

**National Association of Rocketry**  
in partnership with the  
**Academy of Model Aeronautics**  
present



**The FAI World Championships for Space Models**  
**For Juniors and Seniors**

**2 July 2023 (Opening Ceremony) through 7 July 2023 (Closing Ceremony)**

**Austin, Texas (metropolitan area)**

**United States of America**

**Bulletin 2, 20 March 2023**



## Event Website

[nar.org/championships](http://nar.org/championships)

## Event Leadership

Event Director:	James Duffy (USA)
Contest Director:	Dr. Michael Nowak (USA)
Sports Director:	Capt. Arthur H. (Trip) Barber, Ret. (USA)
Data Processing:	Denis Khmil (UKR)
Housing Director:	David Bellhorn (USA)
Secretary:	Jonathan Rains (USA)
Comptroller:	Mark Bundick (USA)
S2/P Director:	Jonathan Rains (USA)
S7 Director:	Dr. Chris Kidwell (USA)
S8 Director:	Kevin Johnson (USA)
NAR President:	Dr. John Hochheimer

## FAI Jury

Jury President	Antonis Papadopoulos (GRE)
Jury Member	Dr. John Langford (USA)
Jury Member	Dr. Zoran Pelagic (SVK)
Reserve	Michael Ryabokon (UKR)
Reserve	Narve Jensen (NOR)
Honorary Jury Member	Edward Pearson (USA)

## S5 and S7 Scale Judges

Chief Judge	Arnis Baca (LAT)
Judge	Dr. Bob Kreutz (USA)
Judge	Dan Popa (ROM)
Judge	Zivan Josipovic (SRB)
Judge	Marcin Bielecki (POL)
Chief Measurement Judge	Pat McCarthy (USA)
Measurement Judge	Bob Ferrante (USA)
Measurement Judge	John Brohm (CAN)

## Range Safety Officers

Range Safety Officers	Ewa Dudziak Przybytek (POL), Denis Pridanikov (UKR)
Reserve RSO	Janka Kajanova (SVK)
Assistant RSOs	John Hochheimer (USA), Tony Reynolds (USA)
S8 Landing Safety Officer (LSO)	David O'Bryan (USA)

## Engine Testing

Team Chiefs	Matt Steele (USA), Chris Flanigan (USA)
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## Electronic Altitude Measurement Officers

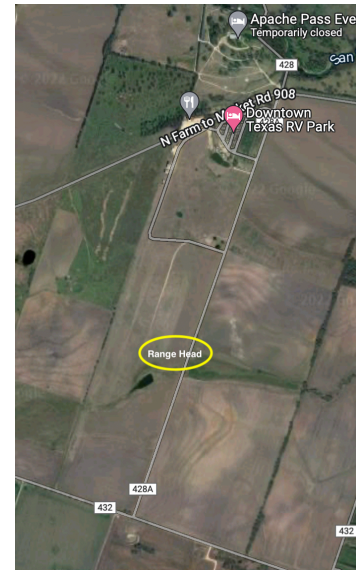
Chief	Dan Wolf (USA)
Assistant	Bernard Cawley (USA)
Assistant	Will Marchant (USA)

## Organizers and Location

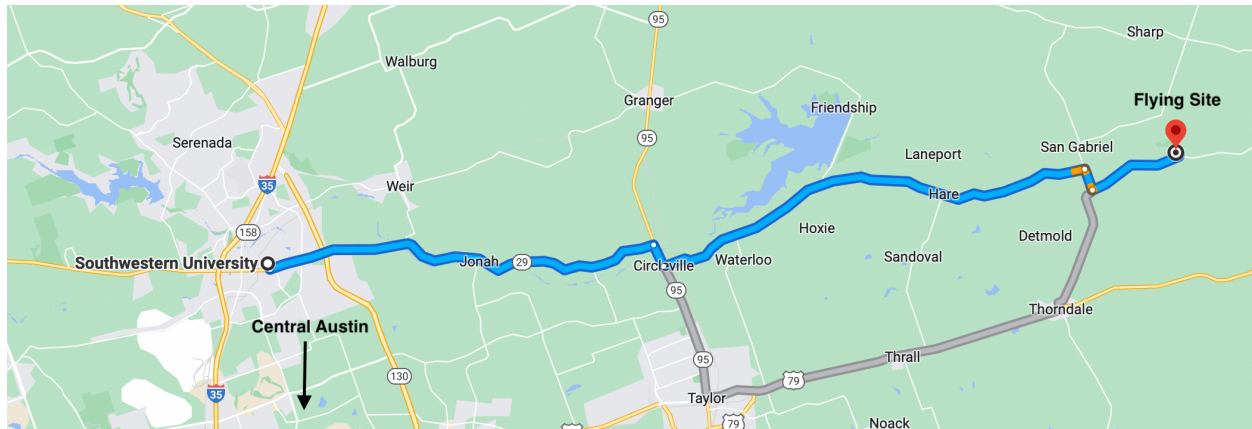
The Championships will be organized by the National Association of Rocketry in partnership with the Academy of Model Aeronautics.

