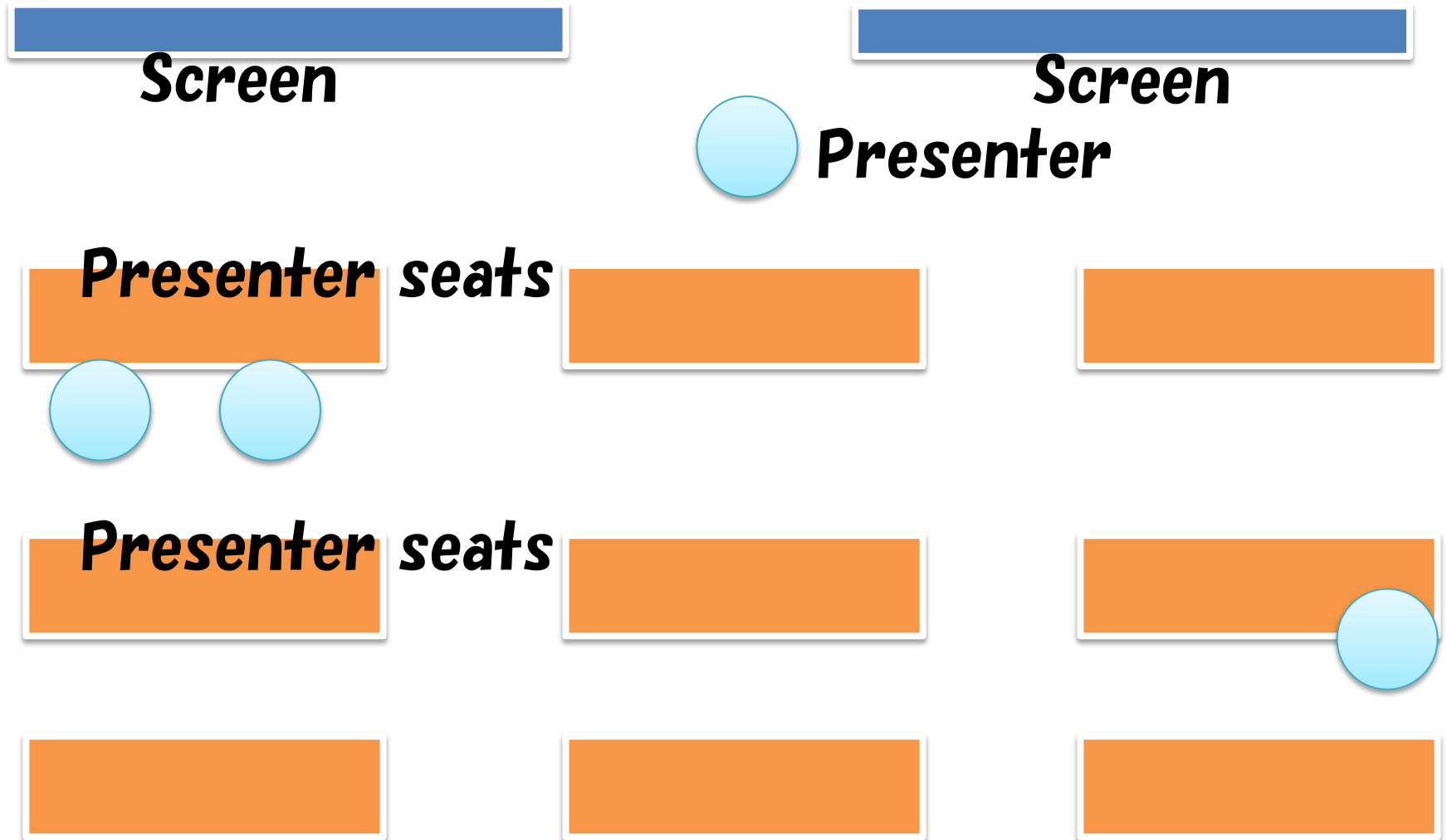


***Presenters, please have the presenter seats of Left and Front side.***



***UNISON GLOBAL***



# ***Self introduction***

**Yuta Kusano**



**Xiao MA**



***Do  
You  
Enjoy  
Staying  
in JAPAN ?***



***Have  
You  
Eaten  
Japanese  
Foods ?***











***Just Wait***

***Why did you come  
to JAPAN ?***

***You attend to  
UNISEC / UNISON GLOBAL,***

***You make presentation,  
You share information,  
You have interaction,***



***We will promote  
Student Space  
Development Activities,***

***Are you ready?***

***Let's start to  
UNISON GLOBAL!!***

# **UNISON JAPAN Activities**

***Yuta Kusano, Student Representative of  
UNISON Japan (Tokai University)***

***Xiao Ma, Student Representative of  
UNISON Japan (Tsukuba University)***



# Outline

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- 1. What is UNISON?**
- 2. Past – 12 years –**
- 3. Present – 12 months –**
- 4. Future – In 2020 –**
- 5. Conclusion**

---

***1. What is UNISON ?***

# **What is UNISON ?**

**UNISON is  
the student organization  
of UNISEC**

**UNISEC(University Space Engineering Consortium)**

**UNISON(UNISEC Student Organization)**

# **UNISEC**

**is a non-profitable organization  
to support practical space development activities  
in universities and colleges,  
such as small satellite and hybrid rockets.**

