

EUROPEAN SPACE CAMP 2007

ANNUAL REPORT

THE SKY
IS NOT
THE LIMIT

IT'S WHERE
THE FUN
BEGINS !



Why the camp was moved forward a month compared to its usual date



ESC leaves a trace in every participants memory. Read their memoirs here.

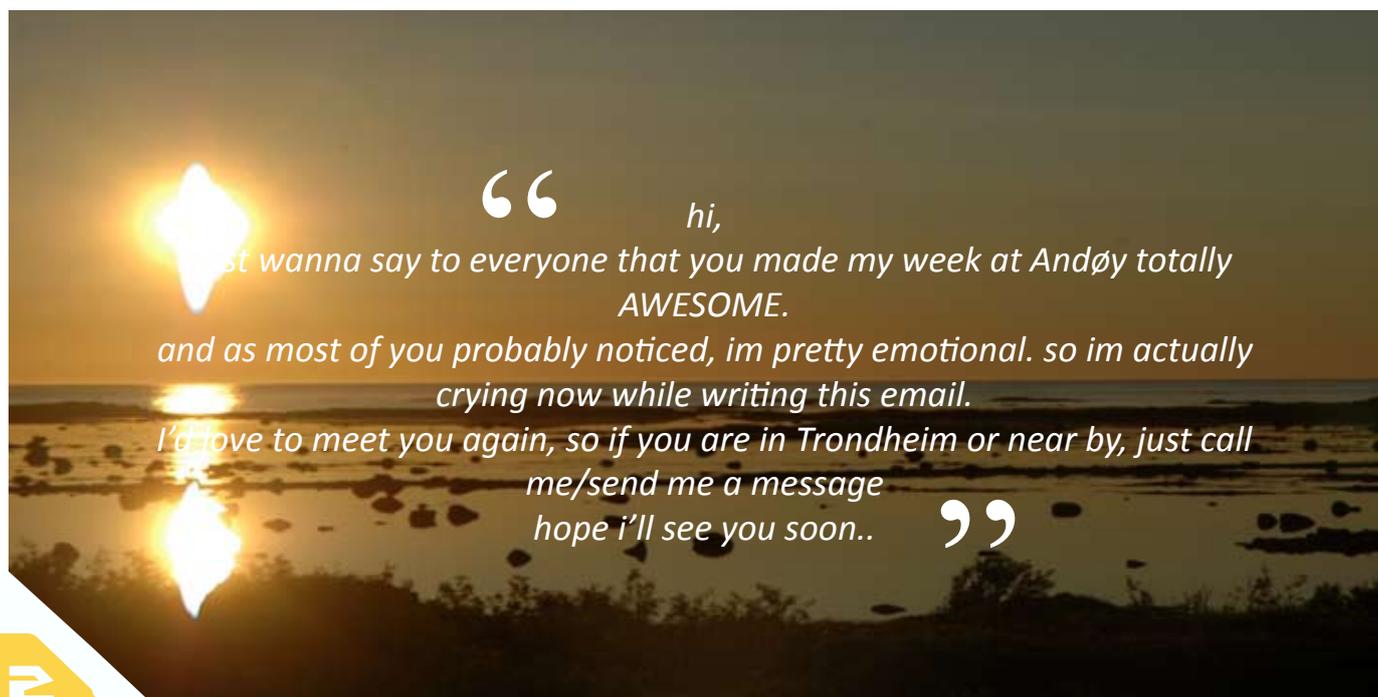


New nations - For the first time in ESC history the Czech Rep. India and Slovenia

Also inside:
Accounts and Budget
Press Clippings
Organisers Team

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“

hi,

Just wanna say to everyone that you made my week at Andøy totally AWESOME.

and as most of you probably noticed, im pretty emotional. so im actually crying now while writing this email.

I'd love to meet you again, so if you are in Trondheim or near by, just call me/send me a message hope i'll see you soon..

”

INTRODUCTION

At the boundary between the European Space Camp of 2007 and that of next year, it is valuable to look back at which factors made the camp of 2007 such a great success.

