

# FAI World Drone Racing Championship



2023 WDRC race track at the Namwon Sports Town complex, Korea

## THE EVENT

Between October 6th and 9th, 2023, the 3rd edition of the FAI World Drone Racing Championship (WDRC) took place at the Namwon Sports Town complex in Jeollabuk-do, Korea. The event showcased 115 of the world's top FPV drone racing pilots from 29 different nations. The WDRC was meticulously organized by the Korea Aero Models Association (KAMA), in collaboration with the Federation of Korea Aeronautics (KFA), and was hosted by the city of Namwon. This championship was an integral part of the larger 2023 Namwon World Drone Festival.

The festival, widely advertised throughout the city of Namwon, featured numerous activities and drew a diverse crowd of spectators spanning various age groups. In addition to drone racing and drone soccer competitions, the event featured a commercial drone expo, flying booths for drone soccer, various simulators, as well as games and activities designed for children and families.

## THE TEAM

Guided by team manager Ignacio Romero (BC) and team coach Ryan Walker (QC), the team consisted of five pilots. The pilots were selected based on their rankings in the 2022/2023 MultiGP Global Qualifier and the 2022/2023 MultiGP Canadian Qualifier fastest-3-consecutive-laps.

The 2023 WDRC Team Canada lineup included: Benjamin St-George (QC), Antero Sousa (ON), Antoine Deschênes (QC), Stéphanie Beaulieu (QC), and Jacob Isotalo (ON).

The last time a Canadian team competed in an FAI event of this



2023 Team Canada FPV, from left to right: Ignacio R., Antoine D., Ryan W., Benjamin S., Jacob I., Antero S., Stéphanie B., Phillip I.

magnitude was at the 1st FAI WDRC held in Shenzhen, China, back in 2018.

## THE COMPETITION

### Day 1: Friday, October 6th

Each team had a designated time to arrive for on-site registration and undergo technical inspection for all their quadcopters (quads). The inspection focused on validating elements such as radio link frequency, FPV video system, and ensuring video power output was within the 25-milliwatt limit, as well as verifying working LEDs with



Team Canada FPV members contemplating the 2023 WDRC race track

easily changeable colors via the radio, among other criteria.

Team Canada, along with Team USA, was scheduled for model processing at 12:20 PM, contributing to a less stressful and rushed morning. Despite the relaxed schedule, our team arrived early to familiarize themselves with the track and their designated pit area.

After successfully passing technical inspection for the three quads per team member and completing admission procedures, we returned to the pilot pit area to prepare our gear for practice.

Similar to model processing, each team was assigned a specific time for practice, with every country allotted 2 minutes of practice per pilot. Given Team Canada's five registered pilots, we had a total of 10 minutes. Initially scheduled for 1:33 PM, following Team USA, the practice phase experienced delays and was eventually postponed to Saturday morning. Only a few teams had the opportunity to practice the track that day, leading to frustration among affected teams. Fortunately, these concerns were addressed during the team manager meeting later in the day, involving discussions with KAMA organizers and FAI officials.

The grand opening ceremony commenced as planned at 7 PM, during dusk, illuminating the entire stadium. A sizable crowd eagerly awaited, as each team, adorned in their country jerseys, waved large and small flags while parading around the stadium track. The procession was televised and live-streamed from various angles. Team Canada took pride in representing their country and was thrilled to be part of the event. The ceremony concluded with live music, a captivating fireworks display, and an impressive drone light show.

### Day 2: Saturday, October 7th

As per the new schedule, Team Canada had an early morning slot



Team Canada FPV parading during the 2023 WDRC opening ceremony

for practice. Despite the time constraints and the added pressure to perform, the team collaborated efficiently to make the most of the allotted 10 minutes of practice. Some of our pilots managed to fit in two flights, with a swift pit stop overseen by our experienced team coach, Ryan Walker. Unfortunately, Antero Sousa experienced a significant crash during practice, preventing him from completing a lap. Nonetheless, the rest of the team seized the opportunity to navigate the race track in real life and gauge their lap times. The extensive hours spent practicing on the simulator proved instrumental in learning the optimal racing lines and mastering the intricate elements of this unconventional yet highly challenging race



Team Canada FPV members during the official practice. Real teamwork!

track.

Following the practice session, the qualifiers commenced. The qualification process under FAI F9U rules required each pilot to participate in three rounds. The average of the best three laps from all rounds was then calculated to determine the ranking among other pilots. The competition was intense and demanding. Despite lacking experience in such a large-scale event, Team Canada pilots adeptly handled the pressure and performed admirably.

