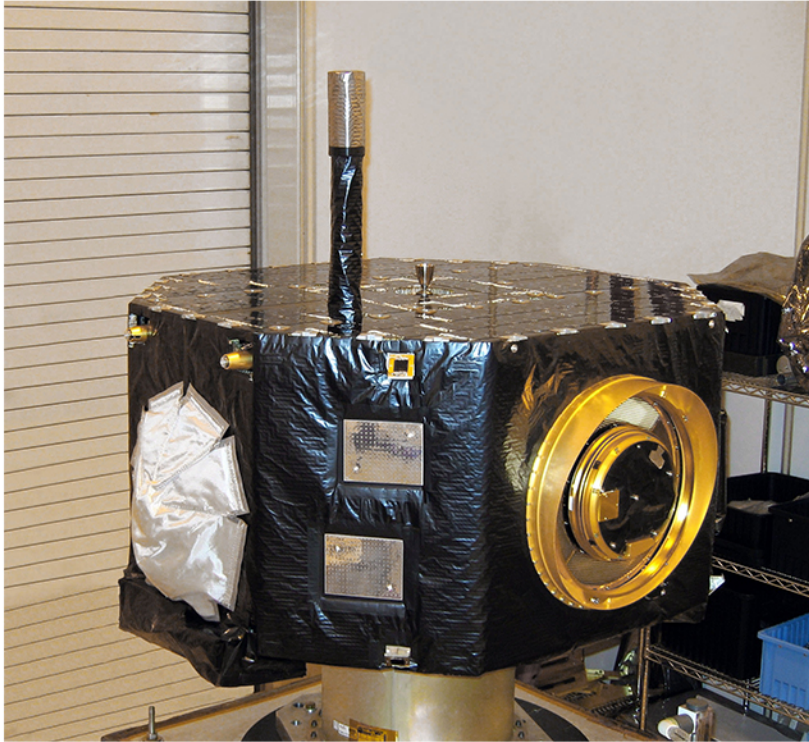


IBEX (Interstellar Boundary Explorer)



Interstellar Boundary Explorer (IBEX) is a NASA satellite that is making a map of the boundary between the Solar System and interstellar space. The mission is part of NASA's Small Explorer program and was launched with a Pegasus-XL rocket on October 19, 2008.

IBEX is the first spacecraft designed to collect data across the entire sky about the heliosphere and its boundary. Scientists have used this data to make the first maps of our heliosphere boundary. Our heliosphere boundary does not emit light that we can detect, which means it would be impossible to image using conventional telescopes. Instead of collecting light, like other telescopes do, IBEX collects particles coming from the boundary so that we can learn about the processes occurring there. The boundary of the Solar System protects us from harmful cosmic rays. Without it, four times more cosmic rays would enter our Solar System and potentially damage our ozone layer and DNA. It is important to study this region to know how it works.

IBEX does not travel to the Solar System boundary; it is an Earth-orbiting satellite. It detects particles coming from the boundary toward our region of the Solar System.

The nominal mission baseline duration was two years to observe the entire Solar System boundary. This was completed by 2011 and its mission was extended to 2013 to continue observations.

Initial data revealed a previously unpredicted "very narrow ribbon that is two to three times brighter than anything else in the sky". Initial interpretations suggest that "the interstellar environment has far more influence on structuring the heliosphere than anyone previously believed". It is unknown what is creating the ENA (energetic neutral atoms) ribbon. The Sun is currently traveling through the Local Interstellar Cloud, and the heliosphere's size and shape are key factors in determining its shielding power from cosmic rays. Should IBEX detect changes in the shape of the ribbon, that could show how the heliosphere is interacting with the Local Fluff.[14] It has also observed ENAs from the Earth's magnetosphere.

In October 2010, significant changes were detected in the ribbon after six months, based on the second set of IBEX observations.

