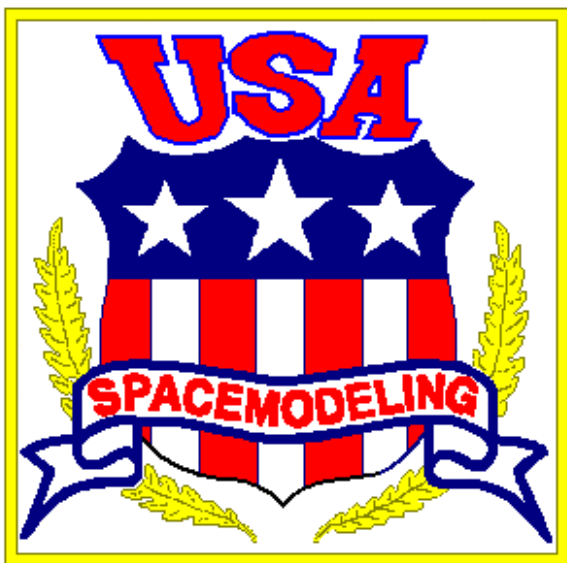


# The 2018 World Spacemodeling Championships



Photos by Kara Kelley  
and James Duffy

**MISTRZOSTWA ŚWIATA FAI**  
**Modeli Kosmicznych**  
dla Seniorów i Juniorów  
**Wrocław, 29.07-04.08.2018**

**2018 FAI S WORLD CHAMPIONSHIPS FOR SPACE MODELS FOR SENIORS AND JUNIORS**

**Lotnisko KRUSZYN Wstępną WOLNY**

59 lat Aeroklubu Wrocławskiego

projekt - Bogdan Wierzbę, fot. - Grzegorz Goryczka

  
 Historyczny Patronage of the President of the Republic of Poland  
 Patronat Honorowy Prezydenta Rzeczypospolitej Polskiej Andrzeja Dudy  
 w dniu 10 sierpnia 2018 roku w Warszawie

  
 1918 - 2018  
 Historyczny Patronage of the President of the Republic of Poland  
 Patronat Honorowy Prezydenta Rzeczypospolitej Polskiej Andrzeja Dudy  
 w dniu 10 sierpnia 2018 roku w Warszawie

Organizacja / Organizatory:  


Organizacja / Organizatory:  



Organizacja / Organizatory:  
 Ministerstwo Sportu i Turystyki  


Organizacja / Organizatory:  
 Wzrost Wzrostowo  


Organizacja / Organizatory:  




Organizacja / Organizatory:  




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Organizacja / Organizatory:  



Organizacja / Organizatory:  



Organizacja / Organizatory:  



**PROGRAM RAMOWY**  
 29.07. (Niedziela)  
 godz. 16:00  
 Ceremonia Otwarcia  
 30.07. - 03.08.  
 (Poniedziałek - Piątek)  
 godz. 8:00-18:00  
 Rozgrywanie konkurencji  
 04.08. (Sobota)  
 godz. 16:00  
 Ceremonia Zakończenia






















# 2018 World Championships



- Sponsored by Federation Aeronautique Internationale (FAI)
  - Run by Polish Aeroclub at Kruszyń airfield, 100 mi NW of Warsaw
  - July 29 – August 4: 7 full days plus arrival & departure days
- US team managed by the NAR, selected at NARAM-59 flyoff
  - Two teams: Junior (8 fliers) and Senior (21 fliers) plus 21 others (managers, timers, & supporters)
- Same 8 World Championship events as always, plus a US-sponsored additional event – S2P (FAI version of TARC)
- Not the best championships ever, but not the worst
  - Perfect weather, great field, but mediocre logistics & organization
  - Poland is a pretty nice and inexpensive place!

