

CO2M Mission: Building a Satellite structure

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First, the mission objectives of the Copernicus Sentinel Expansion Mission, the CO₂ Monitoring (CO₂M) mission is presented. The objective of the CO₂M mission is to provide the European Union with an operational capacity that contributes to the global monitoring of anthropogenic CO₂ emissions and other different index representative of the pollution in most critical areas. The CO₂M mission will carry:

- A near-infrared and shortwave-infrared spectrometer together to measure atmospheric carbon dioxide and nitrogen dioxide produced by human activity;
- A Multi-Angle polarimeter (MAP) based on 4 identical cameras;
- A cloud imager (CLIM), derived from the flight proven ProbaV instruments.

These measurements would reduce current uncertainties in the estimation of anthropogenic carbon dioxide emissions (from fossil fuel and biofuel combustion to cement production, land use and so on) at national and regional scales. Next, the focus will mainly be paid to technical realisation of the space segment for an Earth Observation (EO) mission. Common features of such satellite are presented on a sub-systems level. The environments, which the satellite must withstand, during its launch and its on orbit operations are shown. Finally, the main attention is focused on the structural sub-system and the common design approaches are commented.