**UNISEC(University Space Engineering Consortium)**

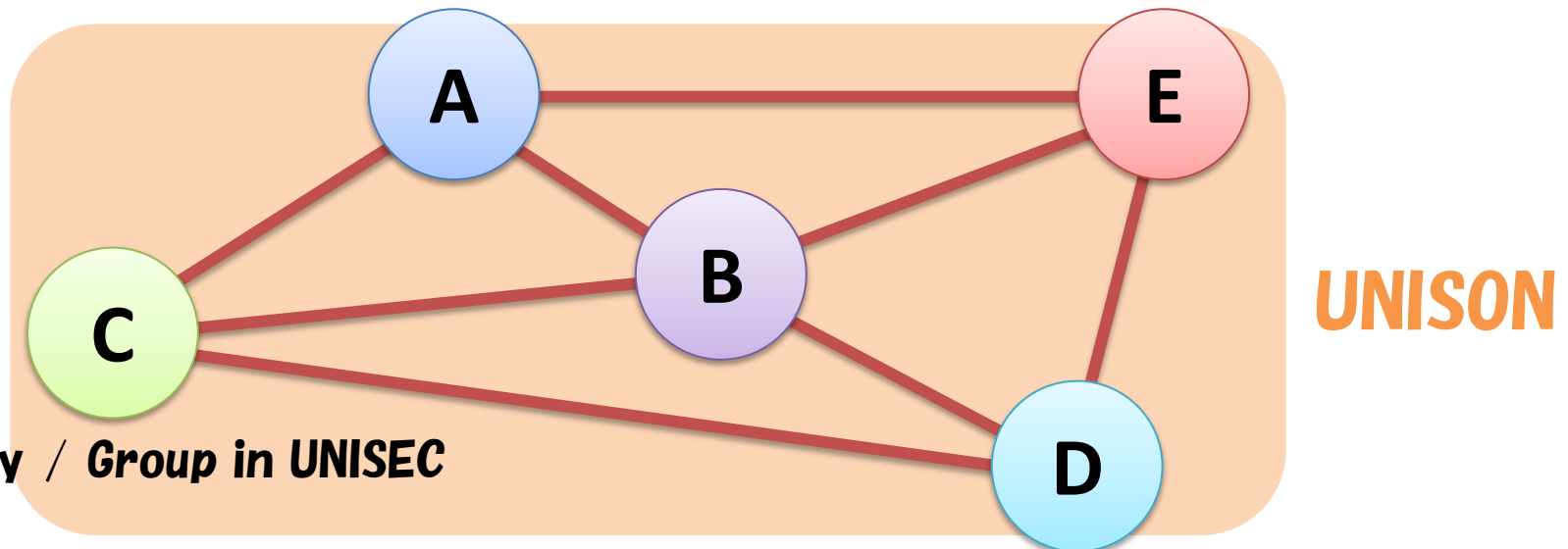
**UNISON(UNISEC Student Organization)**



# What is UNISON ?

**UNISEC student organization, UNISON**

**– Students in UNISEC belongs to UNISON**



**Limited Resources, Limited Technologies in each university / group**

**Generation of “Competition” and “Cooperation”**

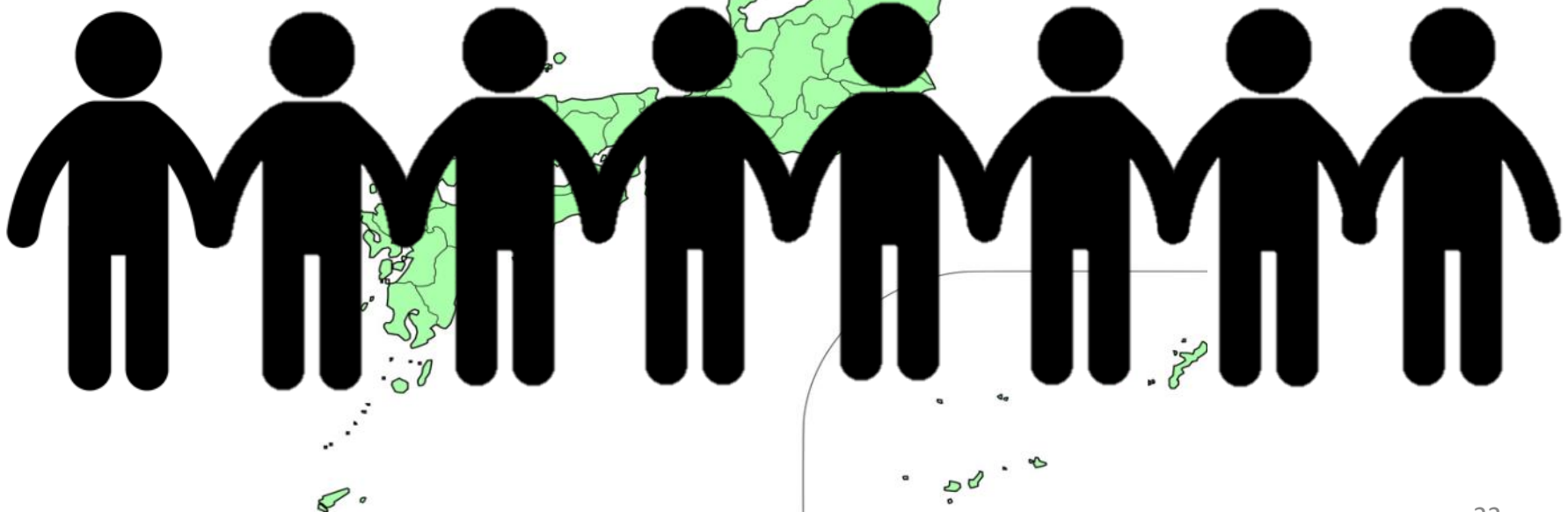
**Improve technologies and Motivate students**