The competition field for the World Championships will be located at the Apache Pass Event Center Airport, west-northwest of Rockdale, TX. The range and recovery area will cover approximately 500 acres (200 hectares). GPS coordinates for the field are 30°40'49.8"N 97°08'33.4"W (30.680505, -97.142596).

The primary housing location for competitors and team supporters will be in student housing located on the campus of Southwestern University in Georgetown, Texas, approximately 34 miles (55km) from the flying site. Cafeteria-style breakfast and dinner choices will be available for participants who choose this housing option. Participants who prefer more traditional hotel arrangements will have the opportunity to choose from many options offering a wide range of amenities and prices.



Overview of flying site



The housing and competition sites are separated by 35 miles/56km of lightly traveled roads.

## Competition Classes

Seniors: S1B (two stage), S3A, S4A, S5C, S6A, S7, S8P, S9A, S2/P  
Juniors: S1A (single stage), S3A, S4A, S5B, S6A, S7, S8D, S9A, S2/P

Senior and Junior S2/P will be contested as Open International Cup events.

## Rules and Safety Code

The Championships will be administered according to the FAI Sporting Code, Section 4 CIAM General Rules (2023 Edition) and Section 4 Volume S, Space Models (2023 Edition). The FAI General Section and FAI Code of Ethics will also apply.

All flight operations at this event will be conducted according to the FAI Space Model Safety Code (FAI Sporting Code, Section 4, Aeromodelling, Volume S, Space Models, Annex 5) and the National Association of Rocketry Model Rocket Safety Code.

## **Anti-Doping Statement**

If a competitor has to take, by a medical condition, any of the substances listed on the WADA Prohibited List then he must have a Therapeutic Use Exemption from the FAI. [www.wada-ama.org](http://www.wada-ama.org)  
Statement from the FAI anti-doping regulations: "If you regularly take medication prescribed by your doctor and this medication is on the WADA prohibited list, you need to get a form called a TUE (therapeutic use exemption) filled out by your doctor. International level athletes must send the form to the FAI Secretariat, national level athletes send it to their National Air Sport Control."

## **FAI Sporting License**

Each competitor and Team Manager must possess an FAI Sporting License valid for the year of the Championship. This license must be registered in the FAI licenses database. The holder of an FAI Sporting License may be required to produce an official document bearing their photograph and signature as proof of identity.

## **Protests**

Any protests must be presented in writing to the Contest Director and must be accompanied by the deposit of a fee of €50 (or equivalent USD amount). The deposit shall be returned only if the protest is upheld.

## **Official Language**

English

## **Measurement of Flight Altitudes**

Adrel Altimeters will be used to measure altitudes in classes S1A, S1B, S5C, S5B, and S2/P. The organizer shall provide electronic altimeters for all entrants in these classes. Every team shall submit a €100 (or equivalent USD amount) deposit for each altimeter that will be issued. This deposit must be paid prior to the competitor's first flight in each event, and will be returned following the event when each altimeter and battery is returned. If an altimeter or battery is not returned or is damaged the deposit will be retained by the organizer. If an altimeter or battery is lost during the competition, a new deposit must be paid to allow the competitor to continue participating in the competition.

