Arrival of Hayabusa2 at asteroid Ryugu

Press conference

June 27th, 2018

JAXA Hayabusa2 Project

Ryugu arrival

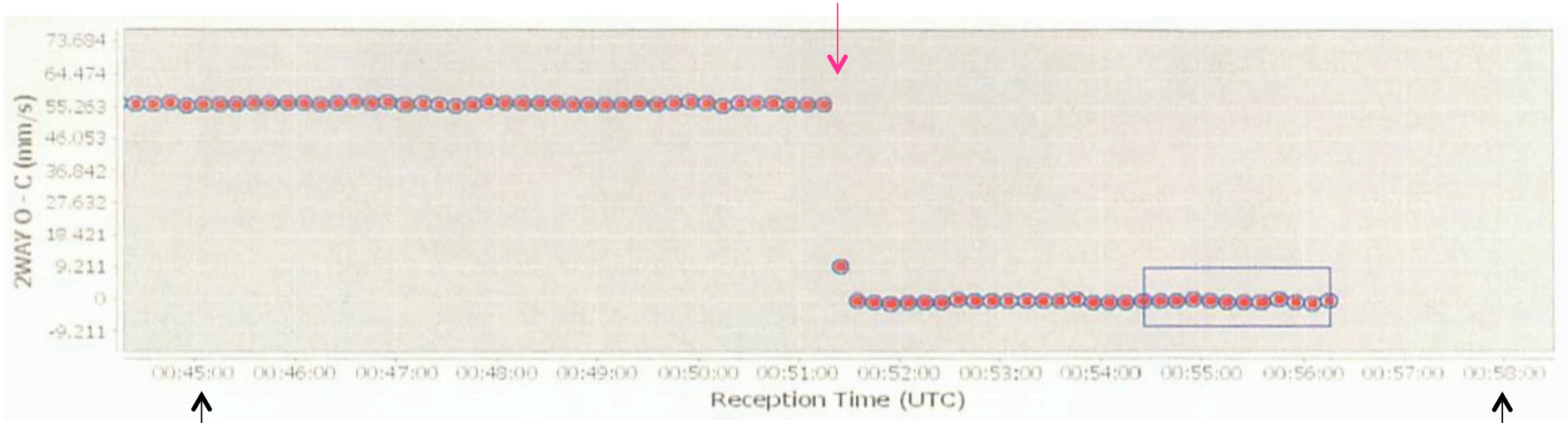
June 27, 2018

Data at arrive

June 27, 2018

Japan time (09:51)

00:51



00:45

Japan time（09:45）

00:58

Japan time（09:58）

Horizontal axis：time（UTC time is shown so add +9 hours for JST）

Vertical axis：Difference between measured and planned value for the spacecraft's speed upon arrival (the value plotted on the vertical axis is actually double that difference). The direction approaching the asteroid is positive.

