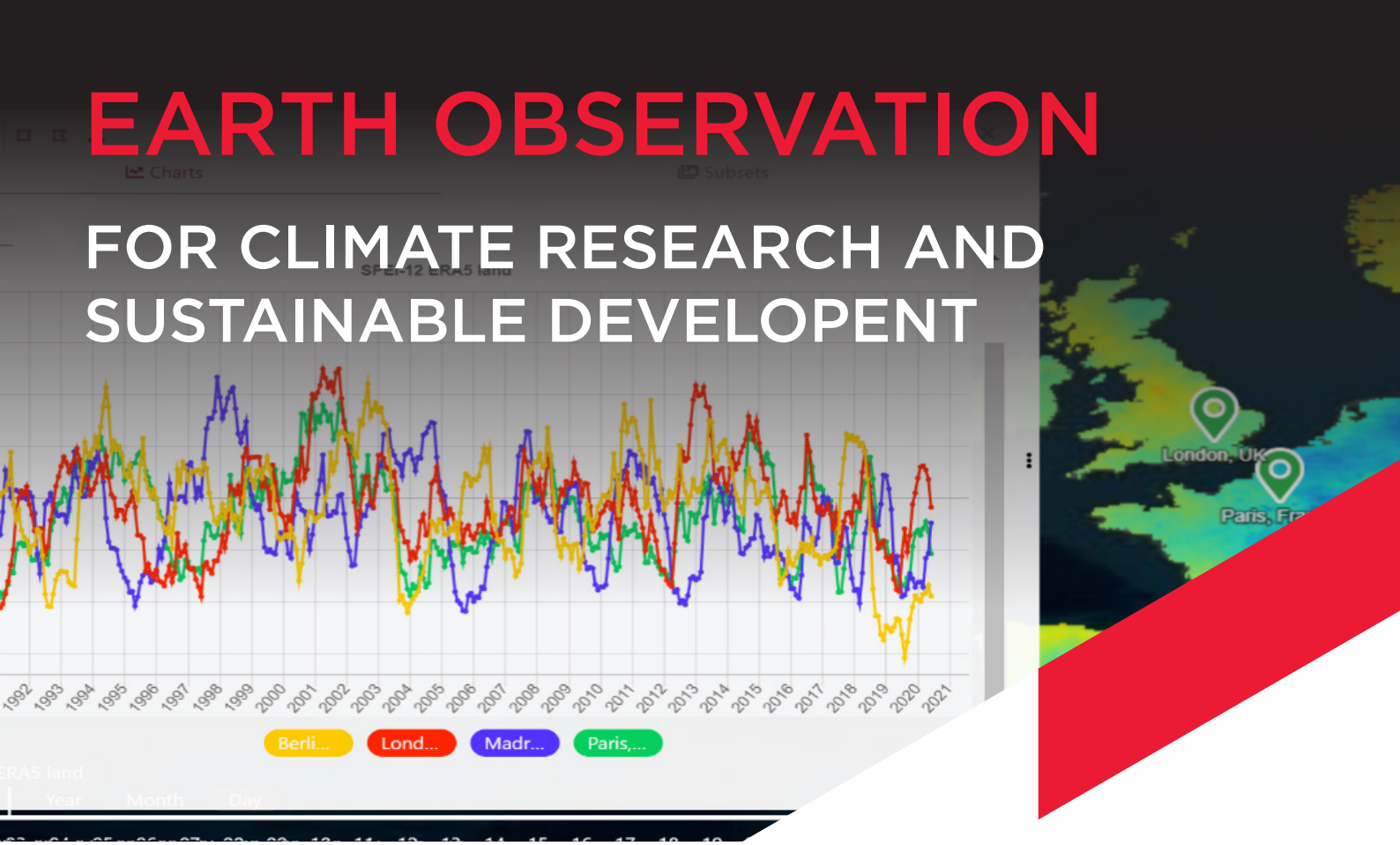
EARTH OBSERVATION

FOR CLIMATE RESEARCH AND SUSTAINABLE DEVELOPENT



BACKGROUND

Telespazio is a global leader in satellite solutions and services, supported by a wide international network of space centres and teleports. In recent years, Telespazio UK has established itself as a European industry leader in satellite observations for the climate change sector. Through key initiatives, the company plays a pivotal role in using satellite data to help stakeholders monitor, mitigate, and adapt to climate change.