# ***What is UNISON ?***

## ***Members***

# ***800***

***Throughout Japan from Hokkaido to Kagoshima***



# **What is UNISON ?**

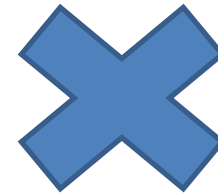
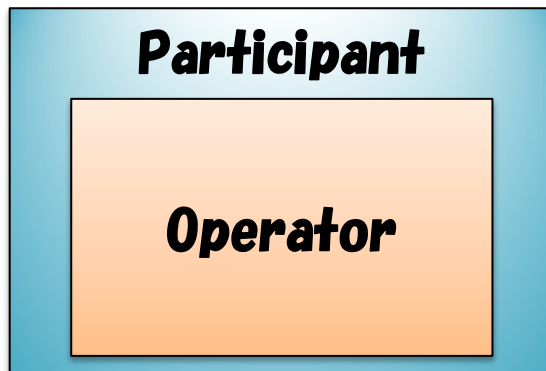
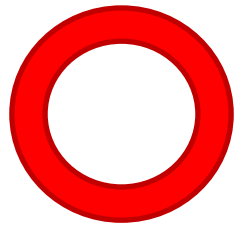
**Value of UNISON**

**- 互助の精神 -**

***Participants = Operator***



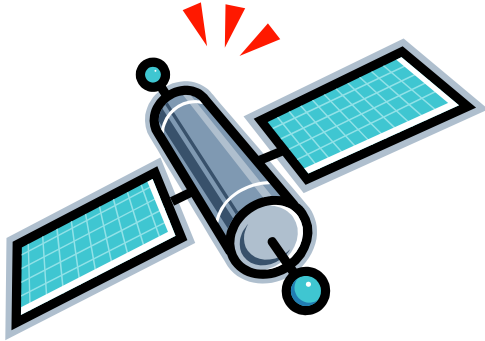
**“互助の精神” is  
“Spirit of 互助”  
What is “互助” ?**



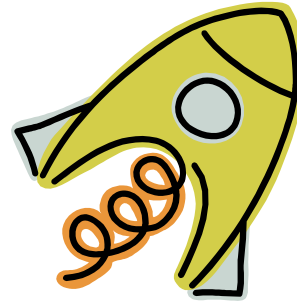
# What is UNISON ?