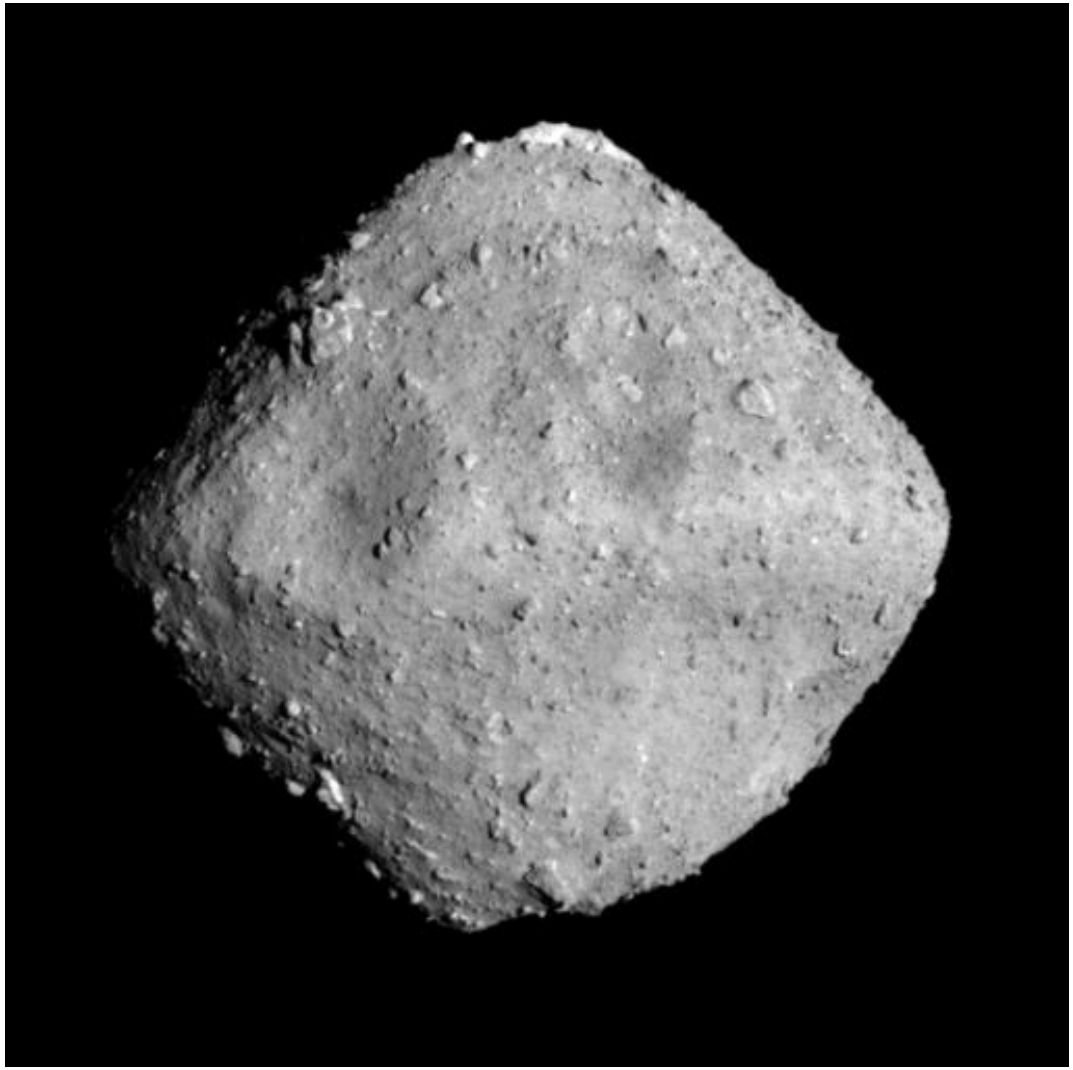
Sequential images of Ryugu

(animation)

Ryugu photographed by the ONC-T. Image taken between June 5 - 26, 2018.
Credit: JAXA, University of Tokyo, Kochi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu, AIST.

