



Arliss 2012

TMG

Space Systems Laboratory

Tokyo Metropolitan University

K. Nishi / M. Masuda

R. Kawahata / H Oguro

K Nakajima / T Ohira

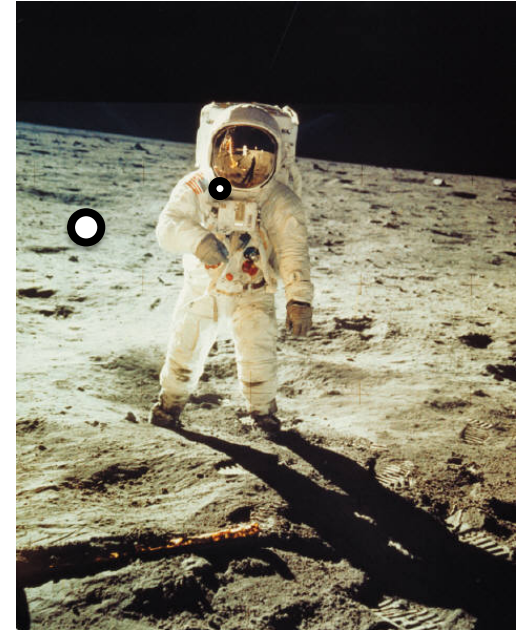
Contents

- What is our mission?
- Experiment & Strategy
- TMG's CanSat
- Result of Arliss
- Conclusion

What is our mission ?

an Astronaut (might) say...

I want to eat fresh egg !!



- We need to bring **something breakable** to the space
- Can we test about it by using our **CanSat** ?

So our mission is...

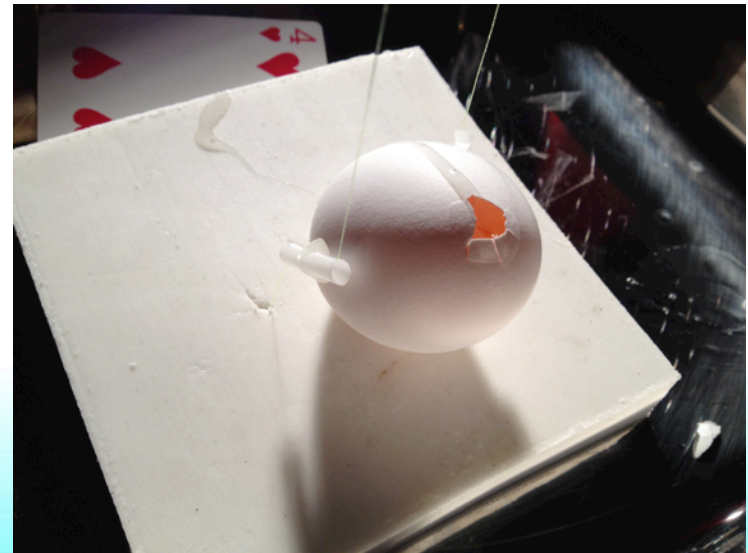
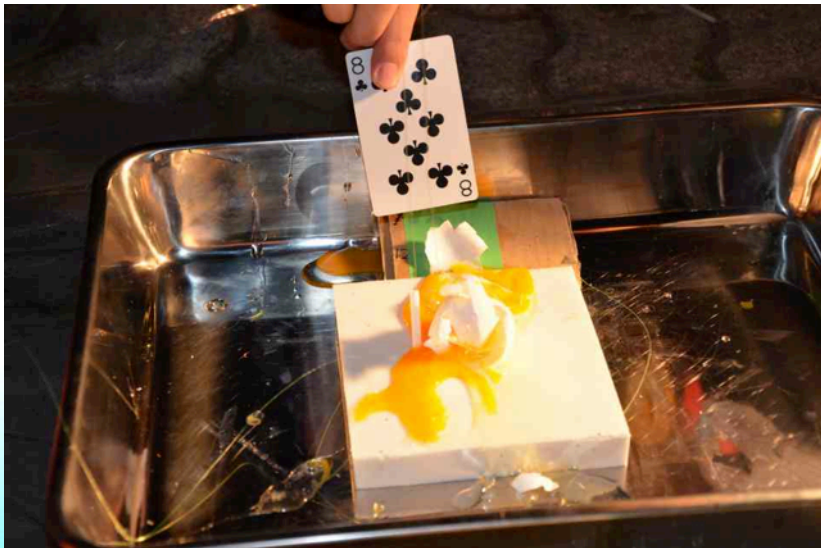
→ Bring back a fresh egg from 3km height

Experiment & Strategy

We decided to use “**Gel**” to protect the egg.

