

KIC 007198648

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})
007198648-01	OBS	6840.01	0.566797	131.686829	74.2	3.087	12.9	12.9	0.79	5488	0.73	3085.78
007198648-02	OBS	No	232.927077	262.613170	1829.3	18.755	10.4	5.7	0.79	5488	3.59	1.01
007198648-04	OBS	No	101.182219	142.538972	650.2	10.846	9.6	3.6	0.79	5488	2.21	3.07
007198648-05	OBS	No	96.941397	160.365096	718.4	10.353	11.0	4.2	0.79	5488	2.34	3.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007198648-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_KIC_POS—EPHEM_MATCH
007198648-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007198648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
007198648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET

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.

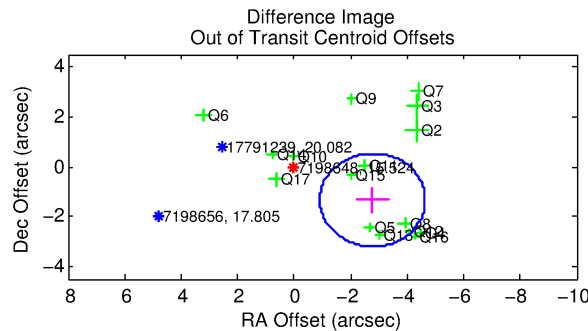
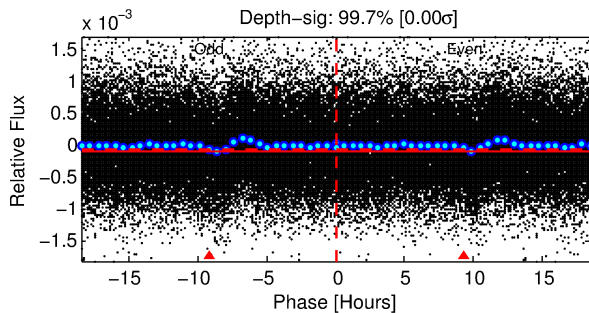
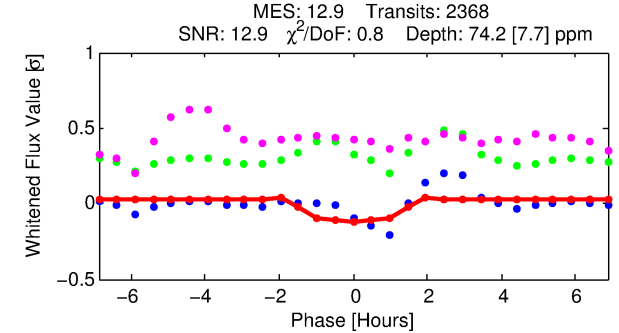
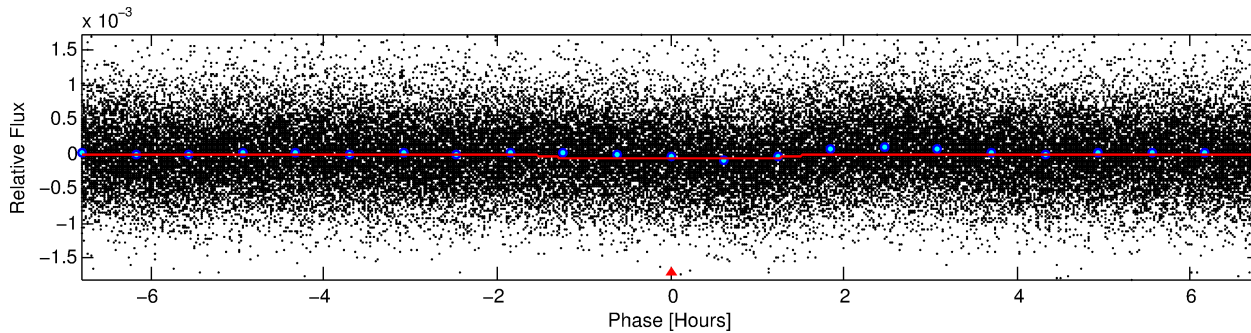
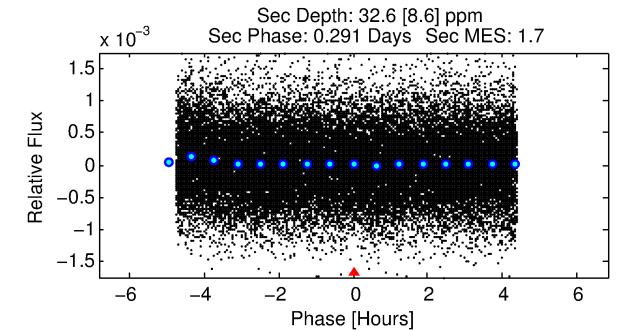
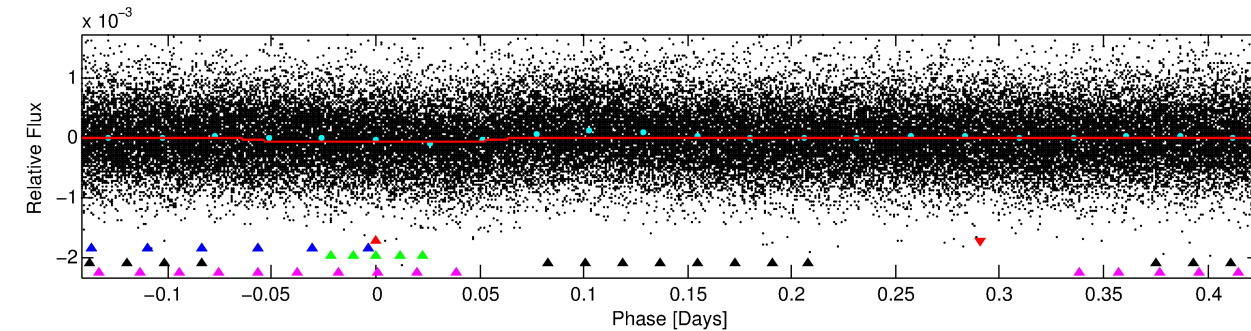
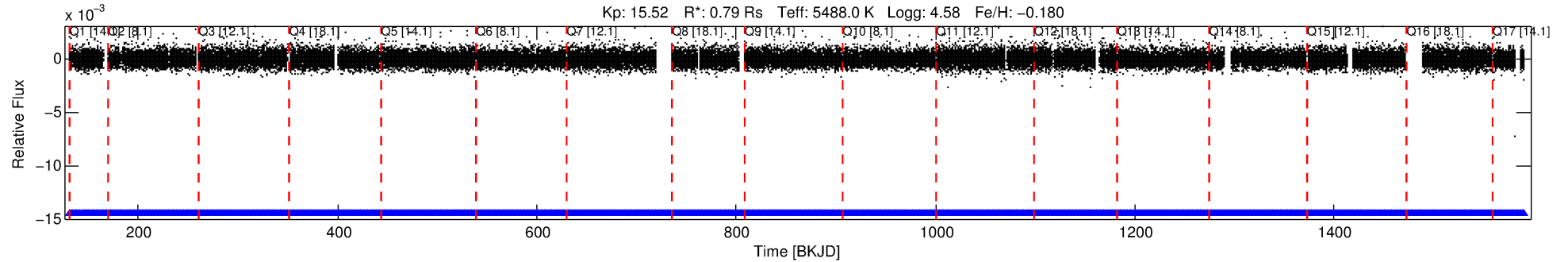
Ephemeris Match Information For 007198648-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist ($''$)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
007198648-01	7198648	RR-Lyr-pri	7198959	1:1	267.9	2	-68	7.86	15.52	8422.90	Direct-PRF	0	0.15	19.27

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7198648 Candidate: 1 of 5 Period: 0.567 d
KOI: K06840.01 Corr: 0.795



DV Fit Results:

Period = 0.56680 [0.00001] d
Epoch = 131.6868 [0.0024] BKJD
Rp/R* = 0.0084 [0.0060]
a/R* = 1.31 [1.60]
b = 0.70 [2.16]
Seff = 3085.78 [871.40]
Teff = 1900 [134] K
Rp = 0.73 [0.54] Re
a = 0.0128 [0.0022] AU
Ag = 5.58 [8.15] [0.56σ]
Teffp = 4516 [1633] K [1.60σ]

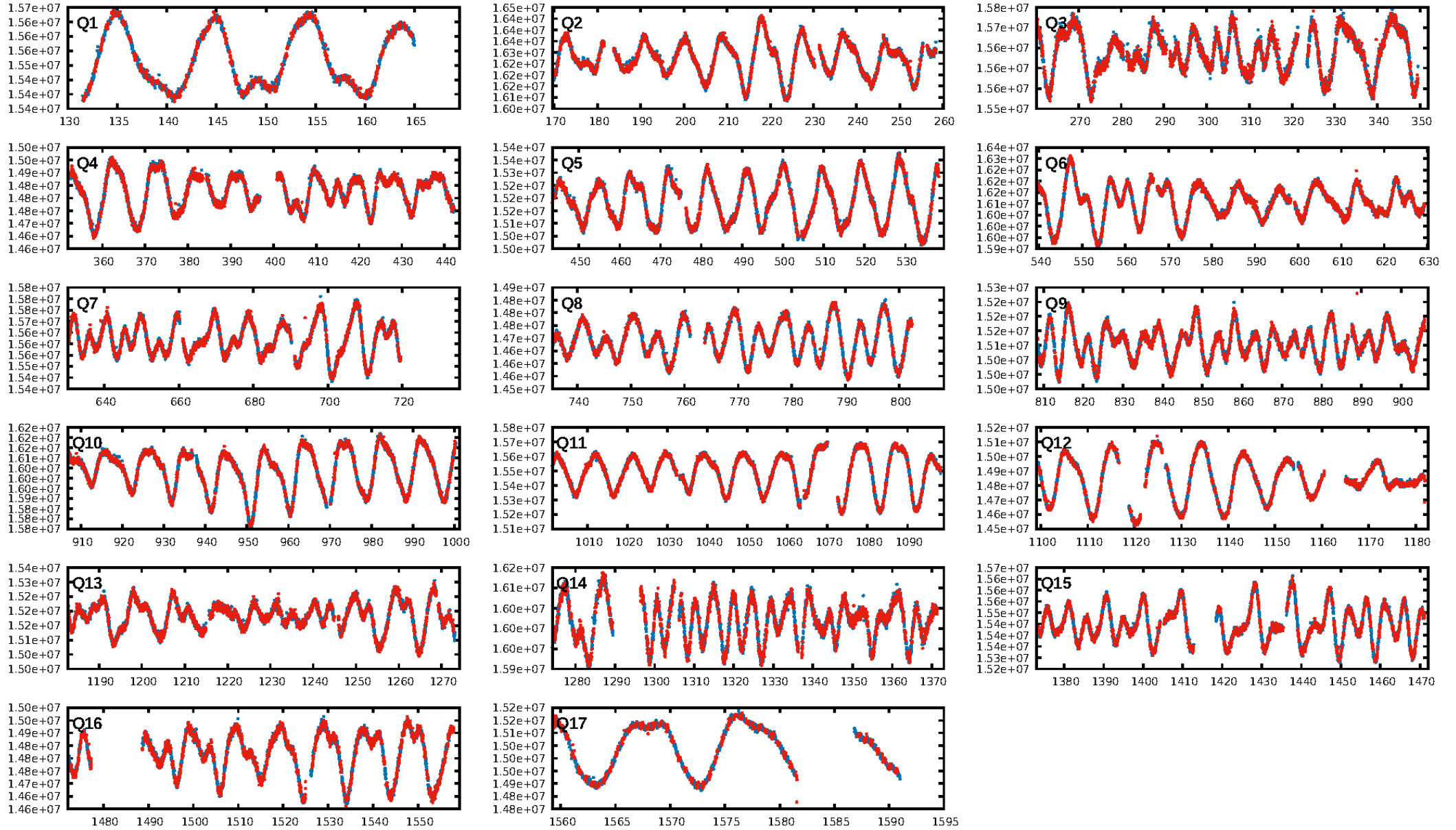
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [214.10σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.58e-34
RollingBand-fgt: 1.00 [2262/2262]
GhostDiagnostic-chr: -0.9736
Centroid-sig: 0.0%
Centroid-so: 1.657 arcsec [2.13σ]
OotOffset-rm: 3.079 arcsec [4.95σ]
KicOffset-rm: 2.834 arcsec [4.49σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.00 [0/16]
DiffImageOverlap-fno: 1.00 [17/17]

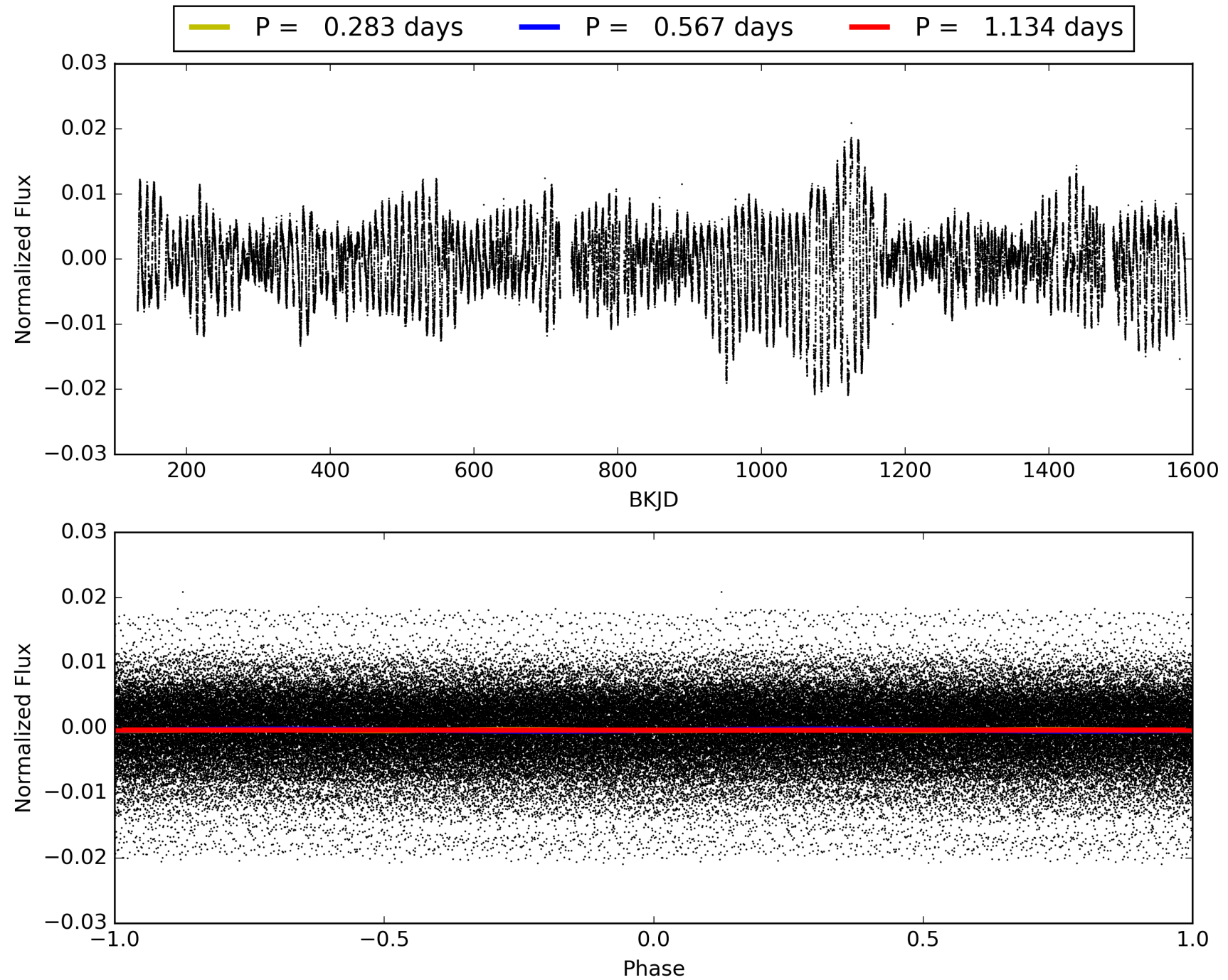
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:58:22 Z

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

TCE 007198648-01, PDC Light Curves

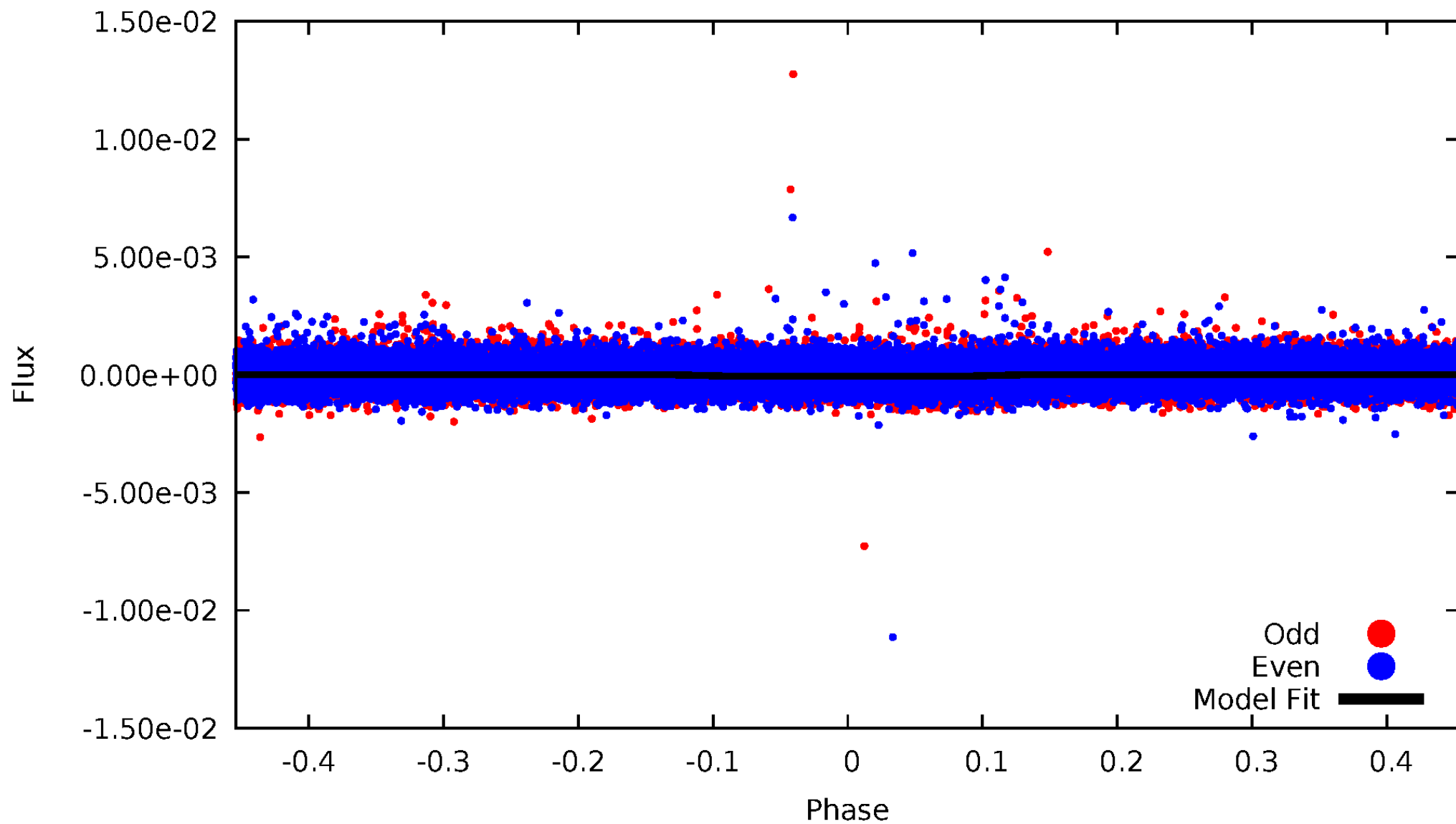


TCE 007198648-01



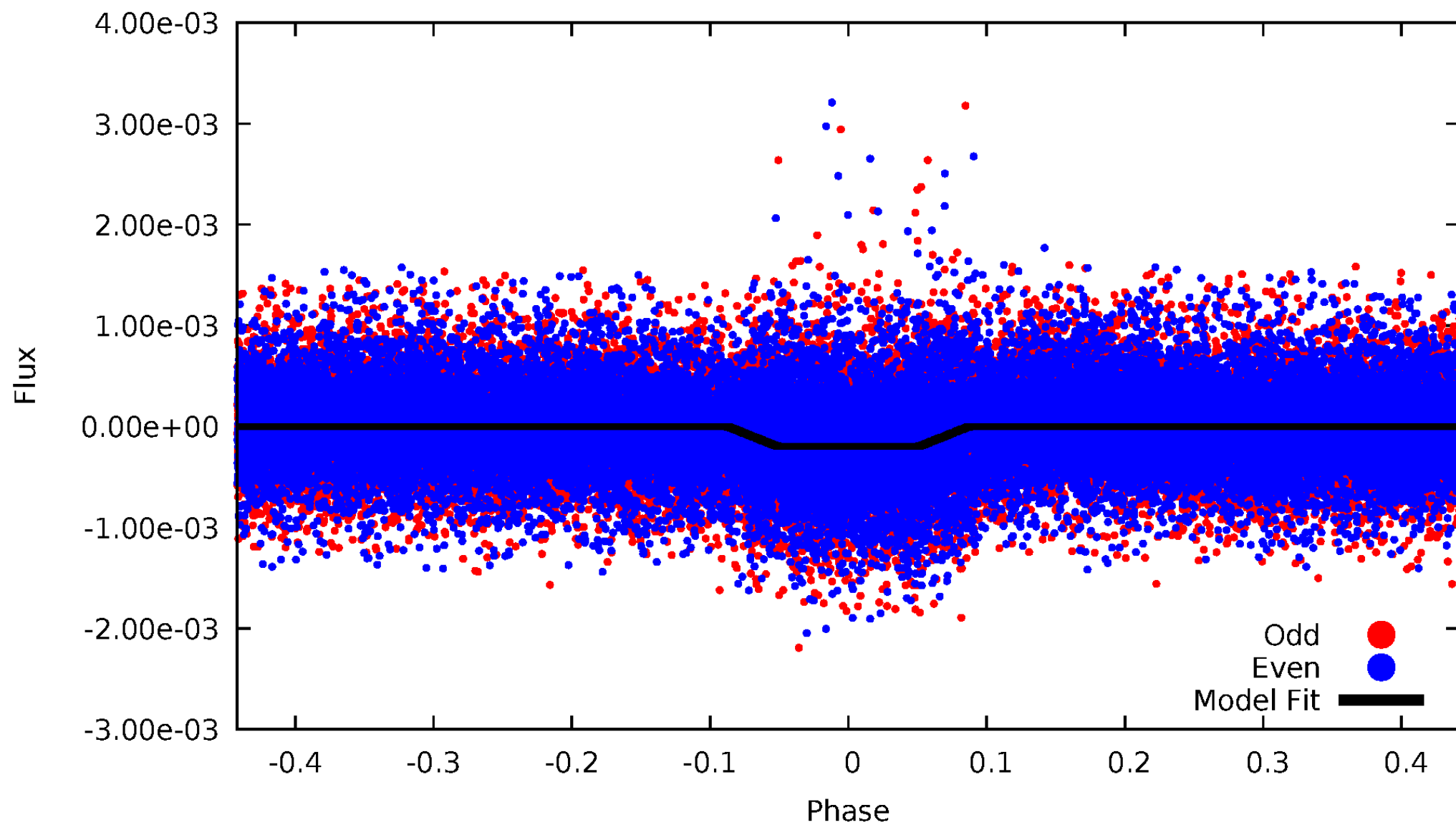
DV Odd/Even

TCE 007198648-01

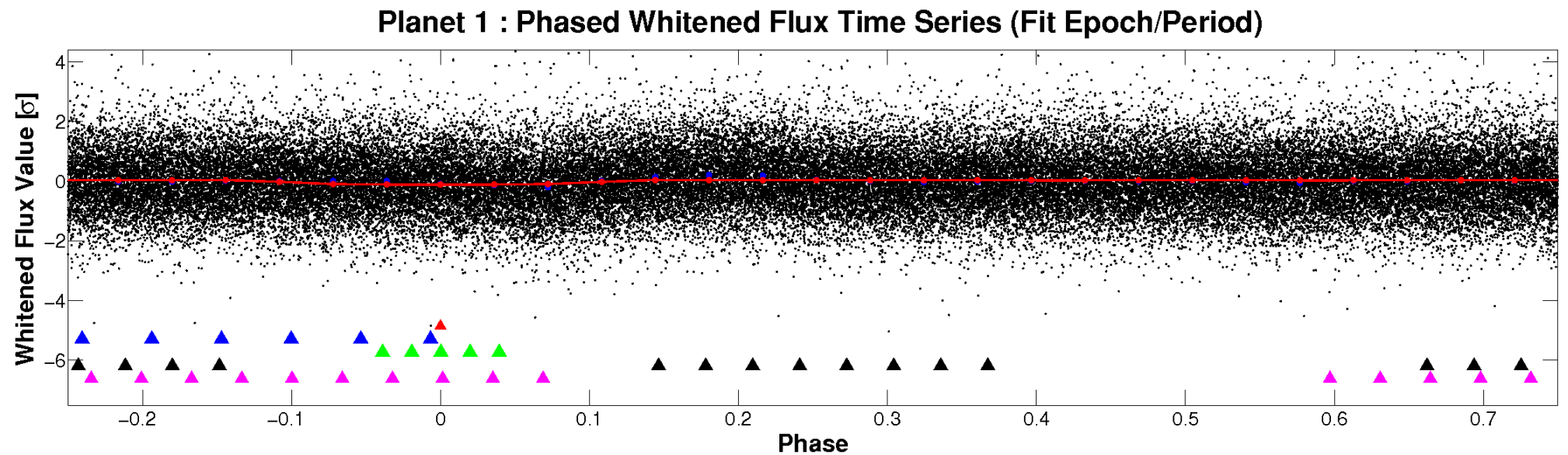
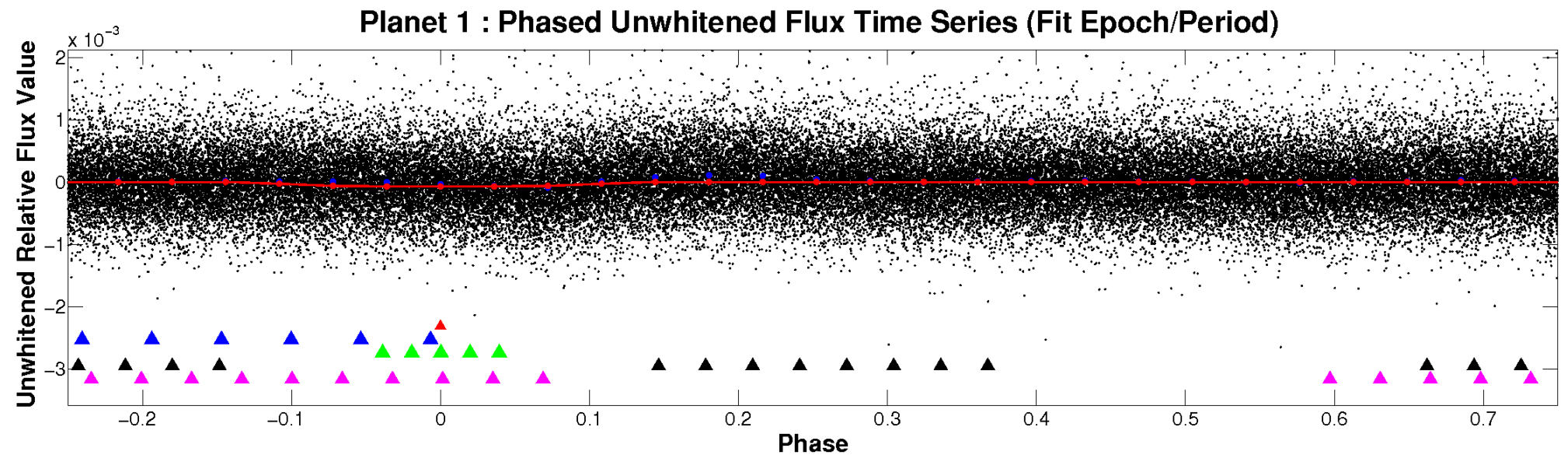


ALT Odd/Even

TCE 007198648-01

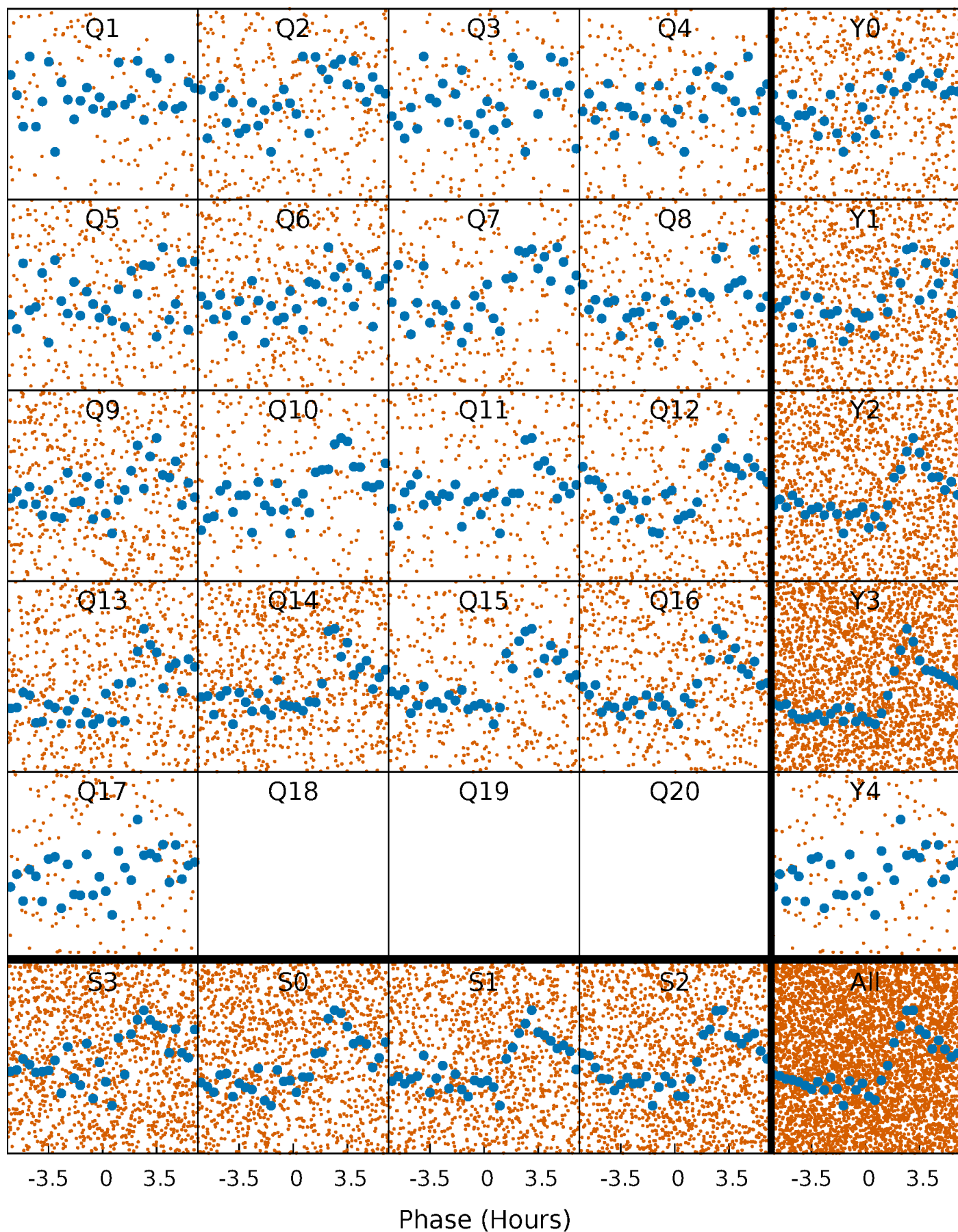


Non-Whitened Vs. Whitened Light Curve



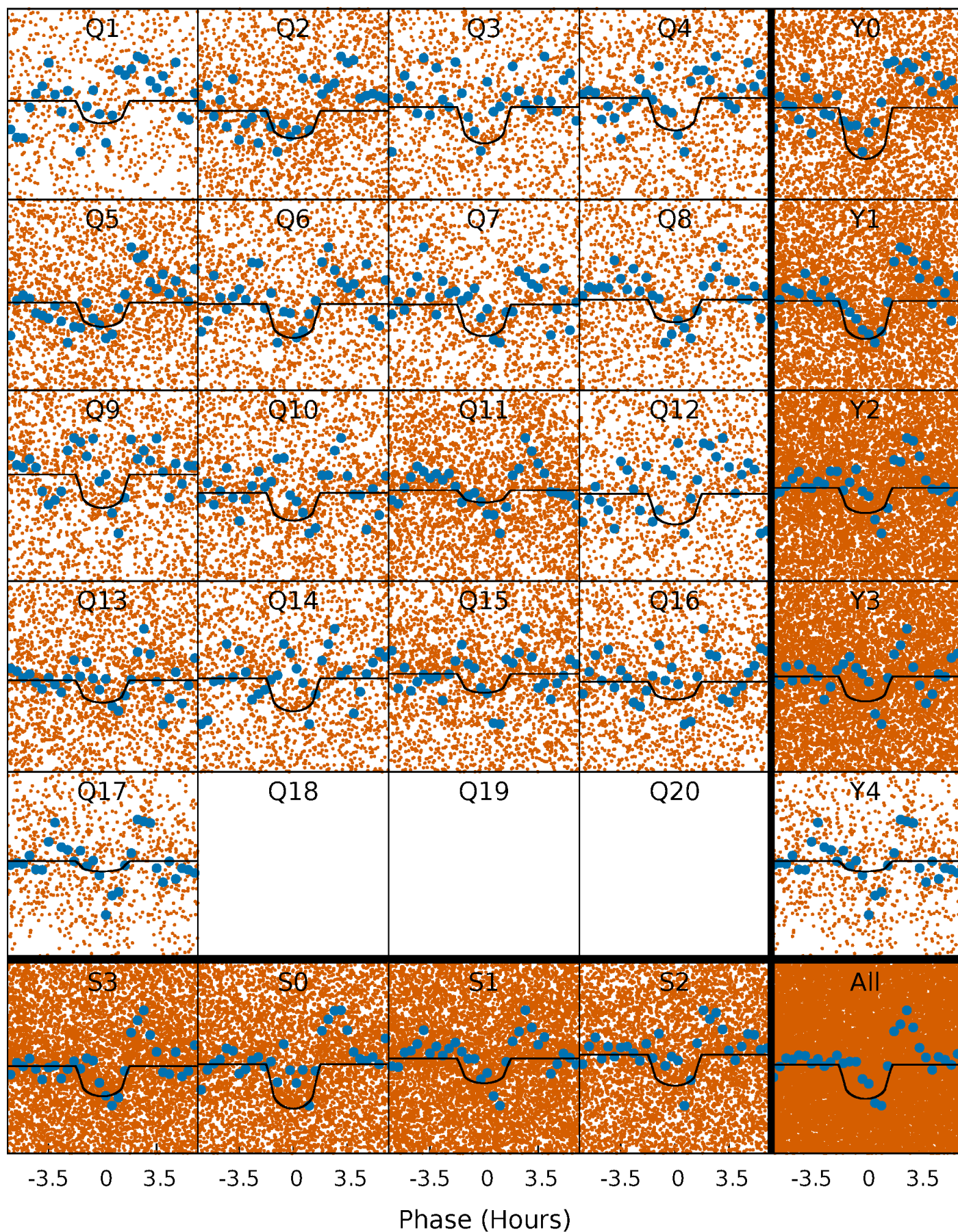
PDC Quarter-Phased Transit Curves

TCE 007198648-01 P= 0.566797 Days $T_0=131.686829$ (BKJD)



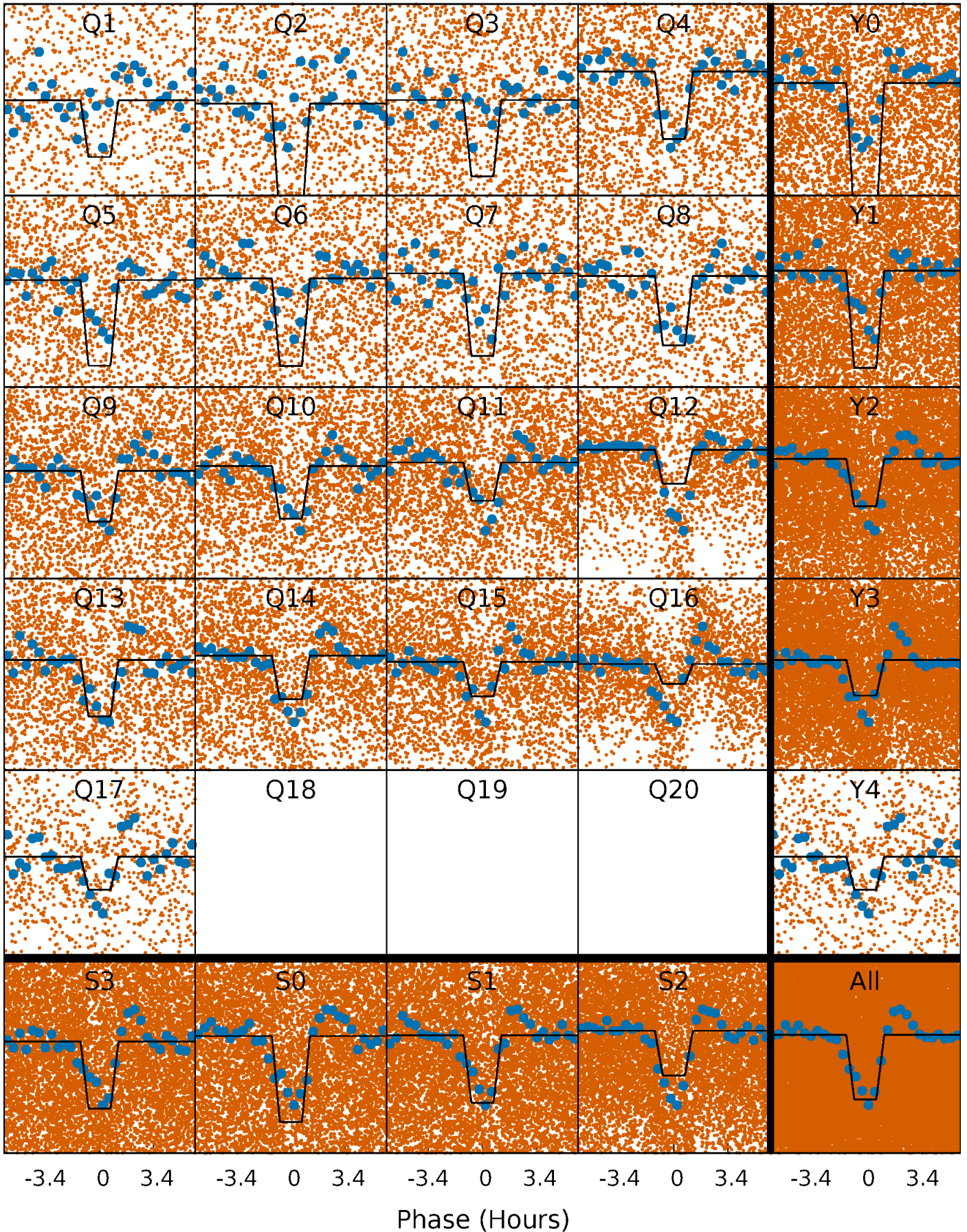
DV Quarter-Phased Transit Curves

TCE 007198648-01 P= 0.566797 Days $T_0=131.686829$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

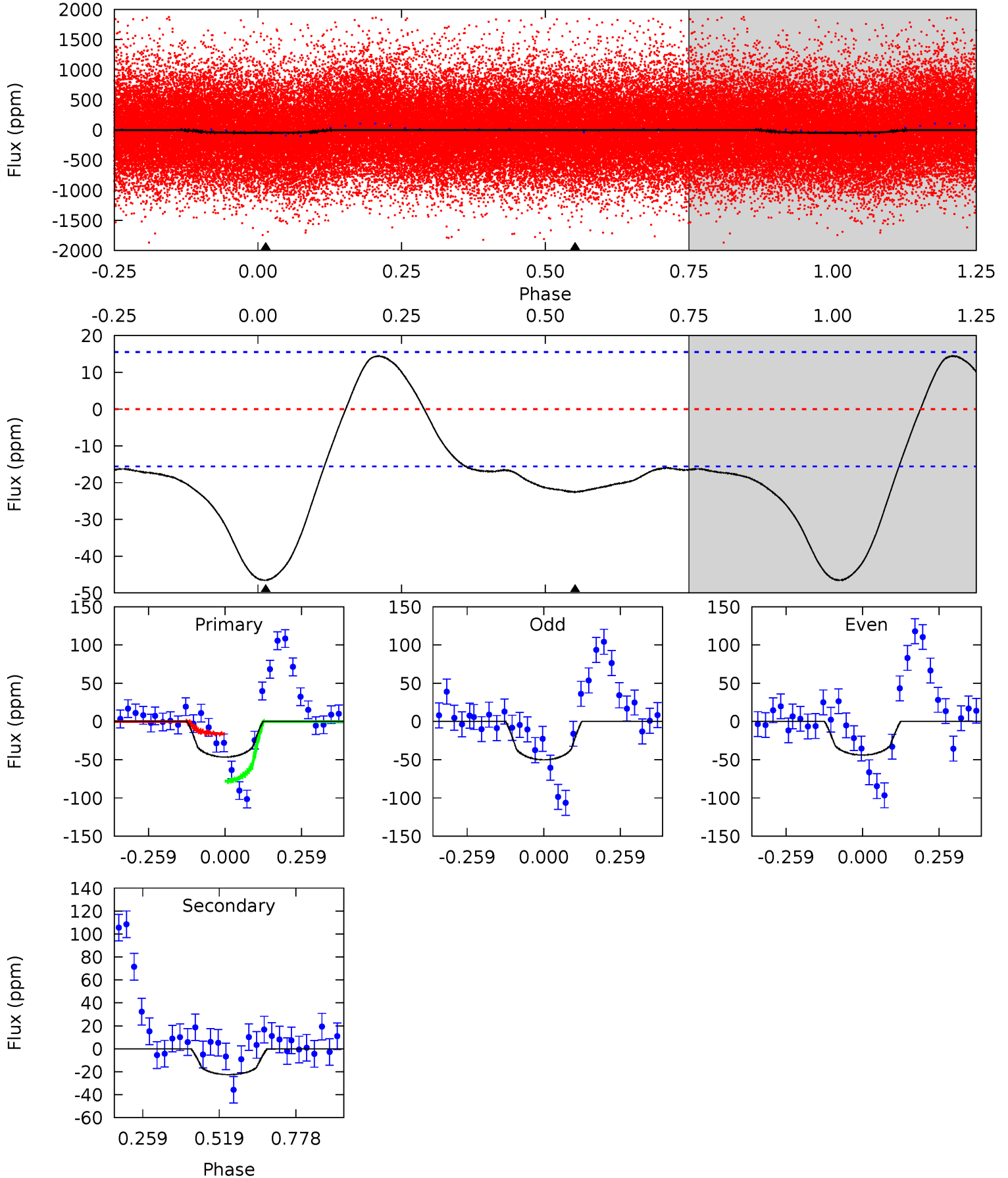
TCE 007198648-01 P= 0.566808 Days $T_0=131.690675$ (BKJD)