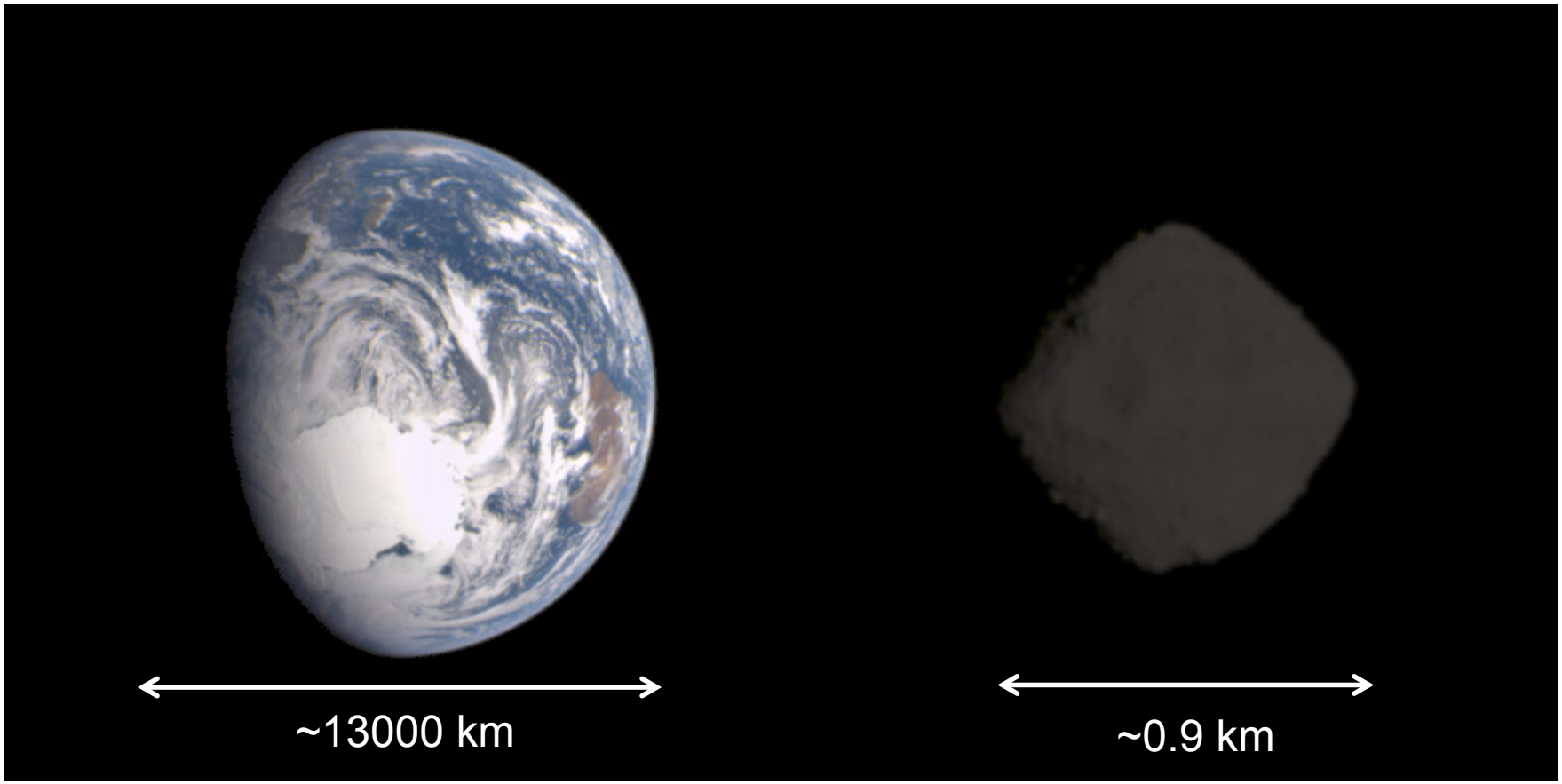
Latest image of Ryugu

（Distance about 22km）



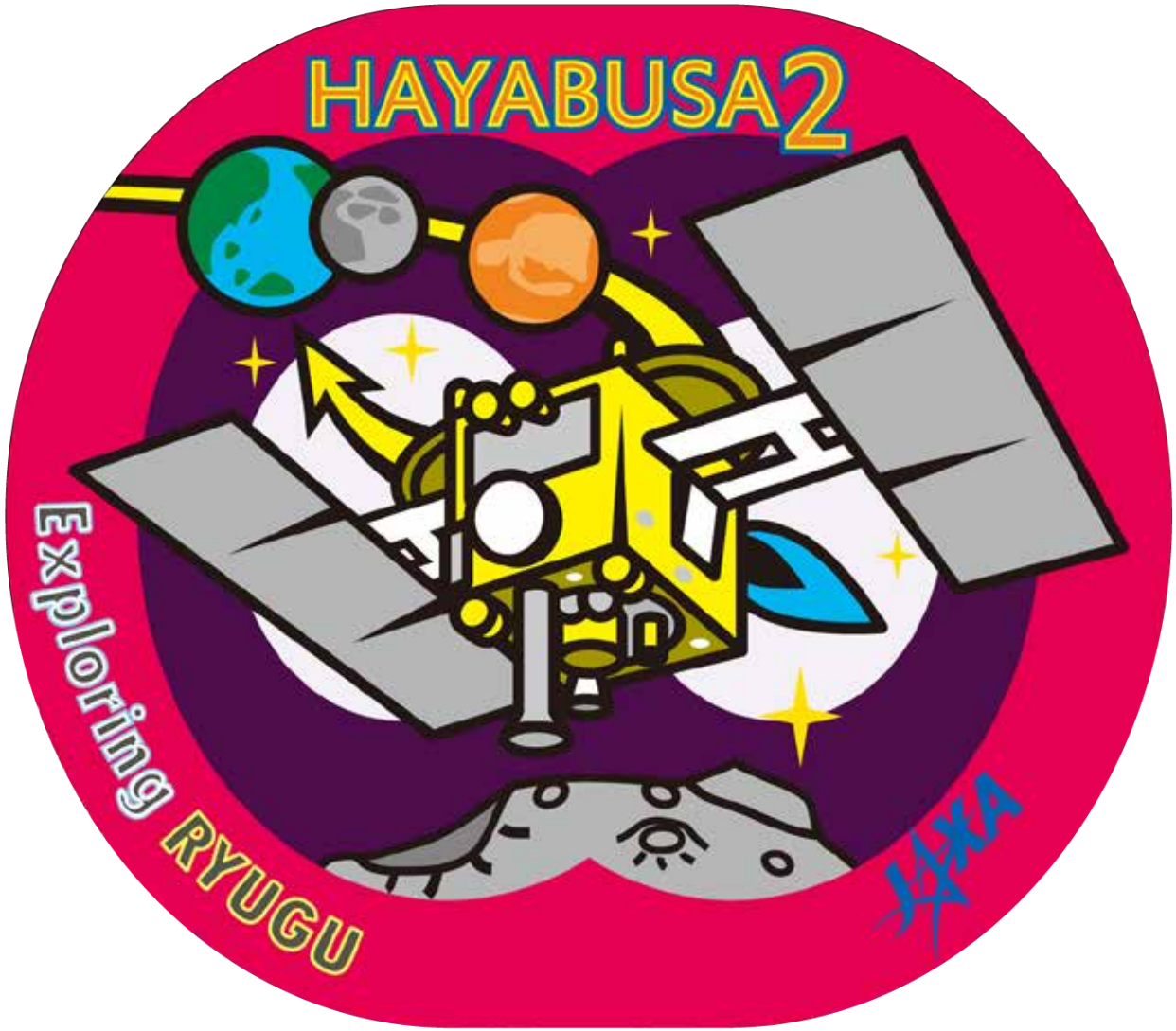
Ryugu photographed by the ONC-T. Image taken on June 26, 2018 at about 12:50 JST.
Credit: JAXA, University of Tokyo, Kochi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu, AIST.

