



CENTRE NATIONAL D'ÉTUDES SPATIALES

# Space Education for Young People, Students, Teachers, and Young Employees

Jean-Claude Courteille

**CNES - France**

June 18<sup>th</sup> 2015

58th COPUOS

## Summary

**1 – Space for Young people**

**2 – Space for Students**

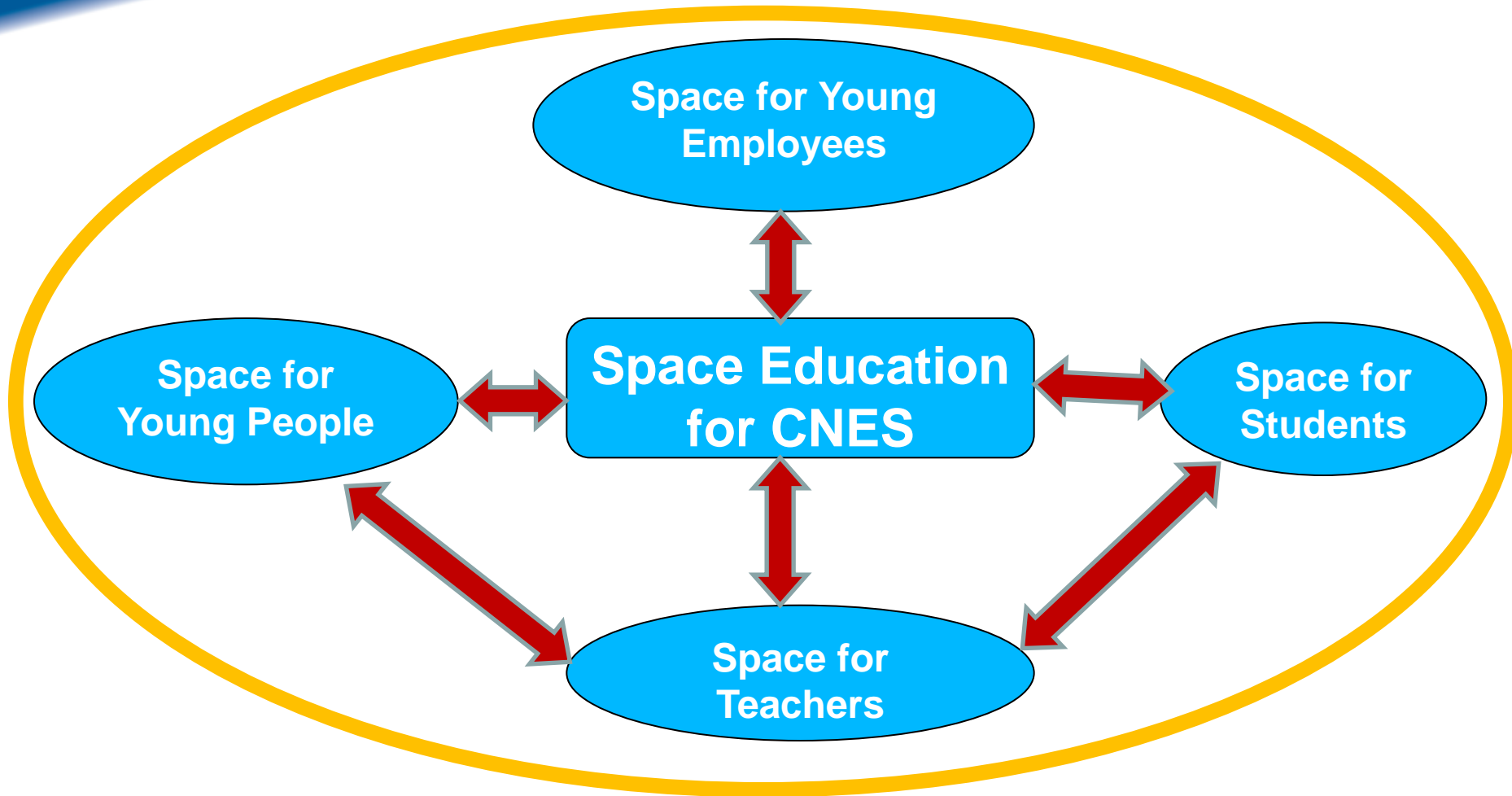
**3 – Space for Teachers**

**4 – Space for Young Employees**

**5 – Other actions of the CNES**

**Conclusion**

# Space for Young People, Students, Teachers, and Young Employees



# 1 - Space for Young People

## A dual ambition

- ◆ **To contribute** to raising awareness and promote scientific culture so as to encourage young people to pursue careers in science and technology.
- ◆ **To use** Space as a basis for education and knowledge : experimental methods, project development, teamwork