## Working Group

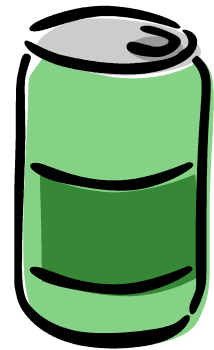
Satellite



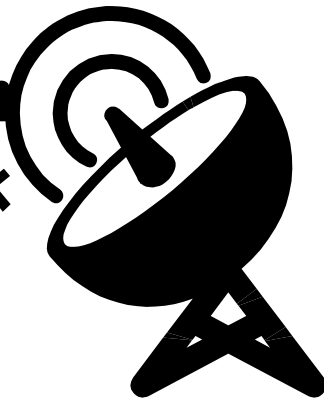
Rocket



CanSat



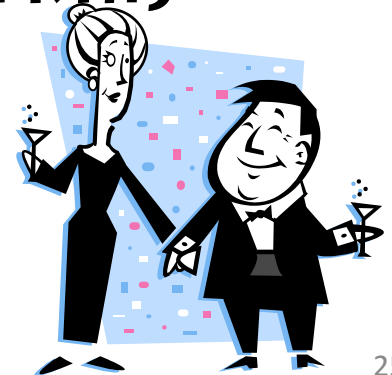
Ground  
Station  
Network



Outreach



Networking

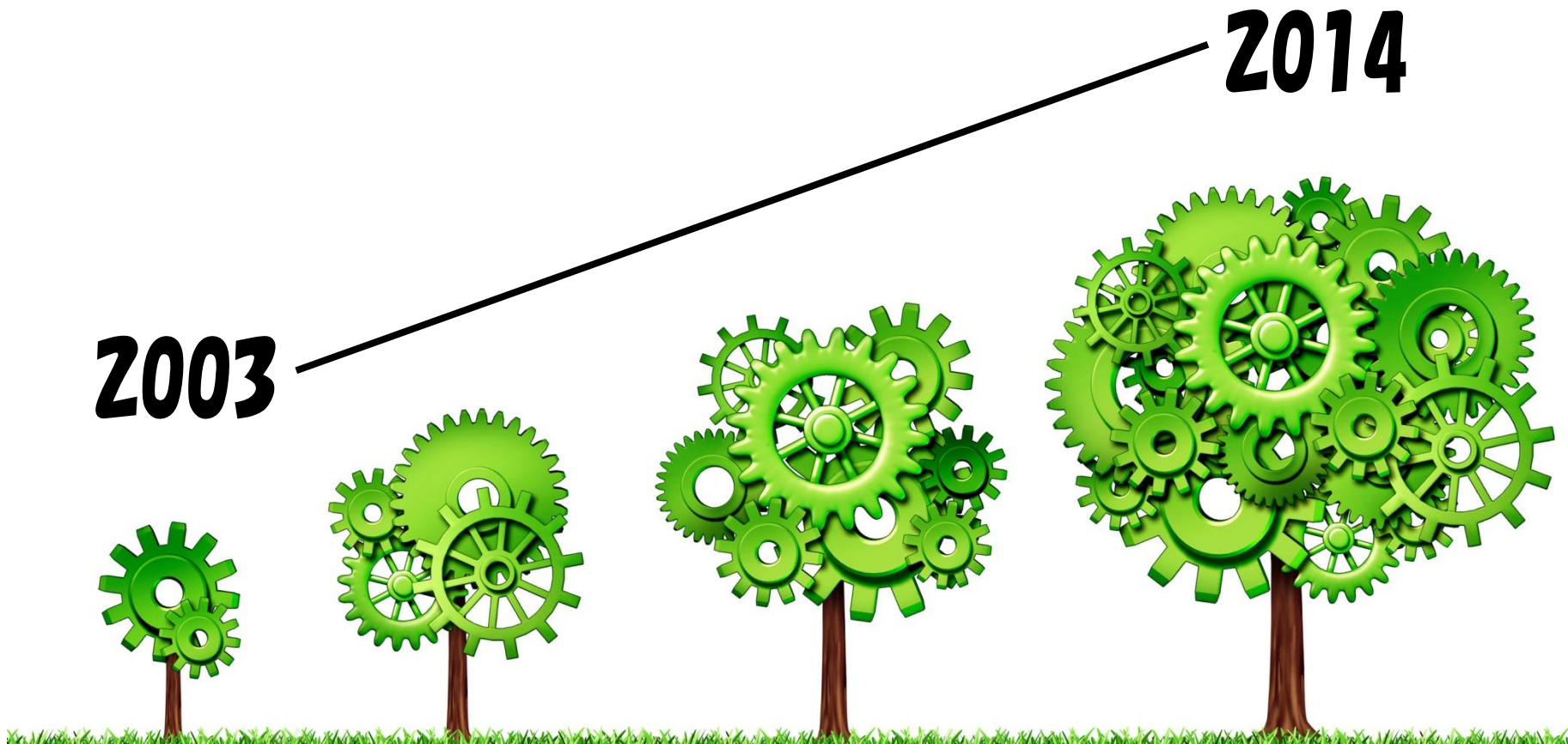


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## ***2. Past-12years-***

# **What is UNISON ?**

**UNISON is 12 years old**





# 2. Past-12years-

# 29

## UNISECから生まれた衛星たち

### Satellites Born From UNISEC Activities





## 2. Past-12years-

# 130



## 2. Past-12years-

# 300



---

# ***3. Present-12months-***

### 3. Present-12months-

## **Summer      One-Year Plan      Spring**

- 1. General Meeting**
- 2. Noshiro Space Event**
- 3. ARLISS**

- 4. UNISEC GLOBAL**
- 5. Workshop**

**Autumn**

**Annual Report**

**Winter**




# 3. Present-12months-

## General Meeting

### What is “UNISEC General Meeting” ??

***General Meeting is a precious opportunity for all UNISEC (and of course UNISON) members to gather at the same time/place. General Meeting is like a symbol of the start in the year in UNISEC/UNISON.***





32

*Organizations*

191

*Participants*

# 3. Present-12months-

## Noshiro Space Event

### What is “Noshiro Space Event” ??

In Akita Prefecture were conducted of pencil rocket flight experiments, It is held as Japan space event in August. Student organizations make Rockets and Cansats for this event experiments or competitions.





