TTS Rankings Revised
08.07.2020

- uses troposphere average lifetime

- only use 0-25 N

- TOGA and AWAS fill values are replaced with 1/2 LOD

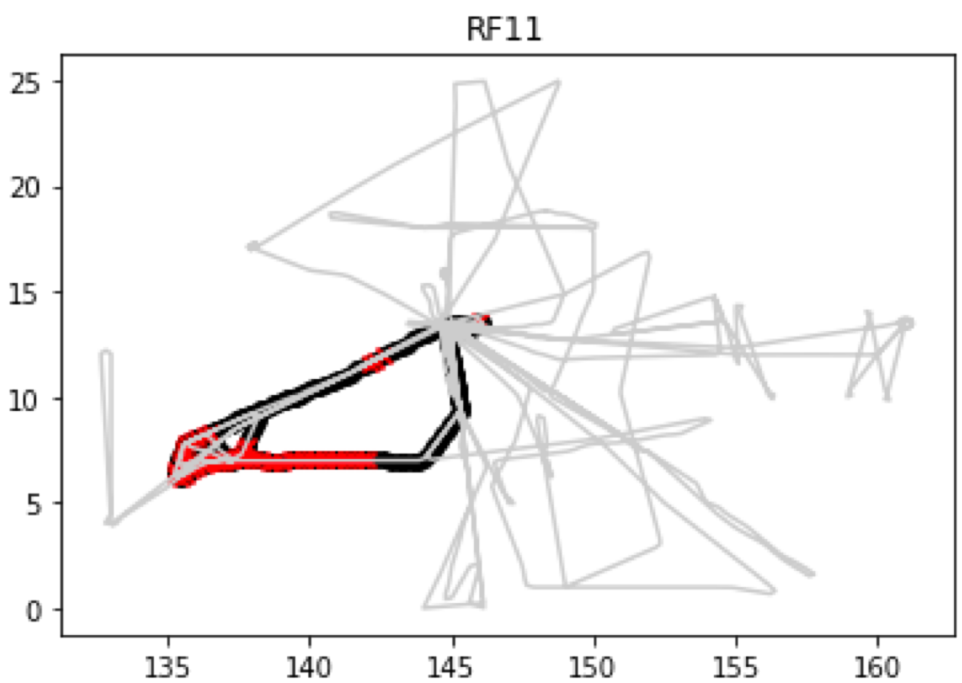
- Each RF average UT is matched to the campaign average BL (e.g. ratio computed using mean of RF07 UT/ mean of campaign average BL)

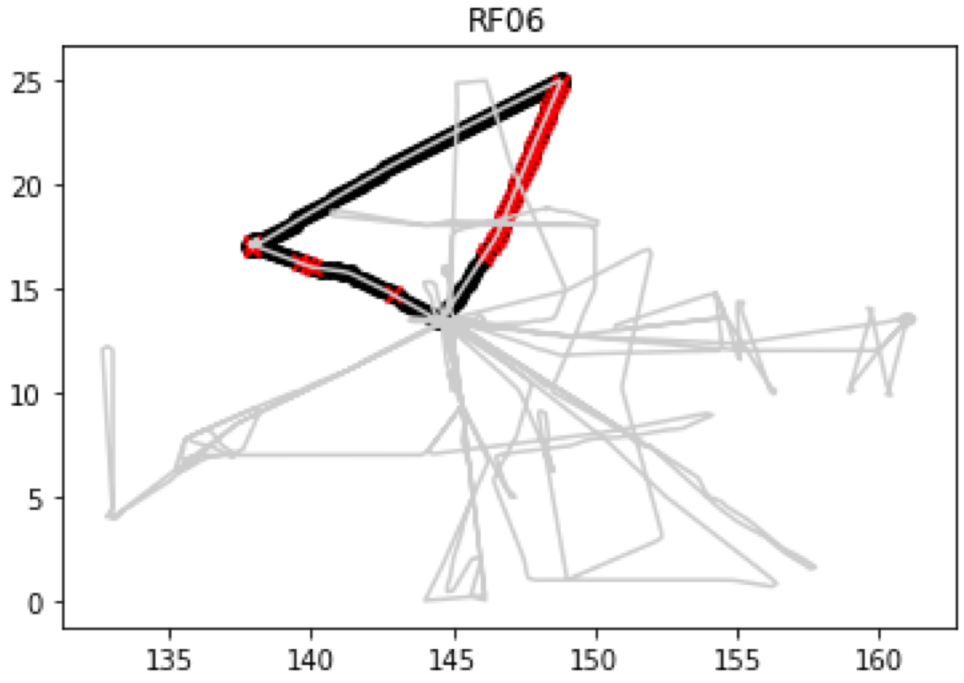
TROPOSPHERE LIFETIME

Not Sorted

Flight	Mode	Mean	R^2	# UT Samples TOGA	# UT Samples AWAS
RF05	2.6	9.8	0.72	96	16
RF06	1.1	3.9	0.69	39	11
RF07	1.3	4.9	0.80	44	13
RF08	3.6	13.1	0.87	48	12
RF09	2.8	10.3	0.89	48	9
RF10	3.1	11.9	0.88	75	13
RF11	3.8	14.2	0.90	54	12
RF12	4.6	17.7	0.87	86	27
RF13	3.8	14.0	0.92	128	40
RF14	5.6	21.3	0.92	47	9
RF15	5.3	19.8	0.92	11	5

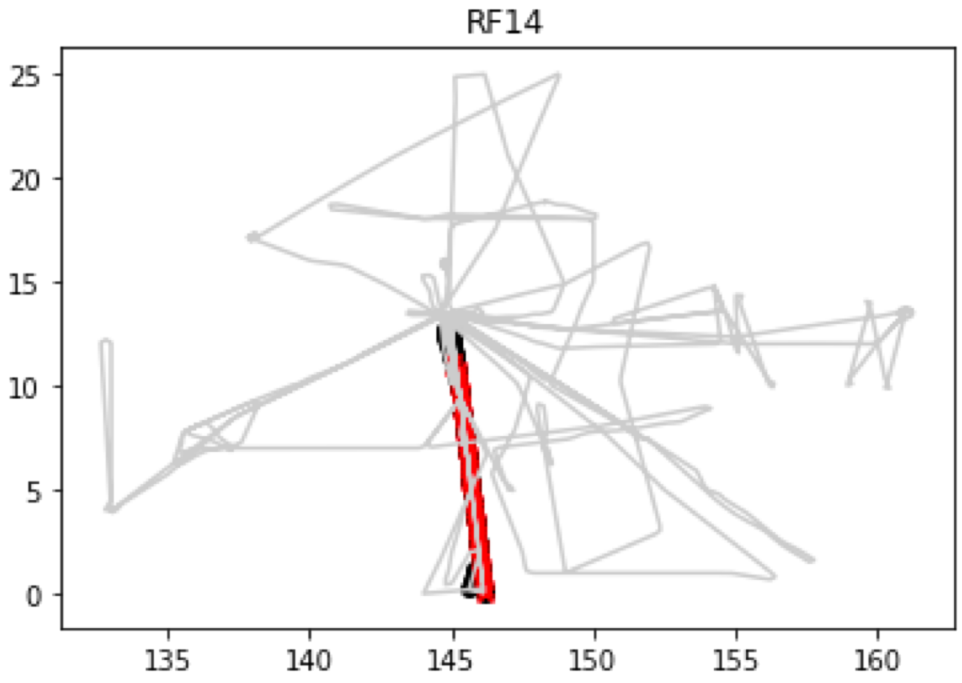
From TOGA/AWAS merge files. So 1 sample for TOGA entire 2 minute sampling period.
RF15 seems to be missing some data?
TOGA sampling can be less if there are a lot of missing data for that particular tracer – e.g. very short lived species like acetaldehyde for RF13. TOGA took 128 samples in the UT between 0 – 25N but only 56 of those had detected Acetaldehyde.

