Funded by the European Union

CARIOQA-PHB

ADDRESSING CLIMATE CHANGE THROUGH THE IMPROVEMENT OF SATELLITE-BASED OBSERVATION

CONCEPT

CARIOQA aims at developping a new technology to be used in space within the next decade: quantum gravimeter/accelerometer. Such technology will be used for satellite-based Earth science in order to monitor climate change and thus support the development of mitigation and adaption measures. The technology developped within the CARIOQA framework aims to be tested during a spatial mission: the Quantum Pathfinder Mission.

CHALLENGE

Major challenges such as climate change can be better addressed through improved space gravity data. The new generation of quantum sensors is a technological breakthrough, offering new opportunities in climate and environmental sciences. Satellite gravimetry is a unique tool for monitoring climate change.

The CARIOQA mission is divided into several projects. At present, CARIOQA-PMP and CARIOQA-PHB are being conducted in parallel.

2020 → 2030

CARIOQA QUANTUM PATHFINDER MISSION

PHASE A › PHASE B › PHASE C&D › EXPLOITATION

CARIOQA-PMP

FLIGHT MODEL

QUANTUM TECHNOLOGY VALIDATION

MAIN OBJECTIVES OF CARIOQA-PHB

1

To define the preliminary design and technical solutions meeting the Quantum Space Gravimetry Pathfinder Mission requirements, ensuring system feasibility for both space and ground segments in line with ECSS-M-ST-10C.

2

To assess project readiness and overall maturity through a Preliminary Design Review, concluding CARIOQA-PHB and preparing the next development phases.

3

To define a maturation plan for critical technologies and components, conducting pre-development activities to reach TRL6 and enable mission deployment within the decade.

START DATE	DURATION	BUDGET	FUNDED UNDER	CONSORTIUM
October 2025	2 years	14,4 millions €	Horizon Europe	15 European partners

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