



CZECH ATHLETICS FEDERATION

**BIOMECHANICAL REPORT OF POLE VAULT
GOLDEN SPIKE OSTRAVA**

June 24, 2025
OSTRAVA

Analyzed Event:
POLE VAULT, MEN

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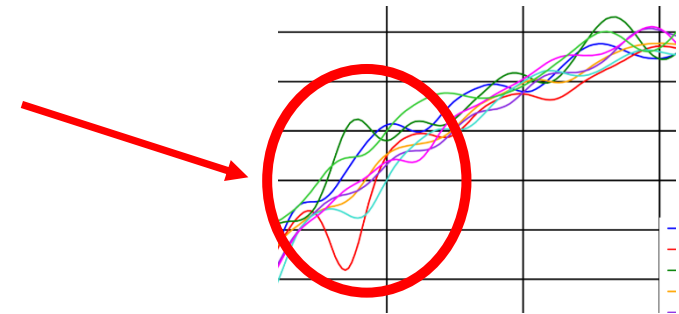
Methodology of Measuring and Processing Approach Speeds:

The approach speeds were measured using the ATS II sports radar by Stalker. This radar is capable of measuring the current speed 50 times per second. The recorded speeds were then plotted in a graph. The radar was positioned behind the landing area. Each athlete has an individual graph showing the speed curve of their recorded attempts.

Statistical Processing of the Measured Data:

The measured data were smoothed using the smooth.spline function in RStudio ($\text{spar} = 0.7\text{--}0.8$; more information available [here](#)). In cases where the radar was activated late by the operator (first recorded speed > 2 m/s), the initial part of the curve was estimated using a regression model based on the subsequent part of the curve.

The approach speed should increase smoothly, and any sudden drops or spikes during acceleration may be caused by external interference. This should be taken into account when interpreting the graphs.



LEGEND:

Take-off point identification:

The take-off point can be identified by a dip and rise in the speed curve, followed by a sharp decline.

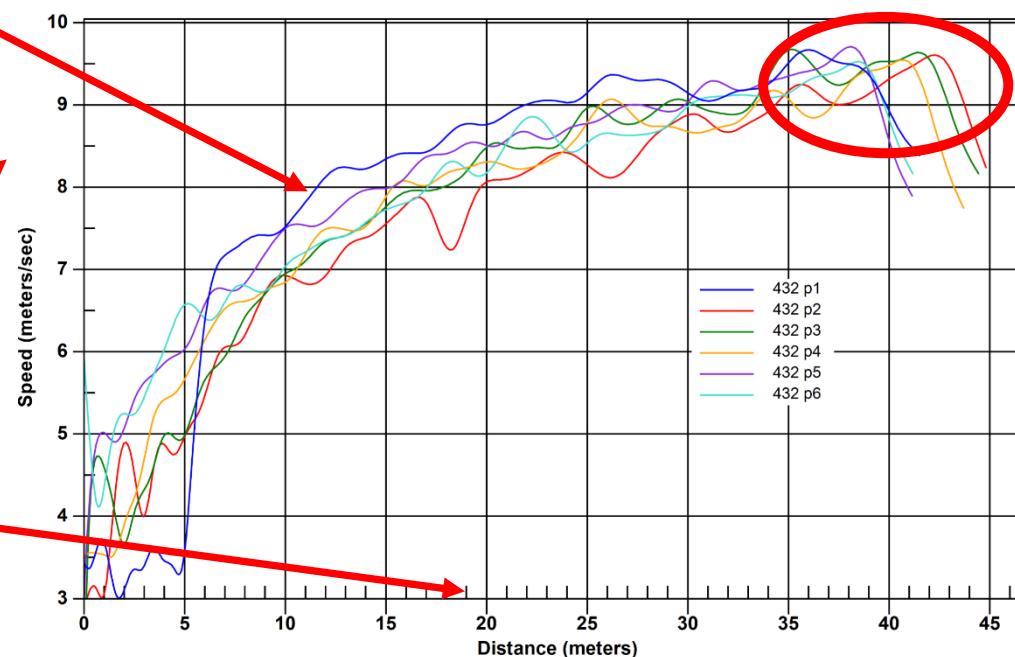


Graph Interpretation:

The individual curves in the graph (take-off points) are not identical due to trimming of the lower speeds.

The blue curve is shifted further to the left, which is caused by the removal of data at the beginning of the approach (radar interference, e.g., from another athlete on the runway or other movement).

Adam Zelinka MČR Třinec 2017 - skok daleký



The Y-axis represents speed in m/s.

The X-axis represents the length of the approach in meters

Table 1 – Results Summary.

64th OSTRAVA GOLDEN SPIKE

WORLD ATHLETICS™
Continental
Tour Gold

RESULT LIST



Pole Vault Men

	RESULT	NAME	COUNTRY	DATE	VENUE
WR	6.27	Armand DUPLANTIS	SWE	28 Feb 2025	Maison des Sports, Clermont-Ferrand (FRA) (i)
WR	6.28	Armand DUPLANTIS	SWE	15 Jun 2025	Olympiastadion, Stockholm (SWE)
WL	6.28	Armand DUPLANTIS	SWE	15 Jun 2025	Olympiastadion, Stockholm (SWE)
MR	6.12	Armand DUPLANTIS	SWE	27 Jun 2023	Ostrava