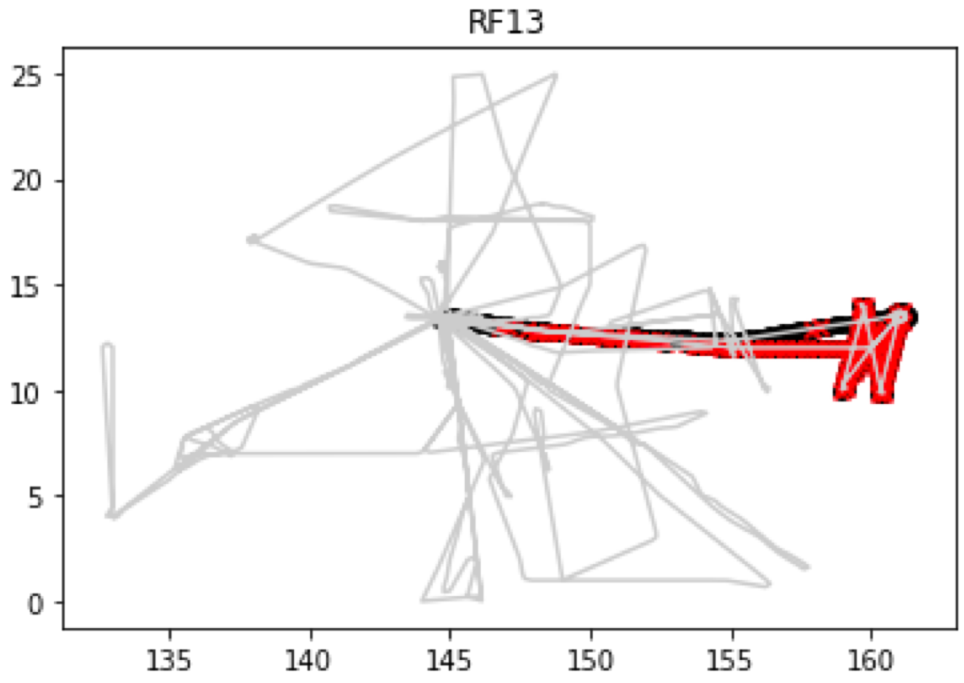




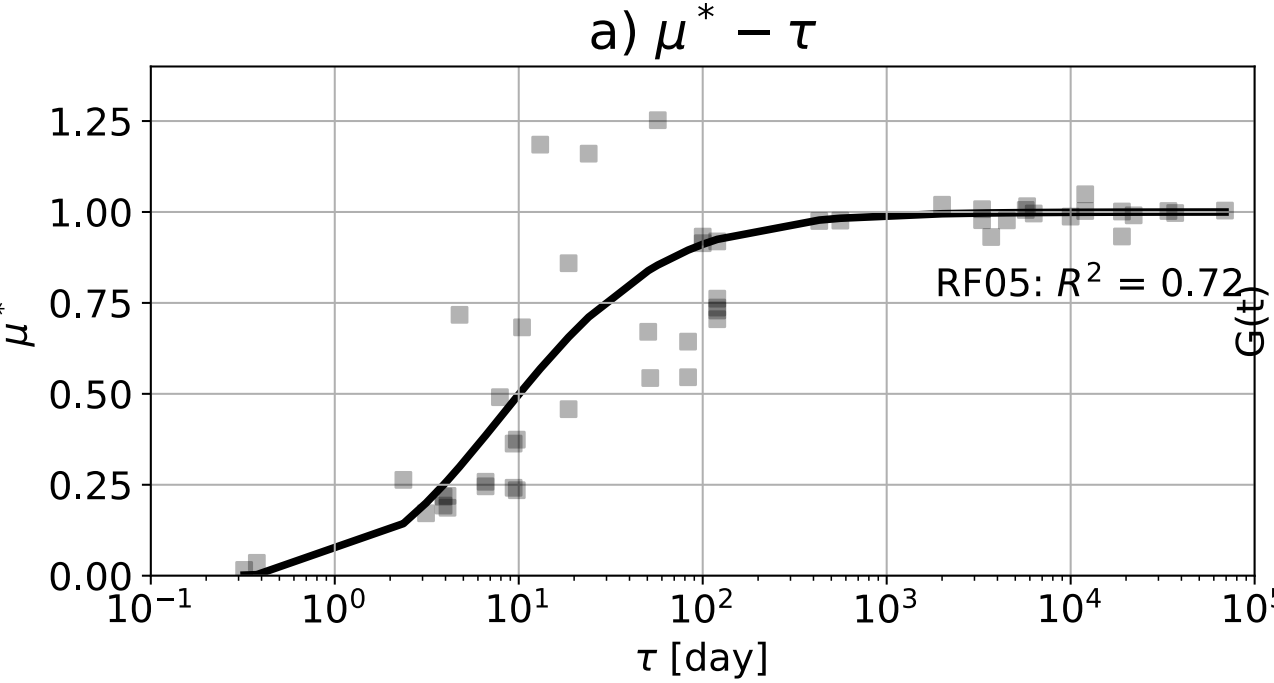
Visualize sampling

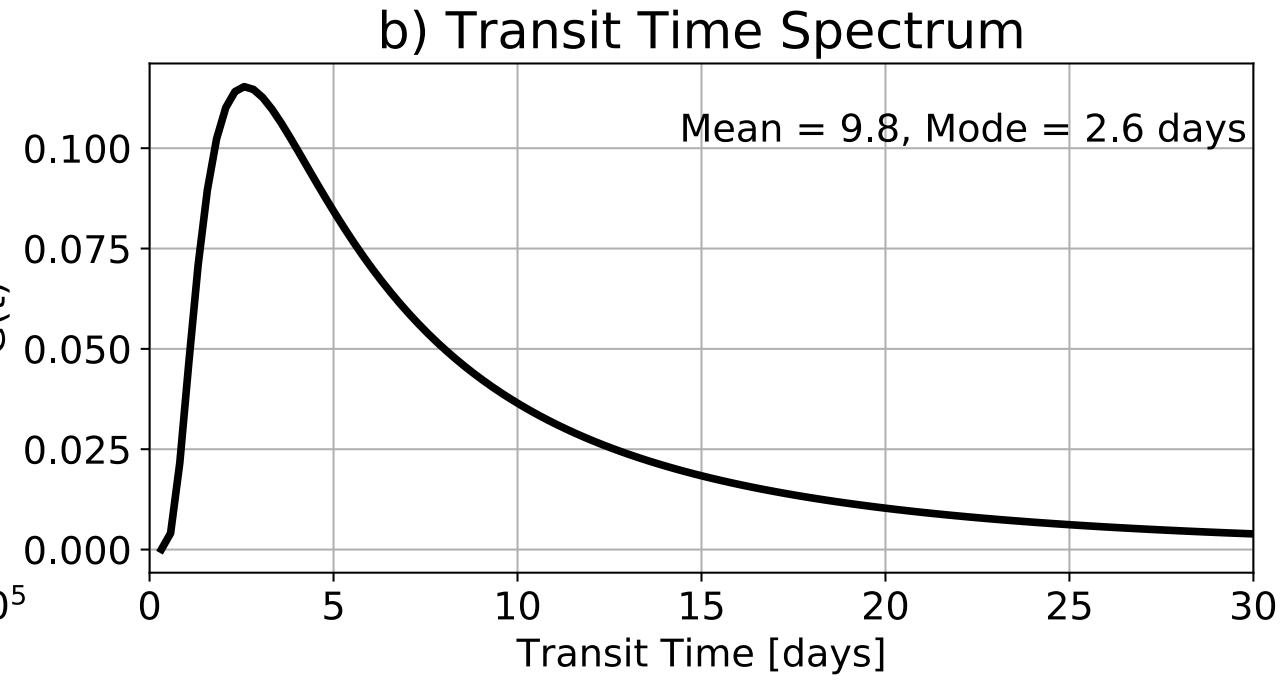
Gray is all RF tracks
Black is RF06 track
Red is RF06 from 12-14 km



