SATACI
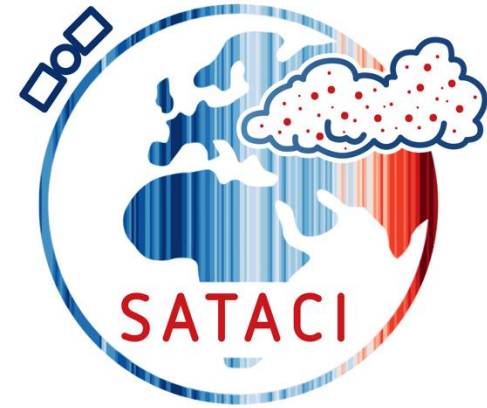
Project Introduction

- SATACI is a **3-year** project within the x-ECV Climate Space framework led by Rayference.

- The kick-off meeting took place in Brussels, on 19th September 2024.

Objective:

The SATACI project aims at deepening our understanding of aerosol-cloud interactions and the associated Radiative Forcing, capitalising on the heritage from the ESA Climate Change Initiative (CCI) aerosol and cloud projects and state-of-art algorithms for the consistent retrieval of aerosols and clouds.
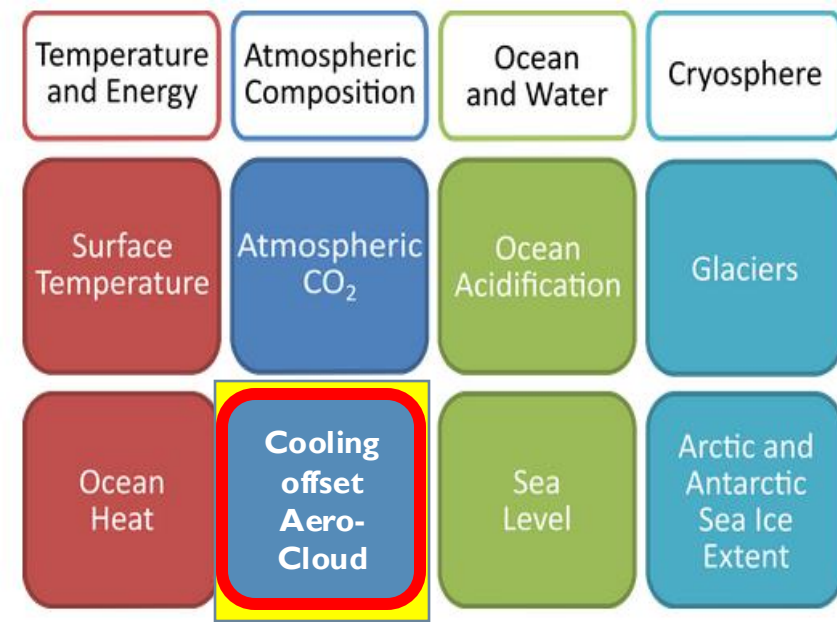
Work Logic

Two main activities are foreseen:

- Activity 1: ACI analyses from satellite data
  - Scientific Study 1: Analysis on aerosols indirect effect on liquid clouds
  - Scientific Study II: Cloud glaciation temperature and dust concentration

- Activity II: Feasibility study for a new aerosol-cloud climate indicator.

The two activities will run in parallel an culminate in a summary work package to evaluate the consistency among them.

Key Elements

- The project relies on the **heritage from the ESA Climate Change Initiative** (CCI) aerosol and cloud projects and will exploit **state-of-art algorithms** for the consistent retrieval of aerosols and clouds, aiming at supporting aerosol-cloud interactions (ACI) studies to reduce the uncertainty associated with this phenomenon.

- The proposed climate indicator will complement the existing WMO indicators.

- This proposal relies on strong collaboration between retrieval and modelling communities. In particular, the outcome of the analyses on satellite data will be evaluated and compared with the Norwegian Earth System Model (NorESM).

- A dedicated effort will be made to assess the consistency among different datasets and define a framework for uncertainty characterisation and propagation.
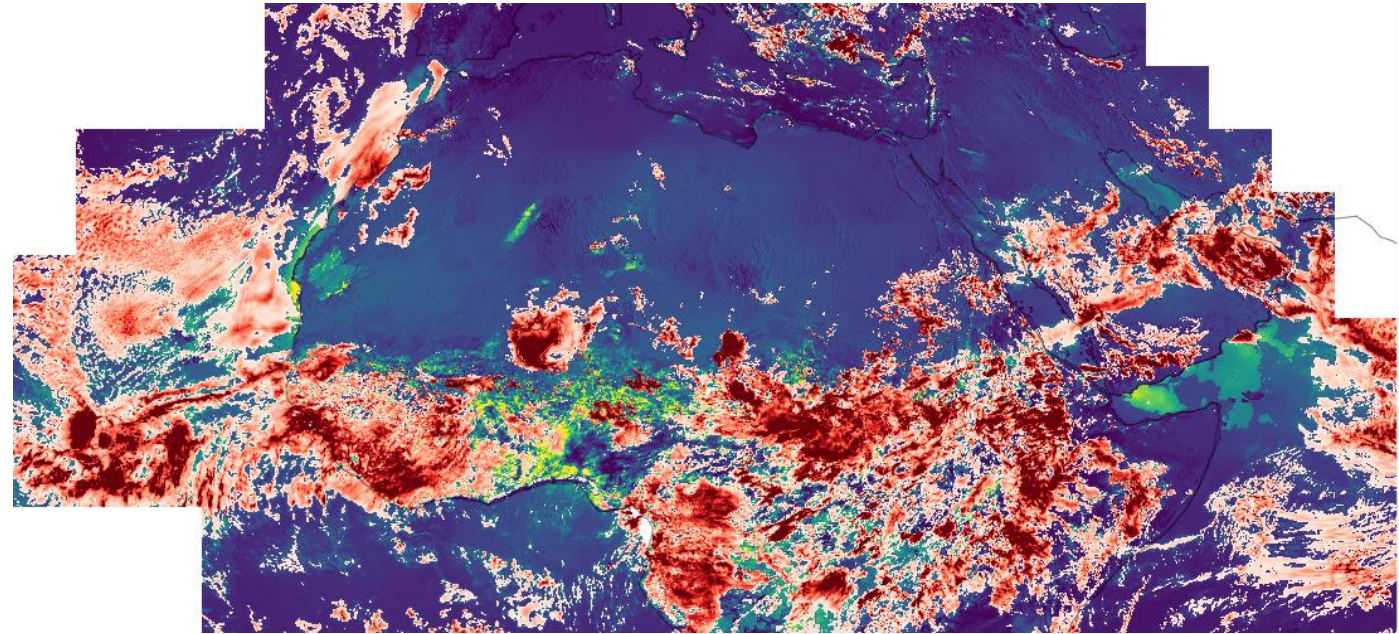
Combined AOD/COD retrieval obtained applying the CISAR algorithm to combined observations from MSG1 and MSG4 during August 9th, 2020. ©Rayference