June 24 2025

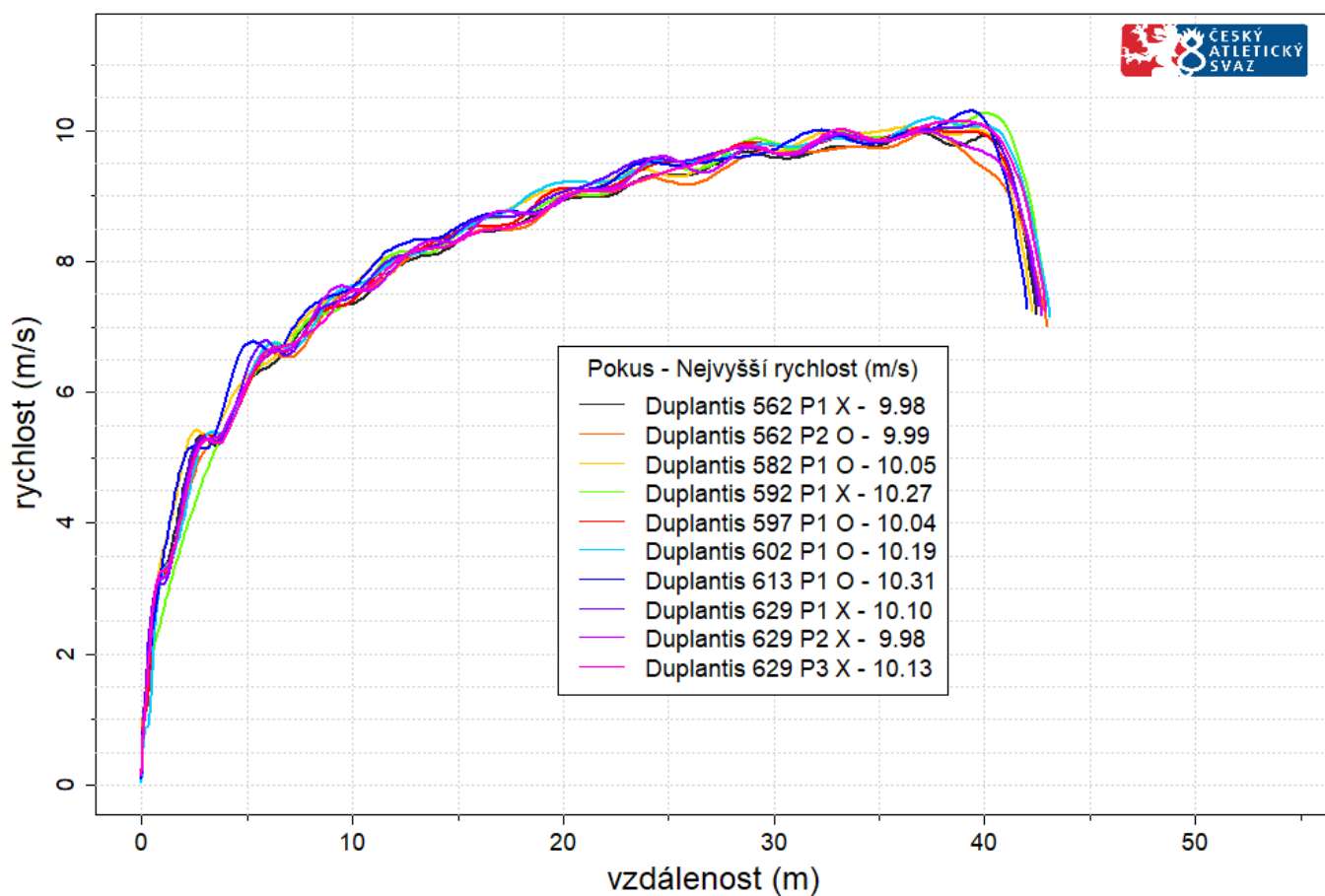
START TIME	16:50	TEMPERATURE	26.9°C	HUMIDITY	36.6%
END TIME	19:44		25.1°C		46.0%

PLACE	BIB	NAME	COUNTRY	DATE of BIRTH	ORDER	RESULT	5.22	5.42	5.62	5.72	5.82	5.92	5.97	6.02	6.13
1		Armand DUPLANTIS	SWE	10 Nov 99	11	6.13 MR	6.29								
							-	-	XO	-	0	X-	0	0	0
							XXX								
2		Emmanouil KARALIS	GRE	20 Oct 99	10	5.92	-	-	XO	-	XXO	0	-	XXX	
3		Kurtis MARSCHALL	AUS	25 Apr 97	9	5.82	-	0	0	0	0	X-	XX		
4		Sondre GUTTORMSEN	NOR	1 Jun 99	8	5.72	-	0	0	0	XXX				
5		Simen GUTTORMSEN	NOR	19 Jan 01	1	5.72 PB	0	XO	XXO	0	XXX				
6		Austin MILLER	USA	1 Jun 94	7	5.72	-	0	0	XO	XXX				
7		David HOLÝ	CZE	4 Mar 98	6	5.72	0	0	XO	XXO	XXX				
8=		Matěj ŠČERBA	CZE	9 Dec 98	5	5.62 SB	0	0	XO	XXX					
8=		Robert SOBERA	POL	19 Jan 91	3	5.62 SB	-	0	XO	XXX					
10		Ethan CORMONT	FRA	20 Sep 00	4	5.62 SB	-	XO	XO	XXX					
11		Bokai HUANG	CHN	26 Sep 96	2	5.62	-	XXO	XXO	XXX					