## **Motors**

All motors used in this Championship must be legal and certified for use, transport, and sale in the United States. To simplify the challenges traditionally associated with motor transport to space modeling events, the organizers will provide all motors to be used by competitors at this World Championships, as allowed by Rule 3.10.3 of the Space Models Sporting Code. By removing the burden of motor transport from the participating teams, this will be an exciting, efficient, equitable, and safe event. Only motors provided by the organizers may be used at this Championships.

Motors will be tested well in advance of the event, with testing data provided to all participating teams in accordance with Rule 3.10.1 of the Space Models Sporting Code. Additional information concerning the motors to be used at this Championship may be found in the Motor Information Appendix accompanying this Bulletin.

Motors for S1, S3, S4, S5, S6, and S9 will be available on the flying field at no cost to competitors for both practice and competition. An order form for motors to be used in S7, S8, and S2/P is distributed with this Bulletin. Please submit payment for any needed S2/P, S7, and S8 motors with your registration payment.

## **Dethermalizers**

Due to the high risk of fire, dethermalizers that use burning or smoldering media (such as fuse dethermalizers) may not be used. Electronic timer-based and radio actuated dethermalizers are permissible. *Please contact the Contest Director if you have any questions concerning the appropriateness of your dethermalizer for this contest!*

## **Special UAS Information Concerning Regulations for S8D and S8P Flyers**

The United States has very specific requirements for individuals flying UAS aircraft (Unmanned Aircraft Systems), such as radio control aircraft. Non-US citizens are required to follow the same model aircraft regulations that US citizens are required to follow, including following AMA safety guidelines, registering at [FAA's Drone Zone](#), and taking [The Recreational UAS Safety Test \(TRUST\)](#). A portal has been established through the World Championship website ([nar.org/championships](http://nar.org/championships)) to assist competitors and team managers in complying with these regulations prior to arriving in the US.

A waiver to Section 44809 §(a)(6) of the Federal Aviation Regulations allowing S8 flights up to 1,200' AGL has been secured with the assistance of the Academy of Model Aeronautics.

## **Launch Rails**

A limited number of 6'/1.8m rail launchers will be available for use by teams for the S2/P event on a shared basis. Rail guides (rail buttons) will be available on the field for participating contestants.

## **Composition of a National Team**

Each National Aero Club or National Federation that is a member of the FAI and CIAM may enter a team consisting of the following:

- \* Senior Team Manager
- \* Senior Team Manager Assistant
- \* Senior Competitors
  - \* In each class a maximum of three competitors, or a maximum of four competitors if at least one competitor is female
- \* Junior Team Manager
- \* Junior Team Manager Assistant
- \* Junior Competitors
  - \* In each class a maximum of three competitors, or a maximum of four competitors if at least one competitor is female
- \* The reigning Senior and Junior World Champions
- \* Official helpers and supporters
- \* Each National Team may bring one timekeeper who will be provided housing and board free of charge

## **Classification and Awards - Individual**

FAI Medals and Diplomas and National Association of Rocketry medals will be awarded to individual Senior and Junior competitors placing first, second, and third in each event.

All Senior Females will compete for the overall Senior individual classification in each class. Additionally, there is a Senior Female classification in each class with FAI Medals and Diplomas.

All Junior Females will compete for the overall Junior individual classification in each class. Additionally, there is a Junior Female classification in each class with FAI Medals and Diplomas.

With the approval of their National Aero Club the reigning World Champion from 2021 in each class is eligible to participate regardless of whether or not they qualify for their national team. If they are not a member of their national team, their score will not be considered in the team results.

The 2021 World Champions are as follows (those listed in *italics* are ineligible per the decision of the FAI Executive Board issued on February 28, 2022):

Class	Seniors	Country	Juniors	Country
S3	KARALKEVIČIUS Povilas	LTU	FLOREK Sebastian	POL
S4	FLANIGAN Christopher	USA	<i>VORNAVSKOY Aleksandr</i>	<i>FASR</i>
S5	<i>EZHOV Alexey</i>	<i>FASR</i>	DUBROVNYI Mykhailo	UKR
S6	MAŁMYGA Leszek	POL	<i>PYAKHOV Matvey</i>	<i>FASR</i>
S7	GREŠ Marian	SVK	WOJDYŁO Emilia	POL
S8	BOLFA Simon	SVK	KOSZELSKI Wojciech	POL
S9	PETRENKO Andriy	UKR	<i>TARASOV Vadim</i>	<i>FASR</i>

### Classification and Awards - Teams

A single FAI Medal will be awarded to the team manager of the teams placed first, second, and third in each class. FAI Diplomas and National Association of Rocketry medals will be awarded to each member (including the fourth competitor and team manager) of the teams placed first, second, and third in each class.