DV Model-Shift Uniqueness Test

007198648-01, P = 0.566797 Days, E = 131.120032 Days

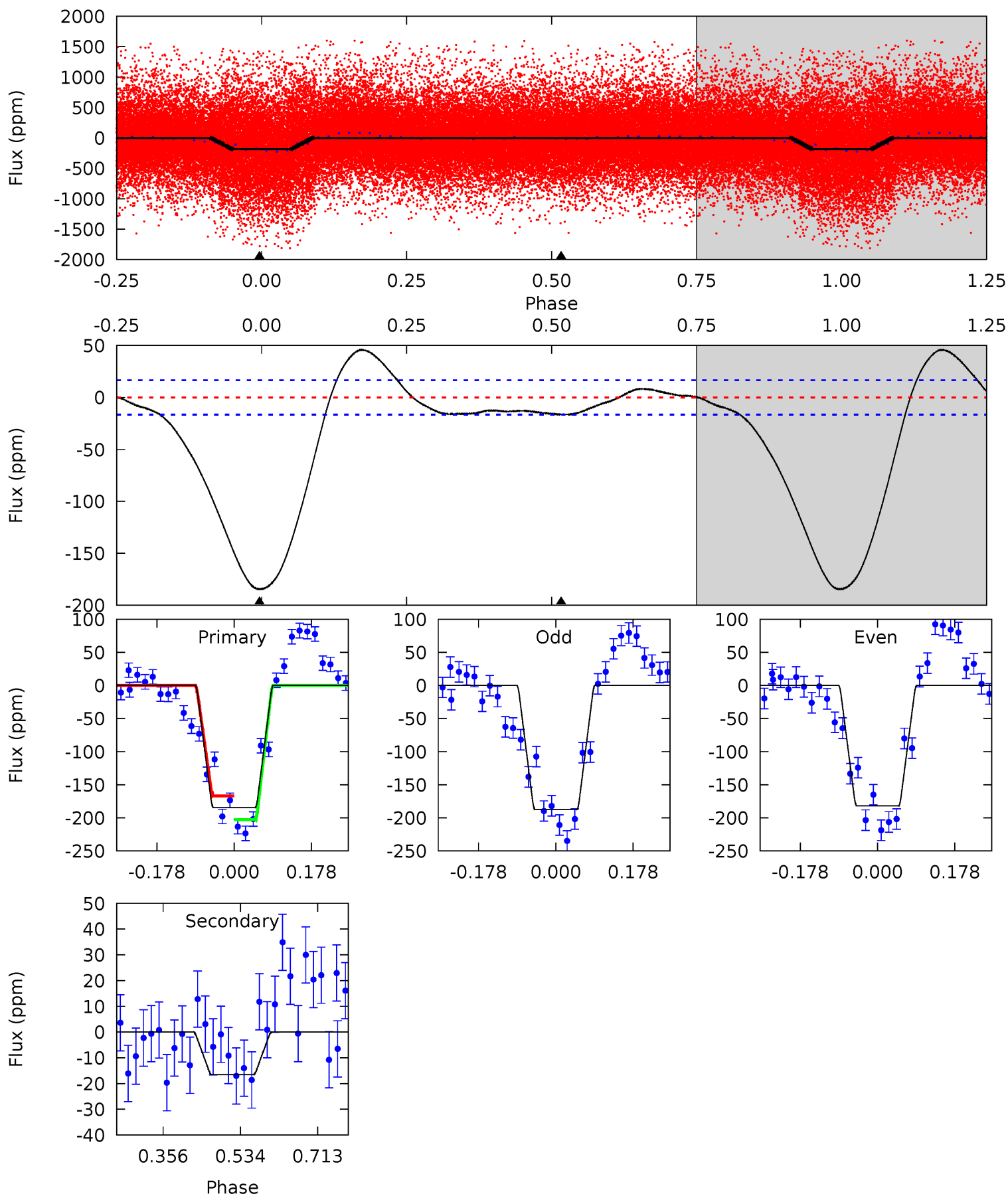
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	6.32	0	0	4.36	1.13	2.49	13.1	13.1	6.32	6.32	0.88	0.86	0.24	8.67



Alt Model-Shift Uniqueness Test

007198648-01, P = 0.566808 Days, E = 131.123867 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.5	4.44	0	0	4.44	1.35	4.72	49.5	49.5	4.44	4.44	0.74	1.04	0.20	4.80



Stellar Parameters For KIC 007198648

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5488^{+182}_{-182}	$4.584^{+0.036}_{-0.135}$	$-0.180^{+0.300}_{-0.300}$	$0.789^{+0.164}_{-0.070}$	$0.877^{+0.083}_{-0.102}$	$2.514^{+0.451}_{-0.978}$
	+3%/-3%	+1%/-3%	+167%/-167%	+21%/-9%	+9%/-12%	+18%/-39%
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 007198648-01 / KOI 6840.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-23 ± 4	$0.81^{+0.50}_{-0.43}$	2711^{+141}_{-130}	4119^{+1813}_{-720}	$3.013^{+11.049}_{-1.846}$
Alt.	-17 ± 4	$1.27^{+0.53}_{-0.50}$	2708^{+136}_{-125}	3223^{+758}_{-667}	$0.902^{+1.637}_{-0.486}$

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

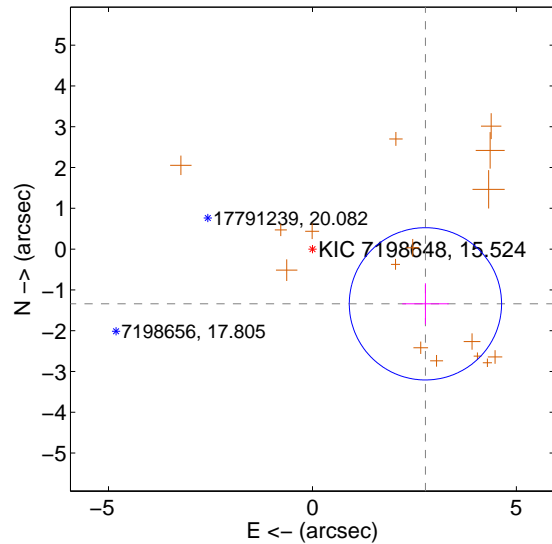
Supplemental centroid analysis for 007198648-01. Kepler magnitude: 15.52. Transit SNR 12.90

There are 0 quarters with good PRF difference image offsets

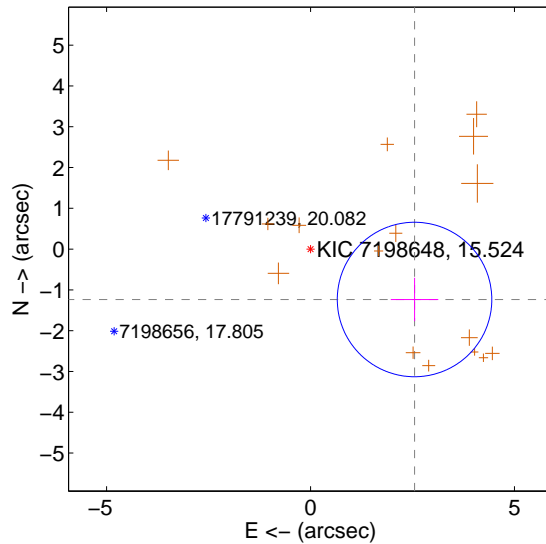
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.079 ± 0.622	4.95	-2.771 ± 0.569	-1.342 ± 0.503
PRF-fit source offset from KIC position	2.834 ± 0.631	4.49	-2.551 ± 0.583	-1.236 ± 0.532
photometric centroid source offset	1.66 ± 0.78	2.13	-1.42 ± 0.76	-0.85 ± 0.83

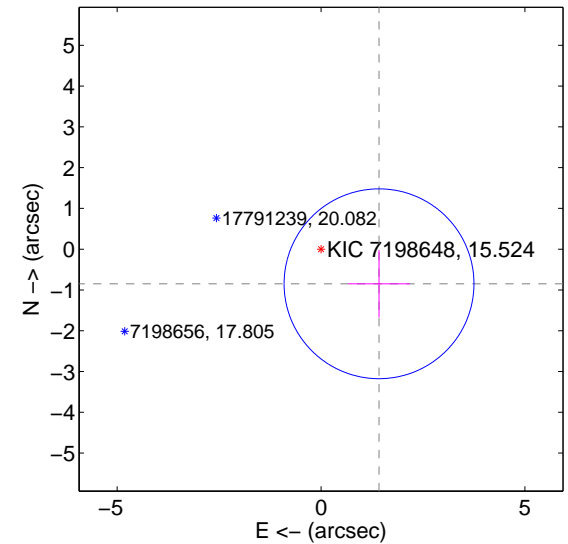
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

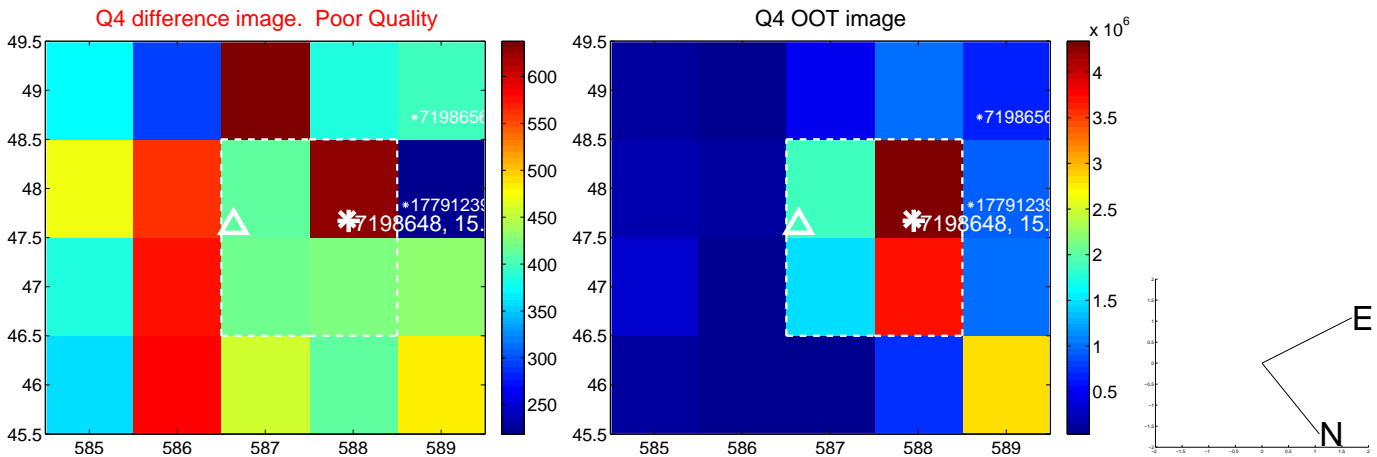
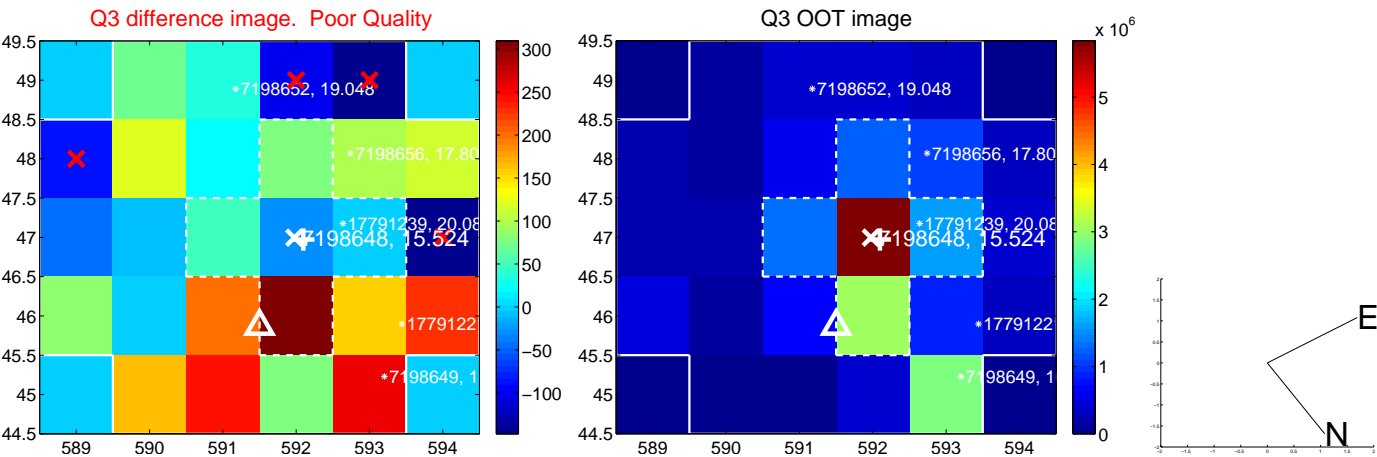
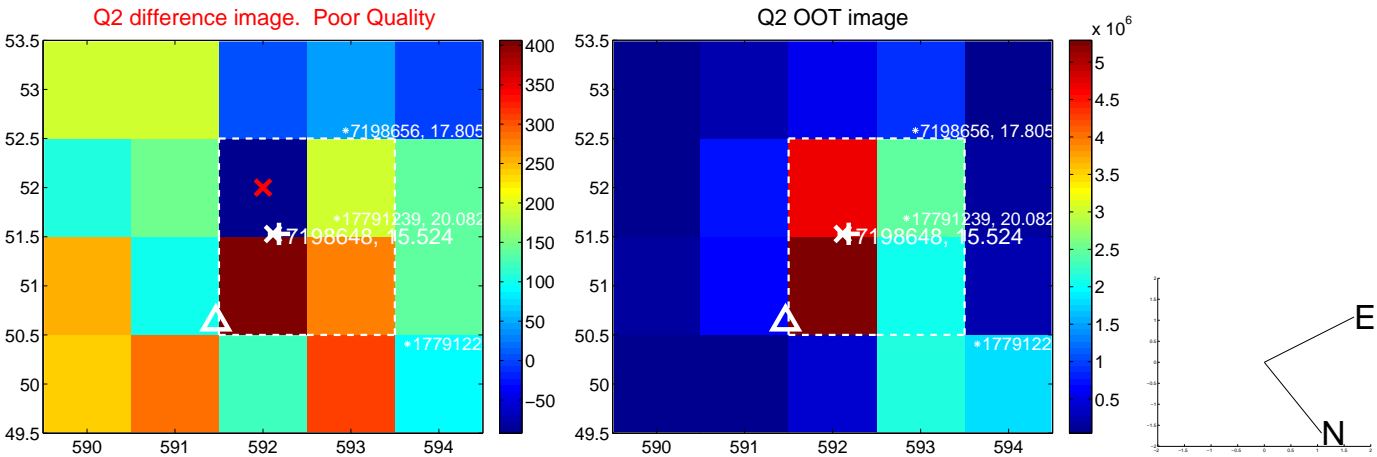
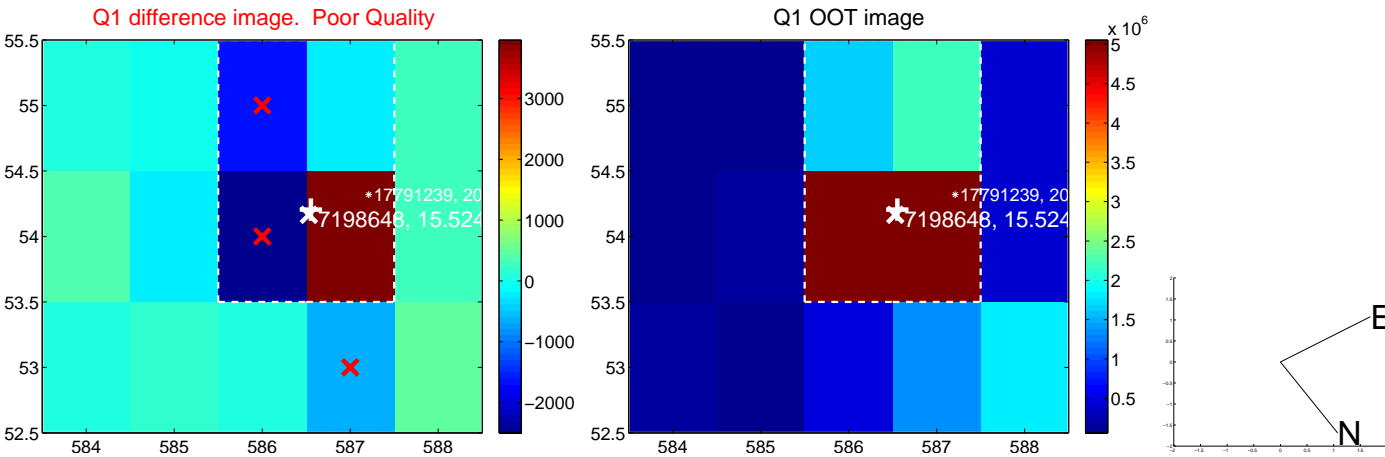


offset from photometric centroids

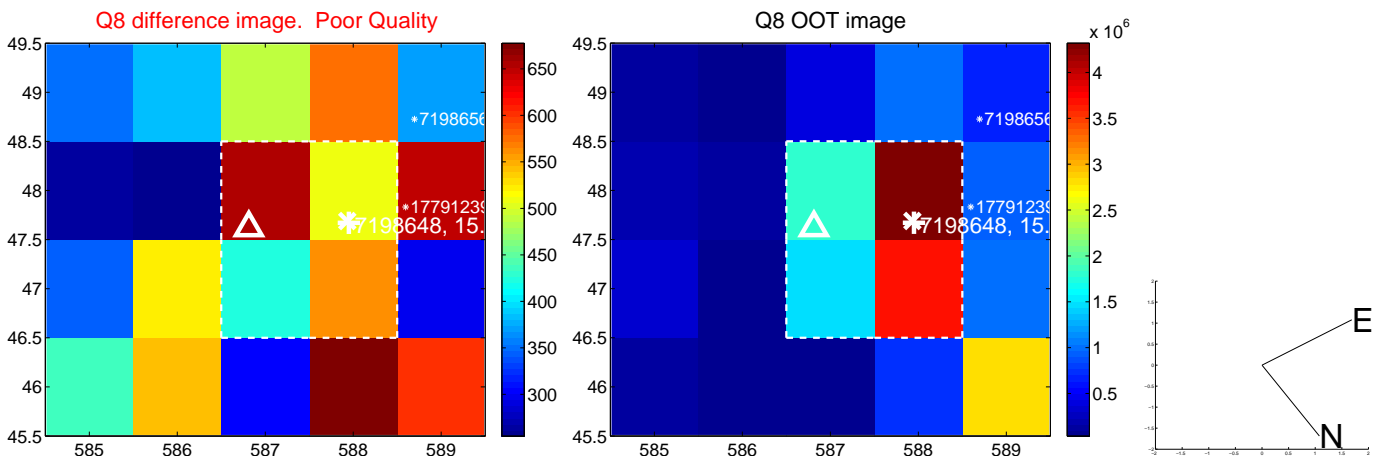
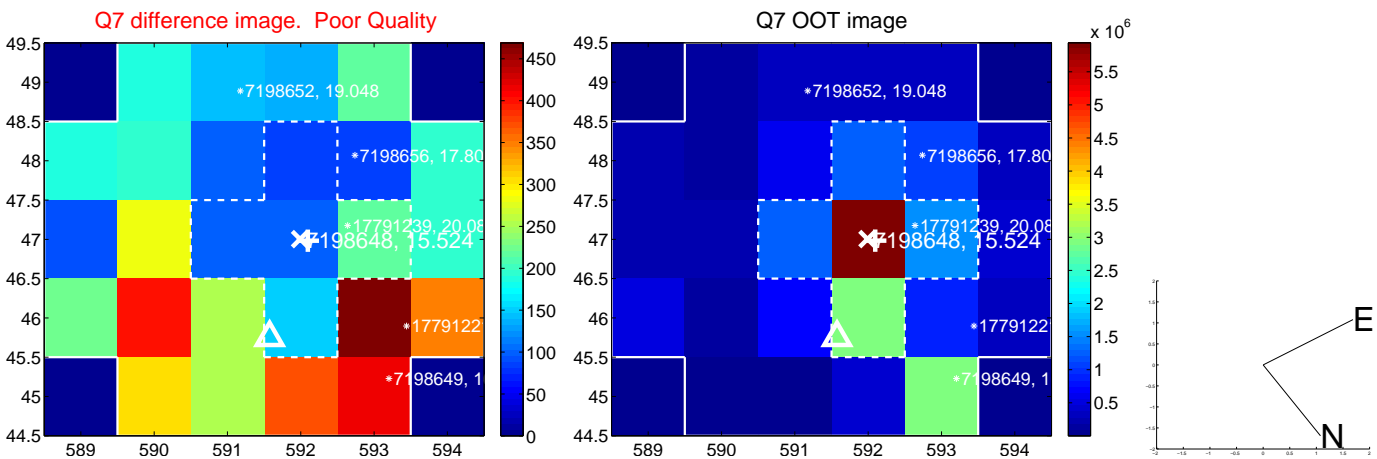
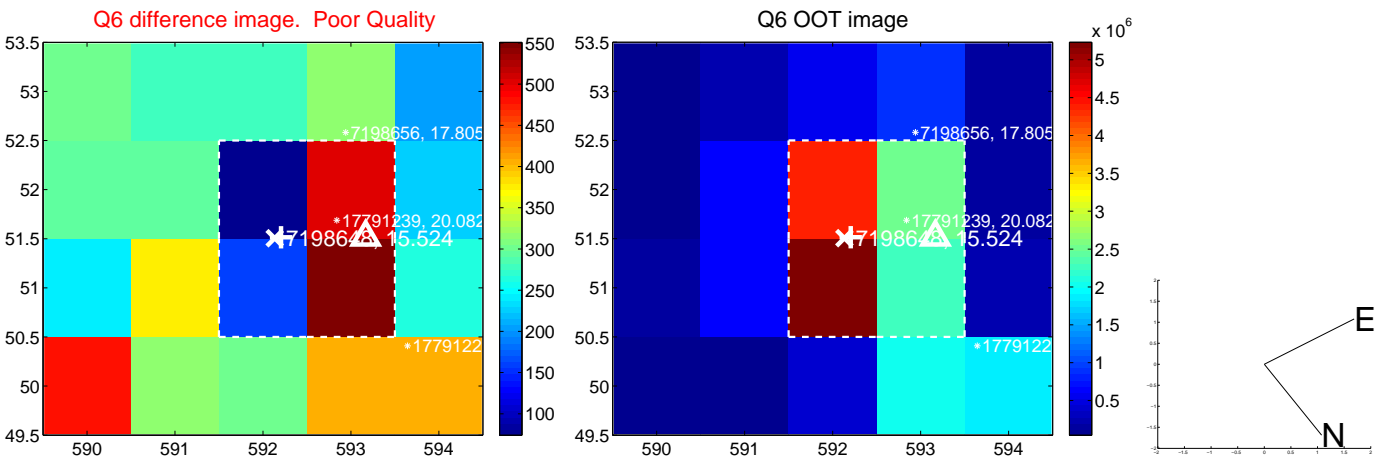
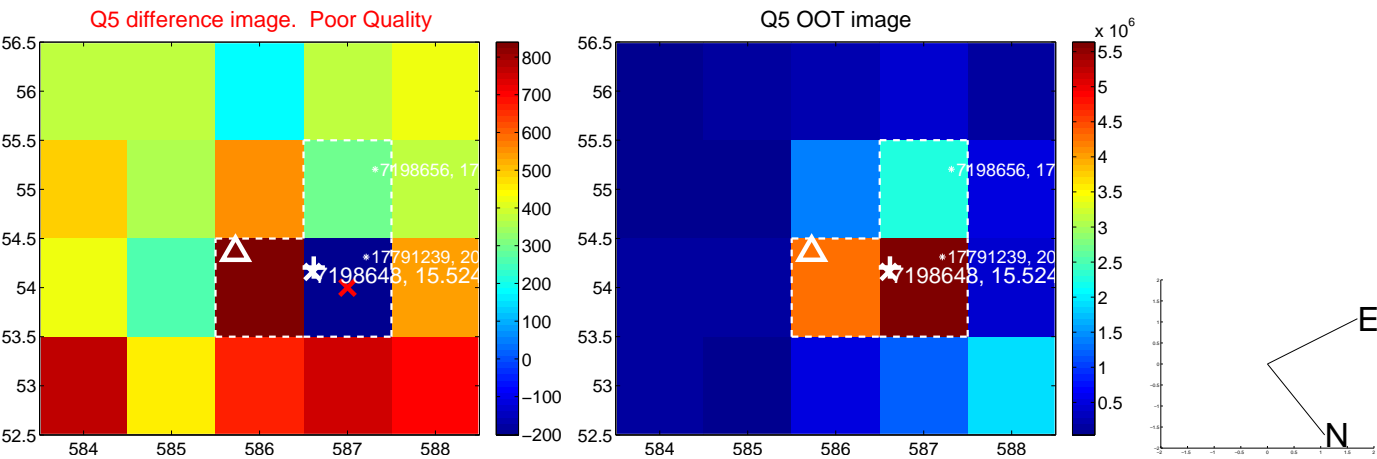


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

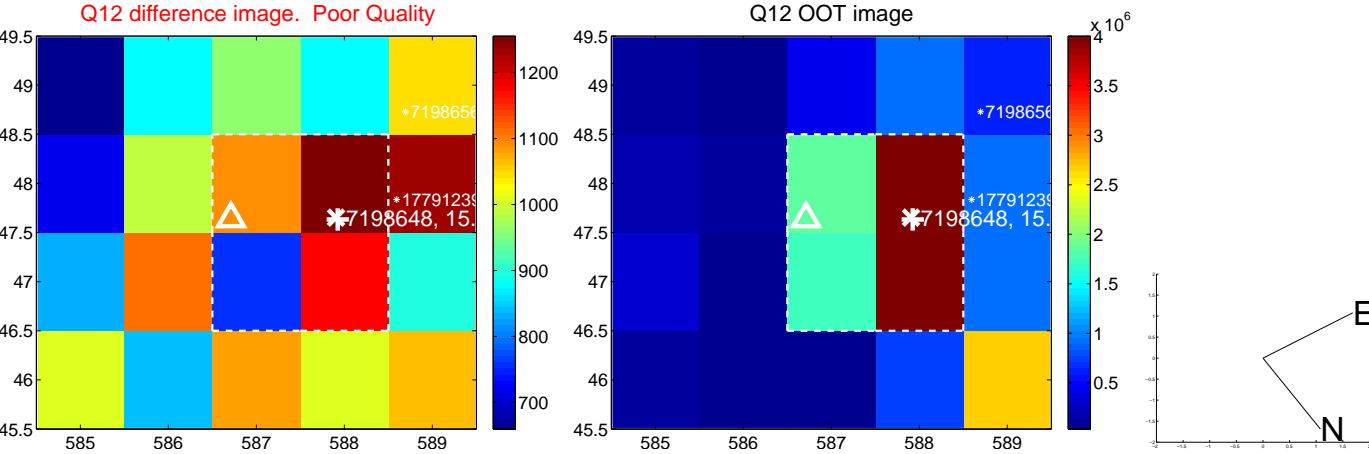
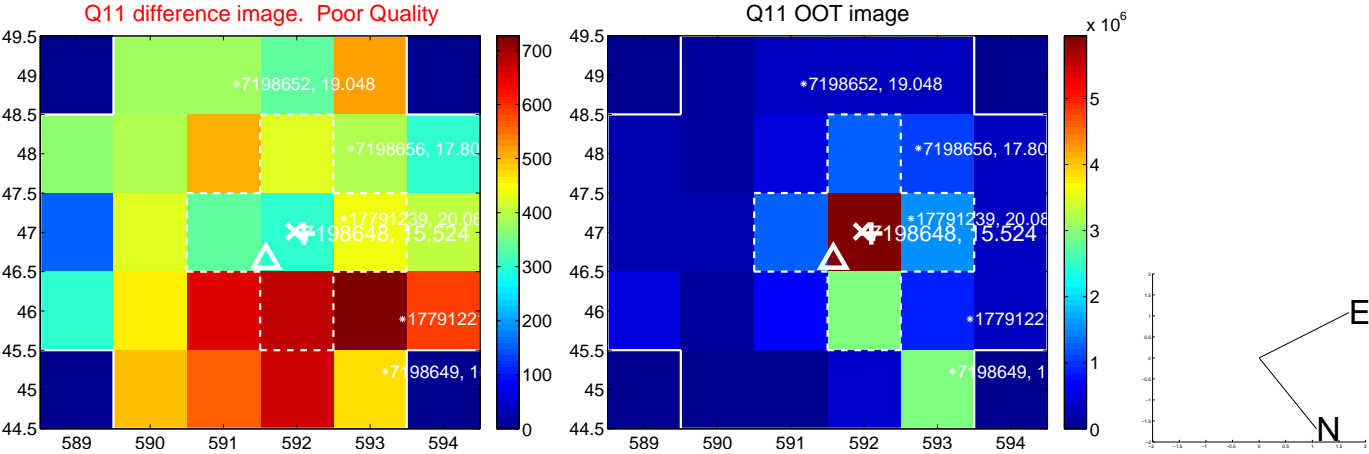
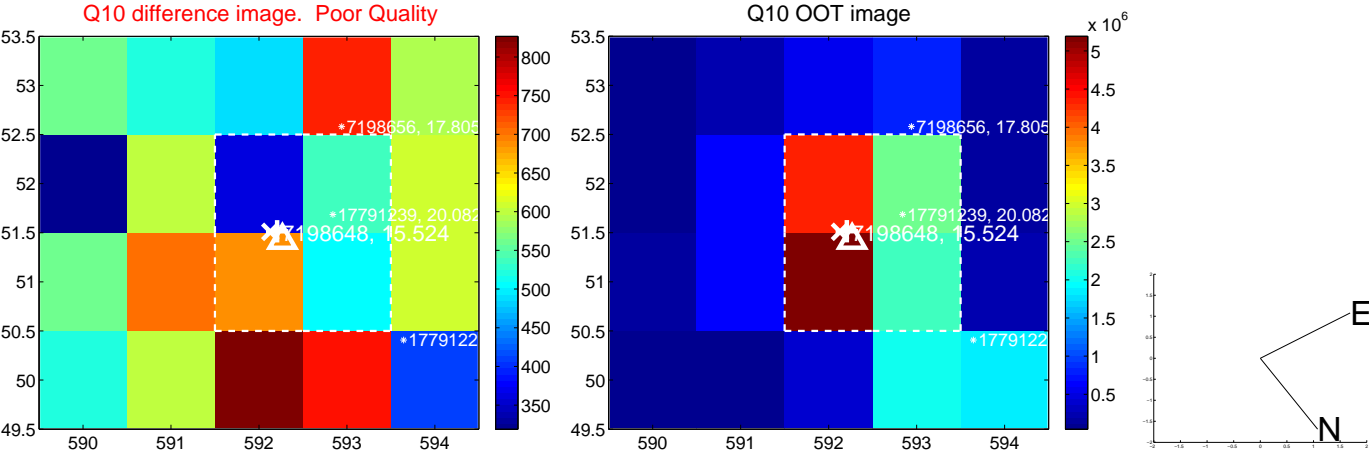
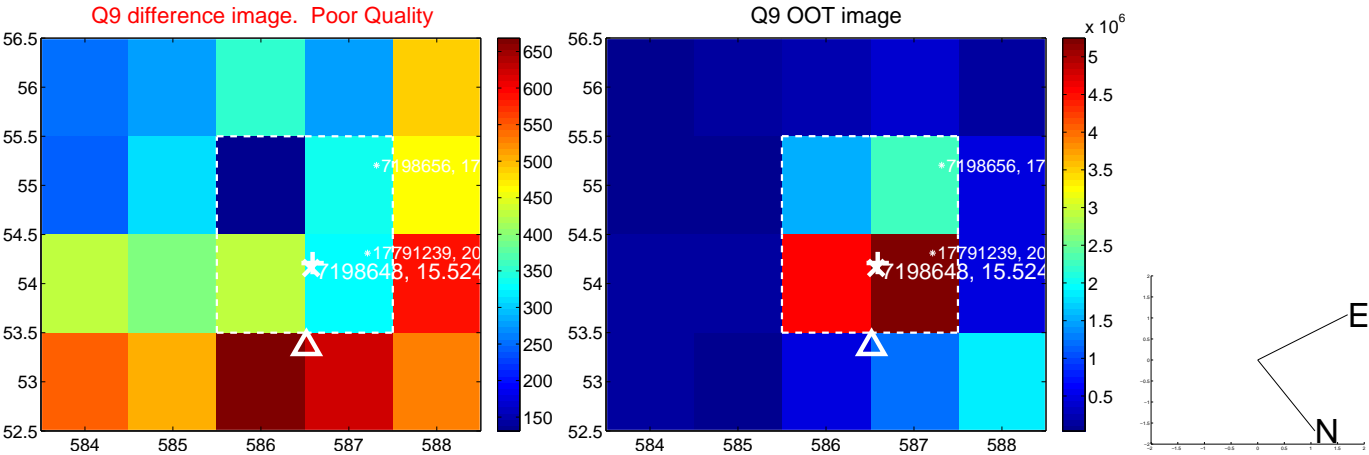
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



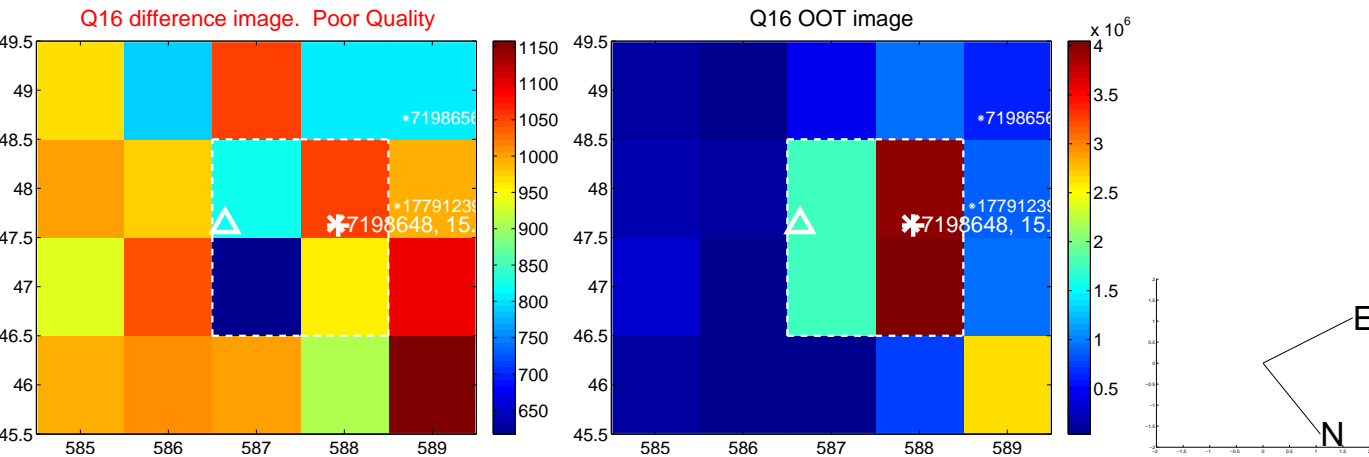
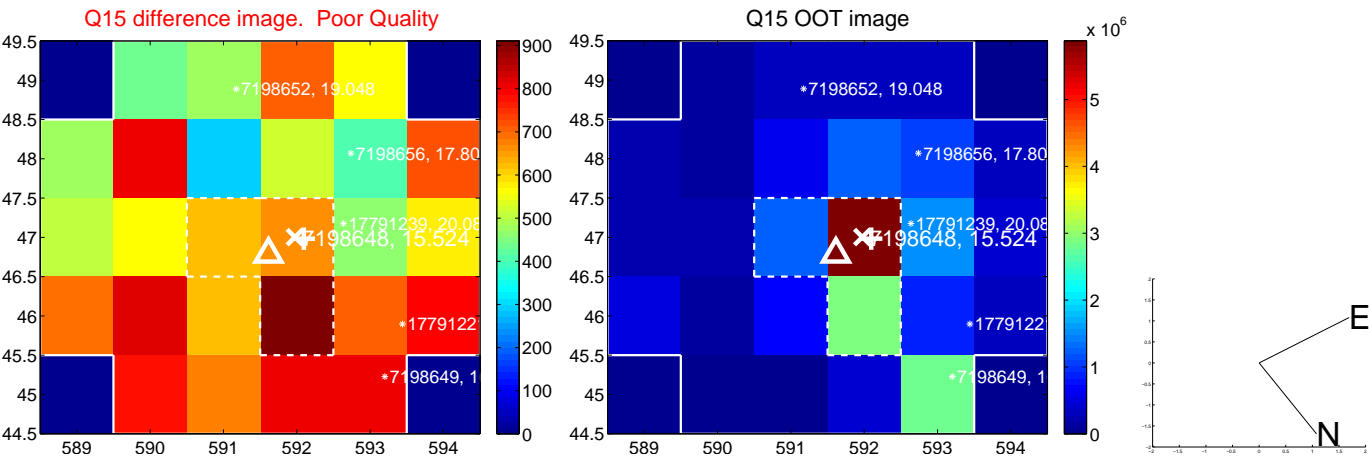
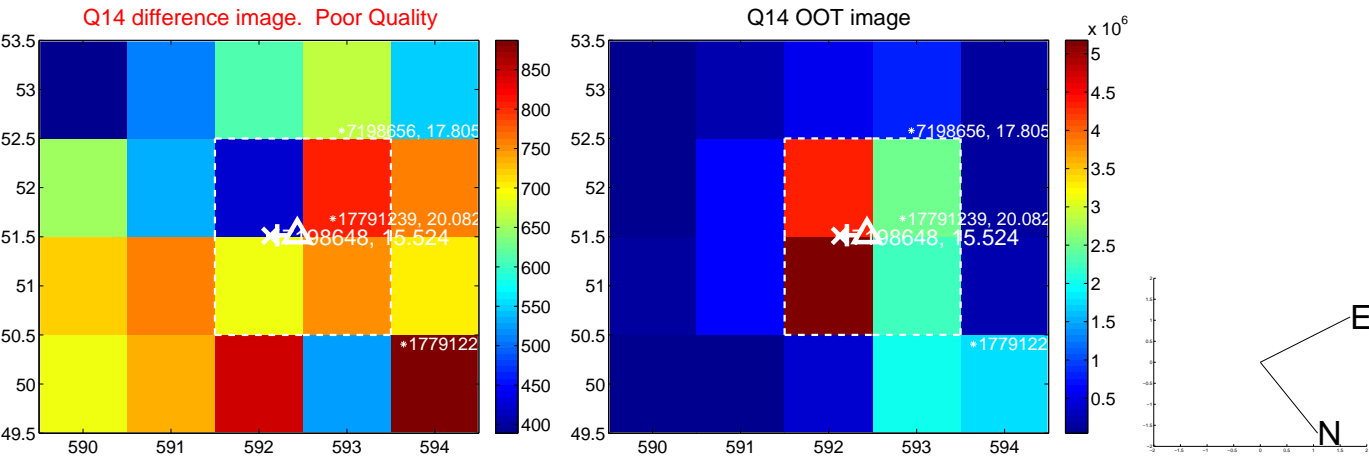
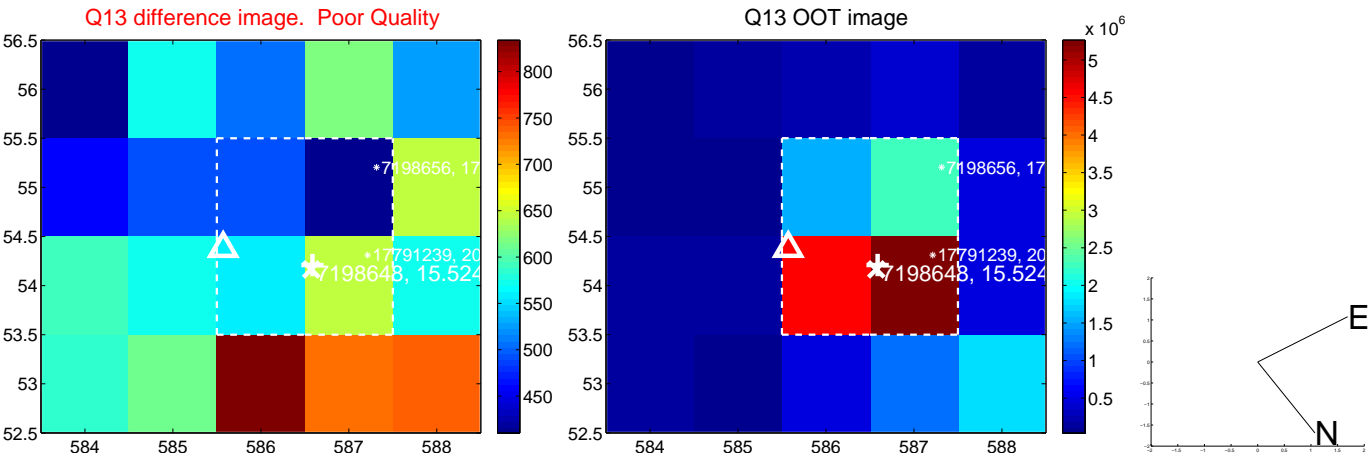
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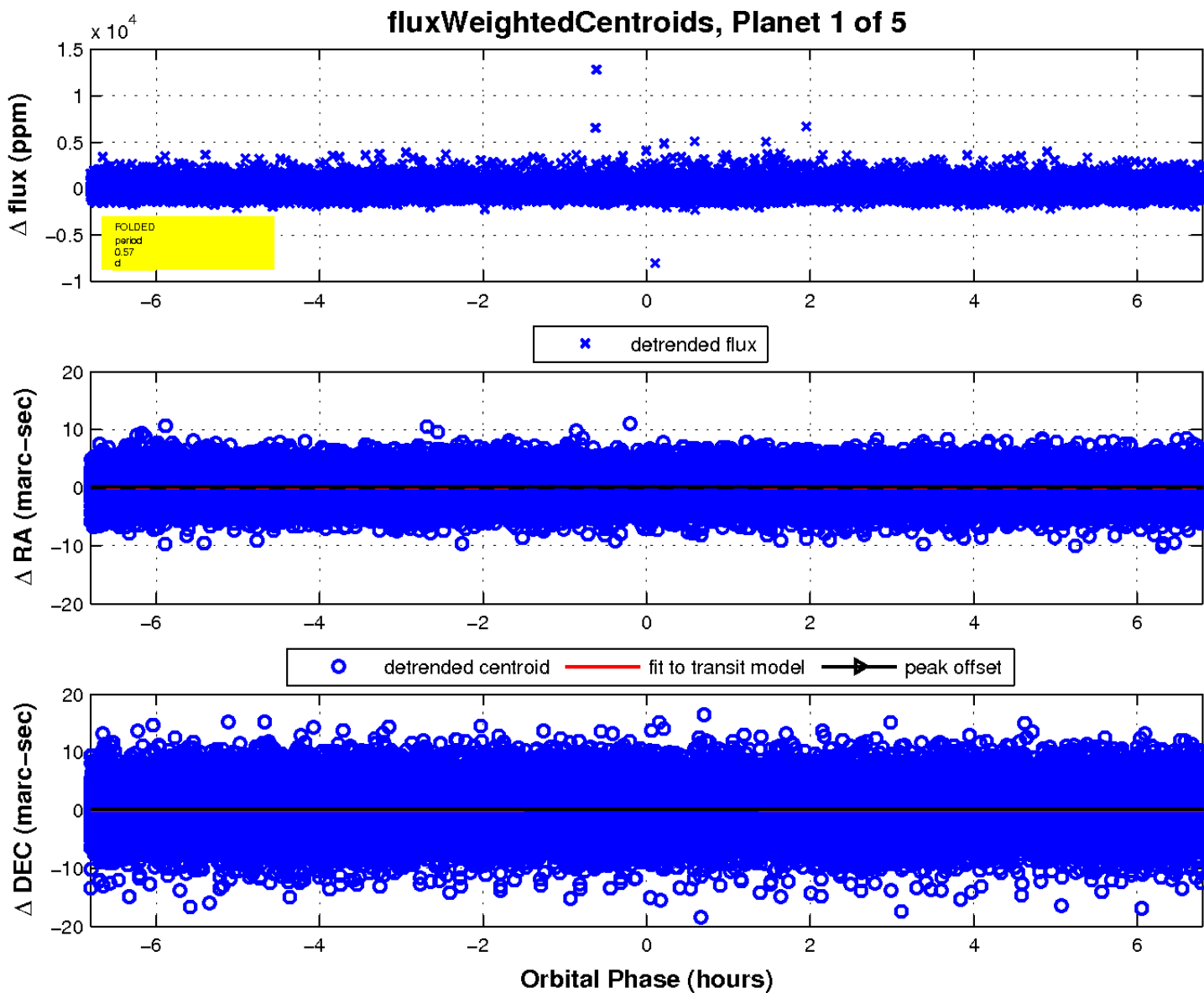
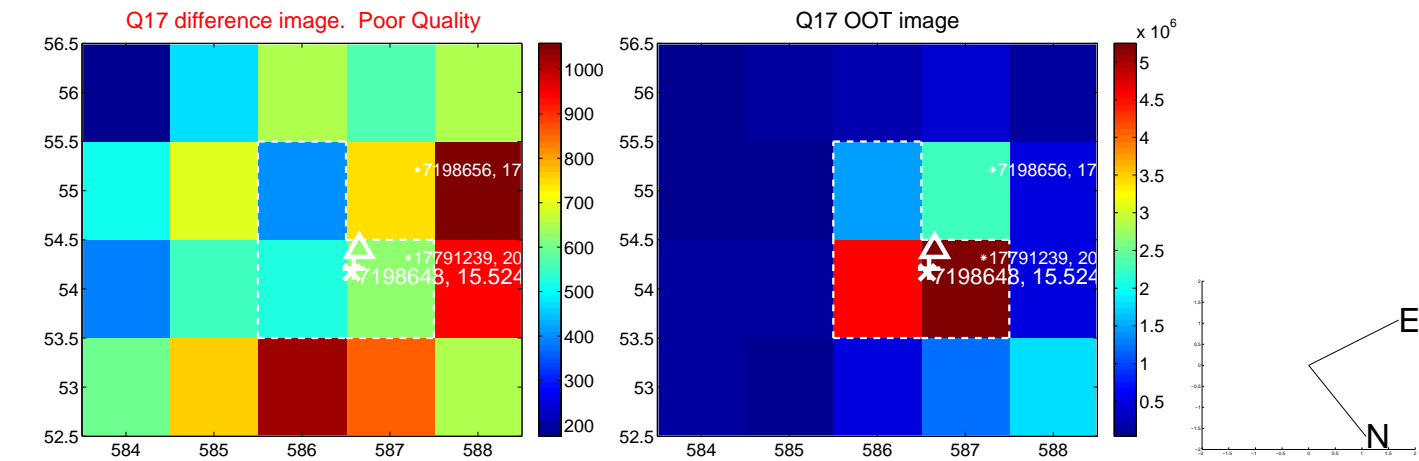
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

