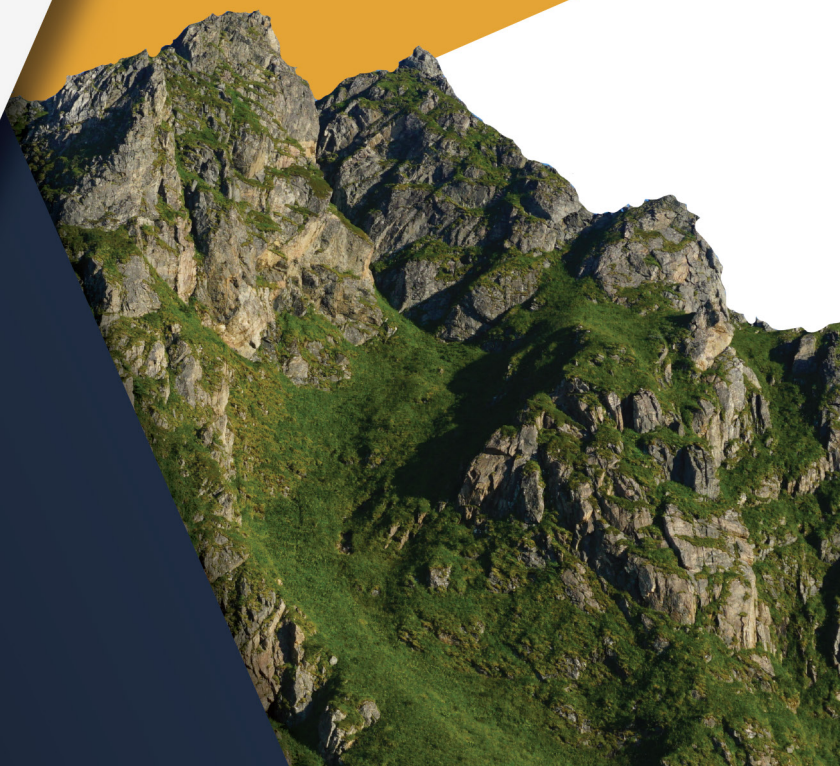


EUROPEAN SPACE CAMP



ANNUAL REPORT

2022



“The sky is not the limit - it’s where the fun begins”

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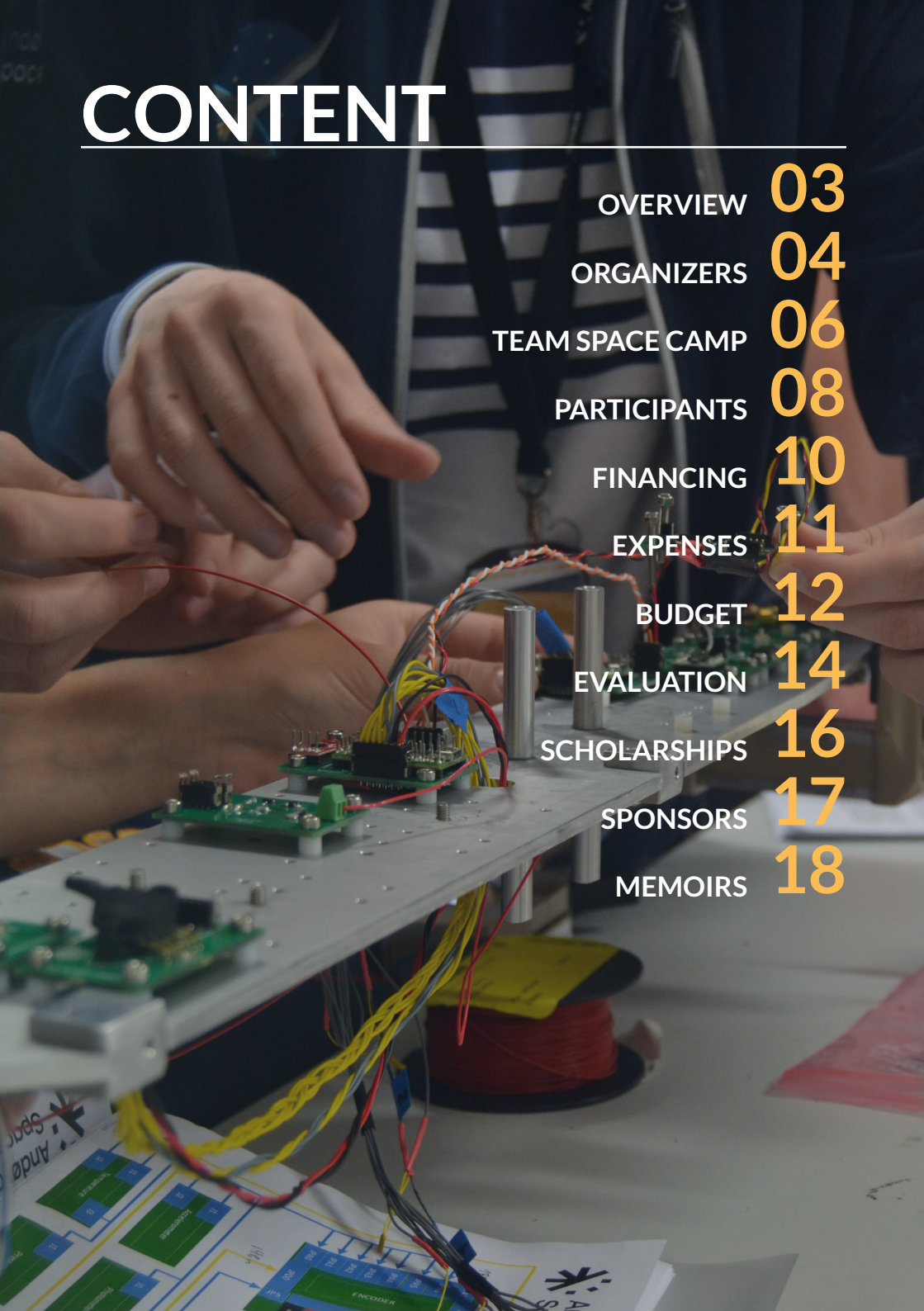
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OVERVIEW

