

SMOS (Soil Moisture and Ocean Salinity)



SMOS was launched on November 2, 2009 on a Russian rocket launcher from the Plesetsk cosmodrome in northern Russia. It is the first satellite designed to both map sea surface salinity and monitor soil moisture on a global scale, thus contributing to a better understanding of the Earth's water cycle. As a secondary objective, SMOS will also provide observations over snow and ice-covered regions, contributing to the study of the cryosphere.

By consistently mapping these two important components in the water cycle, SMOS is advancing our understanding of the exchange processes between Earth's surface and atmosphere and is helping to improve weather and climate models.

Although designed as a five-year mission, it has been extended until at least 2017 – reflecting its versatility and new synergistic opportunities.

SMOS is one of ESA's Earth Explorer missions, which form the science and research element of the Living Planet Programme. This family of satellite missions address key scientific challenges identified by the science community and demonstrate breakthrough technology in observing techniques.

The SMOS satellite carries a novel interferometric radiometer that operates in the L-band microwave range to capture 'brightness temperature' images.

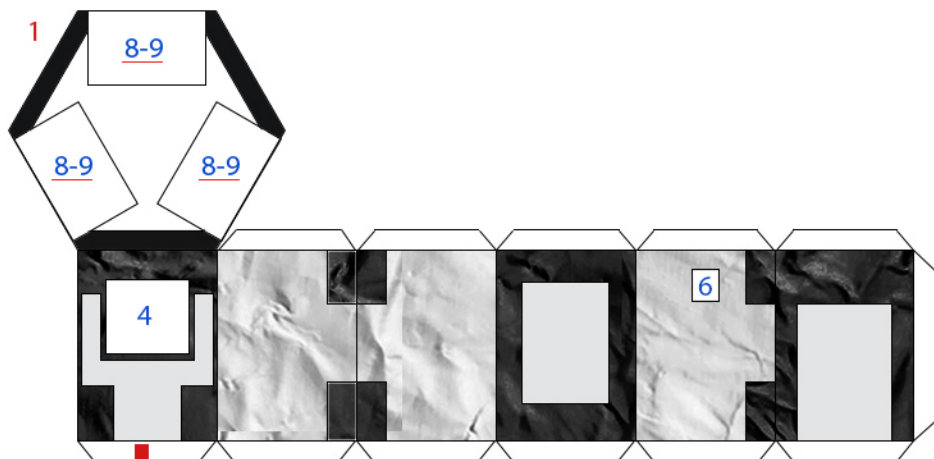
The SMOS antenna has three foldable arms that are 3 meters (6 feet) long apiece, and extend to form a Y shape. Along the arms are 69 small antennae that all act together to take measurements as if they were one larger antenna.

SMOS will analyse moisture content in the top few centimetres of soil across the globe. This will show scientists how water moves between the ground and the atmosphere, and what proportion is absorbed by vegetation - helping them to understand how our climate systems work.

More than 20 European companies were involved in the design and construction of SMOS, including Germany: Astrium, Kayser-Threde and TESAT.

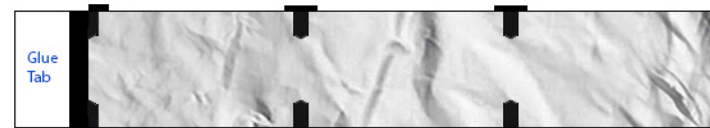
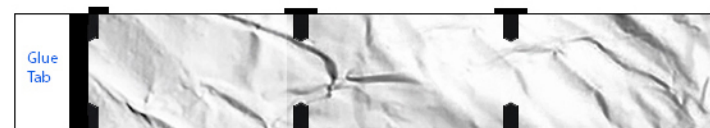


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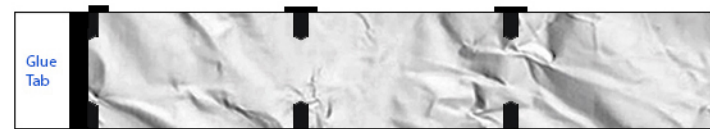
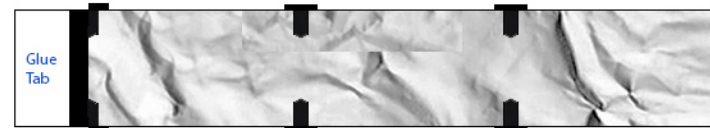
Glue these three panels to cardstock.
Color the edges at the foil areas light grey or silver.
Color the edges at the black areas black.

