

KIC 005906537

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})
005906537-01	OBS	No	0.722280	131.604716	5.4	3.538	7.6	6.7	1.70	5893	0.47	11488.14
005906537-02	OBS	No	33.683201	155.496386	124.4	0.656	7.2	7.7	1.70	5893	1.97	68.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005906537-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005906537-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

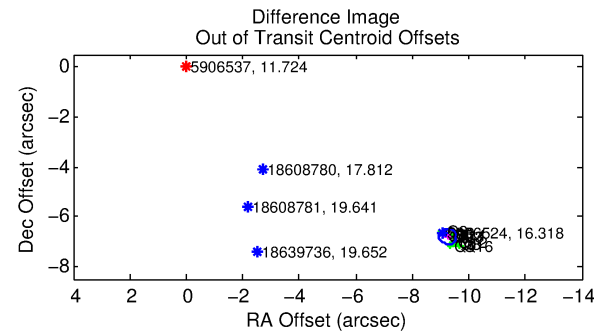
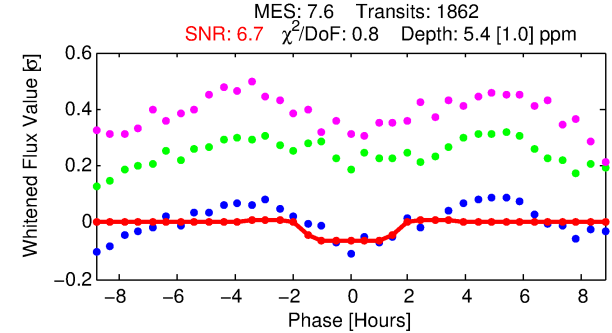
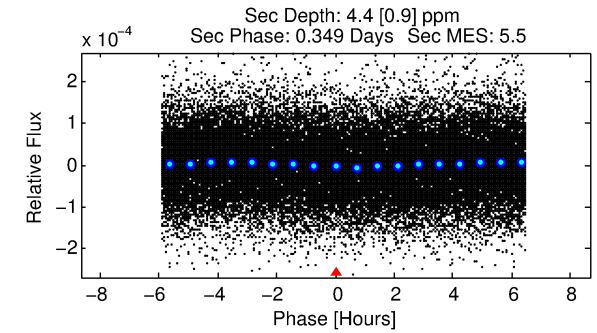
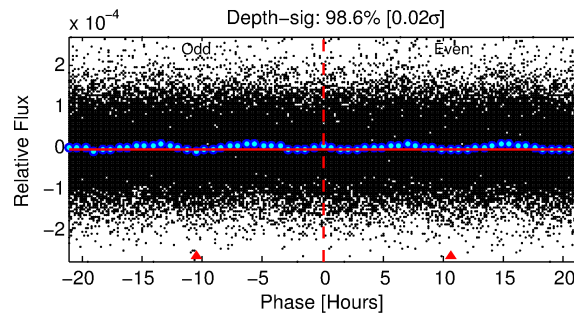
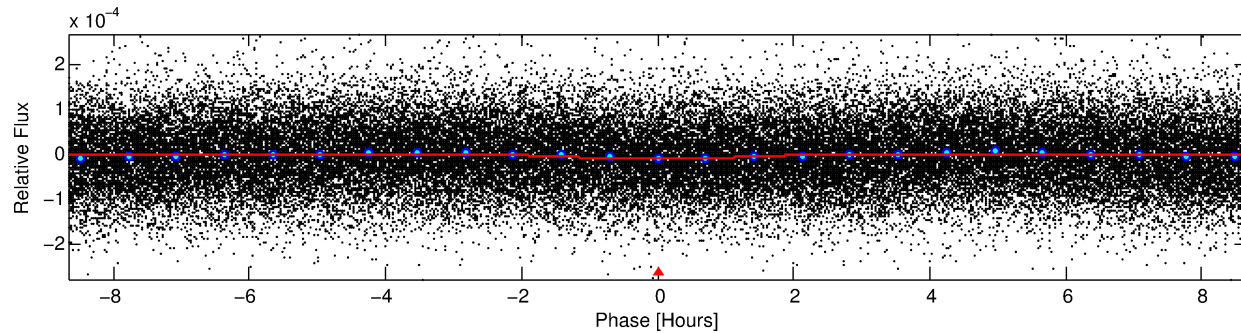
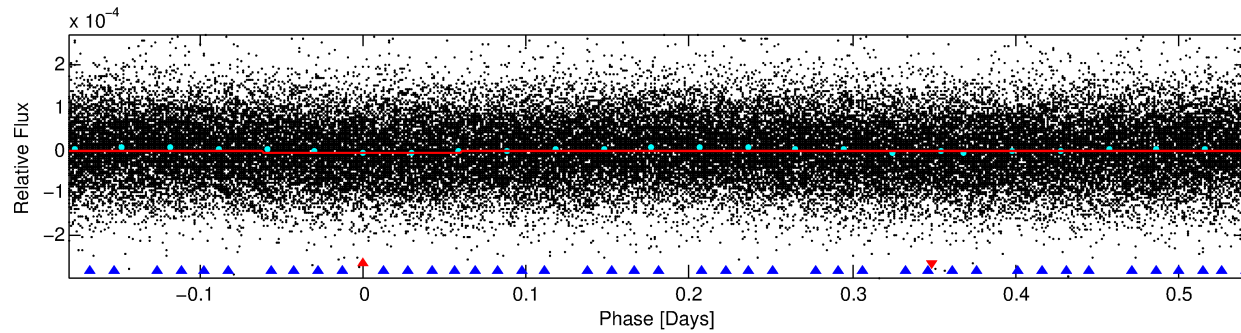
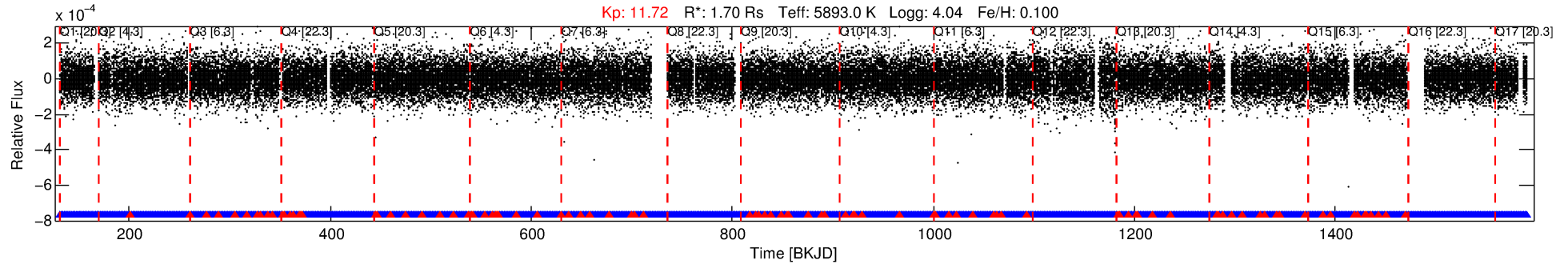
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005906537-01

No Significant Match Found

DV One-Page Summary

KIC: 5906537 Candidate: 1 of 2 Period: 0.722 d



DV Fit Results:

Period = 0.72228 [0.00002] d
Epoch = 131.6047 [0.0058] BKJD
 R_p/R^* = 0.0025 [0.0013]
 a/R^* = 1.16 [0.78]
 b = 0.90 [0.54]
 Seff = 11488.14 [5261.38]
 T_{eq} = 2640 [302] K
 R_p = 0.47 [0.28] R_e
 a = 0.0164 [0.0046] AU
 A_g = 2.95 [3.43] [0.57 σ]
 T_{effp} = 5350 [1442] K [1.84 σ]

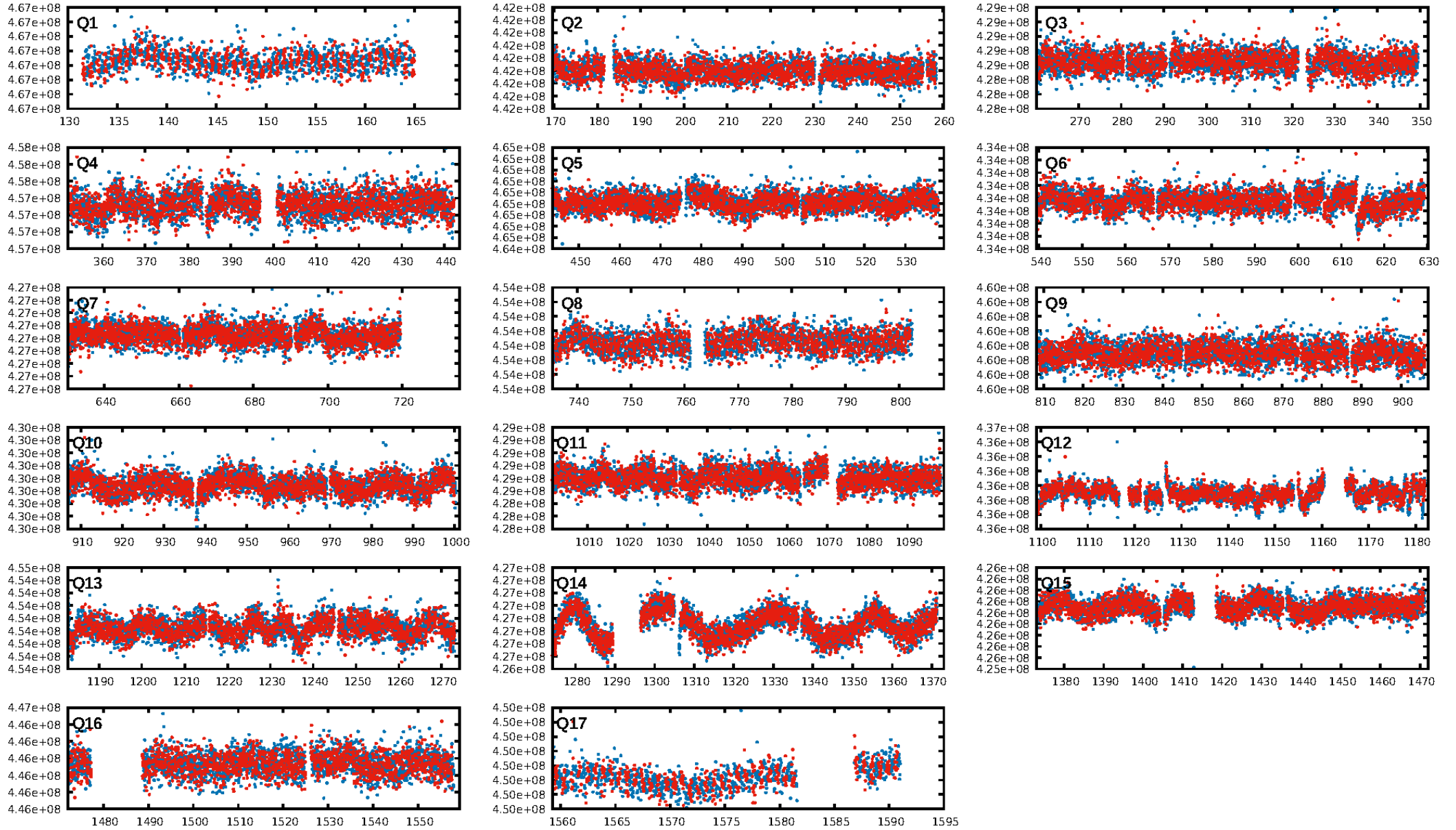
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [219.84 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.03e-12
RollingBand-fgt: 0.94 [1678/1778]
GhostDiagnostic-chr: -0.6066
Centroid-sig: 1.5%
Centroid-so: 4.688 arcsec [1.87 σ]
OotOffset-rm: 11.482 arcsec [116.11 σ]
KicOffset-rm: 11.158 arcsec [117.11 σ]
OotOffset-st: 4/0/4/4 [12]
KicOffset-st: 4/0/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [17/17]

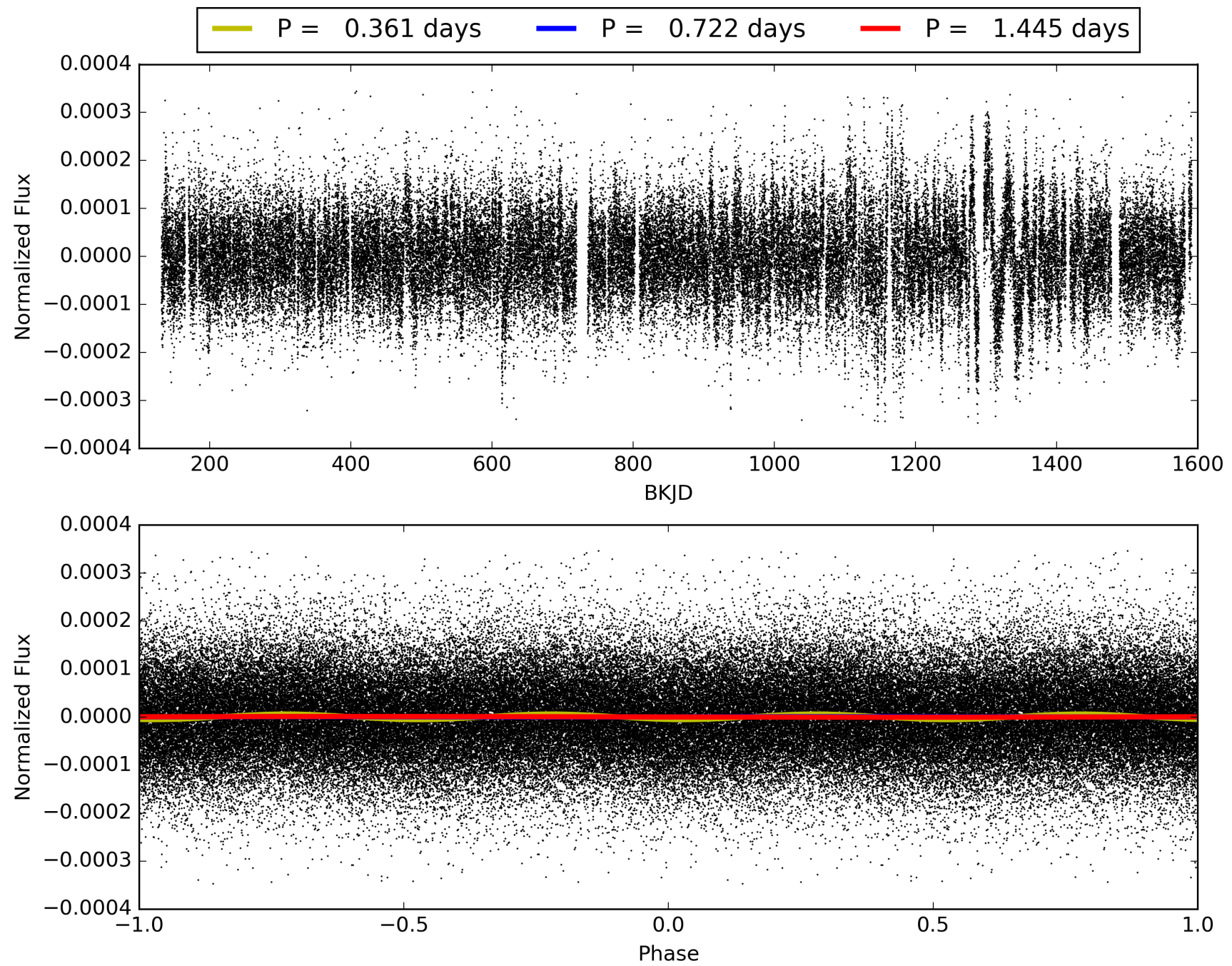
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:53:38 Z