After two years of uncertainty, we were finally able to plan for a physical camp at Andøya Space Centre. The team was determined to bring camp back to its standards pre-COVID, if not even higher, and spent the year bringing back and revising old routines. As a result, European Space Camp was held physically this summer for the first time since 2019. We are back, finally!

Looking critically and iterating on old routines was a key activity in the making of this year's camp. Due to the yearly growth in applications we decided that updating our application process should be the first priority. Now applicants have to go through two rounds instead of one, making it possible for the team to handle the growing application numbers. We also continued the development of our pre-course and had close contact with Andøya Space Education to create an amazing program filled with lectures, social activities, and rocket work.

However, before camp could start, we had to celebrate our 25th anniversary! Previous team members, contributors, and lecturers from all years since 1996 came together at the Space Centre for a day filled with speeches, memories, dinner, and the traditional paper rocket competition. It was amazing to meet the different people that have been involved in making European Space Camp what it has become today and see the heritage the organization has built up over the years.

Then, before we could blink, 20 participants arrived and European Space Camp 2022 started. This year's participants became one of the closest groups we have seen at camp, with bonds being created instantly.

Like this, the teamwork when building the rocket went flawlessly, and on the second try, the rocket blasted into the sky. However, although the rocket was amazing, I will personally cherish the memories of evenings that we spent together doing social activities like grilling, hiking, and dancing in the midnight sun the most. During these times I got to know some of these brilliant and talented young people and what their dreams and aspirations are, which I am so grateful for. Naturally, tears were left in my, and everyone else's, eyes on the last day of camp - it was a week we will never forget.

With this behind us, we can't wait for camp to happen again in 2023. In addition, as the building of Andøya Spaceport now has started, we consider our work more important than ever. The Norwegian Space Sector has a bright future that requires bright minds to fill its workforce. We consider European Space Camp the starting point for guiding these minds in this direction.

Lastly, I would like to give a special thanks to our sponsors and scholarships who stood for the financing of this year's camp. Without you, the camp would not have been possible, and with your support, we are looking forward to ESC 2023!

Anne Svindland Nijdam
Head of Team Space Camp



ORGANISERS

European Space Camp was first organised in 1996. It started out as a Nordic camp, but quickly evolved into an international event, with participants having represented 34 countries and 6 continents. The camp's primary purpose has always been to promote science, both as a field of study and a line of work. To achieve this we focus on three things: theory, practice and social activities. Many of our previous participants go on to study science, engineering and medicine. European Space Camp is organised by the organisation European Space Camp and Andøya Space Education in co-operation with Andøya Space and the Norwegian Space Agency.

European Space Camp

European Space Camp, formerly known as Forbundet Unge Forskere (Norwegian Association of Young Scientists), is the organisation responsible for the overall planning of the camp. European Space Camp is a non-profit organisation that works to promote interest in science among young people.



