



— Developing new technology to better measure local greenhouse gas emissions in hard-to-reach areas.

Our objective:

The goal of the MISO project is to develop and demonstrate an autonomous observation platform to use in hard-to-reach areas (Arctic, wetlands), for detecting and quantifying carbon dioxide and methane gases. With a combination of stationary and mobile solutions it will require minimum on-site intervention when deployed.

Why MISO?

Climate warming is driven by increased concentrations of greenhouse gases (GHGs) in the atmosphere, like carbon dioxide (CO₂) and methane gas (CH₄). Existing observatories can capture information for large-scale global assessments, but short-term natural variability and climate-driven changes in atmospheric CO₂ and CH₄ remain less known.

The MISO project aims to change this.

To achieve our goal, the MISO project is:

- improving the detection limit and accuracy of the NDIR GHG sensor.
- using this sensor in three different observing platforms: a static tower, a static chamber and a drone-mounted sensor.
- operating the platforms with the help of a central base unit.
- designing all elements for operation in harsh environments and with minimum human intervention.
- powering the static observatories by a unique geothermal device.

We use real-world cases to demonstrate the capability of the MISO observational system and its individual components to measure CO₂ and CH₄ concentrations. We follow established protocols for our demonstrations, and at every stage we evaluate the performance of the MISO system against more established methods.

The observation platform is deployed for real-world applications in wetland for greenhouse gas flux measurements, and in the Arctic for greenhouse gas flux measurements and emissions hotspot characterization.



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