

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, 52nd Session
5 June 2009, Vienna, Austria**

**Space Education Center,
Japan Aerospace Exploration Agency (JAXA)**

PRINCIPLES

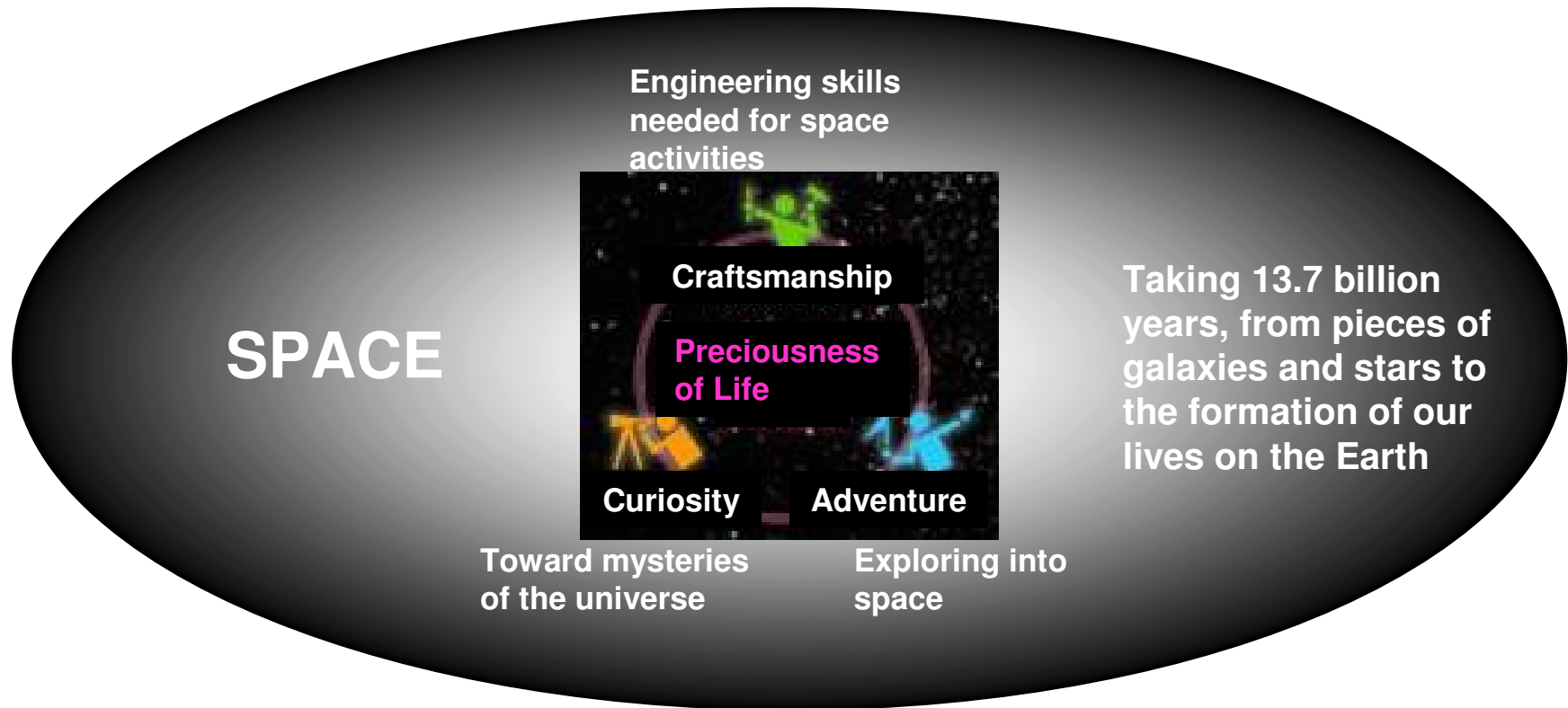
**Use the attractive space materials,
with positive influence on the minds of children to:**

- 1. Stimulate the curiosity of children,
cultivate their challenging spirit, and
inflame 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”**

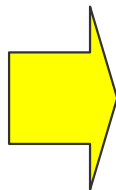
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WHAT IS SPACE EDUCATION?