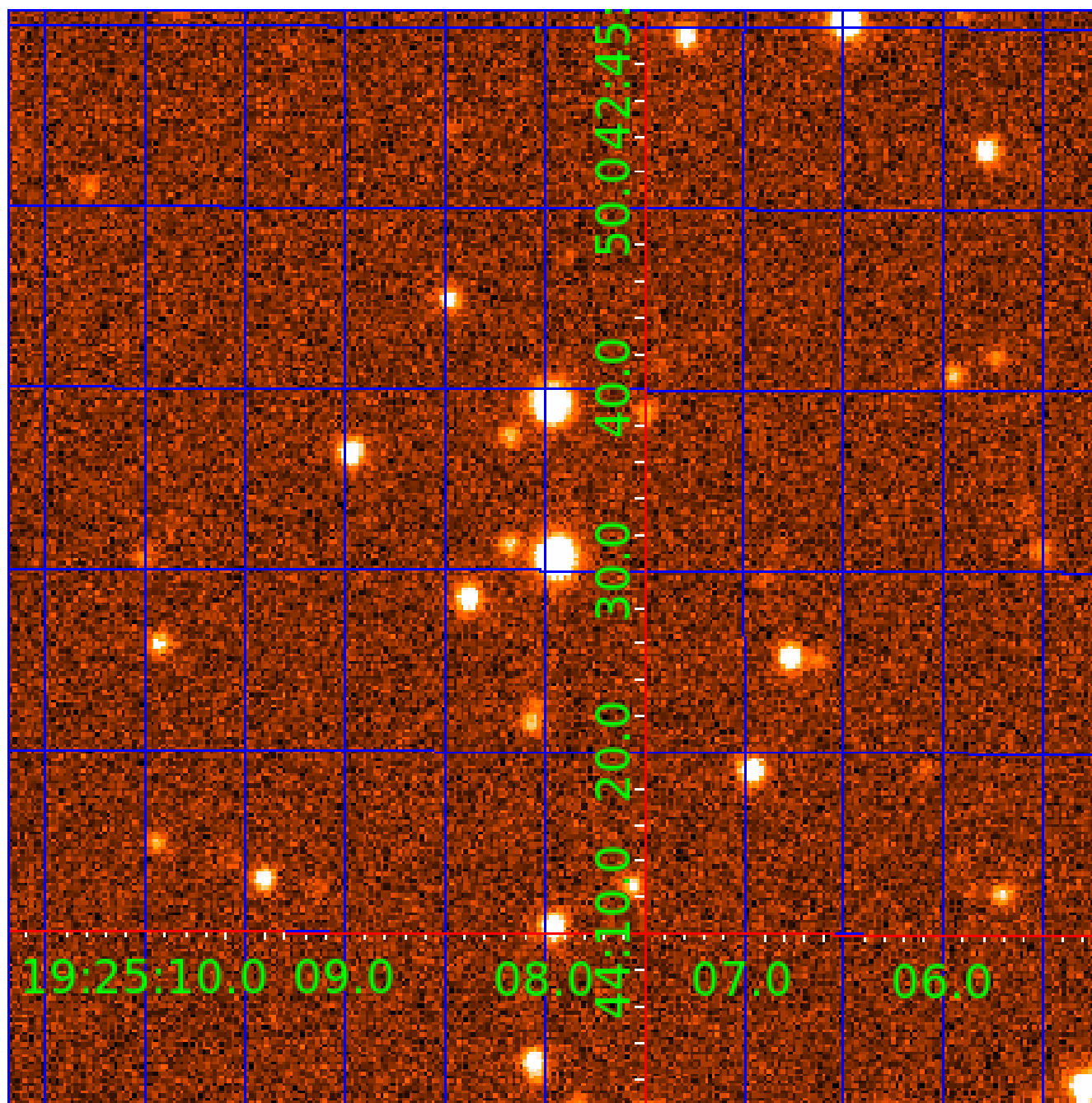


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007198648

Q1-17 DR25 TCE Parameters

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Robovetter Results

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007198648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
007198648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET

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.

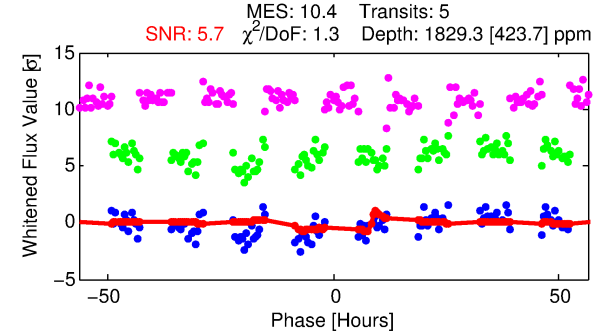
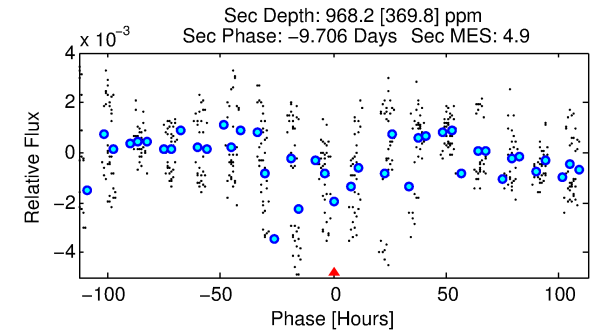
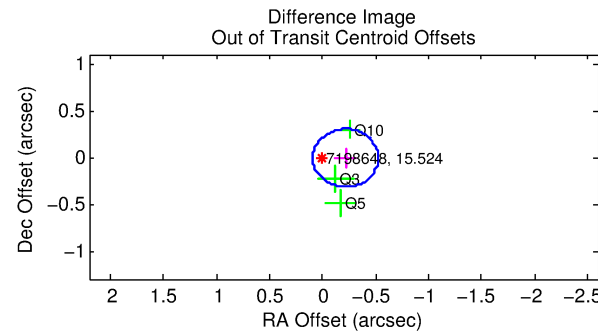
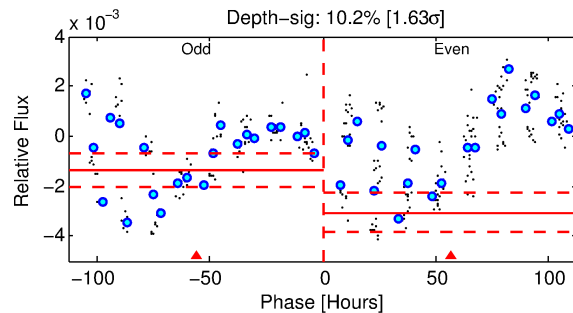
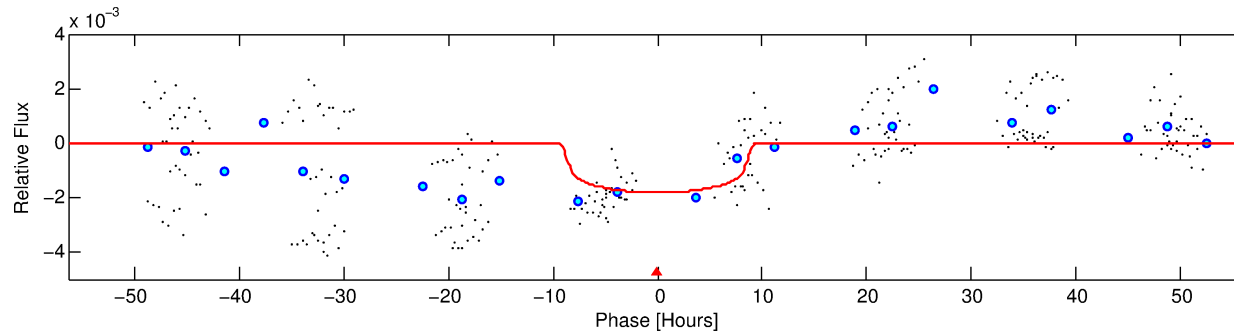
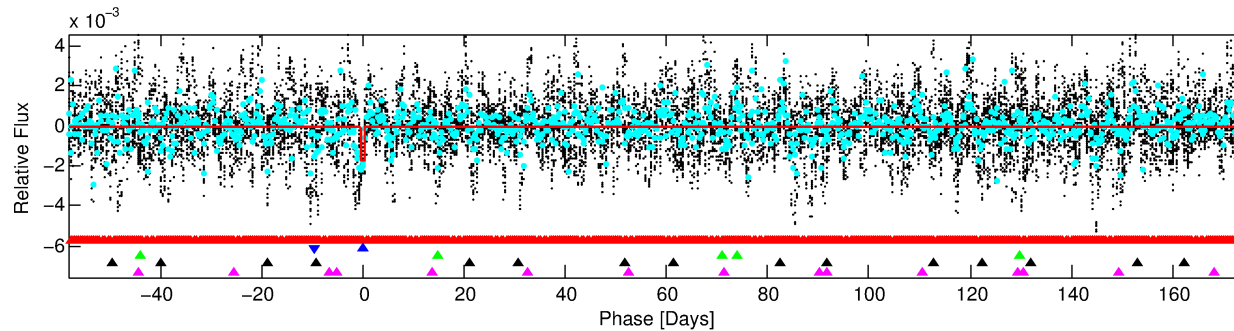
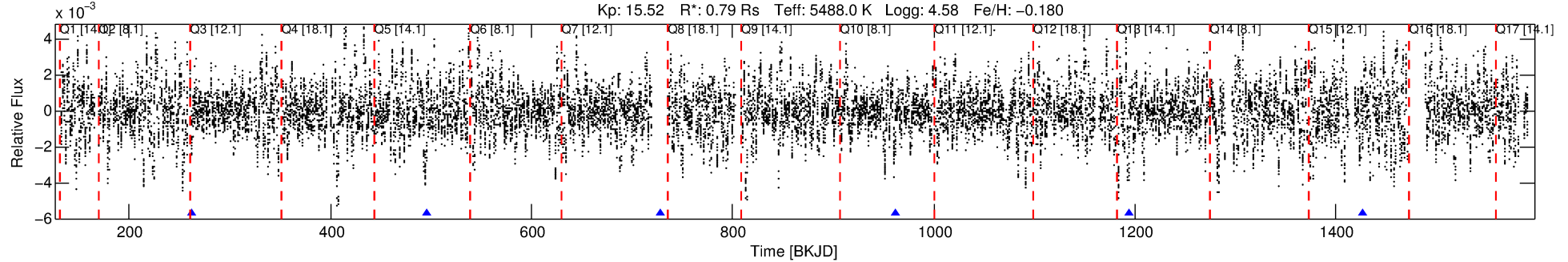
Ephemeris Match Information For 007198648-02

No Significant Match Found

DV One-Page Summary

KIC: 7198648 Candidate: 2 of 5 Period: 232.927 d
KOI: K06840 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.79 Rs Teff: 5488.0 K Logg: 4.58 Fe/H: -0.180



DV Fit Results:

Period = 232.92708 [0.00651] d
Epoch = 262.6132 [0.0205] BKJD
Rp/R* = 0.0417 [0.0071]
a/R* = 73.84 [31.50]
b = 0.69 [0.30]
Seff = 1.01 [0.29]
Teq = 256 [18] K
Rp = 3.59 [0.96] Re
a = 0.7078 [0.1225] AU
Ag = 20686.89 [11758.69] [1.76σ]
Teffp = 4740 [625] K [7.17σ]

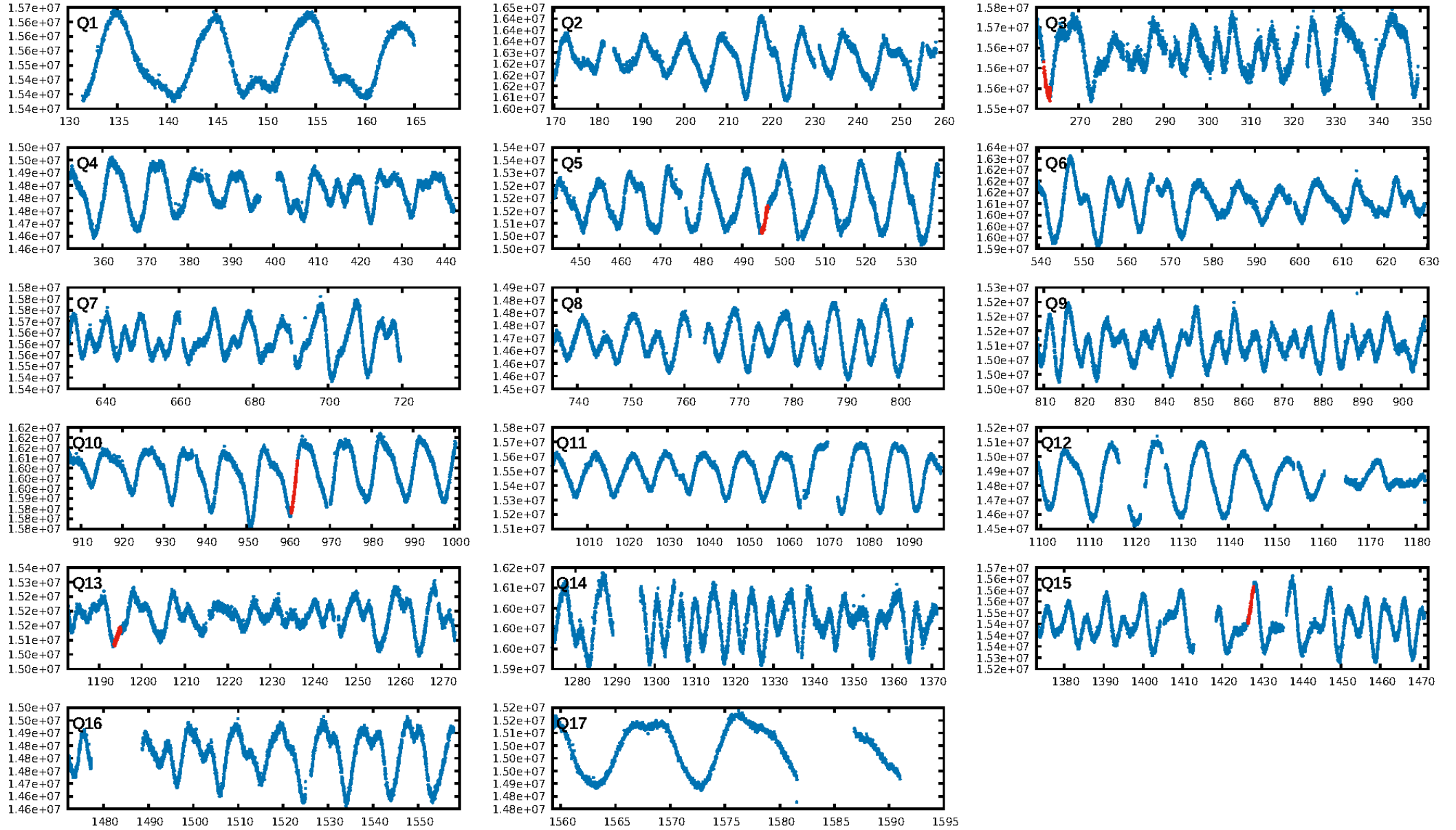
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [145.94σ]
LongPeriod-sig: 100.0% [52.28σ]
ModelChiSquare2-sig: 24.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.69e-11
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.1422
Centroid-sig: 28.6%
Centroid-so: 1.409 arcsec [2.48σ]
OotOffset-rm: 0.218 arcsec [2.11σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-rm: 0.133 arcsec [0.41σ]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/4]

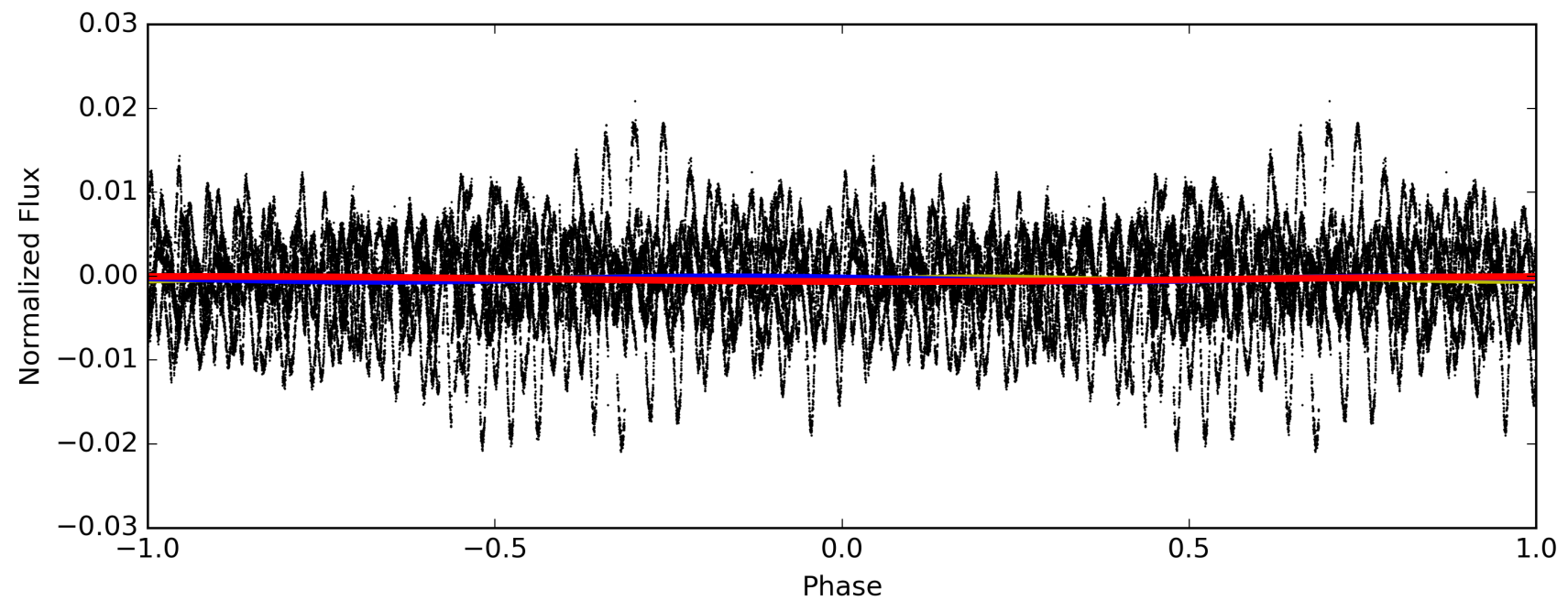
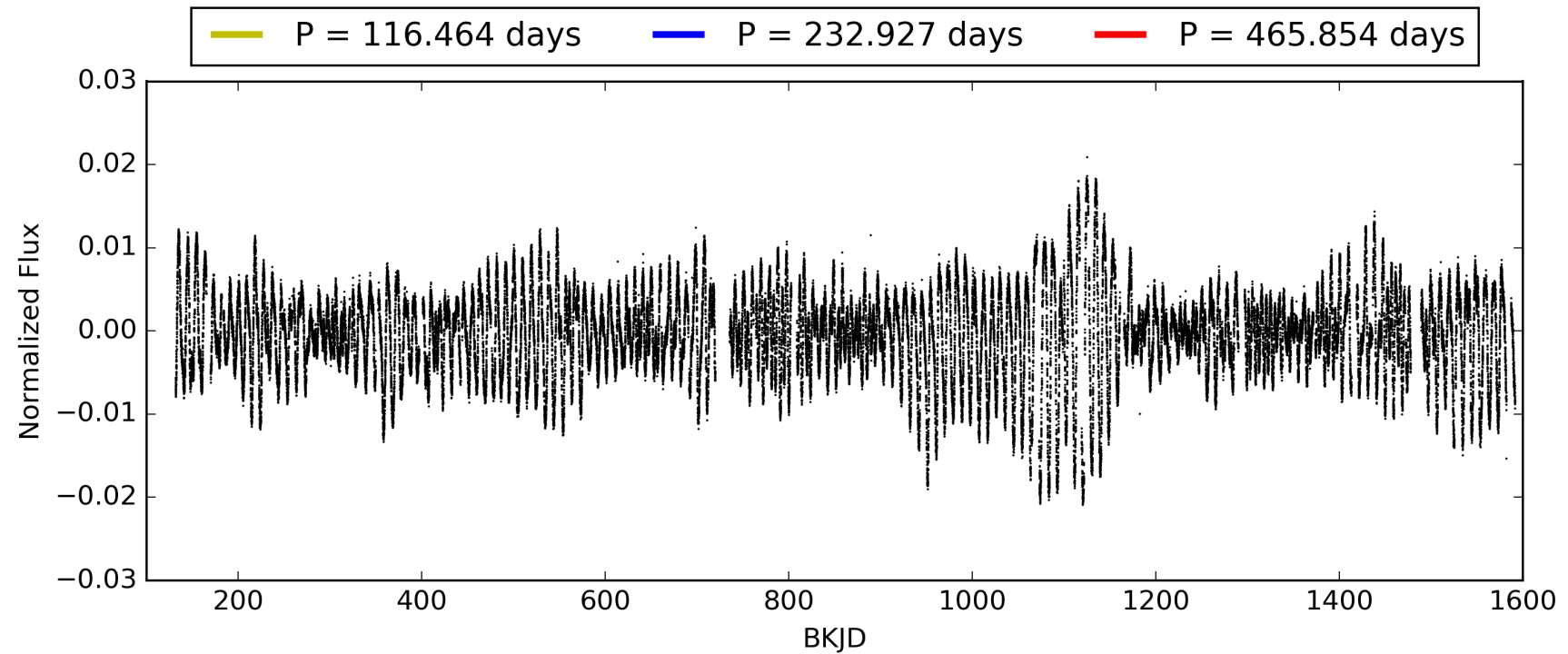
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:58:34 Z

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

TCE 007198648-02, PDC Light Curves

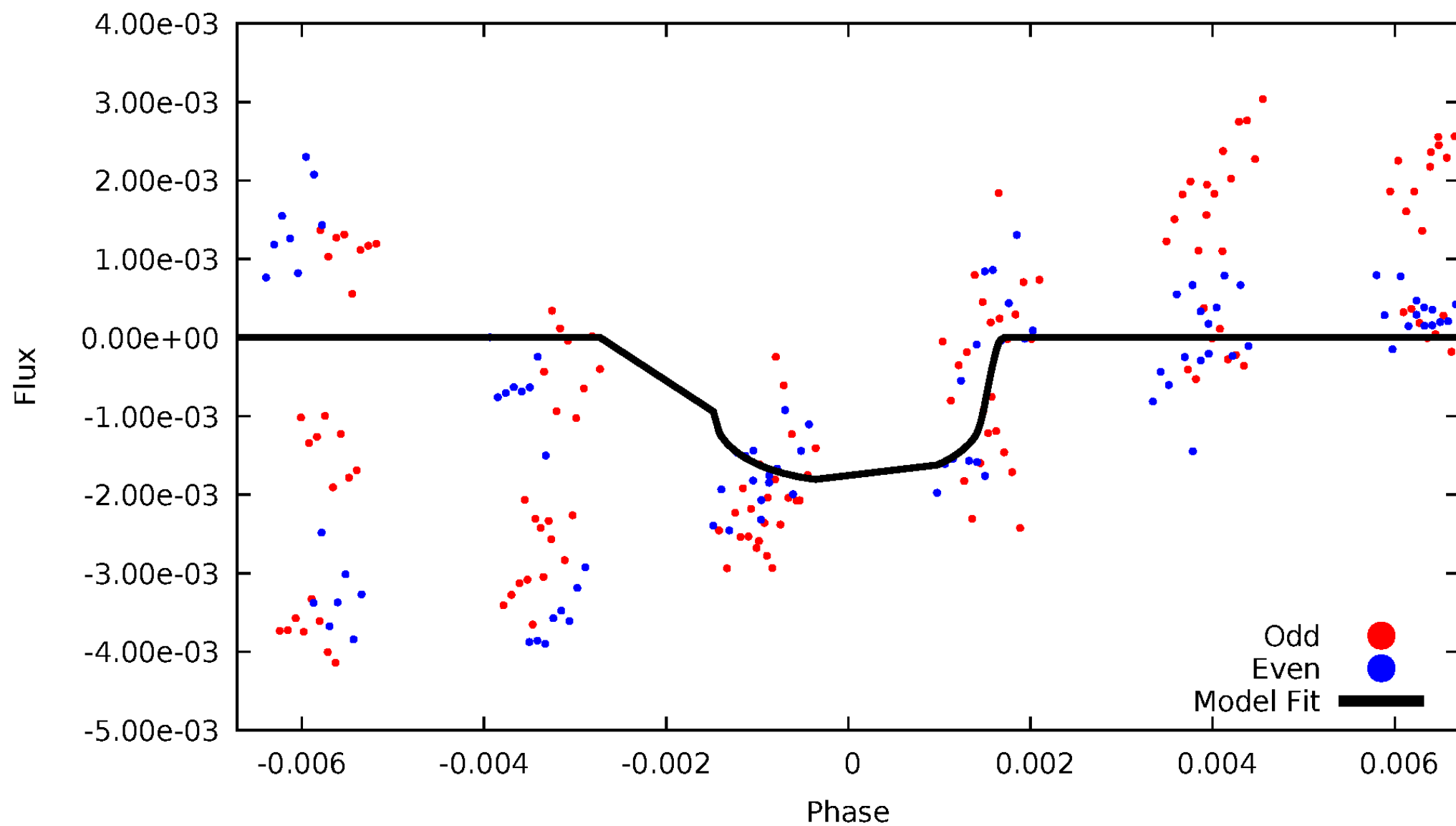


TCE 007198648-02



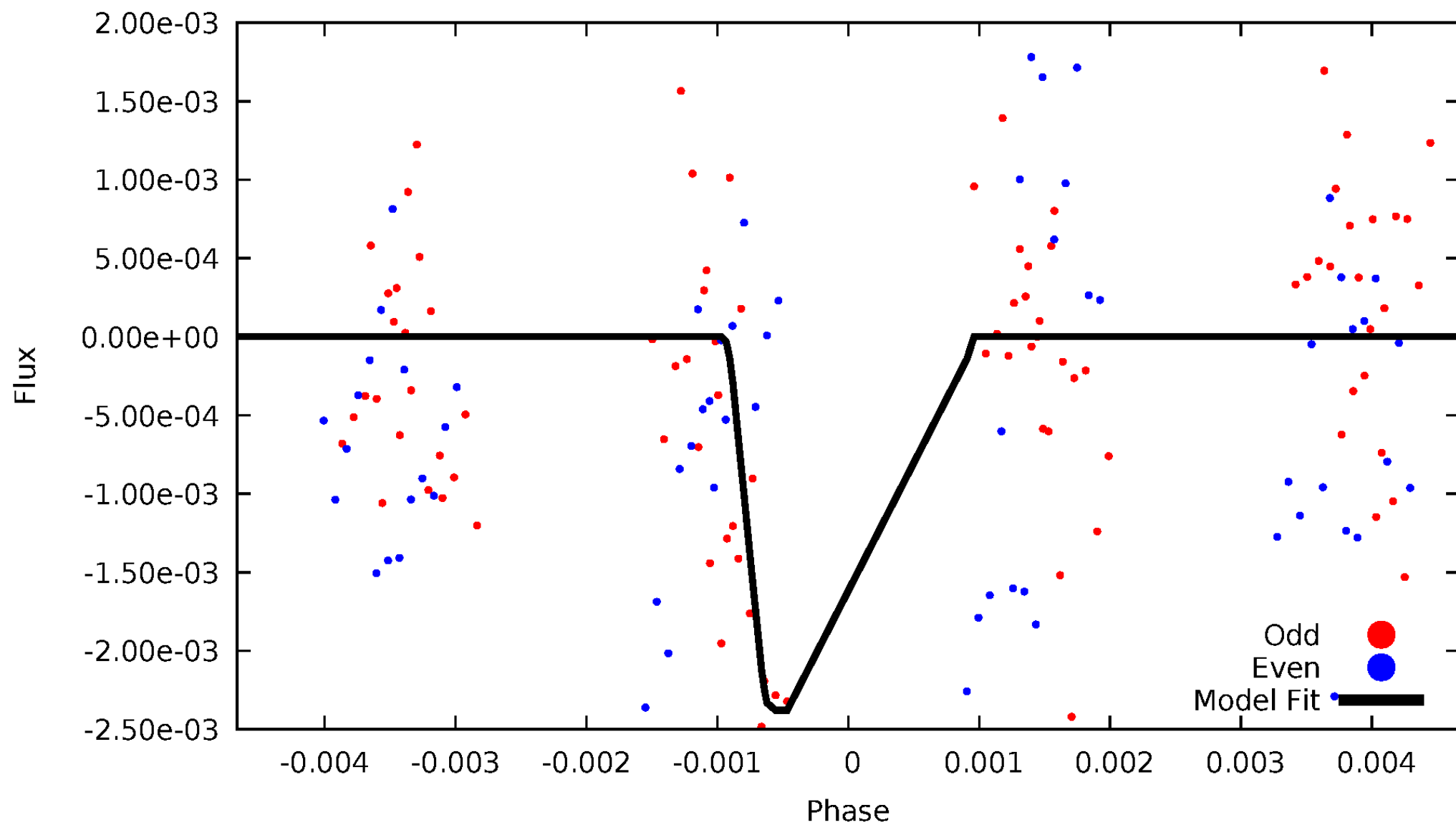
DV Odd/Even

TCE 007198648-02



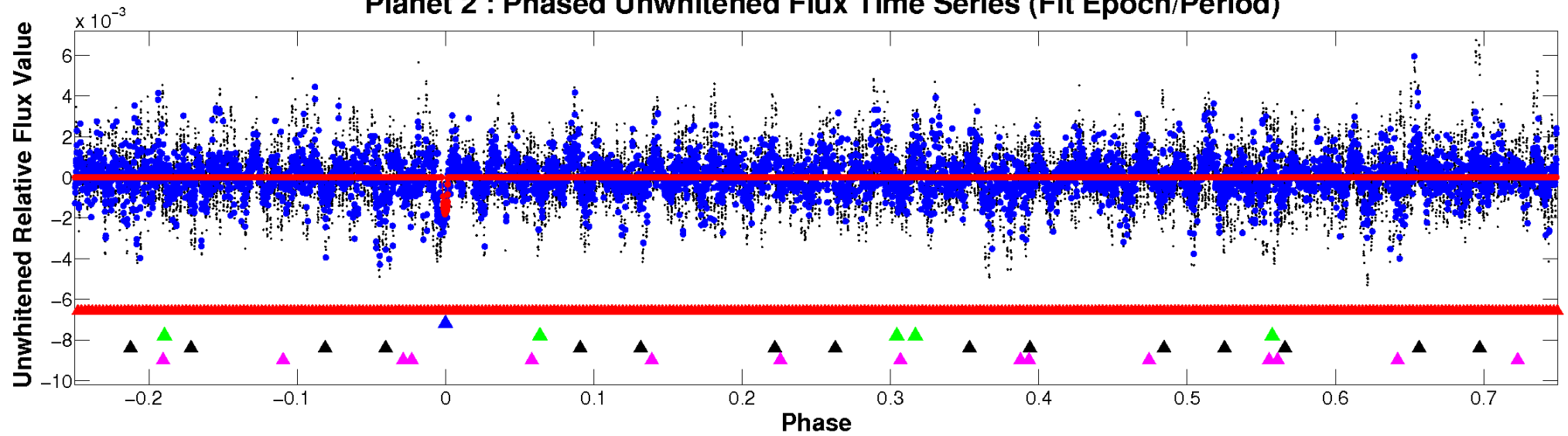
ALT Odd/Even

TCE 007198648-02

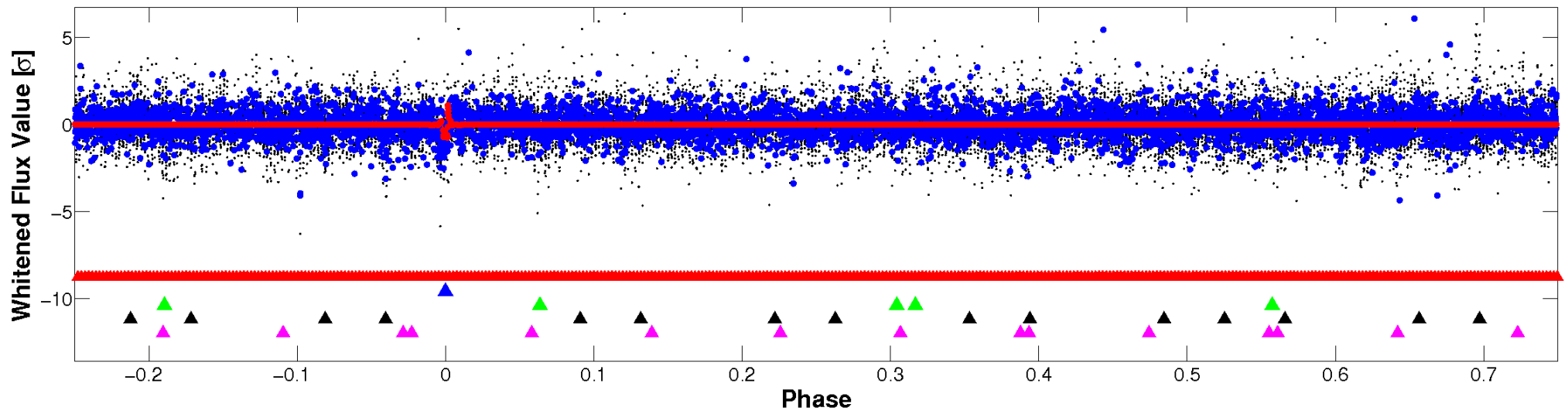


Non-Whitened Vs. Whitened Light Curve

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

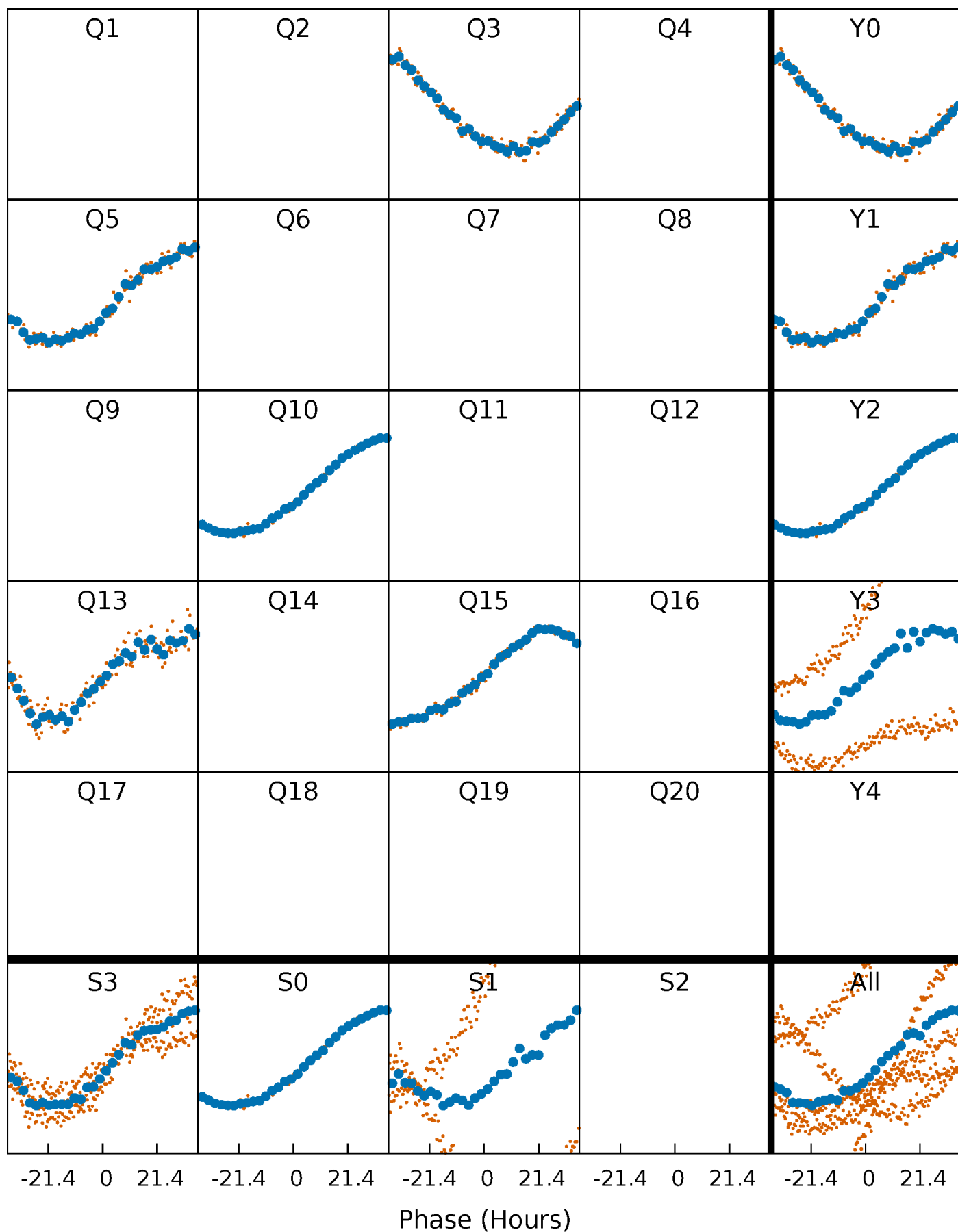


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



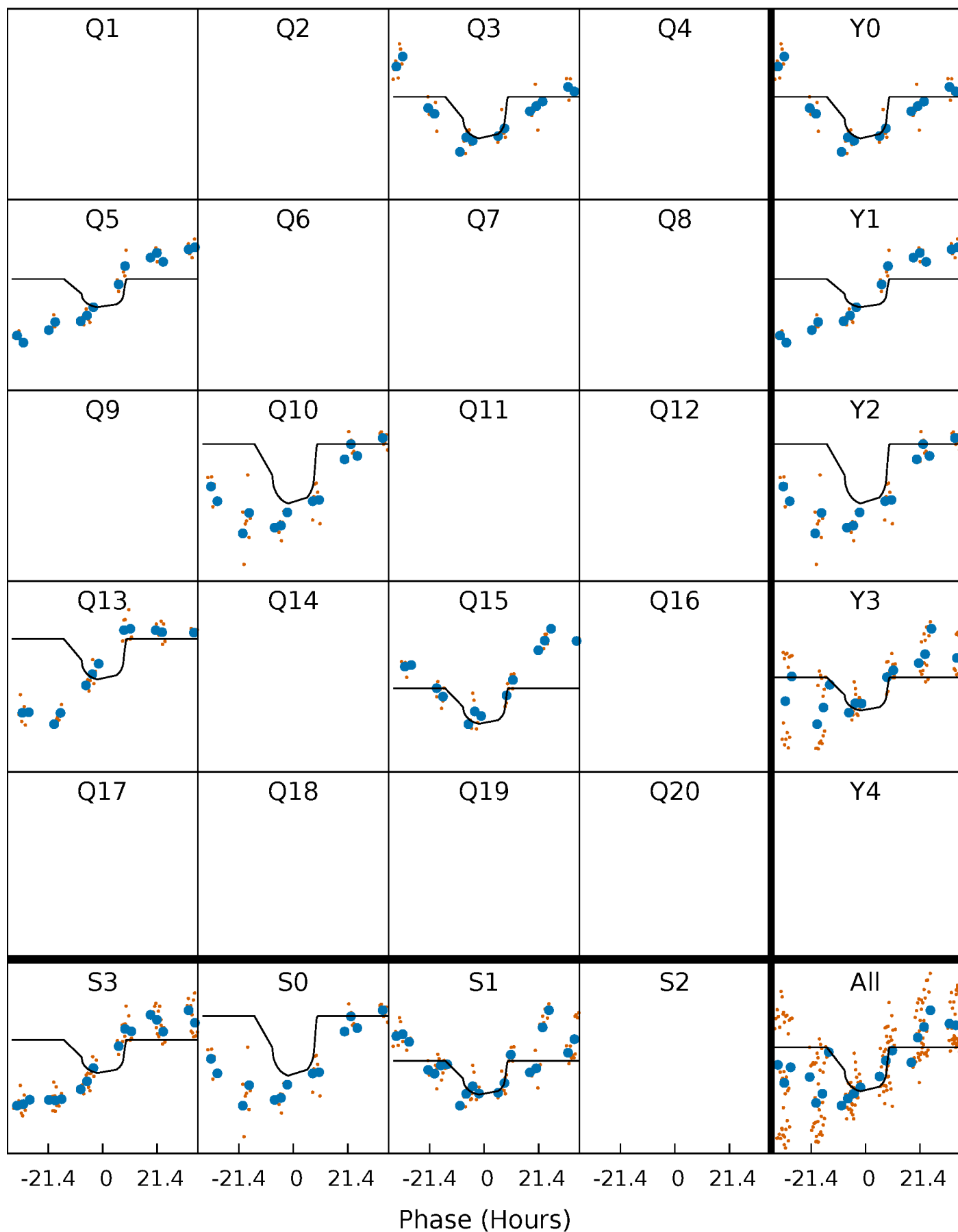
PDC Quarter-Phased Transit Curves

TCE 007198648-02 P=232.927077 Days $T_0=262.613170$ (BKJD)



