

KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
010789361-03	OBS	No	114.841981	236.133579	492.1	9.756	15.2	11.1	1.53	6463	6.54	16.19
010789361-04	OBS	No	77.529013	180.223336	273.7	9.262	9.0	8.7	1.53	6463	2.72	27.34
010789361-05	OBS	No	99.845787	172.090369	238.2	10.114	9.6	7.4	1.53	6463	2.64	19.52
010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

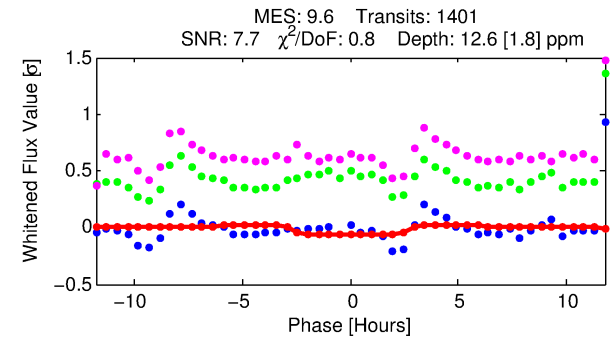
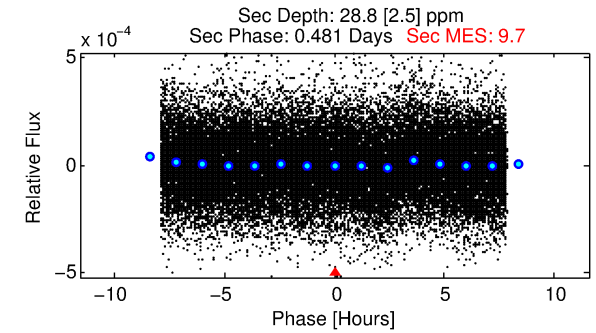
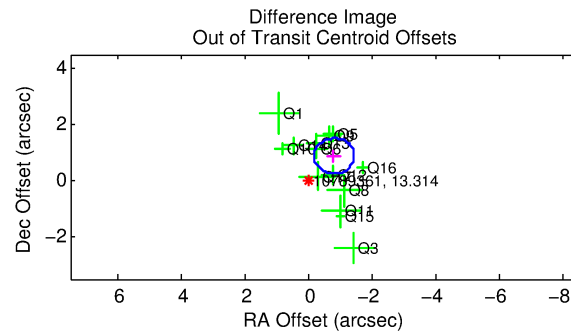
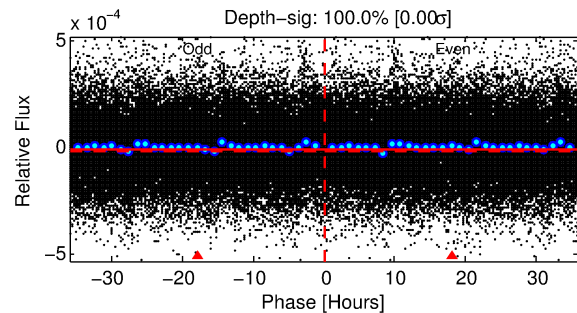
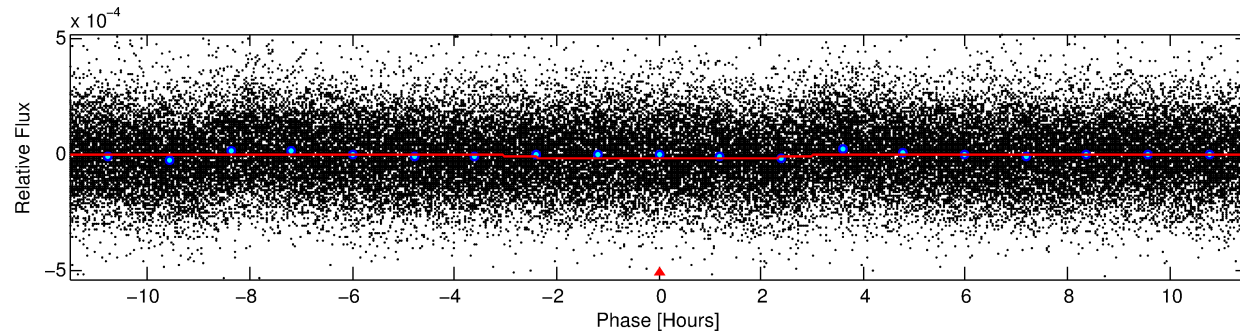
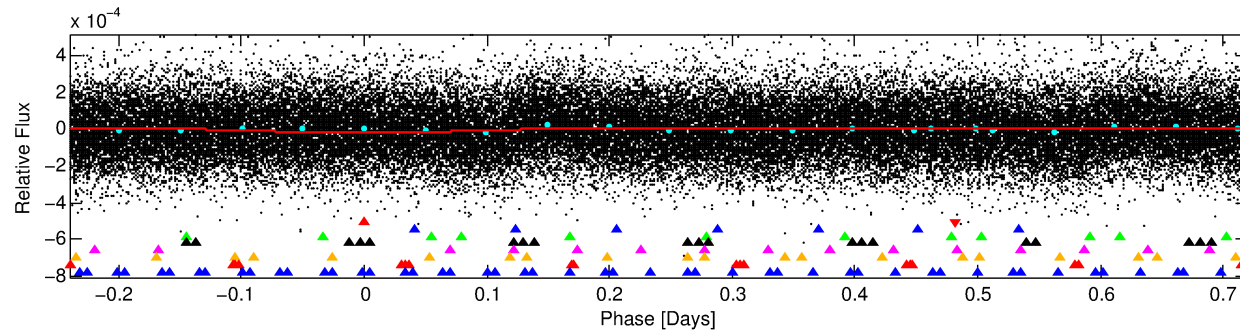
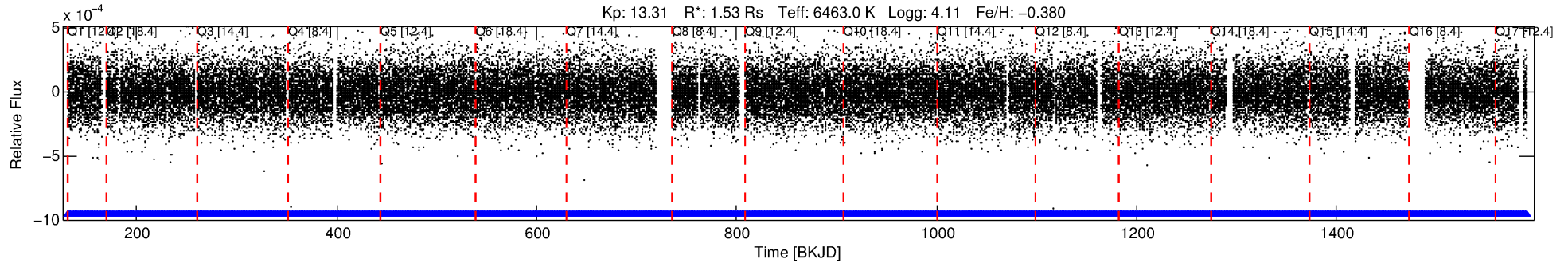
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-01

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 1 of 8 Period: 0.961 d



DV Fit Results:

Period = 0.96055 [0.00002] d
Epoch = 131.9147 [0.0058] BKJD
Rp/R* = 0.0038 [0.0021]
a/R* = 1.09 [0.54]
b = 0.90 [0.68]
Seff = 9537.67 [4681.96]
Teq = 2520 [309] K
Rp = 0.63 [0.39] Re
a = 0.0196 [0.0056] AU
Ag = 15.13 [17.96] [0.79 σ]
Teffp = 7683 [2111] K [2.42 σ]

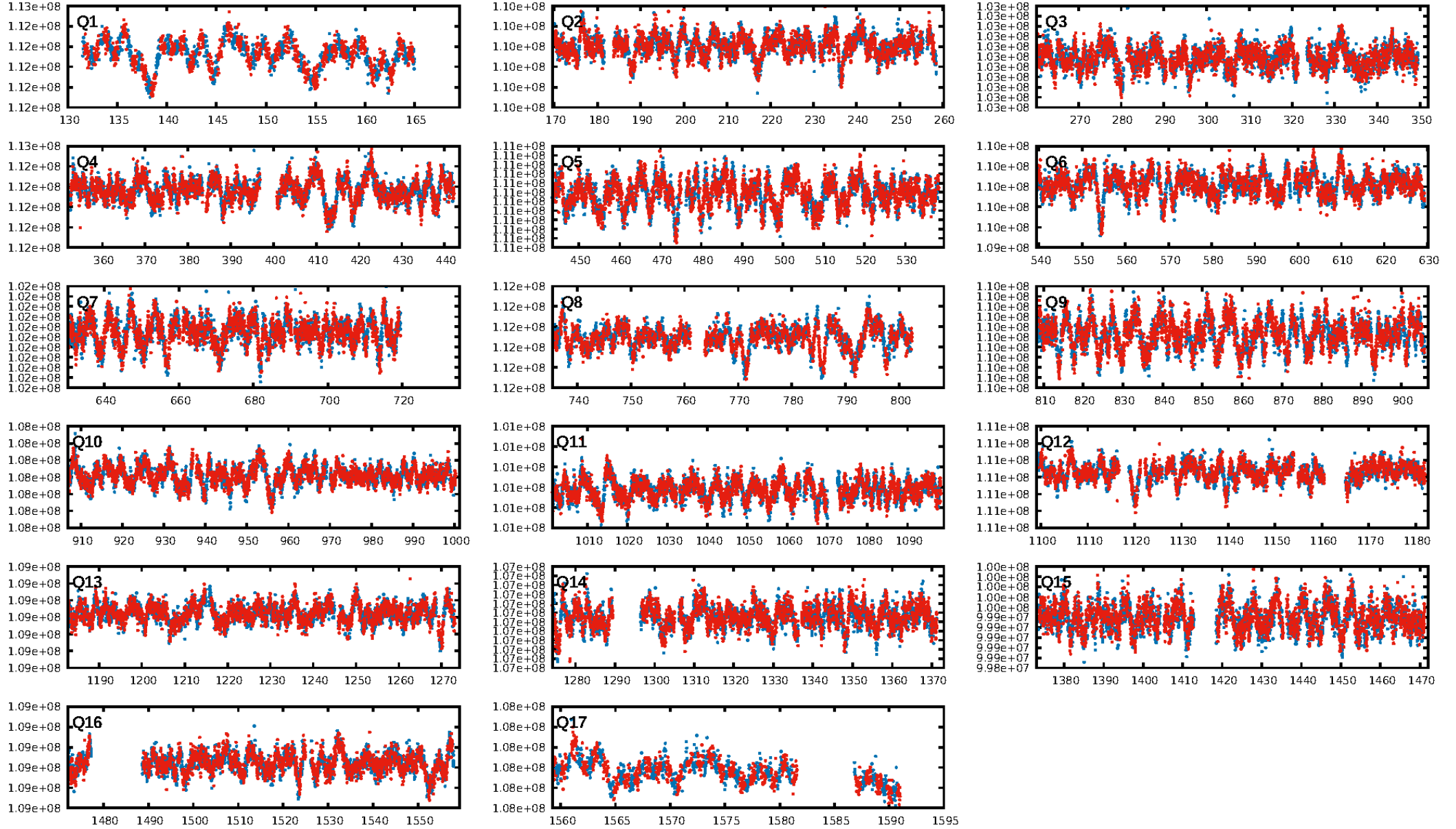
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [88.92 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.54e-17
RollingBand-fgt: 1.00 [1337/1337]
GhostDiagnostic-chr: 1.203
Centroid-sig: 0.1%
Centroid-so: 2.547 arcsec [2.15 σ]
OotOffset-rm: 1.180 arcsec [5.56 σ]
KicOffset-rm: 1.059 arcsec [5.25 σ]
OotOffset-st: 3/3/3/5 [14]
KicOffset-st: 3/3/3/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [17/17]

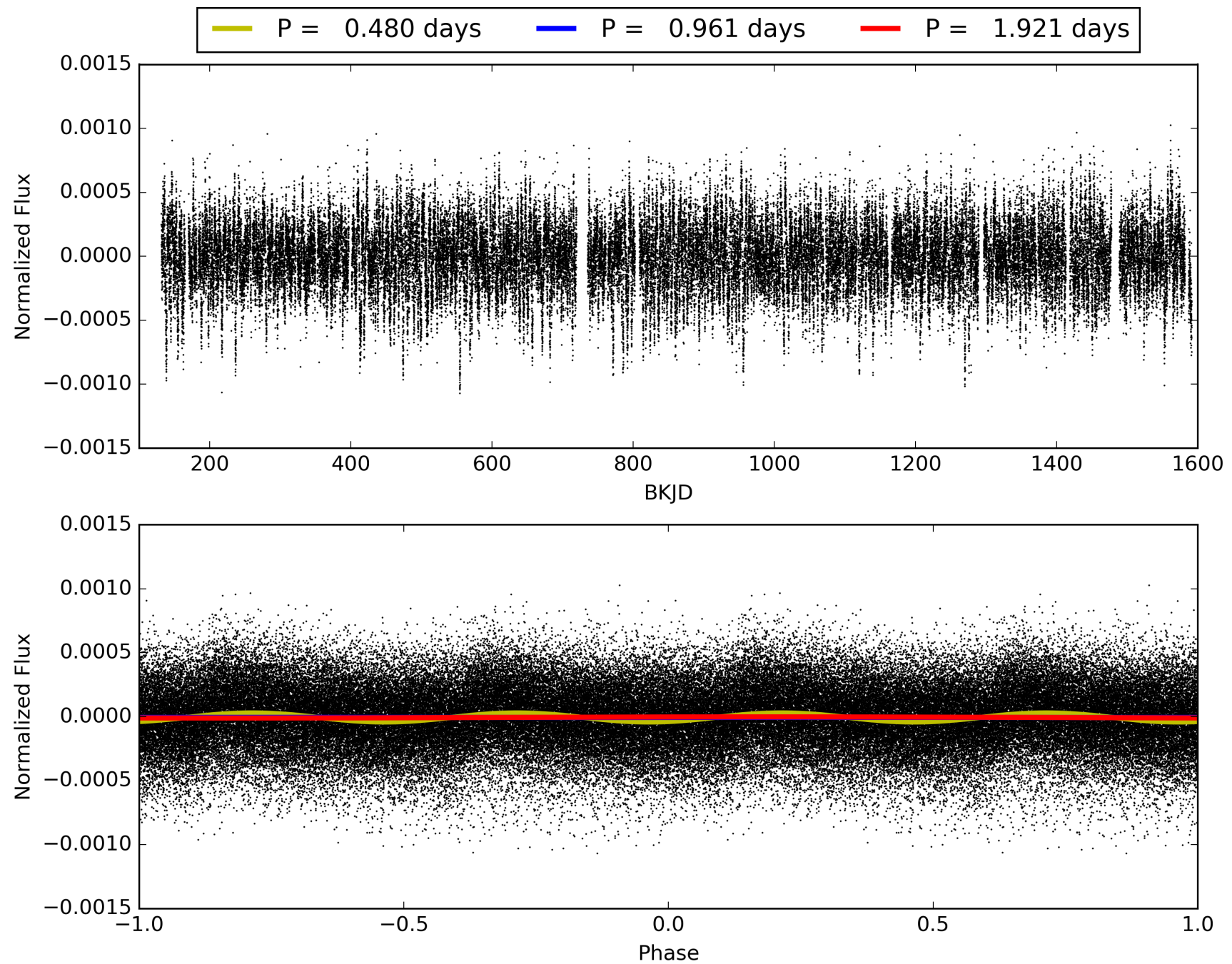
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:17 Z

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

TCE 010789361-01, PDC Light Curves

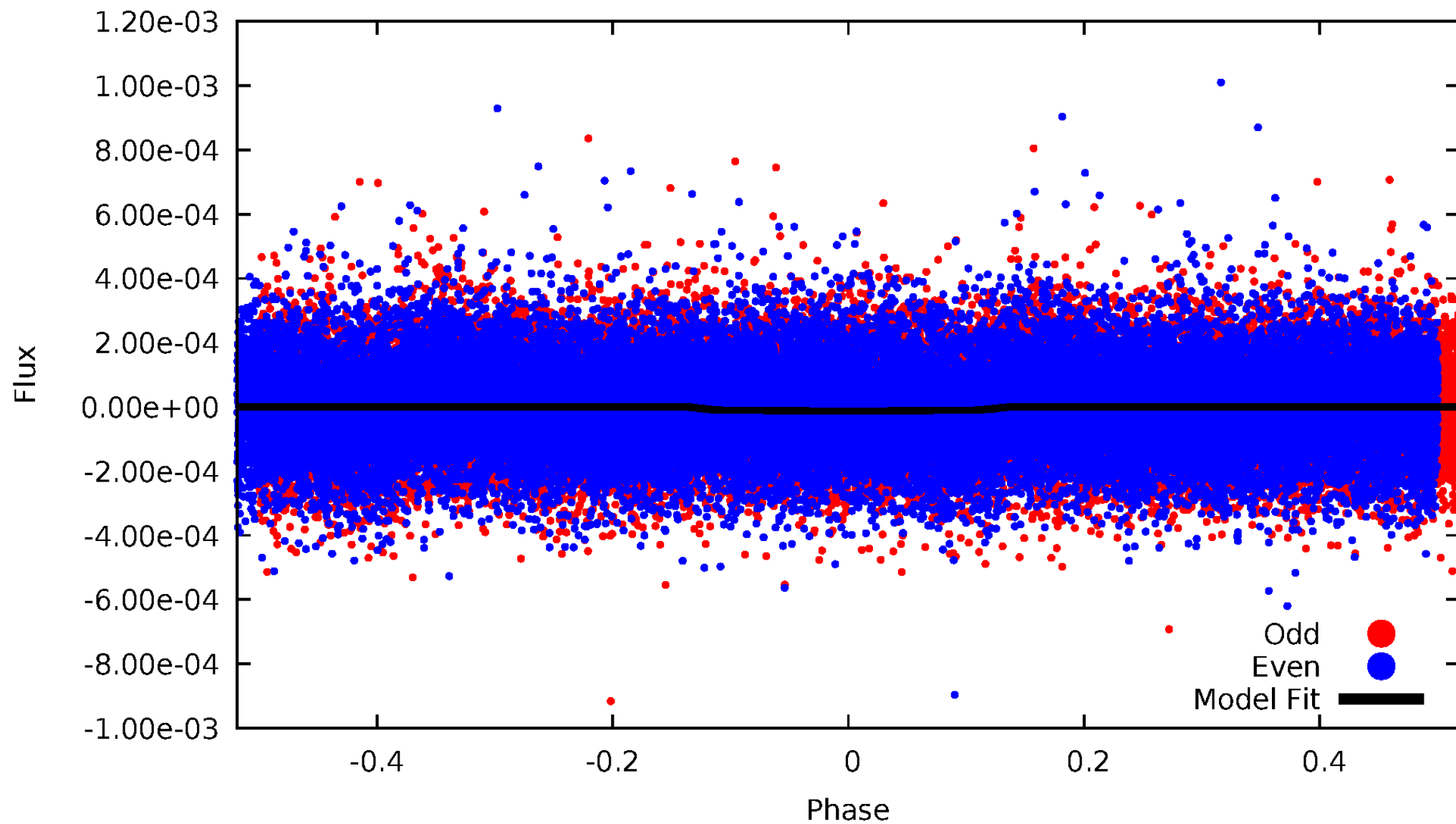


TCE 010789361-01



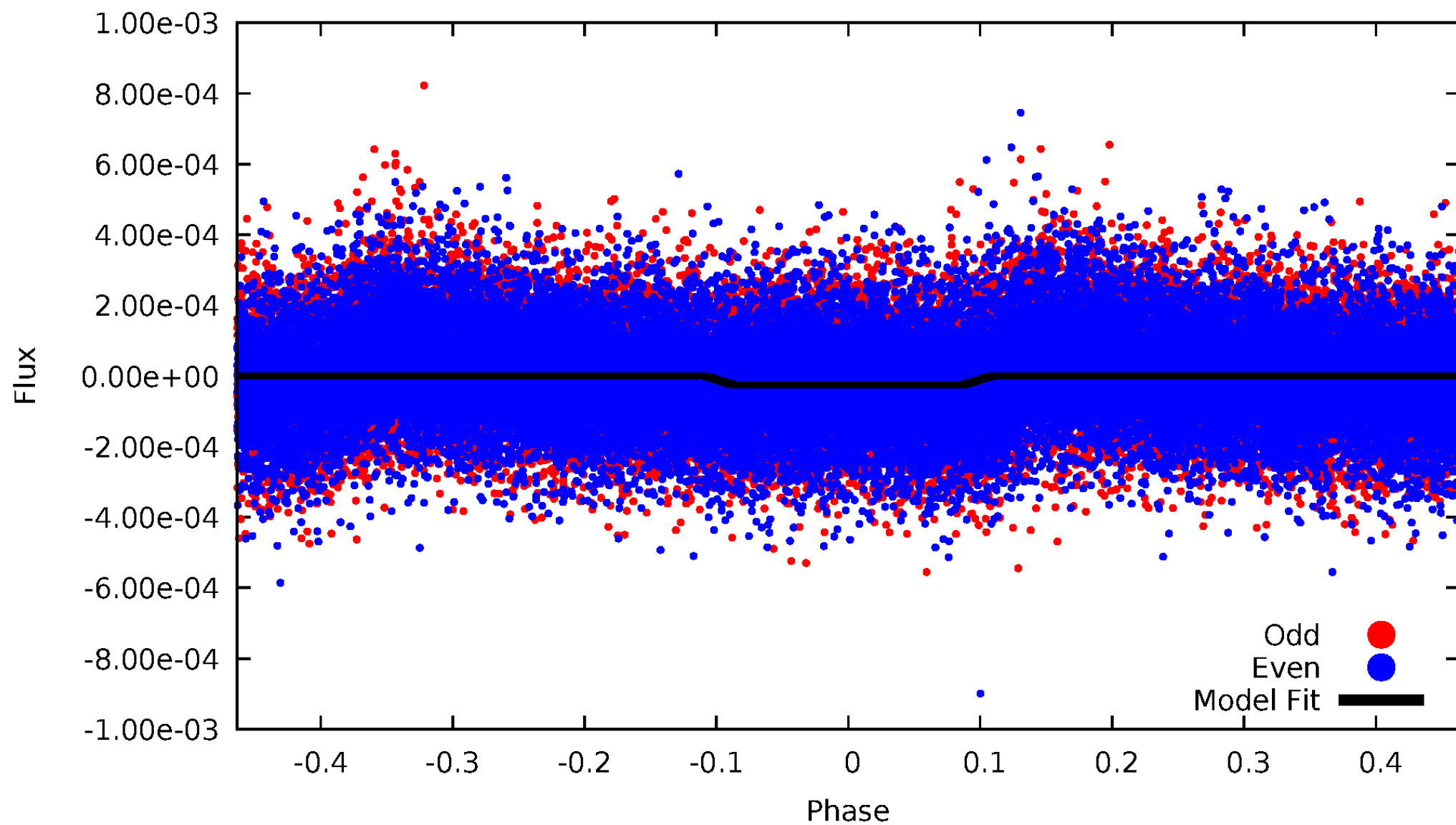
DV Odd/Even

TCE 010789361-01



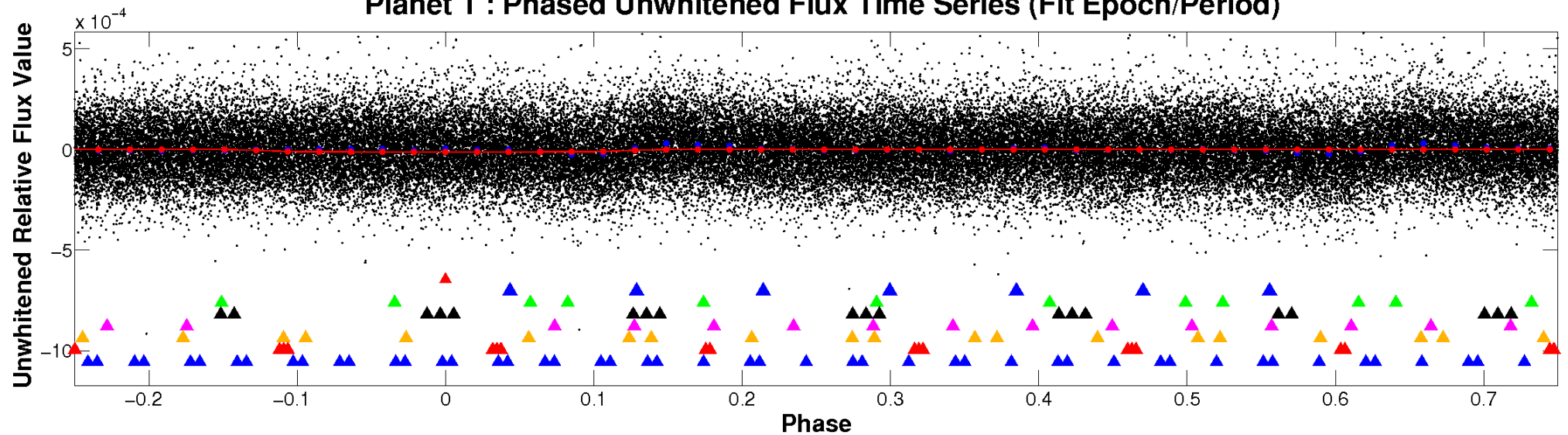
ALT Odd/Even

TCE 010789361-01

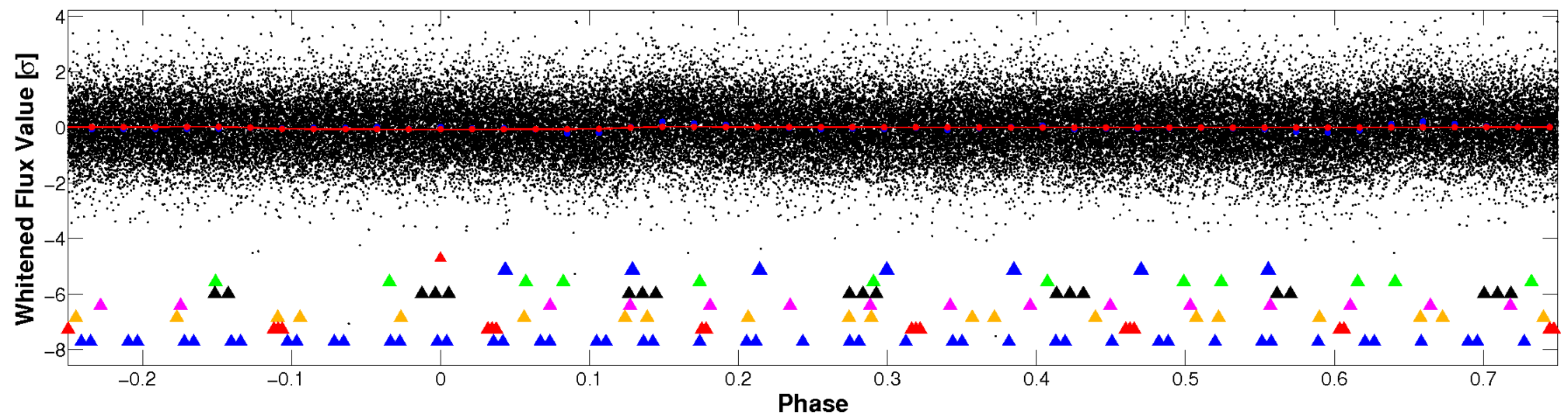


Non-Whitened Vs. Whitened Light Curve

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

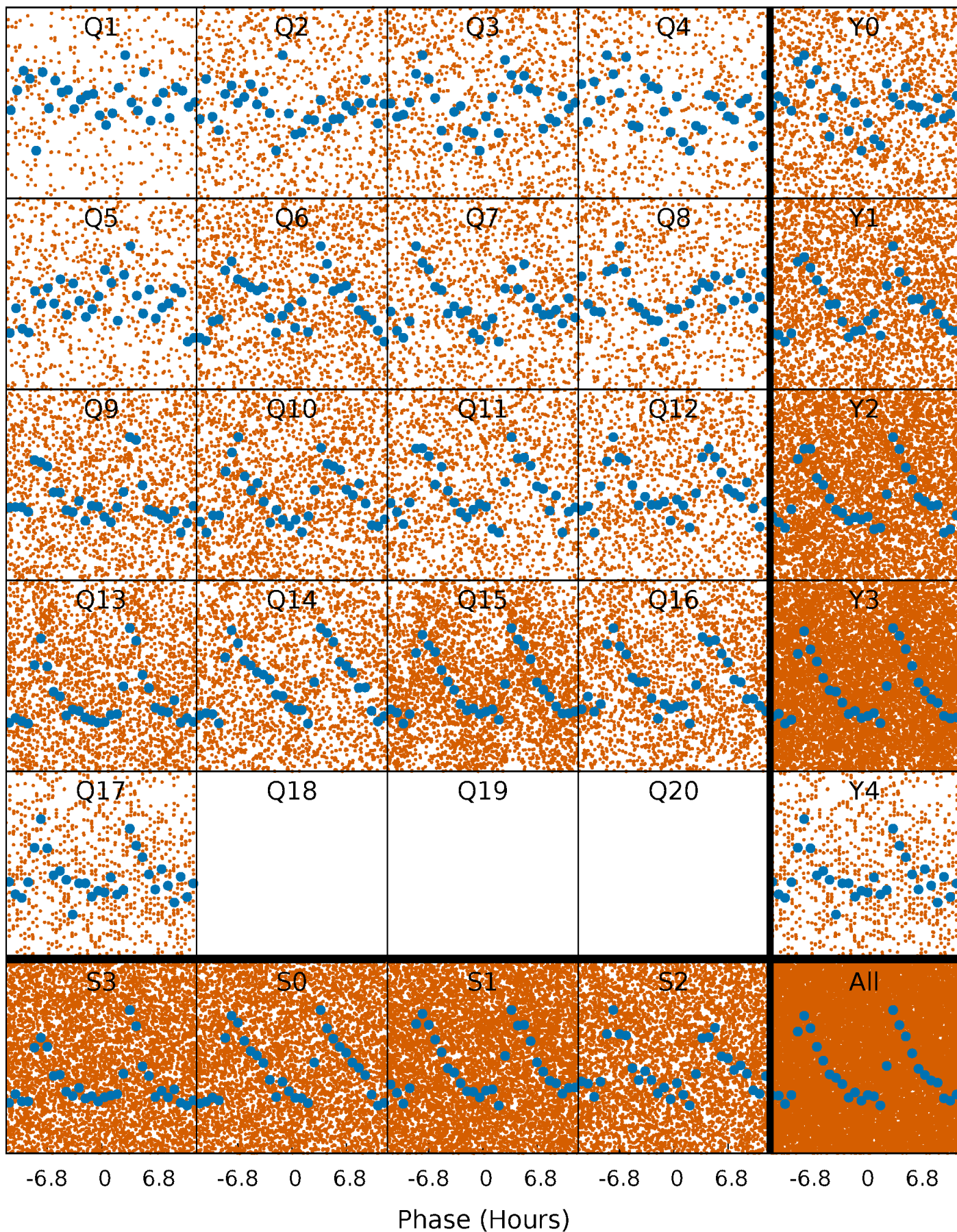


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



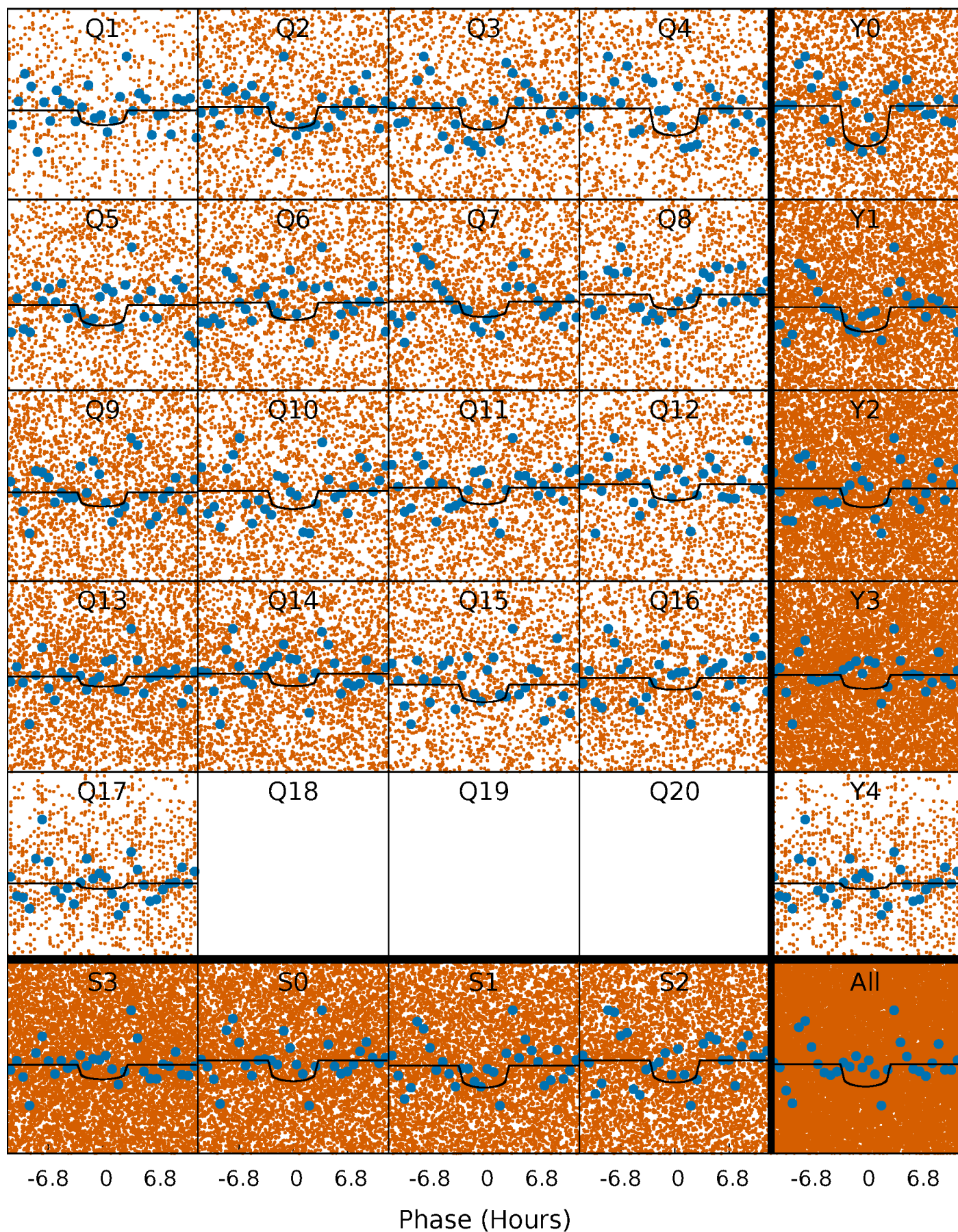
PDC Quarter-Phased Transit Curves

TCE 010789361-01 P= 0.960552 Days $T_0=131.914745$ (BKJD)



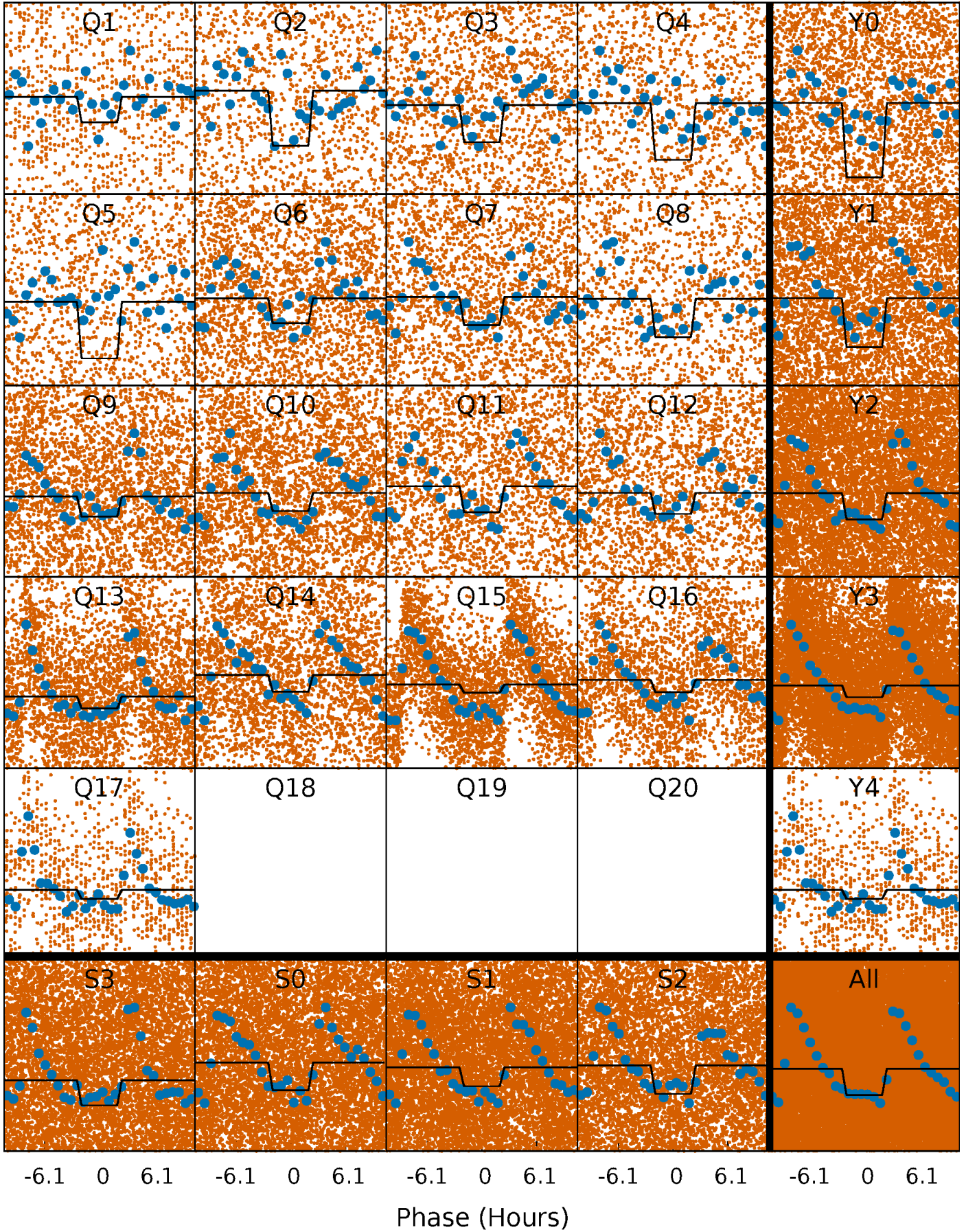
DV Quarter-Phased Transit Curves

TCE 010789361-01 P= 0.960552 Days $T_0=131.914745$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

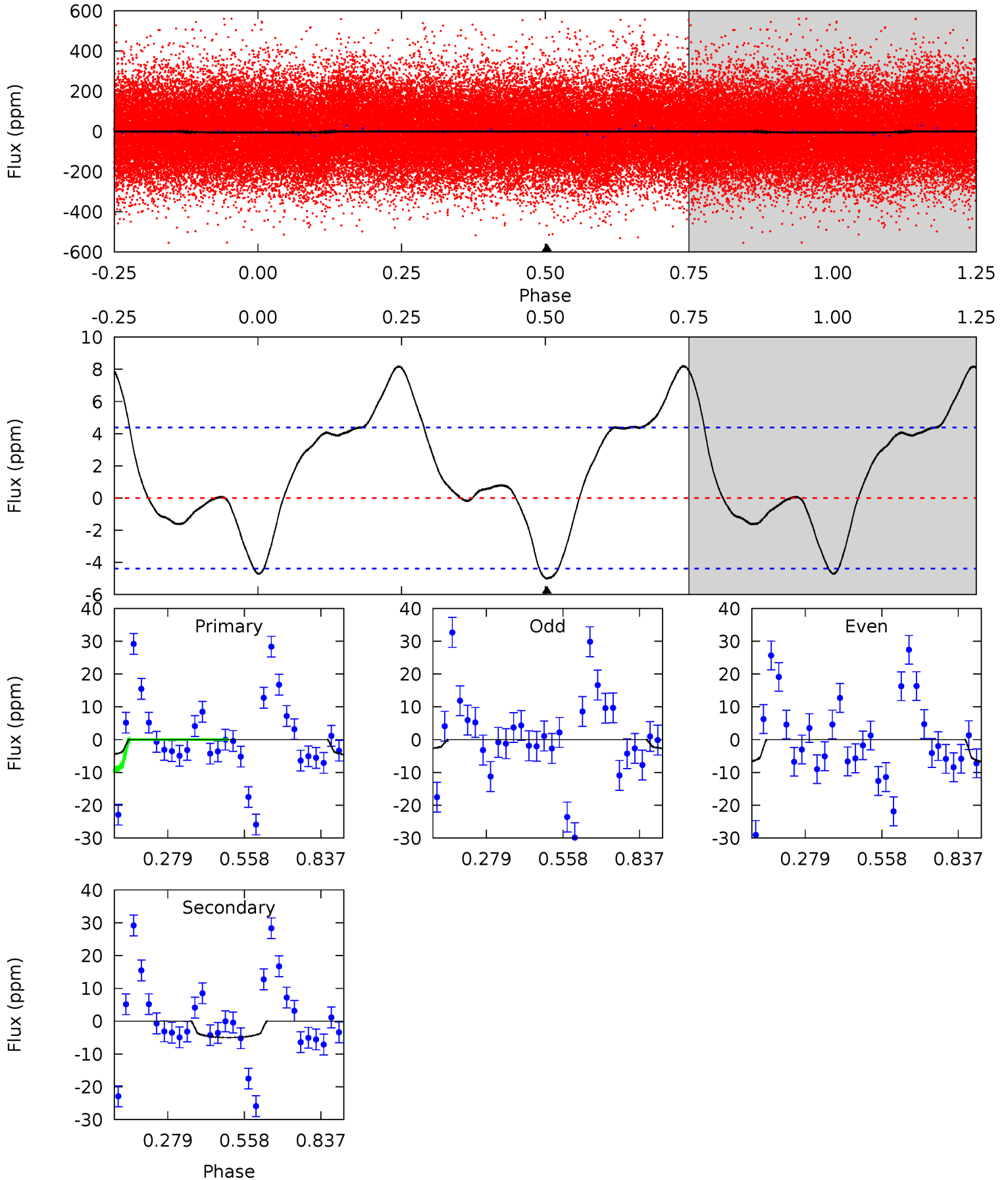
TCE 010789361-01 P= 0.960571 Days $T_0=131.900865$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-01, P = 0.960552 Days, E = 130.954193 Days

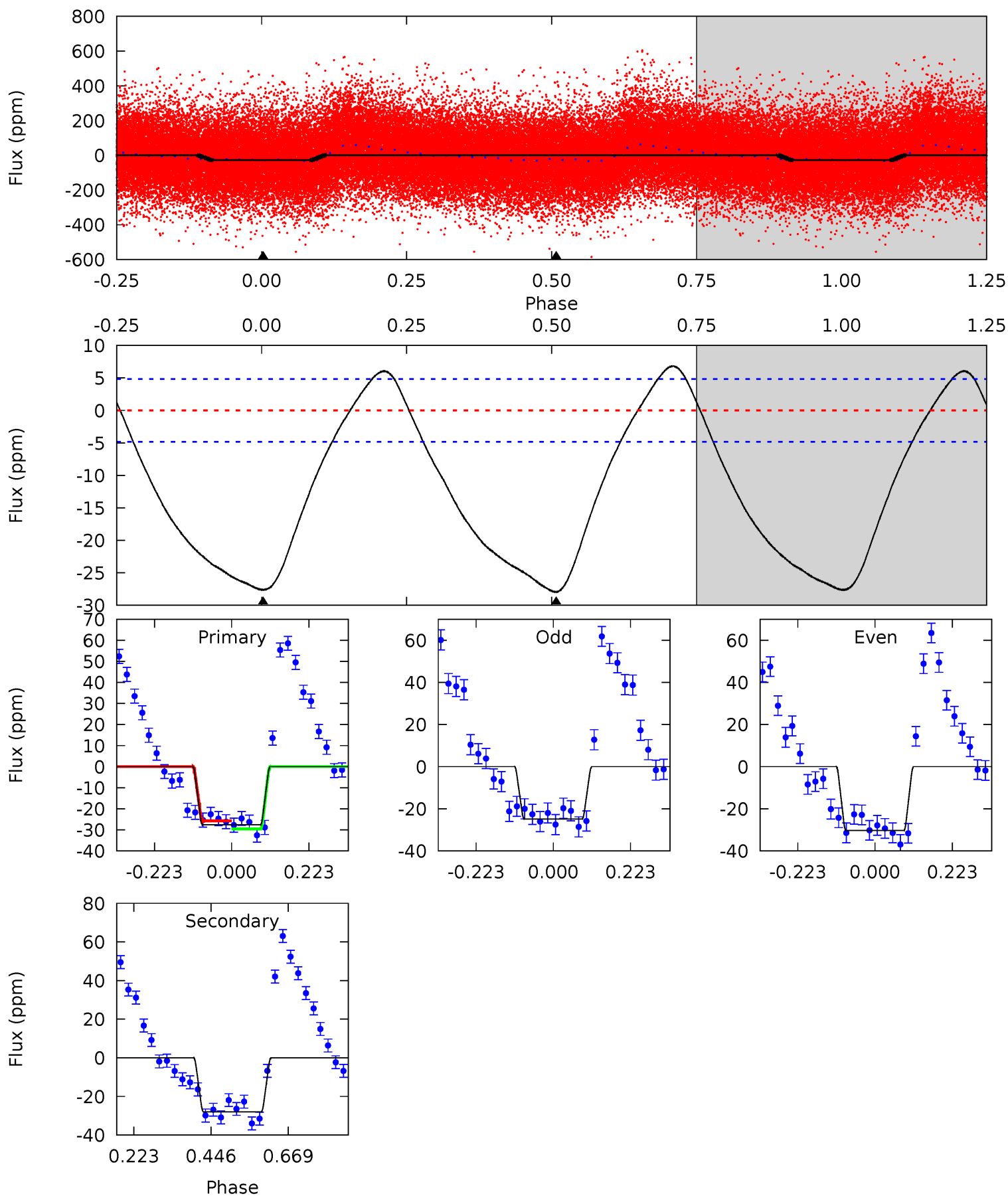
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.95	4.95	0	0	4.34	1.08	2.90	4.95	4.95	4.95	4.95	2.26	0.82	0.62	5.18



Alt Model-Shift Uniqueness Test

010789361-01, P = 0.960571 Days, E = 130.940294 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	25.4	0	0	4.39	1.22	2.87	25.1	25.1	25.4	25.4	2.49	1.11	0.20	1.76



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 1	$0.62^{+0.35}_{-0.32}$	3475^{+263}_{-299}	4881^{+2186}_{-909}	$2.744^{+8.621}_{-1.633}$
Alt.	-28 ± 1	$0.83^{+0.38}_{-0.34}$	3482^{+257}_{-304}	6423^{+2110}_{-990}	$8.450^{+15.733}_{-4.334}$

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 $A_{obs} \gg 1.0$

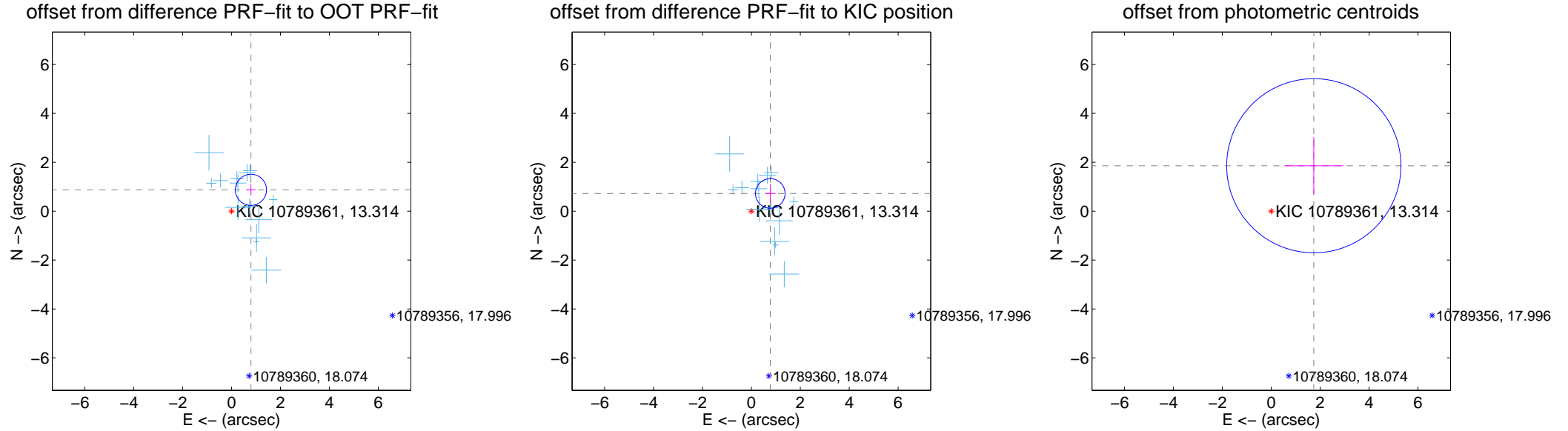
DV Centroid Data

Supplemental centroid analysis for 010789361-01. Kepler magnitude: 13.31. Transit SNR 7.66

There are 14 quarters with good PRF difference image offsets

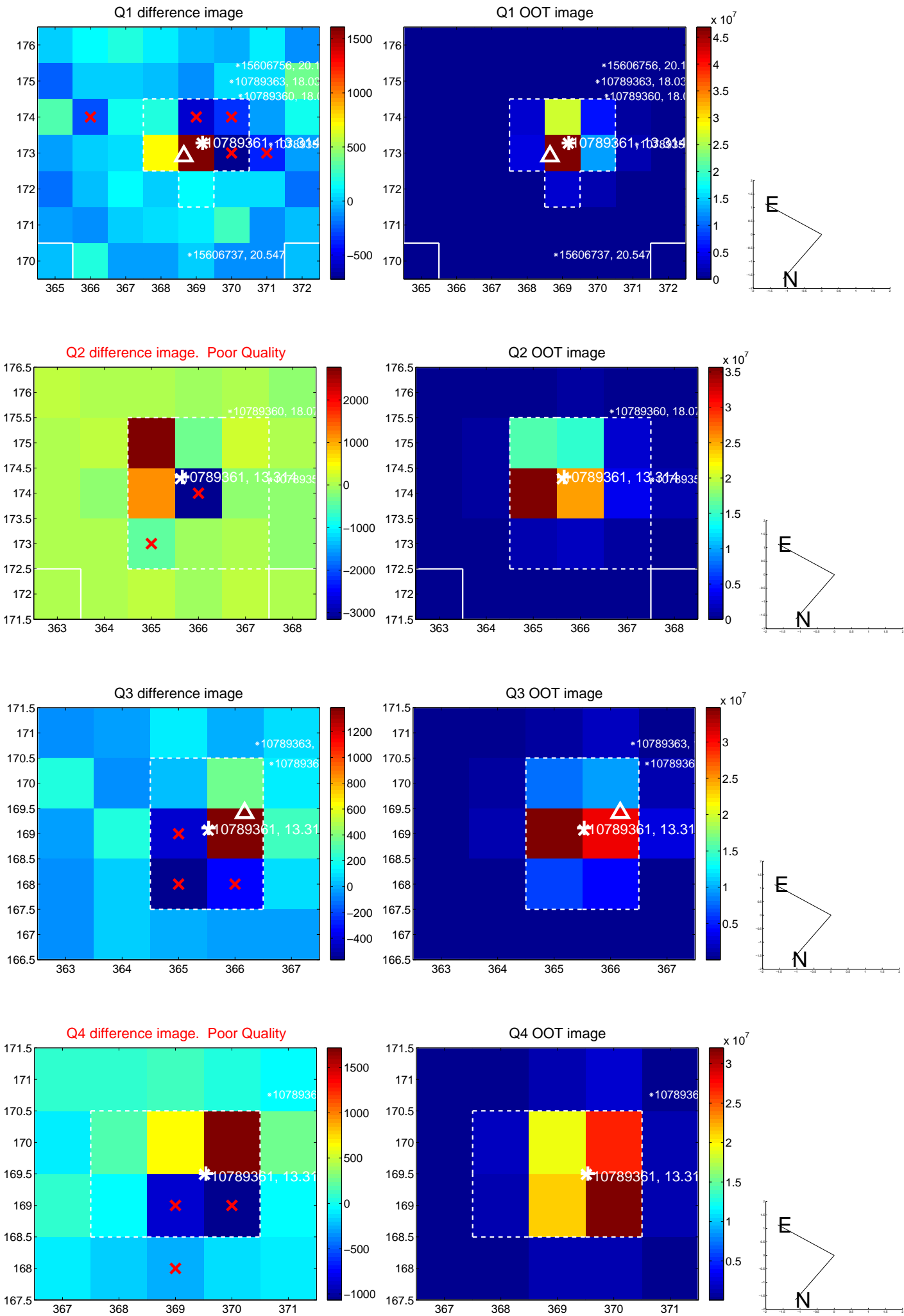
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.180 ± 0.212	5.56	-0.793 ± 0.195	0.873 ± 0.225
PRF-fit source offset from KIC position	1.059 ± 0.202	5.25	-0.772 ± 0.213	0.725 ± 0.371
photometric centroid source offset	2.55 ± 1.19	2.15	-1.74 ± 1.21	1.86 ± 1.17

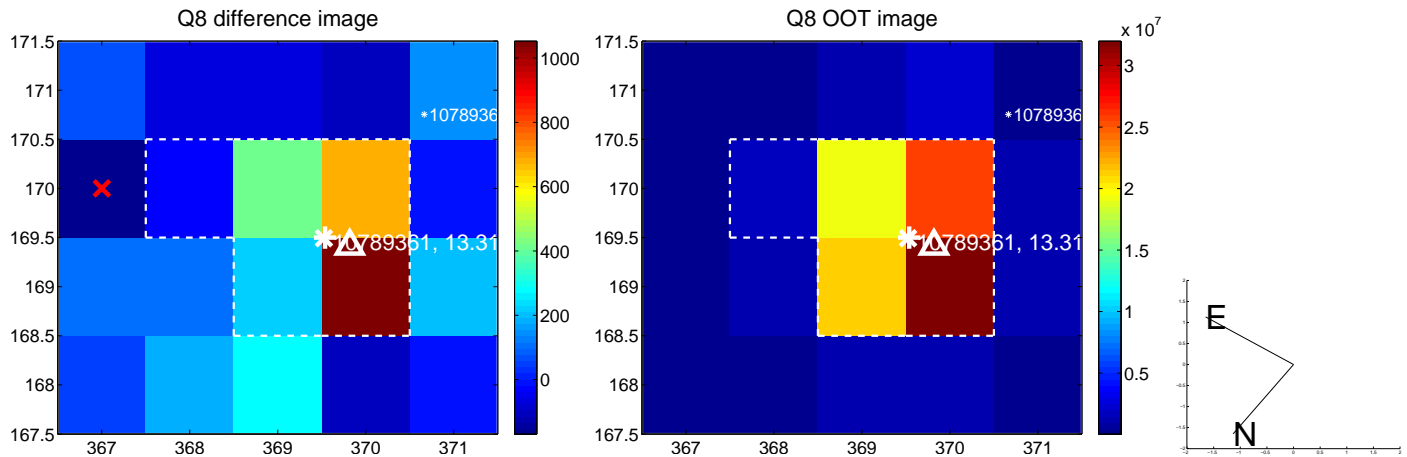
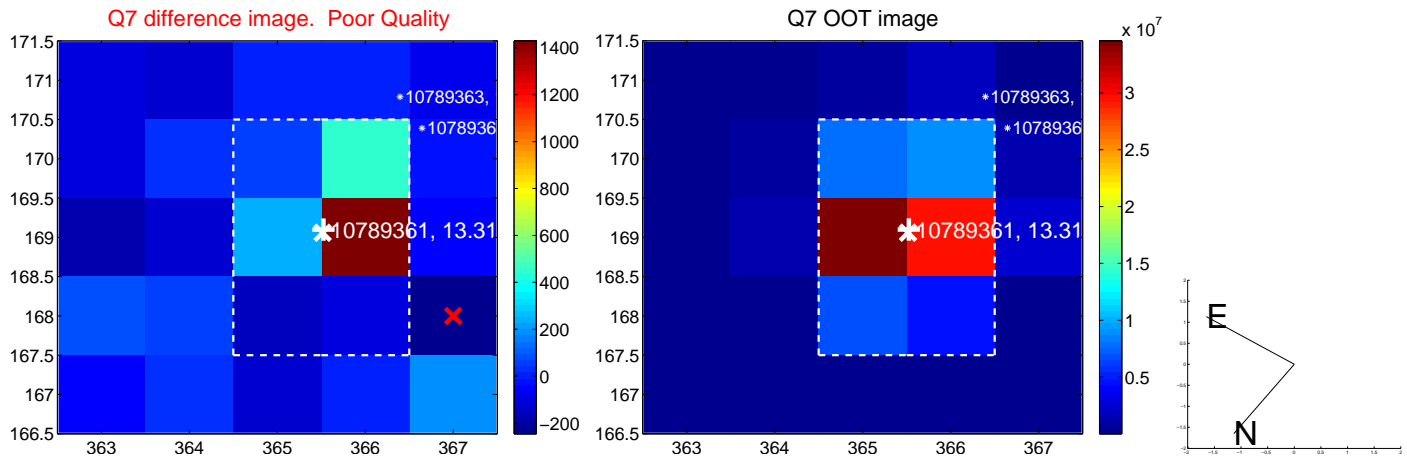
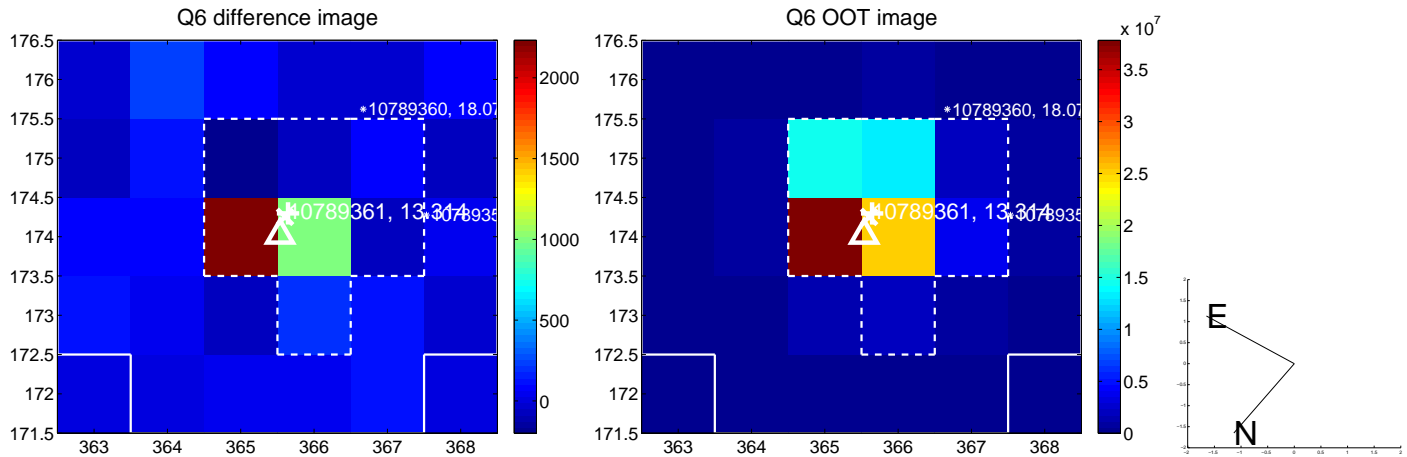
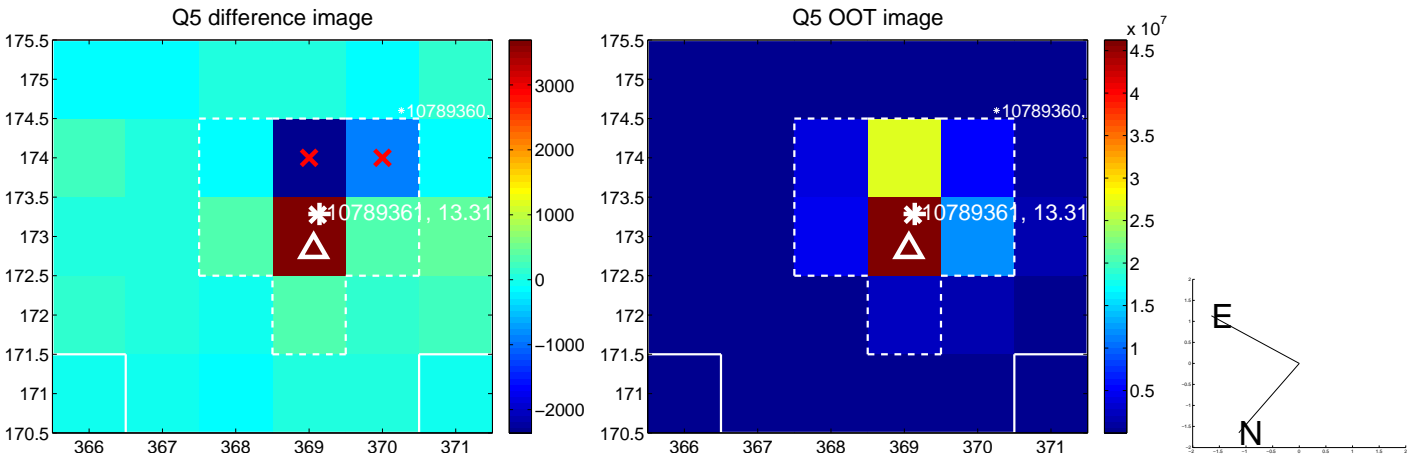


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

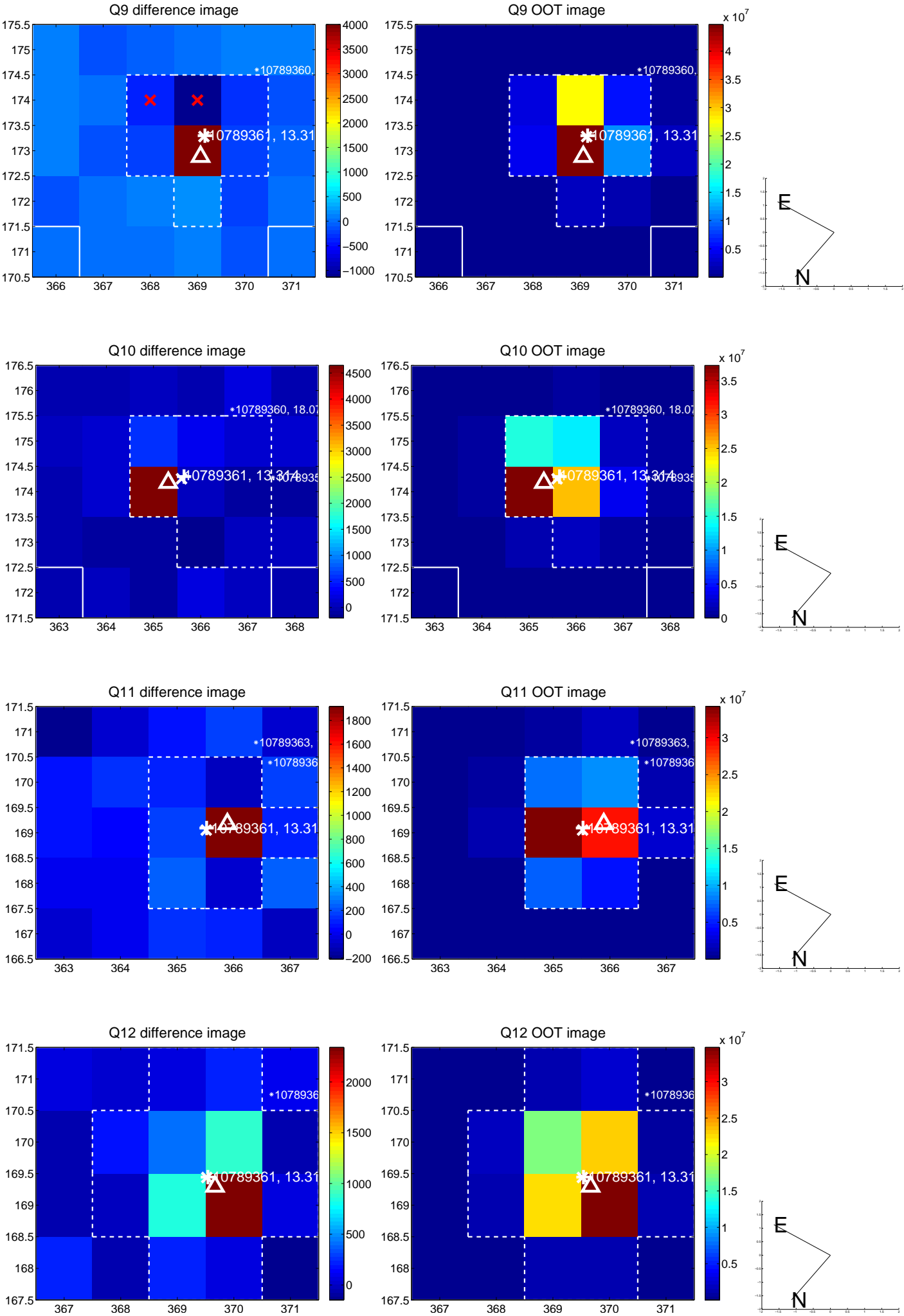
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



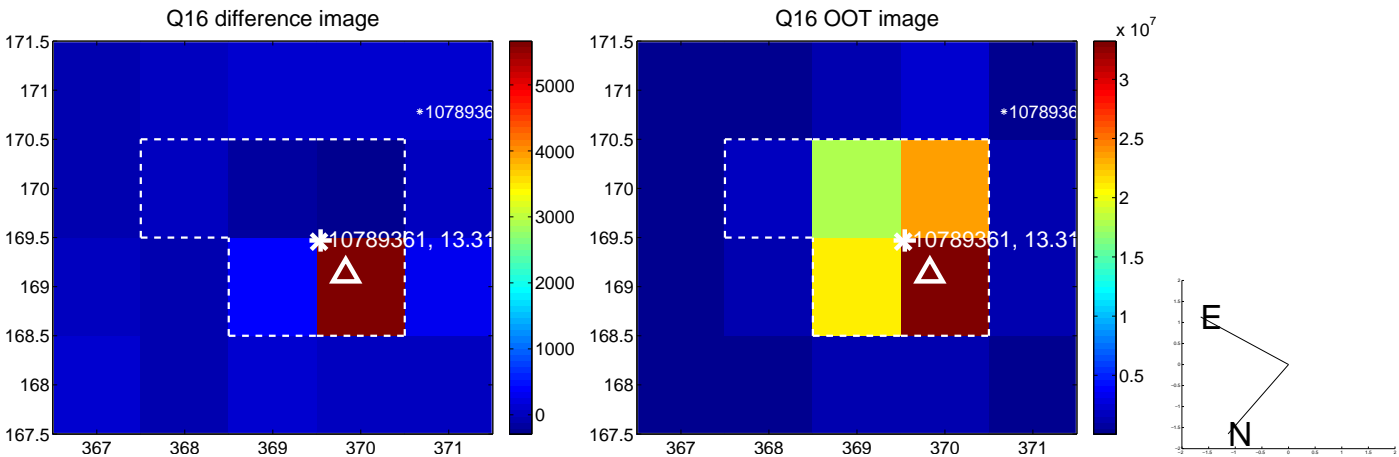
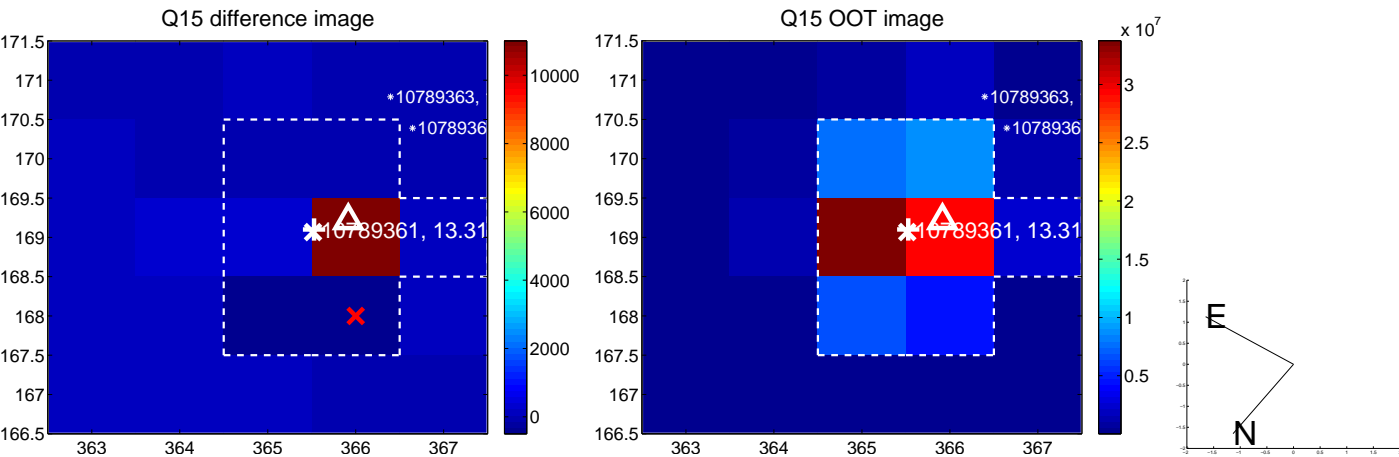
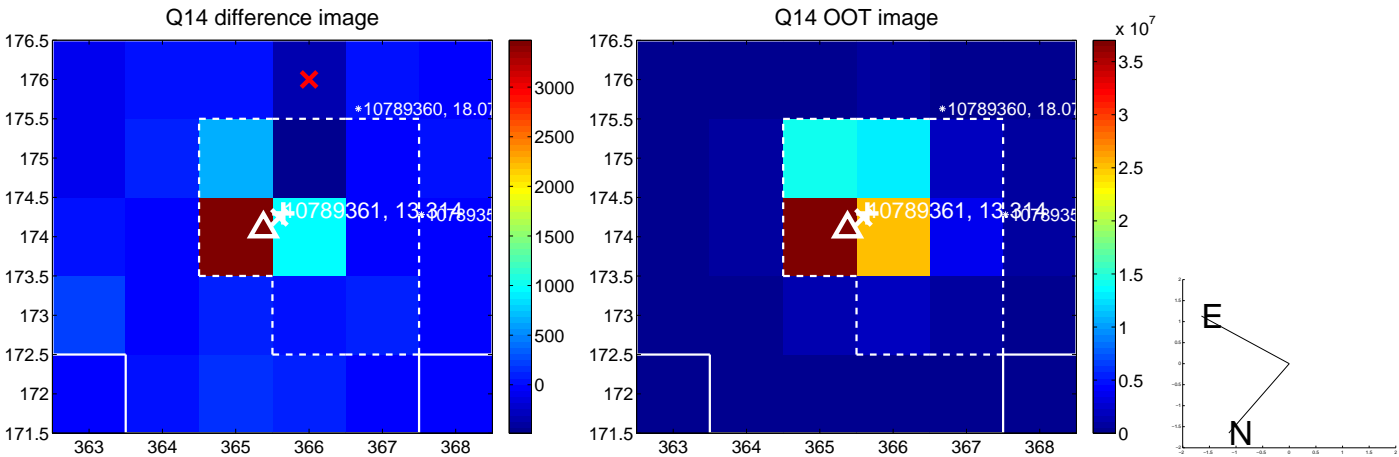
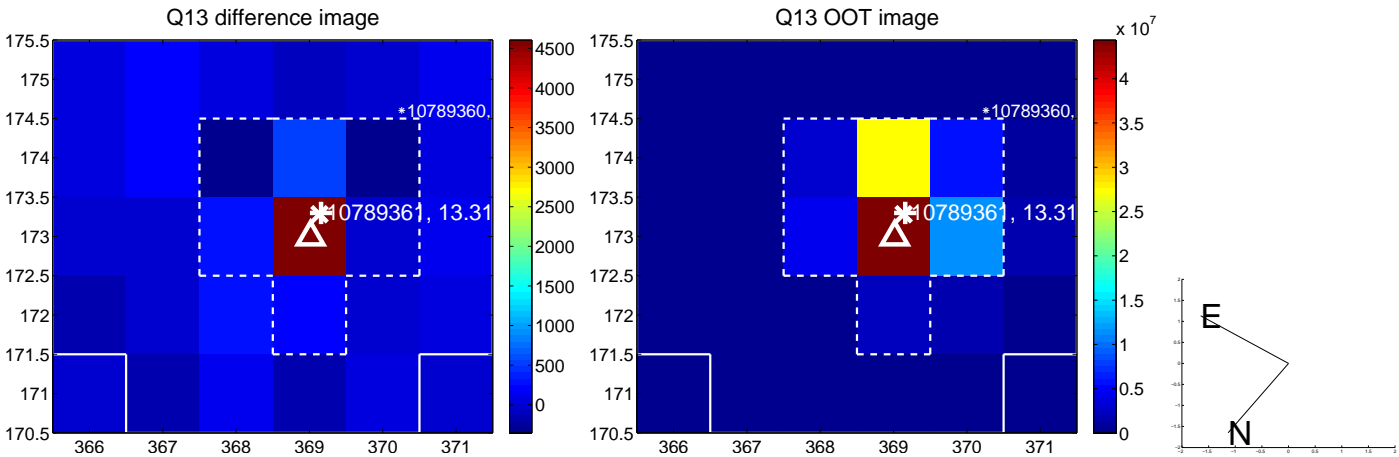
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



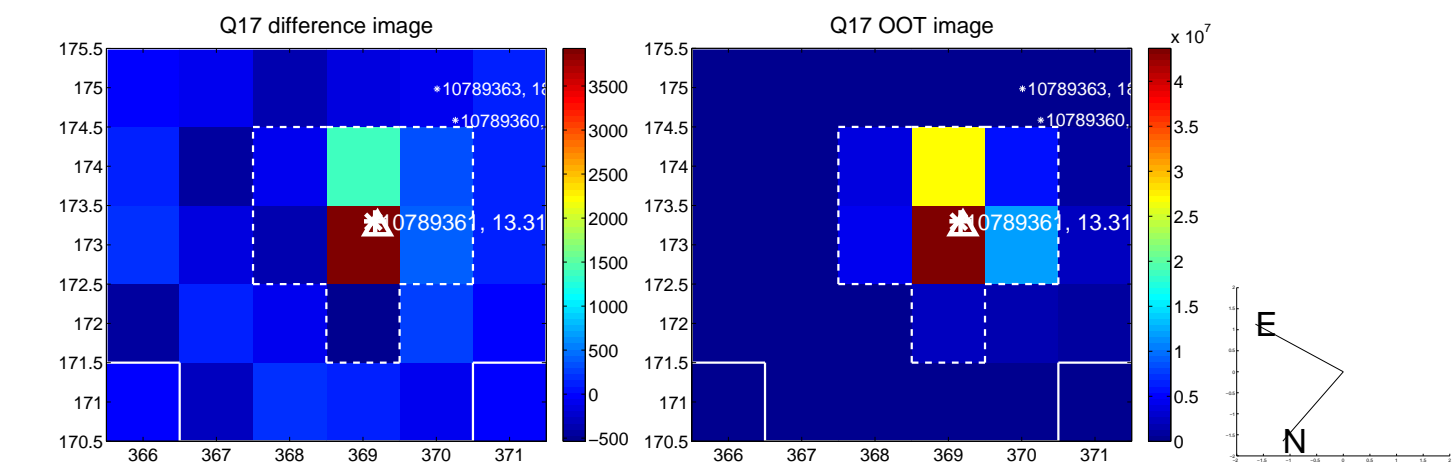
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



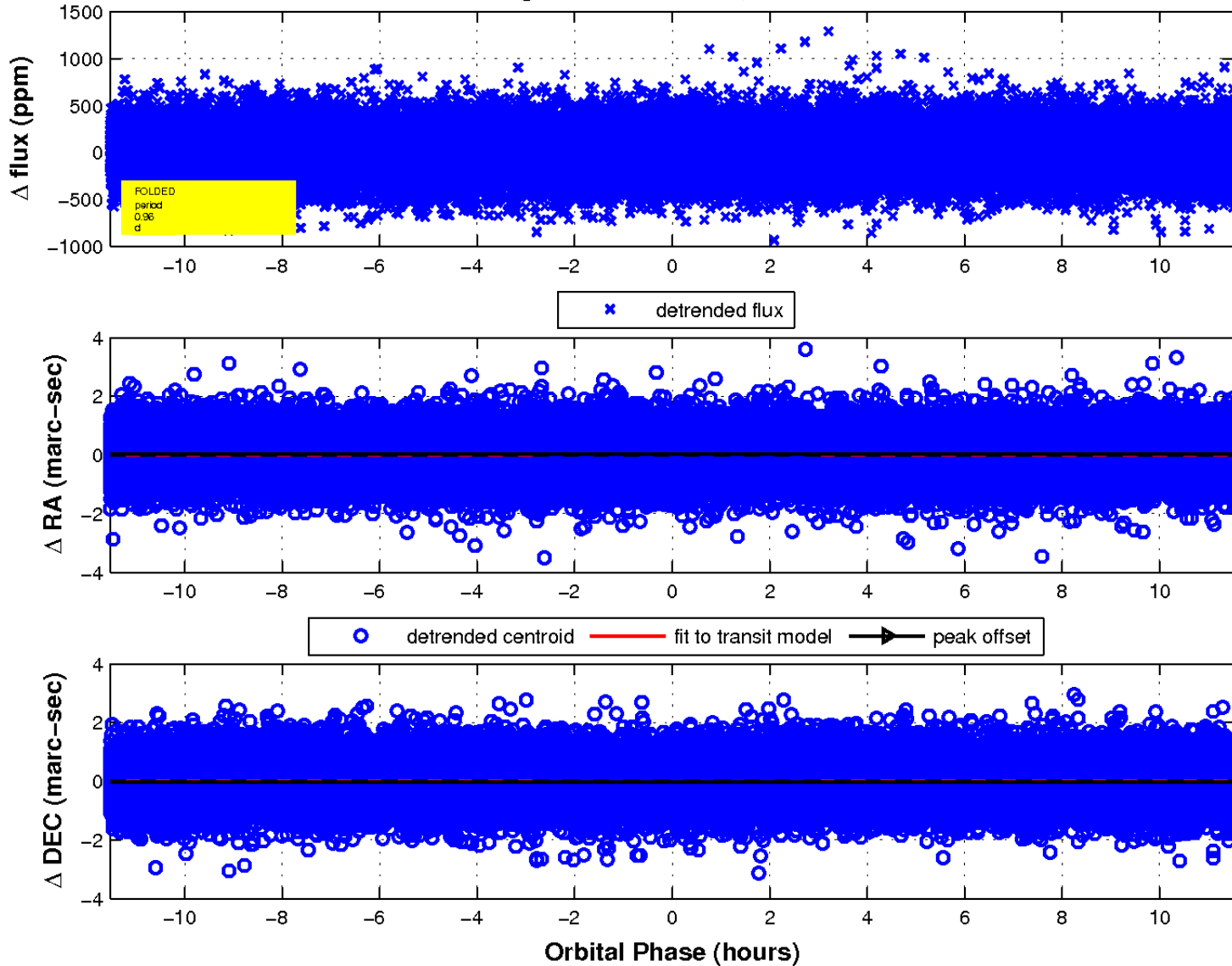
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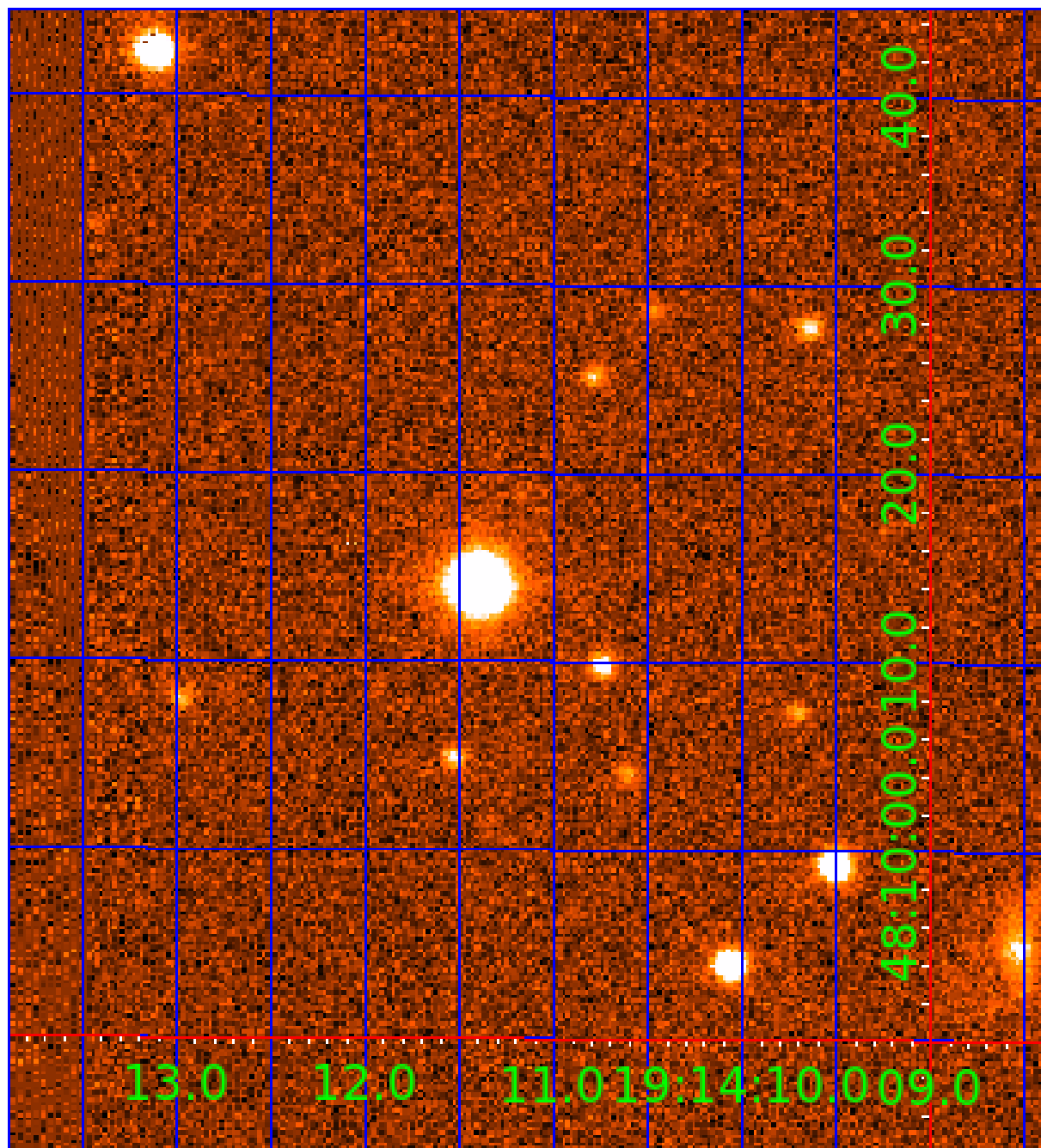


fluxWeightedCentroids, Planet 1 of 8



UKIRT Image

Declination



KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
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010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