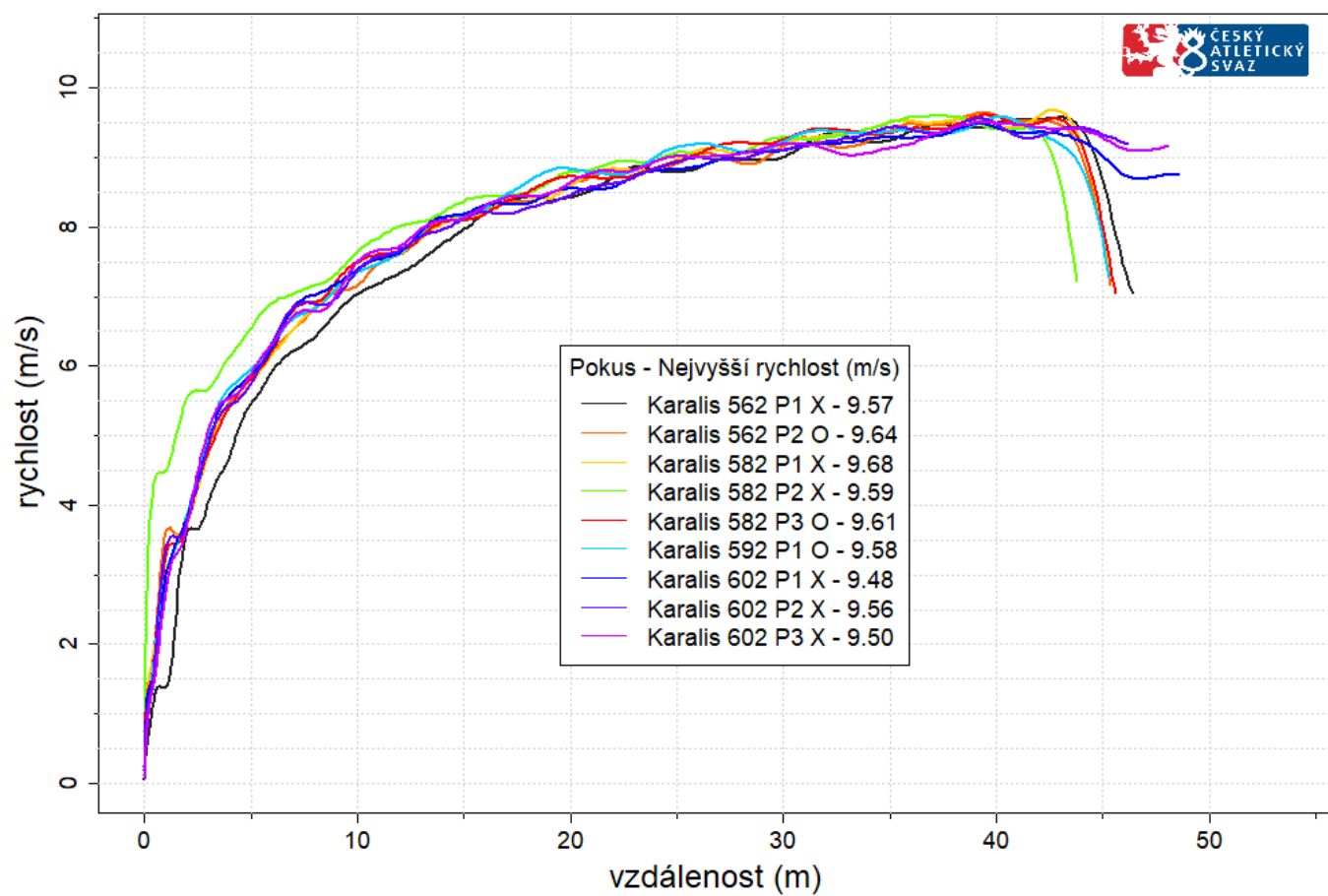
Armand DUPLANTIS won by 0.21m

Analysis of Approach Speeds