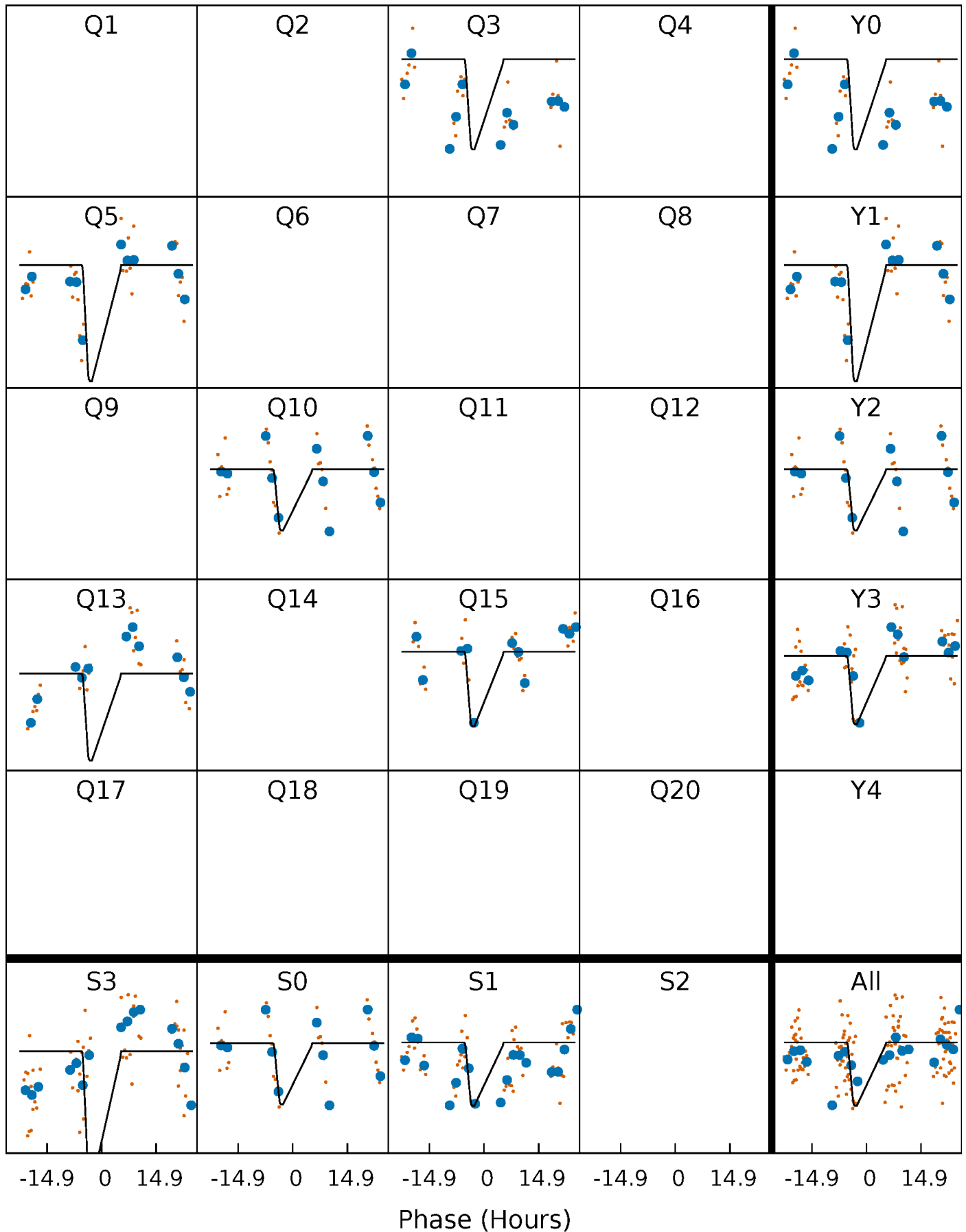
DV Quarter-Phased Transit Curves

TCE 007198648-02 $P=232.927077$ Days $T_0=262.613170$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

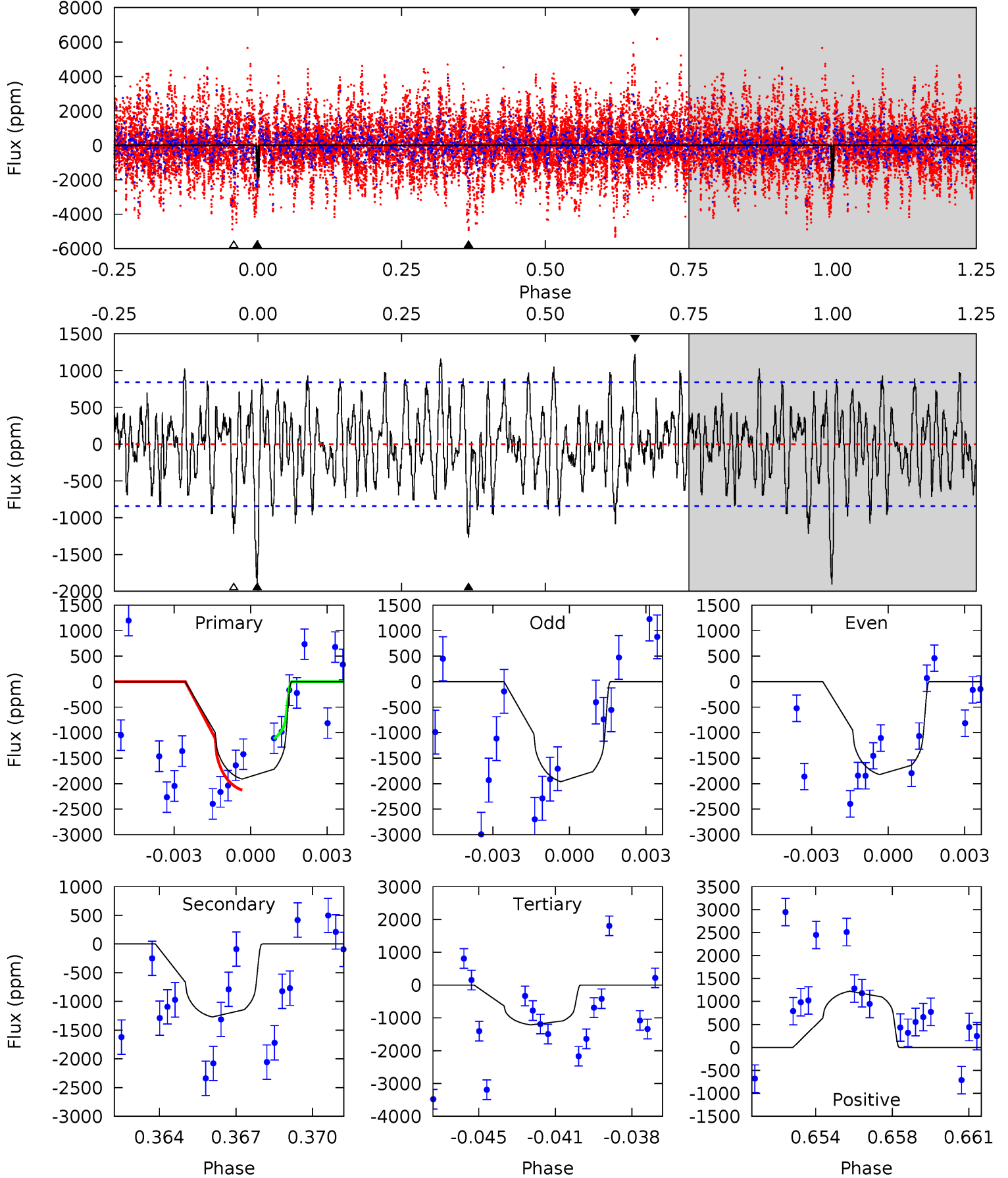
TCE 007198648-02 P=232.928962 Days $T_0=262.629276$ (BKJD)



DV Model-Shift Uniqueness Test

007198648-02, $P = 232.927077$ Days, $E = 29.686093$ Days

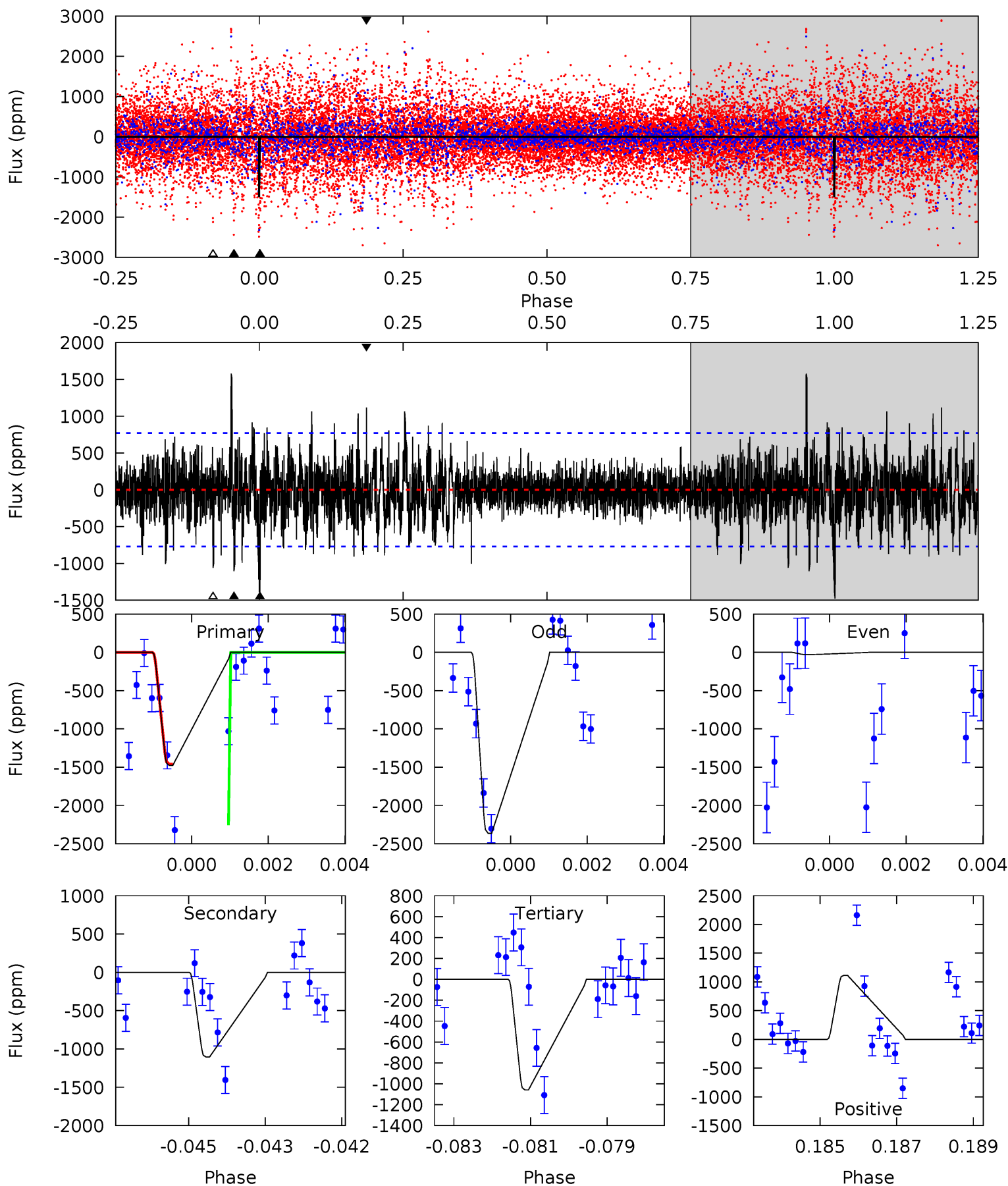
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	7.91	7.56	7.62	5.24	2.95	2.67	4.33	4.28	0.35	0.29	0.42	1.10	0.39	3.11



Alt Model-Shift Uniqueness Test

007198648-02, $P = 232.928962$ Days, $E = 29.700314$ 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	7.65	7.34	7.73	5.34	3.11	1.67	2.90	2.50	0.32	-0.07	7.51	4.23	0.52	1.24



Stellar Parameters For KIC 007198648

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5488^{+182}_{-182}	$4.584^{+0.036}_{-0.135}$	$-0.180^{+0.300}_{-0.300}$	$0.789^{+0.164}_{-0.070}$	$0.877^{+0.083}_{-0.102}$	$2.514^{+0.451}_{-0.978}$
	+3%/-3%	+1%/-3%	+167%/-167%	+21%/-9%	+9%/-12%	+18%/-39%
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 007198648-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1270 ± 161	$3.72^{+0.68}_{-0.68}$	363^{+20}_{-15}	5122^{+519}_{-387}	24821^{+13265}_{-7175}
Alt.	-1104 ± 144	$4.31^{+0.76}_{-0.73}$	362^{+18}_{-15}	4661^{+364}_{-303}	16144^{+7174}_{-4613}

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

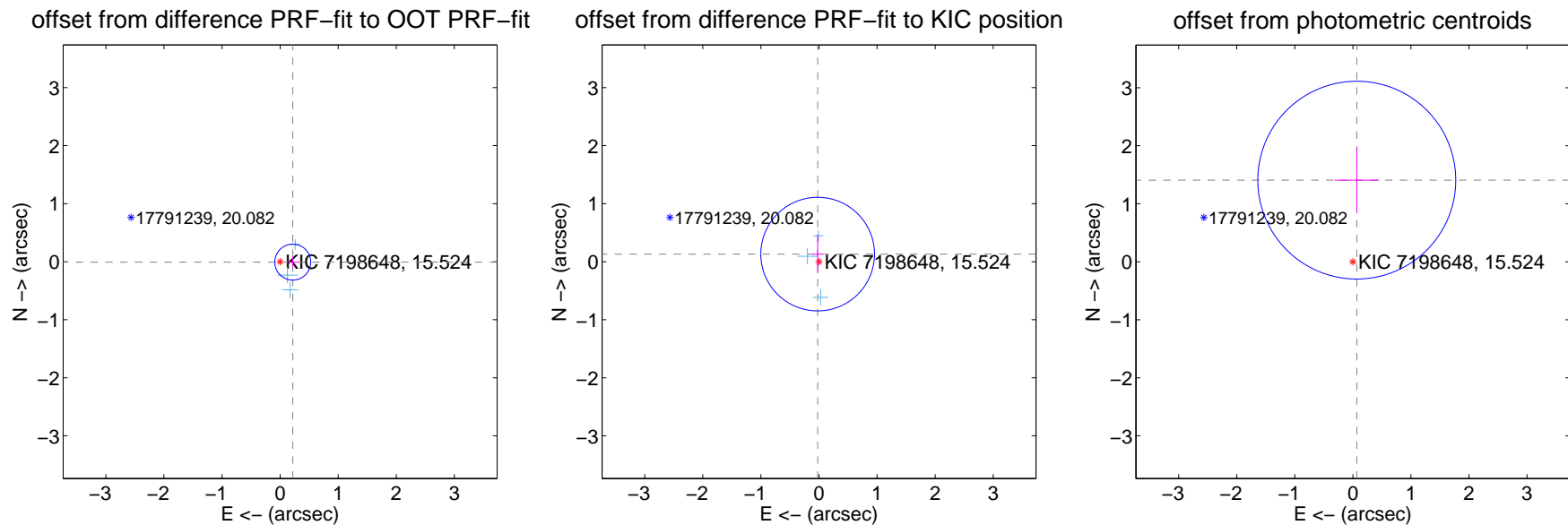
DV Centroid Data

Supplemental centroid analysis for 007198648-02. Kepler magnitude: 15.52. Transit SNR 5.75

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.218 ± 0.103	2.11	-0.218 ± 0.103	-0.007 ± 0.098
PRF-fit source offset from KIC position	0.133 ± 0.326	0.41	0.023 ± 0.093	0.131 ± 0.331
photometric centroid source offset	1.41 ± 0.57	2.48	-0.07 ± 0.38	1.41 ± 0.57



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



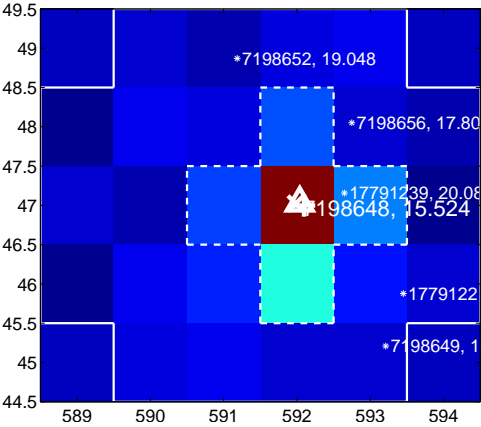
Q2 no difference image



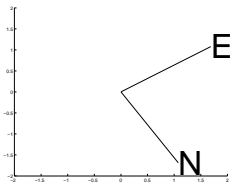
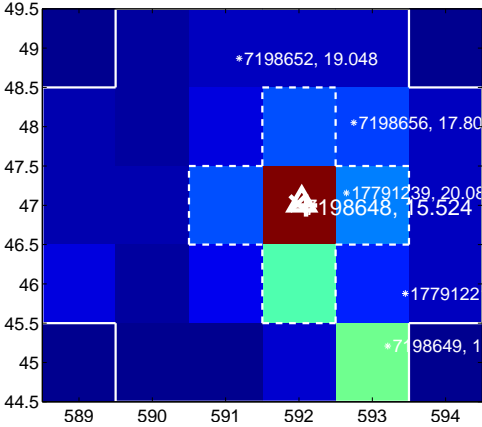
Q2 no OOT image



Q3 difference image



Q3 OOT image



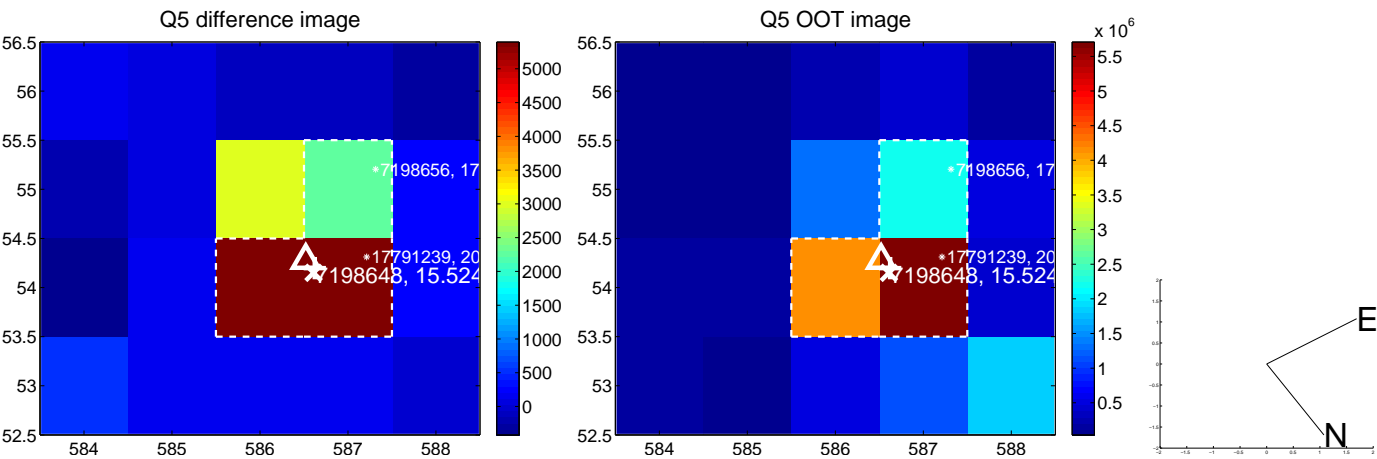
Q4 no difference image



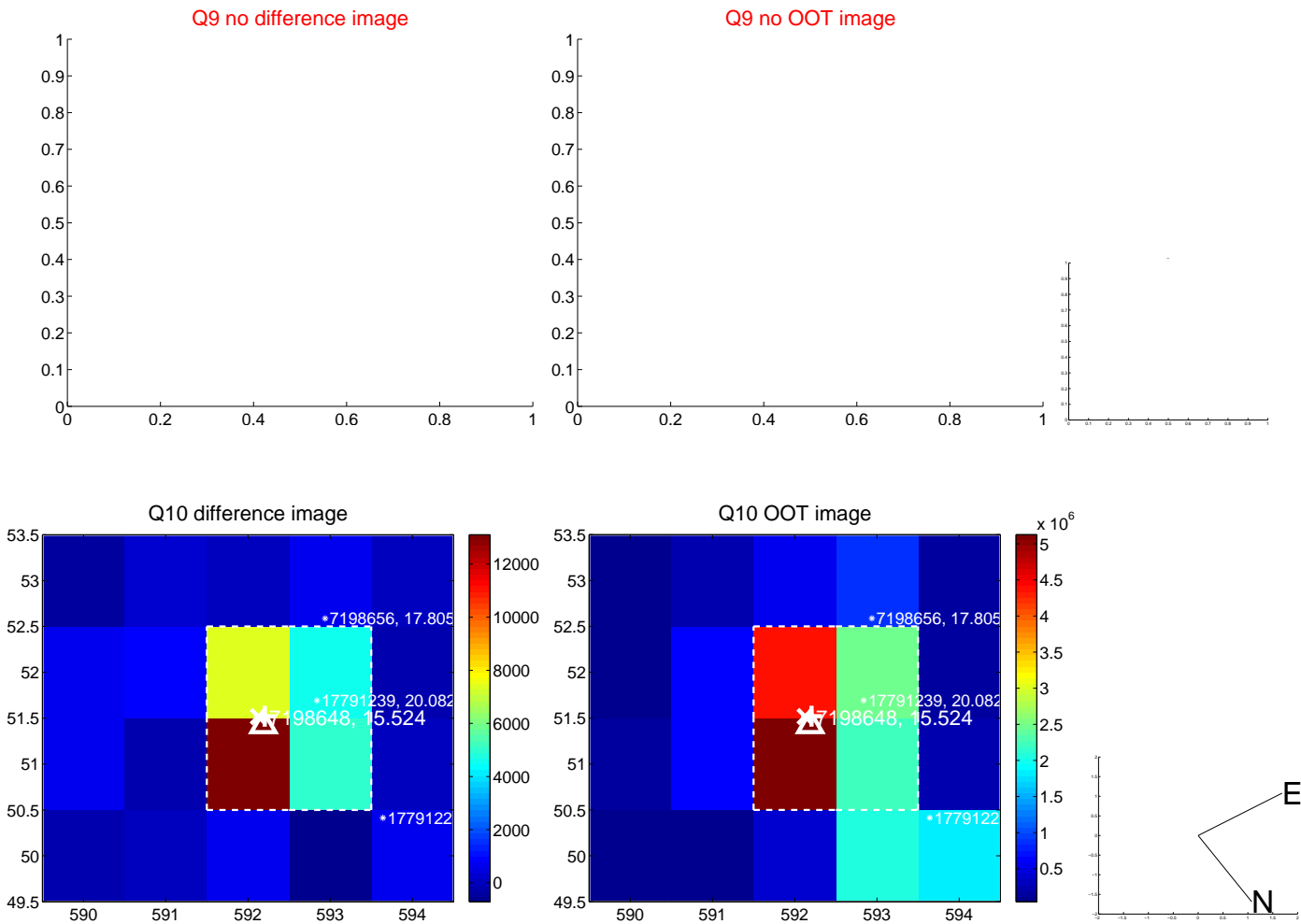
Q4 no OOT image



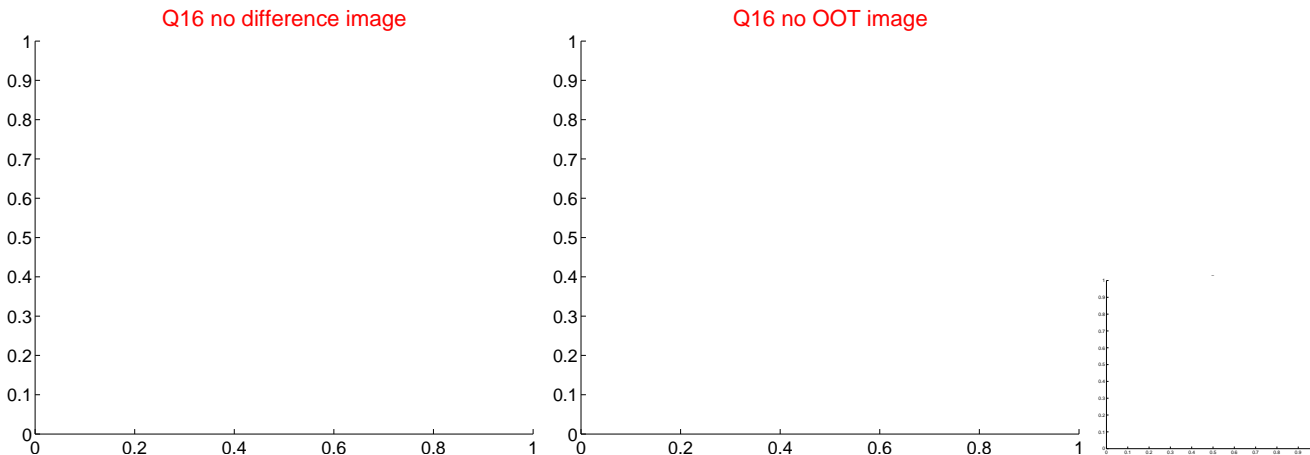
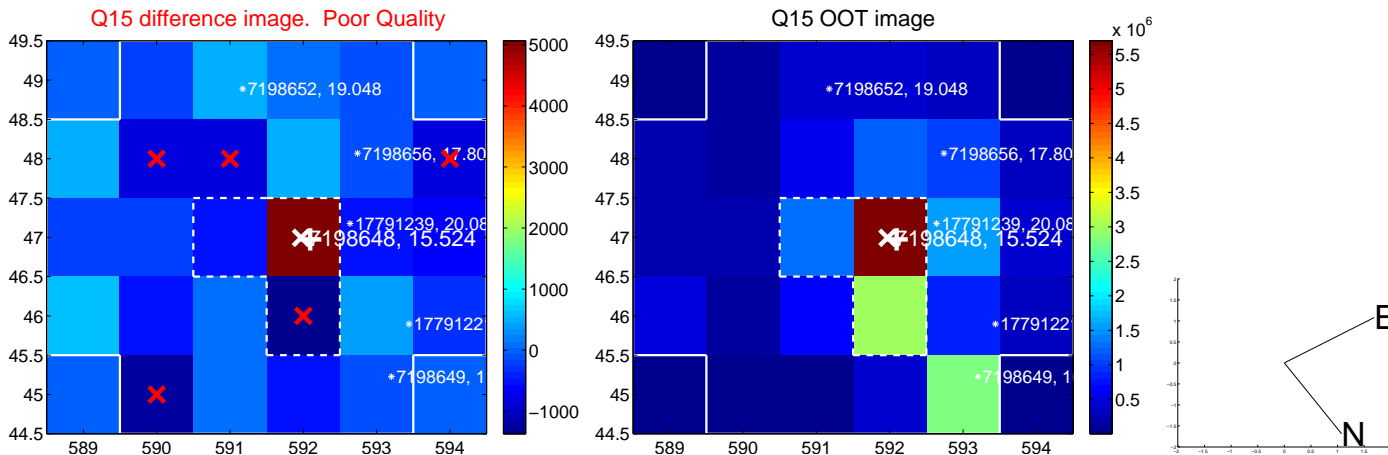
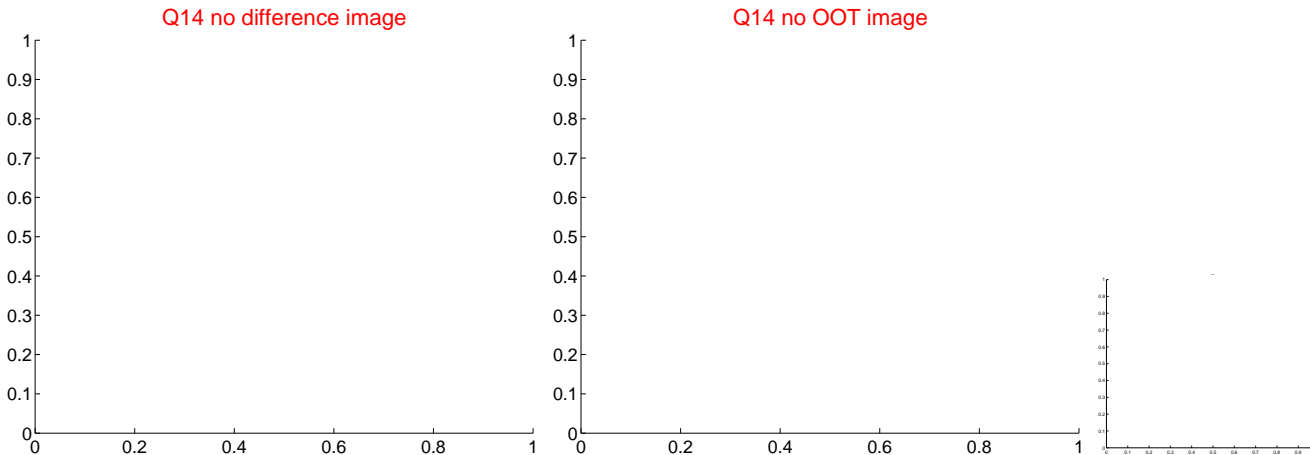
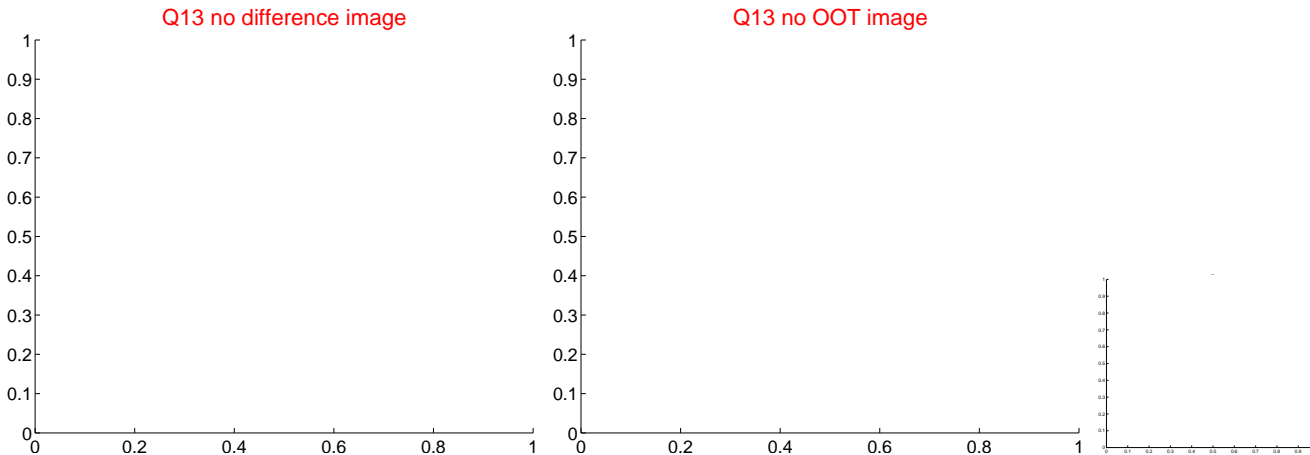
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

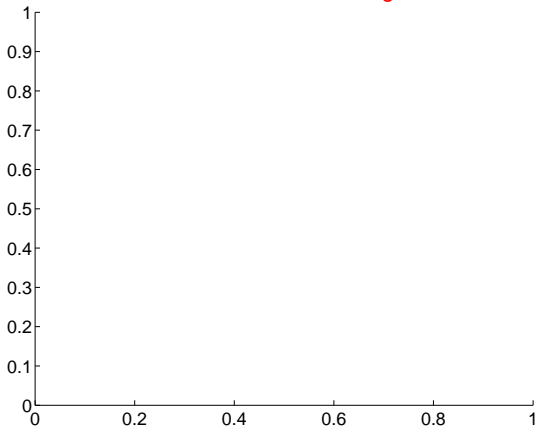


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value

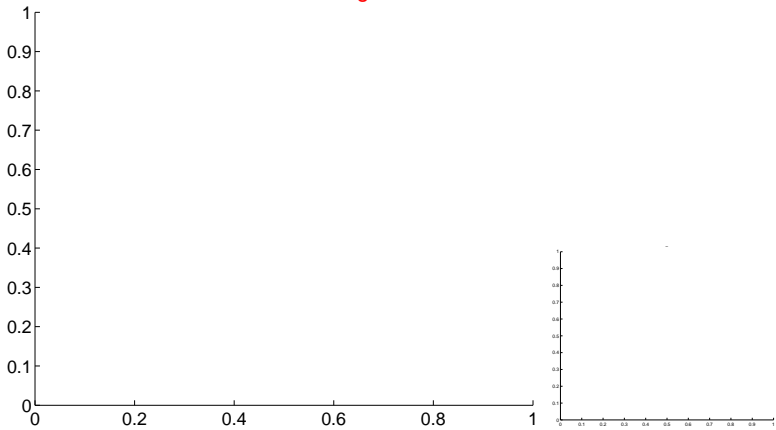


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

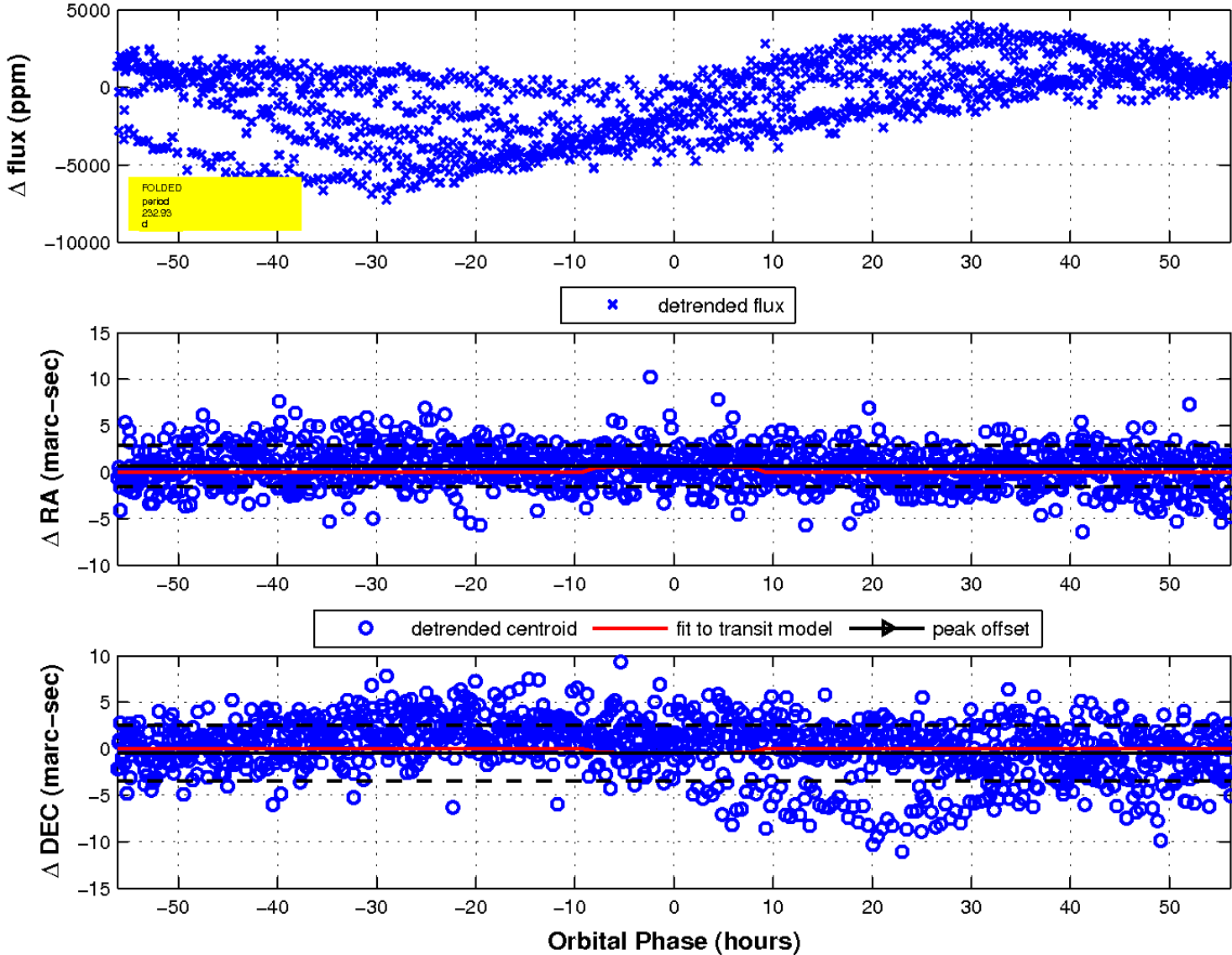
Q17 no difference image



Q17 no OOT image

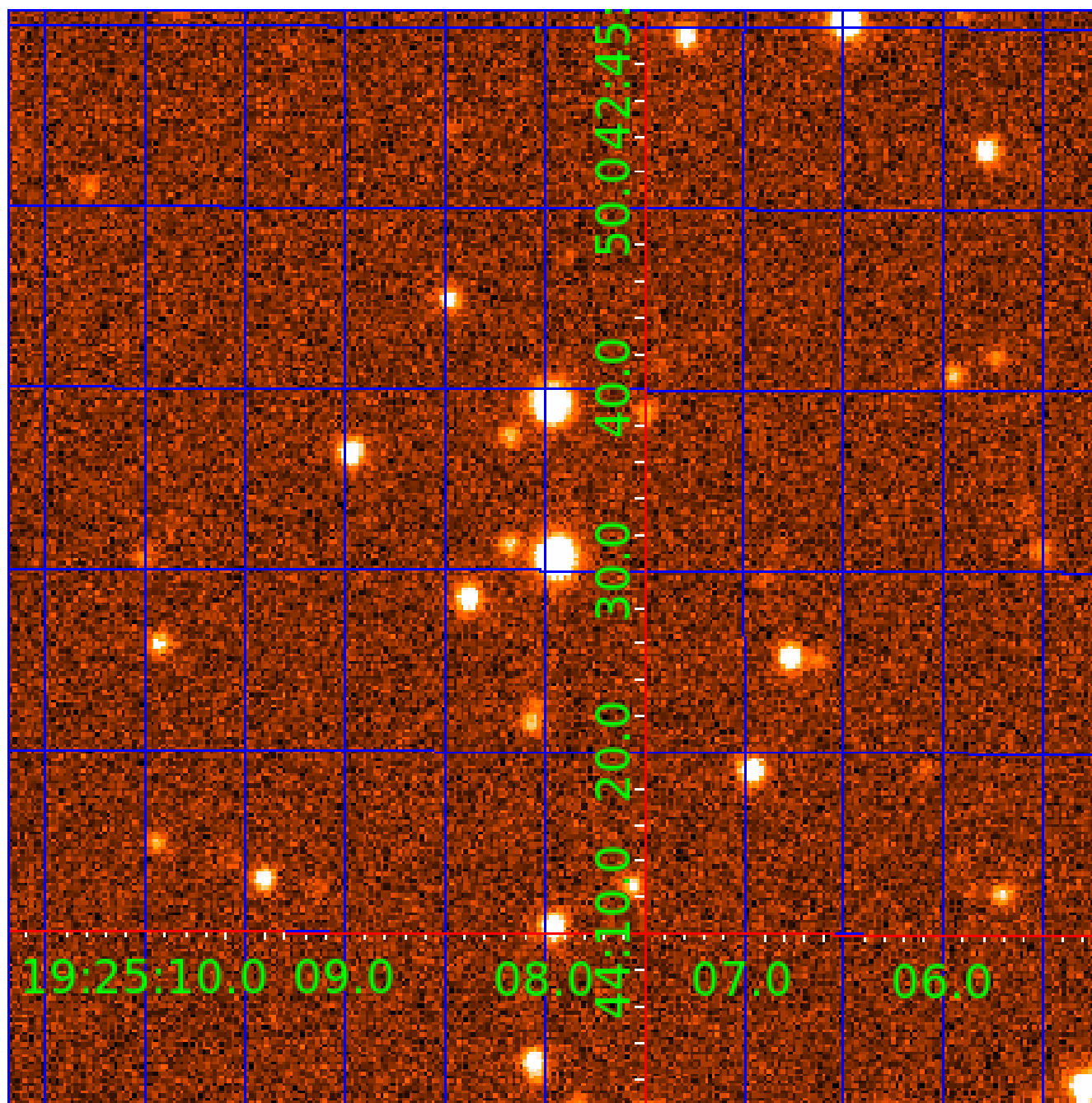


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 007198648

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})
007198648-01	OBS	6840.01	0.566797	131.686829	74.2	3.087	12.9	12.9	0.79	5488	0.73	3085.78
007198648-02	OBS	No	232.927077	262.613170	1829.3	18.755	10.4	5.7	0.79	5488	3.59	1.01
007198648-04	OBS	No	101.182219	142.538972	650.2	10.846	9.6	3.6	0.79	5488	2.21	3.07
007198648-05	OBS	No	96.941397	160.365096	718.4	10.353	11.0	4.2	0.79	5488	2.34	3.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007198648-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_KIC_POS—EPHEM_MATCH
007198648-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007198648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
007198648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET

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.

