

KIC 006222884

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})
006222884-01	OBS	No	2.916679	131.722957	5.0	0.606	14.4	0.6	2.12	8527	0.56	7922.48
006222884-02	OBS	No	2.916940	132.152082	43.5	9.697	14.7	12.2	2.12	8527	1.60	7921.54
006222884-03	OBS	No	11.668589	133.683762	133.0	15.000	14.8	-1.0	2.12	8527	2.48	1247.45
006222884-04	OBS	No	5.834066	136.333822	64.7	30.038	7.6	11.3	2.12	8527	2.31	3143.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006222884-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006222884-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
006222884-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS
006222884-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

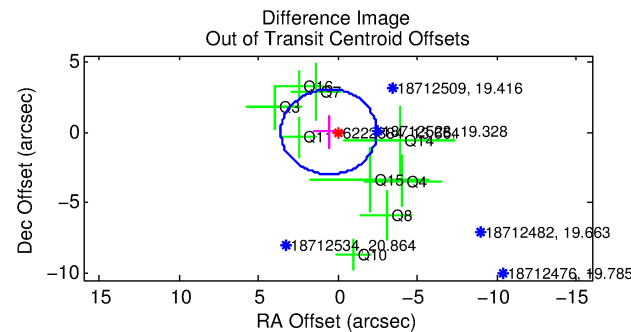
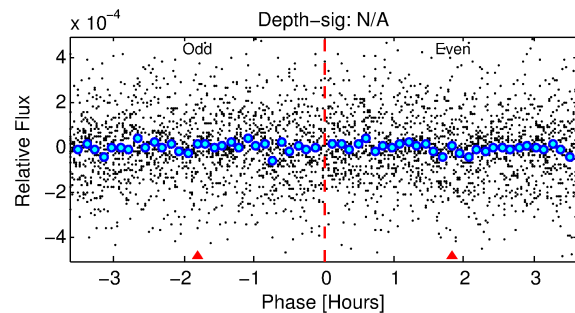
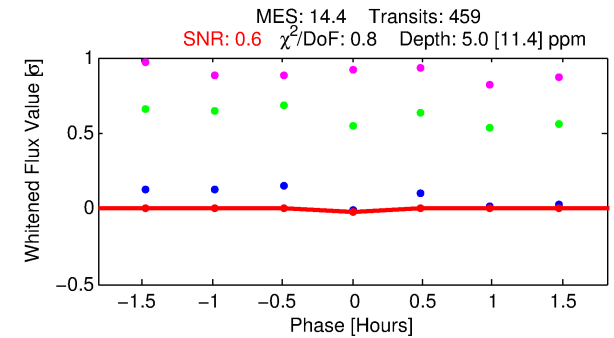
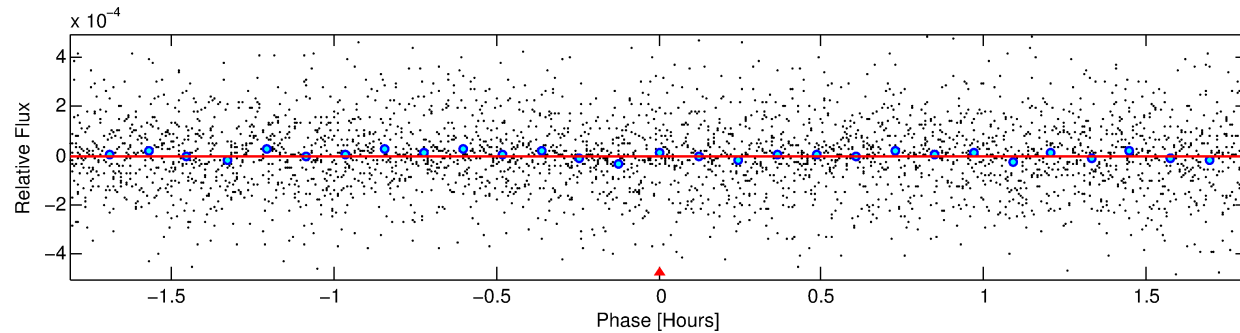
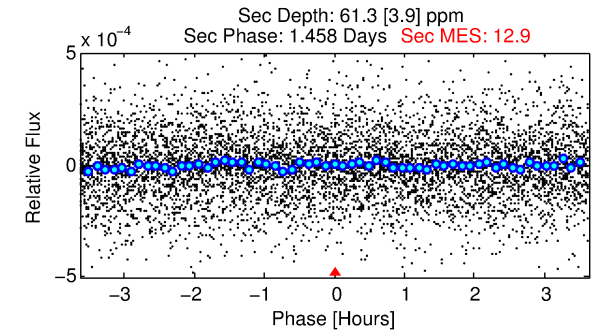
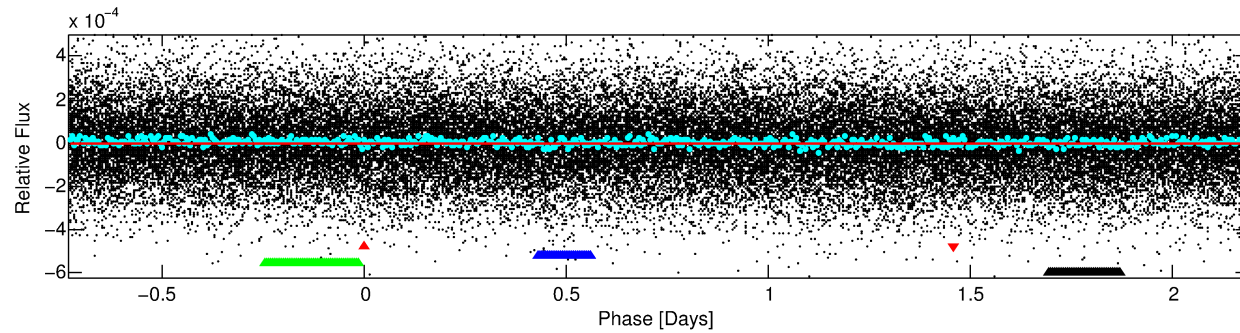
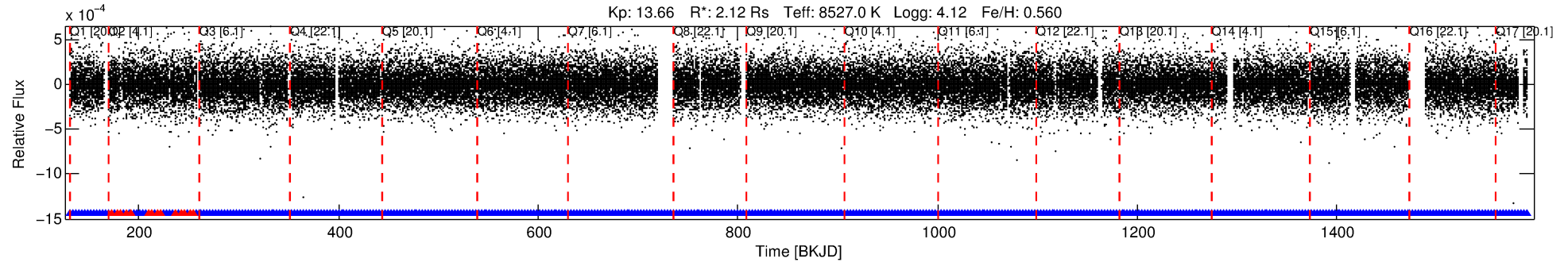
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006222884-01

No Significant Match Found

DV One-Page Summary

KIC: 6222884 Candidate: 1 of 4 Period: 2.917 d



DV Fit Results:

Period = 2.91668 [0.00019] d
Epoch = 131.7230 [0.0230] BKJD
Rp/R* = 0.0024 [0.0041]
a/R* = 16.22 [134.04]
b = 0.90 [1.76]
Seff = 7922.48 [4988.19]
Teq = 2406 [379] K
Rp = 0.56 [1.00] Re
a = 0.0519 [0.0209] AU
Ag = 288.86 [999.99] [0.29σ]
Teffp = 15334 [13147] K [0.98σ]

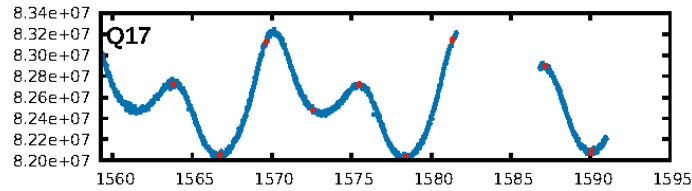
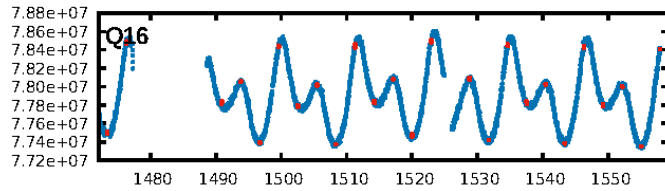
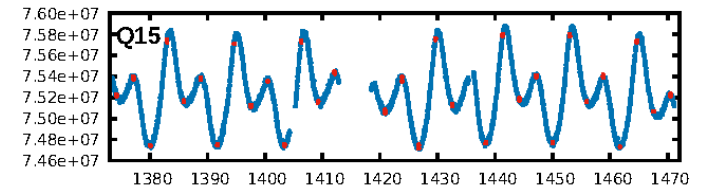
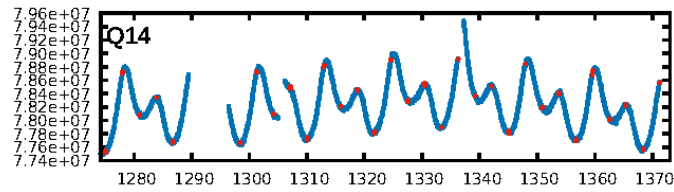
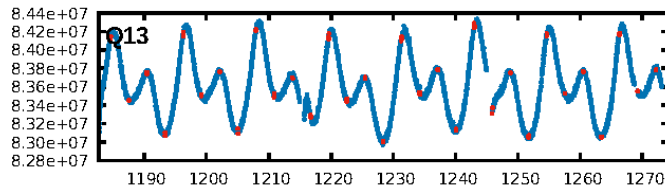
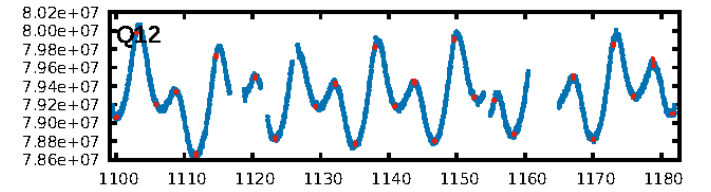
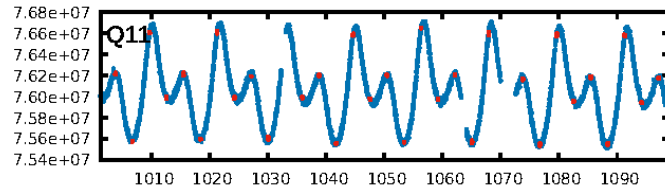
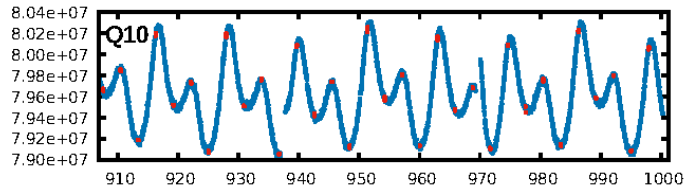
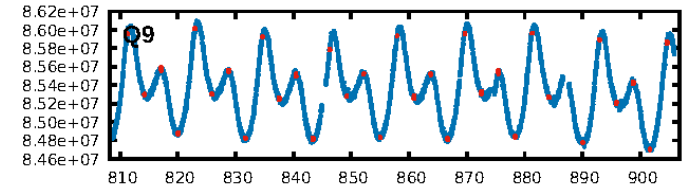
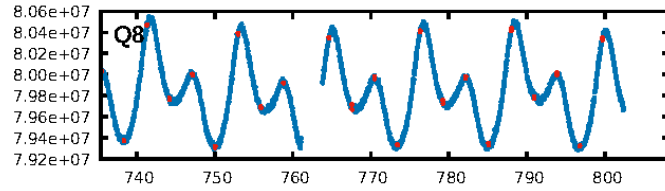
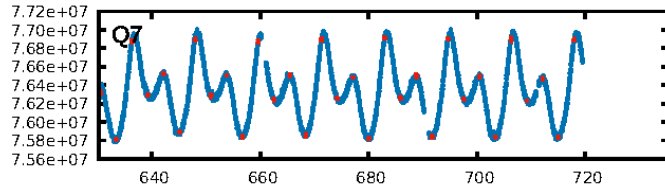
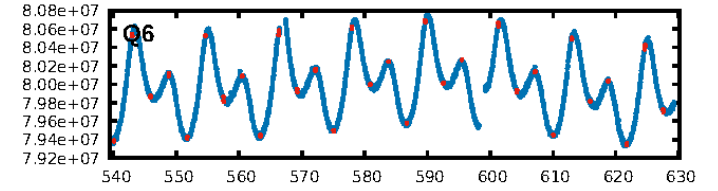
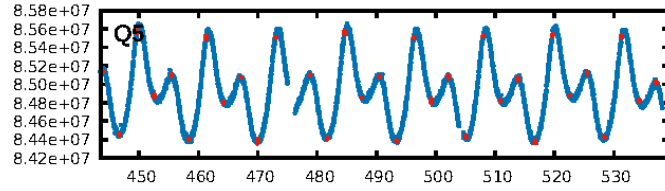
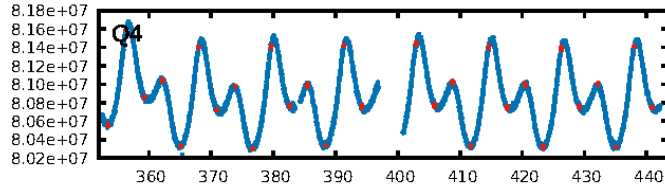
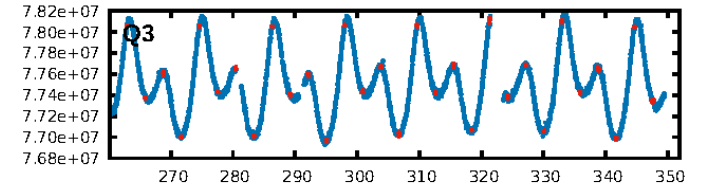
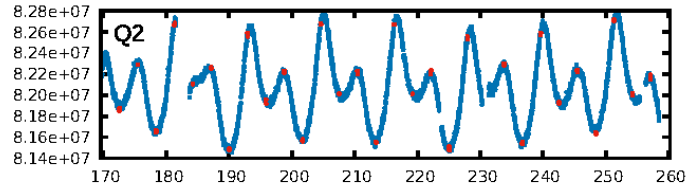
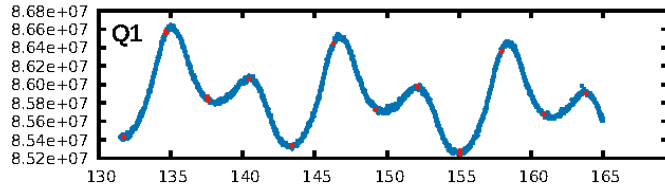
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.32e-45
RollingBand-fgt: 0.97 [424/438]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.554 arcsec [0.55σ]
KicOffset-rm: 0.544 arcsec [0.50σ]
OotOffset-st: 2/4/3/0 [9]
KicOffset-st: 2/4/3/0 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 1.00 [17/17]

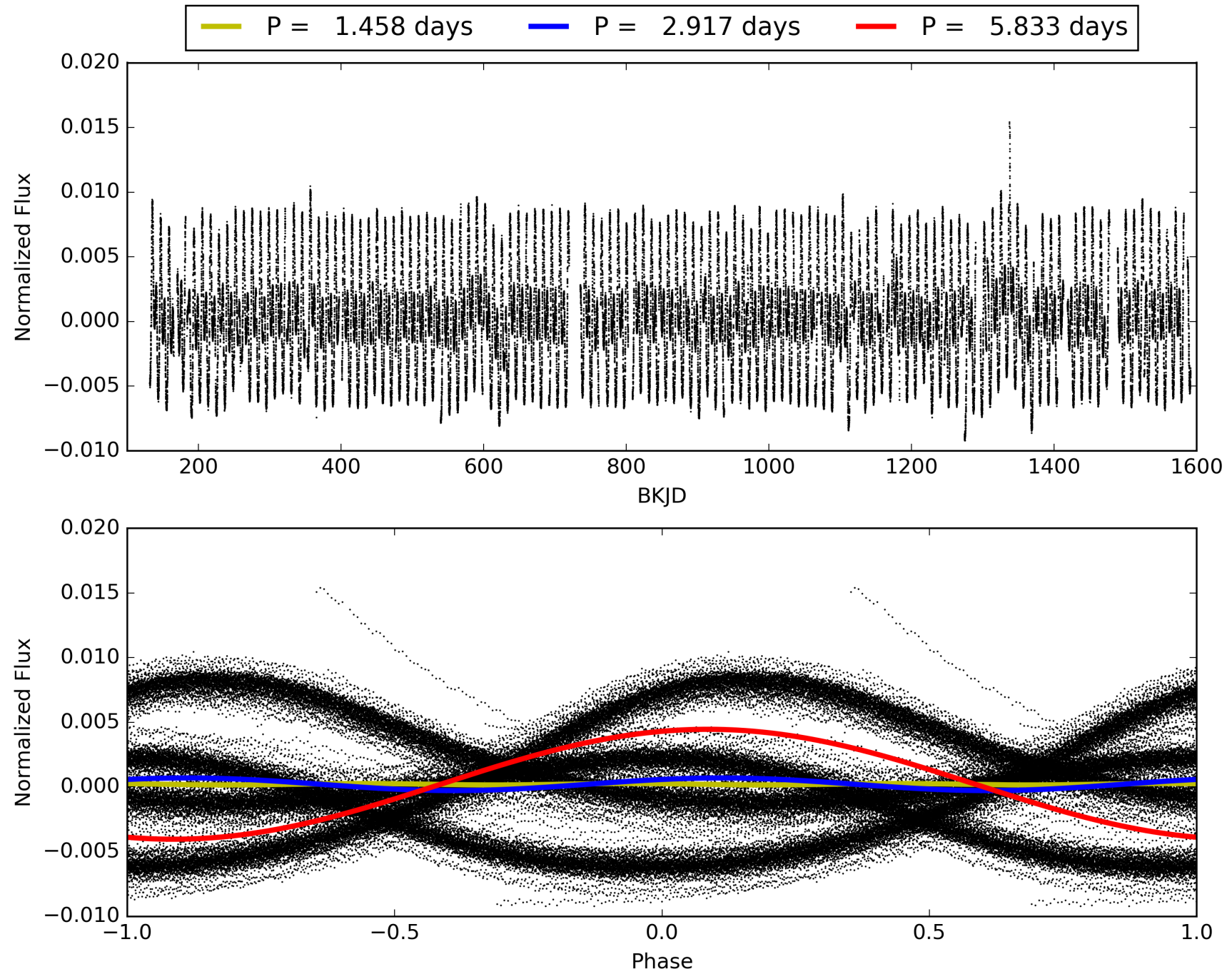
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:48:55 Z

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

TCE 006222884-01, PDC Light Curves

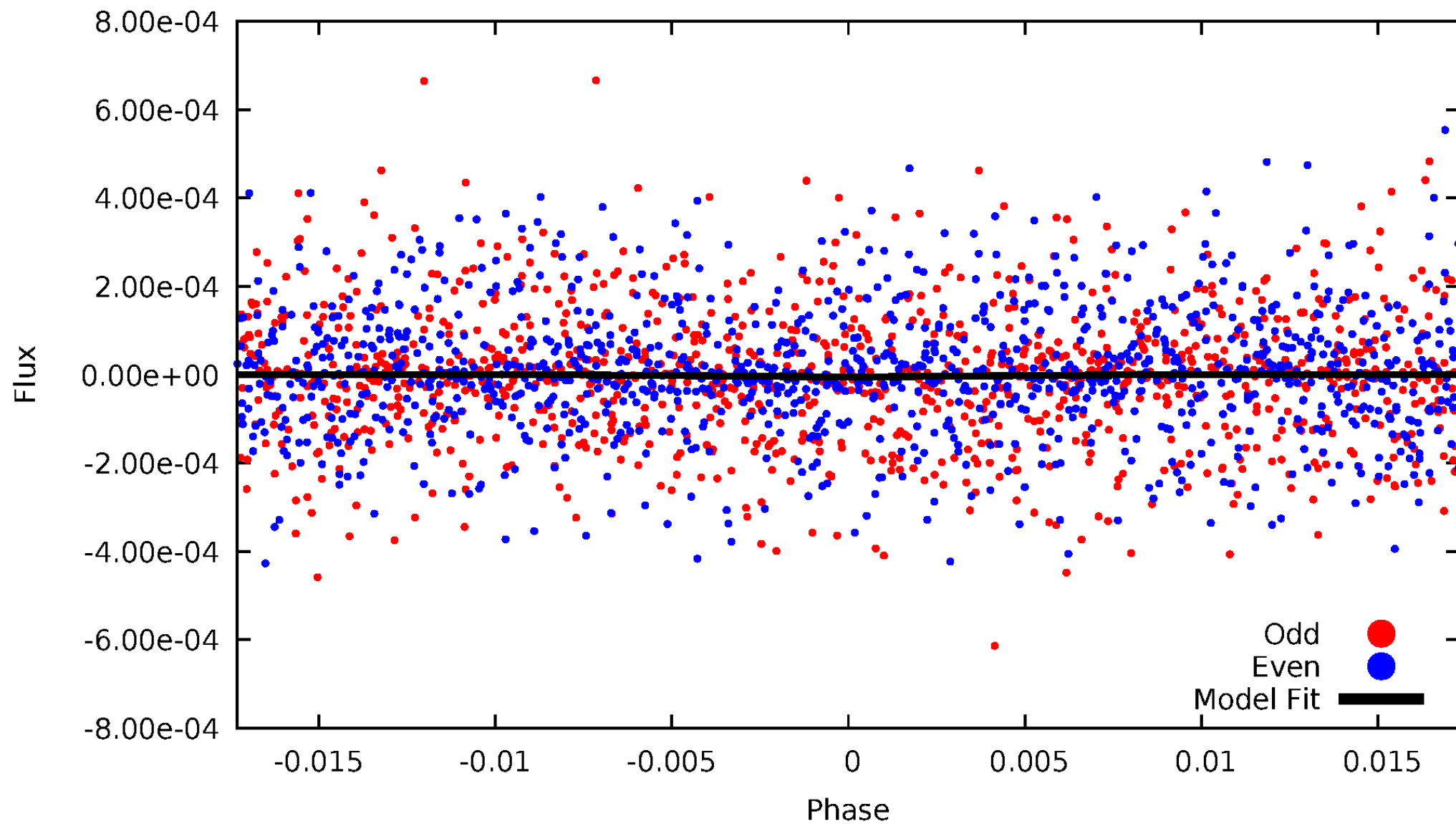


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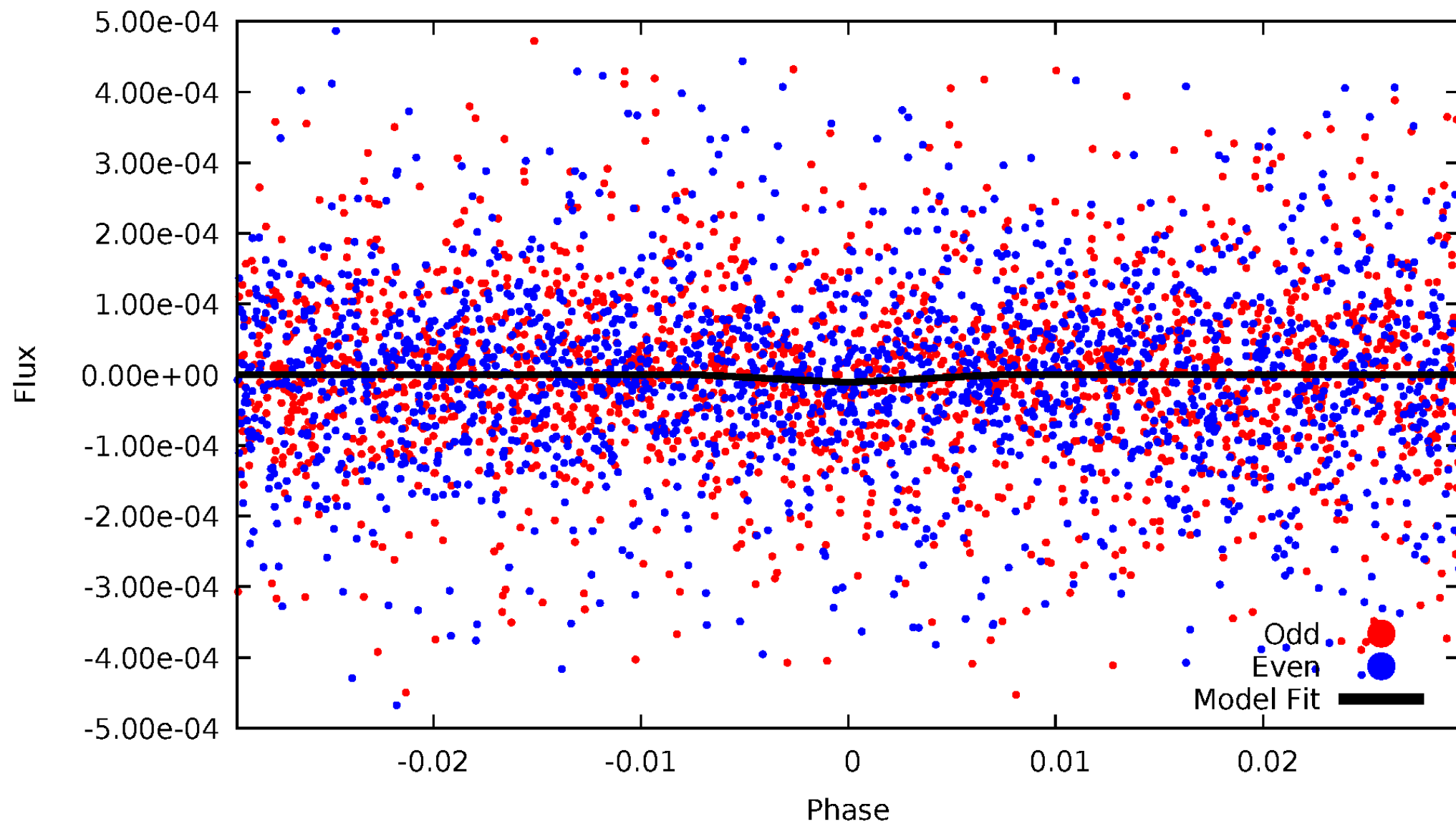
DV Odd/Even

TCE 006222884-01



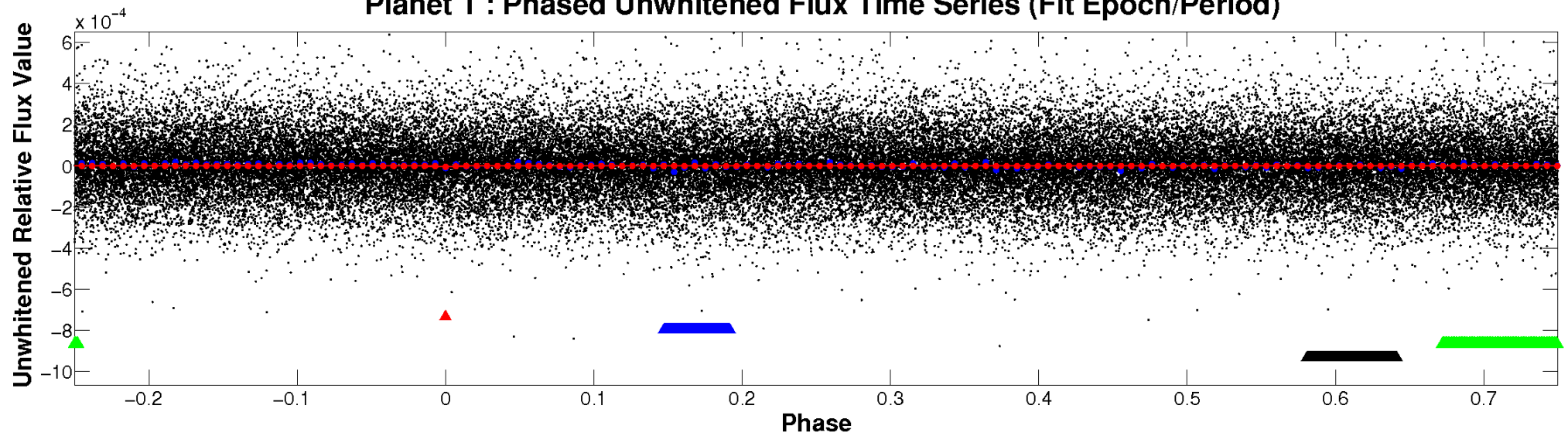
ALT Odd/Even

TCE 006222884-01

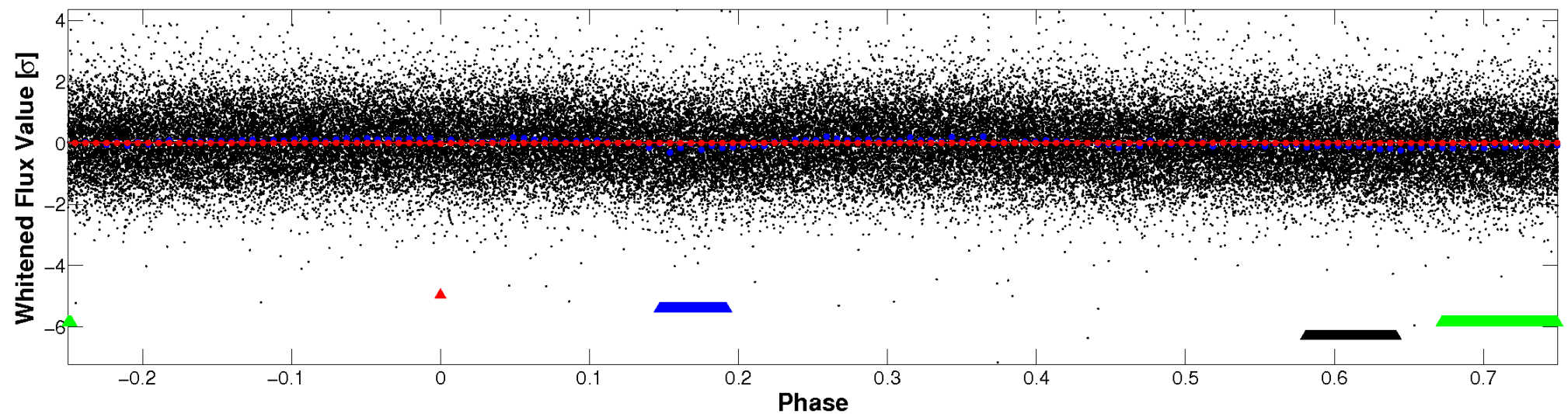


Non-Whitened Vs. Whitened Light Curve

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

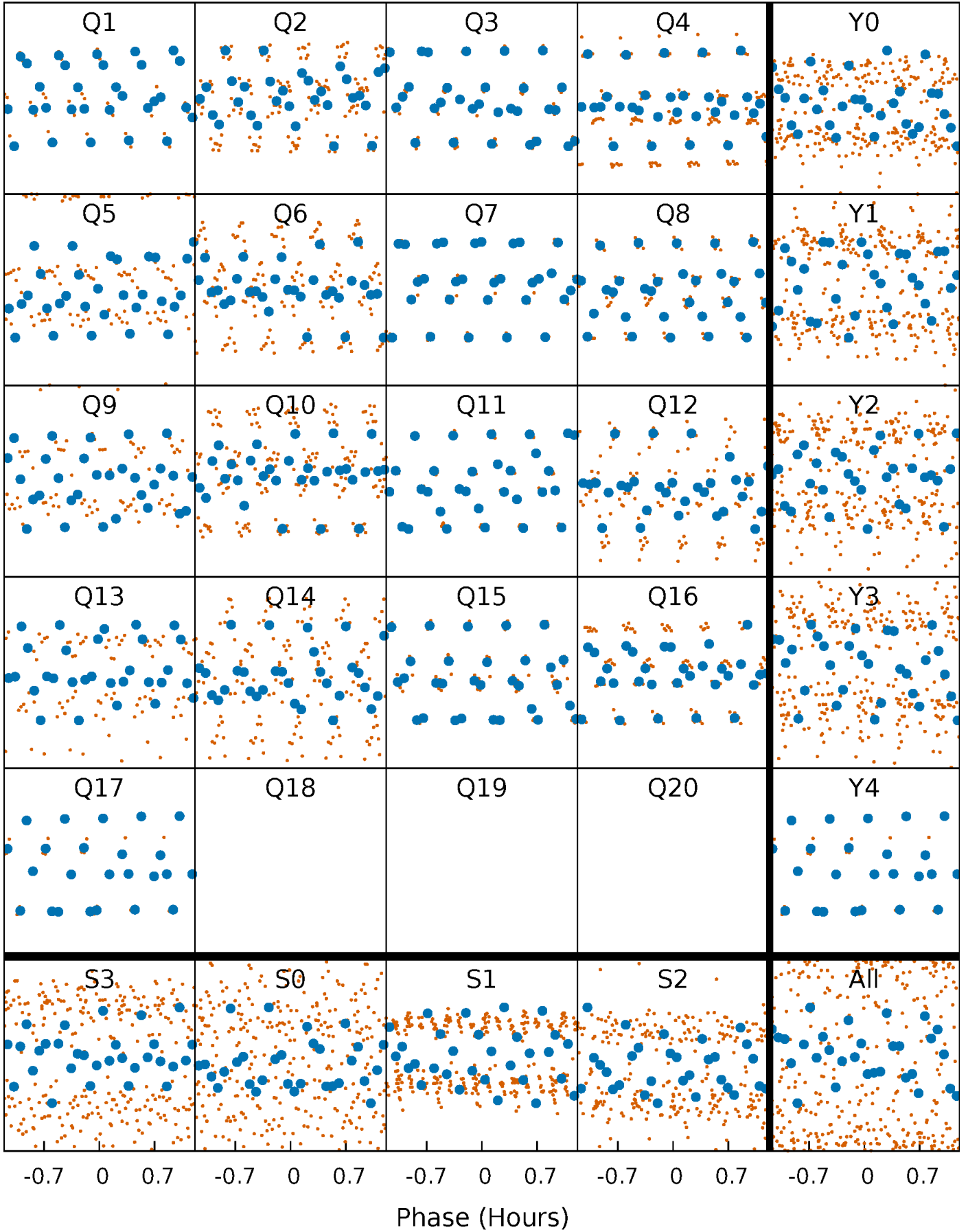


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



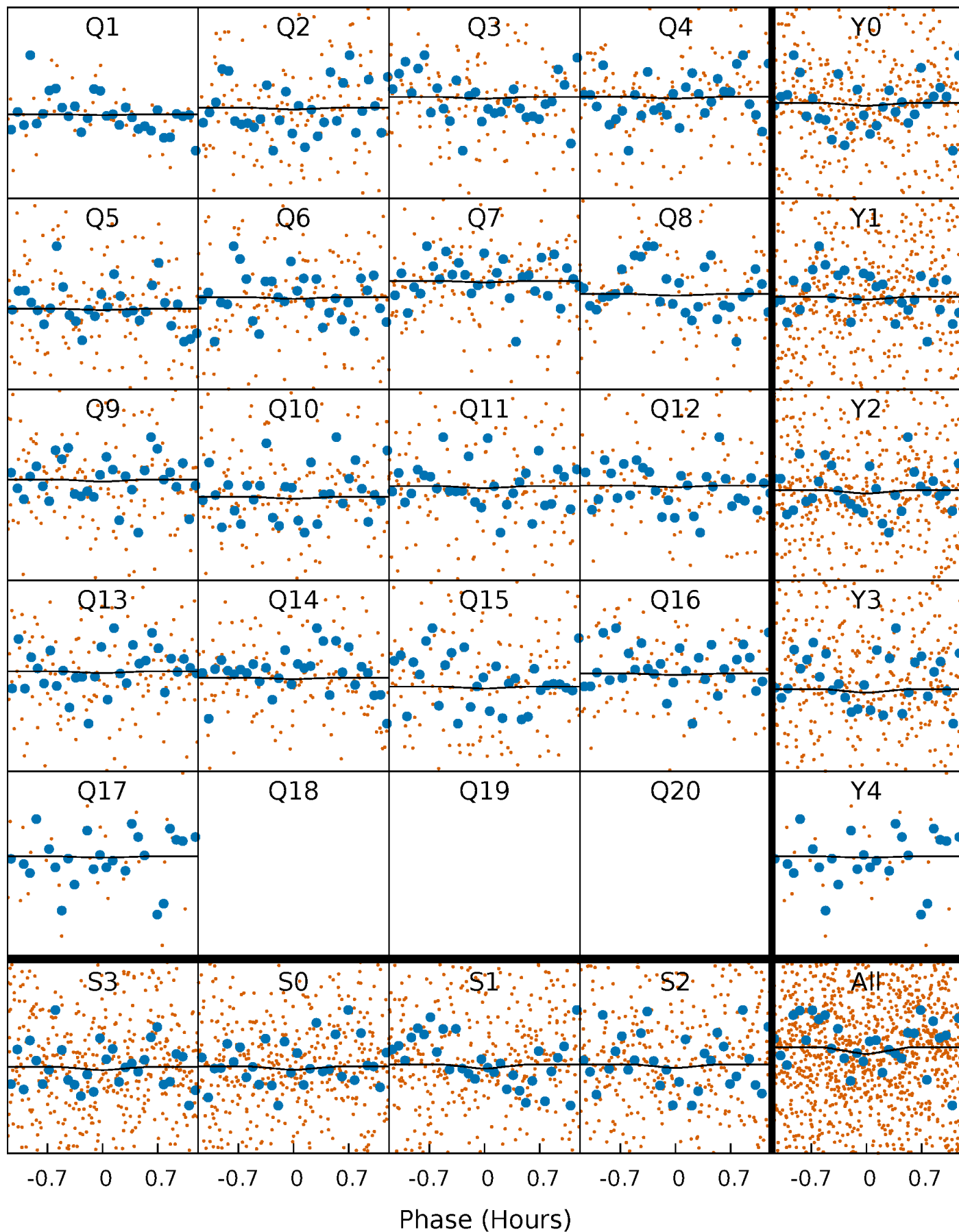
PDC Quarter-Phased Transit Curves

TCE 006222884-01 P= 2.916679 Days $T_0=131.722957$ (BKJD)



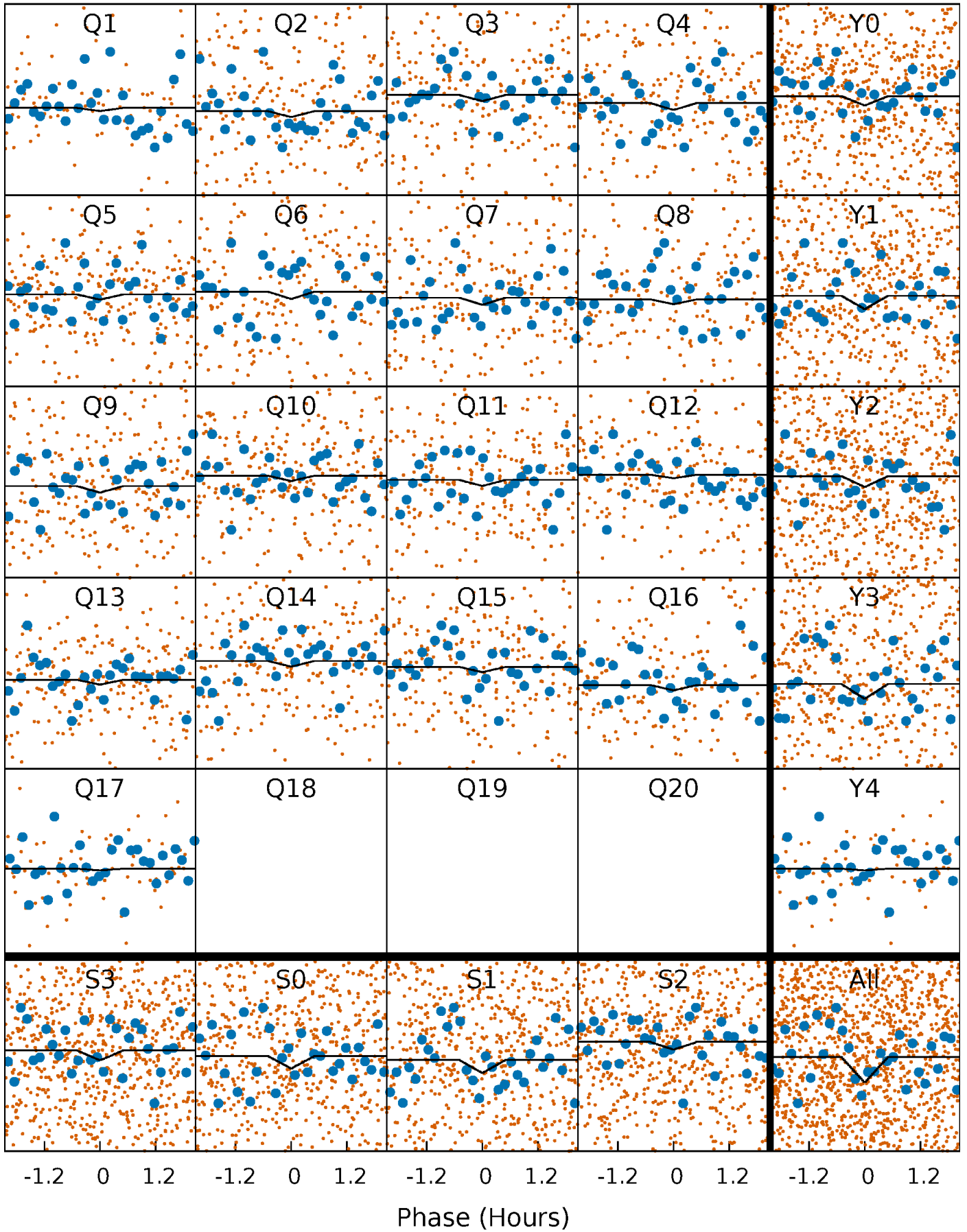
DV Quarter-Phased Transit Curves

TCE 006222884-01 P= 2.916679 Days $T_0=131.722957$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

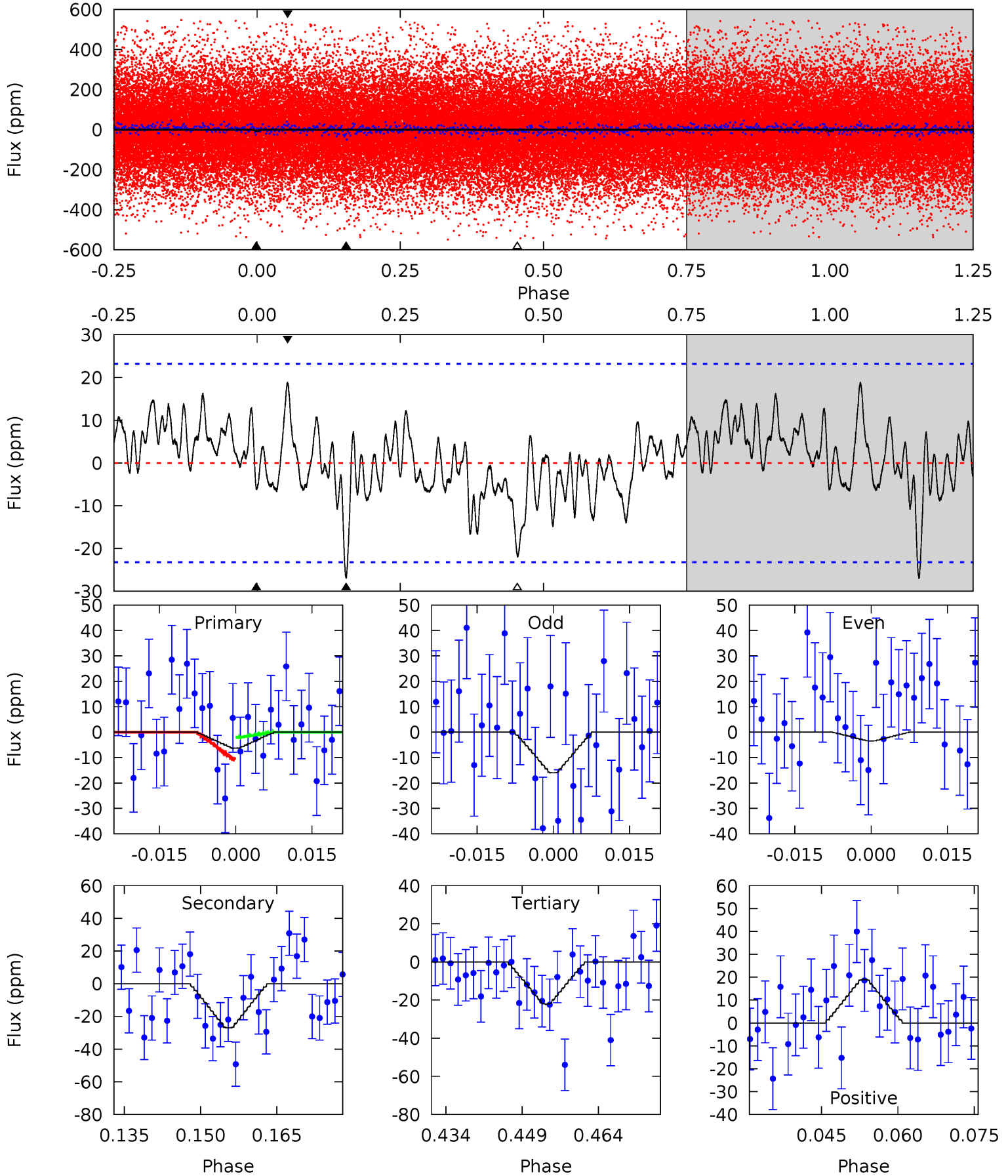
TCE 006222884-01 P= 2.916720 Days $T_0=131.710486$ (BKJD)



