Earth System Services initiative

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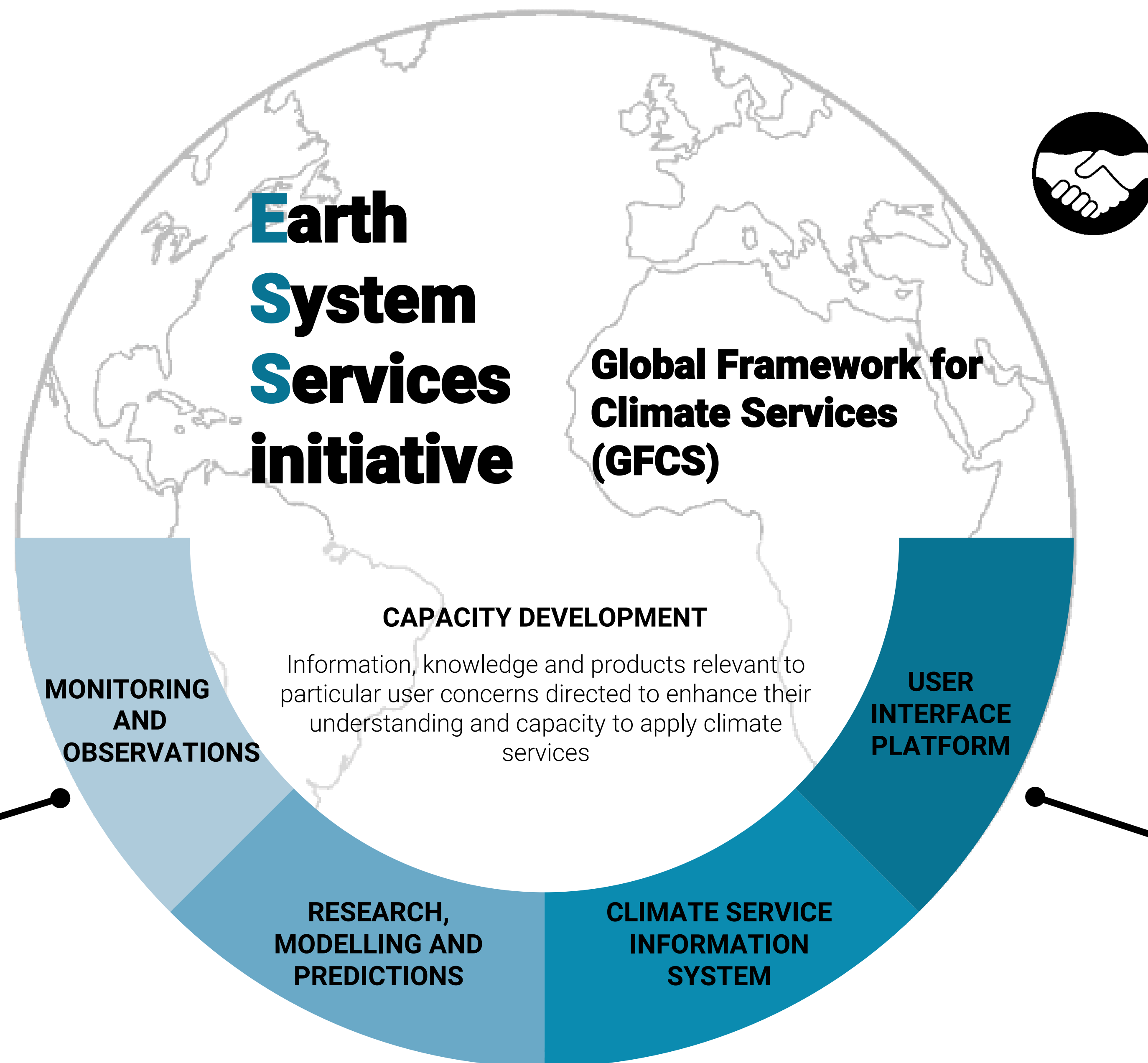
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### www.bsc.es/ess

The ESS initiative

Develops on the 5 pillars defined in the Global Framework for Climate Services (GFCS) from the World Meteorological Organization (WMO): observations and monitoring; research, modelling and prediction; climate service information system; user interface platform; and capacity development.

An example of what we do regarding four of these pillars is given below. You can access the different services using the QR code.