### Other Awards

The following CIAM Championship Trophies were awarded at the FAI World Championships for Space Models in Romania in 2021.

Category	Trophy Name	Condition	Box	Awarded	Remarks
<b>S4B Individual</b>	Carl Neubronner Challenge Trophy	Good	Yes	Christopher FLANIGAN (USA)	
<b>S4B Team</b>	Minister of Education of the People's Polish Republic Challenge Trophy	Good		FASR	
<b>S7 Team</b>	General Committee for Physical Culture and Sport of the Polish People's Republic Challenge Trophy	Unknown		POL	Reported Lost
<b>S8E Team</b>	President of the Aero Club of the Polish People's Republic Challenge Trophy	Good	Yes	POL	
<b>Space Multiple Contest Team</b>	Pelagic Brothers Trophy	Excellent	Yes	FASR	

Category	Trophy Name	Condition	Box	Awarded	Remarks
S7 Senior Team	Hermann Oberth Romania Challenge Trophy - Bartoc Cultural Foundation, Romania			POL	

The organizer will inform all holders of trophies that they must be submitted to the organizer no later than the start of the competition.

### **Preliminary Schedule**

#### ***Saturday, 1 July***

Arrival, Staff and Team Managers Meetings, S5/S7 entry submission

#### ***Sunday, 2 July***

Practice Day, Timekeeper Training, Opening Ceremony

#### ***Monday, 3 July***

AM: Senior S4A, Junior S3A

PM: Senior S9A, Junior S6A

#### ***Tuesday, 4 July***

AM: Senior S3A, Junior S4A

PM: Senior S6A, Junior S9A

A special US Independence Day celebration will take place on the evening of July 4. Additional details will be published in Bulletin 3.

#### ***Wednesday, 5 July***

All Day: Senior S8P

AM: Junior S1A

PM: Senior S1B, Junior S8D

#### ***Thursday, 6 July***

AM: Senior S5C, Junior S7

Midday: High Power and Sport Demonstration Flights

PM: Senior S7, Junior S5B

#### ***Friday, 7 July***

AM: Senior and Junior S2/P Open International Cup

PM: Spacemodeling Subcommittee Meeting

Closing Ceremony, Banquet

#### ***Saturday, 8 July***

Departure Day

### **Entry Fees**

€400 per Senior Competitor, Team Manager, and Assistant Team Manager

€300 per Junior Competitor

€10 per supporter or helper (lowered since publication of Bulletin One)

## Deadlines

The Final Entry Form (FEF) should be submitted via the eNavigator online tool and all fees (including entry, lodging, food, dining, motor, and banquet fees) should be submitted to the following bank account ideally by May 1, 2023, and no later than 20 June, 2023.

Motor orders for S2/P, S7, and S8 need to be submitted no later than May 1.

## Payments

Payments should be submitted electronically to the following account:

Bank Name: J.P. Morgan Chase Bank  
Address: 106 N. Washington Street, Alexandria VA 22314  
SWIFT Code: CHASUS33  
For the Account of: National Association of Rocketry  
2275 Geode Street, Marion, IA 52302-7625  
Account Number: 909655802

Payments submitted after 1 May 2023 will be subject to a surcharge.

2 May 2023 through 30 May 2023: 10% surcharge

1 June 2023 through 2 July 2023: 20% surcharge

Any bank commissions or transmission fees shall be the responsibility of the sender.

## Housing and Meals

The primary housing location for competitors, team supporters, and staff will be in comfortable student housing located on the campus of Southwestern University in Georgetown, Texas. Rooms are paired in suites, with shared bathrooms. A limited number of rooms will be available for families that wish to be housed together. Cafeteria-style breakfast and dinner choices will be available for participants who choose this housing option.

