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FINANCE FOR A GREEN TRANSITION: RHETICUS CARBON OFFSET

Abstract

According to IPCC (Intergovernmental Panel on Climate Change) in Working Group I contribution to the Sixth Assessment Report, anthropogenic contribution to greenhouse gas (GHG) emissions has led to an unprecedented warming of the Earth and extreme climate events. IPCC also identified finance to be one of the main catalysts and drivers to reduce net GHG emissions and enhance resilience to climate change impacts. Moreover, through the Corporate Sustainability Reporting Directive (CSRD), the EU made it mandatory for multinational and large companies to disclose data on the impact of their activities on people and the planet and any sustainability risks they are exposed to. REDD+ projects (Reducing Emissions from Deforestation and Forest Degradation) are an example of how companies can purchase carbon credits to offset their emissions, but it is difficult to assess how reliable the generated carbon credits are. Under the activity "Finance for a Green Transition" of the Generic Programme Line "Business Applications - Space Solutions" (BASS) managed by the European Space Agency (ESA), Planetek Italia is carrying out a feasibility study on the upcoming service "Rheticus® Forest Carbon Offset". The service will be built on the existing geo-platform Rheticus® operated by Planetek Italia, a cloud-based infrastructure for the automatic processing of Earth Observation (EO) data that delivers continuous monitoring services. Rheticus® Forest Carbon Offset aims to provide a reliability assessment for emissions offsetting investments for companies' sustainability strategies by evaluating forest carbon offsets of REDD+ projects. The service generates a synthetic rating of reliability of REDD+ projects by combining objective geospatial information that considers structural (forest cover) and functional (water stress and fire) factors over at least 10 years of past data. The service aims to use EO data and EO-derived datasets, including Sentinel-2 L2A, Copernicus Global Land Cover, ESA WorldCover, MODIS Land Cover, and other global EO-based forest monitoring datasets. Machine Learning and statistical analysis of time series are used to analyze data. The rationale for integrating these space assets revolves around creating a service capable of generating multi-temporal information in the most automated way possible, to be integrated into analysis scenarios. Several customer segments are involved: consultancy companies benefit from having a ranking of projects; investment funds benefit from having reliable credit estimations thus being safely commercialized along the value chain; carbon accounting software houses benefit from having forest data objective measurements; private market users have more certainty of the

carbon credits they are investing in.