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

TCE 005906537-01, PDC Light Curves

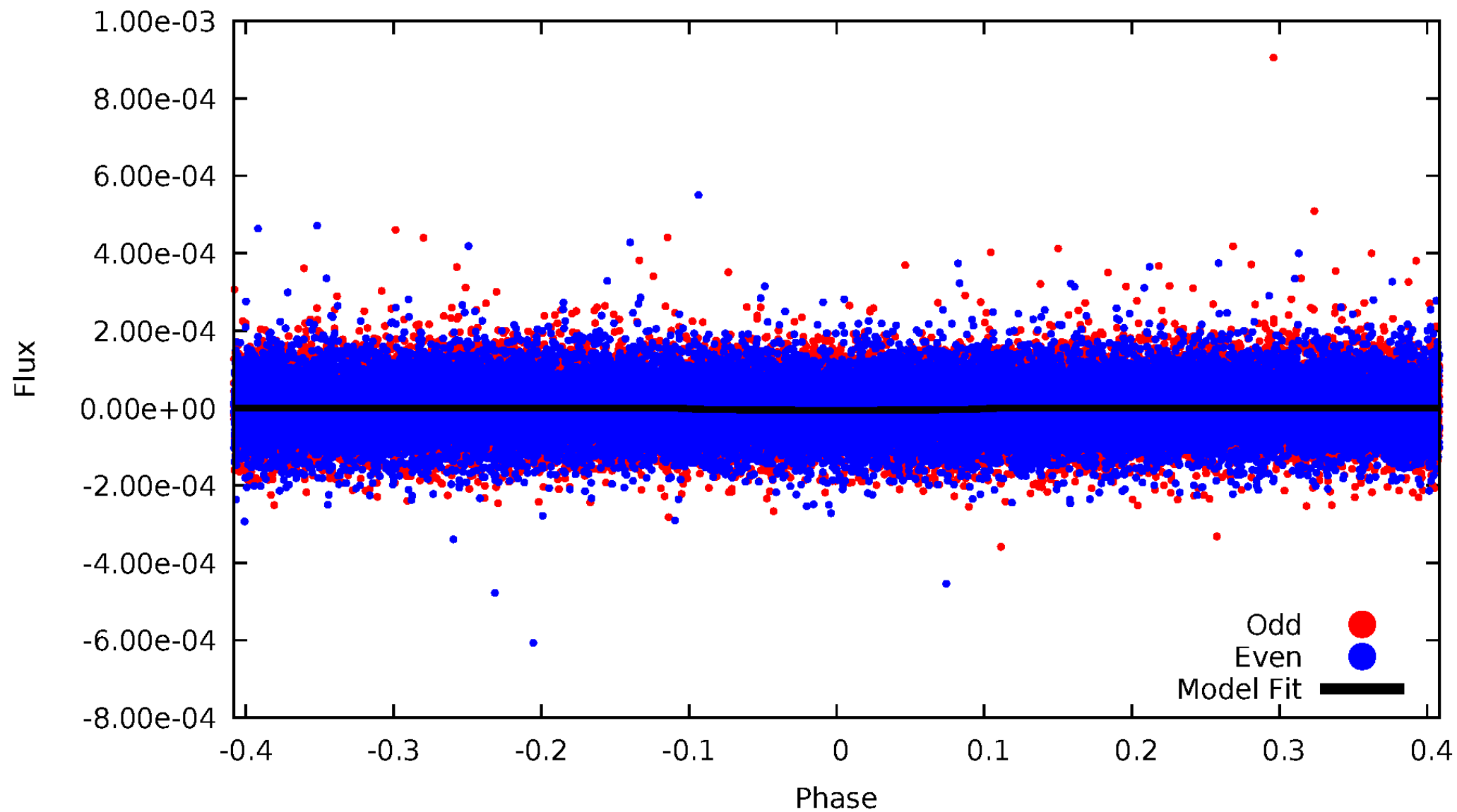


TCE 005906537-01



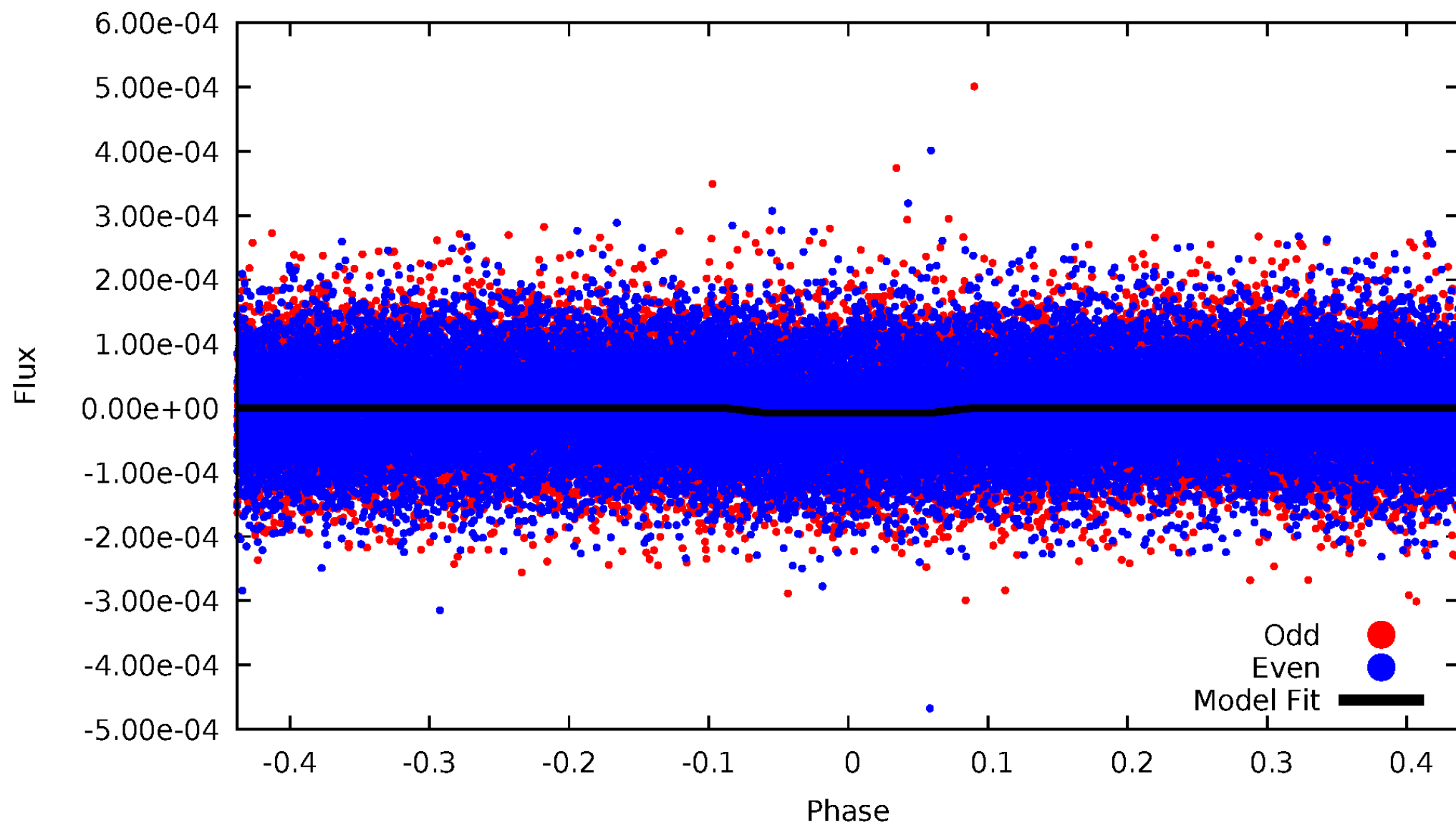
DV Odd/Even

TCE 005906537-01



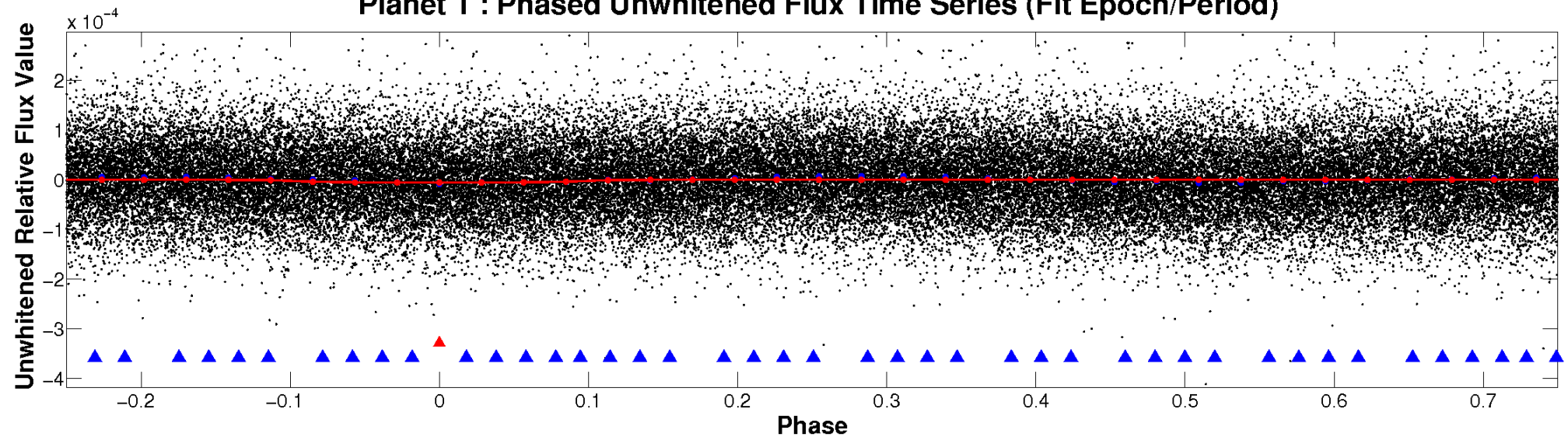
ALT Odd/Even

TCE 005906537-01

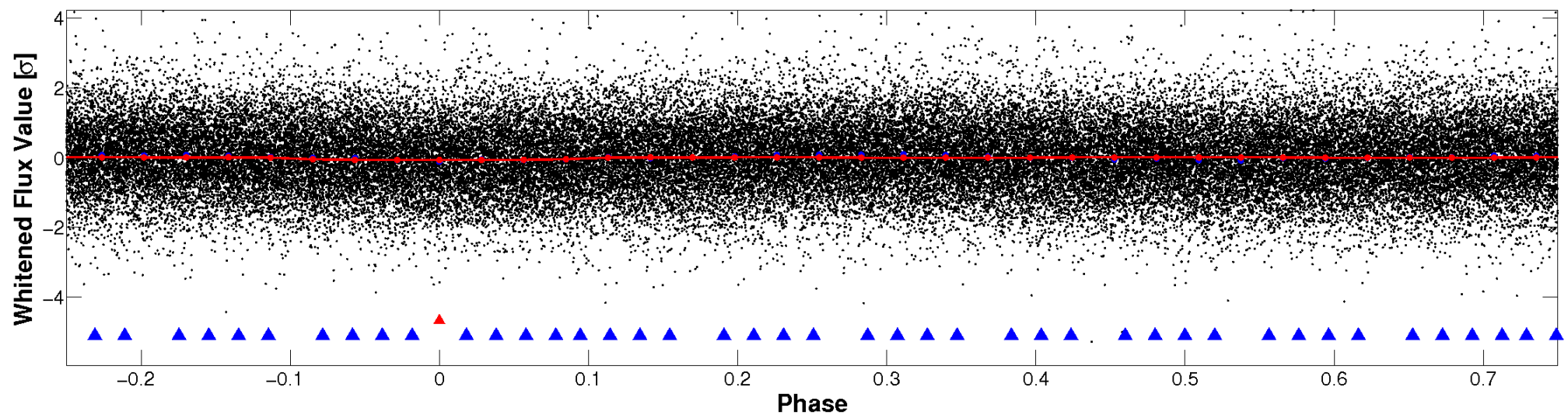


Non-Whitened Vs. Whitened Light Curve

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

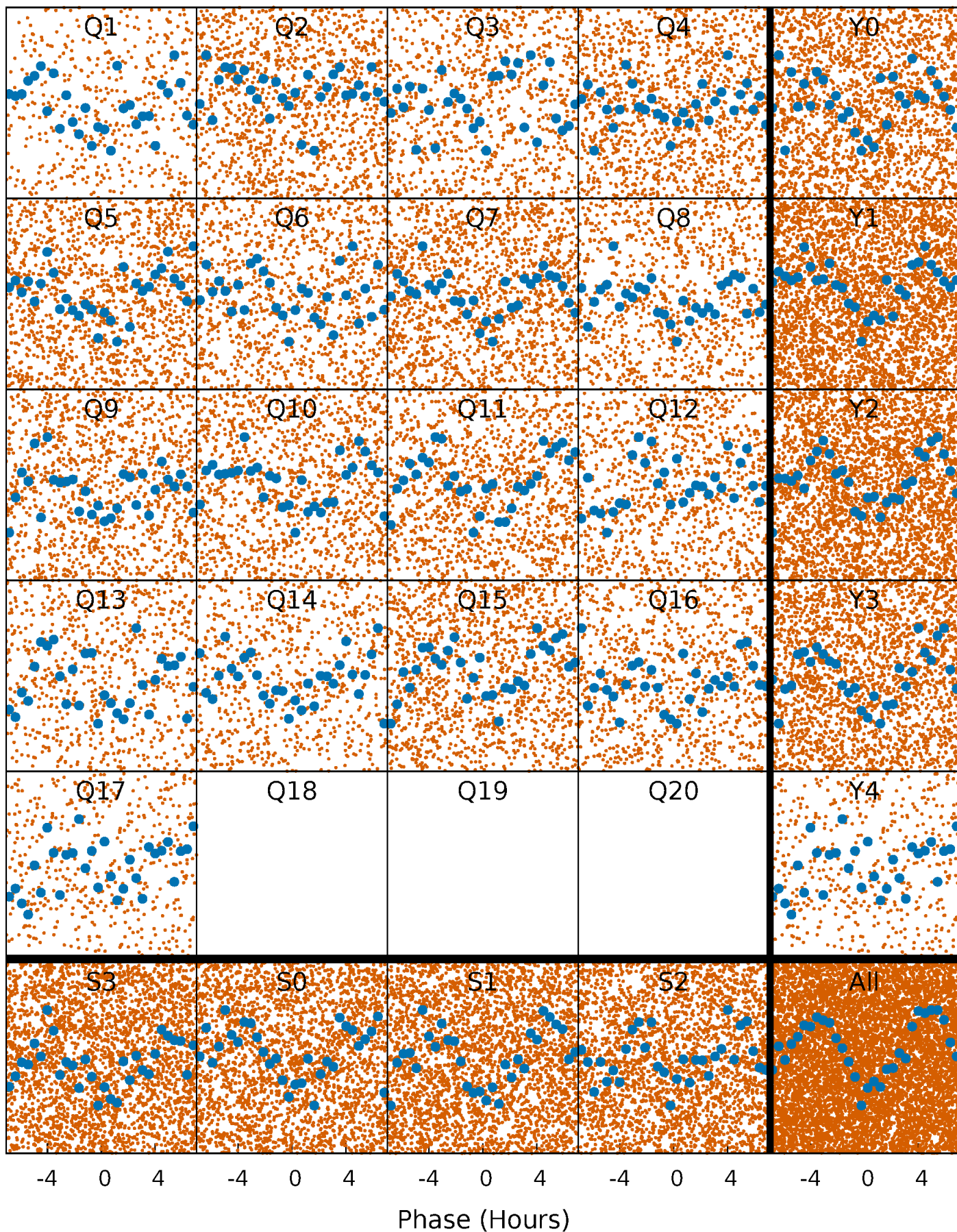


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



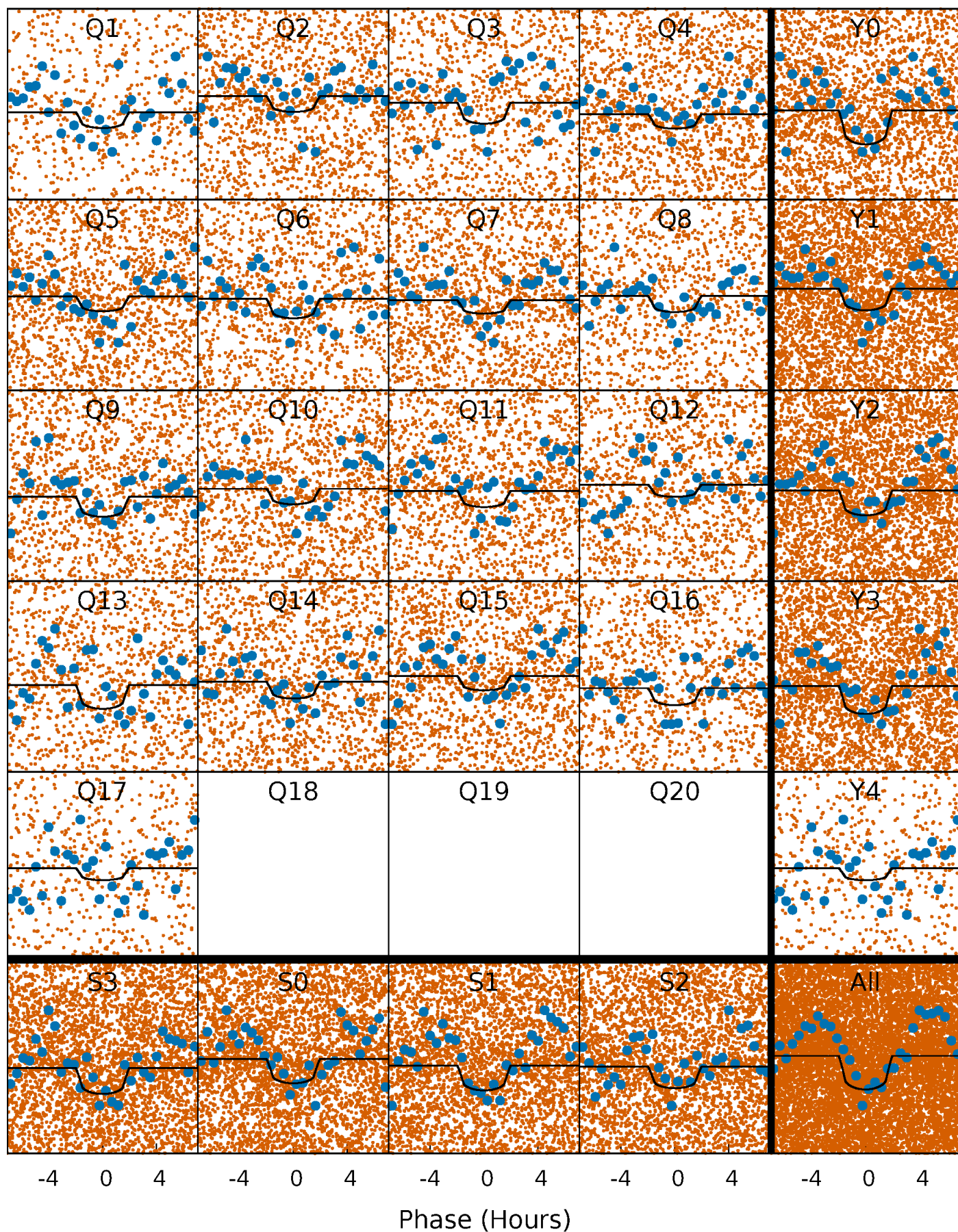
PDC Quarter-Phased Transit Curves

TCE 005906537-01 P= 0.722280 Days $T_0=131.604716$ (BKJD)



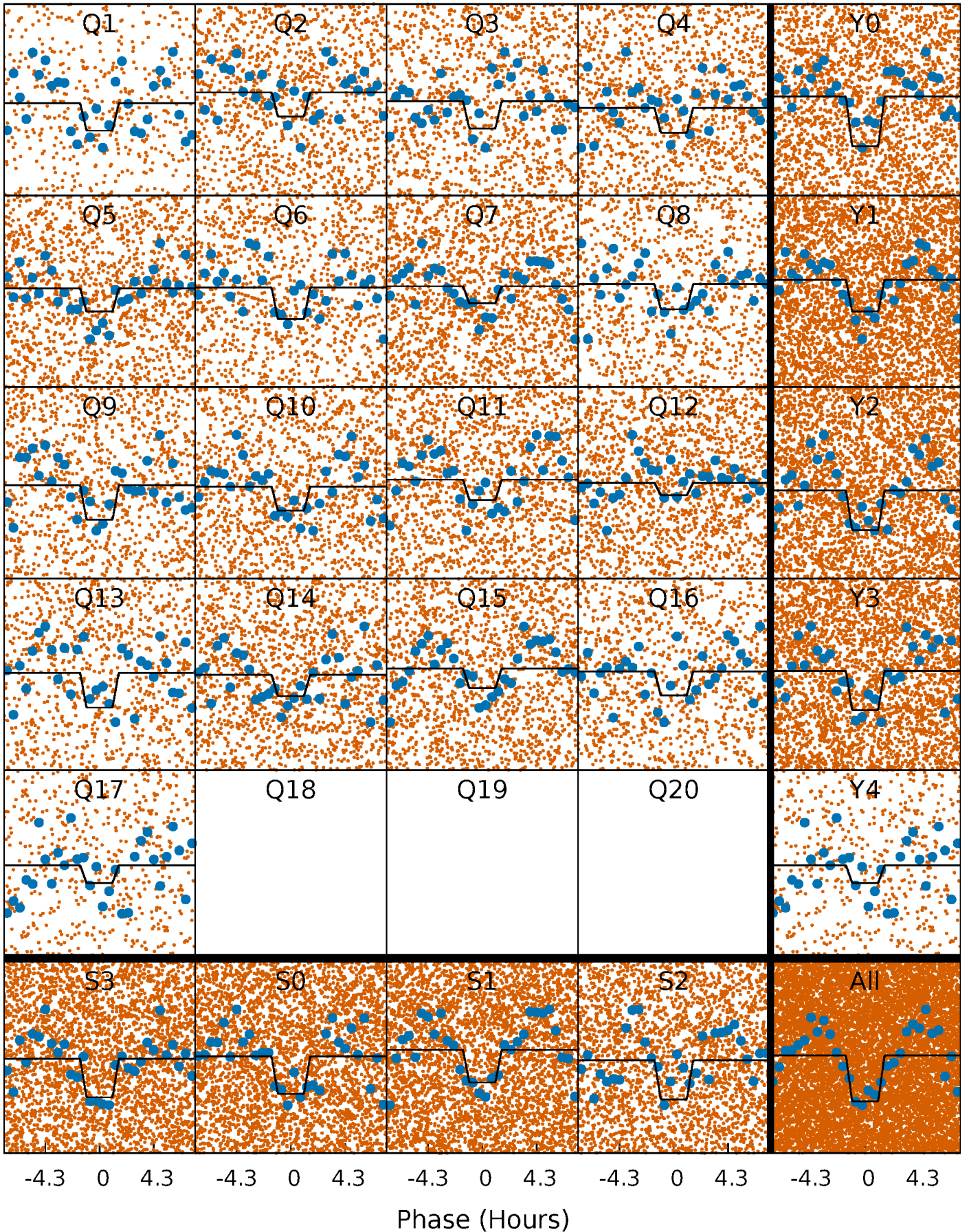
DV Quarter-Phased Transit Curves

TCE 005906537-01 P= 0.722280 Days $T_0=131.604716$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

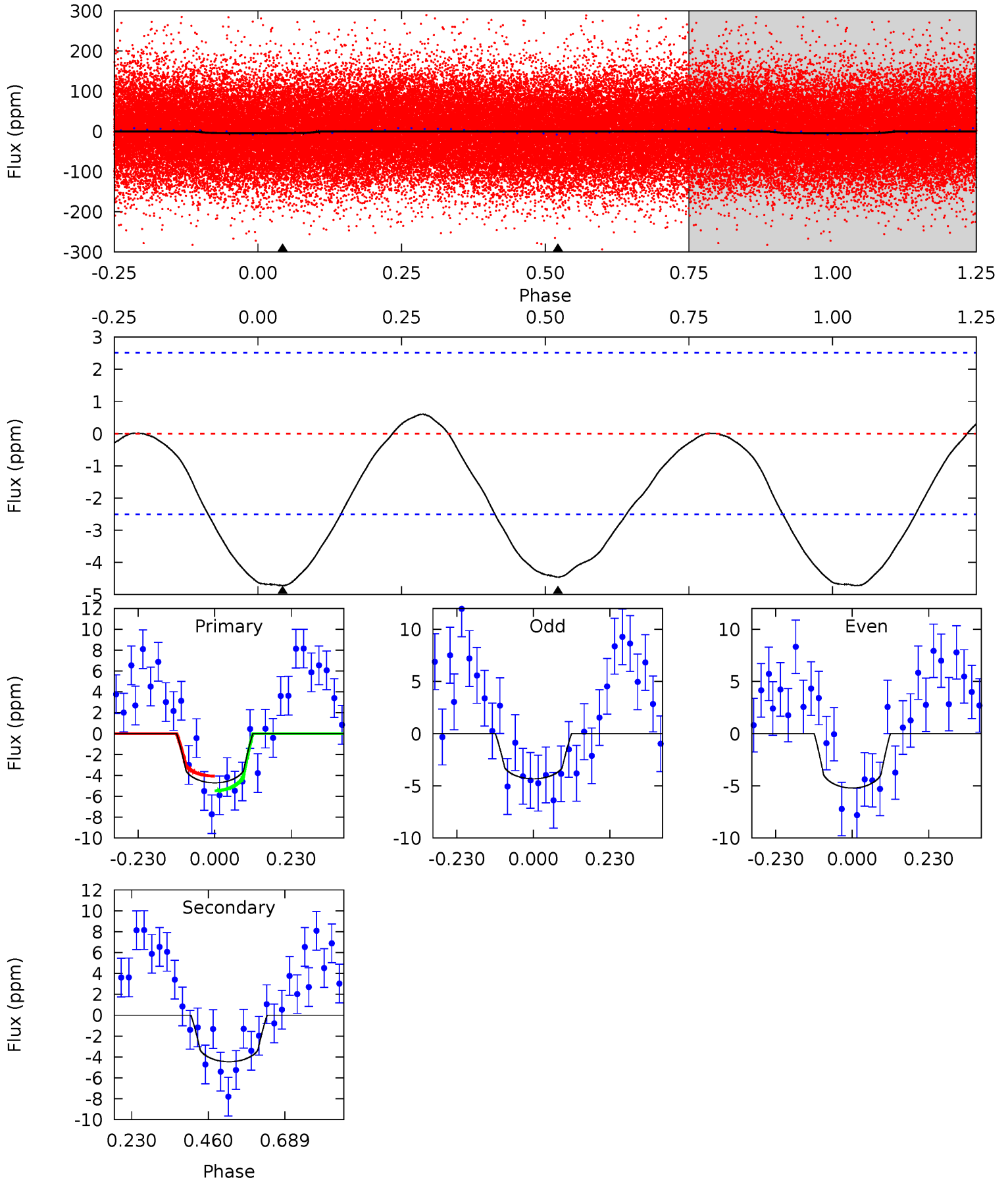
TCE 005906537-01 P= 0.722297 Days $T_0=131.603822$ (BKJD)



