

The MicroCarb CO₂ mission: status and performances

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Oral

(Virtual Talk)

MicroCarb will be the first European mission dedicated to CO₂ fluxes monitoring from space, with a target launch for mid 2025 on Vega-C. MicroCarb has been developed in a partnership led by CNES with major contributions from UKSA, EUMETSAT and EU through H2020 IOD-IOV program operated by ESA.

MicroCarb will make global measurements of the atmospheric CO₂ column integrated concentrations at high accuracy (random error <1ppm, regional bias <0.2ppm) from an affordable micro satellite (Myriade series). The main objective of MicroCarb is the study of natural fluxes for a better understanding of their mechanisms. An imagery mode is also implemented as a demonstrator for local emission estimations. The MicroCarb instrument is a grating spectrometer measuring high-resolution radiance spectra in four spectral bands: CO₂ at 1.61 and 2.03 μm, O₂ at 0.76 and 1.27 μm. This latter band is specific to the MicroCarb mission to mitigate aerosol-related biases despite airglow emission. An imager is also embedded for geolocation and cloud detection.

We will present:

- A quick reminder of the mission: its objectives, technical characteristics and partnership organization.
- The current status of the program: space segment is ready to flight (both instrument and satellite integrated and tested), ground segment is close to its final delivery, now waiting for launch.
- The status of the algorithms (from raw measurements to XCO₂), of the L1 and L2 products performances (from simulated data, from ground TVAC measurements including solar viewing, from retrievals in real data OCO-2 and EM27/SUN), and of the cal/val planned activities.

Meeting homepage

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