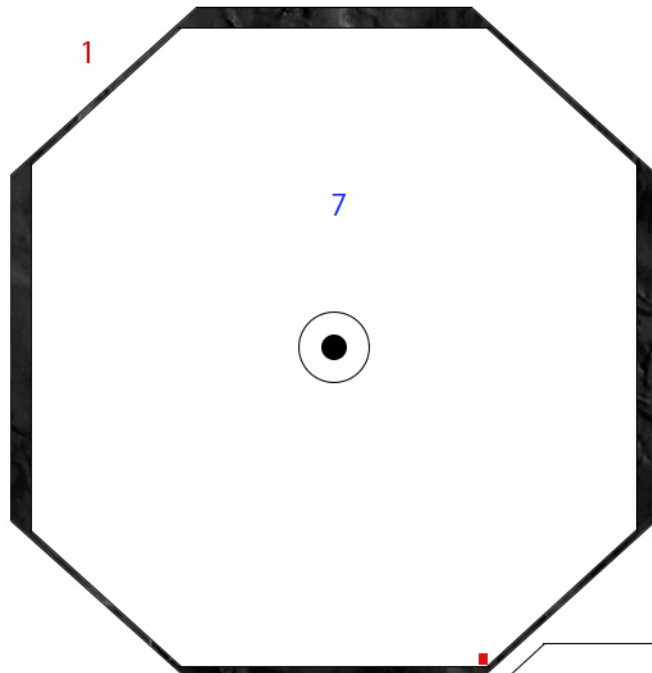
It went on to detect neutral atoms from outside the Solar System, which were found to differ in composition from the Sun. Surprisingly, IBEX discovered that the heliosphere has no bow shock, and it measured its speed relative to the local interstellar medium (LISM) as 23.2 km/s (52,000 mph), improving on the previous measurement of 26.3 km/s (59,000 mph) by Ulysses. Those speeds equate to 25% less pressure on the Sun's heliosphere than previously thought.

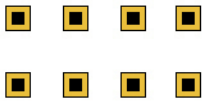
In July 2013, IBEX results revealed a 4-lobed tail on the Solar System's heliosphere. The spacecraft has also imaged stellar-wind bubbles, called "astrospheres," around other stars, as well as the tails from these astrospheres.

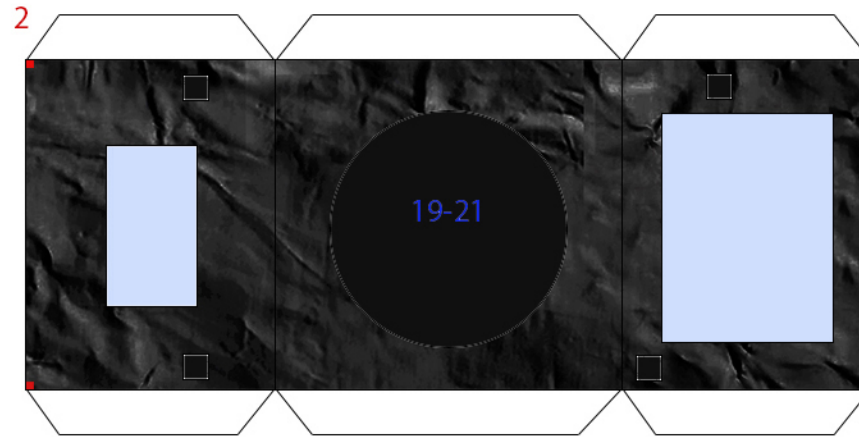
Dimensions 95 × 58 cm (37 × 23 in)