DV Model-Shift Uniqueness Test

005906537-01, P = 0.722280 Days, E = 130.882436 Days

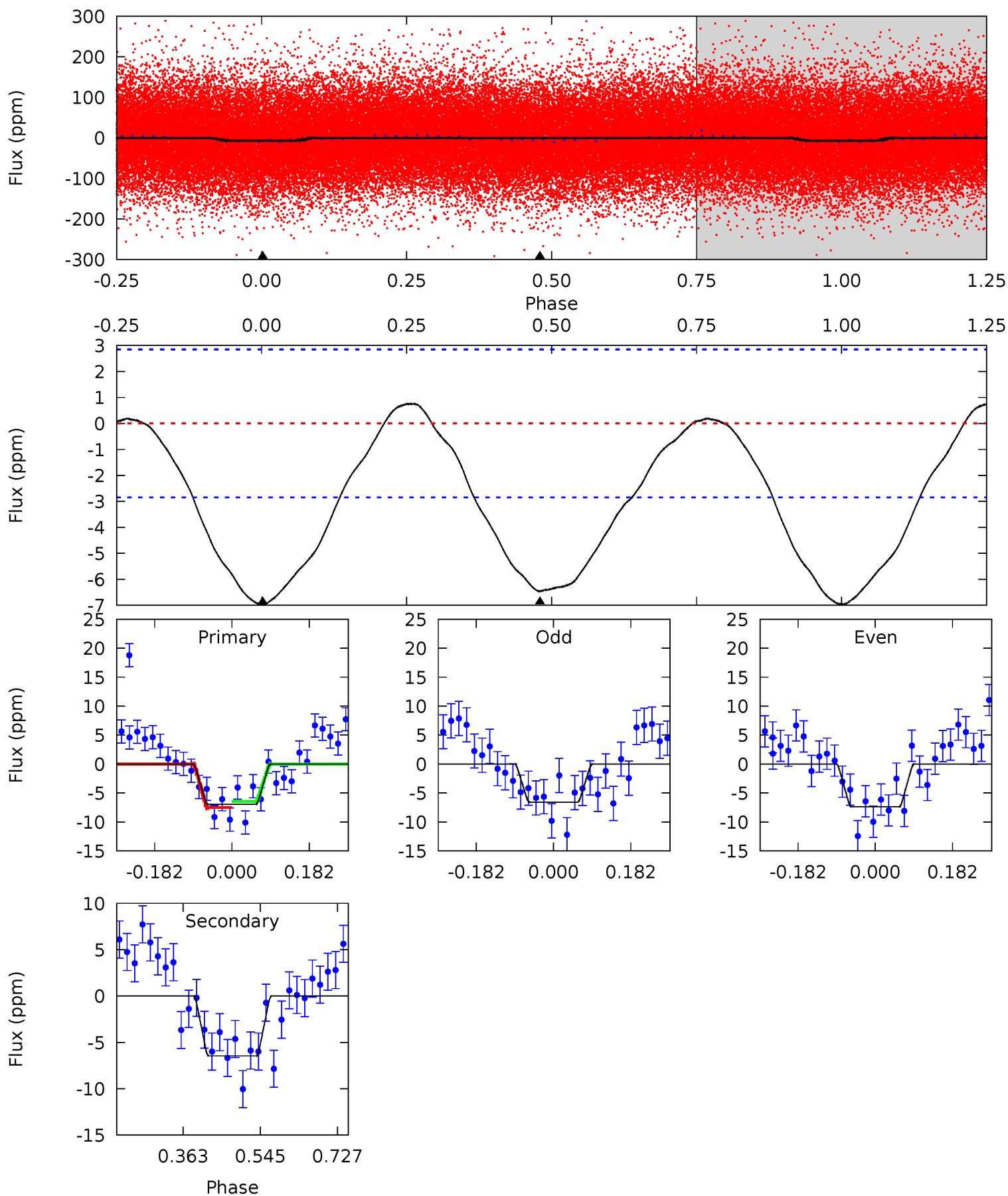
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.24	7.78	0	0	4.39	1.20	0.54	8.24	8.24	7.78	7.78	0.76	1.06	0.11	1.23



Alt Model-Shift Uniqueness Test

005906537-01, P = 0.722297 Days, E = 130.881525 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	10.1	0	0	4.44	1.34	1.04	10.8	10.8	10.1	10.1	0.60	0.87	0.10	0.81



Stellar Parameters For KIC 005906537

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5893^{+159}_{-159}	$4.035^{+0.259}_{-0.111}$	$0.100^{+0.250}_{-0.250}$	$1.696^{+0.339}_{-0.509}$	$1.135^{+0.168}_{-0.168}$	$0.328^{+0.528}_{-0.111}$
	+3%/-3%	+6%/-3%	+250%/-250%	+20%/-30%	+15%/-15%	+161%/-34%
Source	PHO1	FLK73	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 005906537-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4 ± 1	$0.45^{+0.25}_{-0.22}$	3651^{+219}_{-314}	5213^{+2577}_{-915}	$3.227^{+9.636}_{-1.921}$
Alt.	-6 ± 1	$0.49^{+0.26}_{-0.22}$	3640^{+226}_{-282}	5521^{+1954}_{-901}	$3.869^{+8.815}_{-2.122}$

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

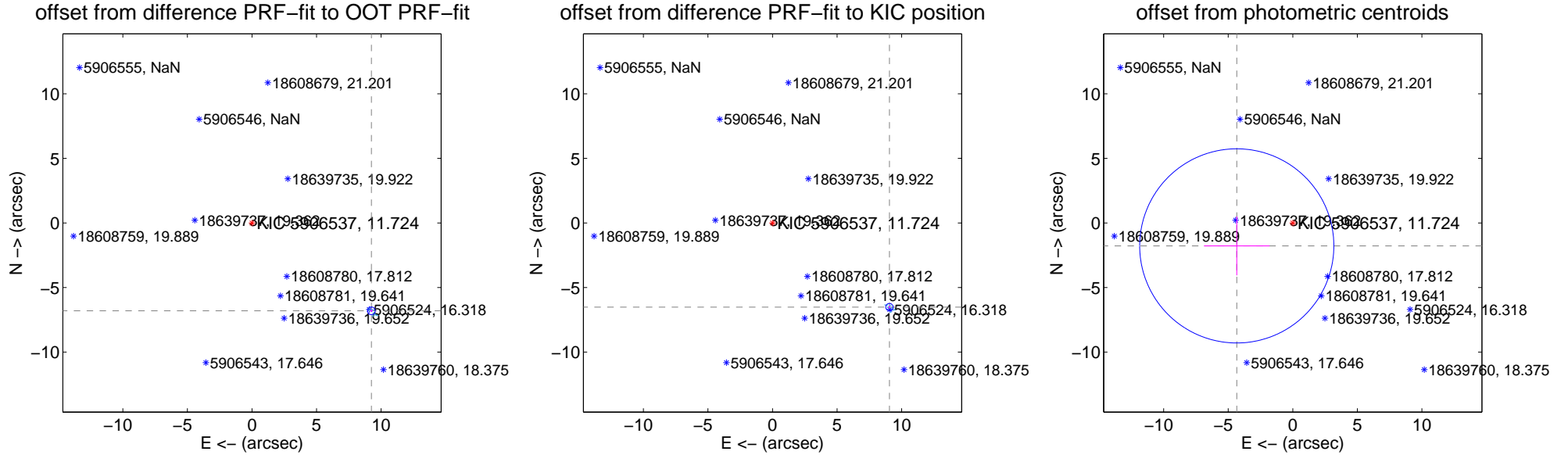
DV Centroid Data

Supplemental centroid analysis for 005906537-01. **Kepler magnitude: 11.72.** Transit SNR 6.65

There are 12 quarters with good PRF difference image offsets

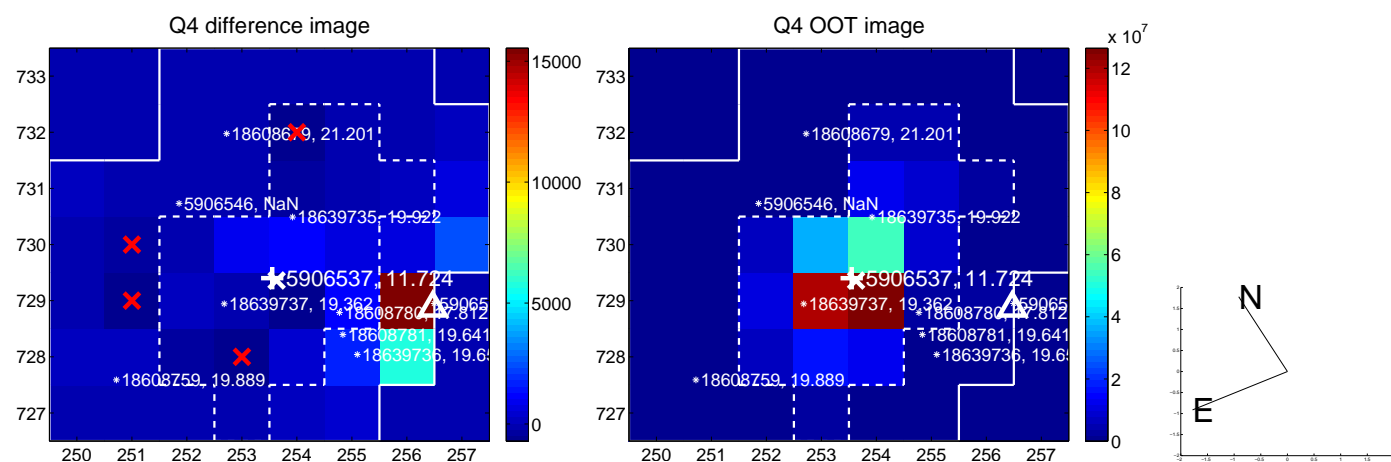
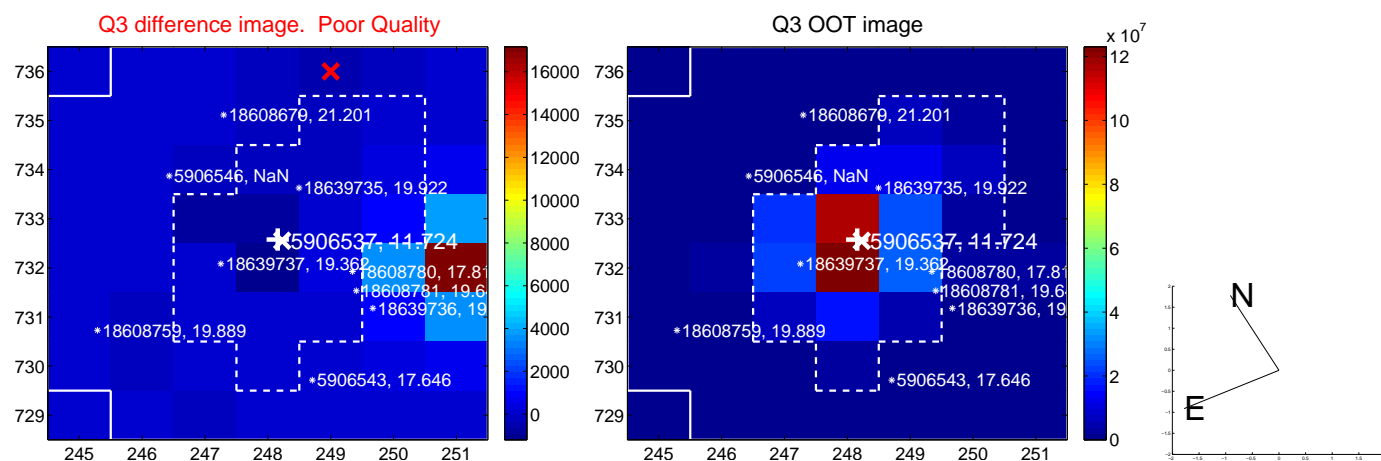
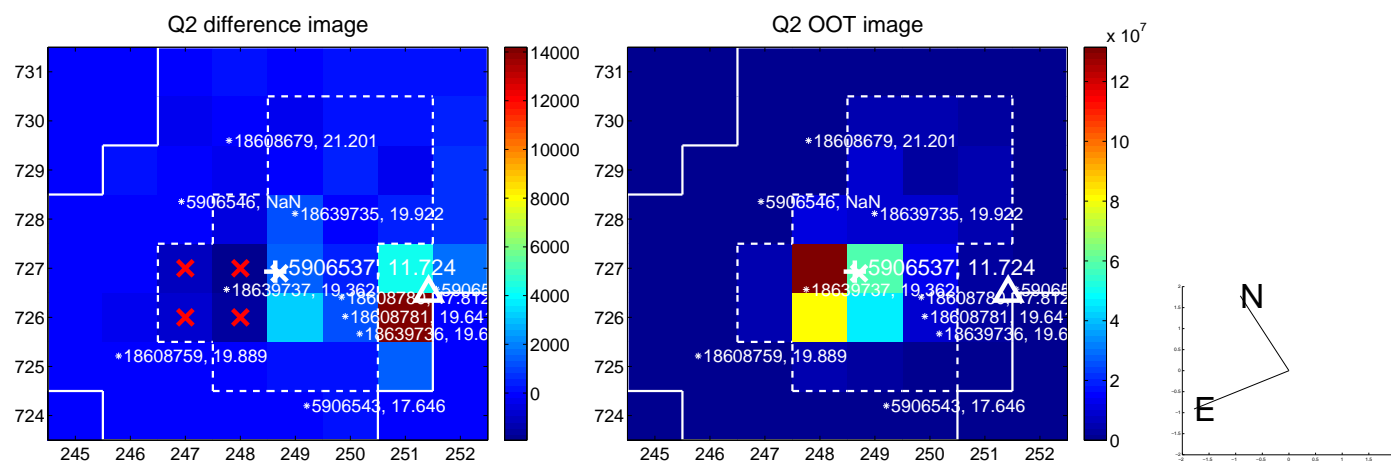
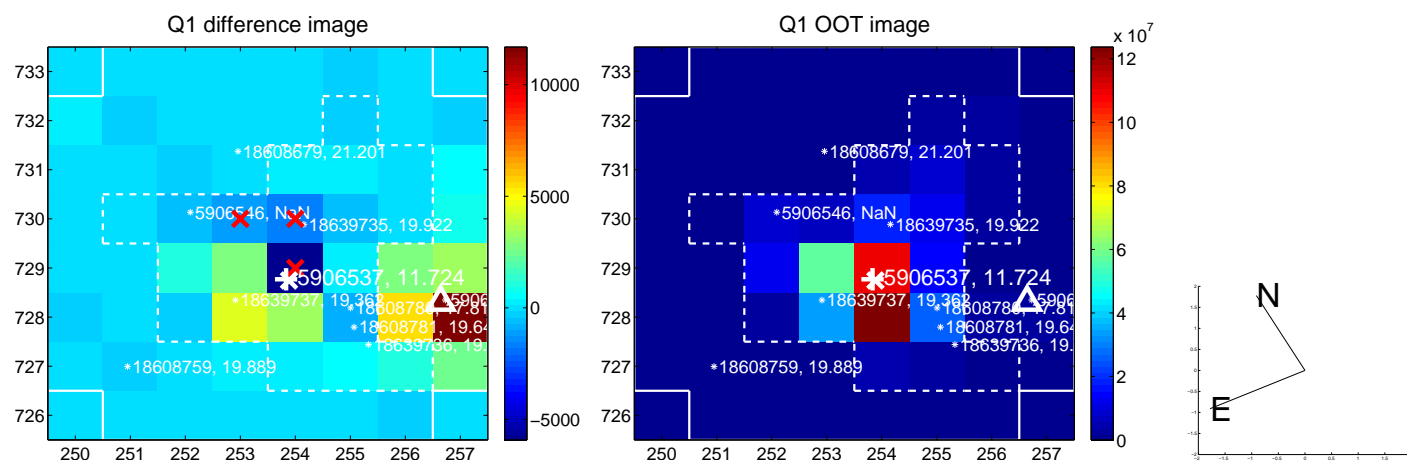
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.482 ± 0.099	116.11	-9.248 ± 0.087	-6.805 ± 0.087
PRF-fit source offset from KIC position	11.158 ± 0.095	117.11	-9.056 ± 0.088	-6.518 ± 0.082
photometric centroid source offset	4.69 ± 2.51	1.87	4.34 ± 2.54	-1.78 ± 2.28

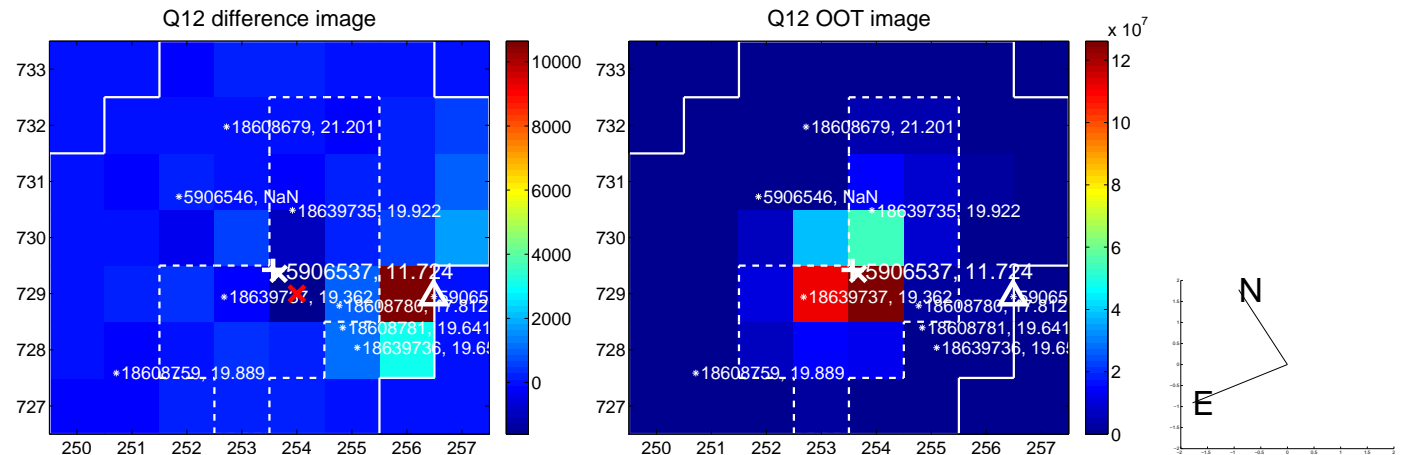
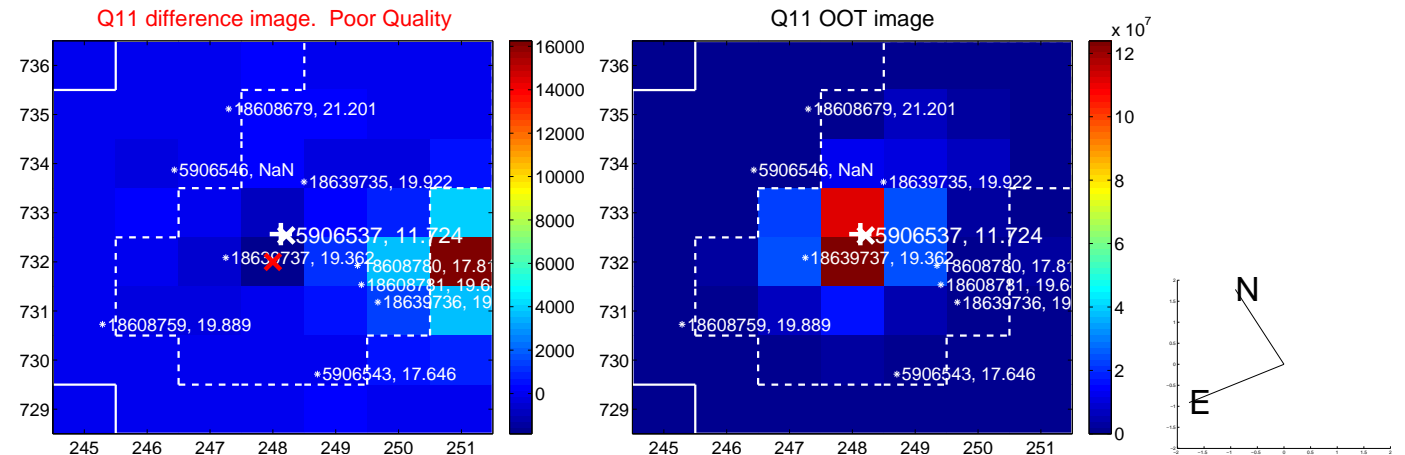
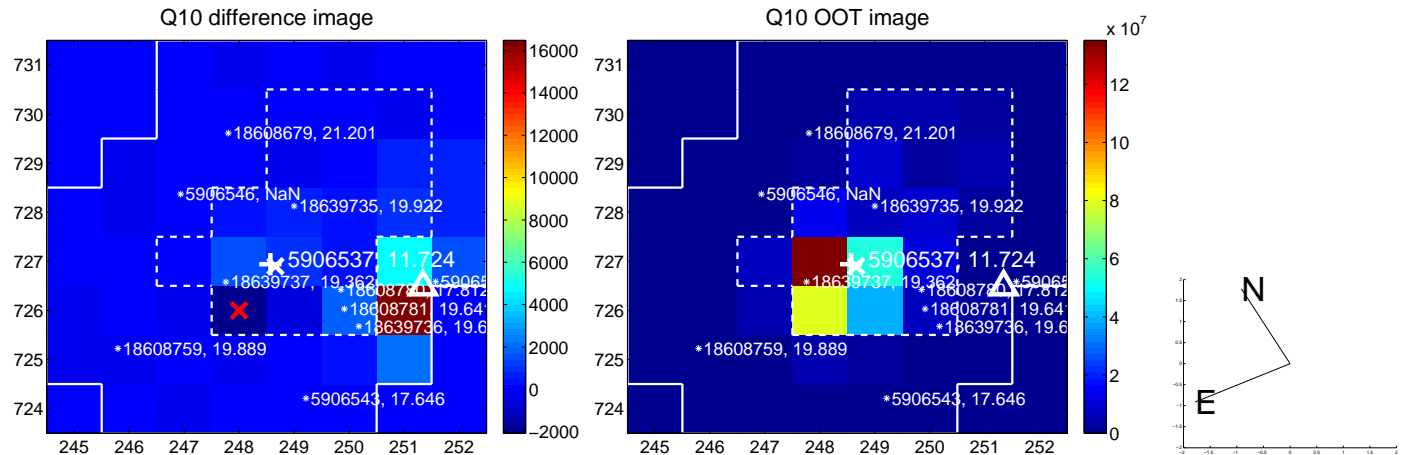
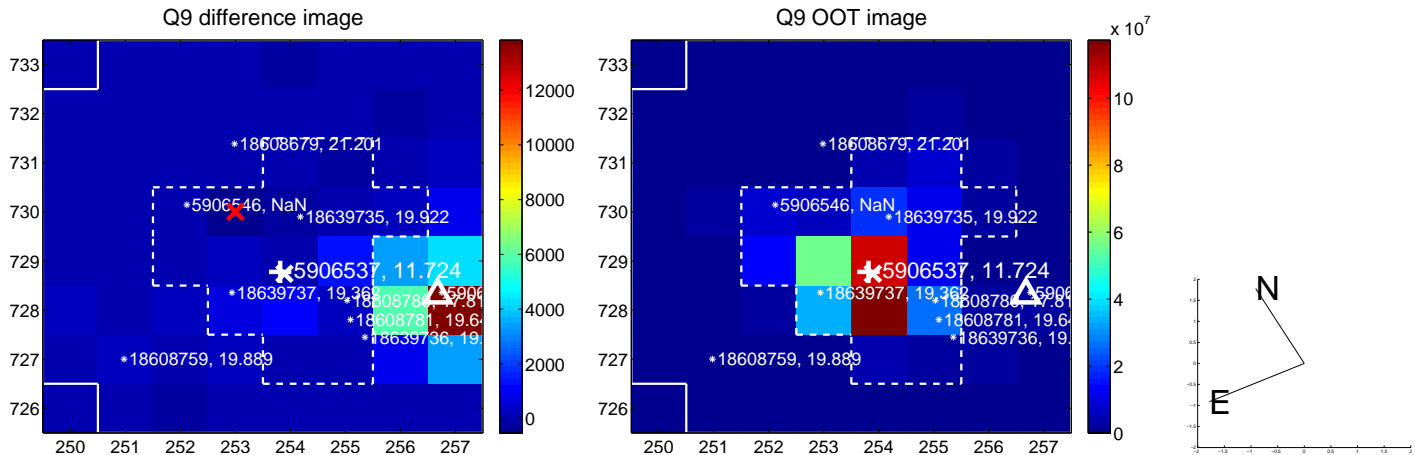