Earth System Services initiative

Global Framework for Climate Services (GFCS)

CAPACITY DEVELOPMENT
Information, knowledge and products relevant to particular user concerns directed to enhance their understanding and capacity to apply climate services

MONITORING AND OBSERVATIONS

RESEARCH, MODELLING AND PREDICTIONS

CLIMATE SERVICE INFORMATION SYSTEM

USER INTERFACE PLATFORM

Our **win-win solutions** look at **environmental or sustainability actions** that at the same time generate **economic or social benefits.**


AIR QUALITY FORECASTING - CALIOPE
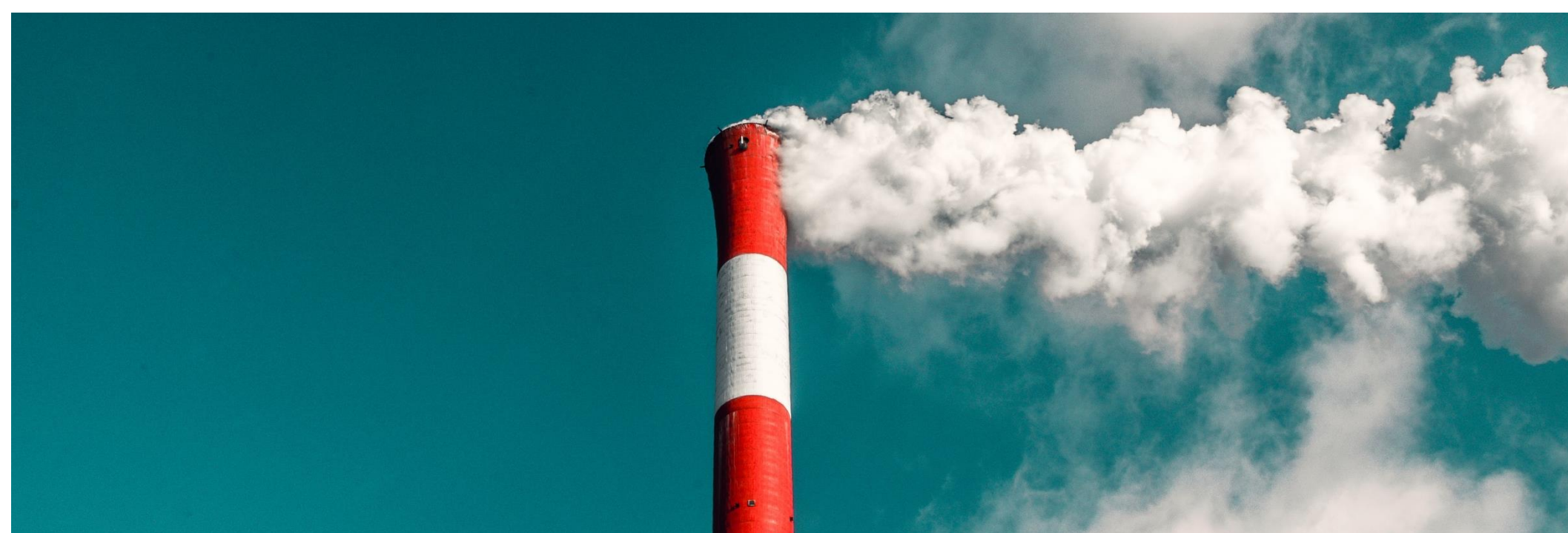
AIR QUALITY PROTOCOLS	NEW BUSINESS OPPORTUNITIES

Data on the concentration of the main regulated air pollutants is used for the activation of air quality protocols to protect exposed population in cities. Also, mitigation actions such as the increasing use of electric vehicles are fostered.

CALIOPE predictions are used in smart city platforms that private companies provide to local authorities to incorporate air quality and other big data in the daily management of cities.

