

Akatsuki



Akatsuki (あかつき, 暁, "Dawn"), also known as the Venus Climate Orbiter (VCO) and Planet-C, is a Japanese (JAXA) space probe tasked to study the atmosphere of Venus. It was launched aboard an H-IIA 202 rocket on 20 May 2010, and failed to enter orbit around Venus on 6 December 2010. After the craft orbited the Sun for five years, engineers successfully placed it into an alternative Venusian elliptic orbit on 7 December 2015 by firing its attitude control thrusters for 20 minutes.

By using five different cameras working at several wavelengths, Akatsuki is studying the stratification of the atmosphere, atmospheric dynamics, and cloud physics. Astronomers working on the mission reported detecting a possible gravity wave (not to be confused with gravitational waves) in Venus' atmosphere in December 2015.

Akatsuki is a Japanese orbiter mission currently studying the planet Venus. Observations include cloud and surface imaging from an orbit around the planet with cameras operating in the infrared, visible and UV wavelengths to investigate the complex Venusian meteorology and elucidate the processes behind the mysterious atmospheric super-rotation. On Venus, while the planet rotates at 6 km/h at the equator, the atmosphere spins around the planet at 300 km/h. Other experiments are designed to confirm the presence of lightning and to determine whether volcanism occurs currently on Venus.

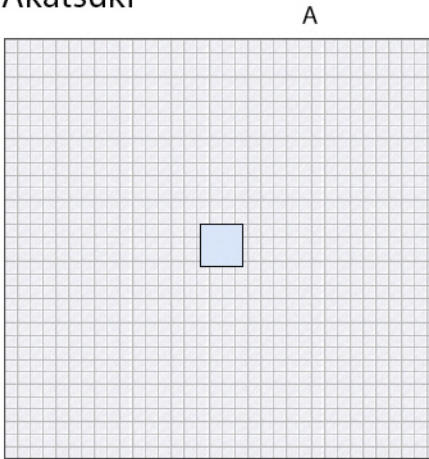
Akatsuki is Japan's first planetary exploration mission since the failed Mars orbiter Nozomi probe which was launched in 1998. Akatsuki was originally intended to conduct scientific research for two or more years from an elliptical orbit around Venus ranging from 300 to 80,000 km (190 to 49,710 mi) in altitude, but its alternate orbit had to be highly elliptical ranging between 1,000 km and 10,000 km at its nearest point and about 360,000 km at its farthest. This larger orbit takes 10 days to complete instead of the originally planned 30 hours.

Akatsuki was planned to initiate orbit insertion operations by igniting the orbital maneuvering engine on 6 December 2010 UTC.

