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present:



CanSat France: An innovative competition to encourage wide adoption and public awareness





PLANETE SCIENCES & CNES: A PARALLEL EVOLUTION

CFES

1961



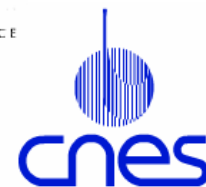
1962



1977



2002



AGENCE FRANÇAISE DE L'ESPACE



CENTRE NATIONAL D'ÉTUDES SPATIALES



CENTRE NATIONAL D'ÉTUDES SPATIALES



CANSAT FRANCE: AN INNOVATIVE COMPETITION TO ENCOURAGE WIDE ADOPTION AND PUBLIC AWARENESS

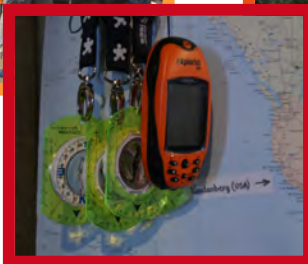
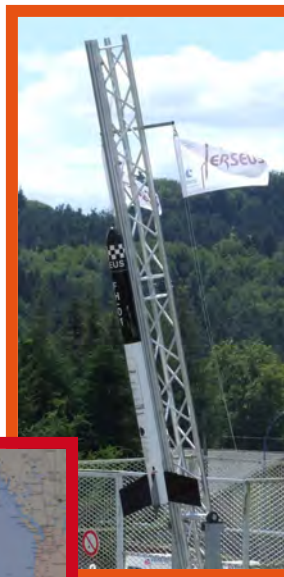
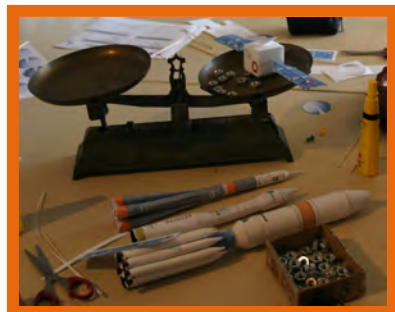


ORIGINAL MISSION: SUPPORT TO AMATEURS



A FULL BAG OF SPACE PROGRAMS AND WORKSHOPS

➤ Imagine, build, create, innovate, play, dream



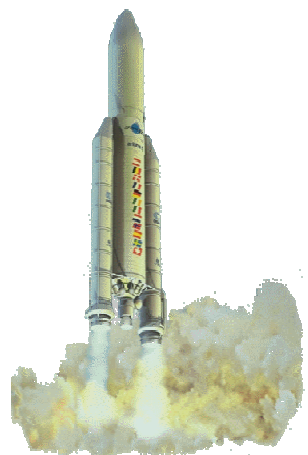
VARIETY

- Workshops
- Programmes
- Summer Camps
- Public events
- Contests
- Trainings
- Contents (space, robotics, astronomy...)

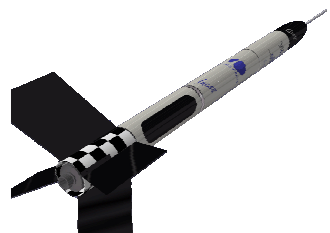


FROM ROCKETS TO CANSAT: EVOLUTION & MISSIONS

Launcher



Rocket



Altitude: 1-2 km
Payload: 15 kg
Flight: 1 to 2 mins

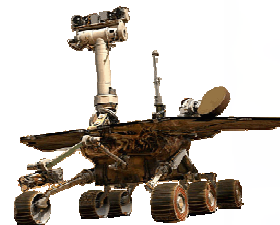
Satellite



Weather Balloon

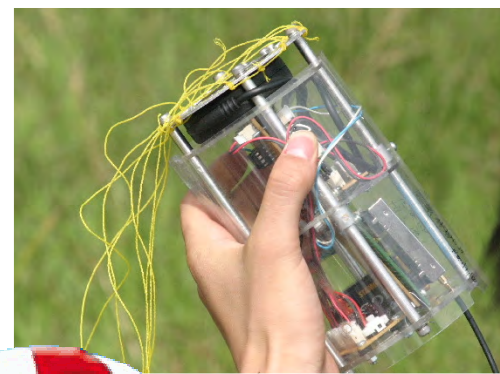
Altitude: 25 km
Payload: 2.5 kg
Flight: 2 to 3 hours

Probes



CanSat

Altitude: 200 m to 2 km
Payload: ~1 kg
Flight: few mins



SEVERAL VEHICLES TO EXPERIMENT

- Rockets: the Launcher approach
- Balloon: The Satellites philosophy
- CanSat: The Rover Spirit



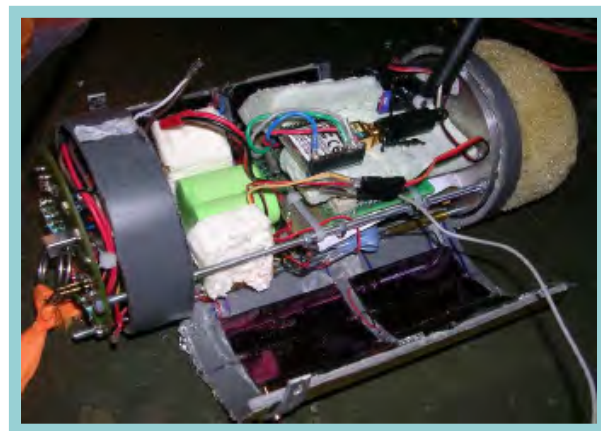


DID YOU SAY CANSAT?

