

How to Organize UNISEC in your region?

**Establish Local UNISEC in your region and
Start the UNISEC-Global together!**

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**University Space Engineering Consortium
(UNISEC)**

Outline



- Vision 2020-100
- What is UNISEC (in Japanese case)?
- What's important in UNISEC?
- How to start UNISEC?
- How to manage UNISEC?
- UNISEC-Global
 - Merit of participation
 - The 1st UNISEC-Global Meeting
- Examples of UNISEC Program

Vision 2020-100



By the end of 2020, let's create a world where university students can participate in practical space projects in more than 100 countries.



**Let's create your UNISEC in your region!
Let's establish UNISEC-Global together!**

What is UNISEC ? (Japanese case)



UNISEC is a non-profit organization to facilitate and promote practical space development activities at university level, such as designing, developing, manufacturing, and launching micro/nano/pico satellites and hybrid rockets.

What We Do

- Distribute R&D funds from space enterprise
- Engage UNISEC members with space companies
(technical/component/facility support, consulting)
- Coordinate joint experiment (such as CanSat, hybrid rocket, etc.)
- Work on legal issues (frequency acquisition, etc.)
- Work on safety issues
- Find launch opportunities
- Technology exchange, joint development/purchase
- Symposium/workshop/study group, conference
- Local outreach activities

Concept (Japanese case)

