

KIC 008590553

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})
008590553-01	OBS	No	0.501243	131.911281	10.7	1.688	10.0	7.7	2.13	7502	0.81	59218.64
008590553-02	OBS	No	0.631856	131.607169	9.8	6.913	7.9	6.8	2.13	7502	0.74	43487.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008590553-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008590553-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

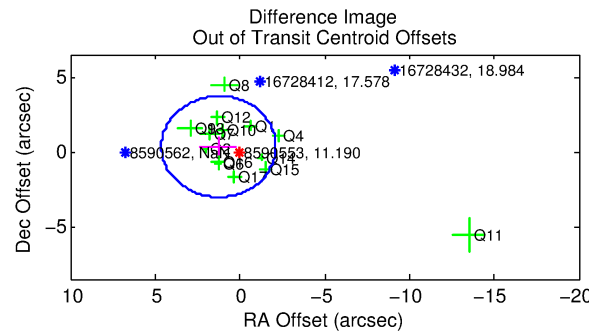
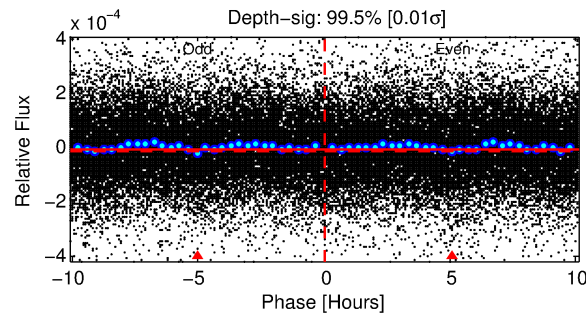
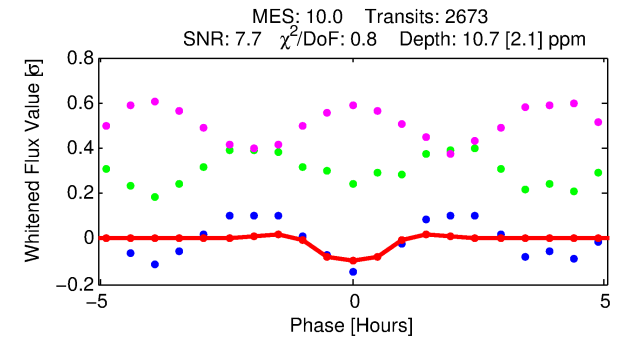
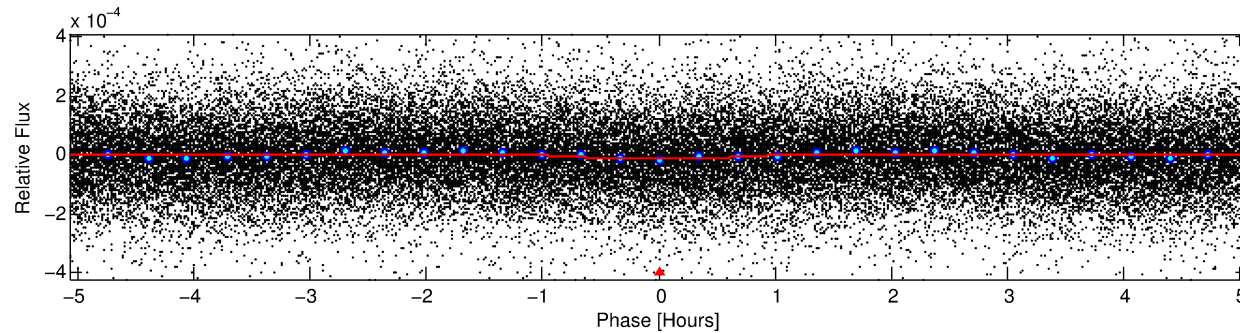
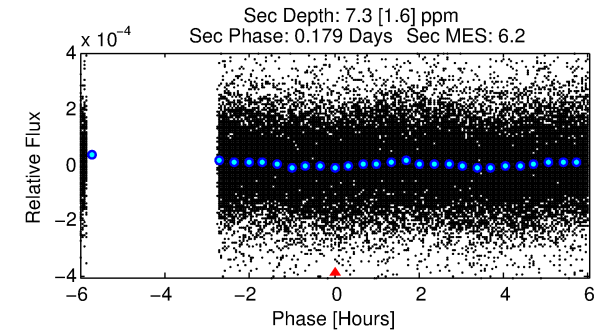
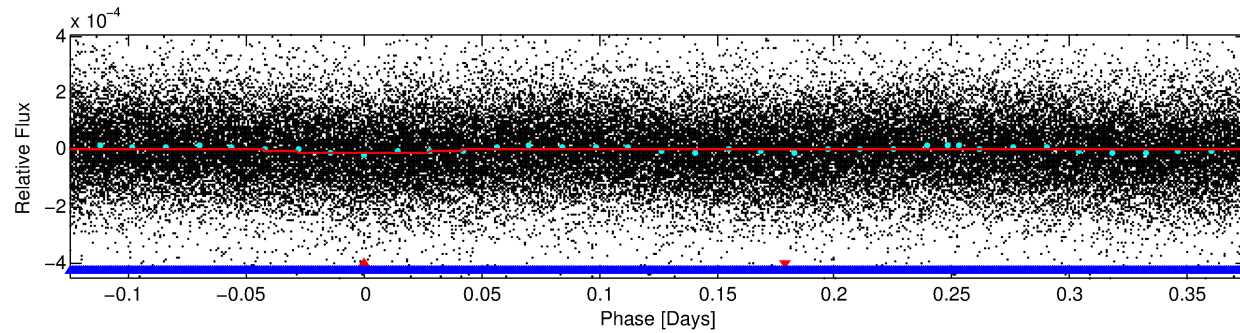
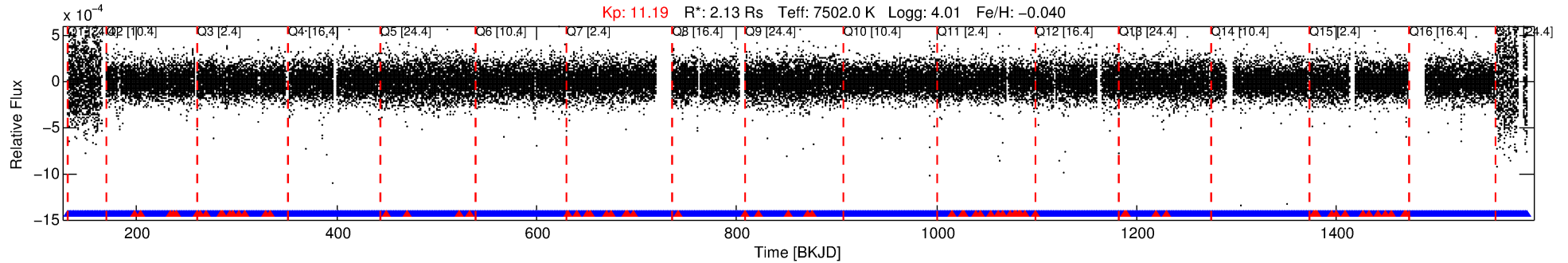
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008590553-01

No Significant Match Found

DV One-Page Summary

KIC: 8590553 Candidate: 1 of 2 Period: 0.501 d



DV Fit Results:

Period = 0.50124 [0.00002] d
Epoch = 131.9113 [0.0029] BKJD
Rp/R* = 0.0035 [0.0007]
a/R* = 1.38 [0.79]
b = 0.90 [0.26]
Seff = 59218.64 [22583.76]
Teq = 3978 [379] K
Rp = 0.81 [0.27] Re
a = 0.0147 [0.0033] AU
Ag = 1.35 [0.78] [0.44σ]
Teffp = 6624 [823] K [2.92σ]

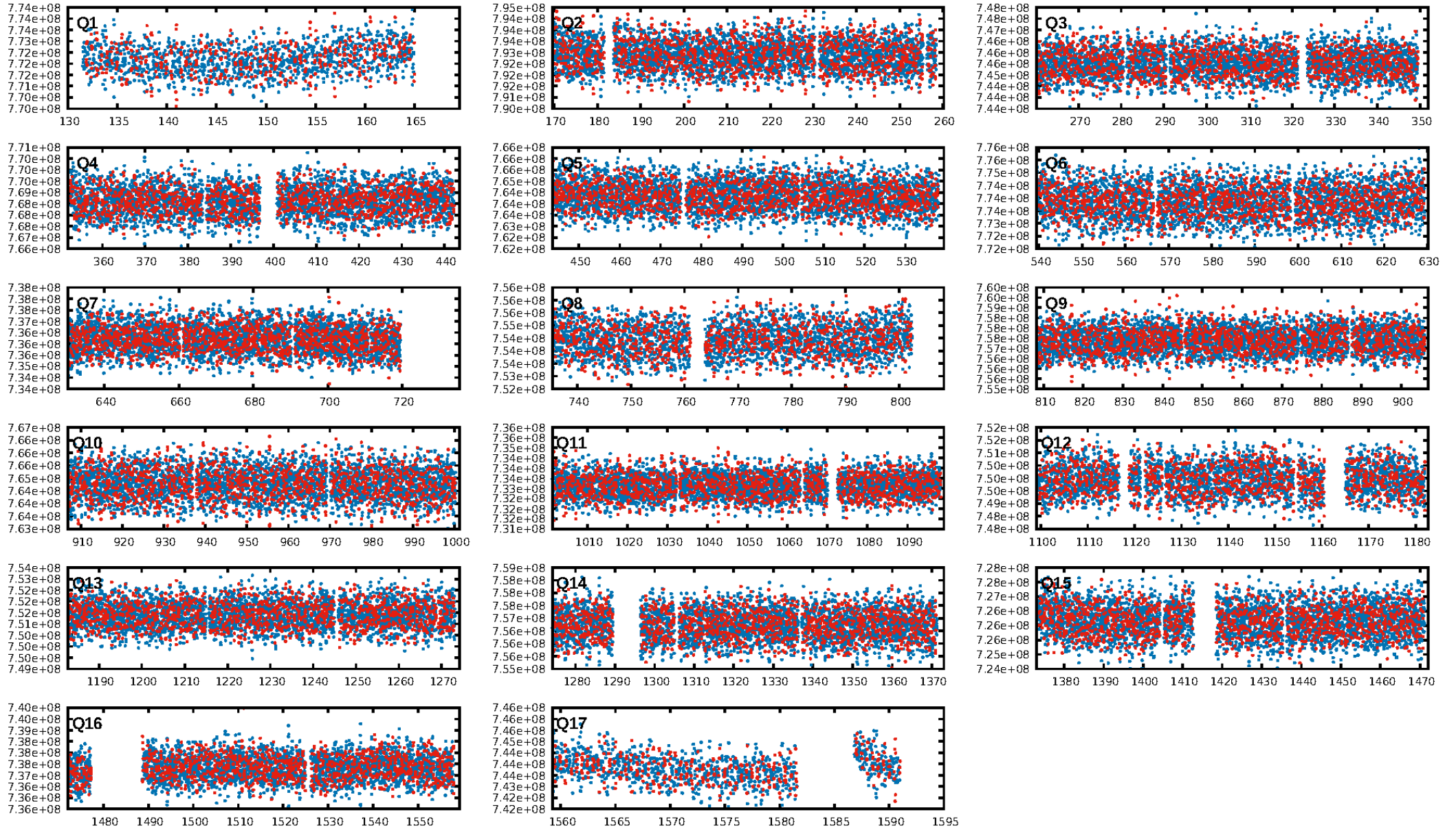
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 34.0% [0.44σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [2484/2552]
GhostDiagnostic-chr: 2.633
Centroid-sig: 36.3%
Centroid-so: 1.092 arcsec [1.24σ]
OotOffset-rm: 1.293 arcsec [1.15σ]
KicOffset-rm: 0.871 arcsec [0.79σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 0.40 [6/15]
DiffImageOverlap-fno: 0.00 [0/17]

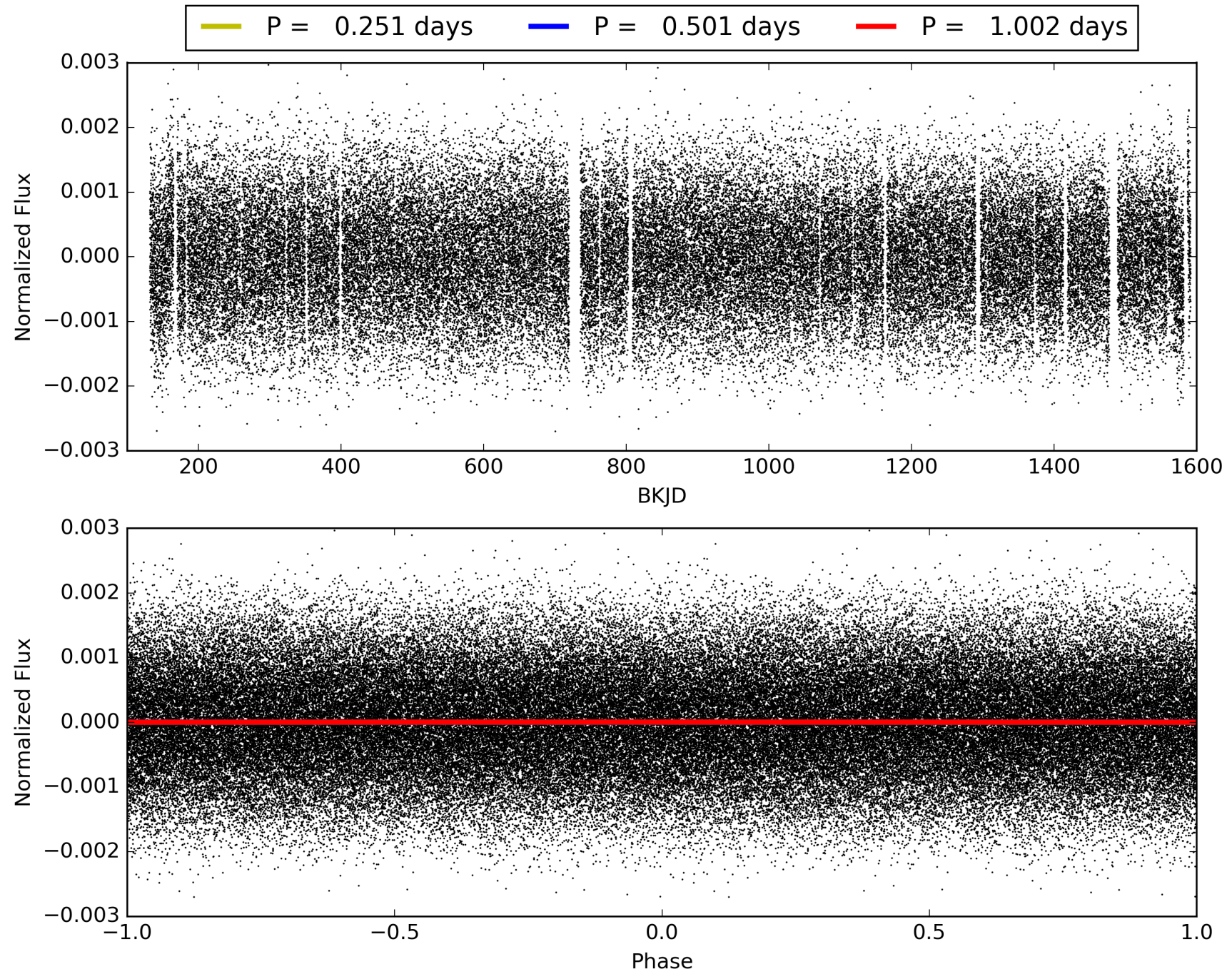
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:12:29 Z