There are several ways in which we measure the success of a camp: We had a successful rocket launch, reaching an altitude of nine km and a top speed of 3000 km/h with all sensors functional. We had informative and exciting lectures from top international experts. The participants were undoubtedly happy about the camp, as they expressed both during the camp and in their evaluations. The support staff at the rocket range found us to be a very pleasant group. The organizing teams of NAROM (the Norwegian Centre for Space-related Education), The Norwegian Association of Young Scientists and all the group leaders were thrilled by the operational smoothness of the camp and found great pleasure in the extraordinarily interested participants. With 26 participants and a large organizing team the camp has never been bigger.

How do we achieve these results and how can we make sure the success is continued and improved in the future? I believe there are two equally important overlying reasons to space camp's success: Great organization and eager participants. With participants and organizers counting close to 40, it is important that procedures, the program and planning of the camp are carried out in a professional manner. This was the twelfth consecutive camp arranged at Andøya and we are now certain that we have developed a very successful concept.

Diversity is the key to a good group of participants. With different backgrounds and different expectations before the camp they all approach the challenge of meeting a group of strangers in a variety of ways. The result is that the participant's team work abilities are improved all while the social atmosphere of the camp thrives. The best way of securing diversity is to invite international students to the camp. This year we had, for the very first time, an international team organizing the camp and a record number of 13 nationalities present. We were truly global with people from Australia, India, the US and ten European nations.

In the end, though, with great weather and the midnight sun shining through the entirety of the camp, a great success is unavoidable!

Eivind K. Buer Johansen
Head of Team Space Camp
The Norwegian Association of Young Scientists



ORGANISORS

European Space Camp is organized by the Norwegian Association of Young Scientists and the Norwegian Centre for Space Related Education in cooperation with Andøya Rocket Range, the Norwegian Space Centre and the European Space Agency (ESA).

Norwegian Association of Young Scientists - Team Space Camp

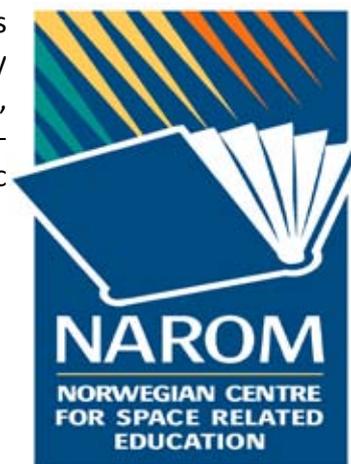
Being a youth organization working to increase scientific interest among young people, the association organizes several scientific events: European Space Camp at Andøya, BioMed Camp in Bergen, CyberCamp in Trondheim, weekend seminars and scientific cafés.

UNGE FORSKERE

Team Space Camp is a subgroup of the Norwegian Association of Young Scientists, and is the initiator and main organizer of Space Camp. All the work done by the Team is voluntarily. Responsibilities include funding, promotion, recruitment and selection of participants, as well as the non-scientific part of the program and making the camp a memorable event for the participants.

National Centre for Space Related Education (NAROM)

NAROM is a daughter company of Andøya Rocket Range. Its main projective is to increase the national recruitment to space related subjects. This is mainly achieved by organizing courses and events for youths, students and teachers, and this makes NAROM perfectly suitable for handling the scientific and academic part of European Space Camp. NAROM is responsible for the scientific part of the program at Space Camp.



Andøya Rocket Range

Andøya Rocket Range is a non-military rocket range with decades of experience of launching sounding rockets for atmospheric research. The range also has advanced facilities for ground based experiments using lidars and radars.



ECOMA AND MASS → MIDNIGHT SUN

In both 2007 and 2008 European Space Camp has had to be moved one month earlier in the year. The reason being a professional rocket campaign, named ECOMA and MASS, scheduled during the usual camp dates at Andøya Rocket Range. The campaign is investigating the natural phenomenon of noctilucent clouds and consists of a total of five sounding rockets. One could therefore during the camp easily bump into one of the ten engineers from NASA doing the construction work.

