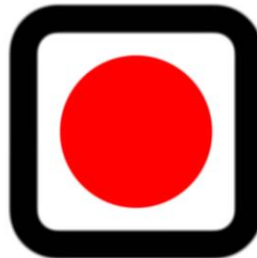




**RESPONSIBLE ORGANIZER** in front of the *WCRC Consortium*:

**Комитет за развој свемирског програма**  
Република Србија  
21000 Нови Сад  
МБ: 28104294  
[2comnet.info/komsat/sr/](http://2comnet.info/komsat/sr/)



**Committee for Space Programme Development**  
Republic of Serbia  
21000 Novi Sad  
IDN: 28104294  
[2comnet.info/komsat/en/](http://2comnet.info/komsat/en/)

The  
**World CanSat/Rocketry Championship**  
**World Finals**  
| 2021/22 |

## 1. INTRODUCTION

The **World CanSat/Rocketry Championship** (hereinafter: **WCRC**) is generally an international competition open to elite competitors from around the world, representing their nations (as university student Teams or as an independent student Teams), and winning this event will be considered the highest achievement in this field. The **WCRC** is managed by a *WCRC Consortium* (<https://wrc.world/>).

The **WCRC** consists of 3 phases:

Phase 1 – *National CanSat/Rocketry Competition* as qualification for *Continental CanSat/Rocketry Competition*. In this Competition student Teams participate across their own State. If the State does not have a *National Competition*, then all student Teams can directly participate in the *Continental CanSat/Rocketry Competition* (i.e. Phase 2);

Phase 2 – *Continental CanSat/Rocketry Competition* as qualification for the *World Finals*;

Phase 3 – *World Finals CanSat/Rocketry Competition*;

Due to the pandemic situation for the 2021/22 competition period, all *National* and *Continental competitions* have been canceled and all teams can participate directly in the *World Finals*. For the period 2022/23, the **Championship** will be realized through all phases (if the pandemic situation allows it).

### 1.1 Background

#### What is a CanSat?

A CanSat is a simulation of a real satellite. All components are housed inside a can up to 350 ml. CanSat provides an affordable way to gain basic knowledge and skills in Space engineering for teachers and students, as well as experience engineering challenges when designing Satellites. Students are able to design and build a small electronic payload that can fit into the cans to 350 ml. CanSat is launched by Rocket, Balloon, Plane or Drone and delivered in apogee. With the Parachute, the CanSat slowly descends to the ground and carries out its mission during descent (for example: measures air pressure and temperature and sends telemetry). By analyzing the data collected by CanSat, students will explore the reasons for the success or failure of its mission.

Space engineering learning, based on the CanSat/Rocketry concept, enables students to gain hands-on experience through a specific interdisciplinary project. Since this is a Space engineering project, teachers and students will gain experience from mission defining, conceptual design, through integration and testing, to launching and actual system operation, ie experience from the whole Space project cycle and then participate in the CanSat/Rocketry competition with its peers at home country and abroad. One of the main advantages of the CanSat/Rocketry concept is its interdisciplinary: combination of mathematics, physics, informatics/programming, mechatronics, telecommunications, aviation and rocketry, mechanics, etc.. CanSat is a simulation of a real, large, Satellite and contains all the components as a real Satellite, but with limited complexity.

Benefits of CanSat/Rocketry Based Education:  
CanSat/Rocketry is an effective educational tool for:

- Learning by doing;
- Involving students in technology and engineering as a practical complement to other, fundamental, subjects they study, such as mathematics and physics;
- Emphasizing teamwork where each student has a specific task/role that creates a sense of responsibility for him/her;
- Students gain experience of the complete process: defining the mission, design, development/constructing, programming, testing, launching and analysis;
- Simple conducting experiments with balloon/rocket/plane/drone;
- Learning methods can be adapted to the age level of students, or to their needs and abilities;
- Students are able to analyze the reasons for success or failure after descending CanSat and Rocket to the ground;
- Acquired knowledge and experience can be applied to other projects as this concept enables obtaining of ideas and stimulates student's thinking;
- Useful for a further education/career guidance process;
- Provide Opportunities and Network for Launching their Own Small Satellites to Low Earth Orbit in a frugal way!
- Provide Opportunities and Network for Sharing and Learning from each other teams from various countries.