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

TCE 008590553-01, PDC Light Curves

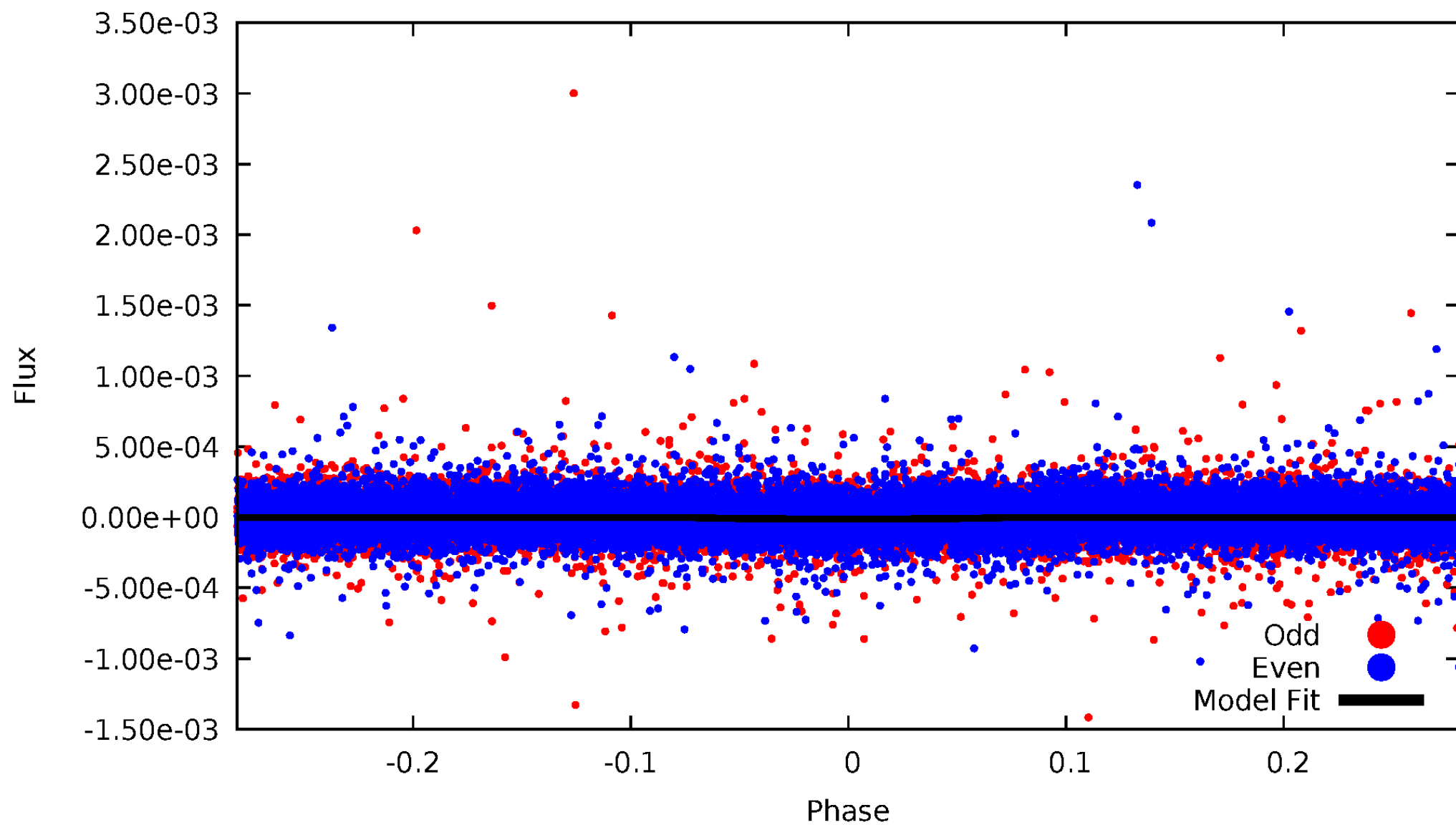


TCE 008590553-01



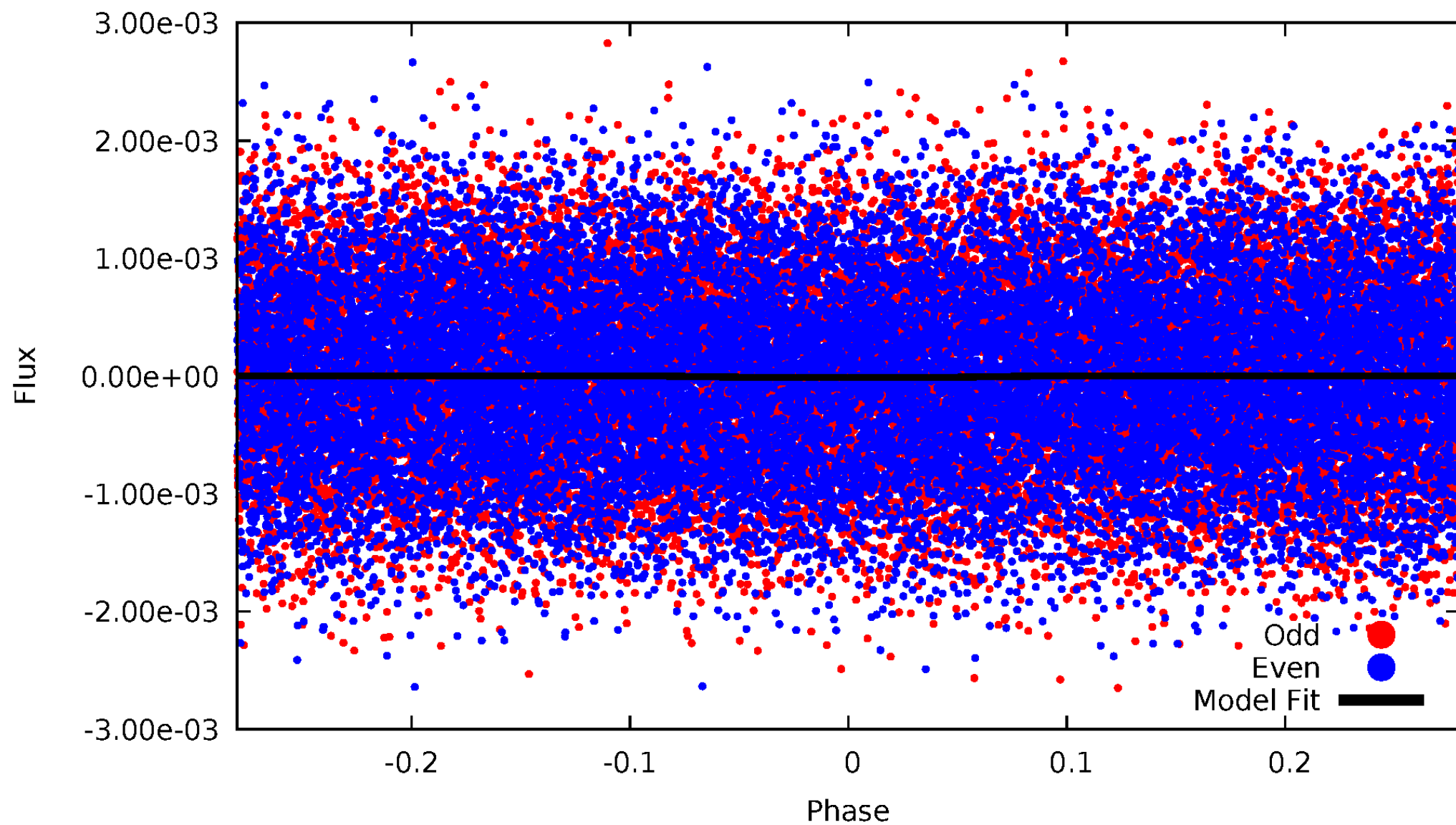
DV Odd/Even

TCE 008590553-01



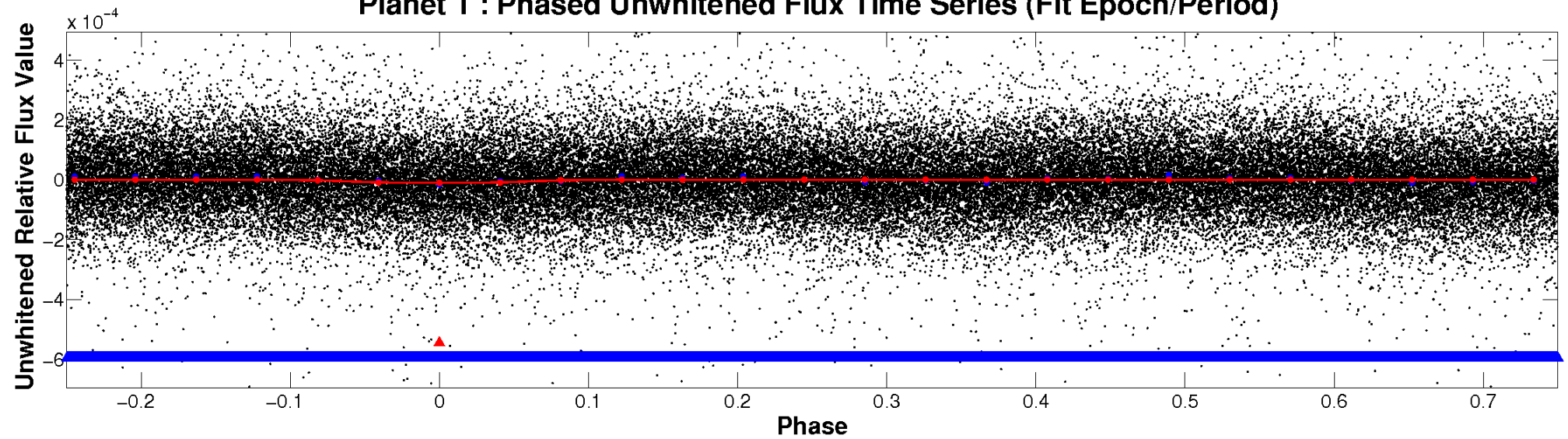
ALT Odd/Even

TCE 008590553-01

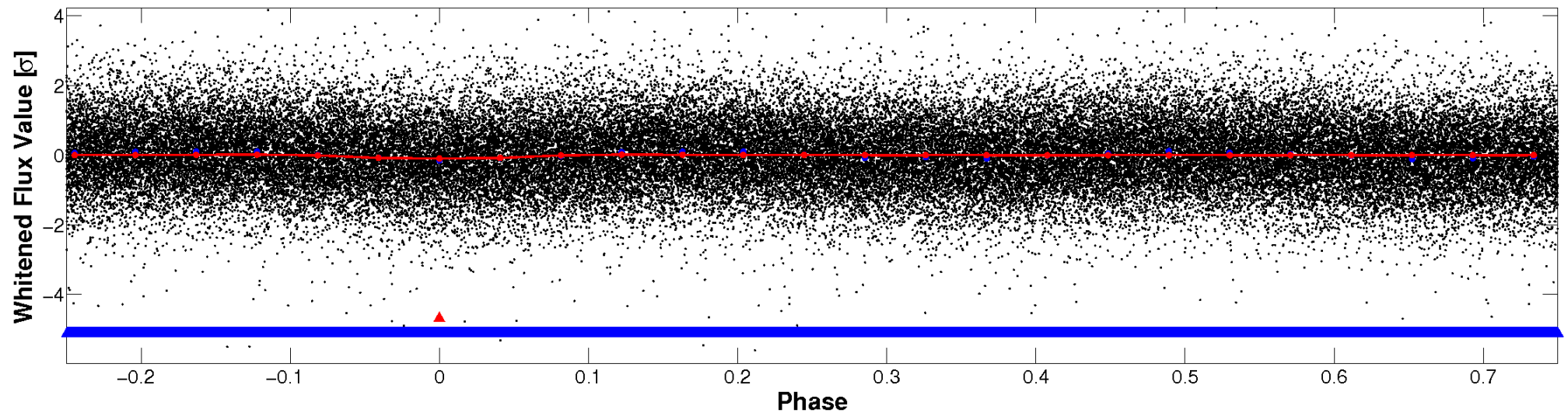


Non-Whitened Vs. Whitened Light Curve

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

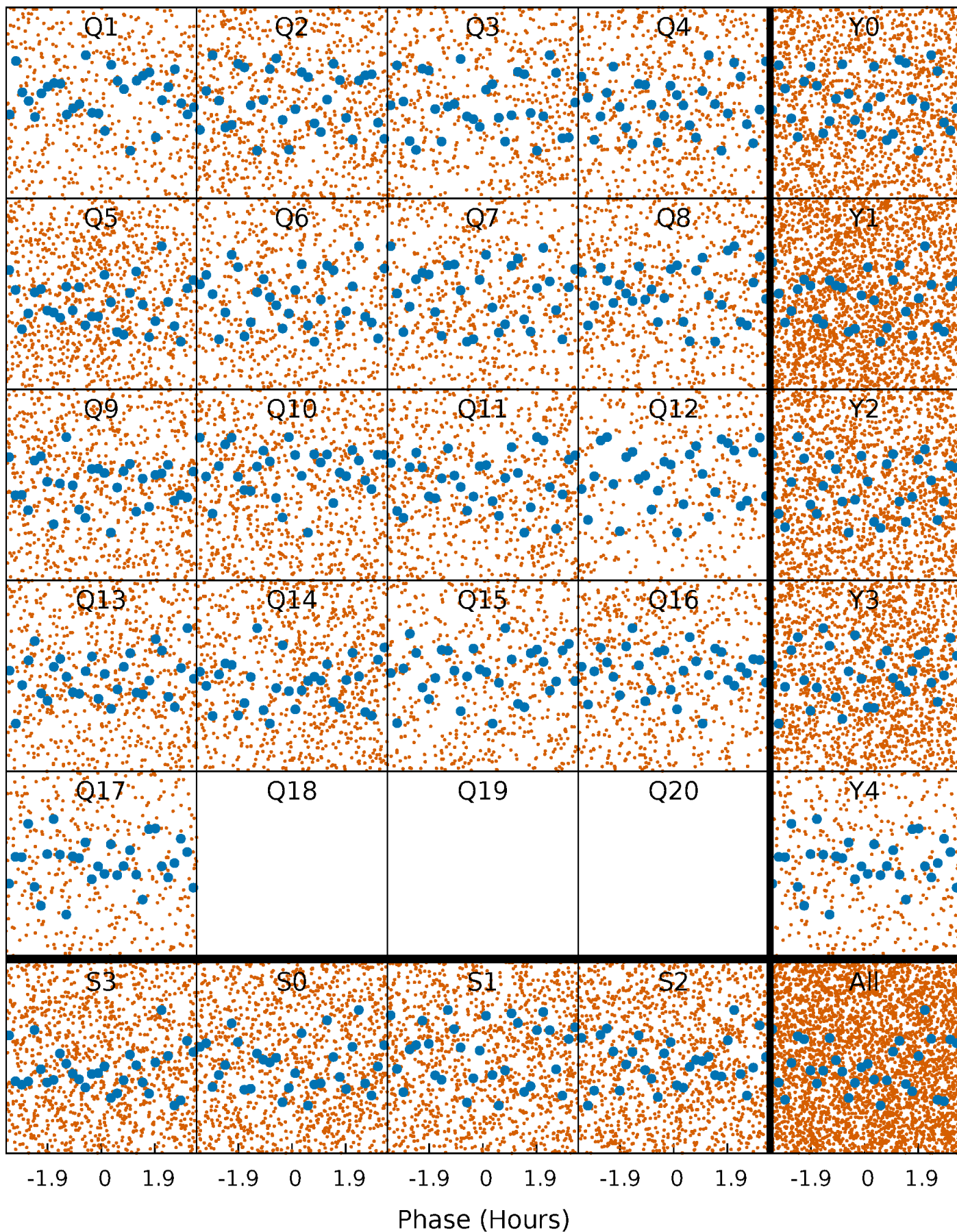


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



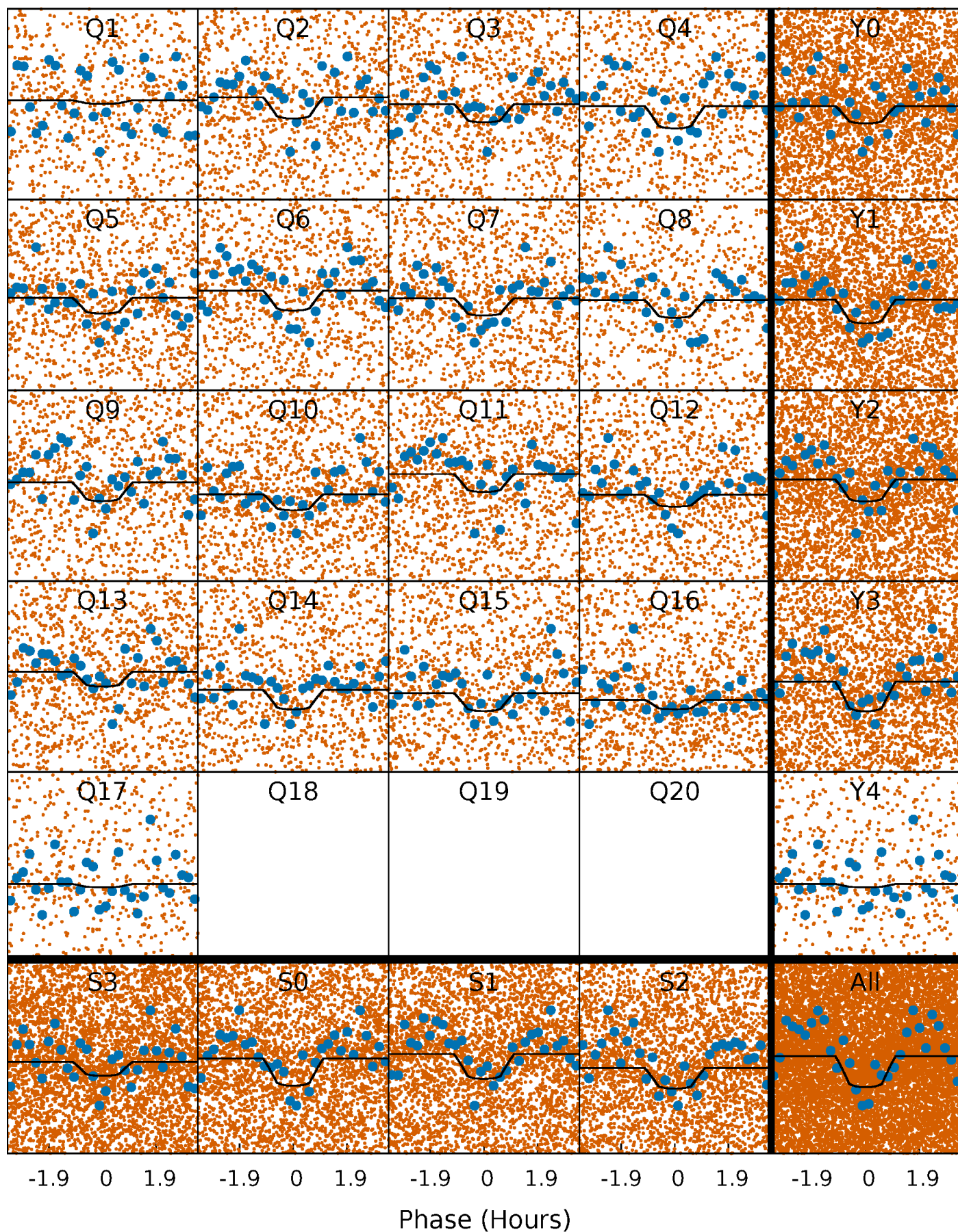
PDC Quarter-Phased Transit Curves

TCE 008590553-01 P= 0.501243 Days $T_0=131.911281$ (BKJD)



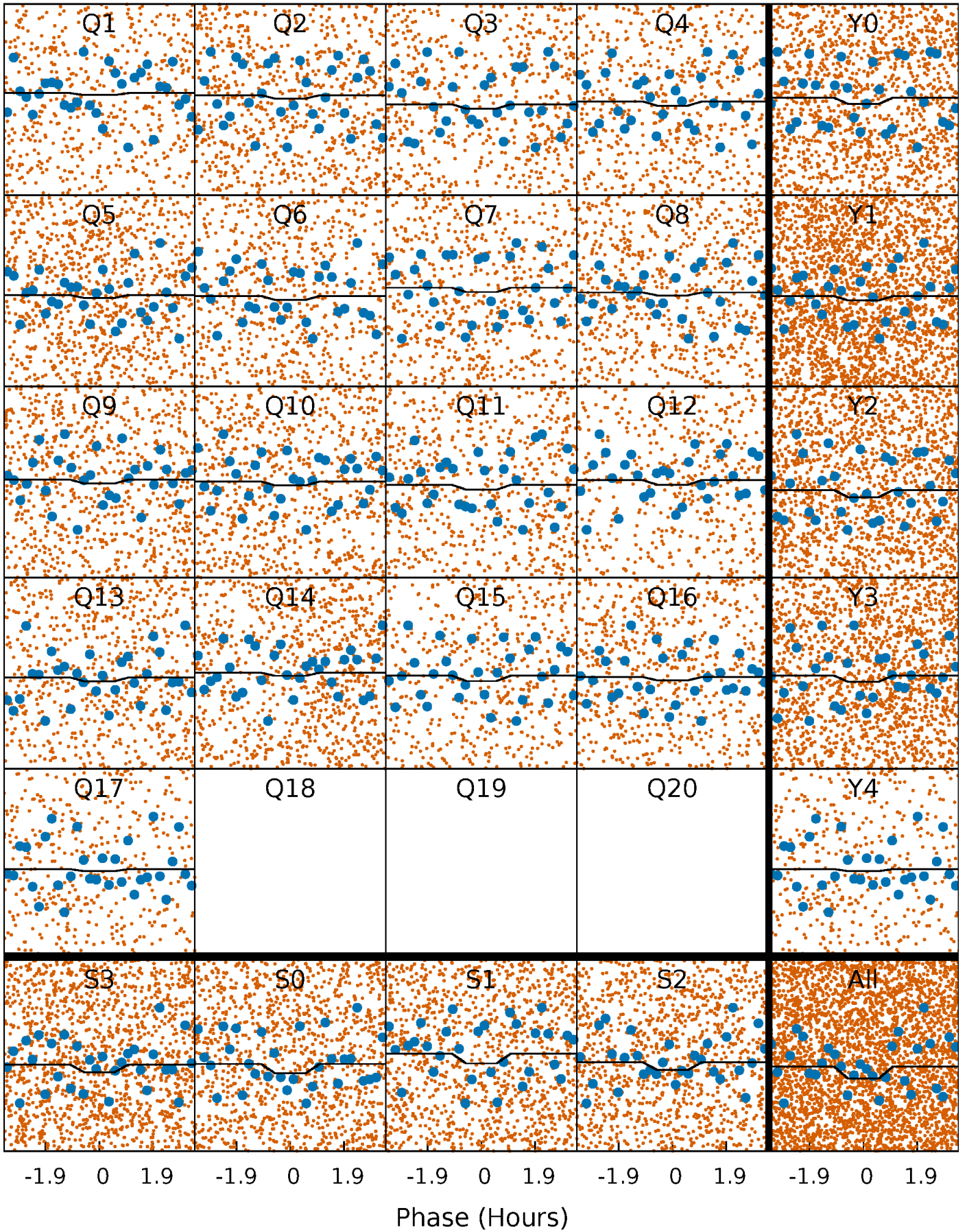
DV Quarter-Phased Transit Curves

TCE 008590553-01 P= 0.501243 Days $T_0=131.911281$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