This campaign has led to some difficulties related to the timing between Space Camp and exams, both for participants and the team, but fortunately it also meant that the sun never set. This provided a truly magic setting which very few participants, or team, had ever experienced. Of course, some found it hard to sleep, and wished for darker curtains in their rooms. But in the end everyone was truly enchanted, and everyone profited from it, often in the form of midnight swimming in the northern ocean.



new nations

At this year's Space Camp we had three nations represented for the first time, being the Czech Republic, India and Slovenia. Our Indian participant brought enthusiasm and an insight into Indian culture and current events in the Indian Space Programme. Our Czech participant brought experience from other programmes and as such assimilated the Space Camp culture easily. The Slovenian brought a passion and amazing ability for languages, along with her love for space related activities. It was very exciting for all involved to have more countries, languages and cultures represented at the camp and everyone learnt a lot. All the participants found it interesting to meet others like themselves from such different countries, the challenge of working together proved worth while and many long distance, long lasting friendships were created.

With the success of such an International camp the Team is looking at expanding further, specifically into Eastern Europe to increase the cultural diversity of the camp.



ACCOUNTS 2007

EXPENSES (all figures given in NOK)	Accounted for in 2007	Transferred⁽¹⁾ to 2008	Total
Course materials	7,000		7,000
Balloon operation (balloon, payload, operation)	3,369		3,369
Rocket campaign (rocket, payload, safety notifications, operation)	44,000		44,000
Lodging and all meals for students, lecturers and Team	147,330		147,330
Travel expenses, lecturers and group leaders	19,014		19,014
Transportation at Andøya	1,500		1,500
Scientific assistance	6,797		6,797
Rent of facilities outside Andøya Rocket Range	500		500
Other expenses NAROM	25,130		25,130
Space Camp jackets	11,160		11,160
Team expenses	7,250	5,500	12,750
Travel expenses, Team	27,705	19,000	46,705
Office expenses	18,628		18,628
Postage	1,662	1,400	3,062
Other expenses Team (including unforeseen expenses)	1,140 ⁽²⁾		1,140
Transfer to contingency fund	61,085		61,085
Sum Expenses	383,270	25,900	409,170



FINANCING (all figures given in NOK)	Financial support	Other⁽³⁾	Total
Norwegian Association of Young Scientists		525,000 ⁽⁴⁾	525,000
Norwegian Centre for Space Related Education		200,000	200,000
Norwegian Space Centre	75,000		75,000
Norwegian Defence Research Establishment	50,000		50,000
Directorate for Primary and Secondary Education	30,000		30,000
Nammo Raufoss AS	25,000		25,000
Andøya Rakettskytefelt (ARS)	15,000	25,000	40,000
Fugro Seastar AS	10,000		10,000
University of Tromsø (UiT)	10,000		10,000
University of Svalbard (UNIS)	10,000		10,000
Næringsutvikling Andøy	5,000		5,000
Høgskolen i Narvik	5,000		5,000
Scholarship fees	174,170		174,170
Sum Financing	409,170	750,000	1,159,170

⁽¹⁾European Space Camp has changed its fiscal year. For further information, see next page.

⁽²⁾The contingency fund is a depository ensuring the financial stability of the camp in the future.

⁽³⁾By other support, we mean support that we receive in the form of free services or services at a reduced fee

⁽⁴⁾The Norwegian Association of Young Scientists put down approximately 3500 hours valued at NOK 150

Due to bad weather, this year's whalesafari had to be cancelled, thus eliminating the associated expense of NOK 9 450

BUDGET 2008

BUDGET (all figures given in NOK)	Total
Course materials	7,000
Balloon operation (balloon, payload, operation)	3,500
Rocket campaign (rocket, payload, safety notifications, operation)	45,000
Lodging and all meals for students, lecturers and Team	170,000
Travel expenses, lecturers and group leaders	22,500
Transportation at Andøya	4,000
Scientific assistance	8,500
Rent of facilities outside Andøya Rocket Range	1,000
Other expenses NAROM (unforeseen expenses, social events, insurance)	28,500
Whale safari	16,000
Team expenses	15,000
Equipment	1,500
Space Camp jackets	10,000
Travel expenses, Team	50,000
Office expenses (Internet connection, stationary, bank fees, Space Camp DVDs and annual reports)	22,000
Postage	4,300
Other expenses Team (including unforeseen expenses)	3,500
Sum Expenses	412,300

Contrary the past, European Space Camp will henceforth define its fiscal year as lasting from January 1st until December 31st. This will lead to greater predictability and allow the Team to organise matters such as producing the report in a more effective matter. Hence the column "Transferred to 2008".