Color image of Ryugu



The Earth and Ryugu photographed by the ONC-T. The Earth image was taken immediately after the Earth swing-by (Dec. 4, 2015). The natural color image of Ryugu was created using the multiband image taken on June 21, 2018 using the b, v and w filters.
Image credit: JAXA, University of Tokyo, Kochi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu, AIST.

New mission badge



Mission schedule

Year	Month, day	Event	Status
2018	January 10	Third stage of ion engine operation begins	Complete
	June 3	Ion engine operation ends	Complete
	June 3	Start of asteroid approach (distance: 3100km)	Complete
	June 27	Arrival at asteroid Ryugu (altitude 20km)	Complete
	End of July	Medium altitude observations #1 (alt. 5km)	Planning
	August	Decent to measure gravity (alt.1km)	Planning
	Mid- August	Determination of landing site	Planning
	Sept – Oct	Period for touchdown operation #1	Planning
	Sept – Oct	Period for rover deployment #1	Planning
	Nov – Dec	Solar conjunction (communication unavailable)	Planning
2019	January	Medium altitude observations #2 (alt. 5km)	Planning
	February	Period for touchdown operation #2	Planning
	Mar – Apr	Crater generation operation	Planning
	Apr – May	Period for touchdown operation #3	Planning
	July	Period for rover deployment #2	Planning
	Aug – Nov	Remain near asteroid	Planning
	Nov – Dec	Departure from asteroid	Planning

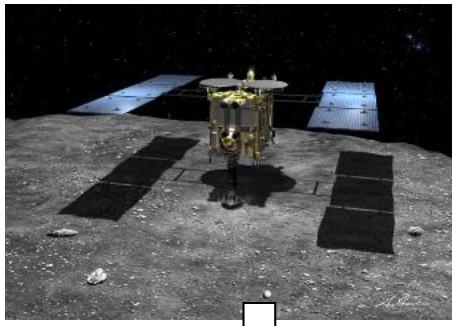
This schedule may be changed for multiple factors after arrival at Ryugu. Please note therefore, that the situation is not fixed, except where marked 'Complete'.

Outline of mission flow

Launch
December 3rd, 2014

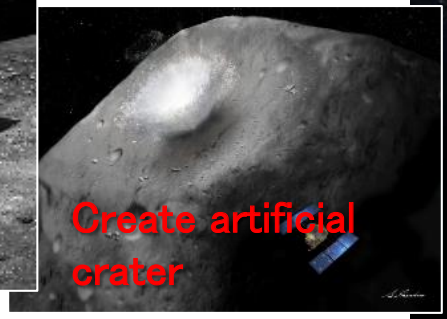
Earth swing-by
December 3rd, 2015

Asteroid arrival
June 27th, 2018

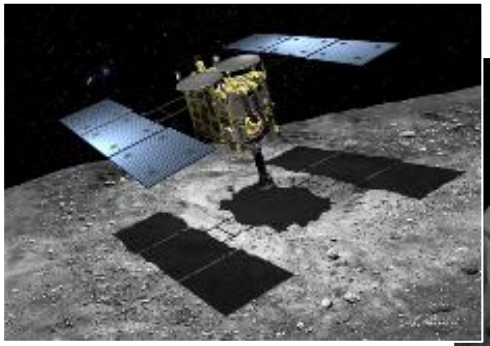


Examination of asteroid via remote sensing observations, followed by the release of the small lander and rovers. Obtain samples from the asteroid surface.

Create an artificial crater on the asteroid surface using an impact device.