DV Model-Shift Uniqueness Test

006222884-01, P = 2.916679 Days, E = 128.806278 Days

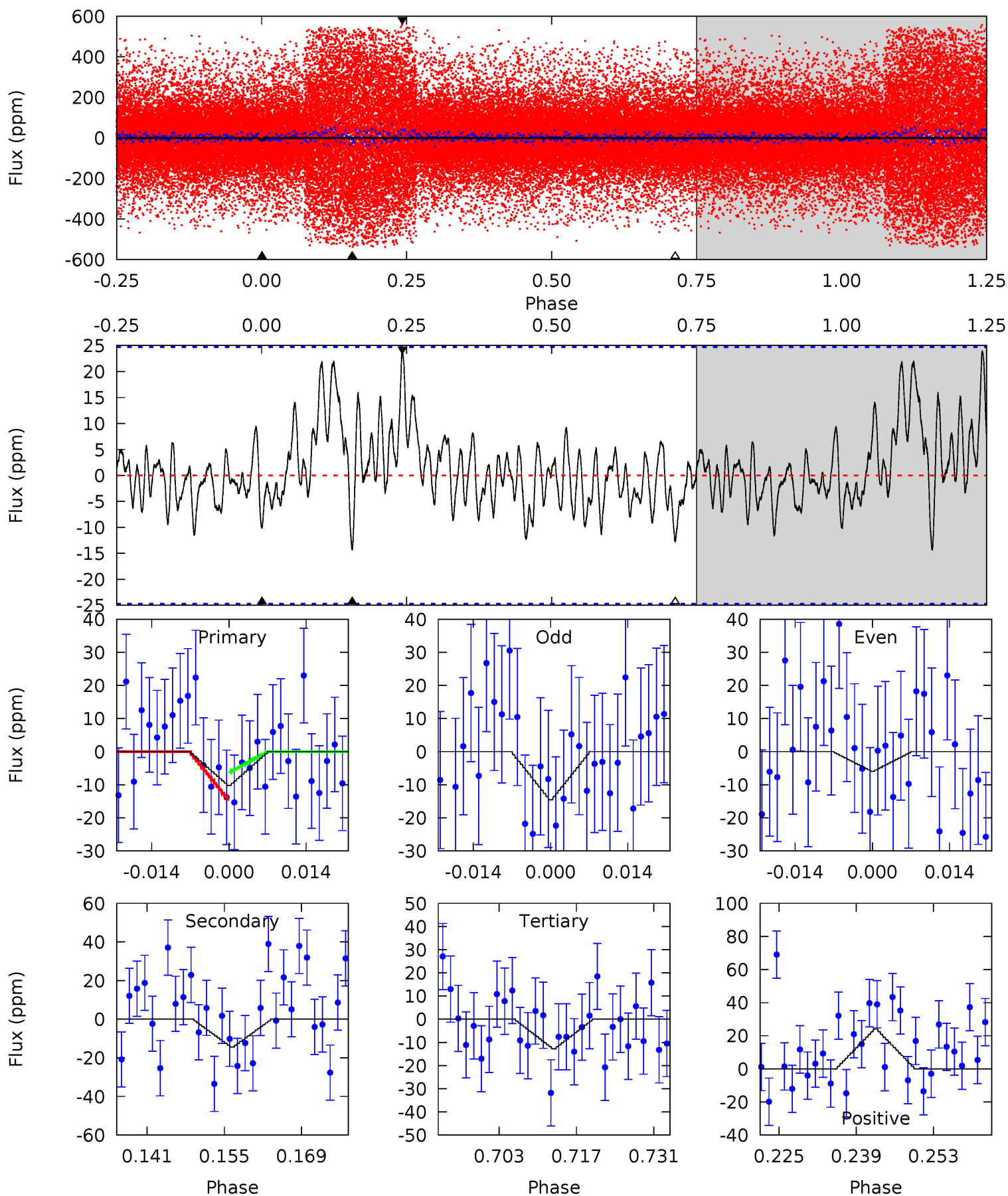
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.34	5.76	4.71	4.04	4.95	2.43	1.48	-3.37	-2.70	1.05	1.72	1.35	2.08	0.41	0.89



Alt Model-Shift Uniqueness Test

006222884-01, P = 2.916720 Days, E = 128.793766 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.05	2.90	2.56	4.82	4.96	2.46	1.25	-0.50	-2.77	0.34	-1.92	0.83	0.69	0.62	0.81



Stellar Parameters For KIC 006222884

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8527^{+418}_{-627}	$4.125^{+0.051}_{-0.289}$	$0.560^{+0.050}_{-0.200}$	$2.123^{+1.071}_{-0.189}$	$2.193^{+0.432}_{-0.233}$	$0.323^{+0.095}_{-0.206}$
	+5%/-7%	+1%/-7%	+9%/-36%	+50%/-9%	+20%/-11%	+29%/-64%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006222884-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-27 ± 5	$0.93^{+0.85}_{-0.62}$	3453^{+370}_{-268}	10565^{+24356}_{-3707}	45^{+370}_{-33}
Alt.	-14 ± 5	$1.08^{+1.03}_{-0.68}$	3469^{+365}_{-306}	7731^{+8700}_{-2417}	17^{+106}_{-13}

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 $A_{obs} \gg 1.0$

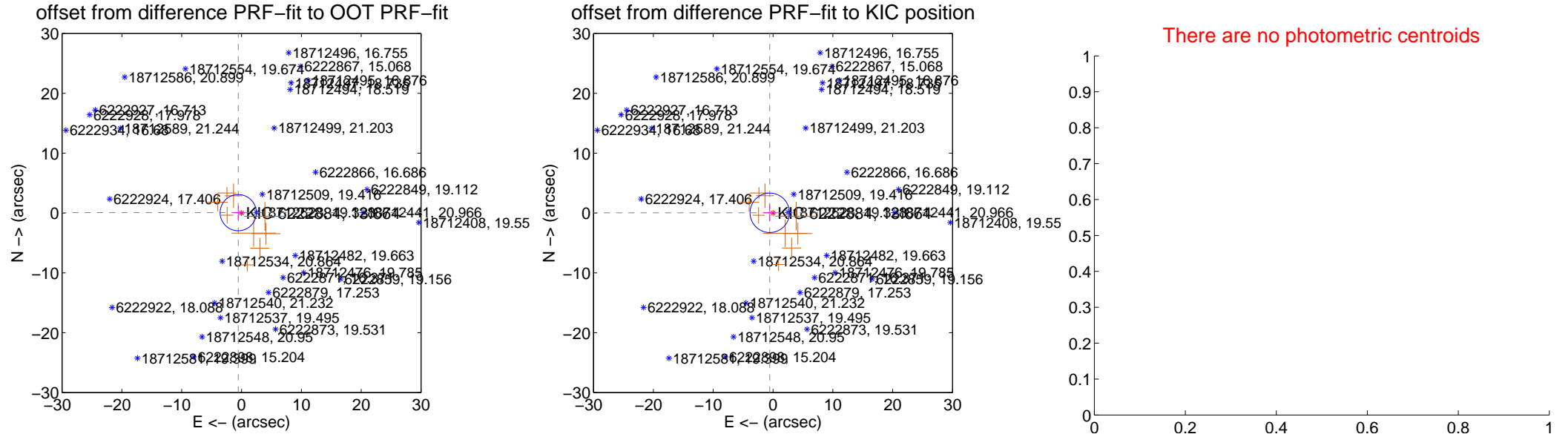
DV Centroid Data

Supplemental centroid analysis for 006222884-01. Kepler magnitude: 13.66. Transit SNR 0.57

There are 0 quarters with good PRF difference image offsets

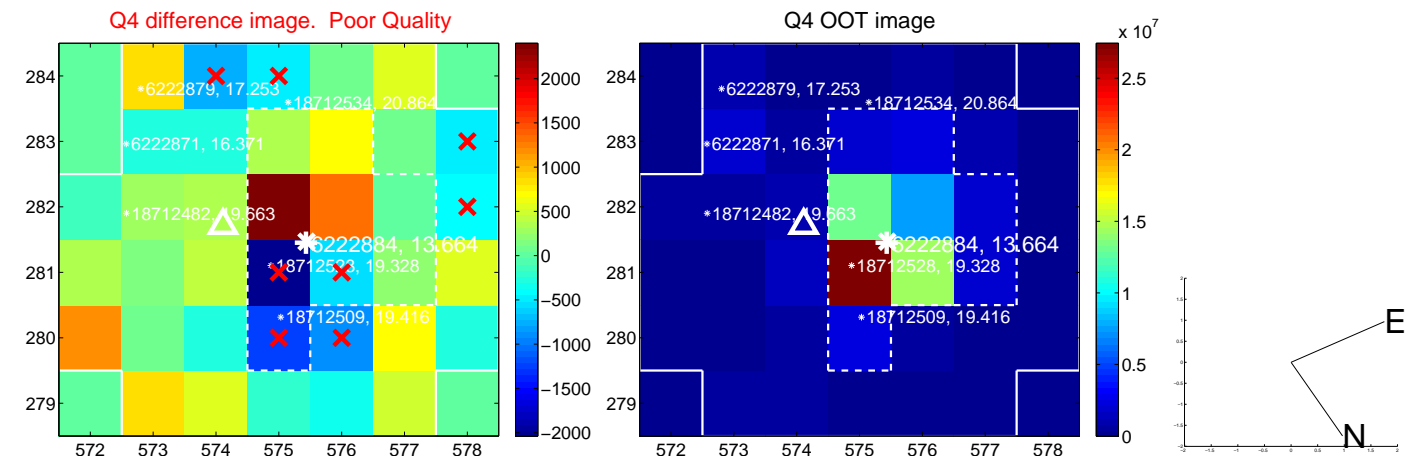
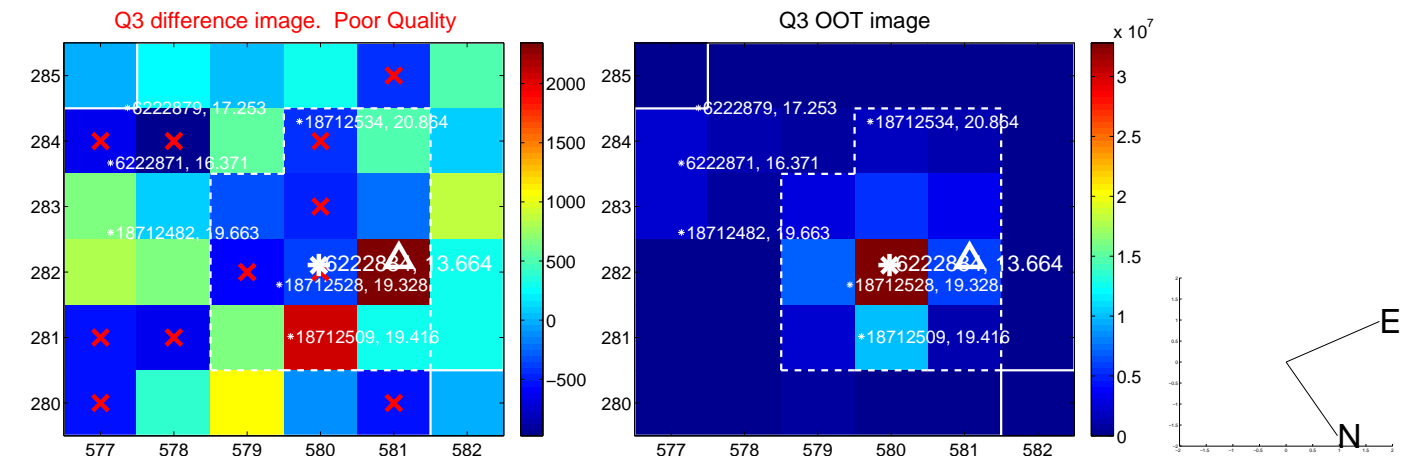
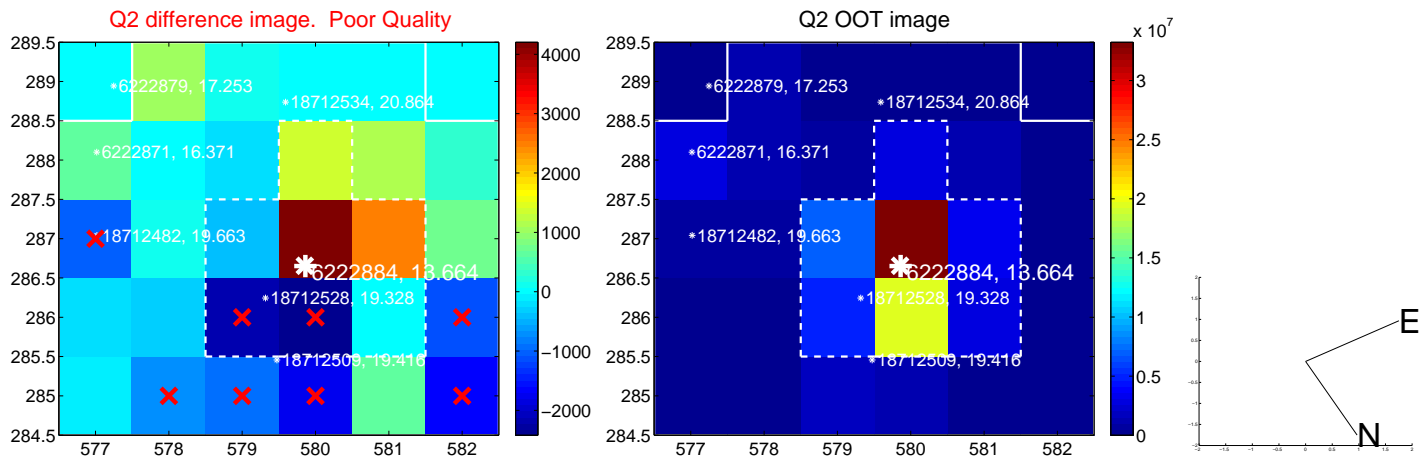
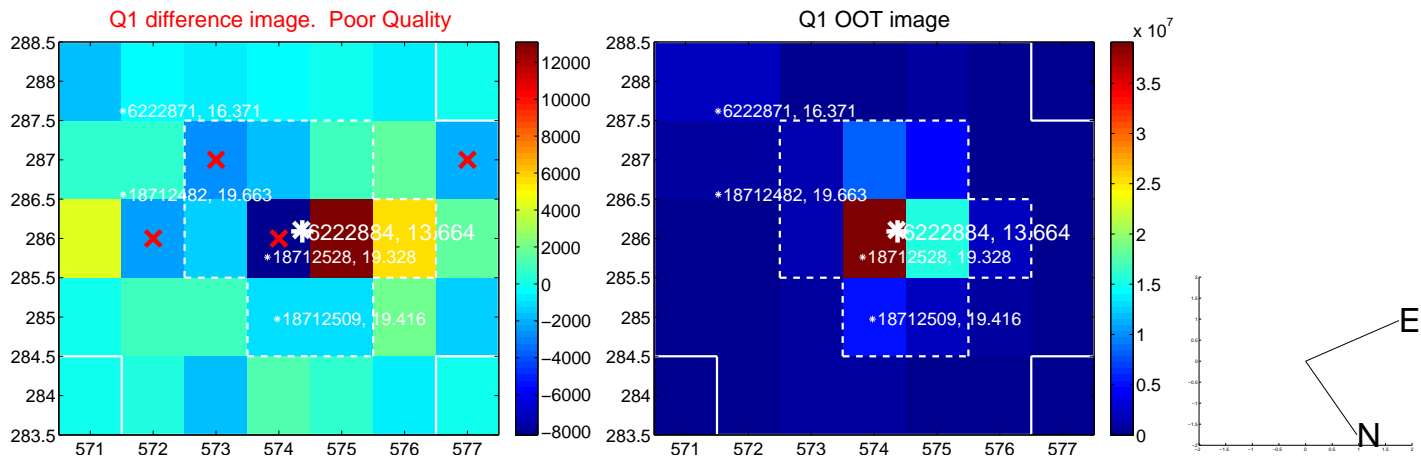
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.554 ± 1.009	0.55	0.551 ± 0.932	0.059 ± 1.167
PRF-fit source offset from KIC position	0.544 ± 1.099	0.50	0.543 ± 1.042	0.035 ± 1.383
photometric centroid source offset	—	—	—	—

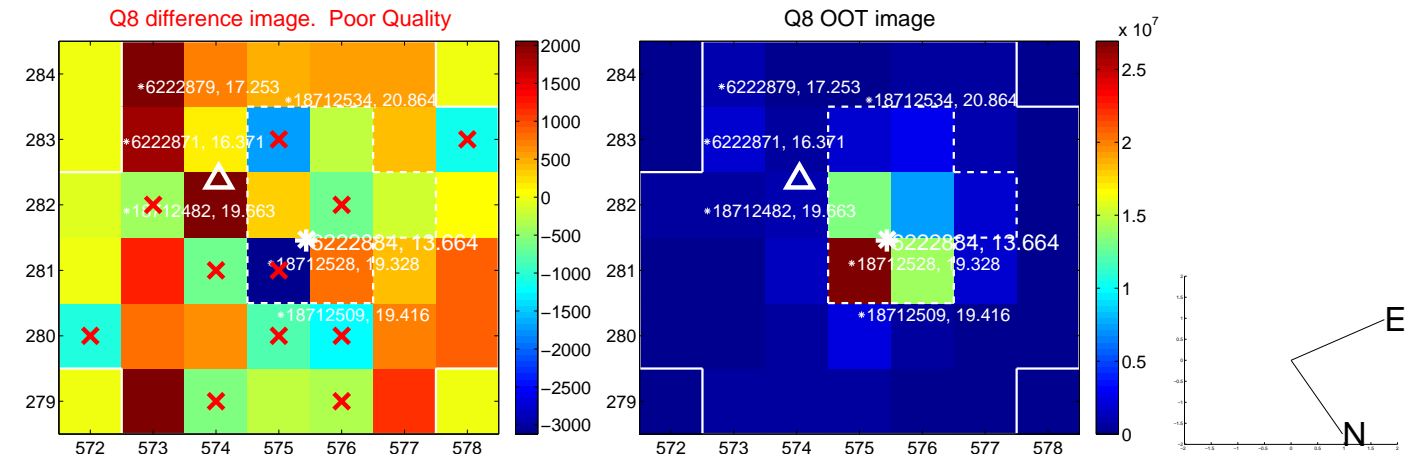
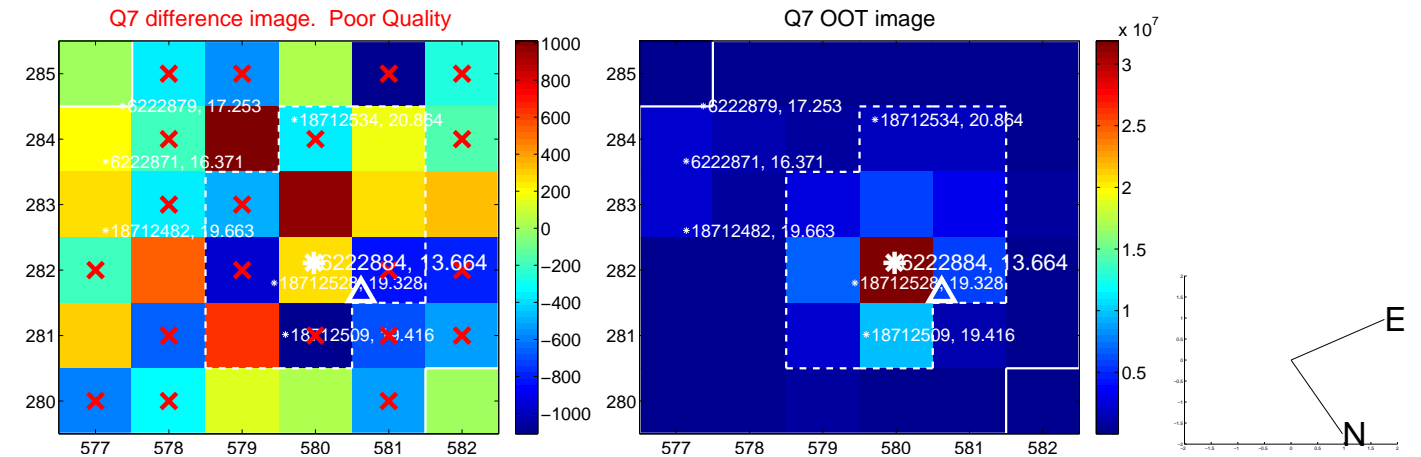
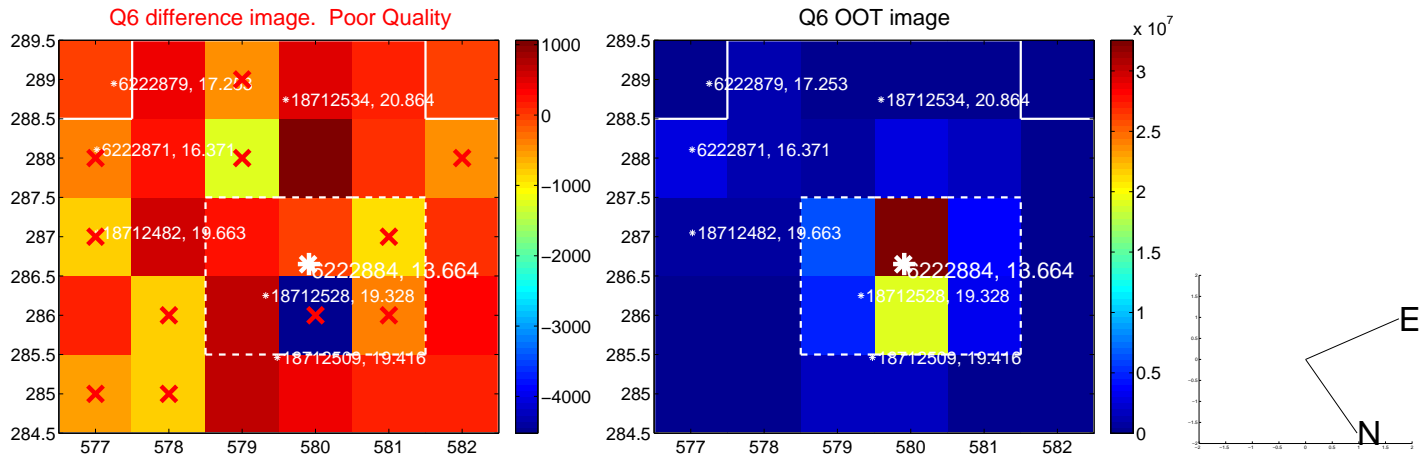
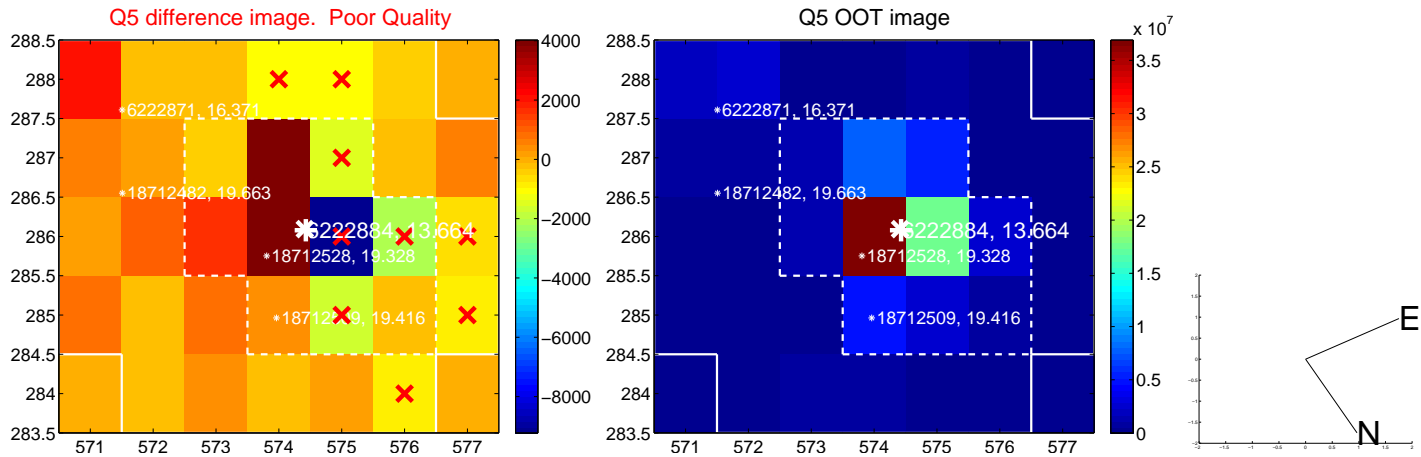


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

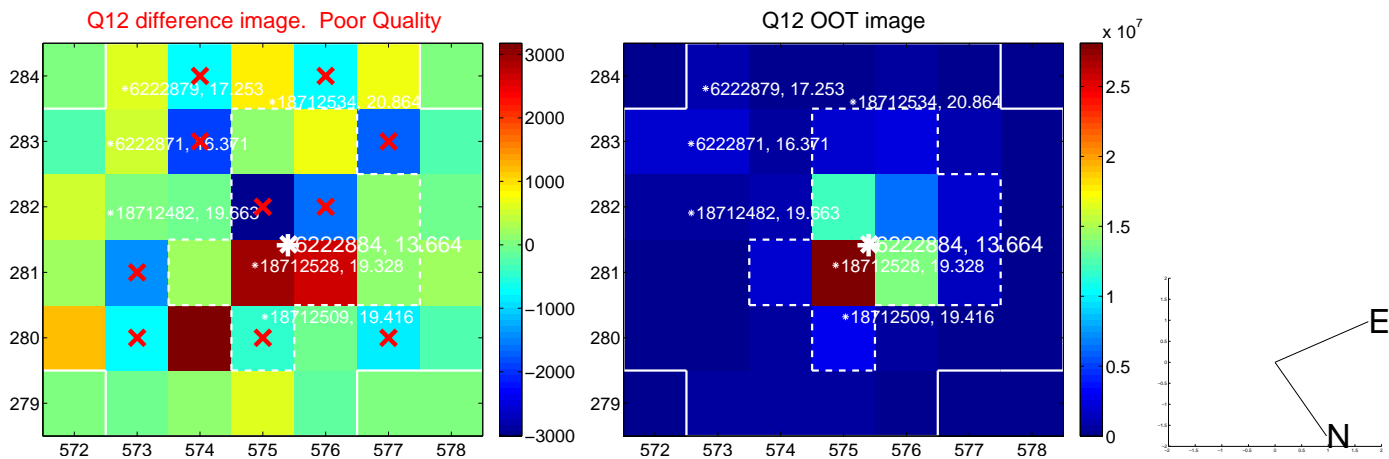
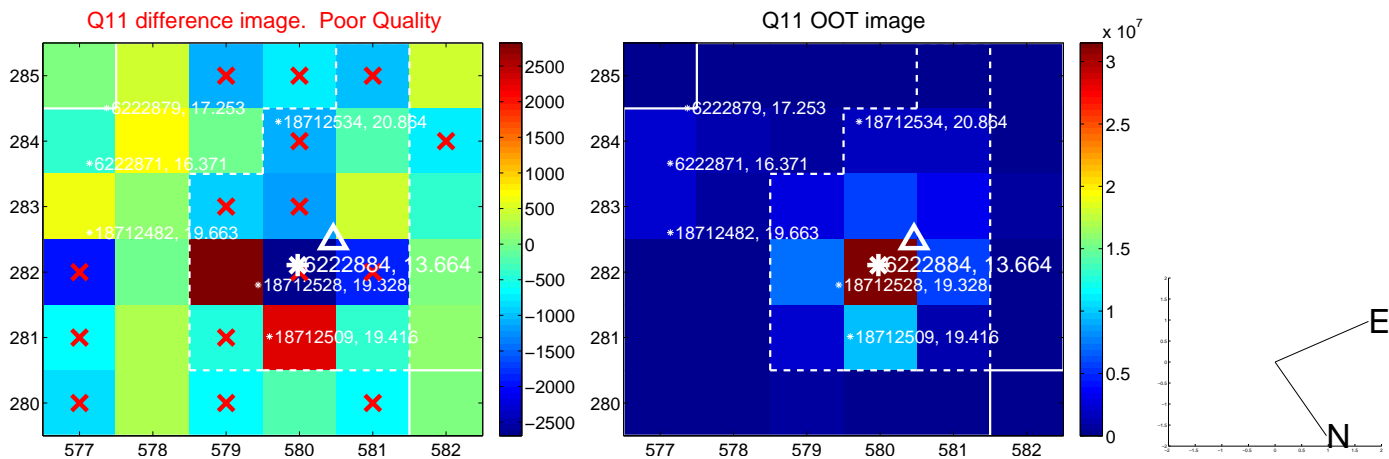
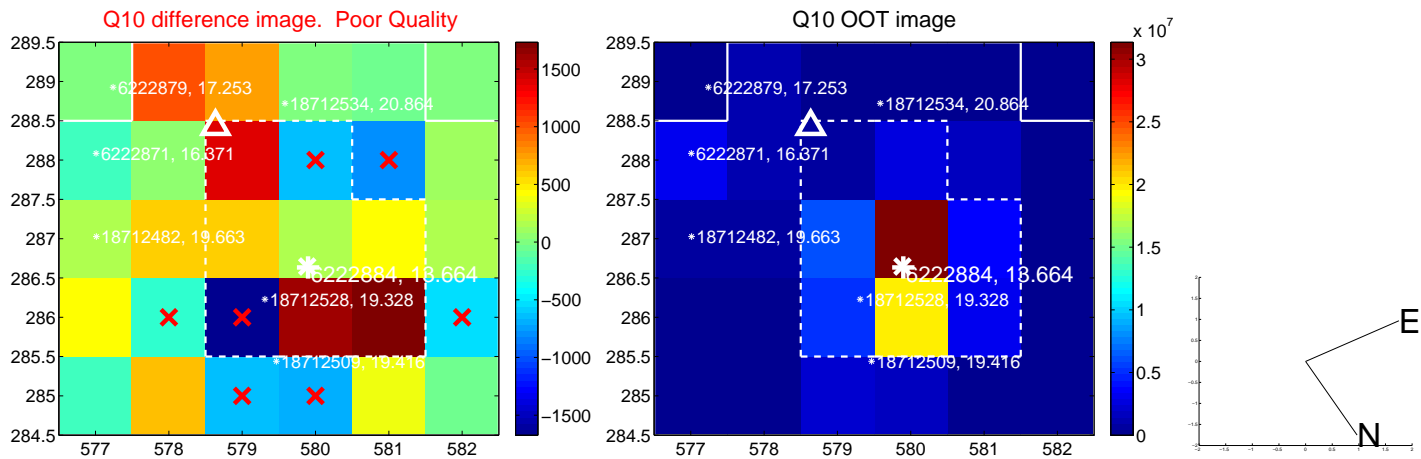
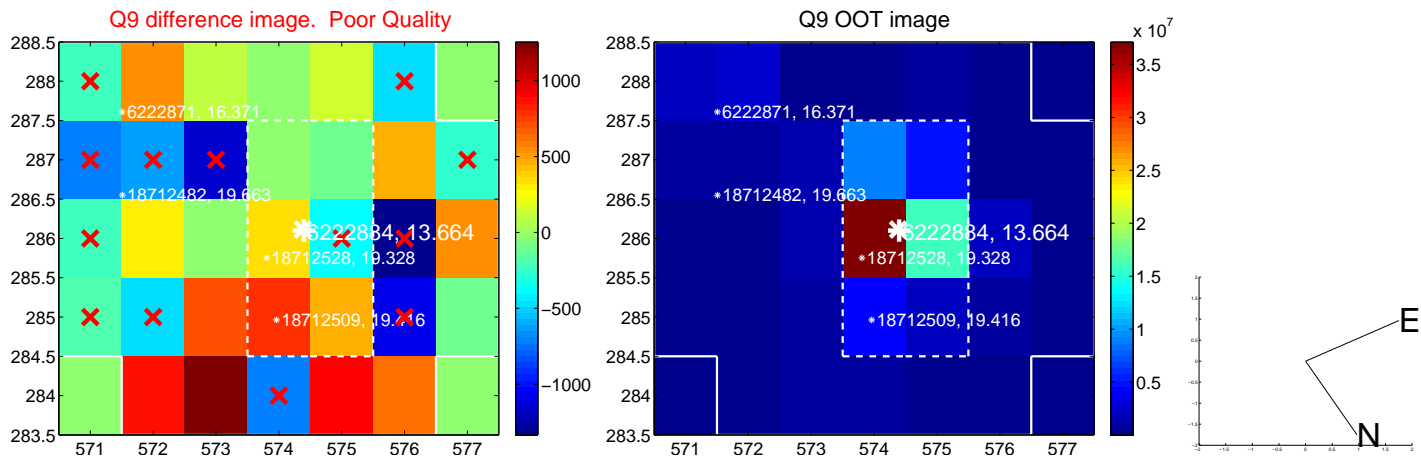
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



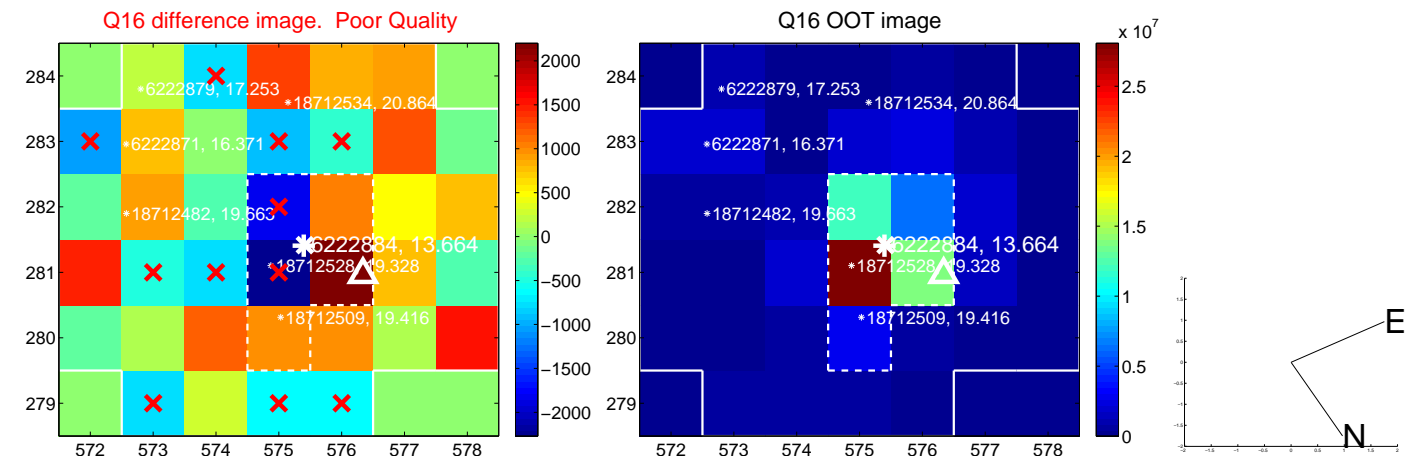
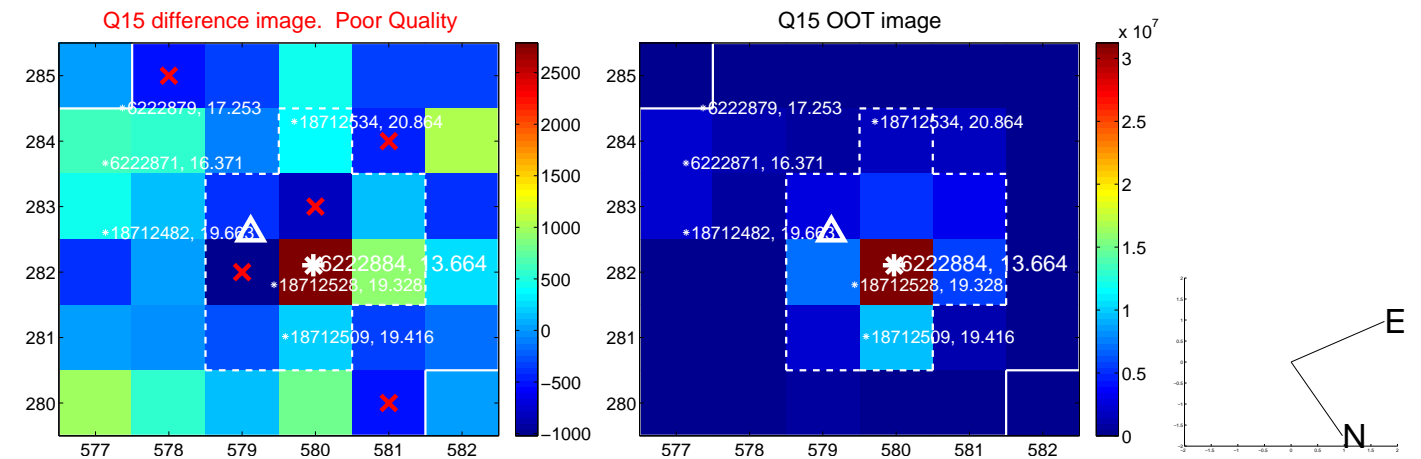
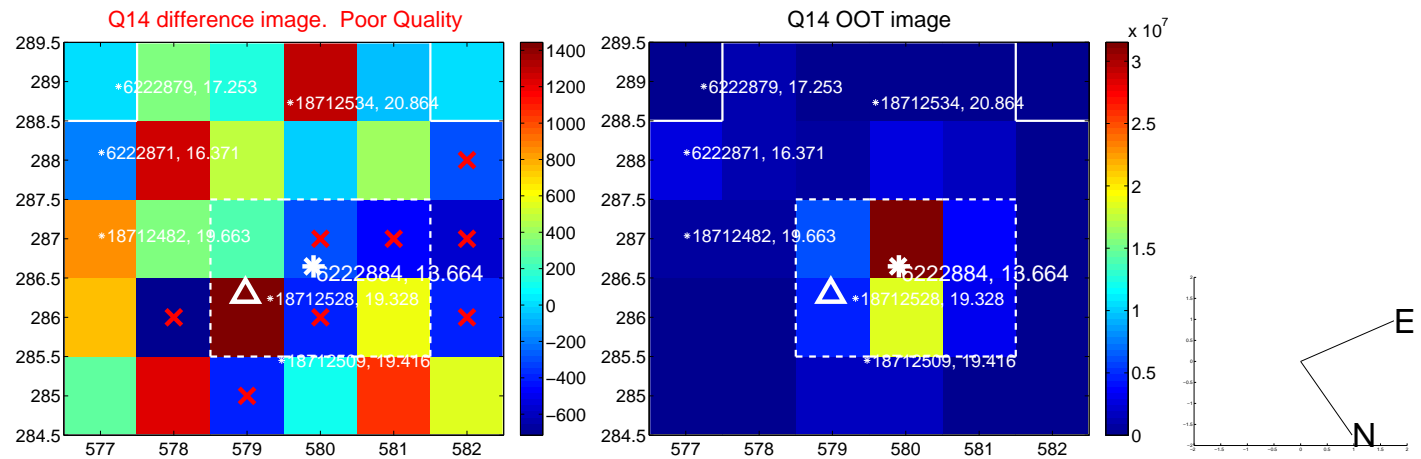
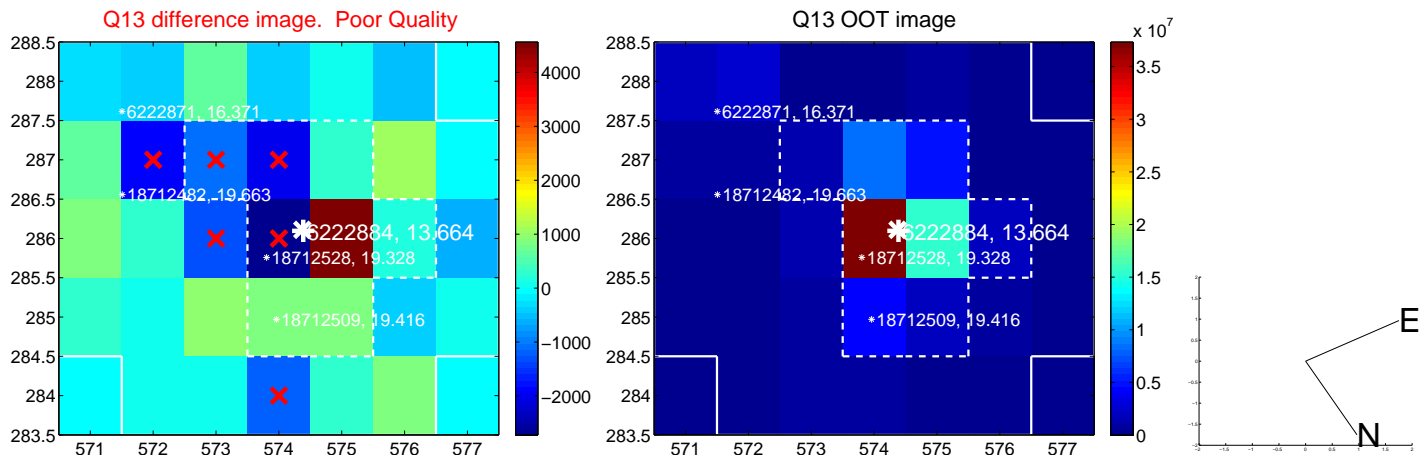
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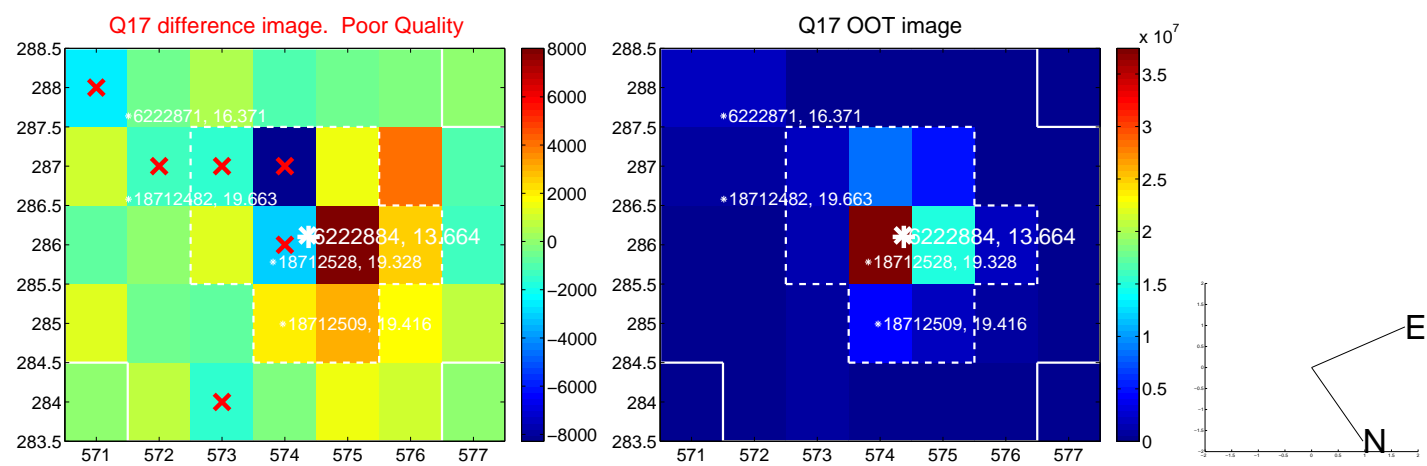
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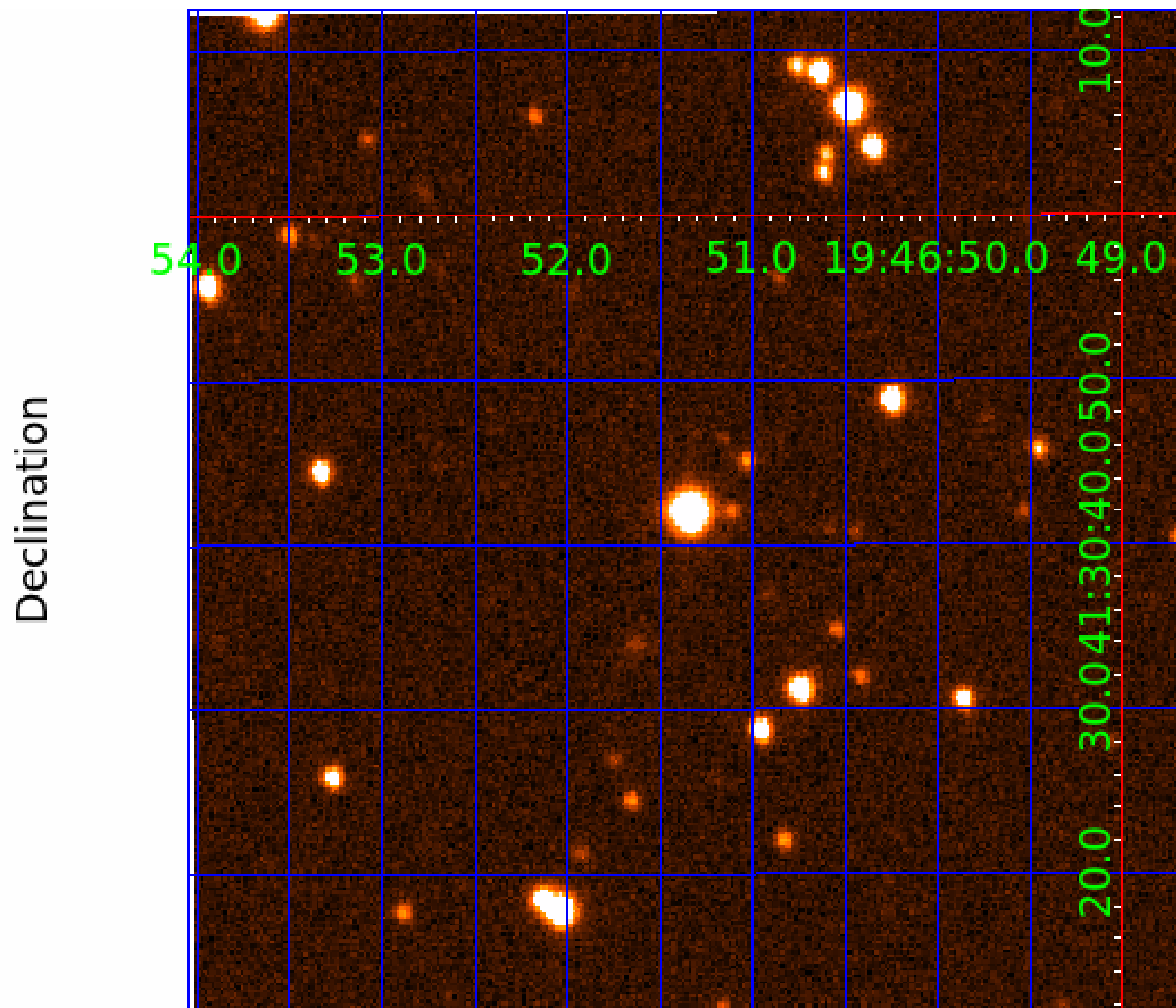


