OSU

Kyushu Institute of Technology 1907

SouKi

Christophe Scicluna, from Planète Sciences
Kenji Ogimoto, from Space Club Kansai
Minoru Sasaki, from Gifu University
Koichi Yonemoto, from Kyushu Institute of Technology
present:

Planète Sciences
une aventure pour les jeunes

THE FRENCH NATIONAL ROCKETS LAUNCHING CAMPAIGN AND THE DAWN OF ITS COLLABORATION WITH JAPANESE AMATEUR SPACE CLUBS

58th International Astronautical Congress
24-28 Sept 2007/Hyderabad, India

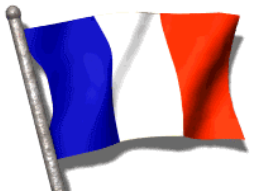
PLANETE SCIENCES & CNES: A PARALLEL EVOLUTION

1961

1962

1977

2002



Sciences Techniques Jeunesse

une aventure pour les jeunes

AGENCE FRANÇAISE DE L'ESPACE

CENTRE NATIONAL D'ETUDES SPATIALES

CENTRE NATIONAL D'ÉTUDES SPATIALES

SUPPORT TO AMATEURS

PLANETE SCIENCES TODAY

Associations
Network
Techniques
Promotion
Sciences
Activities
Europe
France
Practical
Experimentation
Youth
Project
Clubs
Leisure
Management
Team work
Programmes
Exchanges
Events
Contests
Workshops
Volunteers
Summer camps
Ministries
Partners
Organizations
Space activities
Meteorology
Energy
Astronomy
Environment
Robotics

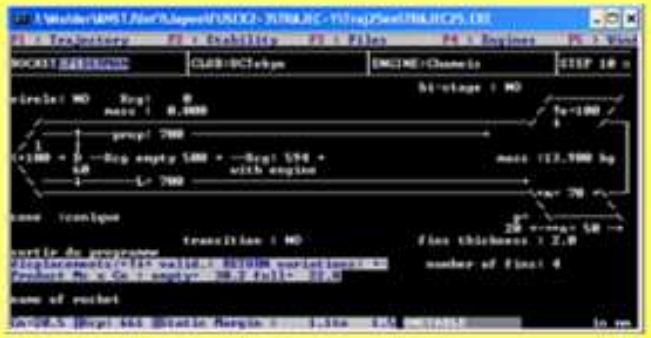
I WANT TO MAKE A ROCKET...

- Do **NOT** do it yourself !

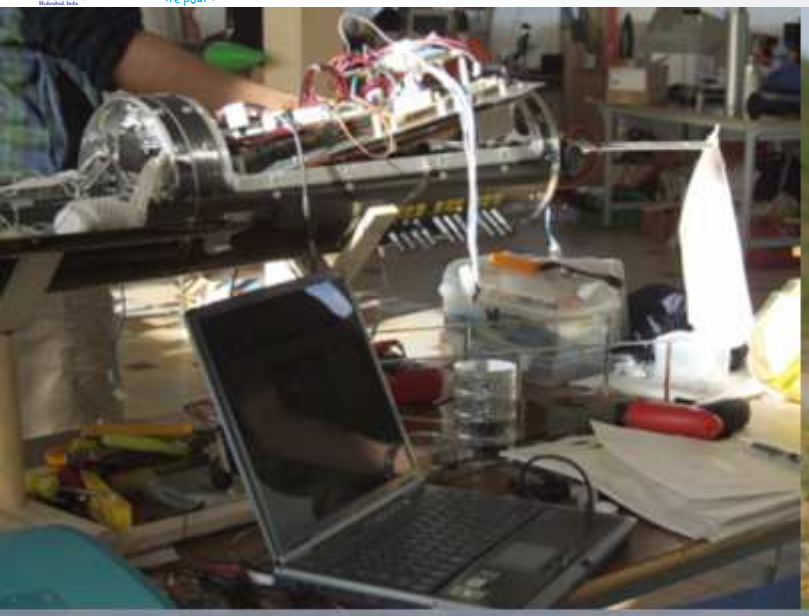
Planete Sciences
une aventure pour les jeunes

cnes
CENTRE NATIONAL D'ÉTUDES SPATIALES

- What do we provide ?



DID YOU SAY EXPERIMENTAL ROCKET ?