Can Sat

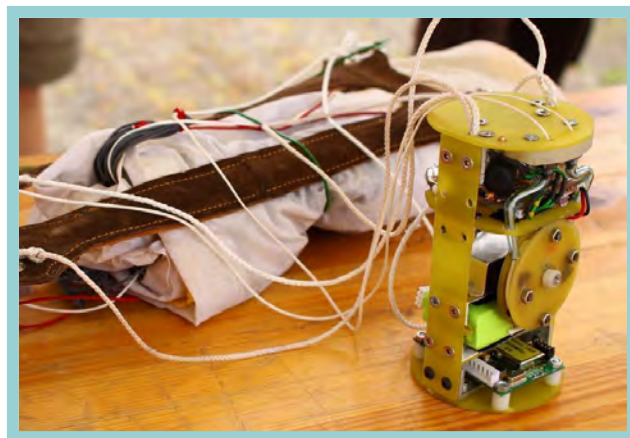


Restricted volume: 33ml



Autonomous system for Scientific missions

Ground imagery
Target Landing
Robotic arm deployment...



THE CANSAT SPIRIT

- Preflight presentation
- Data processing and postflight presentation
- Communication towards universities and industries



CANSAT: A NEW VEHICLE TO REACH NEW FRONTEERS



➤ CanSat... Fun, Sciences and Education Values

- Experimental approach
- System design
- Hands on technology: electronics, robotics, aerodynamics...
- Project management
- Planning and budget management
- Communication



AN EDUCATIONAL TOOL

- Experimental approach
- Team work
- Stimulating imagination



CANSAT FRANCE: A CUSTOMIZED COMPETITION

➤ Customization of the International model

- Based on rules used around the world (USA, Japan, Spain, Norway...)
- Customized Launch vehicle and rules
- Dropped from a Static Balloon



Pros	Cons
<ul style="list-style-type: none">• Quick recovery and post flight analysis• Consecutive drops are possible• Attractive for the audience• Easy to set up in a city center	<ul style="list-style-type: none">• Limited flight time



THE FRENCH TOUCH

- Release from a balloon
- Open class up to 1 liter
- Friendly event





CANSAT FRANCE: A CUSTOMIZED COMPETITION

➤ Missions: Imposed and Free



- Atmospheric sounding
- Deployment of a RF antenna
- Photo/Video
- Localization without GPS
- Terraforming



- Come back
- Solar arrays deployment
- CO2 and other aerosols sensing
- Ground hardness measuring
- Live image processing
- ... and many others as imagination goes!



A WIDE CHOICE OF MISSIONS

- Imposed: Inspired by planetary missions
- Free: no constraint but imagination!

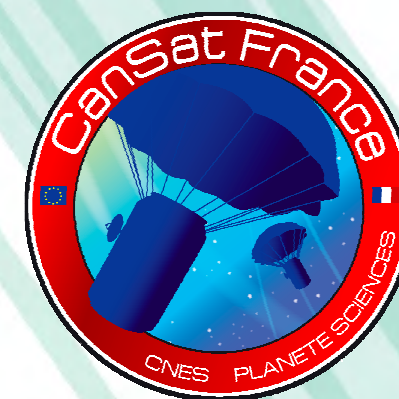


CANSAT FRANCE: 3 YEARS OF EXPERIENCE

CanSat France: Event Schedule

Before...

- Pre-flight controls & qualification
- Controls requirements book
- Simulated flight
- Flight authorization
- Pre-flight presentation



A QUICK EVOLUTION

- From 3 to 18 CanSats
- Strong international cooperation
- Industries support
- Jury members from ESA, CNES, EADS Astrium, Thales Alenia Space





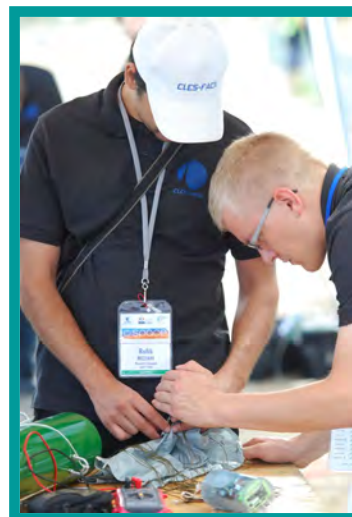
CANSAT FRANCE: 3 YEARS OF EXPERIENCE



CanSat France: Event Schedule

During and after...