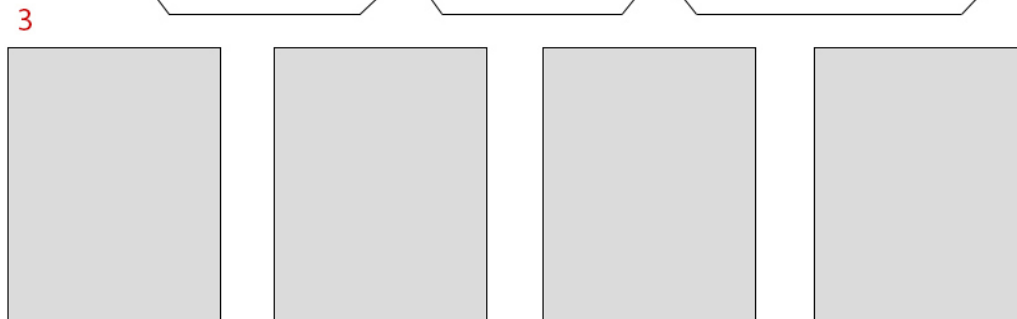
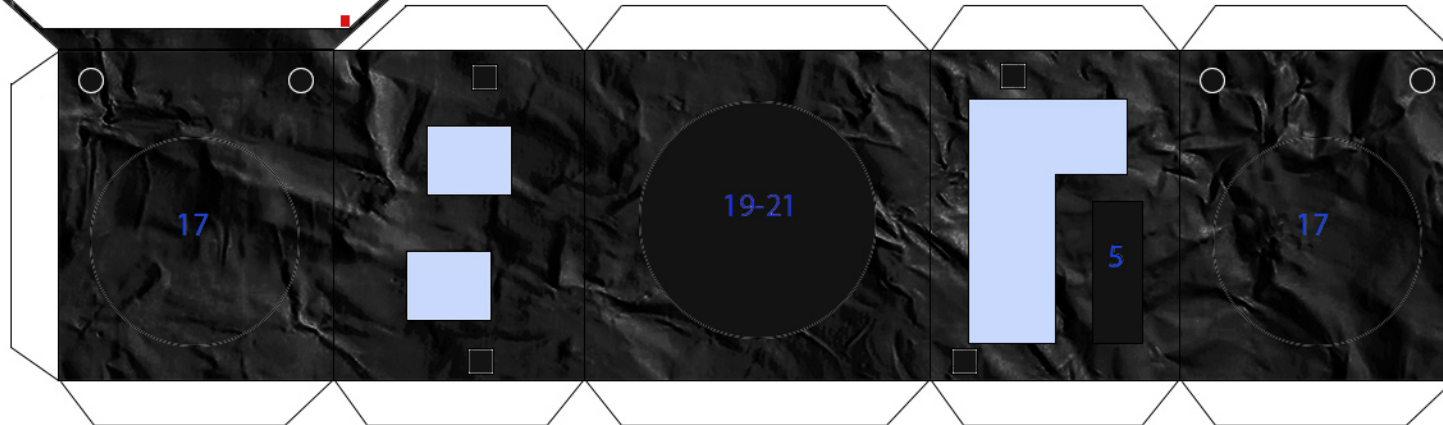
IBEX (Interstellar Boundary Explorer) 1/10 Scale Paper Model