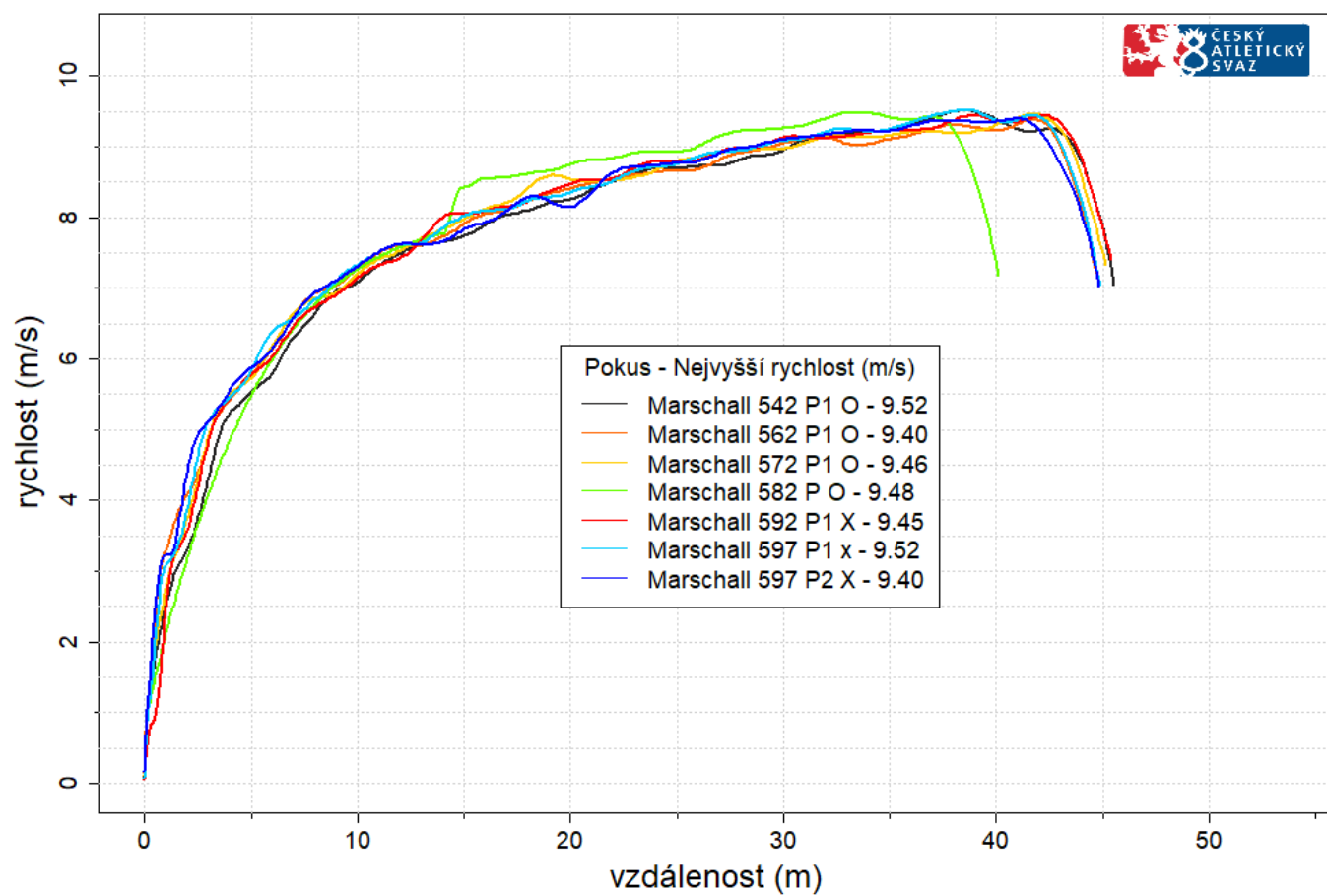
1 DUPLANTIS Armand



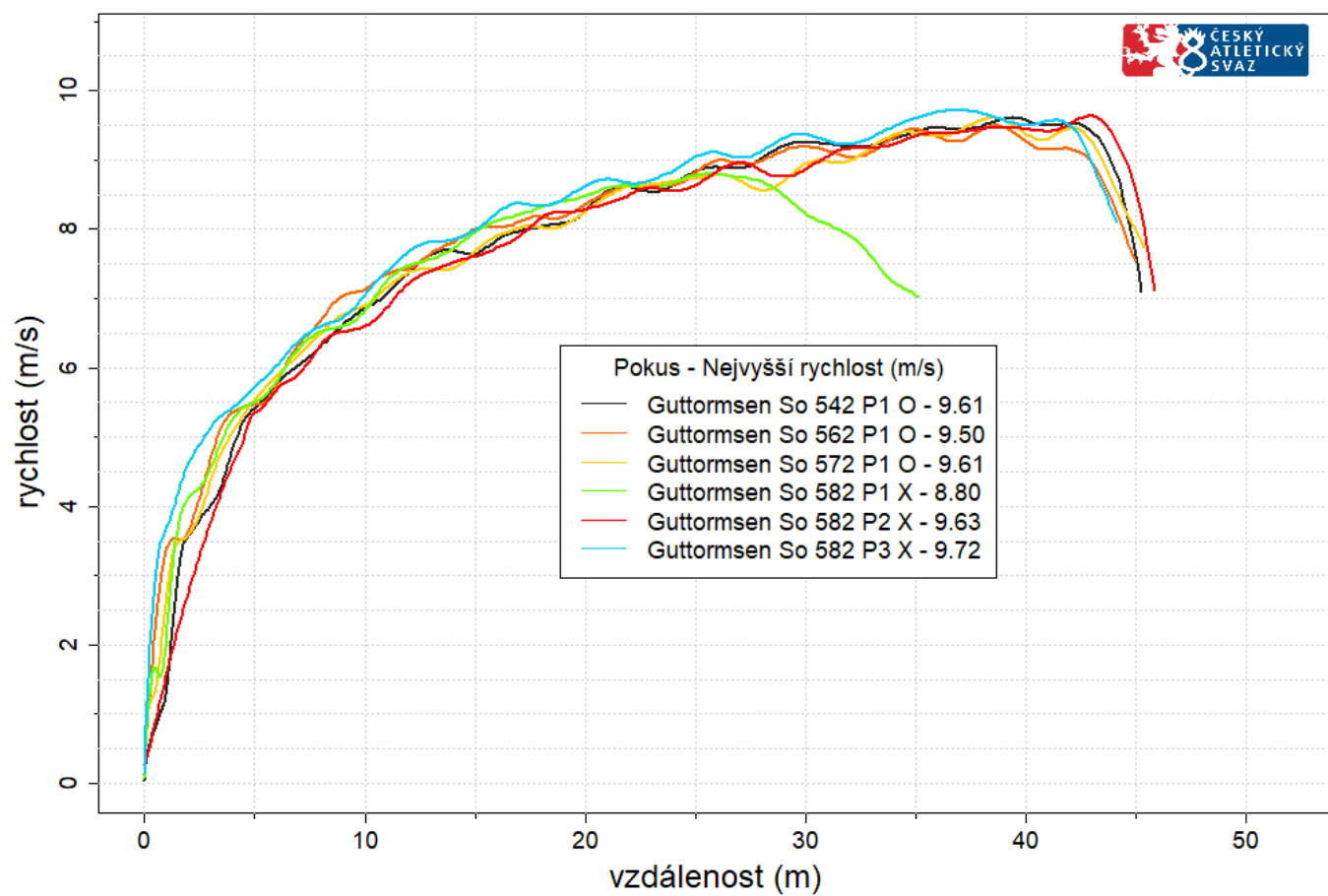