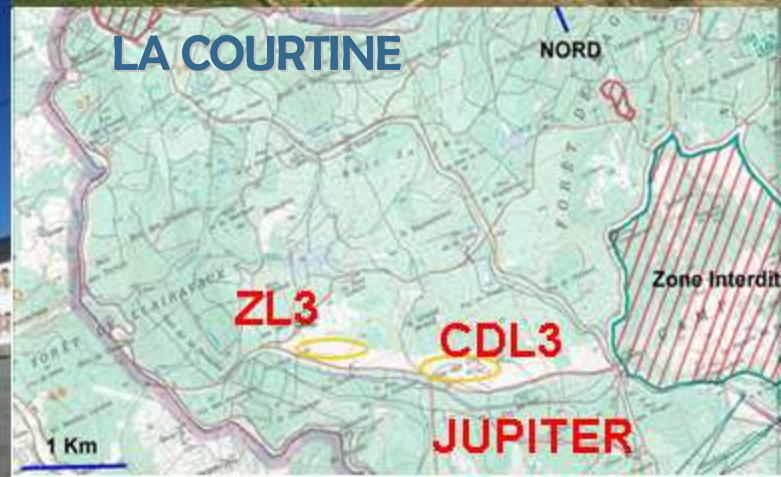




FROM DREAM TO REALITY

Registration
Clubs
Youth
Project
Experiments
Definition
Team work
Management
Skills
Safety
Pedagogy
Constraints
Simulation
Stability
Tutorials
Calibration
Telemetry
Recovery
Integration
Interpretation
CNES
Advices
Partners
Volunteers
Reviews
Exchanges
Controls
Launch
Campaign