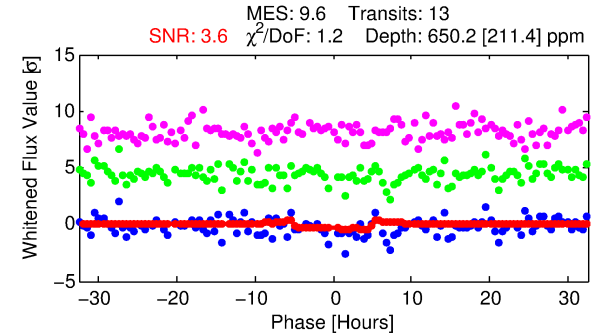
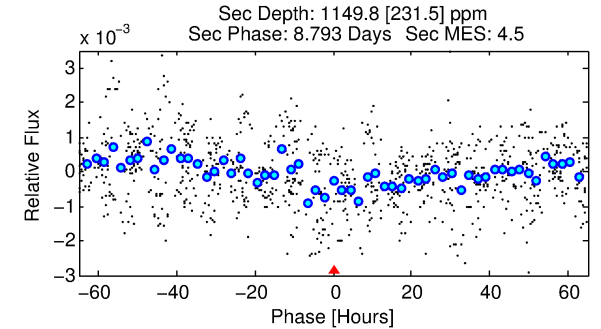
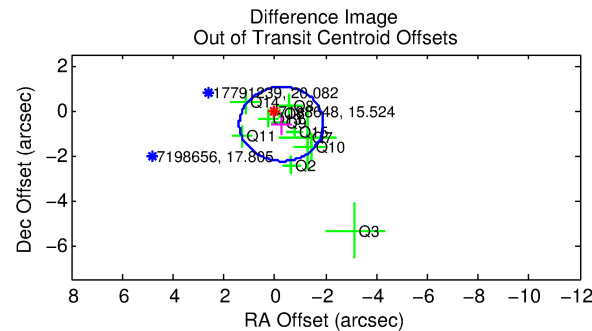
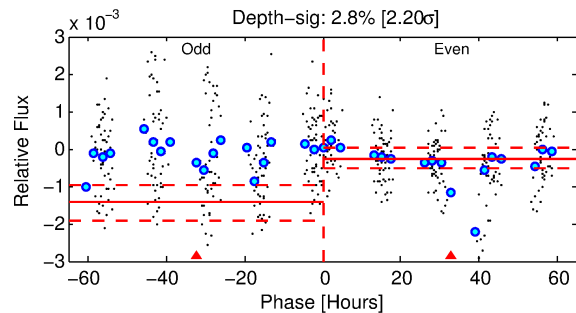
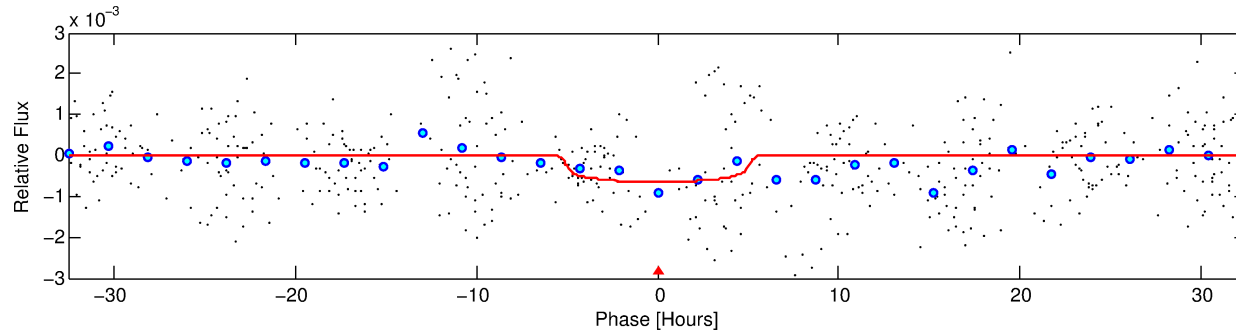
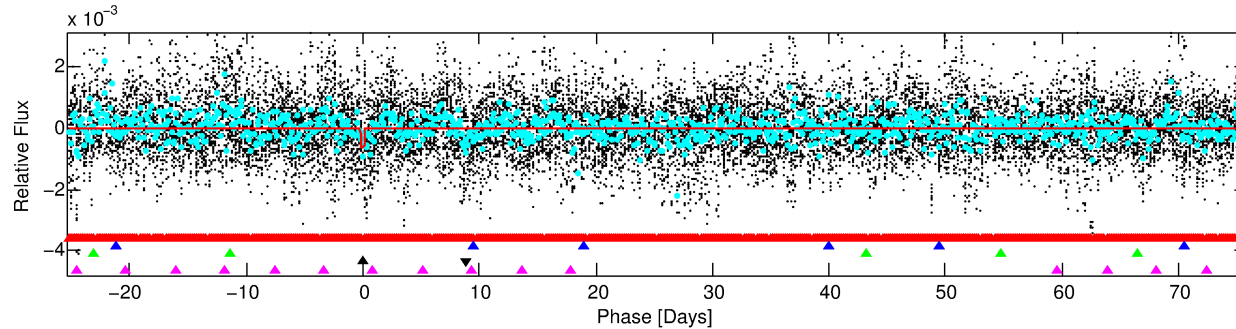
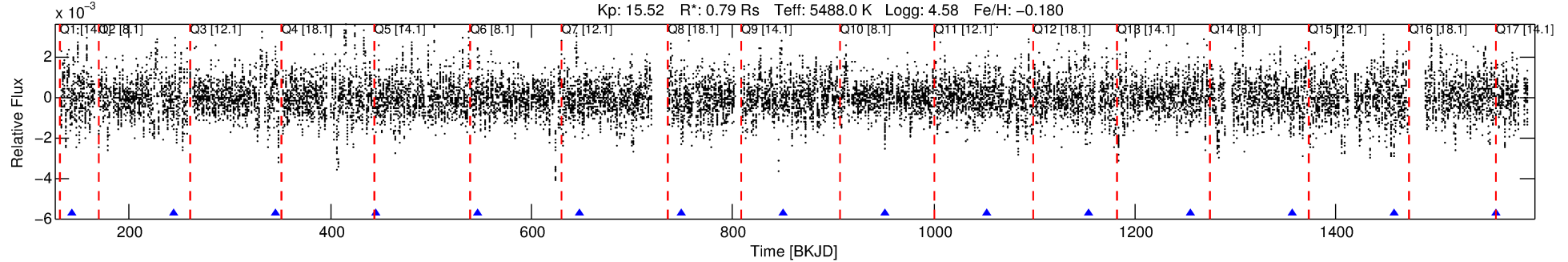
Ephemeris Match Information For 007198648-04

No Significant Match Found

DV One-Page Summary

KIC: 7198648 Candidate: 4 of 5 Period: 101.182 d
KOI: K06840 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.79 Rs Teff: 5488.0 K Logg: 4.58 Fe/H: -0.180



DV Fit Results:

Period = 101.18222 [0.00522] d
Epoch = 142.5390 [0.0346] BKJD
Rp/R* = 0.0256 [0.0101]
a/R* = 48.14 [68.21]
b = 0.77 [0.74]
Seff = 3.07 [0.87]
Teq = 338 [24] K
Rp = 2.21 [0.98] Re
a = 0.4060 [0.0702] AU
Ag = 21407.14 [18175.69] [1.18σ]
Teffp = 6312 [1298] K [4.60σ]

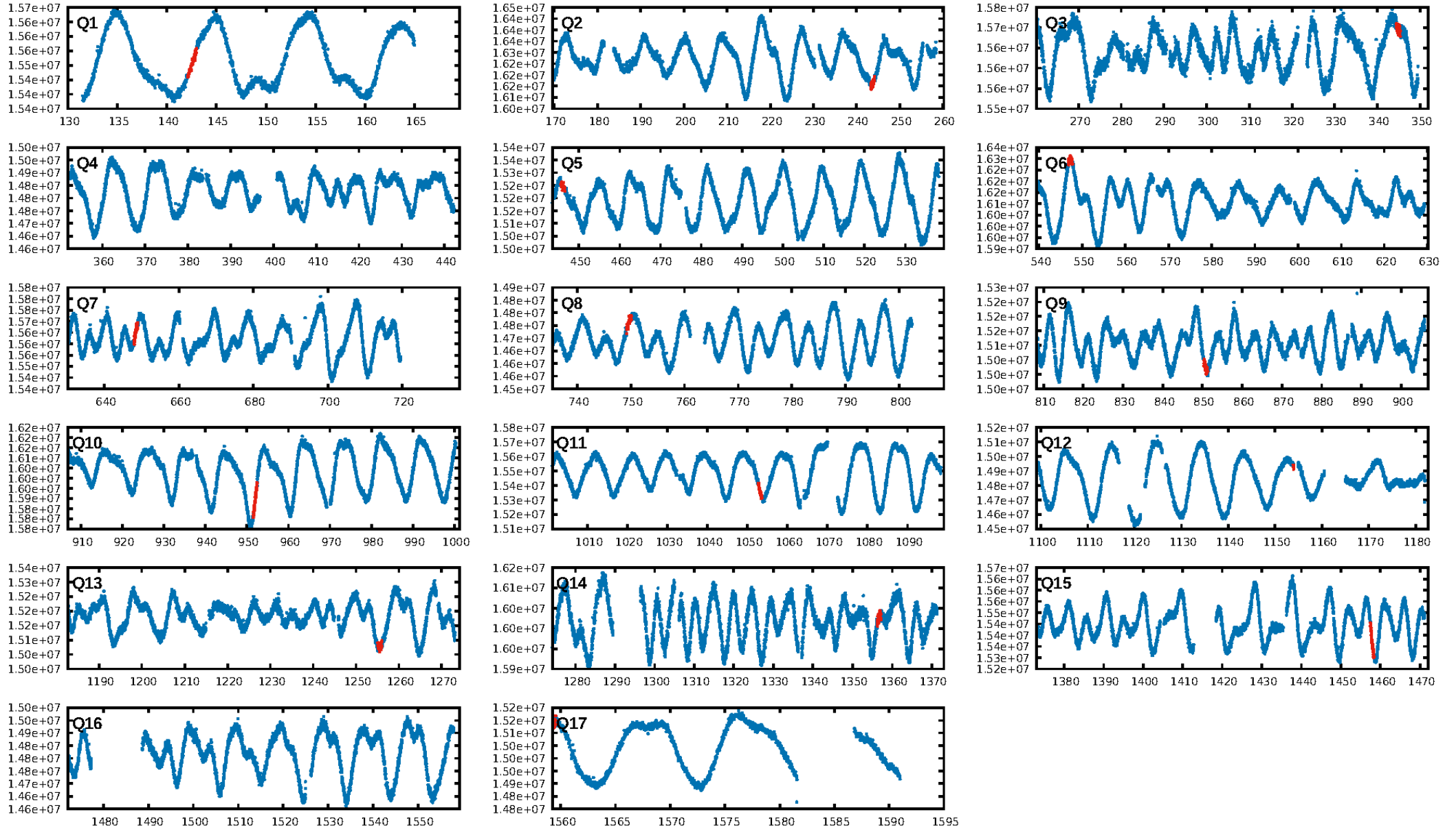
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.79σ]
LongPeriod-sig: 100.0% [145.94σ]
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.07e-12
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -1.979
Centroid-sig: 10.3%
Centroid-so: 1.142 arcsec [1.44σ]
OotOffset-rm: 0.660 arcsec [1.20σ]
KicOffset-rm: 0.486 arcsec [1.01σ]
OotOffset-st: 4/4/1/2 [11]
KicOffset-st: 4/4/1/2 [11]
DiffImageQuality-fgm: 0.55 [6/11]
DiffImageOverlap-fno: 0.00 [0/13]

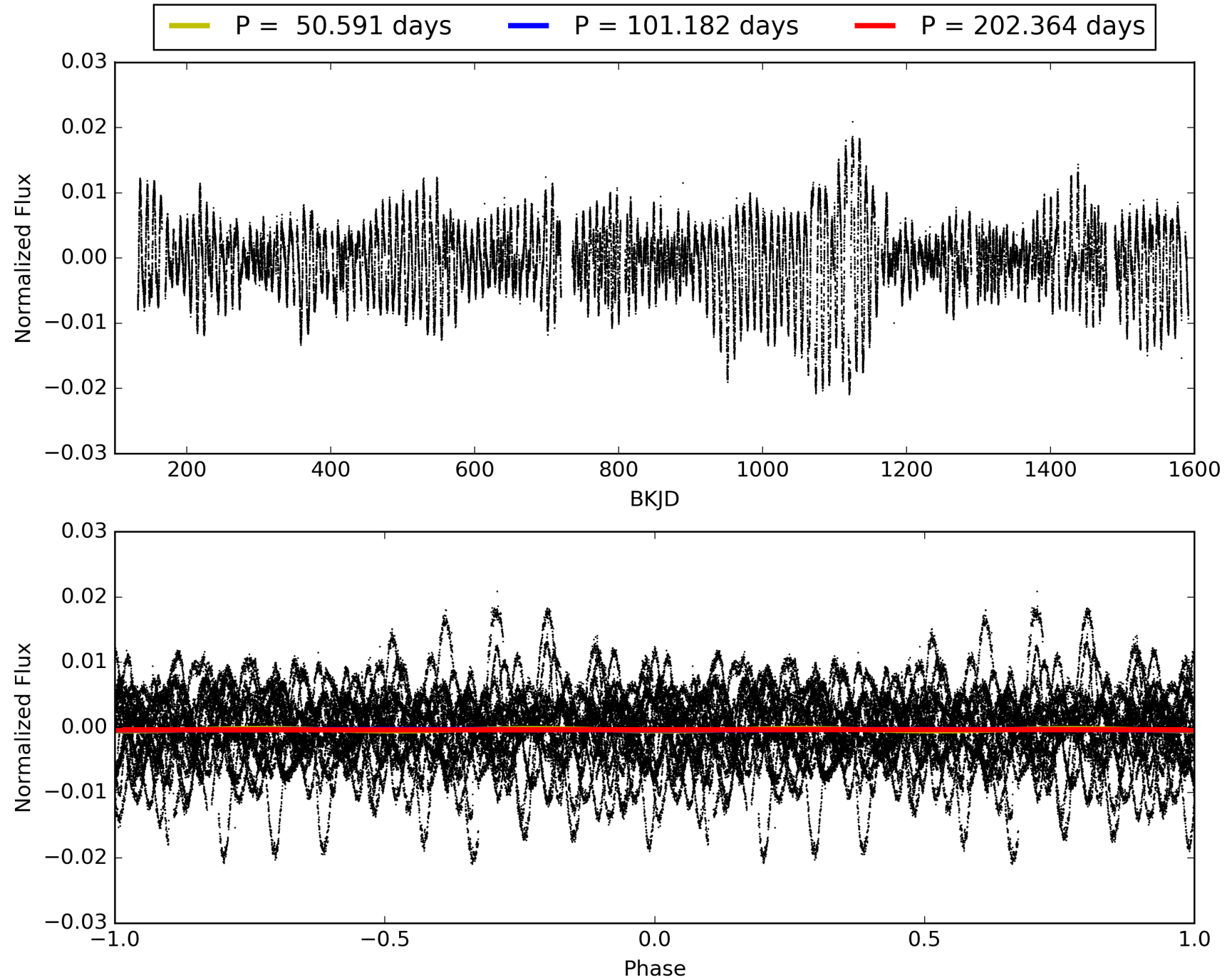
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:58:42 Z

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

TCE 007198648-04, PDC Light Curves

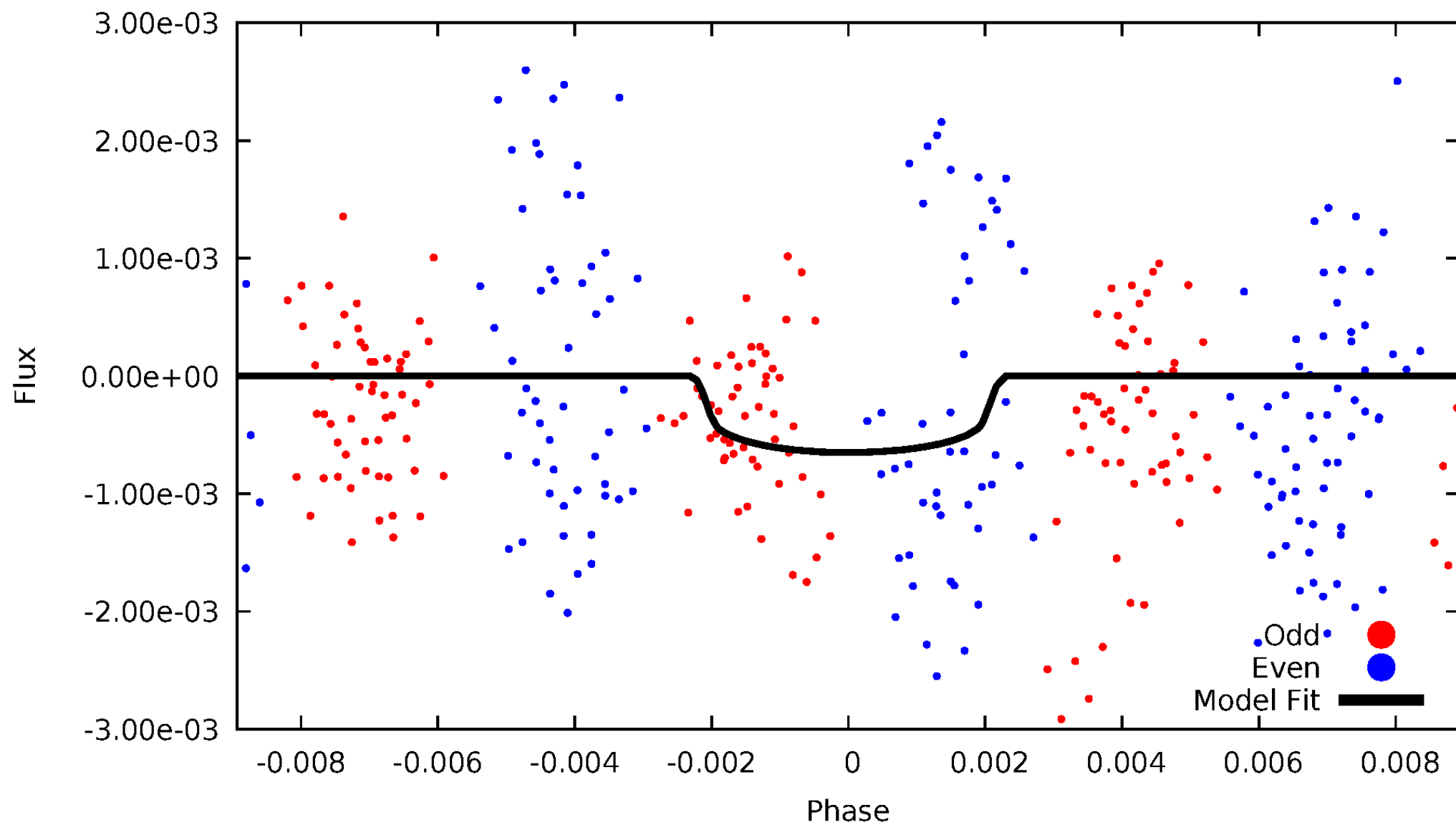


TCE 007198648-04



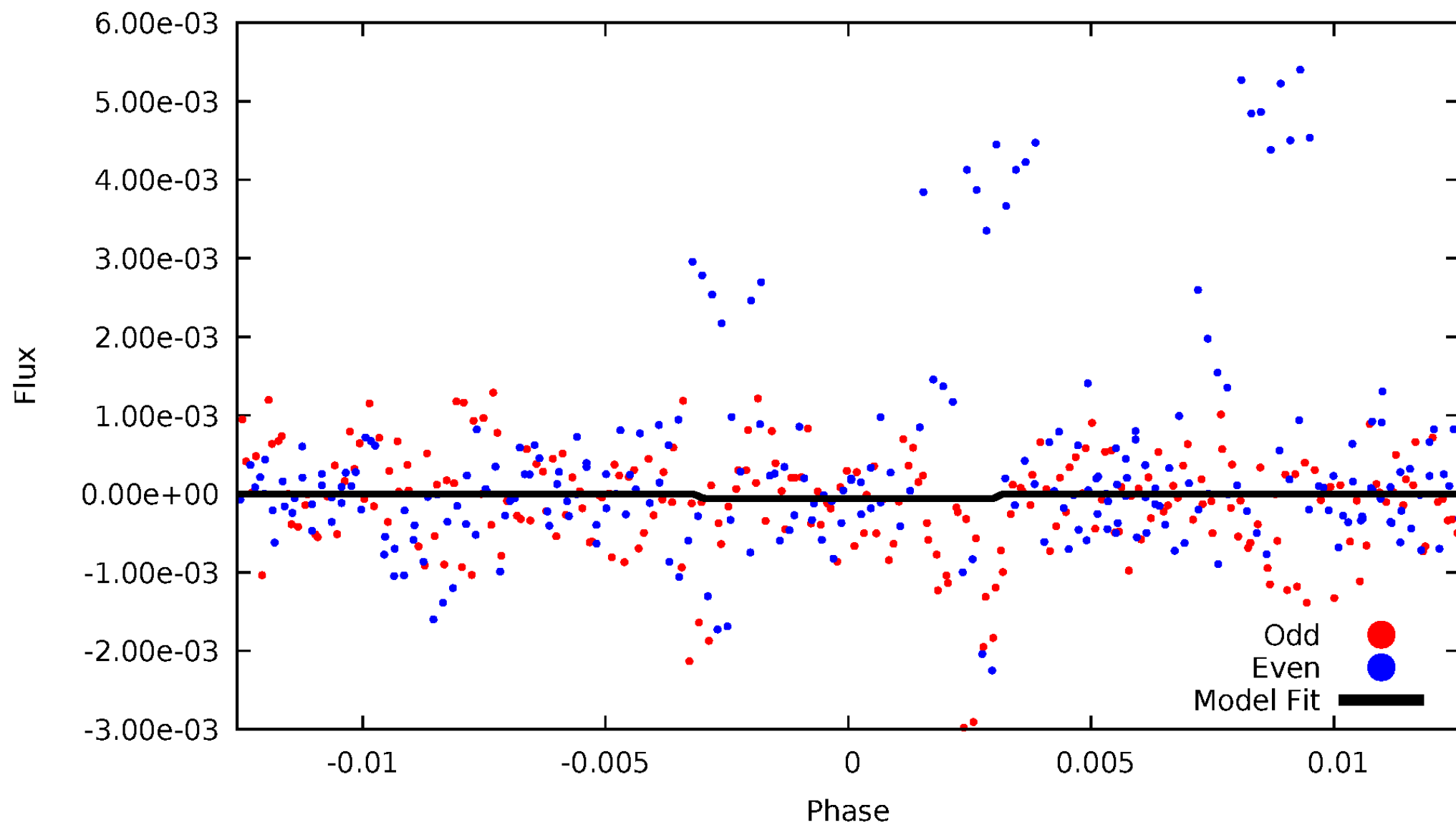
DV Odd/Even

TCE 007198648-04



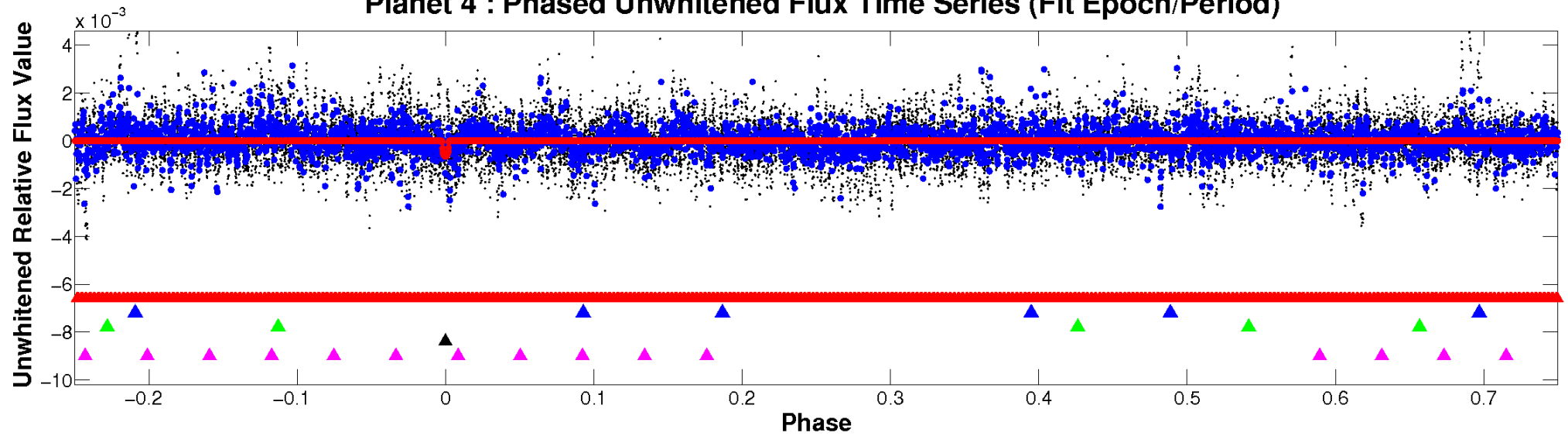
ALT Odd/Even

TCE 007198648-04

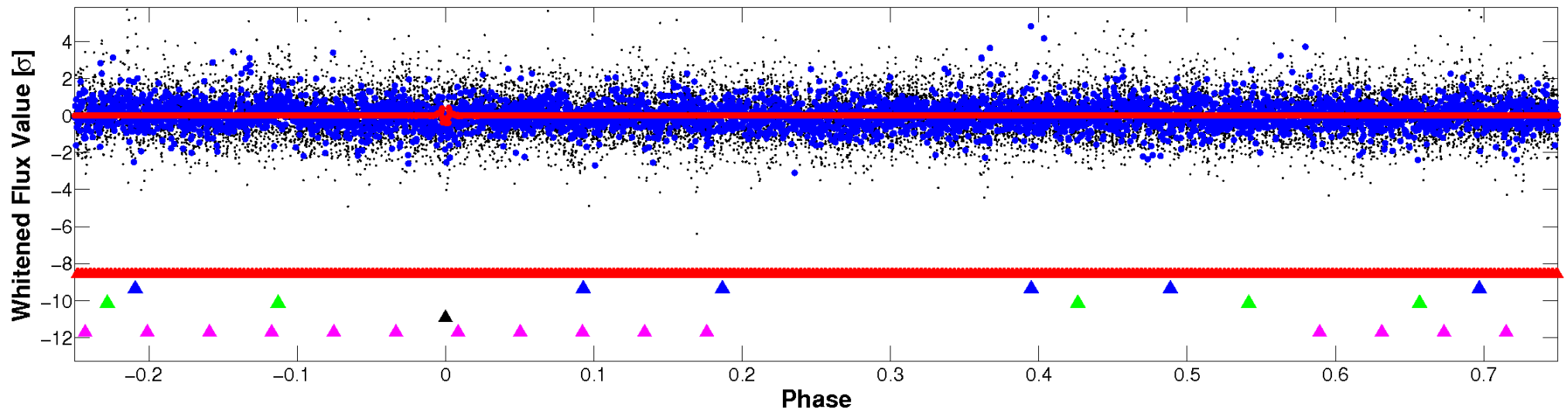


Non-Whitened Vs. Whitened Light Curve

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

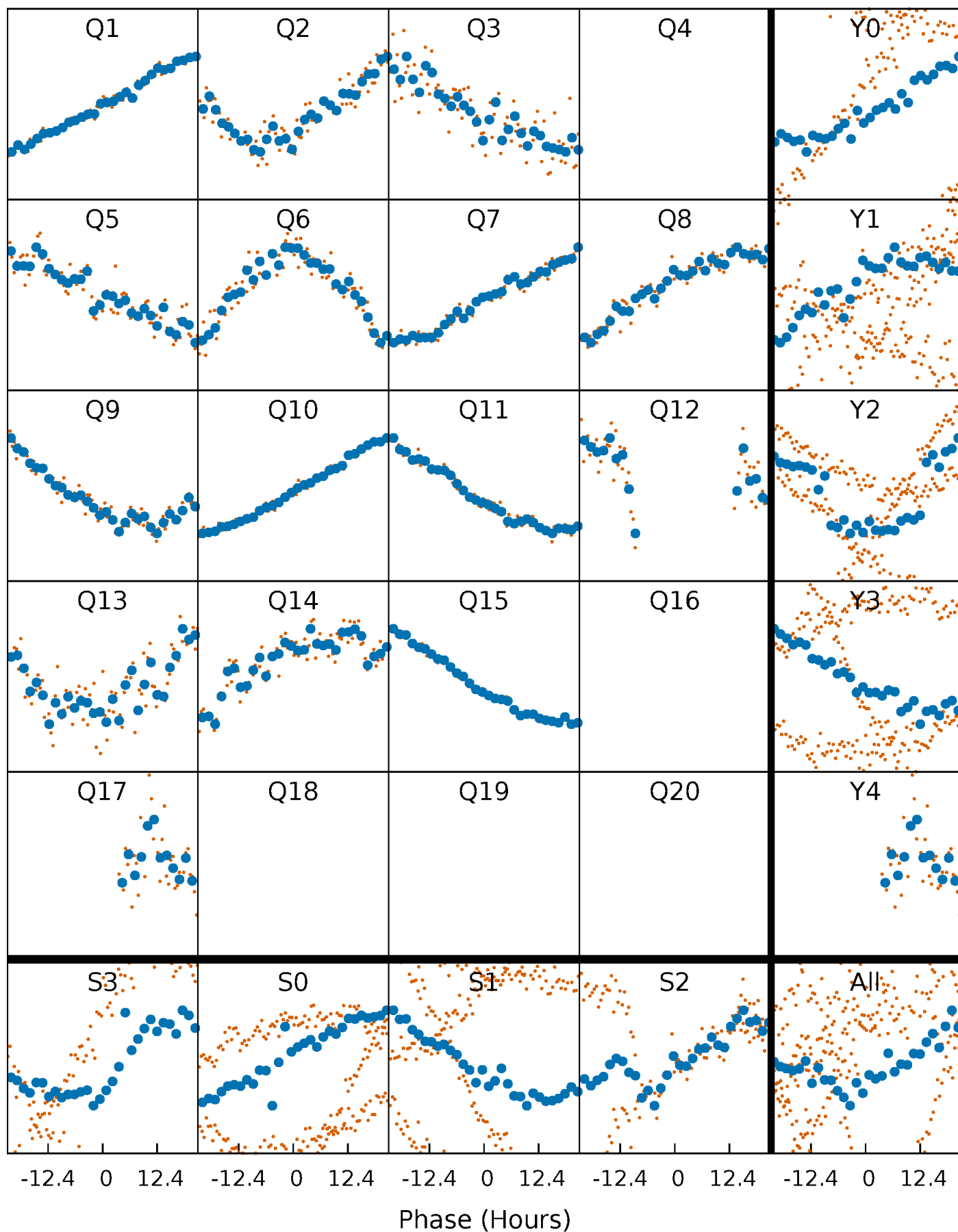


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



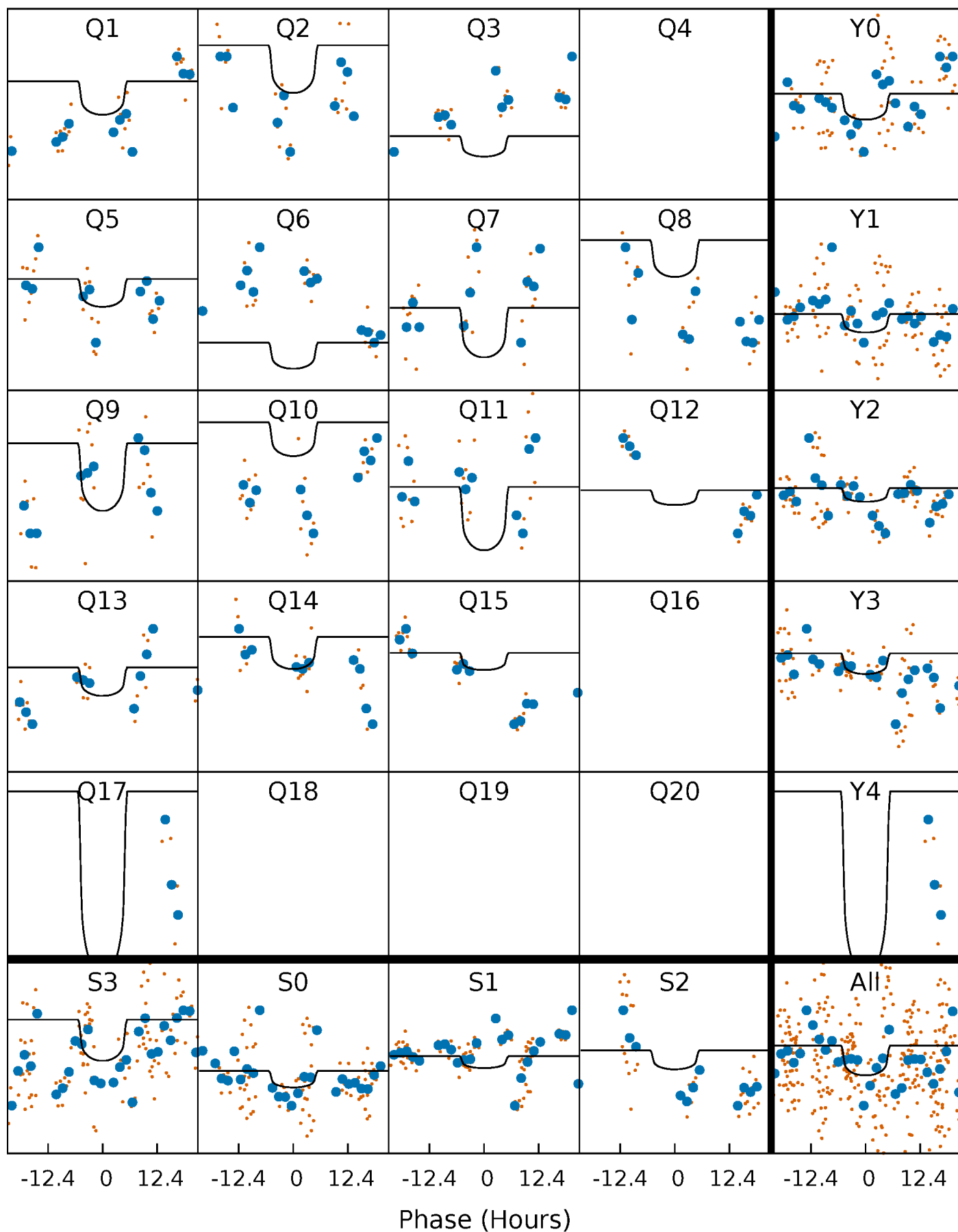
PDC Quarter-Phased Transit Curves

TCE 007198648-04 P=101.182219 Days $T_0=142.538972$ (BKJD)



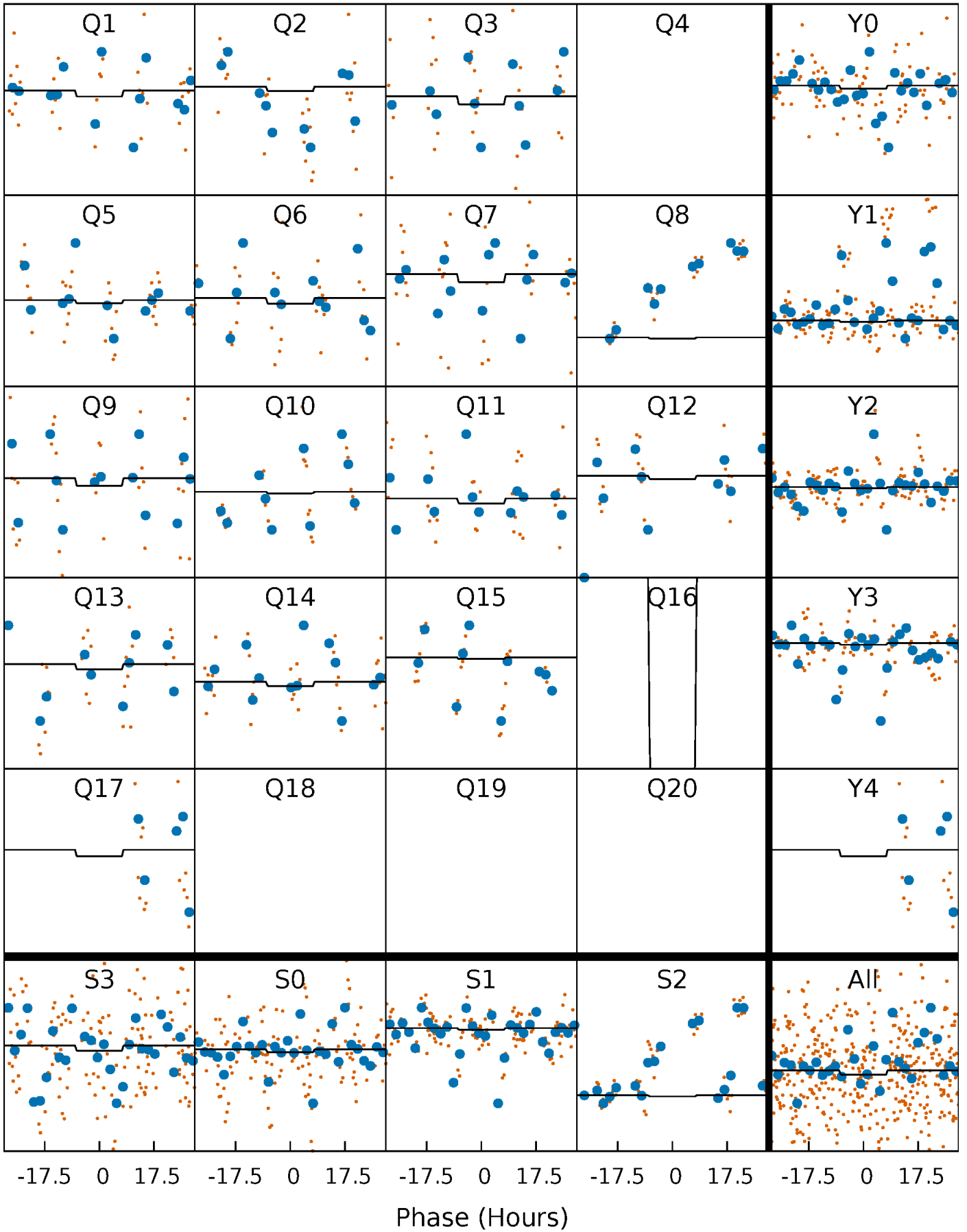
DV Quarter-Phased Transit Curves

TCE 007198648-04 P=101.182219 Days $T_0=142.538972$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

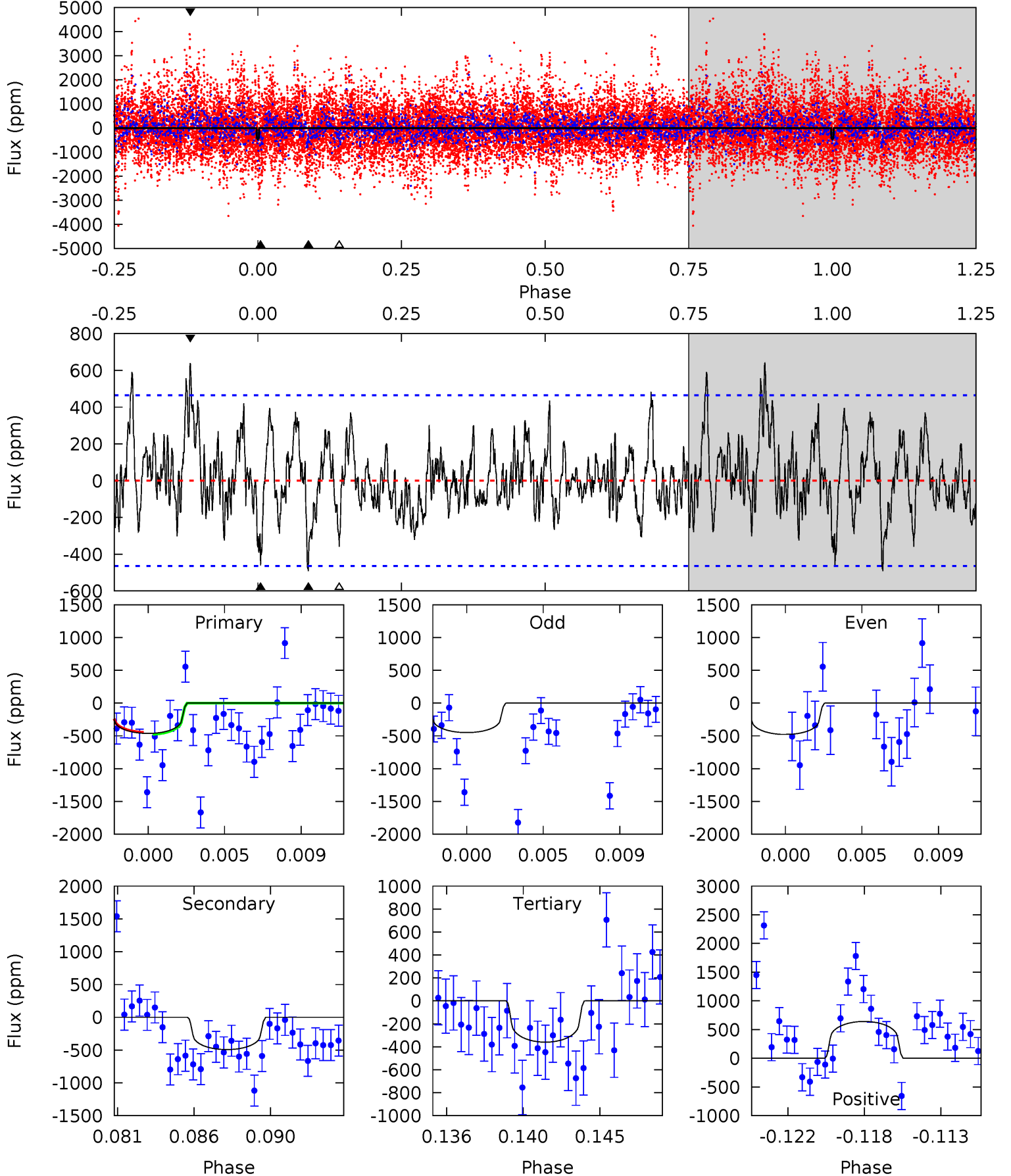
TCE 007198648-04 P=101.214523 Days $T_0=142.173134$ (BKJD)