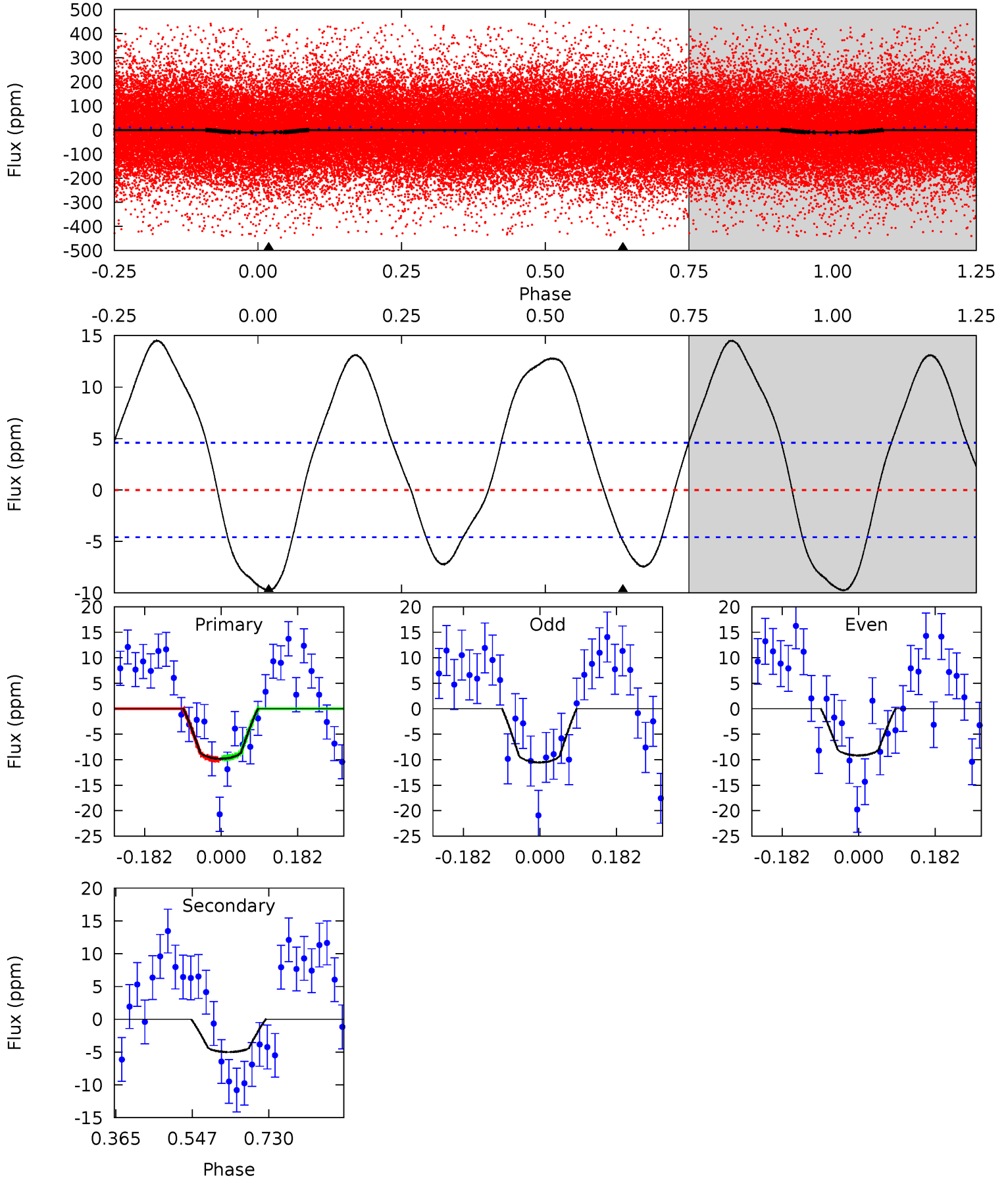
TCE 008590553-01 P= 0.501243 Days $T_0=131.911206$ (BKJD)



DV Model-Shift Uniqueness Test

008590553-01, P = 0.501243 Days, E = 131.410038 Days

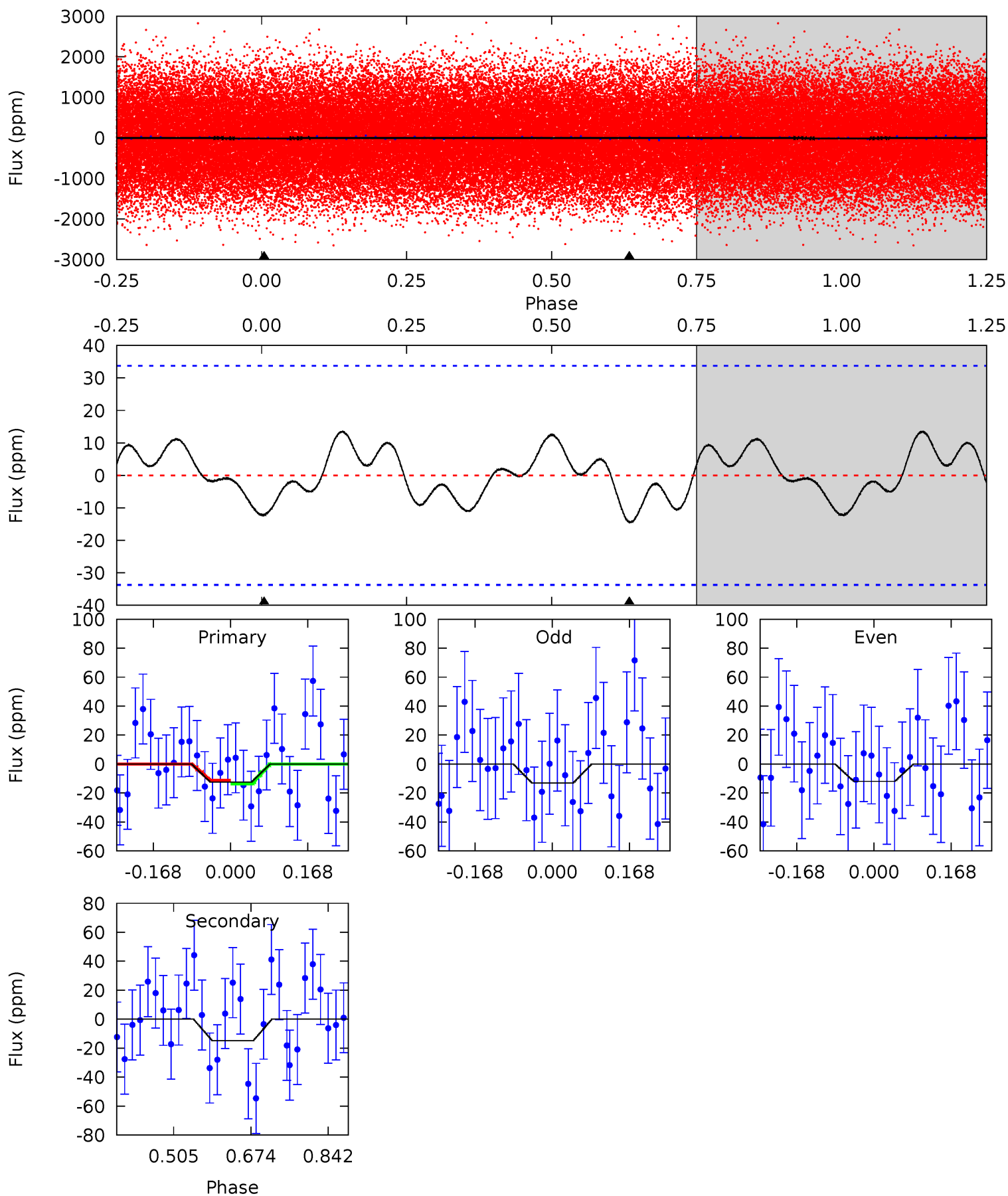
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.48	4.83	0	0	4.44	1.33	6.09	9.48	9.48	4.83	4.83	0.66	0.90	0.60	0.13



Alt Model-Shift Uniqueness Test

008590553-01, P = 0.501243 Days, E = 131.409963 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.65	1.95	0	0	4.45	1.38	0.78	1.65	1.65	1.95	1.95	0.08	0.90	0.48	0.17



Stellar Parameters For KIC 008590553

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7502^{+235}_{-314}	$4.012^{+0.193}_{-0.158}$	$-0.040^{+0.200}_{-0.350}$	$2.130^{+0.550}_{-0.550}$	$1.699^{+0.200}_{-0.275}$	$0.248^{+0.272}_{-0.114}$
	+3%/-4%	+5%/-4%	+500%/-875%	+26%/-26%	+12%/-16%	+110%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008590553-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 1	$0.79^{+0.20}_{-0.18}$	5518^{+391}_{-410}	5415^{+907}_{-821}	$0.954^{+0.712}_{-0.375}$
Alt.	-15 ± 8	$0.80^{+0.21}_{-0.21}$	5529^{+395}_{-416}	7654^{+1968}_{-1842}	$2.754^{+2.936}_{-1.568}$

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

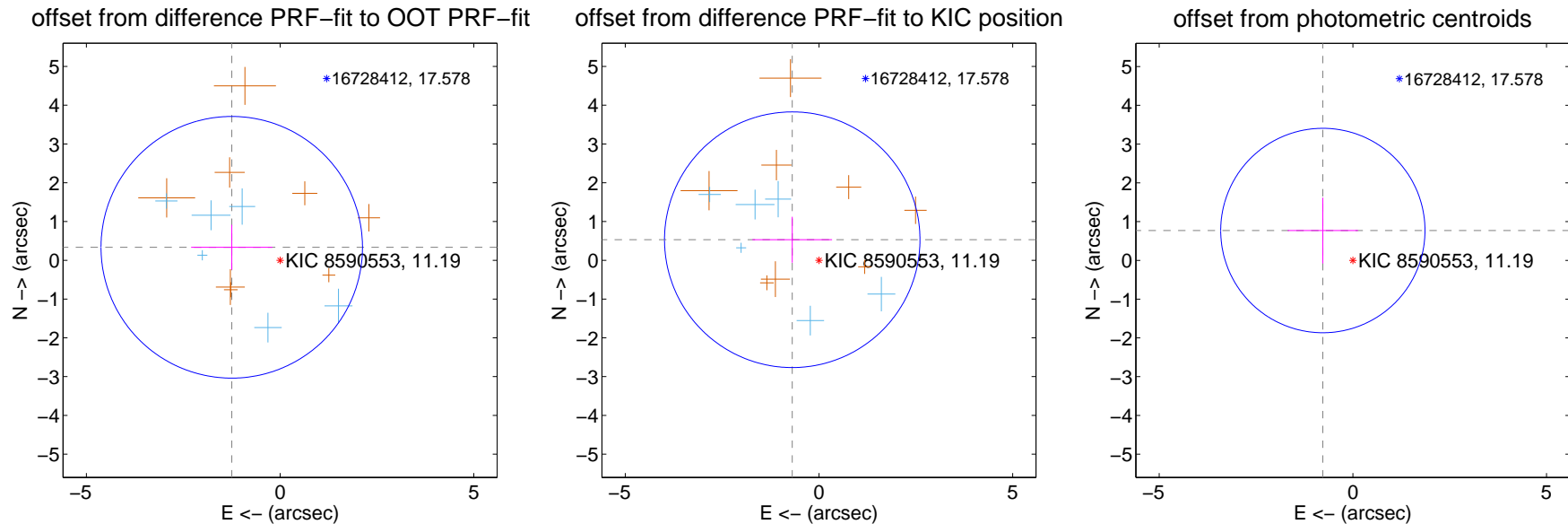
DV Centroid Data

Supplemental centroid analysis for 008590553-01. **Kepler magnitude: 11.19.** Transit SNR 7.65

There are 6 quarters with good PRF difference image offsets

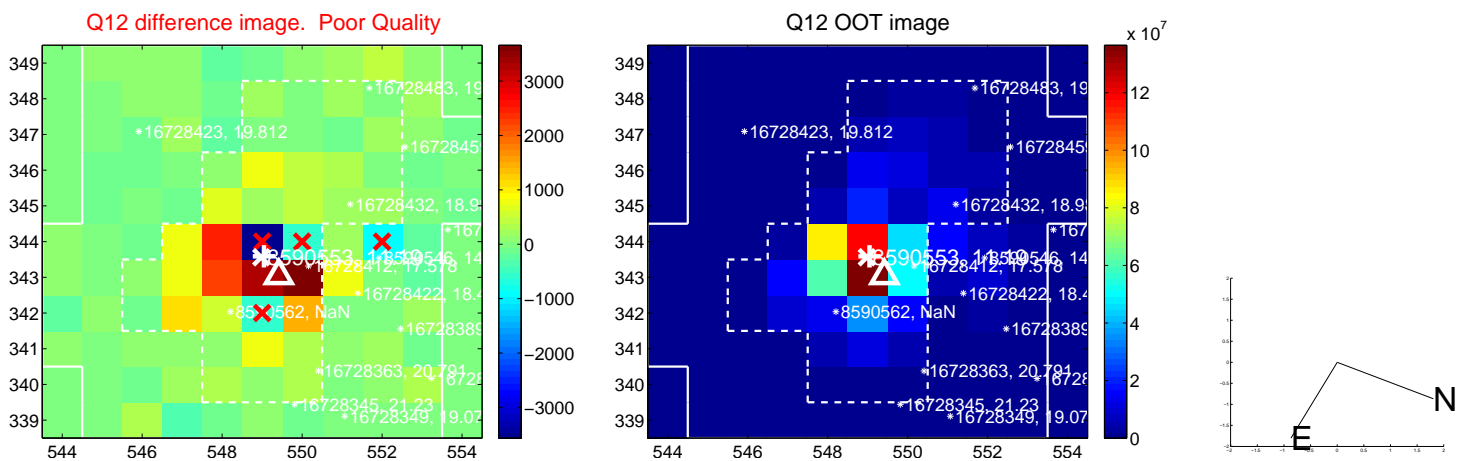
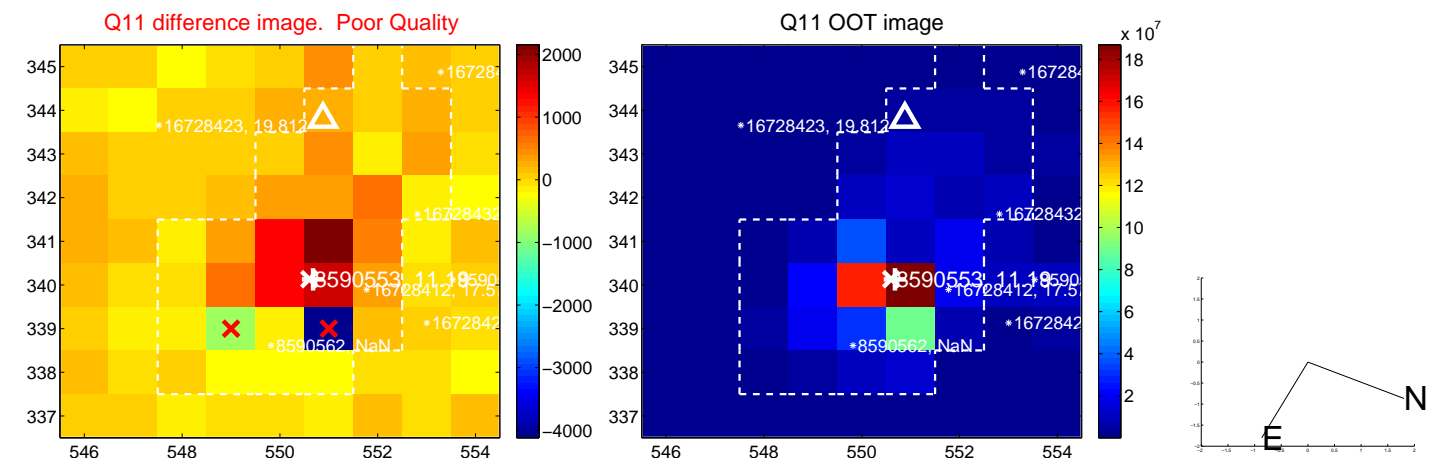
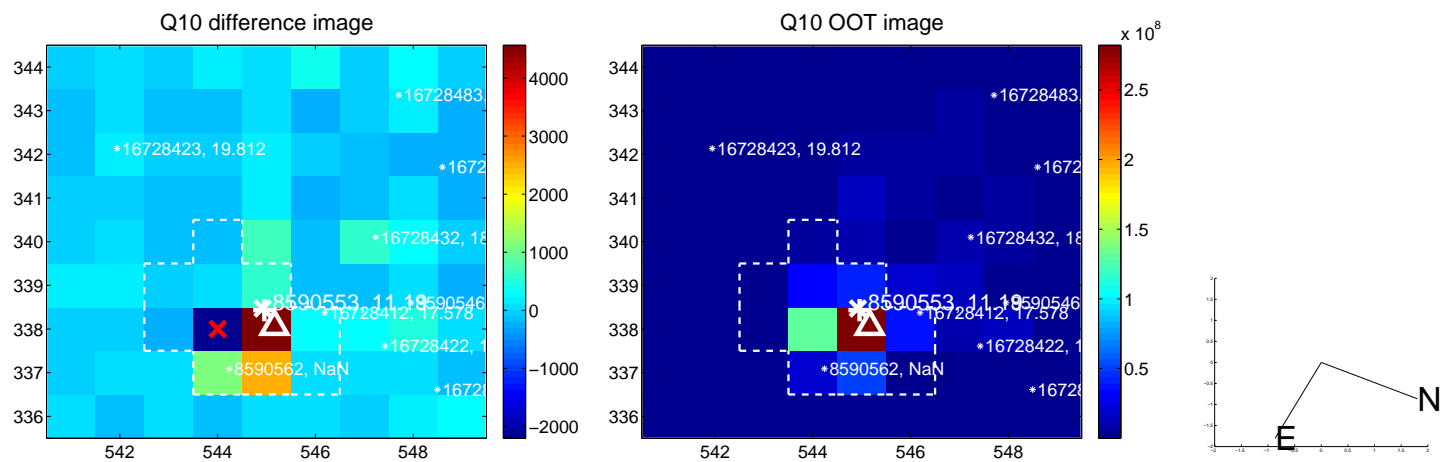
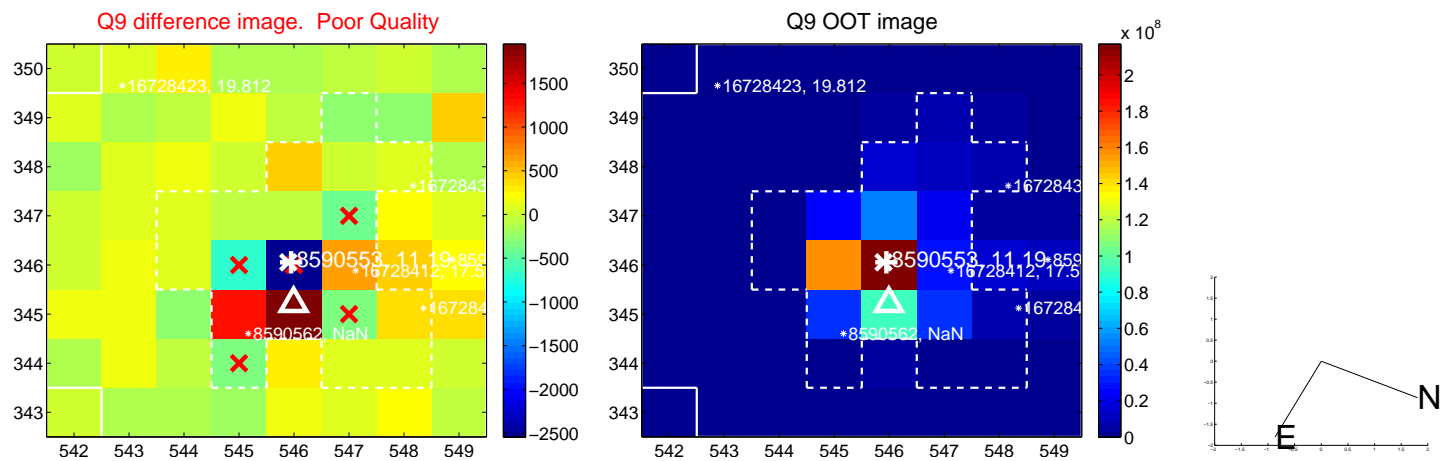
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.293 ± 1.125	1.15	1.248 ± 1.049	0.335 ± 0.581
PRF-fit source offset from KIC position	0.871 ± 1.099	0.79	0.690 ± 1.029	0.530 ± 0.593
photometric centroid source offset	1.09 ± 0.88	1.24	0.77 ± 0.91	0.77 ± 0.85