Three Pillars of UNISEC

1) Human Resource Development

Unique

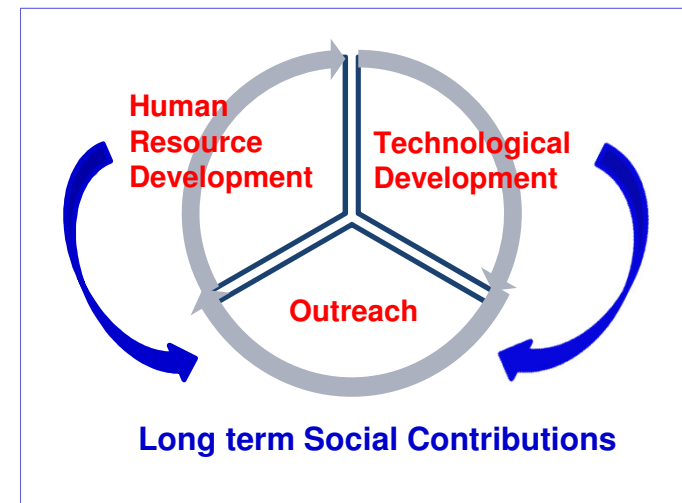
Never give up

Innovative

Sincere

Energetic

Challenging



2) Technological Development

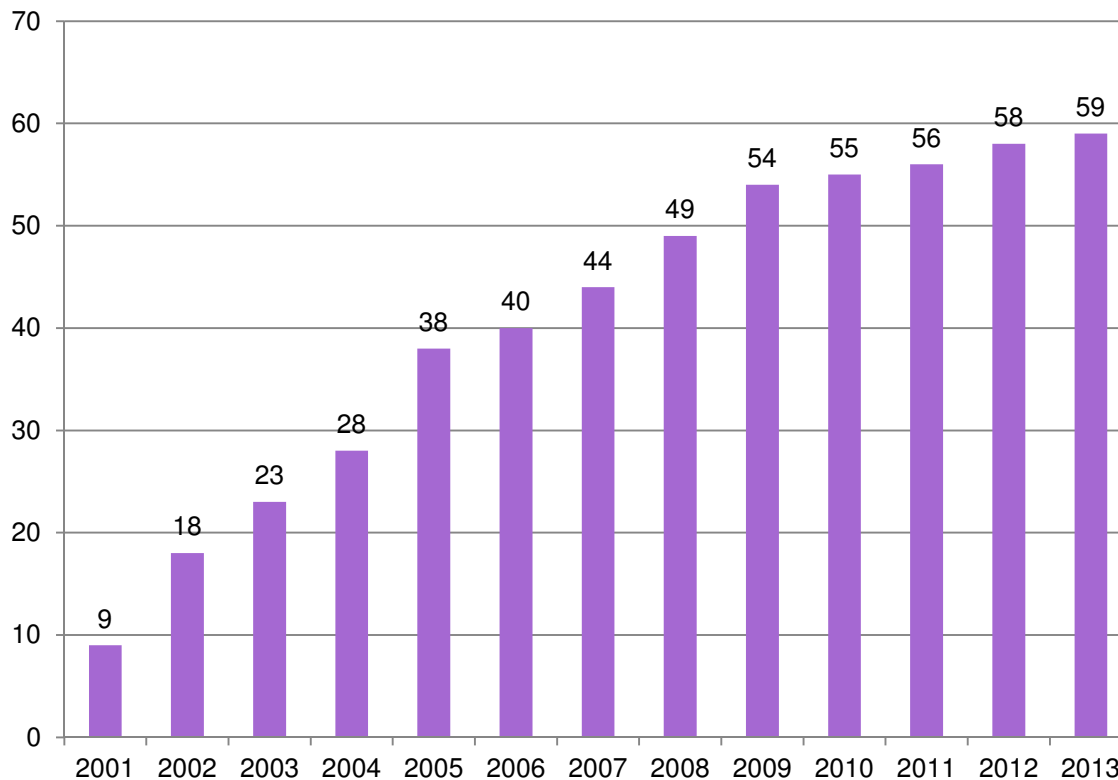
3) Outreach

UNISEC Development (Japanese case)



Number of Member Laboratories

Started with small number of enthusiastic universities



UNISEC Workshop

Organization of UNISEC (Japanese case)



UNISEC was established in 2002, and has facilitated university students to pursue practical space projects.

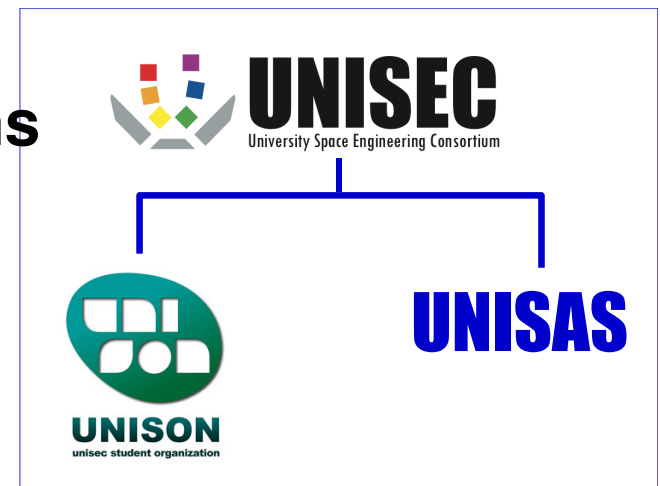
250 individual/corporate members

UNISEC student organization (UNISON) is governed by students under UNISEC's umbrella. (since 2003)

600 student members.

UNISEC Alumni Society (UNISAS) is organized by alumni. (since 2006) 90 members.

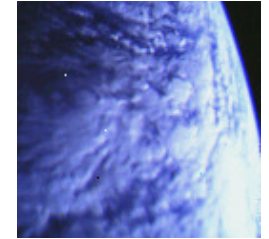
Committee for International Relations was formed in 2011. **Advisory Board for the committee from Industries** was formed in 2012.



Japanese Recent History of University Satellite Activities

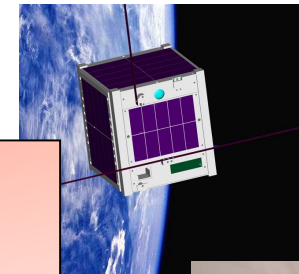
2012

20 Satellites launch in total (2012)



2003 Launch

Cubesat Launch (2003)



2002 UNISEC

CubeSat(2000-): Real Pico-satellite to be launched to orbit

2001

2000

CanSat (1999-): Sub-orbital(4km) experiment of quasi-real satellites. Real operation



