



Present :

THE HANDBOOK



August 23rd to August 30th 2014

C'Space is co-organized by:

- CNES, the Space French Agency
- Planète Sciences association

C'Space takes place in DGA Missiles Tests Center, Biscarrosse



Join C'Space on Facebook:

<https://www.facebook.com/cspace.news?fref=ts>

Twitter : @cspace



C'Space 2013'First launch

FUSEX 2012, Experimental rocket realised by the
Team l'Ecole de l'Air - photo : DVP/Planète
Sciences



FOREWORD

C'Space welcomes the young generation of Space fans from clubs and universities. During the week-long event, you will meet other students and learners, you will share your passion for Space through a large set of activities revolving around your personal project. In 2014, the DGA's Missiles Test Center welcomes C'Space. The facility offers a safe and pleasant environment for rocket launch.

Throughout the week, several activities are held:

- Drop of CanSat
- Release of Experimental balloons
- Launch of mini-rockets
- Launches of experimental rockets
- Launches of special projects

All this surrounded by space related entertainment and a final celebration.

A HANDBOOK, WHAT FOR?

This Handbook provides essential information you will need during your stay at C'Space.



Take a look inside and have fun at C'Space!

FOREWORD.....	2
A HANDBOOK, WHAT FOR?	2
PRACTICAL INFORMATION	4
Coming at C'Space	4
Backpack: check-list of items YOU MUST NO FORGET!	5
A « SPACETACULAR » ORGANISATION.....	6
Enter the DGA-EM for the first time	6
Mess Nord (R3)	8
LIFE QUARTERS	10
Launch area	11
Shopping in Biscarrosse: address book.....	13
IT'S HAPPENING AT C'SPACE	14
The projects.....	15
Entertainment and more activities during C'Space	17
Highlights: don't miss these events	18
SAFETY INSTRUCTIONS	19
Preventive measures against fire.....	19
Emergency numbers.....	19
In case of fire in a building	19
To prevent accident.....	19
Respect your environment	20
For everyone comfort	20
Safety rules to be observed on the launch pad.....	20
Additional recommendations	21
IN SHORT	22

PRACTICAL INFORMATION

Coming at C'Space

Biscarrosse

20 minutes away from Arcachon Bay (le Bassin d'Arcachon), Biscarrosse offers the most beautiful natural sites in the region Aquitaine: Sun, sea, woods, lakes and an infinite sandy beach.



Biscarrosse, France : South west from Bordeaux, Ocean front

DGA Testing Missiles site (DGA-EM) in Biscarrosse

Established since 1962, DGA-EM is a European leader center for missile tests. It contributes to the development of a new generation of missiles for French and foreign markets and operates training for military forces.

Reaching DGA-EM

BY TRAIN + CHARTERED SHUTTLE BUS

2 options are offered to you: from *Bordeaux Saint Jean station* or from *Arcachon station*

- **Option 1:** on August 23rd (Saturday) board a train that will take you to *Bordeaux Saint Jean* before 3:00 PM. There, you will be able to ride the shuttle bus specially chartered for C'Space (book your seat on C'Space web site). Shuttle Schedule:

Trip	Bordeaux Saint Jean → Biscarrosse	Biscarrosse → Bordeaux Saint Jean
Meeting point	<i>Place Belcier</i> exit, at the end of <i>Terre de Bordes</i> street	Outside <i>Mess Nord</i>
Departure	August 23 rd (Sat.) 3:00 PM	August 30 th (Sat): 9:00 AM
Arrival	Around 4.30pm at DGA-EM	Around 10.30am at Bordeaux station

- **Option 2:** On 23rd or 24th, board a train to *Arcachon* : there you will be able to be able to ride the minibus for DGA-EM and C'Space (2 departures per day ; 45 minutes ride)

Trip	Arcachon → Biscarrosse	Biscarrosse → Arcachon
Meeting point	Outside <i>Arcachon</i> station	Outside <i>Mess Nord</i>
Departure	August 23 rd (Sat): 2:30 PM - 5:00 PM August 24 th (Sun): 1:15PM - 4:00 PM	August 30 th (Sat): 1:15 PM - 4:00 PM
Arrival	About 45 mins later at DGA-EM	About 45 mins later at the station

BY CAR

By car, a Paris-Biscarrosse journey takes about 7 hours. Arriving near Biscarrosse, follow the indications below to reach DGA-EM. **DO NOT GET CONFUSED by the 2 different towns with similar names: *Biscarrosse Ville* and *Biscarrosse Plage***

- Driving from *Biscarrosse ville*: head towards *Biscarrosse Plage*. DGA-EM's facility is on the left of *Biscarrosse Plage*.
- Driving from *la Dune du Pilat*: once at *Biscarrosse Plage*, head towards *Biscarrosse Ville*. DGA-EM's facility is on the right, out of *Biscarrosse Plage*.