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

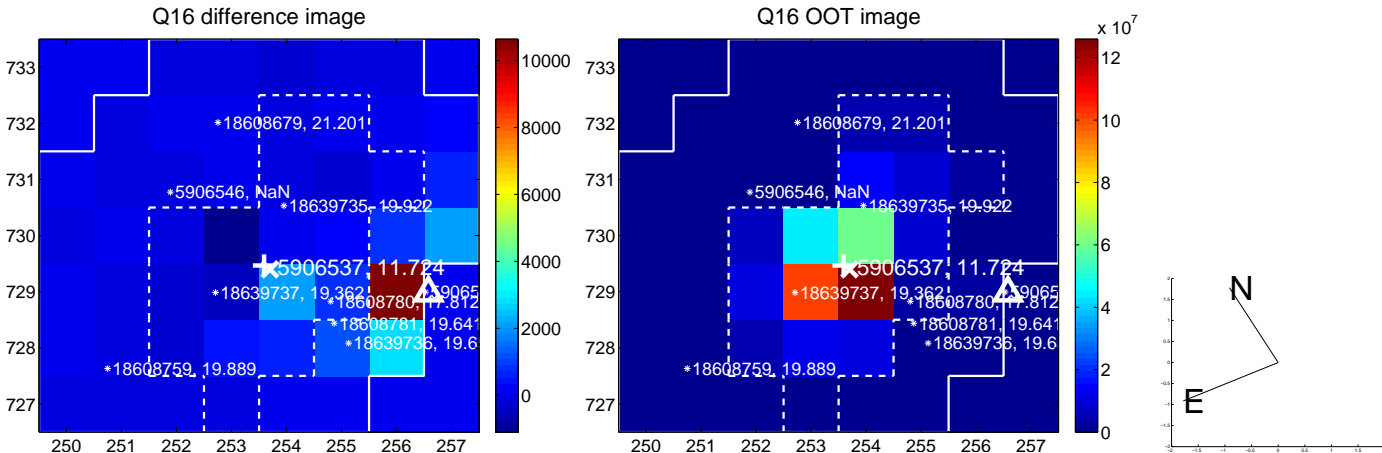
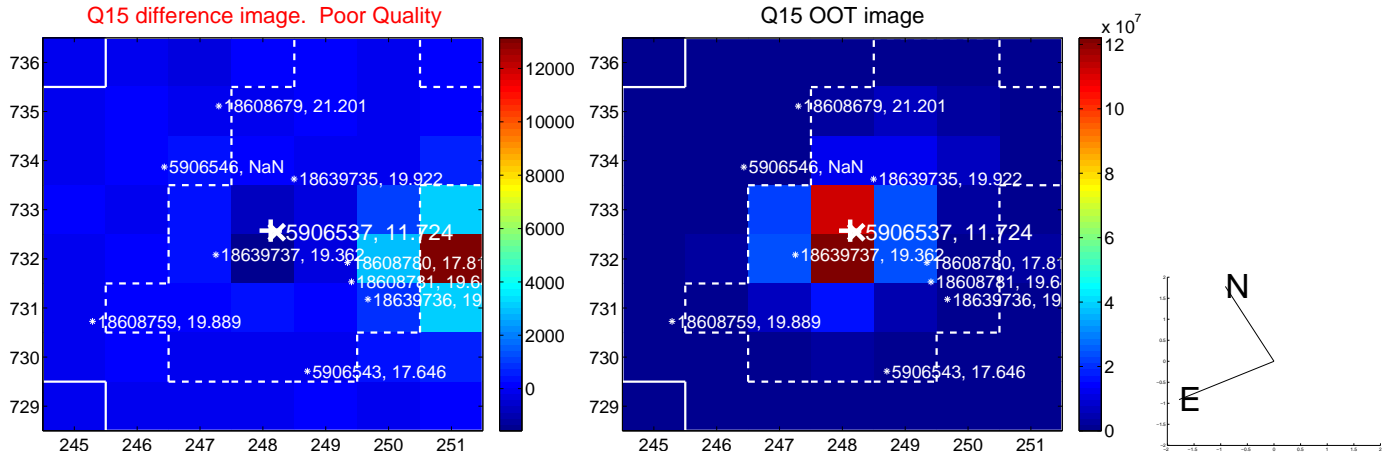
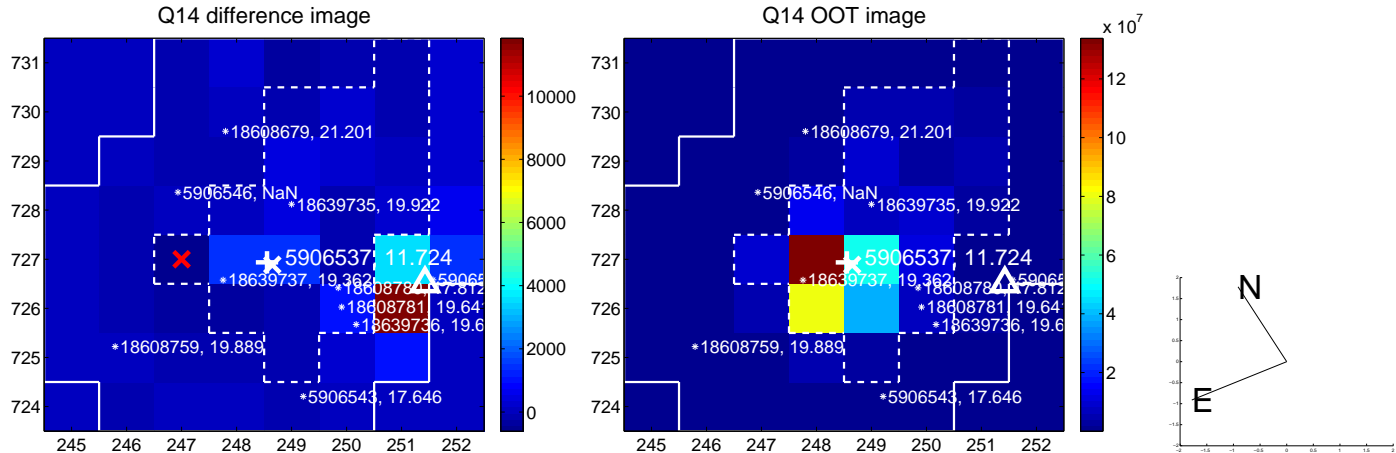
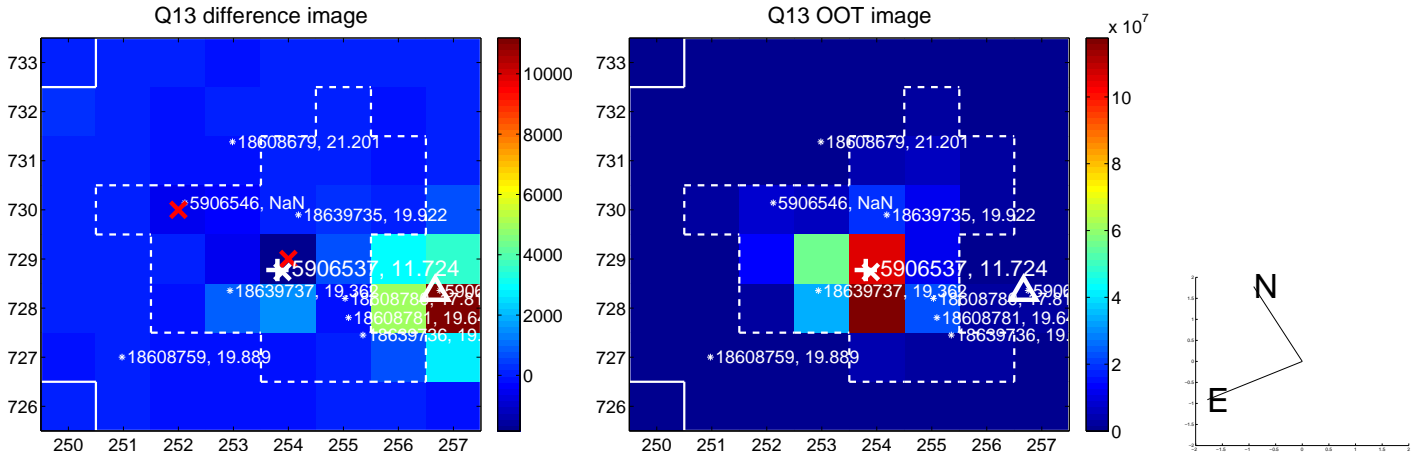
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



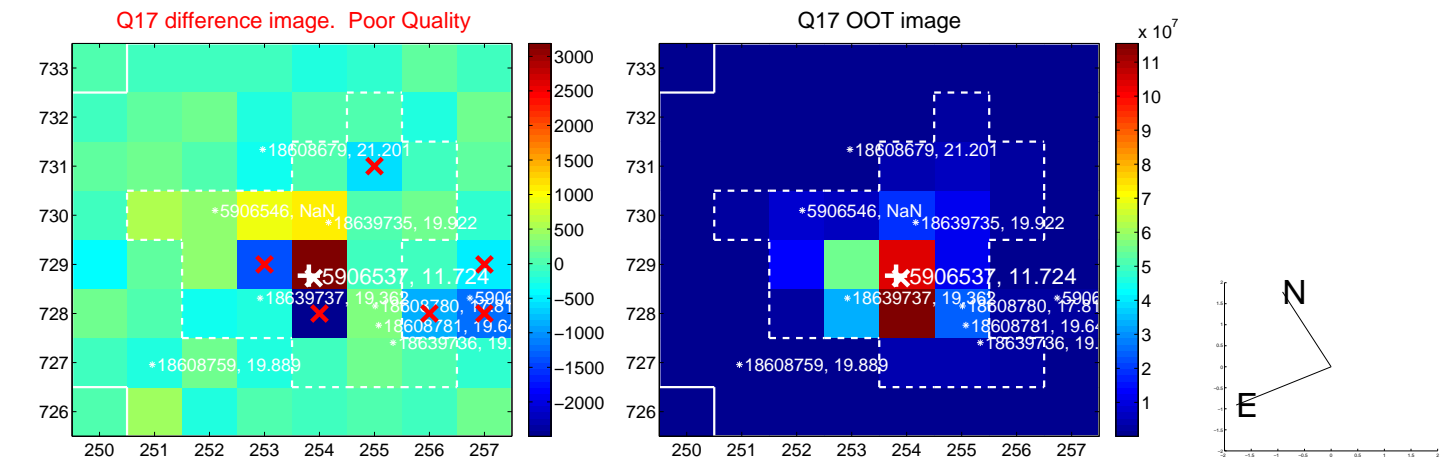
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



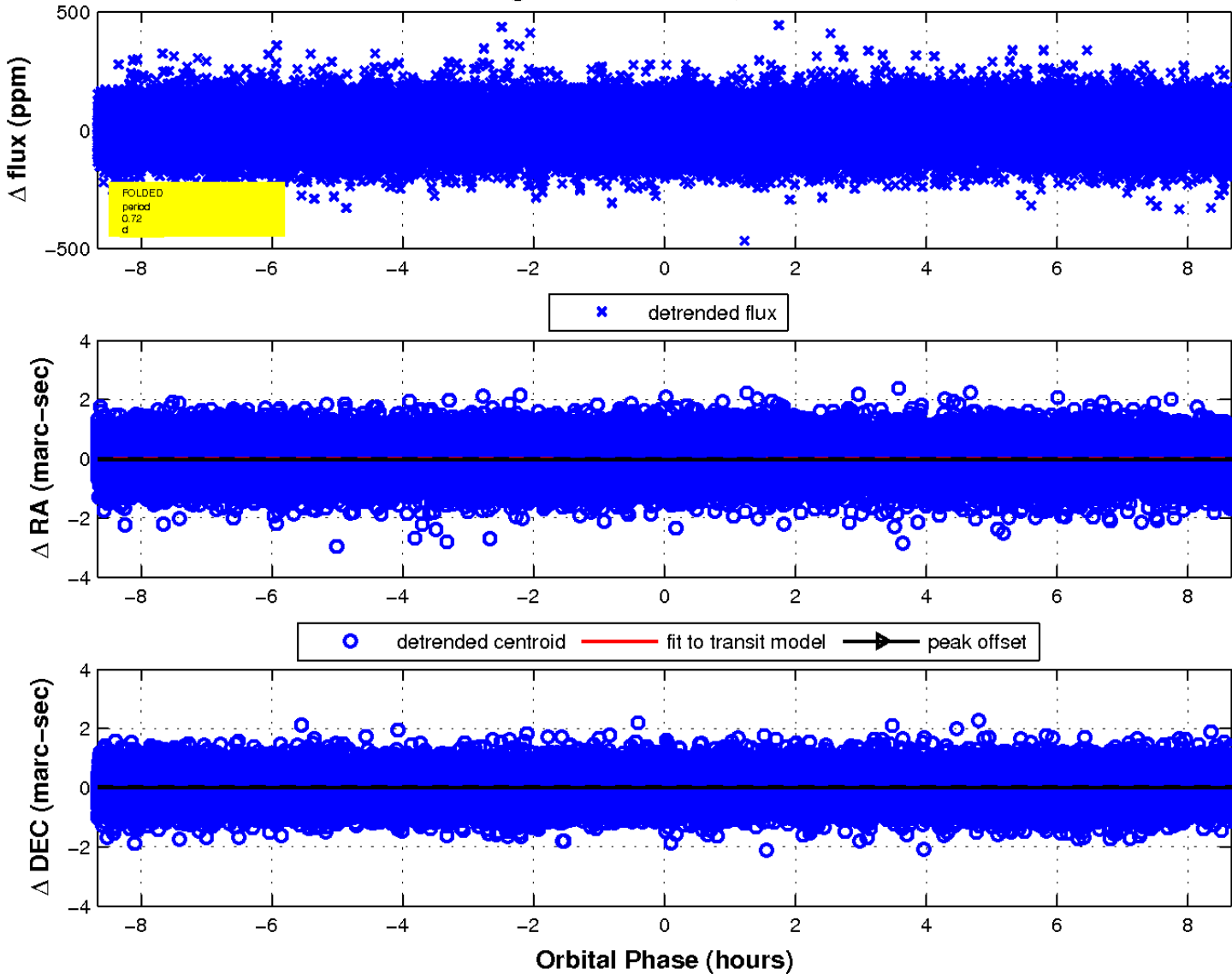
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



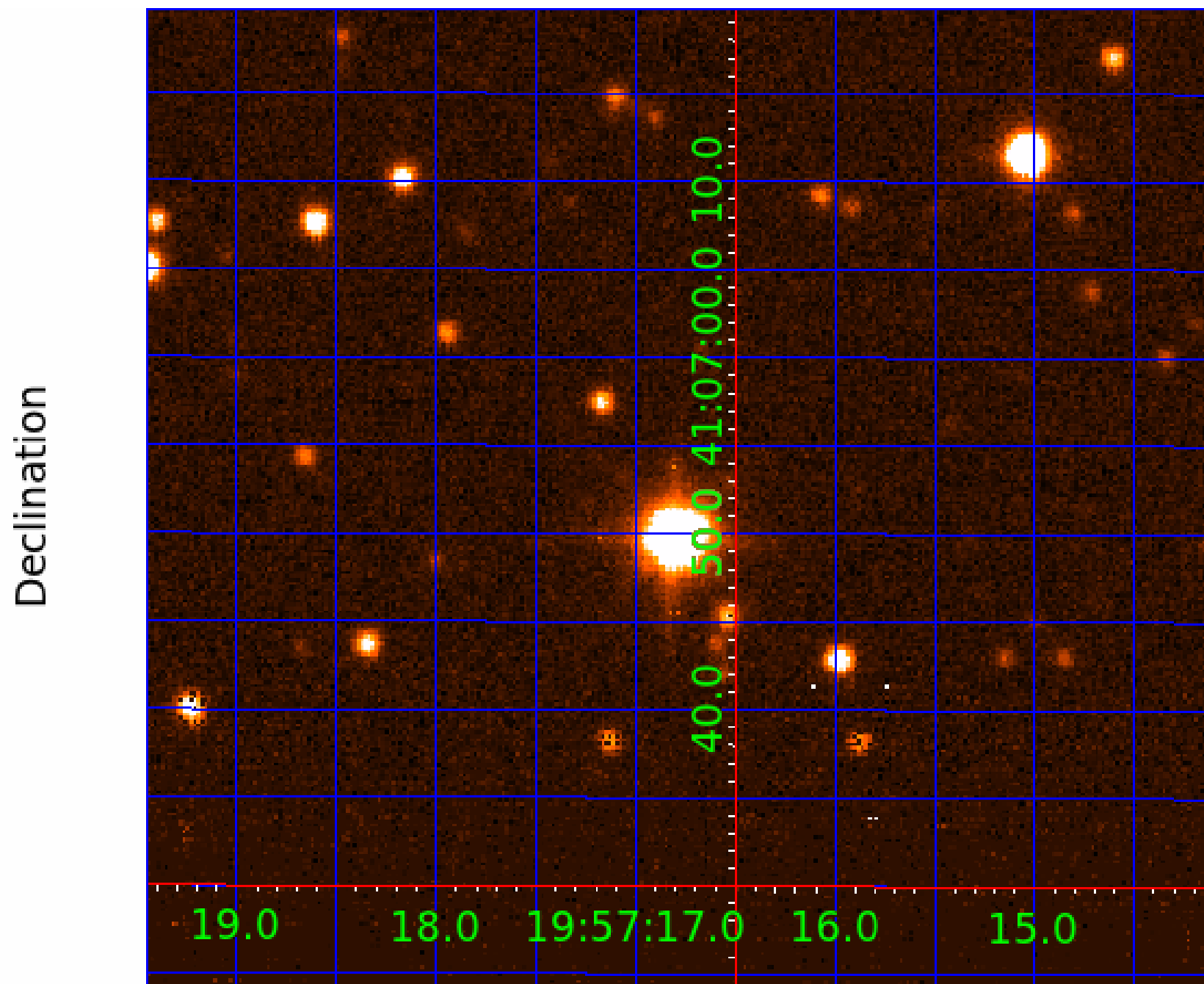
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 005906537

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})
005906537-01	OBS	No	0.722280	131.604716	5.4	3.538	7.6	6.7	1.70	5893	0.47	11488.14
005906537-02	OBS	No	33.683201	155.496386	124.4	0.656	7.2	7.7	1.70	5893	1.97	68.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005906537-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
005906537-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