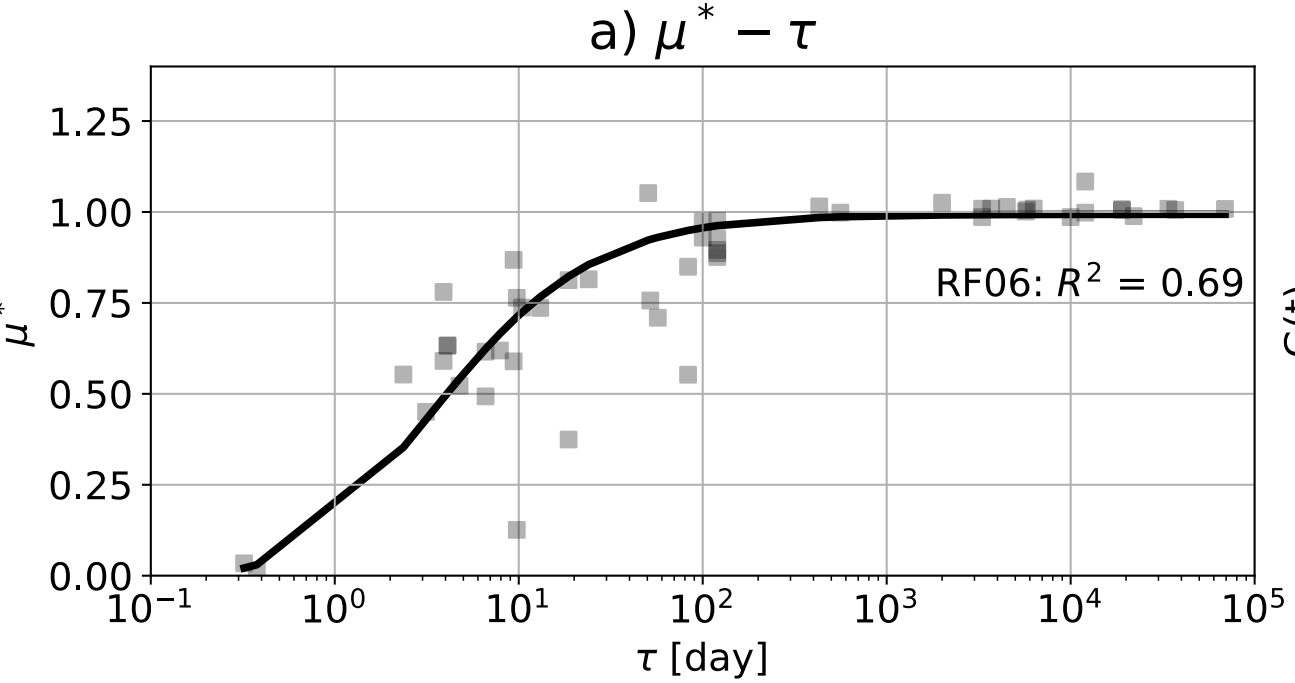


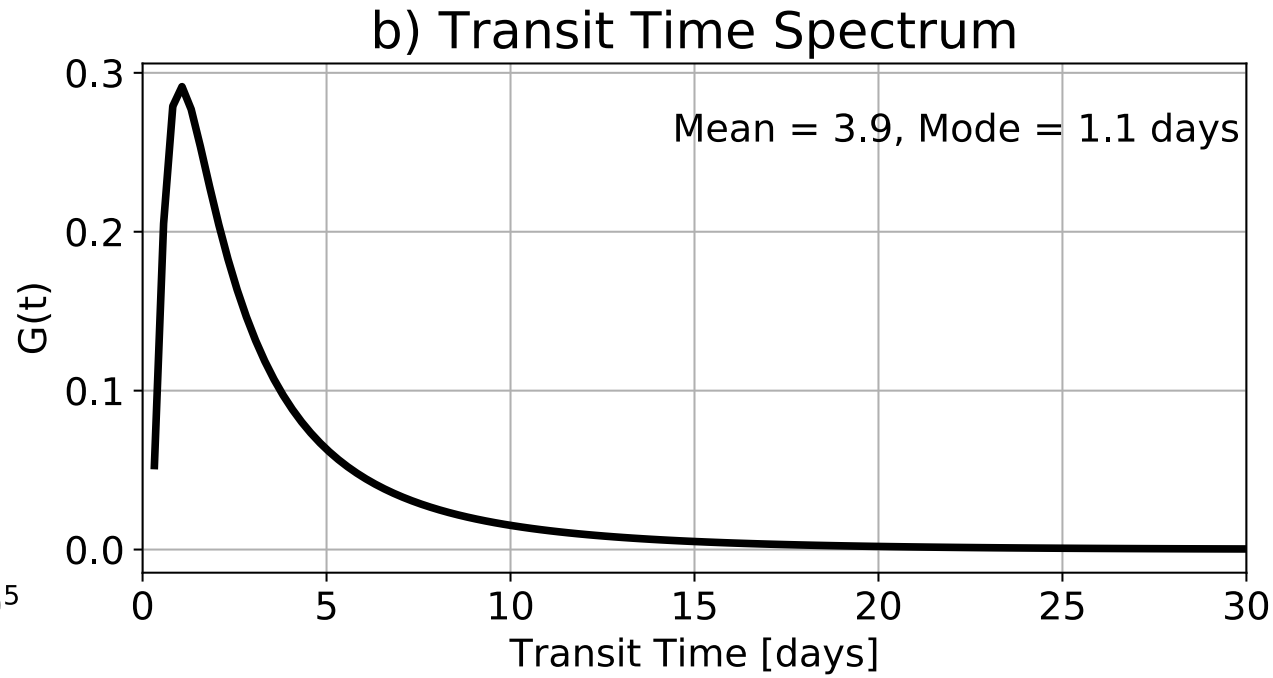
RF05


a) $\mu^* - \tau$
RF05: R^2 = 0.72
μ^*
τ [day]

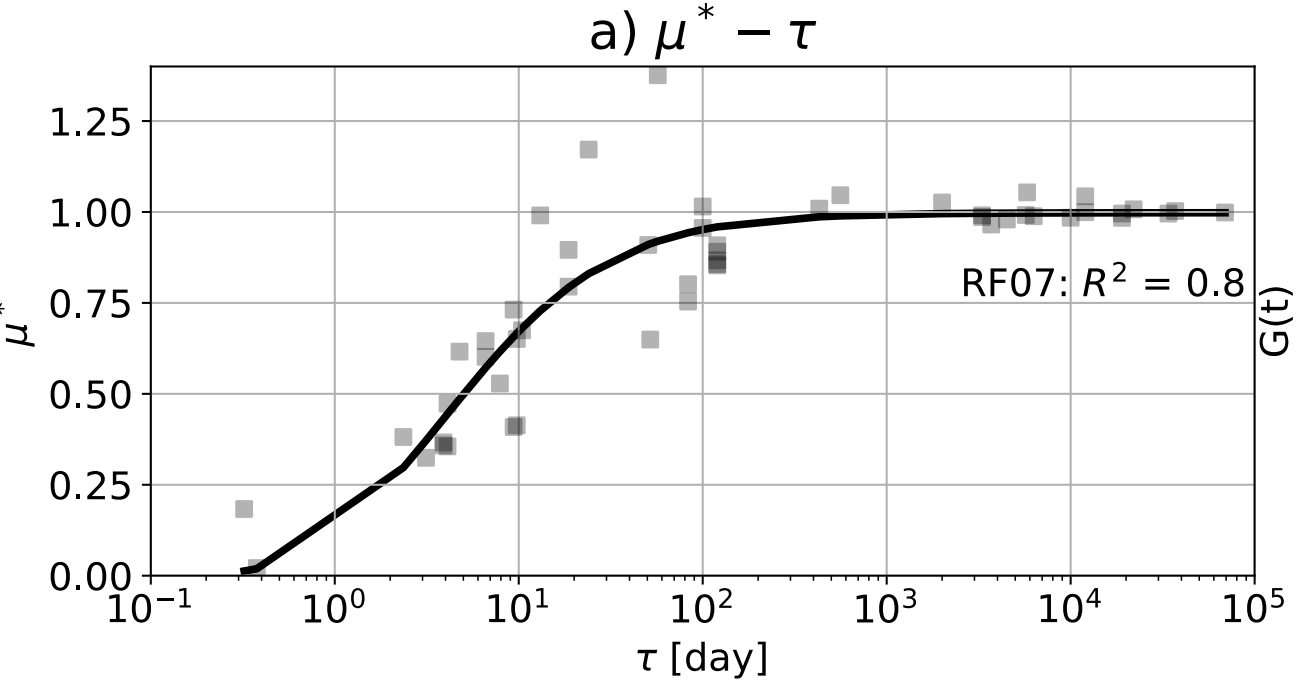

b) Transit Time Spectrum
Mean = 9.8, Mode = 2.6 days
G(t)
Transit Time [days]

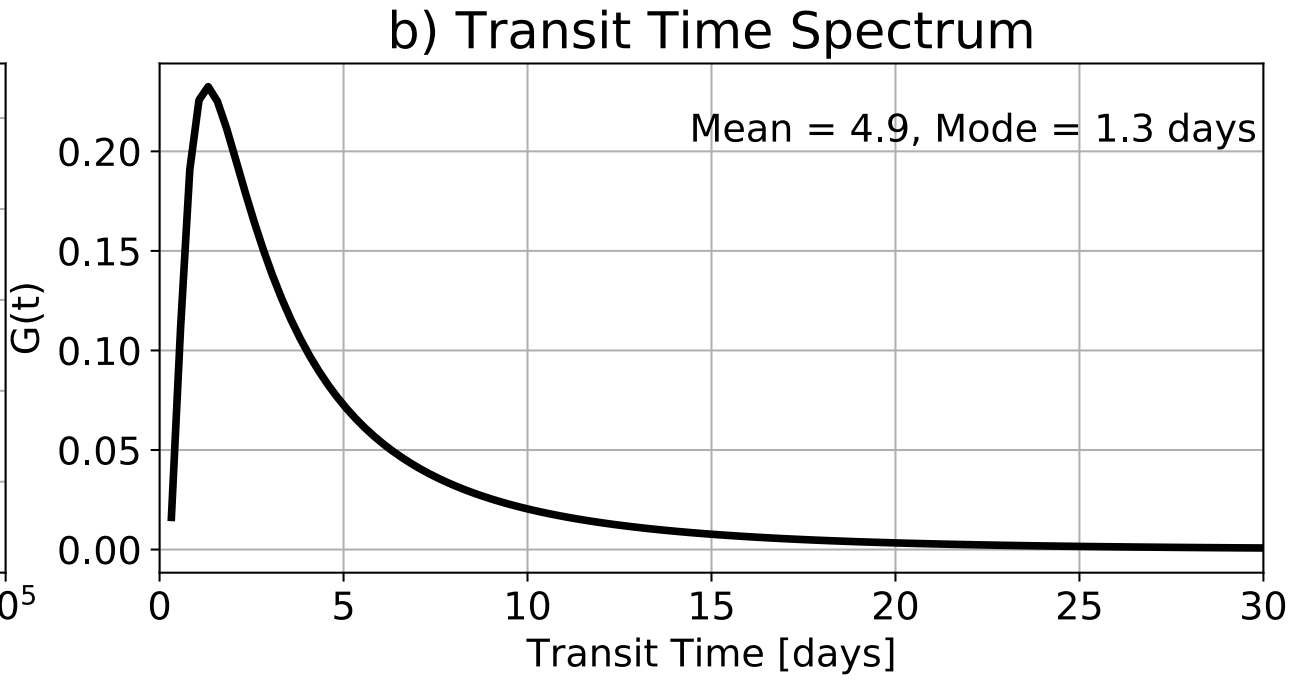
RF06


a) $\mu^* - \tau$
RF06: R^2 = 0.69
μ^*
τ [day]