A LAUNCHING CAMPAIGN: A SITE



A LAUNCHING CAMPAIGN: FACILITIES

'R3' Workshop

Test equipments

Telemetry truck

Controls

Final integration

Jupiter

Fire truck

Ignition facility

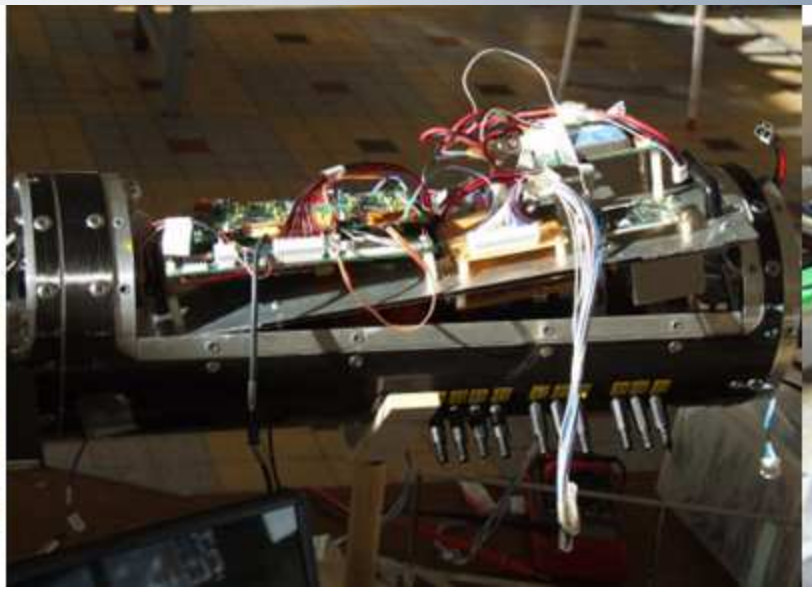
Launching area

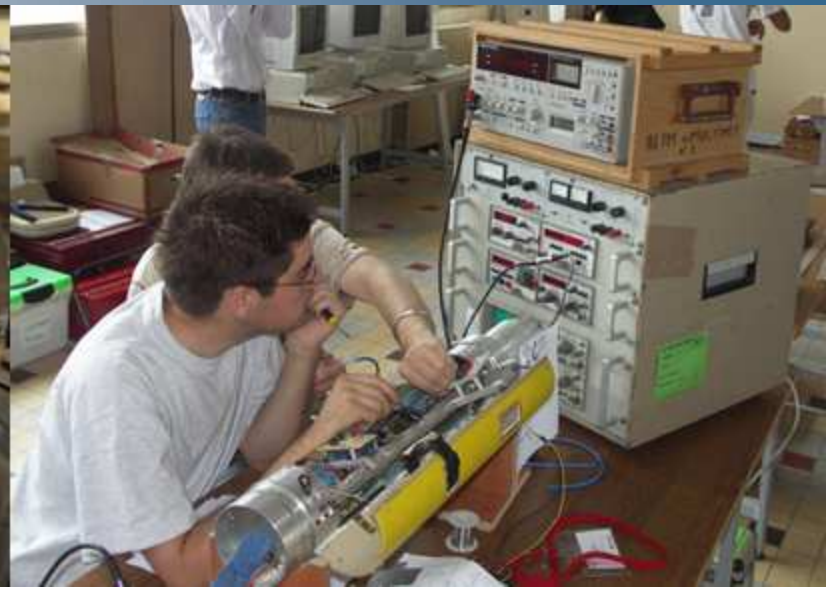
Public area

A LAUNCHING CAMPAIGN: A TEAM

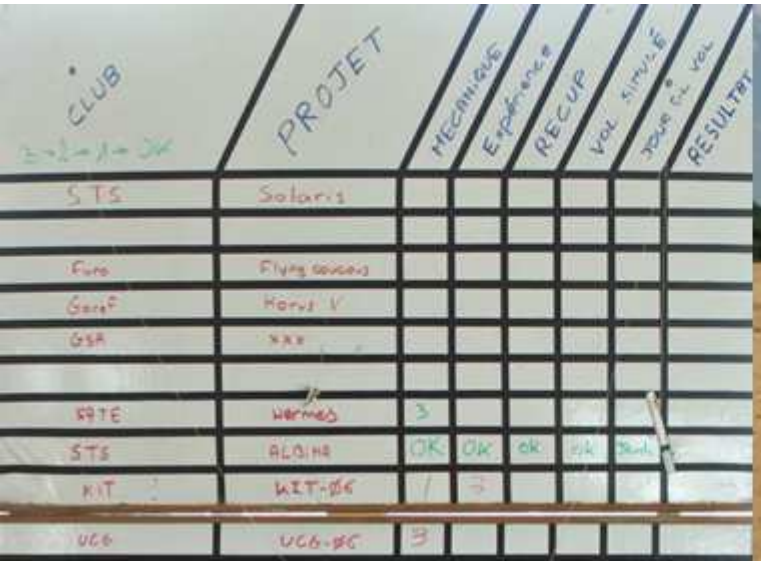
Pyrotechnics, Safety, Telemetry, Energy, Recovery, Coordination, Entertainment, Transport, Welcome, Controls, Expertise, International relations, Equipment, Launching, Public, Organisation, Logistics, Partners....

A LAUNCHING CAMPAIGN: COUNTDOWN





Debug ... Controls ... Approval ... Set up in pad ...



A LAUNCHING CAMPAIGN: COUNTDOWN




Engine... Countdown ... Launch... Parachute... Recovery





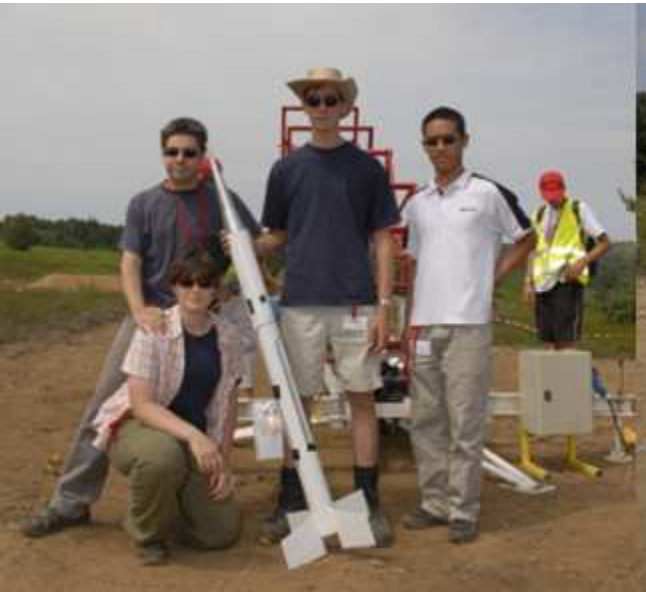
SPACE CLUBS: WHO ARE THEY ?

SAME PASSION




SETS... FACIL... ESIEE ESPACE... EUREKA+... ESO... AERO IPSA... UCG...

