

# Building Peace in Young Minds through Space Education

## *Contributions of JAXA Space Education Center to Human Development*

Committee on the Peaceful Uses of Outer Space, 53rd Session  
June 2010, Vienna, Austria

Space Education Center,  
Japan Aerospace Exploration Agency (JAXA)



Space Education Center

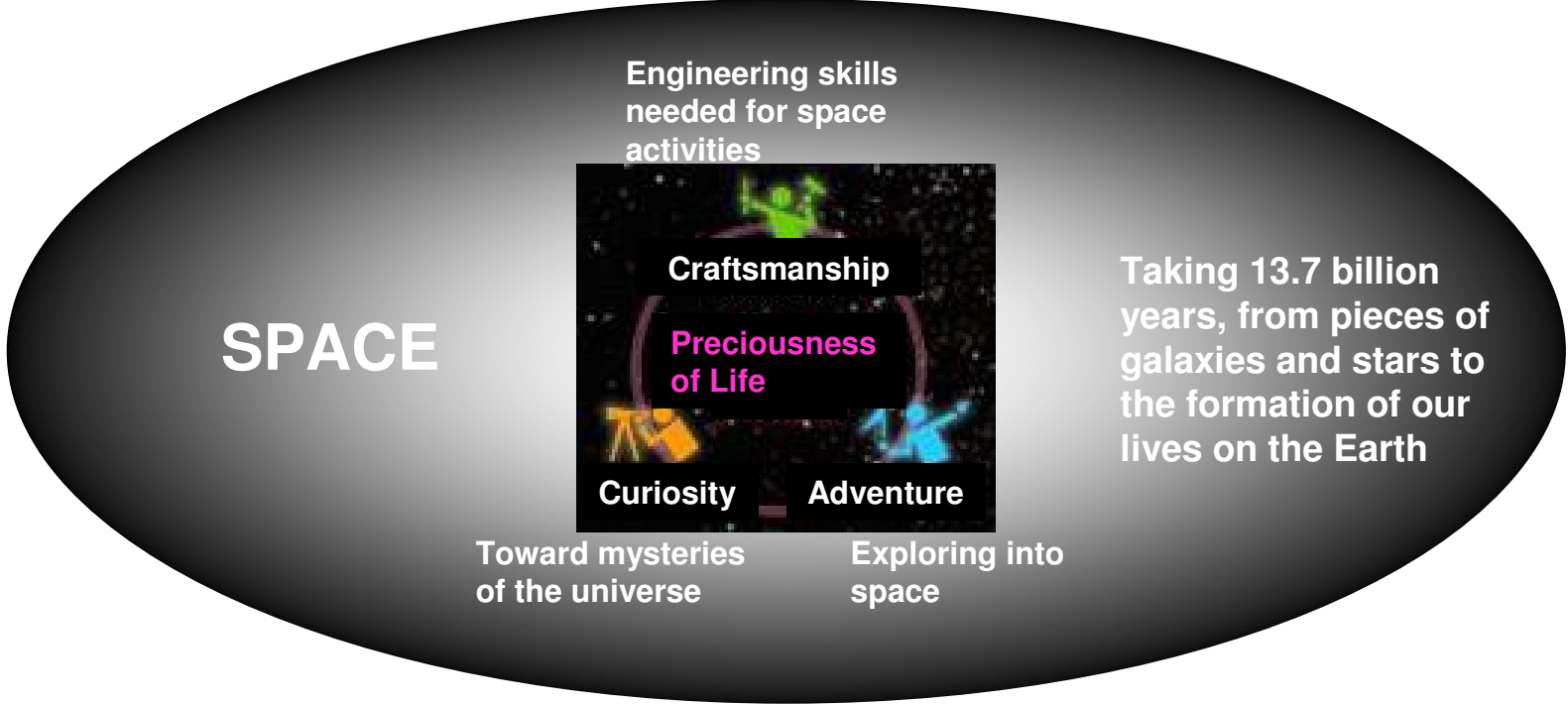
# PRINCIPLES

**Use attractive space materials,  
to positively influence the minds of children by:**

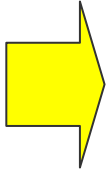
- 1. Stimulating the curiosity of children,  
cultivating their spirits, and  
encouraging their passion to pursue  
craftsmanship.  
→ “Spirit of Never Give-Up”**
- 2. Heighten the children’s awareness of the  
importance of life and their responsibilities in the  
society.  
→ “Preciousness of Life”**

# WHAT IS SPACE EDUCATION?

“SPACE = Unique source of interest, imagination & inspiration.”