Andøya Space Education

Andøya Space Education is a subsidiary of Andøya Space. Its main purpose is to increase national recruitment to space-related subjects. Its role is becoming increasingly relevant in Norway, where the space industry is steadily growing and in need of fresh talent. Andøya Space Education initiates, develops and organises several educational courses and events for youths, students and teachers. Its main responsibility in organising European Space Camp is to handle the scientific and academic part of the camp.

Andøya Space

Andøya Space is located at Andøya in northern Norway, and is the northernmost permanent rocket range in the world with decades of experience in launching sounding rockets for atmospheric research. Andøya Space supports sounding rockets and balloon operations both at Andøya and Svalbard. The space center also has advanced facilities for ground based scientific experiments using LIDARs and radars.





TEAM SPACE CAMP

Team Space Camp in cooperation with Andøya Space Education is responsible for the overall planning of the camp and consists exclusively of past participants of ESC. By selecting previous participants we ensure steady recruitment as well as creating a team of motivated people who understand how the camp functions and how it can be further developed and improved. The entire team works together on a voluntary basis to organise each year's camp.



The Team of 2022: Lucia Carai, Anne Svindland Nijdam, Anders Mørk, Lukass Kellijs, and Anna Krajewski.

The team's main responsibilities include: sourcing sponsors, managing the camp's finances, selecting high calibre participants, organising exciting social activities during the camp, maintaining our website, managing public relations, recruiting new team members and, of course, ensuring that each camp runs smoothly and is an enjoyable experience for every participant.

The members of Team Space Camp are all students of science and technology and work on European Space Camp in their spare time throughout the year. The Team gathers twice a year for workshops over a couple of days, where they prepare for the upcoming camp and share inspiration and creativity to make every camp as successful as possible.

Team Space Camp 2022 consisted of Anne Svindland Nijdam (head), Anders Mørk, Anna Krajewski, Lucia Carai, and Lukass Kellijs. The team is delighted to welcome Leanda Venus and Marcus Ringmar as our new trainees for Team Space Camp 2023.



PARTICIPANTS



European Space Camp 2022 gathered 20 participants with common interests in science, space and technology from 8 countries around the world: Germany, Greece, Latvia, Norway, Poland, Sweden, Switzerland, and the United Kingdom. In the picture above, the participants are gathered together with their finished rocket, affectionately named "Auroral Ballerina Breaker".



Zeliha Güler
Norway



Kristin Nordtømme
Norway



Furkan Hüseyincan Özkan
Germany



Sofia Carrera-Knowles
United Kingdom



Achilleas Marios Chaitas
Greece



Arvids Gills
Latvia



Marks Henrijs Majors
Latvia



Robert Lissi
Germany



Milena Sohrweide
Germany



Mikołaj Cichon
Poland



Marek Rauchfleisz
Poland



Daniel Barta
Switzerland



Matias Betschen
Switzerland



Emilia Nilsson
Sweden



Markus Ringmar
Sweden



Johanne Midtun
Norway



Necib Demirtas
Norway



Phrot Vedal
Norway



Malin Leirvik Ovesen
Norway



Leanda Wenus
Norway

FINANCING

FINANCING (in NOK)	Financial Support	Other ⁽¹⁾	Total Support
University of Bergen	15 000	0	15 000
Kongsberg Satellite Services	10 000	0	10 000
University of Tromsø	15 000	0	15 000
Team ESC ⁽²⁾	0	525 000	525 000
Norwegian Space Centre	110 000	0	110 000
FFI (Norwegian Defence Research Establishment)	15 000	0	15 000
University of Stavanger	10 000	0	10 000
University Centre in Svalbard	5 000	0	5 000
University of Oslo	10 000	0	10 000
Andøy municipality	5 000	0	5 000
Nammo	18 000	0	18 000
Kongsberg Defence and Aerospace	60 000	0	60 000
Scholarship fees	233 667	0	233 667
ESC contingency fund ⁽³⁾	137 700	0	137 700
SUM FINANCING	644 367	525 000	1 169 367

⁽¹⁾ By other support, we mean support that we receive in the form of free services or services at a reduced fee.

⁽²⁾ Typically Team Space Camp puts down approximately 3500 hours valued at NOK 150.

⁽³⁾ The transfer from the Contingency Fund was a decision the Team found necessary for future economy and new scholarship agreements.