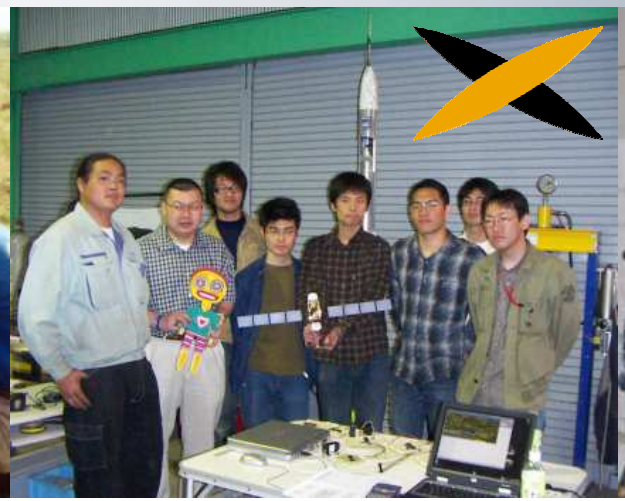
SAME MOTIVATION



FRENCH ROCKET LAUNCHING CAMPAIGN - JAPANESE AMATEUR SPACE CLUBS - DAWN OF COLLABORATION

SPACE CLUBS FROM JAPAN

YOUNG ASTRONAUTS CLUB



UCHU CLUB GIFU

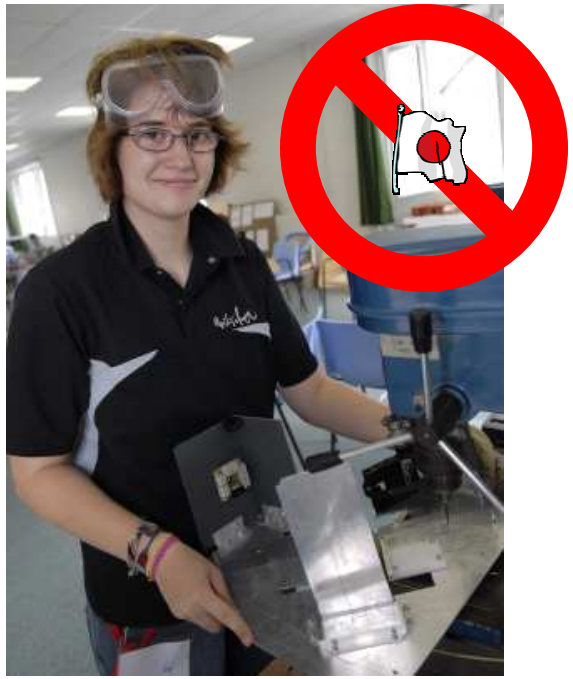
UCHU CLUB KANSAI

YAC	UCG	UCK	KIT-SC
1992	2005	2006	2006
1997	2006	2007	2007
	2007		

KITA KYUSHU INSTITUTE OF TECHNOLOGY - SPACE CLUB

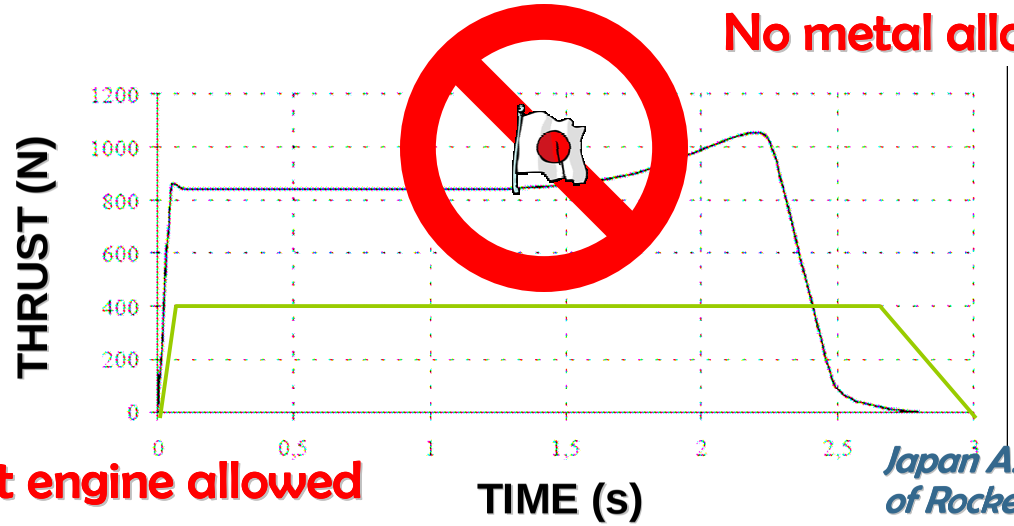
WHY NOT LAUNCHING IN JAPAN ?