8

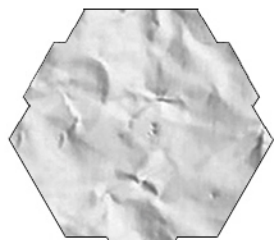


9

Glue these to the back side of 8

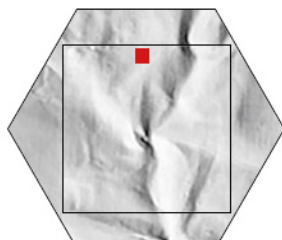


2



Top

3



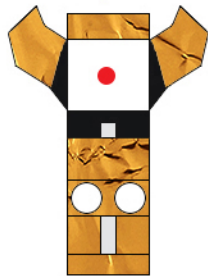
Bottom

Glue these to TWO
layers of cardstock
Color edges black

10



4

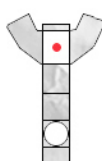


5



Glue to
cardstock

6



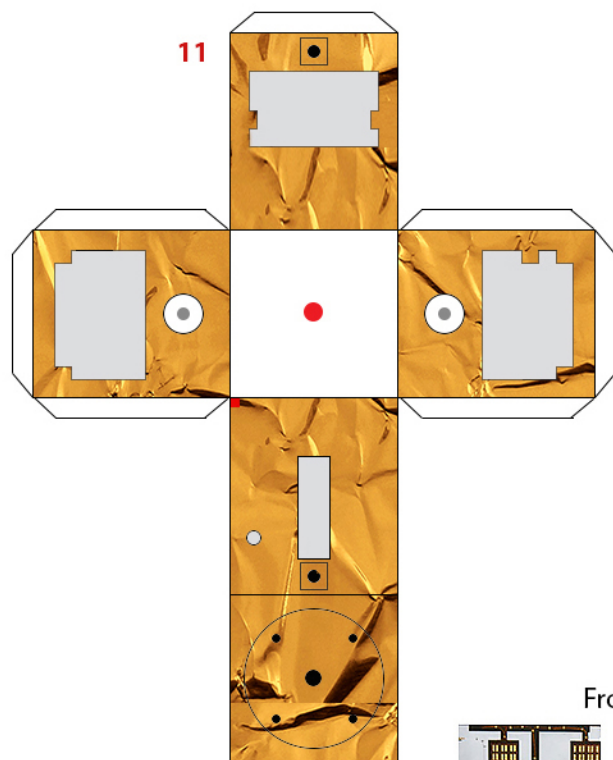
7



Glue to
cardstock

SMOS (Soil Moisture and Ocean Salinity)

Poke small holes on the grey dots



Need two pointed ends of a tooth pic, cut around 7mm long, colored black.

12



Roll-glue into solid rods

Fold back-to-back and glue together.



13

14



Color back light grey or silver

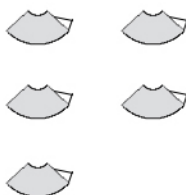
Poke small holes on the grey dots



15

Need a long tooth pic, wood skewer or similar material a little less than 2mm diameter, colored light grey, cut at the same length as the line below. Use for the solar panel rod.

16

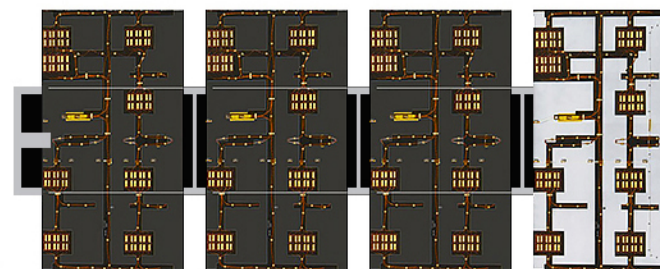
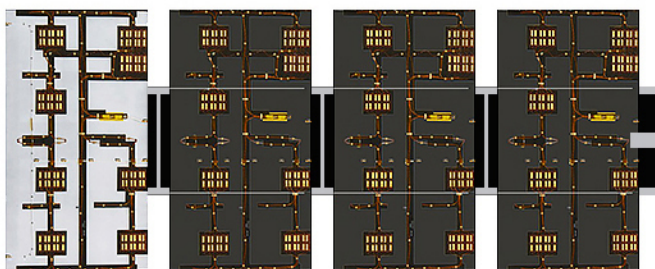


Spare
Color back side light grey or silver

LEFT

Front

17 Glue each pair back-to-back



RIGHT

Back

18

