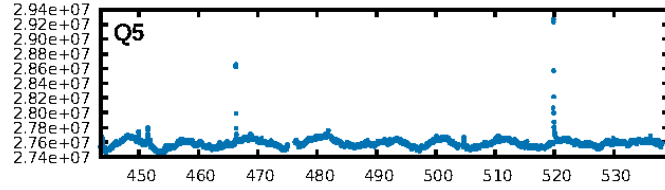
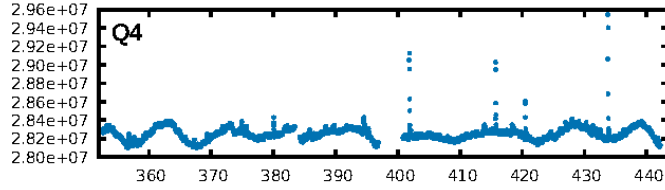
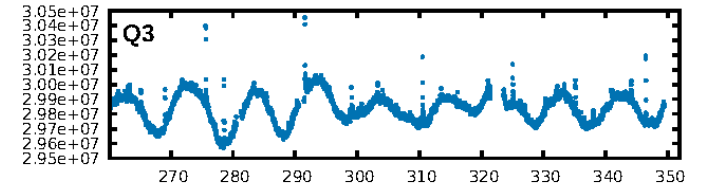
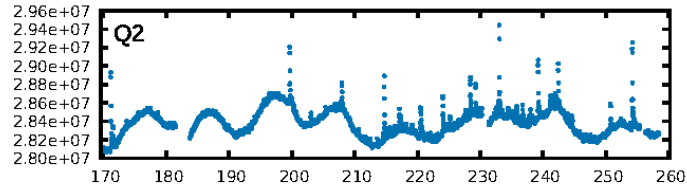
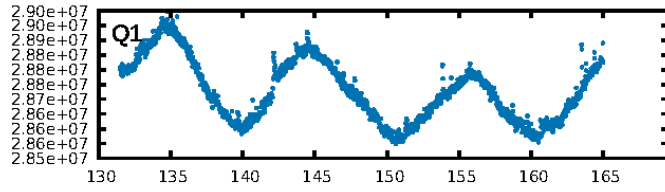
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.74σ]
LongPeriod-sig: 100.0% [19.19σ]
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 95.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.3472
Centroid-sig: 62.0%
Centroid-so: 0.125 arcsec [0.21σ]
OotOffset-rm: 0.171 arcsec [1.33σ]
KicOffset-rm: 0.236 arcsec [1.69σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

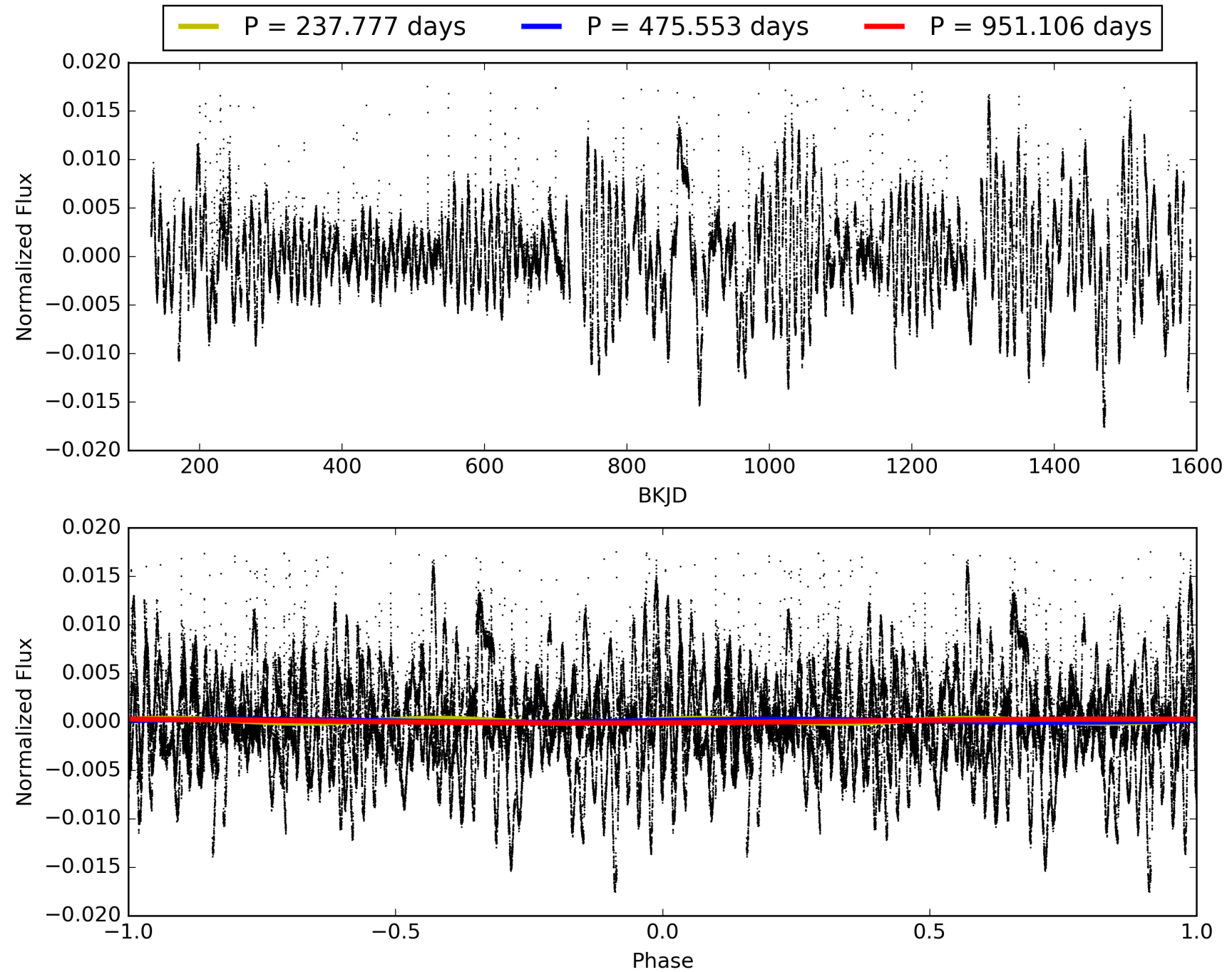
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:40:40 Z

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

TCE 008959288-03, PDC Light Curves

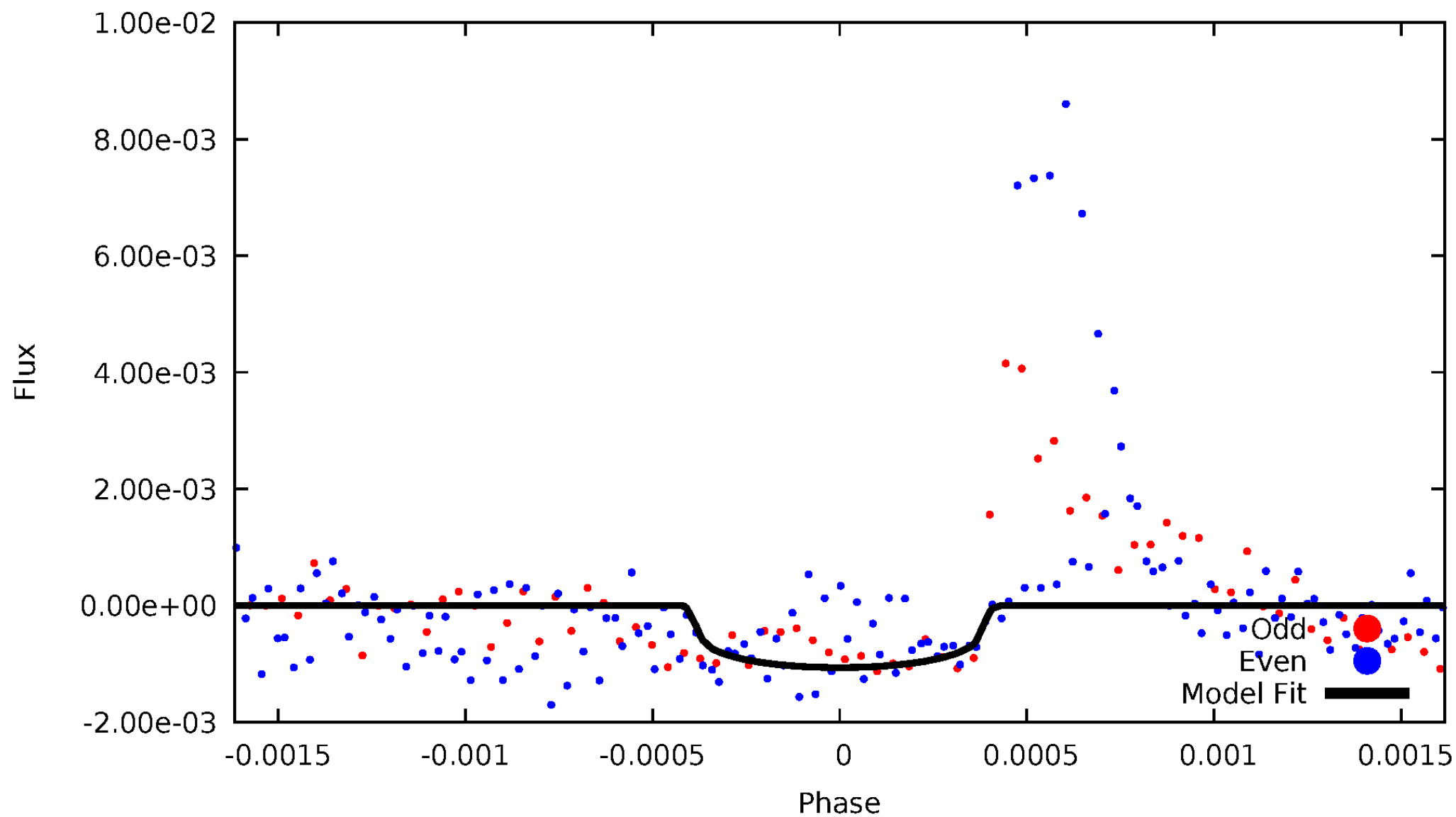


TCE 008959288-03



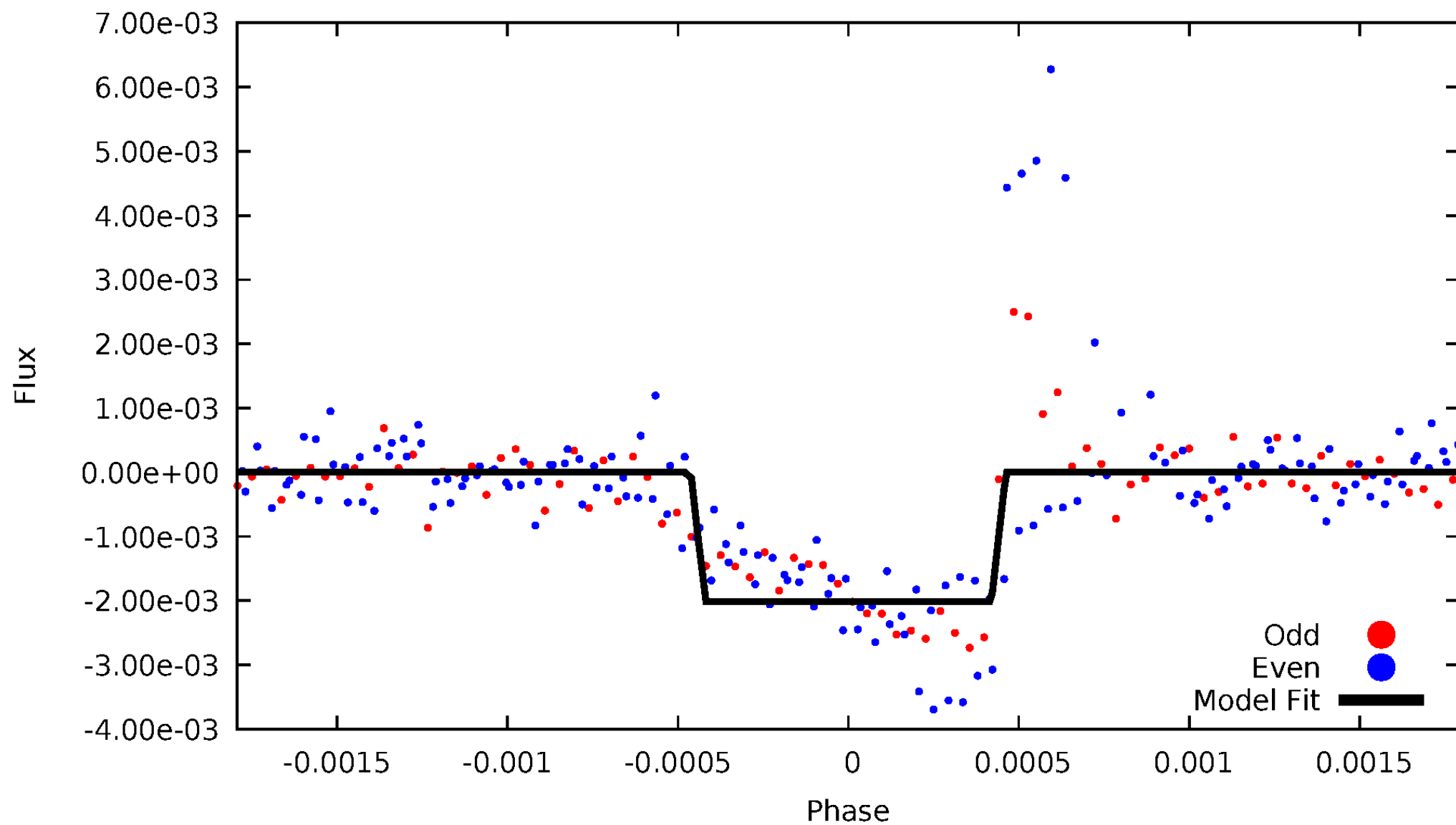
DV Odd/Even

TCE 008959288-03



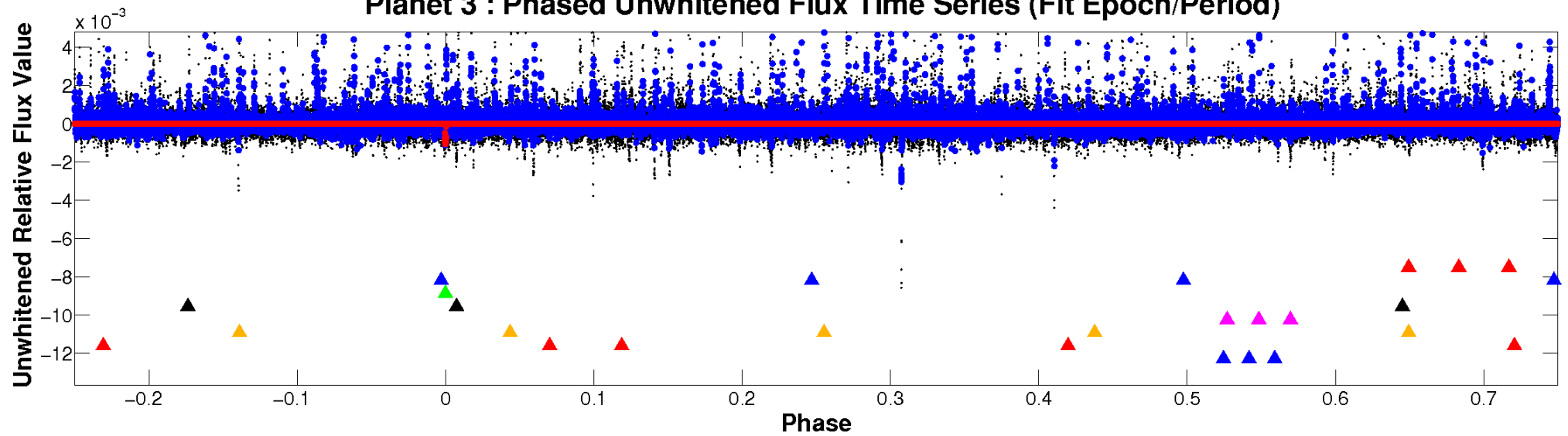
ALT Odd/Even

TCE 008959288-03

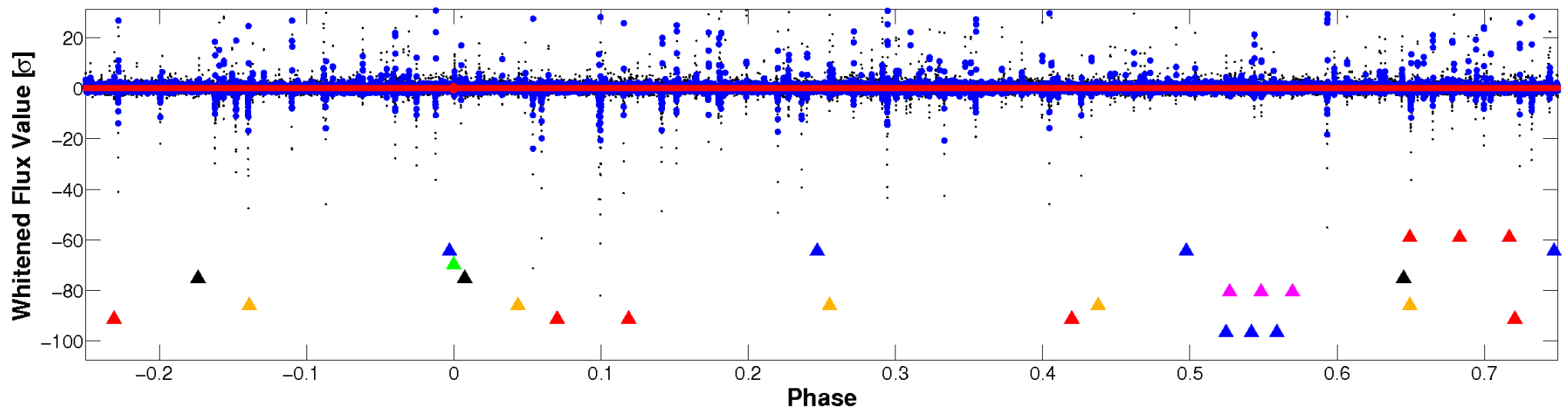


Non-Whitened Vs. Whitened Light Curve

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

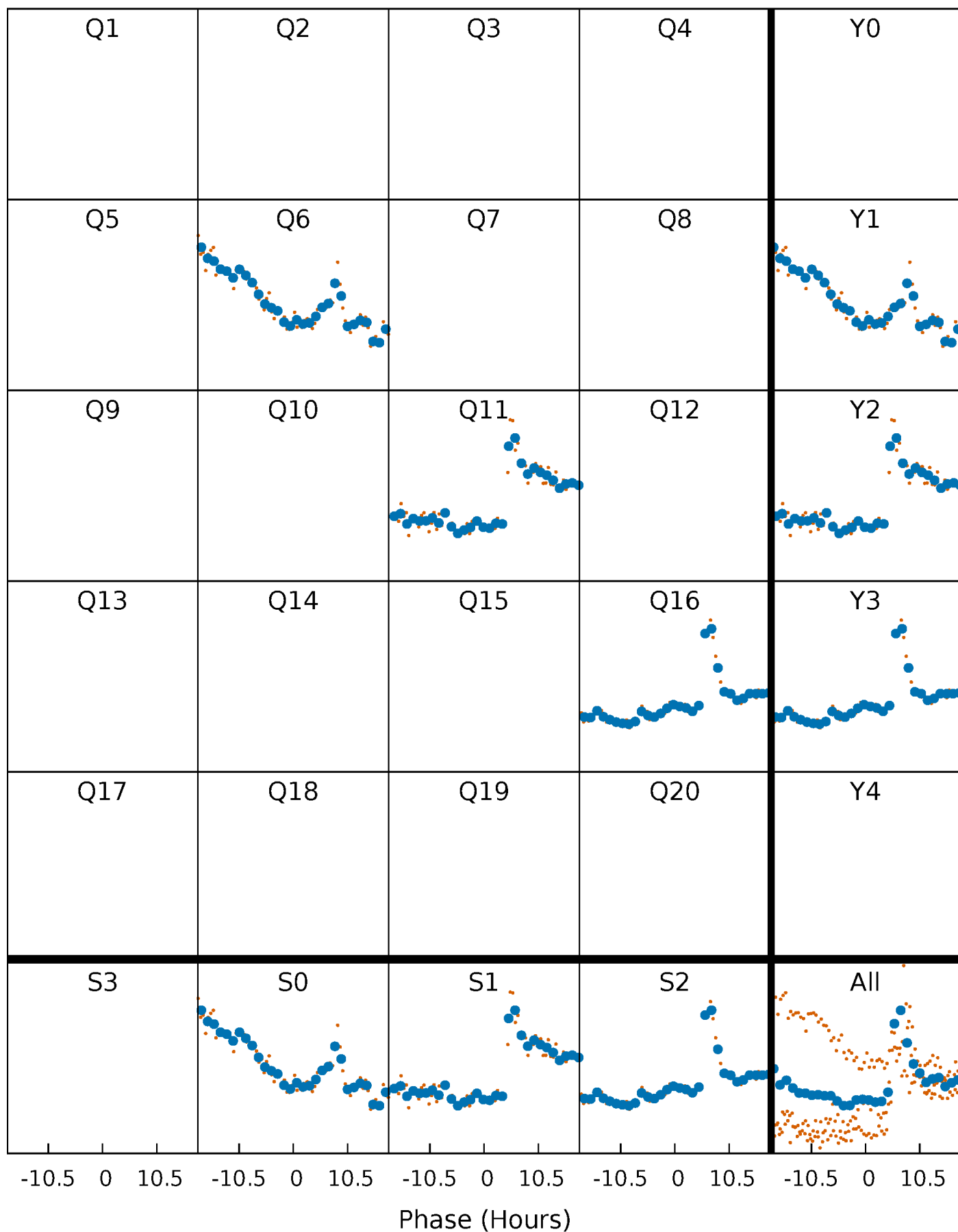


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



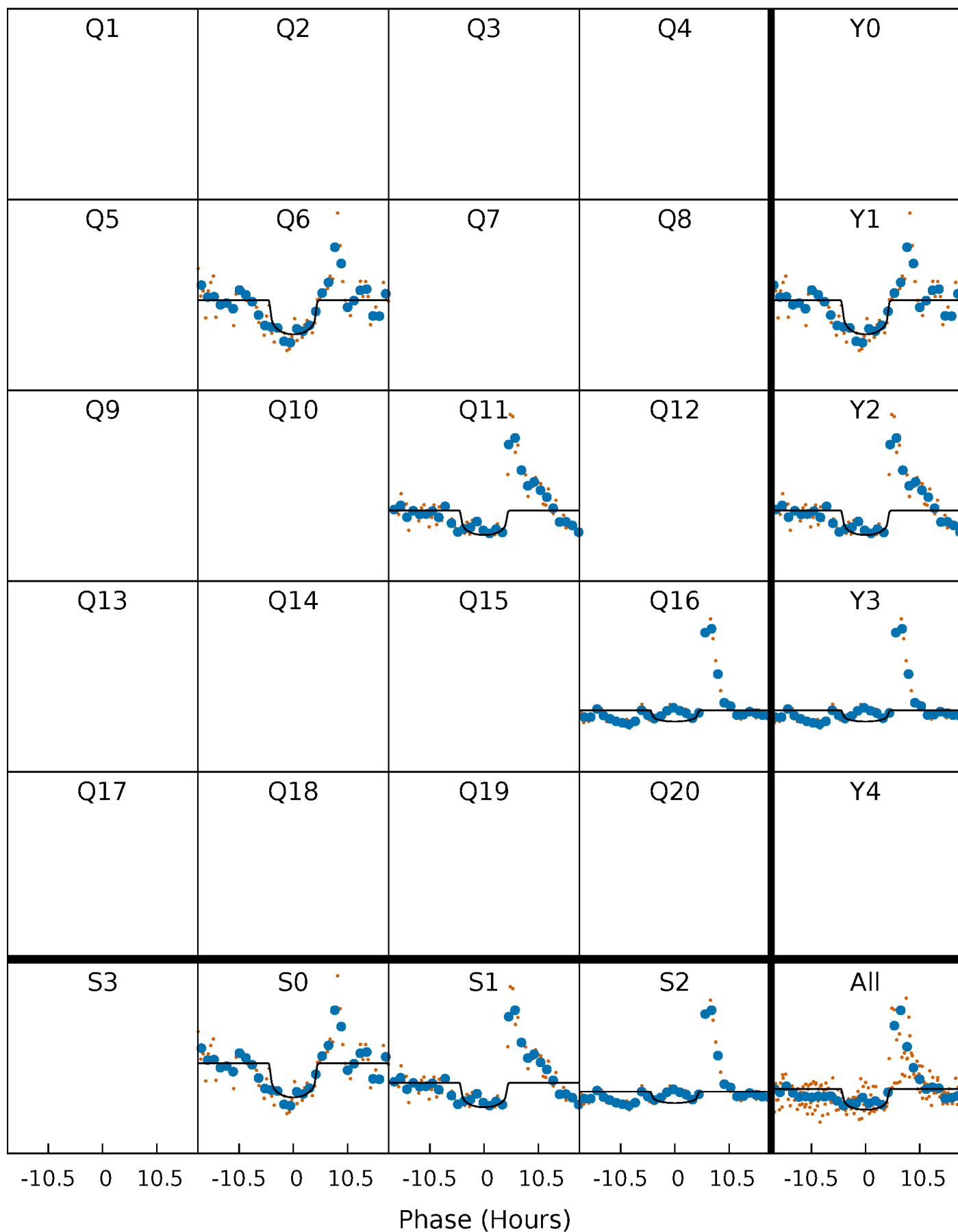
PDC Quarter-Phased Transit Curves

TCE 008959288-03 P=475.553173 Days $T_0=561.079381$ (BKJD)



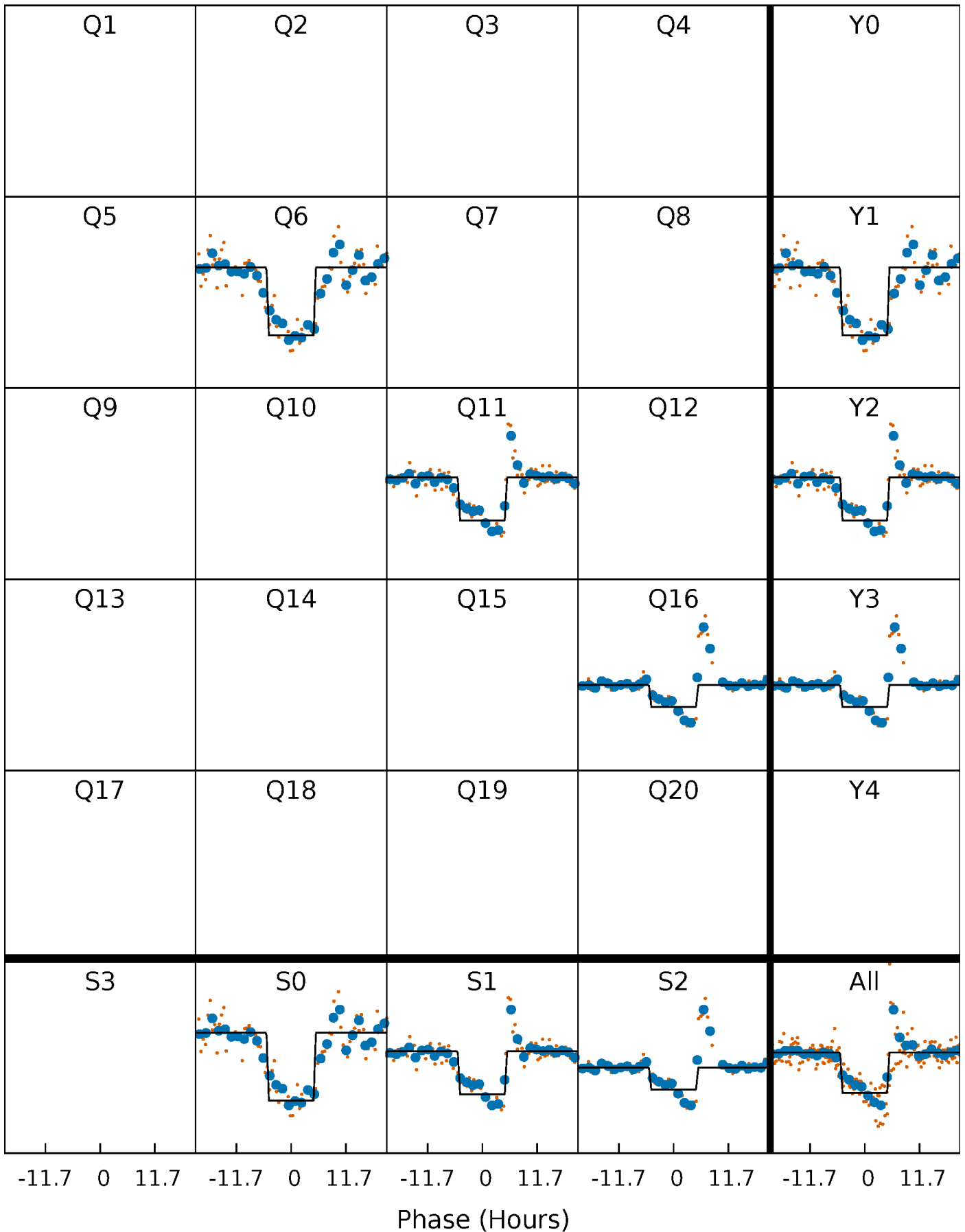
DV Quarter-Phased Transit Curves

TCE 008959288-03 $P=475.553173$ Days $T_0=561.079381$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

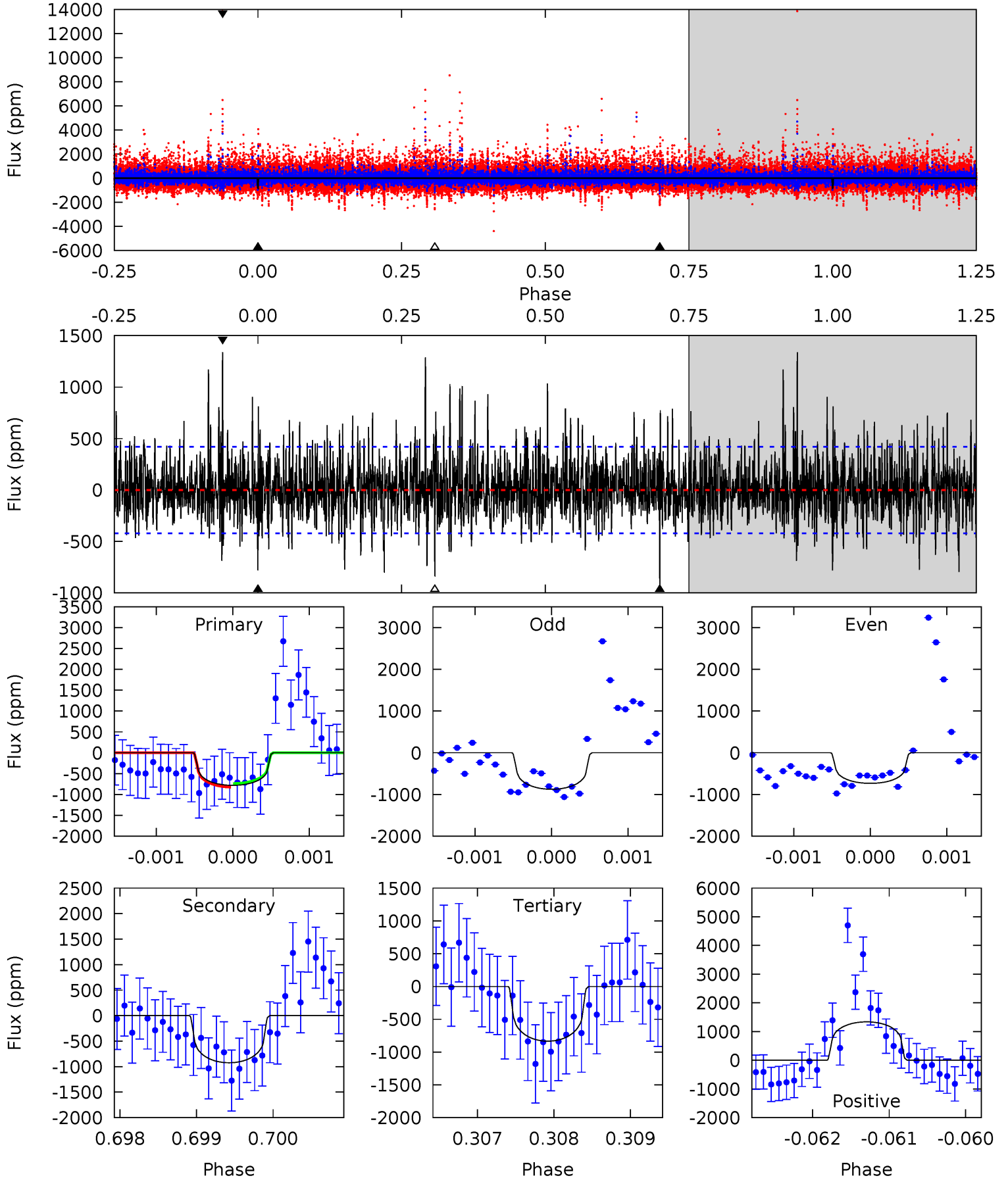
TCE 008959288-03 $P=475.577487$ Days $T_0=561.035589$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-03, P = 475.553173 Days, E = 85.526208 Days

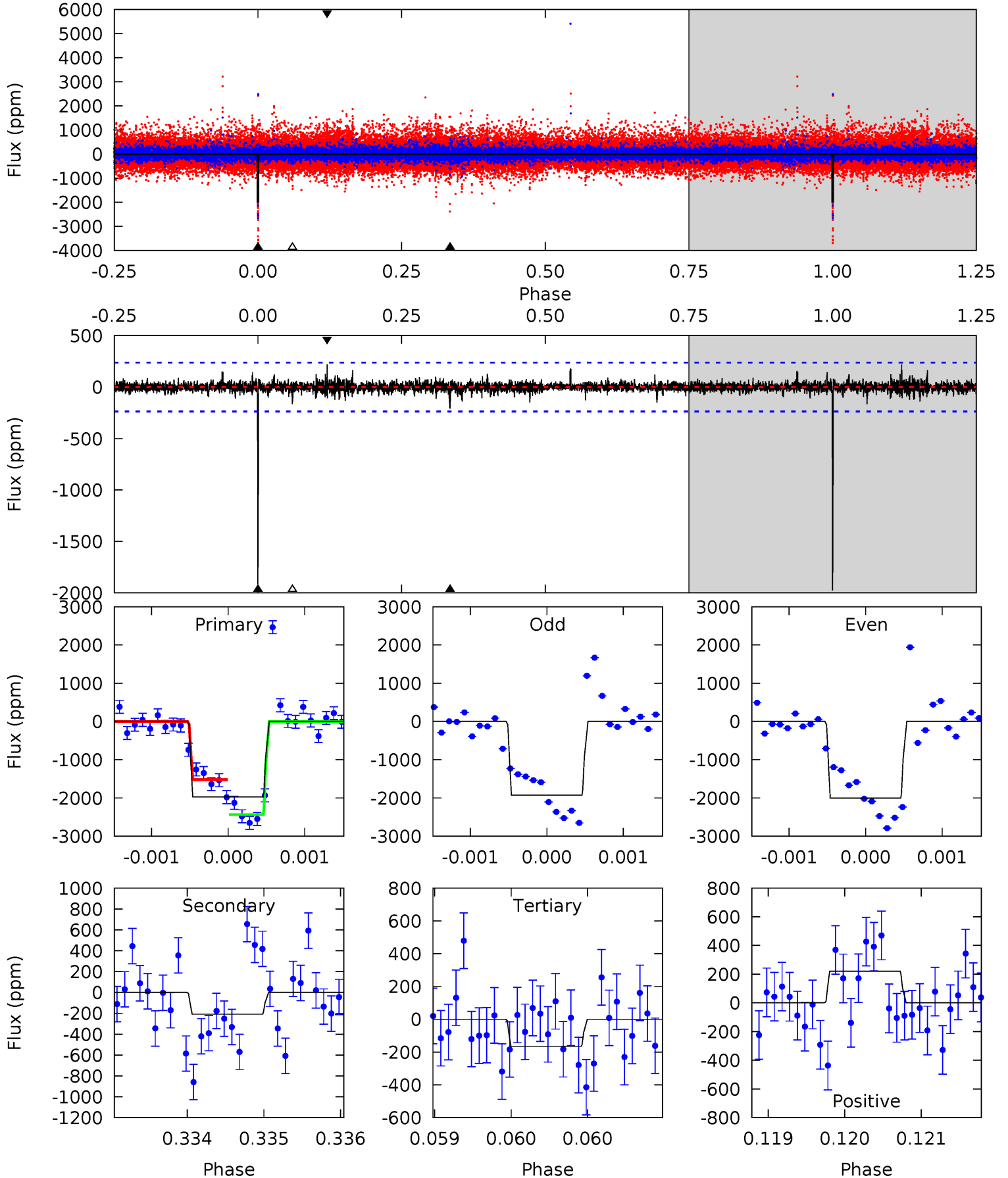
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	12.1	10.9	17.5	5.49	3.35	3.03	-0.70	-7.28	1.17	-5.41	0.34	0.89	0.59	0.55



Alt Model-Shift Uniqueness Test

008959288-03, $P = 475.577487$ Days, $E = 85.458102$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.5	4.82	3.81	5.07	5.47	3.32	0.69	41.7	40.4	1.01	-0.26	0.72	1.03	0.10	10.6



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-924 ± 77	$2.53^{+1.61}_{-1.34}$	265^{+11}_{-11}	5071^{+2415}_{-904}	$88720^{+313089}_{-55552}$
Alt.	-209 ± 43	$3.51^{+1.59}_{-1.40}$	265^{+11}_{-11}	3431^{+670}_{-382}	10331^{+17847}_{-5617}

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 $A_{obs} \gg 1.0$

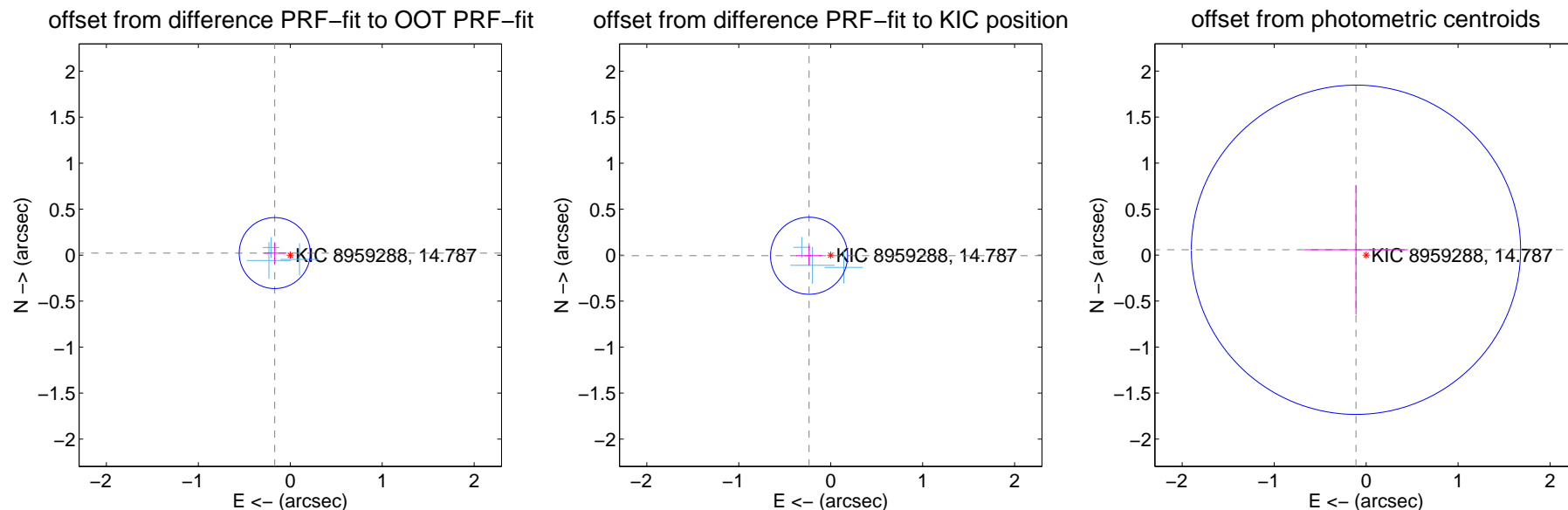
DV Centroid Data

Supplemental centroid analysis for 008959288-03. Kepler magnitude: 14.79. Transit SNR 5.95

There are 3 quarters with good PRF difference image offsets

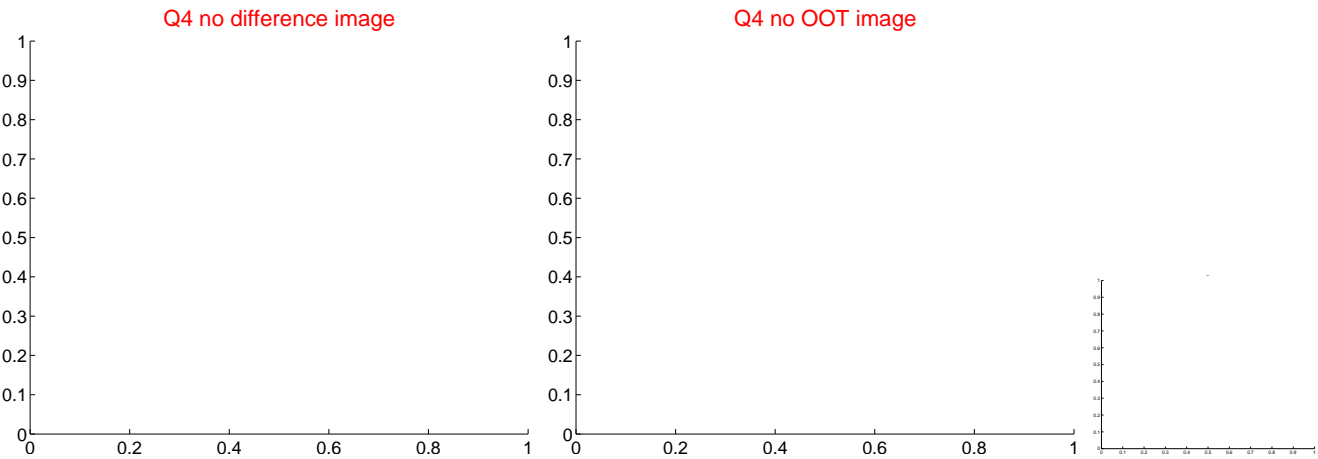
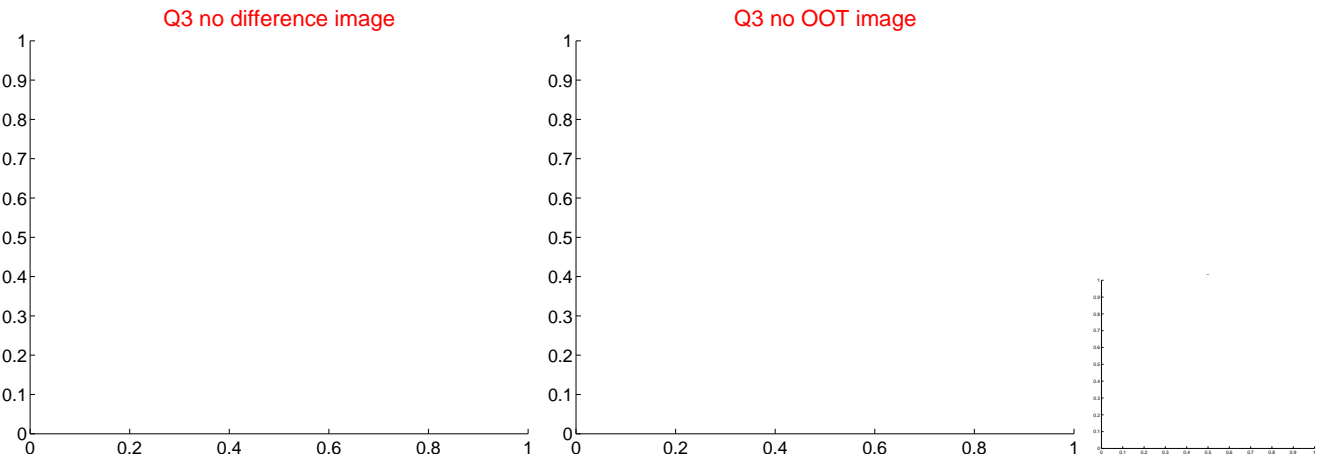
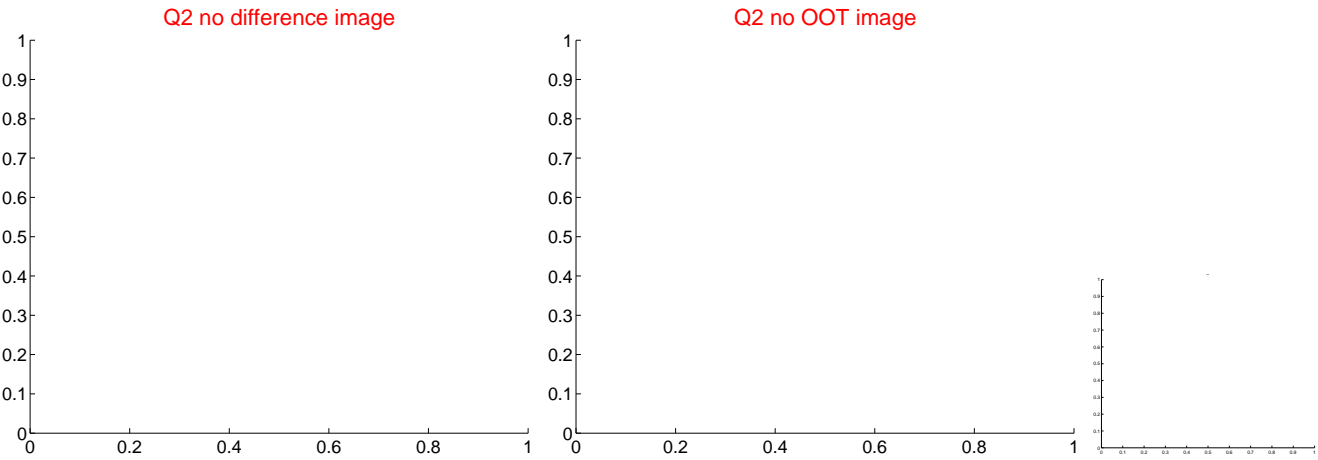
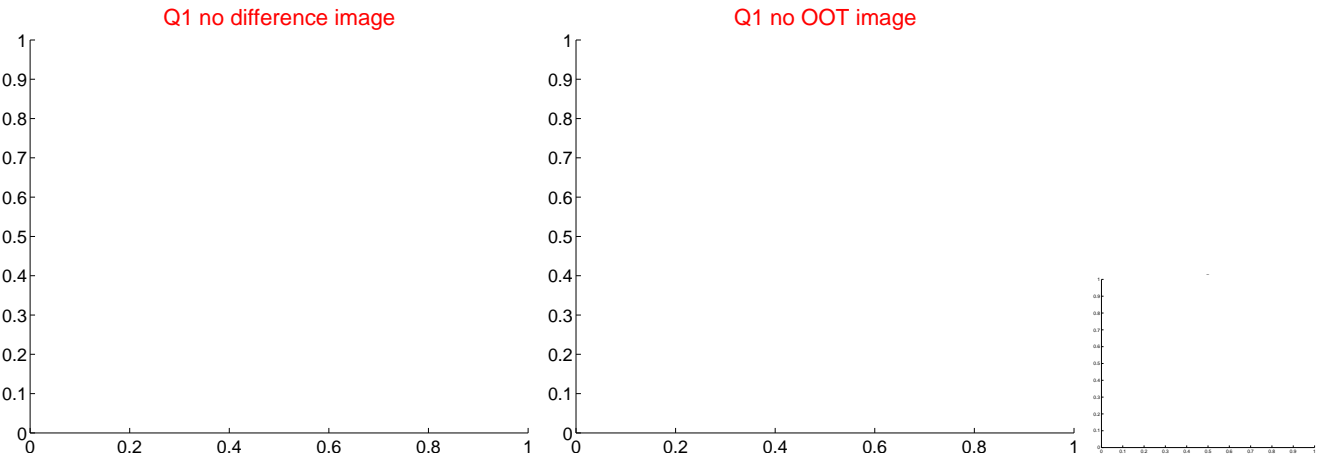
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.171 ± 0.129	1.33	0.169 ± 0.129	0.023 ± 0.117
PRF-fit source offset from KIC position	0.236 ± 0.140	1.69	0.235 ± 0.140	-0.006 ± 0.109
photometric centroid source offset	0.12 ± 0.60	0.21	0.11 ± 0.56	0.06 ± 0.70



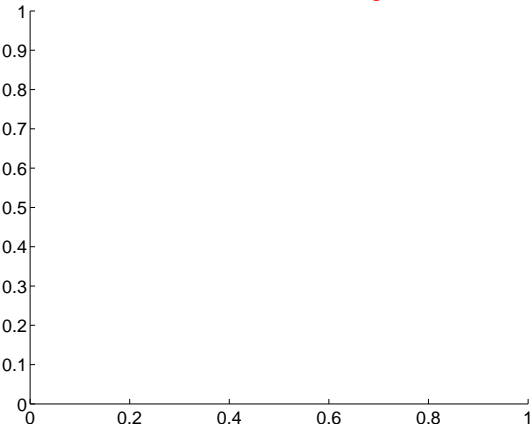
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

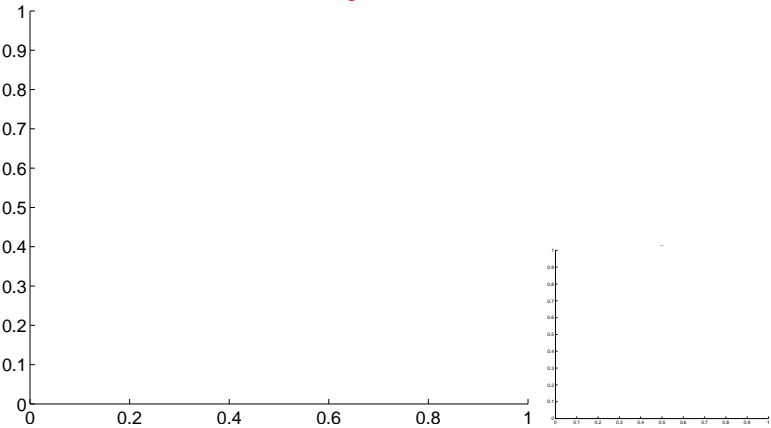


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

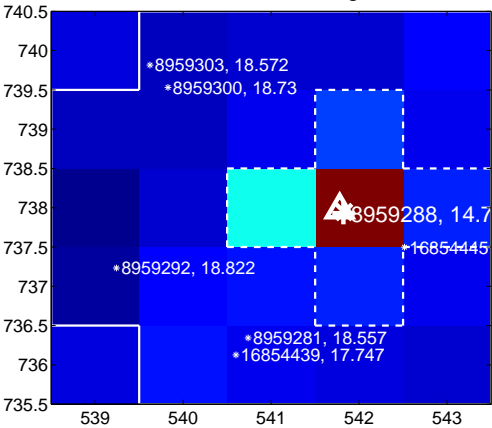
Q5 no difference image



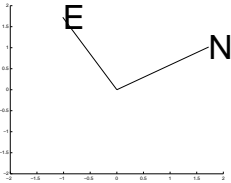
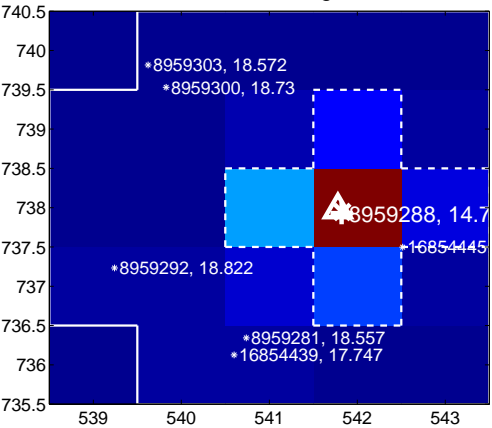
Q5 no OOT image



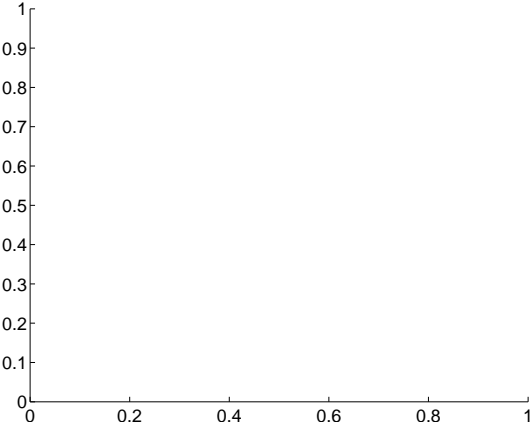
Q6 difference image



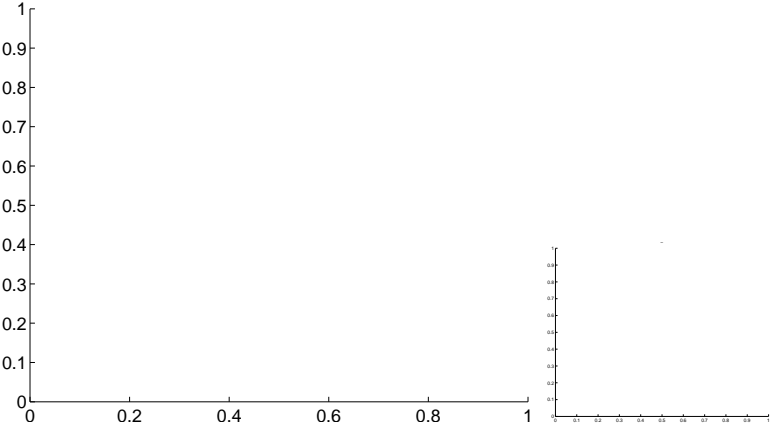
Q6 OOT image



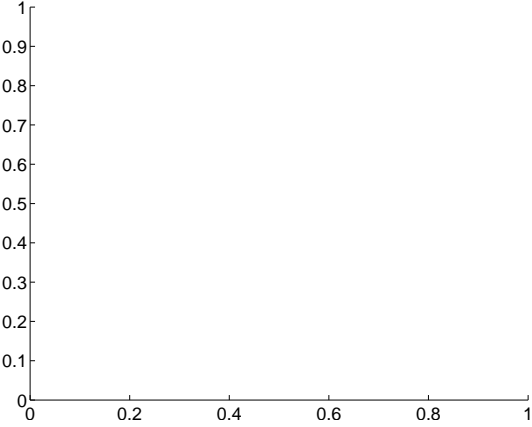
Q7 no difference image



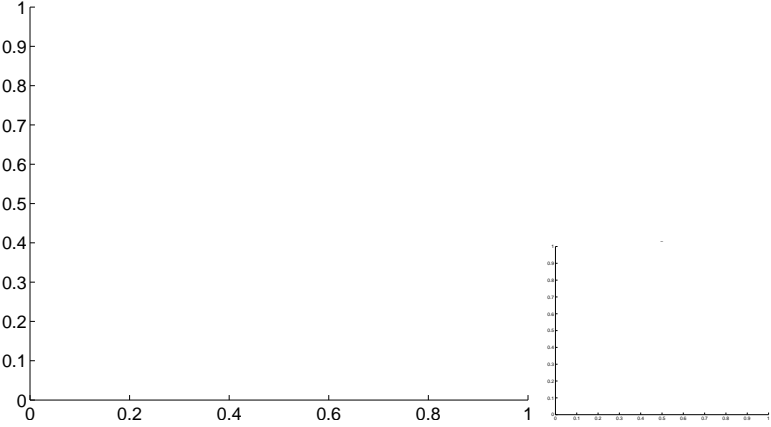
Q7 no OOT image



Q8 no difference image

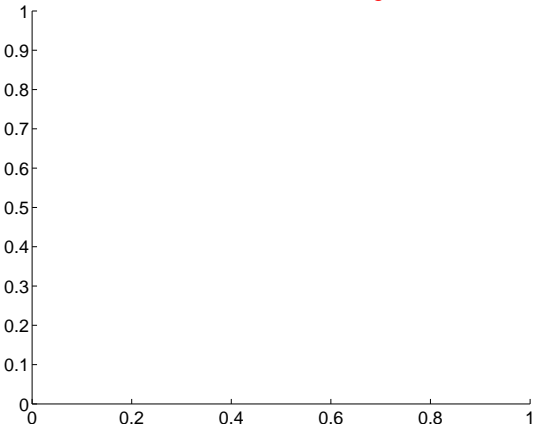


Q8 no OOT image

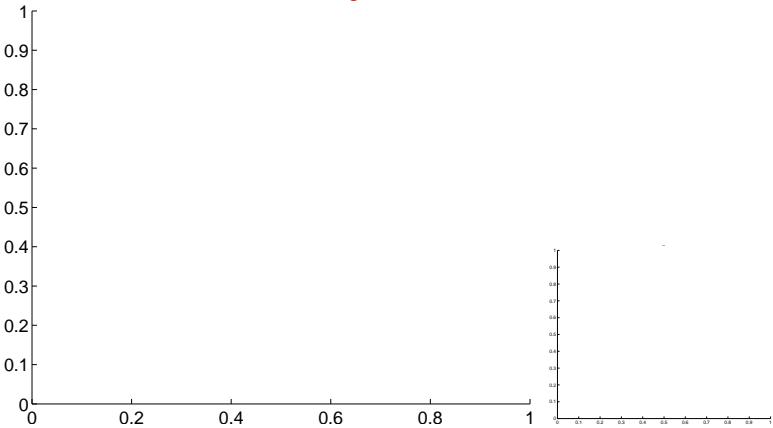


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

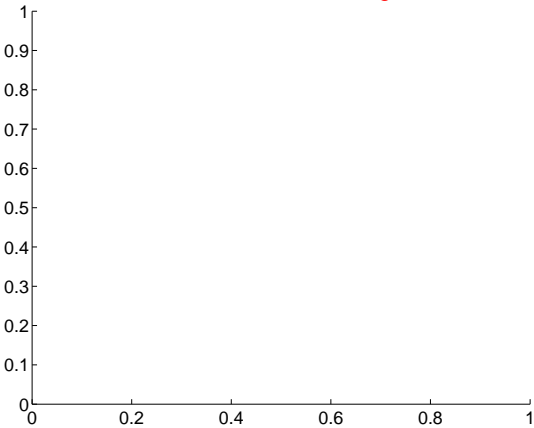
Q9 no difference image



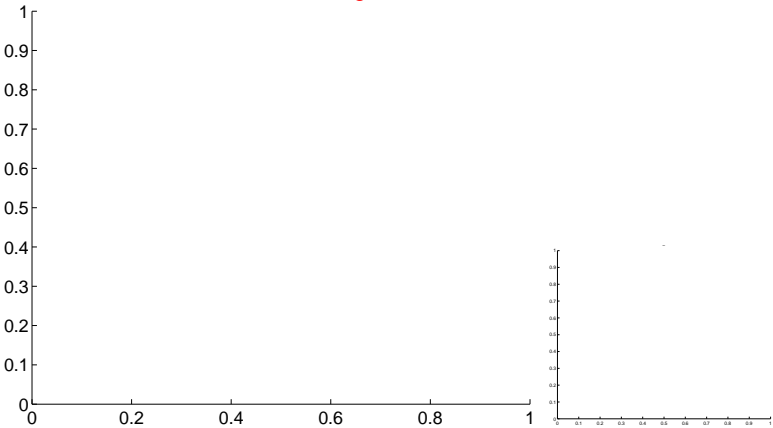
Q9 no OOT image



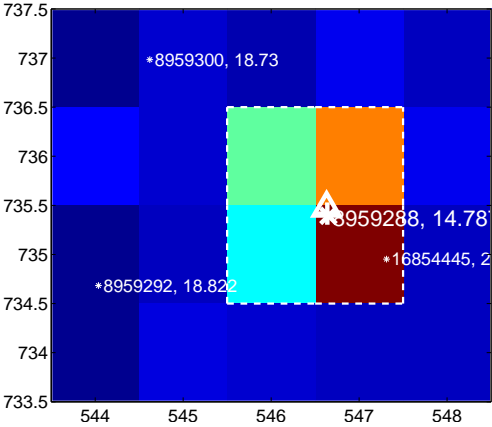
Q10 no difference image



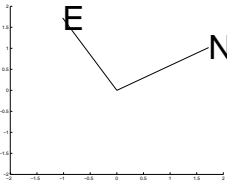
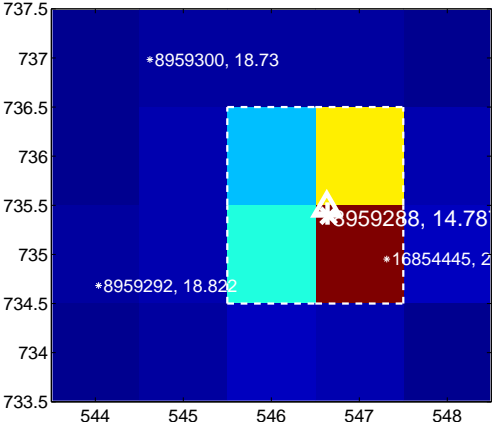
Q10 no OOT image