Out of 115 competitors, the qualification results were as follows:

1	MinChan Kim	Korea	20.714s
2	Silas Greever	USA	21.818s
3	Mason Lively	USA	21.867s
4	Changhyeon Kang	Korea	21.883s
86	Antero Sousa	CAN	32.150s
89	Antoine Deschênes	CAN	33.210s
91	Jacob Isotalo	CAN	33.341s
93	Benjamin St-George	CAN	33.761s
104	Stéphanie Beaulieu	CAN	38.873s

To access the official results from the 2023 FAI WDRC, signed by the jury, please visit <https://www.fai.org/wdrc2023-results>

### Day 3: Sunday, October 8th

The big day everyone was waiting for: the elimination rounds. Following the qualifying stage, pilots were distributed into heats of four, competing for the coveted 1st and 2nd positions. The victors securing these top two spots advanced to the next winners round, while the rest moved to the consolation bracket, also known as the losers bracket, for a final opportunity to compete and progress. This tournament format is commonly referred to as a double-elimination format.

Regrettably, none of Team Canada's pilots qualified for the elimination rounds, which comprised only the top 64 fastest

pilots. Nevertheless, those who didn't make it to the top 64 had the chance to participate in two additional rounds for individual ranking.

The overall individual results for Team Canada were as follows:

1	MinJae Kim	Korea	
2	Jacob Capobres	USA	
3	Silas Greever	USA	
66	Antero Sousa	CAN	88.111s (3 laps)
74	Benjamin St-George	CAN	94.355s (3 laps)
77	Jacob Isotalo	CAN	96.698s (3 laps)
85	Antoine Deschênes	CAN	109.919s (3 laps)
98	Stéphanie Beaulieu	CAN	138.46s (3 laps)

Furthermore, Team Canada achieved standings in both the Junior and Women classifications. Among 40 juniors, Jacob Isotalo secured the 32nd position, while among 12 women, Stéphanie Beaulieu earned the 8th spot.

Out of 28 qualified nations, Canada secured the 19th position in the national team classification, accumulating a team score of 202.

The the results of the top 3 national team were as follows:

1	Korea	team score: 19)
2	USA	team score: 23
3	Japan	team score: 38

Finally, the results of the top 3 pilots from the overall individual classification who battled through all the elimination rounds from Sunday to Monday, were as follows:

1	MinChan Kim	Korea
2	Yuki Hashimoto	Japan
3	Victor Jonsson	Denmark





2023 WDRC national teams and organizers



# World Drone Technical Report



FPV quadcopters, during model processing, featuring ultra compact LED strips

## THE LED CONTROVERSY

While not a novel issue, the mandate for incorporating LEDs on quadcopters consistently generates controversy among FPV drone racing pilots. Event organizers, like the FAI, strive to transform drone racing into a spectator-focused show, yet some pilots struggle with the challenges of effectively integrating LEDs on racing drones, especially in the aftermath of significant crashes. Potential risks include circuit shortages or significant amperage draw, especially critical when regulations mandate the installation of a large amount of LED light bulbs. On the bright side, prior to the 2023 WDRC, the FAI ruling committee made a unanimous decision to reduce the mandatory LED light bulb count from 40 to 32, aiming to facilitate broader acceptance.

Advancements in LED technology have led to increased reliability, compactness, and, notably, enhanced power efficiency. Throughout the 2023 WDRC, ingenious applications of LED technology were evident, featuring strips with remarkably small, 5V-powered bulbs that consume low amperage while delivering intense brightness. The incorporation of COB LED into the FAI F9U rulebook proved to be a valuable addition.

## DRONE SOCCER

Since May 2019, Drone Soccer has been introduced as a provisional class (F9A) in the FAI Sporting Code. This innovative air sport involves two teams, each comprising up to five players, with the objective of scoring the highest number of goals. Played in a designated "flying zone" measuring up to 20m x 10m, drone



Drone Soccer team from Hong Kong replacing the drone's plastic cage

soccer matches consist of three sets lasting three minutes each, and the drones, operated by pilots at either end, are encased in protective orbs illuminated with colorful LED lights for easy team identification. Drone soccer has gained significant popularity in Asian countries, especially among young students, often integrated into after-school robotic programs in many schools.

For the first time, the 2023 FAI WDRC featured national team competitions in drone soccer, with numerous nations participating. While drone soccer is not yet widely popular in Canada, it is gaining traction in the USA, particularly through the efforts of the US Drone Soccer organization. Drone soccer could potentially expand to Canada, especially if more and more drone soccer competitions take place worldwide. ✈