## 1.2 Miscellaneous

To make the **WCRC World Finals** truly meet its goals: promoting Space Engineering and STEM education in general, changing the awareness of citizens, motivating students to continuously explore and improve themselves, bringing the Space closer to citizens in a practical, understandable and accessible way etc., the *WCRC Consortium* has decided that the **WCRC World Finals 2021/22** program will last 50 days (from 18<sup>th</sup> August to 7<sup>th</sup> October) in the form of a **Space Festival** (<https://youtu.be/5BOI1p7SZKc>)!

The **Festival** will start with the holding of the *European Championship for Space Models* on the occasion of marking 50 years since the first ever *World Space modeling competition*, organized by the former Yugoslavia in 1972 in Vršac. This *Championship* is organized by the Aeronautical Union of Serbia and within the *FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE* and will happen from 18<sup>th</sup> to 24<sup>th</sup> August in Zrenjanin (field Aradac).

After the *European Championship for Space Models*, workshops and educational programs in the field of Space engineering and Astronomy will be held throughout Serbia and the region in primary and secondary schools, at the CSPD's Aerospace Center (Airport "Veliki Radinci") and in kindergartens.

The culmination of the **Space Festival** will take place from 25<sup>th</sup> to 27<sup>th</sup> September in the city of Novi Sad and Novi Sad's Airport "Čenej" by holding the historical event: the first ever **WCRC World Finals**.

The city of Novi Sad officially became European Capital of Culture on January 13 after a yearlong delay caused by the coronavirus pandemic. The European Capital of Culture designation was created by the European Commission to highlight the richness and diversity of cultures in Europe. Novi Sad's program during 2022 will follow the concept originally sketched out for 2021, which consists of four areas under the theme "For New Bridges". The program is designed to help the city develop its strategy for the sustainable development of its cultural sector with a focus on strengthening cultural institutions and participation, and renewing cultural heritage. Novi Sad citizens and visitors will be offered various cultural programs throughout the year, both from the popular and the alternative cultural scene. According to the organizers, Novi Sad will host more than 4,000 artists during the year (<https://novisad2022.rs/en/home-3/>).

Serbia is small and extremely rich country by nature. Since that the country is located at an excellent intersection of roads in Europe, Serbia has excellent connections with other parts of the world, especially with Asia and Africa. Serbia is not an EU country and therefore has a flexible VISA regime with most countries in the world. Also, the cost of living is much lower than the costs in the EU countries and belongs to the lowest in Europe.

Transportation/travel to Serbia is very affordable and the country does not have certain aggravating circumstances for entering the country due to migrant's crisis. **Come to Serbia and feel like at home.**

## **2. WCRC WORLD FINALS COMPETITION PHASES**

The **WCRC World Finals 2021/22 (WCRCWF2021/22)** consists of 3 phases:

1. Phase 1 – Preparation of the **WCRCWF2021/22** launch campaign
2. Phase 2 – **WCRCWF2021/22** launch campaign
3. Phase 3 – Post-launch campaign activities

### **Student team eligibility conditions**

In order for a student team to be accepted in the International competition the following conditions have to be fulfilled:

1.)

Each team must have 3-5 members, respecting one of the following conditions:

- All 3-5 team members are students enrolled full-time in a University or similar Higher educational institution and come to the competition **without** a Professor/Mentor.
- All 3-5 team members are students enrolled full-time in a University or similar Higher educational institution and come to the competition **with** a Professor/Mentor.

Which means: 3-5 team members + 1 Professor/Mentor. (**RECOMMENDED**)

2.)

Each team is expected to do the following:

- Define a TEAM NAME,
- Bring 2 state flags to the competition,
- Bring National anthem on USB Flash stick,
- Wear the same colorful shirts,
- Appoint a team leader,
- Appoint a person from team who will video record the team activities during the competition.

3.)

Elementary and secondary education students cannot participate in this competition.

### **Phase 1 - Preparation of the WCRCWF2021/22 launch campaign**

All the teams participating in the **WCRCWF2021/22** launch campaign will have to carry out technical work on their CanSats, applying the procedures used in the typical lifecycle of a real Space project, which are:

- Selection of mission objectives;
- Definition of technical requirements necessary to achieve these objectives;
- Design of hardware and software;

- Design of ground station/ground telecommunication system;
- Integration and testing of the CanSat before the launch campaign starts.

