

## 4 Apparent path length as a function of separation angle

### 4.1 Update on log 2.2.3

#### Data plotted

(16 April 2024)

The data has been converted from tables 2-6 in the Paassilta et al. (2018) paper to a csv file that includes relevant adjustments as per the keys (e.g. a ‘+’ next to a time indicates that the time given -usually the onset at the instrument- occurs the following day after the event, so a new column is inserted that correlates the dates to these times).

The following pages include all the plots for the apparent length (either from VDA or TSA) as a function of the separation angle  $\Delta\phi$ , in both radians and degrees (no change though), in various axis scales...

**Table 4** Proton event onset times, connection angles, and selected > 55 MeV multi-spacecraft proton events in 2009–2016.

ID	Date	SOHO/ERNE 55–80 MeV proton flux				
		Onset [UT]	$\phi_C$ [°]	VDA $s$ [AU]	VDA $t_0 +$ 500 s [UT]	$R^2$
1	2011 Jan. 28	01:56	5	$1.96 \pm 0.11$	01:12±00:08	0.951
2	2011 Feb. 15	03:39	−47	$3.23 \pm 0.24$	01:55±00:21	0.917
3	2011 Mar. 07	21:06	−16	$1.77 \pm 0.11$	20:37±00:08	0.944
4	2011 Mar. 21	03:27	59	$2.41 \pm 0.09$	02:39±00:07	0.978
5	2011 Aug. 04	04:40	−36	$1.78 \pm 0.09$	04:22±00:08	0.853
6	2011 Sep. 06	23:27	−34	$1.85 \pm 0.21$	23:24±00:16	0.819

Figure 9: Sample of a table from Paassilta et al. (2018), used ‘VDA  $s$ ’ as the ‘VDA length’ in the upcoming figures.

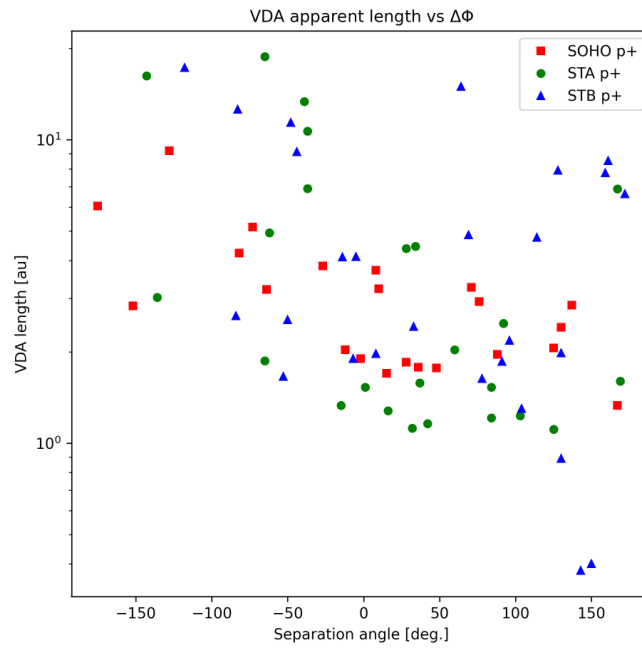


Figure 10: VDA length, using semilogy, angle in degrees.