Departure from the asteroid
November – December, 2019



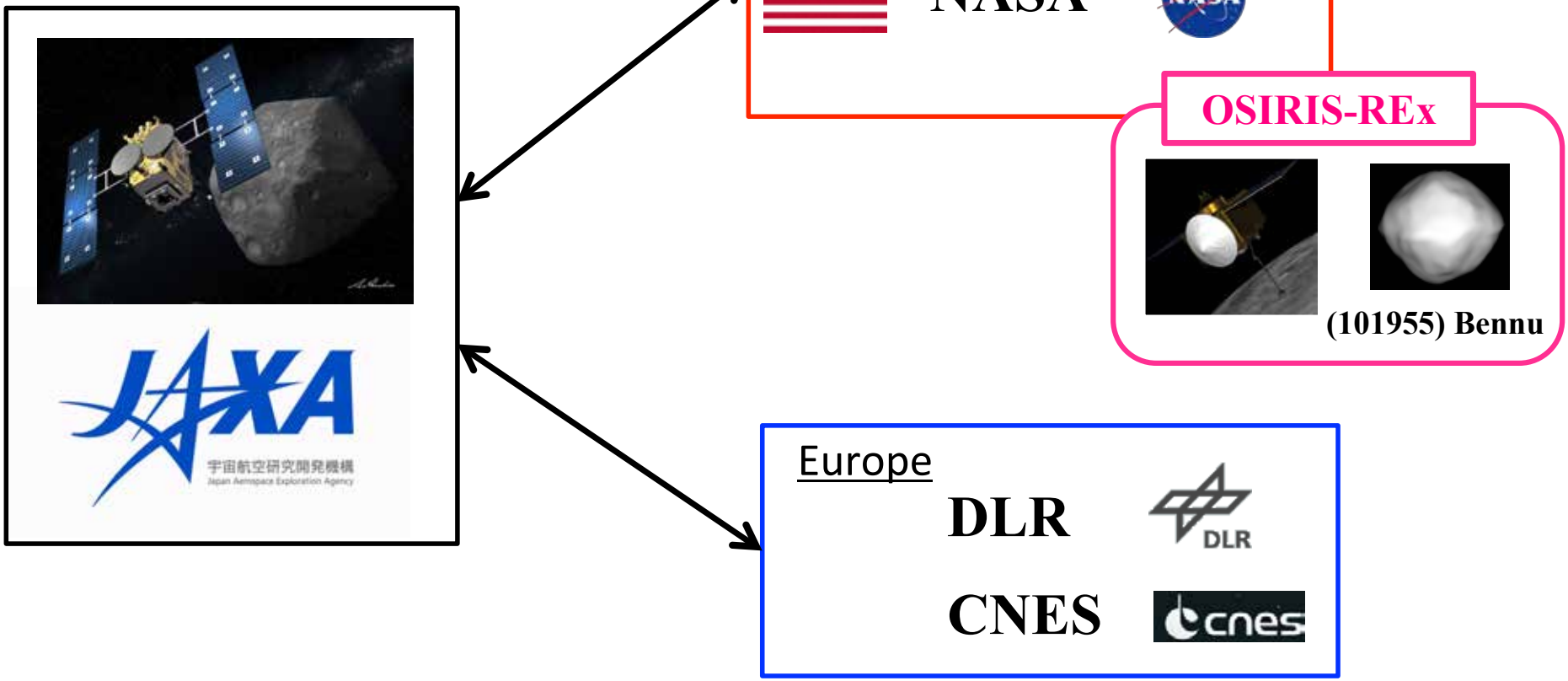
After confirming site safety, touchdown to the crater to collect subsurface material

Return to Earth
End of 2020

Sample analysis

(Illustration: Akihiro Ikeshita)