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



Space Education

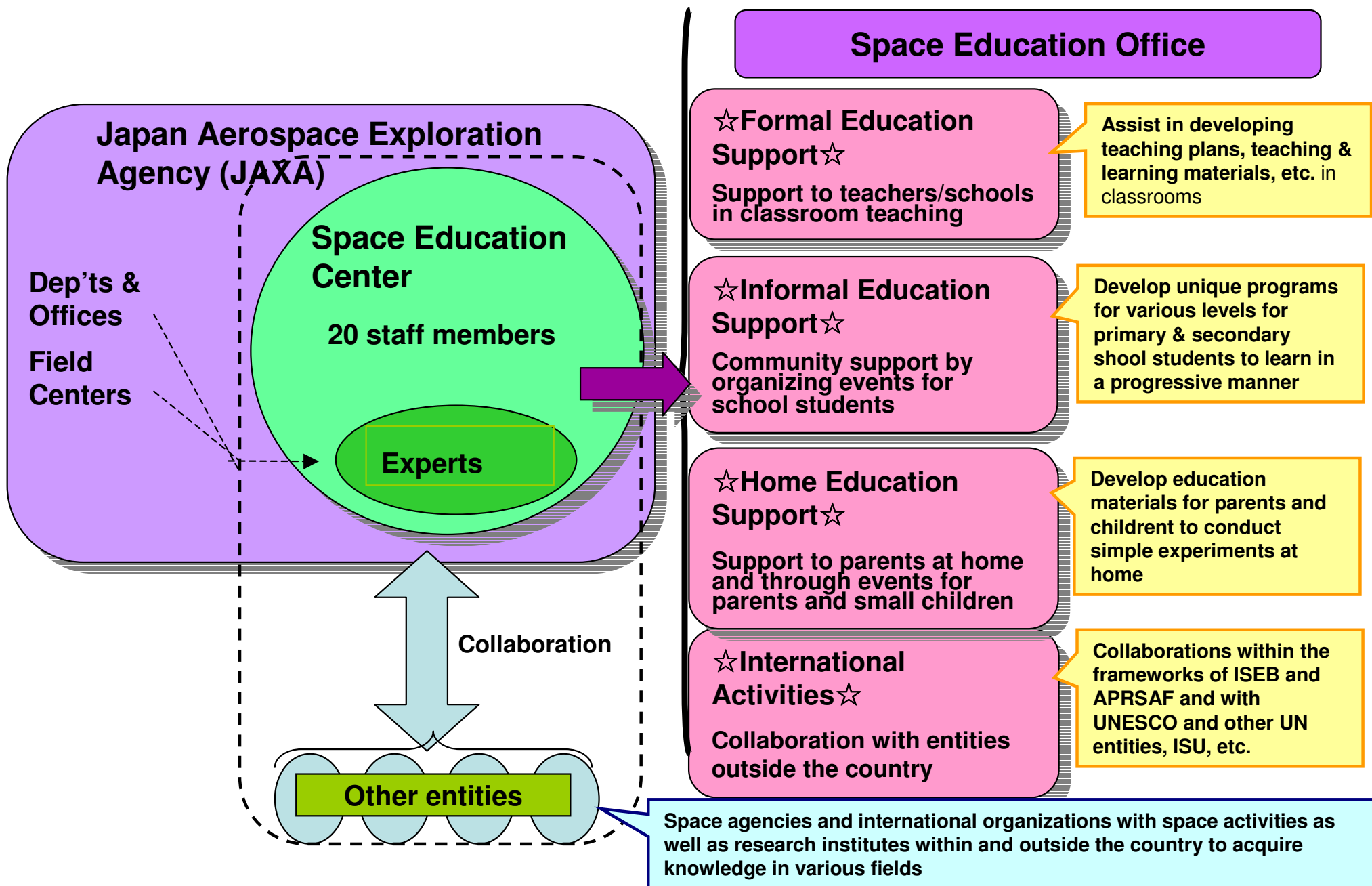


Stimulating children's curiosity toward the nature, universe and life while stressing the preciousness of life



