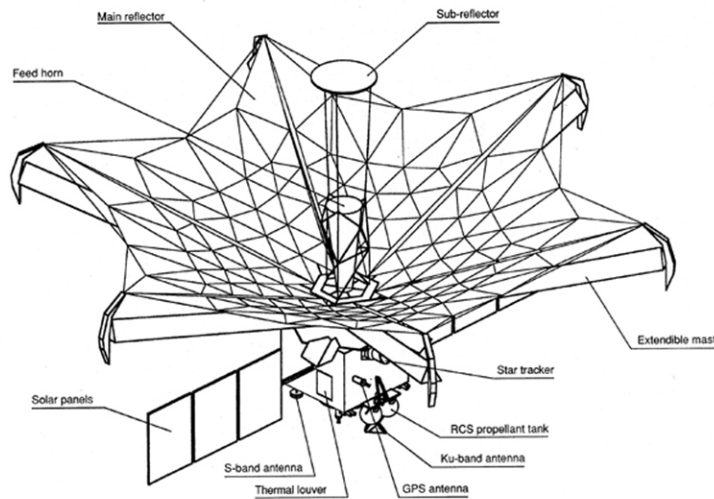
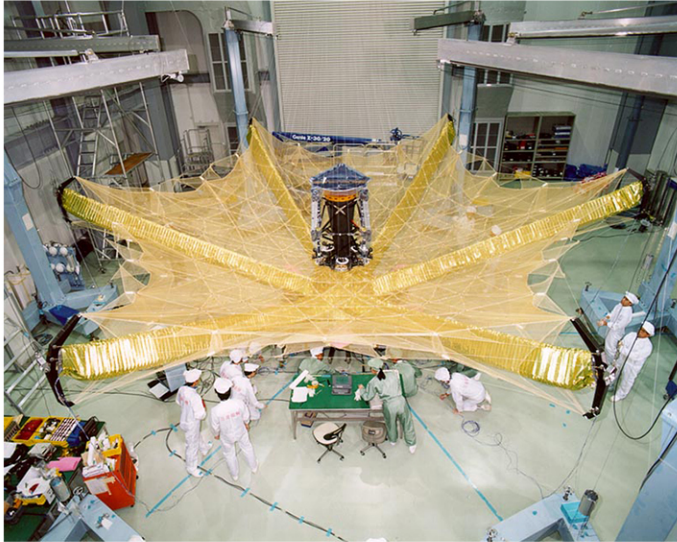


HALCA



The Japanese HALCA satellite in the VSOP project has made history in radio astronomy as the first 8-m space-borne radio telescope working jointly with ground stations to form unprecedented baselines that could be twice as long as the earth's diameter (The largest astronomical instrument ever built.). It has made some important accomplishments, such as observation of hydroxyl masers at 1.6 GHz, detection of interference fringes, and routine VLBI imaging of quasars and radio galaxies, etc.

By combining data from the orbiting radio telescope Halca with radio telescopes on Earth, the space VLBI mission produces radio images with the same sharpness (although not the same sensitivity) as a single radio telescope the size of the Halca orbit.

Launched Japan's Kagoshima Space Center in February 11, 1997 by Japan's (Institute of Space and Astronautical Science) ISAS, Space VLBI uses a technique called interferometry that electronically links widely separated radio telescopes so that they work together as a single instrument with extraordinarily sharp "vision" or resolving power. By taking this technique into space for the first time, astronomers have approximately tripled the resolving power previously available with only ground-based telescopes. The Space VLBI satellite system has more than 100 times greater resolving power in radio frequencies than the Hubble Space Telescope has at optical wavelengths. In fact, its resolving power is equivalent to being able to read a newspaper headline in Tokyo all the way from Los Angeles.