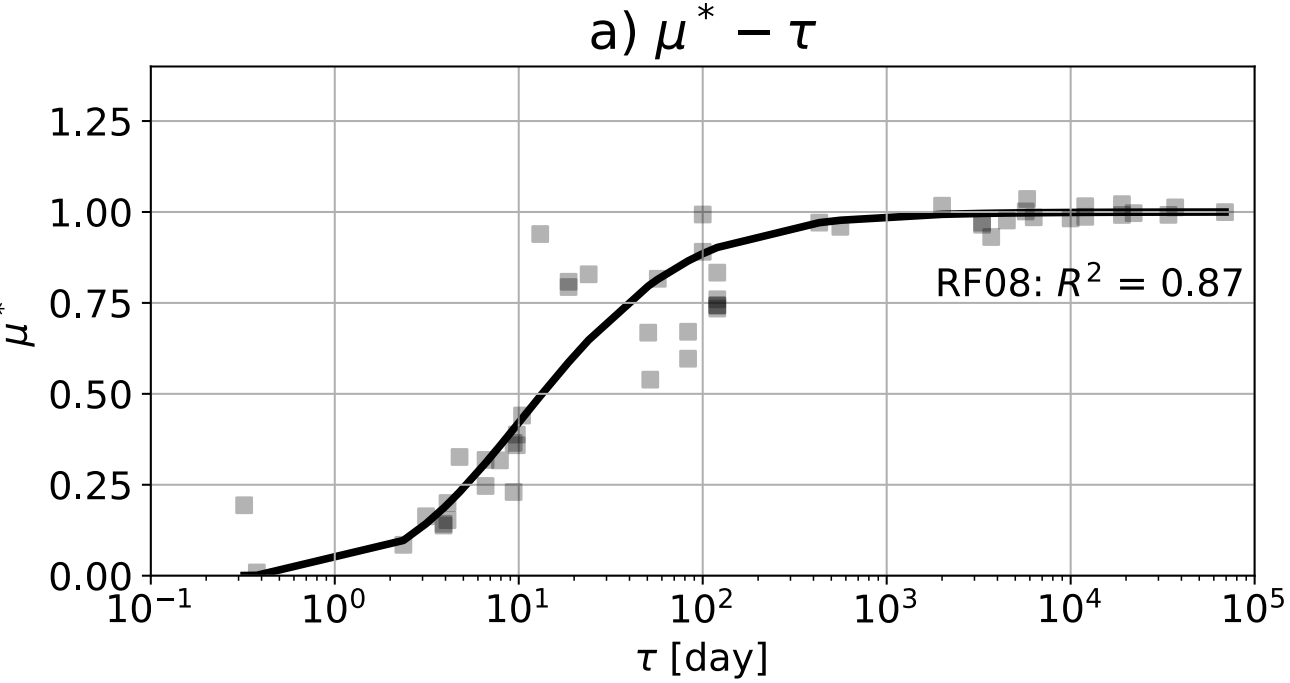

b) Transit Time Spectrum
Mean = 3.9, Mode = 1.1 days
G(t)
Transit Time [days]

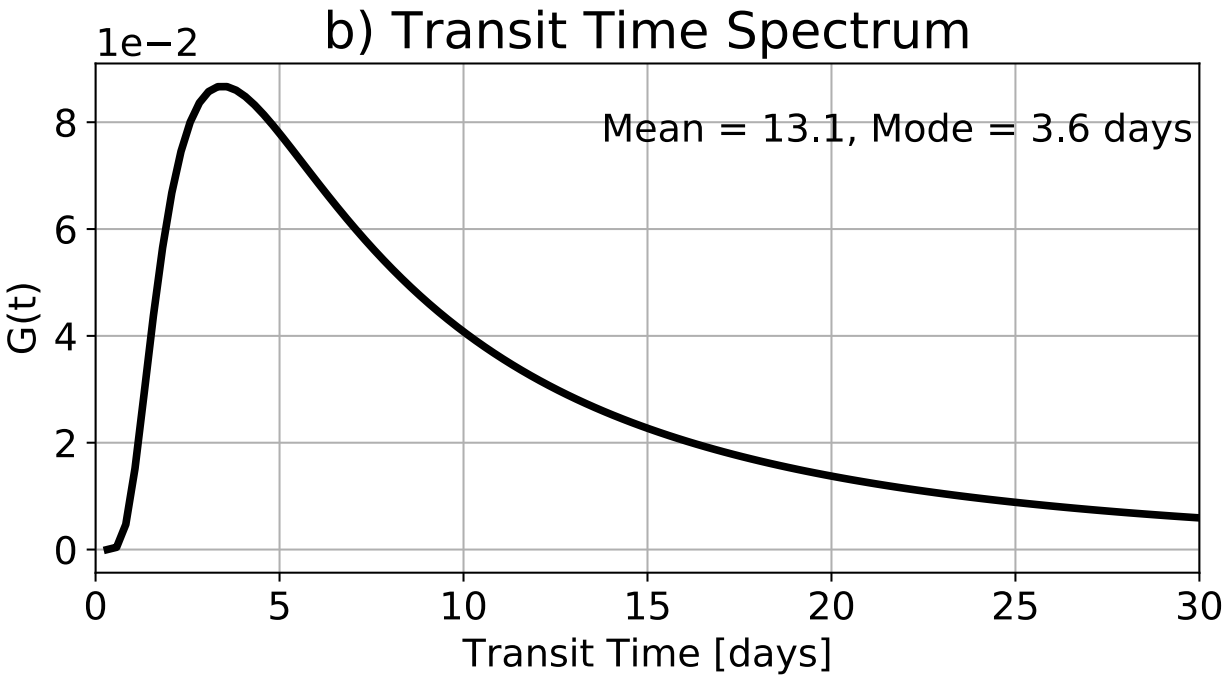
RF07


a) $\mu^* - \tau$
RF07: R^2 = 0.8
μ^*
τ [day]

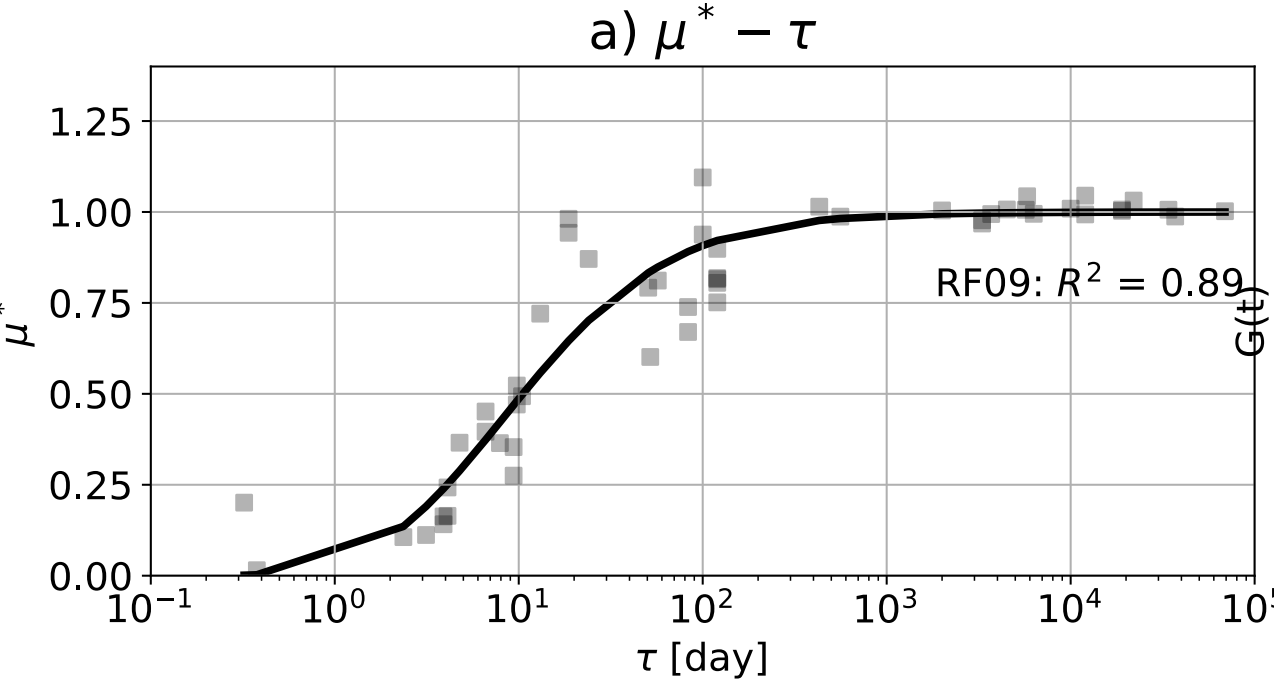

b) Transit Time Spectrum
Mean = 4.9, Mode = 1.3 days
G(t)
Transit Time [days]

