

KIC 004649238

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})
004649238-01	OBS	No	0.965686	131.986964	8.4	6.119	10.8	3.2	2.02	7236	0.63	20126.65
004649238-02	OBS	No	200.753038	154.282440	396.6	8.671	13.7	7.9	2.02	7236	4.63	16.34
004649238-03	OBS	No	63.448472	159.754659	450.5	6.431	12.6	13.1	2.02	7236	8.16	75.91
004649238-04	OBS	No	46.520404	134.467117	302.7	3.313	10.3	10.3	2.02	7236	3.71	114.82
004649238-05	OBS	No	27.257667	155.925692	124.6	6.000	9.2	-1.0	2.02	7236	2.29	234.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004649238-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004649238-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
004649238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

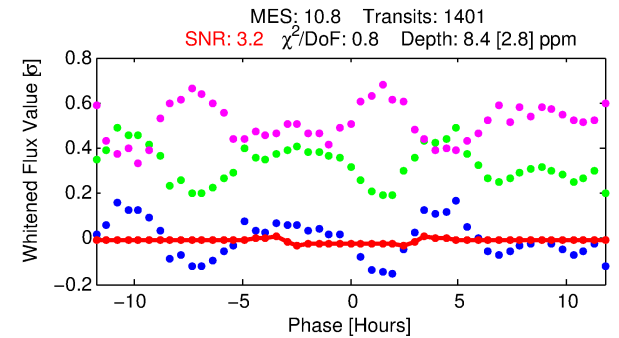
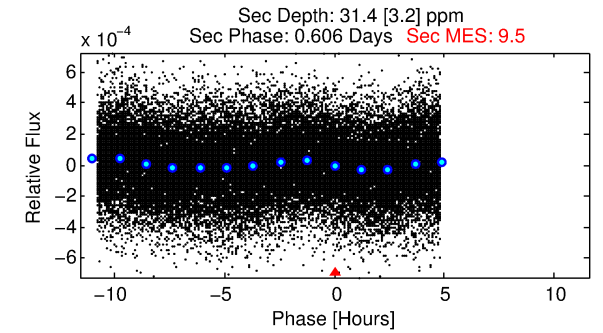
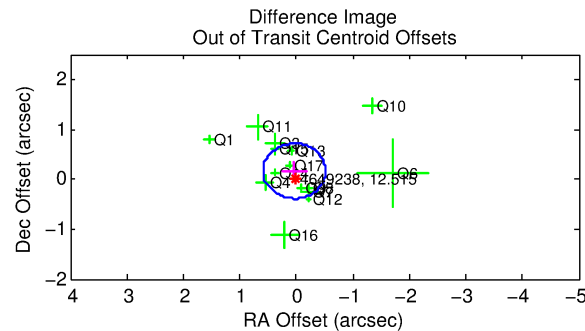
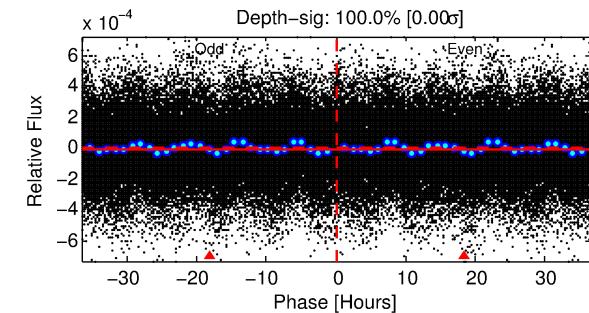
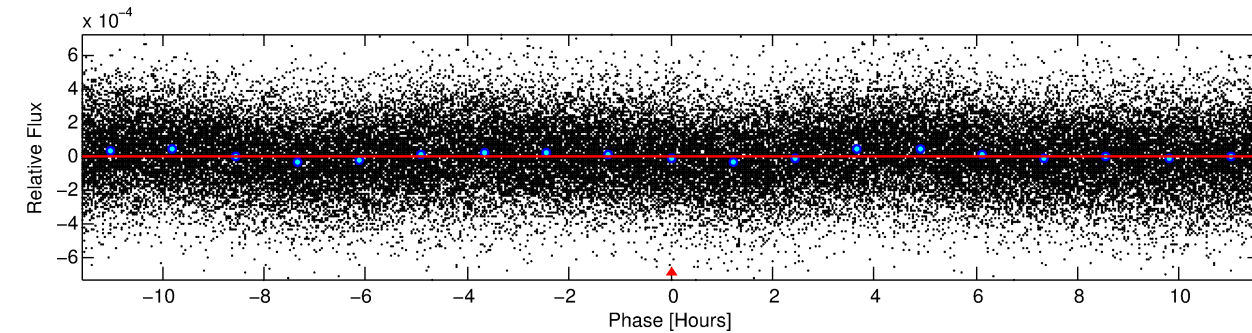
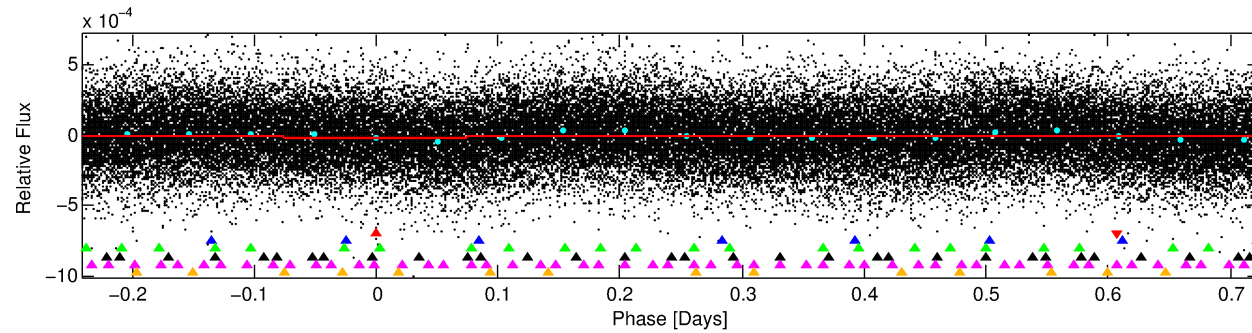
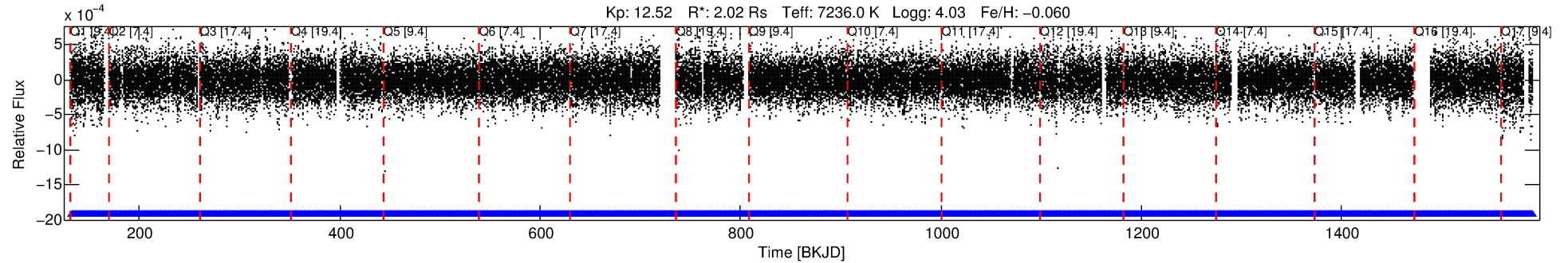
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004649238-01

No Significant Match Found

DV One-Page Summary

KIC: 4649238 Candidate: 1 of 6 Period: 0.966 d



DV Fit Results:

Period = 0.96569 [0.00004] d
Epoch = 131.9870 [0.0080] BKJD
Rp/R* = 0.0028 [0.0012]
a/R* = 1.20 [0.84]
b = 0.70 [1.69]
Seff = 20126.65 [7847.72]
Teq = 3037 [296] K
Rp = 0.63 [0.30] Re
a = 0.0223 [0.0052] AU
Ag = 21.88 [19.43] [1.07σ]
Teffp = 10156 [2112] K [3.34σ]

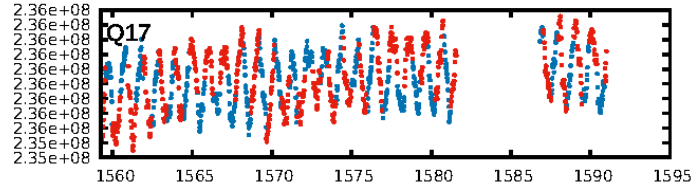
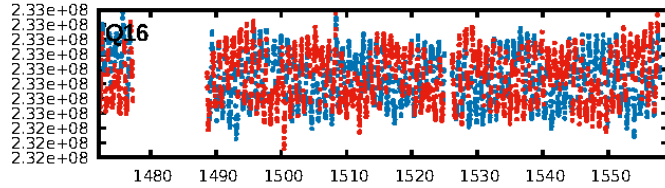
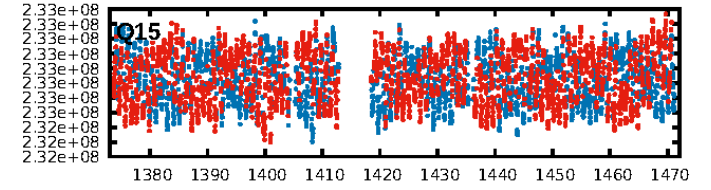
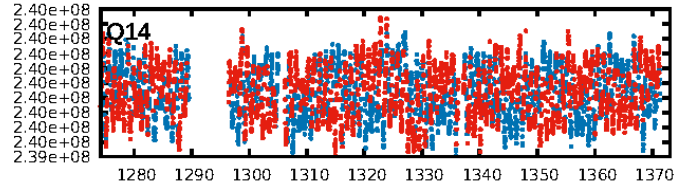
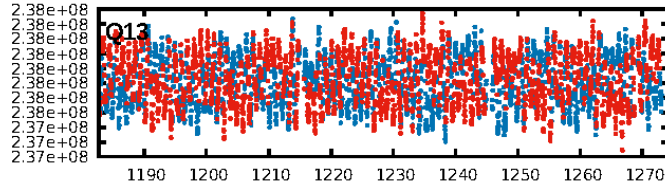
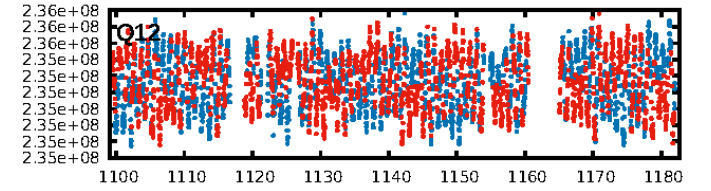
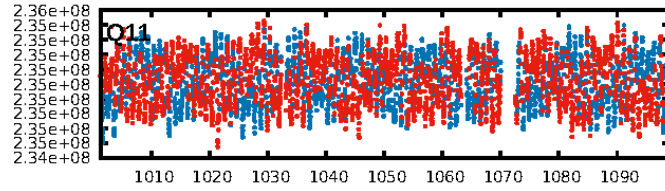
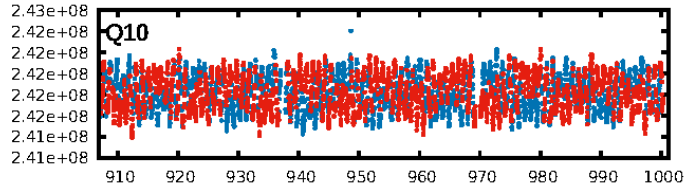
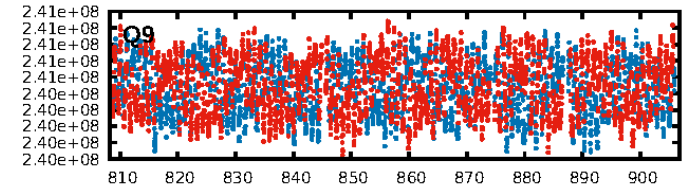
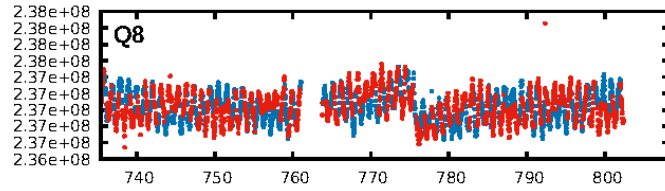
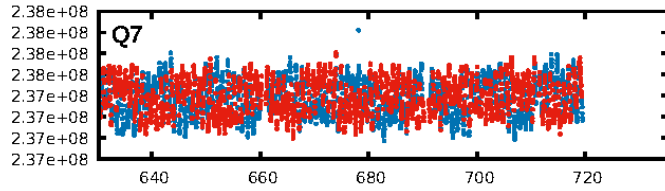
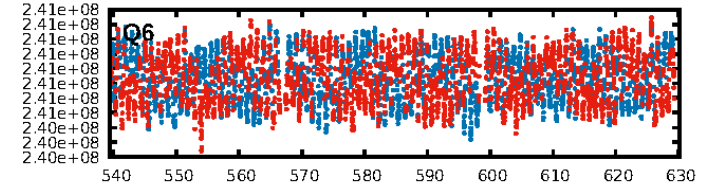
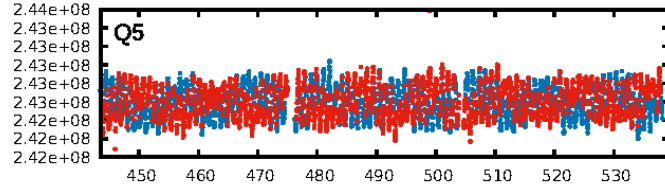
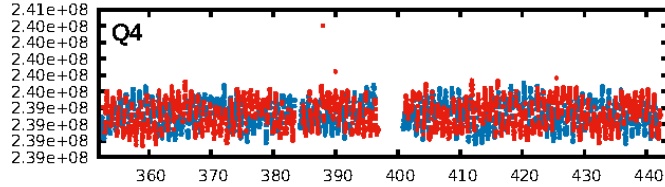
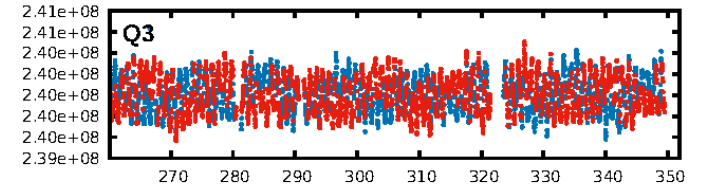
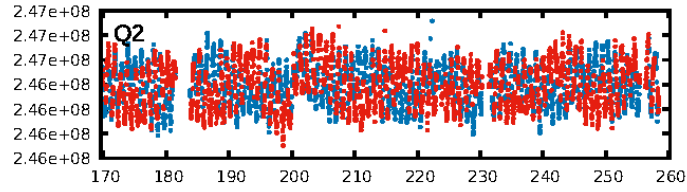
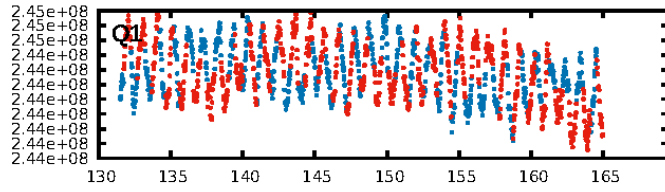
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [73.63σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1337/1337]
GhostDiagnostic-chr: 0.5114
Centroid-sig: 10.0%
Centroid-so: 1.508 arcsec [1.44σ]
OotOffset-rm: 0.165 arcsec [0.90σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-rm: 0.106 arcsec [0.57σ]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 1.00 [17/17]

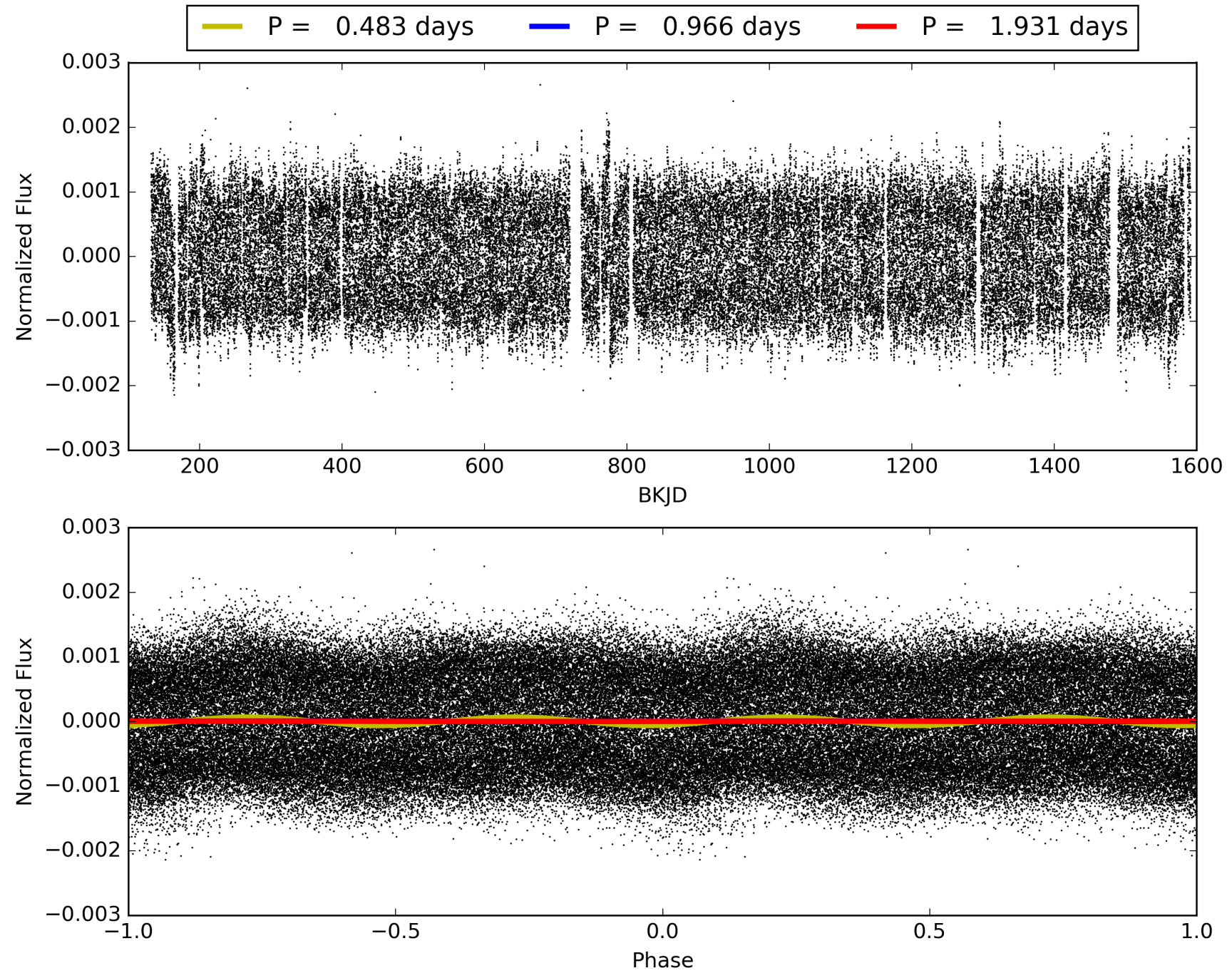
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004649238-01, PDC Light Curves

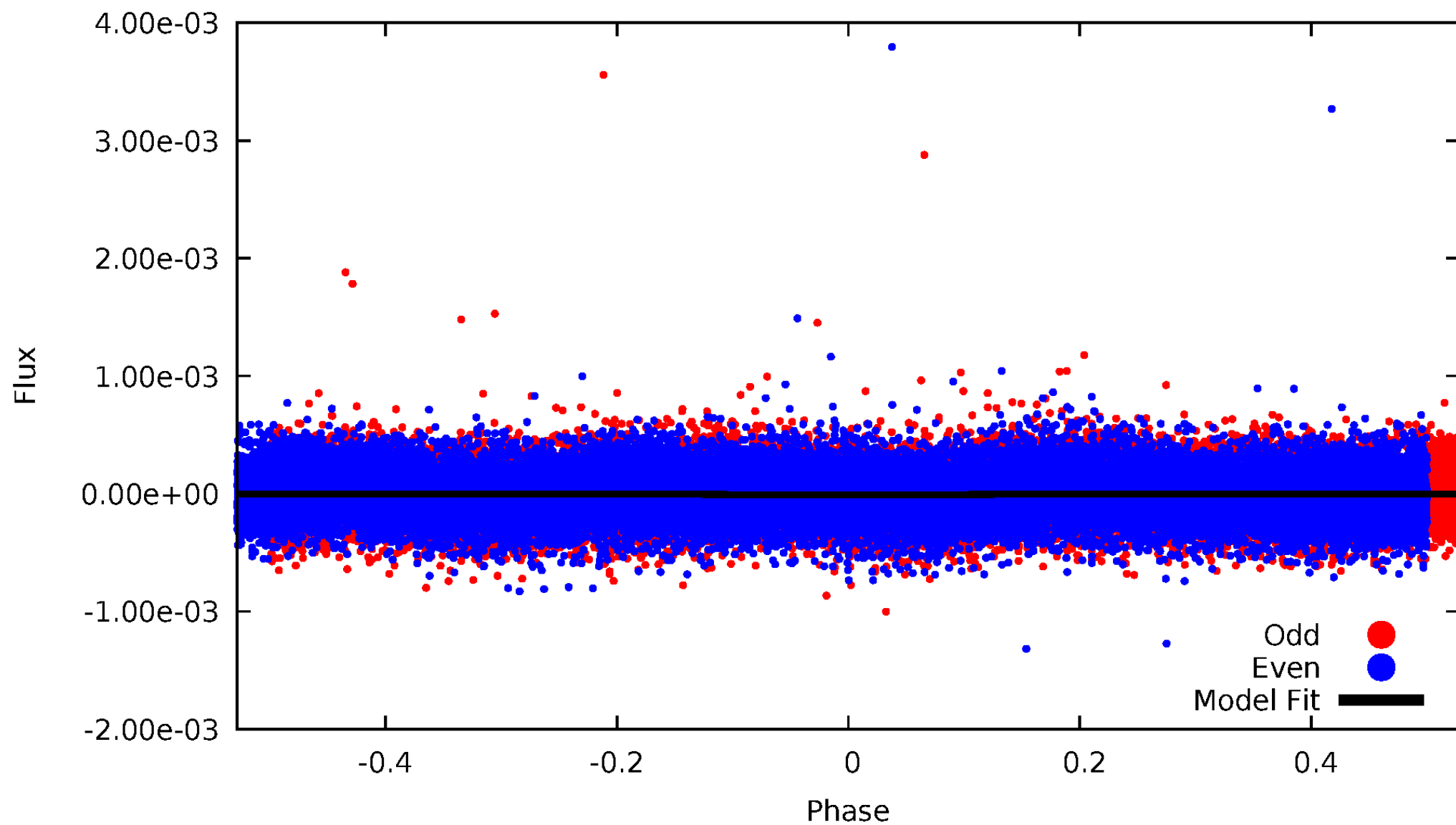


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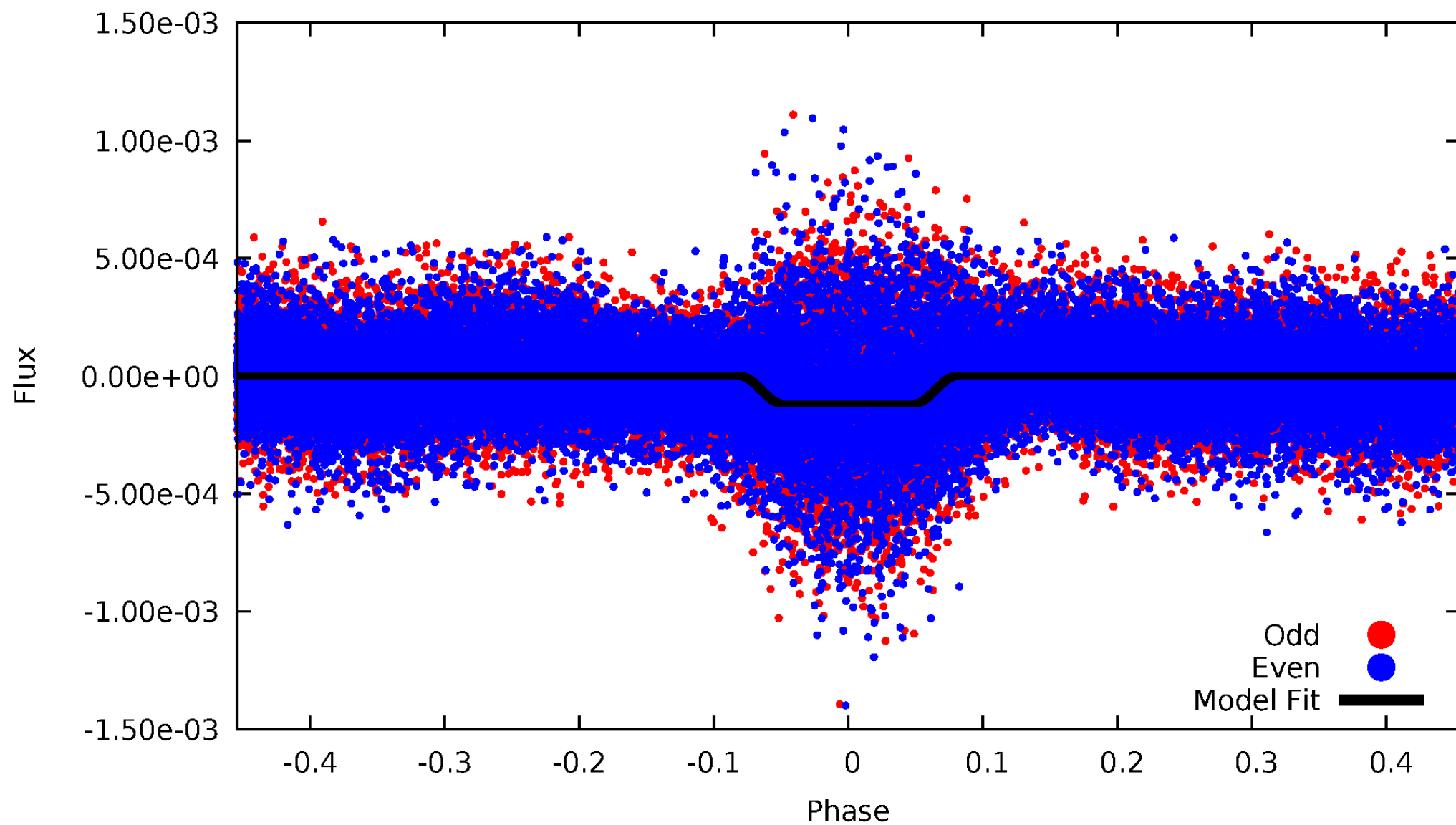
DV Odd/Even

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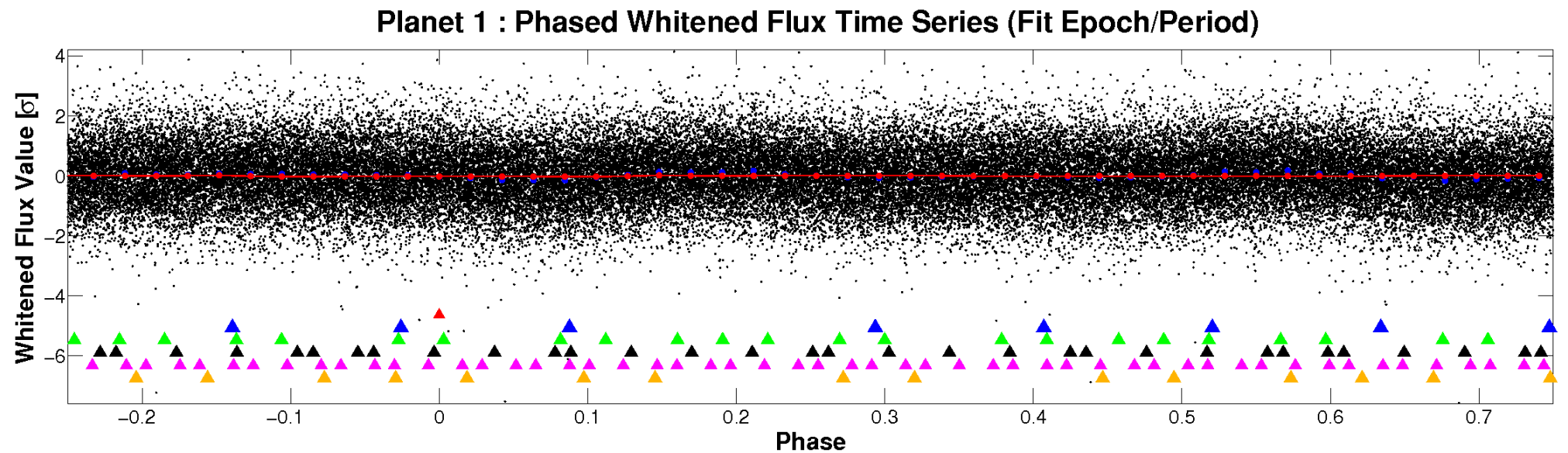
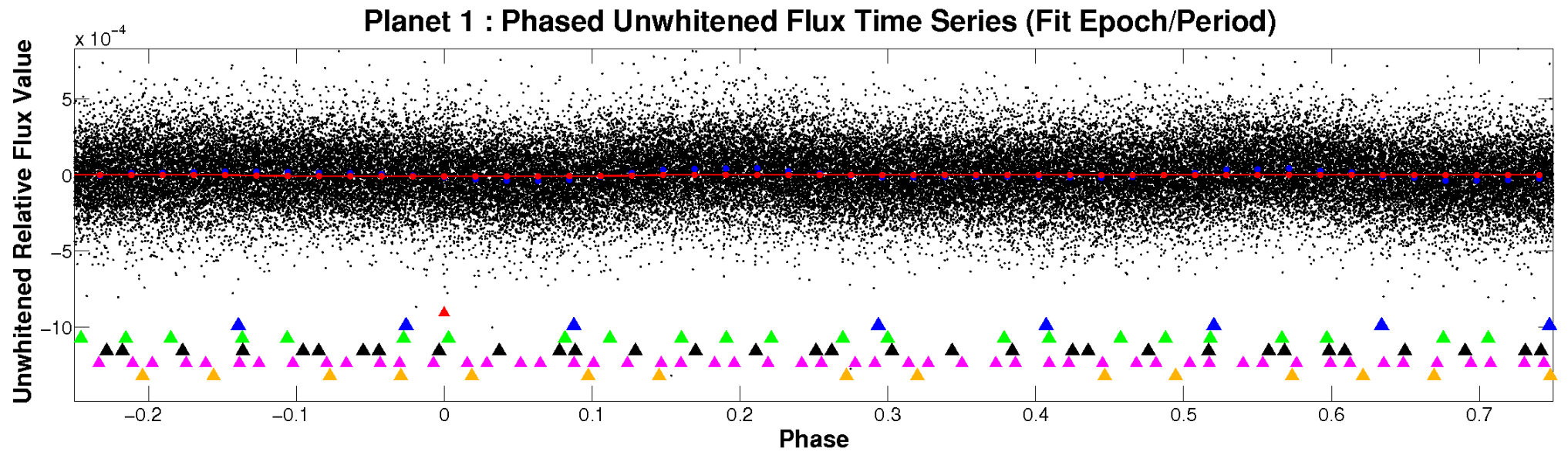


ALT Odd/Even

TCE 004649238-01

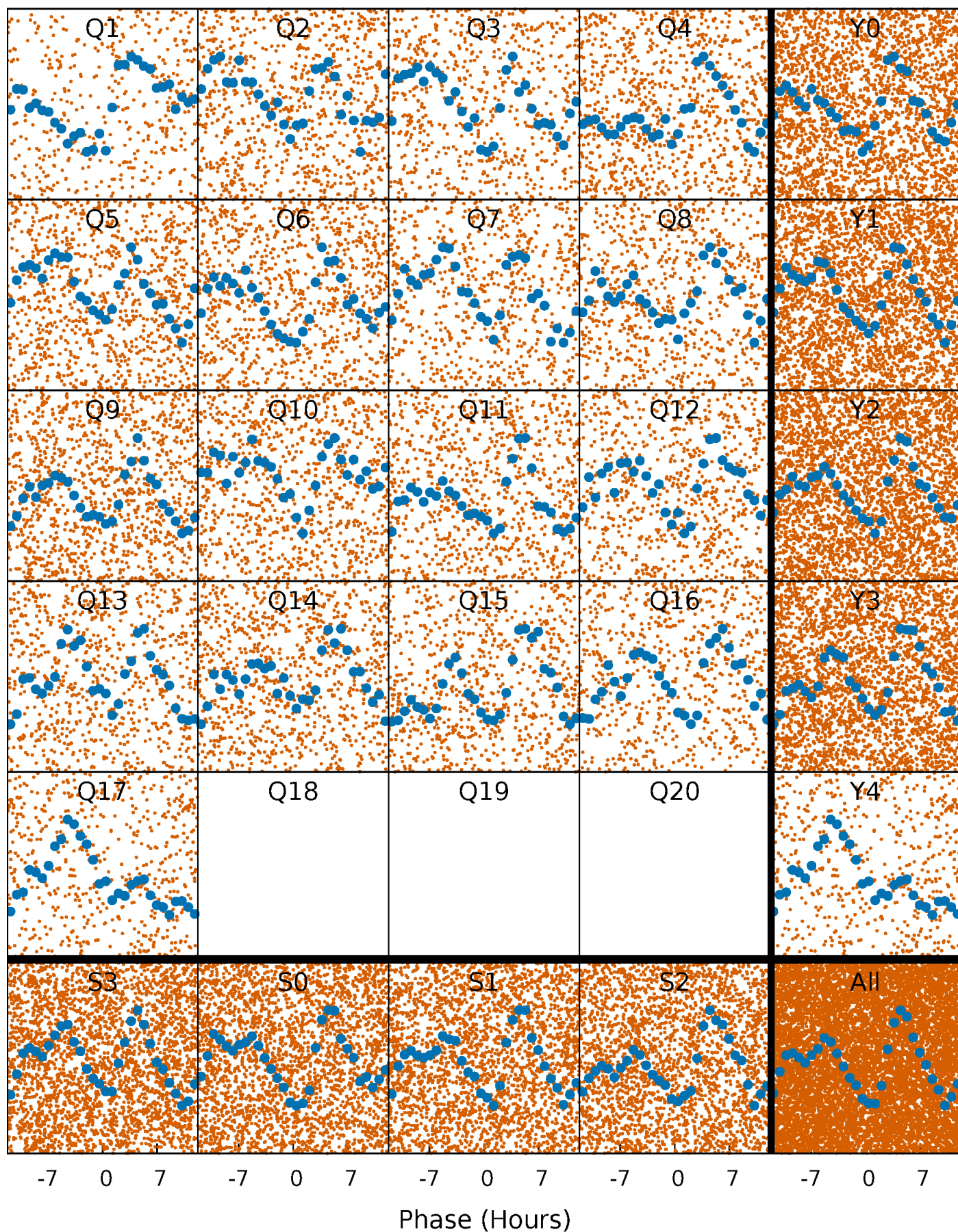


Non-Whitened Vs. Whitened Light Curve



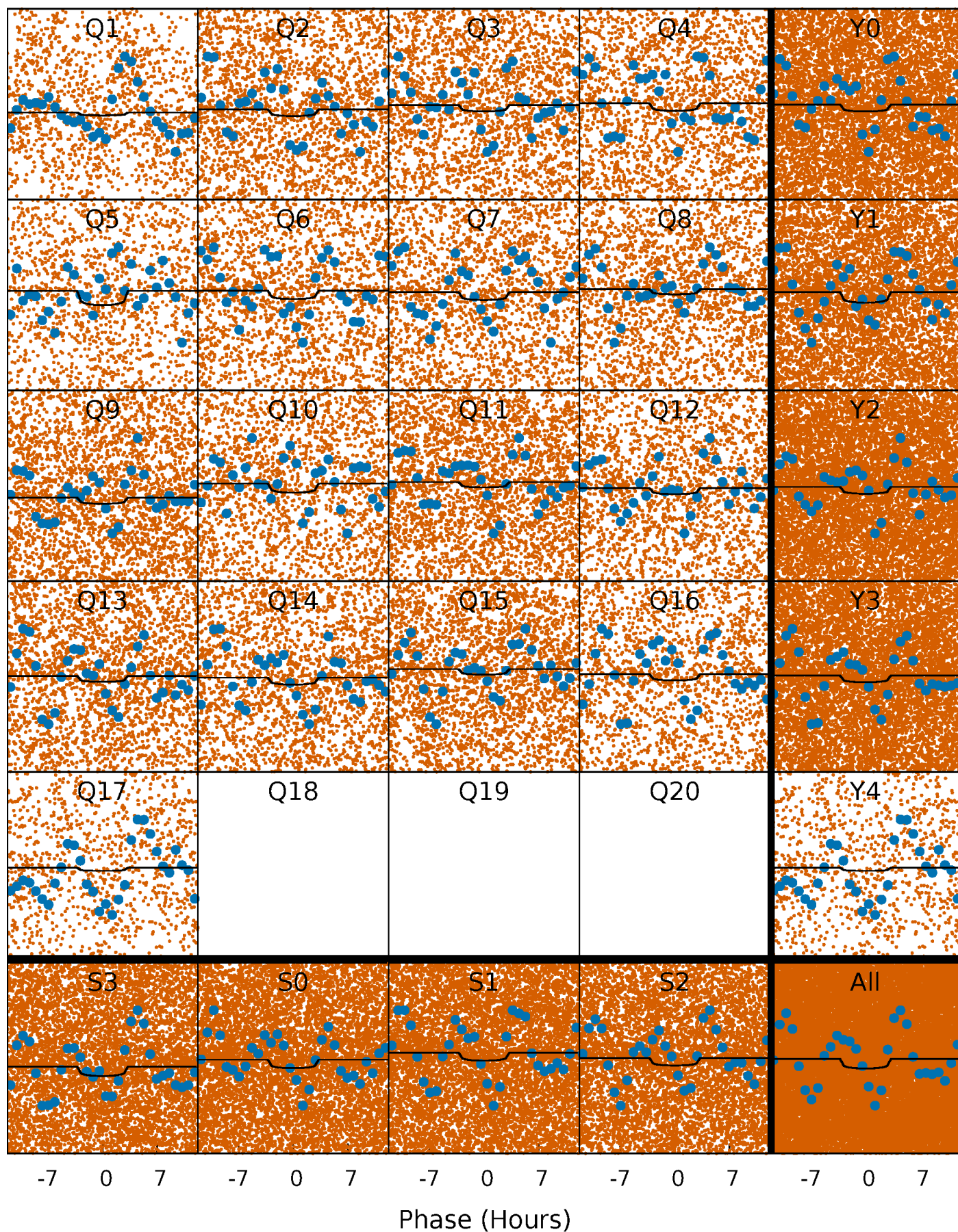
PDC Quarter-Phased Transit Curves

TCE 004649238-01 P= 0.965686 Days $T_0=131.986964$ (BKJD)



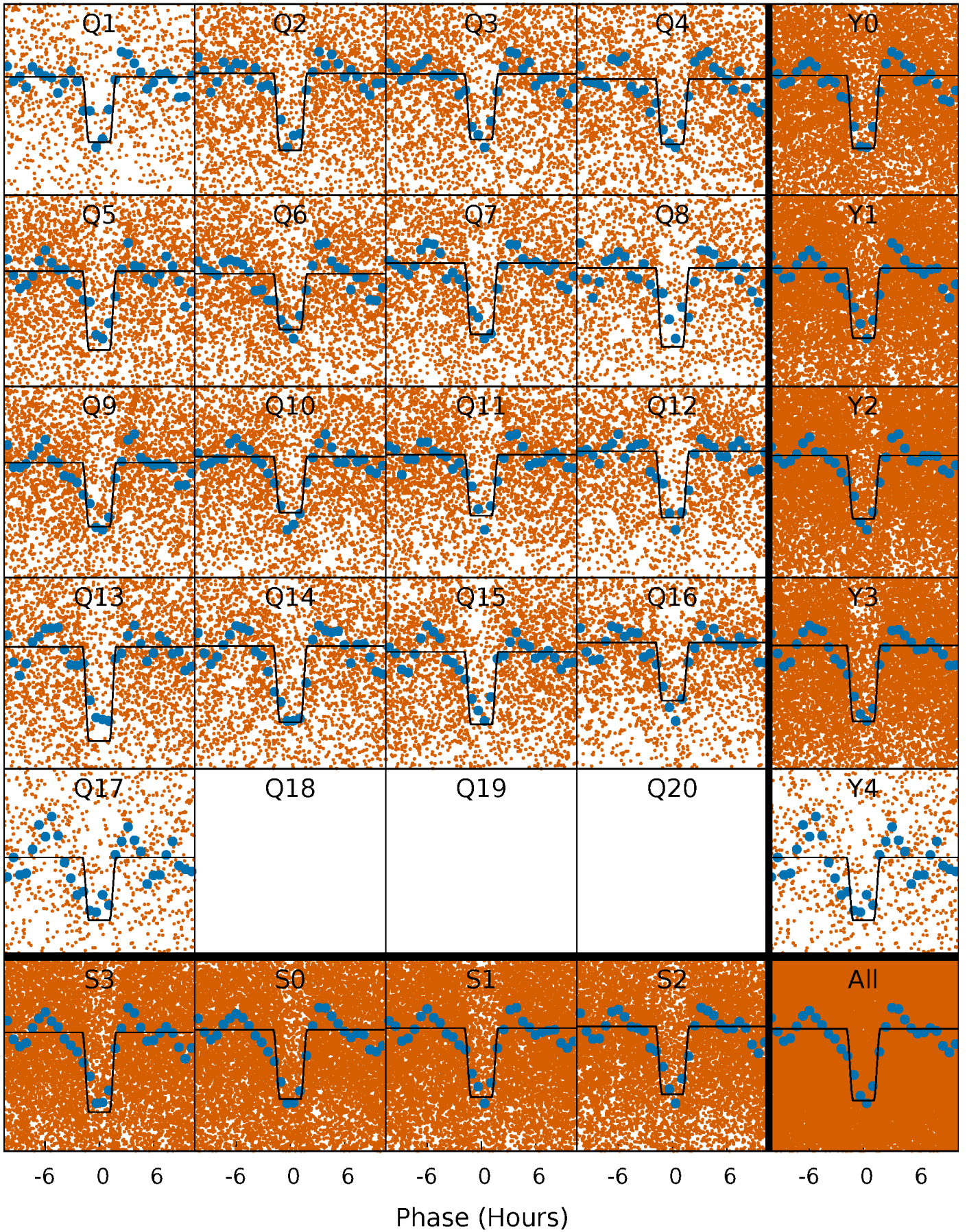
DV Quarter-Phased Transit Curves

TCE 004649238-01 P= 0.965686 Days $T_0=131.986964$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

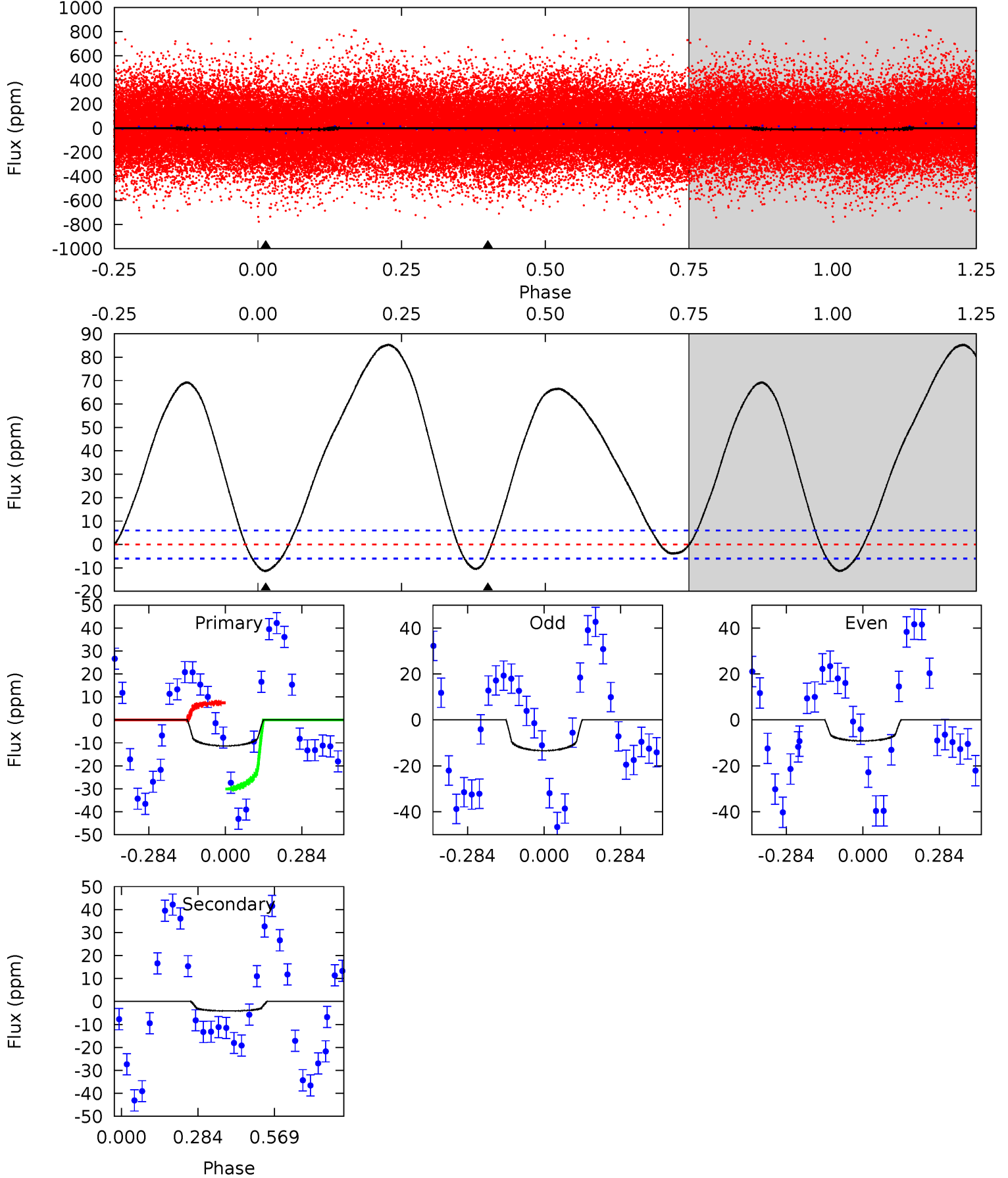
TCE 004649238-01 P= 0.965734 Days $T_0=131.994165$ (BKJD)



DV Model-Shift Uniqueness Test

004649238-01, P = 0.965686 Days, E = 131.021278 Days

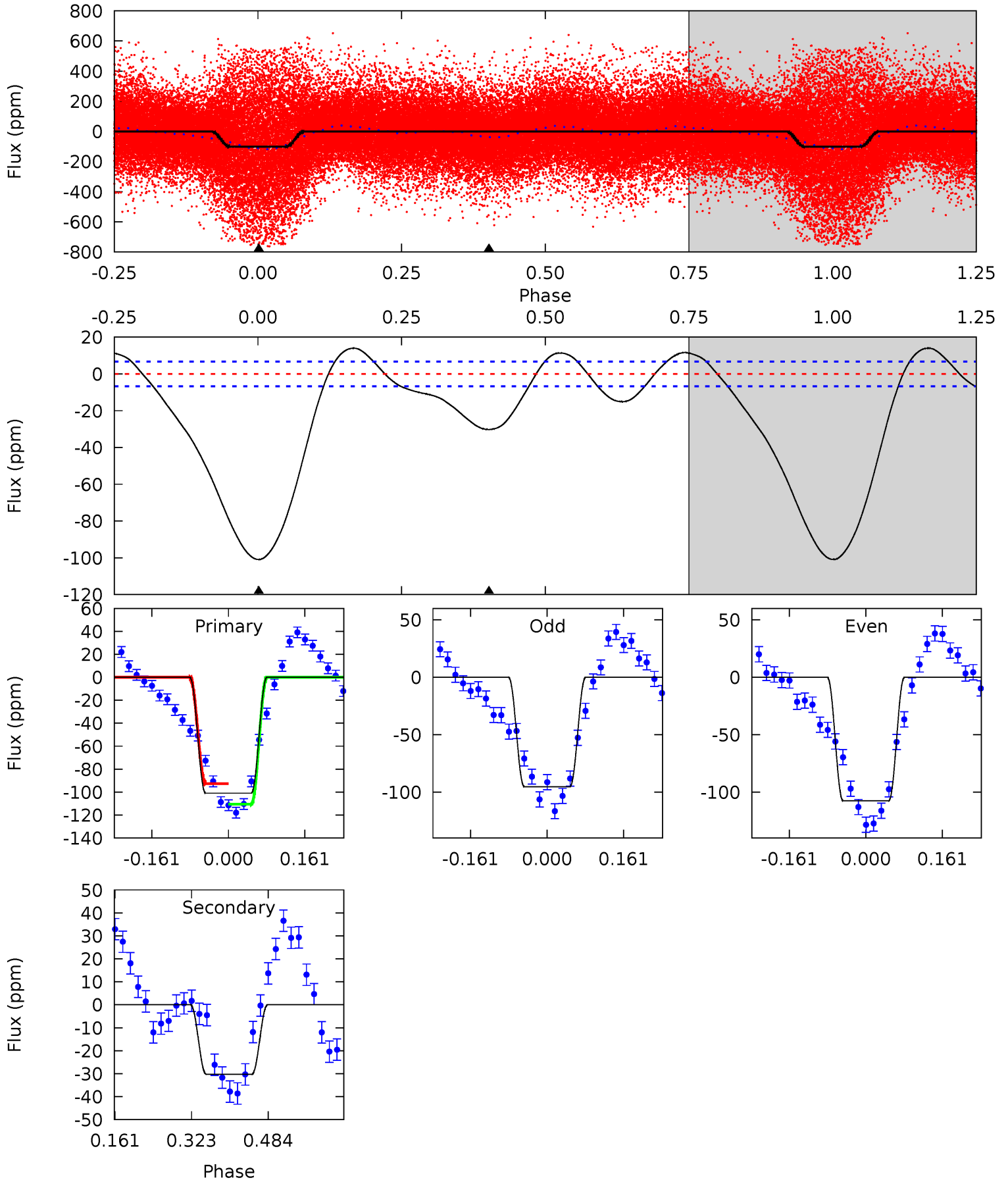
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.20	3.00	0	0	4.34	1.07	5.04	8.20	8.20	3.00	3.00	1.53	0.88	0.88	8.25



Alt Model-Shift Uniqueness Test

004649238-01, P = 0.965734 Days, E = 131.028431 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.3	20.2	0	0	4.46	1.40	6.14	67.3	67.3	20.2	20.2	4.12	1.14	0.12	6.09



Stellar Parameters For KIC 004649238

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7236^{+226}_{-302}	$4.029^{+0.198}_{-0.180}$	$-0.060^{+0.250}_{-0.350}$	$2.023^{+0.541}_{-0.541}$	$1.593^{+0.212}_{-0.283}$	$0.271^{+0.318}_{-0.130}$
	+3%/-4%	+5%/-4%	+417%/-583%	+27%/-27%	+13%/-18%	+117%/-48%
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 004649238-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4 ± 1	$0.61^{+0.28}_{-0.24}$	4230^{+351}_{-321}	5895^{+2027}_{-1144}	$3.023^{+5.208}_{-1.768}$
Alt.	-30 ± 1	$2.37^{+0.44}_{-0.39}$	4222^{+352}_{-338}	4887^{+323}_{-301}	$1.458^{+0.629}_{-0.415}$

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

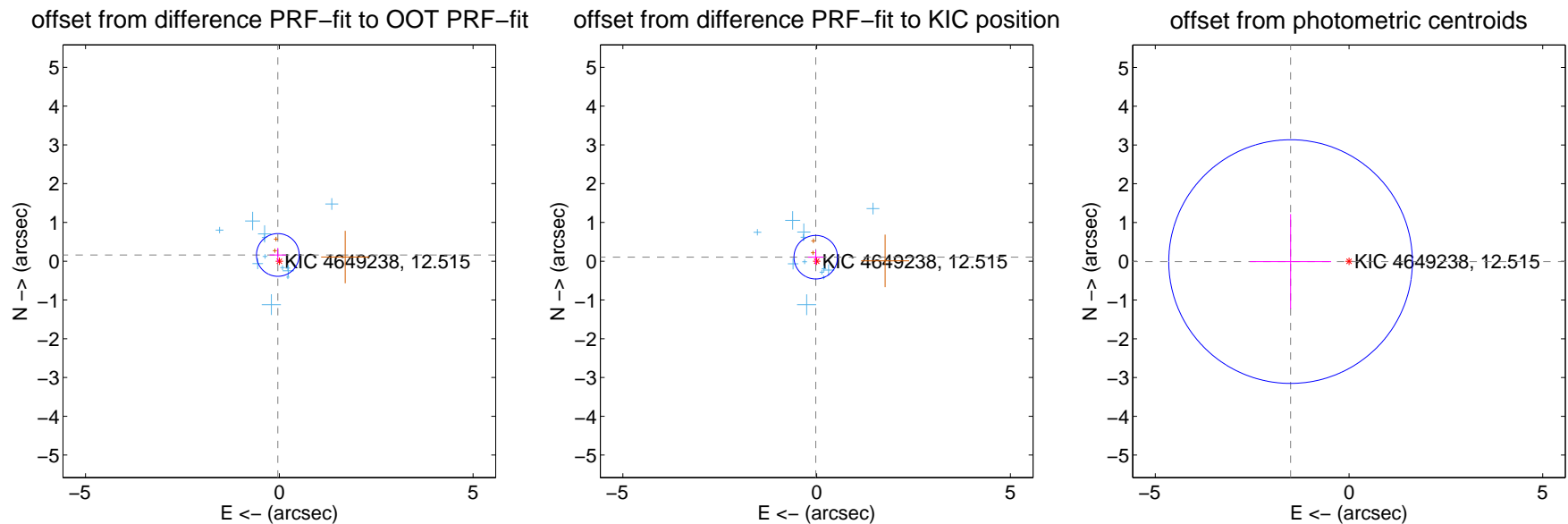
DV Centroid Data

Supplemental centroid analysis for 004649238-01. Kepler magnitude: 12.52. Transit SNR 3.16