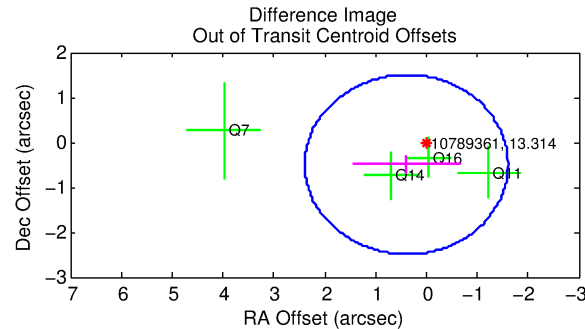
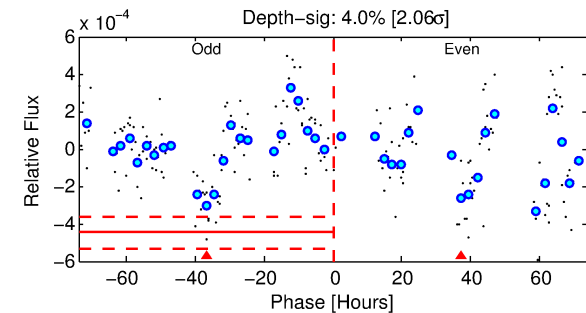
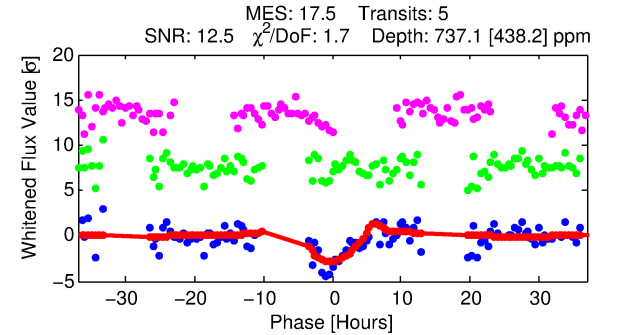
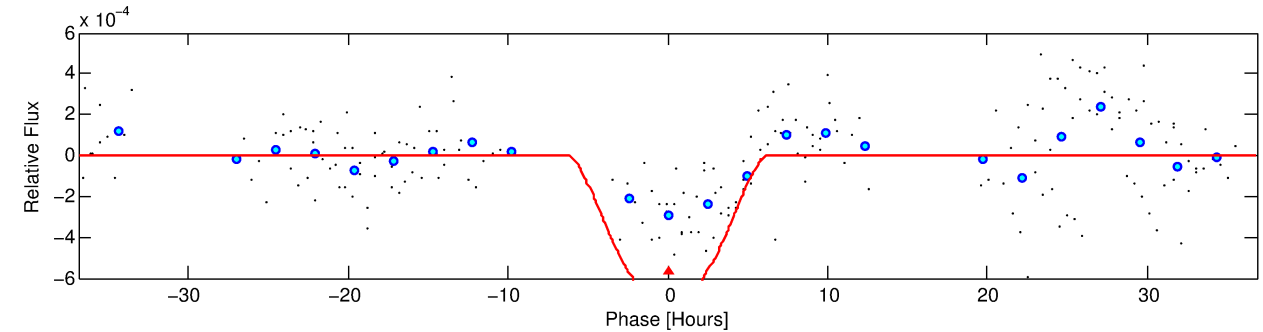
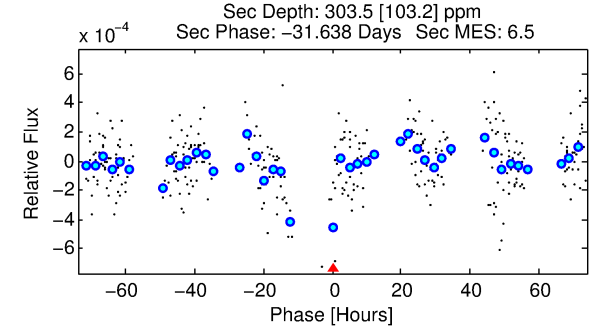
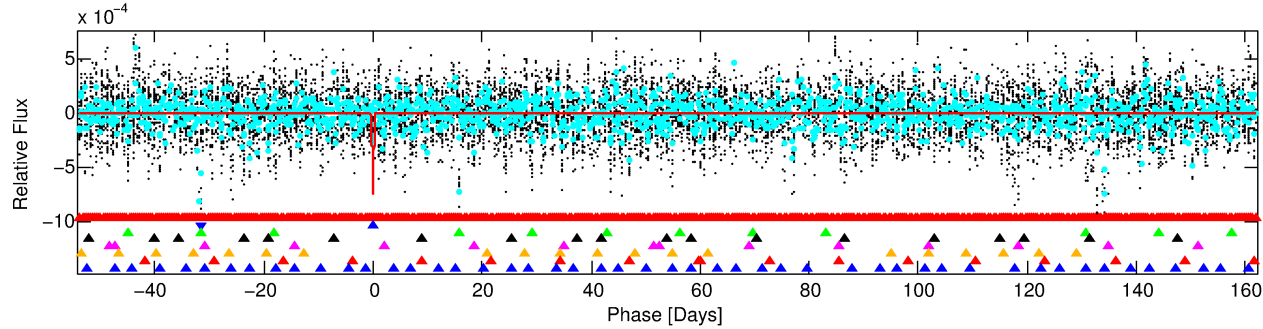
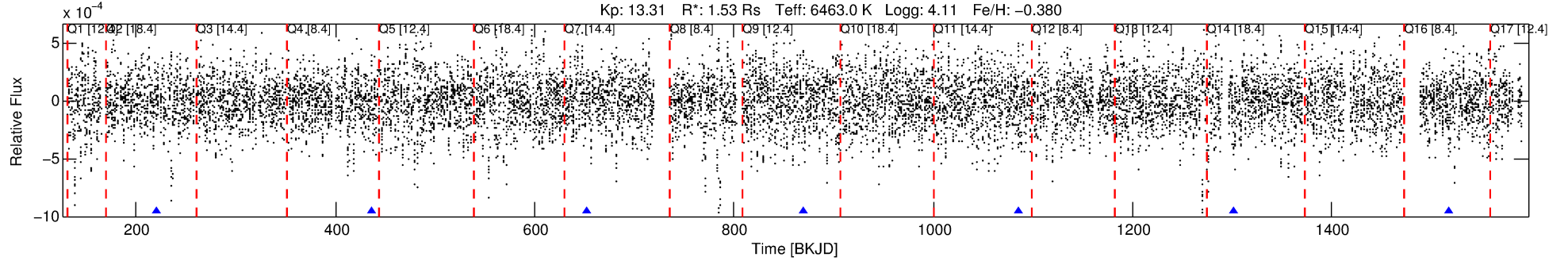
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-02

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 2 of 8 Period: 216.206 d



DV Fit Results:

Period = 216.20613 [0.01667] d
Epoch = 220.3273 [0.0831] BKJD
Rp/R* = 0.0473 [0.1072]
a/R* = 41.83 [26.82]
b = 1.00 [0.14]
Seff = 6.97 [3.42]
Teq = 414 [51] K
Rp = 7.91 [18.07] Re
a = 0.7257 [0.2087] AU
Ag = 1406.68 [6428.80] [0.22σ]
Teffp = 3922 [4460] K [0.79σ]

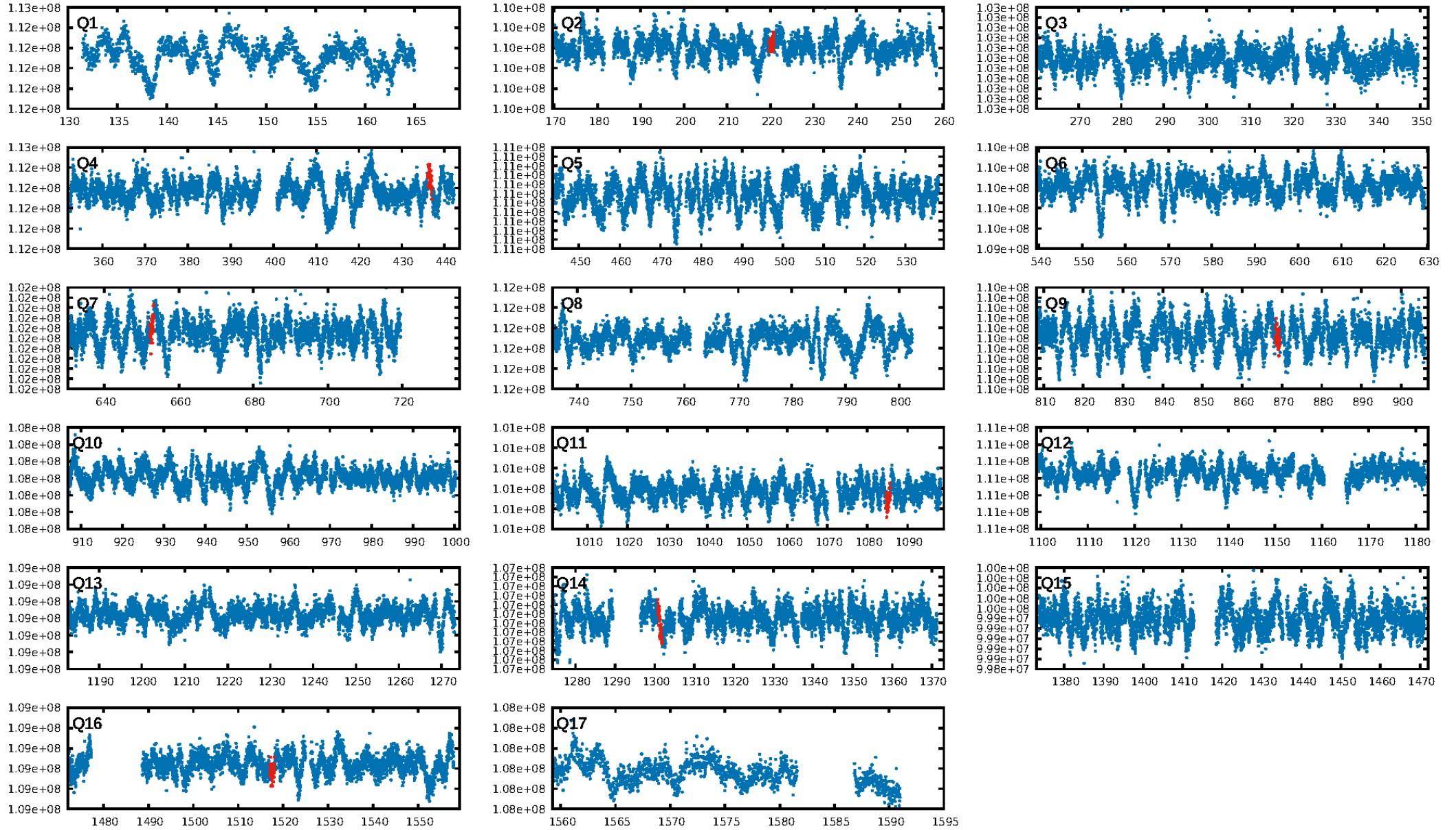
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [155.01σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.03e-24
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.8112
Centroid-sig: 0.0%
Centroid-so: 0.511 arcsec [1.87σ]
OotOffset-rm: 0.633 arcsec [0.95σ]
KicOffset-rm: 0.739 arcsec [1.34σ]
OotOffset-st: 1/2/1/0 [4]
KicOffset-st: 1/2/1/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/6]

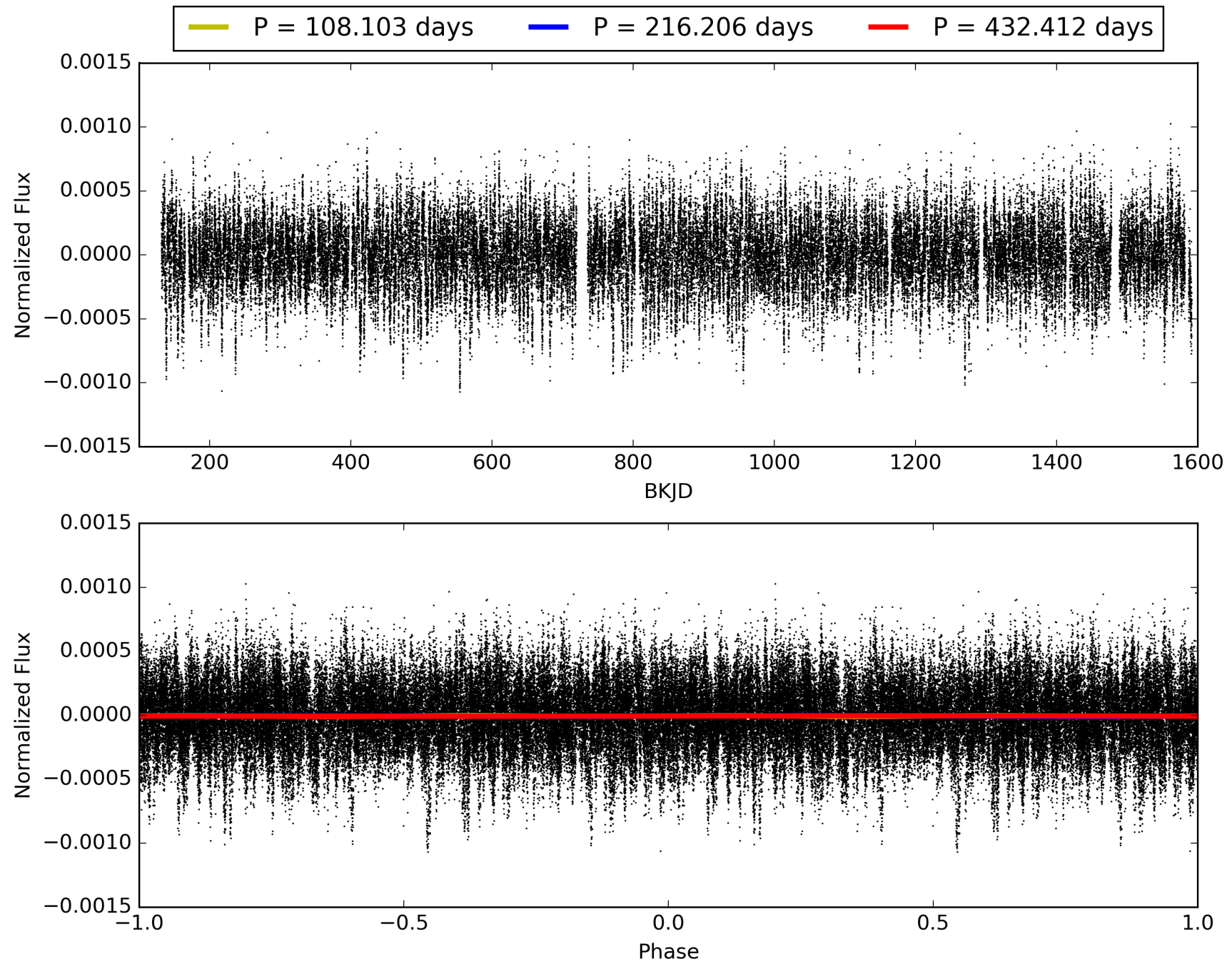
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:29 Z

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

TCE 010789361-02, PDC Light Curves

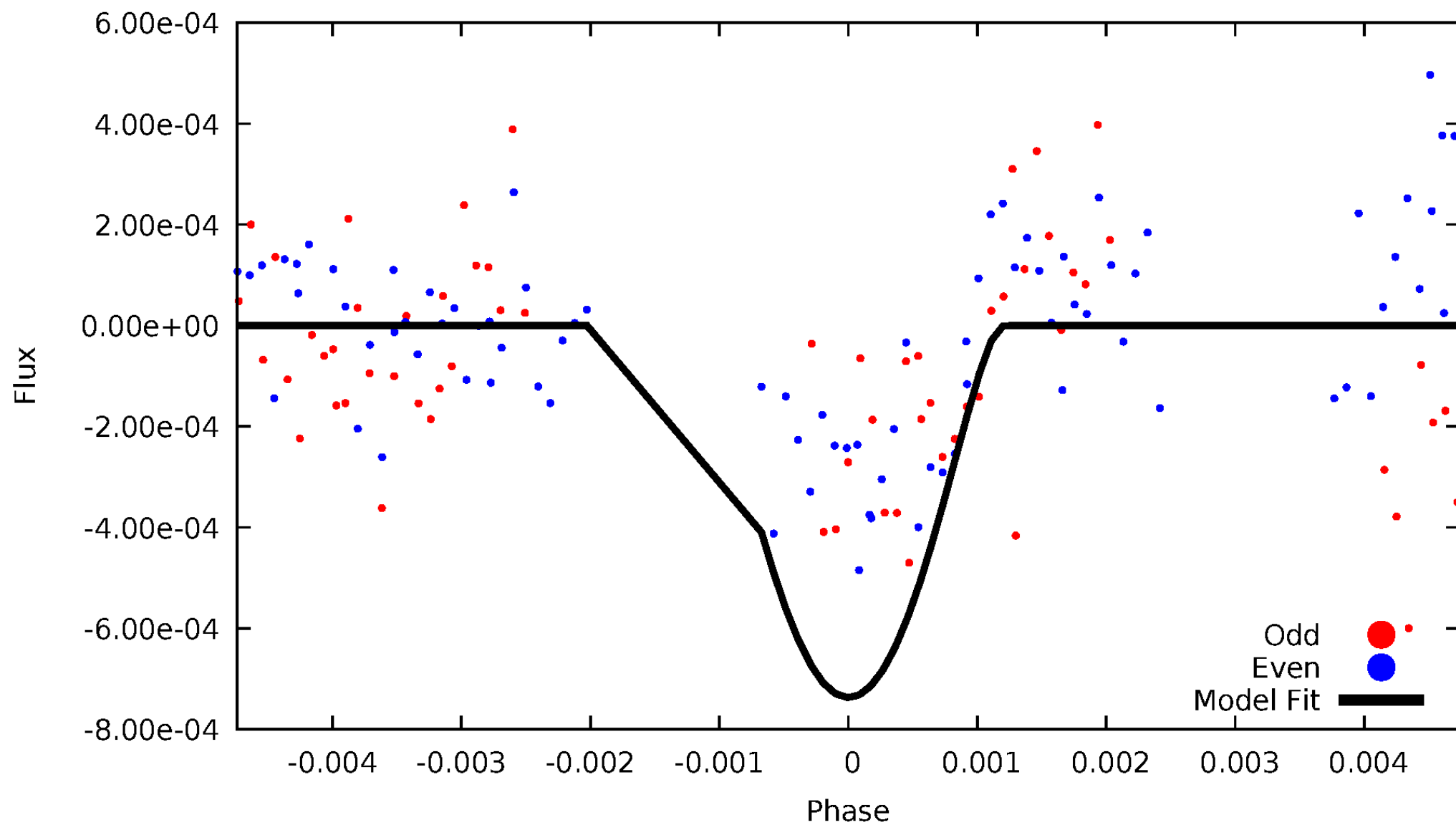


TCE 010789361-02



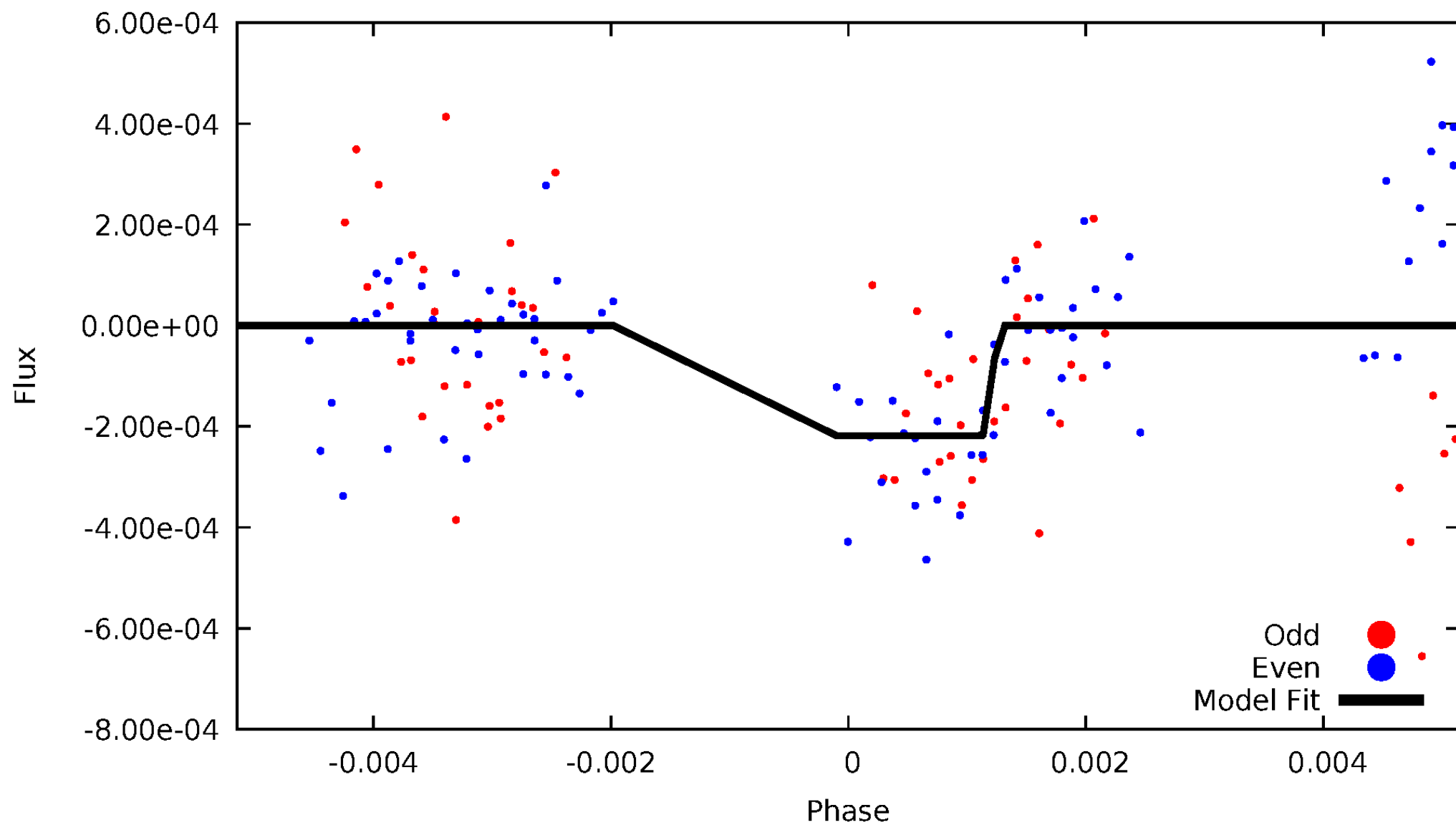
DV Odd/Even

TCE 010789361-02



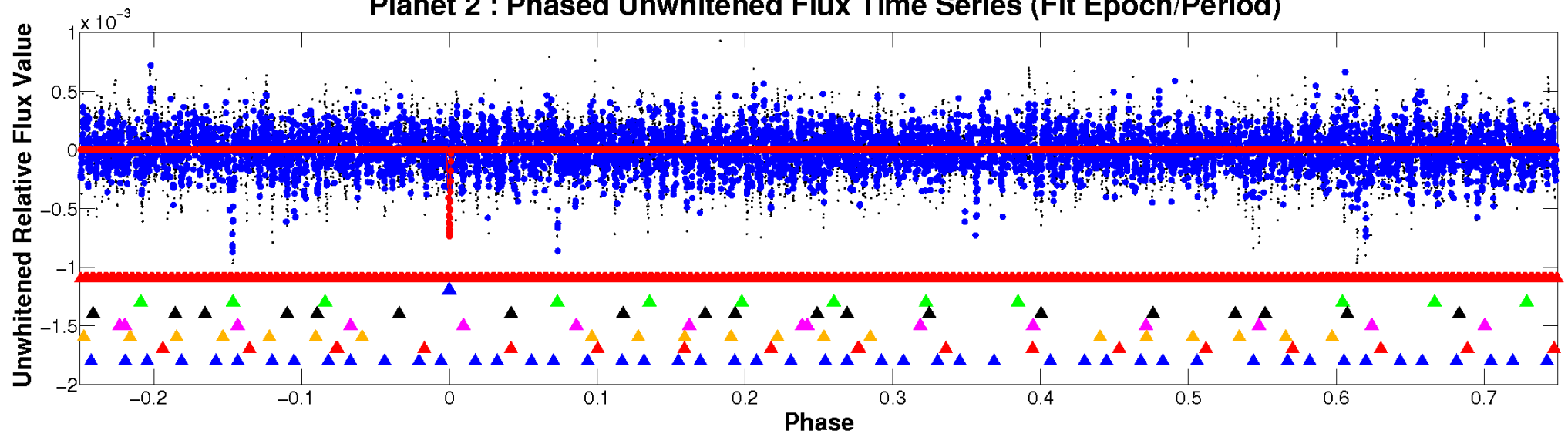
ALT Odd/Even

TCE 010789361-02

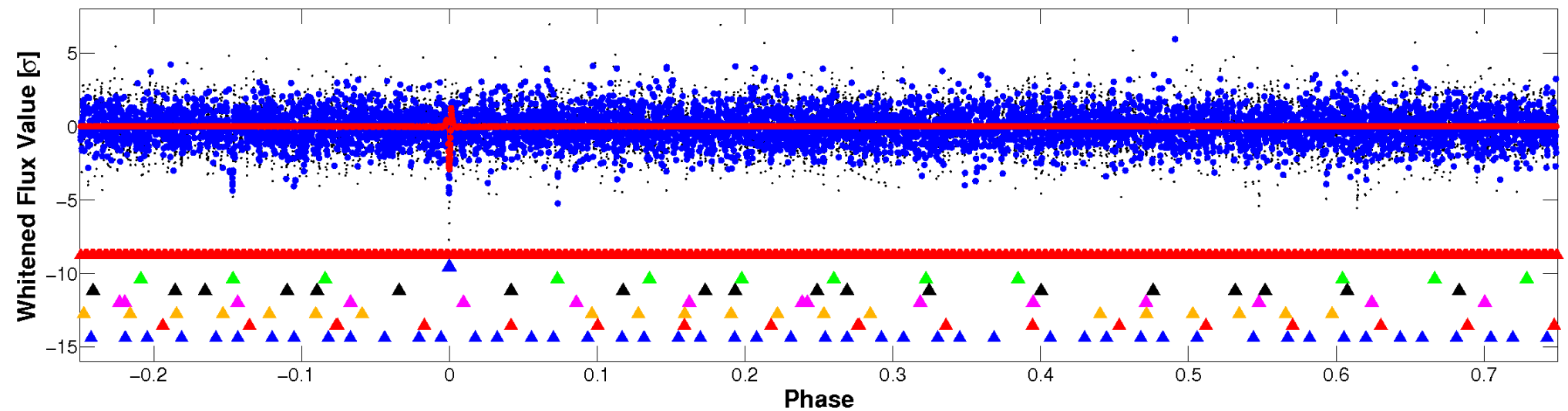


Non-Whitened Vs. Whitened Light Curve

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

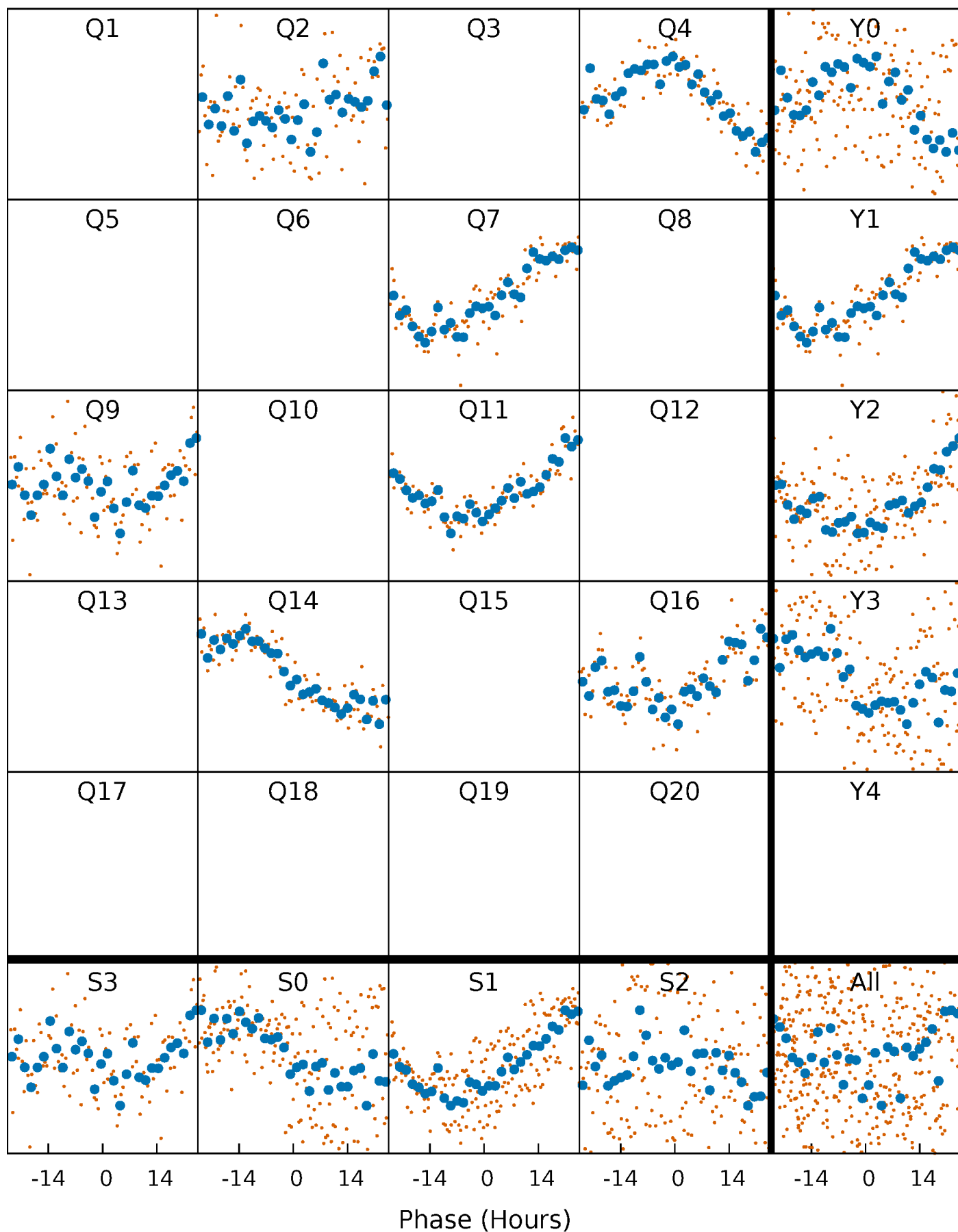


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



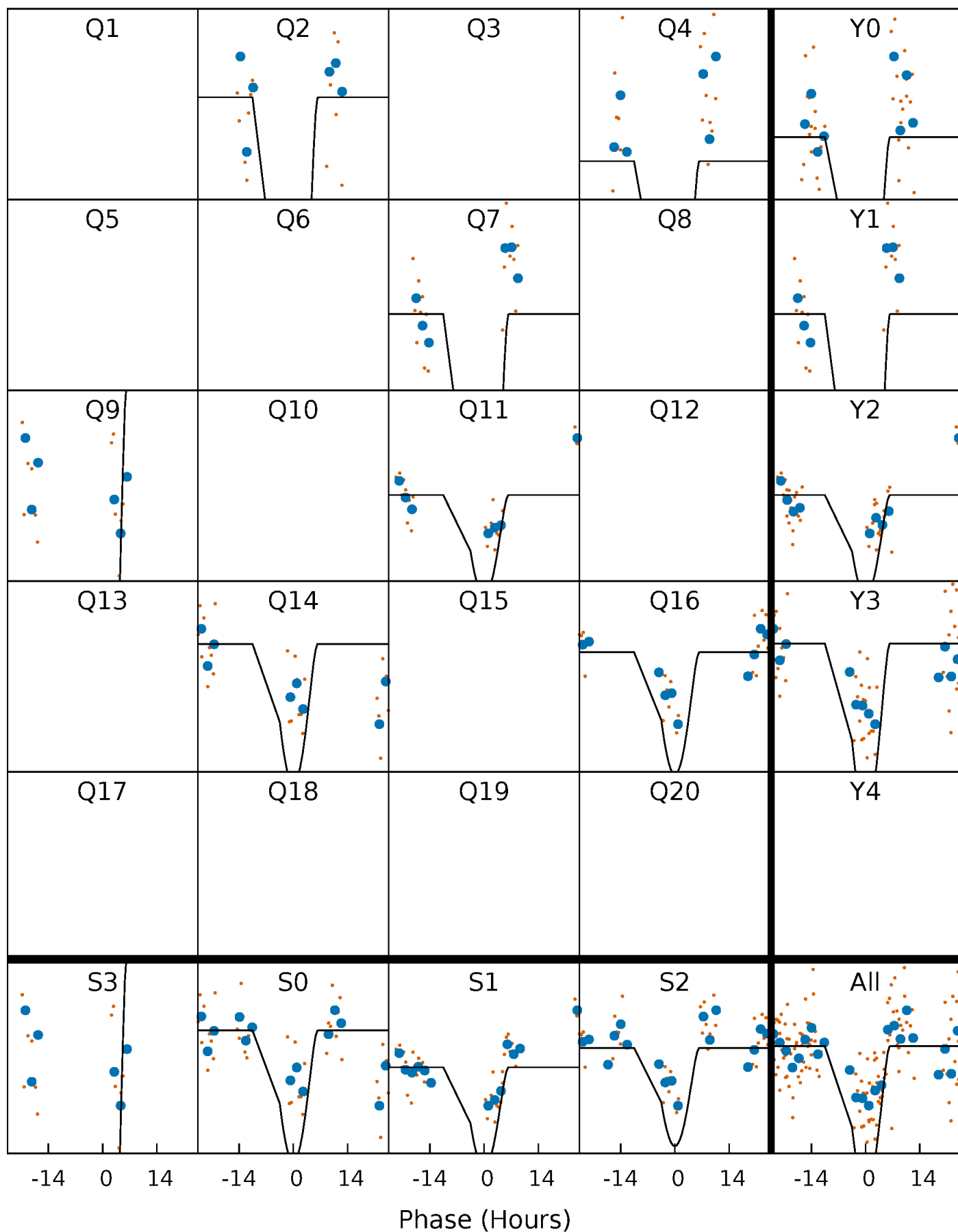
PDC Quarter-Phased Transit Curves

TCE 010789361-02 P=216.206133 Days $T_0=220.327289$ (BKJD)



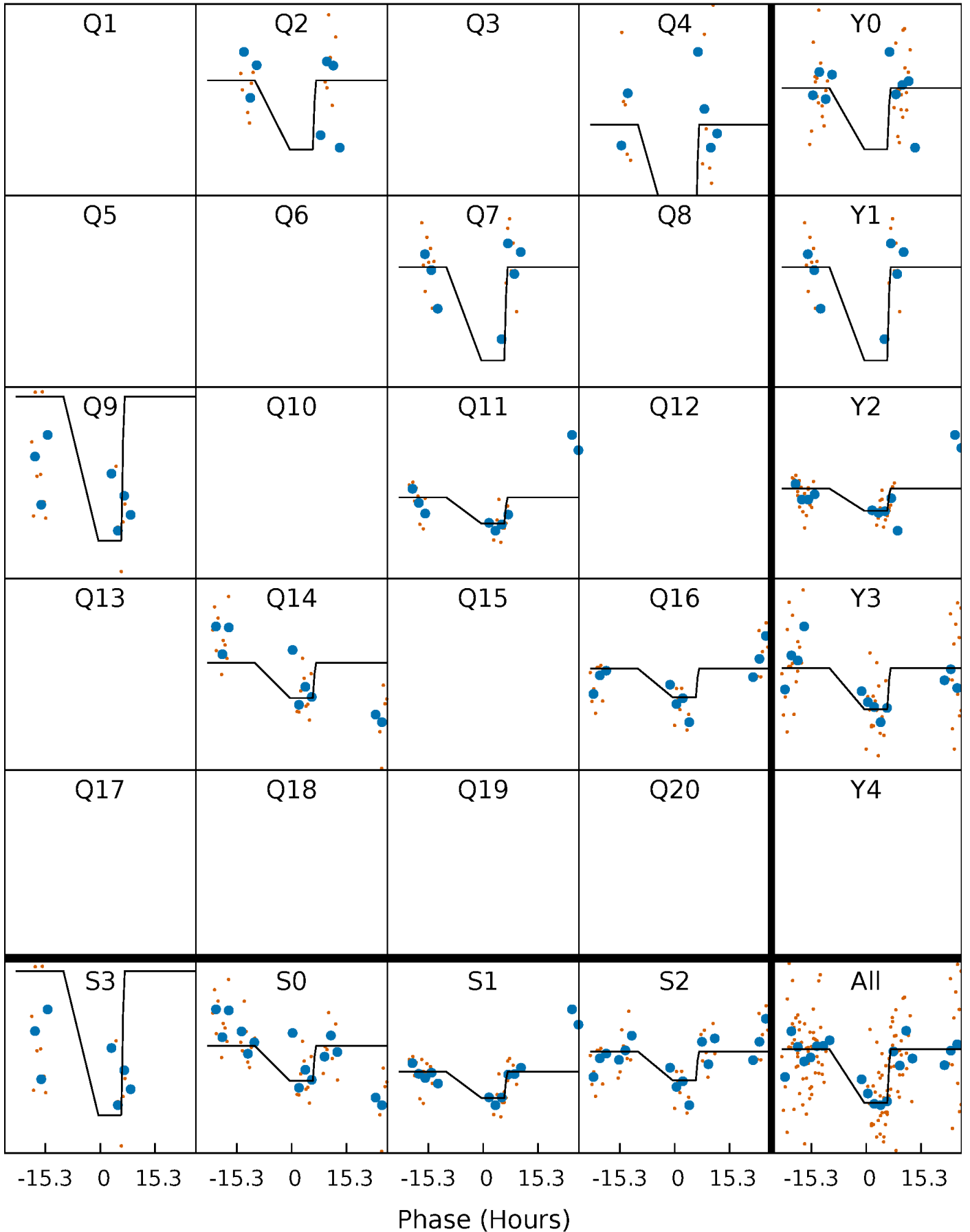
DV Quarter-Phased Transit Curves

TCE 010789361-02 P=216.206133 Days $T_0=220.327289$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

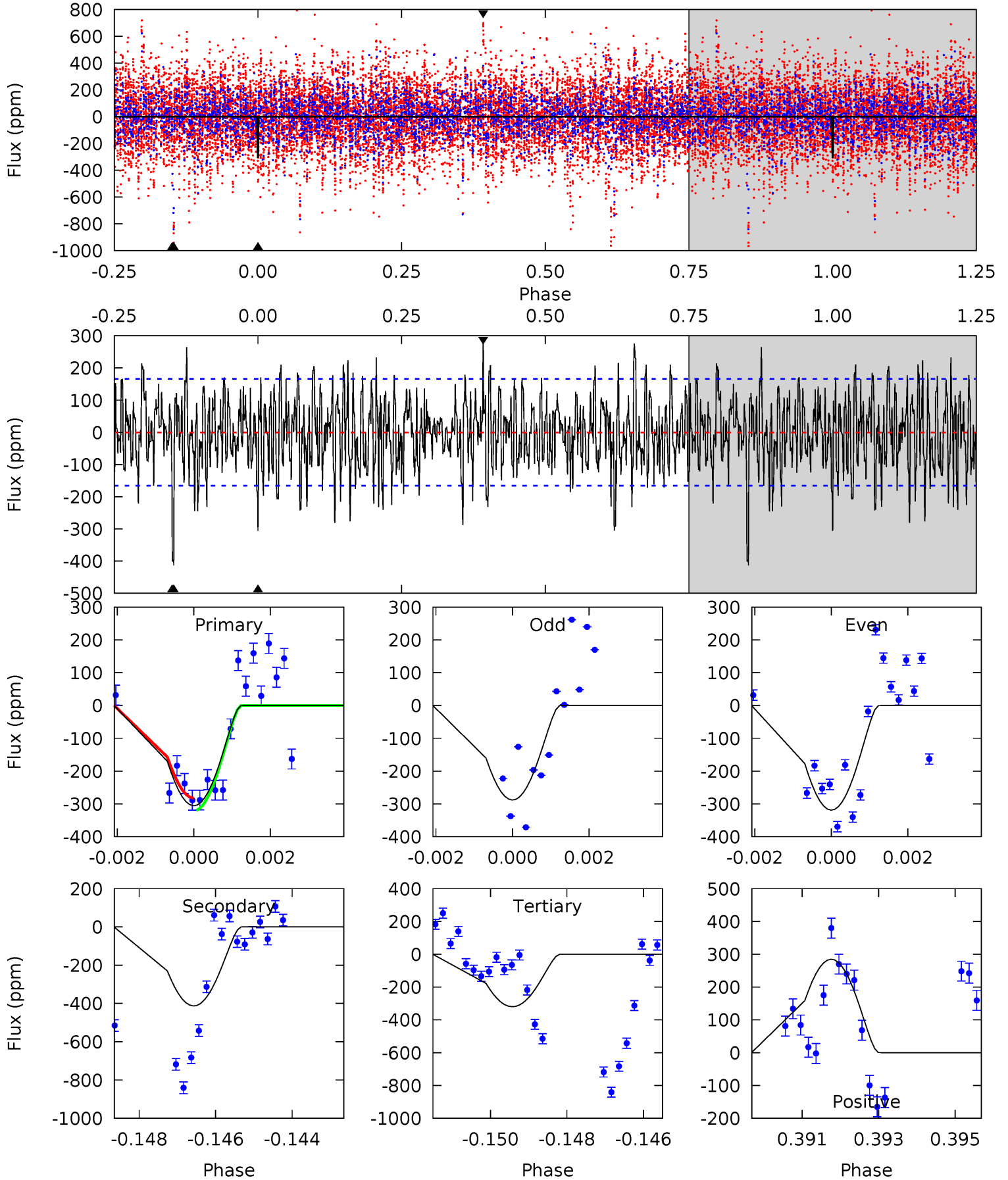
TCE 010789361-02 $P=216.187065$ Days $T_0=220.317475$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-02, P = 216.206133 Days, E = 4.121156 Days

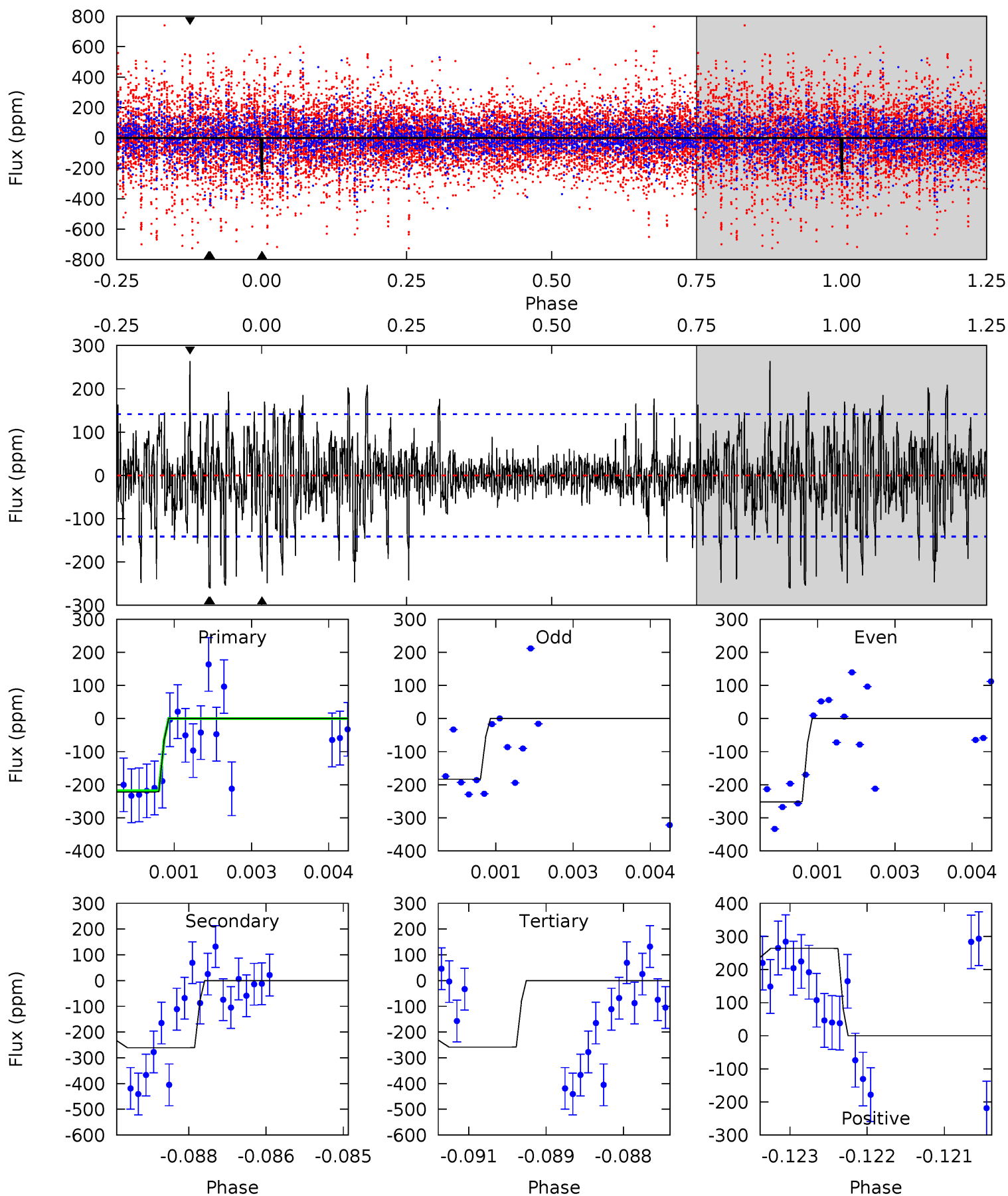
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.80	13.2	10.3	9.13	5.33	3.10	2.97	-0.46	0.67	2.98	4.11	0.49	0.67	0.41	0.52



Alt Model-Shift Uniqueness Test

010789361-02, P = 216.187065 Days, E = 4.130410 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.47	9.95	9.87	10.1	5.39	3.19	2.10	-1.39	-1.61	0.08	-0.13	1.28	1.03	0.50	0.34



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-413 ± 31	$14.72^{+15.53}_{-10.17}$	570^{+40}_{-46}	3514^{+1857}_{-649}	538^{+5194}_{-404}
Alt.	-261 ± 26	$12.69^{+14.15}_{-9.23}$	569^{+46}_{-45}	3394^{+2168}_{-620}	469^{+5920}_{-364}

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

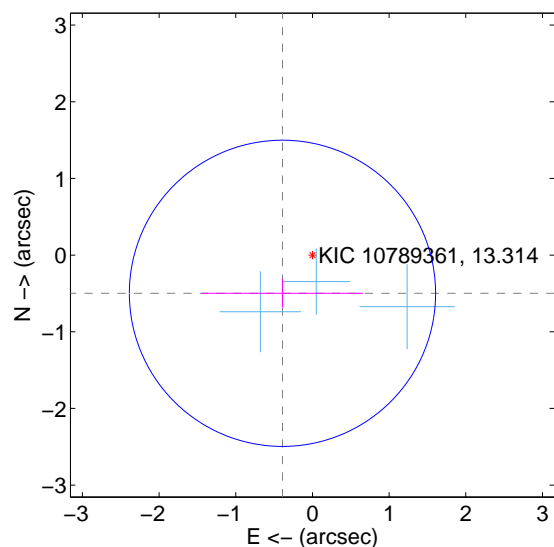
Supplemental centroid analysis for 010789361-02. Kepler magnitude: 13.31. Transit SNR 12.55

There are 3 quarters with good PRF difference image offsets

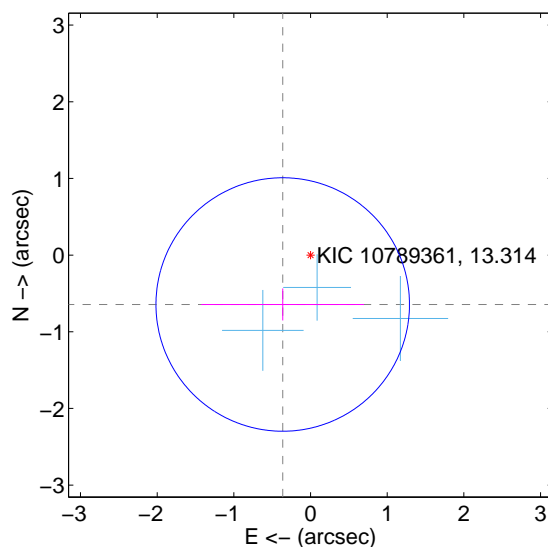
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.633 ± 0.666	0.95	0.391 ± 1.052	-0.498 ± 0.186
PRF-fit source offset from KIC position	0.739 ± 0.551	1.34	0.363 ± 1.061	-0.644 ± 0.208
photometric centroid source offset	0.51 ± 0.27	1.87	0.00 ± 0.28	0.51 ± 0.27

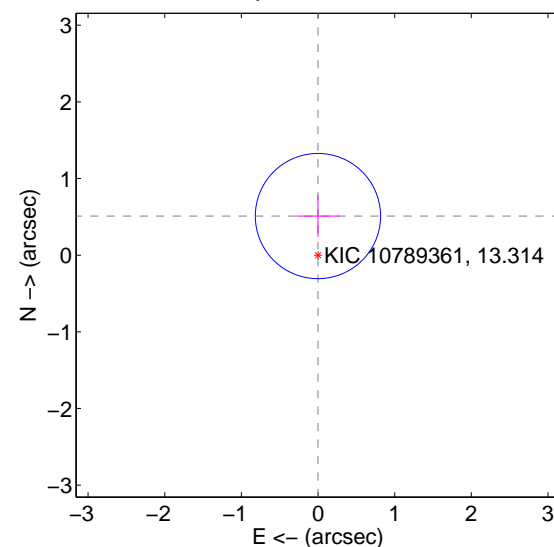
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

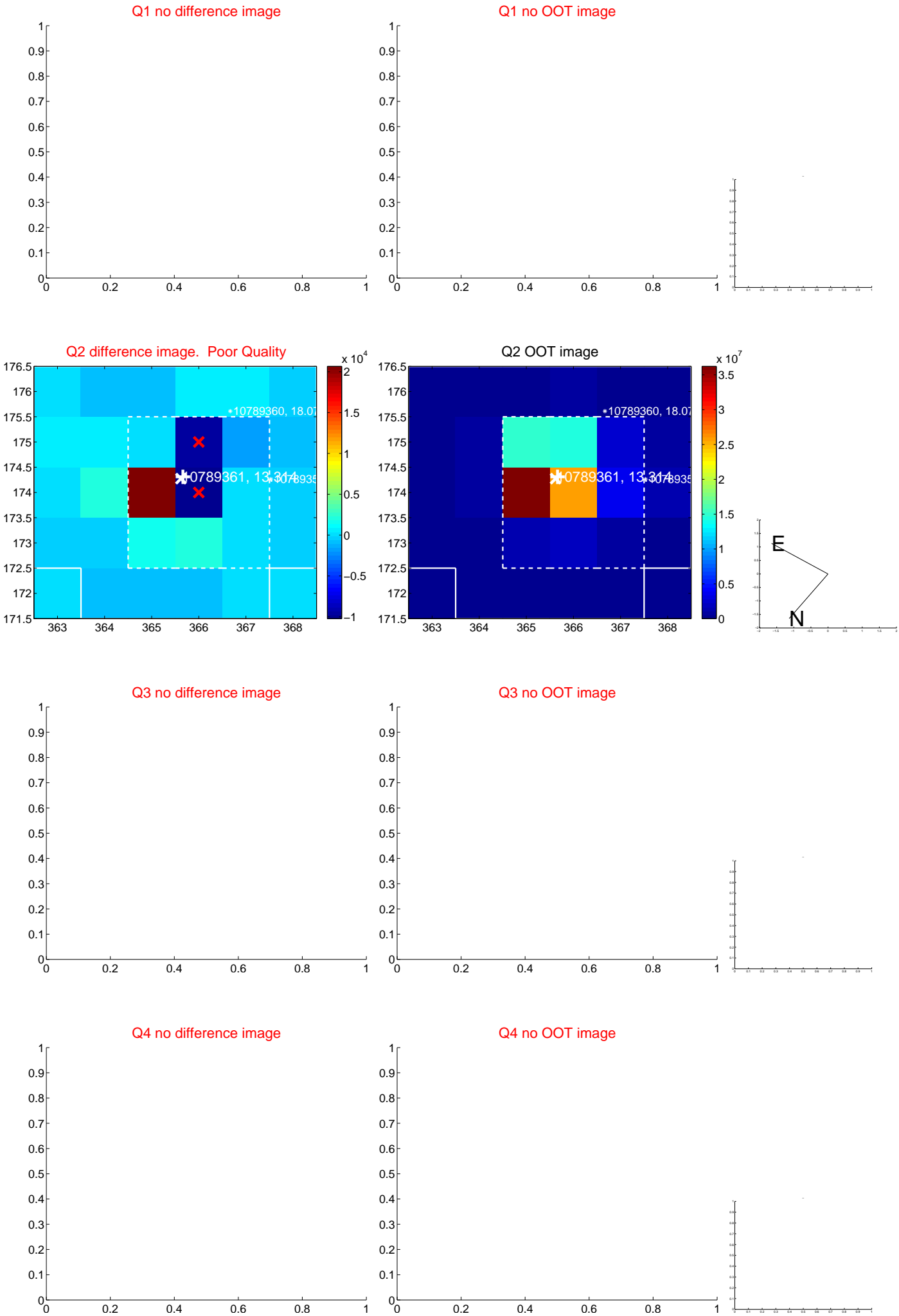


offset from photometric centroids

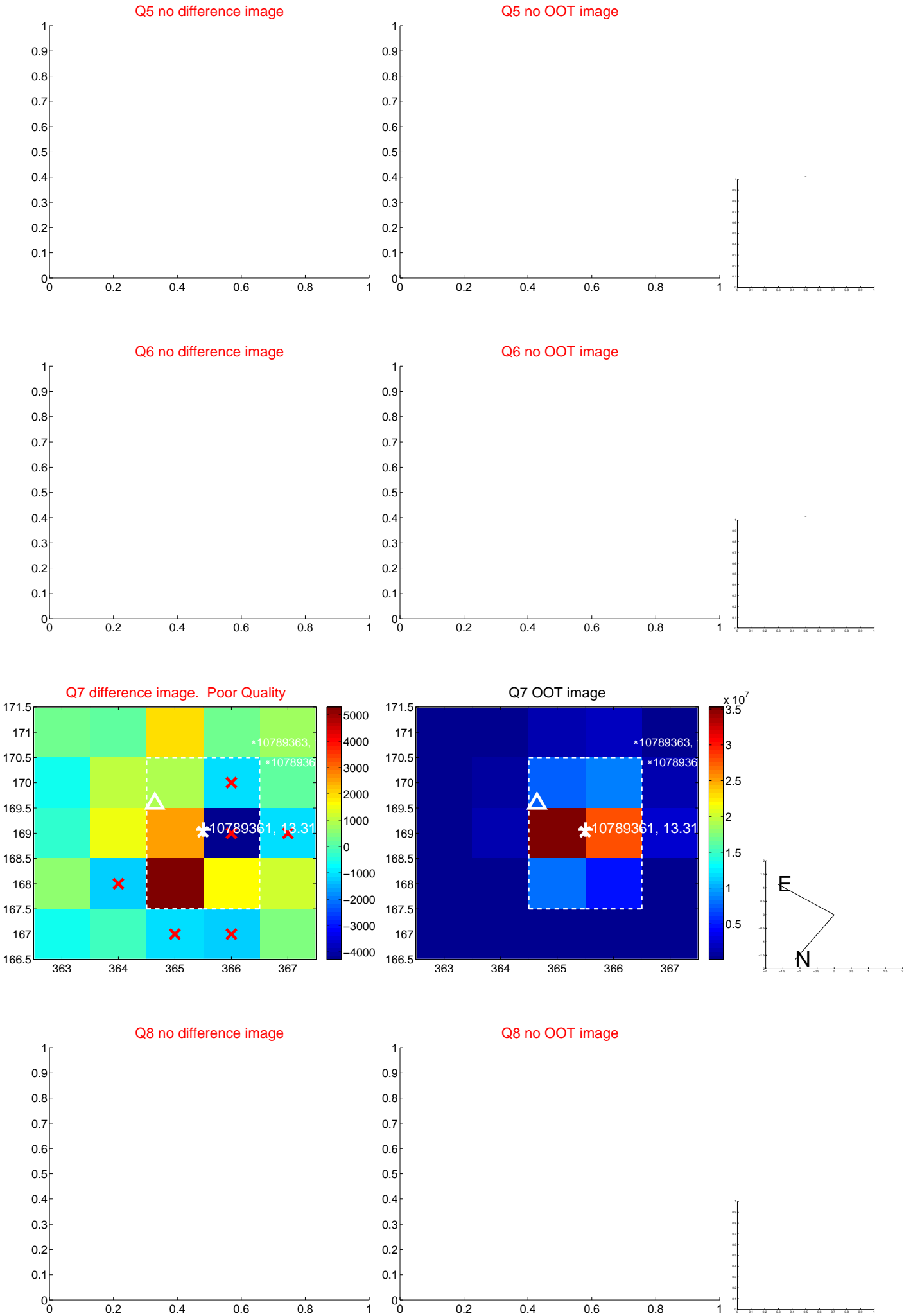


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

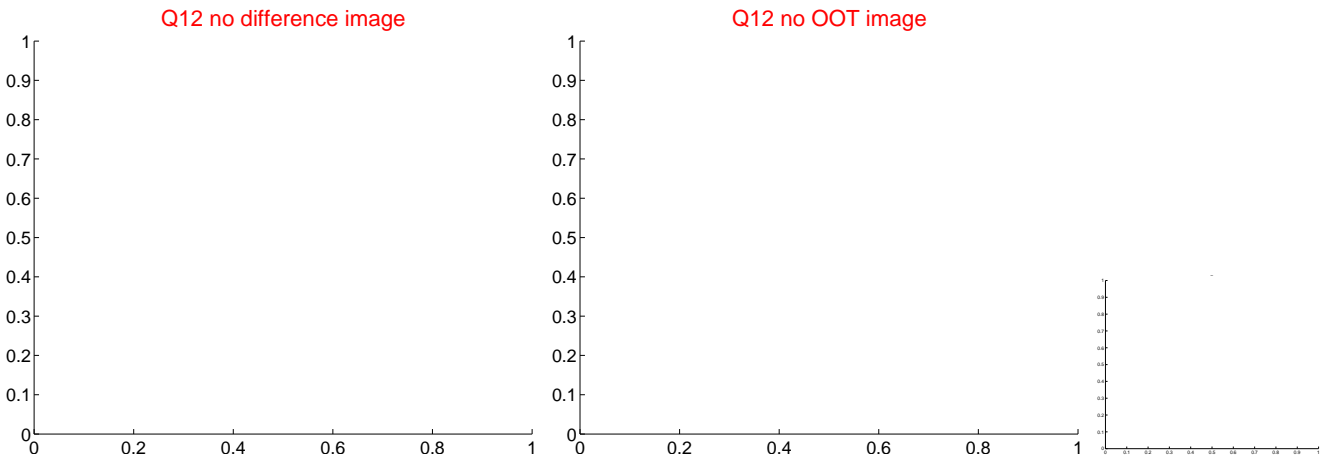
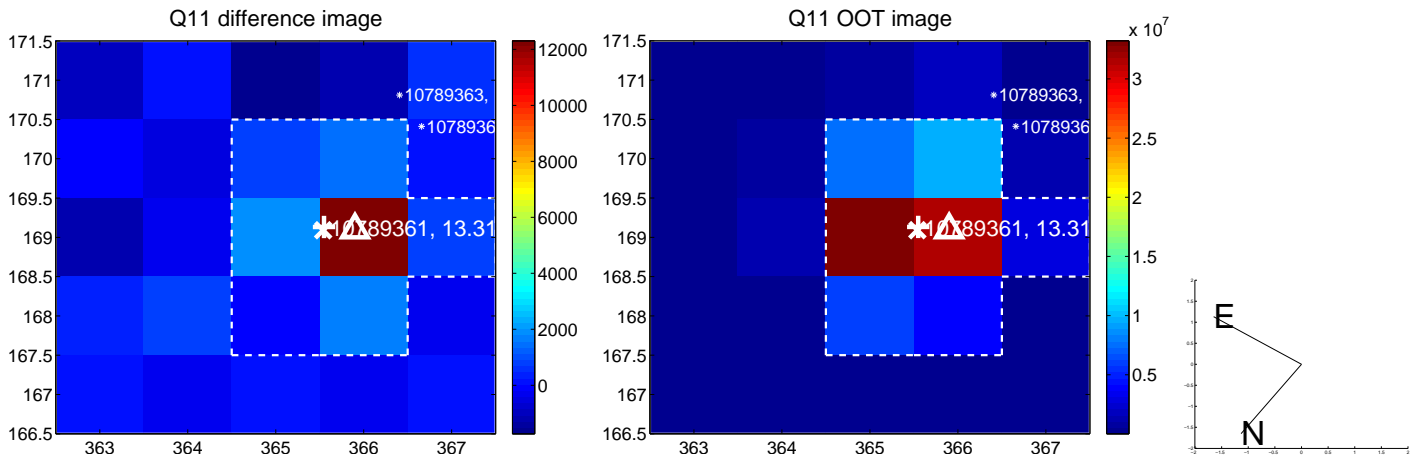
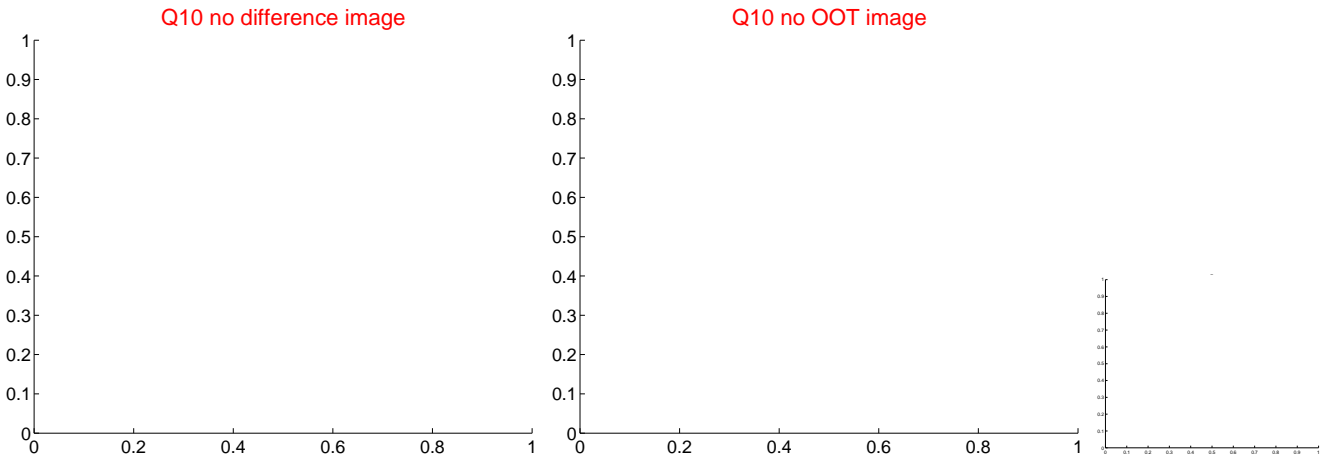
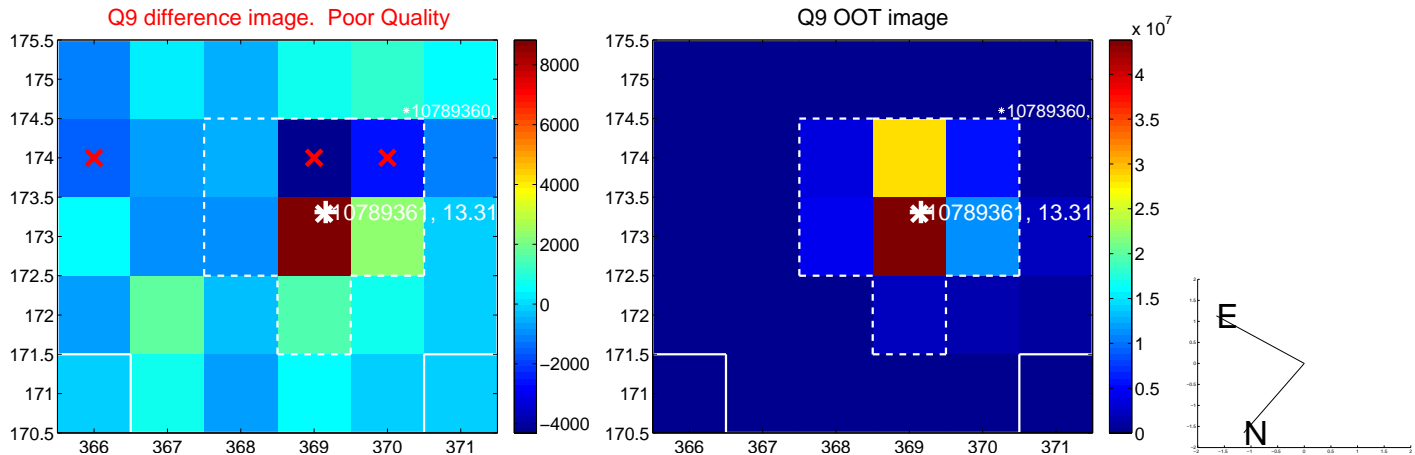
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



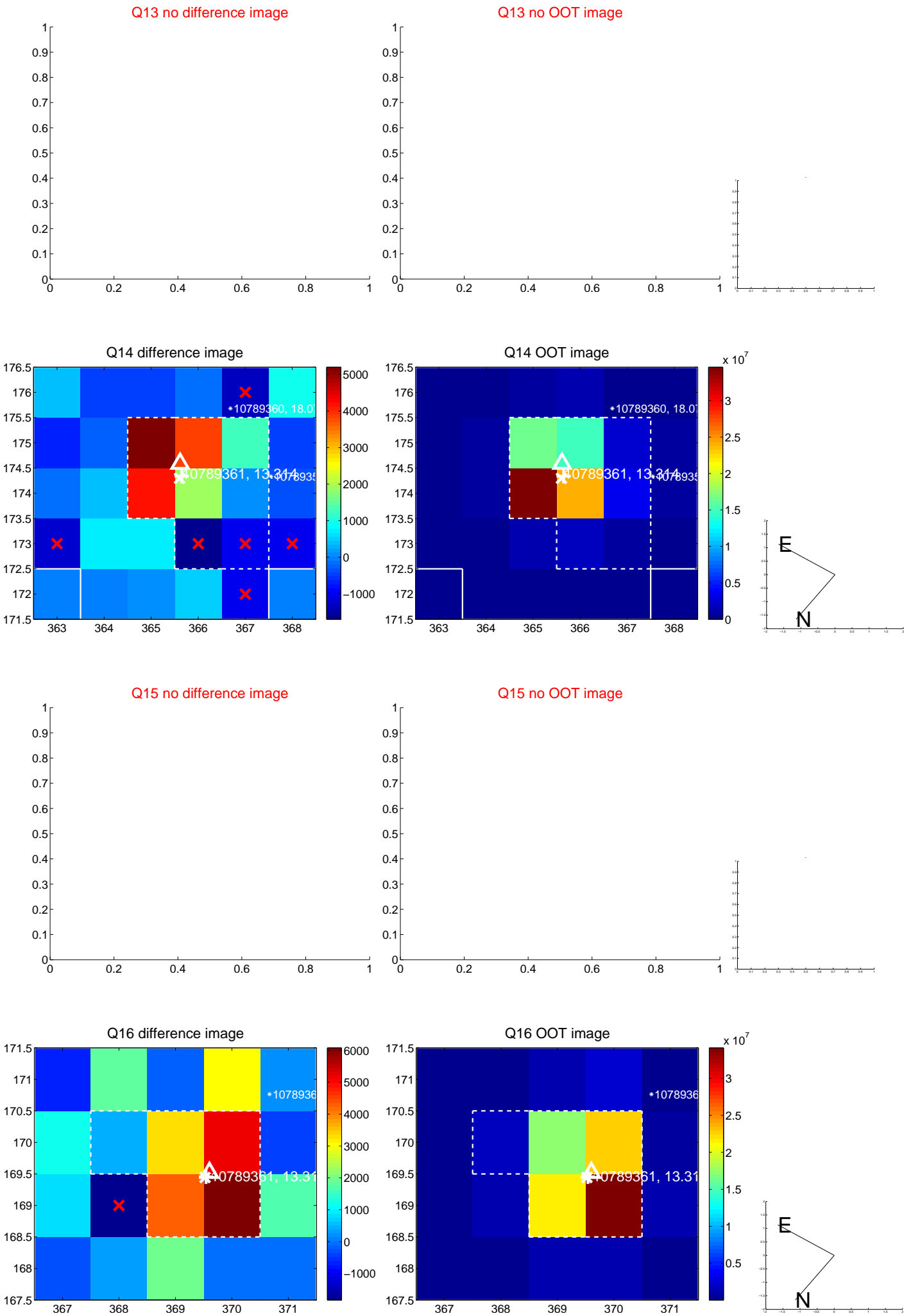
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



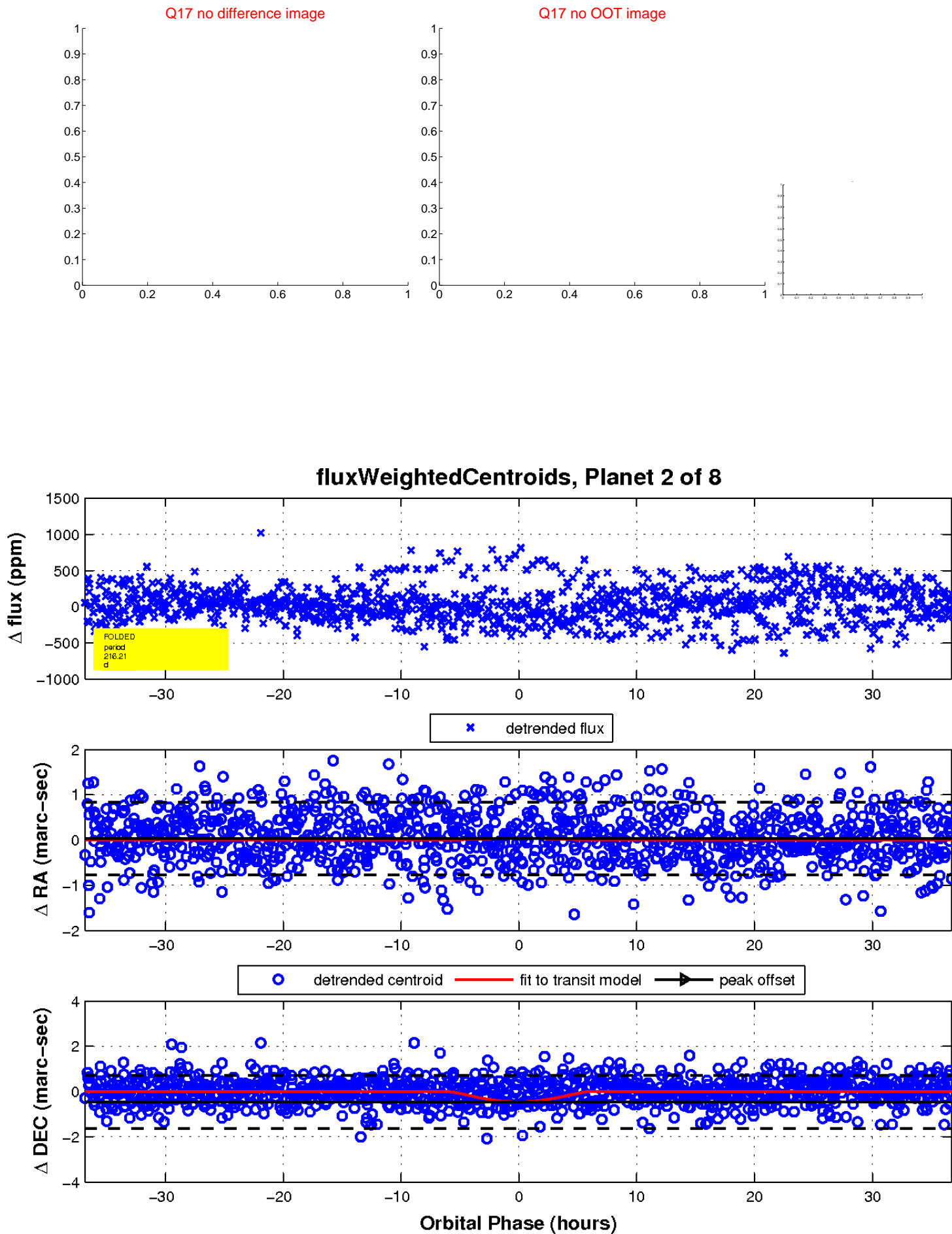
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

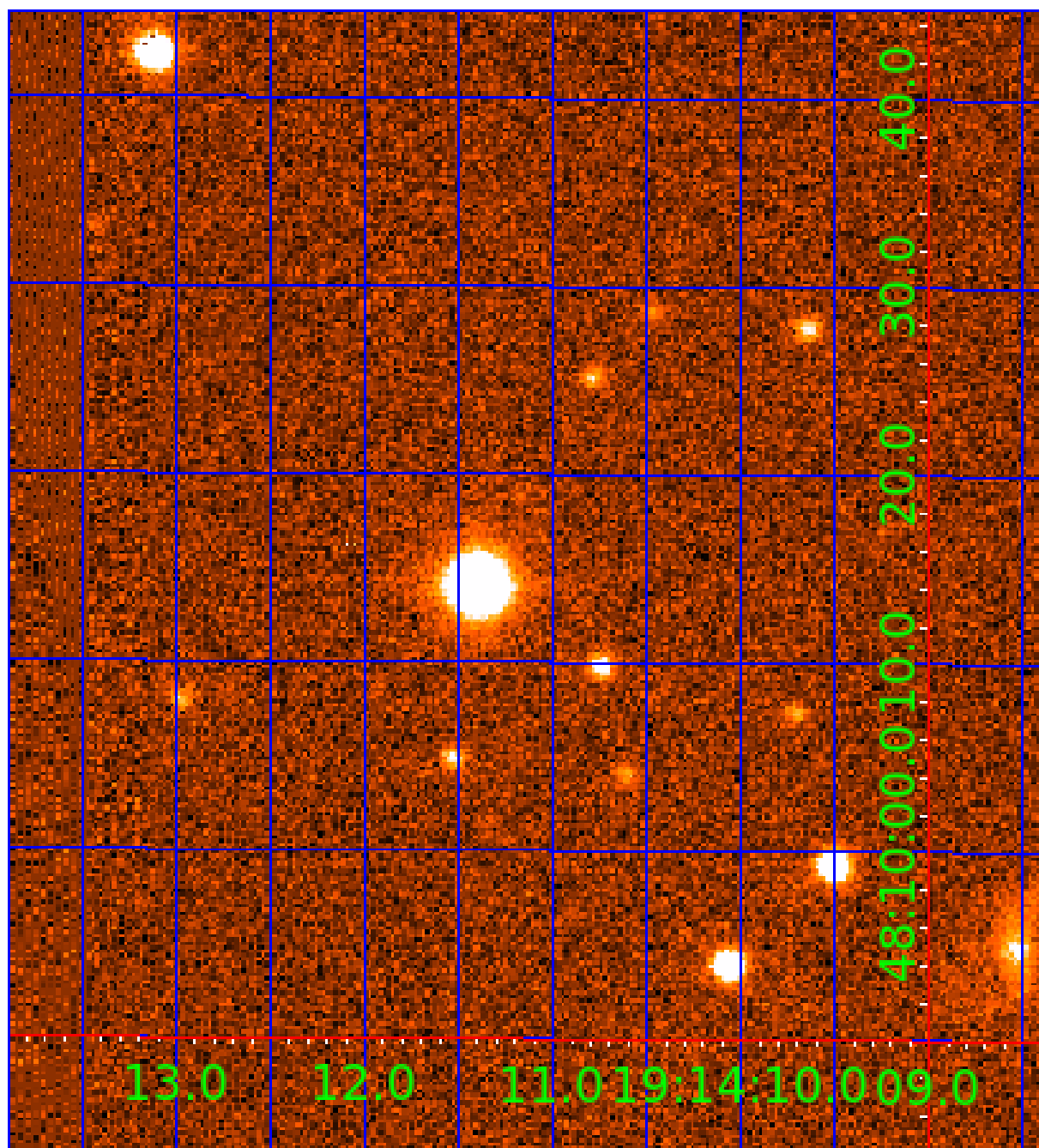


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
010789361-03	OBS	No	114.841981	236.133579	492.1	9.756	15.2	11.1	1.53	6463	6.54	16.19
010789361-04	OBS	No	77.529013	180.223336	273.7	9.262	9.0	8.7	1.53	6463	2.72	27.34
010789361-05	OBS	No	99.845787	172.090369	238.2	10.114	9.6	7.4	1.53	6463	2.64	19.52
010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

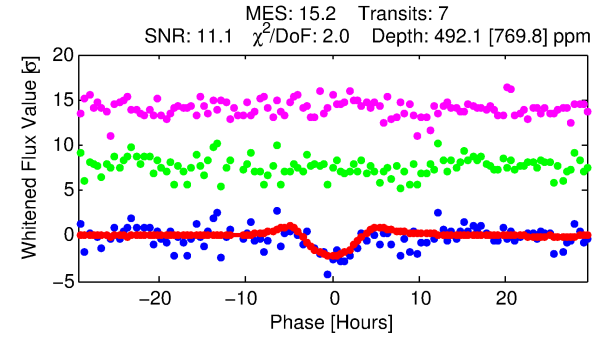
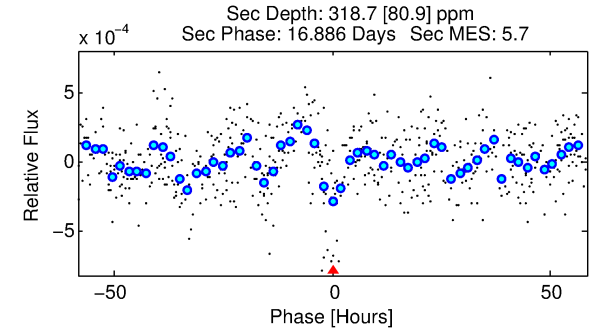
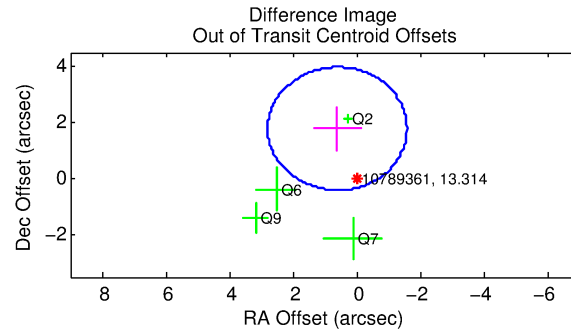
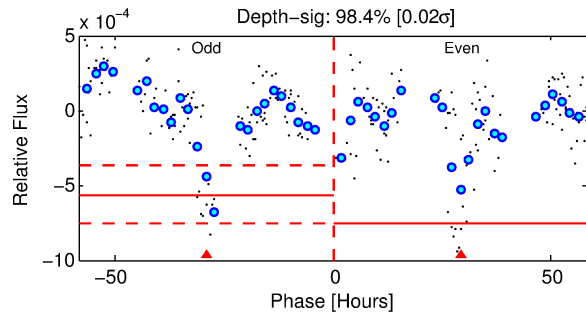
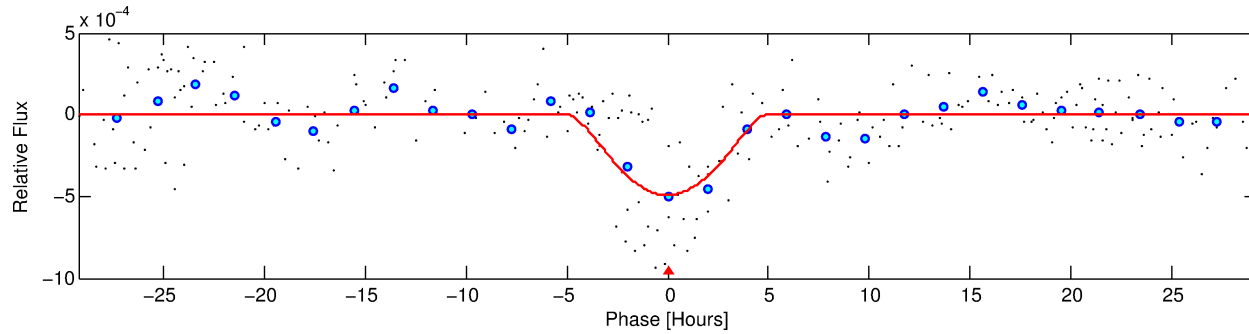
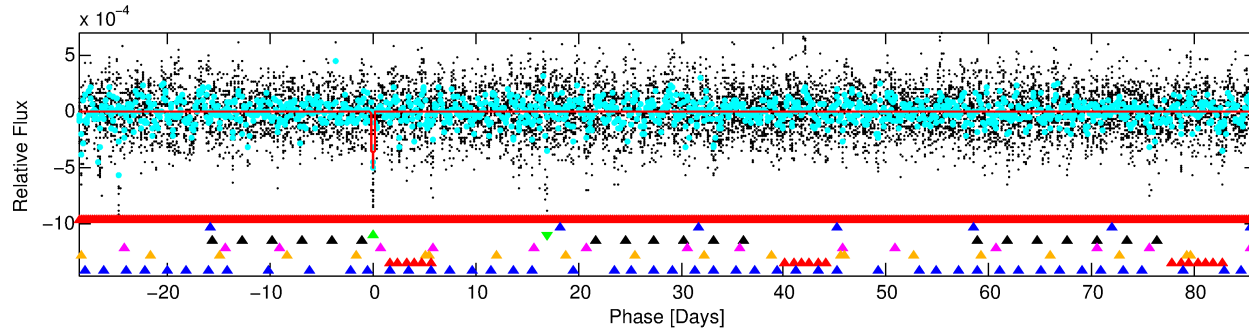
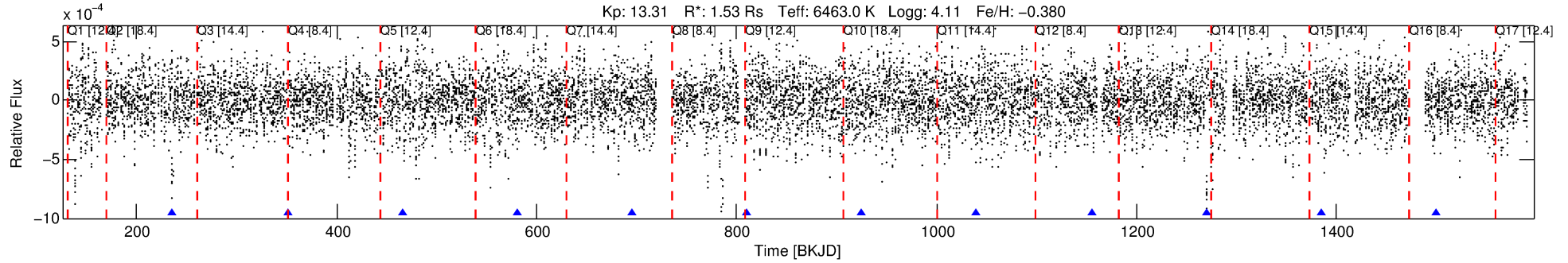
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-03

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 3 of 8 Period: 114.842 d



DV Fit Results:

Period = 114.84198 [0.00337] d
Epoch = 236.1336 [0.0243] BKJD
Rp/R* = 0.0391 [0.1099]
a/R* = 25.42 [18.38]
b = 1.00 [0.20]
Seff = 16.19 [7.95]
Teq = 512 [63] K
Rp = 6.54 [18.48] Re
a = 0.4760 [0.1369] AU
Ag = 929.49 [5249.87] [0.18 σ]
Teffp = 4367 [6147] K [0.63 σ]