4  Glue to the eight small squares on the body.

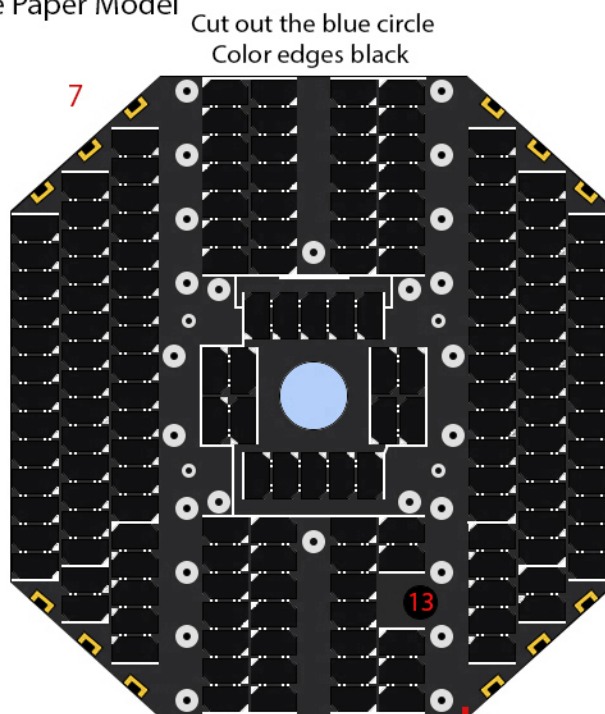
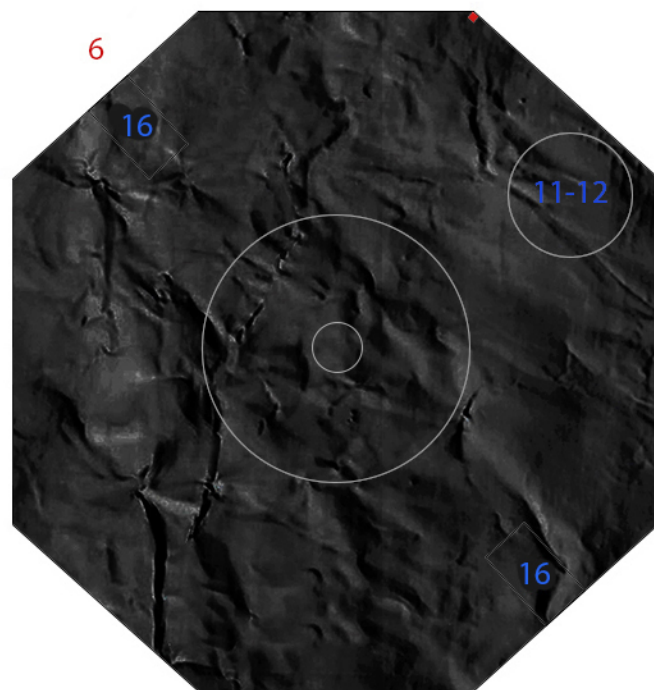


Cut out all light blue areas

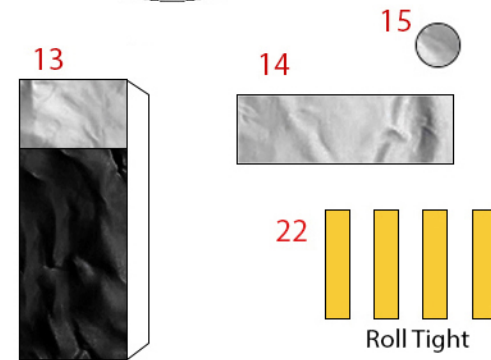
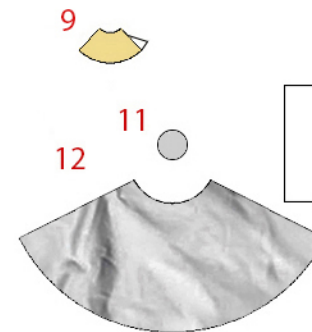


Cut out, paint or color these with metallic silver paint or marker - or glue foil (Shiny side up) on them. Glue these to the backside of the main body with the color or foil side showing through the cutouts before gluing it to an irregular Octagon shape.

IBEX (Interstellar Boundary Explorer) 1/10 Scale Paper Model

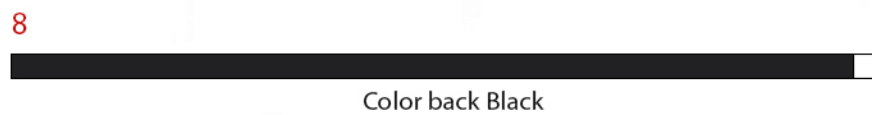


Cut out the blue circle
Color edges black



Roll Tight

Color back Black



Color back Black