There are 12 quarters with good PRF difference image offsets

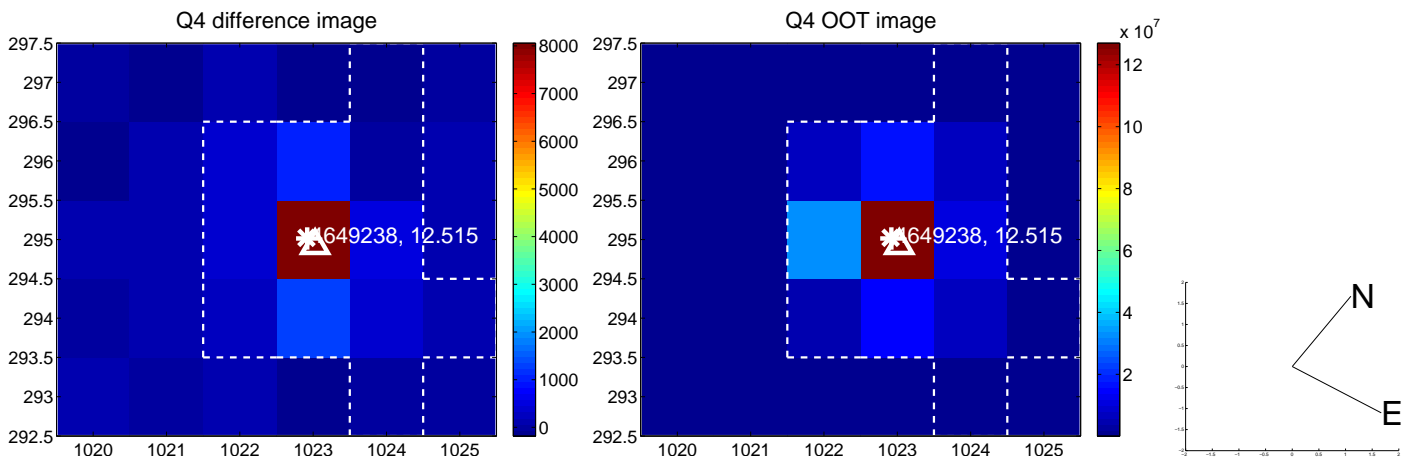
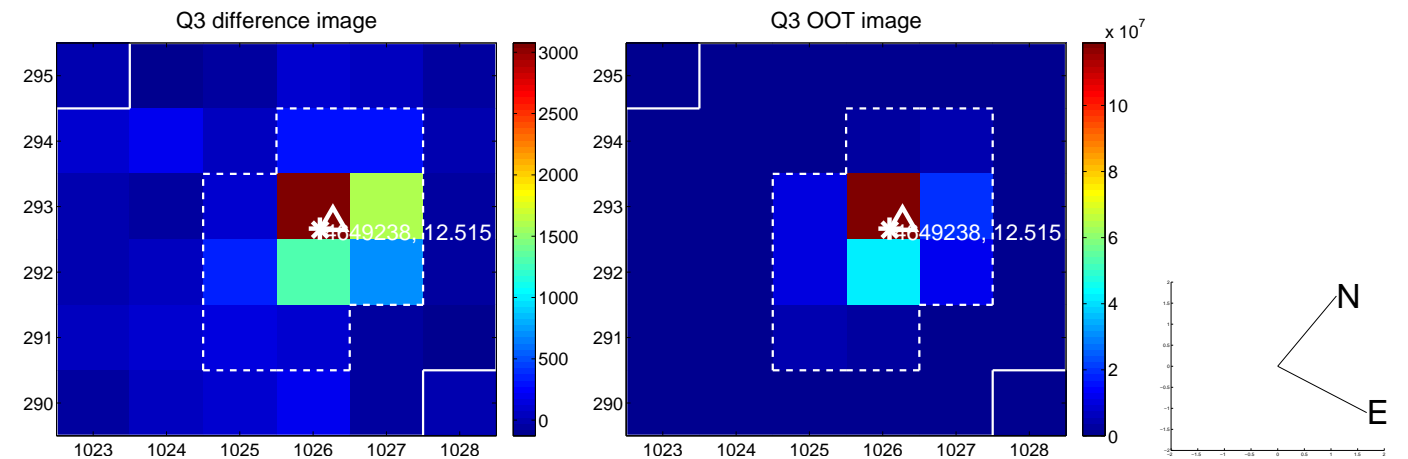
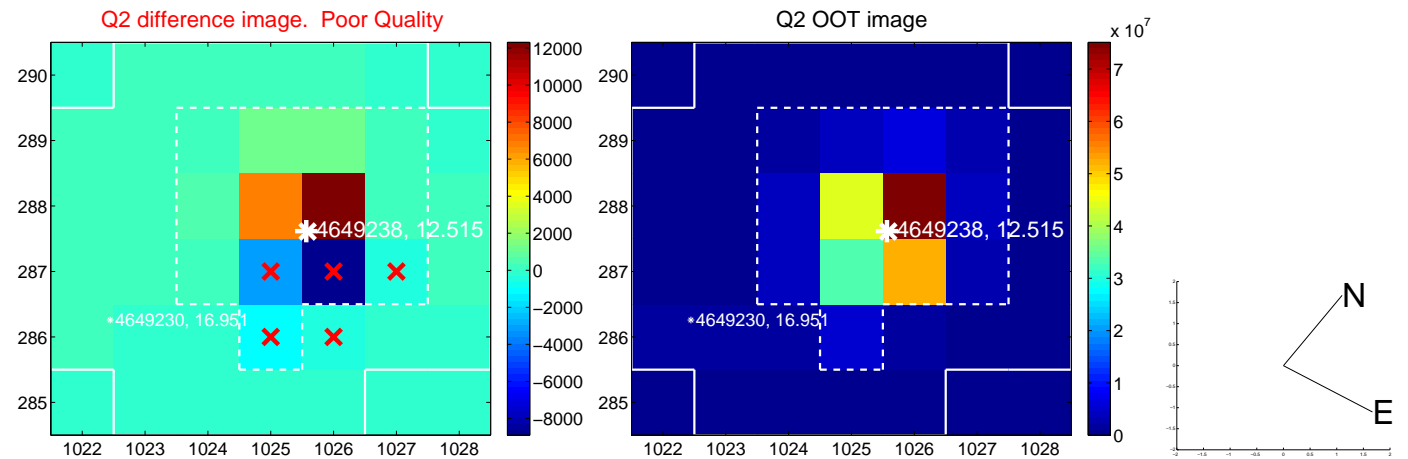
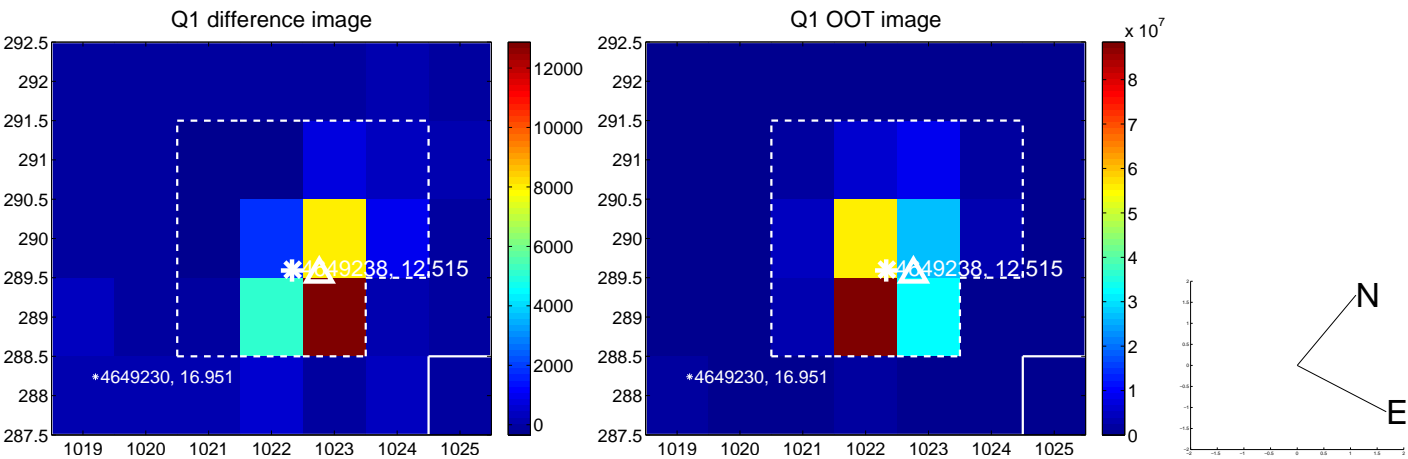
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.165 ± 0.184	0.90	0.038 ± 0.213	0.161 ± 0.181
PRF-fit source offset from KIC position	0.106 ± 0.187	0.57	0.023 ± 0.200	0.103 ± 0.187
photometric centroid source offset	1.51 ± 1.05	1.44	1.51 ± 1.05	-0.01 ± 1.23

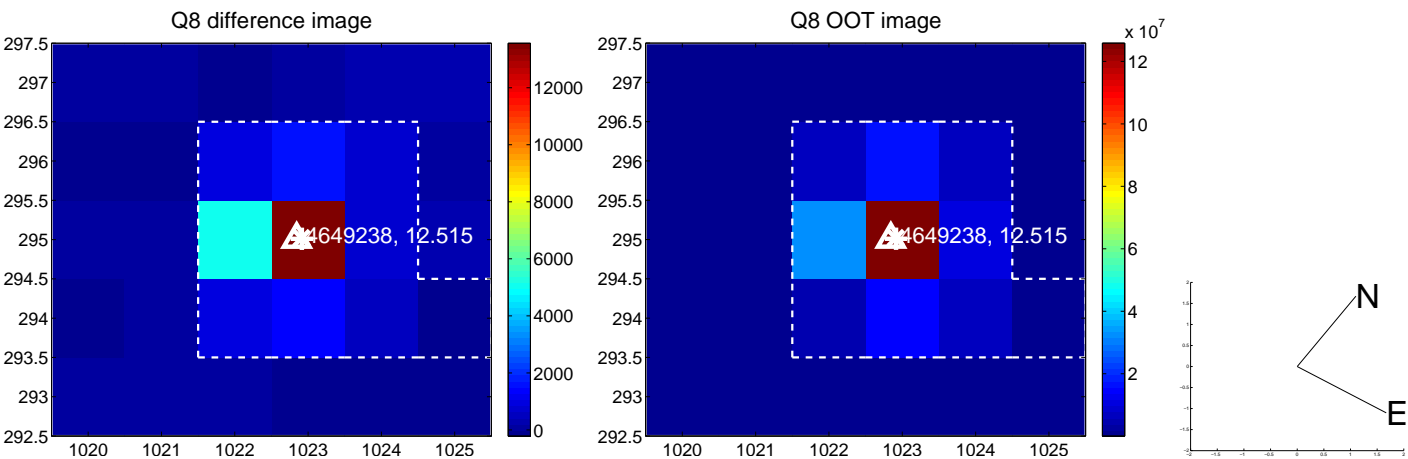
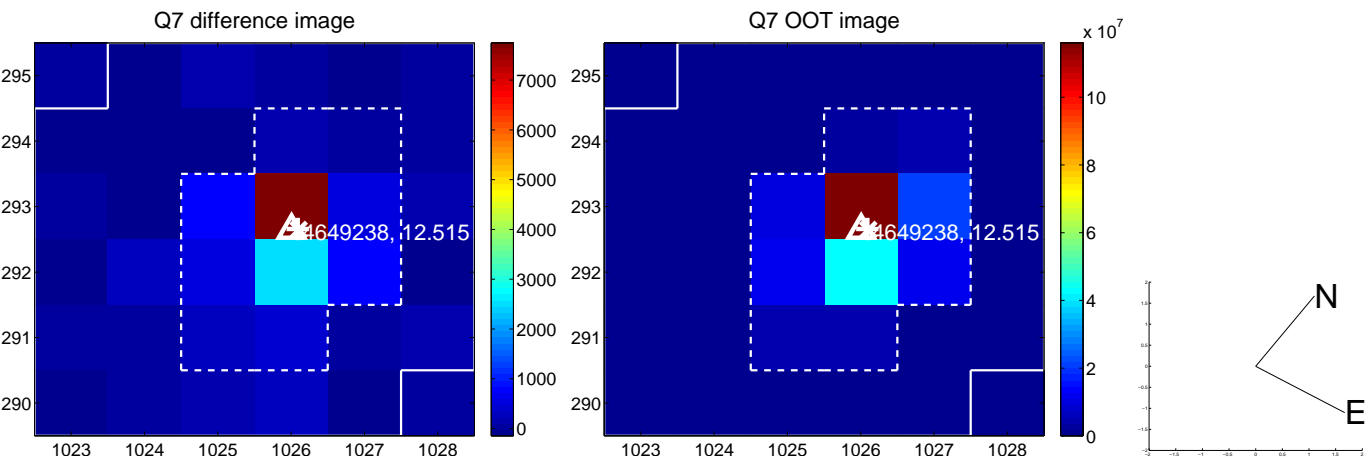
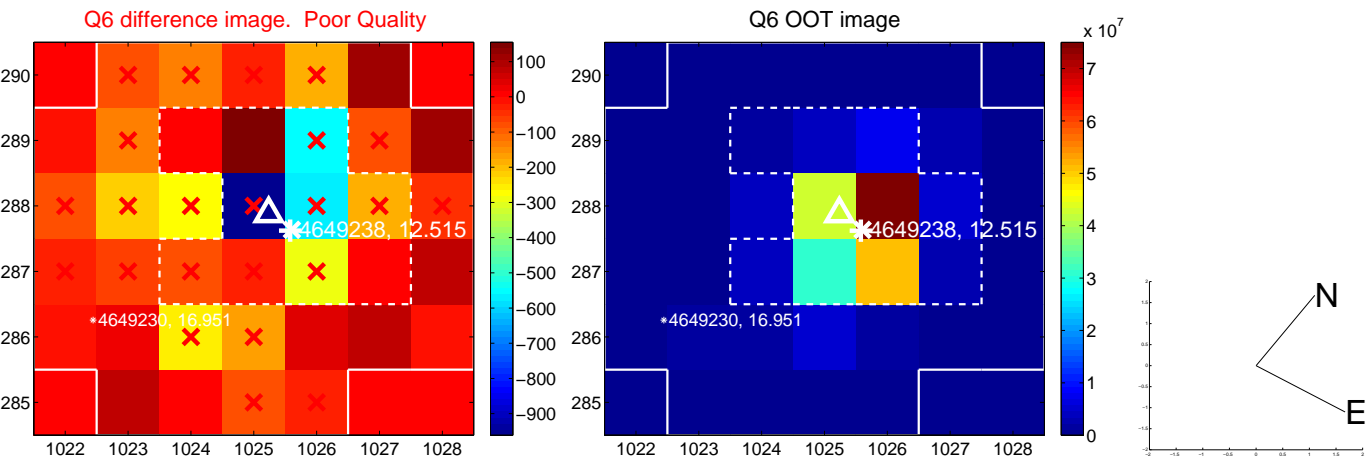
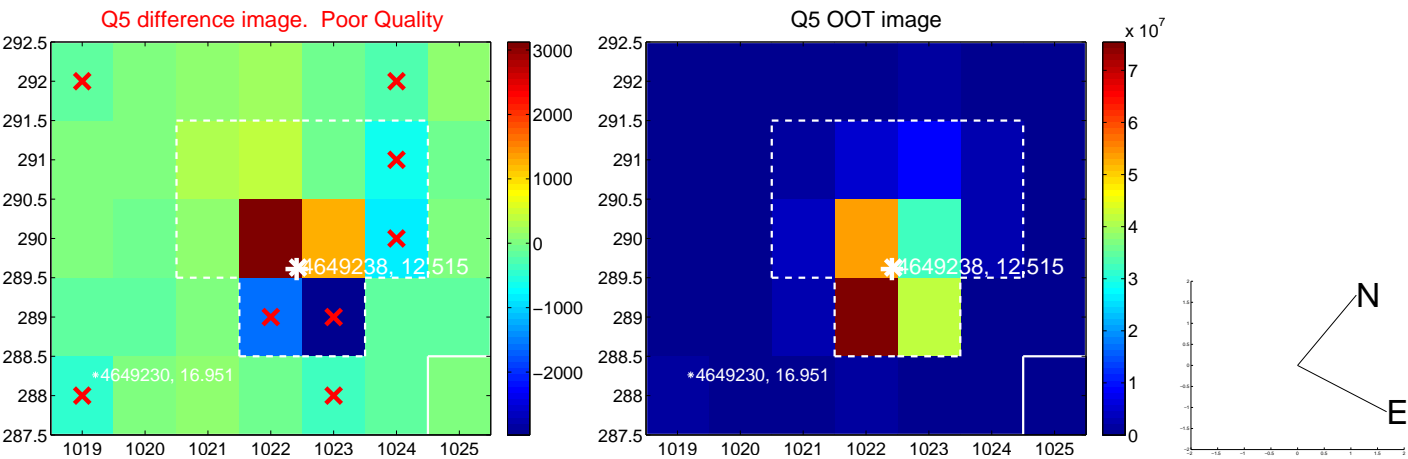


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

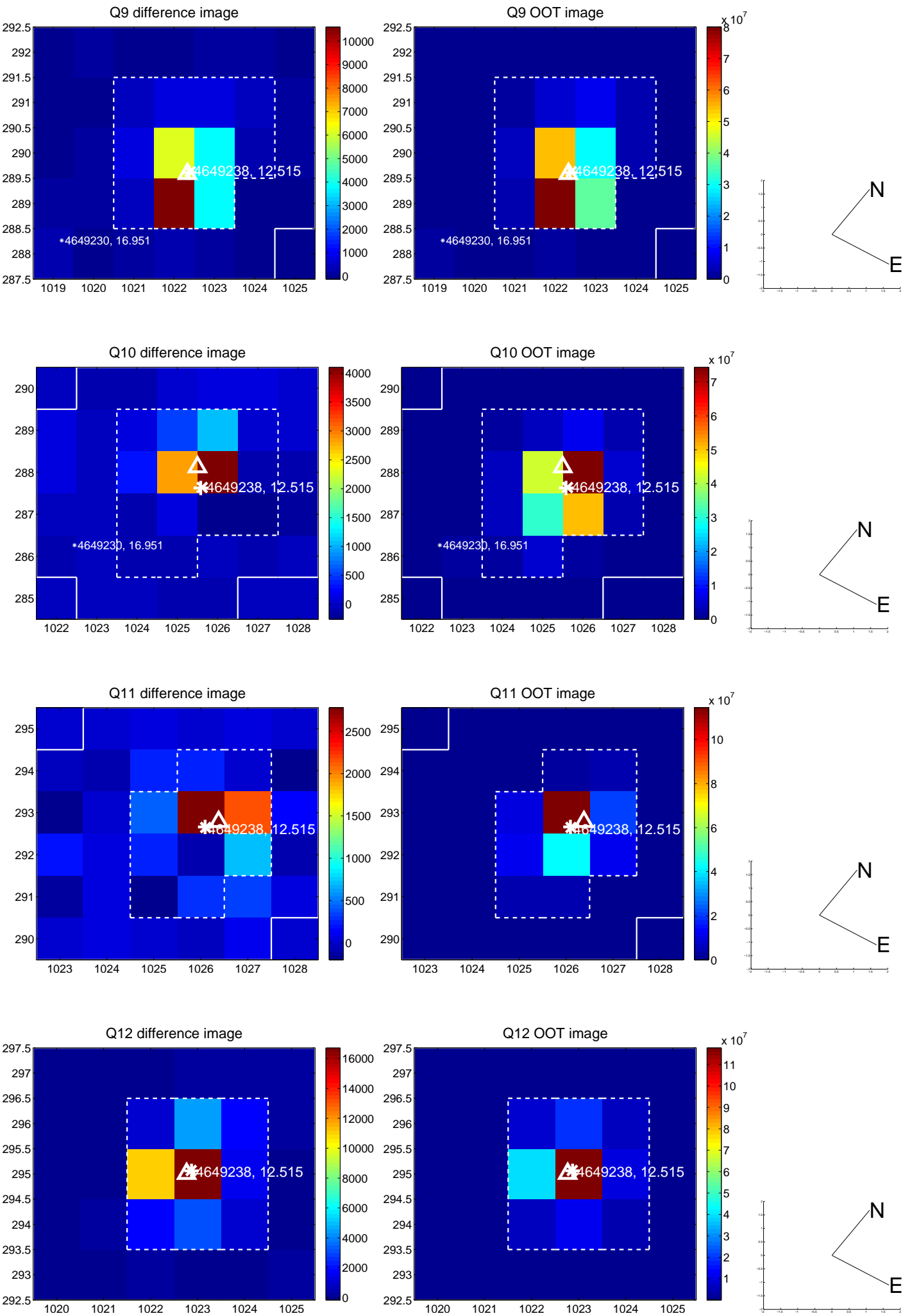
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



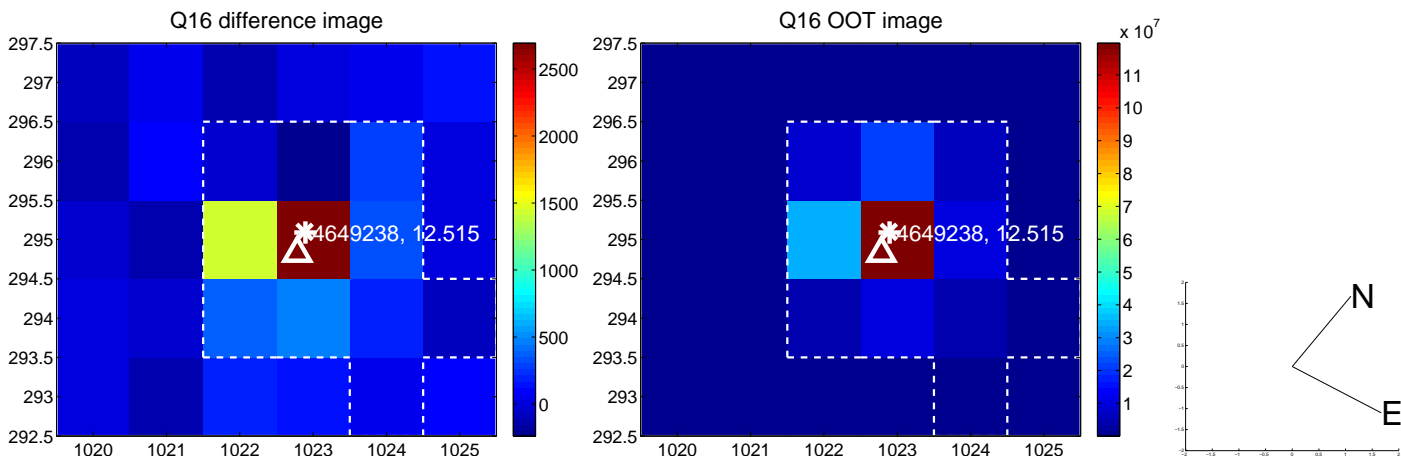
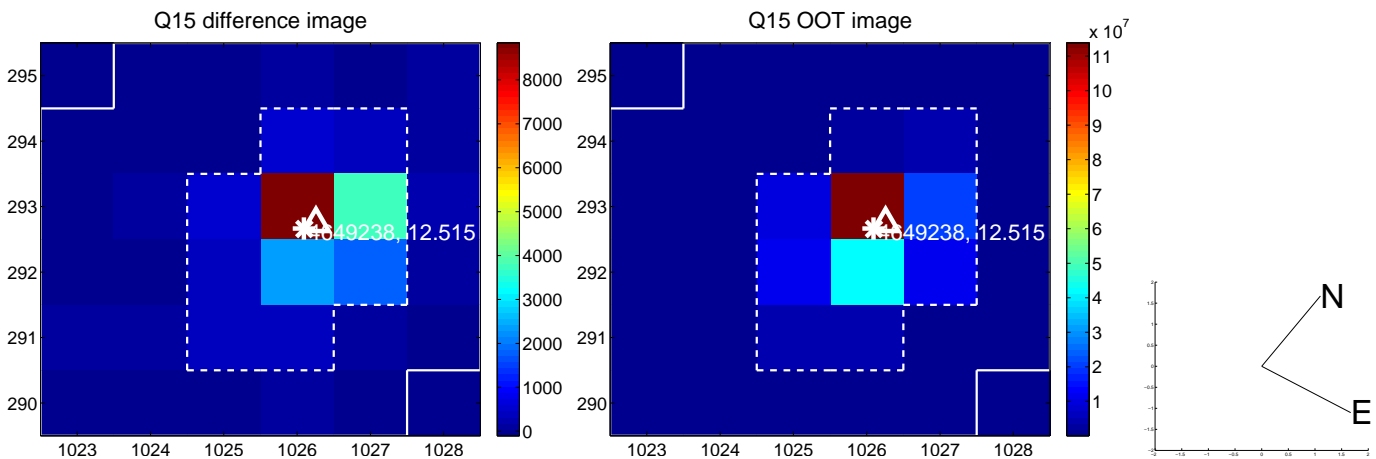
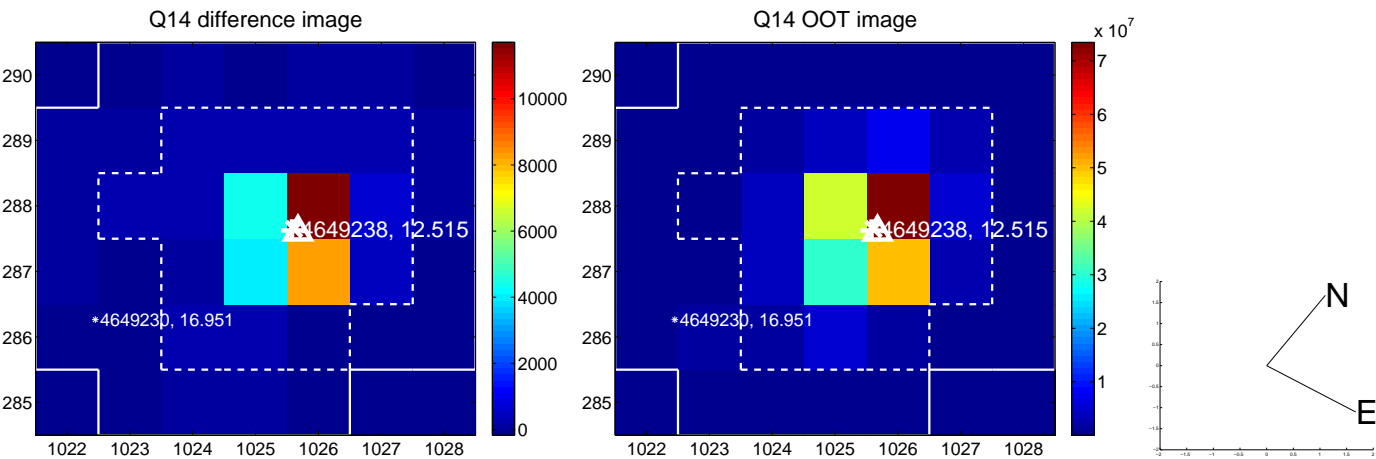
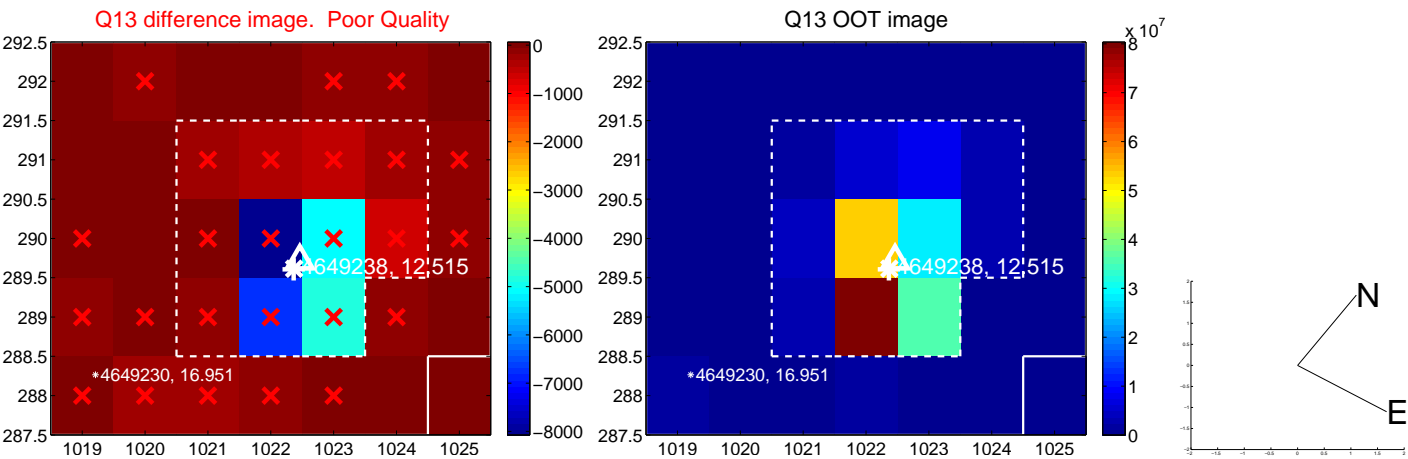
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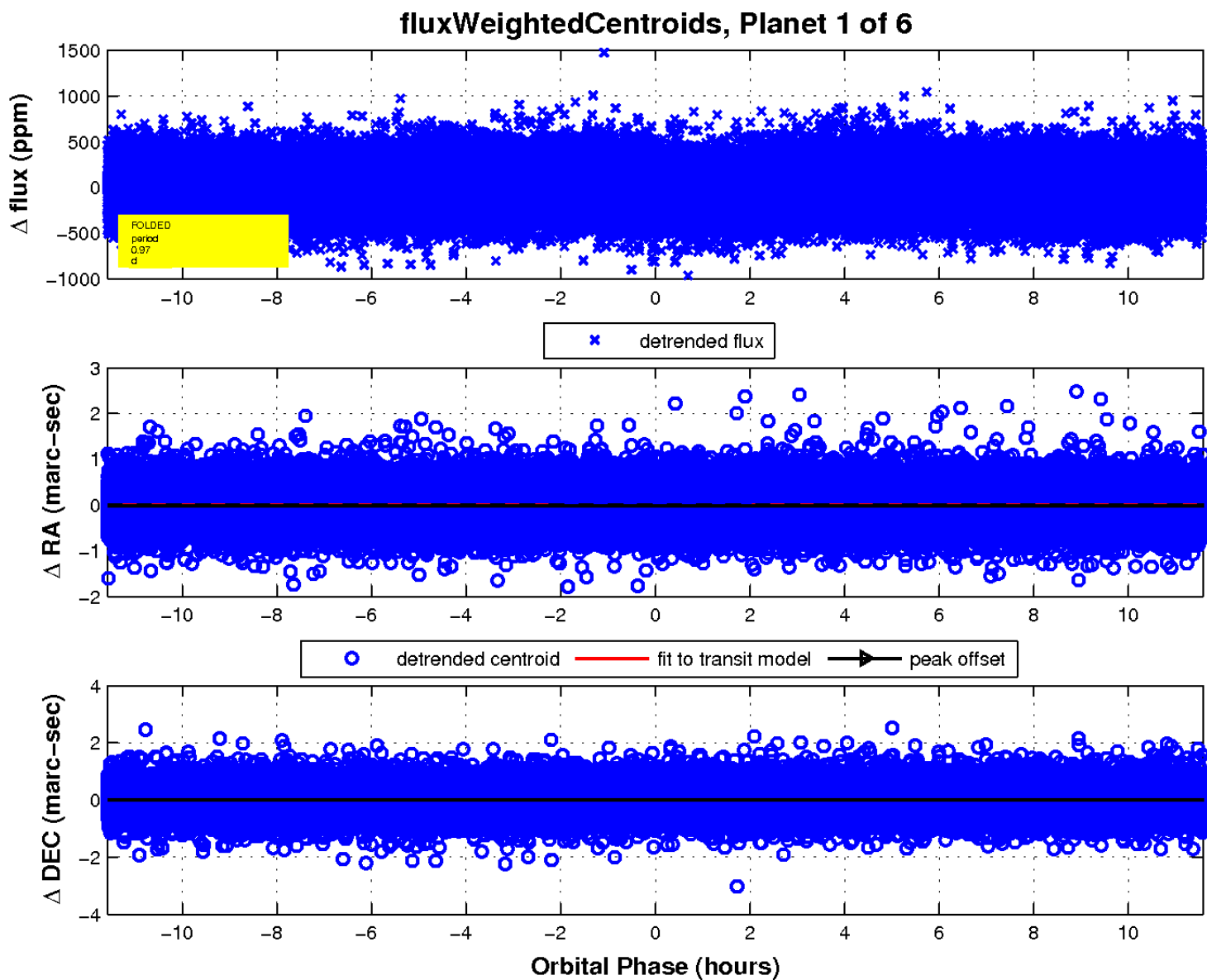
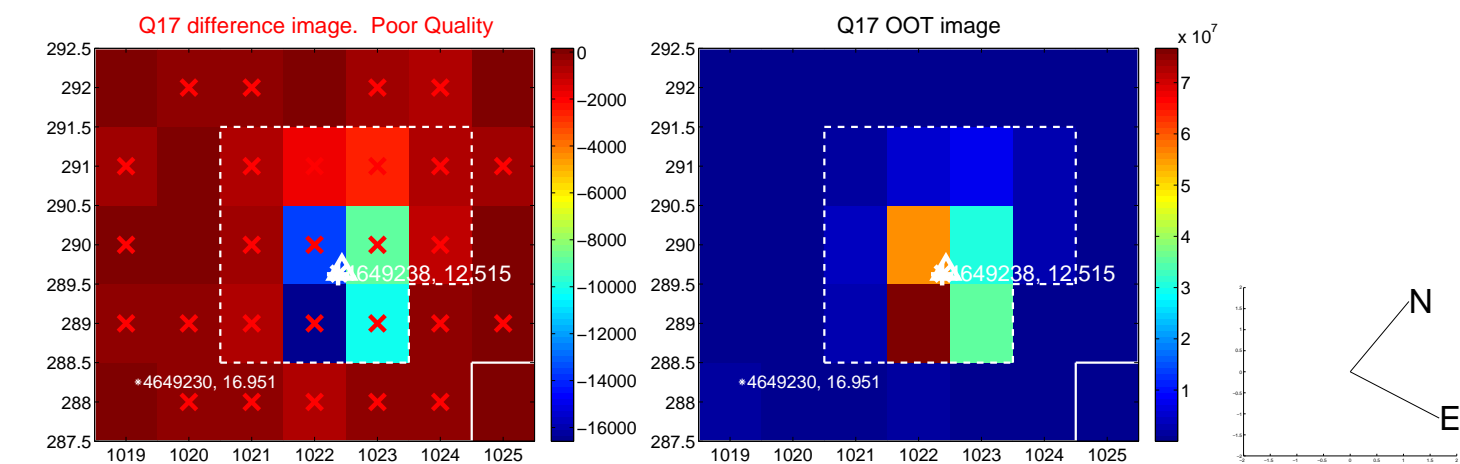
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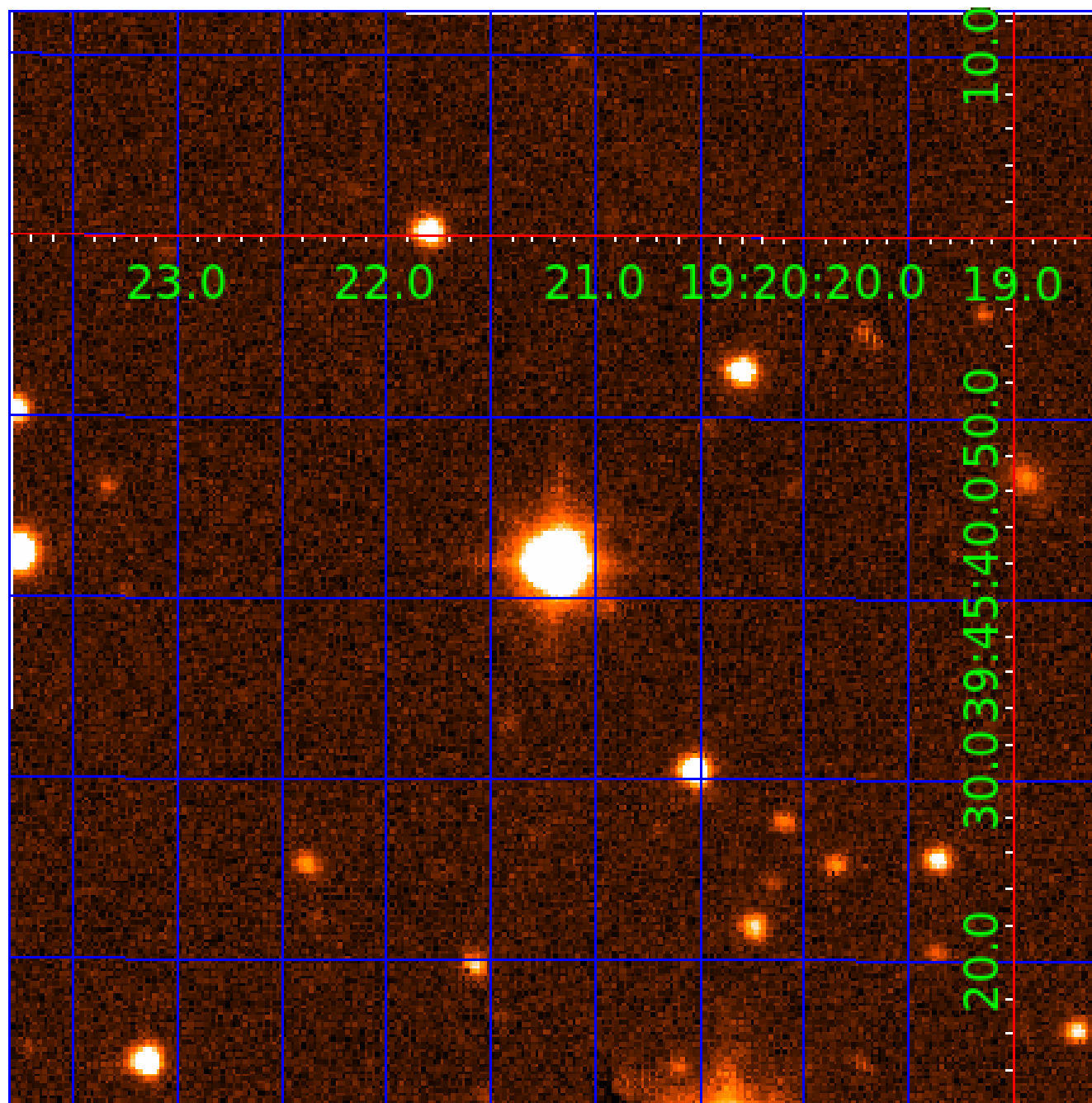


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UKIRT Image

Declination



KIC 004649238

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004649238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
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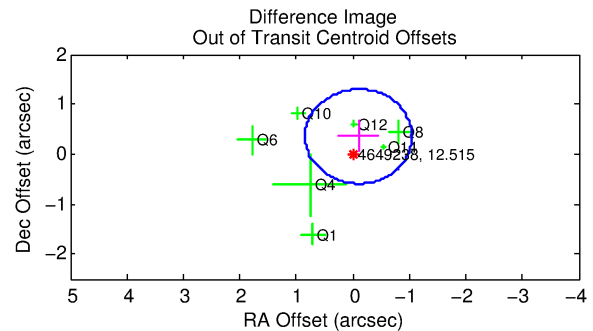
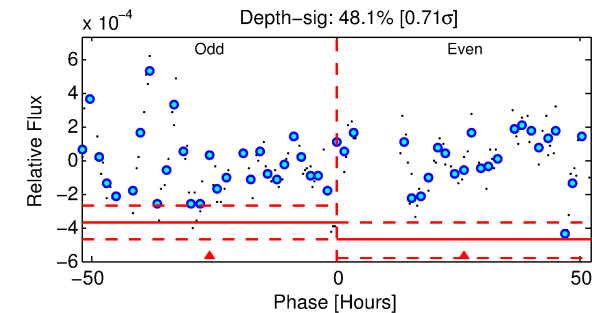
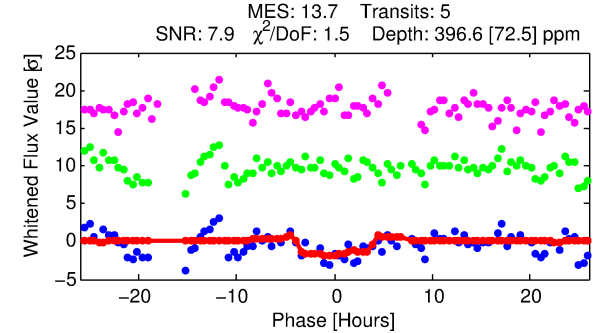
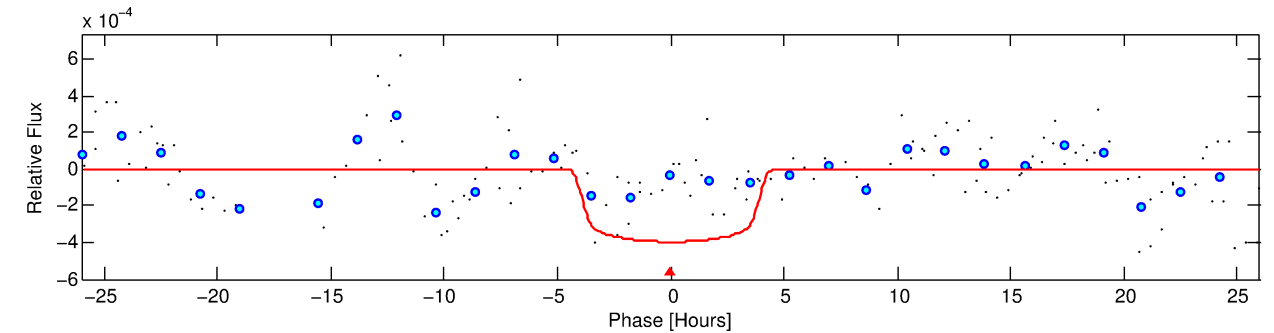
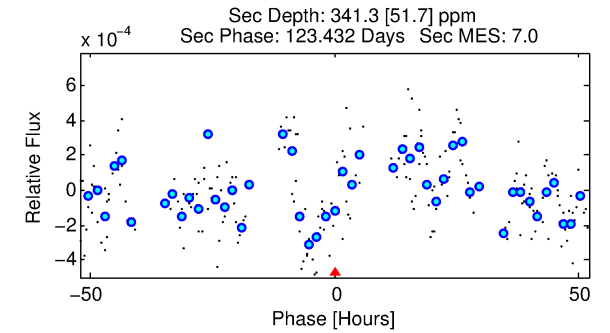
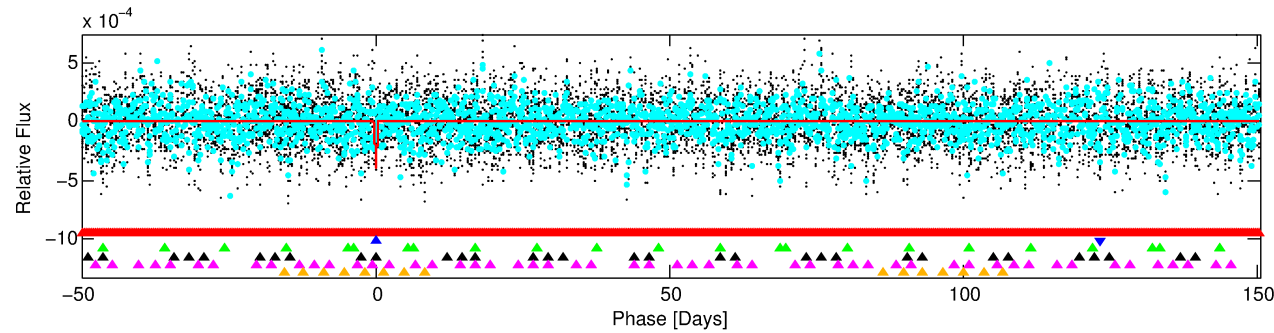
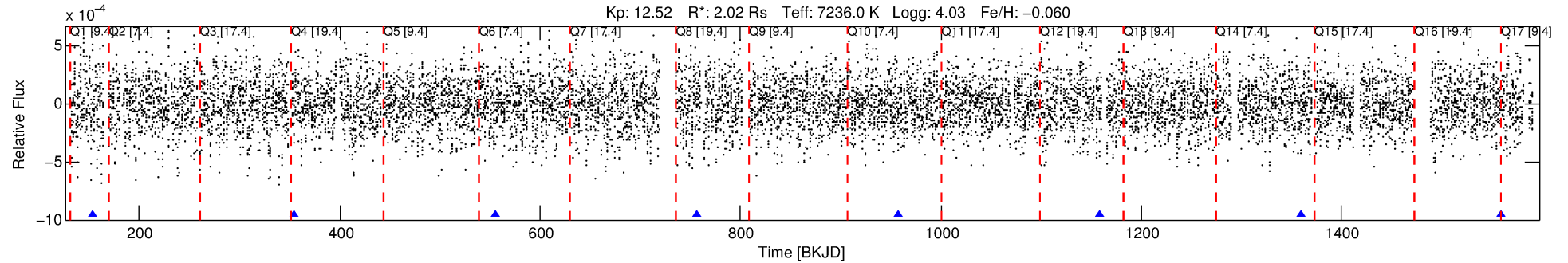
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004649238-02

No Significant Match Found

DV One-Page Summary

KIC: 4649238 Candidate: 2 of 6 Period: 200.753 d



DV Fit Results:

Period = 200.75304 [0.01216] d
Epoch = 154.2824 [0.0618] BKJD
Rp/R* = 0.0210 [0.0030]
a/R* = 89.62 [60.55]
b = 0.89 [0.18]
Seff = 16.34 [6.37]
Teq = 513 [50] K
Rp = 4.63 [1.40] Re
a = 0.7843 [0.1837] AU
Ag = 5396.65 [2588.34] [2.08σ]
Teffp = 6794 [621] K [10.08σ]

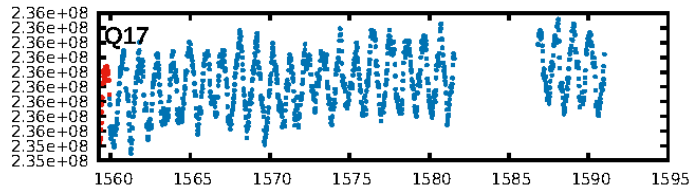
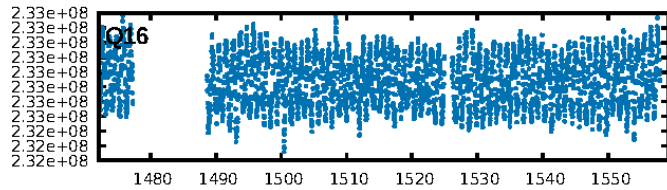
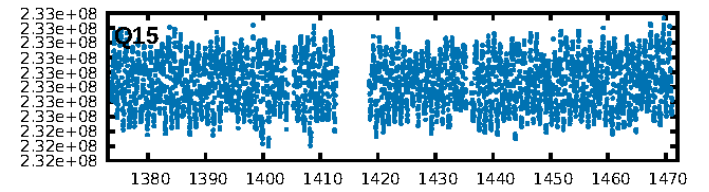
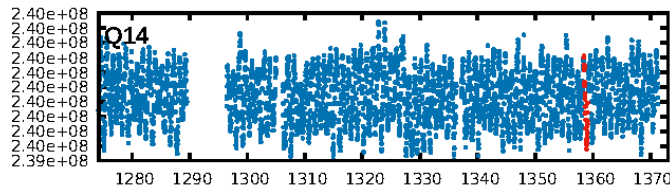
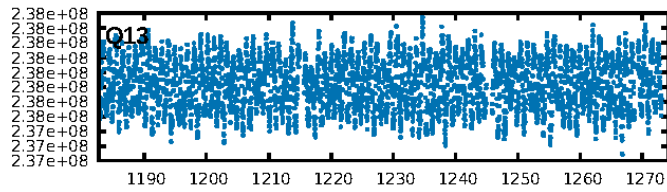
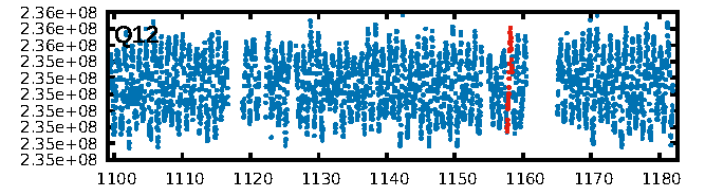
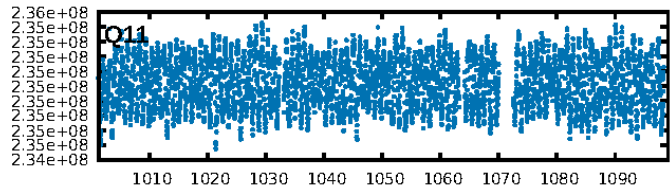
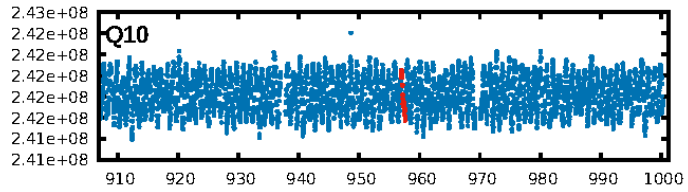
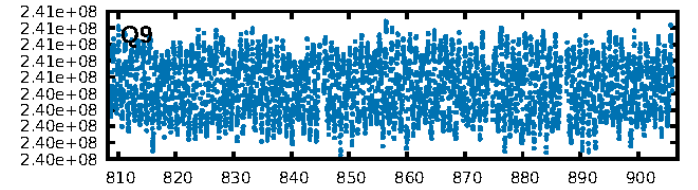
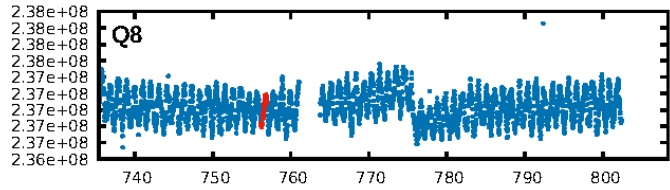
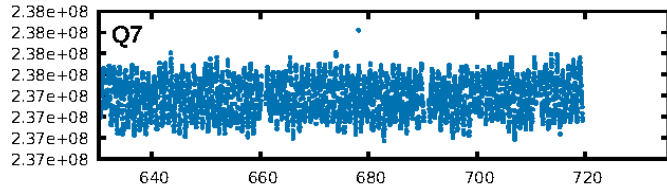
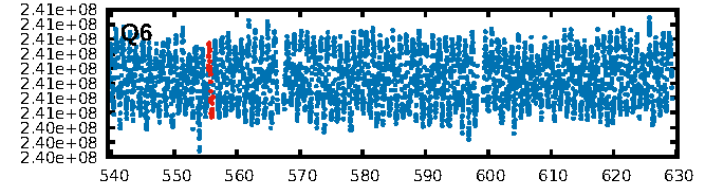
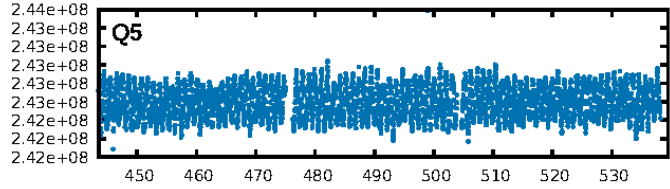
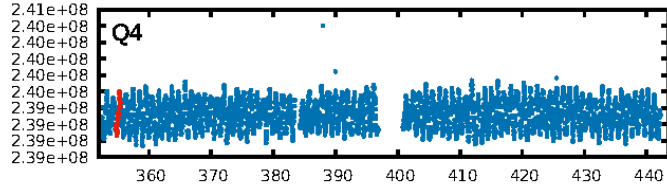
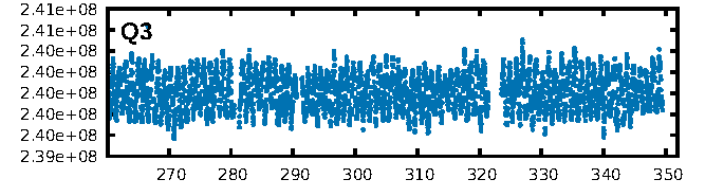
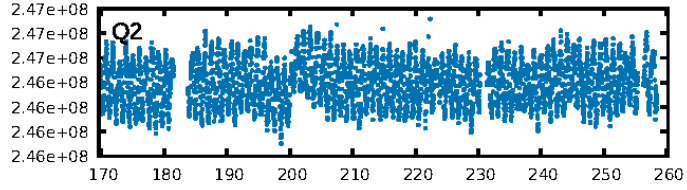
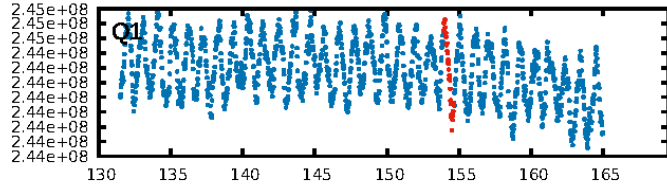
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [276.92σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 25.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.9176
Centroid-sig: 28.3%
Centroid-so: 0.396 arcsec [1.36σ]
OotOffset-rm: 0.368 arcsec [1.17σ]
KicOffset-rm: 0.283 arcsec [0.77σ]
OotOffset-st: 3/0/3/1 [7]
KicOffset-st: 3/0/3/1 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/7]

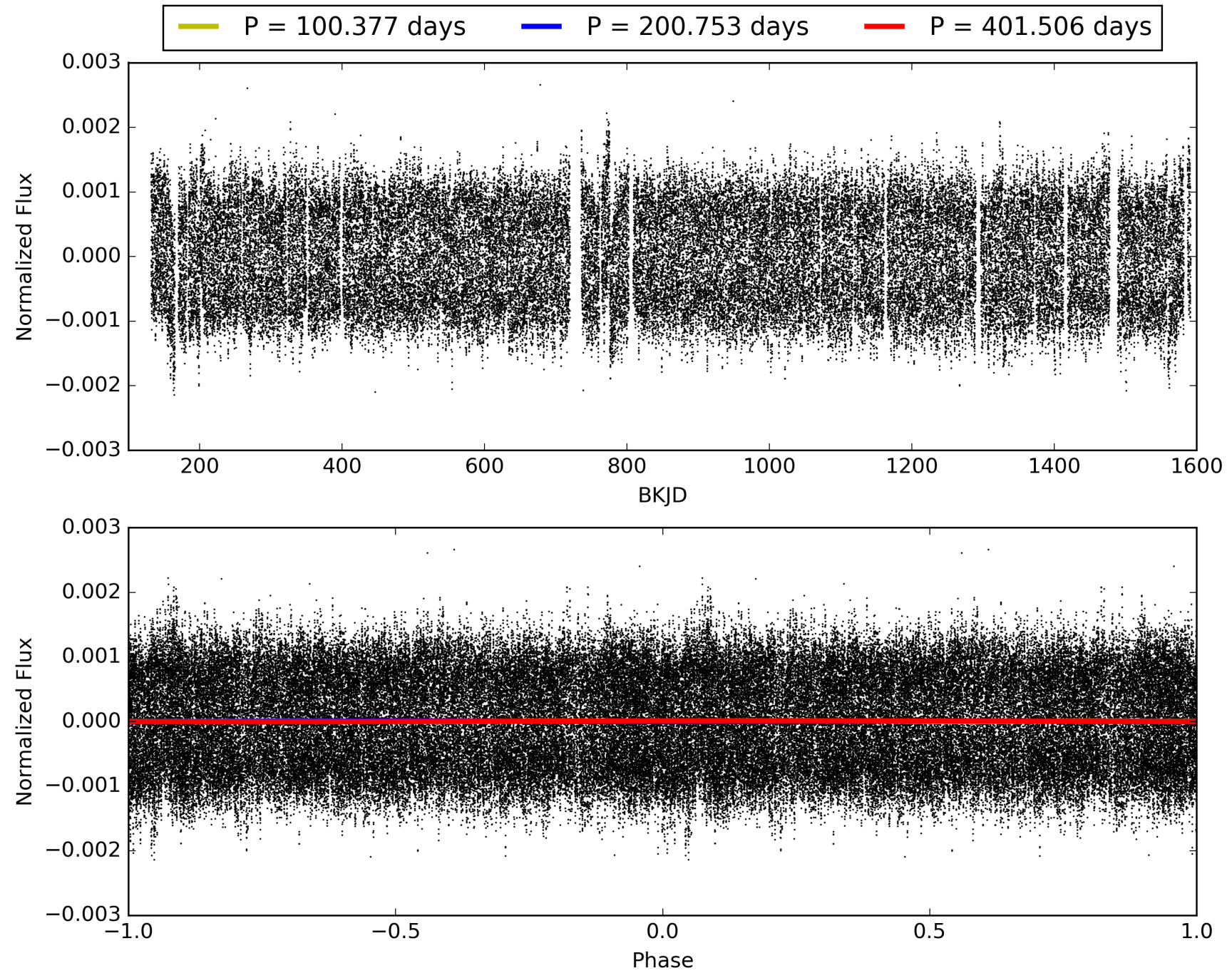
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:13:03 Z