Space Education



Stimulating children’s curiosity toward nature, the universe and life while stressing the preciousness of life



Human Development using Space

# FORMAL EDUCATION SUPPORT

- ◆ **OBJECTIVE:** To help create unique school activities that can ignite the flame of children's curiosity and interest
  - “Space” as the compilation of knowledge acquired in various disciplinary areas
  - Collaborations w/ teachers & education boards → teachers training
    - ✓ Classroom teaching, integrated learning programs, extracurricular activities
  - From natural science to social science, language, arts, etc.



▲ In collaboration w/ Cosmic Ray Research Institute/Tokyo Univ.



▲ In the “Japanese” Language class



▲ Supporting the class on Environmental studies



▲ Space foods produced by high-school students

# INFORMAL EDUCATION SUPPORT

## ◆ OBJECTIVES:

### ➤ FOR CHILDREN:

Provide primary & secondary school children with opportunities to experience space-related activities using unique JAXA programs

### ➤ FOR ADULTS:

Provide training and support for instructors and leaders to carry out space education activities, to enhance the local community environment for children



# Home Education Support: Space Education for Parents and Children

## ◆ BENEFITS ACHIEVED:

Enhanced interest of the parents in education;  
(Joy of learning together with their children.)

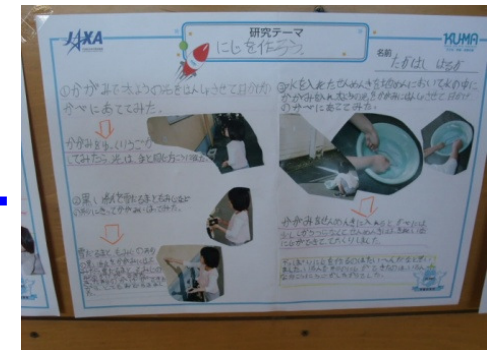
## ◆ RESULTS:

Increased number of hosts for  
“Space Schools for Families”