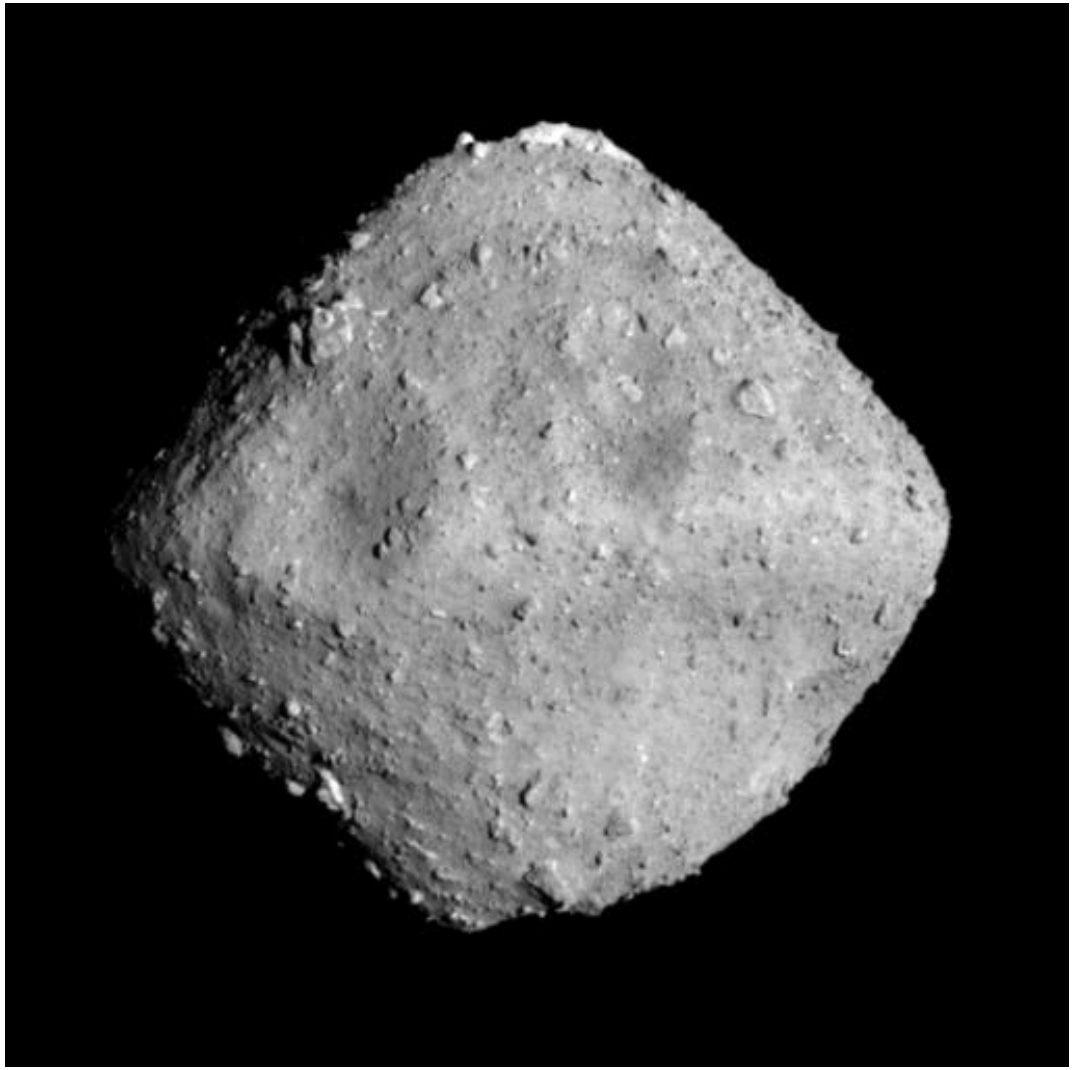
Hayabusa2 international cooperation



Images of Ryugu

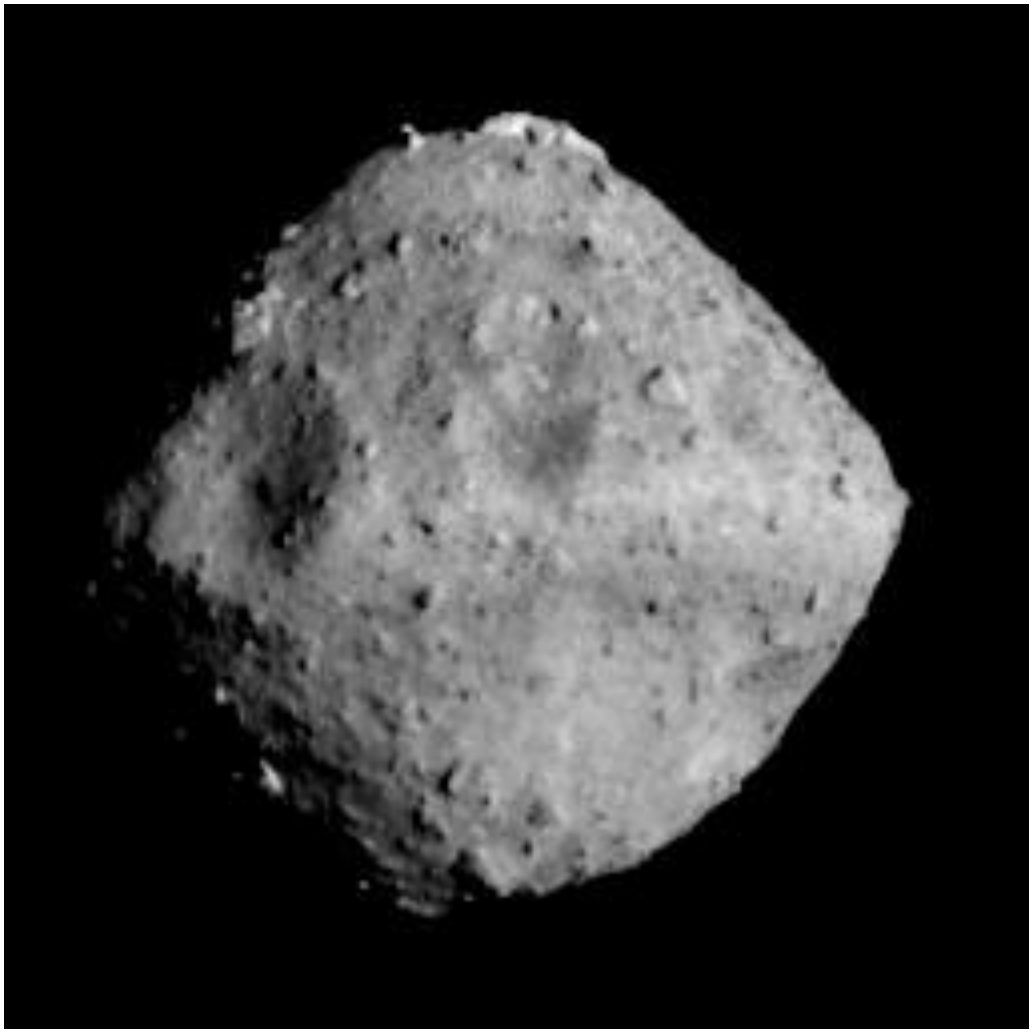
Latest image of Ryugu

（Distance about 22km）