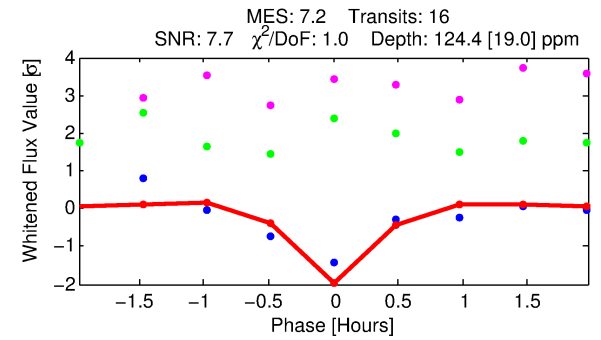
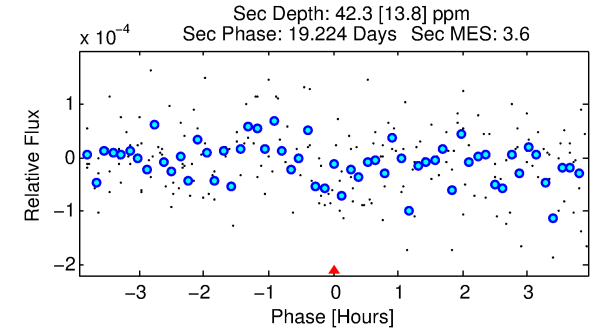
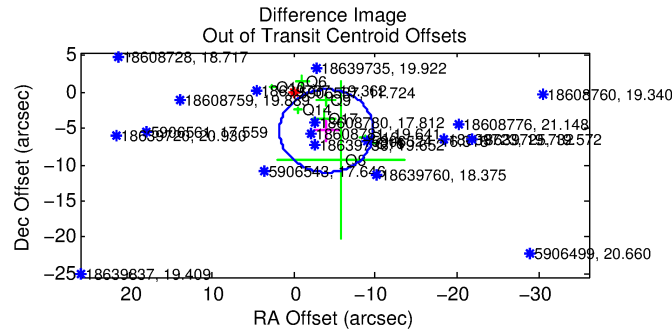
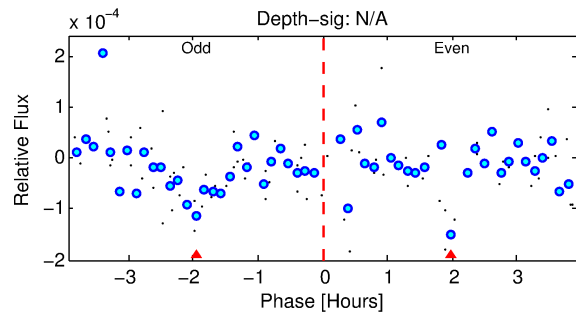
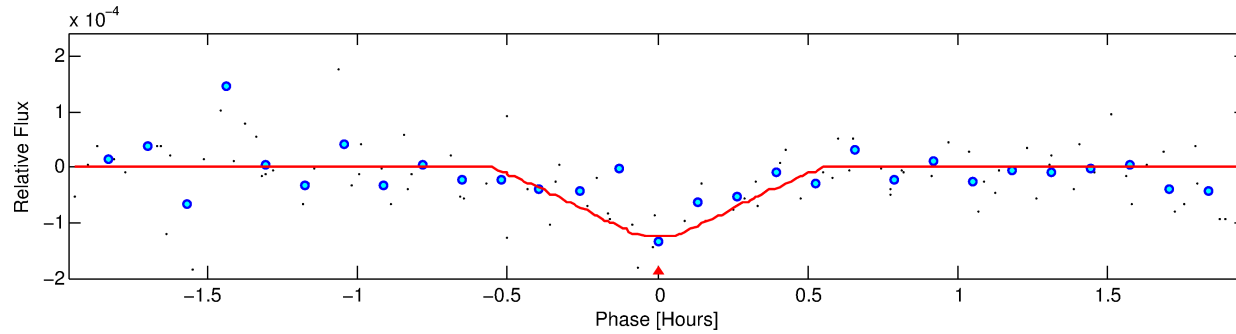
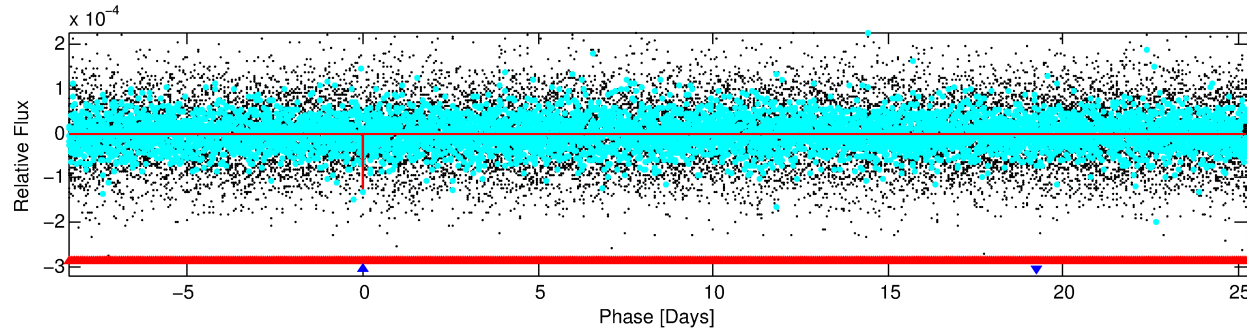
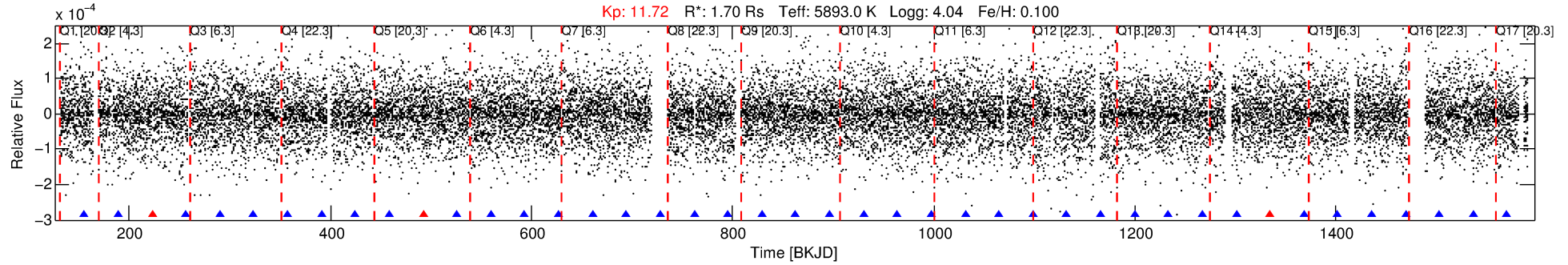
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005906537-02

No Significant Match Found

DV One-Page Summary

KIC: 5906537 Candidate: 2 of 2 Period: 33.683 d



DV Fit Results:

Period = 33.68320 [0.00015] d
Epoch = 155.4964 [0.0032] BKJD
Rp/R* = 0.0107 [0.0126]
a/R* = 353.45 [1864.38]
b = 0.46 [9.27]
Seff = 68.44 [31.34]
Teq = 733 [84] K
Rp = 1.97 [2.41] Re
a = 0.2131 [0.0601] AU
Ag = 271.23 [657.90] [0.41σ]
Teffp = 4602 [2746] K [1.41σ]

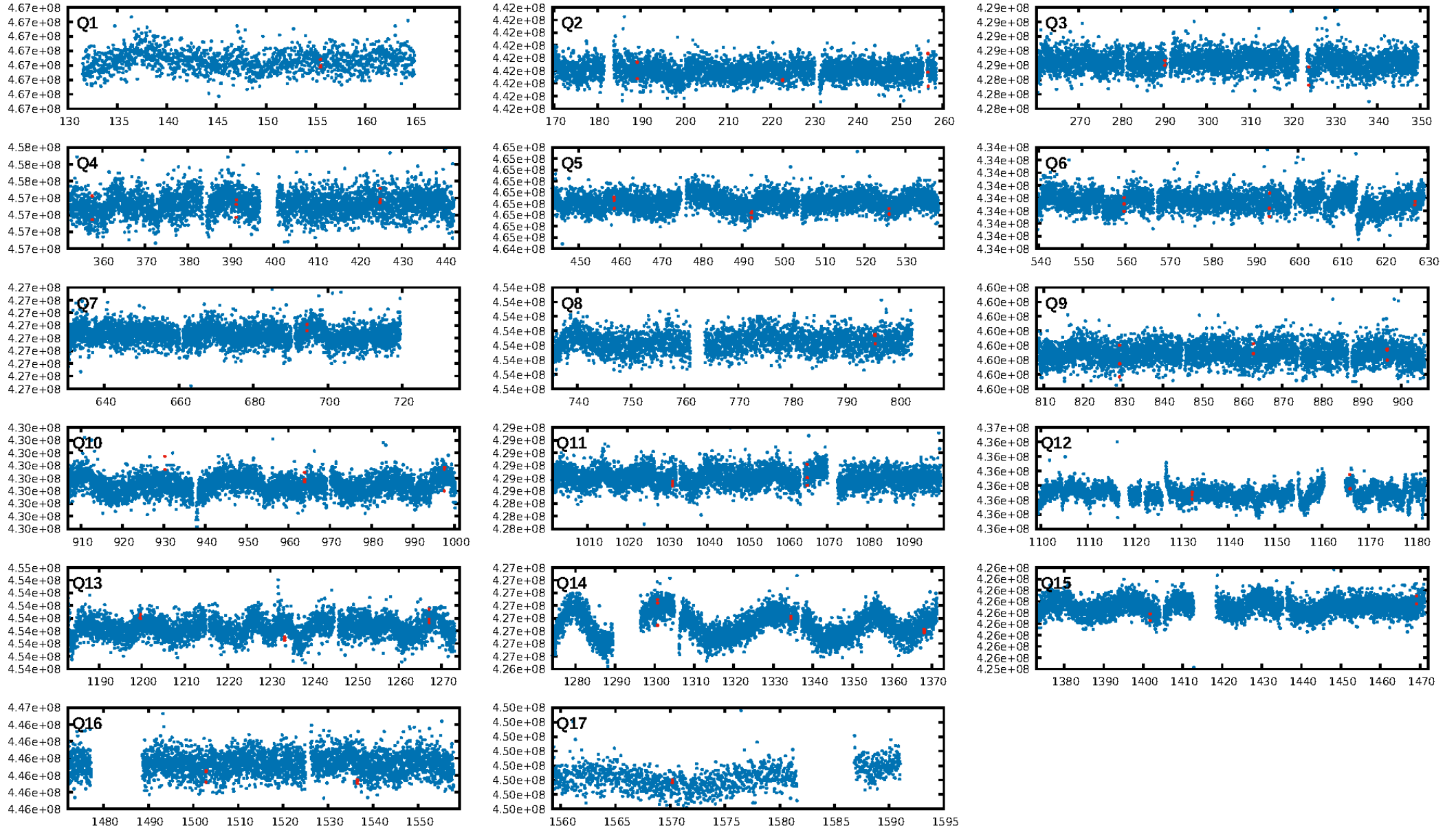
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [219.84σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 79.8%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 9.94e-10
RollingBand-fgt: 0.81 [13/16]
GhostDiagnostic-chr: -0.5189
Centroid-sig: 76.1%
Centroid-so: 0.578 arcsec [0.35σ]
OotOffset-rm: 6.697 arcsec [3.51σ]
KicOffset-rm: 6.339 arcsec [4.01σ]
OotOffset-st: 3/1/3/2 [9]
KicOffset-st: 3/1/3/2 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.33 [5/15]

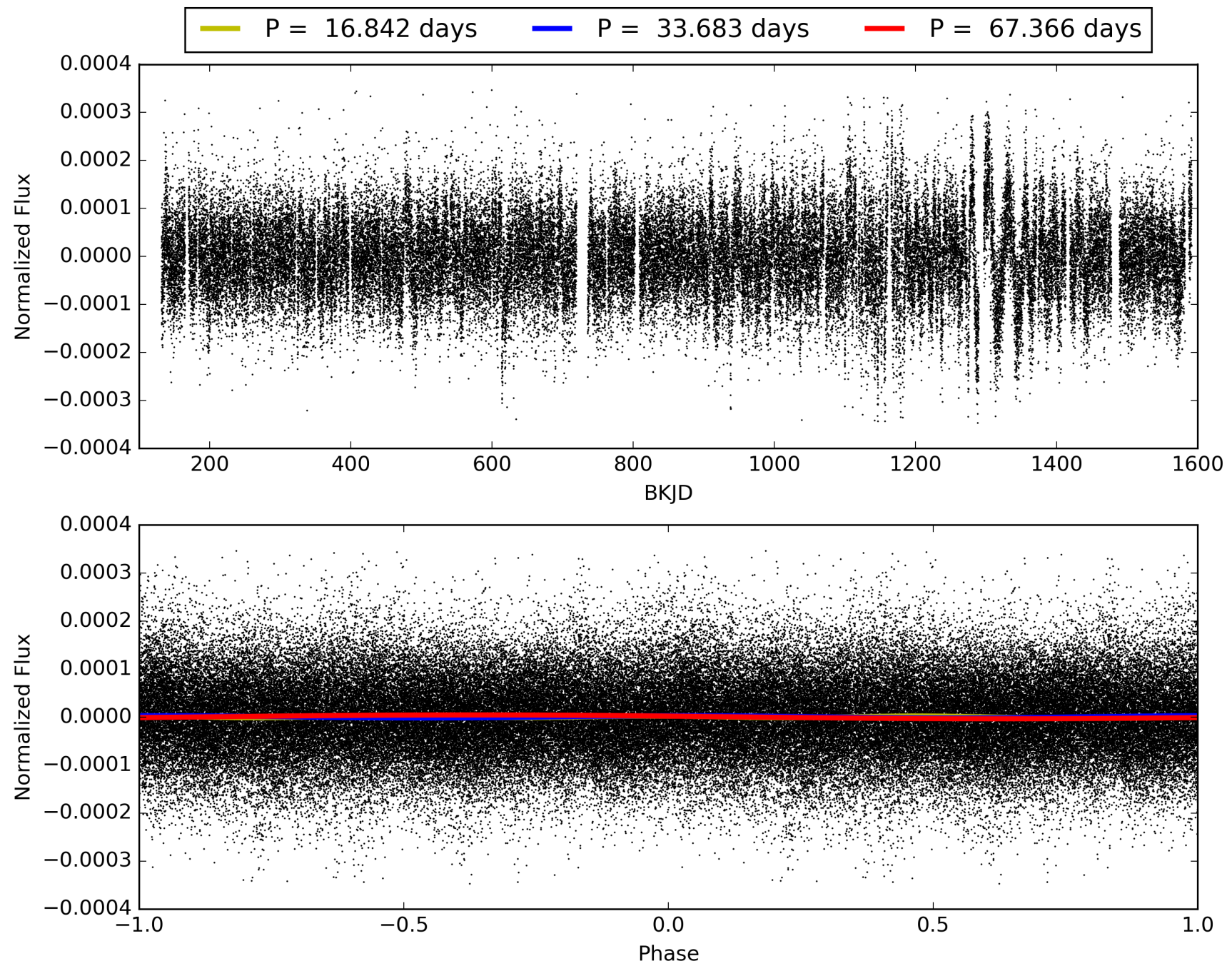
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:53:50 Z