Year	Number of Hosts (BOE)
2008	4
2009	14



Schooling



Final reports on experiments at home



Presentations & Graduation ceremony

# Achievements: from FY 2005 to FY 2009

## ◆ Formal Education Support:

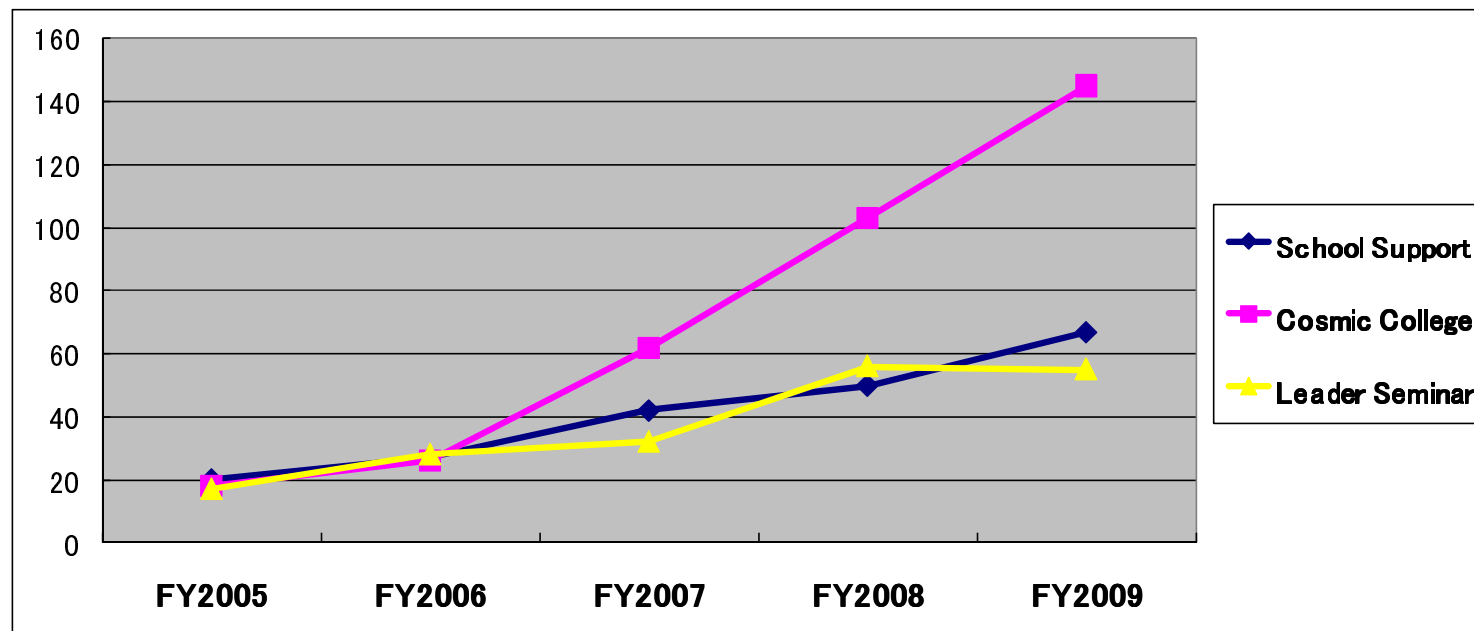
- from 20 schools (1543 students) to 67 schools (4240 students)

## ◆ Informal Education Support:

- from 18 events (1273 children) to 145 events (10274 children)

## ◆ Leaders Training:

- from 9 sessions (562 individuals) to 55 sessions (2047 individuals)



FY in Japan = from 1 April to 31 March



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# INTERNATIONAL ACTIVITIES

- ◆ **OBJECTIVE: TO EXPAND SPACE EDUCATION ACTIVITIES USING THE EXISTING FRAMEWORK FOR SPACE COOPERATION**
- ◆ **STRATEGIES:**
  - **Focus on primary and secondary school teachers and children**
  - **Support education initiatives taken within the framework of Asia-Pacific Regional Space Agency Forum (APRSAF)**
  - **Support developing countries in other regions through initiatives by UNESCO and other UN entities and development agencies, e.g. JICA**
  - **Maintain cooperation with space-faring nations in space education through International Space Education Board (ISEB)**
  - **Contribute to send Japanese students to ISU every year**



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# Asia-Pacific Regional Space Agency Forum (APRSAF)

## ★ APRSAF Space Education and Awareness Working Group

☆ **Membership:** Australia, Bangladesh, Cambodia, India, Indonesia, Japan, Kazakhstan, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, Vietnam, AIT, UNE, UNESCO, UNCOPUOS, UNOOSA

### ☆ **Water Rocket Event (Host country)**

1st: Kitakyushu, Japan, Oct.05; 2nd: Jakarta, Indonesia, Dec.06;  
3rd: Bangalore, India, Nov.07; 4th: Ha Noi, Vietnam, Dec.08;  
5th: Bangkok, Thailand, Jan.10; 6th: (planned) Melbourne, Australia, Nov.10

### ☆ **Poster Contest (Theme and host country)**

1st: “Importance of Space”, Jakarta, Indonesia, Dec.06  
2nd: “50 Years in Space”, Bangalore, India, Nov.07  
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# United Nations Educational, Science and Cultural Organization (UNESCO)