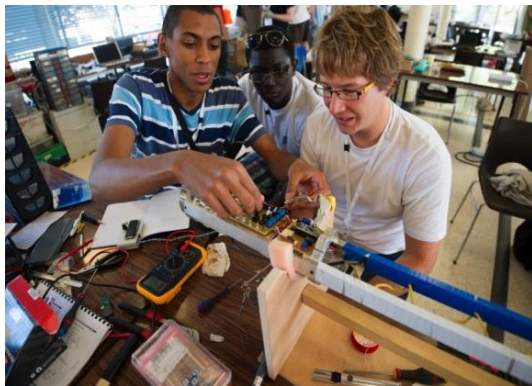
# 1 – Space for Young People (continued)

## Key annual figures

**100,000 young people involved**  
*(from primary to high school)*

**1,000 teachers trained**

**240,000 connections**  
*(to the dedicated website)*



**65 experimental balloons**

**200 mini-rockets and 20 experimental rockets**

**75 Argonautica (ocean studies)**

**35 Calisph'Air and 300 "Météo des écoles"**  
**(Globe, atmospheric studies)**

**45 Mission eXplore**

**6 CanSat**

**6 Parabole**

**1 Philae mockup (30 classes involved)**

**1 Insight mockup (10 classes involved)**

**Nanosatellites with students**

## Hands-on projects

in schools - during higher studies or during leisure time

**Mini-rocketry**  
**Balloon**

**Experimental Rocketry**  
**CanSat** (France-Challenge)  
**C'SPACE** (Summer camp)

**Mission eXplore**  
how to eat well, move like an astronaut  
(NASA initiative to fight against obesity)

**Parabole**  
Microgravity experimentation  
in Airbus zero g

Secondary school /  
High school

University

Primary and  
Secondary school

High school /  
University



# 1 – Space for Young People (continued)

## New Hands-on projects in schools - during higher studies

### Education projects on environmental issues

**Argonautica**, ocean study

**Calisph'Air**, atmospheric study

**Terr'Image**: study of Earth's environment from the Pleiades images and their treatment

Secondary school /  
High school



### Education projects on science of the Universe

**Philea** : design and assembly of Philae mock-up (scale 1), the Rosetta probe that landed on a comet in Nov 2014

**Insight** : design and assembly of Insight mock-up (scale 1), the probe which will analyse Mars's interior structure

University



# 1 – Space for Young People (continued)

**C'SPACE the annual rendez-vous of student projects**



**460 persons**  
**230 students**  
**One week in August**  
**International**  
**70 Projects**  
**60 rockets launches**  
**2 Awards : participation**  
**in the IAC in Toronto (2014)**



**In Biscarrosse since 2009**

**Next C'Space in Tarbes 18 – 25 July 2015**





## Space in my city

Every year since 2005, CNES and Planètes Sciences organize the ‘Space in my city’ program. During school holidays, animators do a road tour in France to invite young people from underprivileged neighbourhoods to discover space. Activities such as launching of water rockets, microrockets, space training in a swimming pool or satellite construction are thus proposed and implemented by the animators of Planète Sciences. From 8 to 14 years old, young people can become acquainted to sciences and techniques for one week close to home and have fun at the same time.



### Student placements

Strong incentives to welcome students (+ 250/year) in the 4 centers of the CNES in the framework of two to six-months internships. Open to bachelor and master degree students, the internship topic must correspond to the CNES activities. Students are remunerated.

### Scholarship

The Guiana Space Center (CNES) awards grants to help Guyanese students to continue their studies in Guyana or in metropolitan France (8-9 per year). To qualify for a scholarship, students must hold a high school diploma, preferably from the scientific domain, or prepare a Bachelor degree and must be admitted to an school of engineers.



### Application projects

These projects, financed by the CNES, are performed by students who have pursued higher education for 2 to 8 years.

#### PERSEUS

PERSEUS (Project student of space research university and scientific European) is a CNES initiative. It aims at supporting the emergence of technical innovative solutions for space projects of an industrial and educational nature, made by young people from higher education.

#### Cubesats - Nanosats

CNES has launched several partnerships with universities and schools of engineers (Robusta, Baumanets 2).