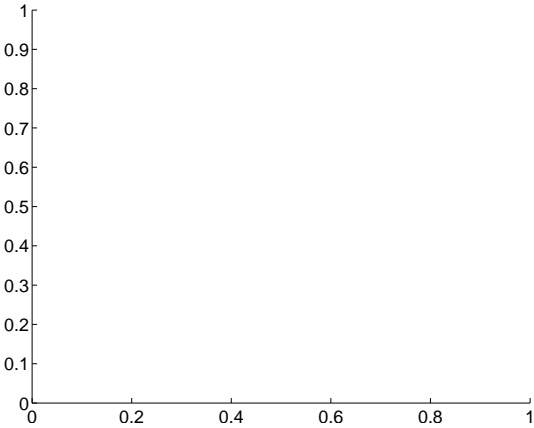
Q11 difference image



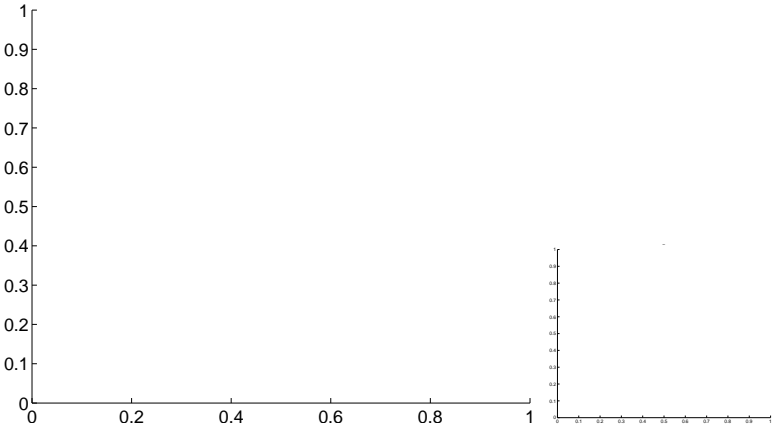
Q11 OOT image



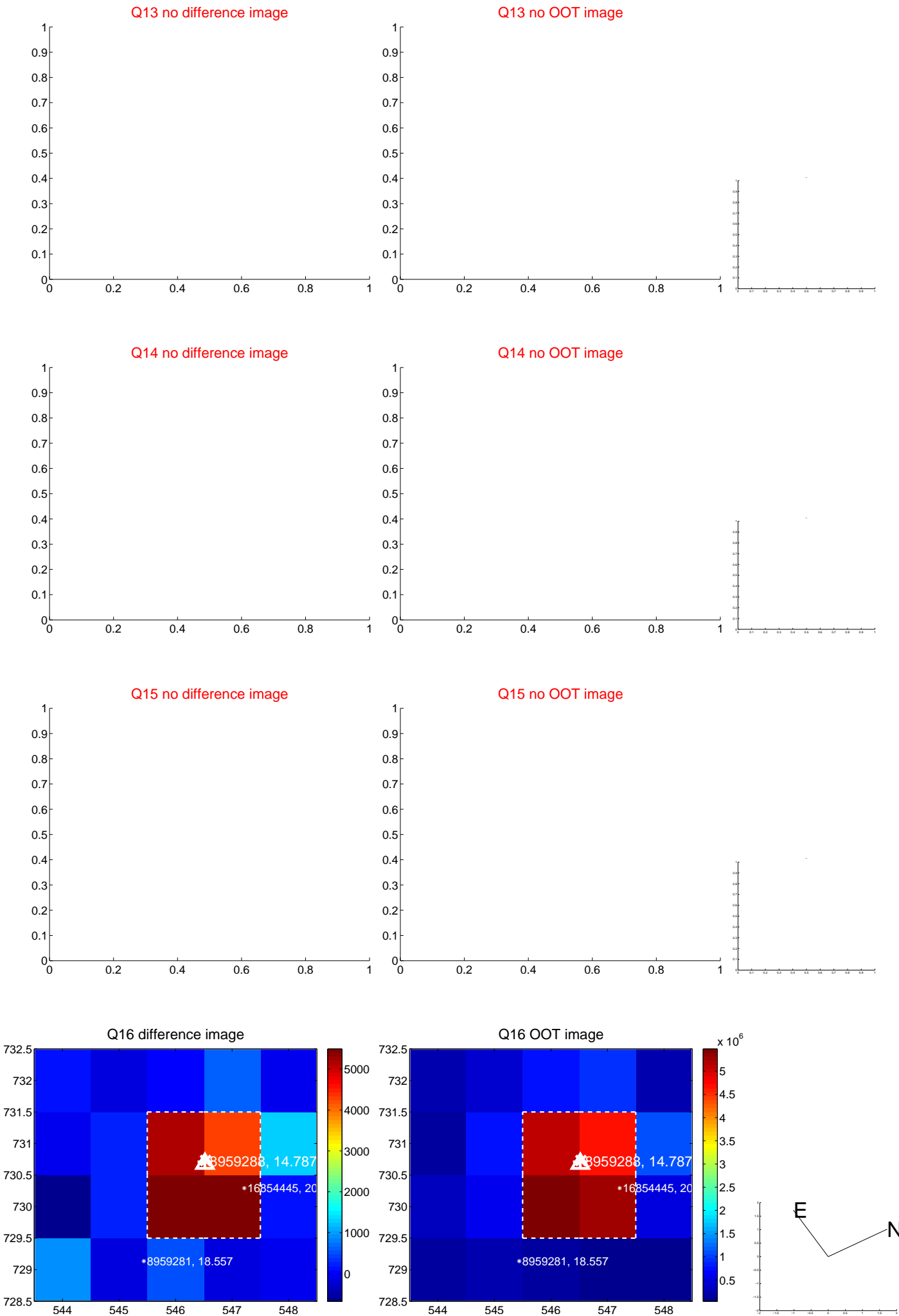
Q12 no difference image



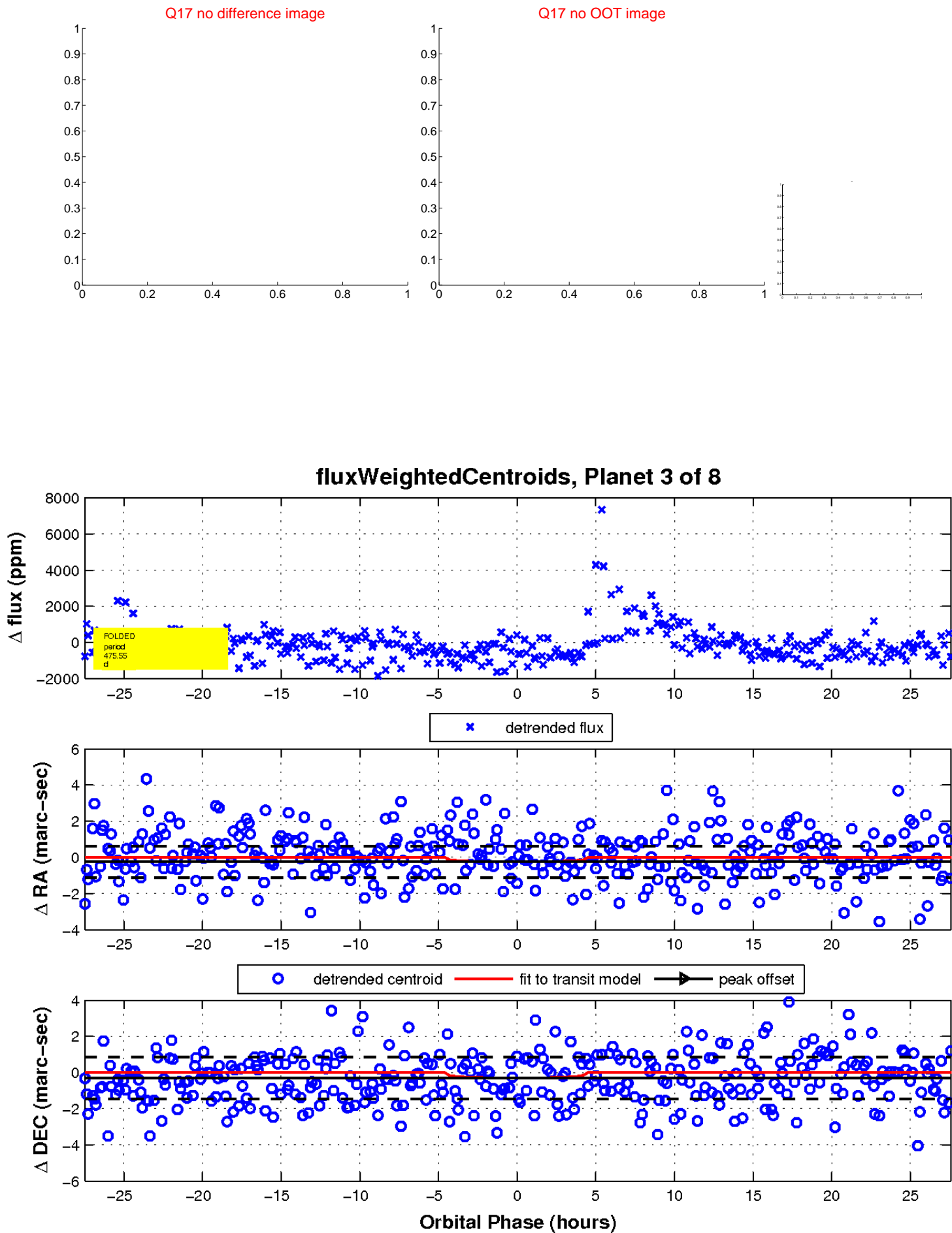
Q12 no OOT image



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

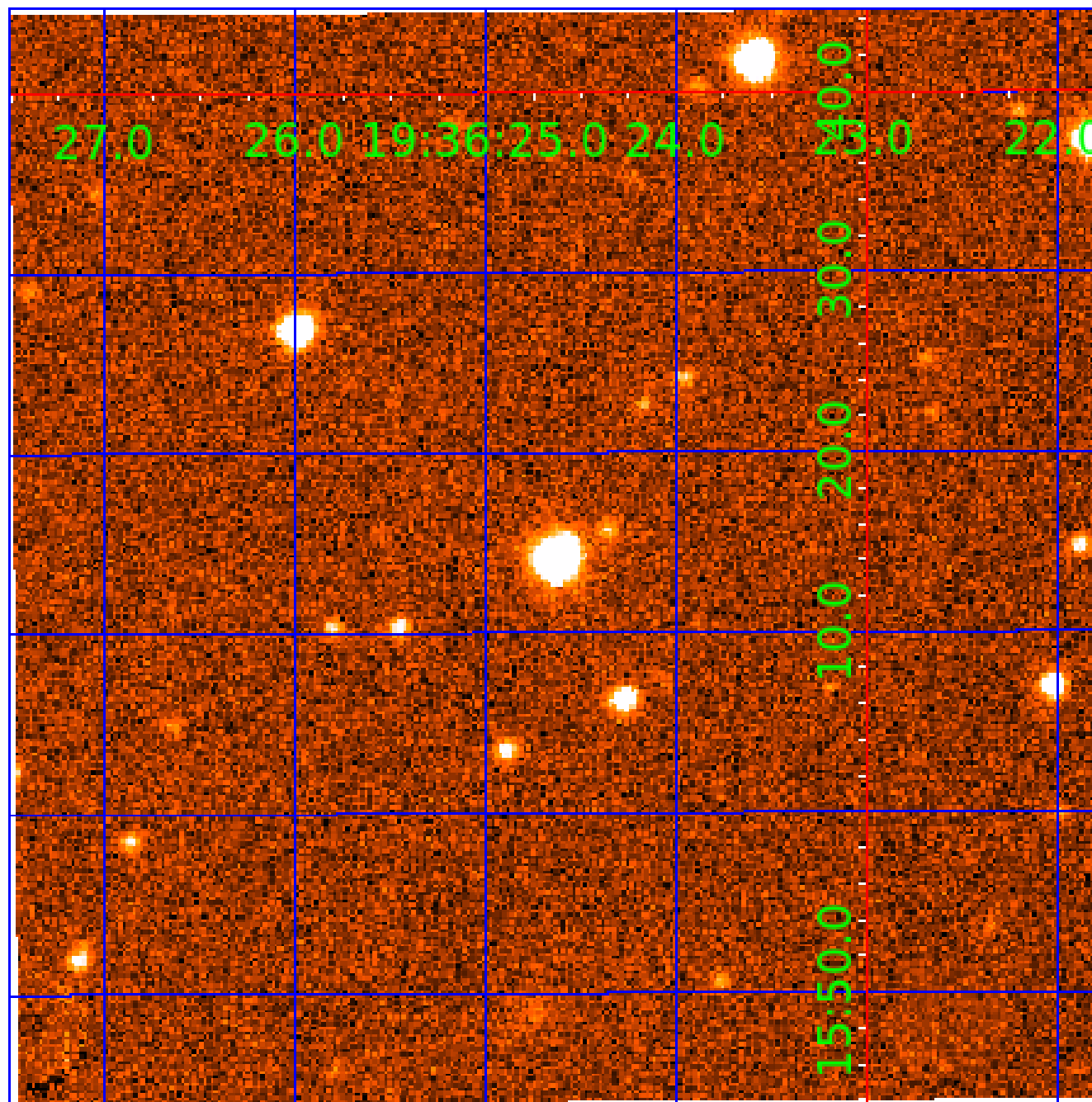


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008959288

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})
008959288-01	OBS	No	491.626083	394.340555	1340.5	5.480	15.9	7.9	0.72	5191	2.87	0.29
008959288-02	OBS	No	356.770109	202.939752	1275.1	3.867	14.4	8.2	0.72	5191	2.62	0.45
008959288-03	OBS	No	475.553173	561.079381	1064.1	9.219	14.6	5.9	0.72	5191	2.38	0.30
008959288-04	OBS	No	561.692185	392.350191	1312.0	14.264	14.9	7.3	0.72	5191	3.09	0.24
008959288-05	OBS	No	465.408211	356.446112	1363.6	12.423	11.1	8.1	0.72	5191	2.70	0.31
008959288-06	OBS	No	288.114980	293.686359	929.8	16.976	10.7	6.2	0.72	5191	2.16	0.59
008959288-07	OBS	No	309.337500	142.033948	1303.8	6.783	10.7	7.2	0.72	5191	5.13	0.54
008959288-08	OBS	No	483.757722	334.988384	920.5	4.500	10.0	-1.0	0.72	5191	2.14	0.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008959288-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008959288-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV
008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

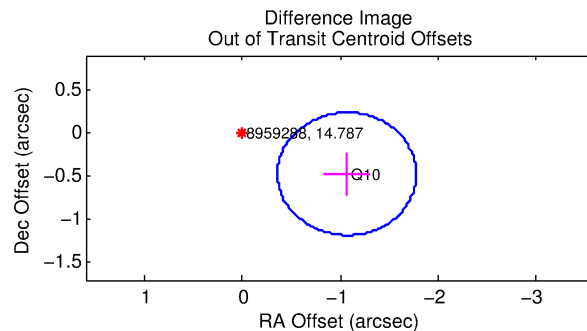
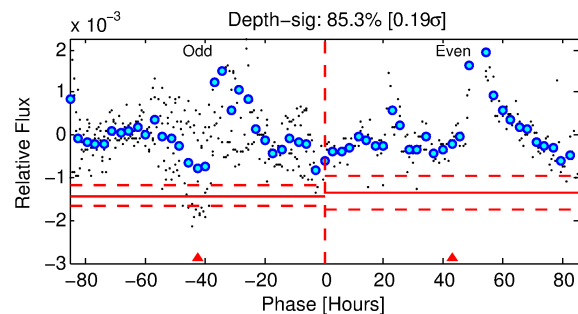
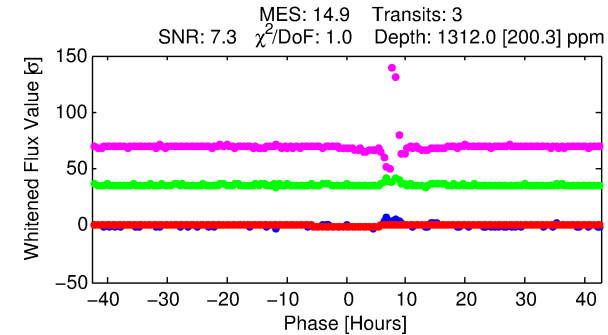
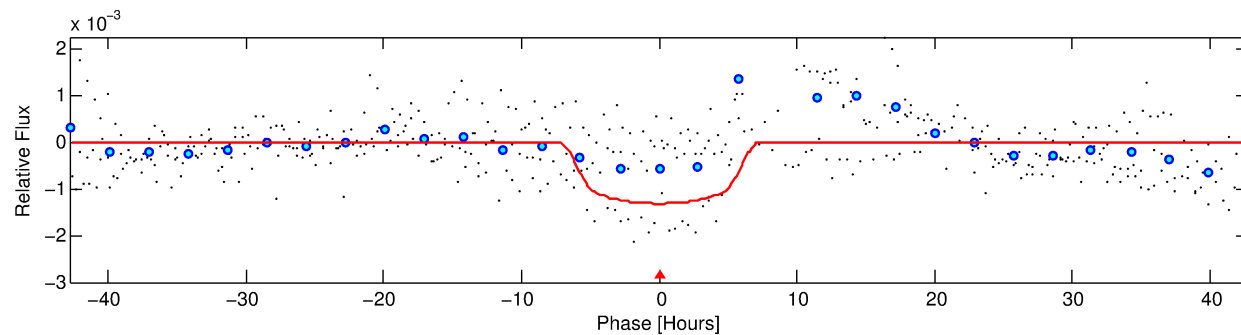
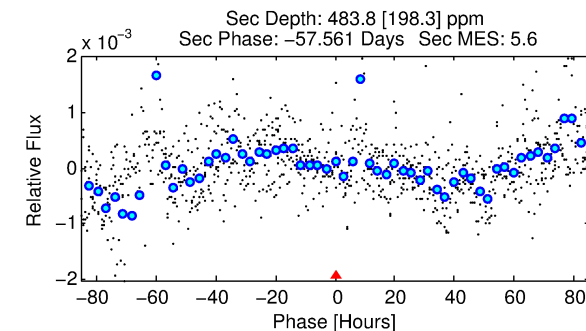
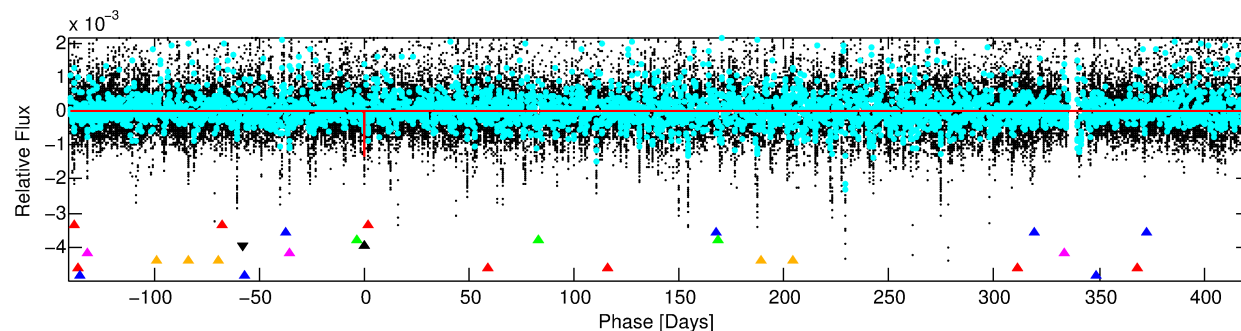
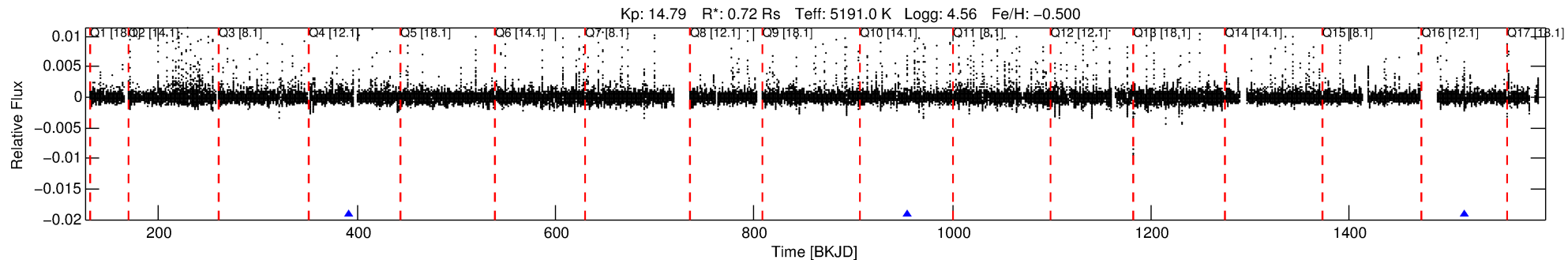
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-04

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 4 of 8 Period: 561.692 d



DV Fit Results:

Period = 561.69219 [0.01312] d
Epoch = 392.3502 [0.0169] BKJD
Rp/R* = 0.0393 [0.0038]
a/R* = 164.26 [32.89]
b = 0.88 [0.05]
Seff = 0.24 [0.05]
Teq = 179 [9] K
Rp = 3.09 [0.46] Re
a = 1.1747 [0.1158] AU
Ag = 38542.30 [18363.05] [2.10 σ]
Teff = 3884 [455] K [8.14 σ]

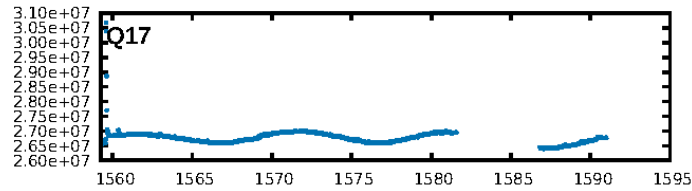
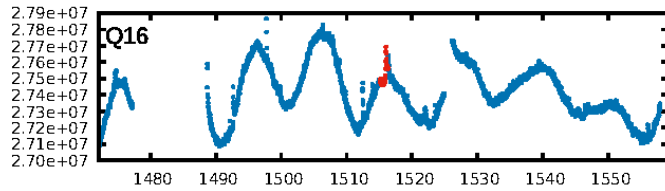
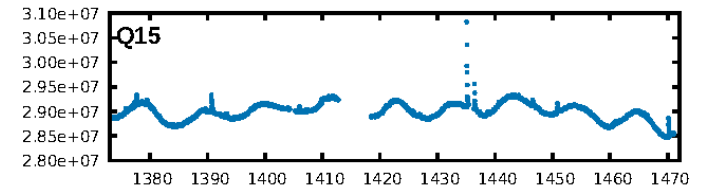
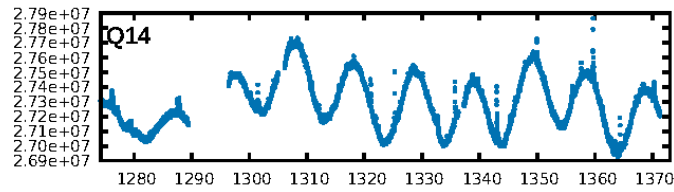
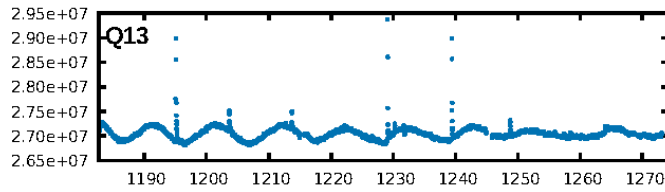
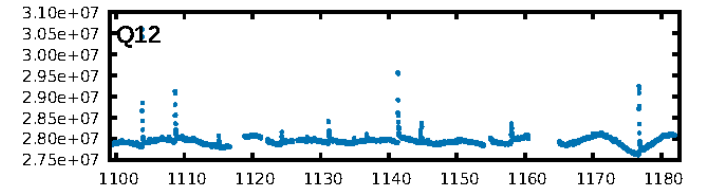
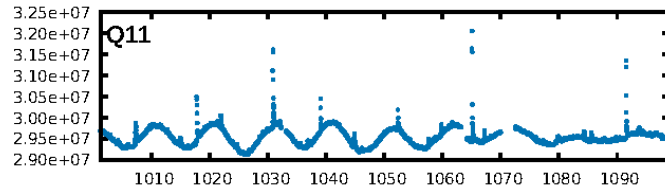
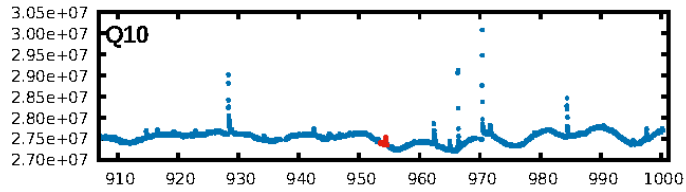
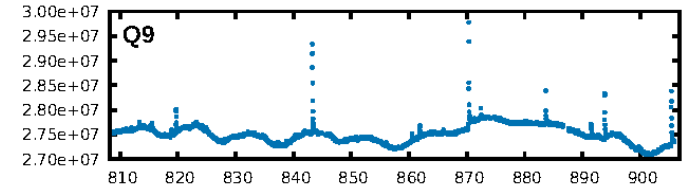
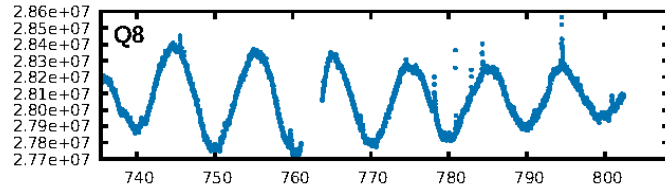
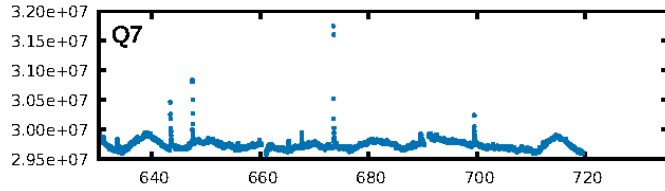
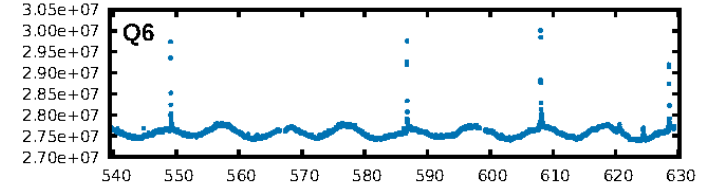
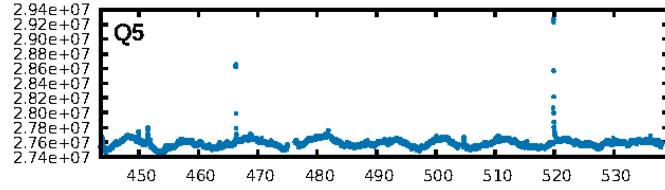
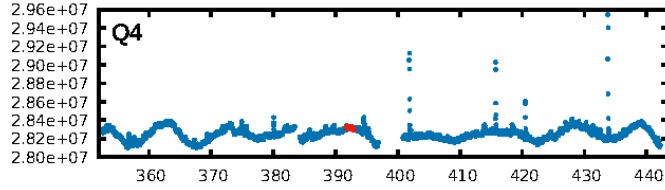
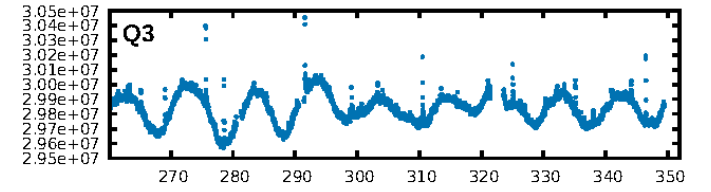
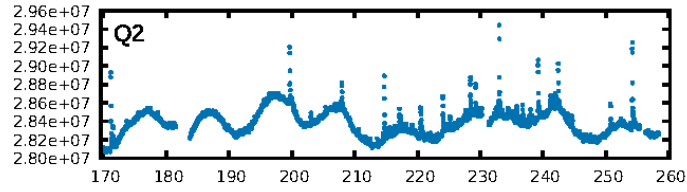
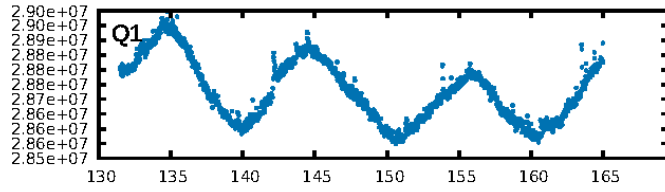
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.05 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 5.808
Centroid-sig: 21.7%
Centroid-so: 0.713 arcsec [1.45 σ]
OotOffset-rm: 1.169 arcsec [4.94 σ]
KicOffset-rm: 1.230 arcsec [5.20 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

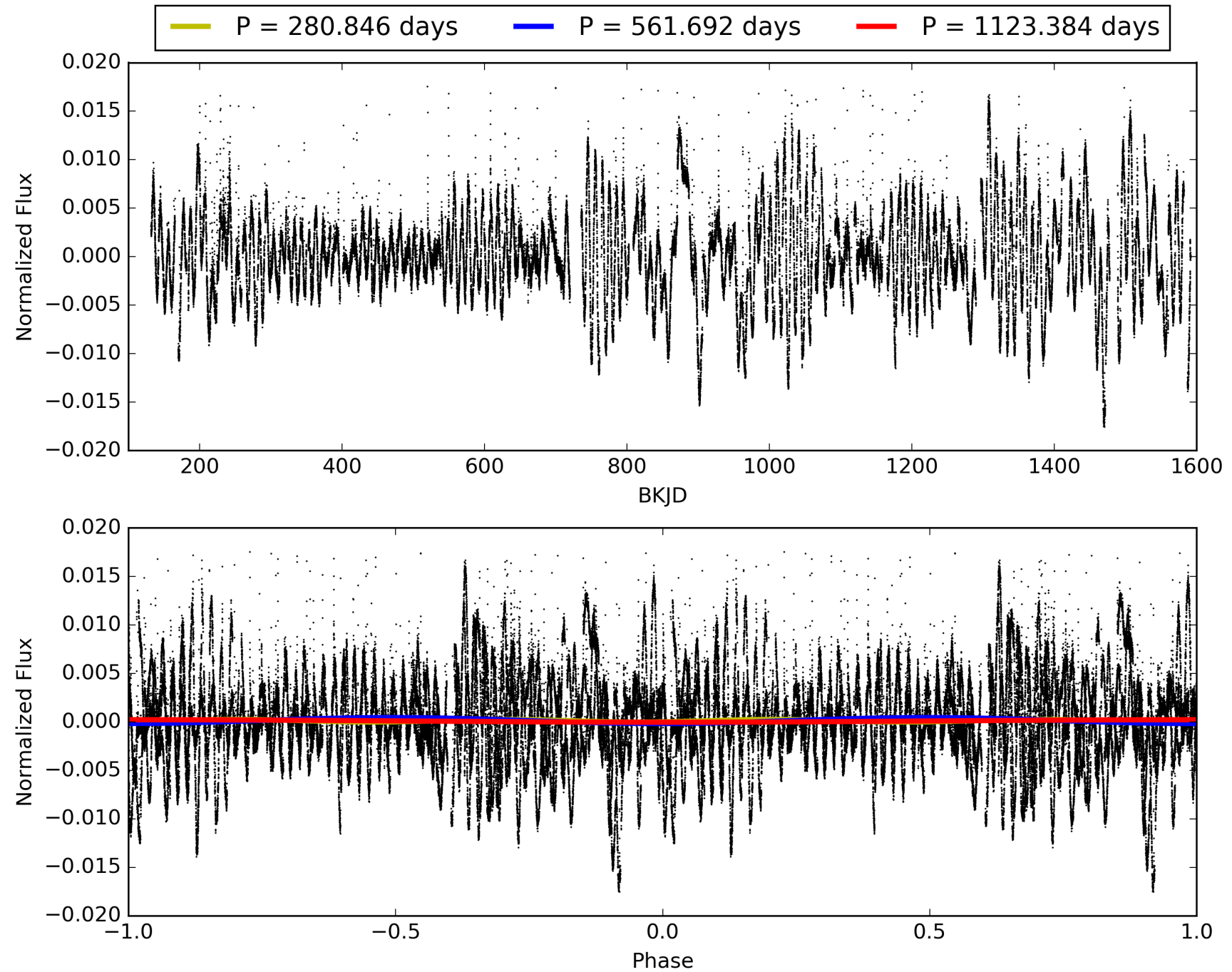
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:40:49 Z

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

TCE 008959288-04, PDC Light Curves

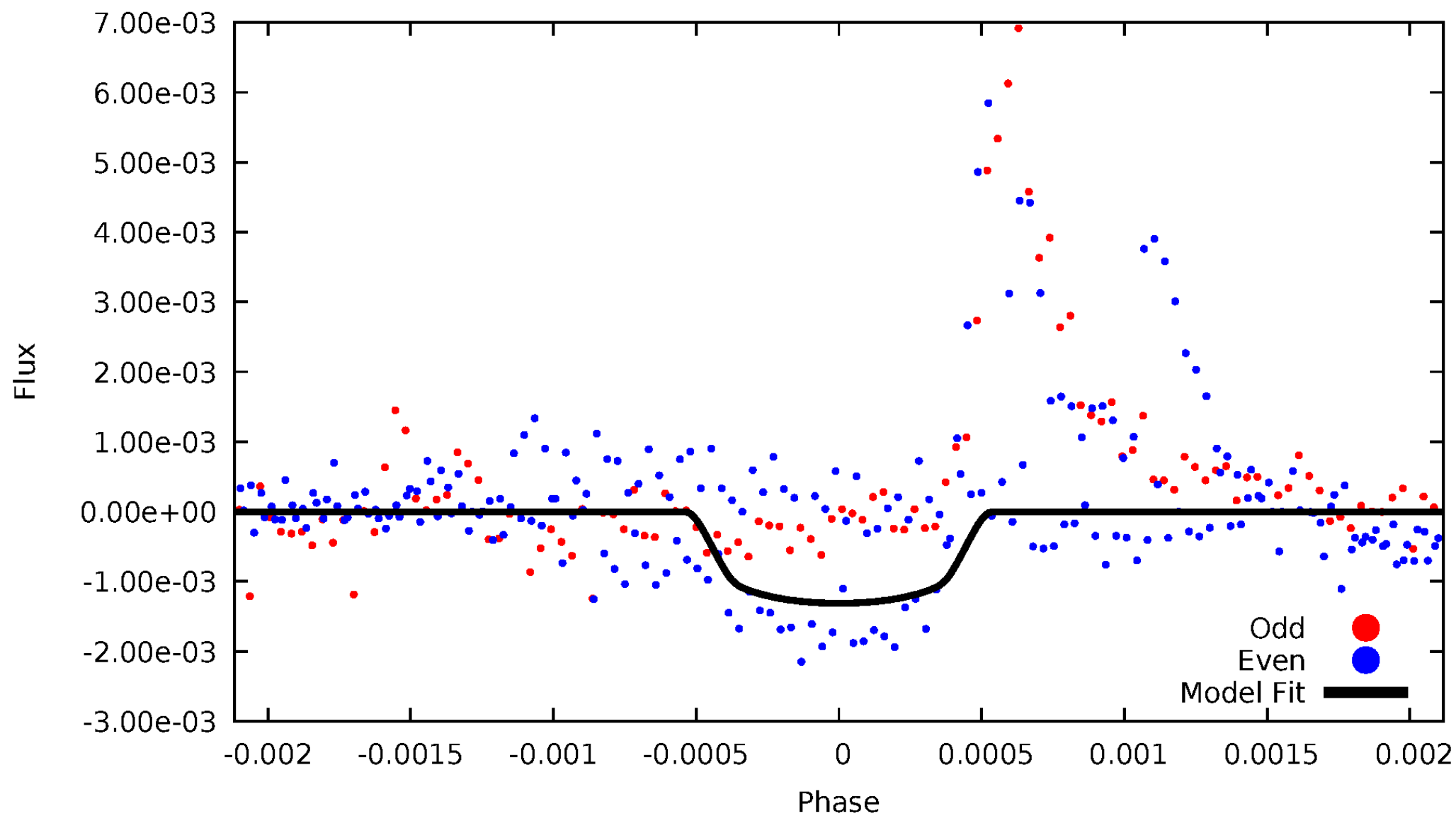


TCE 008959288-04



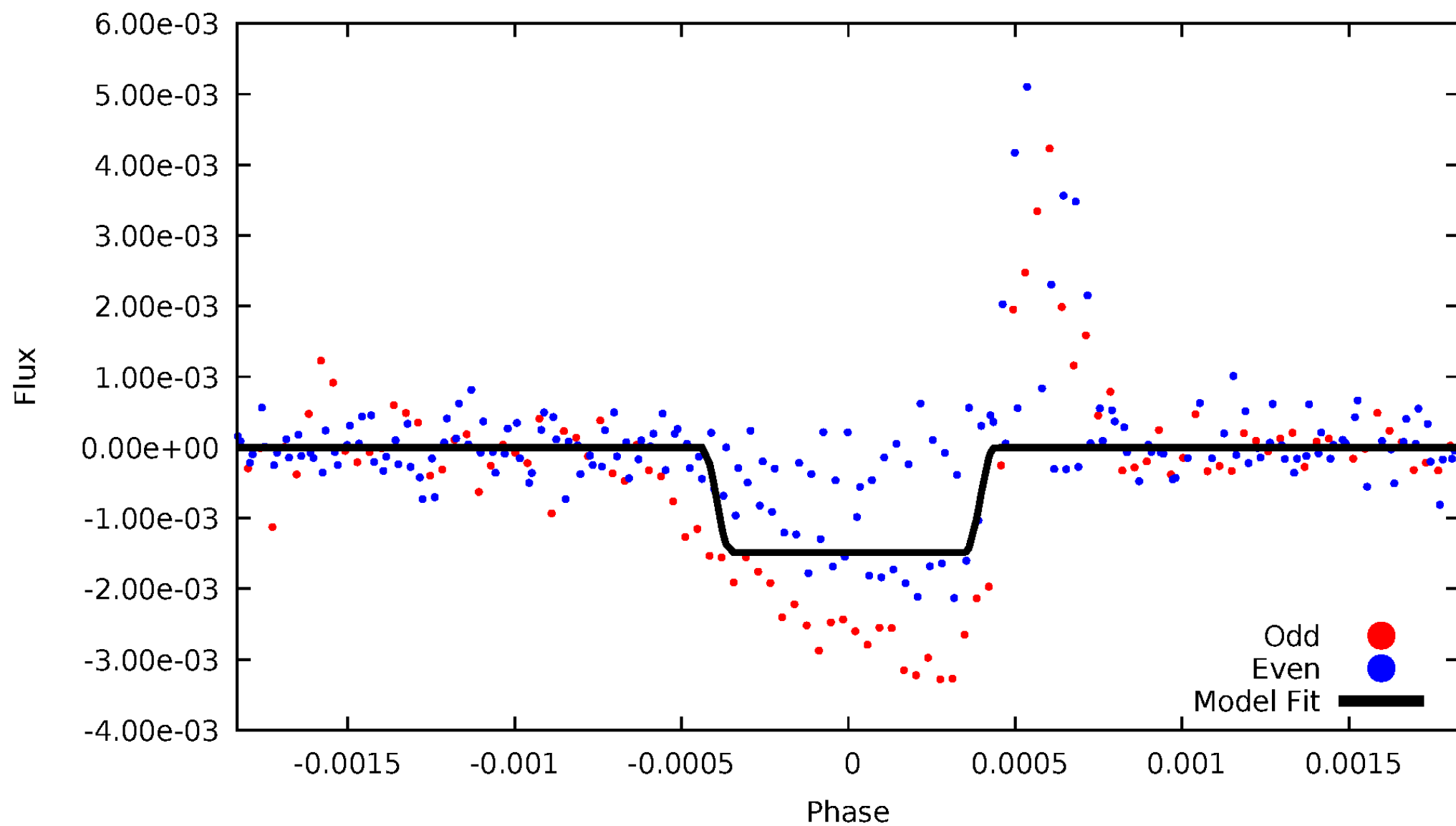
DV Odd/Even

TCE 008959288-04



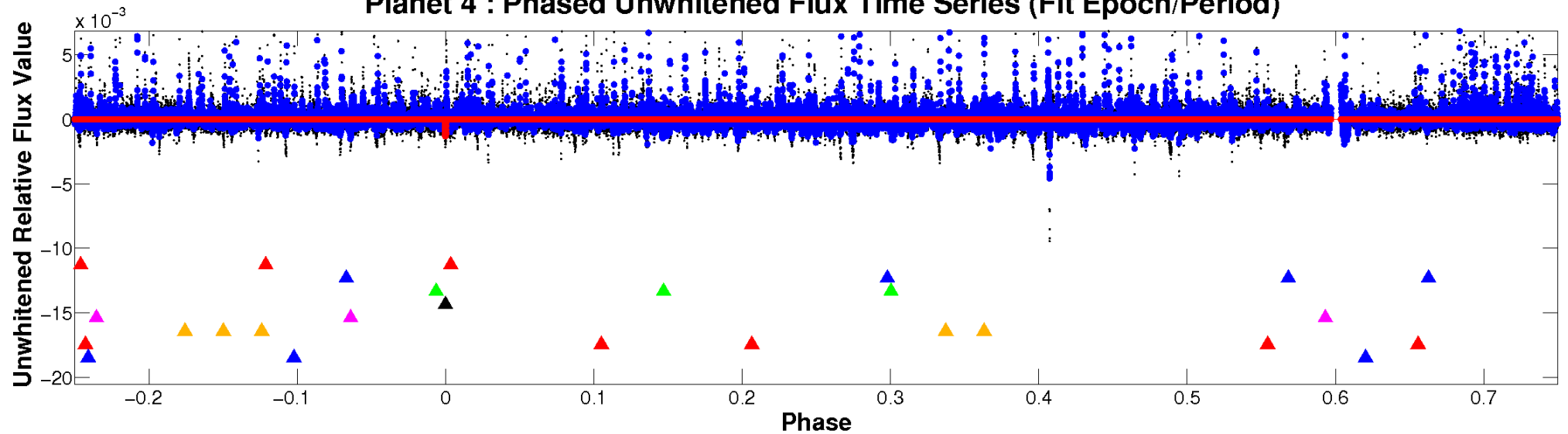
ALT Odd/Even

TCE 008959288-04

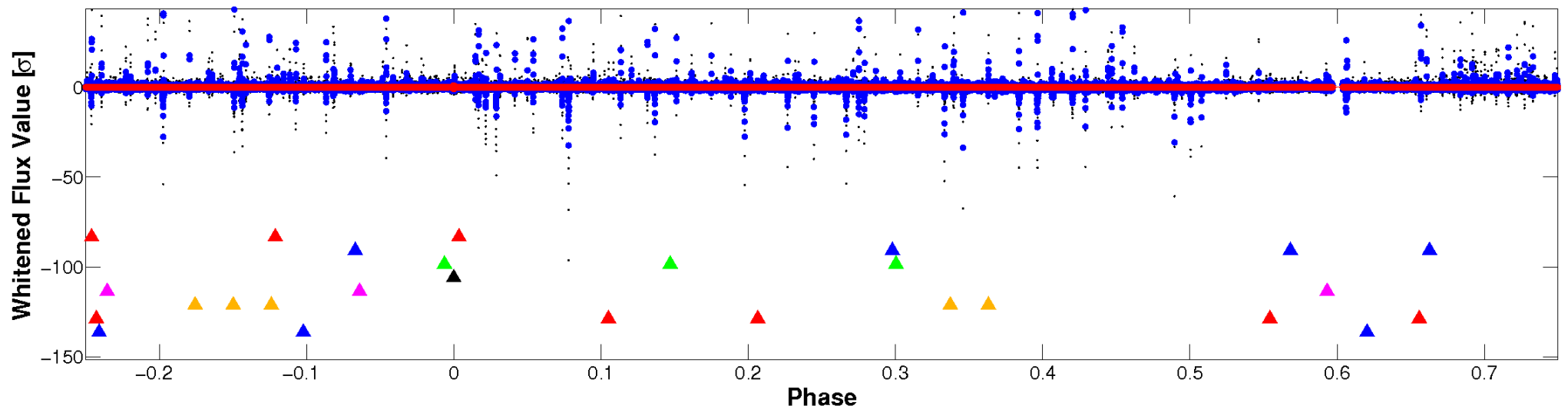


Non-Whitened Vs. Whitened Light Curve

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



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



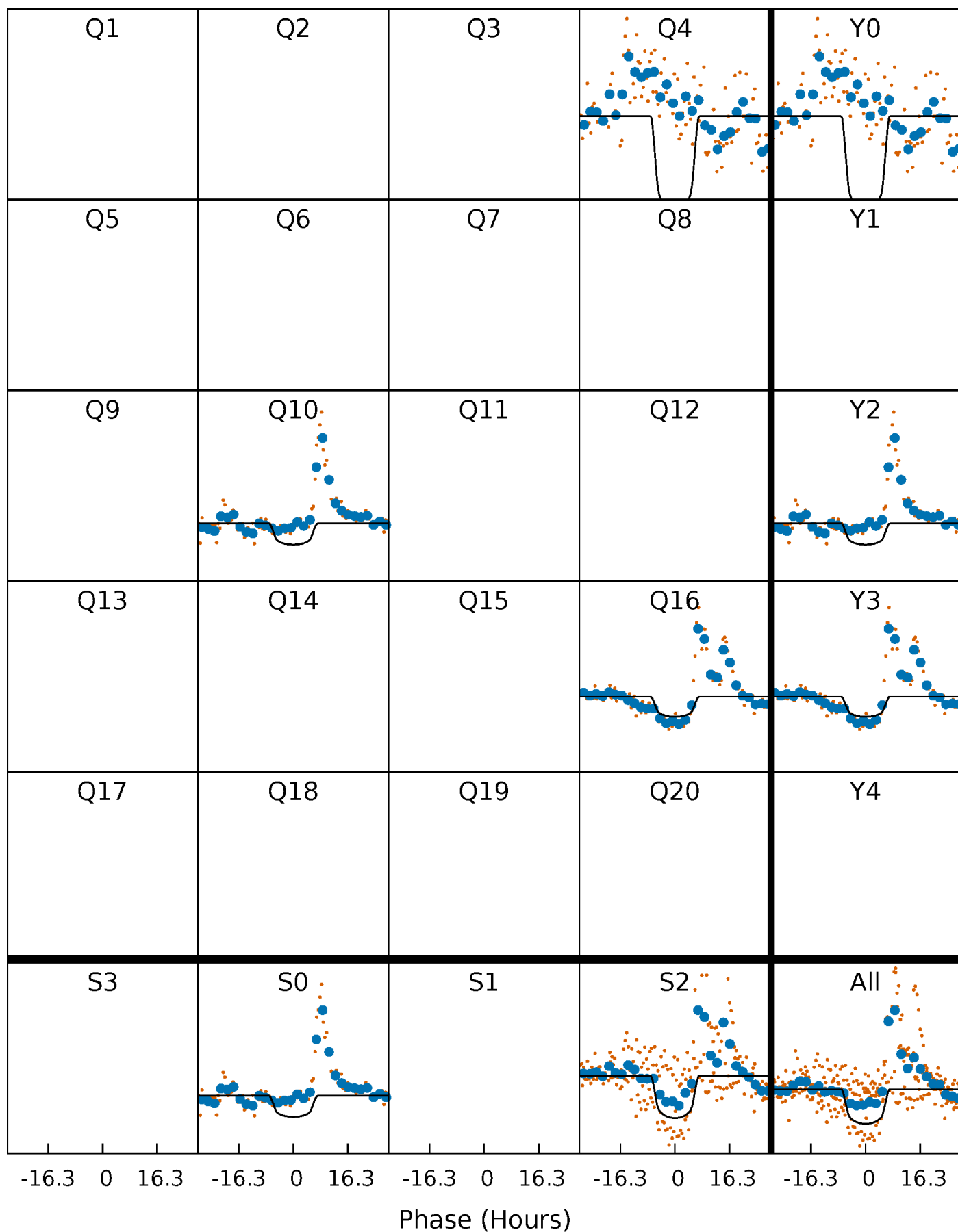
PDC Quarter-Phased Transit Curves

TCE 008959288-04 $P=561.692185$ Days $T_0=392.350191$ (BKJD)



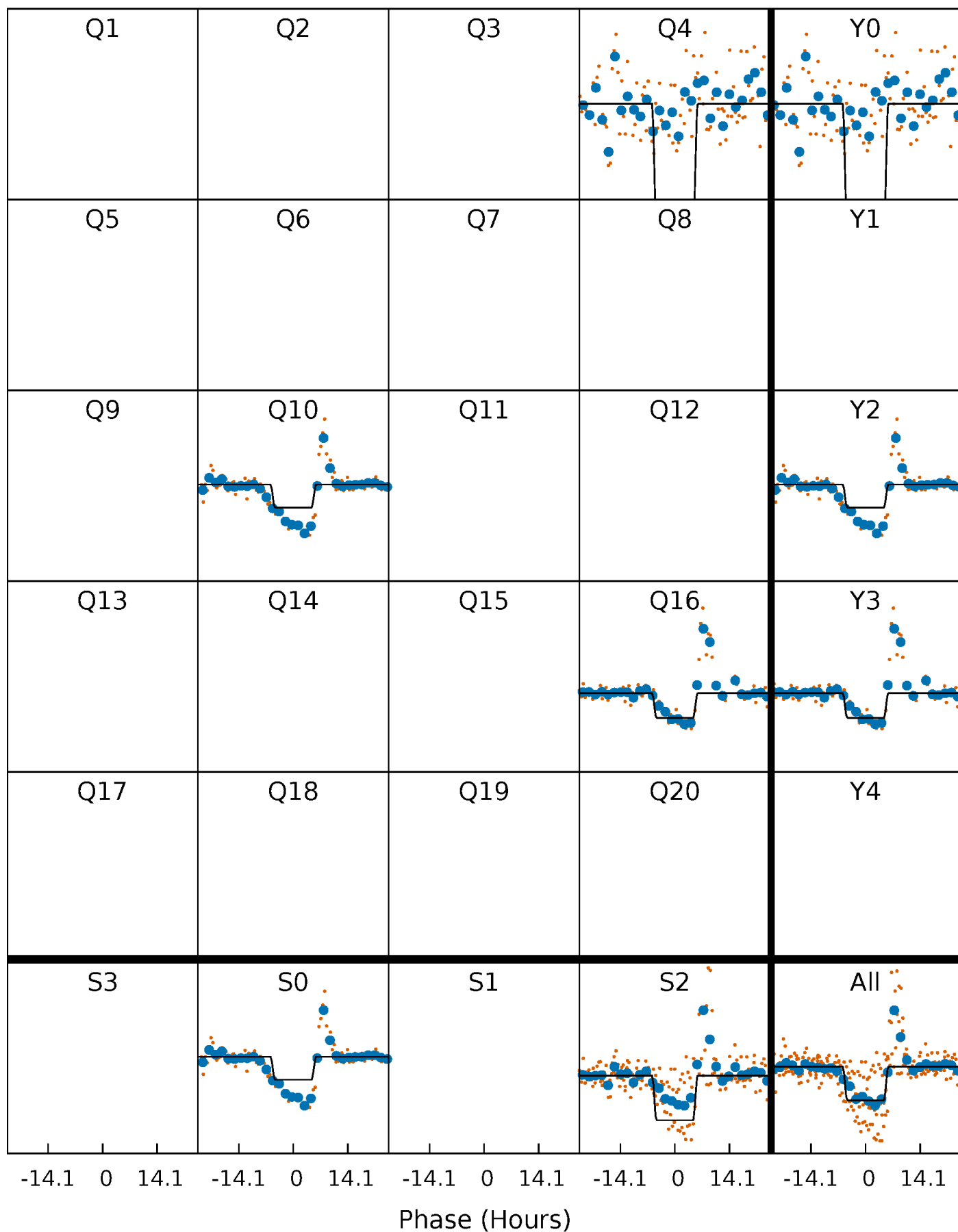
DV Quarter-Phased Transit Curves

TCE 008959288-04 $P=561.692185$ Days $T_0=392.350191$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

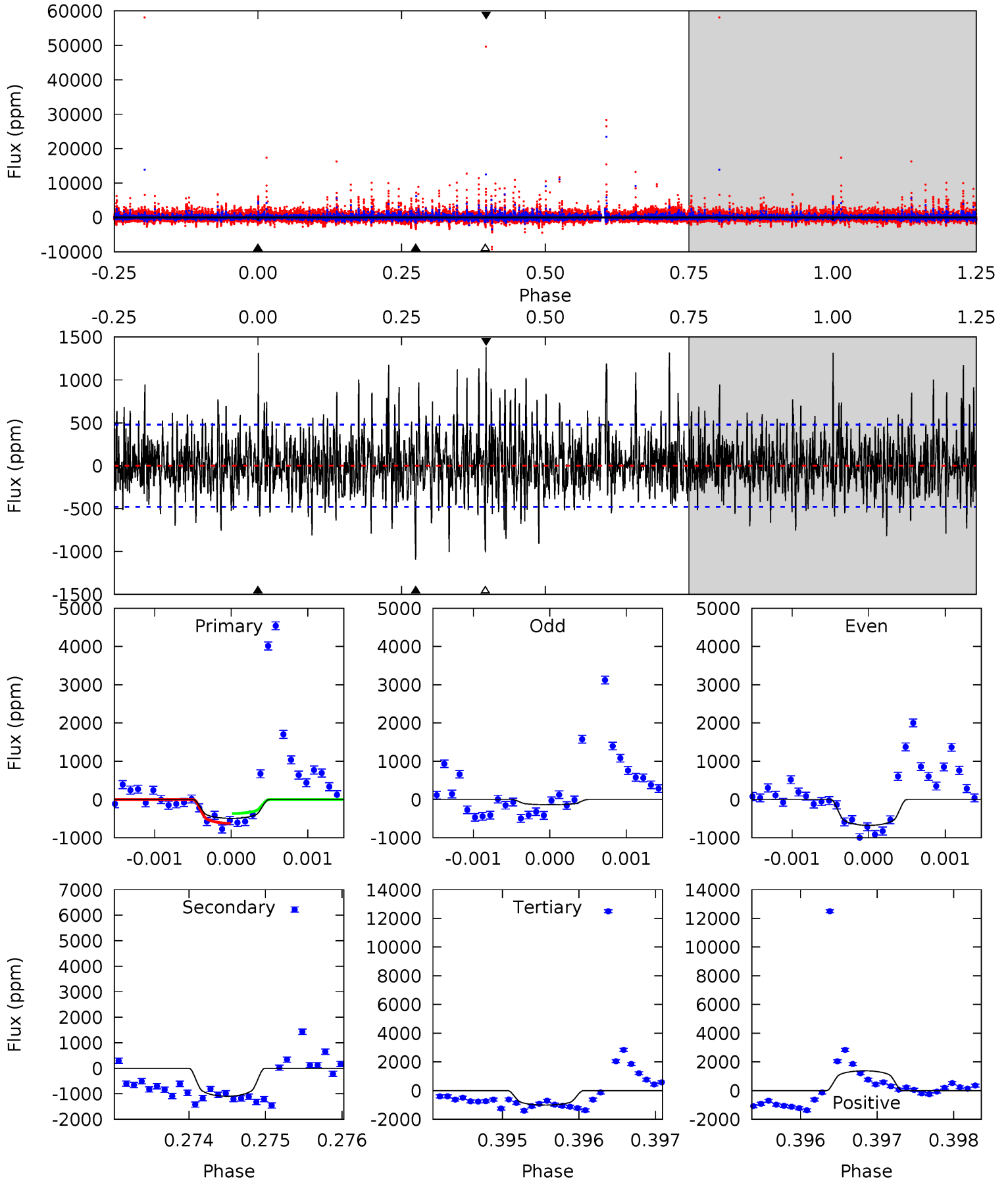
TCE 008959288-04 P=561.670886 Days $T_0=392.386207$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-04, P = 561.692185 Days, E = 392.350191 Days

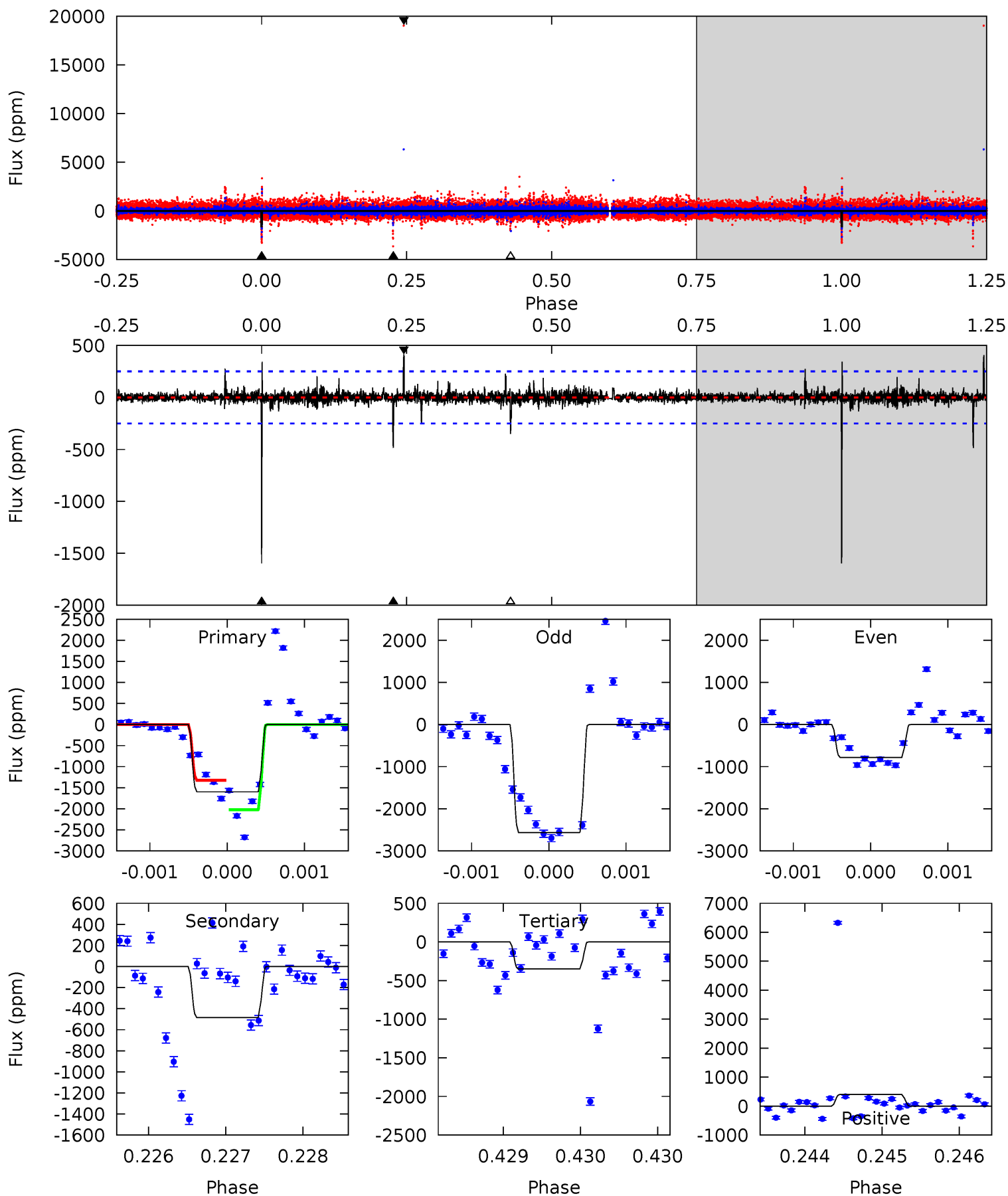
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.59	12.4	11.4	15.7	5.44	3.27	3.09	-5.84	-10.1	1.02	-3.23	1.10	3.52	0.56	1.46



Alt Model-Shift Uniqueness Test

008959288-04, P = 561.670886 Days, E = 392.386207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.9	10.6	7.63	8.88	5.48	3.33	0.73	27.2	26.0	2.93	1.69	15.7	0.95	0.20	0



