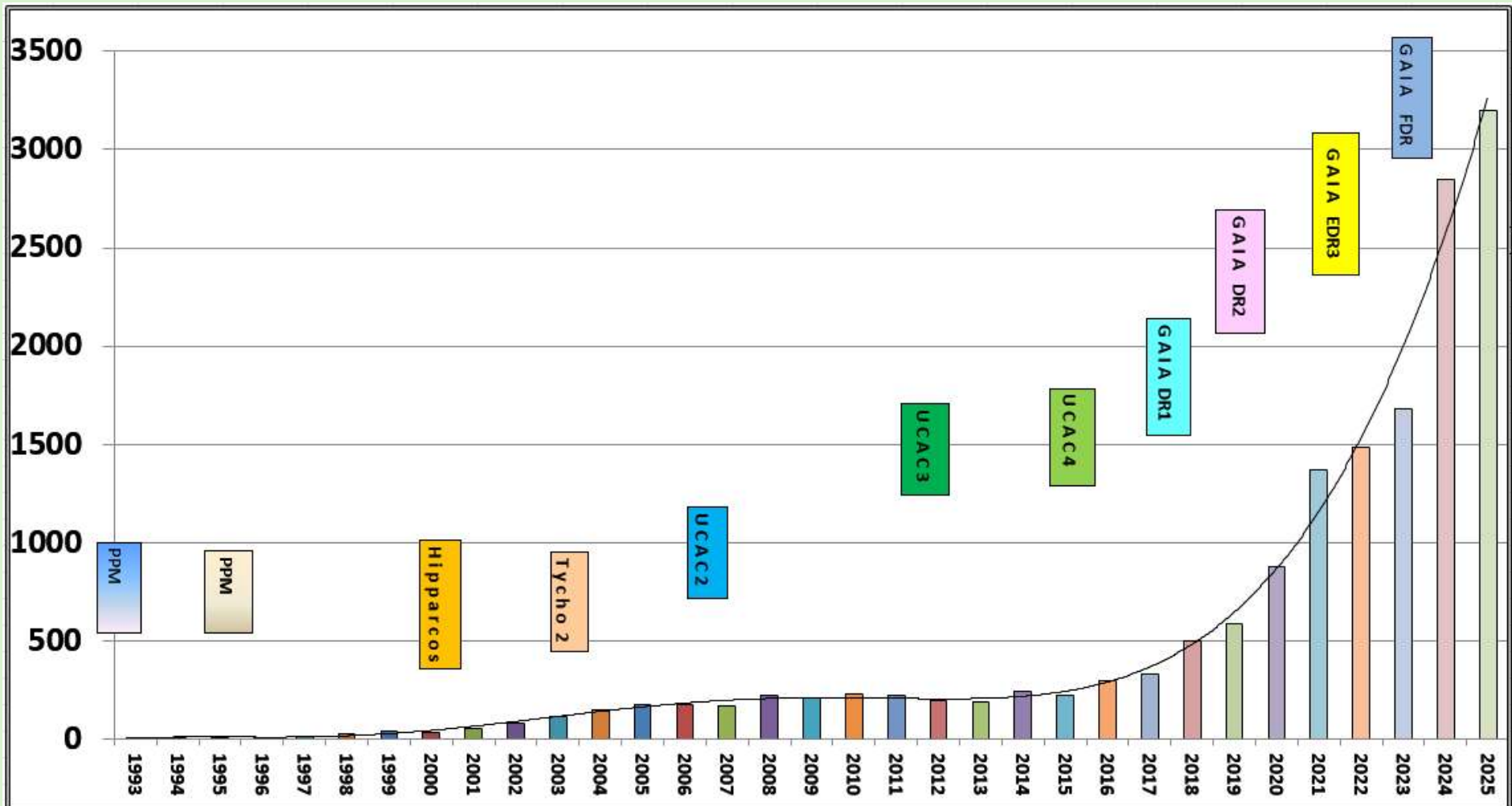


Asteroidal Occultations: Stats, Issues, & Results from 2024

Massive increase over last 18 months



Number of events in 2024 by size & chords

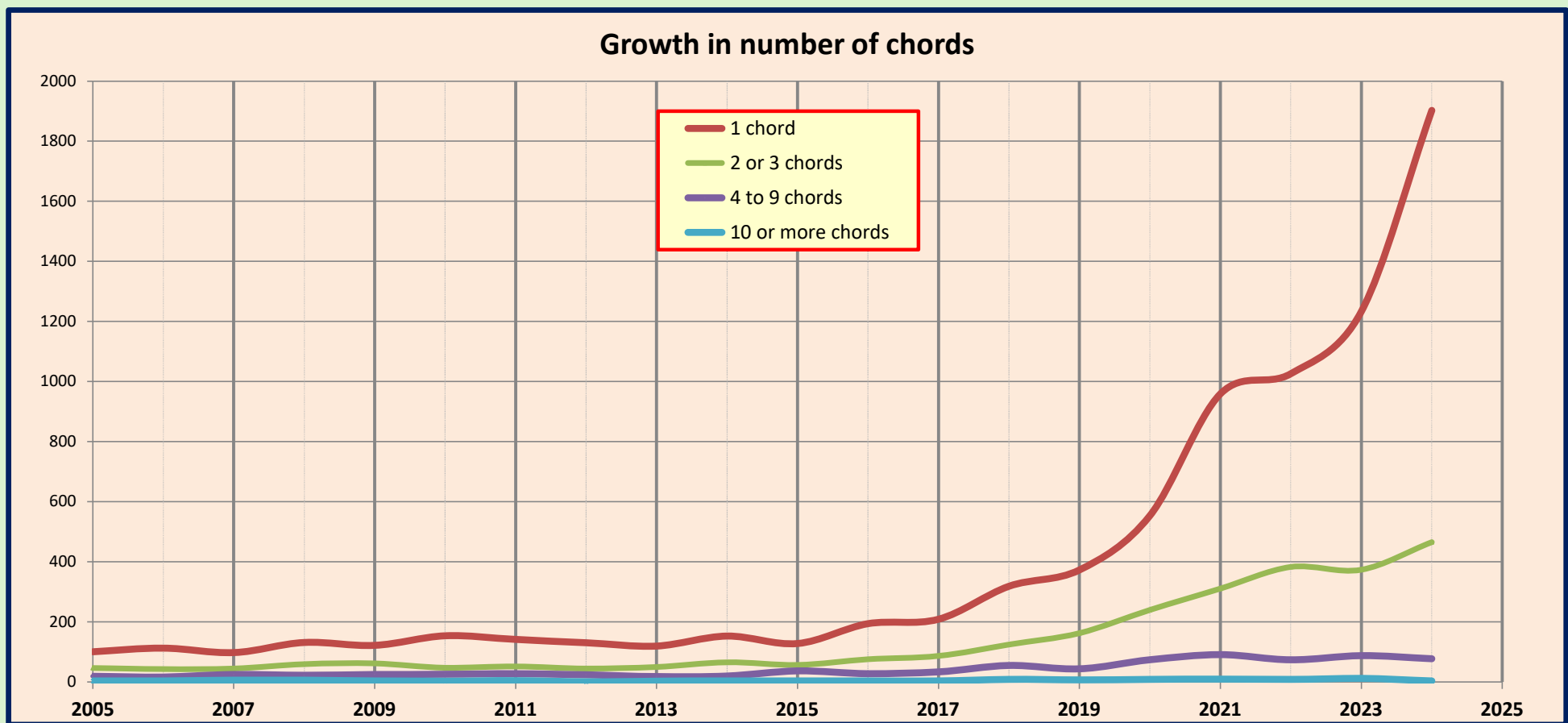
Region	Total	By diameter range (km)						Number of chords			
		<3km 2%	3-10km 35%	10-20km 20%	20-50km 20%	50-100km 15%	>100km 10%	1 75%	2-3 20%	4-9 3%	10+ 2%
World	: 2450	46	858	483	464	373	226	1900	464	77	4
Australasia	: 503	3	178	90	88	94	50	382	114	7	0
East Asia	: 253	4	59	52	69	45	24	160	70	22	1
Europe	: 943	10	335	191	164	151	92	757	145	35	3
Nth America	: 737	29	285	150	140	78	55	588	134	13	0
Sth America	: 9	0	1	0	3	4	1	8	1	0	0

Large increase in small asteroids. 40% < 10km
75% of observations are single-chord events

Total events - 2000 to now

<u>Region</u>	<u>Total</u>
Australasia :	2617
East Asia :	1288
Europe :	4297
Nth America :	4407
Sth America :	244
Other :	32
<u>Total</u>	<u>: 12885</u>

