

KIC 005556830

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
005556830-01	OBS	No	12.425759	141.442383	133.2	21.237	9.3	11.0	0.81	5380	1.03	47.60
005556830-02	OBS	No	12.424713	134.006540	99.7	25.215	8.6	9.3	0.81	5380	0.86	47.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005556830-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
005556830-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—HALO_GHOST—EPHEM_MATCH

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.

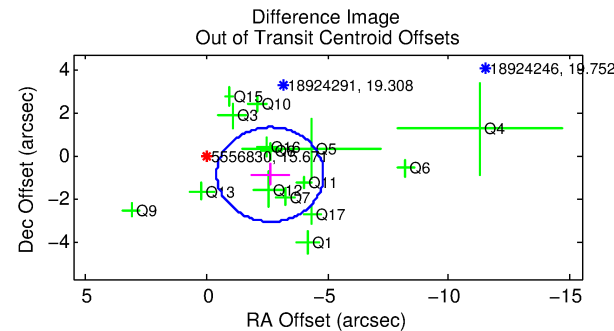
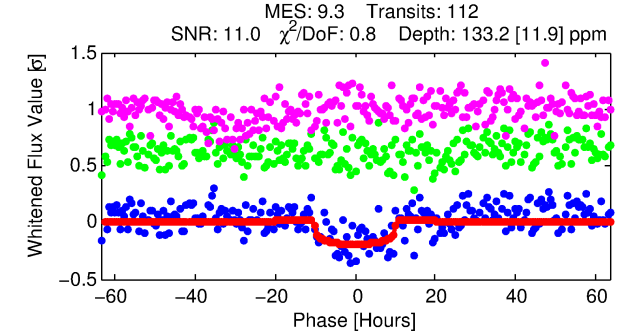
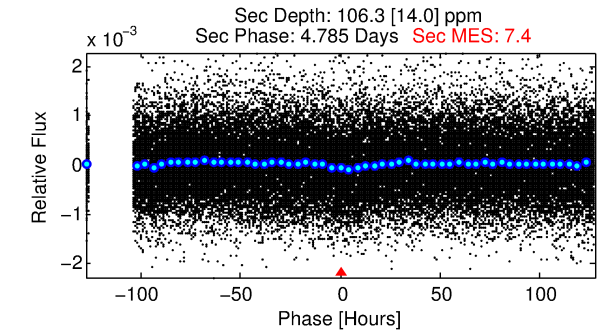
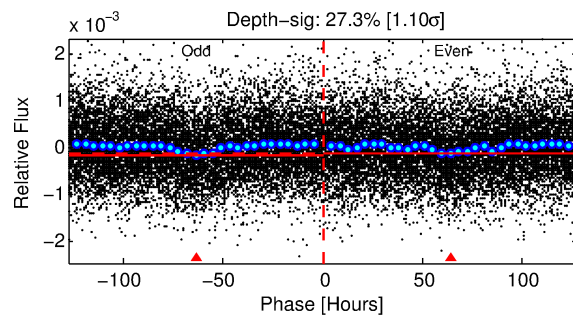
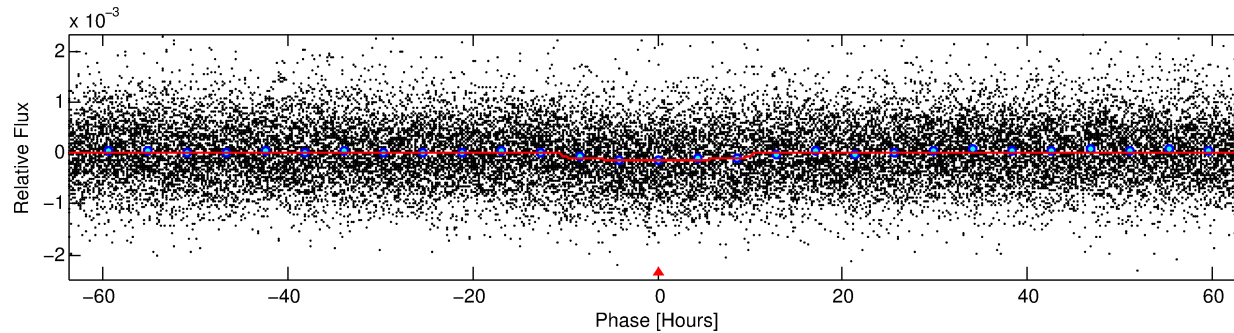
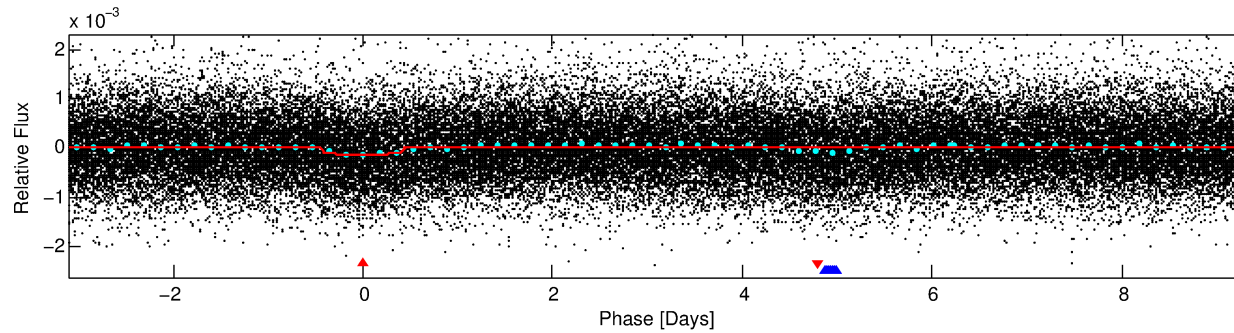
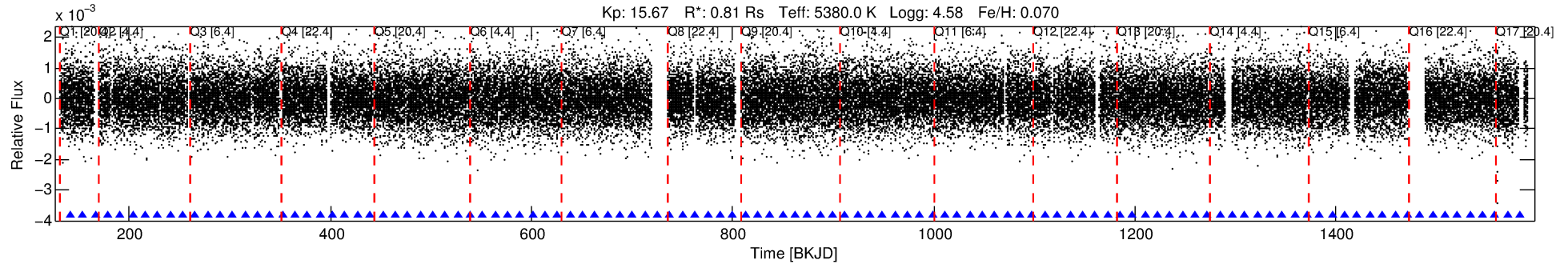
Ephemeris Match Information For 005556830-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	ΔRow	ΔCol	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ _P	σ _T
005556830-01	5556830	V380-Cyg-pri	5385723	1:1	416.0	97	38	5.77	15.67	1089.70	Direct-PRF	0	0.11	2.95

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

DV One-Page Summary

KIC: 5556830 Candidate: 1 of 2 Period: 12.426 d



DV Fit Results:

Period = 12.42576 [0.00039] d
Epoch = 141.4424 [0.0258] BKJD
Rp/R* = 0.0117 [0.0032]
a/R* = 3.00 [2.92]
b = 0.78 [0.55]
Seff = 47.61 [12.21]
Teq = 670 [43] K
Rp = 1.04 [0.34] Re
a = 0.1021 [0.0155] AU
Ag = 568.94 [345.56] [1.64 σ]
Teffp = 5058 [735] K [5.96 σ]

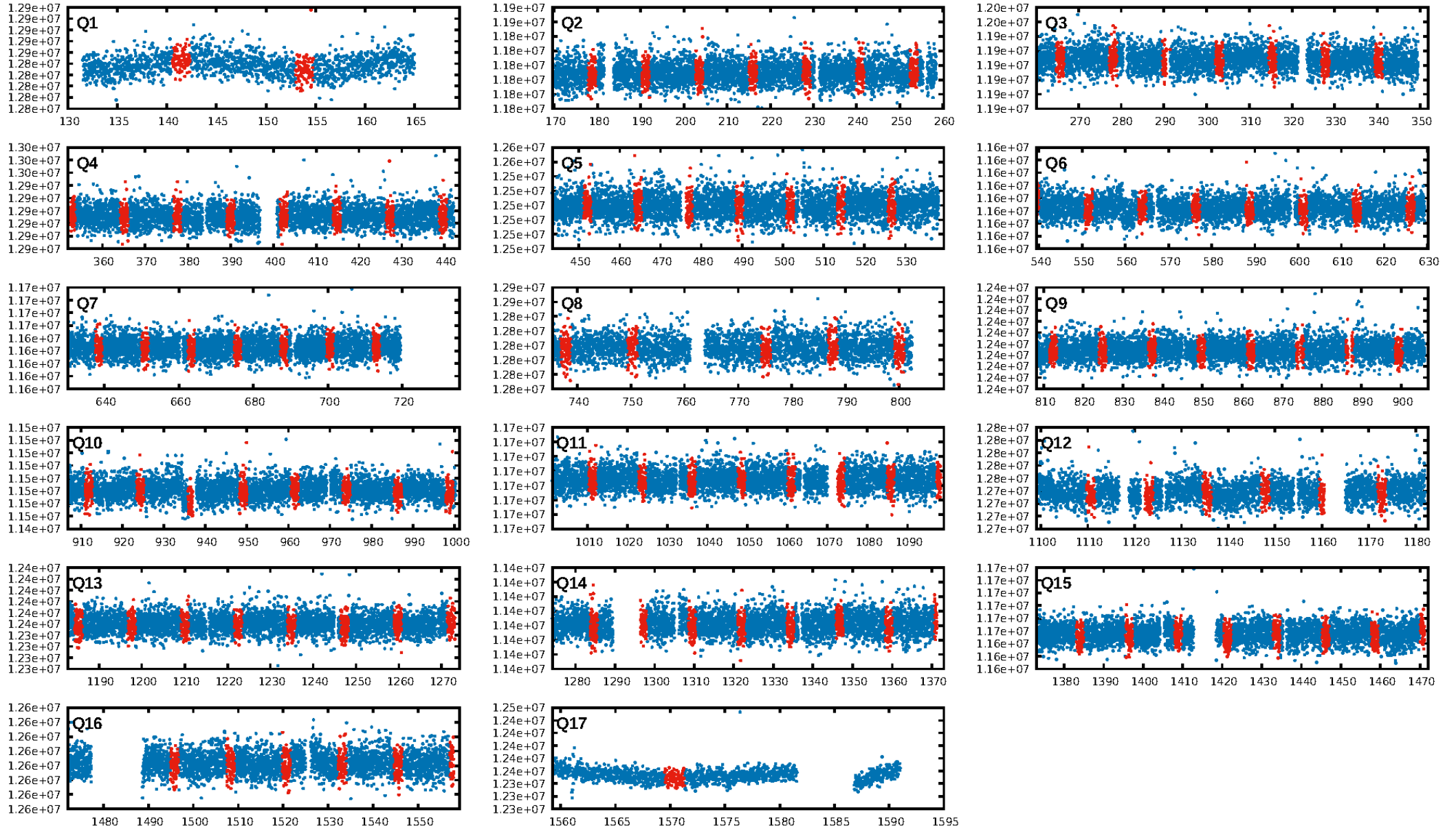
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 70.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.30e-23
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.1596
Centroid-sig: 85.3%
Centroid-so: 0.578 arcsec [0.47 σ]
OotOffset-rm: 2.773 arcsec [3.77 σ]
KicOffset-rm: 2.763 arcsec [3.62 σ]
OotOffset-st: 2/4/4/5 [15]
KicOffset-st: 2/4/4/5 [15]
DiffImageQuality-fgm: 0.13 [2/15]
DiffImageOverlap-fno: 1.00 [17/17]

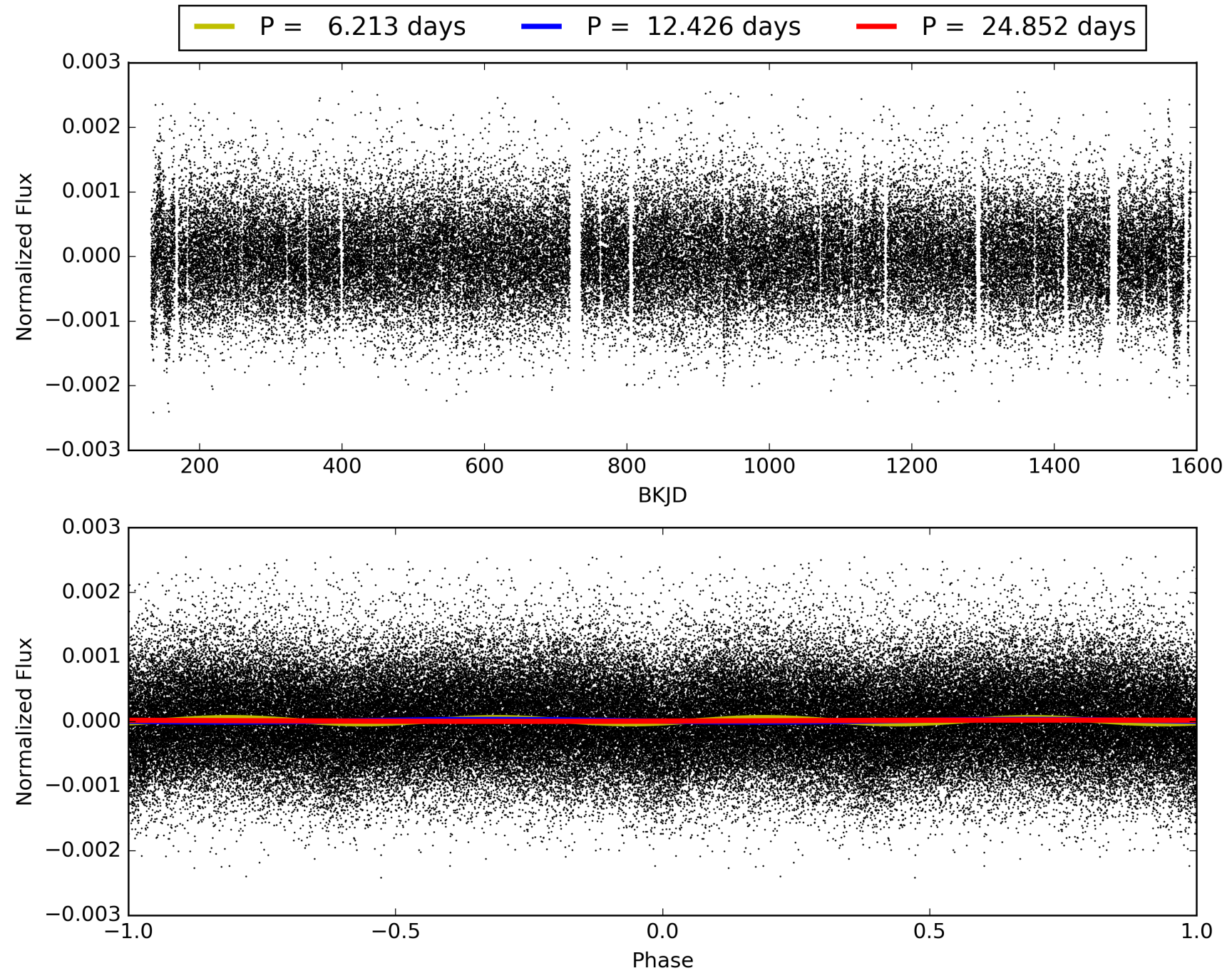
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:40:12 Z