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1096 ± 88	$3.12^{+0.37}_{-0.38}$	250^{+10}_{-11}	4825^{+265}_{-224}	87846^{+25607}_{-18391}
Alt.	-484 ± 46	$3.04^{+0.38}_{-0.35}$	250^{+11}_{-10}	4144^{+220}_{-175}	40453^{+12662}_{-9175}

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

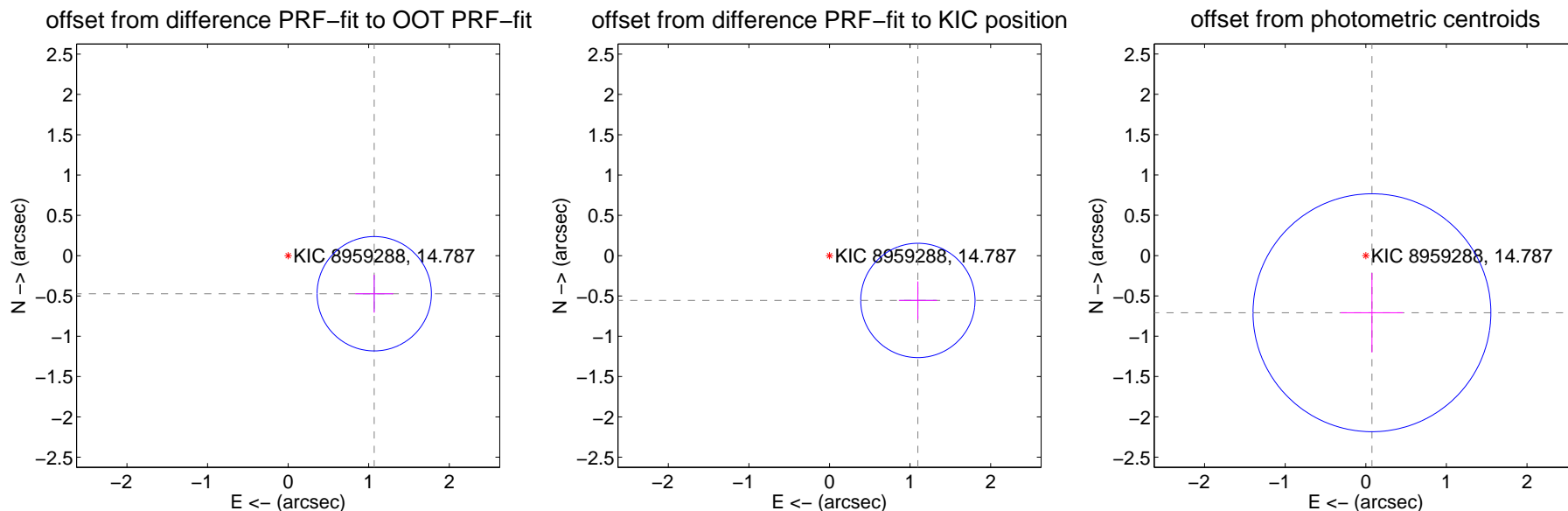
DV Centroid Data

Supplemental centroid analysis for 008959288-04. Kepler magnitude: 14.79. Transit SNR 7.31

There are 1 quarters with good PRF difference image offsets

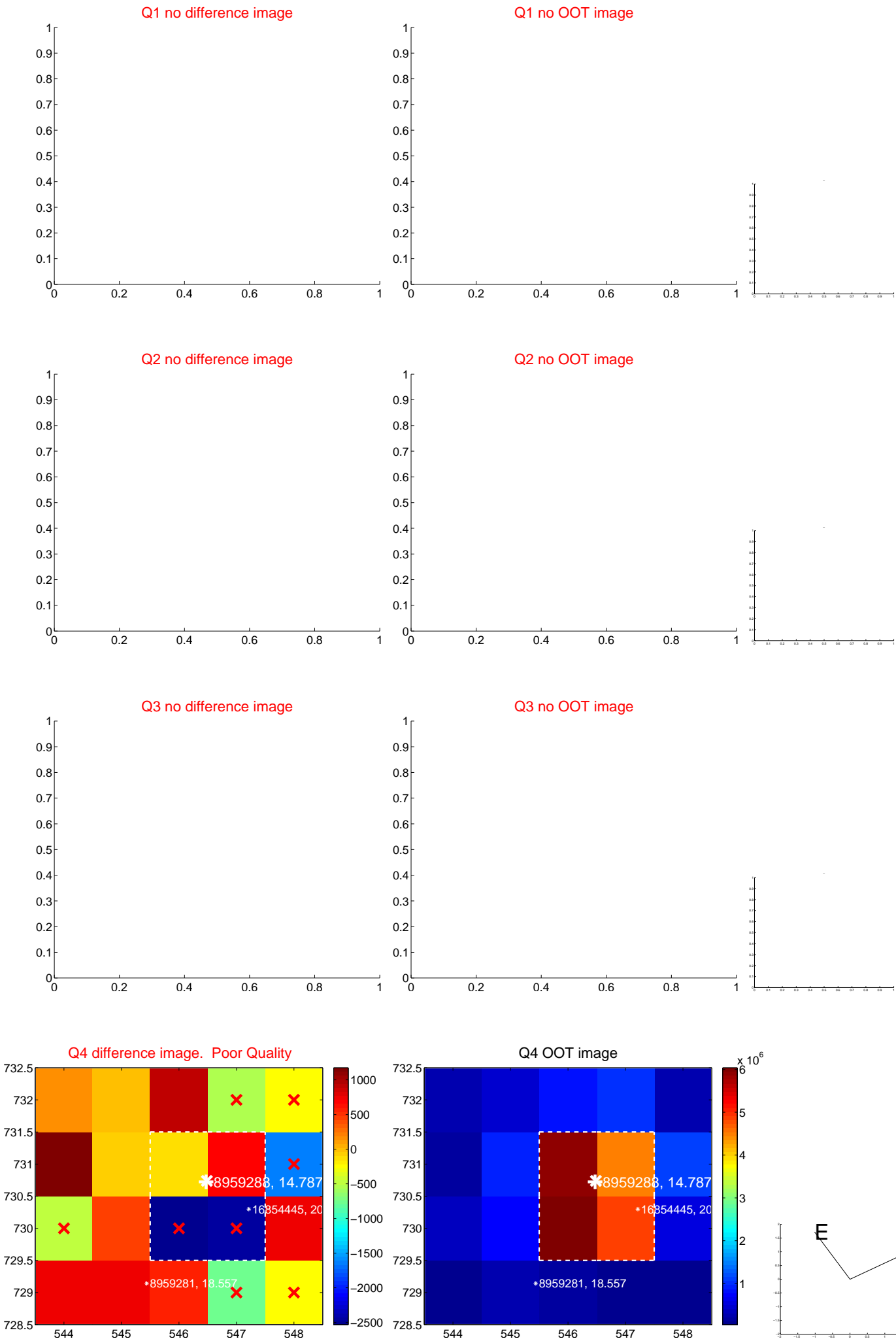
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.169 ± 0.236	4.94	-1.069 ± 0.237	-0.473 ± 0.235
PRF-fit source offset from KIC position	1.230 ± 0.236	5.20	-1.097 ± 0.237	-0.556 ± 0.235
photometric centroid source offset	0.71 ± 0.49	1.45	-0.08 ± 0.39	-0.71 ± 0.49

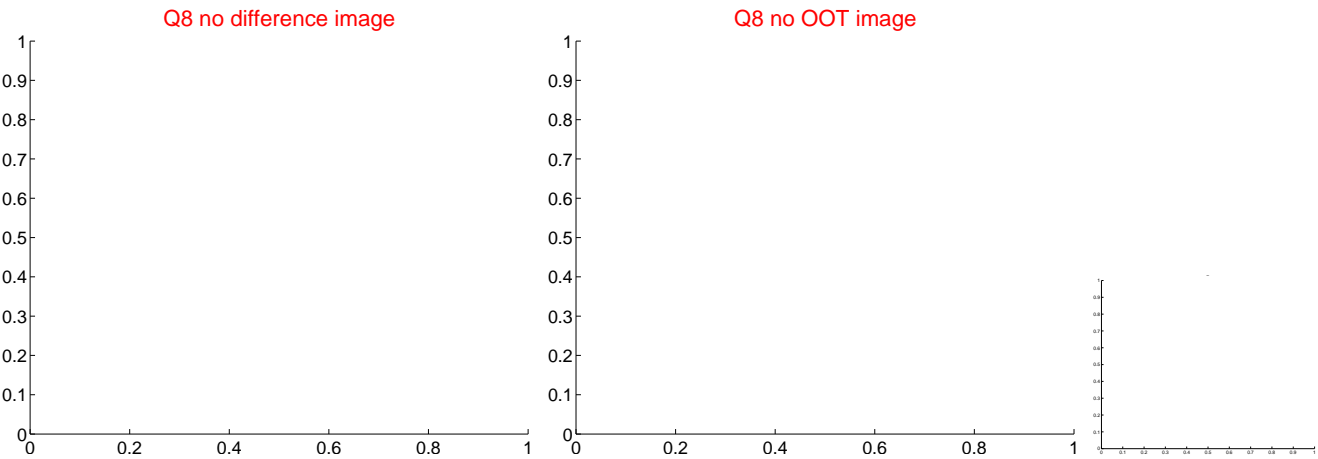
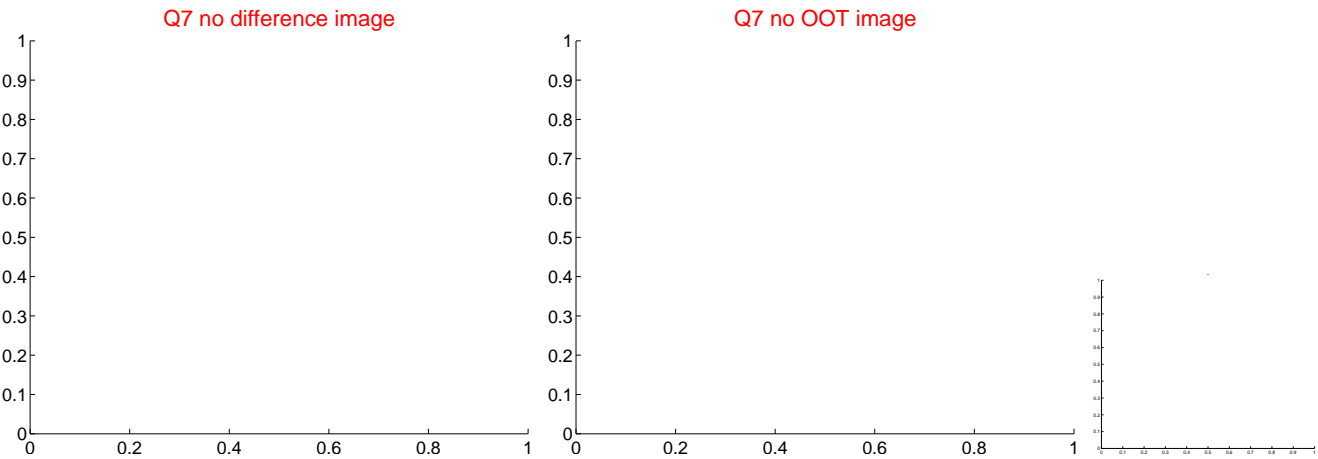
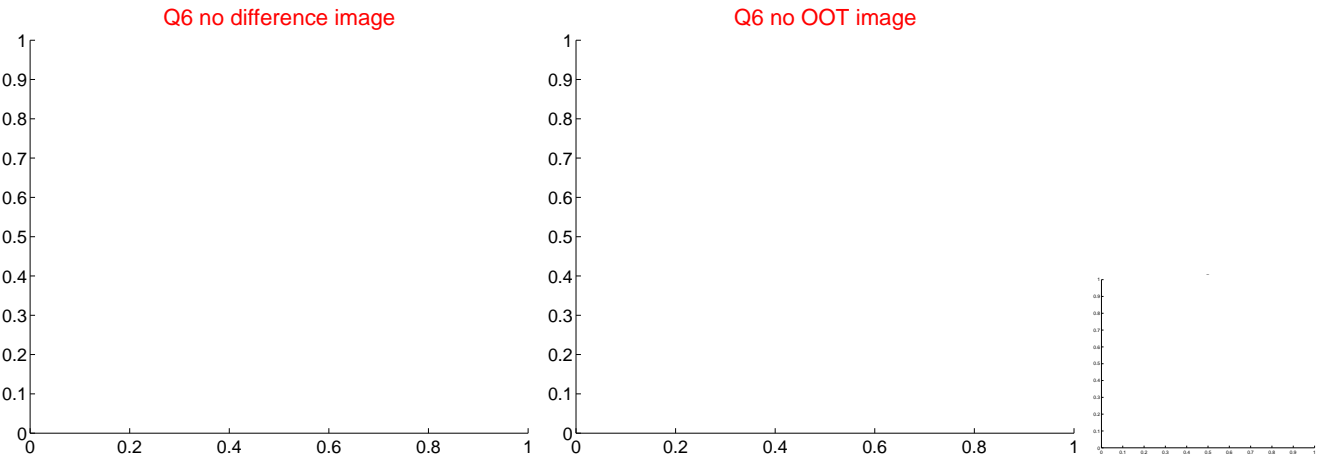
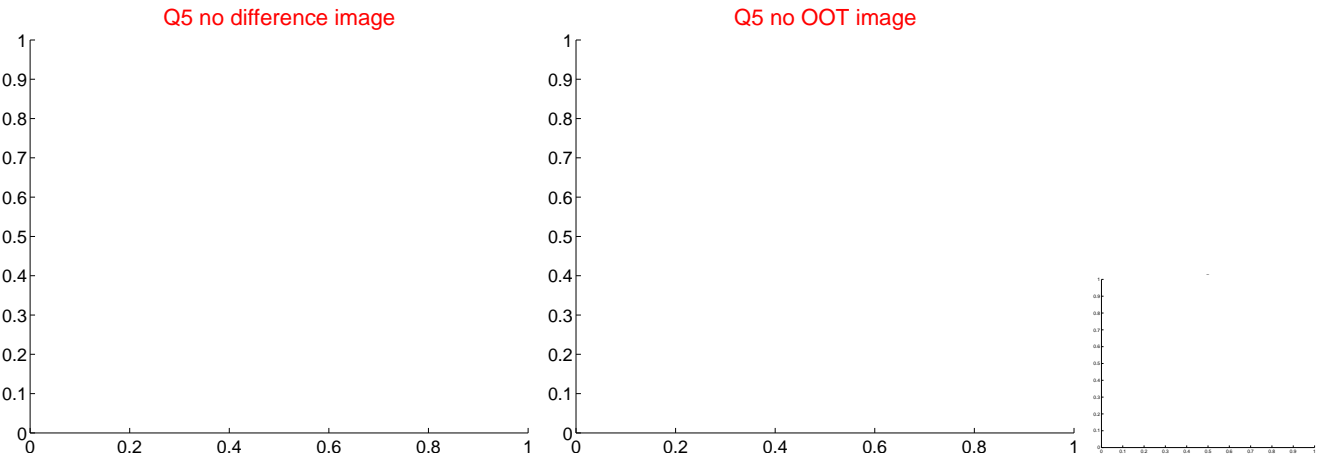


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

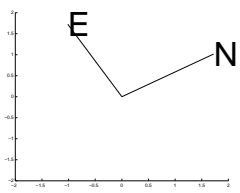
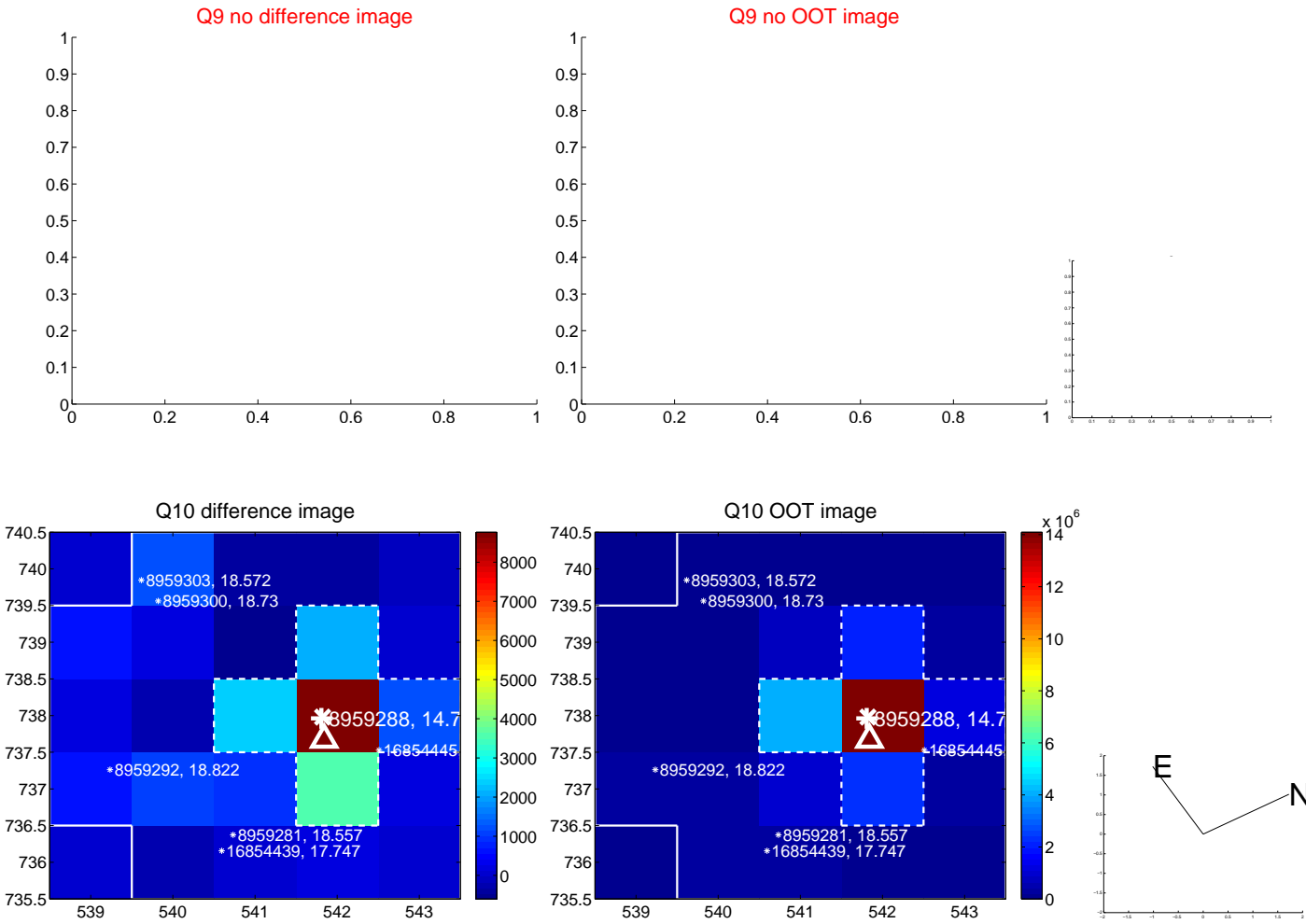
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



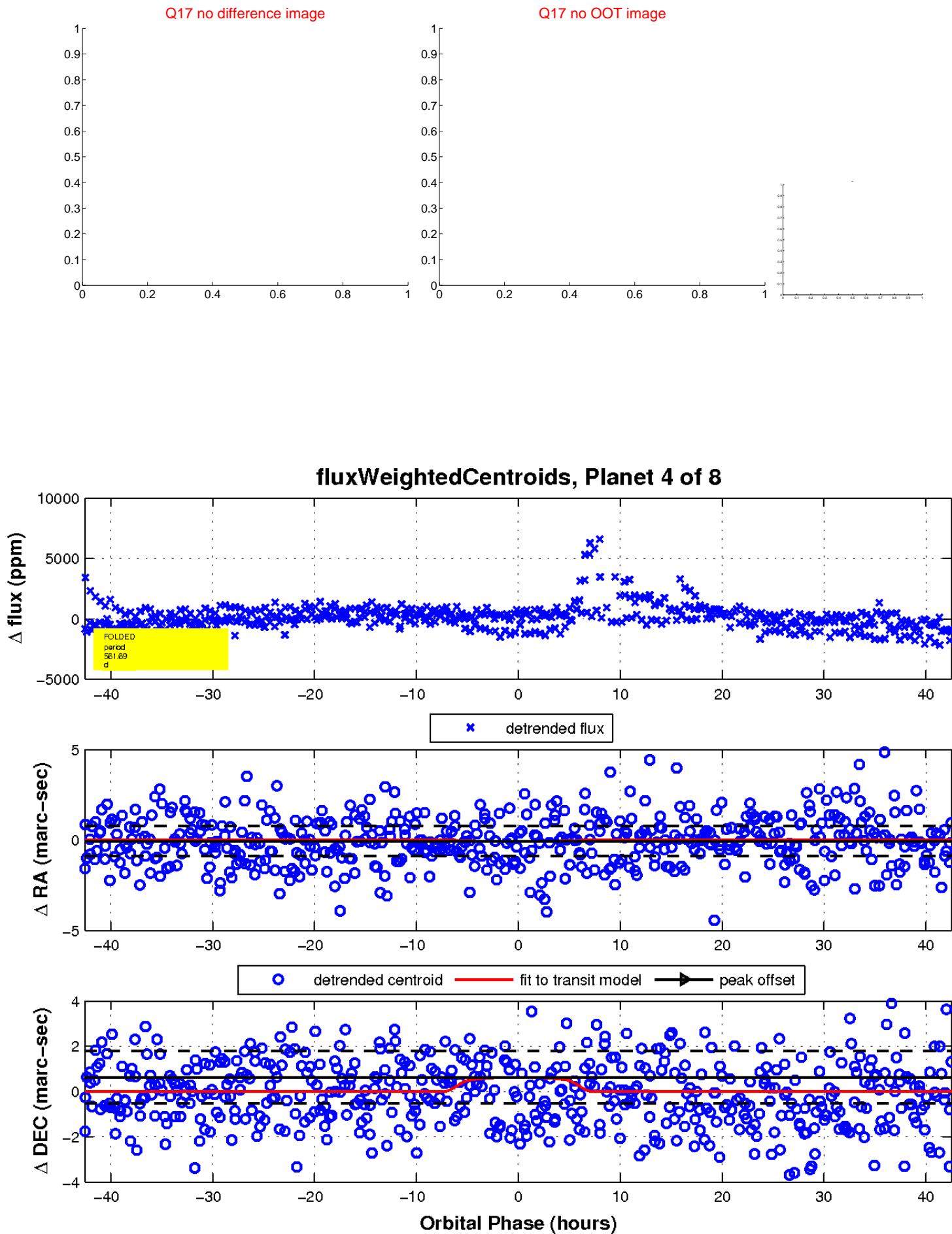
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

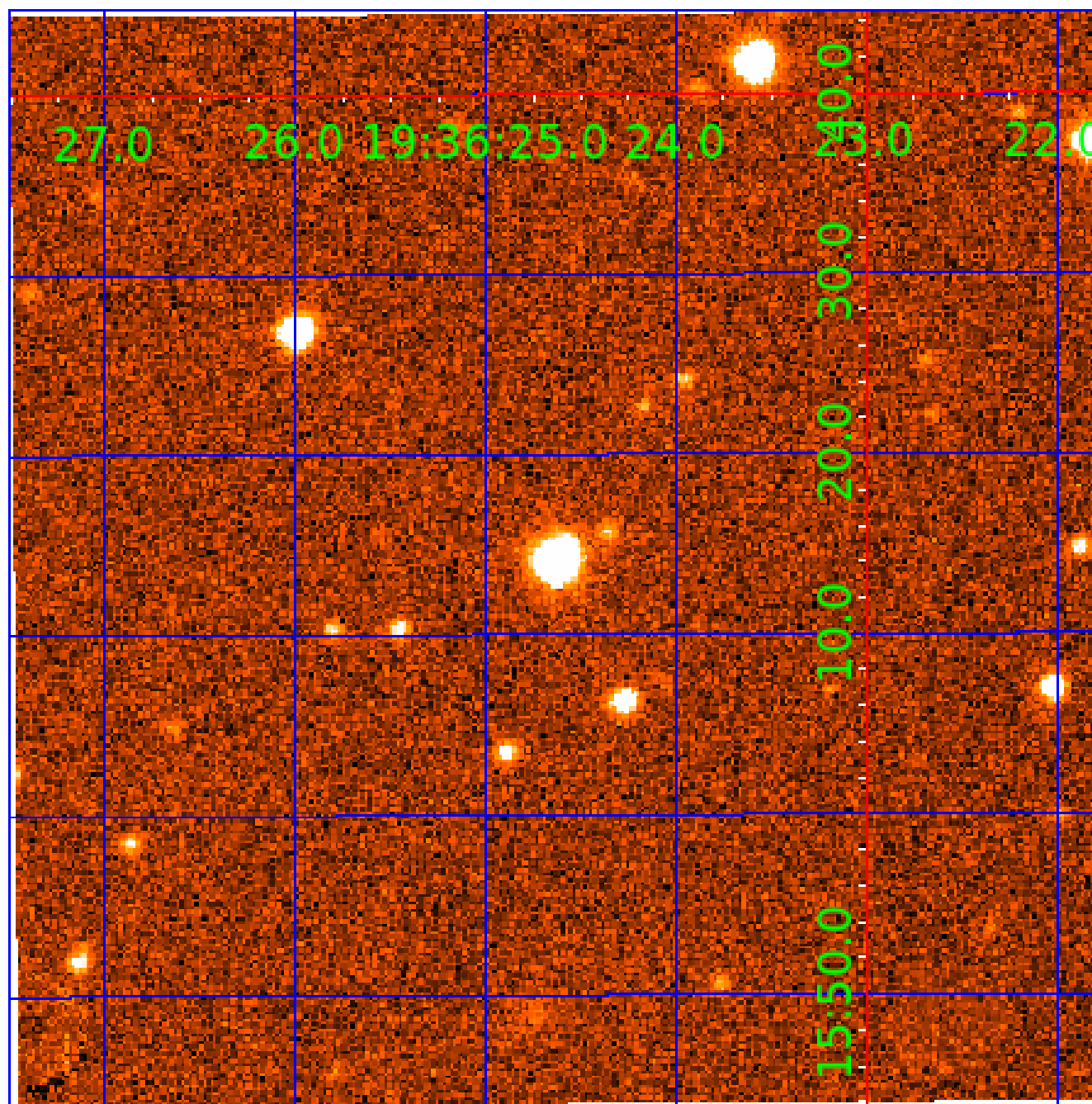


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008959288

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})
008959288-01	OBS	No	491.626083	394.340555	1340.5	5.480	15.9	7.9	0.72	5191	2.87	0.29
008959288-02	OBS	No	356.770109	202.939752	1275.1	3.867	14.4	8.2	0.72	5191	2.62	0.45
008959288-03	OBS	No	475.553173	561.079381	1064.1	9.219	14.6	5.9	0.72	5191	2.38	0.30
008959288-04	OBS	No	561.692185	392.350191	1312.0	14.264	14.9	7.3	0.72	5191	3.09	0.24
008959288-05	OBS	No	465.408211	356.446112	1363.6	12.423	11.1	8.1	0.72	5191	2.70	0.31
008959288-06	OBS	No	288.114980	293.686359	929.8	16.976	10.7	6.2	0.72	5191	2.16	0.59
008959288-07	OBS	No	309.337500	142.033948	1303.8	6.783	10.7	7.2	0.72	5191	5.13	0.54
008959288-08	OBS	No	483.757722	334.988384	920.5	4.500	10.0	-1.0	0.72	5191	2.14	0.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008959288-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008959288-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV
008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

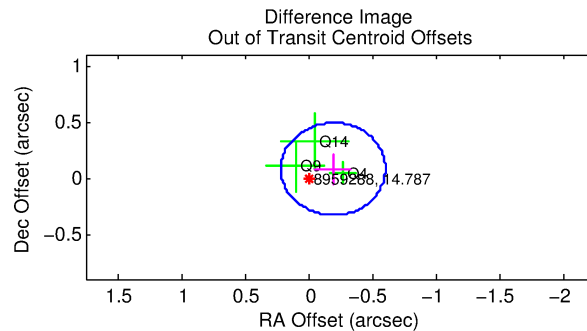
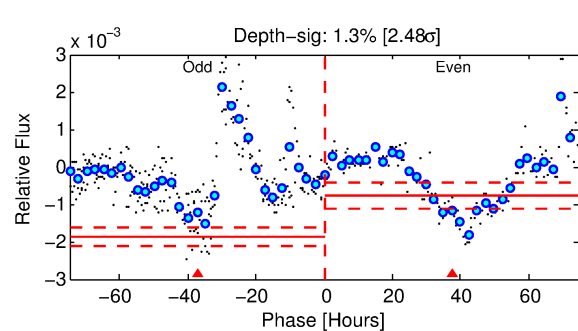
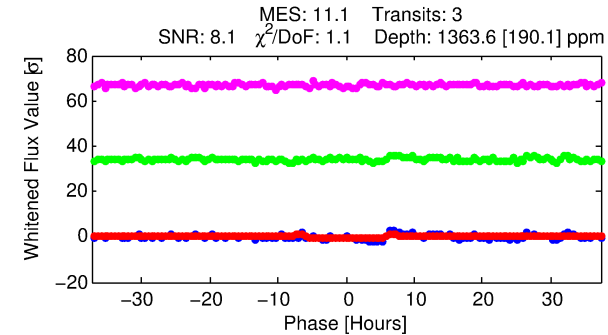
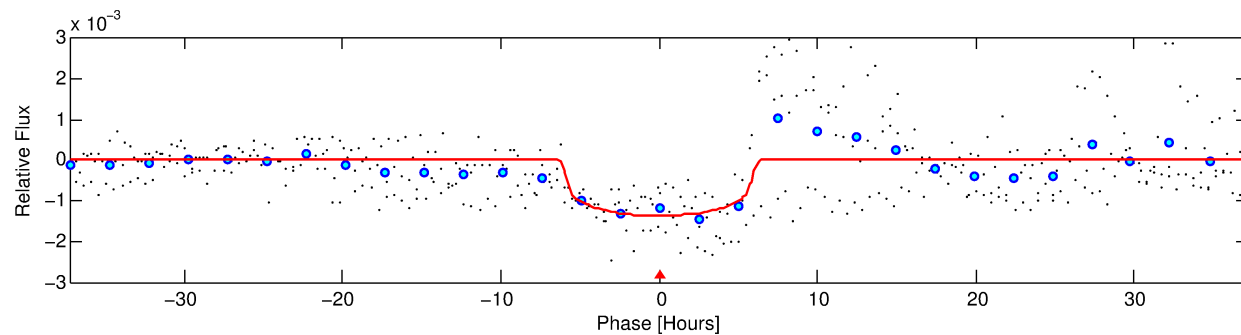
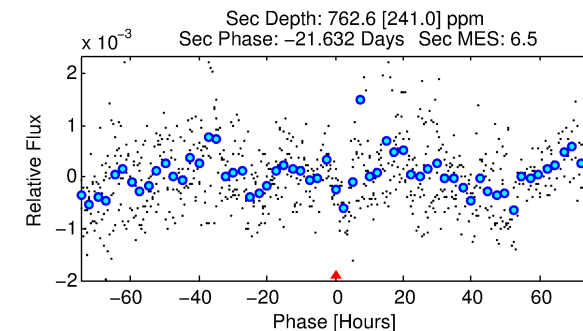
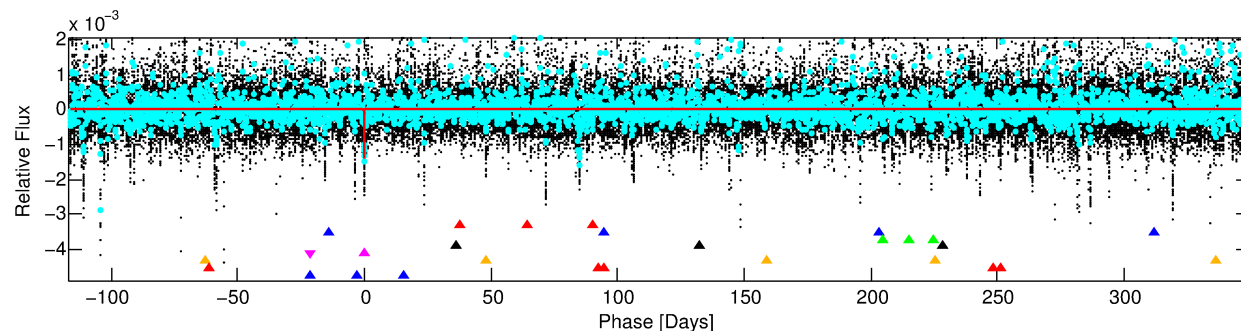
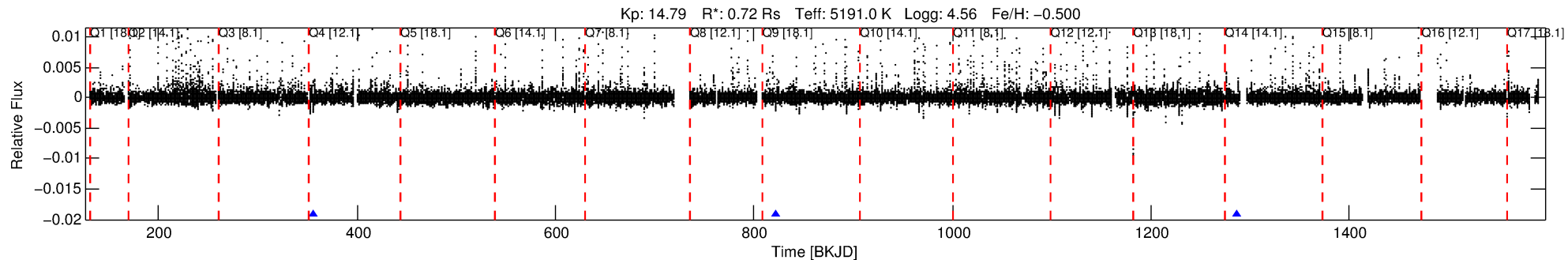
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-05

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 5 of 8 Period: 465.408 d



DV Fit Results:

Period = 465.40821 [0.00664] d
Epoch = 356.4461 [0.0086] BKJD
Rp/R* = 0.0344 [0.0098]
a/R* = 258.29 [269.29]
b = 0.51 [1.55]
Seff = 0.31 [0.06]
Teq = 191 [9] K
Rp = 2.70 [0.83] Re
a = 1.0363 [0.1022] AU
Ag = 61693.45 [41282.66] [1.49σ]
Teff = 4651 [772] K [5.78σ]

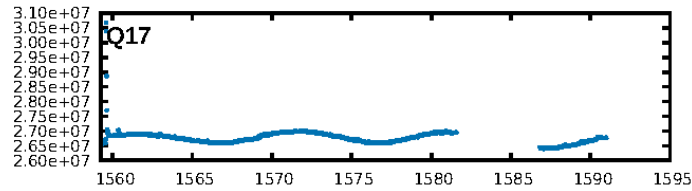
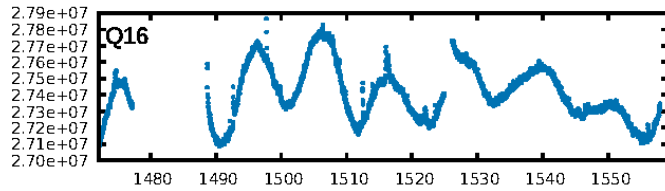
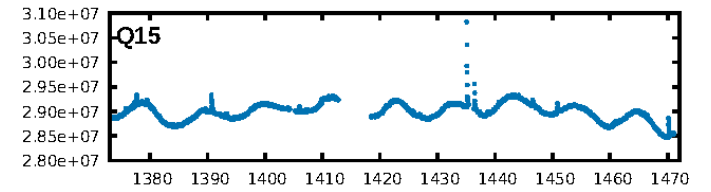
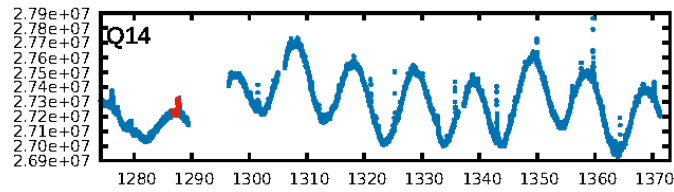
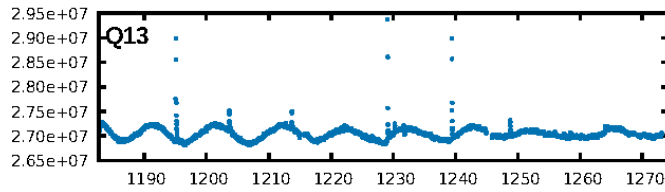
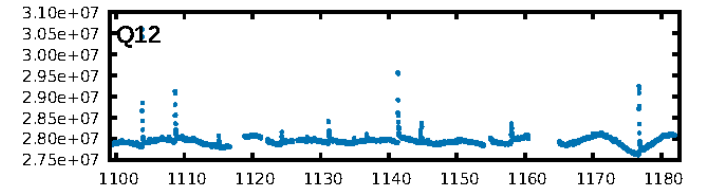
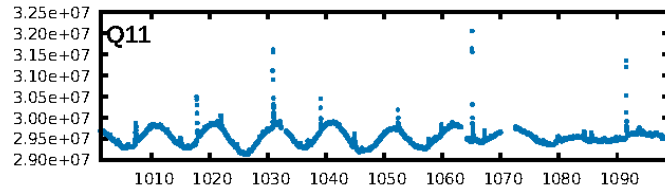
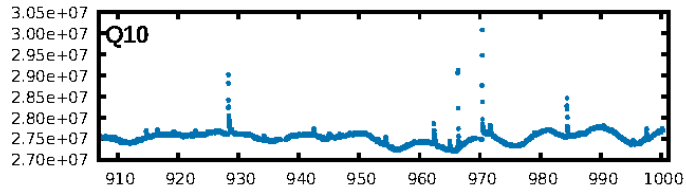
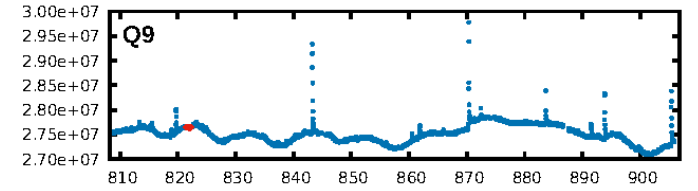
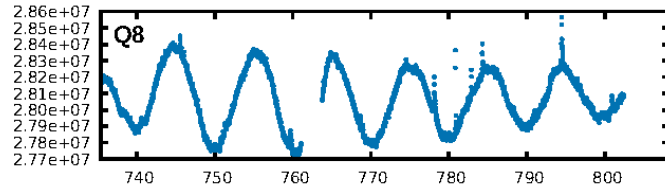
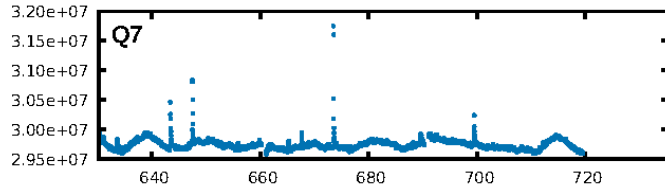
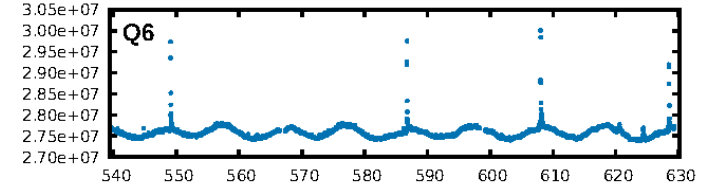
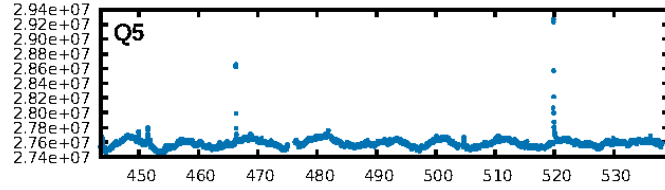
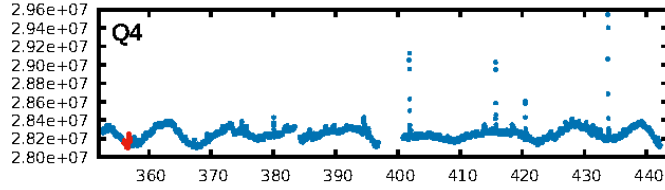
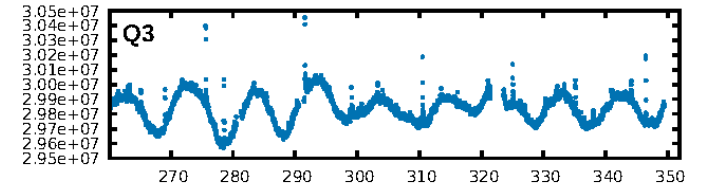
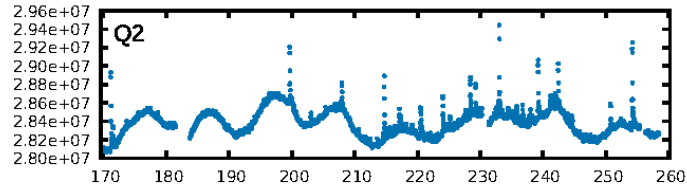
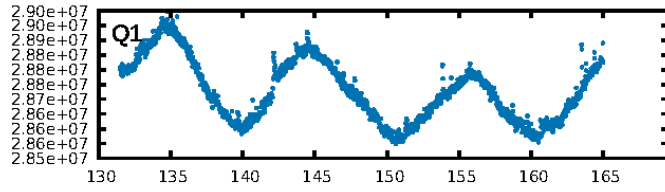
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [200.39σ]
LongPeriod-sig: 100.0% [15.74σ]
ModelChiSquare2-sig: 10.0%
ModelChiSquareGof-sig: 93.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.294
Centroid-sig: 1.1%
Centroid-so: 0.567 arcsec [1.07σ]
OotOffset-rm: 0.210 arcsec [1.53σ]
KicOffset-rm: 0.180 arcsec [1.31σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

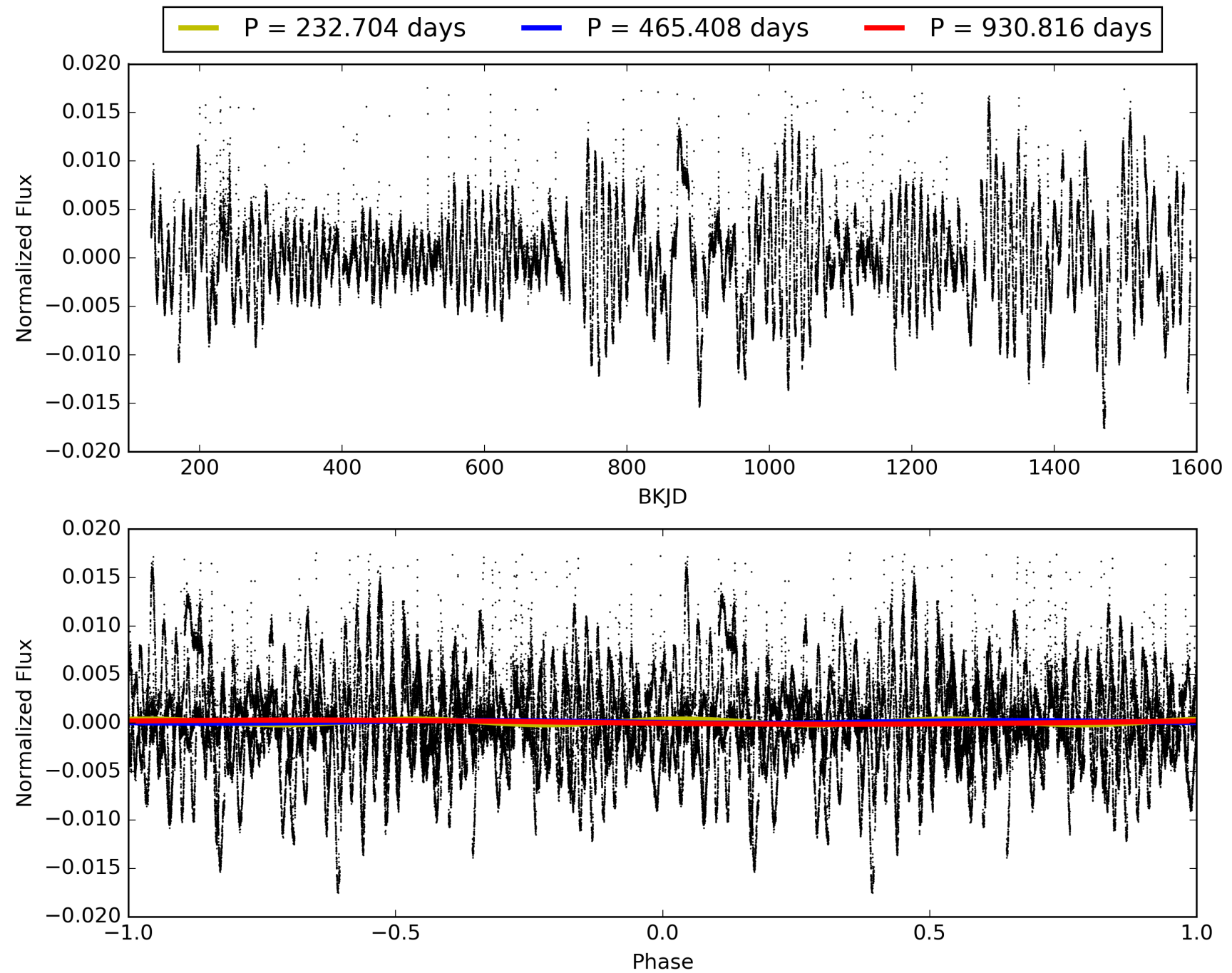
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:40:59 Z

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

TCE 008959288-05, PDC Light Curves

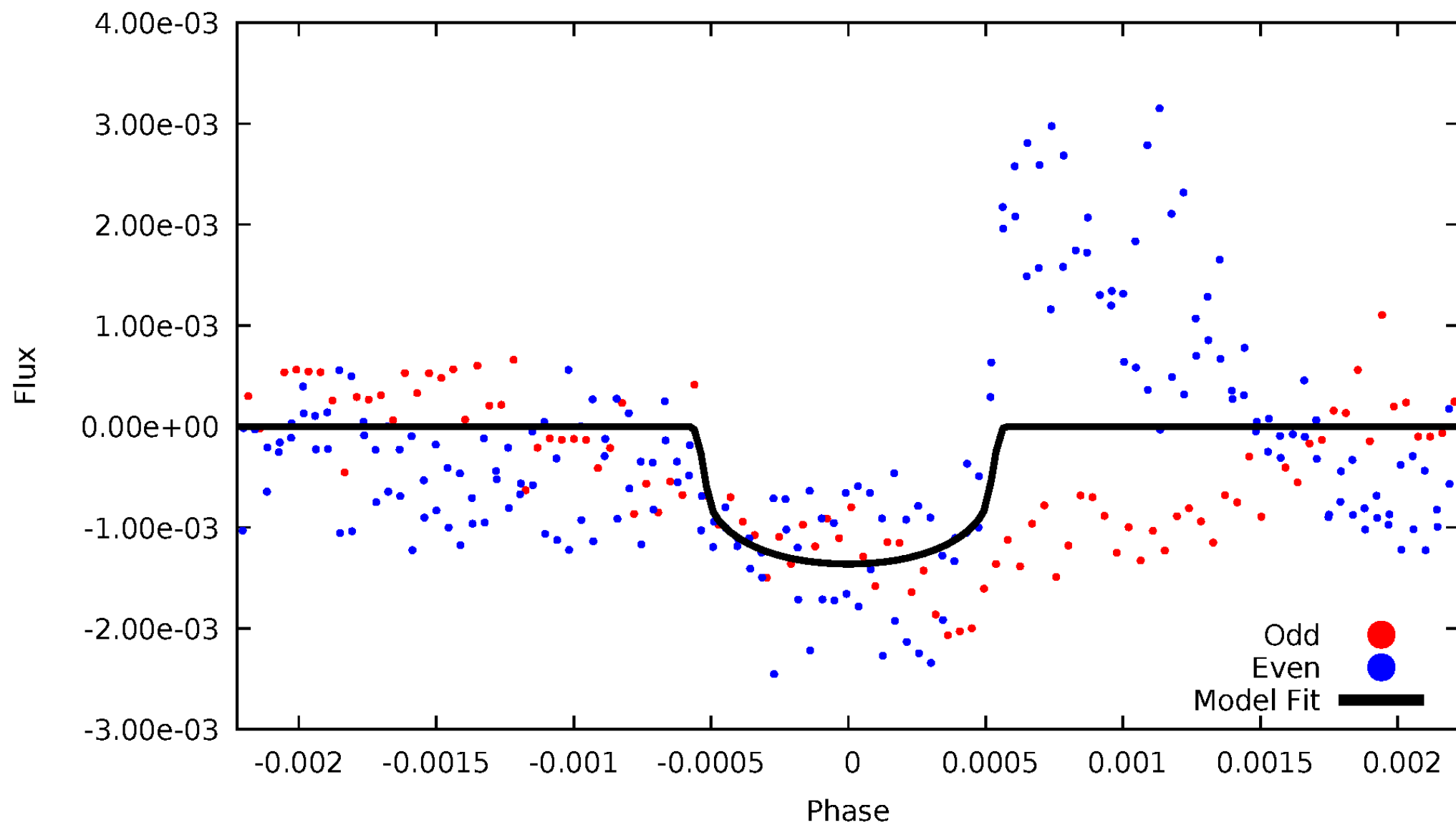


TCE 008959288-05



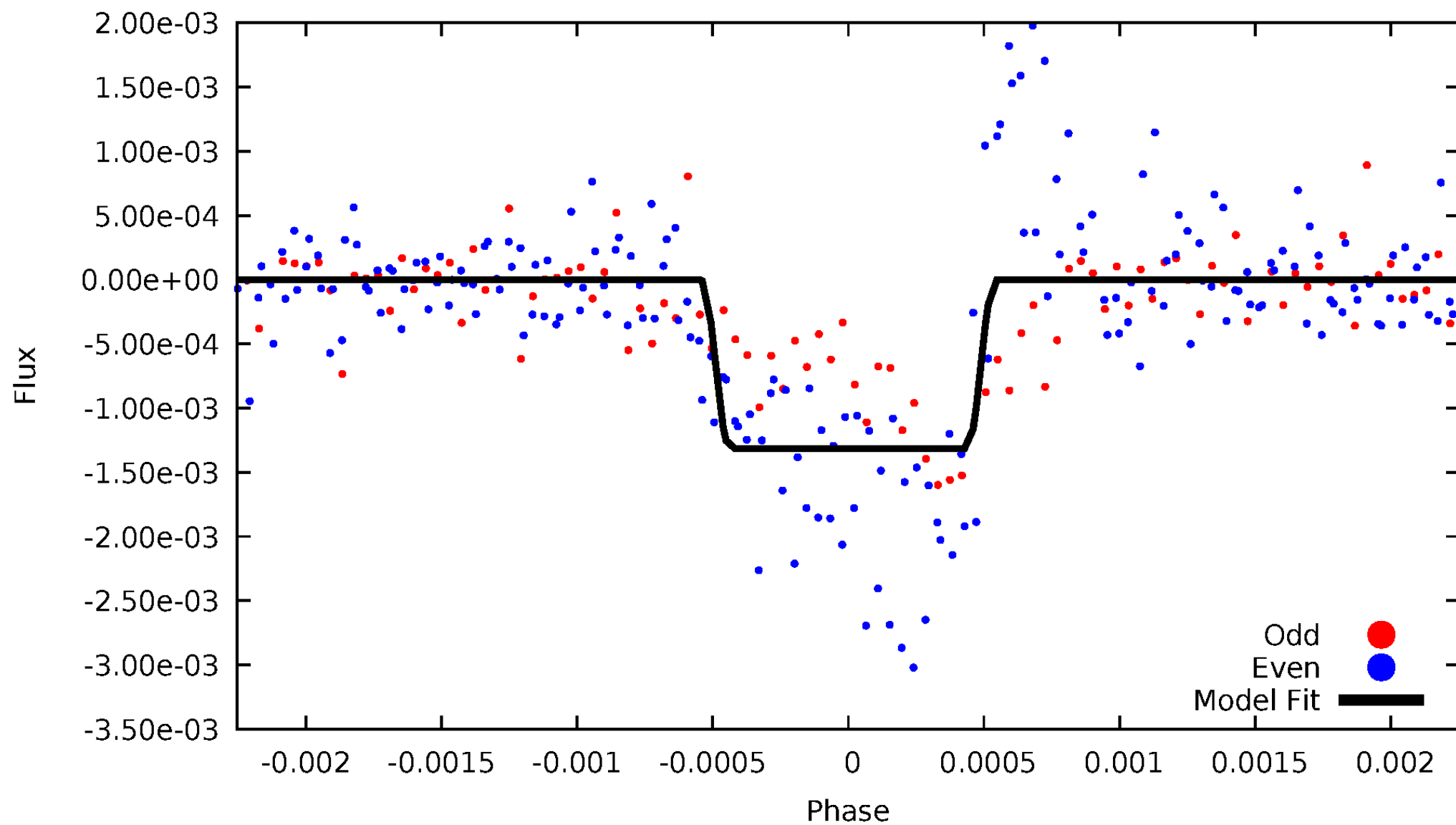
DV Odd/Even

TCE 008959288-05



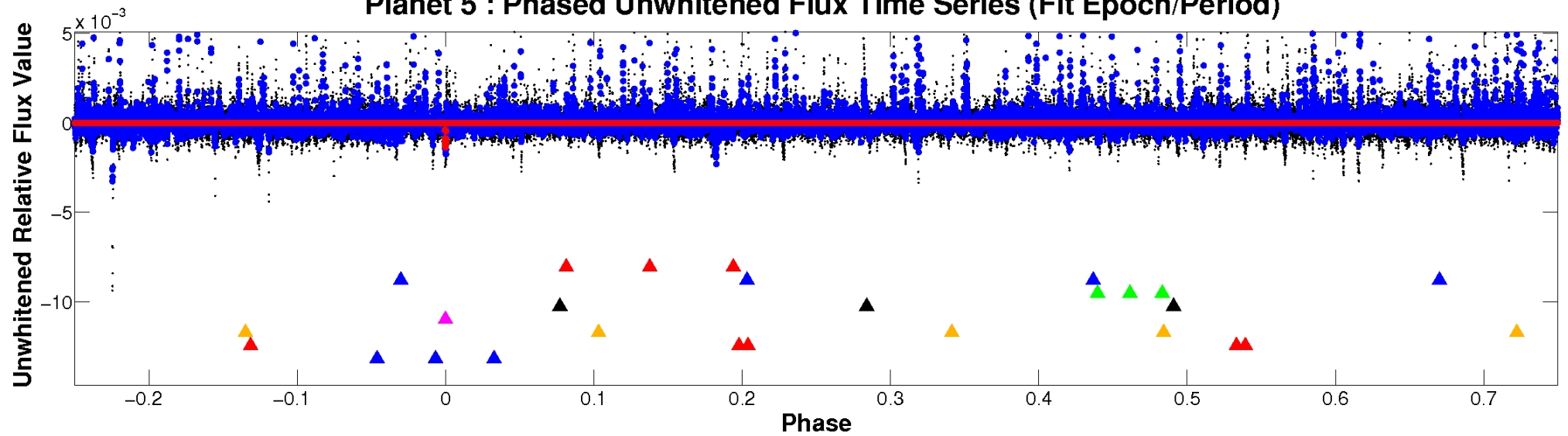
ALT Odd/Even

TCE 008959288-05

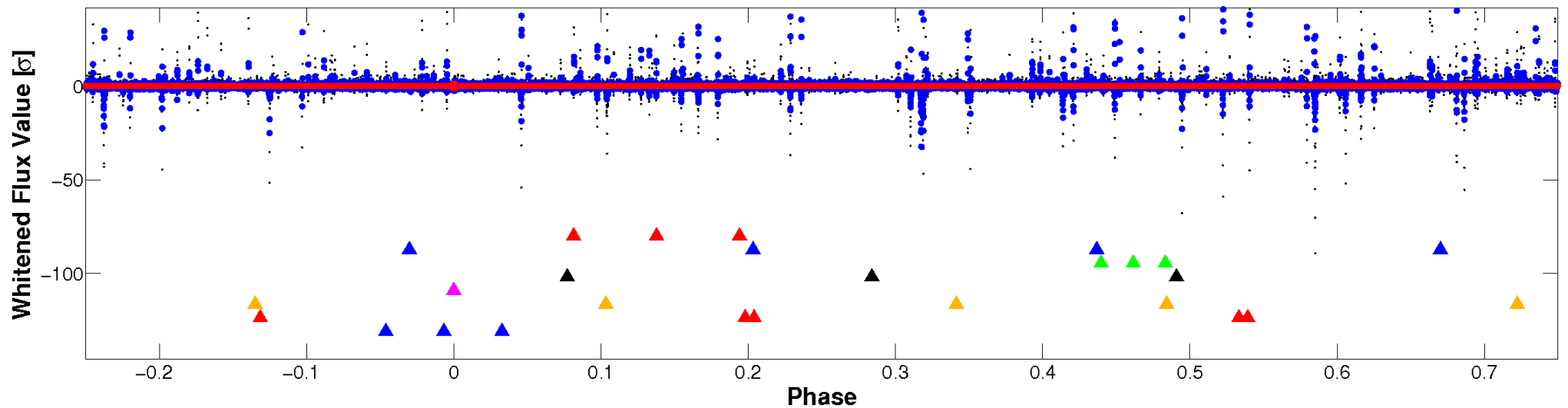


Non-Whitened Vs. Whitened Light Curve

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

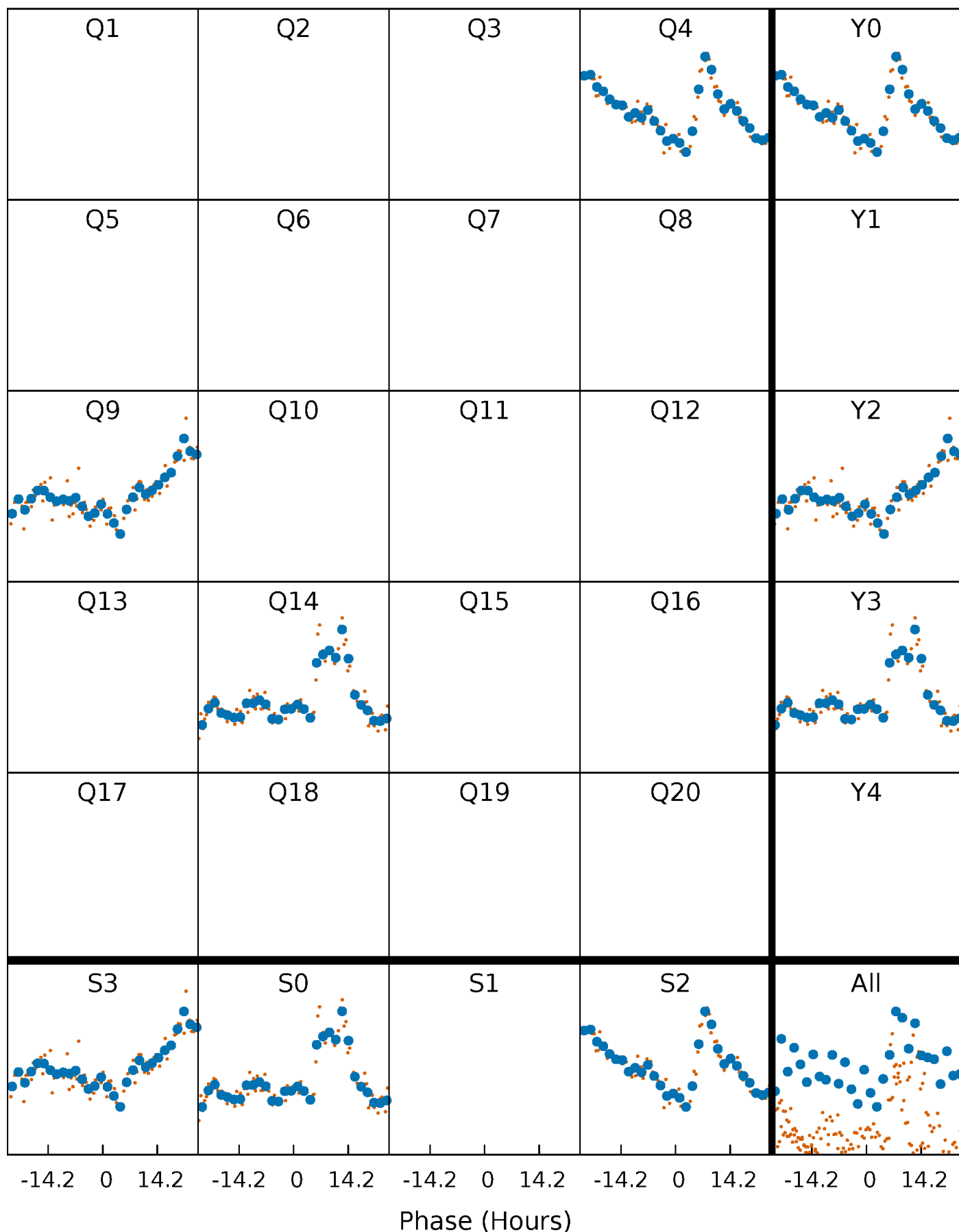


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



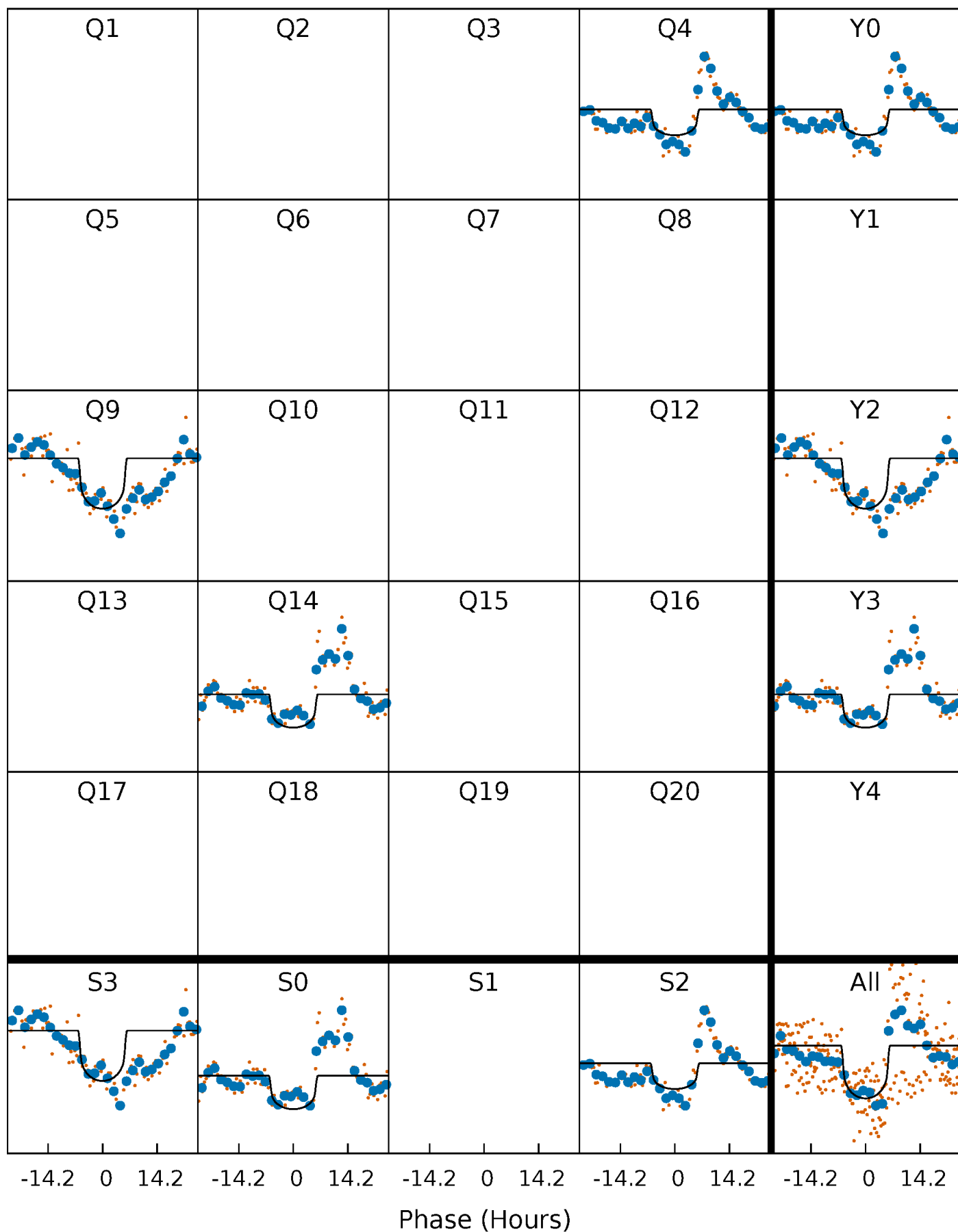
PDC Quarter-Phased Transit Curves

TCE 008959288-05 $P=465.408211$ Days $T_0=356.446112$ (BKJD)