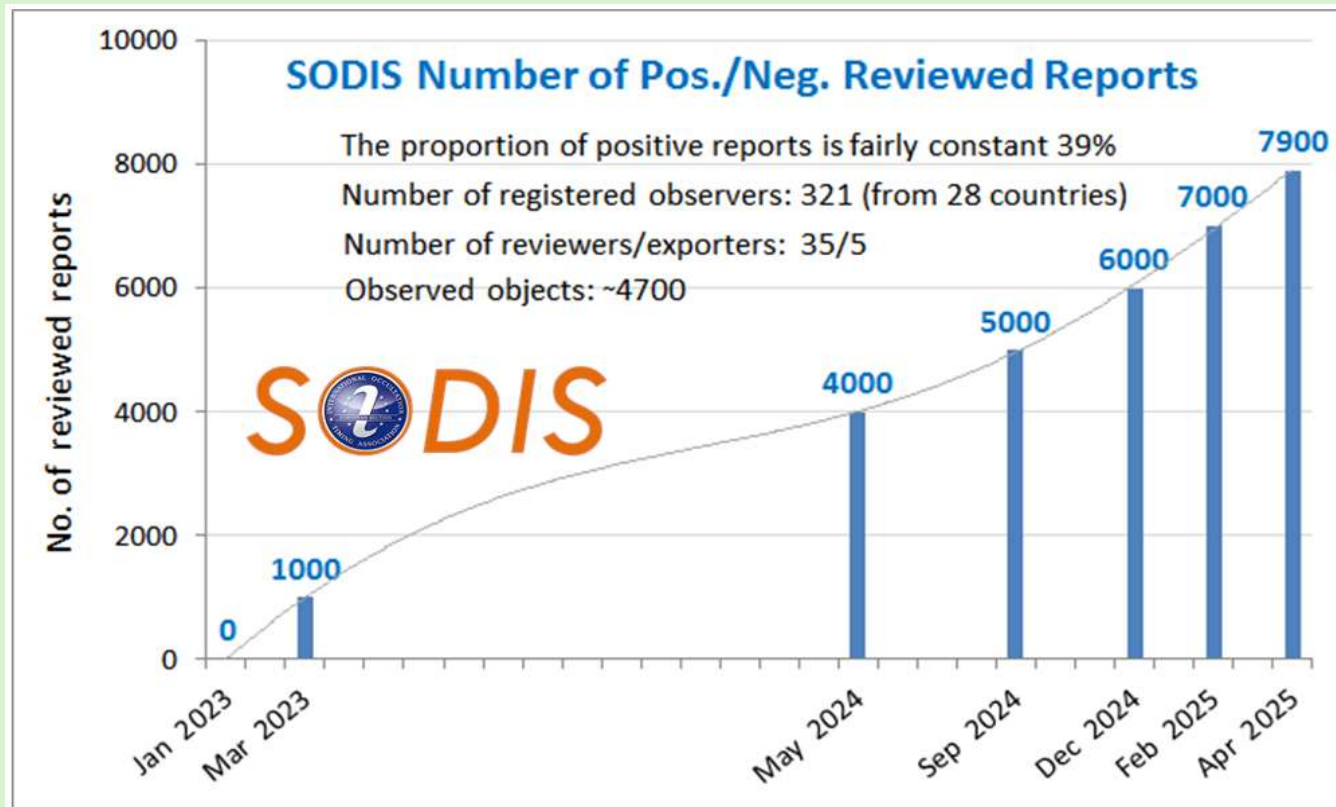
Growth in the number of chords



Growth in number of observations

Some statistics from the European SODIS system that began in 2023

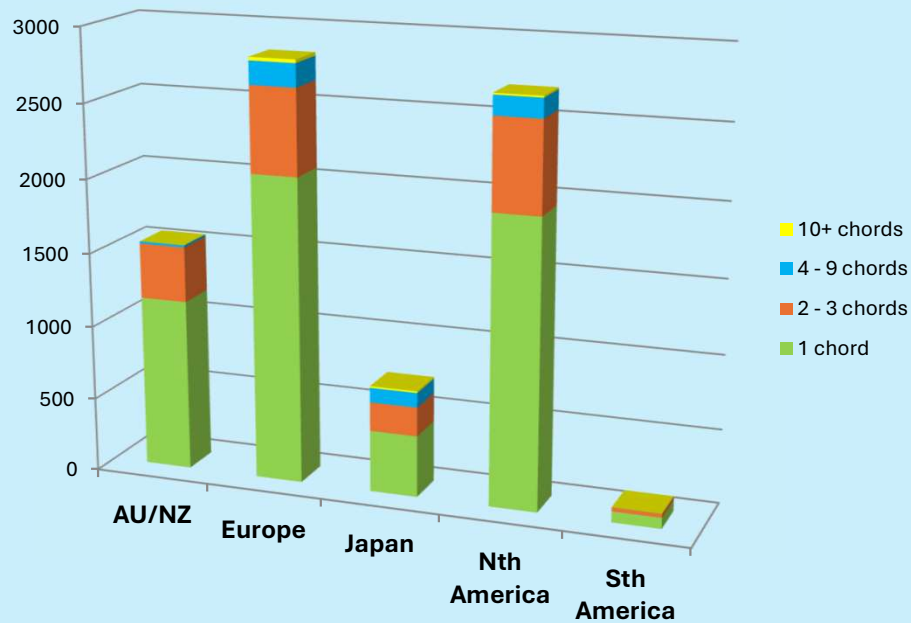
Proportion of reports that are +ve : constant at about 40%