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 006222884

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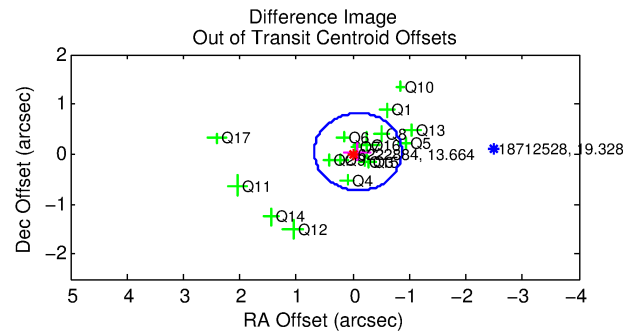
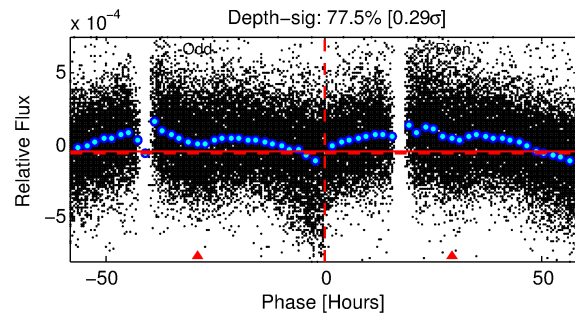
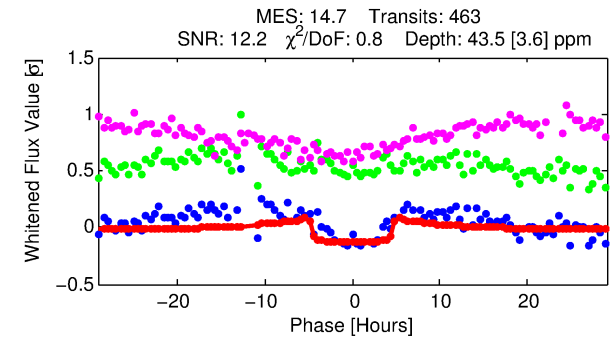
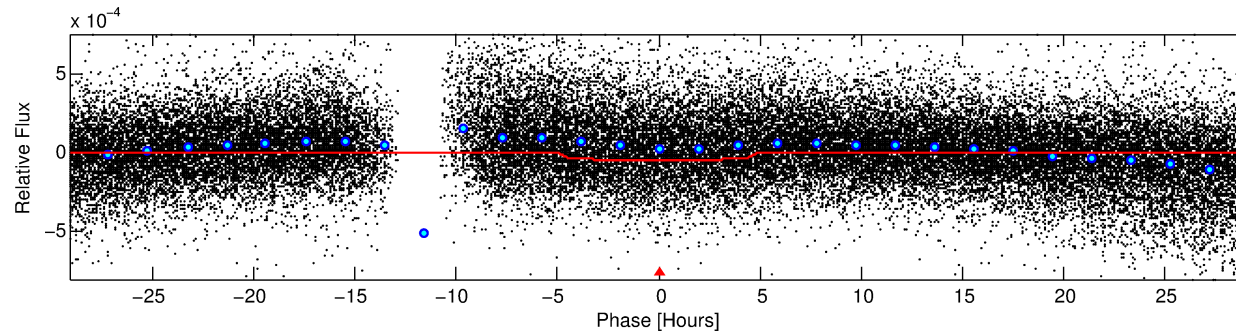
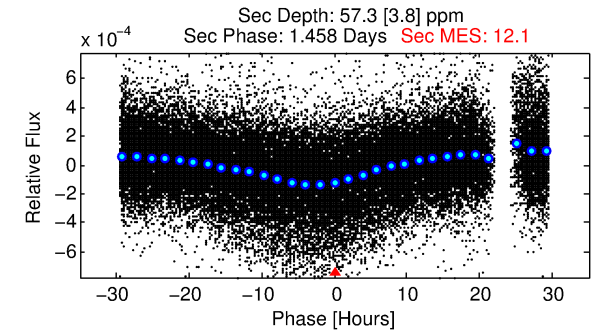
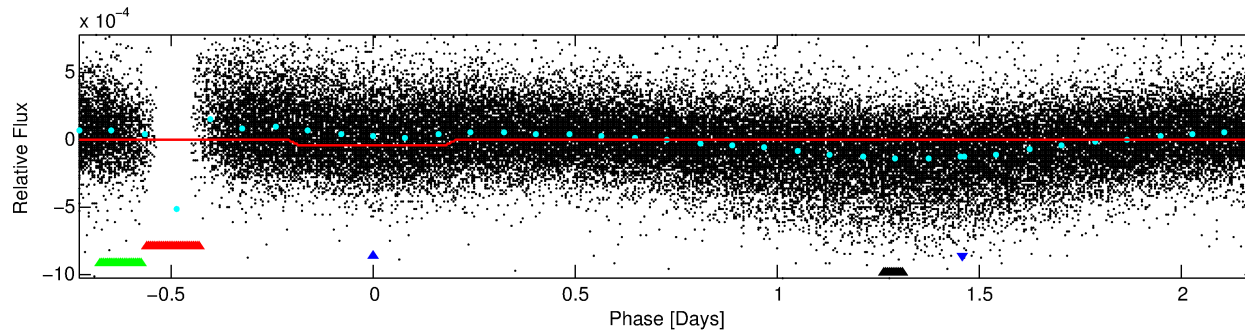
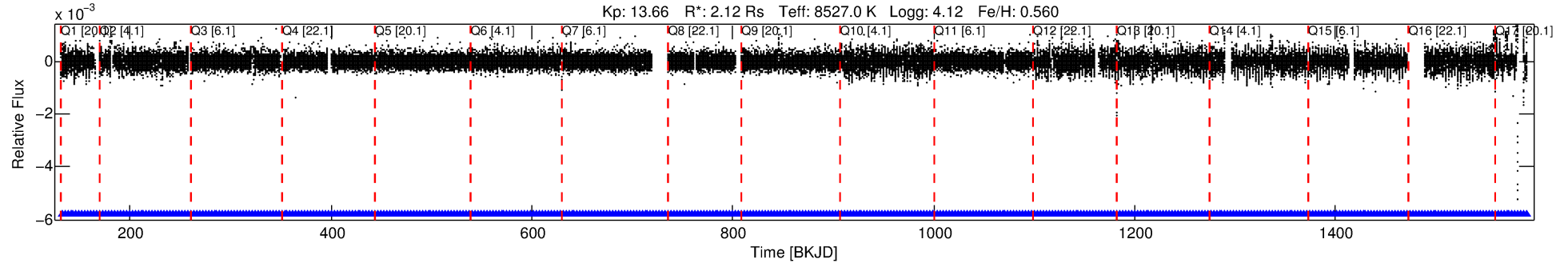
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006222884-02

No Significant Match Found

DV One-Page Summary

KIC: 6222884 Candidate: 2 of 4 Period: 2.917 d



DV Fit Results:

Period = 2.91694 [0.00002] d
Epoch = 132.1521 [0.0047] BKJD
Rp/R* = 0.0069 [0.0009]
a/R* = 1.46 [0.63]
b = 0.88 [0.21]
Seff = 7921.54 [4987.59]
Teq = 2406 [379] K
Rp = 1.60 [0.84] Re
a = 0.0519 [0.0209] AU
Ag = 33.11 [20.51] [1.57σ]
Teffp = 8922 [893] K [6.72σ]

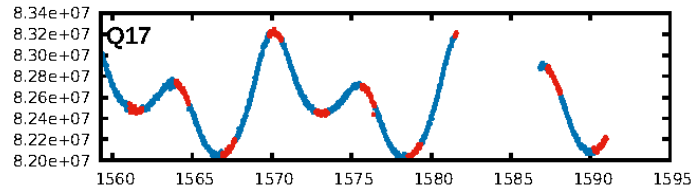
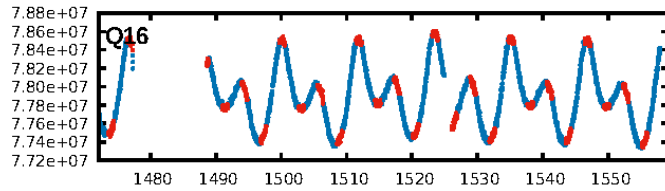
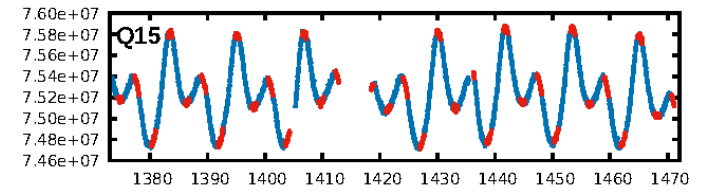
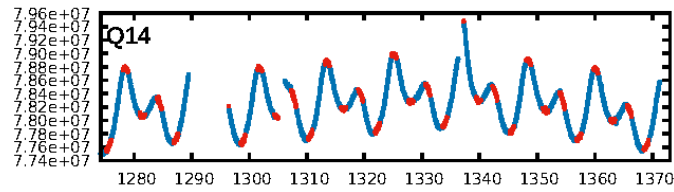
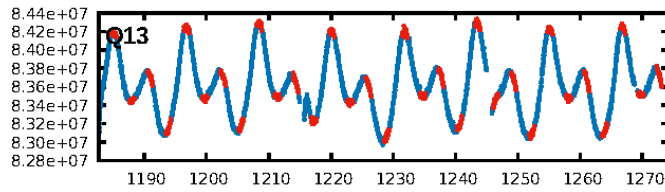
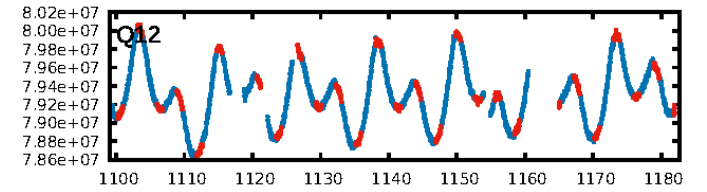
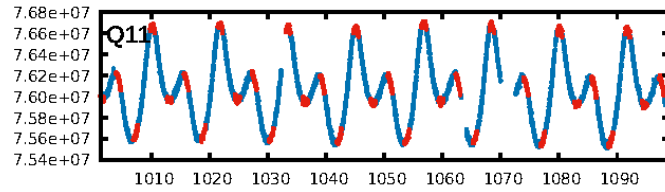
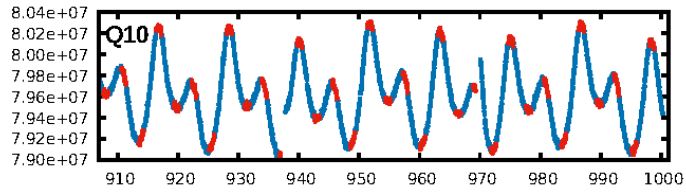
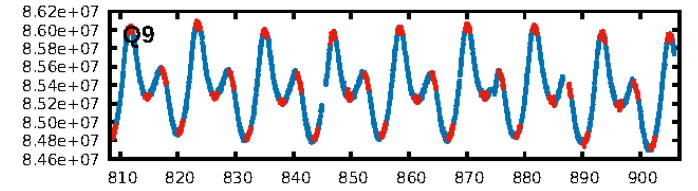
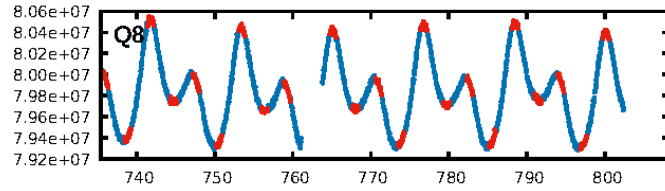
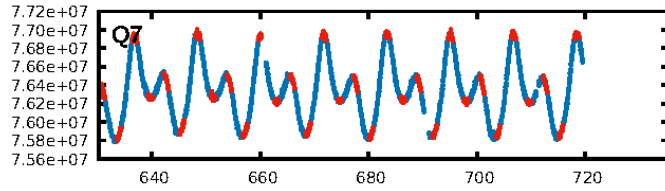
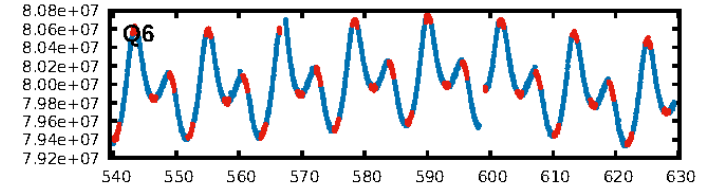
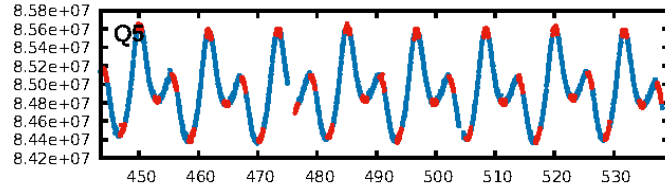
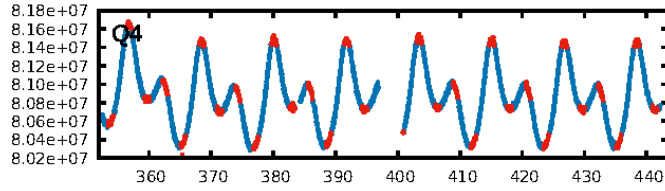
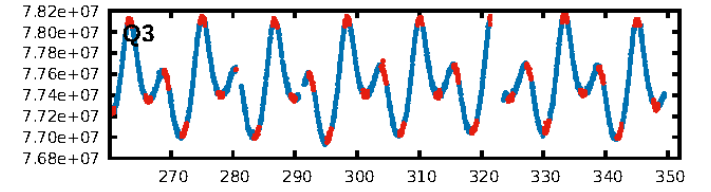
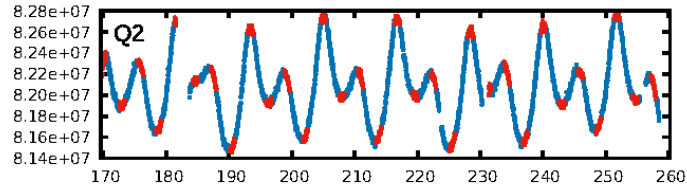
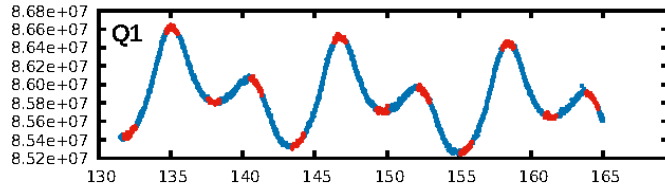
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 97.3% [2.22σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.46e-46
RollingBand-fgt: 1.00 [442/442]
GhostDiagnostic-chr: -1.558
Centroid-sig: 6.3%
Centroid-so: 0.769 arcsec [1.01σ]
OotOffset-rm: 0.100 arcsec [0.39σ]
KicOffset-rm: 0.128 arcsec [0.49σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

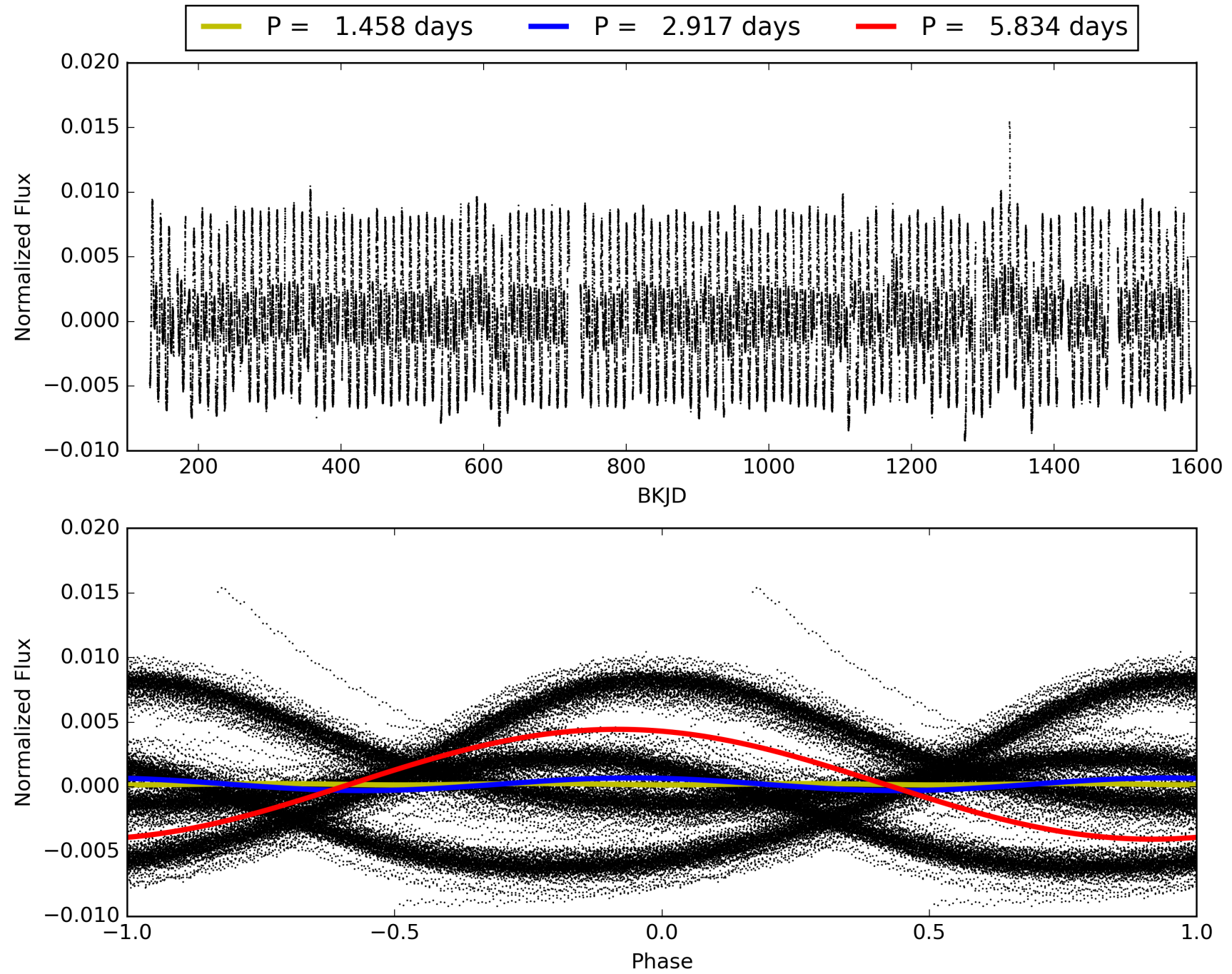
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:49:03 Z

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

TCE 006222884-02, PDC Light Curves

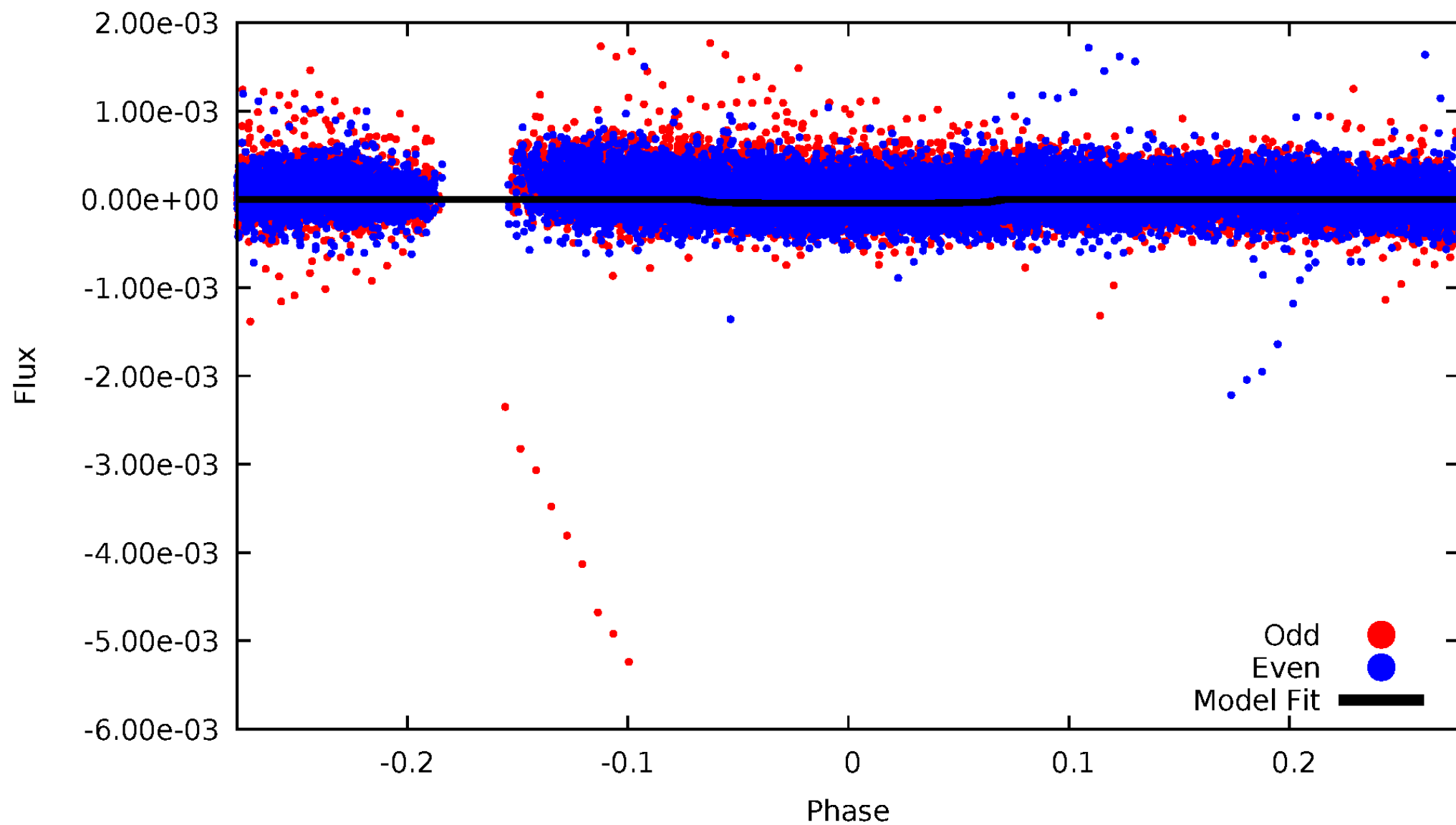


TCE 006222884-02



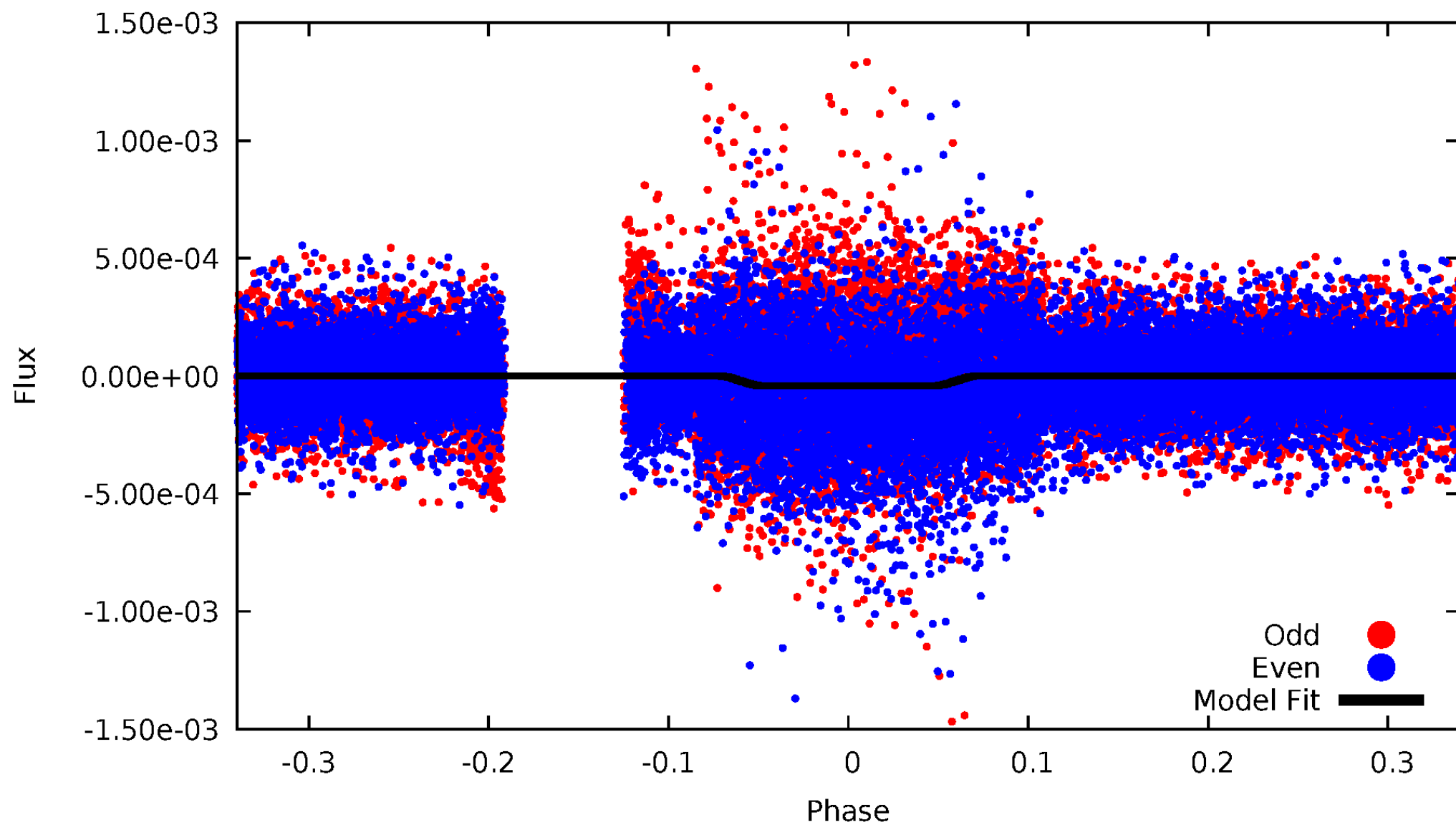
DV Odd/Even

TCE 006222884-02



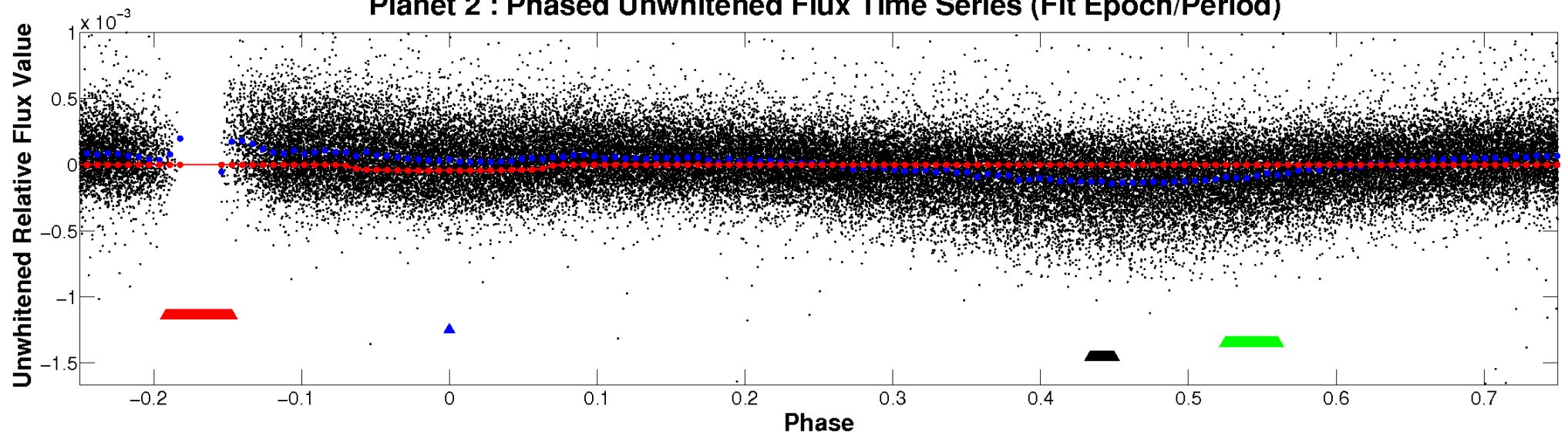
ALT Odd/Even

TCE 006222884-02

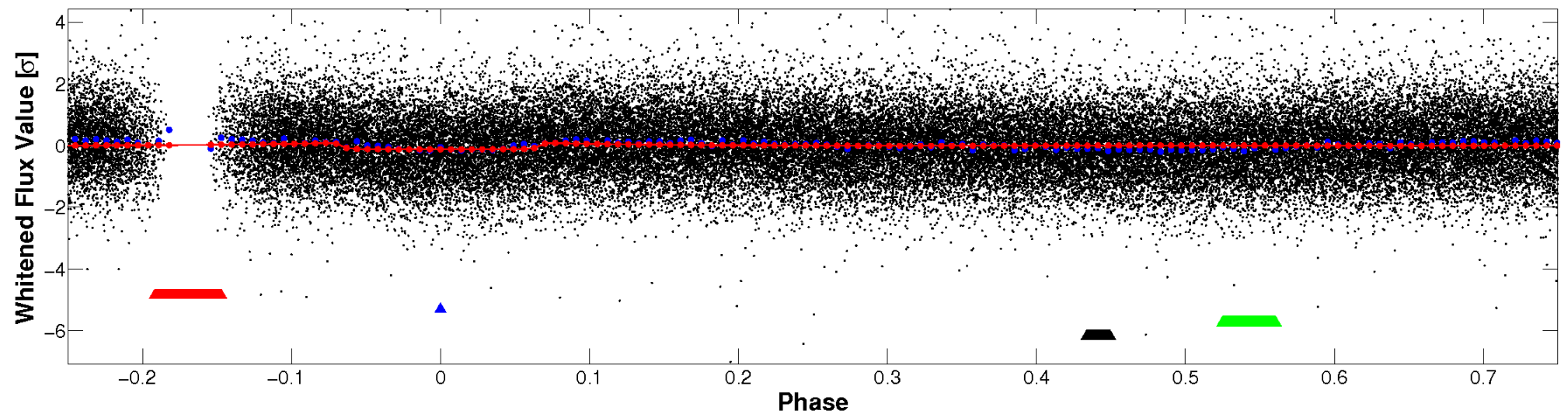


Non-Whitened Vs. Whitened Light Curve

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

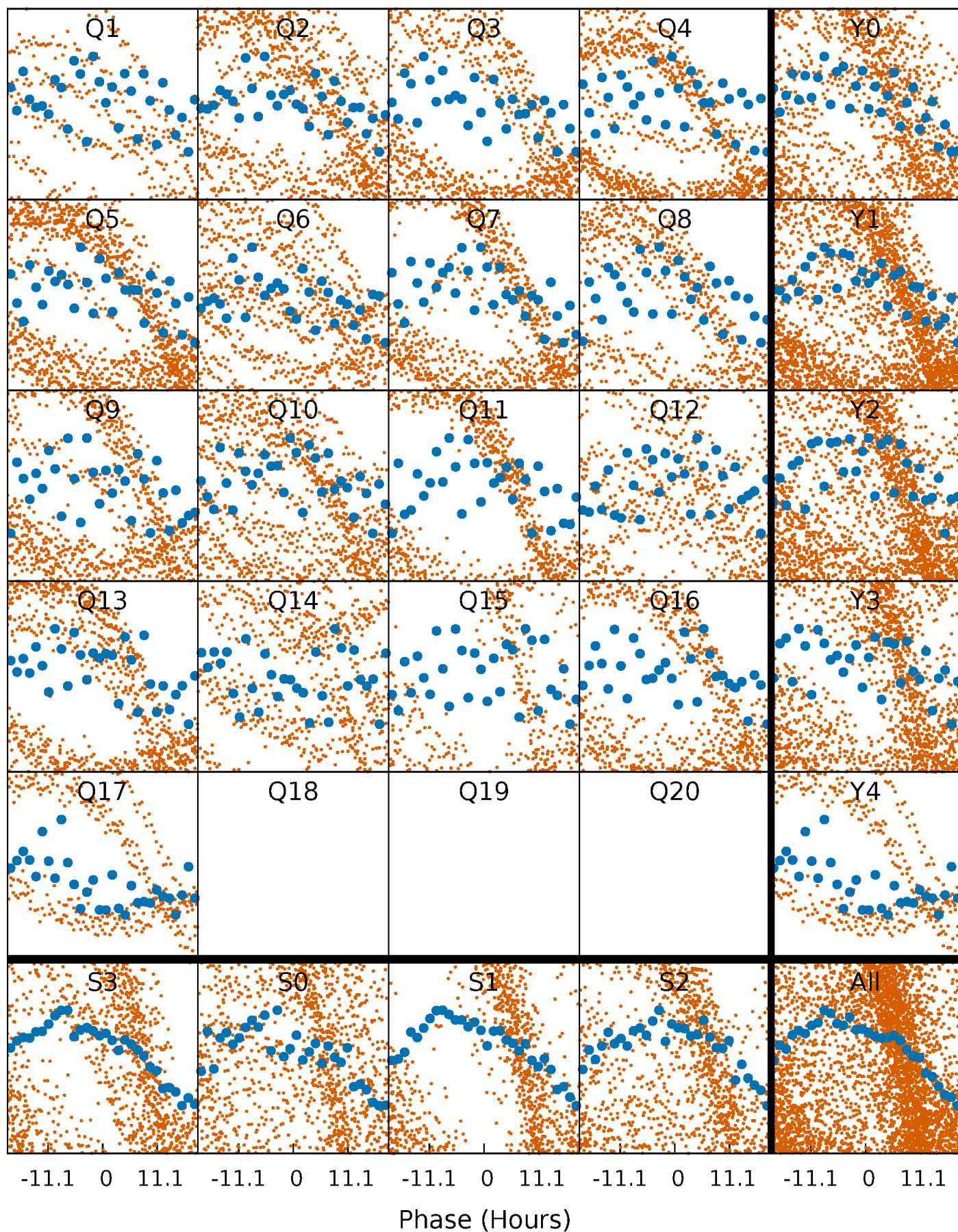


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



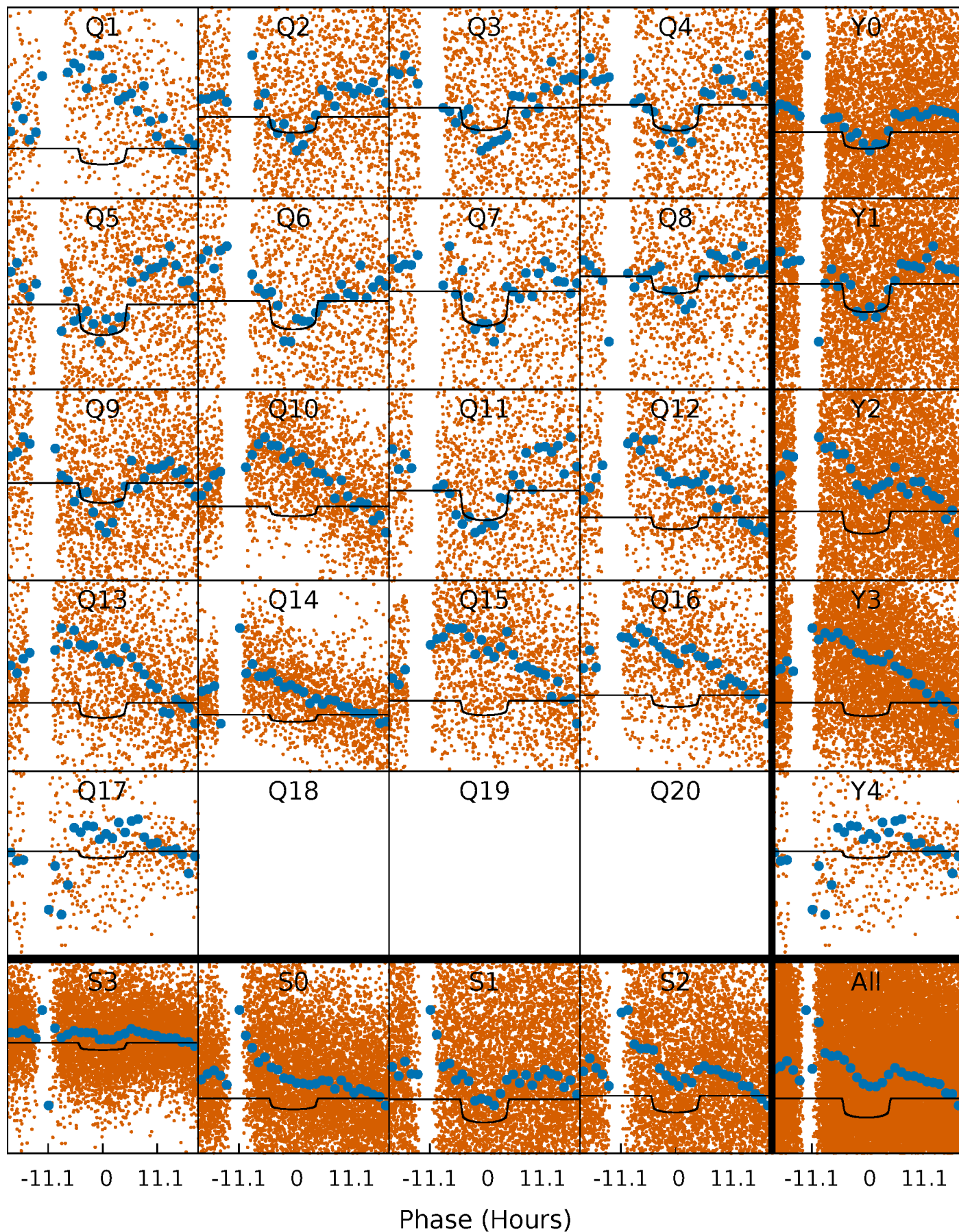
PDC Quarter-Phased Transit Curves

TCE 006222884-02 P= 2.916940 Days $T_0=132.152082$ (BKJD)



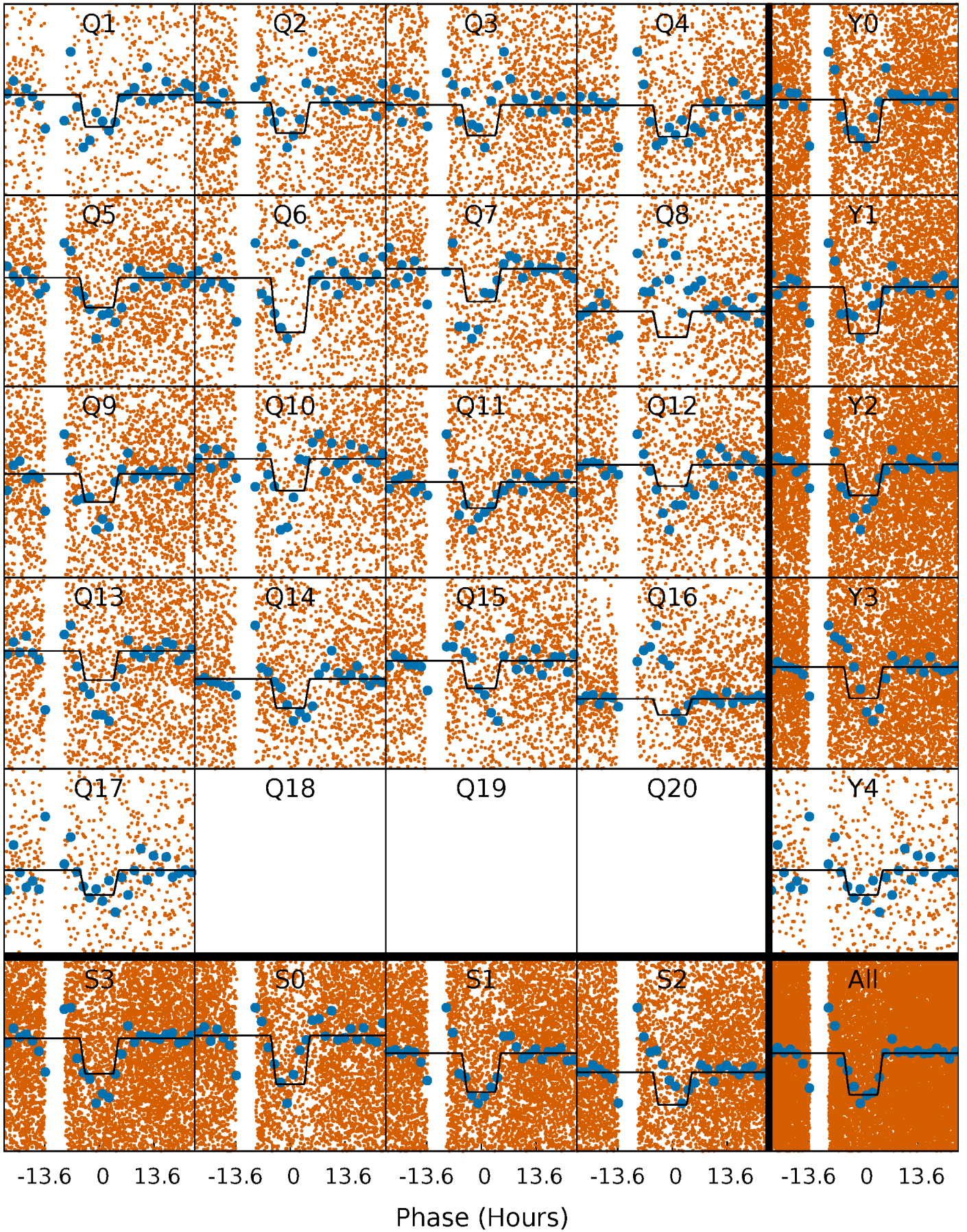
DV Quarter-Phased Transit Curves

TCE 006222884-02 $P = 2.916940$ Days $T_0 = 132.152082$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