# Participants

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No.	National Flag	Country	Seniors	Juniors	TM	TMS	TMJ	TMA	TK	Helpers	Sup	Total persons
1		BELARUS (BLR)	4	3	-	-	-	-	1	-	1	9
2		BULGARIA (BUL)	9	10	-	1	1	1	2	1	-	25
3		CHINA (CHN)	18	20	-	1	1	2	-	10	5	57
4		CZECH REPUBLIC (CZE)	6	7	1	-	-	-	2	-	-	16
5		ESTONIA (EST)	3	5	-	1	-	-	-	-	-	8
6		GERMANY (GER)	5	2	-	1	-	-	-	6	-	14
7		ITALY (ITA)	1	-	-	-	-	-	-	-	-	1
8		JAPAN (JPN)	3	2	-	1	1	1	-	2	-	10
9		LATVIA (LAT)	8	5	-	-	-	-	2	1	-	16
10		LITHUANIA (LTU)	4	-	-	1	-	-	2	-	-	6
11		POLAND (POL)	10	10	1	-	-	-	-	1	-	22
12		ROMANIA (ROU)	3	3	-	-	-	-	2	2	-	10
13		RUSSIA (RUS)	14	10	-	1	1	-	2	-	-	28
14		SERBIA (SRB)	4	3	-	1	1	1	-	1	-	9
15		SLOVAKIA (SVK)	11	7	-	-	-	-	2	2	-	22
16		SLOVENIA (SLO)	12	5	-	-	1	1	1	1	-	19
17		SPAIN (ESP)	8	3	-	1	-	-	-	2	-	14
18		UKRAINE (UKR)	8	8	-	-	1	-	2	2	-	21
19		UNITED KINGDOM (GBR)	6	-	-	1	-	-	-	1	-	7
20		UNITED STATES OF AMERICA (USA)	21	9	-	1	1	1	2	-	21	56
SUM			158	112					20	32	27	370

23 nations had Senior teams, 17 had Junior

- 275 total fliers
- Netherlands, Croatia, and Uzbekistan were last-minute adds



# WSMC Events



- Always the same 8 events (3 have options by age division)
- “Tube events” using 40 mm x 500 mm models
  - A Parachute Duration (S3A, in “FAI speak”)
  - A Streamer Duration (S6A)
  - A Helicopter/Autogyro Duration (S9A)
  - A or B Altitude (2-stage) (S1A or S1B) – with tiny altimeters
- Glider events
  - A Boost/Glide (S4A) – really free flight Rocket-Glider
  - D or E Radio-Controlled Rocket-Glider (S8D or S8E/P)
- Scale events
  - B or C Scale Altitude (S5B or S5C)
  - Scale (S7): the “prestige” event
- S2/P “FAI TARC” also flown as a non-WSMC event



# Flying an Event



- All events are flown in 3 consecutive 85-minute “rounds”
  - Duration events have a “max” time (score) per round
  - Only 2 models permitted – so a great recovery team is essential (and the U.S. has the best one in the world)
  - Score = sum of 3 flights (best single flight for altitude & scale)
- 3 people make up the national team for each event
  - Must share the launch lane, timers, and the time in a round
  - Team score = sum of their scores
  - Unless every flight is perfect – no medal chance (duration events)
  - Everyone else supports those who are flying – a team sport
- Everybody uses piston launchers (but will not in future)
- Picking thermals is key to victory in duration events



**The 2018 US Spacemodeling Team in Wloclawek, Poland 6**



# 2018 U.S. Team



	Senior Team	Junior Team
<b>Manager</b>	<b>John Hochheimer</b>	<b>Kevin Johnson &amp; Katie Steele</b>
<b>S1 (Altitude)</b>	<b>Trip Barber, Bob Kreutz, Emma Kristal</b>	<b>Trevor Harrison, Allison VanMilligan, Ashley Van Milligan</b>
<b>S2P (Precision Egg Payload)</b>	<b>Chris Flanigan, Steve Kristal, Matt Steele</b>	<b>Stoil Avramov, Allison Van Milligan, Ashley Van Milligan</b>
<b>S3 (Parachute)</b>	<b>Trip Barber, Kevin Johnson, Terrill Willard</b>	<b>Trevor Harrison, Trevor Leggette, Bryce Stephens</b>
<b>S4 (A Rocket Glider)</b>	<b>Don Carson, Kevin Kuczek, Keith Vinyard</b>	<b>Stoil Avramov, Charis Houston, Ashley Van Milligan</b>
<b>S5 (Scale Altitude)</b>	<b>James Duffy, Jay Marsh, Matt Steele</b>	<b>Trevor Harrison, Charis Houston, Bryce Stephens</b>
<b>S6 (Streamer)</b>	<b>Emma Kristal, Jay Marsh, Terrill Willard</b>	<b>Stoil Avramov, Trevor Leggette, Allison Van Milligan</b>
<b>S7 (Scale)</b>	<b>Chris Flanigan, Marc McReynolds, Mike Nowak</b>	<b>Charis Houston</b>
<b>S8 (R/C Rocket Glider)</b>	<b>Matthew Berk, Dave O'Bryan, Ryan Woebkenberg</b>	<b>Stoil Avramov, Bryce Stephens, Katie Woebkenberg</b>
<b>S9 (Helo/Gyro)</b>	<b>Steve Humphrey, Dave O'Bryan, Keith Vinyard</b>	<b>Trevor Leggette, Allison Van Milligan, Ashley Van Milligan</b>