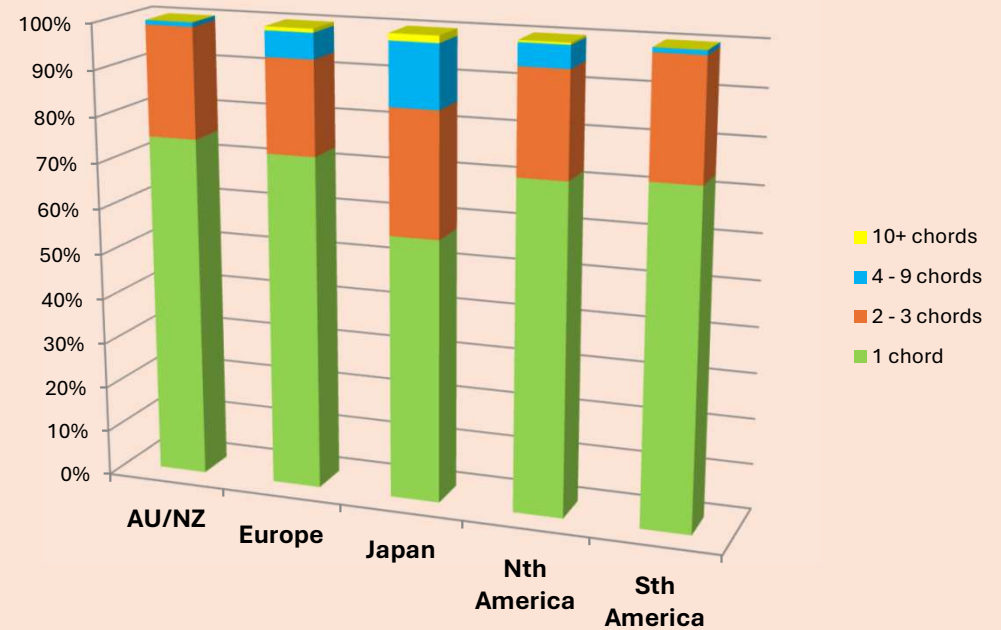
Plot provided by
Christian Weber

Number of chords, by region

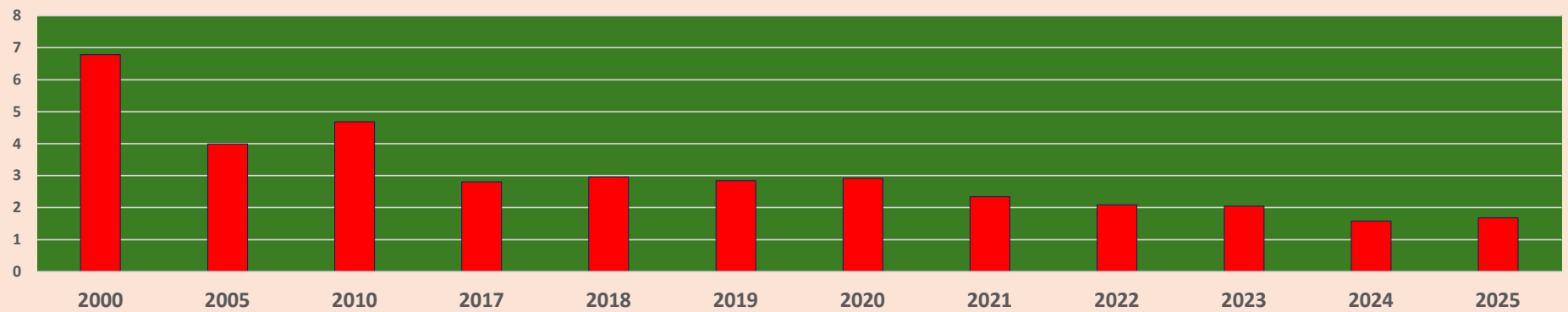
Number of chords - by region 2020 to 2024



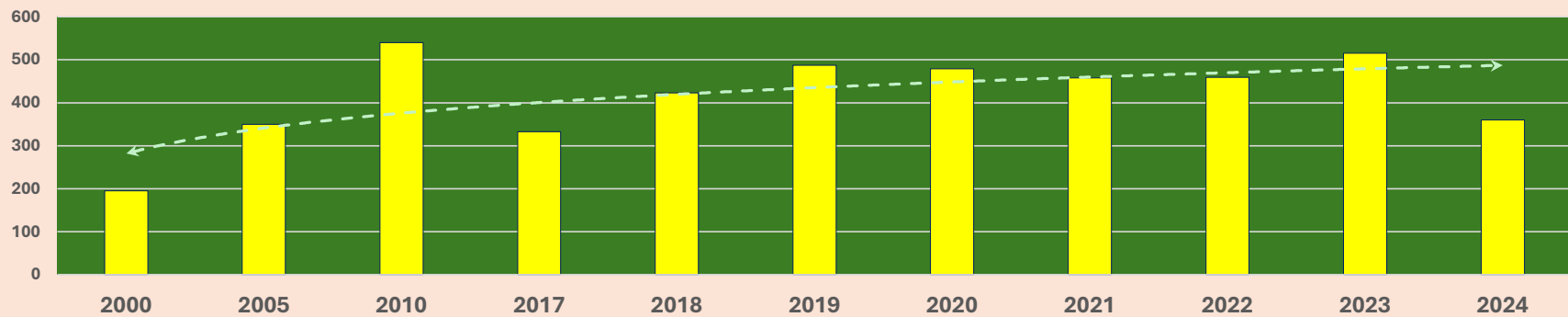
Chord ratios - by region 2020 to 2024



Number of Observers per Event



Number of individual observers



Satellite discoveries - 2024 & 2025

CBET **Year 2024**

- 5370 **(10424) Gaillard** J. Gout (US, 2024)
- 5382 **(5232) Jordaens** M. Simpson, B. Yeung, & G. Schmidt (CA, 2024)
- 5388 **(100624) 1997 TR_28** J. Kubanek, M. Ishida & Y. Ikari, (CZ & JP, 2024)

Year 2025

- 5506 **(10430) Martschmidt** R. Nolthenius & J. Gout (US, 2024)
- 5511 **(3927) Feliciaplatt** V. Sempronio, K. Getrost, & R. Venable (US, 2024)
- 5512 **(6326) Idamiyoshi** H. Watanabe, H. Yamamura & N. Manago (JP, 2024)
- 5521 **(127481) 2002 NB_19** S. Kerr (AU, 2024)
- 5522 **(61784) 2000 QL_178** N. Carlson & J. Bardecker (US, 2024)
- 5544 **(148358) 2000 SY18** (US, 2025)
- 5552 **(31736) 1999 JR_73** (DE, 2025)

Pending

- **(9203) Myrtus** (JP, 2025)
- **(134421) 1998 QT_2** (US, 2024)
- **(33956) 2000 NN3** (US, 2025)
- **(60050) 1999 TJ106** (AU, 2025)

Size/distance stats

Asteroid number	Nominal dia (km)	Satellite dia (km)	sepn of centers (radii of main)
1626	12	3.9	~ 9
3927	4.0	1.5	~ 2.7
4337	19	12	~ 4.9
5232	12	8	~ 5.5
5457	21	2	> 1.8 *
6326	6.9	1.3	> 2.2 *
10424	6.5	2.1	~ 2.0
10430	5.7	4.0	~ 3.8
31736	4.5	1.5	~ 4.9
61784	5.2	1.8	~ 3.3
100624	16	4.0	~ 3.2
127418	5.3	1.7	~ 3.6
148358	1.8	0.9	~ 3
172376	5.7	3.3	~ 5.4