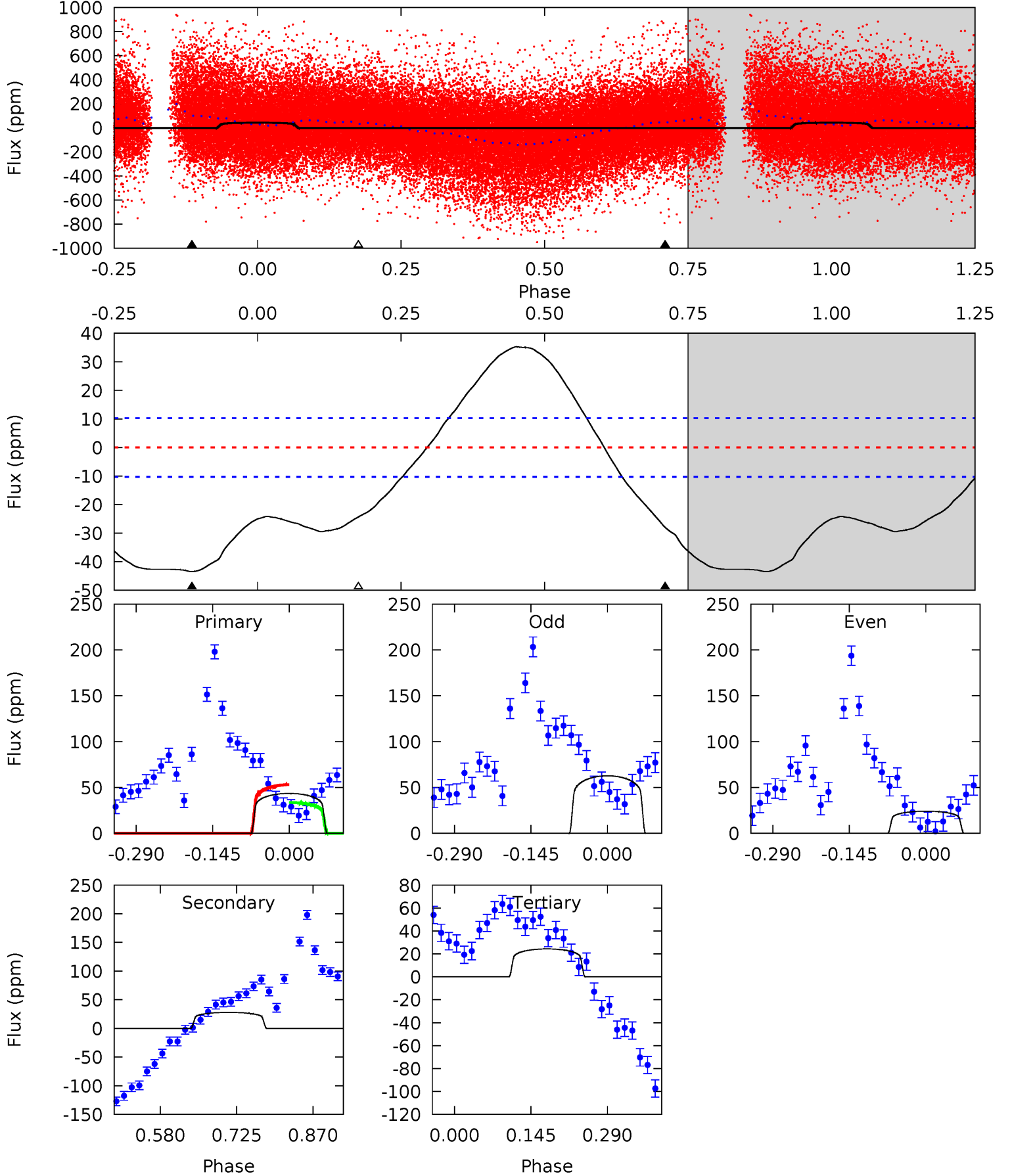
TCE 006222884-02 P= 2.916720 Days $T_0=132.173494$ (BKJD)



DV Model-Shift Uniqueness Test

006222884-02, P = 2.916940 Days, E = 129.235142 Days

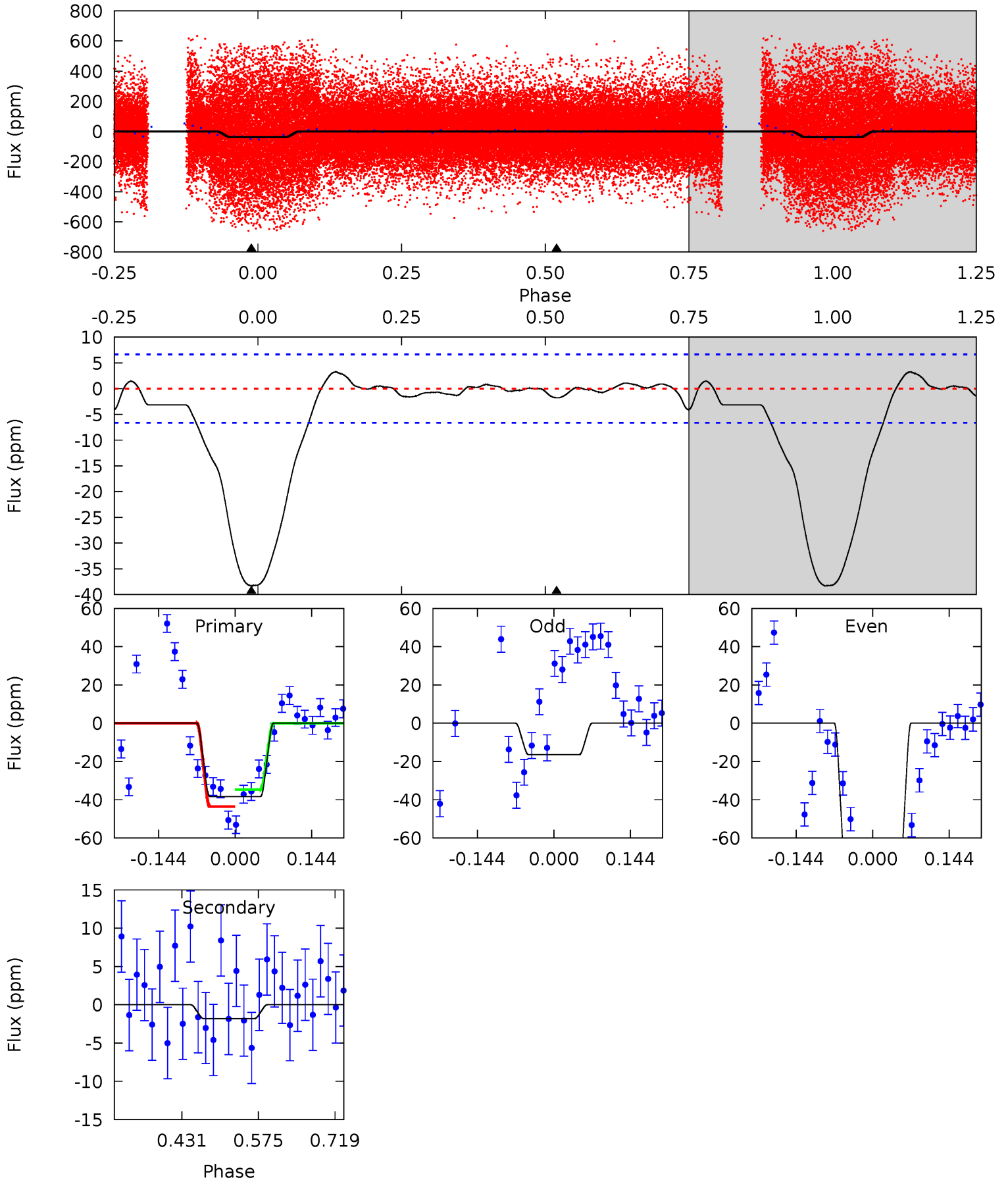
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	12.2	10.6	0	4.49	1.46	10.5	8.32	18.9	1.58	12.2	8.44	3.23	0.45	4.72



Alt Model-Shift Uniqueness Test

006222884-02, P = 2.916720 Days, E = 129.256774 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.0	1.22	0	0	4.49	1.46	0.93	26.0	26.0	1.22	1.22	24.8	1.01	0.08	3.00



Stellar Parameters For KIC 006222884

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8527^{+418}_{-627}	$4.125^{+0.051}_{-0.289}$	$0.560^{+0.050}_{-0.200}$	$2.123^{+1.071}_{-0.189}$	$2.193^{+0.432}_{-0.233}$	$0.323^{+0.095}_{-0.206}$
	+5%/-7%	+1%/-7%	+9%/-36%	+50%/-9%	+20%/-11%	+29%/-64%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006222884-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-28 ± 2	$1.69^{+0.44}_{-0.27}$	3444^{+359}_{-271}	7185^{+700}_{-665}	14^{+6}_{-5}
Alt.	-2 ± 1	$1.62^{+0.41}_{-0.29}$	3465^{+370}_{-292}	3673^{+702}_{-6695}	$0.892^{+1.072}_{-0.760}$

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 $A_{obs} \gg 1.0$

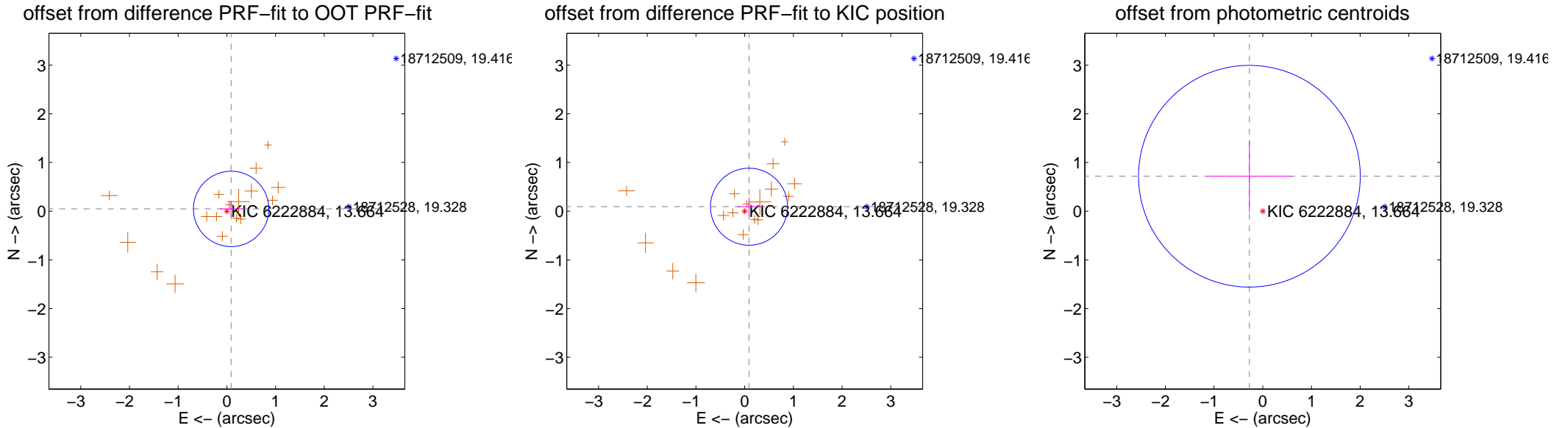
DV Centroid Data

Supplemental centroid analysis for 006222884-02. Kepler magnitude: 13.66. Transit SNR 12.21

There are 0 quarters with good PRF difference image offsets

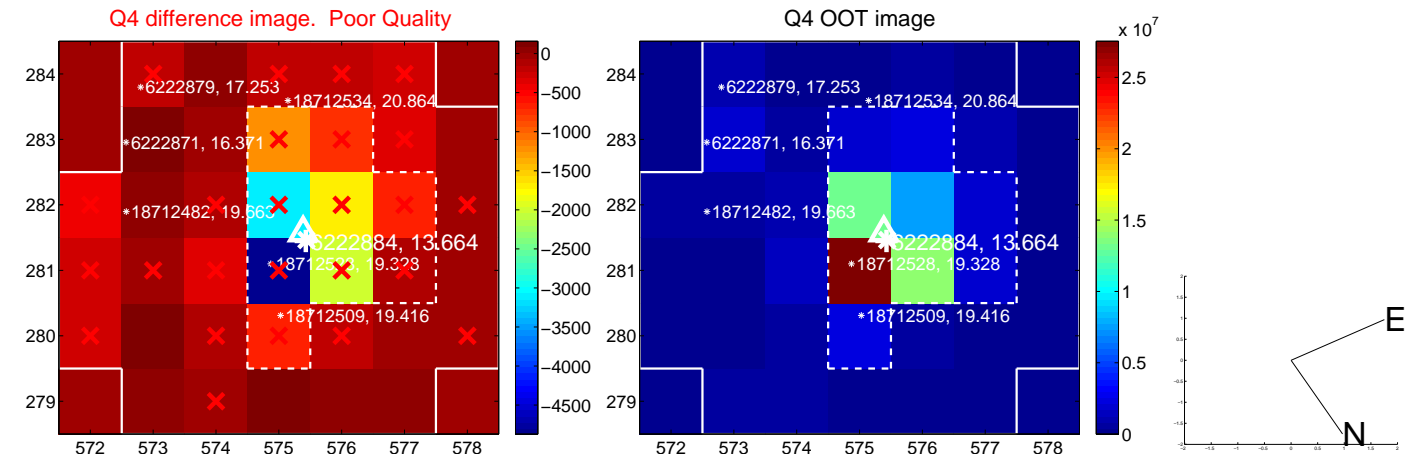
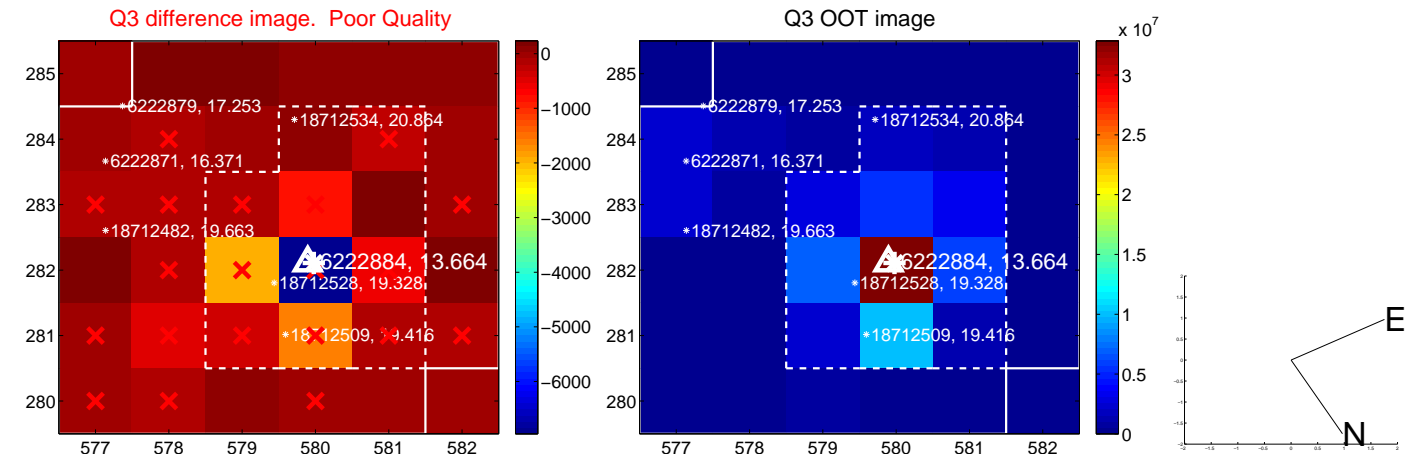
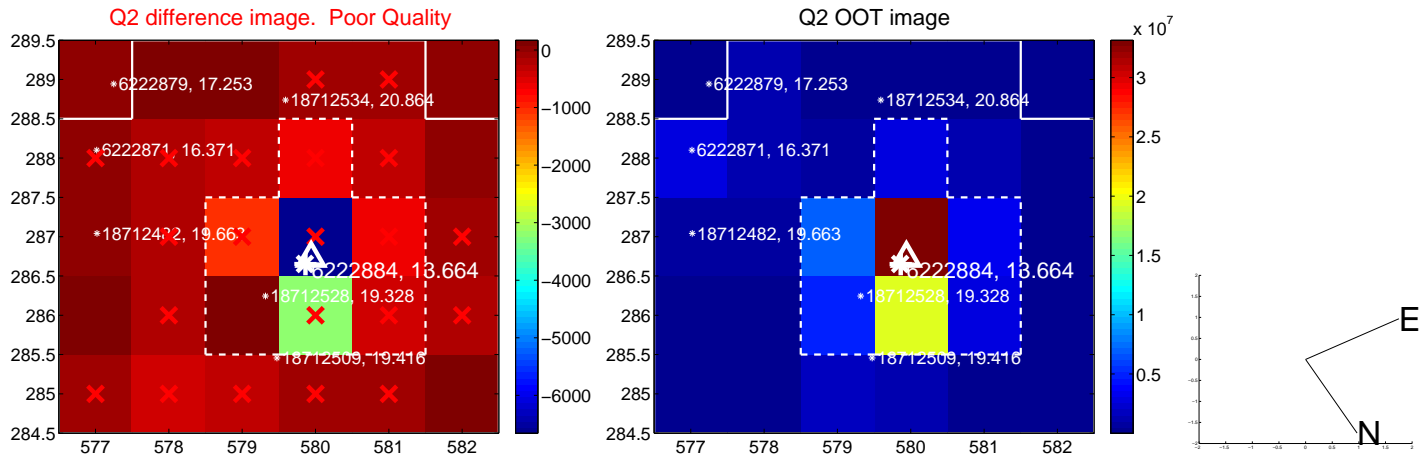
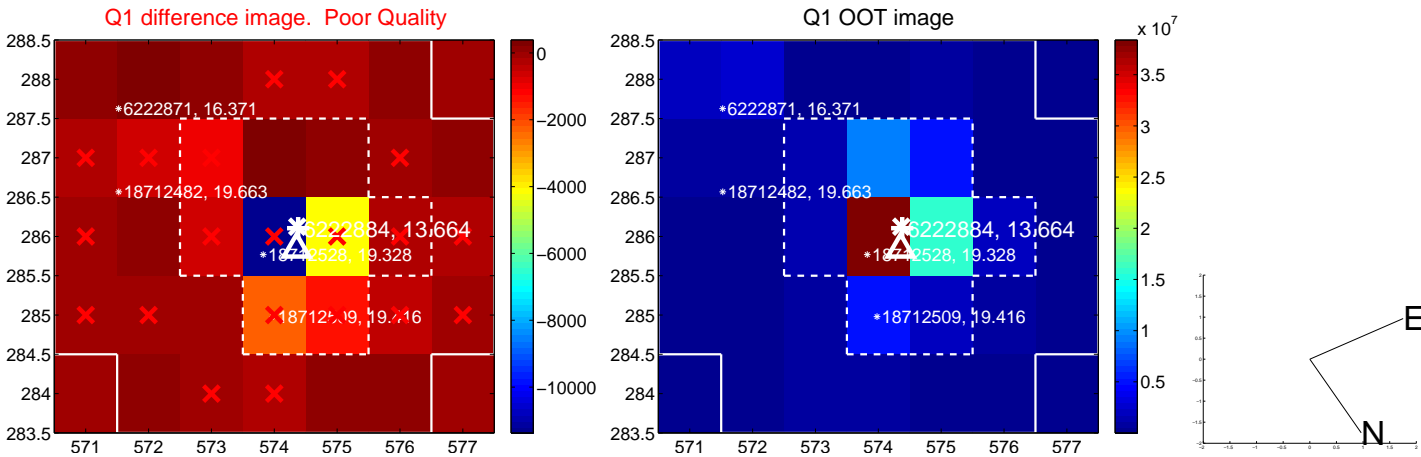
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.100 ± 0.258	0.39	-0.088 ± 0.237	0.047 ± 0.169
PRF-fit source offset from KIC position	0.128 ± 0.264	0.49	-0.089 ± 0.242	0.092 ± 0.188
photometric centroid source offset	0.77 ± 0.76	1.01	0.27 ± 0.88	0.72 ± 0.74

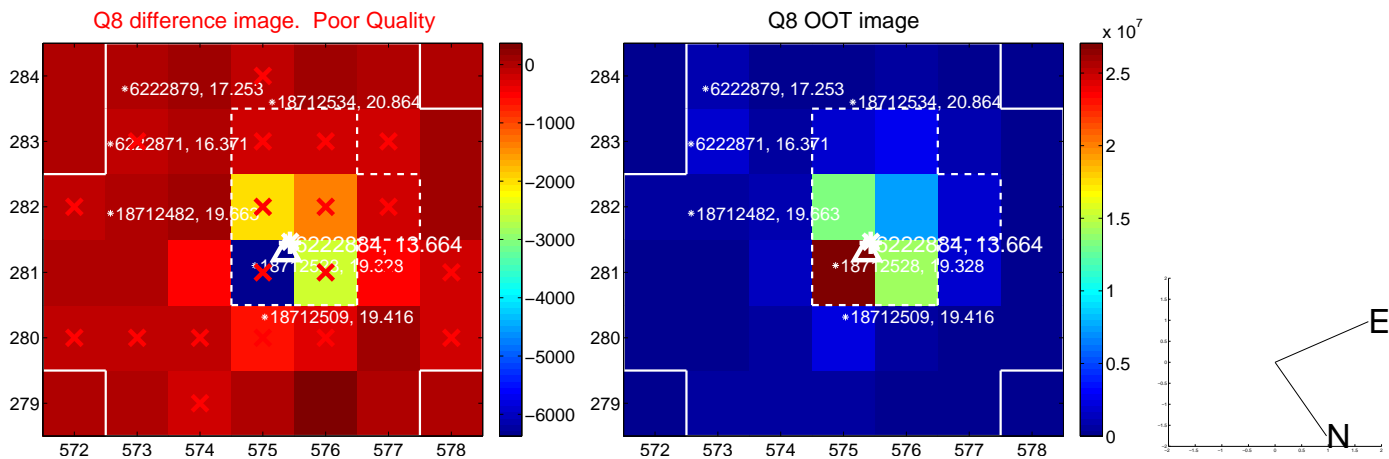
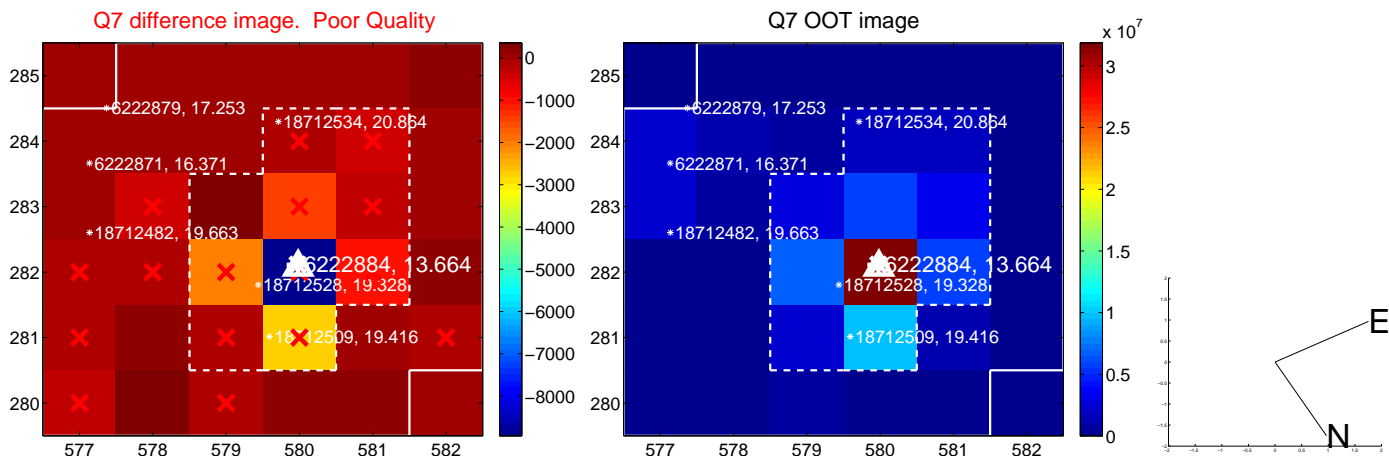
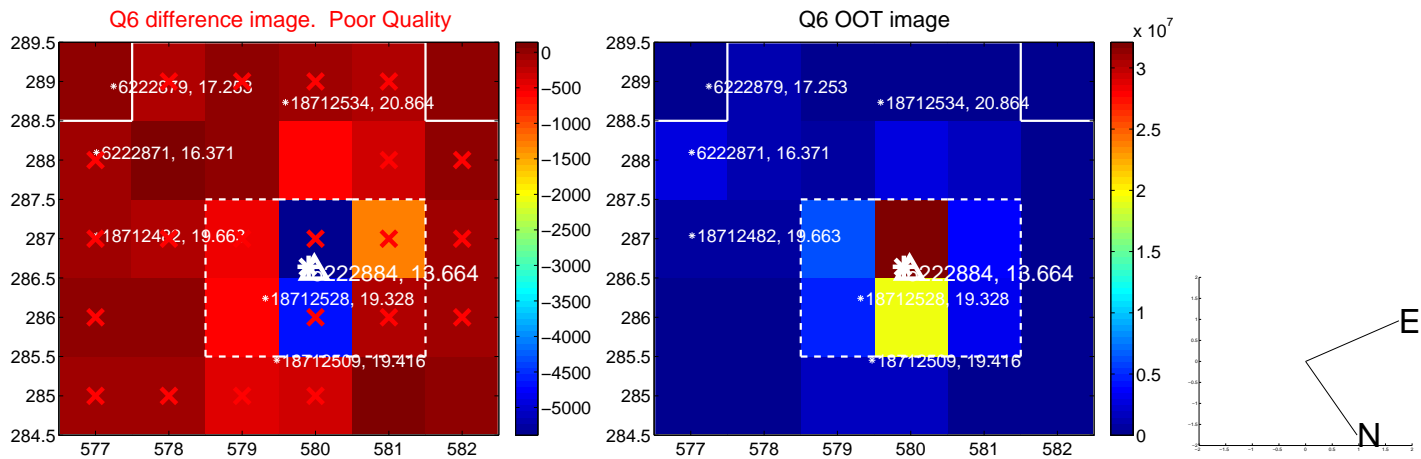
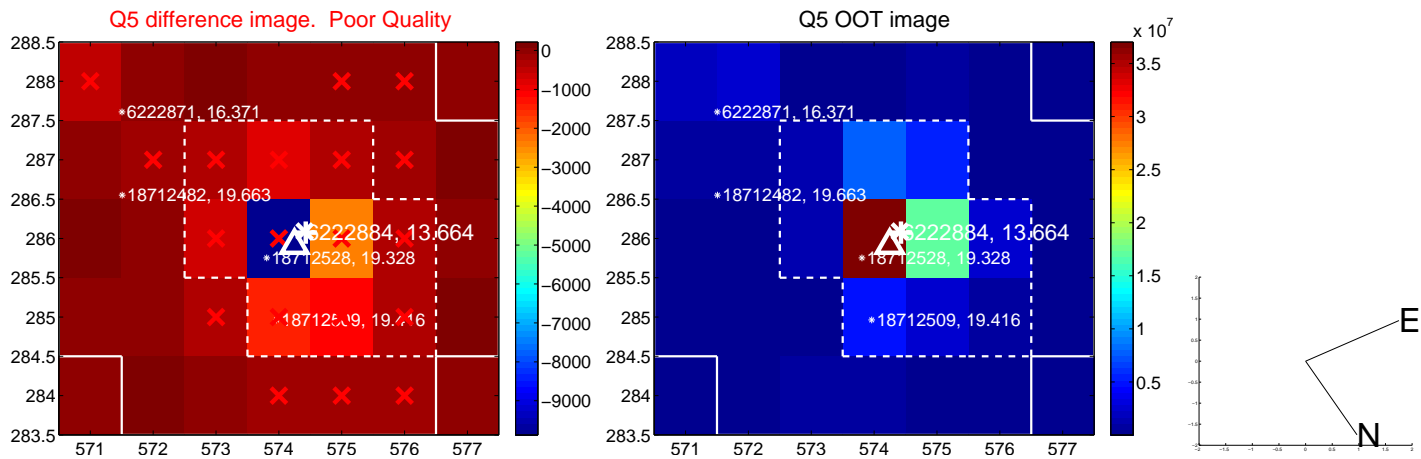


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

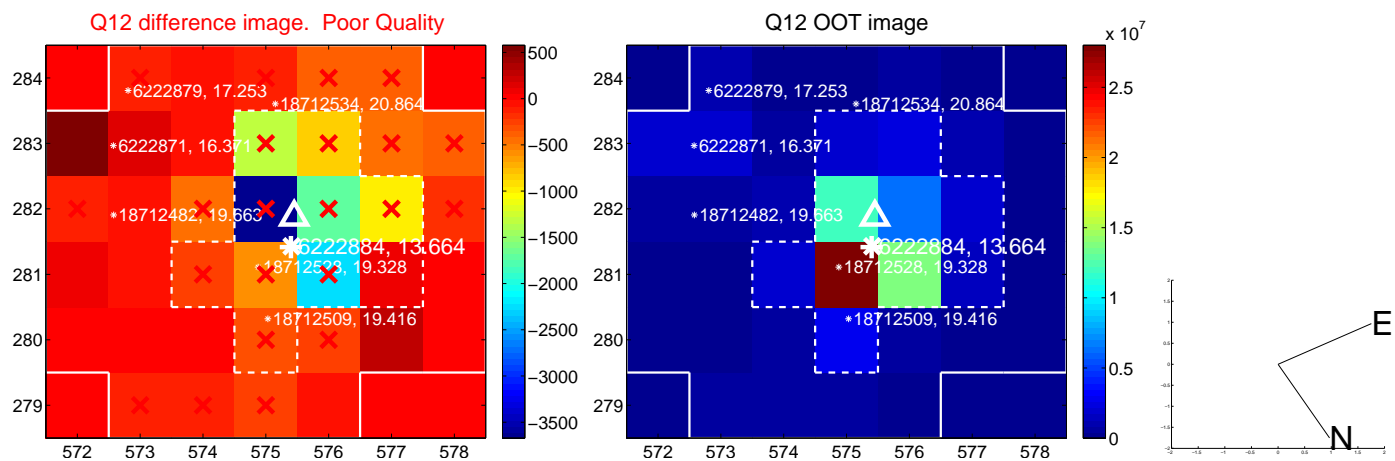
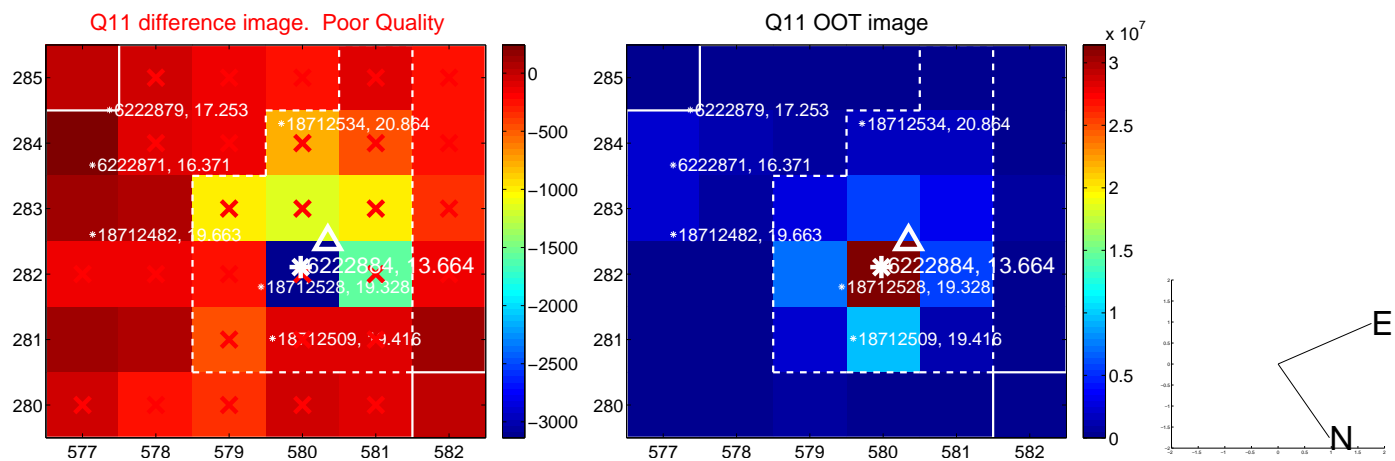
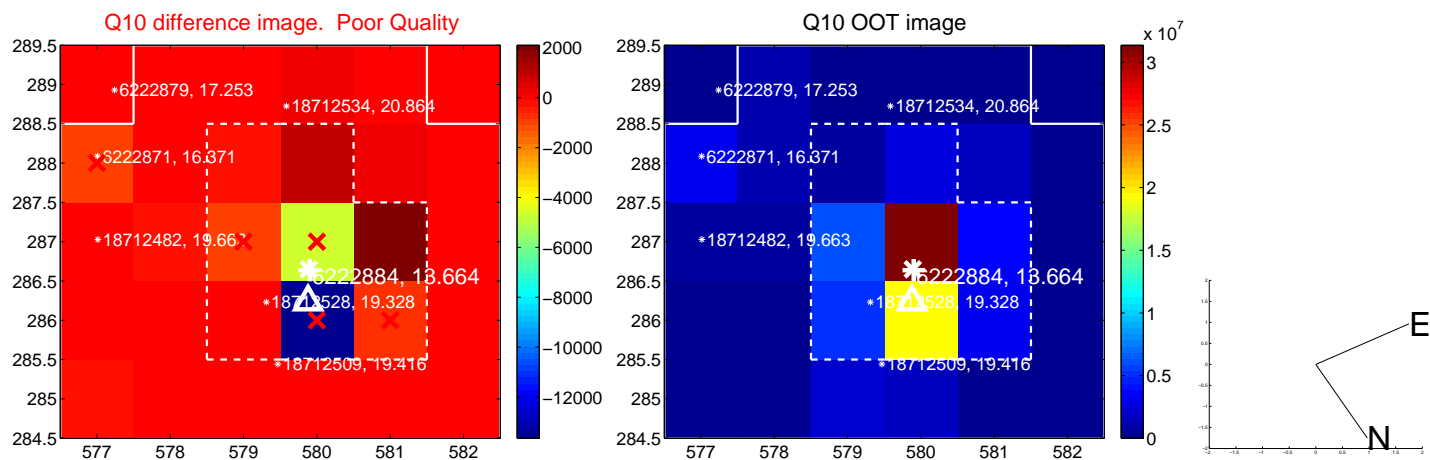
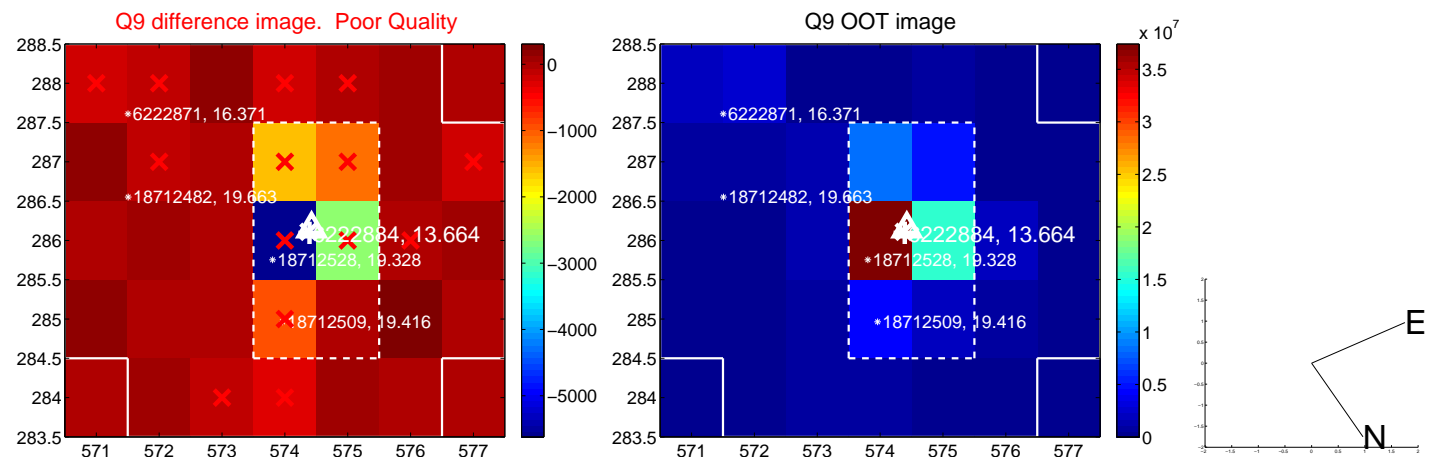
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



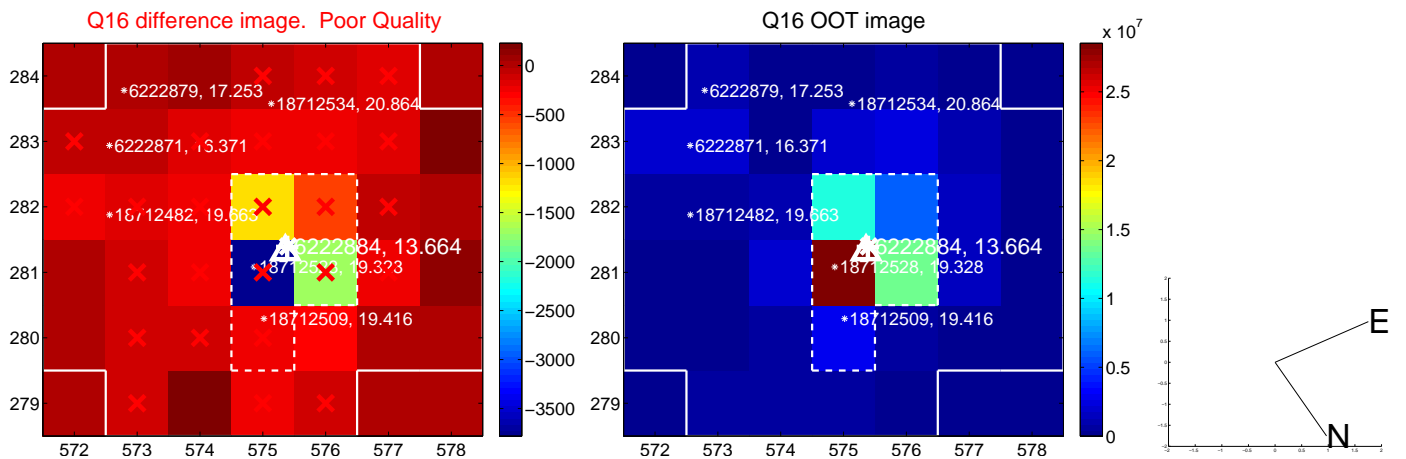
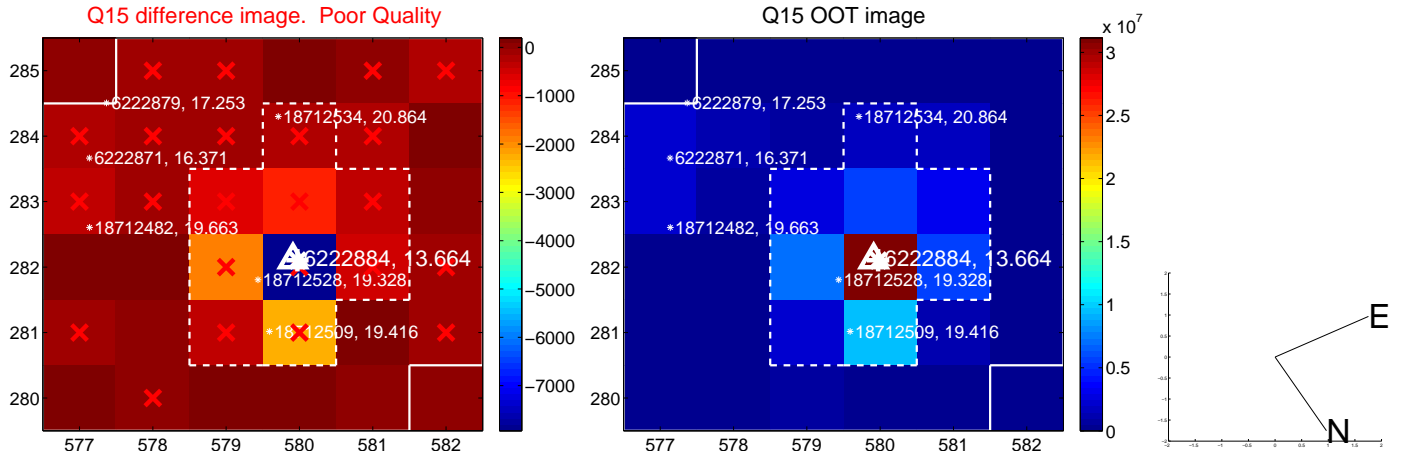
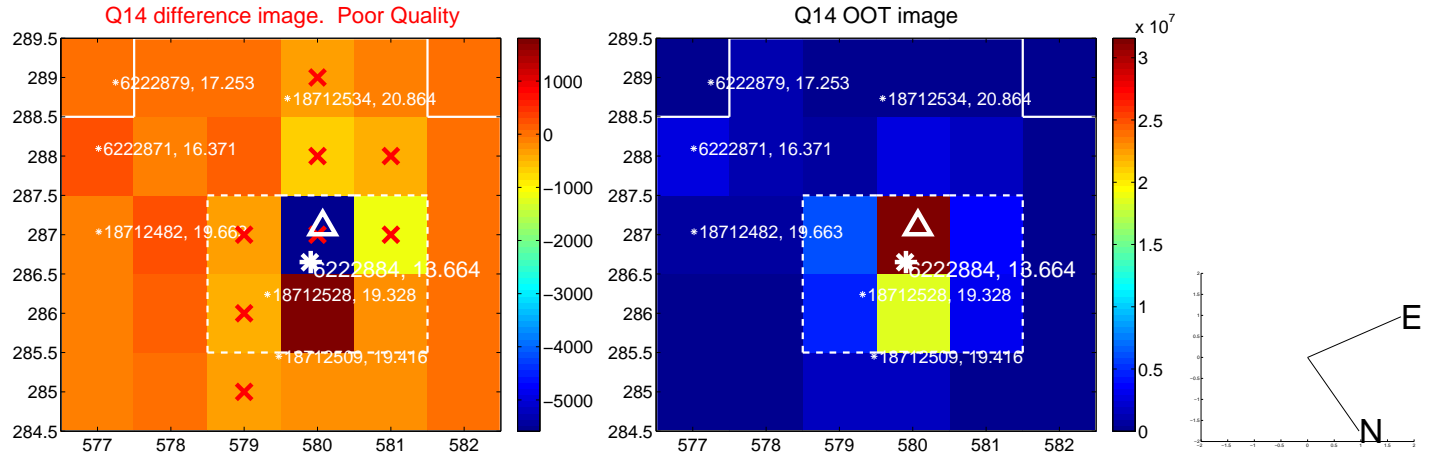
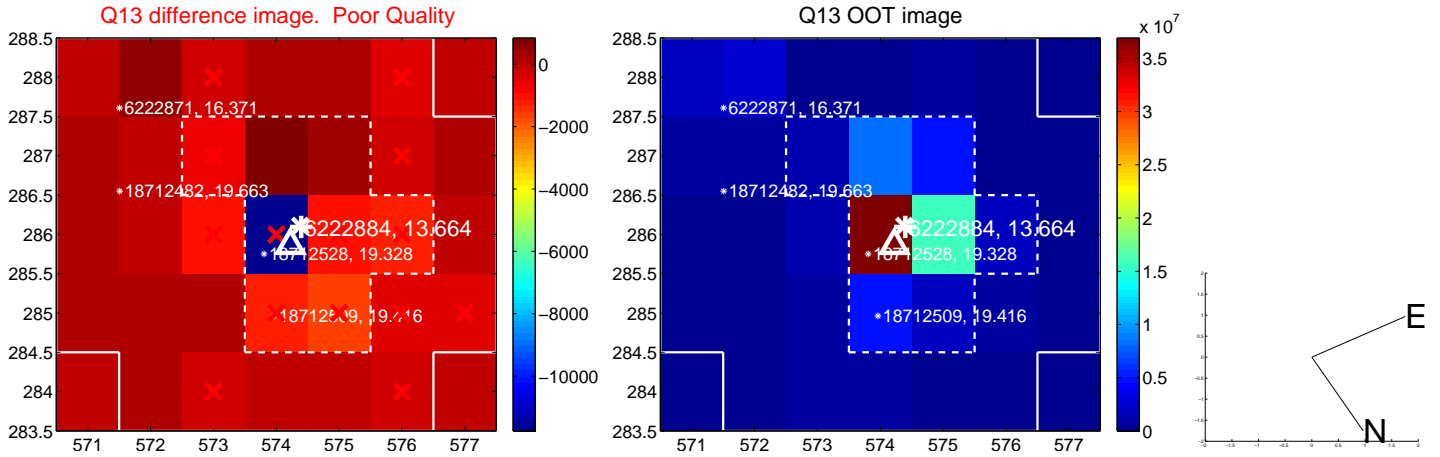
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