TEAM SPACE CAMP

Team Space Camp is a subgroup of the Norwegian association of Young Scientists which was the initiator of the original Space Camp. All team members are volunteers and their tasks are many and varied including funding, promotion, recruitment and selection of participants and also organising the non-scientific part of the programme. They are also charged with making the Camp fun and memorable for all participants.



The 2007 Team Space Camp was, for a collection of reasons, unique in Space Camp history: it was the first time that Space Camp has gone international with both Portuguese, Australian and French representatives in the team, and, with three members being recruited from ESC 2006, it was also one of the youngest (and biggest) teams yet. The Team found that having members coming from such diverse backgrounds and different cultures led to some tricky but fantastic challenges and learning curves. The main challenge of being part of such an international team was the change in economy, specifically the large increase in travel costs, which has led to a renewed focus on sponsorship for 2008. Another change was that the official Team language is no longer Norwegian but English.



There was also a change in how the Team communicated, with a larger dependence on internet and e-mail developing, and in many cases through out the year the team utilised instant messaging and video conferences to make up for distance. Every member of the team brought different knowledge, skills and experience, such as how best to deal with the press and find sponsors.

PRESS CLIPPINGS

andøyposten

Torsdag 28. juni 2007

Nora fra Åse koser seg på Space Camp

I disse dager er det full aktivitet på Andøya Raketttskytefelt. Med 26 deltakere fra 12 ulike land går European Space Camp av stabelen, og for første gang finner vi en andværing på deltakerlisten. – Dette er en veldig bra erfaring, sier Nora Lyngra (18) til Andøyposten.

– To av fjorårets deltakere er kommet tilbake i år for å hjelpe til. En portugisier og en australler, smiler Nymo Raanes. Deltakerne ankom Andøens søndag. Mandag stod Odd Einar Dørrum for den offisielle åpningen. Tirsdag og onsdag har det vært hektisk aktivitet, både teoretisk og praktisk, for å klargjøre studieraketten for oppskyting. Oppskytingen finner sted rundt klokken 1 i dag (torsdag) – dersom været og forholdene ellers tillater det.

Første deltaker fra Andøy
For første gang i Space Camps 12 år gamle historie finner vi en andværing på deltakerlisten. Hun heter Nora Lyngra, er 18 år gammel og kommer fra Åse.

– Det er litt drøyt at det tok 12 år før en andværing medte seg på Space Camp. Det er et fantastisk tilbud som flere andværingar bør få øyene opp for, sier Nora. Hun skryter av opplegget, og løber ut det faglige utbyttet er godt.

– Dessuten har jeg hatt en utrolig artig uke! Jeg har fått midnattsbud i havet sammen med de andre deltakerne, og er blitt kjent med mange flotte personer, smiler hun.

18-åringen mener Space Camp er en fin arena for å se sammenheng mellom teori og praksis.

– Her snakker vi for eksempel engelsk hele tiden, og det er noe helt annet enn å sitte med en bok og lese på skolen. Vi bruker også en del faguttrykk, noe som er lærerik i seg selv, forklarer Nora, som anbefaler flere andværingar



Nora Lyngra (18) fra Åse er tidens første Space Camp-deltaker som er bosatt i Andøy. De andre uka er 26 deltakere fra 12 ulike land samlet på Andøya Raketttskytefelt. (Foto: Fredrik Sørensen)

til å melde seg på framtidige opplevelse som tilfelldigvis finner sted på hjemlassen vår, smiler hun.

– Held klart! Dette er en flott

Fredrik Sørensen

Det er tolvte gang Space Camp arrangeres på Andøya Raketttskytefelt. Vanligvis legges campen til august måned, men som følge av annen aktivitet i dette tidsrommet så ble det og sødt til å fremskynde begivenhetene til slutten av juni.