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

TCE 005906537-02, PDC Light Curves

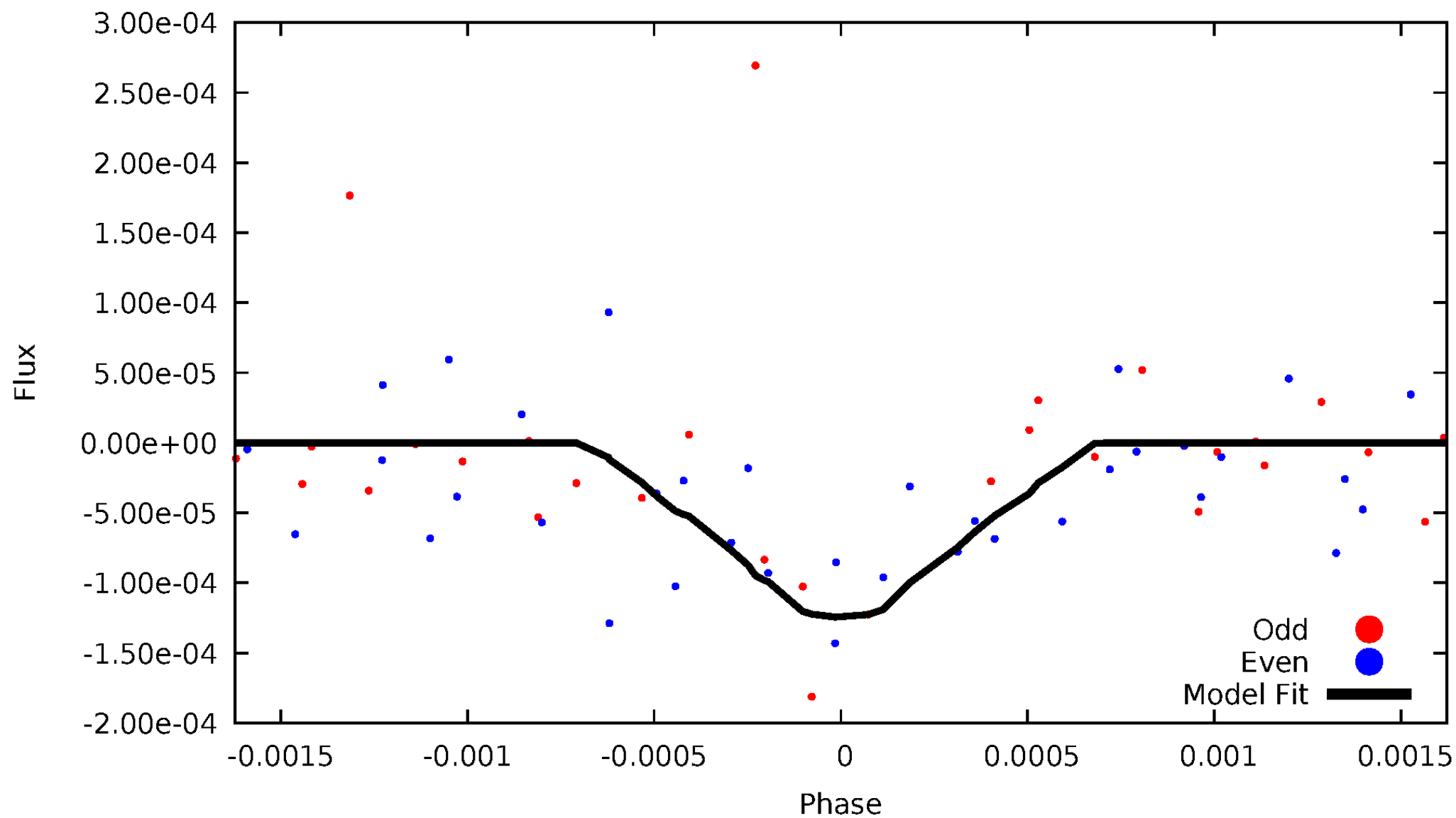


TCE 005906537-02



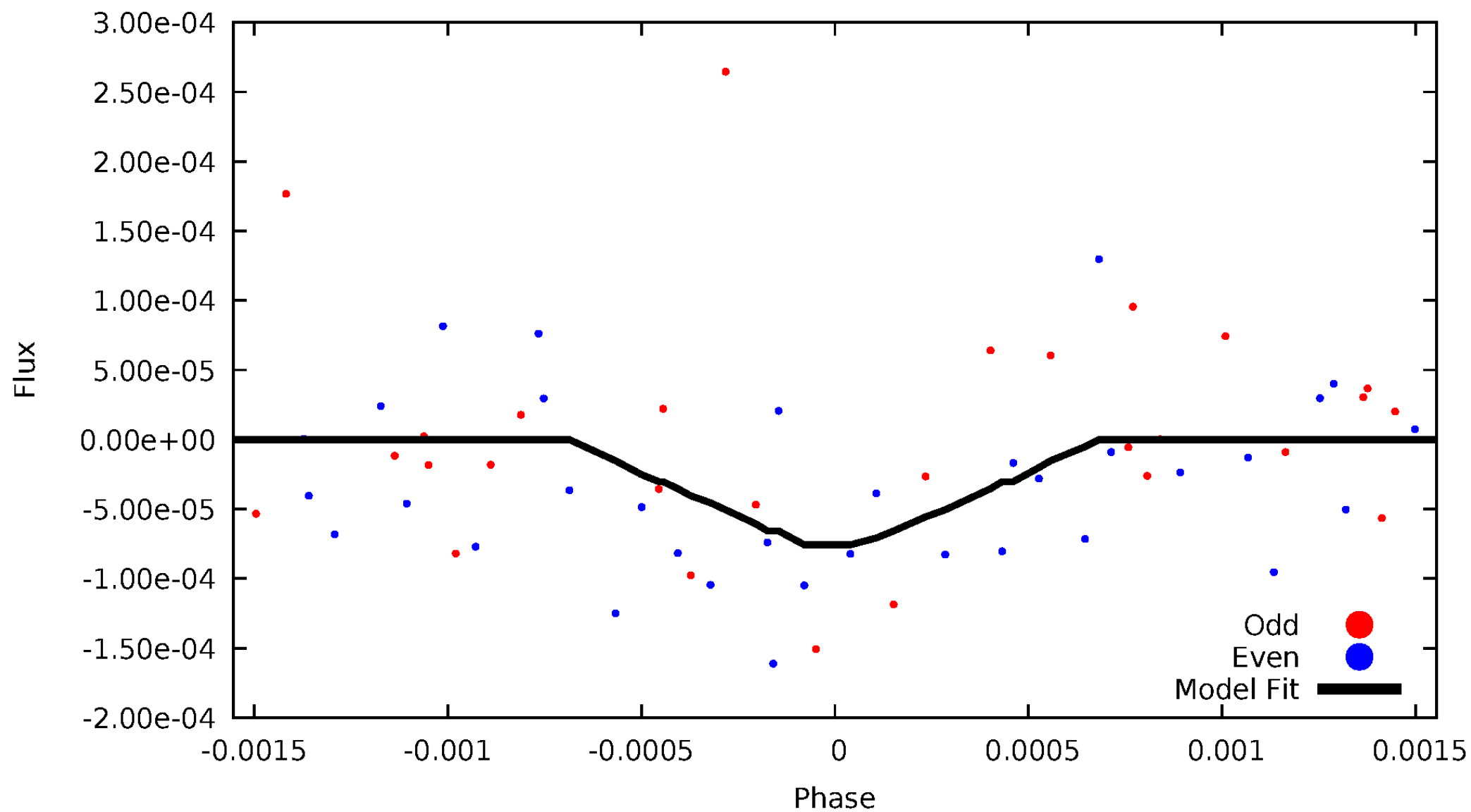
DV Odd/Even

TCE 005906537-02



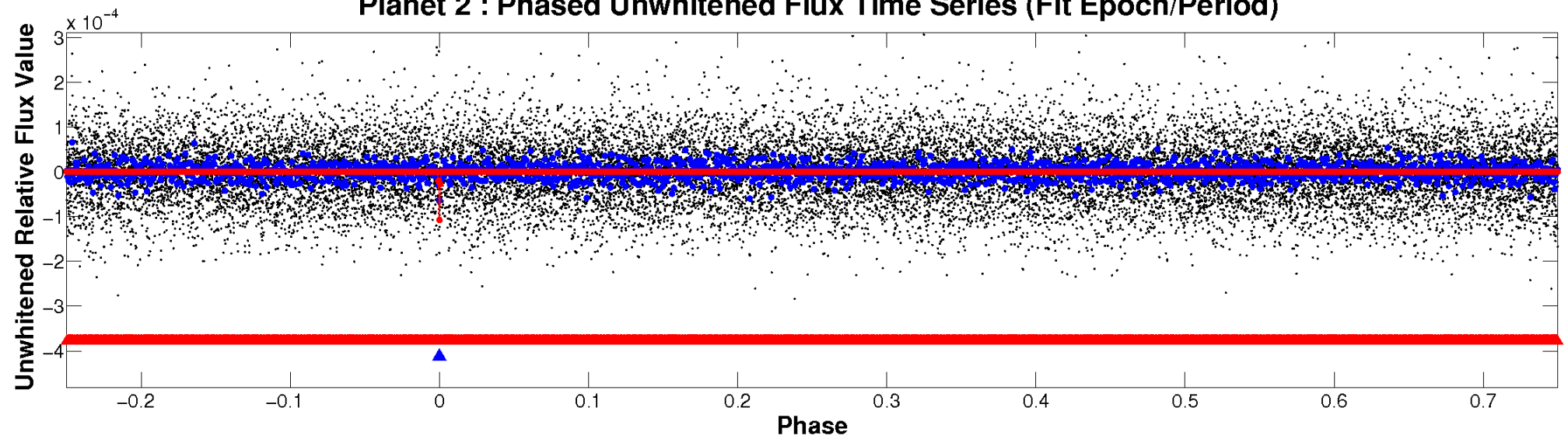
ALT Odd/Even

TCE 005906537-02

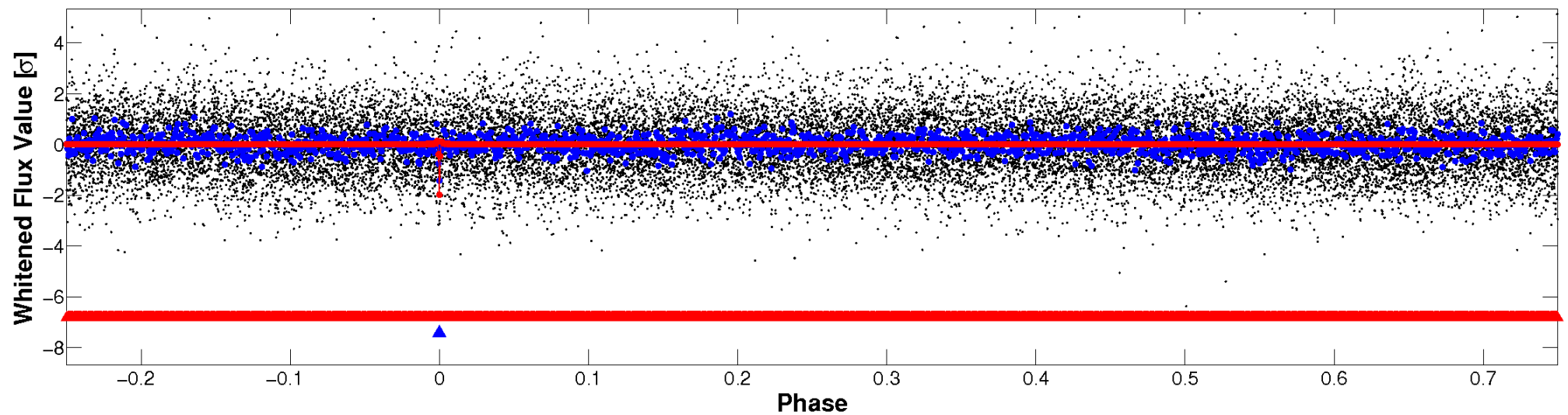


Non-Whitened Vs. Whitened Light Curve

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

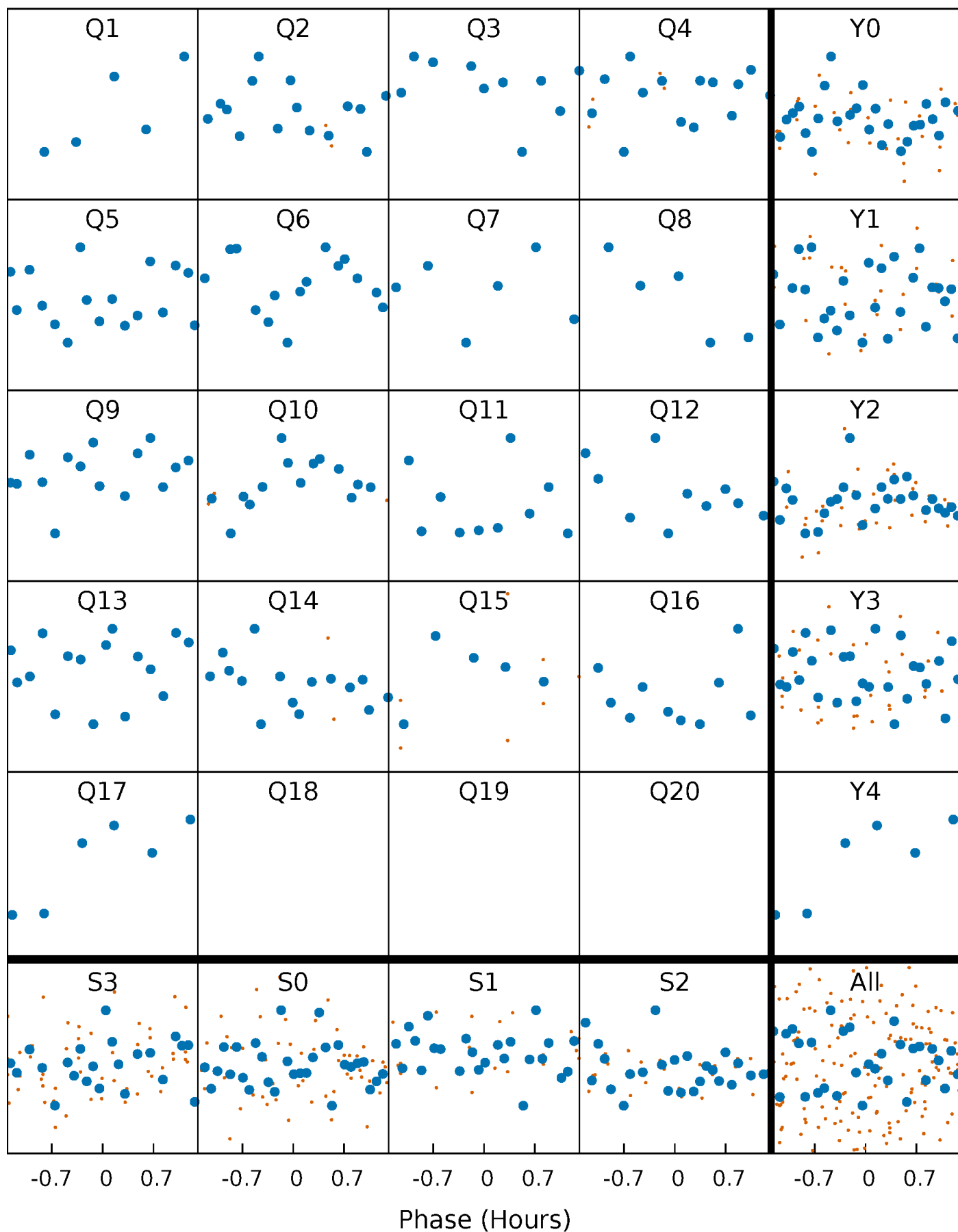


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



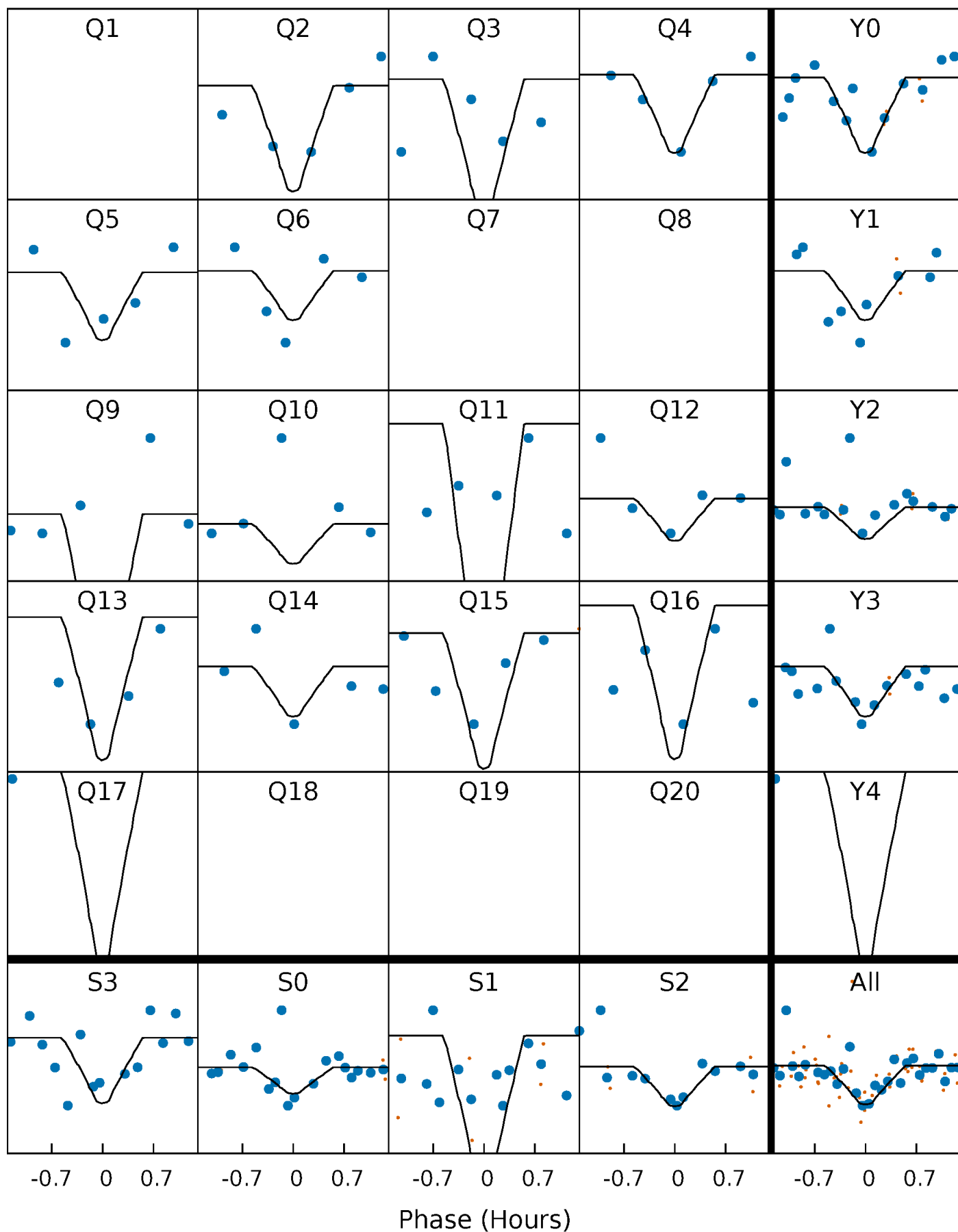
PDC Quarter-Phased Transit Curves

TCE 005906537-02 P= 33.683201 Days $T_0=155.496386$ (BKJD)



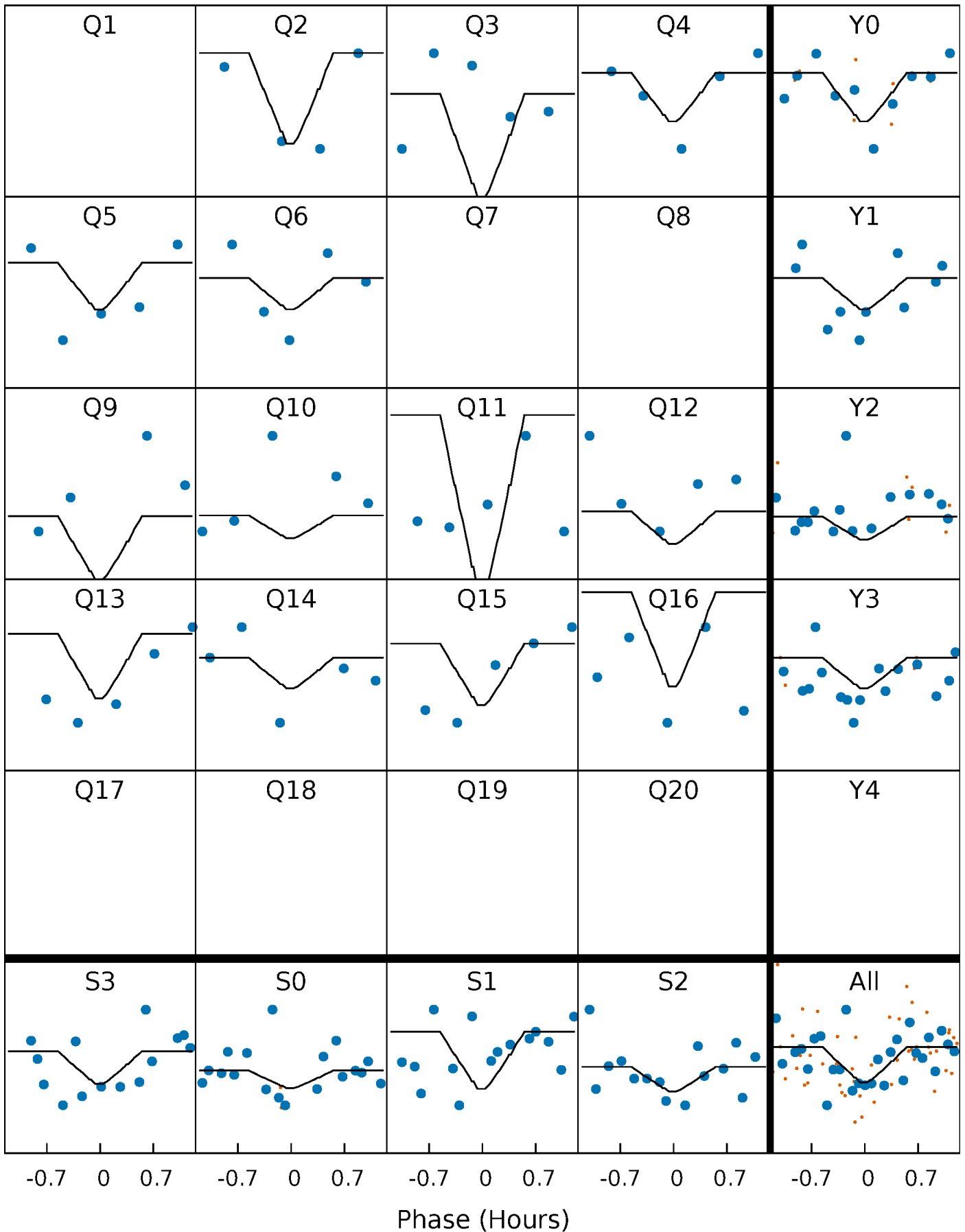
DV Quarter-Phased Transit Curves

TCE 005906537-02 P= 33.683201 Days $T_0=155.496386$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

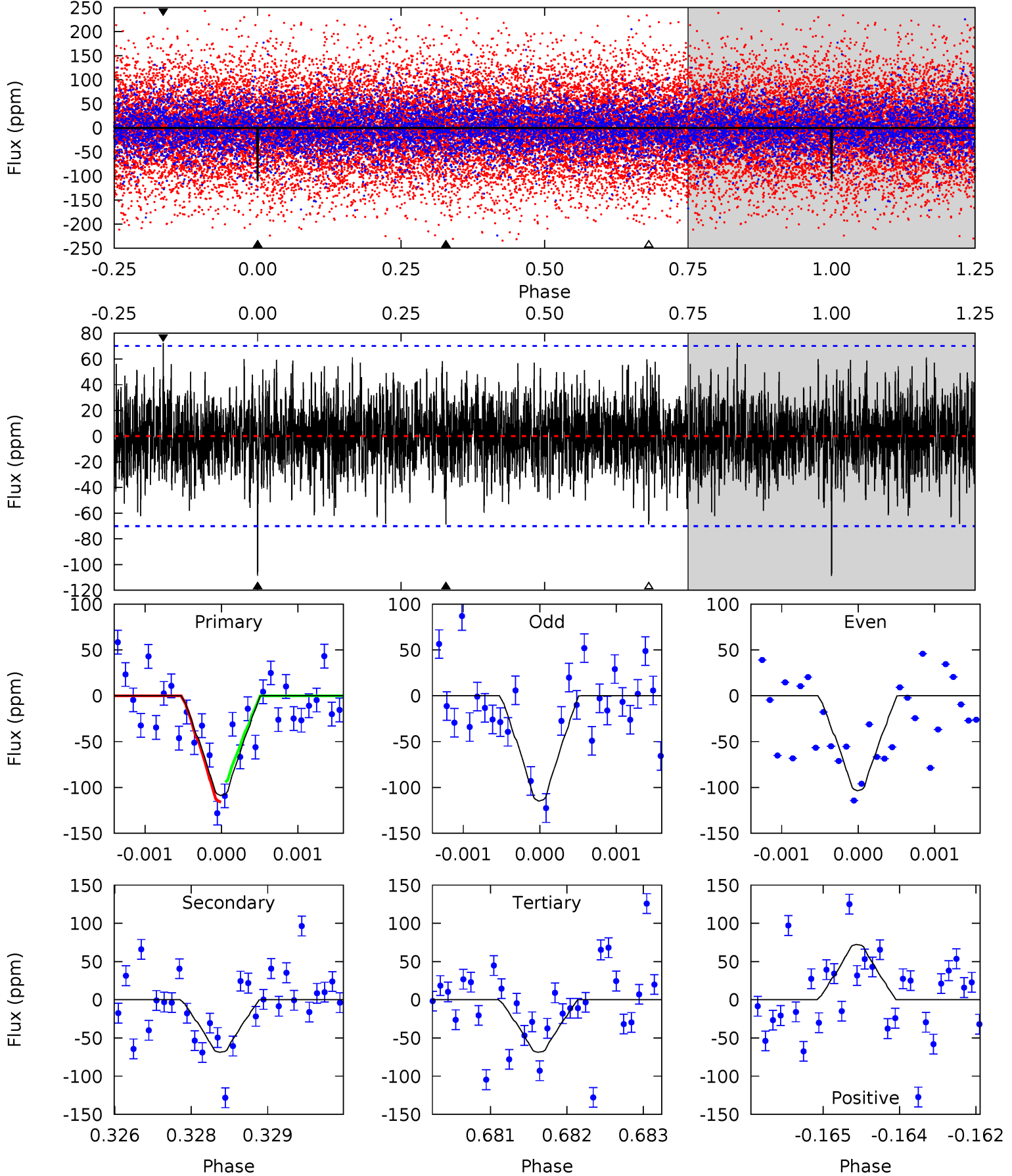
TCE 005906537-02 P= 33.683477 Days $T_0=155.491819$ (BKJD)



DV Model-Shift Uniqueness Test

005906537-02, $P = 33.683201$ Days, $E = 121.813185$ Days

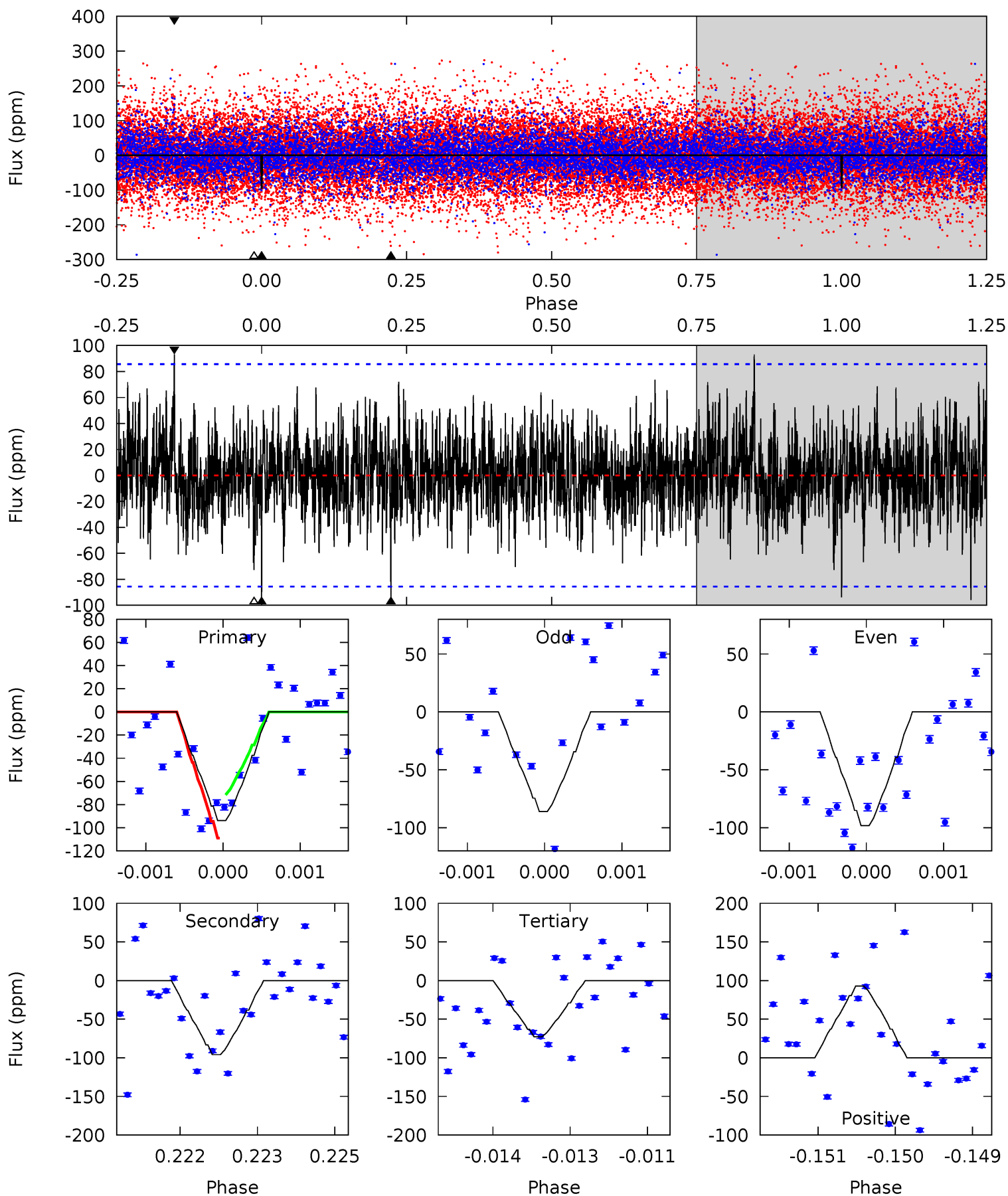
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.38	5.29	5.29	5.57	5.40	3.21	1.53	3.09	2.80	0.00	-0.28	0.43	1.04	0.40	0.83