2 KARALIS Emmanouil



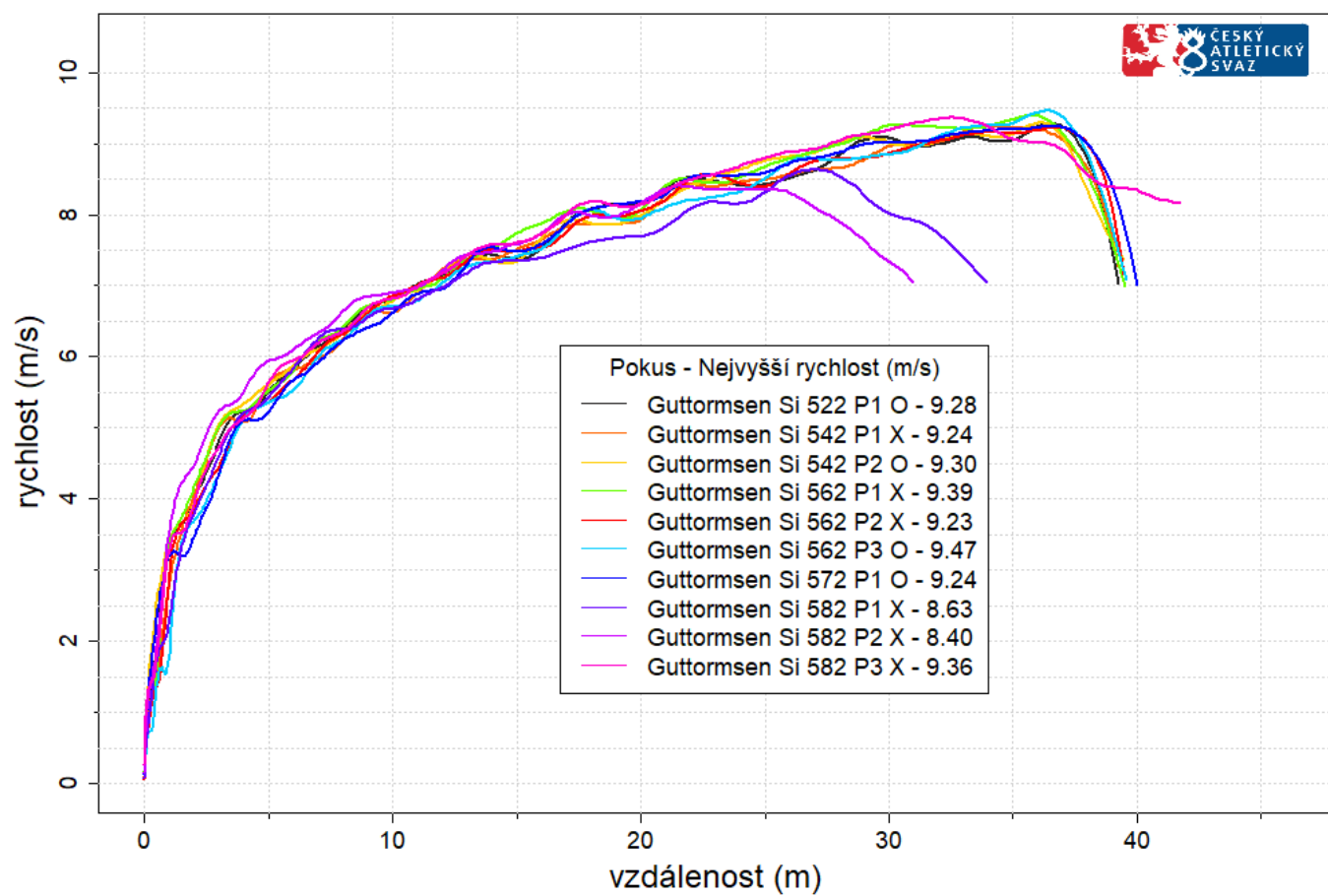
3 MARSCHALL Kurtis



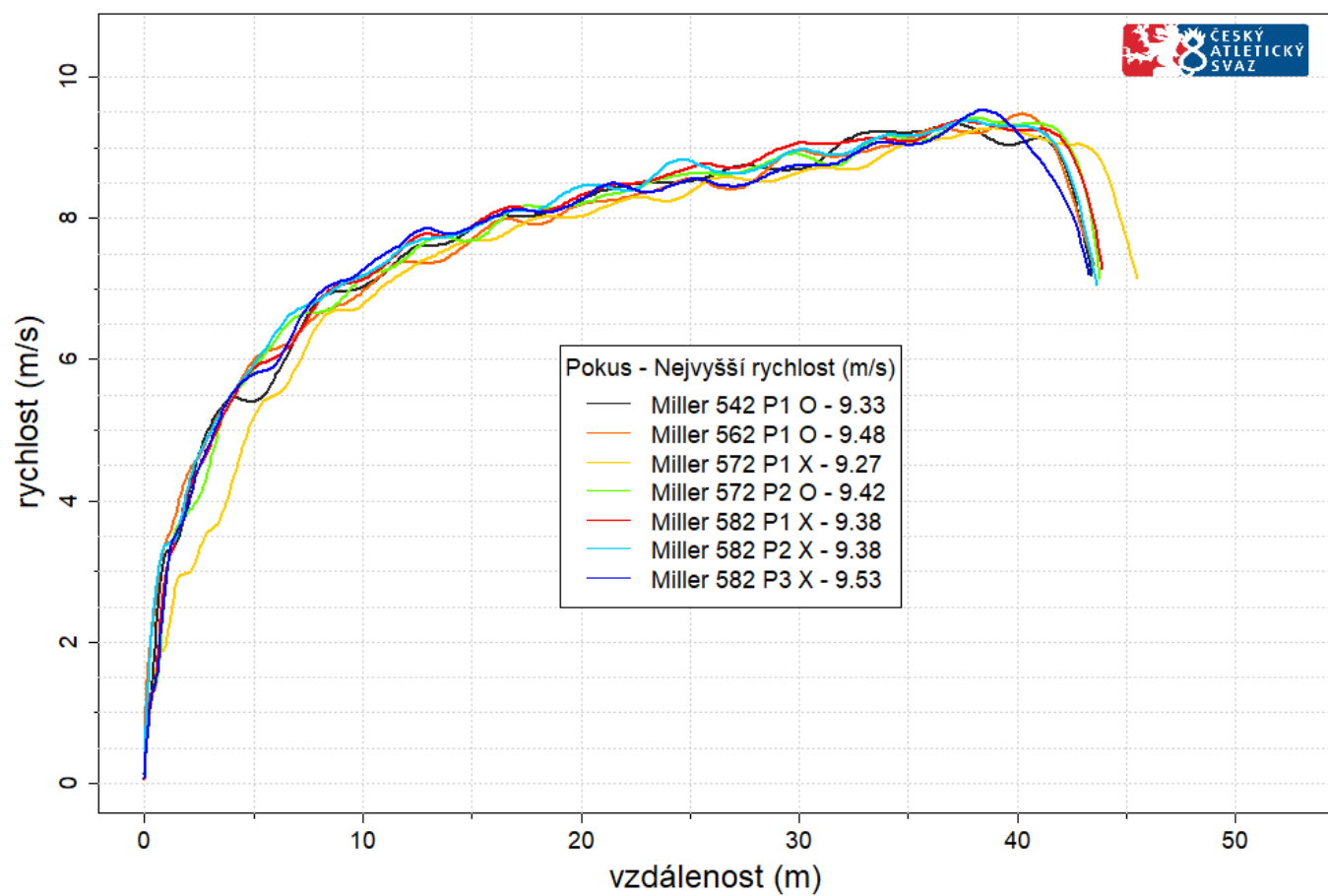