Telespazio UK was integral to the Earth Observation for Sustainable Development (EO4SD) Climate Resilience cluster, providing data and developing tools. This success has driven further growth in climate services, with Telespazio UK now engaged in several climate-focused research and development projects.

EO4SD

Earth Observation (EO) data is essential for global climate research, providing timely and accurate information on the Earth's atmosphere, land, and oceans. ESA's Earth Observation for Sustainable Development (EO4SD) initiative works with International Financing Institutions (IFIs) and their client countries to use EO data for climate resilience and resource management.

As part of the EO4SD Climate Resilience cluster, Telespazio UK developed tools and provided climate data to support decision-making at regional, national, and international levels. The cluster also runs capacity-building activities, enabling stakeholders to use EO-based information for sustainable, climate-resilient decisions. Key services include data provision, risk screening, impact assessments, and training.

climate resilience
eo4sd

Telespazio UK Services for EO4SD

Building on its expertise as the lead developer of the Copernicus Climate Change Service (C3S) Climate Data Store, Telespazio UK (TPZ UK) provided crucial data to the EO4SD Climate Resilience cluster and International Financing Institutions (IFIs), including the World

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Bank's Climate Change Knowledge Portal (CCKP). TPZ UK developed climate impact indicators such as the Standardised Precipitation Evapotranspiration Index (SPEI) for 6, 9, 12, and 18-month timescales, and the Potential Evapotranspiration (PET) indicator for the African Union's African Risk Capacity (ARC).

Additionally, they provided precipitation indicators, including 1-in-50 maximum 1-day and 5-day rainfall, which can be used to assess water stress and flood risks.

These indicators were integrated into the CCKP and the International Finance Corporation's (IFC) climate risk tool. TPZ UK also created the Rainfall Explorer tool for the Multilateral Investment Guarantee Agency (MIGA), offering insights into global flood risks using historical and near-term rainfall data.

TELESPAZIO UK CLIMATE PROJECTS

As well as its work on the EO4SD initiative, Telespazio UK has continued to leverage its EO and climate science expertise in other projects, developing innovative tools that enhance users' understanding of climate impacts. Below is a brief overview of key projects.

Water Stress and Climate Indices for Africa

This ESA-funded project, in collaboration with European and African partners, provides users with easy access to essential Earth Observation (EO) and climate data, helping them detect early signs of water stress linked to drought across Senegal. The tools developed allow users to visualise and analyse soil moisture and up to 20 climate indices, assessing both severity and spatial extent. This data is critical for sectors like agriculture in mitigating drought impacts.

WaSCIA
Water Stress and Climate Indices for Africa

Earth Observation Climate Information Service

In this EOCIS-funded project, we are taking Fire Weather Index (FWI) values, calculated from CMIP6 and EURO-CORDEX data, and using machine learning trying to establish a relationship between FWI and EO data, with a focus on Fire Radiative Power (FRP) and land cover. The aim is to project changes in, not only FWI, but also estimate the frequency and location of high FRP events, helping users to identify future high-risk areas and take appropriate action.

EOCIS
EARTH OBSERVATION CLIMATE INFORMATION SERVICE

Climate Risk Indices for Industry

CRII enables the analysis of historical and future climate trends and extreme weather events. It provides valuable insights to intermediaries, consultancies, and governmental organisations, aiding financial institutions in climate risk assessments and helping governments understand climate impacts in their region.

CRII
Climate Risk Indices for Industry

INSIGHTS

Manu Sharma, Multilateral Investment Guarantee Agency (MIGA):

"We are very much focussed on finding ways to assess how resilient our projects can be. We need to make sure that funds are being spent in the right way; tools like the Rainfall Explorer really help us move the needle."