Double occupancy room with shared bath, breakfast/dinner, per day(per person)	\$69
Single occupancy room with shared bath, breakfast/dinner, per day (per person)	\$90

Box lunches will be available on the field for \$10.50/day, prepaid during the registration process.

Alcohol is not permitted anywhere on campus or on the contest site. If you would like a drink, Southwestern University is located within walking distance of a very vibrant restaurant, bar, and shopping district in downtown Georgetown.

Participants who prefer more traditional hotel arrangements will have the opportunity to choose from many options offering a wide range of amenities and prices. The following hotels are recommended.

### *Premium*

Sheraton Austin Georgetown Hotel and Conference Center  
1101 Woodlawn St, Georgetown, TX 78628, phone (737)444-2700, marriott.com

### *Mid-range*

Hampton Inns and Suites Georgetown/Austin North  
160 River Oaks Cove, Georgetown, TX 78626, phone (512)688-5300, hilton.com



Comfort Suites Georgetown  
11 Waters Edge Circle, Georgetown, TX 78626, phone (863-7544, choicehotels.com

#### *Budget*

Motel 6 Georgetown  
1005 Leander Rd., Georgetown, TX 78628, phone (512)863-7504, motel6.com

Should you choose to stay in one of these hotels please contact the property directly.

#### **Banquet**

A Texas-style closing ceremony and banquet will be held Friday, July 7 at the Georgetown Community Center, 445 E. Morrow St., in San Gabriel Park. Banquet fees will be €60/\$60 per Senior, €40/\$40 per Junior.

#### **Insurance**

Each participant in the Championships will be required to provide their own personal health insurance coverage. Please consult your individual insurance provider to determine the validity of your policy while in the United States.

#### **Visa and Immigration Information and Support**

**Please read this section carefully. Any participant coming from outside the United States will need to complete ONE of these two important steps before traveling:**

1) **You must hold a visa to travel to the United States,**

**\*OR\***

2) **Hold a passport from a country that participates in the Visa Waiver Program and complete the Electronic System for Travel Authorization**

Please consult the US State Department website to determine if you will need a visa in order to travel to the United States: <https://www.state.gov/visas/>

Many visitors will be eligible for the Visa Waiver Program. A list of these countries may be found here: <https://travel.state.gov/content/travel/en/us-visas/tourism-visit/visa-waiver-program.html>

**All travelers using the Visa Waiver Program (VWP) will also need to complete an Electronic System for Travel Authorization application (ESTA).** This is a simple online application, and should be completed no less than 72 hours before your departure for the US. More information may be found at: <https://esta.cbp.dhs.gov/esta>

Invitation letters for participants requiring a visa will be available. Those needing a visa letter should request one by contacting their team manager, who may request these through the organizers.

#### **Bulletin 3**

Bulletin 3 will be published before May 15, 2023.

## Registration of National Teams

*This process is to be used for both the World Championships and the S2/P Open International event!*  
Registration for National Teams is now open, and will be completed by Team Managers and their National Aero Clubs using the eNavigator contest management platform. To register, Team Managers should visit the eNavigator website at: <https://2023-wchsm.enavigator.org/applications>

Begin by creating an account using the “Sign Up” link at the bottom middle of the page. Once signed in as an authorized user of the eNavigator tool, Team Managers should begin the registration process. When all participants have been entered the eNavigator tool will present a “Submit” button. The tool will even generate a payment amount for each team using the “Payment and Options” button.

It is vitally important that *ONLY* Team Managers should enter data into the eNavigator tool. If individual competitors have questions about the registration process they should consult with their Team Manager. This PDF will provide Team Managers an overview of the registration process: <https://www.nar.org/wp-content/uploads/2023/03/eNavigator-Tutorial.pdf>

Upon arrival at registration each Team Manager should present FAI Licenses for team participants, an updated entry form (if any changes have been made from the preliminary entry form), a national flag (3' x 5'/1m x 1.5m), and their national anthem on a USB thumb drive.

## Air Transportation

Austin-Bergstrom International Airport (IATA code: AUS, ICAO code: KAUS) offers direct flights from all major cities in the United States and also offers convenient direct international service from Toronto, London, Frankfurt, and Amsterdam. Alternatively, participants may choose to fly to Dallas/Fort Worth International Airport (IATA: DFW, 185 miles/300 km away, 3 hours driving time) or Houston George Bush Intercontinental Airport (IATA: IAH, 180 miles/290 km away, 3.5 hours driving time). Driving time from the Austin airport to the housing site at Southwestern University is approximately 45 minutes.