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

TCE 004649238-02, PDC Light Curves

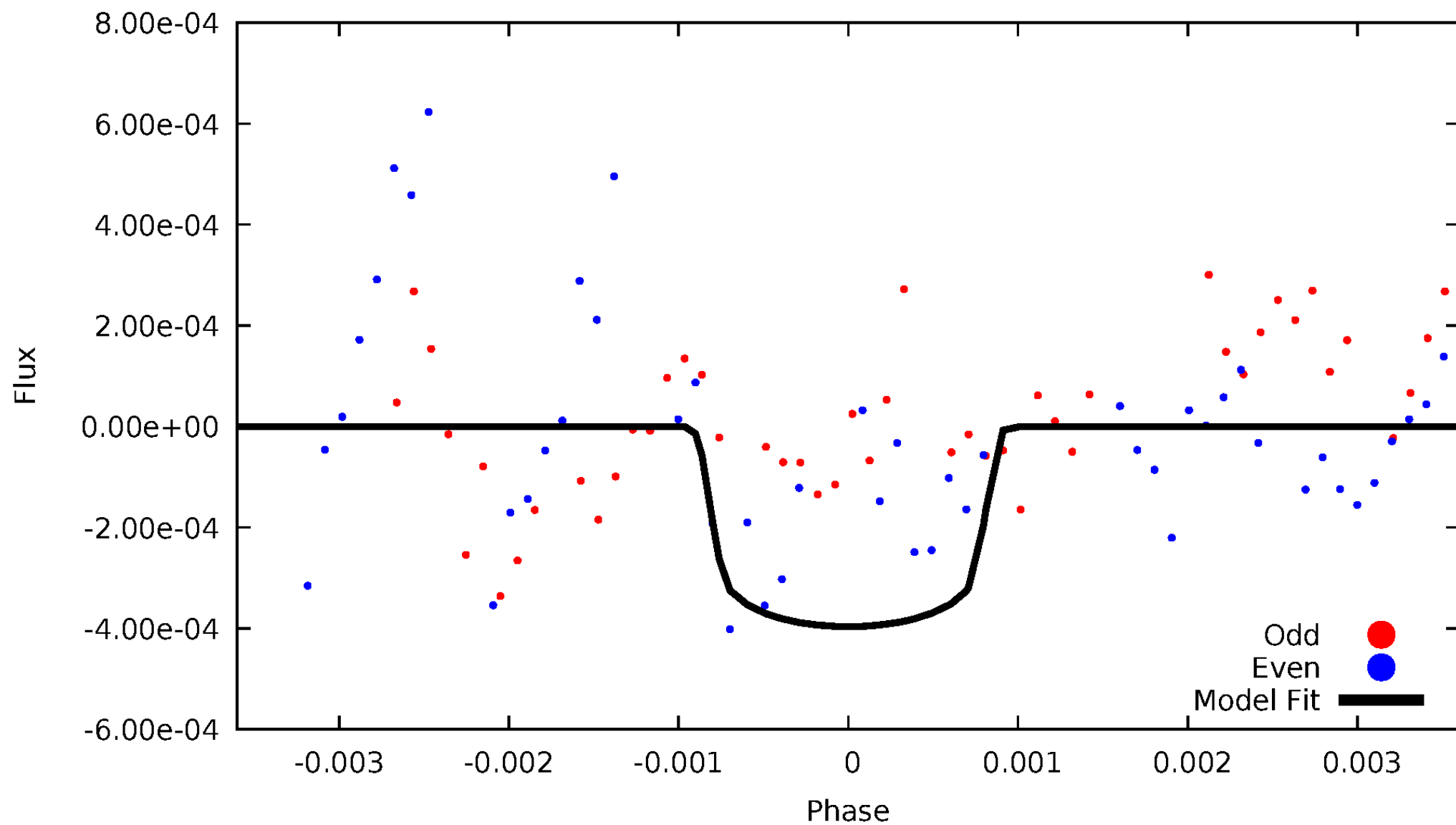


TCE 004649238-02



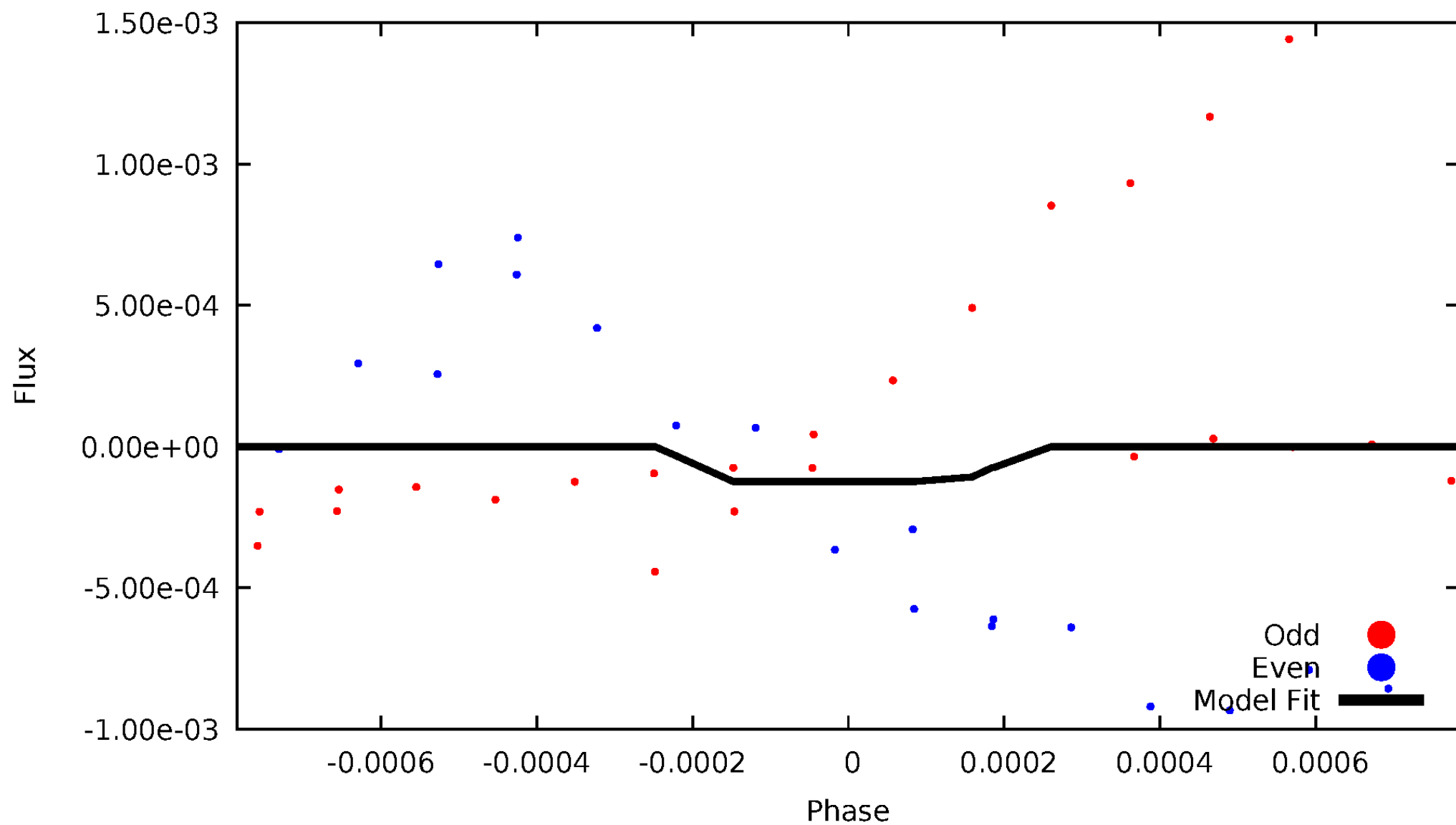
DV Odd/Even

TCE 004649238-02



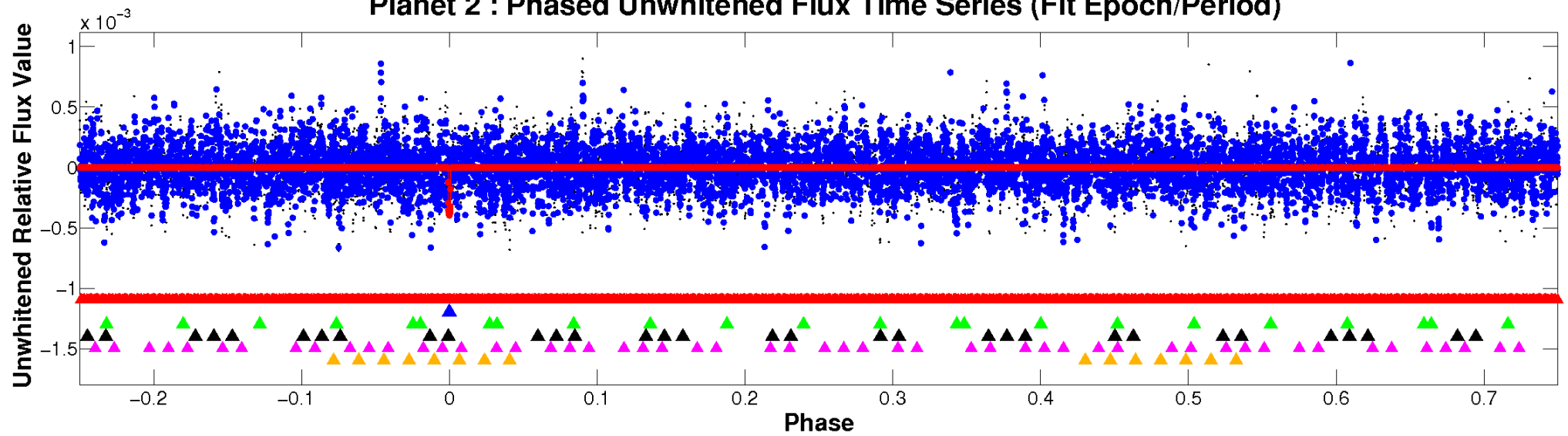
ALT Odd/Even

TCE 004649238-02

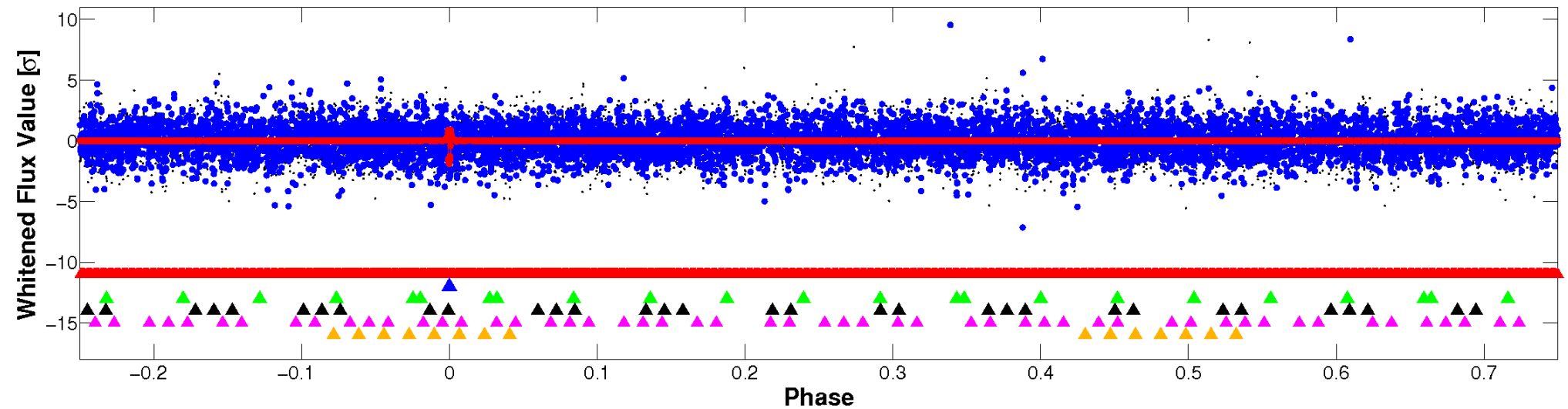


Non-Whitened Vs. Whitened Light Curve

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

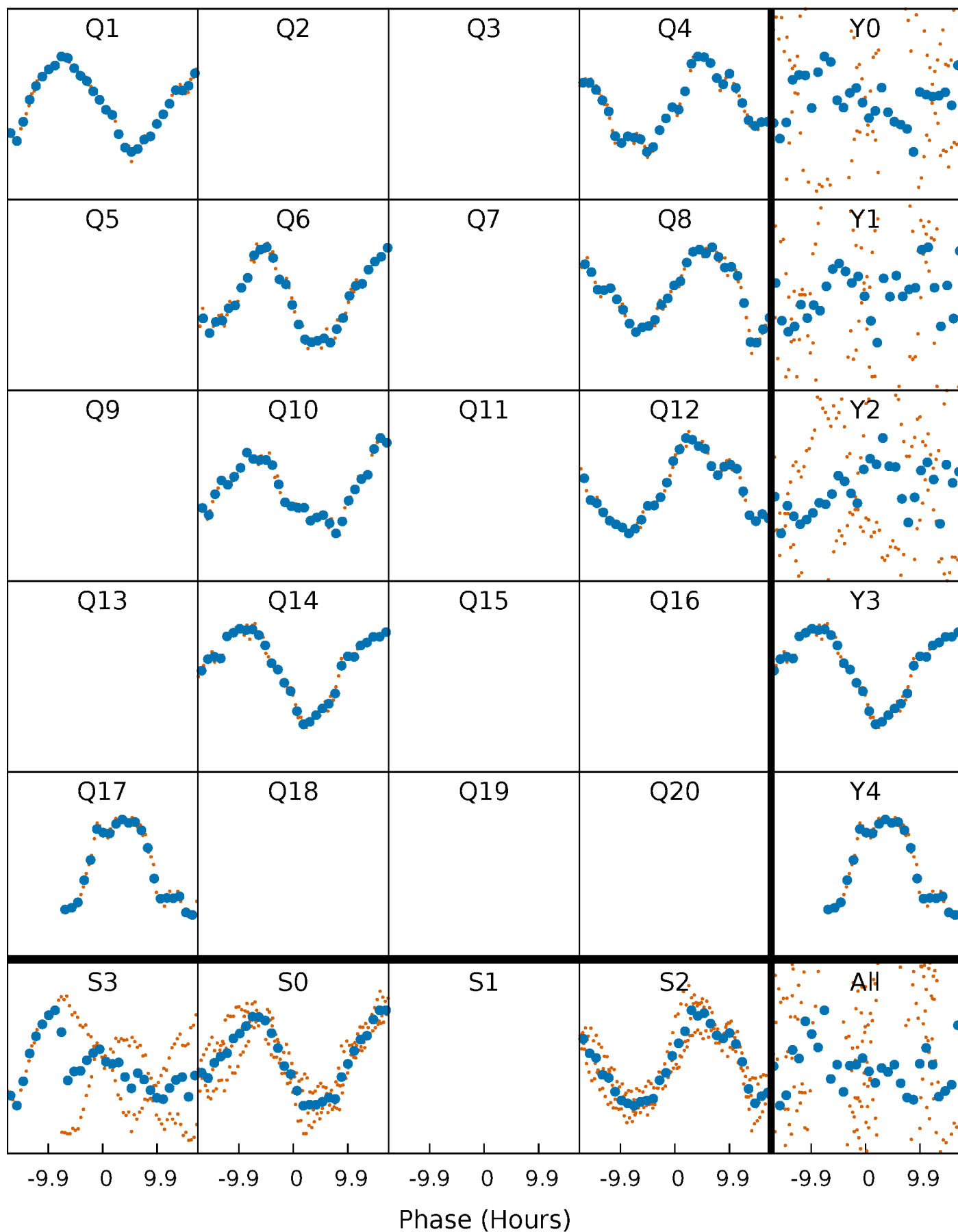


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



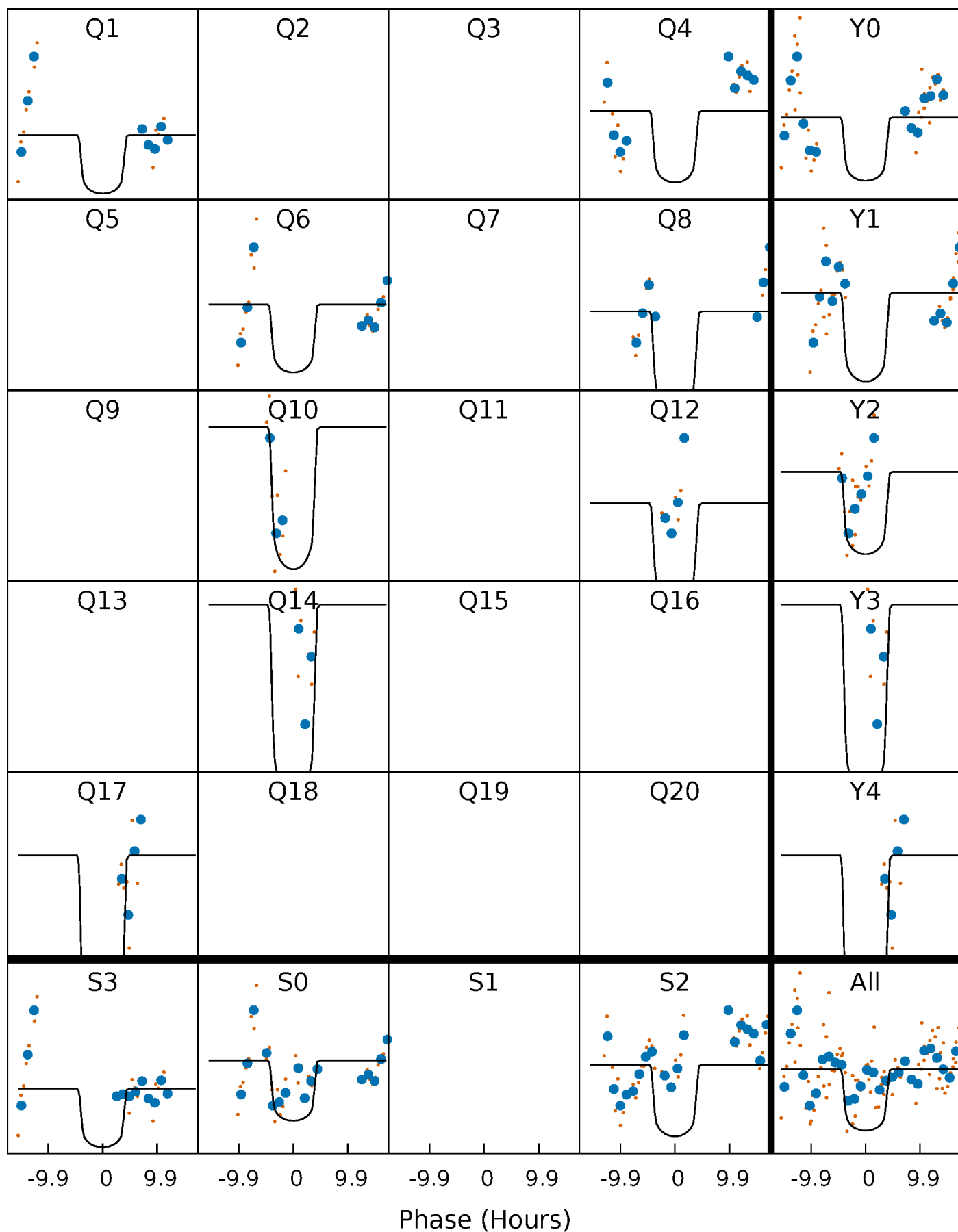
PDC Quarter-Phased Transit Curves

TCE 004649238-02 $P=200.753038$ Days $T_0=154.282440$ (BKJD)



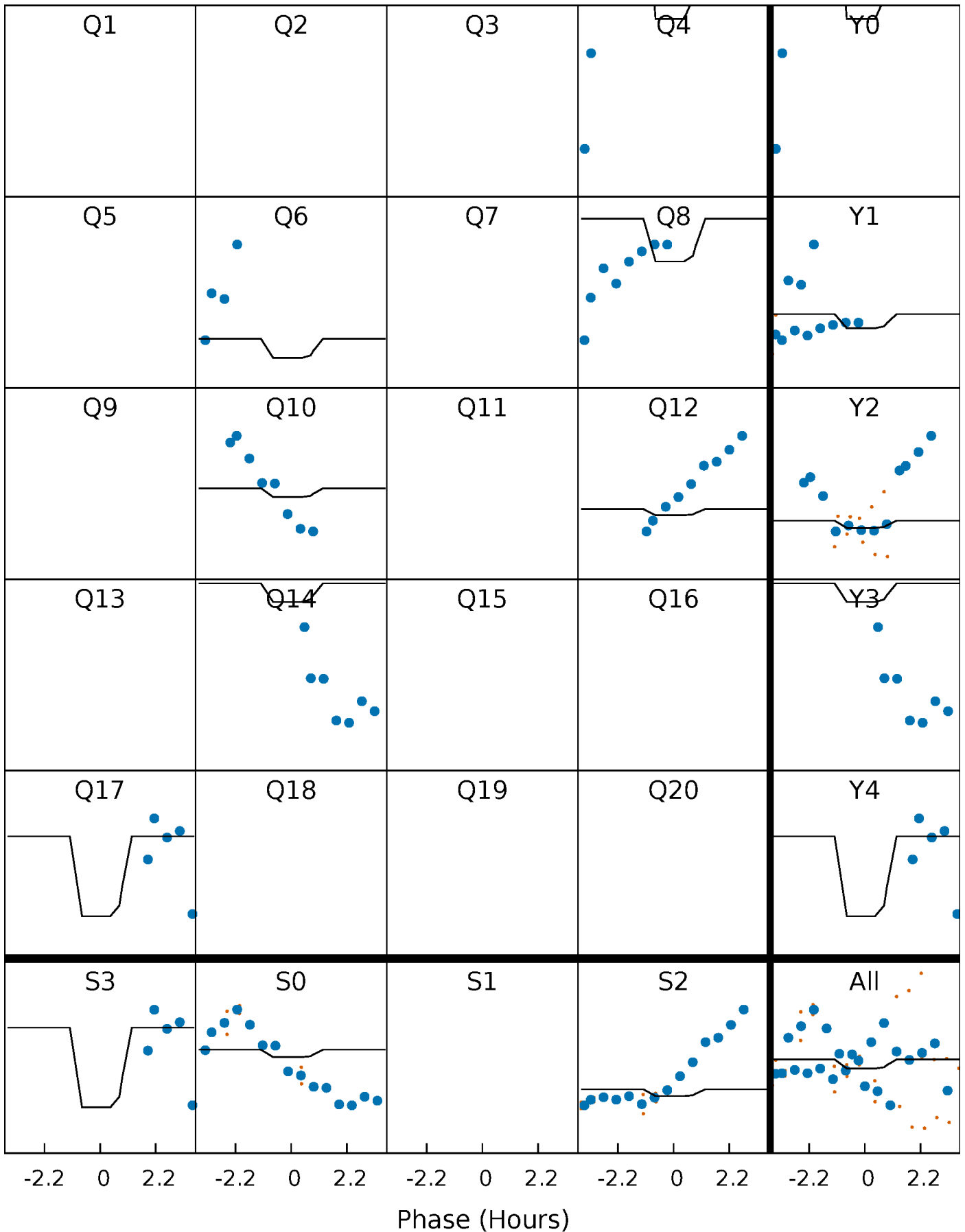
DV Quarter-Phased Transit Curves

TCE 004649238-02 $P=200.753038$ Days $T_0=154.282440$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

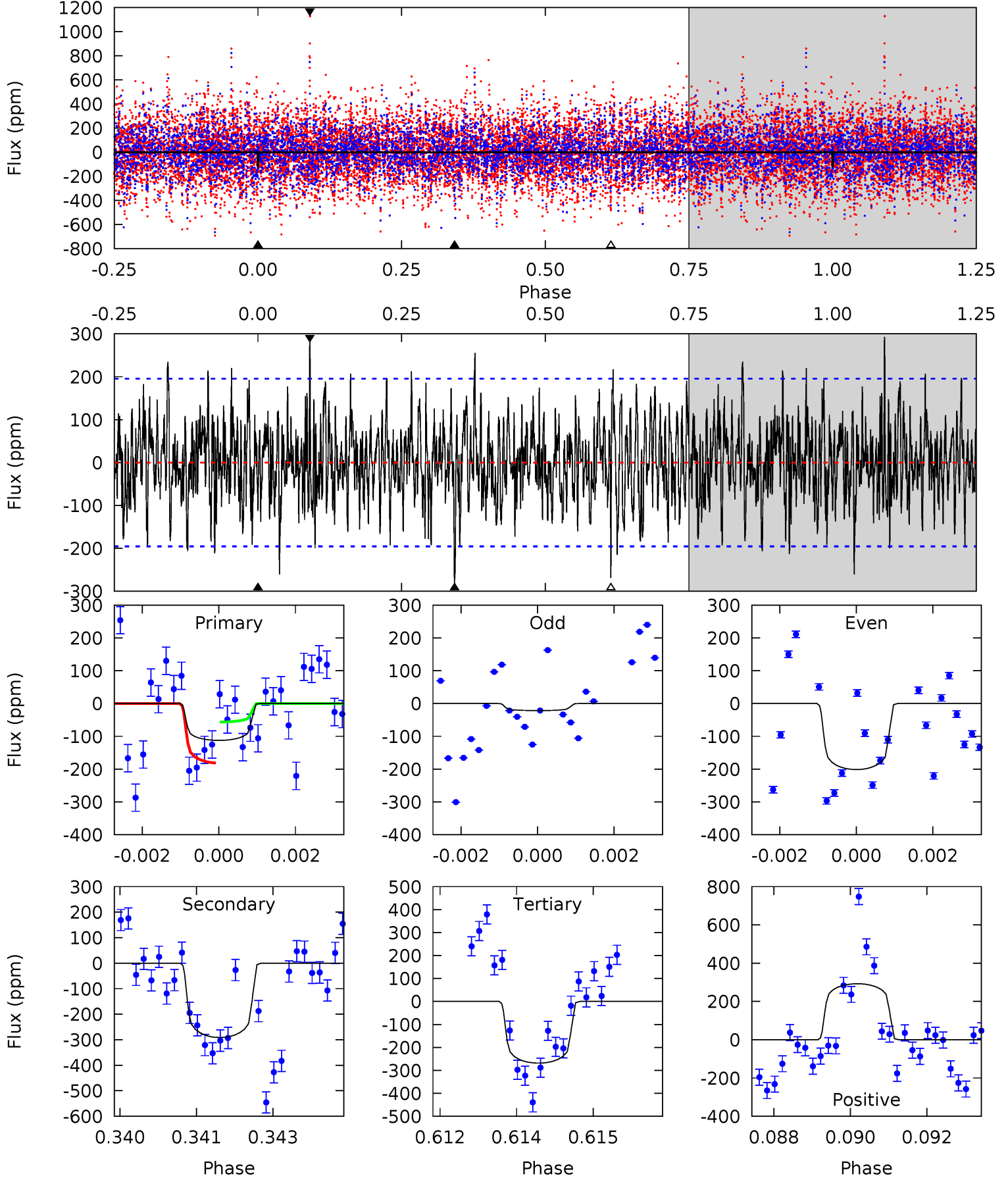
TCE 004649238-02 P=200.800945 Days $T_0=153.995216$ (BKJD)



DV Model-Shift Uniqueness Test

004649238-02, P = 200.753038 Days, E = 154.282440 Days

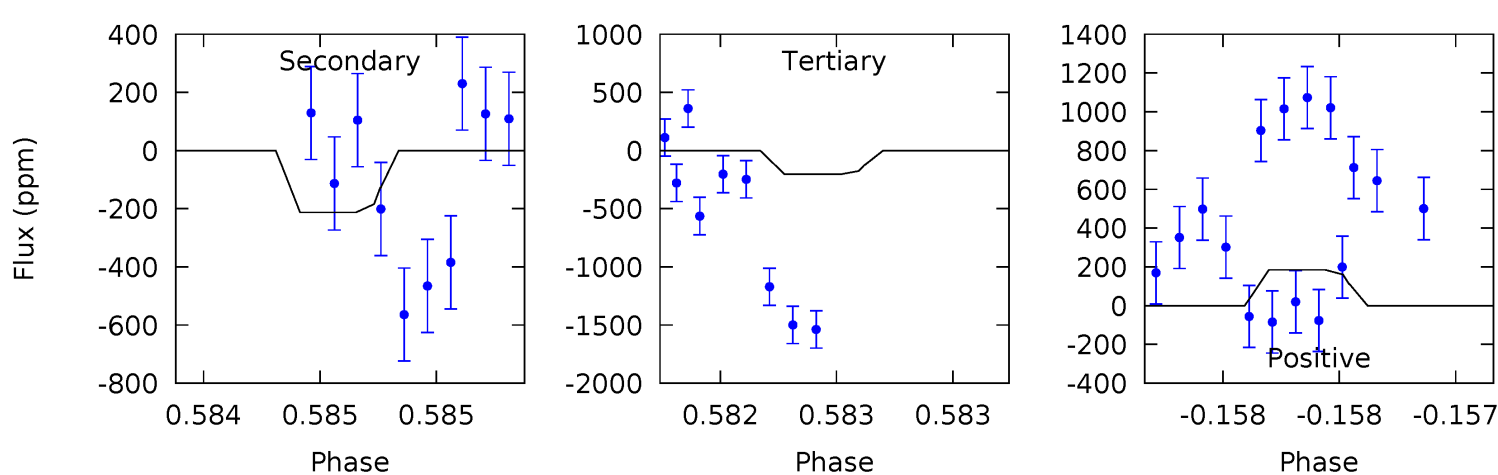
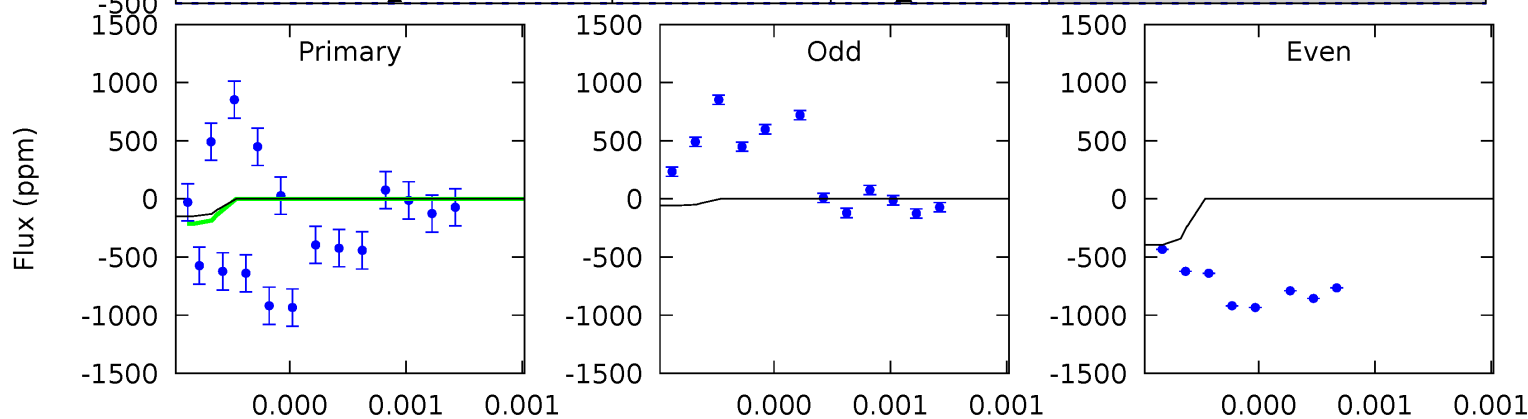
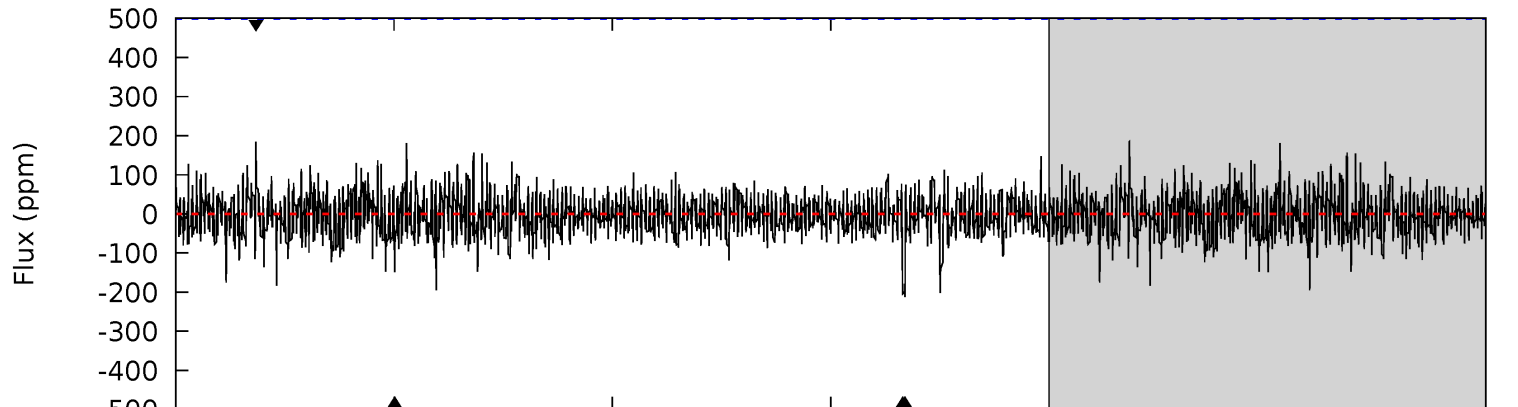
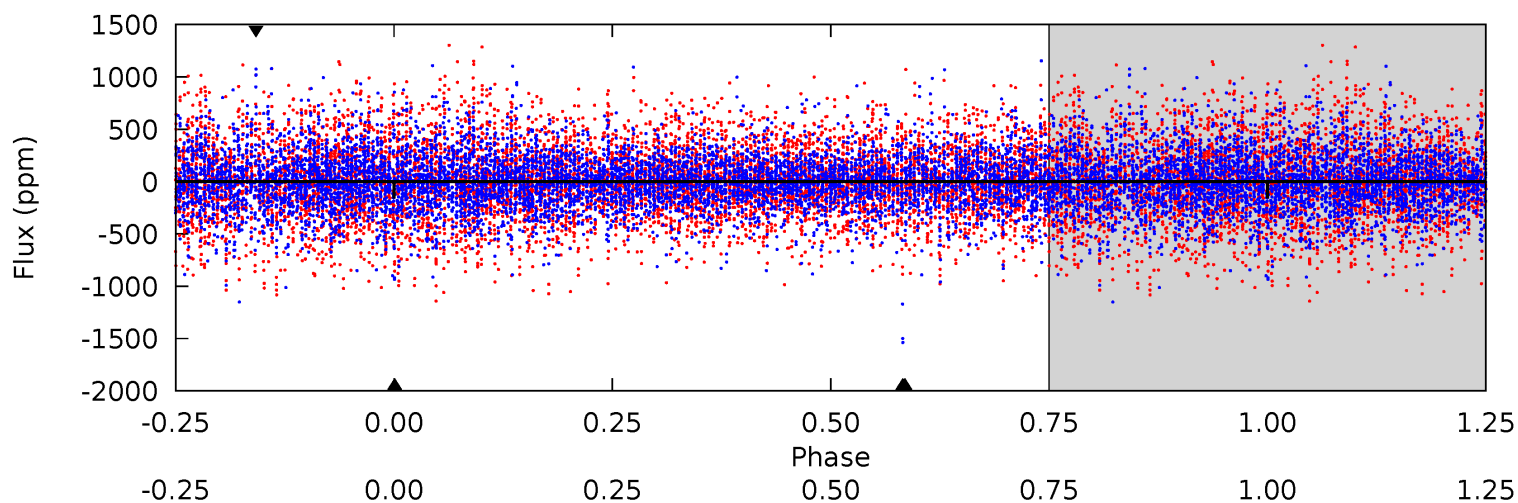
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.07	7.96	7.34	8.00	5.34	3.11	2.15	-4.27	-4.92	0.62	-0.04	2.45	1.93	0.50	1.69



Alt Model-Shift Uniqueness Test

004649238-02, P = 200.800945 Days, E = 153.995216 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.66	2.37	2.28	2.07	5.58	3.49	0.47	-0.61	-0.40	0.10	0.31	1.89	0.93	0.47	0.63



Stellar Parameters For KIC 004649238

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7236^{+226}_{-302}	$4.029^{+0.198}_{-0.180}$	$-0.060^{+0.250}_{-0.350}$	$2.023^{+0.541}_{-0.541}$	$1.593^{+0.212}_{-0.283}$	$0.271^{+0.318}_{-0.130}$
	+3%/-4%	+5%/-4%	+417%/-583%	+27%/-27%	+13%/-18%	+117%/-48%
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 004649238-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-291 ± 37	$4.60^{+0.96}_{-0.94}$	717^{+56}_{-52}	6436^{+725}_{-497}	4542^{+2562}_{-1525}
Alt.	-213 ± 89	$2.39^{+0.87}_{-0.65}$	713^{+59}_{-54}	8383^{+2522}_{-1622}	11529^{+14000}_{-6400}

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

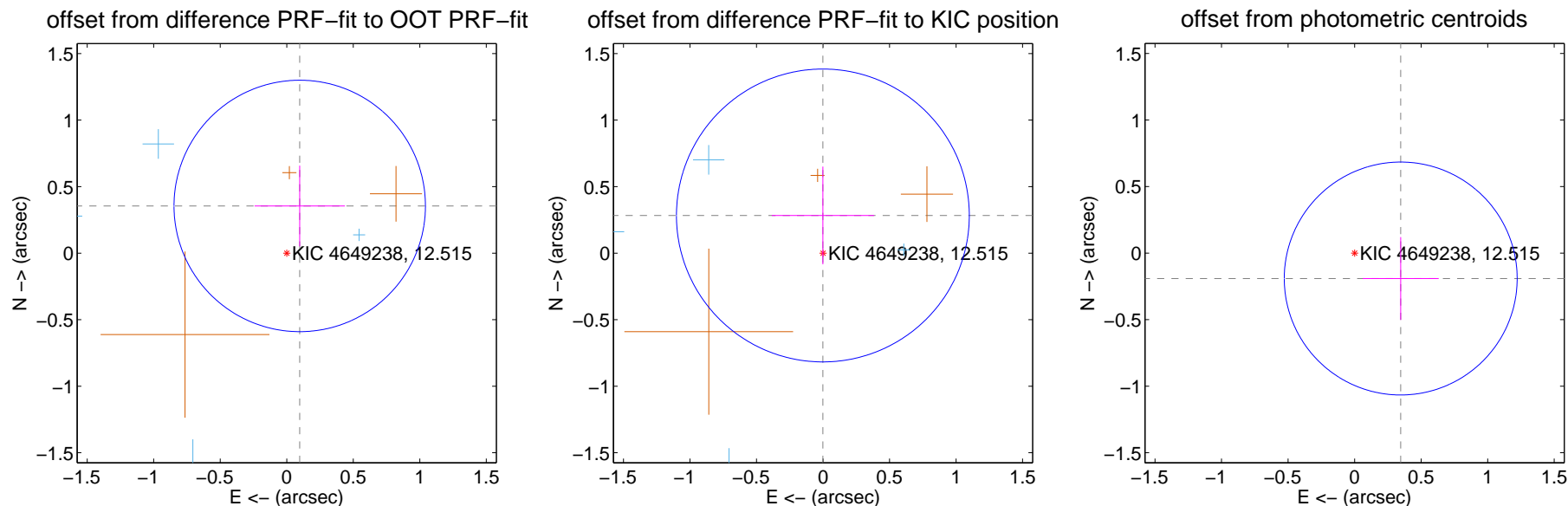
DV Centroid Data

Supplemental centroid analysis for 004649238-02. Kepler magnitude: 12.52. Transit SNR 7.95

There are 4 quarters with good PRF difference image offsets

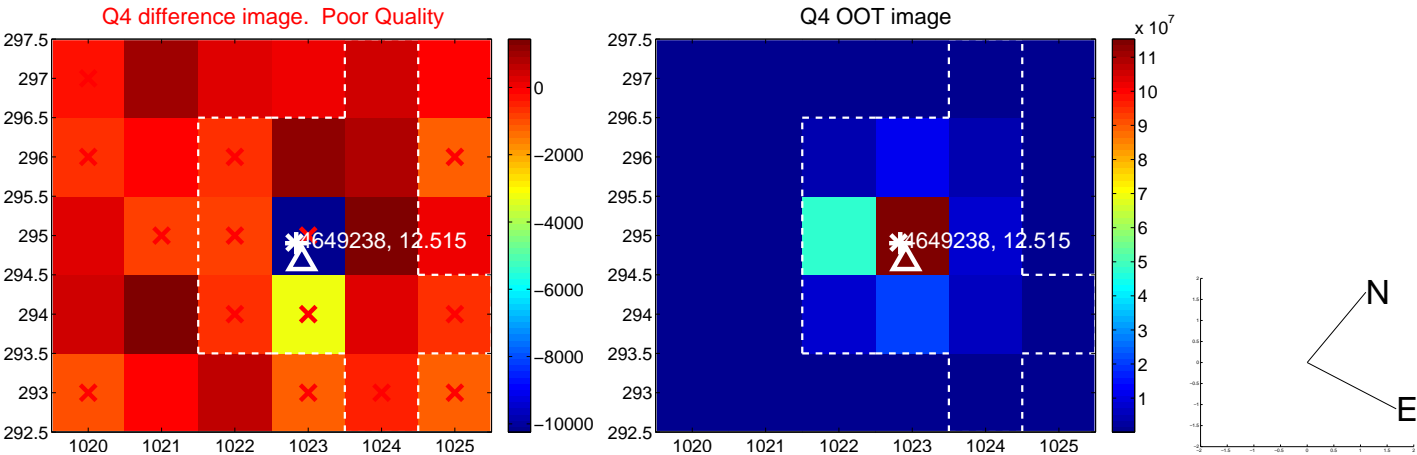
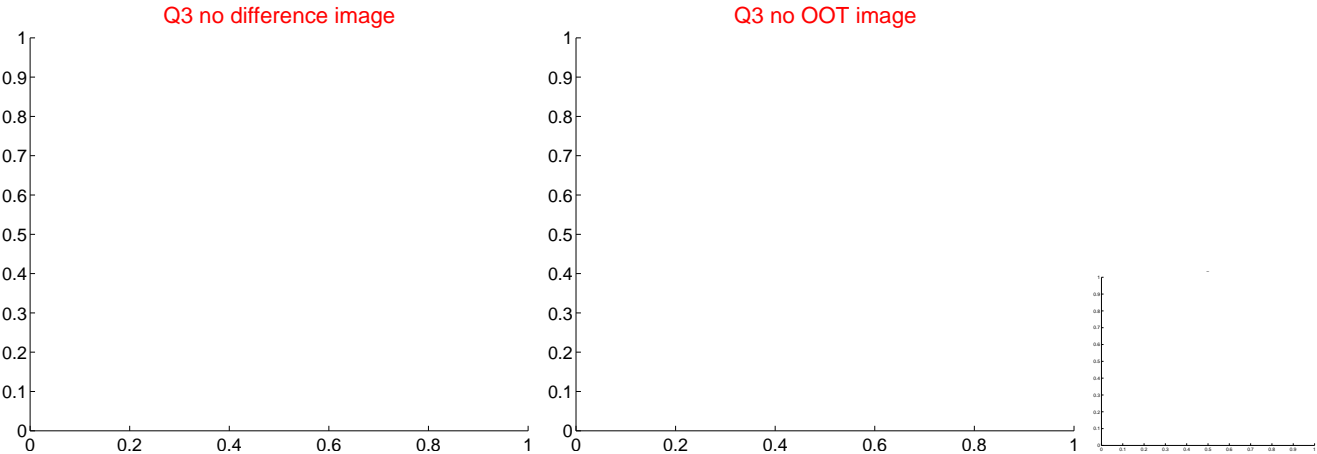
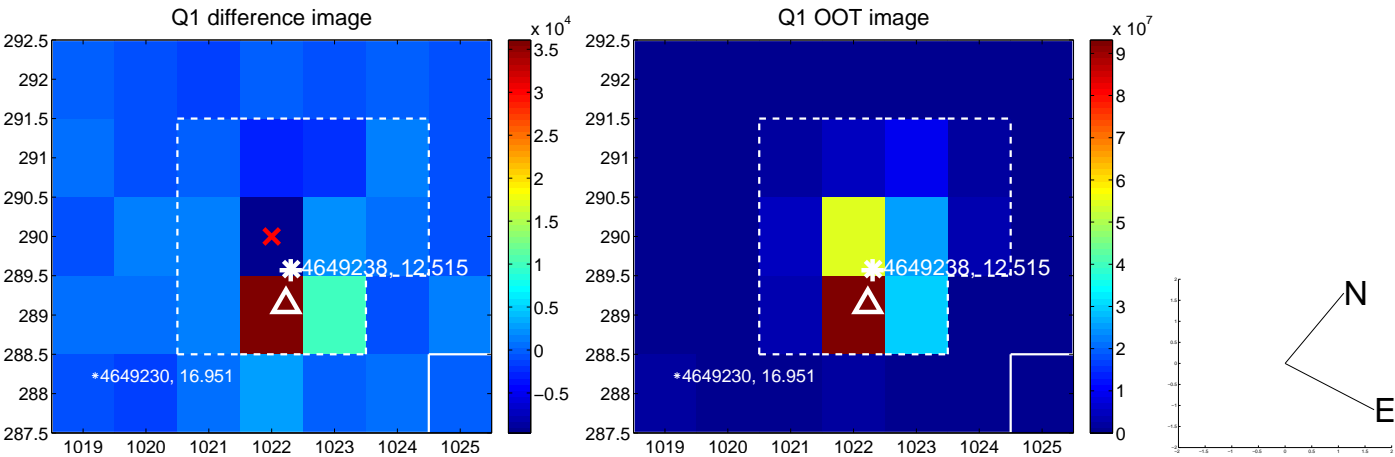
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.368 ± 0.315	1.17	-0.098 ± 0.340	0.355 ± 0.303
PRF-fit source offset from KIC position	0.283 ± 0.367	0.77	0.001 ± 0.384	0.283 ± 0.367
photometric centroid source offset	0.40 ± 0.29	1.36	-0.35 ± 0.29	-0.19 ± 0.31

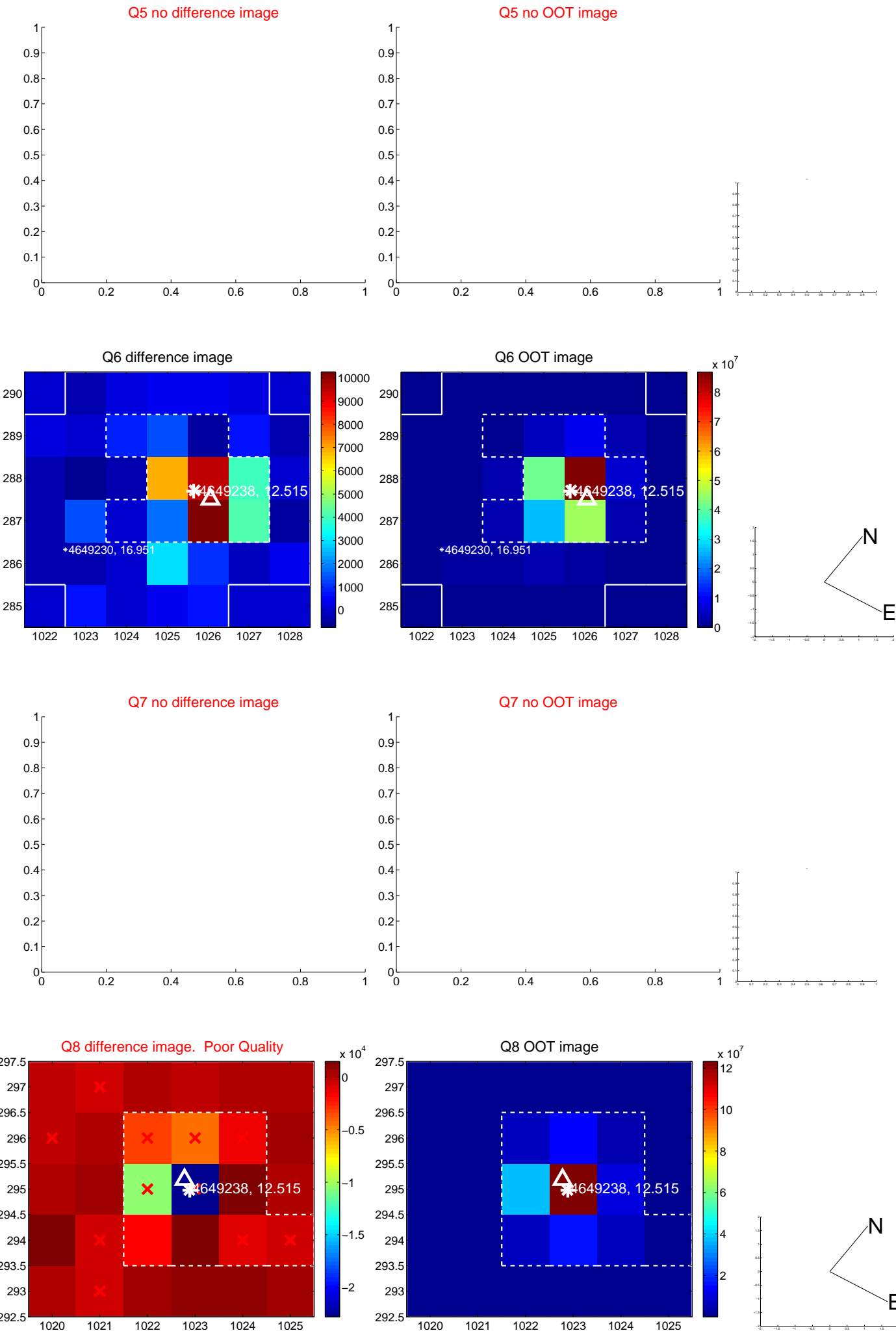


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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



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



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

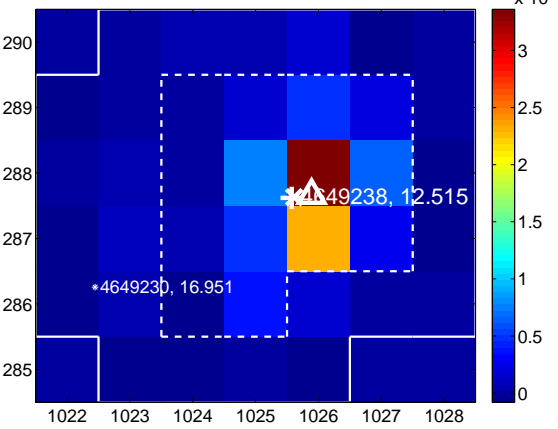
Q9 no difference image



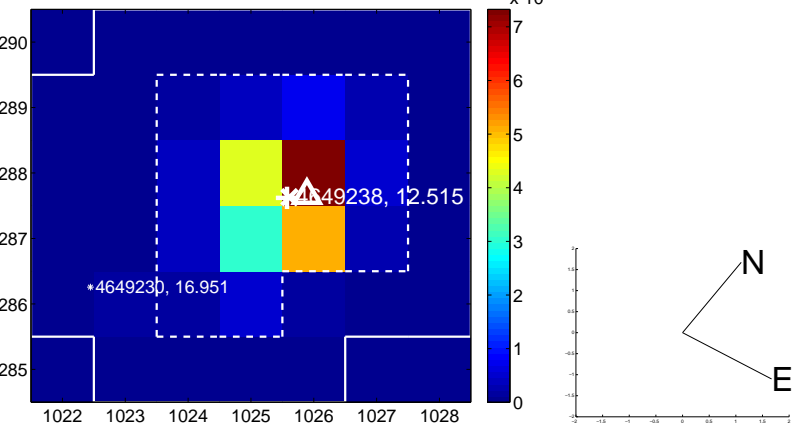
Q9 no OOT image



Q10 difference image



Q10 OOT image



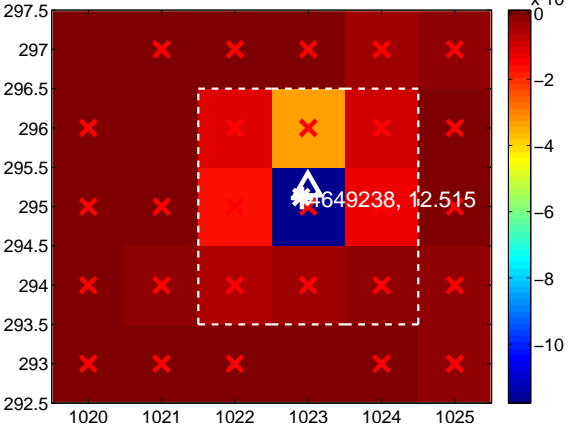
Q11 no difference image



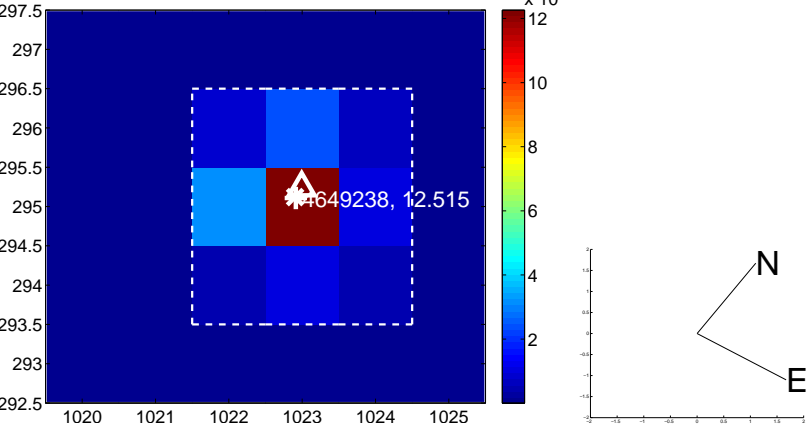
Q11 no OOT image



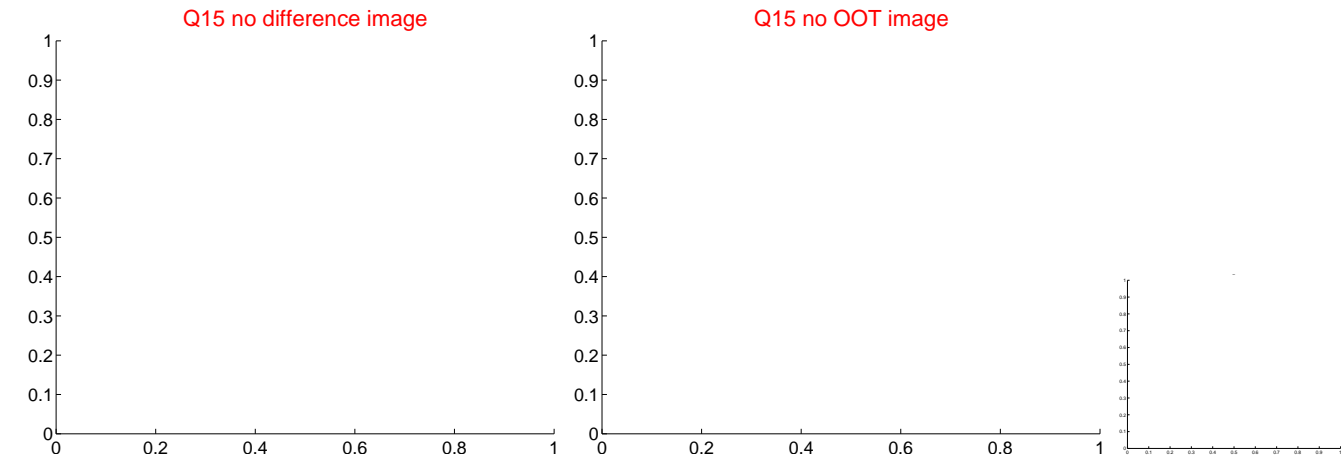
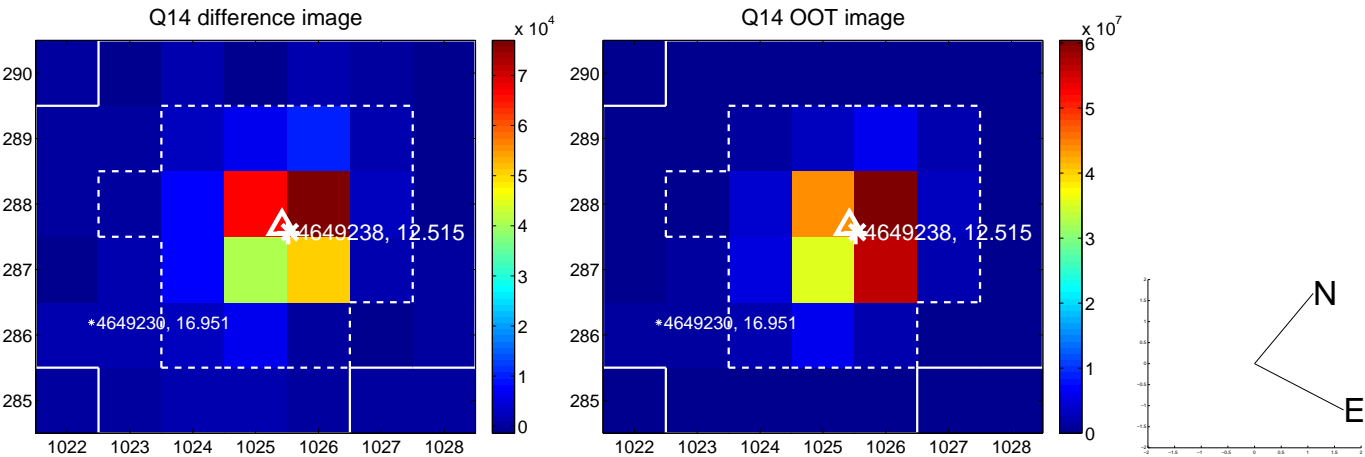
Q12 difference image. Poor Quality