**2403 meters high**







850

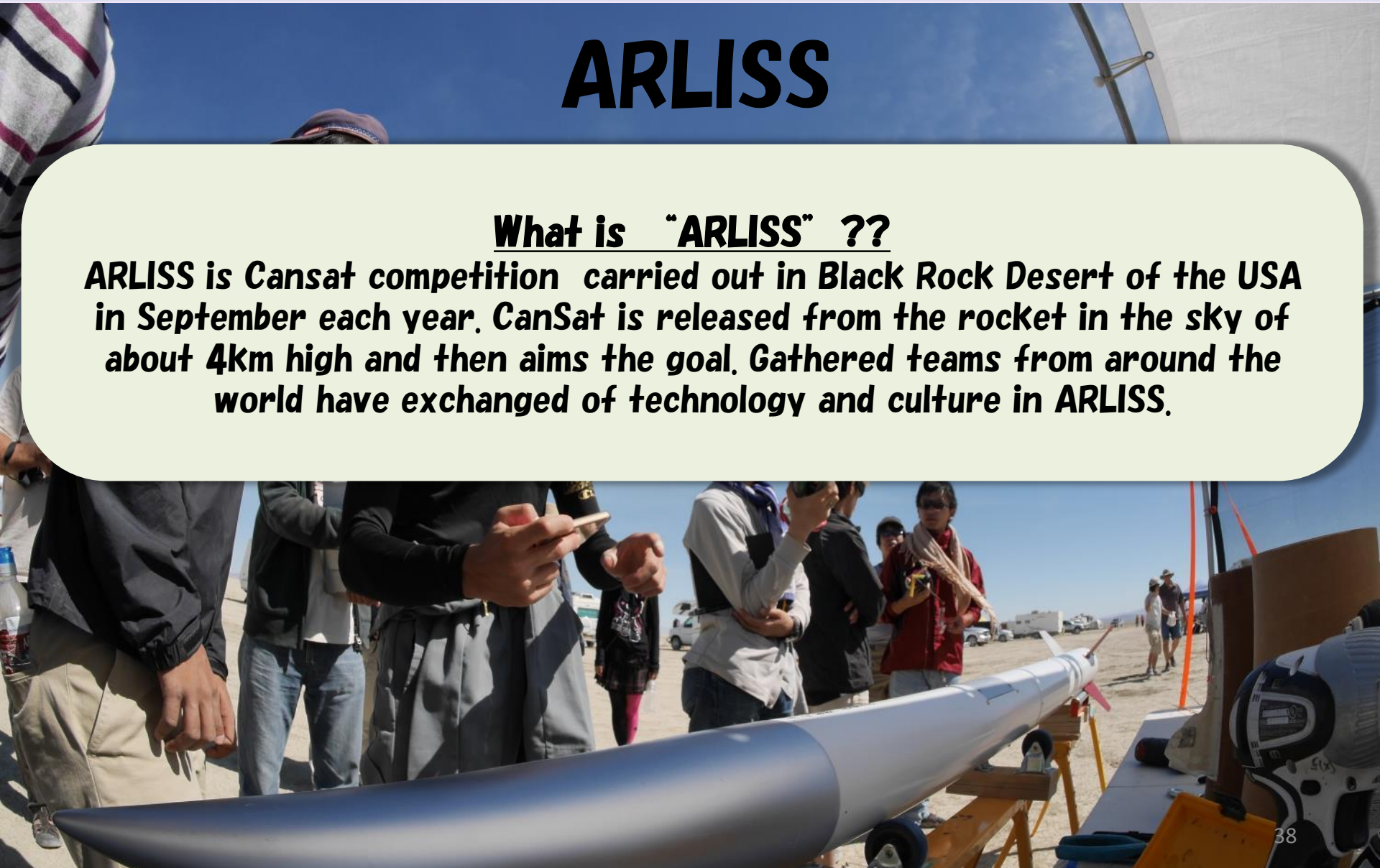
Students

# 3. Present-12months-

## ARLISS

### What is "ARLISS" ??

**ARLISS is Cansat competition carried out in Black Rock Desert of the USA in September each year. CanSat is released from the rocket in the sky of about 4km high and then aims the goal. Gathered teams from around the world have exchanged of technology and culture in ARLISS.**







# 3. Present-12months-

## UNISEC GLOBAL

### What is “UNISEC GLOBAL” ??

**UNISEC GLOBAL is a very big event that gathers space development officials from around the world. In this meeting, we make interaction and exchange information with participants.**







31  
Countries



1 1 2

Participants

# 3. Present-12months-

## Workshop

### What is “UNISEC Workshop” ??

**Workshop is also a precious opportunity for all UNISEC (and of course UNISON) members to gather at the same time/place. In Workshop we report our activities of this year.**





# ***4. Future-In 2020-***

# Future-Future Outlook ①-

**Competition**



**Cooperation**





# **Future-Future Outlook ②-**

## **Challenging Mission**





# UNISON Project



# M-II Cansat-Rocket Collaboration Project

## Member

**9** Univ. and **22** students attended the project.

## Object

Broke the highest altitude record of hybrid rocket in UNISON-Japan, **1300 m** etc...



# CanSat Mapping



<http://cansat.mapping.jp/>





# ***Future-Future Outlook ③-***

## ***Globalization***



---

# ***5. Conclusion***

# **Conclusion**

---

**1. What is UNISON?**

**2. Past – 12 years –**

**3. Present – 12 months –**

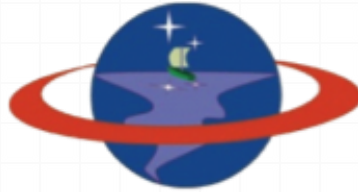
**4. Future – In 2020 –**

# Laboratories in KIT

UNISON GLOBAL  
Nov. 18<sup>th</sup> 2014

**Cho Lab**  
**Okuyama Lab**  
**Hiraki Lab**  
**Yonemoto Lab**





# La Place

Laboratory of Plasma, Laser, and Computational  
Electromagnetics



# La Place



- Cho Lab - Research

“Standardization of  
small satellite test”



- Toyoda Lab - Research

“Charging  
&  
Discharging”



- Iwata Lab -

Research

“Characteristics  
of Space Material”



<http://lunar-dream.com/join/messenger/>

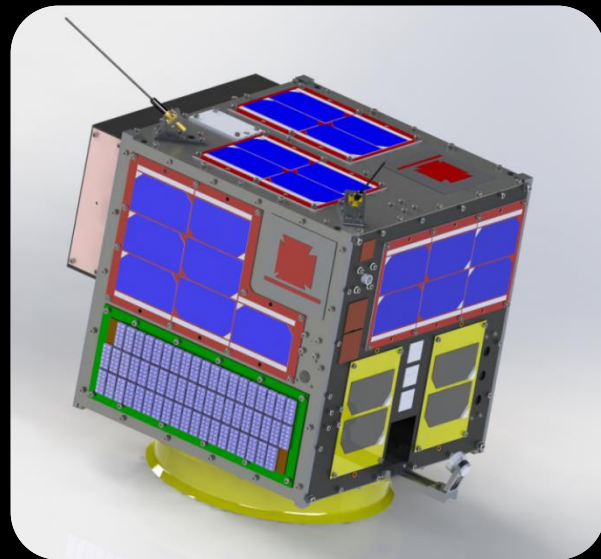


# Project

CanSat Project



Horyu Project



*World Competition*



*Develop real Satellite*





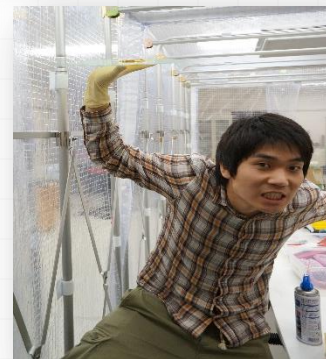
# Okuyama Laboratory





# Okuyama Laboratory !

D1(doctoral) 2  
M2(master) 3  
M1(master) 2  
B4(Bachelor) 3  
Research Student 1