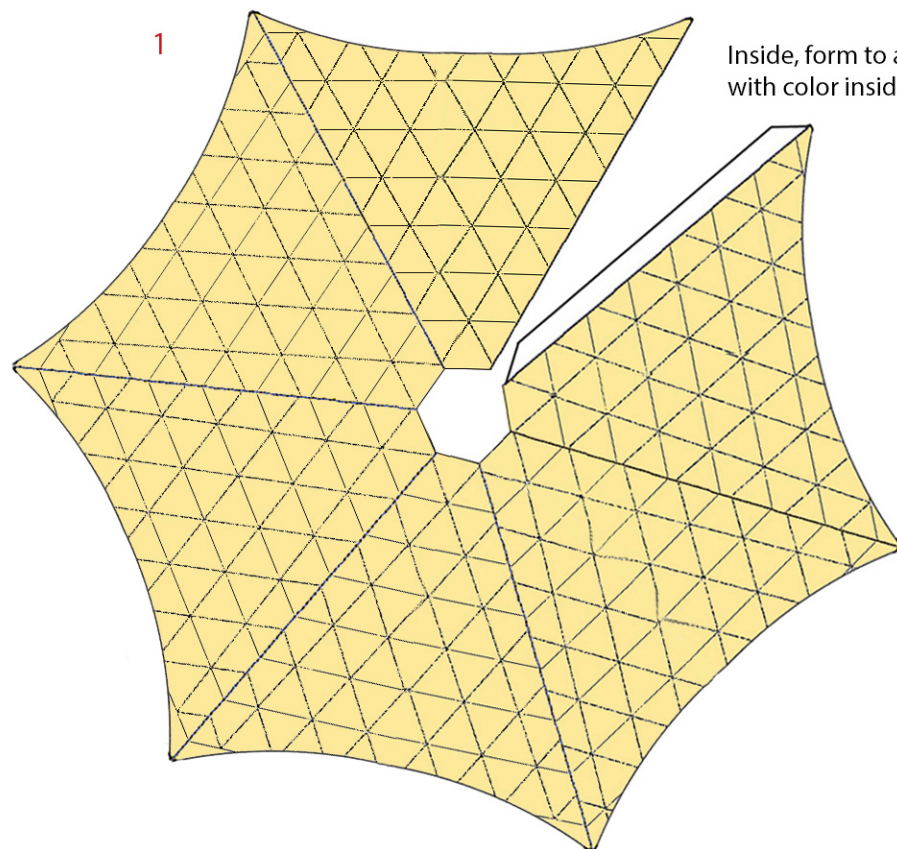
The images, more than a million times more detailed than those produced by the human eye, used the new Japanese HALCA satellite, working in conjunction with the National Science Foundation's (NSF) Very Long Baseline Array (VLBA) and Very Large Array (VLA) ground-based radio telescopes. The landmark images are the result of a long-term NRAO effort supported by the National Aeronautics and Space Administration (NASA).

The 1,830-pound satellite has a dish antenna 24 feet in diameter. The antenna, folded like an umbrella for the launch, was unfolded under radio control from the ground on Feb. 26.

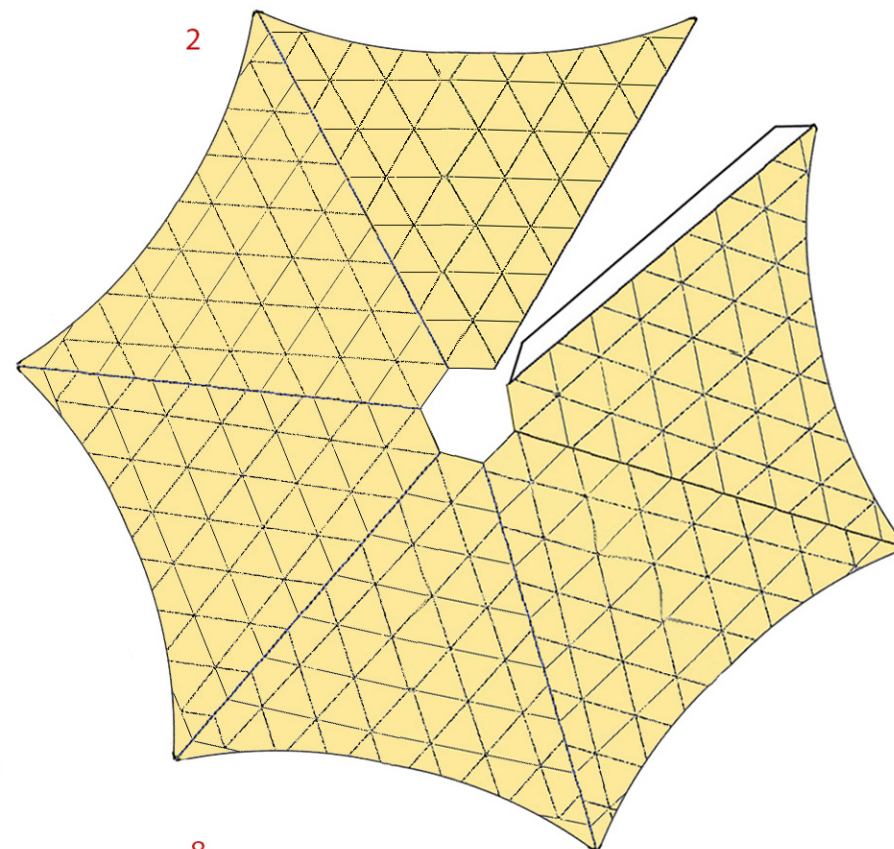
HALCA made its final VSOP observations in October 2003, far exceeding its 3-year predicted lifespan, before the loss of attitude control. All operations were officially ended in November 2005.