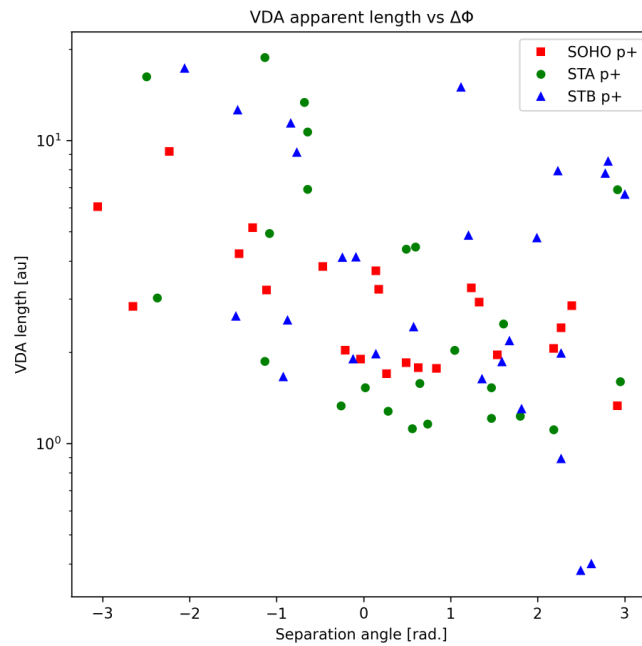


Figure 11: VDA length, using semilogy, angle in rads.

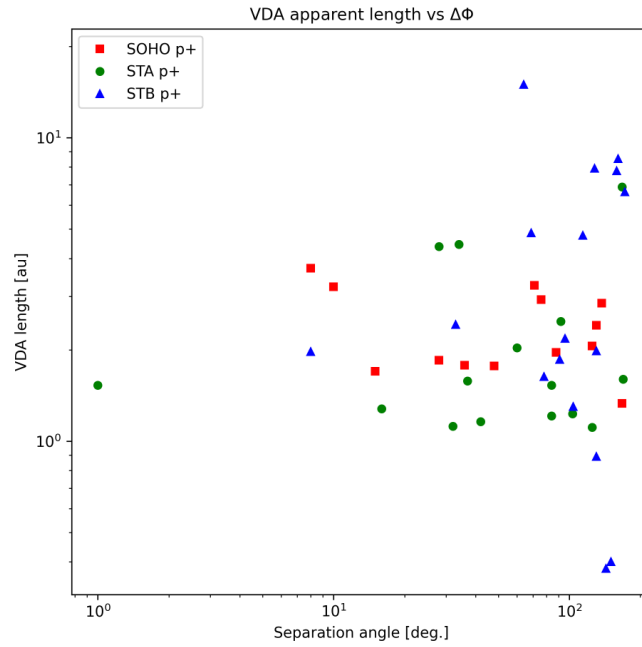


Figure 12: VDA length, using loglog, angle in degrees.

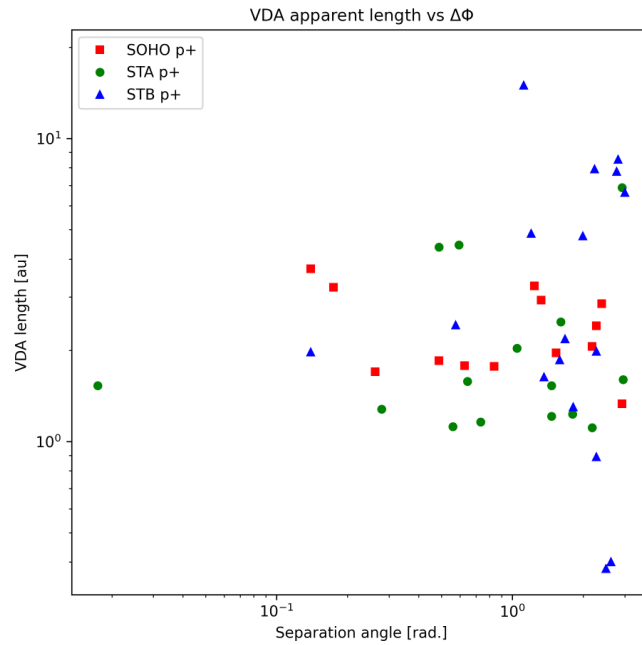


Figure 13: VDA length, using loglog, angle in rads.