Double star discoveries

2024 : 44 double star discovered

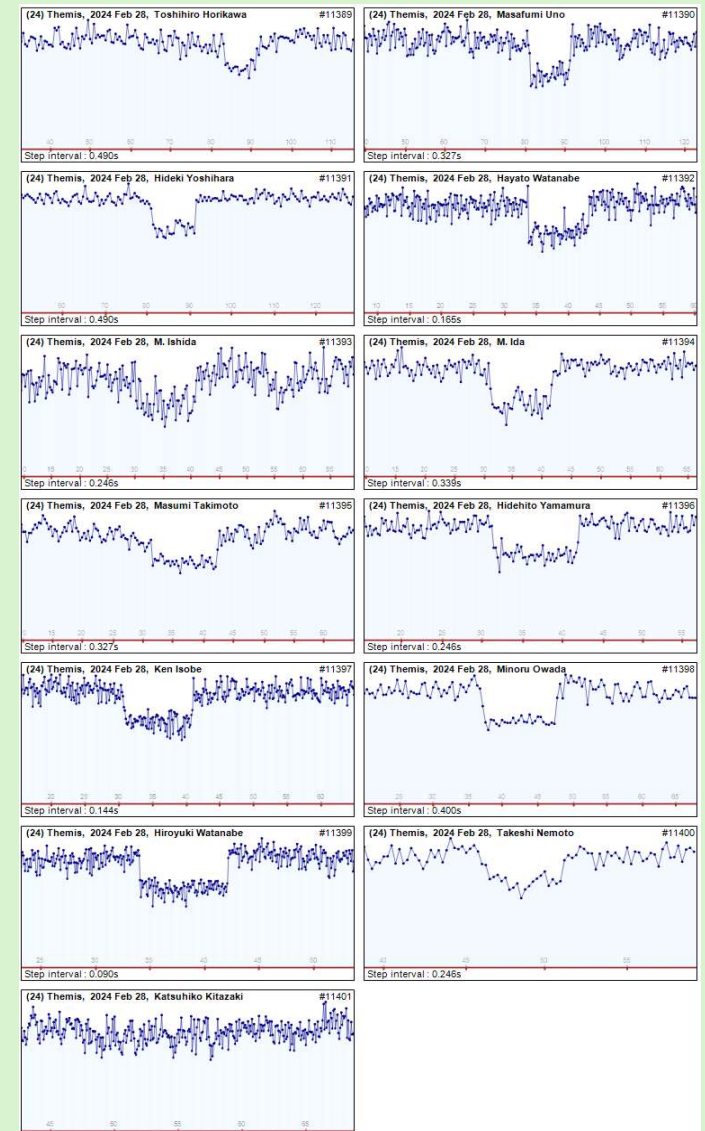
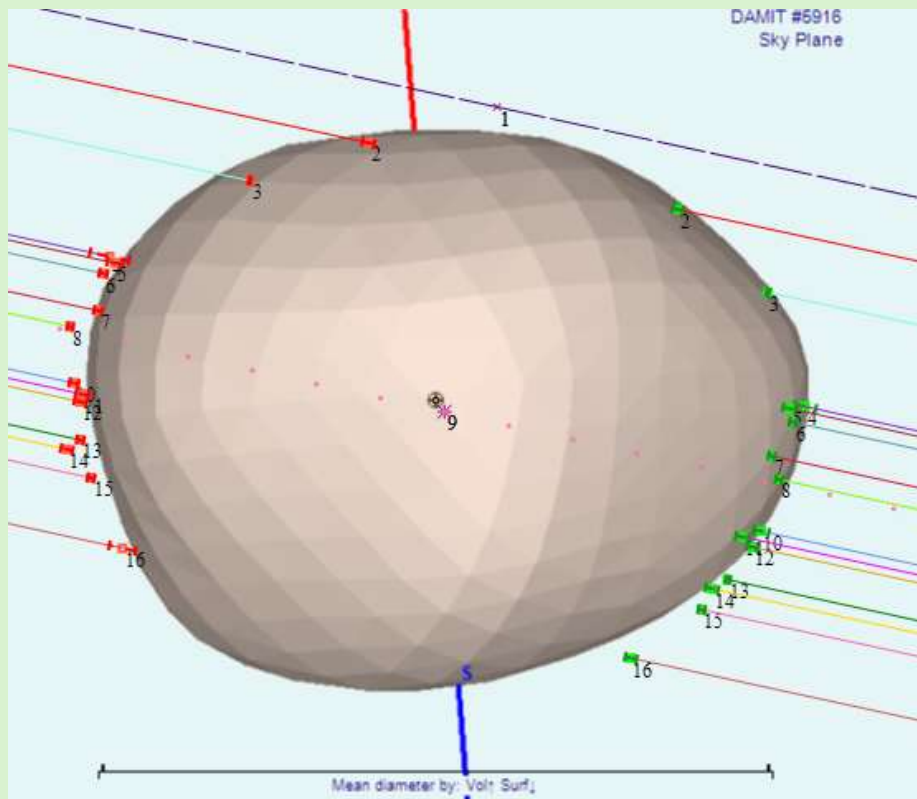
2025 – so far 22, with 14 being single-component-only detections