NOTE

For a more realistic look, print the next page on transparency film, use instead of the two dish graphics here.



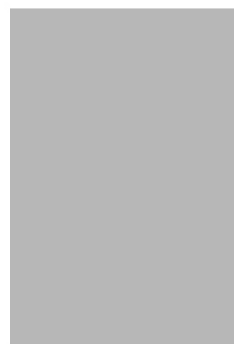
Inside, form to a shallow conic with color inside



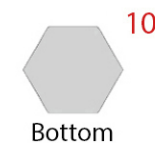
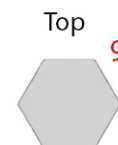
Outside, form to a shallow conic with color outside.



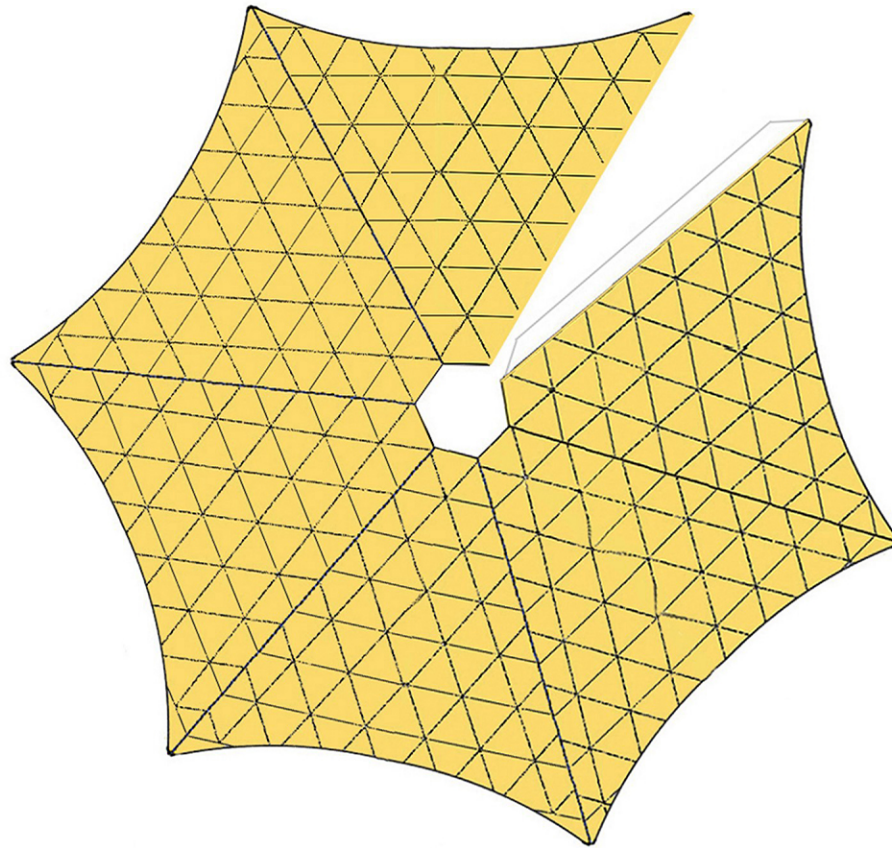
Glue Parts 4 to the BACKSIDE of the grey rectangle for color on both sides



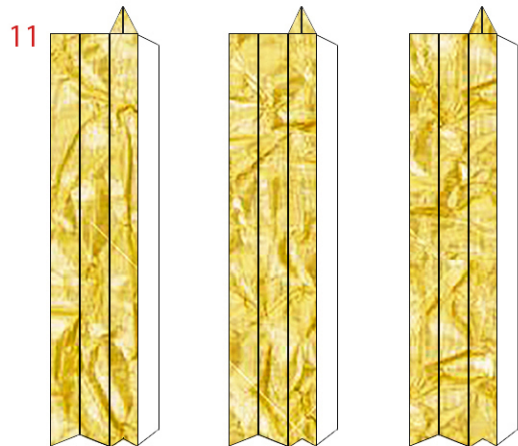
Color backside Black
Remove the white areas



