

# *M-SON's*

## *Tokyo Institute of Technology*



# About our team

## *M-SON's*

- 9 members
  - Tanaka, Kim, Hamashima, Hayasaki
  - Ozawa, Goto, Yamamura, Kurashige, Koga
- Received the funds from Axelspace cup
- Our CANSAT will be launched on

***ARLISS Extreme!!***



Group photograph with Tether Bros.

# What is ARLISS Extreme?

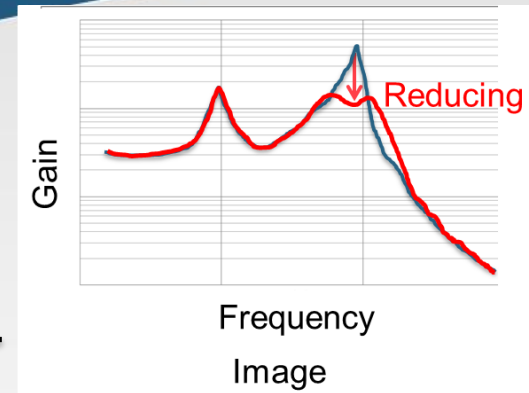
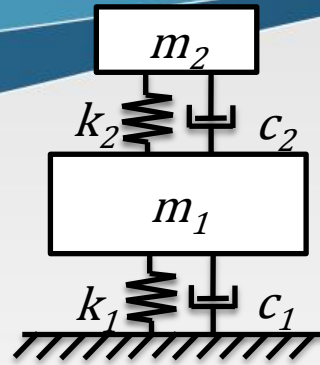
	<i>ARLISS</i>	<i>ARLISS Extreme</i>
<b>Altitude</b>	4km	30km
<b>Stages of the rocket</b>	1	2
<b>Size of CANSAT</b>	<b>Open class</b> <ul style="list-style-type: none"> <li>· <math>\Phi 146\text{mm} \times 240\text{mm}</math></li> <li>· 1050g</li> </ul> <b>CANSAT class</b> <ul style="list-style-type: none"> <li>· <math>\Phi 66\text{mm} \times 240\text{mm}</math></li> <li>· 350g</li> </ul>	<b>Extreme class</b> <ul style="list-style-type: none"> <li>· <math>\Phi 66\text{mm} \times 150\text{mm}</math></li> <li>· 385g</li> </ul>
<b>Release from a rocket</b>	Yes	No



# Mission

## ■ Main mission

- Reducing a vibration of a rocket by using *Variable Dynamic Vibration Absorber (V.D.V.A.)*
- V.D.V.A. can change a certain target frequency by changing length between magnets.