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

TCE 005556830-01, PDC Light Curves

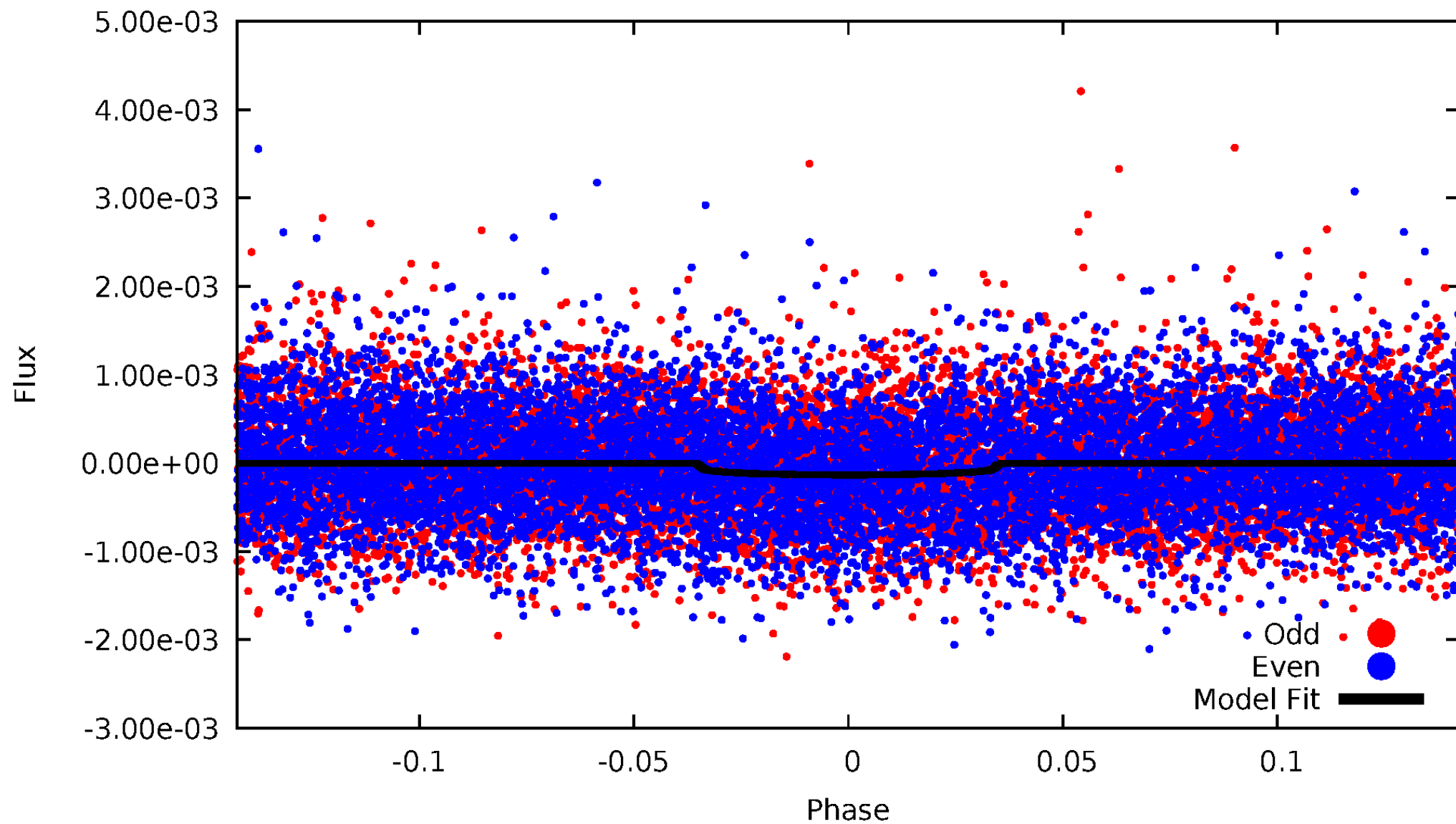


TCE 005556830-01



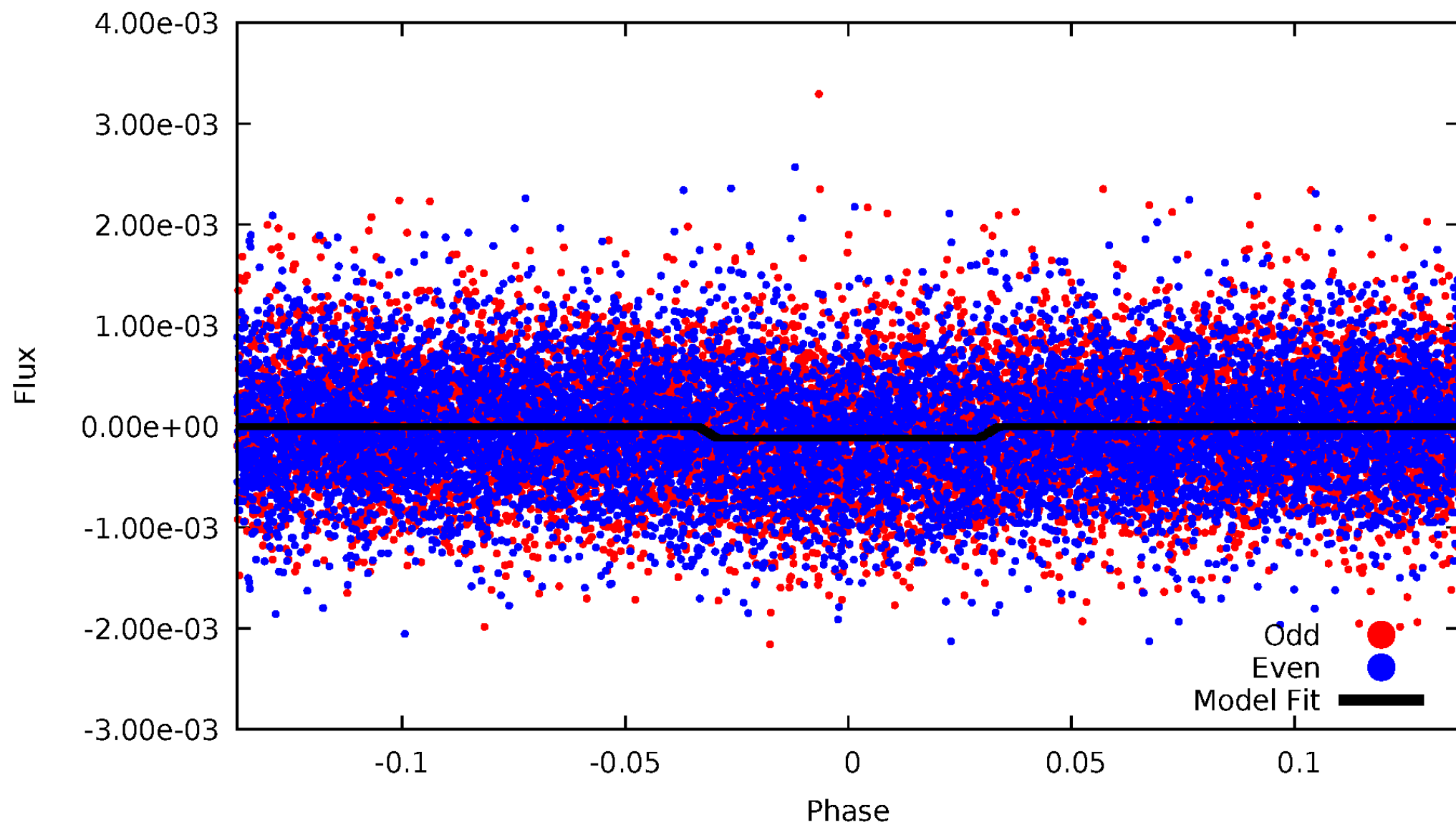
DV Odd/Even

TCE 005556830-01

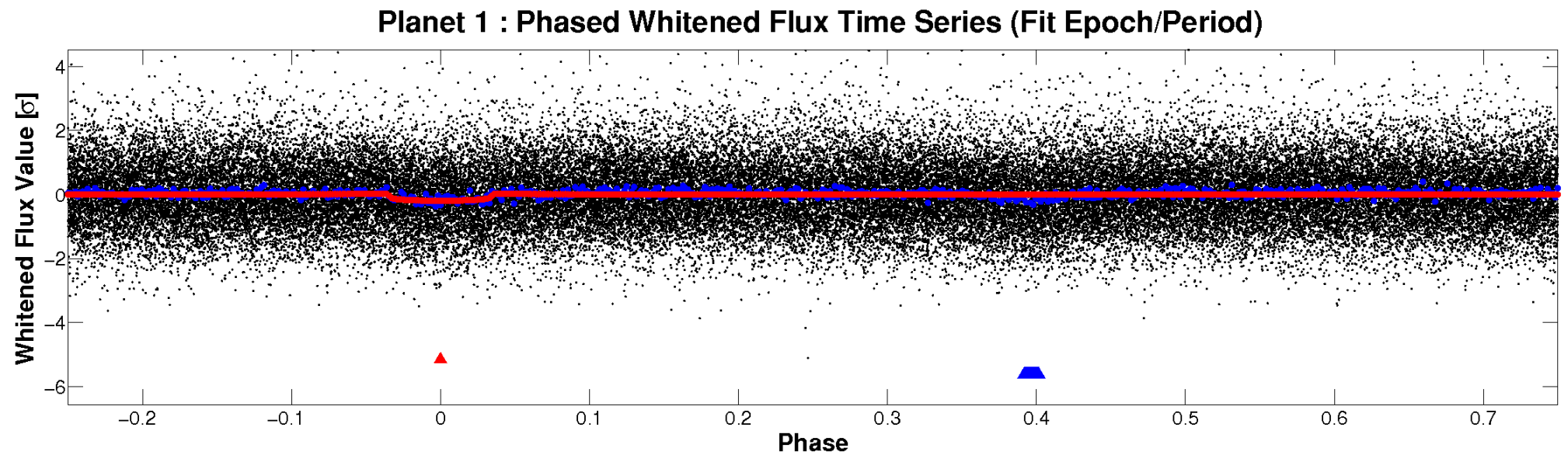
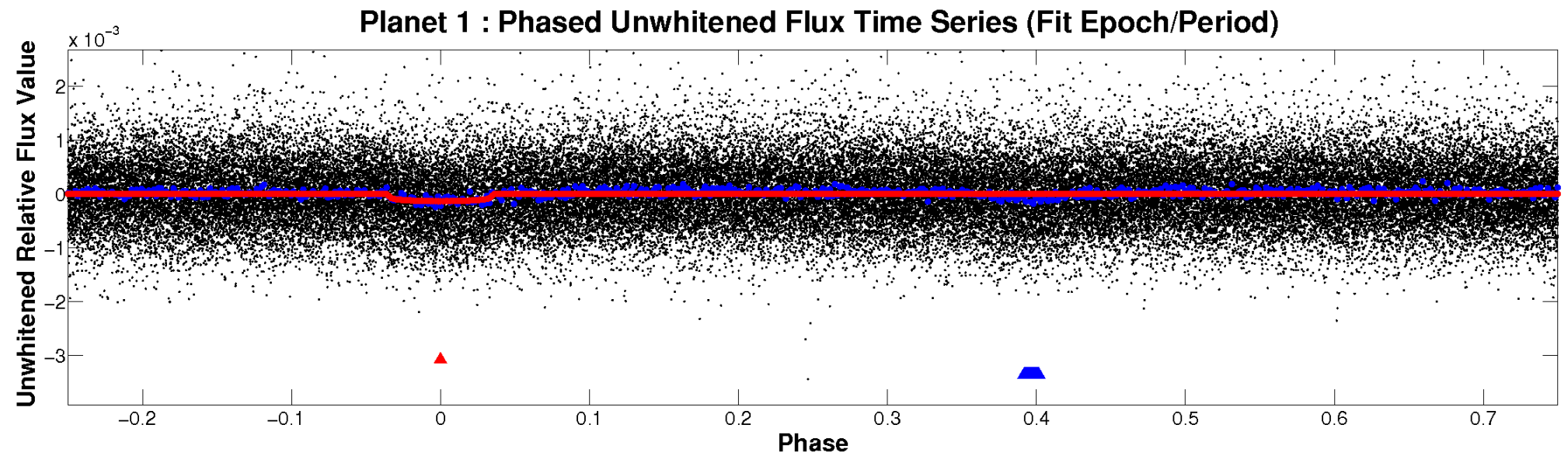


ALT Odd/Even

TCE 005556830-01

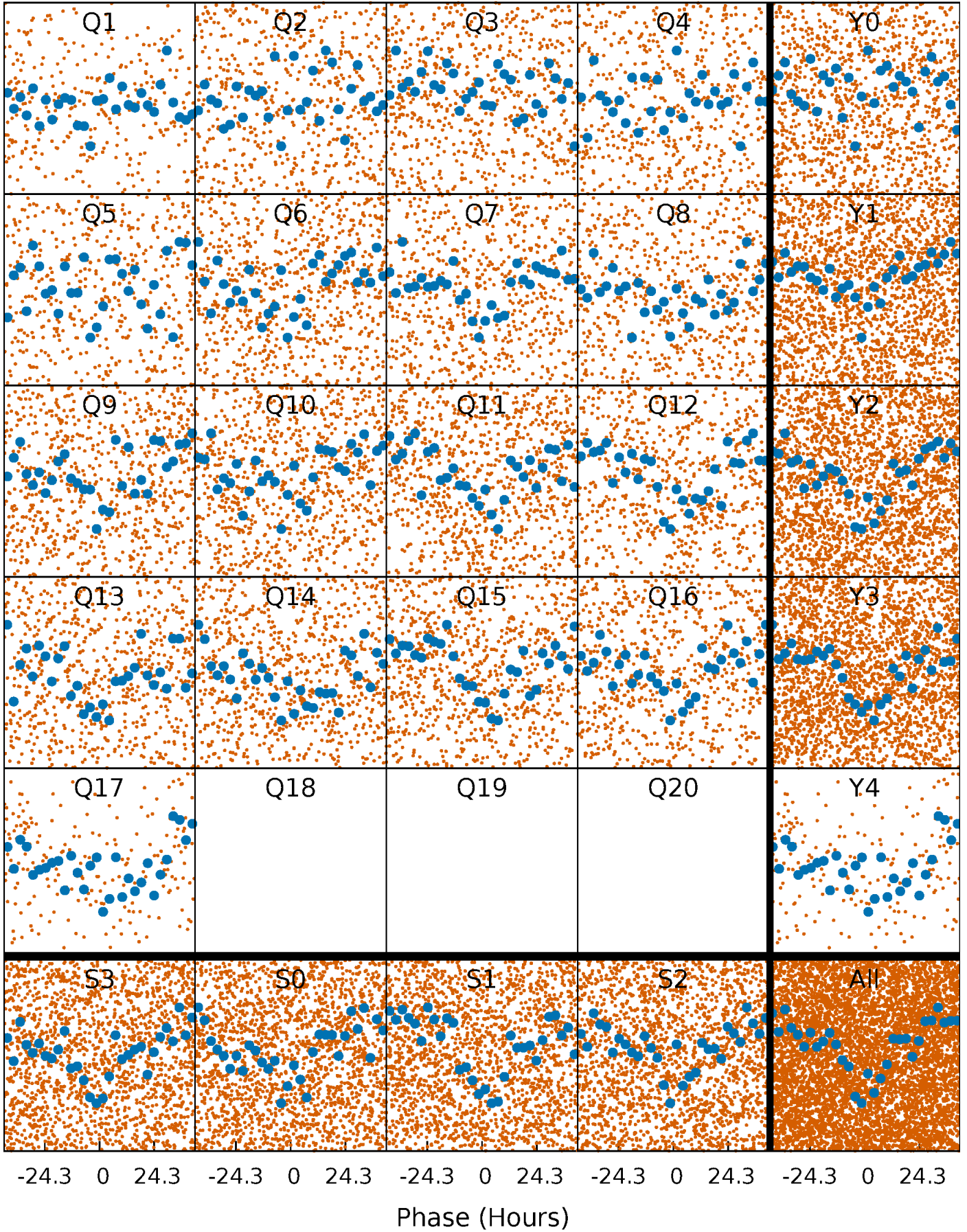


Non-Whitened Vs. Whitened Light Curve



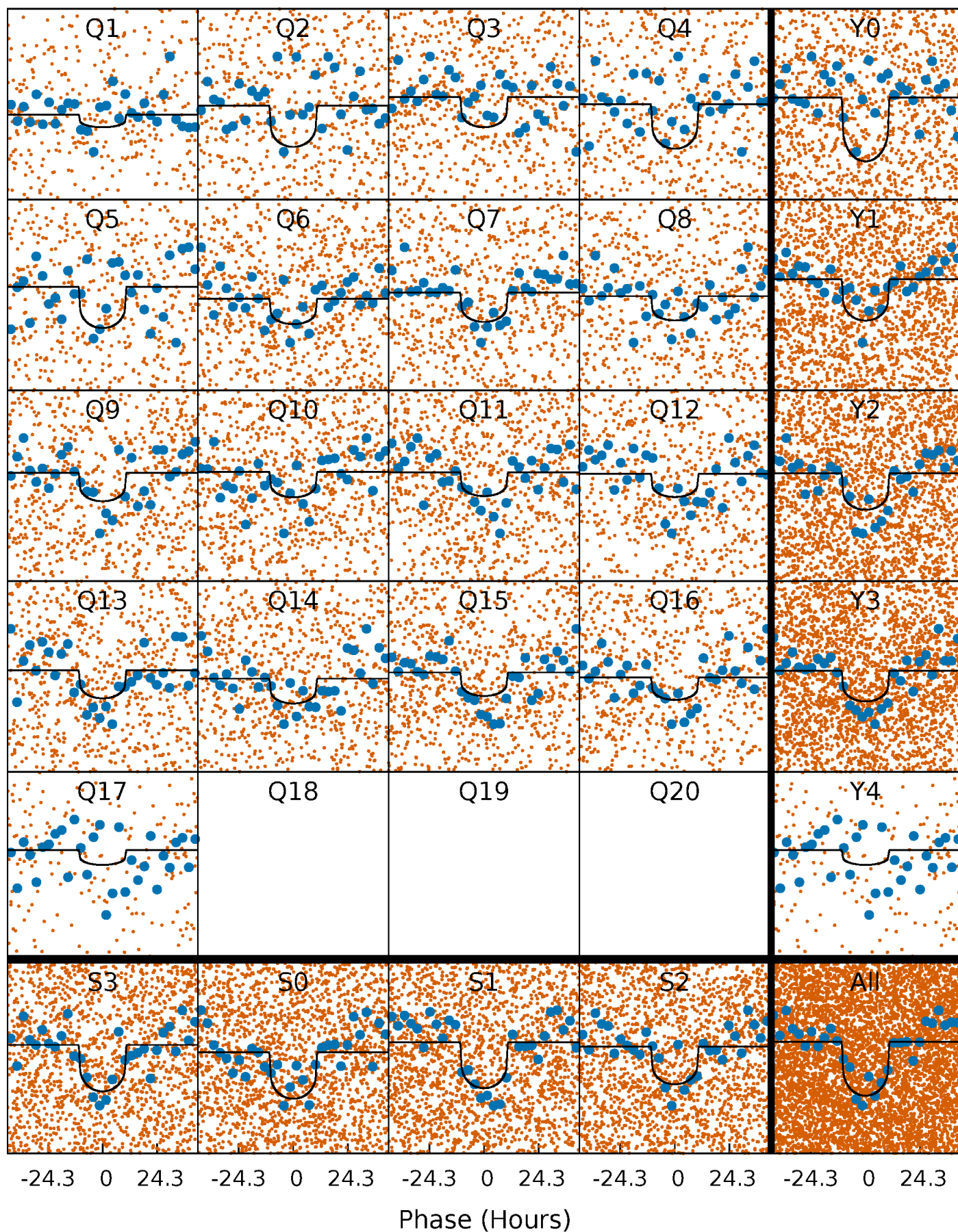
PDC Quarter-Phased Transit Curves

TCE 005556830-01 P= 12.425759 Days $T_0=141.442383$ (BKJD)



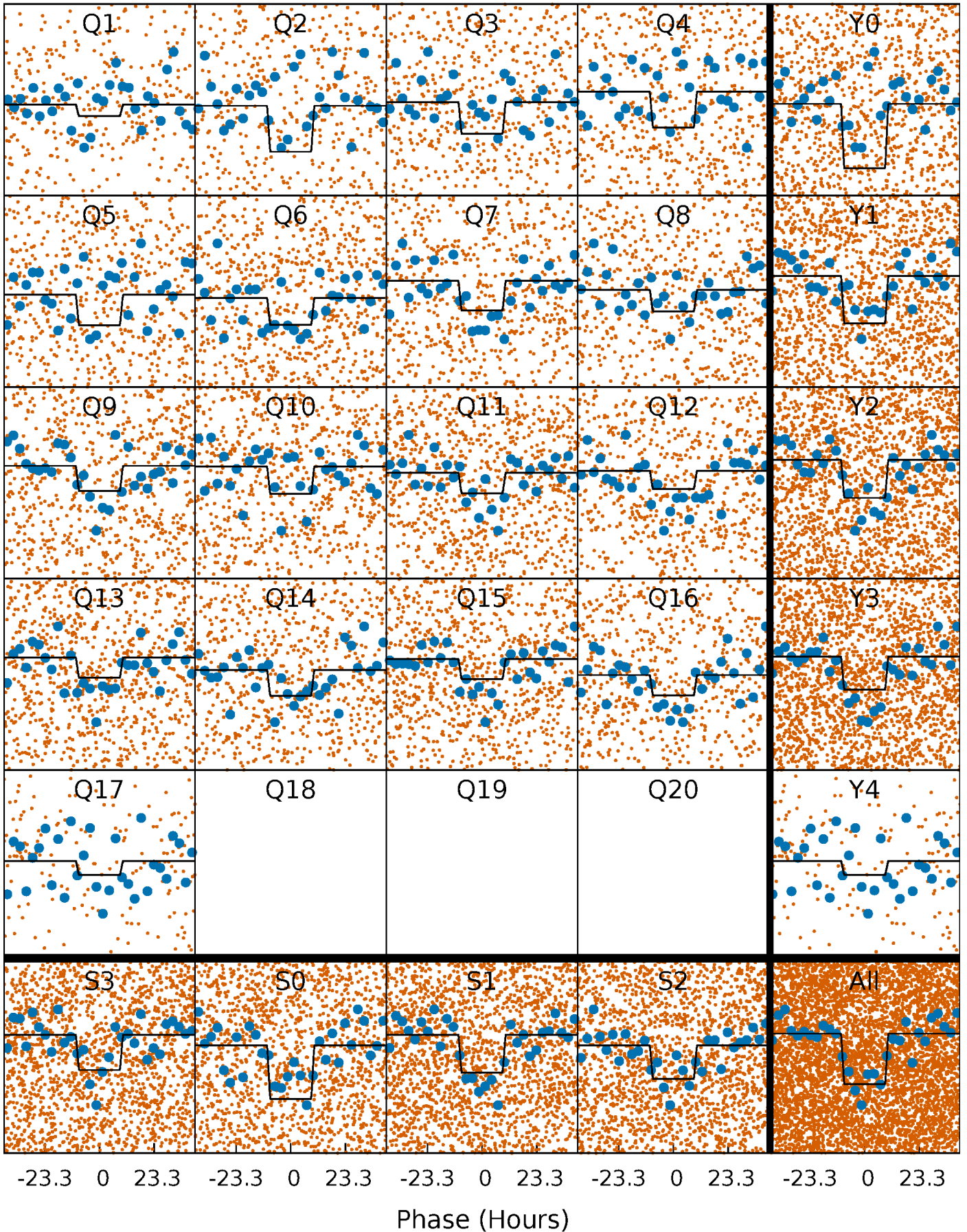
DV Quarter-Phased Transit Curves

TCE 005556830-01 P= 12.425759 Days $T_0=141.442383$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

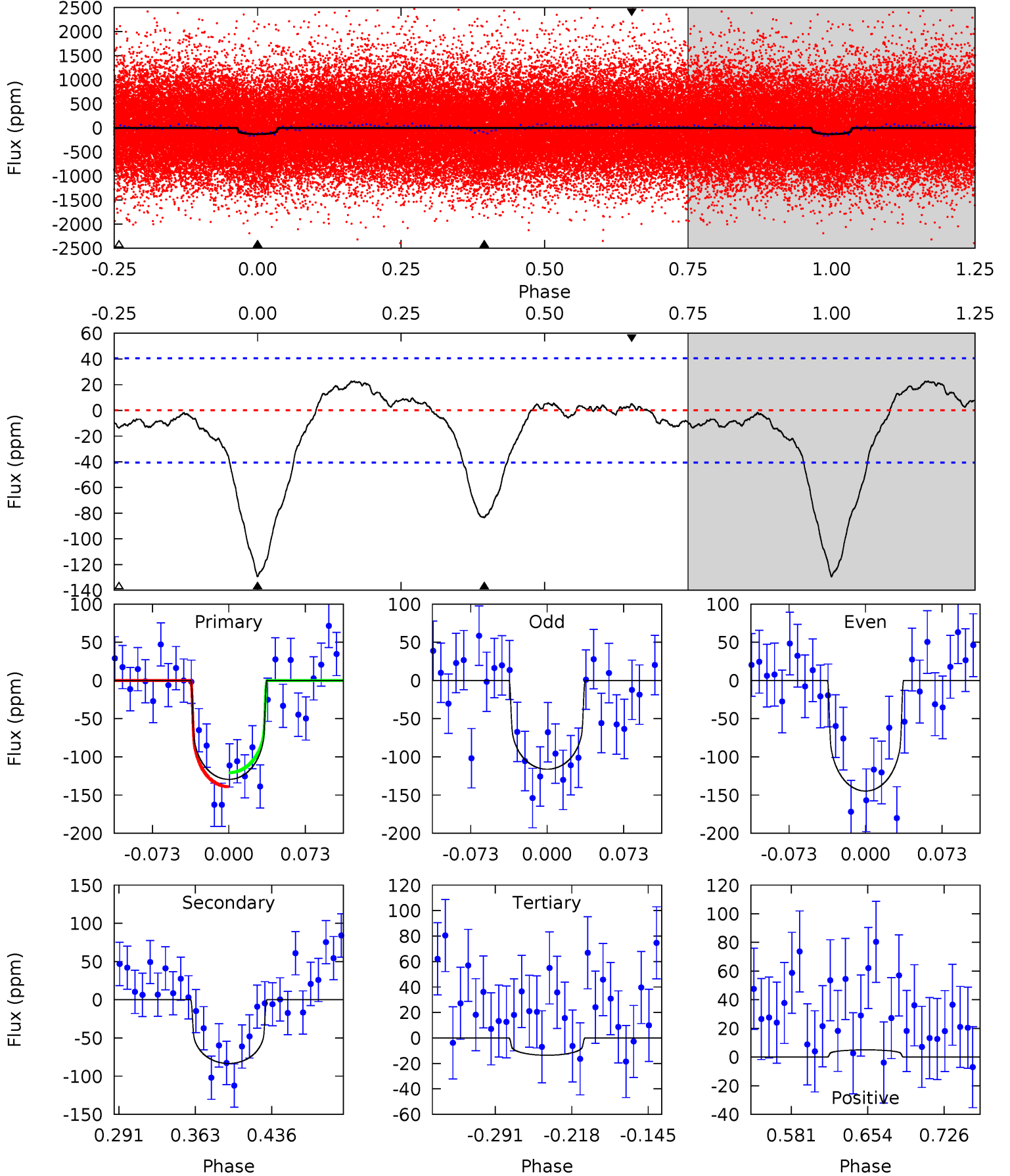
TCE 005556830-01 P= 12.426732 Days $T_0=141.389011$ (BKJD)