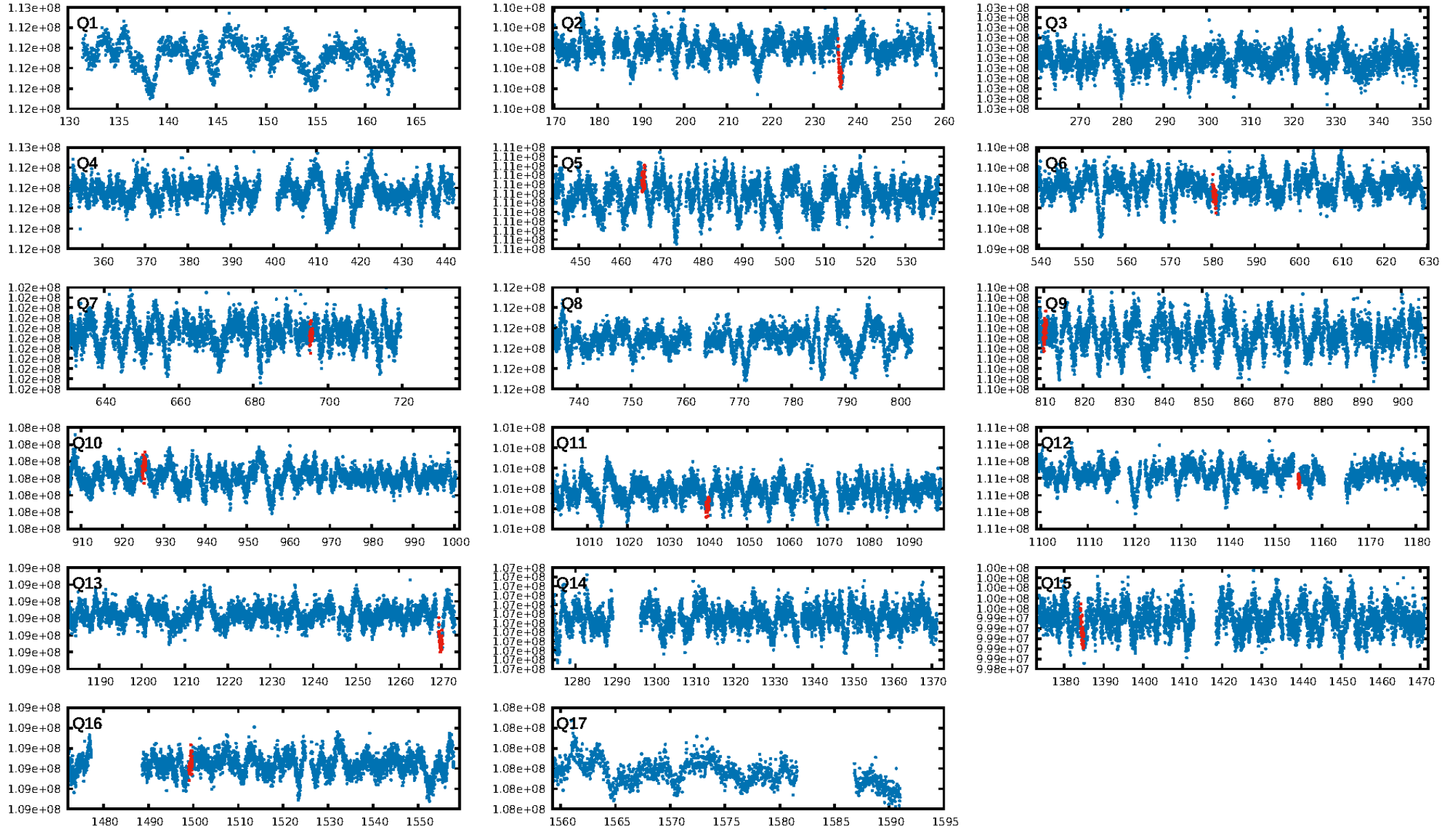
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.61 σ]
LongPeriod-sig: 100.0% [155.01 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.36e-20
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 2.156
Centroid-sig: 0.0%
Centroid-so: 1.308 arcsec [3.34 σ]
OotOffset-rm: 1.881 arcsec [2.57 σ]
KicOffset-rm: 1.655 arcsec [2.38 σ]
OotOffset-st: 2/1/0/1 [4]
KicOffset-st: 2/1/0/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.00 [0/8]

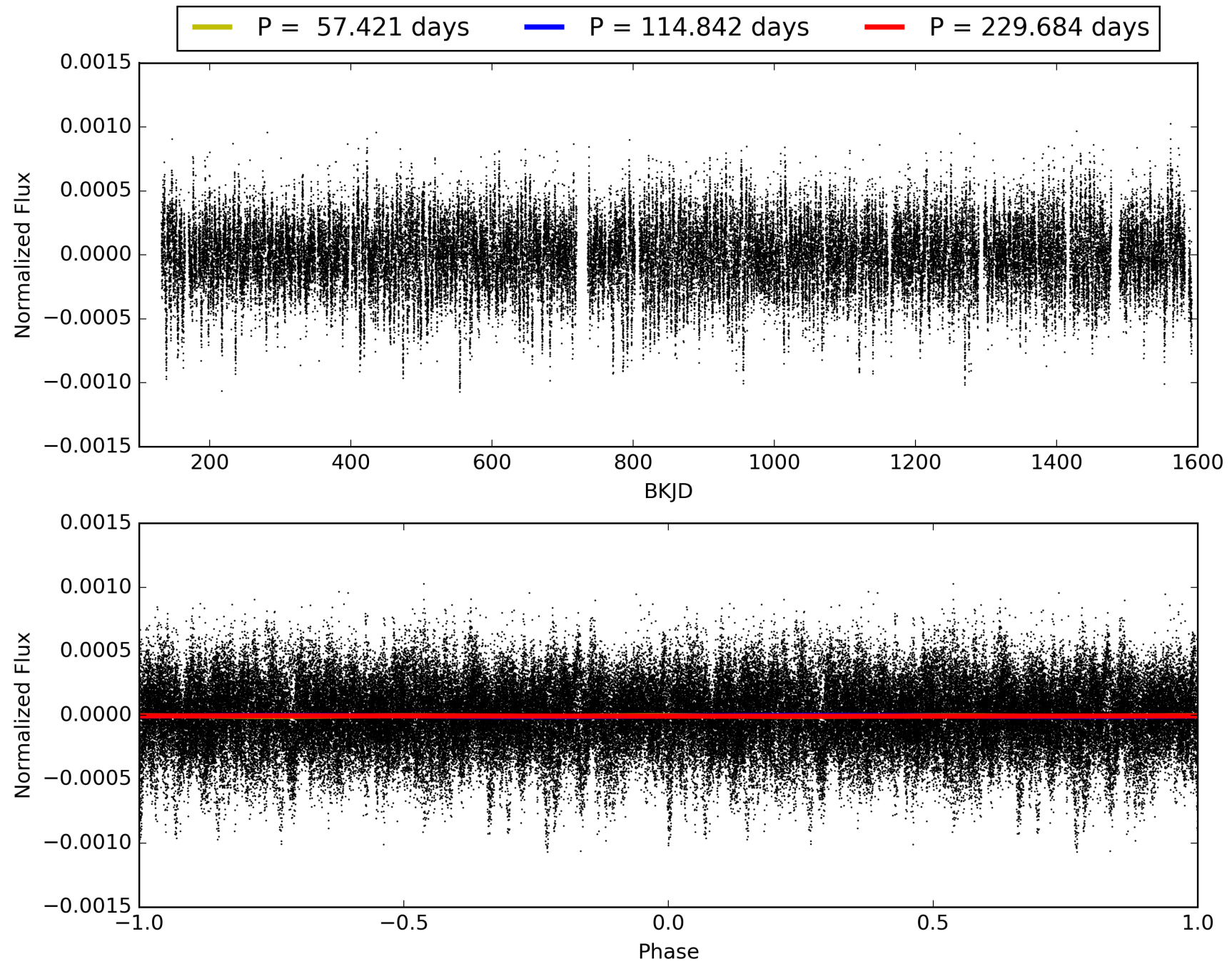
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:33 Z

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

TCE 010789361-03, PDC Light Curves

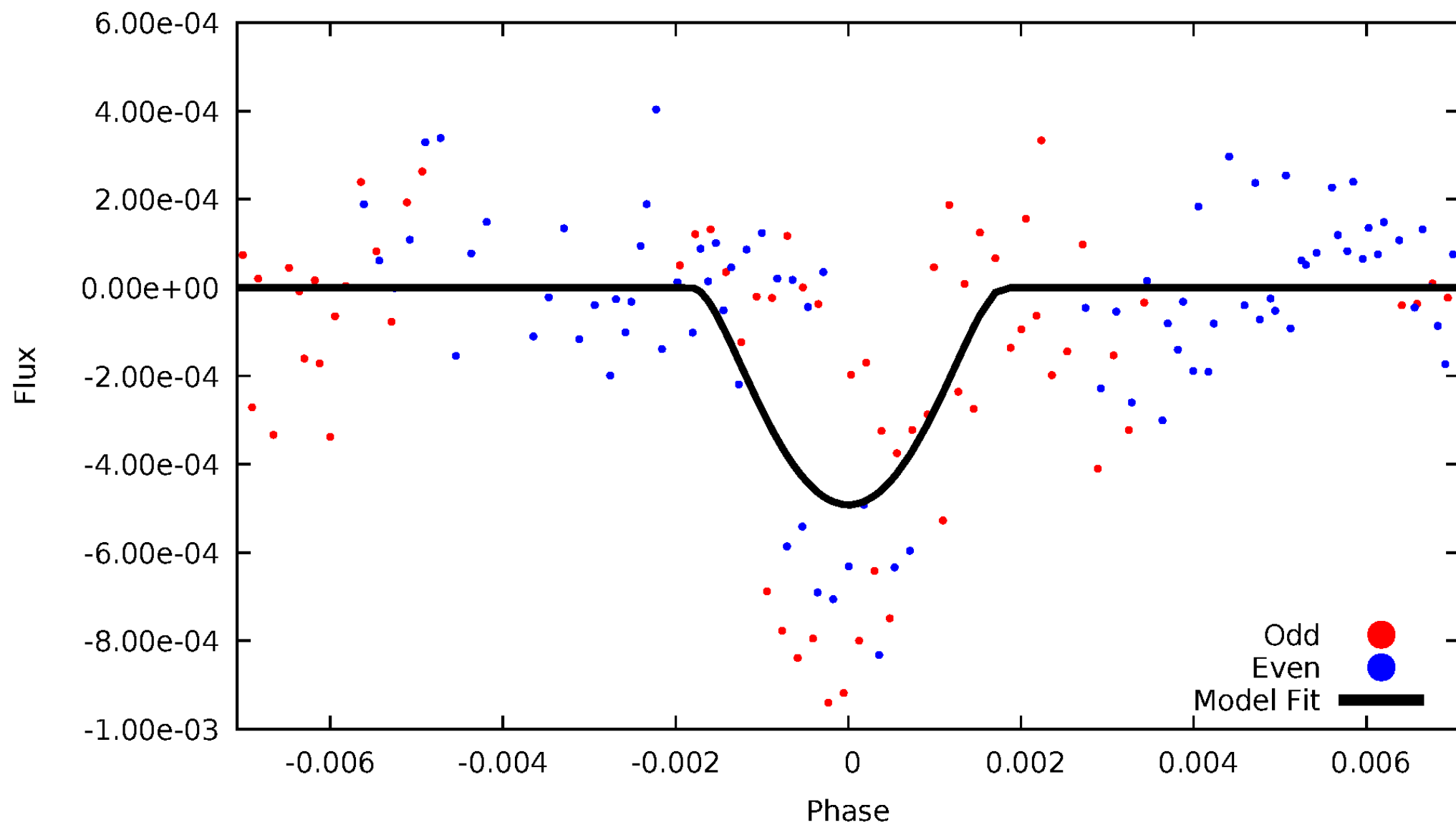


TCE 010789361-03



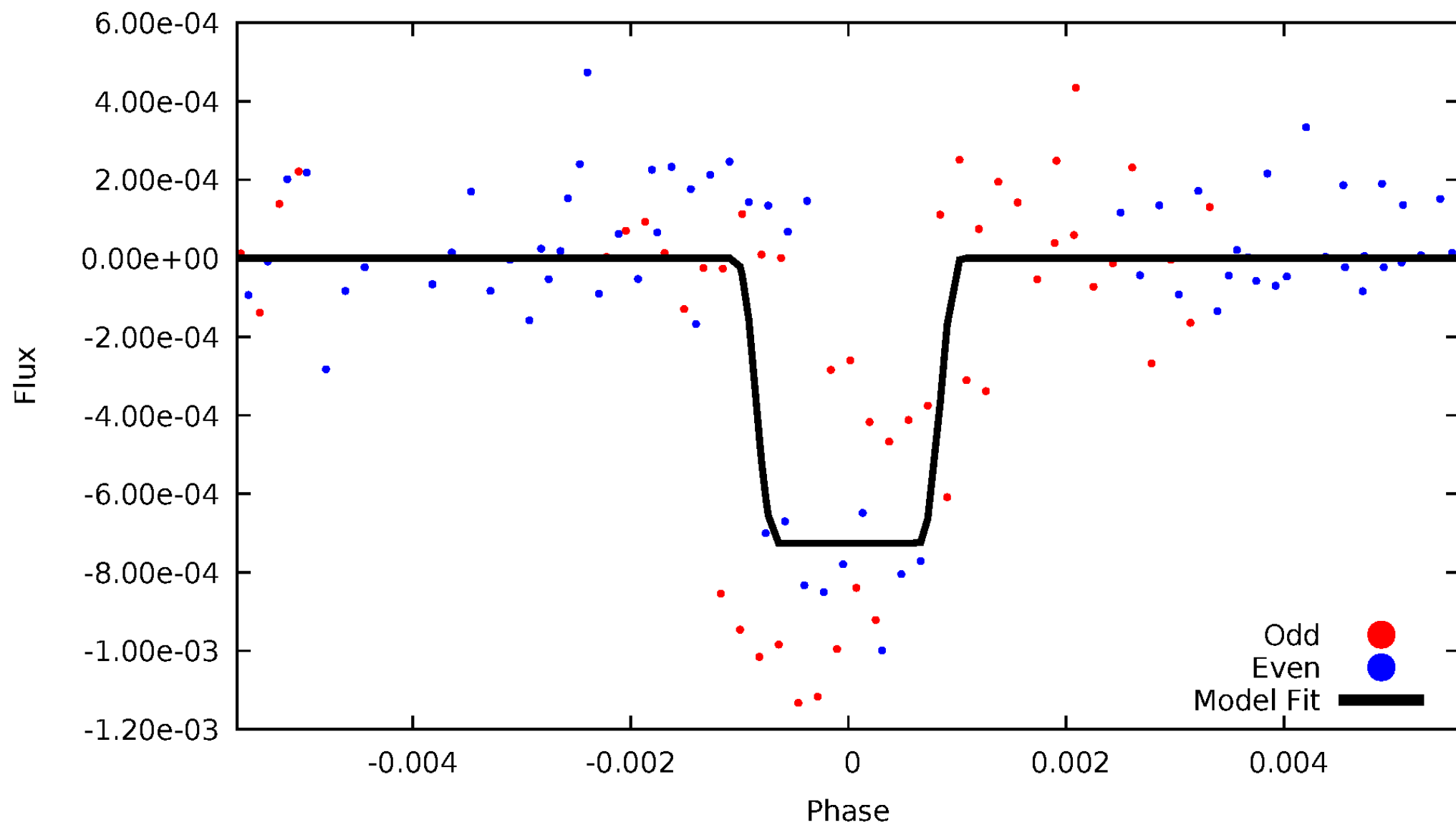
DV Odd/Even

TCE 010789361-03



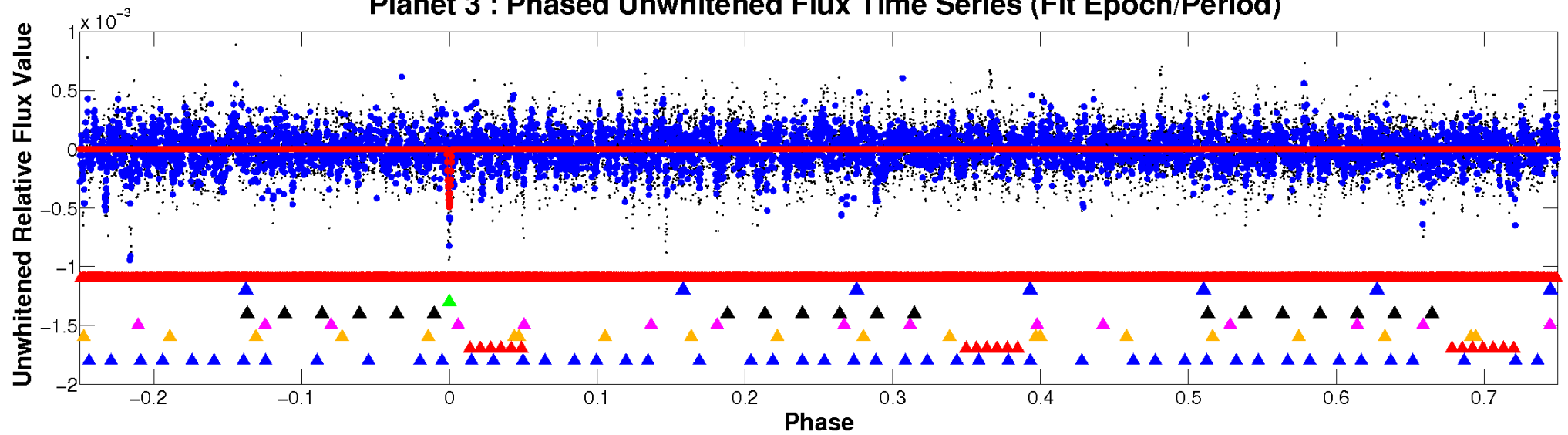
ALT Odd/Even

TCE 010789361-03

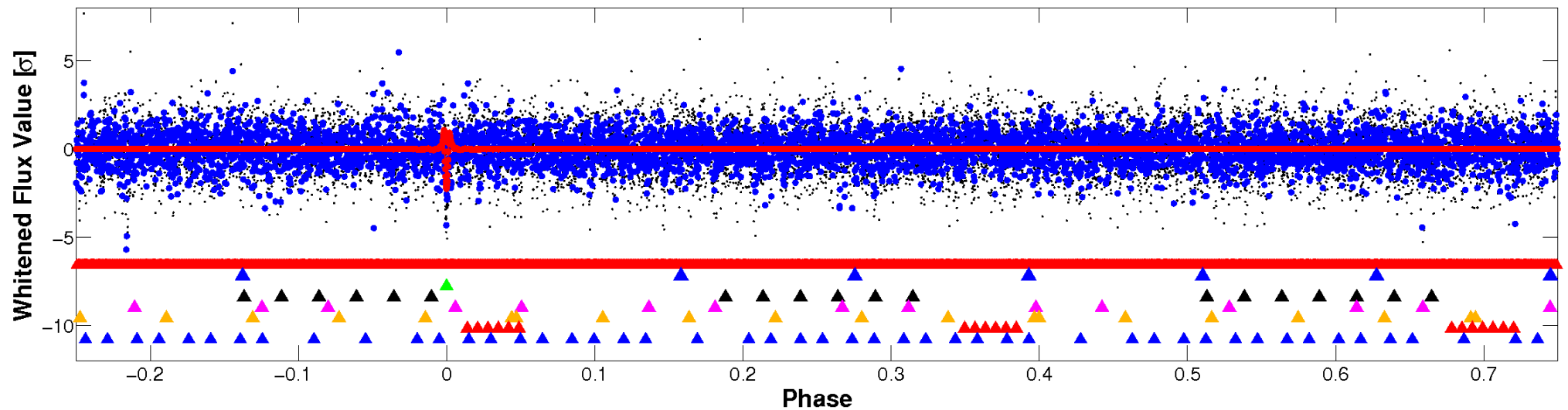


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

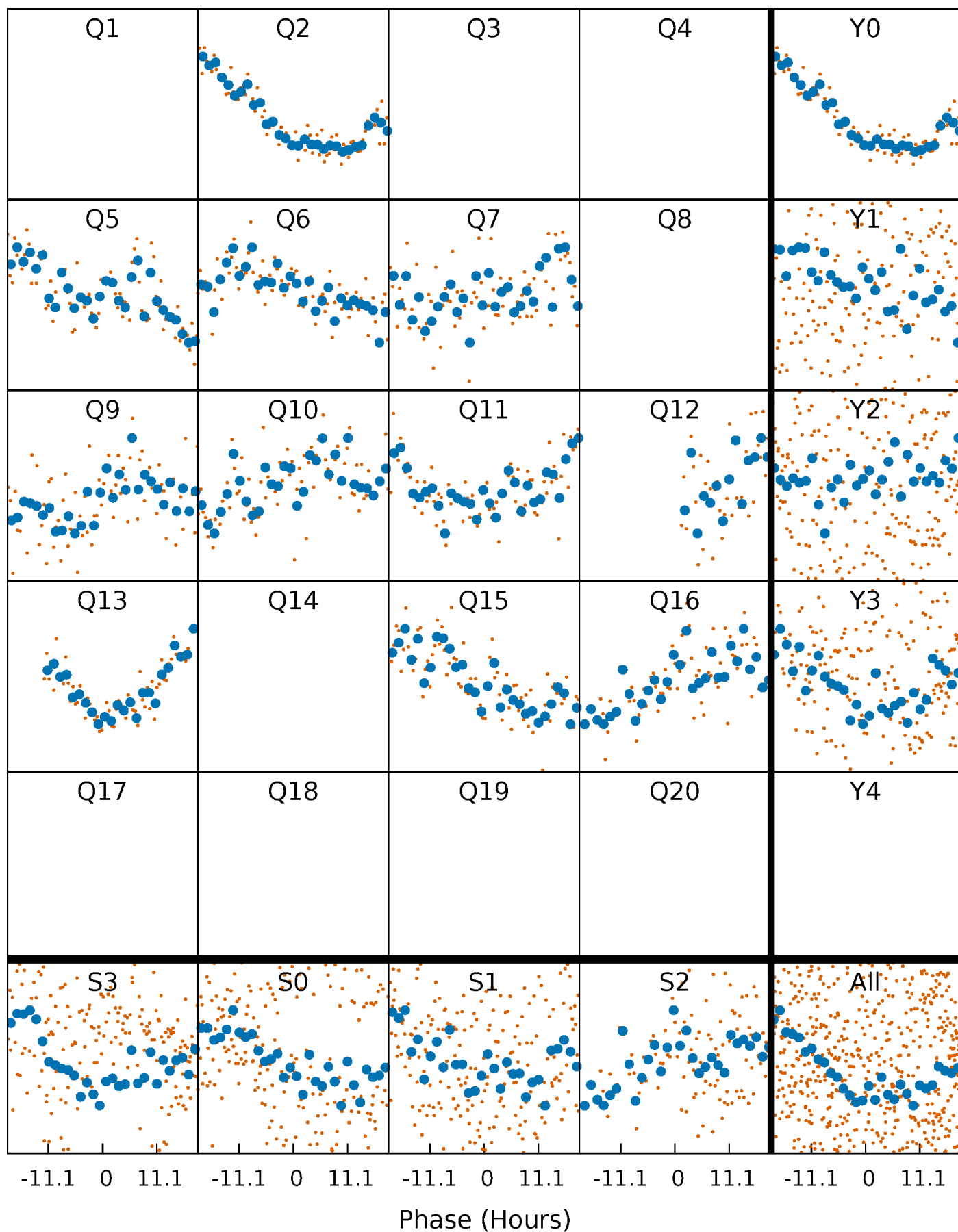


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



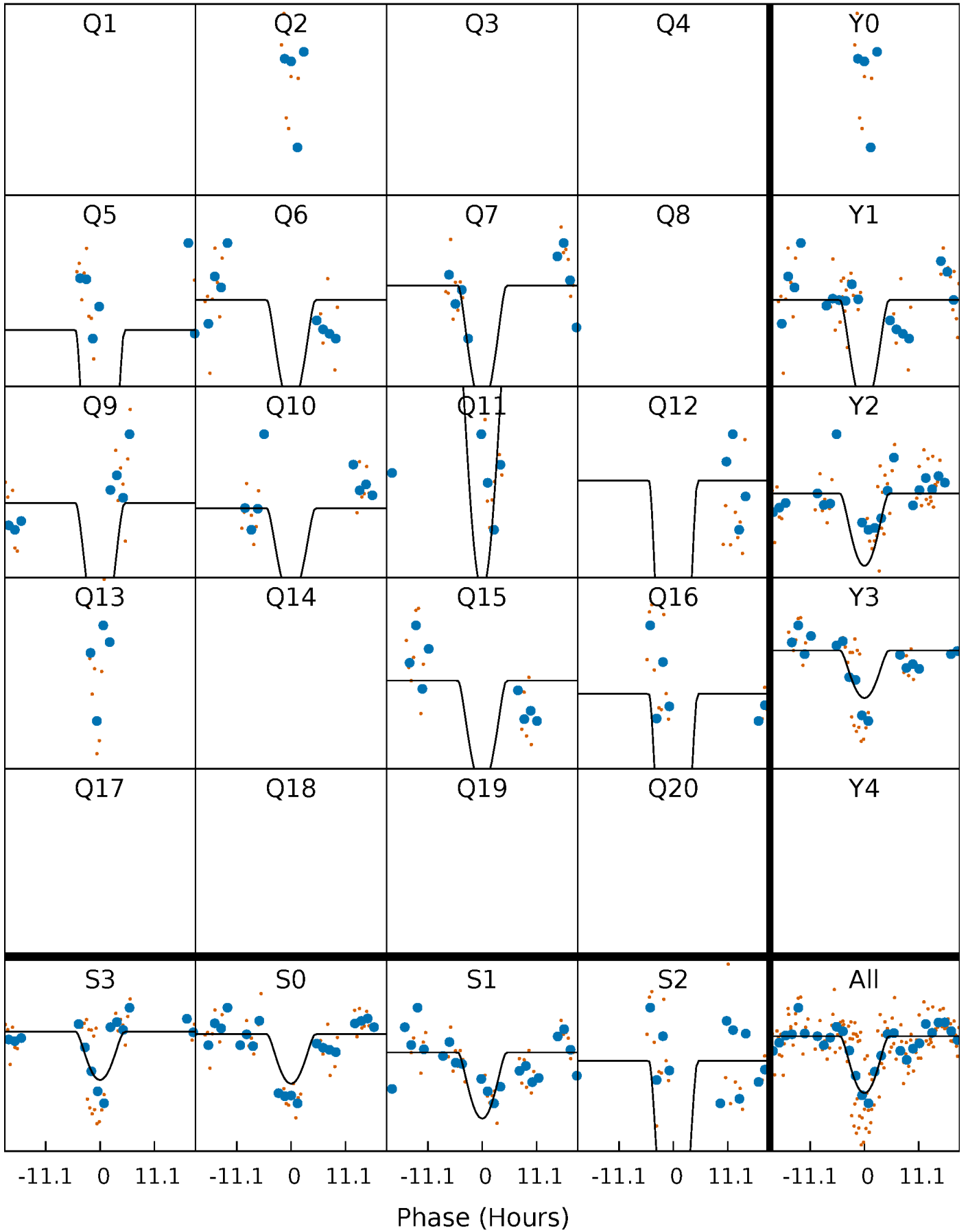
PDC Quarter-Phased Transit Curves

TCE 010789361-03 P=114.841981 Days $T_0=236.133579$ (BKJD)



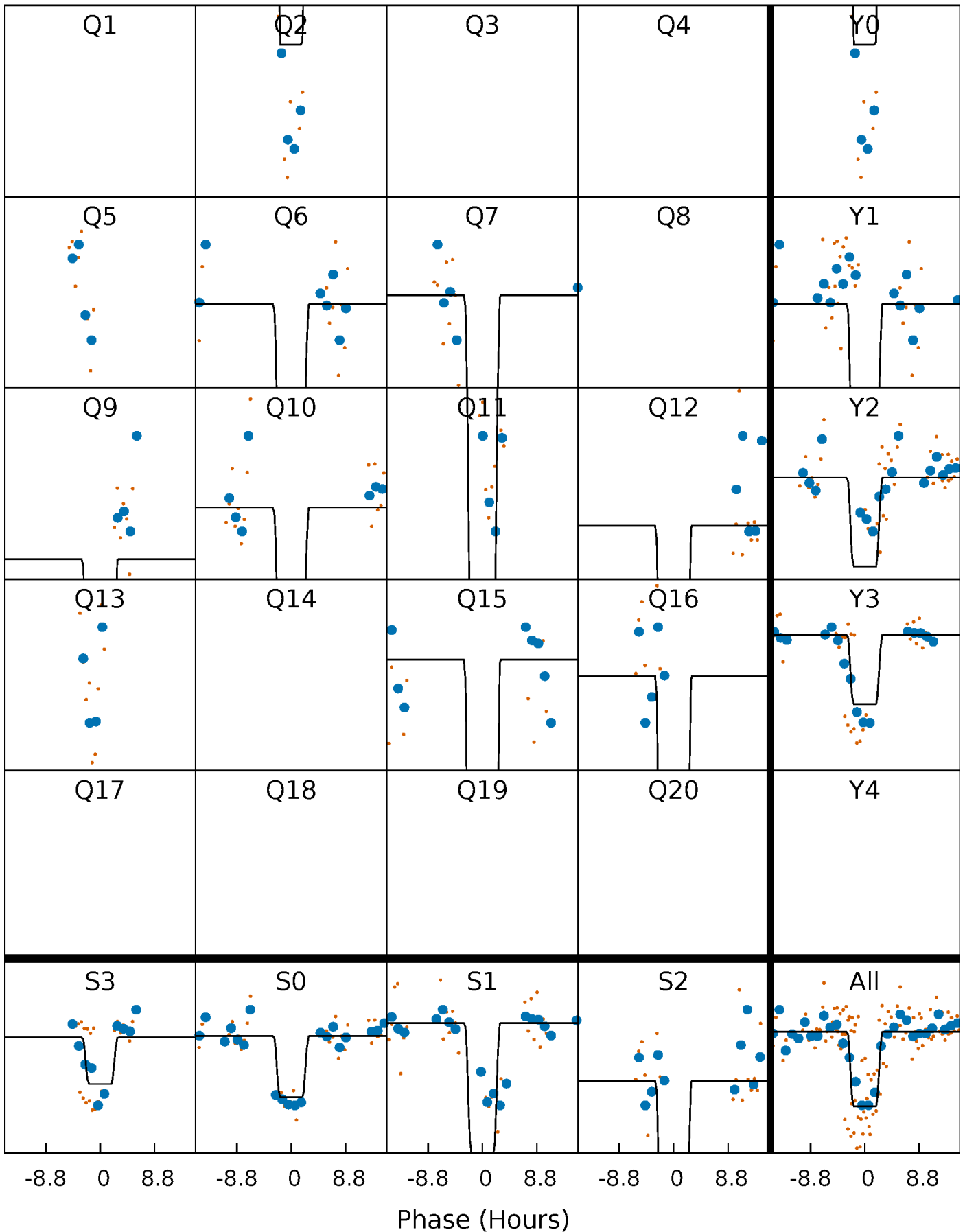
DV Quarter-Phased Transit Curves

TCE 010789361-03 $P=114.841981$ Days $T_0=236.133579$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

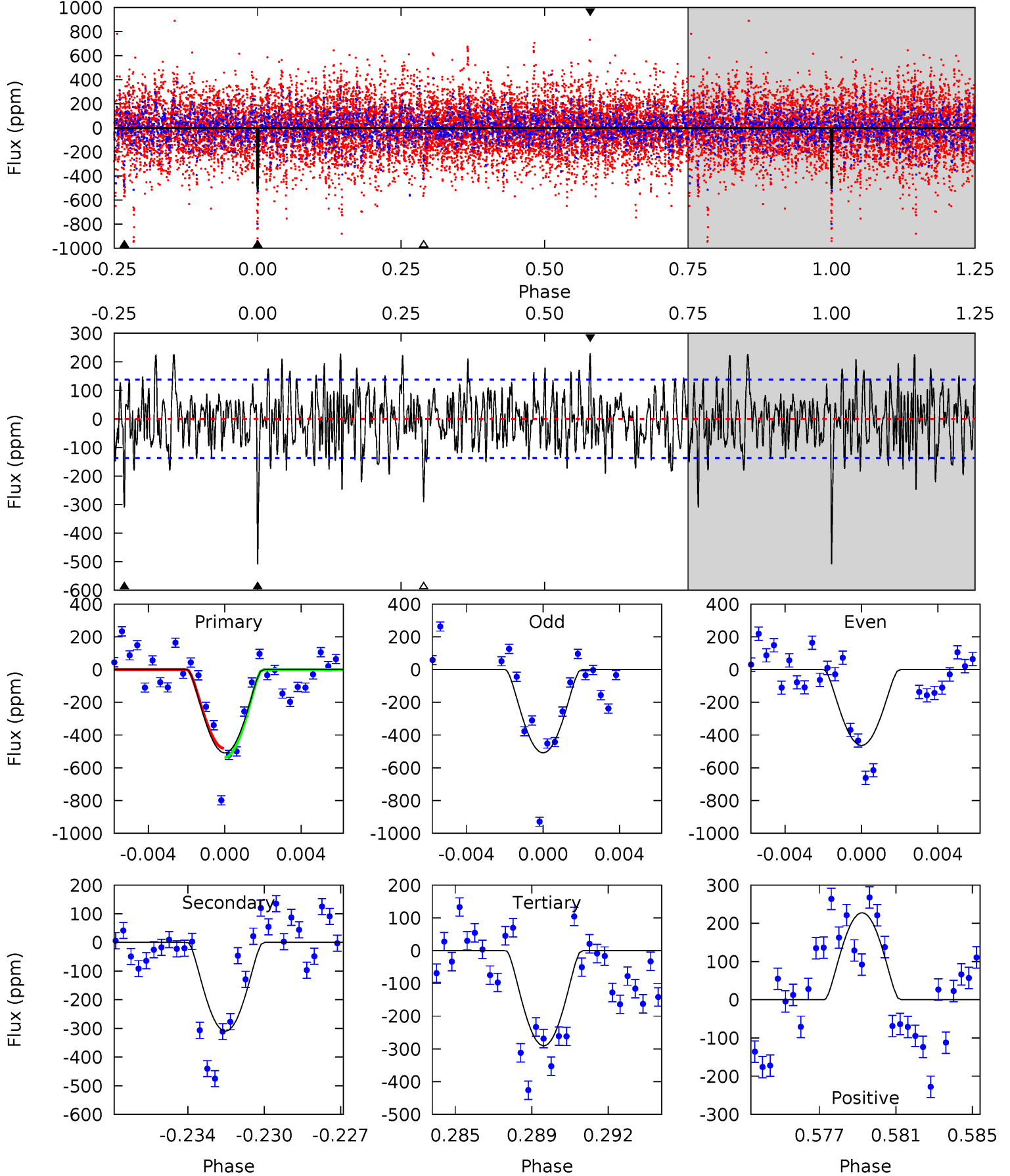
TCE 010789361-03 P=114.844281 Days $T_0=236.139192$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-03, P = 114.841981 Days, E = 121.291598 Days

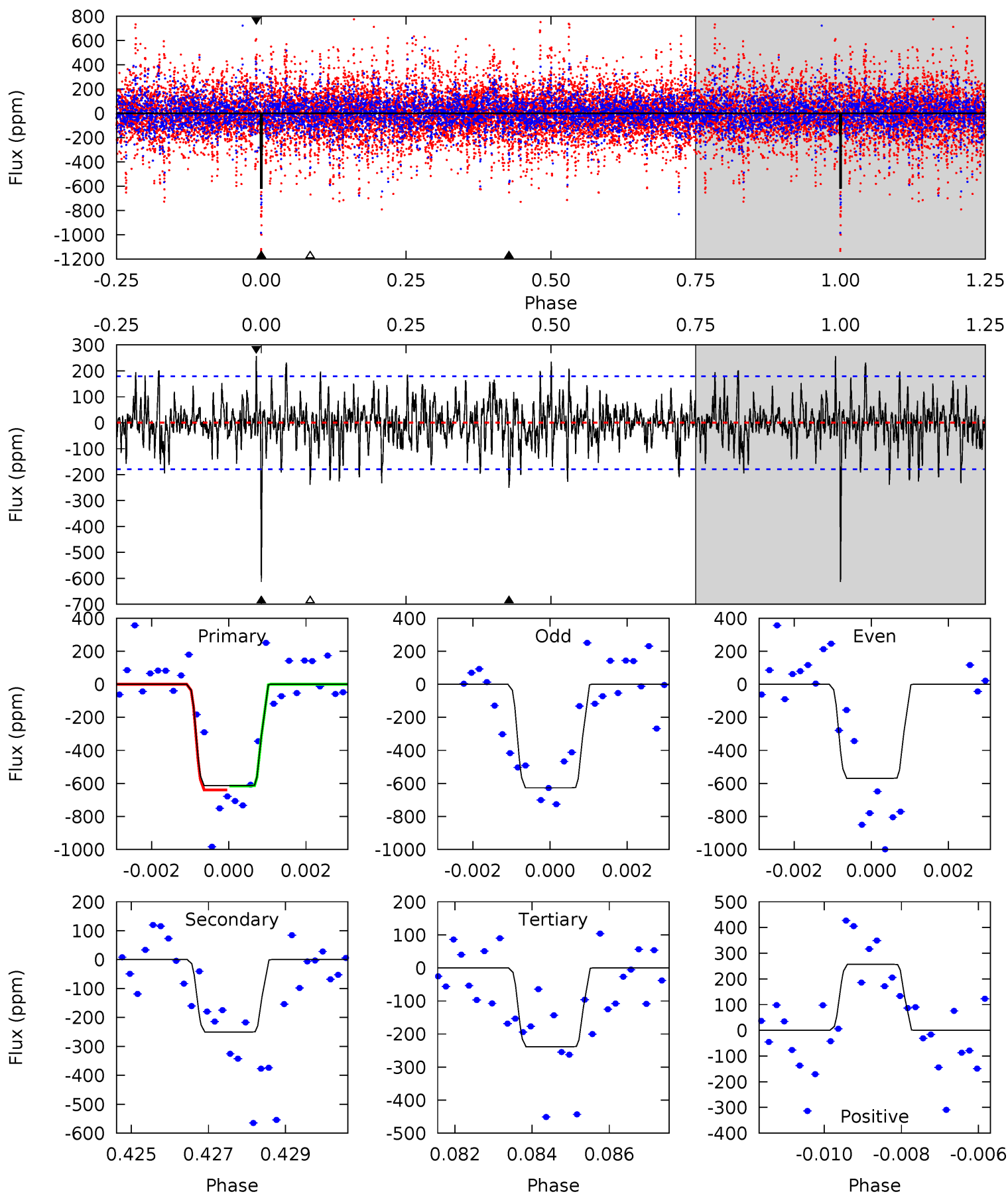
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	11.8	11.0	8.64	5.22	2.91	2.97	8.29	10.7	0.72	3.11	0.85	0.87	0.31	1.01



Alt Model-Shift Uniqueness Test

010789361-03, P = 114.844281 Days, E = 121.294911 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	7.44	7.09	7.63	5.33	3.09	1.91	11.2	10.6	0.35	-0.19	0.88	1.62	0.29	0.35



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-310 ± 26	$14.75^{+15.07}_{-9.86}$	705^{+53}_{-62}	3376^{+1581}_{-632}	181^{+1455}_{-138}
Alt.	-250 ± 34	$13.68^{+14.71}_{-9.08}$	703^{+49}_{-59}	3313^{+1524}_{-600}	164^{+1371}_{-126}

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 $A_{obs} \gg 1.0$

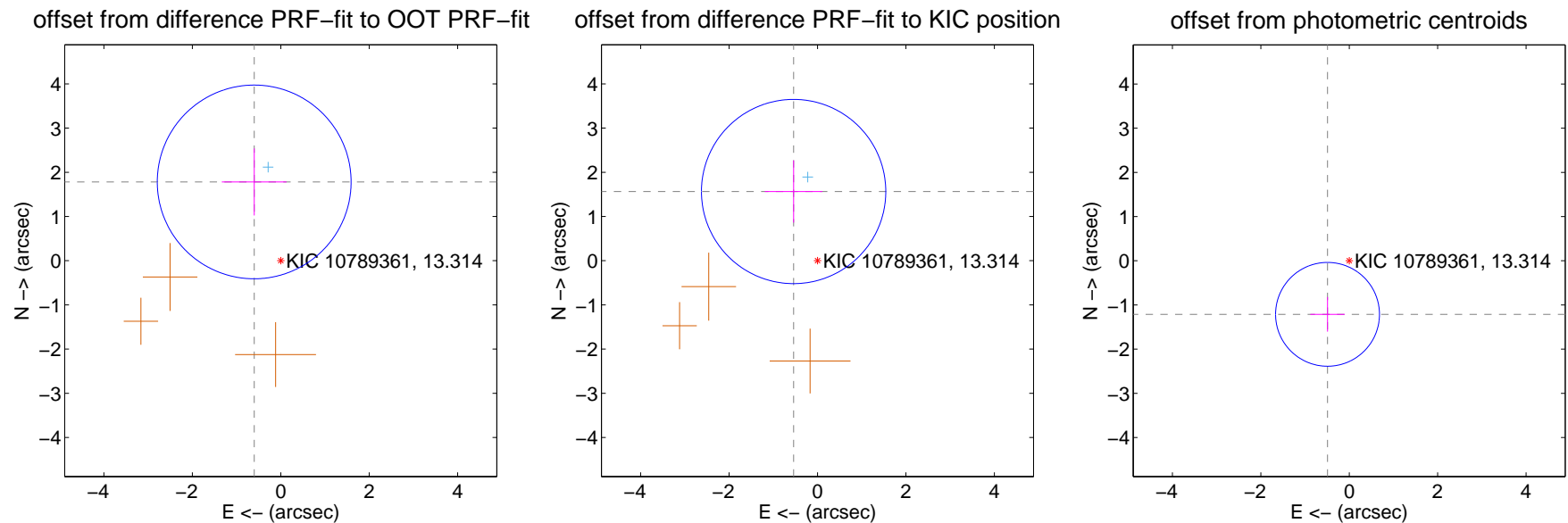
DV Centroid Data

Supplemental centroid analysis for 010789361-03. Kepler magnitude: 13.31. Transit SNR 11.06

There are 1 quarters with good PRF difference image offsets

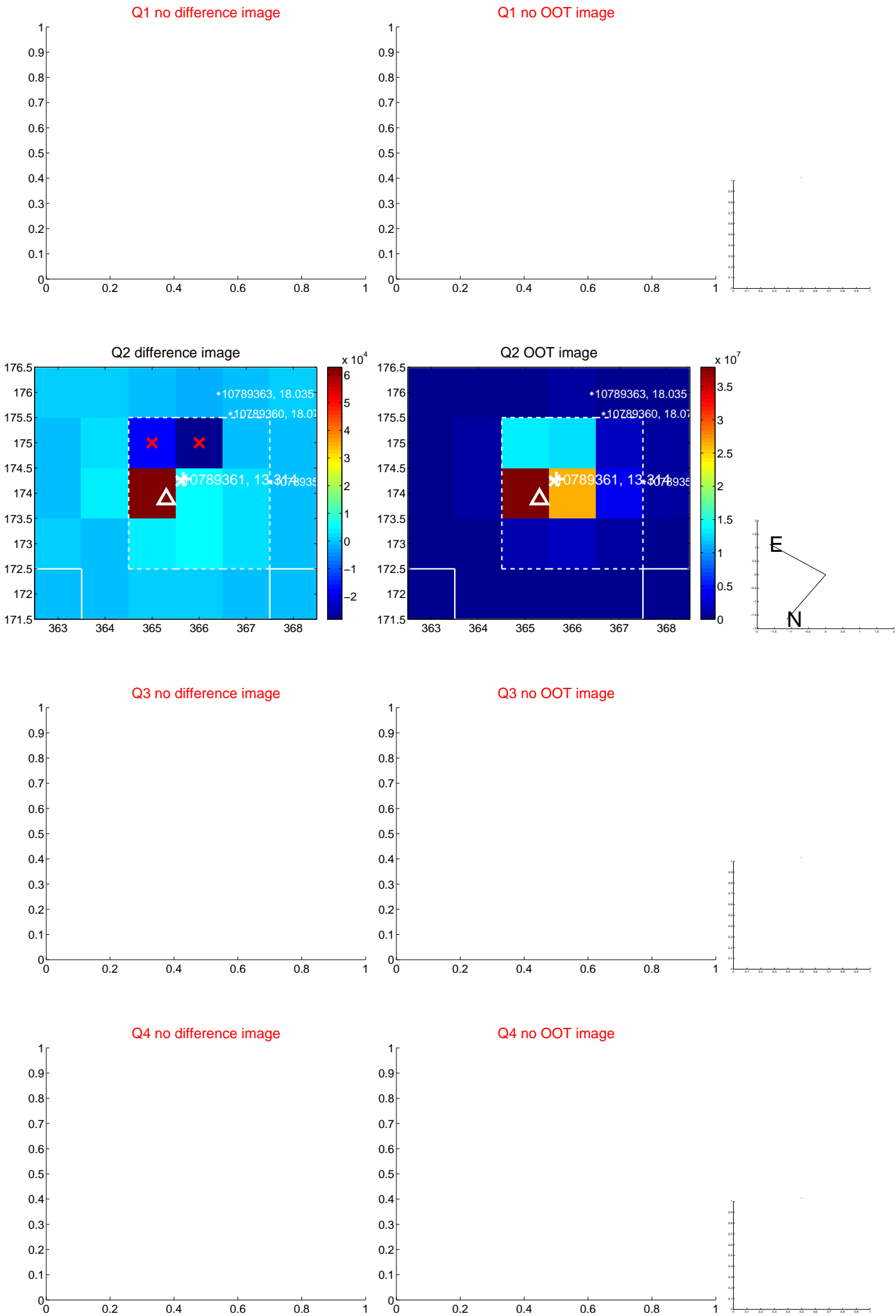
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.881 ± 0.730	2.57	0.601 ± 0.731	1.782 ± 0.759
PRF-fit source offset from KIC position	1.655 ± 0.695	2.38	0.540 ± 0.651	1.565 ± 0.704
photometric centroid source offset	1.31 ± 0.39	3.34	0.49 ± 0.39	-1.21 ± 0.39

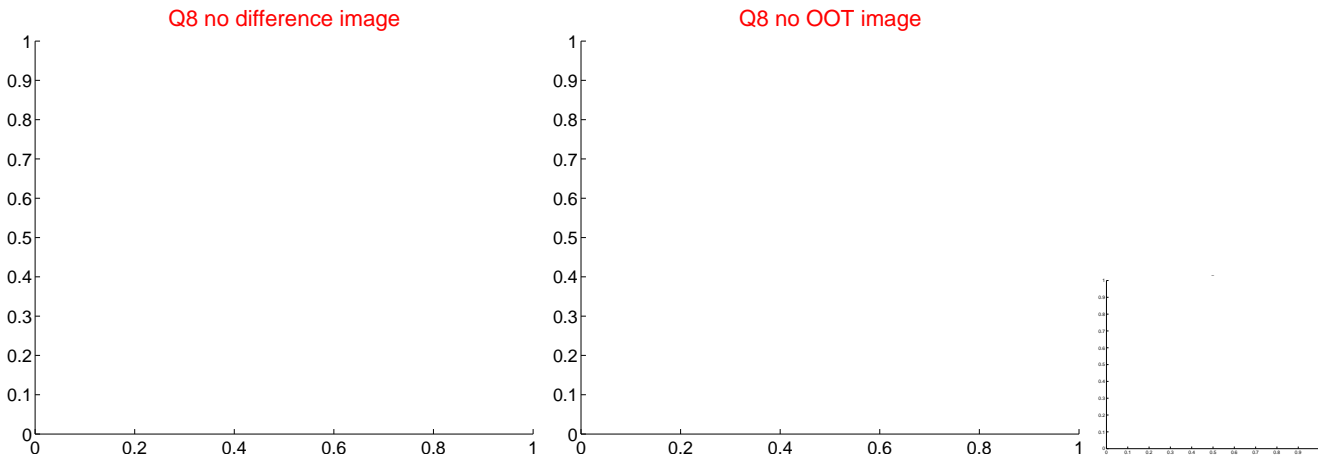
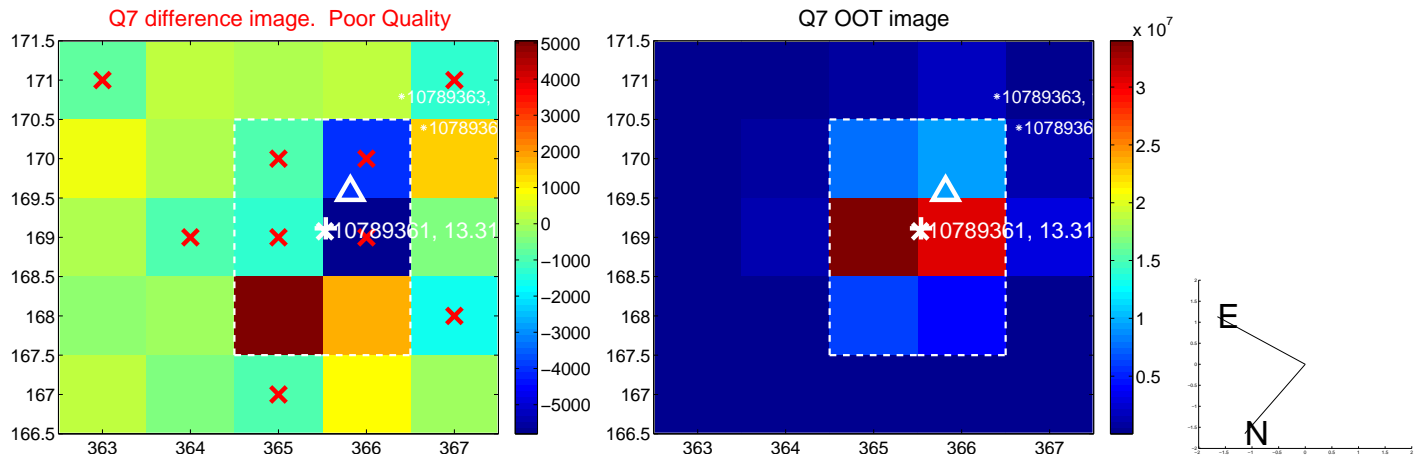
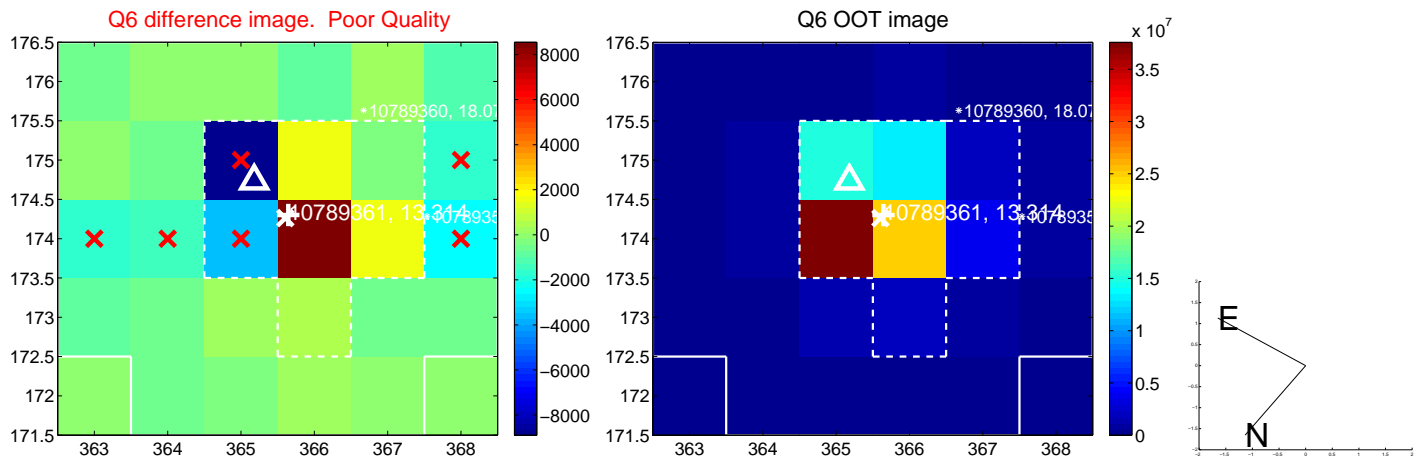
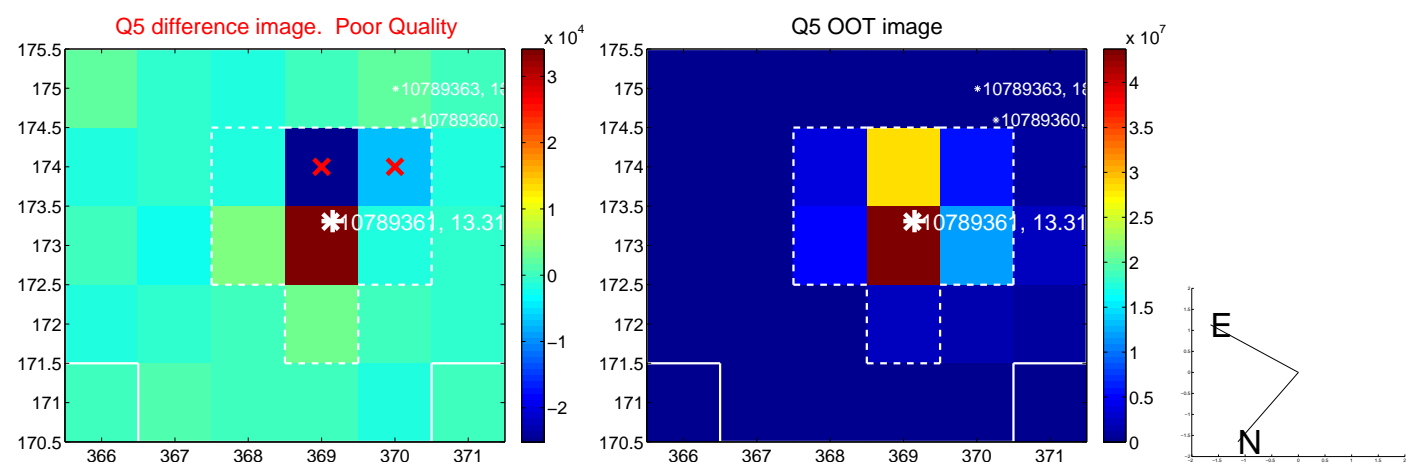


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

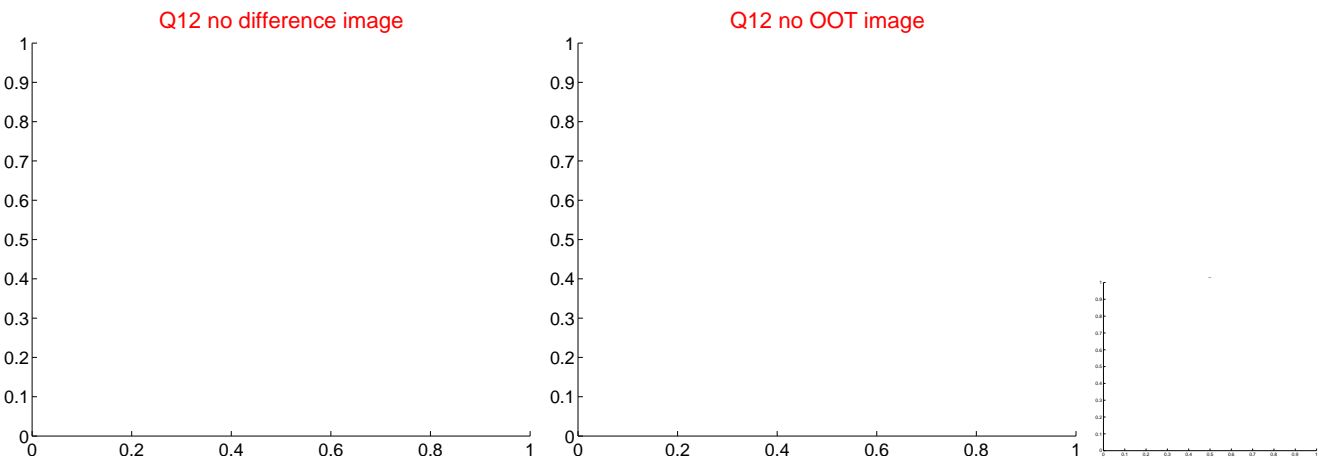
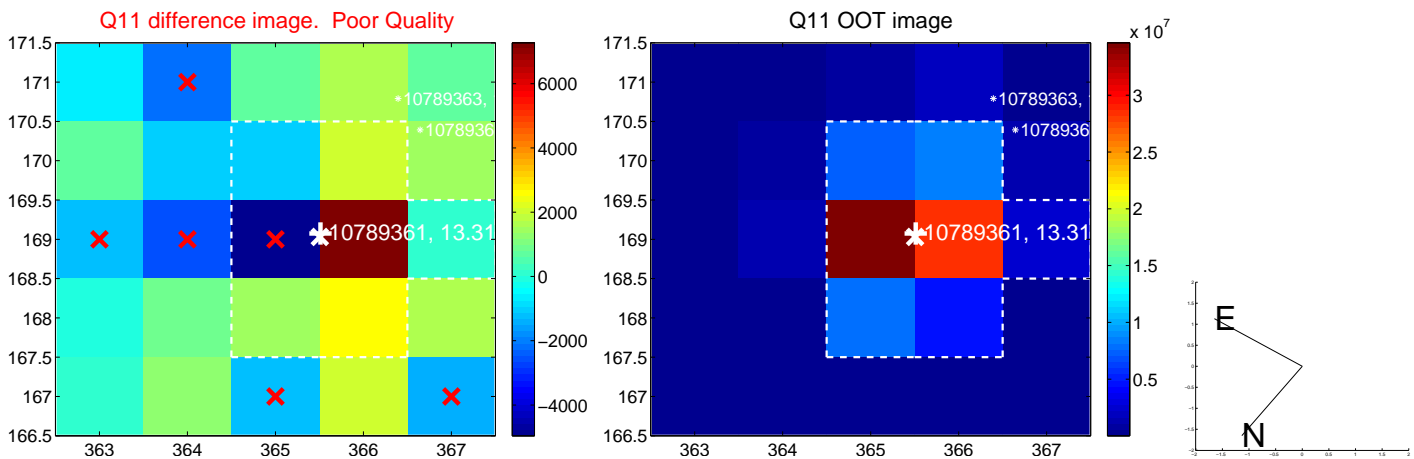
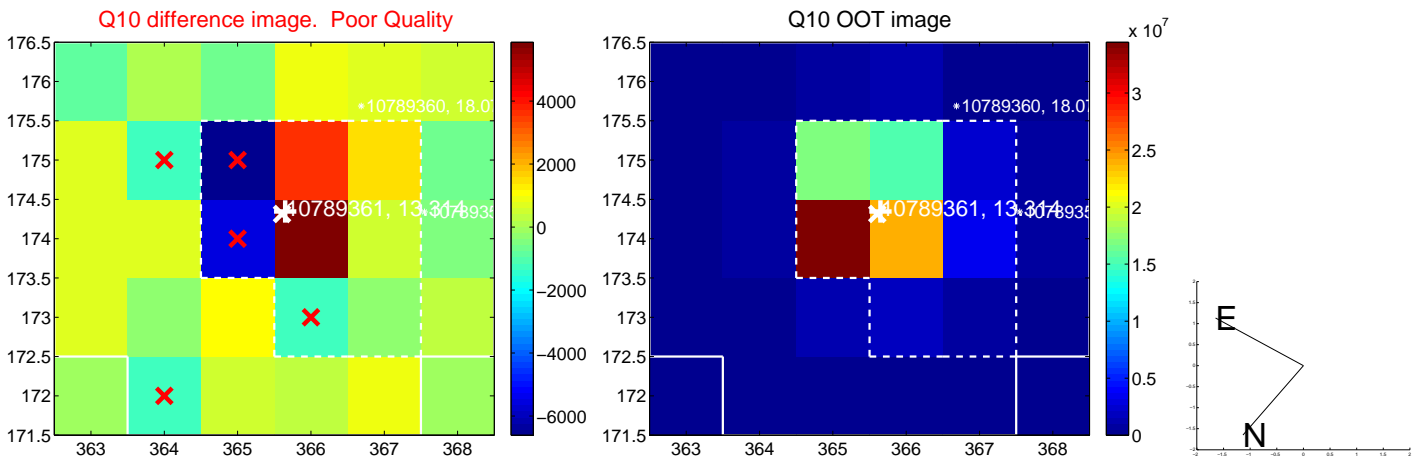
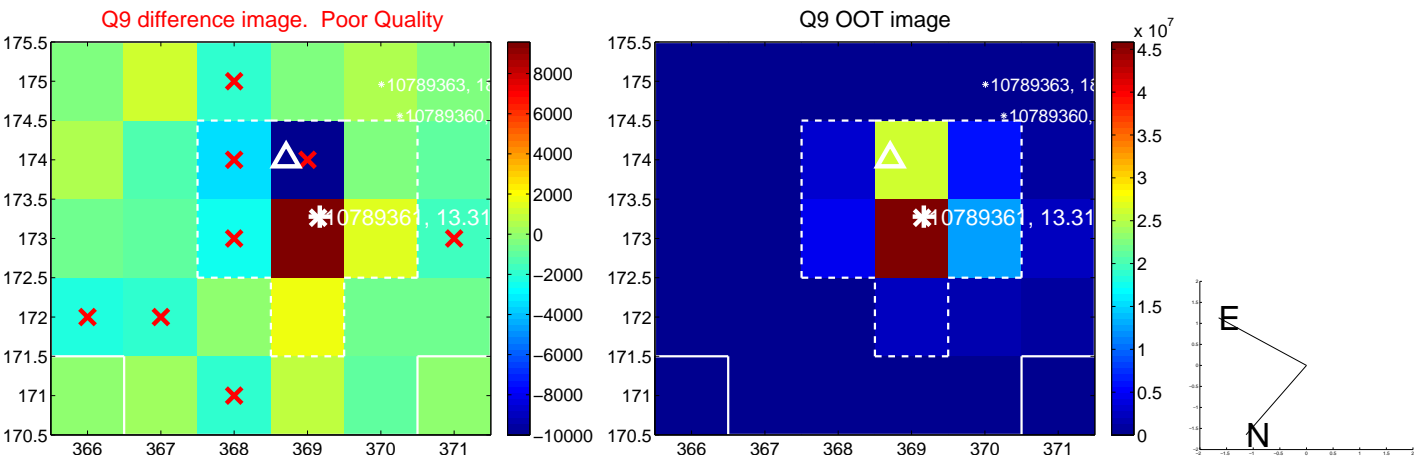
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



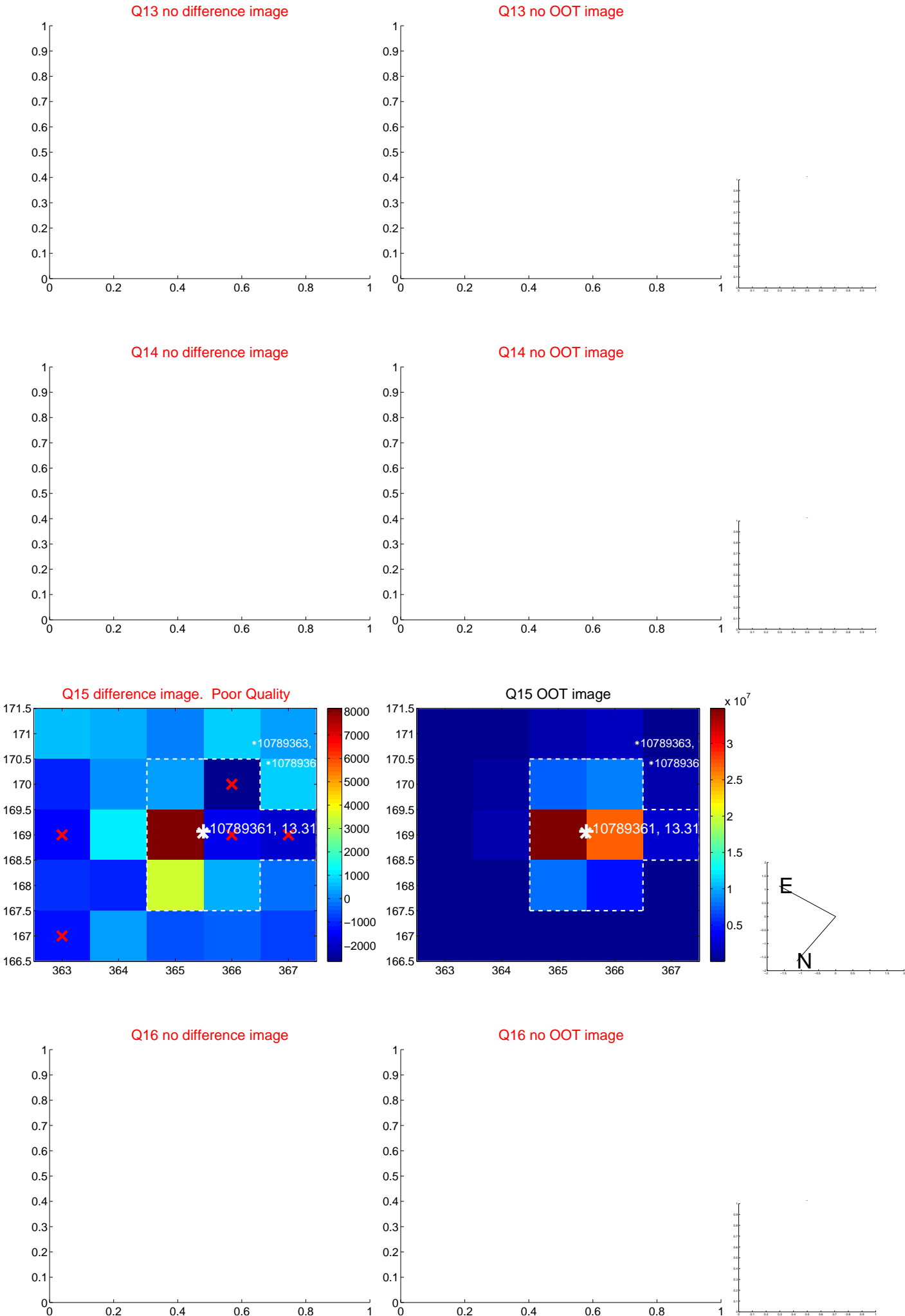
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



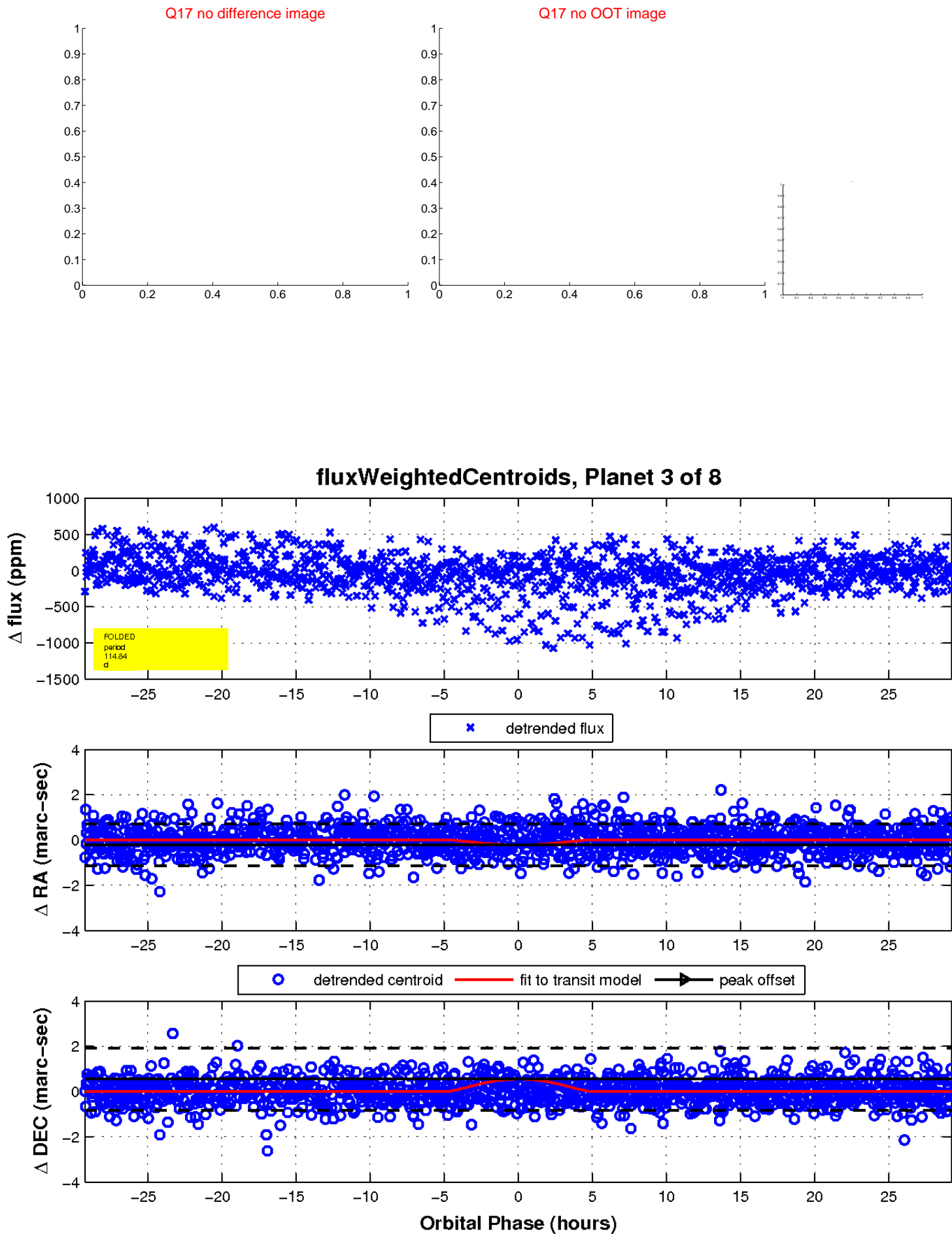
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

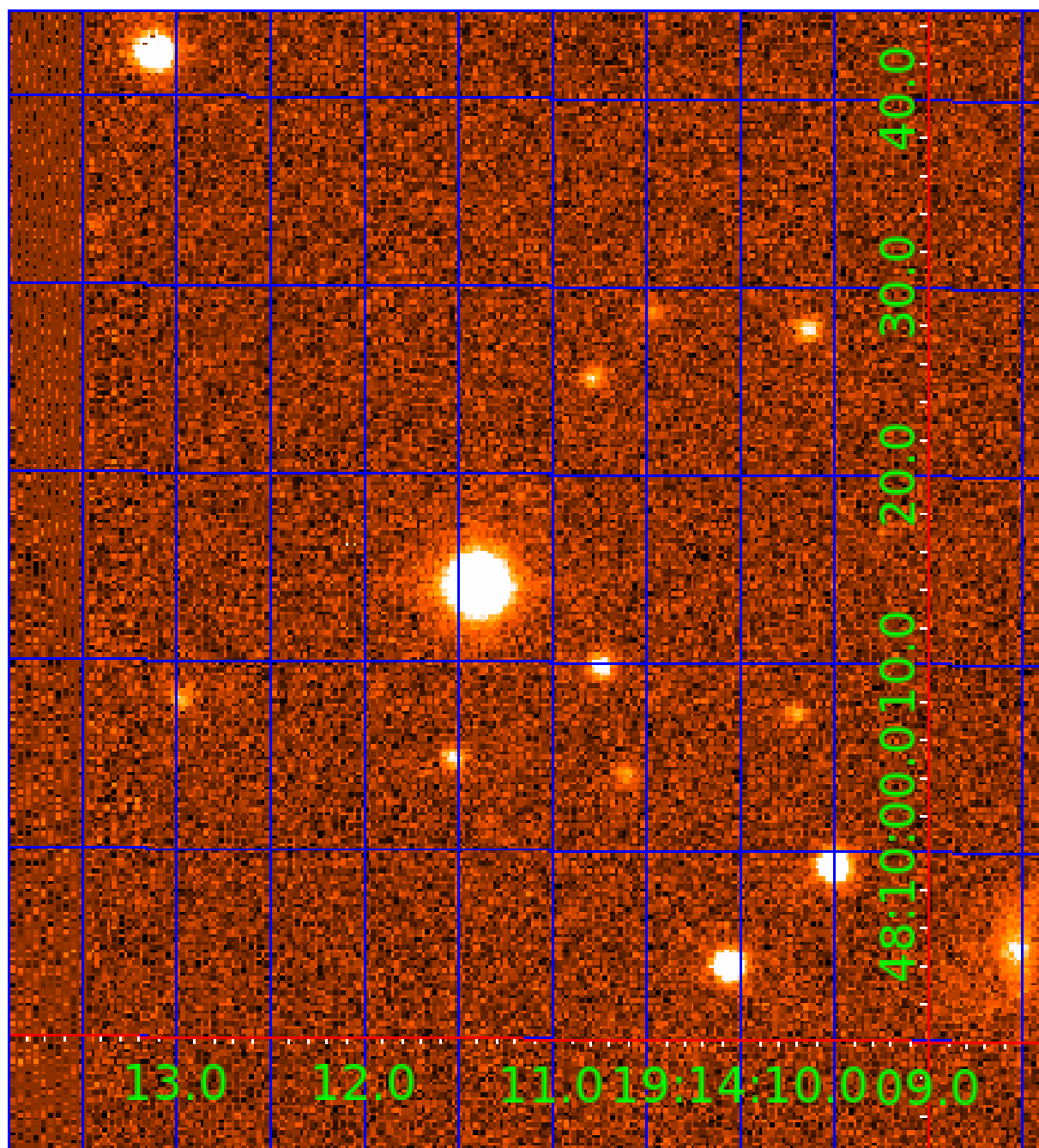


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
010789361-03	OBS	No	114.841981	236.133579	492.1	9.756	15.2	11.1	1.53	6463	6.54	16.19
010789361-04	OBS	No	77.529013	180.223336	273.7	9.262	9.0	8.7	1.53	6463	2.72	27.34
010789361-05	OBS	No	99.845787	172.090369	238.2	10.114	9.6	7.4	1.53	6463	2.64	19.52
010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

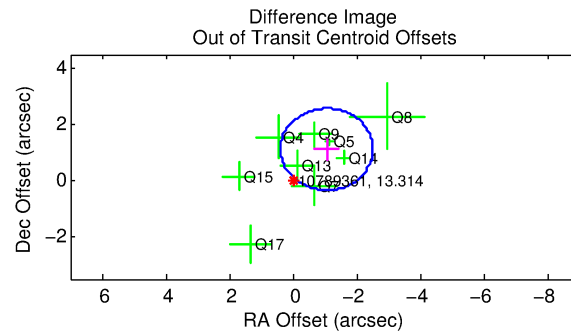
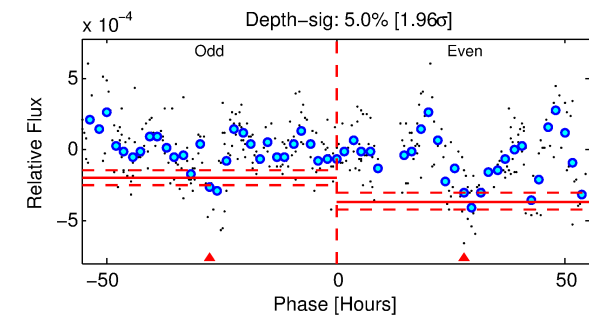
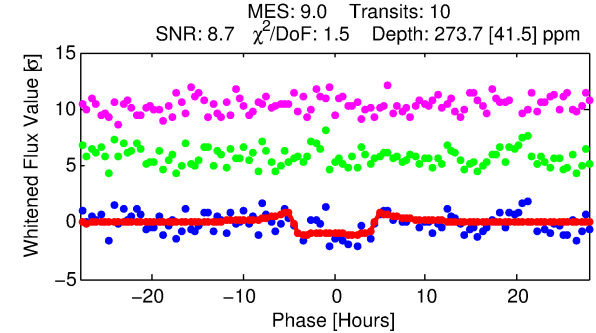
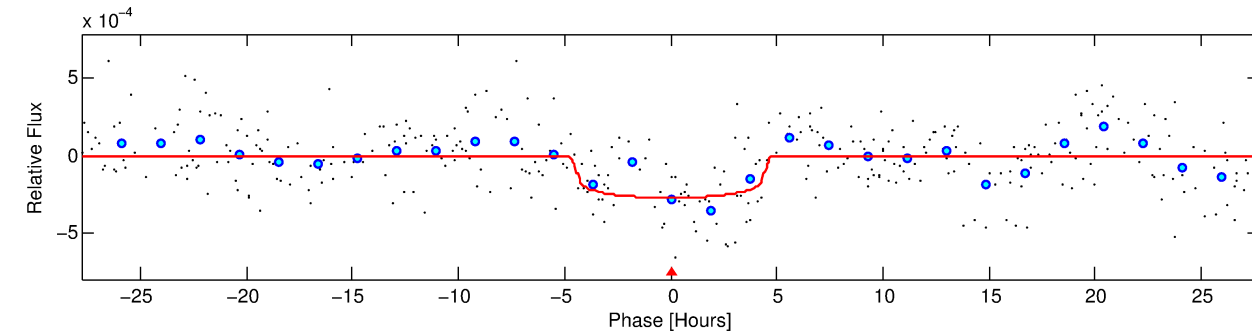
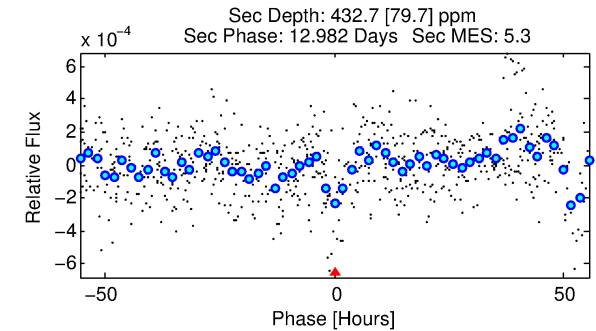
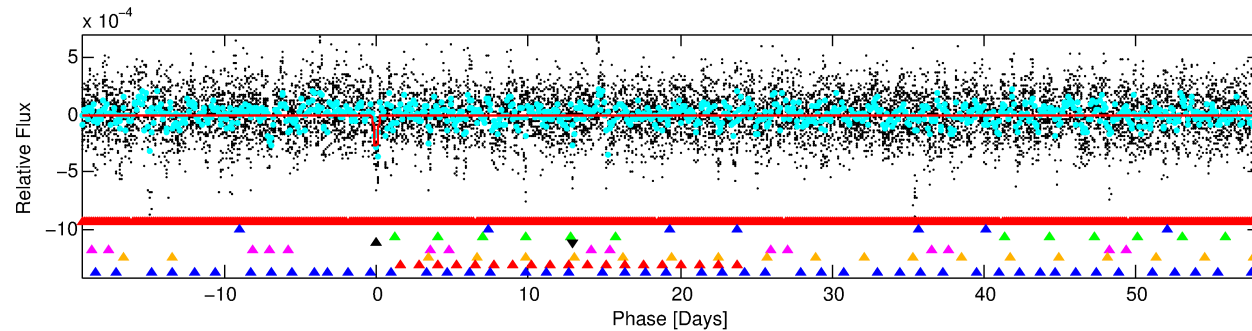
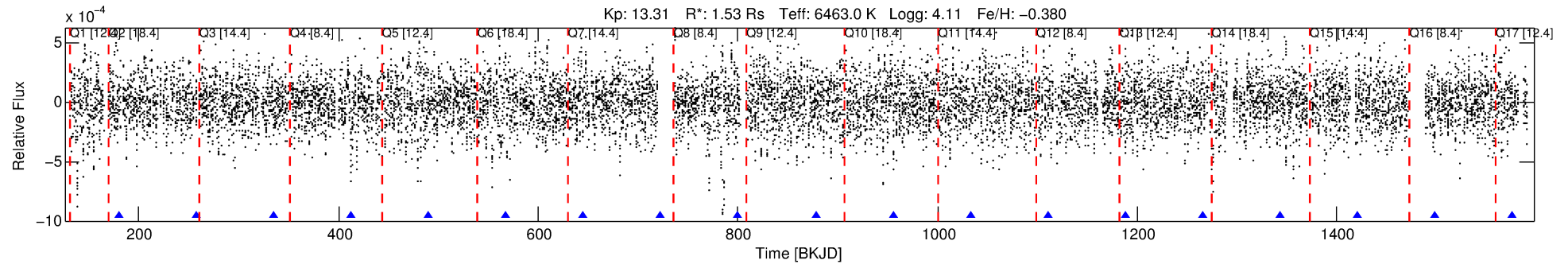
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-04

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 4 of 8 Period: 77.529 d



DV Fit Results:

Period = 77.52901 [0.00111] d
Epoch = 180.2233 [0.0123] BKJD
Rp/R* = 0.0163 [0.0081]
a/R* = 46.48 [125.92]
b = 0.71 [1.90]
Seff = 27.34 [13.42]
Teff = 583 [72] K
Rp = 2.72 [1.56] Re
a = 0.3663 [0.1053] AU
Ag = 4318.06 [4826.72] [0.89σ]
Teffp = 7308 [1870] K [3.59σ]

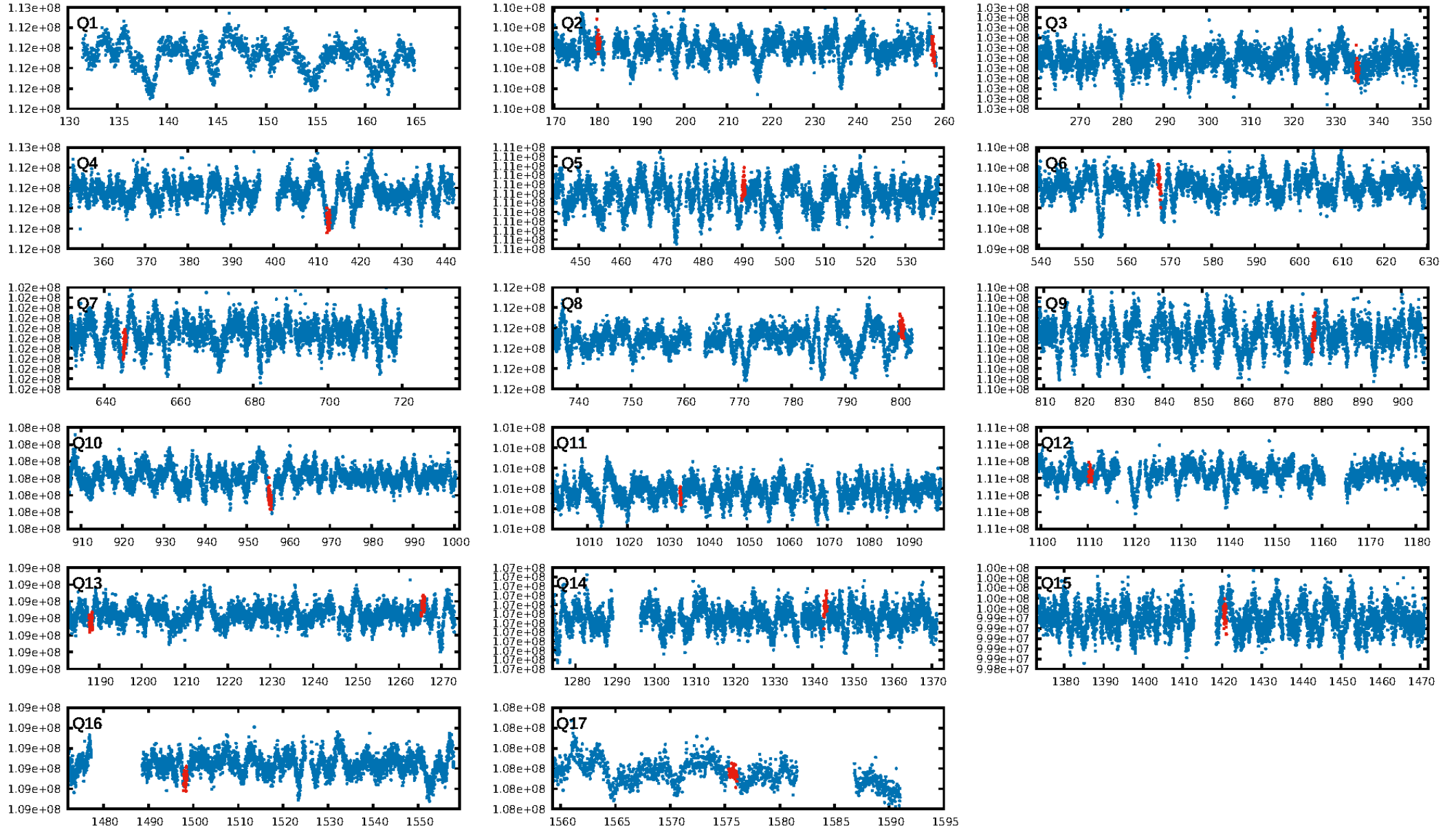
DV Diagnostic Results:

ShortPeriod-sig: 99.5% [2.83σ]
LongPeriod-sig: 100.0% [39.05σ]
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.22e-14
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -1.179
Centroid-sig: 36.9%
Centroid-so: 0.475 arcsec [1.14σ]
OotOffset-rm: 1.543 arcsec [3.18σ]
OotOffset-st: 1/2/2/4 [9]
KicOffset-rm: 1.479 arcsec [2.50σ]
KicOffset-st: 1/2/2/4 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.00 [0/12]

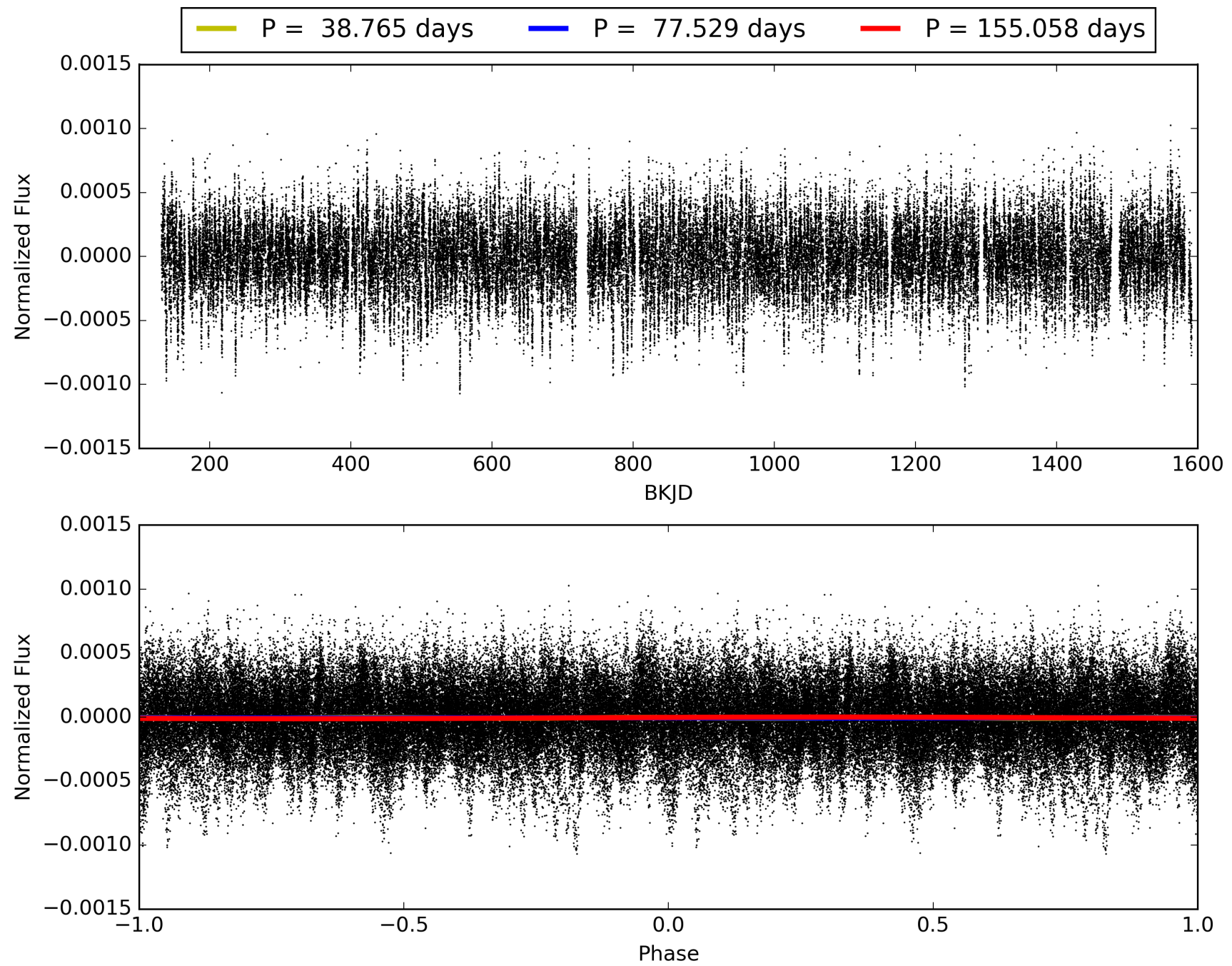
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:37 Z

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

TCE 010789361-04, PDC Light Curves

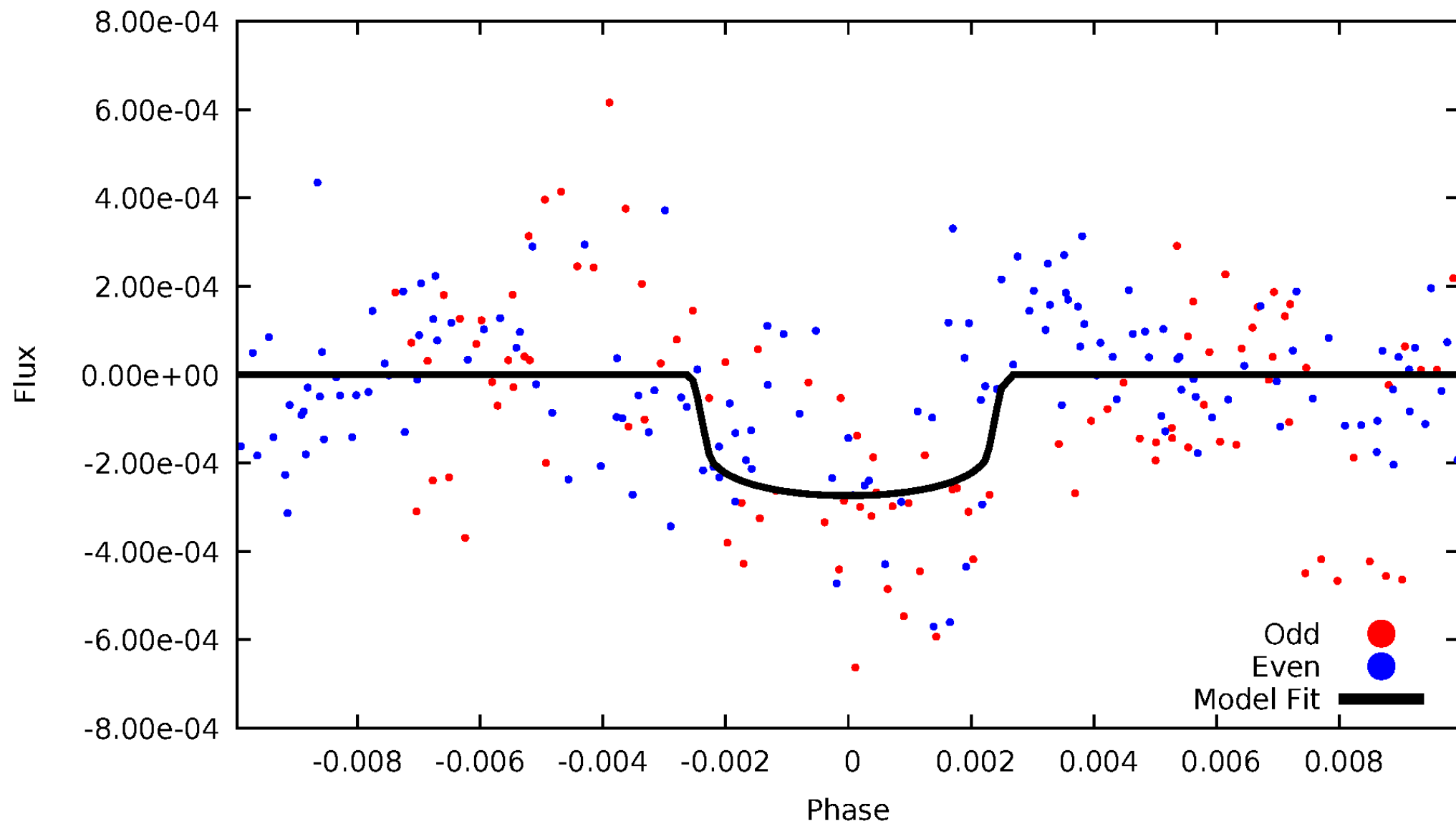


TCE 010789361-04



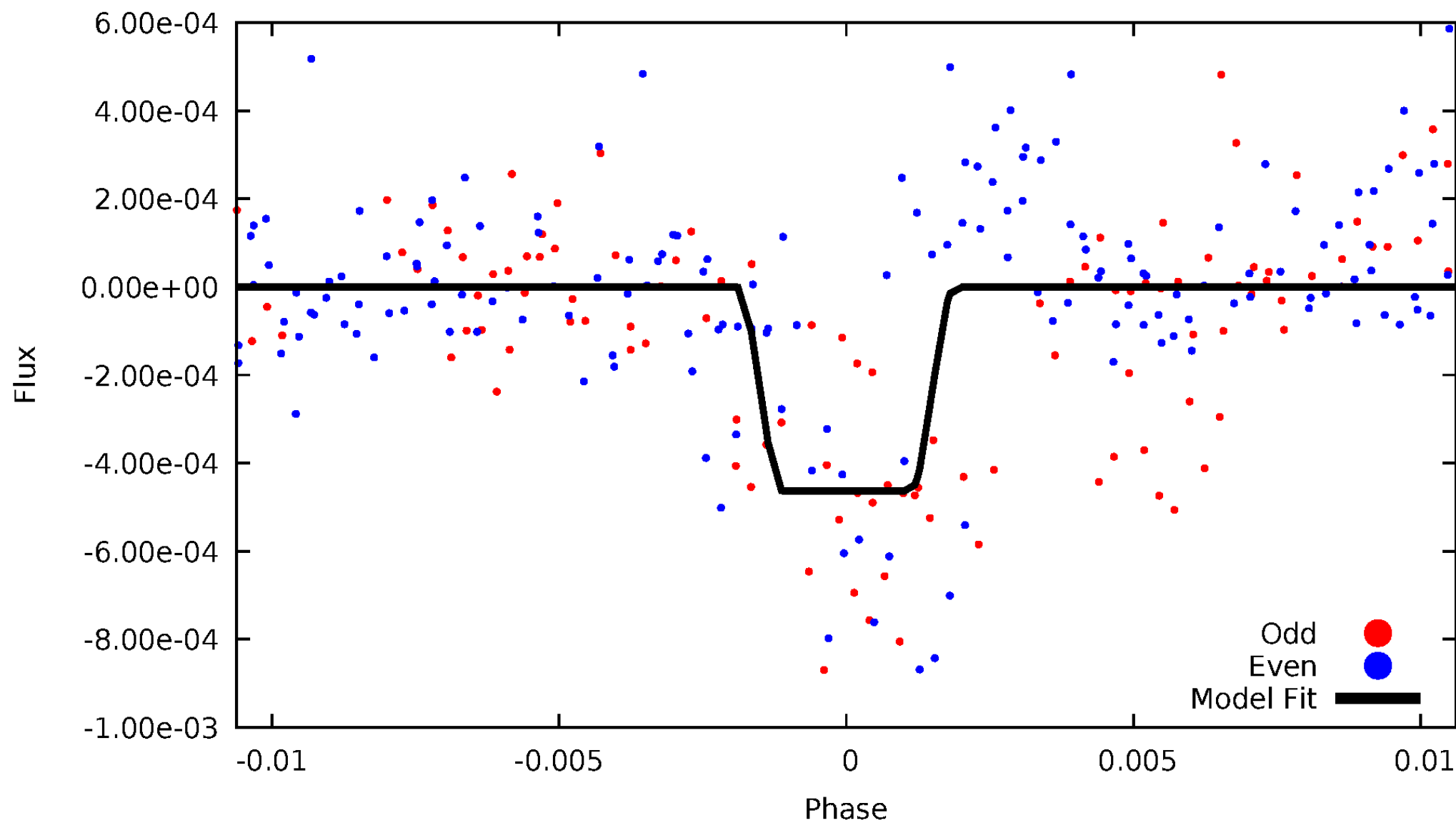
DV Odd/Even

TCE 010789361-04



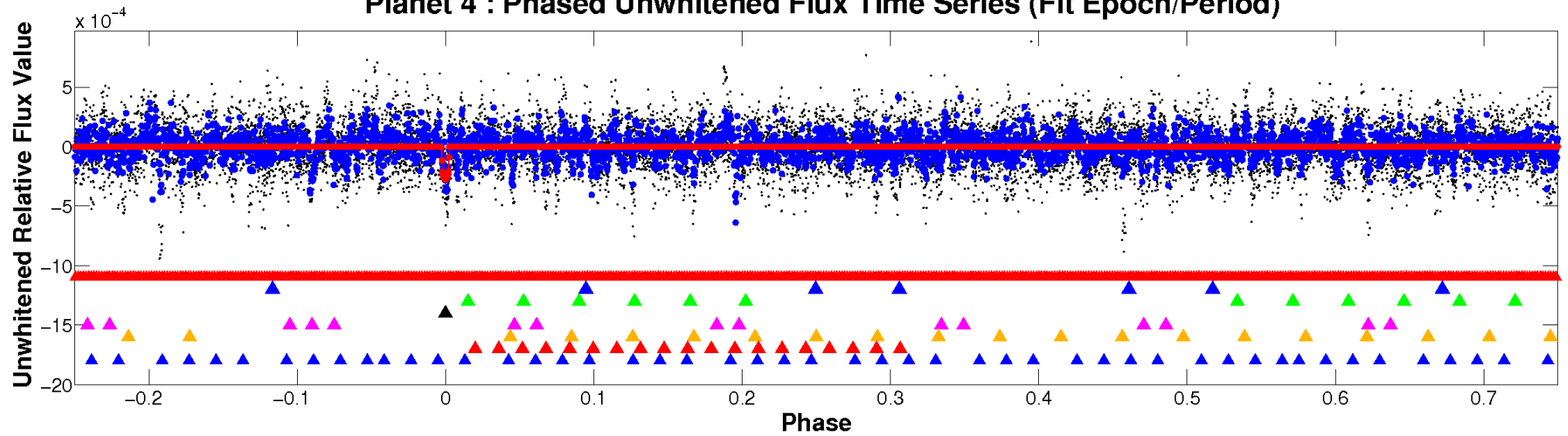
ALT Odd/Even

TCE 010789361-04

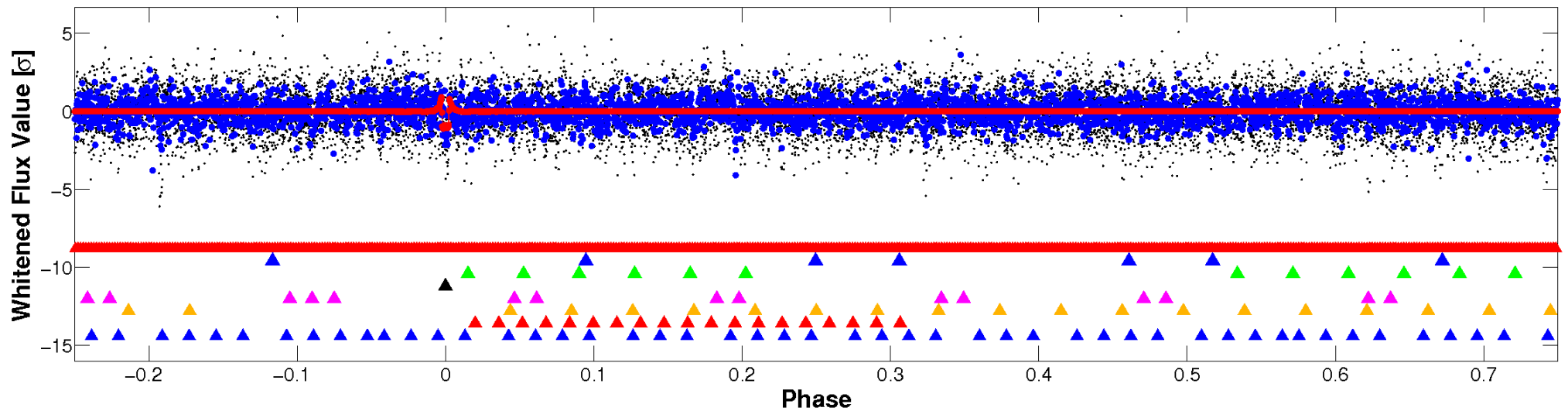


Non-Whitened Vs. Whitened Light Curve

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

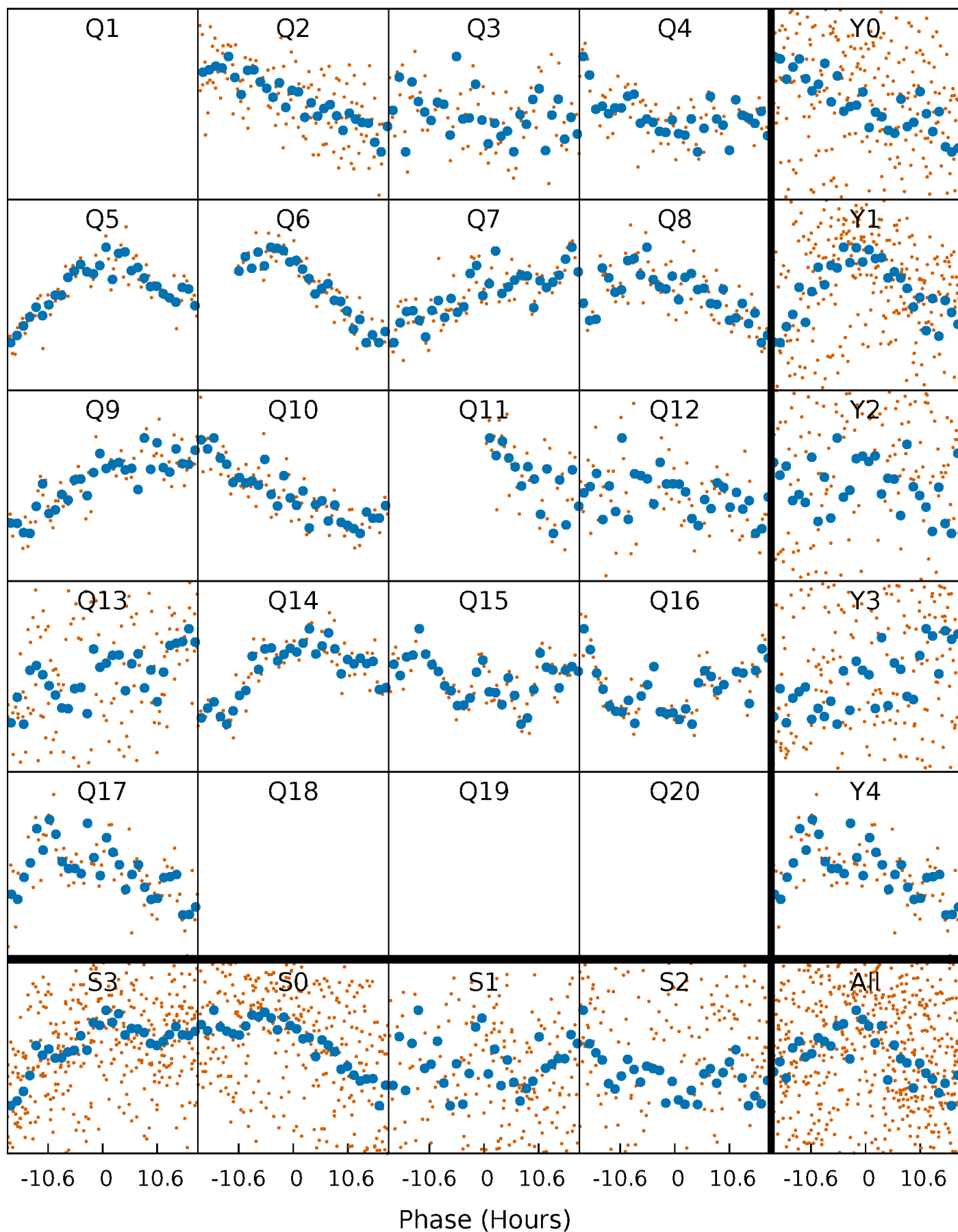


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



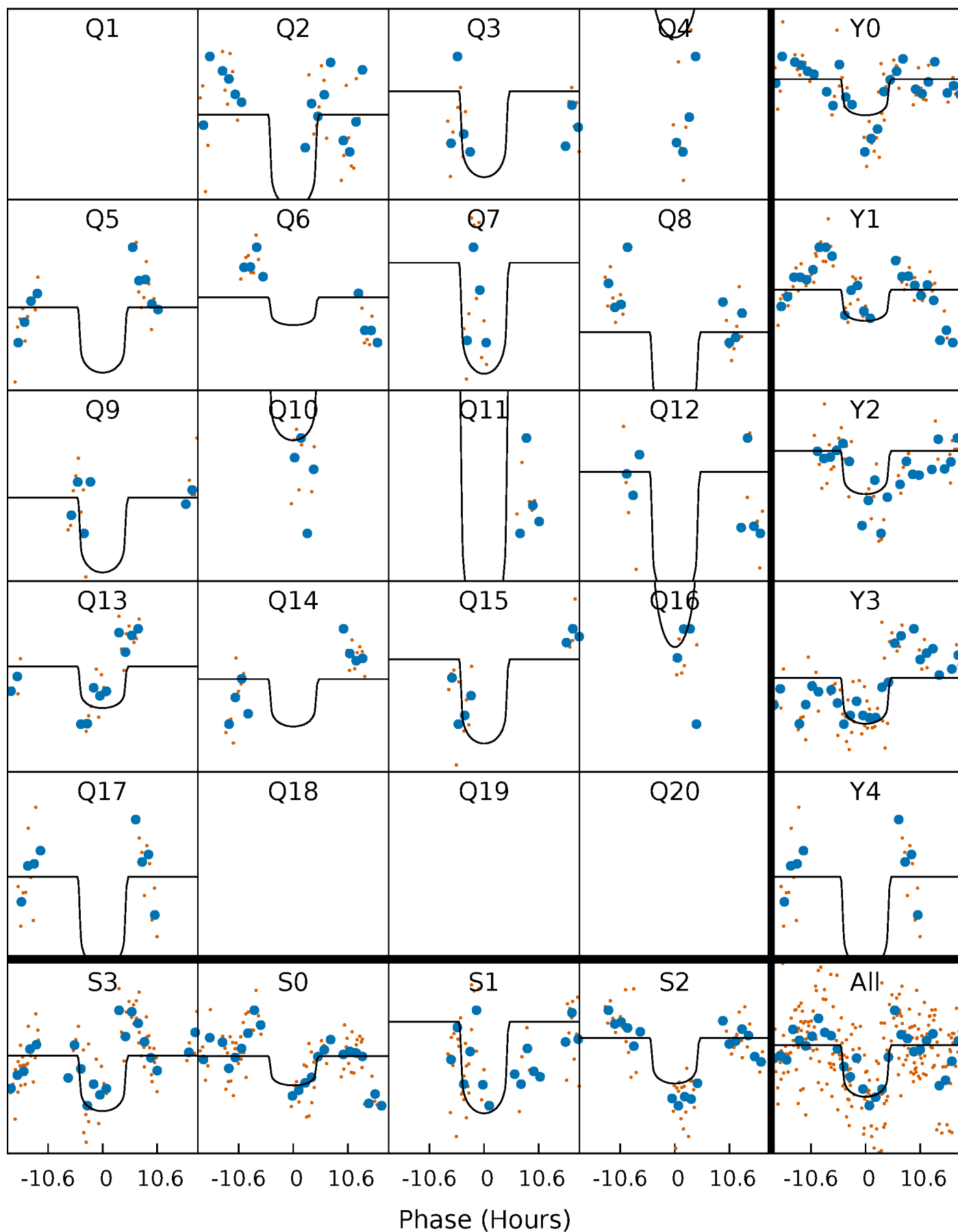
PDC Quarter-Phased Transit Curves

TCE 010789361-04 $P = 77.529013$ Days $T_0 = 180.223336$ (BKJD)



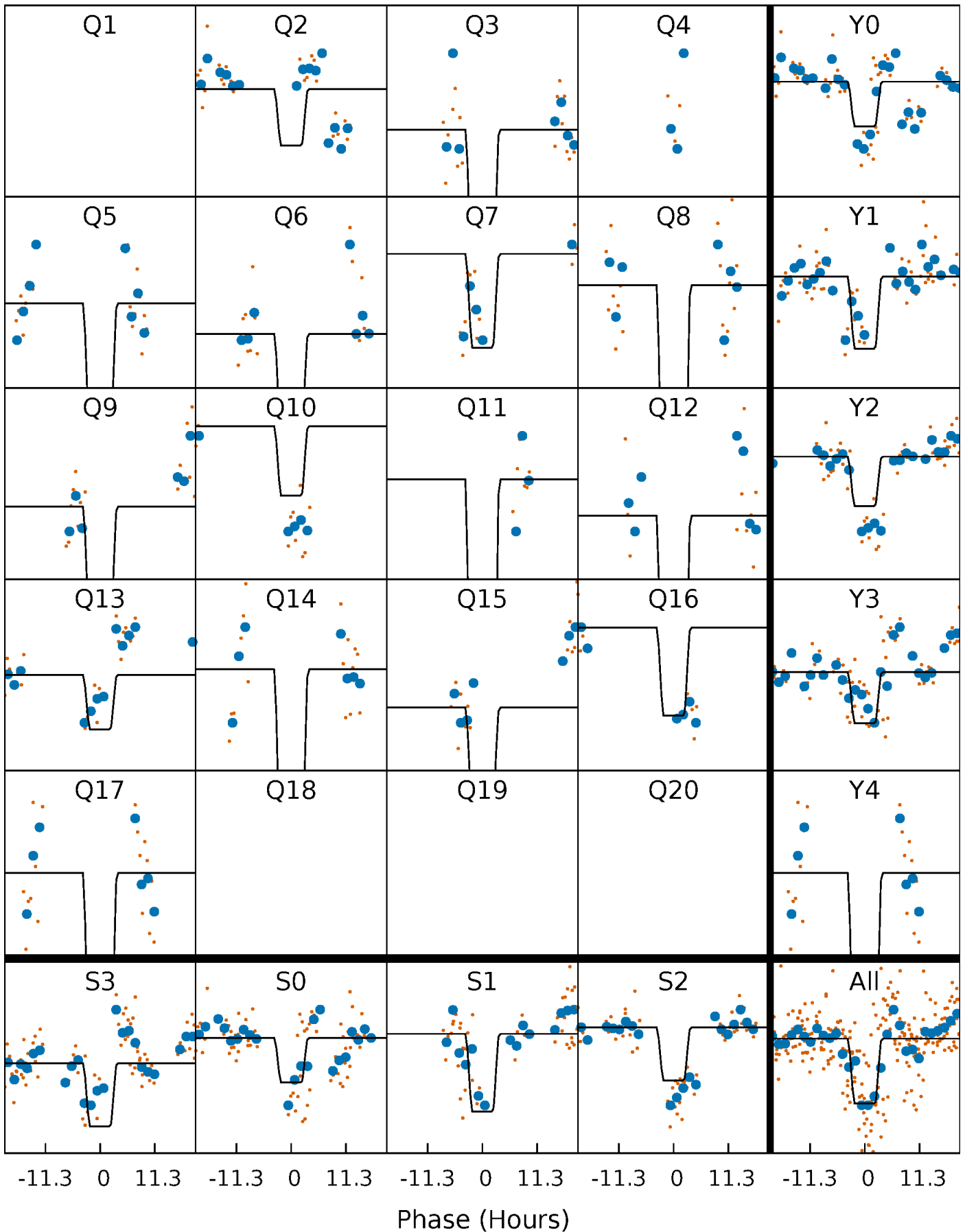
DV Quarter-Phased Transit Curves

TCE 010789361-04 P= 77.529013 Days $T_0=180.223336$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

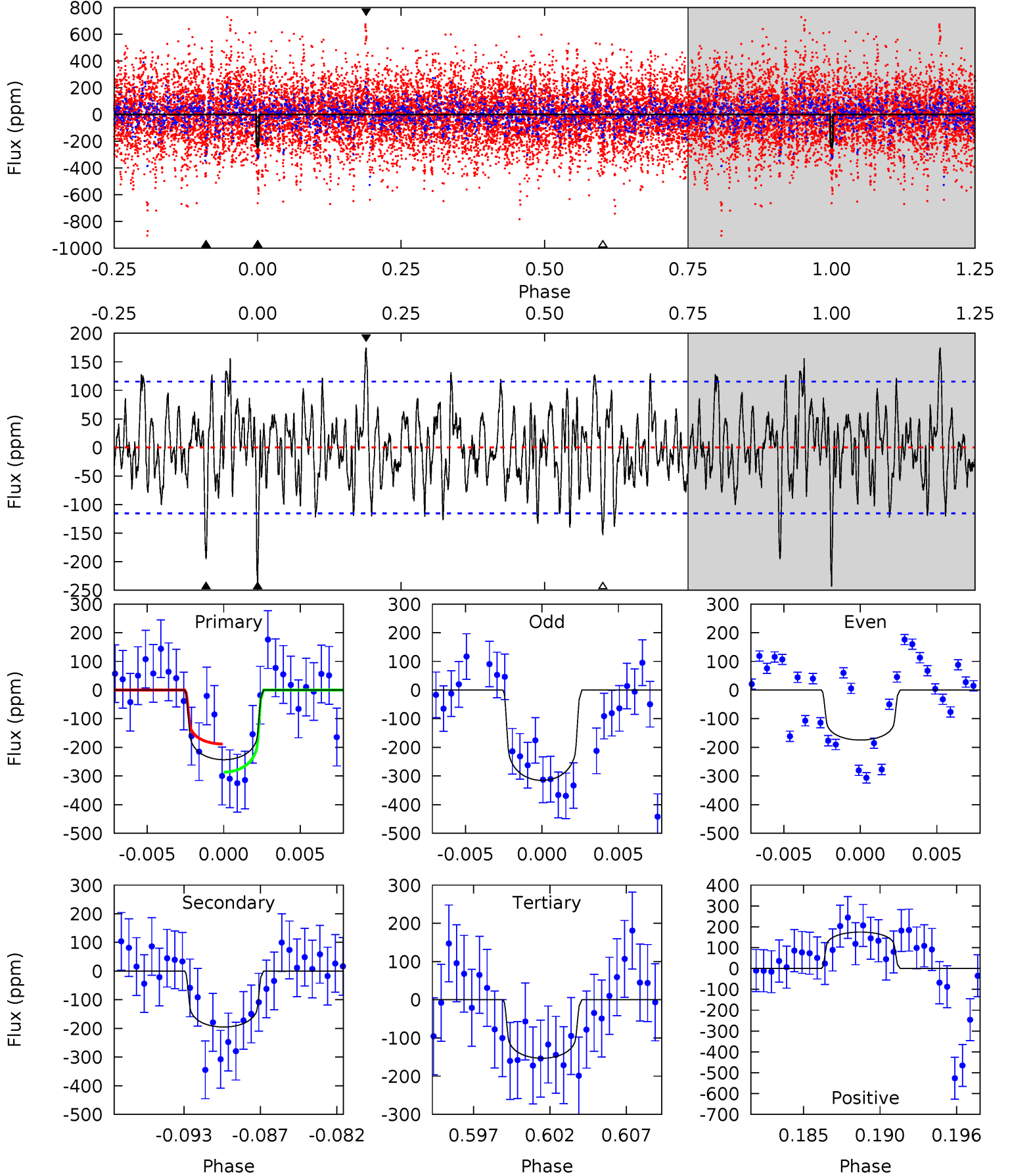
TCE 010789361-04 P= 77.524756 Days $T_0=180.274823$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-04, P = 77.529013 Days, E = 102.694323 Days

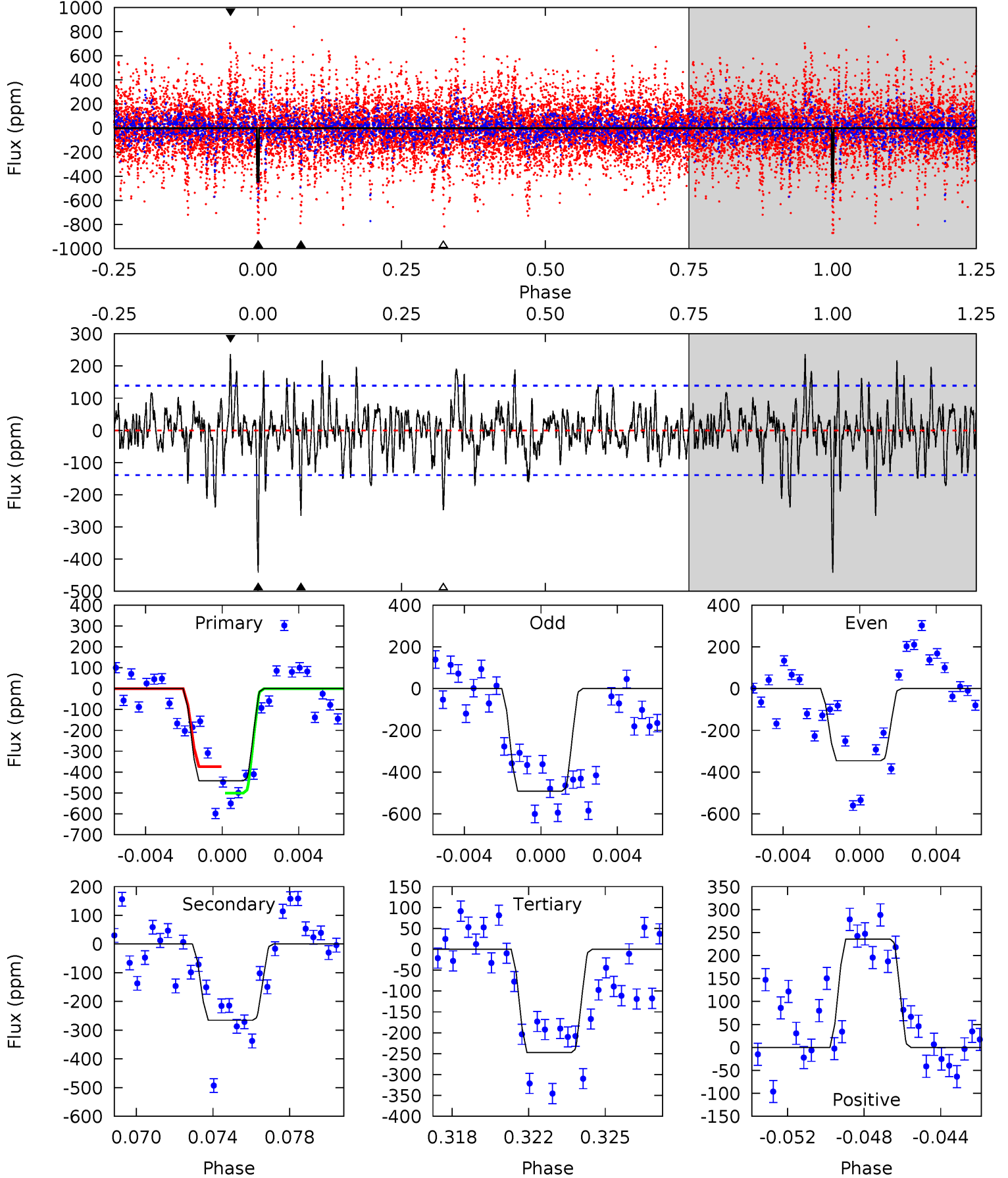
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	8.71	6.83	7.80	5.15	2.80	2.36	4.03	3.06	1.88	0.91	3.19	0.95	0.42	2.17



Alt Model-Shift Uniqueness Test

010789361-04, P = 77.524756 Days, E = 102.750067 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	9.96	9.29	8.85	5.21	2.90	2.32	7.29	7.73	0.67	1.11	2.80	1.10	0.35	2.38



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-195 ± 22	$2.65^{+1.41}_{-1.31}$	802^{+65}_{-70}	5871^{+2891}_{-936}	2037^{+5984}_{-1139}
Alt.	-265 ± 27	$3.44^{+1.60}_{-1.31}$	804^{+61}_{-63}	5629^{+1482}_{-768}	1660^{+2684}_{-892}

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

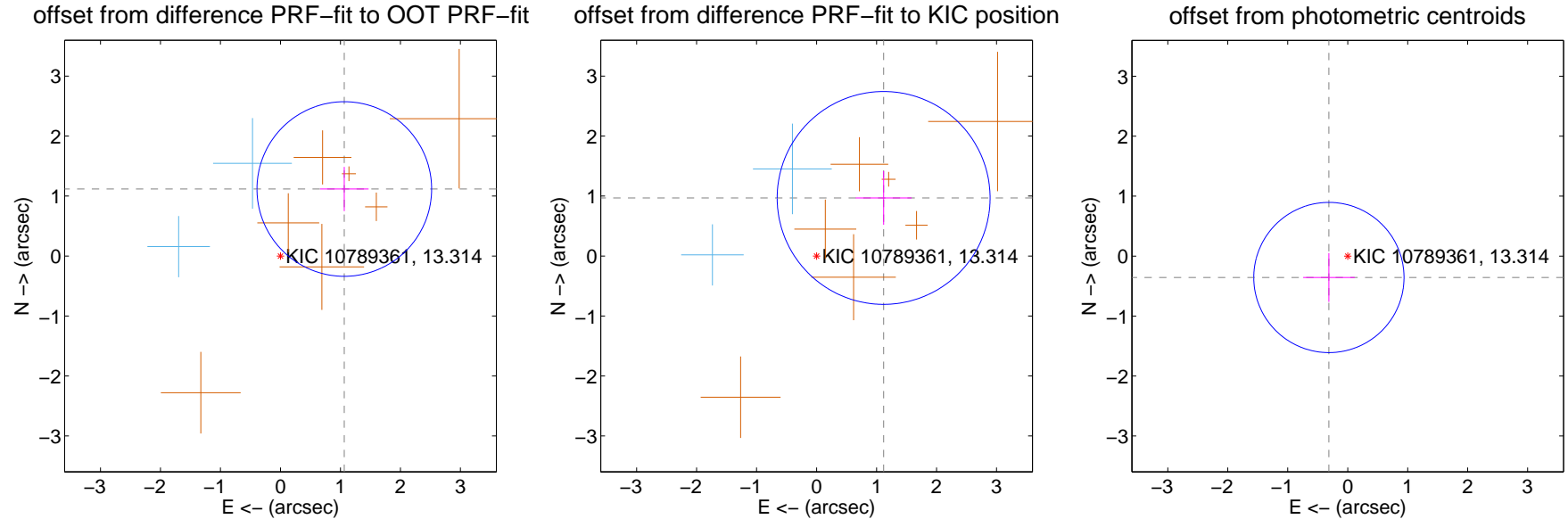
DV Centroid Data

Supplemental centroid analysis for 010789361-04. Kepler magnitude: 13.31. Transit SNR 8.69

There are 2 quarters with good PRF difference image offsets

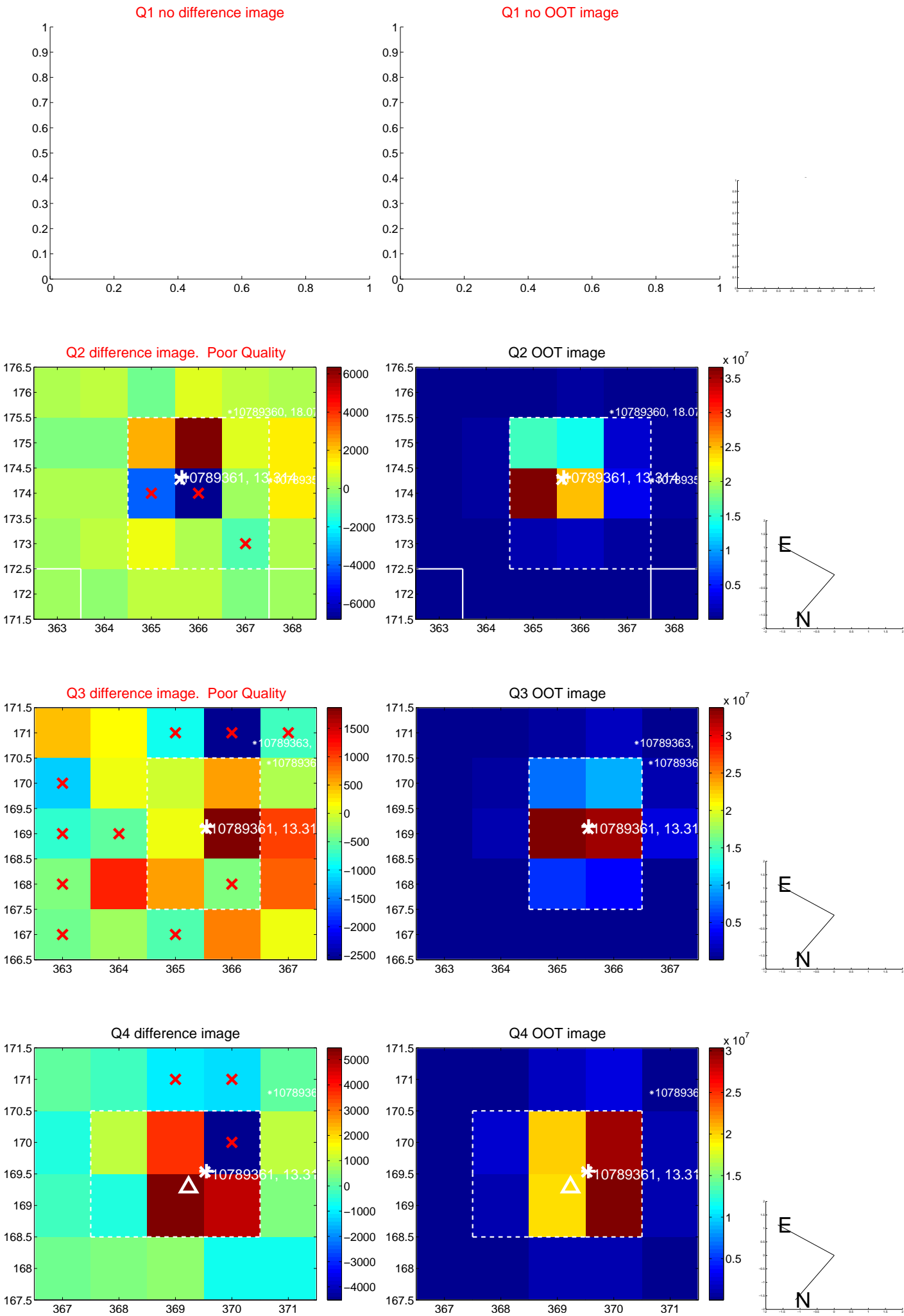
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.543 ± 0.485	3.18	-1.064 ± 0.404	1.117 ± 0.369
PRF-fit source offset from KIC position	1.479 ± 0.592	2.50	-1.118 ± 0.467	0.969 ± 0.448
photometric centroid source offset	0.48 ± 0.42	1.14	0.31 ± 0.43	-0.36 ± 0.41

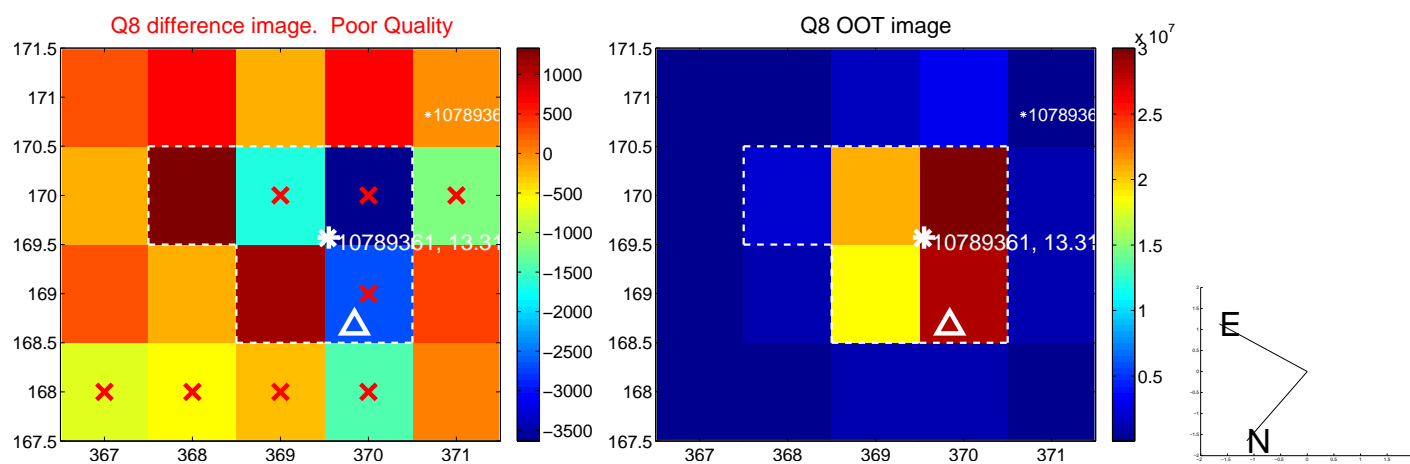
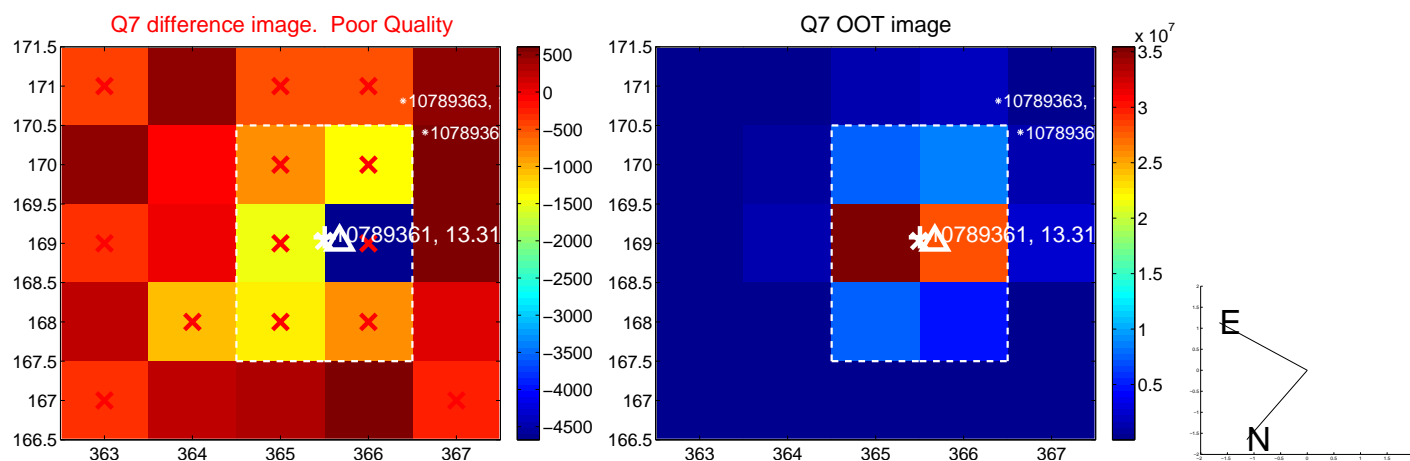
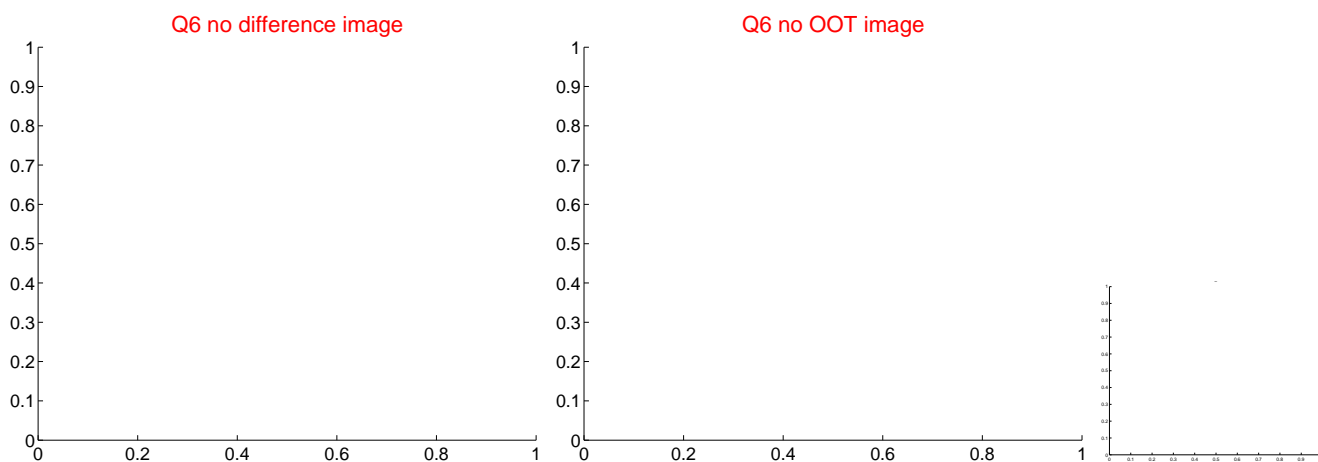
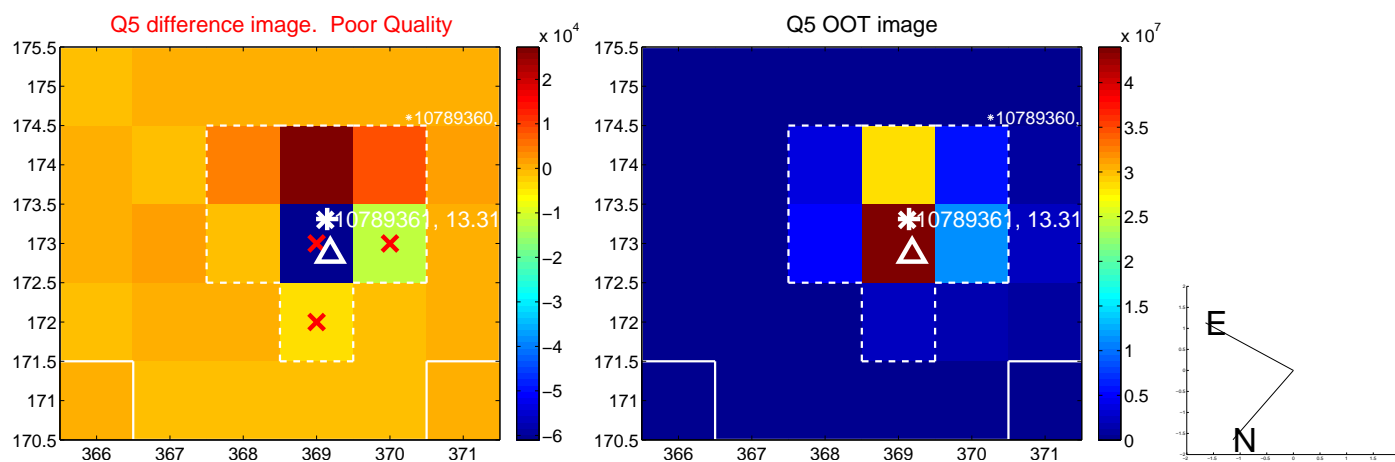


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

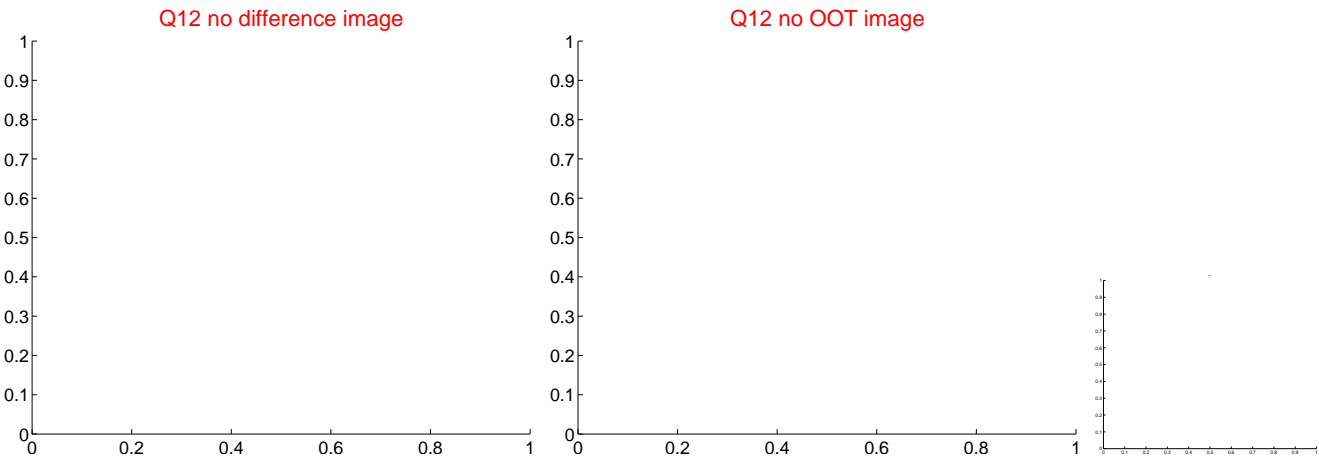
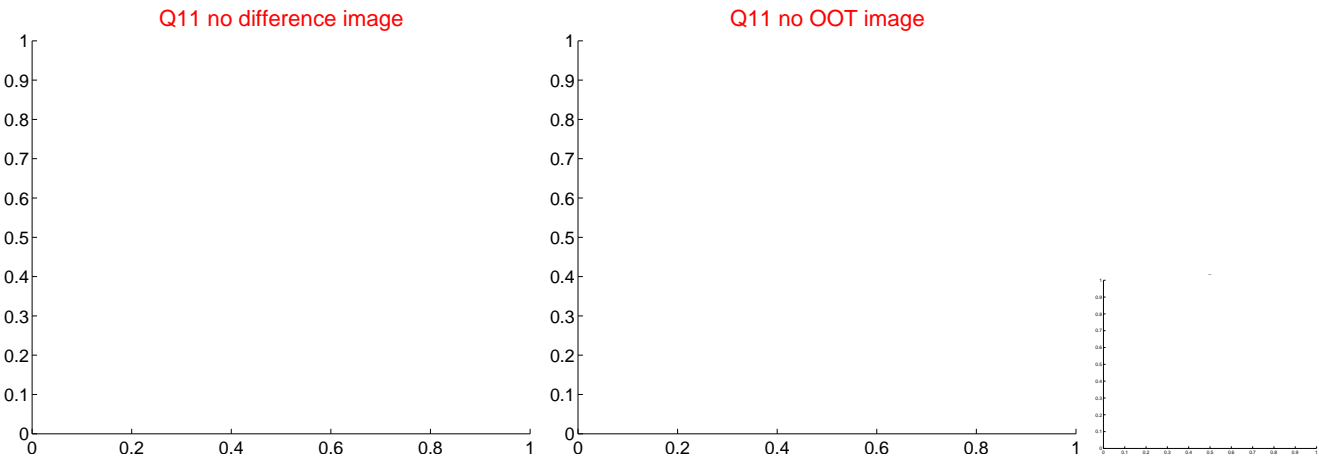
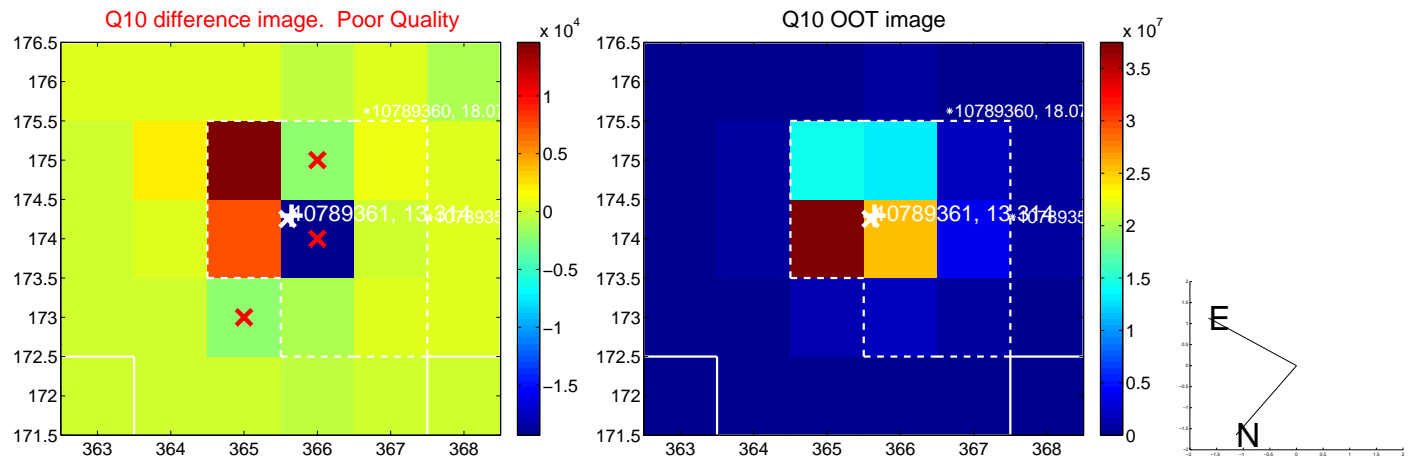
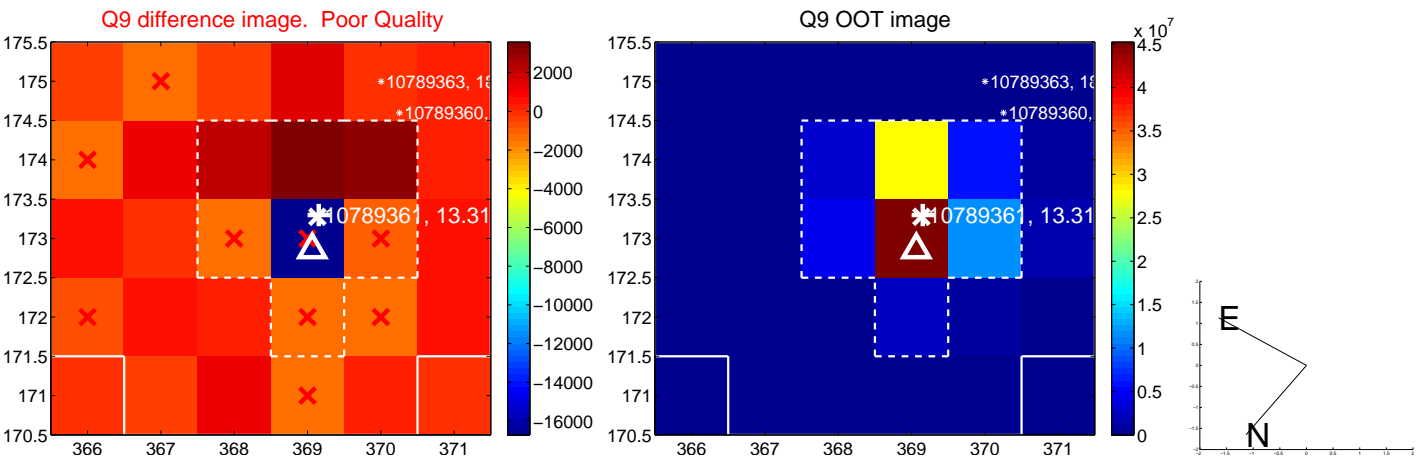
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



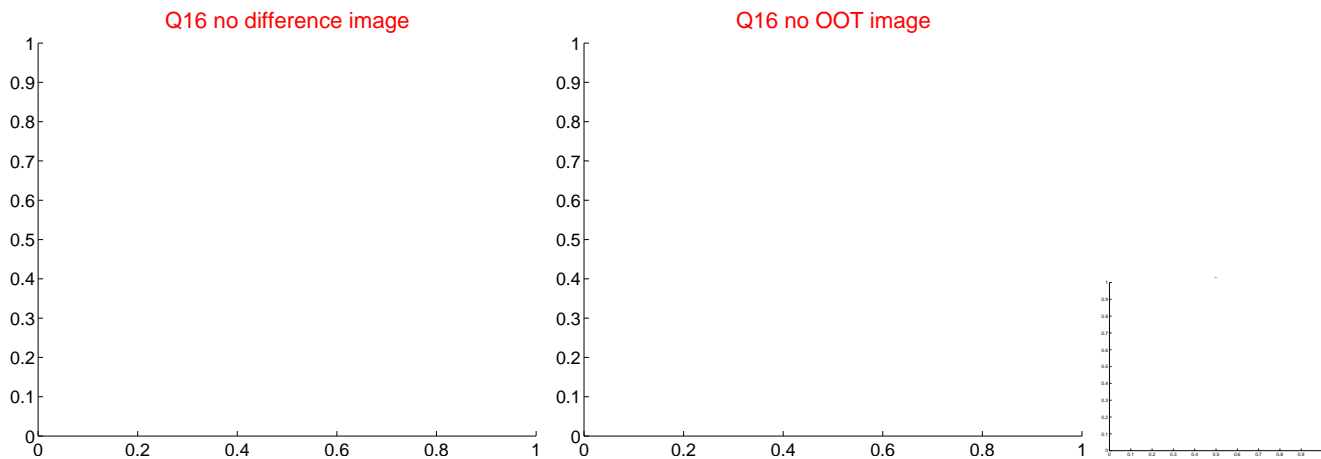
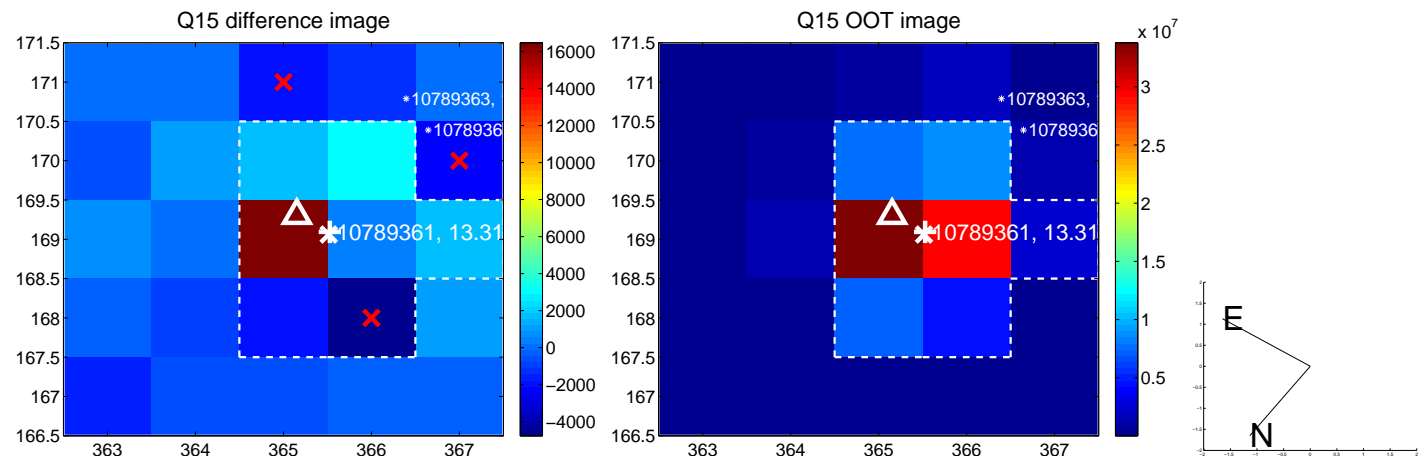
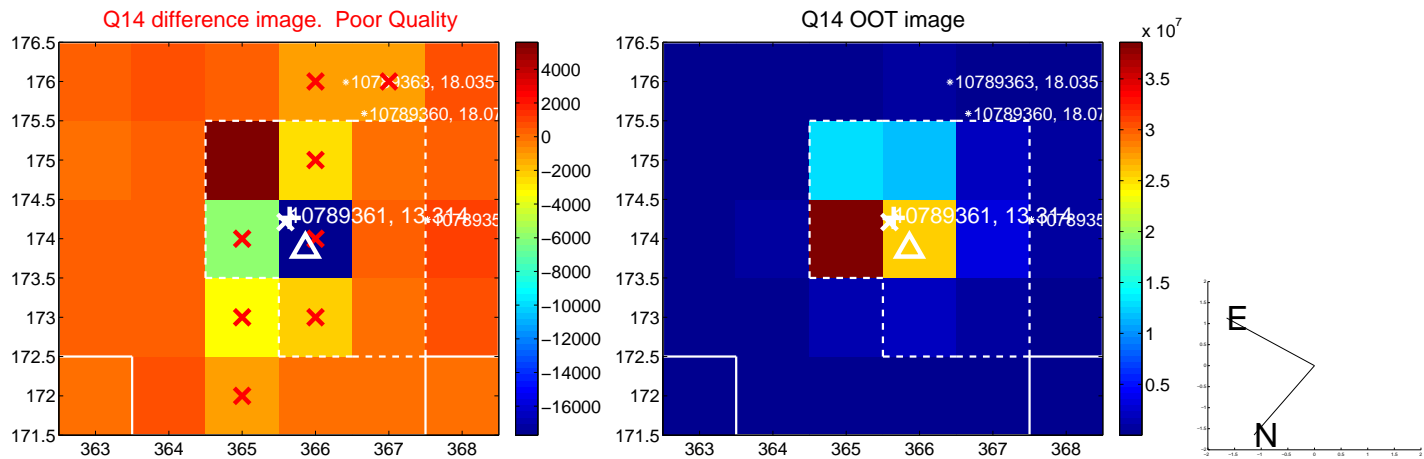
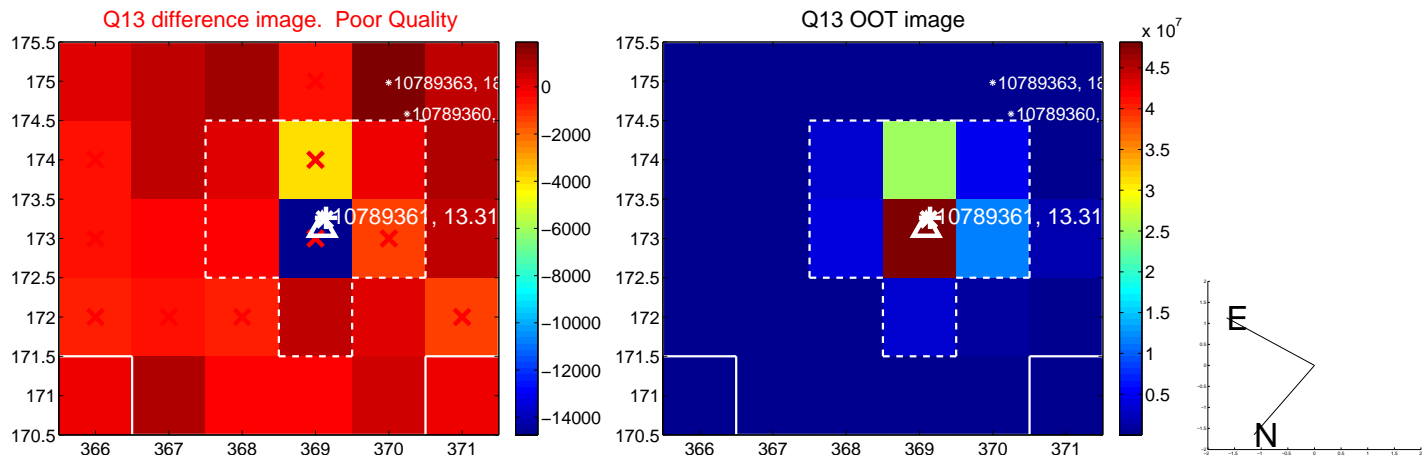
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



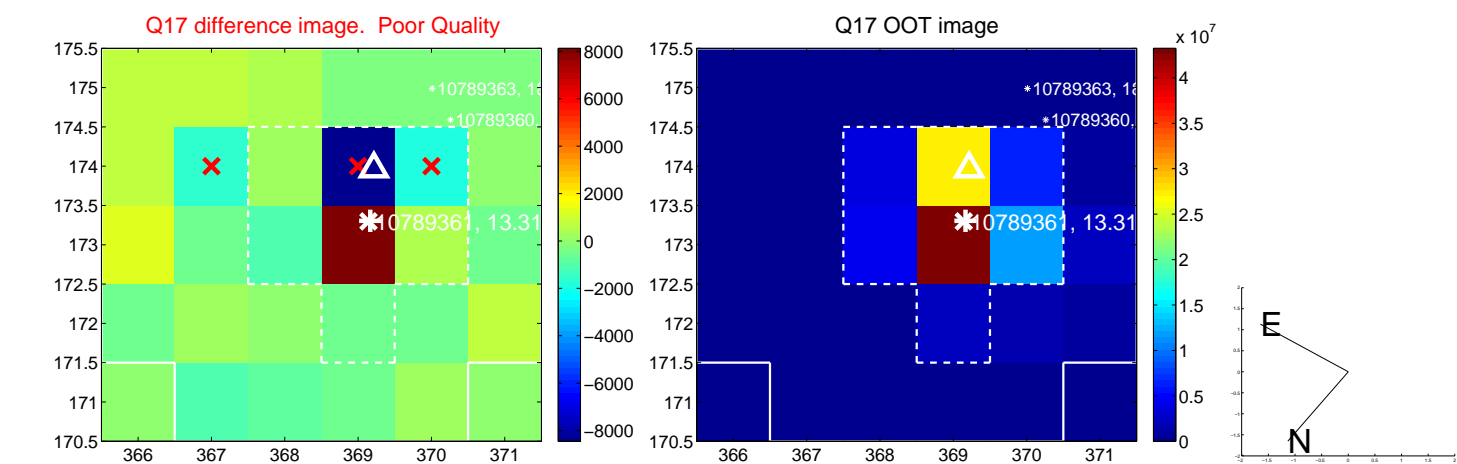
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



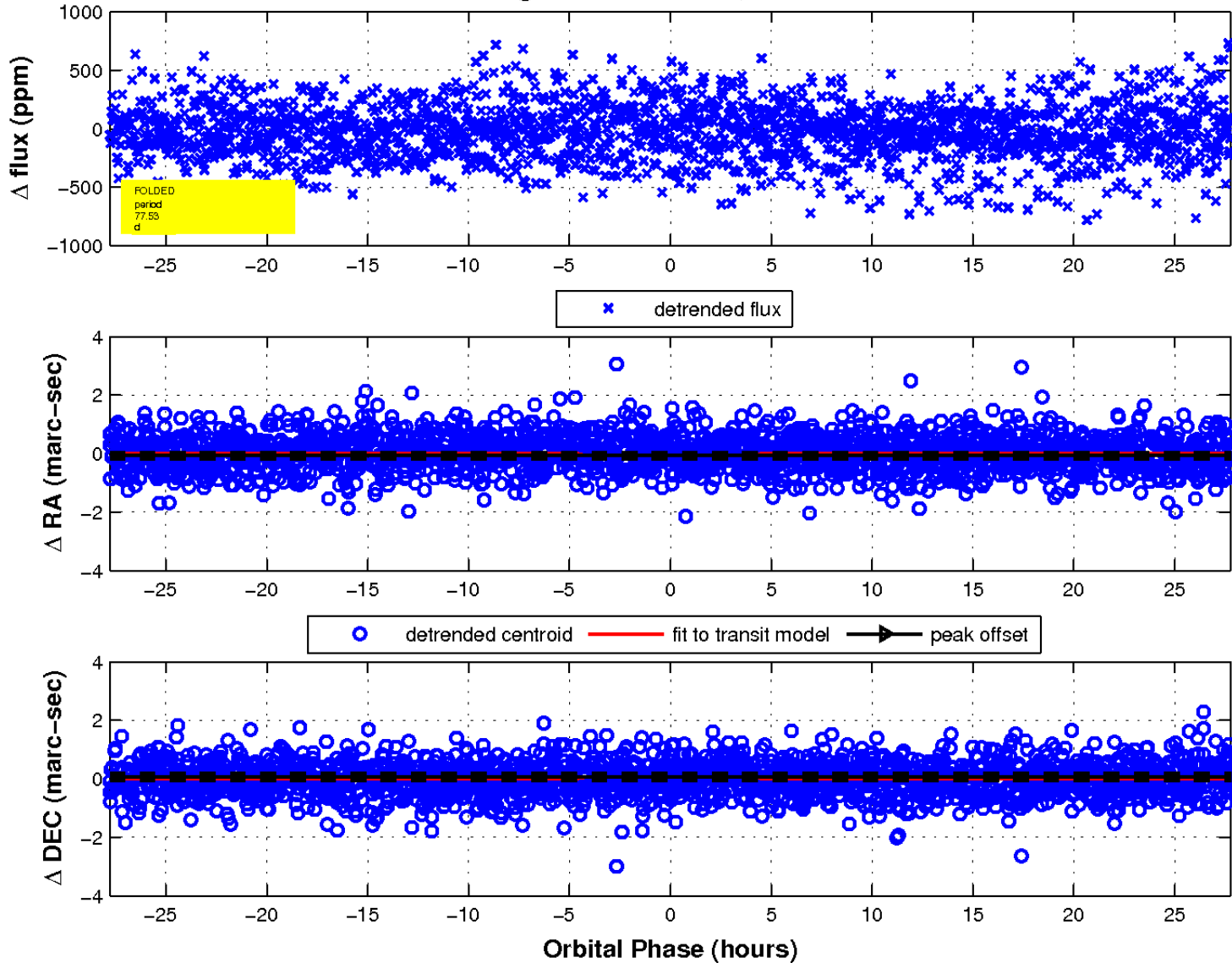
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

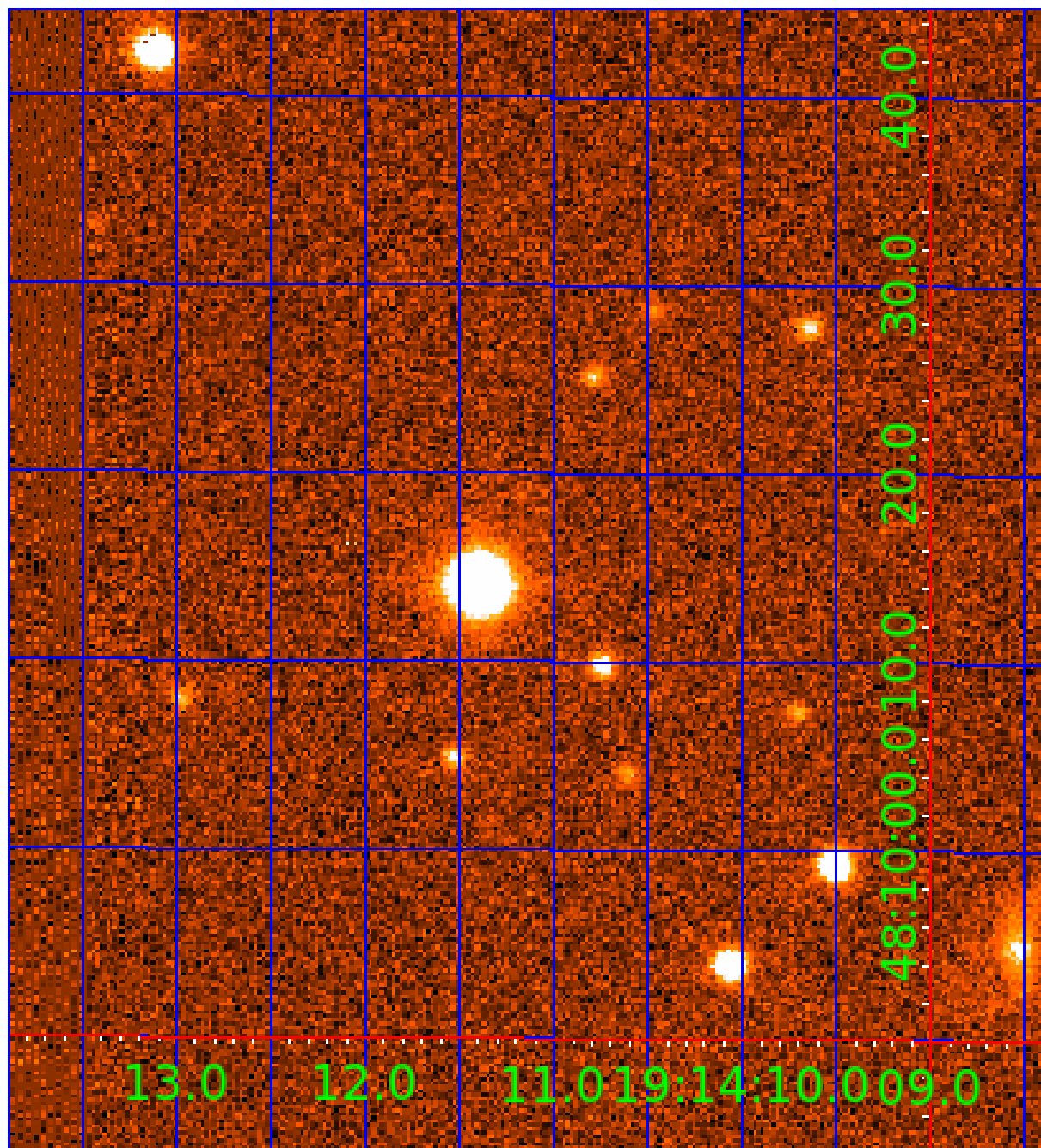


fluxWeightedCentroids, Planet 4 of 8



UKIRT Image

Declination



KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
010789361-03	OBS	No	114.841981	236.133579	492.1	9.756	15.2	11.1	1.53	6463	6.54	16.19
010789361-04	OBS	No	77.529013	180.223336	273.7	9.262	9.0	8.7	1.53	6463	2.72	27.34
010789361-05	OBS	No	99.845787	172.090369	238.2	10.114	9.6	7.4	1.53	6463	2.64	19.52
010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

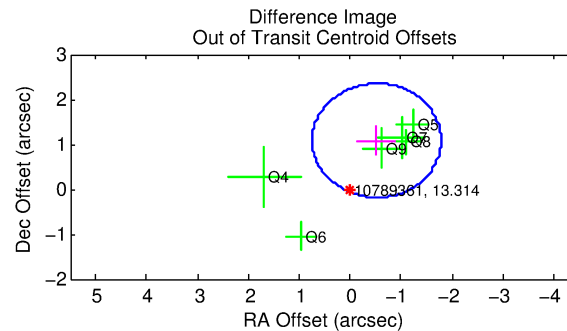
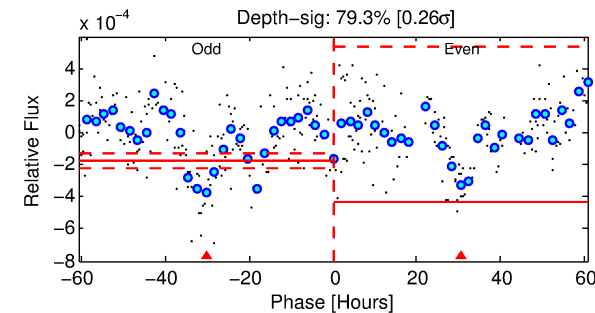
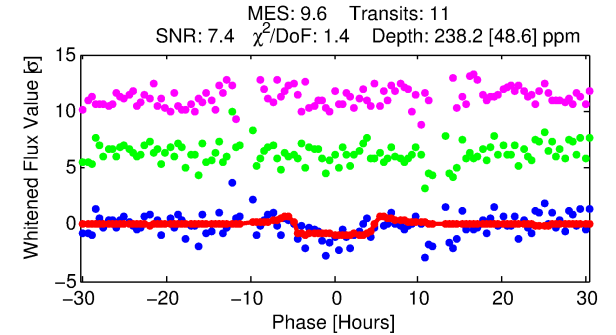
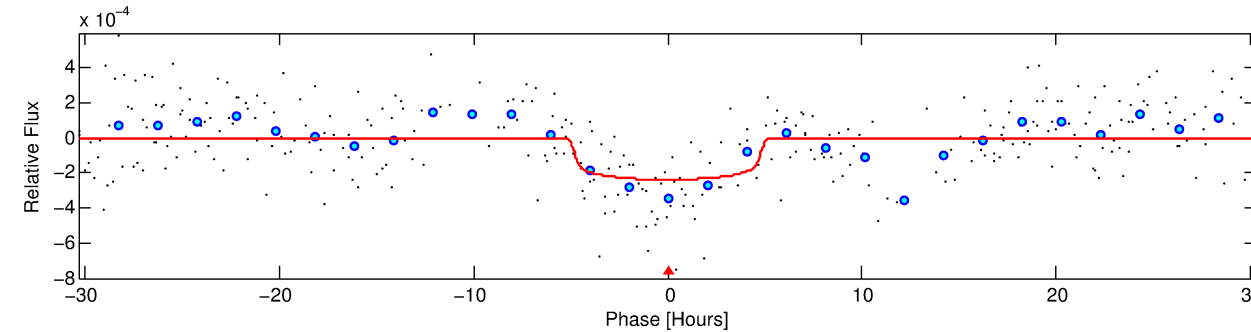
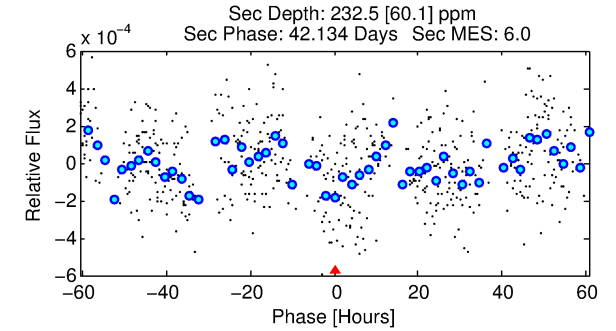
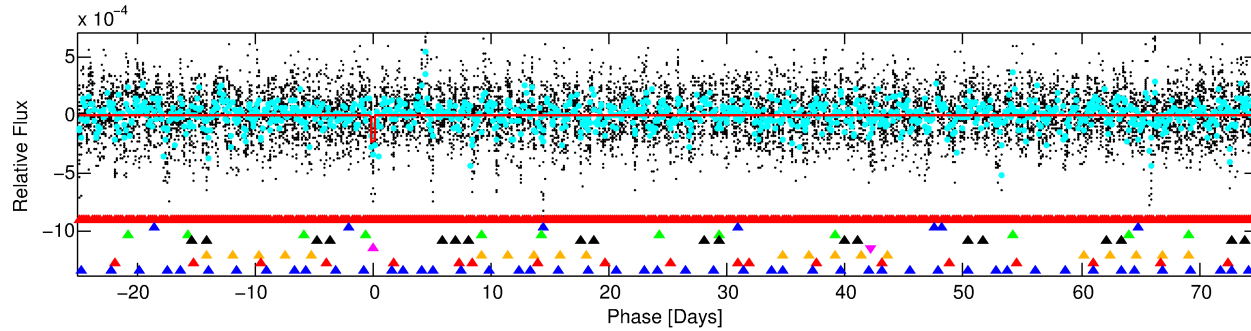
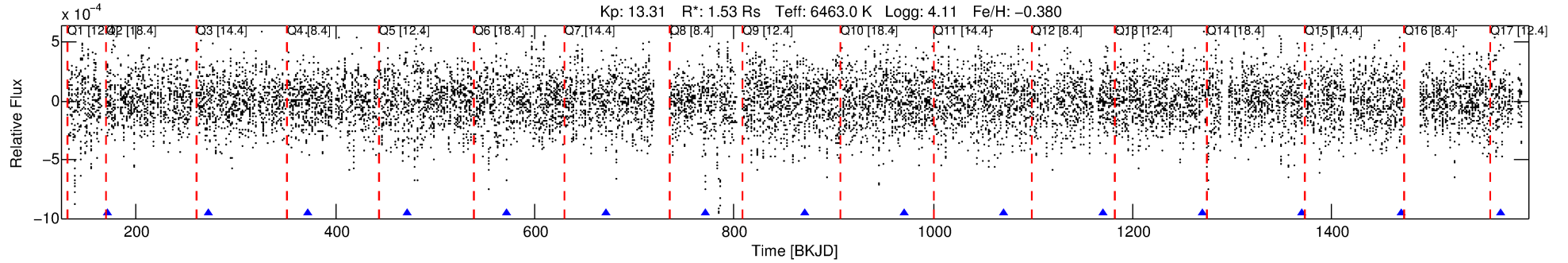
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-05