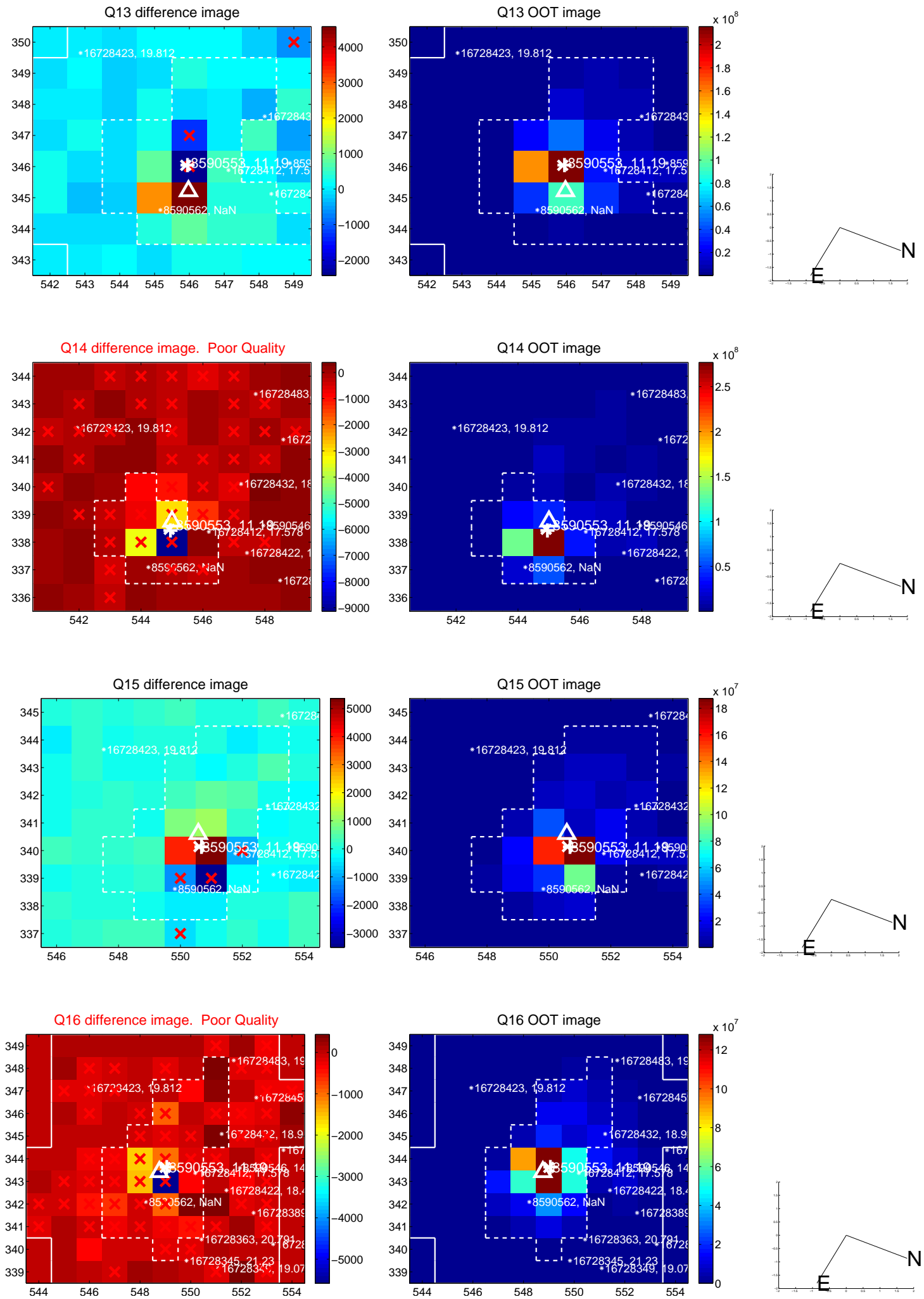


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

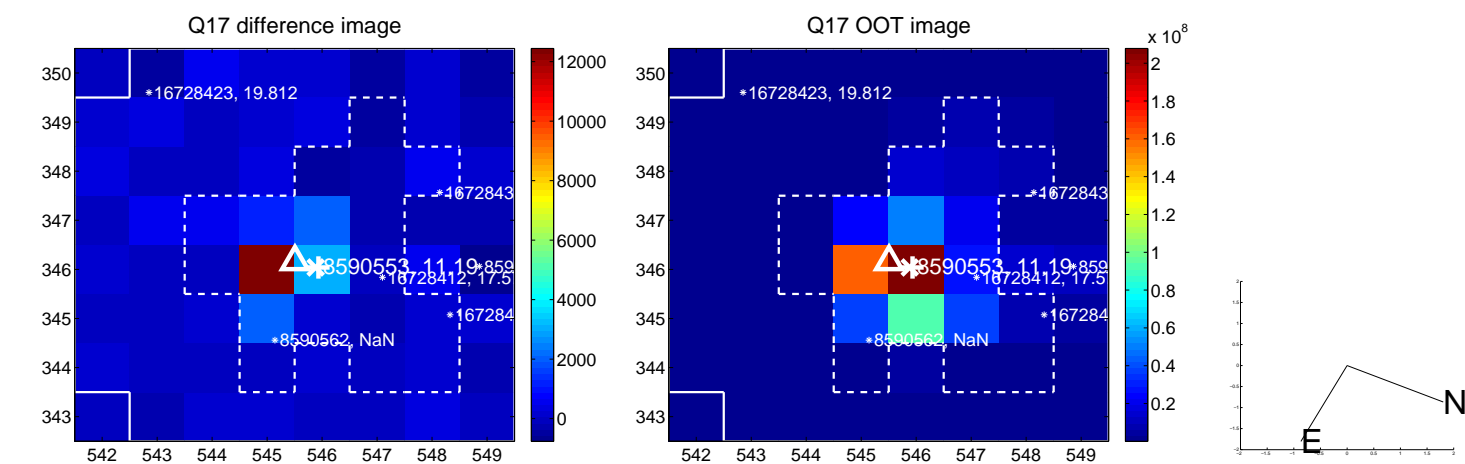
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



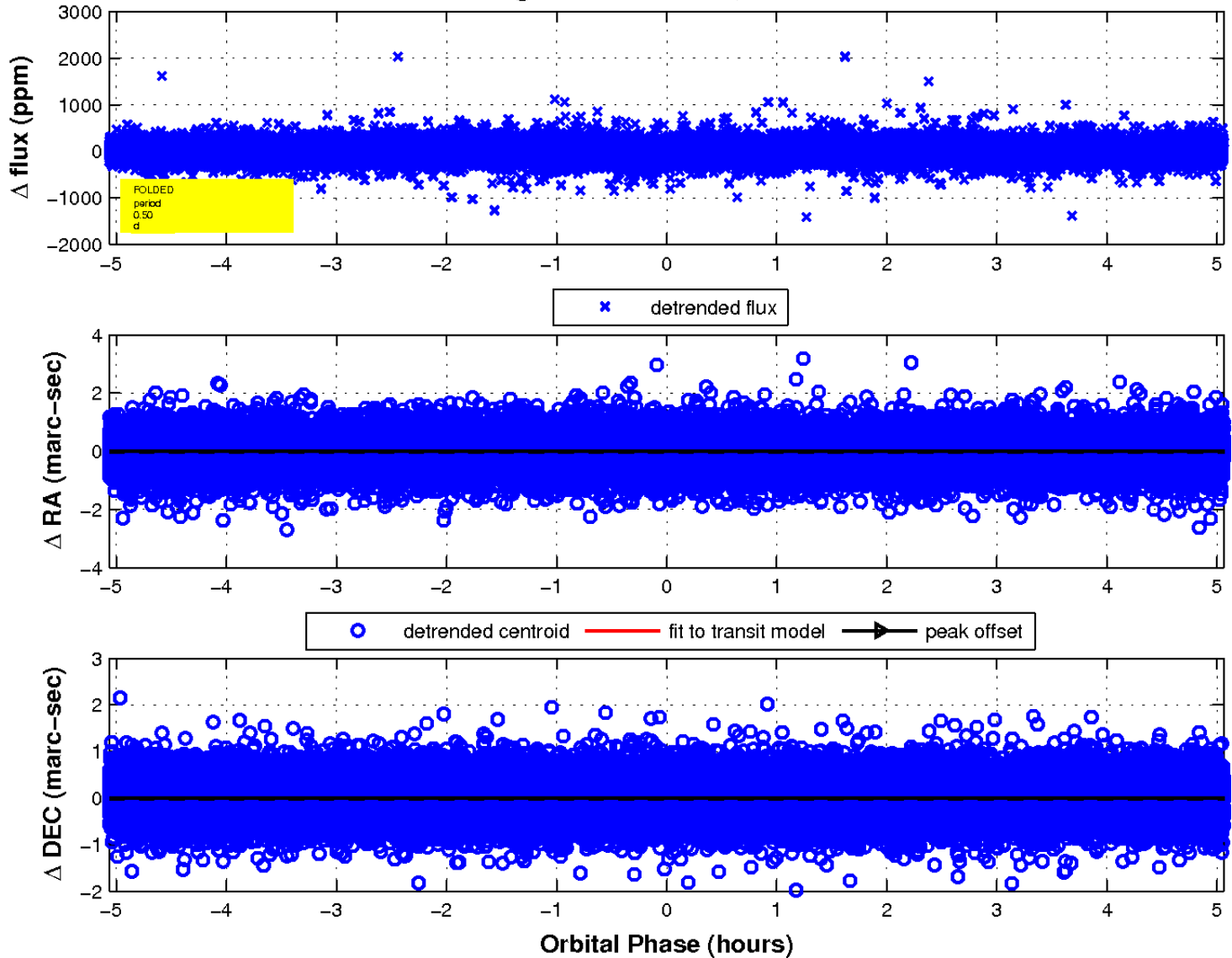
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

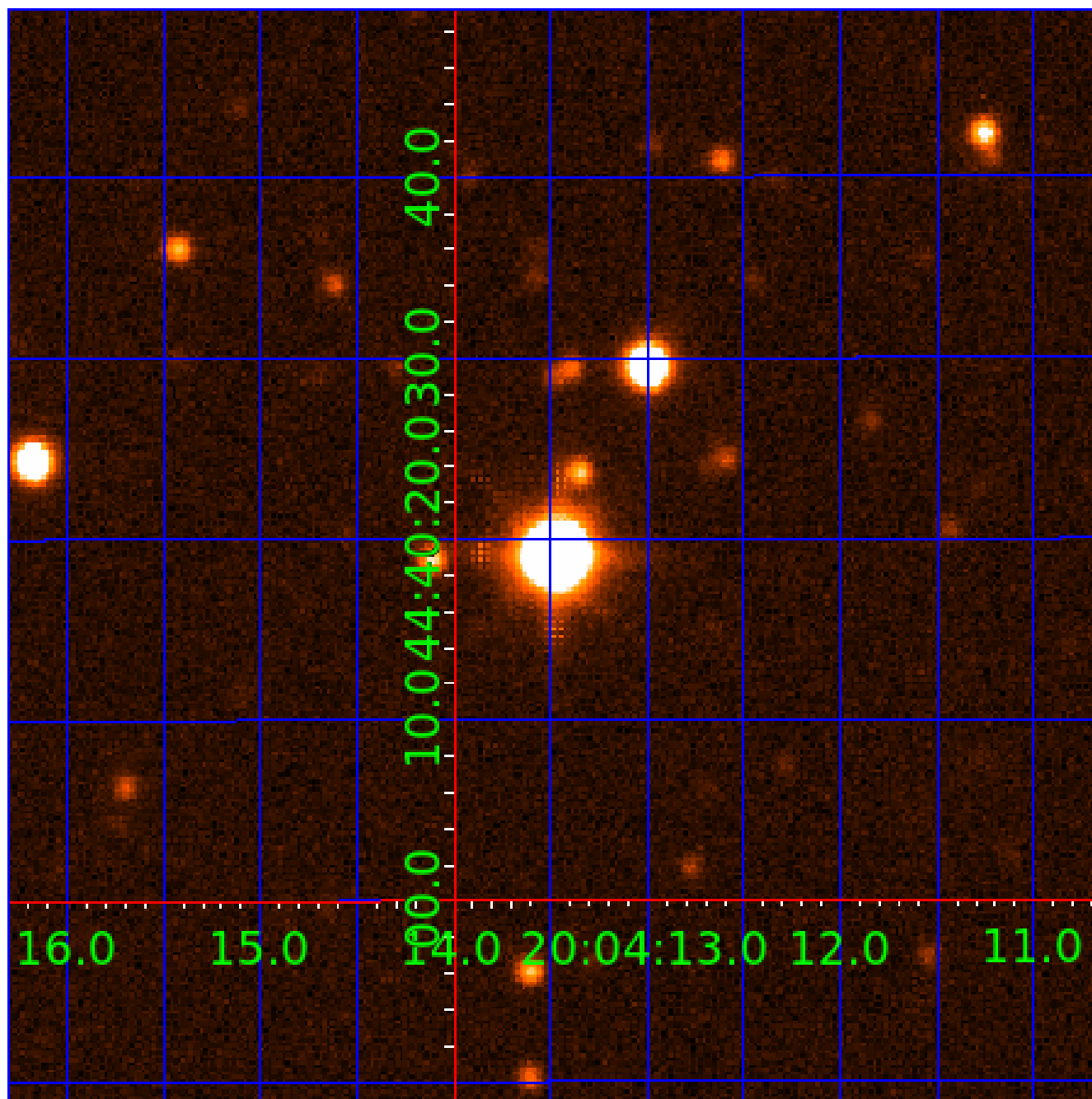


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008590553

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})
008590553-01	OBS	No	0.501243	131.911281	10.7	1.688	10.0	7.7	2.13	7502	0.81	59218.64
008590553-02	OBS	No	0.631856	131.607169	9.8	6.913	7.9	6.8	2.13	7502	0.74	43487.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008590553-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008590553-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

