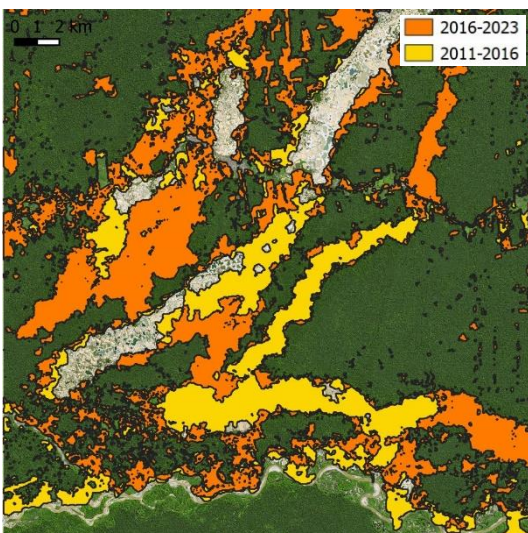


2011-09-03, Landsat 5



2023-06-03, Sentinel-2



Deforestation between 2011 and 2023

Located in the Amazon rainforest, the region along the Rio Madre de Dios, Peru, has seen a surge in informal and illegal mining activities during the last two decades.

These activities have had devastating consequences, including deforestation, mercury pollution, and habitat destruction, endangering unique wildlife and indigenous communities. The mercury used in the extraction process contaminates rivers and aquatic ecosystems, between 30 and 40 tons of mercury are released to the environment and into the food chain every year. This poses serious health risks to residents and to the environment. About 80 percent of the local population have enhanced mercury concentrations.

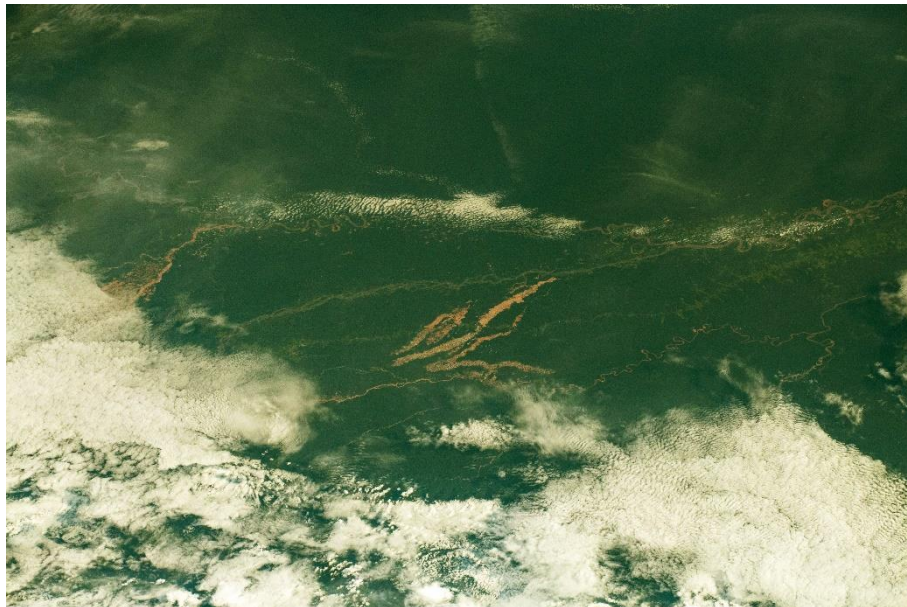
Efforts have been made to combat these issues, with government interventions and sustainable mining initiatives gaining traction. Satellite imagery plays a crucial role in monitoring and assessing the impact of these initiatives, helping to find a balance between economic development, public health, and the preservation of one of the world's most biodiverse regions. The future of gold mining in Madre de Dios hinges on finding sustainable practices that protect the environment and support local livelihoods.

The satellite images capture the ongoing transformation of lush forests into vast mining pits, revealing the extent of deforestation.

Exercises

- Describe the satellite maps from 2011 and 2023.
- Which landscape structures and land cover classes can you identify?
- Which differences can you identify between the two satellite maps?
- Which human activities are related with these differences? Are there only changes related directly to mining activities?
- Can you identify natural changes in the landscape, too? Look at the course of the Rio Malinowski near the southern edge of the map. What about changes in the meanders of the river?

Additional Material



The mining activities in the Amazon Basin as seen from the International Space Station ISS (photograph: ISS064-E-11006)

Links and Sources

- <https://earthobservatory.nasa.gov/images/148439/finding-gold-mining-hotspots-in-peru> - About the analysis of satellite data (Landsat, Sentinel) for identifying mining activities in the Amazon Basin.