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 5 of 8 Period: 99.846 d



DV Fit Results:

Period = 99.84579 [0.00812] d
Epoch = 172.0904 [0.0495] BKJD
Rp/R* = 0.0158 [0.0045]
a/R* = 44.90 [66.34]
b = 0.82 [0.60]
Seff = 19.51 [9.58]
Teq = 536 [66] K
Rp = 2.64 [1.06] Re
a = 0.4336 [0.1247] AU
Ag = 3458.92 [2695.21] [1.28σ]
Teffp = 6355 [1012] K [5.74σ]

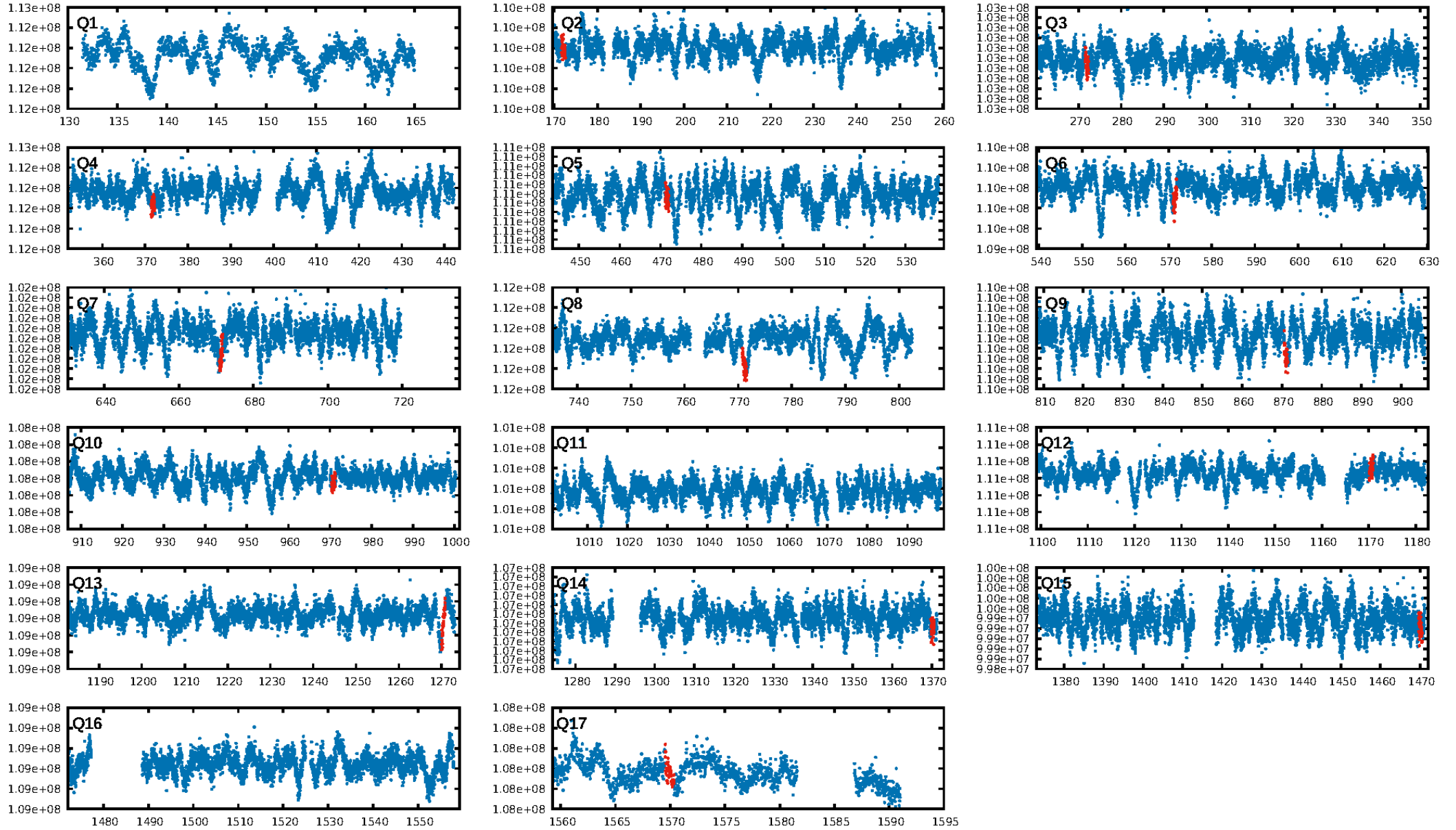
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.05σ]
LongPeriod-sig: 100.0% [25.61σ]
ModelChiSquare2-sig: 29.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.98e-12
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 0.8361
Centroid-sig: 90.5%
Centroid-so: 0.252 arcsec [0.50σ]
OotOffset-rm: 1.201 arcsec [2.84σ]
KicOffset-rm: 1.141 arcsec [2.18σ]
OotOffset-st: 1/1/2/2 [6]
KicOffset-st: 1/1/2/2 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.00 [0/11]

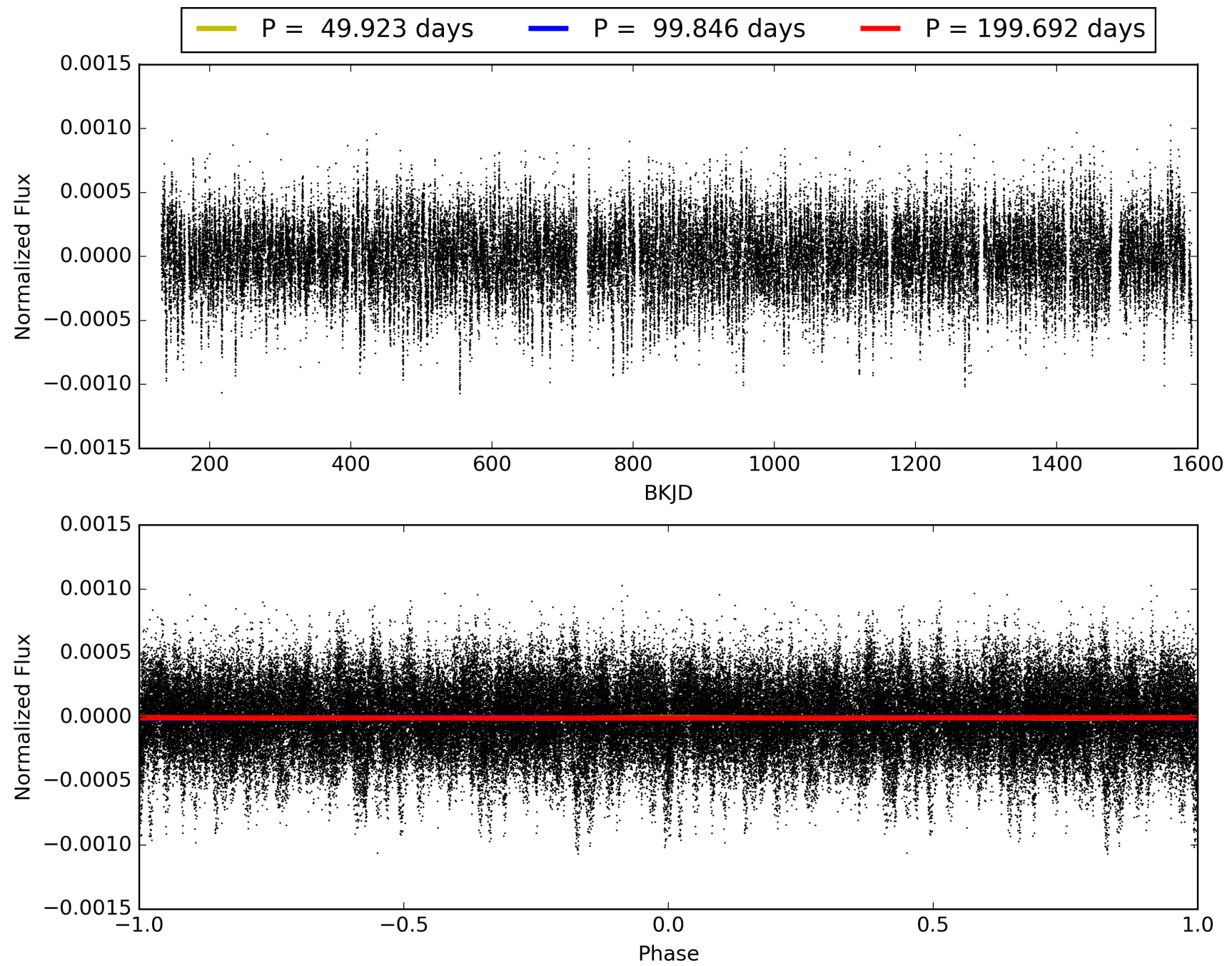
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:41 Z

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

TCE 010789361-05, PDC Light Curves

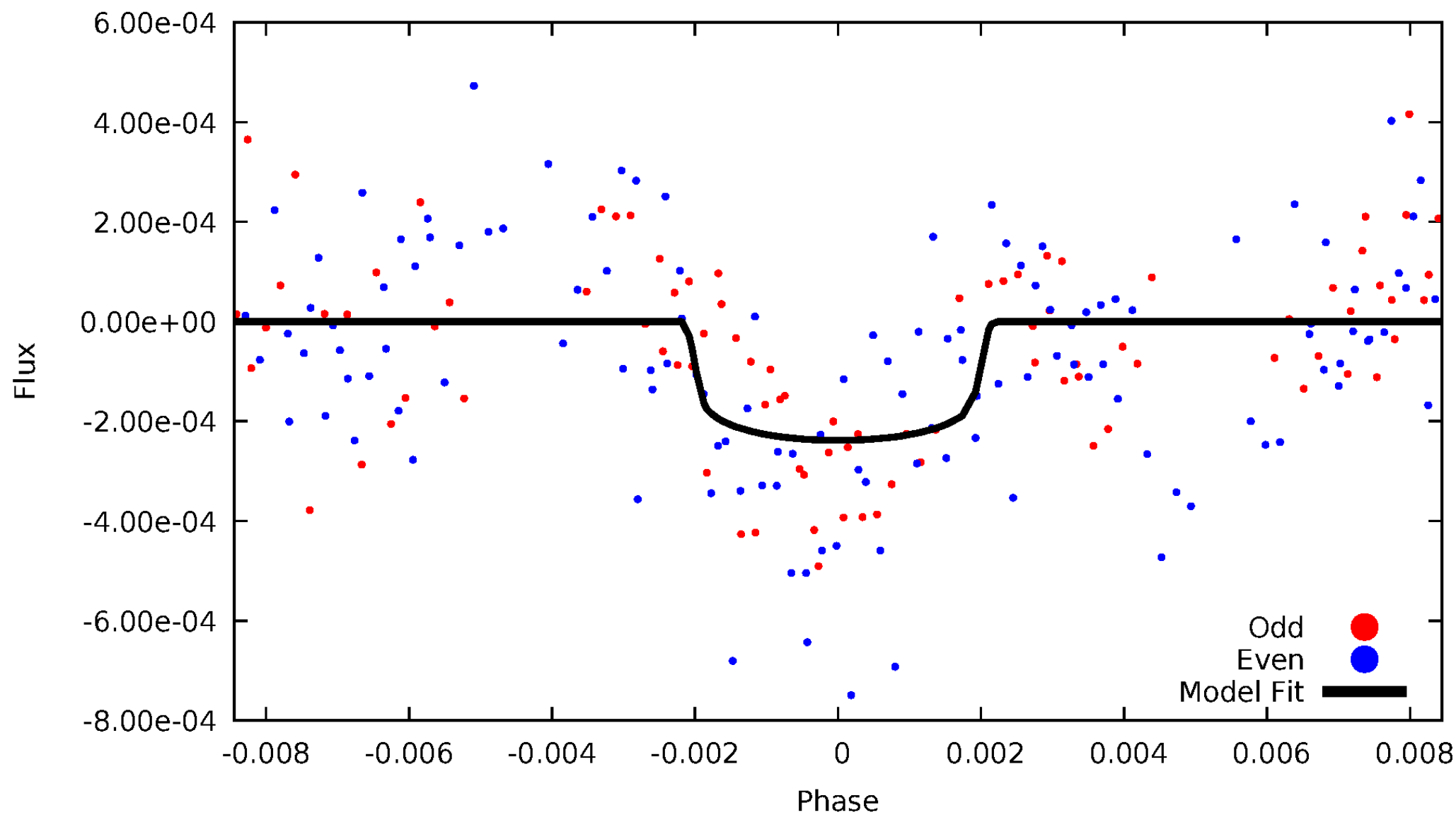


TCE 010789361-05



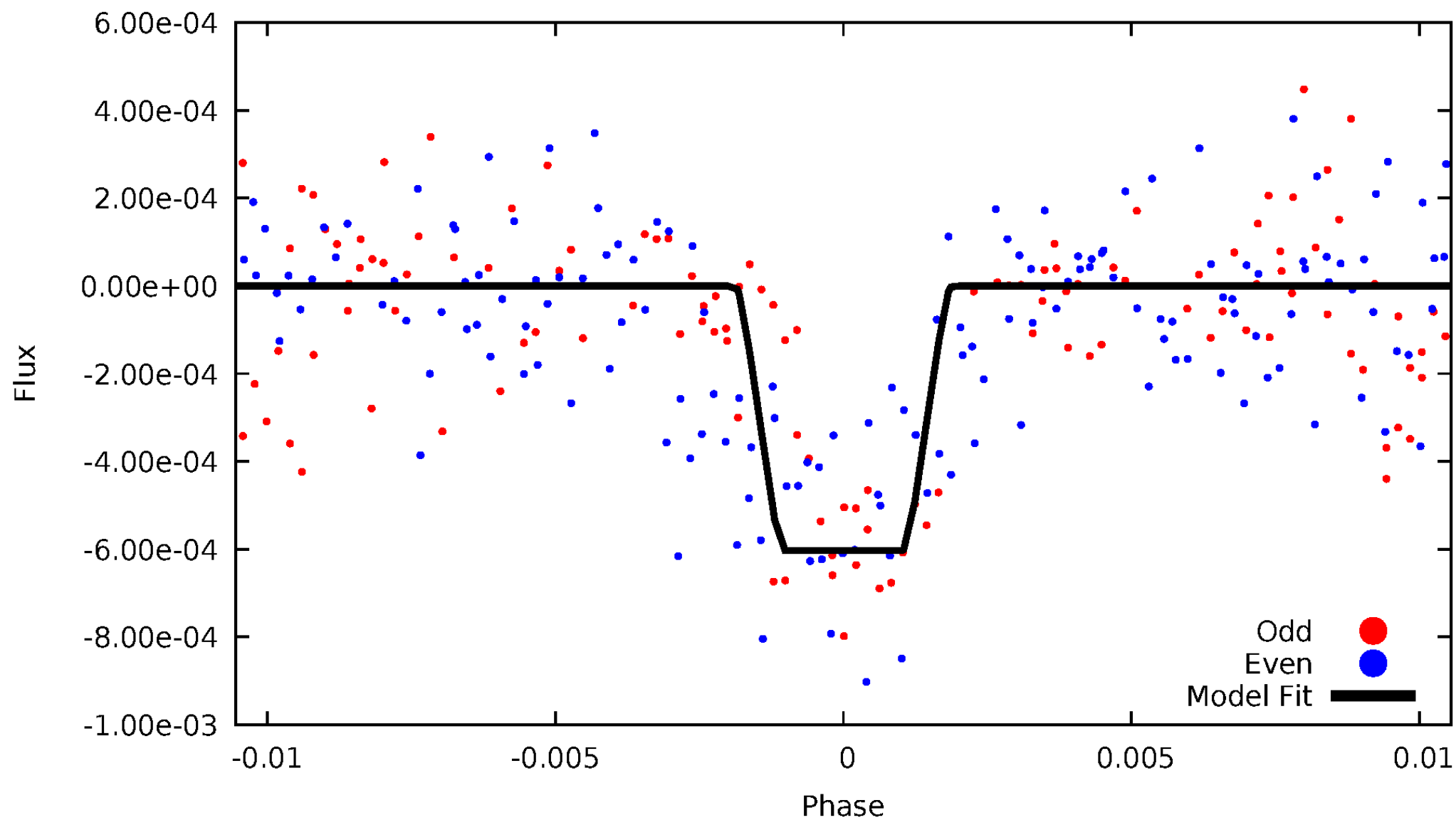
DV Odd/Even

TCE 010789361-05



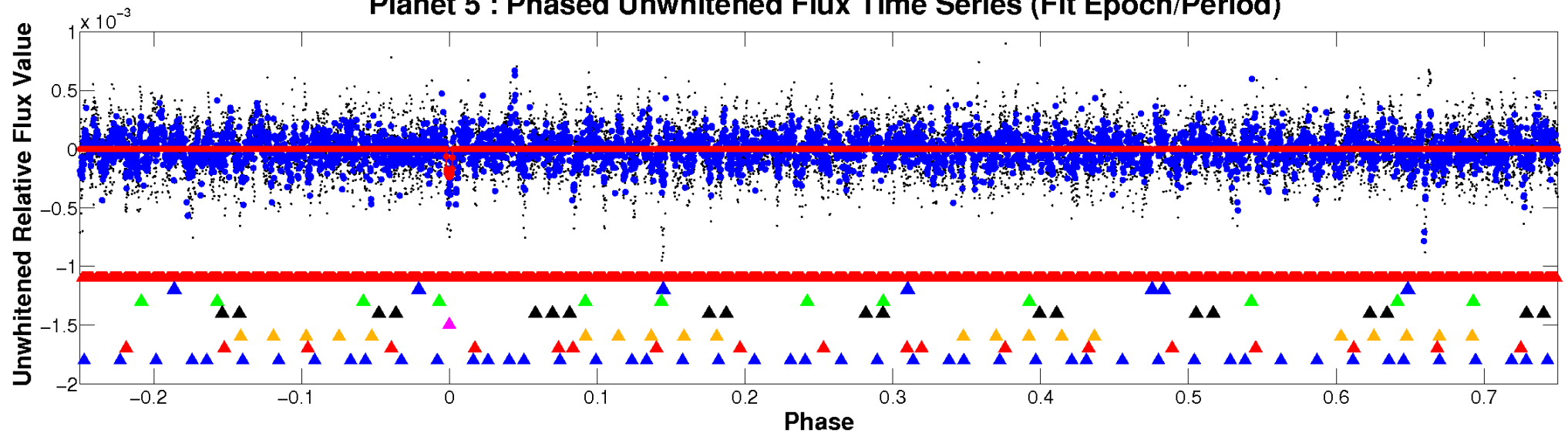
ALT Odd/Even

TCE 010789361-05

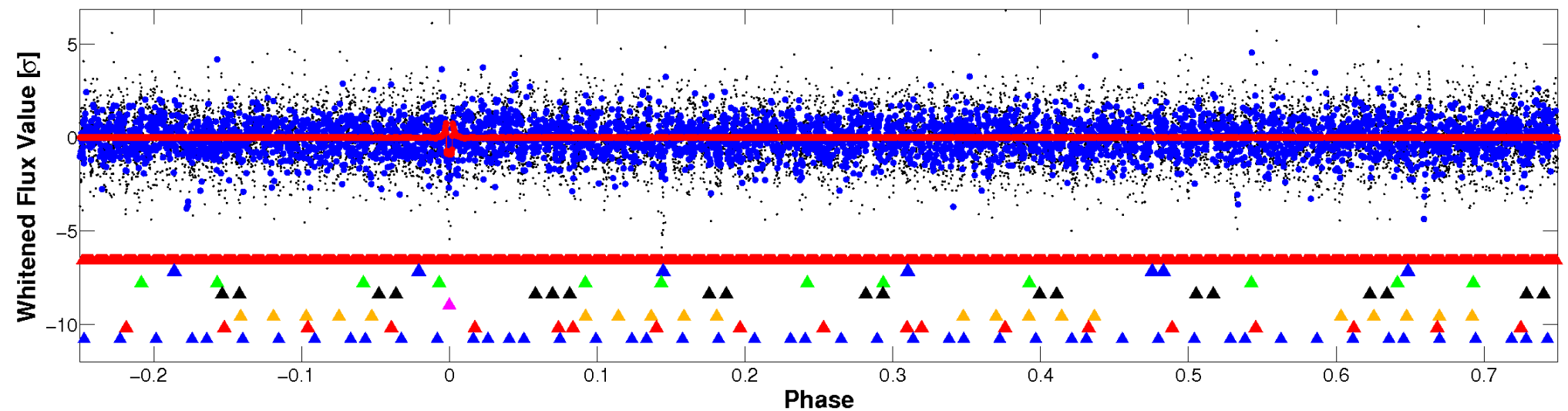


Non-Whitened Vs. Whitened Light Curve

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

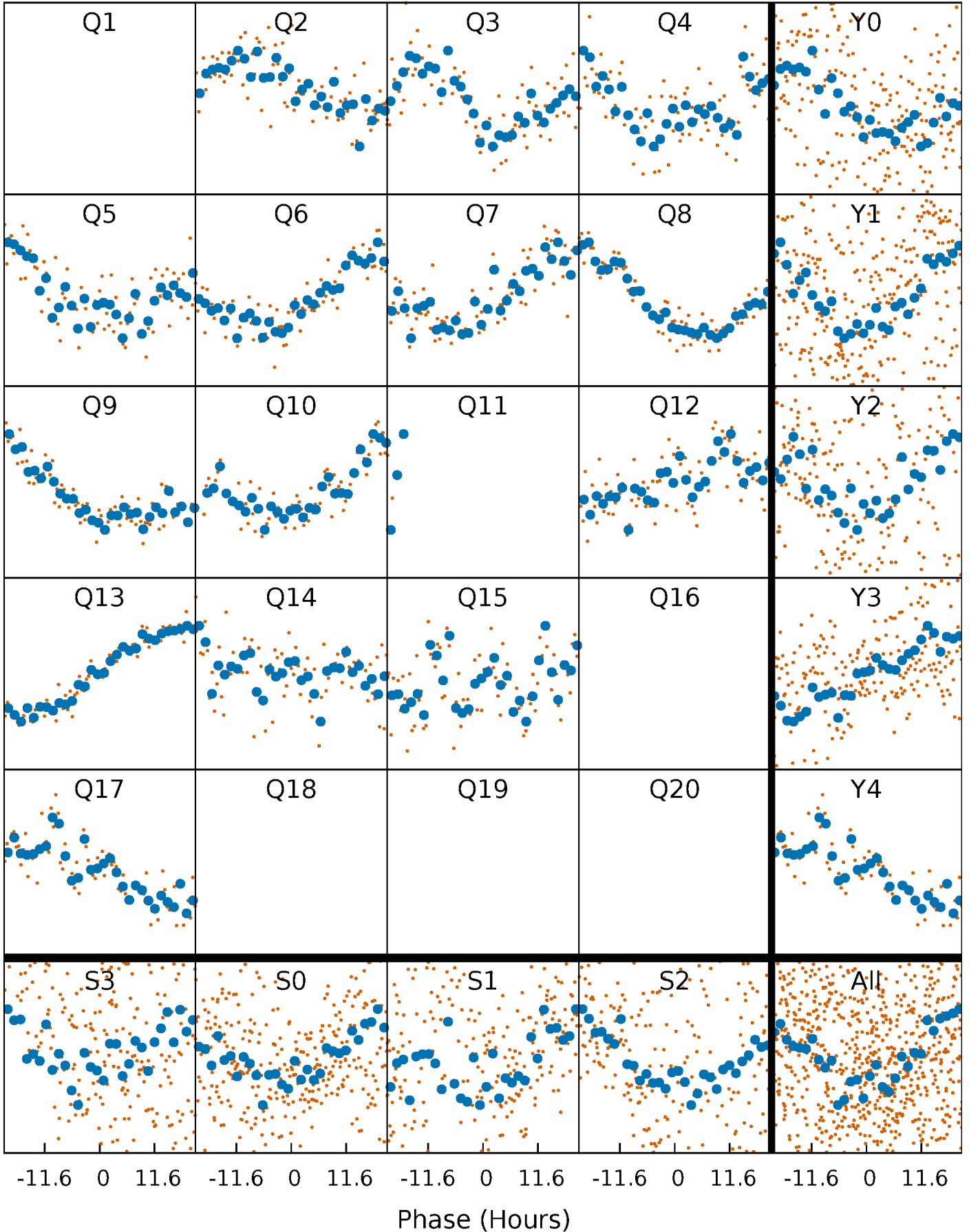


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



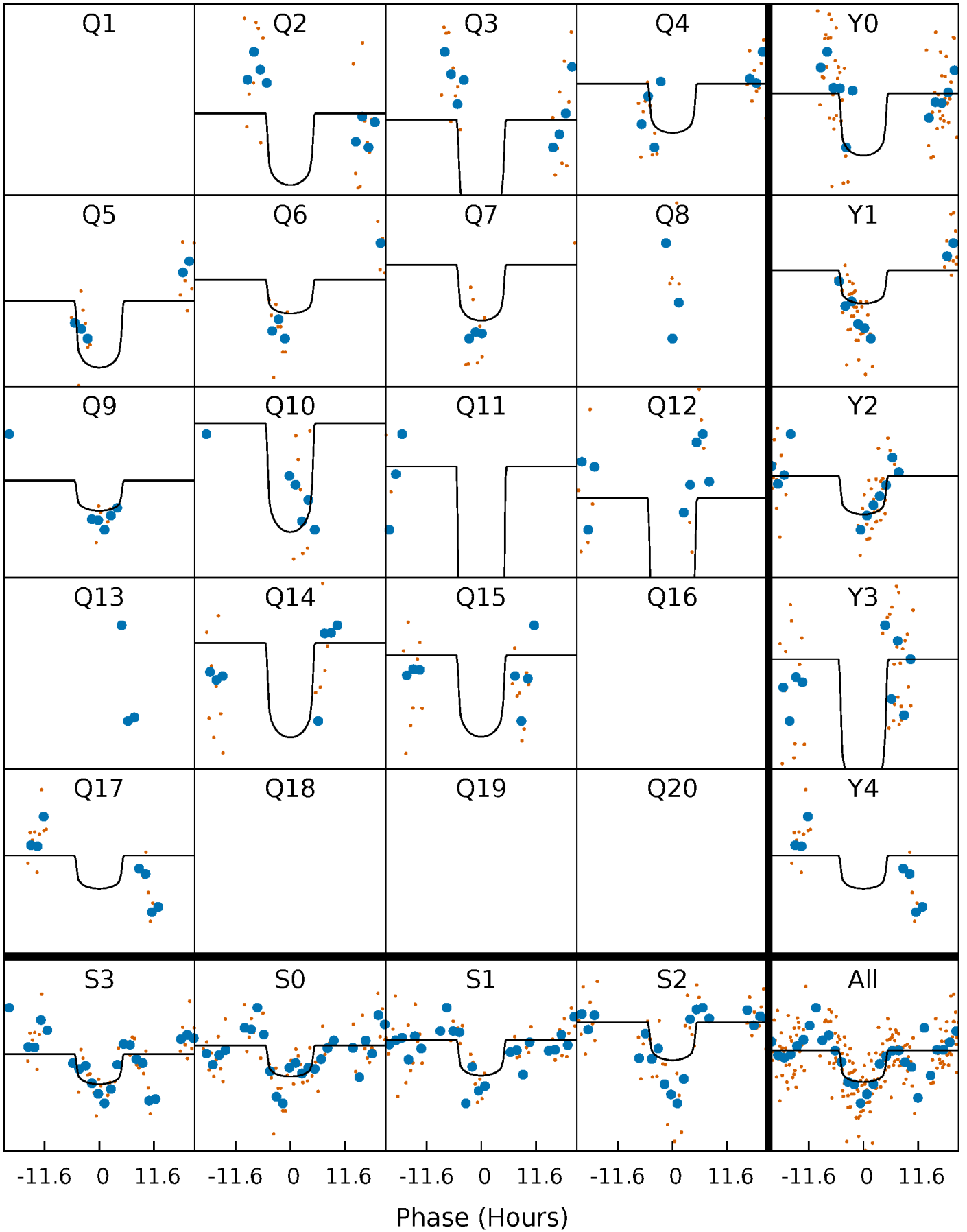
PDC Quarter-Phased Transit Curves

TCE 010789361-05 P= 99.845787 Days $T_0=172.090369$ (BKJD)



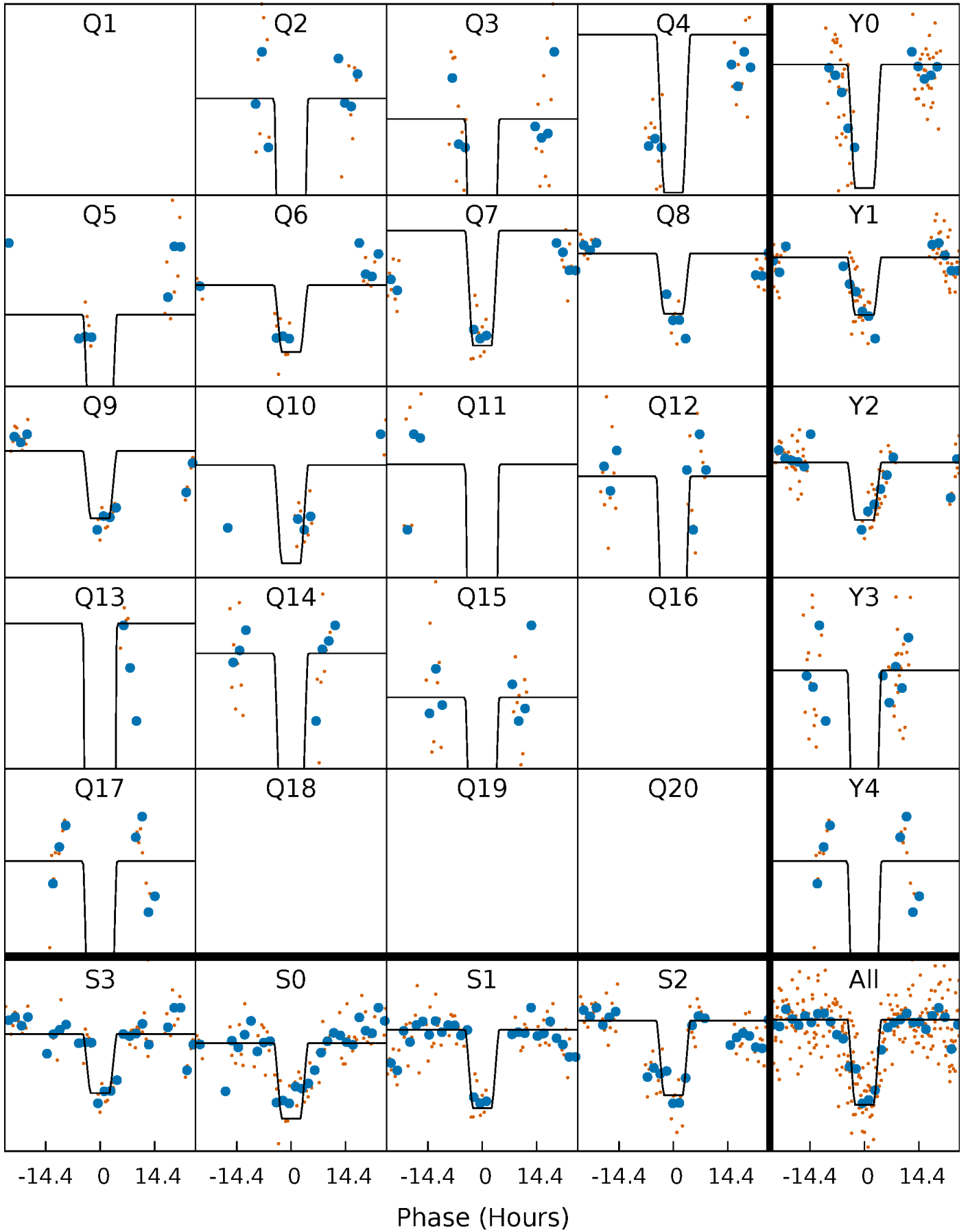
DV Quarter-Phased Transit Curves

TCE 010789361-05 P= 99.845787 Days $T_0=172.090369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

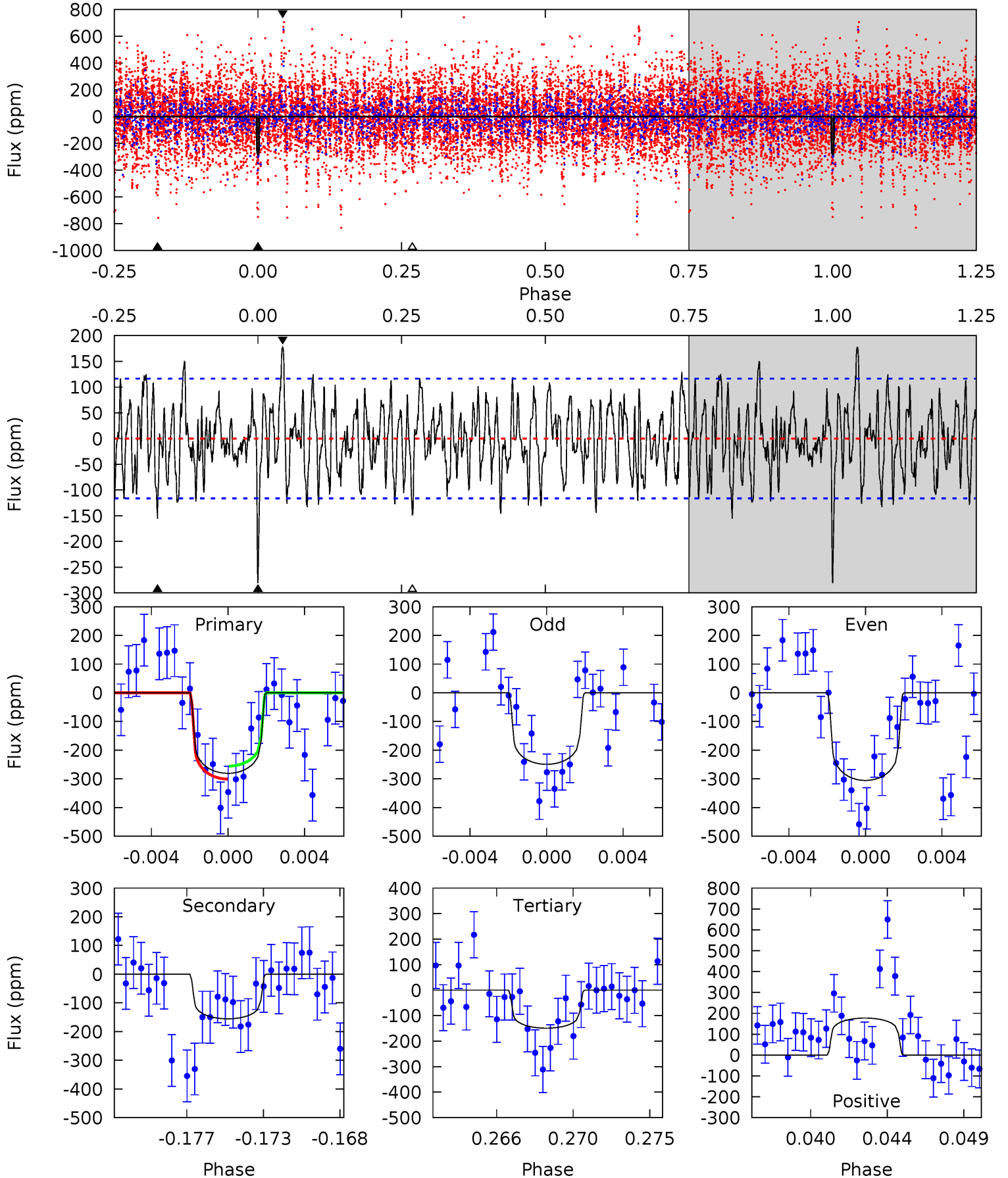
TCE 010789361-05 P= 99.838776 Days $T_0=172.110995$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-05, P = 99.845787 Days, E = 72.244582 Days

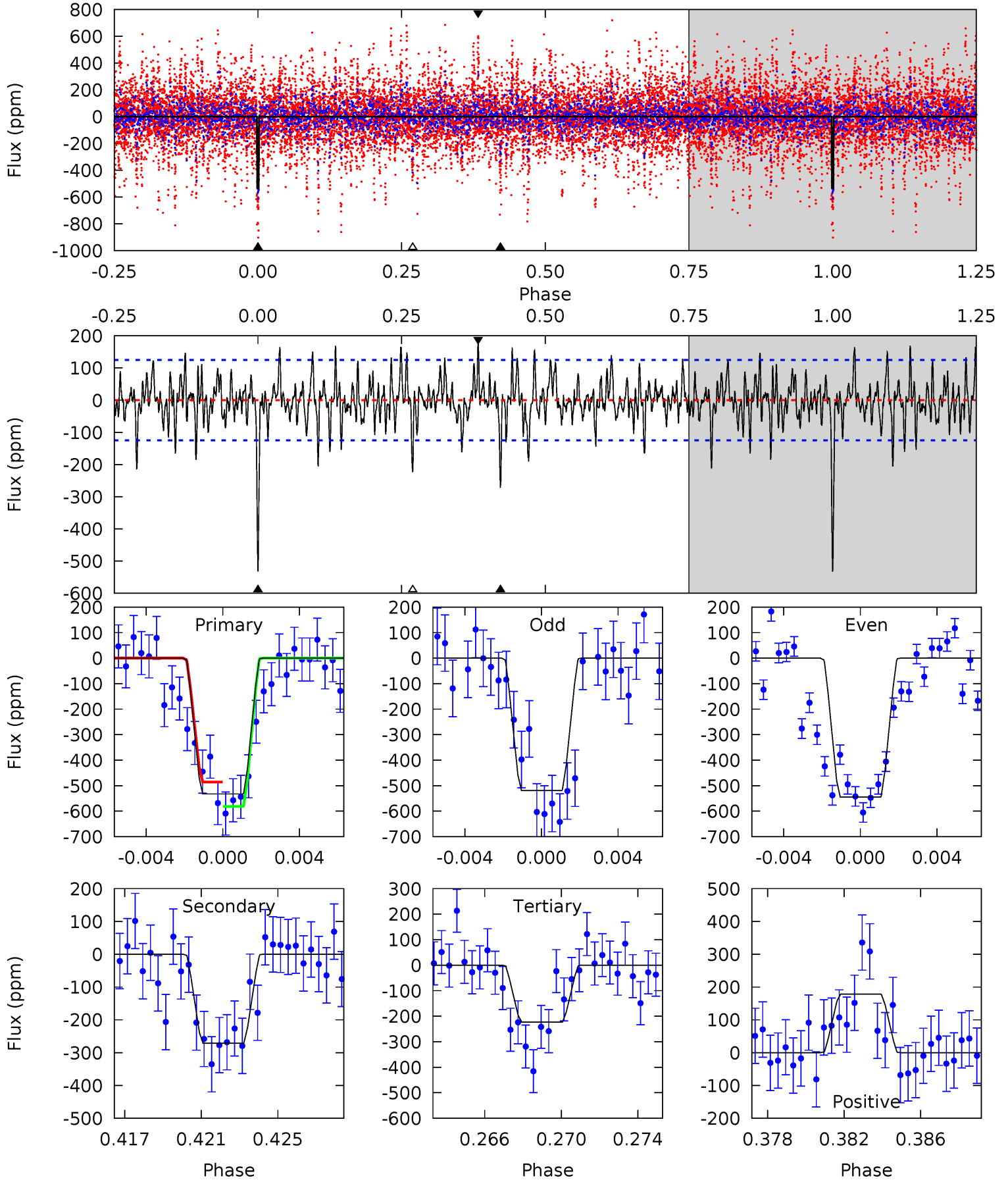
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	6.92	6.64	7.89	5.18	2.85	2.60	5.86	4.62	0.28	-0.96	1.26	0.89	0.39	0.99



Alt Model-Shift Uniqueness Test

010789361-05, P = 99.838776 Days, E = 72.272219 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	11.3	9.29	7.42	5.21	2.89	2.38	12.9	14.8	2.01	3.89	0.53	0.85	0.25	1.98



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-156 ± 22	$2.53^{+0.89}_{-0.76}$	741^{+52}_{-65}	5755^{+997}_{-682}	2515^{+2771}_{-1185}
Alt.	-271 ± 24	$3.91^{+1.08}_{-0.88}$	735^{+58}_{-65}	5308^{+543}_{-394}	1872^{+1198}_{-729}

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 $A_{obs} \gg 1.0$

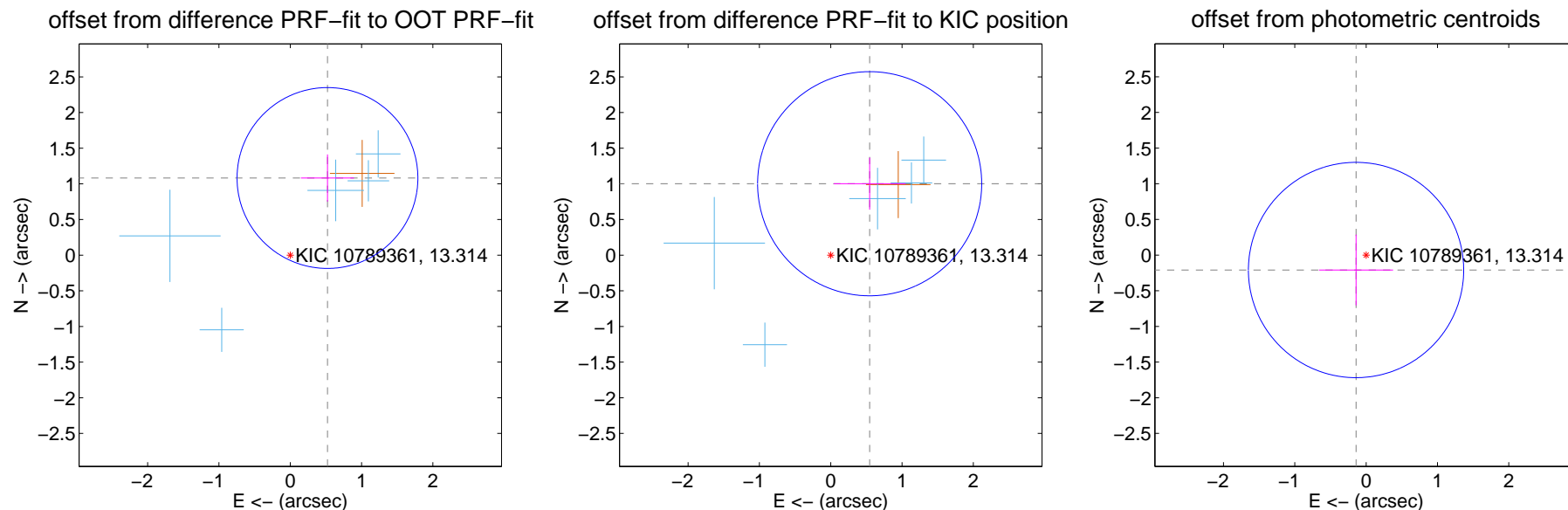
DV Centroid Data

Supplemental centroid analysis for 010789361-05. Kepler magnitude: 13.31. Transit SNR 7.43

There are 5 quarters with good PRF difference image offsets

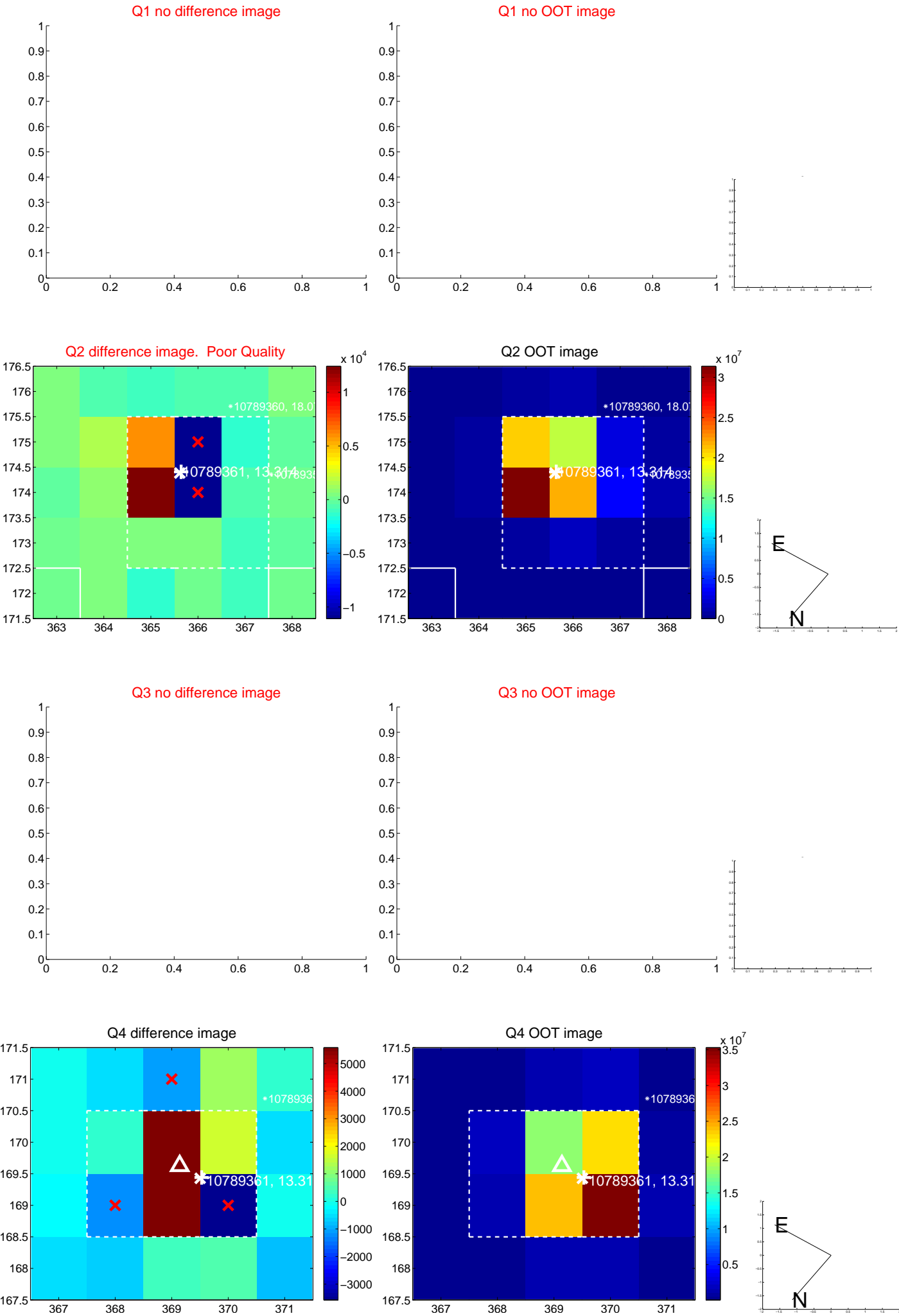
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.201 ± 0.423	2.84	-0.522 ± 0.372	1.082 ± 0.331
PRF-fit source offset from KIC position	1.141 ± 0.524	2.18	-0.546 ± 0.505	1.002 ± 0.364
photometric centroid source offset	0.25 ± 0.50	0.50	0.14 ± 0.52	-0.21 ± 0.50

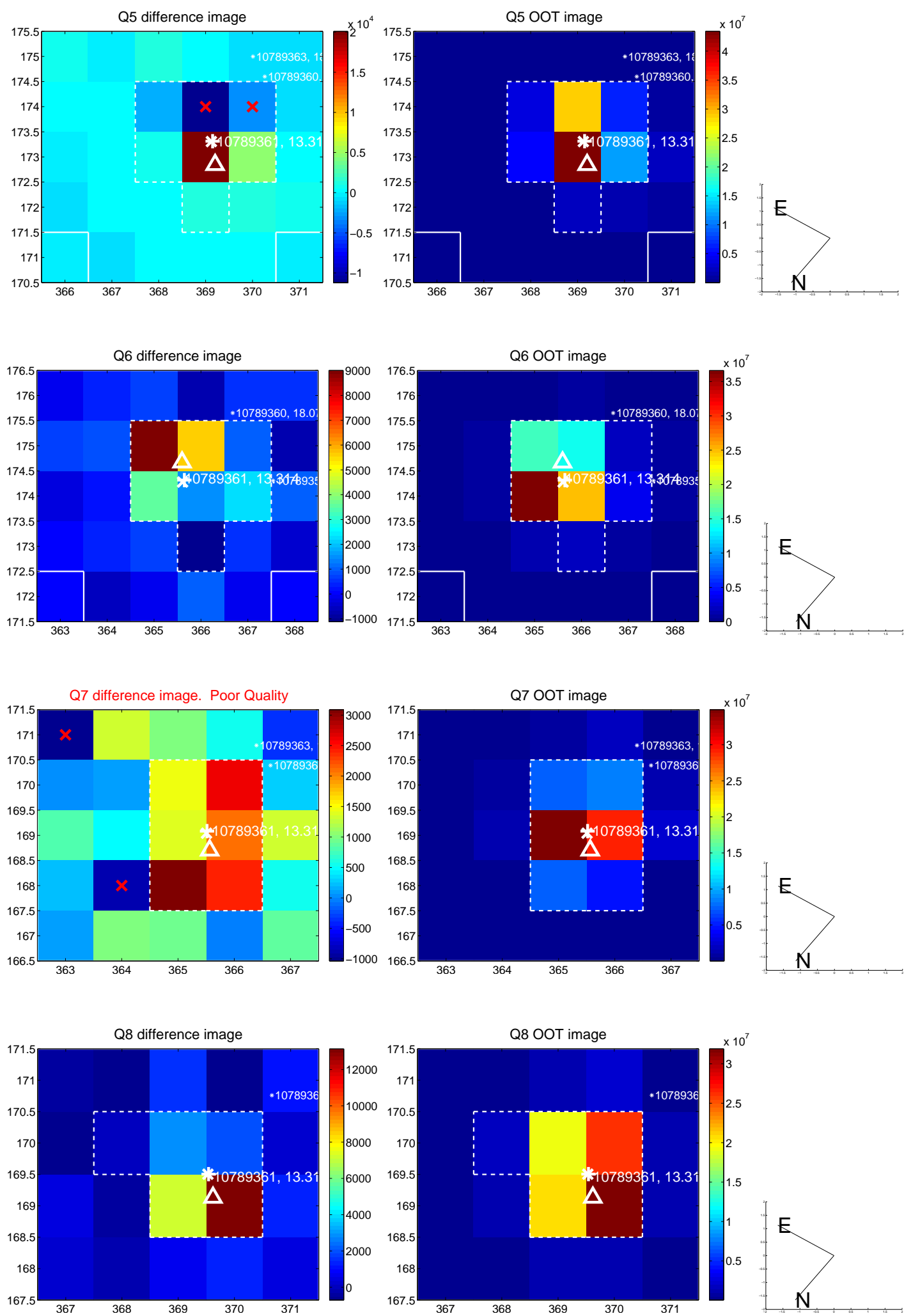


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

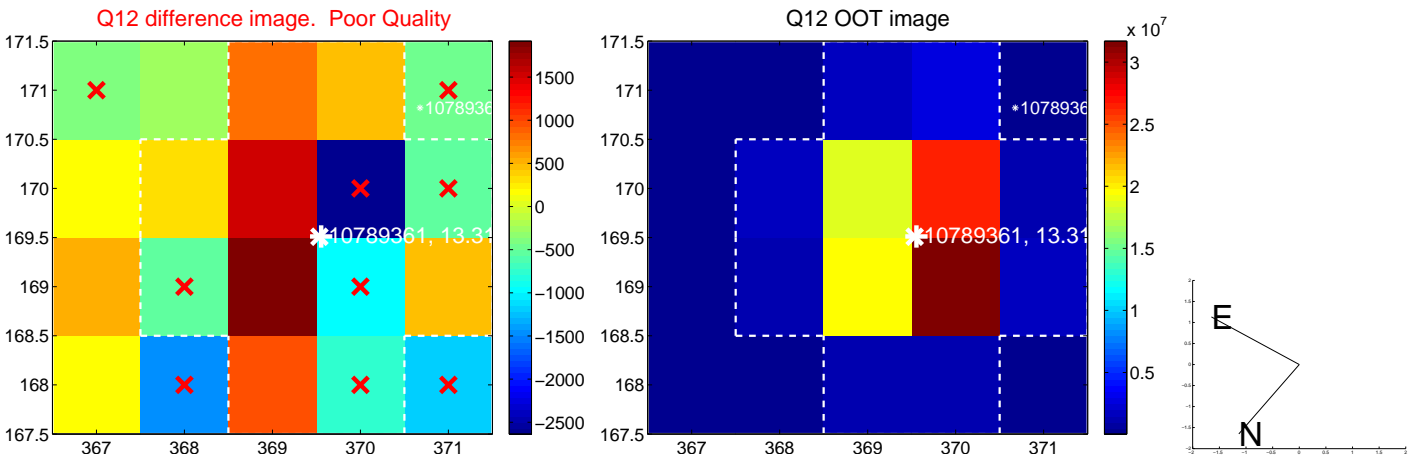
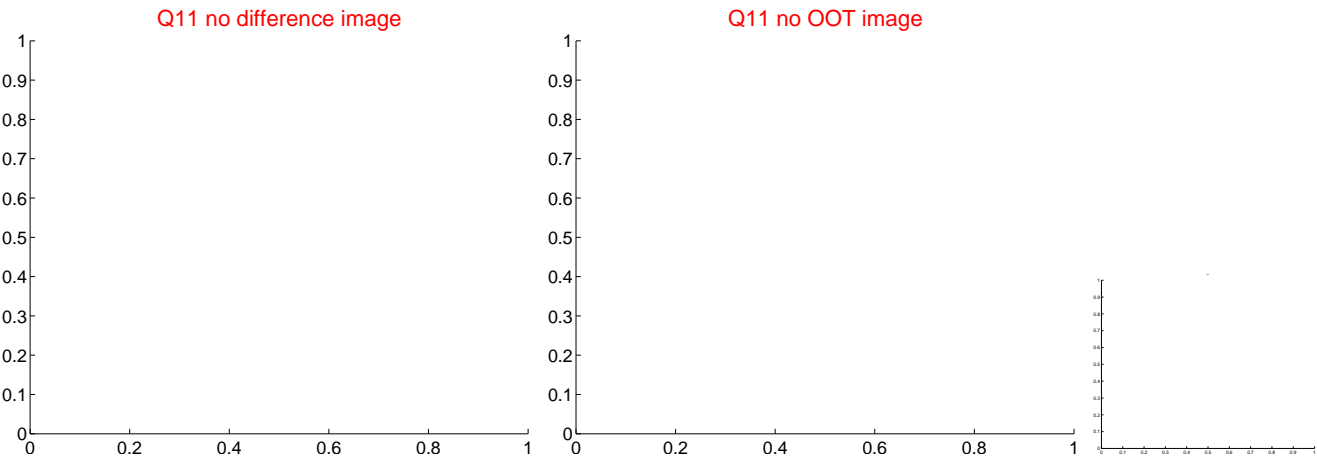
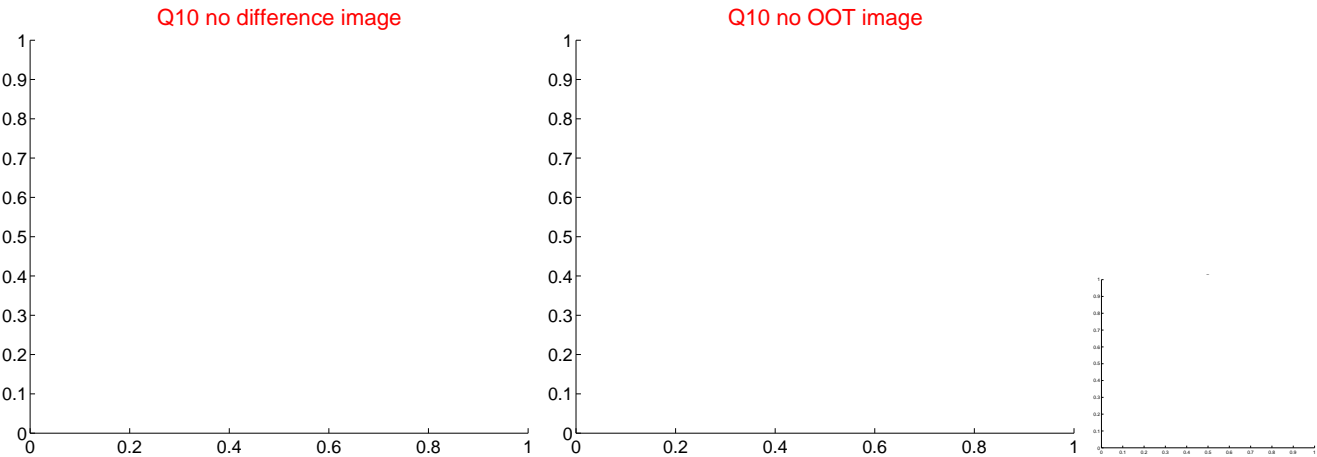
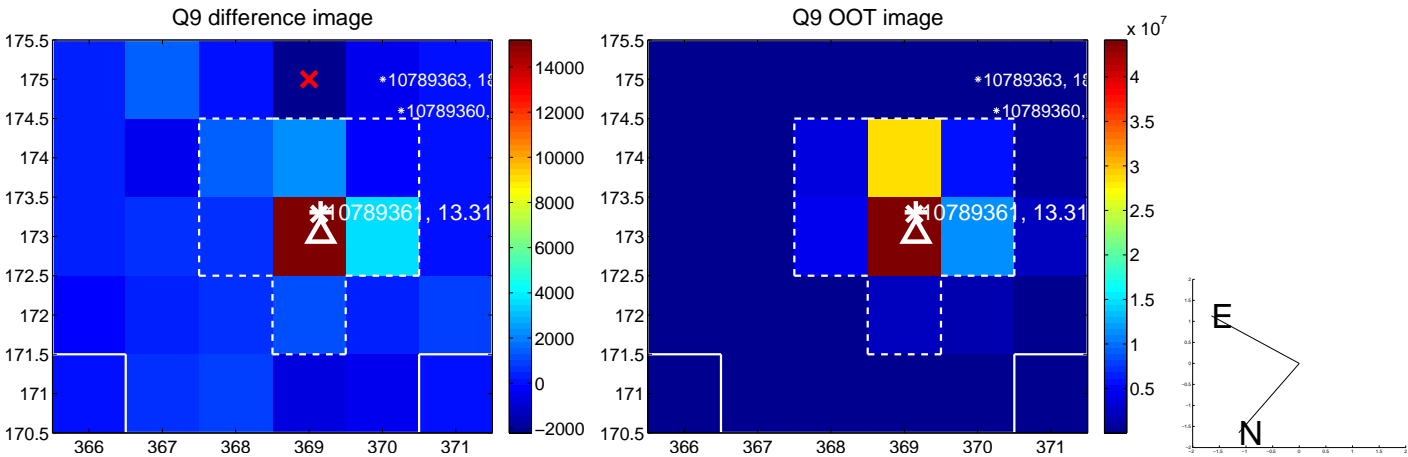
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



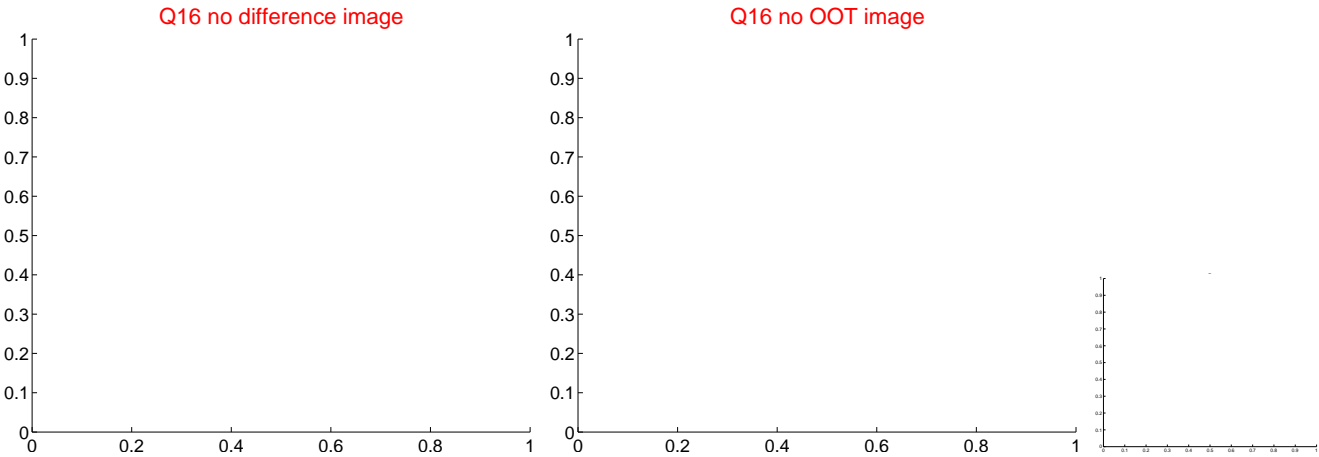
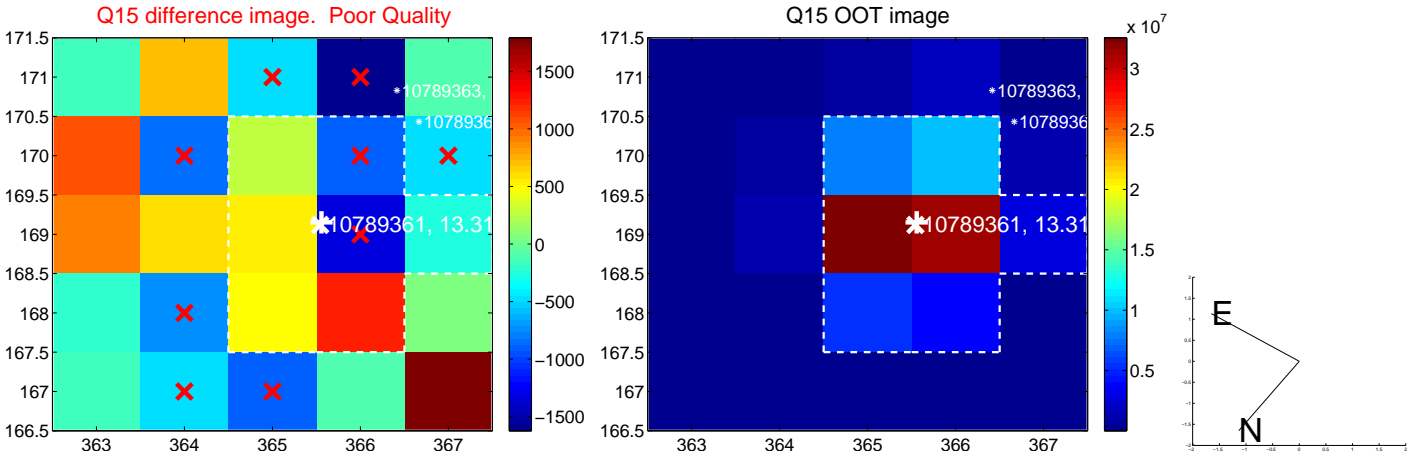
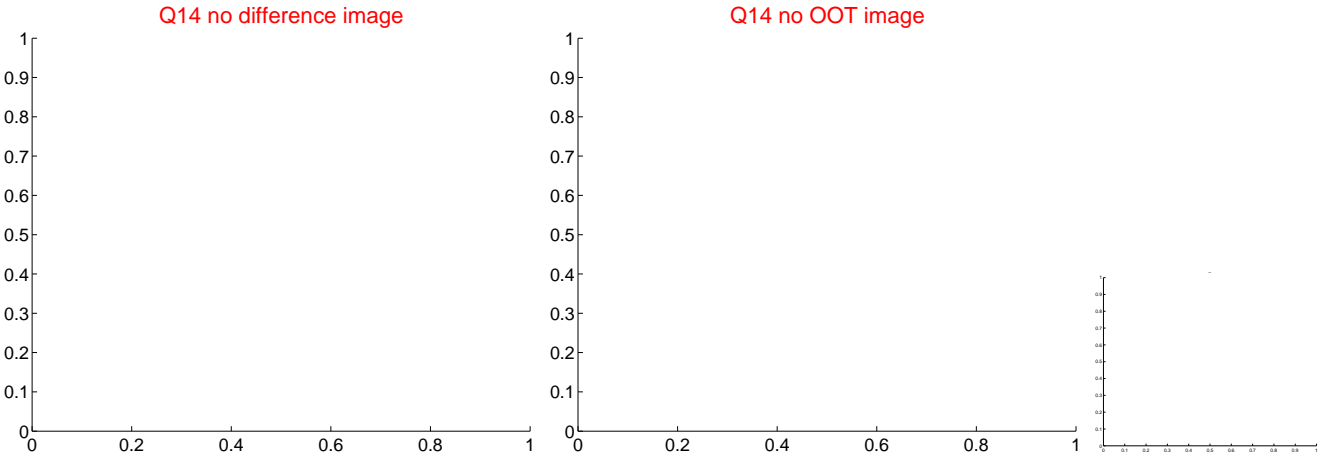
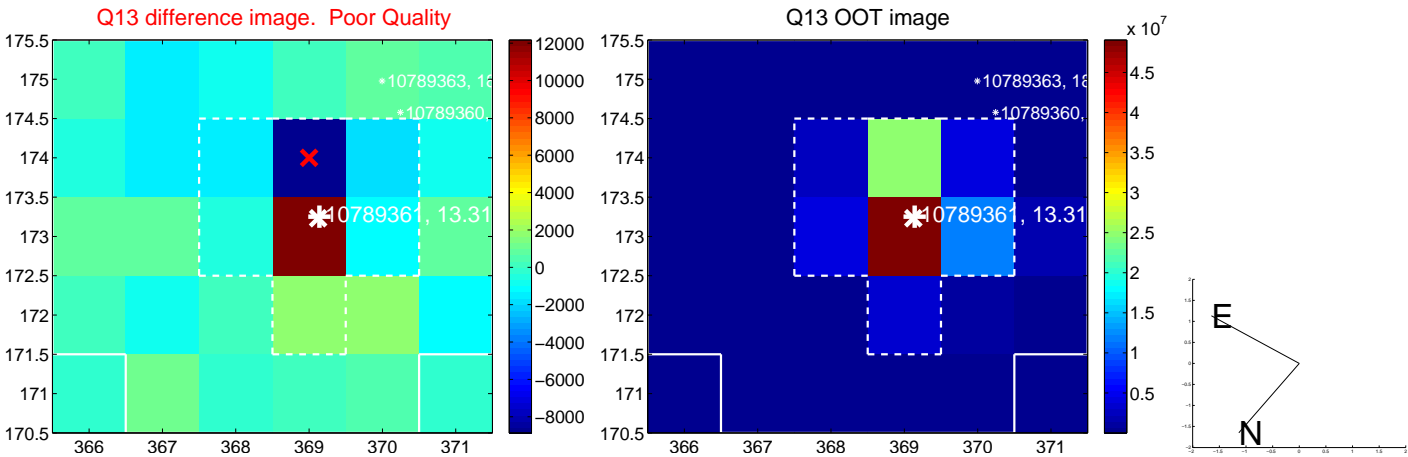
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



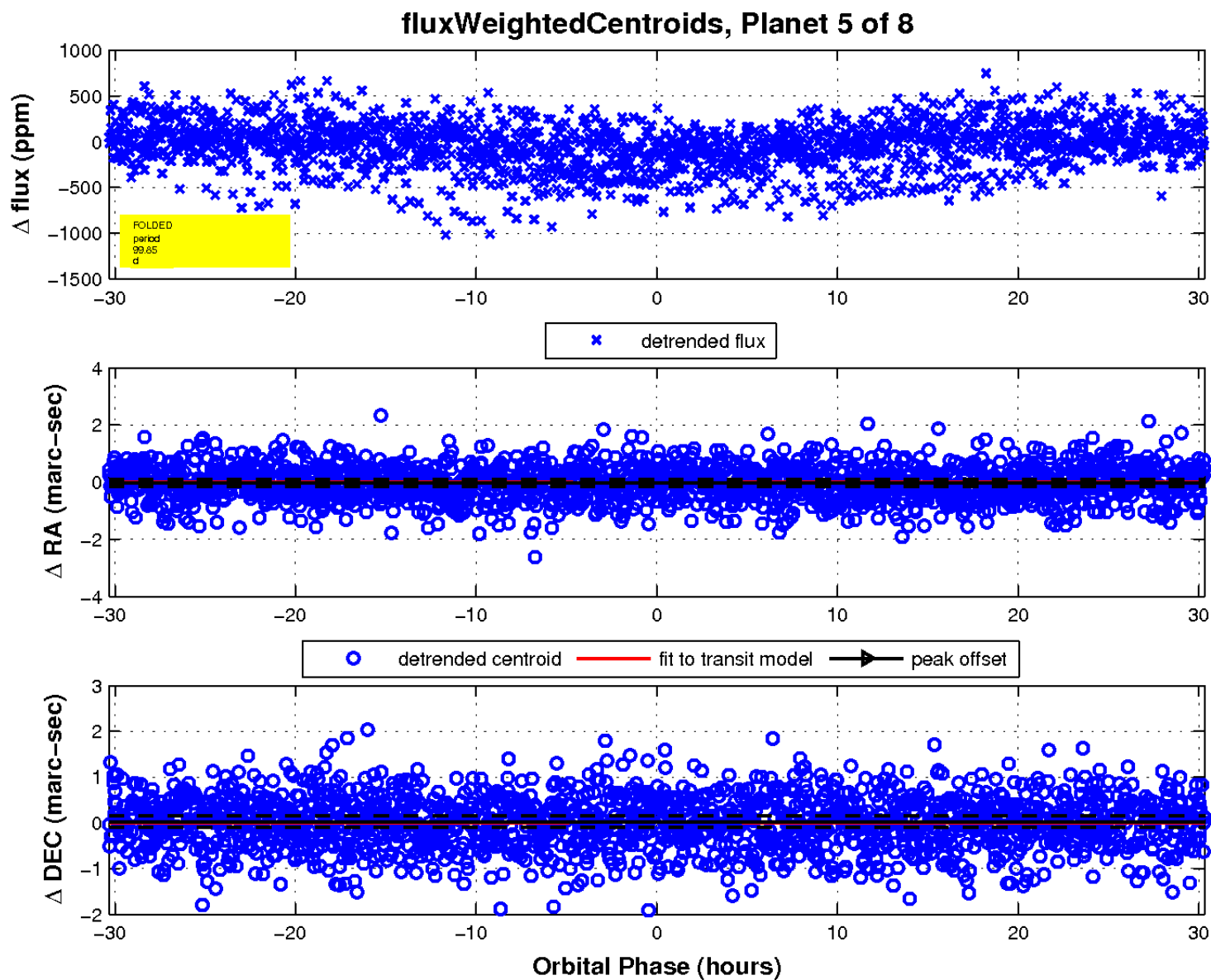
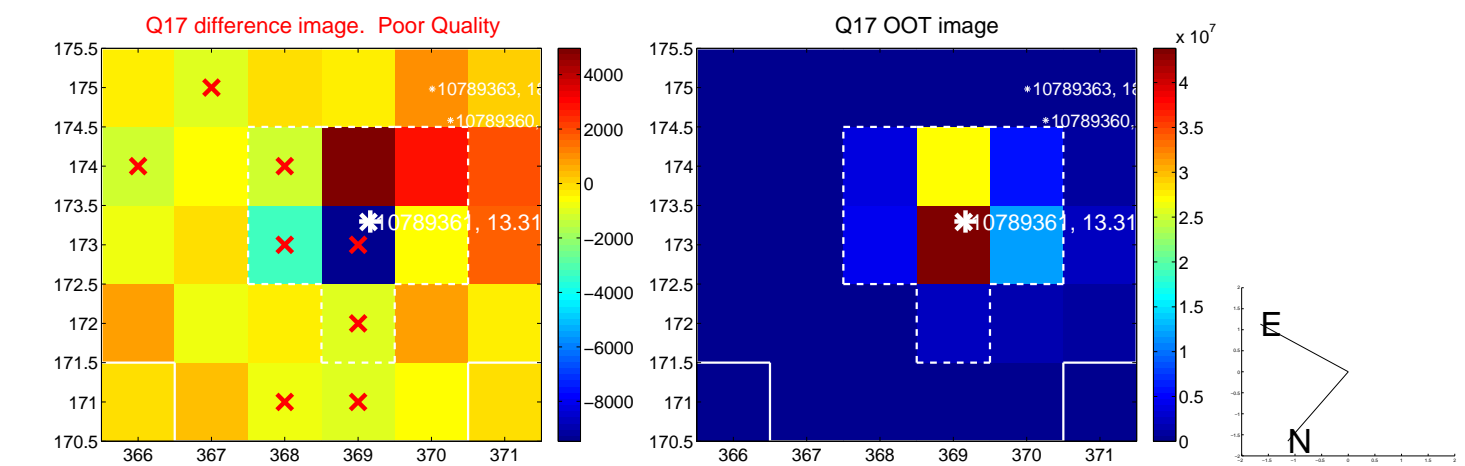
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

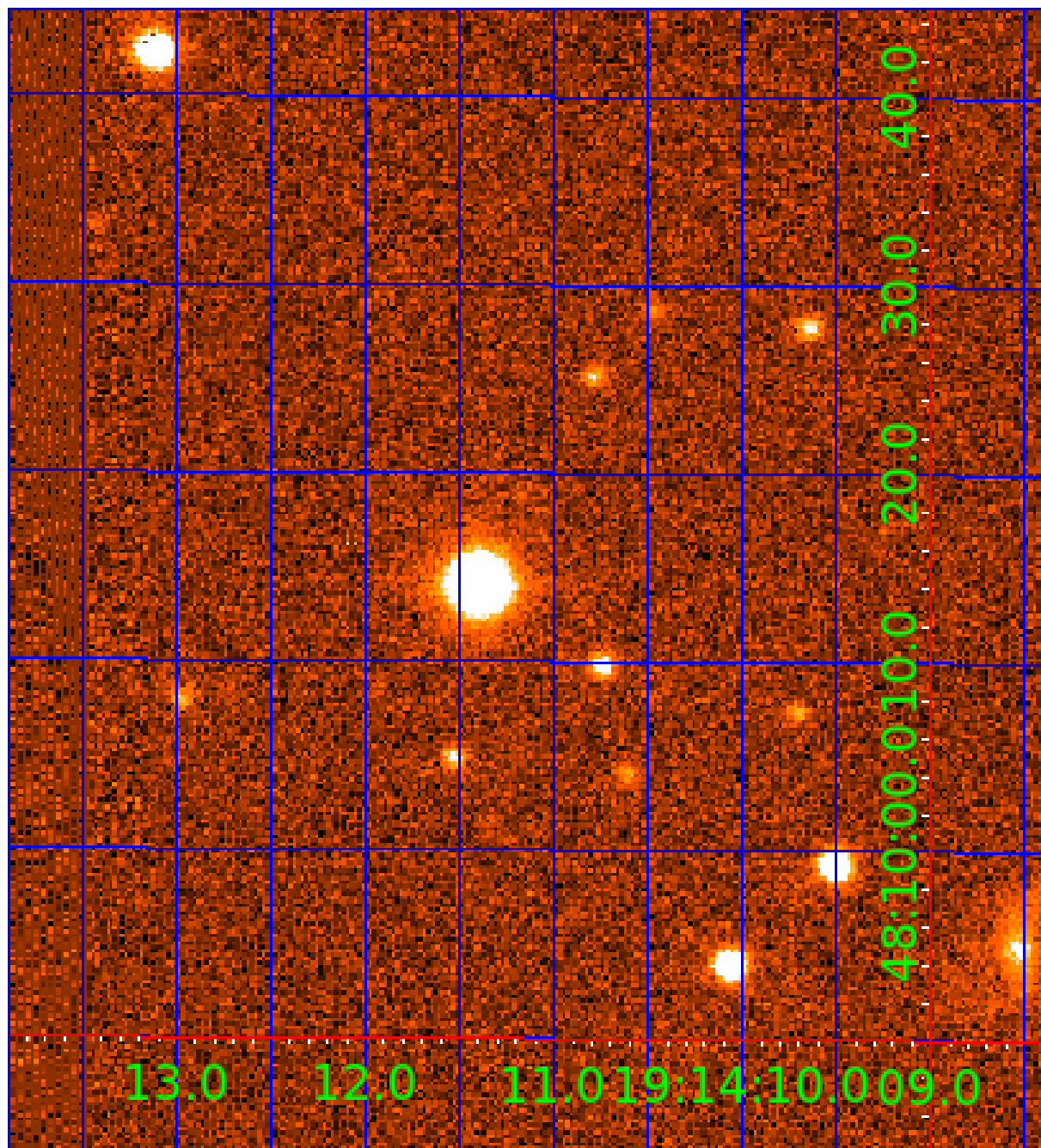


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
010789361-03	OBS	No	114.841981	236.133579	492.1	9.756	15.2	11.1	1.53	6463	6.54	16.19
010789361-04	OBS	No	77.529013	180.223336	273.7	9.262	9.0	8.7	1.53	6463	2.72	27.34
010789361-05	OBS	No	99.845787	172.090369	238.2	10.114	9.6	7.4	1.53	6463	2.64	19.52
010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

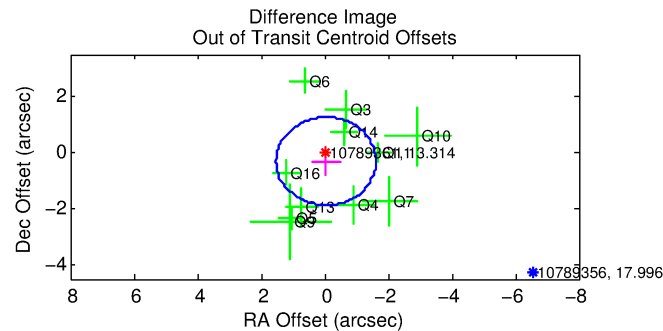
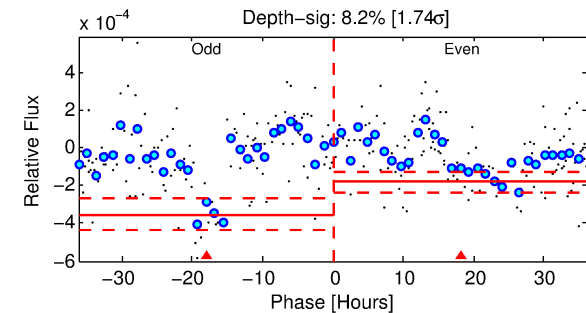
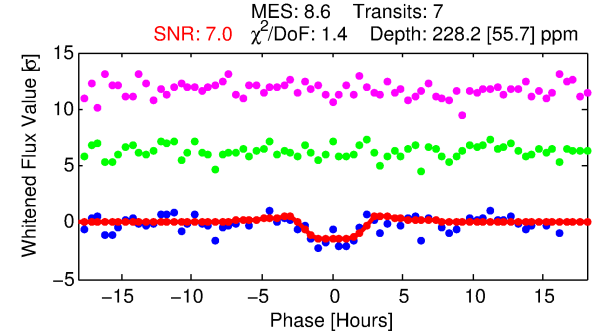
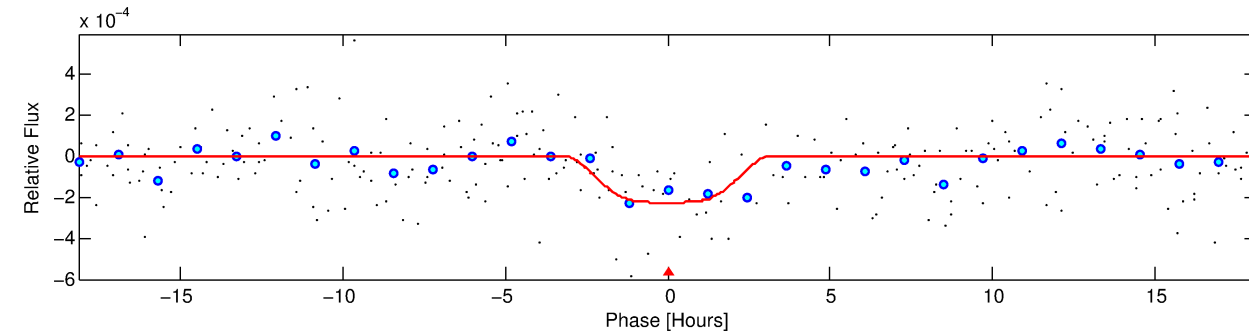
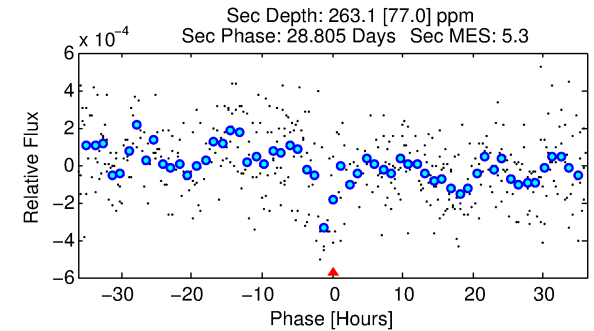
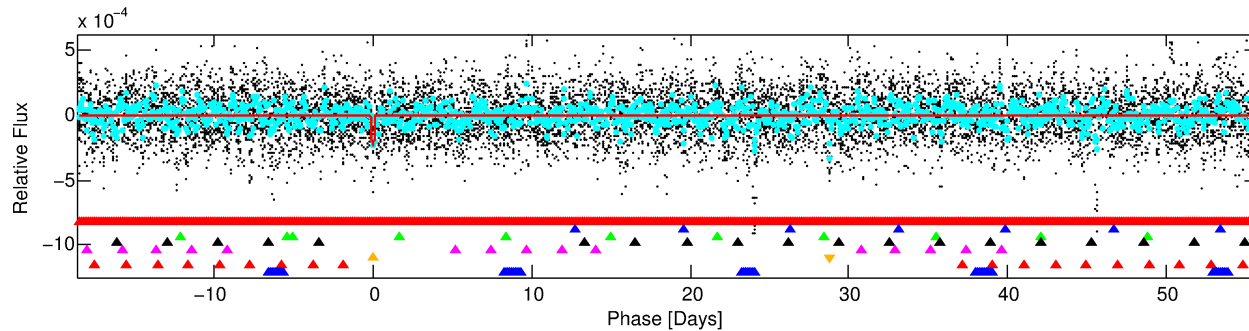
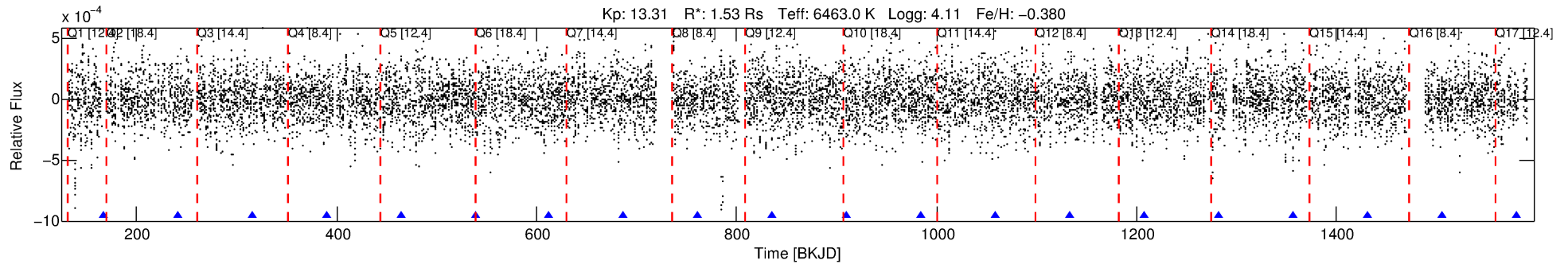
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-06