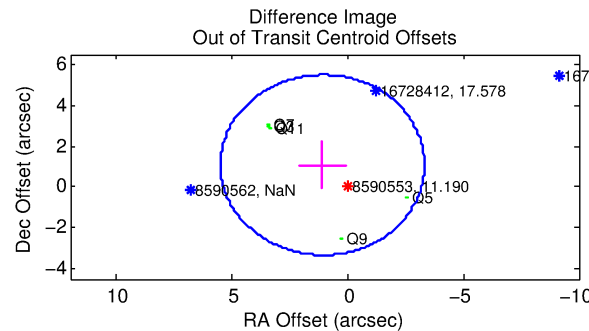
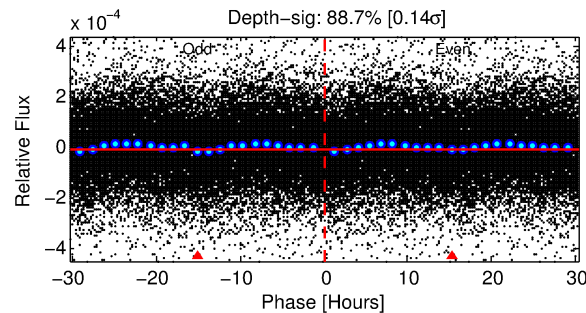
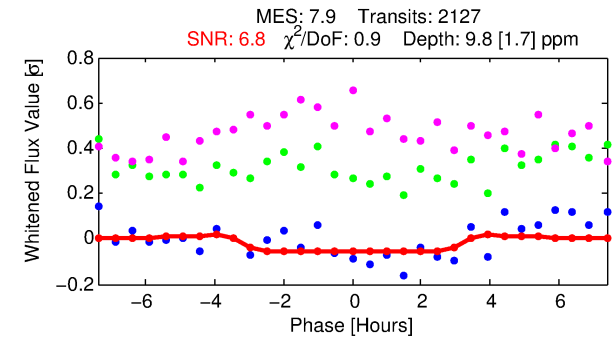
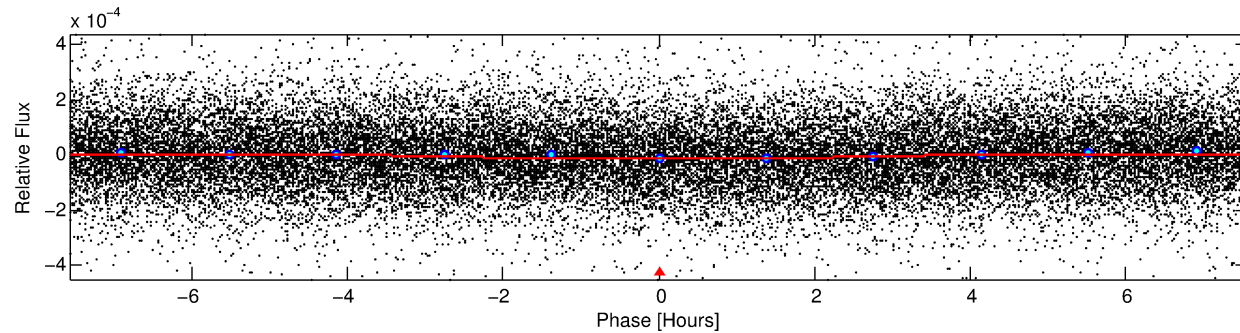
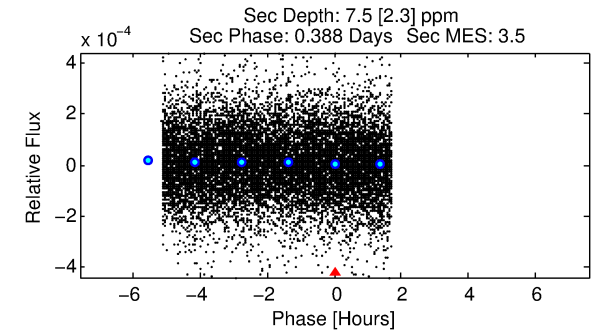
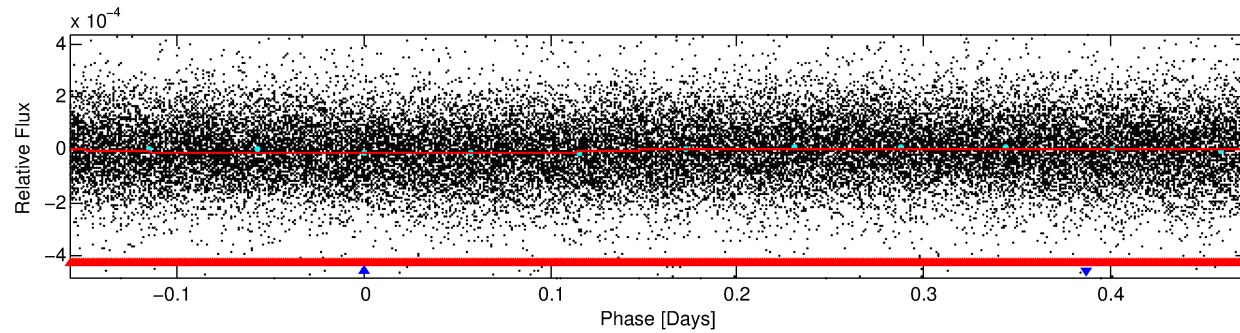
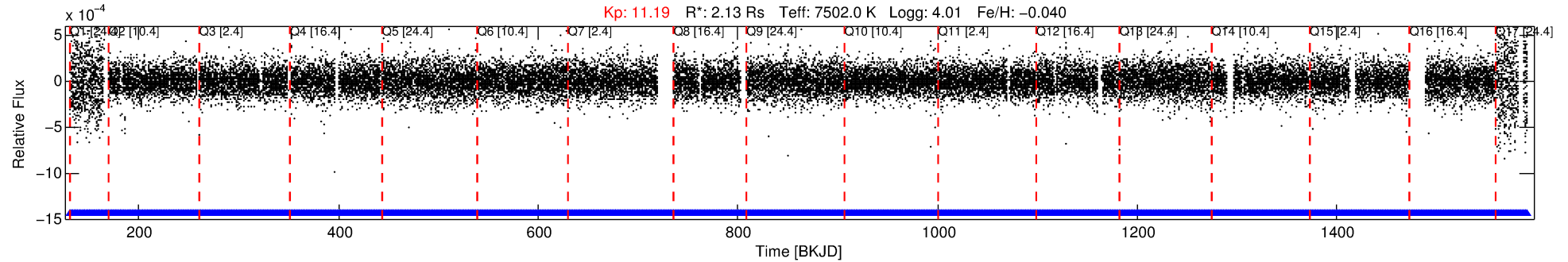
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008590553-02

No Significant Match Found

DV One-Page Summary

KIC: 8590553 Candidate: 2 of 2 Period: 0.632 d



DV Fit Results:

Period = 0.63186 [0.00002] d
Epoch = 131.6072 [0.0079] BKJD
Rp/R* = 0.0032 [0.0026]
a/R* = 1.01 [0.06]
b = 0.83 [2.03]
Seff = 43487.50 [16584.49]
Teq = 3682 [351] K
Rp = 0.74 [0.63] Re
a = 0.0172 [0.0039] AU
Ag = 2.21 [3.70] [0.33σ]
Teffp = 6939 [2866] K [1.13σ]

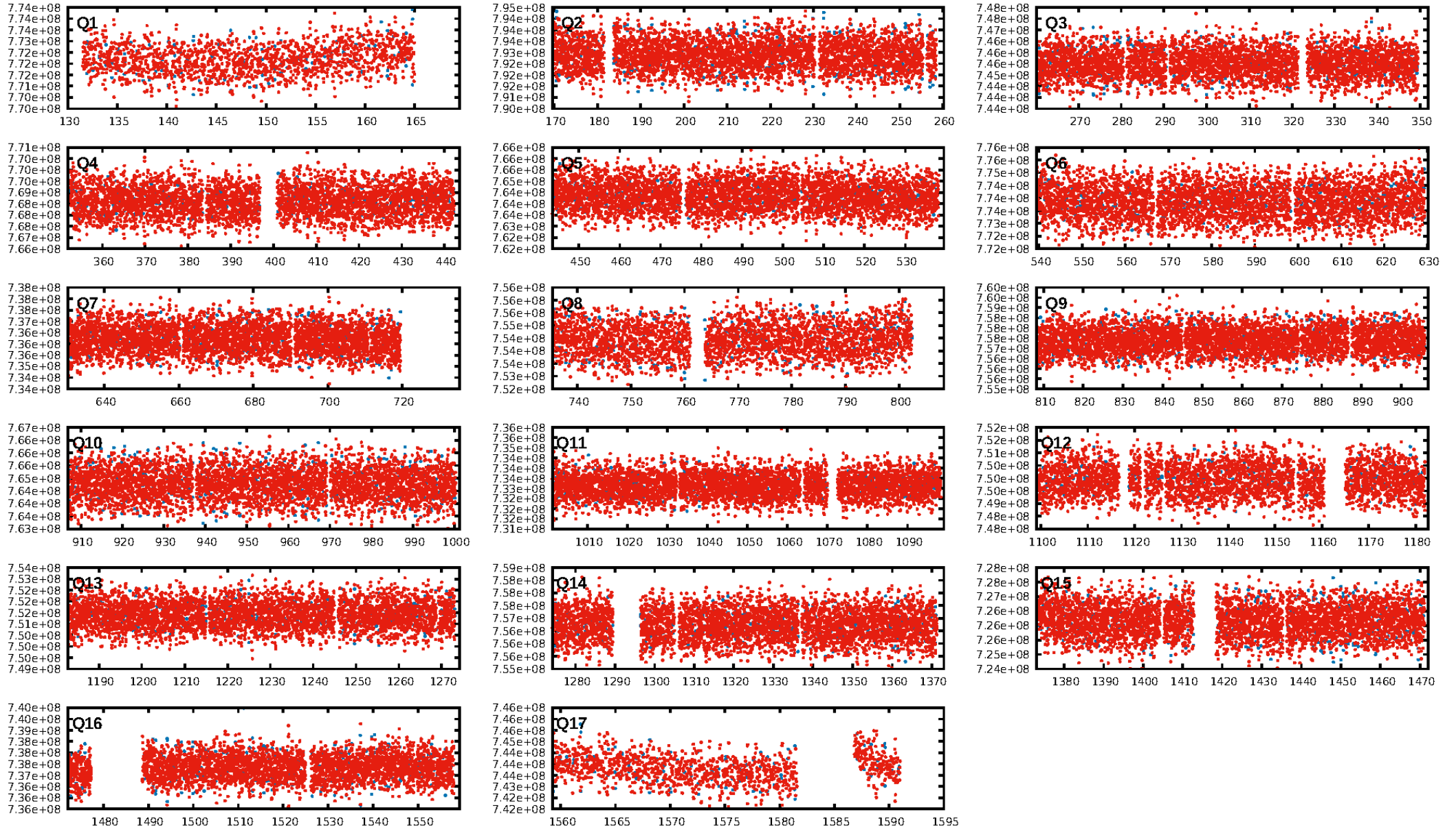
DV Diagnostic Results:

ShortPeriod-sig: 34.0% [0.44σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2032/2032]
GhostDiagnostic-chr: 0.5343
Centroid-sig: 14.6%
Centroid-so: 0.347 arcsec [0.52σ]
OotOffset-rm: 1.537 arcsec [1.04σ]
OotOffset-st: 0/3/0/2 [5]
KicOffset-rm: 1.645 arcsec [1.03σ]
KicOffset-st: 0/3/0/2 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.00 [0/17]

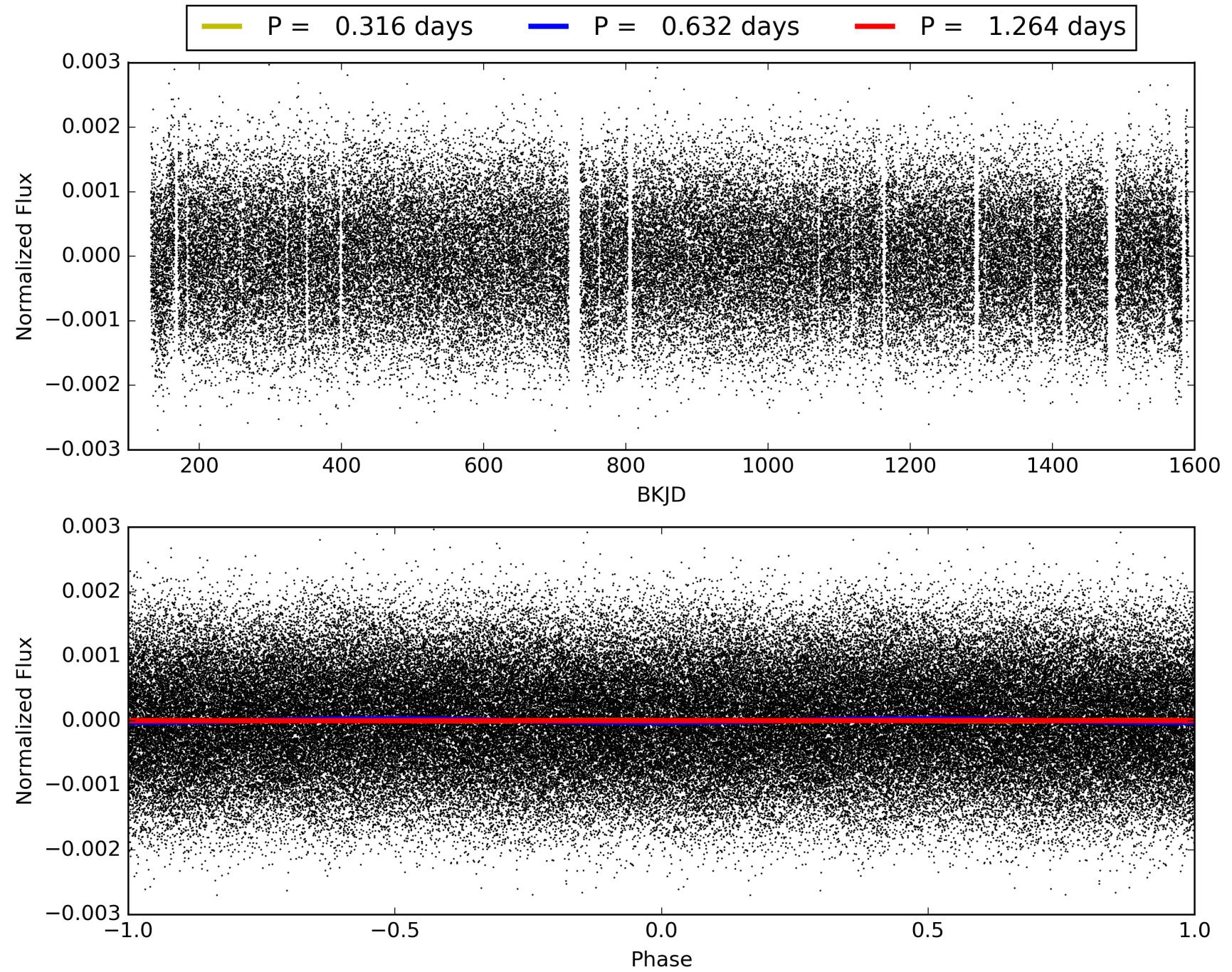
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:12:45 Z