## Phase 2 - WCRCWF2021/22 launch campaign

The highlight of the **WCRCWF2021/22** is the launch campaign, taking place from 25<sup>th</sup> to 27<sup>th</sup> September 2022. The launch campaign will be realized at 2 places in Serbia. The first place is launch spot Airport “Čenej” located in the Novi Sad municipality. The second place is in the city of Novi Sad. All teams will be accommodated in Novi Sad and all activities except CanSat launches will take place in the city of Novi Sad (see table below). During activities at Airport “Čenej” all CanSats will be launched by Rockets. The team’s CanSats must be flight-ready in time for the launch campaign. The teams will by themselves assemble motors and parachutes to their Rockets at the launch spot Airport “Čenej” and put their CanSats in Rockets. Video instructions on how to do this will be sent to each team in a timely manner. The Rocket and motor will be given to each team by the organizer, and **the parachute for the Rocket team will make independently and bring it to Serbia**. On the launch spot Airport “Čenej” will be people from the host side to assist in case the teams have never handled Rockets to oversee any kind of mishap.

A Jury of experts will be nominated by the *WCRC Consortium* to evaluate the teams and their work. The Jury will select the winning teams based on the criteria listed in **Chapter 4**.

### Outline of the launch campaign:

<b>Day 0</b> / 24 <sup>th</sup> September	<ul style="list-style-type: none"> <li>• Teams arrive to city of Novi Sad</li> </ul>
<b>Day 1</b> / 25 <sup>th</sup> September	<p>At 9:00 AM teams departure with buses to the field (launch spot Airport “Čenej” located in the Novi Sad municipality)</p> <p>-----</p> <p>From 10:00 AM activities on the field (launch spot Airport “Čenej”):</p> <ul style="list-style-type: none"> <li>• Opening,</li> <li>• Review of the rules,</li> <li>• Technical inspection of CanSats by Jury,</li> <li>• Teams interviewing and promoting their products (if any) through <b>LIVE BROADCASTING</b>,</li> <li>• Assembling motors and parachutes to the Rockets by teams <i>(Video instructions on how to do this will be sent to each team in a timely manner!)</i>,</li> <li>• Launch of CanSats and recovery,</li> <li>• Return to city of Novi Sad (accommodation).</li> </ul>
<b>Day 2</b> / 26 <sup>th</sup> September 12:00 (noon)	<p>Presentations/Technical Reports about missions results (post-flight analysis) <b>by one representative of each team</b> in the place provided for that in the city of Novi Sad</p> <p>-----</p> <p>Preparation of CanSat Report (CR) <b>by the rest of the team</b> and submission by 8:00 PM</p>
<b>Day 3</b> / 27 <sup>th</sup> September Time: TBD	<p>At the Banquet:</p> <ul style="list-style-type: none"> <li>• Proclamation of the winner(s) / Prizes ceremony</li> <li>• Meetings/discussions/socializing</li> <li>• Closing</li> <li>• Teams depart</li> </ul>

After the launch of CanSats ALL teams must prepare and submit their CanSat Report (CR). The CR should be limited to a maximum of 10 pages and must summarize the work done before and during the launch of CanSats, with a special focus on the results obtained (data analysis etc.). All CRs then will be published by the *WCRC Consortium* to the international community.

The CanSat Report (CR) has to be submitted to the *WCRC Consortium* representative by 26<sup>th</sup> September, 8:00 PM via USB flash drive or email (the email will be published later), stating the name of the team and country (e.g. “**TeamName\_Country\_CR**”). The document should be in a pdf format, using the following file name format: **TeamName\_Country\_CR.pdf**

The form of the CR is defined by the each team independently (free form). **The content of the CR is not scored but its submission is mandatory! A team that does not submit a CR will be disqualified!**

### **Phase 3 – Post-launch campaign activities**

After the launch campaign ALL teams must send to the *WCRC Consortium* the video materials they made during the preparations and participation in the World Finals. The *WCRC Consortium* will publish all videos in its media and make them available to the international community.



## 3. MISSION OVERVIEW

The **WCRCWF2021/22** is designed to simulate all aspects of a real Satellite/Space mission, including design, development, testing, launch, operations, and data analysis, by means of teamwork.

### 3.1 The Rocket launch

The Rockets for the launch campaign will be provided by the organizer.

The Rocket would deploy its parachute at apogee, together with the CanSat. Just after the apogee (0-2 seconds later), the CanSat would separate from the Rocket and make separate parachute descent.

### 3.2 Primary and secondary CanSat missions

#### 1. *Primary mission*

The team must build a CanSat and program it to accomplish the following compulsory primary mission:

To measure AIR POLLUTION after release and during descent and transmit these data as telemetry to the Ground Station at least once every 2 seconds.