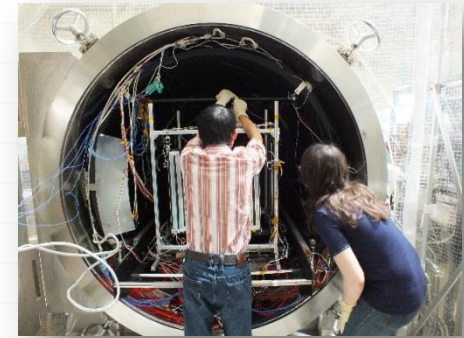
# Shinen2

## MISSION

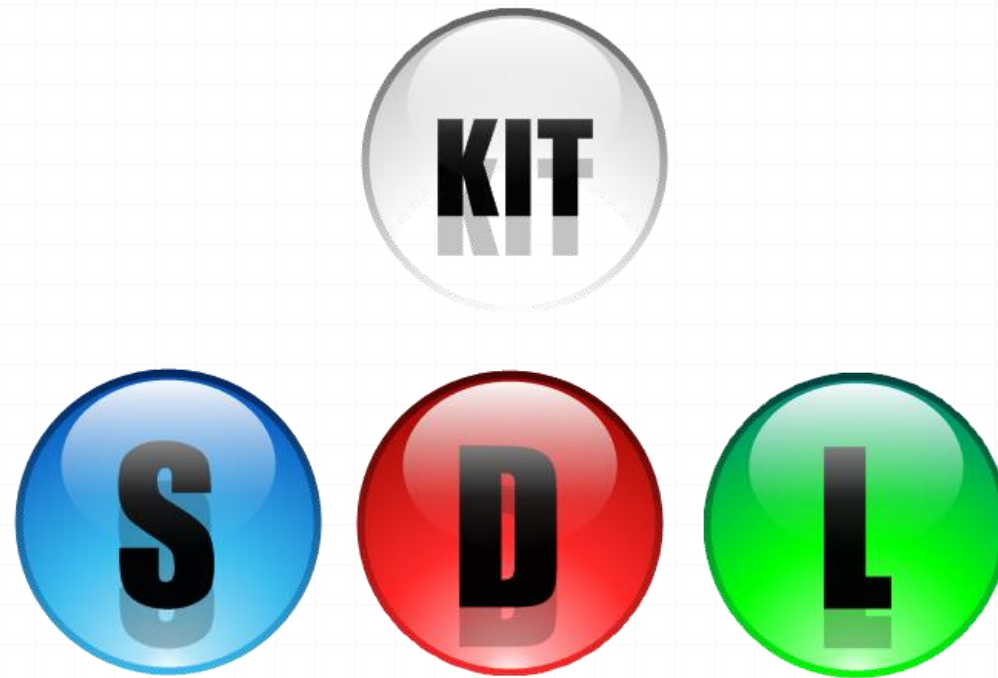
Demonstration of the deep space communication using the amateur radio band

The first use the CFRTP in space to the main structure material

Launch November  
30 ! !



Shinen2



***Space Dynamics Laboratory***





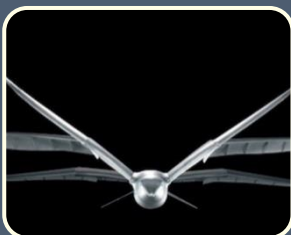
## ***We'll research whatever moves!***

### Representative research theme



#### **Parafoil**

- Aerodynamics of parafoil
- Guidance control method using parafoil



#### **Flapping robot(Ornithopter)**

- Development of ornithopter which is an aircraft that flies by flapping its wings.