Backpack: check-list of items YOU MUST NO FORGET!

What for?	Bring
To access the DGA-EM site	<ul style="list-style-type: none"> ▪ valid passport ▪ vehicle's paper and insurance (if you come by car) ▪ driving license
Because the sun will be shining on C'Space	<ul style="list-style-type: none"> ▪ sunglasses ▪ hat/cap ▪ sun cream
To access the launch area Warning: people who won't respect the dress code won't be allowed to enter the launch area the rocket recovery.	<ul style="list-style-type: none"> ▪ long trousers ▪ closed shoes ▪ rainwear (depending on the weather) ▪ sun cream ▪ insect repellent ▪ bottle of water ▪ snacks
For access Mess Nord (R3)	<ul style="list-style-type: none"> ▪ working clothes ▪ eye and hand protection
To make your stay accommodation more comfortable	<ul style="list-style-type: none"> ▪ 2 padlocks ▪ shower towel ▪ soap ▪ sleeping bag

To enjoy a swim at the nearby beach	<ul style="list-style-type: none"> ▪ swimming suit ▪ towel ▪ hat/cap ▪ sun cream
To attend the social events	<ul style="list-style-type: none"> ▪ an evening suit ▪ For the gala dinner, refer to the theme.

A « SPACETACULAR » ORGANISATION

Enter the DGA-EM for the first time

At your first arrival at DGA-EM, you must present to the security gate officer:

- your ID papers (passport for foreigners)
- the driving license of the driver and the car's papers if you enter the site with a car

The policemen will then give you a magnetic access badge which allows you to enter the DGA-EM site.

DON'T LOSE YOUR BADGE!

Police officers or C'Space staff members may ask you to present your badge, anytime !

Once inside the site: follow the signs "C'Space". They will lead you to the Mess Nord (R3), where you will find the reception desk and the car-park. Go to the C'Space reception desk in order to get your room number and your parking access badge.

You will also receive a bag with a hardcopy of this handbook and additional information related to the week at C'Space.