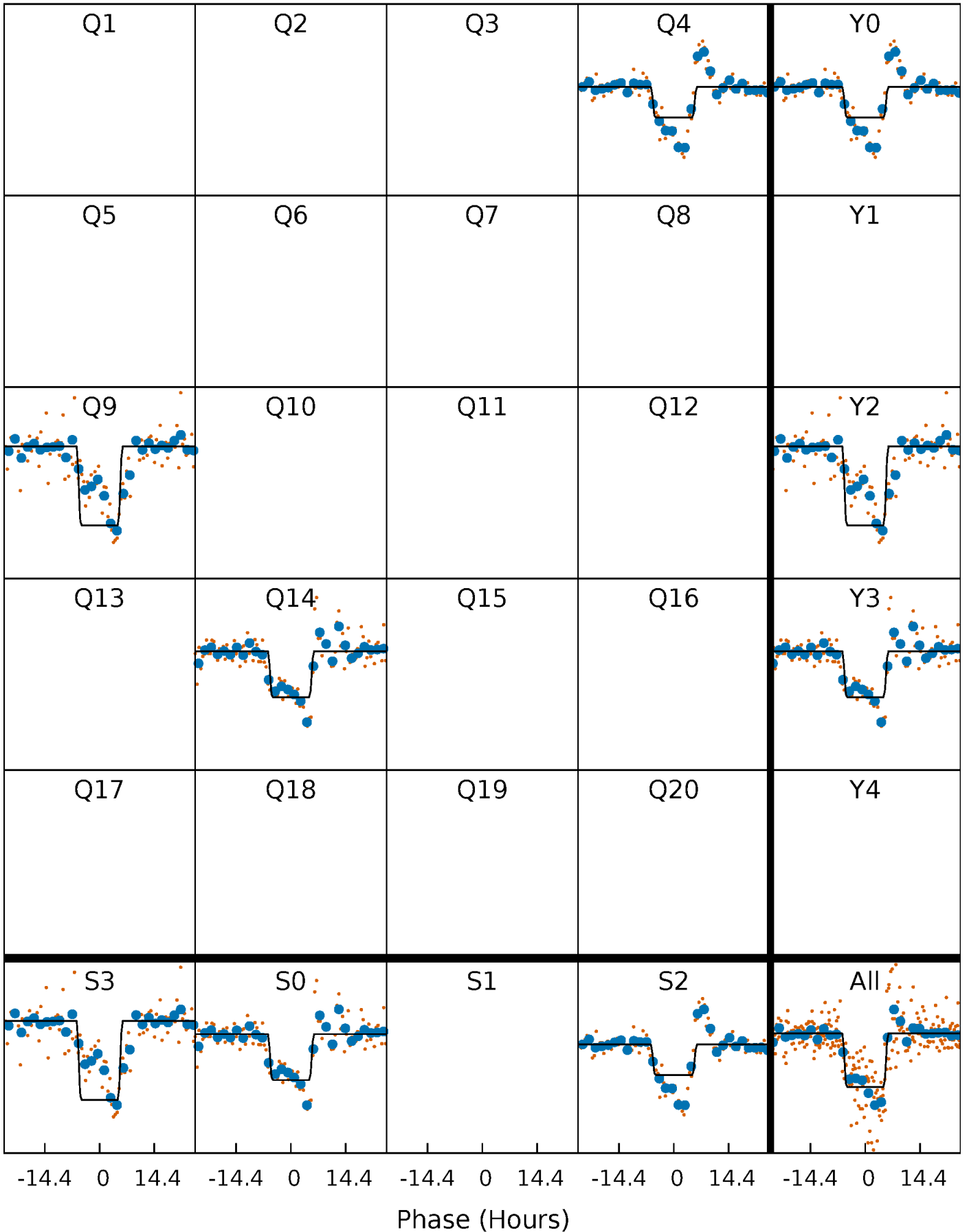
DV Quarter-Phased Transit Curves

TCE 008959288-05 $P=465.408211$ Days $T_0=356.446112$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

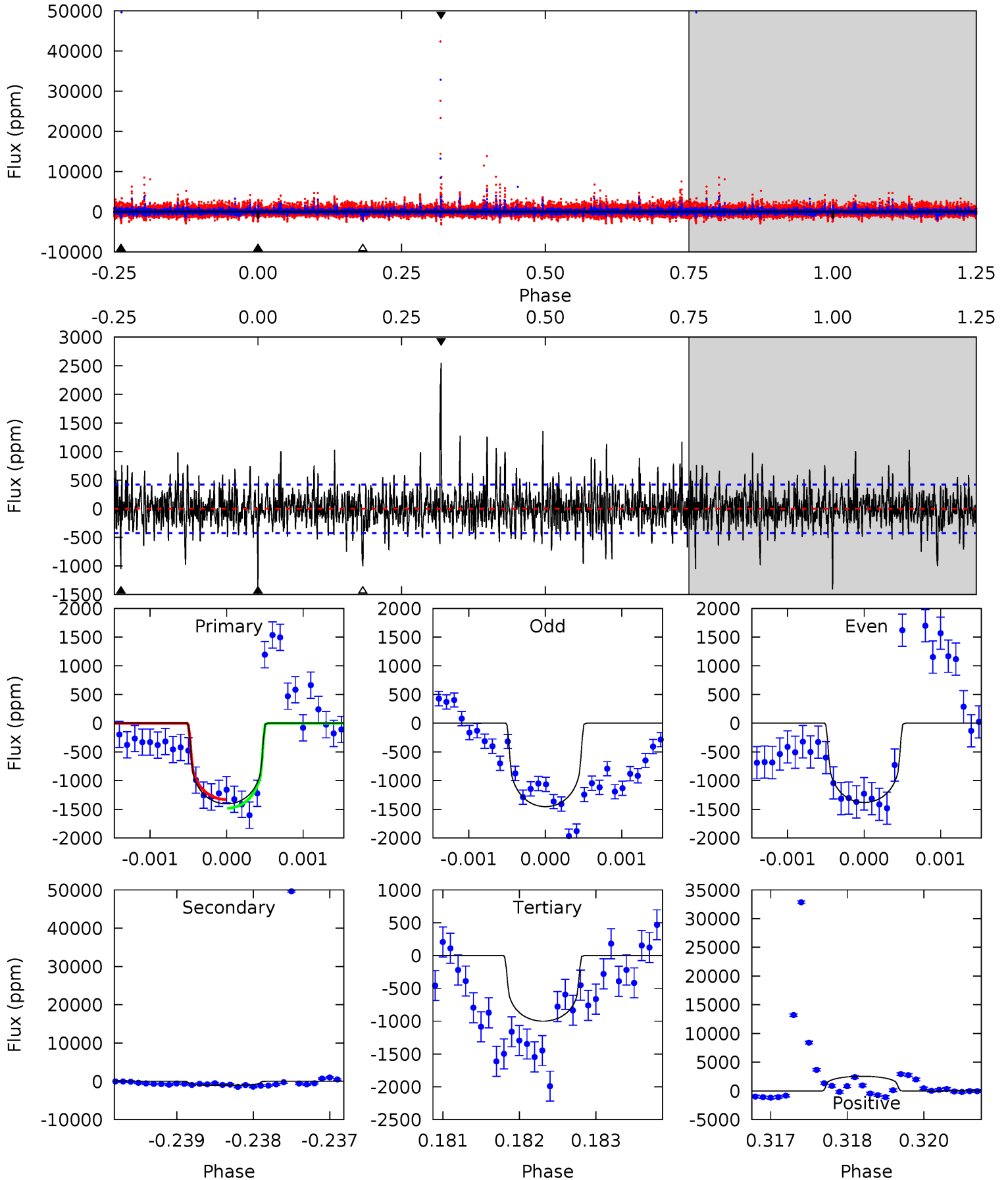
TCE 008959288-05 $P=465.394763$ Days $T_0=356.474116$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-05, P = 465.408211 Days, E = 356.446112 Days

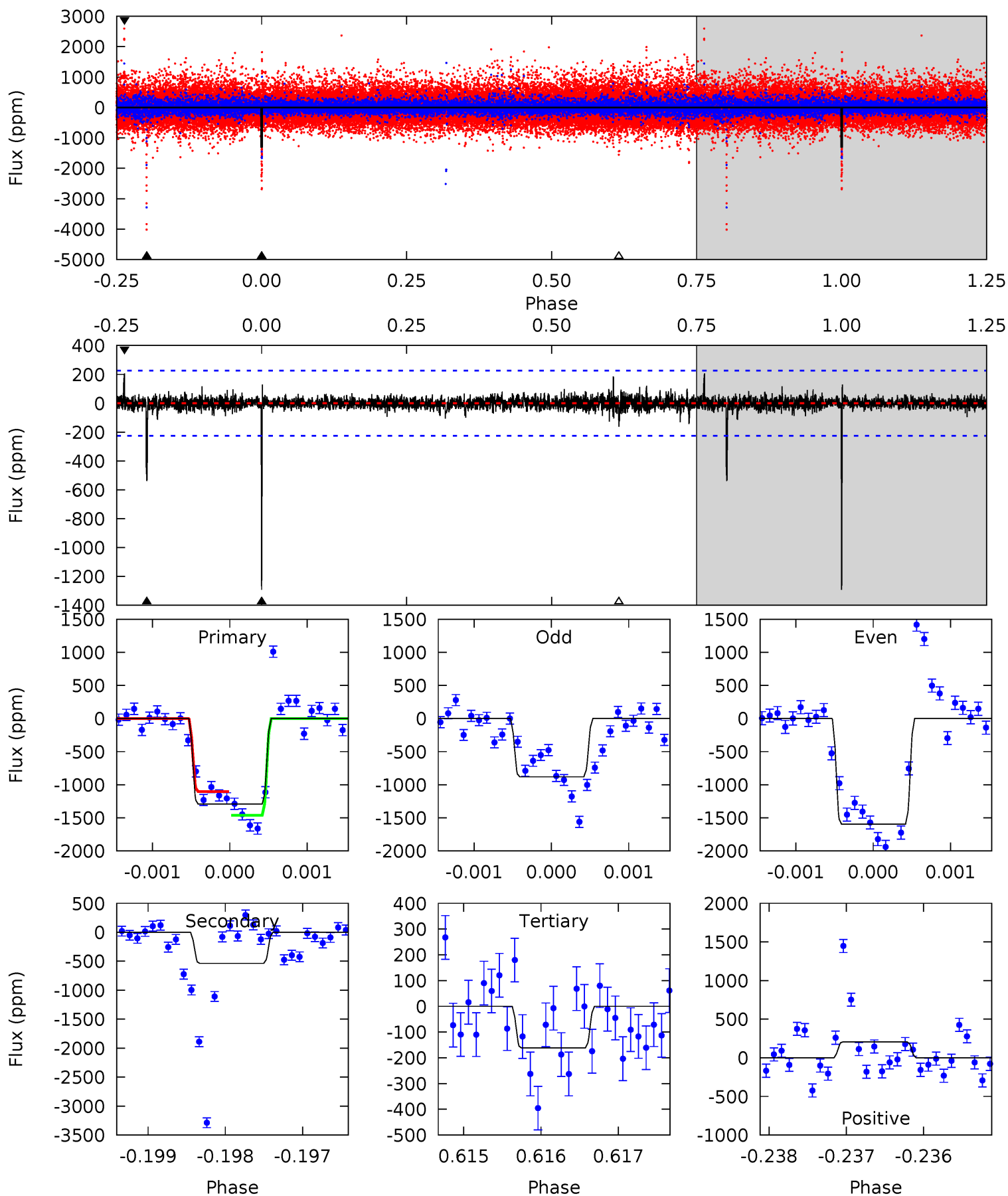
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	13.5	12.8	32.6	5.43	3.26	3.50	5.20	-14.6	0.68	-19.1	0.18	0.97	0.64	0.93



Alt Model-Shift Uniqueness Test

008959288-05, P = 465.394763 Days, E = 356.474116 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.2	13.0	3.90	4.97	5.45	3.28	0.65	27.3	26.2	9.07	8.00	7.65	1.01	0.14	4.32



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1053 ± 78	$2.73^{+0.81}_{-0.83}$	267^{+10}_{-11}	5055^{+901}_{-526}	85629^{+88172}_{-35127}
Alt.	-537 ± 41	$2.81^{+0.90}_{-0.72}$	266^{+11}_{-11}	4337^{+562}_{-407}	40893^{+33513}_{-17714}

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

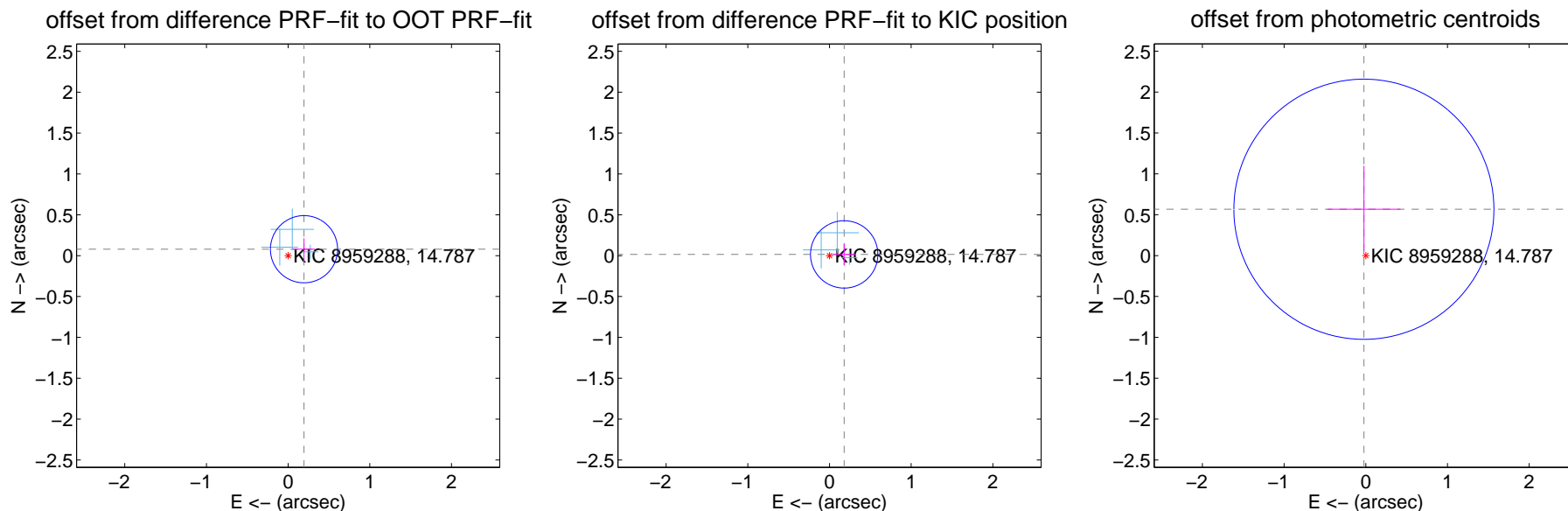
DV Centroid Data

Supplemental centroid analysis for 008959288-05. Kepler magnitude: 14.79. Transit SNR 8.11

There are 3 quarters with good PRF difference image offsets

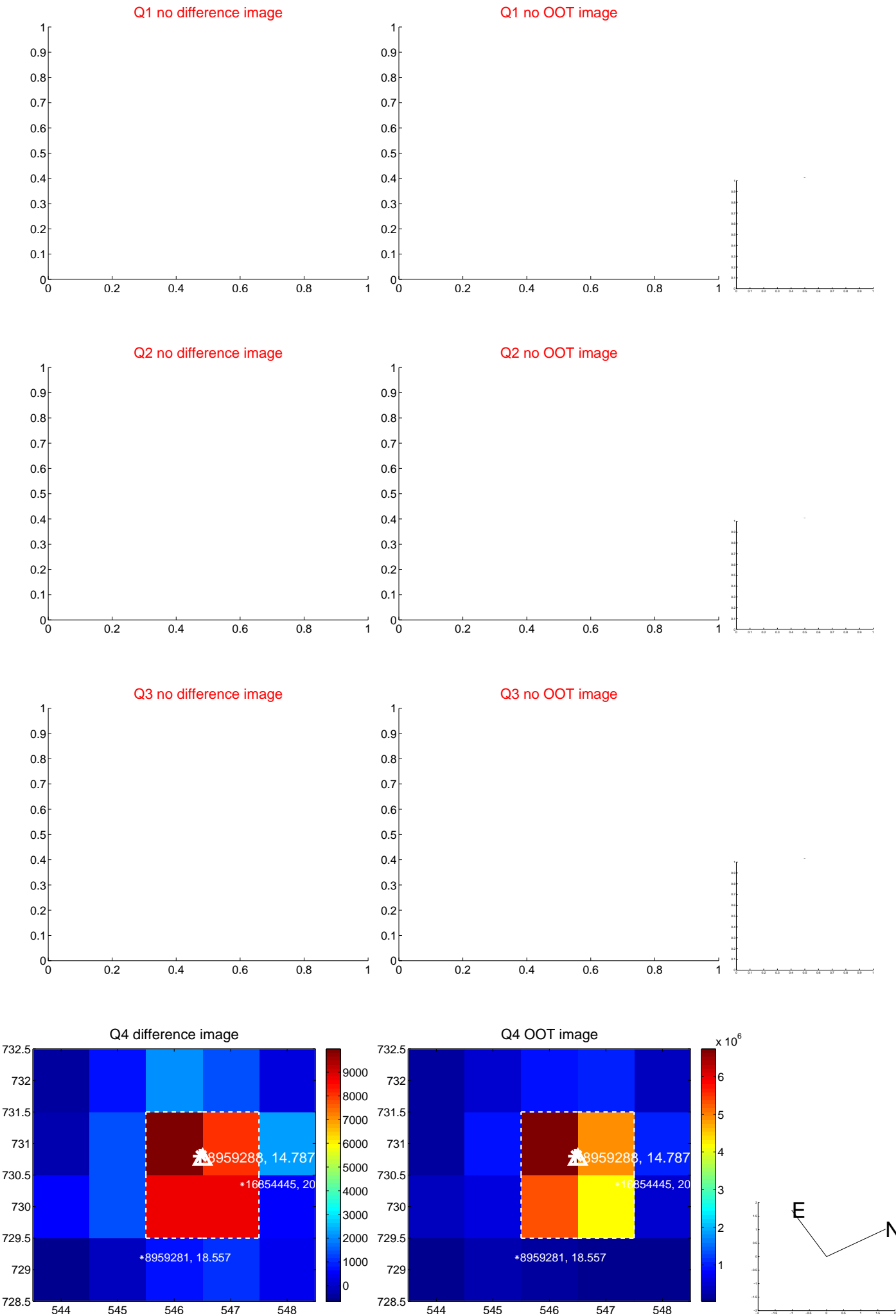
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.210 ± 0.137	1.53	-0.194 ± 0.137	0.079 ± 0.134
PRF-fit source offset from KIC position	0.180 ± 0.137	1.31	-0.180 ± 0.137	0.015 ± 0.134
photometric centroid source offset	0.57 ± 0.53	1.07	0.02 ± 0.45	0.57 ± 0.53



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

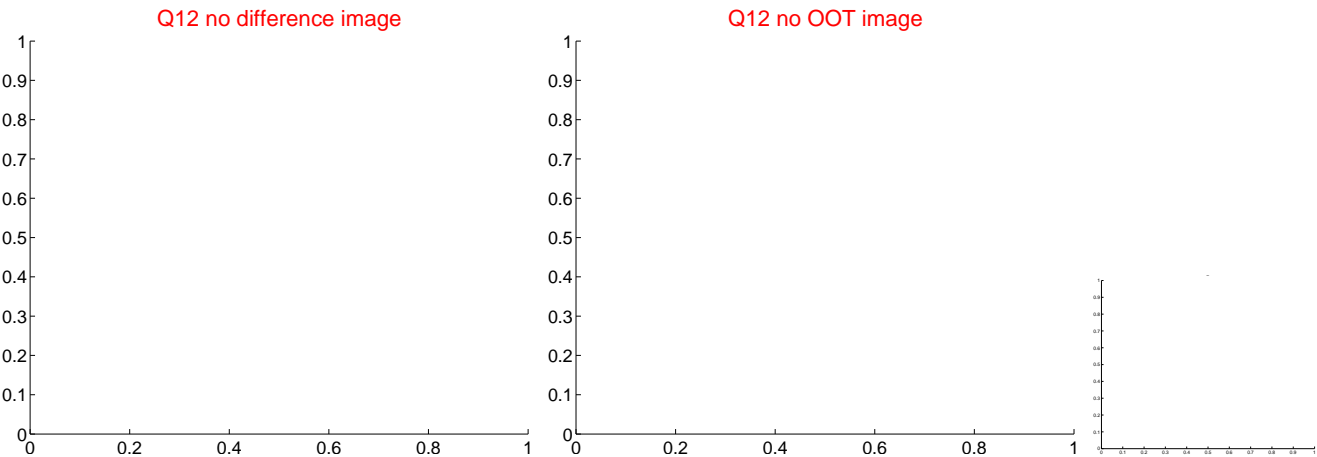
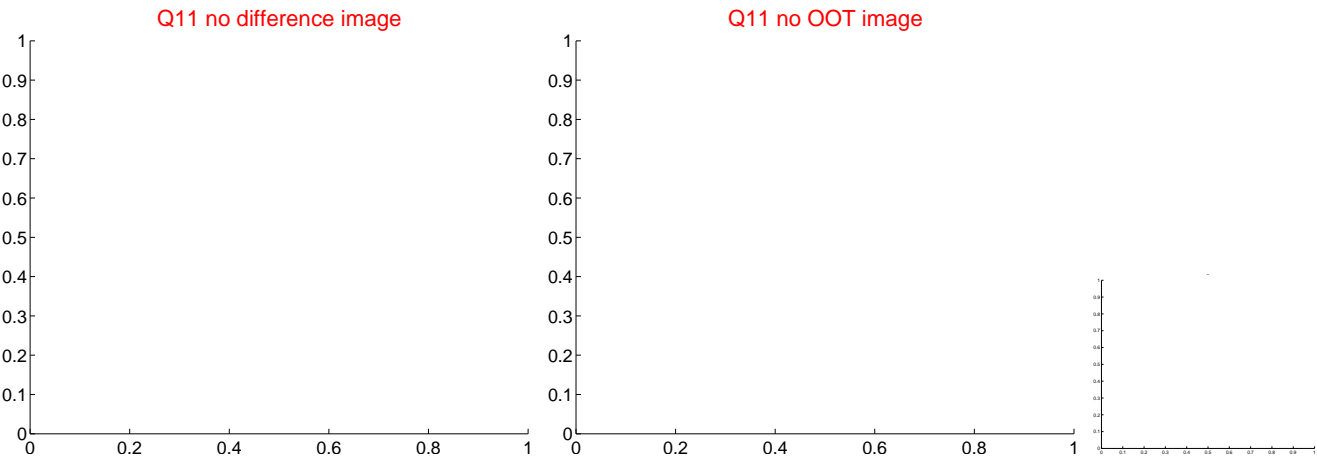
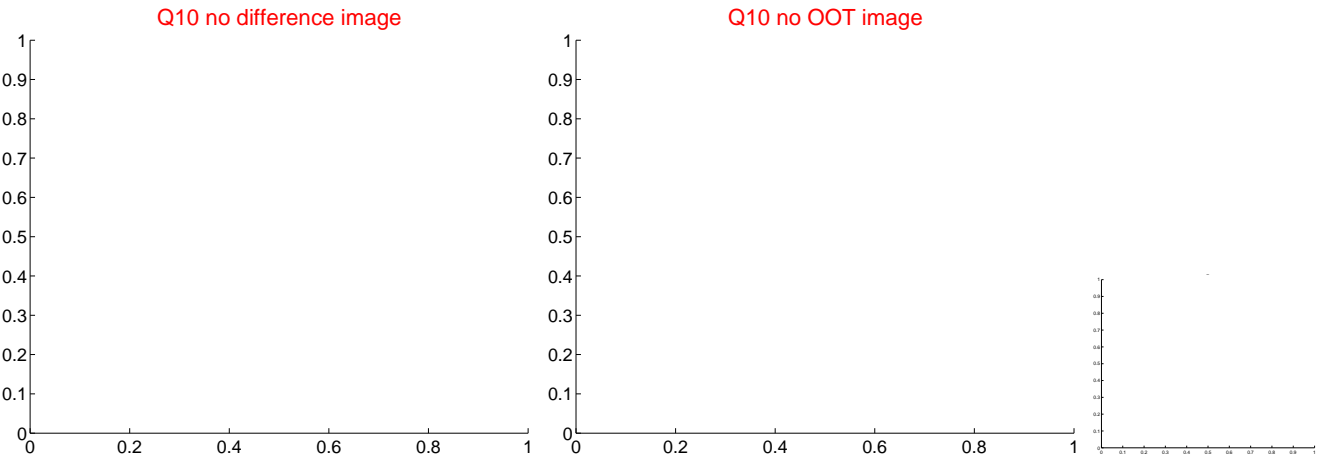
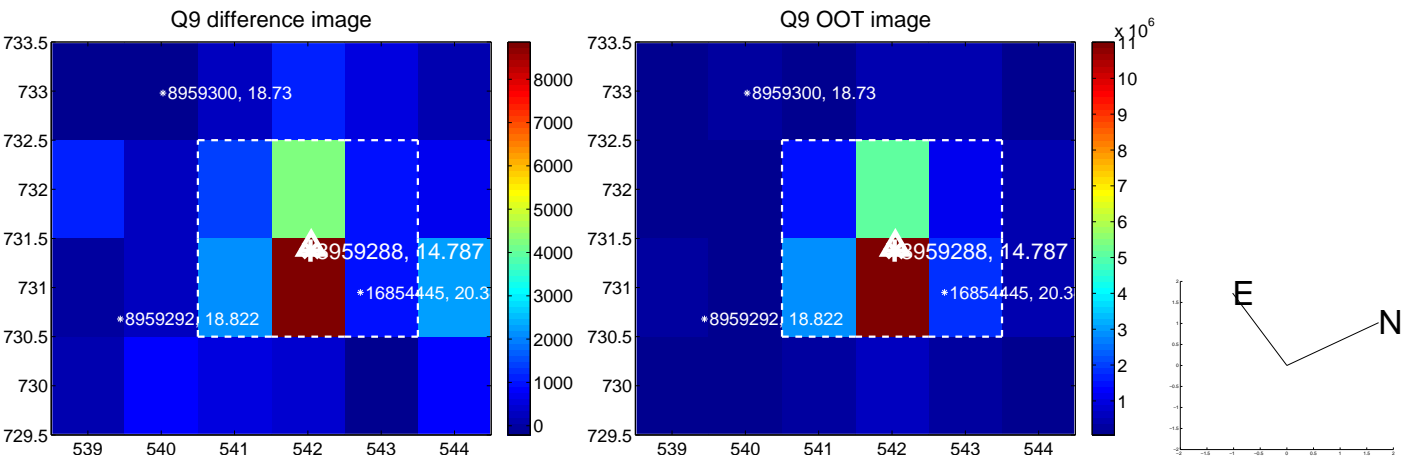
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

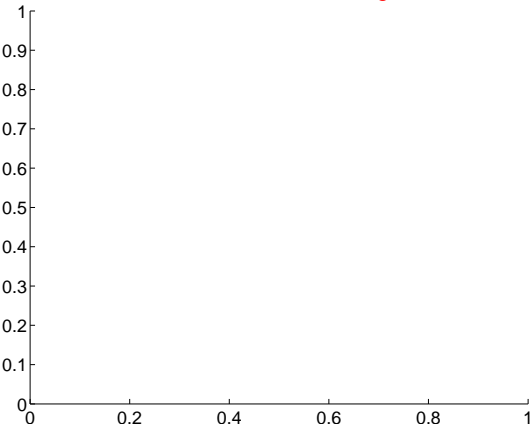


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

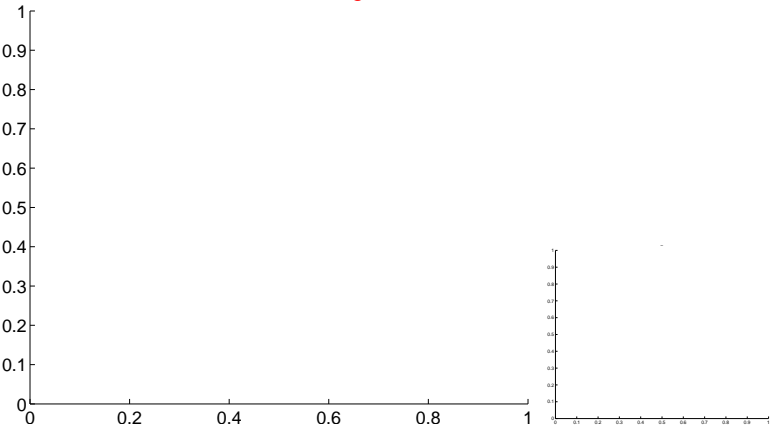


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

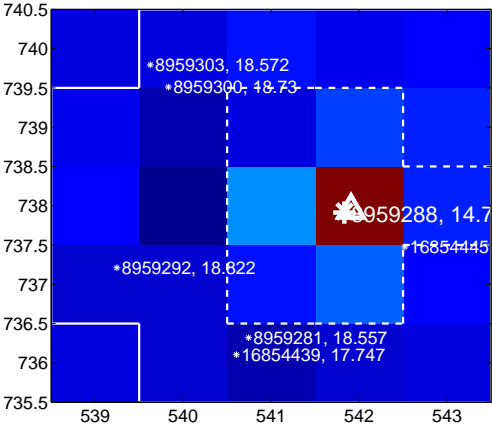
Q13 no difference image



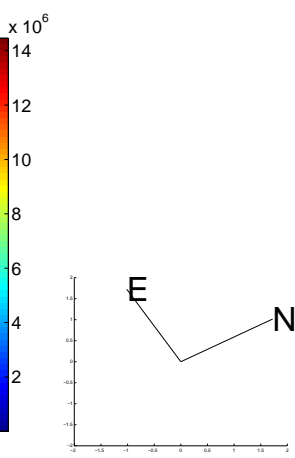
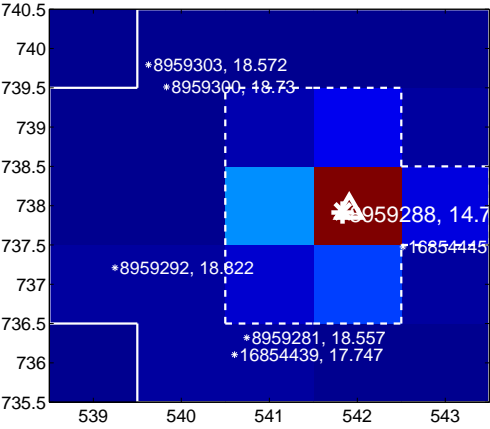
Q13 no OOT image



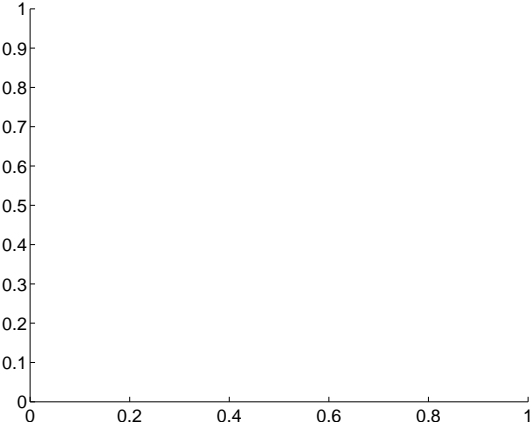
Q14 difference image



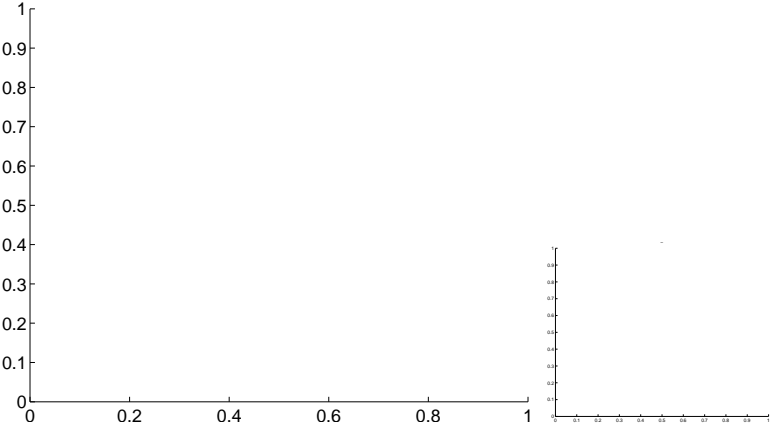
Q14 OOT image



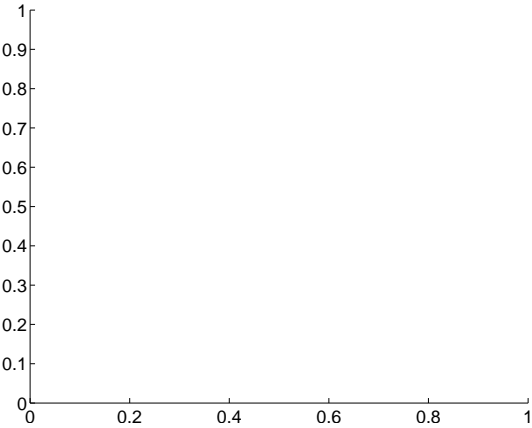
Q15 no difference image



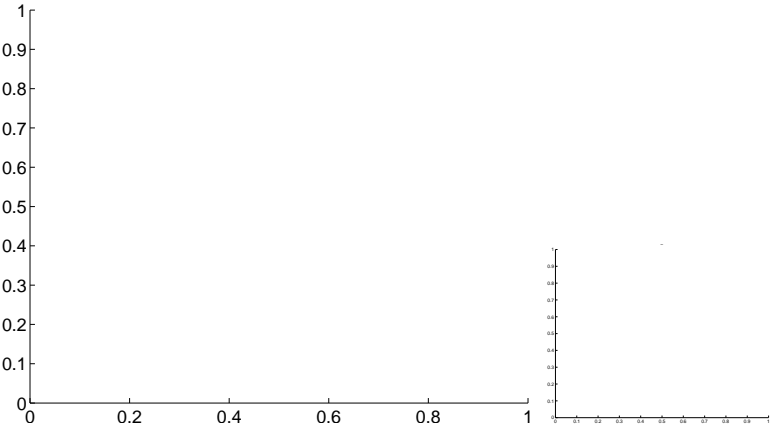
Q15 no OOT image



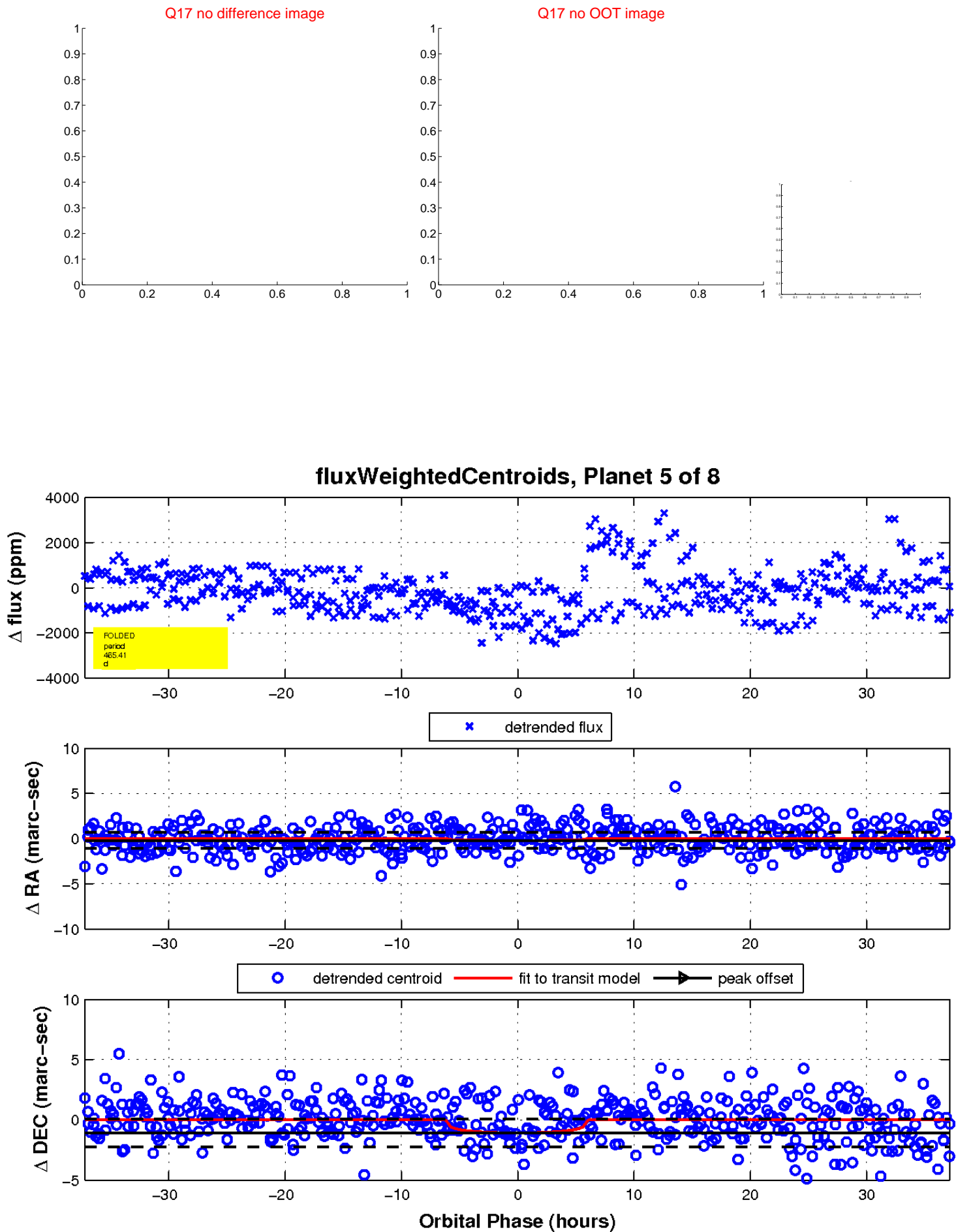
Q16 no difference image



Q16 no OOT image

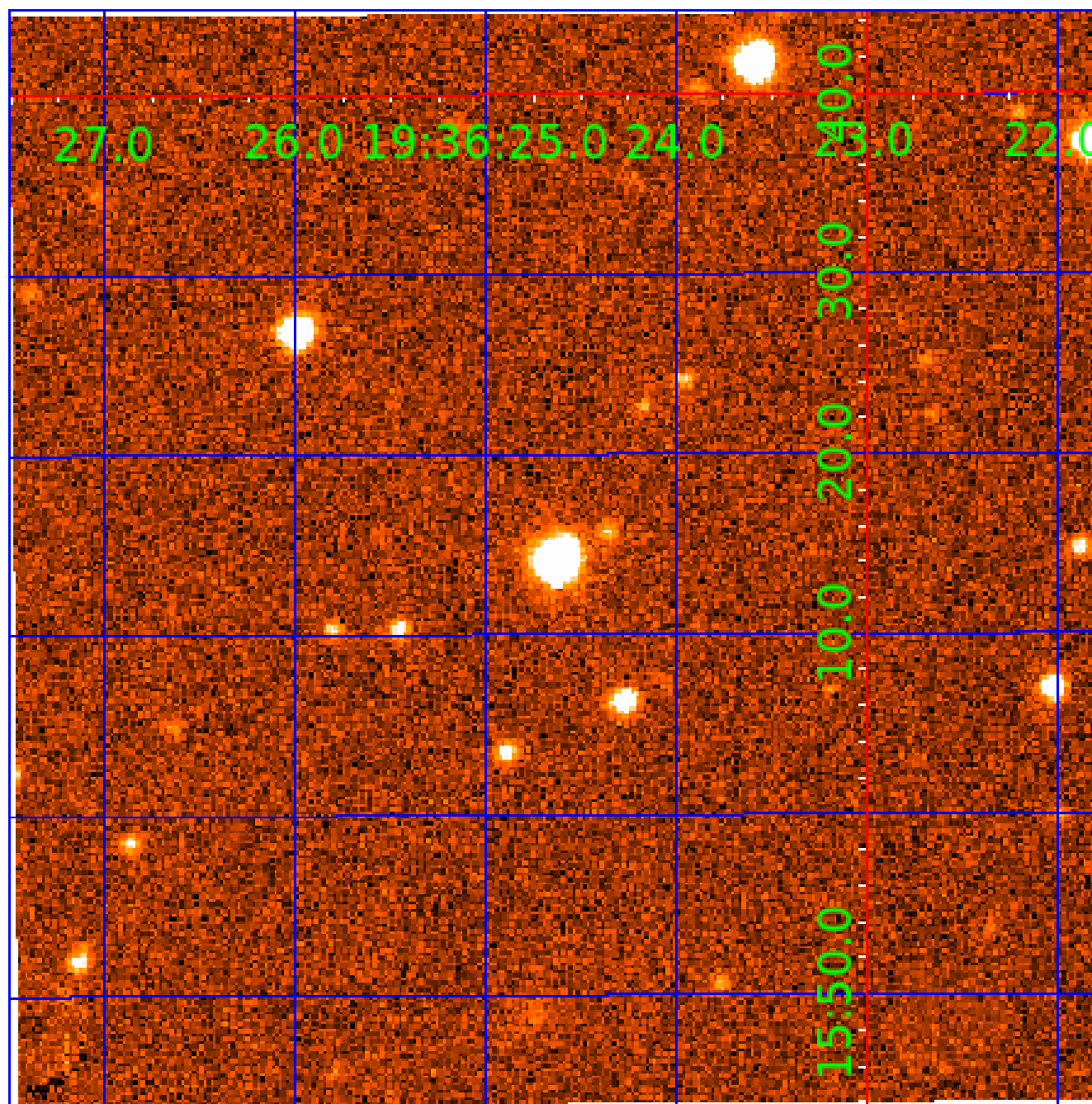


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008959288

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})
008959288-01	OBS	No	491.626083	394.340555	1340.5	5.480	15.9	7.9	0.72	5191	2.87	0.29
008959288-02	OBS	No	356.770109	202.939752	1275.1	3.867	14.4	8.2	0.72	5191	2.62	0.45
008959288-03	OBS	No	475.553173	561.079381	1064.1	9.219	14.6	5.9	0.72	5191	2.38	0.30
008959288-04	OBS	No	561.692185	392.350191	1312.0	14.264	14.9	7.3	0.72	5191	3.09	0.24
008959288-05	OBS	No	465.408211	356.446112	1363.6	12.423	11.1	8.1	0.72	5191	2.70	0.31
008959288-06	OBS	No	288.114980	293.686359	929.8	16.976	10.7	6.2	0.72	5191	2.16	0.59
008959288-07	OBS	No	309.337500	142.033948	1303.8	6.783	10.7	7.2	0.72	5191	5.13	0.54
008959288-08	OBS	No	483.757722	334.988384	920.5	4.500	10.0	-1.0	0.72	5191	2.14	0.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008959288-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008959288-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV
008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

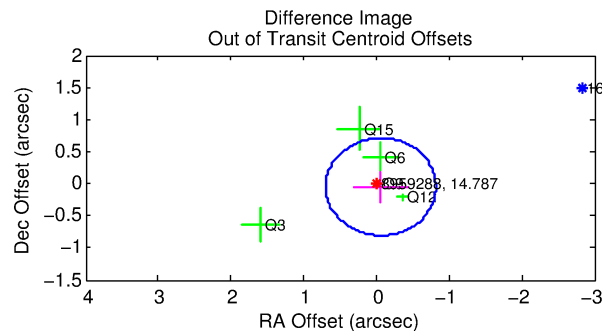
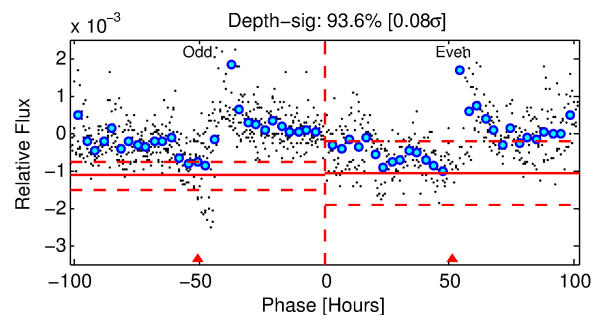
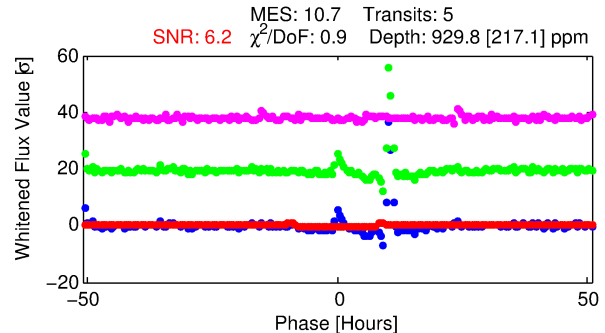
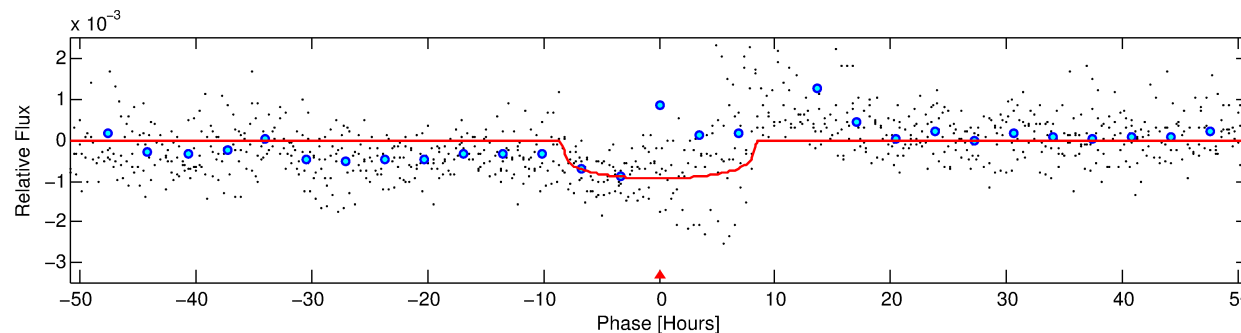
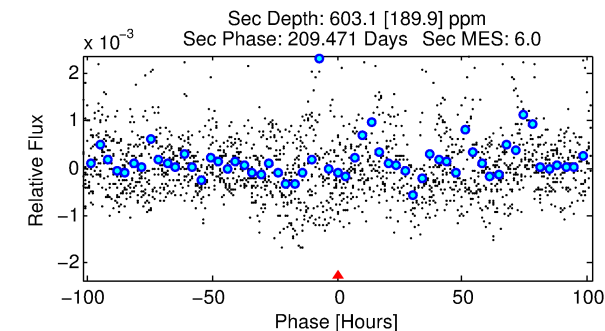
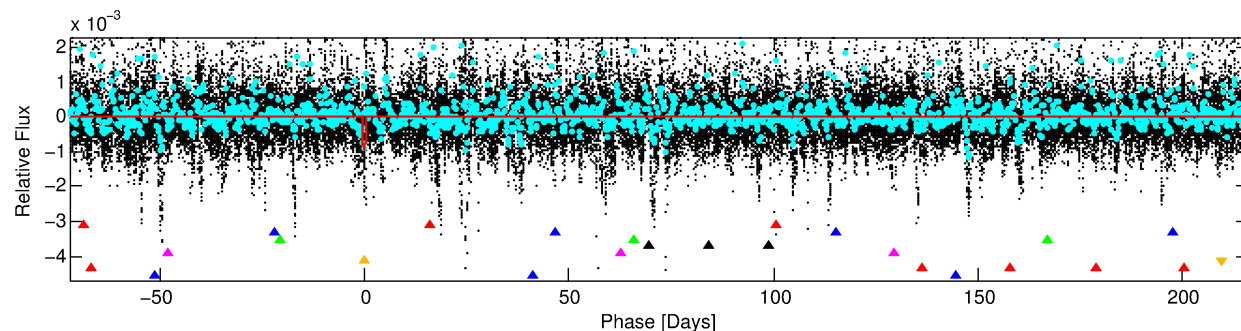
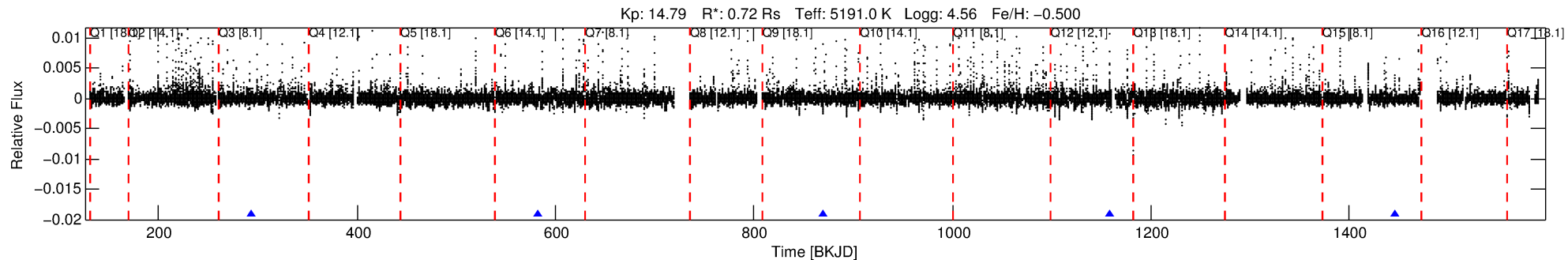
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-06

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 6 of 8 Period: 288.115 d



DV Fit Results:

Period = 288.11498 [0.00617] d
Epoch = 293.6864 [0.0164] BKJD
Rp/R* = 0.0275 [0.0168]
a/R* = 130.58 [301.96]
b = 0.20 [10.97]
Seff = 0.60 [0.11]
Teq = 224 [11] K
Rp = 2.16 [1.35] Re
a = 0.7527 [0.0742] AU
Ag = 40238.29 [51234.24] [0.79σ]
Teff = 4905 [1558] K [3.00σ]

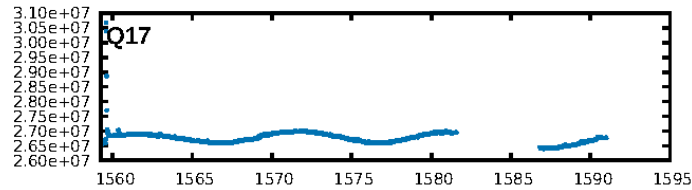
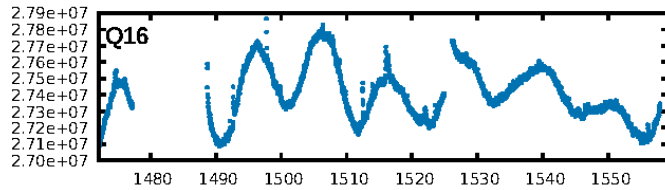
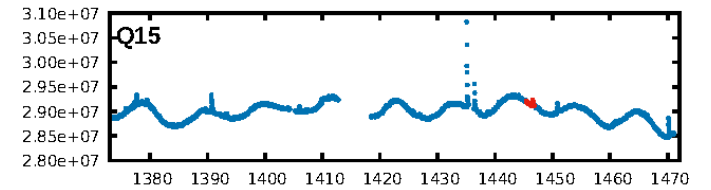
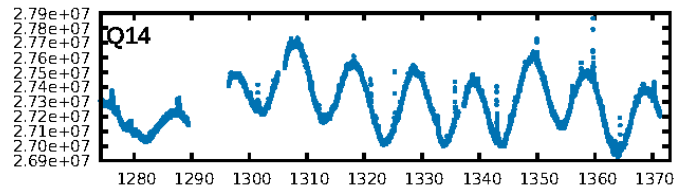
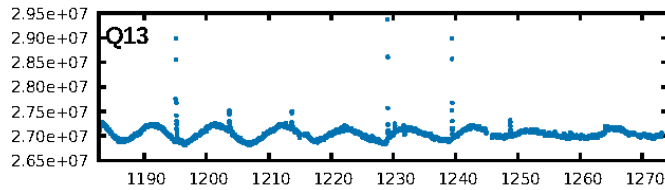
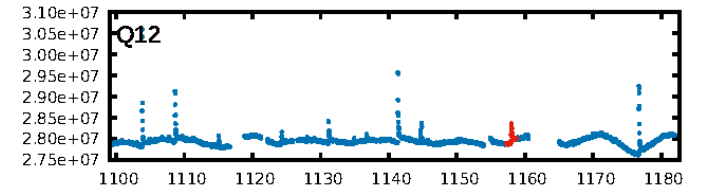
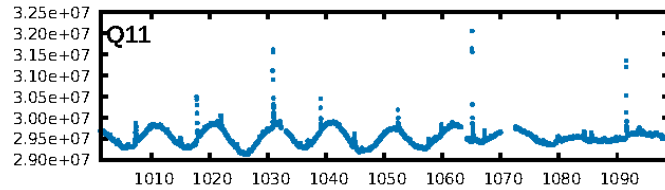
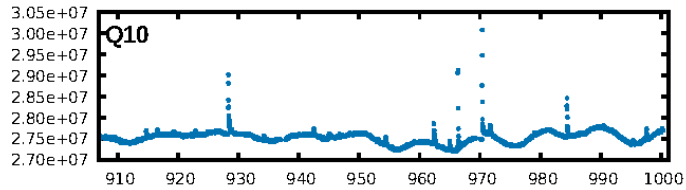
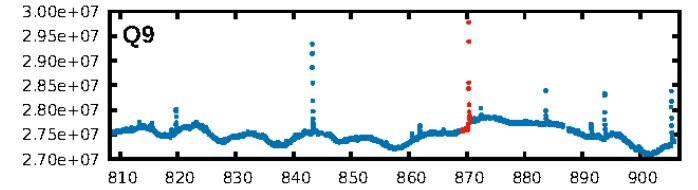
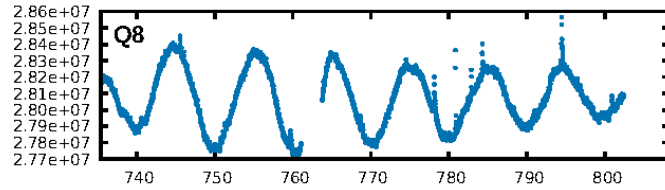
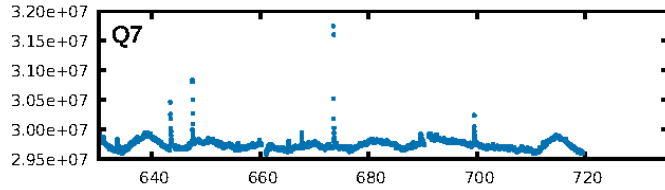
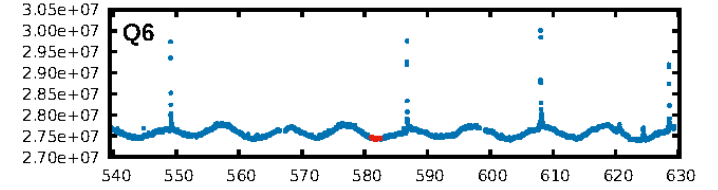
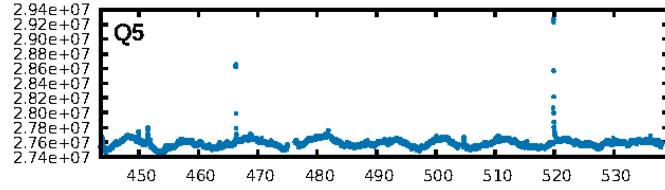
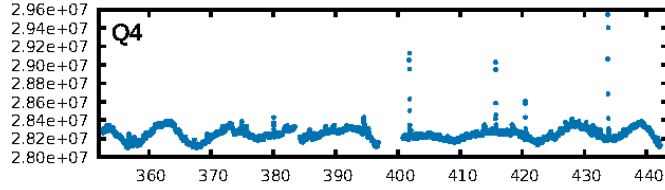
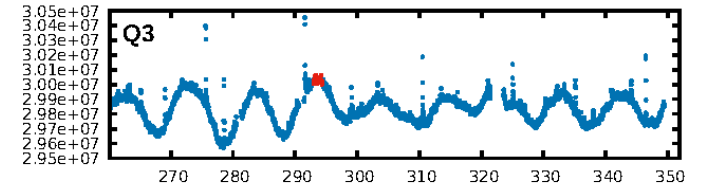
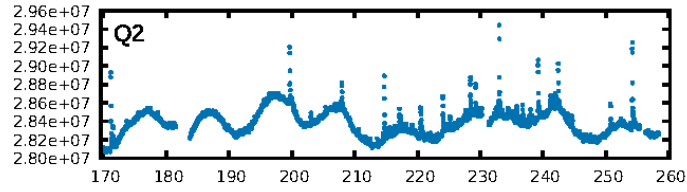
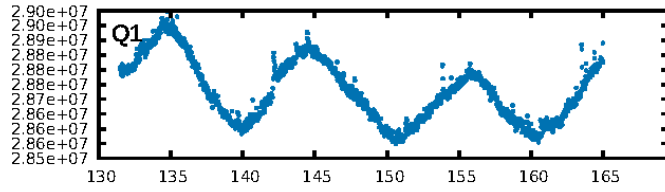
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.86σ]
ModelChiSquare2-sig: 1.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.371
Centroid-sig: 60.3%
Centroid-so: 0.463 arcsec [1.13σ]
OotOffset-rm: 0.075 arcsec [0.29σ]
KicOffset-rm: 0.100 arcsec [0.49σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 1.00 [5/5]