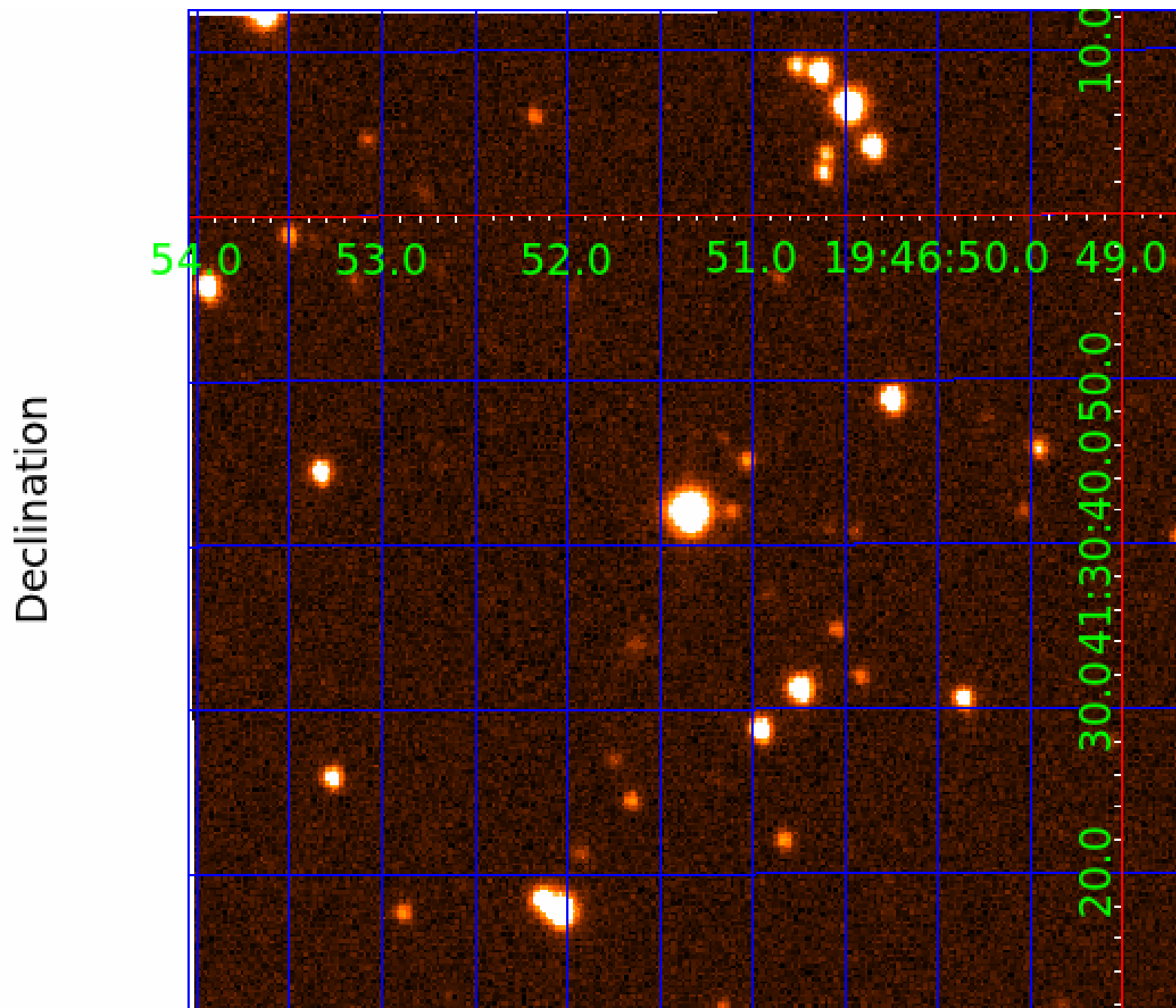
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006222884

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})
006222884-01	OBS	No	2.916679	131.722957	5.0	0.606	14.4	0.6	2.12	8527	0.56	7922.48
006222884-02	OBS	No	2.916940	132.152082	43.5	9.697	14.7	12.2	2.12	8527	1.60	7921.54
006222884-03	OBS	No	11.668589	133.683762	133.0	15.000	14.8	-1.0	2.12	8527	2.48	1247.45
006222884-04	OBS	No	5.834066	136.333822	64.7	30.038	7.6	11.3	2.12	8527	2.31	3143.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006222884-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006222884-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
006222884-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS
006222884-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

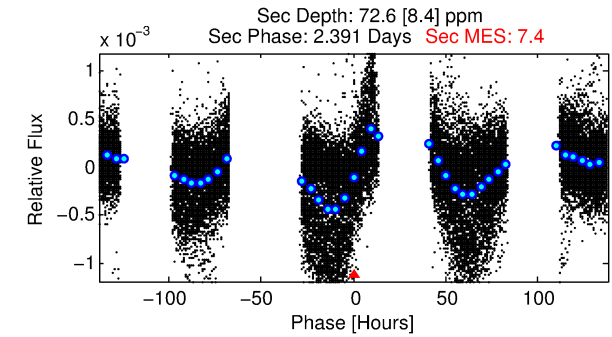
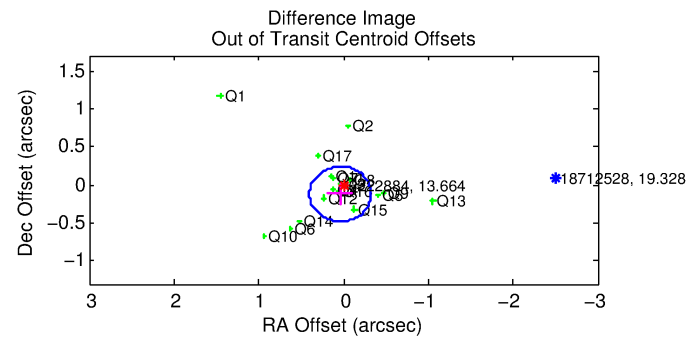
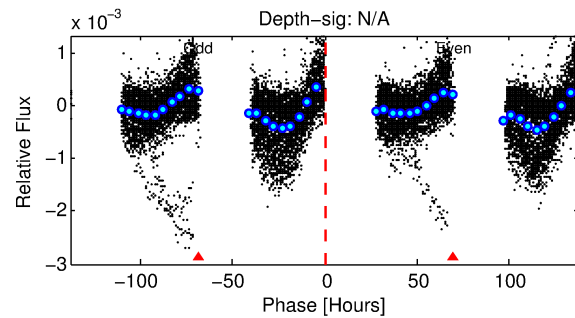
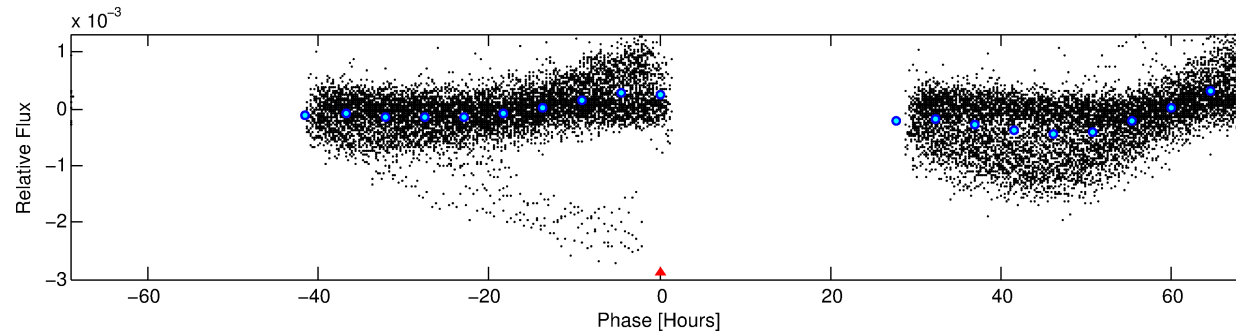
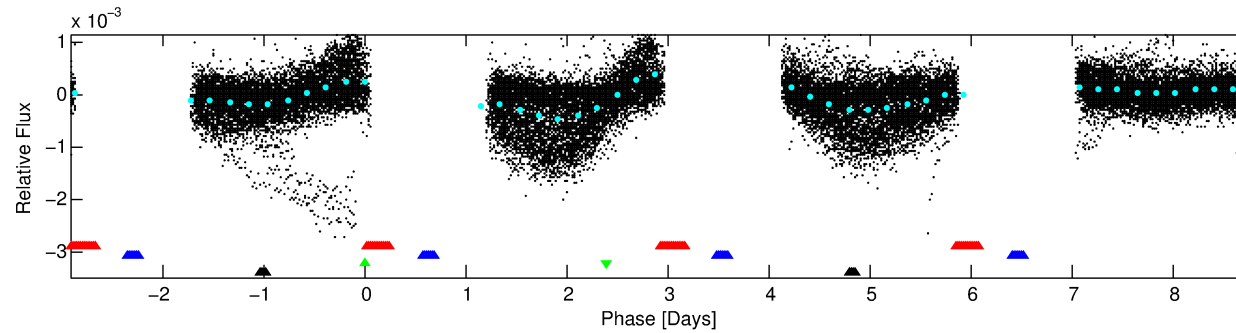
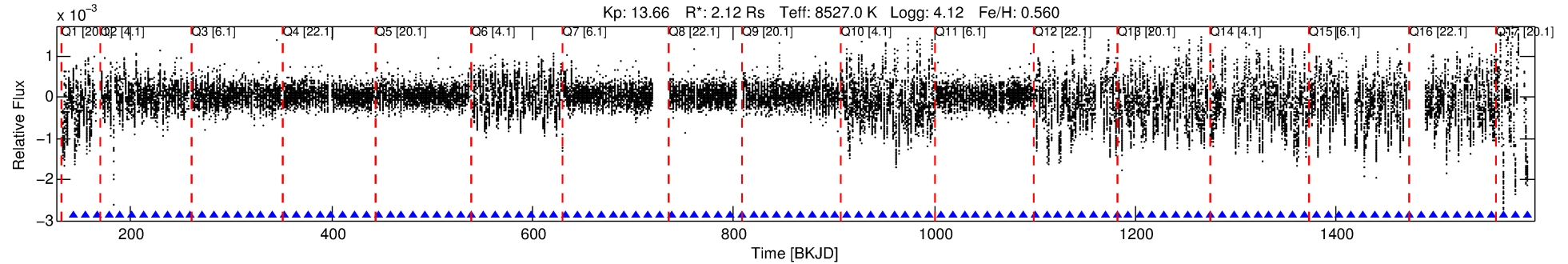
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006222884-03

No Significant Match Found

DV One-Page Summary

KIC: 6222884 Candidate: 3 of 4 Period: 11.669 d



TPS TCE Results:

Period = 11.66859 d
Epoch = 133.6838 BKJD

DV fit results are unavailable

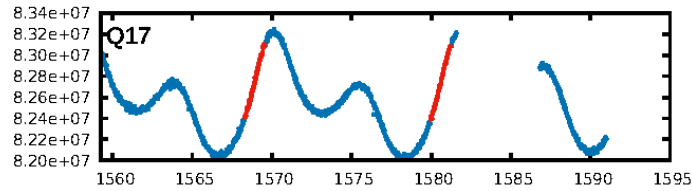
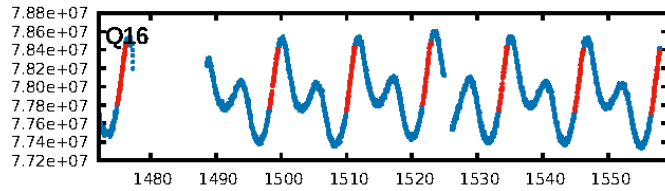
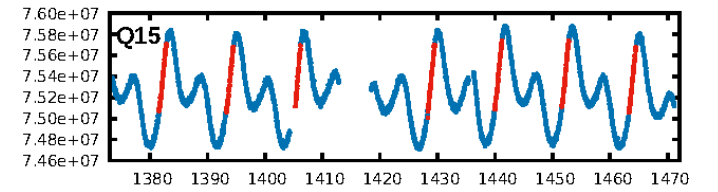
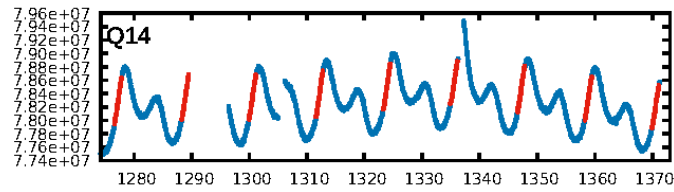
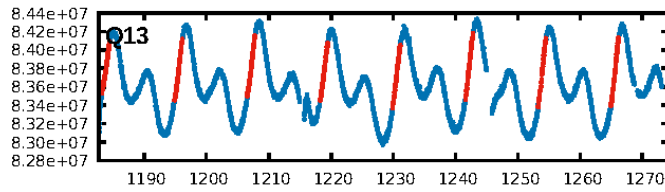
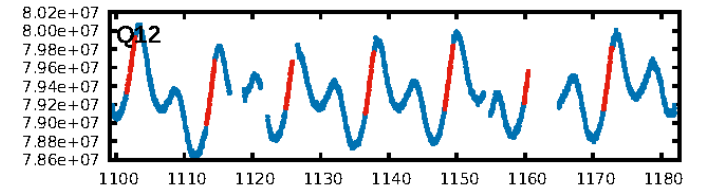
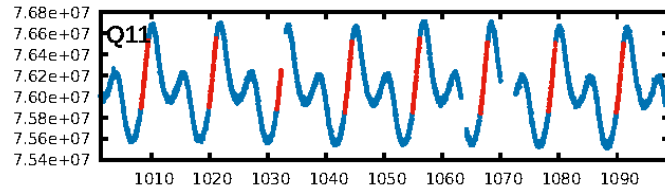
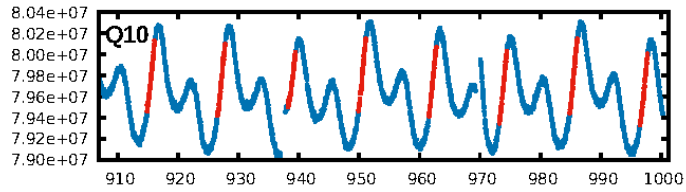
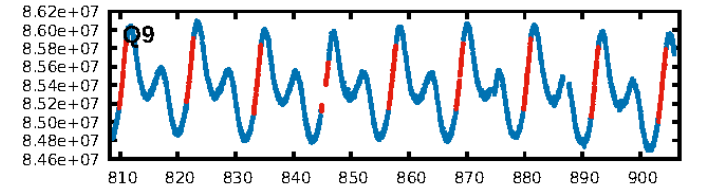
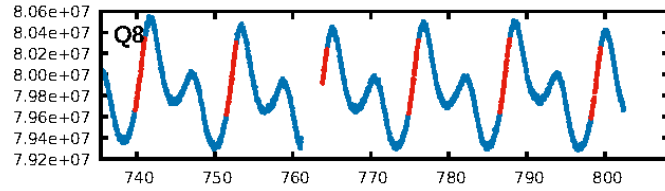
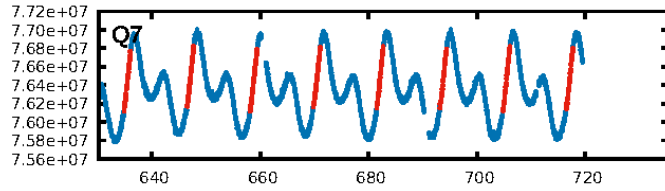
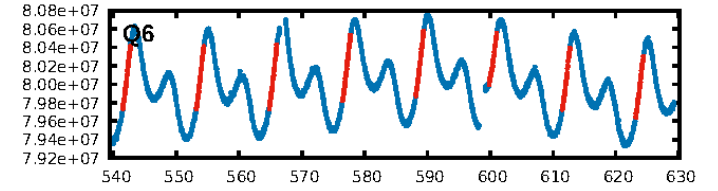
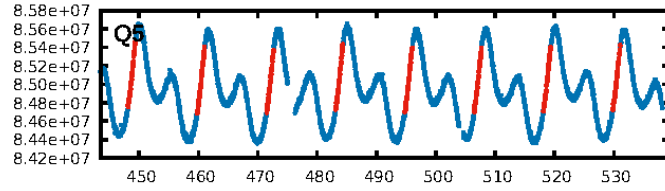
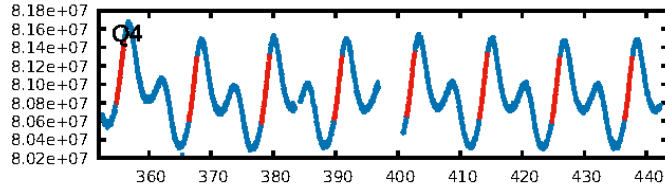
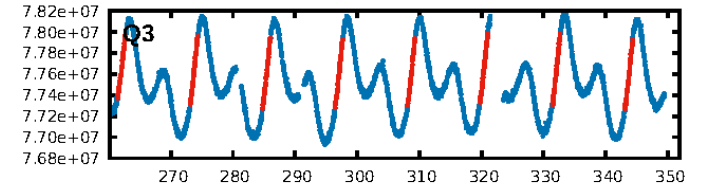
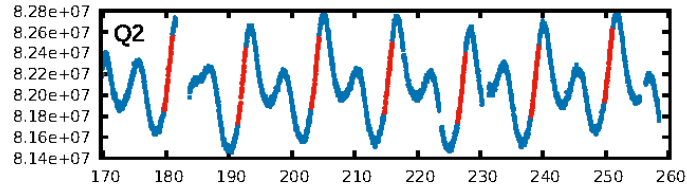
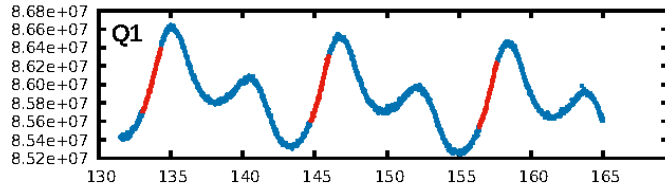
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.17 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.40e-52
RollingBand-fgt: 1.00 [111/111]
GhostDiagnostic-chr: -0.3958
Centroid-sig: 43.4%
Centroid-so: 0.212 arcsec [5.77 σ]
OotOffset-rm: 0.125 arcsec [1.04 σ]
KicOffset-rm: 0.076 arcsec [0.56 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

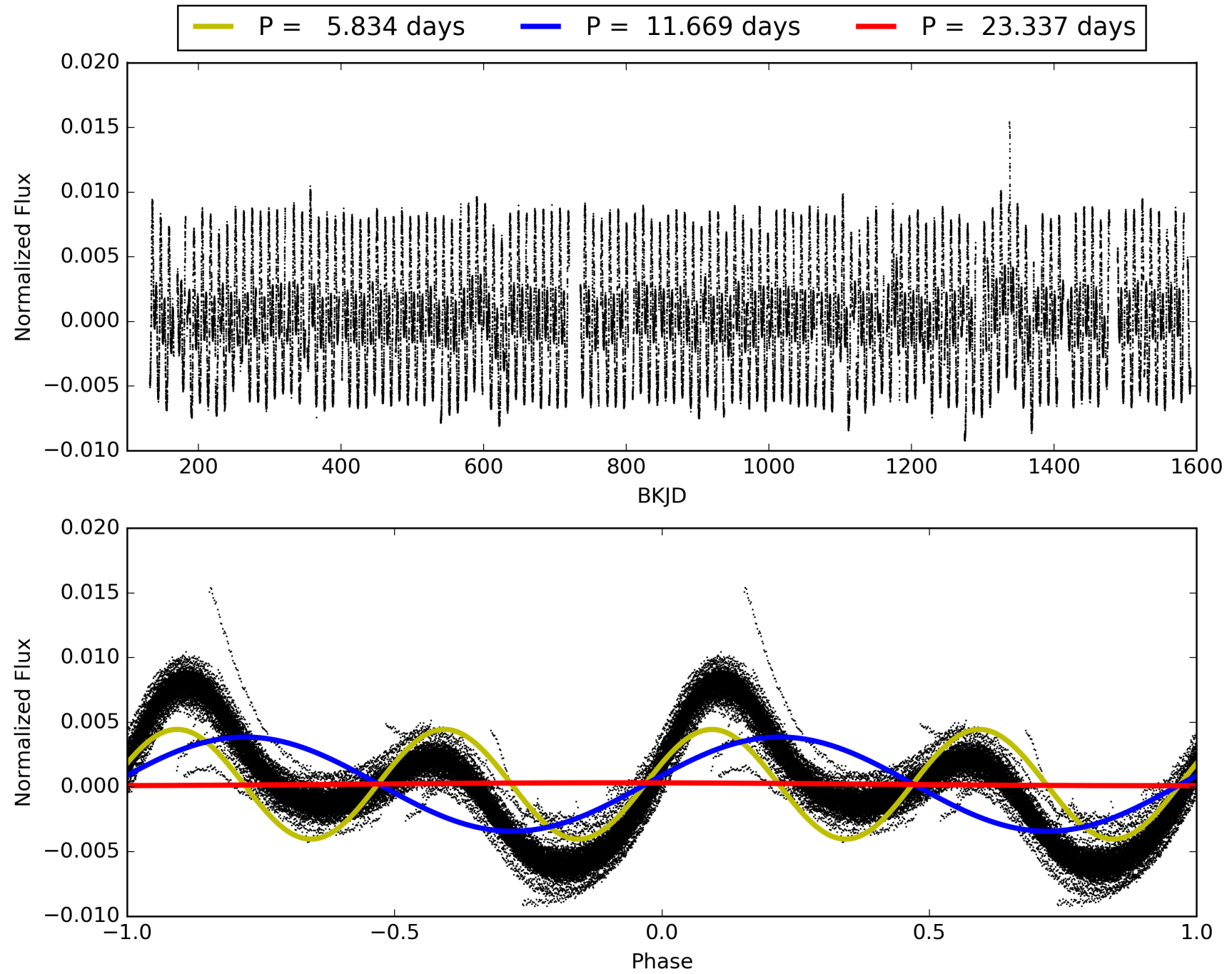
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:49:13 Z

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

TCE 006222884-03, PDC Light Curves

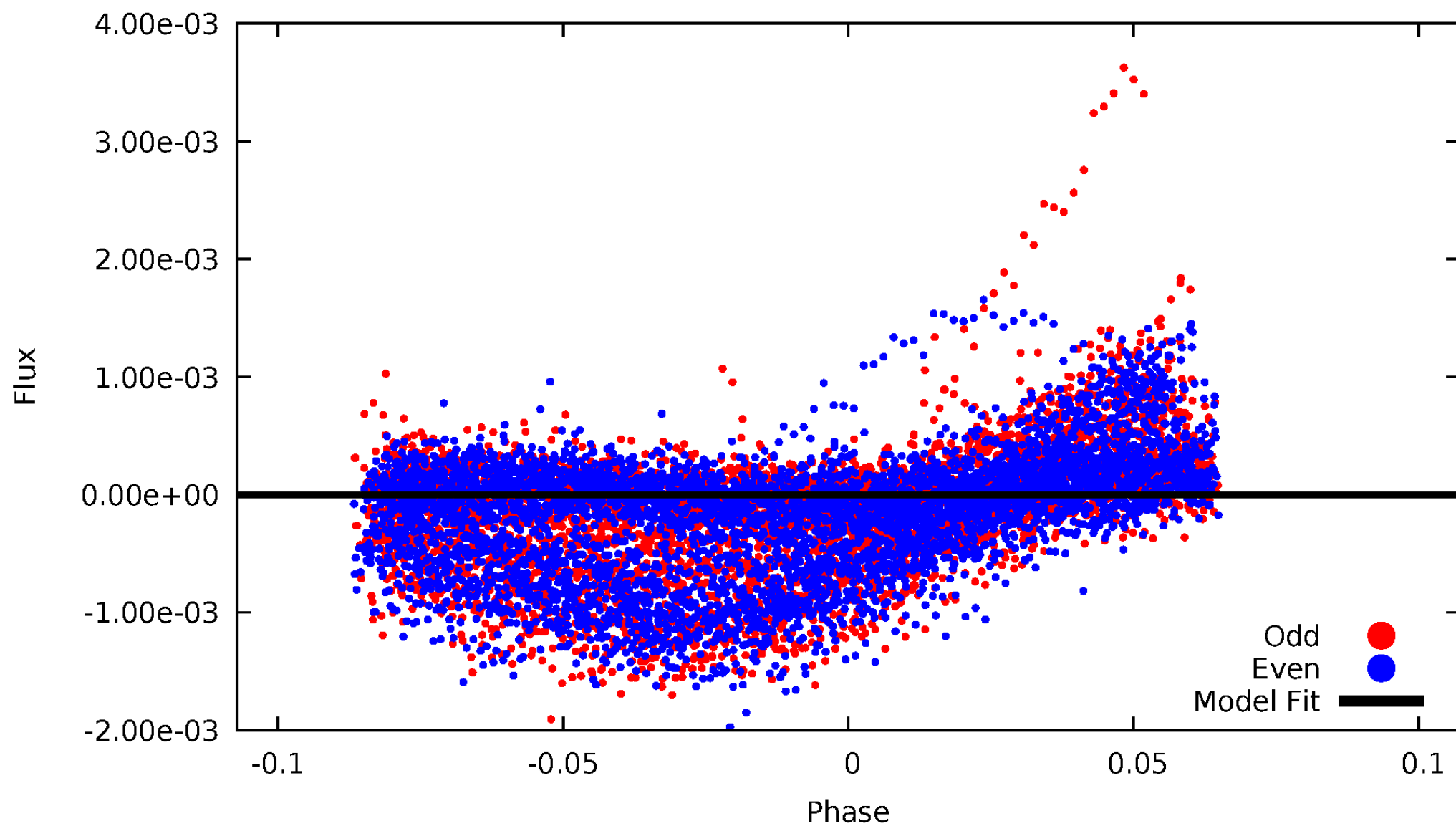


TCE 006222884-03



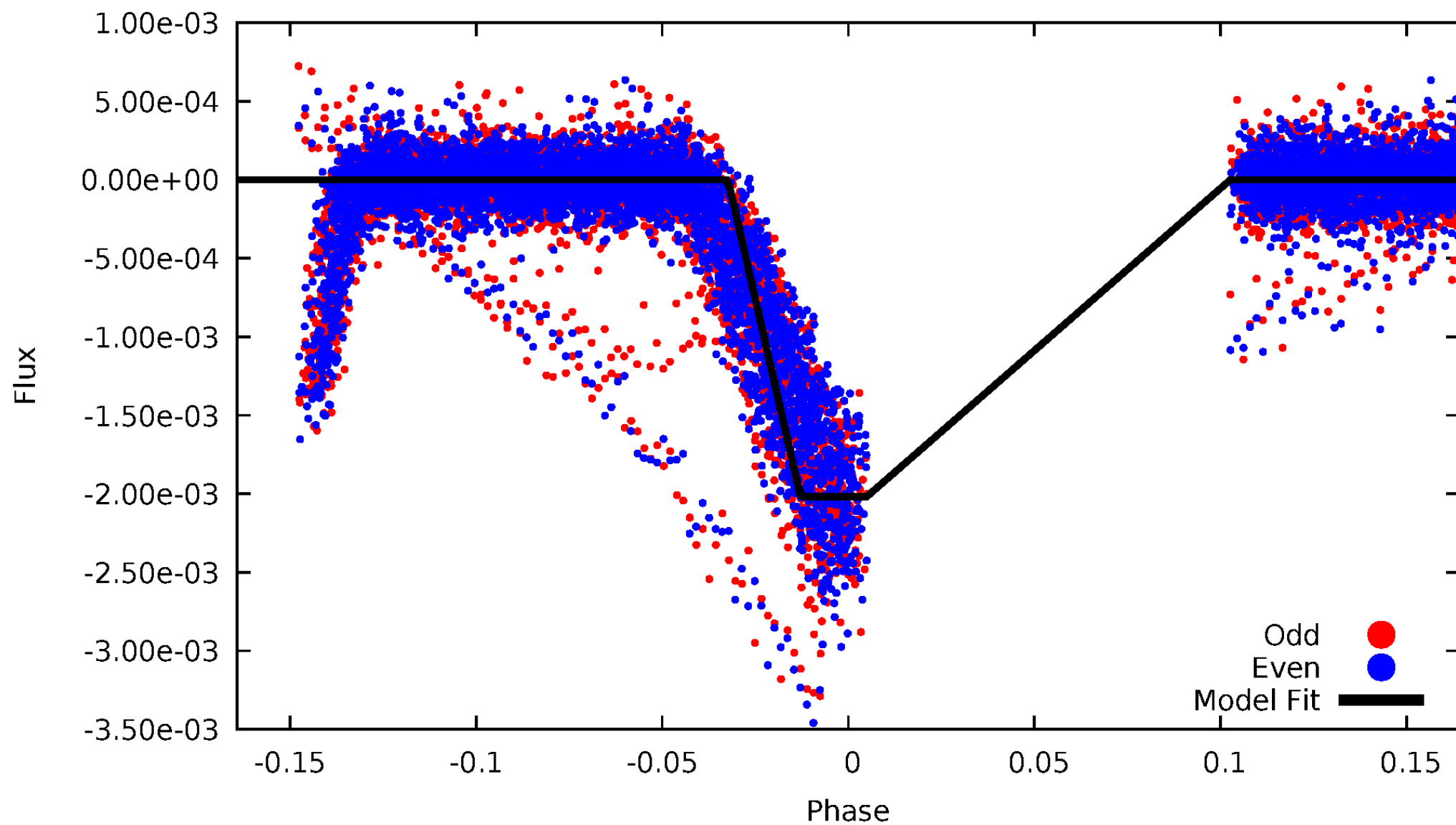
DV Odd/Even

TCE 006222884-03

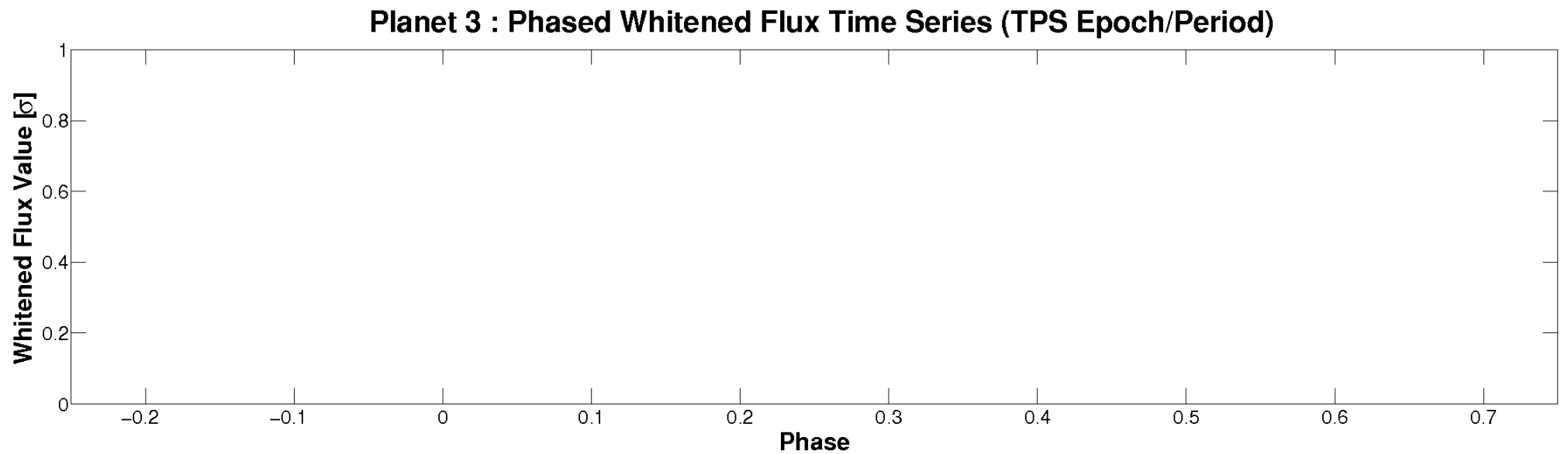
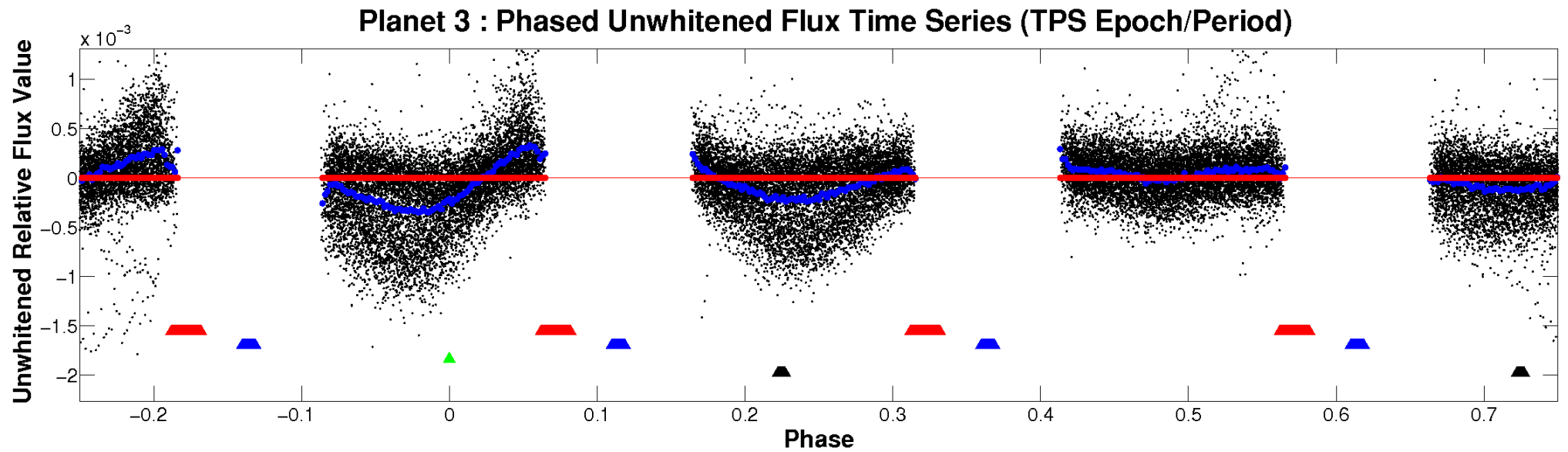


ALT Odd/Even

TCE 006222884-03

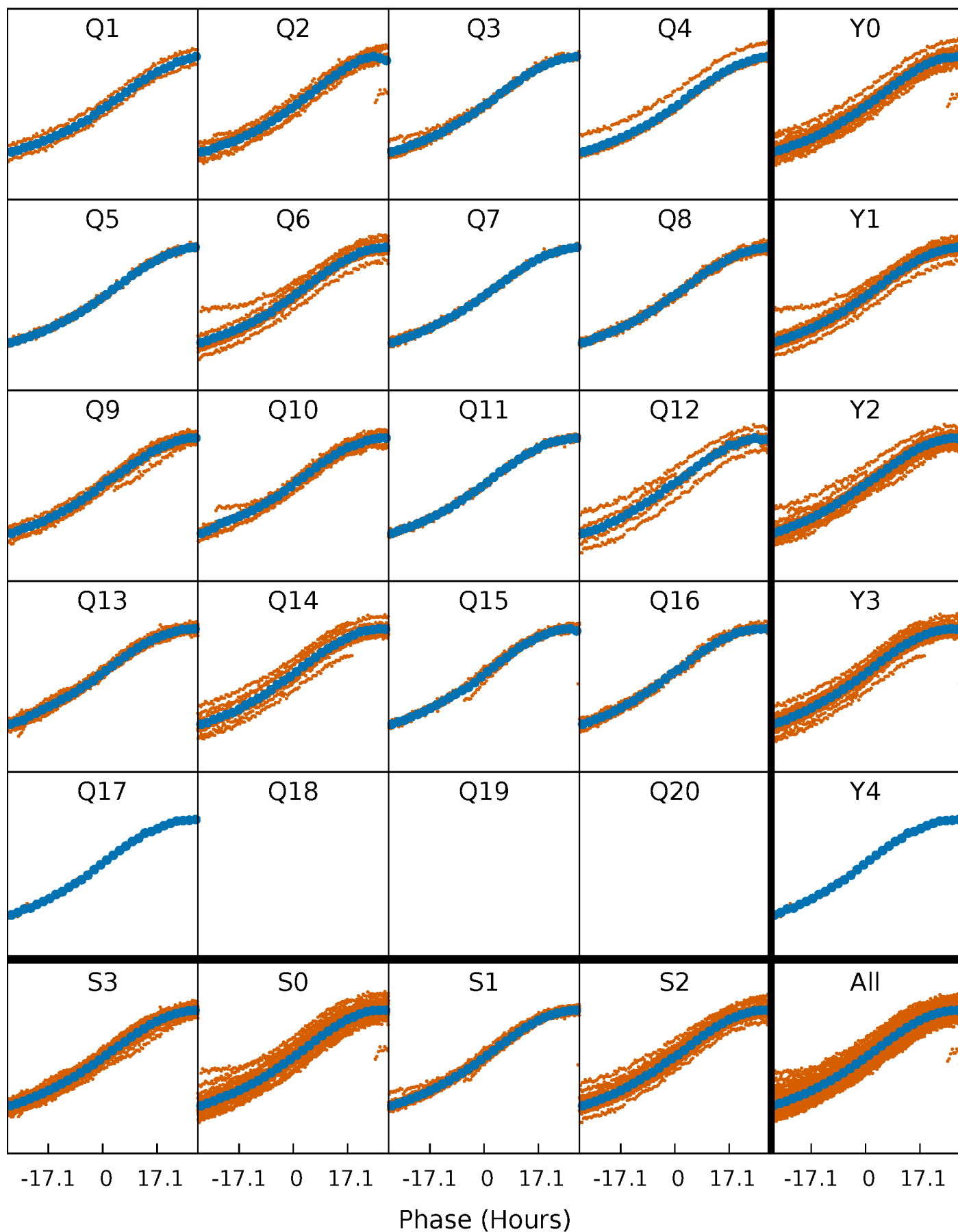


Non-Whitened Vs. Whitened Light Curve



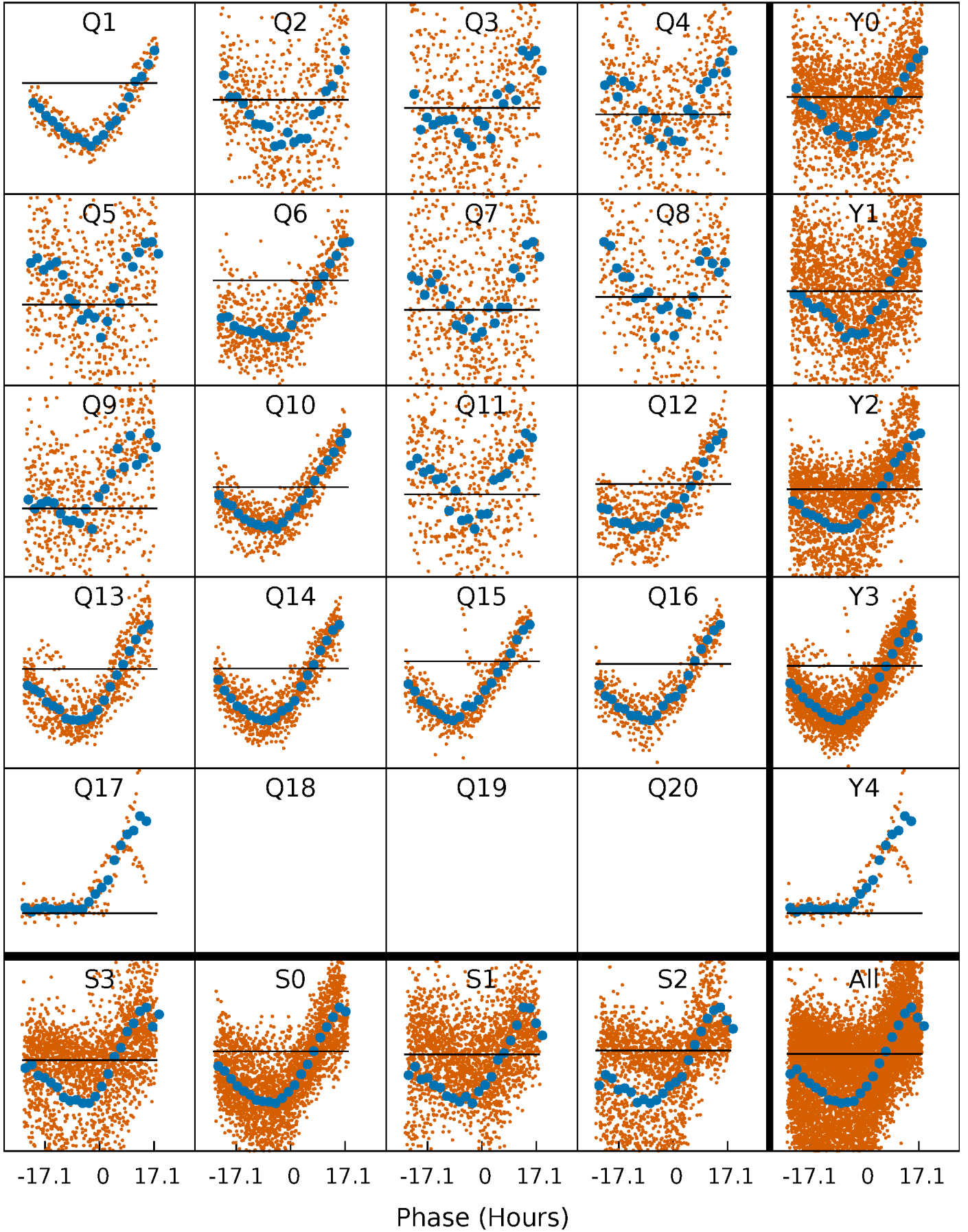
PDC Quarter-Phased Transit Curves

TCE 006222884-03 P= 11.668589 Days $T_0=133.683762$ (BKJD)