Alt Model-Shift Uniqueness Test

005906537-02, $P = 33.683477$ Days, $E = 121.808342$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.94	6.08	4.60	5.89	5.43	3.25	1.43	1.34	0.05	1.47	0.19	0.39	0.82	0.49	1.18



Stellar Parameters For KIC 005906537

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5893^{+159}_{-159}	$4.035^{+0.259}_{-0.111}$	$0.100^{+0.250}_{-0.250}$	$1.696^{+0.339}_{-0.509}$	$1.135^{+0.168}_{-0.168}$	$0.328^{+0.528}_{-0.111}$
	+3%/-3%	+6%/-3%	+250%/-250%	+20%/-30%	+15%/-15%	+161%/-34%
Source	PHO1	FLK73	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 005906537-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-69 ± 13	$2.48^{+2.07}_{-1.49}$	1013^{+59}_{-82}	4670^{+2455}_{-914}	288^{+1386}_{-208}
Alt.	-96 ± 16	$2.23^{+2.16}_{-1.56}$	1011^{+62}_{-79}	5202^{+4923}_{-1125}	483^{+4545}_{-359}

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

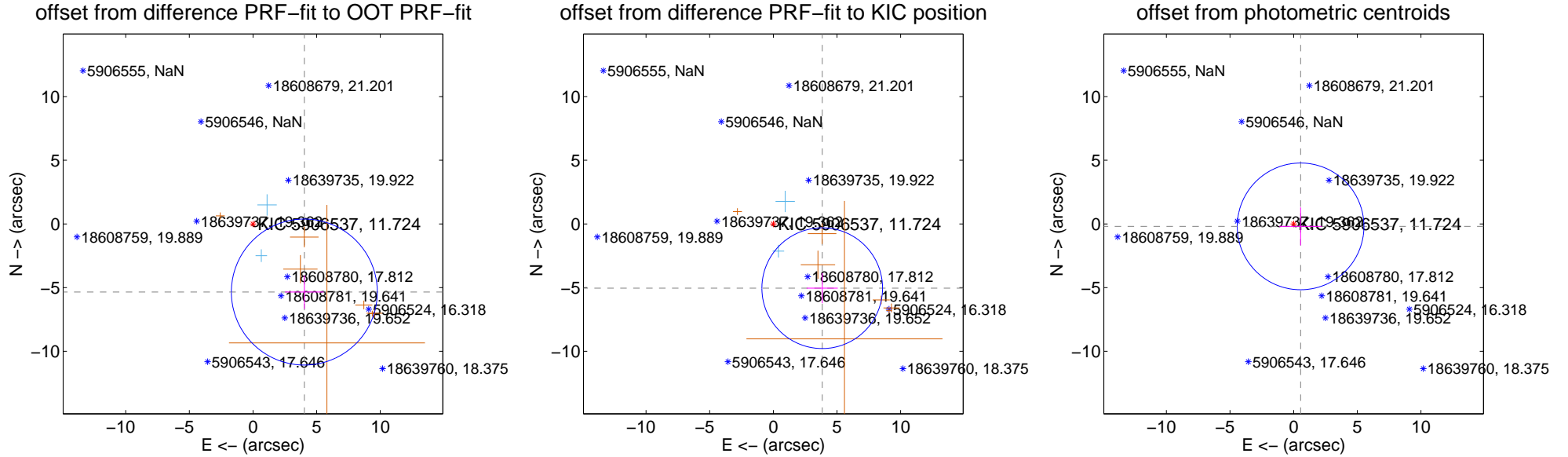
DV Centroid Data

Supplemental centroid analysis for 005906537-02. **Kepler magnitude: 11.72.** Transit SNR 7.72

There are 2 quarters with good PRF difference image offsets

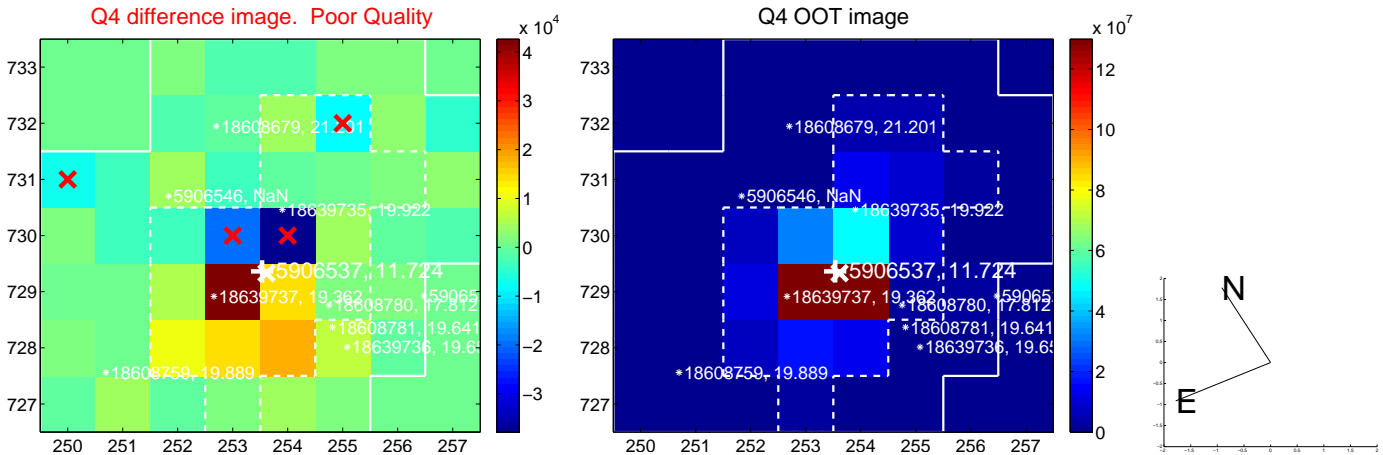
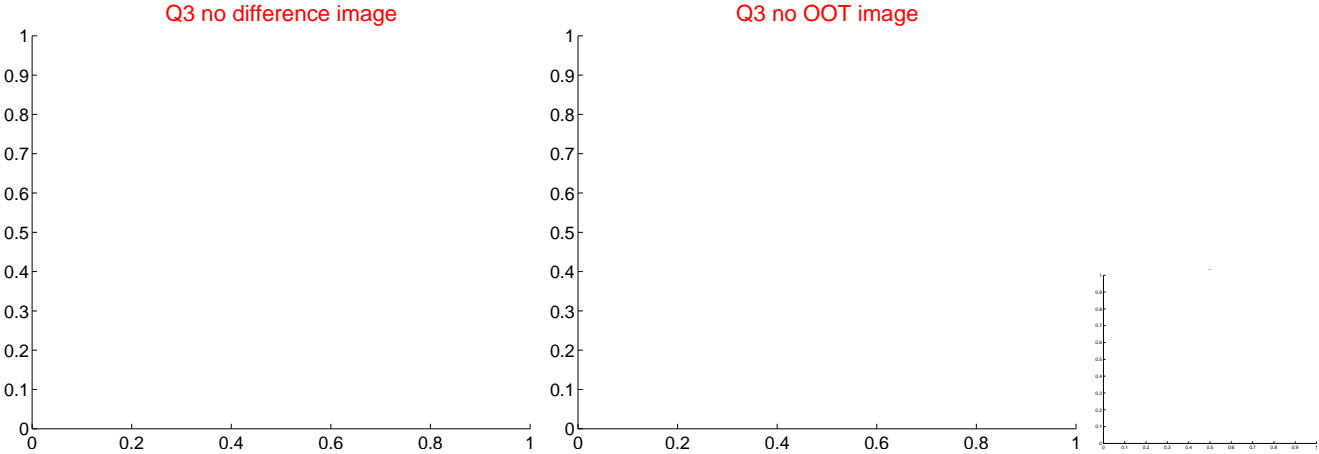
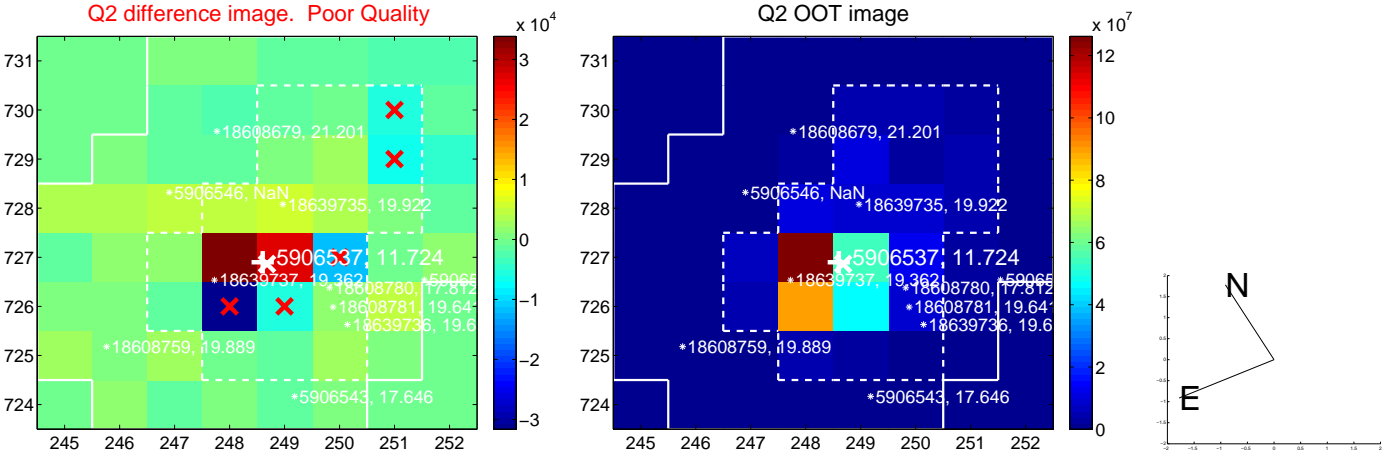
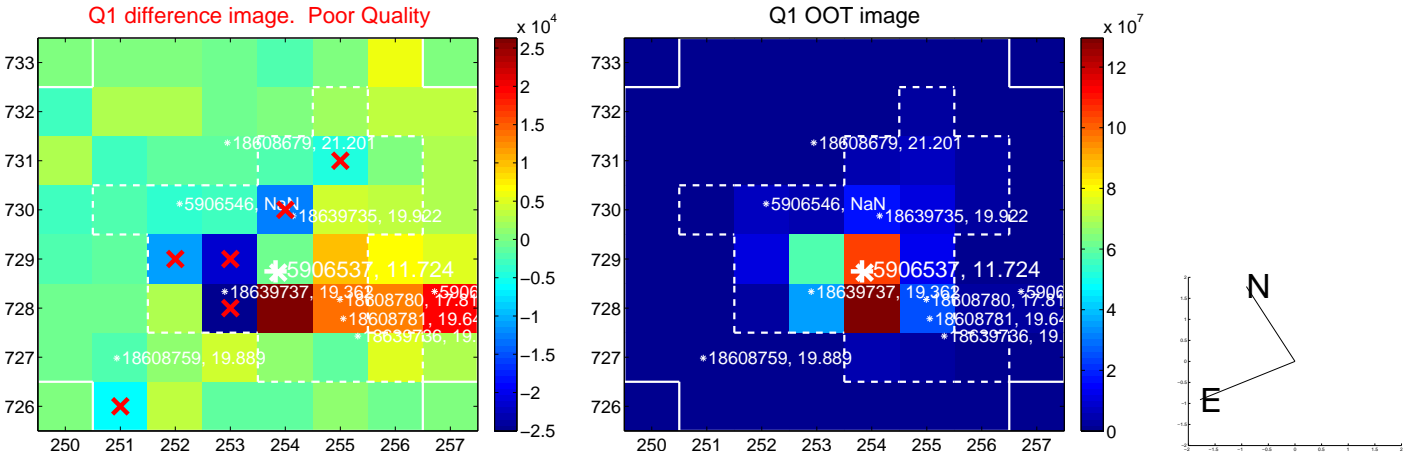
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.697 ± 1.910	3.51	-4.031 ± 1.522	-5.348 ± 1.323
PRF-fit source offset from KIC position	6.339 ± 1.579	4.01	-3.840 ± 1.223	-5.044 ± 1.186
photometric centroid source offset	0.58 ± 1.66	0.35	-0.54 ± 1.68	-0.19 ± 1.49

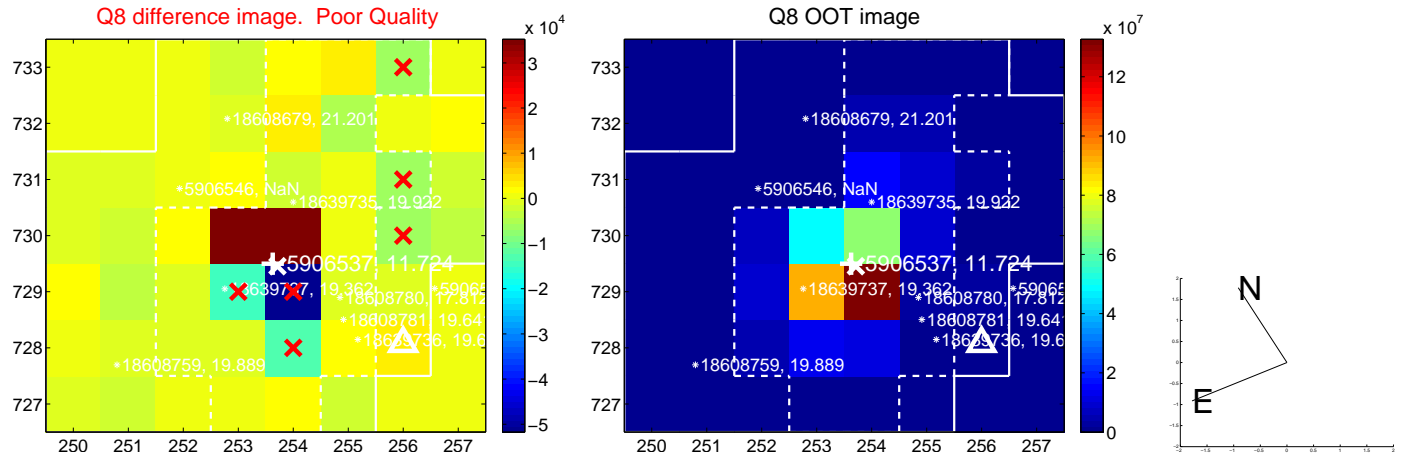
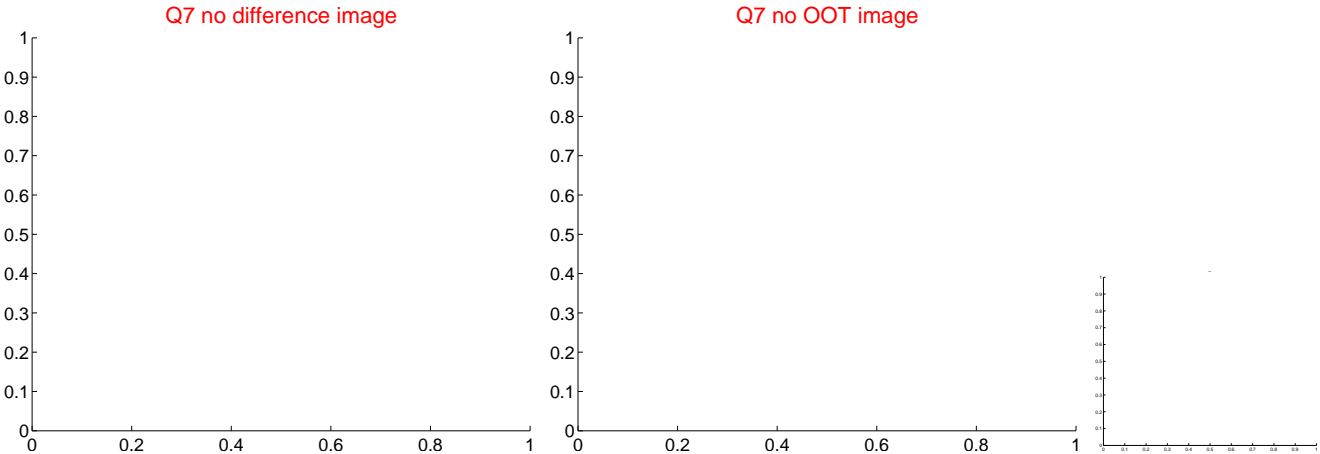
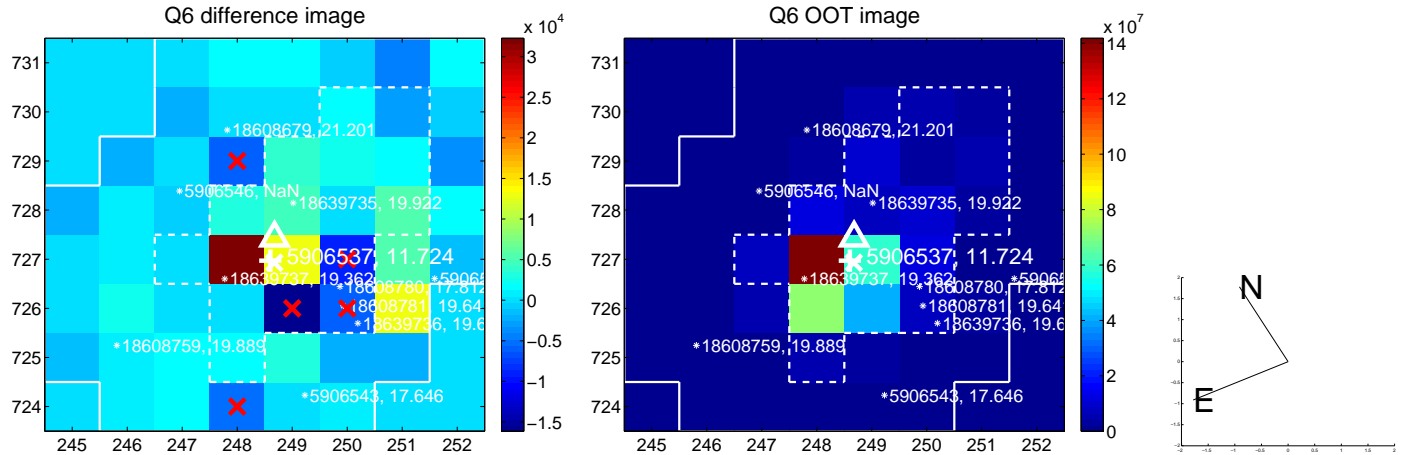
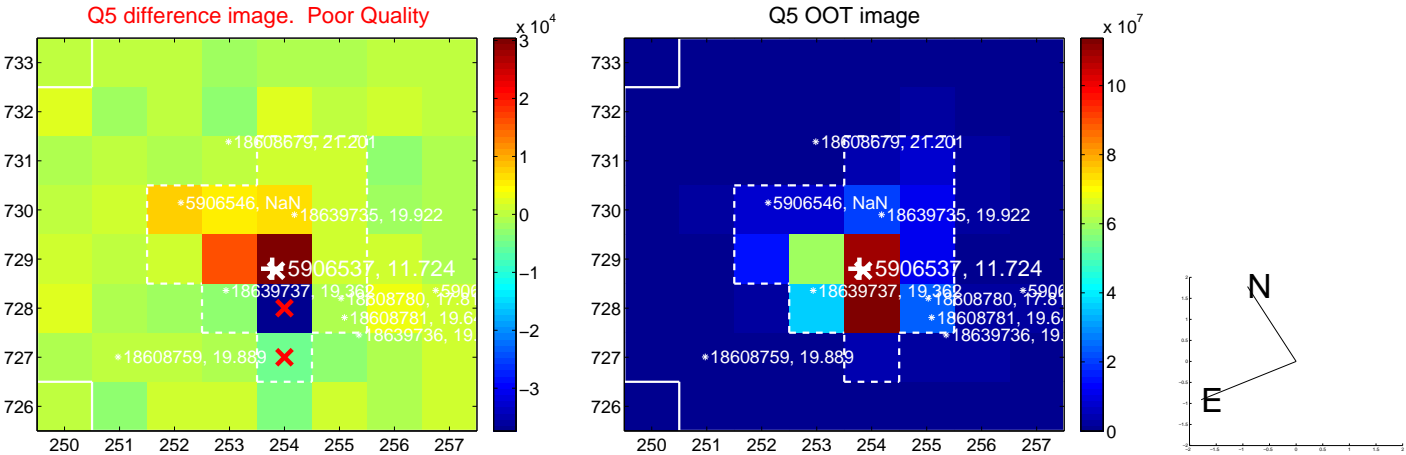