EXPENSES


EXPENSES (in NOK)	Budget 2022	Accounting 2022
Course materials	4 200	4 000
Balloon operation (balloon, sonde, and operation)	6 000	12 875
Rocket campaign (rocket, payload, safety notifications, operation)	188 550	190 383
Lodging and accommodation (all meals) for students, lecturers, and Team	237 300	225 750
Travel expenses (external lecturers)	15 000	12 343
Transportation at Andøya (students and team)	8 500	11 000
Fee external lecturers	17 500	17 500
Education support	16 239	13 050
Other expenses ASE (unforeseen expenses, social events, insurance)	30 326	28 966
European Space Camp jackets	30 000	24 621
Equipment	500	3 932
Team expenses	5 000	8 790
Travel expenses, Team	50 000	68 091
Office expenses (Internet connection, stationary, bank fees, Space Camp DVDs, and annual reports)	3 000	4 316
Postage	1 500	0
Marketing	1 000	0
25 year anniversary		18 750
Other expenses Team (including unforeseen expenses)	1 000	0
SUM EXPENSES	615 615	644 367

BUDGET

EXPENSES

Budget 2023 (in NOK)

Course equipment	5 000
Balloon release (balloon, sonde, operation)	6 500
Rocket operation (rocket, payload, engine, and operation)	226 440
Accommodation and cost - students and lecturers	234 500
Travel cost lecturer	5 000
Transportation (taxi)	2 500
Salary lecturers	10 000
Support lecturers and lab	160 945
Other costs (unforeseen costs, social activities)	38 115
ESC jackets	30 000
Equipment	500
Team expenses	5 000
Travel expenses Team	50 000
Office expenses	3 000
Postage	1 500
Marketing	1 000
Other expenses Team	1 000
SUM	781 000



European Space Camp (ESC) is a nonprofit organization, with the aim of organizing and running European Space Camp each year within budget. Any leftover funds are collected in a contingency fund and reserved for future camps in case of a shortfall in funding or unexpected extra costs.

European Space Camp 2022 was the first in-person camp after the canceled camp in 2020 and the online camp in 2021. This transition resulted in unexpected additional expenses such as the increased costs of the rocket campaign and travel costs for group leaders. Consequently, we will review the activities leading to the increased costs, and make necessary adjustments for future camps. Additionally, the 25-year anniversary celebration induced extra expenses contributing to the overall costs this year.

The heightened expenses resulted in utilizing a total of NOK 137,700 from the contingency fund this year. This fund has proven invaluable as an important safety net for the European Space Camp 2022 and demonstrates the importance of all of the sponsors and scholarship agreements we currently have. With the cost of European Space Camp increasing year after year, controlling costs and protecting sponsorship revenues is of prime importance for Team Space Camp.

As we look ahead to 2023 we aim to further diversify sponsorship into Europe and internationally. We are extremely grateful to our current sponsors, scholarship organizations, and collaborating partners. Their continual support of the work and vision of European Space Camp has been crucial to the ongoing success and growing reputation of ESC and for its return to normality after the pandemic.

EVALUATION

European Space Camp 2022 was a great success, as shown by the strong positive feedback in the evaluation completed by the participants at the end of the camp. The positive feedback extended to every part of the camp, including the quality and content of lectures, the variety of activities and practical learning opportunities, and the stay at Andøya Space, including the accommodation, food, and location.

Criteria	Average Percentage Rated 'Good' & 'Excellent'
Professional Content	99
Pedagogical Presentation	91
Relevance to the Course	93

Lectures and lecturers were evaluated on the criteria of professional content, pedagogical presentation, and relevance to the course, with the average percentage of 'good' and 'excellent' ratings across all lectures above 90% for every criterion.

Some comments made by participants were:

"Hubble's space telescope's solar panel shown during the presentation. Do I have to add something more?"

"Sophie explained challenging concepts in an easy and fun way. Even if we were having a lecture, she was an amazing person to have around and be able to talk with. Thank you for an amazing week!"

"Jan-Erik's explanation of aerodynamics was amazing."

"Talking to Jan-Erik Rønningen really helped me to crystalize what I want to study."

"It was very nice to talk to Tyler outside of the lecture, so informational."

Activities	Average Percentage Rated 'Good' & 'Excellent'
Opening Ceremony	75
Mountain Hike	95
GPS-Hunt	90
Engineering Challenges	95
Social Activities	95

Participants continue to enjoy the informative, social, and educational activities organised for them as demonstrated by their ratings and comments:

"Swimming was the best!"

"The Sunset Bonfire was so amazing and it will be one of the moments I will remember for life."

"The Sunset Bonfire was one of the best parts of camp except for the launch. An amazing vibe and interesting discussions, and fun dancing"

"The GPS-Hunt was really fun, especially the water rocket."