**U.S. Team marching in at the opening ceremony,  
just like in the Olympics**





**Lots of standing around at the opening ceremony**



**The Junior Team had a lot of spirit!**



**Exhibitions of national folk dance are always part of the opening ceremony**



**Flight demonstrations by Polish Army Mi-8 helos and by an aerobatic aircraft (separately!) were also part of the opening ceremony**





**“Teammate” is a 24/7 thing – you really get to know each other**





**For the U.S. Team, a WSMC is a family affair – the Harrison family is a great example. Dan (the dad) is the best ever at recovery!**



**On-field air-conditioning service – it was really hot!** 15



**The S2P (FAI TARC) models are big, colorful, and loud – we got 35 entries in this U.S. sponsored event this time, the most ever**





**Hearing your own national anthem at the WSMC is always sweet – here the Juniors are awarded the Gold medal in Altitude**



**The Senior Altitude team got Bronze – the only other US medal at the WSMC**



**Steve Humphrey's 3 maxes got him into a 9-person fly-off for S9A, where he finished 4th**



**Allison Van Milligan got an individual Silver and Trevor Harrison a Bronze in S1 Altitude.**

**Ashley VanMilligan after her last-minute/last-round flight got the Juniors the Team Gold in Altitude**



**The Senior Parachute team did OK, but had the best model-recovery story EVER, thanks to Dan Harrison**



**The Senior Scale Altitude team decided to create their own uniforms for their flight day**



**Thermal-picking is a critical part of duration events – here Jay Marsh and Trip Barber watch a Kestrel to make a detection**



**Two different ways to put on a memorable flight show at a WSMC.  
The U.S. way is shown at left.**



**Herby Vinyard flies a design for the A Rocket-Glide event that works great for him but no one else!**



**This type of swing/flop-wing A R/G design is what everybody else in the world flies**





**The Senior Radio-Controlled E Rocket Glider team and their models**



**Trevor Leggette was 9 for 9  
on good, qualified flights  
in his 3 events.**



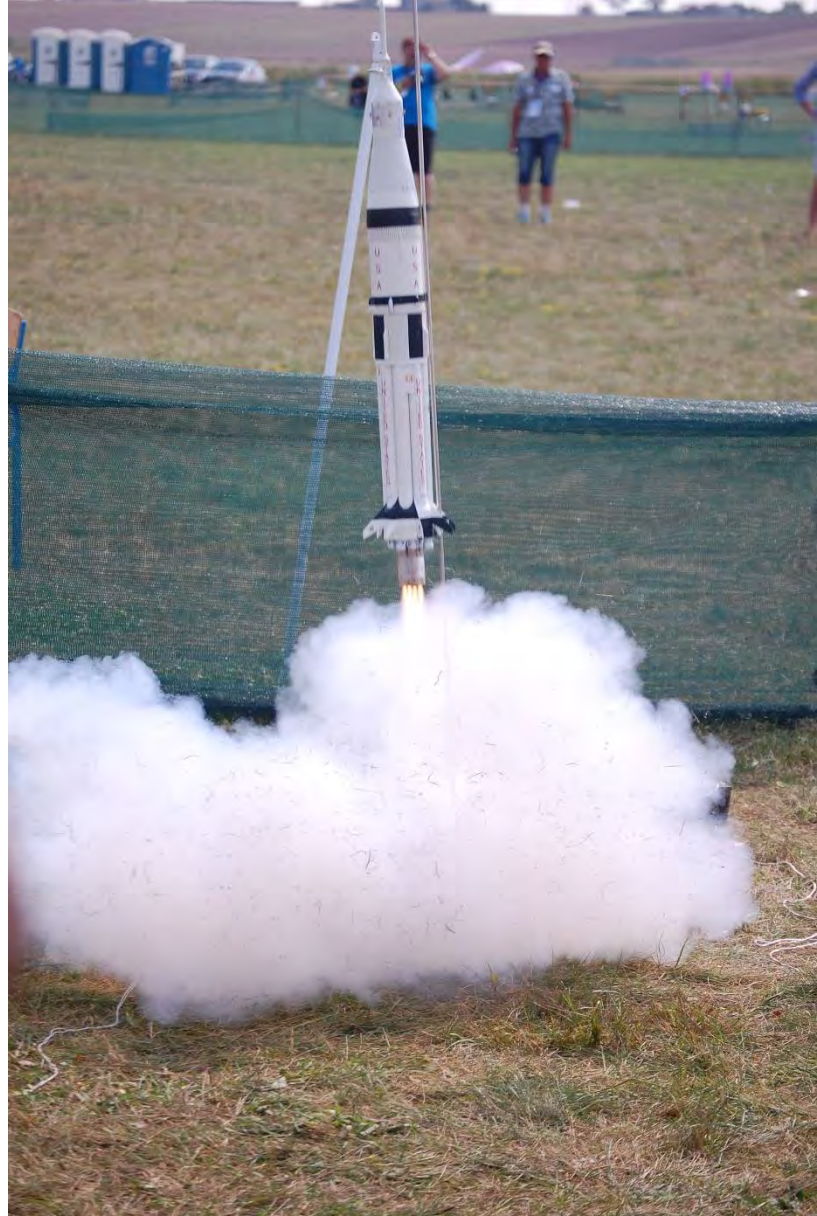
**Trevor Harrison won an individual  
Bronze in Altitude in his first WSMC  
at age 13.**