1998

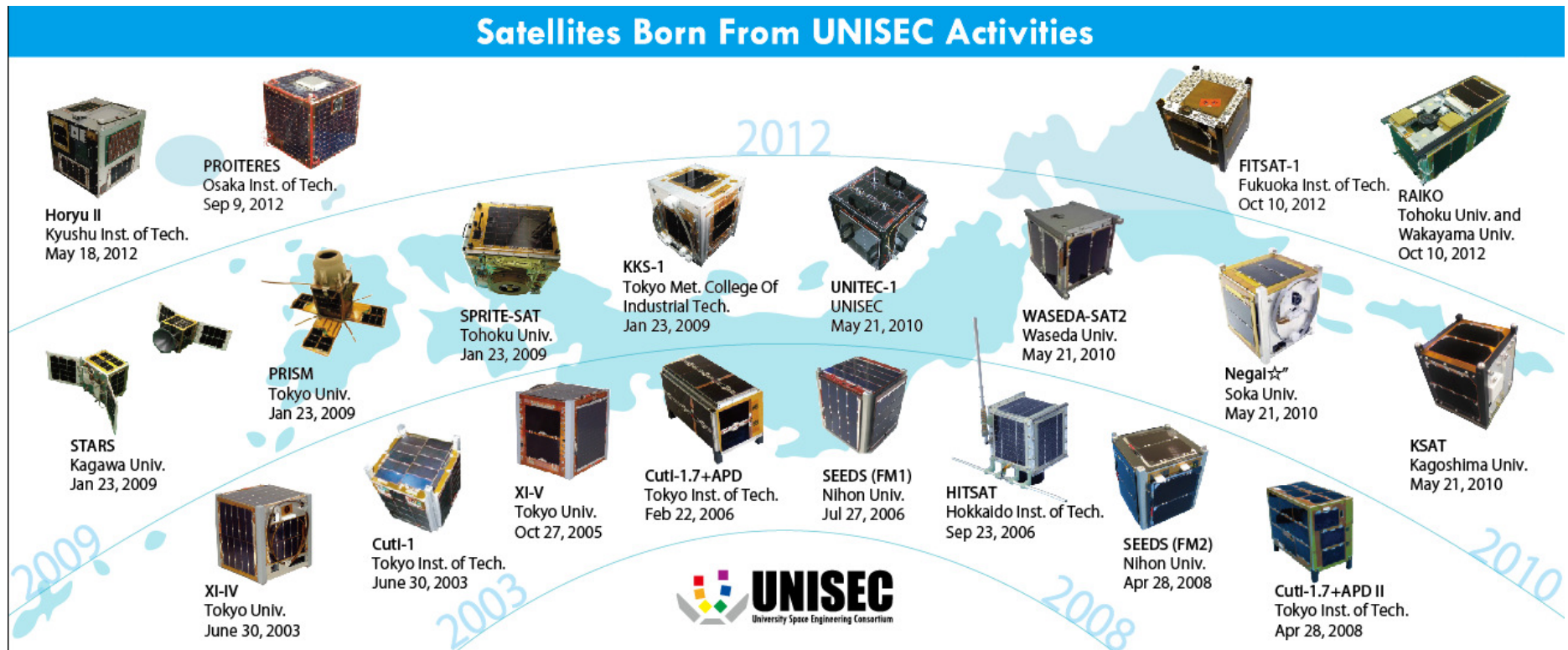
1993

USSS (*University Space Systems Symposium: 1998-*)

Real satellite projects formed by Japan-US students

Satellite Design Contest (1993-): 1st step paper work training

20 satellites were launched in 10 years in Japan



From CanSat to CubeSat, Nano-Satellite
From Educational purpose to Practical application

UNISEC Publication



- UNISEC Takumi Space Journal
 - <http://space-takumi.unisec.jp/en/>
- Books of Mission Idea Contest – IAA Book series
 - In corporation with International Academy of Astronautics (IAA)
- UNISEC Annual Report

Financial management (Japanese case)



- **Membership fees** – everybody makes contribution – “commitment”
 - Professors (must be individual supporters)
 - Students
 - Other individual supporters
 - Corporate members
- **Governmental subsidies**
- **Research fund from Industries**
- **Competitive funding resources** (R&D, Symposium, International affairs, etc)
- **Donation**

What's Important in UNISEC? (1)



Incremental Learning Step by step progress

- Study basic knowledge in paper project such as “Mission Idea Contest”
- Start from hands on training with CanSat, then CubeSat, Nano-satellite, then....

Real experiments (not only paper work)

- Learn many things such as project management skills, team work, systems engineering as well as technical knowledge and skills
- Appealing to potential sponsors

Sane Competitive Spirit (Rivals)

- Competitive atmosphere
- Collaboration in activities

What's Important in UNISEC? (2)



Decentralization

- Loose community to respect each group's culture and uniqueness
- Each university can be a center for something. Seek and develop your strengths and respect others' strengths.