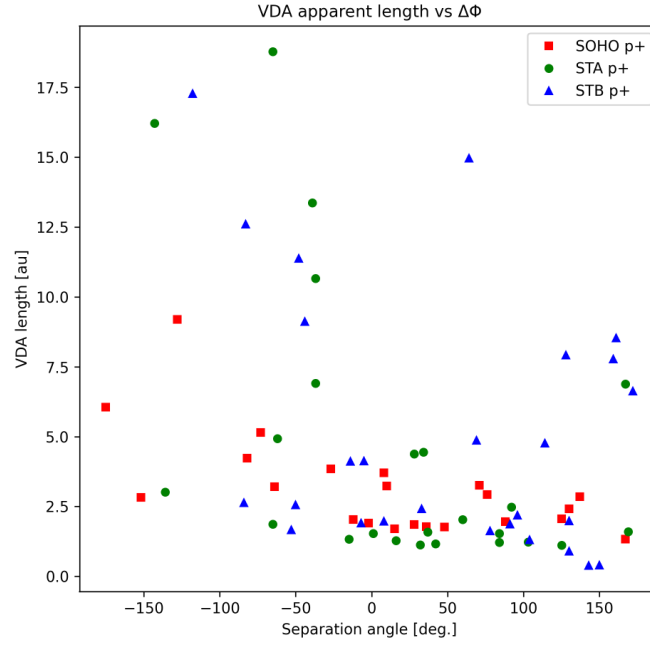


Figure 14: VDA length, using linear, angle in degrees.

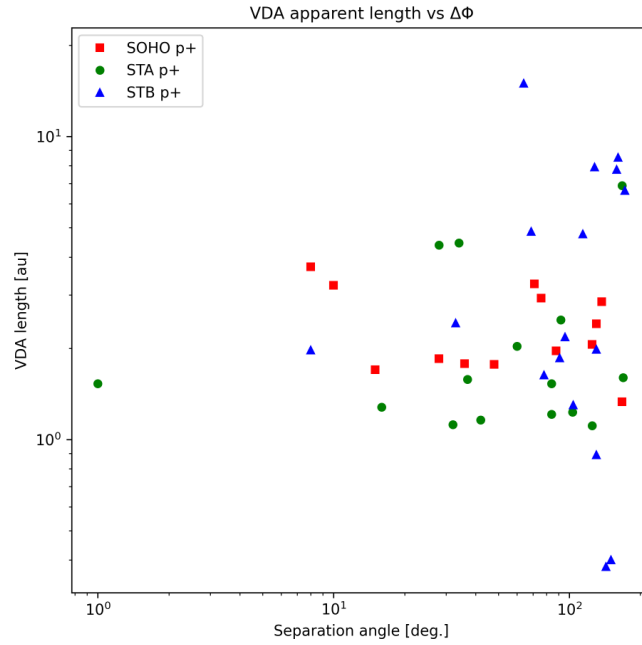


Figure 15: VDA length, using linear, angle in rads.

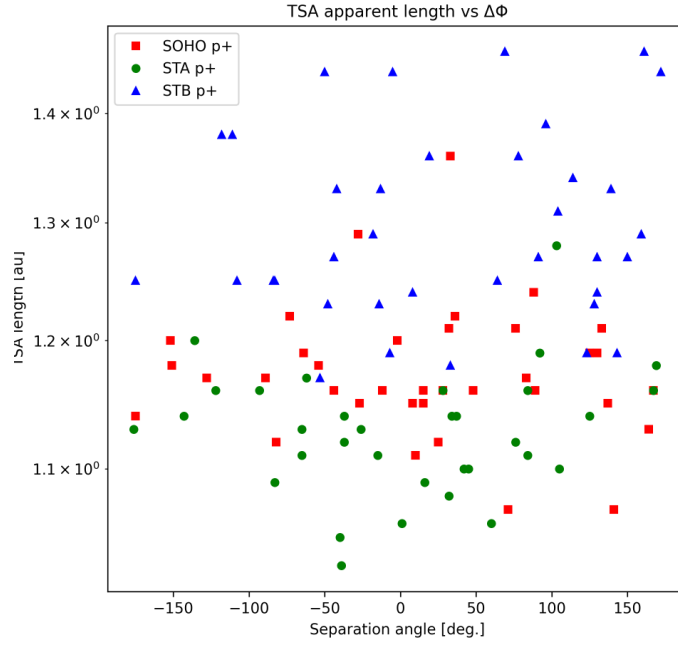


Figure 16: TSA length, using semilogy, angle in degrees.