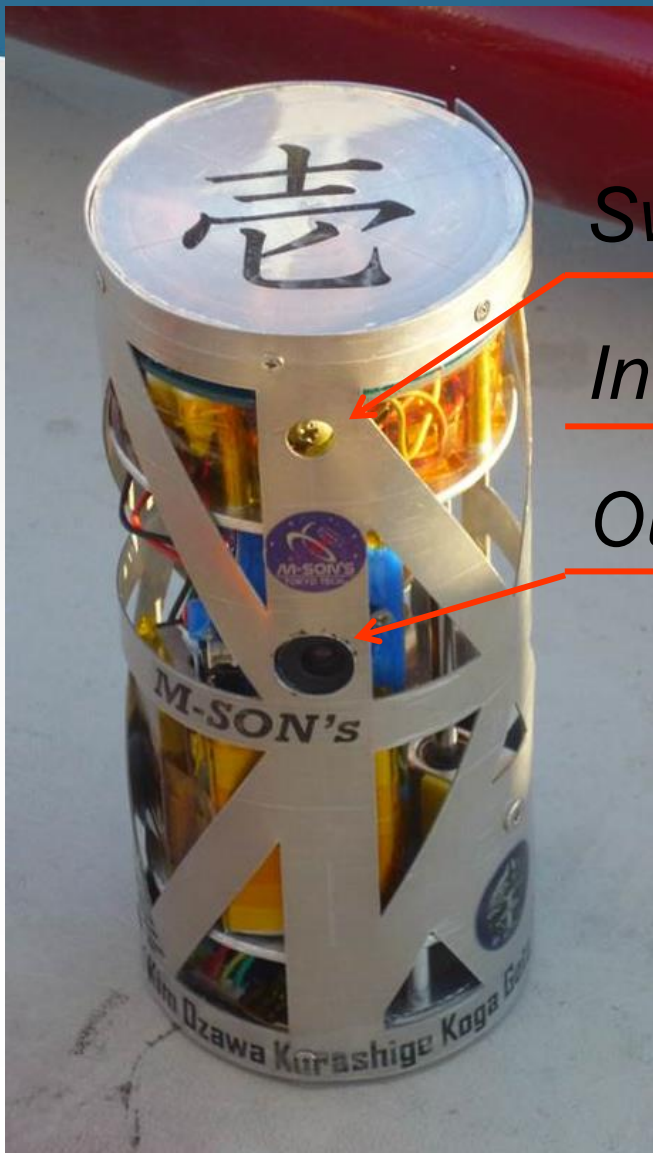


## ■ Sub mission

- Shooting outside at an altitude of 30km by high resolution camera
- Shooting floating small doll of Yoda in a zero-gravity state