4 GUTTORMSEN Sondre

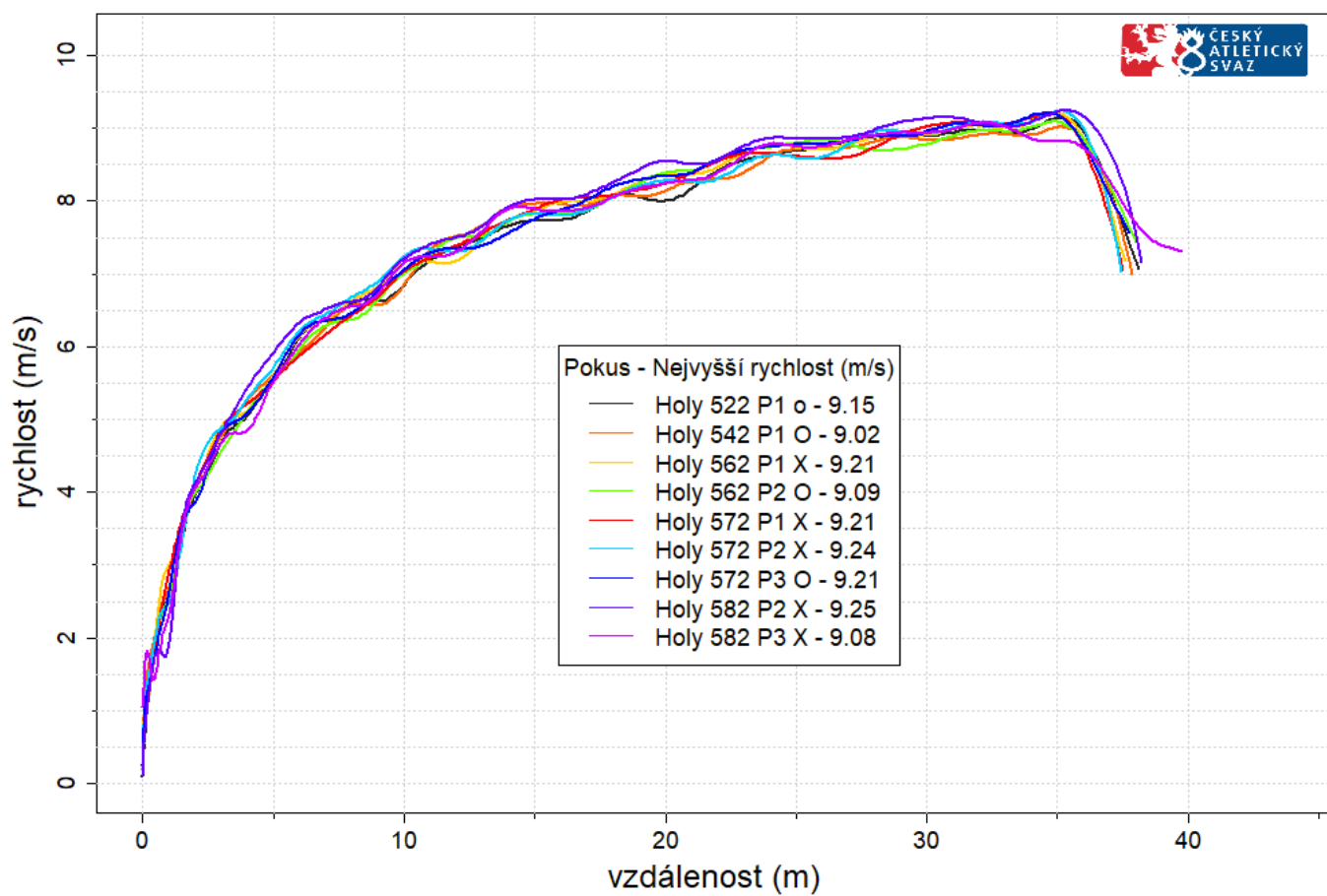


5 GUTTORMSEN Simen