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

TCE 008590553-02, PDC Light Curves

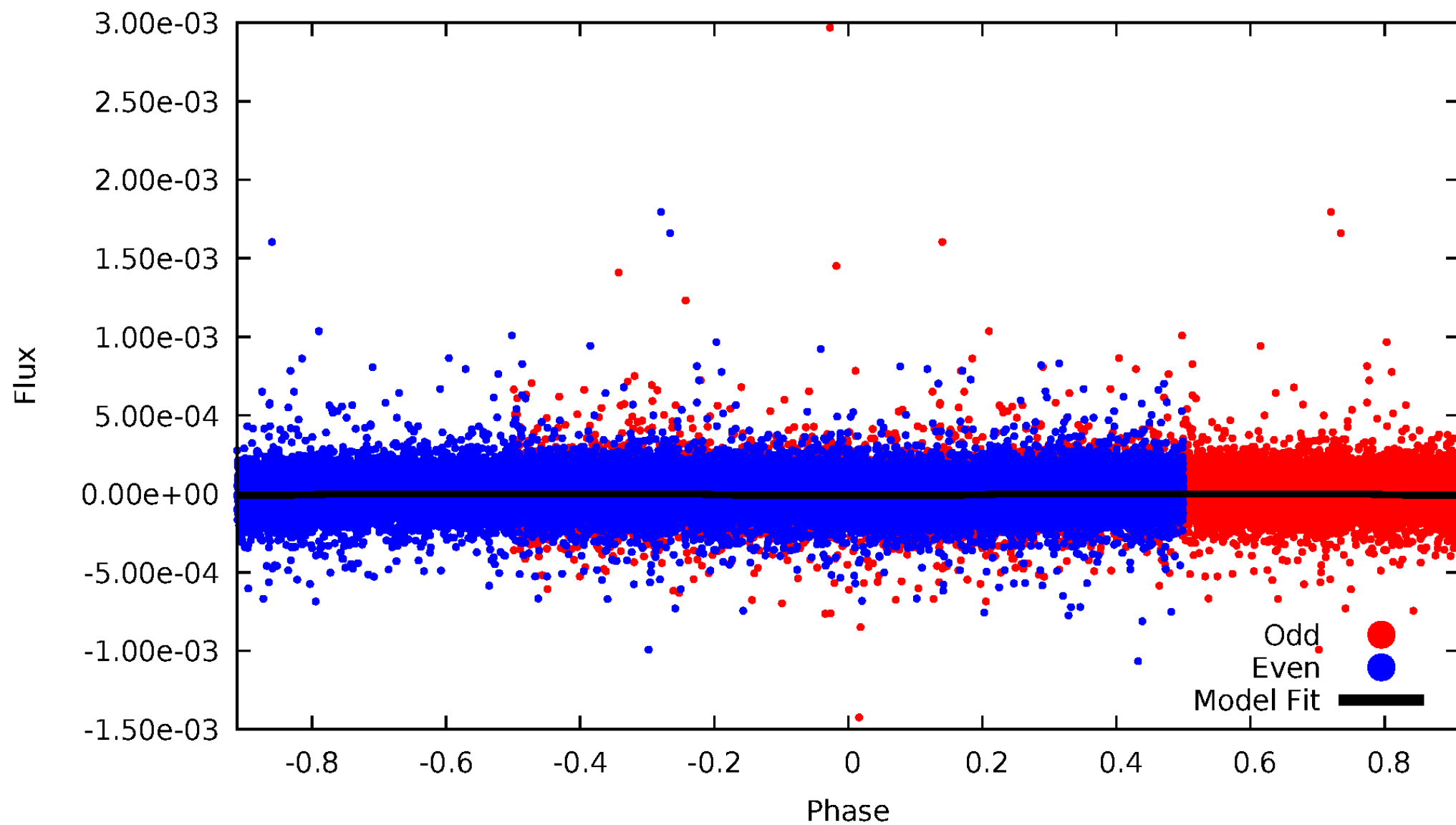


TCE 008590553-02



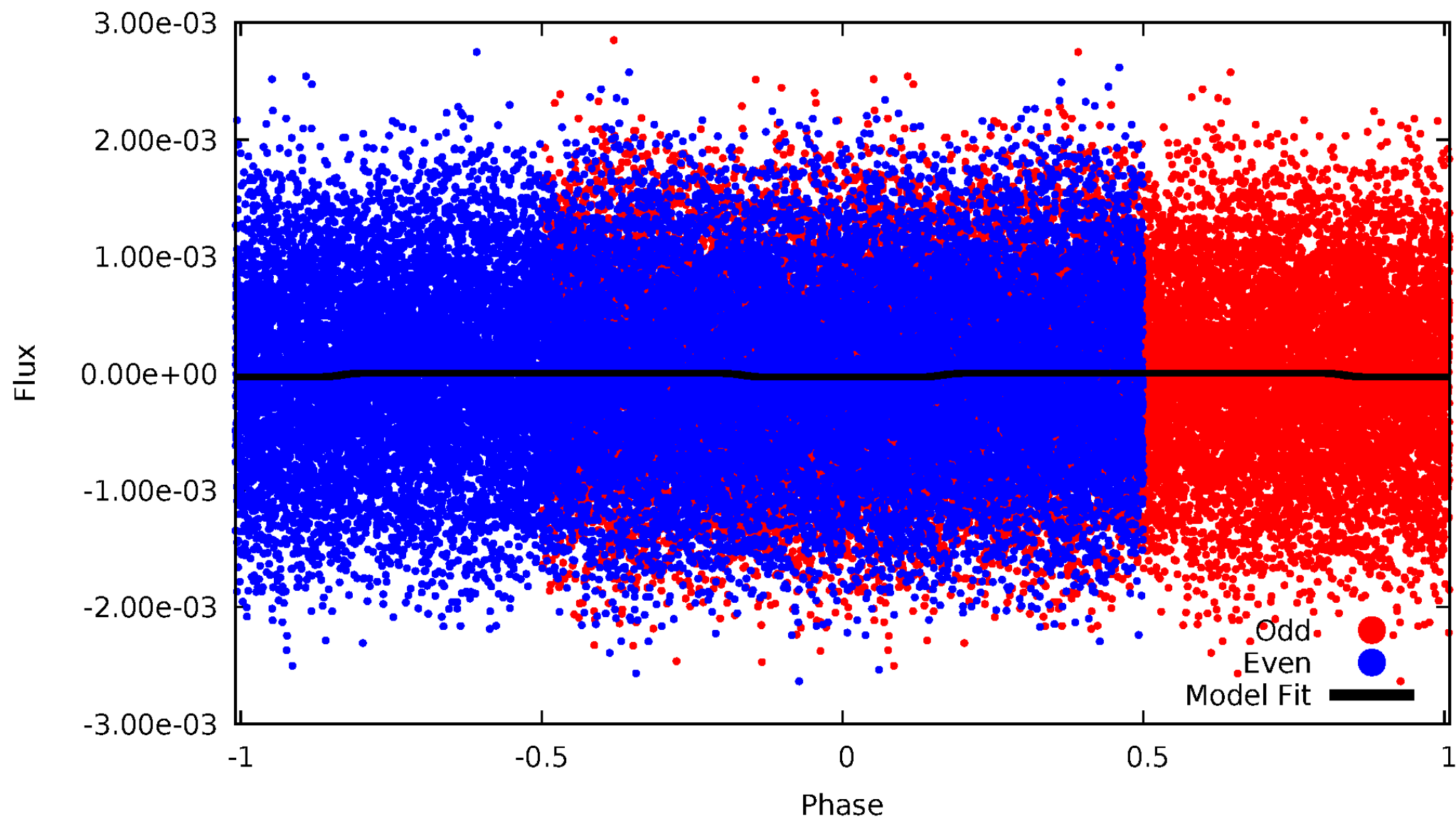
DV Odd/Even

TCE 008590553-02



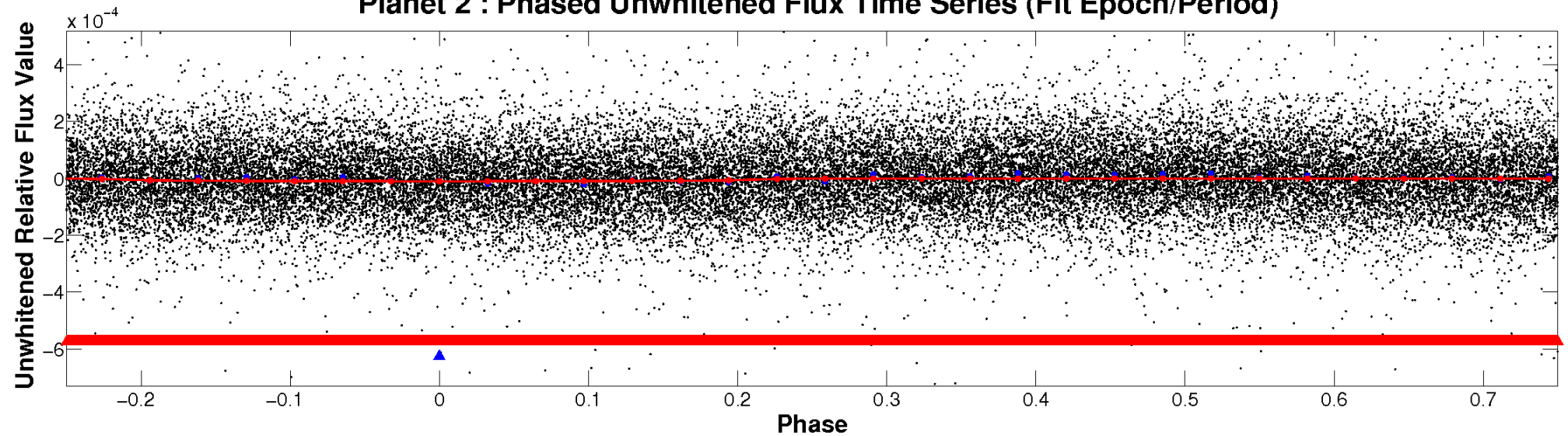
ALT Odd/Even

TCE 008590553-02

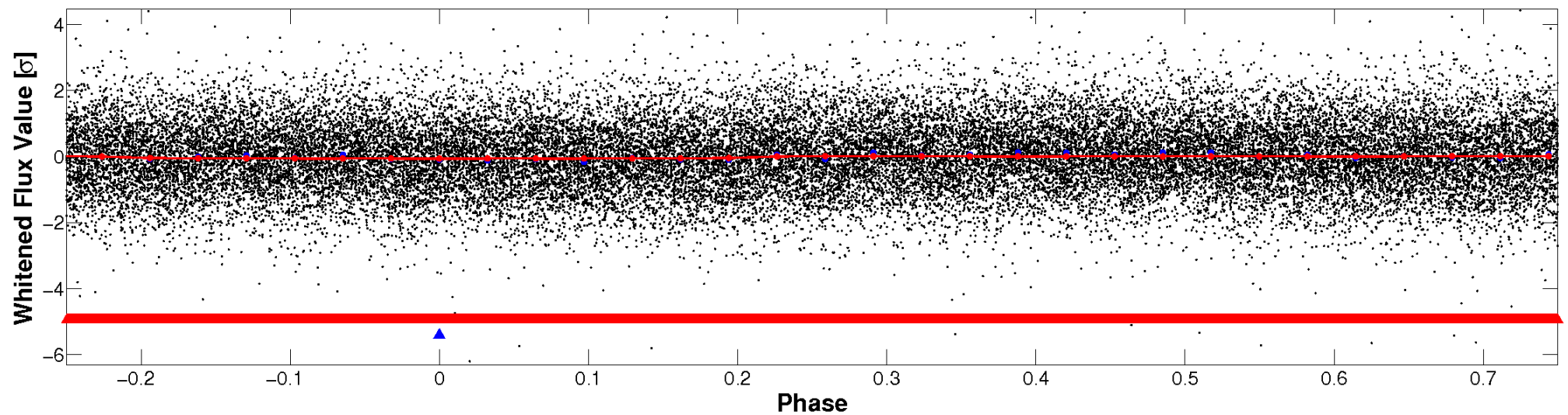


Non-Whitened Vs. Whitened Light Curve

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

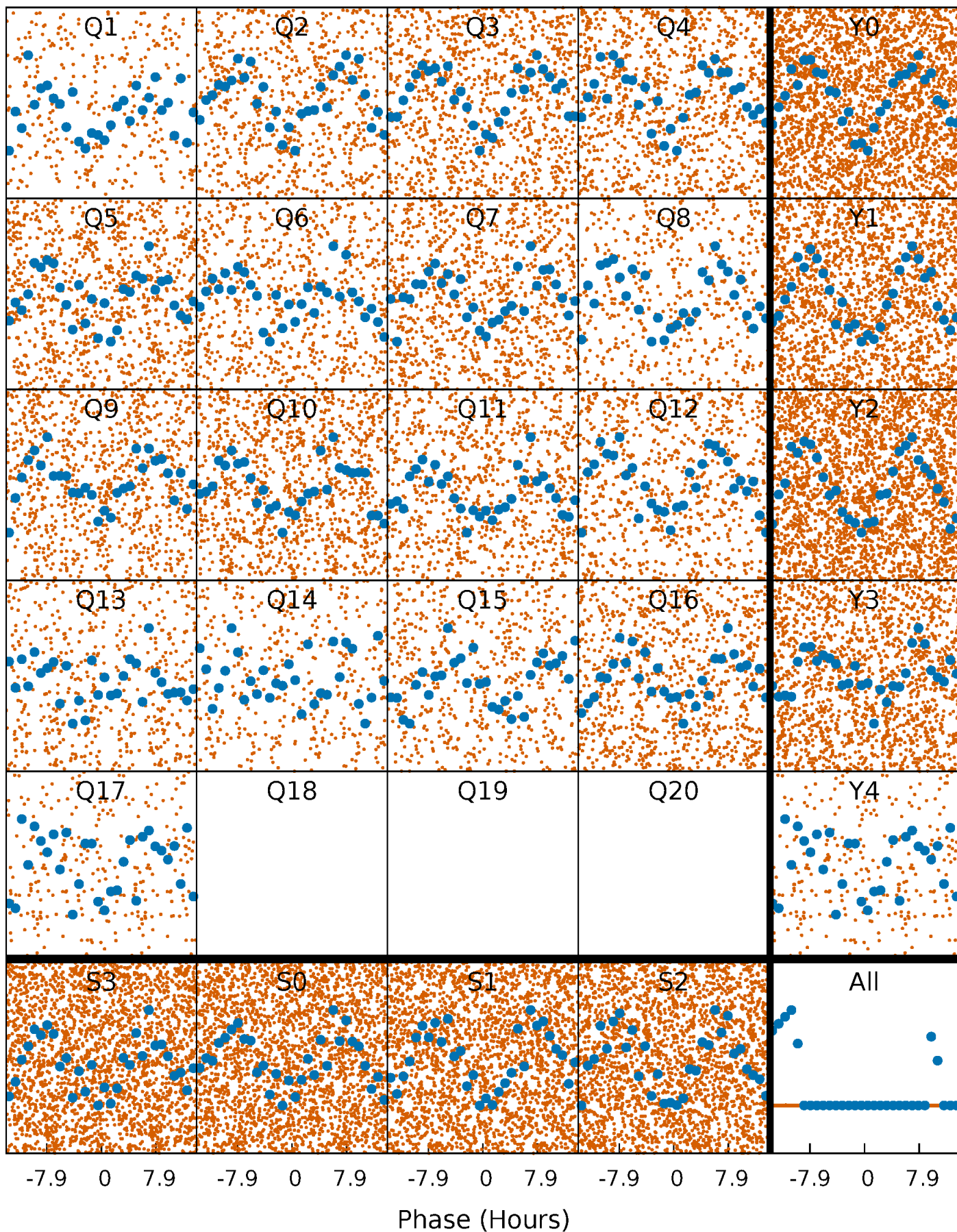


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



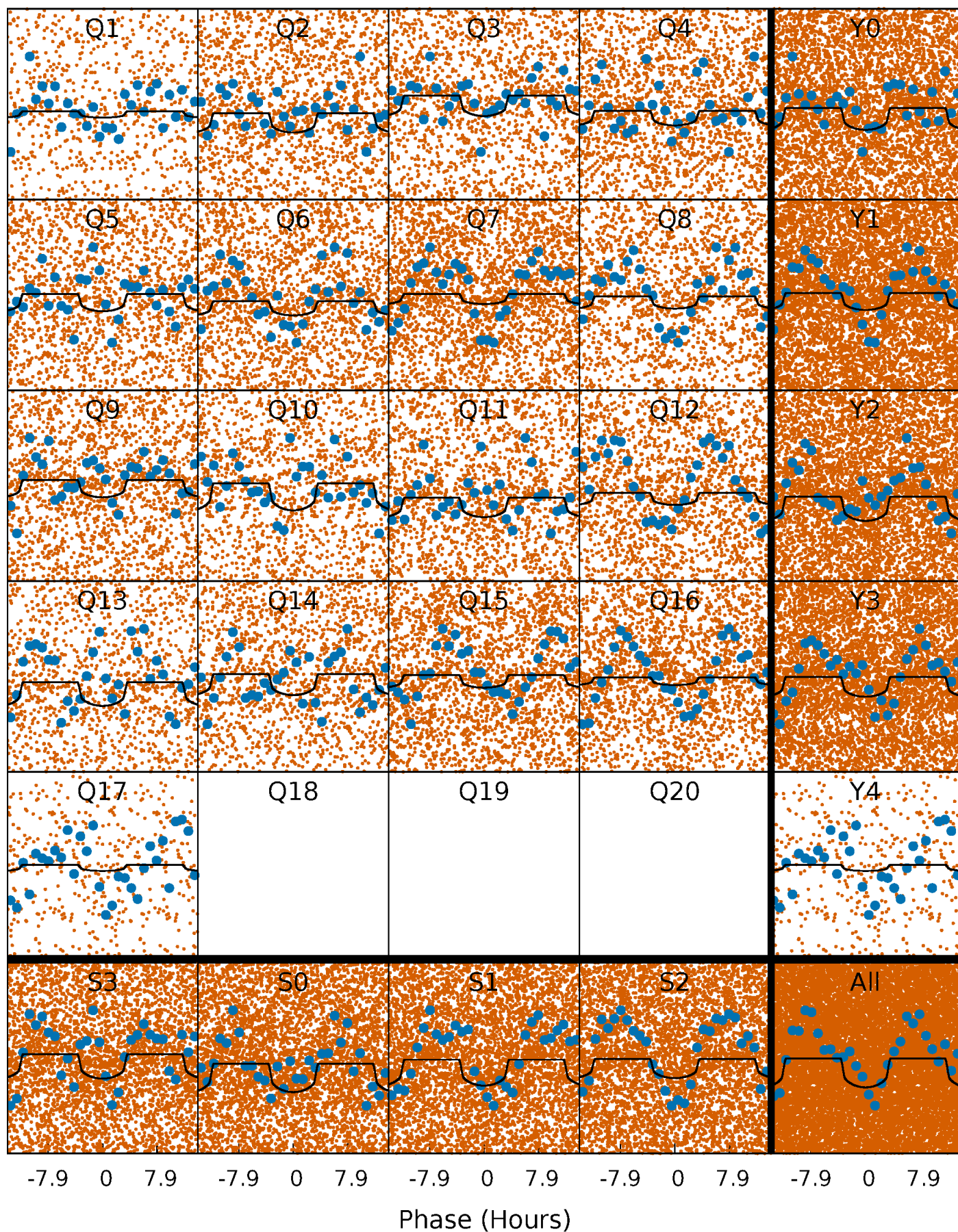
PDC Quarter-Phased Transit Curves

TCE 008590553-02 P= 0.631856 Days $T_0=131.607169$ (BKJD)



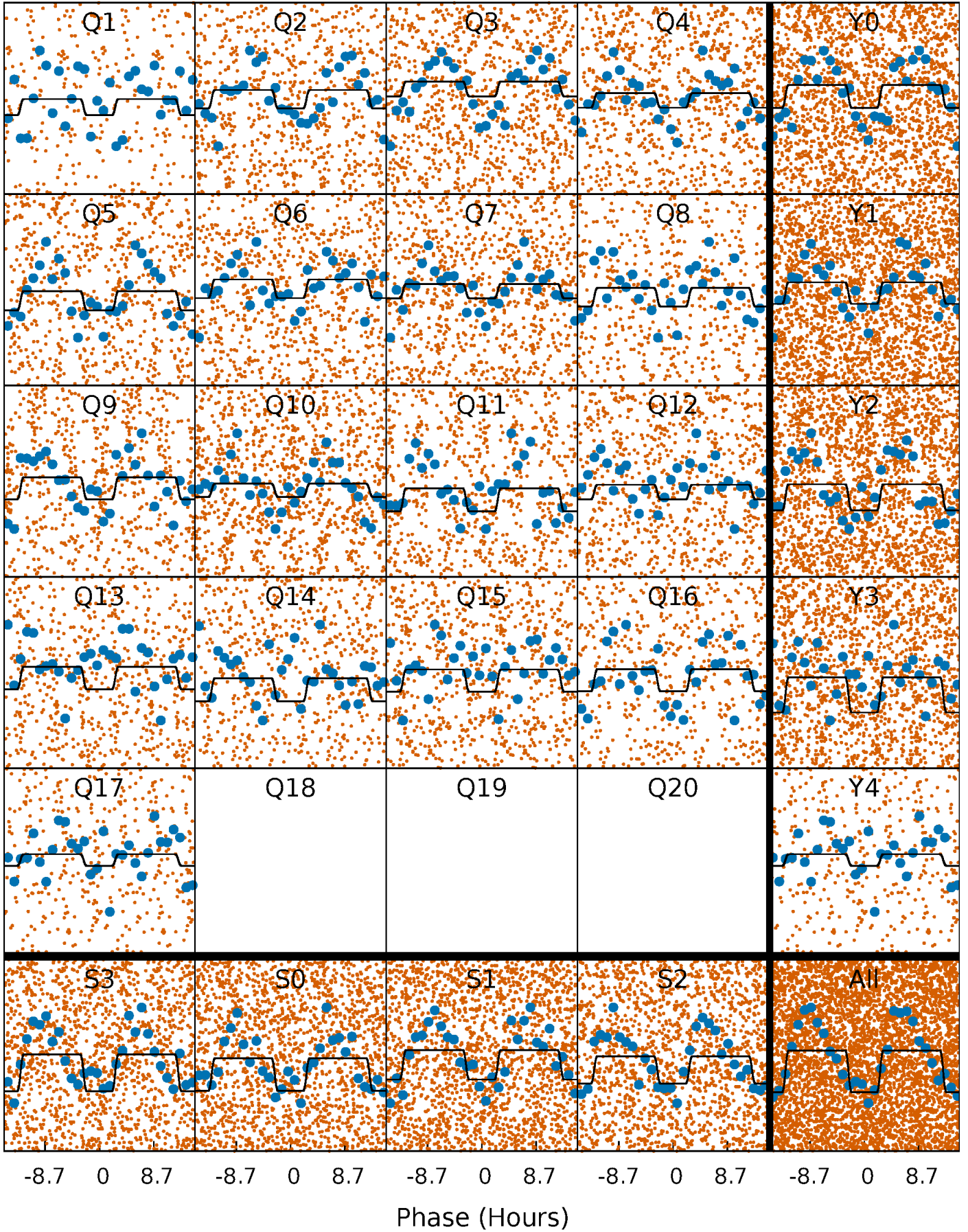
DV Quarter-Phased Transit Curves

TCE 008590553-02 P= 0.631856 Days $T_0=131.607169$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