Count	Star number	Mv1	Mv2	Soln	Sep (masec)	P.A.	RUWE	Date	Asteroid
1	UCAC4 379-071051	14.7	12.0	#1	36.9	104	0.95	2025 Apr 18	2392 Jonathan Murray
2	UCAC4 497-056240	13.4	13.4	#1	>0.3	20	1.10	2025 Apr 17	158207 2001 SK55
3	UCAC4 227-074249	13.5	13.8	#1	>7.2	180	1.00	2025 Apr 14	372 Palma
4	UCAC4 498-051917	12.3	12.3	#1	?	?	1.30	2025 Apr 12	13260 Sabadell
5	UCAC4 427-055478	13.8	14.2	#1	>0.9	20	0.95	2025 Apr 12	118042 3204 T-2
6	J173846.80-332029.4	12.6	12.8	#1	1.4 ± 5.3	135	9.35	2025 Apr 11	3630 Lubomir
7	Tycho2 1228-01069-1	10.9	11.1	#1	15.1 ± 0.3	66 ± 3	1.65	2025 Mar 17	31817 1999 RK134
8	UCAC4 537-041385	14.8	14.1	#1	>1.2	30	0.90	2025 Feb 25	48499 1993 BV7
9	UCAC4 510-043997	13.0	13.5	#1	20.1 ± 4.5	161 ± 0	1.10	2025 Feb 23	24362 2000 AR120
10	UCAC4 605-018016	14.1	14.1	#1	>1.9	170	1.00	2025 Feb 18	35572 1998 HW6
11	UCAC4 552-009486	13.8	15.0	#1	>0.3	150	1.00	2025 Feb 11	77721 2001 OB52
12	UCAC4 658-041449	11.7	11.3	#1	>0.1	150	1.00	2025 Feb 7	116917 2004 GZ15
13	UCAC4 536-029244	11.7	11.2	#1	>4.0	10	1.35	2025 Feb 6	3625 Fracastoro
14	UCAC4 334-078310	13.7	14.7	#1	2.2 ± 1.3	84 ± 21	1.80	2025 Feb 5	21161 amashitaharuo
15	UCAC4 624-042759	14.0	14.2	#1	>4.2	10		2025 Feb 4	2424 Tautenburg
16	UCAC4 515-034351	14.0	15.0	#1	>2.6	20	0.95	2025 Feb 3	57304 2001 QV198
17	HIP 57690	8.4	8.4	#1	>1.0	60	1.10	2025 Feb 2	46909 1998 RF72
18	UCAC4 587-036757	13.8	13.5	#1	>1.0	10	1.05	2025 Jan 27	62452 2000 S0209
19	UCAC4 522-012609	13.2	13.7	#1	13.1 ± 1.3	226 ± 3	1.35	2025 Jan 18	540 Rosamunde
20	Tycho2 1347-00529-1	10.6	10.8	#1	16.4	296	0.85	2025 Jan 16	110008 2001 SY65
21	UCAC4 644-038283	13.4	13.6	#1	33.1 ± 0.4	63 ± 2	2.35	2025 Jan 16	709 Fringilla
22	UCAC4 670-037147	15.7	16.1	#1	>11.2	140	0.95	2025 Jan 13	759 Vinifera

Selection of the best multi-chord events in 2024

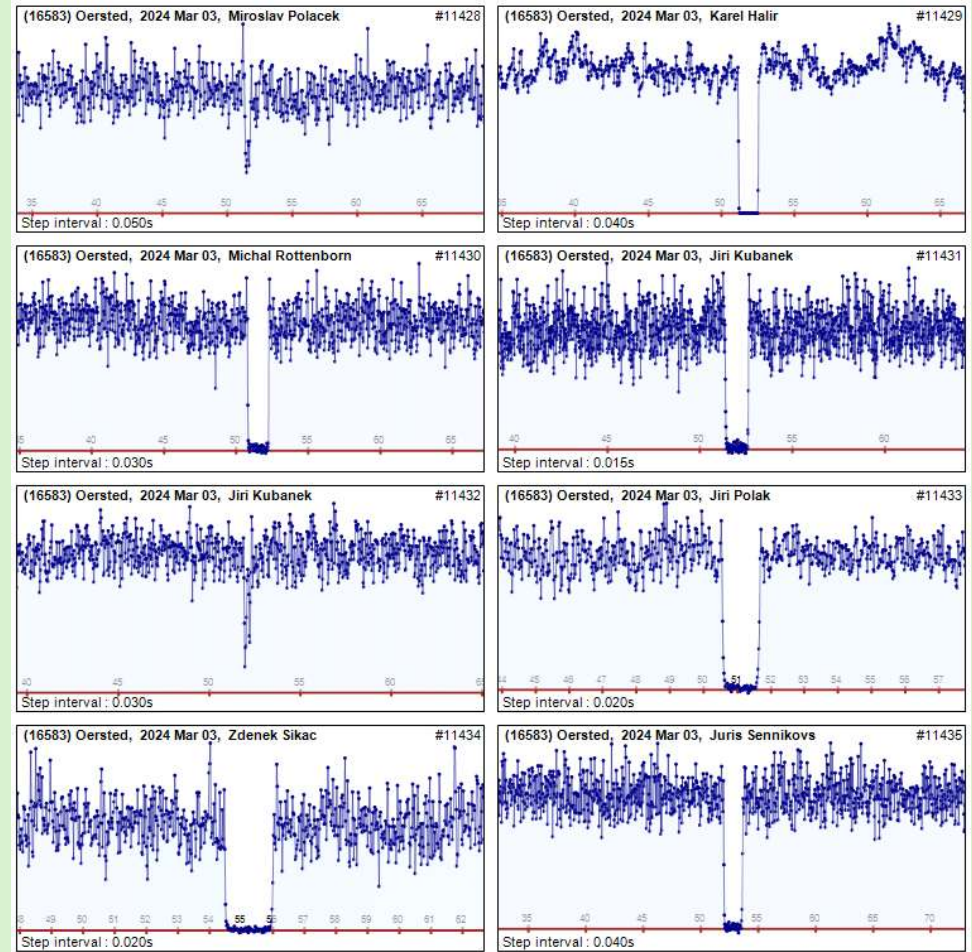
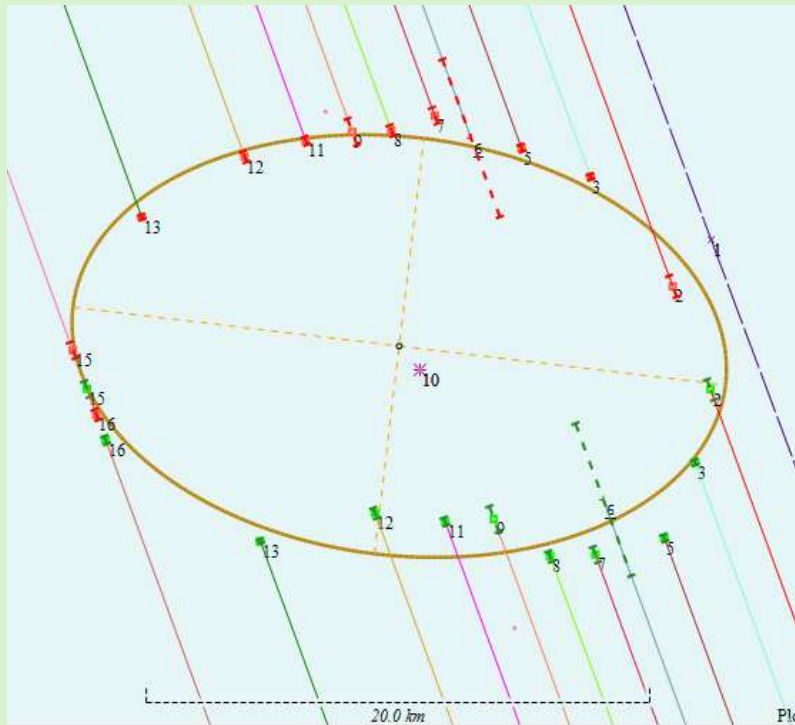
(24) Themis 2024 Feb 28