**Stoil Avramov was everywhere, using his 3 WSMC's of experience to help his Junior teammates – Bryce Stephens in S8D R/C RG and Trevor Harrison in S6A**



**Charis Houston flew two of the hardest events – Scale and Scale Altitude -- in her first WSMC and had good flights in both**



**Chris Flanigan builds and flies excellent, crowd-pleasing Scale models for the WSMC – here a 2-stage Saturn 1B**



**Marc McReynolds' Diamant and Mike Nowak's Saturn 5 were our other two entries in Senior Scale (S7)**



# US Team Results



WSMC Event	Senior Team	Senior Individual	Junior Team	Junior Individual
S1 (Altitude)	3 of 15	6 (Kreutz), 12, 18 of 44	1 of 11	2 (VanMilligan), 3, 9 of 32
S3 (Parachute)	6 of 22	13 (Barber), 27, 42 of 60	11 of 16	23 (Leggette), 32, 39 of 45
S4 (A RG)	9 of 21	8 (Carson), 35, 50 of 62	12 of 15	29 (Houston), 31, 41 of 42
S5 (Scale Alt)	5 of 12	12 (Marsh), 13, 16 of 34	8 of 11	20 (Harrison), 27, 28 of 30
S6 (Streamer)	16 of 23	28 (Marsh), 41, 56 of 63	10 of 16	9 (Avramov), 24, 44 of 45
S7 (Scale)	5 of 9	15 (Nowak), 20, 23 of 27	9 of 9	18 (Houston) of 23
S8 (R/C RG)	12 of 16	9 (Berk), 29, 39 of 42	6 of 9	7 (Avramov), 15, 22 of 26
S9 (Helo)	6 of 22	4 (Humphrey), 16, 44 of 59	12 of 15	29 (VanMilligan), 30, 36 of 43

**We still have work to do to beat the powerhouse teams in most events!  
The Russian Senior team won 5 of 8 events and medaled in 2 others**



# FAI Spacemodeling



- Complete how-to information is on the NAR website
  - “FAI Spacemodeling” section under the “Contest Flying” button
  - Includes all the “how to” material that exists in English
- Modeling techniques are based on use of very lightweight fiberglass, plastics and composites
  - Nobody uses balsa nose or spiral paper tube models
  - Models for most events are very different from NAR competition
  - Craftsmanship matters a lot
- Rocket motors that are competitive in most FAI flying events are made in Europe & not certified in the US
  - Except in S2P (FAI TARC) and in S8 (R/C R/G)





# Joining the US Team



- Every team slot is won in a competitive flyoff
  - Next one is July 28-30, 2019 at NARAM-61 (Muncie, IN)
  - Senior competition is tough, Juniors (18 and under by 2020) have good opportunity
  - Flown with US-certified motors only
- Team members must pay their own expenses
  - Typically ~\$2500 (including travel) plus models
  - Juniors get subsidy for about  $\frac{3}{4}$  of this from NAR & Aurora
  - Family members and others often travel with the team
- Once on the team, the real work begins
  - The European fliers are good at FAI and the rules are different
  - A good US competitor can succeed there, but not easily

**Come fly against the best in the world with Team USA!**