Reciprocity - Help yourself first, then, help each other

- Start from your own efforts.
- Teaching others is beneficial for you, too.

Creativity

- No resources does not mean no power.
- There are many things that you can do without budget.
- There are many ways to raise funds. Don't wait for funding, find your own. Be creative!

How to start UNISEC?



- **Find 2 or more than 2 universities to form “consortium”**
 - University membership requires commitment of both students and professors
- **Organize a workshop** in your region to seek players, supporters, financial resources, information and anything necessary for launching UNISEC-xxxx (your country/region).
- **Find/make funds**
 - Stable income is important. Membership fees should be discussed.
- **Find suitable program to join or start**
 - Current ability and availability in your region should be examined.
- **Establish UNISEC-xxxx**
 - register to get legal status if necessary.

How to manage UNISEC in your region?



- Make a list of member universities and members
 - Both professor and student representative must register to become university member. (In Japanese case)
- Set up mailing list, face book or adequate tools for internal information dissemination.
- Create a website to publicize activities.
- Organize annual workshop to report each university's progress and to exchange technical information.
- Consider fund raising activities.
- Join existing UNISEC programs provided by Japan (also can propose new program).

UNISEC-Global



- When several UNISEC-xxxs are established, a new organization called UNISEC-Global would be established together.
- The roles of UNISEC-Global will be discussed and defined together in the 1st UNISEC-Global Meeting held in Nov 23-24, 2013.
- **After establishing your UNISEC in your region, you can join the UNISEC-Global.**

Merit to participate in UNISEC-Global



- Can learn from other countries how the space education is successfully provided
- Can share problems and discuss countermeasures in proceeding with domestic activities
- Get more motivation with positive "rivalry" feeling against other countries
- Get information of international joint projects and opportunities

What we can do altogether will be discussed in the UNISEC-Global meetings and if appropriate, some actions plans will be discussed.

The 1st UNISEC Global Meeting



- Date: November 23 and 24, 2013
- Venue: University of Tokyo (Takeda Hall, 5th Fl., Takeda Building, Asano Campus)
- UNISEC-Japan plans to invite one student per one (potential) local UNISEC from about 10 regions to Tokyo to attend the 1st UNISEC-Global Meeting as well as the 5th Nano-satellite.
- The student to come needs recommendations from (potential) local UNISEC in his/her home country.

<http://www.unisec-global.org/meeting1.html>

The 1st UNISEC Global Meeting



Tentative program (subject to change)

-November 23 (Sat.)

09:30-10:30 Opening Session (keynote and guest speakers)

10:30-18:00 [Pre-MIC3](#) workshop

-November 24 (Sun.)

09:00-09:30 Opening remarks

09:30-10:30 Reports-1 (local CanSat activities)

10:30-10:50 Break

10:50-11:50 Reports-2 (UNISEC-related activities)

11:50-12:30 Reports-3 (Discussion themes)

14:00-16:00 Discussion about the structure, functions and roles
of UNISEC-Global

16:00-16:30 Break

16:30-17:30 Report on the results of the discussion about UNISEC-
Global and adoption of founding principles for its establishment

17:30-18:00 Follow-up and conclusion

<http://www.unisec-global.org/meeting1.html>

Examples of UNISEC Programs provided by Japan



Vision 2020-100: By the end of 2020, let's create a world where university students can participate in practical space projects in more than 100 countries.

<Examples of programs to facilitate activities>

- 1) CanSat Leader Training Program (CLTP)
- 2) Nano-Satellite Mission Idea Contest (MIC)
- 3) Nano-Satellite Symposium
- 4) **UNISEC-Global Meeting (NEW!)**



**Join existing UNISEC programs.
Propose new programs for the better futures.**

1) CanSat Leader Training Program (CLTP)



CLTP was established in 2011 to contribute to capacity building in space technology and to improve teaching methods in space engineering education.



- A one month course gives training through whole cycle of CanSat development including sub-orbital launch experiments
- Participants are expected to teach their students CanSat program in their countries
- Aiming at “international CanSat education network”

<http://www.cltp.info>

CLTP Participants



CLTP1 (Wakayama Univ. in Feb-March, 2011)

12 participants from 10 countries, namely Algeria, Australia, Egypt, Guatemala, Mexico, Nigeria, Peru, Sri Lanka, Turkey, Vietnam.



