



# SYNTHETIC APERTURE RADAR ART (SART)

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# BEFORE WE START...

## Objective | Challenge | Solution | Future

**Objective:** Use basics of geospatial scattering to produce SARt illustrating information with intricate features and unique appeal to the general public in order to succinct an interest in the SAR missions.

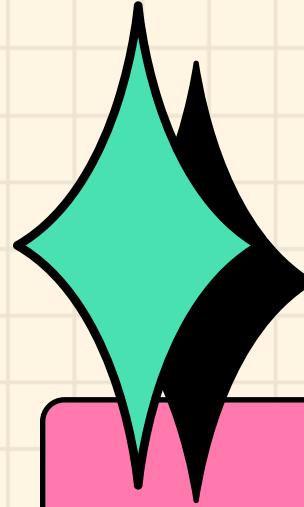
**Challenge:** All SAR satellites travel from the North pole towards the South pole for half of their trajectory. This Descending Orbit Pass (DOP) can be used with JavaScript code to study the data. The SAR Data is linearly polarized and a combination of VV, VH and HH scattering has to be evaluated to process the final images. These images must highlight the unique perspective of SAR sensors.

**Solution:** We used the basics of geospatial scattering to produce information with intricate understanding of what scattering we want and we created different polarization layers in Google Earth Engine.

**Future:** Compiled SAR data with satellite imagery can be used to better predict natural disasters and learn from them. The unique images created in this challenge introduce SAR to the general public in time for the expected NISAR mission in 2024. NISAR will be the first radar of its kind in space to systematically map Earth, using two different radar frequencies to measure changes of our planet's surface, including movements as small as centimeter.

**Did you know?** The upcoming NISAR (NASA-ISRO SAR) mission—a joint endeavor between NASA and the Indian Space Research Organization (ISRO)—will collect data around the world and provide consistent SAR imagery of these Earth processes.

# WHAT WE USED



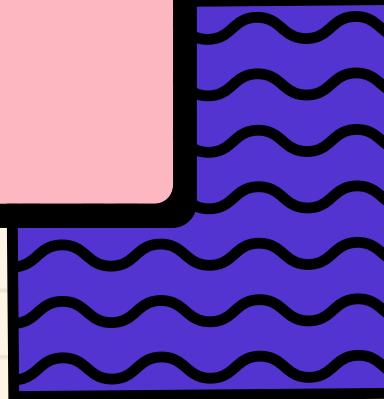
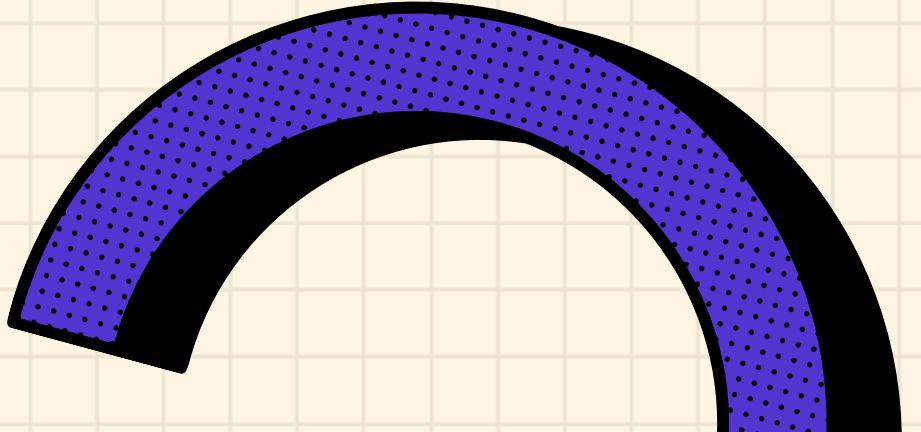
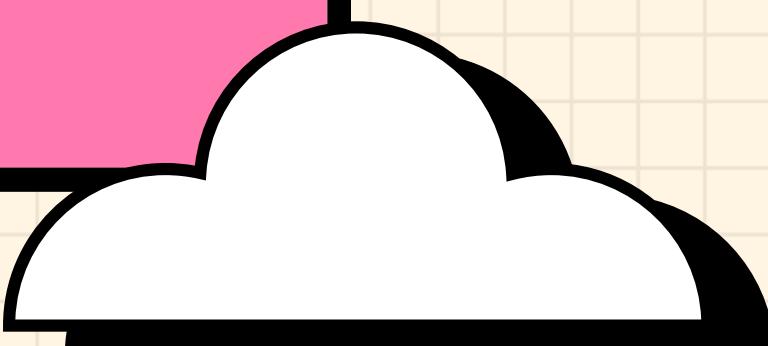
**UAVSAR IMAGERY**  
(UNINHABITED AERIAL VEHICLE  
SYNTHETIC APERTURE RADAR)