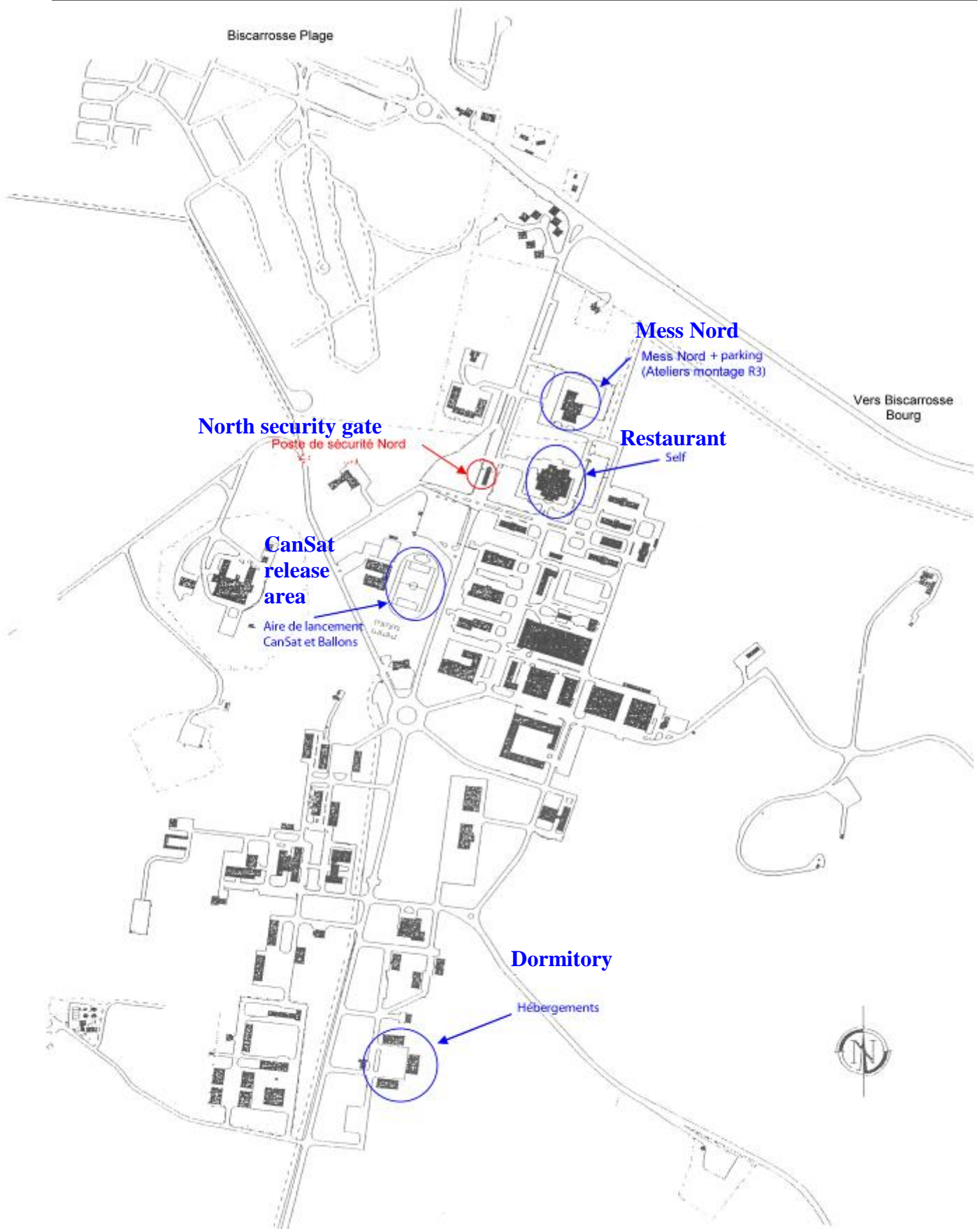
Finally, you will be assigned a workbench number in the Mess Nord (which is historically called 'R3' within Planète Sciences staff members)

The C'Space reception desk is open from 9am to 7pm, so you should arrive during these times!

Unload your car. **If you didn't get a car access tag, park, park your car at the car-park right outside the entrance of the site.** The car access tag can be used only between *Mess Nord* and the accommodation buildings. Accommodation and Mess Nord are within walking distance apart and can be reached by bicycle (respecting the speed limit) or by foot.

It is no permitted to walk around after 2:00 AM. Daytime, a shuttle operates transfers to/from the launch area (about 10 km away from Mess Nord). Go to the Shuttle chapter for further information.

A map of the site is presented on the next page.



Mess Nord (R3)

That's C'Space HQ. There you will find:

- C'Space reception desk
- refreshment area (Mess Bar)
- conference room
- club workbenches
- project pre-flight controls and qualifications

Tables and chairs are provided. Each workbench comes with multiple 220V electrical sockets (European standard sockets Type E, grounded).

This is your work area, please help keeping the place safe and clean. Food and drinks are not permitted on the workbenches.

Mess Nord building is [open from 7:30 AM to 11:30 PM from Saturday 23rd to Thursday 28th](#). Project qualifications will stop on Wednesday August 27th 11.30pm

→ **no control will be engaged after 11:00 PM**

C'Space reception desk

Located on the first floor of Mess Nord, it is [open from 9:00 AM to 7:00 PM](#). There you will collect your room number and car-park access tag.

Mess Bar

Come and have a break in between two boards wiring, as you wait for controls and qualification ; or simply to meet other club members and our staff of volunteers!

[Mess Bar is open several times a day:](#)

- 9:00 AM to 11:00 AM
- 2:00 PM to 5:00 PM
- 9:00 PM to 11:00 PM

At Mess Bar there are refreshments but also games, balls, music... everything you'll need to chill out for a while.



Volunteering at C'Space

C'Space exists thanks to the amazing involvement of volunteers. Most of them are current and former space club members who wish to contribute to the success of the event!