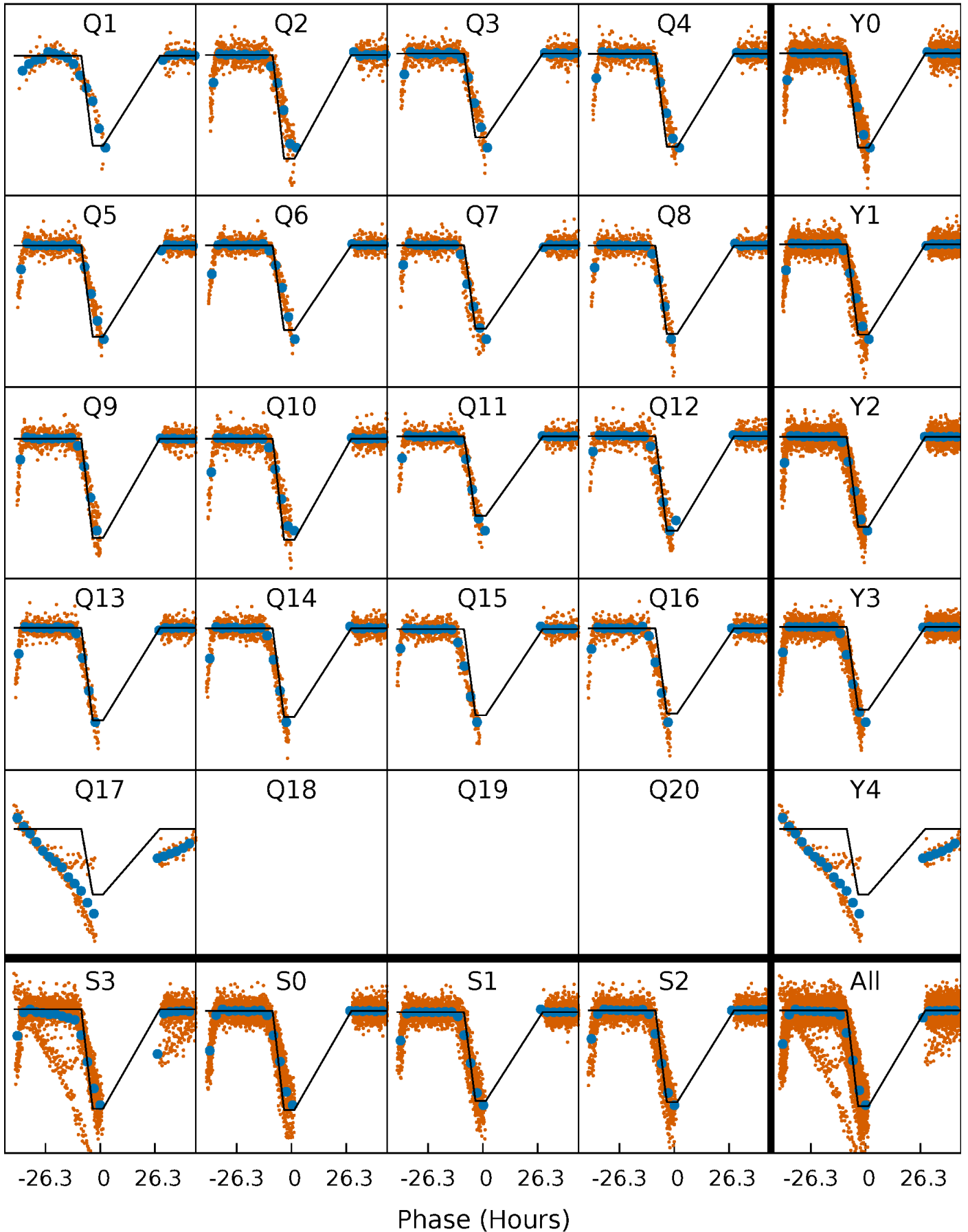
DV Quarter-Phased Transit Curves

TCE 006222884-03 P= 11.668589 Days $T_0=133.683762$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

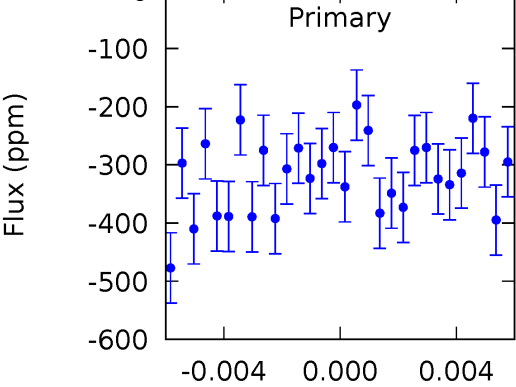
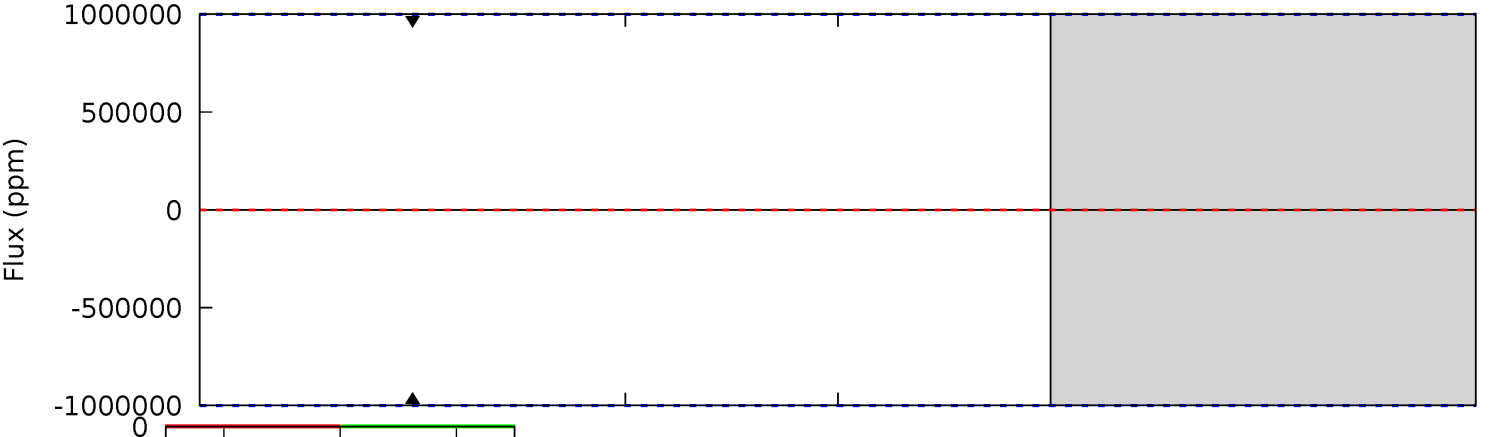
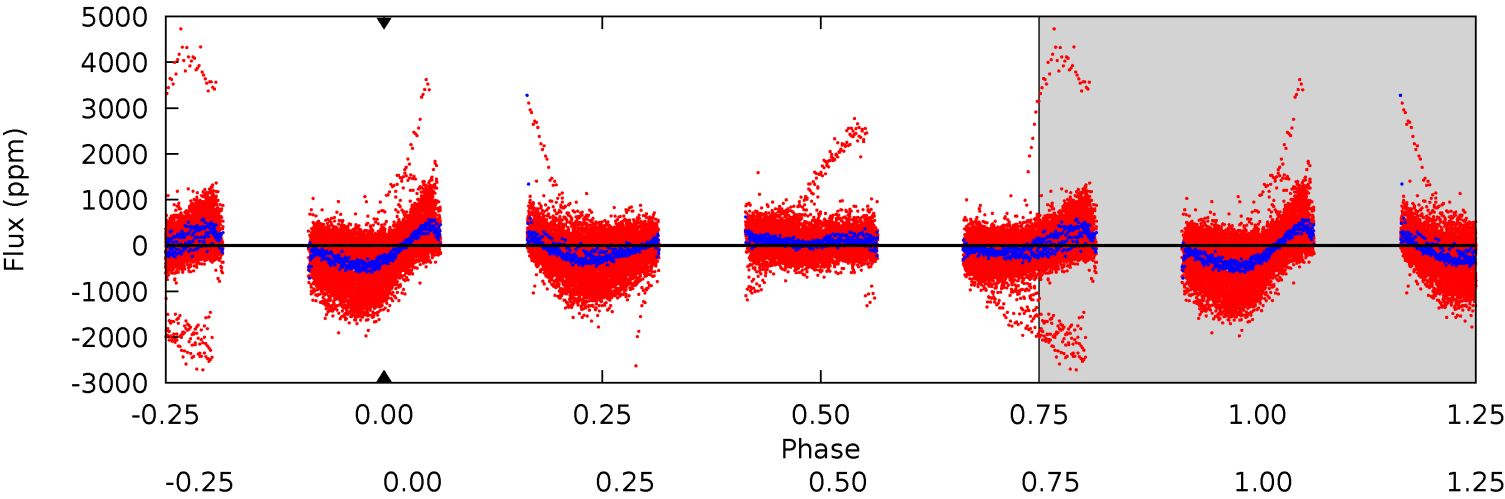
TCE 006222884-03 P= 11.668589 Days $T_0=143.143571$ (BKJD)



DV Model-Shift Uniqueness Test

006222884-03, P = 11.668589 Days, E = 122.015173 Days

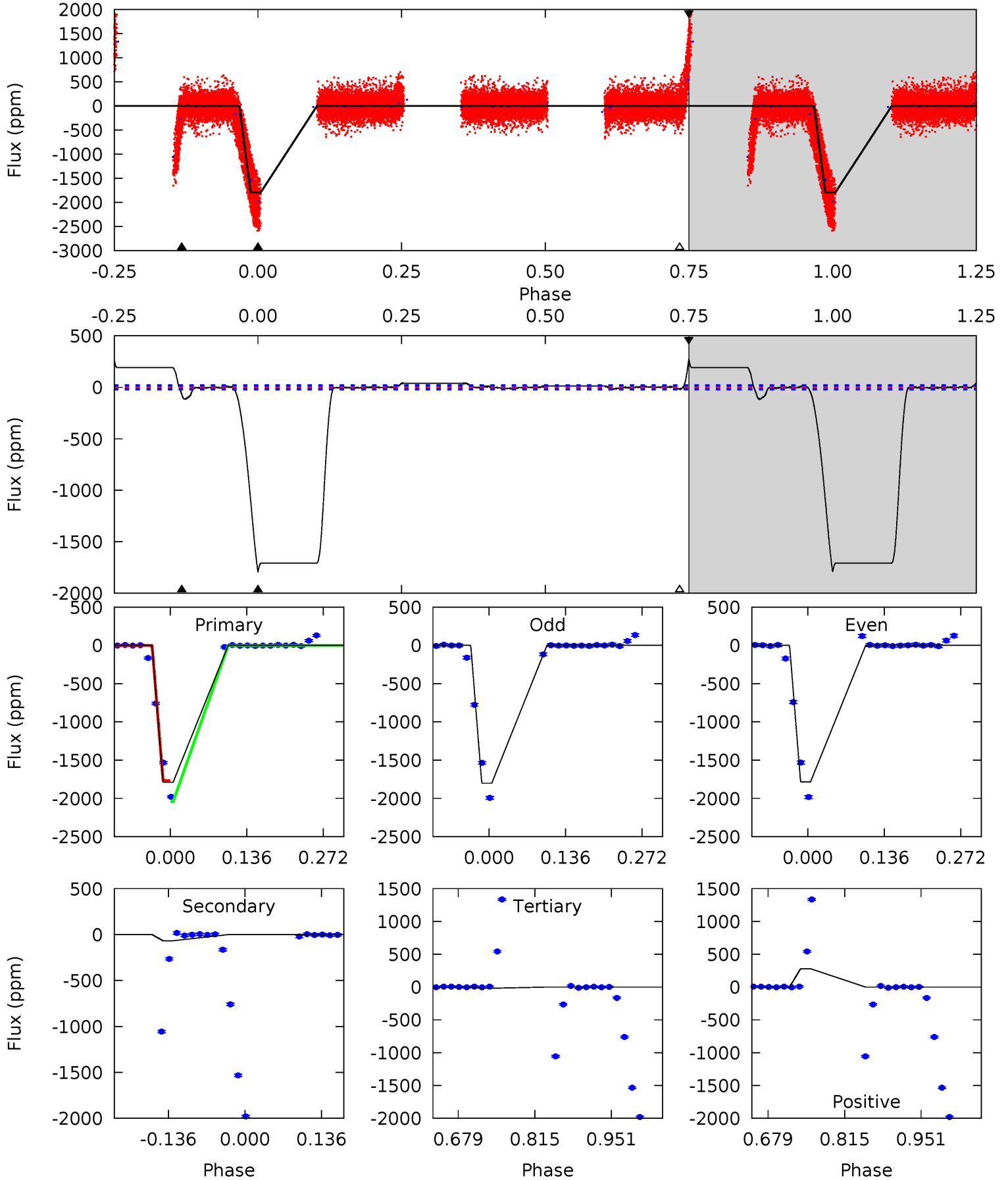
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006222884-03, P = 11.668589 Days, E = 131.474982 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
399.9	15.2	4.10	62.4	4.50	1.49	5.56	395.8	337.5	11.1	-47.2	2.02	1.05	0.13	15.6



Stellar Parameters For KIC 006222884

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8527^{+418}_{-627}	$4.125^{+0.051}_{-0.289}$	$0.560^{+0.050}_{-0.200}$	$2.123^{+1.071}_{-0.189}$	$2.193^{+0.432}_{-0.233}$	$0.323^{+0.095}_{-0.206}$
	+5%/-7%	+1%/-7%	+9%/-36%	+50%/-9%	+20%/-11%	+29%/-64%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006222884-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$18.27^{+19.23}_{-12.29}$	2176^{+242}_{-177}	5633^{+58279}_{-57260}	34^{+5548}_{-4523}
Alt.	-68 ± 4	$21.95^{+21.90}_{-15.58}$	2179^{+208}_{-170}	3003^{+1808}_{-1006}	$1.368^{+14.843}_{-1.048}$

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

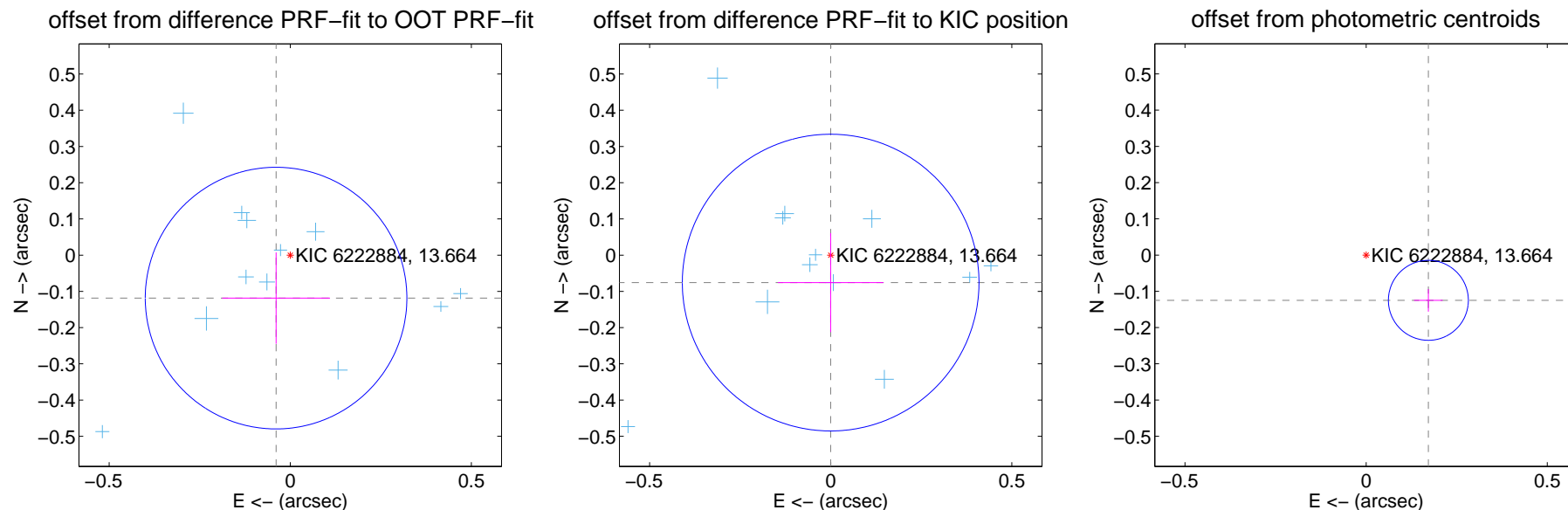
DV Centroid Data

Supplemental centroid analysis for 006222884-03. Kepler magnitude: 13.66. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

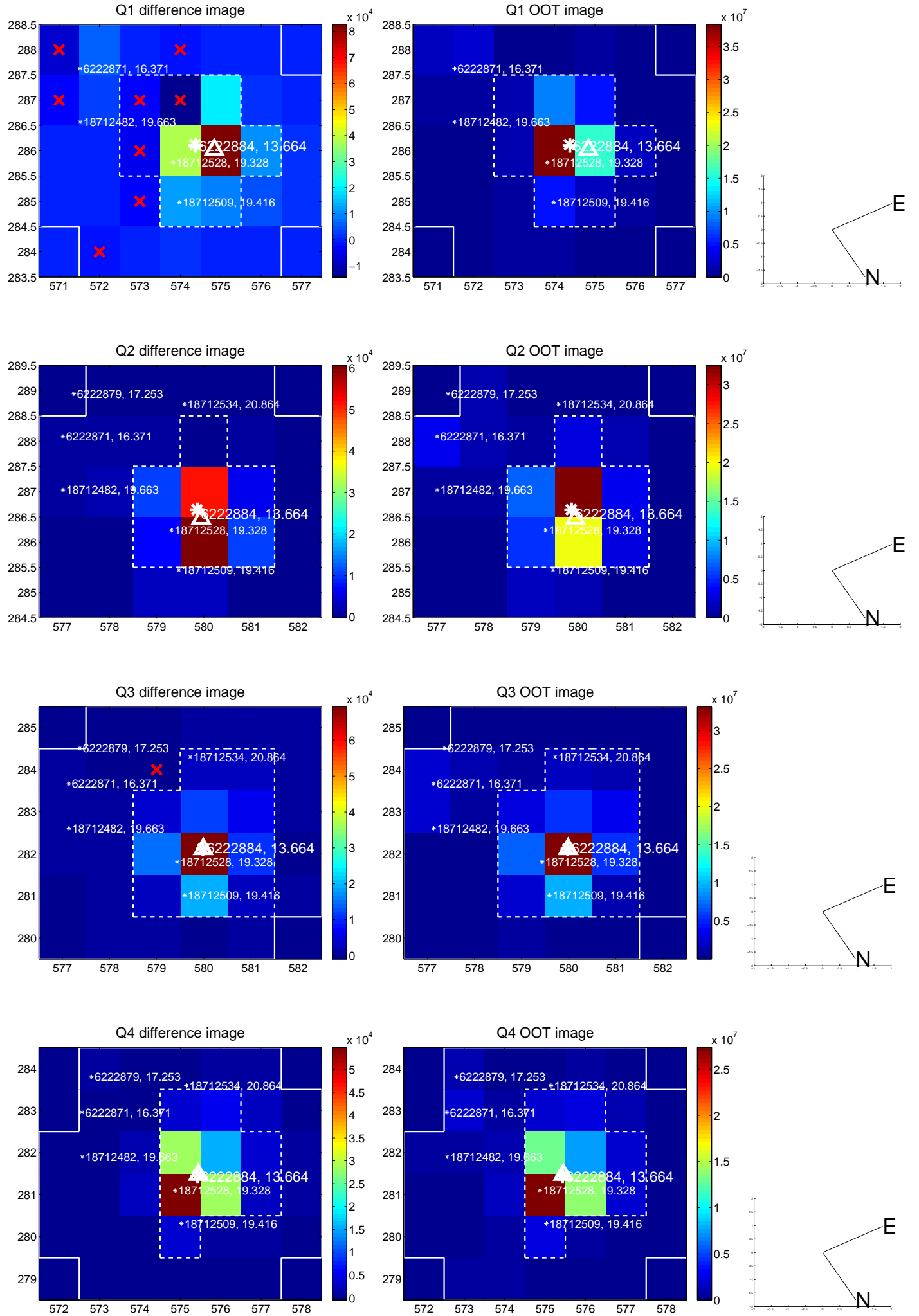
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.125 ± 0.120	1.04	0.039 ± 0.149	-0.119 ± 0.126
PRF-fit source offset from KIC position	0.076 ± 0.137	0.56	0.000 ± 0.146	-0.076 ± 0.137
photometric centroid source offset	0.21 ± 0.04	5.77	-0.17 ± 0.04	-0.12 ± 0.03

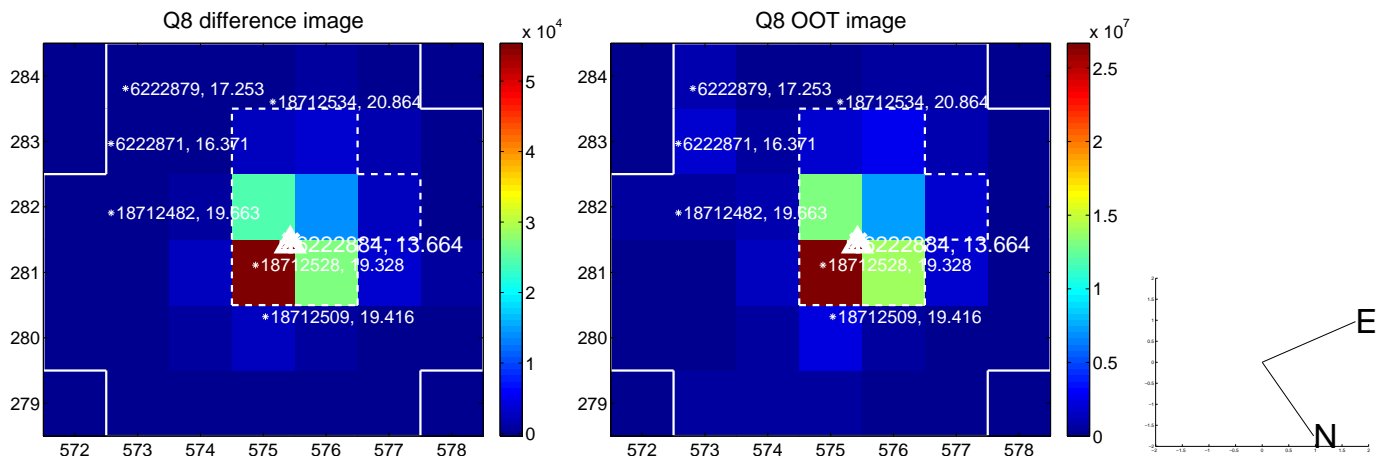
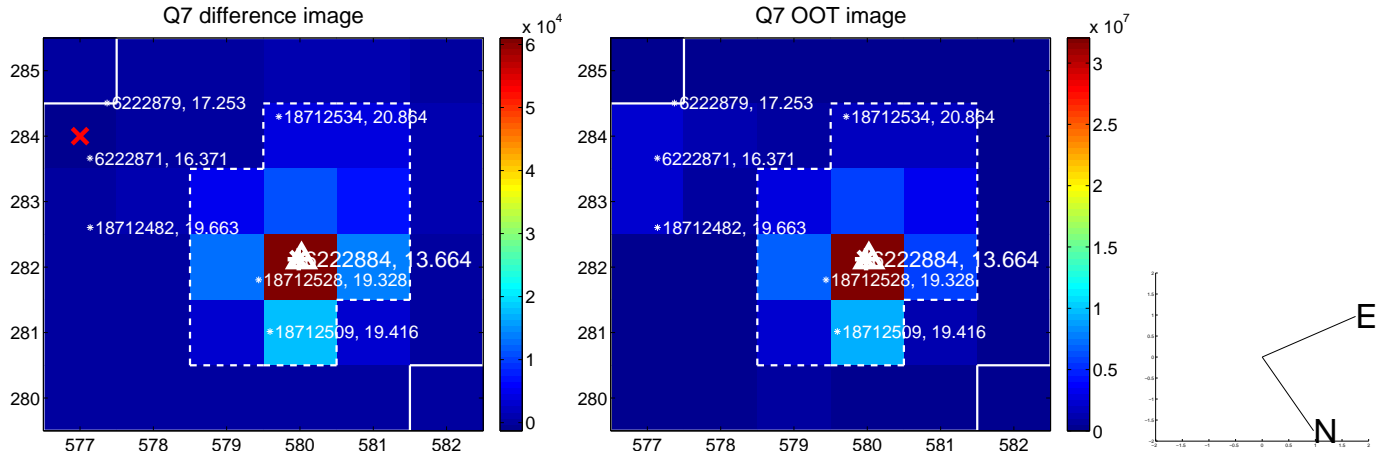
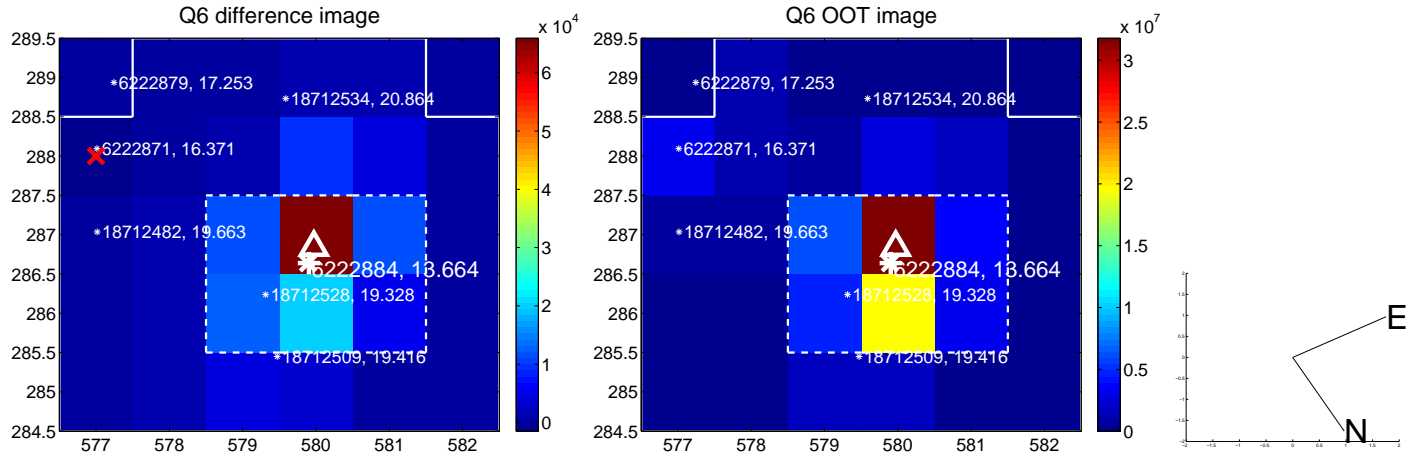
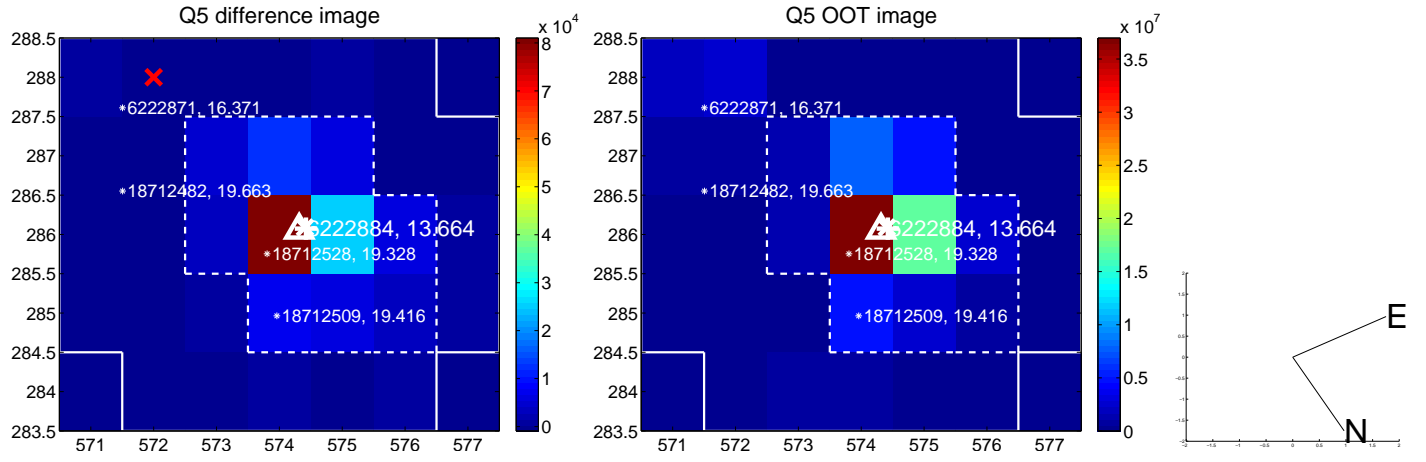


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

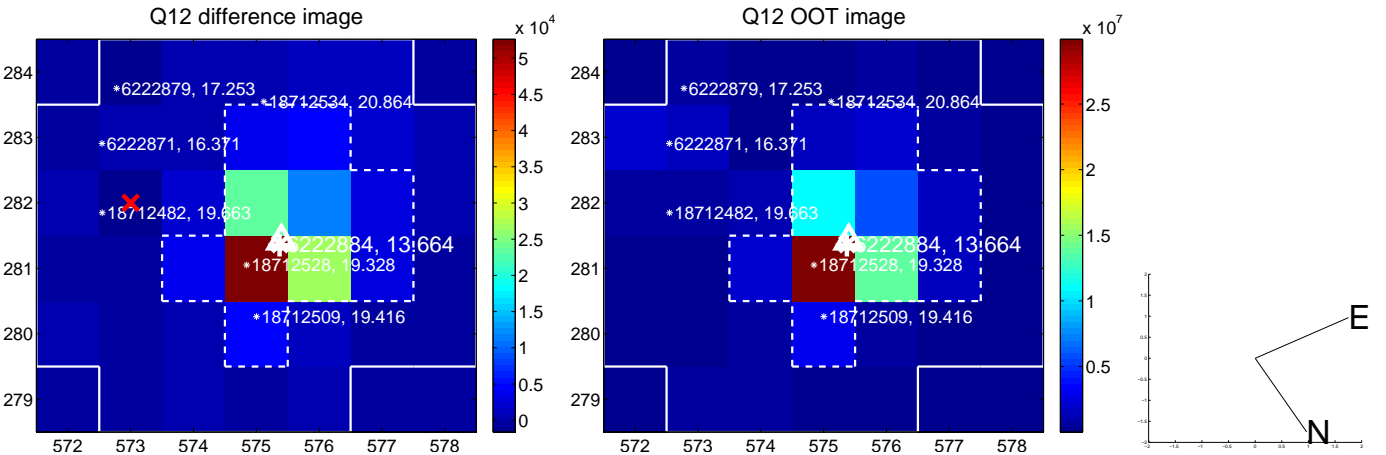
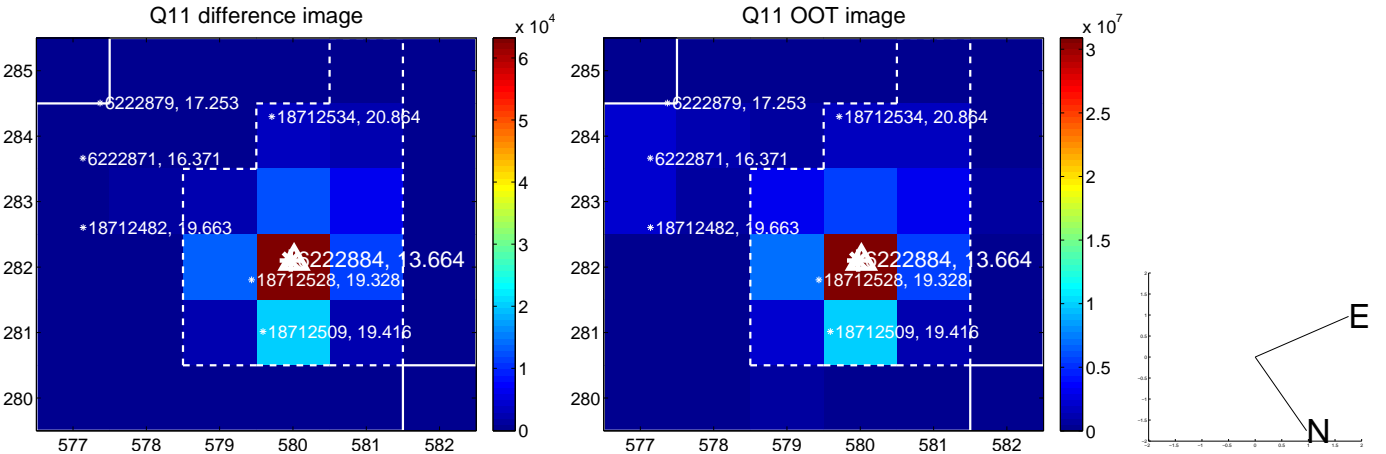
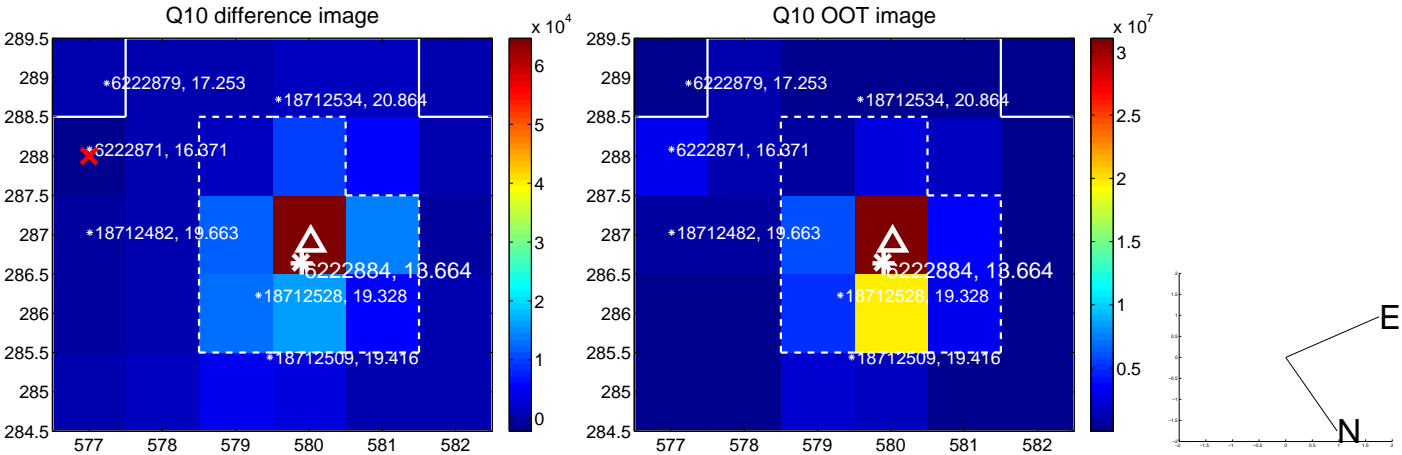
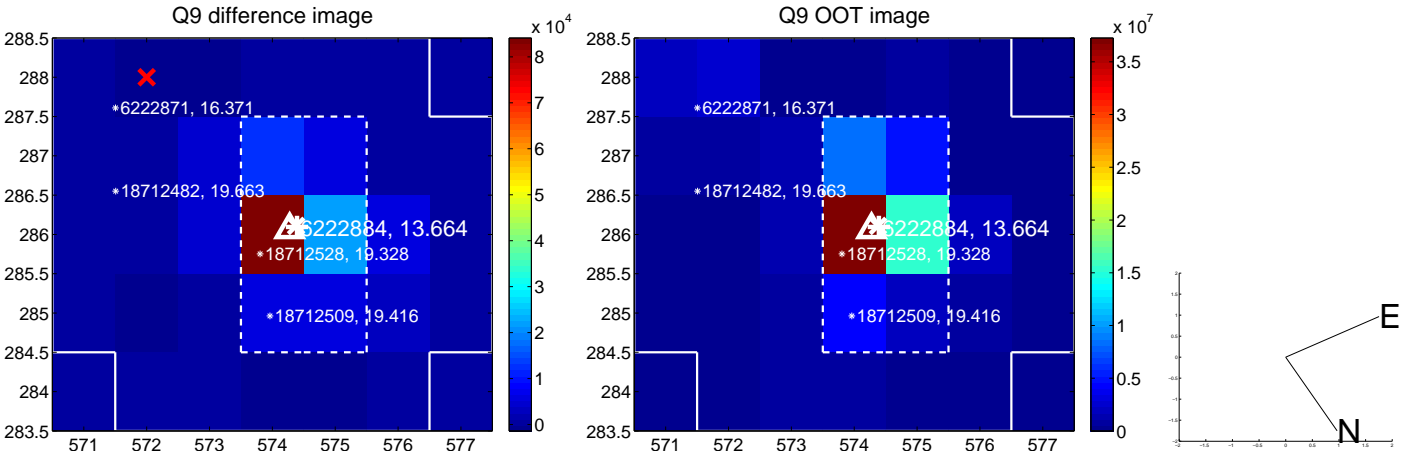
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



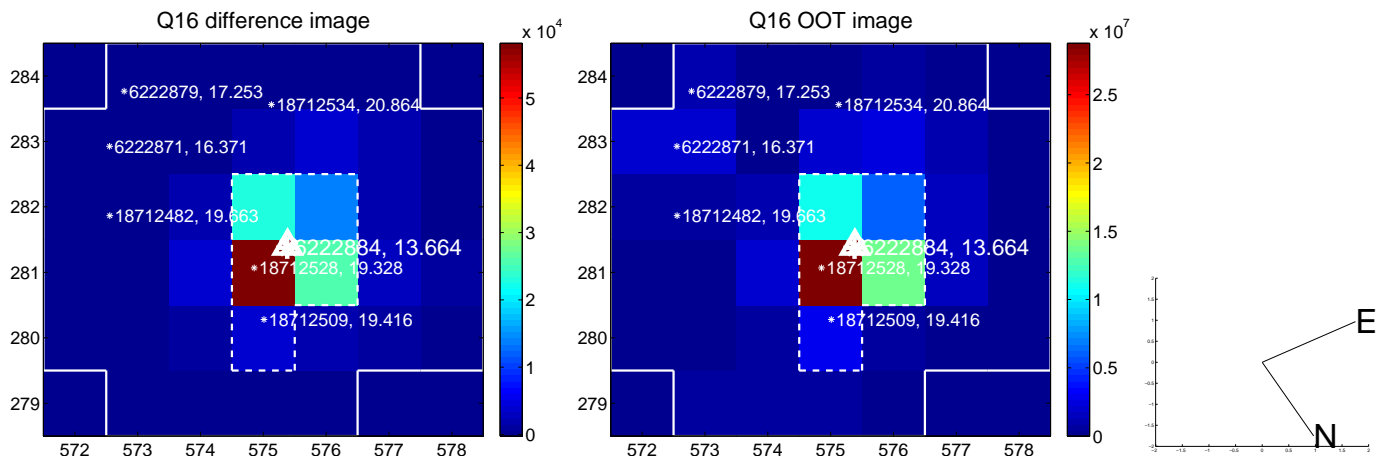
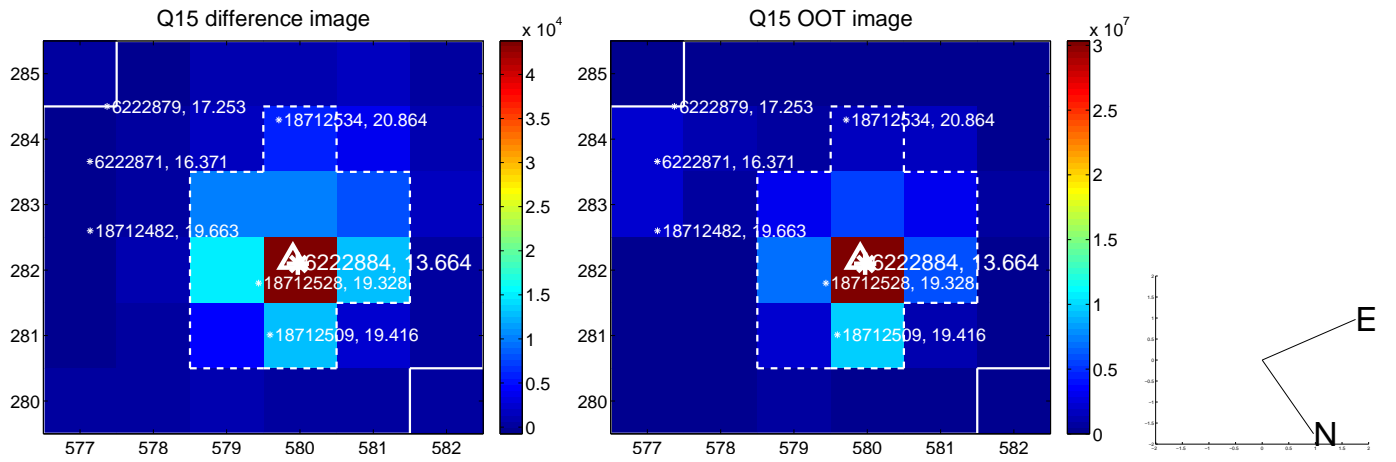
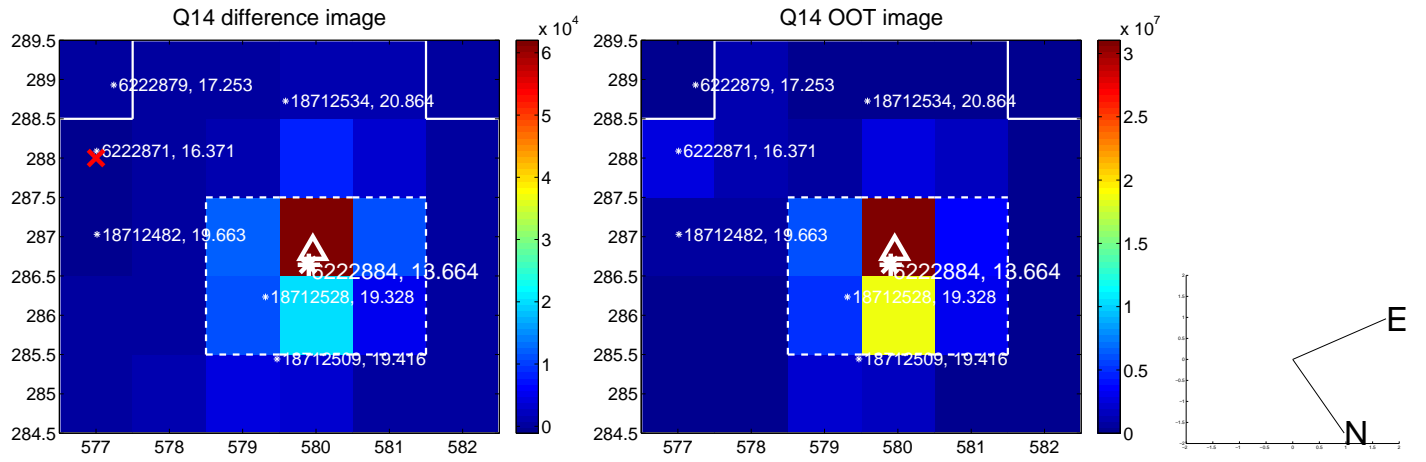
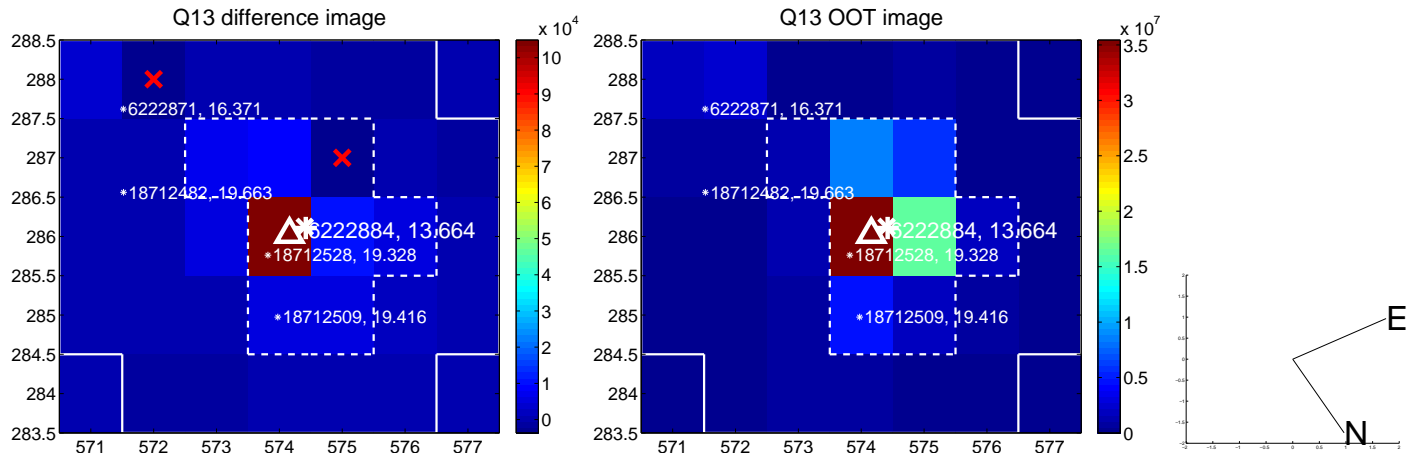
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