SEASONAL HURRICANE PREDICTIONS
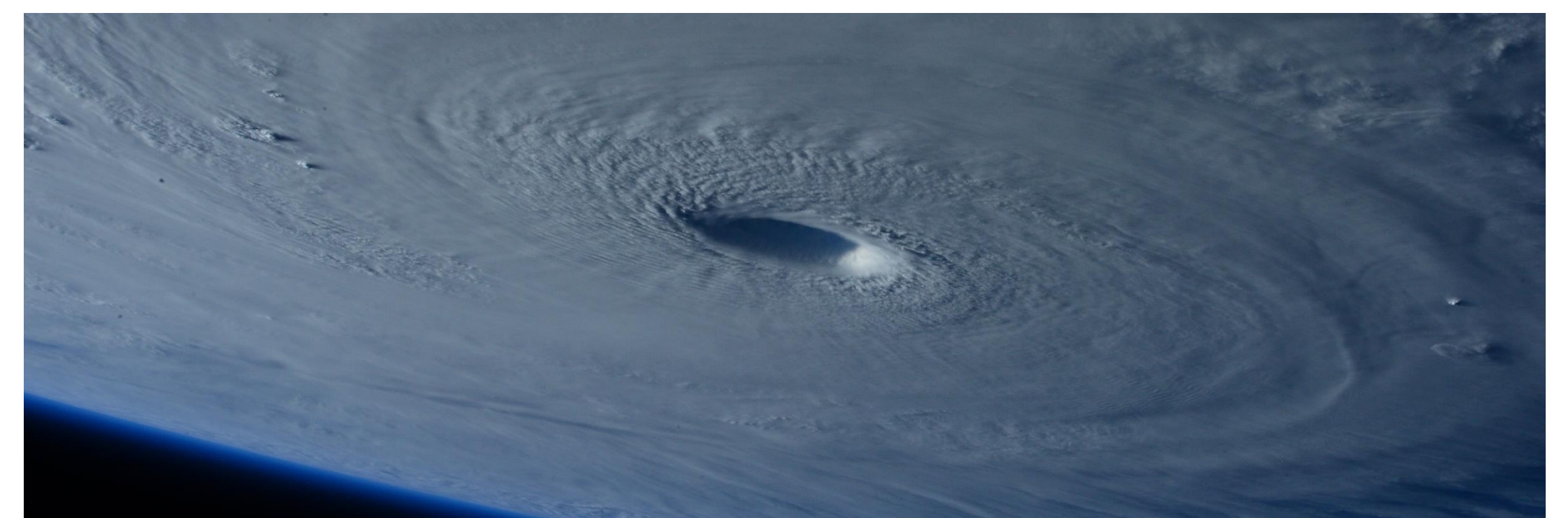
DISASTER RISK REDUCTION	EVALUATION OF RISK

Online platform that provides predictions of next season's hurricane activity issued by different centers specialized in North Atlantic hurricane prediction. This is useful as early-warning system for society.

Knowing how the hurricane season is going to be is useful for the insurance sector in terms of risk evaluation. Among many other types of information, insurance companies use hurricanes prediction to estimate future losses and determine prices for the coverage offered.