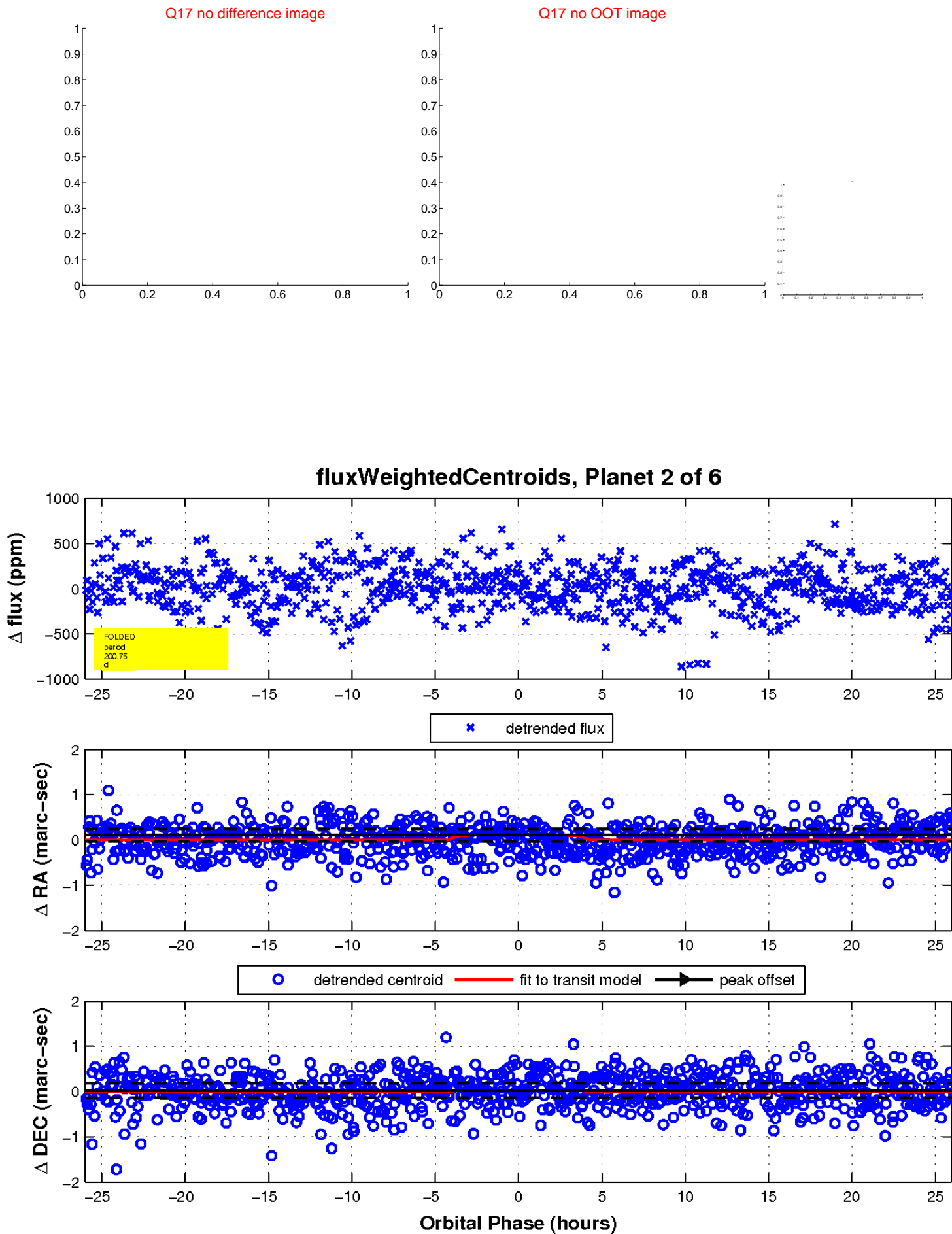
Q12 OOT image



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

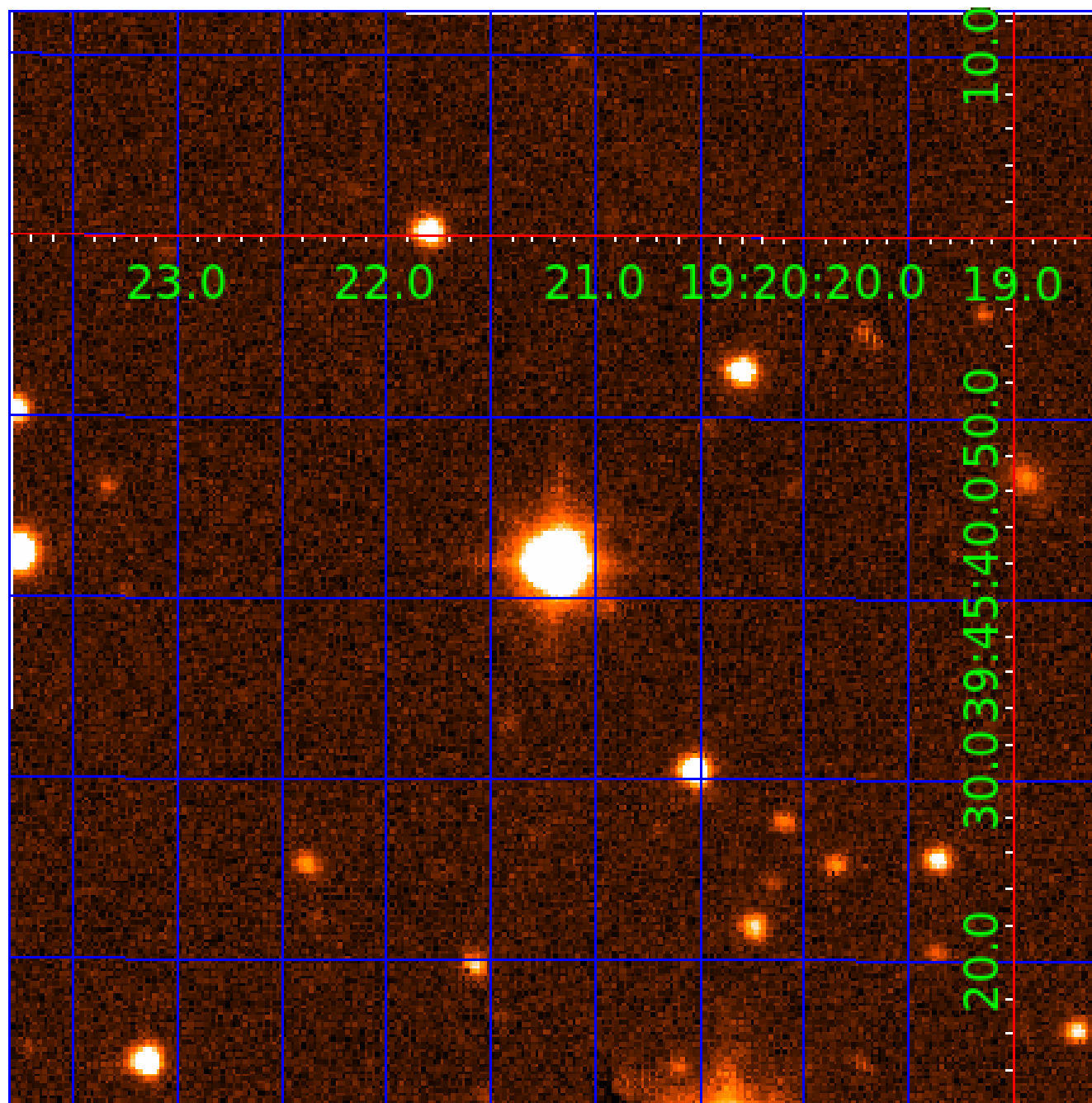


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004649238

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})
004649238-01	OBS	No	0.965686	131.986964	8.4	6.119	10.8	3.2	2.02	7236	0.63	20126.65
004649238-02	OBS	No	200.753038	154.282440	396.6	8.671	13.7	7.9	2.02	7236	4.63	16.34
004649238-03	OBS	No	63.448472	159.754659	450.5	6.431	12.6	13.1	2.02	7236	8.16	75.91
004649238-04	OBS	No	46.520404	134.467117	302.7	3.313	10.3	10.3	2.02	7236	3.71	114.82
004649238-05	OBS	No	27.257667	155.925692	124.6	6.000	9.2	-1.0	2.02	7236	2.29	234.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004649238-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004649238-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
004649238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

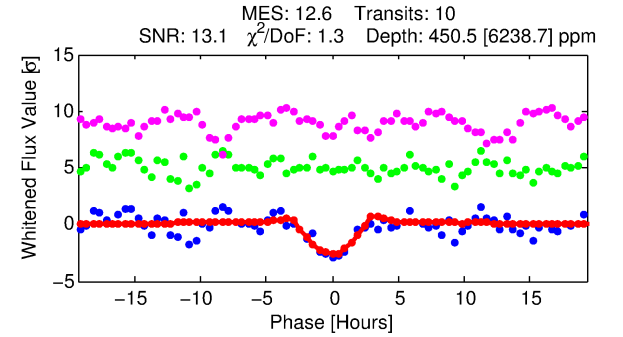
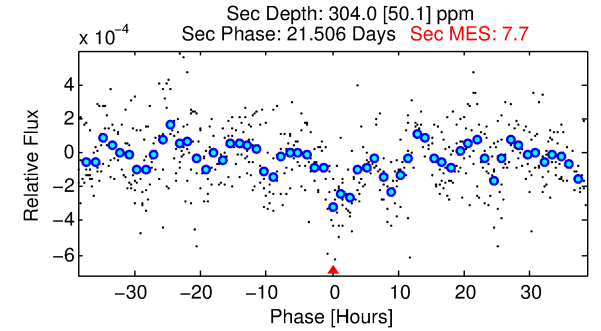
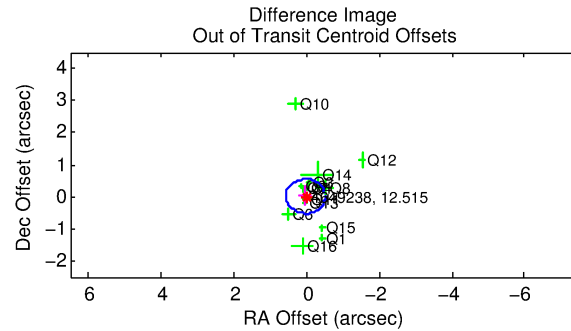
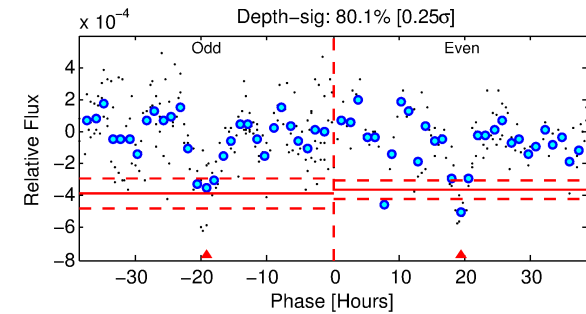
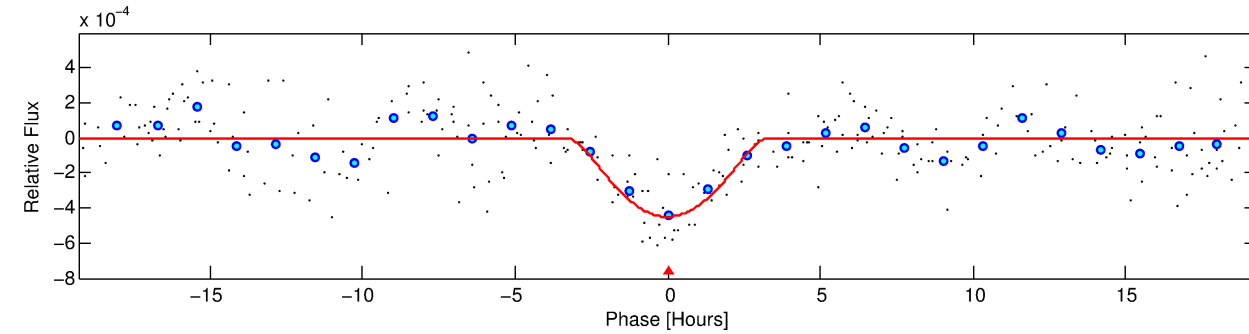
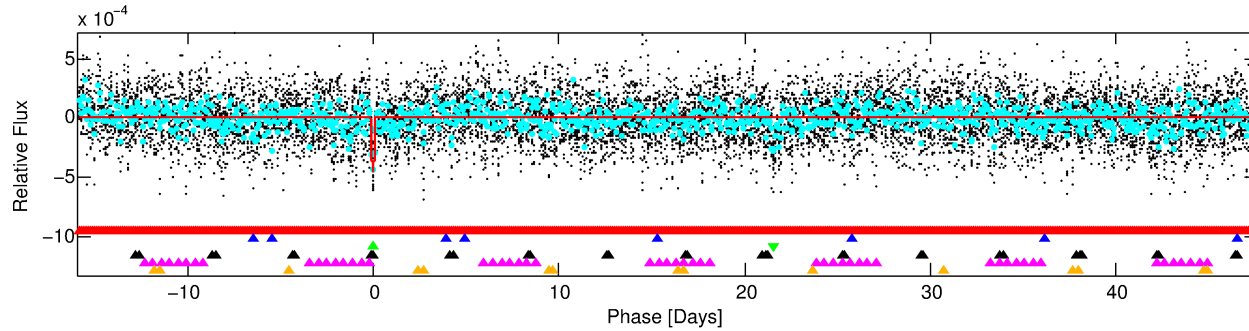
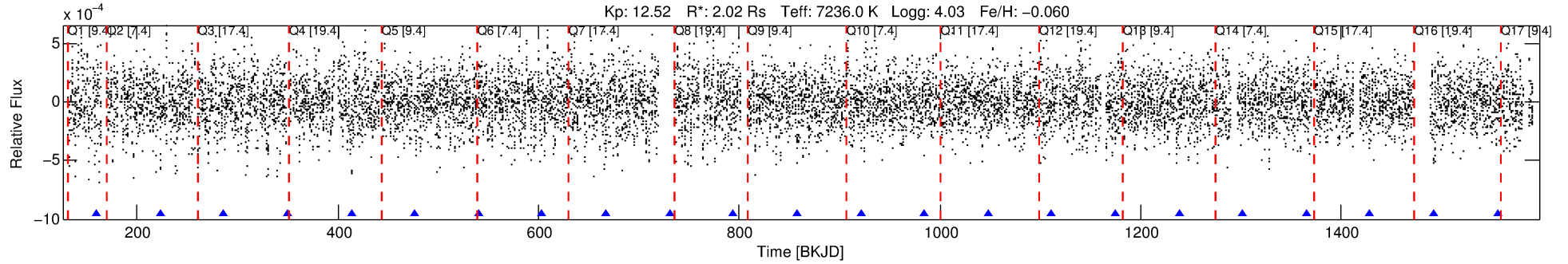
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004649238-03

No Significant Match Found

DV One-Page Summary

KIC: 4649238 Candidate: 3 of 6 Period: 63.448 d



DV Fit Results:

Period = 63.44847 [0.00089] d
Epoch = 159.7547 [0.0114] BKJD
Rp/R* = 0.0370 [0.0862]
a/R* = 20.70 [12.64]
b = 1.00 [0.23]
Seff = 75.91 [29.60]
Teq = 753 [73] K
Rp = 8.16 [19.15] Re
a = 0.3639 [0.0852] AU
Ag = 332.83 [1558.10] [0.21σ]
Teffp = 4971 [5804] K [0.73σ]

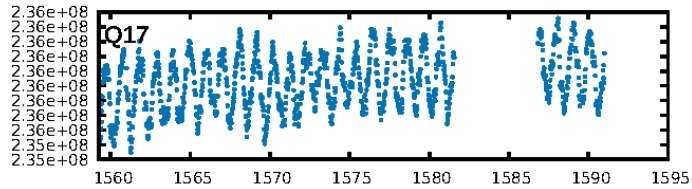
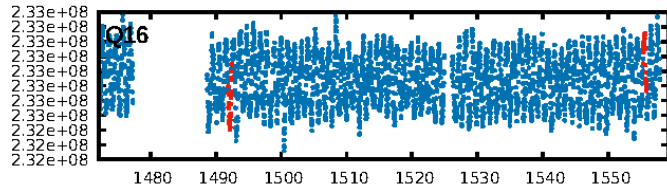
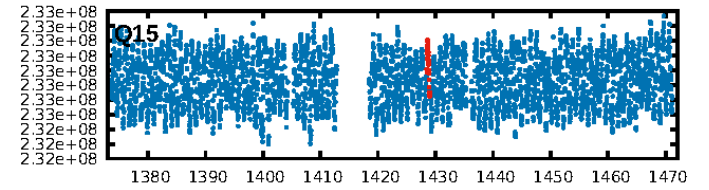
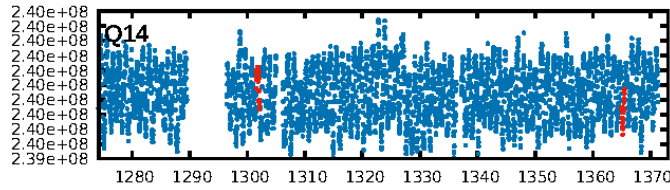
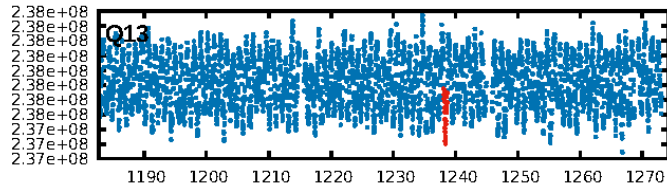
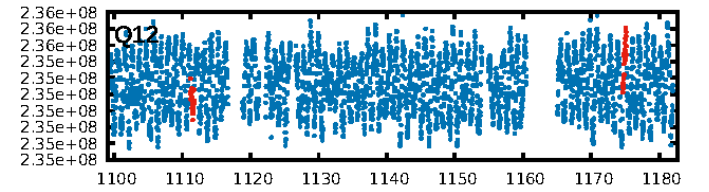
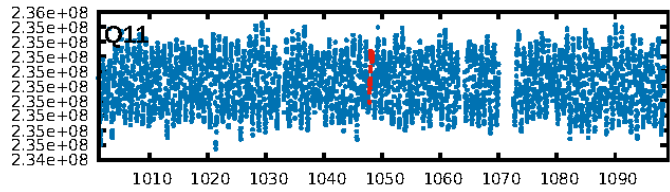
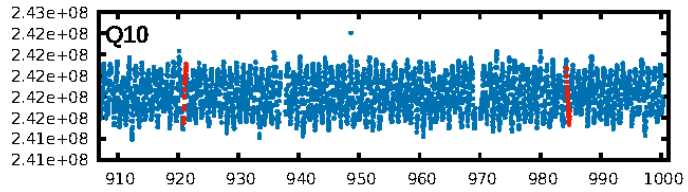
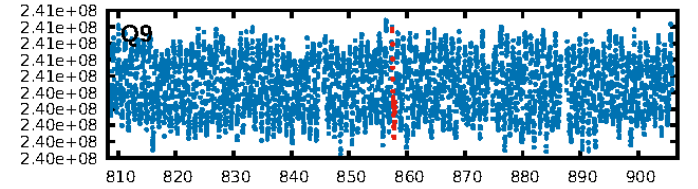
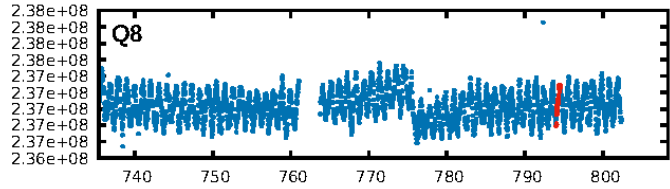
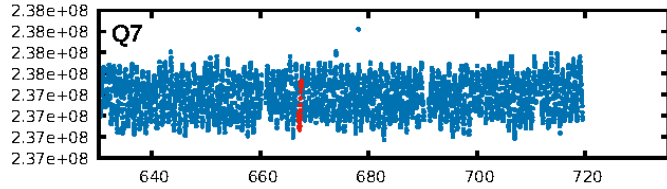
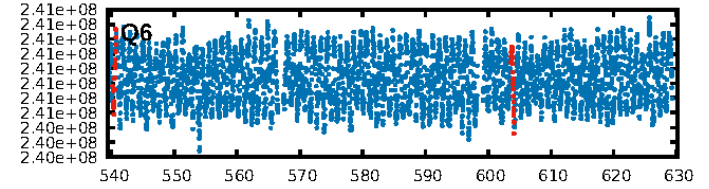
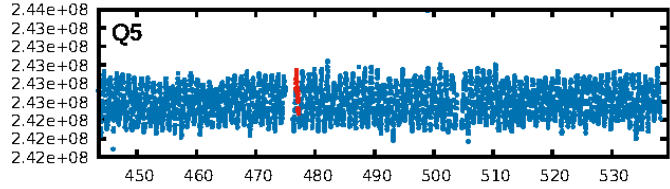
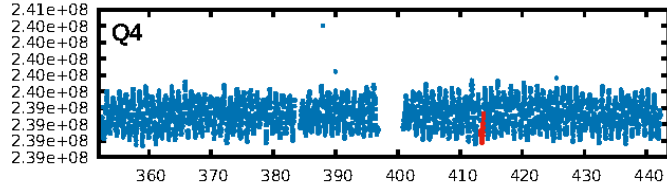
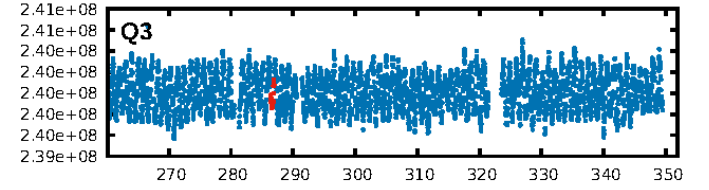
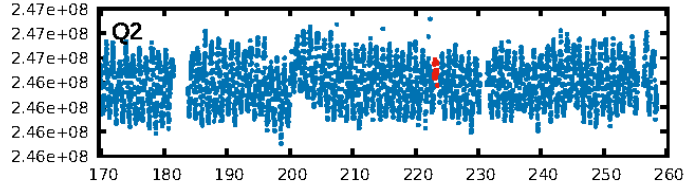
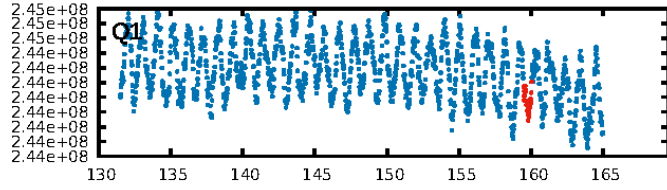
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.16σ]
LongPeriod-sig: 100.0% [126.77σ]
ModelChiSquare2-sig: 2.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 0.2758
Centroid-sig: 30.0%
Centroid-so: 0.269 arcsec [1.25σ]
OotOffset-rm: 0.029 arcsec [0.16σ]
KicOffset-rm: 0.025 arcsec [0.12σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 0.00 [0/14]

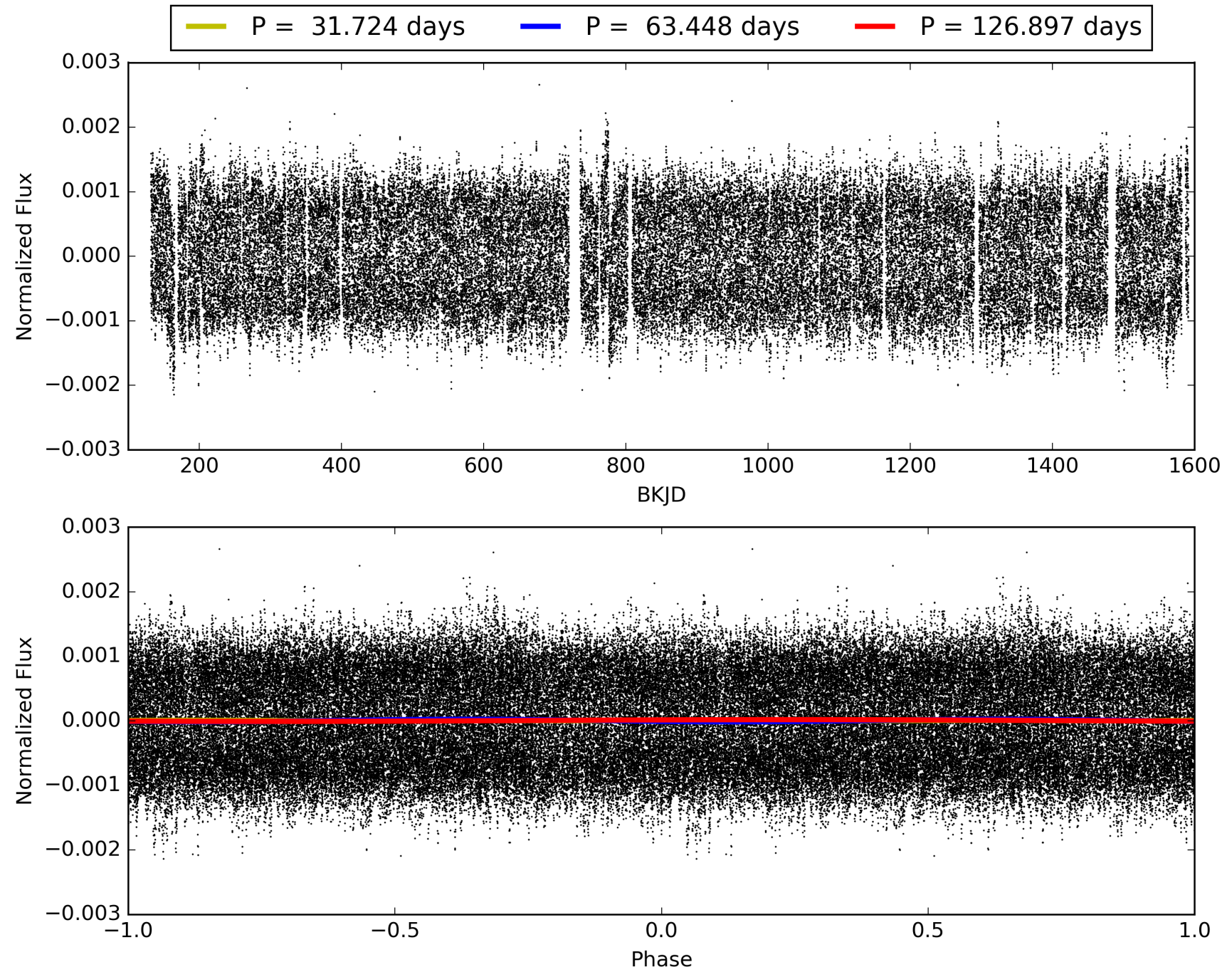
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:13:06 Z

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

TCE 004649238-03, PDC Light Curves

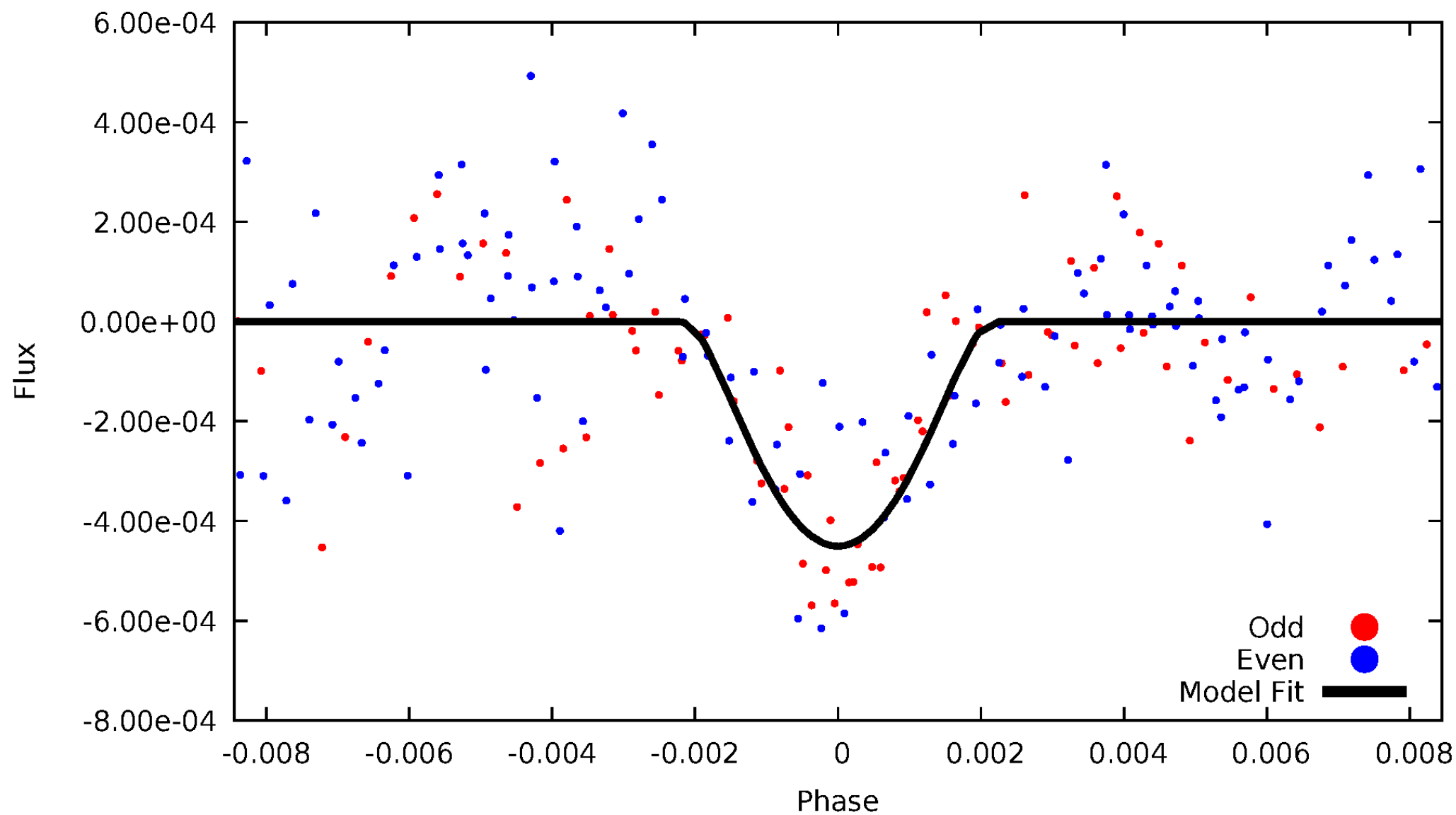


TCE 004649238-03



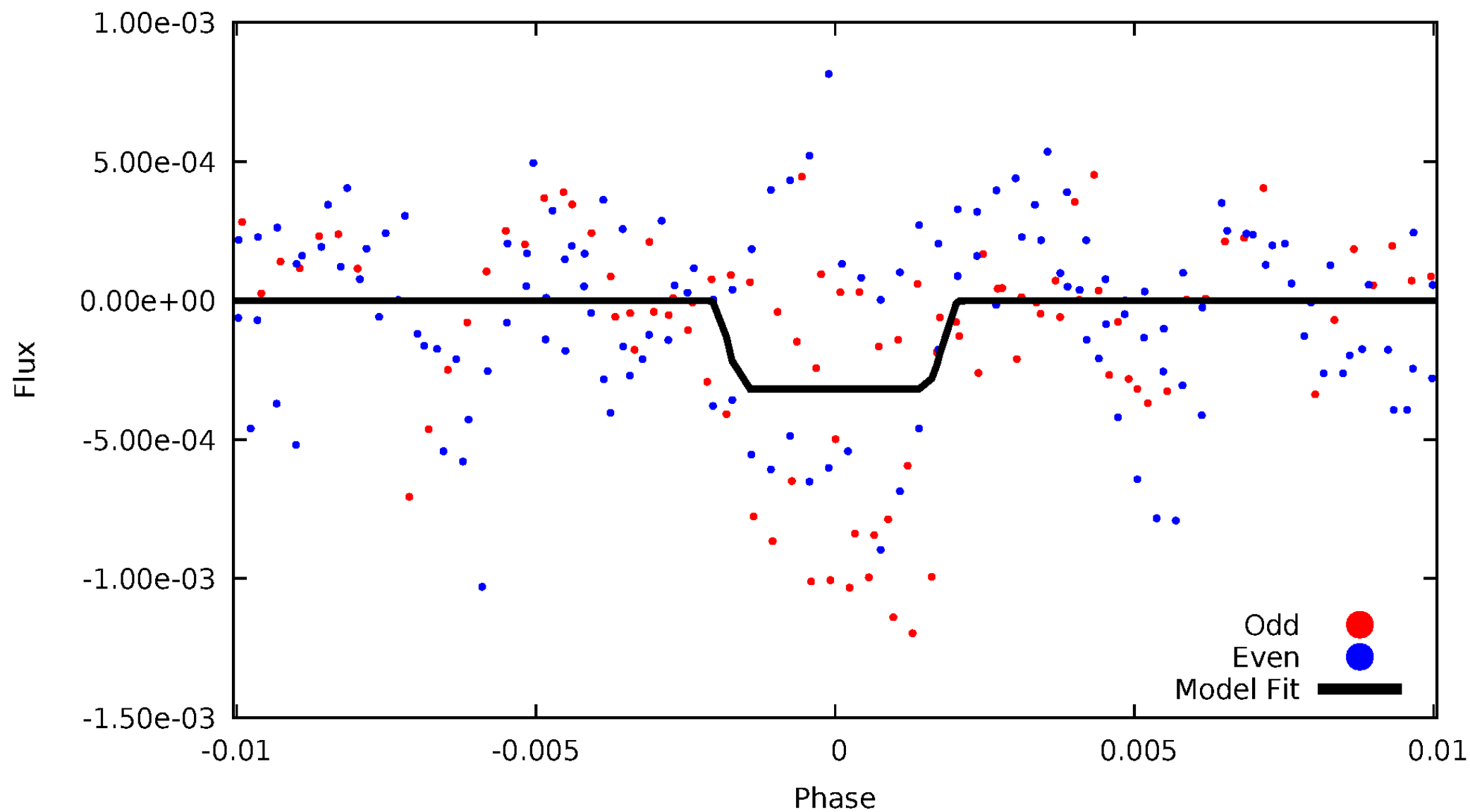
DV Odd/Even

TCE 004649238-03

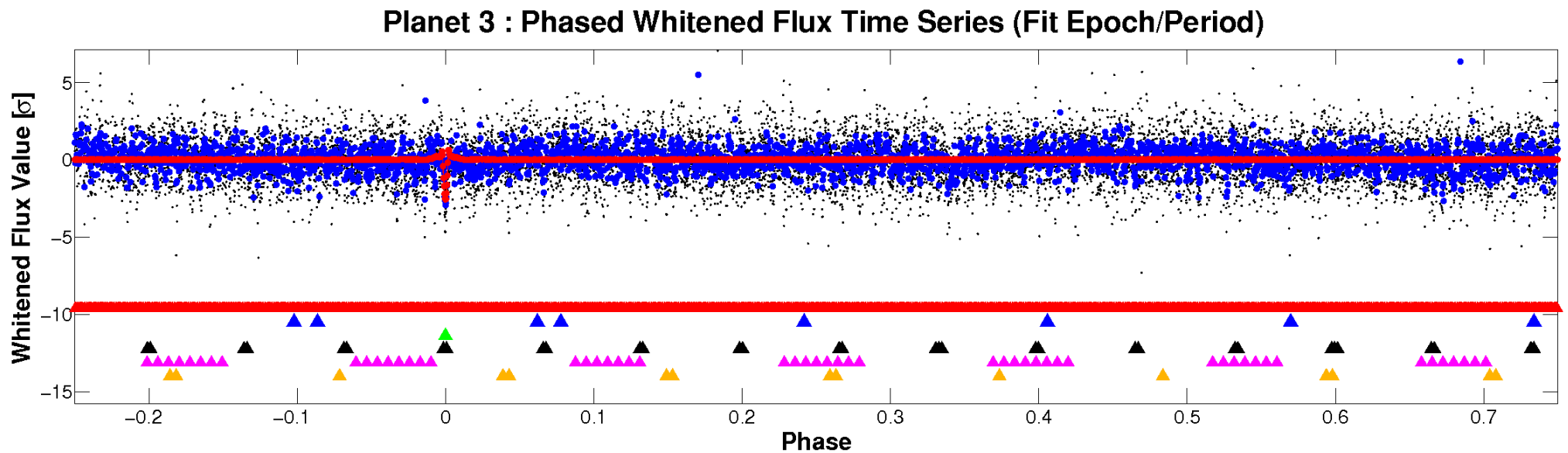
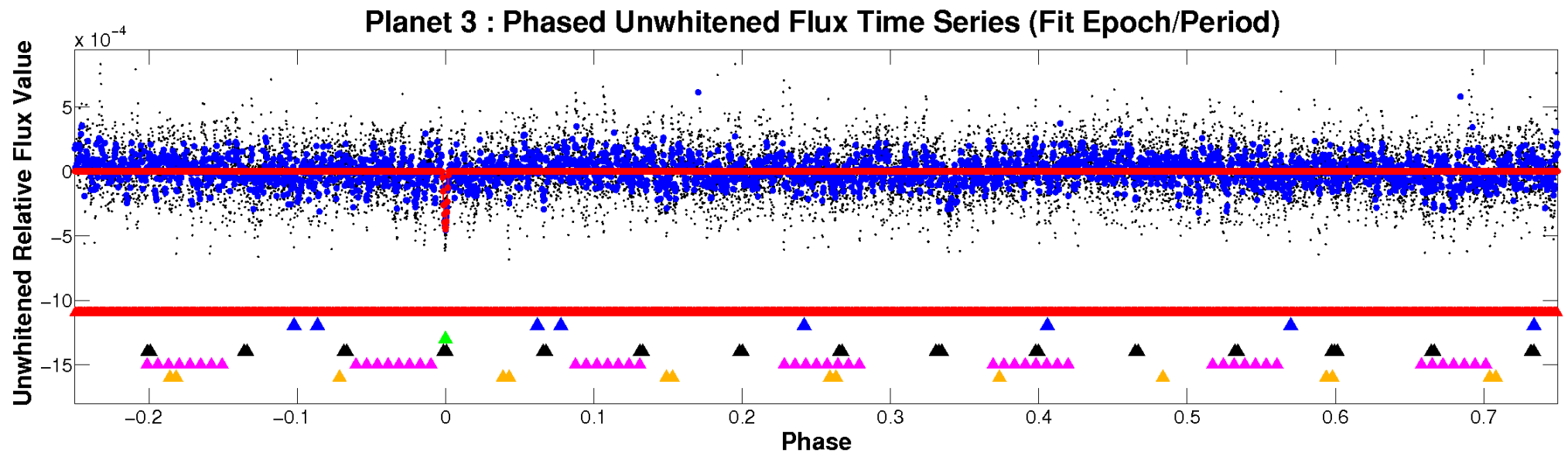


ALT Odd/Even

TCE 004649238-03

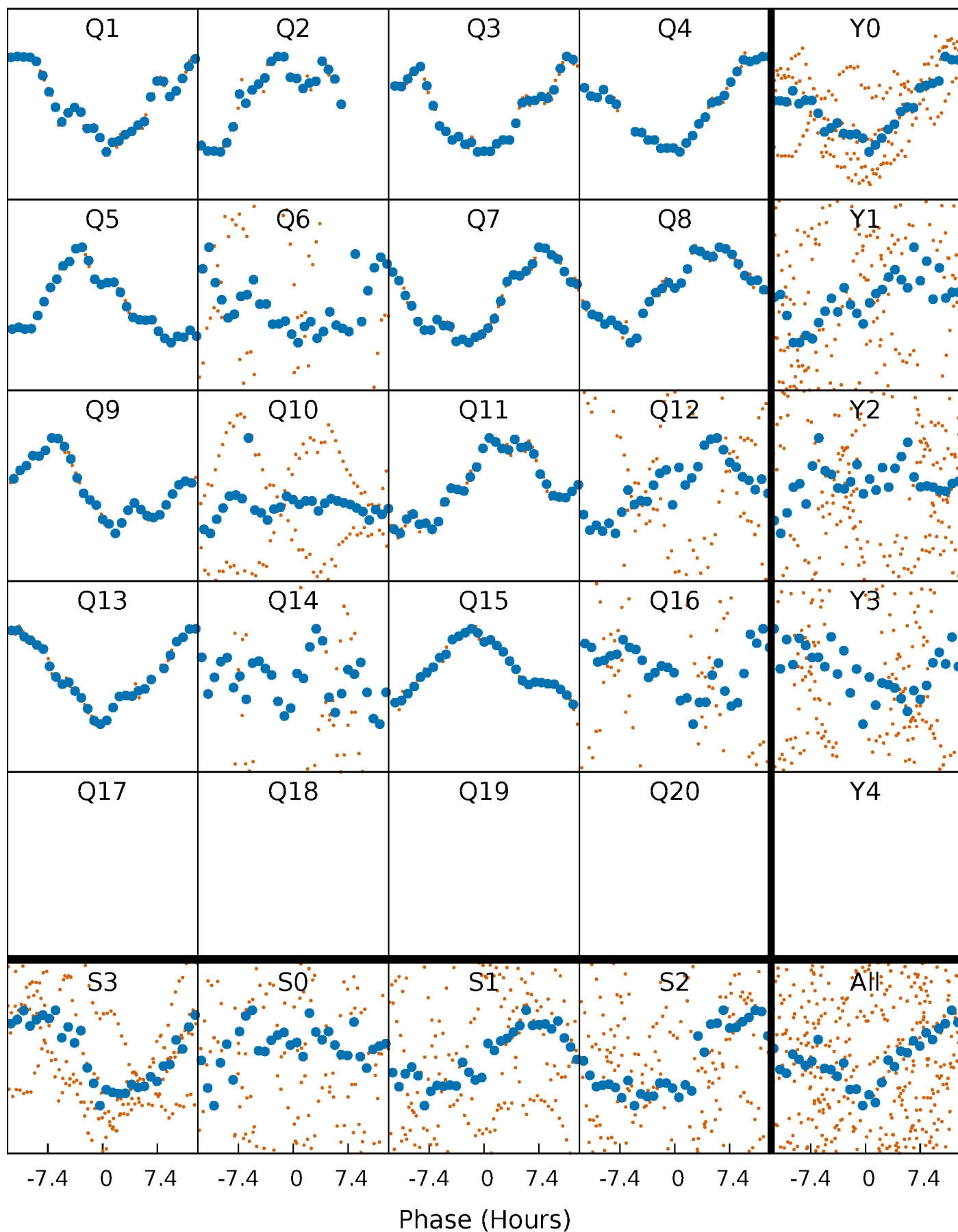


Non-Whitened Vs. Whitened Light Curve



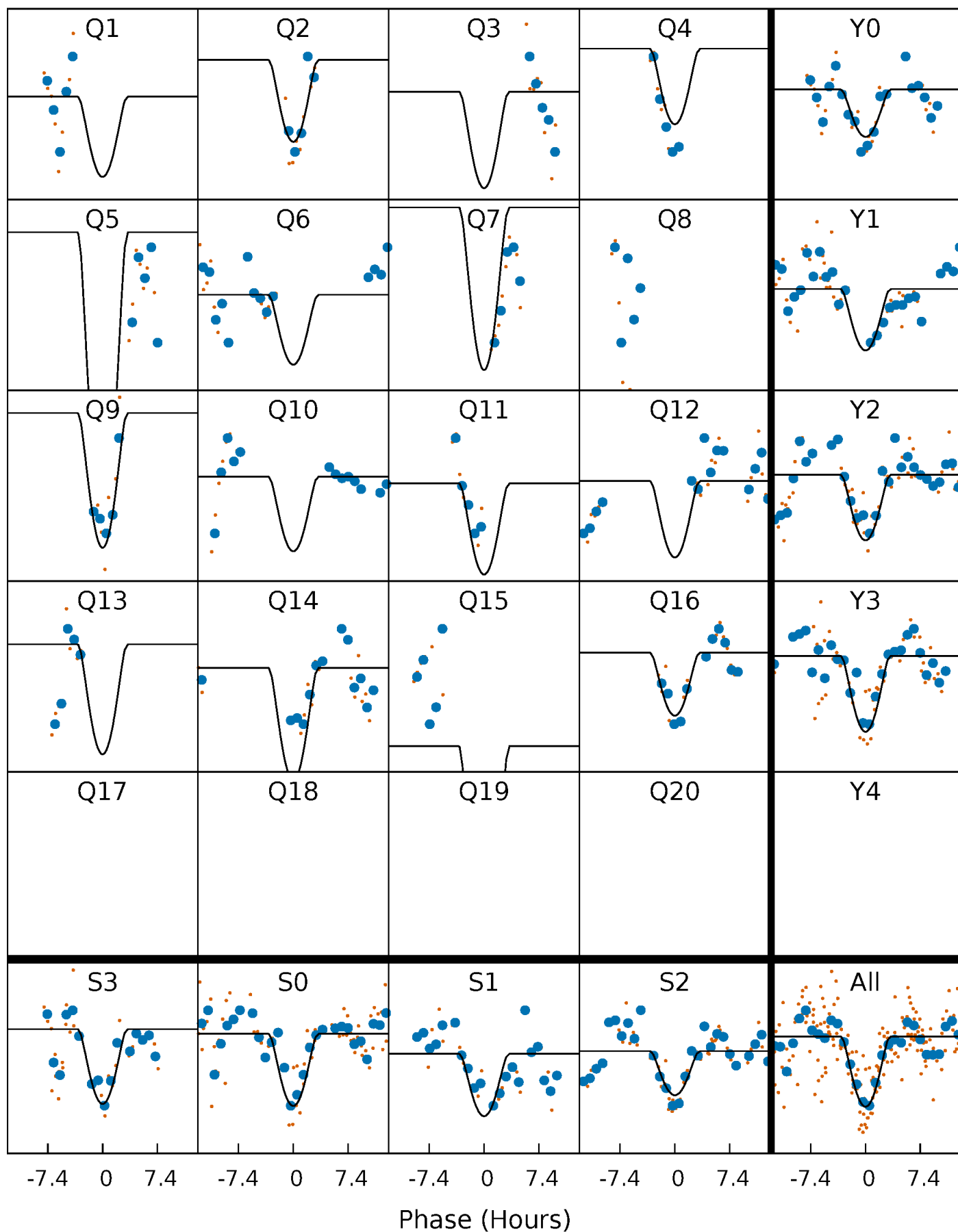
PDC Quarter-Phased Transit Curves

TCE 004649238-03 P= 63.448472 Days $T_0=159.754659$ (BKJD)



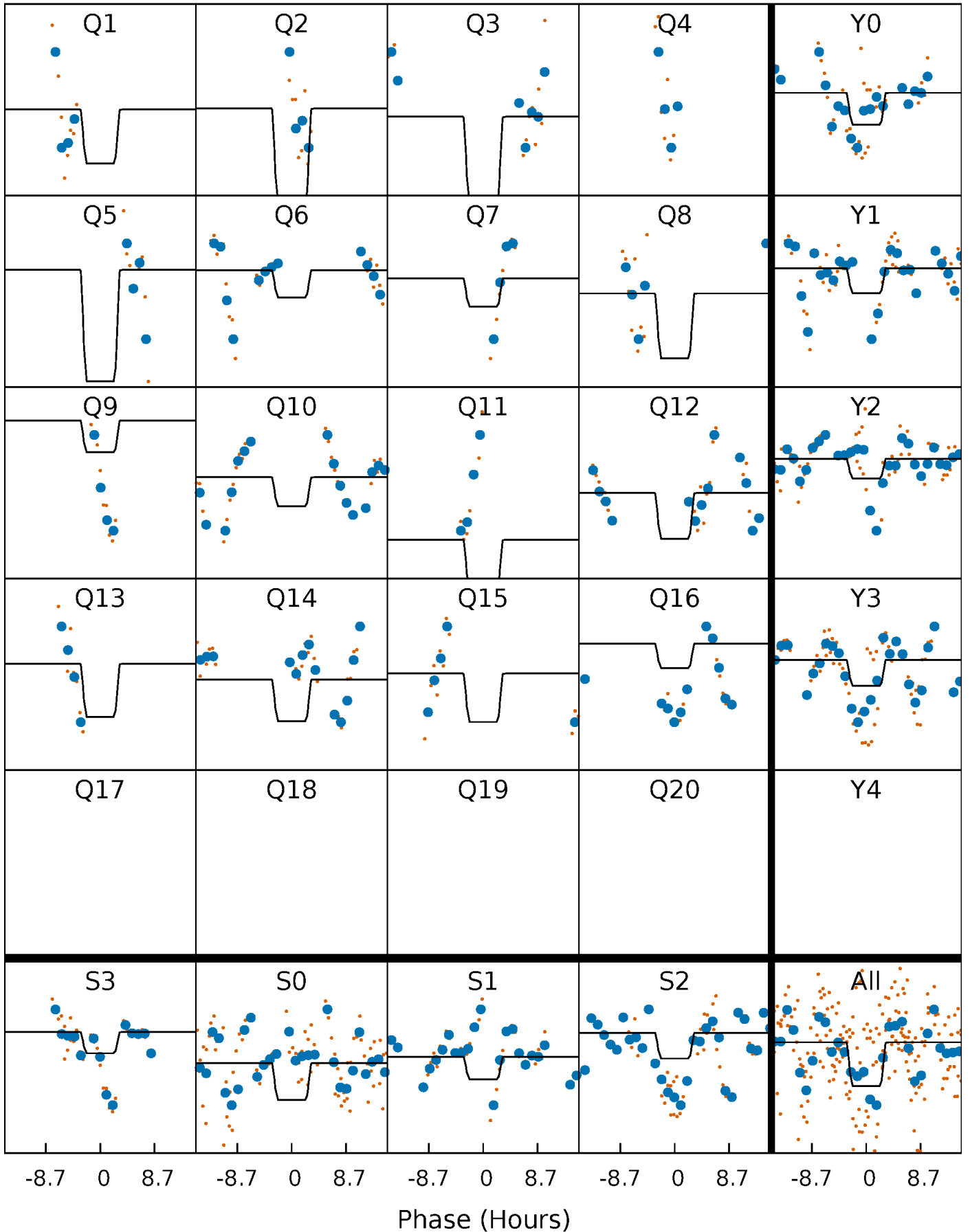
DV Quarter-Phased Transit Curves

TCE 004649238-03 P= 63.448472 Days $T_0=159.754659$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

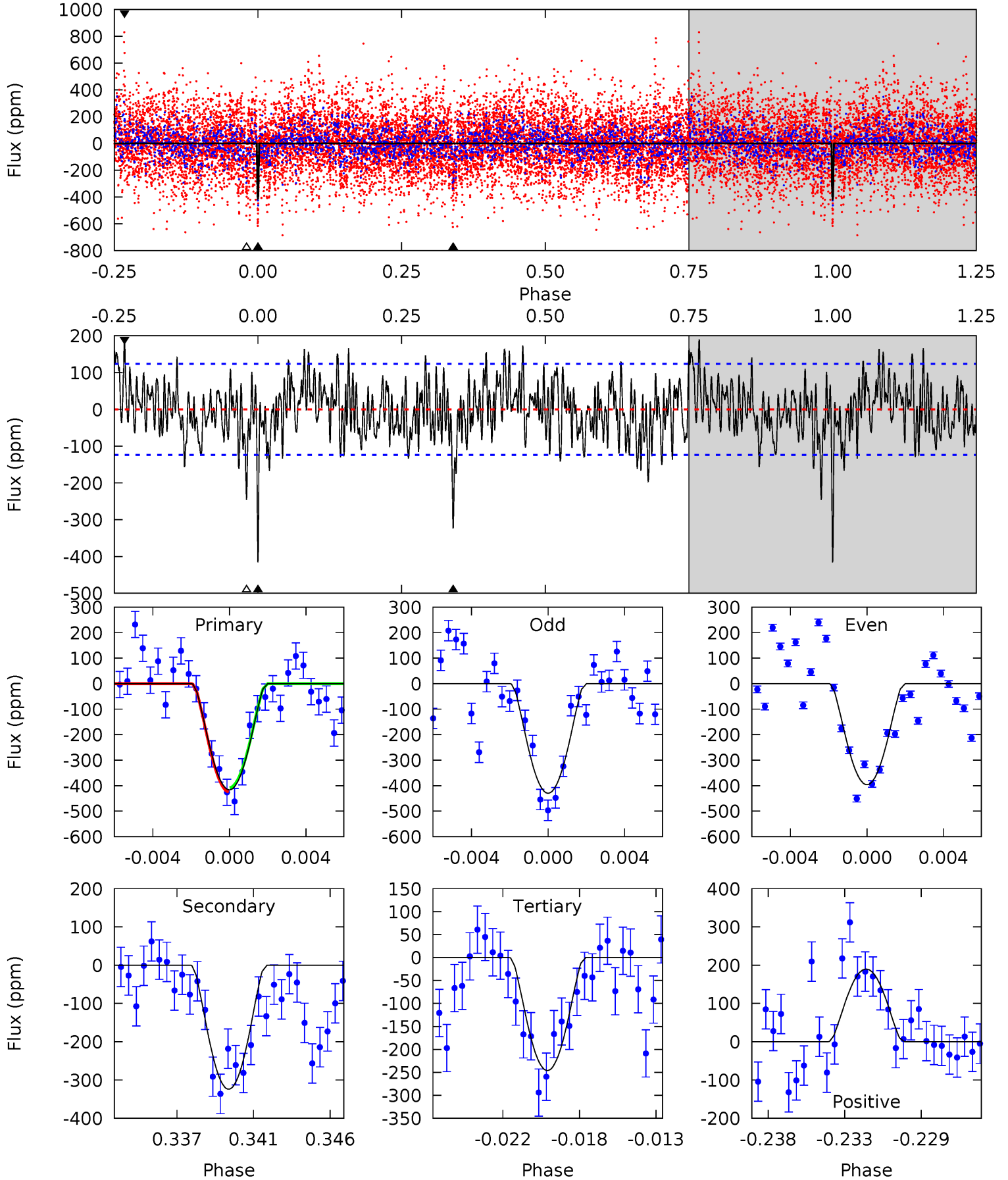
TCE 004649238-03 P= 63.448616 Days $T_0=159.746005$ (BKJD)