**GEOSPATIAL  
SCATTERING**

**JAVASCRIPT, THREEJS,  
PYTHON, EARTH ENGINE**

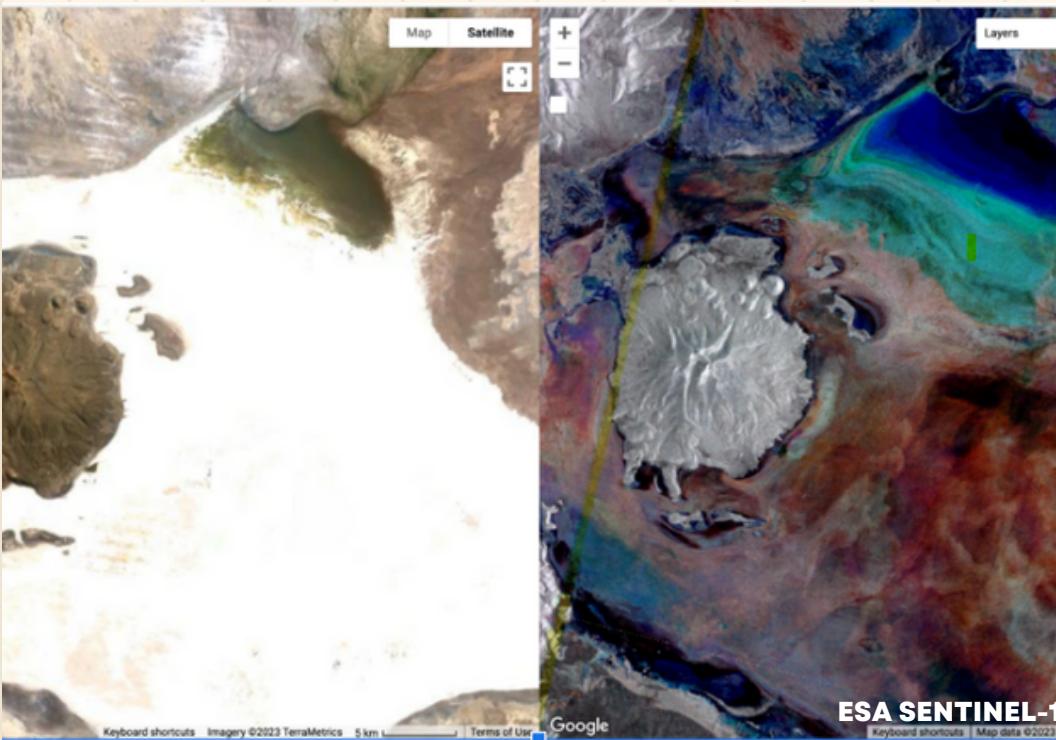
**CHAT GPT (AI)**

**CANVA**



# SATELLITE -VS- SAR IMAGERY

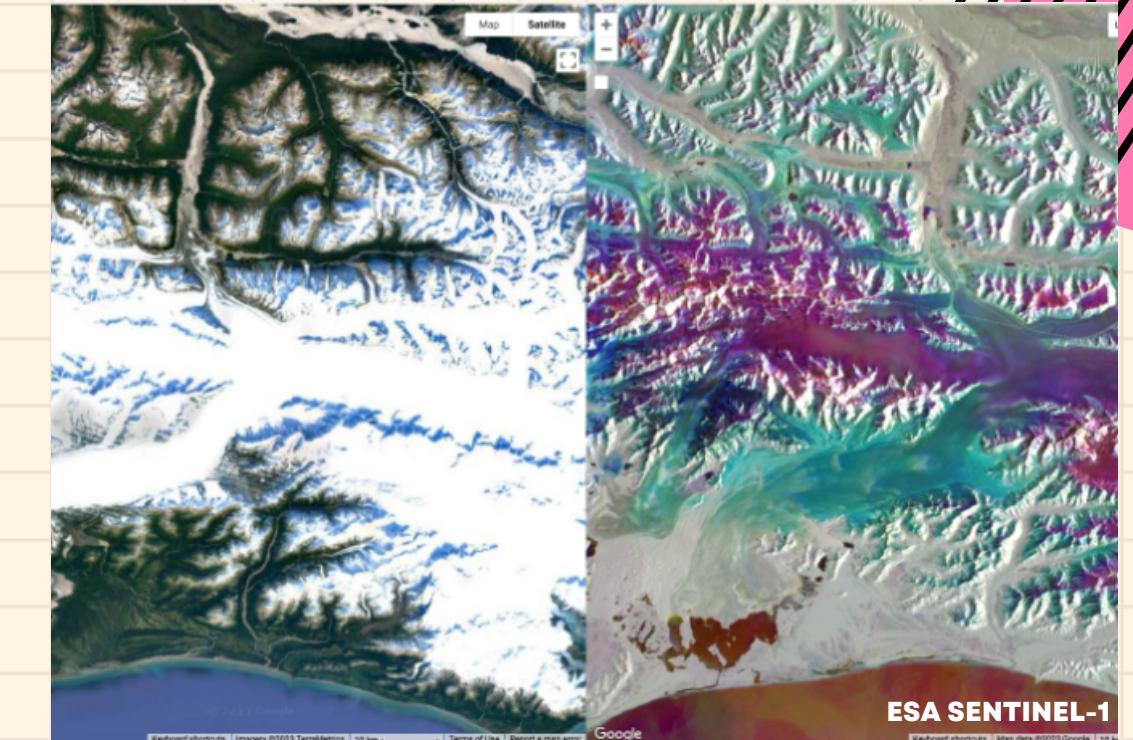
A more in depth look at the world? Yes to that!