- **Experiment 1: Egg falling down test**

- ▷ drop eggs to the **Gel** from several types of height
- ▷ estimated the ability of **shock absorbing**



Experiment & Strategy

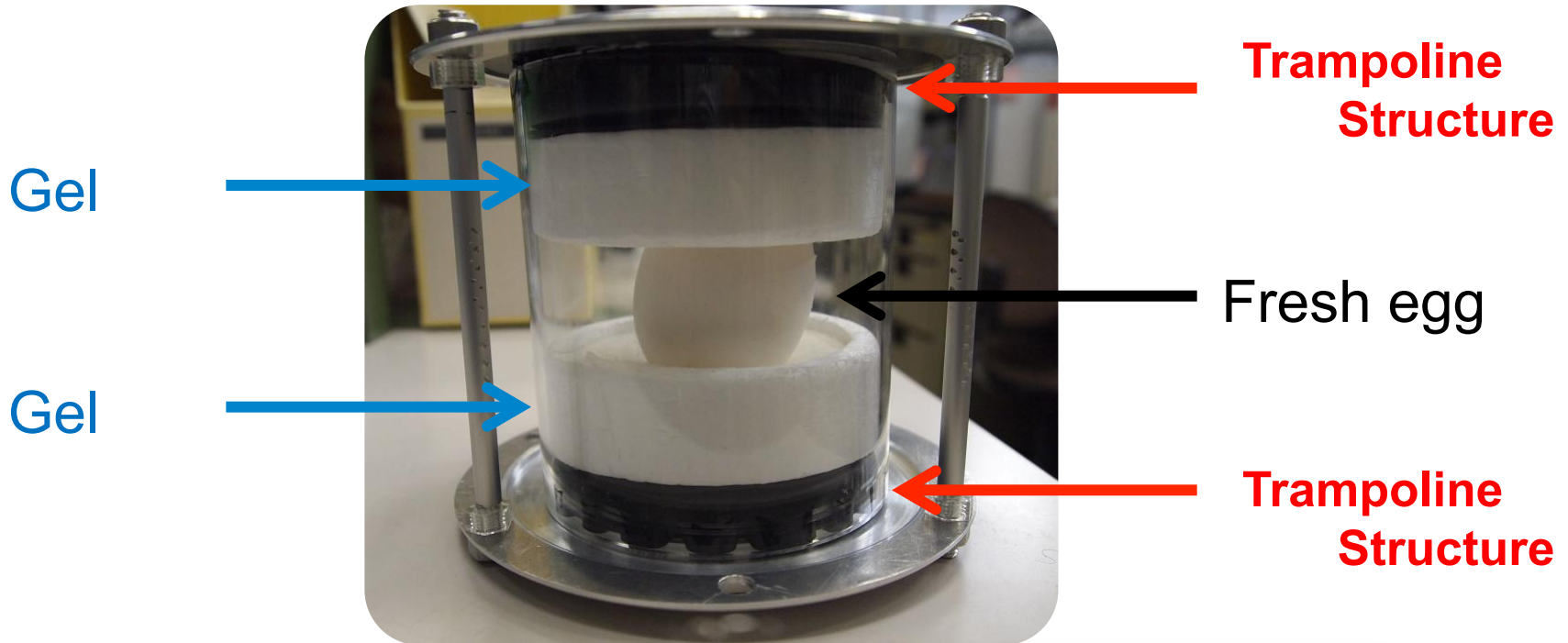
when we got ***the best result***

- the Gel was floated by chance



So we decided to use
“Trampoline Structure”