Human Development using Space

MAIN AREAS OF ACTIVITY



Achievements: from FY 2005 to FY 2008

◆ Formal Education Support:

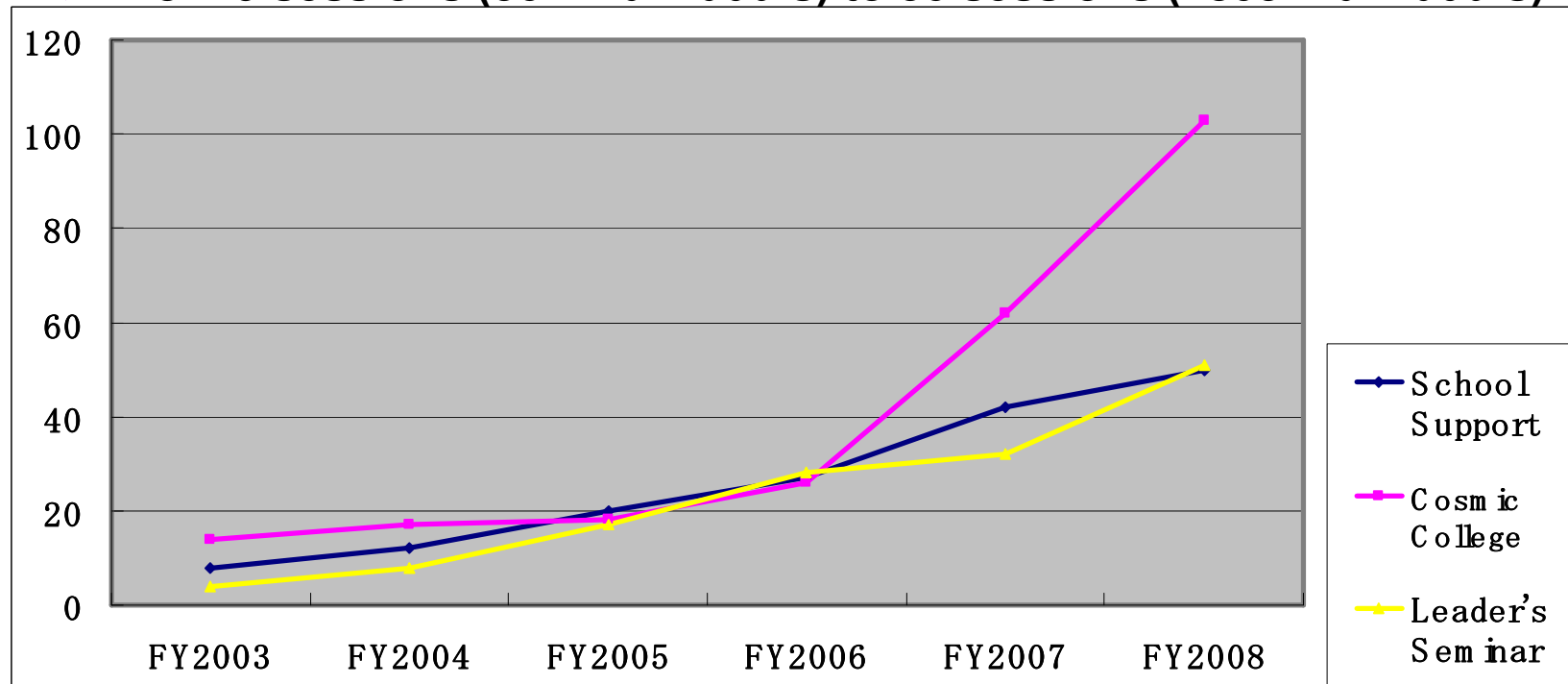
- from 20 schools (1543 students) to 50 schools (3009 students)

