

BUILDING A SIMPLIFIED LANDSAT 8 SATELLITE MODEL

Today we get to build our very own Landsat 8 model. It is a 1/48th scale model that represents the general arrangement of the Landsat Data Continuity Mission (LDCM) observatory. This model is a simplified version of Michael Mackowski's Model Design. The satellite consists of 4 major components: spacecraft bus, 2 sensor units, and the solar array. The two Earth observing sensors which collect Landsat 8 science data are the Operational Land Imager (OLI) and the Thermal Infrared Sensor (TIRS). The sensor units on our satellite have been simplified for ease of construction and do not include the TIRS platform.

background information:

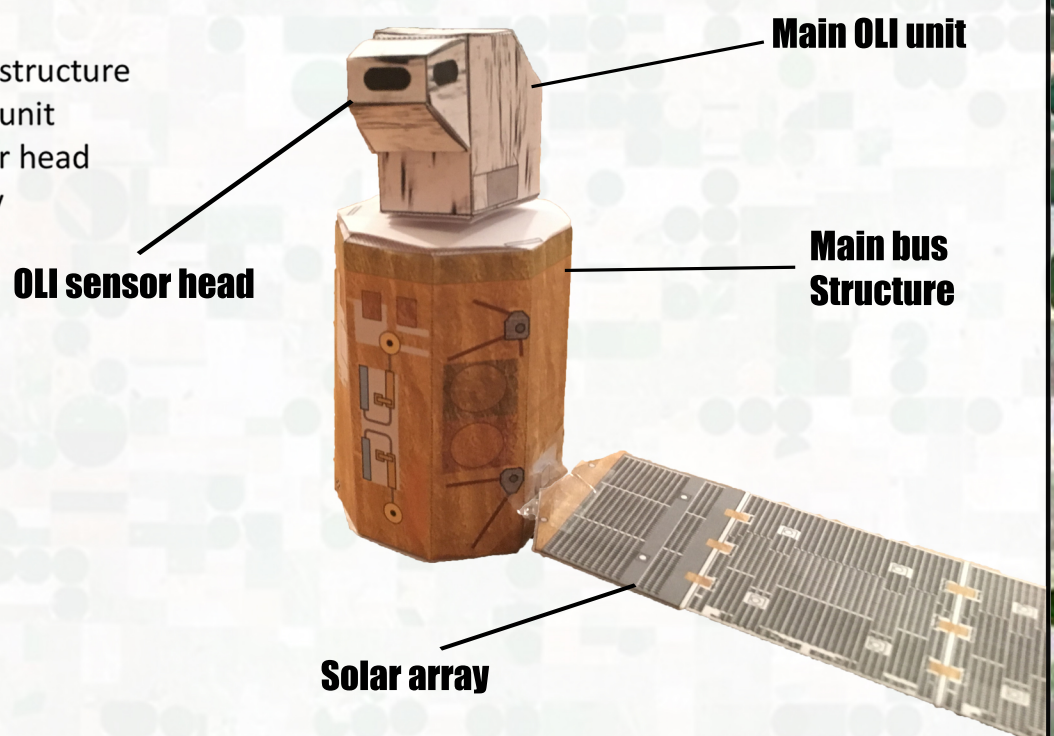
The Landsat mission has been going on since 1972. That's over 40 years of satellites orbiting and photographing the earth! These images provide a record of changes to our planet. Landsat is used to document all sorts of changes around the globe. Some of those changes include the growth of cities, before/after images for natural disasters and disturbances such as fires, flood, and volcanoes, changes resulting from agriculture like irrigation and deforestation, and changes in glaciers, rivers, and lakes. The USGS has a series of trading cards called Earthshots that provide numerous illustrated examples of specific changes to the Earth. Please check out the Earthshots cards on display here in the exhibit or visit the Earthshots website for more examples: <https://earthshots.usgs.gov/earthshots/>.