DV Model-Shift Uniqueness Test

005556830-01, $P = 12.425759$ Days, $E = 129.016624$ Days

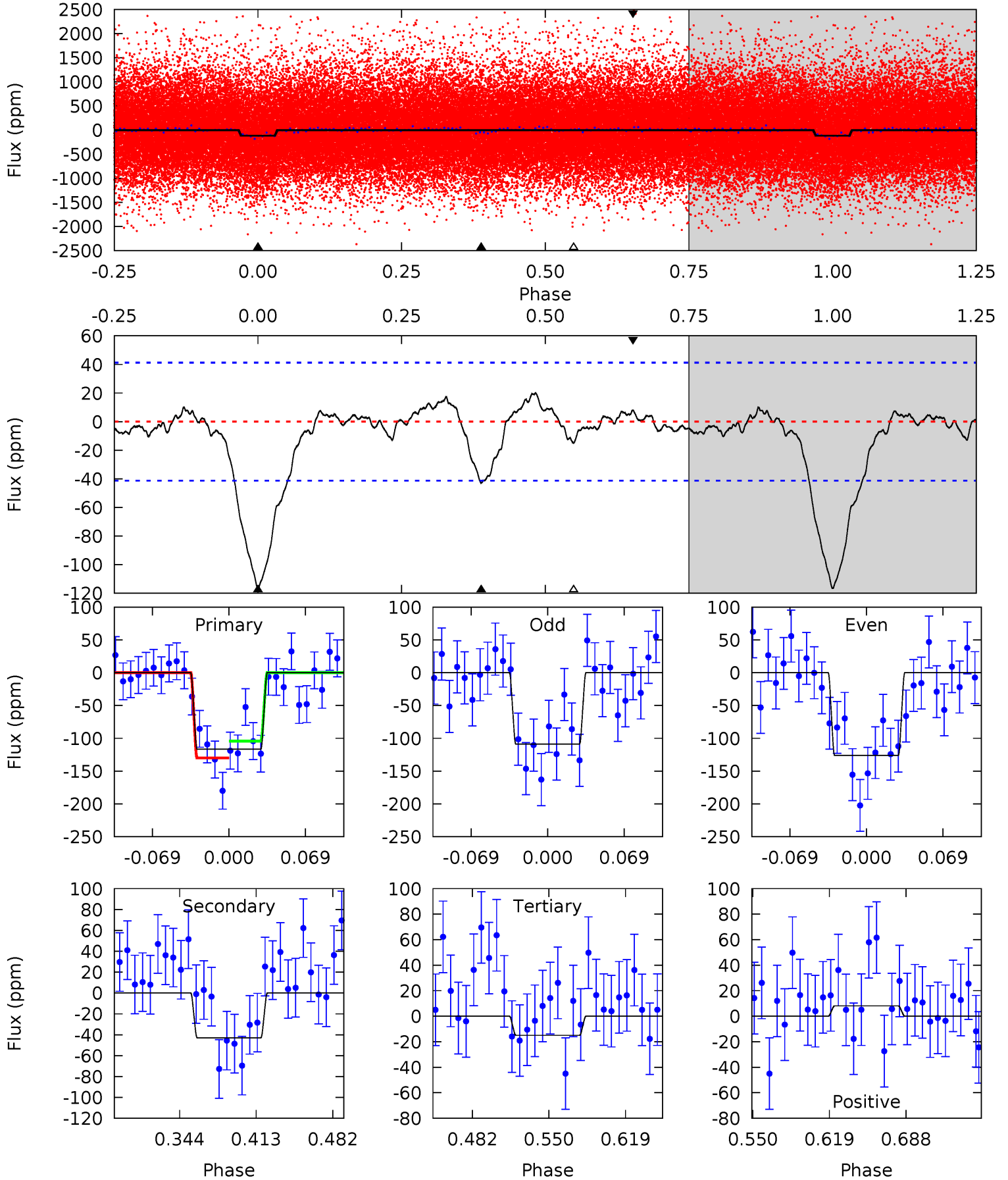
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	9.51	1.55	0.58	4.63	1.80	1.16	13.2	14.2	7.96	8.93	1.63	1.15	0.15	1.04



Alt Model-Shift Uniqueness Test

005556830-01, $P = 12.426732$ Days, $E = 128.962279$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	4.82	1.68	0.91	4.64	1.82	0.78	11.4	12.2	3.14	3.91	0.98	0.95	0.15	1.44



Stellar Parameters For KIC 005556830

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5380^{+160}_{-177}	$4.581^{+0.032}_{-0.120}$	$0.070^{+0.250}_{-0.300}$	$0.813^{+0.147}_{-0.063}$	$0.924^{+0.065}_{-0.105}$	$2.425^{+0.387}_{-0.868}$
	+3%/-3%	+1%/-3%	+357%/-429%	+18%/-8%	+7%/-11%	+16%/-36%
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 005556830-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-83 ± 9	$1.06^{+0.29}_{-0.32}$	952^{+45}_{-42}	4852^{+827}_{-474}	415^{+441}_{-164}
Alt.	-43 ± 9	$0.98^{+0.34}_{-0.28}$	951^{+46}_{-40}	4362^{+652}_{-447}	243^{+240}_{-106}

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 $A_{obs} \gg 1.0$

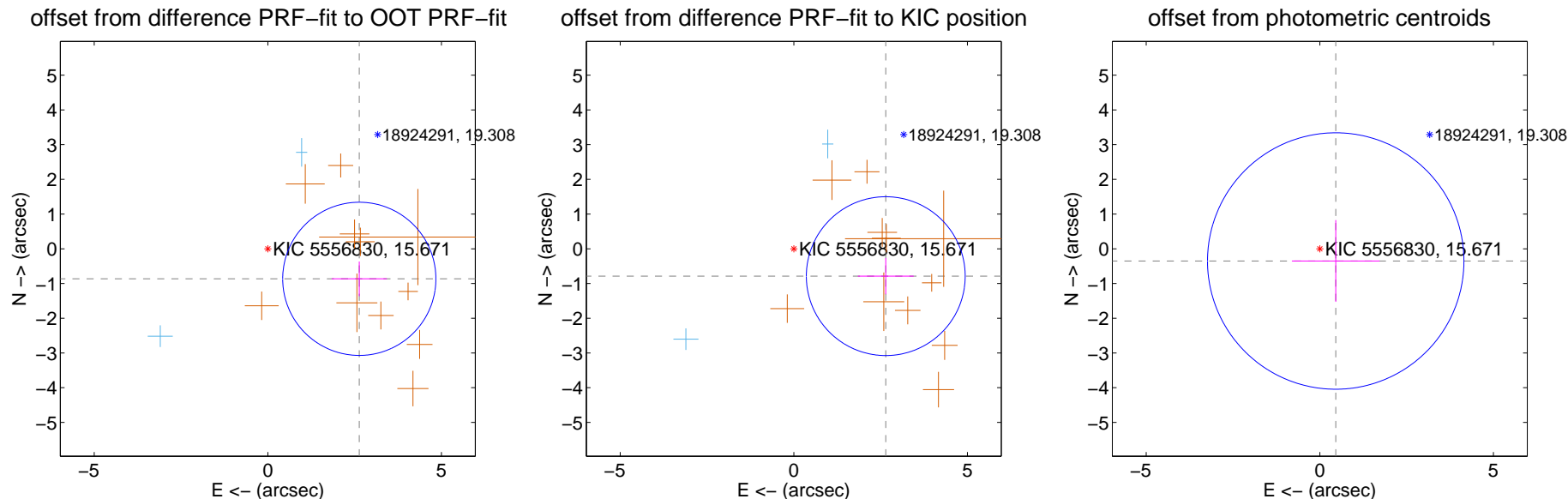
DV Centroid Data

Supplemental centroid analysis for 005556830-01. Kepler magnitude: 15.67. Transit SNR 11.04

There are 2 quarters with good PRF difference image offsets

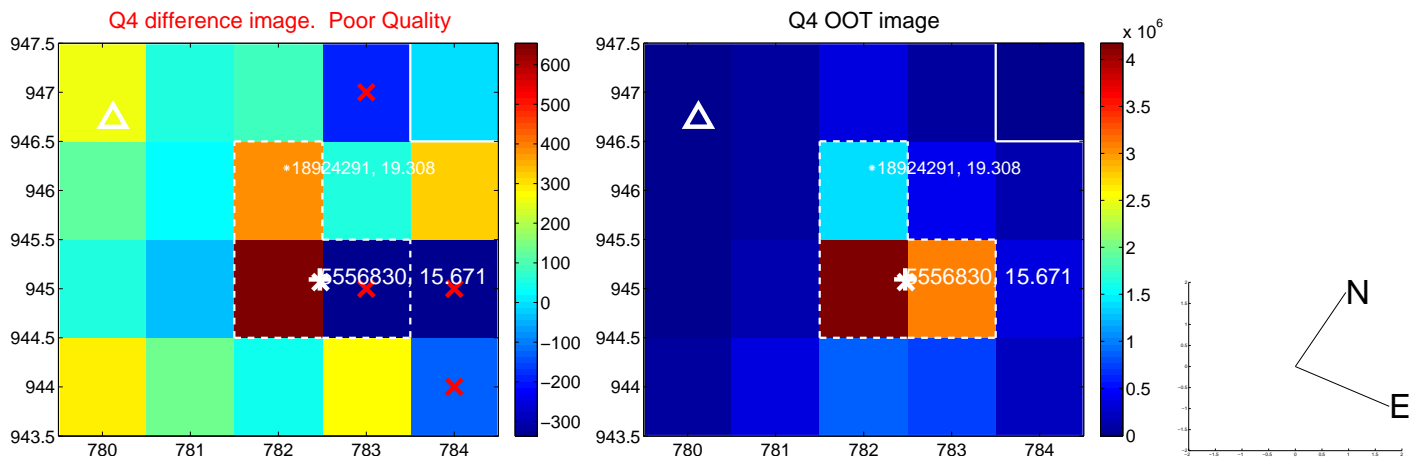
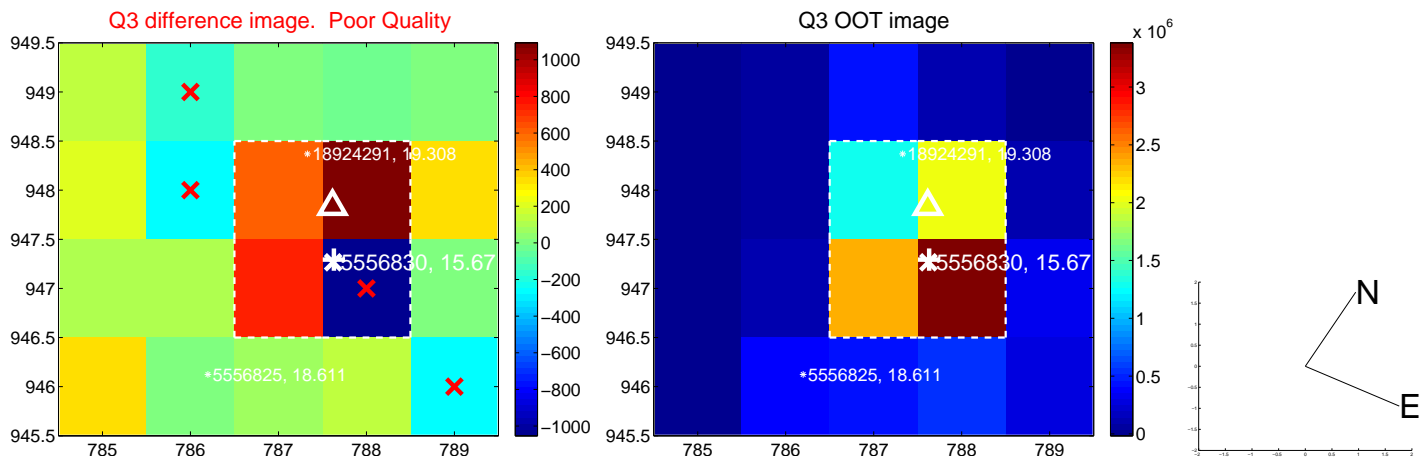
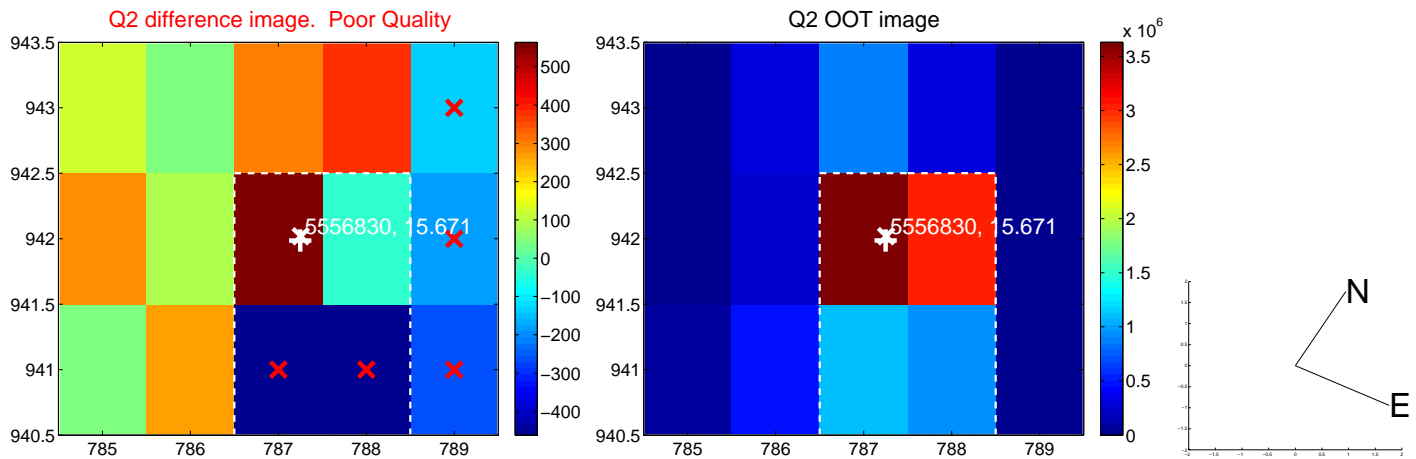
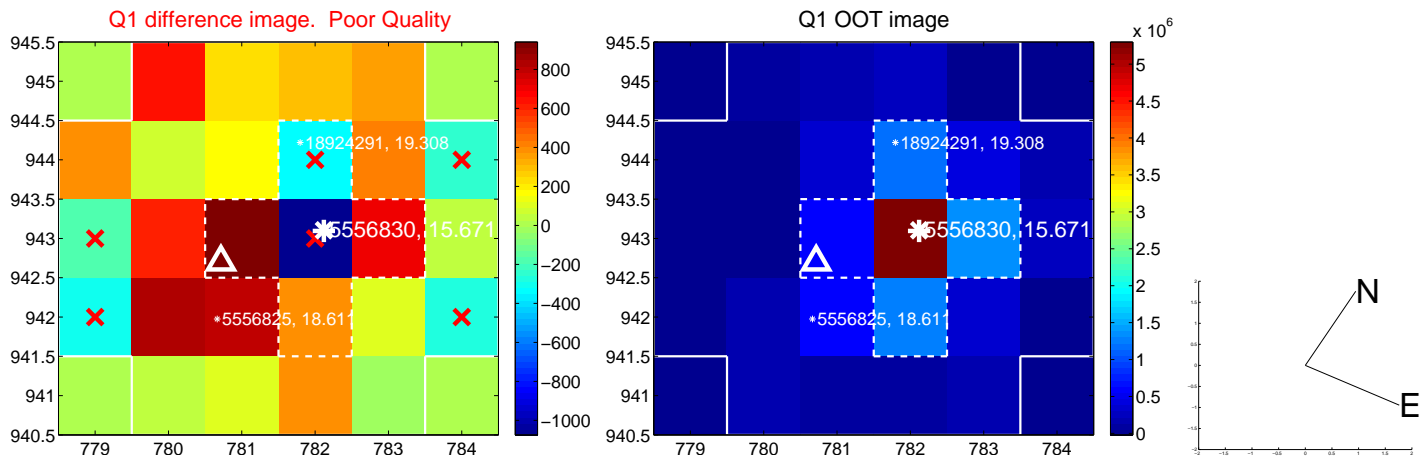
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.773 ± 0.735	3.77	-2.634 ± 0.795	-0.865 ± 0.498
PRF-fit source offset from KIC position	2.763 ± 0.762	3.62	-2.648 ± 0.803	-0.788 ± 0.522
photometric centroid source offset	0.58 ± 1.23	0.47	-0.46 ± 1.26	-0.35 ± 1.18

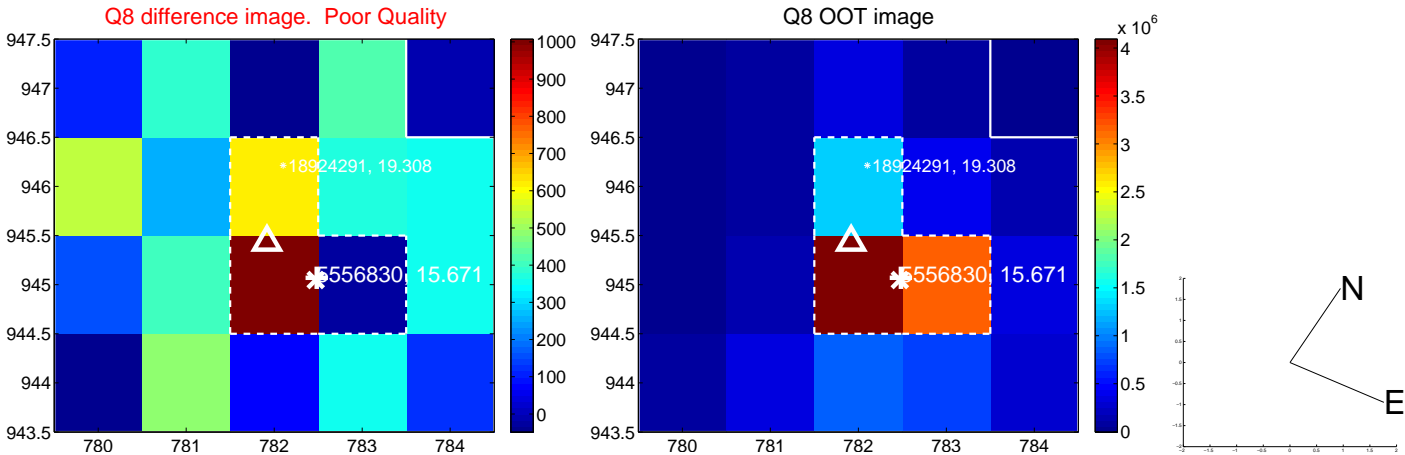
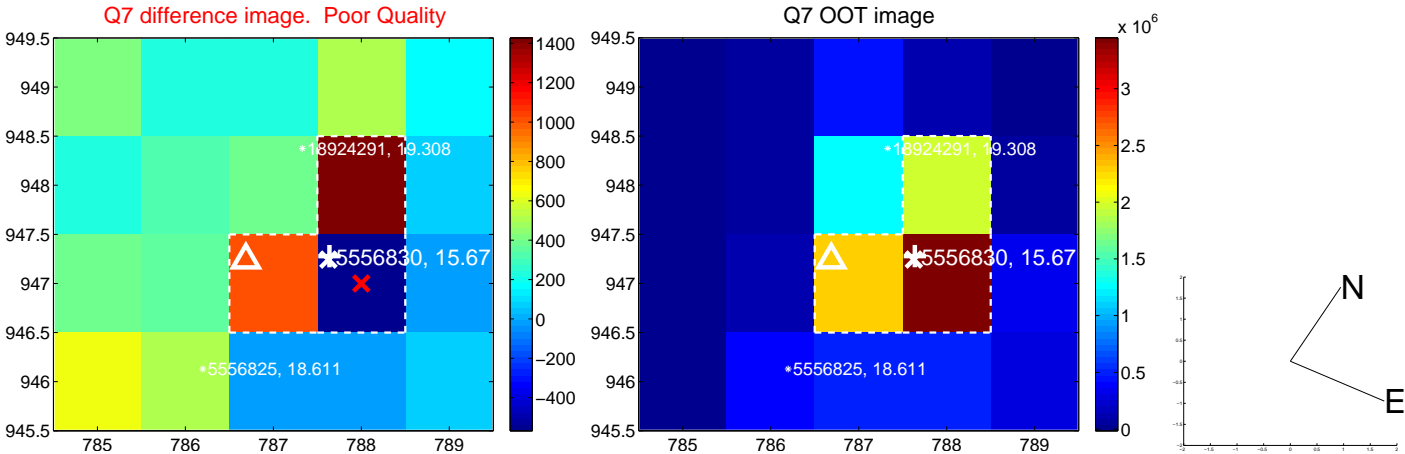
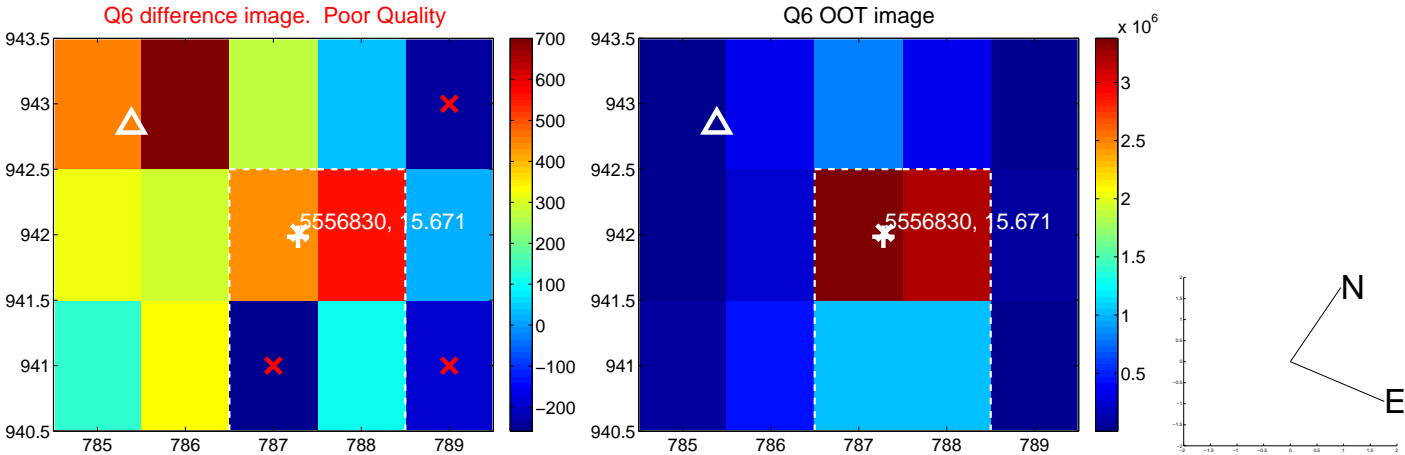
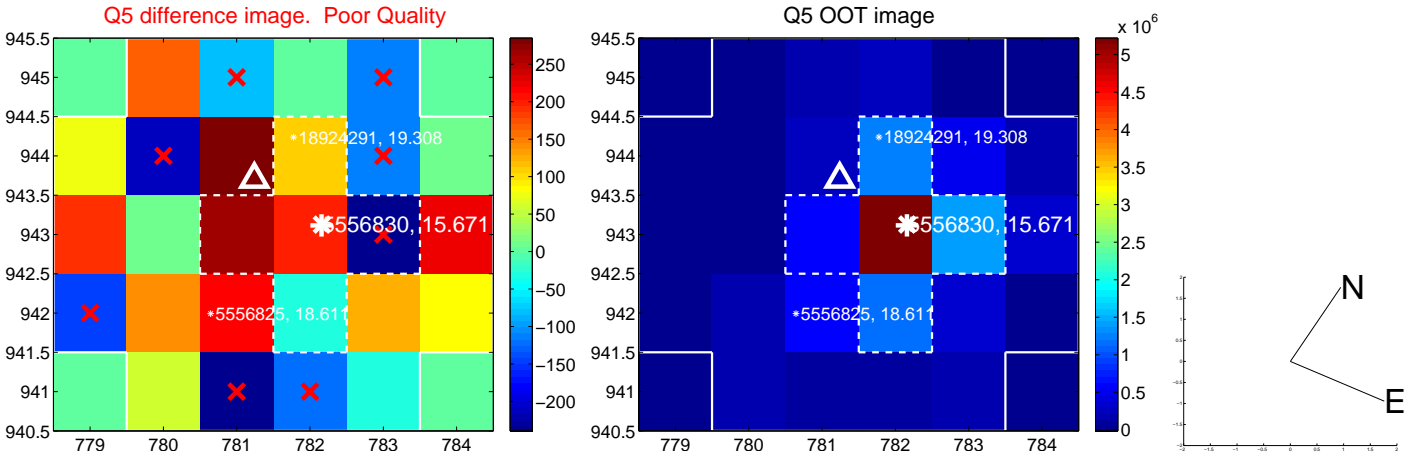