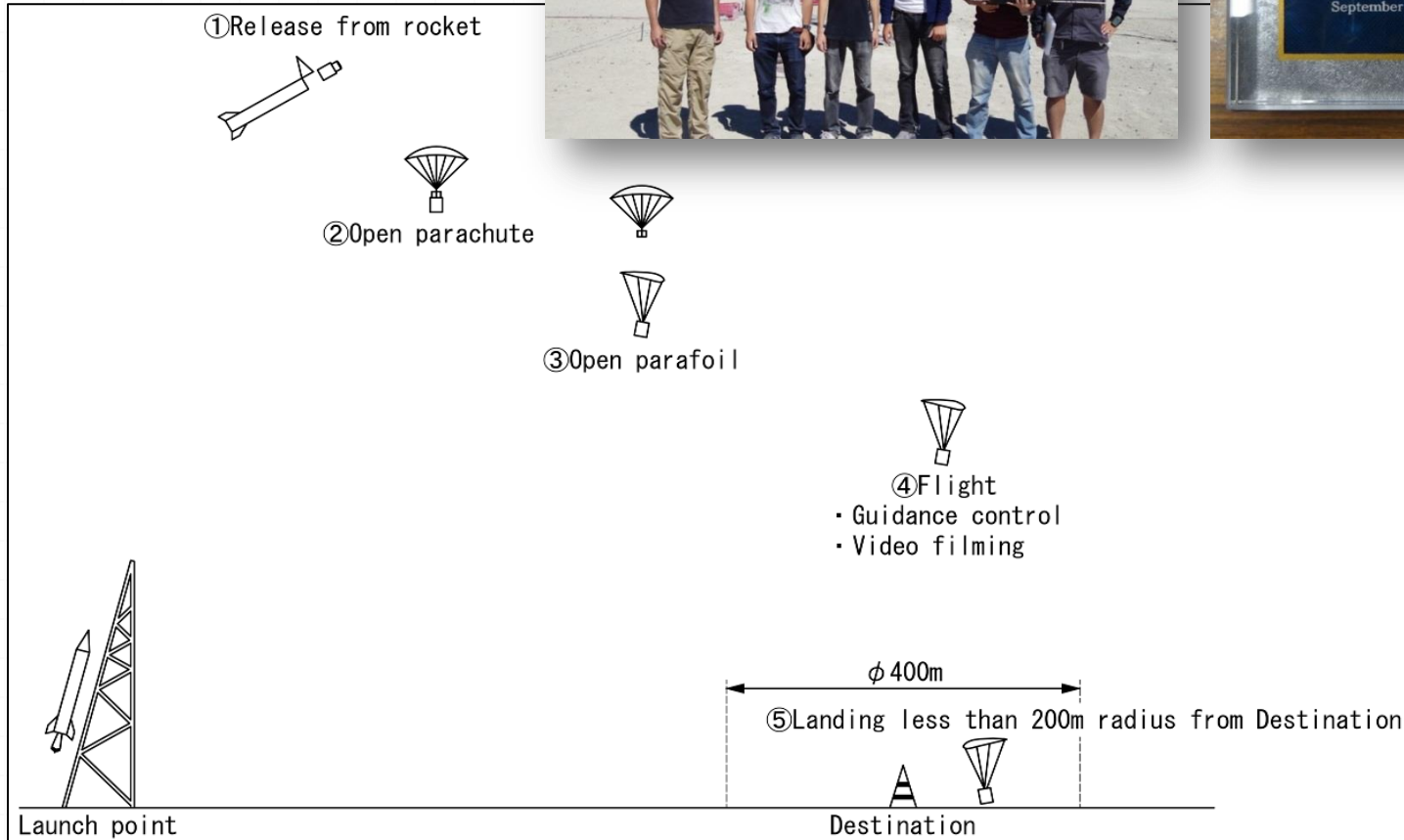
#### **Reentry capsule**

- Dynamic stability of reentry capsule



**CanSat-development team**

# KINGS



## Mission sequence

# Space Systems Laboratory

## Kyushu Institute of Technology

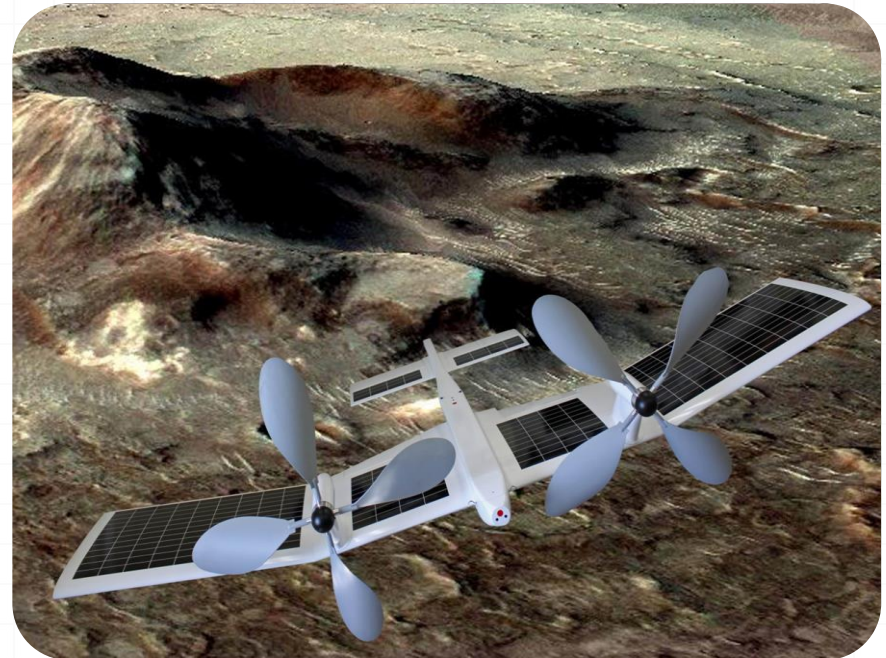




# What is “Space System Lab.”

Space System Laboratory is one of the studying about space in Kyutech (Kyushu Institute of Technology).

The laboratory's main studies are Mars plane and Winged Reusable Rocket called “WIRES”.



# What is “WIRES”

WIRES is Winged Reusable Rocket developed since 2005  
Final target is reaching the space (100km altitude)