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 6 of 8 Period: 74.331 d



DV Fit Results:

Period = 74.33082 [0.00187] d
Epoch = 166.8518 [0.0259] BKJD
Rp/R* = 0.0182 [0.0029]
a/R* = 27.03 [9.44]
b = 0.98 [0.02]
Seff = 28.92 [14.20]
Teq = 591 [73] K
Rp = 3.04 [0.99] Re
a = 0.3562 [0.1024] AU
Ag = 1992.26 [1269.00] [1.57σ]
Teffp = 6108 [690] K [7.95σ]

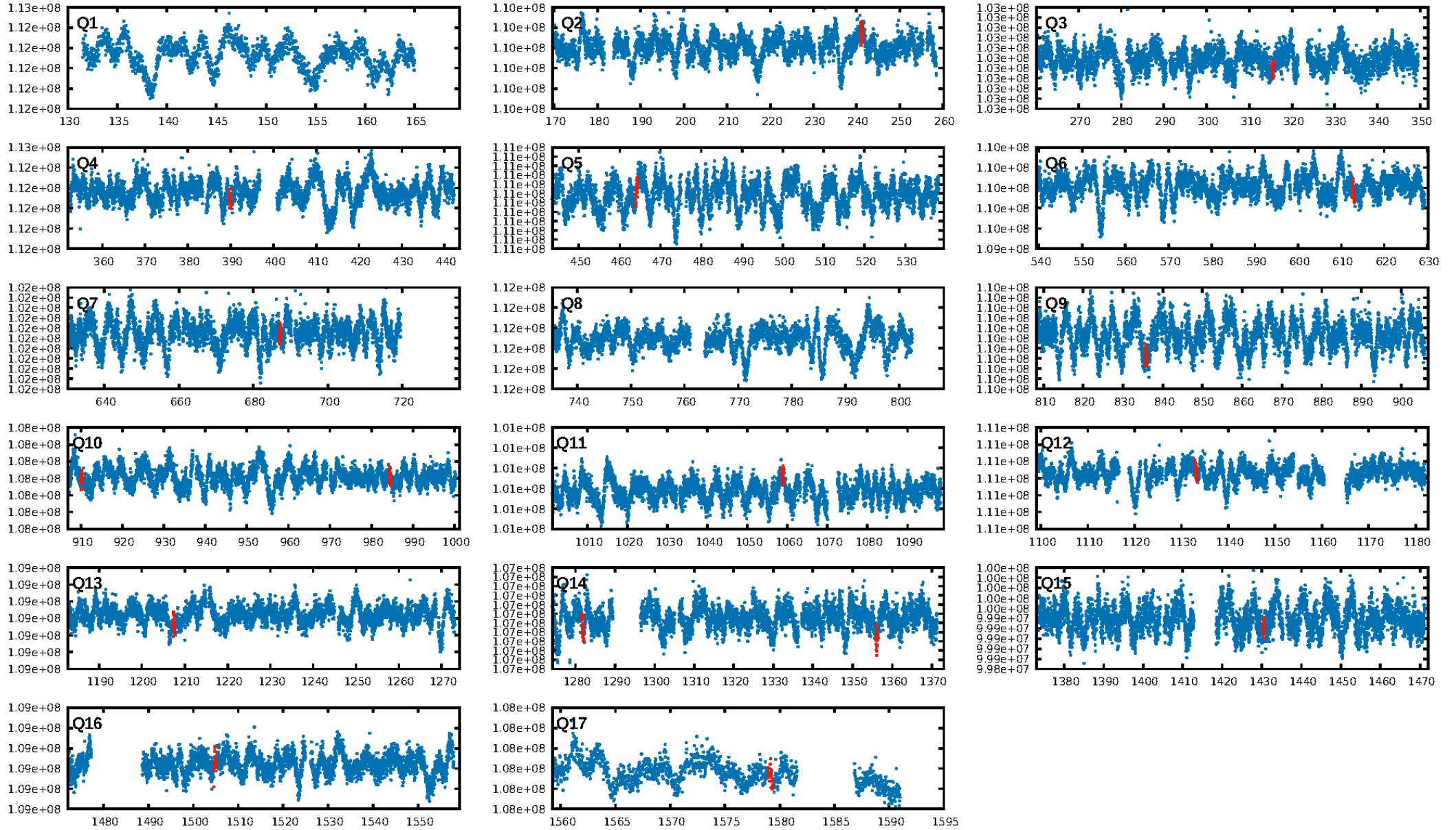
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [137.11σ]
LongPeriod-sig: 100.0% [6.06σ]
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.16e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 125.9
Centroid-sig: 17.5%
Centroid-so: 0.794 arcsec [1.13σ]
OotOffset-rm: 0.309 arcsec [0.59σ]
KicOffset-rm: 0.480 arcsec [0.94σ]
OotOffset-st: 3/3/2/3 [11]
KicOffset-st: 3/3/2/3 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 0.00 [0/15]

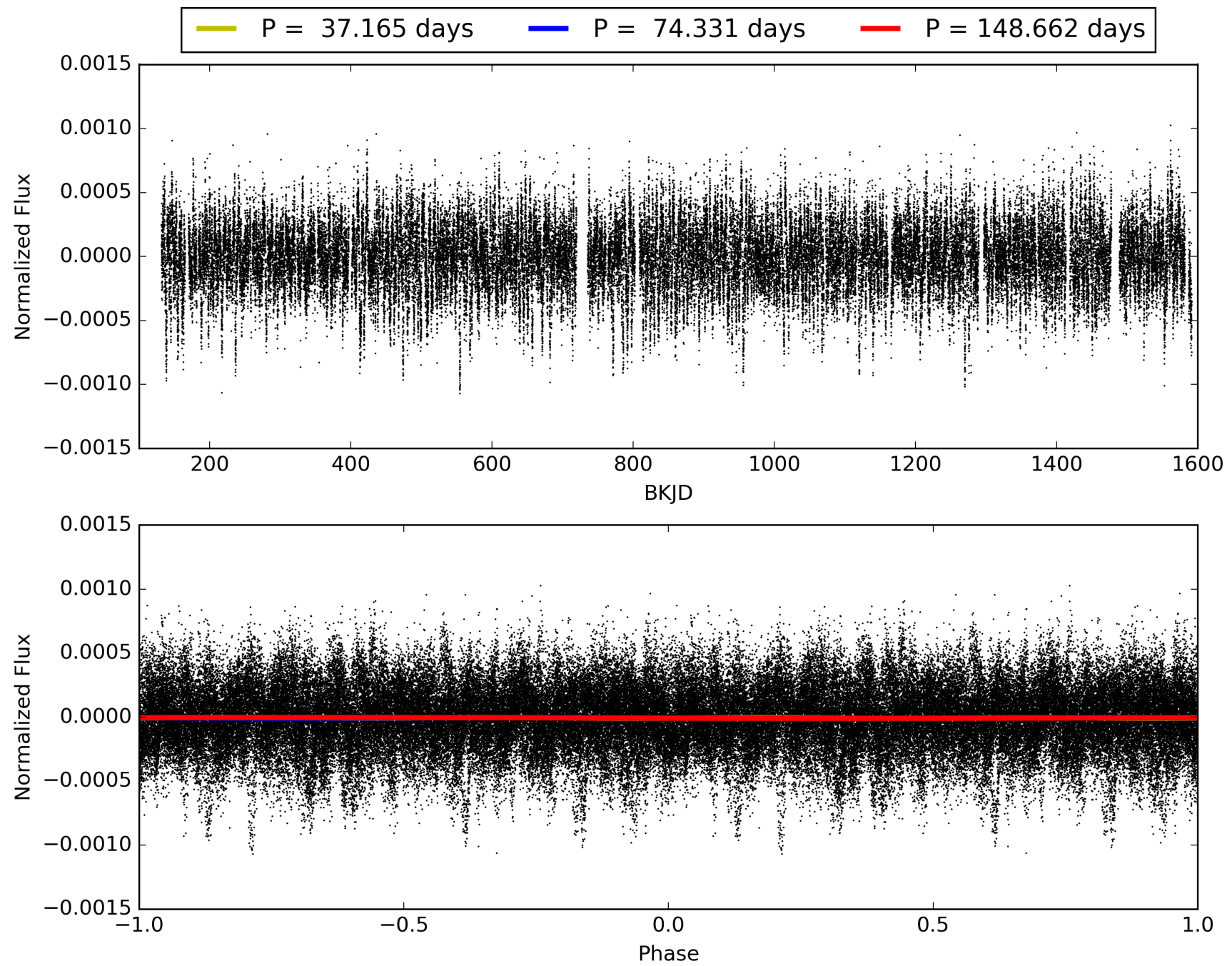
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:44 Z

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

TCE 010789361-06, PDC Light Curves

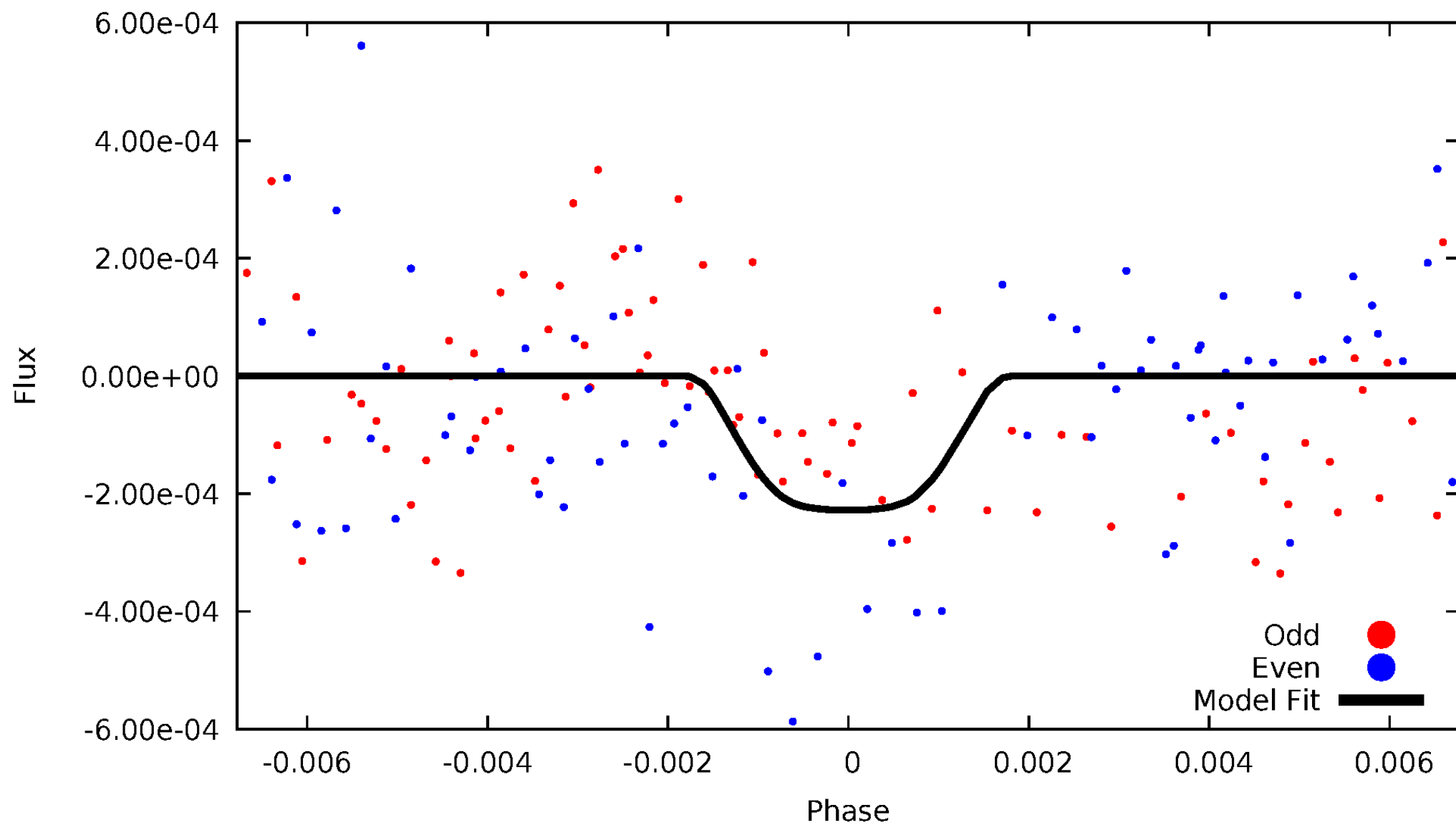


TCE 010789361-06



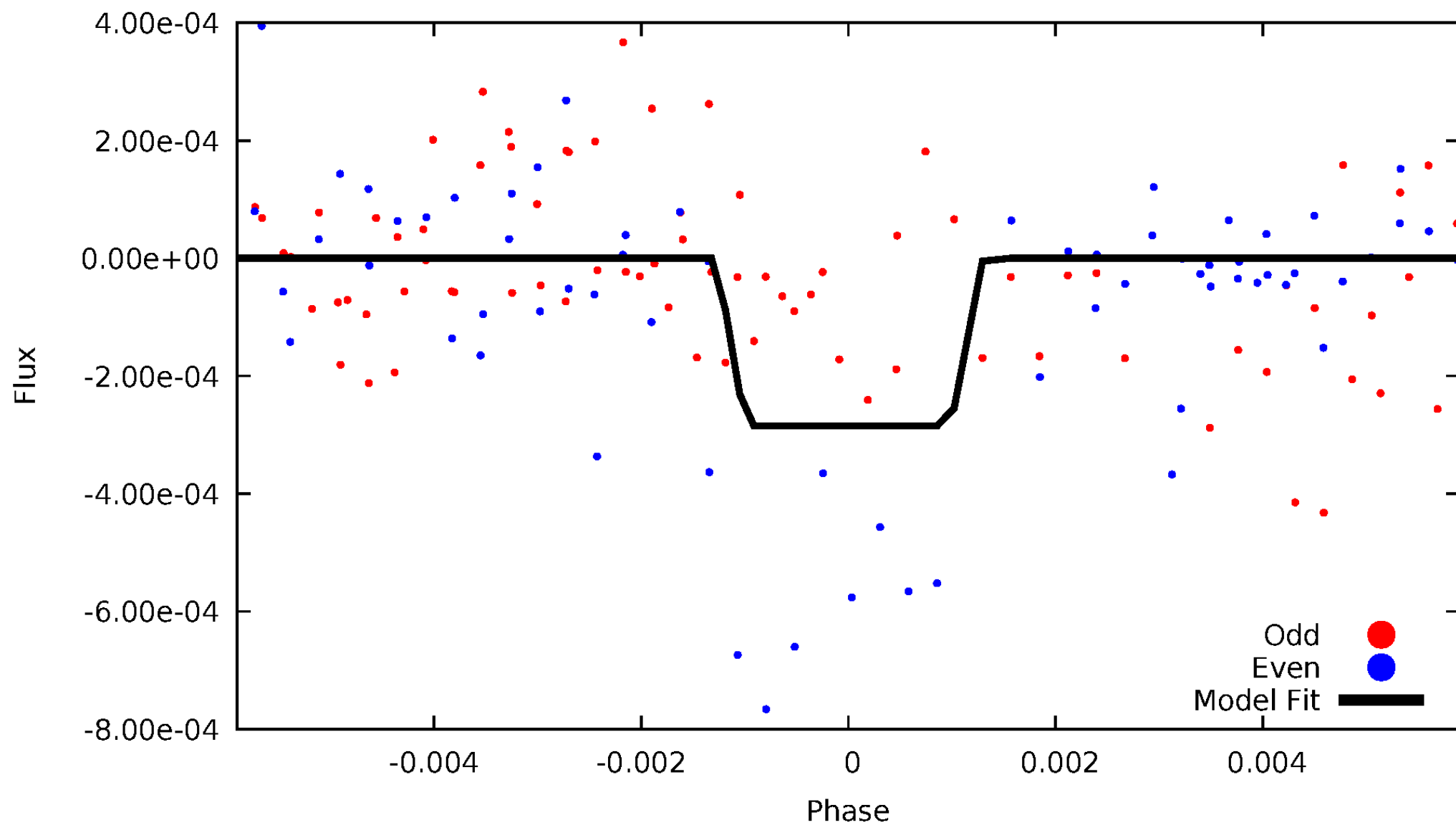
DV Odd/Even

TCE 010789361-06



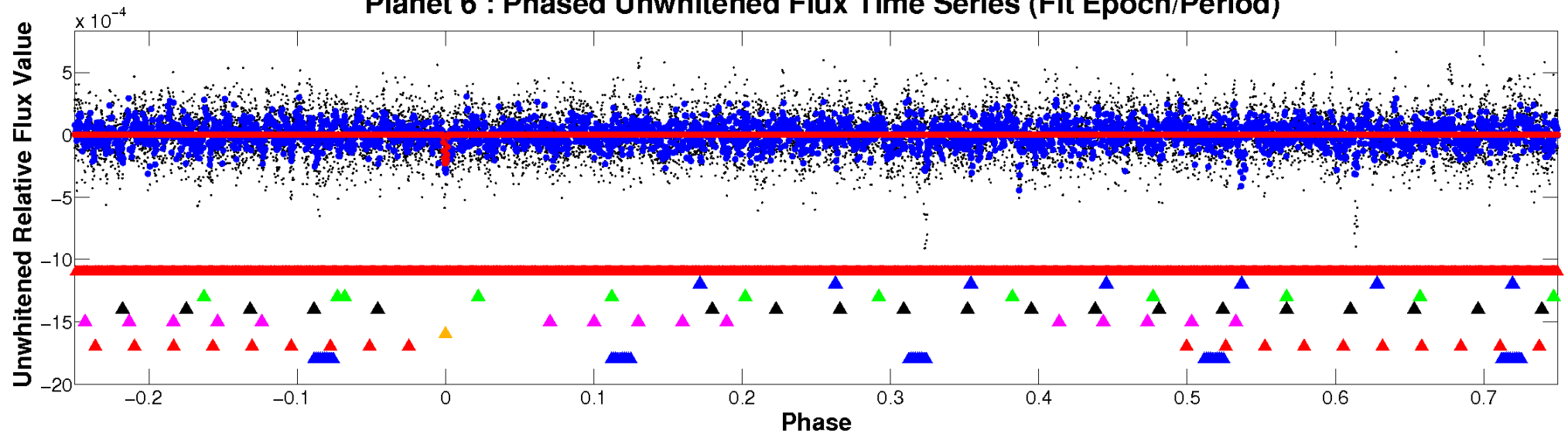
ALT Odd/Even

TCE 010789361-06

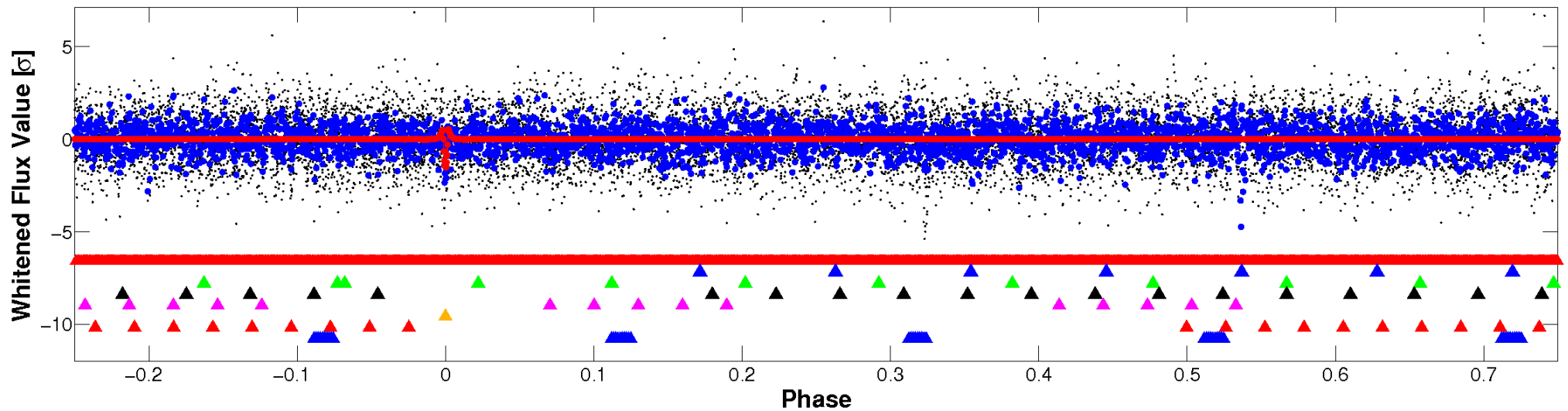


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

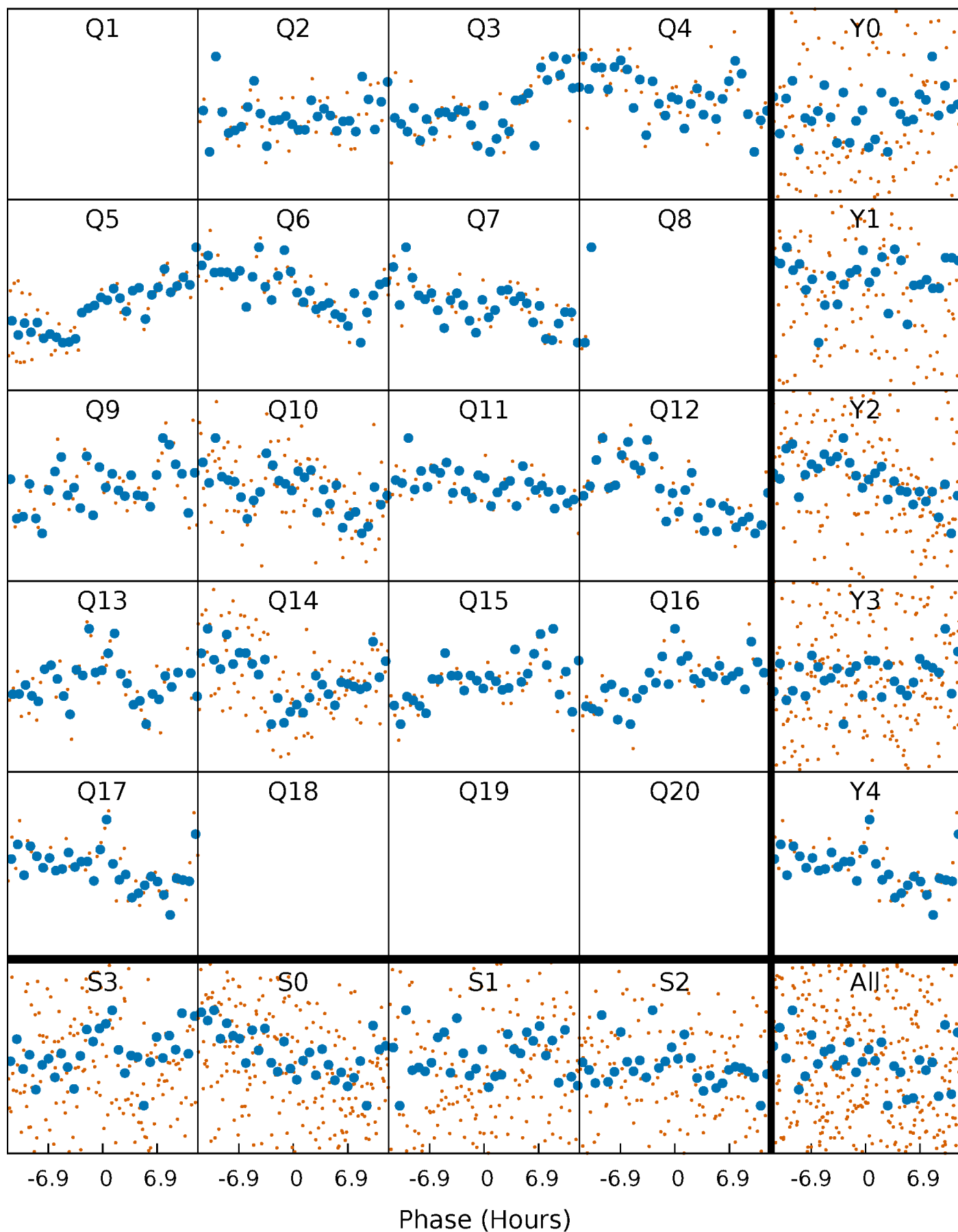


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



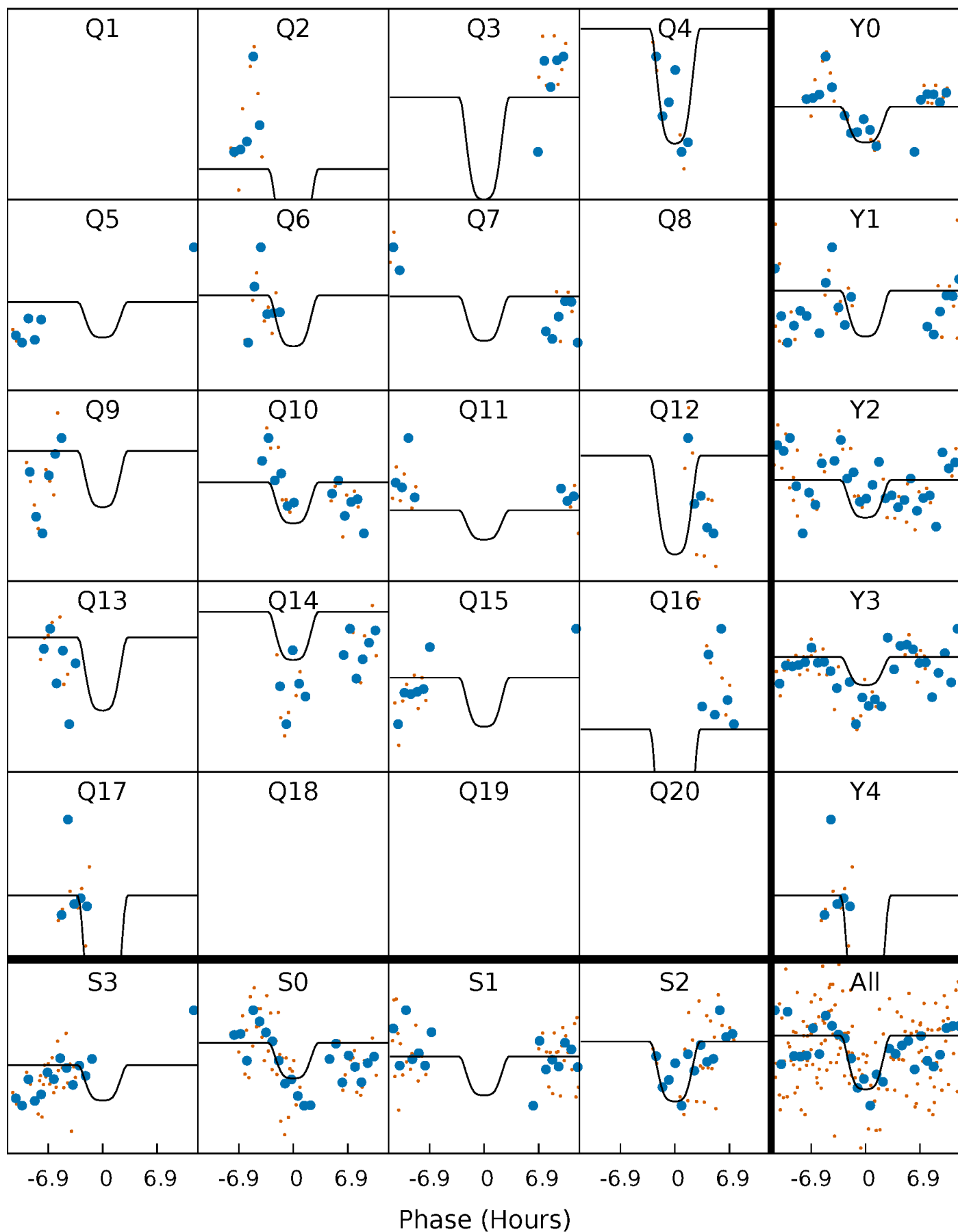
PDC Quarter-Phased Transit Curves

TCE 010789361-06 P= 74.330825 Days $T_0=166.851787$ (BKJD)



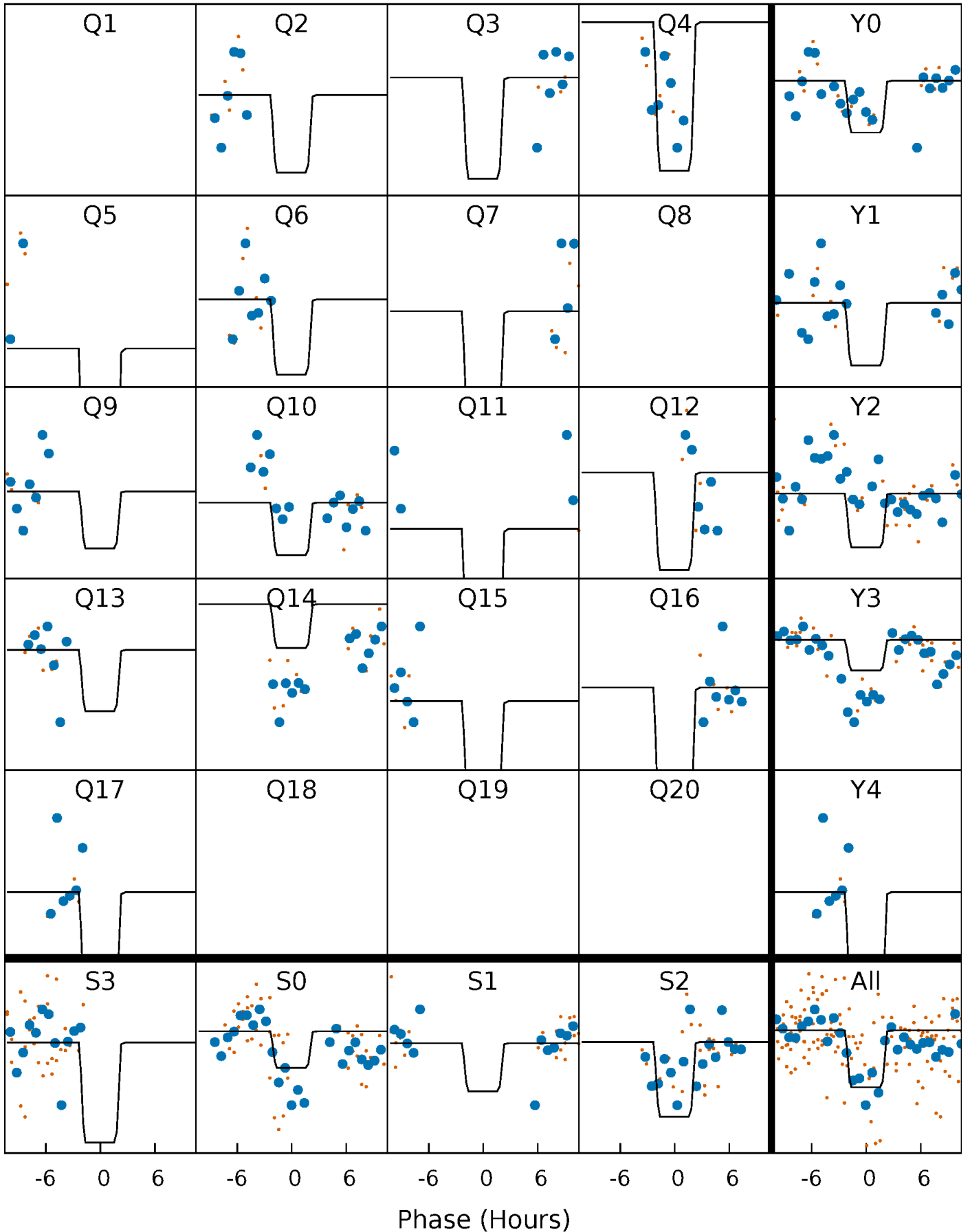
DV Quarter-Phased Transit Curves

TCE 010789361-06 P= 74.330825 Days $T_0=166.851787$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

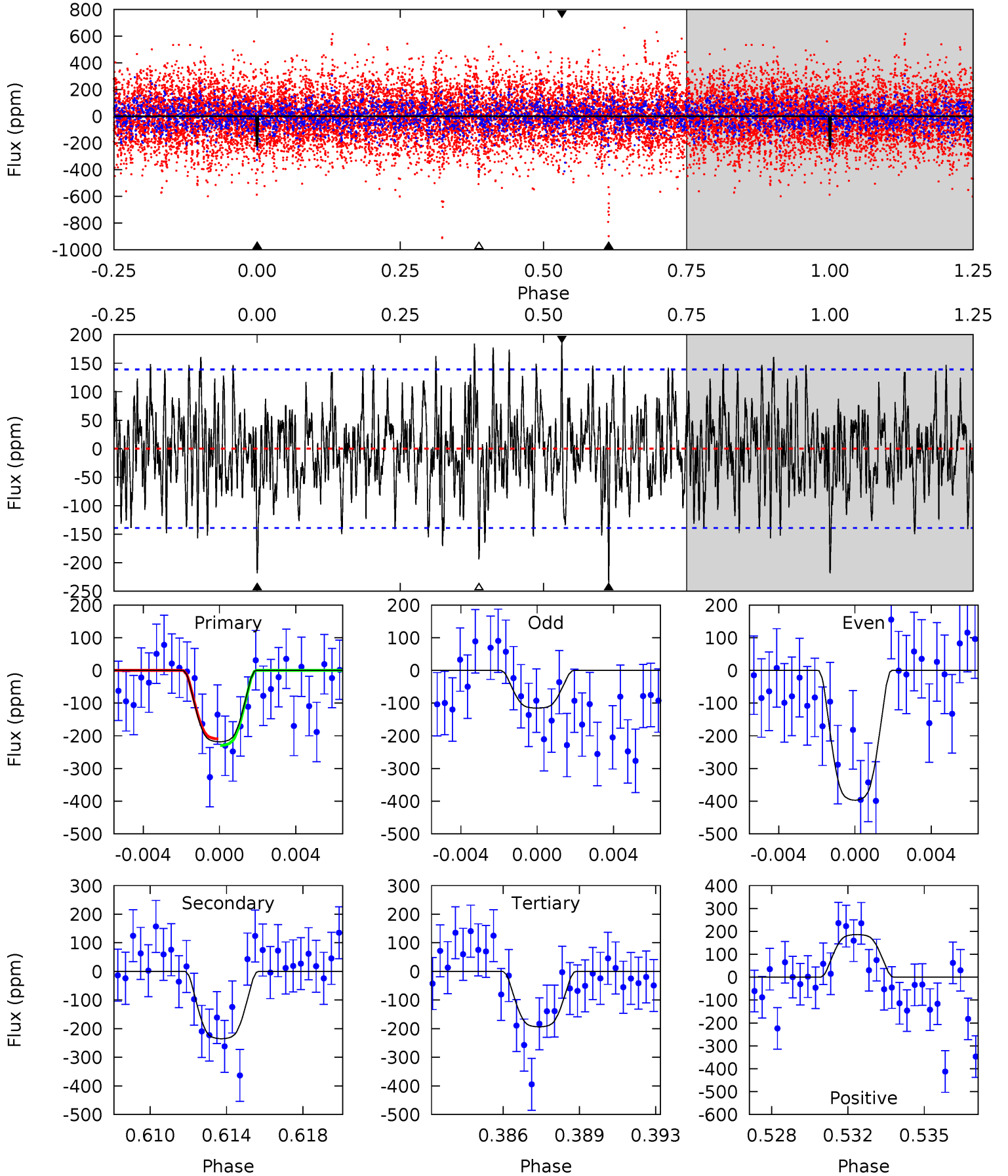
TCE 010789361-06 P= 74.329201 Days $T_0=166.890953$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-06, P = 74.330825 Days, E = 92.520962 Days

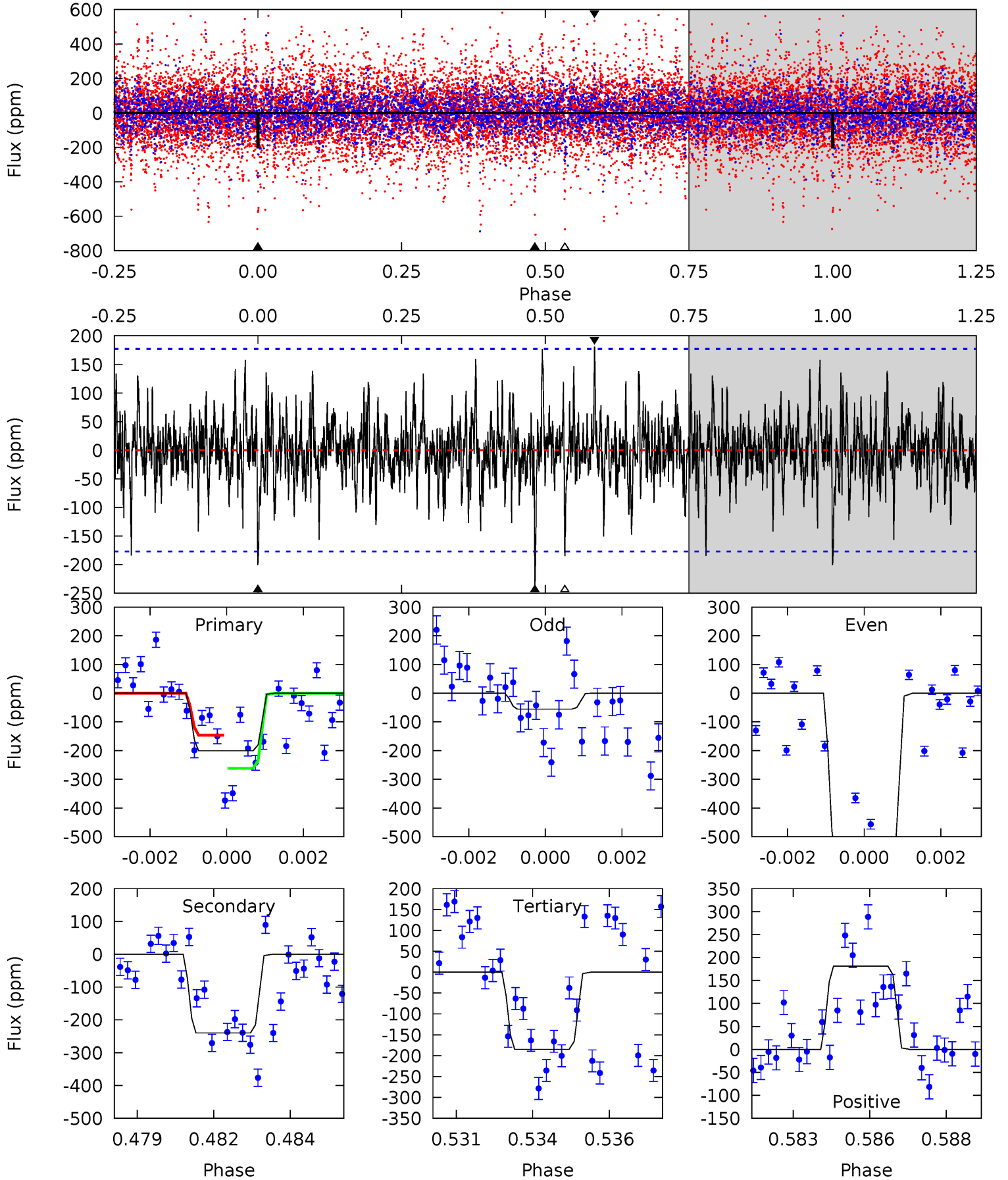
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.19	8.82	7.26	6.98	5.21	2.90	2.28	0.93	1.21	1.56	1.84	4.99	1.51	0.44	0.37



Alt Model-Shift Uniqueness Test

010789361-06, P = 74.329201 Days, E = 92.561752 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.00	7.17	5.52	5.41	5.29	3.03	1.39	0.47	0.59	1.64	1.76	8.15	1.73	0.43	1.72



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-235 ± 27	$2.96^{+0.75}_{-0.68}$	815^{+67}_{-67}	5922^{+586}_{-480}	1869^{+1321}_{-649}
Alt.	-240 ± 33	$2.76^{+0.64}_{-0.61}$	817^{+60}_{-70}	6171^{+650}_{-548}	2217^{+1358}_{-799}

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 $A_{obs} \gg 1.0$

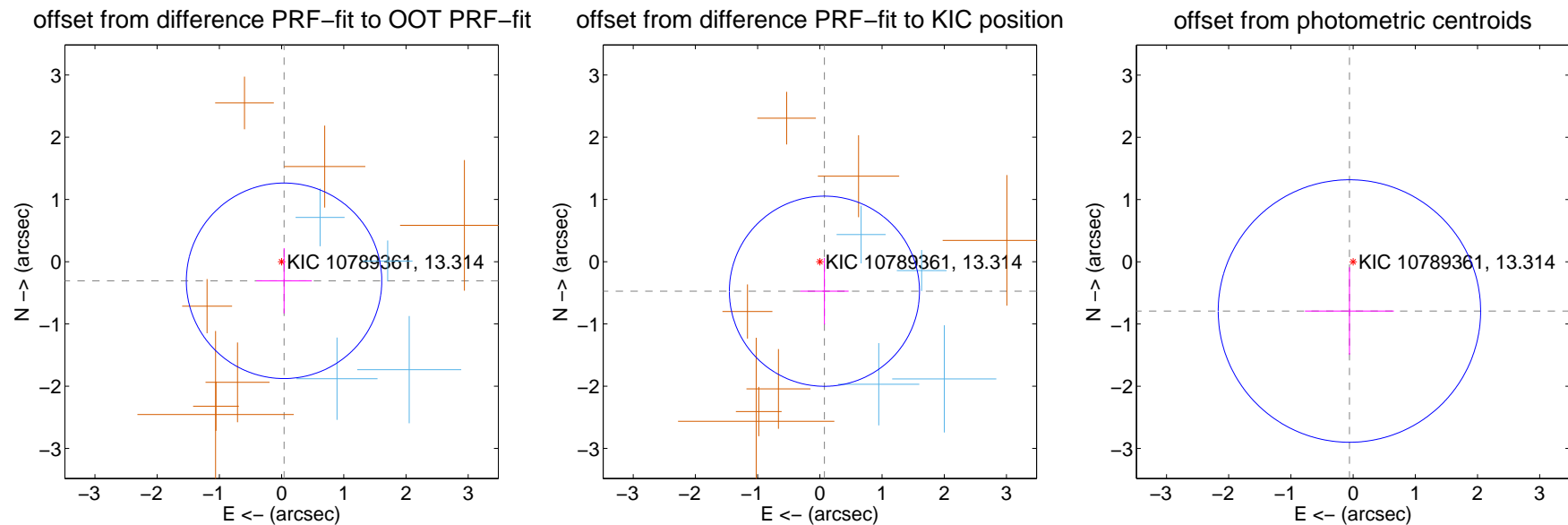
DV Centroid Data

Supplemental centroid analysis for 010789361-06. Kepler magnitude: 13.31. Transit SNR 6.97

There are 4 quarters with good PRF difference image offsets

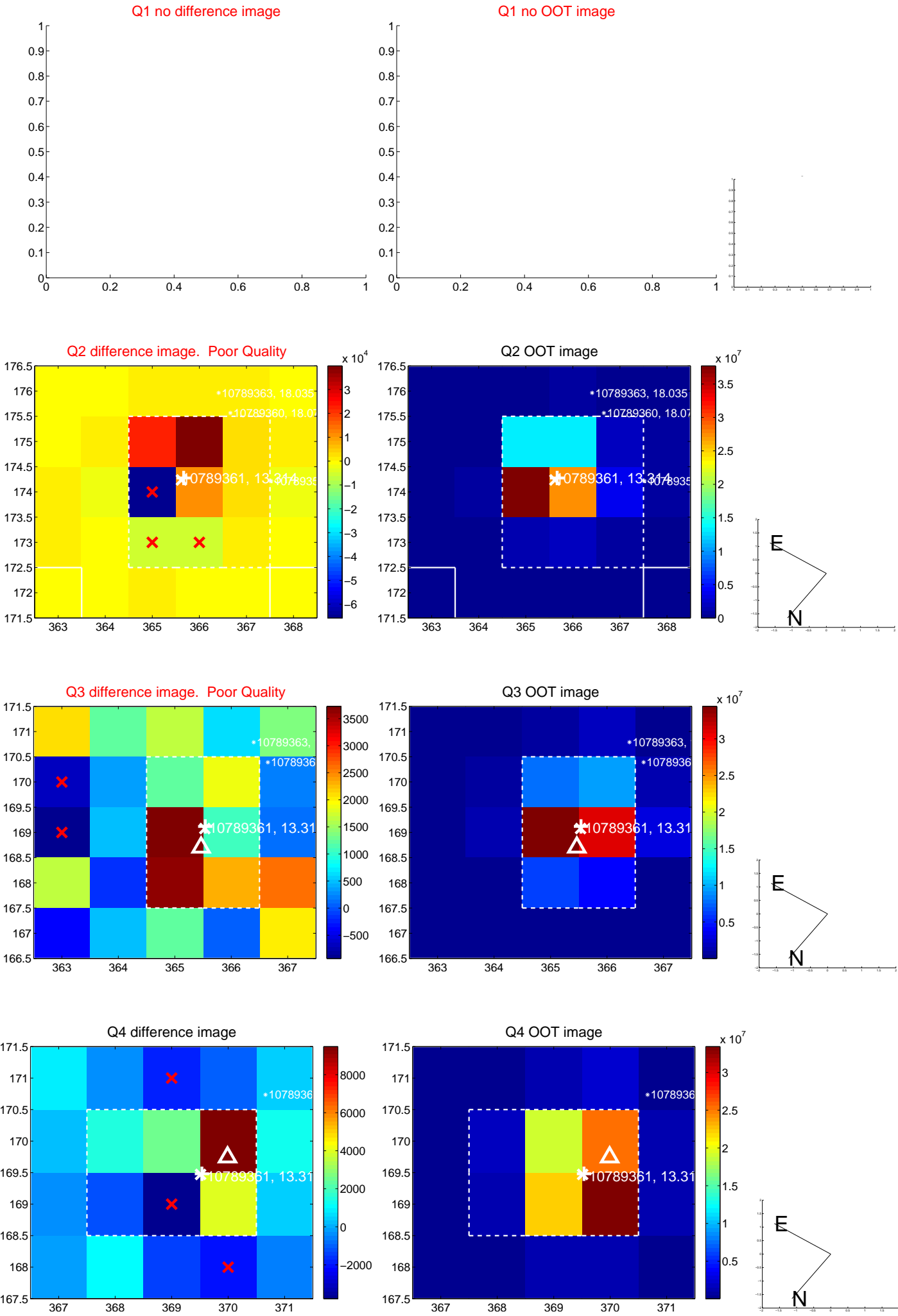
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.309 ± 0.524	0.59	-0.040 ± 0.447	-0.307 ± 0.525
PRF-fit source offset from KIC position	0.480 ± 0.509	0.94	-0.074 ± 0.388	-0.474 ± 0.535
photometric centroid source offset	0.79 ± 0.70	1.13	0.06 ± 0.71	-0.79 ± 0.70

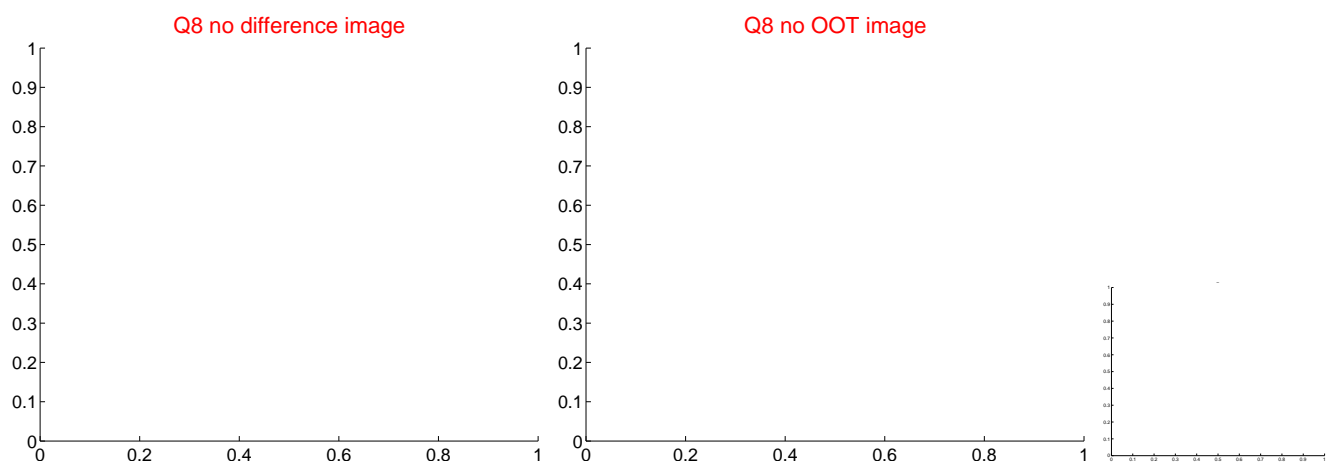
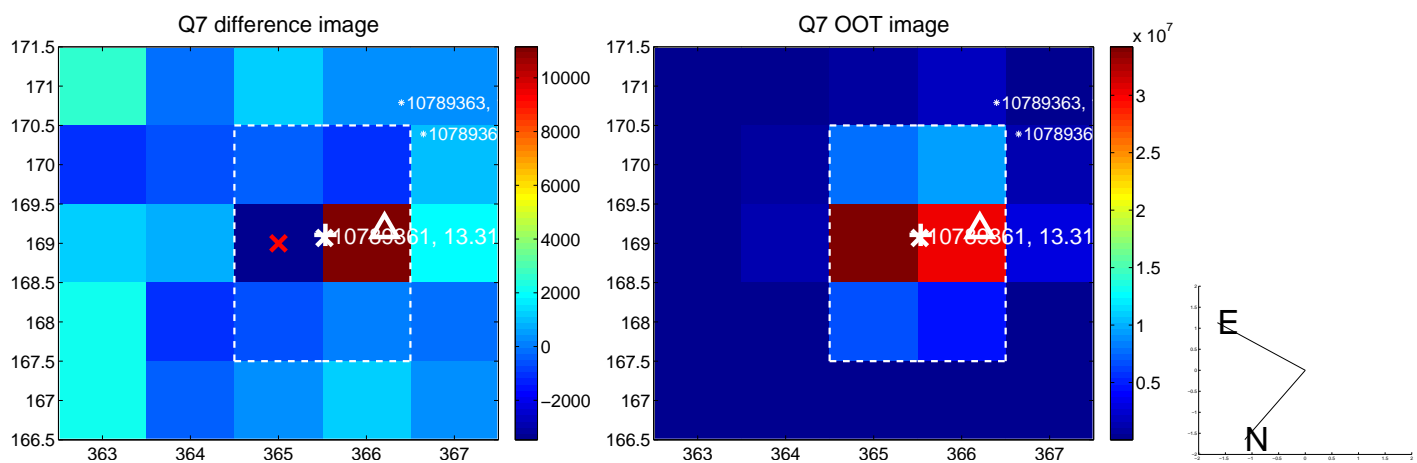
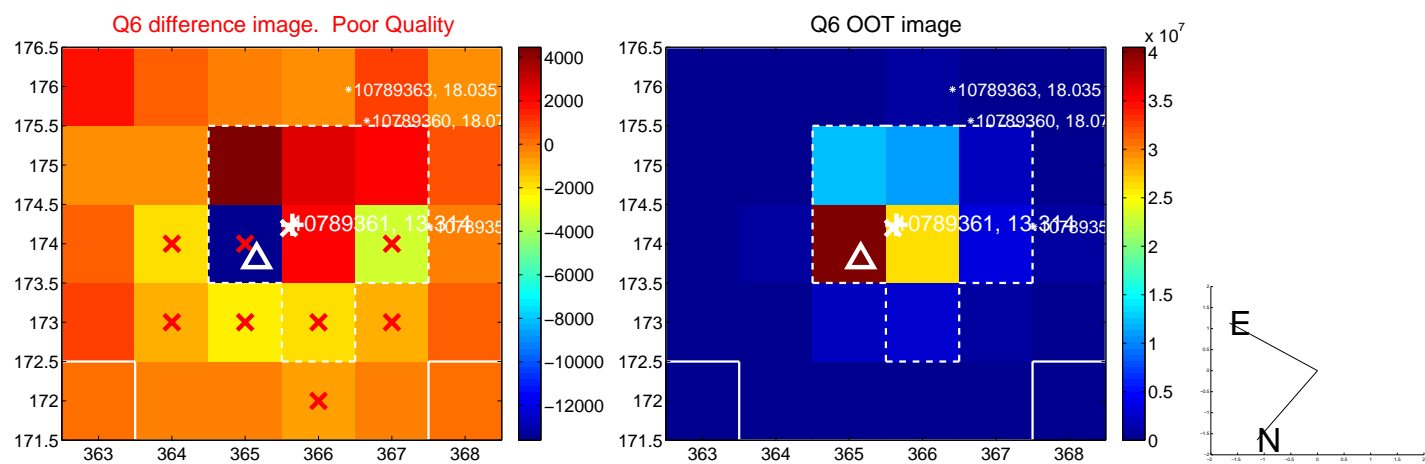
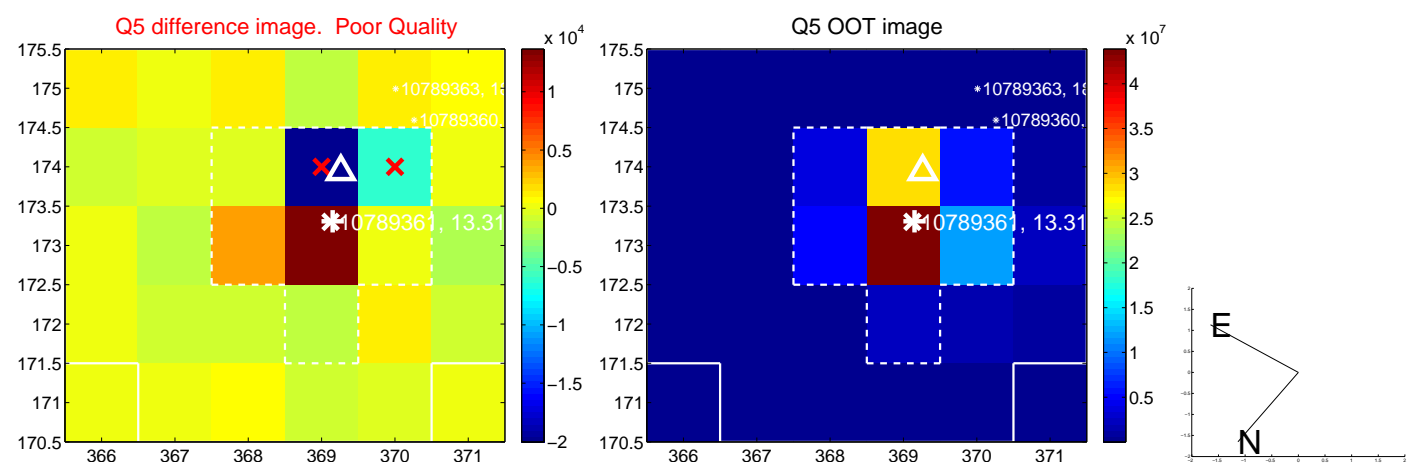


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

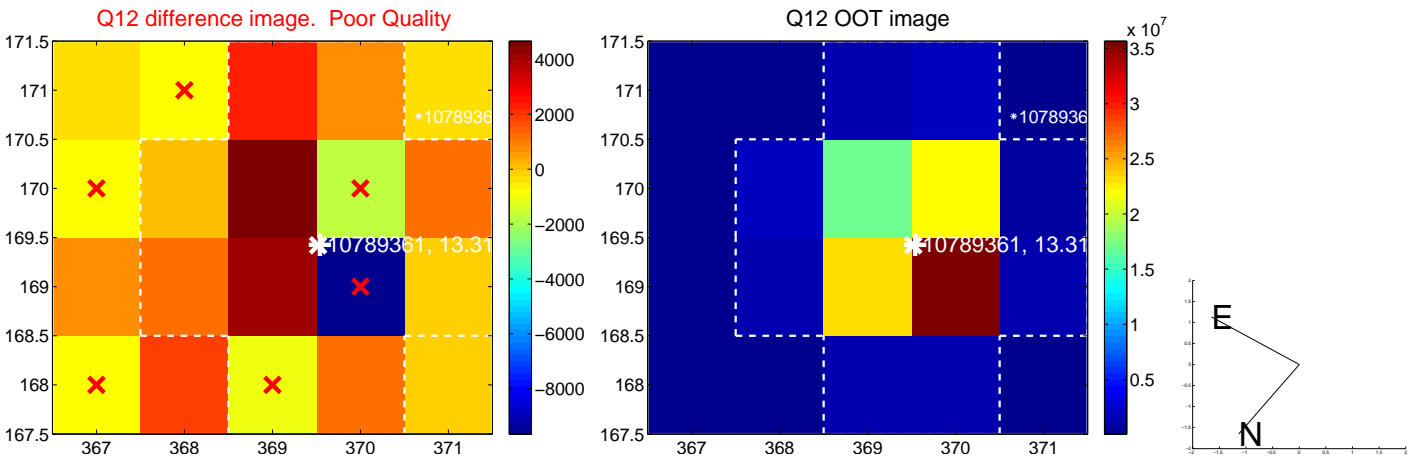
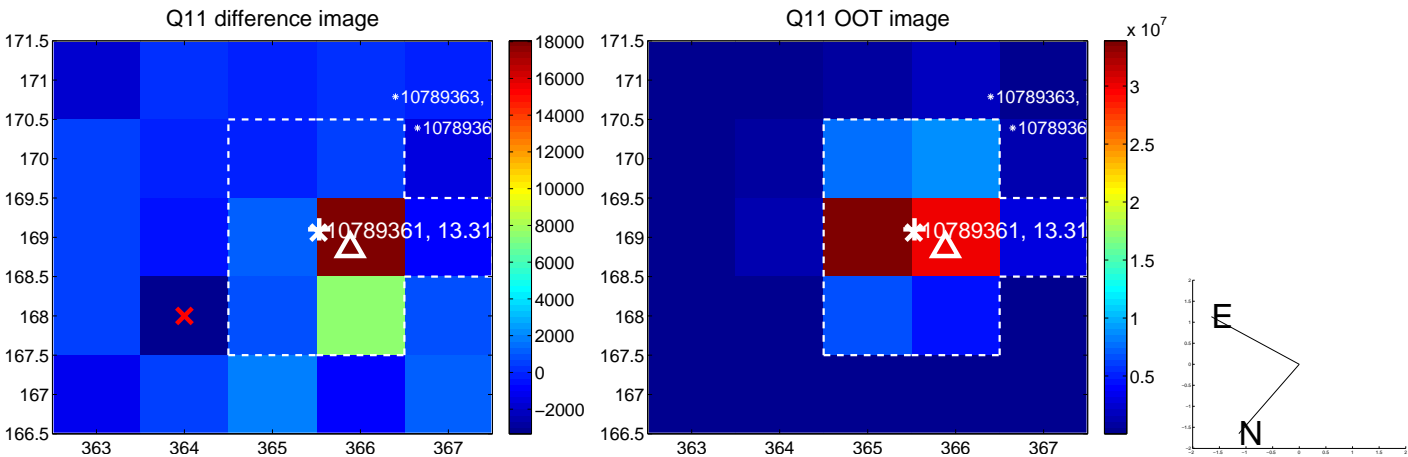
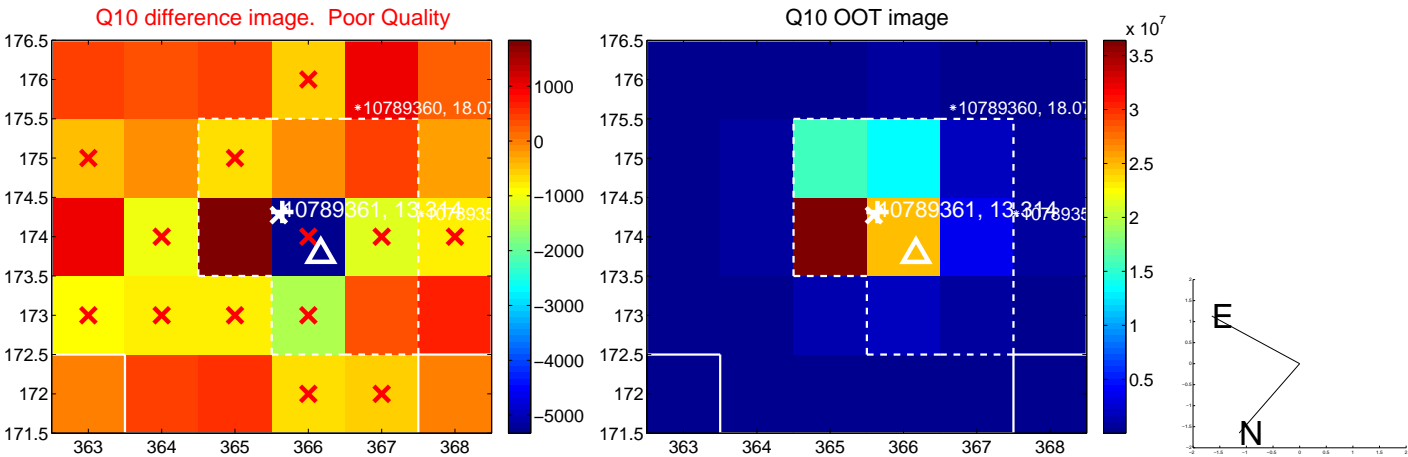
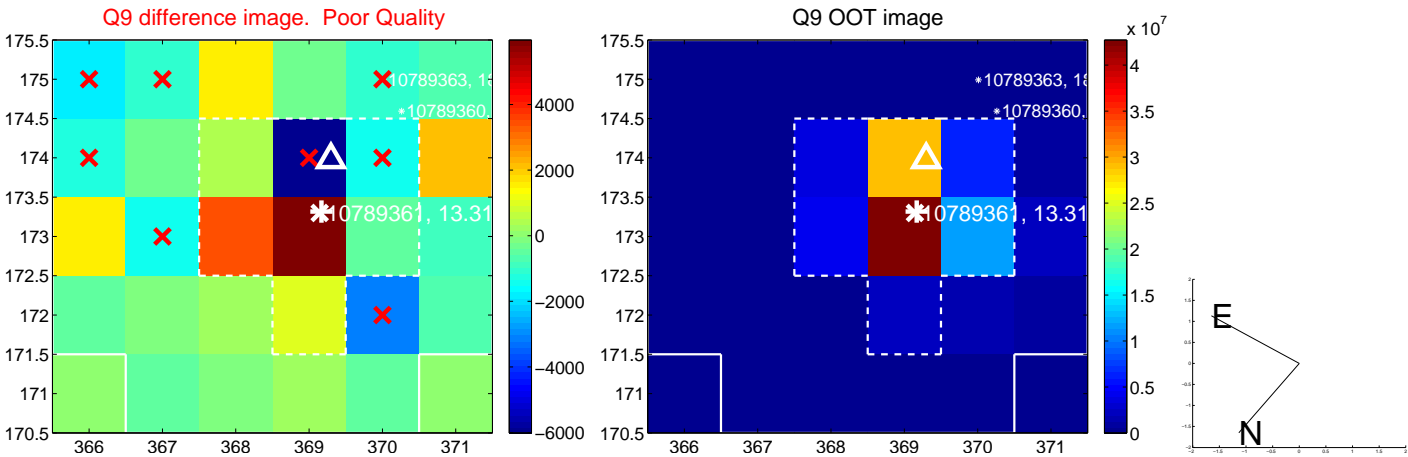
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



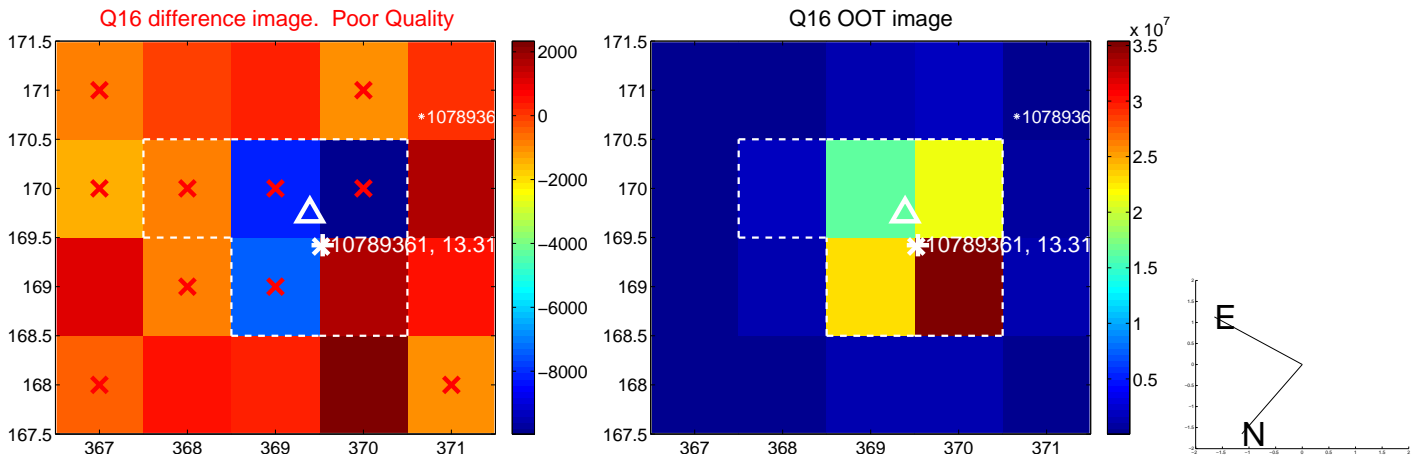
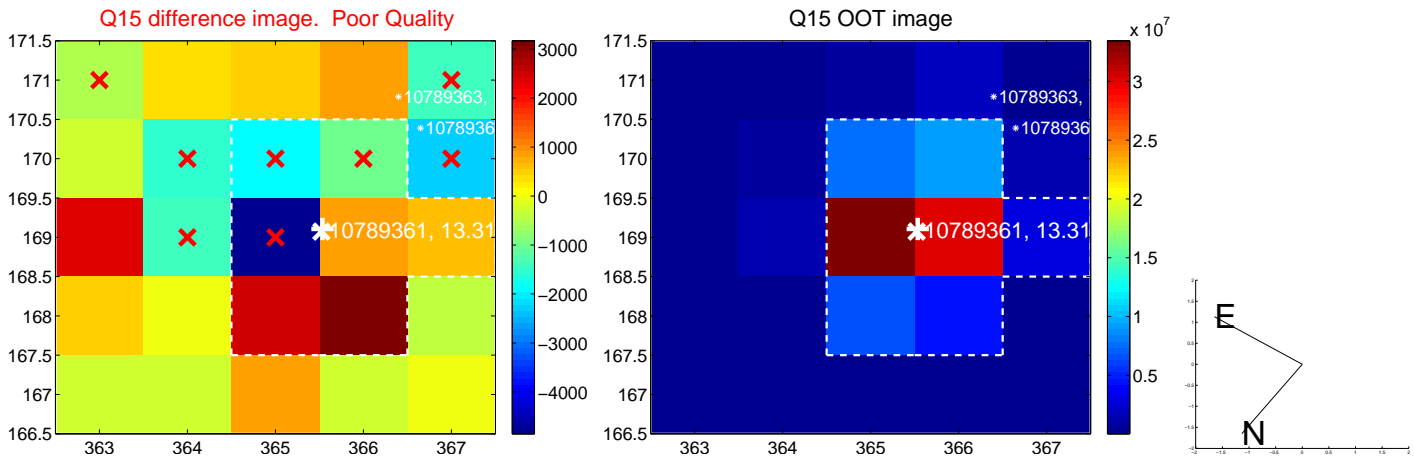
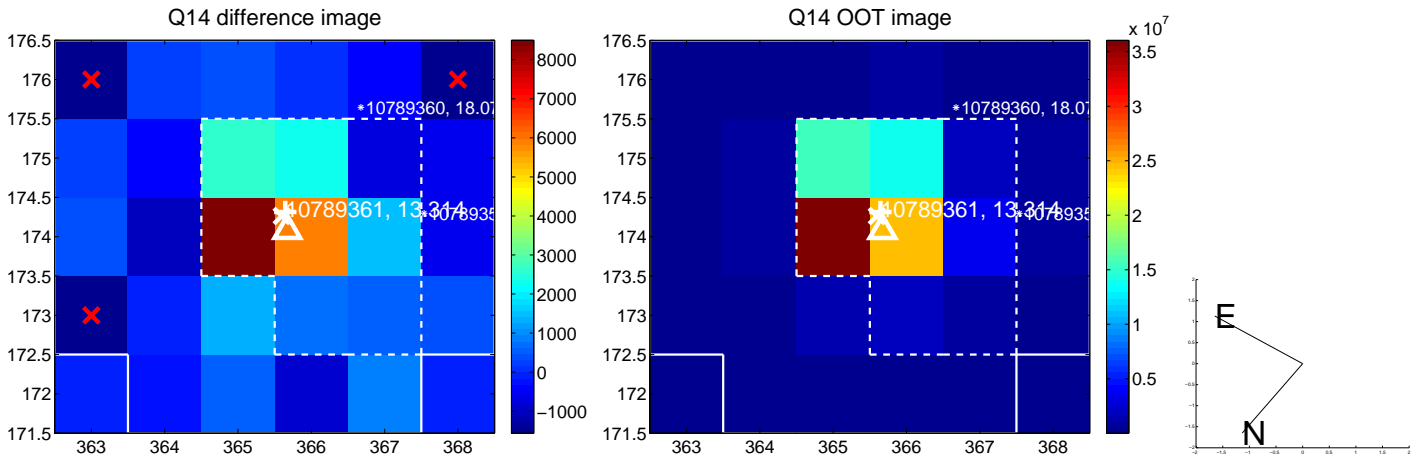
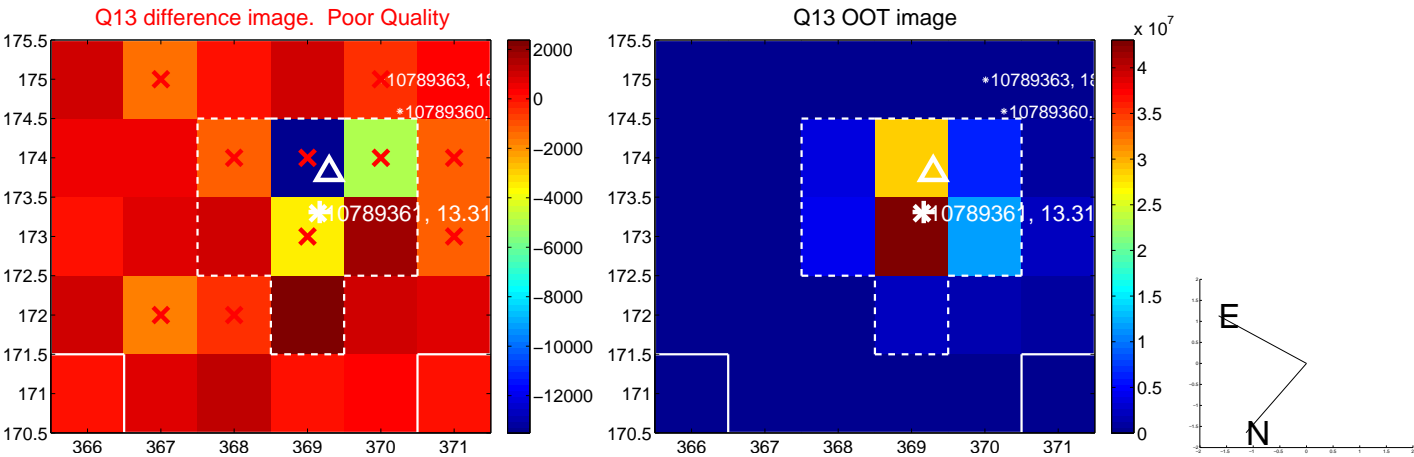
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



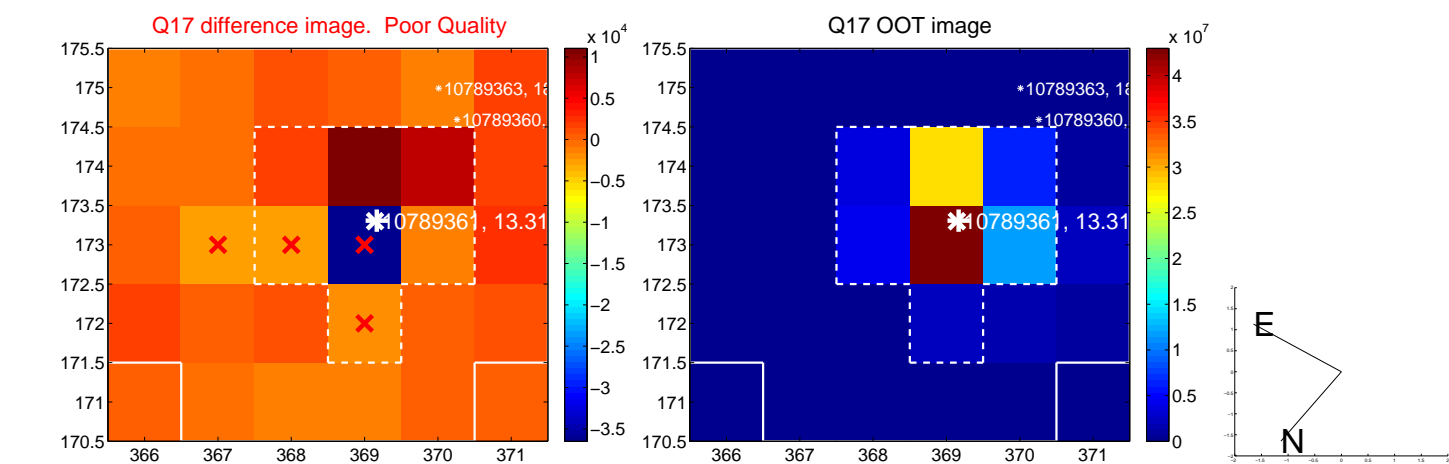
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



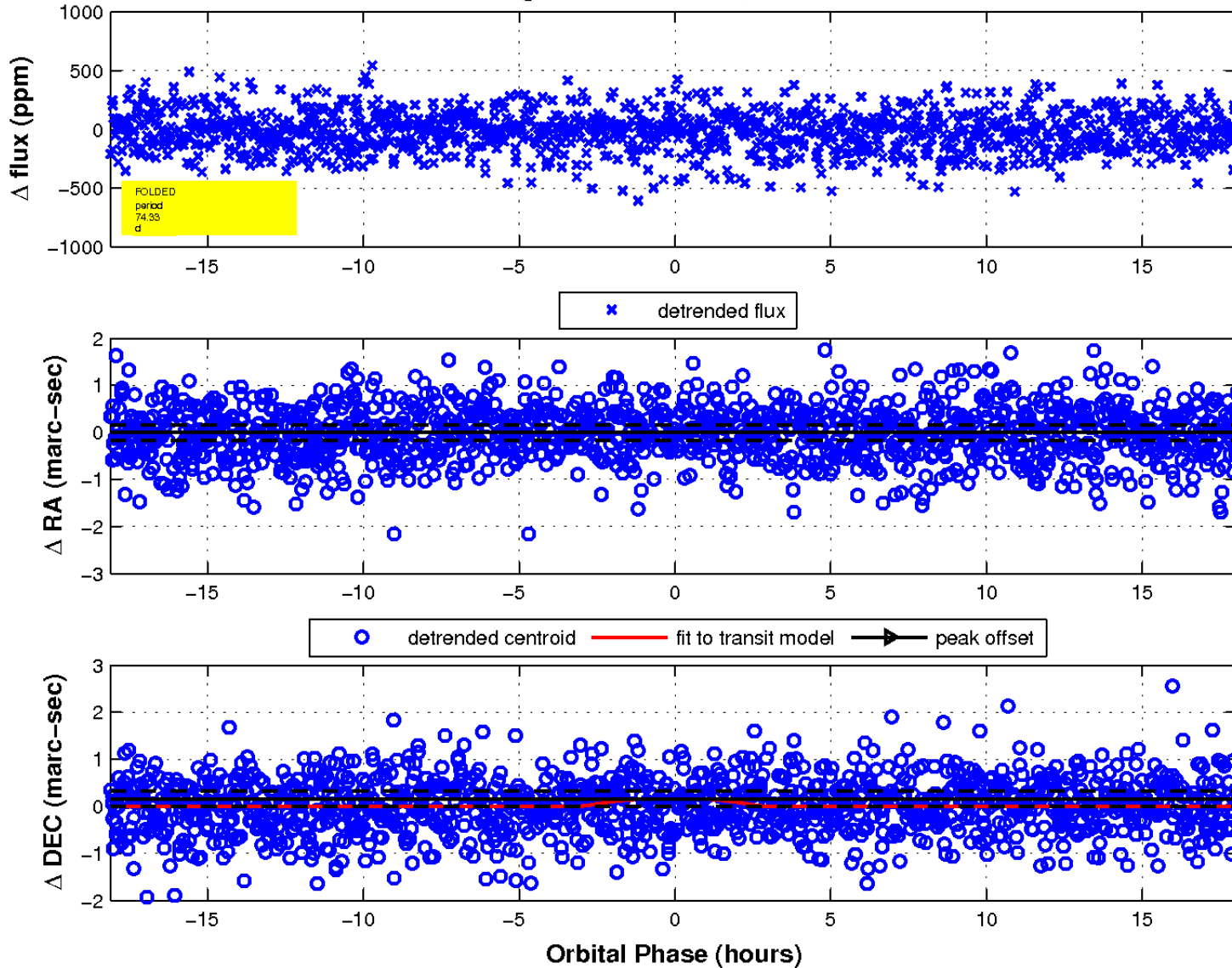
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

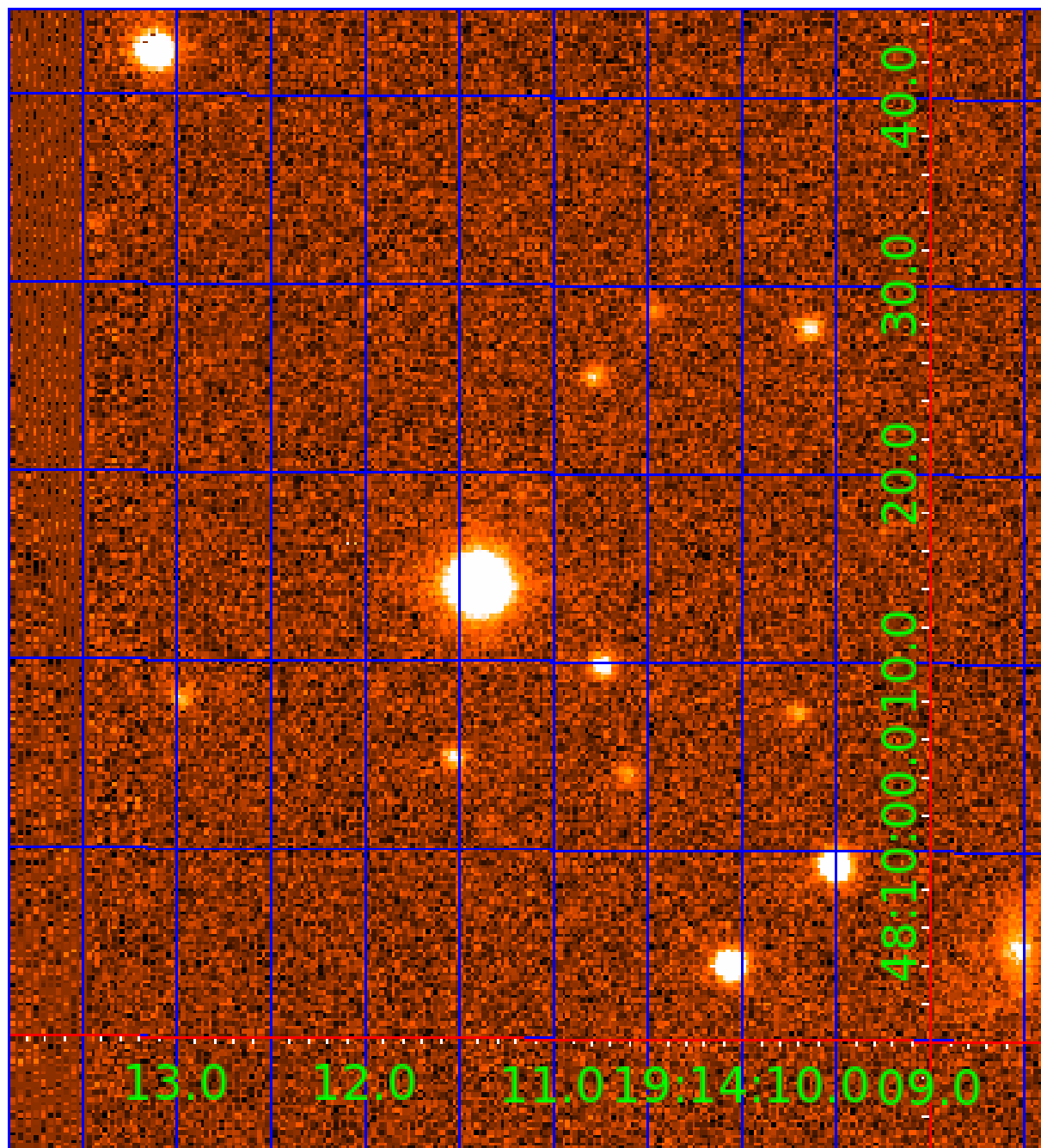


fluxWeightedCentroids, Planet 6 of 8



UKIRT Image

Declination



KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
010789361-03	OBS	No	114.841981	236.133579	492.1	9.756	15.2	11.1	1.53	6463	6.54	16.19
010789361-04	OBS	No	77.529013	180.223336	273.7	9.262	9.0	8.7	1.53	6463	2.72	27.34
010789361-05	OBS	No	99.845787	172.090369	238.2	10.114	9.6	7.4	1.53	6463	2.64	19.52
010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