No launching site available



No metal allowed

Japan Association of Rocketry

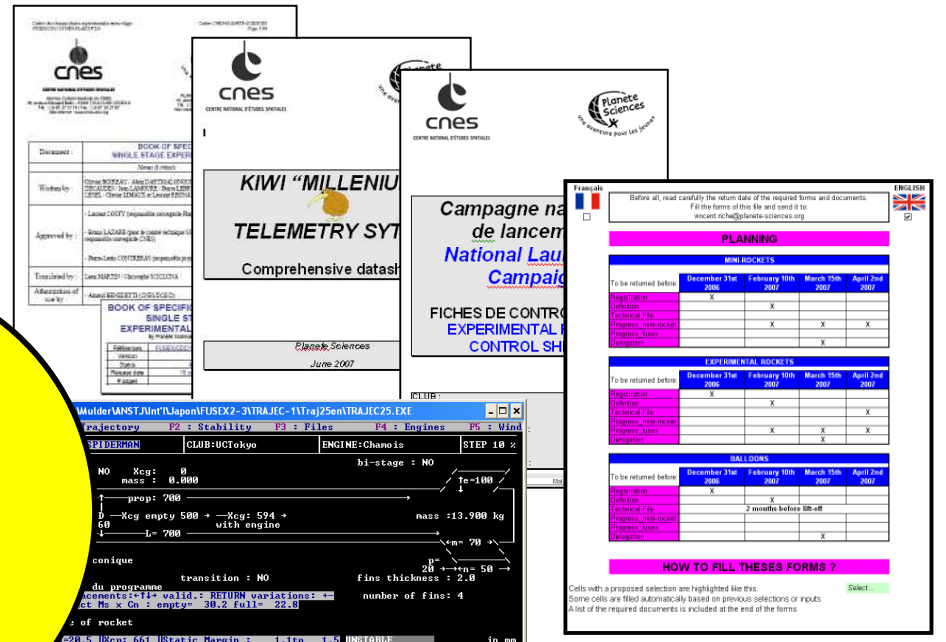


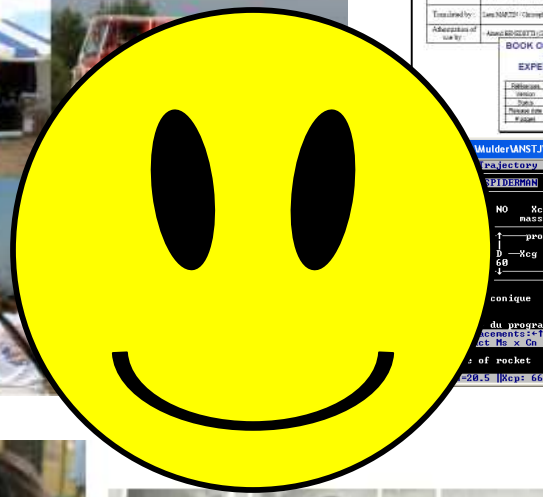
No high thrust engine allowed

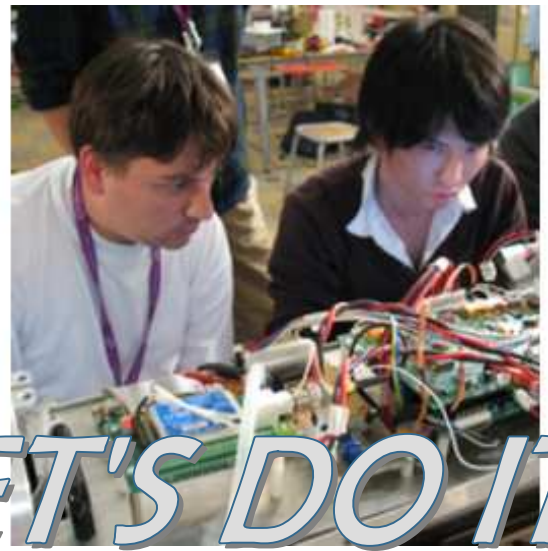
Japan Association of Rocketry

FRENCH ROCKET LAUNCHING CAMPAIGN - JAPANESE AMATEUR SPACE CLUBS - DAWN OF COLLABORATION

WHY LAUNCHING IN FRANCE ?







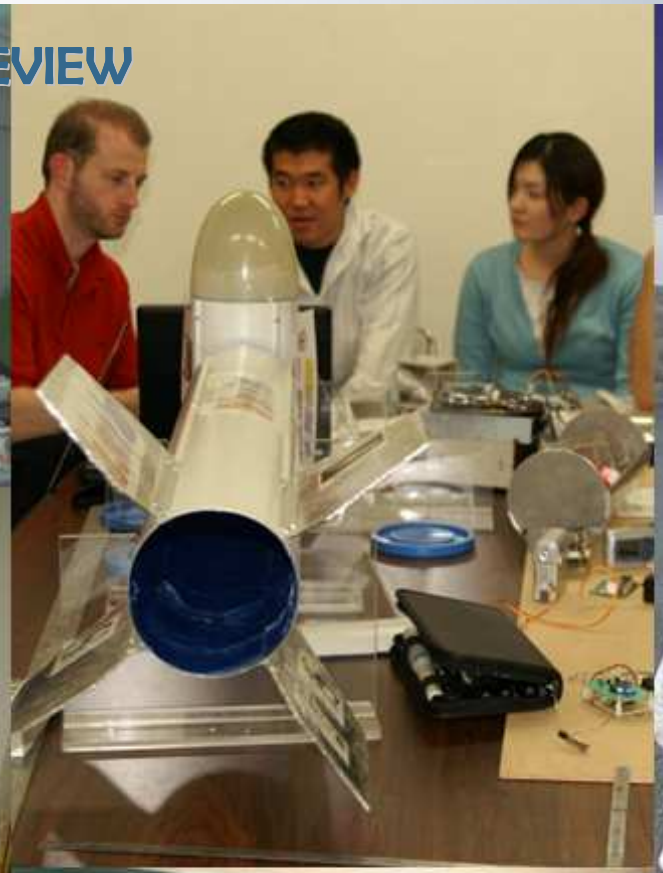
LET'S DO IT TOGETHER

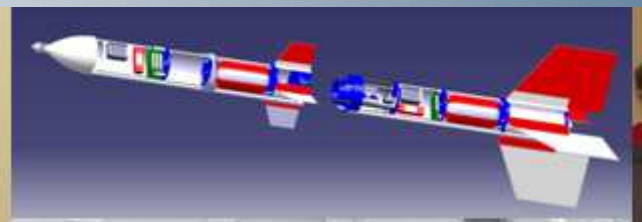
WHY LAUNCHING IN FRANCE ?