14 chords, Japan



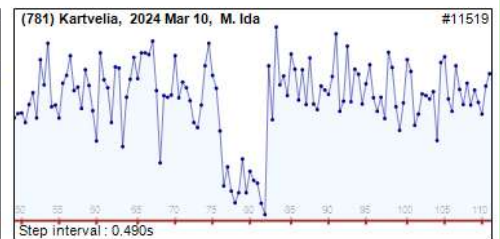
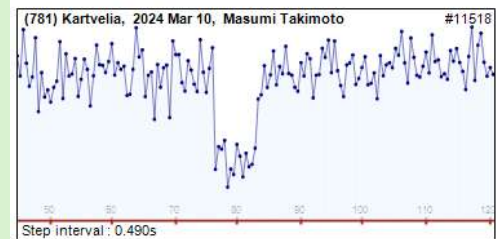
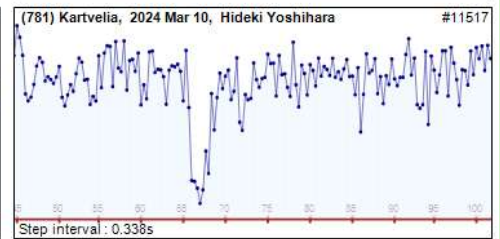
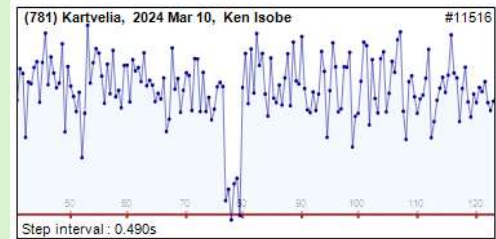
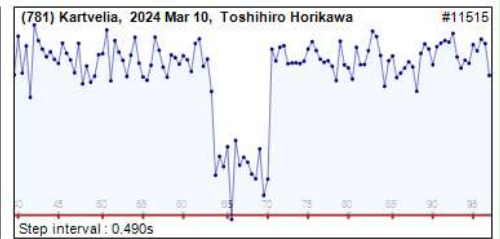
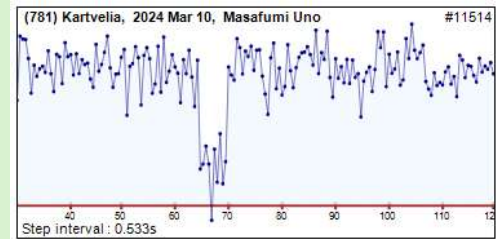
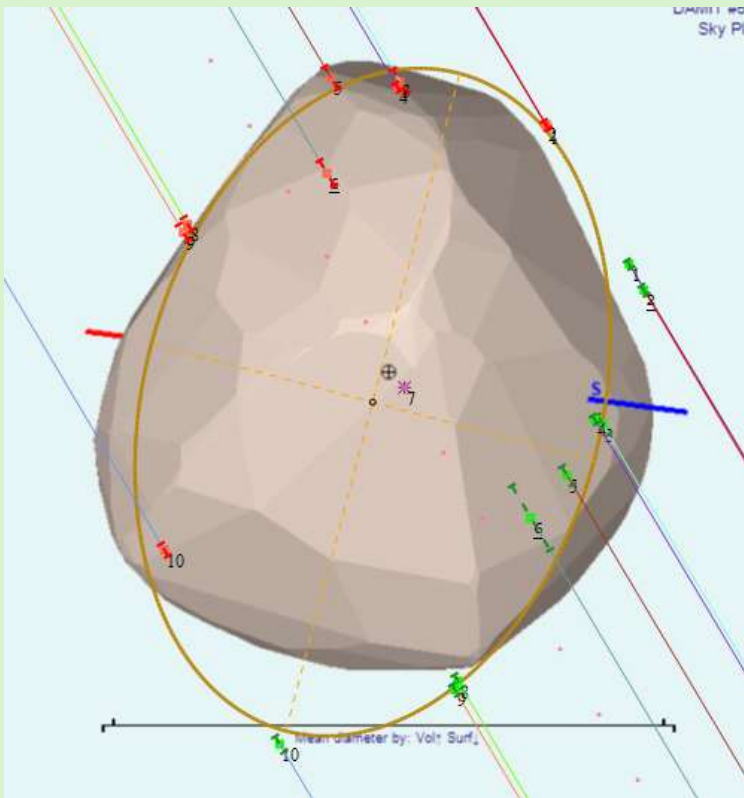
(16583) Oersted 2024 Mar 3