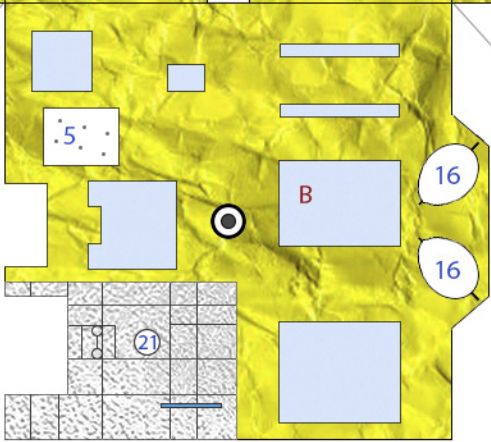
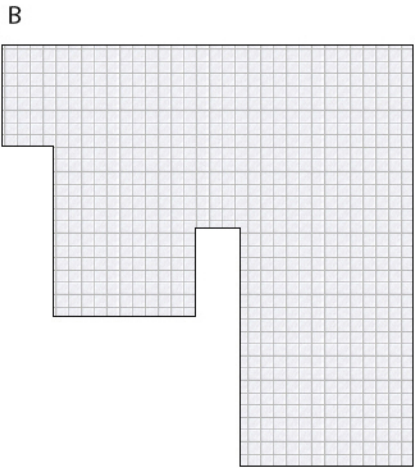
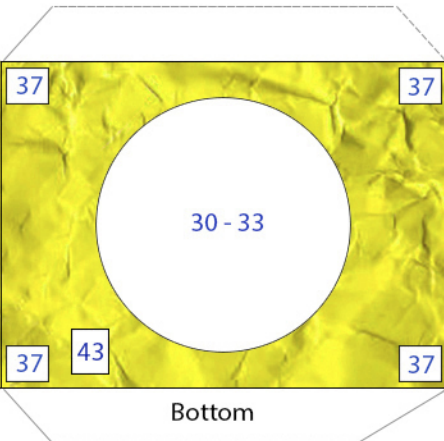
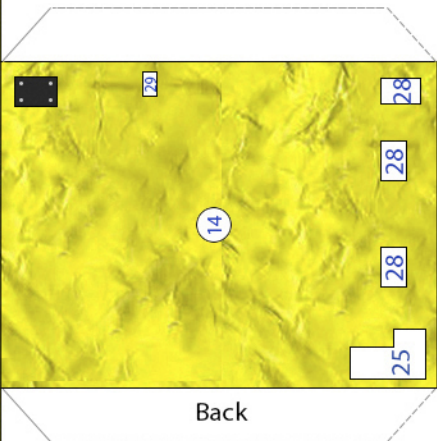
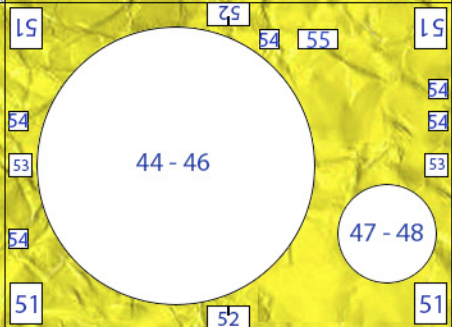
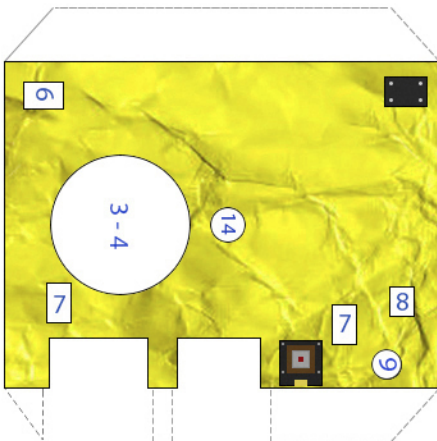
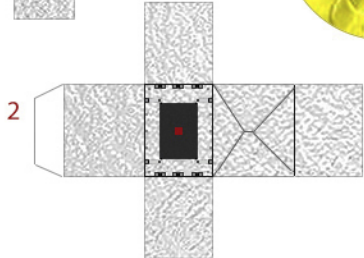
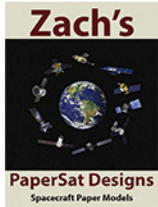
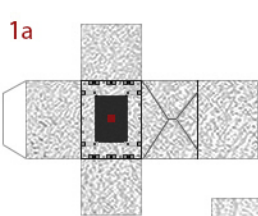
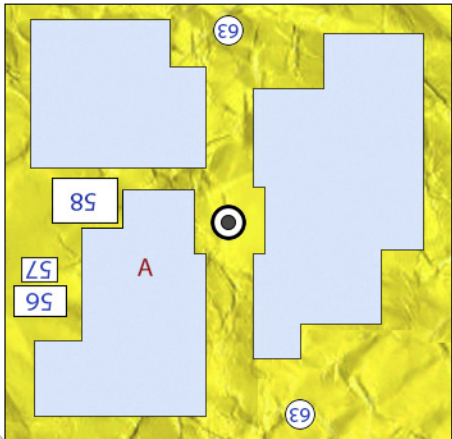
The orbiter started its two-year period of "regular" science operations in mid-May 2016. Since 9 December 2016, the near-infrared 1- μ m and 2- μ m cameras have been unavailable for observations due to an electronic failure. Its long-wave infrared camera, ultraviolet imager, and lightning and airglow camera continue normal operation.