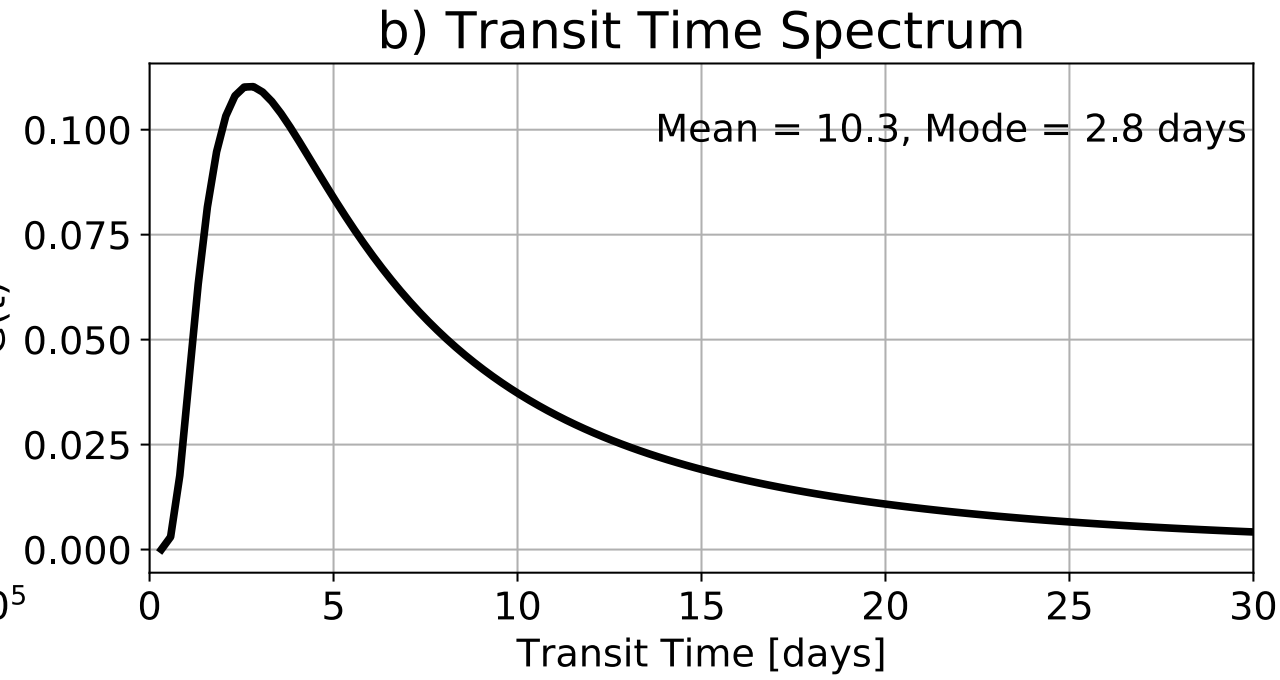
RF08


a) $\mu^* - \tau$
RF08: R^2 = 0.87
μ^*
τ [day]

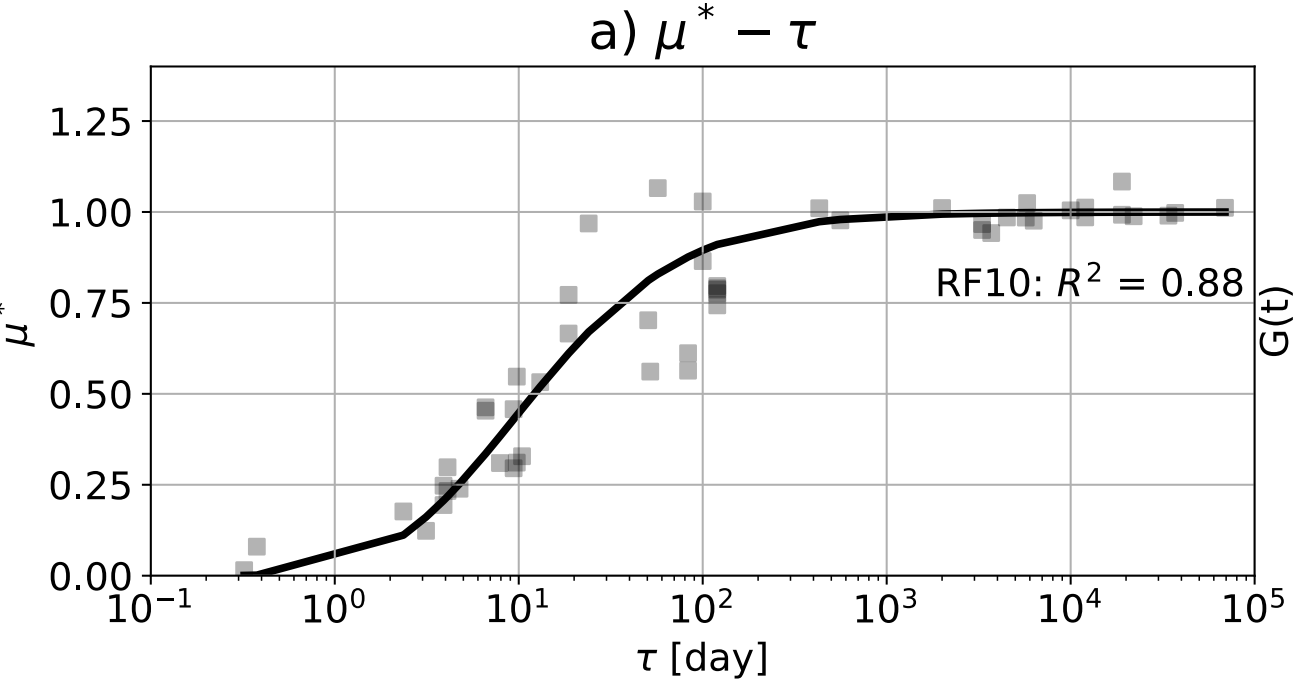

b) Transit Time Spectrum
1e−2
Mean = 13.1, Mode = 3.6 days
G(t)
Transit Time [days]

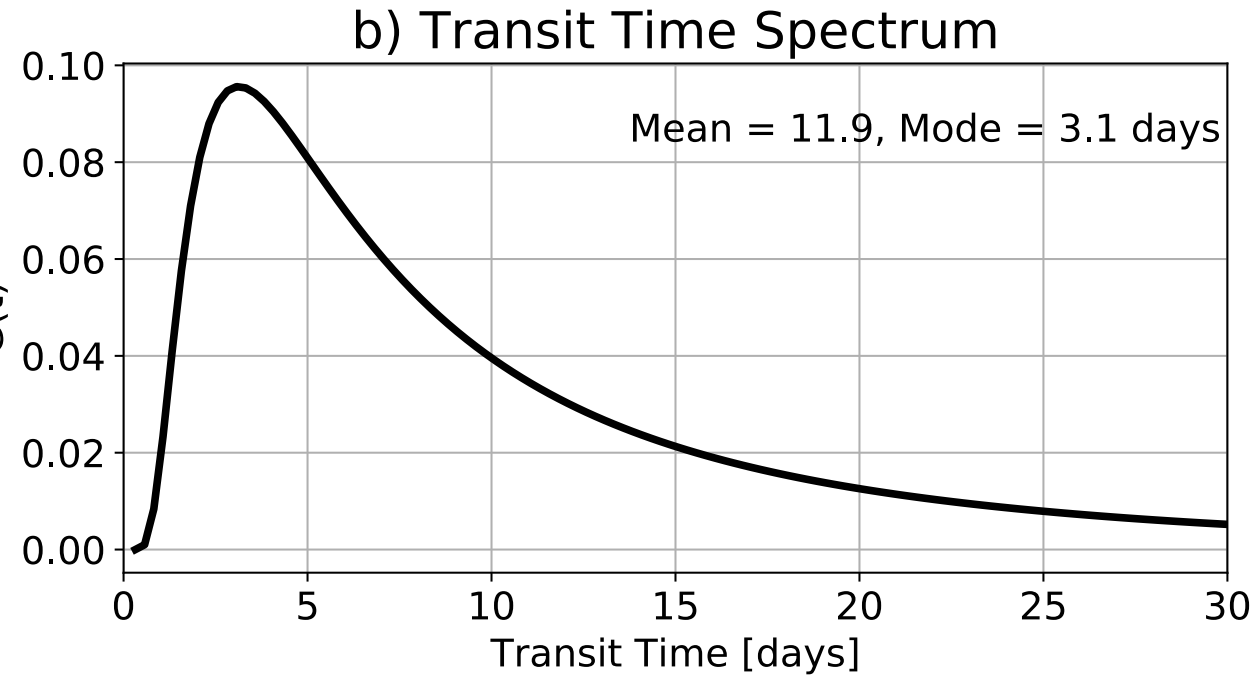
RF09


a) $\mu^* - \tau$
RF09: R^2 = 0.89
μ^*
τ [day]