# Our CANSAT



Switch

In-camera

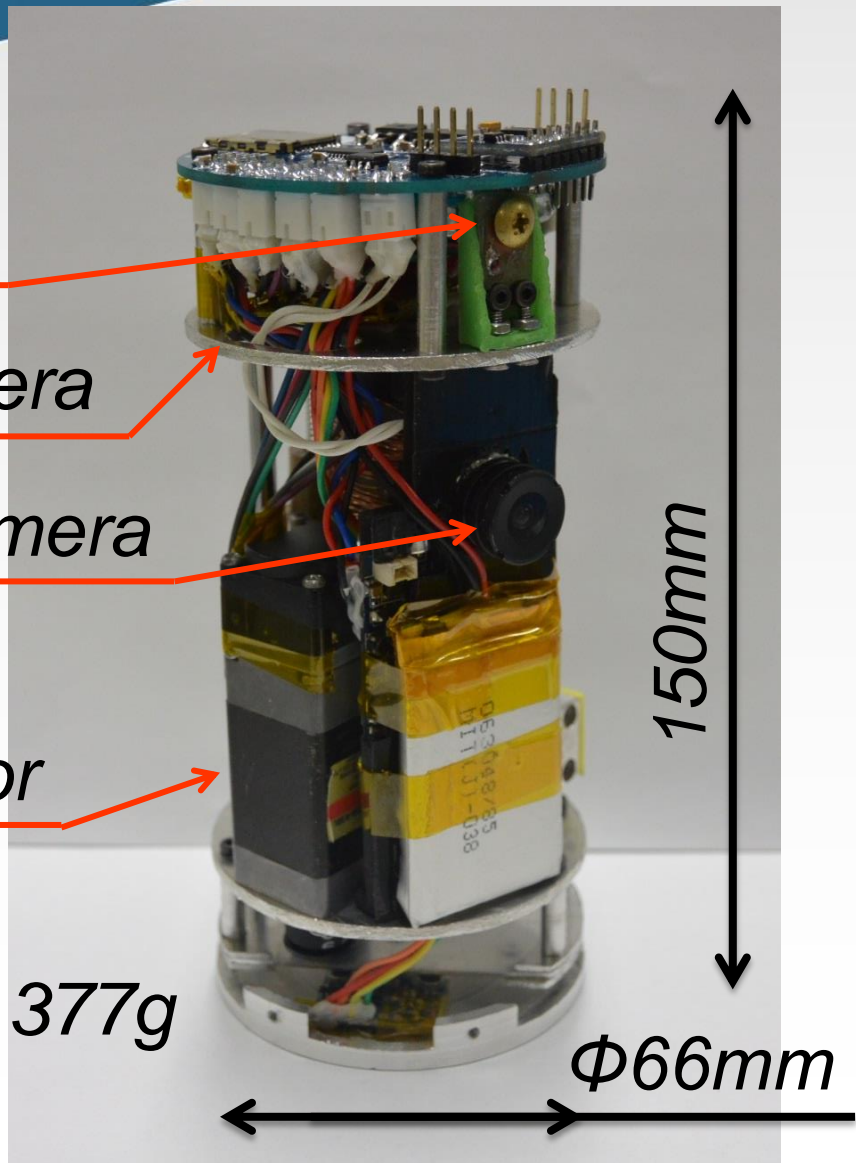
Out-camera

Motor

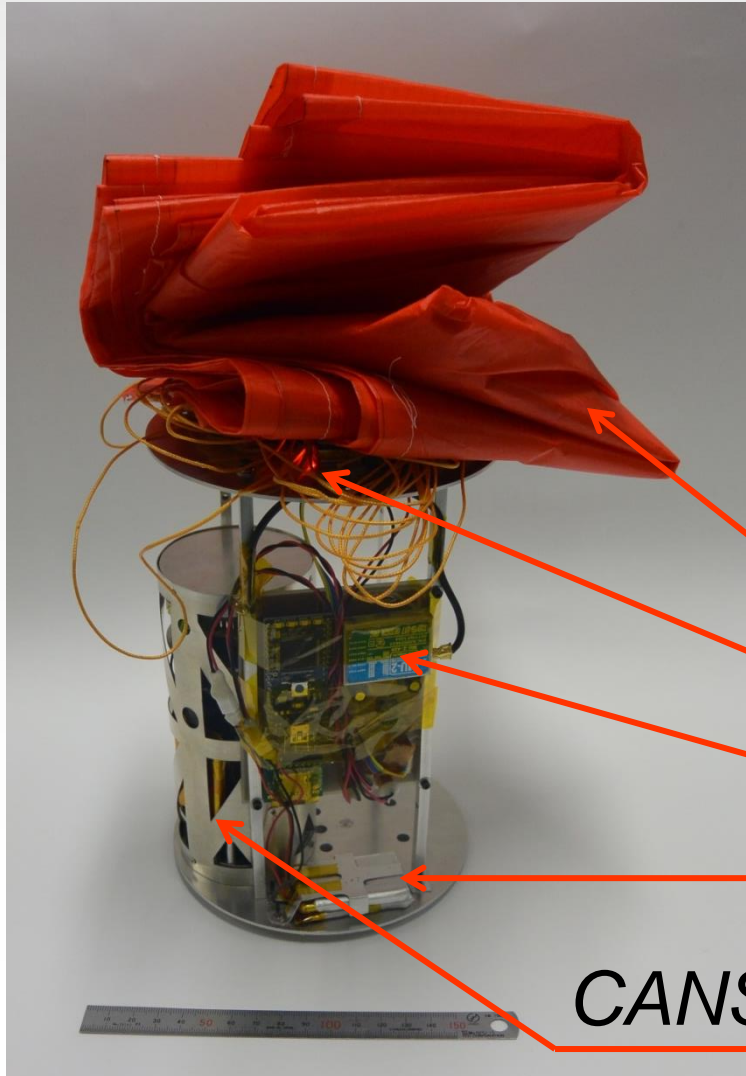
377g

150mm

Φ66mm



# Our CANSAT for ARLISS



CANSAT ride on  
“Extra Parachute Module”