Pieces shown:

- ❖ Piece B: Main bus structure
- ❖ Piece G: Main OLI unit
- ❖ Piece H: OLI sensor head
- ❖ Piece J: Solar array

Materials:

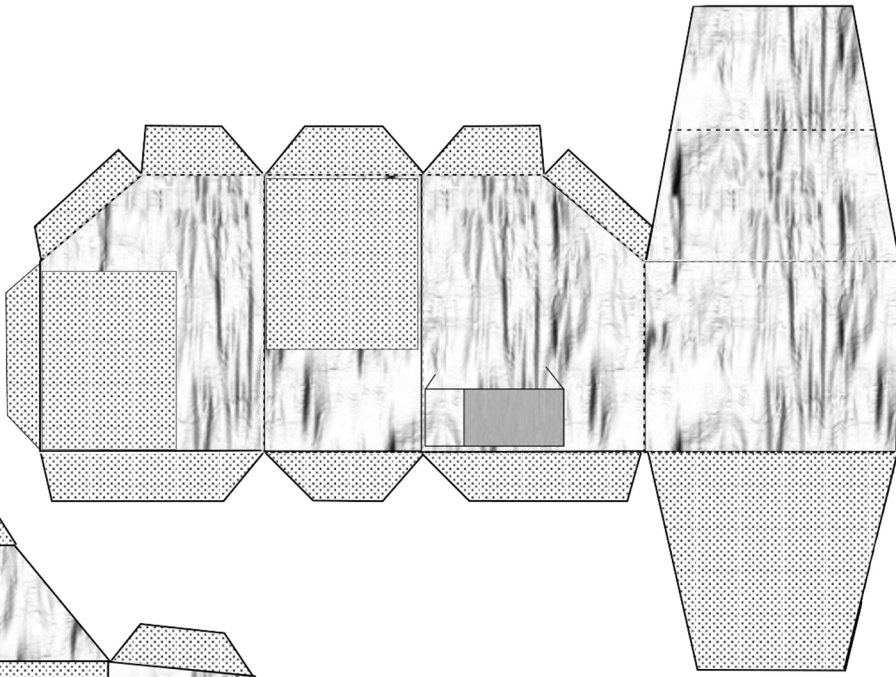
- Scissors
- Glue stick
- Tape



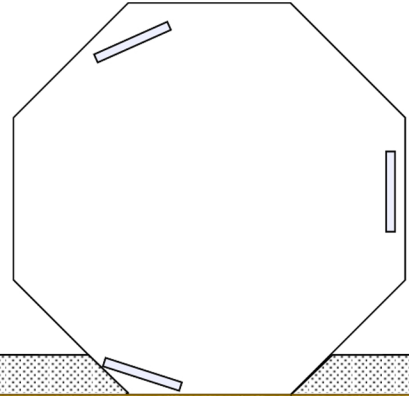
INSTRUCTIONS:

- 1.** Cut out the main bus structure (piece B) and score it in eight places to achieve the octagon shape. Also, score across the top and bottom to make the gluing tabs.
- 2.** Wrap the bus (piece B) around into a hexagon shaped box, and just glue the edge together that forms that hex-cylinder. Tuck the bottom tabs around the hex-cylinder and gradually glue those on. Don't try to glue the entire assembly at once. Do a few panels, make sure it is aligned and square. Lastly, fold the top down and glue that to the tabs to form a nice solid bus.
- 3.** Next cut out the main OLI unit (piece G). Score and fold the glue tabs to make the box. Note the bottom has the roughly trapezoidal footprint shape so glue that and then main shape.
- 4.** Next cut out the OLI sensor head (piece H) and form it into a box.
- 5.** Glue it to the main OLI instrument unit (piece G).
- 6.** Cut out the solar array (piece J) but don't cut the two halves apart. Simply score along the long edge and fold back on itself and glue that together to make a nice stiff panel.
- 7.** Tape the solar array (piece J) to the side of the main bus structure (piece B) that has a symbol that looks like a circle within square.
- 8.** You're done! You now have a really cool simplified LDCM model to show all your friends!