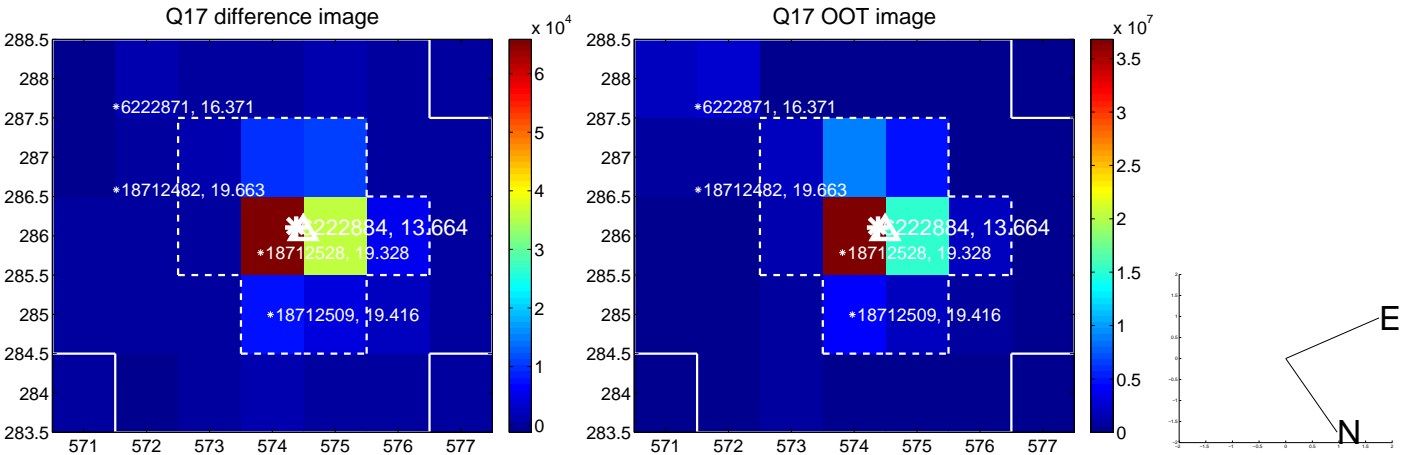
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



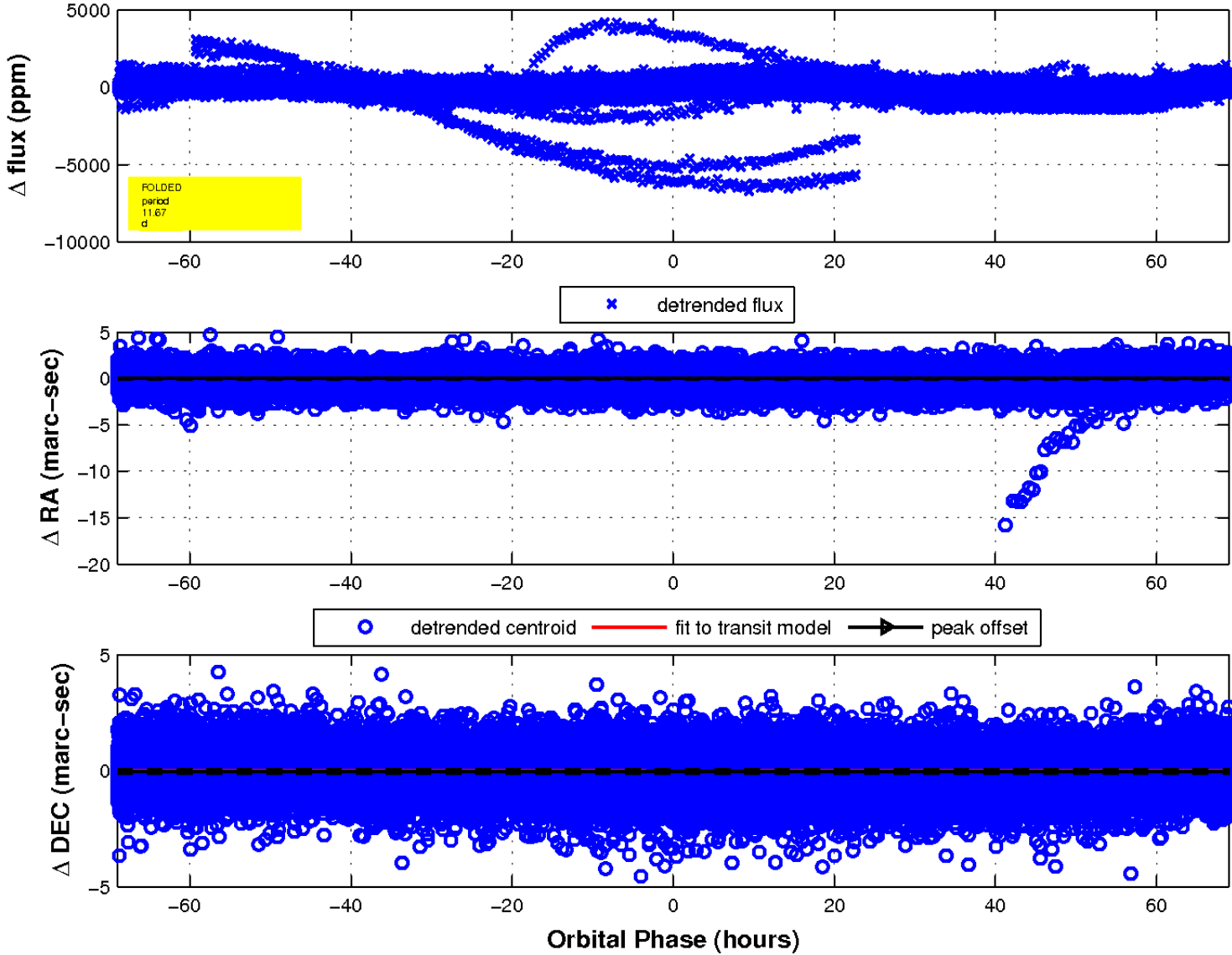
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



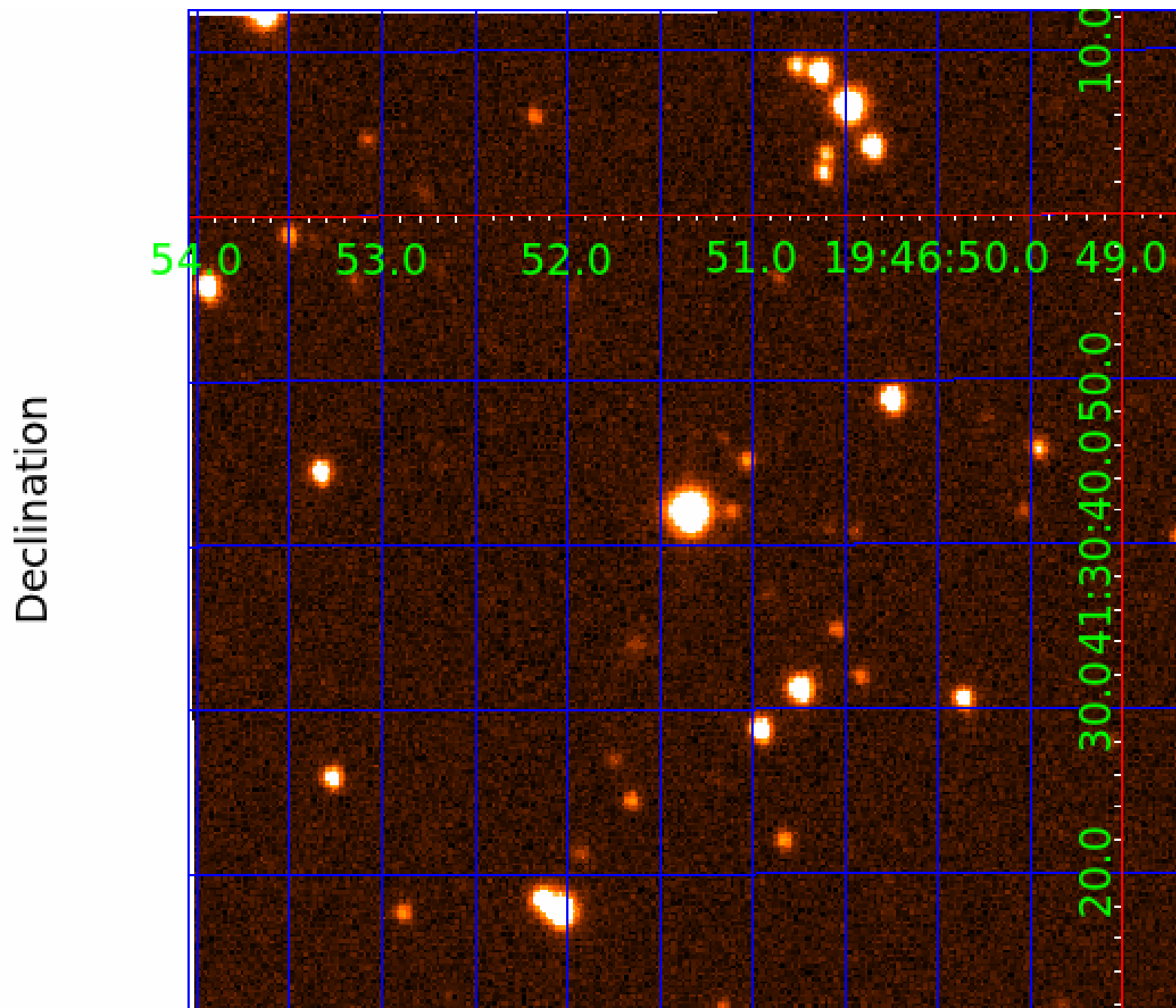
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image



KIC 006222884

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})
006222884-01	OBS	No	2.916679	131.722957	5.0	0.606	14.4	0.6	2.12	8527	0.56	7922.48
006222884-02	OBS	No	2.916940	132.152082	43.5	9.697	14.7	12.2	2.12	8527	1.60	7921.54
006222884-03	OBS	No	11.668589	133.683762	133.0	15.000	14.8	-1.0	2.12	8527	2.48	1247.45
006222884-04	OBS	No	5.834066	136.333822	64.7	30.038	7.6	11.3	2.12	8527	2.31	3143.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006222884-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006222884-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
006222884-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS
006222884-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

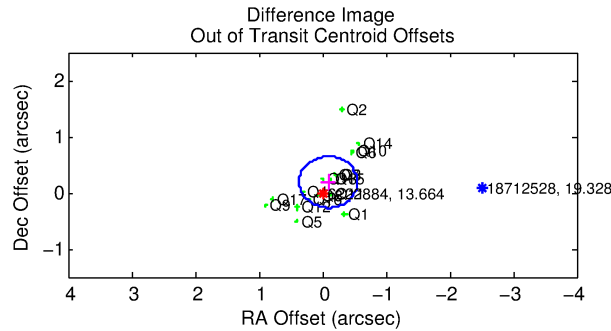
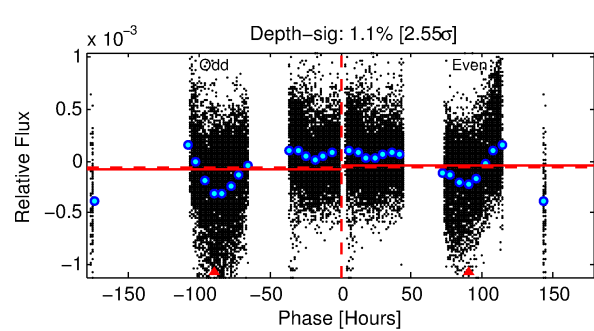
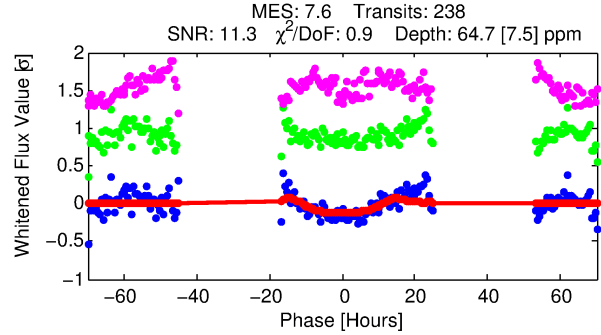
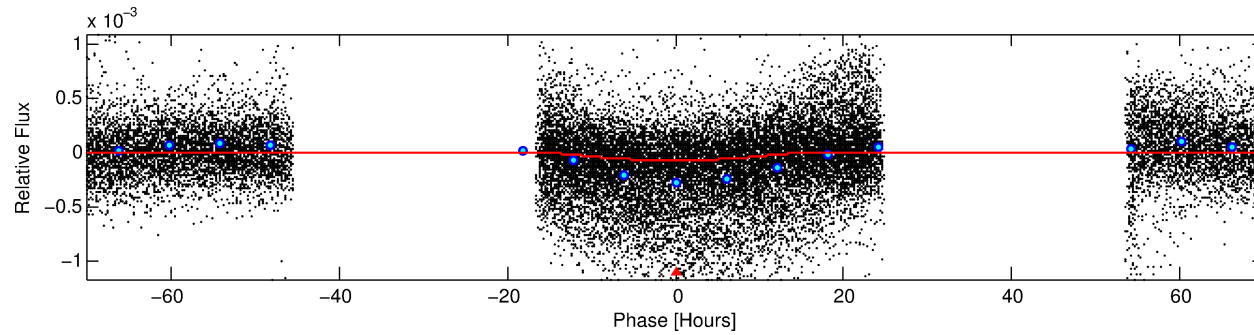
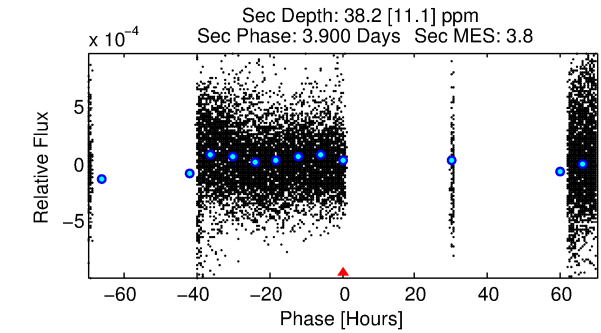
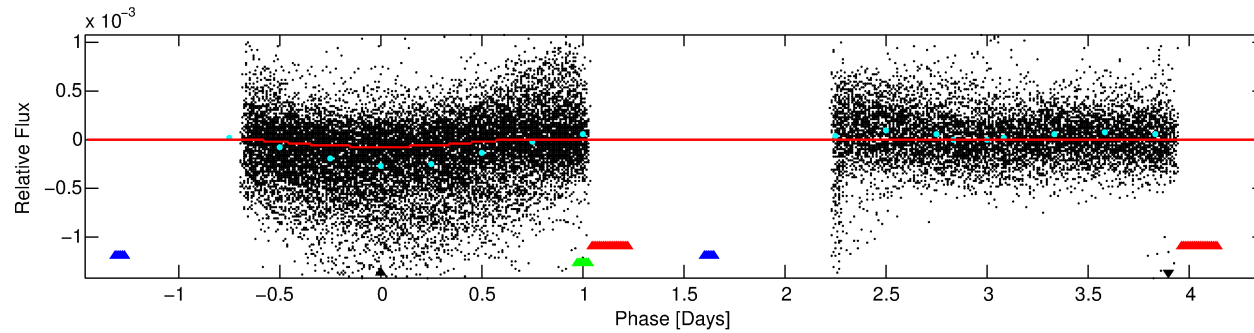
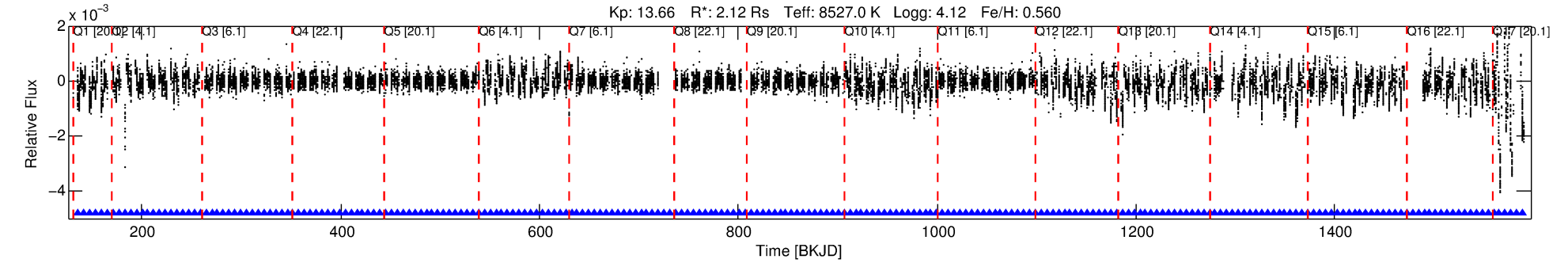
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006222884-04

No Significant Match Found

DV One-Page Summary

KIC: 6222884 Candidate: 4 of 4 Period: 5.834 d



DV Fit Results:

Period = 5.83407 [0.00036] d
Epoch = 136.3338 [0.0413] BKJD
Rp/R* = 0.0100 [0.0007]
a/R* = 1.04 [0.01]
b = 0.99 [0.00]
Seff = 3143.53 [1979.24]
Teff = 1909 [301] K
Rp = 2.31 [1.18] Re
a = 0.0824 [0.0332] AU
Ag = 26.67 [17.13] [1.50σ]
Teffp = 6709 [729] K [6.08σ]

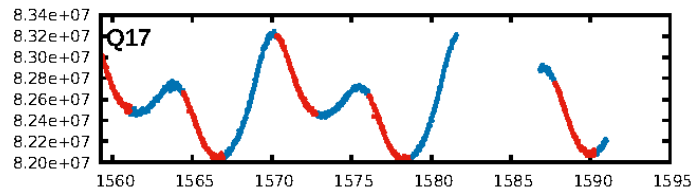
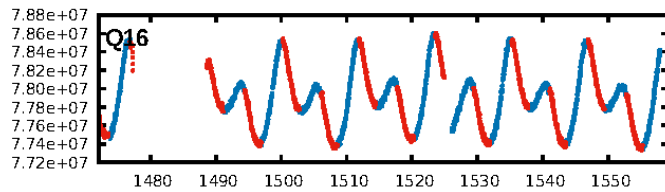
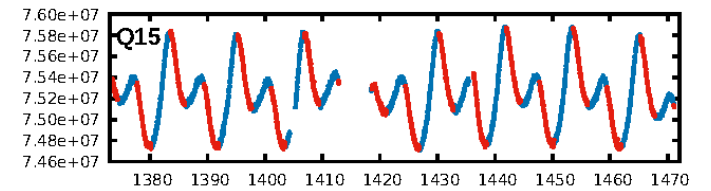
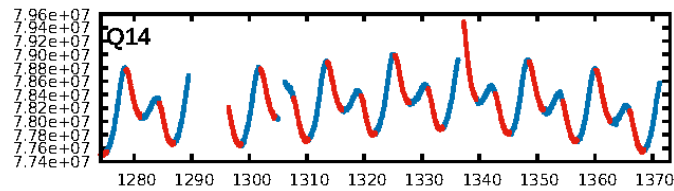
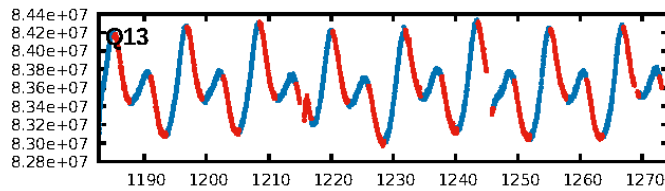
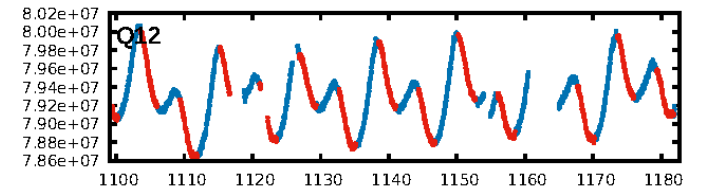
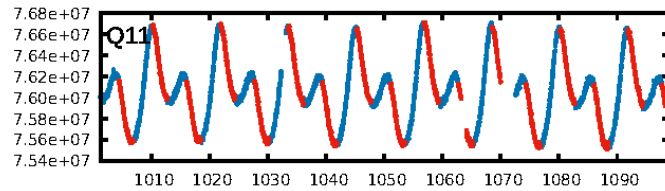
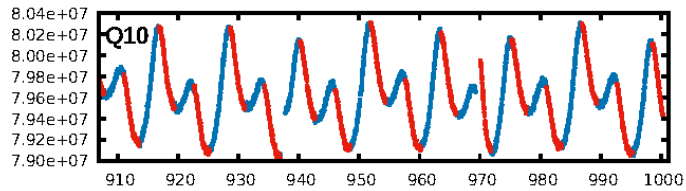
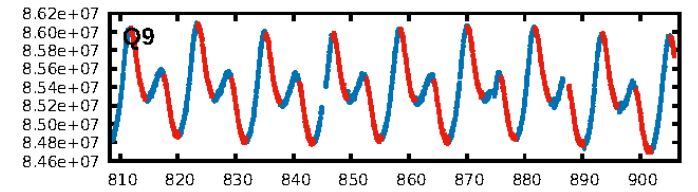
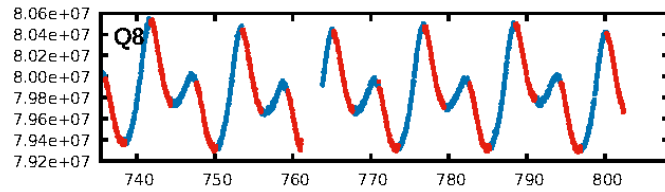
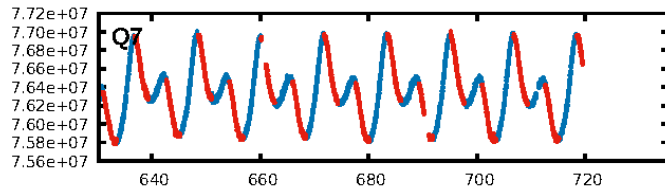
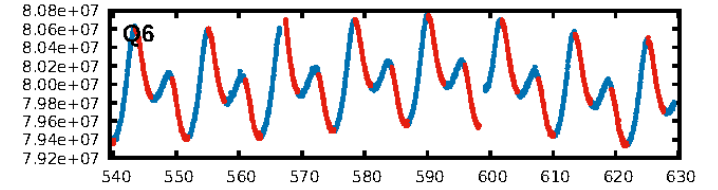
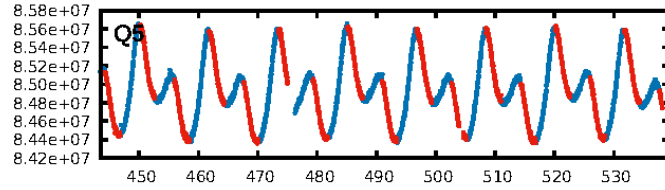
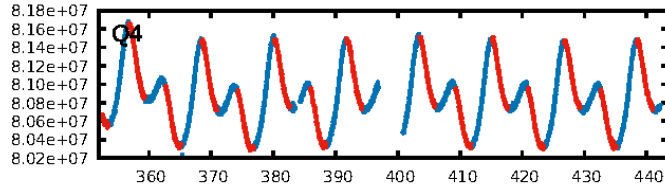
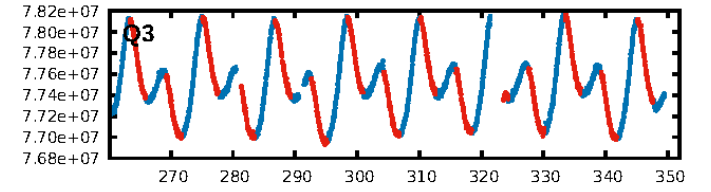
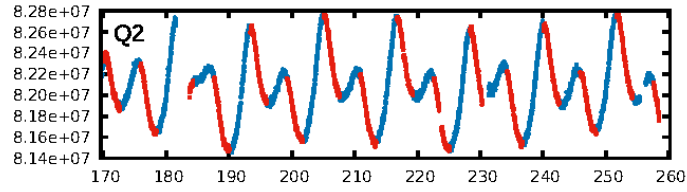
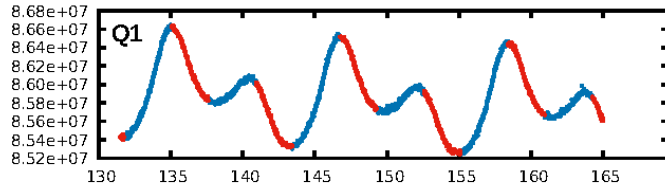
DV Diagnostic Results:

ShortPeriod-sig: 97.3% [2.22σ]
LongPeriod-sig: 100.0% [4.17σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.07e-17
RollingBand-fgt: 1.00 [227/227]
GhostDiagnostic-chr: 0.5598
Centroid-sig: 0.0%
Centroid-so: 3.175 arcsec [4.05σ]
OotOffset-rm: 0.208 arcsec [1.37σ]
KicOffset-rm: 0.205 arcsec [1.35σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

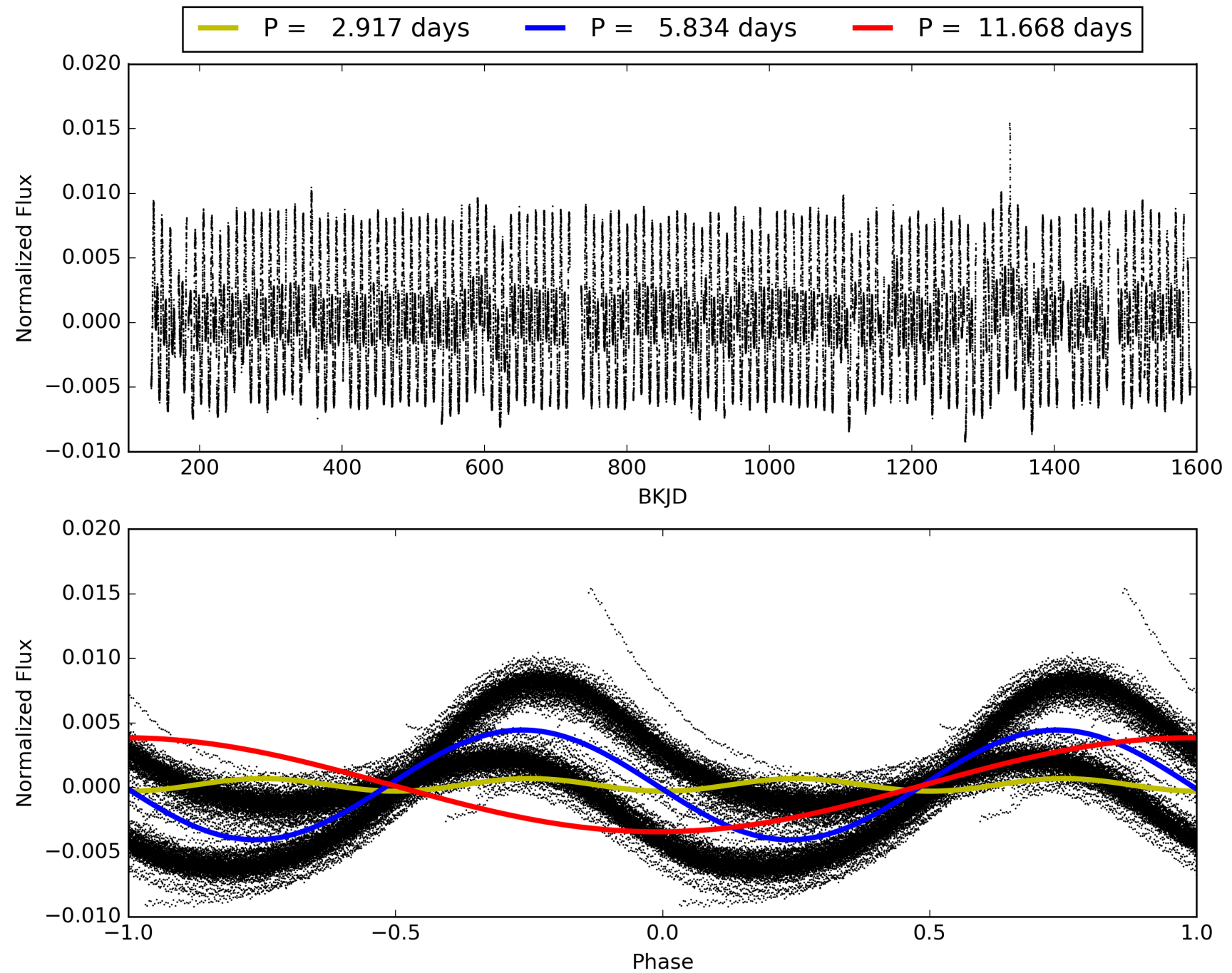
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:49:23 Z

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

TCE 006222884-04, PDC Light Curves

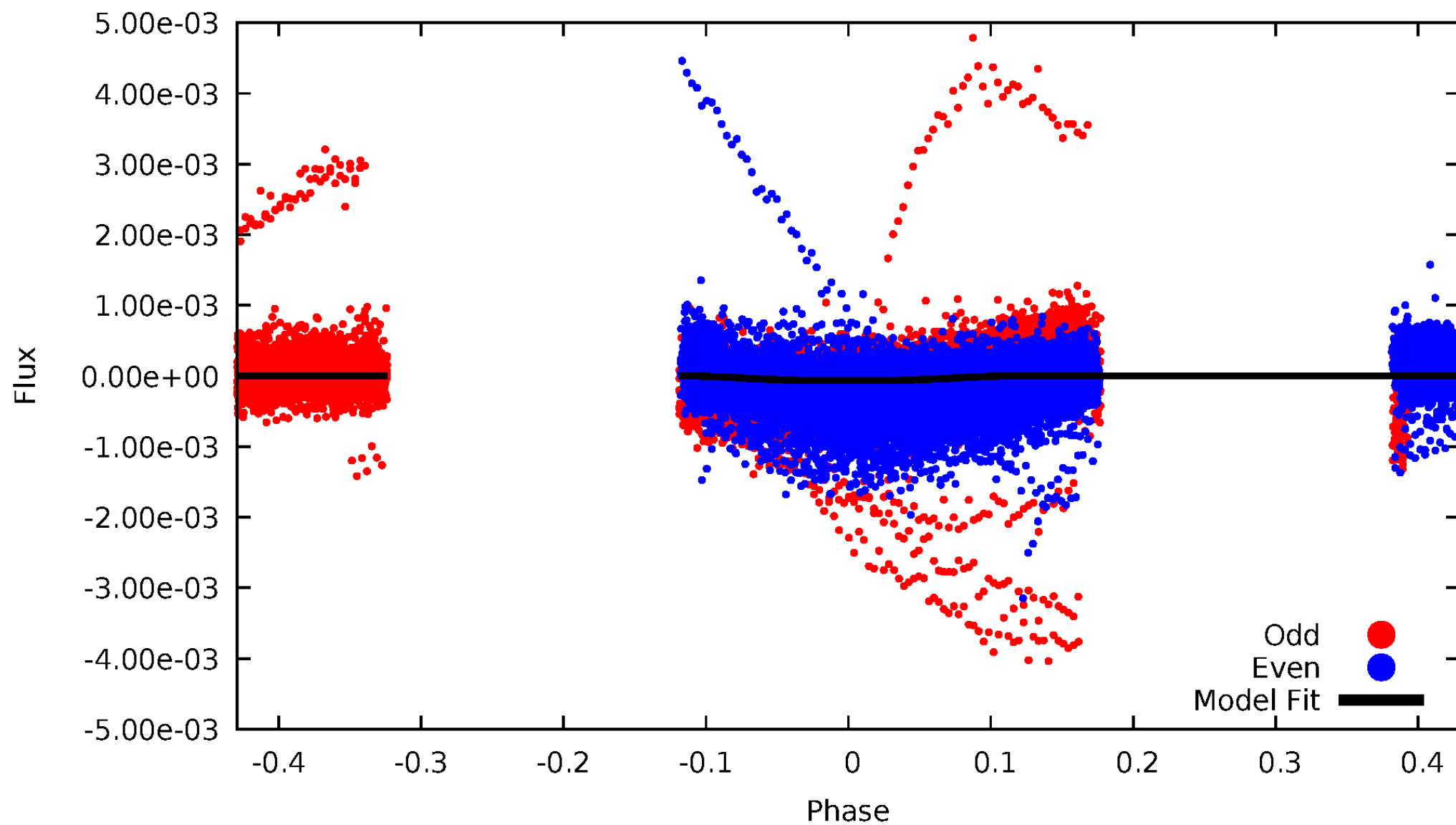


TCE 006222884-04



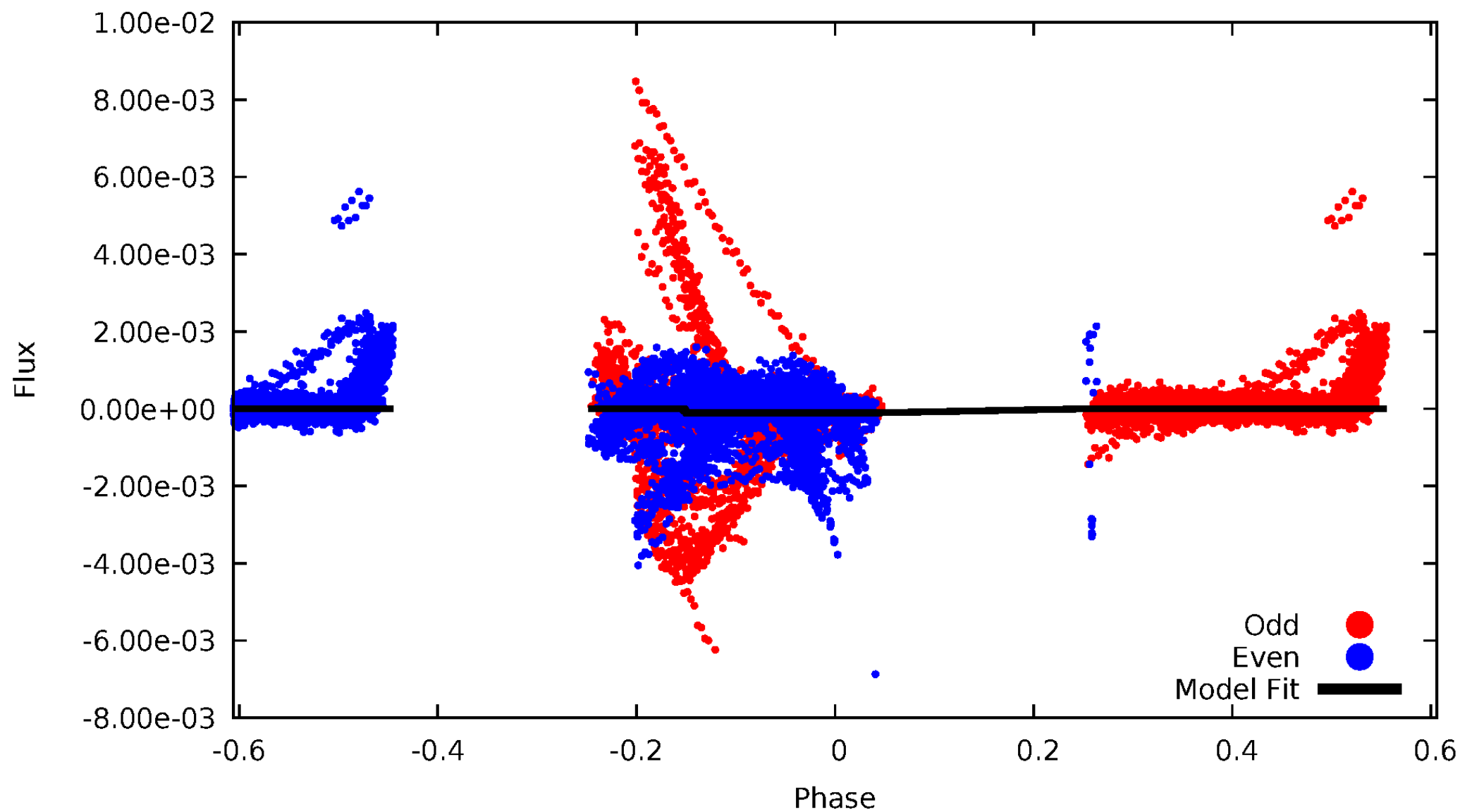
DV Odd/Even

TCE 006222884-04



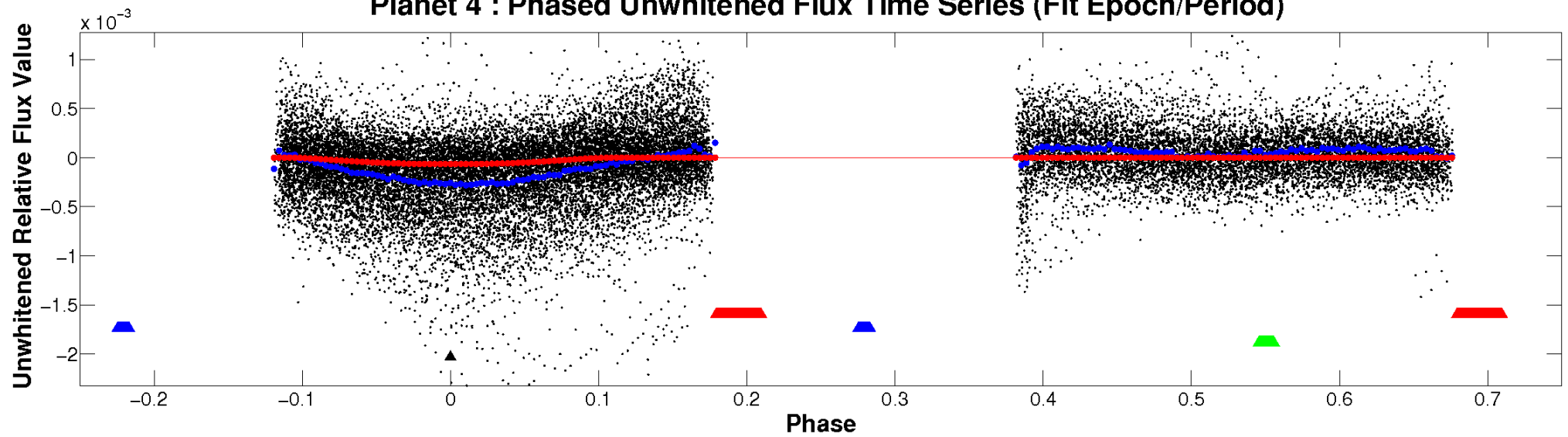
ALT Odd/Even

TCE 006222884-04

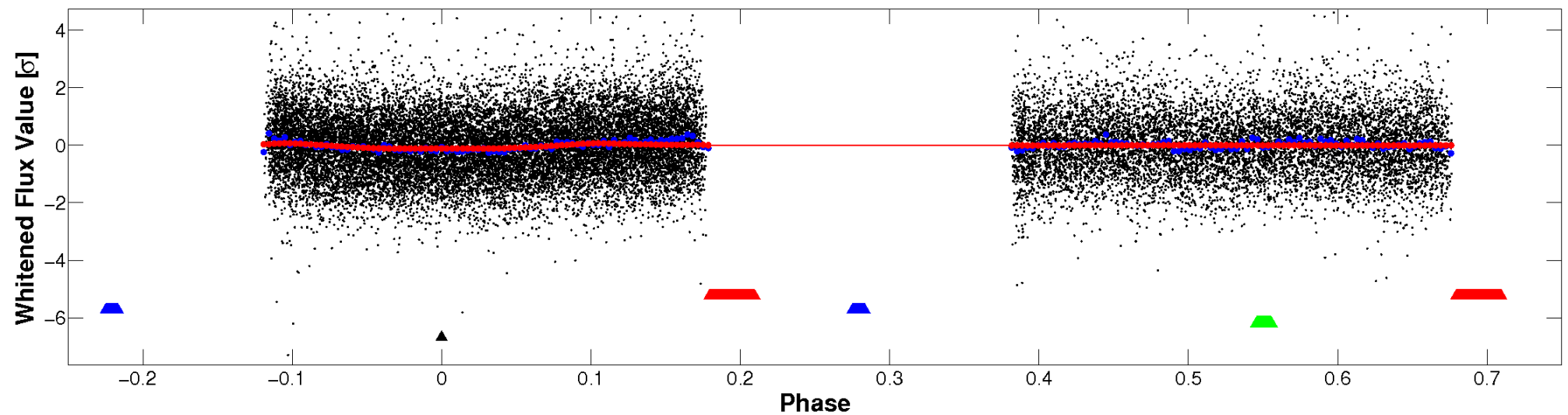


Non-Whitened Vs. Whitened Light Curve

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

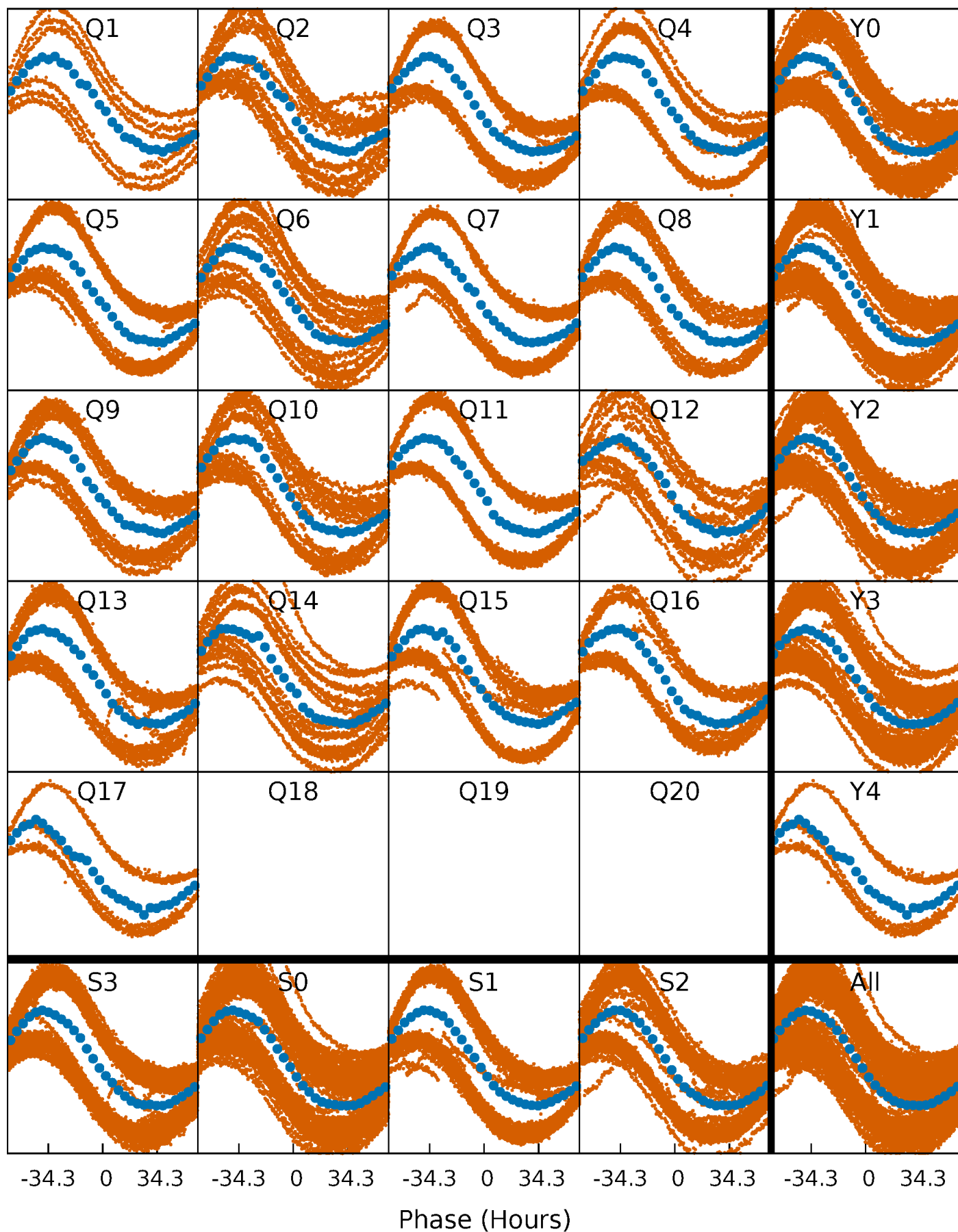


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



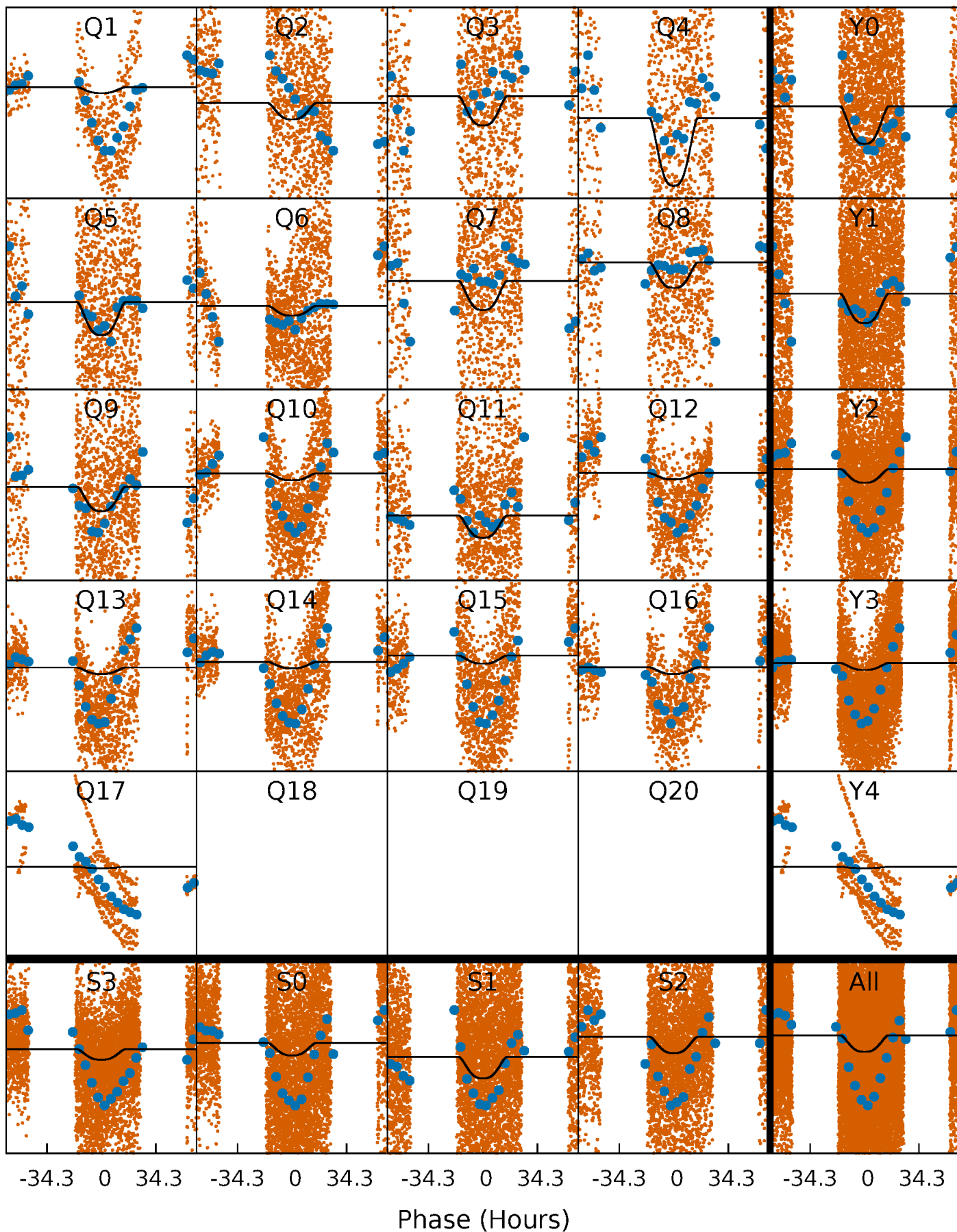
PDC Quarter-Phased Transit Curves

TCE 006222884-04 P= 5.834066 Days $T_0=136.333822$ (BKJD)