Project
Practical
Constraints
Planning
Experimentation
No Contest
Exchanges
Clubs
Safety
Culture
Youth
Leisure
Team work
Communication
Management
Qualification
Support
Review
Teaching
Share
Controls
Budget
System
Knowledge
Telemetry
Engineering

REVIEW & CONTROLS

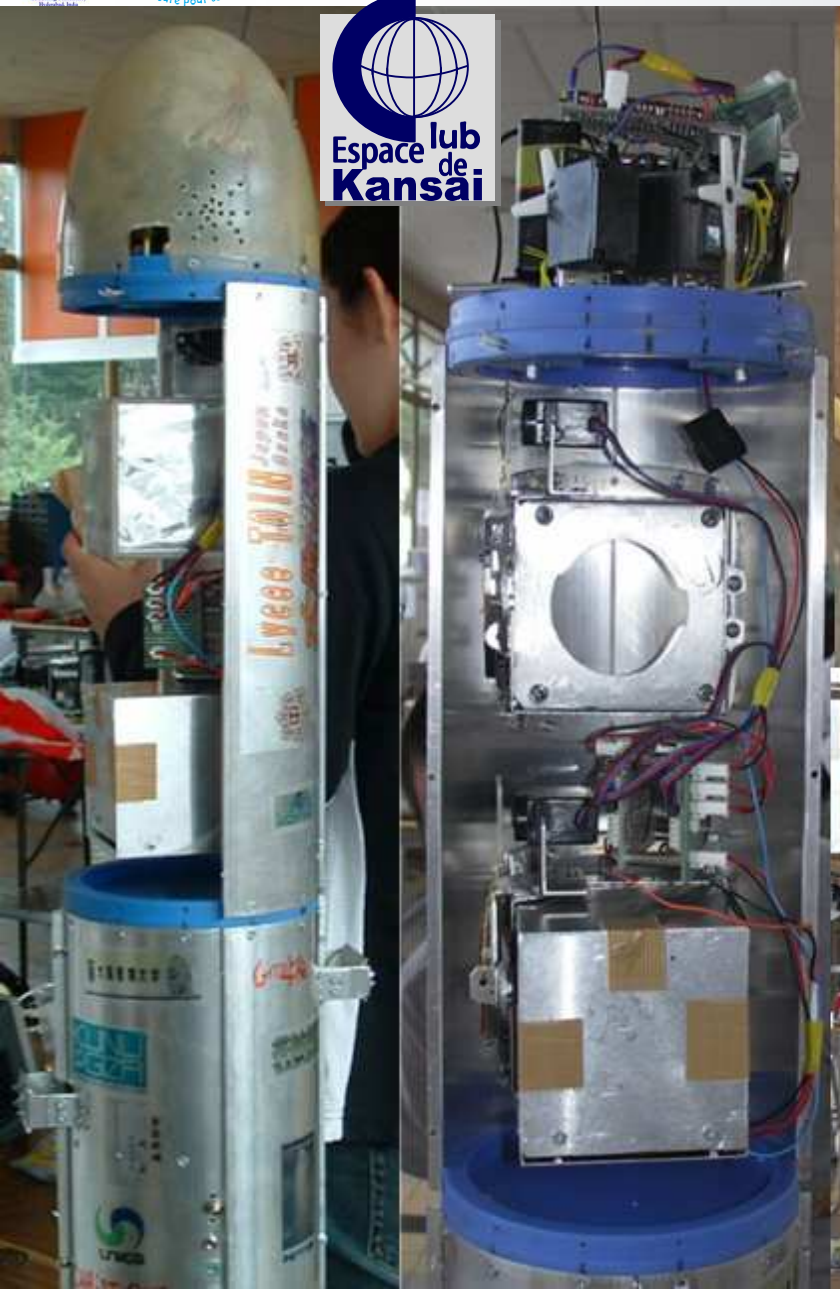
WE REVIEW

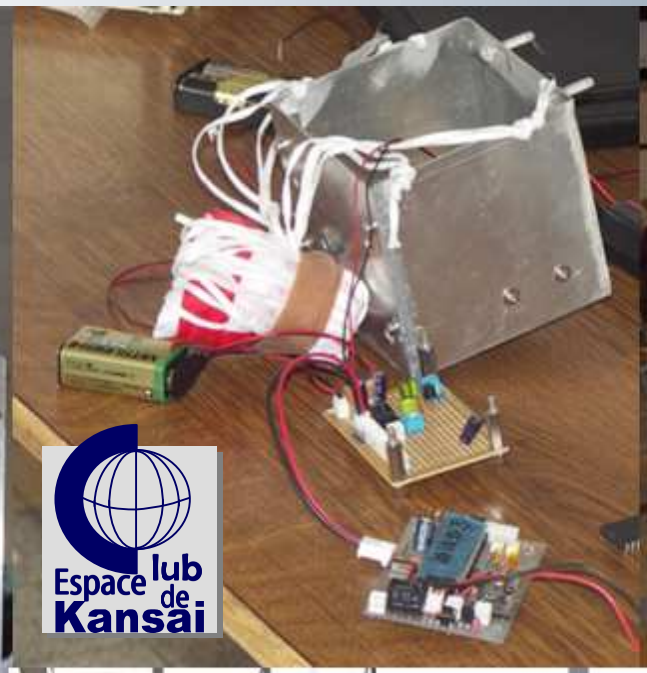




WE CONTROL

JAPAN SPACE CLUBS' PROJECTS





DAWN OF COLLABORATION

A FRENCH QUASI-SATELLITE ONBOARD A JAPANESE ROCKET

KNOWLEDGE TRANSFER BETWEEN KIT AND INSA-LYON

2007

FRANCE...DAWN...RISING SUN...

- Develop exchanges between countries and clubs
- Evolve towards collaboration between space agencies
- Broaden spectrum with CANSAT

THANKS AND SEE YOU SOON !

THE CAMPAIGN IS ALSO...

STABILITY: "TRAJEC"