DV Model-Shift Uniqueness Test

007198648-04, P = 101.182219 Days, E = 41.356753 Days

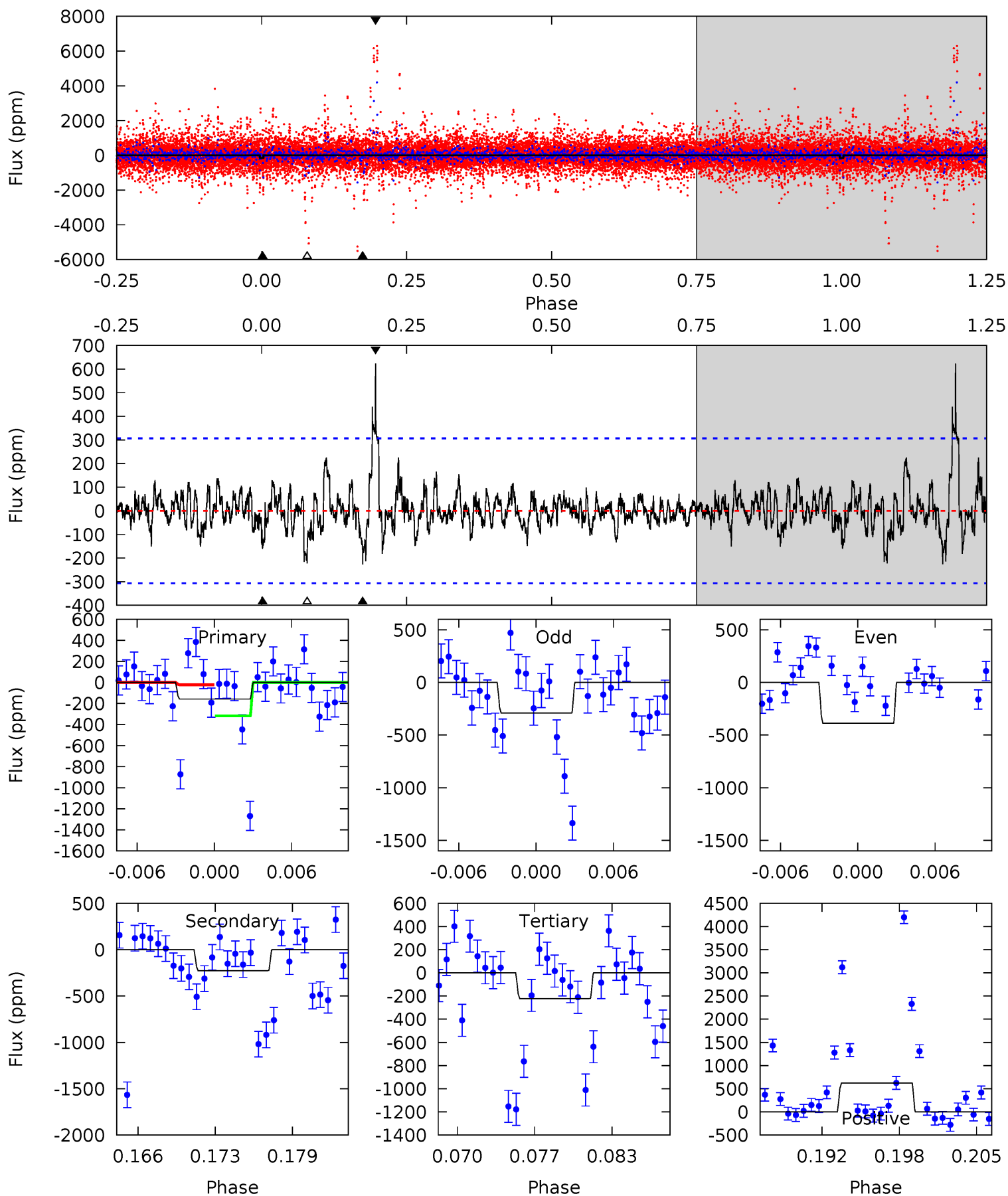
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.14	5.48	3.99	7.12	5.18	2.84	1.77	1.15	-1.98	1.48	-1.64	0.16	0.55	0.57	0.16



Alt Model-Shift Uniqueness Test

007198648-04, P = 101.214523 Days, E = 40.958611 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.63	3.77	3.70	10.4	5.11	2.73	1.16	-1.07	-7.76	0.08	-6.62	0.53	-31.0	0.73	2.46



Stellar Parameters For KIC 007198648

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5488^{+182}_{-182}	$4.584^{+0.036}_{-0.135}$	$-0.180^{+0.300}_{-0.300}$	$0.789^{+0.164}_{-0.070}$	$0.877^{+0.083}_{-0.102}$	$2.514^{+0.451}_{-0.978}$
	+3%/-3%	+1%/-3%	+167%/-167%	+21%/-9%	+9%/-12%	+18%/-39%
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 007198648-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-491 ± 90	$2.31^{+0.90}_{-0.90}$	481^{+26}_{-21}	5104^{+1357}_{-660}	8010^{+13998}_{-3929}
Alt.	-226 ± 60	$0.98^{+0.75}_{-0.65}$	481^{+26}_{-21}	6367^{+6672}_{-1554}	$20544^{+159952}_{-14310}$

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 $A_{obs} \gg 1.0$

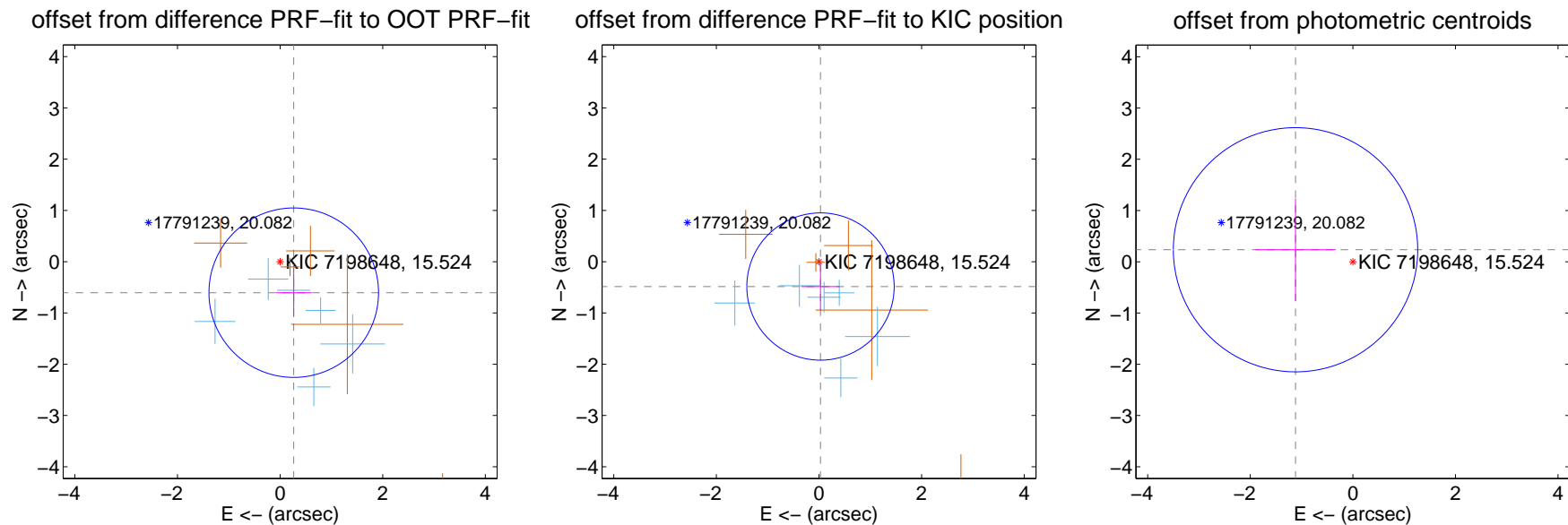
DV Centroid Data

Supplemental centroid analysis for 007198648-04. Kepler magnitude: 15.52. Transit SNR 3.63

There are 6 quarters with good PRF difference image offsets

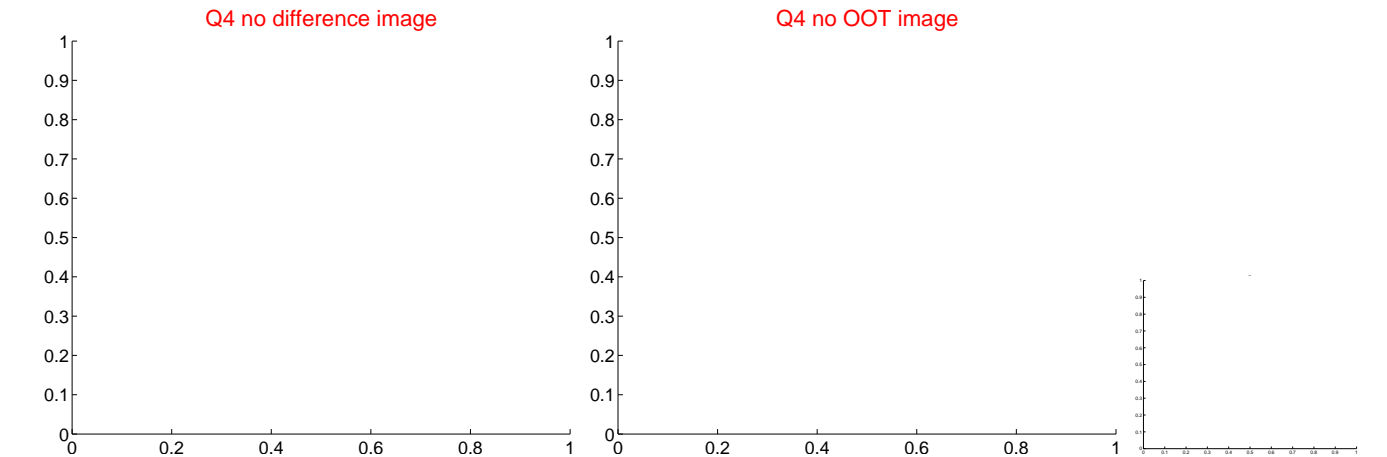
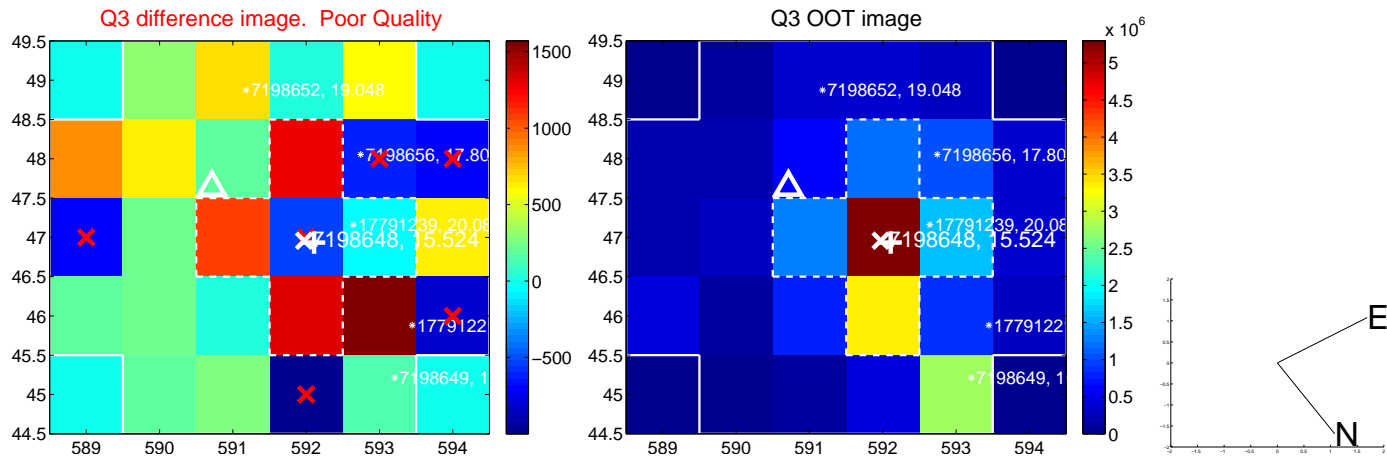
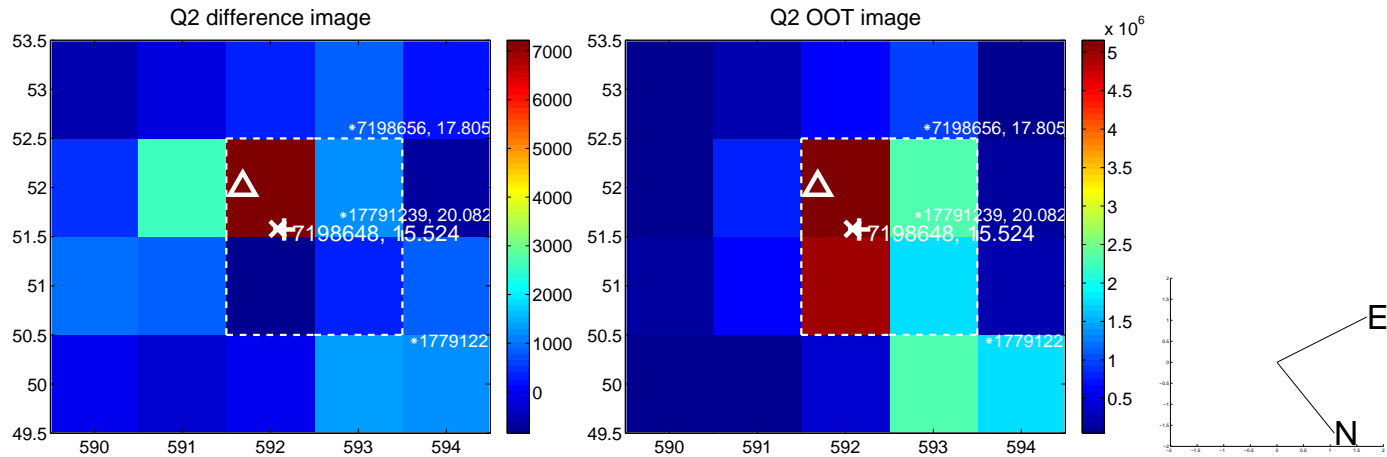
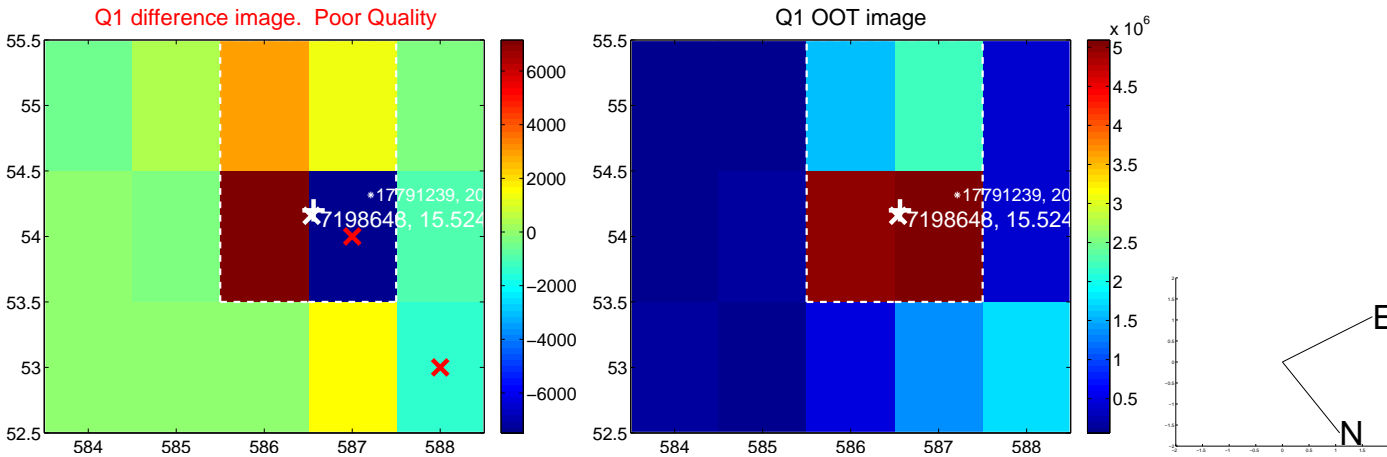
The direct PRF centroid is offset from the target star catalog position by about 0.52 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.660 ± 0.551	1.20	-0.266 ± 0.354	-0.605 ± 0.475
PRF-fit source offset from KIC position	0.486 ± 0.479	1.01	-0.029 ± 0.374	-0.485 ± 0.463
photometric centroid source offset	1.14 ± 0.79	1.44	1.12 ± 0.78	0.23 ± 1.00

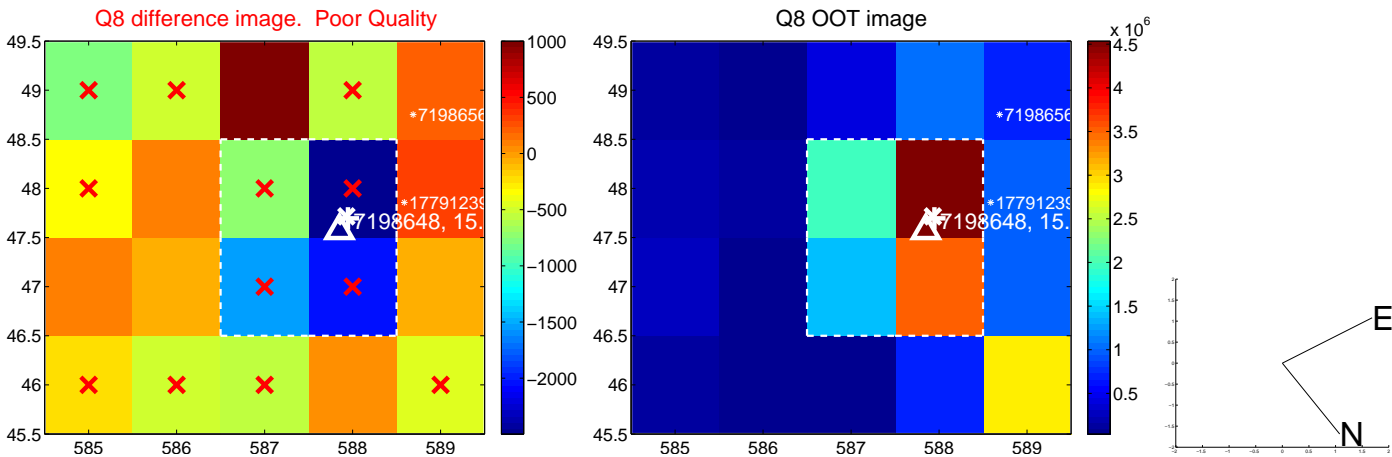
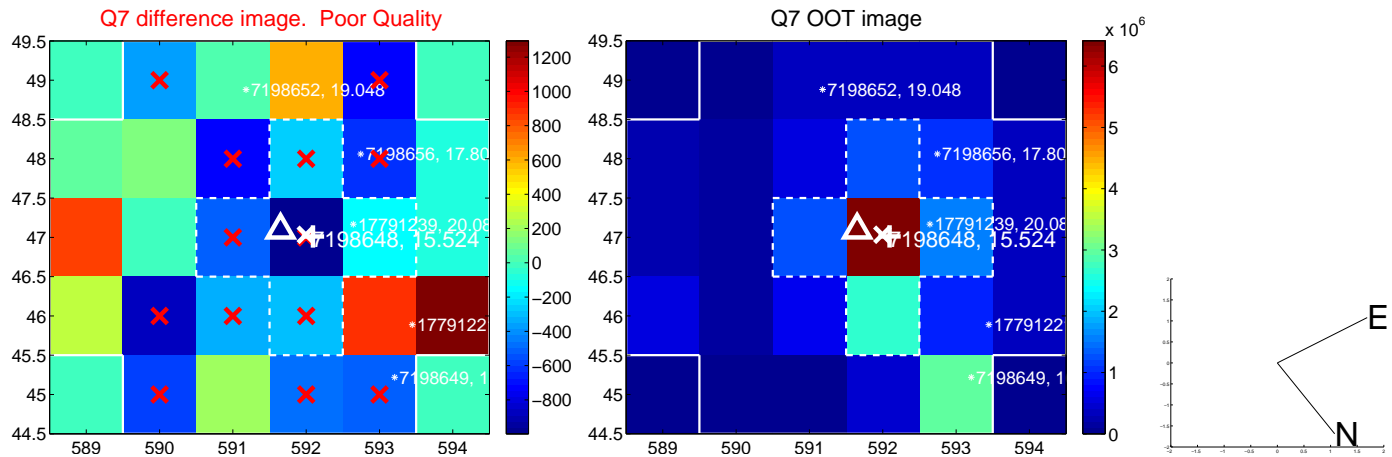
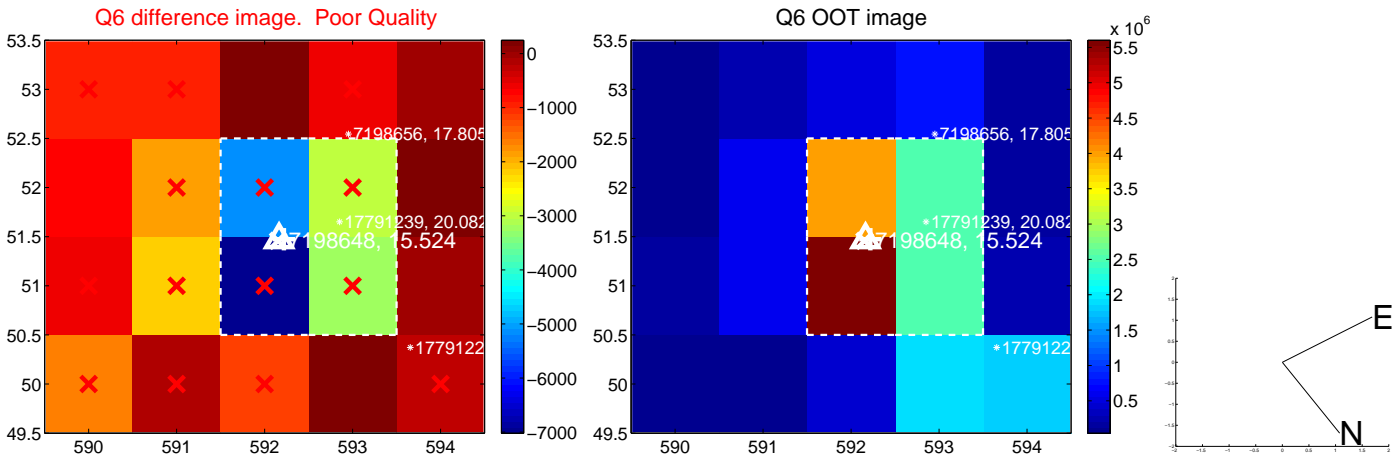
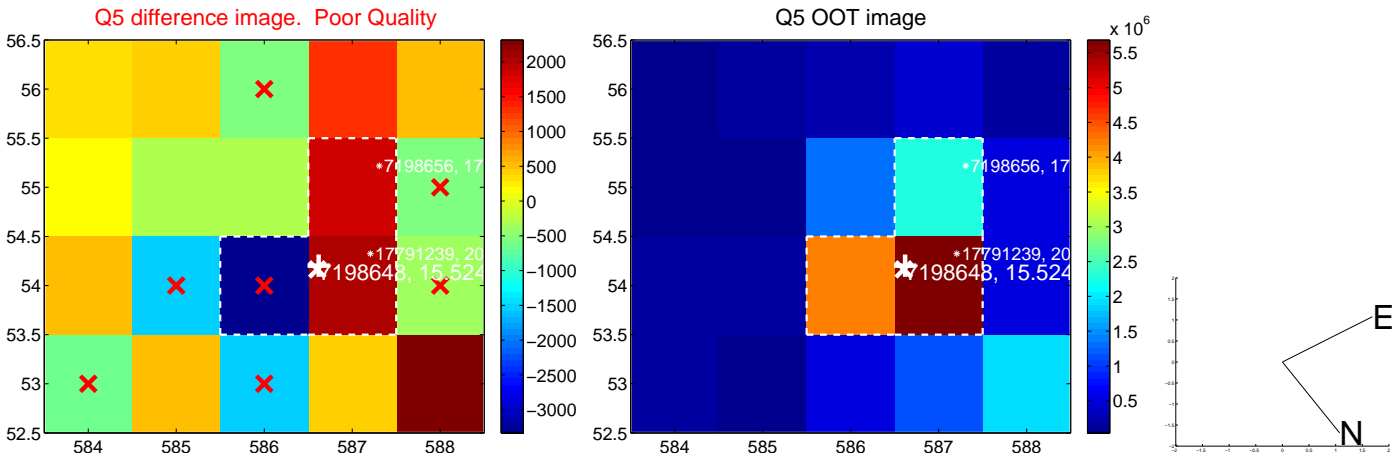


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

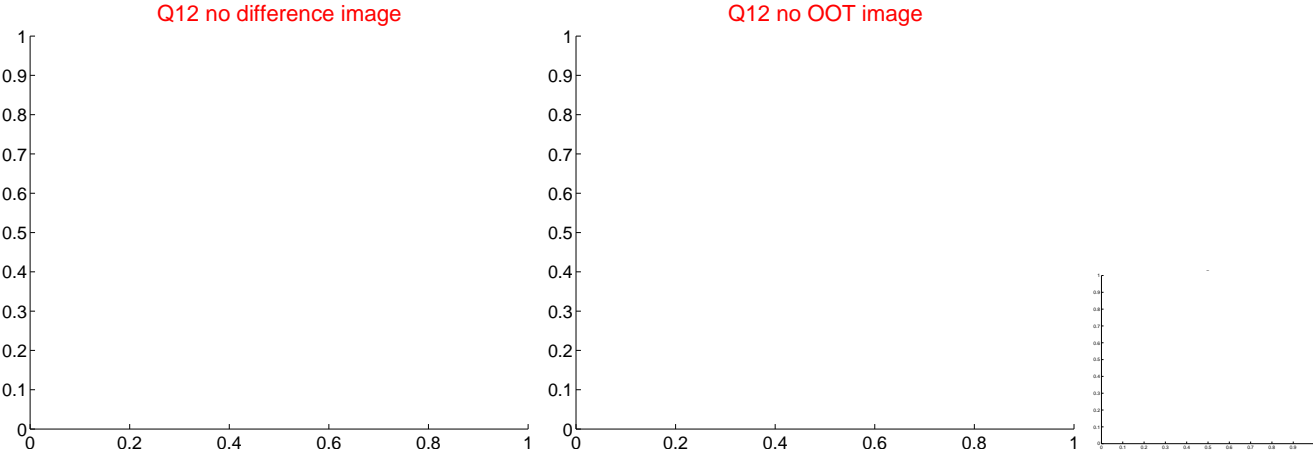
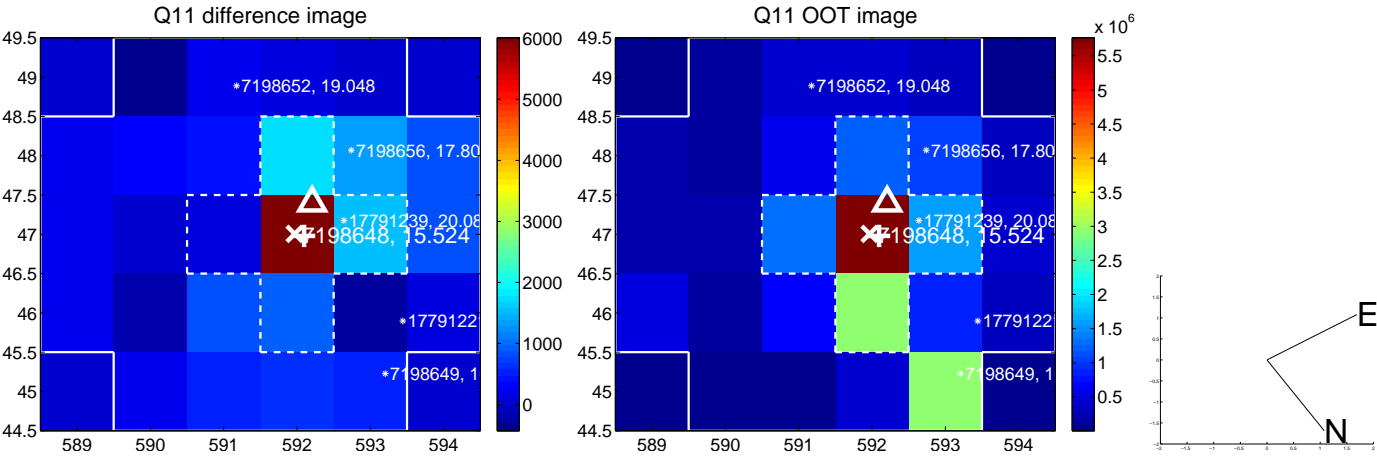
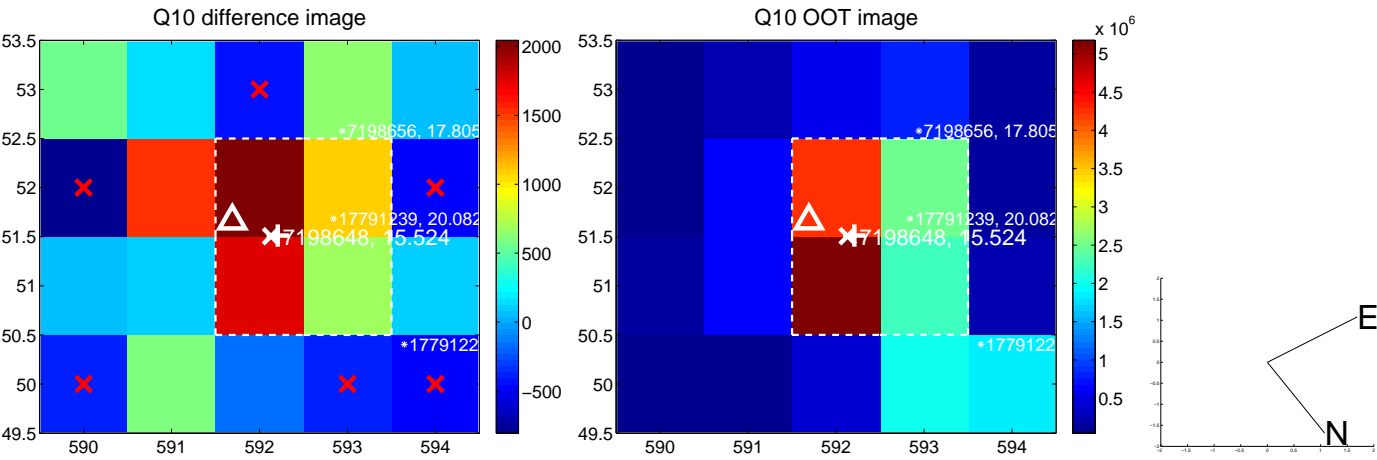
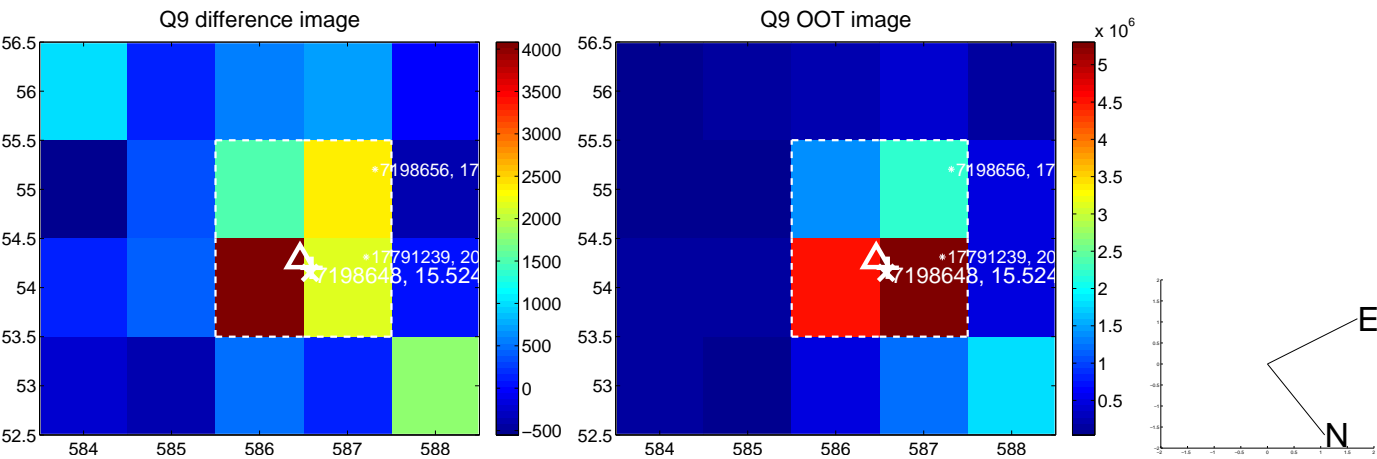
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



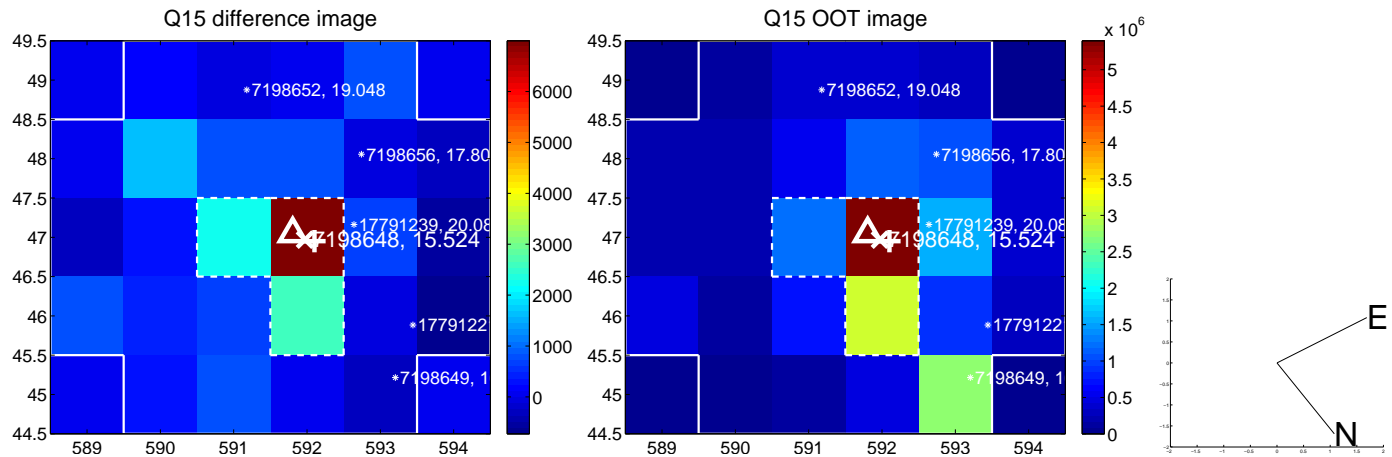
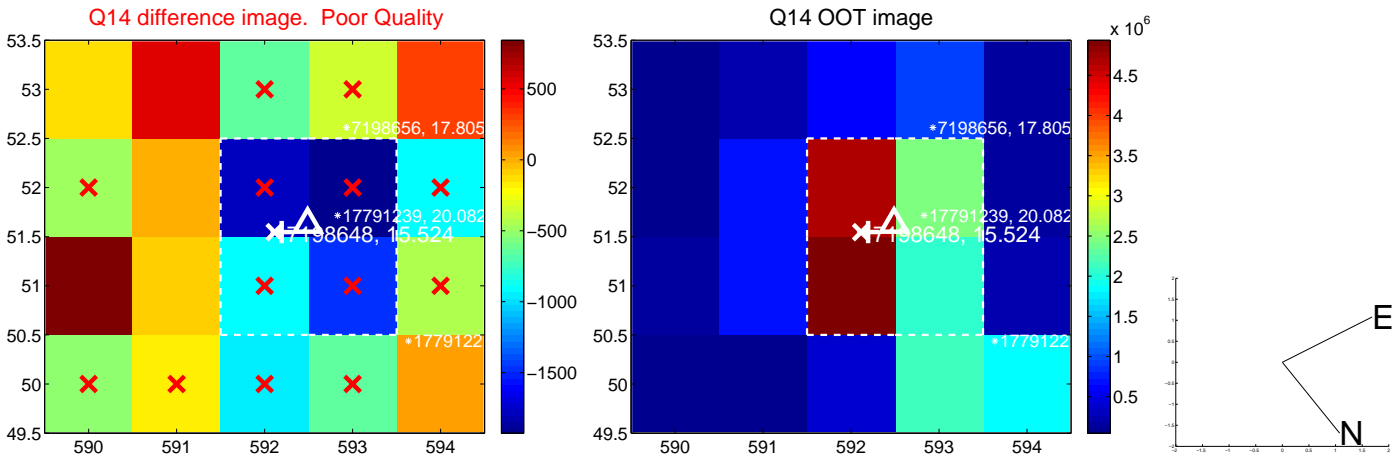
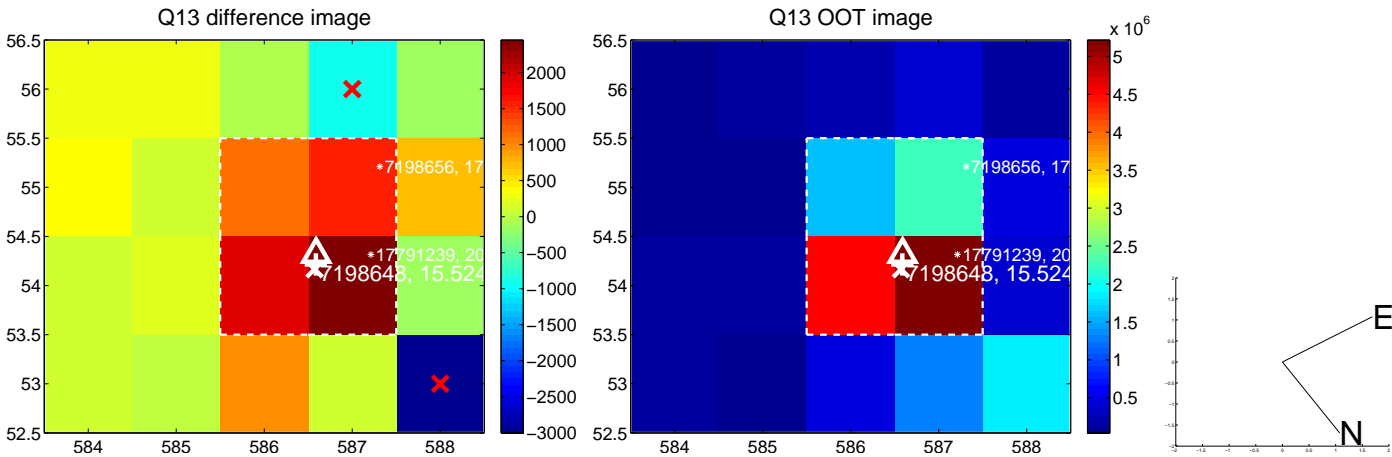
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



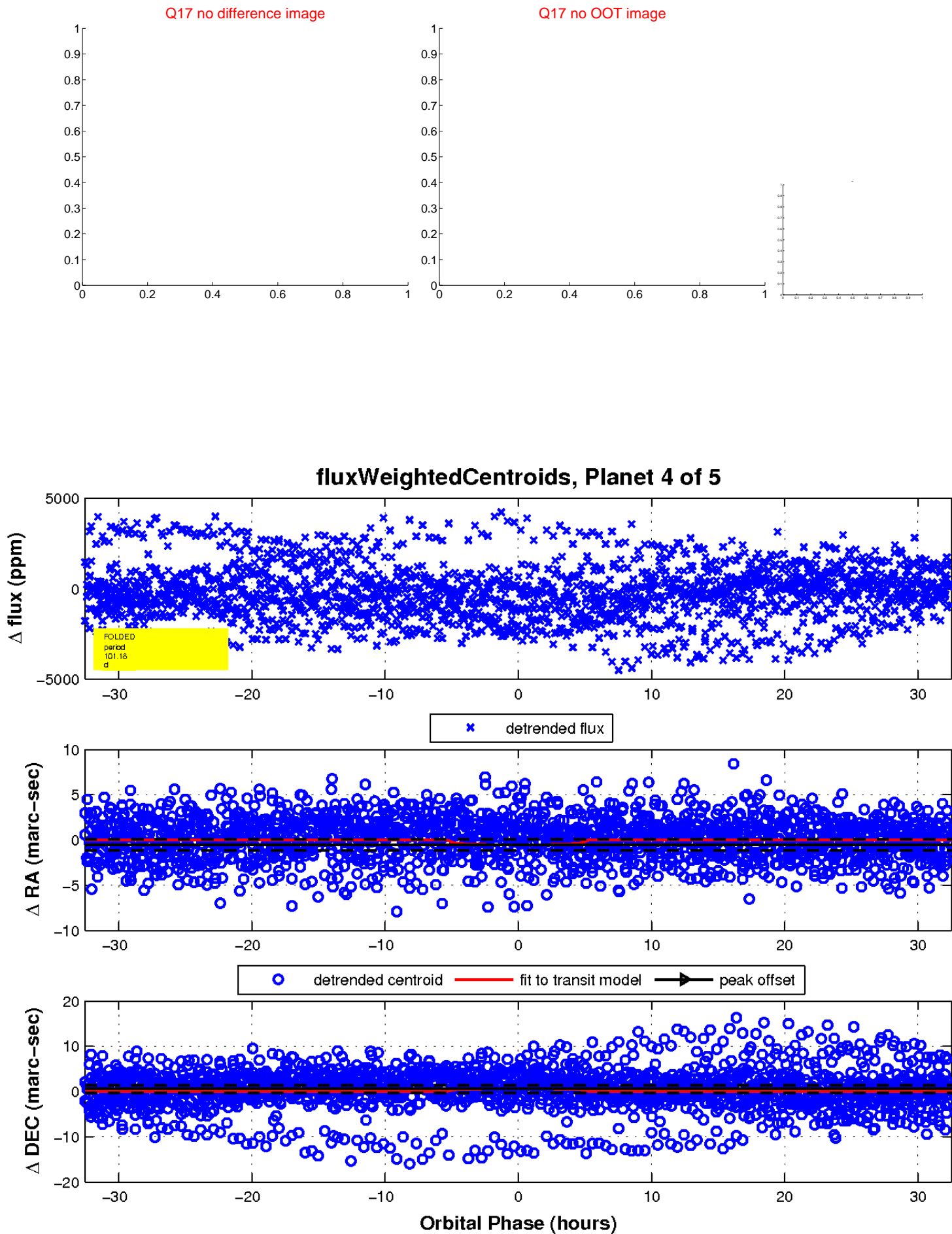
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

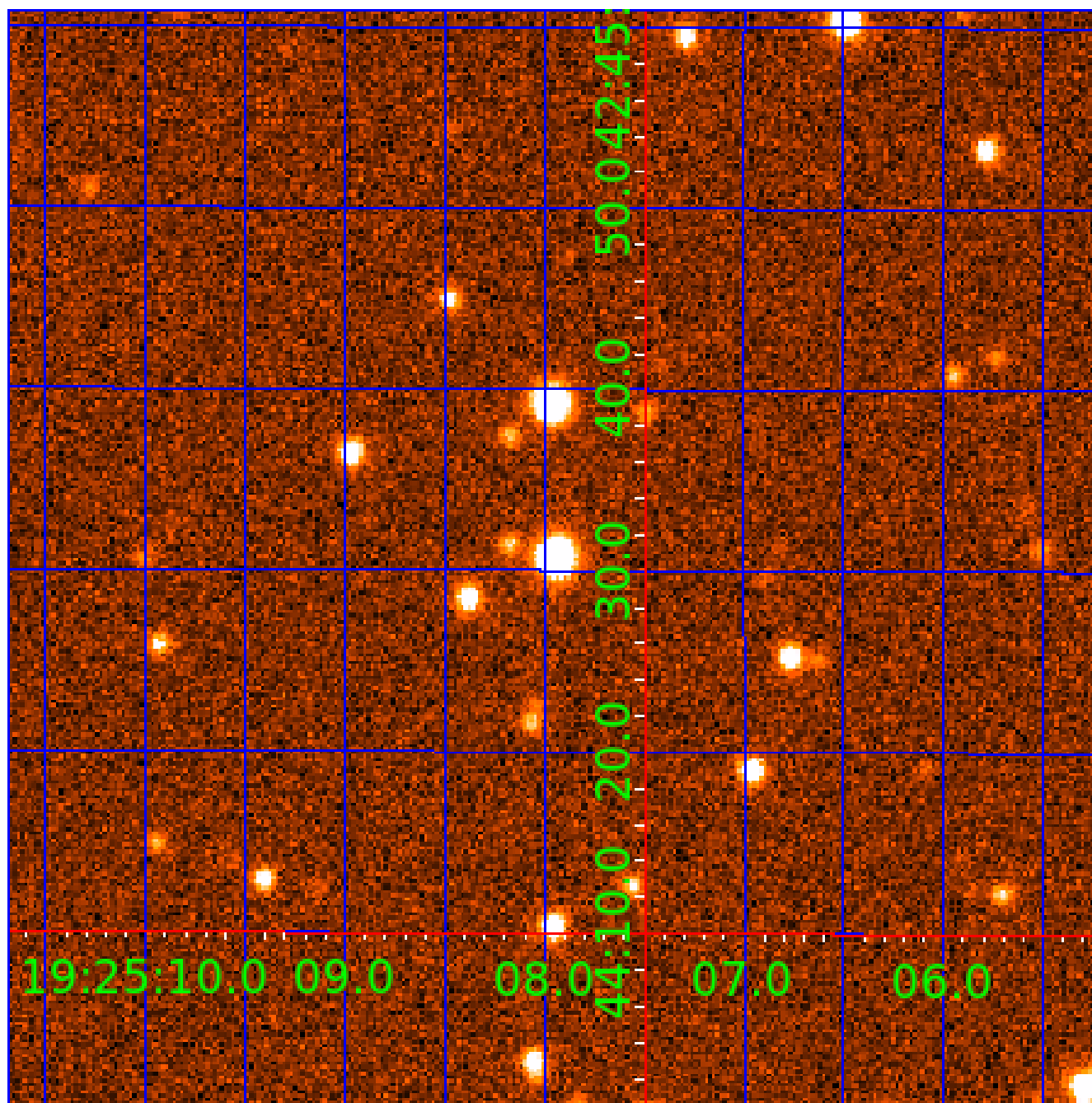


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007198648

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})
007198648-01	OBS	6840.01	0.566797	131.686829	74.2	3.087	12.9	12.9	0.79	5488	0.73	3085.78
007198648-02	OBS	No	232.927077	262.613170	1829.3	18.755	10.4	5.7	0.79	5488	3.59	1.01
007198648-04	OBS	No	101.182219	142.538972	650.2	10.846	9.6	3.6	0.79	5488	2.21	3.07
007198648-05	OBS	No	96.941397	160.365096	718.4	10.353	11.0	4.2	0.79	5488	2.34	3.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007198648-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_KIC_POS—EPHEM_MATCH
007198648-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
007198648-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
007198648-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_UNRESOLVED_OFFSET

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.