DV Model-Shift Uniqueness Test

004649238-03, P = 63.448472 Days, E = 96.306187 Days

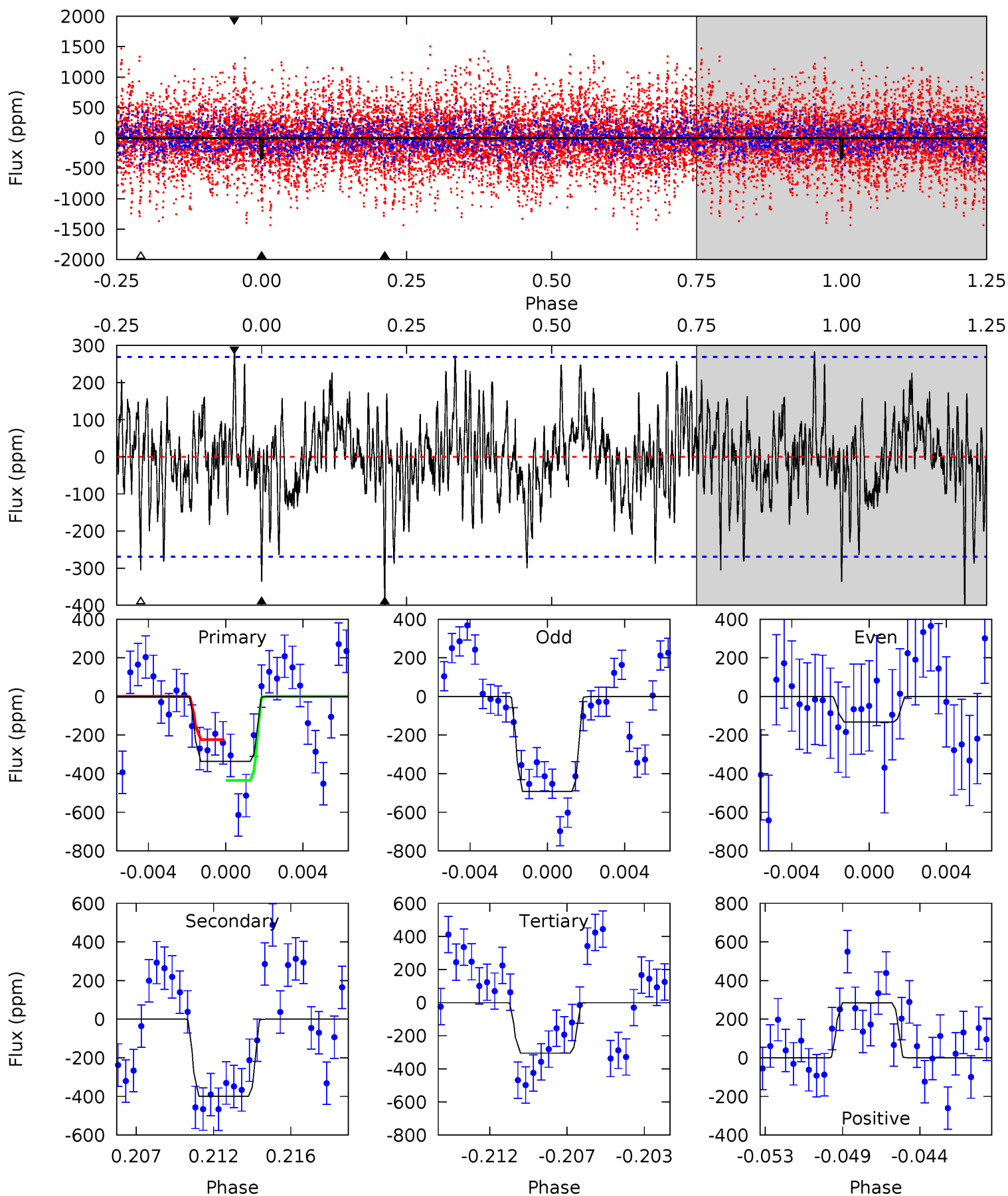
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	13.6	10.3	7.95	5.18	2.84	2.73	7.13	9.49	3.26	5.62	0.70	0.88	0.31	0.36



Alt Model-Shift Uniqueness Test

004649238-03, P = 63.448616 Days, E = 96.297389 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.47	7.69	5.88	5.48	5.18	2.85	1.79	0.59	0.99	1.81	2.20	3.46	2.30	0.42	2.05



Stellar Parameters For KIC 004649238

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7236^{+226}_{-302}	$4.029^{+0.198}_{-0.180}$	$-0.060^{+0.250}_{-0.350}$	$2.023^{+0.541}_{-0.541}$	$1.593^{+0.212}_{-0.283}$	$0.271^{+0.318}_{-0.130}$
	+3%/-4%	+5%/-4%	+417%/-583%	+27%/-27%	+13%/-18%	+117%/-48%
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 004649238-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-324 ± 24	$16.05^{+15.45}_{-10.40}$	1047^{+81}_{-84}	3867^{+2143}_{-737}	94^{+633}_{-70}
Alt.	-399 ± 52	$13.90^{+15.75}_{-9.79}$	1052^{+77}_{-81}	4241^{+3419}_{-957}	149^{+1624}_{-117}

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

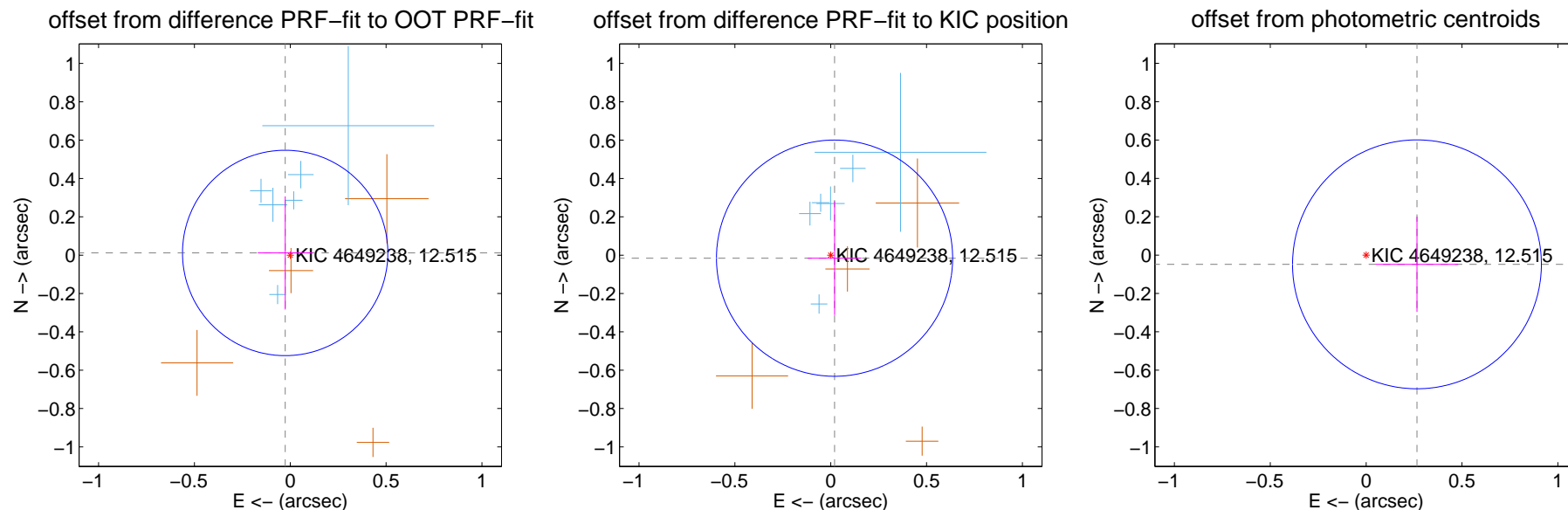
DV Centroid Data

Supplemental centroid analysis for 004649238-03. Kepler magnitude: 12.52. Transit SNR 13.13

There are 8 quarters with good PRF difference image offsets

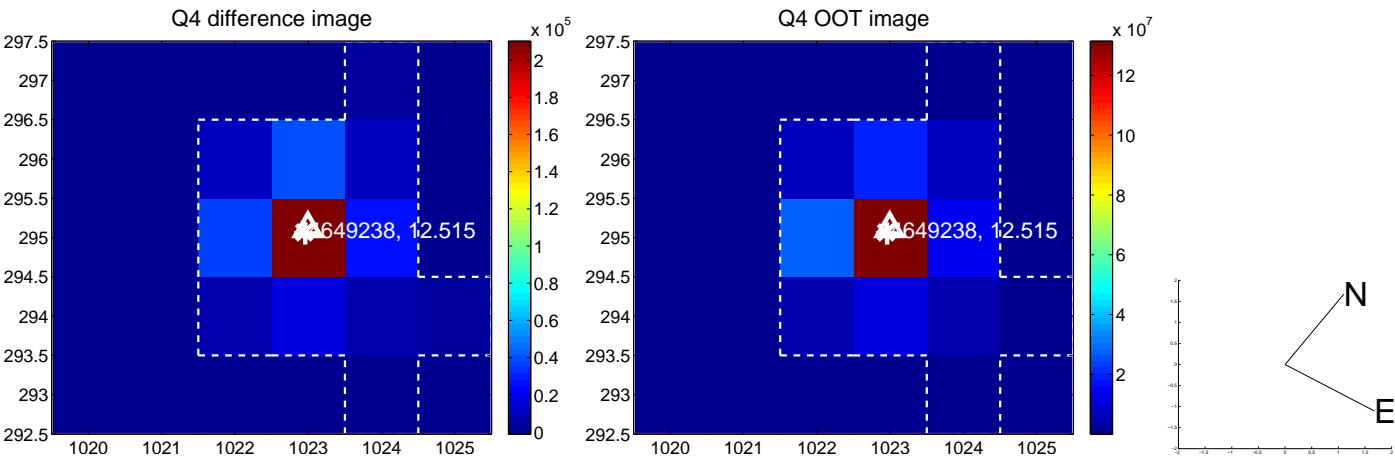
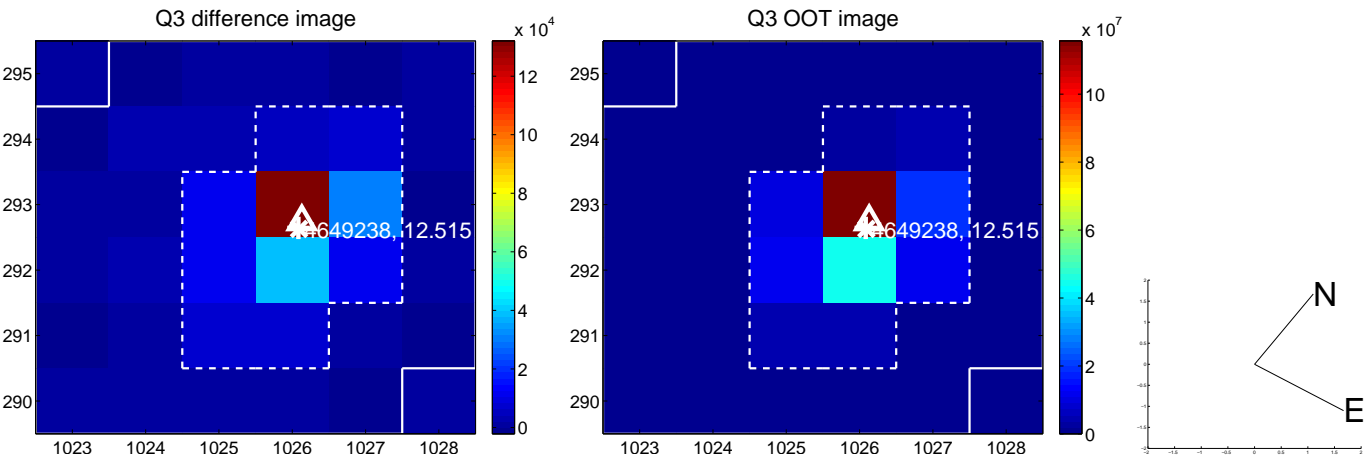
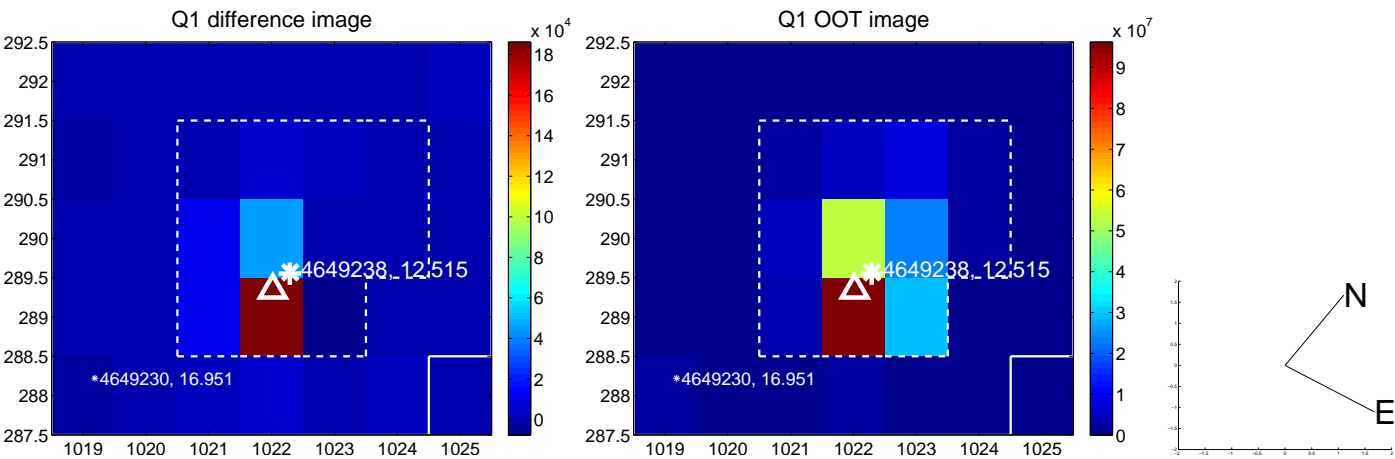
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.029 ± 0.179	0.16	0.027 ± 0.143	0.011 ± 0.295
PRF-fit source offset from KIC position	0.025 ± 0.205	0.12	-0.020 ± 0.140	-0.016 ± 0.297
photometric centroid source offset	0.27 ± 0.22	1.25	-0.27 ± 0.22	-0.05 ± 0.25

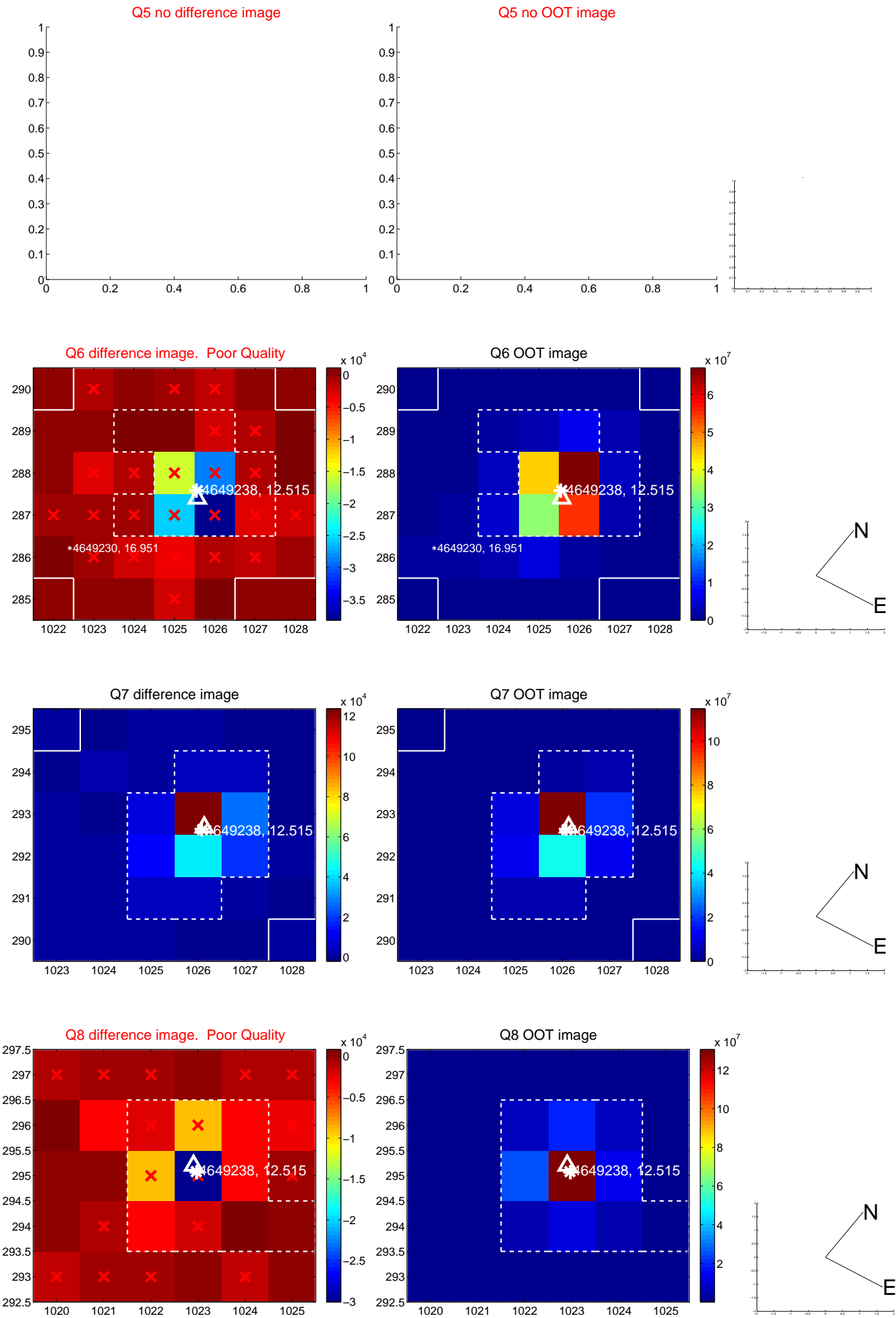


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

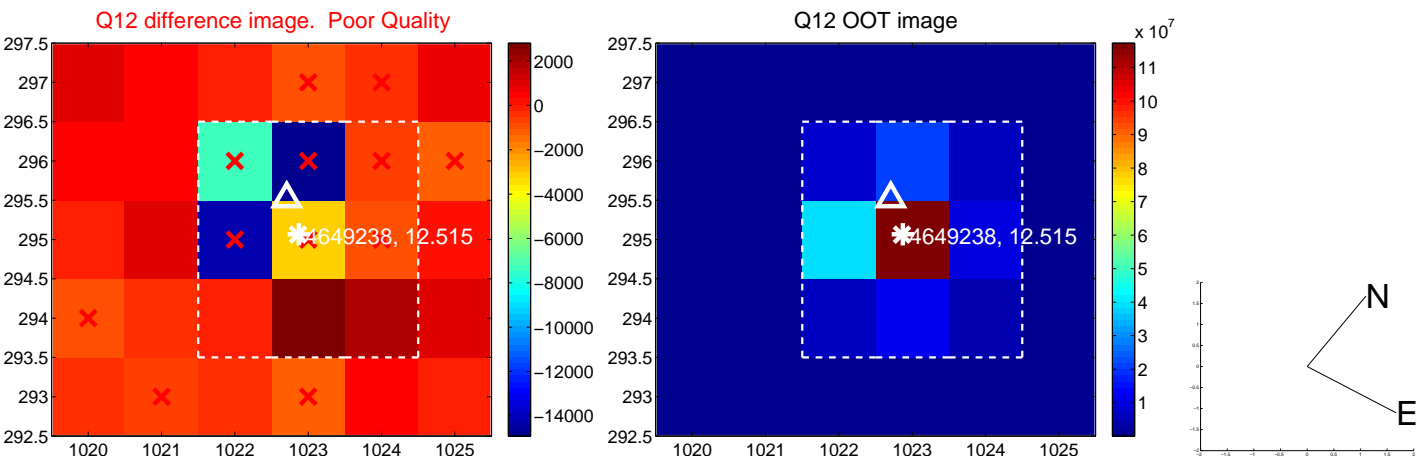
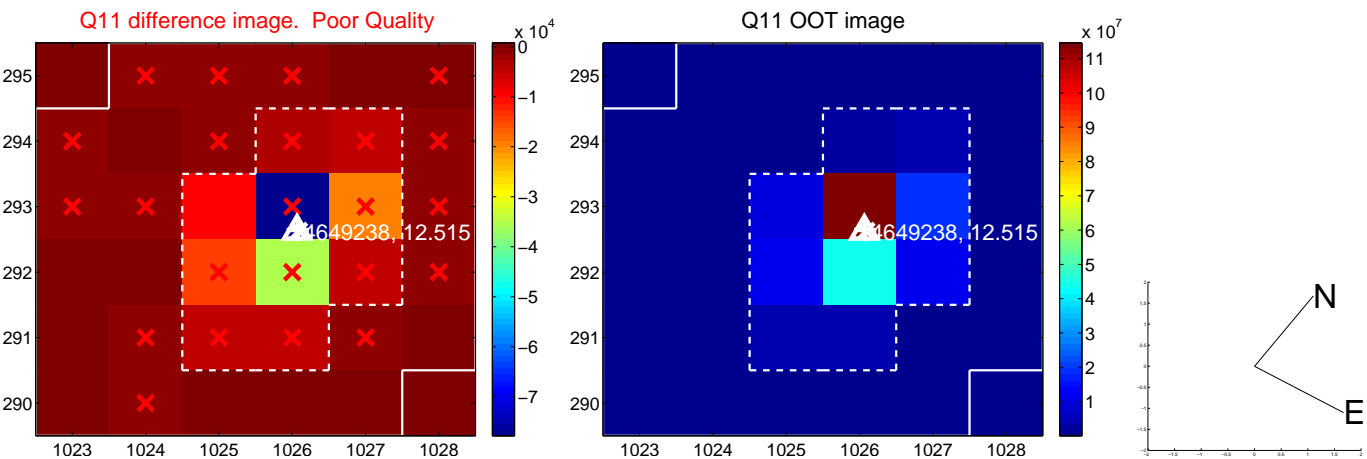
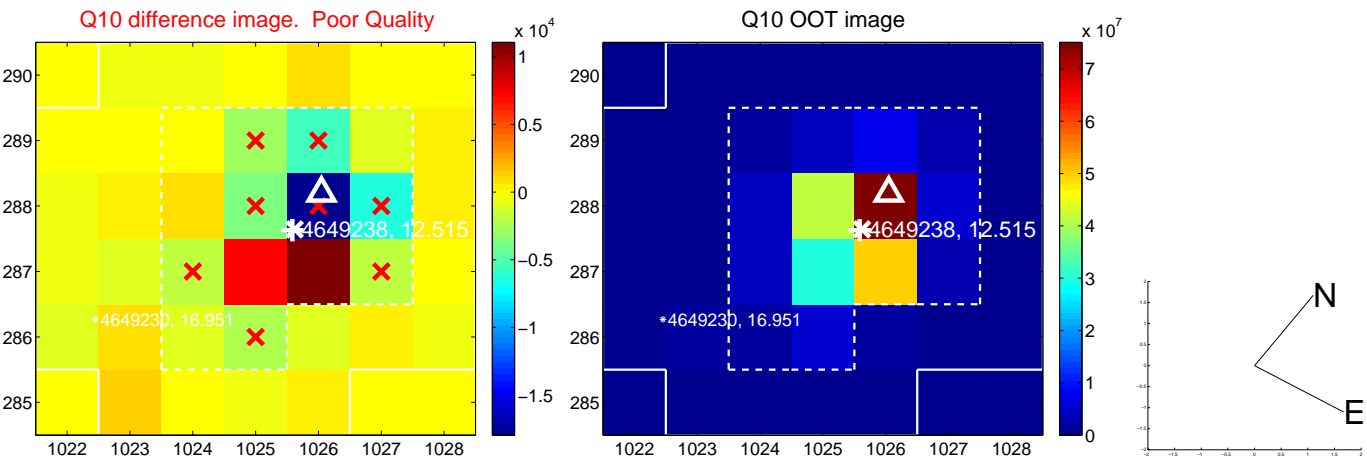
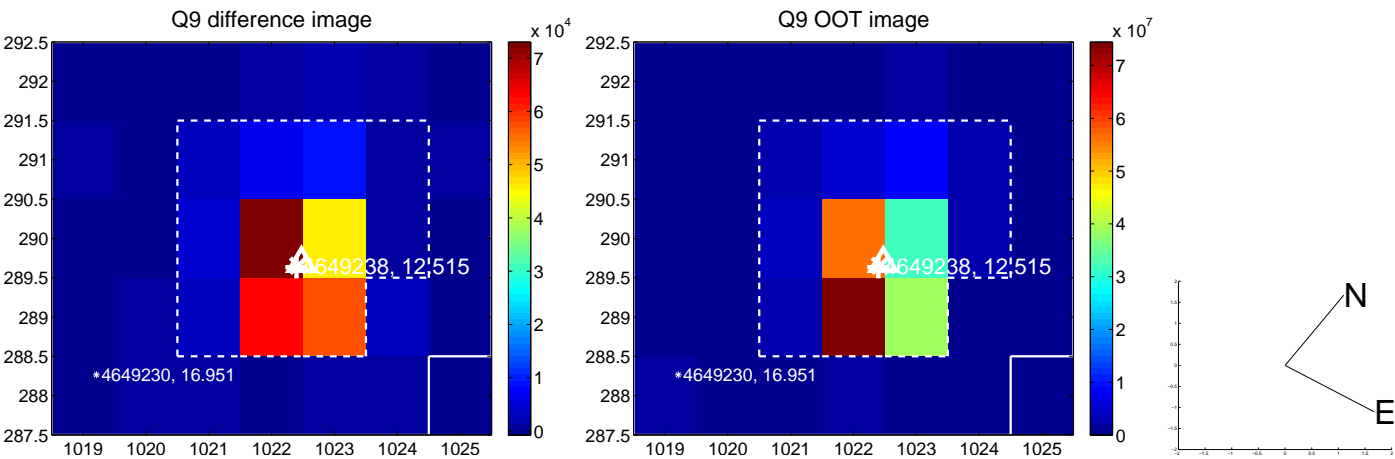
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



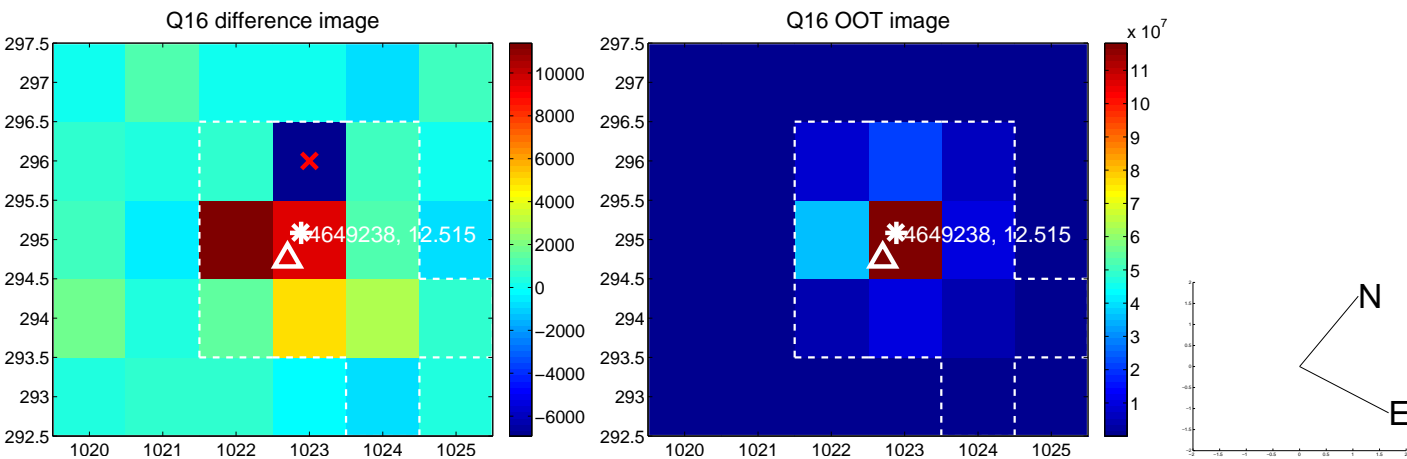
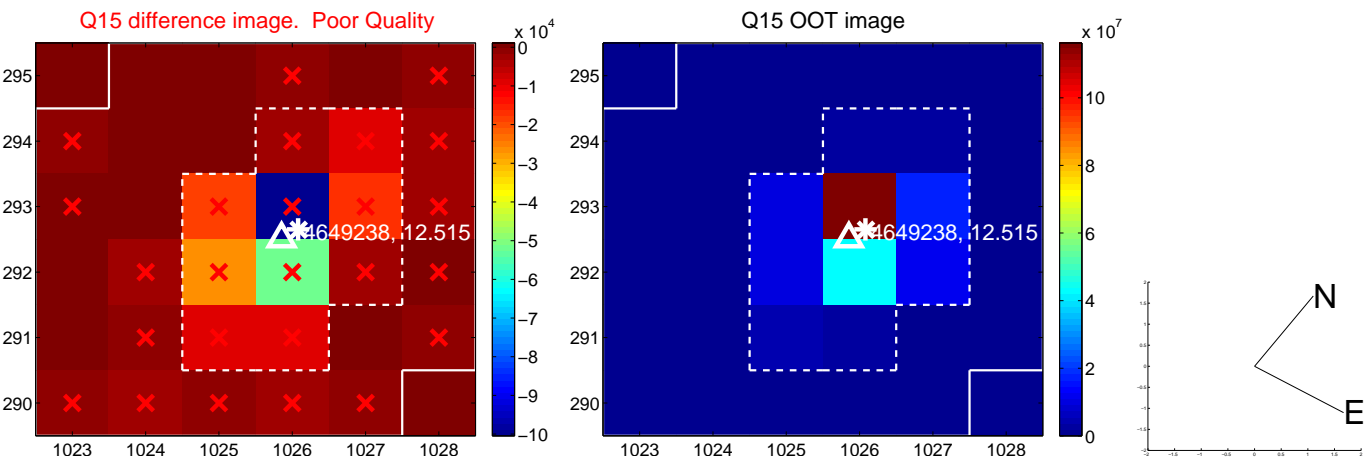
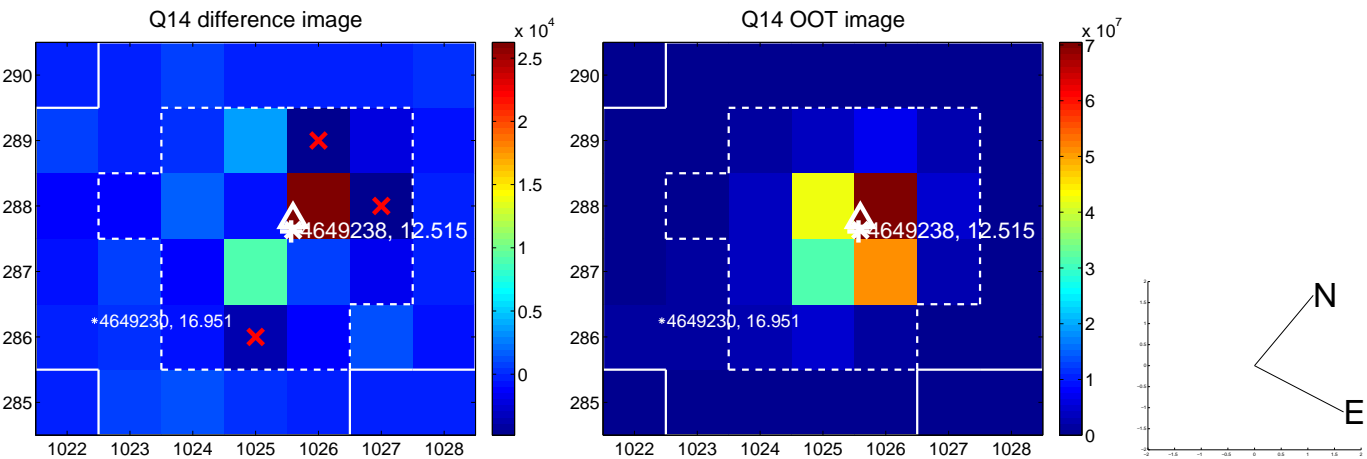
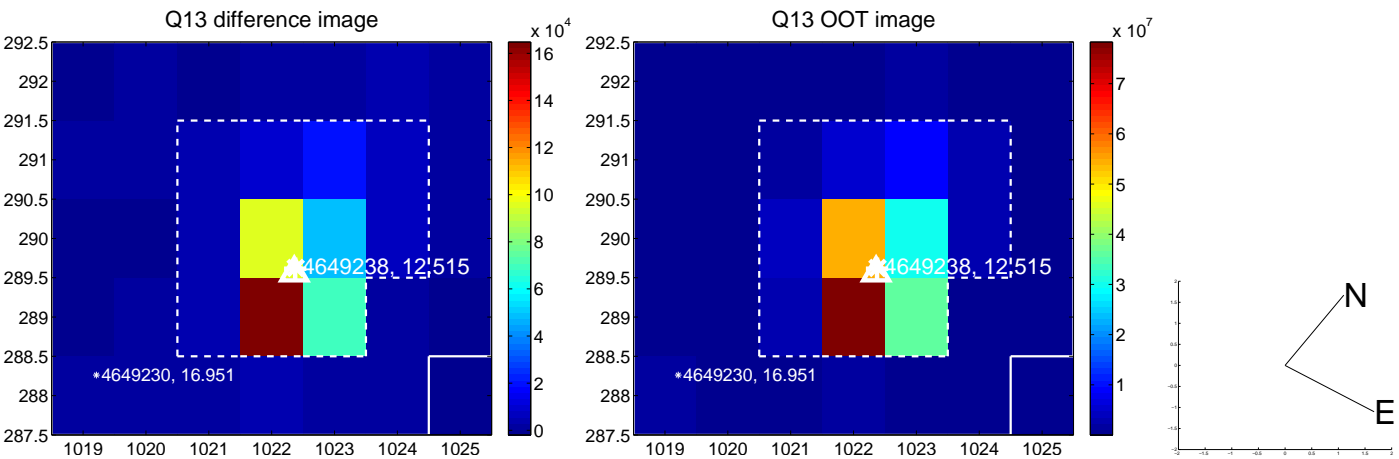
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



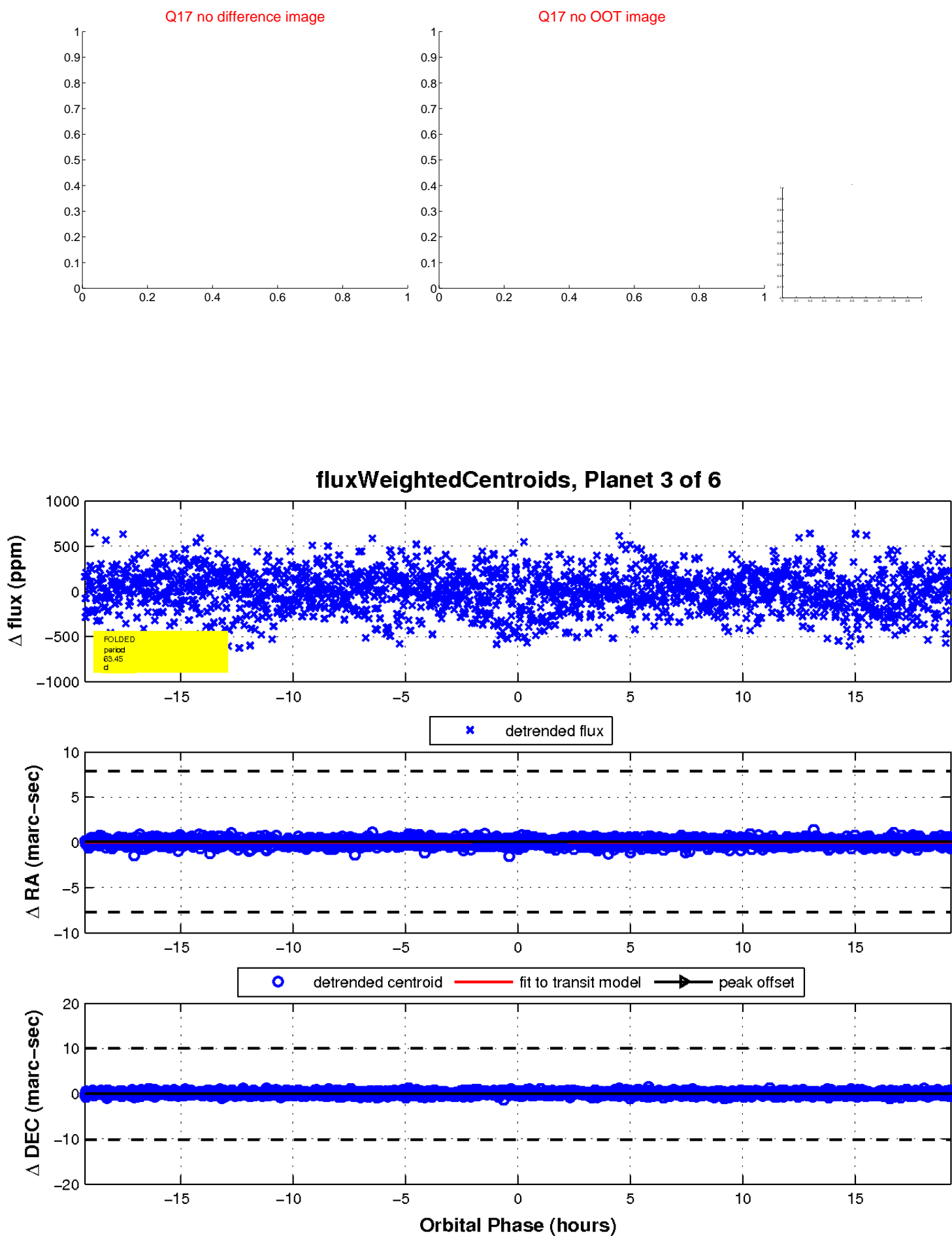
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

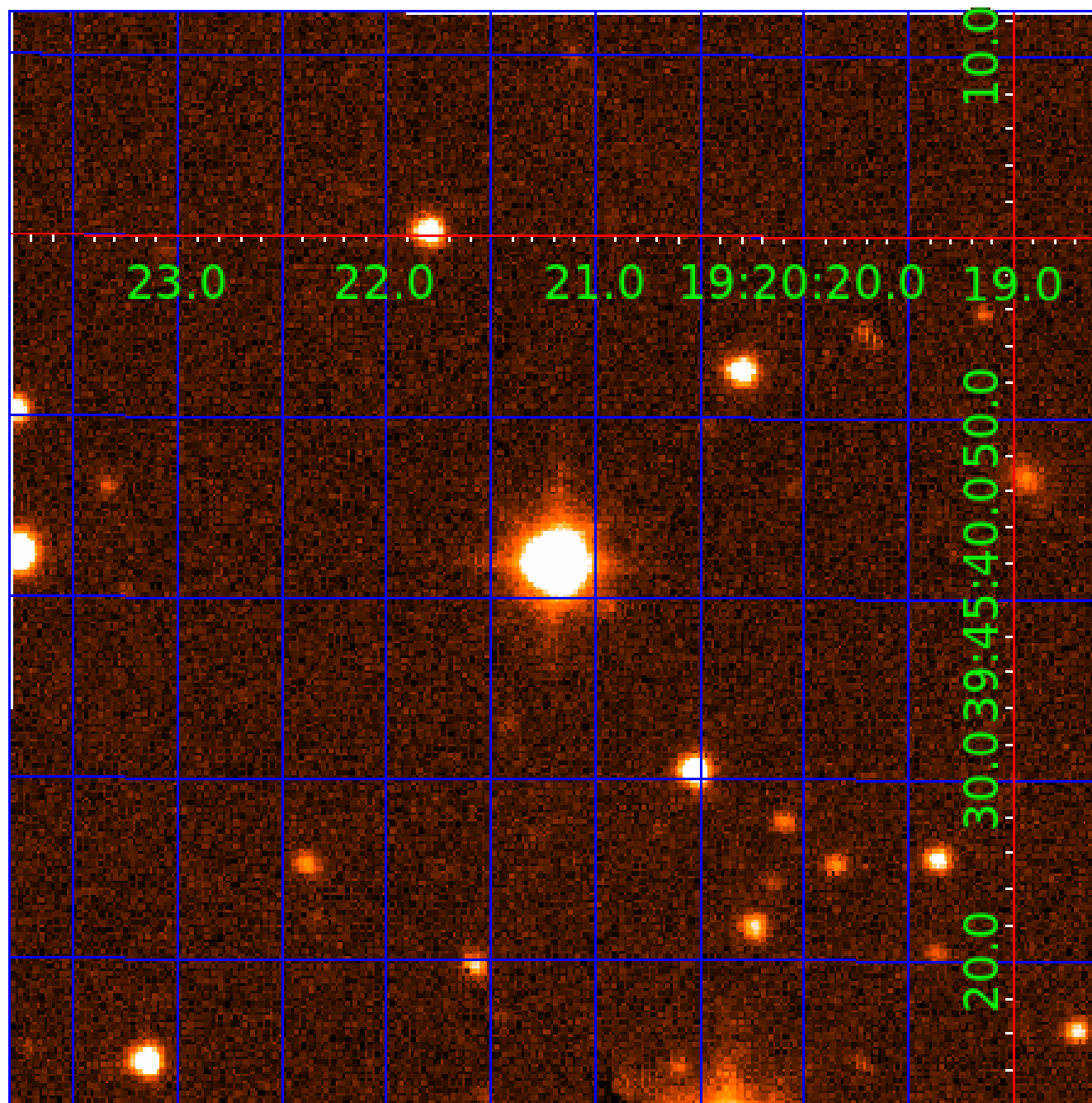


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004649238

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})
004649238-01	OBS	No	0.965686	131.986964	8.4	6.119	10.8	3.2	2.02	7236	0.63	20126.65
004649238-02	OBS	No	200.753038	154.282440	396.6	8.671	13.7	7.9	2.02	7236	4.63	16.34
004649238-03	OBS	No	63.448472	159.754659	450.5	6.431	12.6	13.1	2.02	7236	8.16	75.91
004649238-04	OBS	No	46.520404	134.467117	302.7	3.313	10.3	10.3	2.02	7236	3.71	114.82
004649238-05	OBS	No	27.257667	155.925692	124.6	6.000	9.2	-1.0	2.02	7236	2.29	234.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004649238-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004649238-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
004649238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

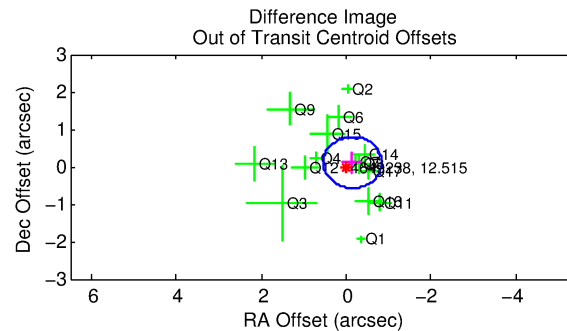
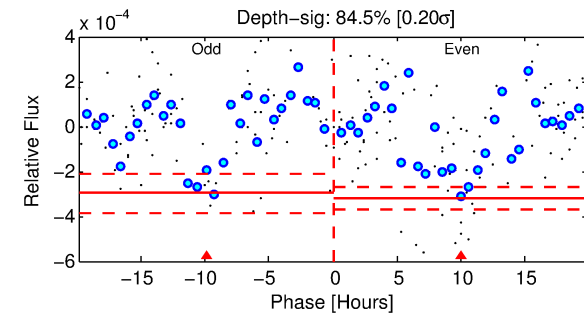
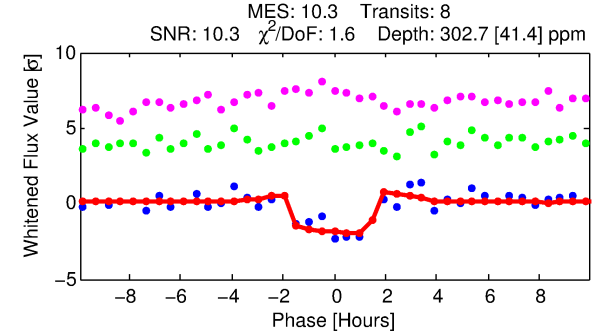
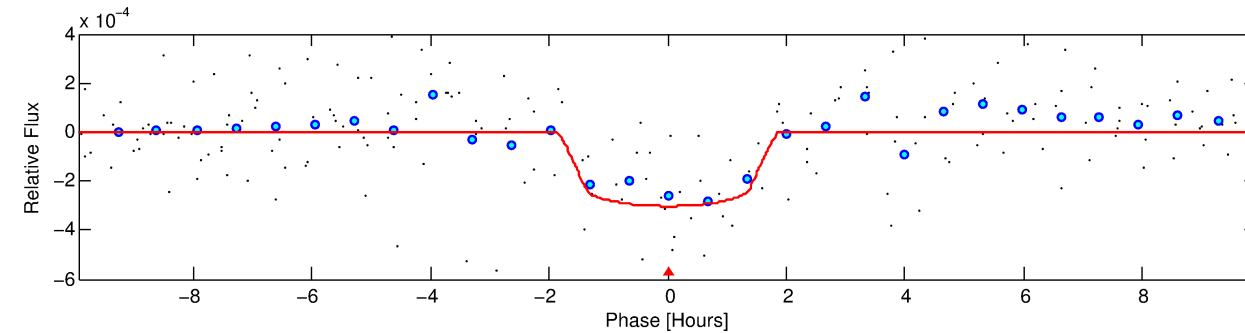
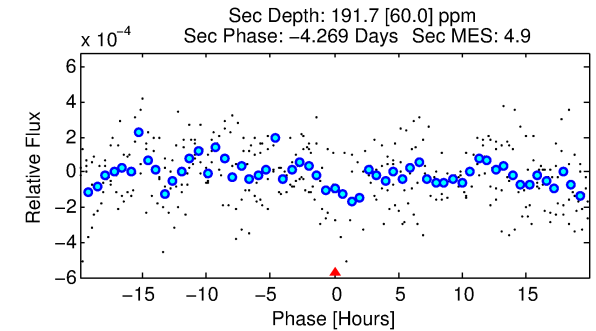
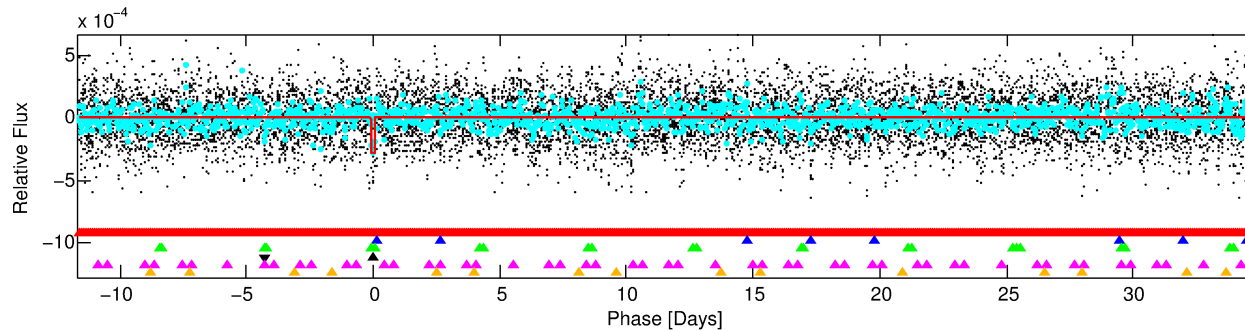
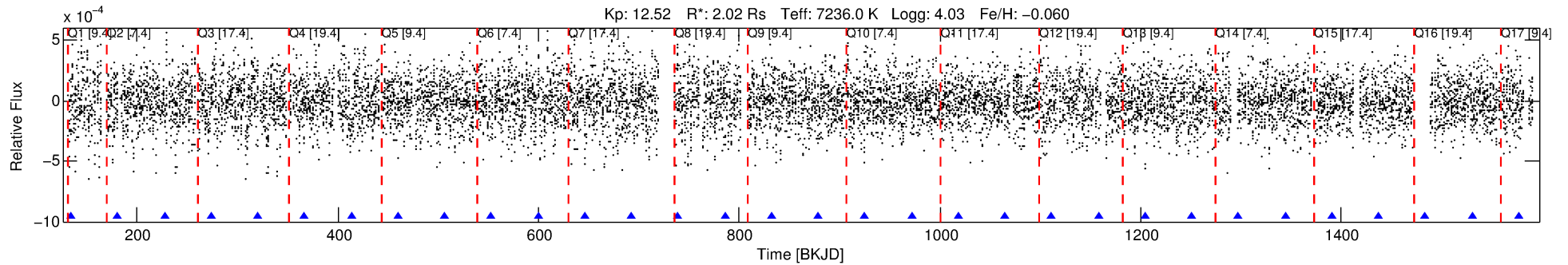
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004649238-04

No Significant Match Found

DV One-Page Summary

KIC: 4649238 Candidate: 4 of 6 Period: 46.520 d



DV Fit Results:

Period = 46.52040 [0.00067] d
Epoch = 134.4671 [0.0103] BKJD
Rp/R* = 0.0168 [0.0127]
a/R* = 86.93 [392.97]
b = 0.61 [4.60]
Seff = 114.82 [44.77]
Teq = 835 [81] K
Rp = 3.71 [2.98] Re
a = 0.2959 [0.0693] AU
Ag = 670.25 [1063.05] [0.63σ]
Teffp = 6566 [2553] K [2.24σ]

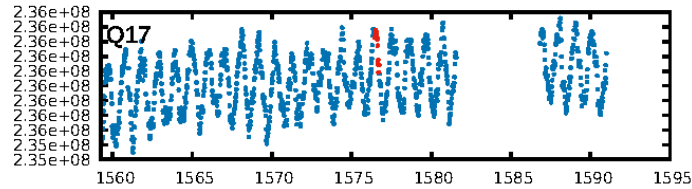
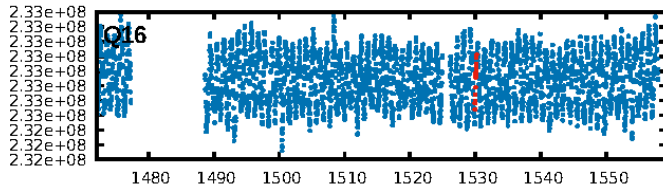
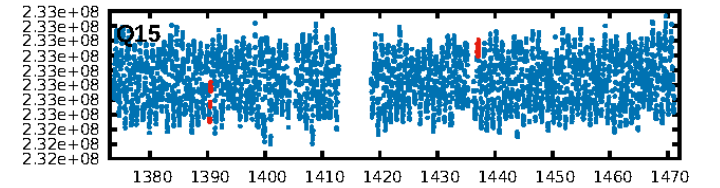
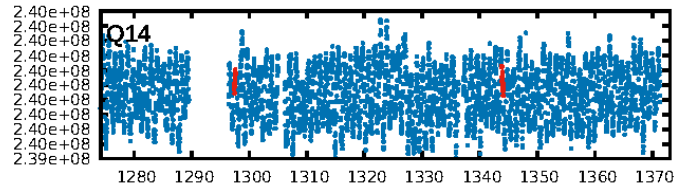
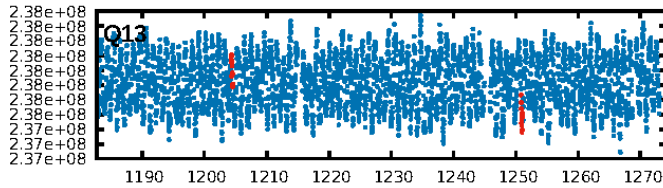
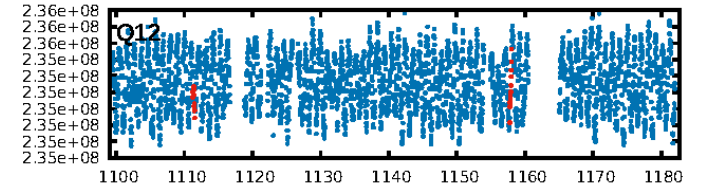
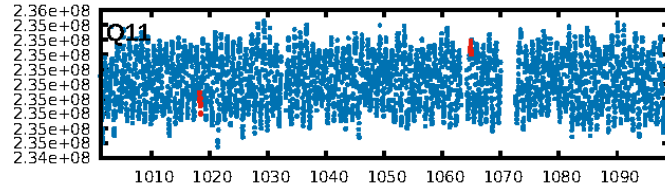
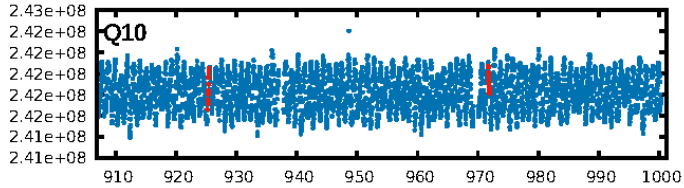
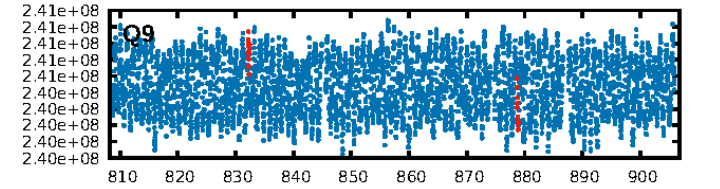
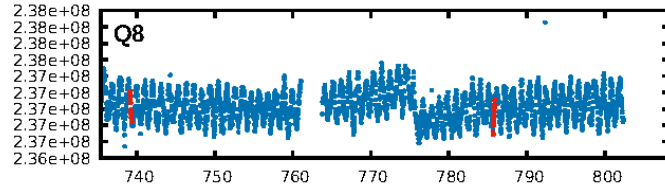
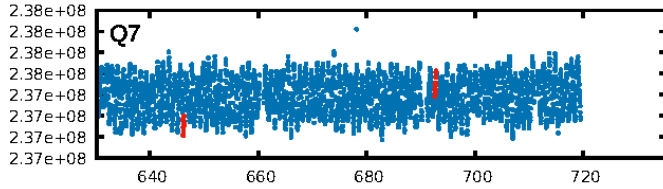
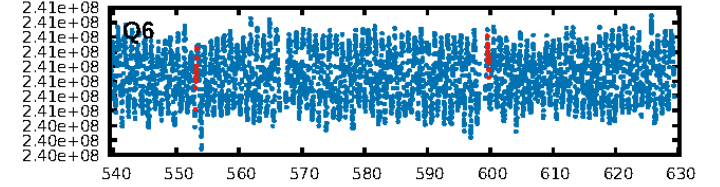
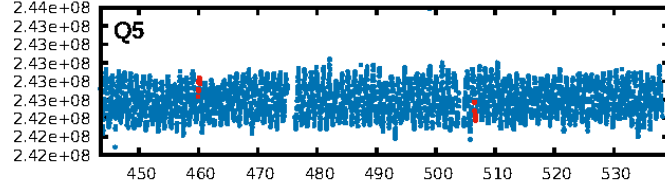
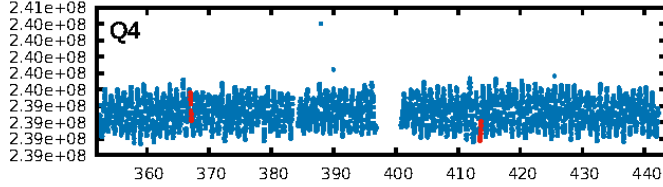
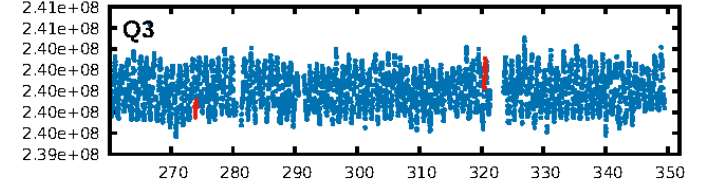
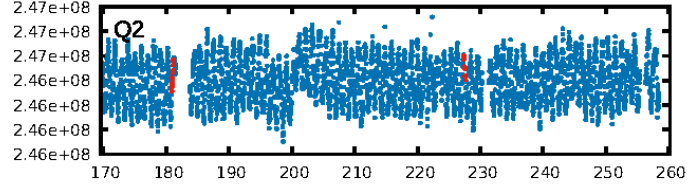
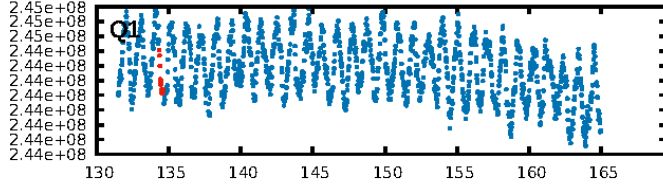
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [67.45σ]
LongPeriod-sig: 100.0% [56.16σ]
ModelChiSquare2-sig: 52.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 1.488
Centroid-sig: 63.4%
Centroid-so: 0.173 arcsec [0.61σ]
OotOffset-rm: 0.191 arcsec [0.83σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-rm: 0.226 arcsec [1.06σ]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.60 [9/15]
DiffImageOverlap-fno: 0.00 [0/17]