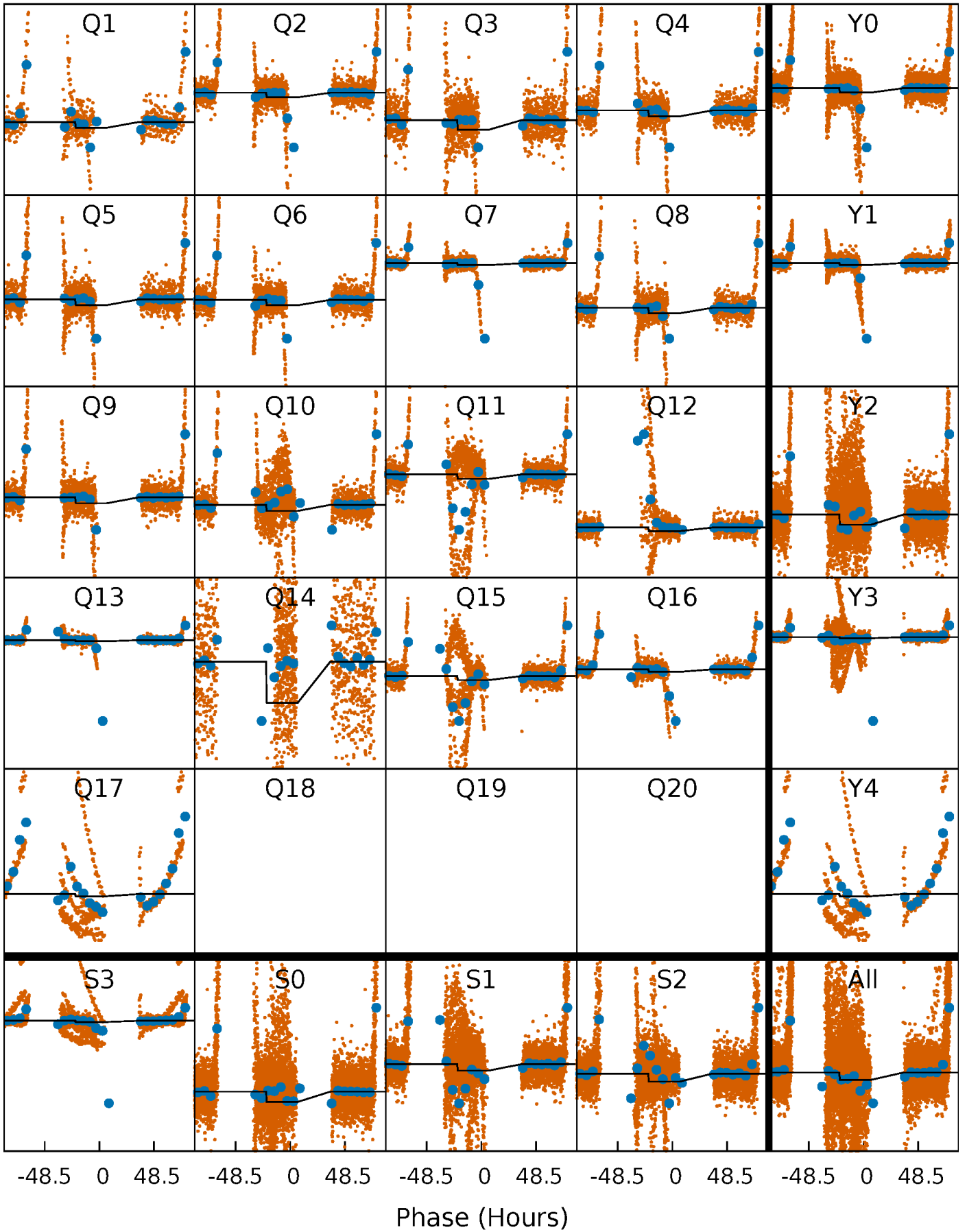
DV Quarter-Phased Transit Curves

TCE 006222884-04 $P = 5.834066$ Days $T_0 = 136.333822$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

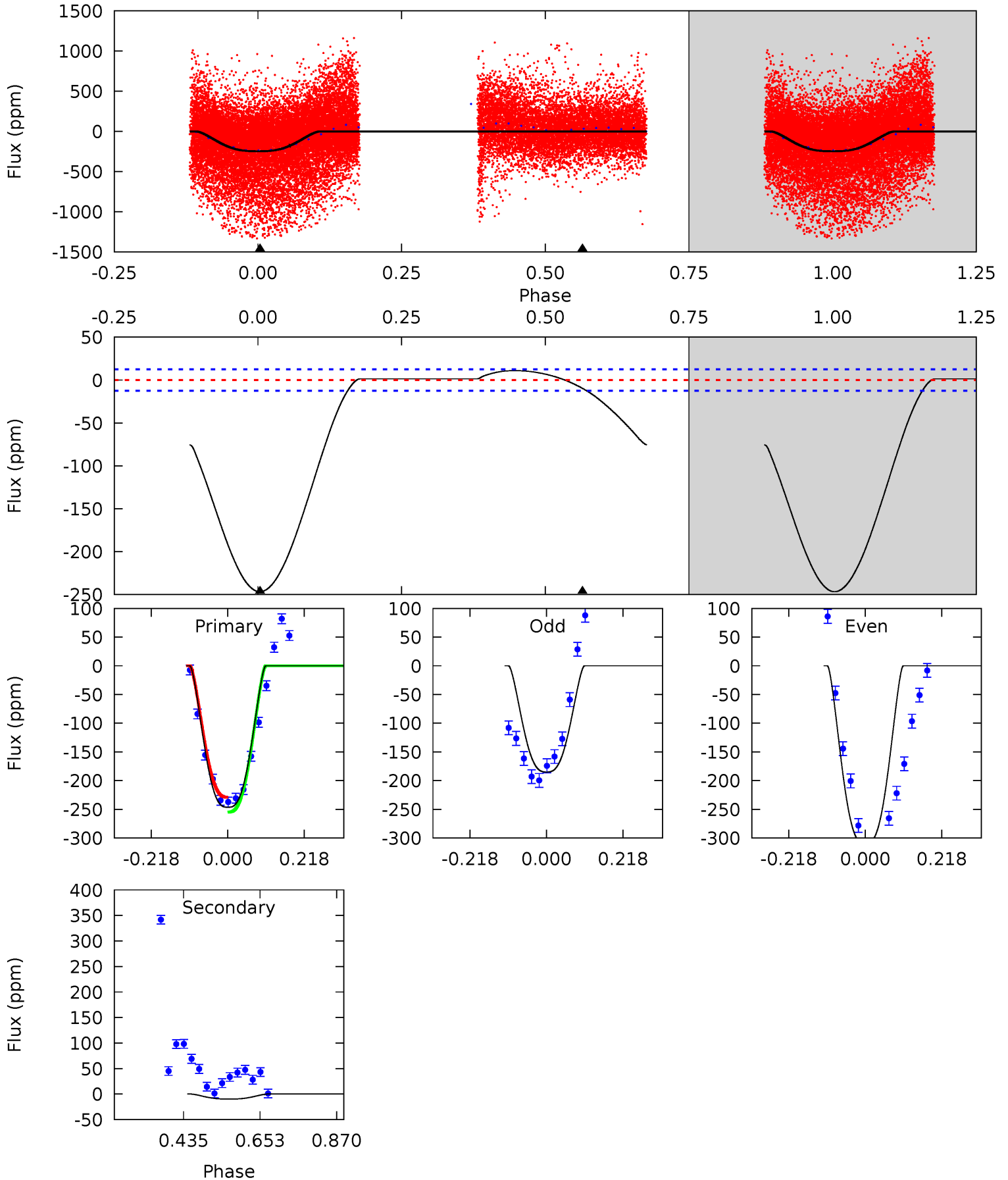
TCE 006222884-04 $P = 5.834259$ Days $T_0 = 137.041242$ (BKJD)



DV Model-Shift Uniqueness Test

006222884-04, P = 5.834066 Days, E = 130.499756 Days

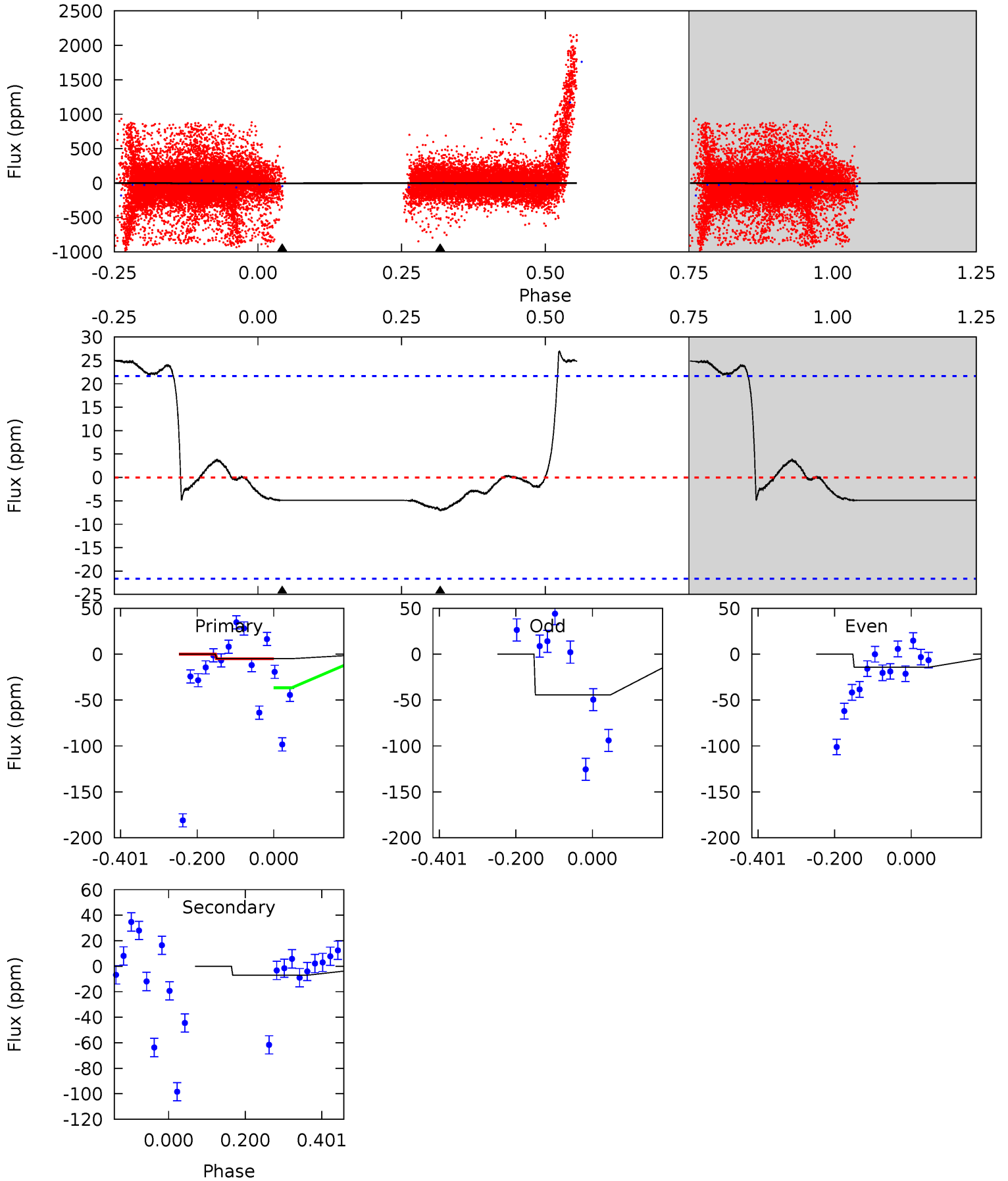
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.6	3.40	0	0	4.40	1.23	3.18	86.6	86.6	3.40	3.40	21.0	2.22	0.04	5.22



Alt Model-Shift Uniqueness Test

006222884-04, P = 5.834259 Days, E = 131.206983 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.00	1.43	0	0	4.42	1.28	2.05	1.00	1.00	1.43	1.43	5.25	10.3	0.79	4.51



Stellar Parameters For KIC 006222884

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8527^{+418}_{-627}	$4.125^{+0.051}_{-0.289}$	$0.560^{+0.050}_{-0.200}$	$2.123^{+1.071}_{-0.189}$	$2.193^{+0.432}_{-0.233}$	$0.323^{+0.095}_{-0.206}$
	+5%/-7%	+1%/-7%	+9%/-36%	+50%/-9%	+20%/-11%	+29%/-64%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006222884-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-10 ± 3	$2.44^{+0.65}_{-0.30}$	2749^{+302}_{-228}	4585^{+385}_{-381}	$5.472^{+2.761}_{-2.232}$
Alt.	-7 ± 5	$2.45^{+0.66}_{-0.27}$	2752^{+308}_{-229}	4317^{+577}_{-1058}	$3.797^{+3.651}_{-2.842}$

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 $A_{obs} \gg 1.0$

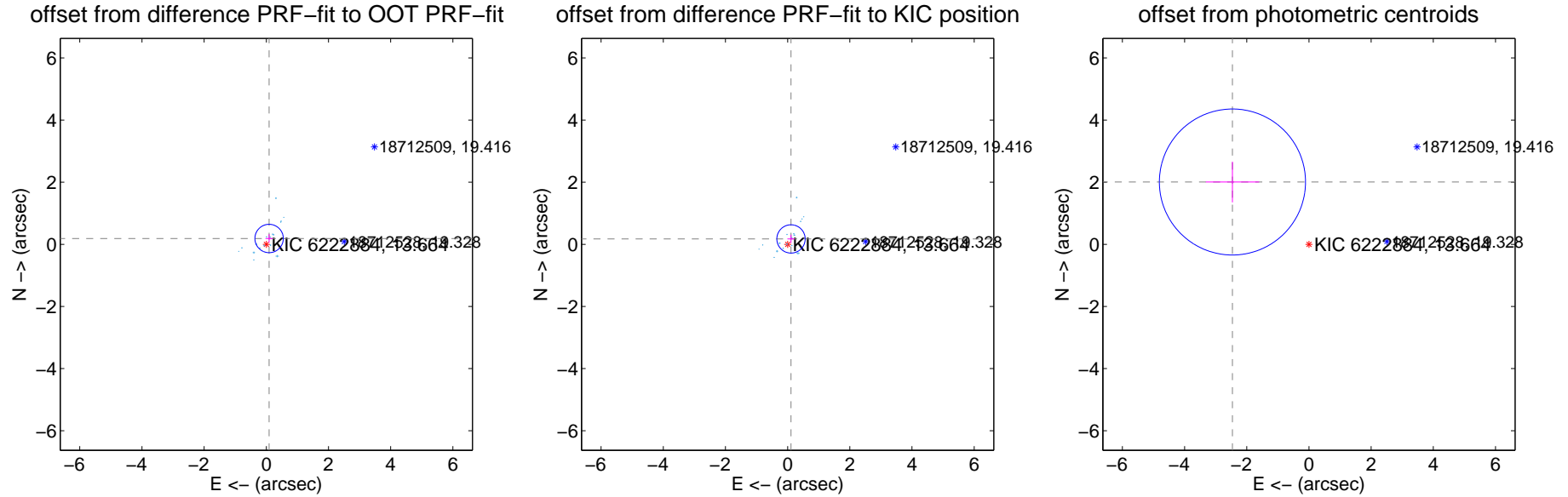
DV Centroid Data

Supplemental centroid analysis for 006222884-04. Kepler magnitude: 13.66. Transit SNR 11.31

There are 17 quarters with good PRF difference image offsets

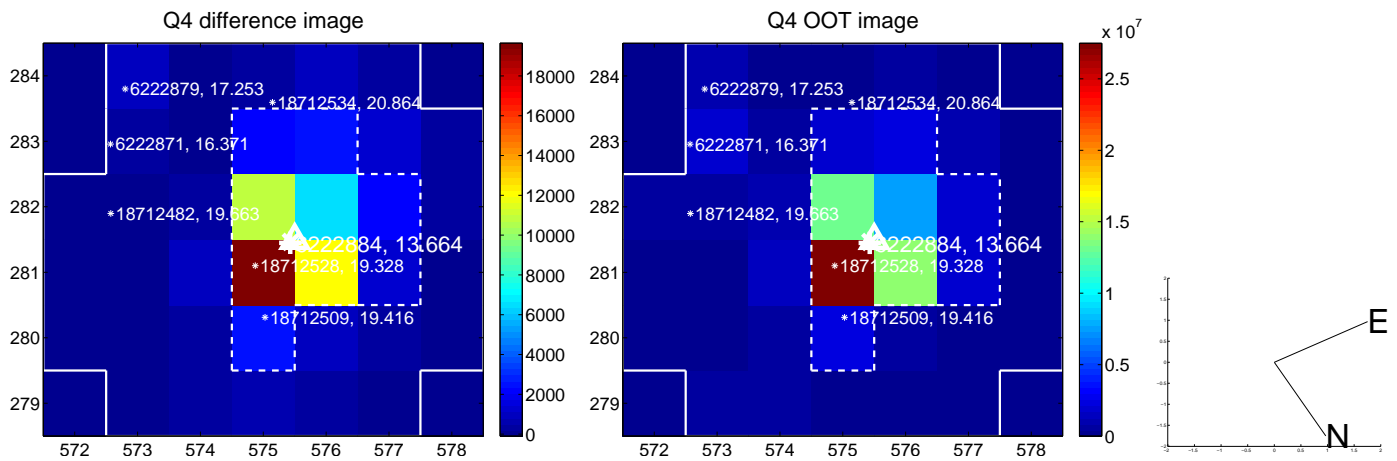
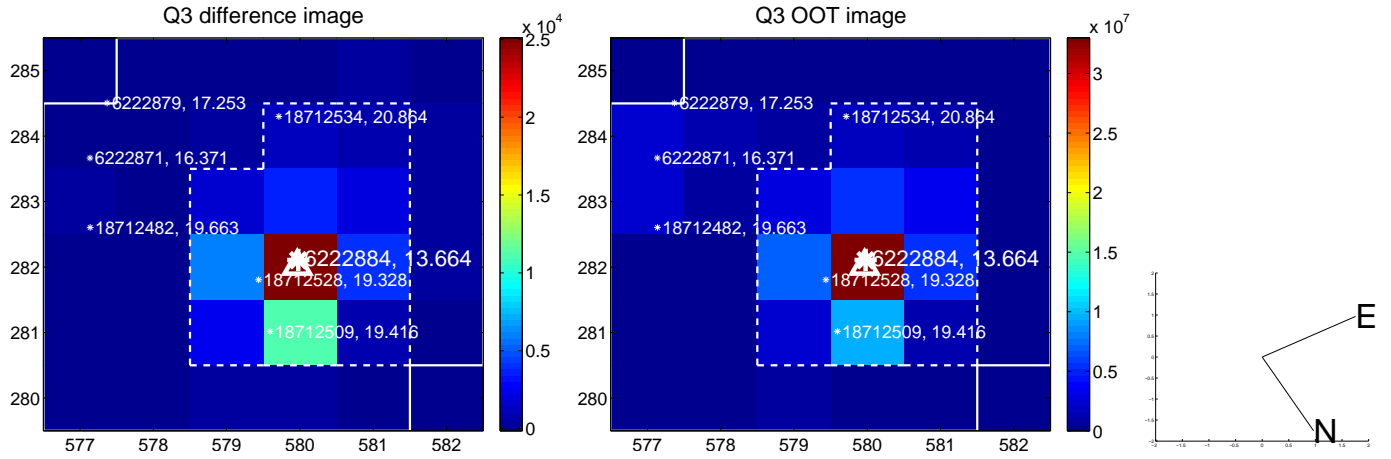
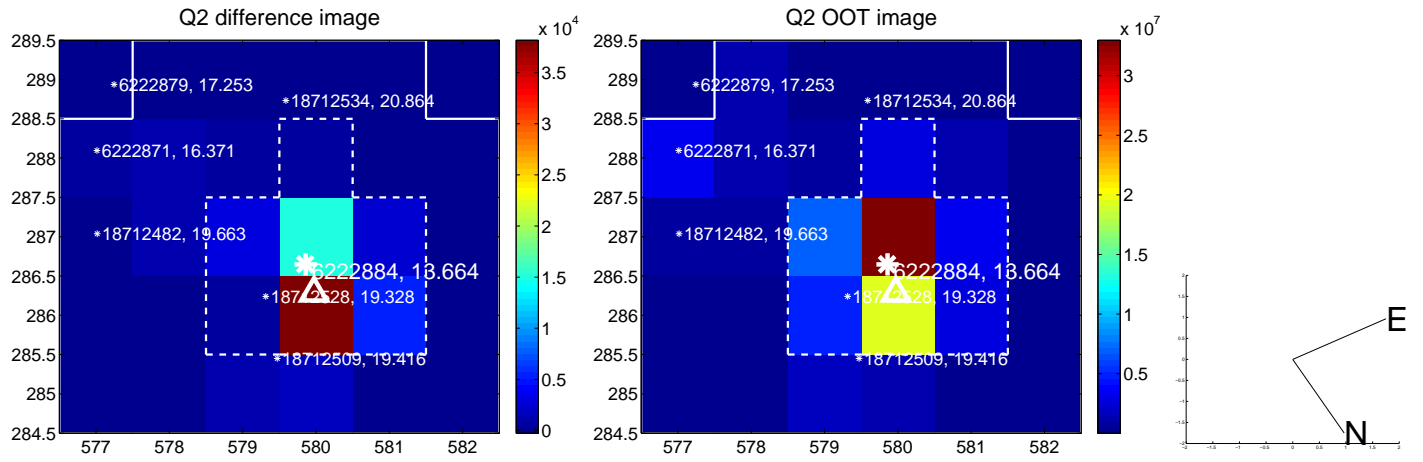
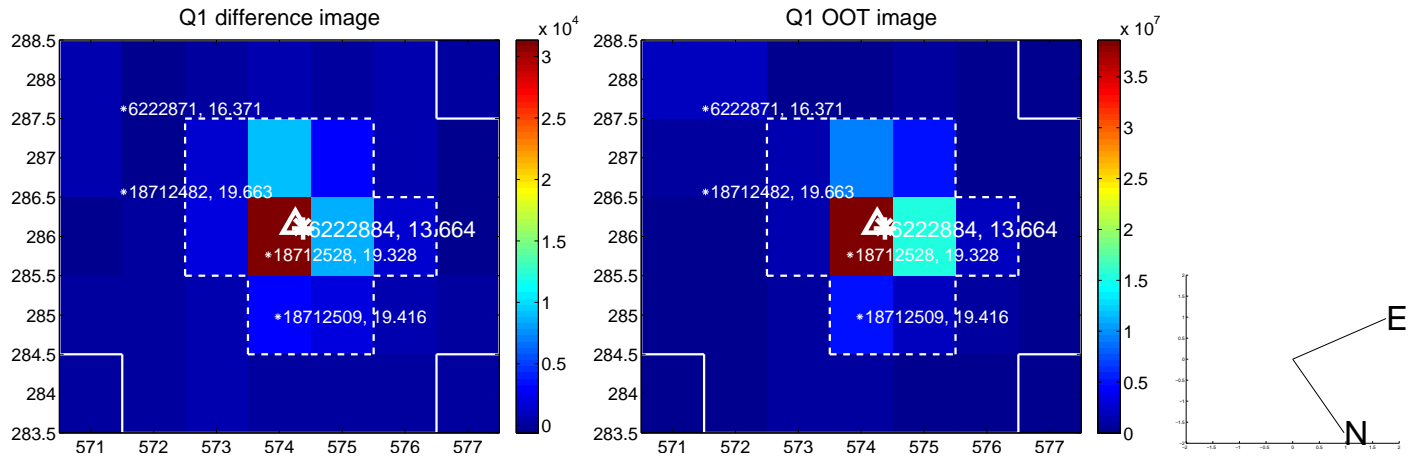
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.208 ± 0.152	1.37	-0.089 ± 0.115	0.188 ± 0.136
PRF-fit source offset from KIC position	0.205 ± 0.152	1.35	-0.109 ± 0.115	0.174 ± 0.136
photometric centroid source offset	3.17 ± 0.78	4.05	2.46 ± 0.86	2.01 ± 0.66

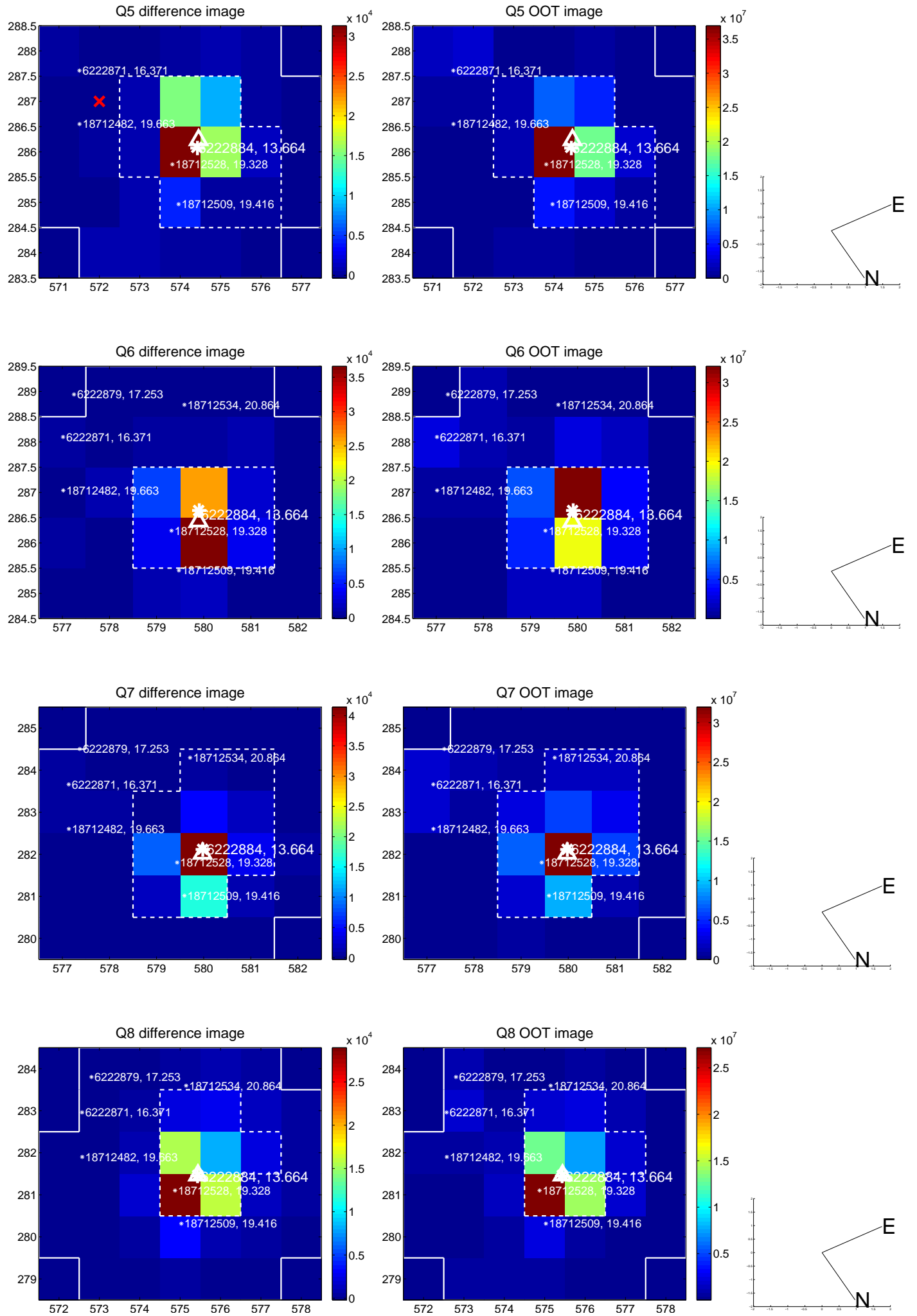


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

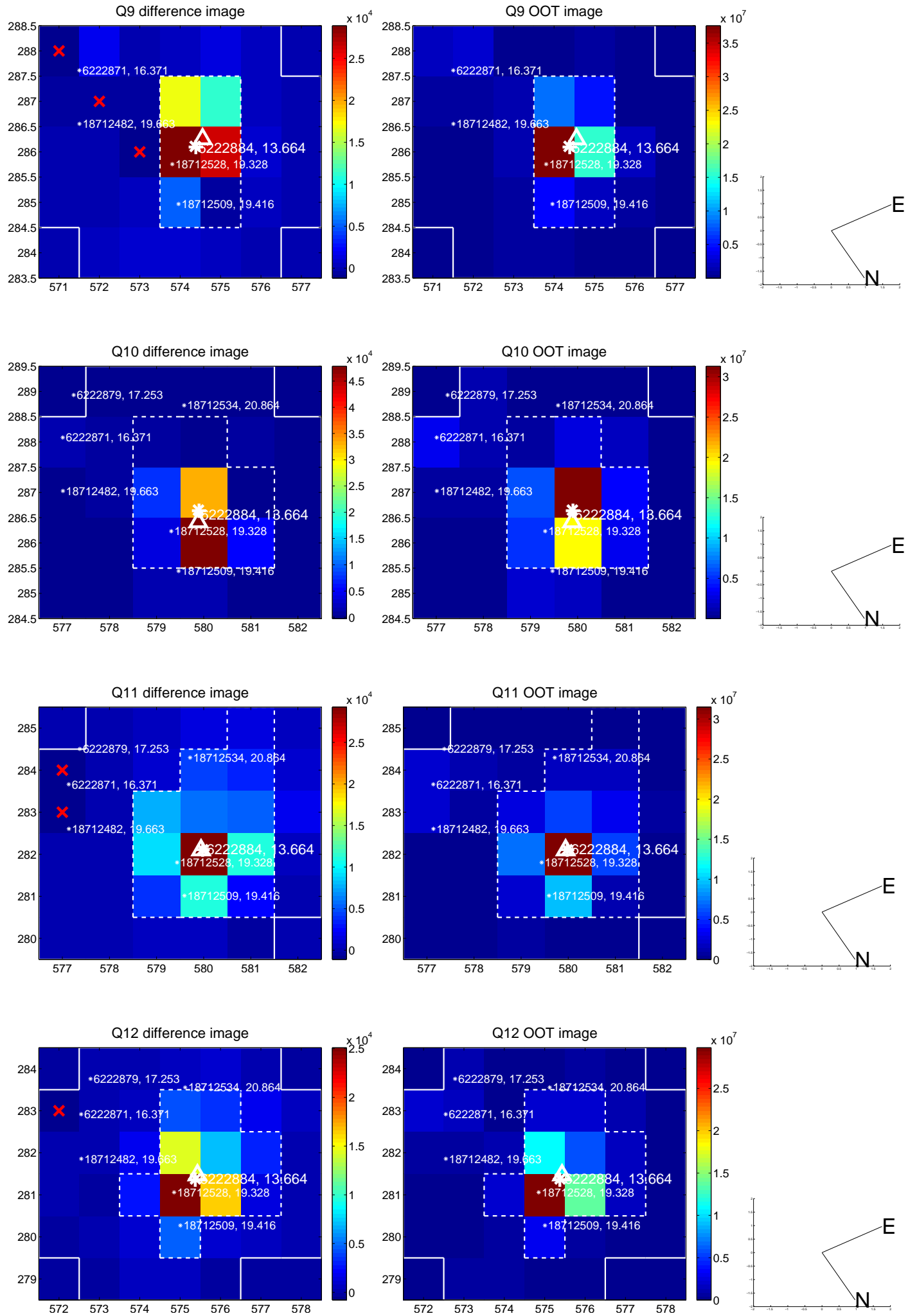
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



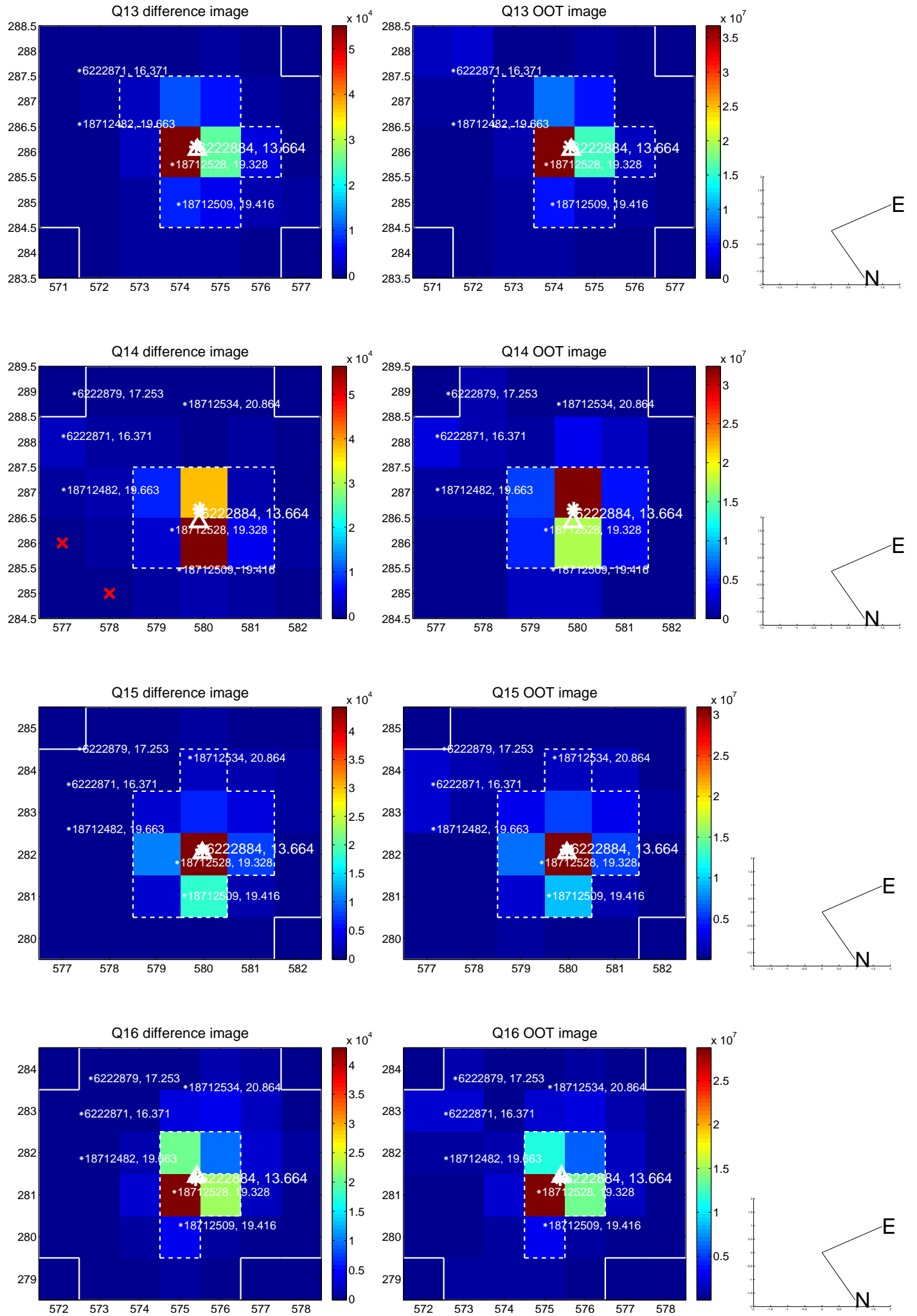
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



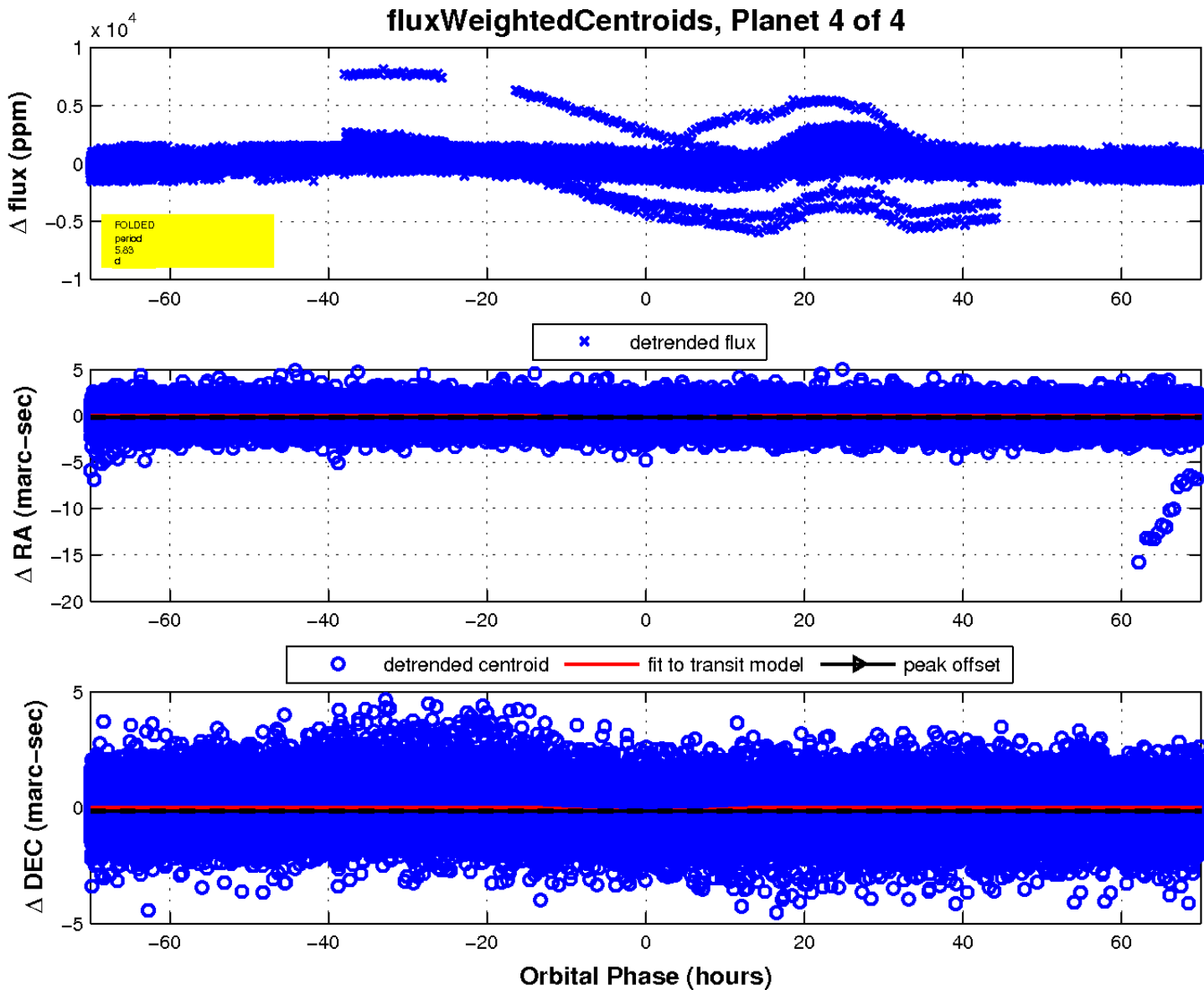
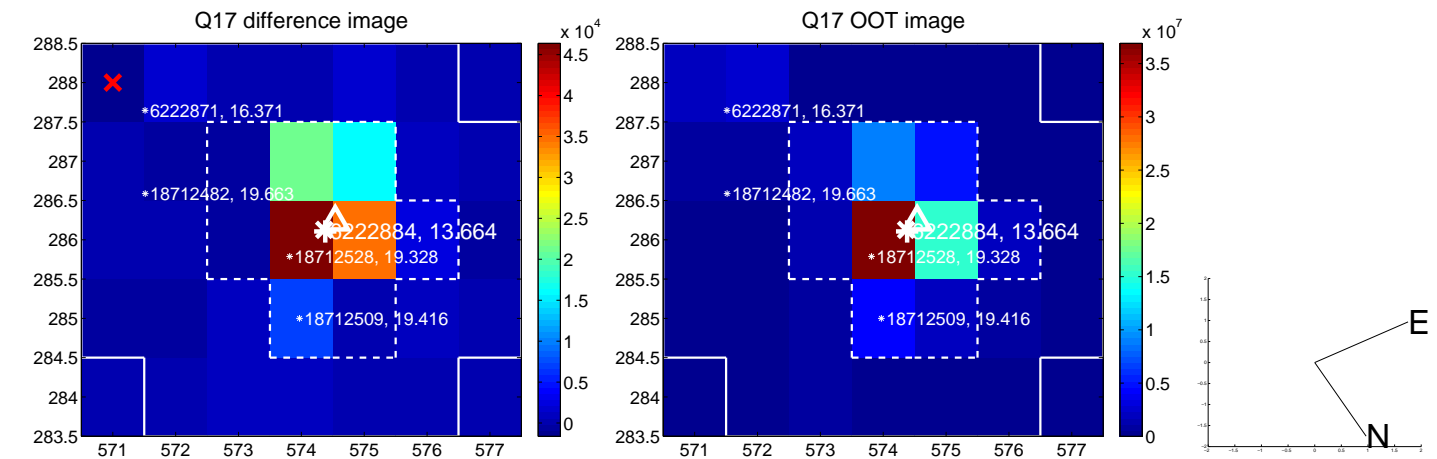
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