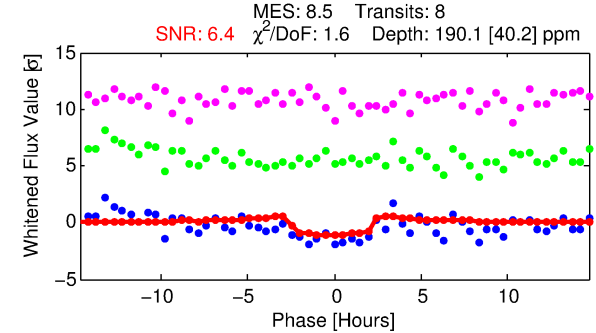
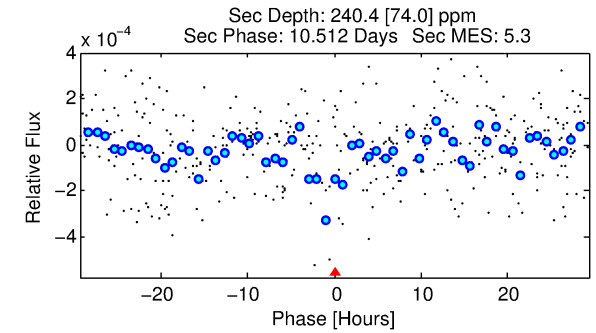
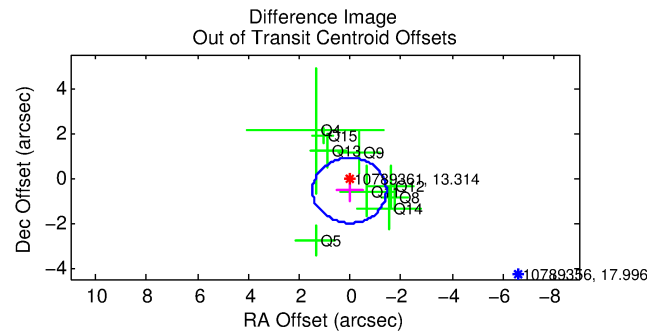
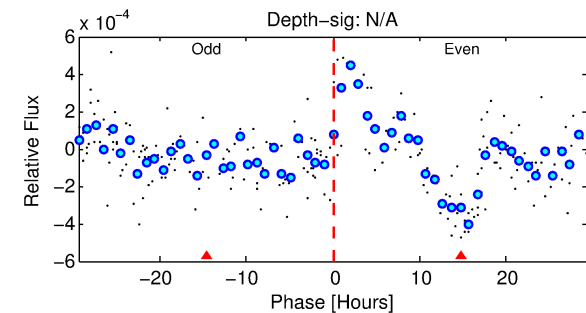
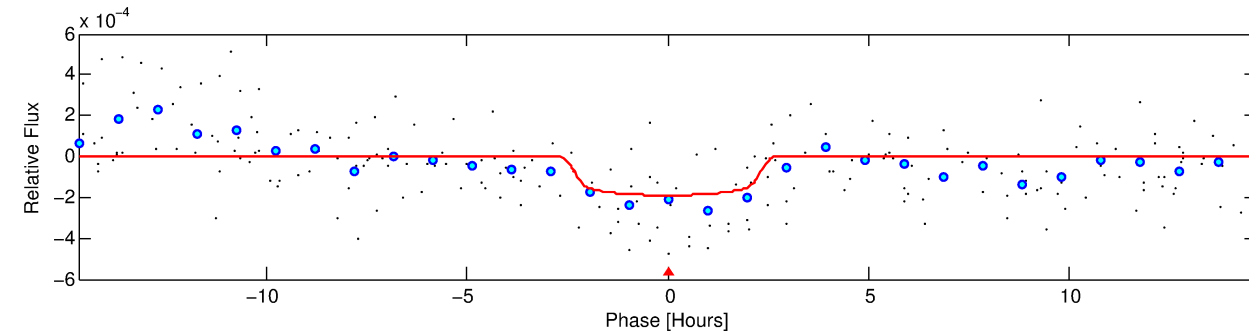
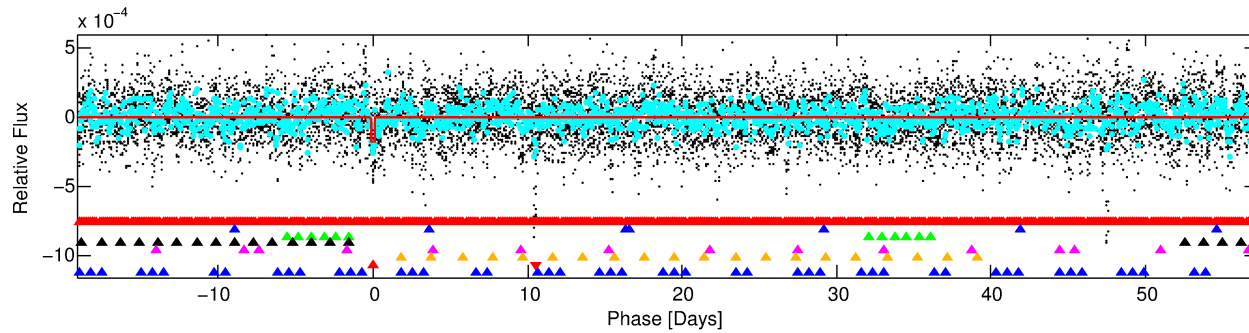
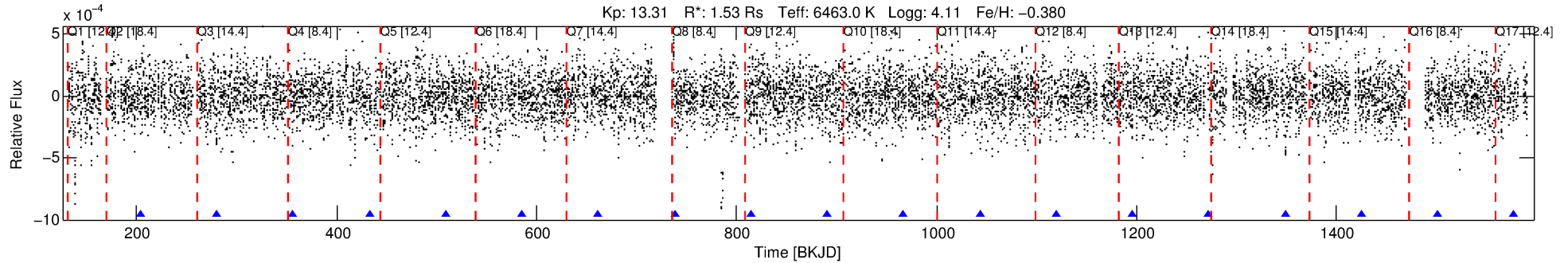
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-07

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 7 of 8 Period: 76.295 d



DV Fit Results:

Period = 76.29487 [0.00155] d
Epoch = 203.9921 [0.0168] BKJD
Rp/R* = 0.0139 [0.0115]
a/R* = 75.18 [340.56]
b = 0.79 [2.13]
Seff = 27.93 [13.71]
Teq = 586 [72] K
Rp = 2.33 [2.03] Re
a = 0.3624 [0.1042] AU
Ag = 3209.13 [5593.11] [0.57σ]
Teffp = 6822 [2872] K [2.17σ]

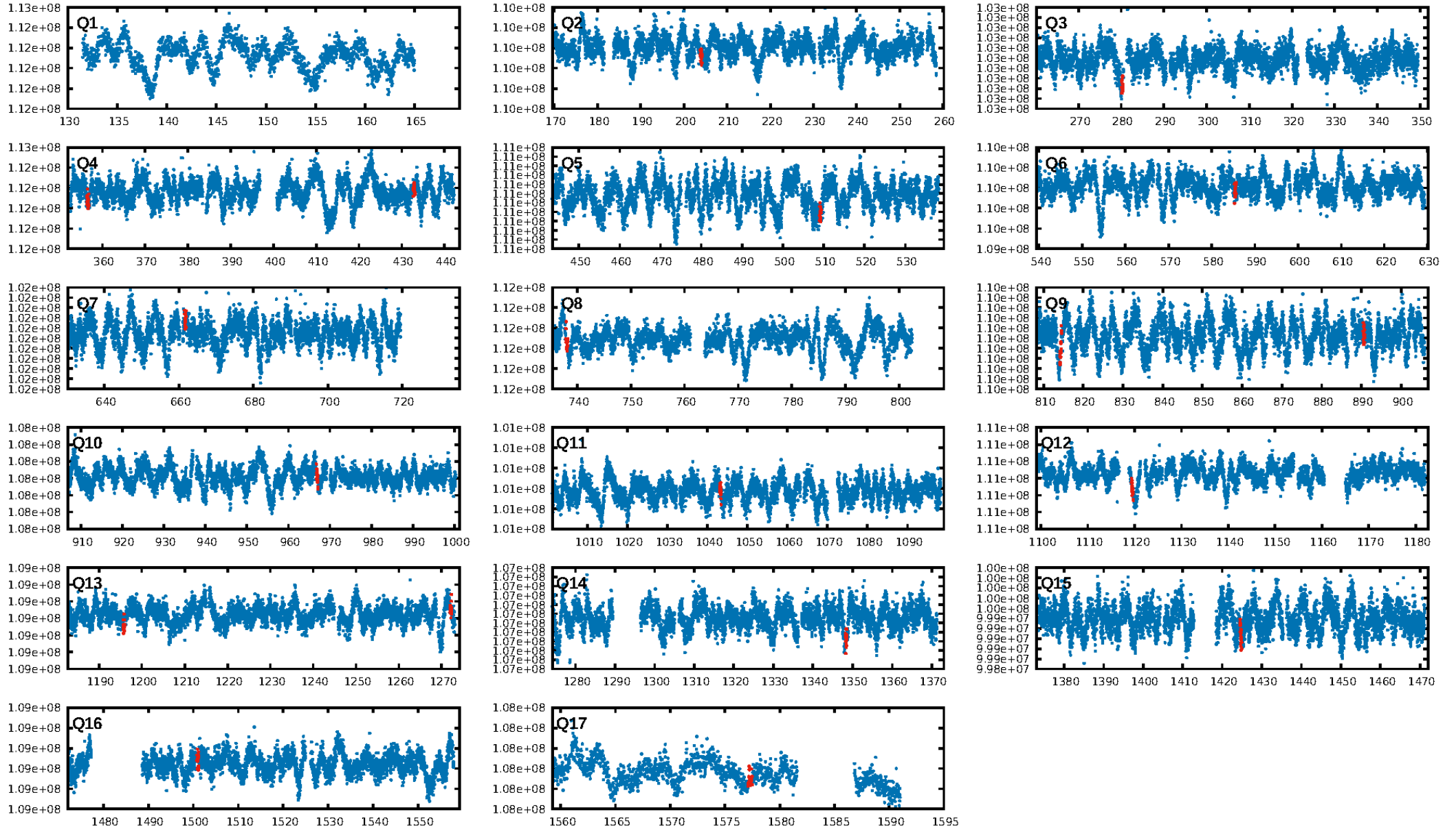
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.06σ]
LongPeriod-sig: 99.5% [2.83σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.61e-09
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -0.08859
Centroid-sig: 49.2%
Centroid-so: 0.392 arcsec [0.53σ]
OotOffset-rm: 0.559 arcsec [1.15σ]
KicOffset-rm: 0.724 arcsec [1.33σ]
OotOffset-st: 1/2/3/3 [9]
KicOffset-st: 1/2/3/3 [9]
DiffImageQuality-fgm: 0.78 [7/9]
DiffImageOverlap-fno: 0.00 [0/13]

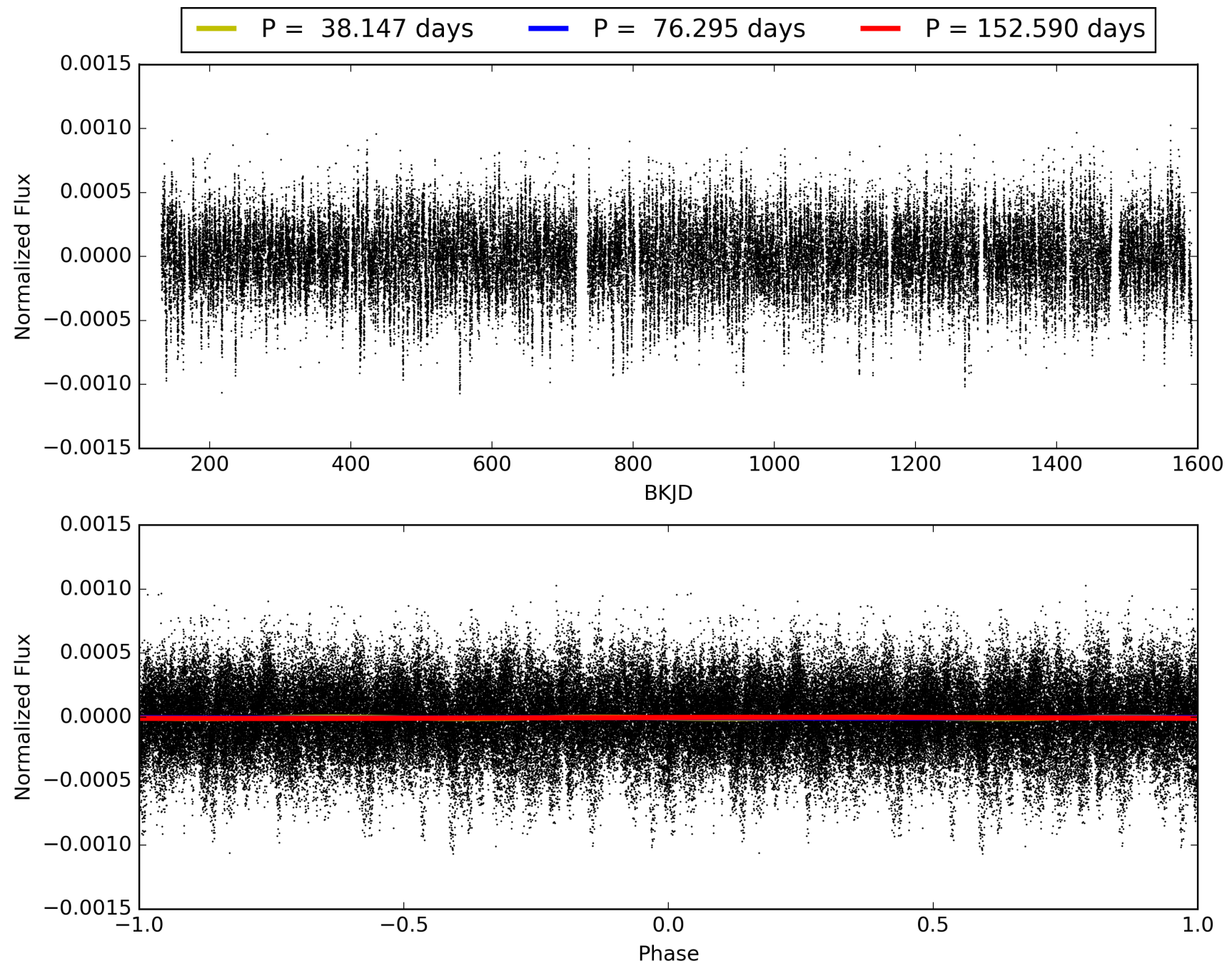
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:48 Z

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

TCE 010789361-07, PDC Light Curves

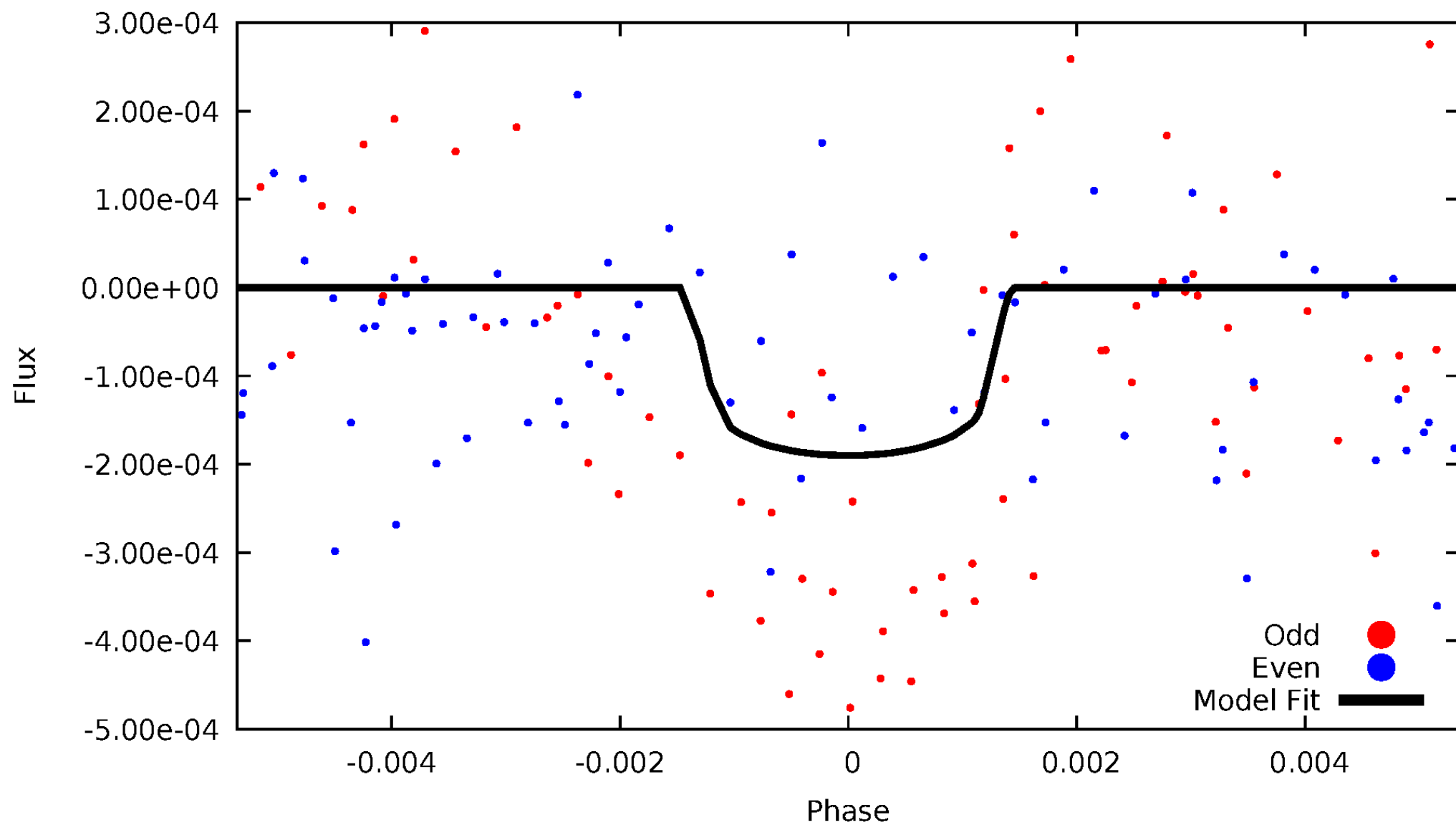


TCE 010789361-07



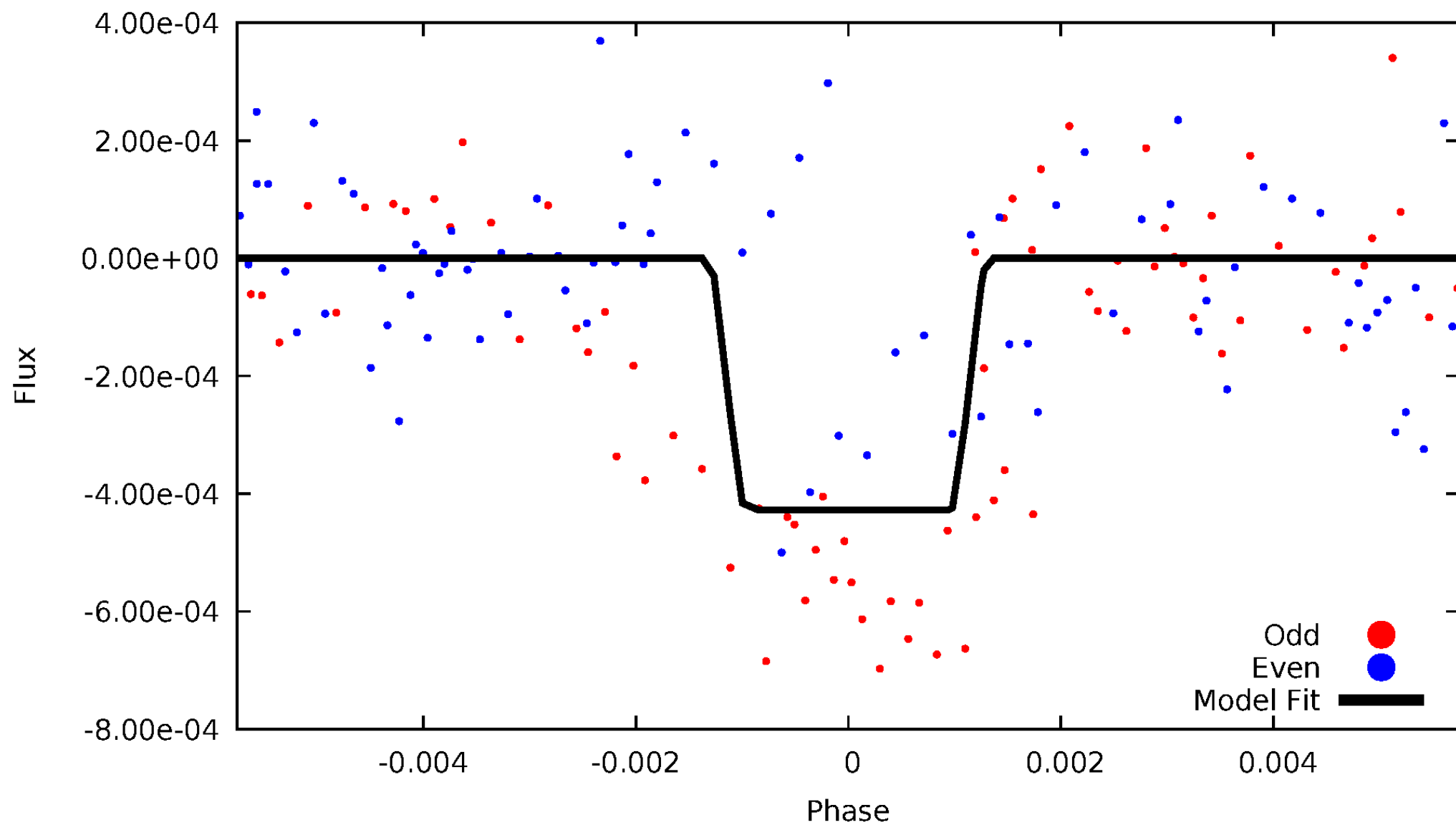
DV Odd/Even

TCE 010789361-07



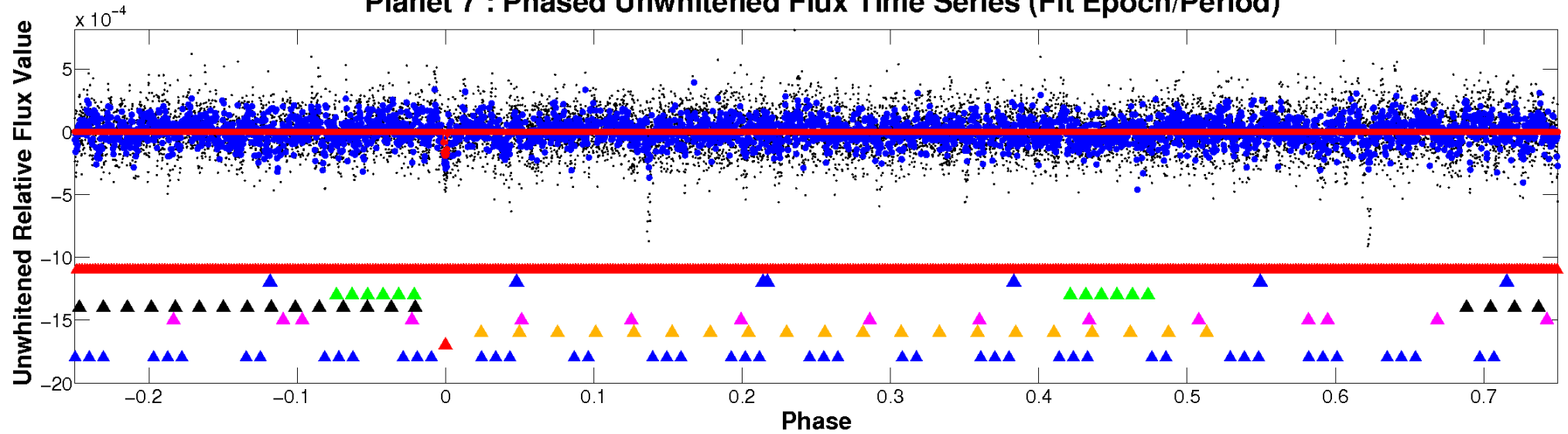
ALT Odd/Even

TCE 010789361-07

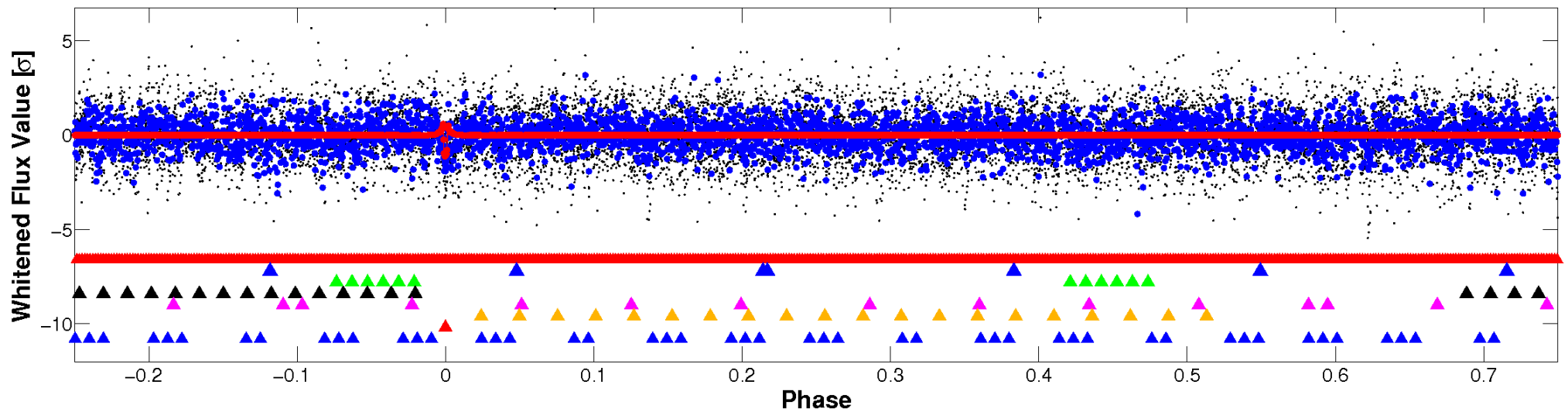


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

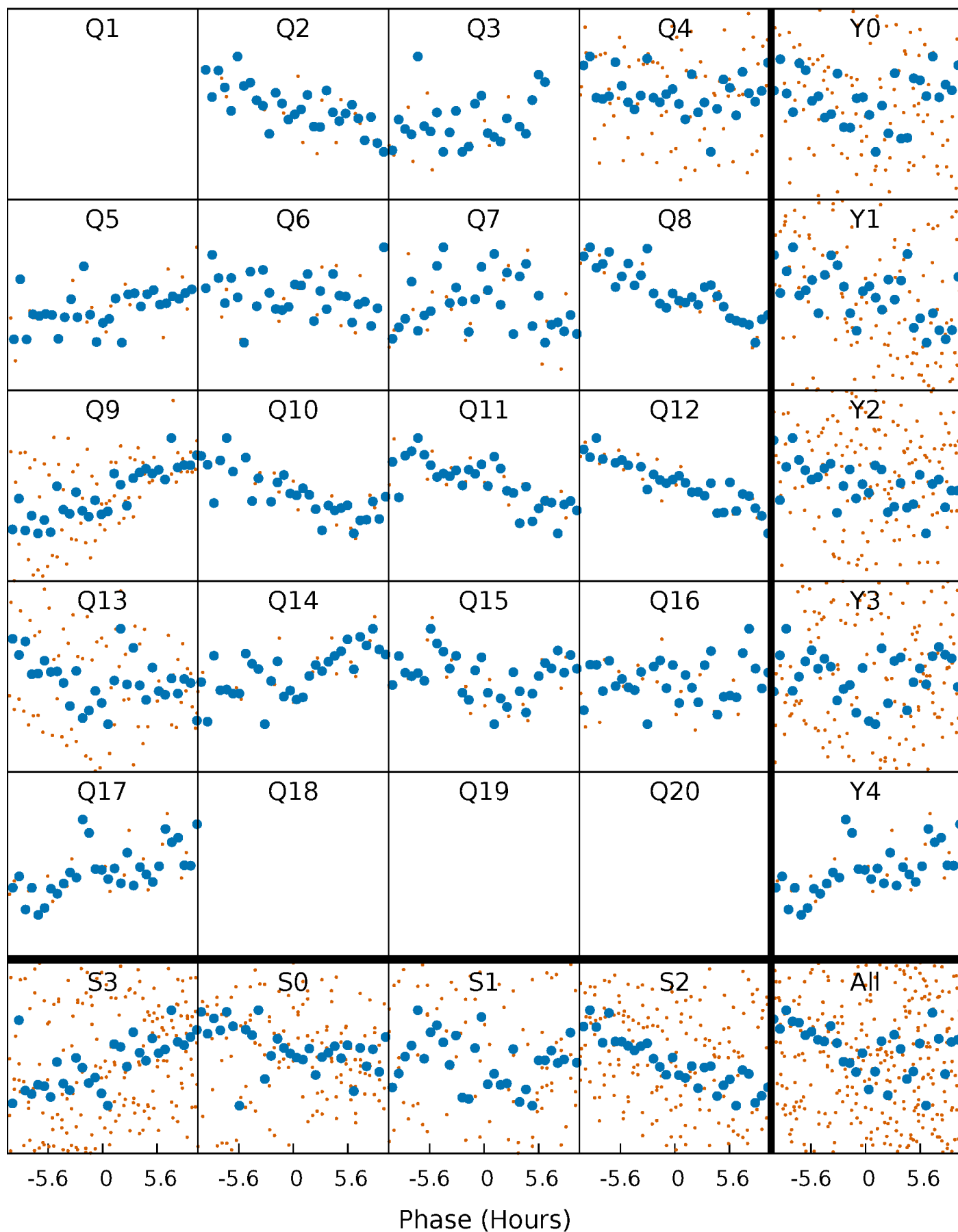


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



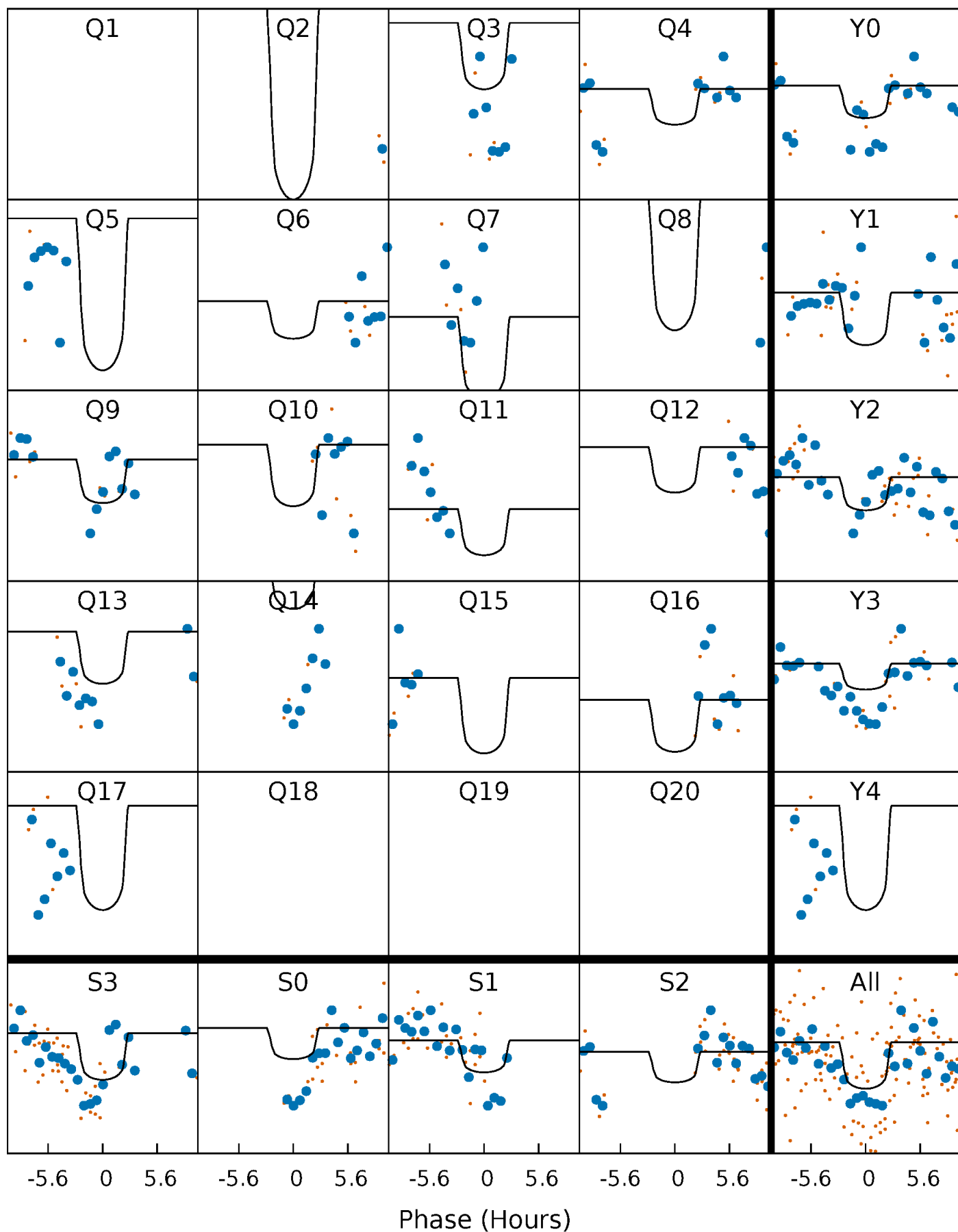
PDC Quarter-Phased Transit Curves

TCE 010789361-07 P= 76.294869 Days $T_0=203.992070$ (BKJD)



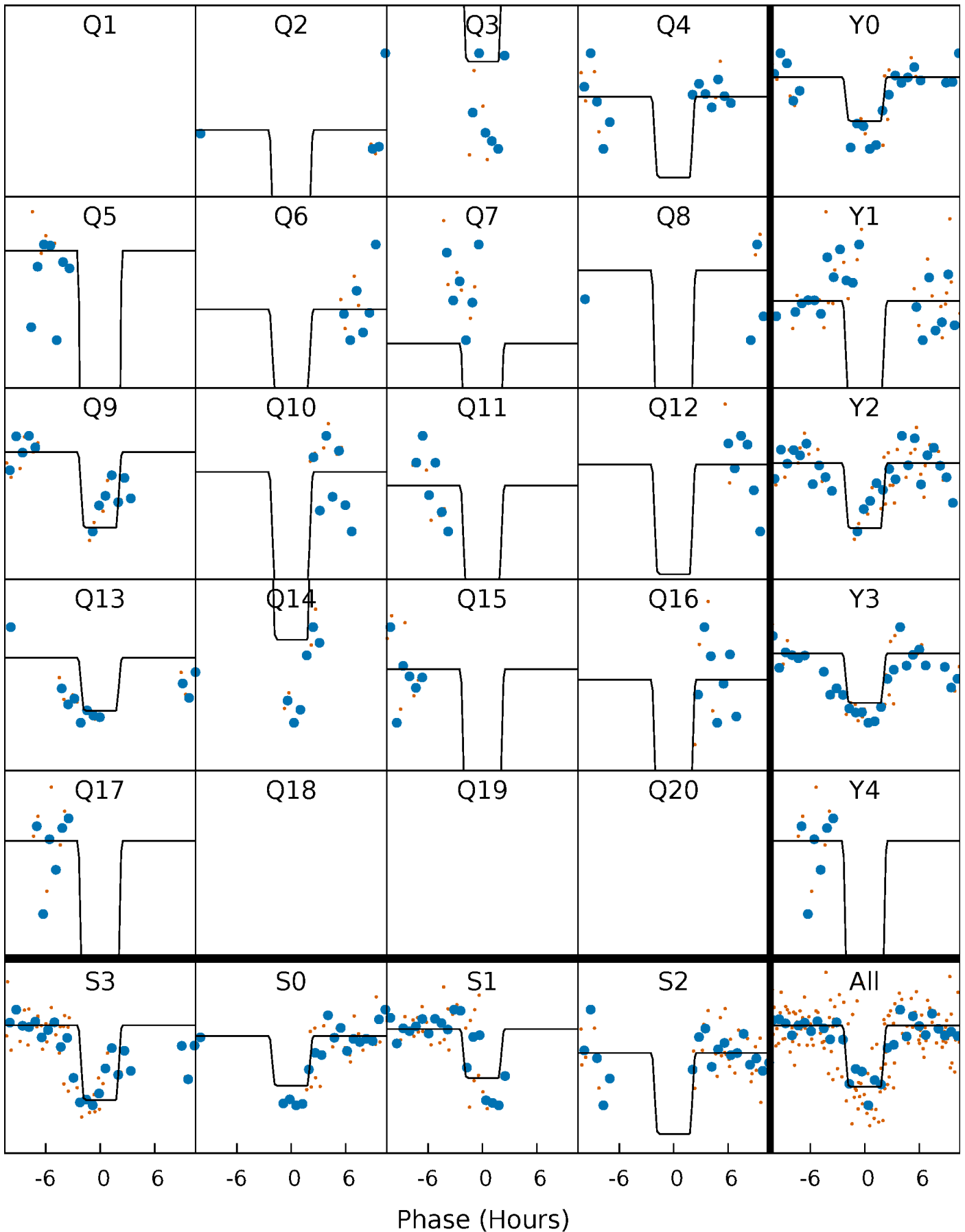
DV Quarter-Phased Transit Curves

TCE 010789361-07 $P = 76.294869$ Days $T_0 = 203.992070$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

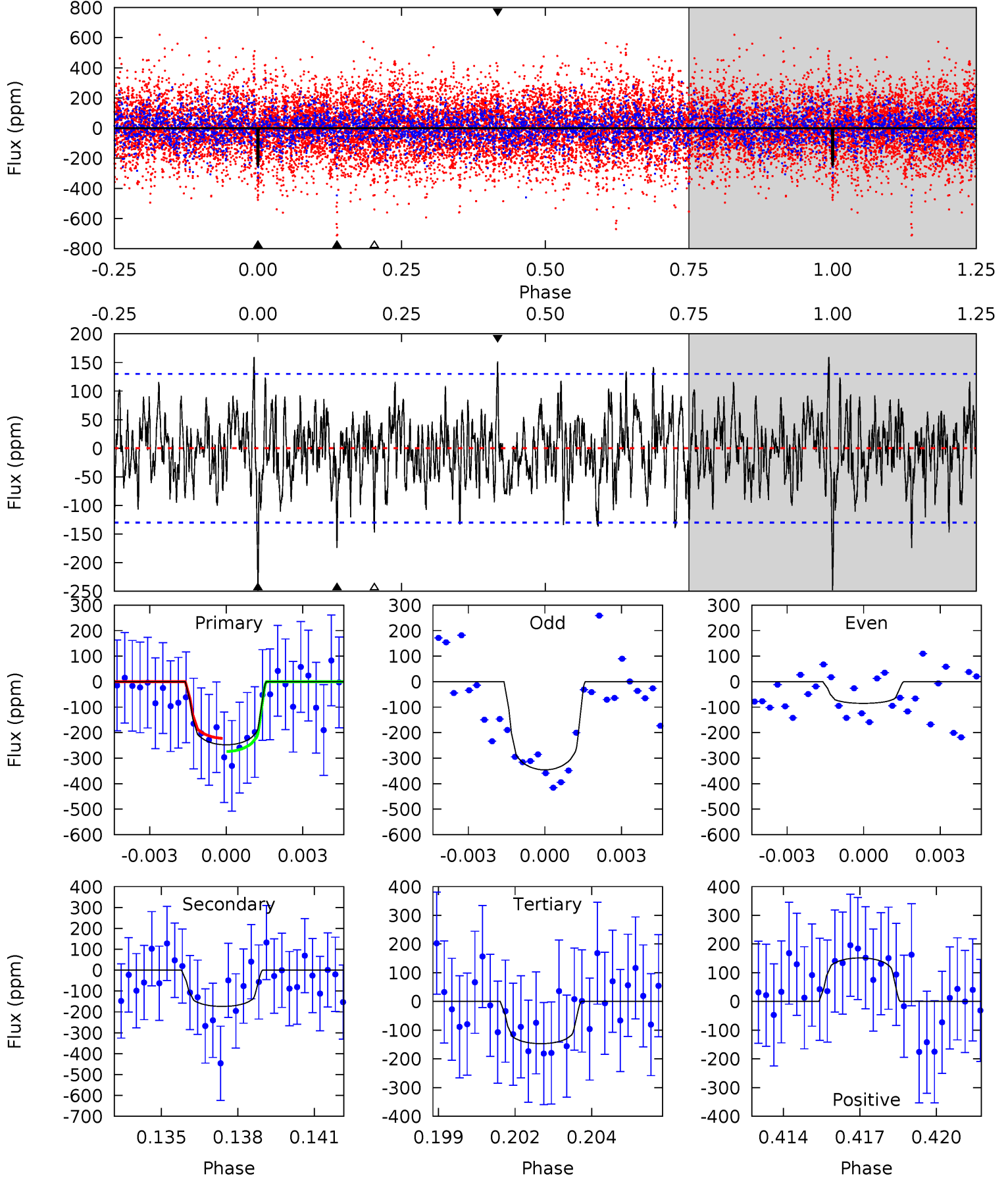
TCE 010789361-07 $P = 76.294202$ Days $T_0 = 203.993276$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-07, P = 76.294869 Days, E = 127.697201 Days

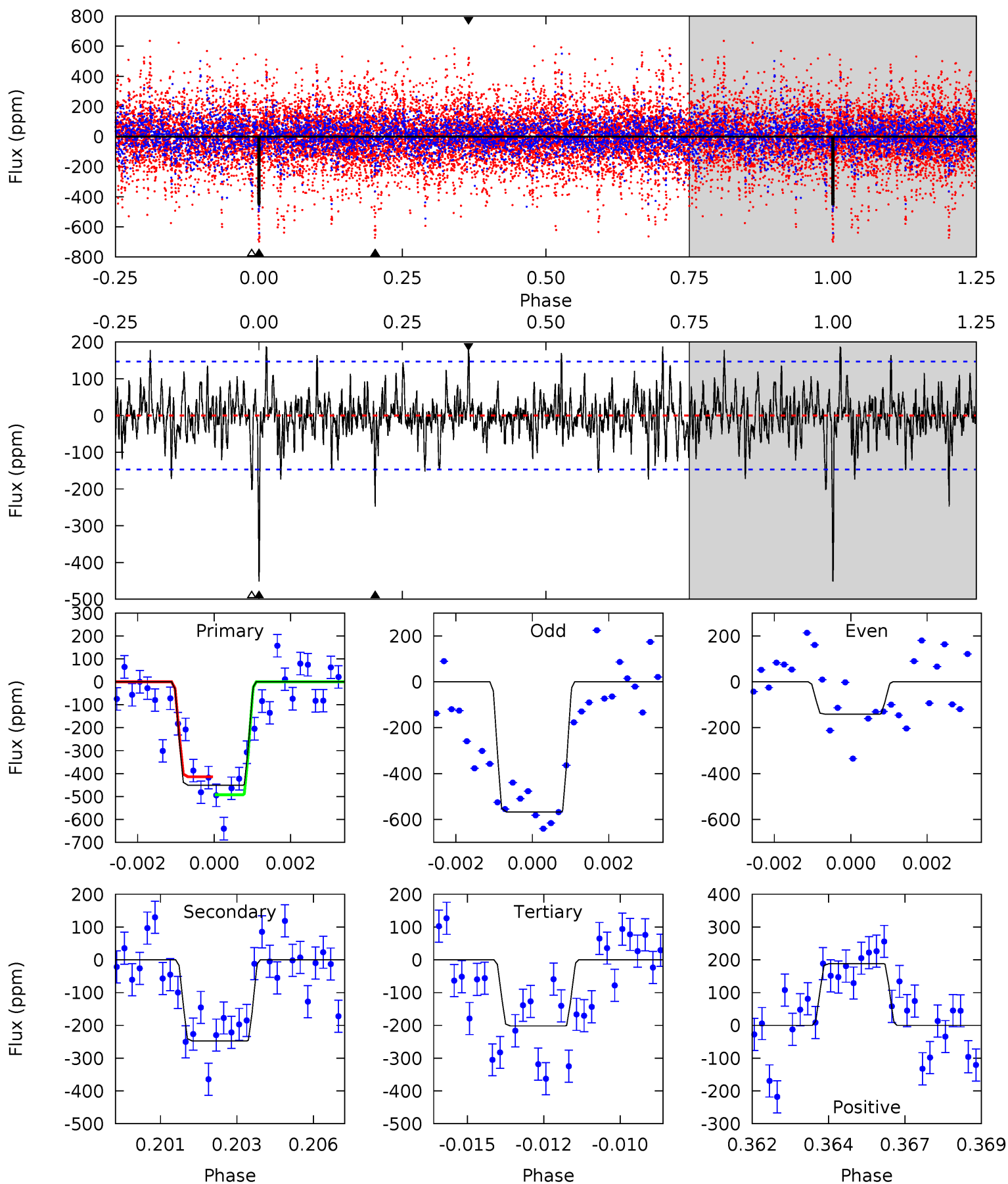
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	7.04	5.96	6.15	5.27	2.99	1.97	4.08	3.90	1.08	0.90	5.07	1.18	0.39	1.03



Alt Model-Shift Uniqueness Test

010789361-07, $P = 76.294202$ Days, $E = 127.699074$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	8.91	7.27	6.76	5.29	3.03	1.82	8.97	9.47	1.64	2.14	7.55	0.75	0.29	1.39



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-174 ± 25	$2.57^{+1.92}_{-1.51}$	806^{+61}_{-61}	5905^{+3298}_{-1297}	1913^{+8786}_{-1286}
Alt.	-248 ± 28	$3.37^{+2.03}_{-1.90}$	803^{+63}_{-65}	5585^{+2917}_{-970}	1611^{+6656}_{-1002}

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

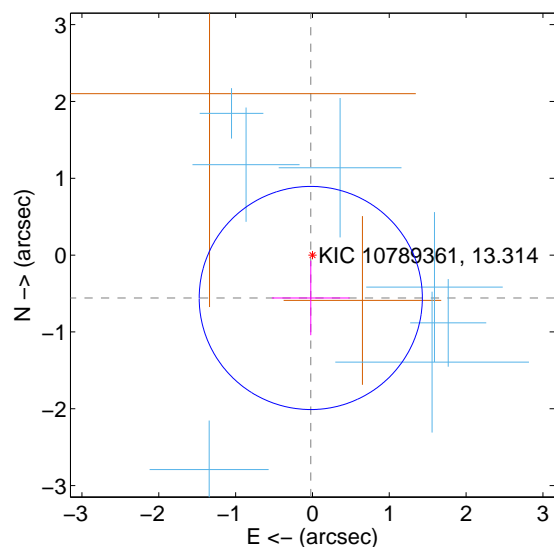
Supplemental centroid analysis for 010789361-07. Kepler magnitude: 13.31. Transit SNR 6.39

There are 7 quarters with good PRF difference image offsets

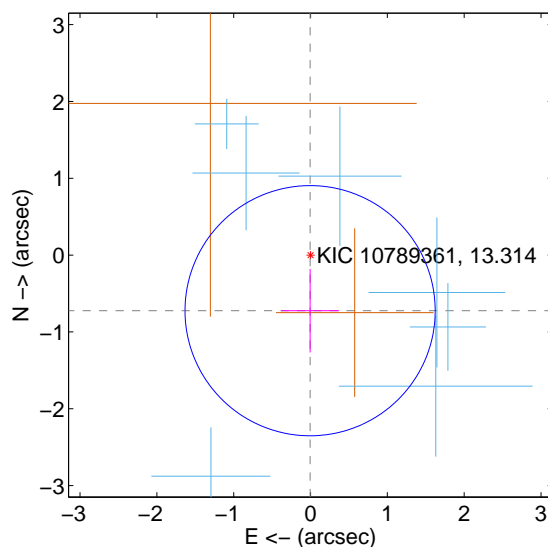
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.559 ± 0.484	1.15	0.022 ± 0.506	-0.558 ± 0.484
PRF-fit source offset from KIC position	0.724 ± 0.543	1.33	0.006 ± 0.377	-0.724 ± 0.544
photometric centroid source offset	0.39 ± 0.74	0.53	-0.23 ± 0.76	0.32 ± 0.74

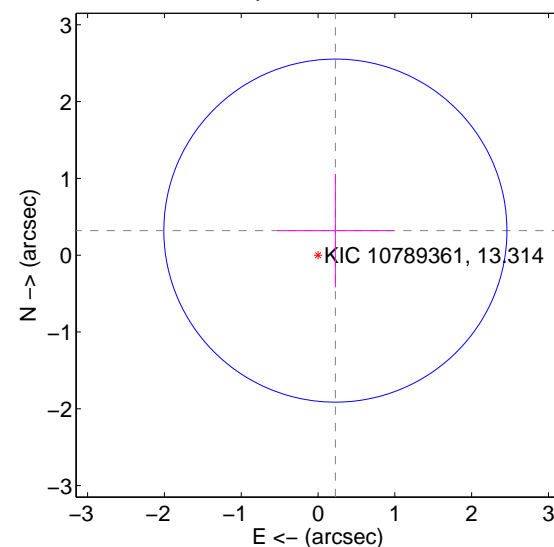
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

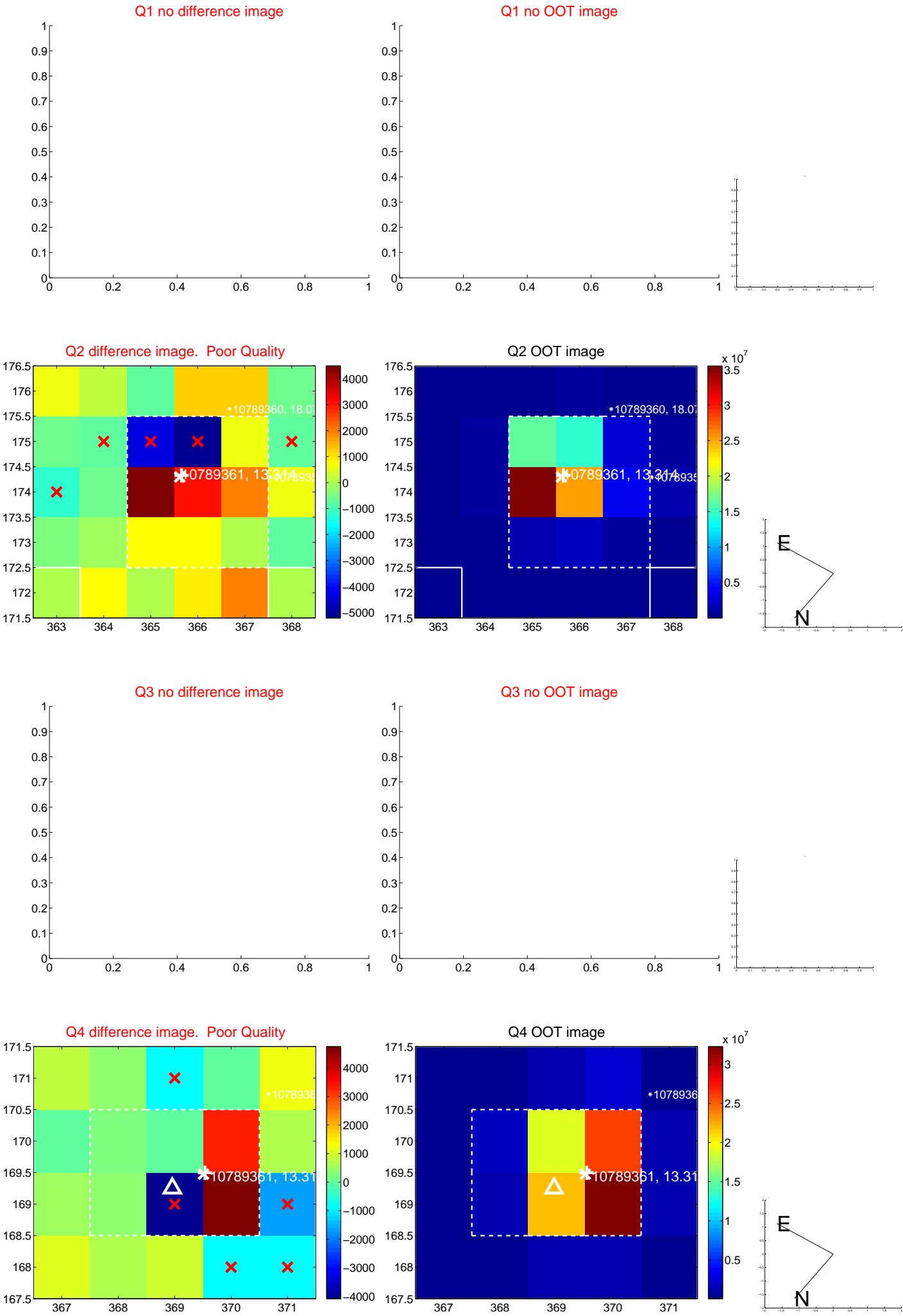


offset from photometric centroids

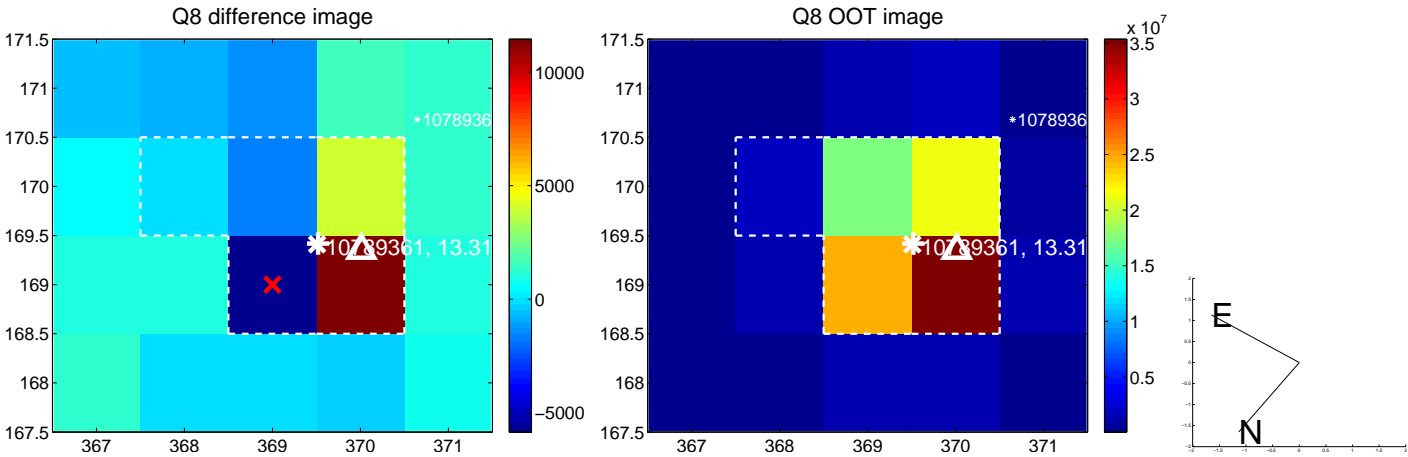
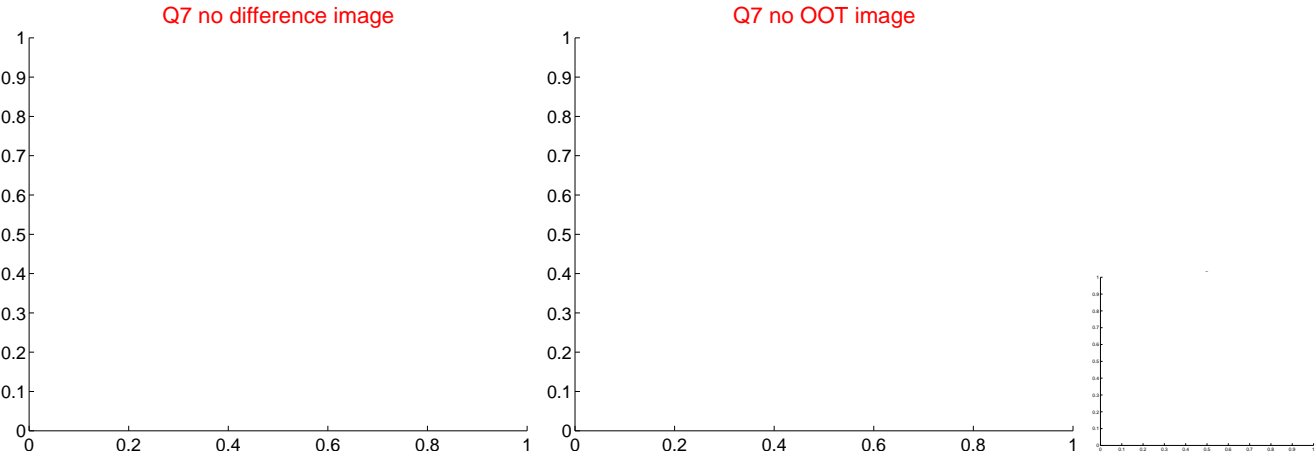
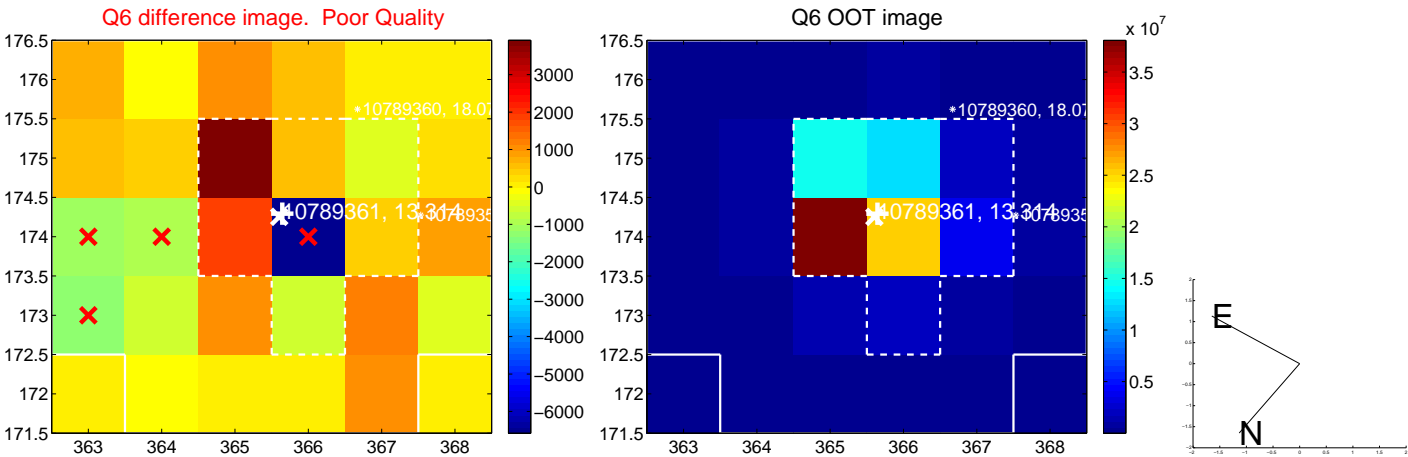
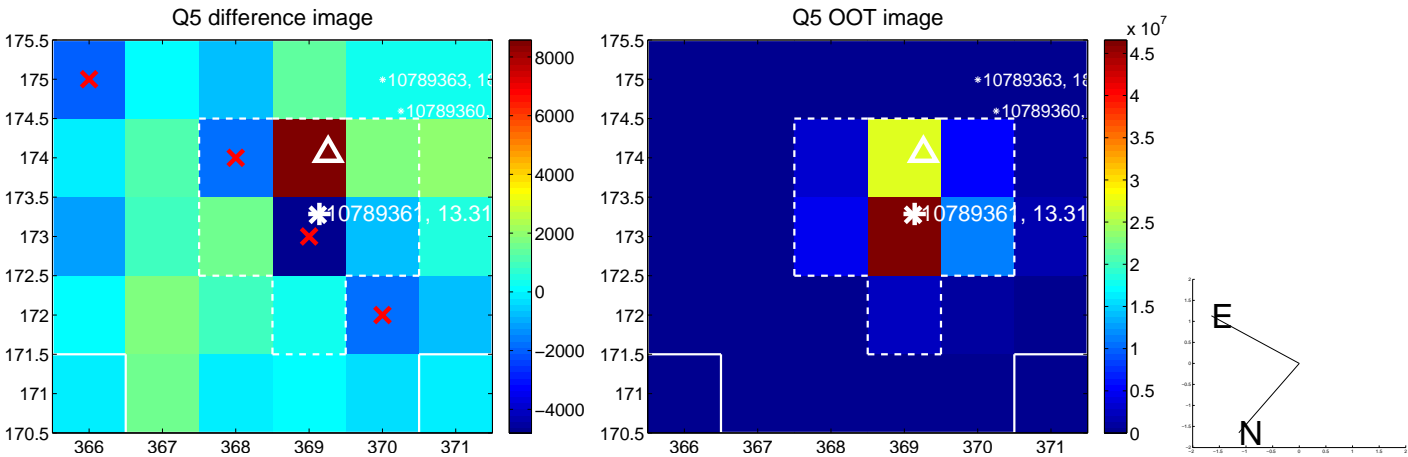


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

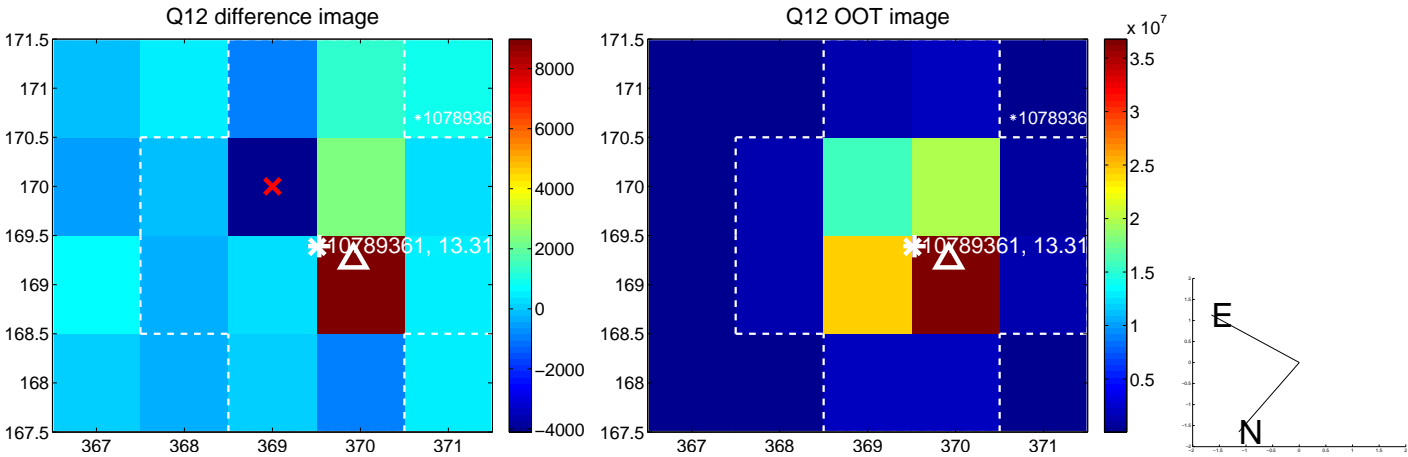
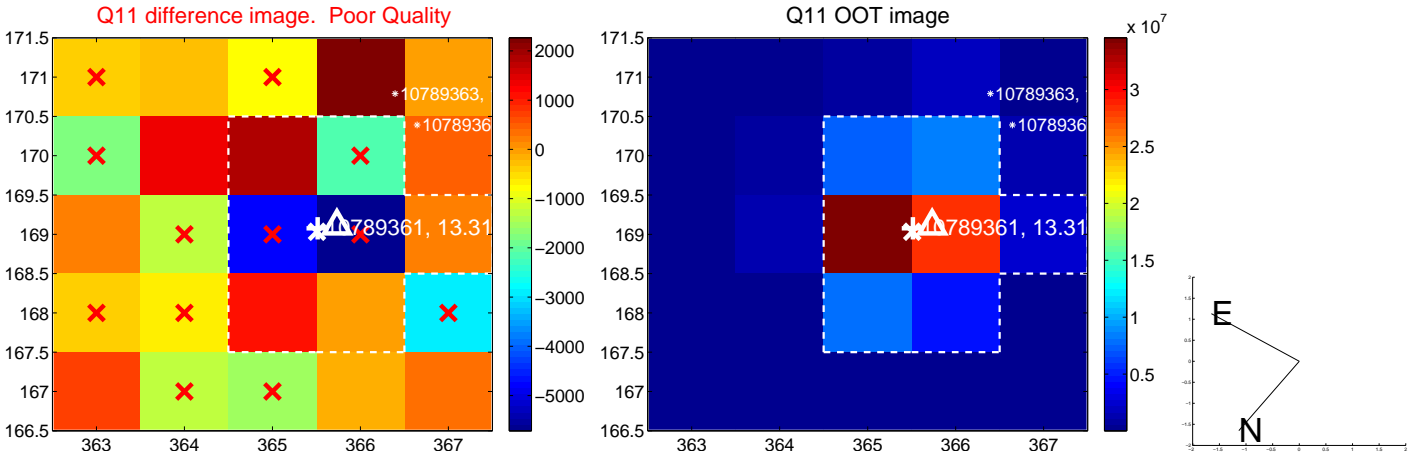
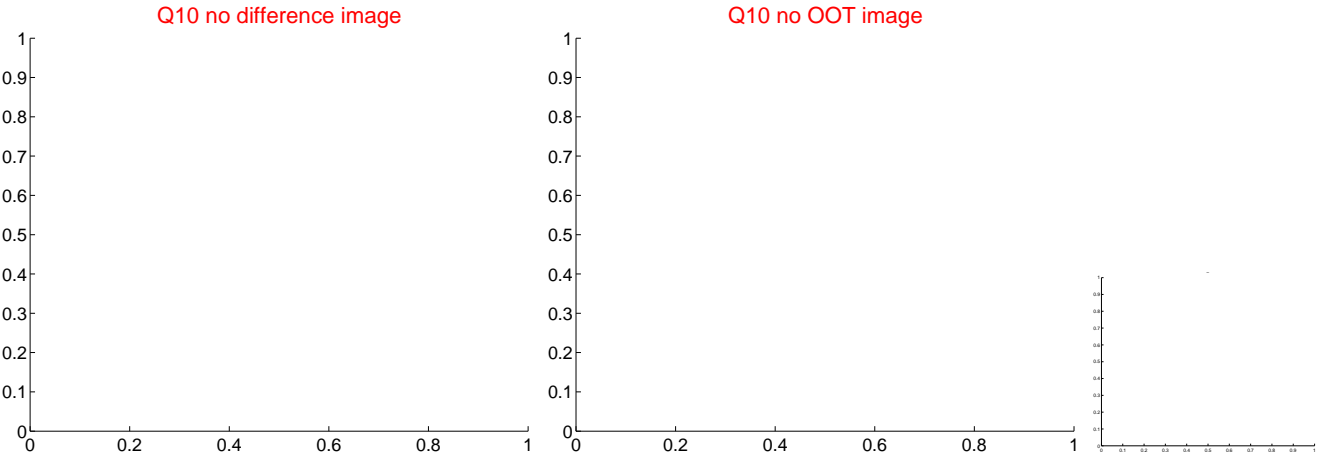
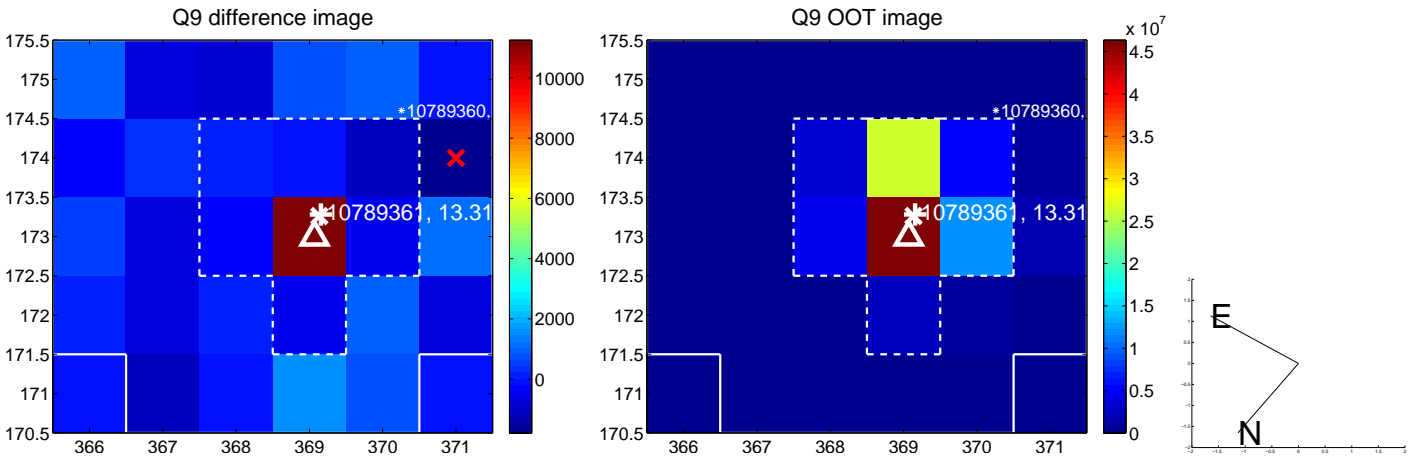
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



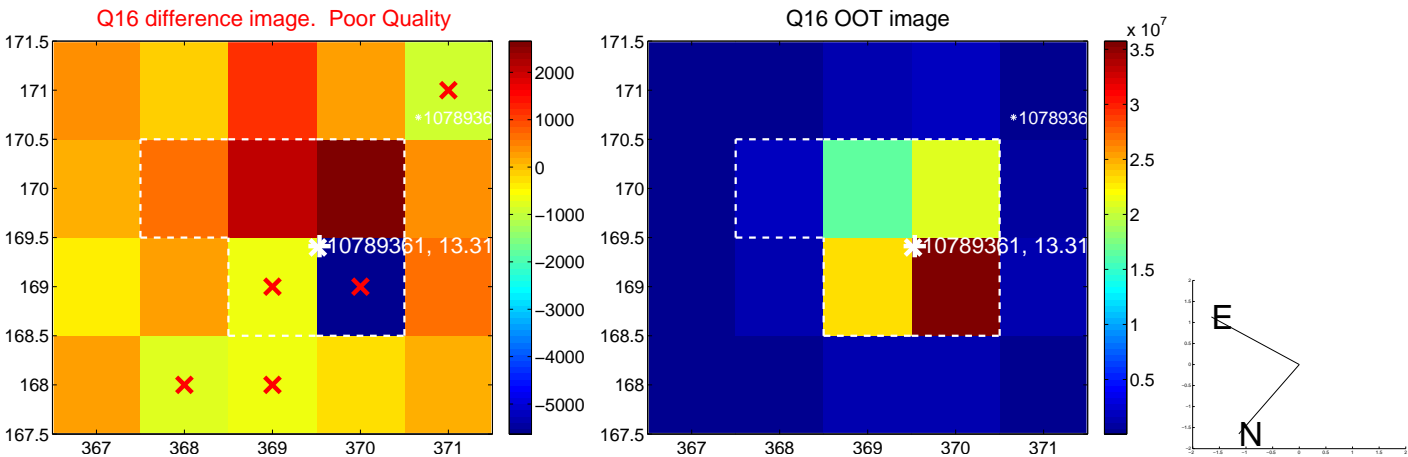
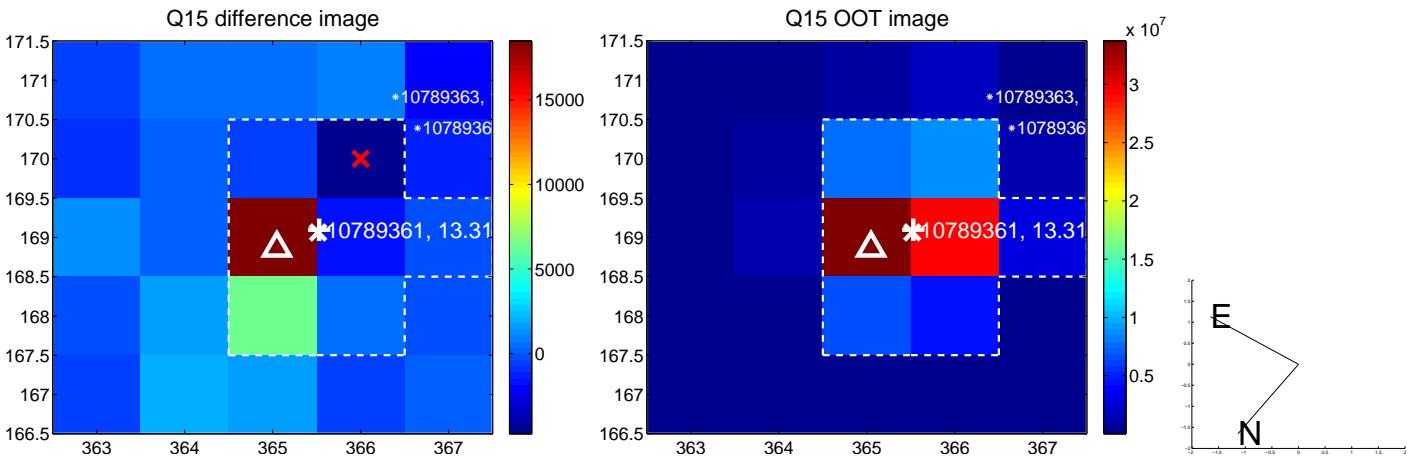
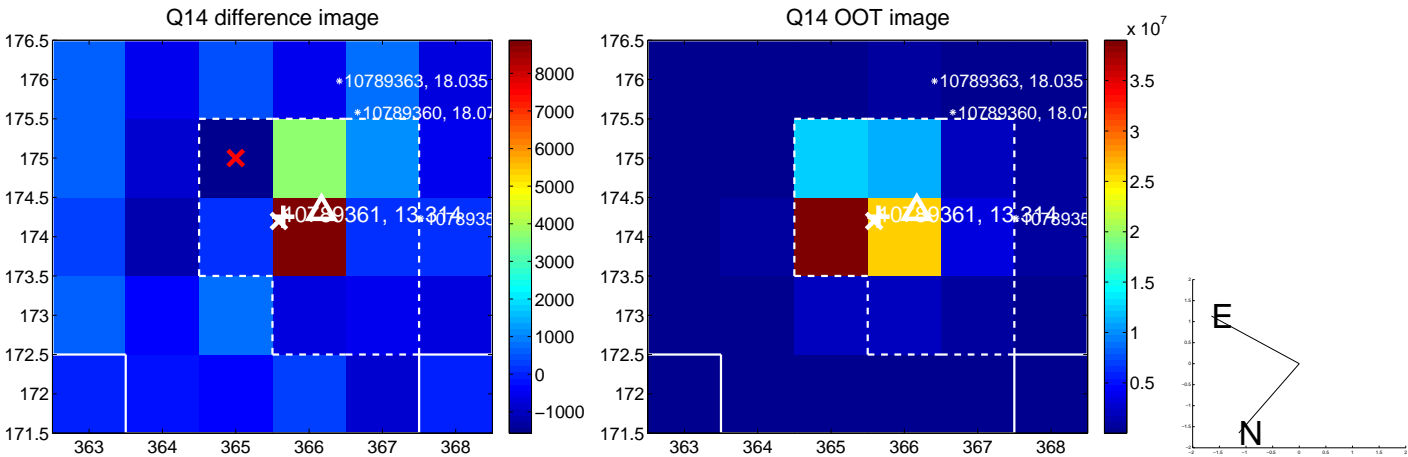
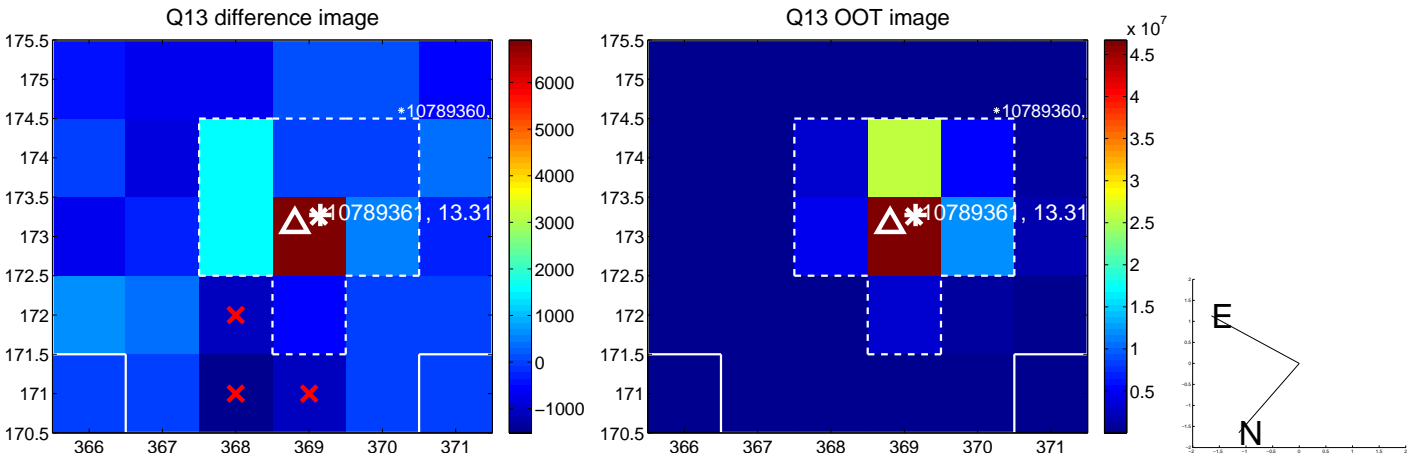
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



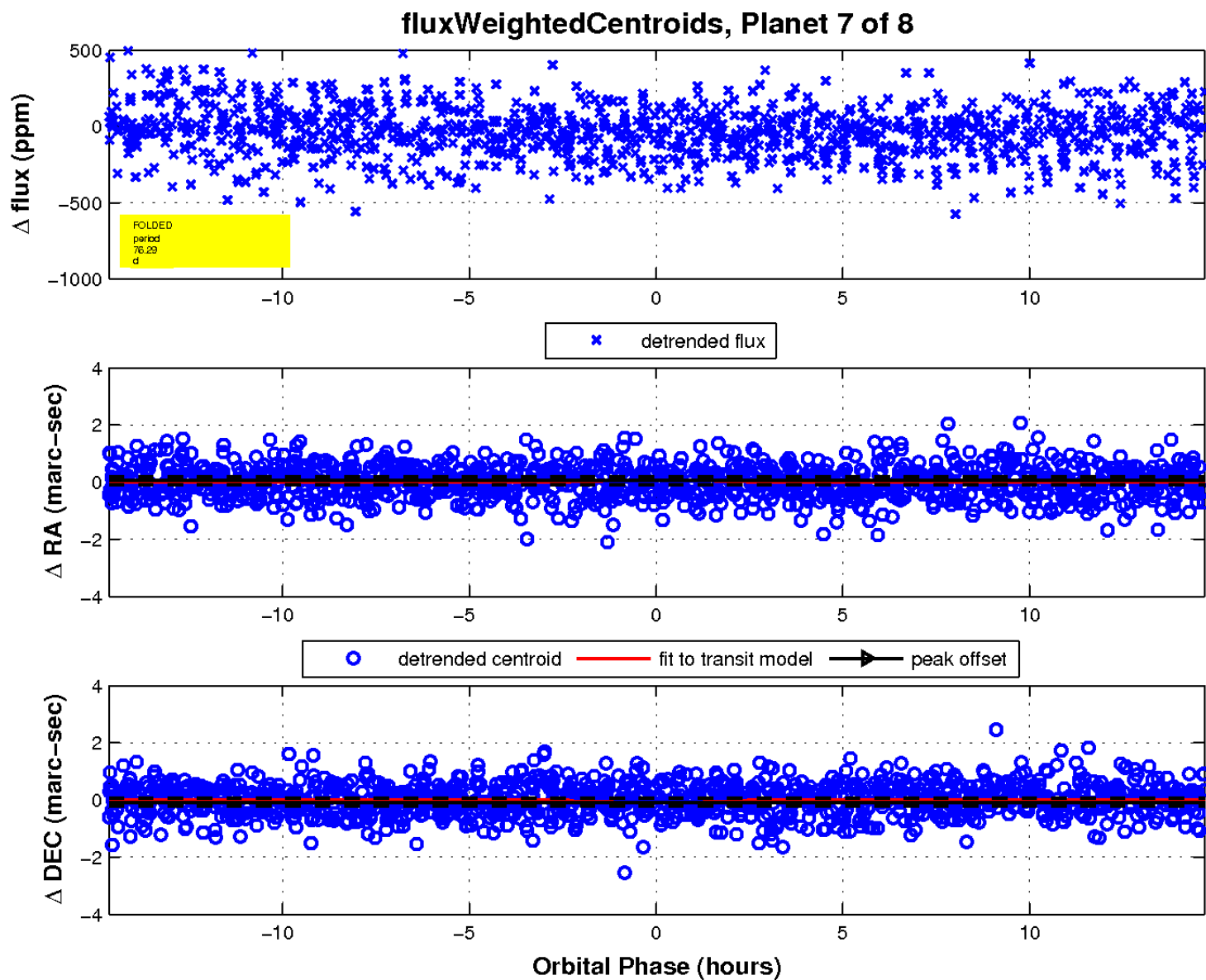
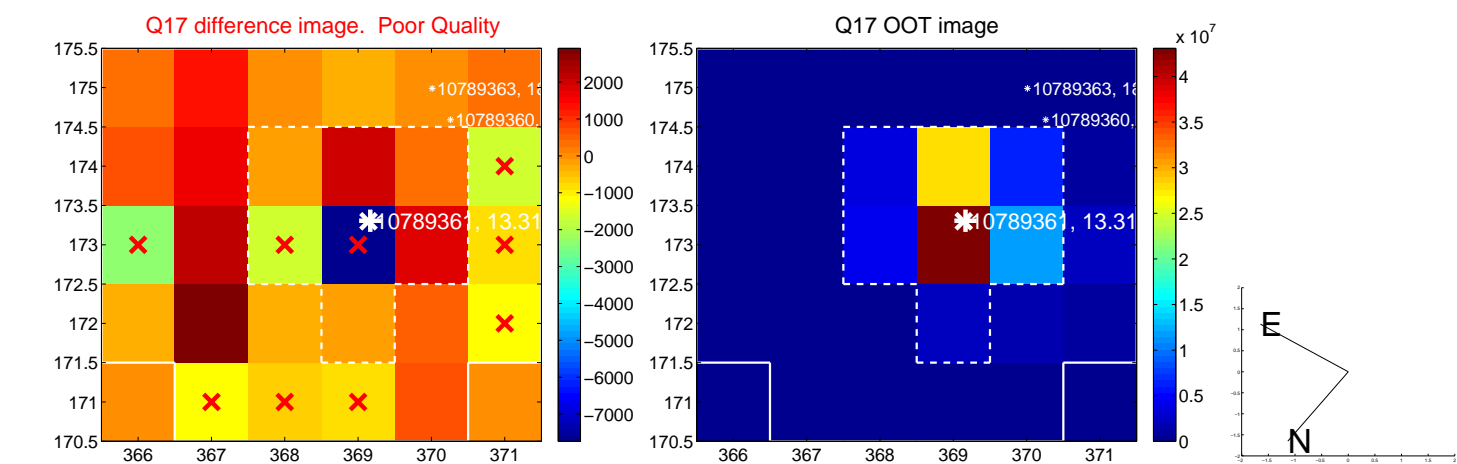
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

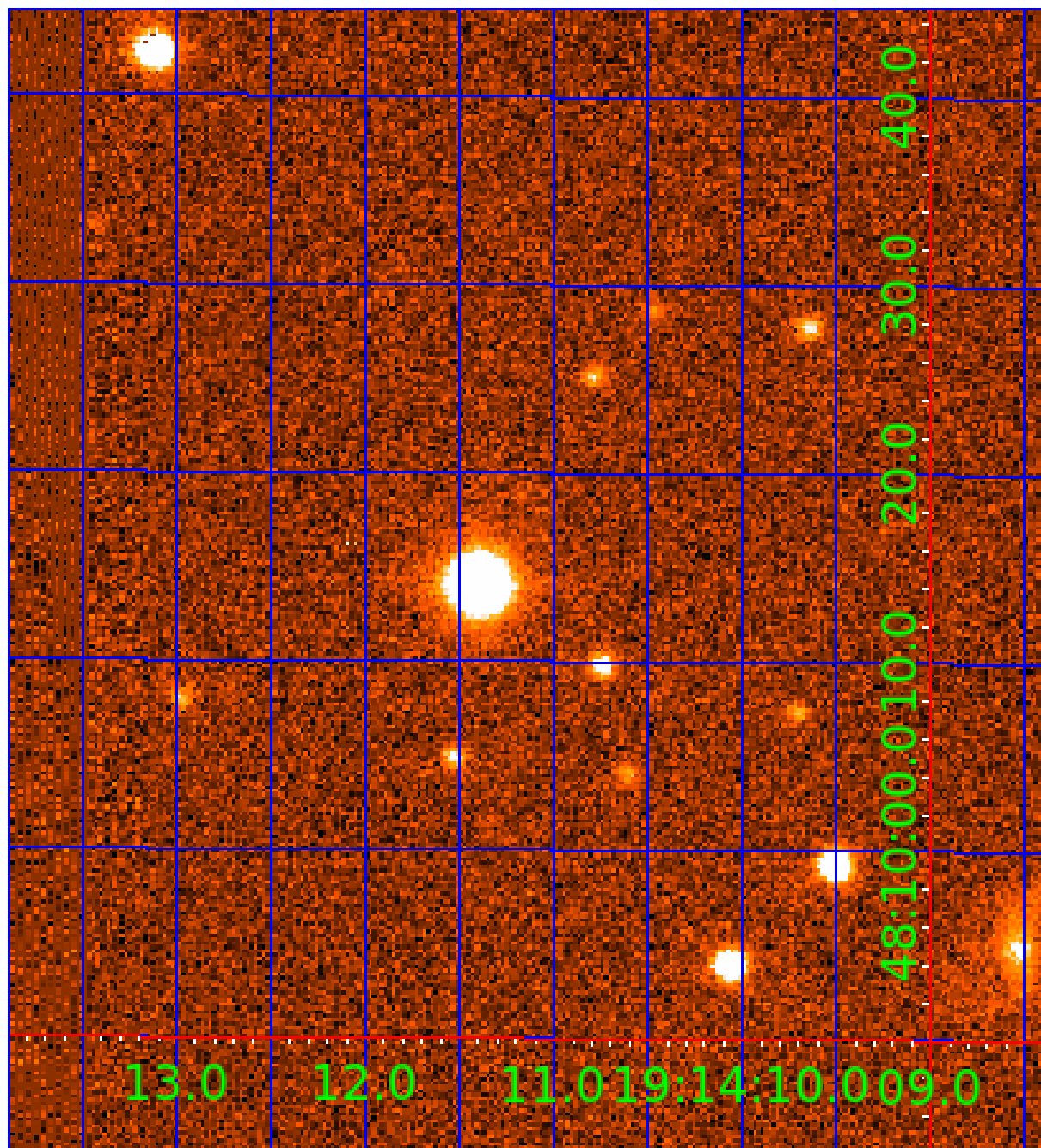


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010789361

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})
010789361-01	OBS	No	0.960552	131.914745	12.6	5.977	9.6	7.7	1.53	6463	0.63	9537.67
010789361-02	OBS	No	216.206133	220.327289	737.1	12.294	17.5	12.5	1.53	6463	7.91	6.97
010789361-03	OBS	No	114.841981	236.133579	492.1	9.756	15.2	11.1	1.53	6463	6.54	16.19
010789361-04	OBS	No	77.529013	180.223336	273.7	9.262	9.0	8.7	1.53	6463	2.72	27.34
010789361-05	OBS	No	99.845787	172.090369	238.2	10.114	9.6	7.4	1.53	6463	2.64	19.52
010789361-06	OBS	No	74.330825	166.851787	228.2	6.042	8.6	7.0	1.53	6463	3.04	28.92
010789361-07	OBS	No	76.294869	203.992070	190.1	4.899	8.5	6.4	1.53	6463	2.33	27.93
010789361-08	OBS	No	29.710652	146.429721	209.3	4.949	8.8	8.7	1.53	6463	2.40	98.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010789361-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
010789361-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
010789361-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010789361-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010789361-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010789361-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010789361-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_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.