## 2 – Space for Students (continued)

### Ph.D and post-Ph.D research

#### Ph.D

Every year, CNES co-finances approximately 70 allowances to students who hold a master degree in partnership with industries, local authorities or research organizations, to write a thesis in a French laboratory from the following fields: space transportation, orbital systems, Earth and Universe science, or human and social sciences.

#### Post-Ph.D

Every year, CNES finances approximately 30 post-Ph.D allowances. Candidates must hold a Ph.D or equivalent.

## 2 – Space for Students (continued)

### Ph.D and post-Ph.D research (continued)

- These allowances are open to French and foreign students.
- CNES has allocated more than 2000 research allowances for 30 years. 275 students are currently working for the CNES, that is to say more than 10% of the staff.
- CNES organizes the annual meeting of young researchers for three days.



58th COPUOS - Vienna – June 18th 2015

# Student Forums

**CNES participates in student forums to present all the opportunities such as internships, Ph.D and post-Ph.D allowances and engineer or executive job offers. These forums also help promoting space projects. For instance, this week, during the air and space lounge in Le Bourget, CNES participates, among others, to the forum dedicated to students for training and job questions.**



### An ambitious policy

For more than 50 years, CNES seeks to parallel its space programs with an ambitious policy where young people learn about space activities, their applications, and how to use space as educational tool.

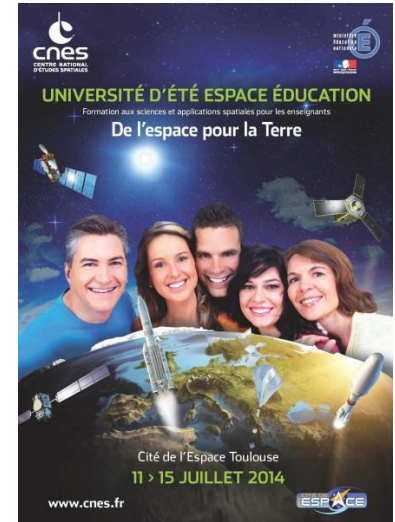
Three axes of action are proposed for :

- To educate the greatest number by the provision of supports of discovered space culture;
- To initiate young people by providing teachers experimental tools in accordance with the strategic CNES axes to develop the scientific and technical spirit of the investigation
- To train teachers on educational programs.

# Training of the teachers of the secondary and higher to the space

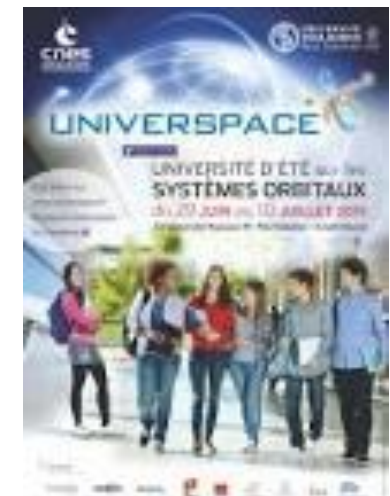
### The training of secondary school teachers

CNES in partnership with the ministry of National Education, has organized for 20 years and every two years a summer university “Space and Education” related to school programs for teachers in Toulouse (duration: one week).



### The training of university and engineer school teachers

CNES and local partners in Toulouse organizes a summer university on “orbital systems” for teachers and students pursuing higher education. The 2<sup>nd</sup> edition will take place from June 29<sup>th</sup> to July 10<sup>th</sup>, 2015





### Training of CNES Young recruits

#### Seminar of integration for Young recruits

CNES organizes every year a 5-days integration seminar for young recruits. Directors present all the functions of CNES and it includes visits of industrial and scientific sites.

#### Training of Young recruits

Young recruits can have a training in the following field:

- Two-weeks class on Technics and Technology of Space Vehicles or Launcher
- Training on communication technics and conduct of meetings
- Linguistic training: English, Spanish, Russian, Chinese, Japanese...
- Project management training
- Intercultural training
- .....

### The support of CNES at great events

**CNES provides technical and human assistance to large national, technical, and scientific organizations when exhibitions and major events dedicated to the public and to young people are held.**

**The main organizations are:**

- **City of Science and Industry – Paris**
- **City of Space – Toulouse**
- **Air and Space Museum – Le Bourget**



**City of Space – Toulouse**

# Conclusion

- Acquaint the young people to space and scientific jobs.
- Transmit knowledge of technics, science, and space applications to teachers in order to enhance its promotion in the schooling system.
- Develop and promote experience on the young people and space within the COPUOS.

For more information : [www.cnes.fr](http://www.cnes.fr)

*Thank you for your attention*