We need you!

During C'Space we welcome you to volunteer for:

- **Follow-up** a project: from the public zone to the launch
- **CanSat**: helping for the CanSat flight operations
- **In-flight localization** on the launch area from Monday to Friday
- **Safety**: make sure that safety instructions are followed during the launches
- **Communication/Entertainment** : write articles for *La Gazette* or prepare videos clips for the TV news
- **Localization** : visually track rockets until landing for further recovery
- **Project qualifications**: make mechanical or electrical tests. Motivate teams and technically assist them if they need it.

Ready to give a hand? Have a look at the board next to the Mess Bar and contact our staff at the bar.

Project qualifications

Pre-flight qualification of the projects will start on Sunday 24th morning and will end on Wednesday 27th at 11:30 PM.

Beware: Schedule for launches will be posted on Tuesday morning in Mess Nord. Each team will have only one allocated slot to launch their project. If you miss it for any other reason than bad weather, you won't get another launch slot.

Important: Be aware that due the combination of launch slots restrictions, weather conditions requirements and launch schedule, the launch slots will not be guaranteed for the projects who qualify last. So, do your best to qualify your project as soon as possible! After Wednesday evening, it will be too late to obtain the necessary flight authorization.



LIFE QUARTERS

Meals

All the meals are served at the restaurant of DGA-EM:

- Breakfast: 7:00 AM to 8:30 AM
- Lunch: 1:00 PM to 2:00 PM
- Dinner: 7:00 PM to 8:00 PM

Access to the restaurant is not allowed past 8:00 PM, but you can enjoy your meal and chit-chat until 8:30 PM.

Accommodation

Accommodation buildings are located 1km away from Mess Nord, on DGA-EM life base. Dorms are composed of 4 to 8 beds, a personal closet, 2 or 3 washbasins and a shower.

On the day of departure: please must bring bed sheets and bolster case to the ground floor. The mattress protector should be left on the mattress. Cover and pillow should be arranged as on the photo. Blankets bolster must remain as shown on the picture.

In order to make the stay enjoyable for everyone, please respect the following rules:

- Remain quiet in the rooms and in the corridors after 10:00 PM.
- Respect the organizers and volunteers' authority. They are in charge of your safety and your comfort, interventions with goodwill and so please take courtesy.
- You shall to respect the material provided as well as the physical layout of the facility: make sure to leave your room as clean as you found it upon arrival. Especially keep the floor clean and empty the trash.
- Smoking is not permitted in any of the DGA-EM buildings.



Beware: Rooms can't be locked, therefore bring with you one or two padlocks to secure items in individual lockers. Don't forget to bring your bath towel as well!

Pay attention to the safety instructions, especially those dealing with emergency exit directions, are displayed in each building beside the evacuation map. Respect them for everyone's safety and to ensure the campaign runs smoothly.

Launch area

The launch area can be reached only by DGA-EM shuttle from Monday August 25th to Friday August 29th.

Shuttle Schedule (10km, 20 mins)

MONDAY 25th

Mess Nord (R3) → Launch area	Launch area → Mess Nord (R3)
1.30pm	4pm
3.30pm	5pm

TUESDAY 26th - WEDNESDAY 27th - THURSDAY 28th

Mess Nord (R3) → Launch area	Launch area → Mess Nord (R3)
8am	1pm
1.30pm	4.30pm
3.30pm	5.45pm
	6.30pm*

FRIDAY 29th

Mess Nord (R3) → Launch area	Launch area → Mess Nord (R3)
8am	1pm
1.30pm	3.30pm

*This additional shuttle might be organized should rocket recovery be delayed.



Rocket Launches

Rocket launches will start on Monday afternoon until Friday noon: the launch schedule will be set up according to the order of the rockets qualification. **The last qualified clubs may not be able to launch** their rocket if previous time slots are delayed due to the weather conditions.

All the launches will be broadcasted live on a screen in Mess Nord.