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

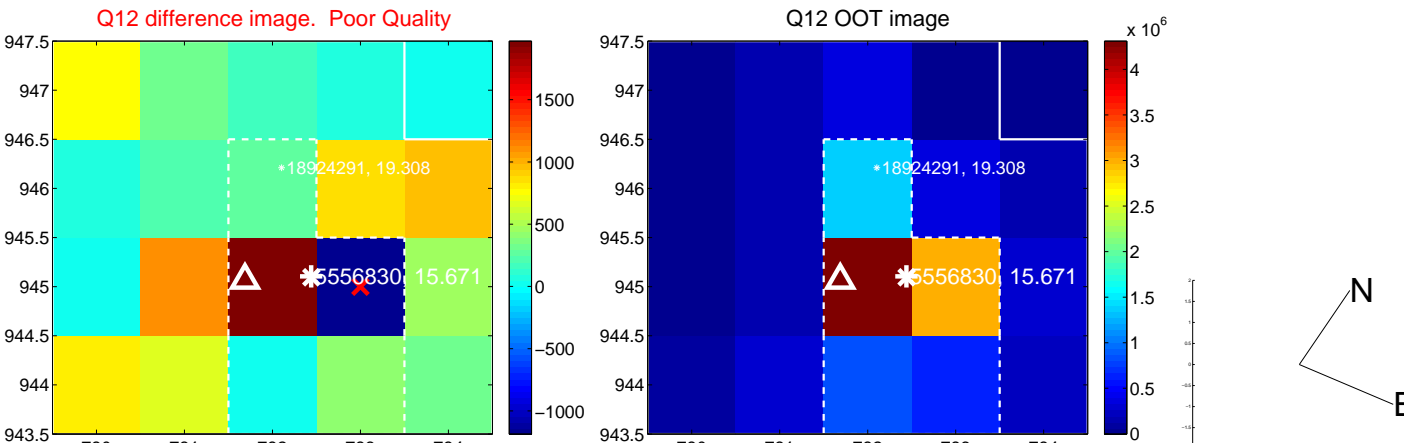
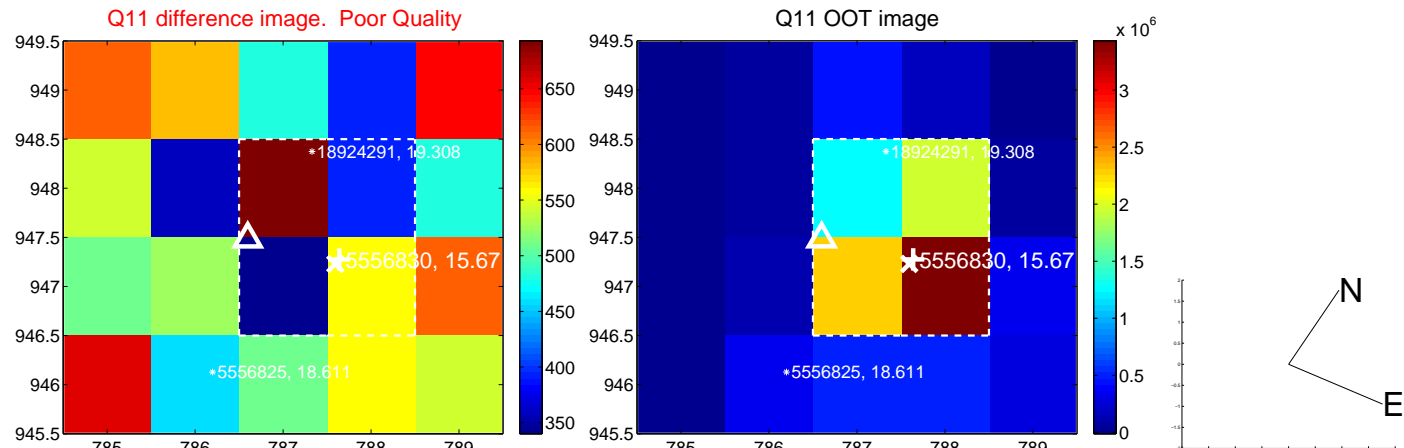
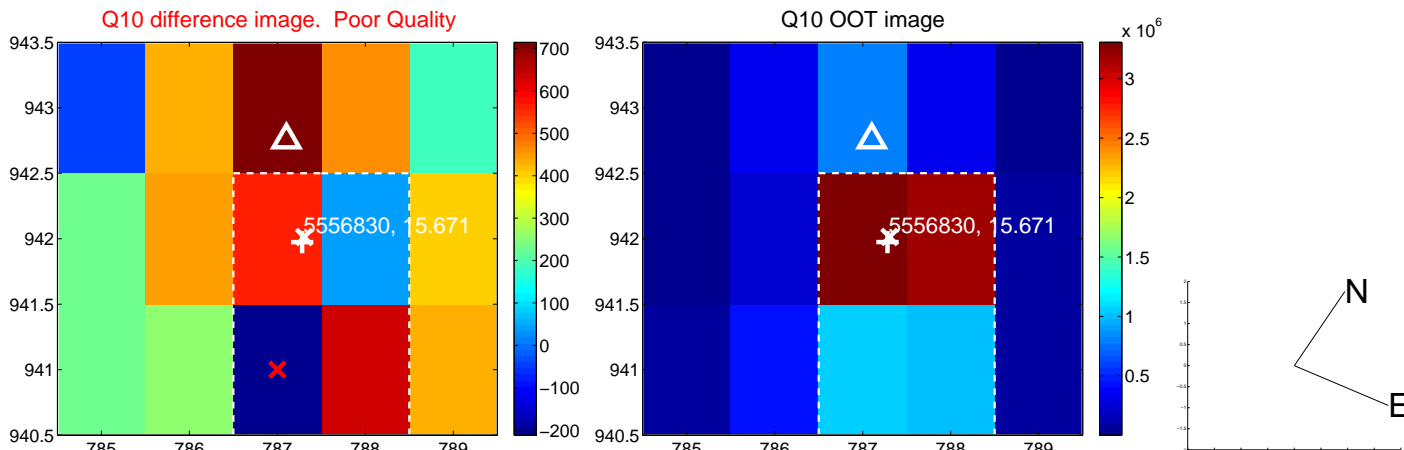
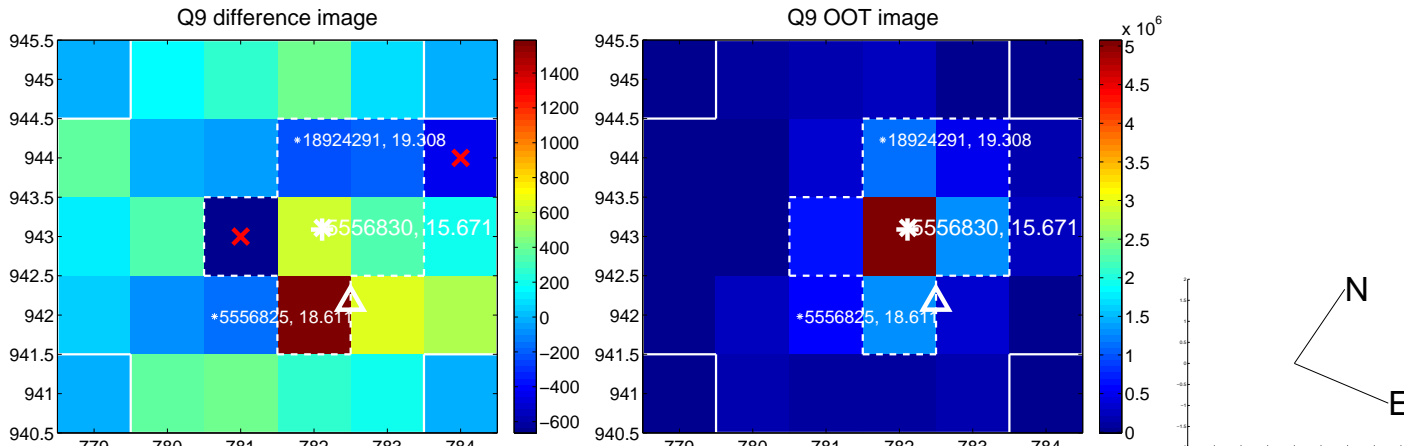
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



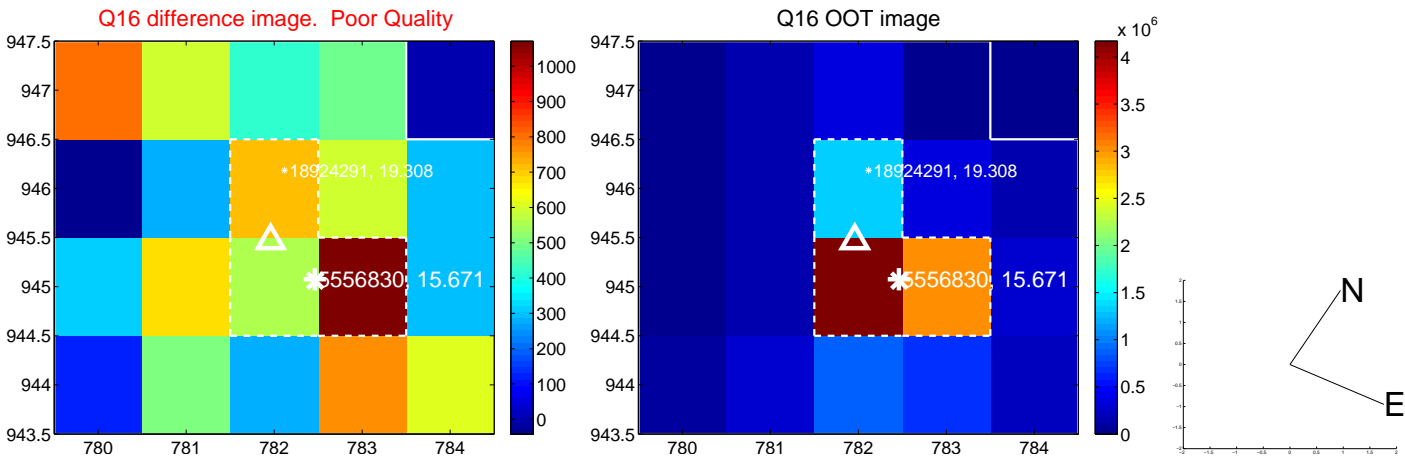
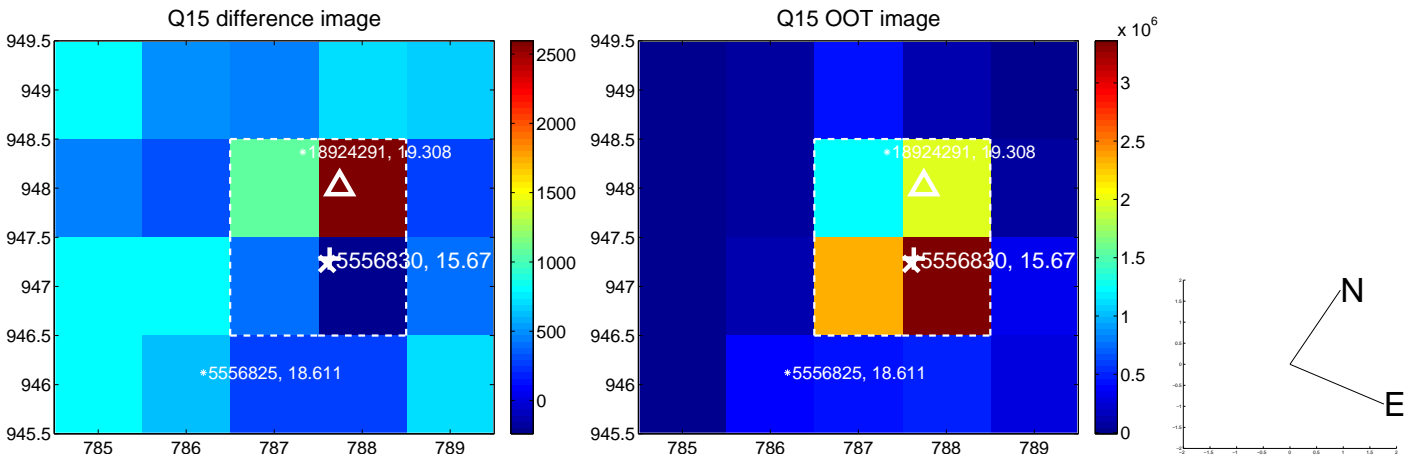
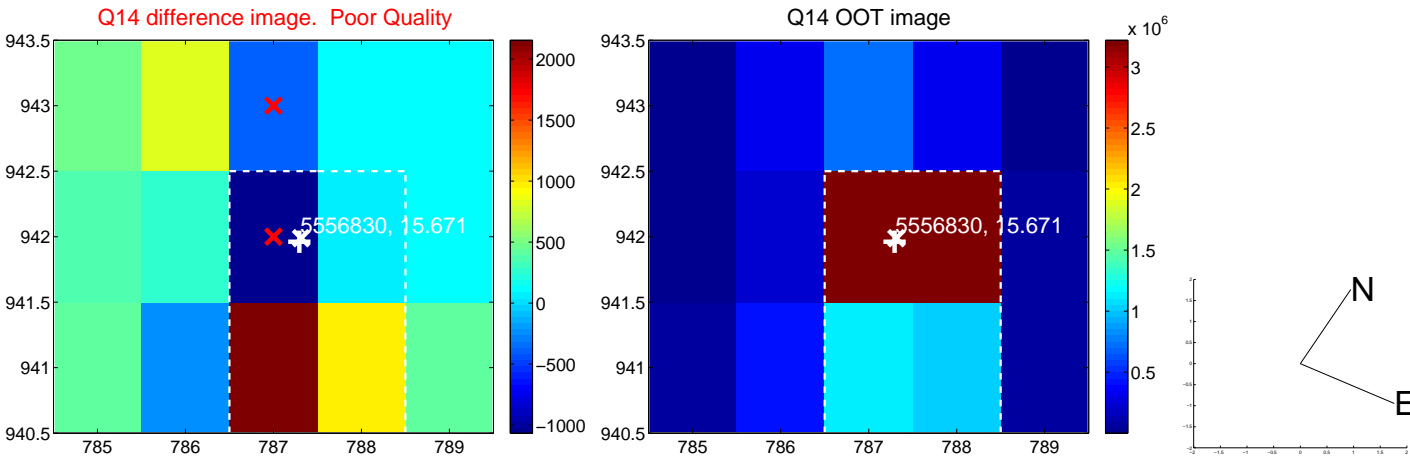
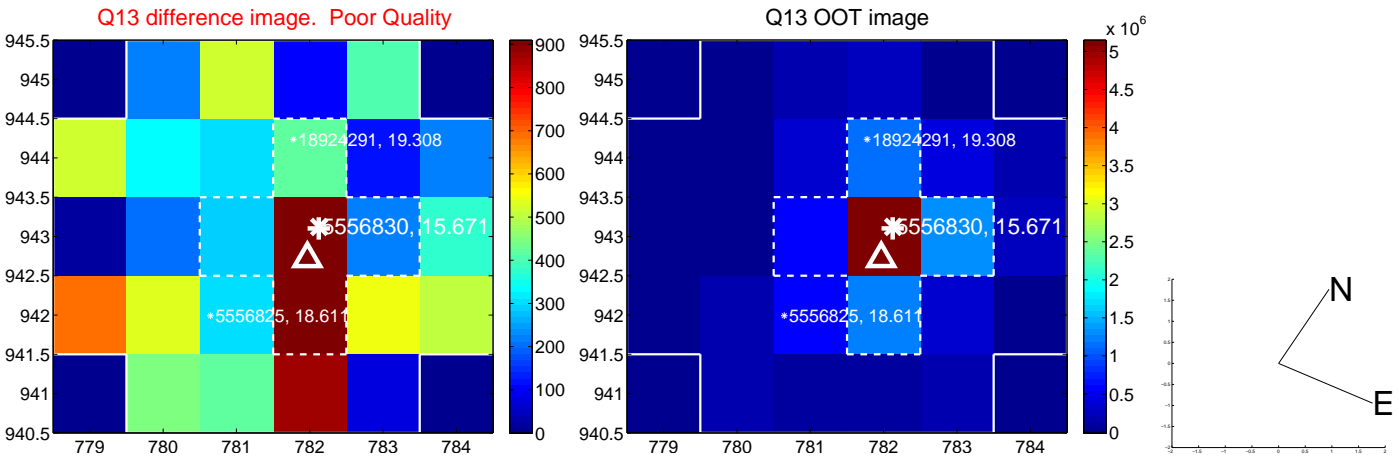
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



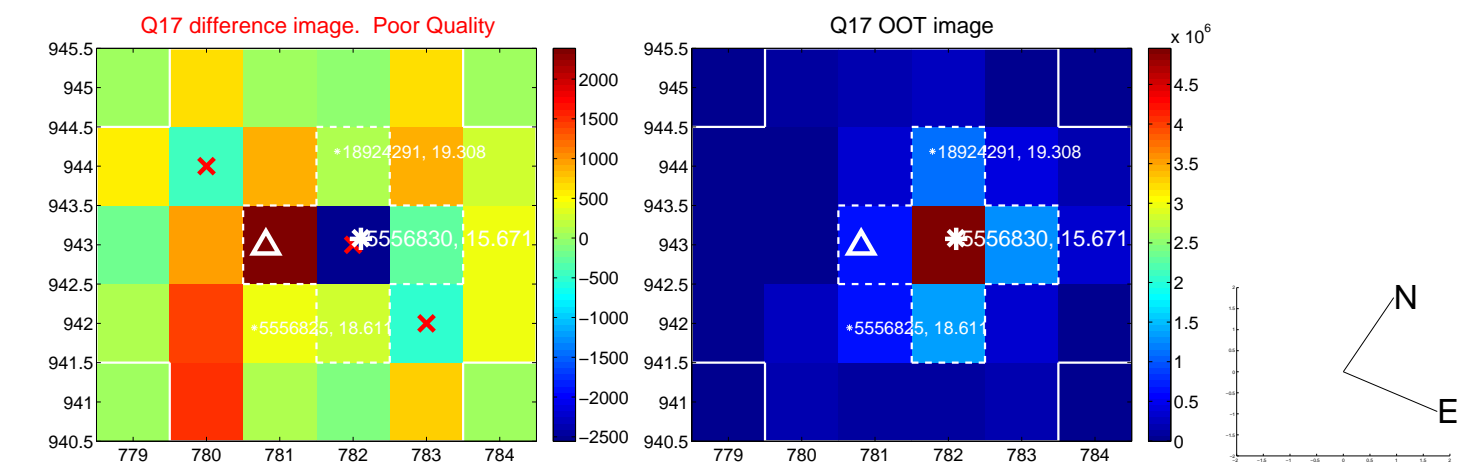
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