## Ground Transportation

Texas is *big*. Teams should take great care to consider their transportation needs carefully, as public transport options are not available for the distances participants will need to cover each day. Depending on the size of their group, teams are encouraged to rent cars, vans, or buses. For those unable to secure rental vehicles, the organizers have arranged for buses to transport a *limited* number of competitors from the dorms at Southwestern to the flying field at Apache Pass each day. Only 60 participants each day will be able to use this option!

We strongly encourage larger teams to arrange their own local transportation. Smaller teams should consider renting cars or vans, while larger teams may wish to secure coach-style bus transport. Please contact these firms directly, as the organizers are not able to assist with securing rented or contracted car, bus, or van services.

Rental car companies operating out of the Austin airport include:

Advantage	<a href="http://advantage.com">advantage.com</a>
Alamo	<a href="http://alamo.com">alamo.com</a>
Avis	<a href="http://avis.com">avis.com</a>
Budget	<a href="http://budget.com">budget.com</a>
Dollar	<a href="http://dollar.com">dollar.com</a>
Enterprise	<a href="http://enterprise.com">enterprise.com</a>
Fox	<a href="http://foxrentacar.com">foxrentacar.com</a>

Hertz	hertz.com
National	nationalcar.com
Payless	paylesscar.com
Thrifty	thrifty.com

Van rentals may be an attractive option for small-to-medium sized teams. These companies specialize in larger passenger vans:

Bandago Van Rental	bandago.com
Longhorn Rentals	longhornrentals.com
Ground Shuttle	groundshuttle.com

Larger teams may wish to consider coach rentals. These services will also provide a driver:

Clark Travel	clarktravel.net
ETI Limos	etilimo.com
Corporate Services	csidmc.com

For transportation to and from Austin Bergstrom International Airport for those not renting vehicles, we recommend that teams contact *SuperShuttle*, and book their airport transfers on their website. The airport code for Austin is AUS, and the address for Southwestern University is 1001 E. University Ave., Georgetown, TX 78626.

[www.supershuttle.com](http://www.supershuttle.com)

## **Weather**

Temperatures in central Texas during early July are hot, but manageable. Expect highs each day to be around 93°F (34C), with lows overnight at 76°F (24C). Rain is rare during July, and the winds during the summer are typically from the south-southeast. It is recommended that participants wear light colored clothing and hats to help manage the heat, and to use sunscreen. Proper hydration is critical, so plenty of water and ice will be on hand to help participants stay cool.

## **COVID19 Safety Information**

All subsequent Bulletins will include any necessary information and protocols that the organizers and the participants will have to follow in order to participate based on the national regulations and the FAI recommendations. National regulations will prevail at all times over FAI recommendations. From time to time please consult the COVID19 information provided on the FAI website. The event website will also be updated with relevant health information as appropriate.

## **Organizer Contact Information**

Event Director  
James Duffy, email [jduffy@mac.com](mailto:jduffy@mac.com)

Mailing Address:  
National Association of Rocketry - 2023 FAI World Championships  
450 Abrams Rd.  
Georgetown, TX 78633

**[nar.org/championships](http://nar.org/championships)**

## Preliminary Entry Forms

The following teams have indicated their intention to compete at the 2023 FAI World Championships for Space models:

Country	Senior Competitors	Junior Competitors	Total Participants*
Bulgaria	1	0	1
Canada	7	0	9
China	21	26	61
Croatia	3	0	3
Germany	1	0	2
Great Britain	6	3	14
Italy	1	0	2
Japan	1	0	1
Latvia	6	3	11
Poland	8	1	9
Romania	11	4	19
Slovakia	6	0	7
Slovenia	1	0	1
Spain	9	3	17
Switzerland	2	0	2
Ukraine	10	7	21
United States	26	27	55
<b>Total</b>	<b>120</b>	<b>74</b>	<b>235</b>

\* Includes TMs, TMAs, Timekeepers, Supporters, and Helpers