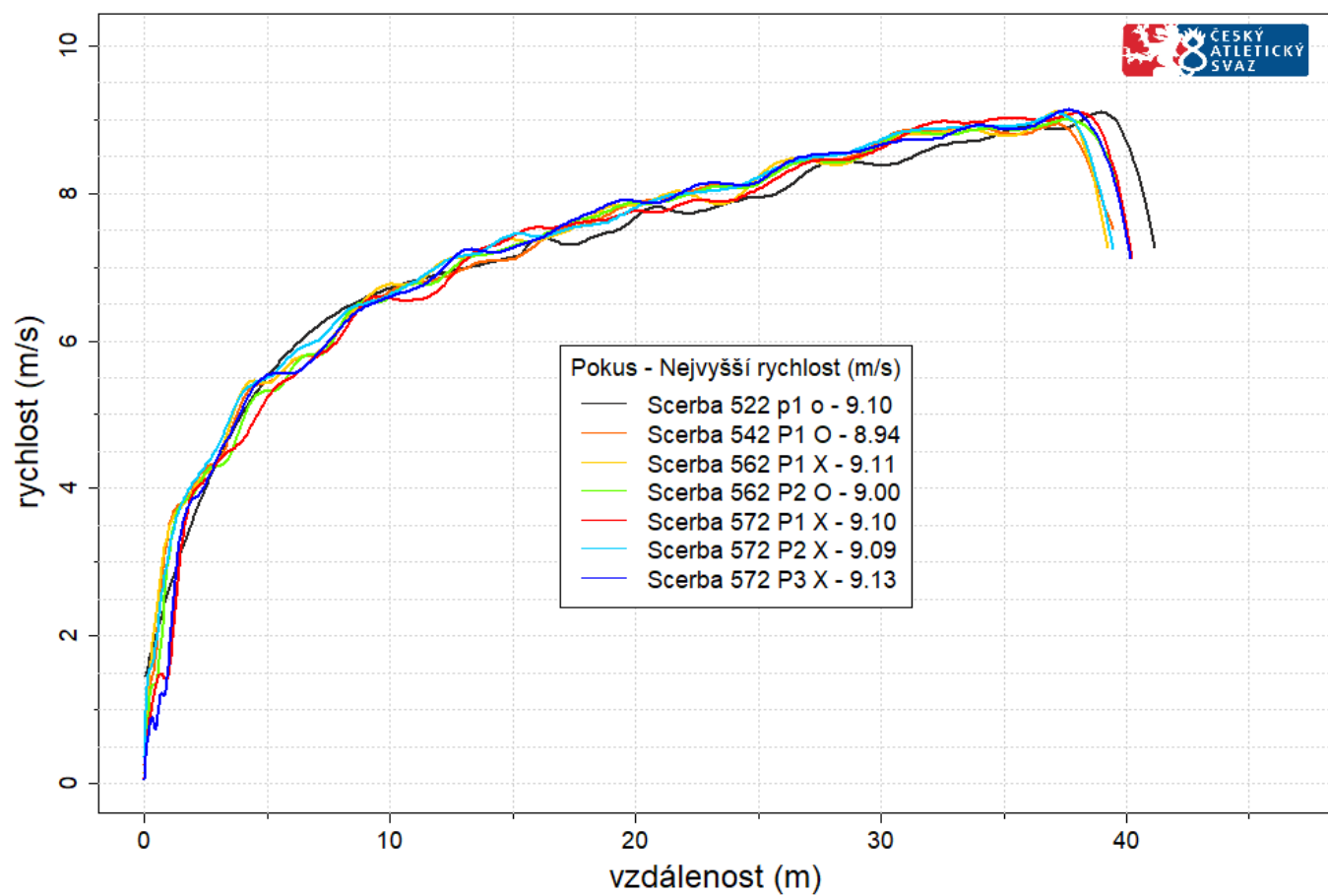


6 MILLER Austin

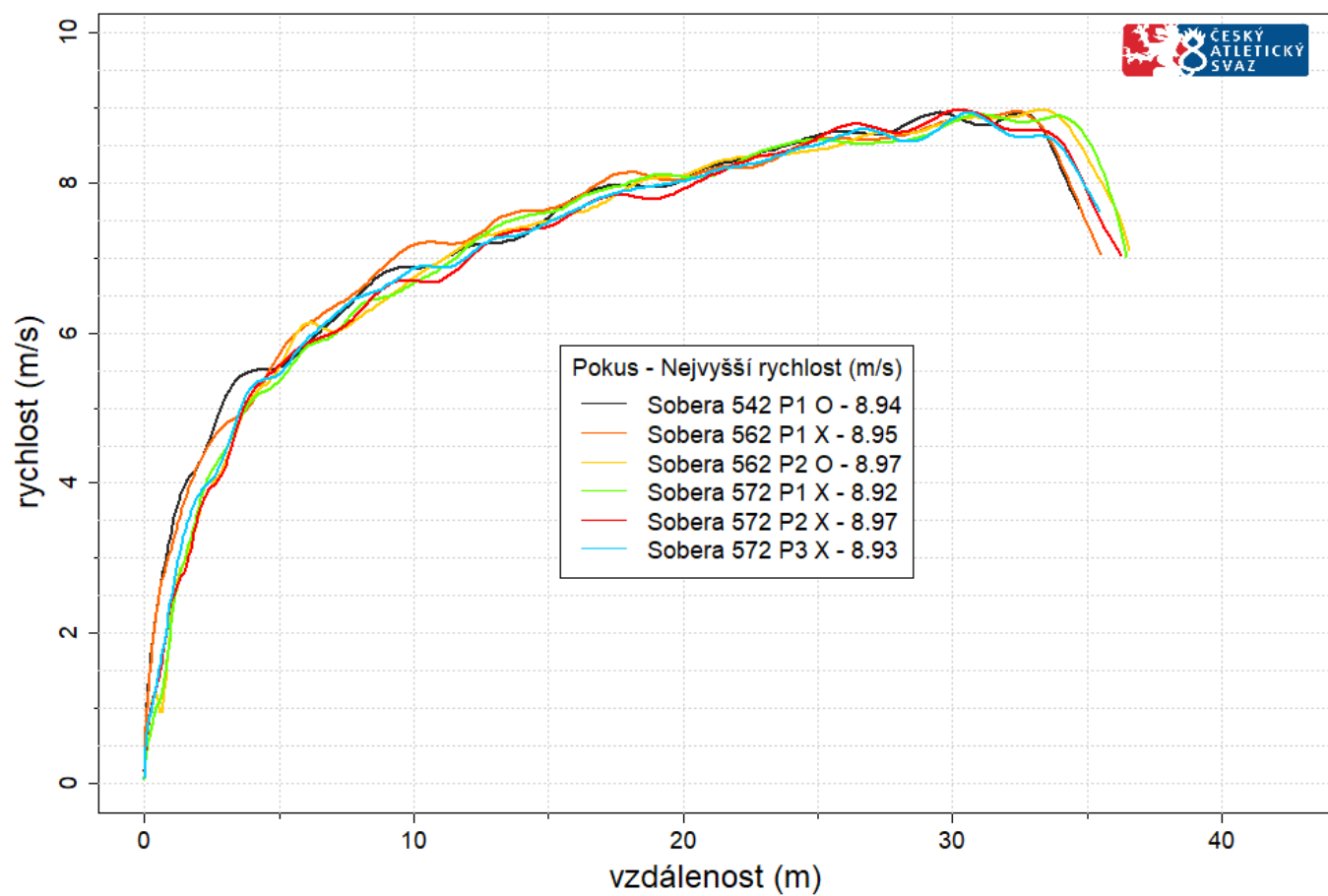