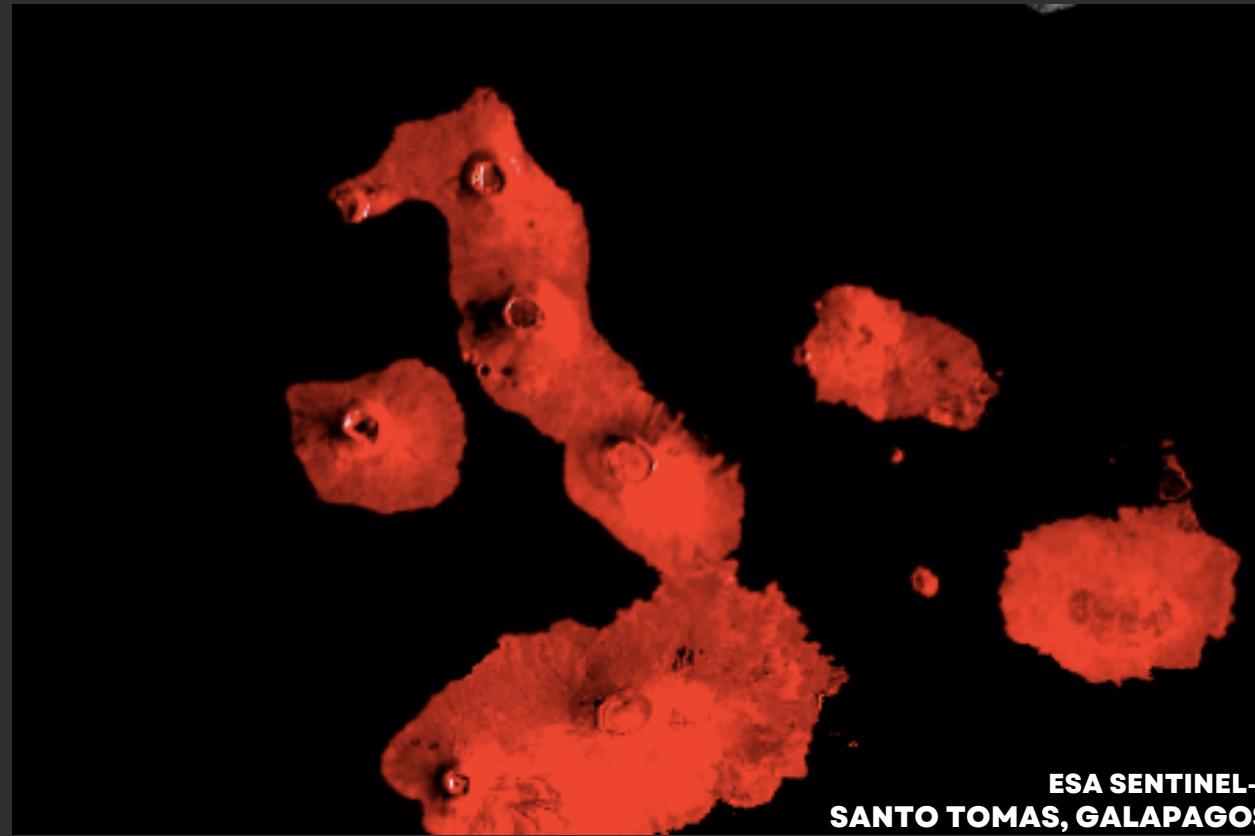
POTOSI PROVINCE - BOLIVIA



KANTUBEK REGION -  
UZBEKISTAN



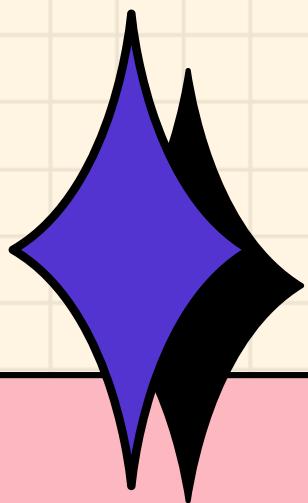
KATALLA - ALASKA - USA



# USING SAR FOR CREATIVE EDUCATION