TMG's CanSat



Gel



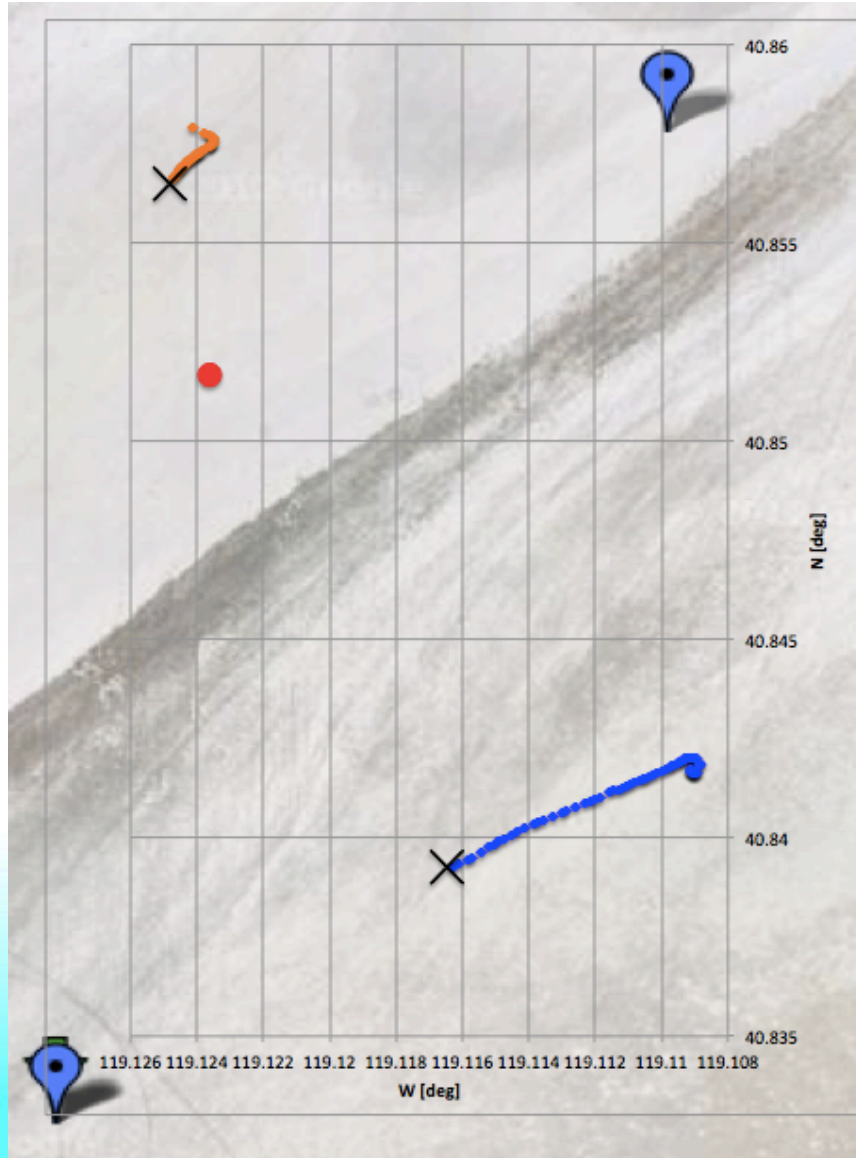
Trampoline Structure

TMG's CanSat

- **Experiment 2: Structure shock test**
 - ▷ toss over and dash down our CanSat
 - ▷ make sure the ability of shock absorbing



Result of Arliss



- ◇ 1st Flight
- ◇ 2nd Flight
- Launch Site

Flight path is too short, isn't it?

Result of Arliss



Egg was
completely broken!!

It seems like free-fall...

Result of Arliss

- Why our CanSat **fell down**?
→ cords of parachute were **tangled**



because it was fast **spinning**



Conclusion

Success criteria

▷ Definition of **Full Success**

- Undone** ▪ The egg comes back to the ground with **no crack**
- Done** ▪ Camera **shoots movies** of the egg
- Done** ▪ CanSat writes down **location data** at whole process
: from separation to landing

▷ Definition of **Minimum Success**

- Undone** ▪ The egg comes back to the ground with **unbroken**
- Undone** ▪ Parachute is **opened** when CanSat is separated from rocket
- Done** ▪ CanSat writes down **location data** at some parts of process

Conclusion

We took lots of care about CanSat itself ...
such as **structure** or **electronics**,
but **something with parachute was unvalued**

Next time,

We have to be more careful for the parachute

TMG

We'll be back with openable parachute and stronger structure
Wait there, "Arliss 2013"