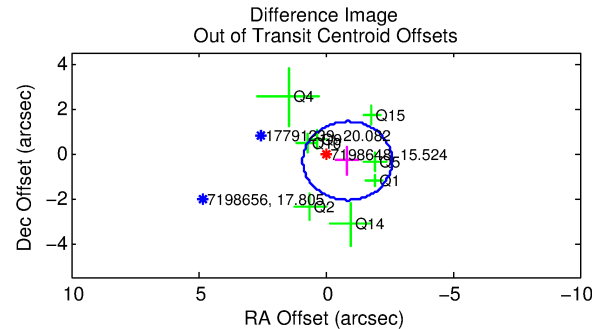
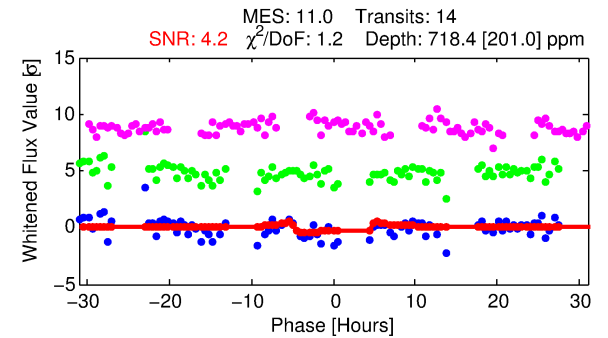
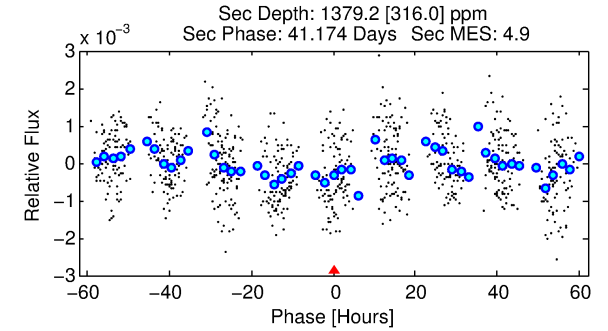
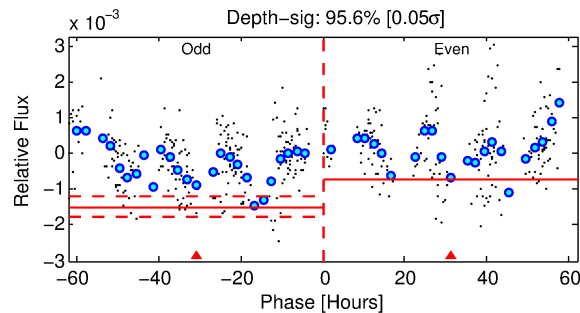
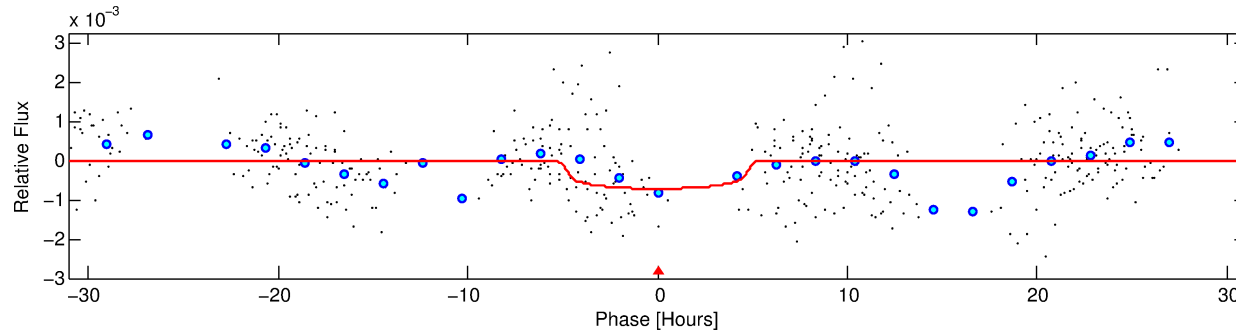
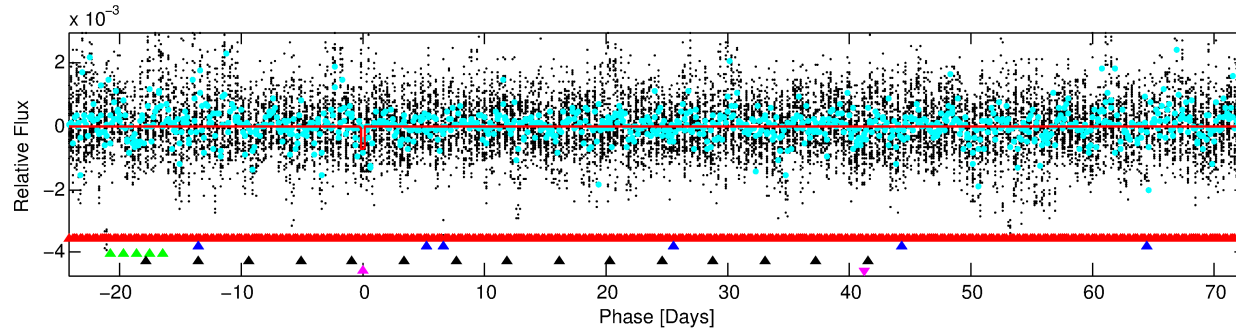
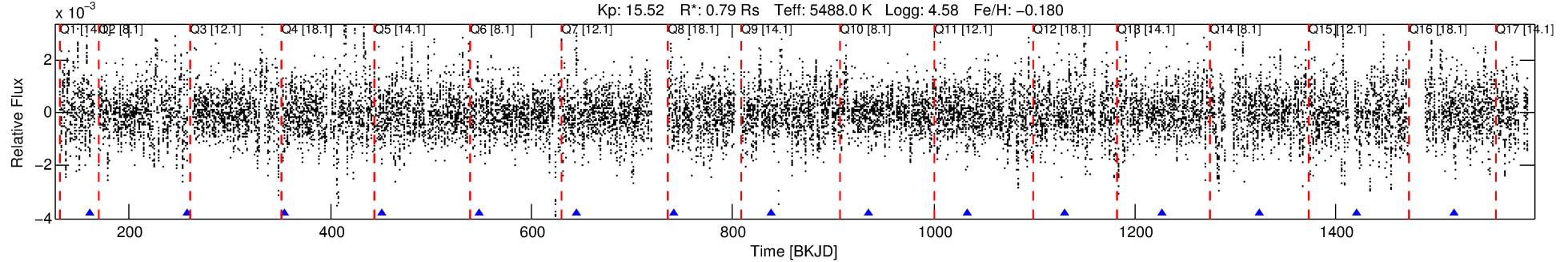
Ephemeris Match Information For 007198648-05

No Significant Match Found

DV One-Page Summary

KIC: 7198648 Candidate: 5 of 5 Period: 96.941 d
KOI: K06840 Corr: No Ephemeris Match

Kp: 15.52 R*: 0.79 Rs Teff: 5488.0 K Logg: 4.58 Fe/H: -0.180



DV Fit Results:

Period = 96.94140 [0.00534] d
Epoch = 160.3651 [0.0589] BKJD
Rp/R* = 0.0271 [0.0095]
a/R* = 47.13 [56.52]
b = 0.79 [0.60]
Seff = 3.25 [0.92]
Teq = 342 [24] K
Rp = 2.34 [0.95] Re
a = 0.3945 [0.0683] AU
Ag = 21615.15 [16757.38] [1.29σ]
Teffp = 6419 [1197] K [5.07σ]

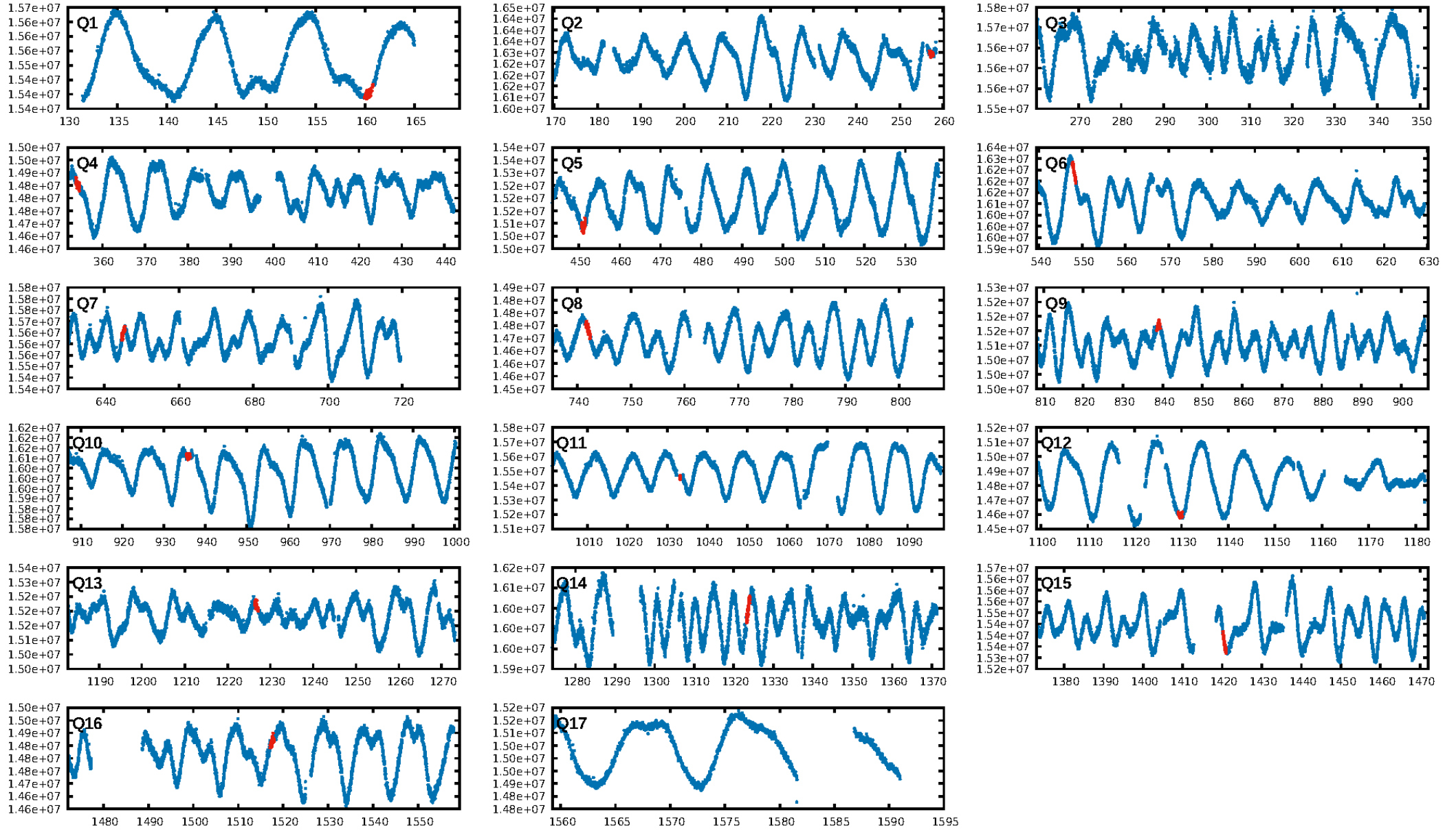
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [214.10σ]
LongPeriod-sig: 100.0% [6.79σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.21e-14
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: -75.62
Centroid-sig: 1.8%
Centroid-so: 2.588 arcsec [2.94σ]
OotOffset-rm: 0.920 arcsec [1.58σ]
OotOffset-st: 3/1/1/3 [8]
KicOffset-rm: 0.717 arcsec [1.38σ]
KicOffset-st: 3/1/1/3 [8]
DiffImageQuality-fgm: 0.50 [4/8]
DiffImageOverlap-fno: 0.00 [0/11]

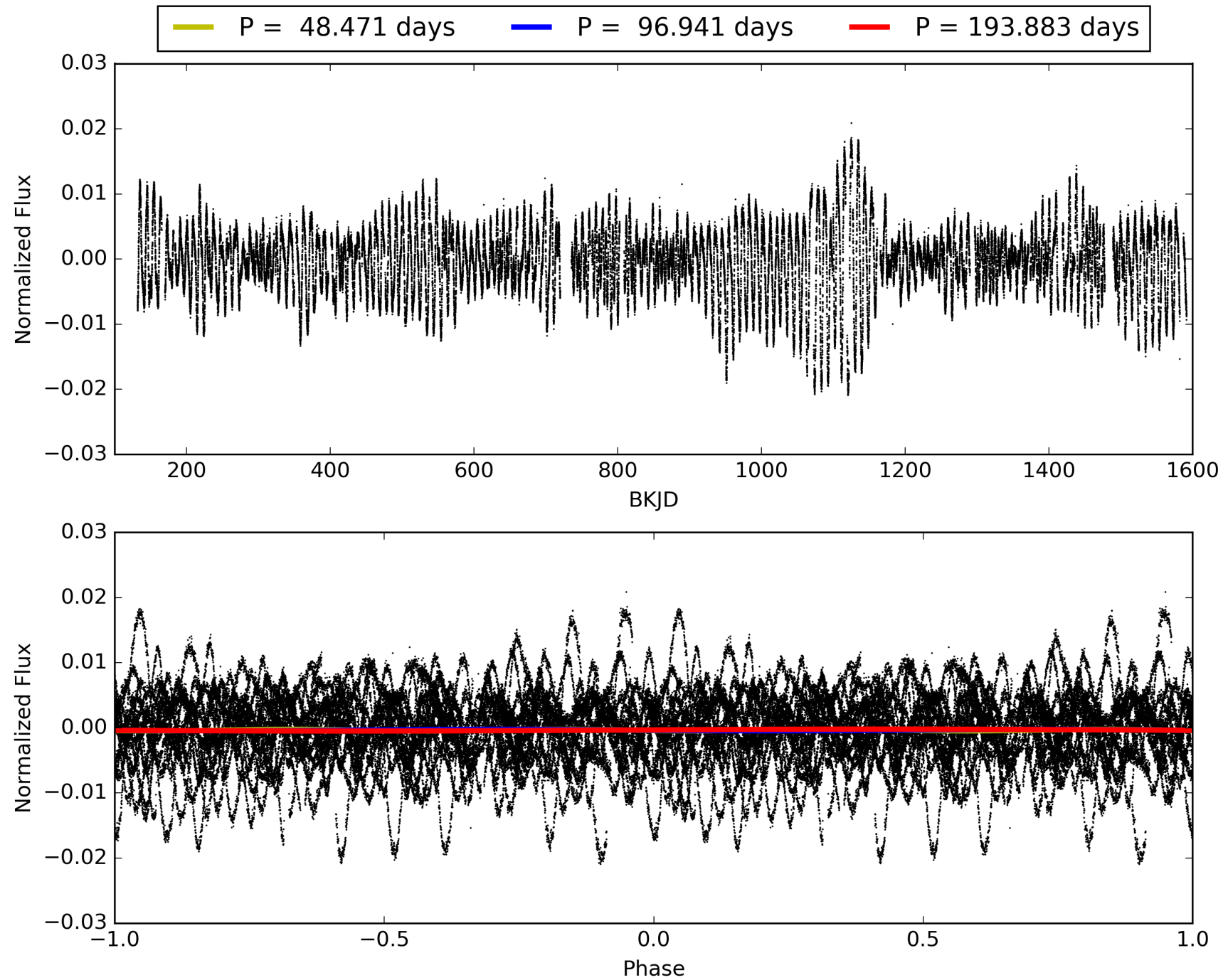
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:58:46 Z

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

TCE 007198648-05, PDC Light Curves

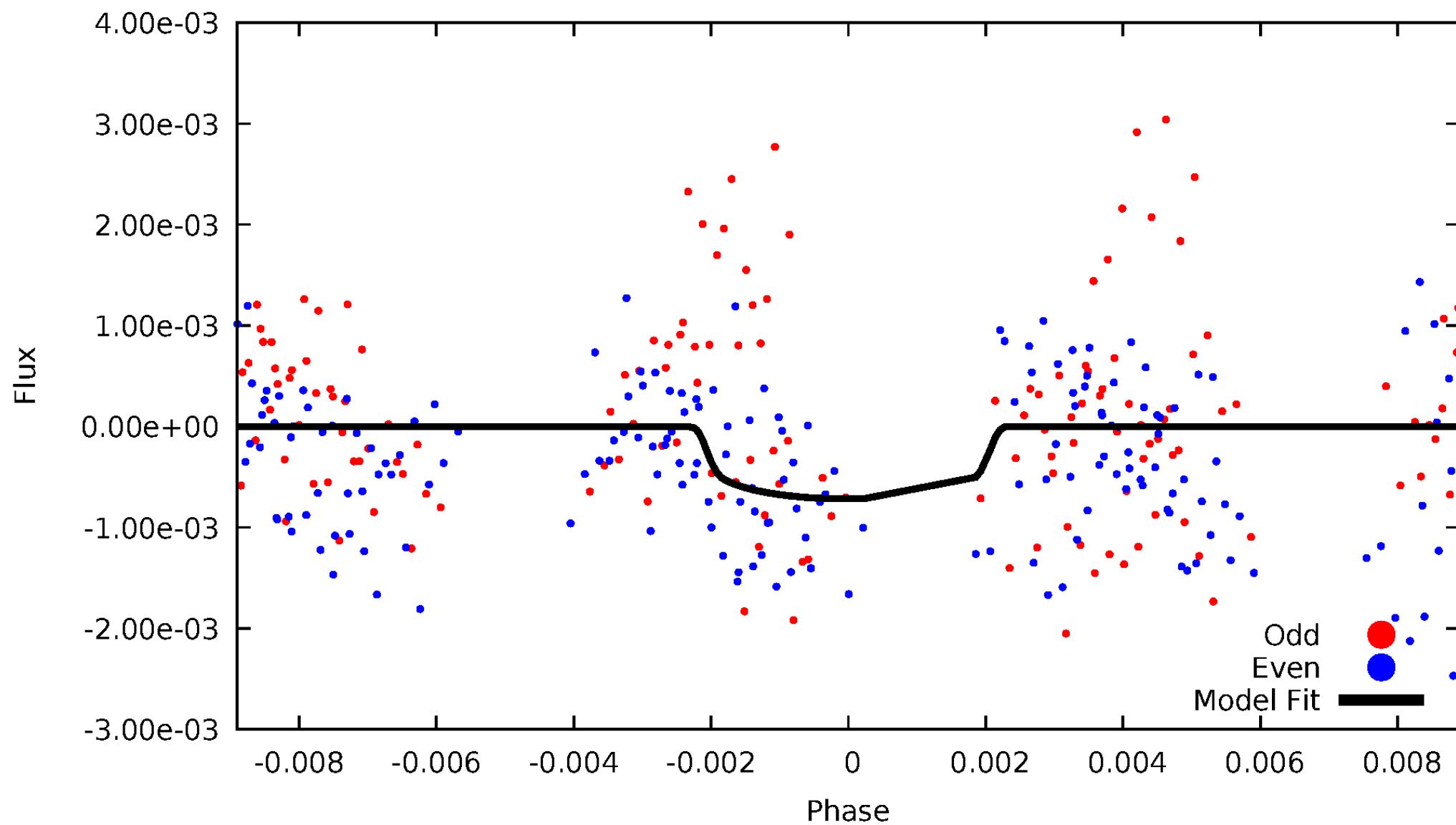


TCE 007198648-05



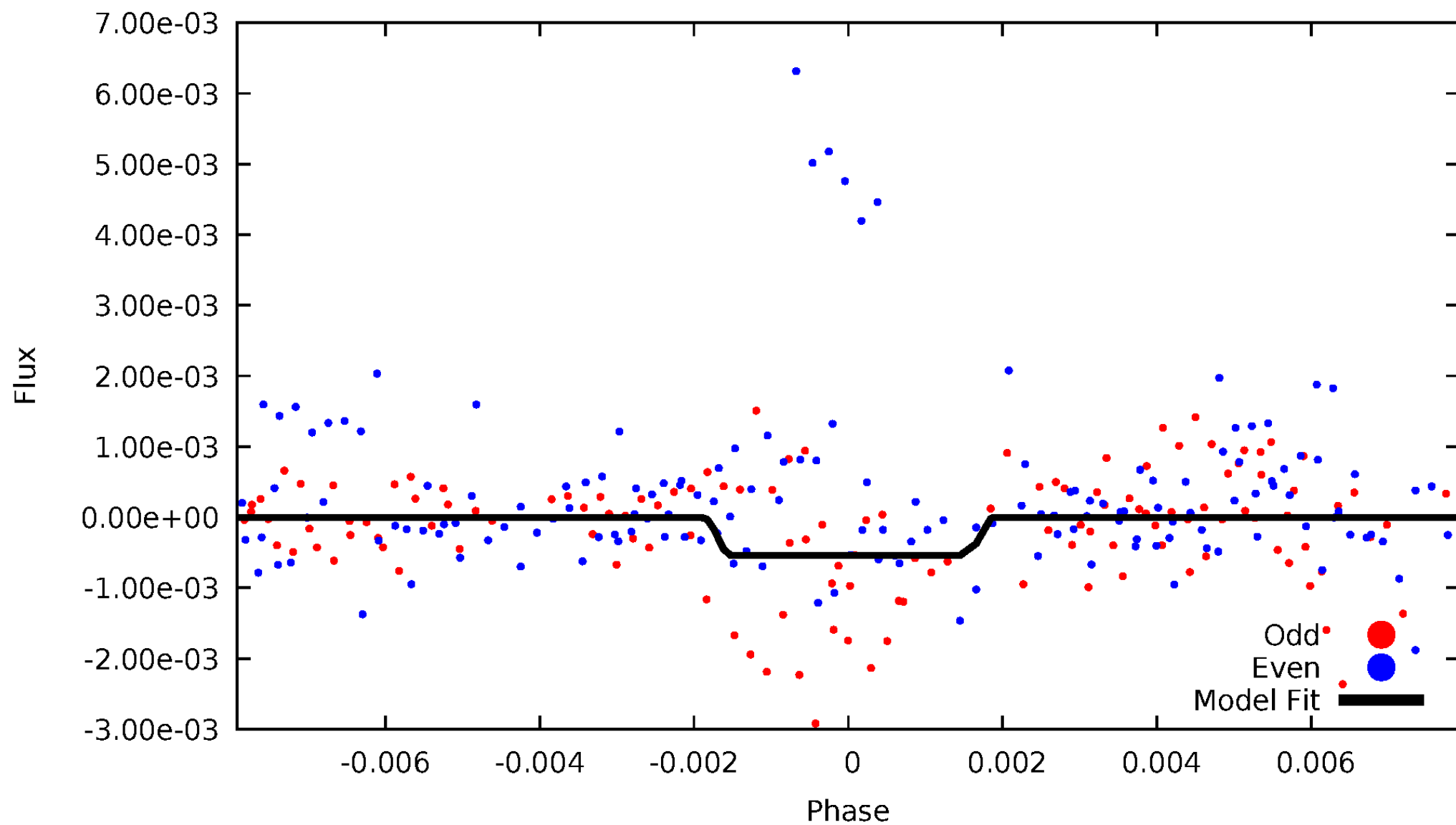
DV Odd/Even

TCE 007198648-05



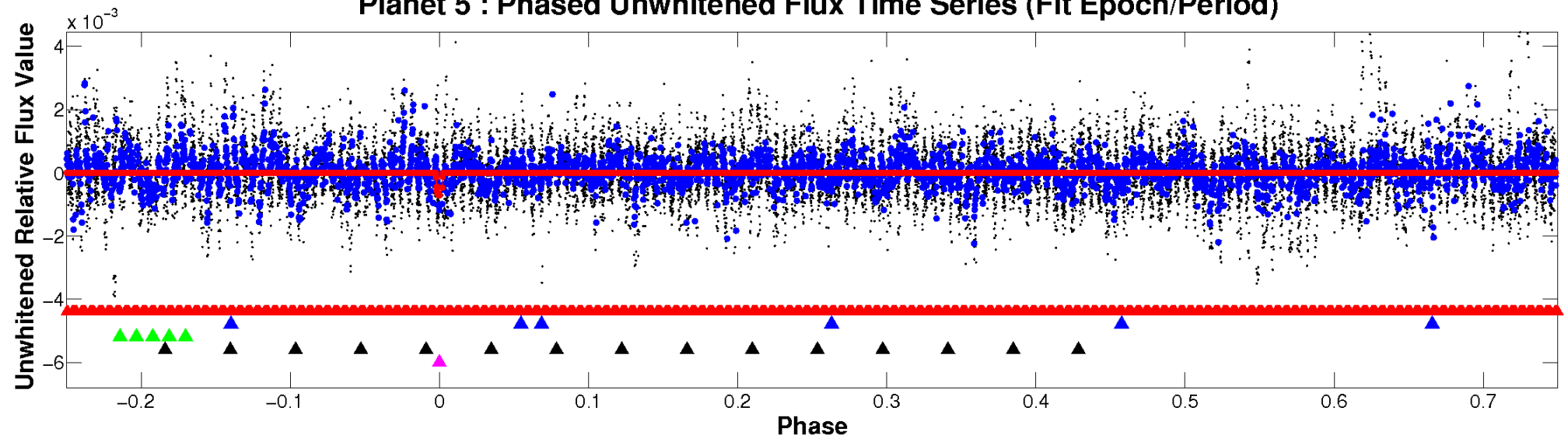
ALT Odd/Even

TCE 007198648-05

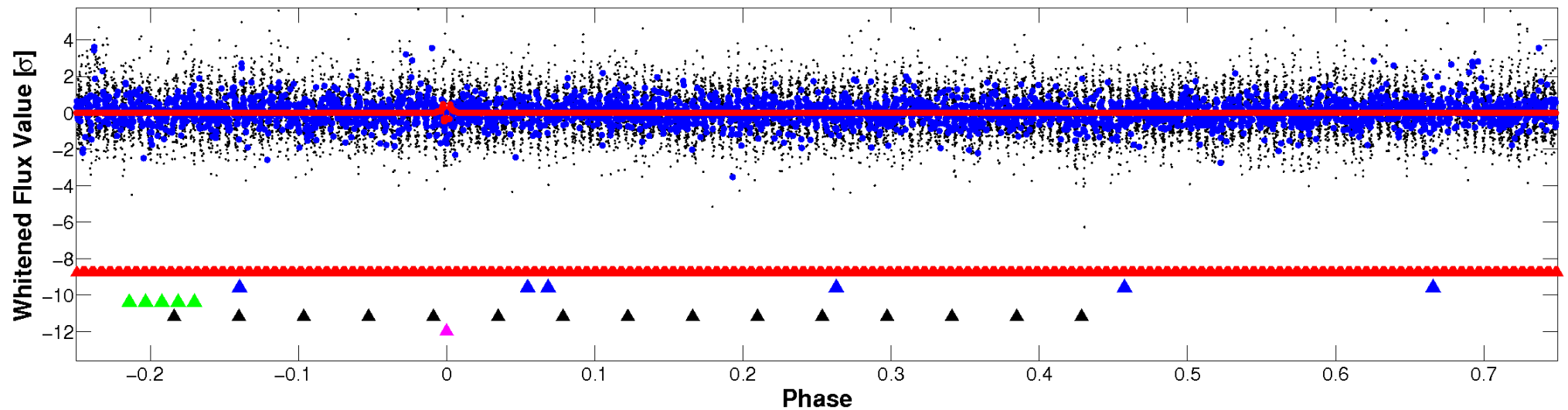


Non-Whitened Vs. Whitened Light Curve

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

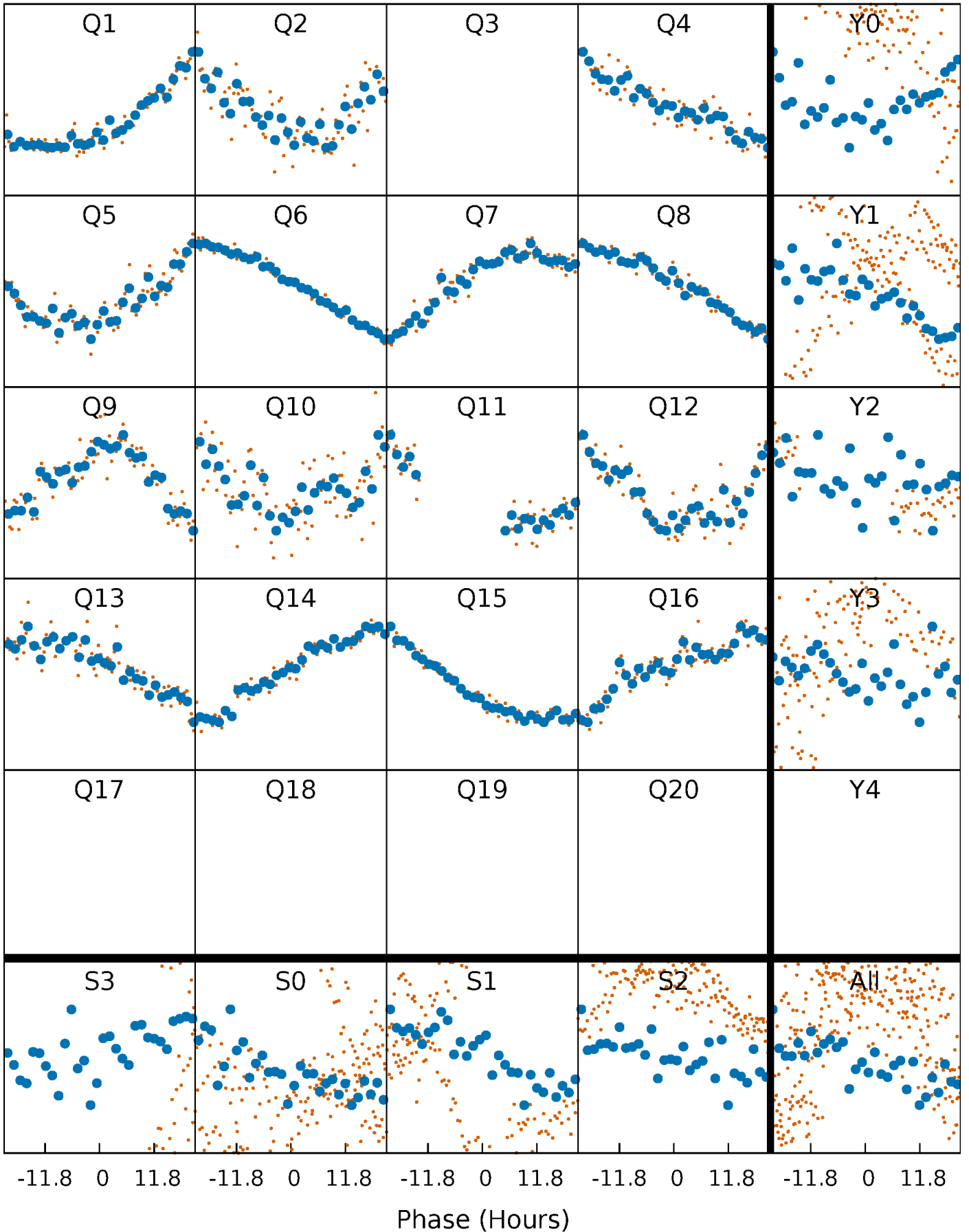


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



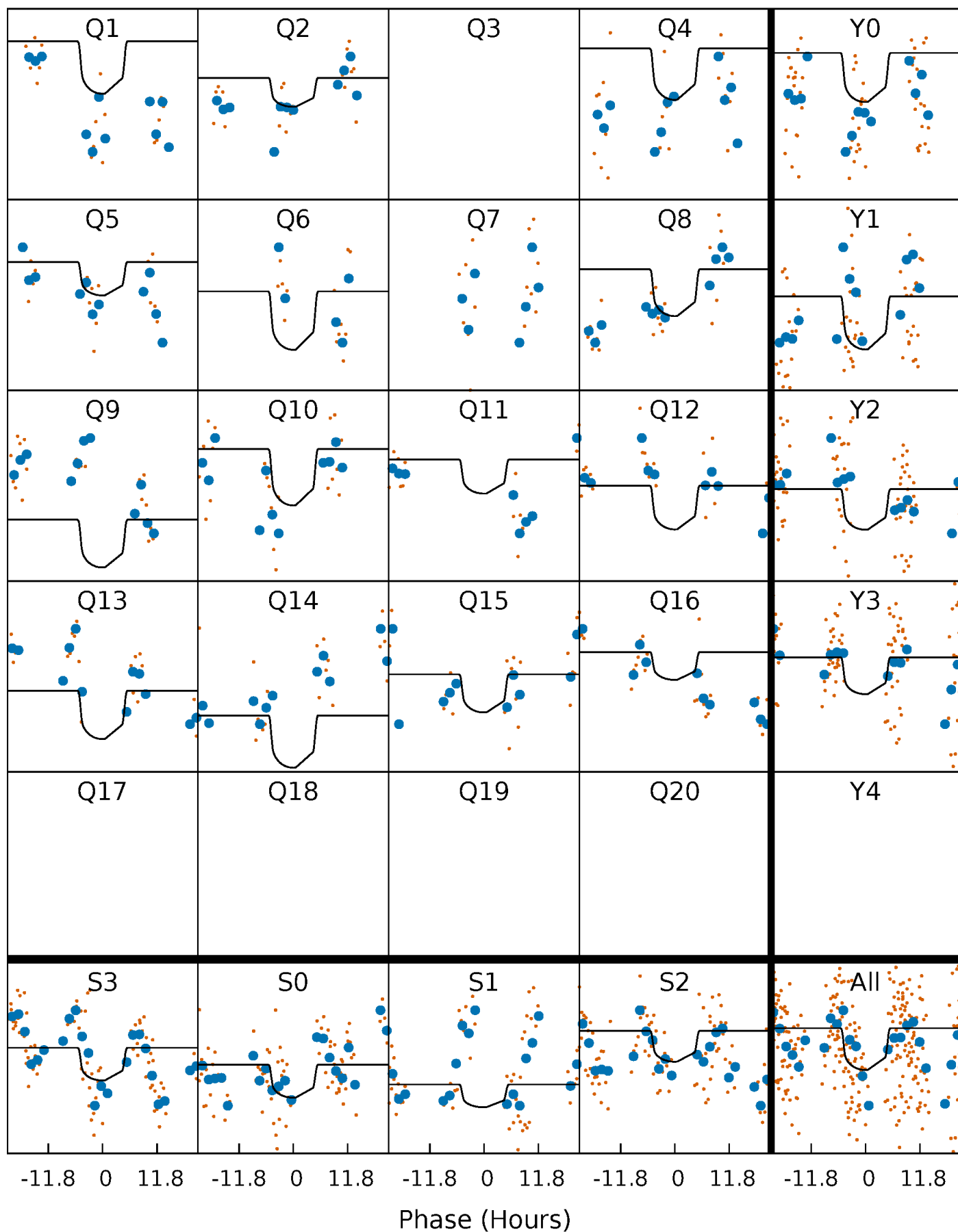
PDC Quarter-Phased Transit Curves

TCE 007198648-05 P= 96.941397 Days $T_0=160.365096$ (BKJD)



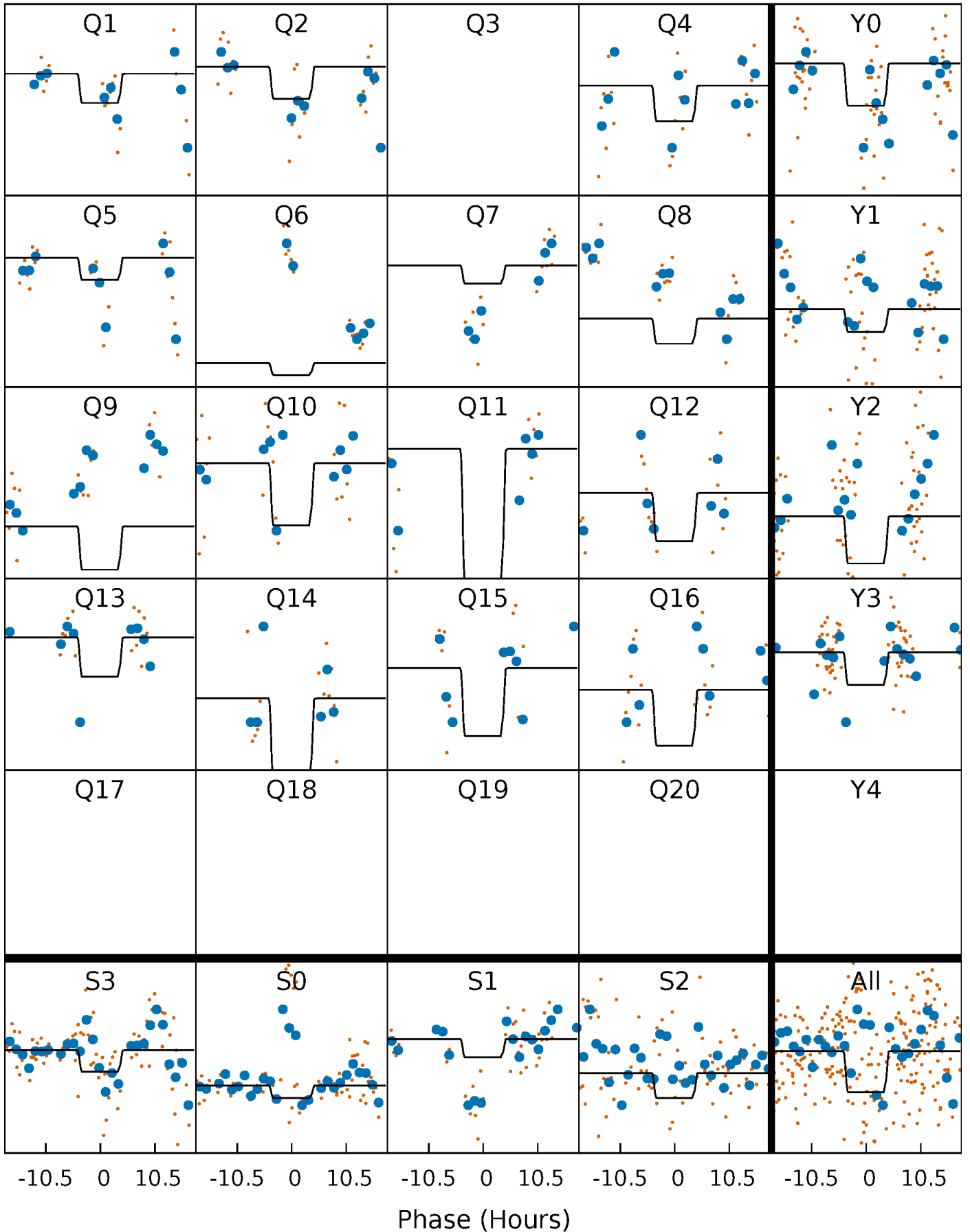
DV Quarter-Phased Transit Curves

TCE 007198648-05 P= 96.941397 Days $T_0=160.365096$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