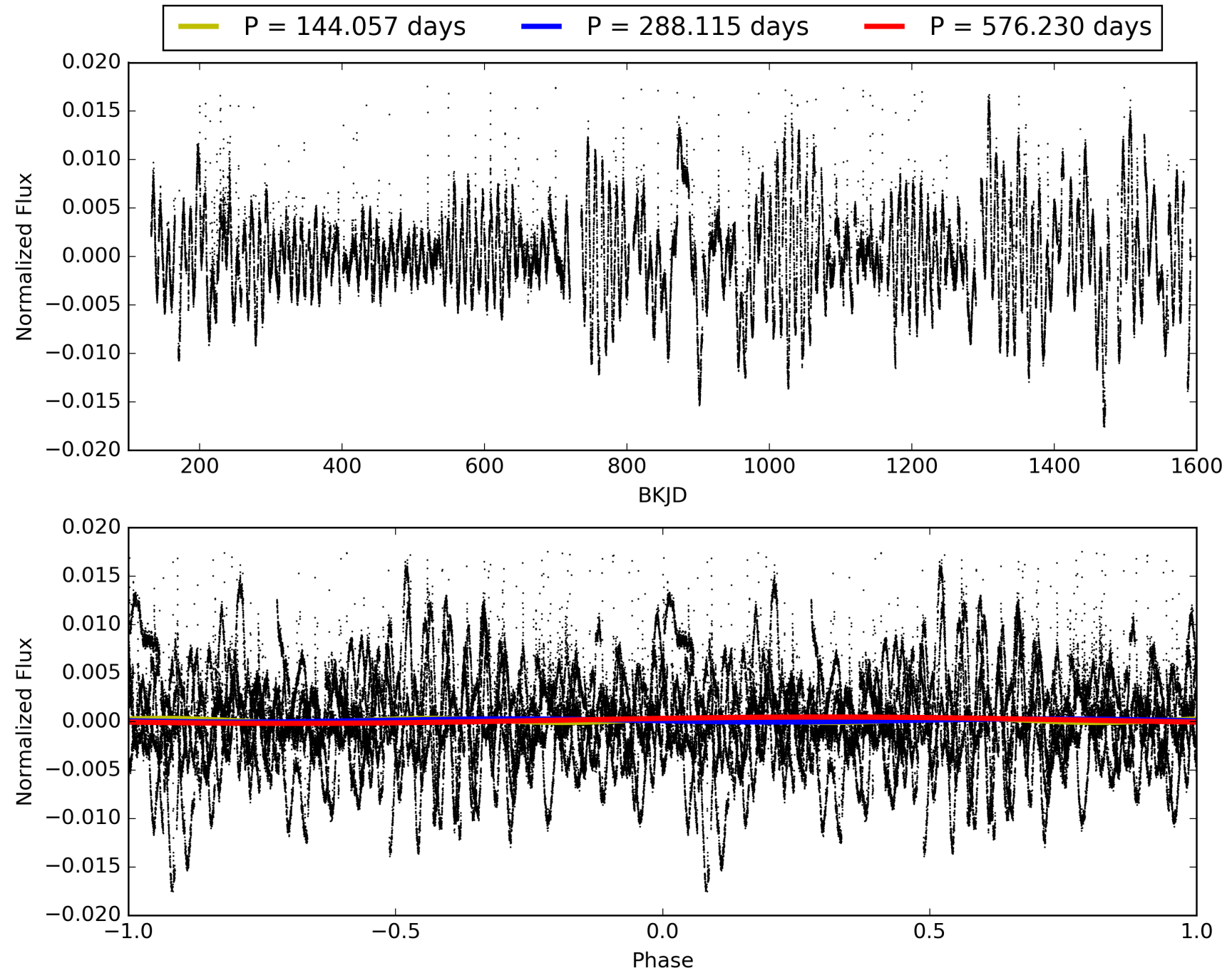
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:41:06 Z

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

TCE 008959288-06, PDC Light Curves

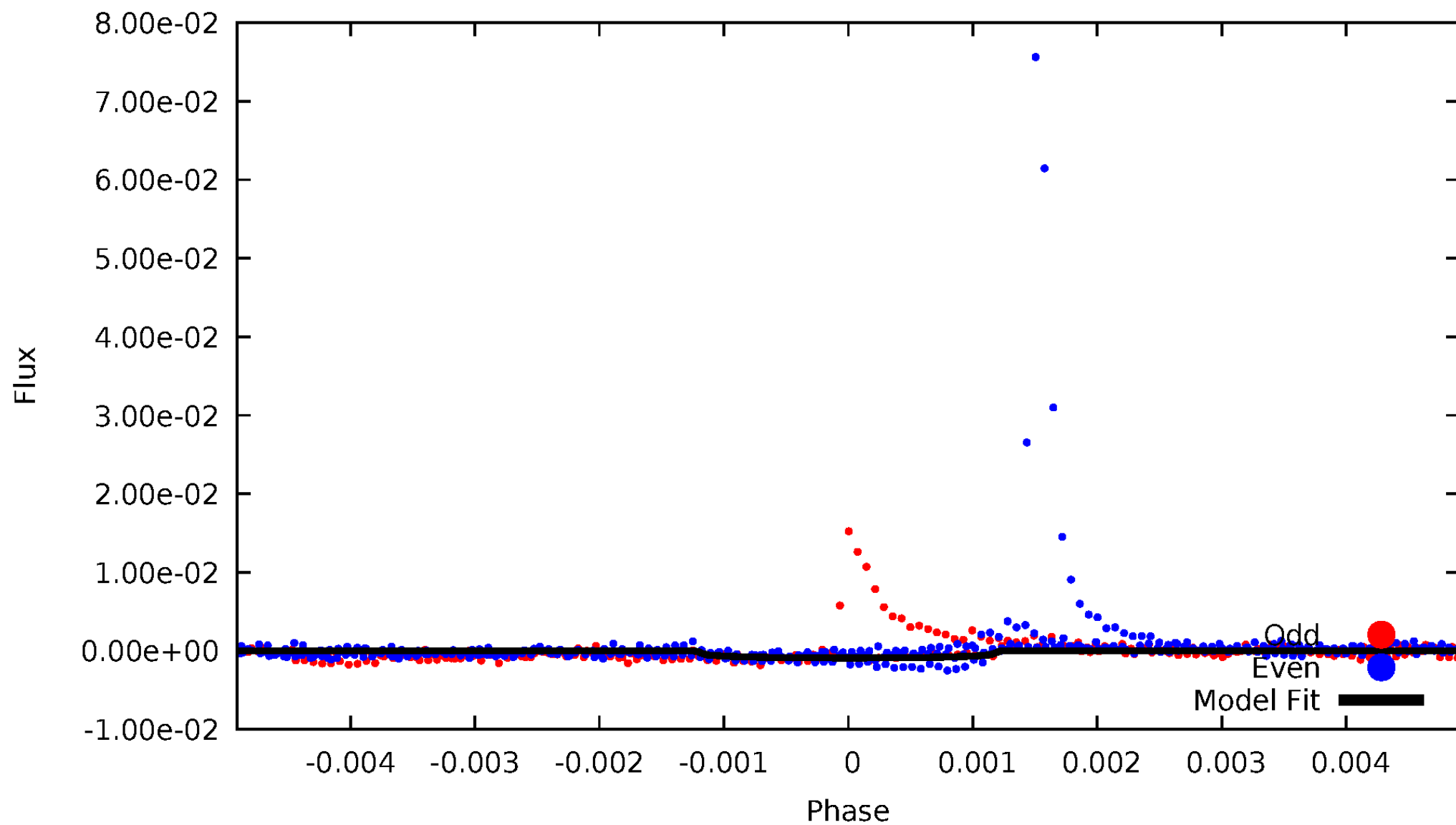


TCE 008959288-06



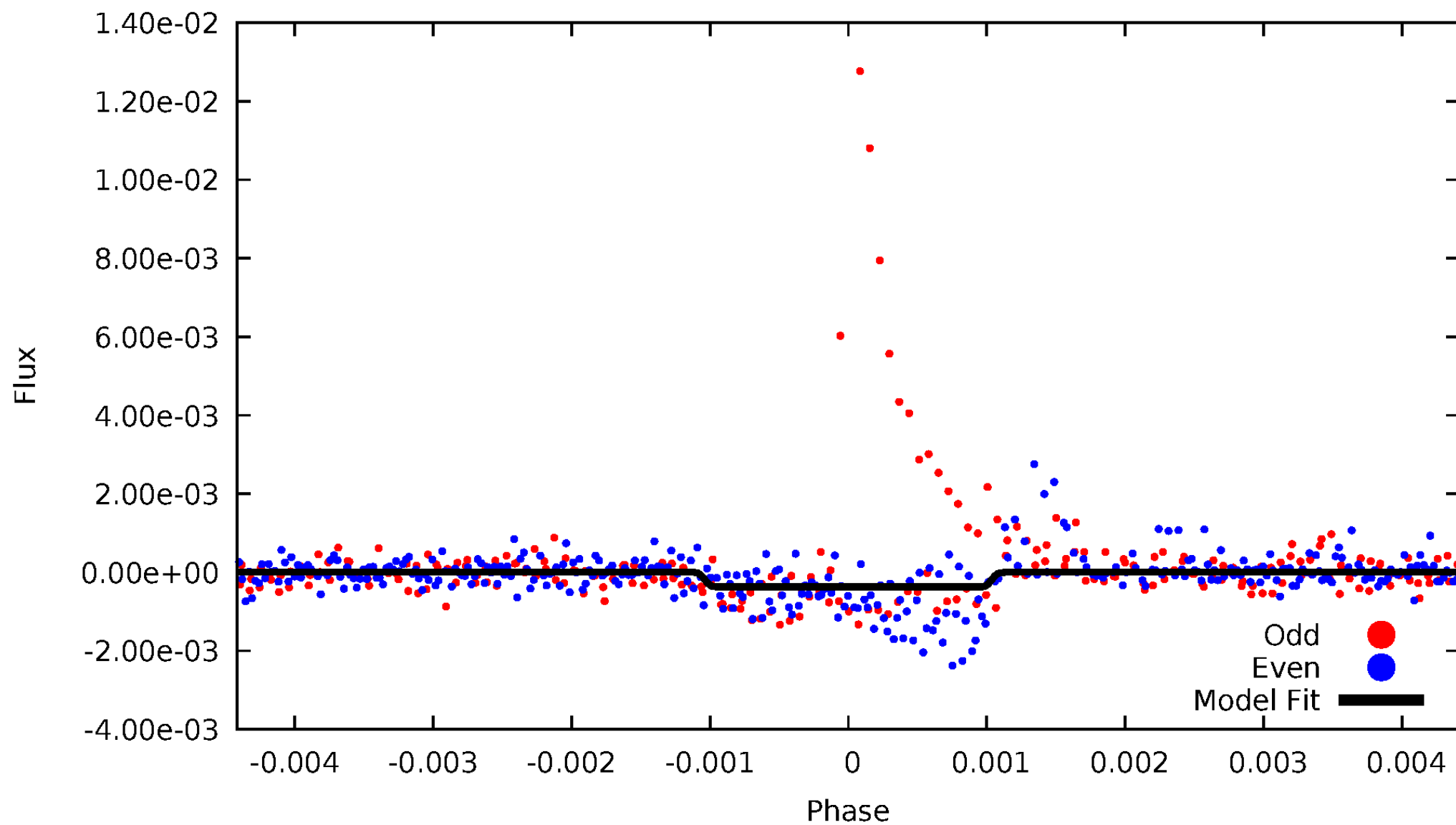
DV Odd/Even

TCE 008959288-06



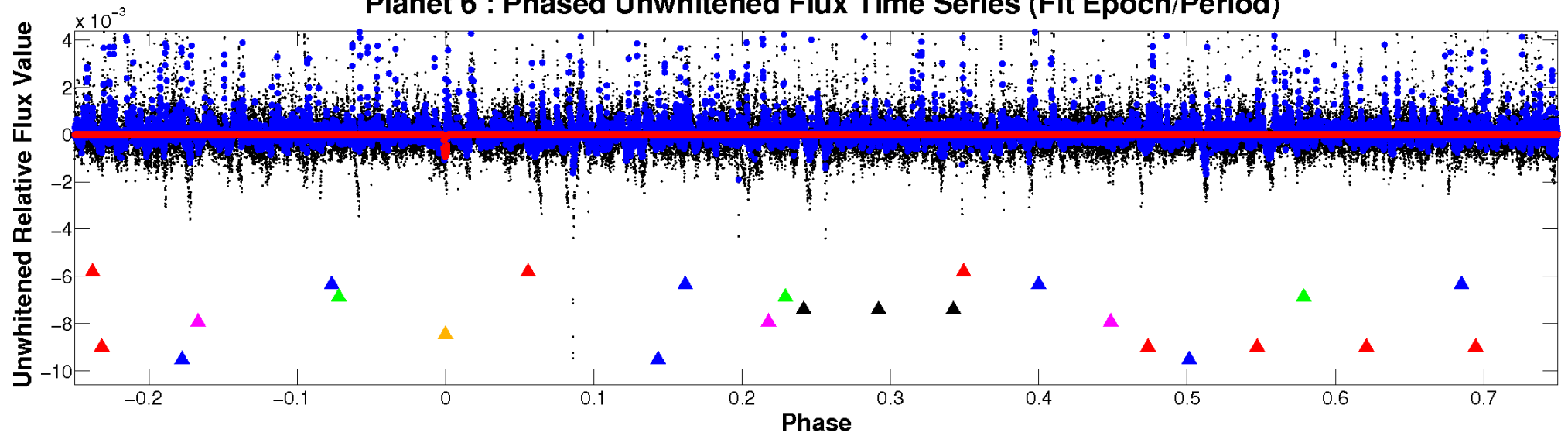
ALT Odd/Even

TCE 008959288-06

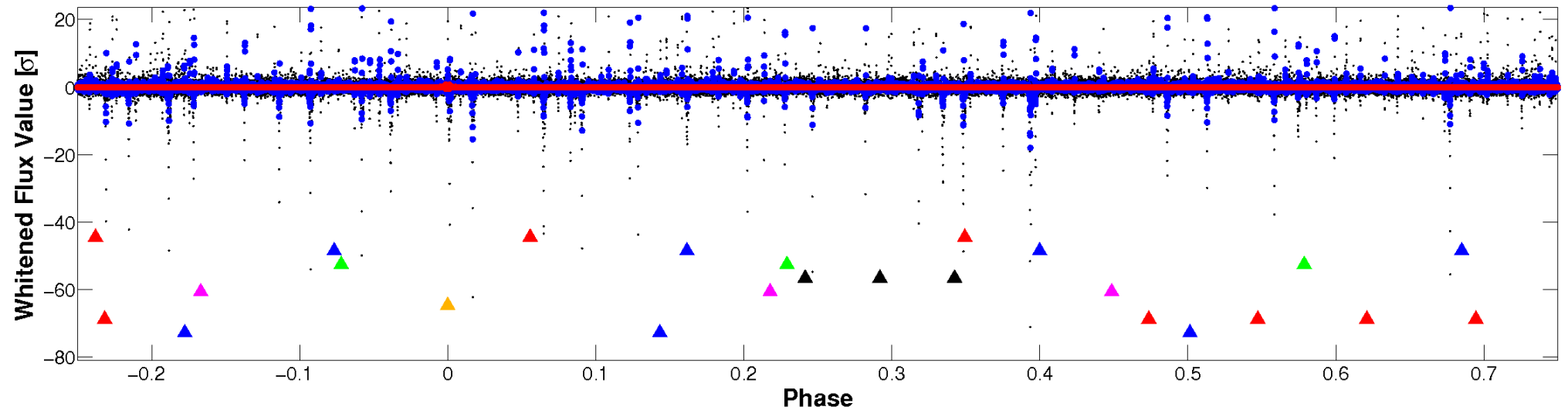


Non-Whitened Vs. Whitened Light Curve

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

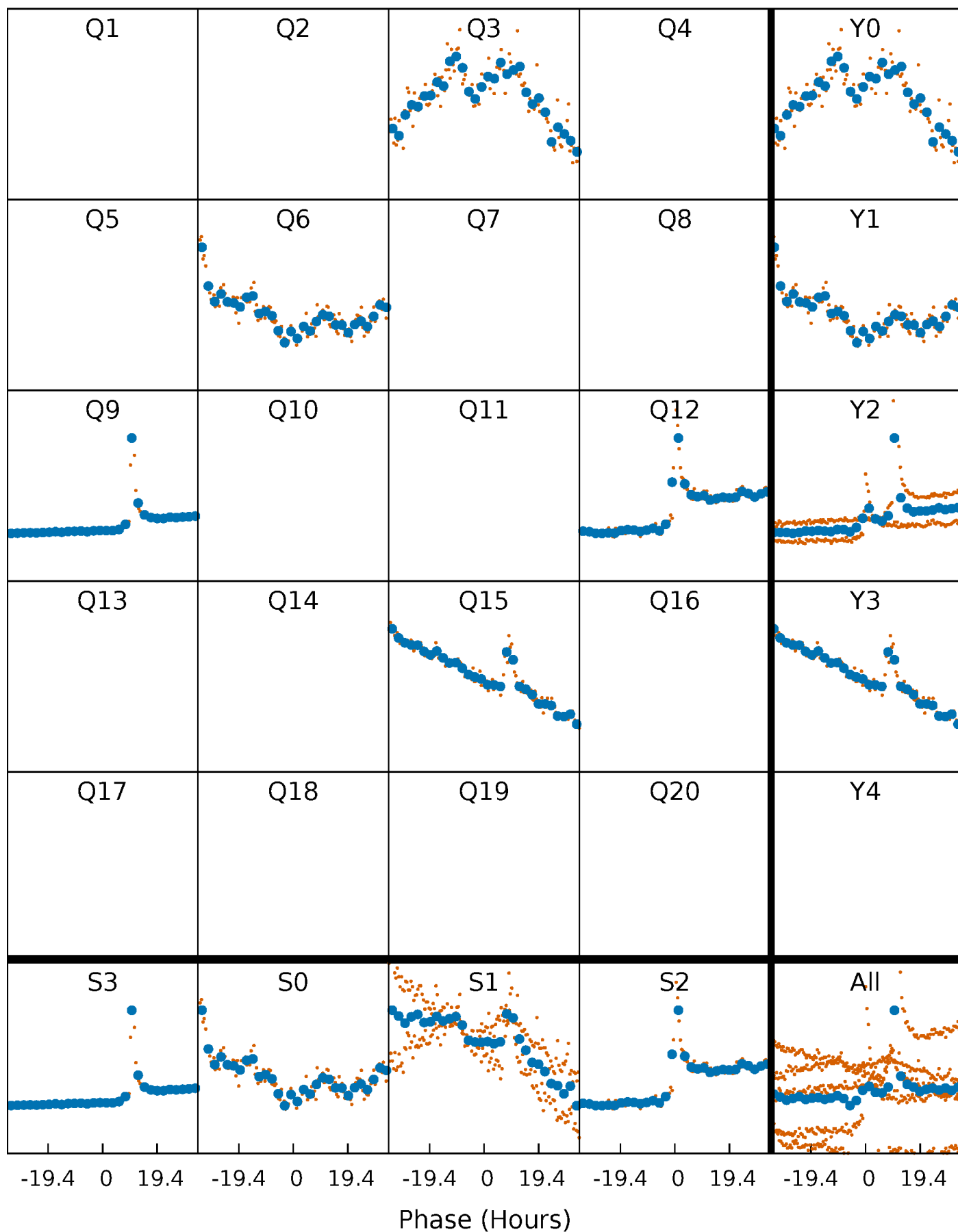


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



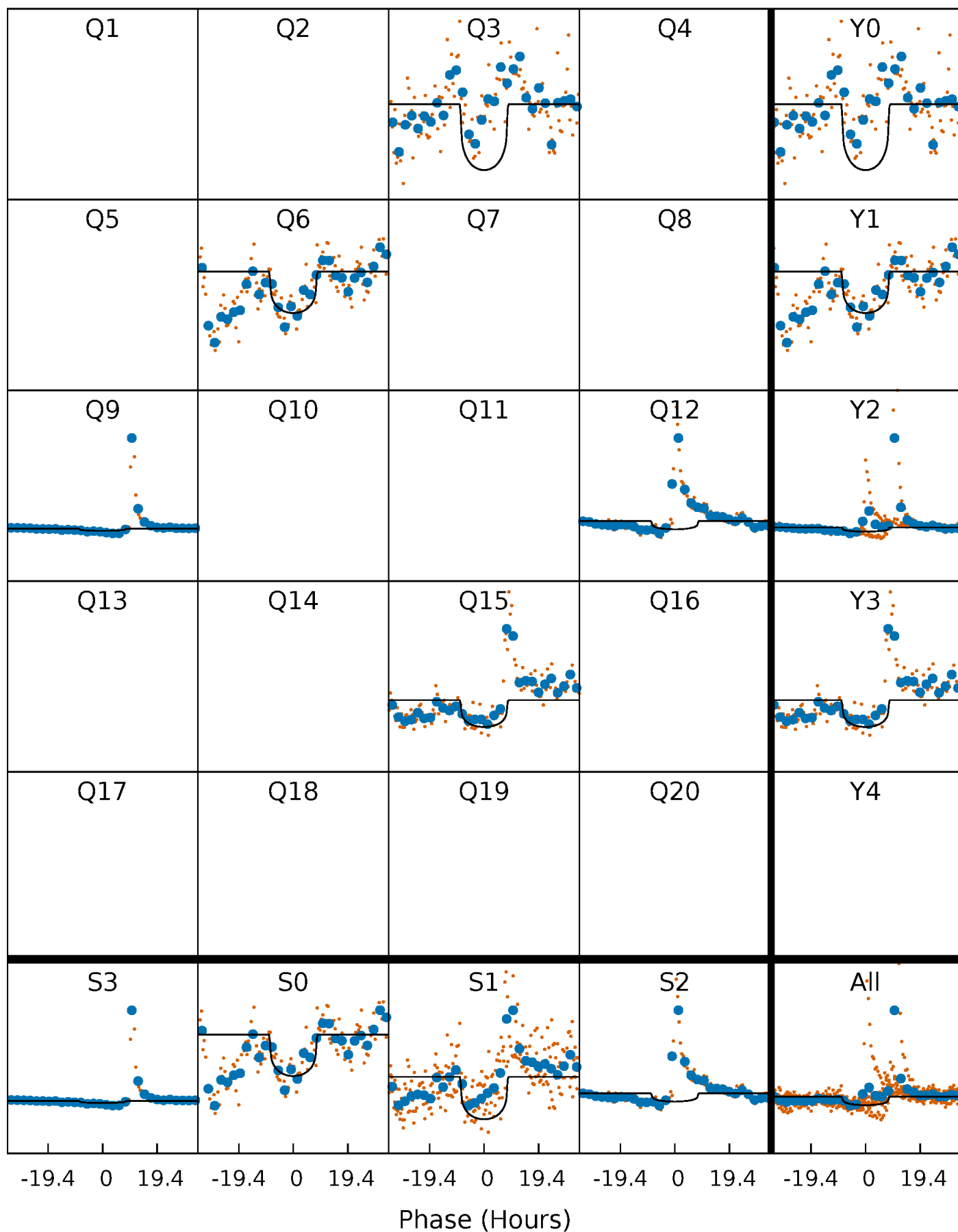
PDC Quarter-Phased Transit Curves

TCE 008959288-06 $P=288.114980$ Days $T_0=293.686359$ (BKJD)



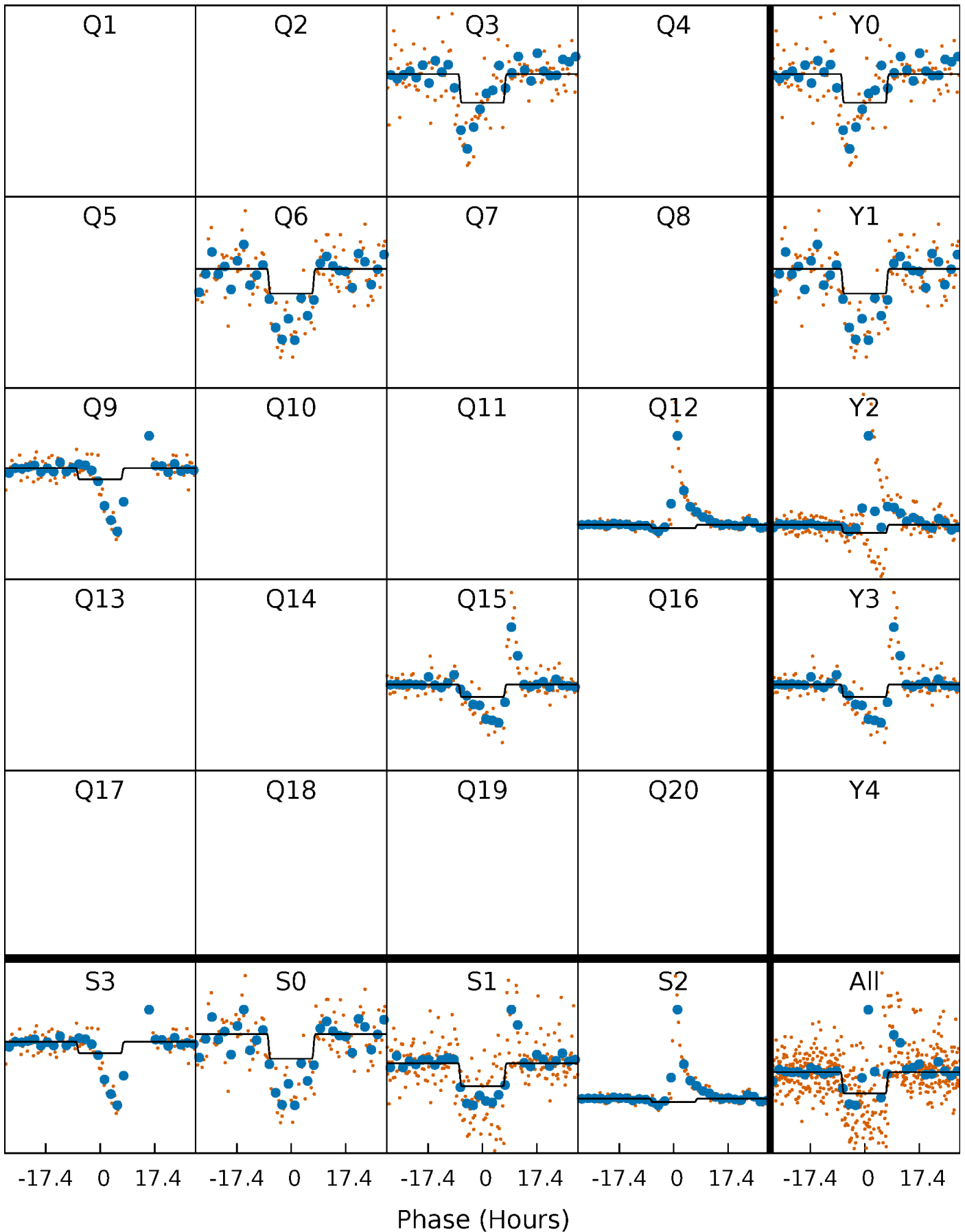
DV Quarter-Phased Transit Curves

TCE 008959288-06 $P=288.114980$ Days $T_0=293.686359$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

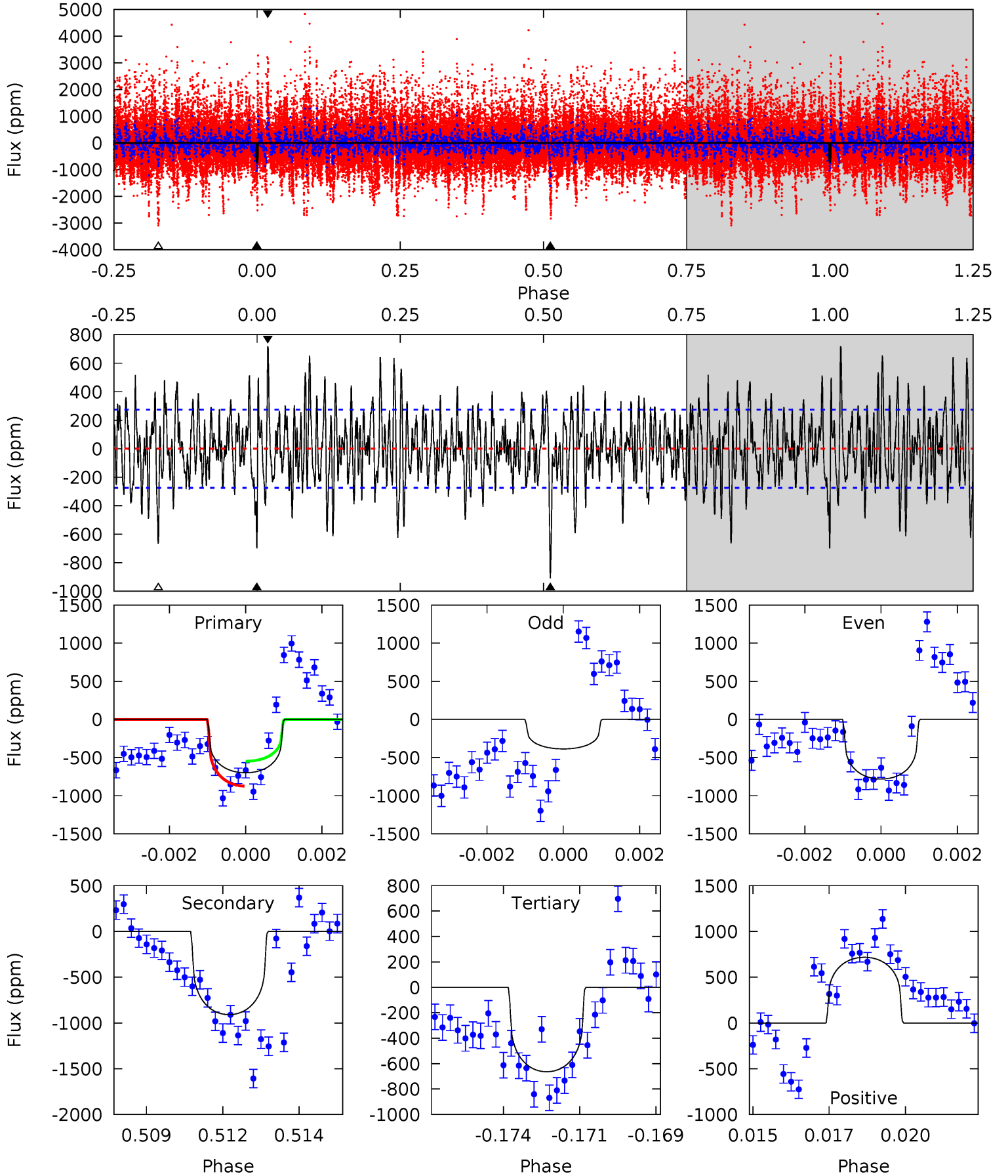
TCE 008959288-06 $P=288.099574$ Days $T_0=293.729538$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-06, P = 288.114980 Days, E = 5.571379 Days

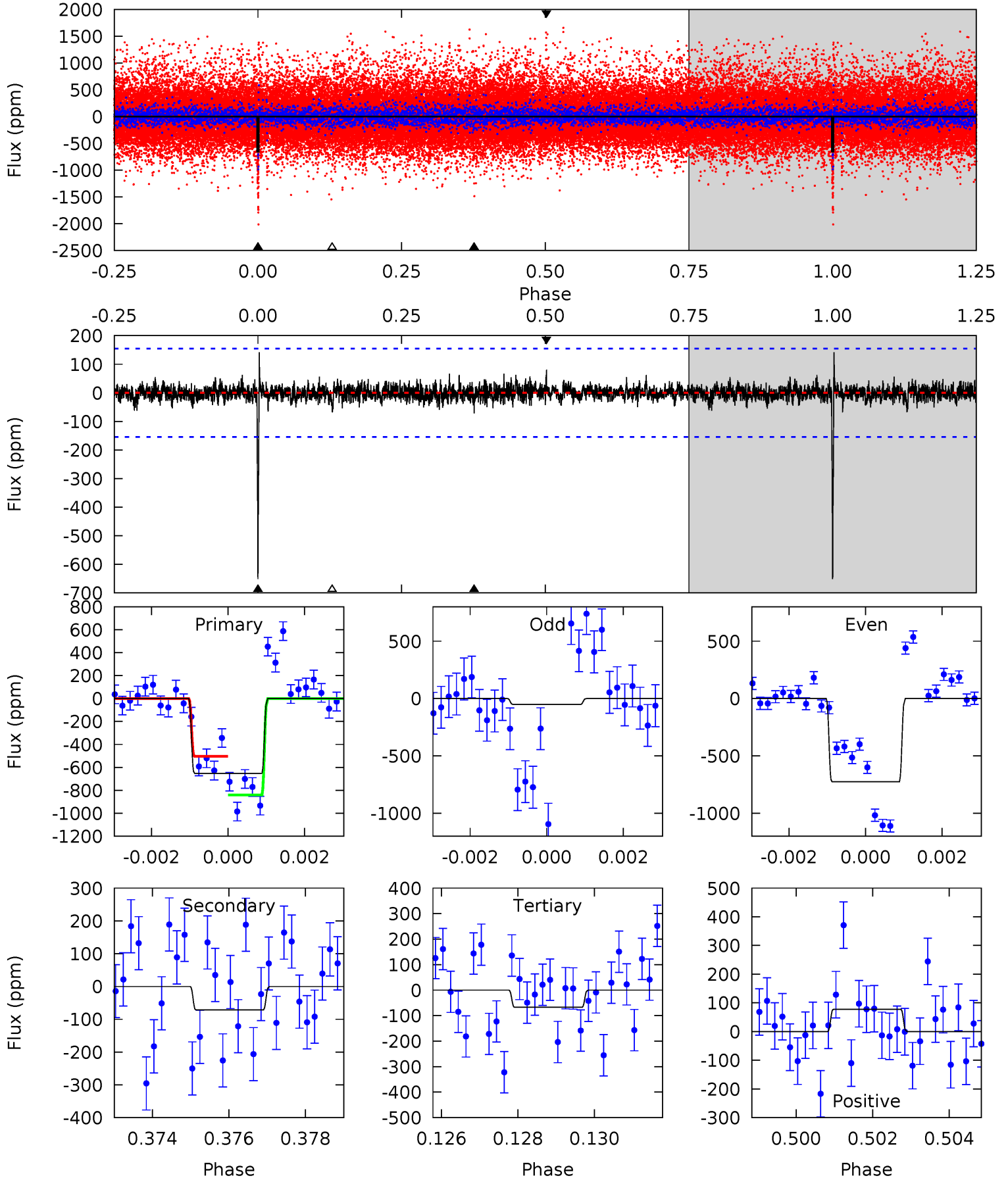
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	17.5	12.8	13.8	5.29	3.03	3.95	0.69	-0.34	4.73	3.71	2.92	0.14	0.44	3.16



Alt Model-Shift Uniqueness Test

008959288-06, P = 288.099574 Days, E = 5.629964 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.4	2.45	2.32	2.67	5.31	3.07	0.59	20.1	19.7	0.14	-0.22	10.9	0.15	0.18	5.75



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-909 ± 52	$2.26^{+1.34}_{-1.16}$	312^{+13}_{-13}	5333^{+2294}_{-956}	$56672^{+189519}_{-34237}$
Alt.	-71 ± 29	$1.76^{+1.24}_{-1.09}$	311^{+14}_{-14}	3586^{+1560}_{-581}	7208^{+46438}_{-4895}

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 $A_{obs} \gg 1.0$

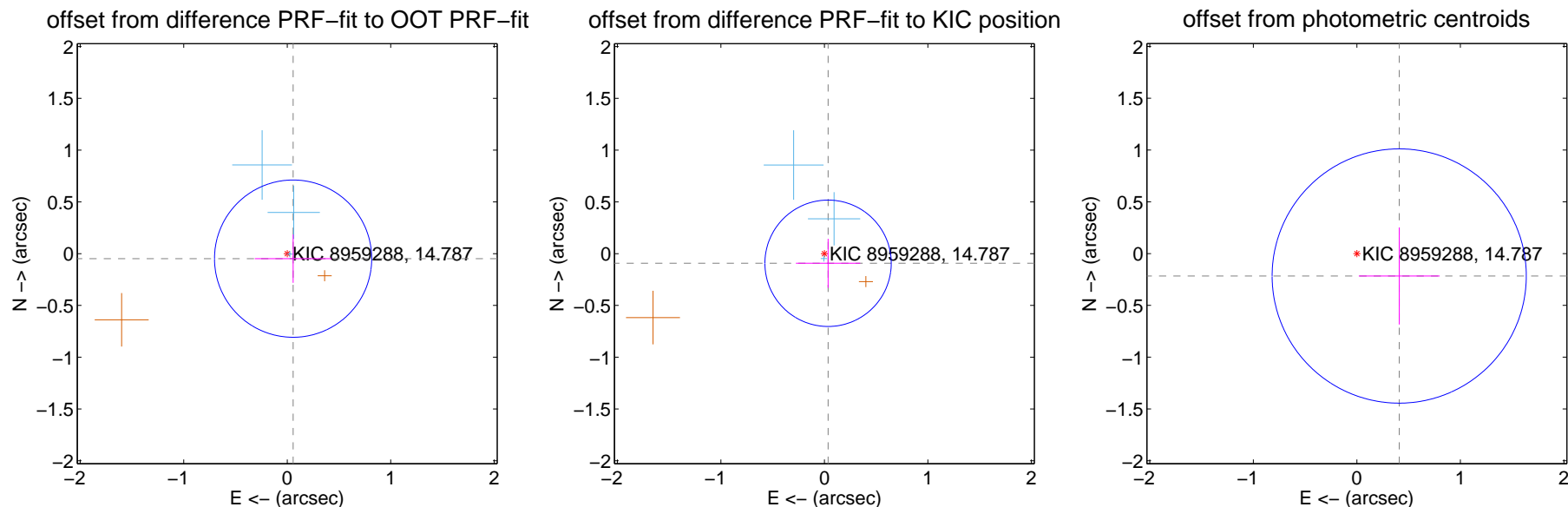
DV Centroid Data

Supplemental centroid analysis for 008959288-06. Kepler magnitude: 14.79. Transit SNR 6.22

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

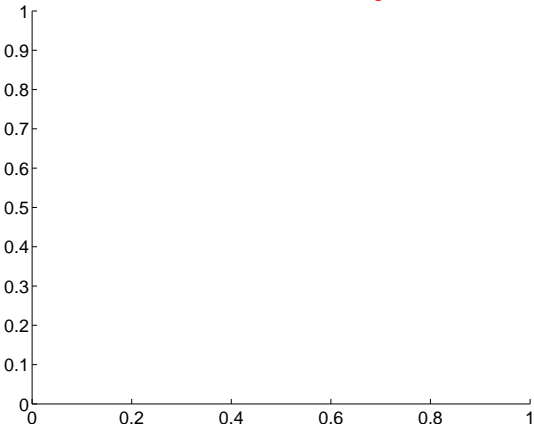
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.253	0.29	-0.057 ± 0.370	-0.048 ± 0.233
PRF-fit source offset from KIC position	0.100 ± 0.203	0.49	-0.036 ± 0.310	-0.093 ± 0.237
photometric centroid source offset	0.46 ± 0.41	1.13	-0.41 ± 0.39	-0.22 ± 0.47



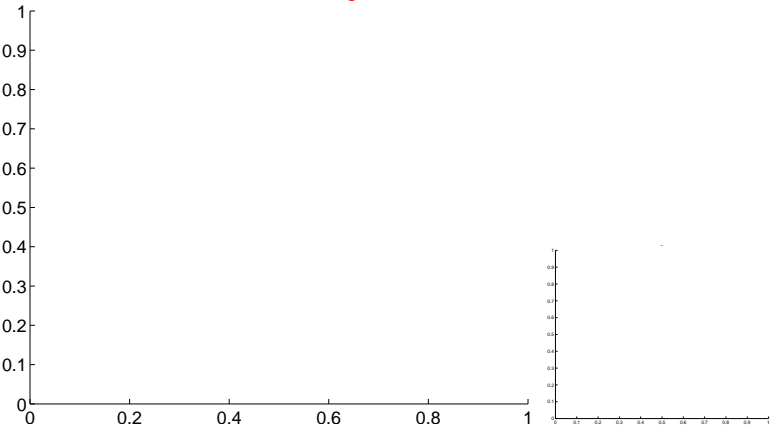
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

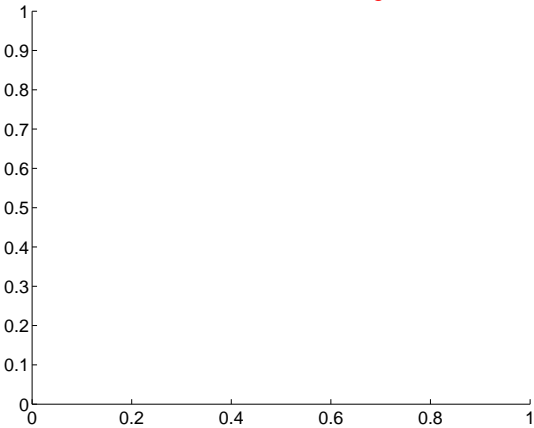
Q1 no difference image



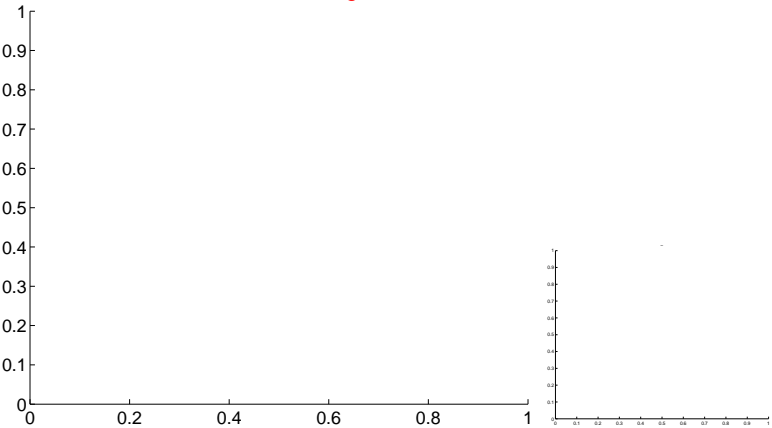
Q1 no OOT image



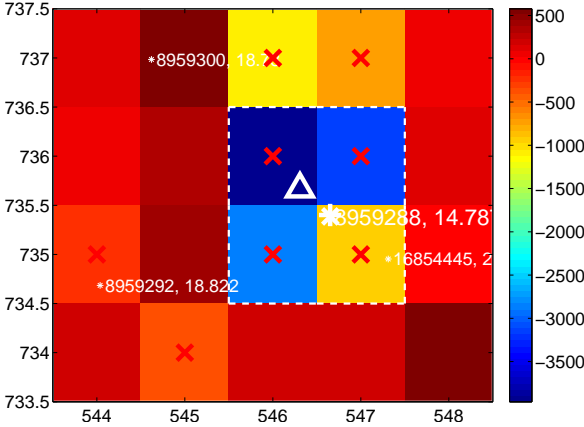
Q2 no difference image



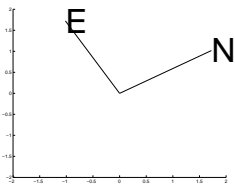
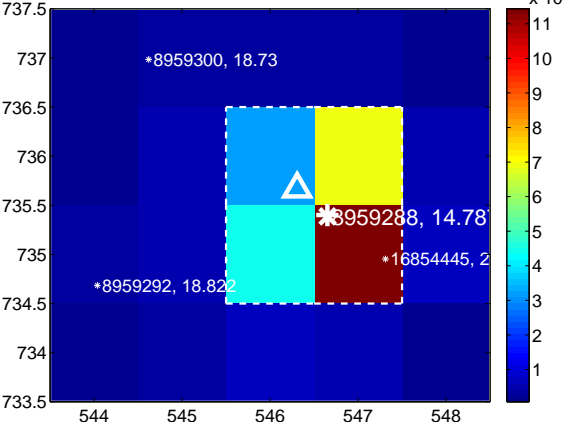
Q2 no OOT image



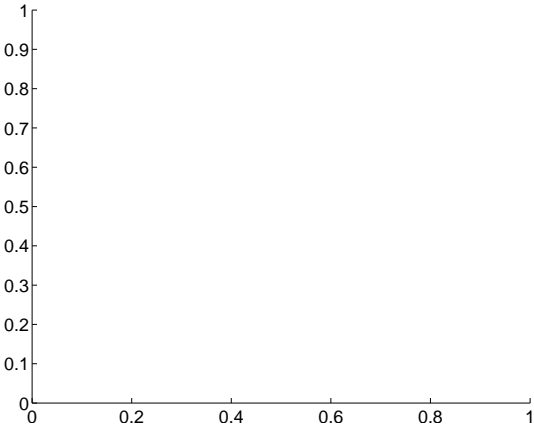
Q3 difference image. Poor Quality



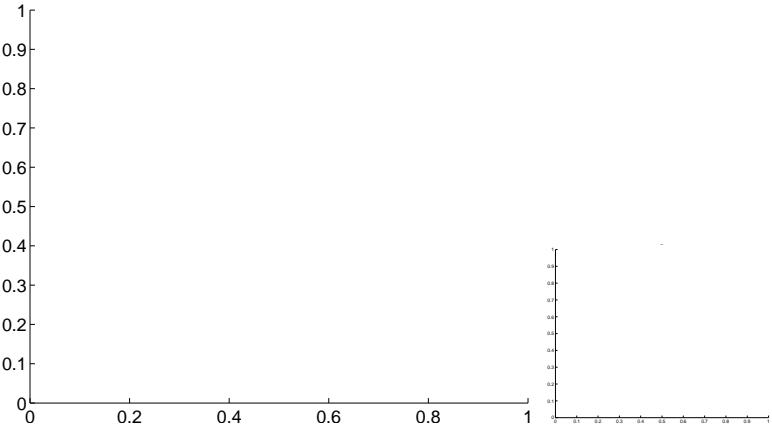
Q3 OOT image



Q4 no difference image

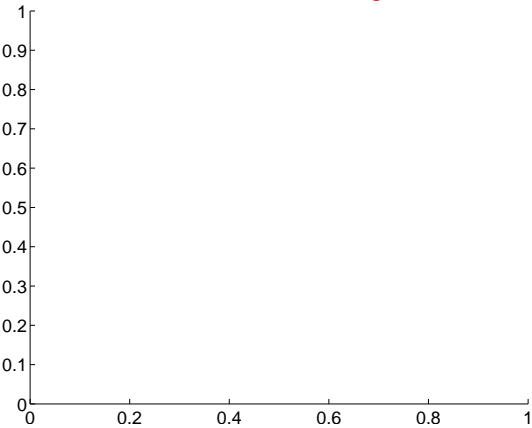


Q4 no OOT image

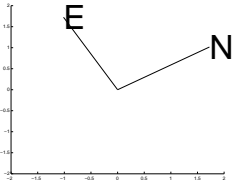
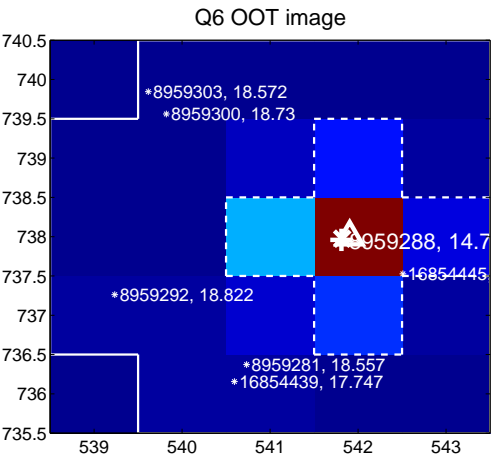
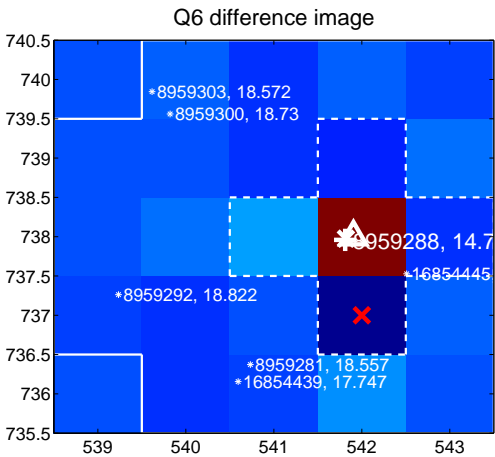
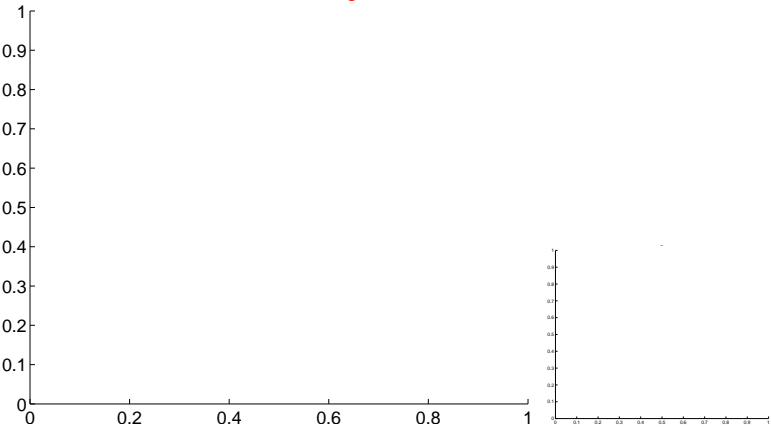


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

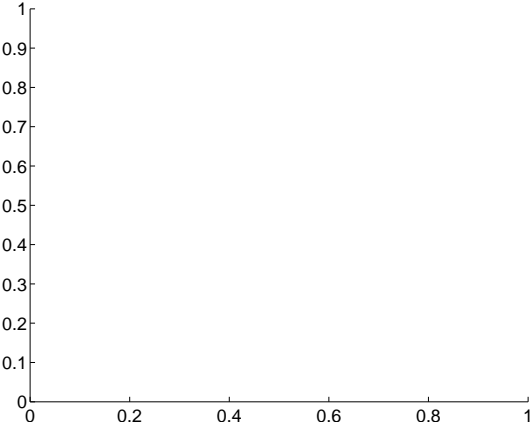
Q5 no difference image



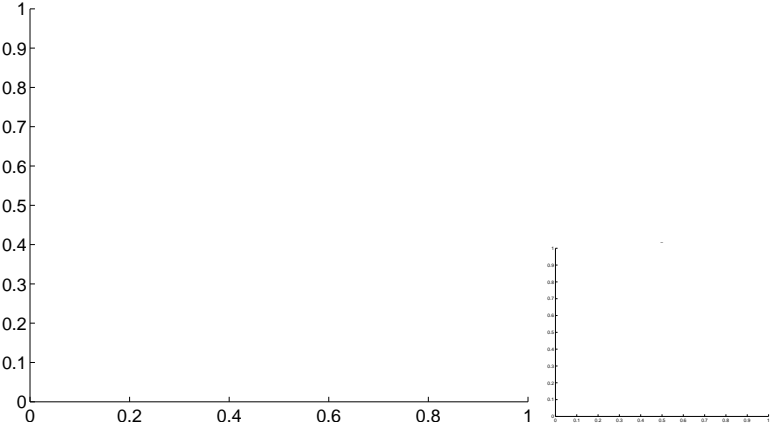
Q5 no OOT image



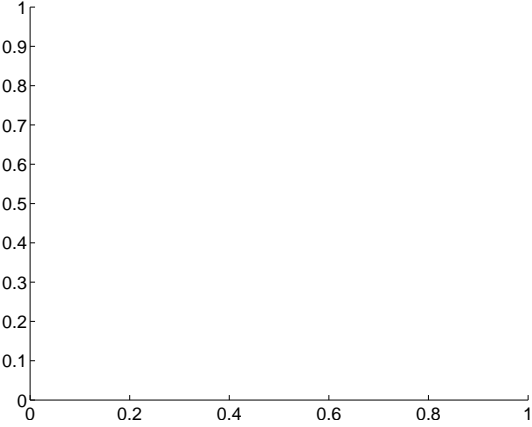
Q7 no difference image



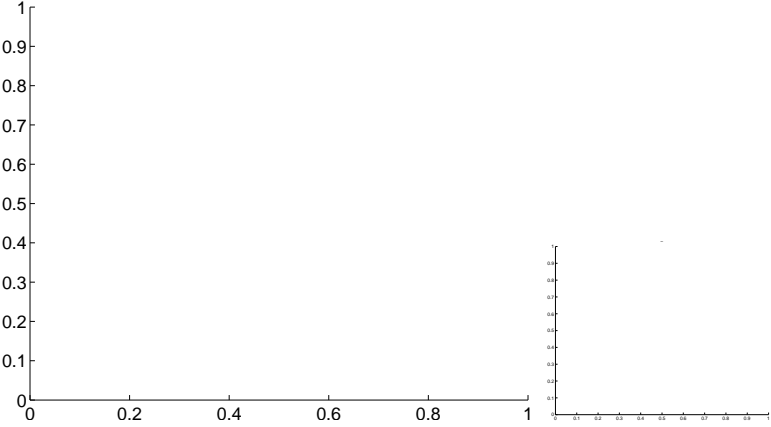
Q7 no OOT image



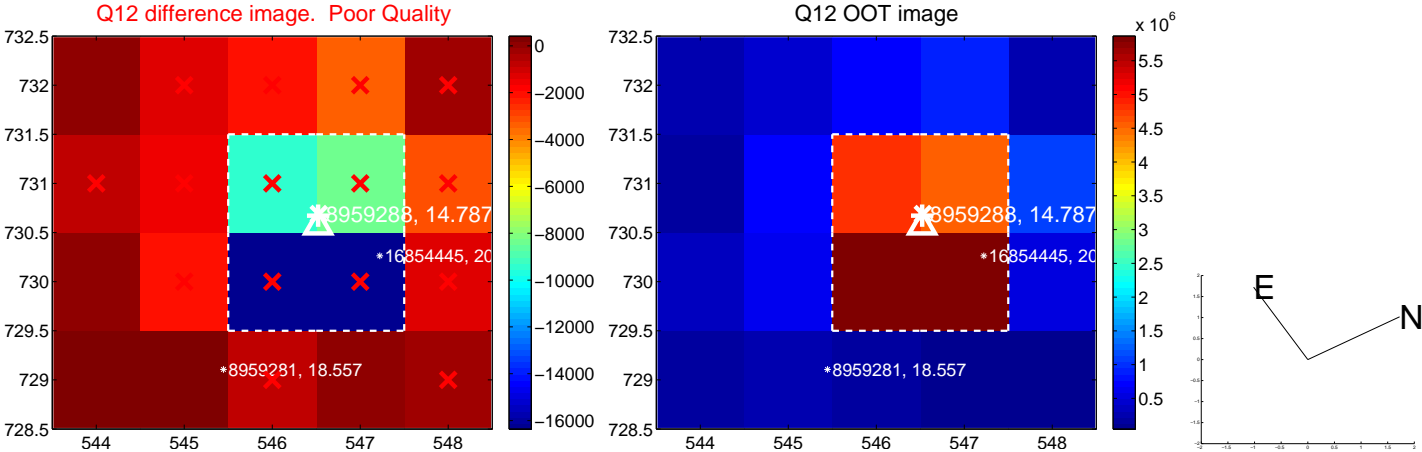
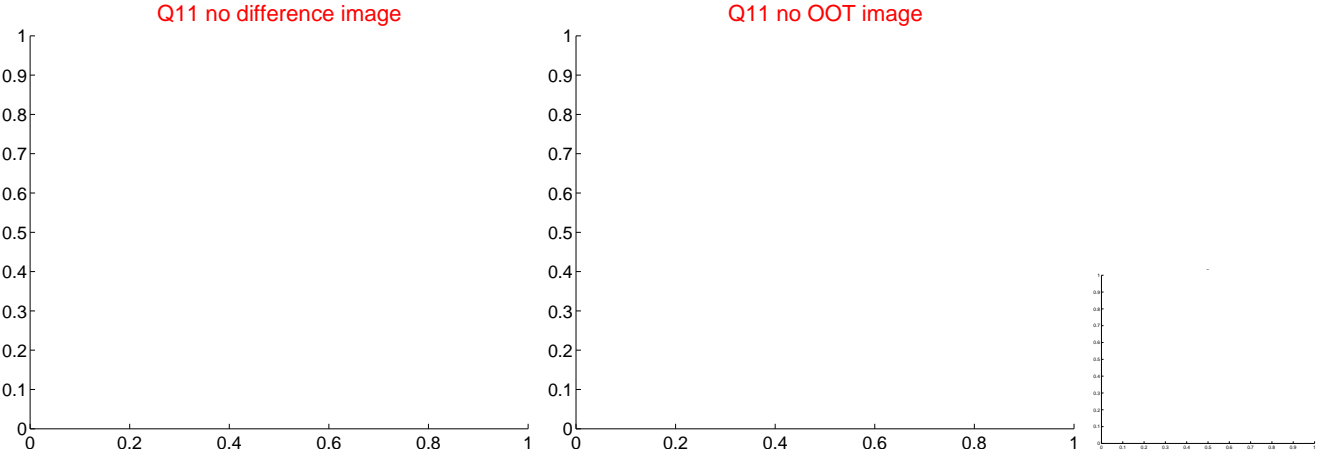
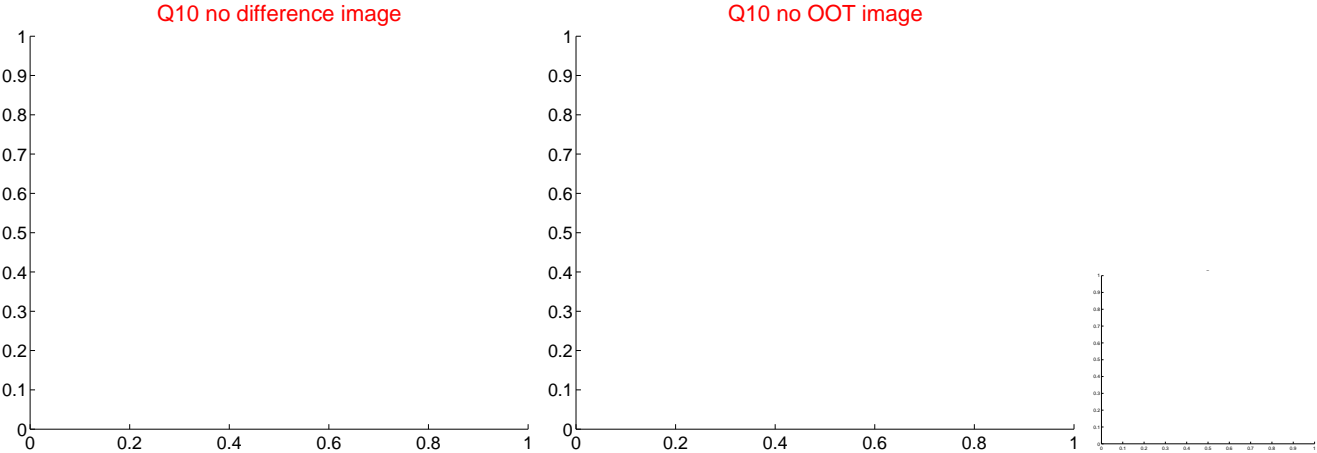
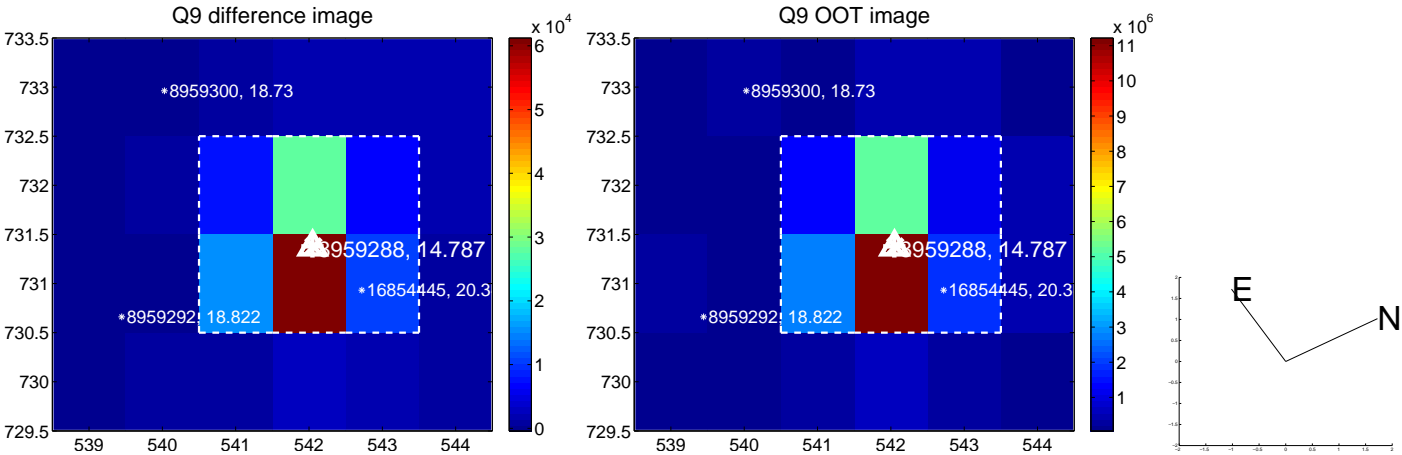
Q8 no difference image