During the post-flight analysis, it must be possible for the team to analyze the data obtained and display it in graphs.

#### 2. *Secondary mission*

Each team through its Ground Station must be able to send a telecommand (uplink) to CanSat, during the descent, which must be possible to register visually by the Jury (e.g. deploy of some parts, fake solar panels, antenna, door, National flag etc.. Literally anything that can be seen from the ground).

### 3.3 Technical requirements

The CanSat hardware and mission must be designed following these requirements and constraints:

1a\*. All the components of the CanSat must fit inside a standard soft drinks can (115 mm height and 66 mm diameter), with the exception of the CanSat parachutes. Radio antennas and GPS antennas can be mounted externally on the top or bottom of the can, depending on the design, but not on the sides.

2a\*. The antennas, transducers and other elements of the CanSat cannot extend beyond the can's diameter until it has left the launch vehicle.

3a\*. The mass of the CanSat must be between a minimum of 100 grams and a maximum of 150 grams.

4a\*. Explosives, detonators, pyrotechnics, and inflammable or dangerous materials are strictly forbidden. All materials used must be safe for the personnel, the equipment, and the environment. In case of doubt please contact *WCRC Consortium* representative (organizer).

5a. The CanSat must be powered by a battery. It must be possible for the systems to remain switched on for four continuous hours.

6a. The battery must be easily accessible in case it has to be replaced/recharged.

7a\*. The CanSat must have main power switch. The CanSat must be power OFF inside the Rocket.

8a. Inclusion of a positioning system for retrieval (beeper, radio beacon, GPS, etc.) is recommended.

9a\*. The CanSat must have a recovery system (**a 3 parachutes attached to the CanSat**), capable of being reused after launch. It is recommended to use bright coloured fabric, which will facilitate recovery of the CanSat after landing.

10a. The opening of the CanSat parachutes will be scoring. The strength of the parachute must be tested to ensure that the system will operate nominally.

11a. It is recommended that teams pay attention to the design of the CanSat in terms of hardware integration and interconnection, so the radio frequency can be easily modified if necessary.

12a\*. The CanSat must be flight-ready upon arrival at the launch campaign.

13a\*. Each team makes a Parachute for the Rocket for recovery and brings it to the competition.

14a. The opening of the Rocket parachute will be scoring.

*(Video instructions for making a Rocket parachute will be sent to each team in a timely manner!)*

### **3.4 Meeting the requirements for the Launch Campaign**

To verify that the CanSats are suitable for launch, a technical inspection will take place at the beginning of **WCRCWF2021/22** Launch Campaign on the field (launch spot Airport “Čenej” located in the Novi Sad municipality). The way the requirements are evaluated is as follows:

\* Requirements 1a, 2a, 3a, 4a, 7a, 9a, 12a, 13a will be evaluated on site by a specially appointed CanSat technical team. Teams that don't pass some requirements during evaluation **will be disqualified!** **Teams will also be disqualified if the primary and/or secondary mission is not accomplished!**

## 4. EVALUATION AND SCORING

### 4.1 The Jury

The Jury, appointed by the *WCRC Consortium*, will be comprised of CanSat experts, education experts, or engineers and scientists who will evaluate the team's performances during '**Phase 2 – WCRCWF2021/22 launch campaign**'. The Jury members will score the teams during the launch campaign and announce the results from their scoring during the last day of the competition.

The Jury will typically have 3-5 members, and their fields of expertise can vary from science to engineering or education. The Jury board is usually comprised of:

- Space science/engineering expert(s)
- IT/Electronics expert(s)
- Education expert(s)
- Radio communication expert(s)
- Rocketry expert(s)

### 4.2 Scoring

Performance in the following areas will be evaluated:

#### **A. Technical achievement**

The Jury will take into account how the teams obtained the results, how reliable and robust the CanSat was, visual appearance and how the CanSat performed. Innovative aspects of the project will be judged (e.g. the tools selected and the hardware/software used).

The aspects evaluated will be:

- Mission's technical complexity: The CanSat's technical level, understanding of the technical concepts and the originality of the engineering aspects of the mission.
- Performance of the Primary mission: The CanSat's technical performance in terms of deployment and data collection for the Primary Mission. Number of CanSat's parachutes opening etc.
- Performance of the Secondary mission: Whether the Secondary mission was realized or not.