By April 2018, Akatsuki finished its regular observation phase, and entered an extended operation phase. Extended operations are approved until the end of 2020, with further mission extensions to be considered based on the spacecraft's condition at that time. Akatsuki has enough fuel to continue operating for at least 2 more years as of November 2019.

Akatsuki



1 Cut out ALL blue areas



Color back Black

Color back Black



Cut out the blue areas



Akatsuki



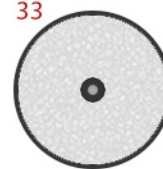
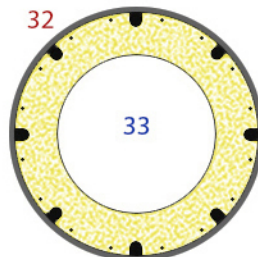
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Glue to cardstock



29

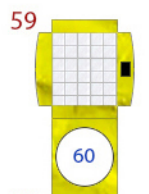
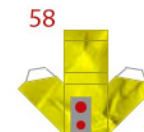
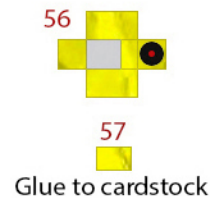
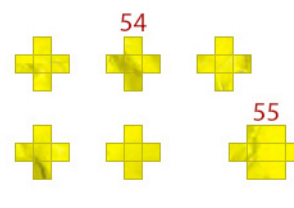
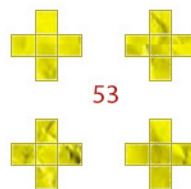
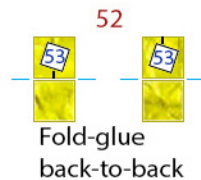
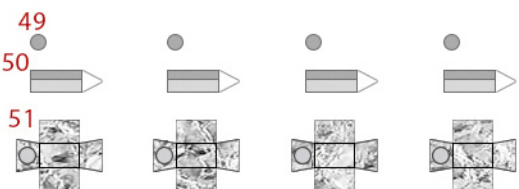
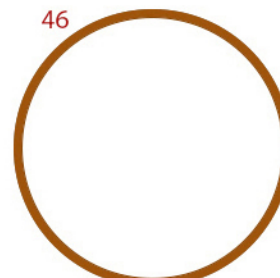
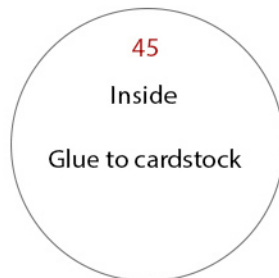
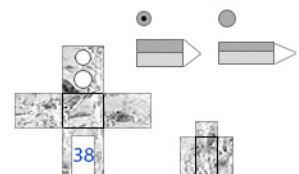
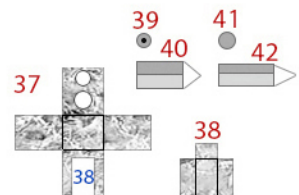
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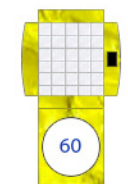
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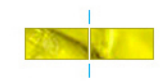
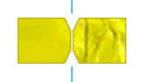
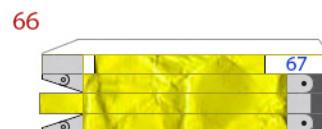
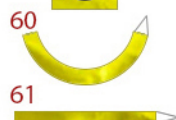
Color back Black on all three parts



Color back light grey



Color back light grey



Cut a long wooden rod around 2mm diameter, then same length as the line below.
This will support the solar panel arms.



Fold-glue each pair back-to-back at the blue lines

68

Glue each to the grey tab on the
backside of each solar panel