LAUNCH SLOT



Date	Time slot	Projects
Monday 25 th	2pm - 5pm	Minirockets CanSat tests
Tuesday 26 th	8.30am - 1pm 2pm - 5.30pm	Minirockets Experimental rockets CanSat
Wednesday 27 th	8.30am - 1pm 2pm - 5.30pm	Minirockets Experimental rockets
Thursday 28 th	8.30am - 1pm 2pm - 5.30pm	Minirockets Experimental rockets
Friday 29 th	8.30am - 1pm	Minirockets Experimental rockets

Beware:

The launch area consists in several specific safety zones. For each zone, please respect the safety instructions displayed or given by the launch staff.

Cigarette lighter and other heat/fire generating items as well as mobile phones (even turned off) are not allowed on the launch pad area. You shall leave all these items in the box provided at the club tent.

Rockets recovery will start at the end of the launch time slots (time and weather permitting). Team members shall be escorted by at least one person from the organization team. In the event a Rocket lands on the beach or other specific areas will be recovered by DGA members and brought back to the club.

We kindly remind you that you may be refused to go on a recovery if you are not dressed with an appropriate outfit (see *Checklist* section).

Shopping in Biscarrosse: address book

Hardware store

Biscarrosse Bricolage

24, Rue Atelier, 40600 Biscarrosse - (+33) 5 58 83 10 10

Frans Bonhomme

Rue Ferronnerie, 40600 Biscarrosse - (+33) 5 58 83 98 00

ETPEL - Electricité Générale

175 rue Forestière, 40600 Biscarrosse - (+33) 5 58 78 04 49

Brico Leclerc

Avenue de laquadie, route de la plage, 40600 Biscarrosse - (+33) 5 58 82 85 67

Briconautes

Centre commercial Super U

Route de Parentis, 40600 Biscarrosse

(+33) 5 58 83 10 18

Computer store

Sarl Bisca Micro

246 avenue Alphonse Daudet, 40600 Biscarrosse

(+33) 5 58 82 84 84

Supermarkets

Super U

Route de Parentis, 40600 Biscarrosse

(+33) 5 58 82 58 82

Leclerc

Facing Mac Donald's on the beach road, 40600

Biscarrosse - (+33) 5 58 82 83 83



It's happening at C'Space

	Saturday 23/8	Sunday 24/8	Monday 25/8	Tuesday 26/8	Wednesday 27/8	Thursday 28/8	Friday 29/8	Saturday 30/8																				
7am-8.30am	Breakfast																											
8.30am-9am	Check-in	Qualifications	Openin Ceremony CanSat	Qualifications	Qualifications	Présentation CanSat	Minirocket and experimetal rockets launches	Space activities on the beach	Qualifications	CanSat results presentation and awards	Minirocket and experimetal rockets launches	Space activities/ experimetal rocket presentation on the beach	VIP welcoming, meeting in conference room and Mess Nord visit	Minirocket and experimetal rockets launches	Space activities on the beach	Tidy up time!	Minirocket and experimetal rockets launches	9am Bus departure										
9am-10am																												
10am-1pm																												
1pm-2pm	Lunch																											
2pm-3pm	Check-in	Qualifications	CanSat in-flight test	Qualifications	Minirockets and experimetal rockets Launches until 4.45pm	Largages CanSat	Minirocket and experimetal rockets launches	Space activities on the beach	Qualifications	CanSat team's debriefing	Minirocket and experimetal rockets launches	Space activities/ experimetal rocket presentation on the beach	Experimental balloons and ZAS visit	Minirocket and experimetal rockets launches	Space activities/ experimetal rocket presentation on the beach	Tidy up time!	Space activities/ experimetal rocket presentation on the beach	Tidy up time!	Space activities/ experimetal rocket presentation on the beach									
3pm-4pm																												
4pm-5pm																												
5pm-6pm																												
6pm-7pm																												
7pm-8.30pm																				Diner								
8.30pm-12am																												

This is a provisional planning and is subject to changes

The projects



Fusex (Experimental Rocket)

"Fusex" is the French contraction of "FUSée" (rocket) and "EXperimental", which both refer to the same vector.

The launch of an experimental rocket is an opportunity to perform scientific experiments and integrate measurement systems within a rocket capable to fly 400 to 800 km/h to an altitude of about ~1500 meters.

2 meters in length and 15 kg in weight, the rocket at launch is always an impressive sight.

Beyond the technical complexity and the need a recovery system, the main objective is to set-up experiments in the vector itself (measuring velocity, acceleration, spin...) or on its environment (humidity, localization, etc...).