#### **B. Scientific value**

The scientific value of the team's missions and the team's scientific skills will be evaluated. This includes the scientific relevance of the mission, the quality of the technical reporting and the team's scientific understanding that will be assessed from the team's ability to analyse and interpret results appropriately.

The aspects evaluated will be:

- Scientific relevance: Assessment of whether measurements are done with a clear and well founded scientific purpose, the extent to which the CanSat is used in an original way and if the data collection is appropriate for reaching the objective.
- Scientific understanding: Level of understanding of the scientific principles that underlie the project.
- Technical reporting.

#### **C. Professional competencies**

The Jury will assess the team's collaboration and coordination, adaptability and communication skills.

The aspects evaluated will be:

- Teamwork: Collaborative effort of the team in order to complete the tasks in the most effective and efficient way.
- Adaptability: Attitude towards continual improvement and ability to adapt to new conditions.
- Communication: Oral presentation skills, the ability to provide a captivating presentation.

#### ***D. Outreach***

The team will be rewarded with additional points based on explanation: How the project is communicated to the university and the local/state community, taking into account web pages, blogs, presentations, promotional material, media coverage, video material from CanSat development process etc.

### **4.3 Marking scheme**

The overall balance between the items to be evaluated is as follows:

Technical achievement 35%  
Scientific value 35%  
Professional competencies 20%  
Outreach 10%

-----  
TOTAL 100%

### **4.4 Prizes**

- 1<sup>st</sup> Prize
- 2<sup>nd</sup> Prize
- 3<sup>rd</sup> Prize

The following rule will apply:

- A team can't receive more than one prize.

## 5. LOCATIONS OF THE COMPETITION

1.) City of Novi Sad:

<https://www.google.com/maps/place/Novi+Sad/@45.27143,19.7794015,12z/data=!3m1!4b1!4m5!3m4!1s0x475b10613de93455:0xb6f7d683724fe28!8m2!3d45.2396085!4d19.8227056>

2.) Launch spot Airport “Čenej” located in the Novi Sad municipality:

[https://www.google.com/maps/place/Novi+Sad+Airport+\(QND\),+100,+%C4%8Cenej/@45.3845868,19.8332707,15z/data=!4m5!3m4!1s0x0:0xc5704c890262c8c8!8m2!3d45.3845868!4d19.8332707](https://www.google.com/maps/place/Novi+Sad+Airport+(QND),+100,+%C4%8Cenej/@45.3845868,19.8332707,15z/data=!4m5!3m4!1s0x0:0xc5704c890262c8c8!8m2!3d45.3845868!4d19.8332707)

## 6. PARTICIPATION FEES

*Basic fees:*

120€/participant

(payment via PayPal to CSPD until 15<sup>th</sup> Jun 2022)

*Additional fees for participants:*

Transportation costs to Serbia must be covered by participants/teams.

If participants/teams come by plane, the transportation from Airport “Nikola Tesla” to accommodation place and vice versa will be covered by participants/teams.

Accommodation and meals costs must be covered by participants/teams.

*Organizer covers:*

The costs of transferring teams from accommodation to launch spot Airport “Čenej” and back are covered by the organizer.

Rockets and motors are covered by the organizer.

Costs for participation on the Banquet during proclamation of the winner(s), prizes ceremony and closing are covered by the organizer.

## 7. SUPPORTERS AND CO-ORGANIZERS

- WCRC Consortium;
- Provincial Secretariat for Economy and Tourism;
- Aero Club “Novi Sad”;
- Aero Club “Sremska Mitrovica”;
- Aeronautical Union of Serbia;

## 8. APPLICATION AND DEADLINE FOR APPLICATION

Please apply via email: [wrcserbia@gmail.com](mailto:wrcserbia@gmail.com)

Deadline: **15<sup>th</sup> Jun 2022**

## 9. RESPONSIBLE ORGANIZER

*Committee for Space Programme Development (CSPD)*

*/ WCRC Consortium member /*

*Republic of Serbia*

*Autonomous Province of Vojvodina*

*21000 Novi Sad*

*Ćirila i Metodija 130*

*Email: [wrcserbia@gmail.com](mailto:wrcserbia@gmail.com)*

*Responsible person: Dušan Radosavljević*

*Telephone: +381658616339 (WhatsApp)*

*<http://2comnet.info/komsat/en/>*

*<https://wrc.world/>*

## 10. THE FINAL REPORT

From September 25<sup>th</sup> to 27<sup>th</sup> in Novi Sad, Vojvodina, Serbia, the historical World Finals of the World CanSat/Rocket Championship was successfully realized. It bears the epithet historical not only because it was the first ever, but also because of the application of a hybrid method of competition, whereby the realization of the simulation of a real Space mission was raised to a higher level and preparation was made for subsequent competitions in this way in case of need.

