Deep Space Exploration Mission with CubeSats

7th UNISEC Global

Group discussion / Group 3

Moderator : Masahiro Fujiwara

Assistant : Yukiya Ozeki

Presenters : Gianluca Cocirla & Leslie Patricia Quinde Cobos

Members of Group 3

- Giorgio Bagolan
- Chan Chen-Yu
- Gianluca Cocirla
- Erick Arturo Cortes Gutierrez
- Graciela Lopez Campos
- Yukiya Ozeki
- Catalina Porras Silesky
- Leslie Patricia Quinde Cobos

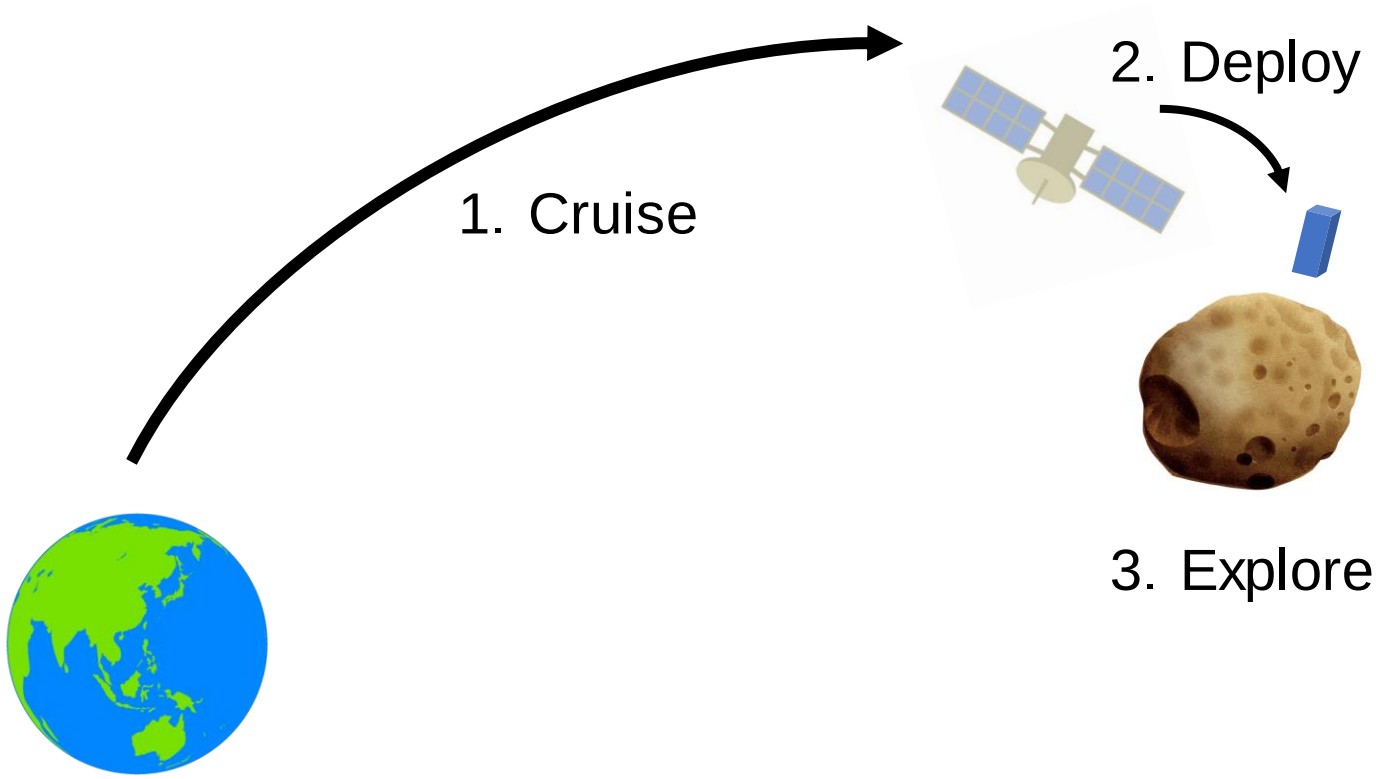
Interplanetary CubeSats

- Advantages
  - Low cost
  - Short development cycle
  - Piggyback opportunity

New mission architectures based on distributed systems using interplanetary CubeSats

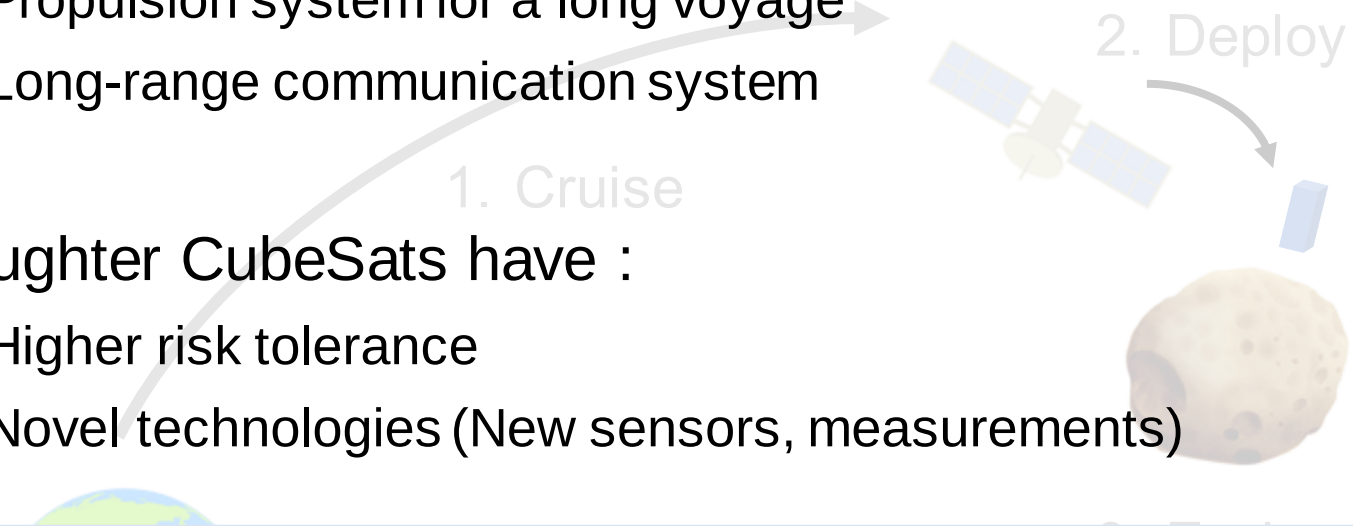
New architecture using interplanetary CubeSats

- Mother-daughter architecture



New architecture using interplanetary CubeSats

- Mother-daughter architecture
  - A mother spacecraft provides :
    - Propulsion system for a long voyage
    - Long-range communication system
  - Daughter CubeSats have :
    - Higher risk tolerance
    - Novel technologies (New sensors, measurements)



Mother-daughter architecture relaxes requirements for the CubeSats and enables to try the advanced missions.

Main Topic Discussion

What can unique deep-space missions be perfomed by daughter CubeSats in the mother-daughter architecture?

- Atmospherical composition
- Mapping of surfaces
- Orbiting Moons
- Asteroids Gravity
- Testing new technologies

Mission

Comparison of propulsion landing system through the analysis of different daughter CubeSat

MOTHER
DAUGHTER 1
DAUGHTER 2
DAUGHTER 3