Category	Average Percentage Rated 'Good' & 'Excellent'
Pre-course	68
Location of camp	100
Team	100
General	100

Participants' assessment of the camp overall strongly endorsed ESC, again displayed through their ratings and comments:

"Andøya Space is a unique place where you can learn about rockets and space-related topics. In addition to that, the environment was beautiful and excellent both naturally and in the group atmosphere."

"This is probably the most nicely organised camp I've ever been to. Which is greatly due to the planning done by the team!"

"Best food I've eaten in a while."

"It was probably the best experience of my life."

"This week really helped me to decide what I want to study and do for my life! Thanks for this amazing event in the most amazing company!"

As shown by the evaluation, the overall feedback from the participants was exceptionally positive. The comments and data suggest that despite a small minority of participants having criticism of isolated aspects of the camp, all participants rated the camp "excellent" overall. Team Space Camp will be analysing the results from the evaluation to identify areas of improvement, making European Space Camp 2023 and beyond even greater experiences based on the success of previous camps.

SCHOLARSHIPS



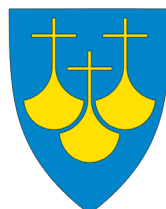
SCHWEIZER JUGEND FORSCHT
SCIENCE ET JEUNESSE
SCIENZA E GIOVENTÙ



Vestland
County



Rogaland County



Møre og Romsdal
County



Cēsis Municipality



Nordland County

SPONSORS



KONGSBERG



Andøy Municipality



MEMOIRS

Leanda Wenus | Participant 2022

Participating in Space Camp is an experience I will forever cherish. Memories of meeting amazingly passionate and intelligent people from all over Europe, launching a rocket, and learning new and interesting things about space.

I still remember my excitement as I was sitting on the plane, looking out of the window, and seeing the beautiful mountainous landscape take shape before my eyes. At the base of those mountains was Andøya Space where I met the participants who had traveled from all over Europe to get there.

The first evening we played fun games to learn each other's names and get to know each other, and before we went to bed we got to see the beautiful late Norwegian summer sunset.



Hiking up to ALOMAR

The next day we were introduced to the process of the student rocket campaign and got to choose whether we wanted to work with Sensors, Payload, or Telemetry.

I chose to be in the Payload group, although I had little to no knowledge about what we would be doing. Thankfully, we got an information booklet and a lot of help throughout the process.

Firstly, I learned to solder and connect wires, an important part of putting the payload together. In my group, we were responsible for figuring out how to place all of the sensors that were created by the sensor group and test how they worked with the movement of the rocket.



Working in the Payload group

This was a really interesting process as I got to learn about the different sensors and other parts of the payload and connect them to make them work.

At one point we had so many cables to work with that we had to make a labeling system to not get confused. I really liked this part of the camp as we got to do practical work and experience how it is to work together having to solve problems along the way.

Finally, when finished, our rocket was signed by everyone and beautifully named: "Aurora Ballerina Breaker".



Adding some finishing touches to the rocket

For me, the most interesting part of the rocket was the launch, as having the role of Payload Manager allowed me to be part of the procedures. I sat in the bunker, talked into the radio, and pressed the button that gave power to the payload right before launch.

Unfortunately, three seconds before the launching button was pressed we had to hold because the arming button (the one I was pressing) did not work. This resulted in being stuck in the bunker for 30 minutes, waiting for it to be safe to leave. Thankfully, the next day was more successful as we had understood the problem and had some experience from the previous day. Although I could not see the launch from the outside, I saw the takeoff from a camera in the bunker, and it was one of the most awesome things I have experienced.

Later we would gather the data and with our sensors, we figured out that the rocket had reached a maximum altitude of 9000 m and maximum velocity of more than 500 m/s. It felt great to see the success of our hard work.

In between working on the rocket we had interesting lectures where I learned so many new things about space and the space industry. We talked about rockets, satellites, telescopes, and the interesting studies of northern lights. I was very impressed and inspired by all of the lecturers and thought of at least 5 new careers I could take.

The camp also consisted of many fun activities such as engineering competitions, swimming, sauna, playing volleyball at the beach, and playing games. Our time was always filled with something fun to do and through all of these experiences, we got to know each other really well. Even after the day had ended I would go back to the room with my roommate and talk until our tiredness forced us to sleep.



Working in the bunker

Space Camp gave us, people passionate about science, a place where we could talk together and understand each other through this common interest, despite coming from different cultures. Departing from the camp, I was left with motivation to learn more, inspiration for different career paths, and memories I will never forget.