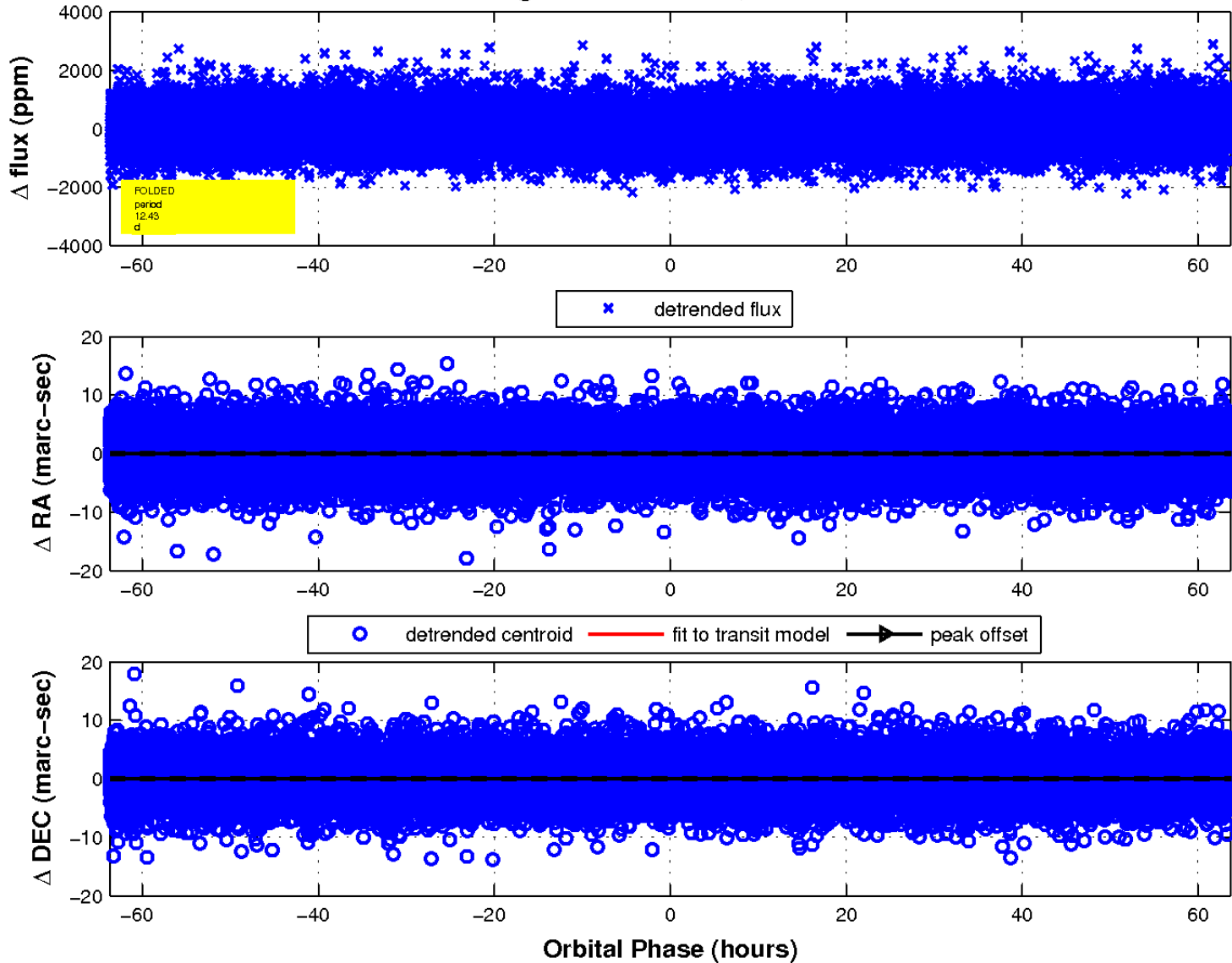
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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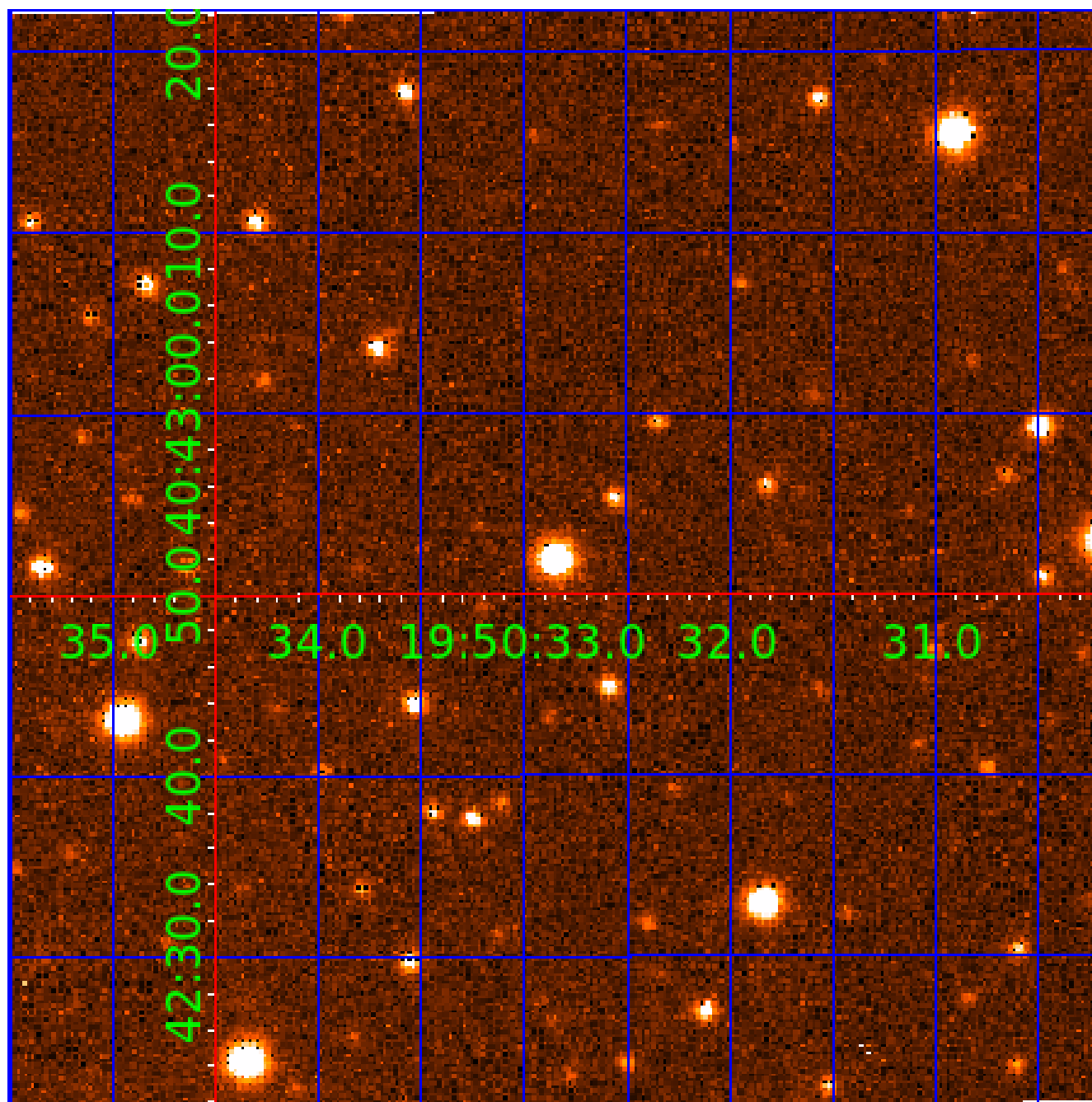


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005556830

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})
005556830-01	OBS	No	12.425759	141.442383	133.2	21.237	9.3	11.0	0.81	5380	1.03	47.60
005556830-02	OBS	No	12.424713	134.006540	99.7	25.215	8.6	9.3	0.81	5380	0.86	47.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005556830-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
005556830-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—HALO_GHOST—EPHEM_MATCH

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.

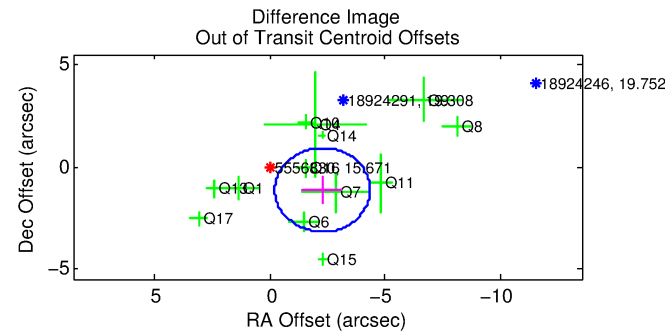
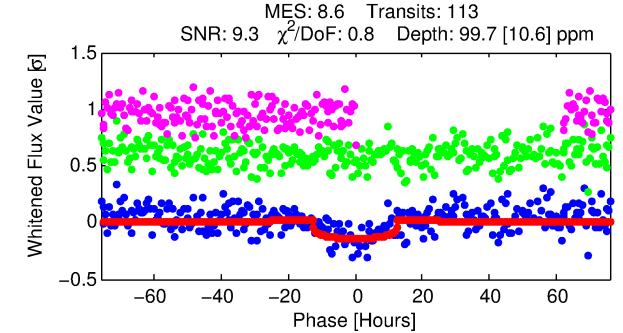
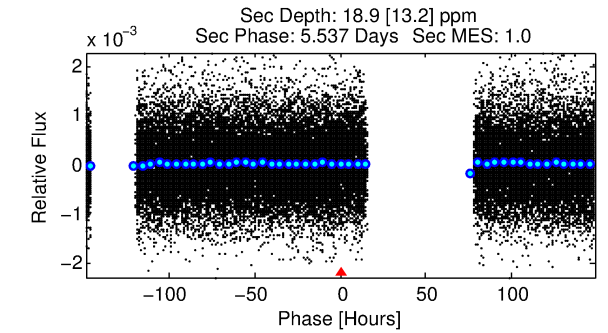
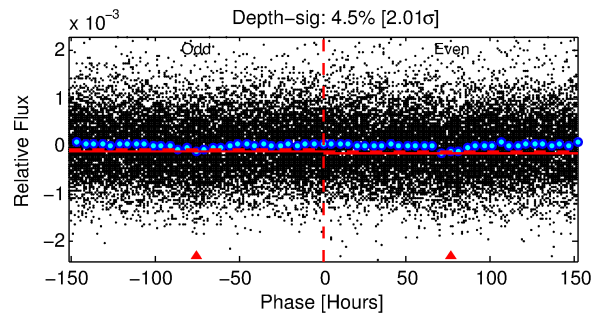
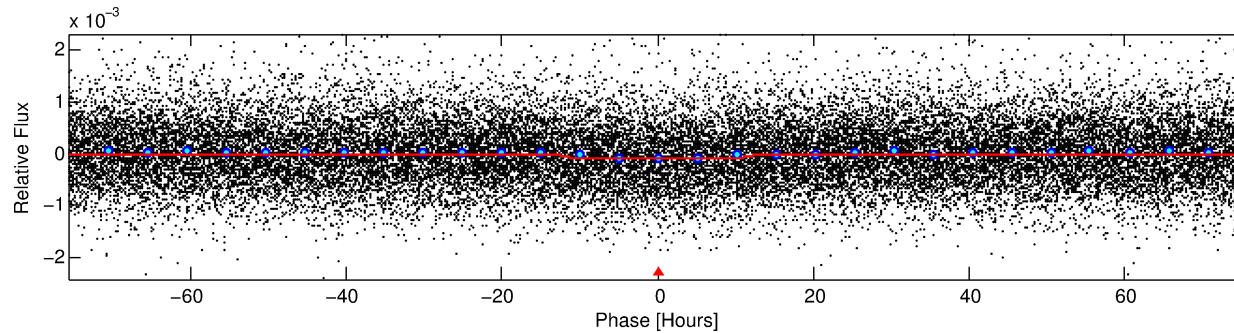
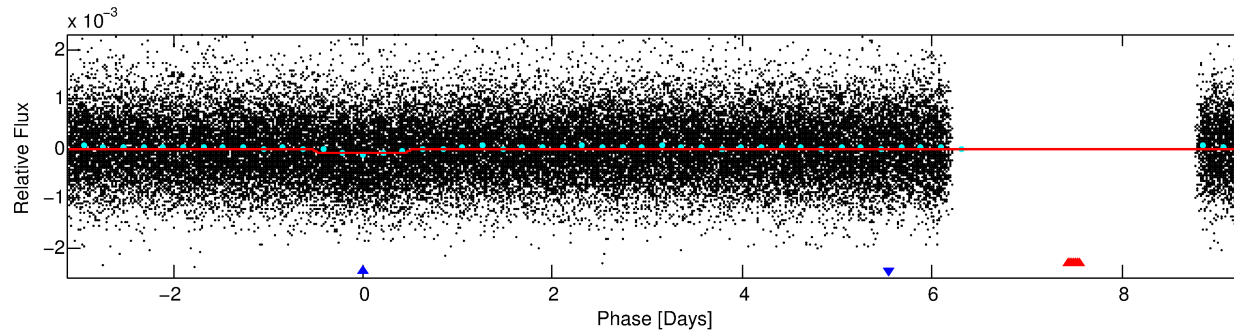
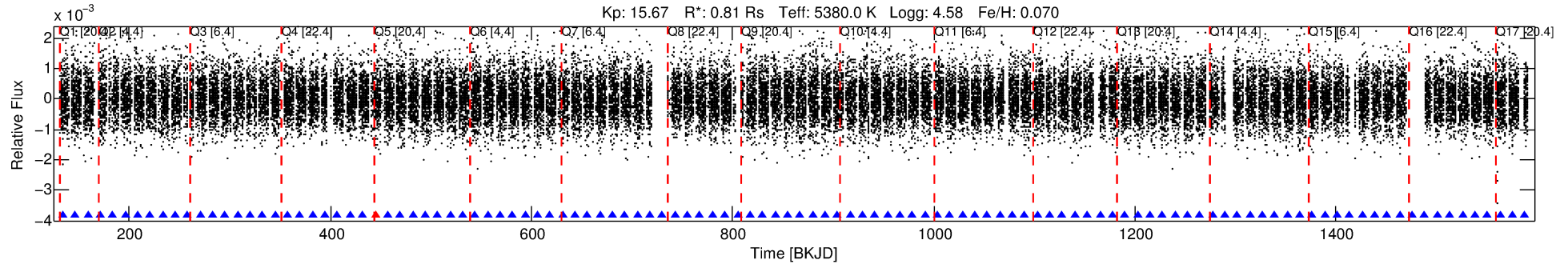
Ephemeris Match Information For 005556830-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005556830-02	5556830	V380-Cyg-sec	5385723	1:1	416.0	97	38	5.77	15.67	1290.40	Direct-PRF	0	2.21	1.86

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5556830 Candidate: 2 of 2 Period: 12.425 d



DV Fit Results:

Period = 12.42471 [0.00052] d
Epoch = 134.0065 [0.0337] BKJD
Rp/R* = 0.0097 [0.0044]
a/R* = 2.92 [4.59]
b = 0.68 [1.42]
Seff = 47.61 [12.21]
Teq = 670 [43] K
Rp = 0.86 [0.42] Re
a = 0.1021 [0.0155] AU
Ag = 146.62 [171.71] [0.85 σ]
Teffp = 3604 [1043] K [2.81 σ]

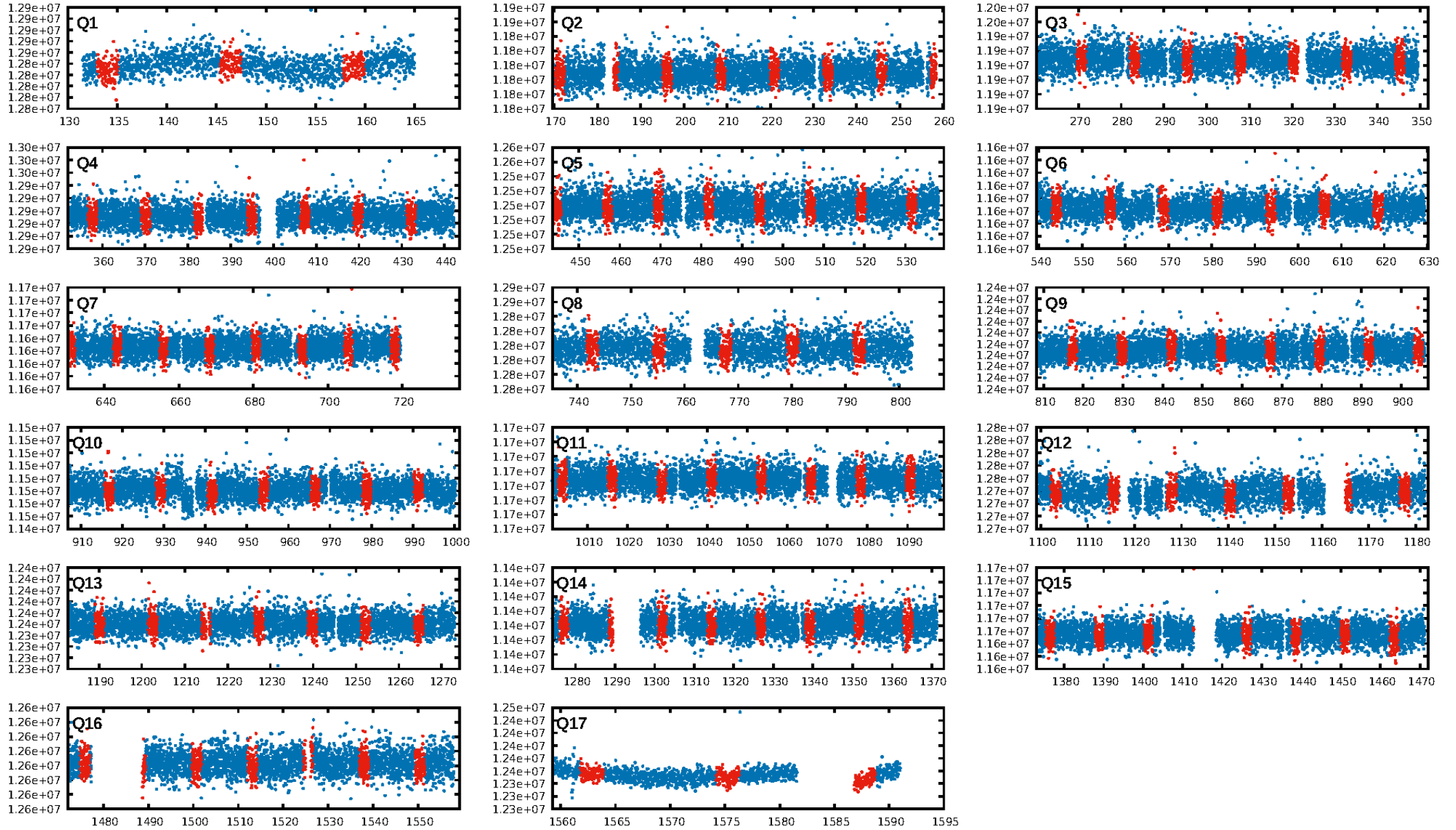
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: 72.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.24e-20
RollingBand-fgt: 0.99 [106/107]
GhostDiagnostic-chr: 0.1295
Centroid-sig: 0.0%
Centroid-so: 3.262 arcsec [2.27 σ]
OotOffset-rm: 2.545 arcsec [3.72 σ]
KicOffset-rm: 2.609 arcsec [4.57 σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 1.00 [17/17]

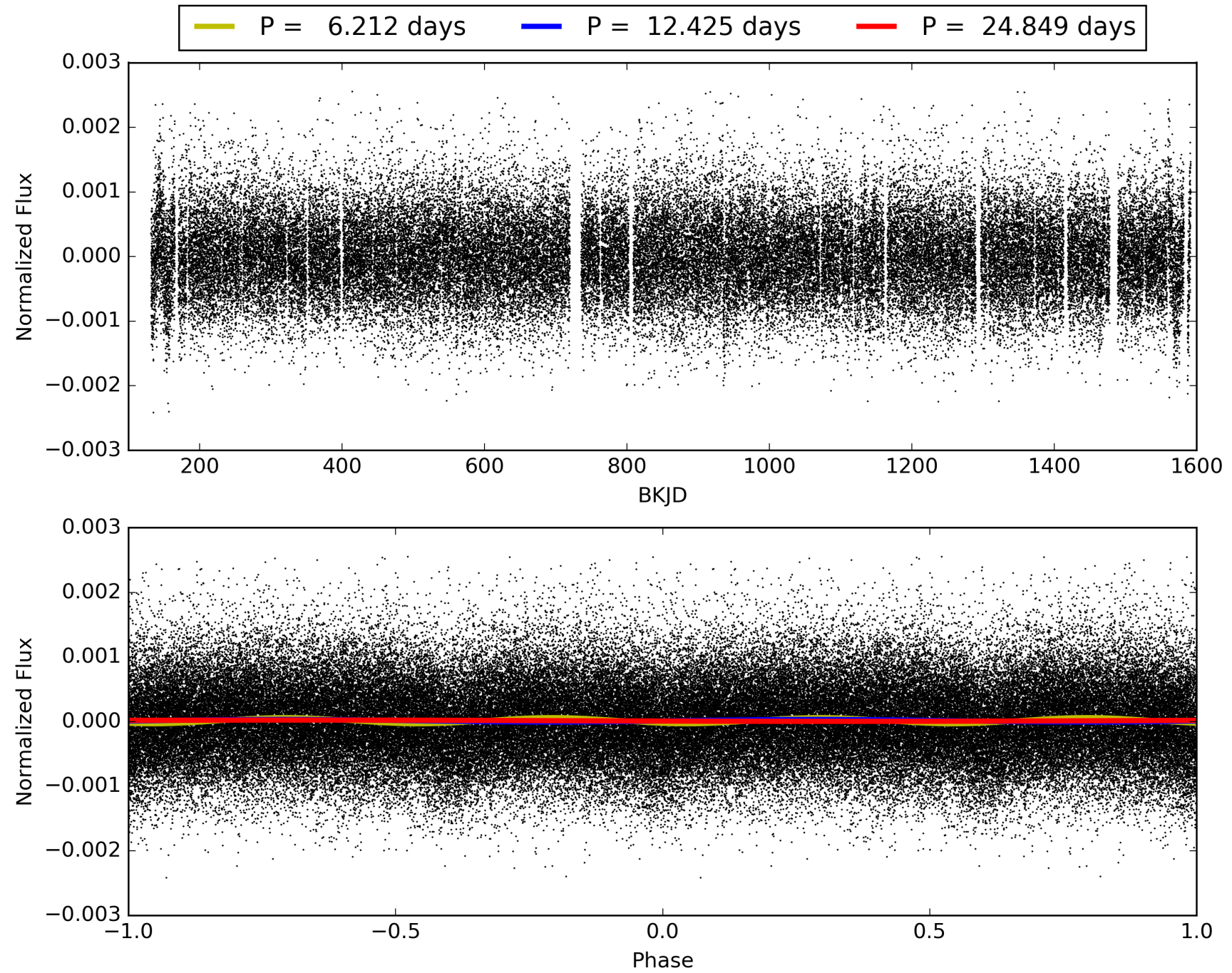
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:40:22 Z