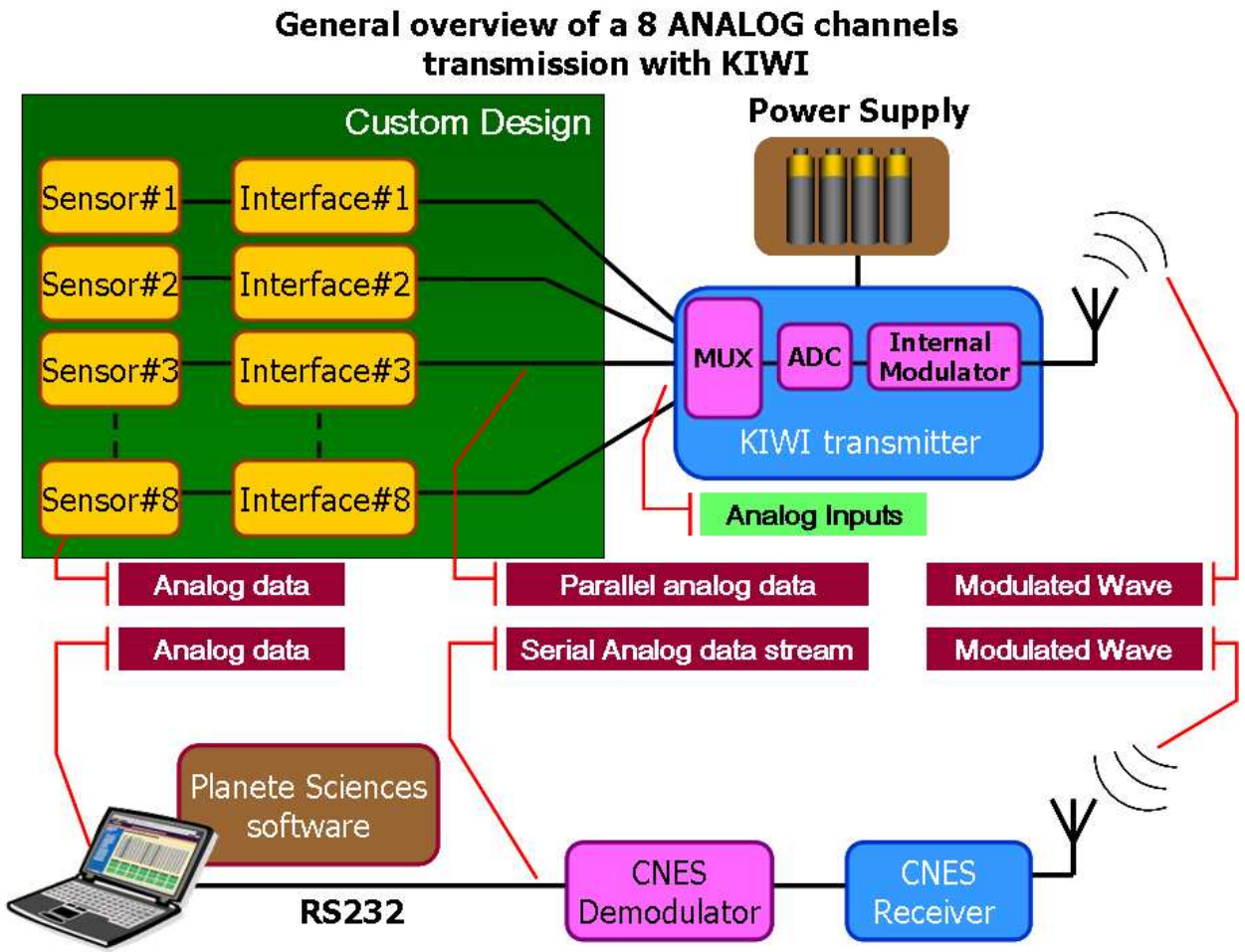
C:¥WINDOWS¥system32¥cmd.exe - trajec25

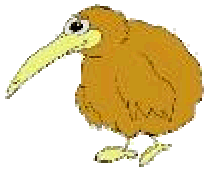
```
F1 : Trajectory     F2 : Stability     F3 : Files     F4 : Engines     F5 : Wind
ROCKETspiderman | CLUB: | ENGINE:Cariacou | STEP 10 %

←──────L2= 400 ──────→  bi-stage : YES
virole: NO    Xcg:    0                  /──────/      /──────/
            mass :  0.000               / ↑e= 50 /    / ↑e=100 /
  /─────────────────────────────────────/  ↓    /────/  ↓    /
 /  ──↑──prop: 700 ──────────────────────→
/ l   |
<←100 → D ─Xcg empty 500 → ─Xcg: 537 →                    mass : 1.500 kg
 \     60                  with engine
  \ ──↓──────L= 700 ──────────────────────→
   \──────────────────────────────\←m= 60 →\──────\←m= 70 →\
                                   \      \      \      \
cone  :conique                    p=\──────\  p=  \──────\
                                10 ←─→←n= 50 →  20 →─→←n= 50 →
                  transition : NO          fins thickness : 2.0
sortir du programme                          2nd  stage : 2.0
displacements:←↑↓→ valid.: RETURN variations: +-   number of fins: 4
Product Ms x Cn : empty=  34.1 full=  29.5    2nde stage : 4

activate new fins (bi-stage stability)

Cn=27.0 ‖Xcp: 602 ‖Static Margin :   1.1to   1.3 UNSTABLE
```

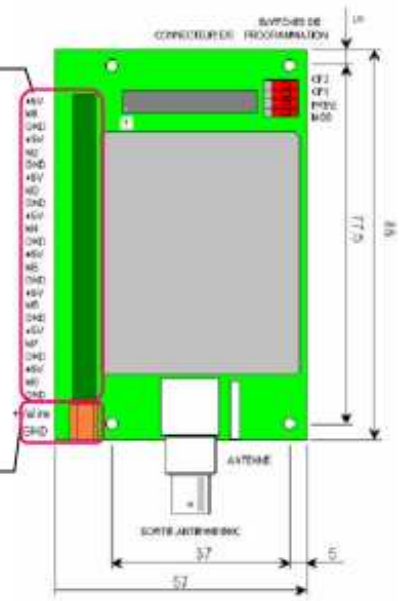
I:\Mulder\ANSTJ\Int'l\Japon\FUSEX2-3\TRAJEC-1\Traj25en\TRAJEC25.EXE