Safety measures taken for the launch of Fusex justify the facility setup on a military site.

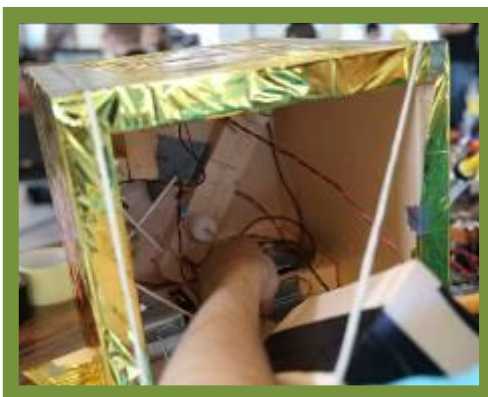
Minirocket

Once launched, a minirocket flies 15 to 50 seconds and may reach up to 600 meters high. The challenge for the team of designers is to complete a rocket with a reliable recovery system.

The construction and launch of a minirocket is an opportunity to understand the physical laws governing the flight of the only means of transportation known to reach space.



Experimental balloon



Experimental balloons drift in the atmosphere with the winds and can reach an altitude of 30 km! They are designed to fly above the Earth, to observe the Earth and to explore the layers of the atmosphere.

The balloon is made of a latex envelope and is filled with helium gas. The gondola carries a full set of experiments for a better understanding of our atmosphere. The weight of the gondola must not exceed 2.5kg.

Le CanSat



CanSat stands for Can-Satellite. The project is run by students whose goal is to complete a spacecraft in a volume equivalent to a can of 33cl and up to 1L. A CanSat is an independent device, able to carry out an actual mission.

It is dropped about 100 meters above the ground with the aim to perform a technical or scientific experience. All the basic functions of a satellite (power, communications...) must fit within the volume, which is an outstanding learning platform for learners interested in the design and manufacture of spacecraft or satellites. CanSat are developed and released as part of a competition.



Airlifted Minirocket by airborne carrier

CNES project 'PERSEUS' conducted by club members include the study of airlifted launches.

Here, a minirocket is not launched from a grounded launch pad but lifted by a remote-controlled airborne carrier, then separates, with a slope angle corresponding to the launch pad before ignition of its motor.



Entertainment and more activities during C'Space

On launch area

Build your own water rocket and create your challenge!



At Mess Nord (R3)

Don't miss the video news broadcasted every night of the week in the conference room of Mess Nord.



Daily, "L'Espace-Temps", C'Space's gazette, will be published online. Our team of volunteers will report you all the juicy stories and breaking news from C'Space.

At Biscarrosse Plage (the beach)

On Tuesday 26th, Wednesday 27th and Thursday 28th
The *Esplanade* at Biscarrosse Plage welcomes a space celebration.
General public is invited to:

- Build and launch water rockets
- Build a satellite
- Join a robot entertainment programme

Clubs members who have completed their rocket launch are welcome to present their project and results to the public on Wednesday and Thursday.

At the movie hall 'Cinema Atlantic' in Biscarrosse Plage, the movie *Armageddon* will be aired and a conference about the the probe Rosetta and the Asteroid lander *Philae* will be held on Thursday August 28th.

Highlights: don't miss these events

Ceremonies

Monday 25th, from 6pm to 7pm: C'Space 2014 opening ceremony outside Mess Nord.

Wednesday 27th, 12pm: CanSat awards ceremony.

Thursday 28th, 8.30pm: The movie *Armageddon* and a conference on Rosetta at the Atlantic cinema of Biscarrosse Plage.

Friday 29th, from 8pm: Gala closing dinner and evening. A special event featuring awards ceremony, projections of the best of C'Space 2014 videos, a nice dinner, music and of course, an enjoyable atmosphere ! The theme of the Gala evening this year will be: TV series



Space meeting

C'Space is a unique opportunity to meet with representatives of industrial and institutional space sector: stands, "DGA Café", VIP day on Thursday... Check it out!



