

WP1: Task 1.2

Preparation of atmospheric models for campaign interpretation (UniVie, CEA, UU, VUA, INCAS, INOE, UBremen)

This task will prepare atmospheric transport models for the simulation of the Task 1.3 measurement campaigns. An automated interactive quantification tool will be designed for computing back-trajectories of measurements using the Flexpart particle dispersion model. This tool will be made publicly available through a web-based Graphical user interface at the ICOS-ATC server for mobile campaigns and fixed measurement sites. The high-resolution DALES Large-Eddy Simulation model will be prepared for 50 m resolution ensemble simulations of methane plumes measured in the Task 1.4 campaigns in Romania to collect statistics on turbulence for precise comparison to surface, aircraft, and satellite measurements.

D1.2: Readiness report on automated data processing

→ Due by December 2025, can possibly be shifted to January 2026

Discussion points

- Objectives: What exactly is the tool supposed to do? (“interactive quantification tool for computing back-trajectories of measurements using the Flexpart”)
- Model: FLEXPART, FLEXPART-WRF, Gaussian plume model?
- Platform: ICOS-ATC, FLEXWEB?
- Uniform data format
- Model forecast for campaigns? (Limited capacities)
- Deliverable content

Objectives

- Tool where datasets can be evaluated in same way
- Lagrangian model to compare to measurements
- Put in data -> get emission rate
- DALES model -> near scale, FLEXPART(-WRF) -> larger scale
- For FLEXPART: emission rate 1kg/s -> then scaling
- DALES model not part of the quantification tool

Model

- GPM by LSCE + Utrecht University
- FLEXPART by University of Vienna
- DALES by VU (not part of automated tool)

Platform

- ICOS-ATC: Information about space and computing power, restriction on available space, data storage
- ICOS will be used as platform for GPM
- FLEXWEB will be extended for FLEXPART (<https://flexweb.wolke.img.univie.ac.at/order?>)

Data format

- To be clarified later

Forecast for campaigns

- No capacities from the Universities of Vienna, to be discussed later

Deliverable

- information on FLEXWEB -> show implementation + example
- comparison of different GPM methods -> show implementation + example
- some information/example of DALES