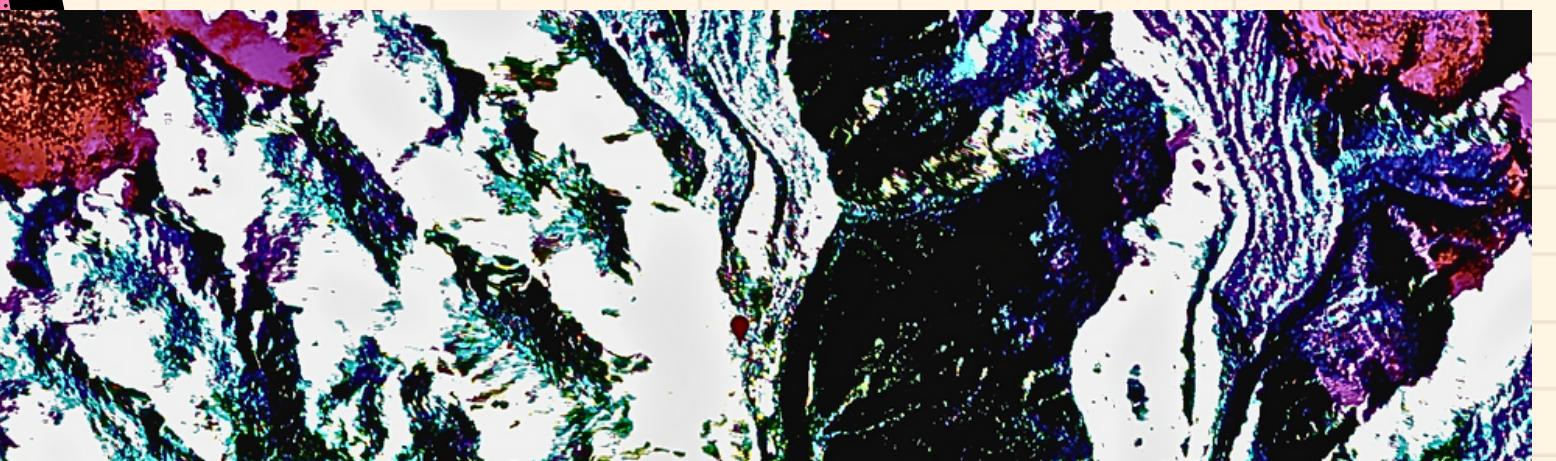
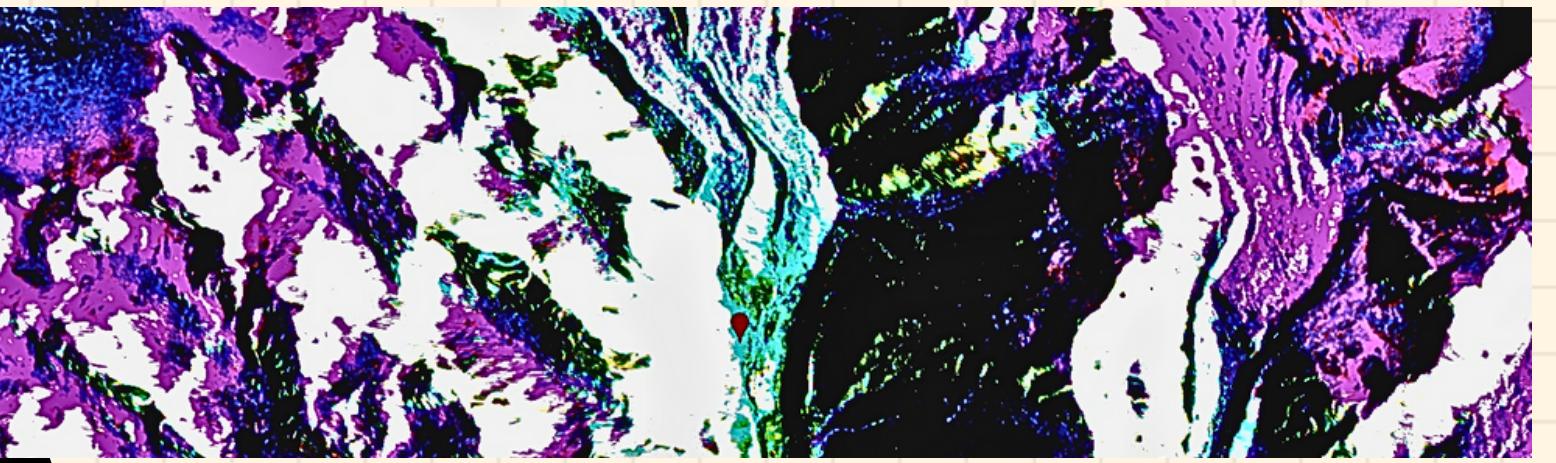
Did you know the Galapagos Islands resemble a seahorse? Or that the Kantubek Region of Uzbekistan makes a perfect heart?