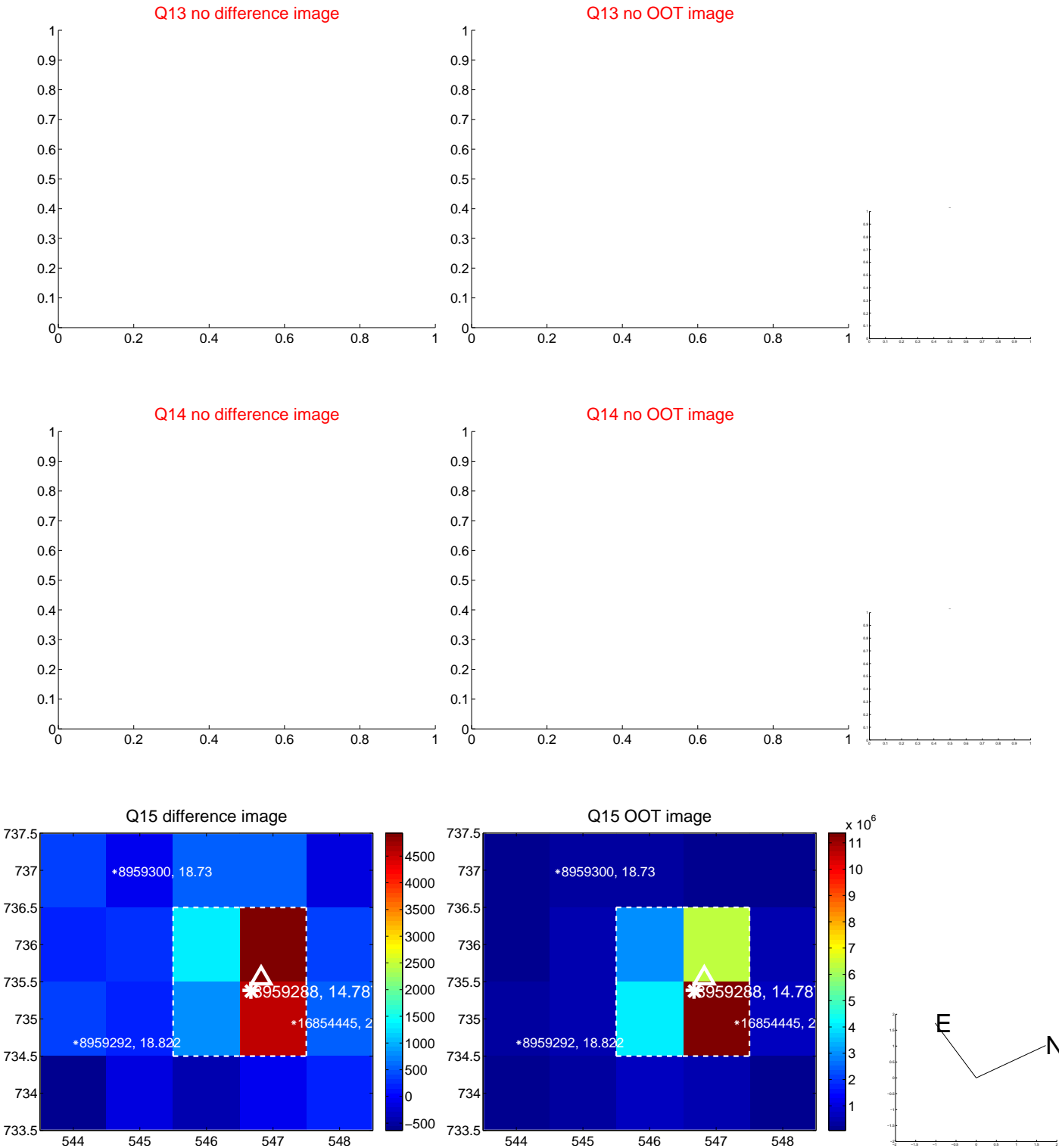
Q8 no OOT image



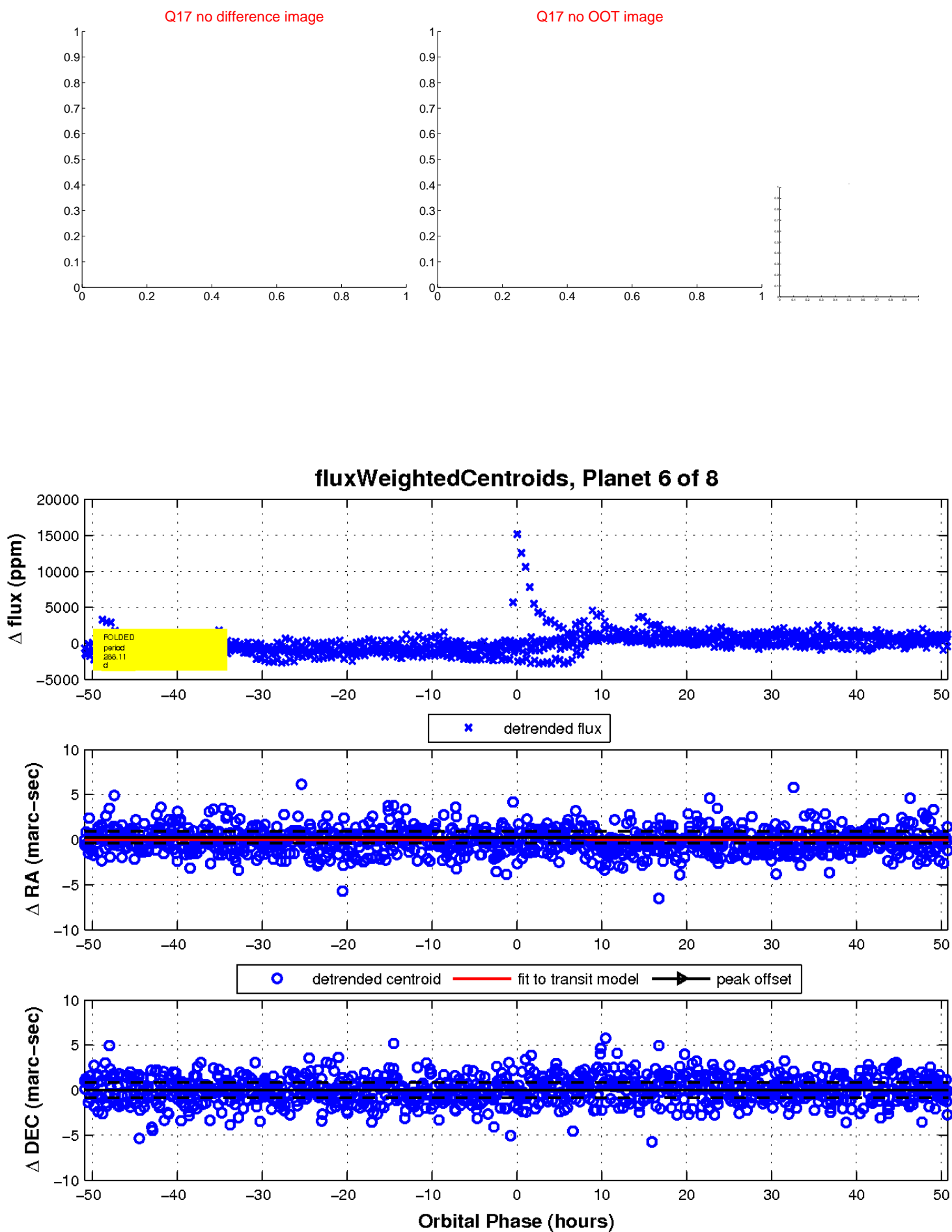
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

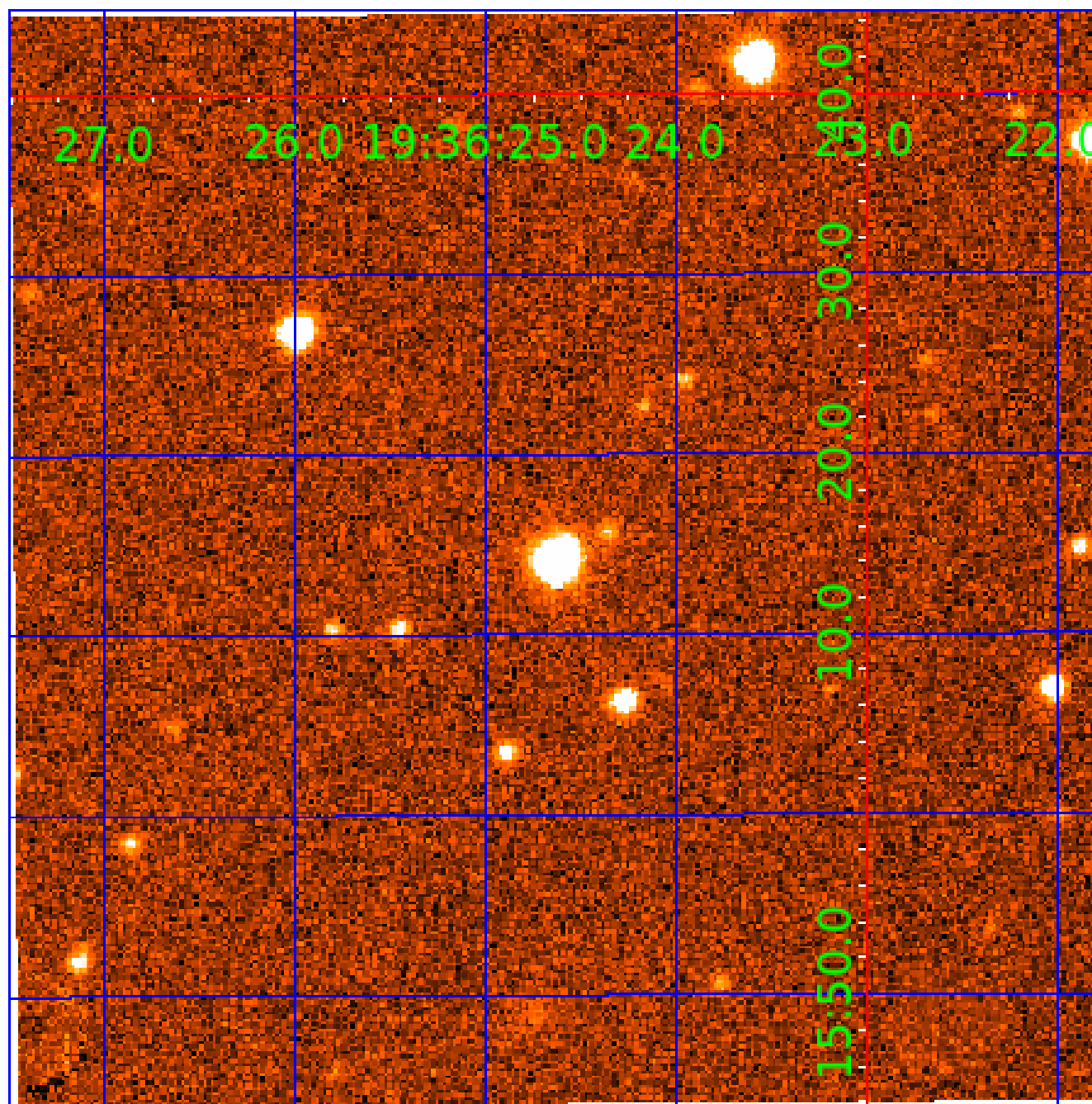


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008959288

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})
008959288-01	OBS	No	491.626083	394.340555	1340.5	5.480	15.9	7.9	0.72	5191	2.87	0.29
008959288-02	OBS	No	356.770109	202.939752	1275.1	3.867	14.4	8.2	0.72	5191	2.62	0.45
008959288-03	OBS	No	475.553173	561.079381	1064.1	9.219	14.6	5.9	0.72	5191	2.38	0.30
008959288-04	OBS	No	561.692185	392.350191	1312.0	14.264	14.9	7.3	0.72	5191	3.09	0.24
008959288-05	OBS	No	465.408211	356.446112	1363.6	12.423	11.1	8.1	0.72	5191	2.70	0.31
008959288-06	OBS	No	288.114980	293.686359	929.8	16.976	10.7	6.2	0.72	5191	2.16	0.59
008959288-07	OBS	No	309.337500	142.033948	1303.8	6.783	10.7	7.2	0.72	5191	5.13	0.54
008959288-08	OBS	No	483.757722	334.988384	920.5	4.500	10.0	-1.0	0.72	5191	2.14	0.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008959288-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008959288-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV
008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

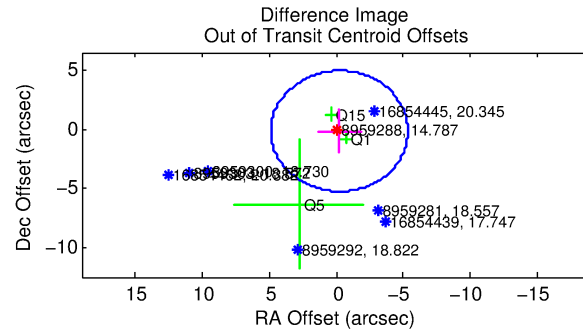
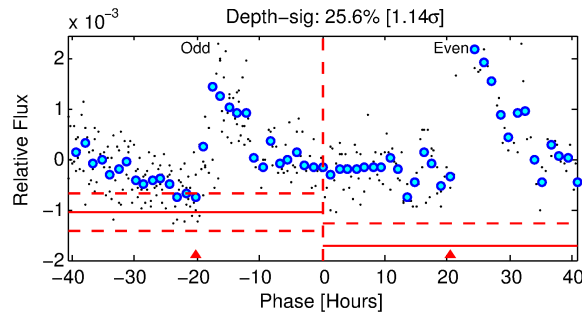
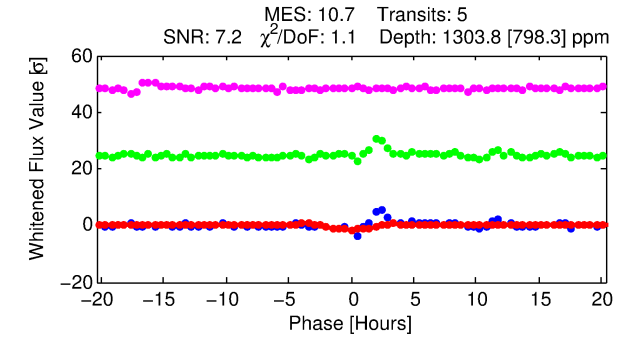
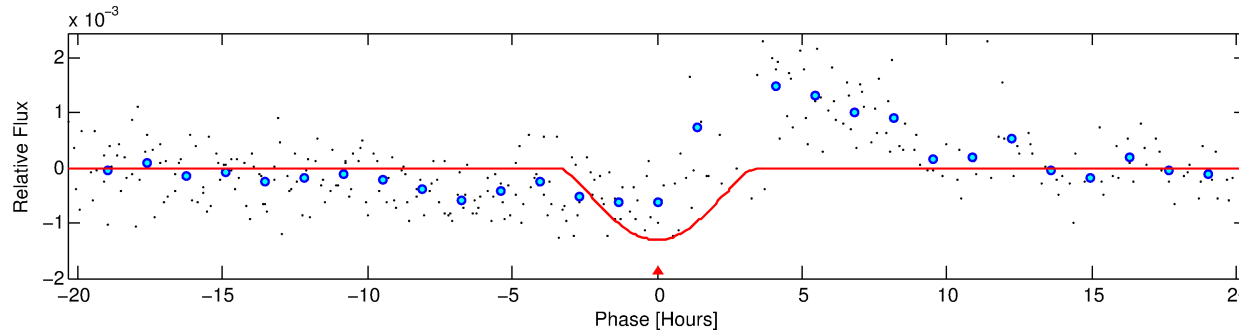
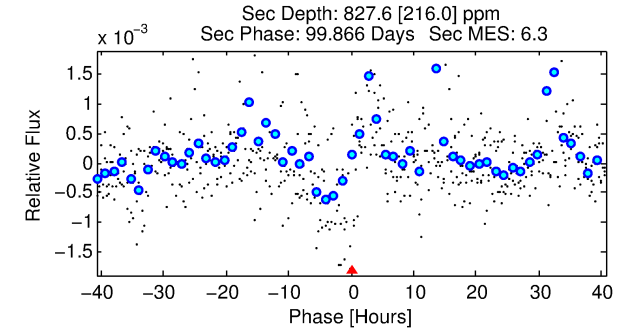
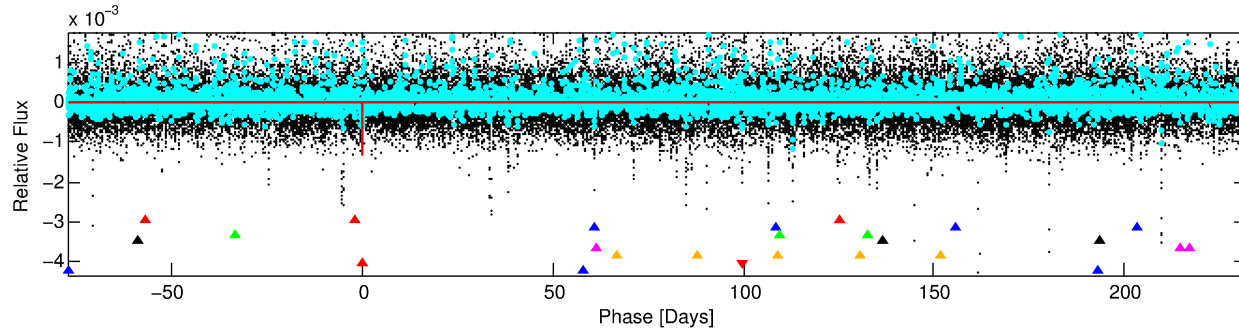
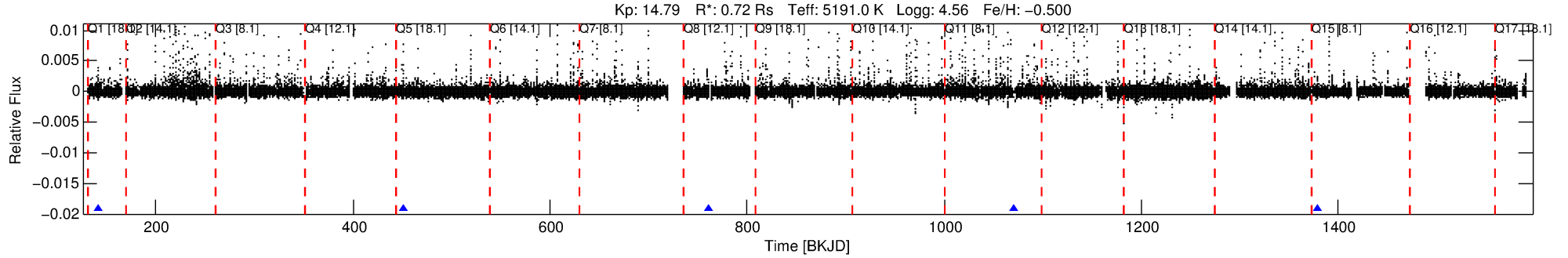
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-07

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 7 of 8 Period: 309.338 d



DV Fit Results:

Period = 309.33750 [0.00608] d
Epoch = 142.0339 [0.0154] BKJD
Rp/R* = 0.0653 [0.2373]
a/R* = 127.99 [103.37]
b = 1.00 [0.31]
Seff = 0.54 [0.10]
Teq = 219 [10] K
Rp = 5.13 [18.65] Re
a = 0.7892 [0.0778] AU
Ag = 10770.02 [78321.52] [0.14σ]
Teffp = 3445 [6263] K [0.52σ]

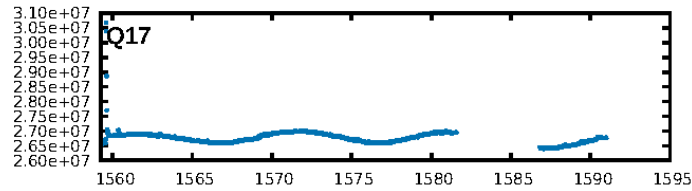
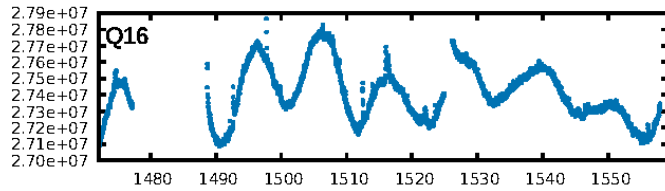
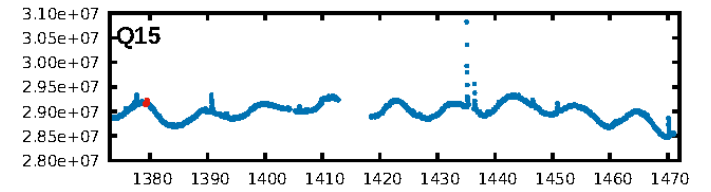
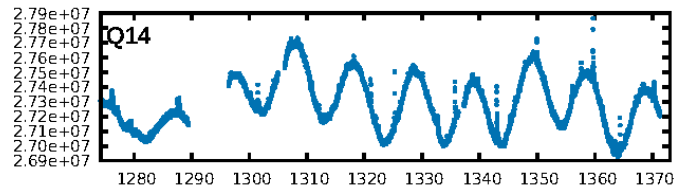
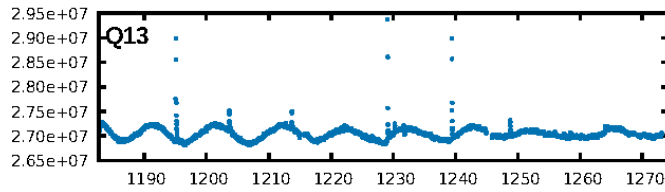
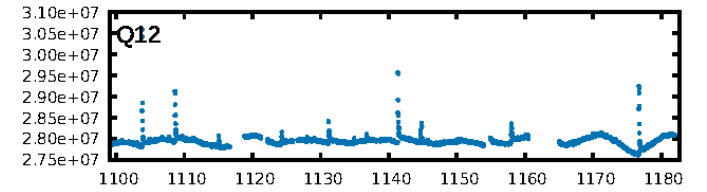
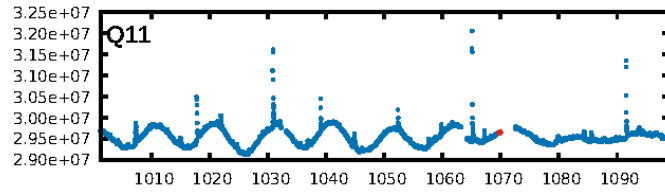
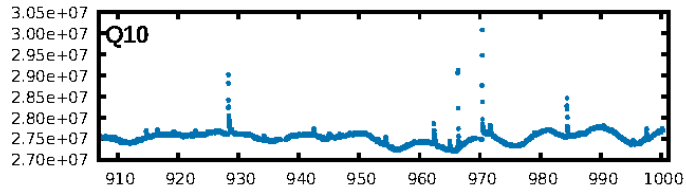
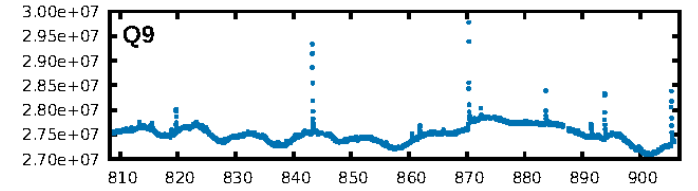
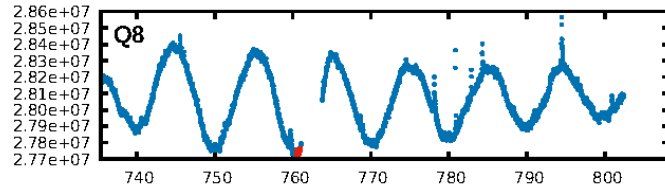
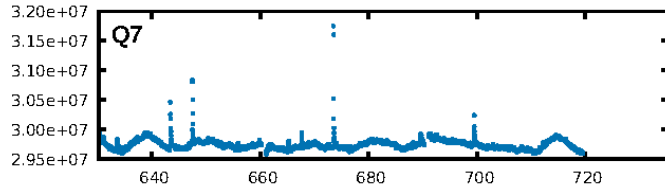
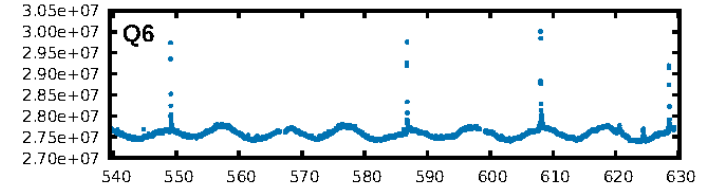
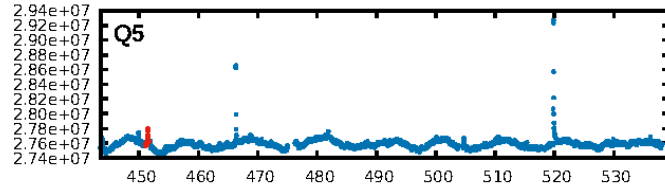
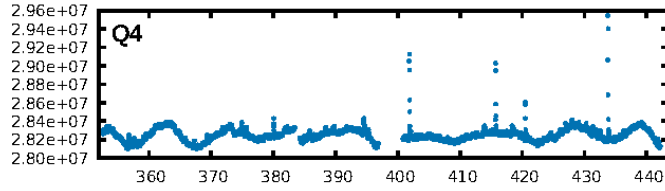
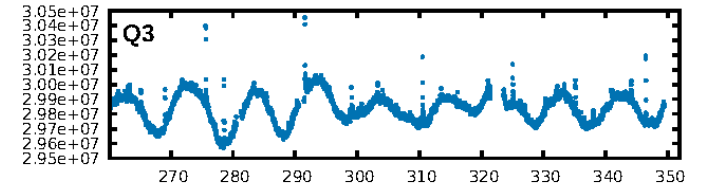
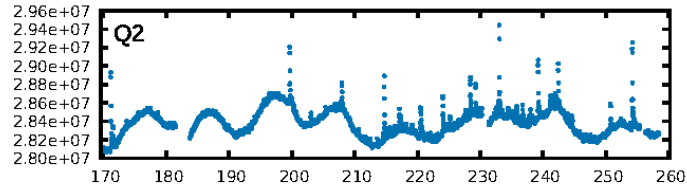
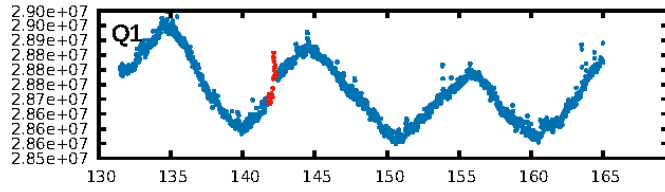
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.86σ]
LongPeriod-sig: 100.0% [145.80σ]
ModelChiSquare2-sig: 3.3%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.384
Centroid-sig: 38.9%
Centroid-so: 0.398 arcsec [0.63σ]
OotOffset-rm: 0.286 arcsec [0.17σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 0.271 arcsec [0.16σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

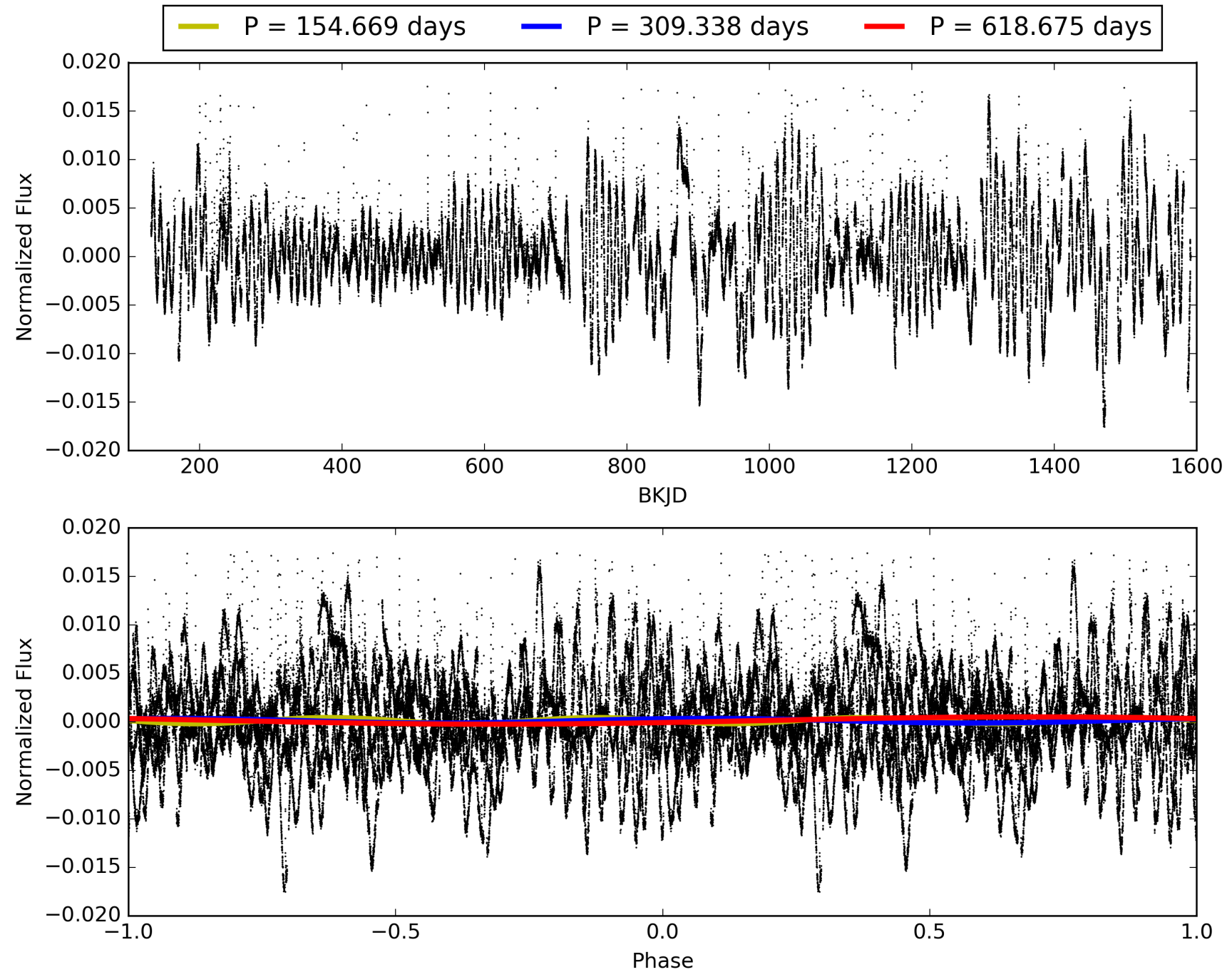
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:41:16 Z

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

TCE 008959288-07, PDC Light Curves

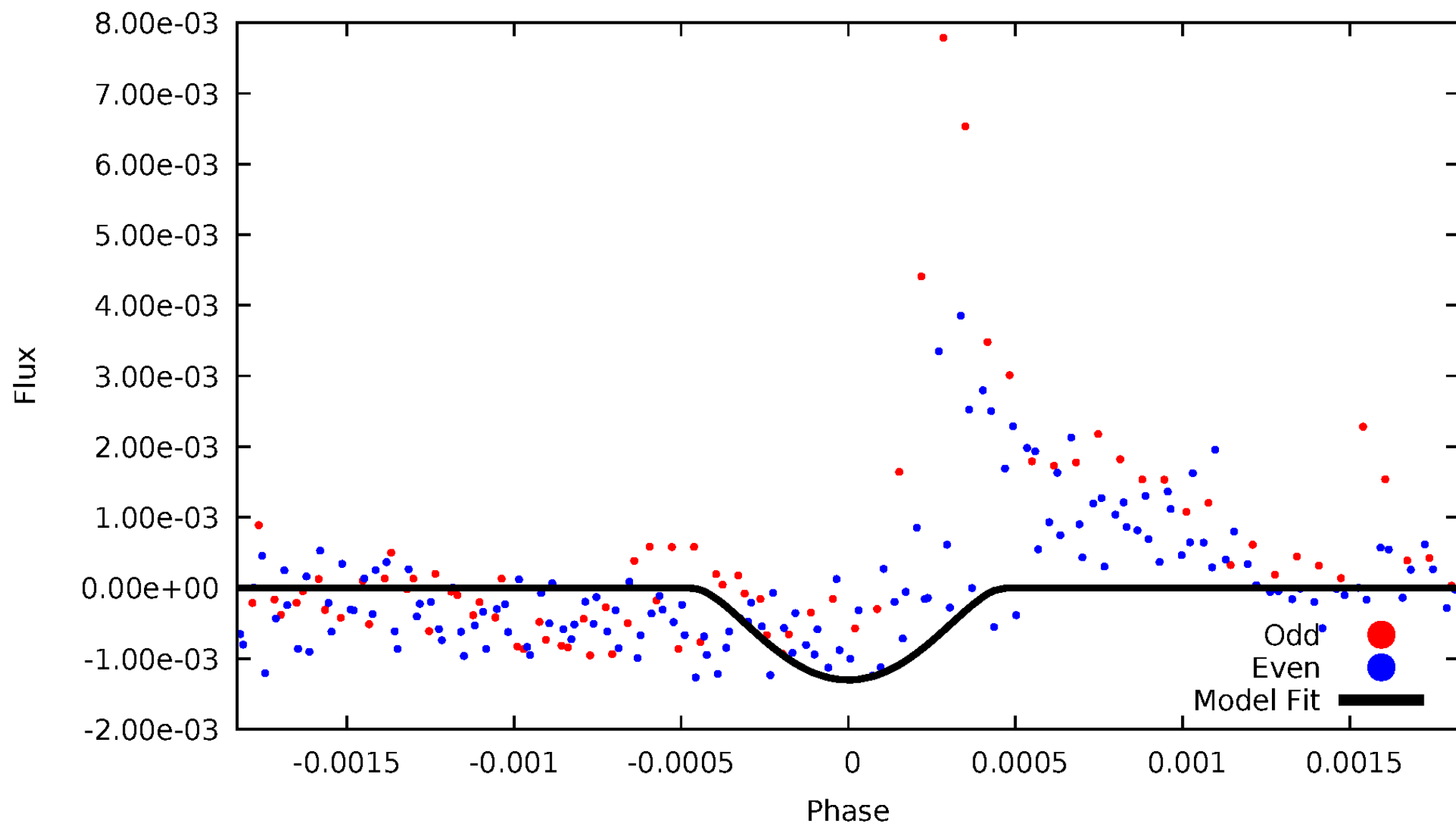


TCE 008959288-07



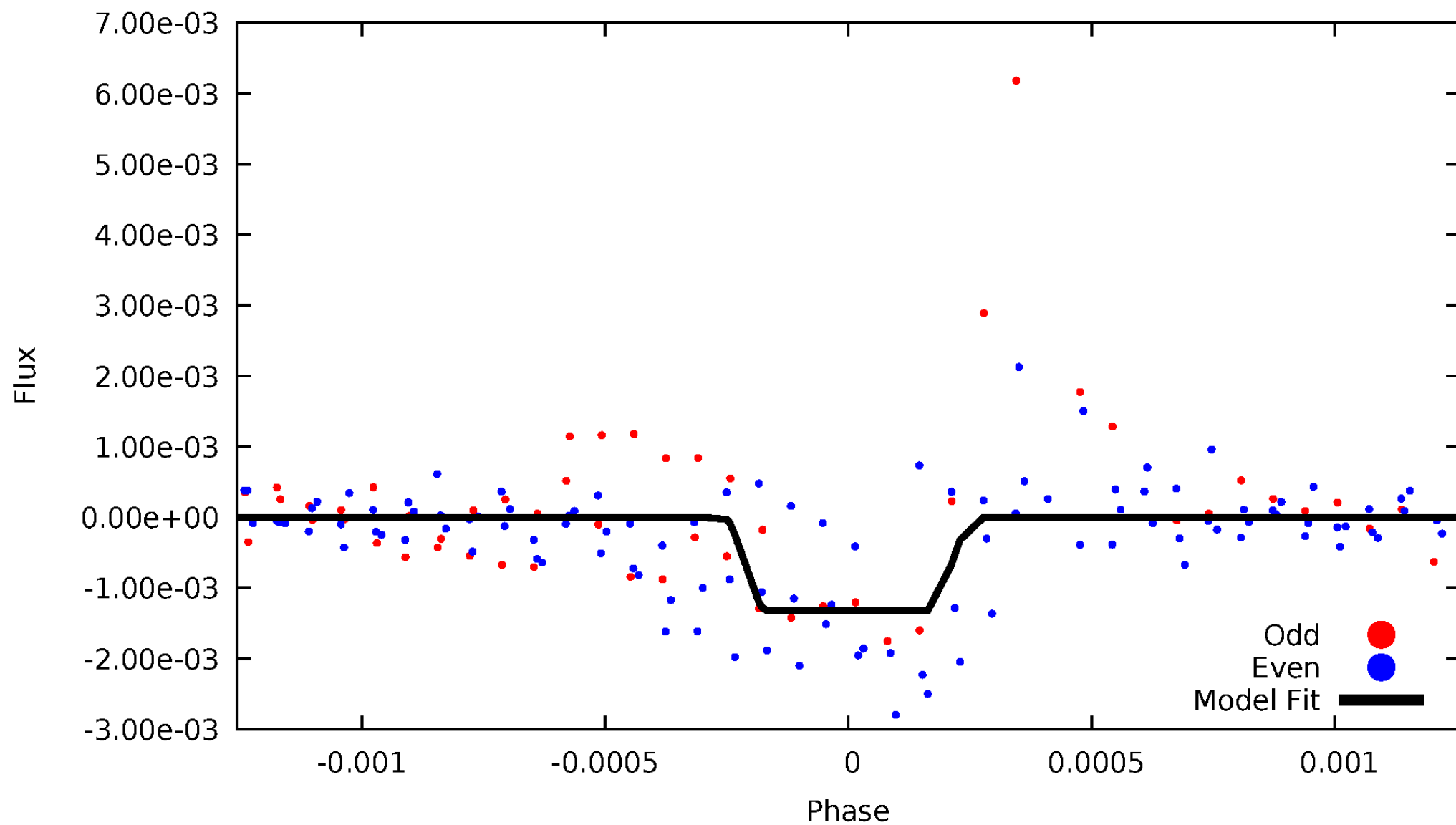
DV Odd/Even

TCE 008959288-07



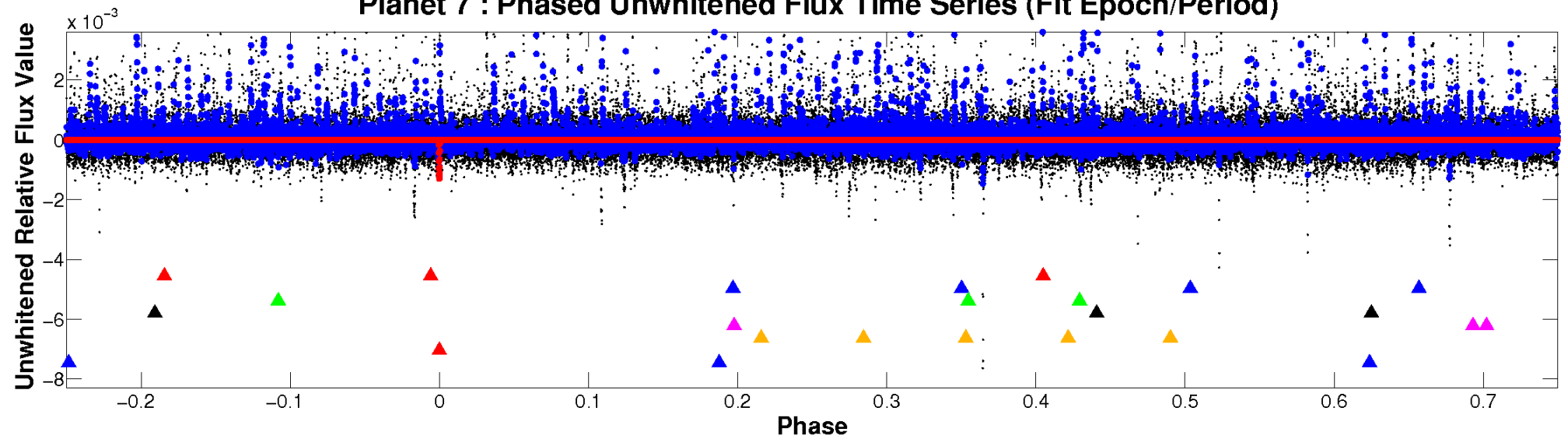
ALT Odd/Even

TCE 008959288-07

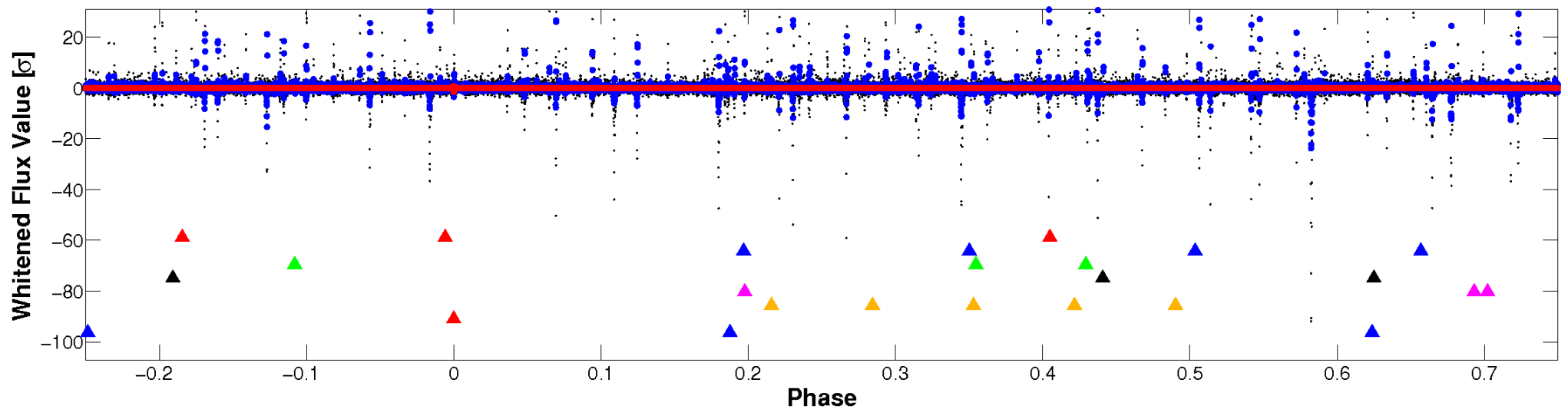


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

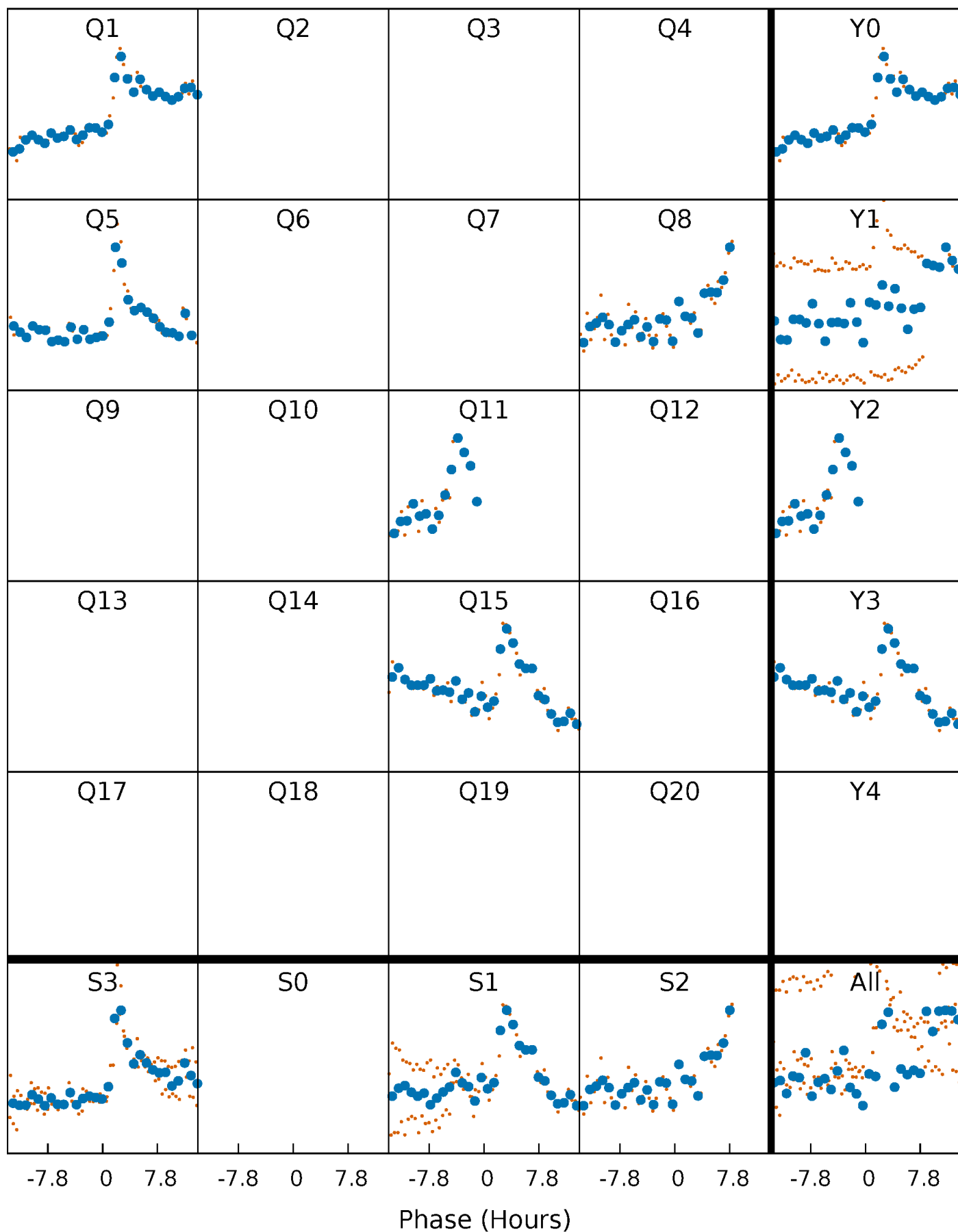


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



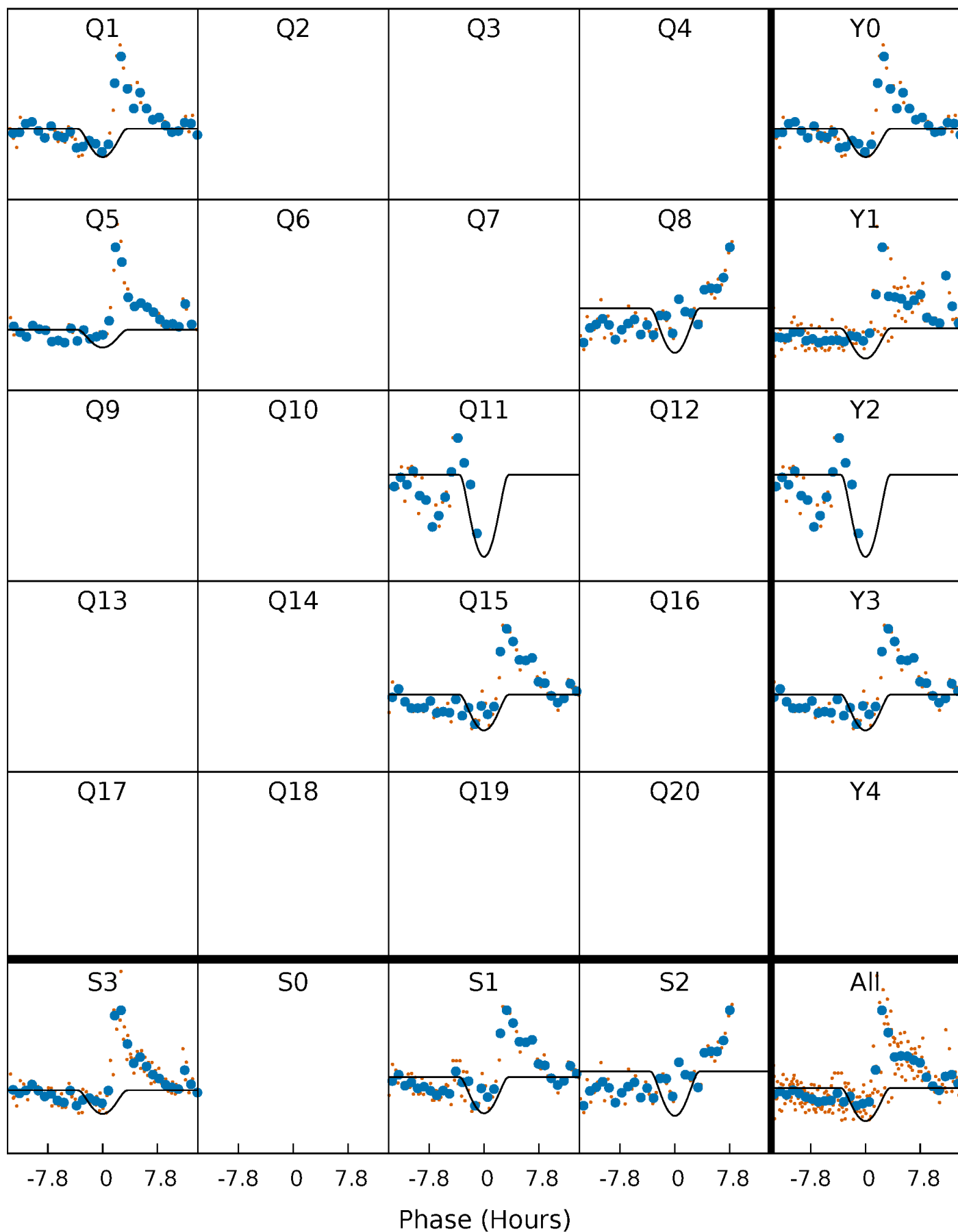
PDC Quarter-Phased Transit Curves

TCE 008959288-07 $P=309.337500$ Days $T_0=142.033949$ (BKJD)



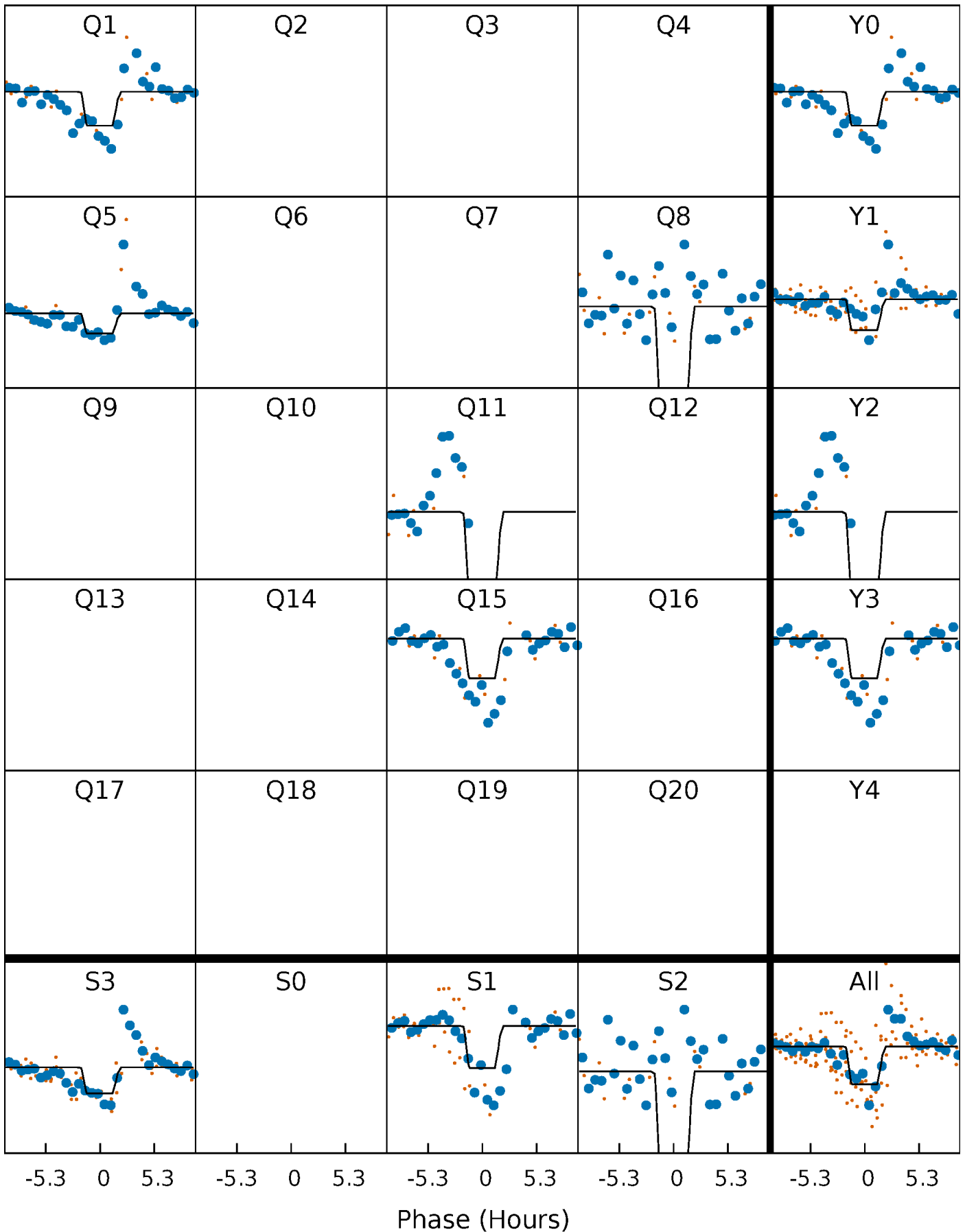
DV Quarter-Phased Transit Curves

TCE 008959288-07 $P=309.337500$ Days $T_0=142.033949$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

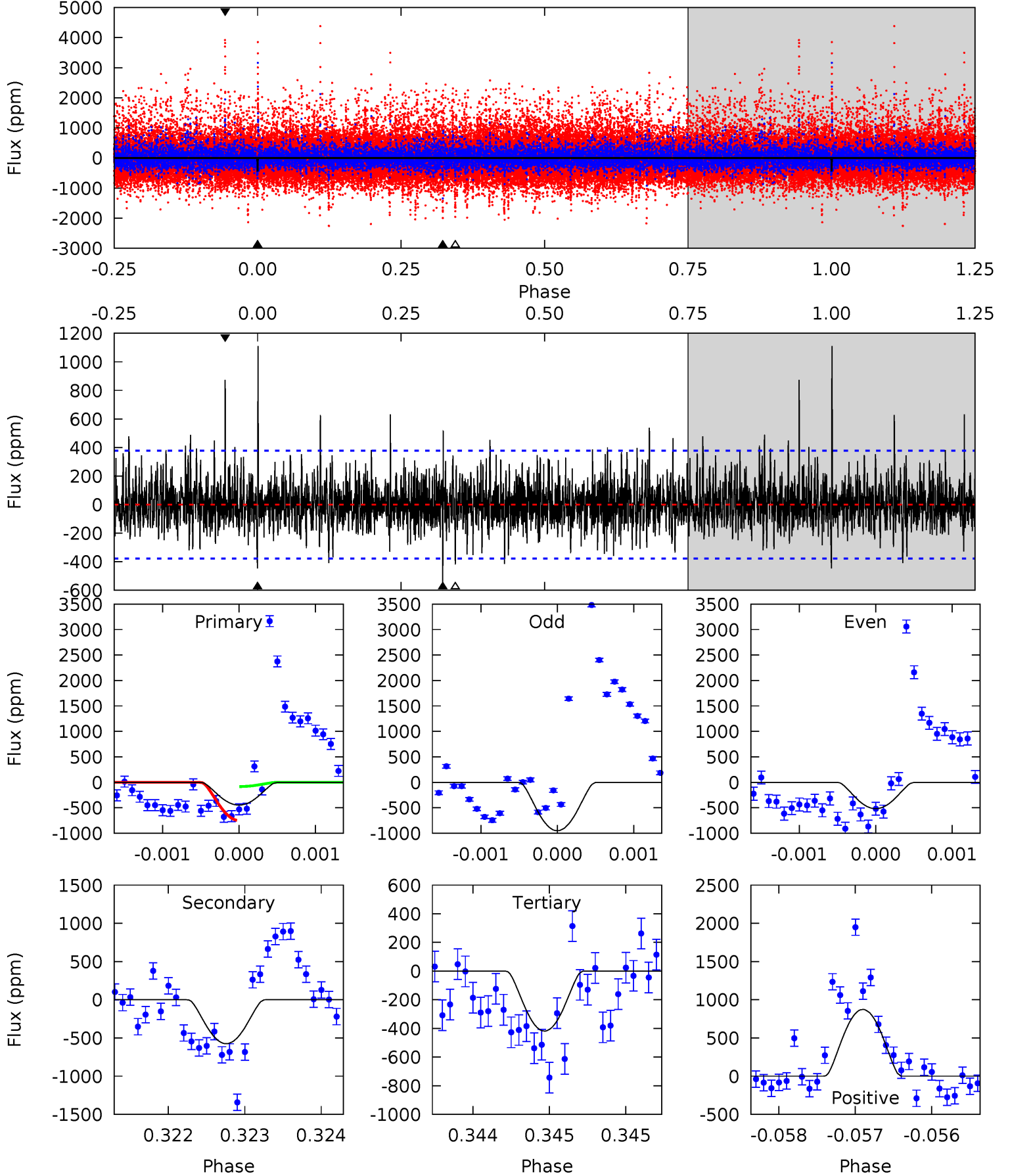
TCE 008959288-07 $P=309.343665$ Days $T_0=142.009104$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-07, $P = 309.337500$ Days, $E = 142.033949$ Days