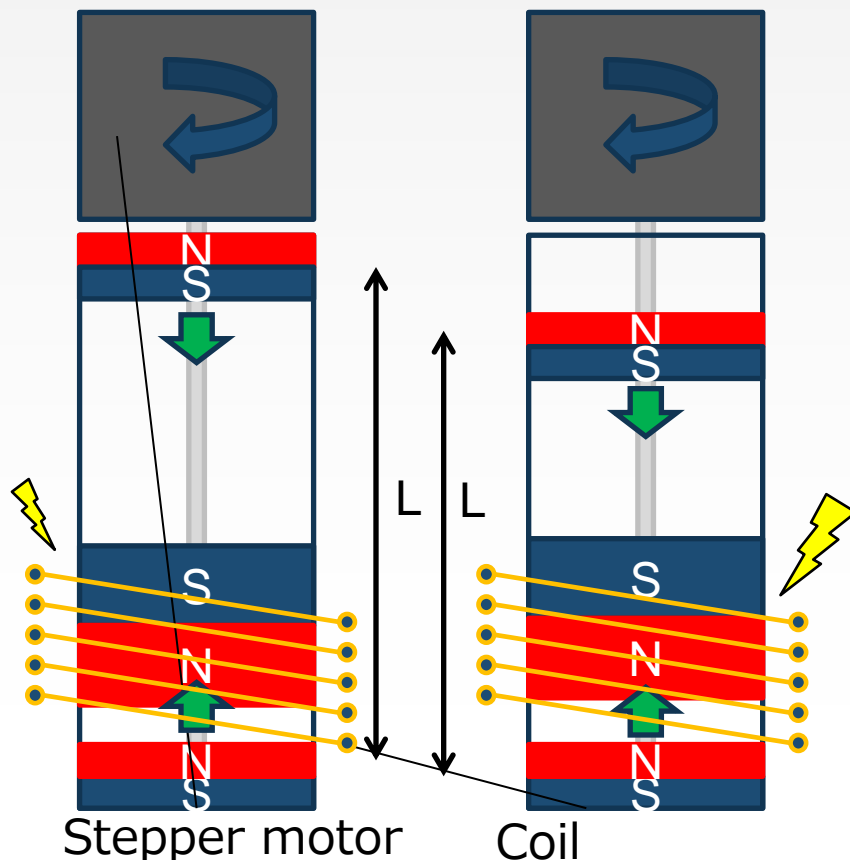
Extra Parachute Module  
contains

- Parachute
- GPSR
- Transmitter
- Battery

*CANSAT*

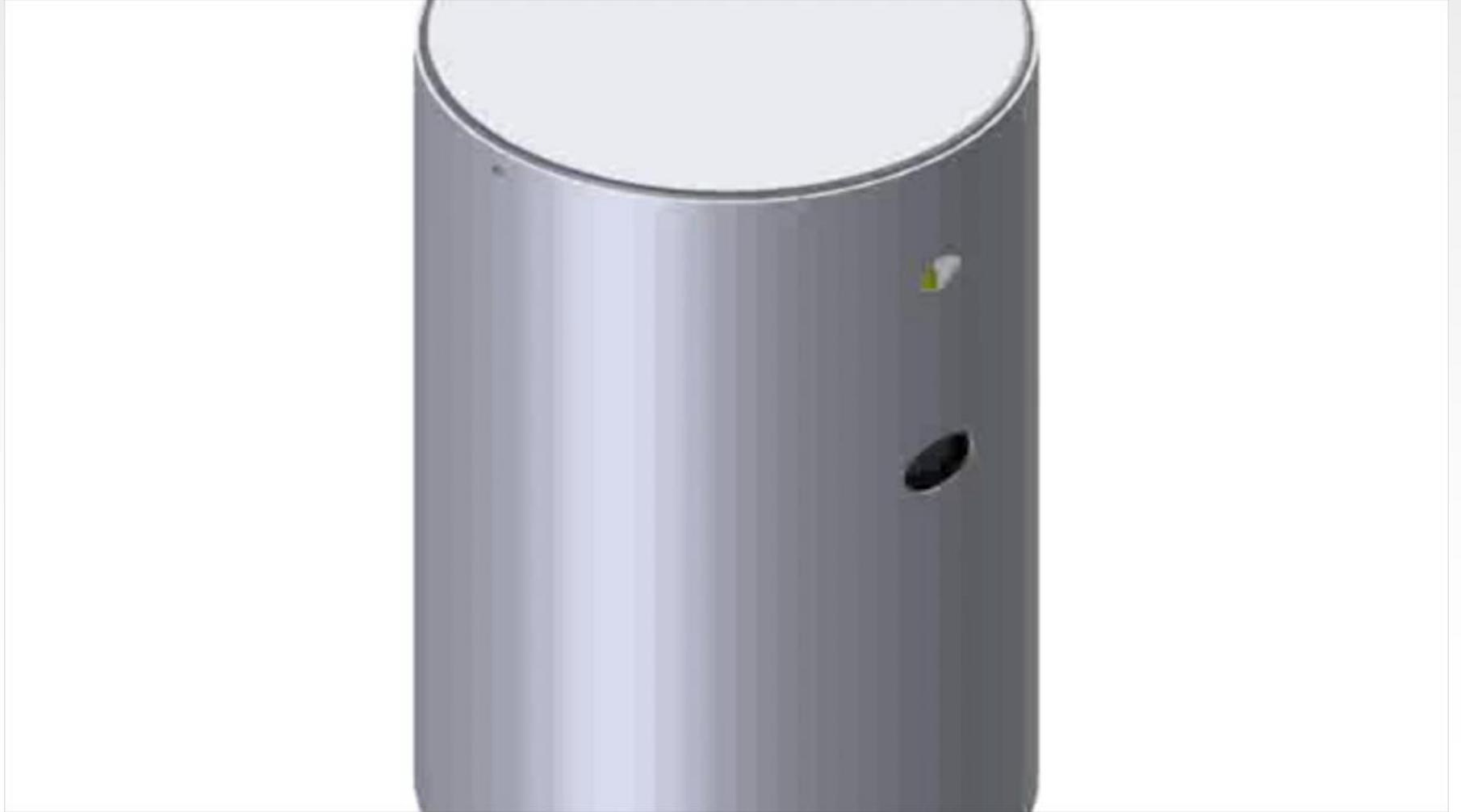
# How to work the V.D.V.A.