Given that we live in a time in which things happen that we cannot influence, we are forced to adapt, to be as flexible as possible in order to continue progressing. For all of us, this is the 'new normal' and regardless of everything, the 'show must go on', so WCRC also adapted because some applied teams did not manage to come due to still present pandemic situation (some of team members were positive) and due to significant problems in financial support caused by inflations around the World. WCRC Consortium consulted and decided not to leave anyone behind and to give everyone a chance to compete because they really deserved it. We created a hybrid competition because technology allows it today, so some of the teams joined the WCRC World Finals remotely. The test was successful and now WCRC has at its disposal more opportunities for organization, that is, it has the opportunity to enable more participants to compete regardless of global circumstances. Participants from five continents showed innovation, creativity, teamwork, cooperation and collegiality, understanding and ability to adapt to challenges on the terrain, which this time were really many. The number of boys and girls participants was almost equal (B 60%:40% G), with the fact that there was also a team in which there were only girls, which is very encouraging for the sustainable development of this field and STEM in general, on the basis of equality. At the competition (on the spot or remotely) there were representatives of: India, USA, Canada, Russia, Mexico, Peru, Nigeria, Tunisia, Ghana, Germany, Italy, Poland, Hungary, Romania, Slovakia, Croatia, Montenegro, Bosnia and Herzegovina, North Macedonia and Serbia. Some competed, some evaluated this process, and some were just observers. During the competition, a series of meetings were held between representatives of educational institutions, companies, governmental and non-governmental sectors between several countries, and cooperation in the field of Space engineering development, expansion of WCRC activities and initiation of joint projects was agreed upon. The presence of a high ITCA/TSC delegation from India, a meeting with the Ambassador of India and representatives of the government of Vojvodina, and the presence of a large number of media and citizens contributed to the WCRC World Finals confirming its breadth and importance. The competition was interactive, i.e. contact with citizens in both directions was constantly present for the promotion of Space engineering, competitors and education of those present.

At the competition, the delegations of WCRC Continental Competition organizers from: Italy (organizer for Europe), Tunisia (organizer for Africa and the Middle East) and India (organizer for the Asia-Pacific region) were physically present at the competition, as well as organizers of the WCRC Continental competition for the North and South America from Canada, but online.

Organizations that are part of the WCRC Consortium: CSPD, Serbia; ITCA/TSC, India; IEEE Brescia, Italy; CRMN, Tunisia, as the main organizers of the competition, with the support of the Provincial Secretariat for Economy and Tourism, SESA and the Aero club Novi Sad, enabled all planned activities to be successfully realized with a few pleasant surprises:

### **1<sup>st</sup> day of the competition:**

- Weather conditions: No rain, wind 0-3m/s, mostly cloudy with Sun;
- Open to the public;

### **From 10:00 AM activities on the field (launch spot Novi Sad's Airport "Čenej"):**

- Review of the rules;
- Technical inspection of CanSats by Jury;
- Teams interviewing and promoting their products (if any) / LIVE BROADCASTING;

- Assembling CanSat parts, assembling motors and parachutes to the Rockets by teams;
- Opening Ceremony;
- Launch of CanSats and recovery (number of launched Rockets with CanSats: 19),
- At the end of the first day 3 Paratroopers jumped from the plane at the Airport.

*\*All teams that competed on the Airport successfully realized both the Primary and Secondary missions. Not a single team was disqualified.*

*\*\*During the competition, exhibits related to Space technology were shown and explained to the public and the flight of the Water Rocket was practically demonstrated. Participants and other attendees had the opportunity to sit in gliders and airplanes, take pictures and talk with the Pilots.*

### **2<sup>nd</sup> day of the competition:**

- Closed to the public;
- From 12 o'clock (noon) in the Conference hall in the city of Novi Sad:**
- Presentations/Technical Reports about missions results (post-flight analysis) by representatives of each team;
  - Remote participation: Canada, Ghana, Mexico, Nigeria and the USA;
  - Working on CanSat Reports (CR) by teams and sending them to the WCRC Commission.
- \*CanSat Reports (CR) of the teams will be published on the WCRC official website and social networks from October 15<sup>th</sup>!*

### **3<sup>rd</sup> day of the competition:**

- Closed to the public;
- From 12 o'clock (noon) in the Conference hall in the city of Novi Sad:**
- Proclamation of the winner(s) / Prizes ceremony;
  - Banquet;
  - Meetings/discussions/socializing;
  - End of the event.