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

TCE 005556830-02, PDC Light Curves

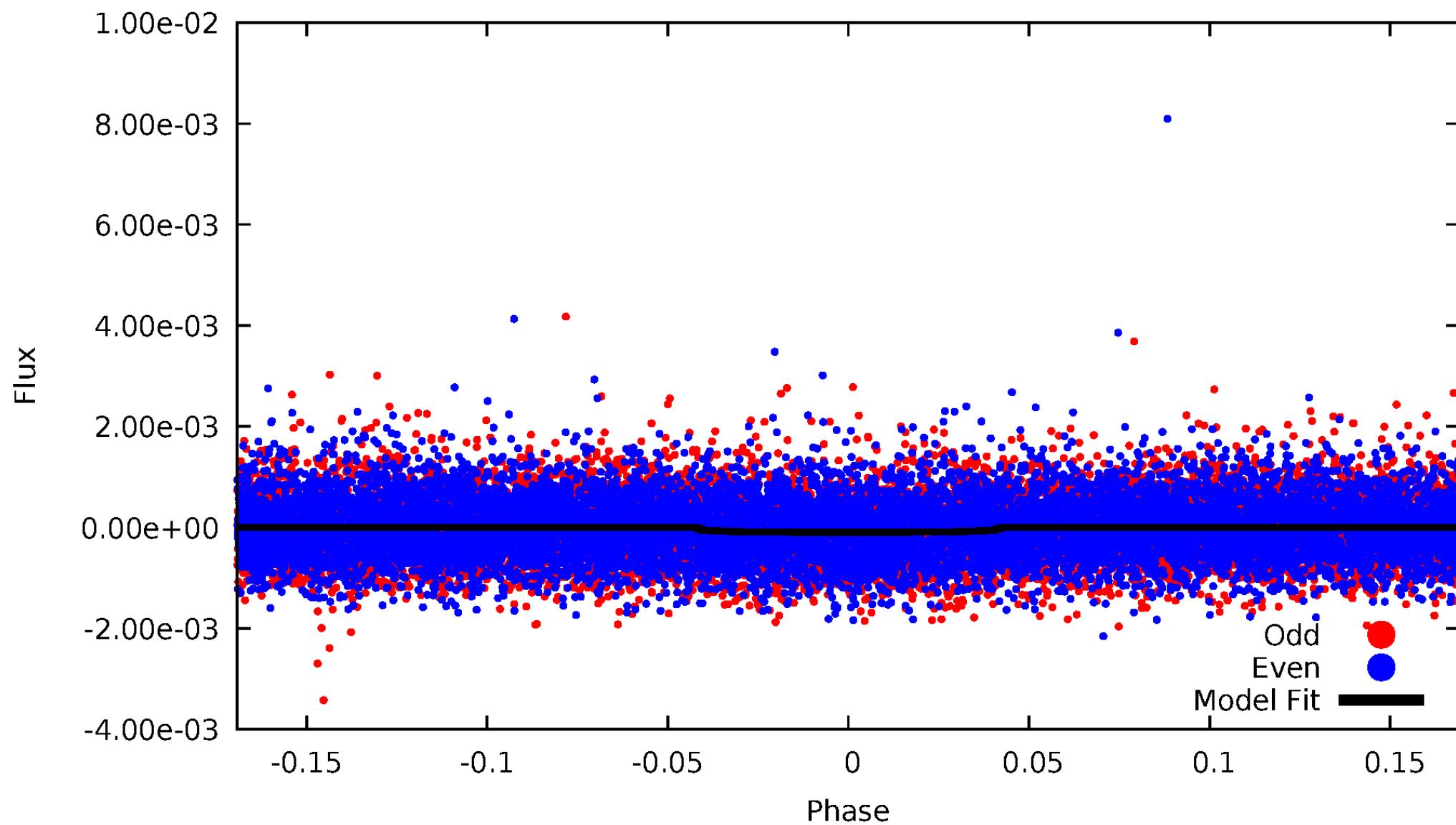


TCE 005556830-02



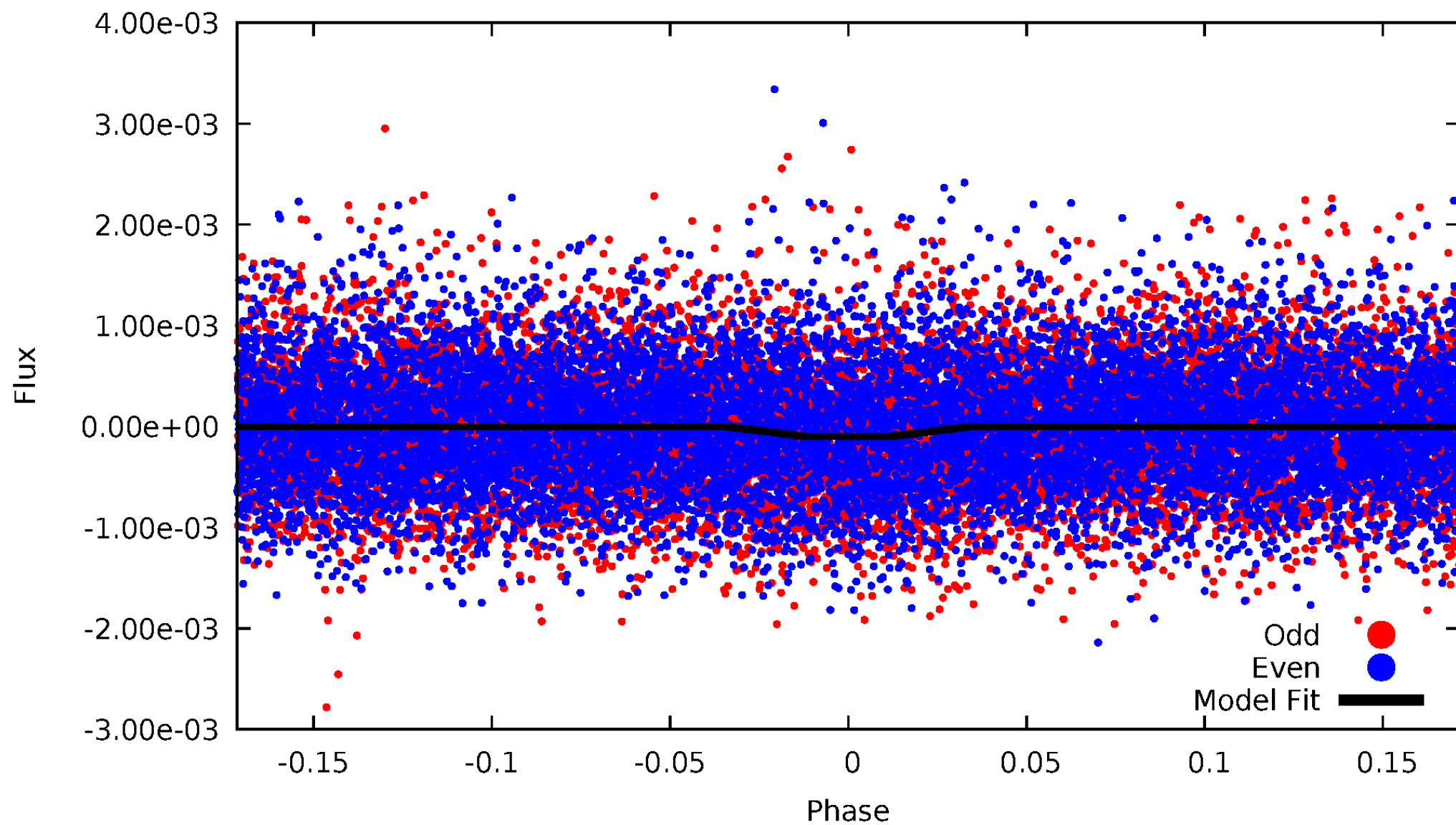
DV Odd/Even

TCE 005556830-02



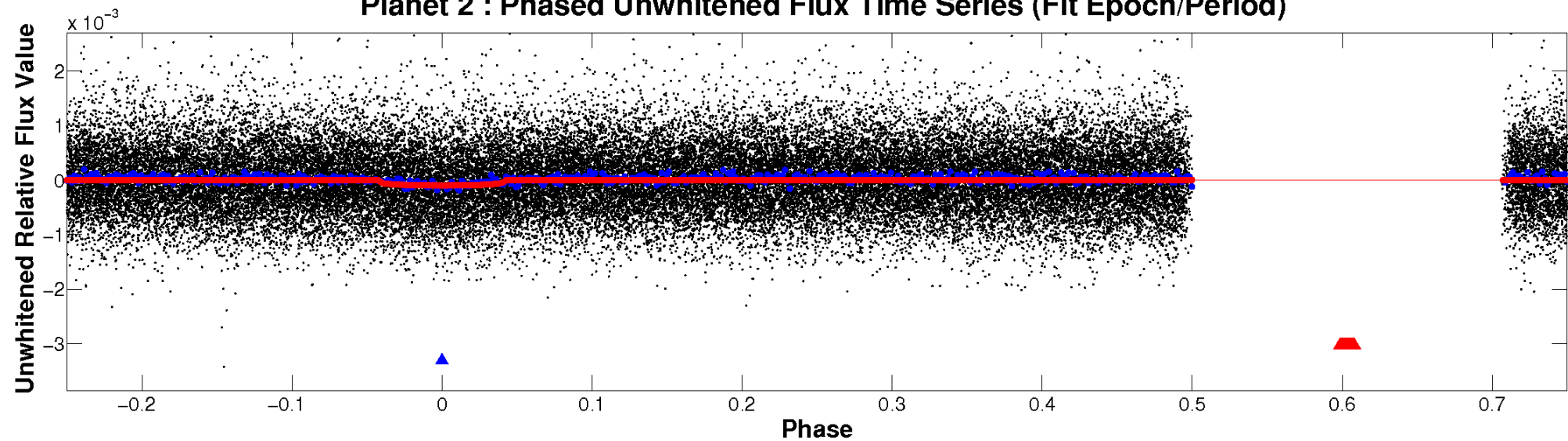
ALT Odd/Even

TCE 005556830-02

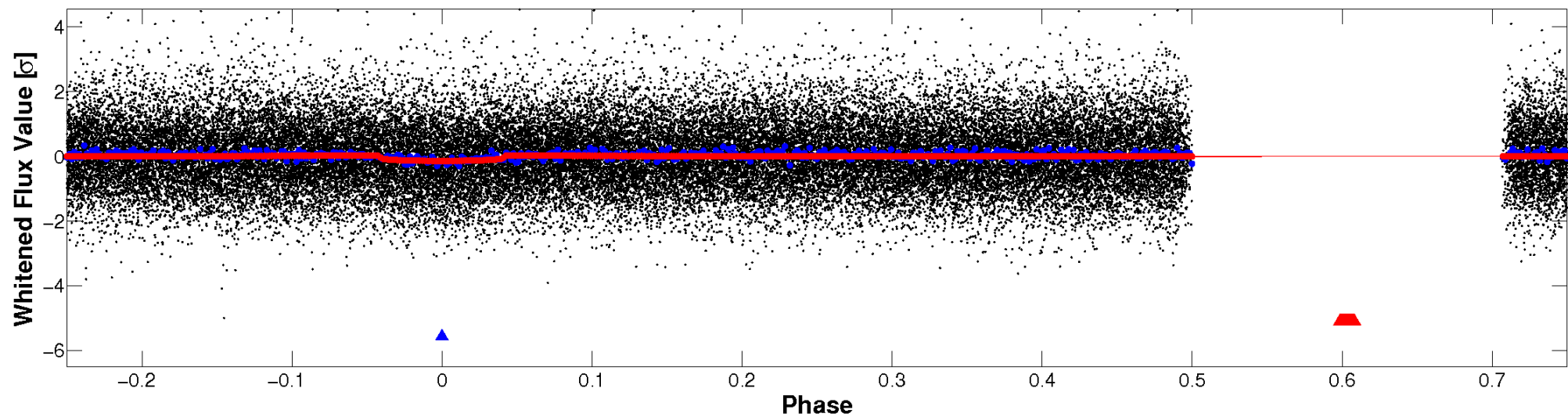


Non-Whitened Vs. Whitened Light Curve

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

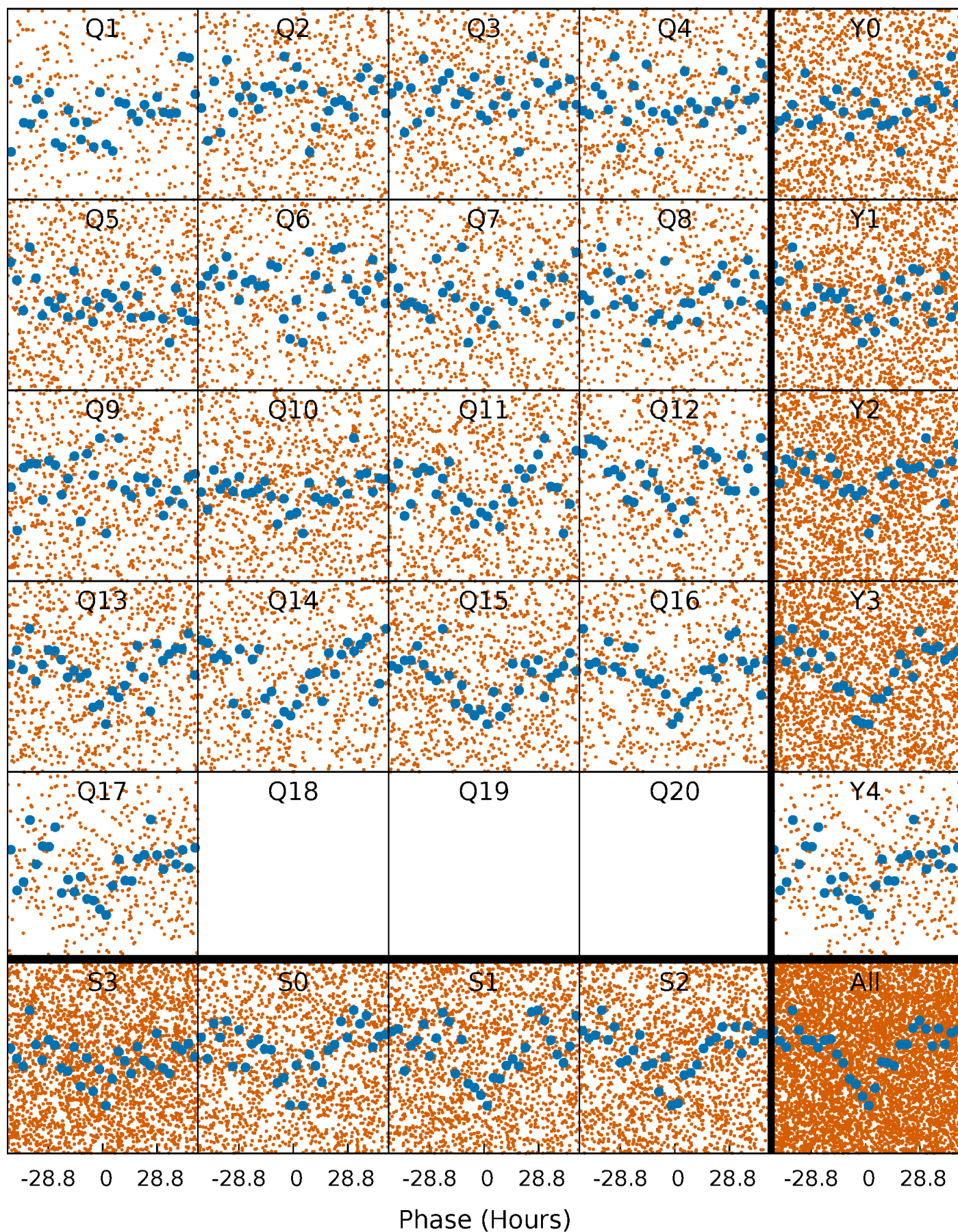


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



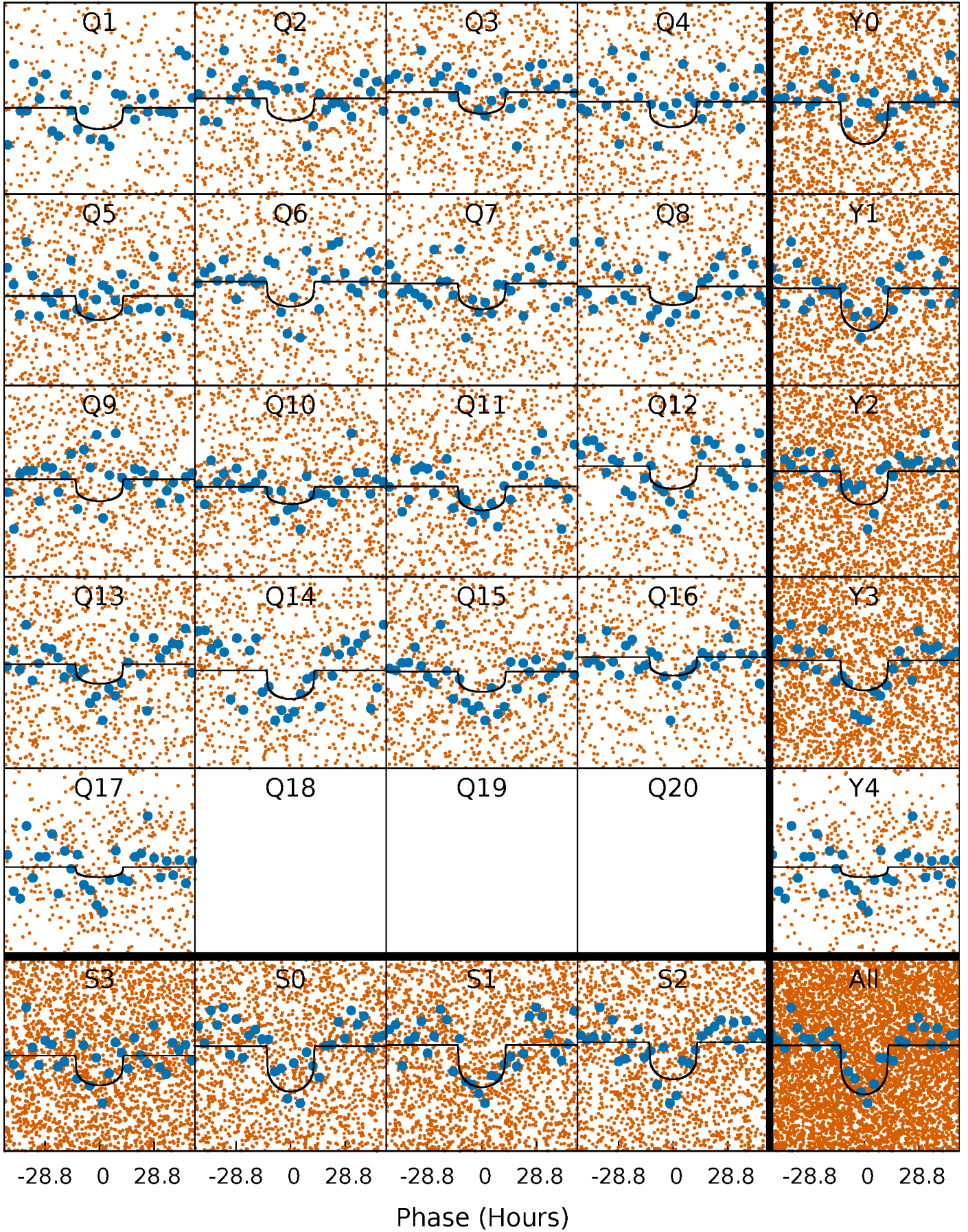
PDC Quarter-Phased Transit Curves

TCE 005556830-02 P= 12.424713 Days $T_0=134.006540$ (BKJD)



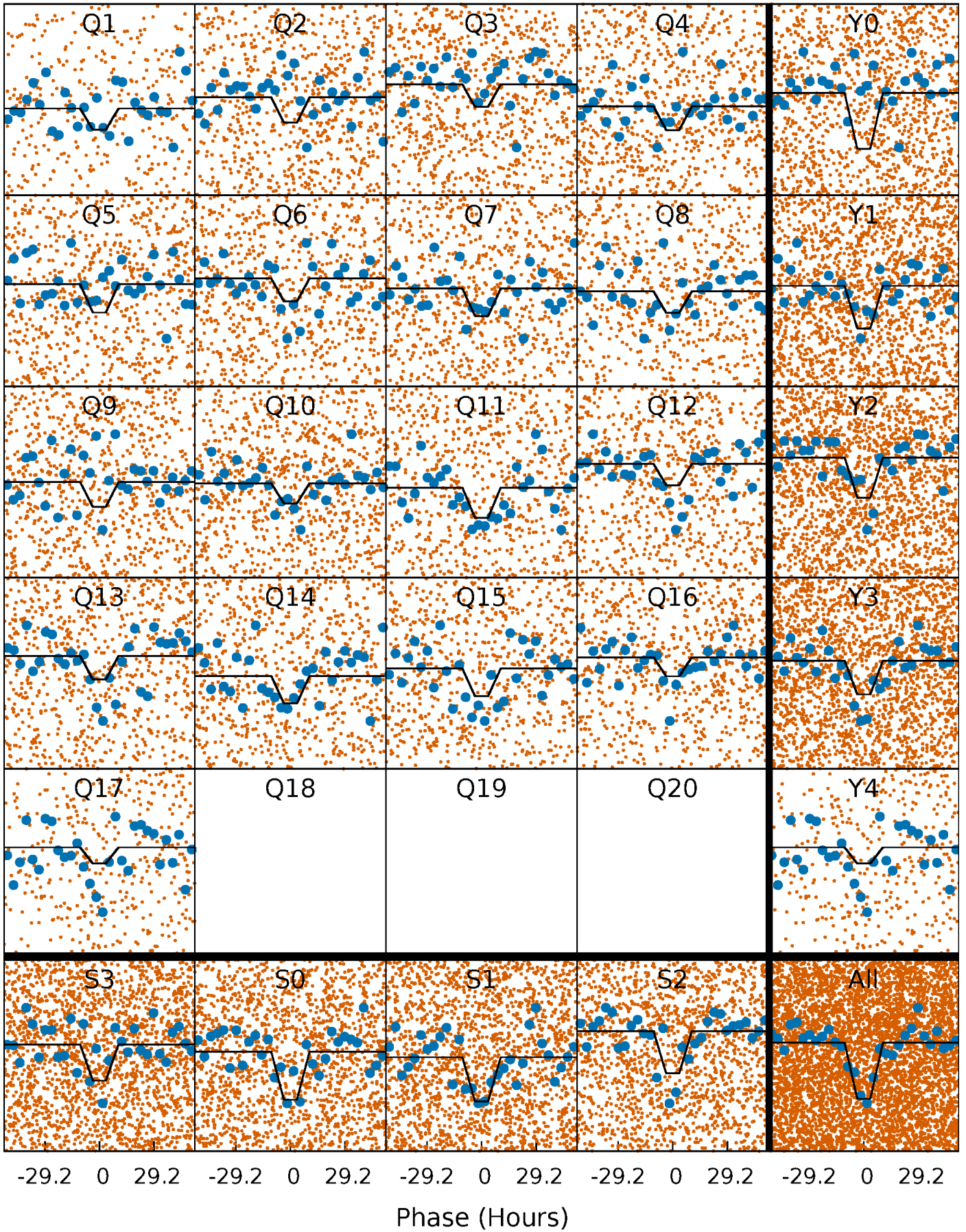
DV Quarter-Phased Transit Curves

TCE 005556830-02 P= 12.424713 Days $T_0=134.006540$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