CLTP2 (Nihon Univ. in Nov-Dec, 2011)

10 participants from 10 countries, namely Indonesia, Malaysia, Nigeria, Vietnam, Ghana, Peru, Singapore, Mongolia, Thailand, Turkey.

CLTP3 (Tokyo Metropolitan Univ. in July-August, 2012)

10 participants from 9 countries, namely Egypt (2), Nigeria, Namibia, Turkey, Lithuania, Mongolia, Israel, Philippines, Brazil

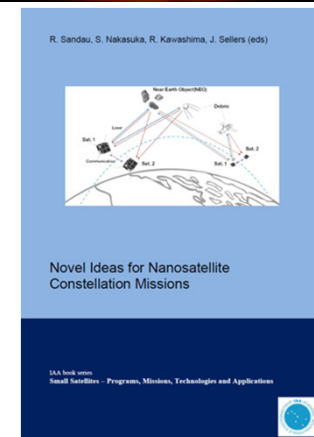
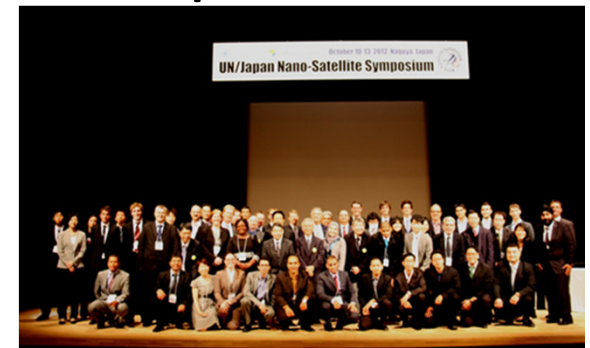
CLTP4 (Keio Univ. in July-August, 2013)

9 participants from 6 countries, namely Mexico (4), Angola, Mongolia, Philippines, Bangladesh, Japan

2) Mission Idea Contest (MIC) for Micro/nano Satellite Utilization



- Objective: Encourage innovative exploitation of micro/nano-satellites to provide useful capabilities, services or data.
- Regional coordinators: 33 regions
- MIC1 in Tokyo, March 14, 2011
- MIC2 in Nagoya, Oct. 10, 2012
 - 72 applications from 31 countries
 - Publication in cooperation with IAA



<http://www.spacemic.net>



Pre-MIC3 Workshop



- Match-making event for potential satellite users who are looking for solutions and satellite developers who can engineer the user's idea.
 - Target satellite(s): weighing less than 50 kg
 - The formed team (user + developer) will be encouraged to apply for MIC3
- Important Information
 - Date: Nov 23, 2013 during the 1st UNISEC Global Meeting scheduled in Nov 23-24, 2013
 - Venue: University of Tokyo, Tokyo, Japan
 - **Application Deadline: August 20 (for users)
August 31 (for developers), 2013.**
 - Organizer: University Space Engineering Consortium (UNISEC)
 - Sponsor: Japan Science and Technology Agency (JST), Mitsubishi UFJ Foundation, UNOOSA-BSTI

3) Nano-satellite Symposium

- 1st Symposium (June 10–11, 2010, Tokyo)
 - 300 participants from 13 countries
- 2nd Symposium (March 14, 2011, Tokyo)
 - 85 participants from 21 countries (March 15–16 was cancelled for earthquake)
- 3rd Symposium (Dec 12–13, 2011, Kitakyushu)
 - 220 participants from 31 countries
- 4th Symposium (Oct 12–13, 2012, Nagoya)
 - 290 participants from 43 countries



5th Symposium (Nov 20–22, 2013, Tokyo)

<http://www.nanosat.jp>

4) UNISEC Global Meeting



- Local UNISEC representatives get together for exchanging information, proposing projects/programs, sharing opportunities and challenges.
- The 1st UNISEC Global Meeting will be held in Tokyo, in Nov.23-24, 2013.
- It may become annual UNISEC Global Meeting, and take place in different places. (under discussion)

Global network

(MIC:32, CLTP: 22 countries) 38 countries in total



★ : CLTP participant ★ : MIC coordinator

Contact



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