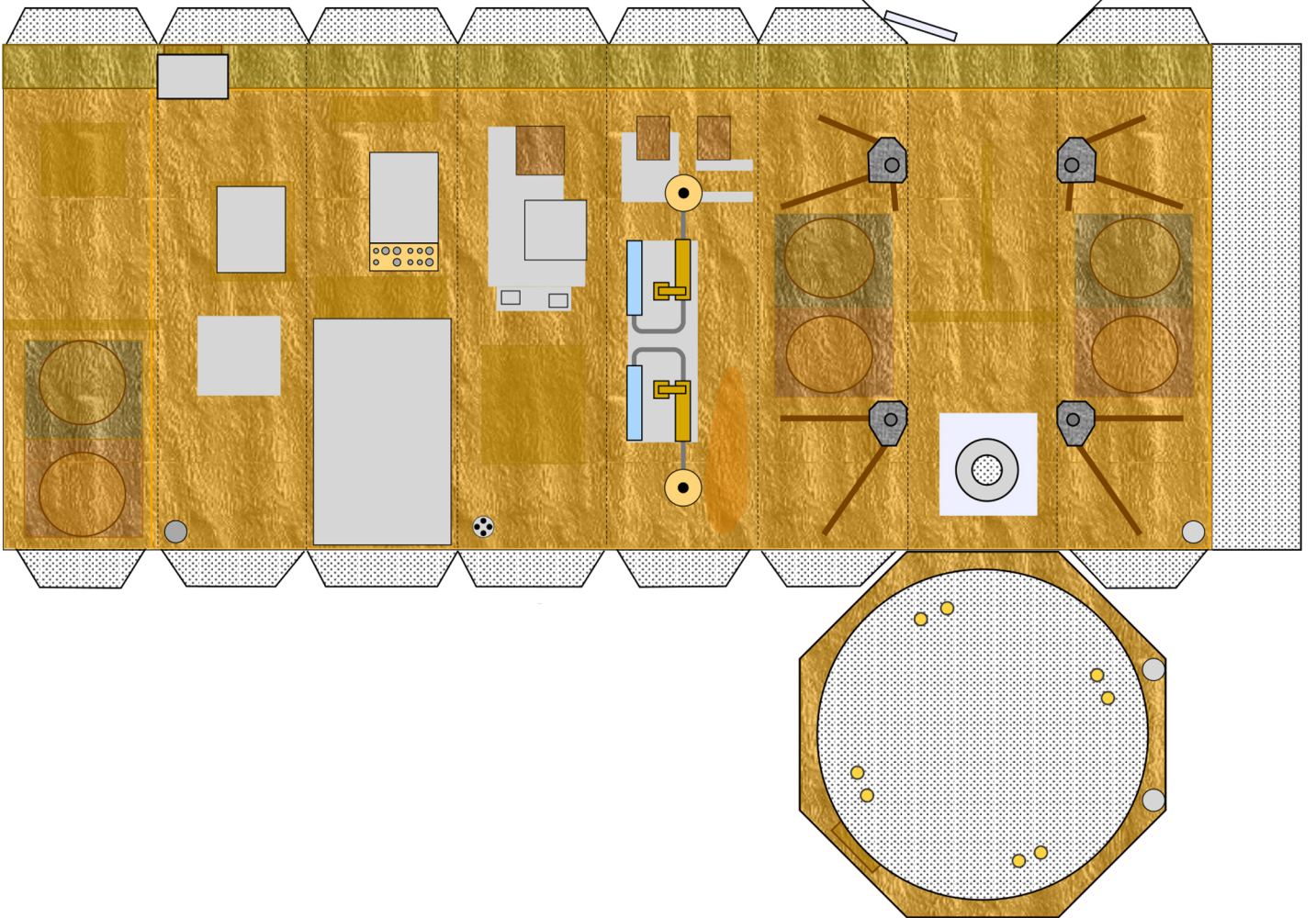
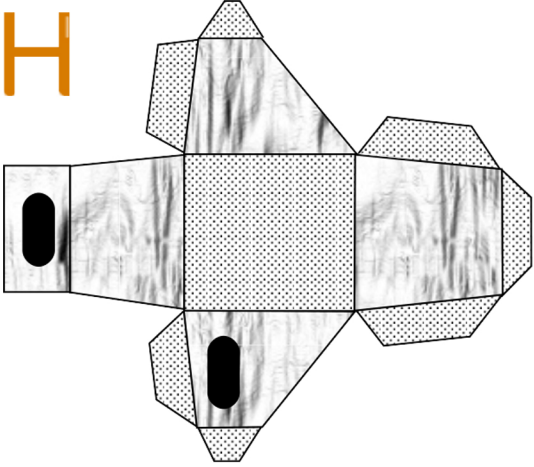
G



B



H



J