SAFETY INSTRUCTIONS

Preventive measures against



To facilitate an evacuation:



- Exits must remain free. No equipment, furniture should block an exit.
- The space between the rows of beds, chairs and tables in bedrooms must remain free at all times (no furniture, equipment ...).
- NO SMOKING in buildings.
- The use of particular electrical appliances like heater is forbidden.
- Use the available plugs
- Use ashtrays for cigarette butts
- All trash of any kind must be evacuated before the closure of buildings.
- Flammable detritus and waste (rag...) must be placed in the dangerous products container.
- Leaving appliances plugged in the bedroom in the absence of supervision is forbidden.
- Access only zones you are authorized to
- It is forbidden to drink or eat on workbenches: have a break!



Emergency numbers

From your mobile: 05 58 82 20 18
From an internal phone: 2018

In case of fire in a building



- Keep your calm
- Evacuate to the assembly point mentioned on the evacuation plan in each building.
- Listen to the instructions of the leaders, team logistics and help.

To prevent accident

- Wear protections gear
- Avoid to lift-up heavy material alone-use trolleys
- Don't plug too many things on a socket, we recommend you to use a multiple socket with the on/off switch



Respect your environment

- Sort wastes
- Unplug tools when leaving the workbench
- Turn off lights, computers, printers at the end of the day



For everyone comfort

No noise at night: Please avoid discussions in the corridors and noise during sleeping hours...

Safety rules to be observed on the launch pad

DGA-EM main task is to test the army ballistic missile, either in the development phase for armaments companies or in training stage for the Air Force. There are several drop zones and are STRICTLY PROHIBITED. It is therefore imperative to observe the following safety rules.

Mobility

- You must wear your identification badge at all time inside DGA-EM,
- Stay on marked paths and roads while walking or biking,
- Only authorized cars can access the launch area,
- Respect the speed limitations,
- Park cars in authorized areas,
- Respect the traffic rules,
- Watch out special car restrictions on dangerous areas,
- To exit DGA-EM, you must leave your badge to a police officer at the entrance gate. It will be given back to you at your return to the camp.

Safety areas

- Pay attention to security instructions issued by safety staff (they wear a yellow armband) or by the audio announcements.
- Respect the boundaries of the areas.
- Do not enter or leave an area without being allowed by a security staff member (with a yellow armband).
- The public and visitors must remain in the public part, enclosed by fences and danger tape (red and white).
- The use of any communication items (mobile phone, radio, walkie-talkies ...) is prohibited in the launch area.

Items on the field

- It is strictly forbidden to touch or pick up any suspicious items on the ground. Please refer to a yellow arm-banded person.
- Under 18 years old, people must stay with the person in charge.

Rocket recovery

- Any rocket recovery is carried out under the responsibility of safety staff member.
- You follow the instructions he/she gives and follow him/her carefully.
- **It is absolutely forbidden to go on recovery alone!**

Pictures and videos

It is forbidden to take picture or video-record inside DGA-EM site, except:

- in Mess Nord
- in the catering and housing buildings
- On the launch area

Any picture taken outside those areas can be erased by the DGA-EM police.

Upon your arrival, you will be provided with a Safety instruction guide for Mess Nord. It is very important to read and acknowledge it.

Additional recommendations

Bâines (Rip)

The beautiful flat and straight coast, without a rock or even a pebble and exclusively made of sand, hides a real danger that kills several people every year. The death trap is called "Baïne". A bowl of fine sand forms a laguna where the water is apparently calm. When the water level in the bowl gets higher than in the ocean, it suddenly empties, creating a very powerful current towards the open sea. To exit, the best way is still to bear away, without resistance, and attract the attention of rescuers. It is therefore not allowed to bath in unsupervised beach zones or during night time.

Back from C'Space

After this thrilling week, you are surely tired out. Lack of sleep can be your worst enemy if you have to drive after C'Space. Remember to relax before driving and make regular breaks.

IN SHORT

- Bring your passport, two padlocks and a sleeping bag.
- Get your magnetic identification badge at the DGA-EM entrance gate. Keep it with you at all times within DGA-EM.
- Go to the C'Space reception desk for check-in at your arrival and get your name badge.
- Only one car by team is permitted inside DGA-EM, you can travel by foot or bike.
- A shuttle service is provided to go to the launch area. Check out the timetable!
- Bring water and snacks for the launch area.
- We are not the only one working on DGA-EM site. Please respect all the safety instructions, time schedules for meals and the tranquility of everyone.