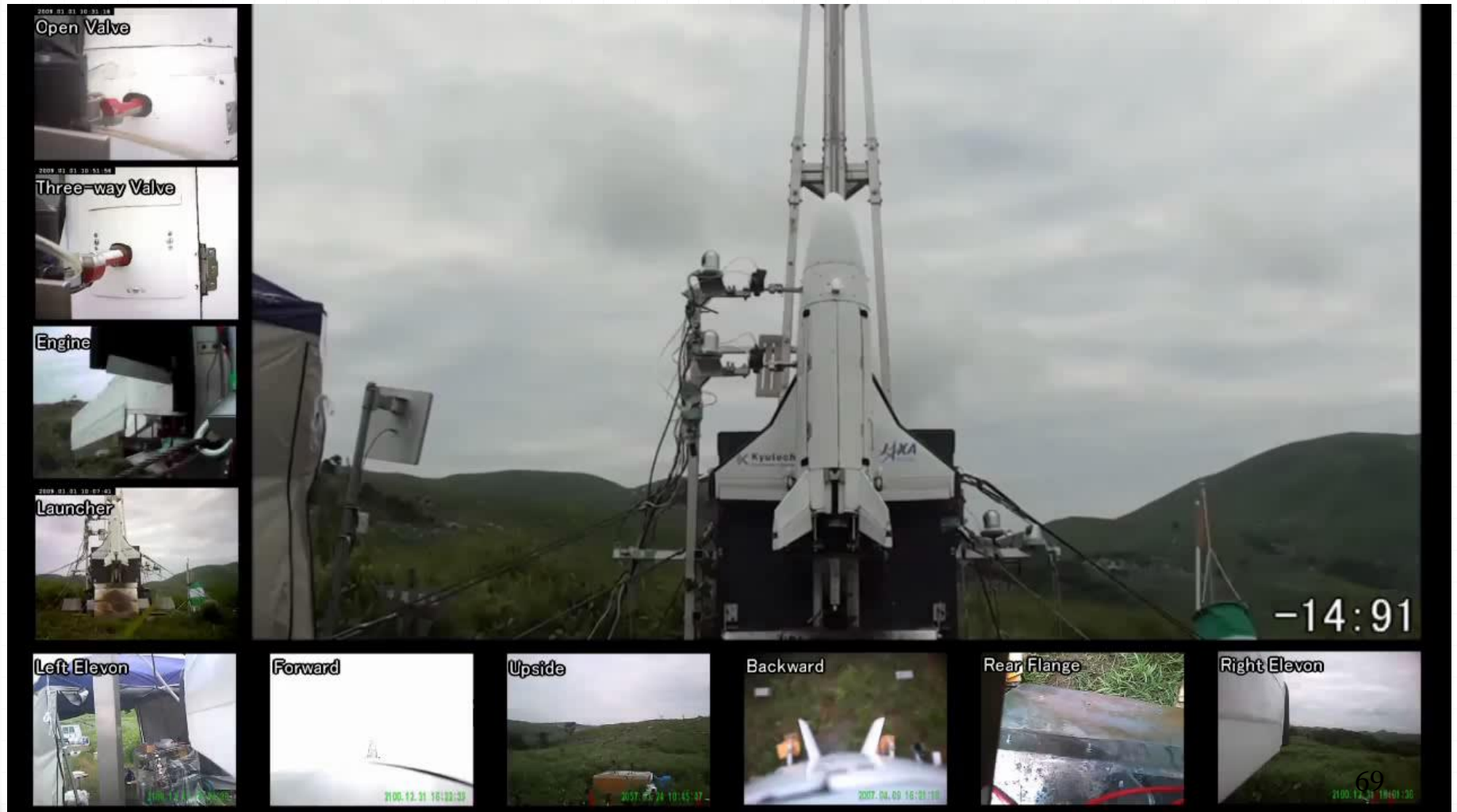




# Flight Test

Test Result

6/28/2013



Thank you !



**2<sup>nd</sup> Part will start**  
**at 10 : 50**

***UNISEC Global***

***start at***

***15 : 30***

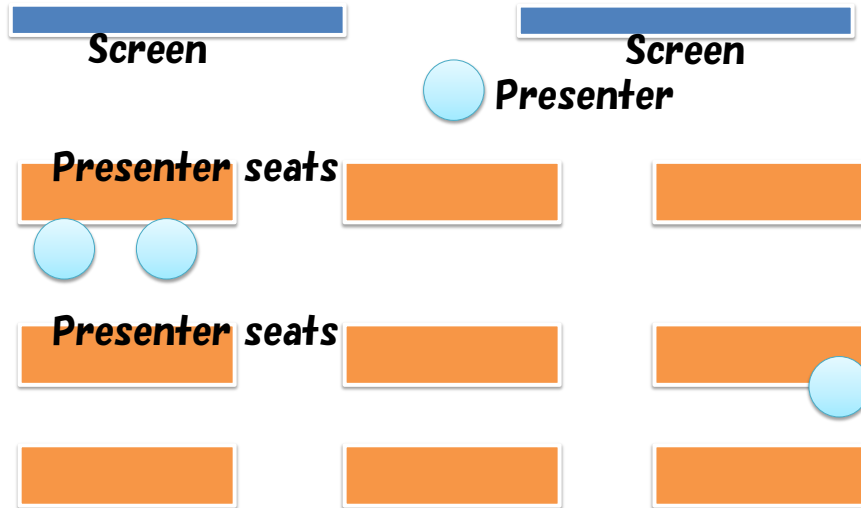


***You have only***

***8 min***

***( 1<sup>st</sup> ring : 5min, 2<sup>nd</sup> ring 8min )***

***Presenters, please have the presenter seats of Left and Front.***



**Discussion Theme 9:**  
**How to Manage UNISON**  
**Presenter : Yuta Kusano (JAPAN)**



# ***Discussion results in the last year***

## **Vision of UNISON–global**

- ***Activate space developments in Cooperation and Competition of UNISON of all regions.***
- ***Challenge international missions we can not achieve alone.***



# ***Discussion results in the last year***

***Future plans to promote UNISON–global***

***– First UNISON–Global Meeting  
at Second UNISEC–global meeting***

- Road map to UNISON–local***
- Documentation and Road map to UNISON–Global***