- ☆ Space education workshops held in multiple cities of:
  - Colombia (Dec.05 & May 09), Vietnam (Mar.06), Tanzania (May 08), Philippines (Feb.10), Ecuador (May 07 & Jun.09),
- ☆ Regional Space Camps:
  - Ibarra, Ecuador (May 08), Salinas, Ecuador (Jun.09), Peru (Jun.09)
- ☆ World Space Week: Water rocket events in:
  - Argentina, Brazil, Colombia, Ecuador, Nigeria, Philippines, Vietnam



Space Education Event : Space Adventure 2009 in Baranquilla, Colombia



Space Education Event: Space Camp in Lima, Peru



Space Education Event in Cebu, the Philippines

# Collaborations outside Asia and the Pacific

## ★ Through regional mechanisms for space cooperation

- ★ Europe: ESA-Japan Annual Meeting

- ★ Latin America & the Caribbean: Space Conference of the Americas (CEA)
  - Support hands-on activities, e.g. water rocket activities

## ★ Through cooperation with Japan International Cooperation Agency

- ★ Africa: as part of “Practice of Science Education for Secondary School” training programme organized by JICA

- Introductory session on space education for secondary school science teachers (24 teachers from 9 countries from 2006 to 2008: Kenya, Gambia, Ghana, Lesotho, Malawi, Namibia, South Africa, Tanzania and Uganda)

- Sending Educational Materials to Nigeria in 2009.



Nigeria



Tanzania



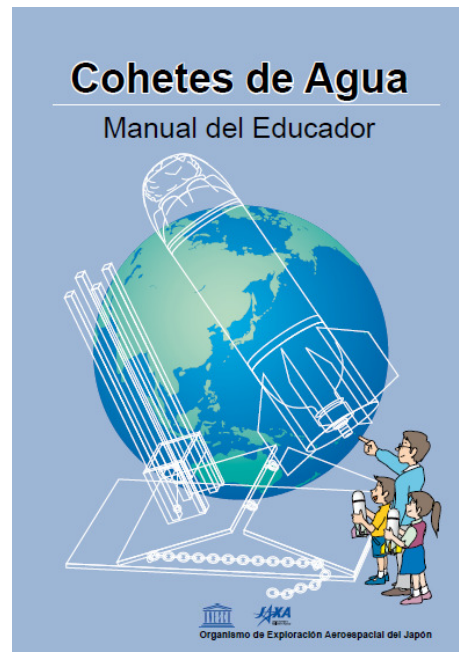
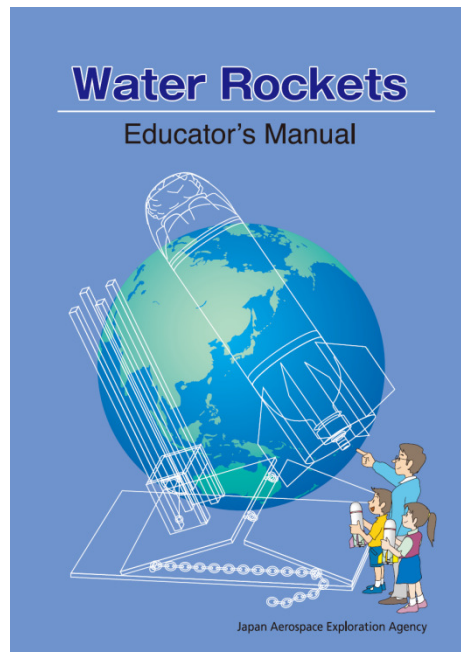
Peru



# Supporting Water Rocket Activities around the World

<Educator's Manual for Water Rockets and DVD>  
Japanese, English and Spanish

<Wiki site for water rocket information, materials & discussions>  
<http://wiki.vssec.vic.edu.au/waterrockets/moin.cgi>



## APRSAF Water Rocket Workshop Wiki

### Welcome to the Water Rocket Wiki

The Victorian Space Science Education Centre was host to the APRSAF International Water Rocket Education Workshop in June/July 2008.