```
F1 : Trajectory     F2 : Stability     F3 : Files     F4 : Engines     F5 : Wind
ROCKETSPIDERMAN | CLUB:UCTokyo | ENGINE:Chamois | STEP 10 %

                                                  bi-stage : NO
virole: NO    Xcg:    0                  /──────\←lr→
            mass :  0.000               /        \ 50          /──────/
  /─────────────────────────────────────/          \──────────/ ↑e=100 /
 /  ──↑──prop: 700 ──────────────────────Dj ──↑──────→          /
/ l   |                                  60  |
<←100 → D ─Xcg empty 452 → ─Xcg  559  →     Dr                mass :13.900 kg
 \     60                  with engine       60
  \ ──↓──────L= 700 ──────────────────────────↓──────→
   \──────────────────────────────\                  \←m= 70 →\
←──────Lj= 200 ──────→\                               \      \
cone  :conique          lj= 50 ↔\──────/              p=\──────\
←──────Lr= 600 ──────────────────→                    20 →─→←n= 50 →
                  transition : YES          fins thickness : 2.0
sortir du programme
displacements:←↑↓→ valid.: RETURN variations: +-   number of fins: 4
Product Ms x Cn : empty=  43.4 full=  34.7

activate 2 transitions (diameter)
ses
Cn=20.5 ‖Xcp: 661 ‖Static Margin :   1.7to   2.1 UNSTABLE          in mm
```

TELEMETRY SYSTEM: "KIWI"







ENGINE: EXAMPLE OF "CHAMOIS"

UCG06