- Our V.D.V.A (Variable dynamics vibration absorber) consists of three hyper strong neodymium magnets



- It can reduce a vibration of a certain frequency by changing length between magnets

# Operating image of the V.D.V.A.





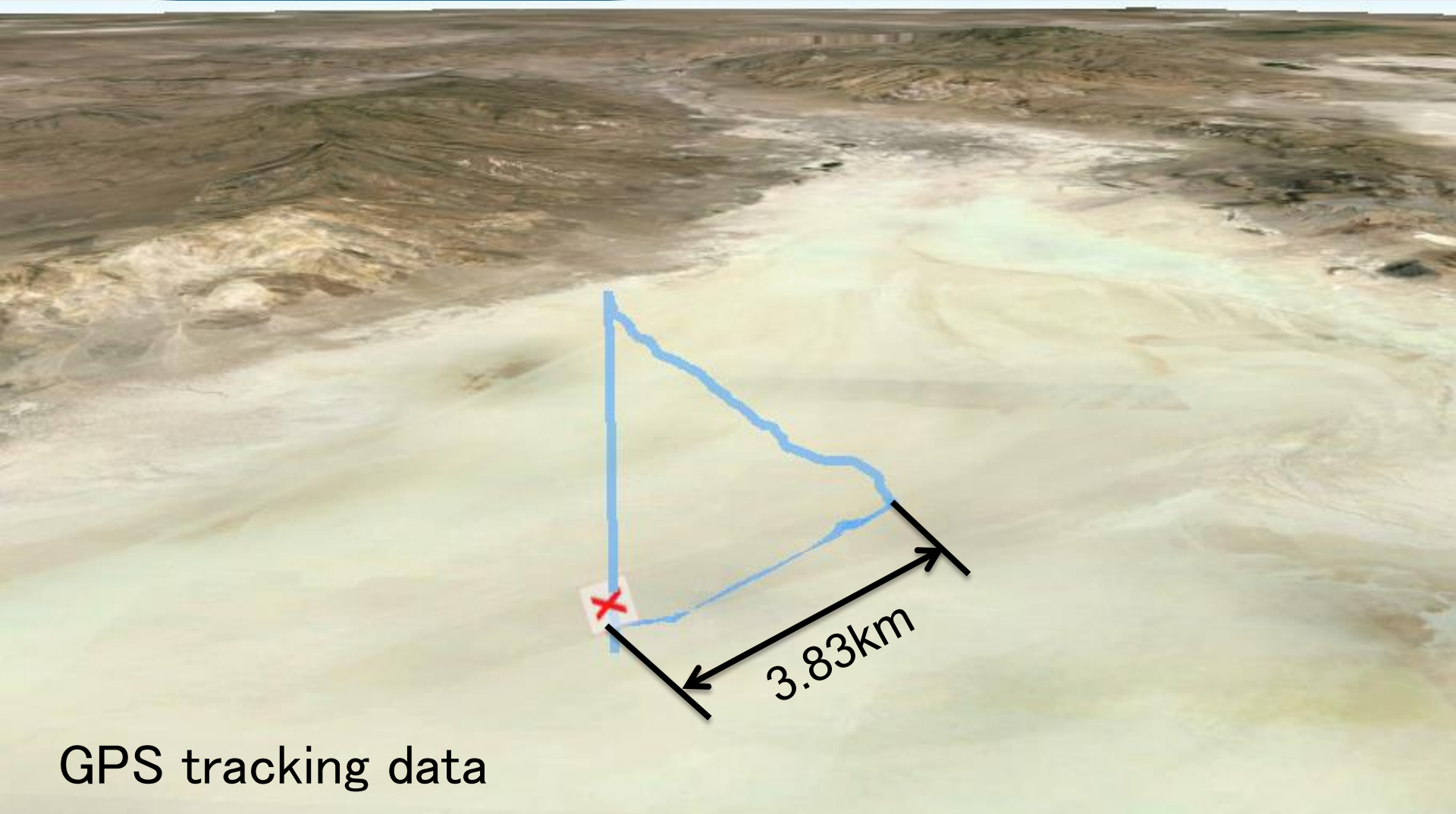
*Result of*

- *ARLISS*
- *ARLISS Extreme*

# Result of ARLISS

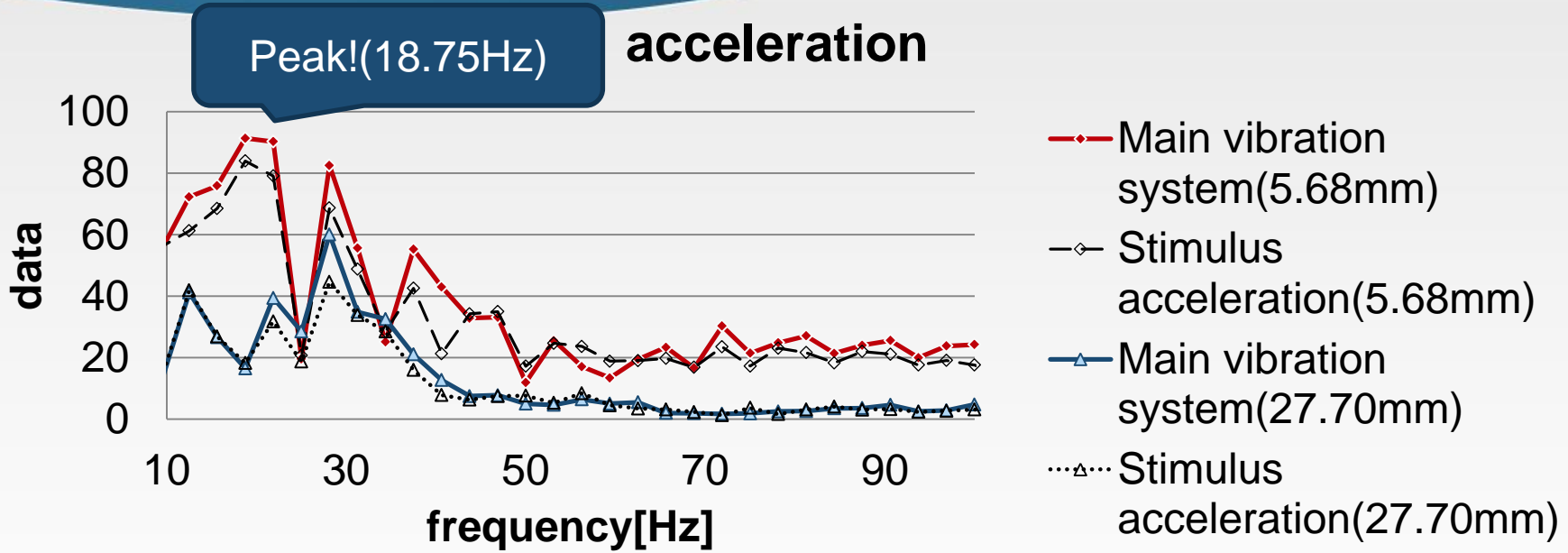
ARLISS M-SON's  
1st launch  
Digest  
8 Sep. 2014

# Result of ARLISS



GPS tracking data

# Result of ARLISS



Time	0.315[sec]	4.999[sec]
Length between magnets	5.68[mm]	27.70[mm]
Stimulus acc.	41.256[m/s <sup>2</sup> ]	16.459[m/s <sup>2</sup> ]
Main system acc.	35.167[m/s <sup>2</sup> ]	18.200[m/s <sup>2</sup> ]
<b>Response</b>	<b>1.0879</b>	<b>0.90433</b>

**Success!!**

# Result of ARLISS Extreme



**Bad news!!**  
**Extreme was postponed**  
**until 13<sup>th</sup> morning!!!!**  
**Coming soooooon!!!!!!**



Special thanks

# Headquarters



*Tether brothers*





Dr. Nakanishi



“Our idle” Bary





Aeropac

# Thank you for listening!



# Thank you for listening!



# Thank you for listening!