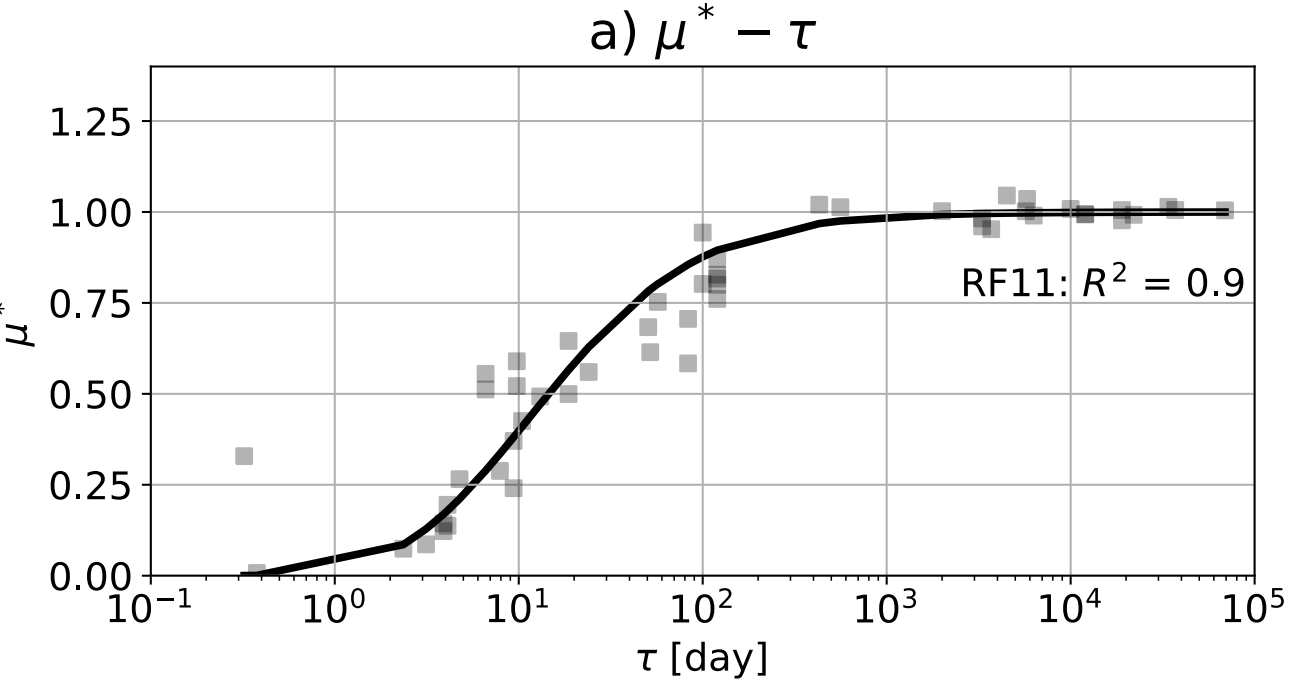

b) Transit Time Spectrum
Mean = 10.3, Mode = 2.8 days
G(t)
Transit Time [days]

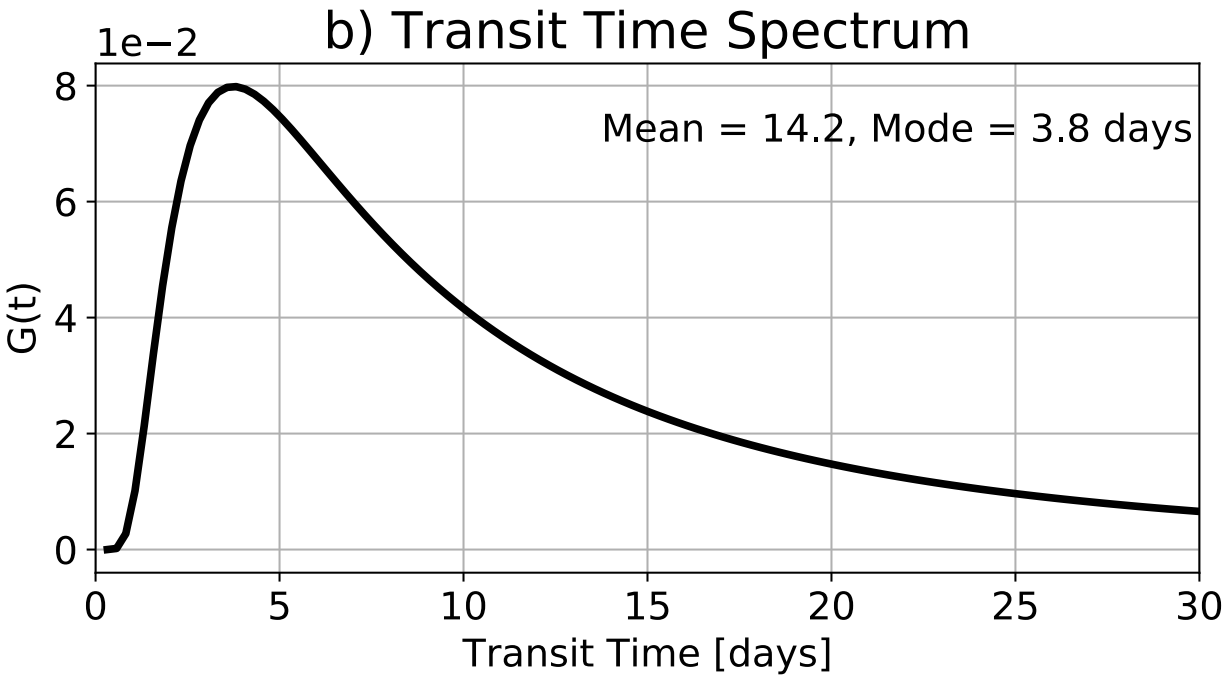
RF10


a) $\mu^* - \tau$
RF10: R^2 = 0.88
μ^*
τ [day]

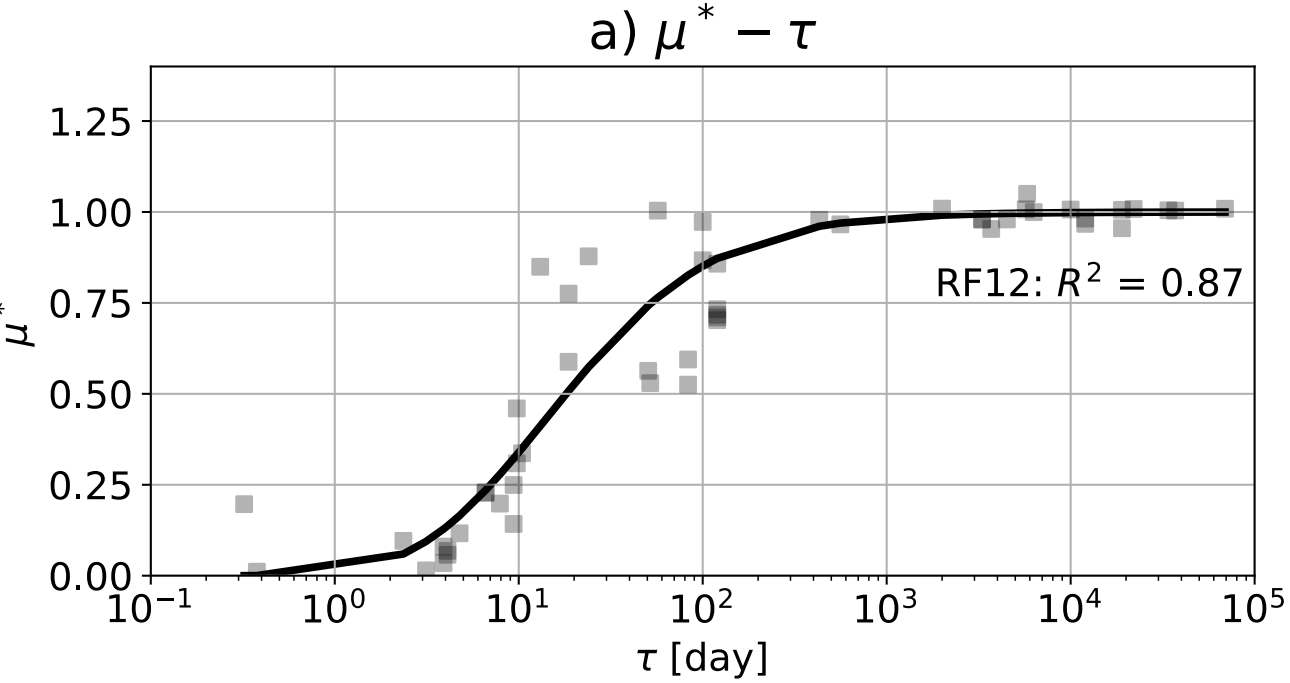

b) Transit Time Spectrum
Mean = 11.9, Mode = 3.1 days
G(t)
Transit Time [days]

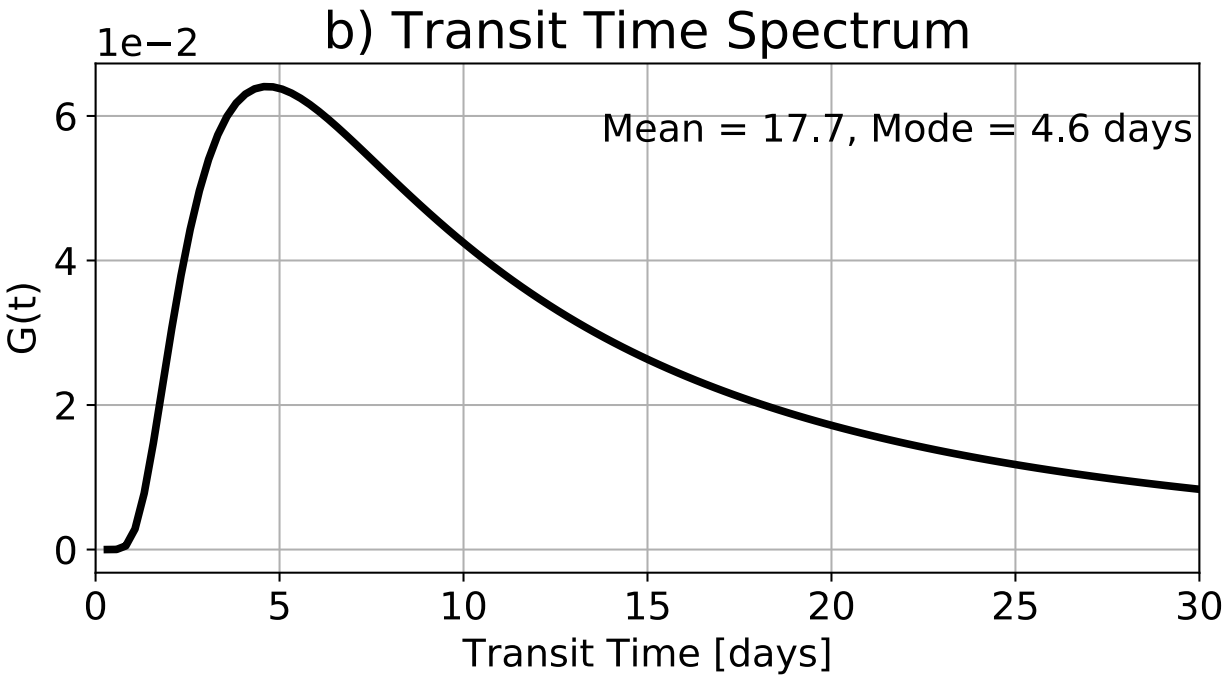
RF11


a) $\mu^* - \tau$
RF11: R^2 = 0.9
μ^*
τ [day]

