How nanosatellites with blockchain technology can help with marine plastic recycling

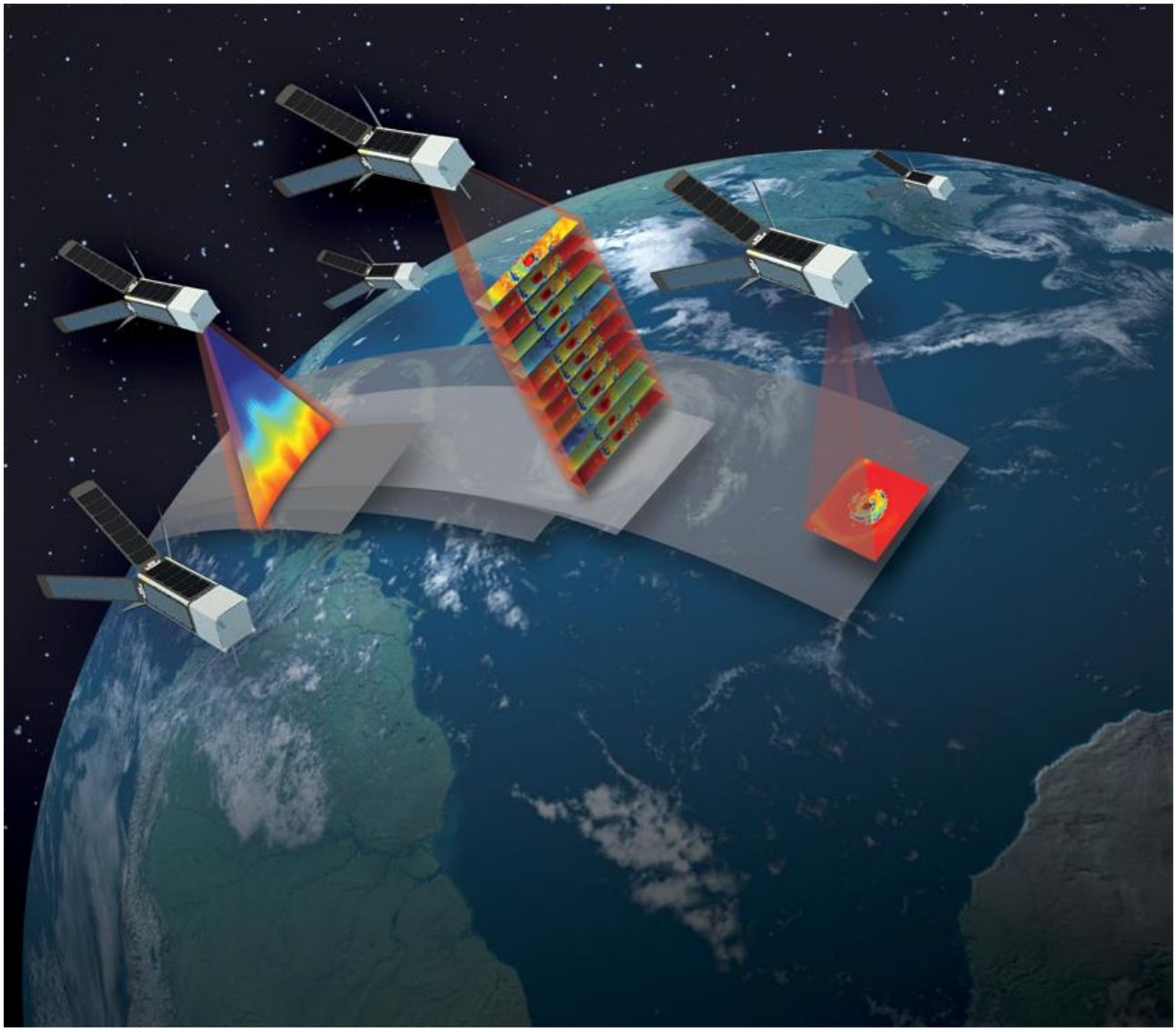

Image source : *https://tropics.ll.mit.edu/CMS/tropics/*

“The seventh continent” is often used as a metaphor to illustrate plastic pollution in the oceans, which represents nearly a third of the U.S. 80 % of these marine litters come from the land, rivers, sewage, etc.

This massive inflow of waste materials - mostly represented by polyethylene and polypropylene – are affecting species in the food string, and micro-organisms cannot eliminate them. According to WWF, there will be twice as much plastic waste in the ocean in 2030, while the world's production of plastic waste might increase by 41 %.

Three hundred million tonnes of plastic waste is currently in the ocean, and that makes the clean-up even more complicated as we know that water covers 72 % of the planet. We have no other solution but to find innovative approach with urgency.

As things stand, it is essential to know the degree of ocean pollution to coordinate better our efforts and find out practical solutions. It is where satellites play an essential role.

For example, the European Space Agency is evaluating the concentration of marine litter and damages caused by them on marine wildlife through satellite observation, including with their Sentinel-3. The innovative project here is to use a direct optical measurement of marine plastic waste from satellites with shortwave infrared.

A distinct spectral signature of plastic based on an infrared fingerprint is already used in the recycling industry. In this way, satellites can identify infrared fingerprints specific to plastic in order to show litter concentrations from a satellite-based image, providing valuable new knowledge to the scientific community.

The combination of satellite technologies with disruptive technologies, including blockchain technology, is opening up new possibilities for environmental innovation. Even though blockchain for space industry is still in its early phase, its potential is tremendous. As an example, blockchain can assure the integrity of transactions and sensor data insights transmitted from orbit to the ground by hash-stamping data.

With SpaceUp.tech, we are brainstorming use cases involving blockchain technology and earth observation technology.

For instance, launching low earth orbit (LEO) nano-satellites using low-cost launchers. These satellites integrate peer-to-peer architecture supported by Ethereum blockchain connecting both physical and digital assets. Blockchain technology enables therefore internet-connected pollution sensors to engage in transactions with one another independently through smart contracts.

These new solutions will offer a reliable, efficient, and affordable pollution monitoring and strengthen stakeholders' ability to solve problems. The goal is to provide a new space-based service that could not be provided to the public before. This new arsenal will offer the scientific community access to sensor data insights in real time from orbit, as well as democratizing access to space-based resources, where individuals could better understand, analyze and share key data on pollution, allowing new solutions to be created.

This initiative also seeks to incentivize individuals to get involved with environmental projects, such as projects committed to achieving the 2030 Sustainable Development Goals (SDGs).

Generally, participants could earn digital tokens created by the United Nations, which will be redeemable for a range of benefits. This collective initiative will also help with the promotion of environmental awareness through the power of satellite-based images, as they give a global view of the consequences of pollution on the environment.

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