This Wiki was created to provide a place to share the ideas and information which flowed from that workshop.  
We welcome contributions from anyone with an interest in using water rockets in education.  
**Please read Using this Wiki before adding material.**

The Water Rocket Workshop was supported by:-



# Supporting Water Rocket Activities around the World



# IYA2009 Japan Committee's Projects

## You are Galileo!

Distribution of "Galileoscope" for children, especially for those in Asian countries. "Galileoscope" is a small telescope that is the same size that Galileo Galilei used for his observations.



## Asian Mythology and Legend of Stars and Universe

We aim to collect and edit the East Asian legends and traditional stories relating to stars and universe in the East Asian countries and regions. The final goal is to publish attractive books of East Asian star legends for the public and teachers so that Asian people and children can enjoy those stories in schools, planetariums, and in their homes.



Workshop in Tokyo

## Solar Eclipse

We distributed 58,000 special solar filters (sunglasses) to safely observe solar eclipse with a technical manual and observation program for teachers and children.



**OTHERS;** book fair, Astronomical club summit 2008, Galileo-kun and his friends, Dark Skies Awareness, Astronomical Education Symposium 2009 , etc

# TOTAL SOLAR ECLIPSE, 22 JULY 2009

## SPECIAL EDUCATIONAL EVENTS

*~ For children to share and enjoy a rare natural phenomenon ~*

### ● Live transmission of solar eclipse images

- Using JAXA's Communications Satellite, "KIZUNA" (or "WINDS", Wideband InterNetworking engineering test and Demonstration Satellite)
- Real-time transmission from the Ogasawara (Bonin) Islands to the mainland



At Tamarokuto Museum  
with 1,300 students



Ogasawara Elementary School,  
with 47 students

### ● Collection of photographs of the streaming sunbeams during the total or partial solar eclipse

- 296 photographs sent to JAXA (13 from outside Japan)
- Photos on JAXA web site
- JAXA web access:  
6,923 hits recorded



Time series photo images of streaming sunbeams



# International Space Education Board (ISEB)

- ★ **Current membership: CNES, CSA, ESA, JAXA, NASA**  
Established in Oct. 05: Current Chair = ESA (Oct. 2009 ~ Oct. 2010)
- ★ **Objectives:** i) To increase science, technology, engineering and mathematics literacy achievement in connection with space;  
ii) To support the future workforce needs of space programs

ISEB: Heads of Education

Representative Working Group:  
Representatives of member agencies

Task Group for Student Programmes:  
Focal points of member agencies for  
student programmes



# International Space Education Board (ISEB)

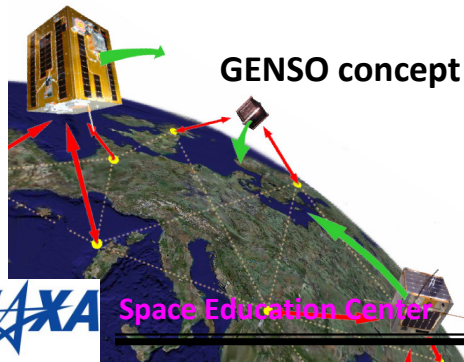
## ☆ Joint projects:

- i) Student programmes: IAC & COSPAR Assembly (Chair-led)
- ii) Global Education Network for Satellite Operations (GENSO) (ESA-led)
- iii) CanSat activities (ESA/JAXA/CNES-led)
- iv) International Participation in NASA Academy (NASA-led)
- v) Use of ISS as a learning platform (medium- to long-term goal)



Kimission Workshop Organized by Students for Local children

IAC 2009 Student Programme: Interactive Session with Heads of Agencies and Senior Representatives



NASA Academy

# Space Education Efforts of JAXA for Human Development

- **Human development: at the societal level and the individual level**
  - **Balancing the focus of efforts between the prosperity of the society and the enrichment of individual human beings**
- **Establishing a network of space education efforts**
  - **Coalition of forces to use space materials to help young people lead lives that are full of happiness and joy of living**
- **Space education for enhancement of family relations, community building, social development....and... global peace!**





**For further information, contact:  
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