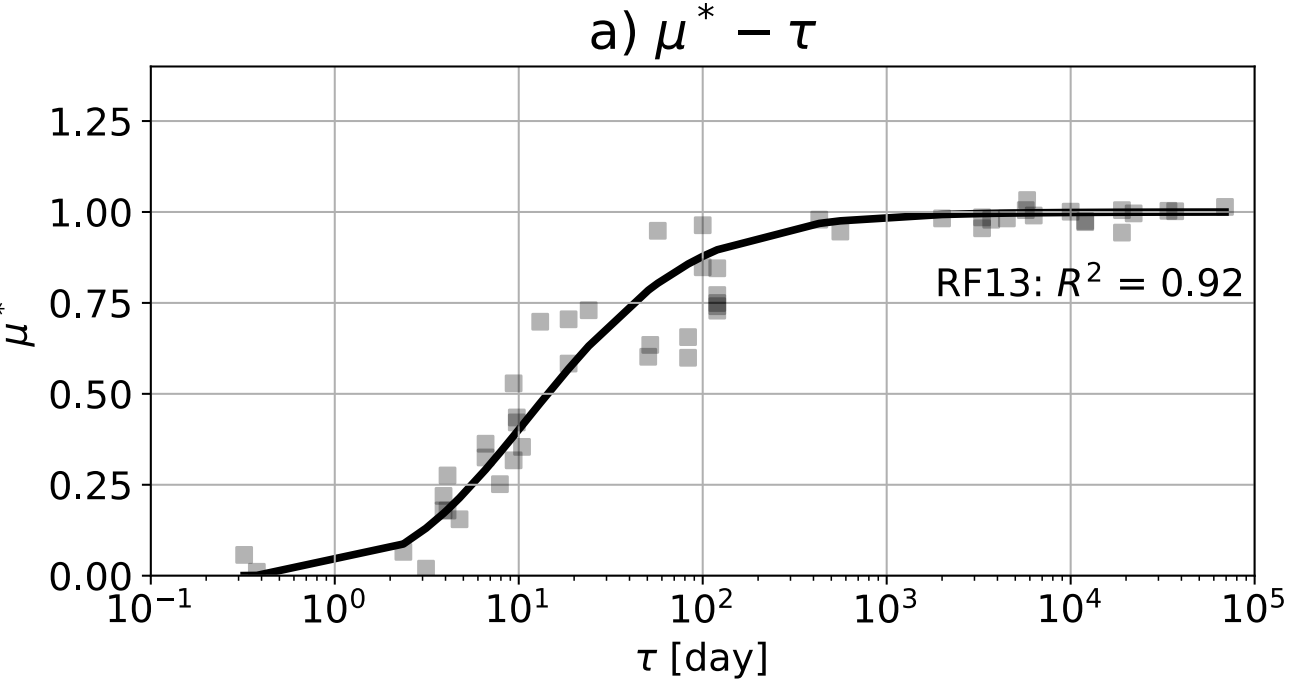

b) Transit Time Spectrum
1e−2
Mean = 14.2, Mode = 3.8 days
G(t)
Transit Time [days]

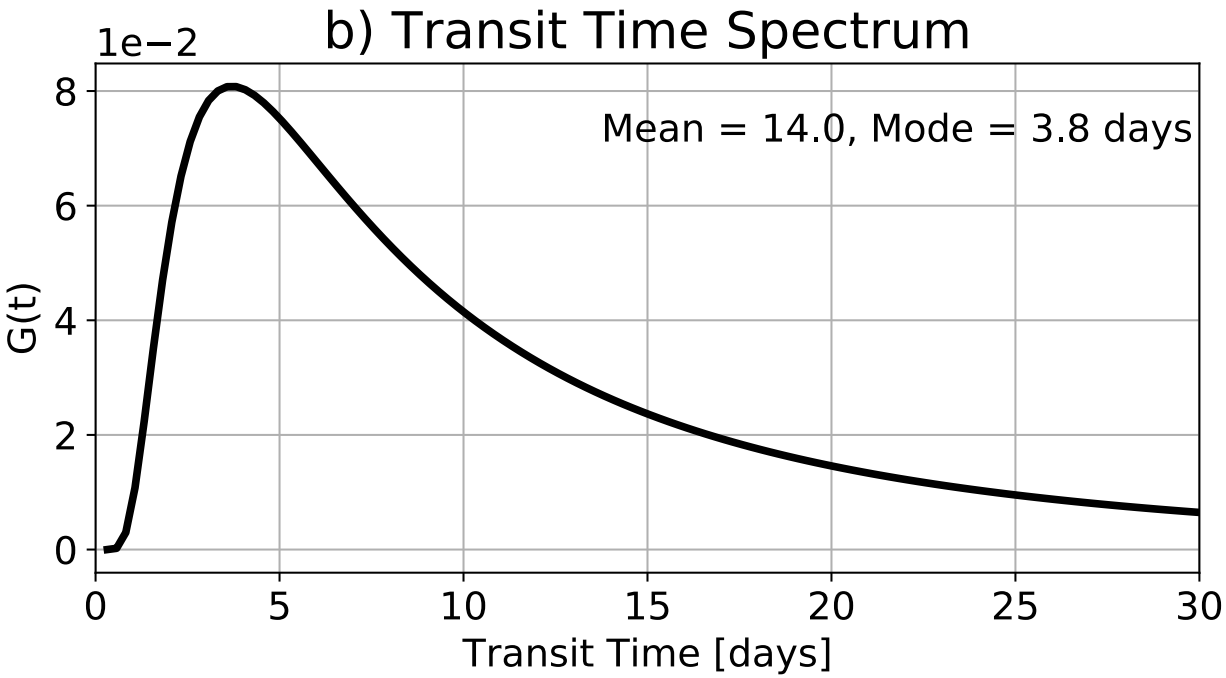
RF12


a) $\mu^* - \tau$
RF12: R^2 = 0.87
μ^*
τ [day]

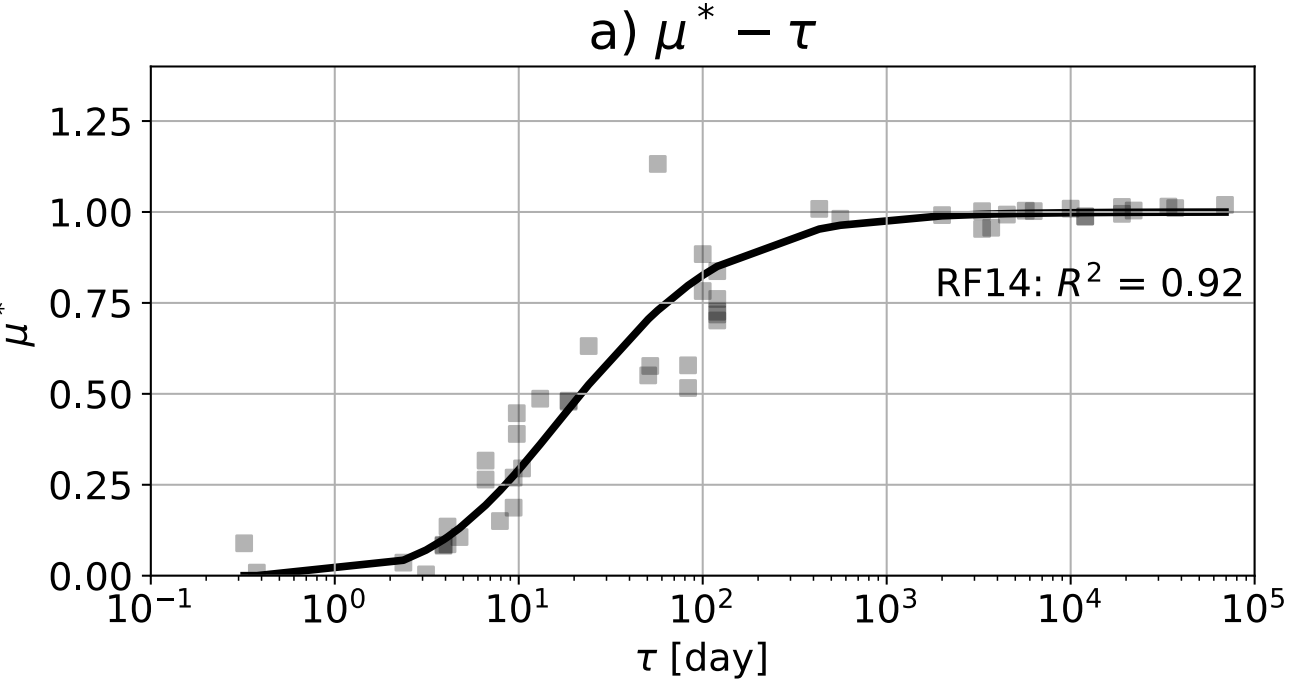

b) Transit Time Spectrum
1e−2
Mean = 17.7, Mode = 4.6 days
G(t)
Transit Time [days]