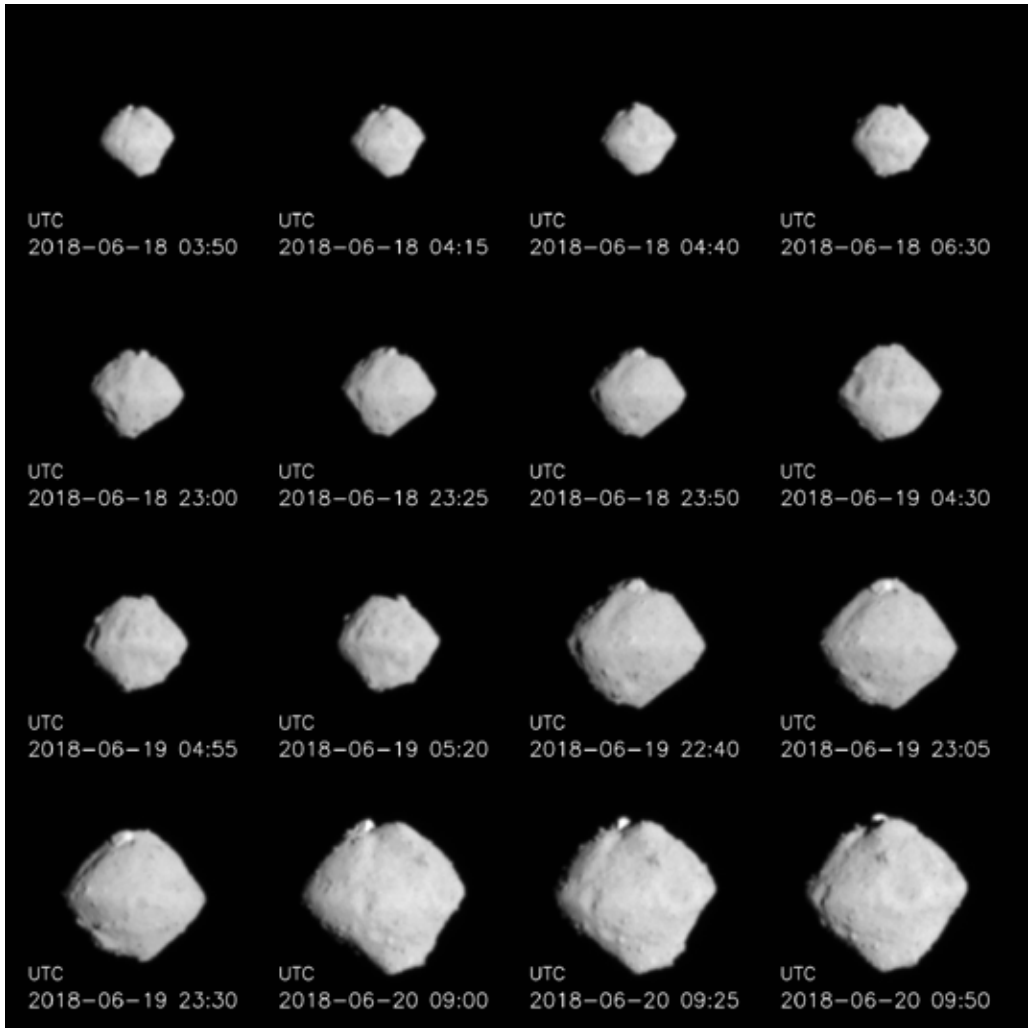
Ryugu photographed by the ONC-T. Image taken on June 26, 2018 at about 12:50 JST.
Credit: JAXA, University of Tokyo, Kochi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu, AIST.

