TRAINING PROGRAMME · INTER-COMPANY COURSE

code_saturne: CFD atmospheric dispersion

CODE saturne

DATES	DURATION	FORMAT	LEVEL	PRICE
October 28 and November 4, 2027	**2 days · 14 h**	**Remote · English**	**Advanced**	**€1,800 excl. VAT** Academic €800 excl. VAT

Audience

- **Industry:** engineers and technicians who carry out or review dispersion, air quality or industrial risk studies.
- **Academia:** researchers, PhD students and students working on atmospheric flows and dispersion.

Prerequisites

Command of code_saturne for simple studies. Knowledge of fluid mechanics.

Practical arrangements

Maximum group size: 6 participants per trainer during practical work. Inter-company course.

Registration and access time

Registration through the online form on the session page, at least 30 days before the start of the session: https://simvia.tech/services/training/code-saturne-atmospheric-dispersion-cfd-cfd-online-training_202710

Overview
(context, benefits)

Master code_saturne to simulate airflow around a real site and assess the dispersion of a release, from geographic data to a sensitivity study.

A resolutely hands-on course: practical work built on a review of the theoretical fundamentals, with exercises of increasing difficulty, from discovery to an industrial case.

The complete workflow: the tools of the simulation chain (Salomé, code_saturne, ParaView) are used together, as in a real study.

Practising trainers: our engineers and PhDs use these codes every day on industrial projects.

Close supervision: 1 trainer for a maximum of 6 trainees during practical work.

An inter-company format that encourages participants to share their experience with peers.

Objectives and targeted skills

Learning objectives, assessed during and at the end of the course. By the end of the course, participants will be able to:

- Build a site model from BD TOPO data and define the computational domain.
- Translate weather data into atmospheric conditions in code_saturne.
- Simulate the flow around buildings and identify recirculation zones and wakes.
- Simulate a release, analyse the plume and run a sensitivity study with csauto.

Course content

DAY 1 · THEORY **Fundamentals of atmospheric dispersion**

- Atmospheric boundary layer, turbulence and stability
- Influence of terrain and buildings
- Best practices for atmospheric CFD

DAY 1 · PRACTICALS **From the site to the flow around buildings**

- Practical 1: BD TOPO data and computational domain
- Practical 2: weather data, wind rose, atmospheric conditions
- Practical 3: Salomé mesh, run without release, recirculation and wakes

DAY 2 · THEORY **Modelling pollutant transport**

- Turbulent transport of a scalar
- Defining and configuring a release

DAY 2 · PRACTICALS **Atmospheric release and sensitivity study**

- Practical 4: run with release, plume and concentrations in ParaView
- Practical 5: automated campaign with csauto, influence of weather
- Best practices, modelling limits and review

Teaching methods

Remote course in a virtual classroom, in English.

Active teaching alternating theory and hands-on practical work on the participant's own computer, with exercises of increasing difficulty.

Resources: virtual classroom with screen sharing, course materials given to each participant, remote assistance from the trainer during practical work.

Pre-course call to understand participants' needs; end-of-day review (feedback and adjustments); immediate satisfaction survey at the end of the course.

Supervision

Simvia adapts each course to the actual needs of the trainees. Sessions rely on active teaching, with practical and personalised exercises that anchor learning in real time.

Theory sessions alternate with supervised practical work.

Equipment

Computer with an internet connection, microphone and speakers or headset; software installed before the session (installation help is provided).

Duration

Total duration: 2 days, i.e. 14 hours.
Schedule: 9:00 am – 12:30 pm and 1:30 pm – 5:00 pm.

Dates

October 28 and November 4, 2027 (two days one week apart)

Location

Remote course in a virtual classroom, inter-company format. The connection link is sent with the joining instructions.

Price per participant

Company: €1,800 excl. VAT per participant.
Academic: €800 excl. VAT per participant.
Included: help with installing the latest version of the software, training completion certificate.

French companies may have the course covered by their OPCO (French skills operator) under the skills development plan. Not eligible for CPF (French personal training account).

Accessibility	Simvia is committed to making its courses accessible to people with disabilities; our premises are accessible to people with reduced mobility. Our trainers adapt their teaching methods to each situation. For any specific need, please contact our disability officer: oumaima.nassif@simvia.tech.
Course manager, contact	**Teaching manager:** Florian Hermet, florian.hermet@simvia.tech **Administrative and disability officer:** Oumaima Nassif, oumaima.nassif@simvia.tech **General contact:** training@simvia.tech
Trainers	**Florian Hermet** PhD in fluid mechanics, senior CFD engineer Practising code_saturne trainer at Simvia, working daily on industrial projects. If unavailable, a trainer with equivalent expertise is appointed and confirmed in the joining instructions.
Attendance and certificate	Attendance sheet signed by trainees and trainer for each half-day. Training completion certificate issued upon passing the final assessment.
Assessment	Formative assessment at the end of day 1 (checking what has been learned that day). Summative assessment at the end of day 2 (validating learning across the whole course). Immediate satisfaction survey at the end of the course. Delayed assessment 2 months after the course, for the trainee and the company.
Going further	Simvia offers specialisation modules and a technical support service to deepen and extend skills development. Full catalogue: https://simvia.tech/services/training/catalog