MINERAL DUST FORECASTING - MONARCH
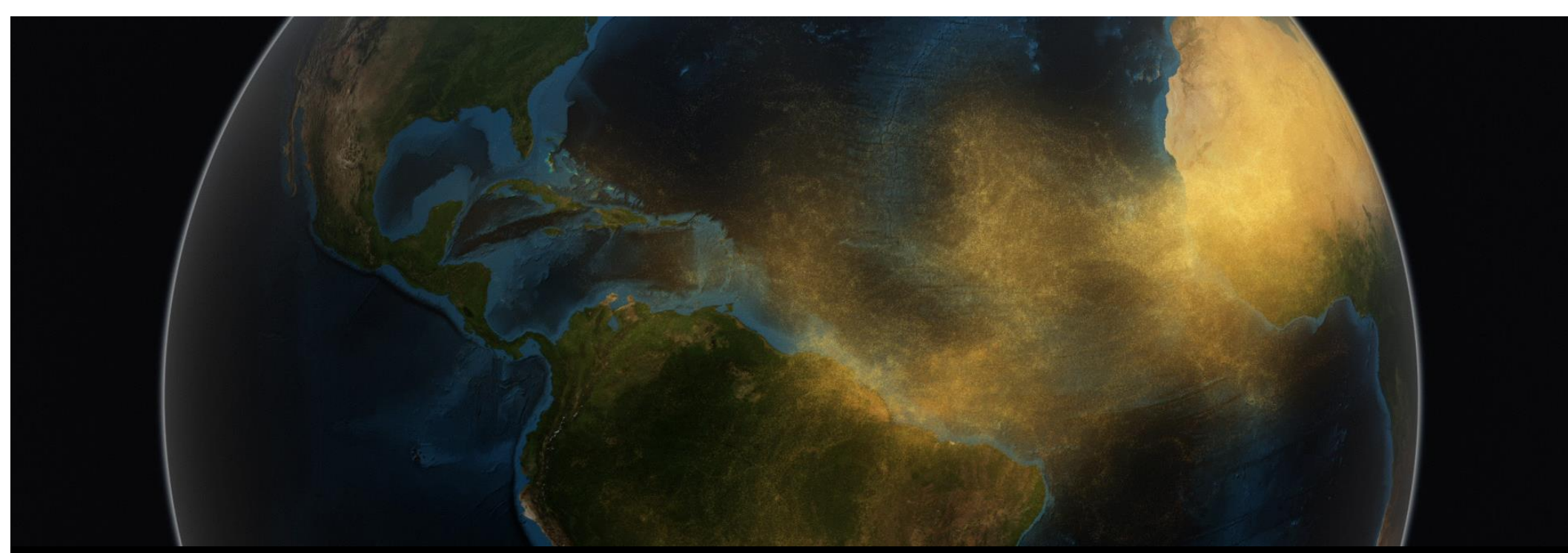
EARLY-WARNING SYSTEMS	AVOIDED COSTS

We host two WMO regional centers on atmospheric sand and dust forecasting, providing early-warning systems to National Meteorological Services, useful for instance to inform people with cardio-respiratory diseases.

Mineral dust forecasts are useful for aviation operators to anticipate the negative effects of dust on visibility. This minimizes significantly business losses.

CLIMATE PREDICTIONS FOR ENERGY – RESILIENCE
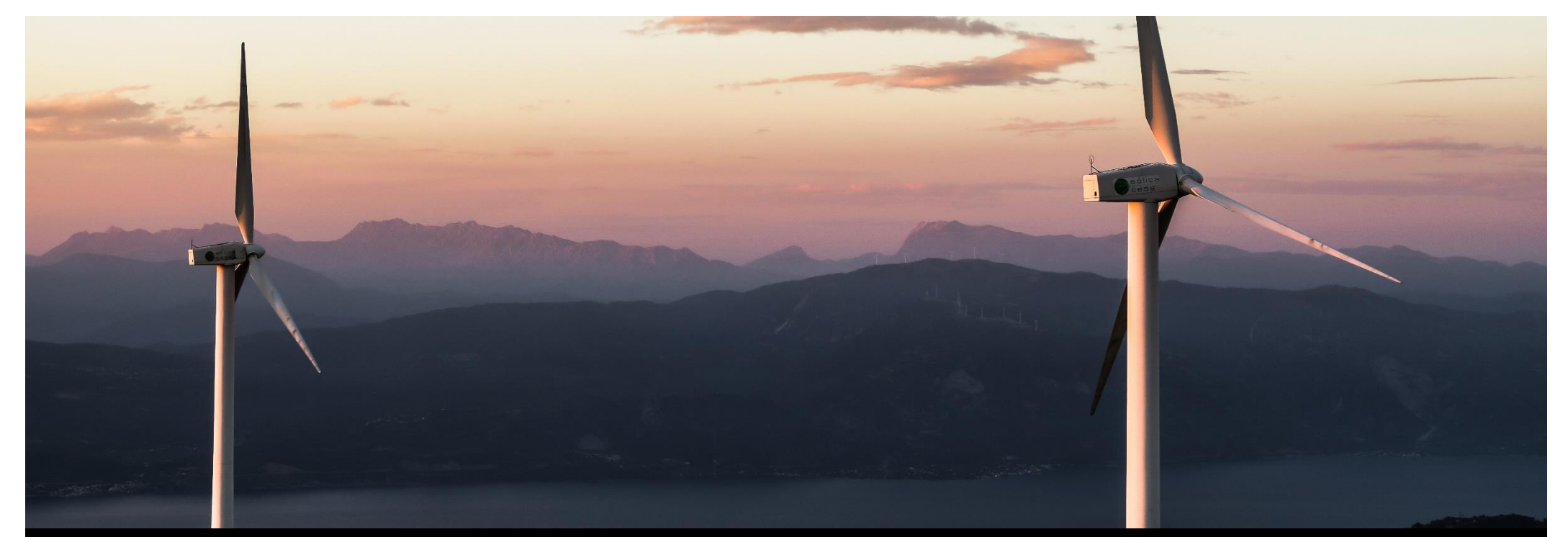
DECARBONISATION	MANAGEMENT OPTIMIZATION

Increasing renewable energy in the energy mix contributes to decarbonisation of the economy, that helps to reach the Paris Agreement. It aligns with the Sustainable Development Goal #7 on affordable and clean energy.

Understanding and quantifying climate conditions weeks and months in advance can improve the decision-making of renewable energy producers (e.g. wind, hydropower, solar energy…). This can better ensure that energy supply matches electricity demand.