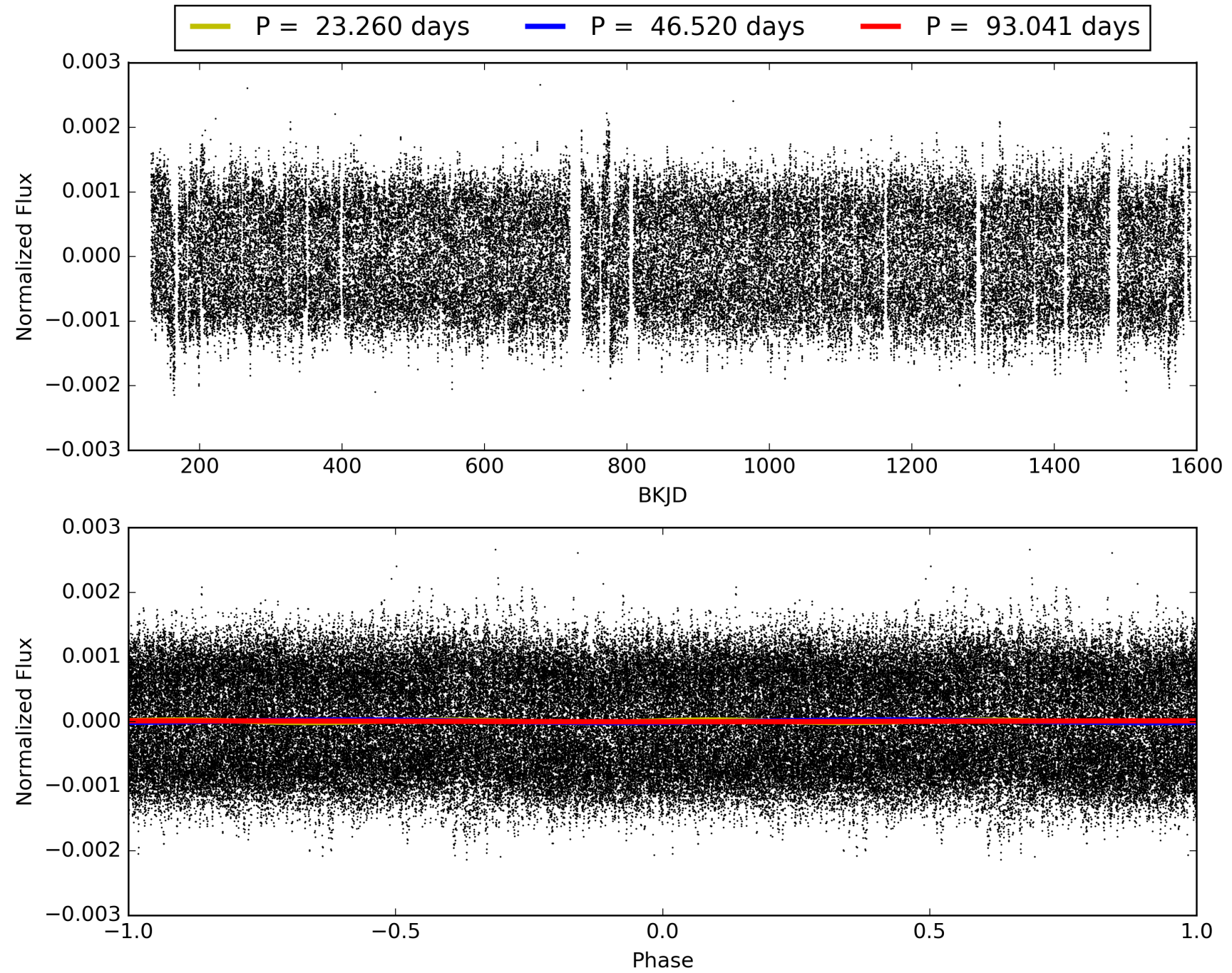
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:13:10 Z

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

TCE 004649238-04, PDC Light Curves

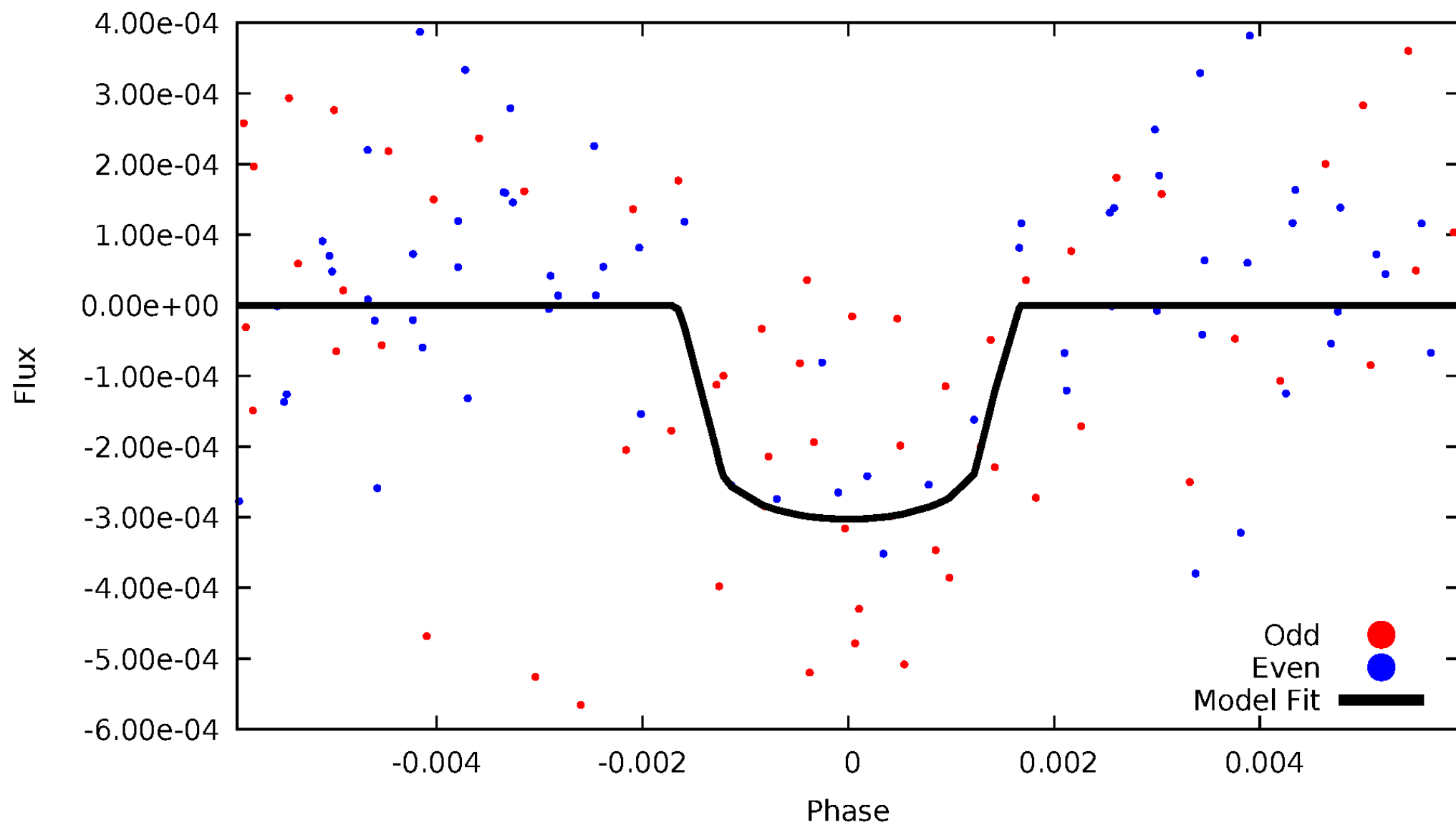


TCE 004649238-04



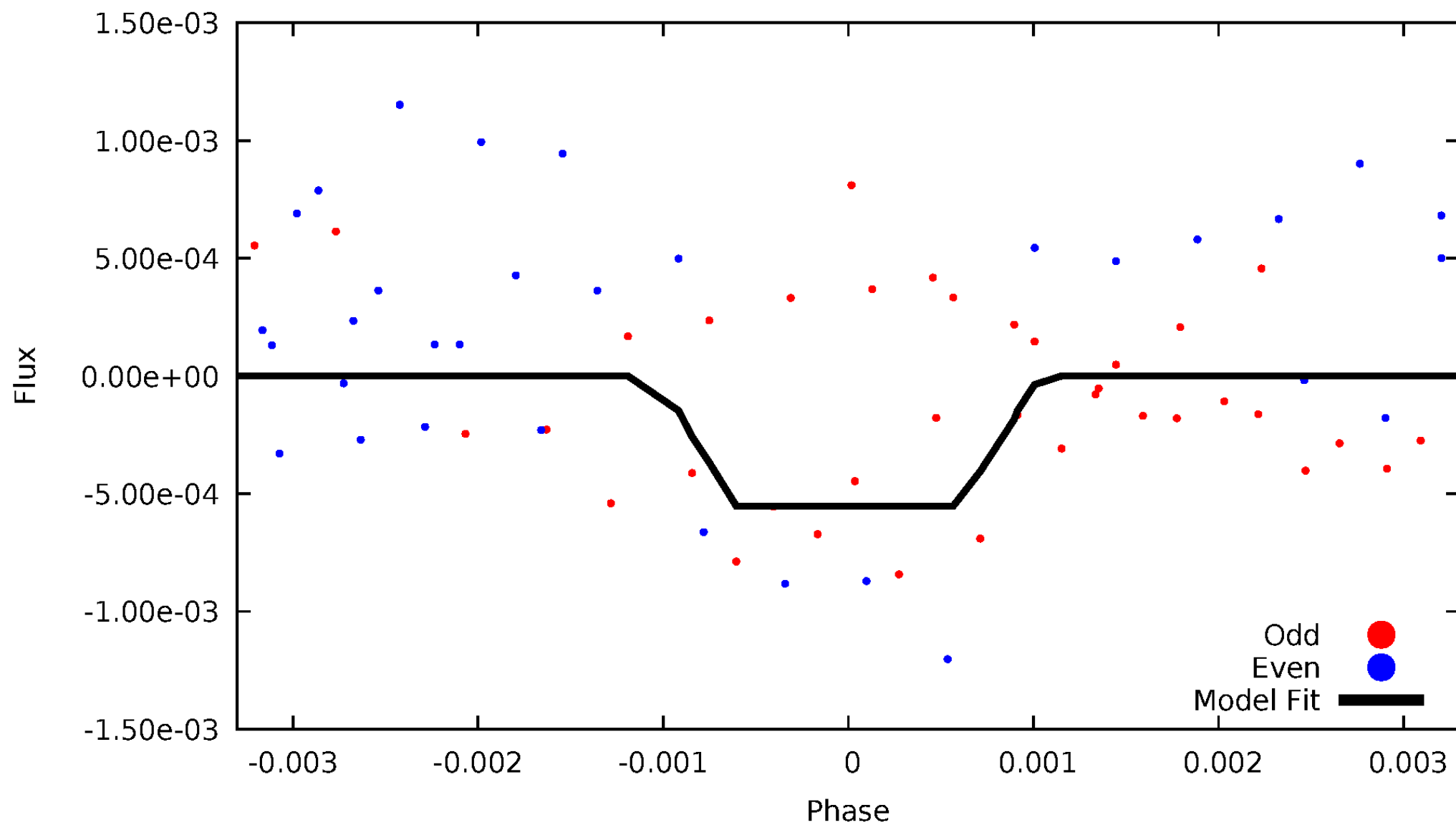
DV Odd/Even

TCE 004649238-04



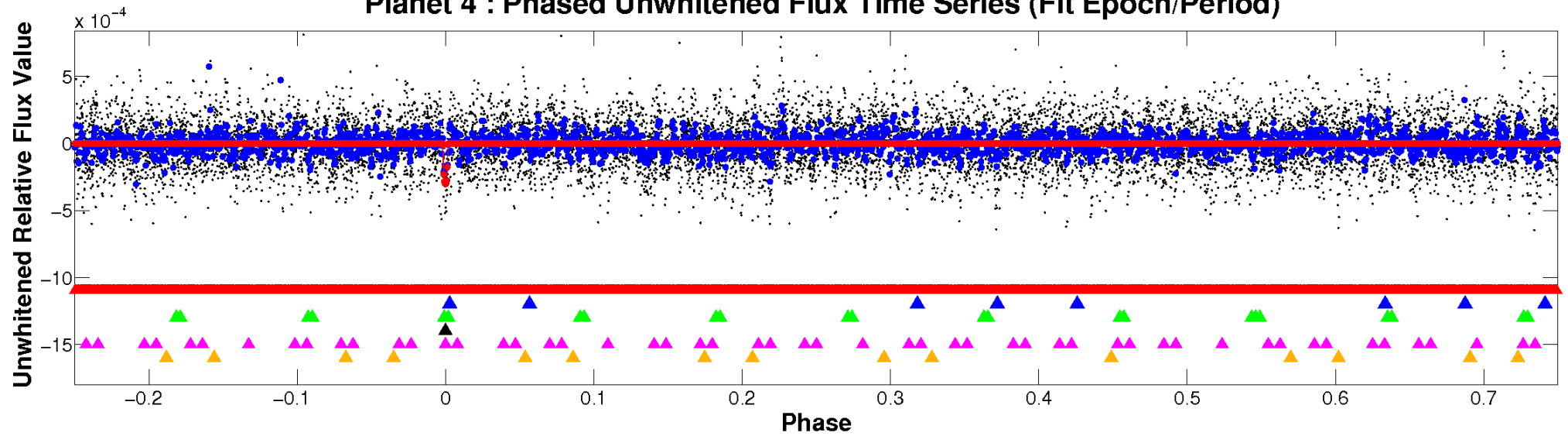
ALT Odd/Even

TCE 004649238-04

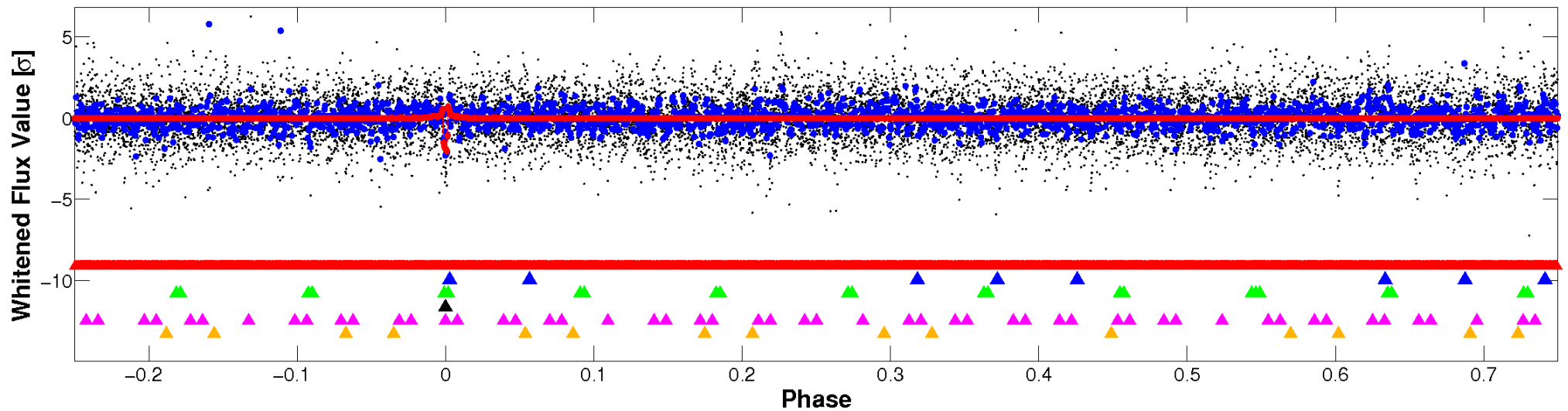


Non-Whitened Vs. Whitened Light Curve

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

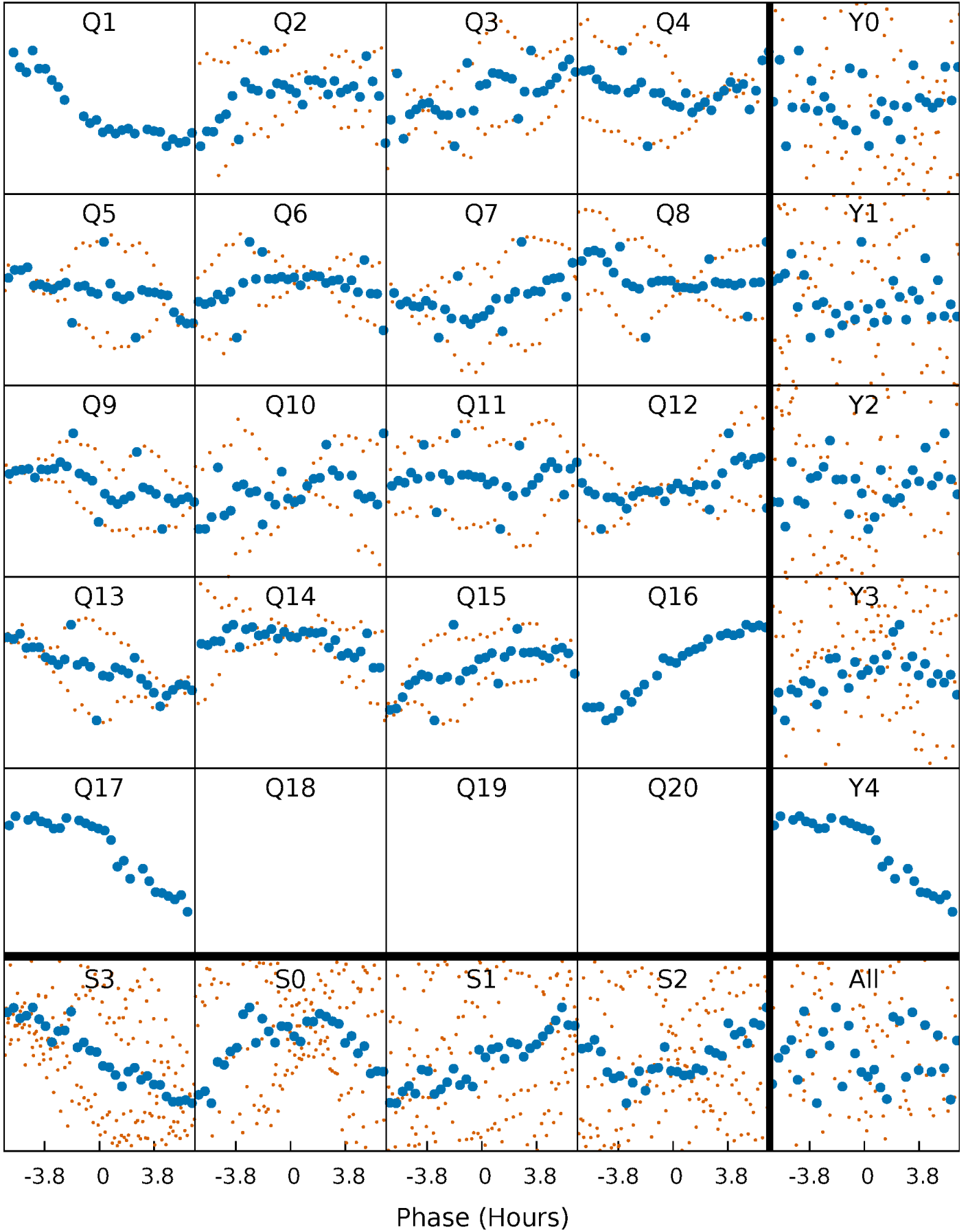


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



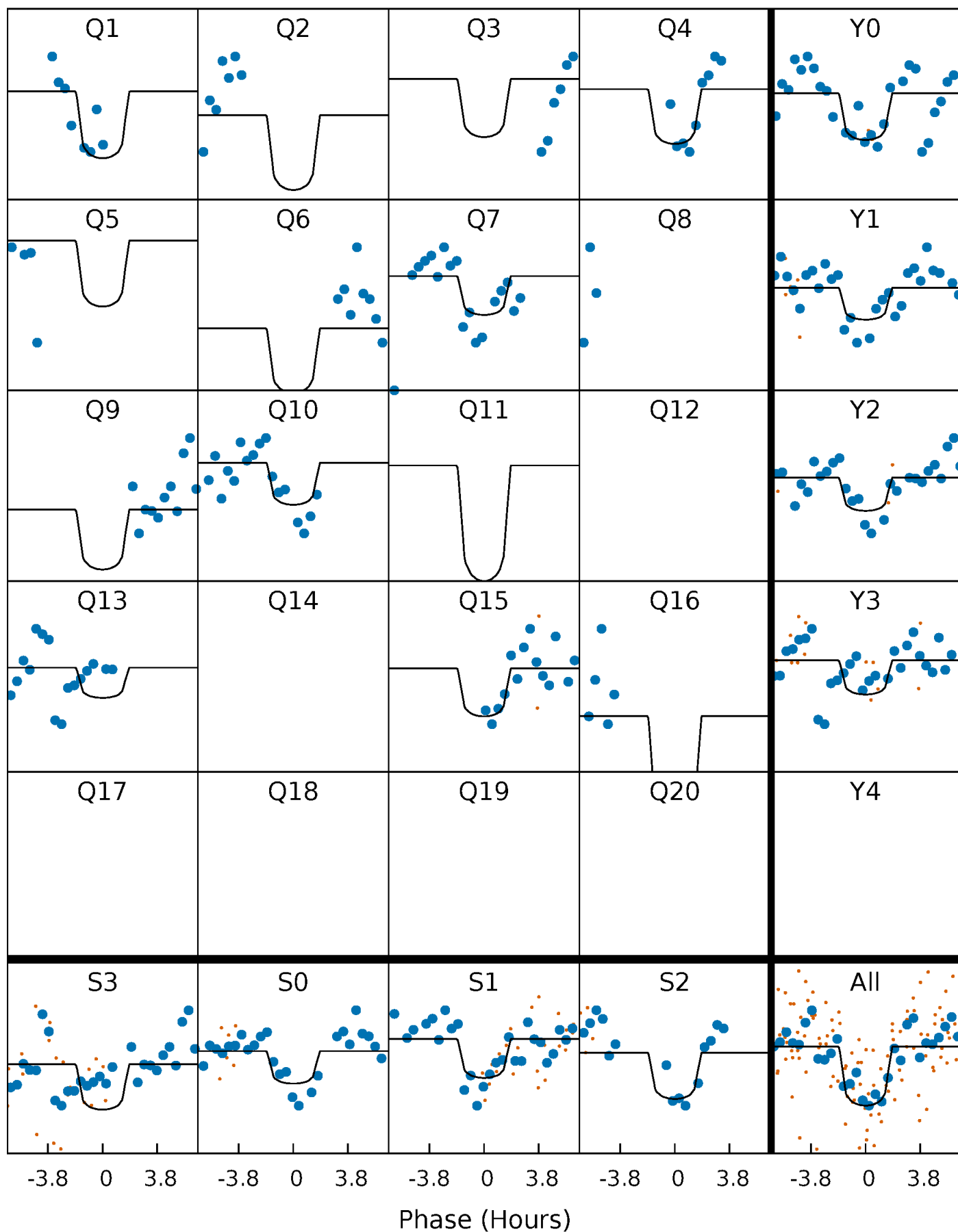
PDC Quarter-Phased Transit Curves

TCE 004649238-04 P= 46.520404 Days $T_0=134.467117$ (BKJD)



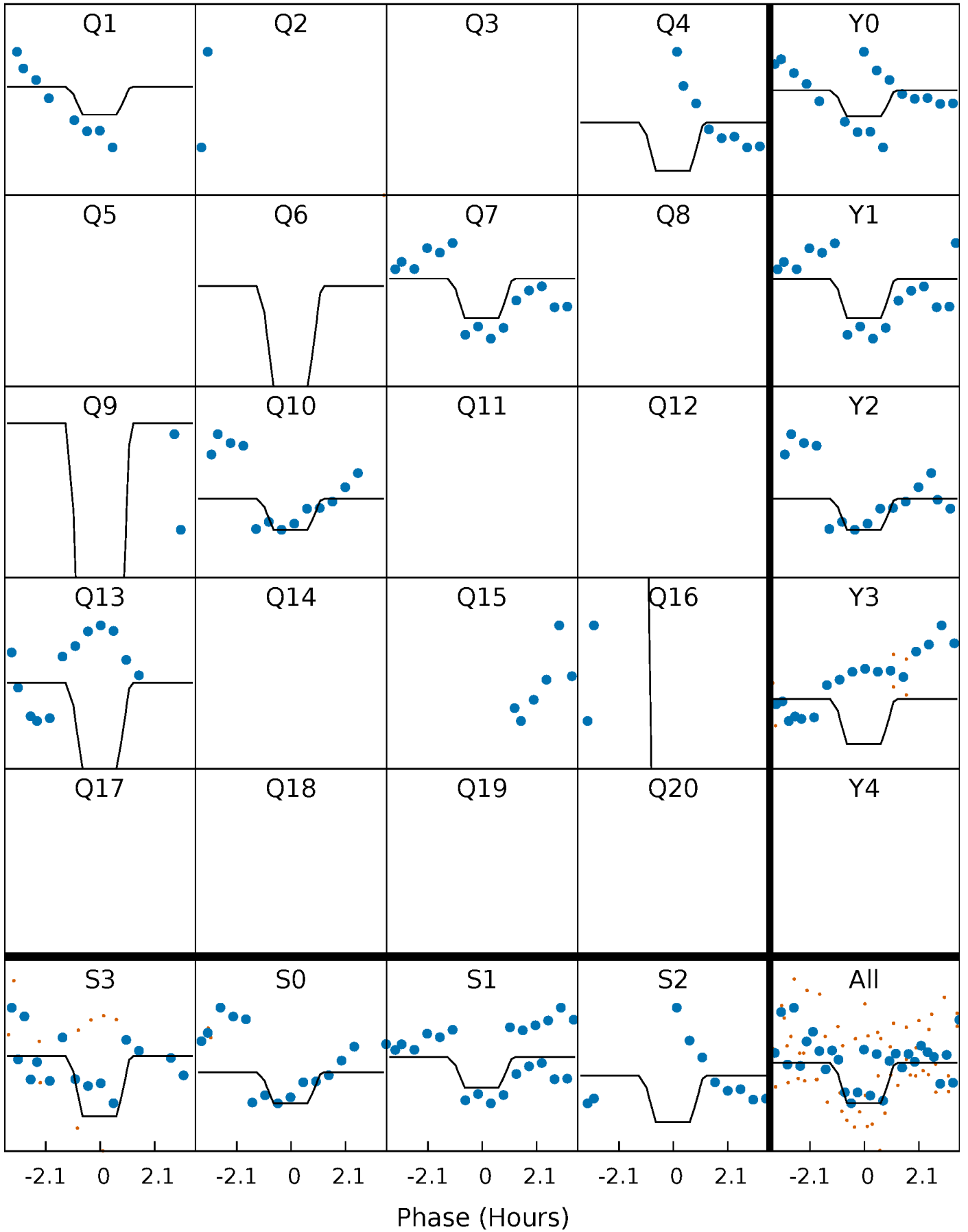
DV Quarter-Phased Transit Curves

TCE 004649238-04 P= 46.520404 Days $T_0=134.467117$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

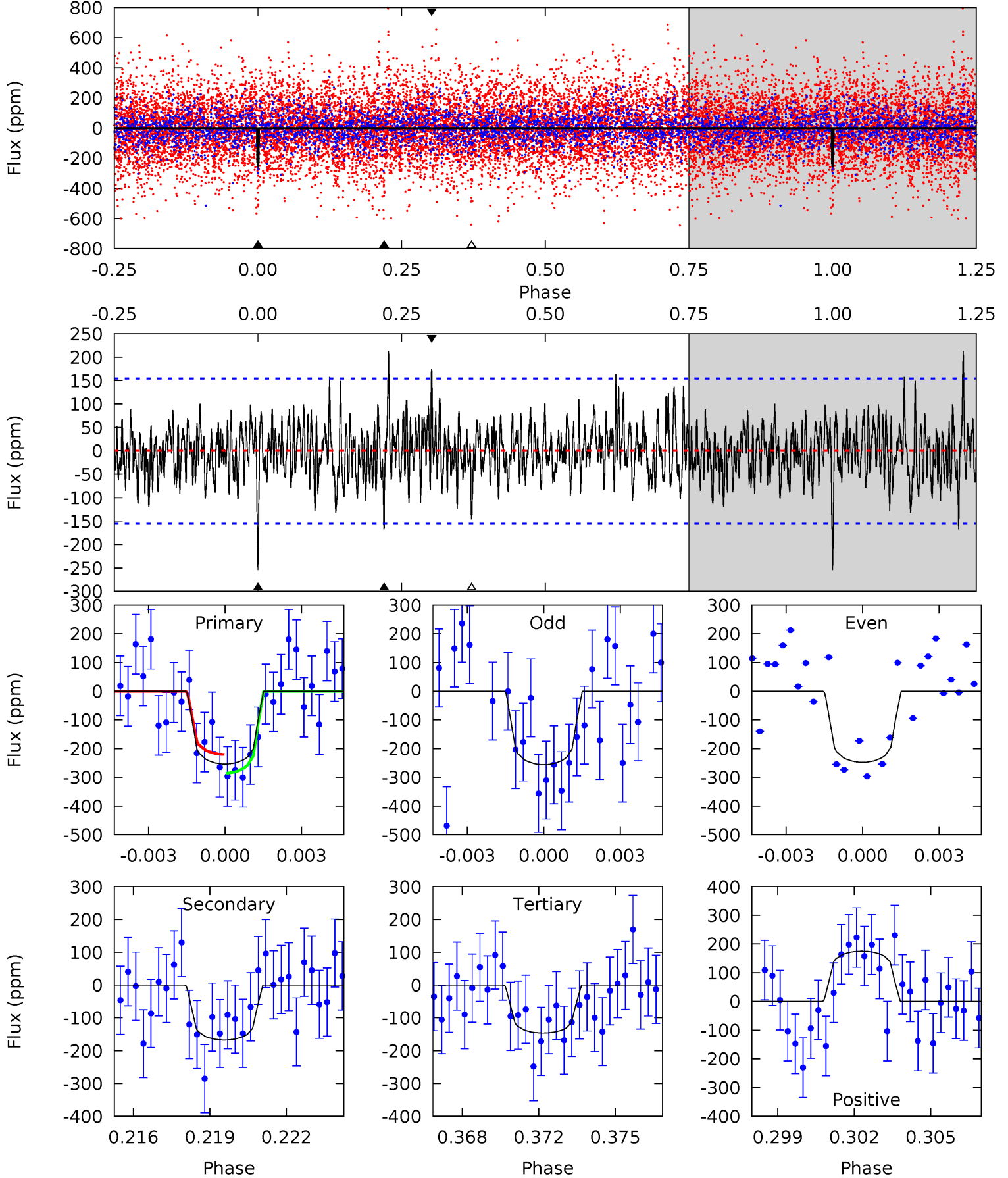
TCE 004649238-04 P= 46.519157 Days $T_0=134.450688$ (BKJD)



DV Model-Shift Uniqueness Test

004649238-04, P = 46.520404 Days, E = 87.946713 Days

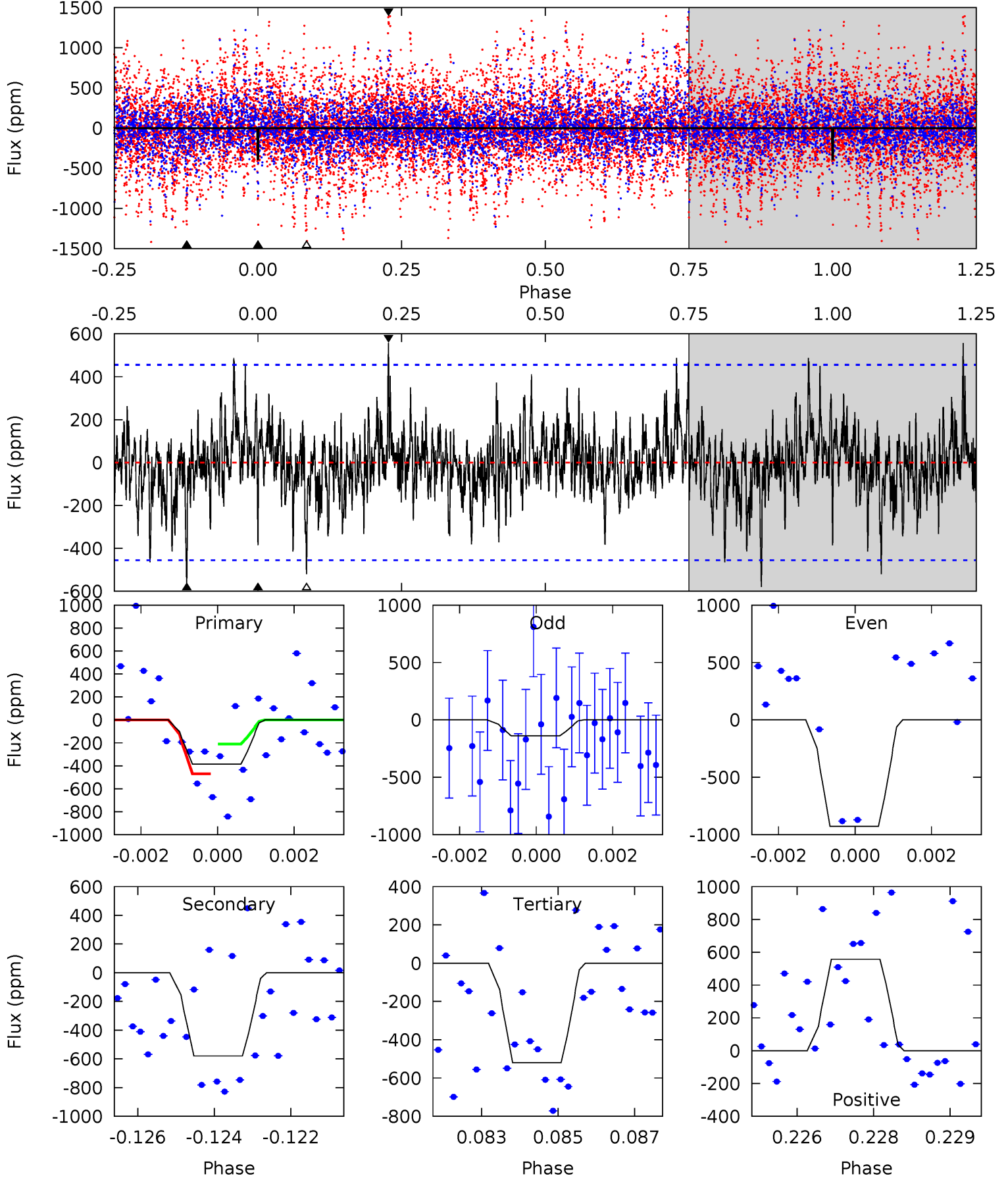
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.60	5.67	4.95	5.93	5.23	2.94	1.66	3.66	2.67	0.72	-0.27	0.13	0.90	0.46	1.09



Alt Model-Shift Uniqueness Test

004649238-04, P = 46.519157 Days, E = 87.931531 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.52	6.79	6.09	6.53	5.34	3.11	1.54	-1.57	-2.01	0.70	0.26	3.83	0.58	0.49	1.51



Stellar Parameters For KIC 004649238

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7236^{+226}_{-302}	$4.029^{+0.198}_{-0.180}$	$-0.060^{+0.250}_{-0.350}$	$2.023^{+0.541}_{-0.541}$	$1.593^{+0.212}_{-0.283}$	$0.271^{+0.318}_{-0.130}$
	+3%/-4%	+5%/-4%	+417%/-583%	+27%/-27%	+13%/-18%	+117%/-48%
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 004649238-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-167 ± 30	$3.91^{+3.12}_{-2.35}$	1167^{+96}_{-90}	6018^{+4657}_{-1304}	514^{+2592}_{-355}
Alt.	-579 ± 85	$5.20^{+3.09}_{-2.63}$	1167^{+84}_{-88}	7308^{+4269}_{-1528}	1011^{+3202}_{-614}

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

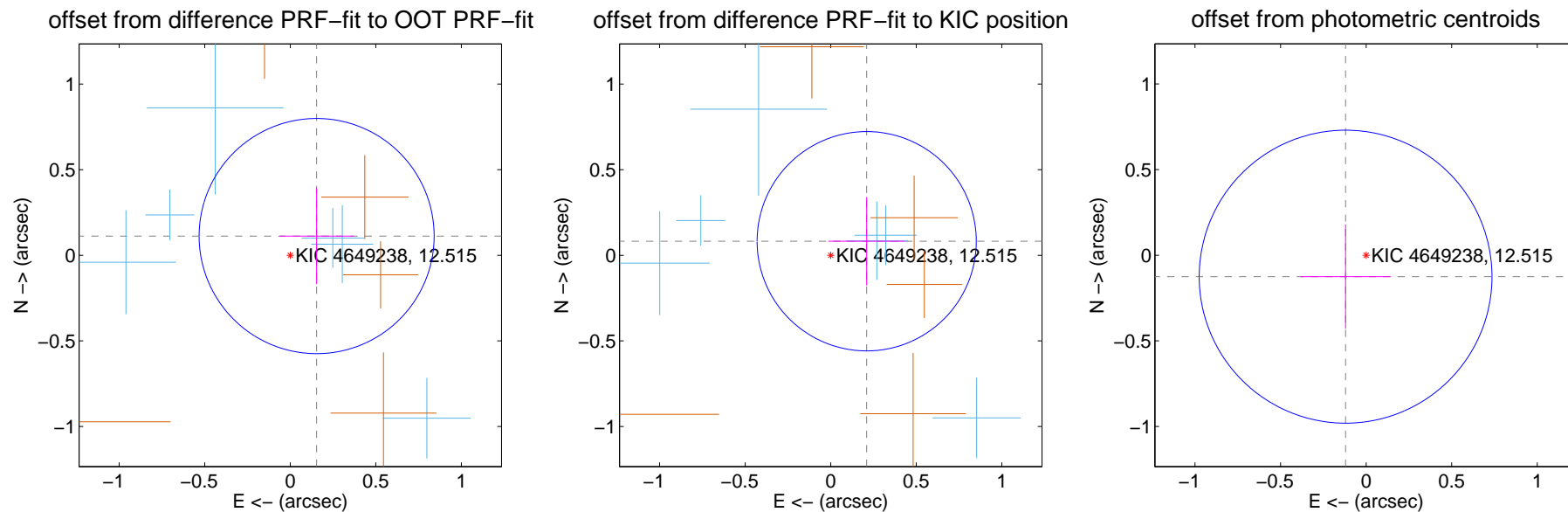
DV Centroid Data

Supplemental centroid analysis for 004649238-04. Kepler magnitude: 12.52. Transit SNR 10.28

There are 9 quarters with good PRF difference image offsets

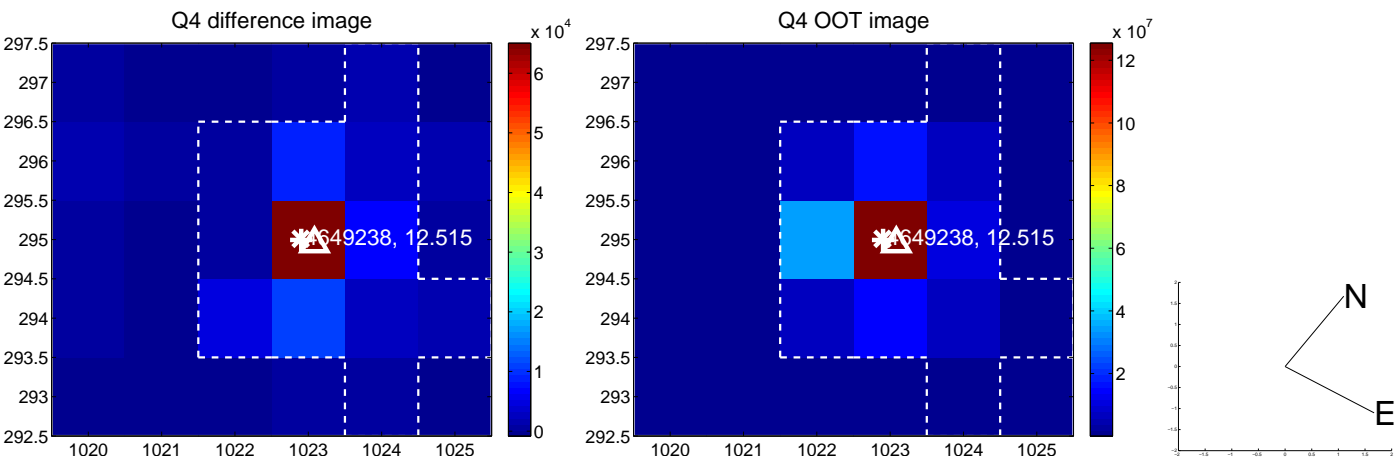
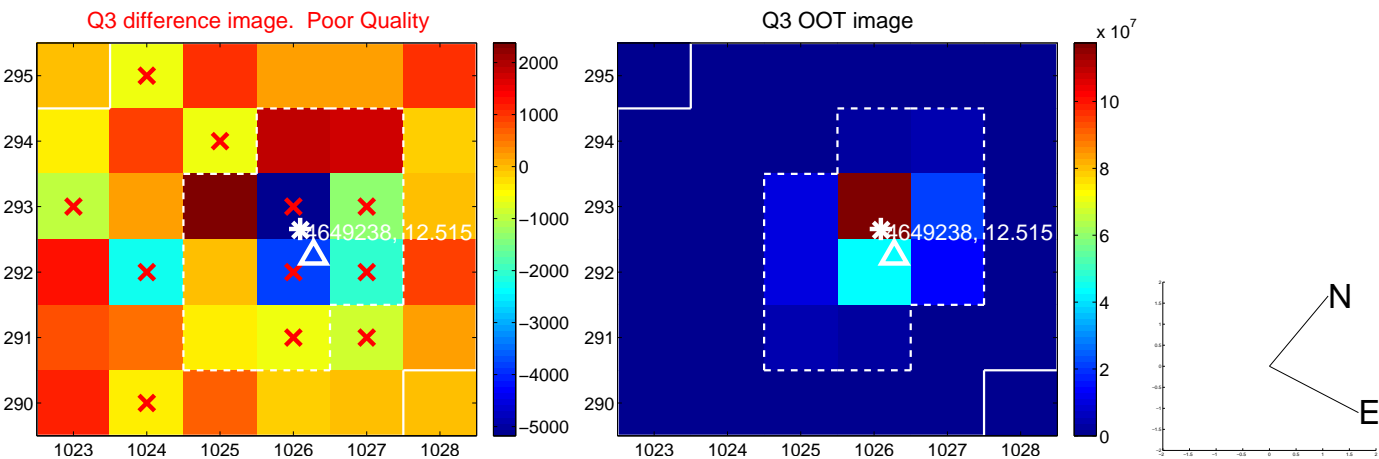
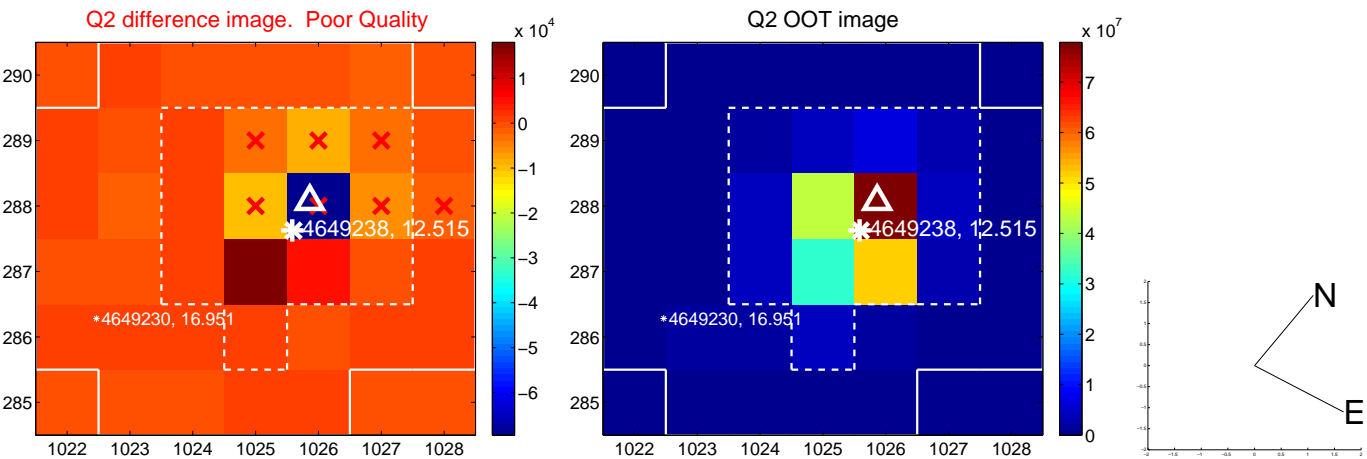
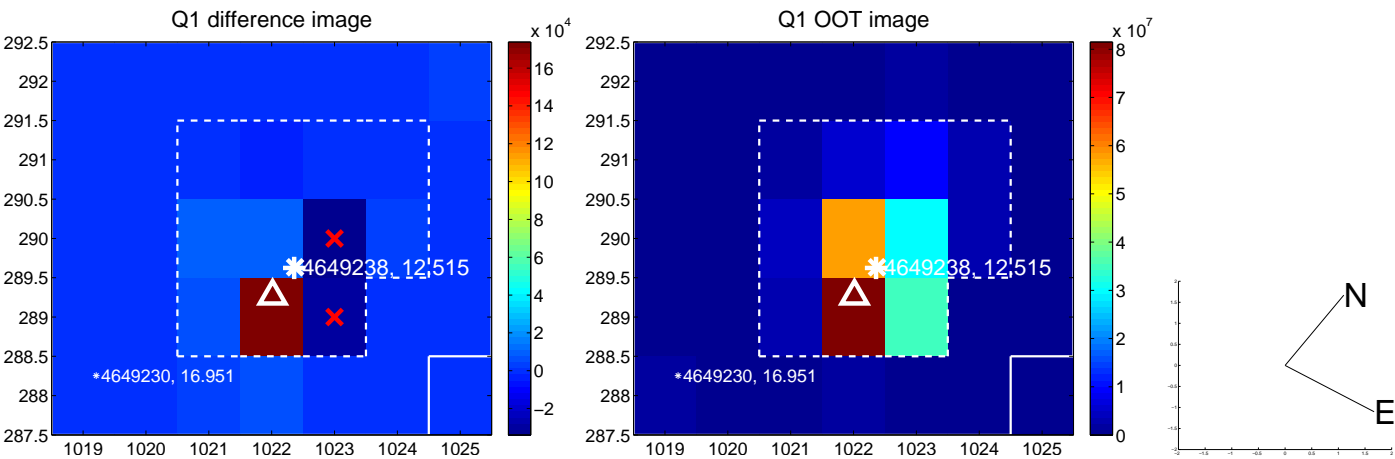
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.191 ± 0.229	0.83	-0.154 ± 0.216	0.112 ± 0.280
PRF-fit source offset from KIC position	0.226 ± 0.213	1.06	-0.210 ± 0.224	0.082 ± 0.258
photometric centroid source offset	0.17 ± 0.29	0.61	0.12 ± 0.26	-0.13 ± 0.30

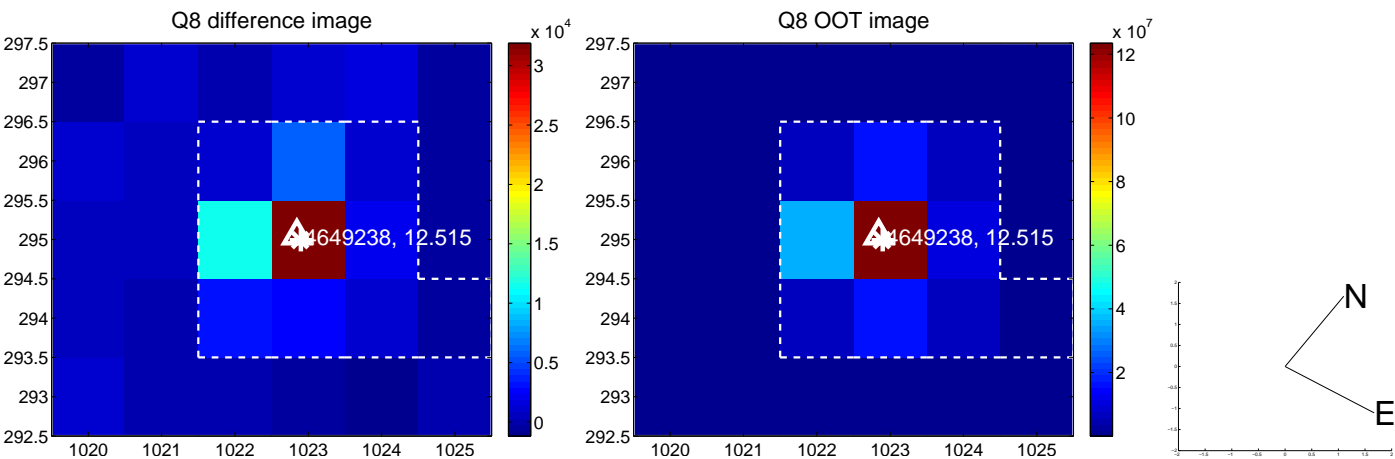
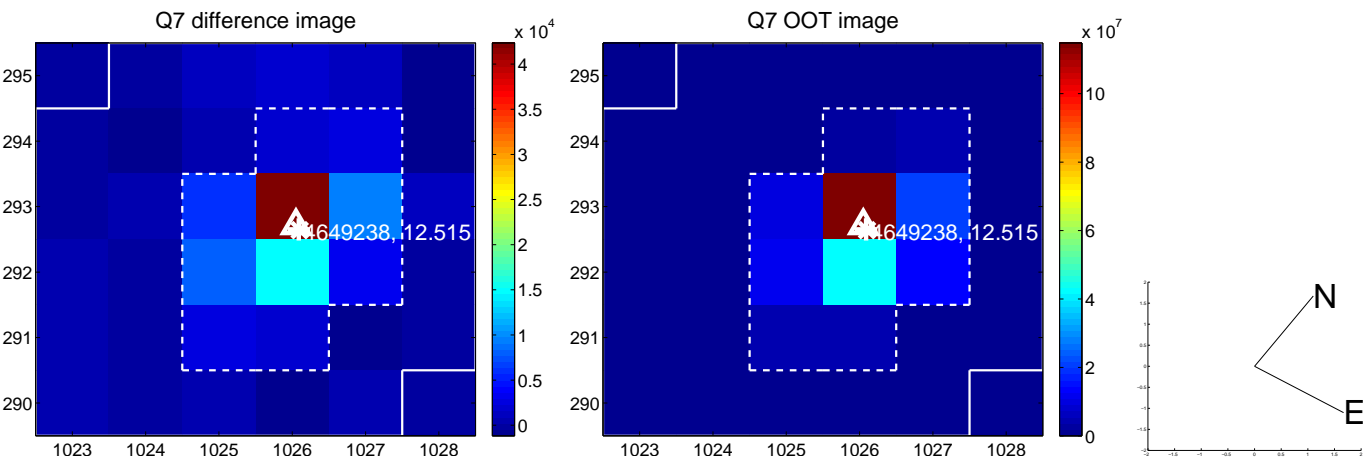
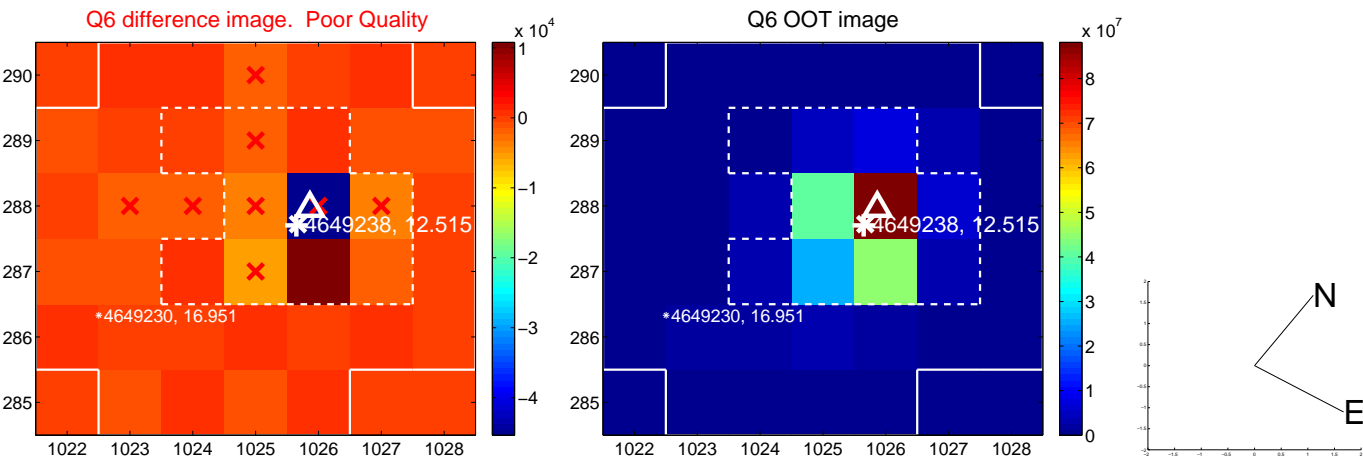
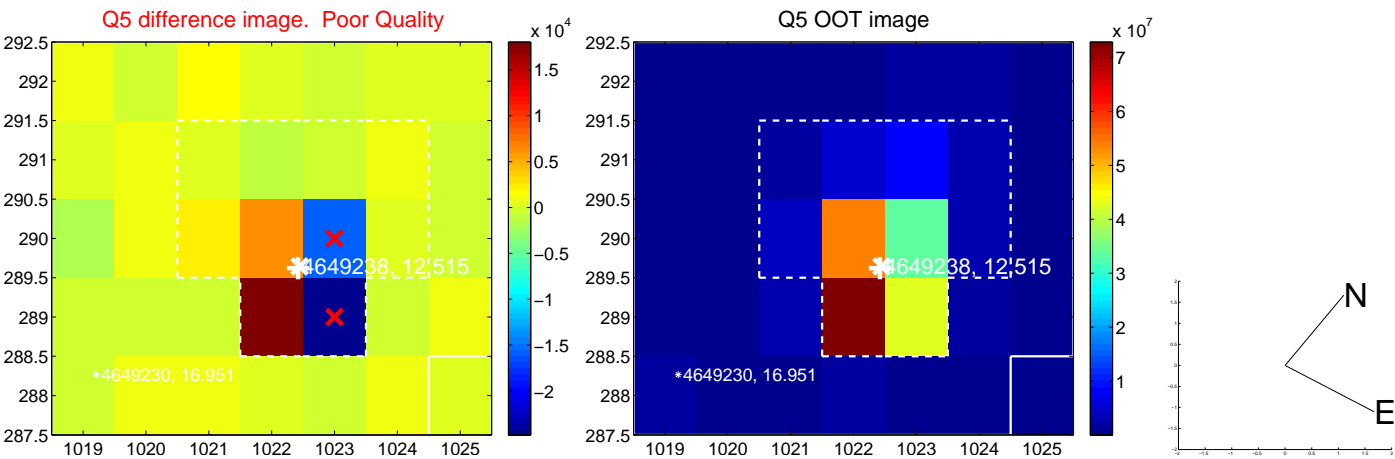


