

BIOSMHARS

BIOcontamination Specific Modeling in Habitats Related to Space

EYE ON BACTERIA IN SPACE

When humans go to space, so do bacteria. On manned spacecraft, there is a need for effective biocontamination control measures. The BIOSMHARS project takes on this new challenge.

When organic life goes to space, it takes new forms. On board the International Space Station (ISS), bacteria have developed an existence alongside astronauts and science equipment. In order for such co-existence to remain harmonious, there is a need to monitor biologic developments in space, and foresee effective biocontamination control measures when necessary.

Failure to adhere to sound contamination control may result both in a risk for the health of the crew and for the on-board equipment.. The BIOSMHARS project represents the first phase of a joint EU-Russia research effort, which aims at developing the scientific and technological tools that are needed in order to establish an adequate and comprehensive approach to the challenging issue of biocontamination inside manned spacecrafts.

The project will develop and calibrate a mathematical model, which will allow predicting the transportation of bioaerosols in a closed environment, and to develop appropriate countermeasures. The BIOSMHARS biocontamination model will be calibrated in the Russian BIOS-3 confinement facility at Krasnoyarsk.

Composed of a consortium of leading Russian and European scientists, the results of this project have a high potential, possibly establishing joint EU-Russia global leadership in the area of environmental biocontamination modelling, control, and countermeasures.

Whilst directly relevant for life in the space environment, insights gained in this field may also potentially have a range of terrestrial applications in the fields of health and security.



AUDREY BERTHIER
IS PROJECT COORDINATOR



gloved hands with the laboratory tubes © Alexander Rath - Fotolia.com

BIOSMHARS seeks to facilitate better biocontamination control strategies for manned spacecraft.

QUESTIONS & ANSWERS

What do you want to achieve with this project?

The BIOSMHARS consortium intends to develop, to calibrate and to validate a mathematical model to predict the transportation of bioaerosols in a closed environment and the concurrent spread of biocontamination, first on-ground, without human activities.

Why is this project important for Europe?

This project will first increase the competitiveness of Europe. It will indeed undertake innovative research and development for biocontamination strategies and help to maintain European and Russian scientists at leading positions in this field.

How does your work benefit European citizens?

This work will benefit to European citizens first through the application potential both for the health sector and for security. The preliminary predictive model resulting from the project may help as well to define strategies against biocontamination related to biological terrorist attacks.

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LIST OF PARTNERS

- MEDES, France.
- Belgian Nuclear Research Centre (SCK-CEN), Belgium
- Institute of Biophysics, Russia
- IBMP, Russia
- University of Eastern Finland, Department of Environmental Science, Finland
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PROJECT INFORMATION

BIOcontamination Specific Modeling in Habitats
Related to Space (BIOSMHARS)
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