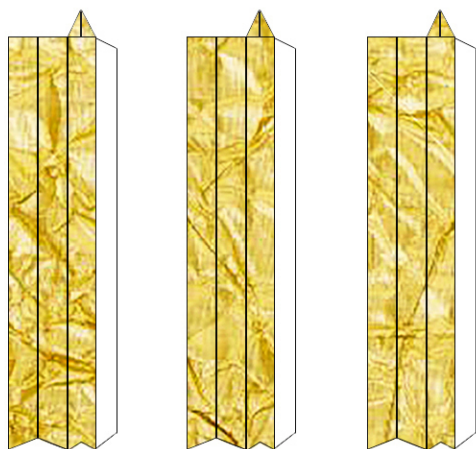
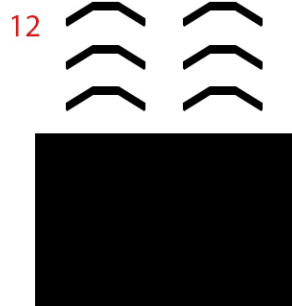
For more realistic look , print this on
transparency sheet.



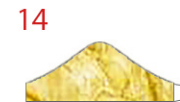
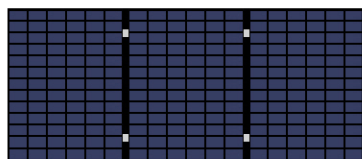
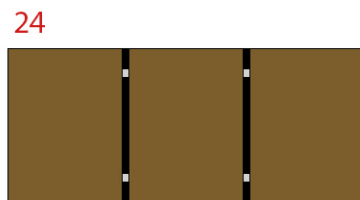
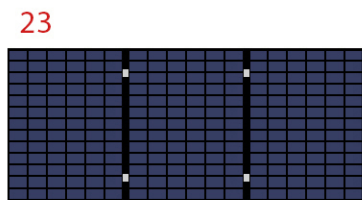
HALCA (Highly Advanced Laboratory for Communications and Astronomy)



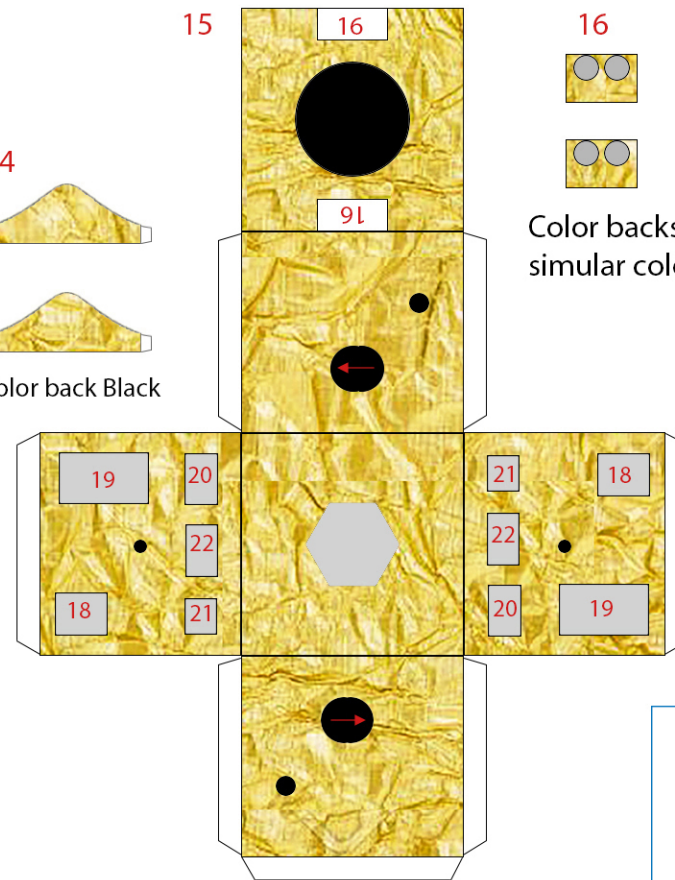
Glue these to BACKSIDE of the black rectangle below for color on both sides, color edges black.



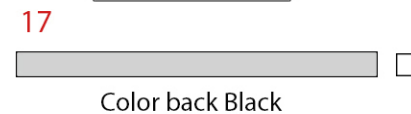
Glue the two parts to backside of square for color in both sides.



Color back Black



Color backside with similar color



Color back Black