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

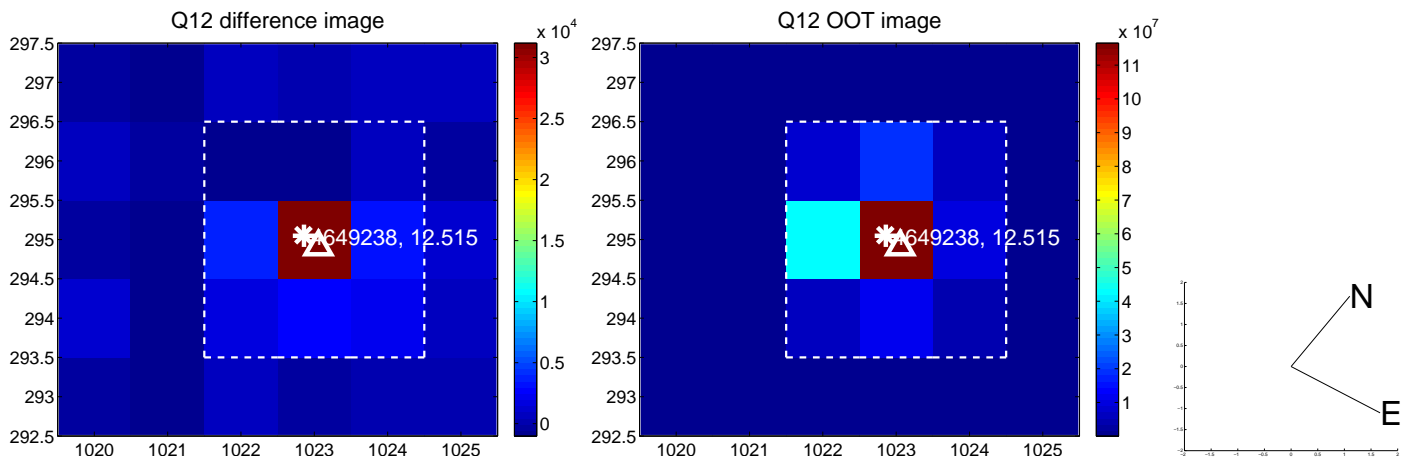
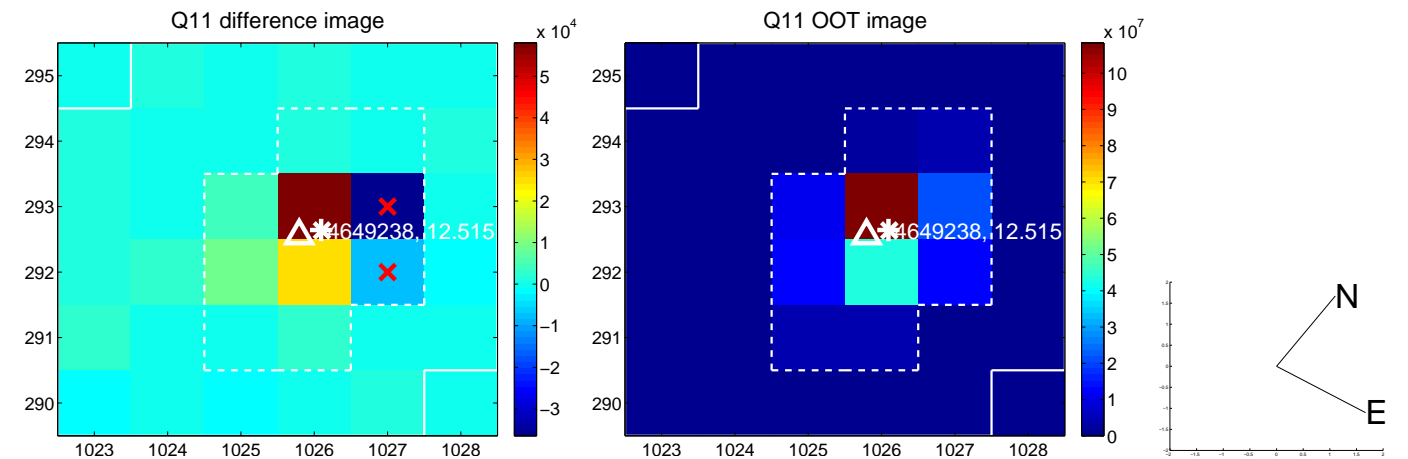
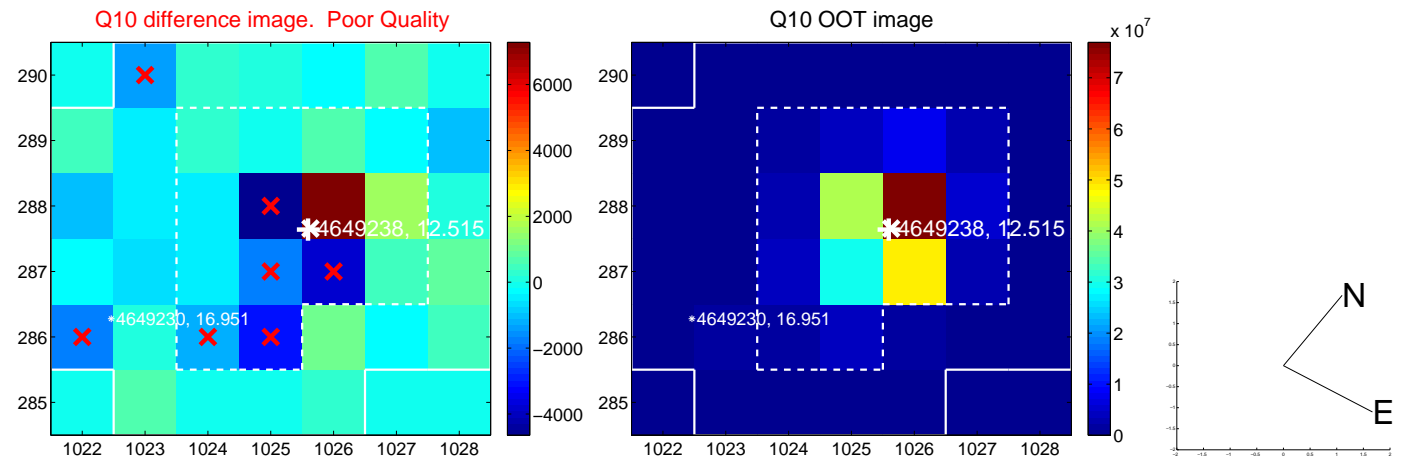
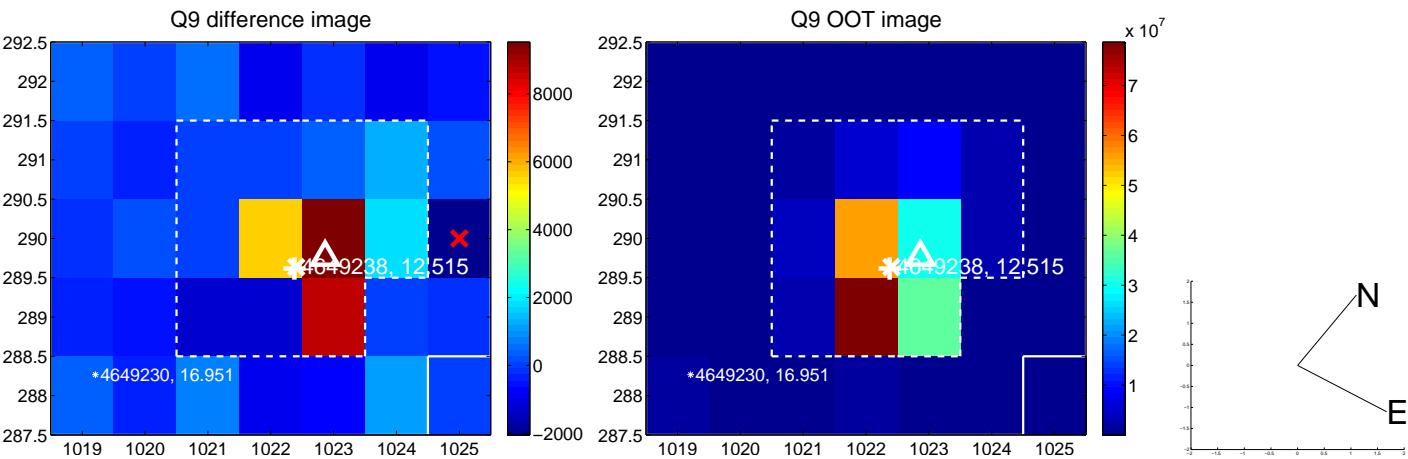
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



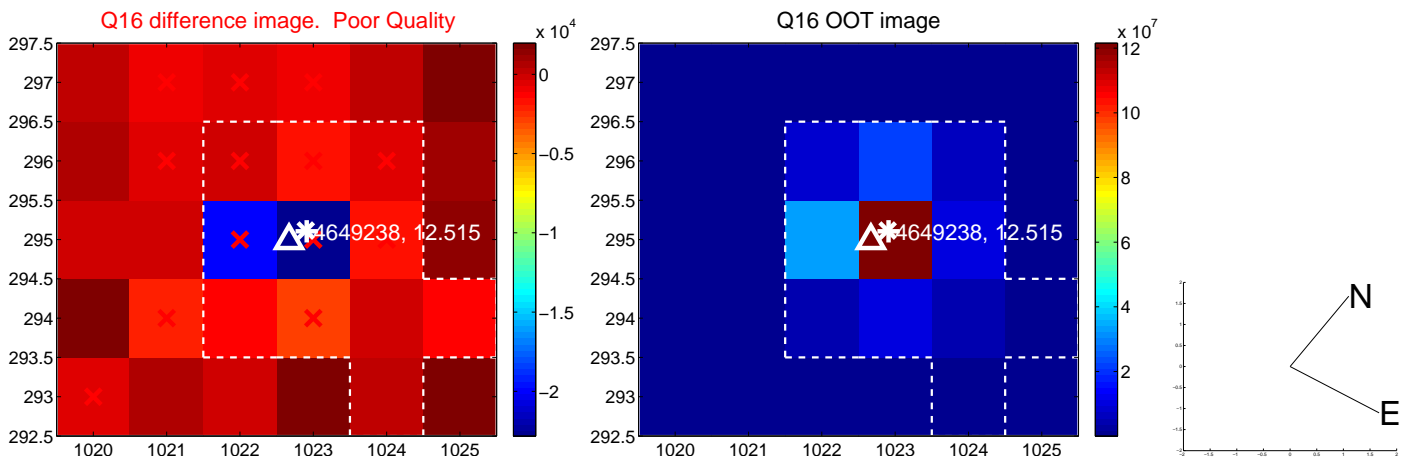
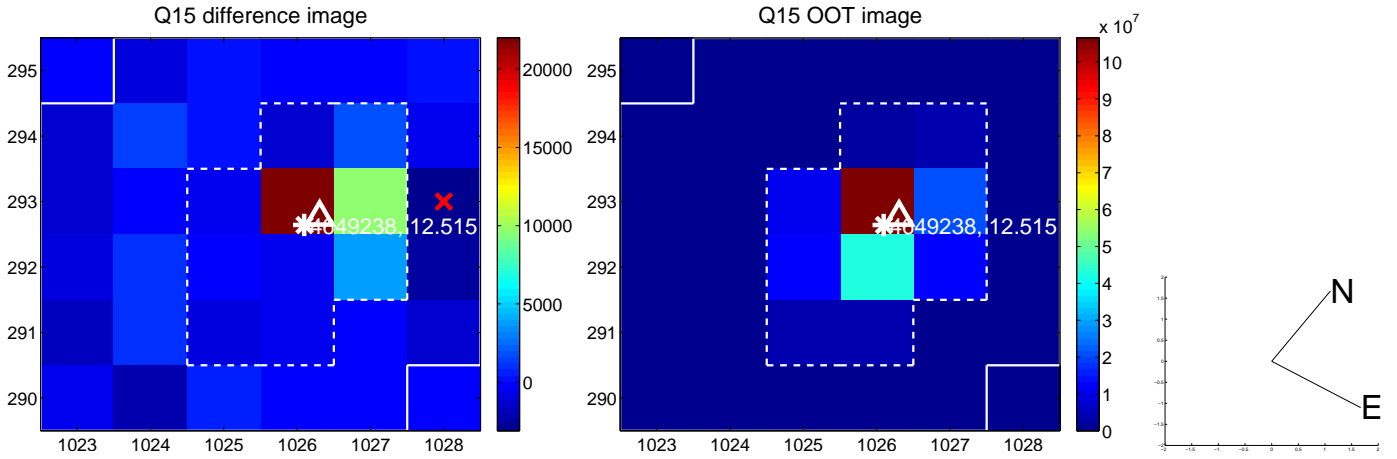
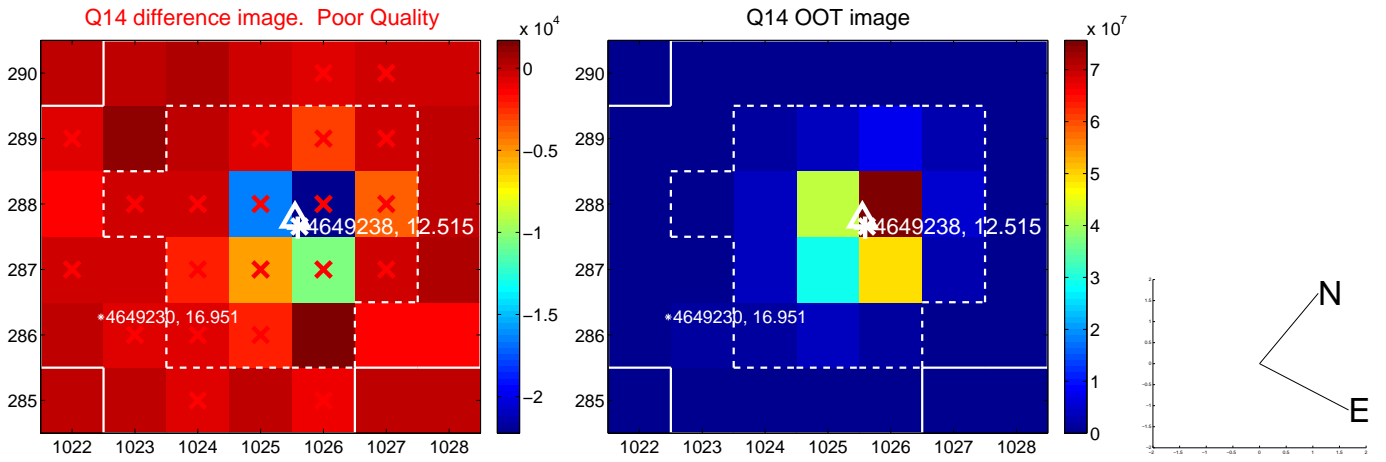
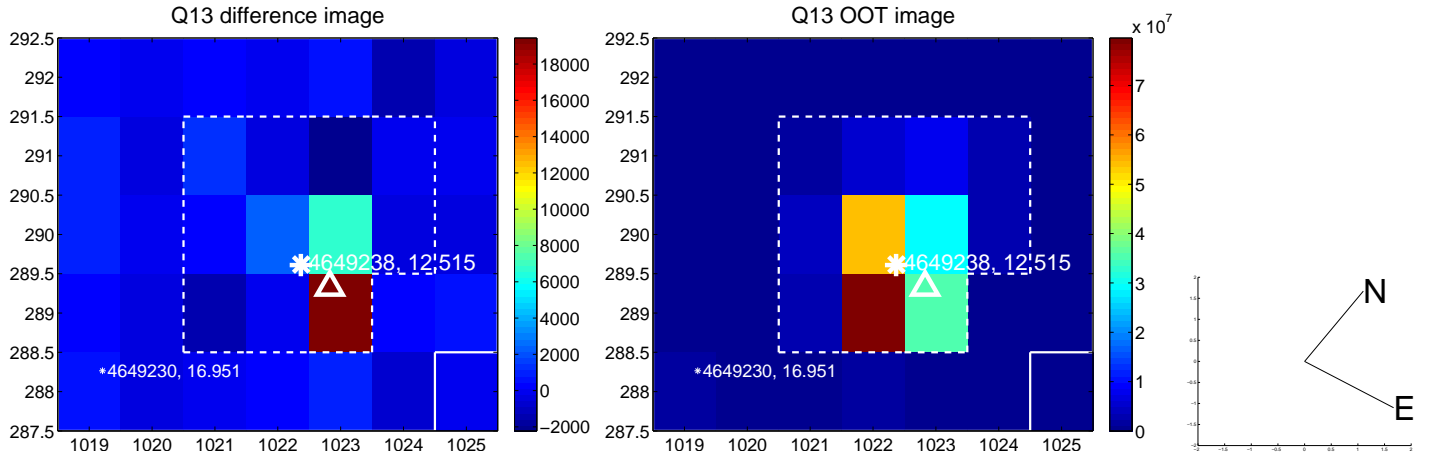
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



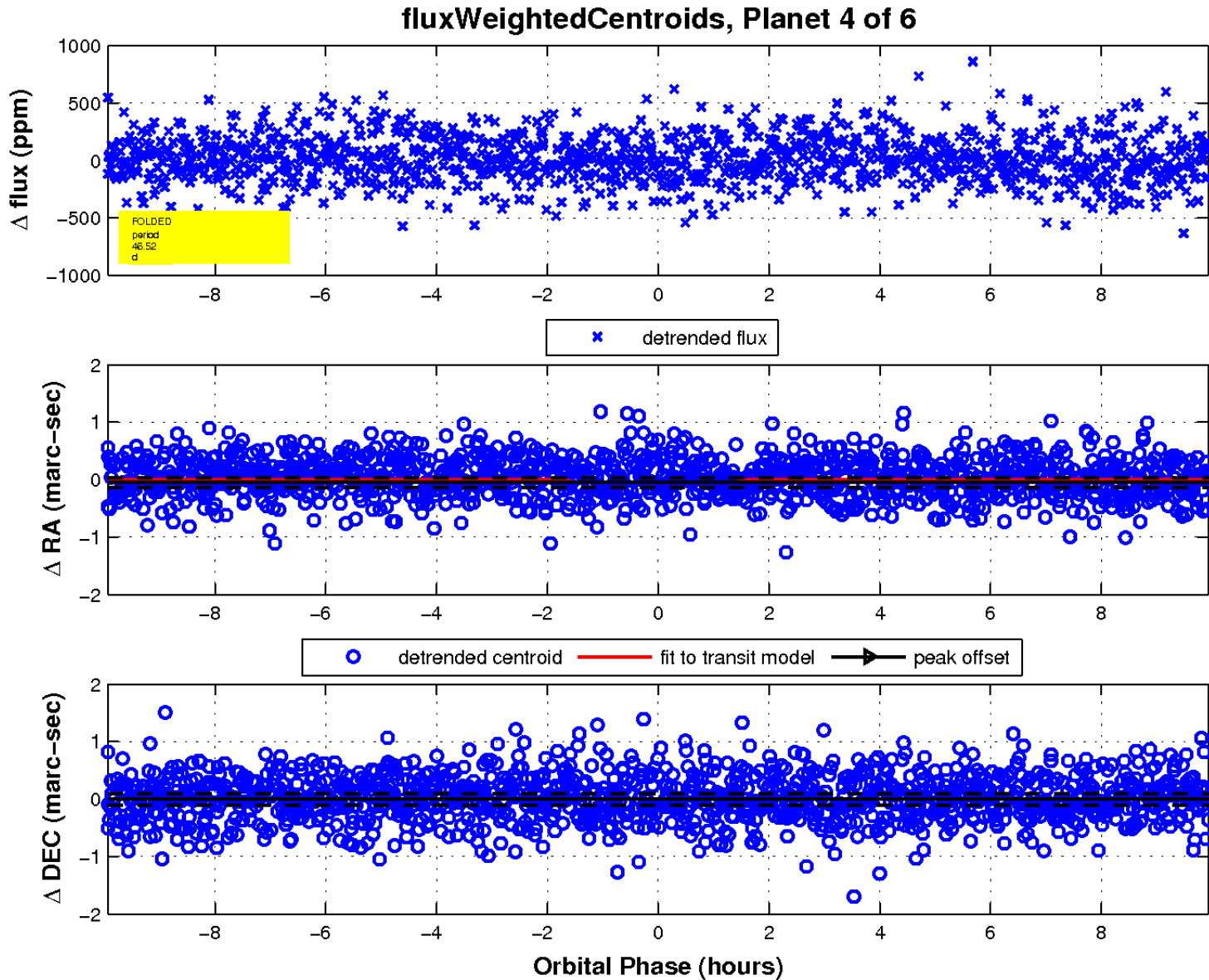
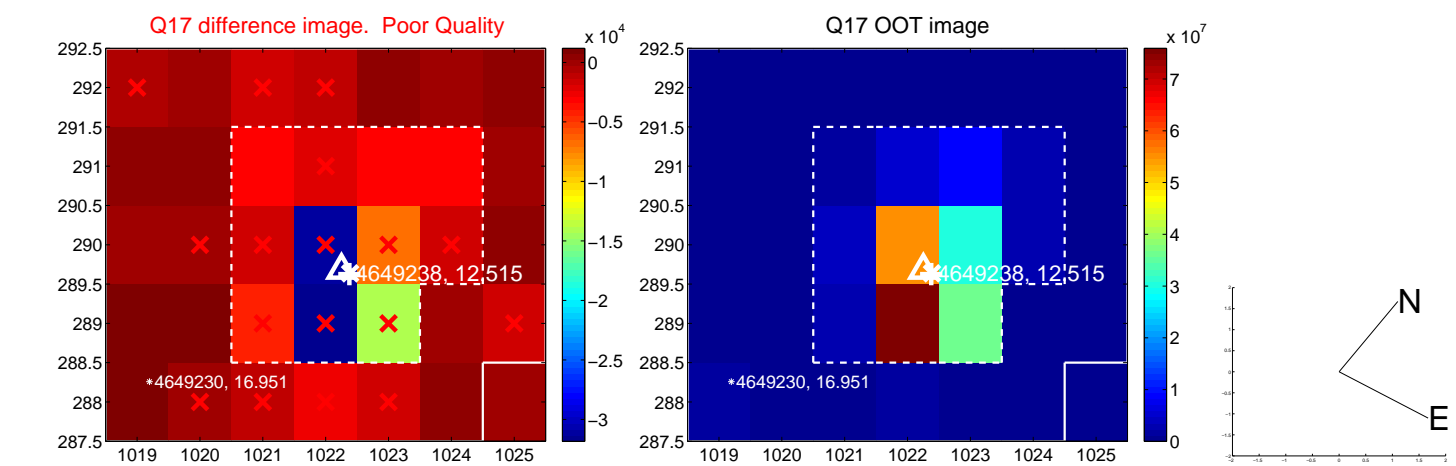
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

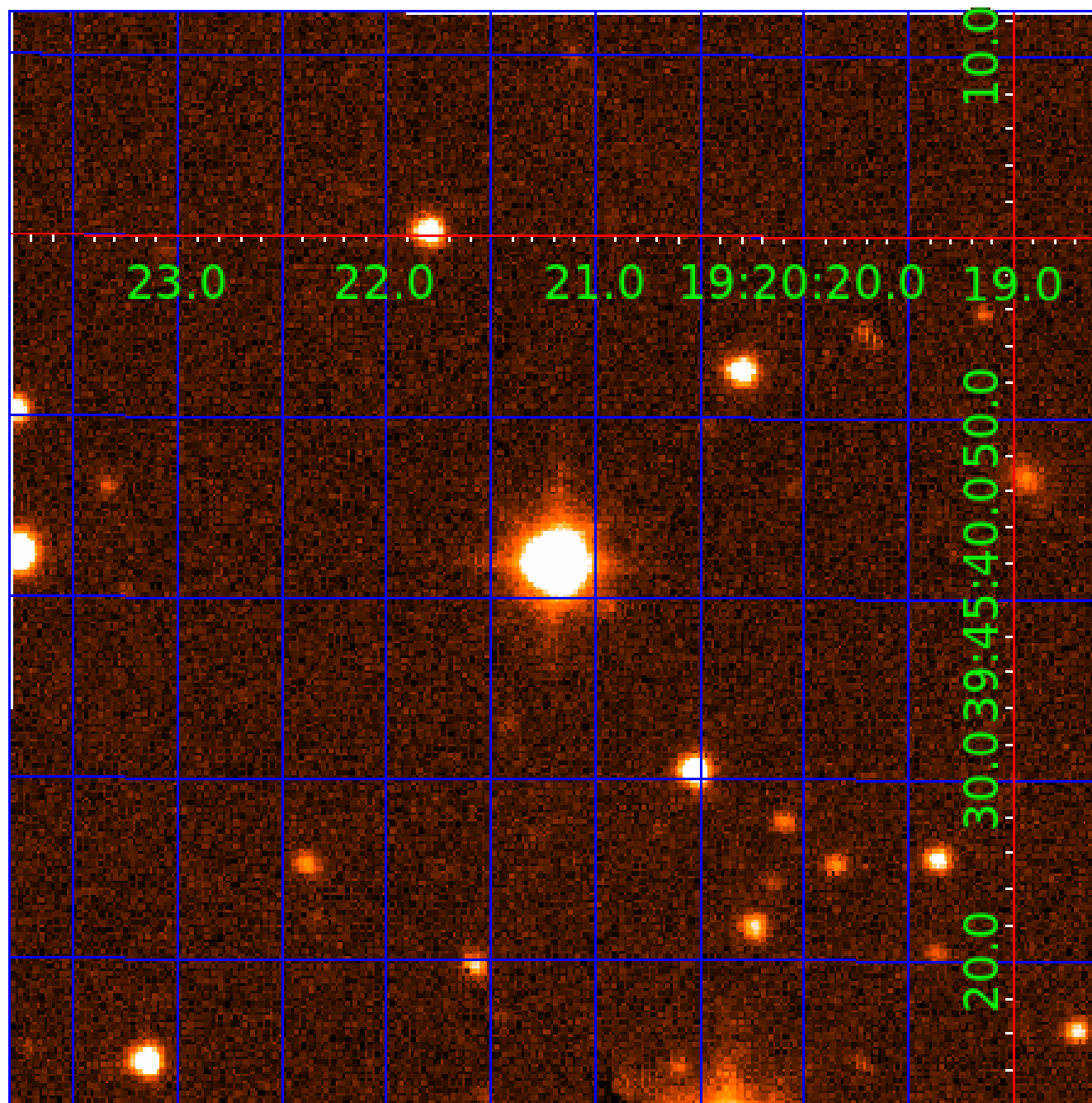


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004649238

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})
004649238-01	OBS	No	0.965686	131.986964	8.4	6.119	10.8	3.2	2.02	7236	0.63	20126.65
004649238-02	OBS	No	200.753038	154.282440	396.6	8.671	13.7	7.9	2.02	7236	4.63	16.34
004649238-03	OBS	No	63.448472	159.754659	450.5	6.431	12.6	13.1	2.02	7236	8.16	75.91
004649238-04	OBS	No	46.520404	134.467117	302.7	3.313	10.3	10.3	2.02	7236	3.71	114.82
004649238-05	OBS	No	27.257667	155.925692	124.6	6.000	9.2	-1.0	2.02	7236	2.29	234.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004649238-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004649238-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
004649238-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004649238-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

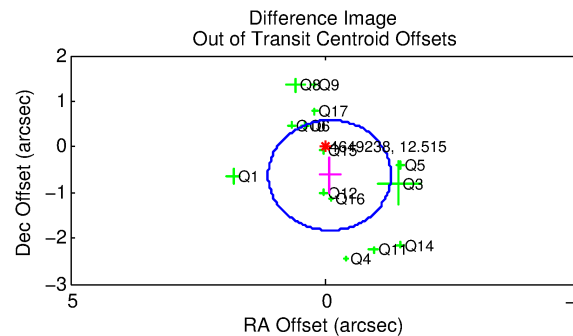
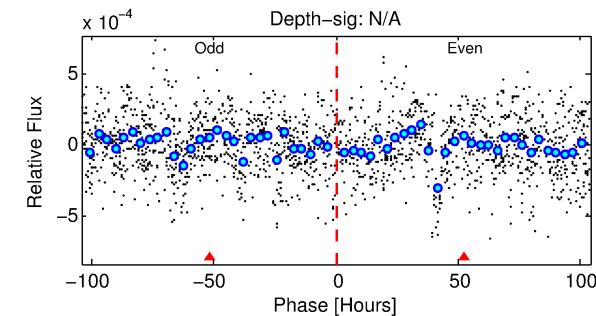
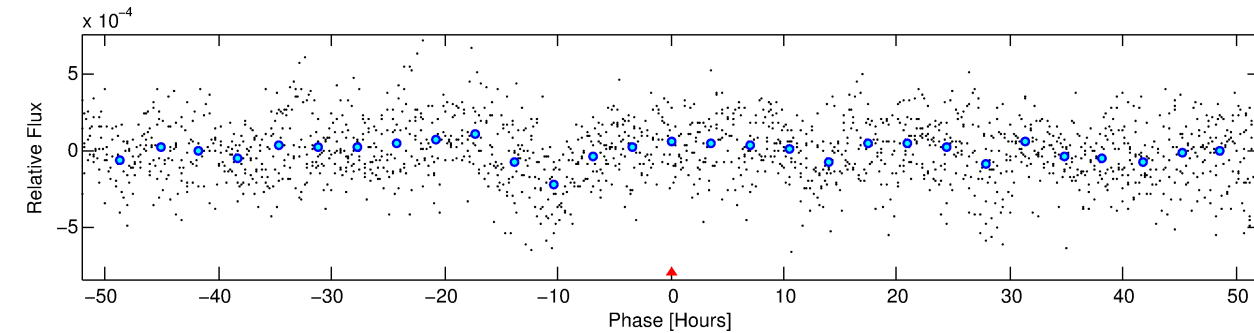
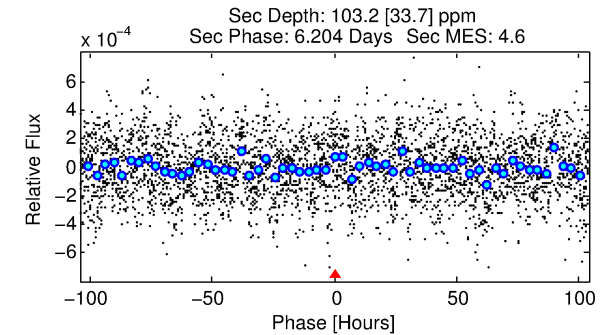
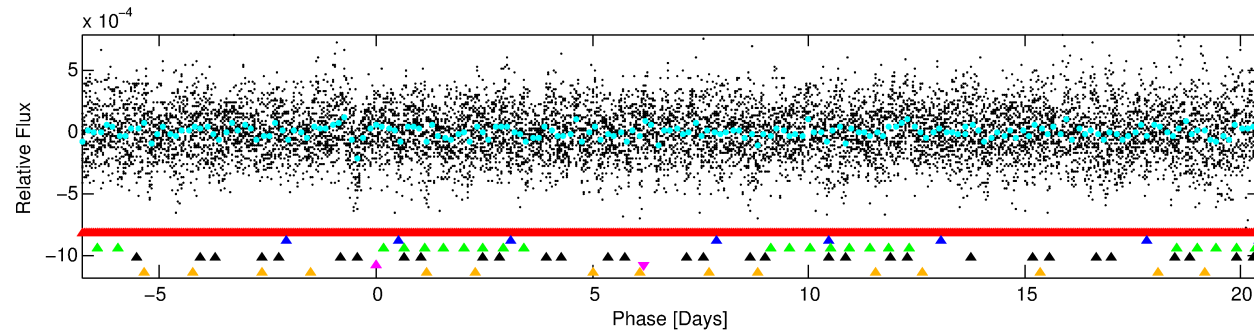
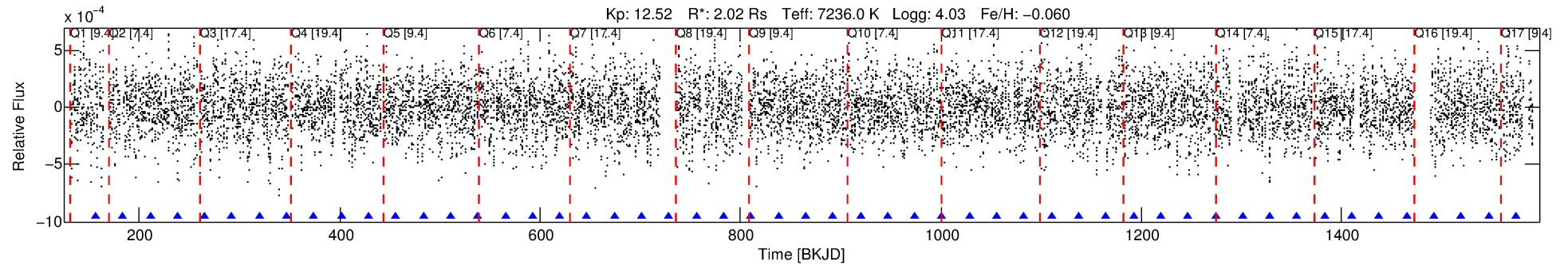
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004649238-05

No Significant Match Found

DV One-Page Summary

KIC: 4649238 Candidate: 5 of 6 Period: 27.258 d



TPS TCE Results:

Period = 27.25767 d
Epoch = 155.9257 BKJD

DV fit results are unavailable

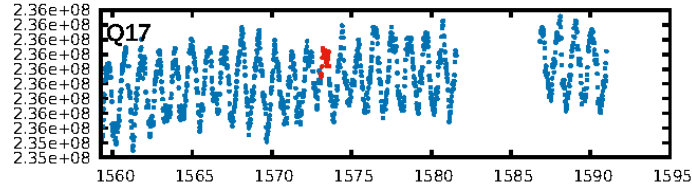
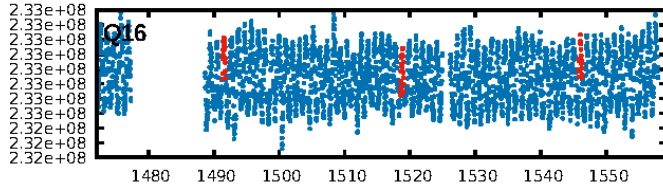
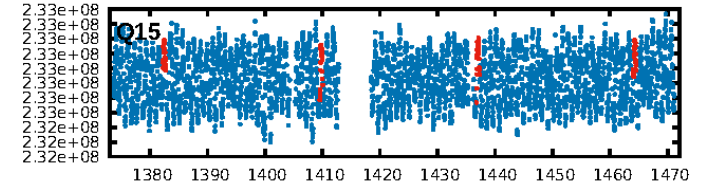
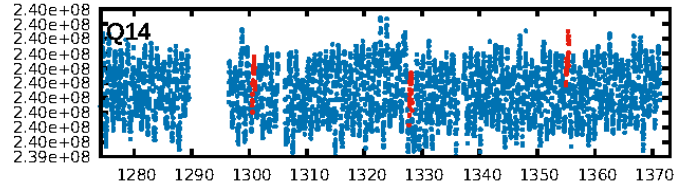
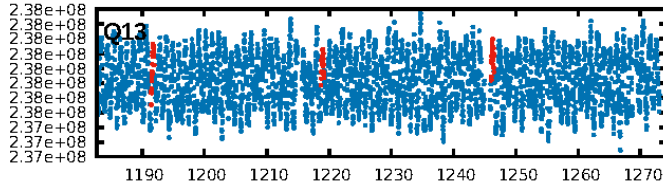
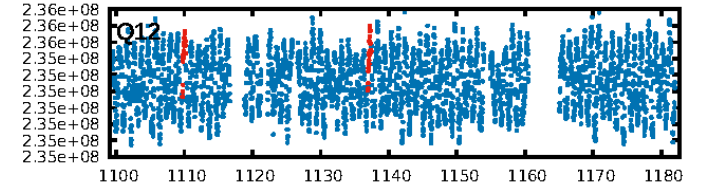
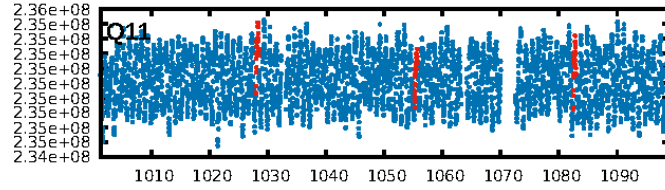
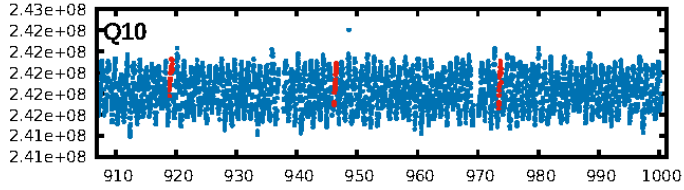
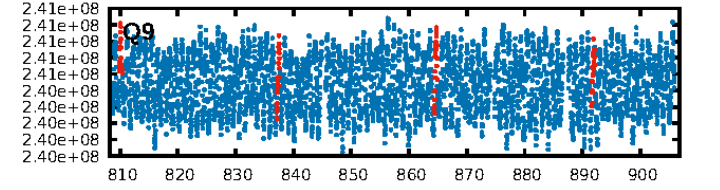
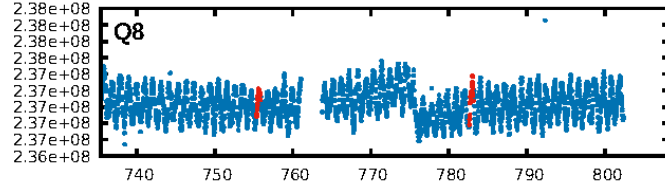
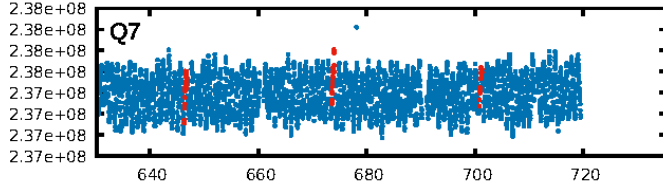
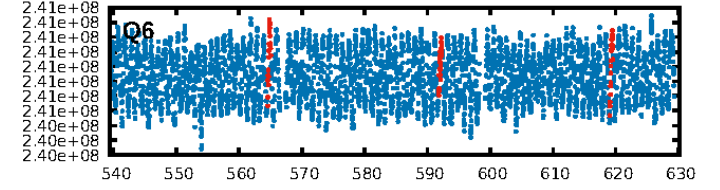
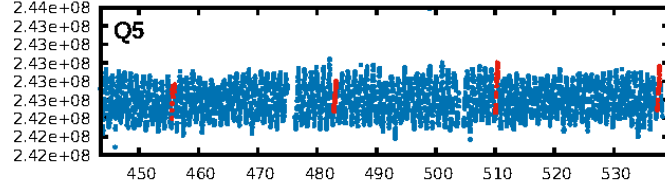
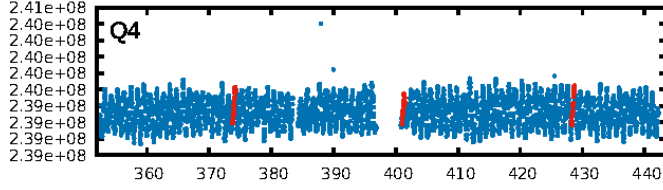
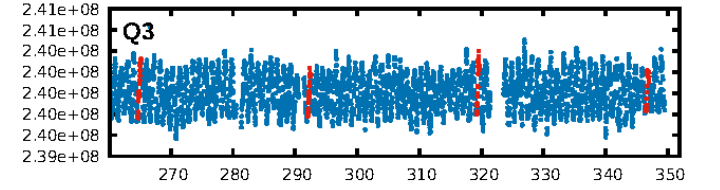
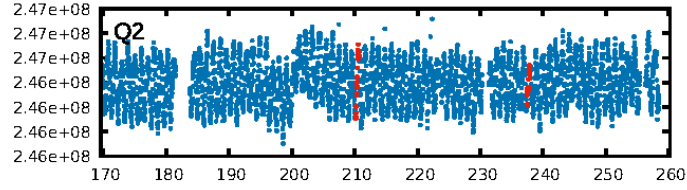
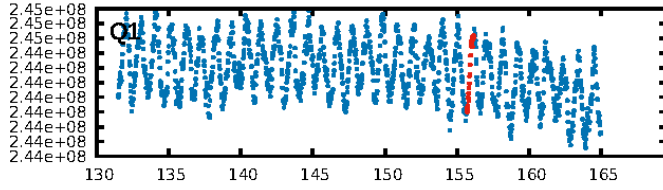
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [73.63σ]
LongPeriod-sig: 100.0% [67.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [44/44]
GhostDiagnostic-chr: -11.28
Centroid-sig: 20.8%
Centroid-so: 0.666 arcsec [0.77σ]
OotOffset-rm: 0.628 arcsec [1.56σ]
KicOffset-rm: 0.665 arcsec [1.67σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 0.00 [0/16]

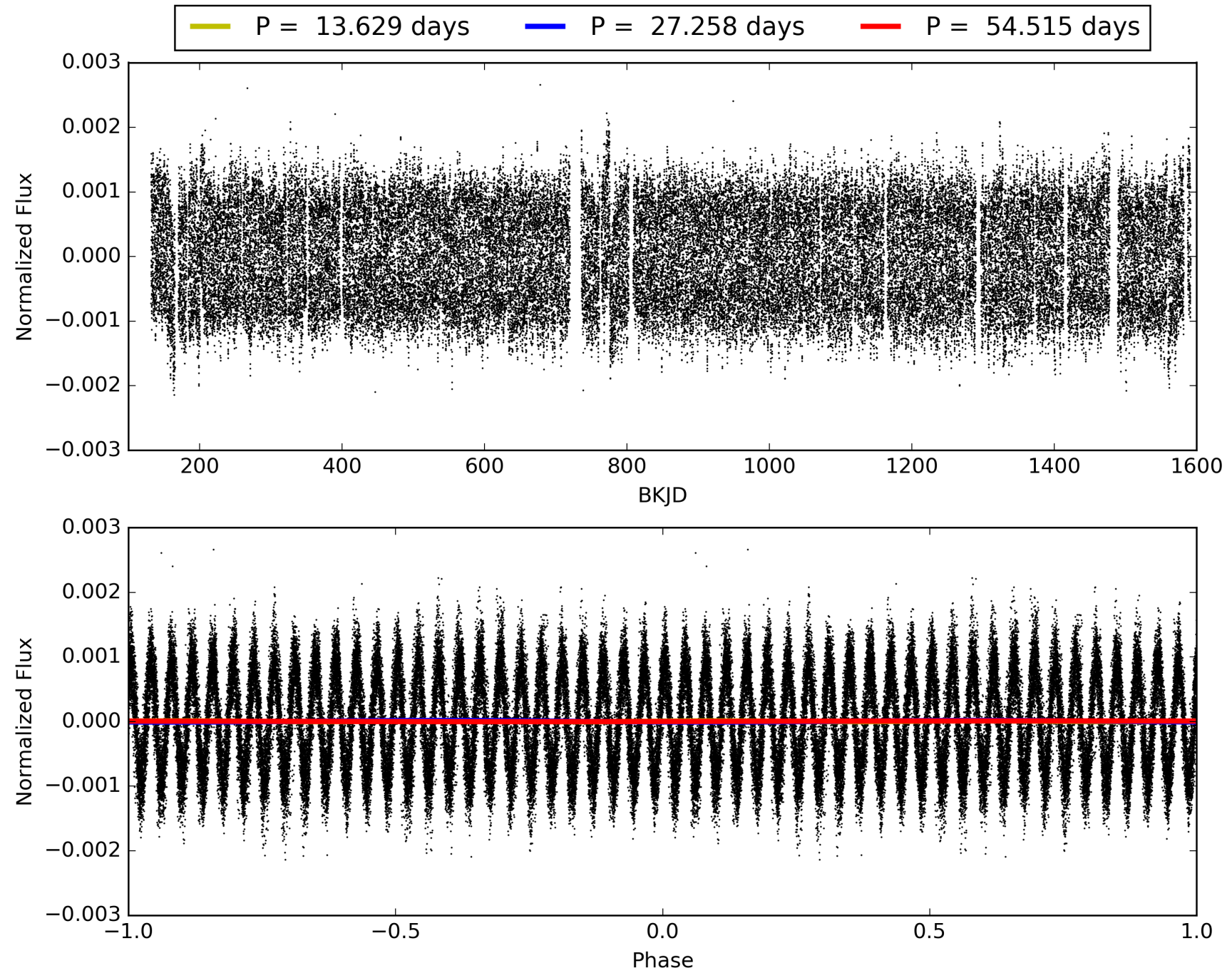
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:13:14 Z

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

TCE 004649238-05, PDC Light Curves

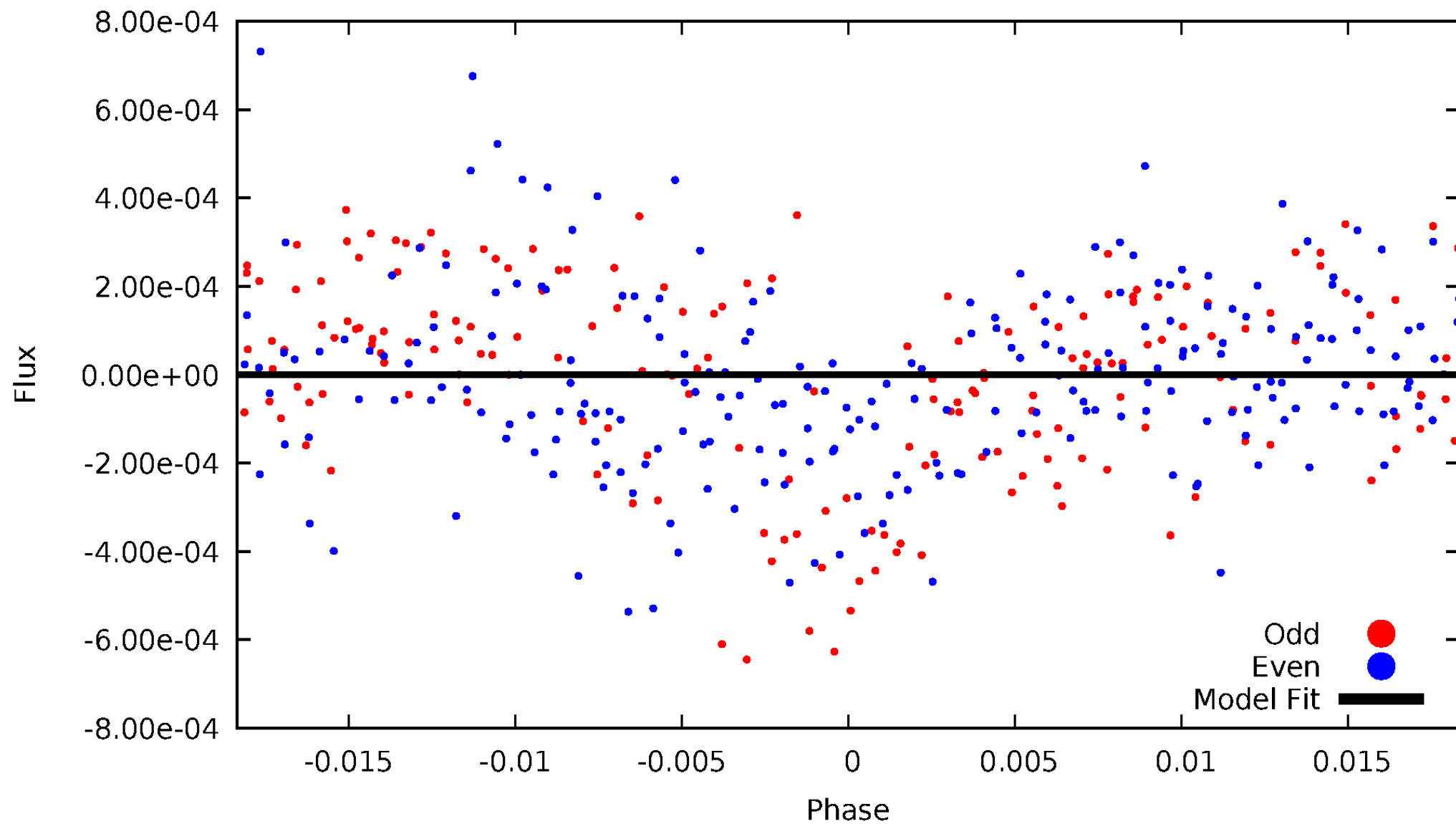


TCE 004649238-05



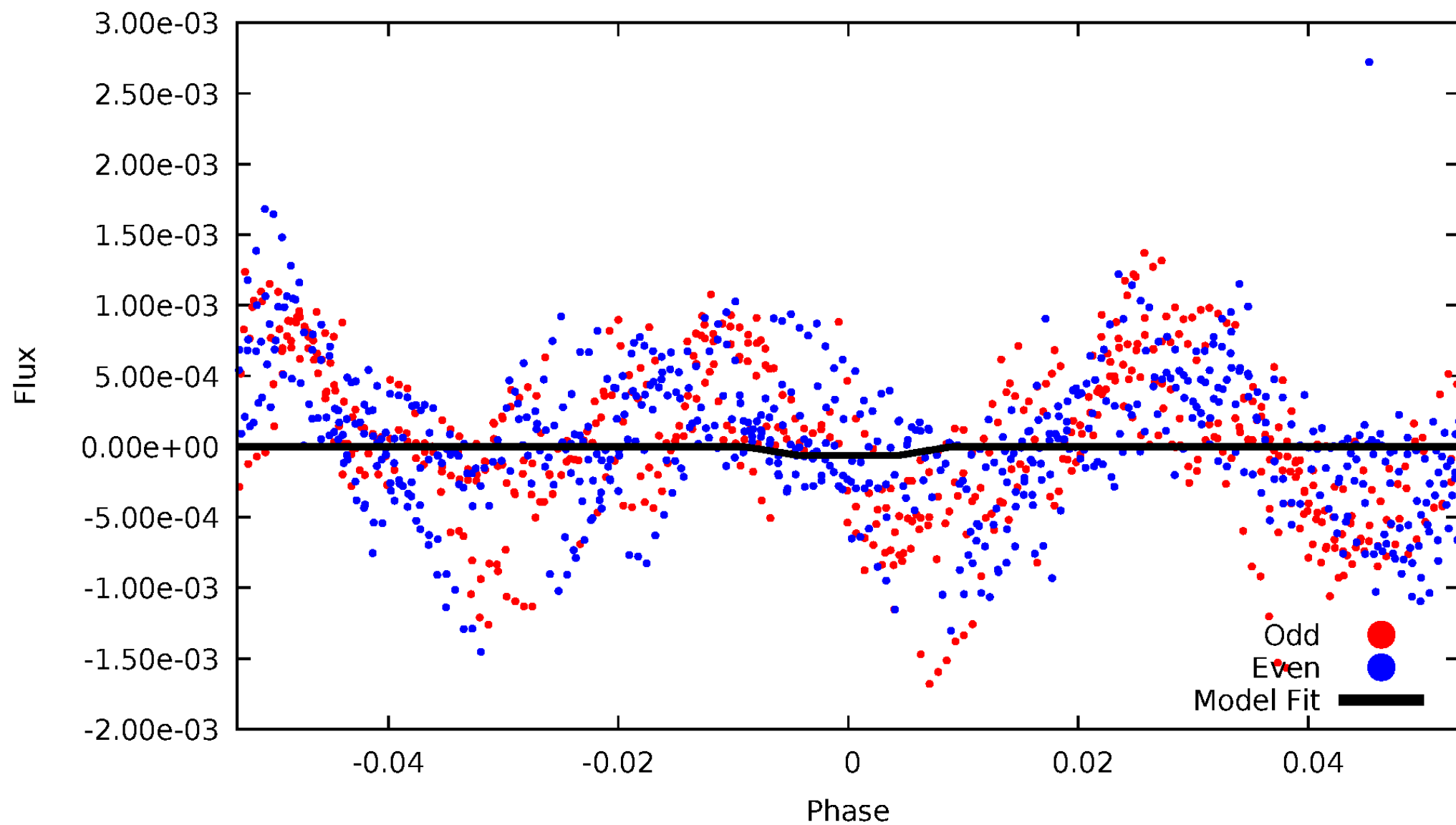
DV Odd/Even

TCE 004649238-05

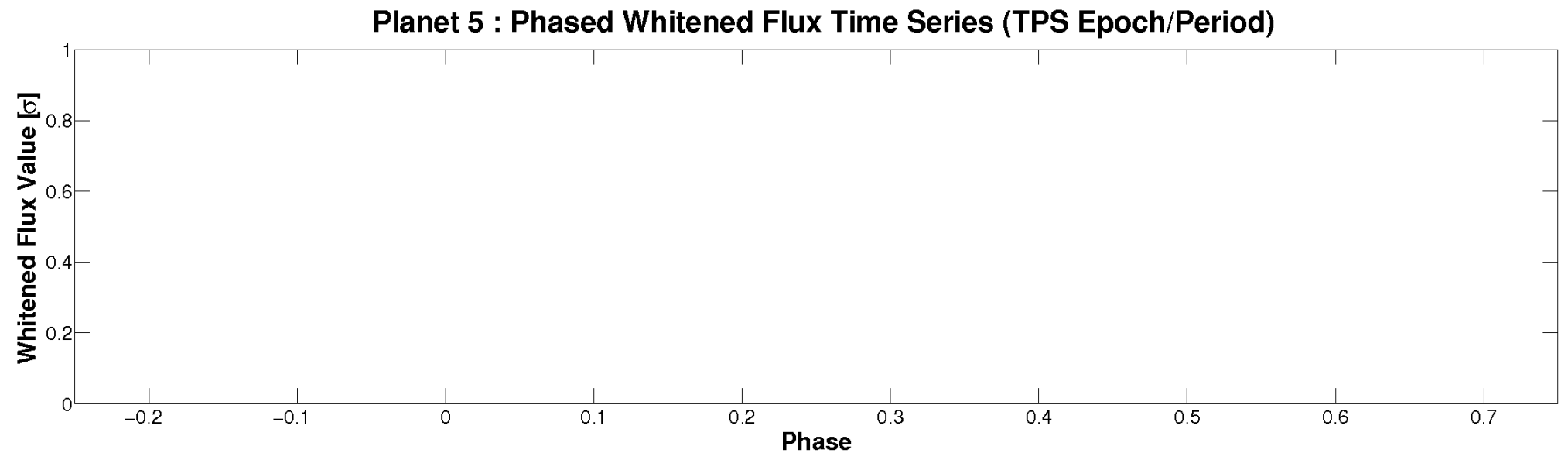
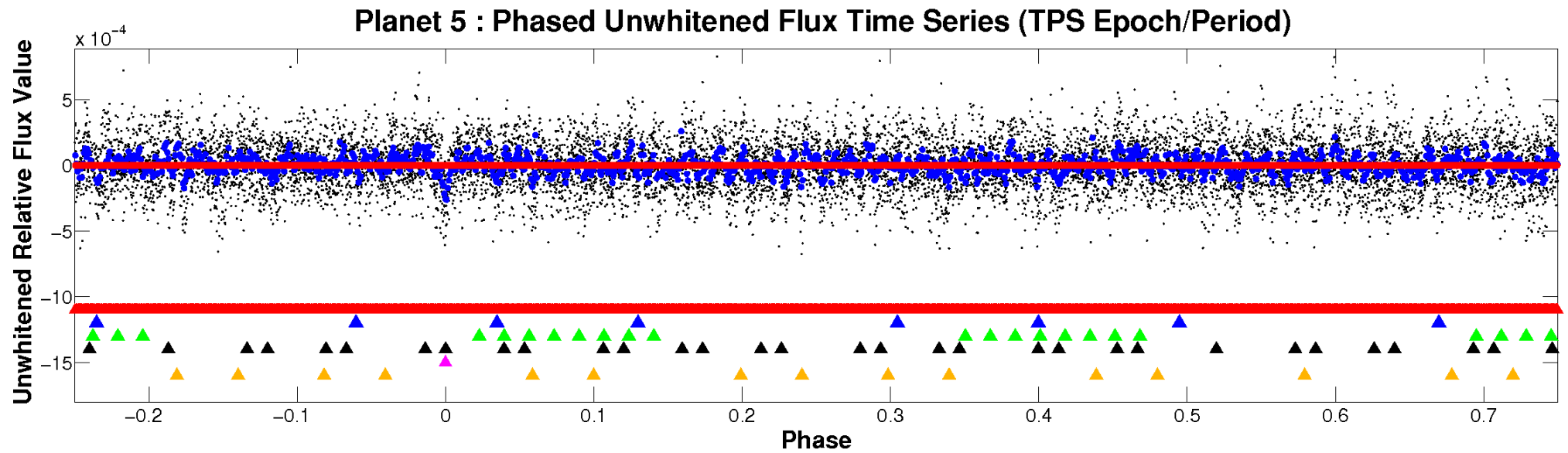