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

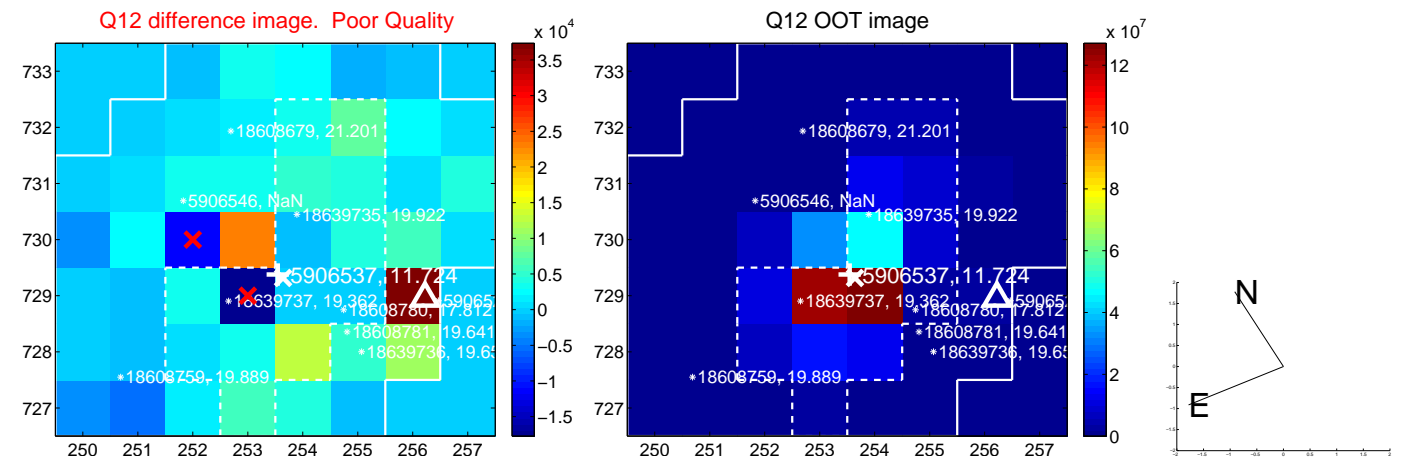
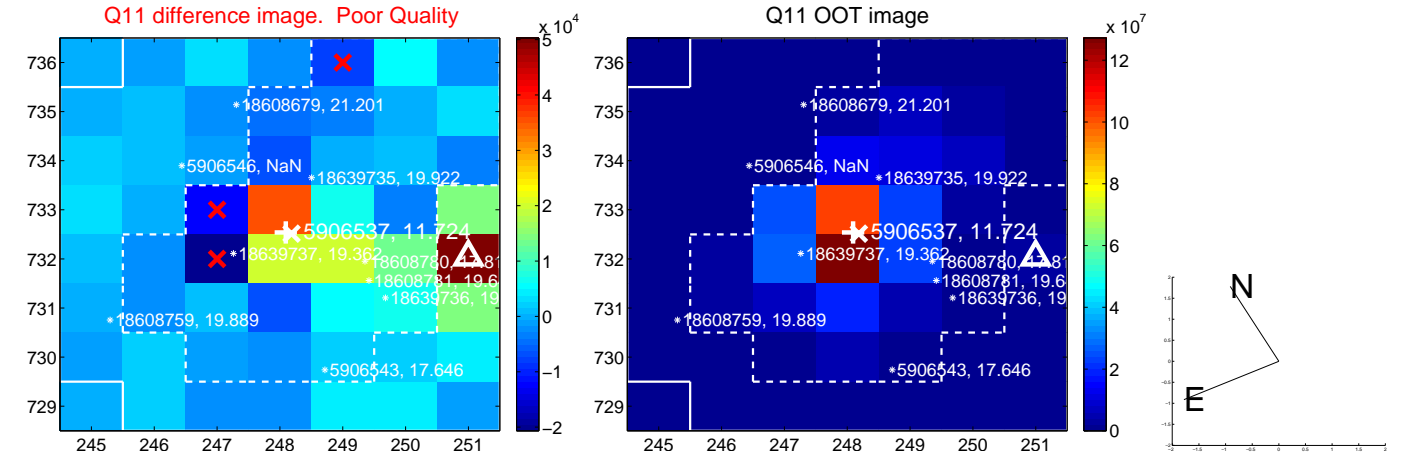
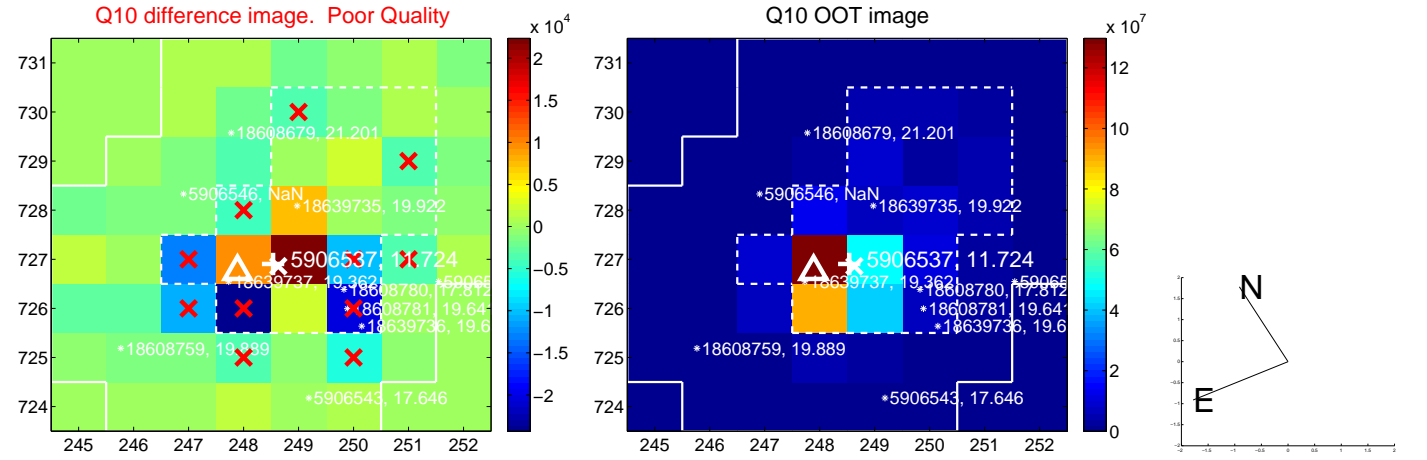
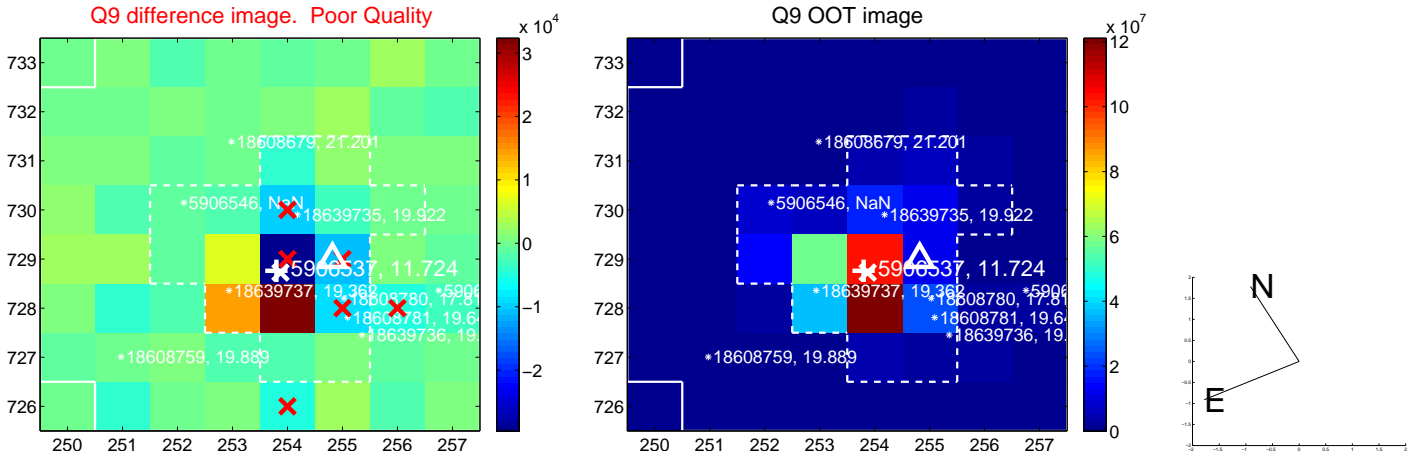
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



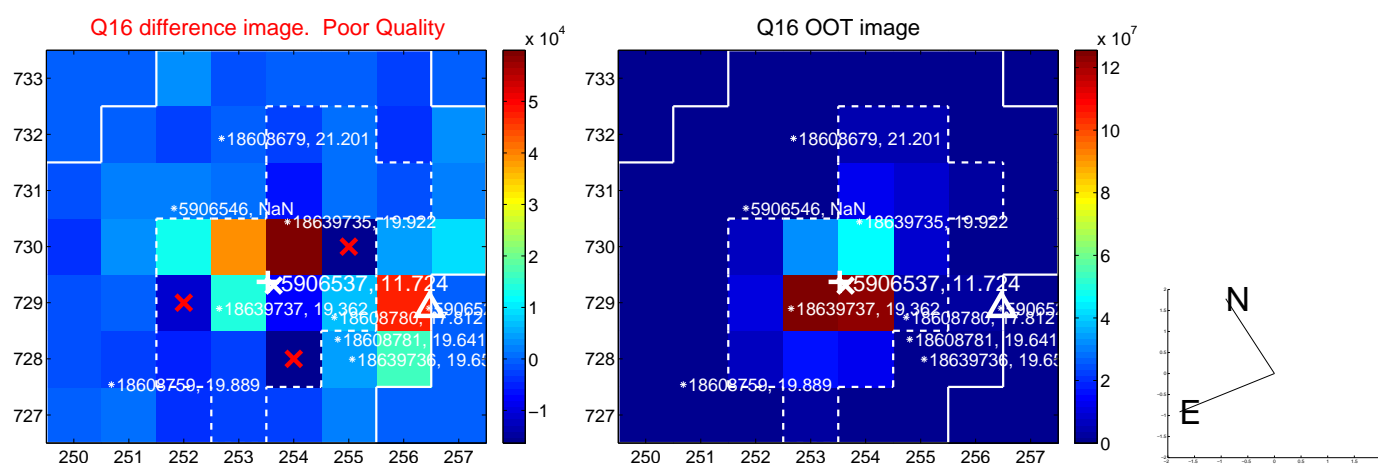
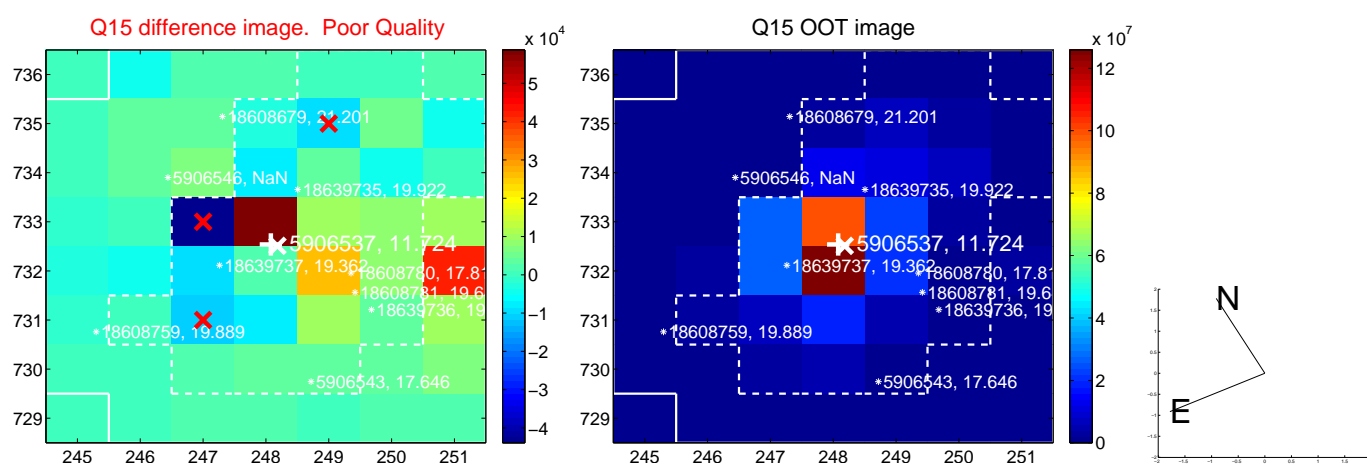
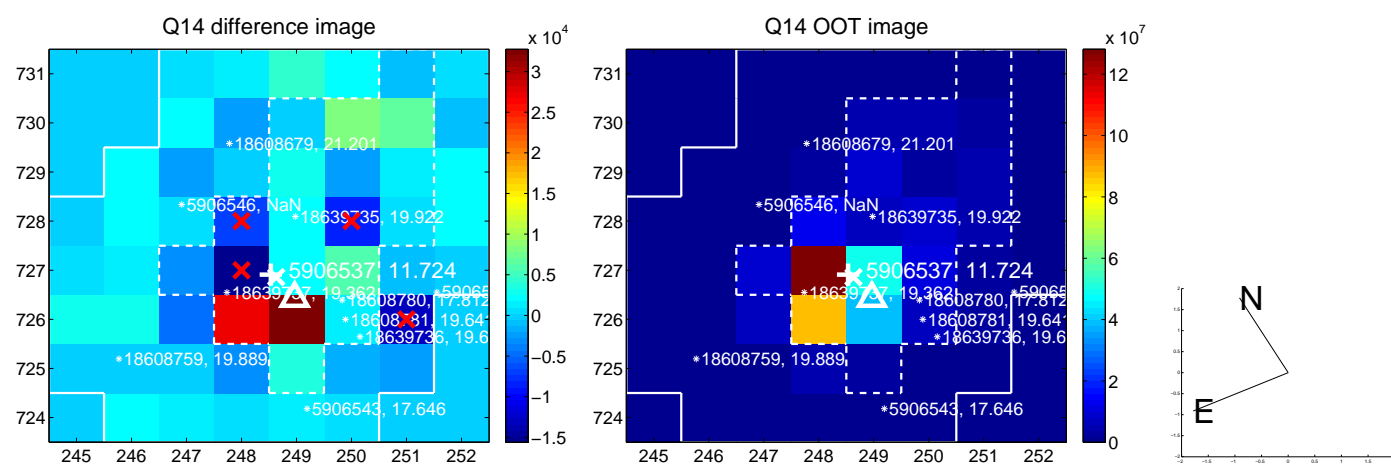
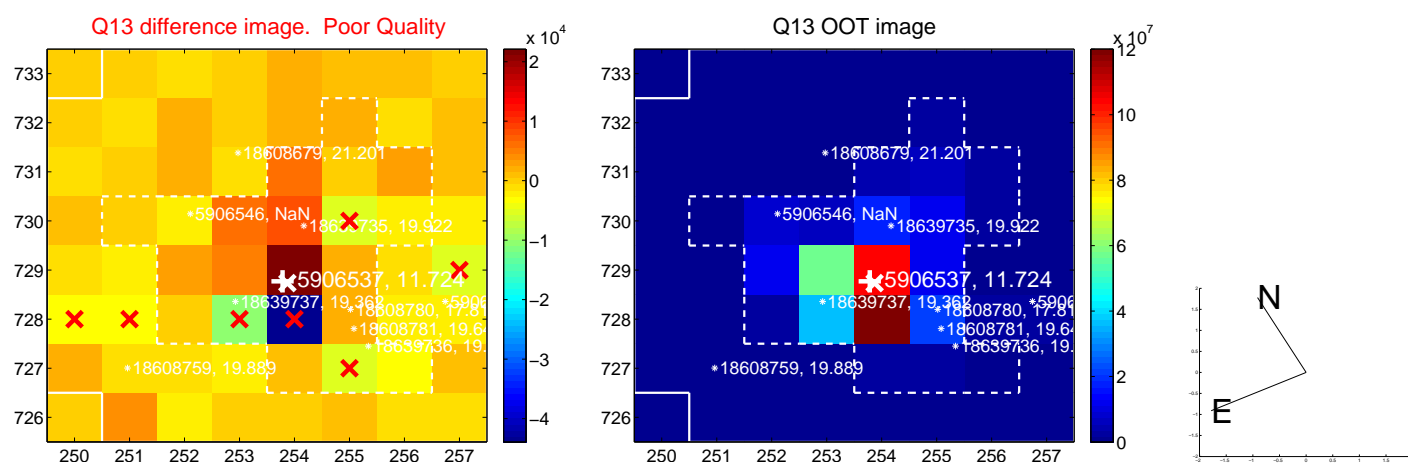
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



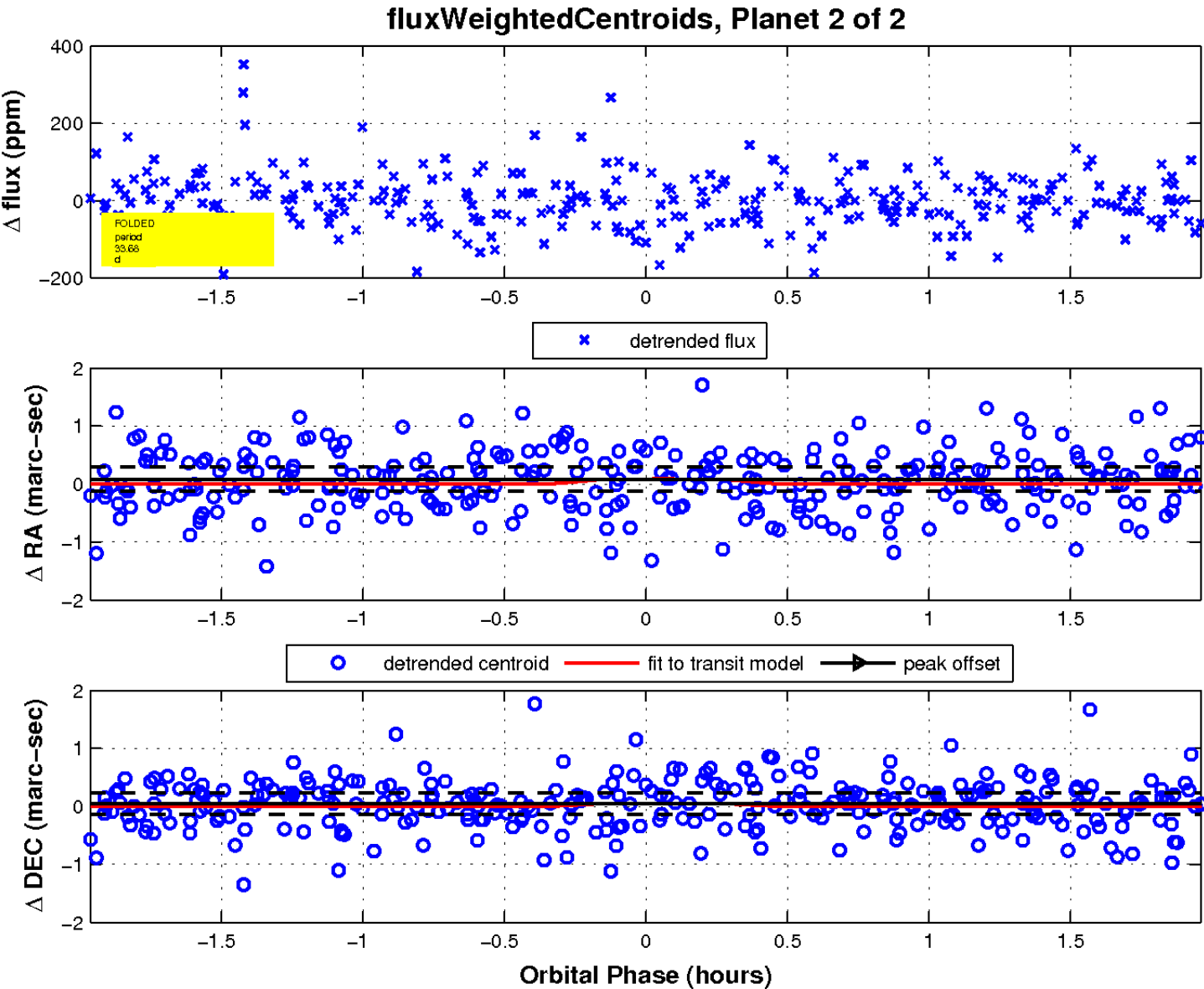
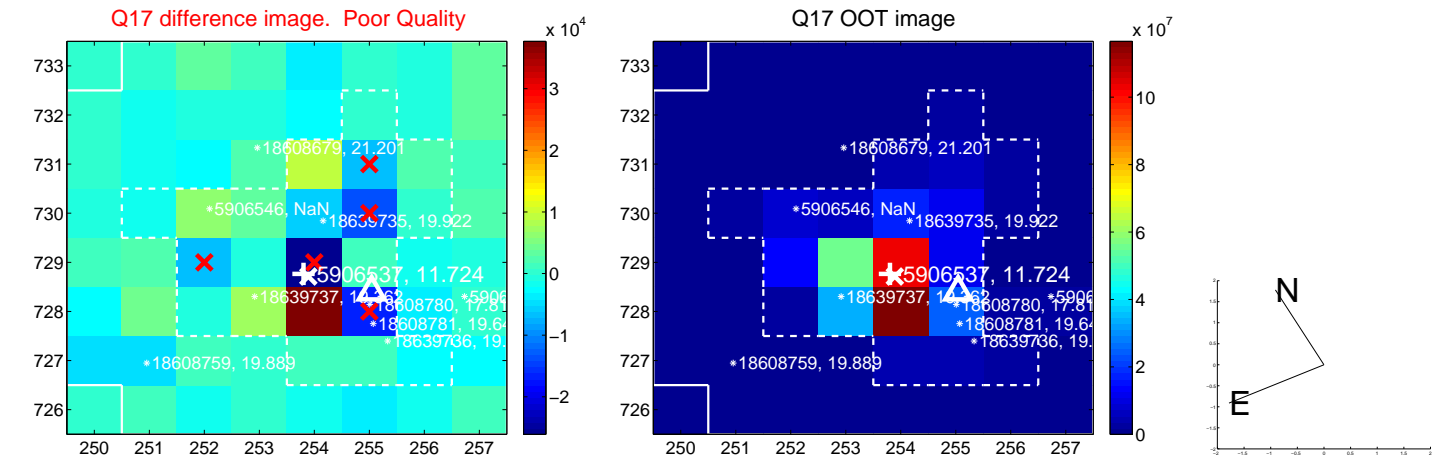
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