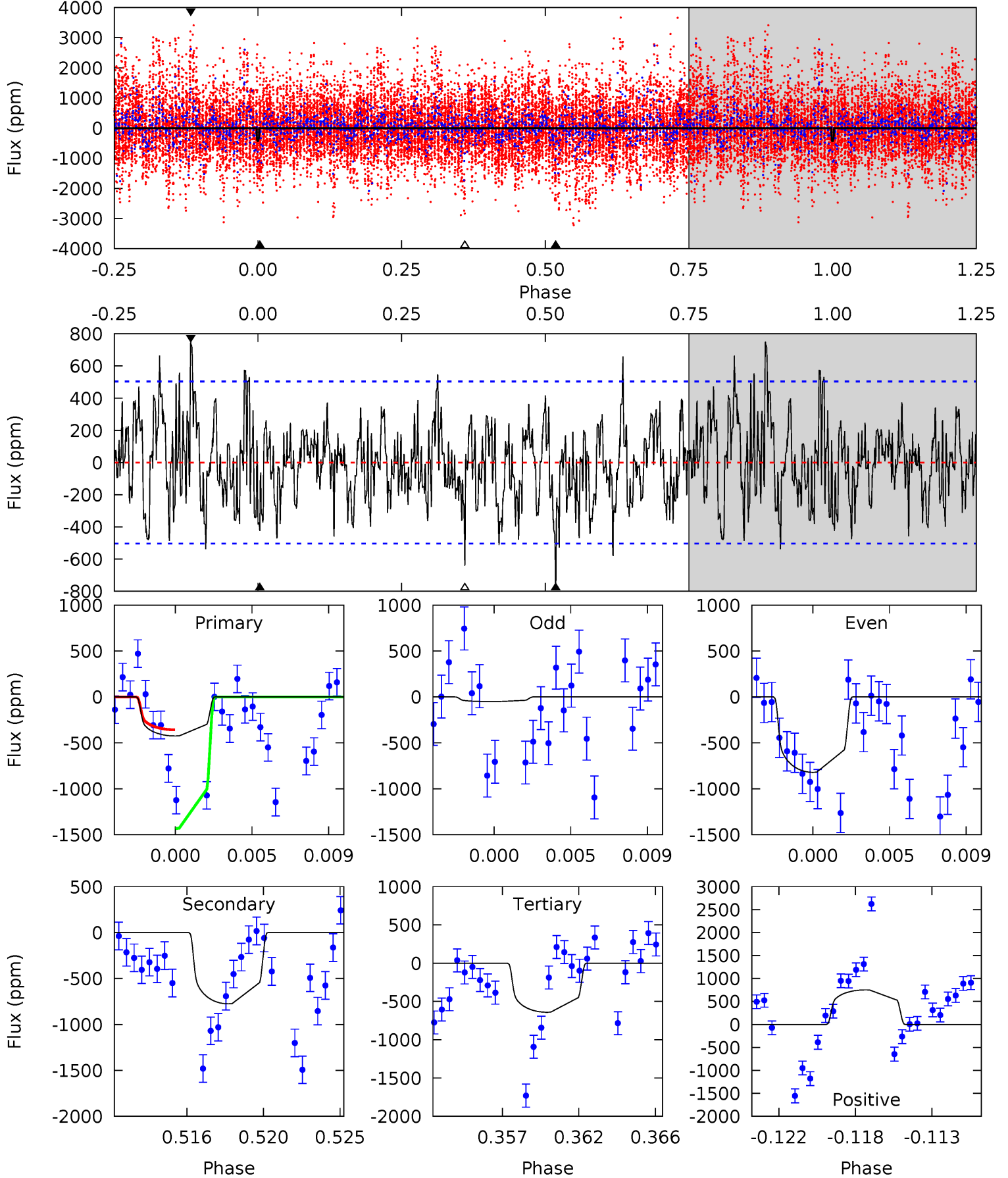
TCE 007198648-05 P= 96.952742 Days $T_0=160.225571$ (BKJD)



DV Model-Shift Uniqueness Test

007198648-05, P = 96.941397 Days, E = 63.423699 Days

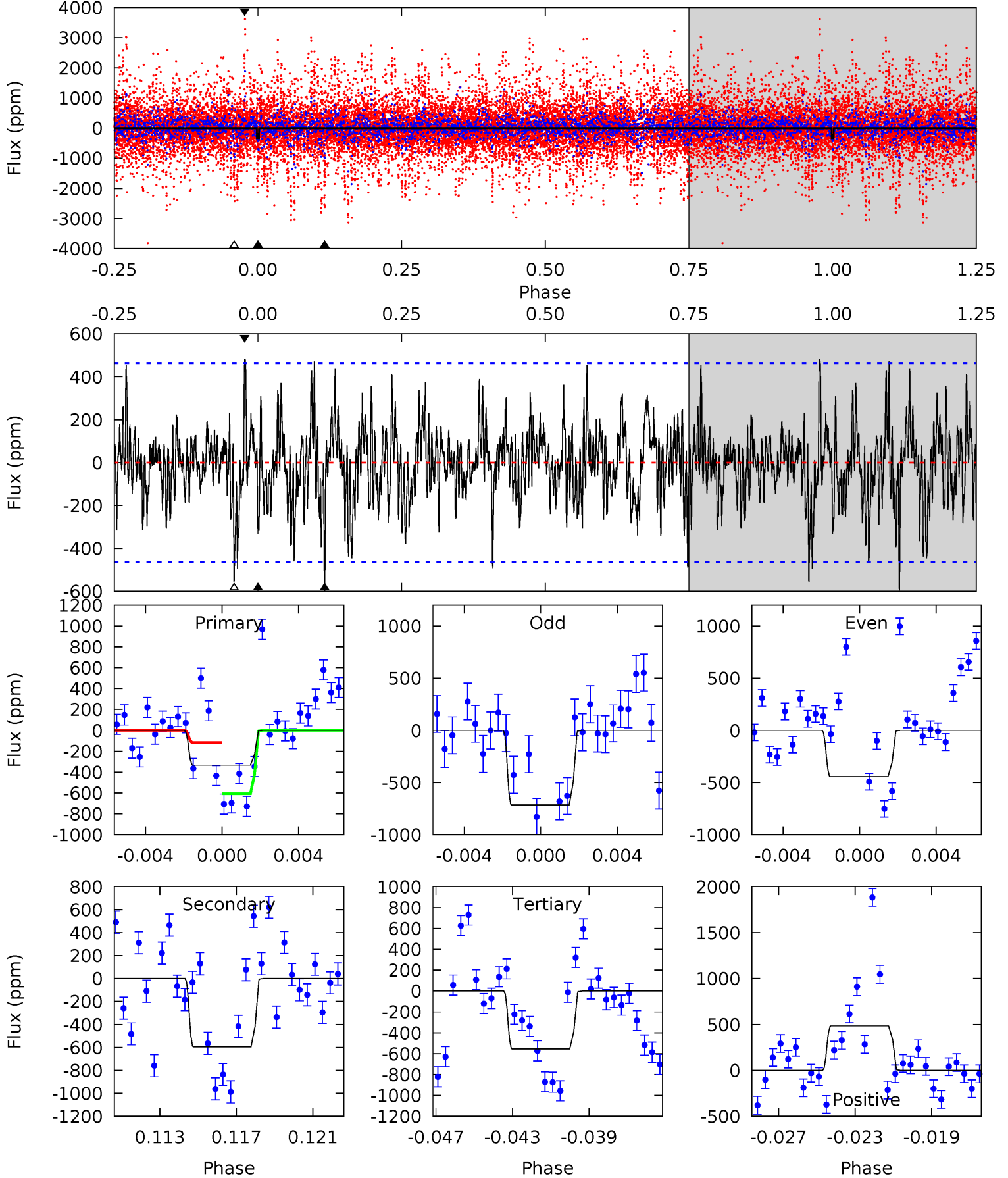
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.37	7.98	6.59	7.73	5.18	2.84	2.17	-2.22	-3.36	1.39	0.24	3.90	-0.62	0.49	3.43



Alt Model-Shift Uniqueness Test

007198648-05, P = 96.952742 Days, E = 63.272829 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.74	6.68	6.23	5.42	5.20	2.89	1.72	-2.49	-1.68	0.45	1.26	1.43	-0.26	0.45	2.77



Stellar Parameters For KIC 007198648

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5488^{+182}_{-182}	$4.584^{+0.036}_{-0.135}$	$-0.180^{+0.300}_{-0.300}$	$0.789^{+0.164}_{-0.070}$	$0.877^{+0.083}_{-0.102}$	$2.514^{+0.451}_{-0.978}$
	+3%/-3%	+1%/-3%	+167%/-167%	+21%/-9%	+9%/-12%	+18%/-39%
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 007198648-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-776 ± 97	$2.39^{+0.86}_{-0.85}$	486^{+25}_{-21}	5591^{+1375}_{-709}	11585^{+16701}_{-5376}
Alt.	-596 ± 89	$2.08^{+0.88}_{-0.89}$	489^{+24}_{-21}	5621^{+1910}_{-848}	11482^{+24239}_{-6008}

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

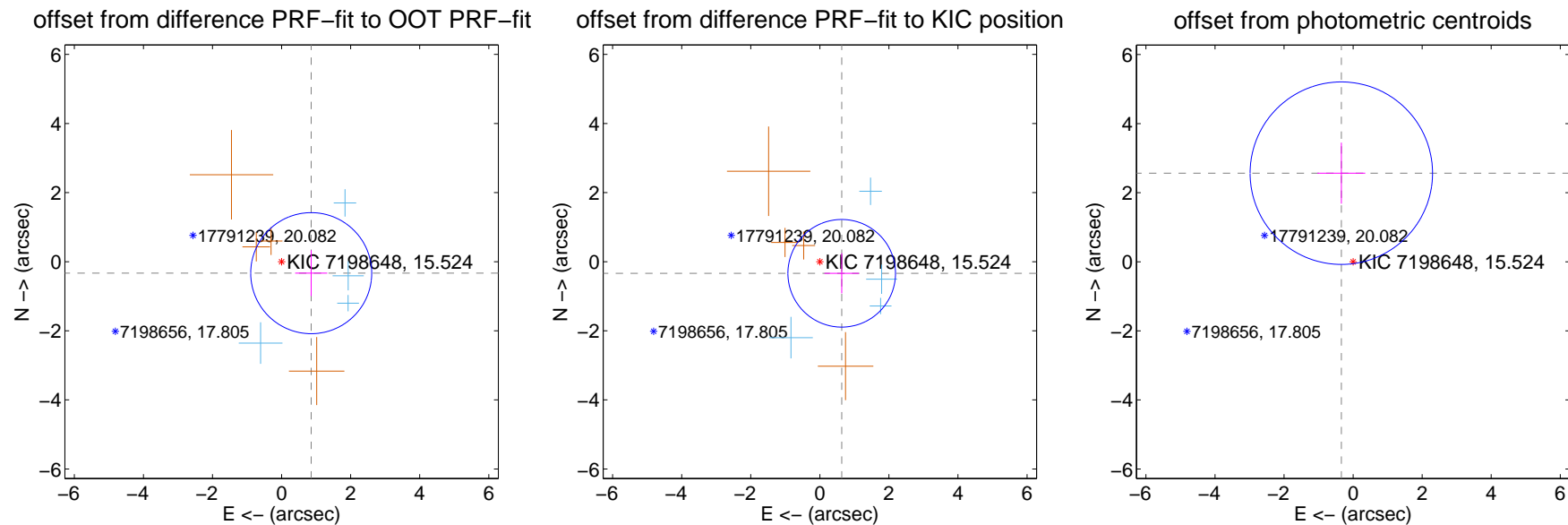
DV Centroid Data

Supplemental centroid analysis for 007198648-05. Kepler magnitude: 15.52. Transit SNR 4.22

There are 4 quarters with good PRF difference image offsets

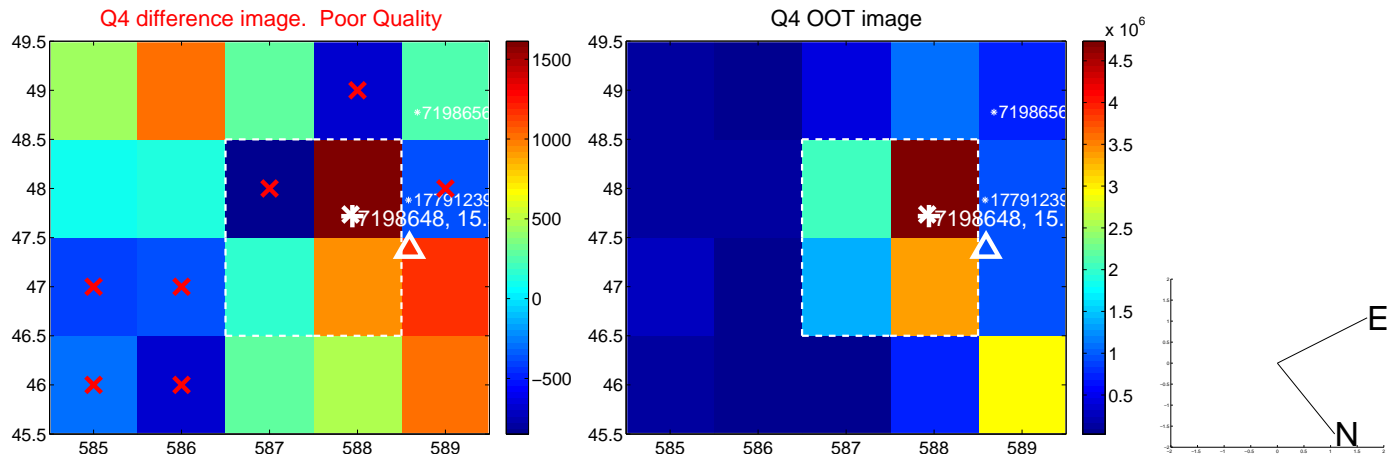
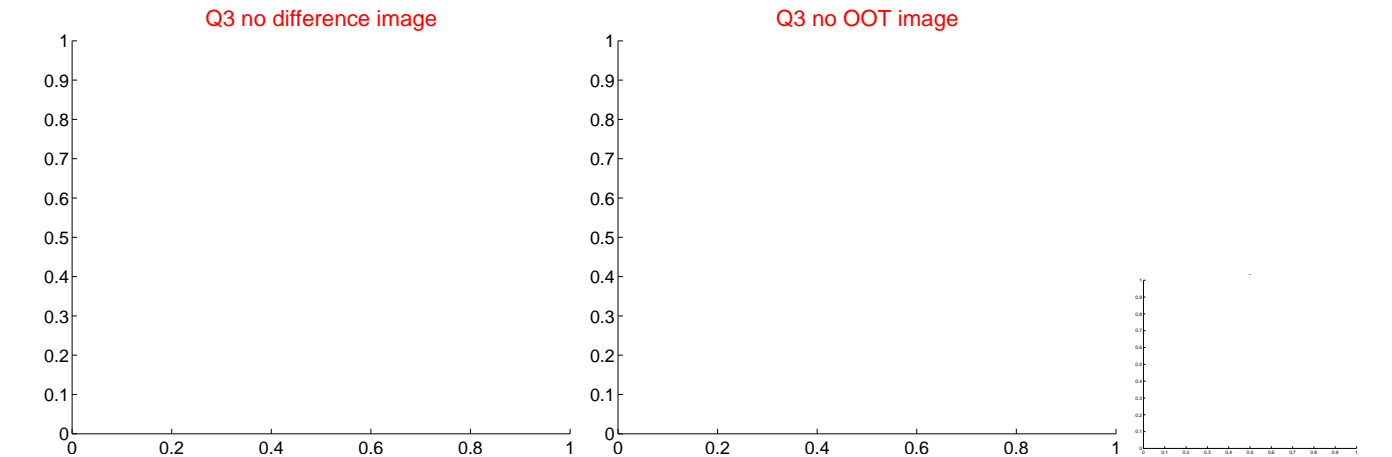
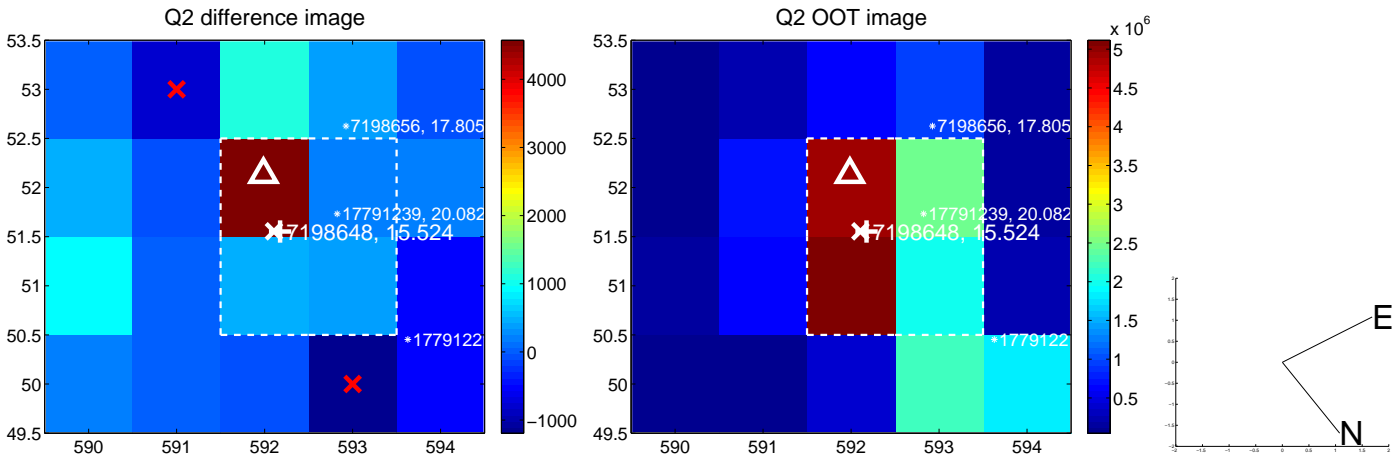
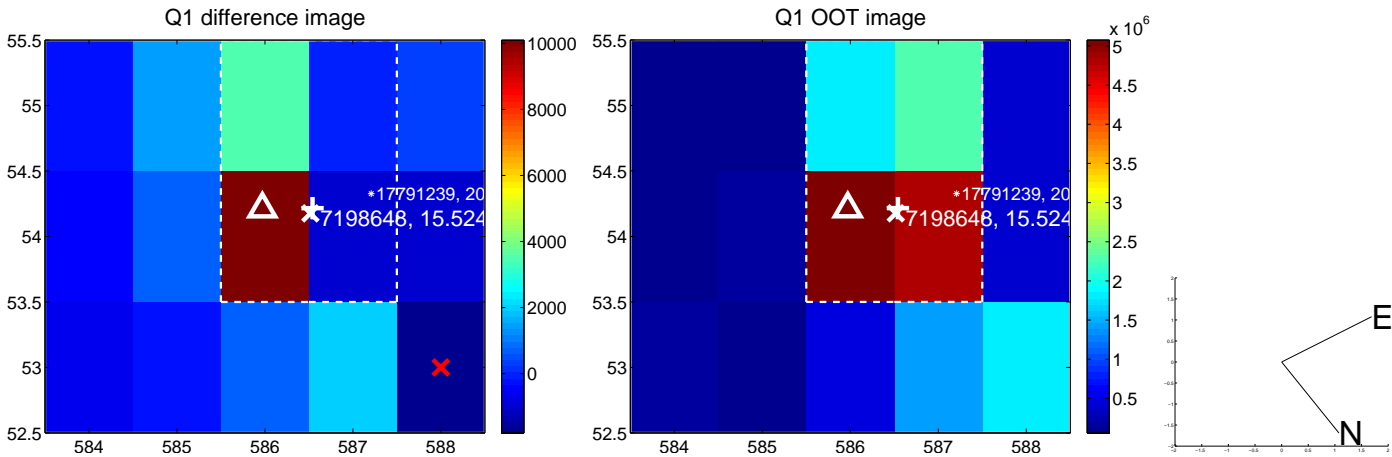
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.920 ± 0.584	1.58	-0.858 ± 0.465	-0.332 ± 0.661
PRF-fit source offset from KIC position	0.717 ± 0.519	1.38	-0.633 ± 0.501	-0.336 ± 0.580
photometric centroid source offset	2.59 ± 0.88	2.94	0.34 ± 0.69	2.57 ± 0.88

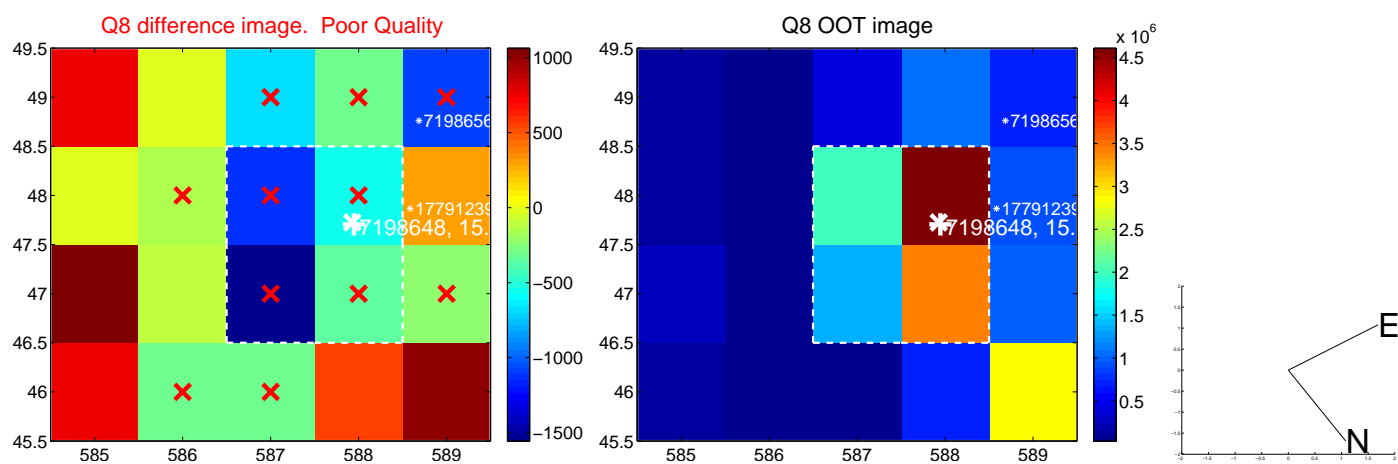
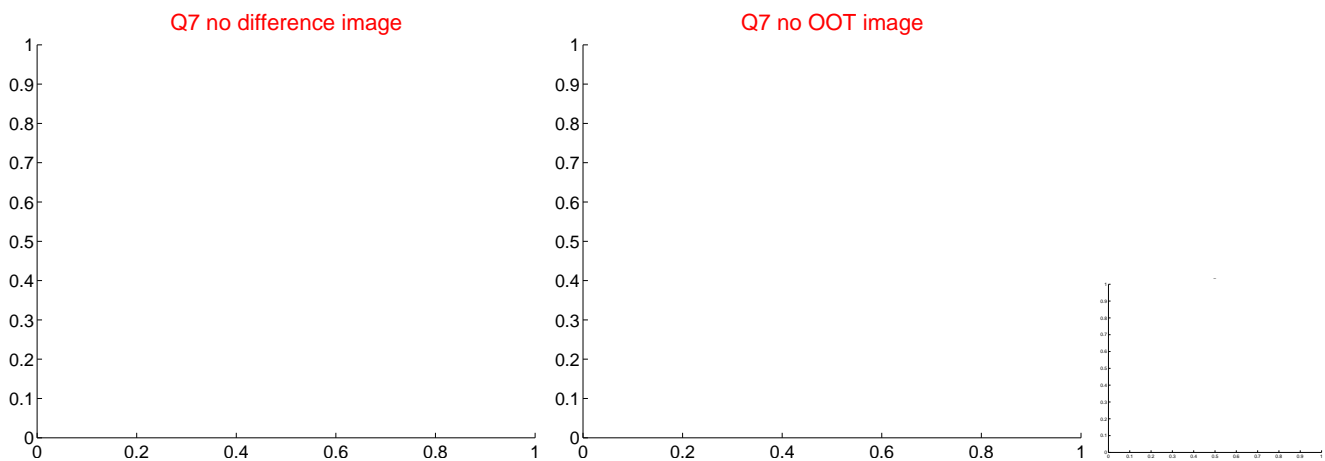
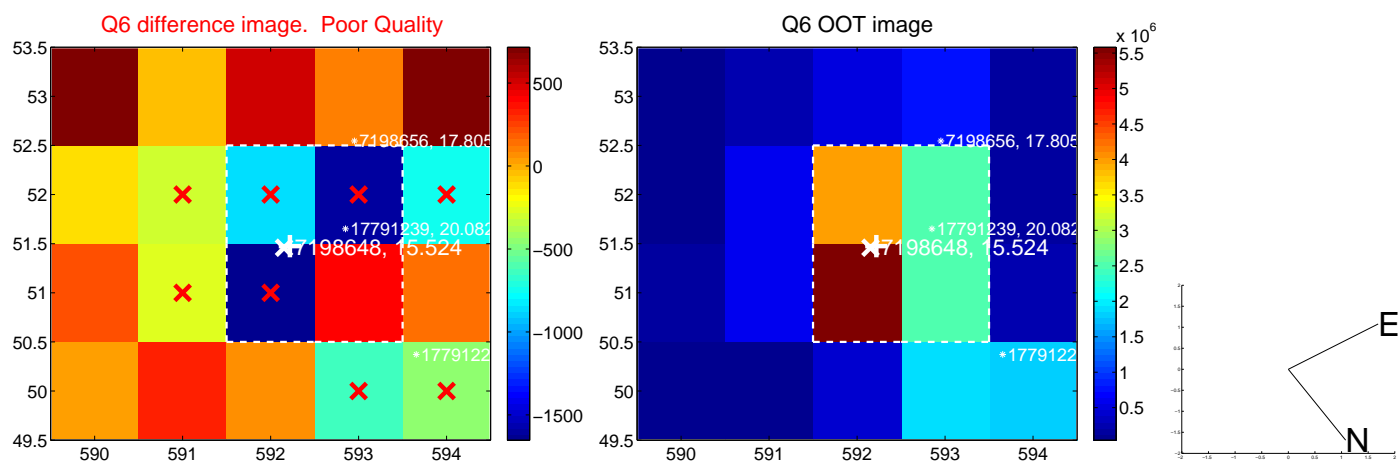
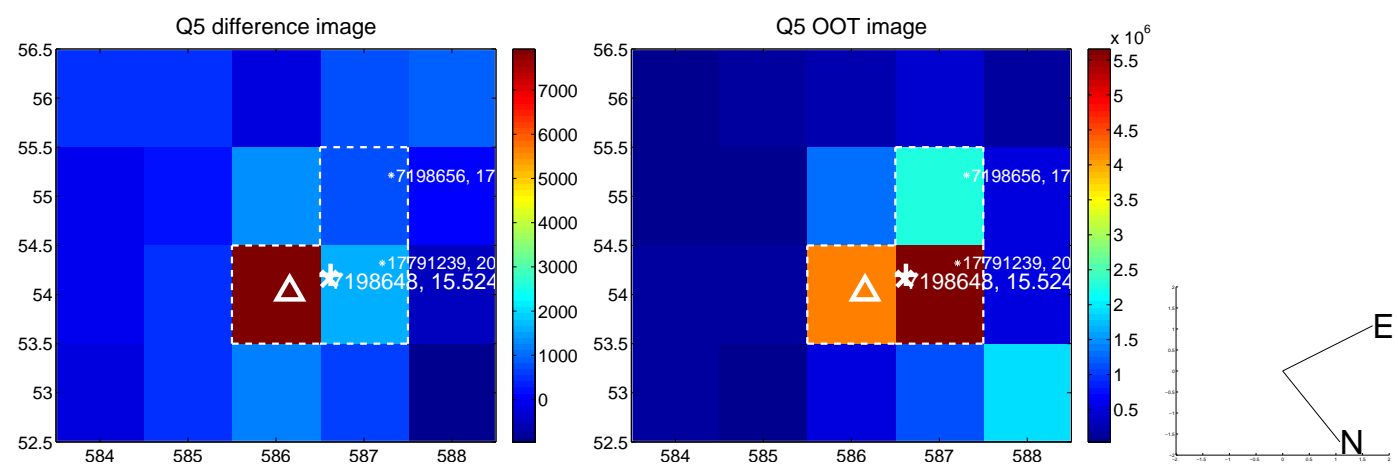


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

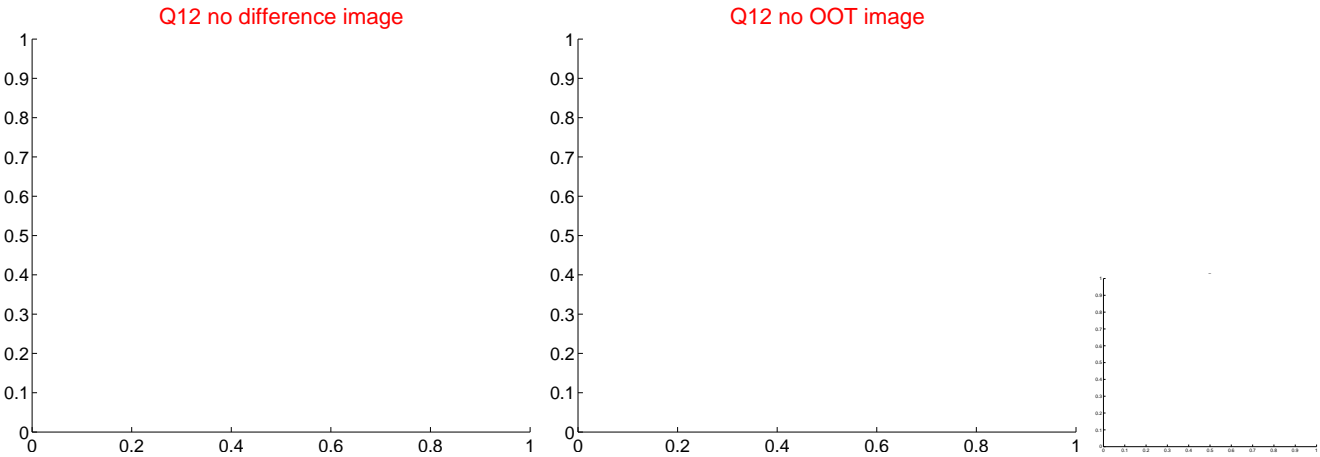
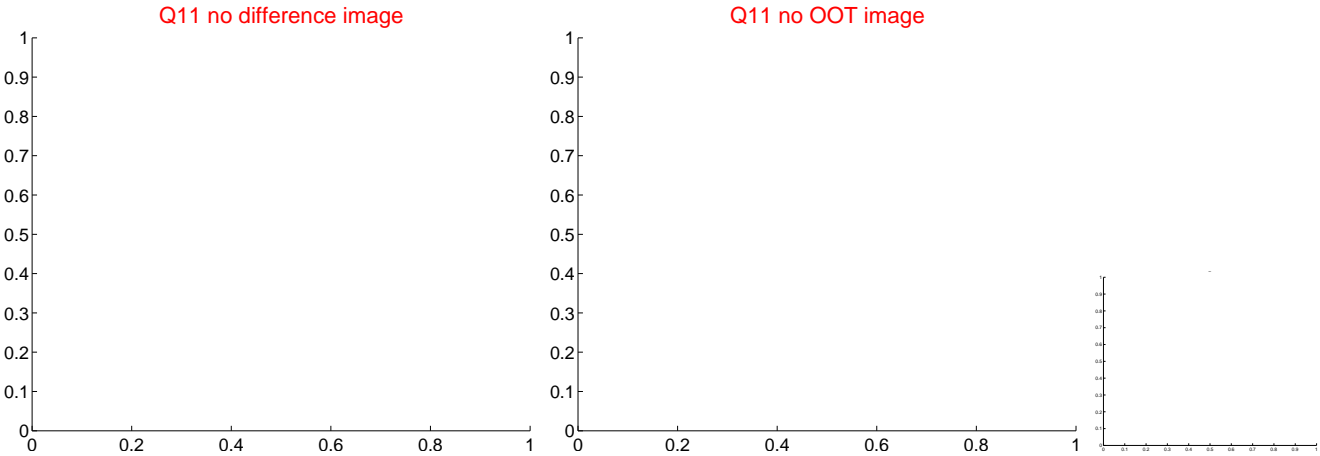
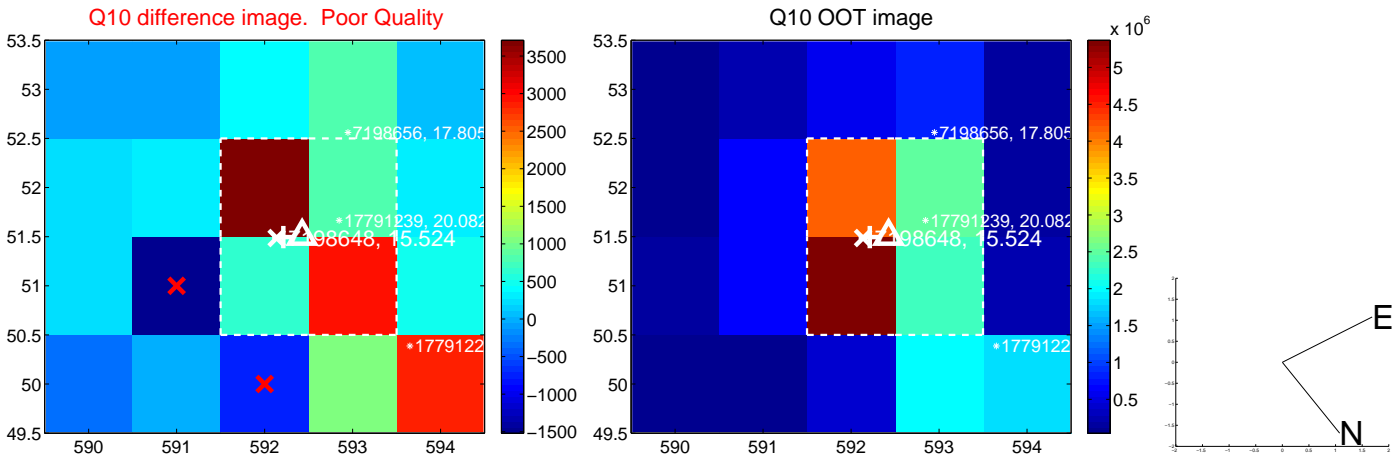
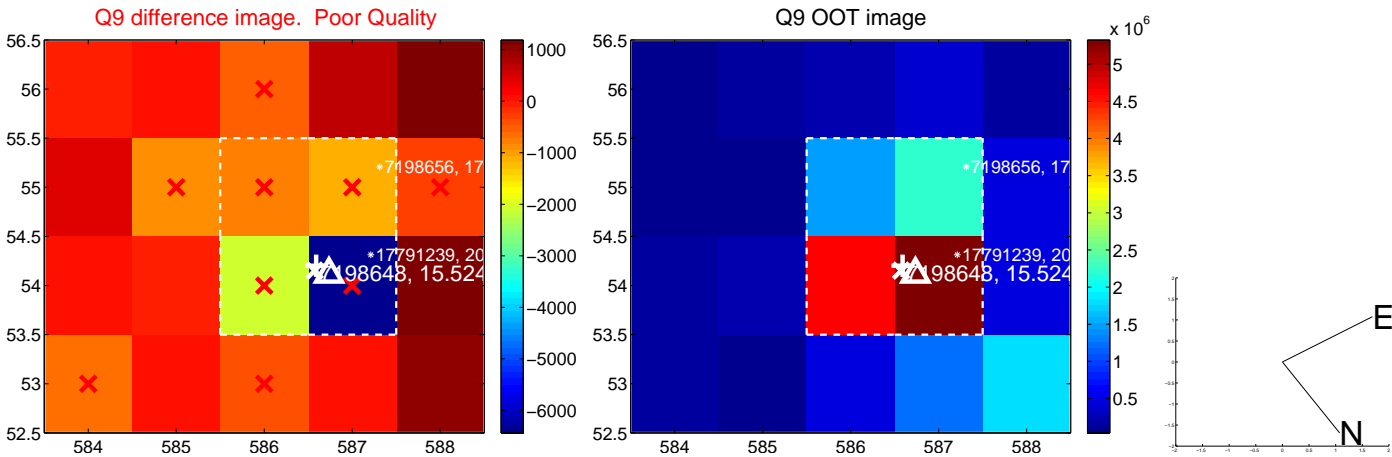
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



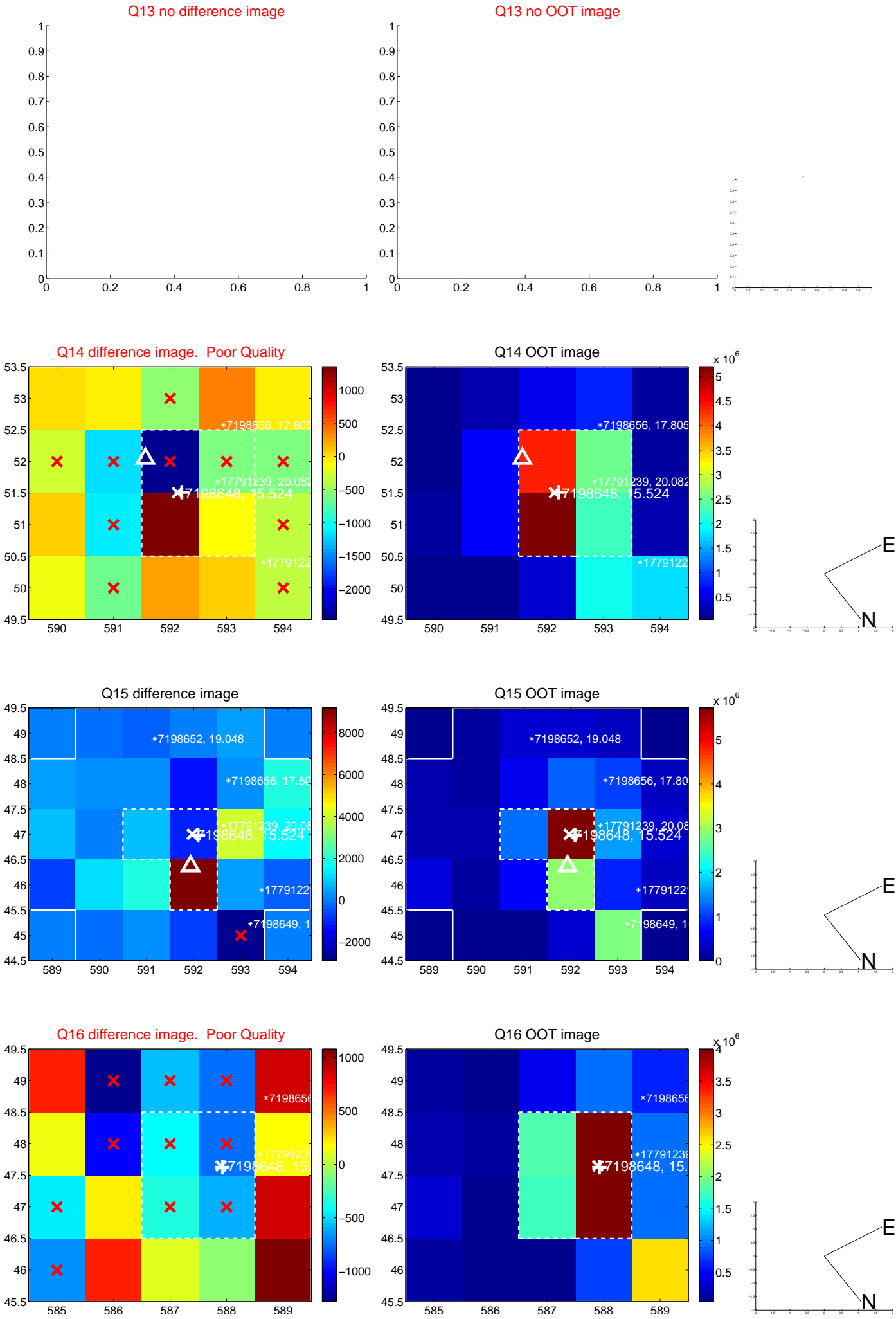
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



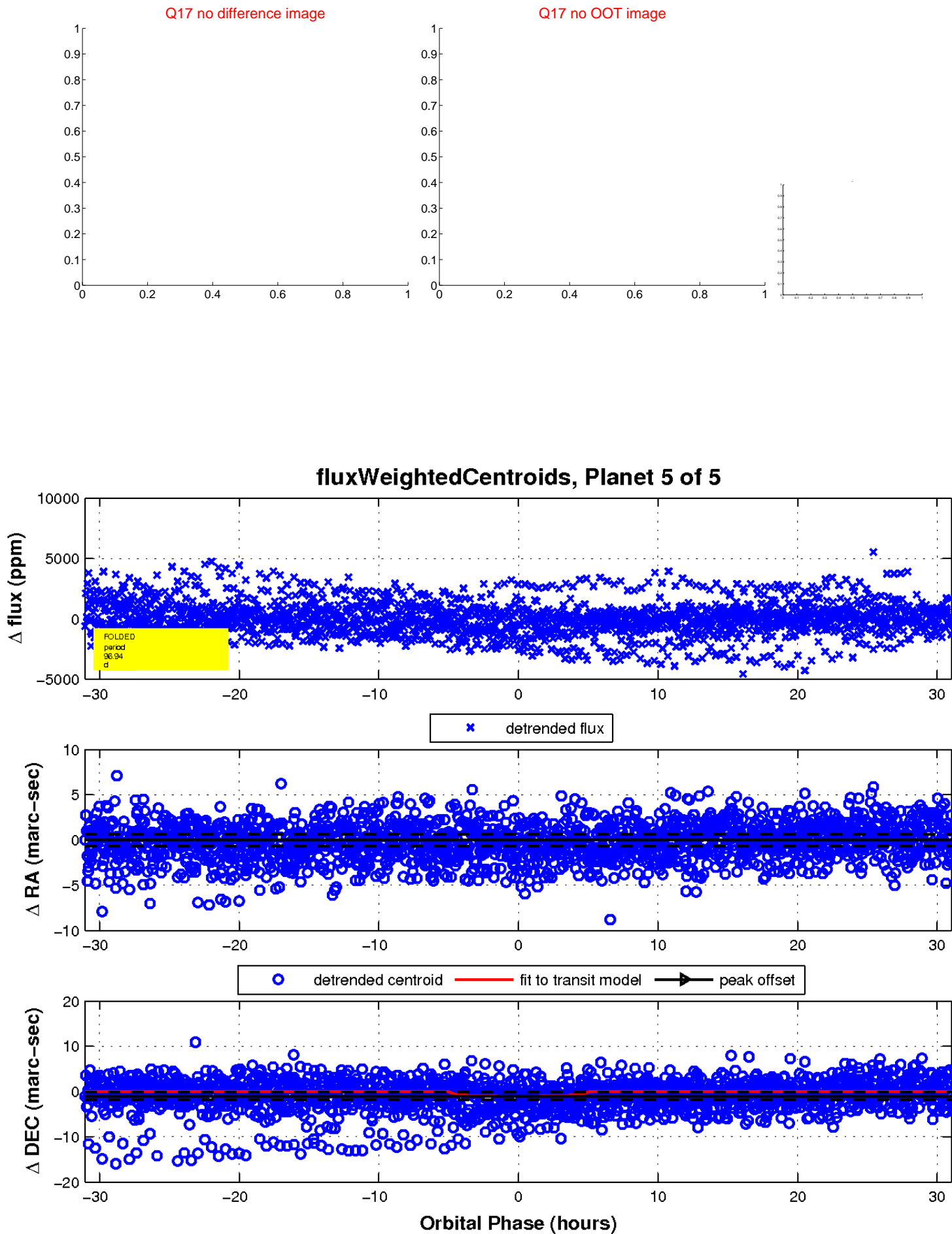
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