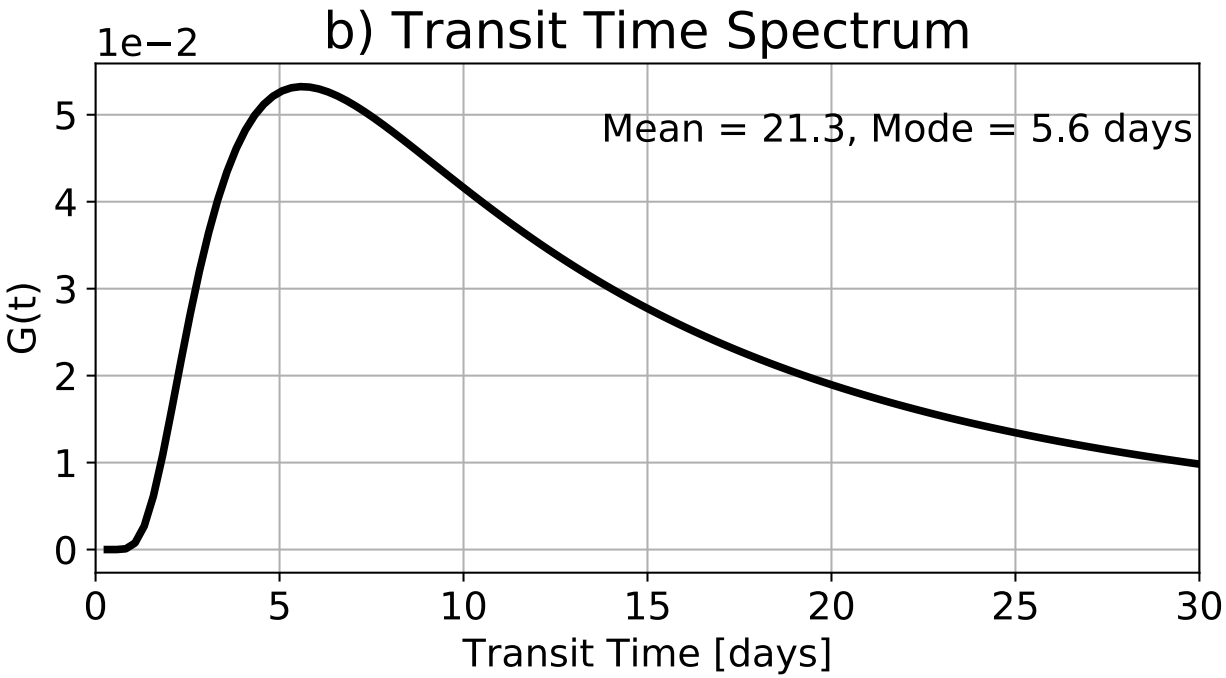
RF13


a) $\mu^* - \tau$
RF13: R^2 = 0.92
μ^*
τ [day]

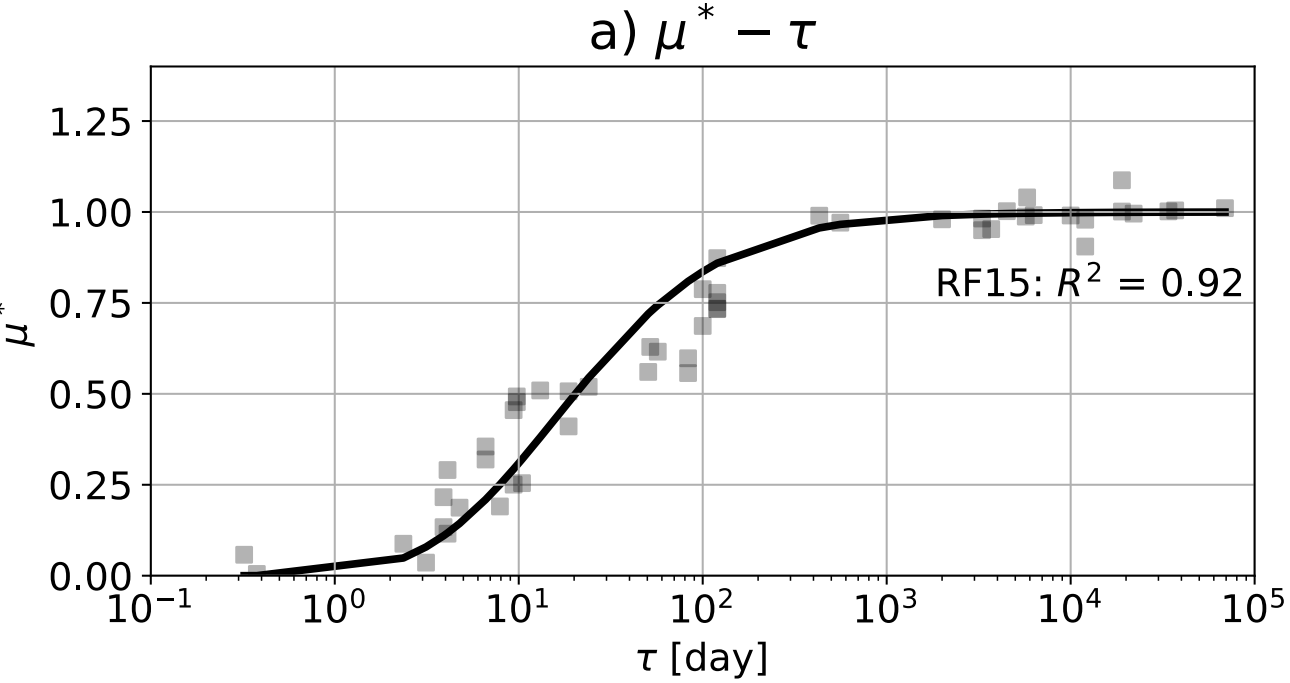

b) Transit Time Spectrum
1e−2
Mean = 14.0, Mode = 3.8 days
G(t)
Transit Time [days]

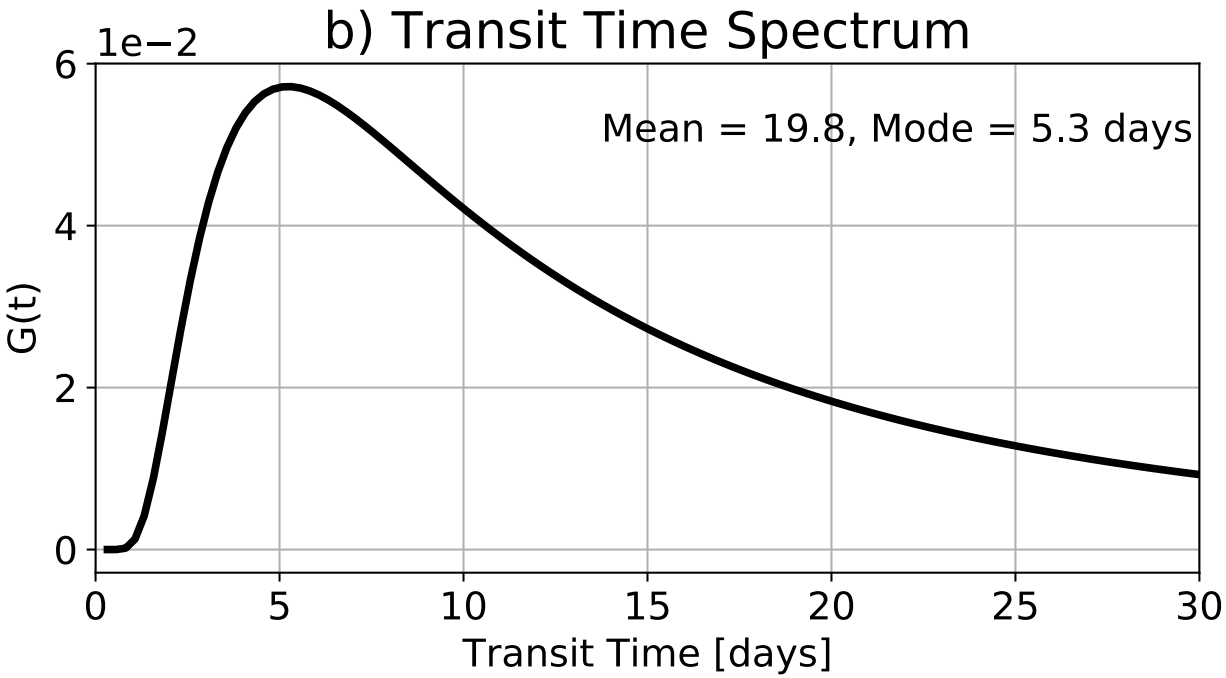
RF14


a) $\mu^* - \tau$
RF14: R^2 = 0.92
μ^*
τ [day]


b) Transit Time Spectrum
1e−2
Mean = 21.3, Mode = 5.6 days
G(t)
Transit Time [days]

RF15


a) $\mu^* - \tau$
RF15: R^2 = 0.92
μ^*
τ [day]


b) Transit Time Spectrum
1e−2
Mean = 19.8, Mode = 5.3 days
G(t)
Transit Time [days]