Ryugu seen from about 40km



Ryugu imaged by the ONC-T. Photograph taken on June 24, 2018 at around 00:01 JST.
Credit: JAXA, University of Tokyo, Kochi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu, AIST

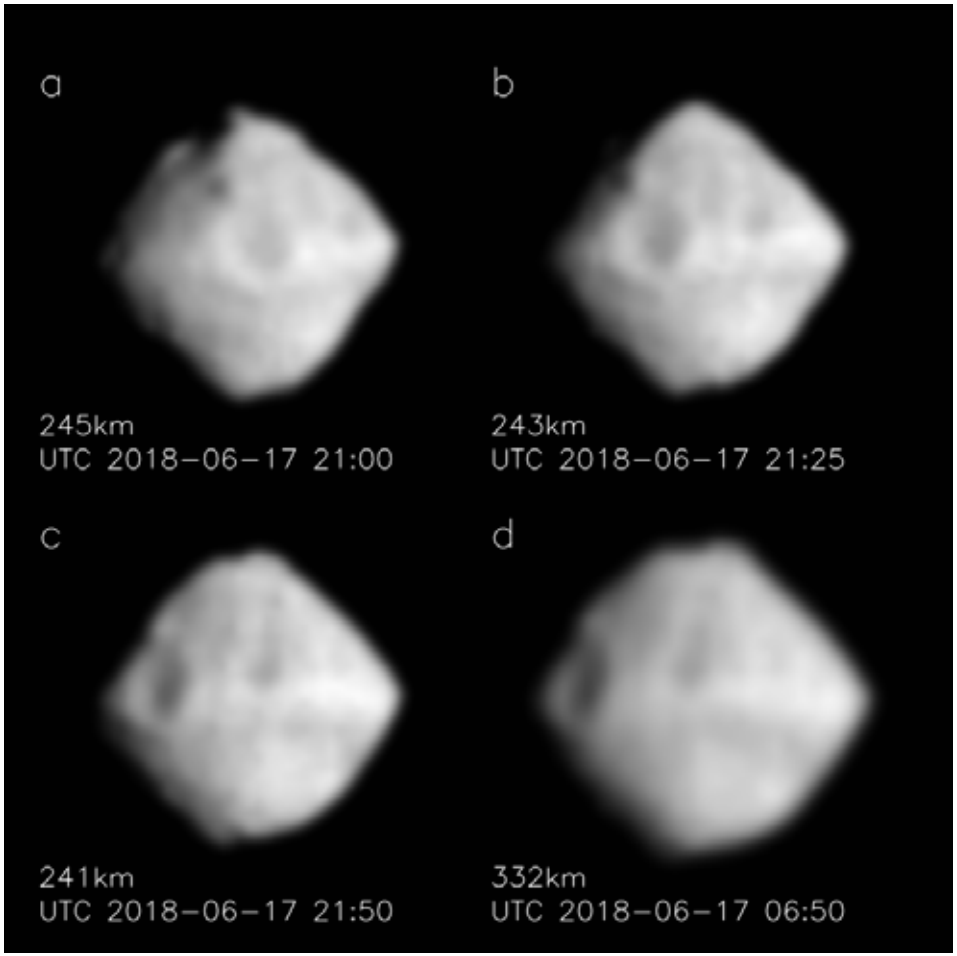
Ryugu seen from 220~110 km



Ryugu imaged by the ONC-T. Photograph taken between June 18, 2018 at around 12:00 JST and June 20, 2018 at around 19:00 JST.

Credit: JAXA, University of Tokyo, Kochi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu, AIST

Ryugu seen from 330～240km



Ryugu imaged by the ONC-T. Image interpolation was performed during enlargement and the light and dark regions emphasized (brightness squared). Photographs were taken on June 17, 2018 at around 15:00 and June 18 at around 06:00 JST. They are arranged in order of rotation; a, b, c, d.

Credit: JAXA, University of Tokyo, Kochi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu and AIST.