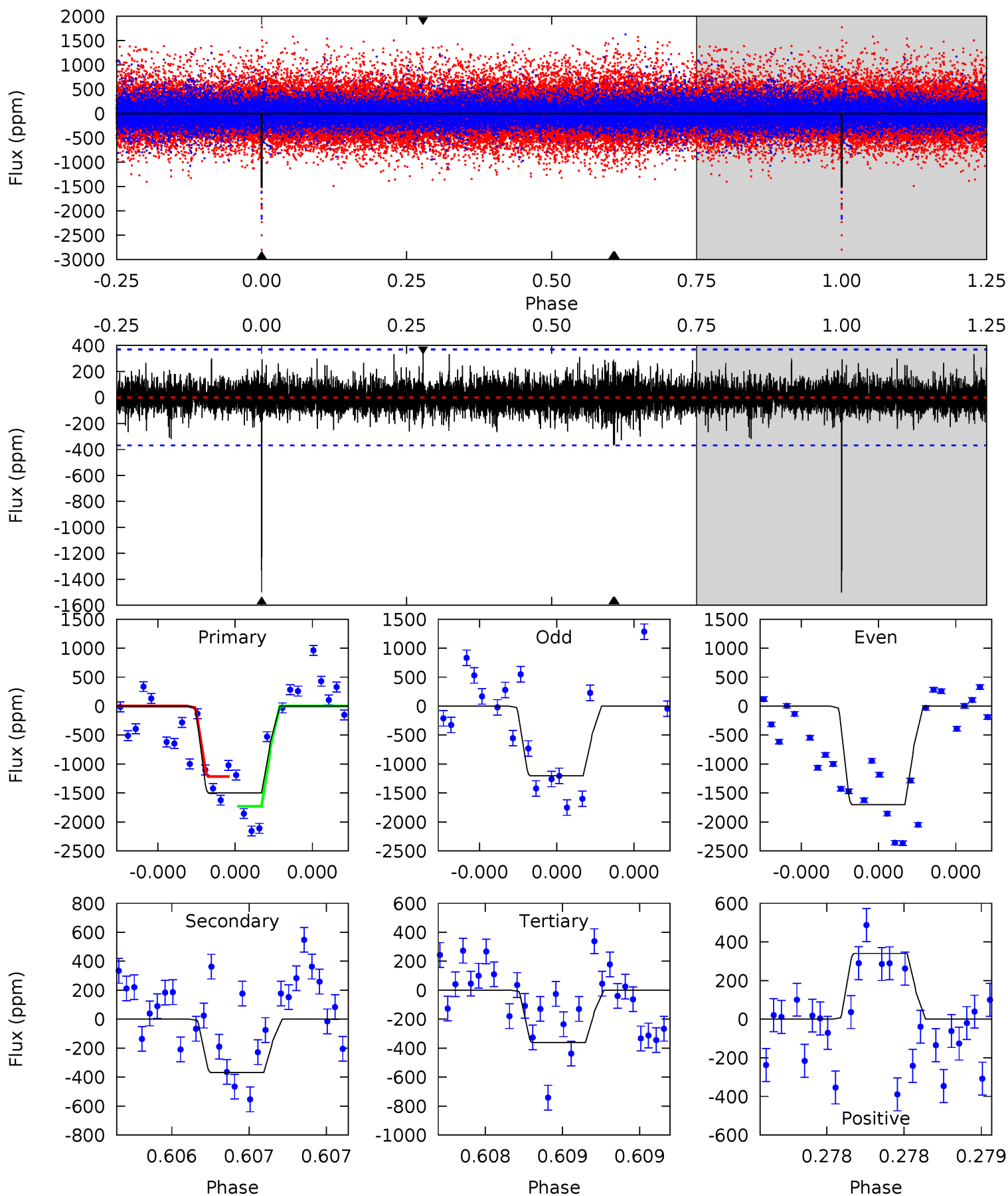
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.46	8.31	6.05	12.6	5.46	3.31	1.82	0.41	-6.16	2.26	-4.32	2.15	0.39	0.66	4.68



Alt Model-Shift Uniqueness Test

008959288-07, P = 309.343665 Days, E = 142.009104 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	5.56	5.47	5.15	5.58	3.49	1.13	17.2	17.5	0.10	0.41	3.49	0.76	0.19	3.97



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-575 ± 69	$14.91^{+14.73}_{-9.52}$	305^{+13}_{-12}	2640^{+922}_{-404}	907^{+6145}_{-672}
Alt.	-368 ± 66	$13.99^{+14.56}_{-10.30}$	306^{+13}_{-13}	2534^{+1118}_{-388}	652^{+8216}_{-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 $A_{obs} \gg 1.0$

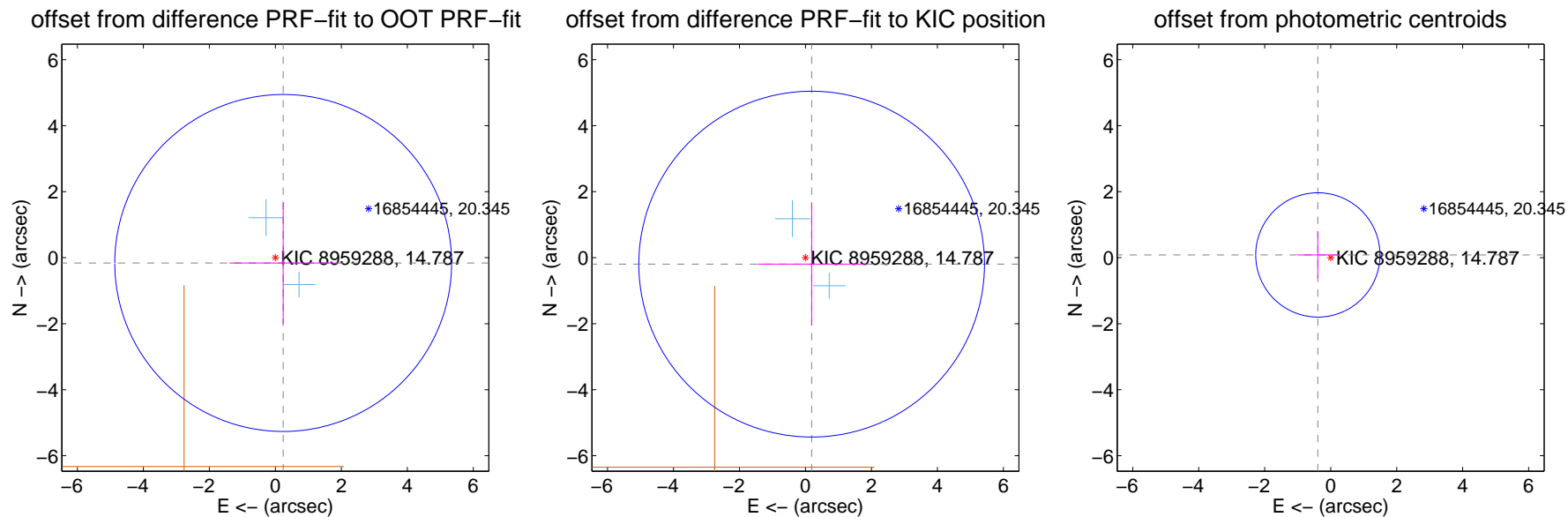
DV Centroid Data

Supplemental centroid analysis for 008959288-07. Kepler magnitude: 14.79. Transit SNR 7.16

There are 2 quarters with good PRF difference image offsets

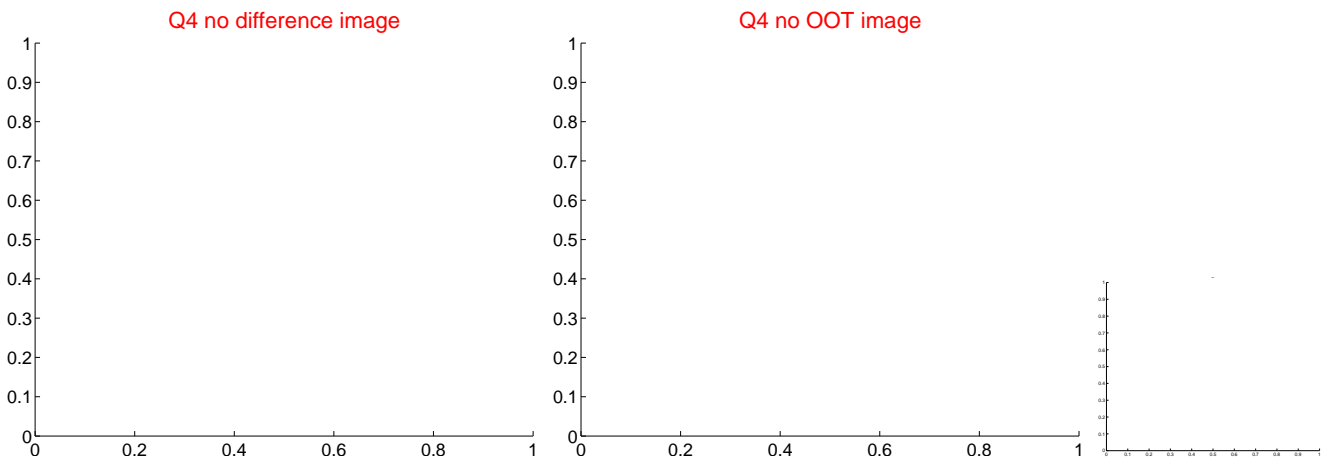
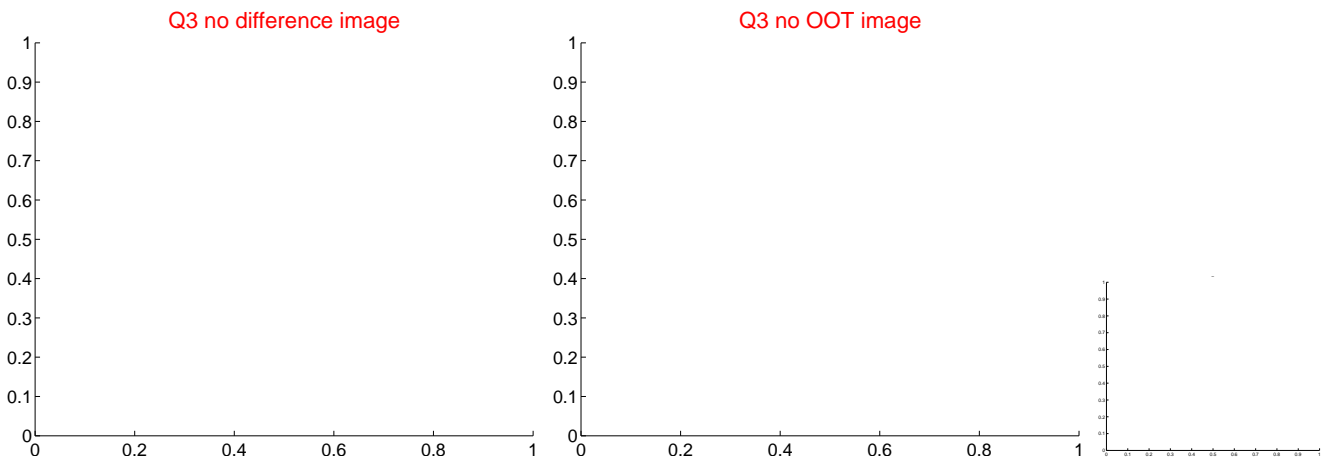
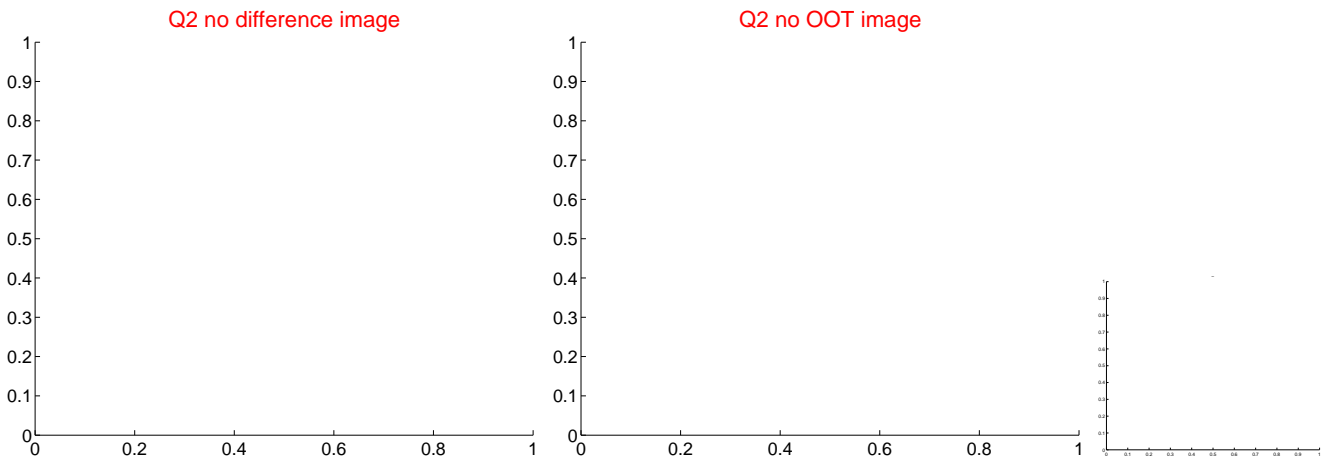
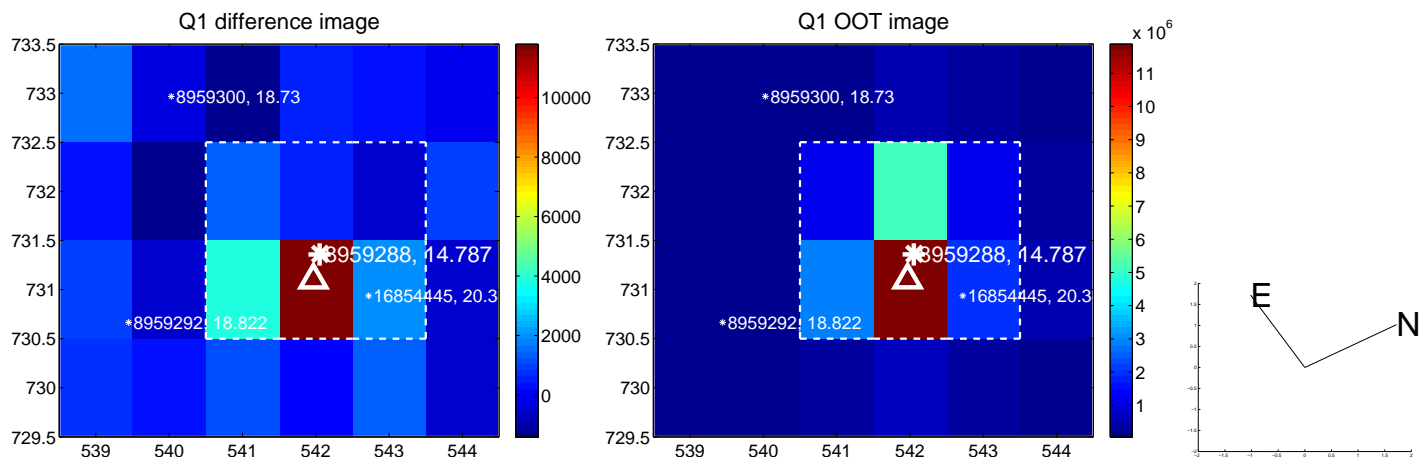
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.286 ± 1.702	0.17	-0.237 ± 1.632	-0.160 ± 1.847
PRF-fit source offset from KIC position	0.271 ± 1.747	0.16	-0.188 ± 1.632	-0.195 ± 1.847
photometric centroid source offset	0.40 ± 0.63	0.63	0.39 ± 0.62	0.08 ± 0.72

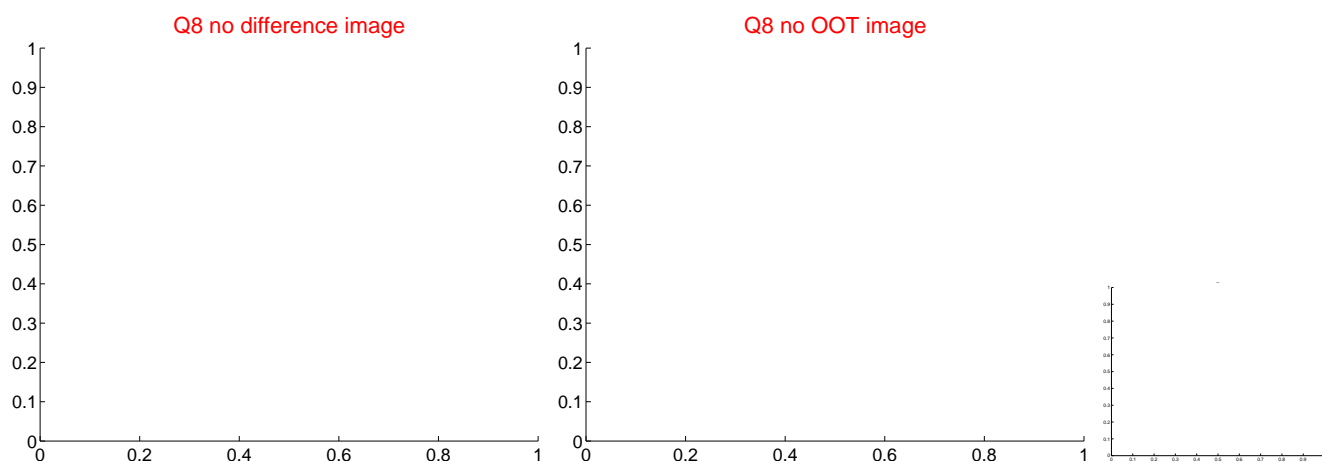
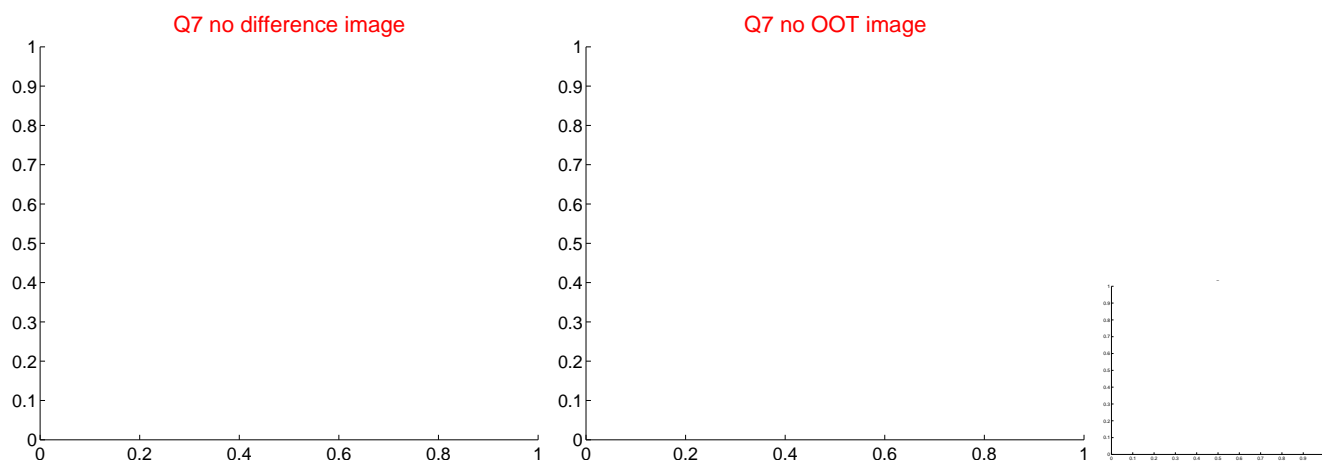
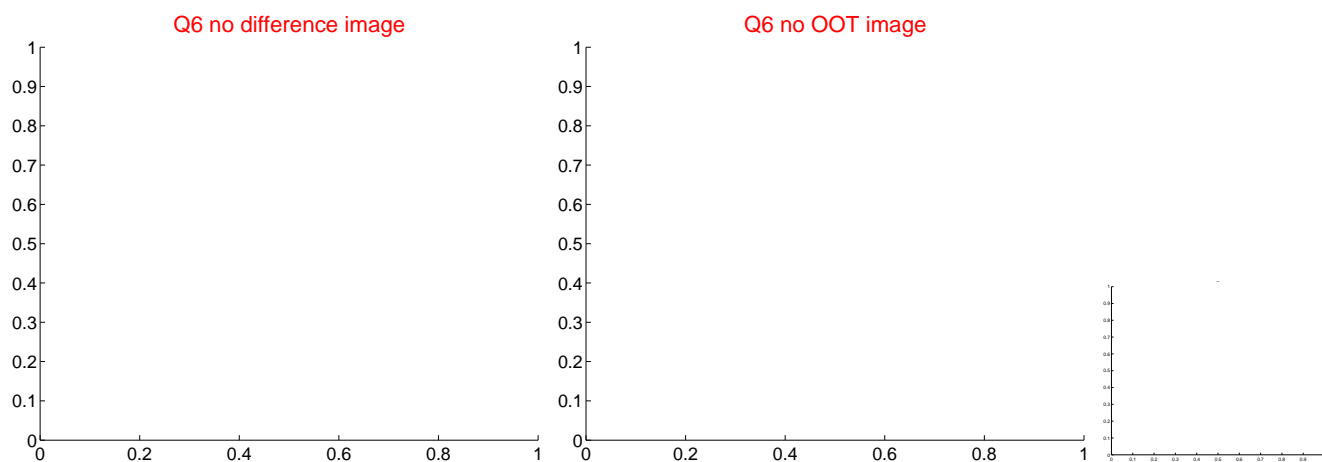
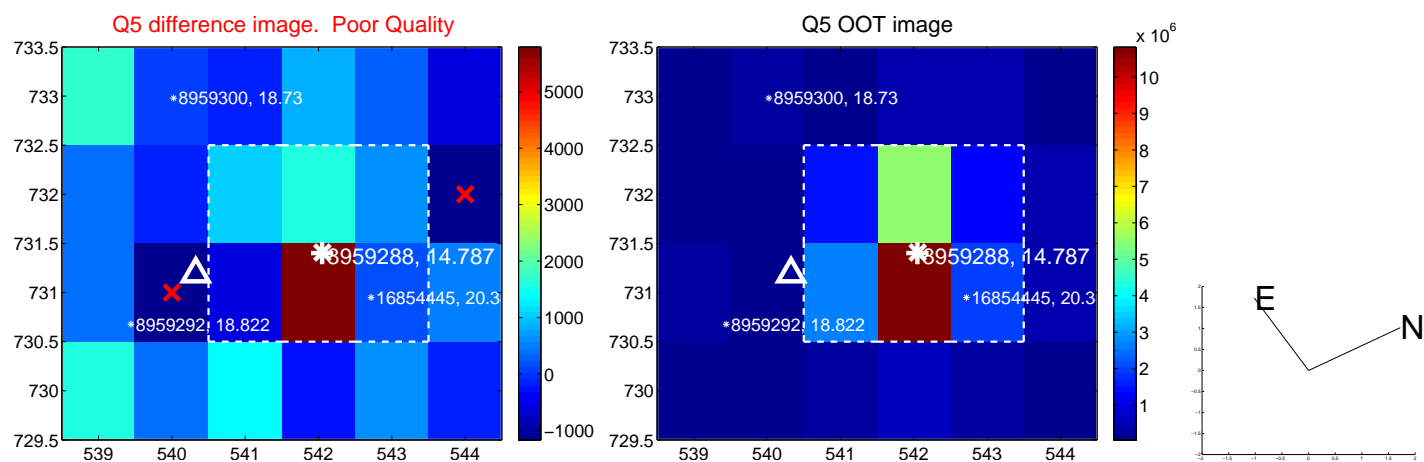


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

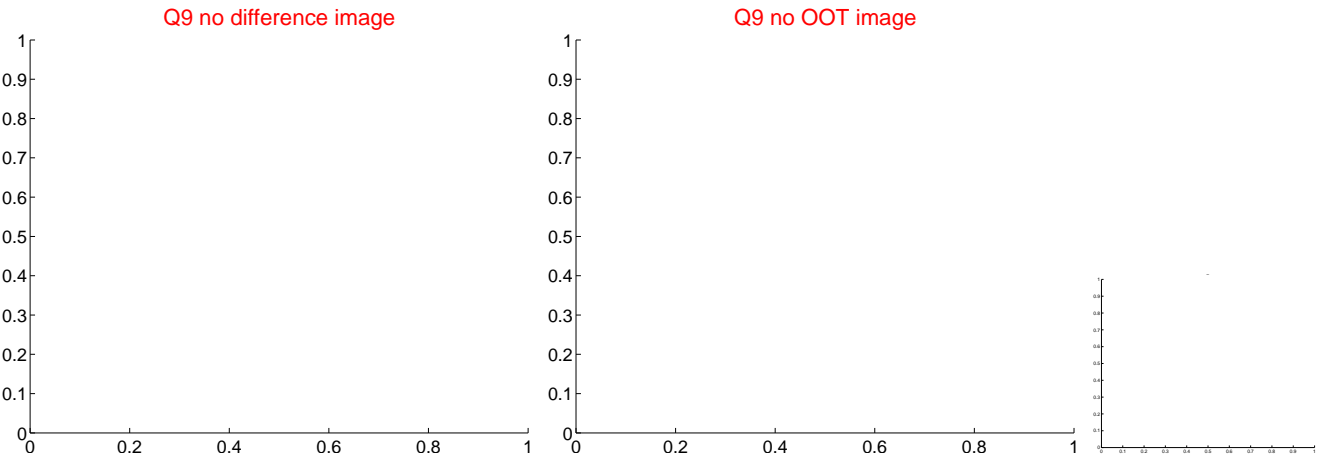
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

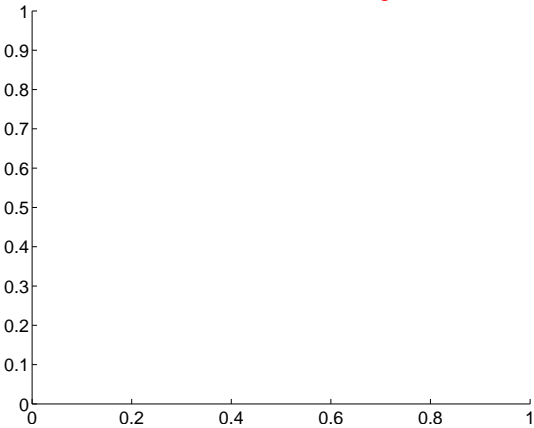


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

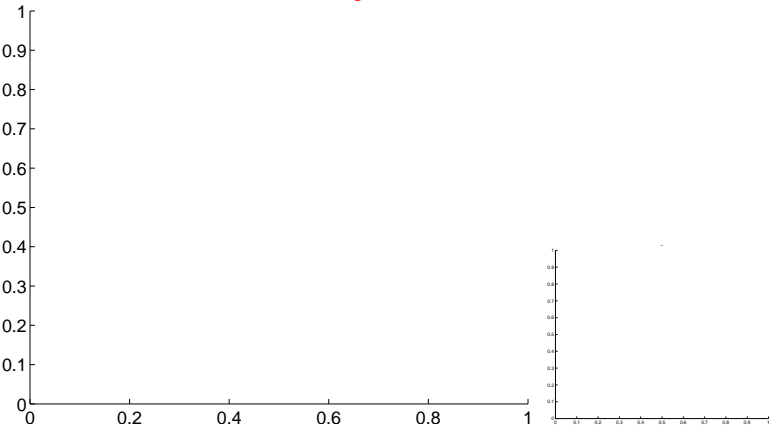


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

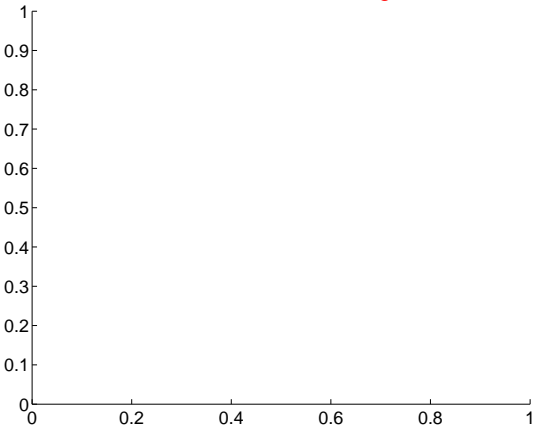
Q13 no difference image



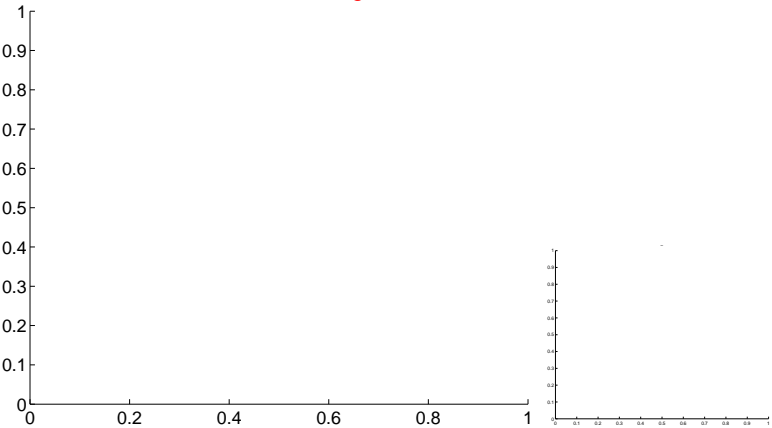
Q13 no OOT image



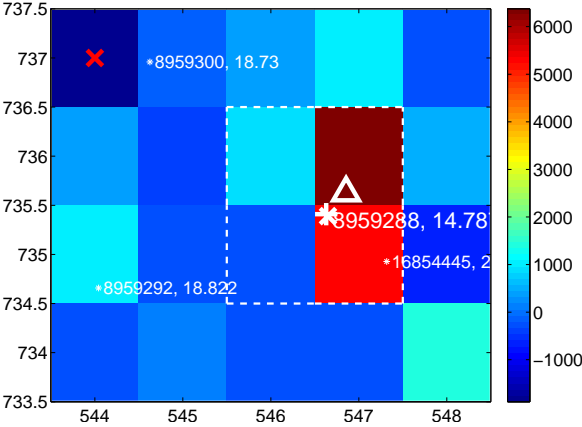
Q14 no difference image



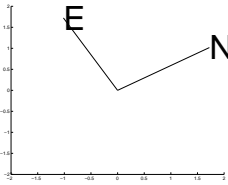
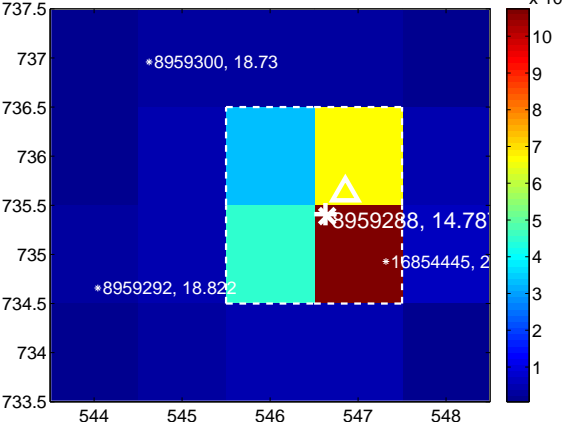
Q14 no OOT image



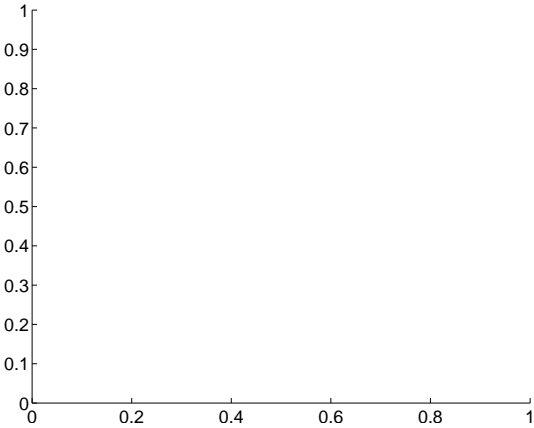
Q15 difference image



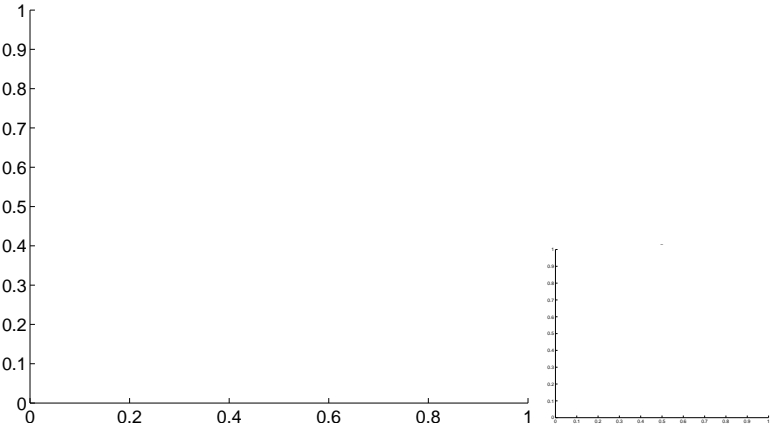
Q15 OOT image



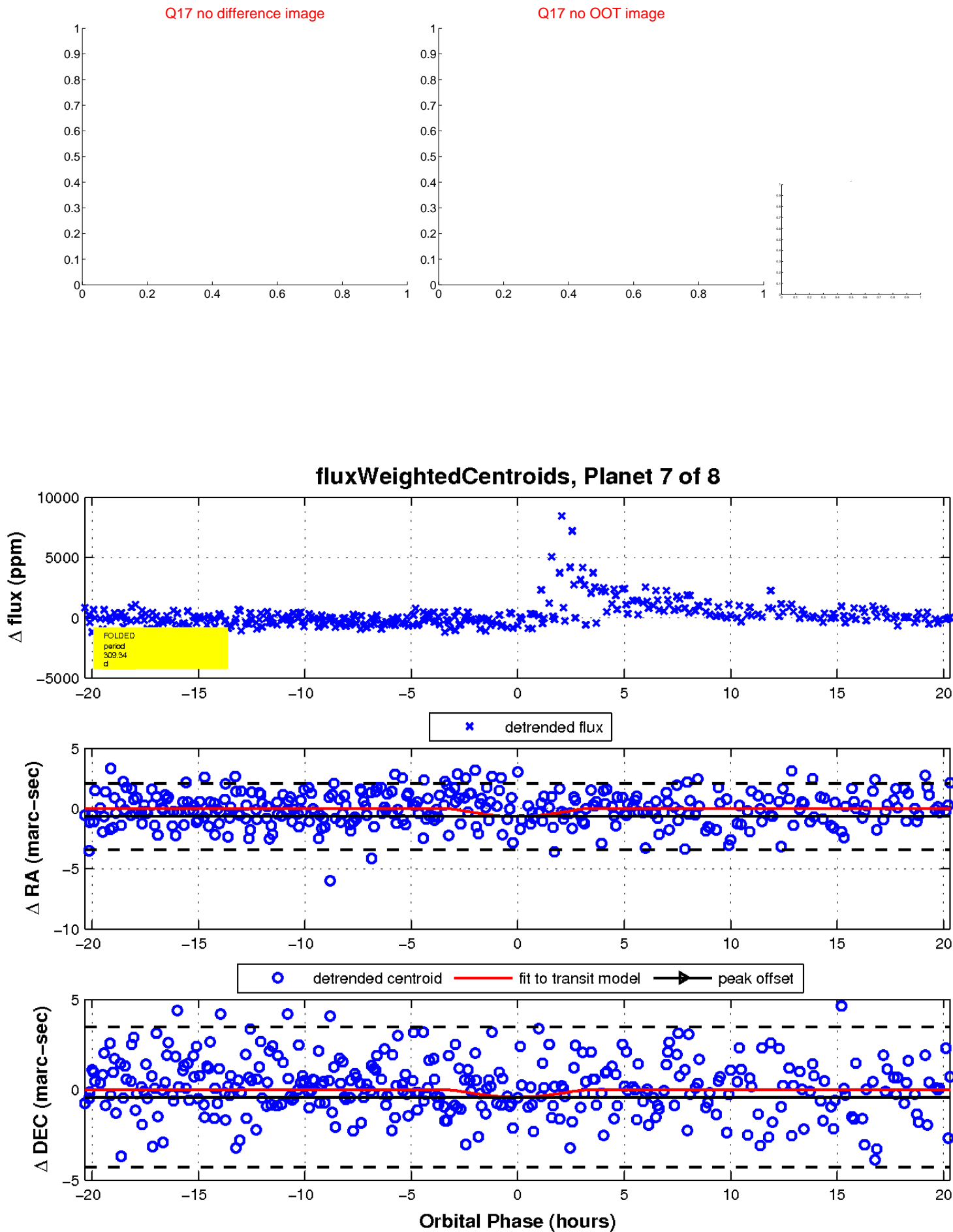
Q16 no difference image



Q16 no OOT image

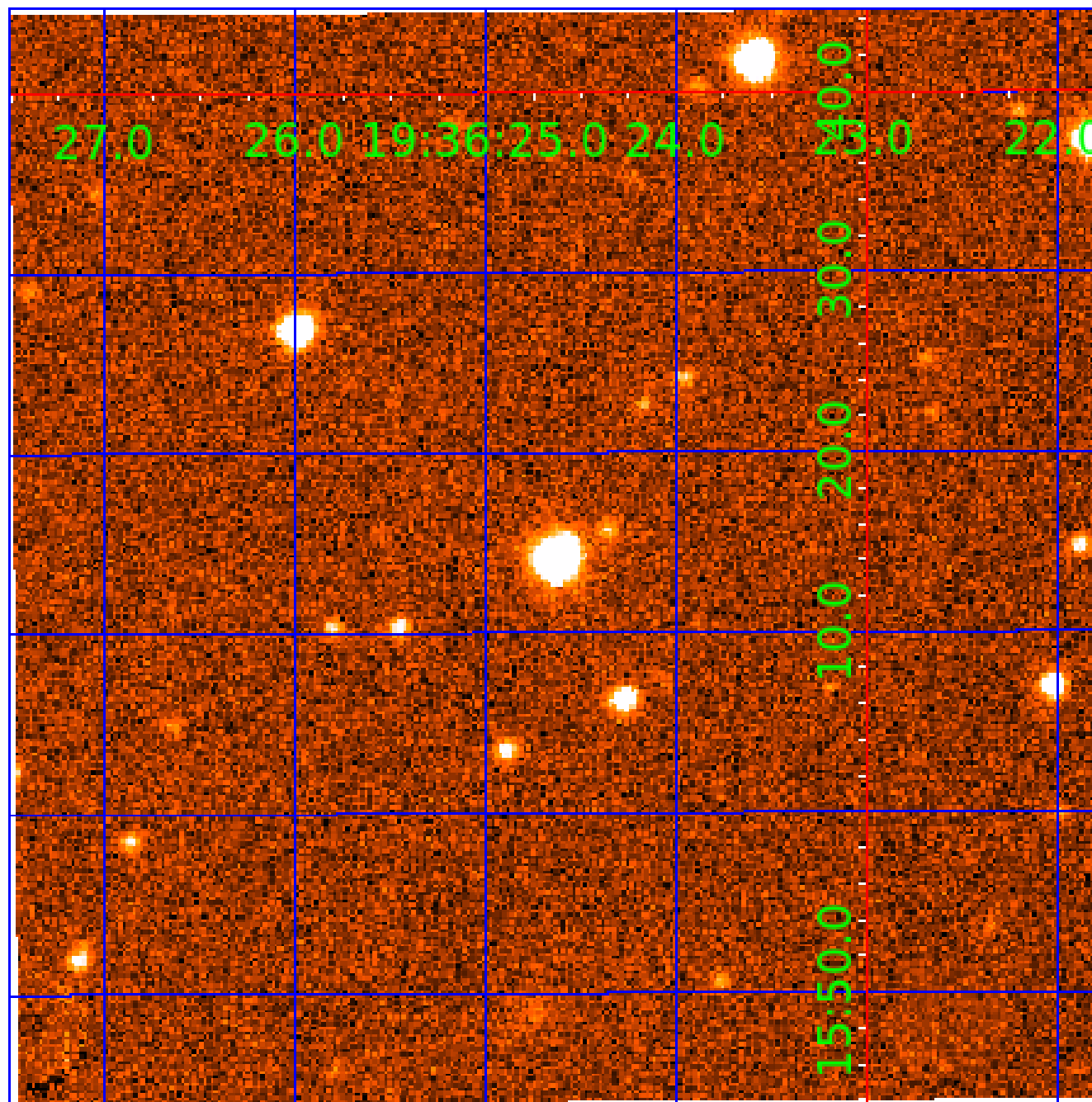


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008959288

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})
008959288-01	OBS	No	491.626083	394.340555	1340.5	5.480	15.9	7.9	0.72	5191	2.87	0.29
008959288-02	OBS	No	356.770109	202.939752	1275.1	3.867	14.4	8.2	0.72	5191	2.62	0.45
008959288-03	OBS	No	475.553173	561.079381	1064.1	9.219	14.6	5.9	0.72	5191	2.38	0.30
008959288-04	OBS	No	561.692185	392.350191	1312.0	14.264	14.9	7.3	0.72	5191	3.09	0.24
008959288-05	OBS	No	465.408211	356.446112	1363.6	12.423	11.1	8.1	0.72	5191	2.70	0.31
008959288-06	OBS	No	288.114980	293.686359	929.8	16.976	10.7	6.2	0.72	5191	2.16	0.59
008959288-07	OBS	No	309.337500	142.033948	1303.8	6.783	10.7	7.2	0.72	5191	5.13	0.54
008959288-08	OBS	No	483.757722	334.988384	920.5	4.500	10.0	-1.0	0.72	5191	2.14	0.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008959288-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008959288-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008959288-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV
008959288-06	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008959288-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

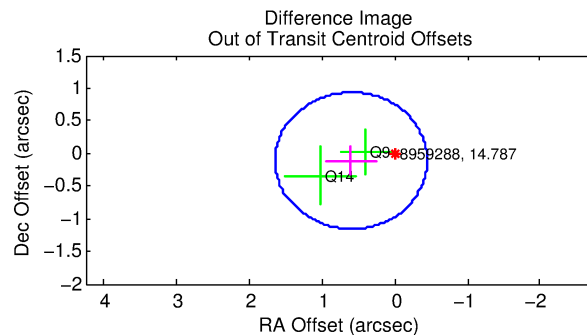
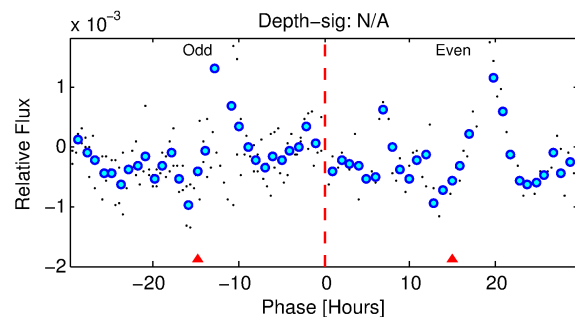
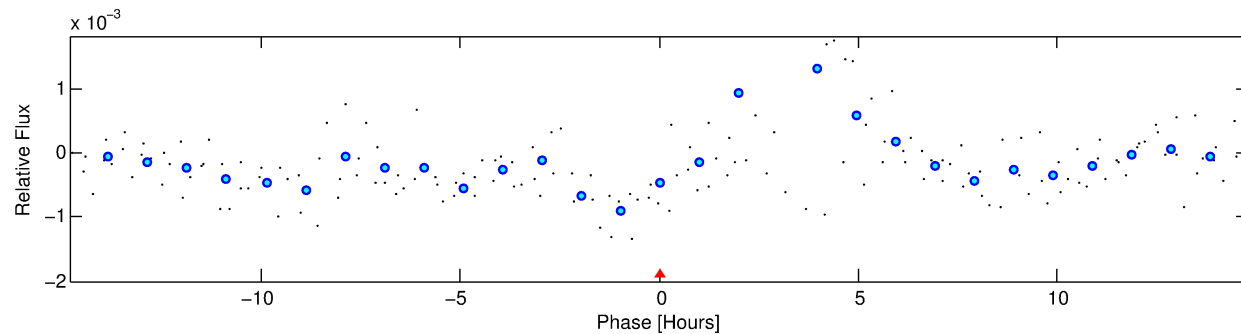
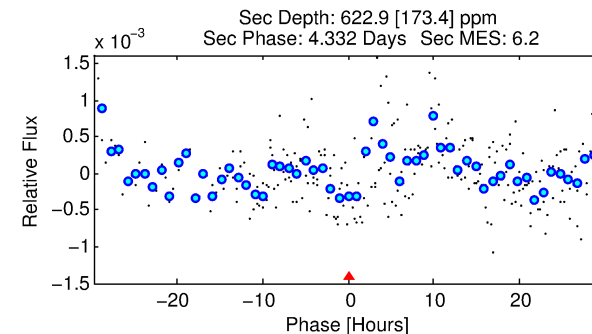
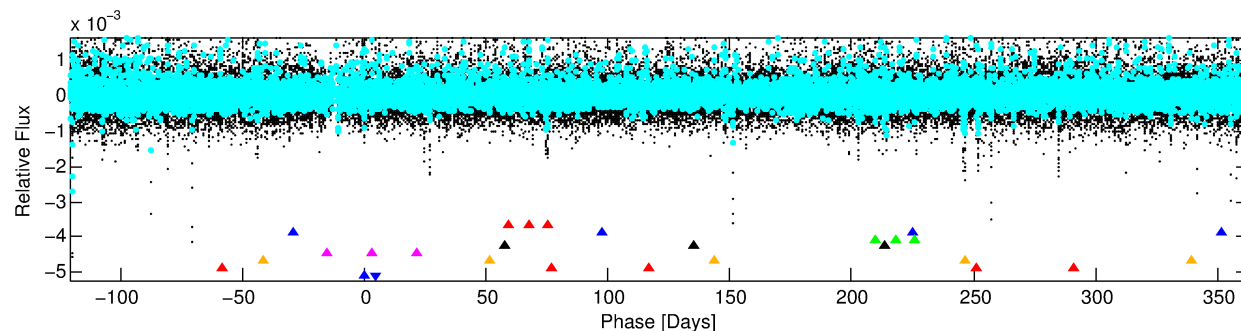
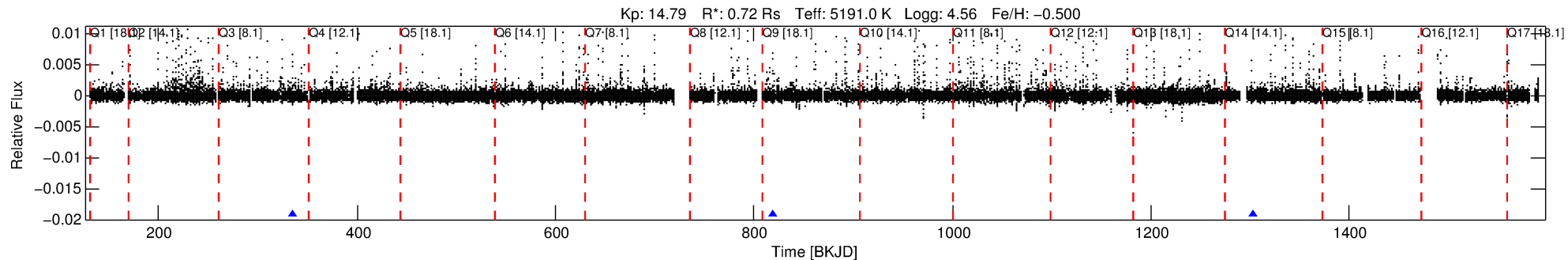
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008959288-08

No Significant Match Found

DV One-Page Summary

KIC: 8959288 Candidate: 8 of 8 Period: 483.758 d



TPS TCE Results:

Period = 483.75772 d
Epoch = 334.9884 BKJD

DV fit results are unavailable

DV Diagnostic Results:

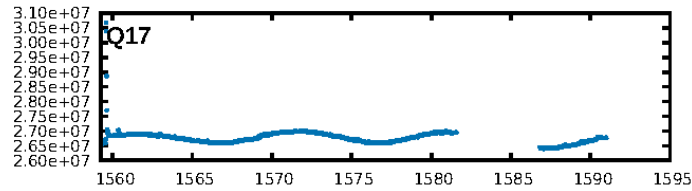
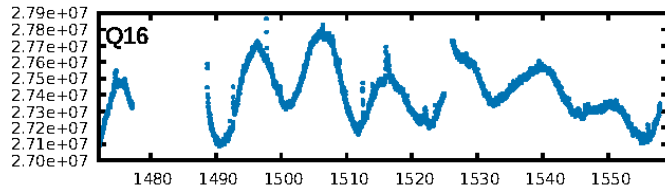
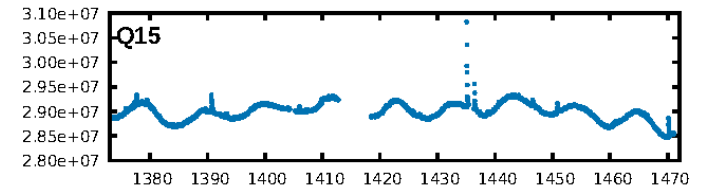
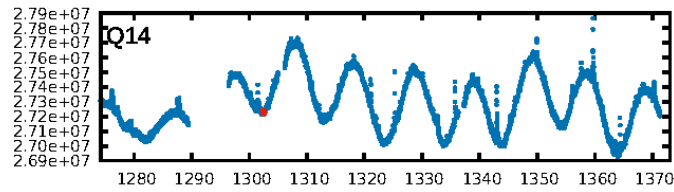
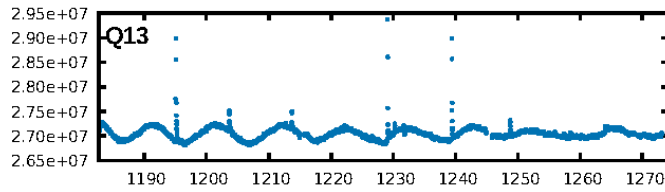
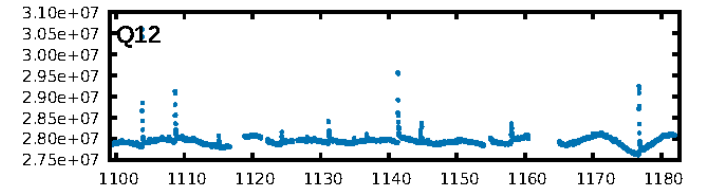
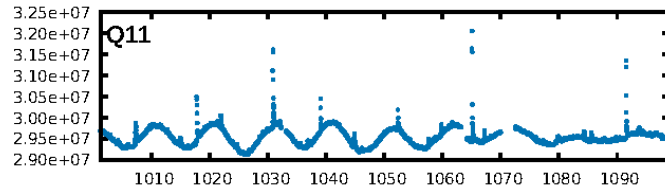
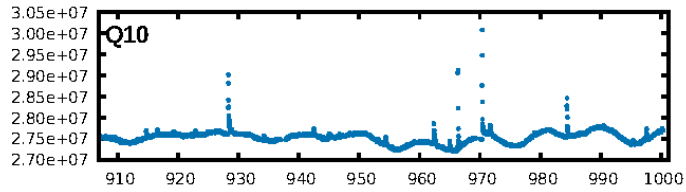
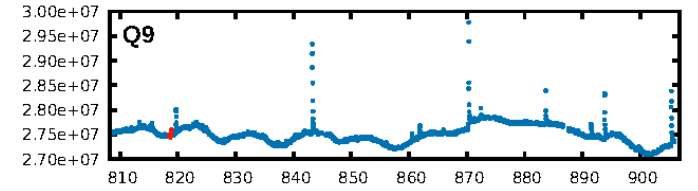
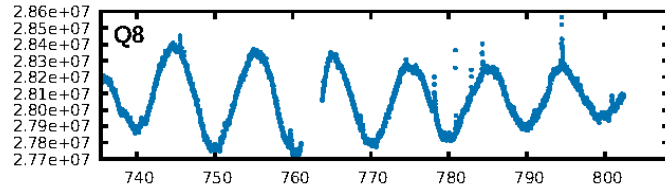
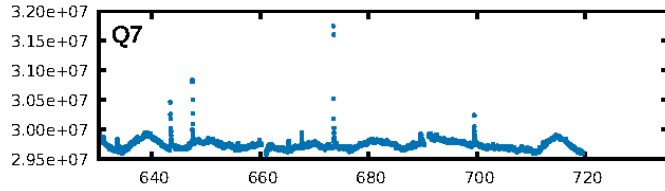
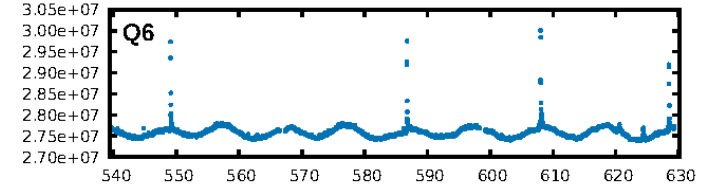
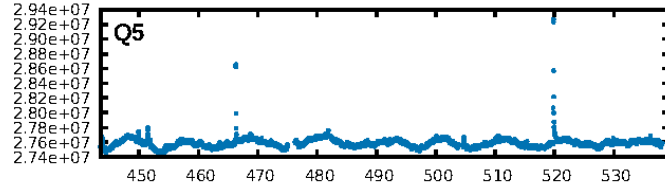
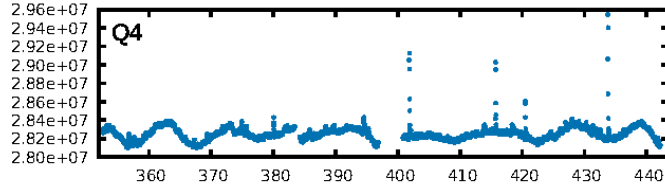
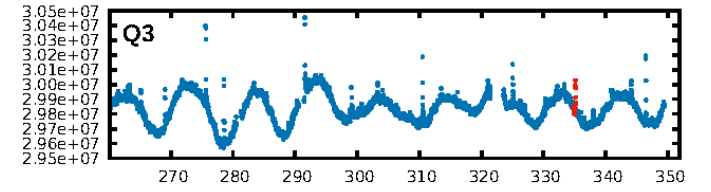
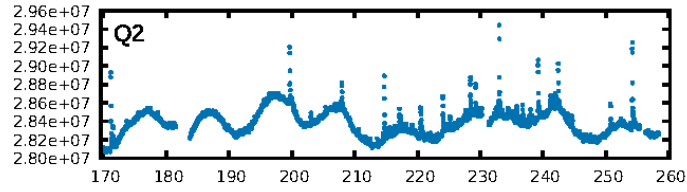
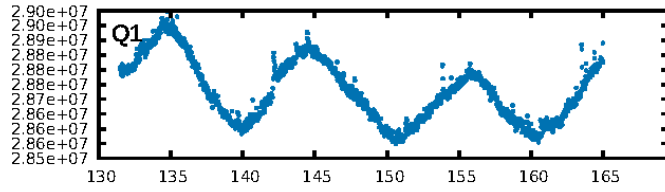
ShortPeriod-sig: 100.0% [19.19σ]
LongPeriod-sig: 100.0% [26.63σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -4.388

Centroid-sig: 41.5%
Centroid-so: 0.499 arcsec [1.11σ]
OotOffset-rm: 0.609 arcsec [1.75σ]
KicOffset-rm: 0.600 arcsec [1.88σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

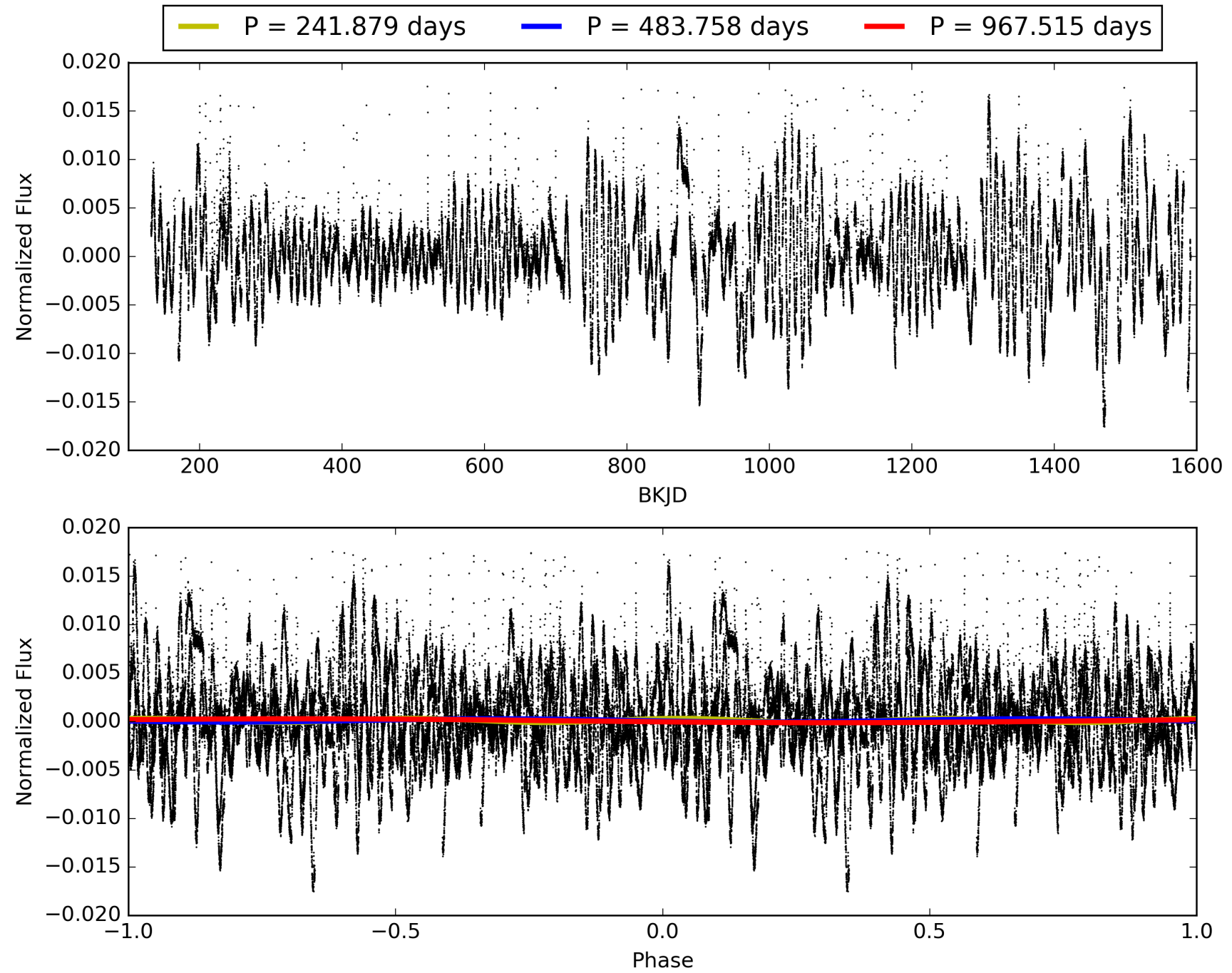
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:41:31 Z