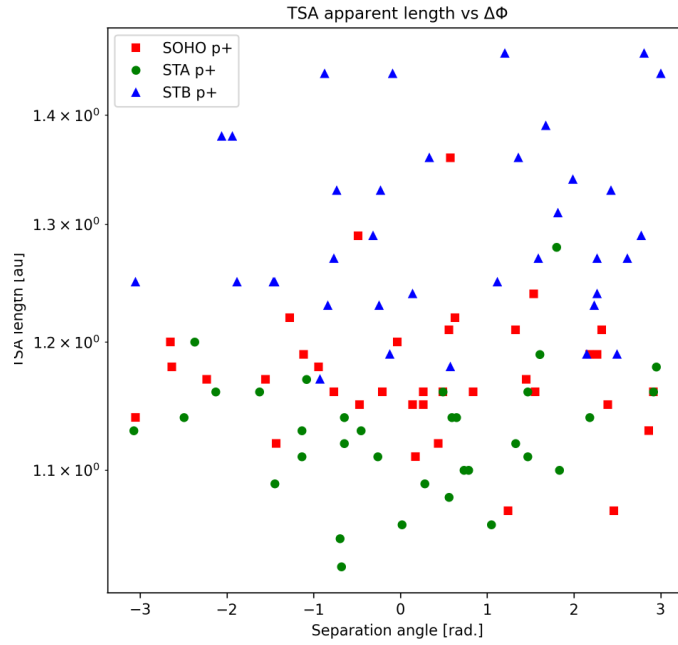


Figure 17: TSA length, using semilogy, angle in rads.

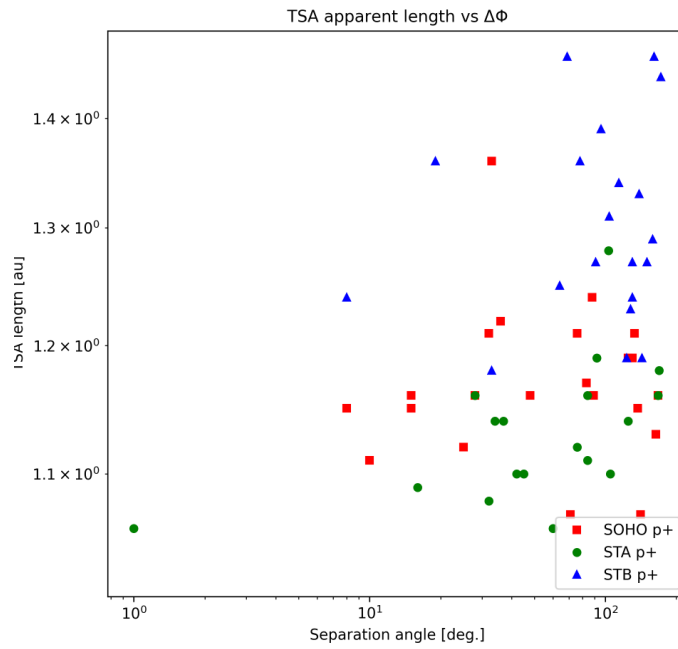


Figure 18: TSA length, using loglog, angle in degrees.