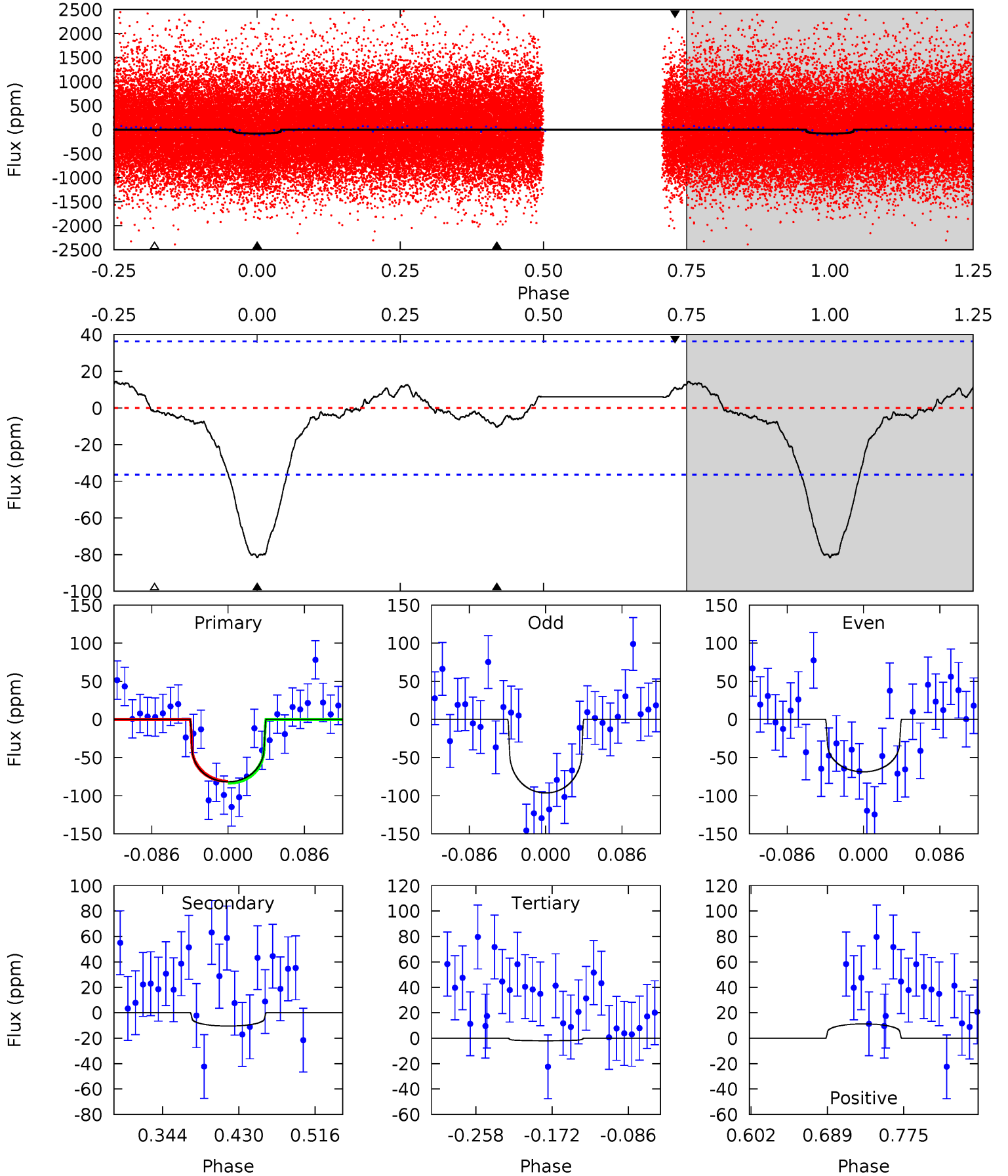
TCE 005556830-02 P= 12.424613 Days $T_0=134.012889$ (BKJD)



DV Model-Shift Uniqueness Test

005556830-02, $P = 12.424713$ Days, $E = 121.581827$ Days

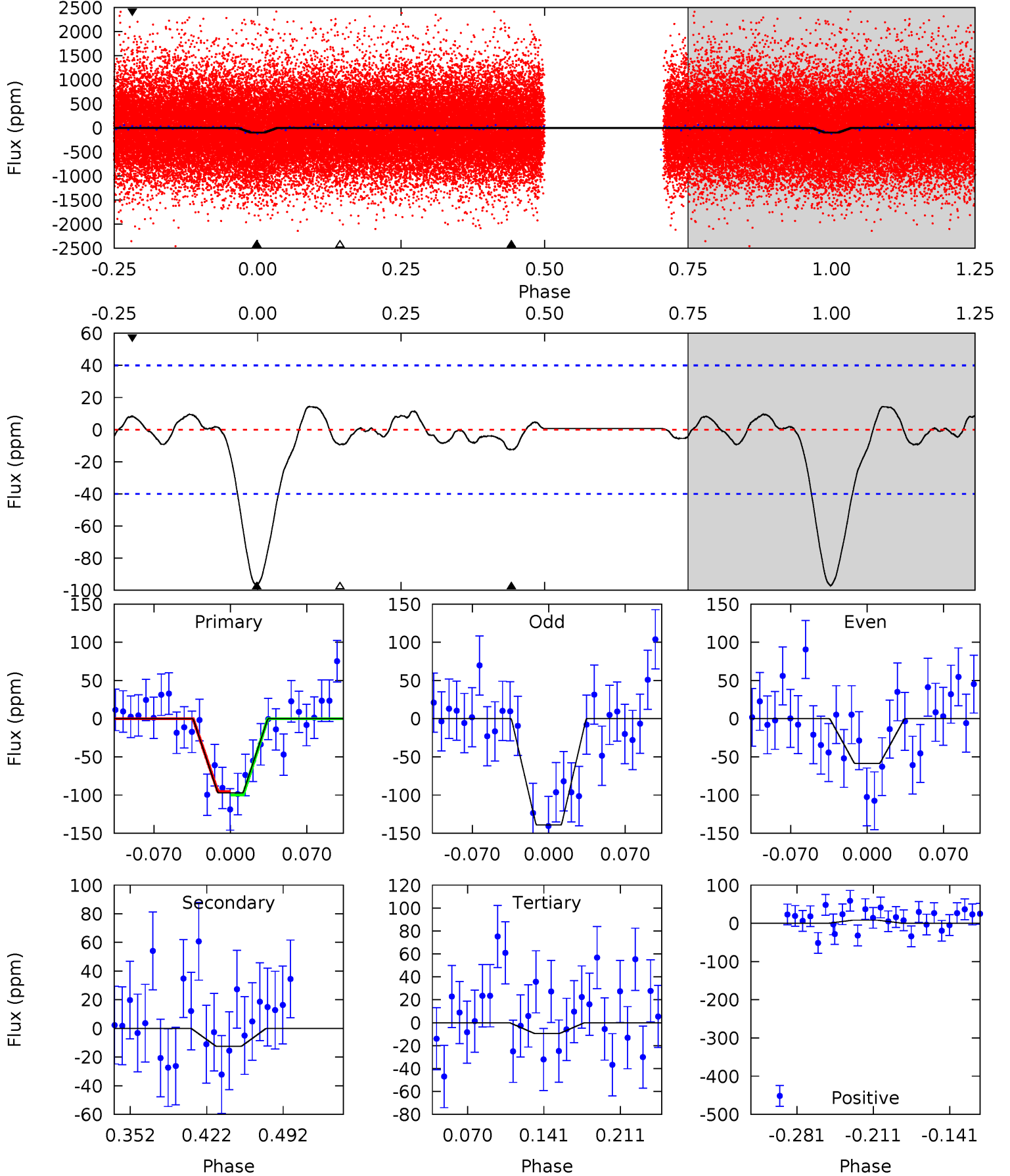
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	1.32	0.26	1.42	4.60	1.72	0.87	10.1	8.91	1.06	-0.10	1.75	0.86	0.15	0.15



Alt Model-Shift Uniqueness Test

005556830-02, P = 12.424613 Days, E = 121.588276 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	1.45	1.09	0.96	4.64	1.81	0.73	10.2	10.3	0.36	0.49	4.67	1.16	0.13	0.26



Stellar Parameters For KIC 005556830

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5380^{+160}_{-177}	$4.581^{+0.032}_{-0.120}$	$0.070^{+0.250}_{-0.300}$	$0.813^{+0.147}_{-0.063}$	$0.924^{+0.065}_{-0.105}$	$2.425^{+0.387}_{-0.868}$
	+3%/-3%	+1%/-3%	+357%/-429%	+18%/-8%	+7%/-11%	+16%/-36%
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 005556830-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-10 ± 8	$0.91^{+0.41}_{-0.39}$	950^{+44}_{-40}	3435^{+953}_{-774}	63^{+188}_{-53}
Alt.	-12 ± 9	$0.92^{+0.42}_{-0.40}$	950^{+44}_{-39}	3555^{+885}_{-638}	76^{+207}_{-55}

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

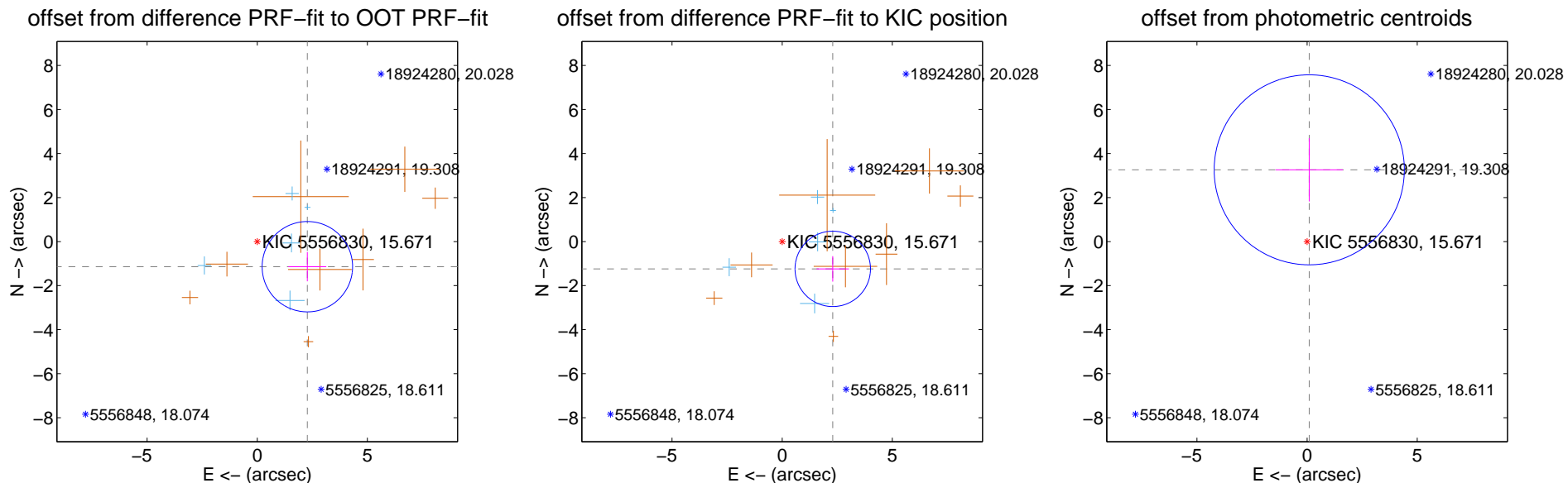
DV Centroid Data

Supplemental centroid analysis for 005556830-02. Kepler magnitude: 15.67. Transit SNR 9.25

There are 5 quarters with good PRF difference image offsets

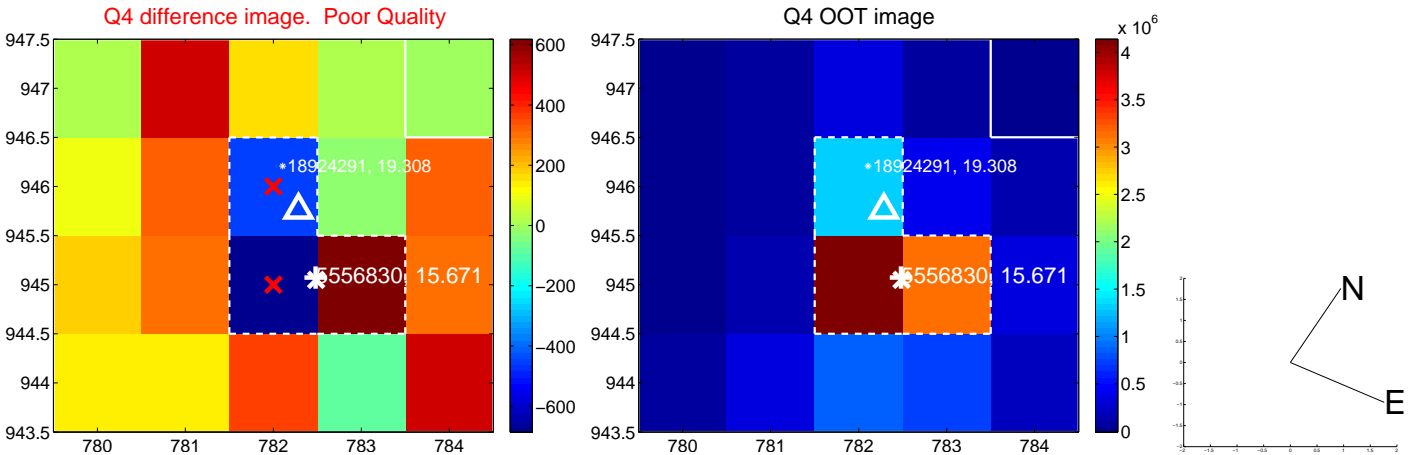
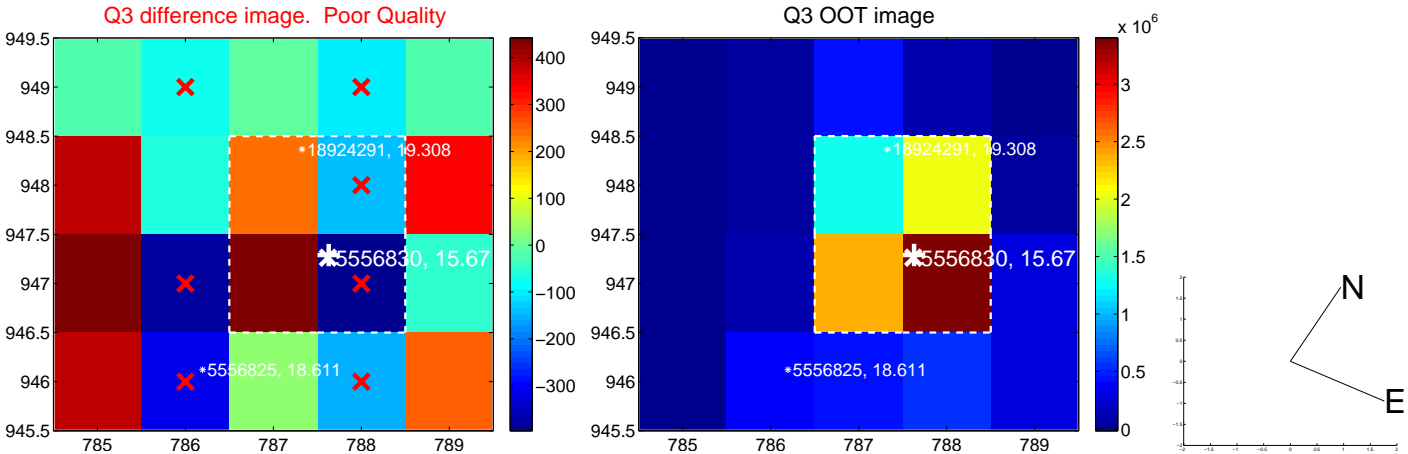
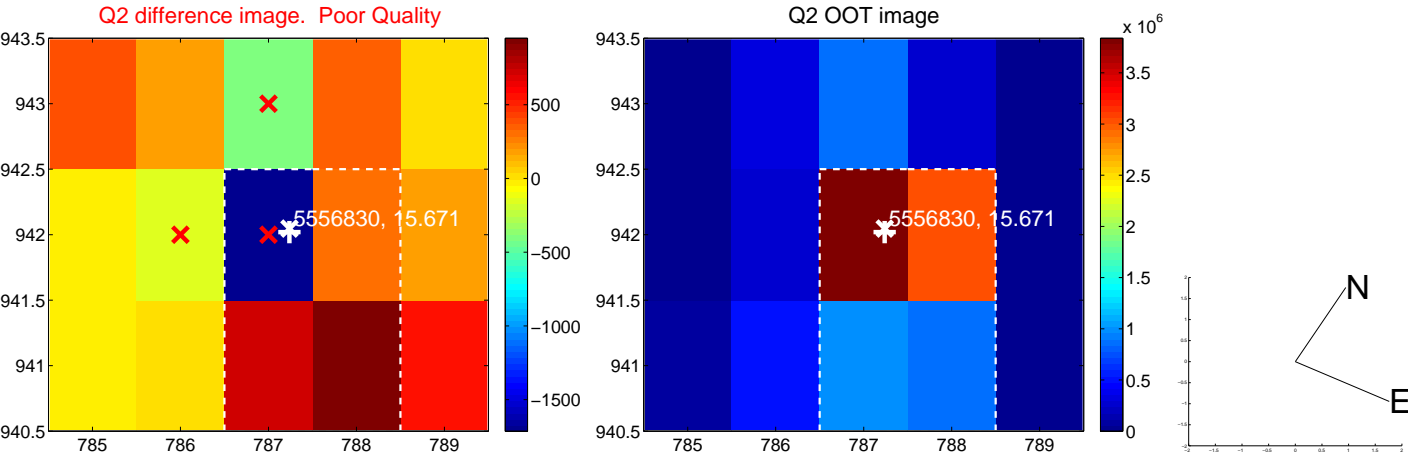
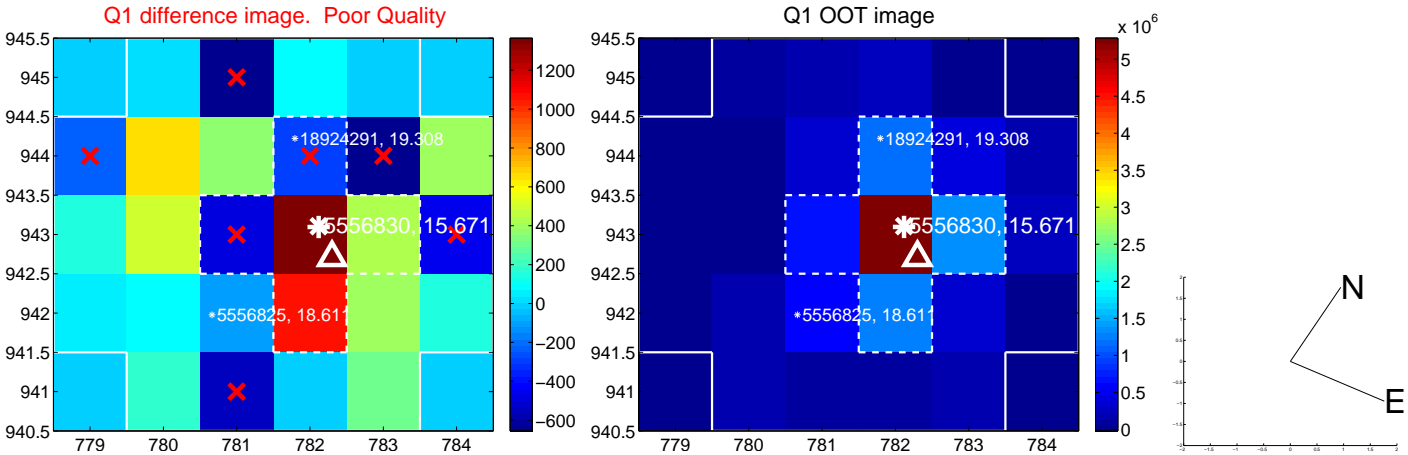
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.545 ± 0.684	3.72	-2.275 ± 0.861	-1.141 ± 0.666
PRF-fit source offset from KIC position	2.609 ± 0.571	4.57	-2.296 ± 0.737	-1.240 ± 0.579
photometric centroid source offset	3.26 ± 1.44	2.27	-0.10 ± 1.52	3.26 ± 1.44