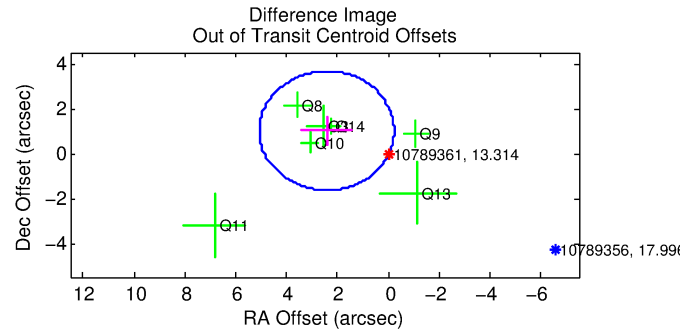
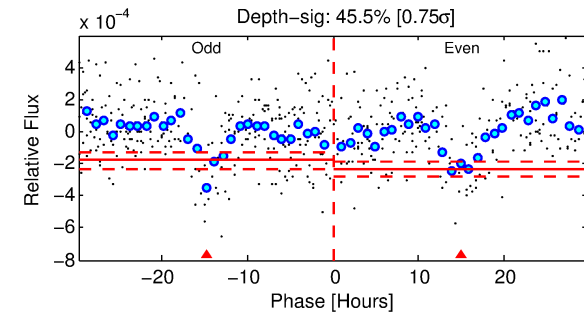
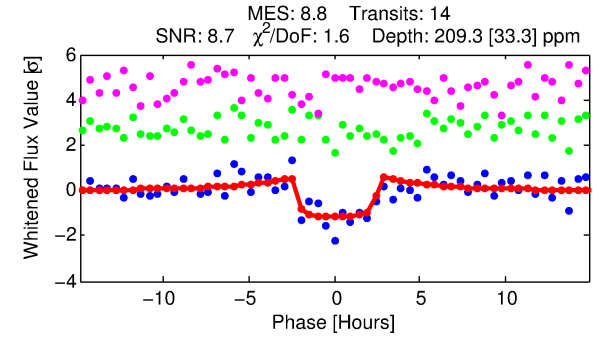
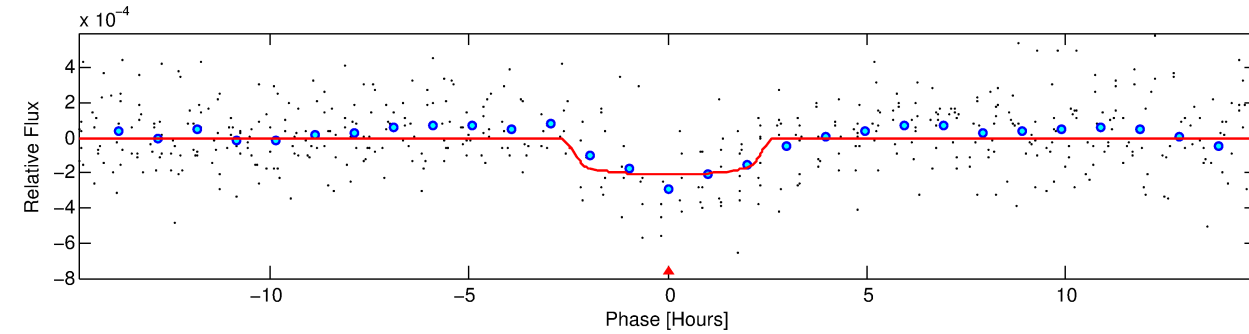
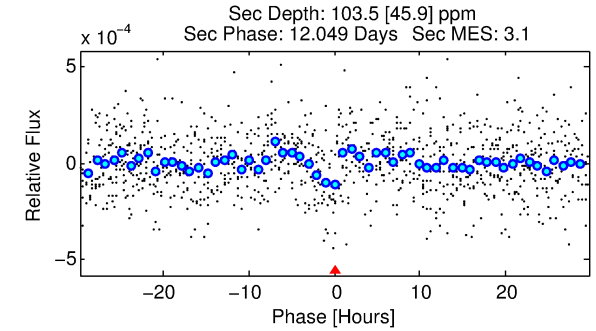
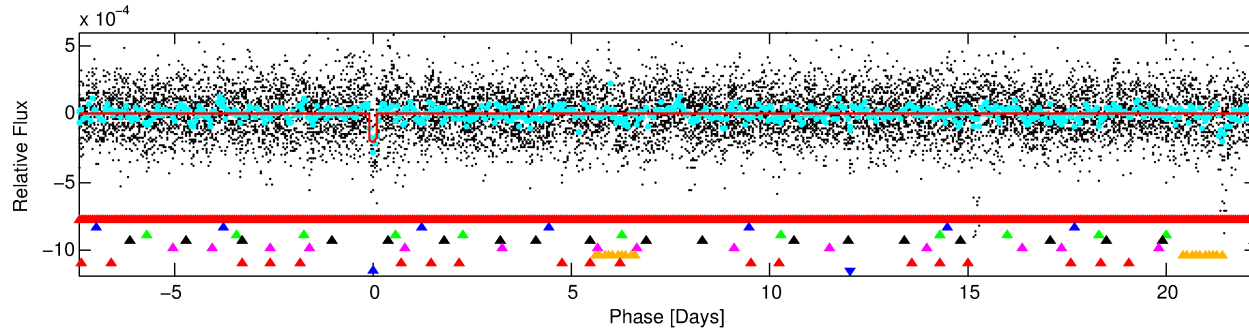
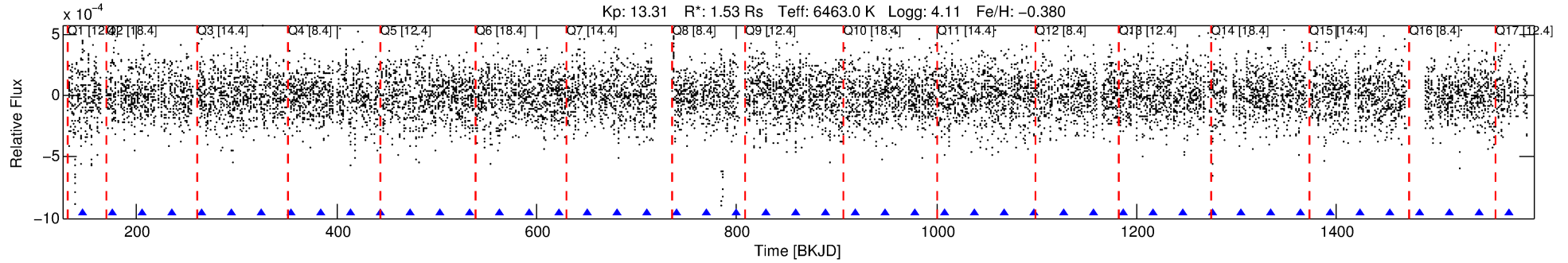
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010789361-08

No Significant Match Found

DV One-Page Summary

KIC: 10789361 Candidate: 8 of 8 Period: 29.711 d



DV Fit Results:

Period = 29.71065 [0.00046] d
Epoch = 146.4297 [0.0117] BKJD
Rp/R* = 0.0143 [0.0099]
a/R* = 32.07 [120.75]
b = 0.73 [2.37]
Seff = 98.23 [48.22]
Teq = 803 [99] K
Rp = 2.39 [1.79] Re
a = 0.1933 [0.0556] AU
Ag = 370.81 [564.91] [0.65σ]
Teffp = 5447 [1982] K [2.34σ]

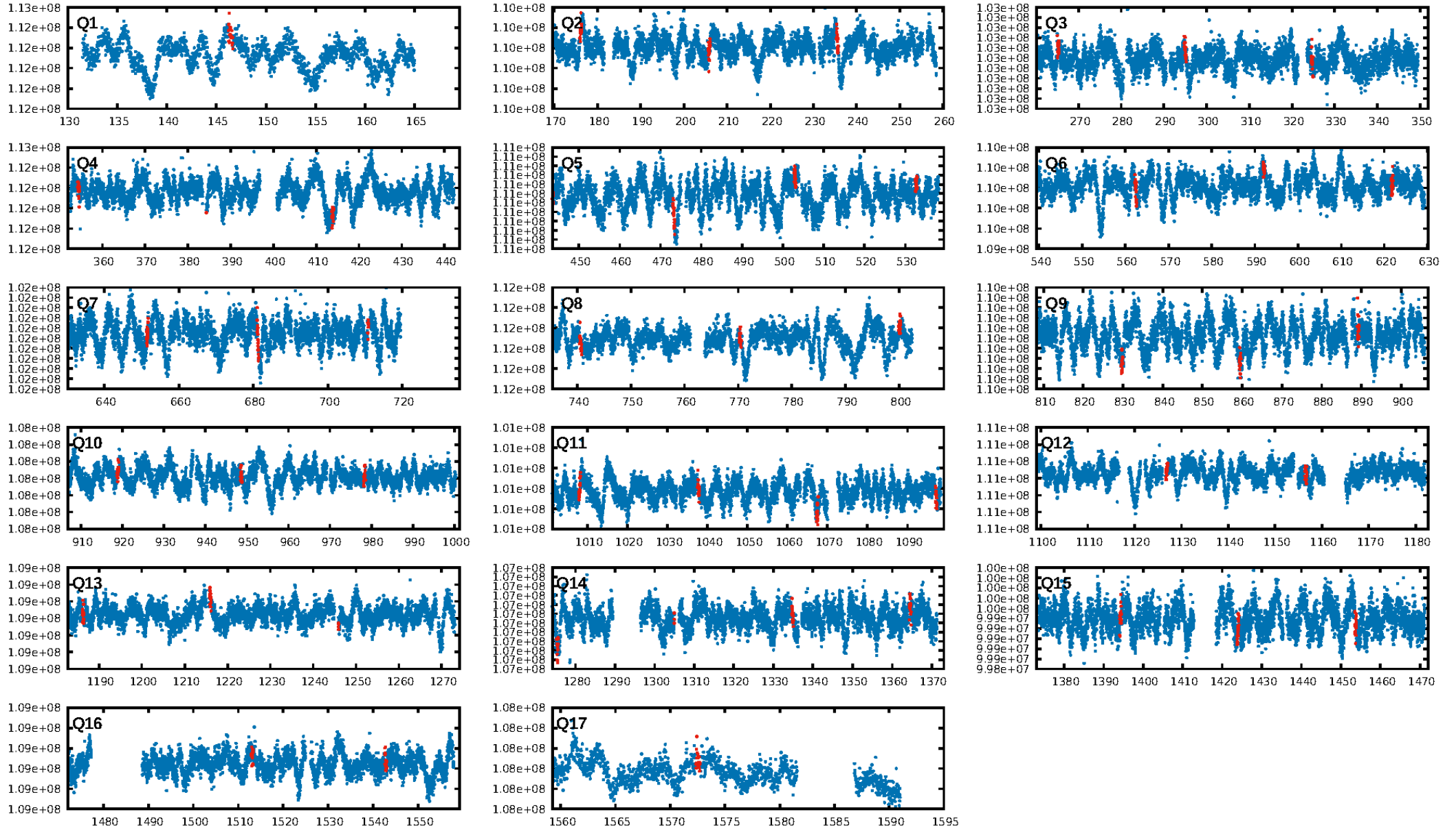
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [88.92σ]
LongPeriod-sig: 100.0% [137.11σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.30e-12
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: -15.33
Centroid-sig: 44.9%
Centroid-so: 0.434 arcsec [0.97σ]
OotOffset-rm: 2.625 arcsec [2.97σ]
KicOffset-rm: 2.500 arcsec [2.53σ]
OotOffset-st: 2/2/1/2 [7]
KicOffset-st: 2/2/1/2 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 0.00 [0/17]

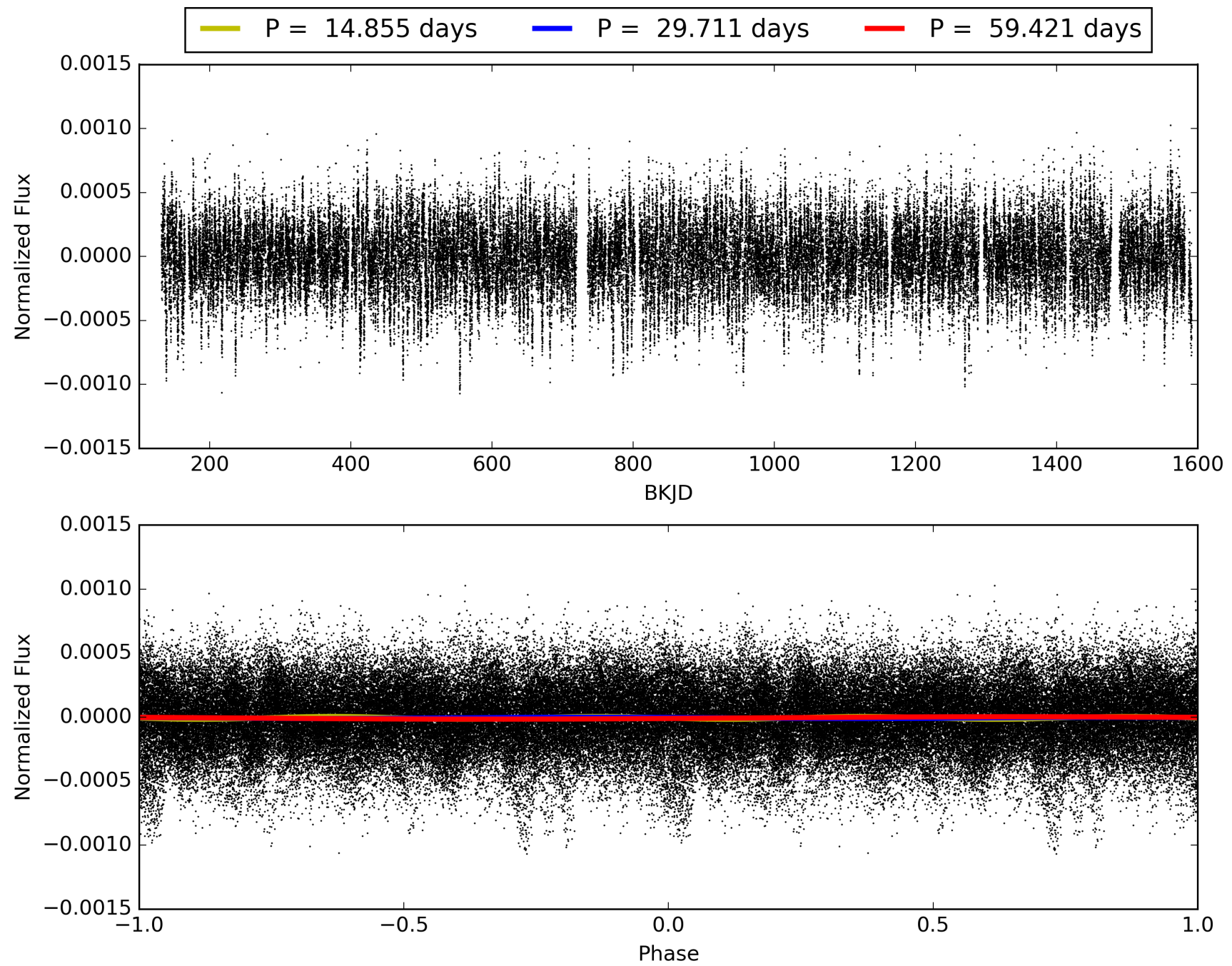
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:48:52 Z

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

TCE 010789361-08, PDC Light Curves

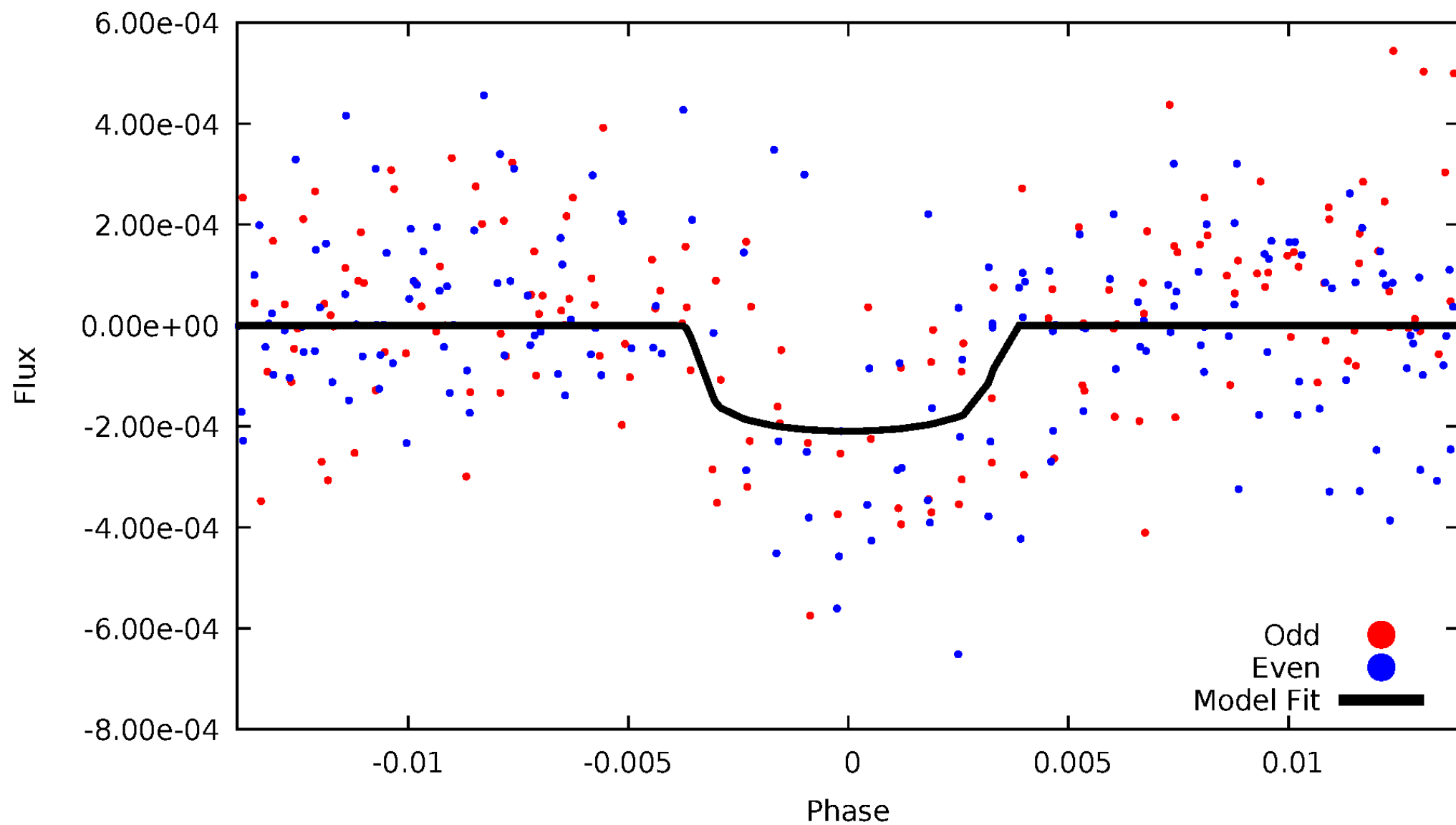


TCE 010789361-08



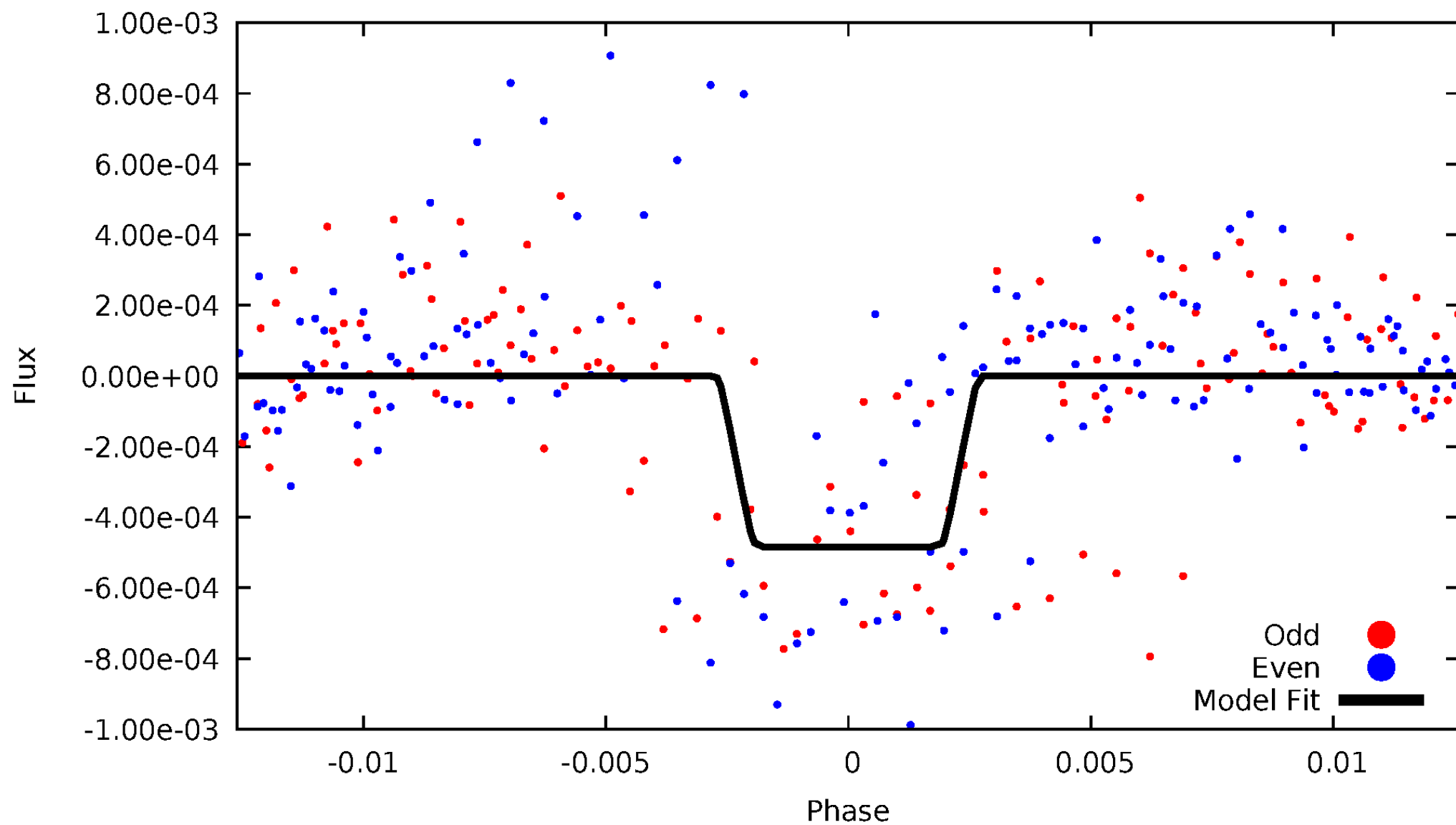
DV Odd/Even

TCE 010789361-08



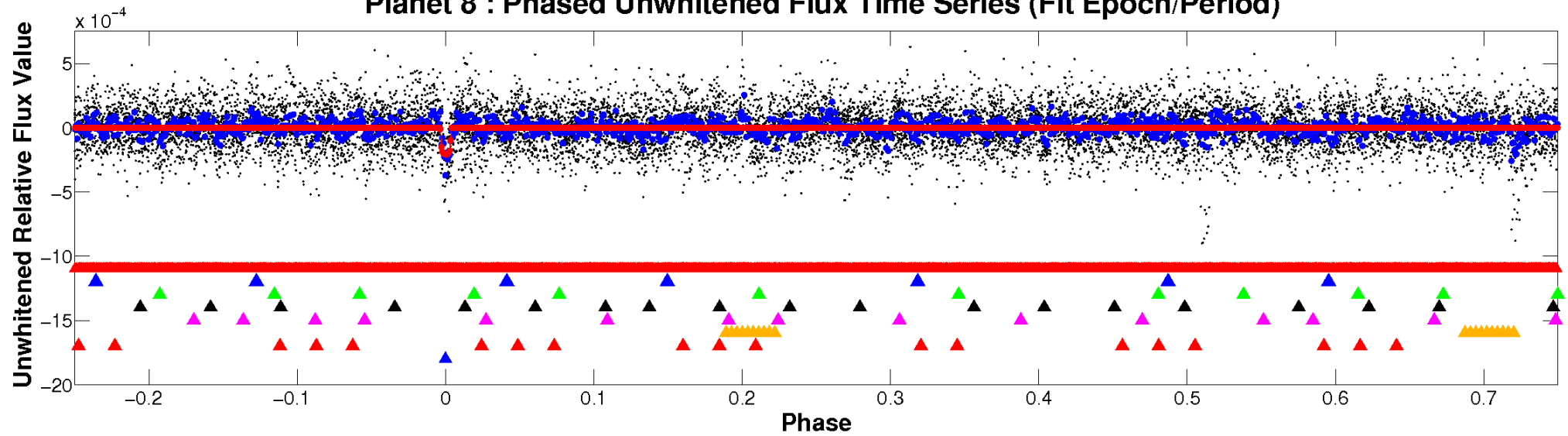
ALT Odd/Even

TCE 010789361-08

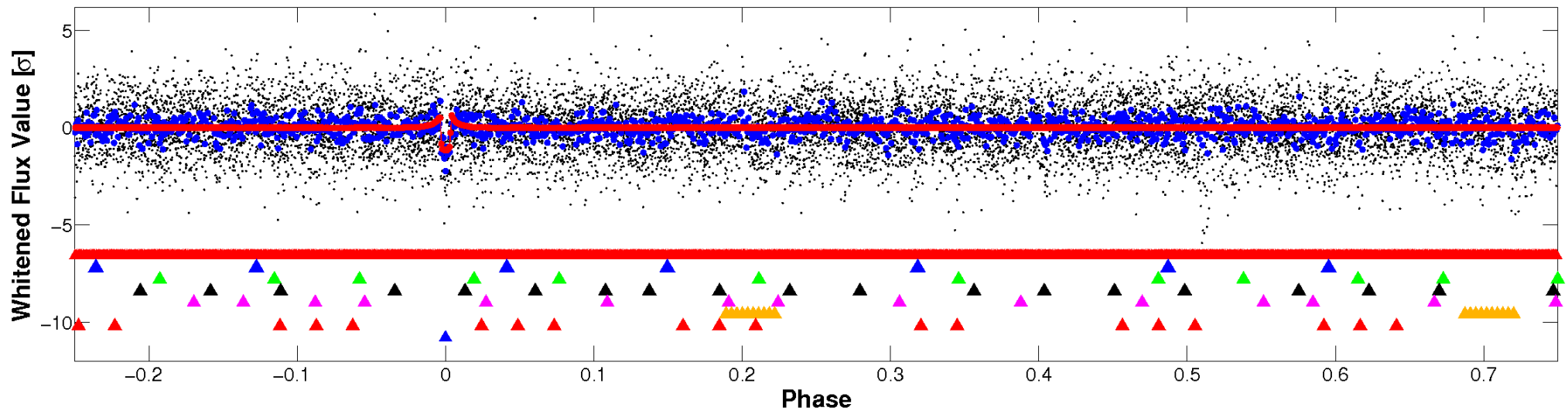


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

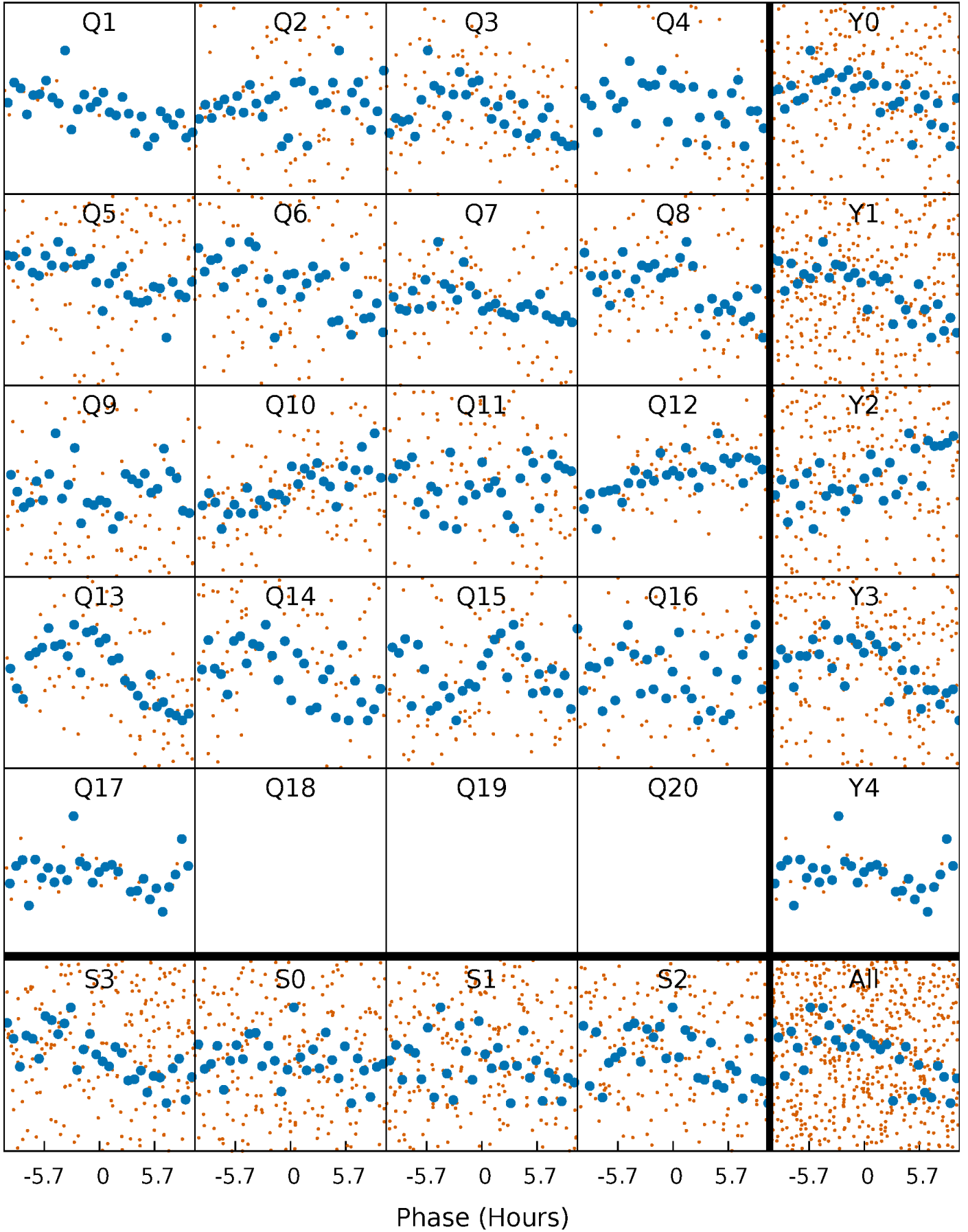


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



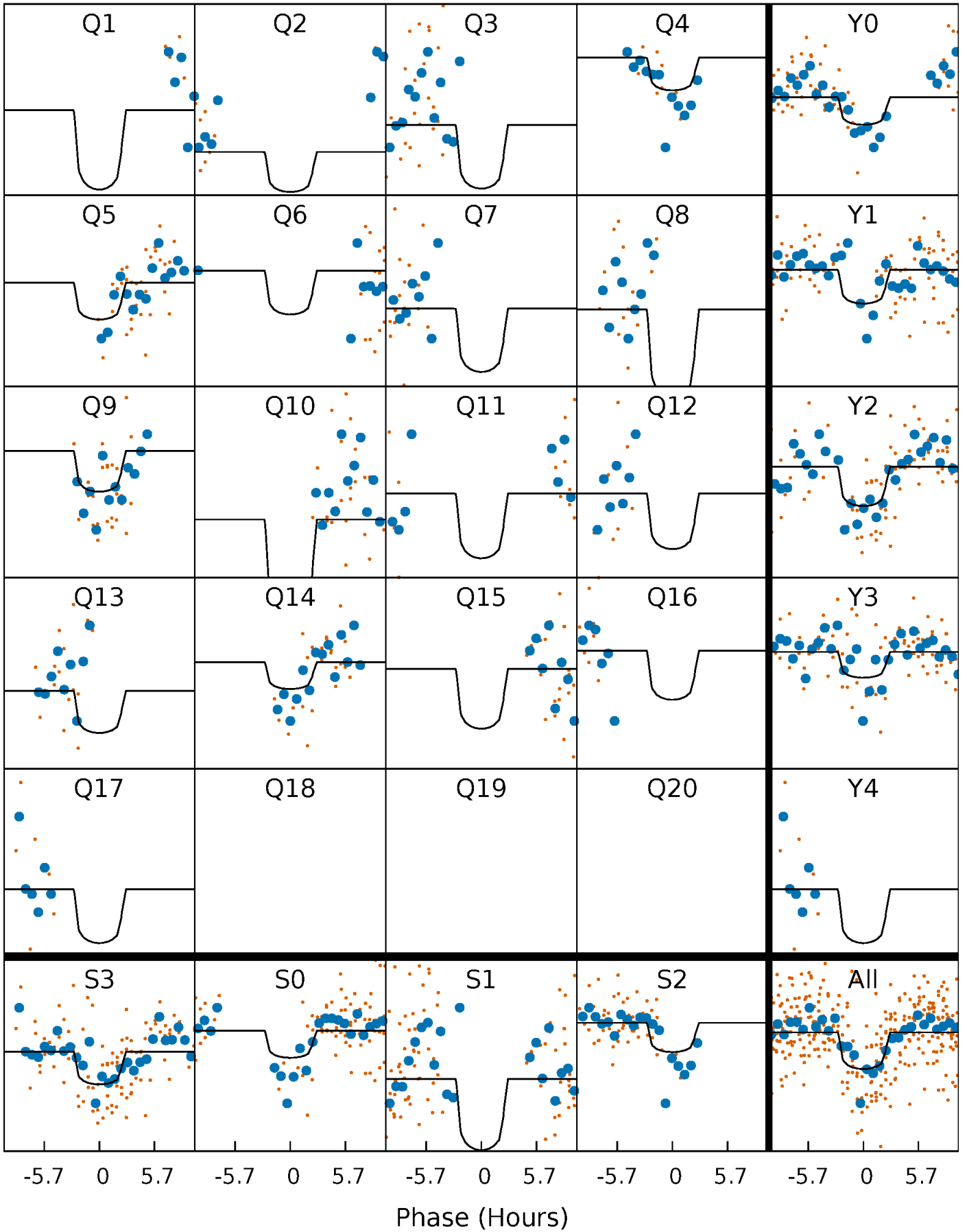
PDC Quarter-Phased Transit Curves

TCE 010789361-08 P= 29.710652 Days $T_0=146.429721$ (BKJD)



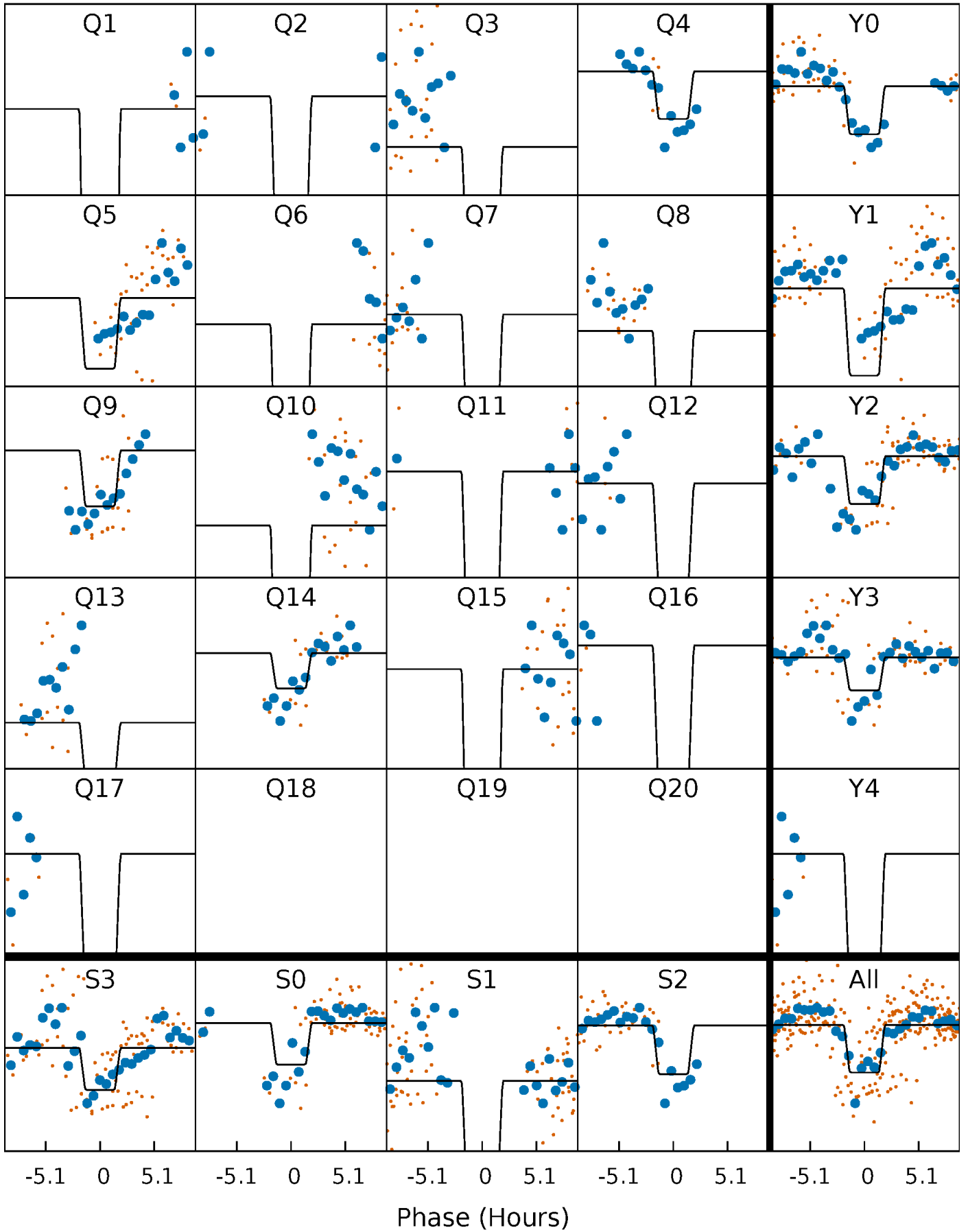
DV Quarter-Phased Transit Curves

TCE 010789361-08 $P = 29.710652$ Days $T_0 = 146.429721$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

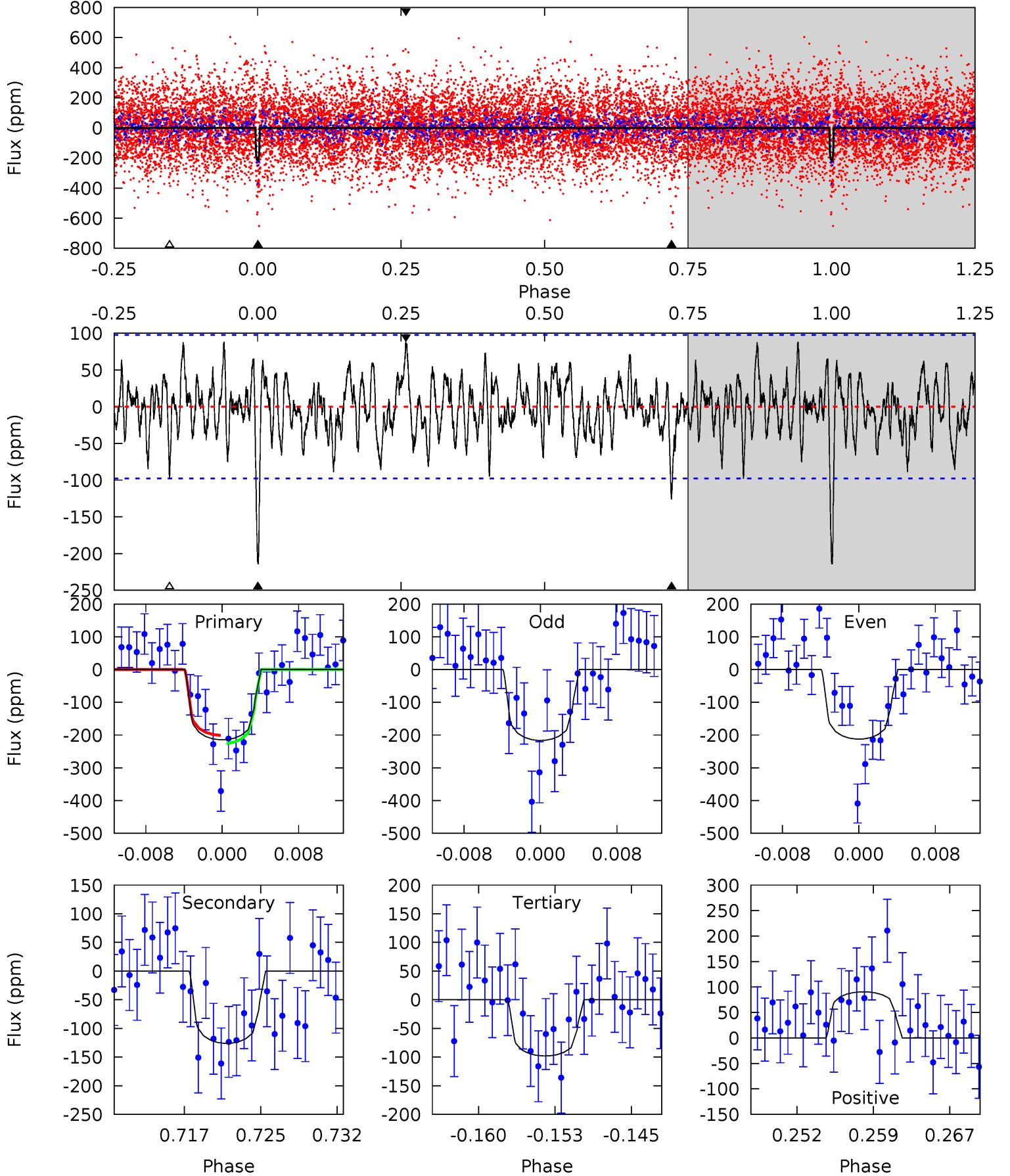
TCE 010789361-08 P= 29.711411 Days $T_0=146.436800$ (BKJD)



DV Model-Shift Uniqueness Test

010789361-08, P = 29.710652 Days, E = 116.719069 Days

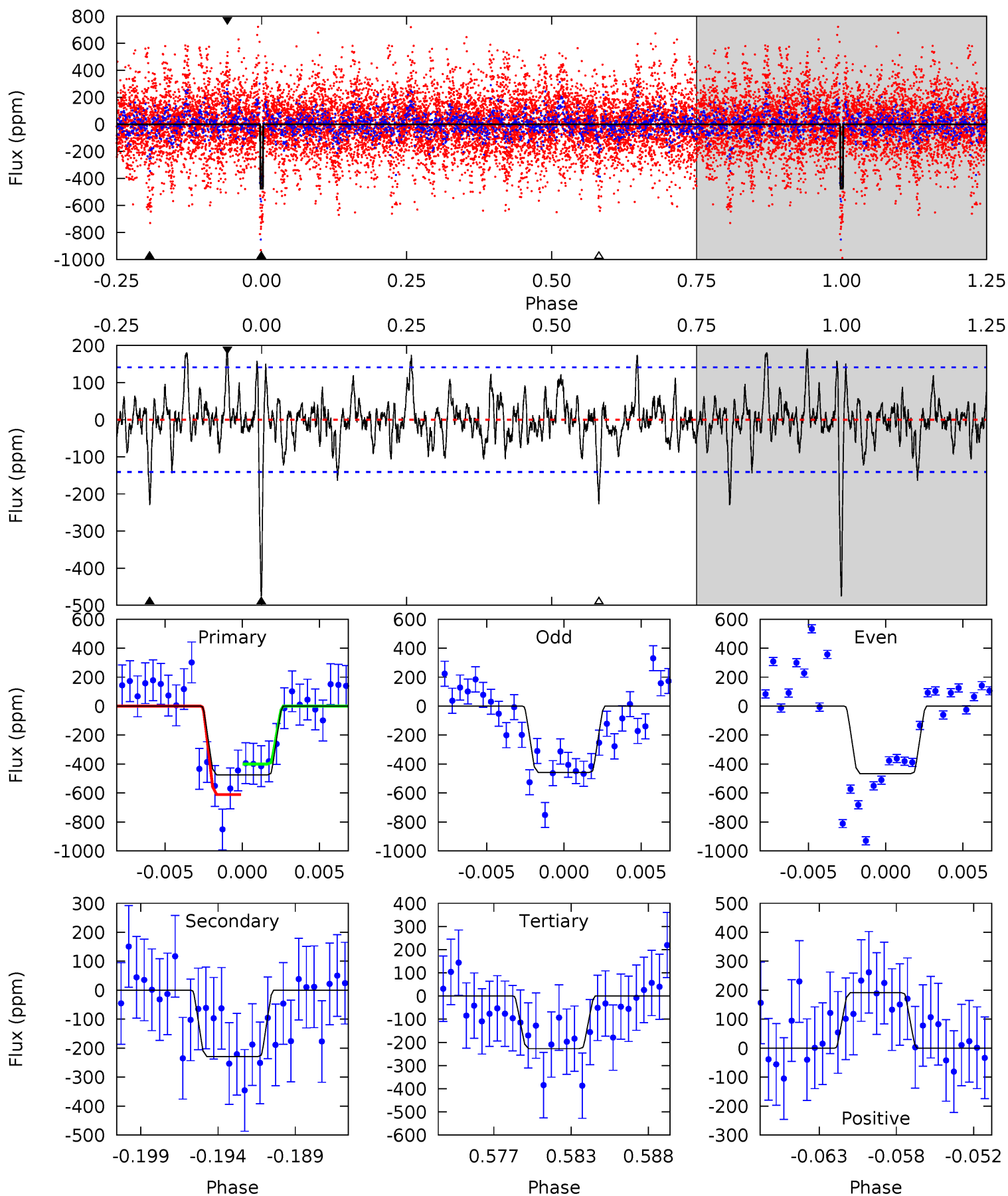
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	6.56	5.10	4.71	5.08	2.67	1.64	6.06	6.44	1.46	1.85	0.11	0.74	0.30	0.65



Alt Model-Shift Uniqueness Test

010789361-08, $P = 29.711411$ Days, $E = 116.725389$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	8.38	8.30	7.00	5.15	2.79	1.79	9.06	10.4	0.09	1.38	0.13	0.91	0.29	3.67



Stellar Parameters For KIC 010789361

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6463^{+181}_{-227}	$4.105^{+0.280}_{-0.151}$	$-0.380^{+0.300}_{-0.300}$	$1.532^{+0.395}_{-0.439}$	$1.089^{+0.177}_{-0.161}$	$0.427^{+0.703}_{-0.207}$
	+3%/-4%	+7%/-4%	+79%/-79%	+26%/-29%	+16%/-15%	+165%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010789361-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-126 ± 19	$2.36^{+1.52}_{-1.34}$	1109^{+88}_{-95}	5669^{+3437}_{-1058}	467^{+2025}_{-299}
Alt.	-230 ± 27	$3.66^{+1.61}_{-1.54}$	1102^{+91}_{-96}	5282^{+1594}_{-705}	350^{+726}_{-179}

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 $A_{obs} \gg 1.0$

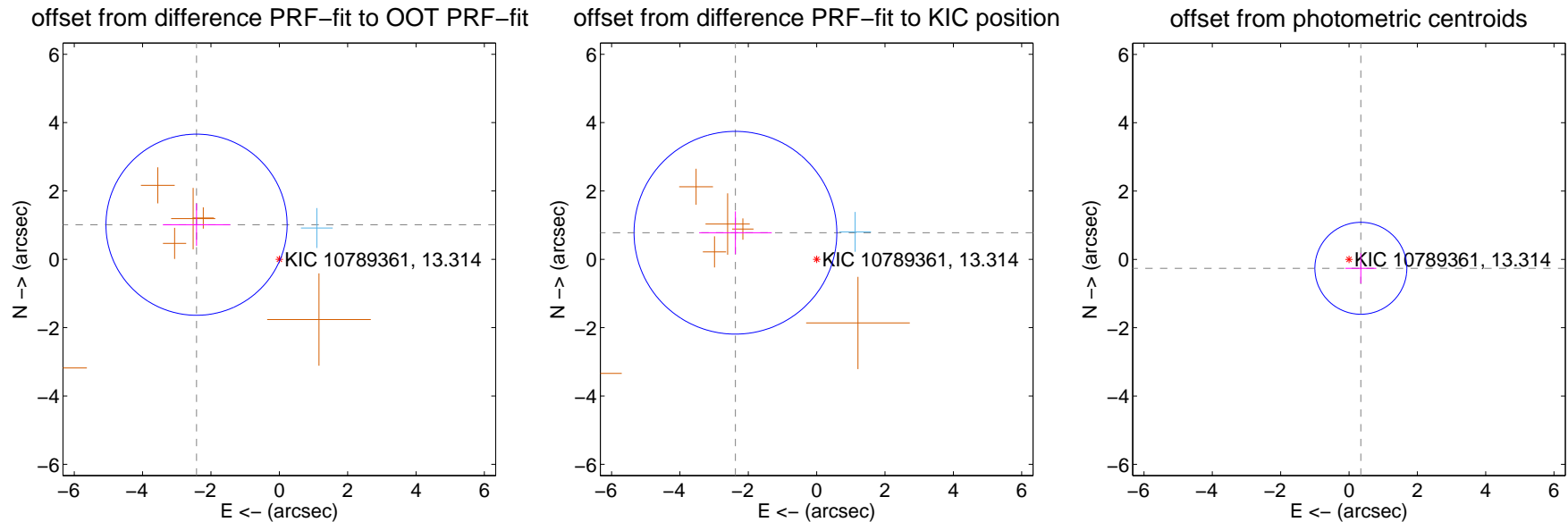
DV Centroid Data

Supplemental centroid analysis for 010789361-08. Kepler magnitude: 13.31. Transit SNR 8.66

There are 1 quarters with good PRF difference image offsets

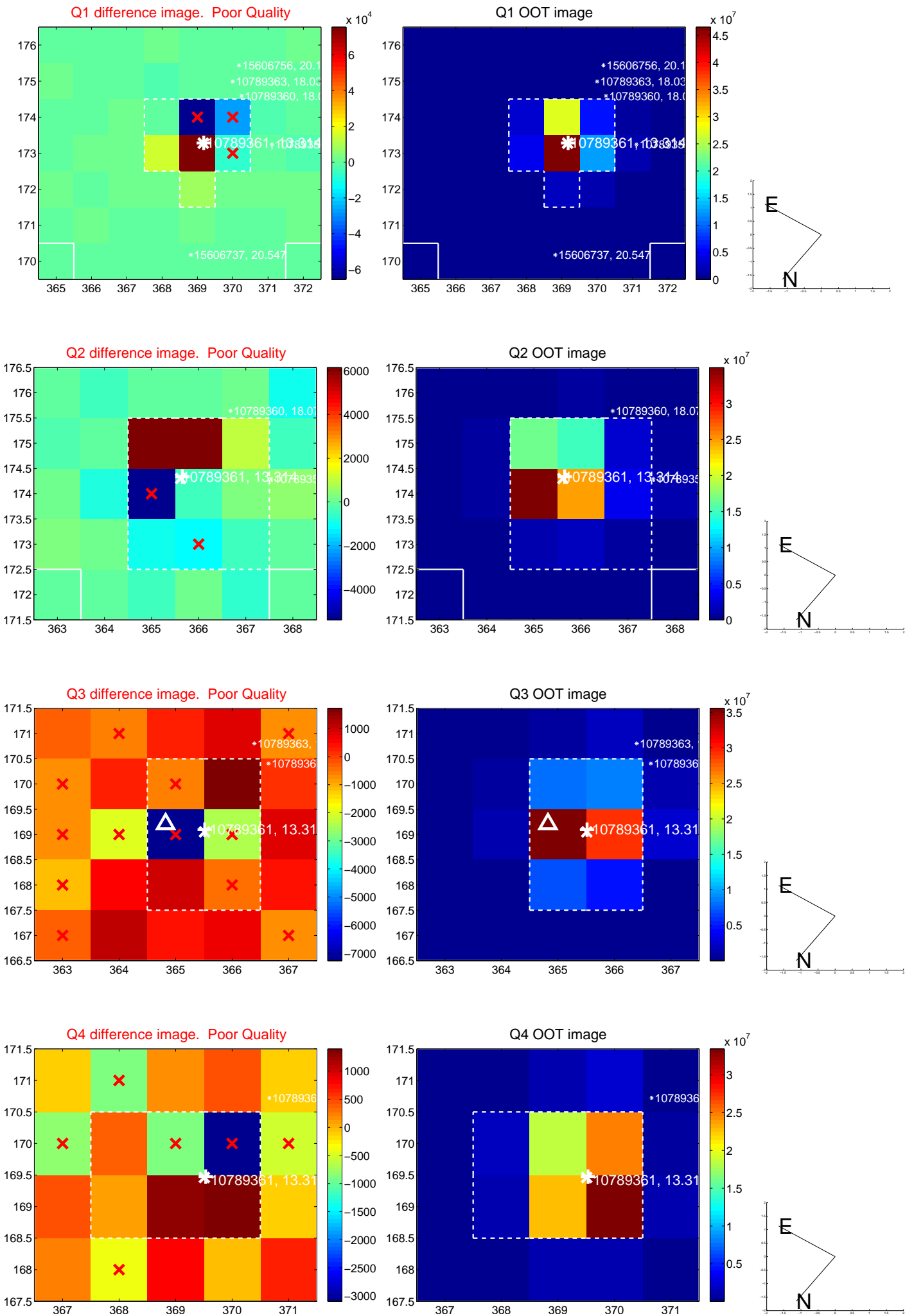
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.625 ± 0.883	2.97	2.422 ± 0.985	1.012 ± 0.618
PRF-fit source offset from KIC position	2.500 ± 0.989	2.53	2.376 ± 1.063	0.777 ± 0.626
photometric centroid source offset	0.43 ± 0.45	0.97	-0.35 ± 0.45	-0.26 ± 0.44

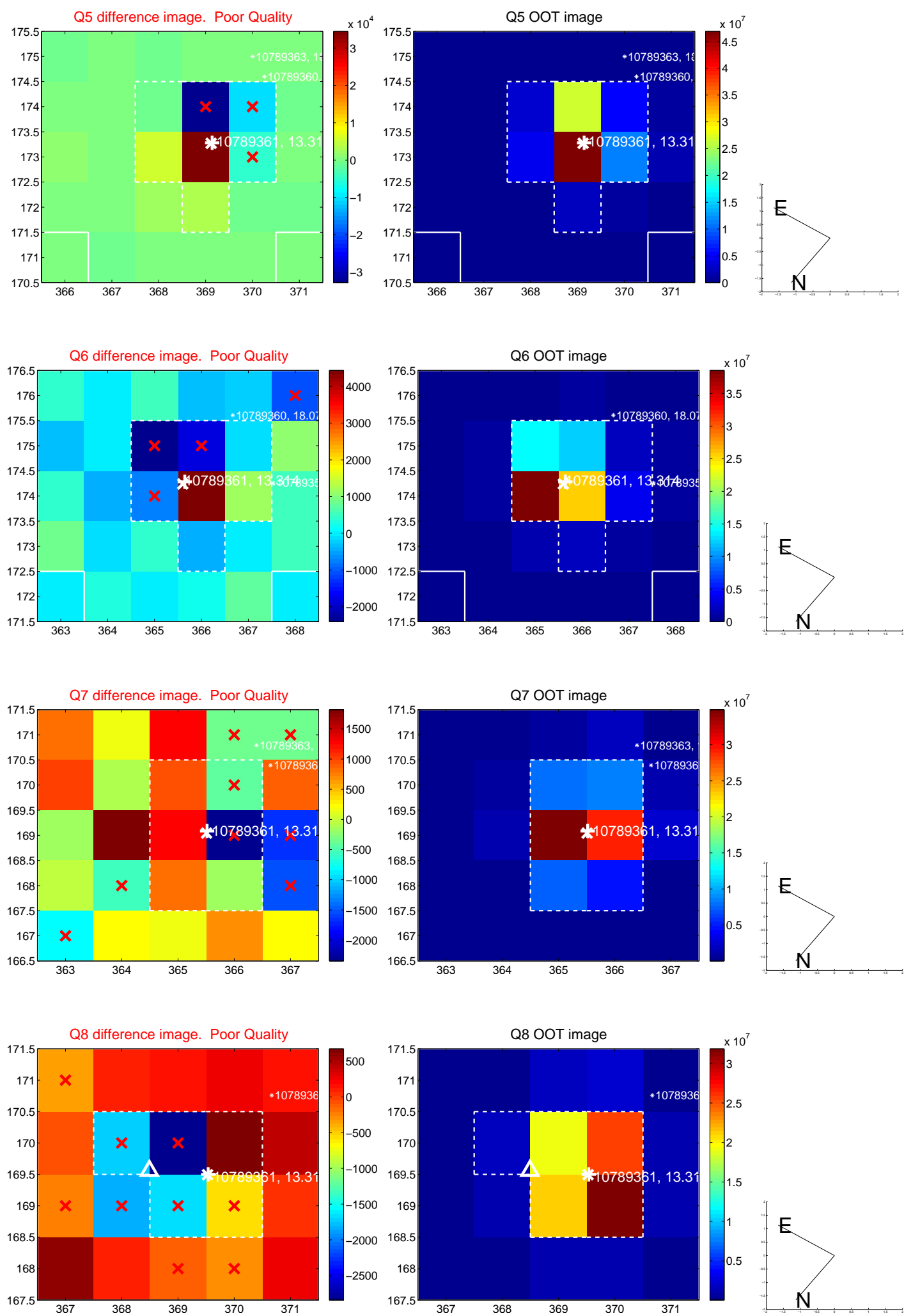


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

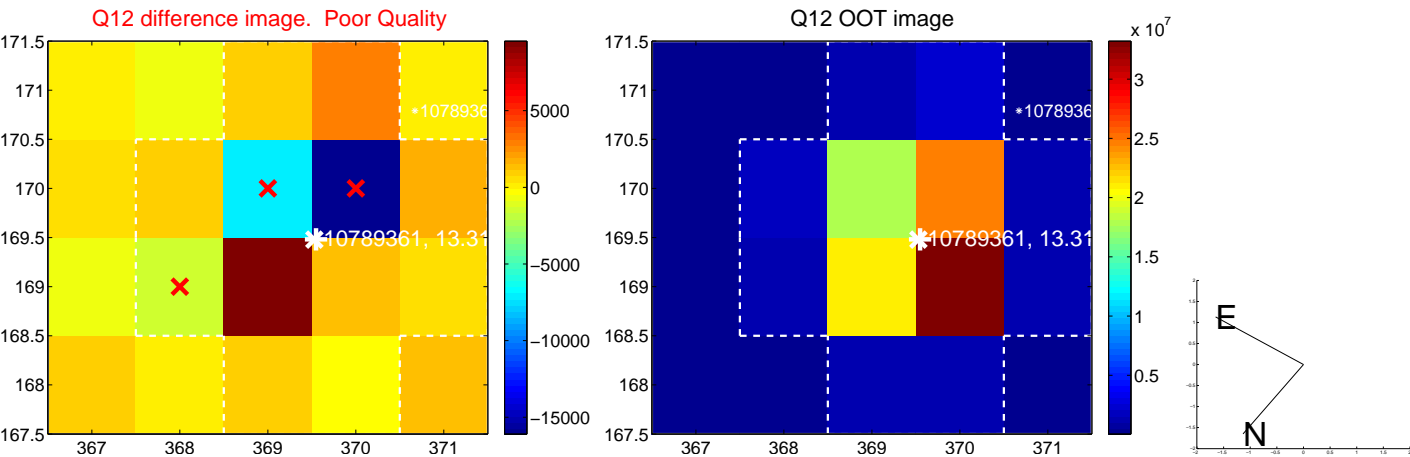
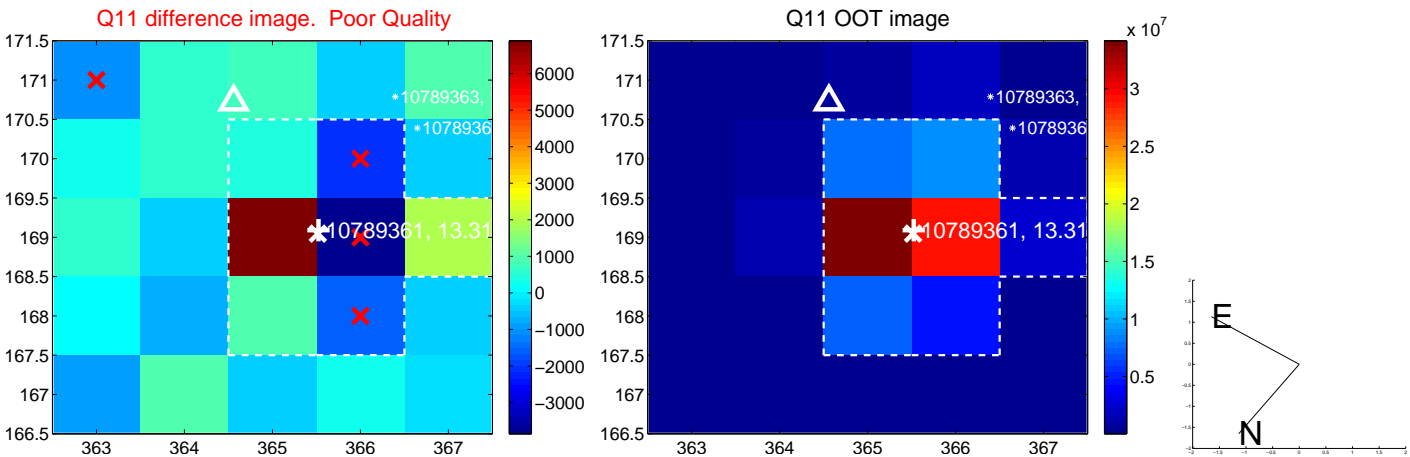
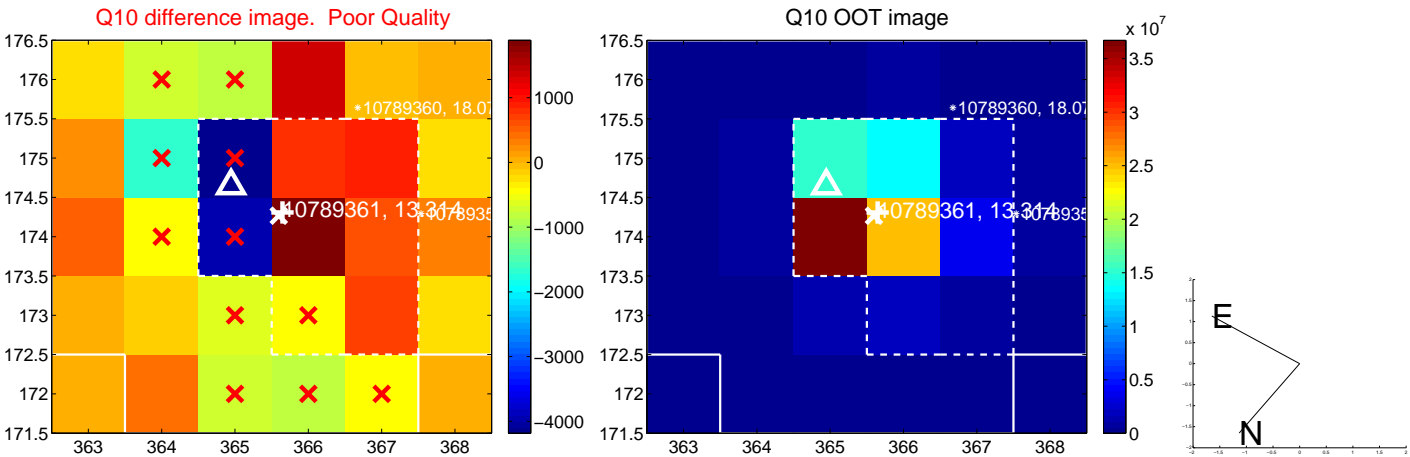
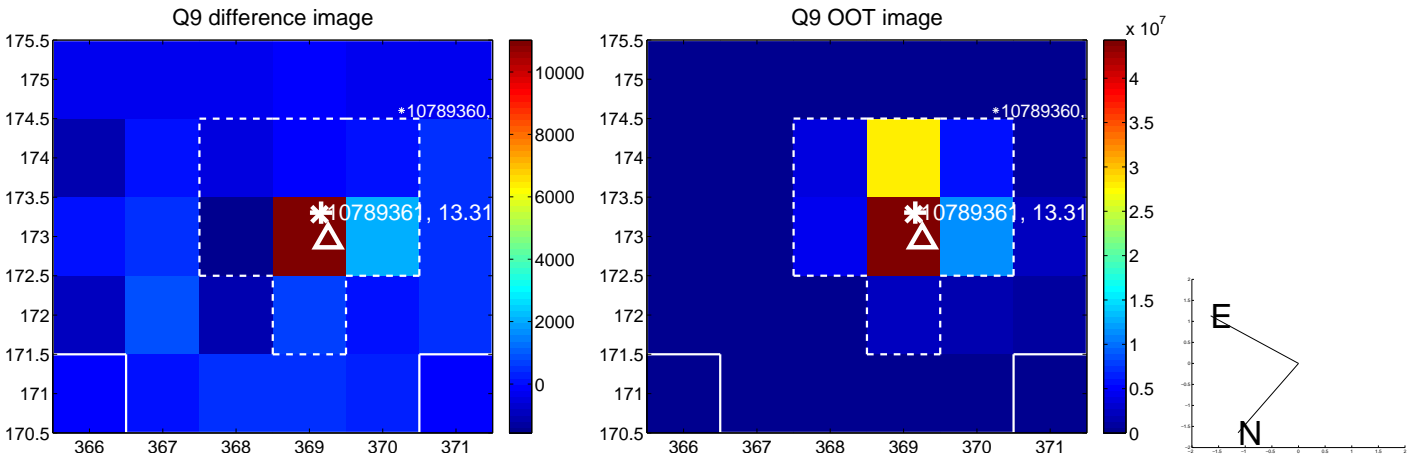
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



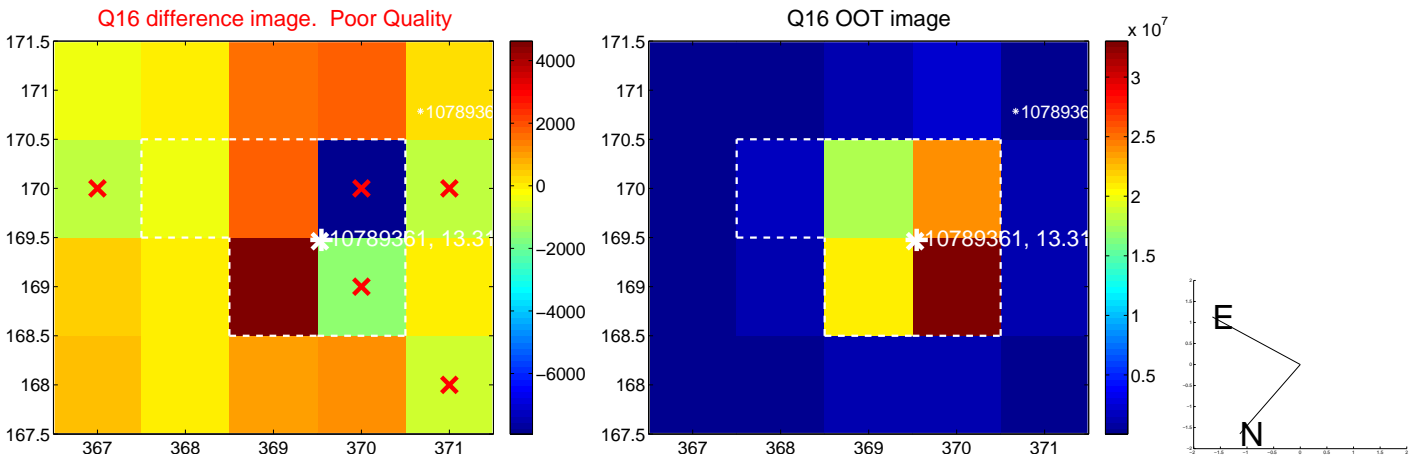
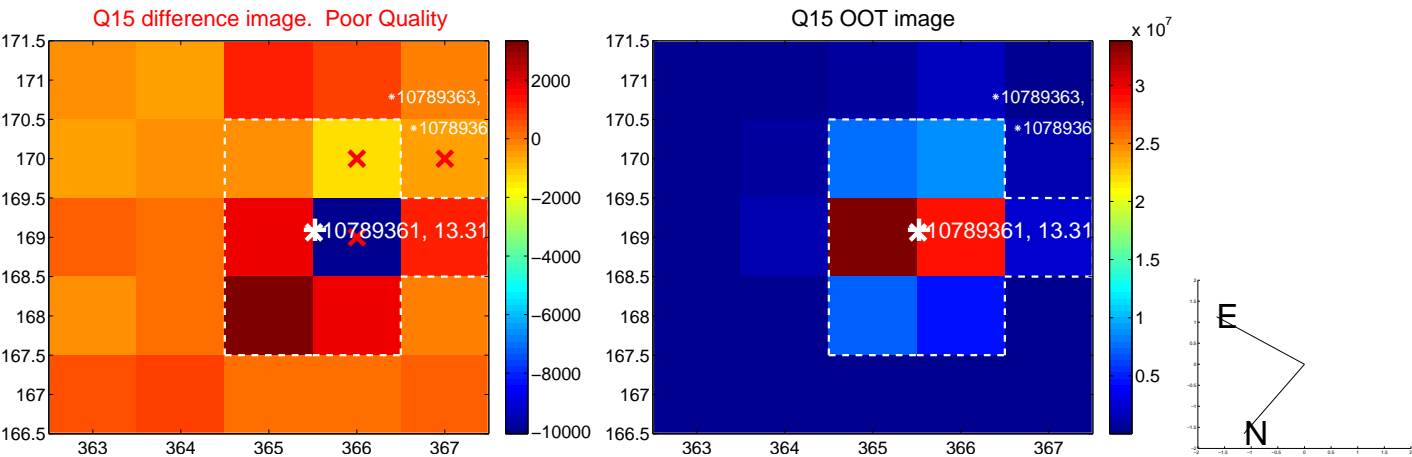
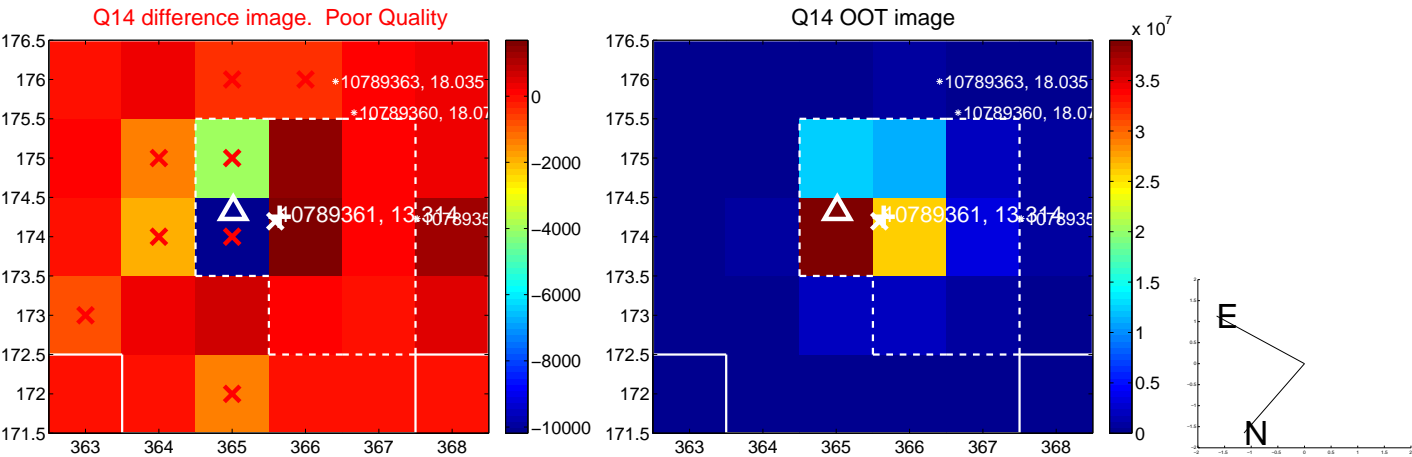
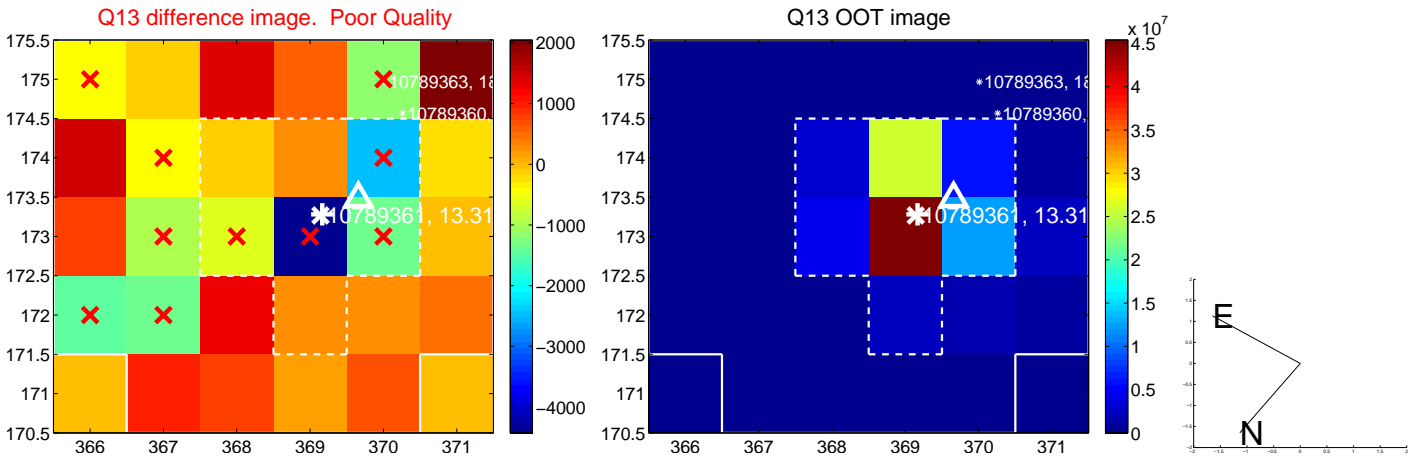
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



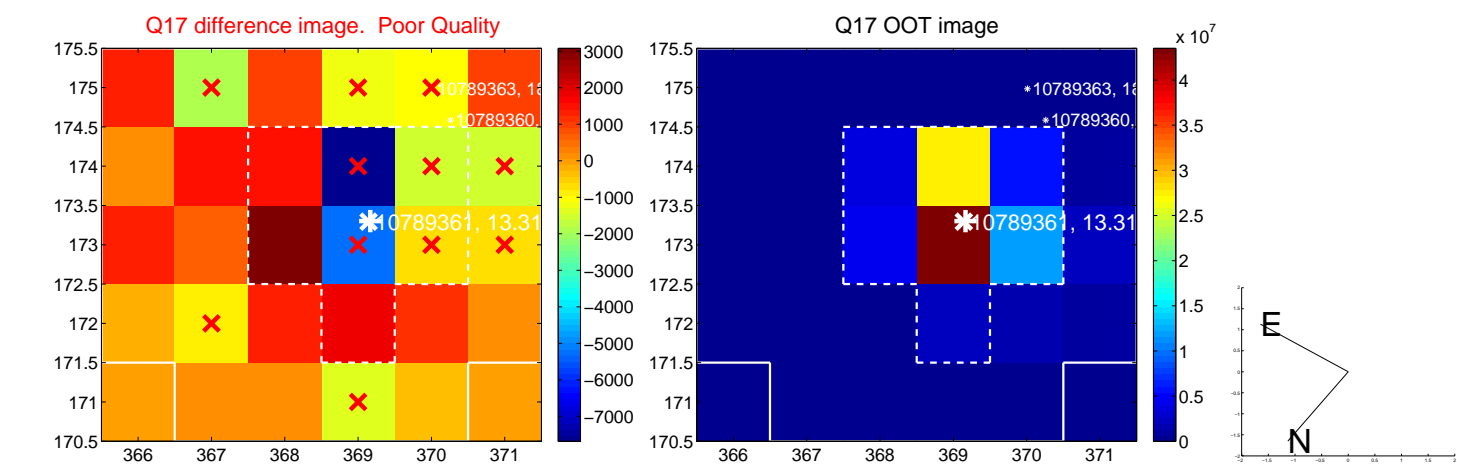
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



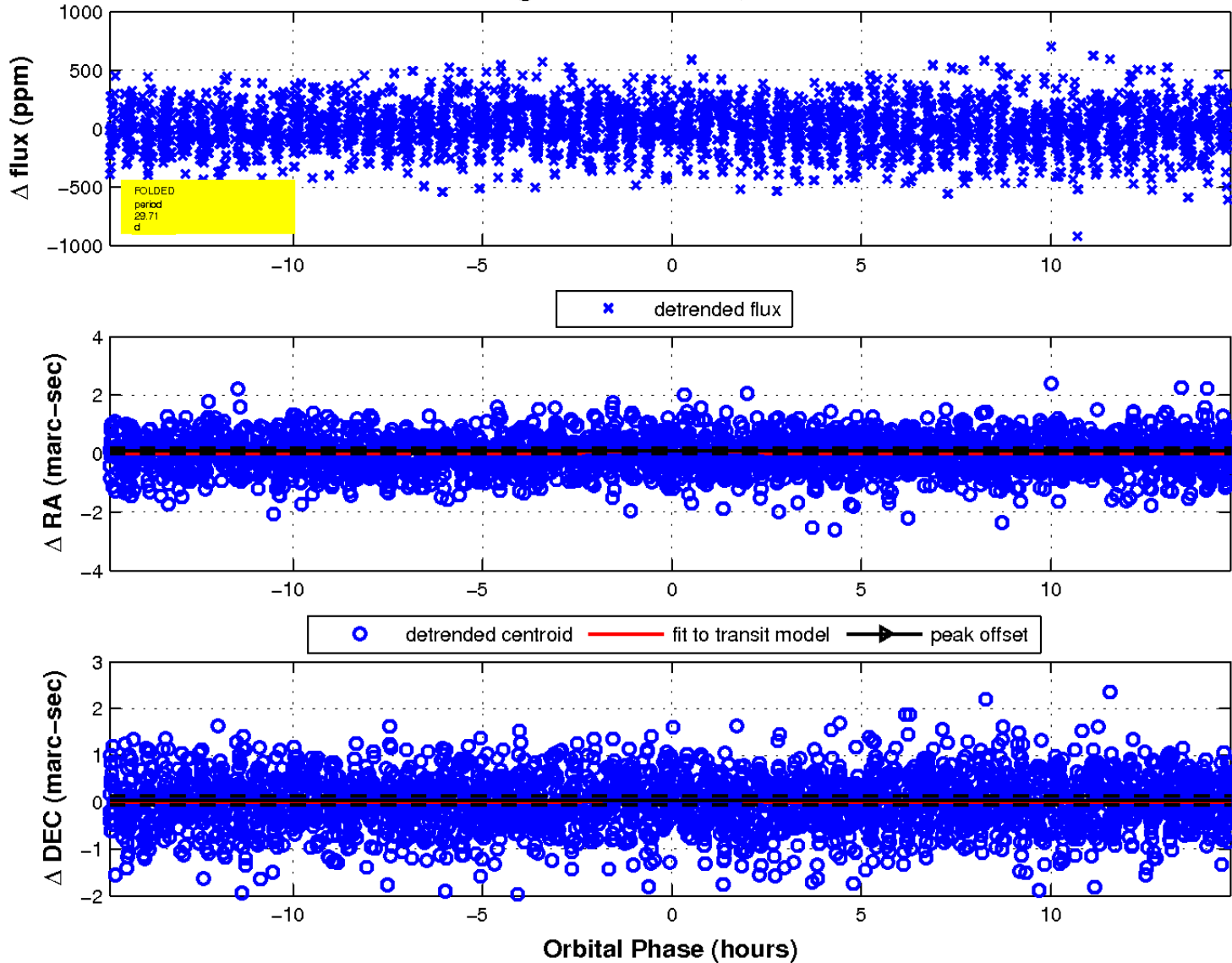
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 8 of 8



UKIRT Image

Declination