For oss er det litt negativt at vi måtte endre tidsrom for campen, ettersom mange av søkerne er oppatt med eksamen nå. Et høyt skoleall gjorde imidlertid at det ikke ble noe problem å fylle alle plassene, sier førstestyrer og prosessansvarlig Patrick Nymo Raanes.

I korridorene på Andøya Raketttskytefelt vander det nå indiske, amerikanske, sjoneske, polske, slovenske, franske, svenske og norske deltakere. Dessuten er to av medlemmene i crewet av utenlandsk opprinnelse.

Rocketing my way to Norway

Since I was a little girl I can remember being fascinated by space, particularly the stars. Quite a few years later, in July last year, I journeyed to the European Space Camp (ESC) at the Andøya Rocket Range (ARR) in Norway. At 6PM, it is inside the Arctic Circle, and is the most northern permanent rocket range in the world. It is from Andøya that a variety of European Space Agency sounding rockets are launched. Andøya is rather like a slightly more populated version of Woomera, except that it's cold, with whales and snow.

I was the first Australian to attend the week-long camp, and I was very proud to represent my country on an international level. There were 20 other students from 5 countries, Wales, Portugal, Denmark, Germany, Norway, and Australia. We all had studied physics and mathematics, and were in our final year of high school or first year of university.

It was a fantastic group of students, and we worked well together to achieve our goal of the week, to launch a small sounding rocket.

We attended lectures by some of Europe's most prominent scientists. Topics included "Is a vacuum really empty?", "Rocket aerodynamics and stability", and "The plasma universe". I enjoyed being with

like-minded people, and not being "talked down to", although some of the maths was a little beyond me. I learnt more about astrophysics and astronomy than I ever would at school. The regular breaks from learning and the ability to engage with unfamiliar concepts made for an unforgettable experience.

Before the final competition, I was involved in a variety of tasks, the main one being the soldering of circuit boards for the payload of our rocket, Icarus. I was in the instrumentation group that made the circuit board sensors for the payload of our rocket. We made the boards from scratch, etching, soldering, and finally testing them - a challenging but rewarding task.

The rocket was 1.7m high, weighed 14 kg, and went 1 km up into the atmosphere taking readings at beyond each 1. The whole flight lasted 84 seconds. During which Icarus changed spin direction 3 times. My group's job was to decipher the readings and create a presentation on the results and our work, which made for an enjoyable finale to the week. I was proud that an object I had made was responsible for high quality data received by the telemetry station.

Of course, the camp did not only involve science but also social activities. These included beach volleyball under the midlight sun and a very inspiring, if a little chilly, "swim" in the Arctic Circle. The group also went on a whale-watching tour, where we did see a whale. Although an exciting excursion, it was ultimately decided that, to put it politely, the stable dry land was more desirable than the swirling seas.

I have returned from the ESC with a renewed interest in the space sciences, especially cosmology and astrophysics, and a slightly lowered desire to do any more swimming in the Arctic. I am now the Australian representative for ESC, a job whose main aim is to encourage more Australian students to attend the camp. I also coordinate media releases and attempt to find Australian sponsors for Australian students.

I want to thank my sponsors, Teitra, Lovatts Crossroads and Puzzles, Murrumbidgee Bay Resort, and Murrumbidgee Peninsula Shire Council. The camp was a fantastic experience. For more information please contact me at



Vestlandet

Freitag 23. Juni 2007



Kollektivt arbeid og nyttearbeid er en lærerik jobb. De forskjellige søkerne skal nå levere rakettens atmosfæriske temperatur- og atmosfære- og magnetfelt. (Foto: Døn Henrik Klausen)

26 ungdommer laget rakett

ANDØY: 26 ungdommer fra 12 forskjellige nasjoner har de siste ukene samarbeidet om bygginga av en forskningsrakett.

Døn Henrik Klausen
74 42 51 40

European Space Camp er en sommerleir for ungdom som går de siste årene på videregående. De 26 har blitt delt opp i forskjellige grupper for å jobbe med lever sin del av rakett. Telemetri-gruppen er i det første rommet og er i gang med innleggning av data.

– Her legger vi inn data som bestemmer hvordan informasjonen fra rakettens skal leses, forteller Agneta-Ramond Buis, som er gruppeleder.