14 chords, Europe



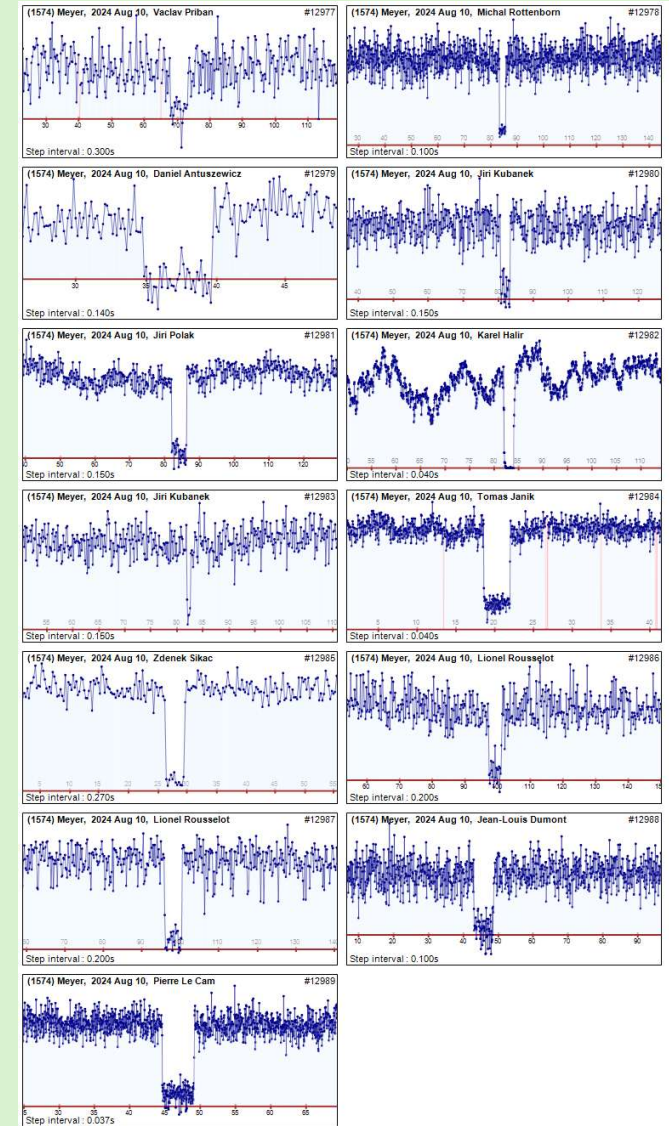
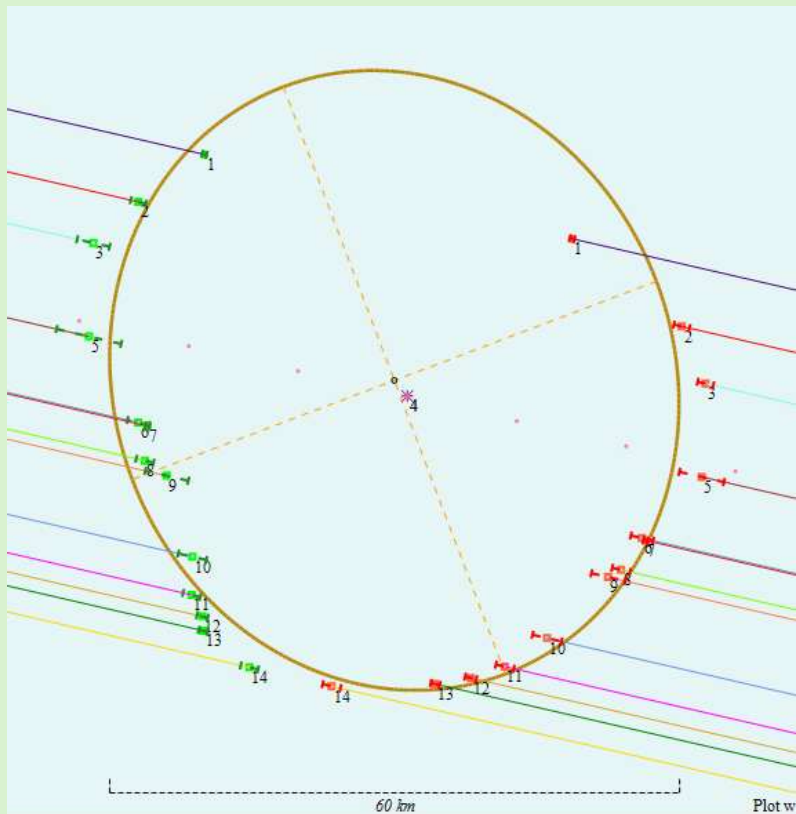
(781) Kartvelia 2024 Mar 10

9 chords, Japan



(1574) Meyer 2024 Aug 10

13 chords, Europe



(17365) Thymbraeus 2024 Sep 20

12 chords, Europe