ALT Odd/Even

TCE 004649238-05

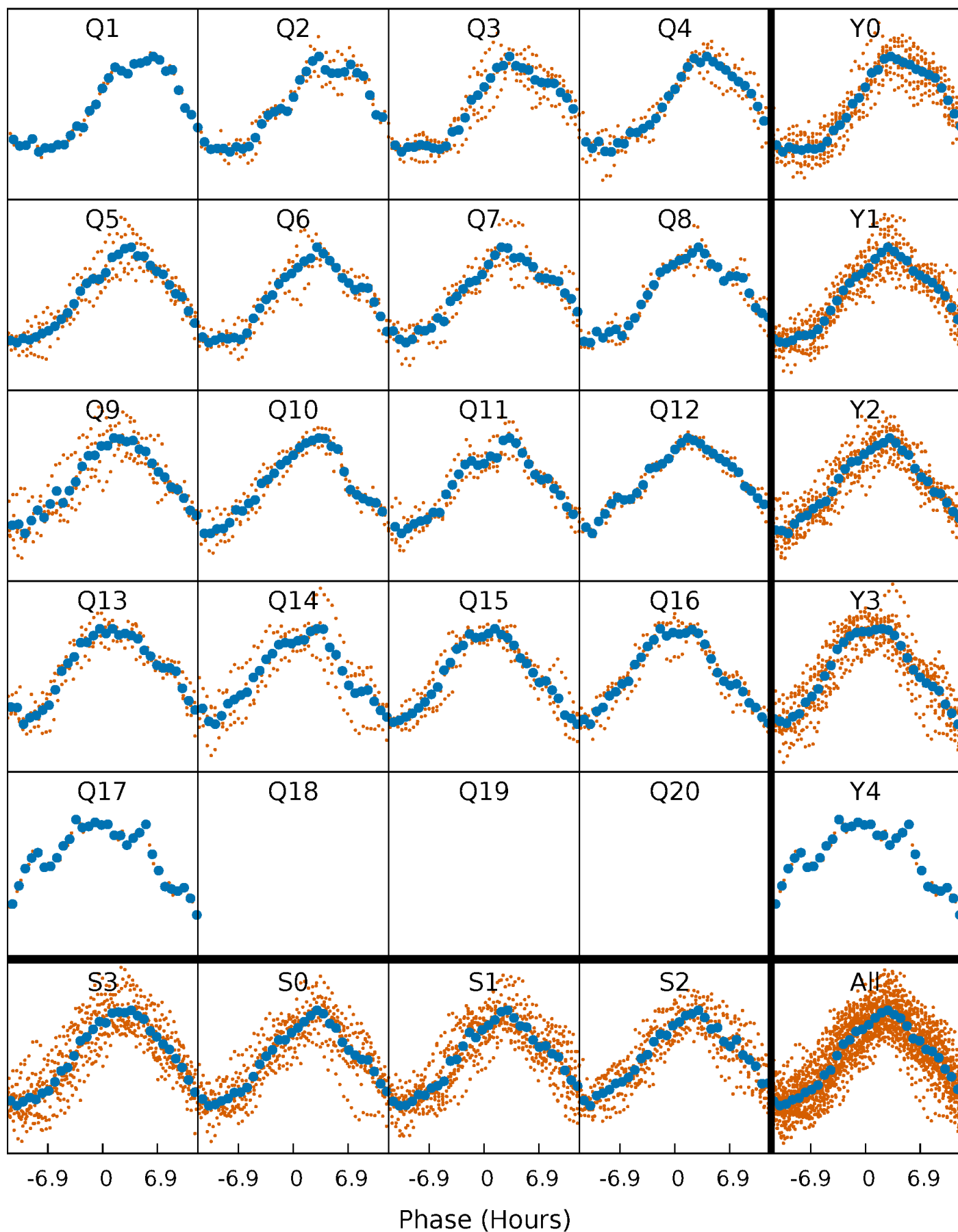


Non-Whitened Vs. Whitened Light Curve



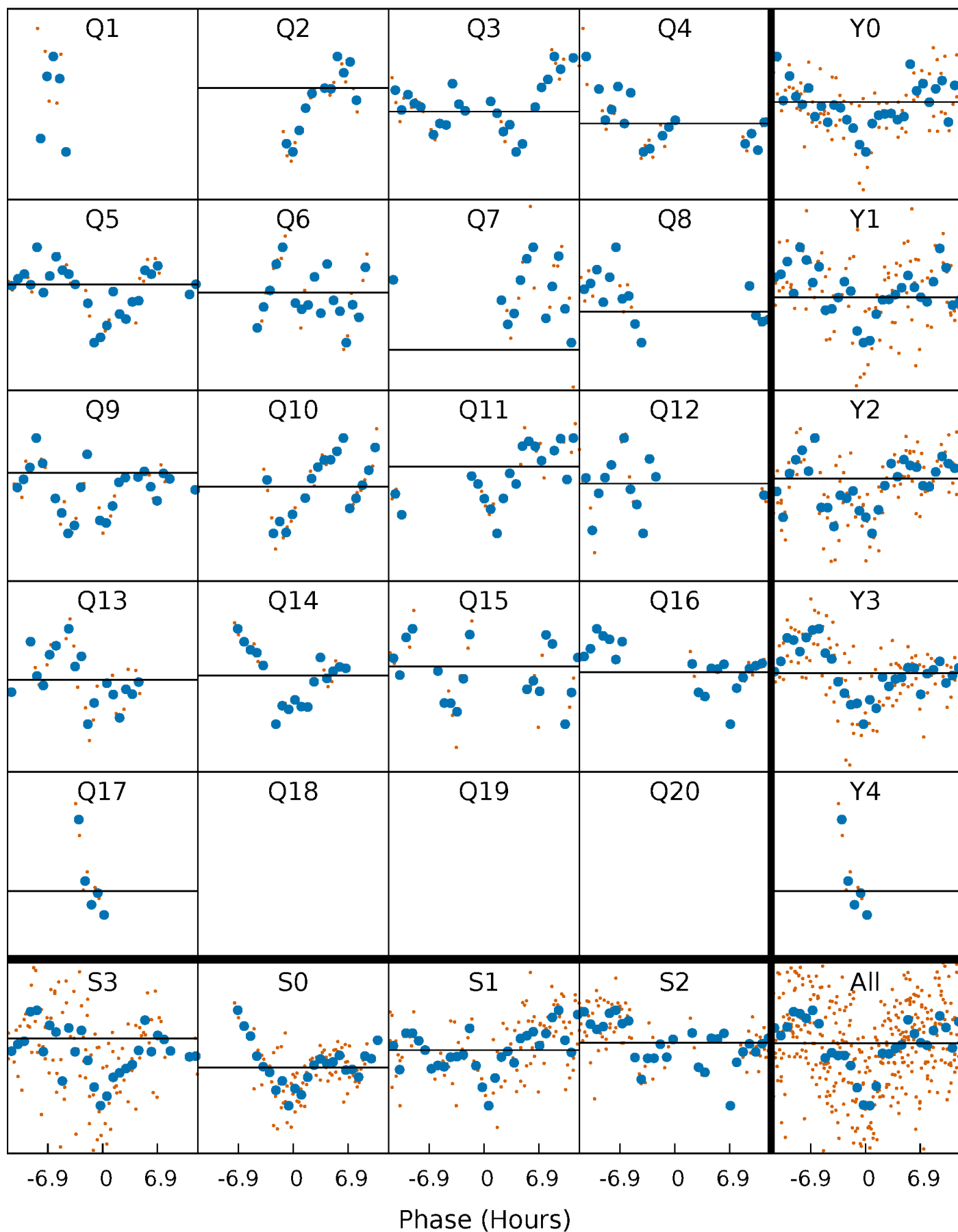
PDC Quarter-Phased Transit Curves

TCE 004649238-05 $P = 27.257667$ Days $T_0 = 155.925692$ (BKJD)



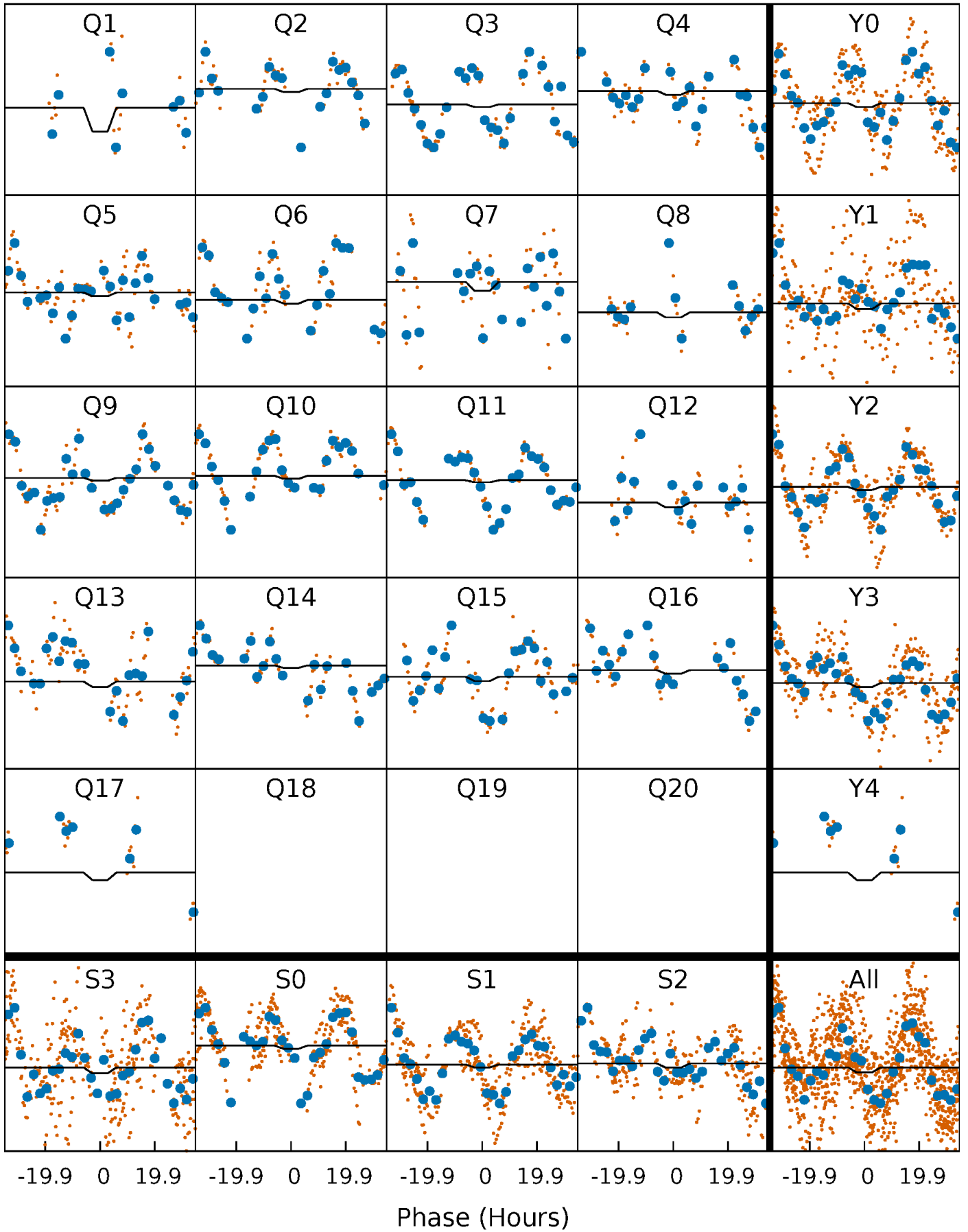
DV Quarter-Phased Transit Curves

TCE 004649238-05 P= 27.257667 Days $T_0=155.925692$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

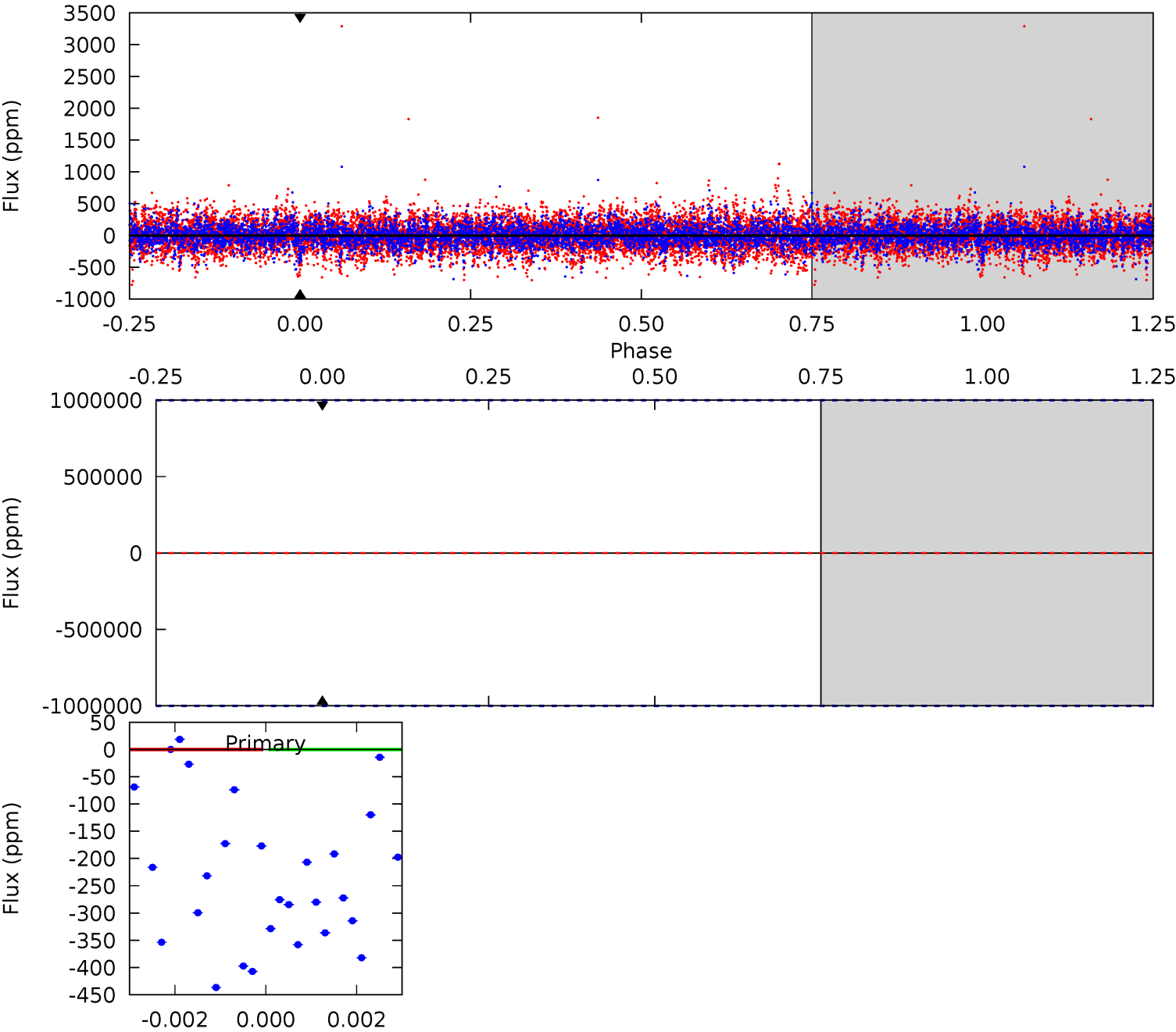
TCE 004649238-05 $P = 27.257667$ Days $T_0 = 156.355525$ (BKJD)



DV Model-Shift Uniqueness Test

004649238-05, P = 27.257667 Days, E = 128.668025 Days

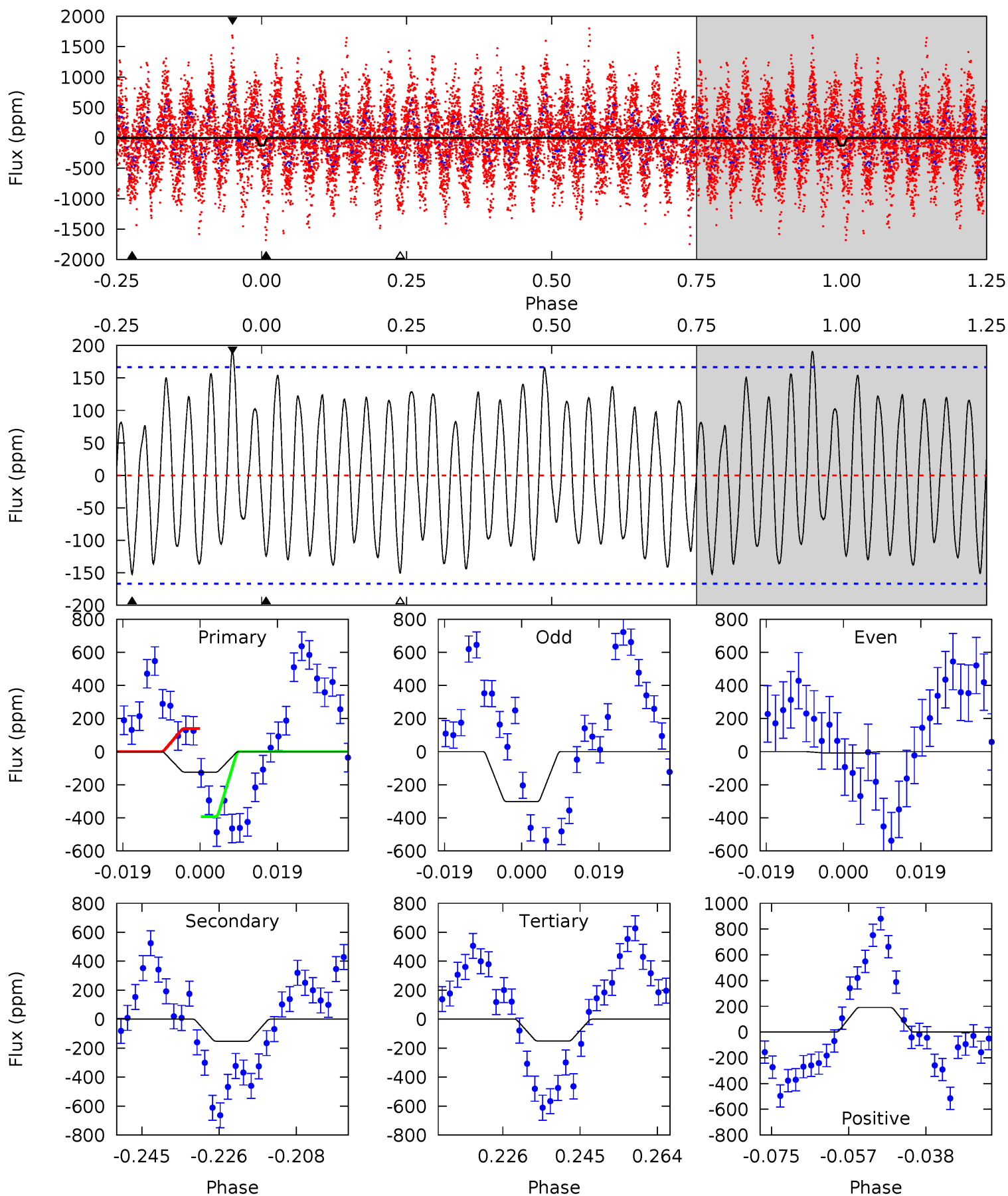
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004649238-05, $P = 27.257667$ Days, $E = 129.097858$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.64	4.47	4.43	5.61	4.90	2.35	2.56	-0.79	-1.97	0.04	-1.14	4.28	5.02	0.56	3.74



Stellar Parameters For KIC 004649238

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7236^{+226}_{-302}	$4.029^{+0.198}_{-0.180}$	$-0.060^{+0.250}_{-0.350}$	$2.023^{+0.541}_{-0.541}$	$1.593^{+0.212}_{-0.283}$	$0.271^{+0.318}_{-0.130}$
	+3%/-4%	+5%/-4%	+417%/-583%	+27%/-27%	+13%/-18%	+117%/-48%
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 004649238-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$15.91^{+18.09}_{-11.29}$	1392^{+106}_{-103}	3820^{+42008}_{-41999}	17^{+20057}_{-17004}
Alt.	-152 ± 34	$15.37^{+14.93}_{-11.21}$	1394^{+102}_{-107}	3483^{+2229}_{-660}	15^{+177}_{-12}

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

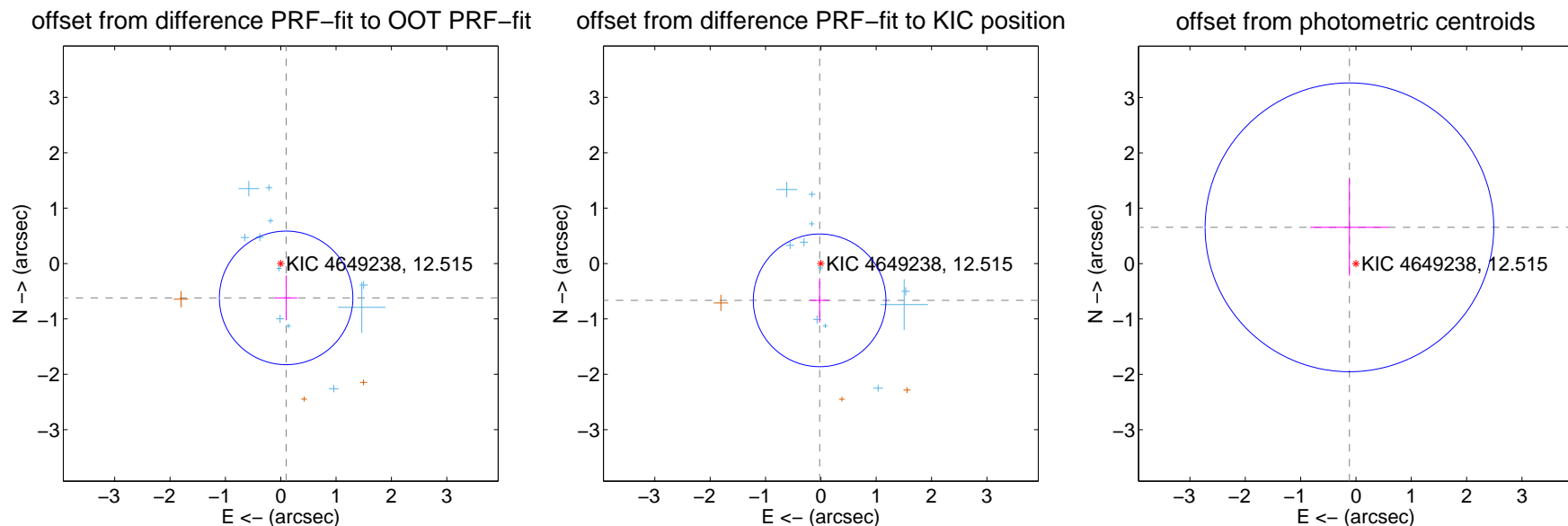
DV Centroid Data

Supplemental centroid analysis for 004649238-05. Kepler magnitude: 12.52. Transit SNR -1.00

There are 11 quarters with good PRF difference image offsets

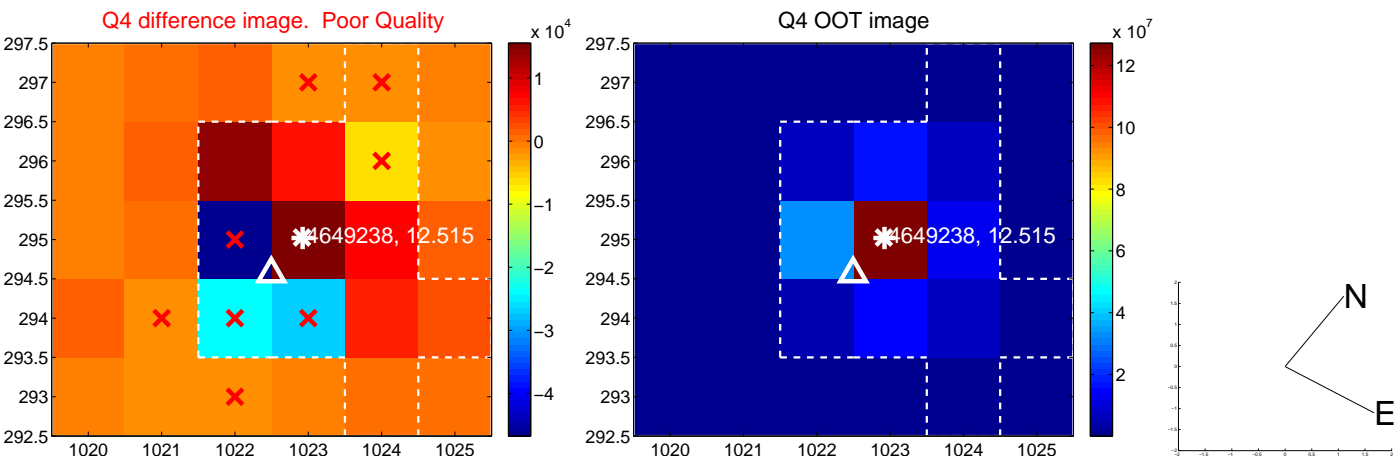
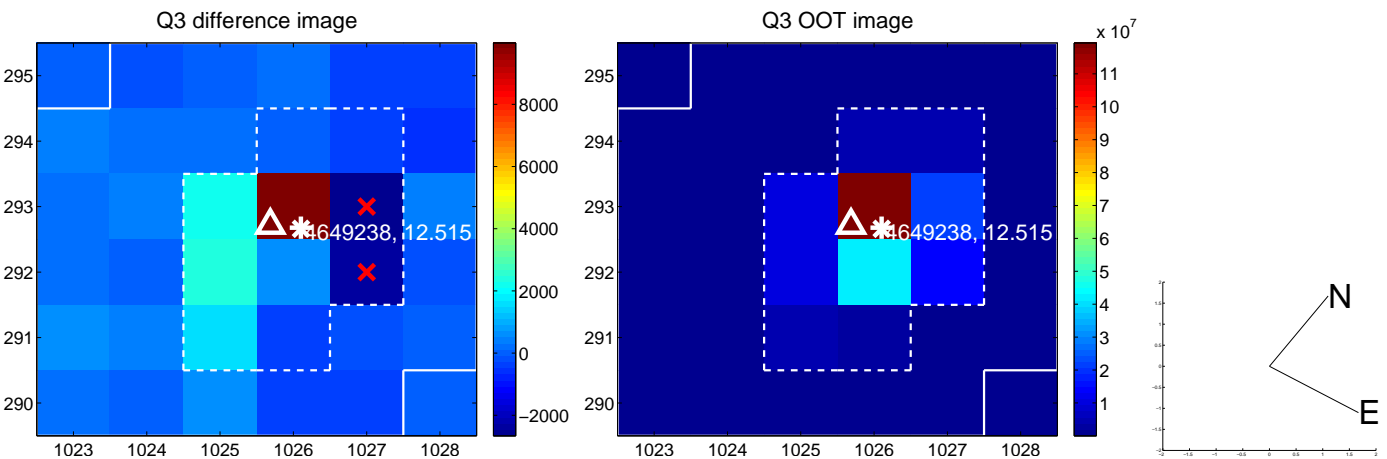
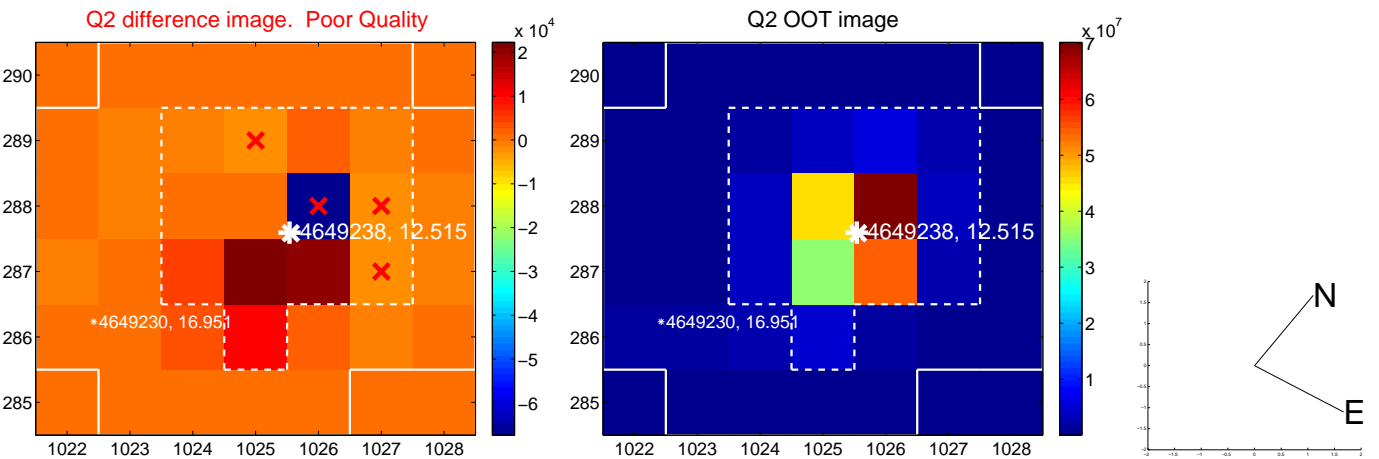
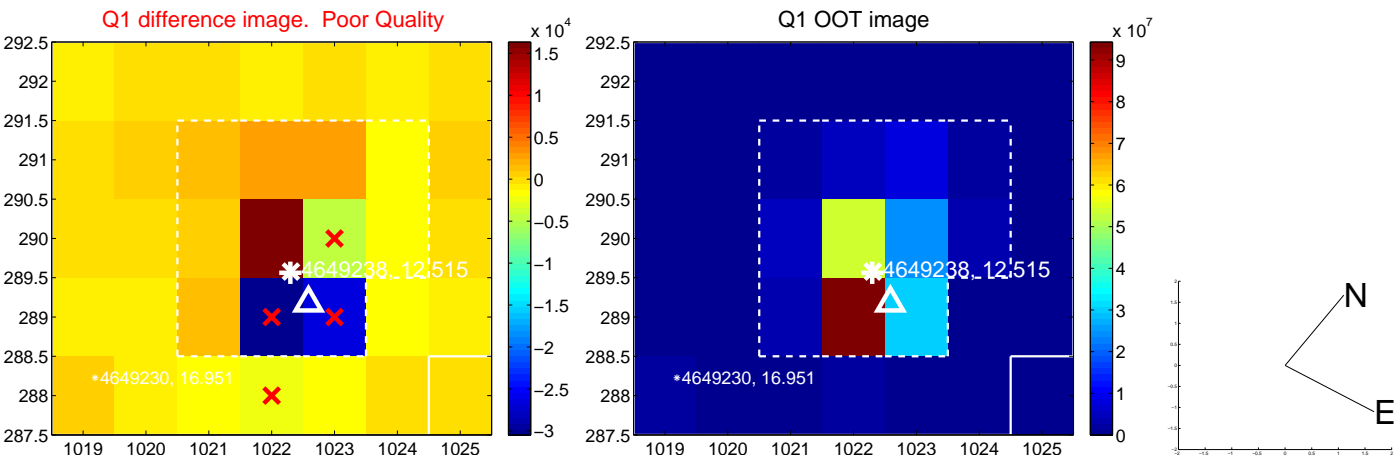
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.628 ± 0.402	1.56	-0.097 ± 0.201	-0.620 ± 0.406
PRF-fit source offset from KIC position	0.665 ± 0.399	1.67	0.022 ± 0.173	-0.664 ± 0.399
photometric centroid source offset	0.67 ± 0.87	0.77	0.12 ± 0.71	0.66 ± 0.87

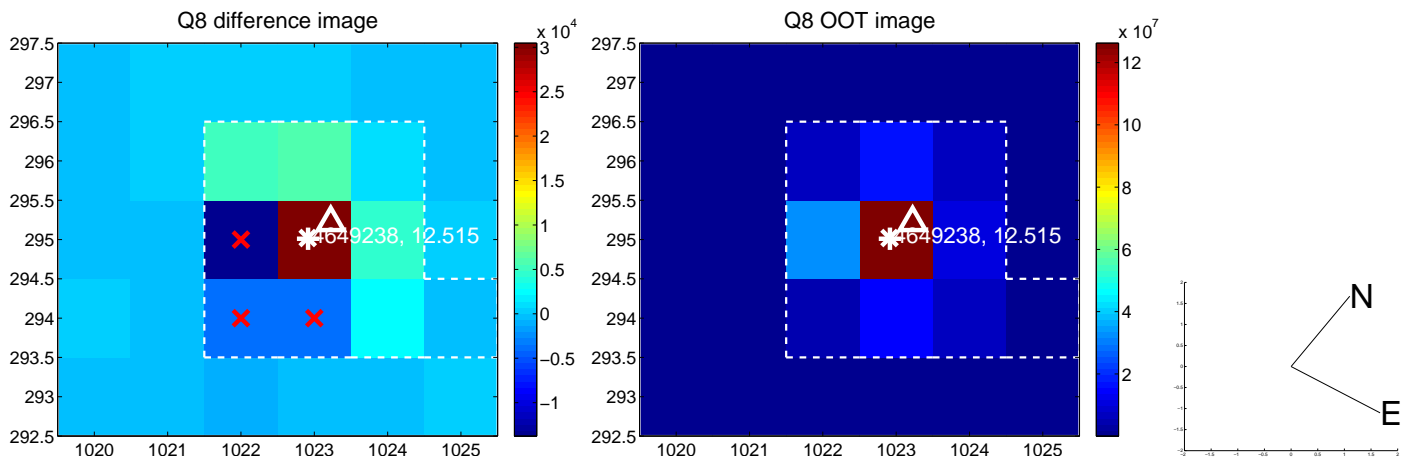
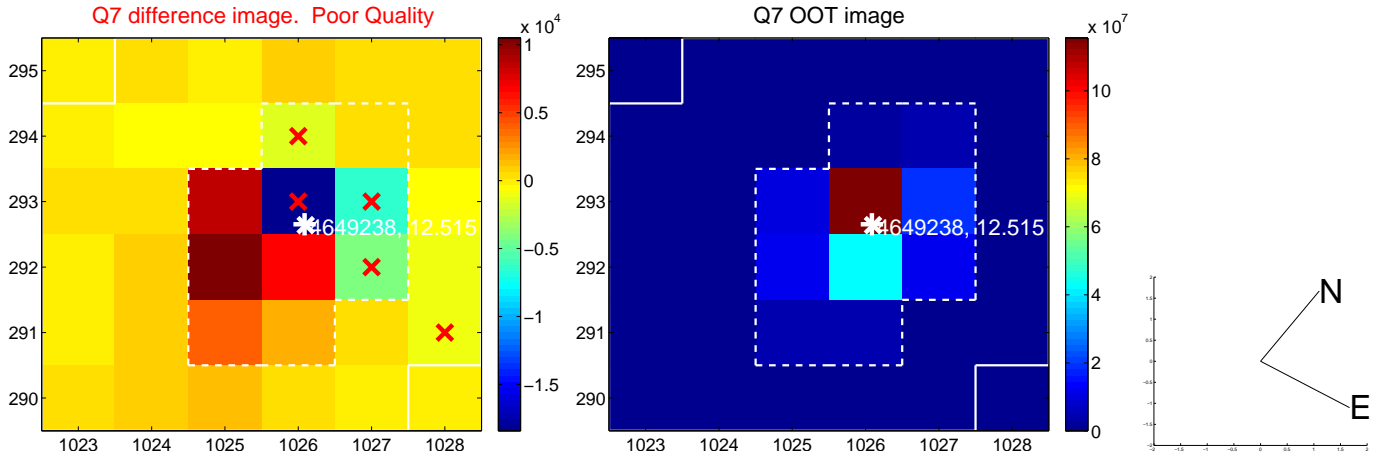
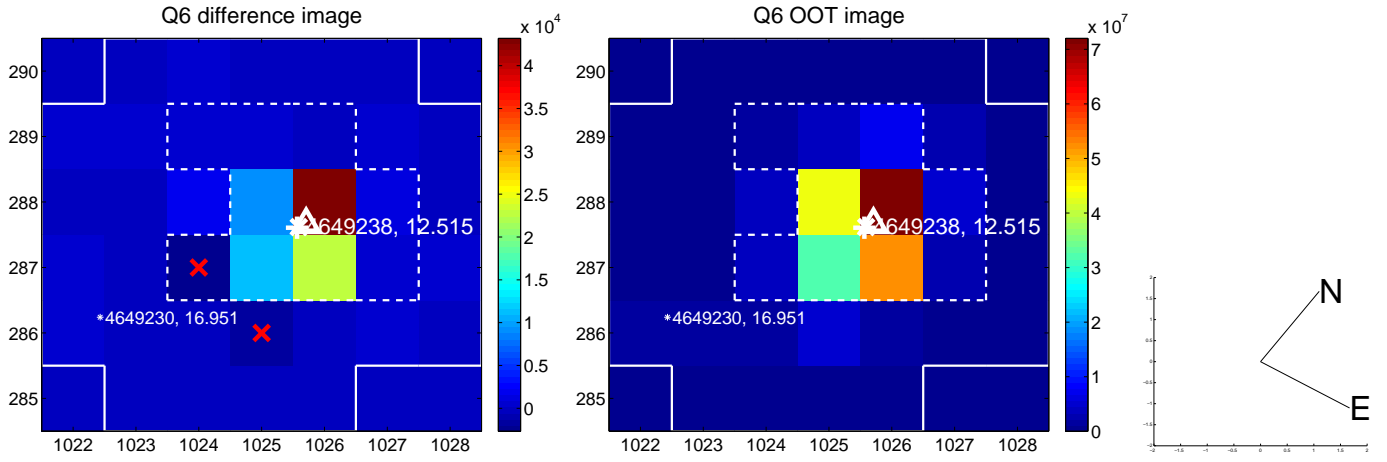
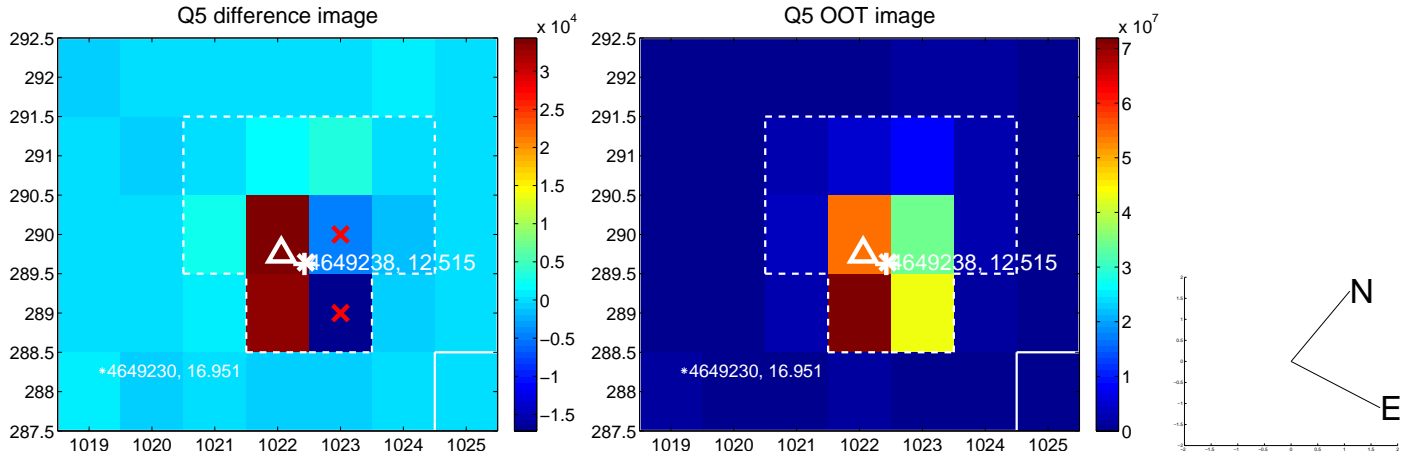


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

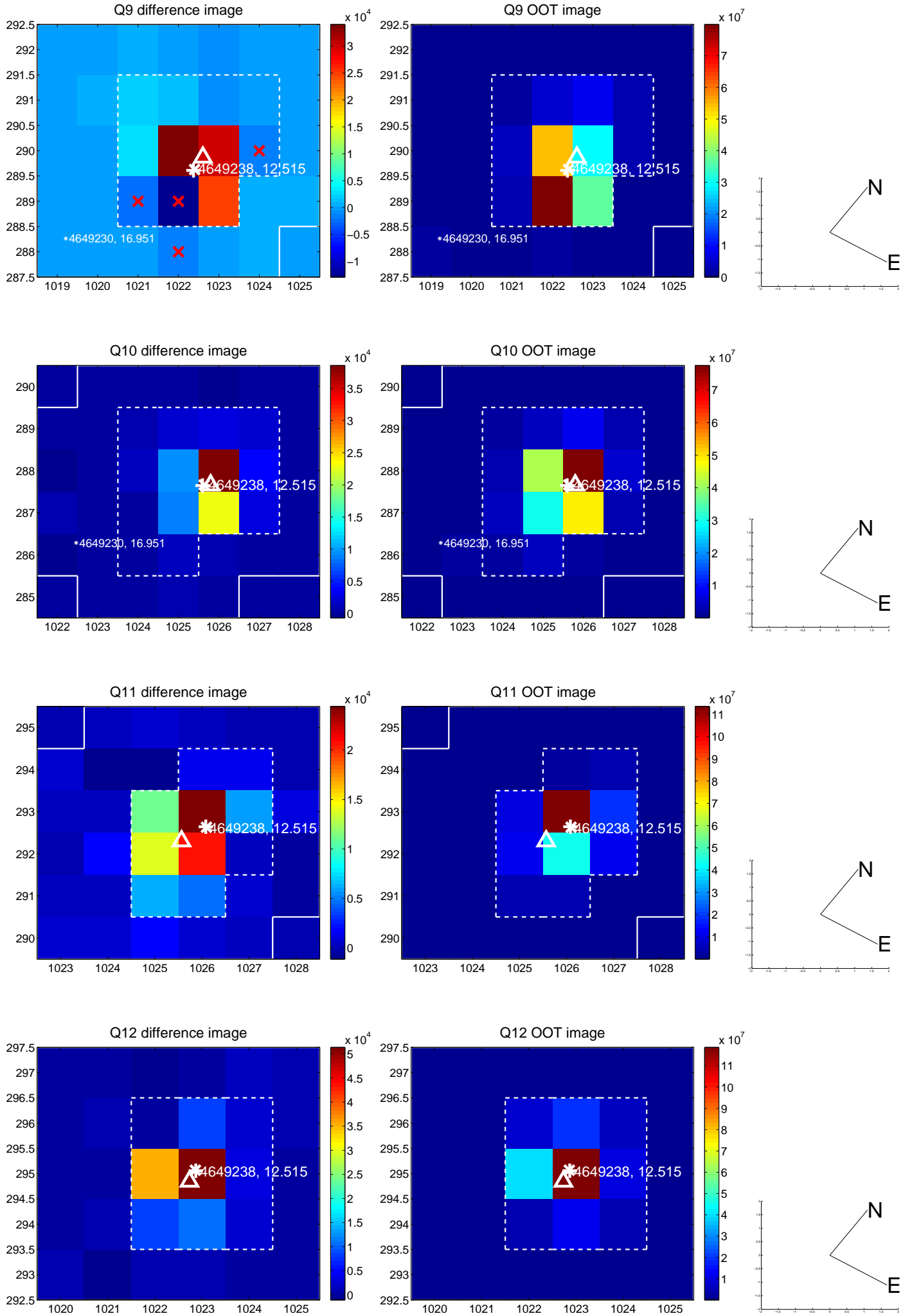
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



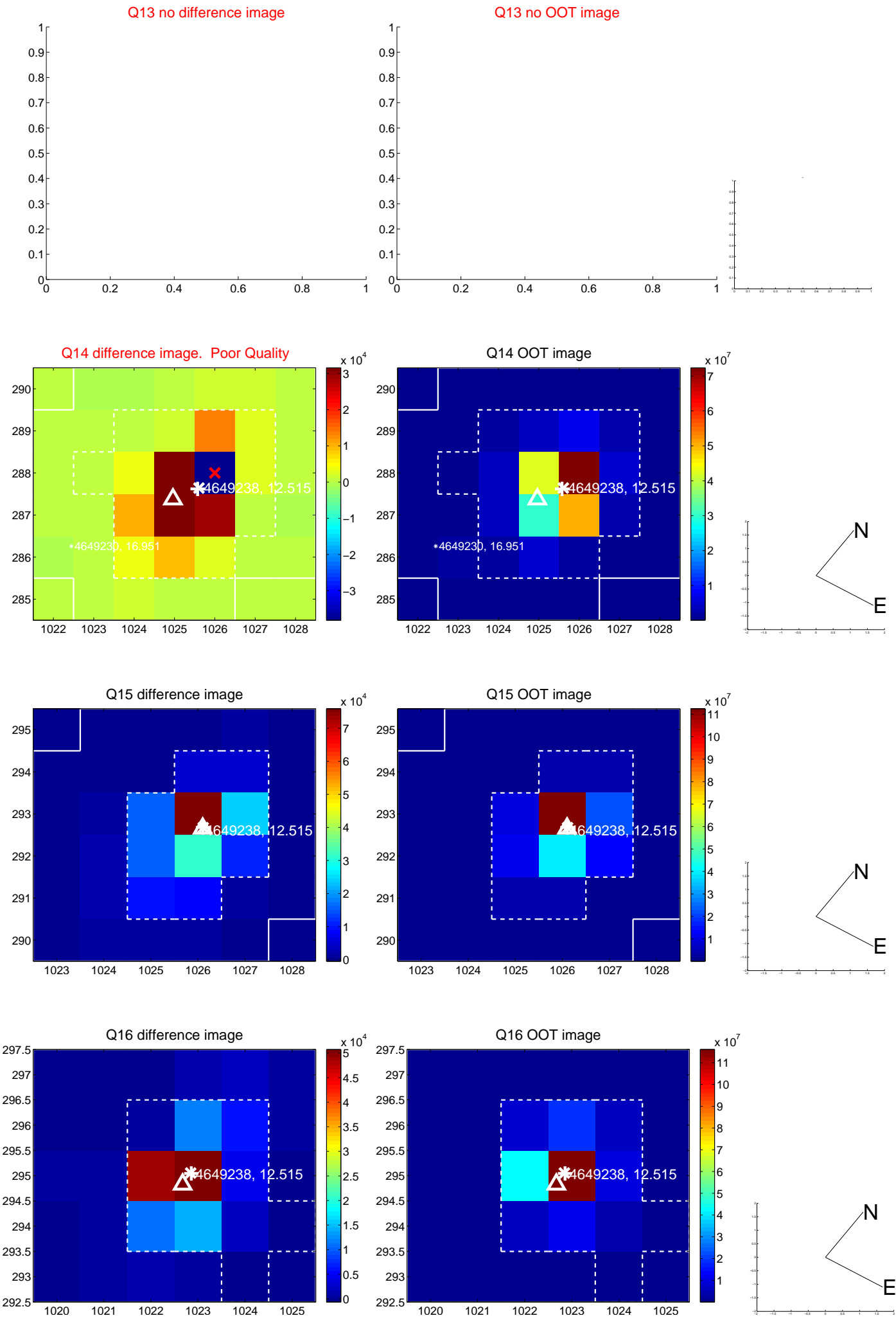
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



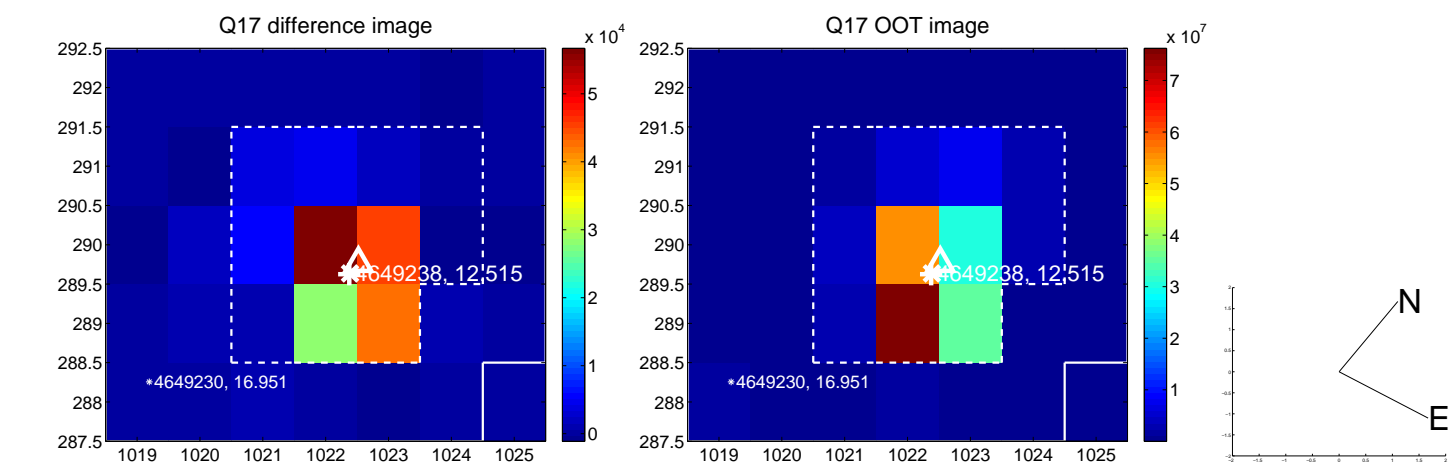
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



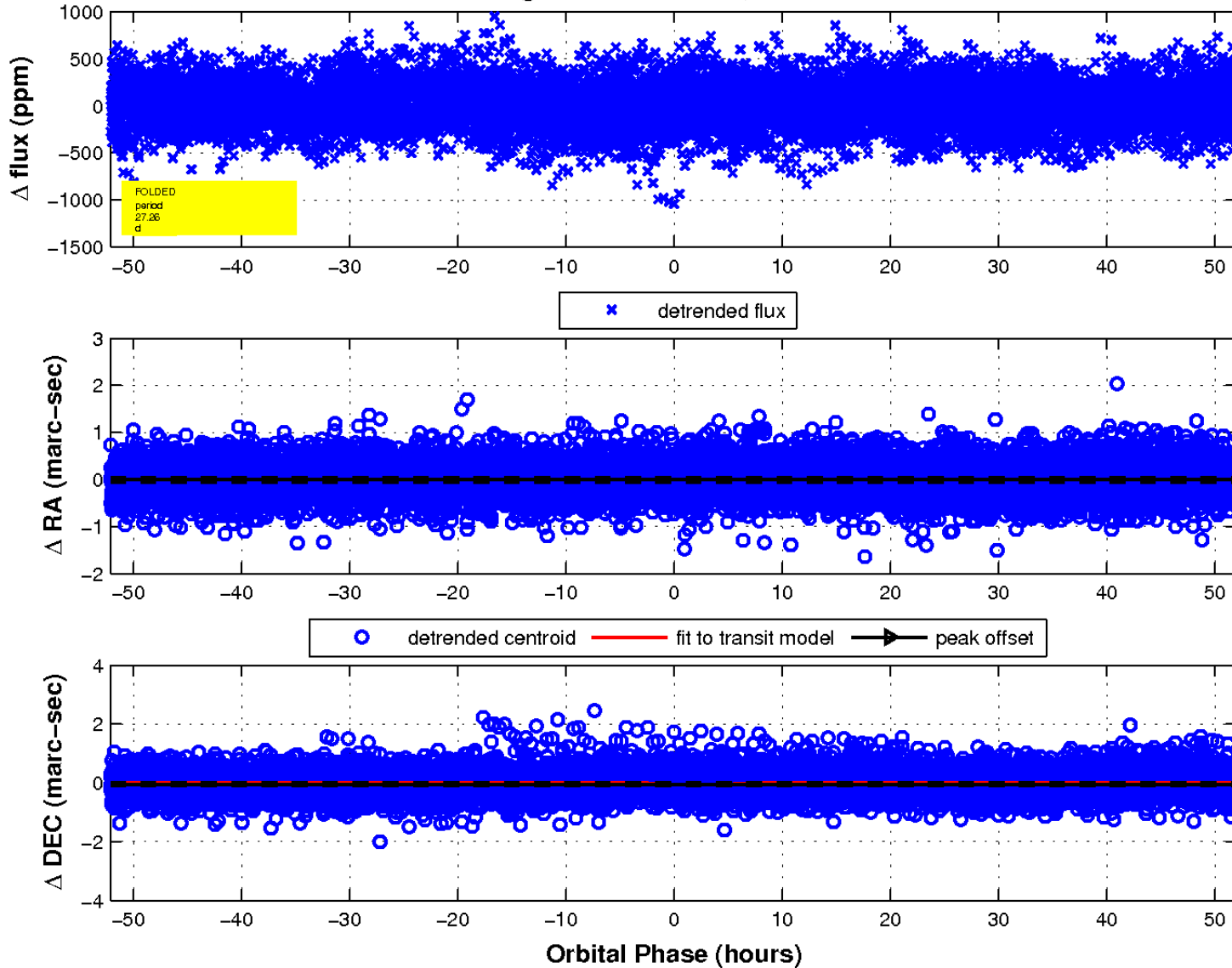
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 6



UKIRT Image

Declination