– Hvis ikke man gjør dette på mottakingsutstyret så er ra-



Nora Lyngra (18) fra Åse er eneste andværing på Space Campen. – Det har gått kjempelykkelig og det har gjort mange spennende opplevelser i samarbeid, sier hun.

Erlend til rakettleir

Sjettelederen Erlend Sjøgaard (18) er en av 26 ungdommer som skal delta på European Space Camp på Andøya Raketttskytefelt i slutten av juni.



Til romfartsleir på Andøya



Suksess for «Wet Willy»

Akkurat har det gått bra for «Wet Willy» som skal opp i luften på Andøya Raketttskytefelt i løpet av neste uke. Det er 26 ungdommer fra 12 forskjellige land som skal delta på European Space Camp.



Ungdommer har jobbet med å bygge og teste en rakett som skal opp i luften på Andøya Raketttskytefelt i løpet av neste uke. (Foto: Døn Henrik Klausen)

I tillegg til å bygge og teste rakettene, skal de også lære om atmosfære- og magnetfeltet i luften. Dette er viktig informasjon for å forstå hvordan rakettene fungerer i luften.

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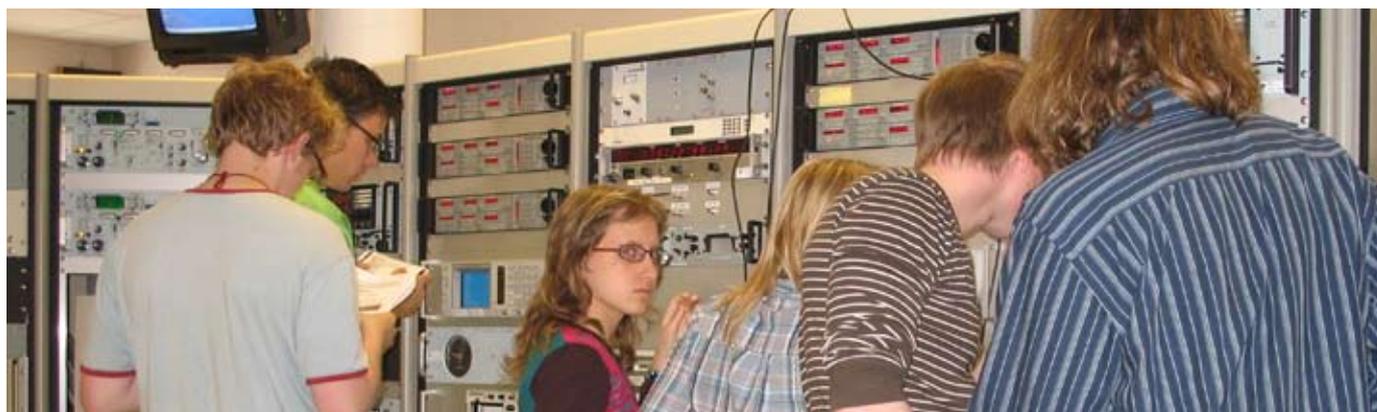
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ESC 2007 MEMOIRS

Attending European Space Camp 2007 was for me a fantastic experience from the beginning until the end. Already when we got selected as participants almost two months before the camp, I started to get in touch with some of the other participants. They all seemed very nice, and my expectations grew larger and larger as the camp week drew closer. From the very first moment I met the other participants and the Team Space Camp, I understood this camp was going to be an outstanding experience. Although we were a bunch of completely different personalities who came from all around the world and everywhere within the long-stretched borders of Norway, we all got along very well. During the camp we discovered there was so much more than everybody's interest in space that bound us together! And for the rest of our lives, we will all have the wonderful memories from European Space Camp 2007 in common.



The Sunday we arrived was used for sports and all kinds of get-to-know-each other games. Monday afternoon we had our first lecture; held by Professor Alv Egeland. Although I didn't quite understand all the formulas he wrote on the blackboard, Alv's lecture was the most fascinating during the whole camp. He told us about the magnetic field and the aurora - on both subjects he was an expert. It was really inspiring to listen to a person that seemed so enthusiastic of what he was talking about! When I first decided to apply to the camp long ago, one of my main reasons where to find out what possibilities I had of studying and working with space related topics later on. I therefore especially enjoyed hearing about the student projects arranged by ESA.