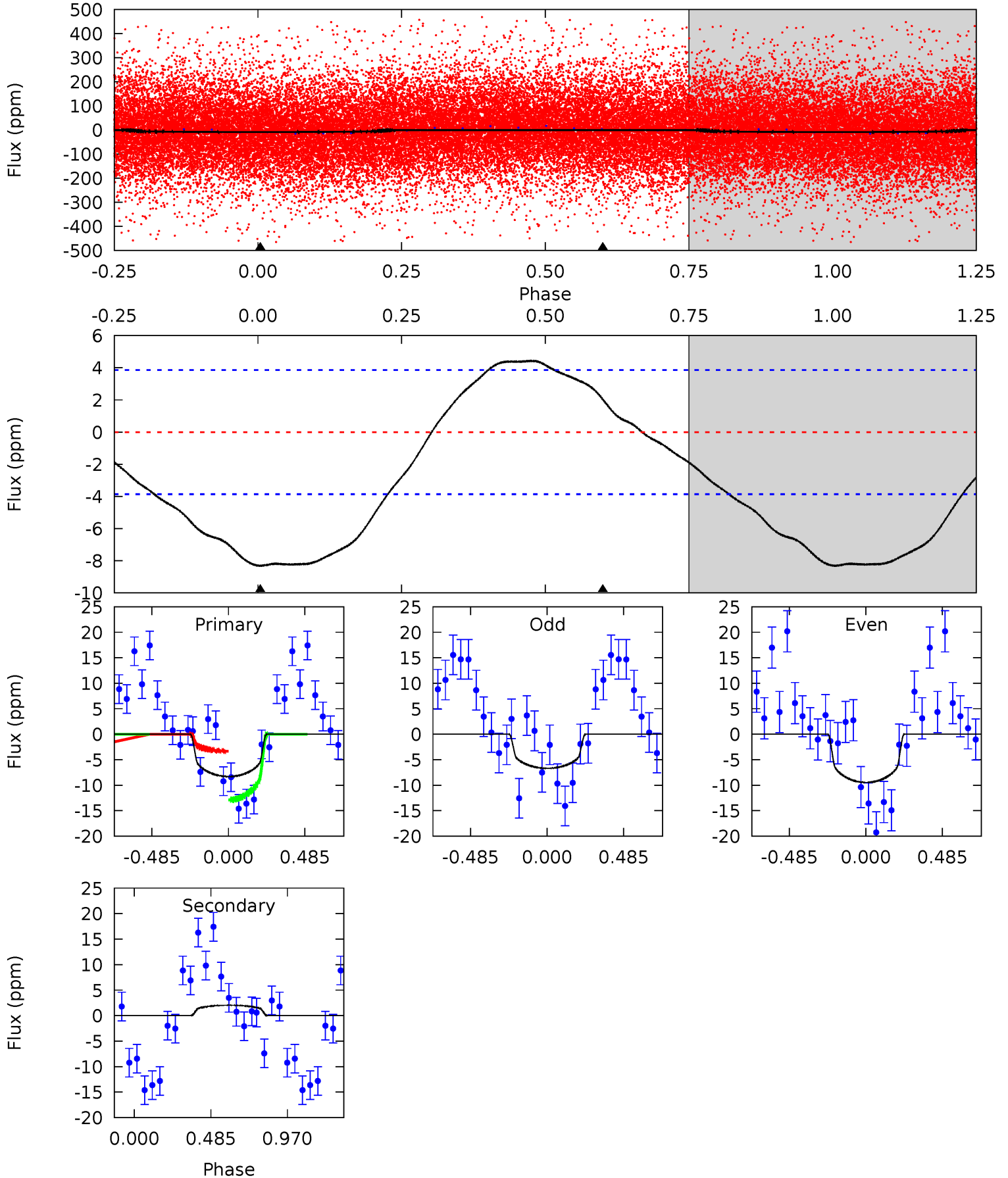
TCE 008590553-02 P= 0.631908 Days $T_0=131.563919$ (BKJD)



DV Model-Shift Uniqueness Test

008590553-02, P = 0.631856 Days, E = 130.975313 Days

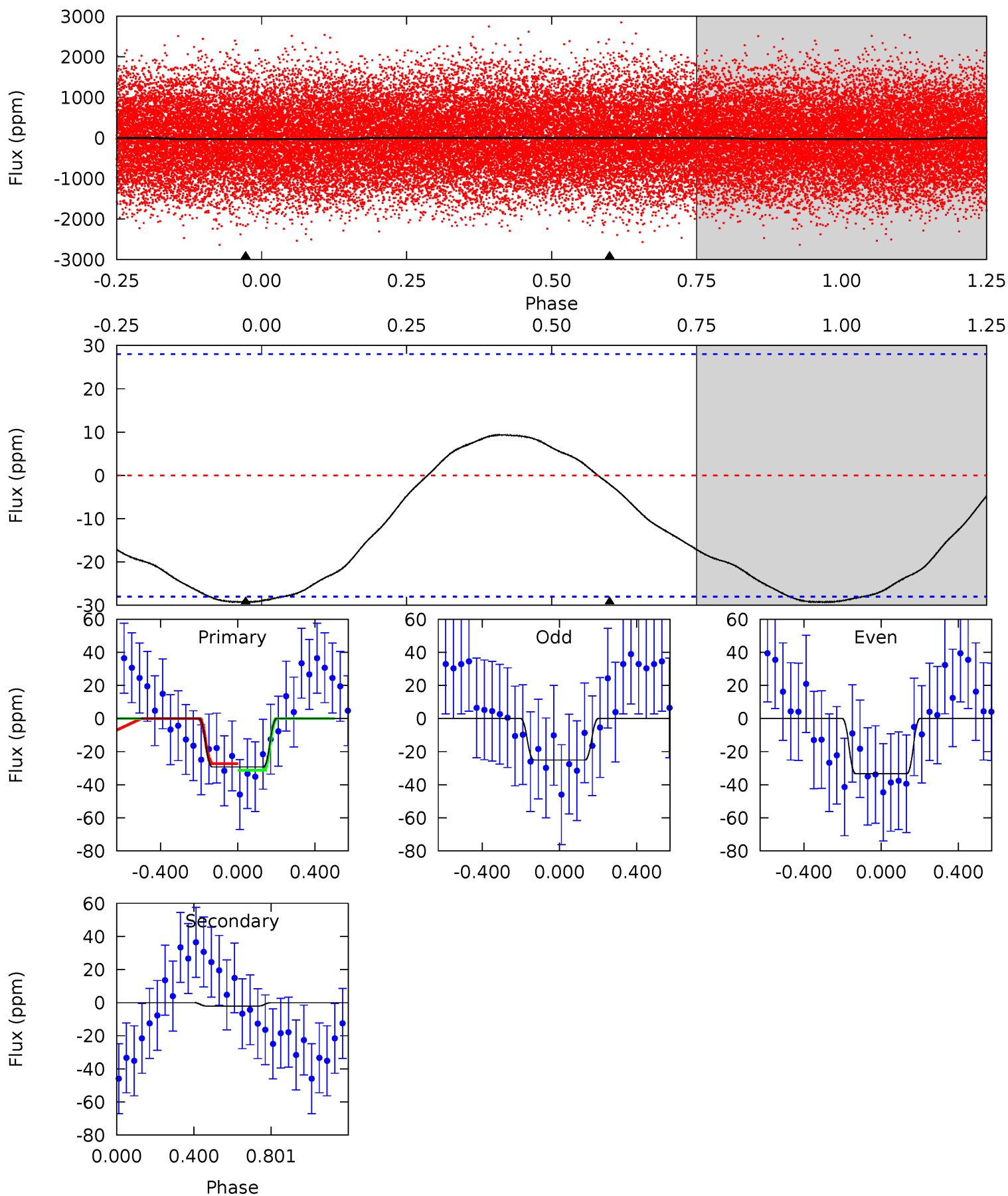
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.09	-2.23	0	0	4.22	0.70	1.67	9.09	9.09	-2.23	-2.23	1.54	1.13	0.35	5.25



Alt Model-Shift Uniqueness Test

008590553-02, P = 0.631908 Days, E = 130.932011 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.46	0.32	0	0	4.26	0.84	0.59	4.46	4.46	0.32	0.32	0.63	1.05	0.24	0.30



Stellar Parameters For KIC 008590553

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7502^{+235}_{-314}	$4.012^{+0.193}_{-0.158}$	$-0.040^{+0.200}_{-0.350}$	$2.130^{+0.550}_{-0.550}$	$1.699^{+0.200}_{-0.275}$	$0.248^{+0.272}_{-0.114}$
	+3%/-4%	+5%/-4%	+500%/-875%	+26%/-26%	+12%/-16%	+110%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008590553-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	2 ± 1	$0.80^{+0.60}_{-0.46}$	5127^{+376}_{-391}	-5293^{+604}_{-1983}	$-0.456^{+0.319}_{-2.016}$
Alt.	-2 ± 7	$1.25^{+0.68}_{-0.54}$	5132^{+392}_{-383}	-3831^{+9471}_{-1521}	$0.155^{+1.210}_{-0.662}$

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 $A_{obs} \gg 1.0$

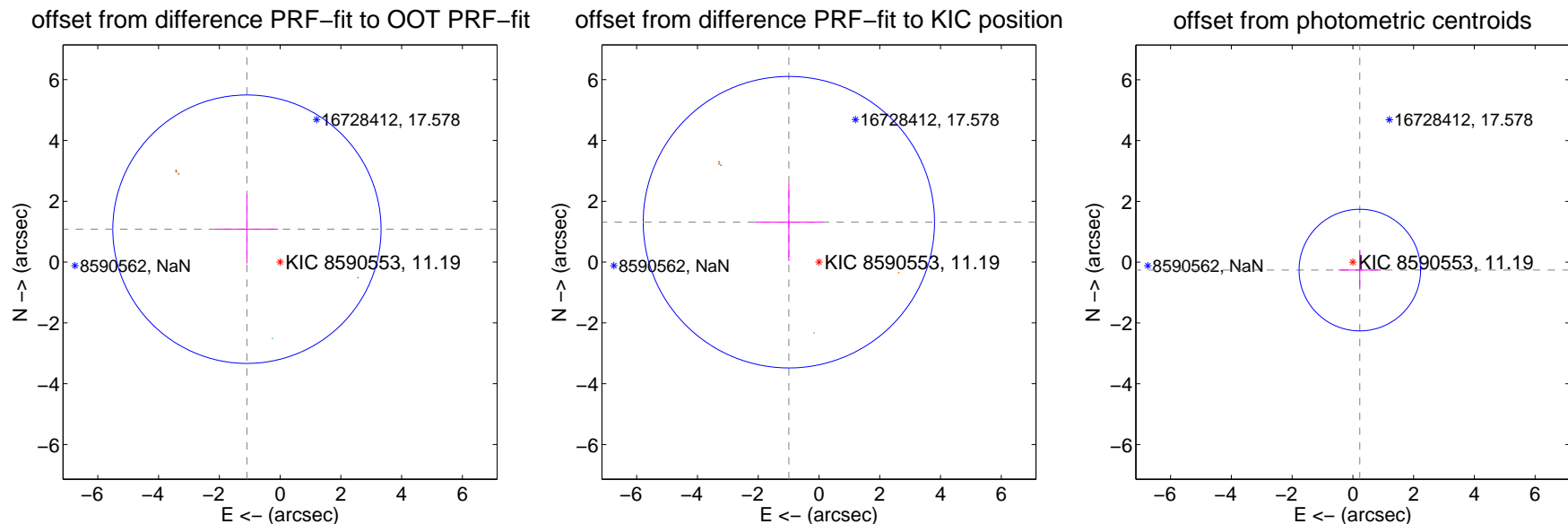
DV Centroid Data

Supplemental centroid analysis for 008590553-02. **Kepler magnitude: 11.19.** Transit SNR 6.77

There are 1 quarters with good PRF difference image offsets

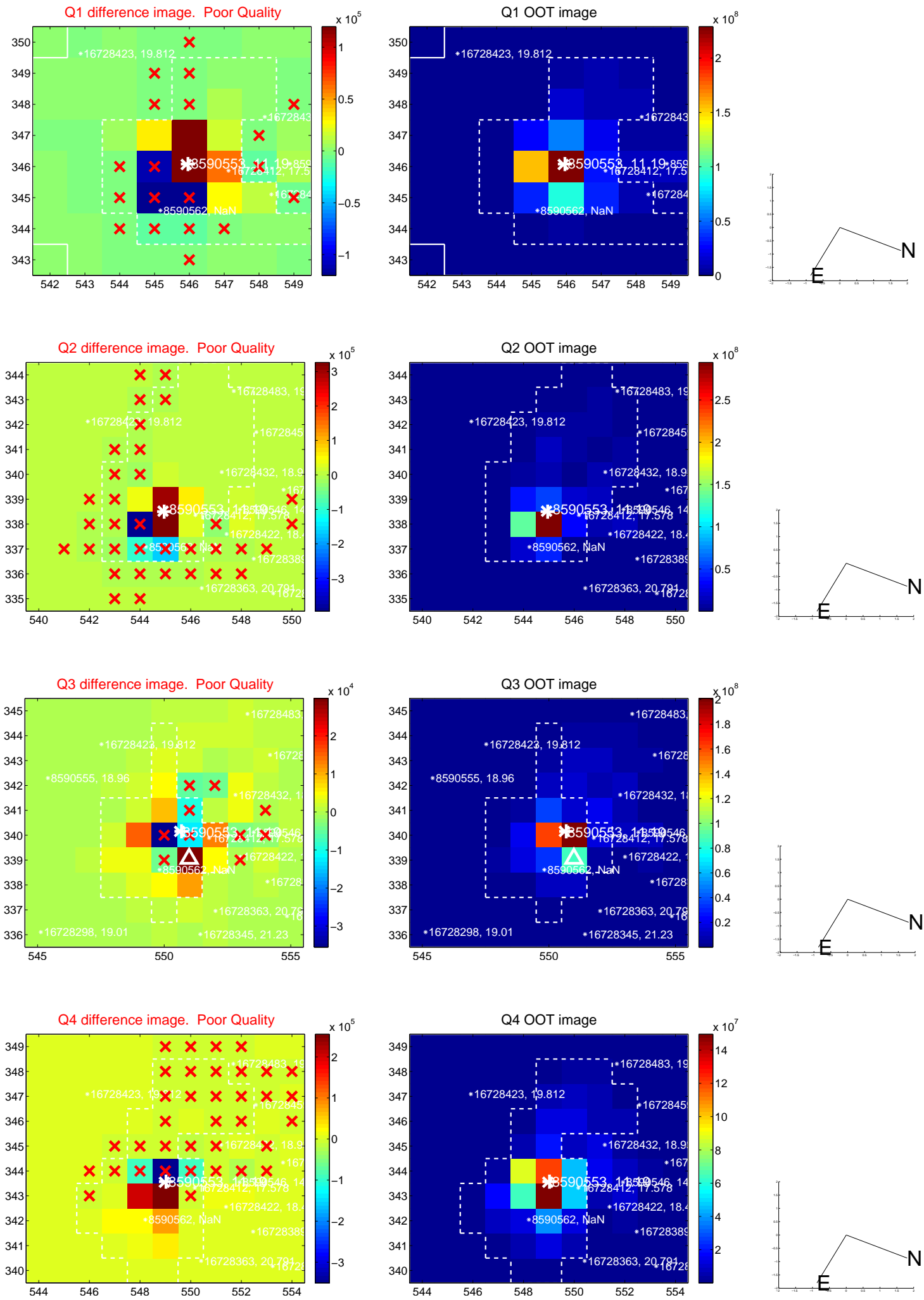
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.537 ± 1.471	1.04	1.092 ± 1.026	1.082 ± 1.128
PRF-fit source offset from KIC position	1.645 ± 1.598	1.03	0.991 ± 1.107	1.312 ± 1.279
photometric centroid source offset	0.35 ± 0.67	0.52	-0.23 ± 0.70	-0.26 ± 0.64