SAR allows us to see the world through a different point of view.



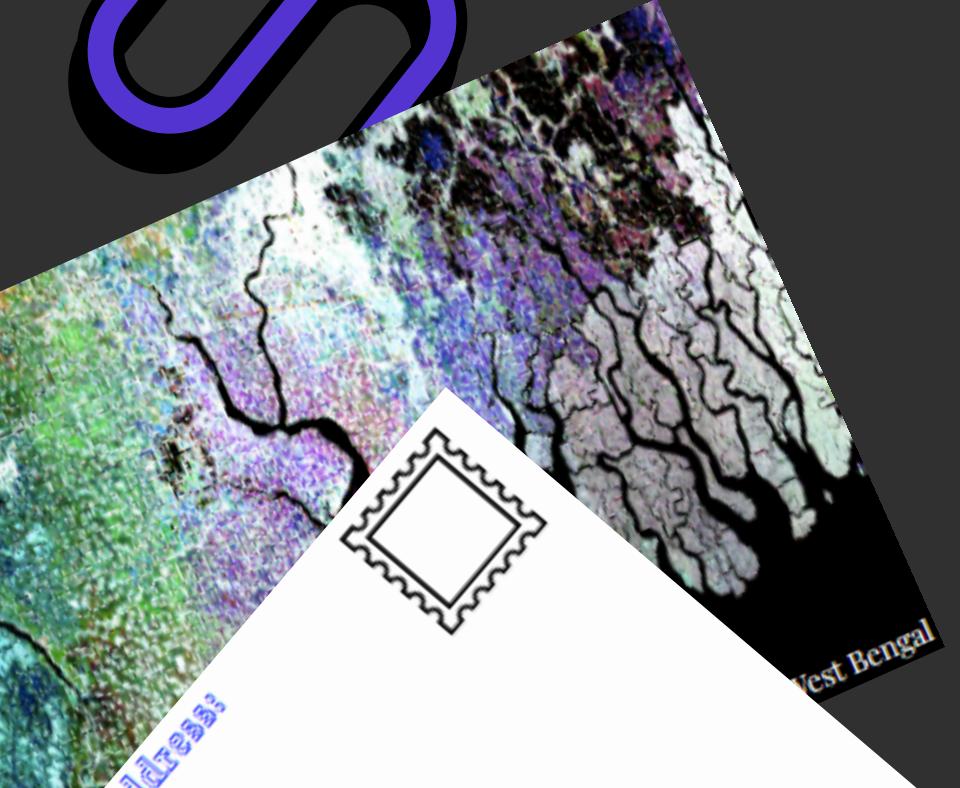
# USING SAR FOR SCIENCE

Follow us on a seven year journey showing  
rapid melting of Himalayas and flash floods  
causing land slides in Kedarnath, India



# SEND SART

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We  
thank  
you!