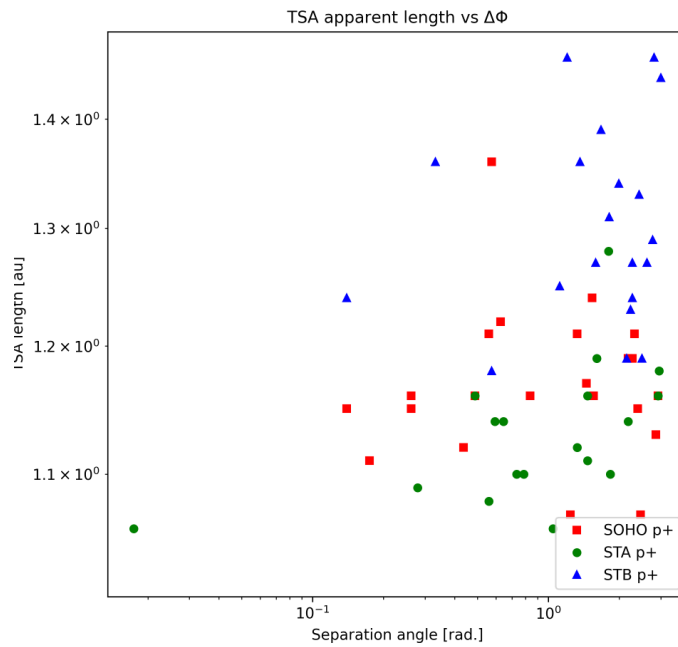


Figure 19: TSA length, using loglog, angle in rads.

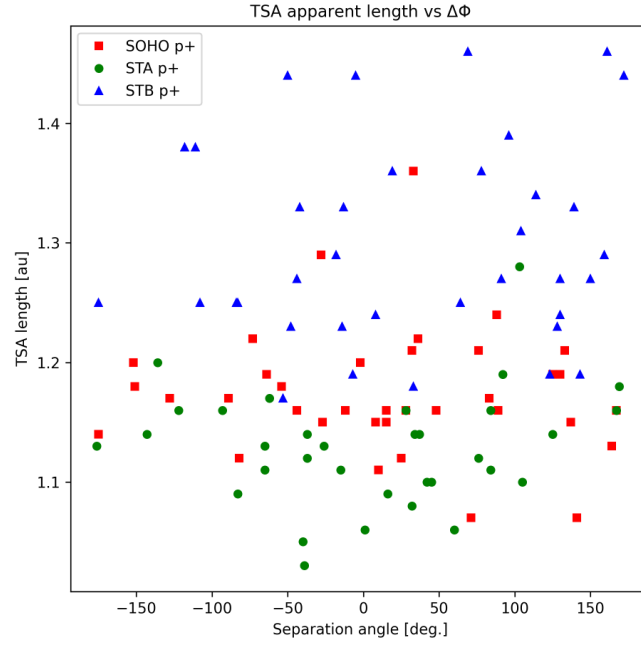


Figure 20: TSA length, using linear, angle in degrees.

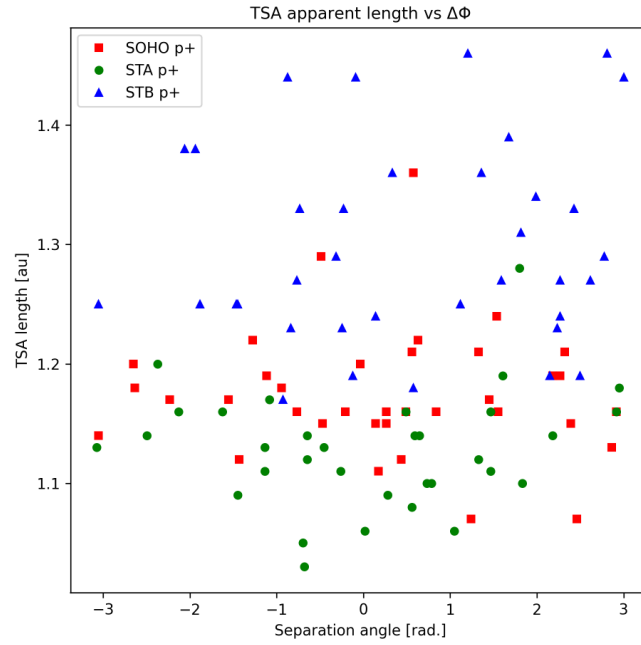


Figure 21: TSA length, using linear, angle in rads.