◆ Informal Education Support:

- from 18 events (1273 children) to 103 events (5342 children)

◆ Leaders Training:

- from 9 sessions (562 individuals) to 56 sessions (1805 individuals)



FY in Japan = from 1 April to 31 March

Space Education Center

SECRETS OF SUCCESS

School Support: Inspiring Teachers

< Working closely with teachers to plan activities to bring “space” into classrooms>

◆ BENEFITS ACHIEVED:

(Teachers) Acquired new and broader perspectives to teach assigned subjects by using “space” into the class

→ (Students) Spontaneous learning motivation; awakening of interest

◆ RESULTS:

More schools requesting collaborations with JAXA (transfers of the teachers who have collaborated with JAXA in the past)

More requests for teachers training using space materials



School Support: Space Education for Teachers in the Making

◆ BENEFITS ACHIEVED

Enthusiasm among students by discovering that space materials can be used in teaching various subjects, incld. non-science
(Nagasaki Univ., Faculty of Education)

◆ RESULTS:

More faculties of education seeking for collaborations with JAXA
(e.g. Shimane Univ.)



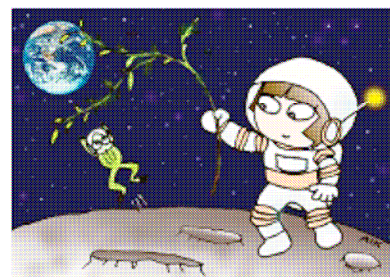
長崎大学 教育学部

(協力: JAXA 宇宙教育センター)

総合演習「子どもの未来と教育

—環境といのち、そして個性創造の視点から—

平成 20 年度も開講します!



「宇宙」の話題を利用した教育の方法を
考えてみよう

「宇宙」の話題は「理科」に限らない

「宇宙なんて、文系の私には関係ないし、難しそう」と敬遠するのは、もったいない! 「宇宙」の話題や題材は、理科だけのものではありません。国語や社会、音楽、家庭科などにまで、展開することができます。

たとえば、宇宙食のお話から、栄養、調理法、心を豊かにする食事、郷土の料理などまで広げる授業が可能です。

「宇宙」の話題は、学校で習う各教科と実際の生活を結びつけることを容易にしてくれるものでもあります。



せんせー!
宇宙人っているんですか?



子どもたちは
宇宙や自然や生きものが大好き!

どんな子どもも、宇宙や生きものの話にはとても興味を抱きます。まだまだ謎がいっぱいの「宇宙」の話題は、子どもの想像力や好奇心を呼び起こし、子どもの心を生き生きとさせるきっかけとなると期待できます。

また、宇宙の誕生から連続と続く命のリレー、「私たちは星のかけらから生まれだ」というシナリオは、子どもたちに「いのちの大切さ」を気づかせ、「生きる力」へと導きます。



「宇宙」に関連する教材について
実習しよう

「宇宙」に関する話題・題材・教材などを、具体的にどうやって、学校の授業に使うことができるのか、宇宙についての基本的な知識のほか、実習を通して学んでいきます。

「宇宙」の話題の各教科の「導入教材」としての利用法とか、総合的学習への応用例とか、役に立つ情報がたくさんあります。

水ロケットの工作や発射の体験など、楽しい教材もあります。



Informal Education Support: Local Communities as the Main Organizer

◆ BENEFITS ACHIEVED:

Sharp increase in the space education events **WITHOUT** increasing JAXA resource requirements;

Almost all local communities that held “Cosmic College” with JAXA want to continue similar events

COSMIC COLLEGE: On-site events with various programmes developed by JAXA for kindergarten kids to high-school students, to help in their growing process

◆ RESULTS:

<2006> 30 events



<2007> 60 events



<2008> 103 events



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:

“School of Space” model developed through
JAXA & Kokubunji-City,
Tokyo



Carried out by
Hino-City, Tokyo



Spreading to Nagasaki
and Okinawa



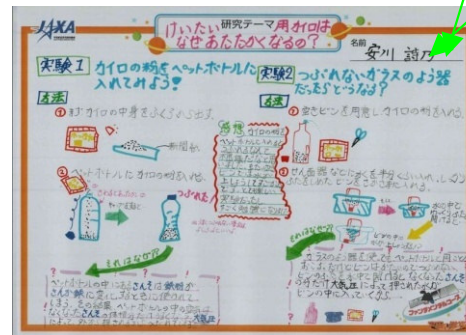
Home-learning materials



Entrance ceremony



Schooling



Final reports on experiments at home



Presentations &
Graduation ceremony

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)**



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, UNESCO, OOSA

☆ **Water Rocket Event**

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

☆ **Poster Contest**

- ✓ 1st: “Importance of Space”, Jakarta, Indonesia, Dec.06
- ✓ 2nd: “50 Years in Space”, Bangalore, India, Nov.07
- ✓ 3rd: “Wonders of the Universe”, Ha Noi, Vietnam, Dec.08
- ✓ 4th: “Our Universe – Great Discoveries” (proposed), Phuket, Thailand, Jan.10



APRSAF Water Rocket Events: 2005 ~ 2008

Asia-Pacific Regional Space Agency Forum (APRSAF)

★ APRSAF Space Education and Awareness Working Group

☆ Space Education Forum/Seminar (for teachers and/or students)

- ✓ Ha Noi, Vietnam (March 2006)
- ✓ Jakarta, Indonesia (December 2006)
- ✓ Colombo, Sri Lanka (September 2009)

☆ International CanSat Workshop

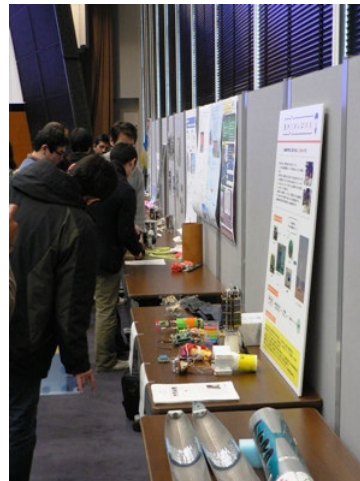
- ✓ Tokyo, Japan (February 2007)

☆ International Water Rocket Education Workshop

- ✓ Melbourne, Australia (June-July 2008)



APRSAF Poster Calendar 2009



CanSat Workshop



Water Rocket Education Workshop

United Nations Educational, Science and Cultural Organization (UNESCO)

☆ Space education workshops held in multiple cities of:

-- Colombia (Dec.05), Vietnam (Mar.06), Ecuador (May 07 & Jun.09),
Tanzania (May 08), Peru (Jun.09)

☆ Regional Space Camps:

-- Ibarra, Ecuador (May 08), Salinas, Ecuador (Jun.09)

☆ World Space Week: water rocket events:

-- Argentina, Brazil, Colombia, Ecuador, Nigeria, Philippines, Vietnam



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 Development Agency

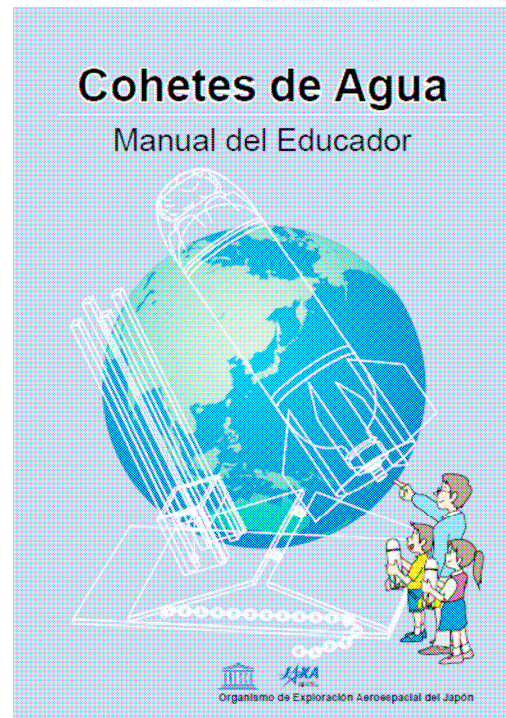
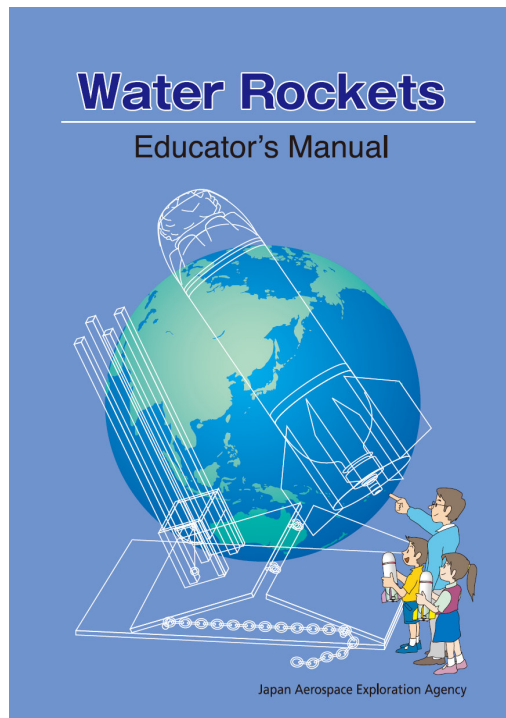
- ☆ Africa: as part of “Practice of Science Education for Secondary School” training programme organized by JICA
 - Introductory session on space education for secondary school science teachers (24 teachers from 9 countries from 2006 to 2008: Kenya, Gambia, Ghana, Lesotho, Malawi, Namibia, South Africa, Tanzania and Uganda)



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



International Space Education Board (ISEB)

☆ **Current membership: CNES, CSA, ESA, JAXA, NASA**

Established in Oct. 05: Current Chair = JAXA (Oct.08 ~ Oct.09)

☆ **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:

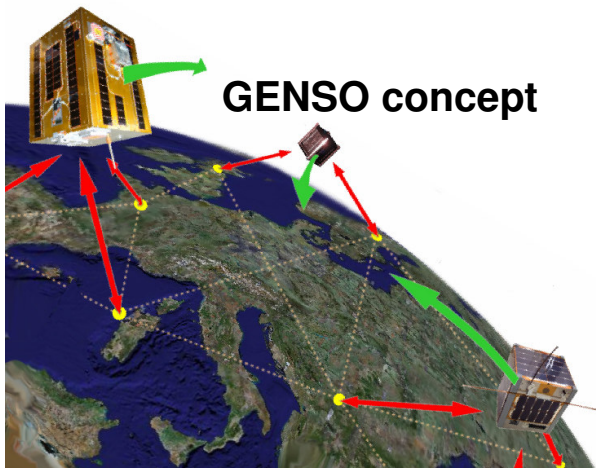
- i) Student programmes: IAC & COSPAR Assembly (chair-lead)
- ii) Global Education Network for Satellite Operations (GENSO) (ESA-lead)
- iii) CanSat activities (ESA/JAXA/CNES-lead)
- iv) International Participation in NASA Academy (NASA-lead)
- v) Use of ISS as a learning platform (medium- to long-term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



**IAC 2008 Student Programme:
Interactive Session with
Heads of Agencies and
Senior Representatives**



**Water Rocket
Workshops
Organized by
Students for
Local children**



GENSO concept



Image of IAC2009: Int'l Student Zone

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 and contact:

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