## **10.1 The final results of the first ever WCRC World Finals:**

1<sup>st</sup> place: Team **NTTF Space Aces**, India

2<sup>nd</sup> place: Team **ROSPIN-Sat**, Romania

3<sup>rd</sup> place: Team **UNIBS Cansat**, Italy

*Special Award for achievement and helping in organization of the WCRC World Finals:*  
Team **MSRsat**, Montenegro/SESA

*Global Special Jury Award (for teams on the spot):*  
**KALAMSAT, AATHREYA, NAMBISAT, AUTOBOT JIT, NTTF Space Aces**

*Global Special Jury Award (for teams remotely/by country):*  
Ghana, Mexico, Peru, Canada, Germany, Poland



## 10.2 Participants

### TEAM-1: KALAMSAT

TEAM LEADER: S SAI SHIVA RAMA KRISHNA

Mentor Name: **Dr. M. Narayana**

Institution: **Anurag Group of Institutions AGI, Hyderabad, INDIA**

Country: **INDIA**

SNO.	NAME
1	<b>Swayampakula Sai Shiva Rama Krishna</b>
2	<b>Gummadavelli Madhu</b>
3	<b>Vedangi Kirthi Vishal</b>
4	<b>Paladugu Naveen Kumar</b>
5	<b>Banavath Manjula Naik</b>

### TEAM-2: AATHREYA

TEAM LEADER: **Saripalli Shelsi**

Mentor Name: **Dr.P. Viswanath Kumar**

Institution: **Anurag University, Hyderabad, INDIA**

Country: **INDIA**

SNO.	NAME
1	<b>Saripalli Shelsi</b>
2	<b>Jakka Ramya Reddy</b>
3	<b>Aamena Suzzanne</b>
4	<b>Lakkakula Vinushna</b>
5	<b>Venepally Sakshi</b>

### TEAM-3: NAMBISAT

TEAM LEADER: **Lakshya Rachaprolu**

Mentor Name: **Dr. K. Vasanth**

Institution: **Vidya Jyothi Institute of Technology (VJIT), Hyderabad, INDIA**

Country: **INDIA**

SNO.	NAME
1	<b>Lakshya Rachaprolu</b>
2	<b>Madhurima Sinha</b>
3	<b>Soma Kunal Raj</b>
4	<b>Srikanth Kethavath</b>

**TEAM-4: NTTF Space Aces**

**TEAM LEADER: Syed Ilyas B**

**Mentor Name: Jyothi N**

**Institution: NTTF (Nettur Technical Training Foundation)**

**Country: INDIA**

SNO.	NAME
1	<b>Syed Ilyas B</b>
2	<b>Hariharan P</b>
3	<b>Tadepalli V N V S Bhima Madhava Vikranth</b>
4	<b>Sarmistha Panigrahi</b>
5	<b>Jyothi N</b>

**TEAM-5: AUTOBOT JIT**

**TEAM LEADER: Yuvanandhini T R**

**Mentor Name: Mr.Tarun Kumar M**

**Institution: Jeppiaar Institute of Technology**

**Country: INDIA**

SNO.	NAME
1	<b>Yuvanandhini T R</b>
2	<b>Tharun V</b>
3	<b>Akash A</b>
4	<b>Tarun Kumar M</b>

**TEAM-1: ROSPIN-Sat**

**TEAM LEADER: Sebastian Severin**

**Mentor Name: Daniel Erzse**

**Institutions: ROSPIN, Politehnica University of Bucharest and**

**"Gheorghe Asachi" Technical University of Iași**

**Country: ROMANIA**

SNO.	NAME
1	<b>Sebastian Severin</b>
2	<b>Beatrice Gherghel</b>
3	<b>Tarik Ilhan Omer</b>
4	<b>Daniel Erzse</b>

