Suborbital Research Association

SUBORBITAL RESEARCH ASSOCIATION

PRESS RELEASE

STUDENTS ATTRACTED BY MICROGRAVITY

TEN EXPERIMENTS SELECTED BY THE SRA

At about 350 km around the Earth, the International Space Station (ISS) provides a permanent weightless environment. But at what cost ?

A suborbital flight on board a spaceplane offers a “low cost”, less constraining alternative for promising scientific research experiments and technological developments. The Suborbital Research Association (SRA) aims at bringing close microgravity to secondary school students and university researchers. The SRA recently selected ten experiment proposals to fly to the edge of space, during a parabola at 100 km altitude, in 2016.

Created in Brussels in June 2013, the Suborbital Research Association wants to raise awareness of European institutes and laboratories, to the possibilities of suborbital flights for scientific and technological purposes. The Association, supported by engineers, scientists, professors, lawyers, strives to make the research and engineering community aware of the possibilities offered by this alternative of a long suborbital trajectory, yielding several minutes of continuous microgravity at an attractive cost.

A SRA Selection Committee evaluated 17 experiment proposals from six European countries and recommended ten experiments to the SRA Board of Administration to be performed during the parabola. These experiments show the interest of acquiring “in situ” data on the influence of microgravity phenomenon.

- Four student experiments from Belgian schools :

    . Sint Pieterscollege, Jette, Brussels (multispectral photography ; movement in 3D)

    . Collège Saint Michel, Etterbeek, Brussels (observation of regular deformations of the interface separating two immiscible liquids submitted to vibrations in microgravity)

    . Sint Barabaracollege, Gent (acceleration measurement in space systems).

- Five scientific and technological experiments :

. Von Karman Institute, Sint-Genesius-Rode, Belgium (Behaviour of cryogenic liquids in 0g) ;
. Université Libre de Bruxelles, Belgium (Ballistocardiography and cardiac performance under suborbital flight) ;
. German Sport University, Koeln, Germany (Brains in Space 2.0. The effects of a suborbital flight on central nervous regulation assessed by cortical, hormonal and affective stress markers.) ;
. Universiteit Antwerpen, Belgium (Short duration spaceflight induced neuroplasticity studied with advanced magnetic resonance imaging methods) ;
. ISEN/Université de Lillle, France (Test and study in suborbital flight conditions of a particle balance and its electronic control and command card).

- a historical promotional experiment:

. Katholieke Universiteit Leuven, Belgium (The Ishango Odyssey project).

The SRA, which is open to all forms of cooperation, has set its objectives:

"*- to encourage, to assist, to facilitate and to promote suborbital scientific research;*
- to give the necessary assistance, within the possibilities of the Association, to the practical realization of fundamental and applied scientific research in suborbital environment, independently and in a complementary manner to existing structures;
- to organize or to participate in the organization of promotion events of scientific research in suborbital flights to the general public, the youth and the students;
- to disseminate all information, works or documents concerning the aims of the Association."

The first on-going project of the SRA is twofold:
- the organization of a first scientific flight in 2016 to perform scientific experiments;
- a contest for Belgian secondary schools students, inviting them to submit proposals for experiments to be conducted during this suborbital flight, which could be a first in Europe.

To learn more about the Suborbital Research Association and the contest for Belgian students:
http://www.suborbital-research.org/

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SRA FIRST SUBORBITAL FLIGHT IN 2016
LIST OF SELECTED EXPERIMENTS

STUDENT EXPERIMENTS

1) "*Multispectrale fotografie tijdens een suborbitale ruimtevlucht*"
Prof. E. de Schrijver (Sint Pieterscollege, Jette, Brussels, Belgium)

2) "*Beweging in 3D van een ruimtevliegtuig*"
Prof. E. de Schrijver (Sint Pieterscollege, Jette, Brussels, Belgium)

3) "*Observation de déformations régulières de l'interface séparant deux liquides non miscibles soumis à des vibrations en microgravité*"
Prof. N. Henry de Generet (Collège Saint-Michel, Etterbeek, Brussels, Belgium)

4) "*MASS: Measuring Acceleration in Space Systems*"
Prof. A. Timmerman (Sint-Barbaracollege, Gent, Belgium)

SCIENCE AND TECHNOLOGY EXPERIMENTS

5) *"Experimental study of sloshing in 0g condition"*
Profs. M.R. Vetrano, J.M. Buchlin (Von Karman Institute, Sint-Genesius-Rode, Belgium)

6) "*Ballistocardiography and cardiac performance under suborbital flight*"
Dr P.F. Migeotte (Université de Bruxelles ULB, Belgium)

7) *"Brains in Space 2.0. The effects of a suborbital flight on central nervous regulation assessed by cortical (EEG), hormonal (COR) and affective (CST) stress markers"*
Prof. S. Schneider (German Sport University, Koeln, Germany),
Prof. A. Choukèr (University Munich, Germany)

8) *"Short duration spaceflight induced neuroplasticity studied with advanced magnetic resonance imaging methods"*
Prof F. Wuyts (Universiteit Antwerpen, Belgium)

9) *"Test and study in suborbital flight conditions of a particle balance and its electronic control and command card"*
Mr T. Martens (ISEN, Université de Lille, France)

PROMOTIONAL EXPERIMENT

10) *"The Ishango Space Odyssey project"*
Prof. D. Huylebrouck (Katholieke Universiteit Leuven, Belgium)