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

TCE 008959288-08, PDC Light Curves

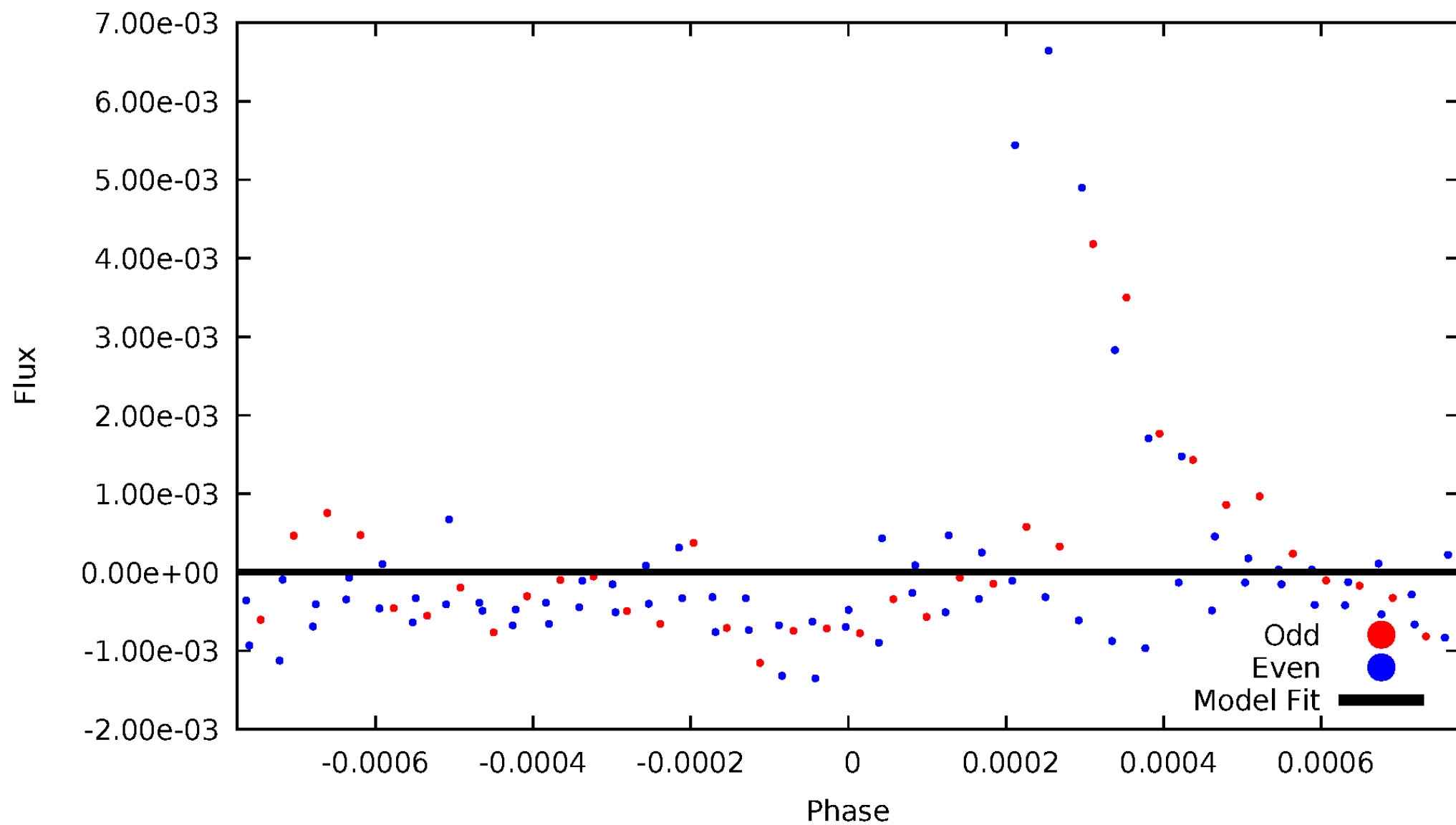


TCE 008959288-08



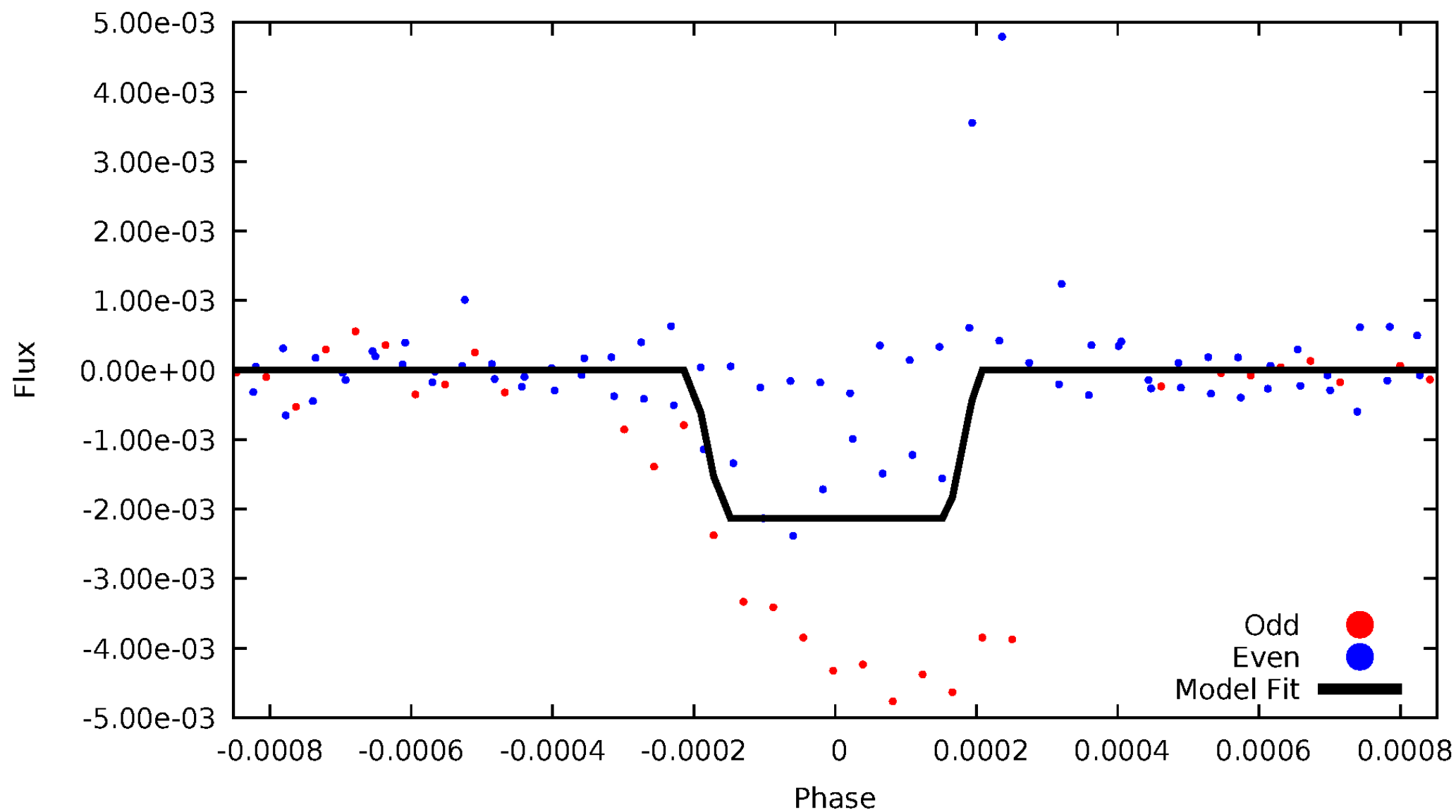
DV Odd/Even

TCE 008959288-08



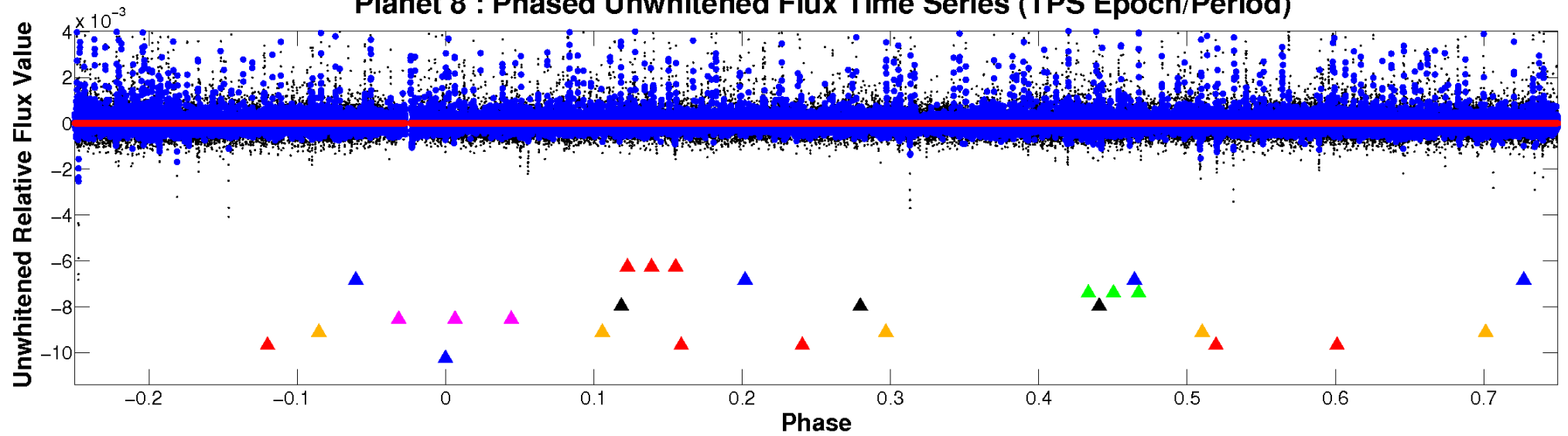
ALT Odd/Even

TCE 008959288-08

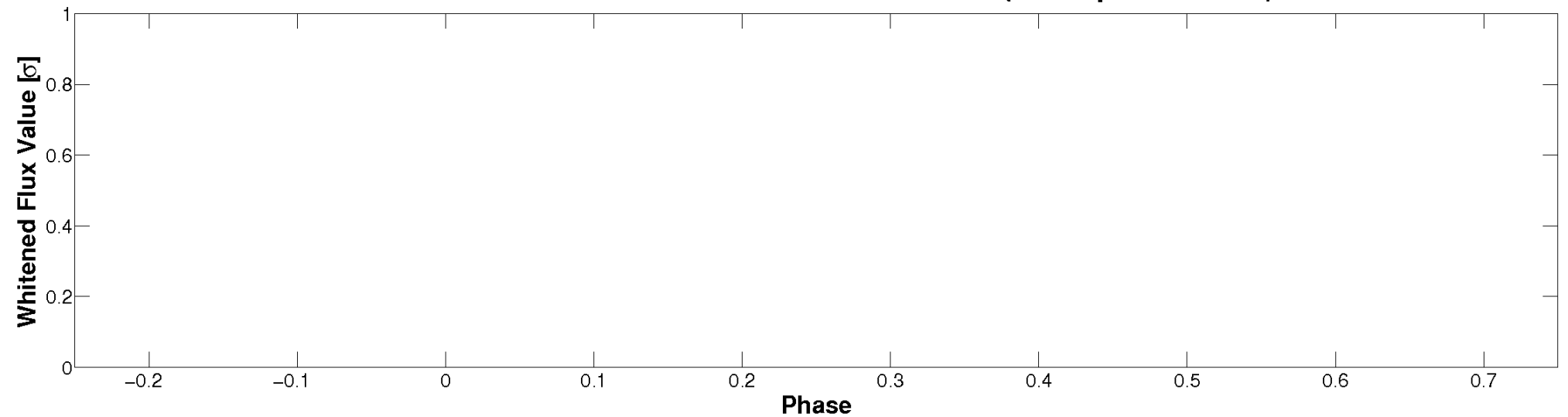


Non-Whitened Vs. Whitened Light Curve

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

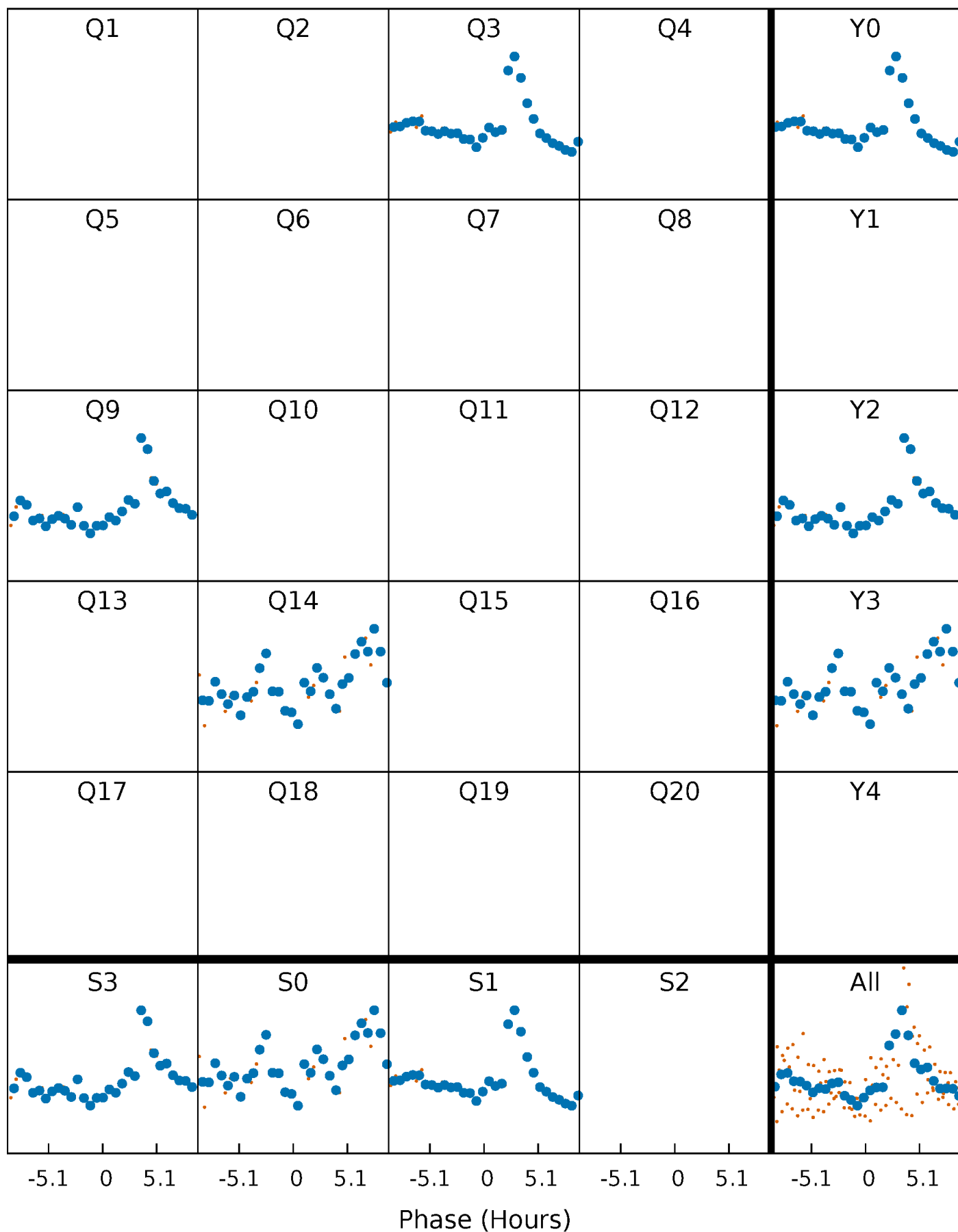


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



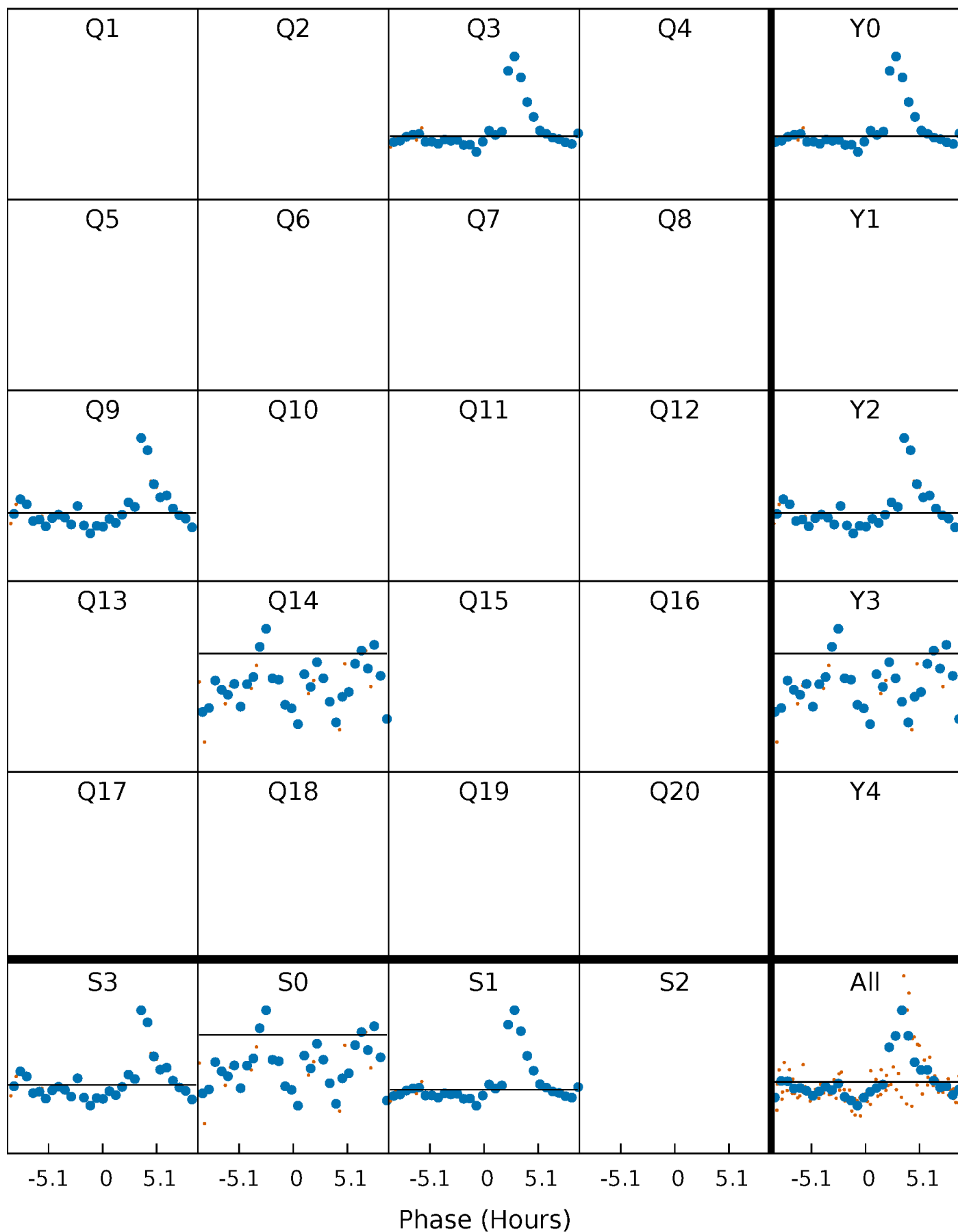
PDC Quarter-Phased Transit Curves

TCE 008959288-08 $P=483.757722$ Days $T_0=334.988384$ (BKJD)



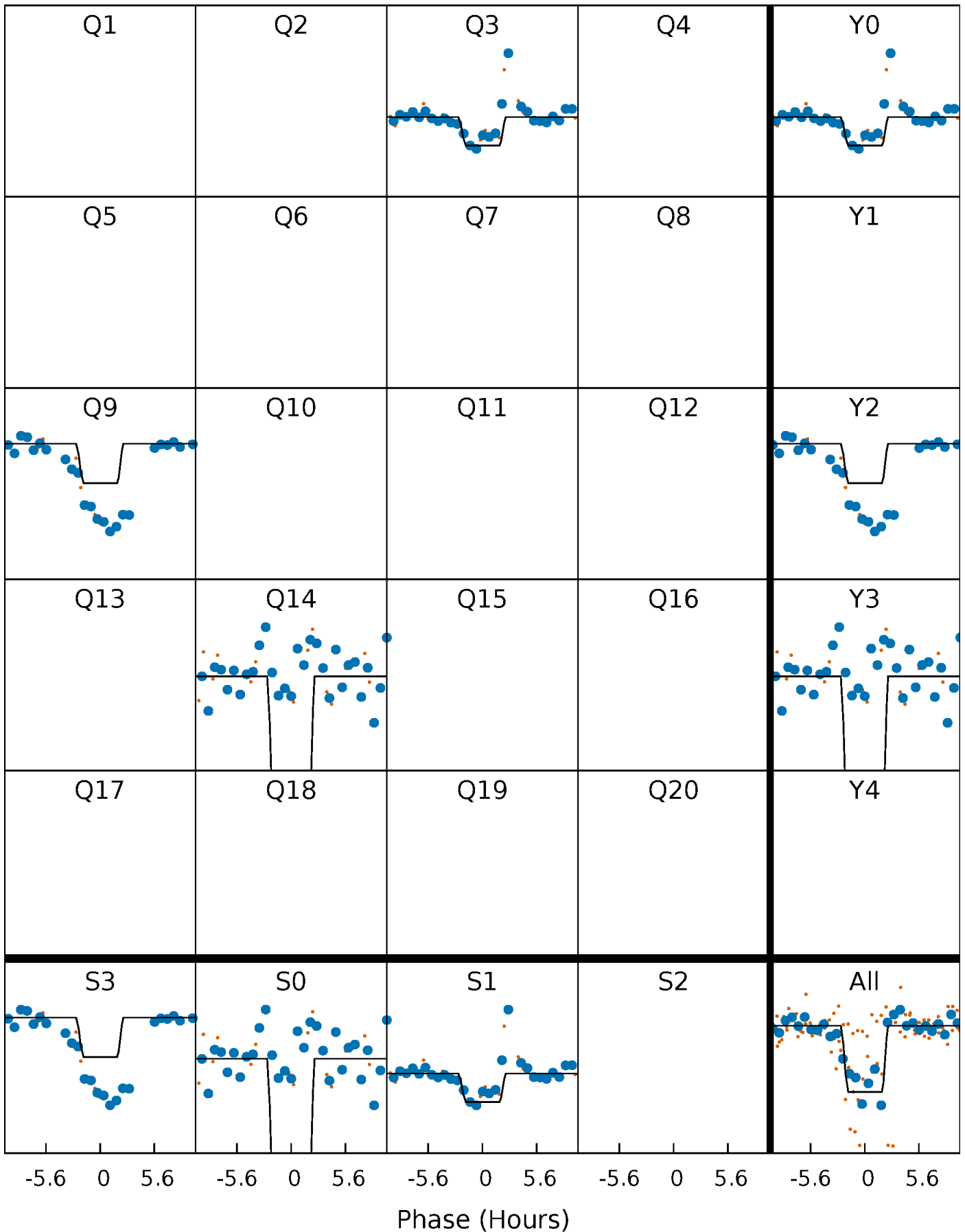
DV Quarter-Phased Transit Curves

TCE 008959288-08 $P=483.757722$ Days $T_0=334.988384$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

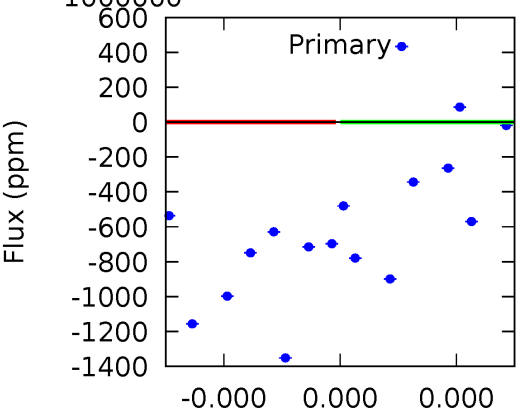
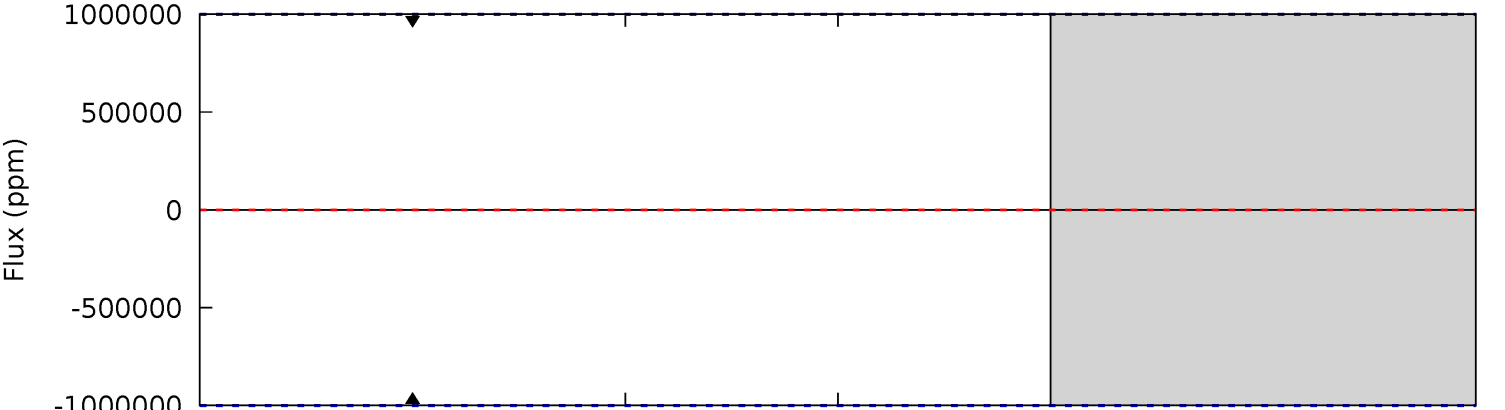
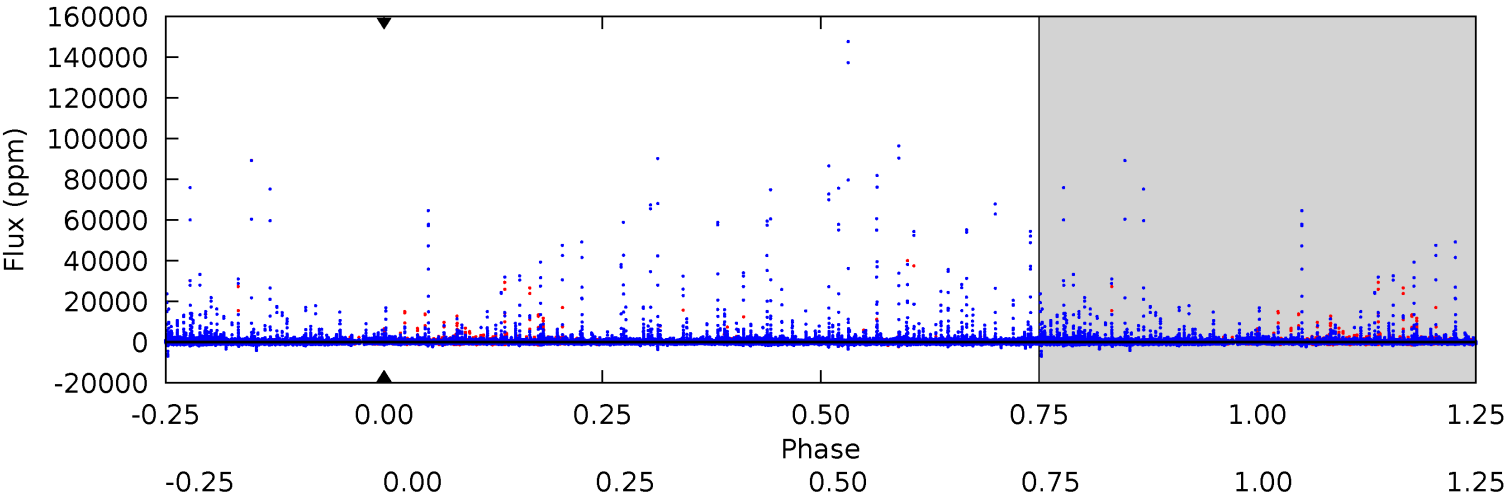
TCE 008959288-08 $P=483.757722$ Days $T_0=334.996968$ (BKJD)



DV Model-Shift Uniqueness Test

008959288-08, P = 483.757722 Days, E = 334.988384 Days

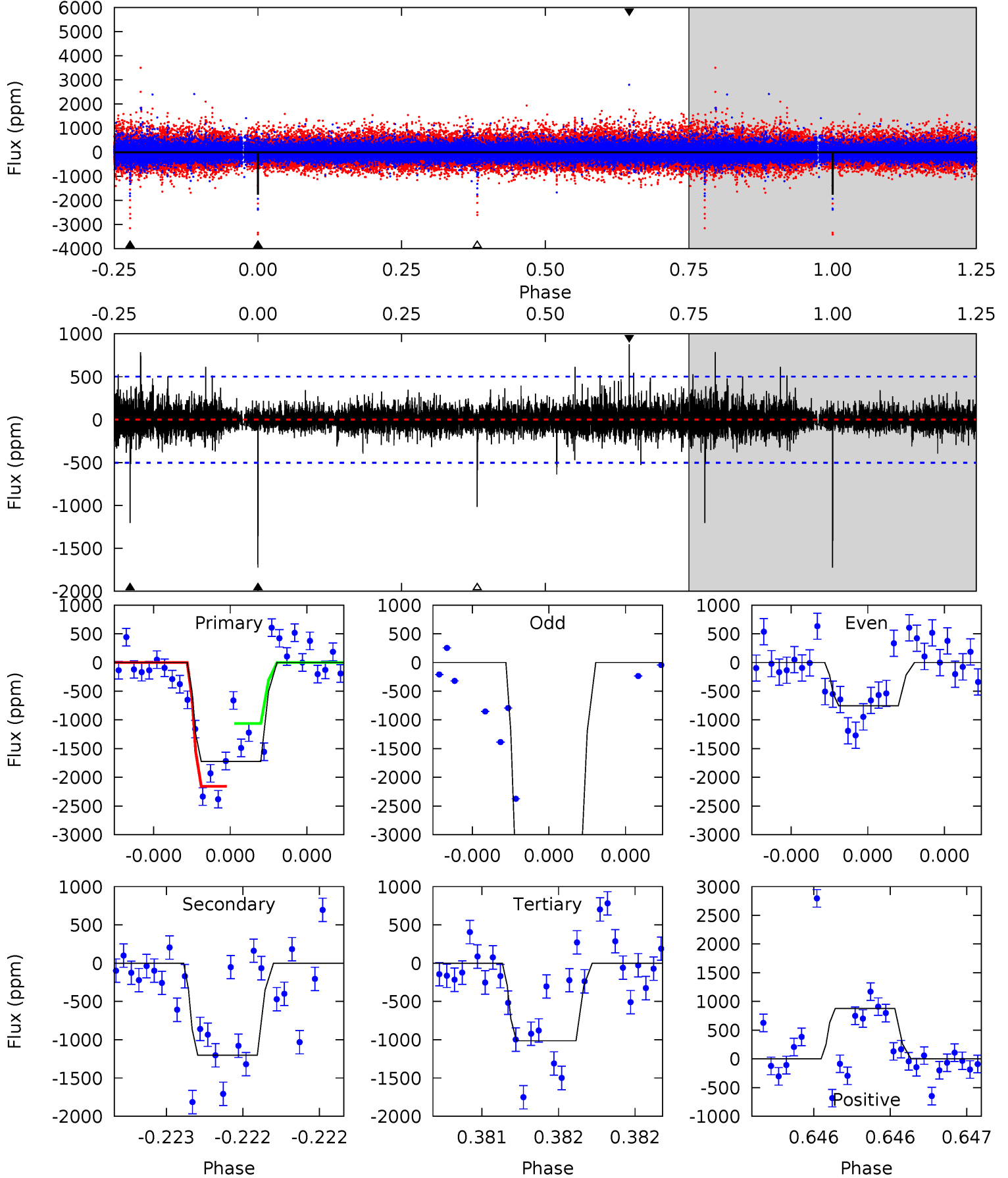
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008959288-08, P = 483.757722 Days, E = 334.996968 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	13.5	11.4	9.85	5.62	3.55	1.08	7.94	9.46	2.11	3.63	21.4	1.22	0.34	0



Stellar Parameters For KIC 008959288

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5191^{+156}_{-156}	$4.559^{+0.082}_{-0.067}$	$-0.500^{+0.350}_{-0.300}$	$0.720^{+0.082}_{-0.082}$	$0.684^{+0.093}_{-0.043}$	$2.584^{+0.925}_{-0.574}$
	+3%/-3%	+2%/-1%	+70%/-60%	+11%/-11%	+14%/-6%	+36%/-22%
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 008959288-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$6.14^{+6.27}_{-4.31}$	263^{+10}_{-11}	3096^{+15059}_{-17917}	$5903^{+3706024}_{-2873833}$
Alt.	-1203 ± 89	$6.49^{+6.41}_{-4.33}$	263^{+11}_{-11}	3733^{+2003}_{-705}	$18235^{+142620}_{-13626}$

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

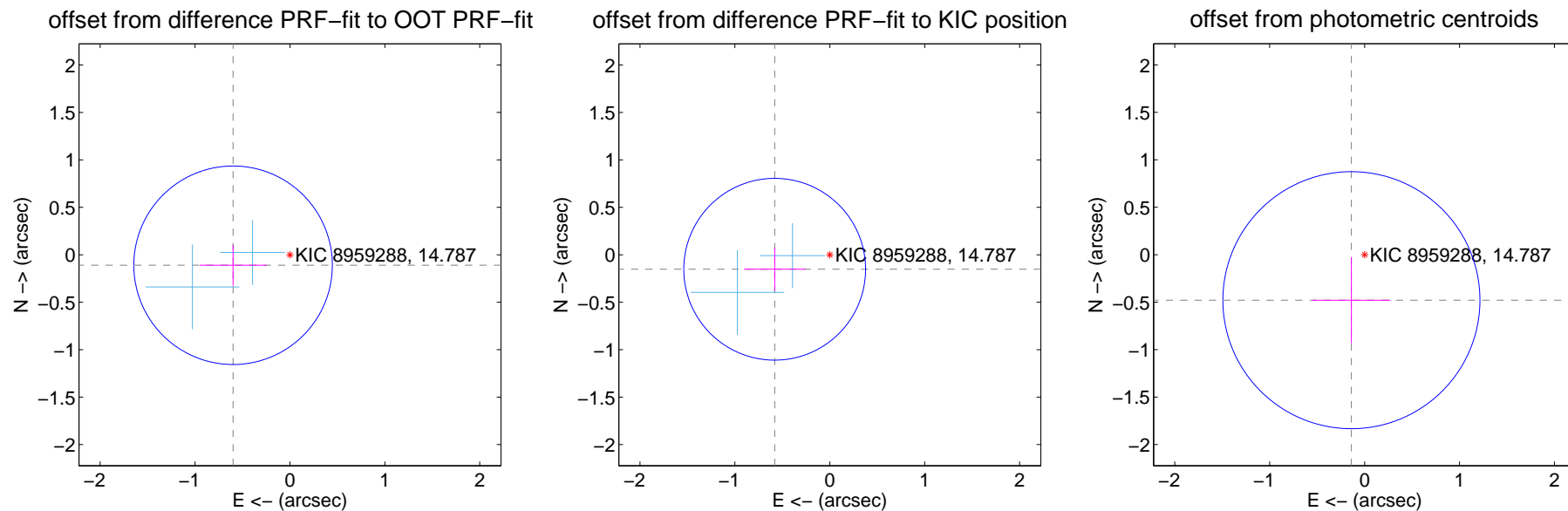
DV Centroid Data

Supplemental centroid analysis for 008959288-08. Kepler magnitude: 14.79. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

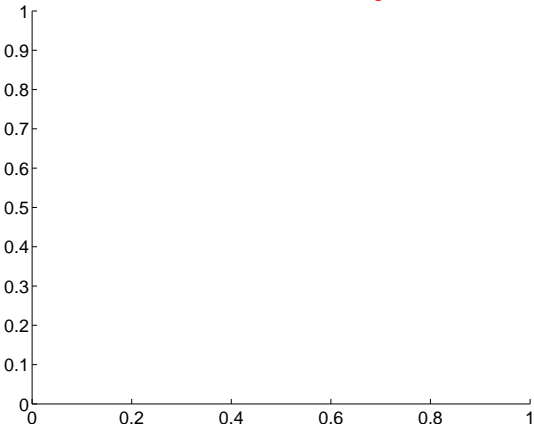
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.609 ± 0.349	1.75	0.599 ± 0.352	-0.110 ± 0.216
PRF-fit source offset from KIC position	0.600 ± 0.319	1.88	0.581 ± 0.325	-0.152 ± 0.229
photometric centroid source offset	0.50 ± 0.45	1.11	0.14 ± 0.41	-0.48 ± 0.45



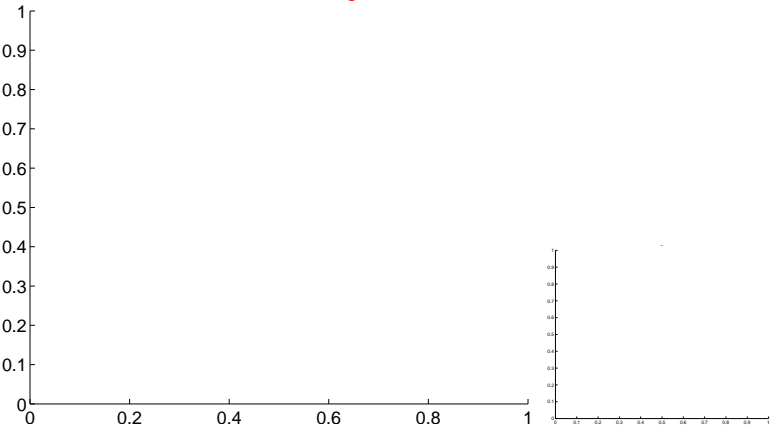
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

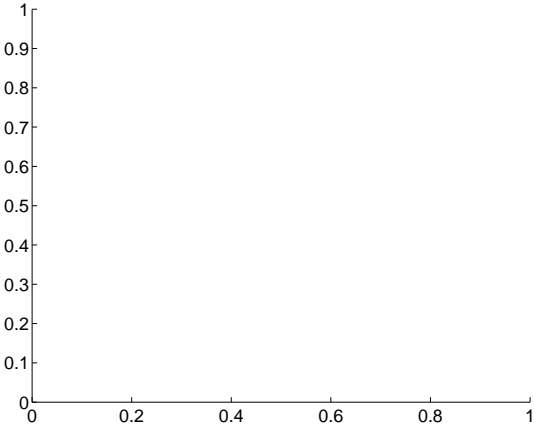
Q1 no difference image



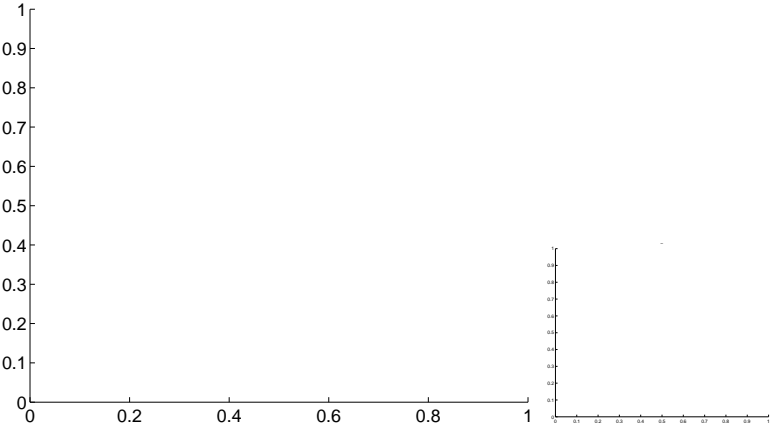
Q1 no OOT image



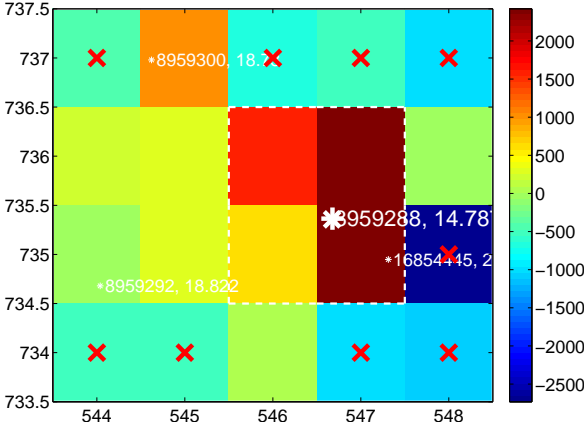
Q2 no difference image



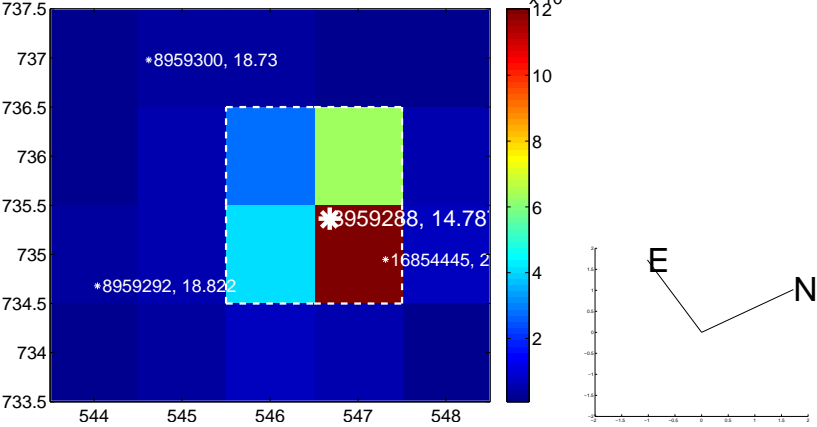
Q2 no OOT image



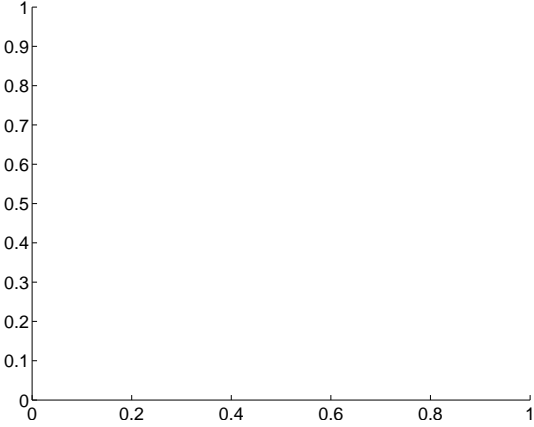
Q3 difference image. Poor Quality



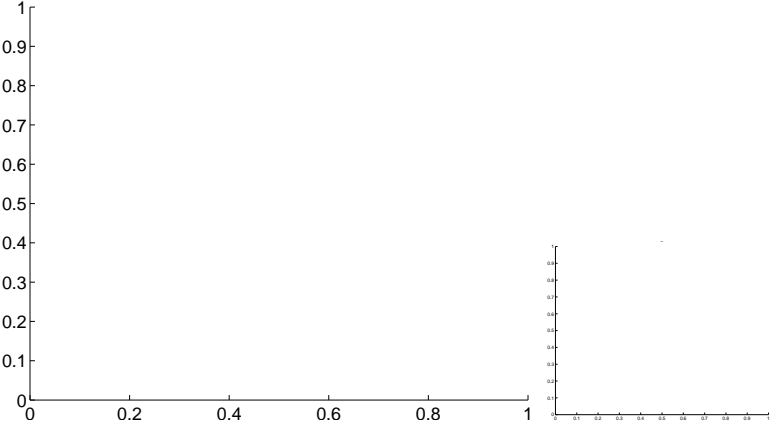
Q3 OOT image



Q4 no difference image



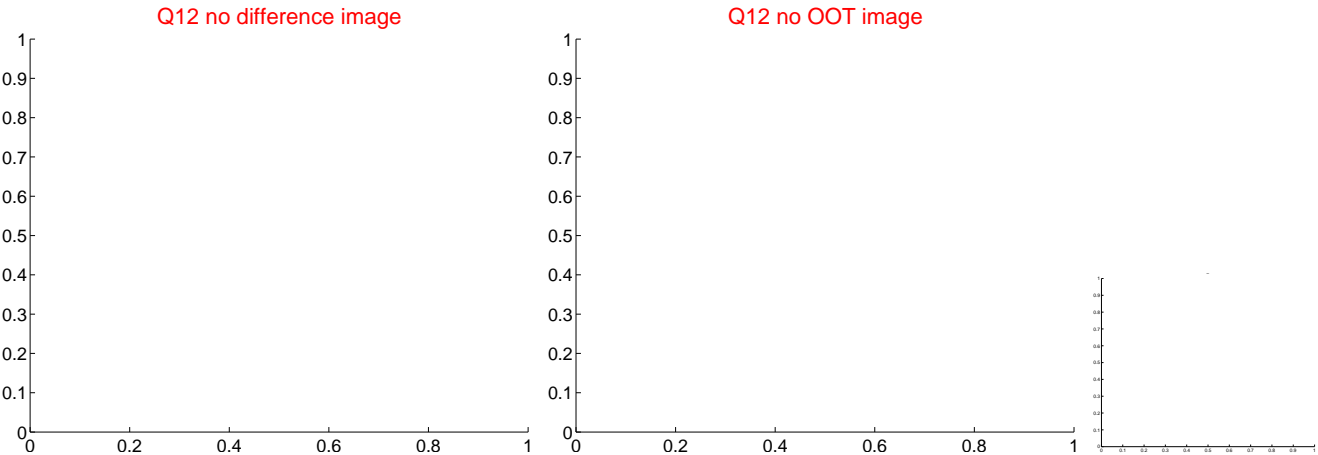
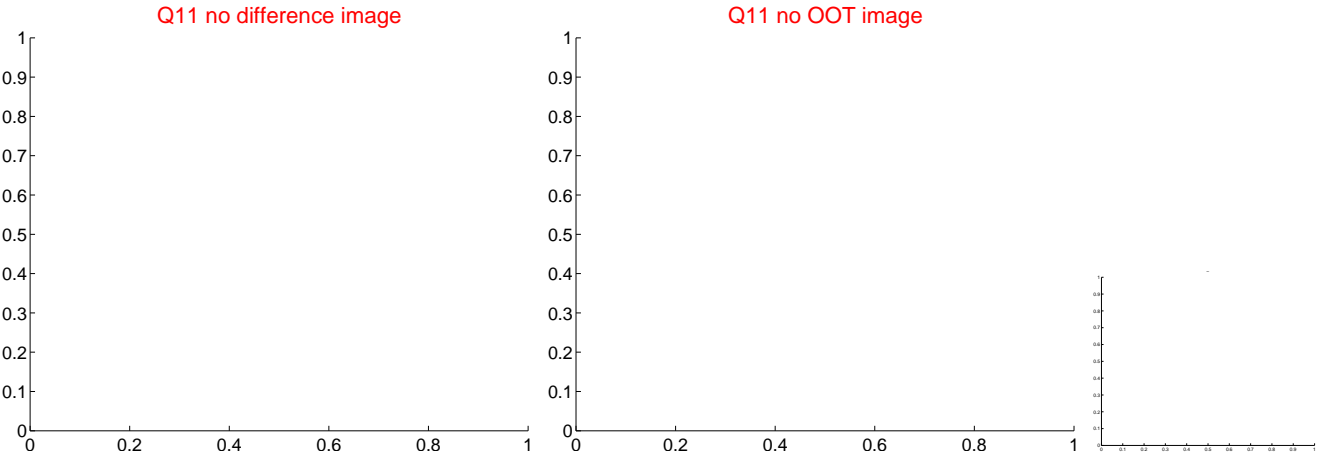
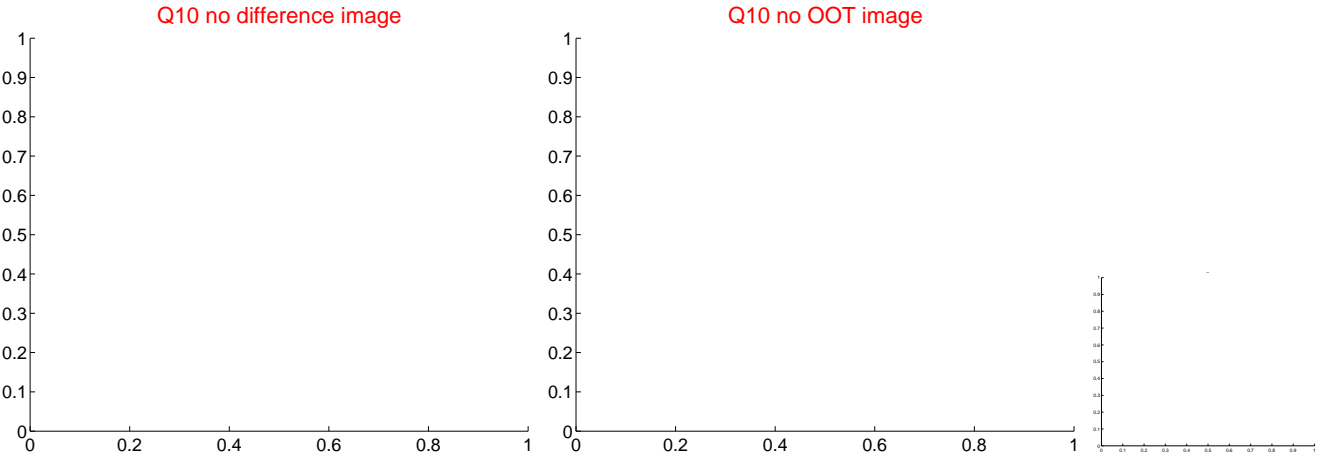
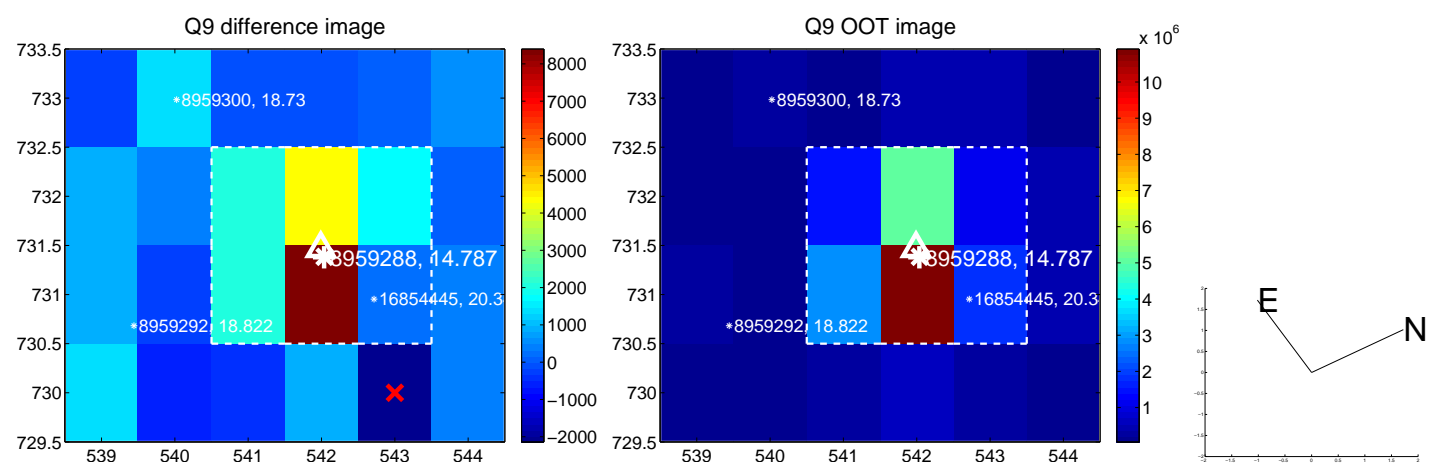
Q4 no OOT image



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

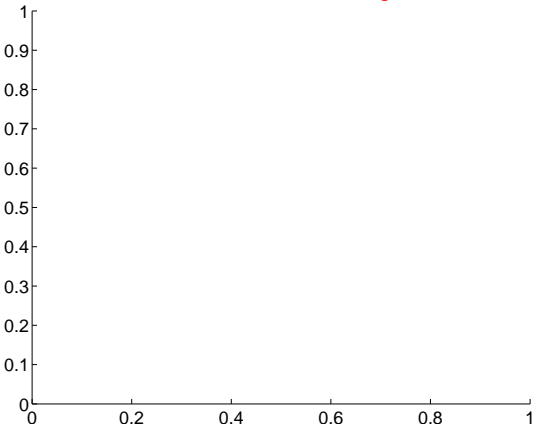


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

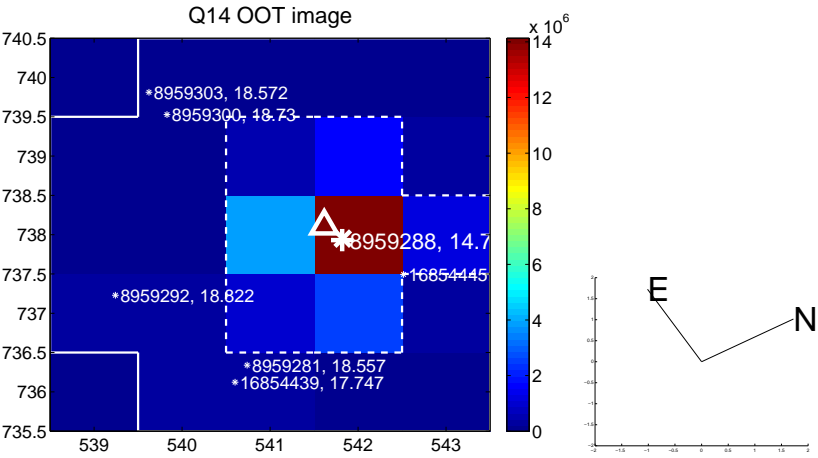
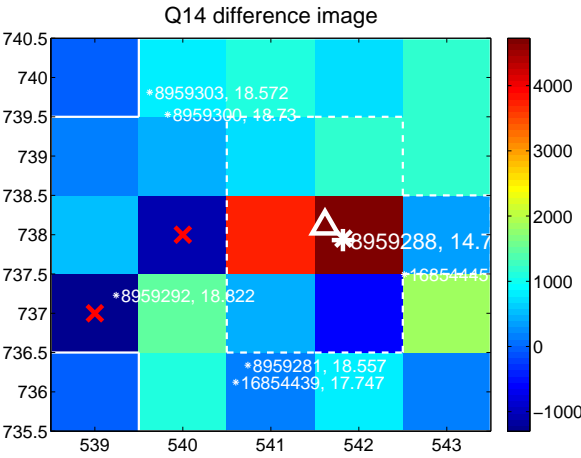
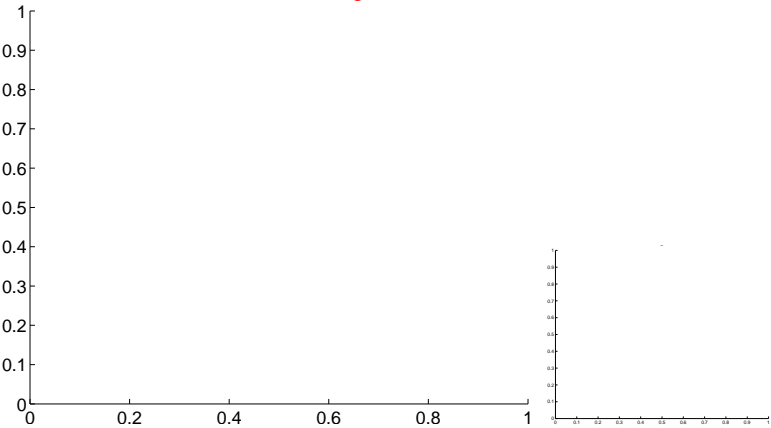


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

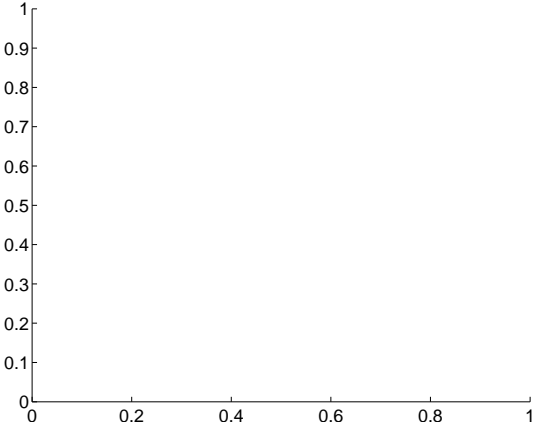
Q13 no difference image



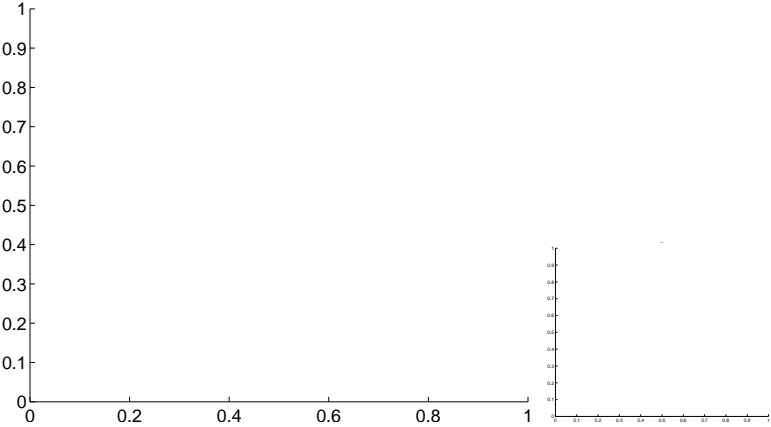
Q13 no OOT image



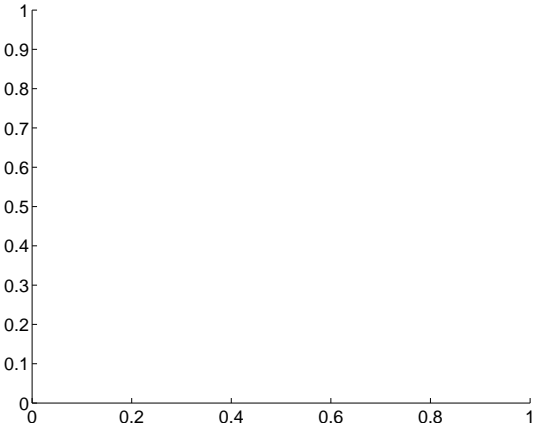
Q15 no difference image



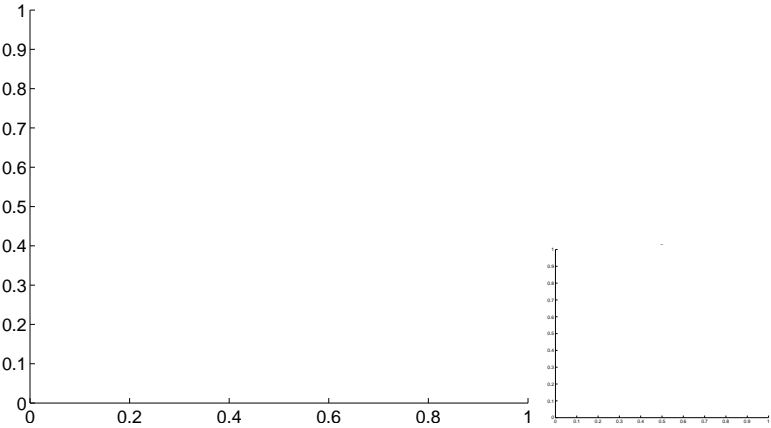
Q15 no OOT image



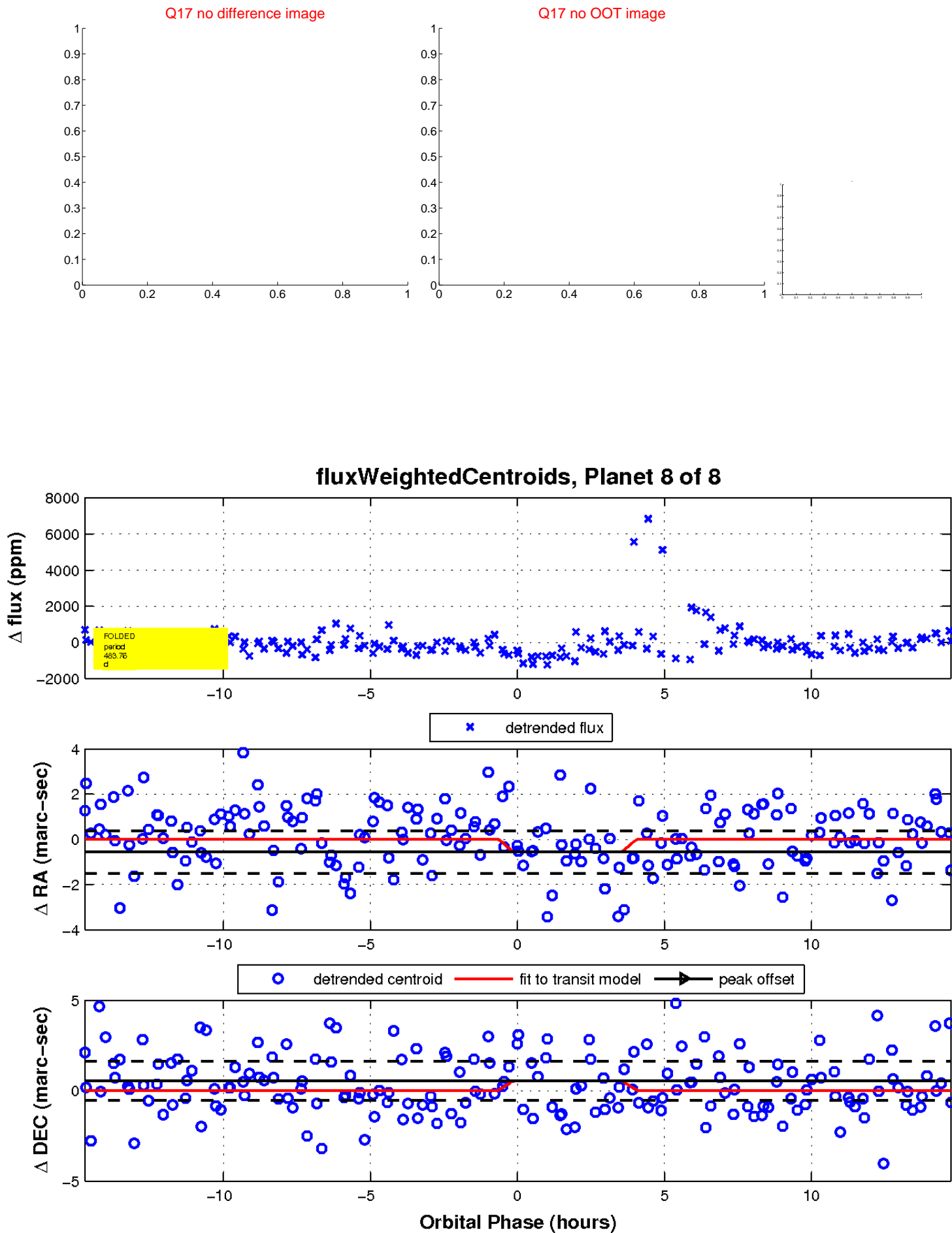
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