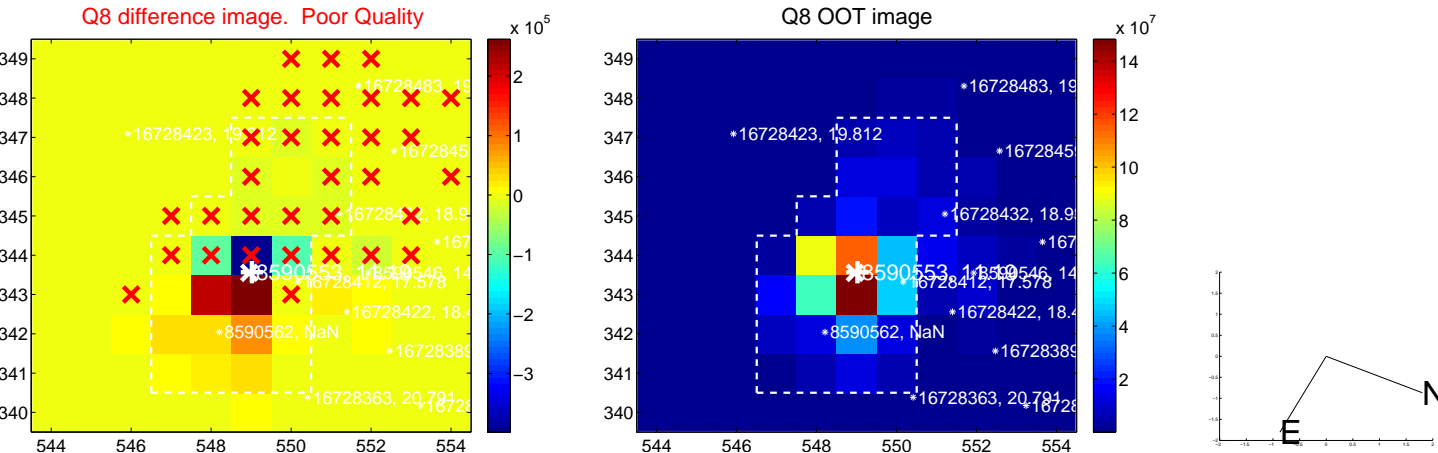
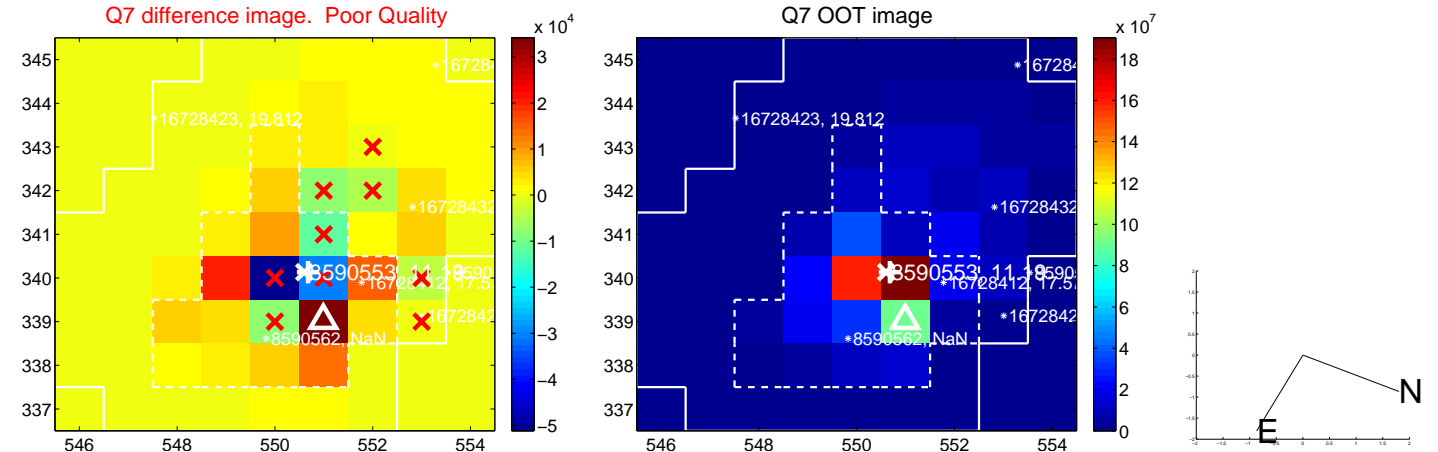
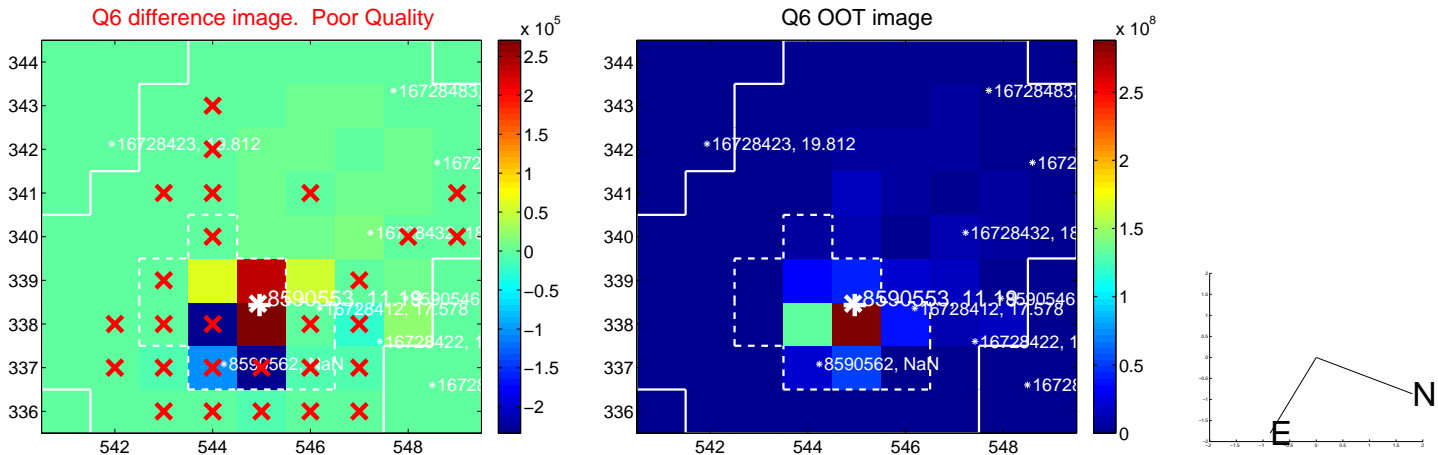
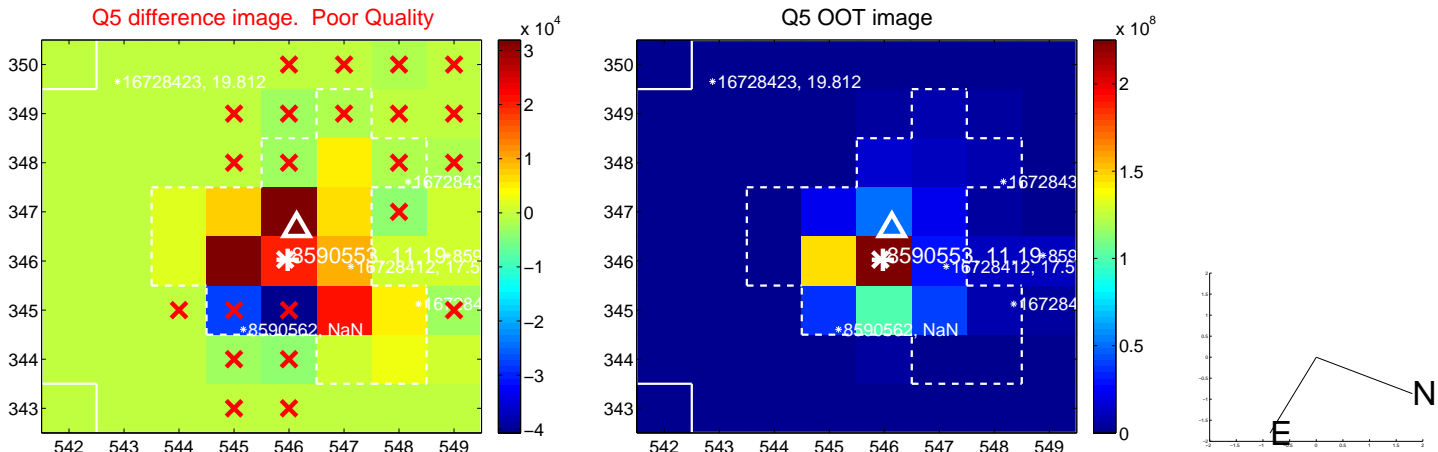


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

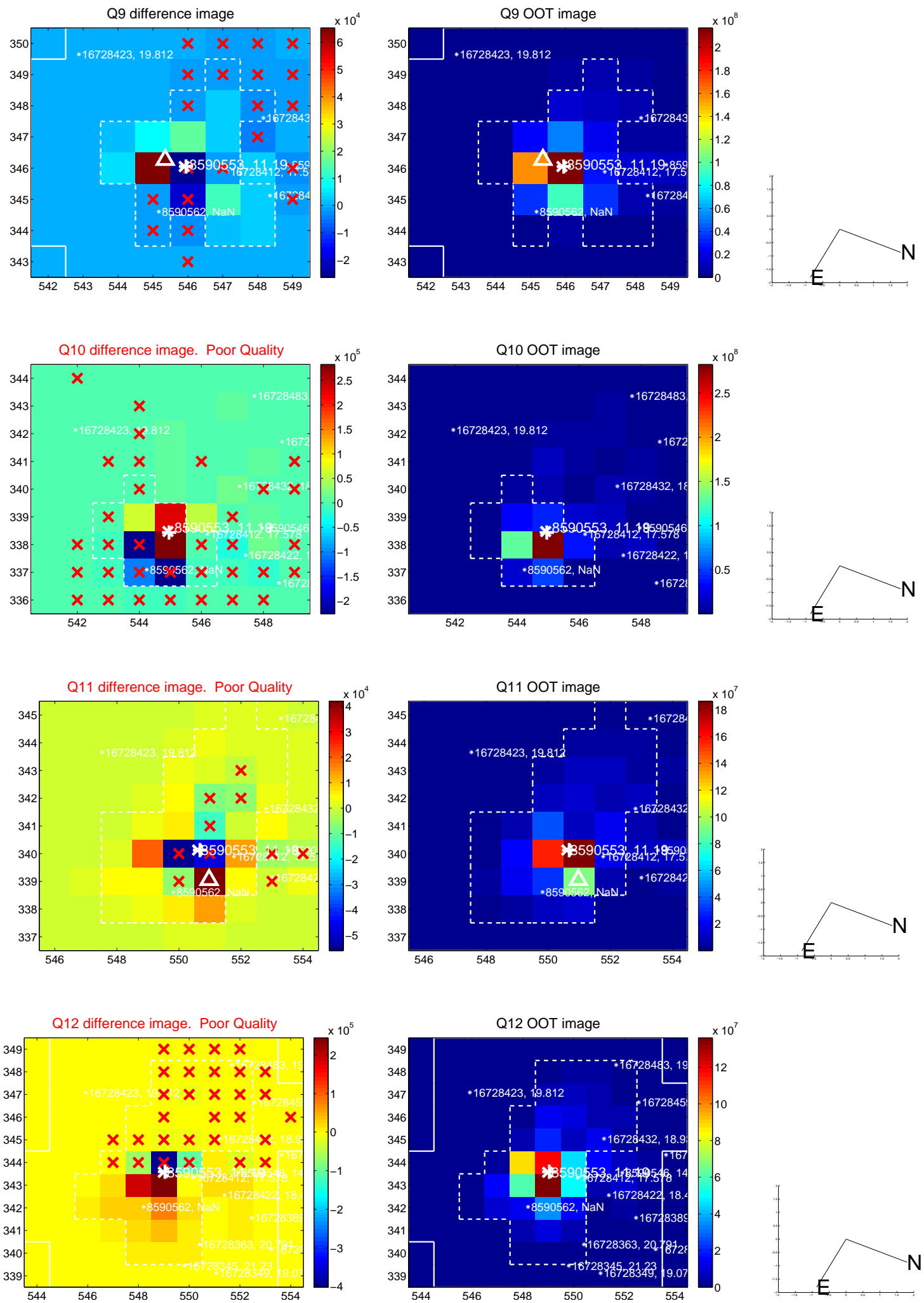
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



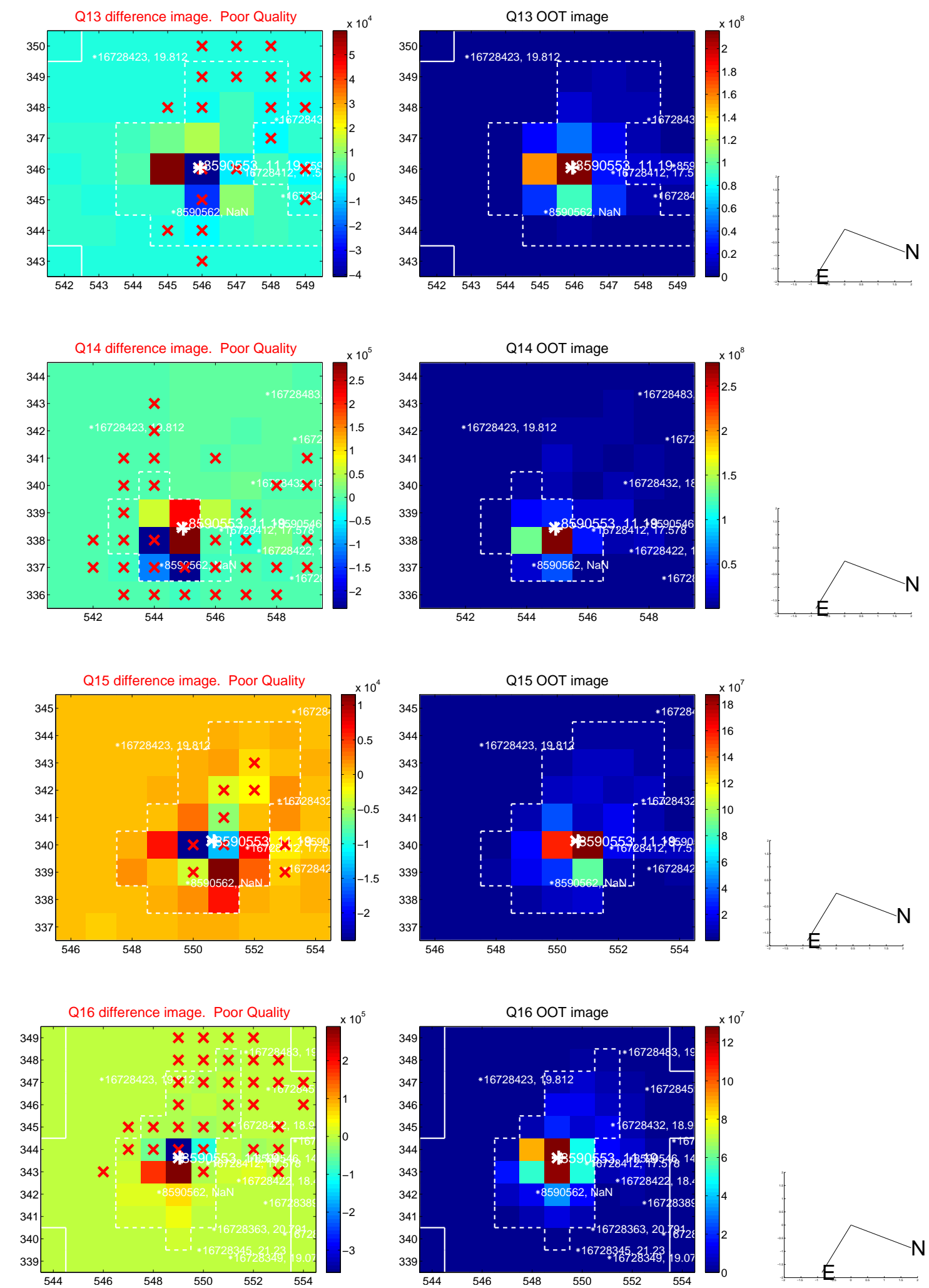
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



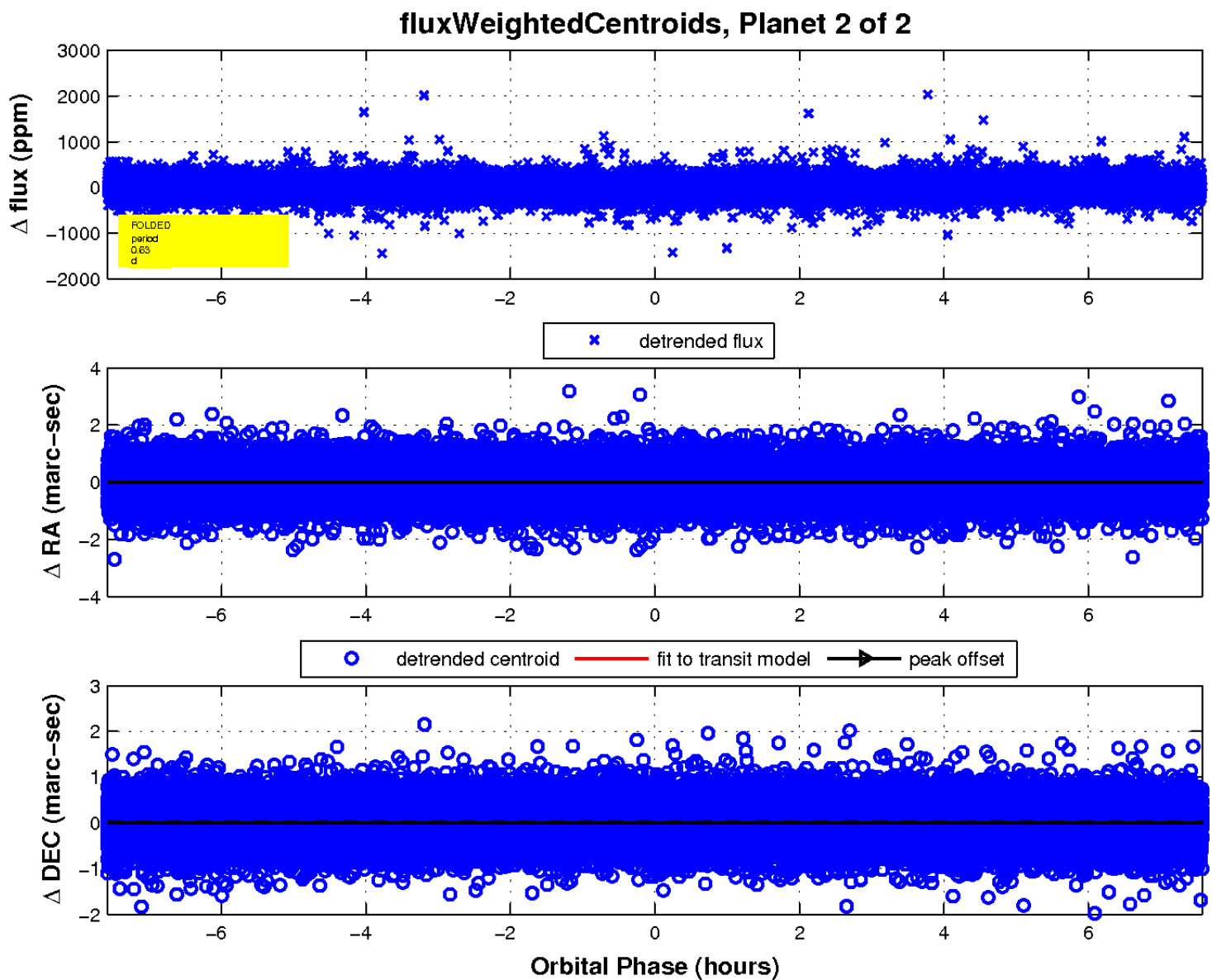
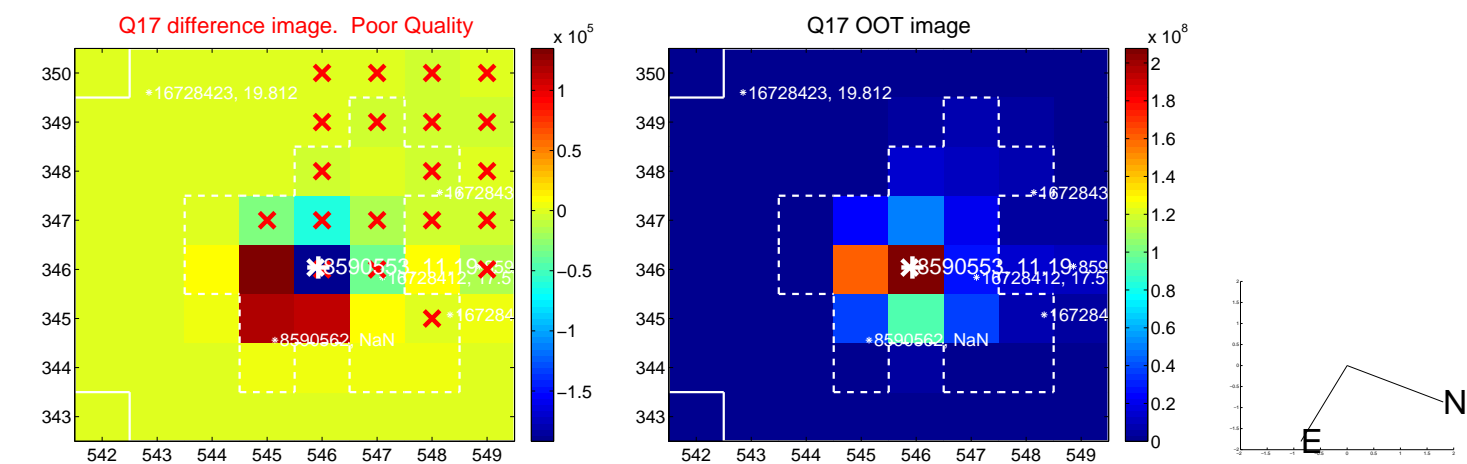
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