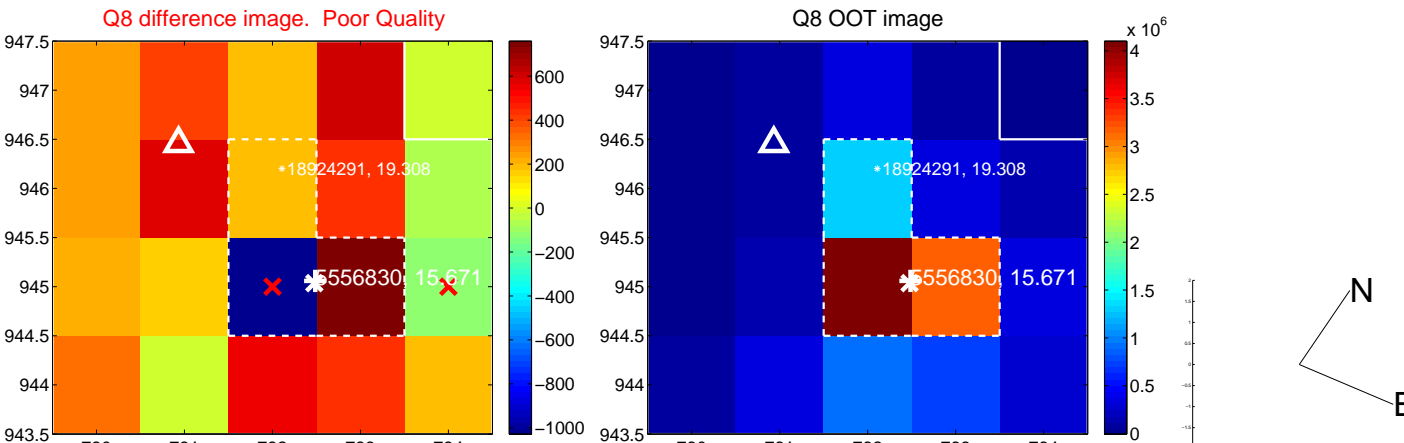
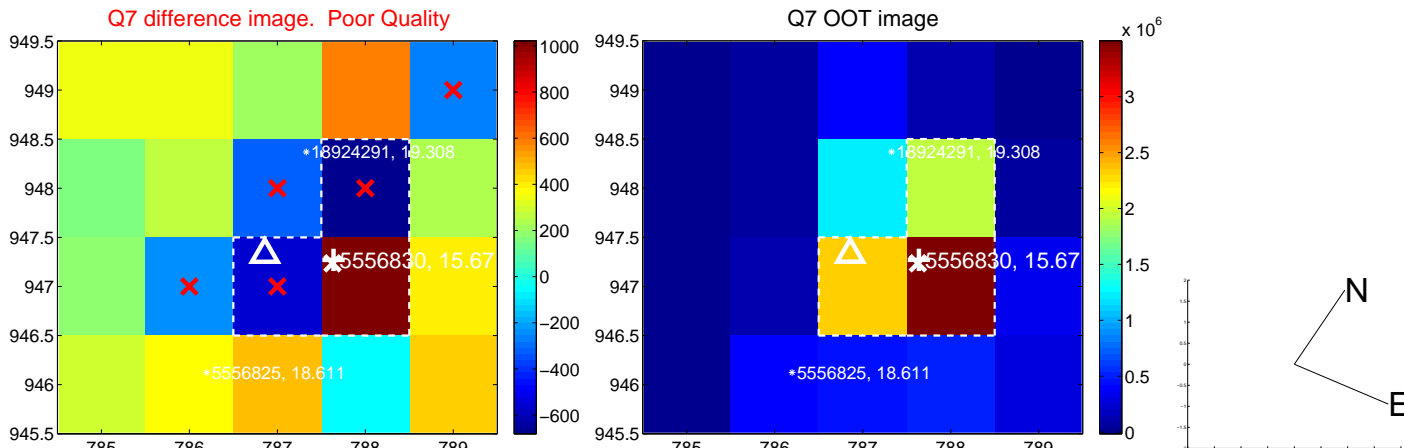
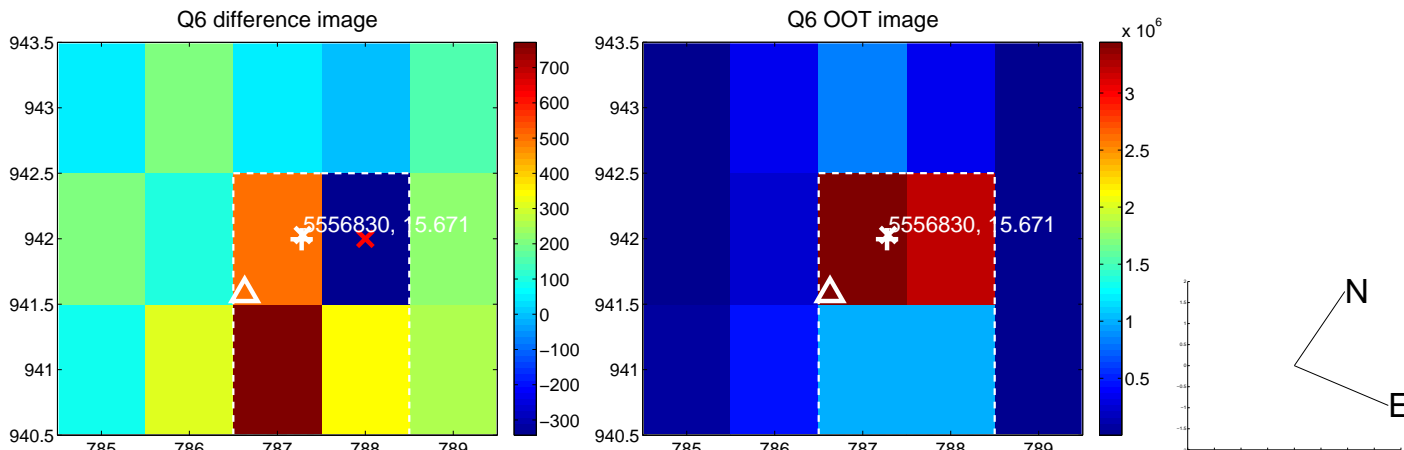
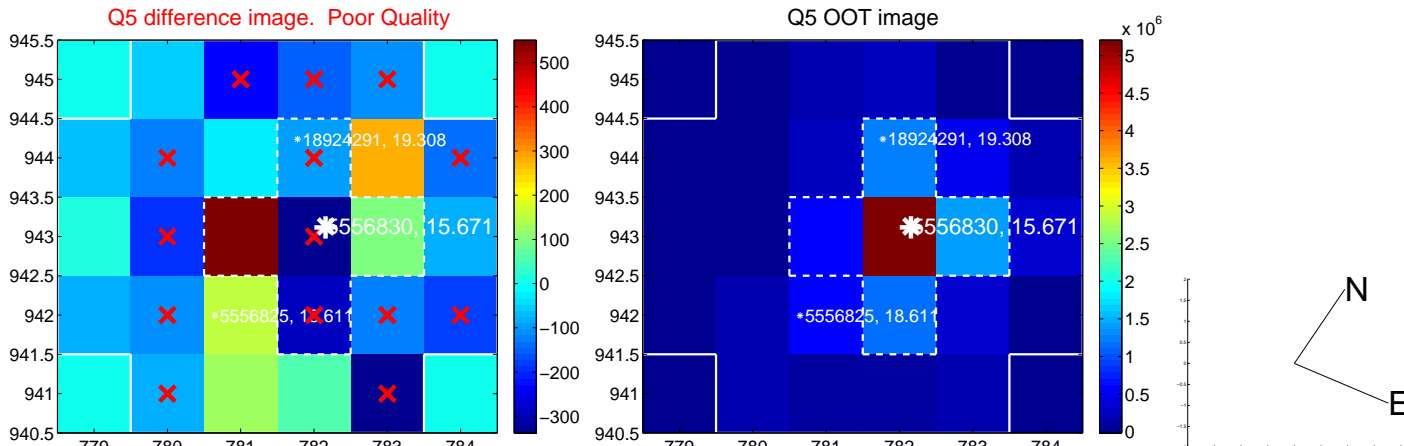


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

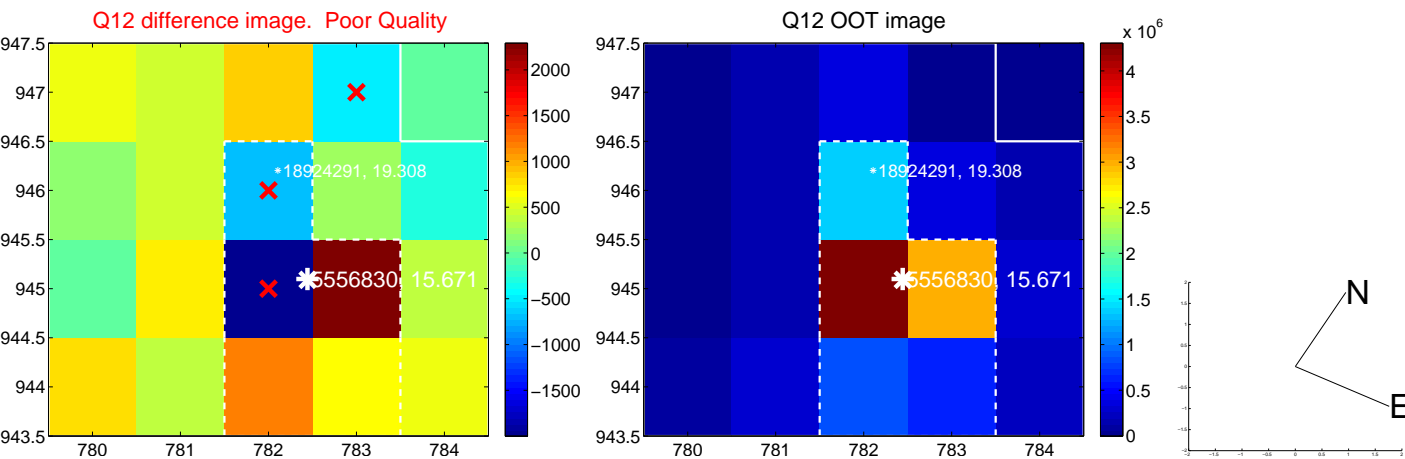
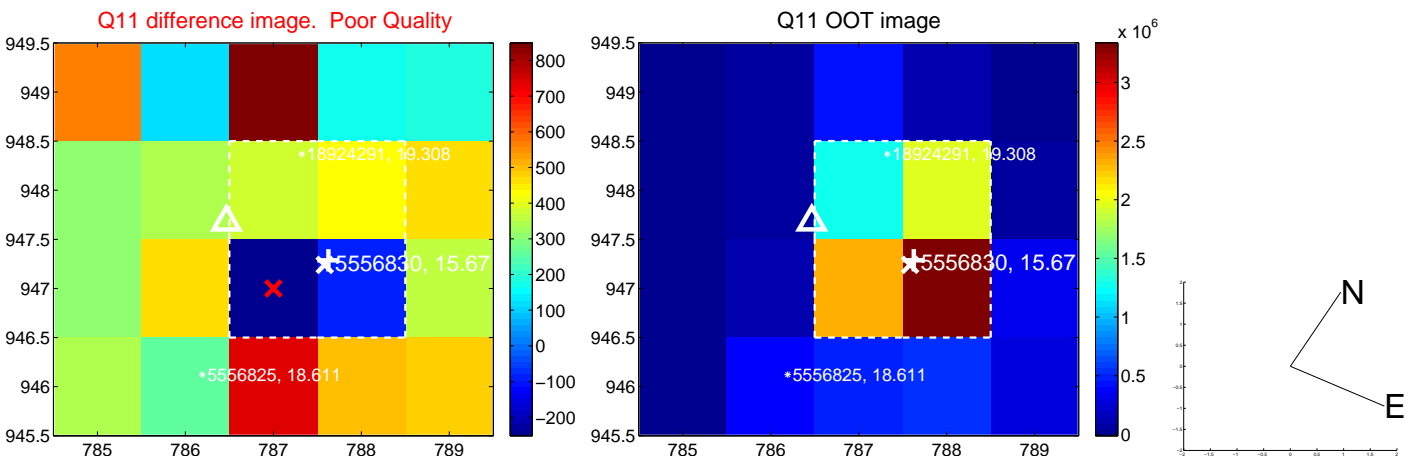
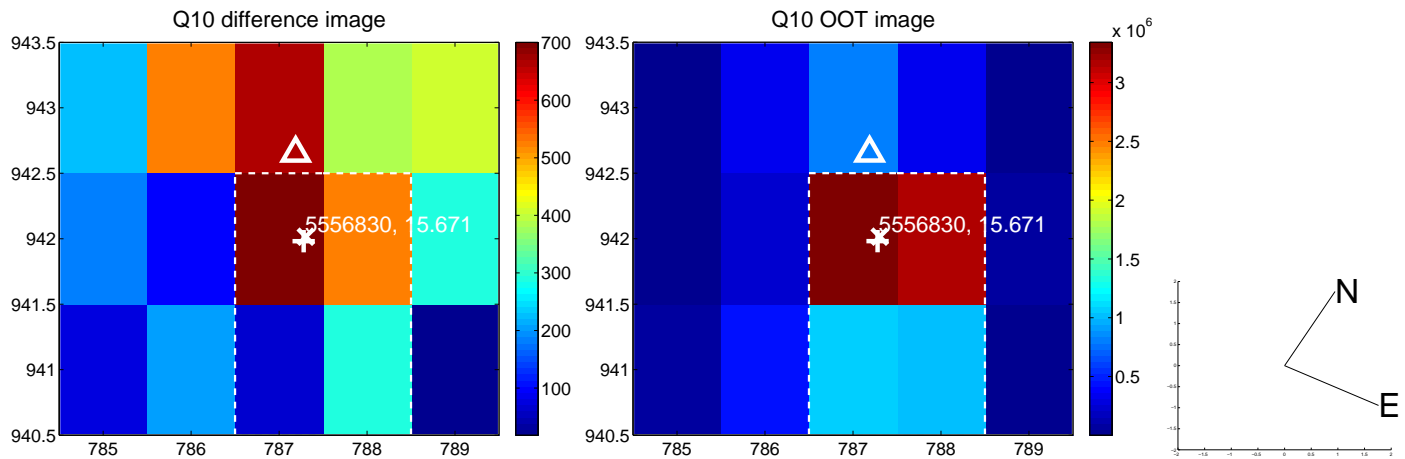
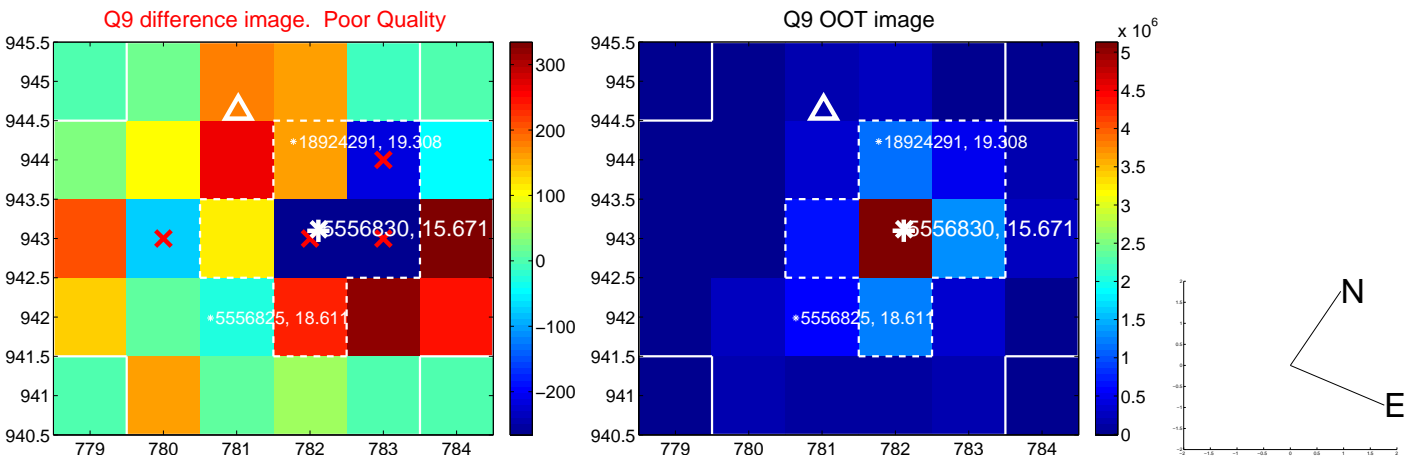
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



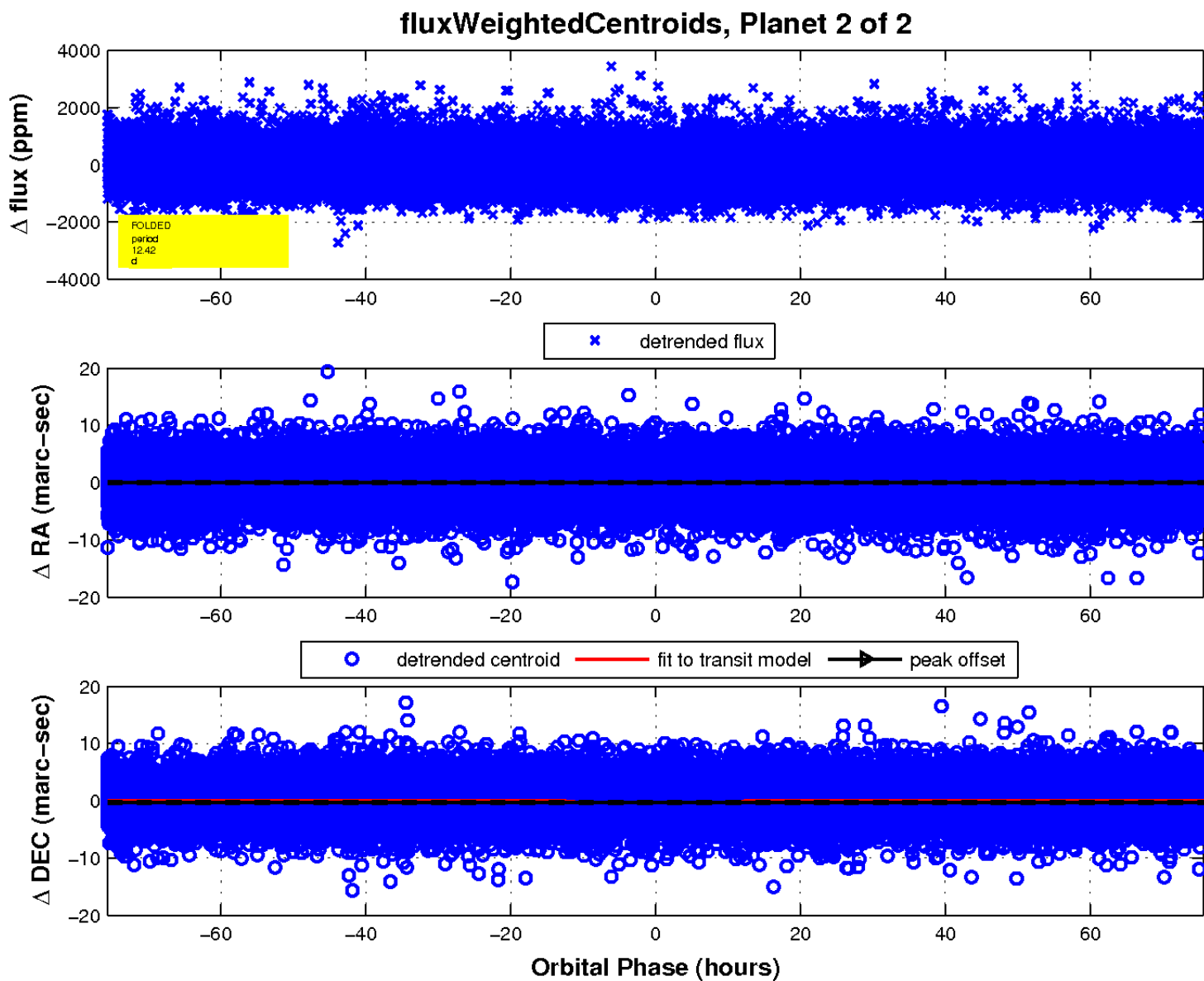
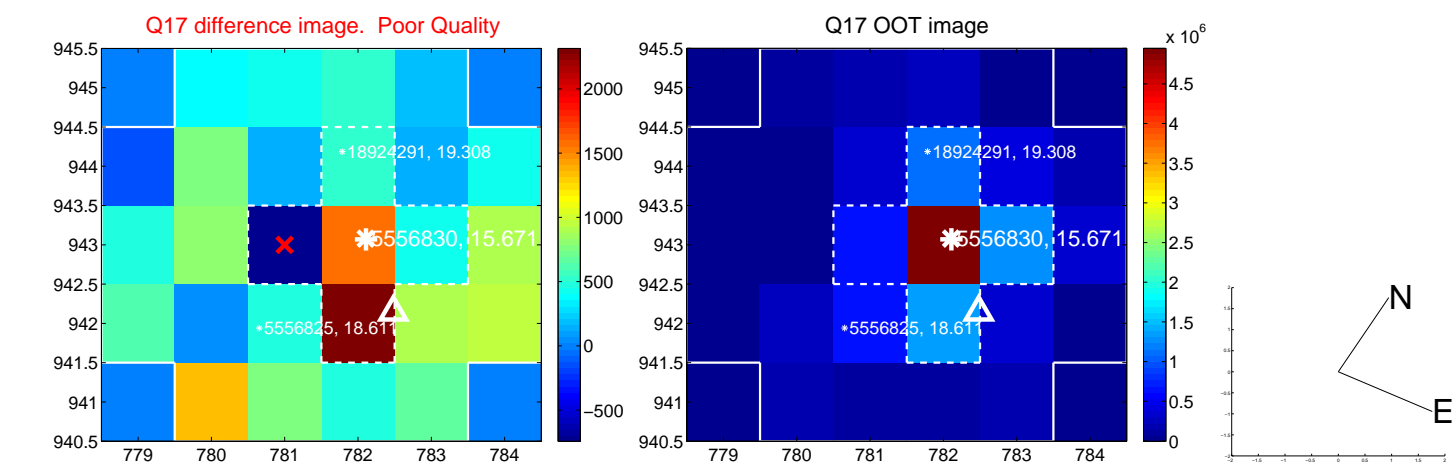
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