**TEAM-1: UNIBS Cansat Team**

**TEAM LEADER: Nicolò Belotti**

**Institution: Università degli Studi di Brescia**

**Country: ITALY**

SNO.	NAME
1	<b>Frenki Shqepa</b>
2	<b>Nicolò Belotti</b>

**TEAM-1: MSRsats**

**TEAM LEADER: Nikola Perović**

**Institution: Montenegro Space Research**

**Country: MONTENEGRO**

SNO.	NAME
1	<b>Nikola Perović</b>
2	<b>Nina Drakulić</b>

**TEAM-1: GHANAsat**

**TEAM LEADER: Solomon Appekey**

**Institution: X Space Solutions**

**Country: GHANA**

SNO.	NAME
1	<b>Solomon Appekey</b>
2	<b>Eric Obeng</b>
3	<b>Jake K. Yawson</b>
4	<b>Selorm Appekey</b>

**TEAM-1: MEXICOsat**

**TEAM LEADER: Dr. Barbara Bermudez Reyes**

**Institution: UNISEC MEXICO**

**Country: MEXICO**

**TEAM-1: PERUat**

**TEAM LEADER: Zaid Sanchez Escate**

**Institution: Asociación de Investigación y Desarrollo Aeroespacial (AIDA)**

**Country: PERU**

**TEAM-1: BAVARIAsat**  
**TEAM LEADER: Florian Reichel**  
Institution: /  
Country: **GERMANY**

**TEAM-1: INNSPACEsat**  
**TEAM LEADER: Justyna Pelz**  
Institution: **INNSPACE**  
Country: **POLAND**

**TEAM-1: CNDSat**  
**TEAM LEADER: Tihomir Zaric**  
Institution: /  
Country: **CANADA**

SNO.	NAME
1	<b>Tihomir Zaric</b>
2	<b>Wintta K. Ghebreiyesus</b>

**TEAM-1: NAVIASat**  
**TEAM LEADER: Alen Kuljevan**  
Institution: **NAVIA**  
Country: **N. MACEDONIA**

**TEAM-1: NIGERIAsat**  
**TEAM LEADER: Ayinde Oluwatofunmi**  
Institution: **MARVECX SPARCT**  
Country: **NIGERIA**

**The representatives of India in the WCRC Consortium (Indian Technology Congress Association (ITCA) and TSC technologies):**

#	Surname	Given name	Designation
1	LINGIREDDY	VENKATA MURALIKRISHNA REDDY	President, ITCA
2	KANAPATHY	GOPALAKRISHNAN	Project Director, 75 Satellites Mission, ITCA
3		WOODAY PUTTIAH KRISHNA	Board Member, ITCA
4	KAMASAMUDRAM	SESHASAYANAM	Strategic Financial Advisor, ITCA
5	DURVASULA	SRINIVAS	Program Manager, ITCA
6	ISSA	PRADHYUMNA KUMAR	Director Finance, ITCA
7	VENKATESAN	JAYAKUMAR	Fellow, ITCA
8	REDDY	KOYANNA VENUGOPAL KRISHNA	Director Business Development, ITCA
9	SHANKAR REDDY	ASHWIN	Core team member, 75 Satellites Mission, ITCA
10	HUDDAR	SANKETH SHANTINATH	Core team member, 75 Satellites Mission, ITCA
11	SAVANTH	BHAVANA	Core team member, 75 Satellites Mission, ITCA

**The representatives of the Provincial Secretariat for Economy and Tourism:**

Mr. Nenad Ivanišević, PhD, Secretary of the Provincial Secretariat for Economy and Tourism and Mr. Milan Jarić, MA.

**The representative of the Aero club Novi Sad:**

Mr. Dragoljub Samardžić, President of the Aero club Novi Sad.

**The representatives of the organizers of the WCRC Continental competitions:**

Mr. Ashwin Reddy (ITCA/TSC), Ms. Bhvana Savanth (ITCA/TSC) and Mr. Sanketh Huddar (ITCA/TSC) from India, Mr. Jacopo Tedeschi (IEEE Brescia) and Mr. Christian Langellotti (IEEE Brescia) from Italy and Dr. Nissen Lazreg (CRMN) from Tunisia.

**The Jury members:**

Dr. Nissen Lazreg (Center for research in microelectronics & nanotechnology, Tunisia), Prof. Anes Hadžiomerović (Center for Education, Robotics, Innovation and Technology, BIH / SESA) and Dragan Jevtić (FAI).

**The representatives of the Southeast European Space Association (SESA).**

**The representatives of the CSPD.**

# World CanSat / Rocketry Championship