- Flight preparation
- Drop from the Balloon
- Recovery
- Data Processing
- Post Flight debriefing
- Awards



A QUICK EVOLUTION

- From 3 to 18 CanSats dropped in 3 years
- Strong international cooperation
- Industries support
- Jury members from ESA, CNES, EADS Astrium, Thales Alenia Space



➤ Perspectives and opportunities

- CanSat France: a praised and proven customization of International CanSat
- CanSat France: an international audience
- CanSat France: a public event to attract wider audience for larger awareness to Space
- CanSat France: why not at Stade de France? (the 1998 Football World Cup Stadium)



Students, Teachers, Industrials...

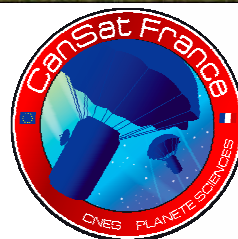
“Yes, we CanSat !”





CANSAT FRANCE... WHY NOT YOU?

➤ CanSat France 2011: See you there!

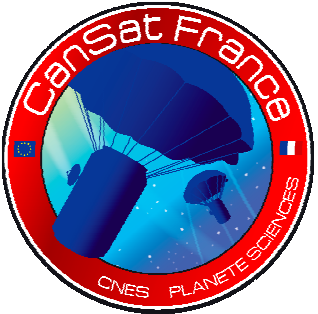




DO YOU WANT TO KNOW MORE?



➤ More about CanSat France?



» <http://www.planete-sciences.org/espace/-CanSat-?lang=en>

➤ More about Planète Sciences Space Division?



» <http://www.planete-sciences.org/espace>

➤ More about CNES Education projects?



CENTRE NATIONAL D'ÉTUDES SPATIALES

» <http://www.cnes-jeunes.fr>



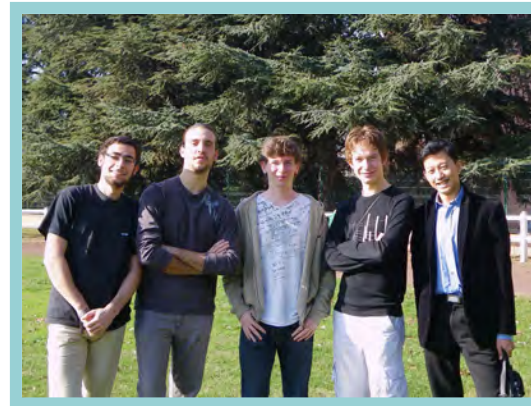
➤ Type of public reached

The old runner



- One of the oldest French rocketry clubs (43 y.o)
- First to introduce CanSats their rockets in France
- Attended Spanish and US competitions
- Biggest budget per project (~900 € / 22 000 Kč)
- 2010 award-winner

The CanSat born



- 100% CanSat produced
- Started in 2009
- 2009 award-winner
- Presented 2 CanSat in 2010
- Invited to Norwegian Competition
- Budget: 435 € / 10 700 Kč

The guests



- Spanish team
- Advanced rover with deployable legs
- Pro-active communication
- Attended Spanish and French competitions
- Fair Play award winning for lending transmitter to another team
- Budget: 215 € / 5 300 Kč

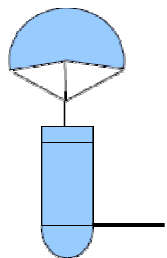


➤ Meet a CanSat

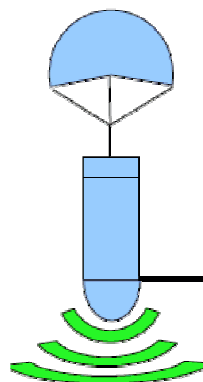


Exploradur

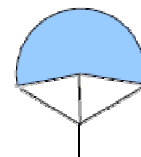
Flight during La Courtine RCE in 2008



Flight

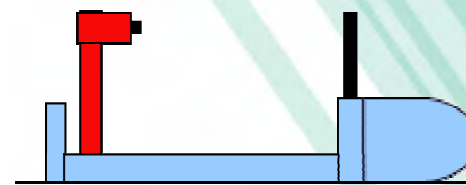


Radar activation

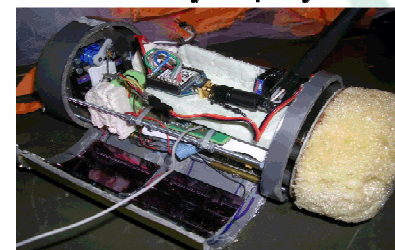


Ground detection

- Release parachute
- Antenna protected
- Record for shock detection



CanSat fully deployed



Exploradur was designed by volunteers of Planète Sciences to learn technical difficulties of CanSat competition. It was the first Open Class french CanSat

Zoom on the first second