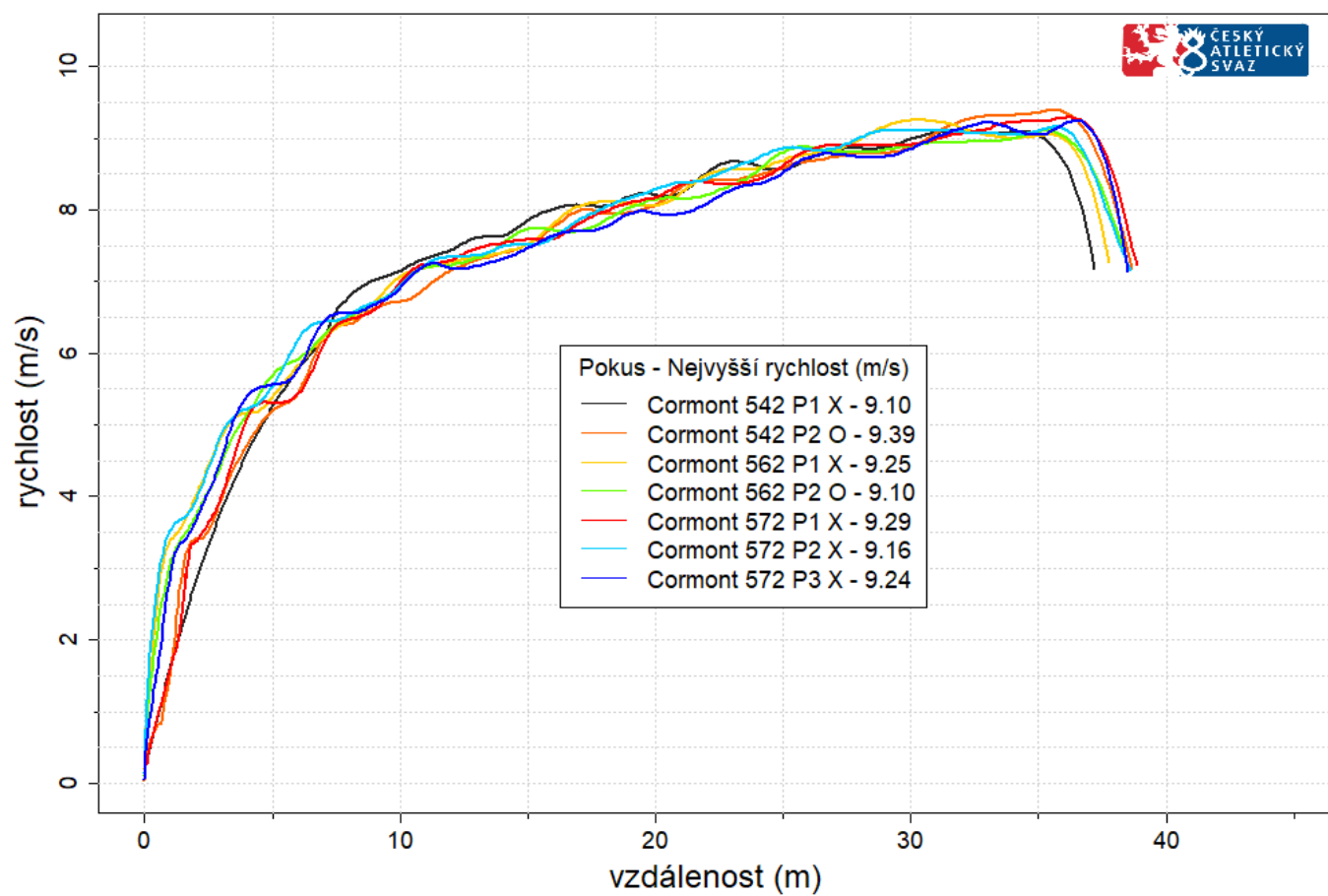
8 ŠČERBA Matěj



9 SOBERA Robert



10 CORMONT Ethan



11 HUANG Bokai