After lectures had finished on Tuesday, the rest of the day was used for games and an expedition to the top of the mountain. Up there the ALOMAR observatory was located. At our way up the hills, each group was told to make a song about the camp; containing the words space, rocket, fun and midnight sun. Making this song we really got to use our creative skills. My group made a song about our group member Ole's imaginary unlucky experiences, to the tune of "I will survive". Later in the evening, all the songs were performed. Our song was ended by Ole performing the last verse on his own, and his solo really impressed the Team Space Camp. This way our song was chosen as the Space song of the year!

ESC 2007 memoirs

Tuesday, we were divided into groups in which we were going work for the rest of the week. As I had the Rocket Physic Group as my first choice, I was really pleased to be placed in this group. The other group members were all campers I had gone well along with from the very beginning of the camp. During the week, my group had so much fun together! The first day was spent making two hot air balloons, just by cutting and gluing together silk paper. Later on, we had the responsibility for the weather balloon. Besides the subject related group work, each groups also had to prepare something for the Space Camp Show Friday night.



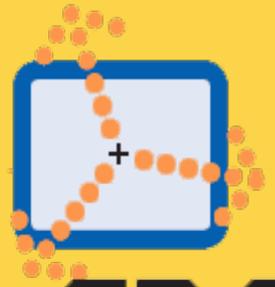
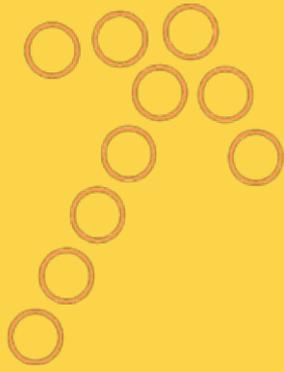
The night of the Space Camp Show was not the only one we stayed up late. As the sunset never appeared, I had a hard time realising when it was time to go to bed. Surrounded by so many nice people, you really felt you were missing out on something if you went to sleep before at least two o'clock. Most of my nights were spent down in the basement, where the piano was located. We had some really great musicians' among us, playing the guitar, the piano and the flute. The rest of us were singing, following the lyrics of the songs in the Space Camp song sheet. Other nights were spent in the dining room or down in the activity room. Here I was taught to play both billiard and table tennis.

Although the weather didn't stay nice the whole week, we spent a lot of our time outside. We went out several times at nighttime to take a bath in the ocean. To get myself into the freezing water, I always thought intensively of the warm sauna we were heading for right afterwards... We also had to stay outside to get through the daily morning gym and the different quests the Team had planned for us. Thursday afternoon we were going out on a GPS treasure hunt. When most groups headed strait to their goal and was done in half an hour, our group had some more troubles to find our goal, as it turned out to be placed on the other side of the mountain. Of course we started to climb the mountain instead of taking the easier way around it - all this efforts made just to find one single bag of chocolate bears!

But we kept our spirits due to the awesome happening right before we went on the GPS treasure hunt. Before lunch the same day, our rocket Wet Willie had been successfully sent up 9.5 kilometres into the cloudy sky. My group followed the countdown from the Control Room, keeping an eye on the weather conditions. When it was only two minutes left, we ran out to watch the rocket lounge. The sight of our rocket flying into the sky, made everybody feel like a cooperating team. As we were standing there, watching the smoke from our successfully lounged rocket, I truly understood the meaning of the European Space Camp slogan: The sky is not the limit – it's where the fun begins!



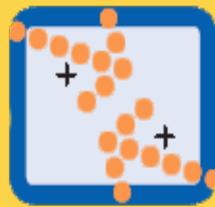
Written by Camilla Lytomt



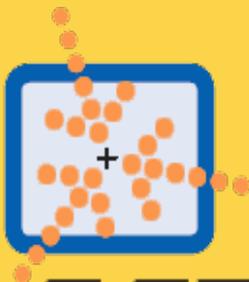
EXPLORE

This has been the greatest week in my life!

COOPERATE



Thank you so much for this experience! It has changed the way I look at the world and at rocketry. The experience was life-changing.



LEARN