



RÉPUBLIQUE
FRANÇAISE

*Liberté
Égalité
Fraternité*



**METEO
FRANCE**

À VOS CÔTÉS, DANS UN
CLIMAT QUI CHANGE

BECOME A SPECIALIST IN **WEATHER** AND **CLIMATE SCIENCES**



ENM
École Nationale
de la Météorologie



**With ENM, the French Met School,
Gain a MS-Level Semester Specializing
in Weather and Climate Services.**

THE OBJECTIVE

The expertise you will acquire will meet the growing requirements of climate-sensitive businesses, companies, public entities.

AN INNOVATIVE LEARNING METHOD

Attendance to a school semester is limited to about 20 students: this allows, during the whole term, for individual coaching, close interaction with all contributors, and collaborative work in groups of students.

Increasing your autonomy, identifying and strengthening your competencies, trans-disciplinary included, belong to the aim of the course. Semester entirely given in english.

JOB OPPORTUNITIES

Identified Met-Sensitive areas include...

- Transportation
- Agriculture
- Construction and Public Works, Infrastructure
- Energy: production, supply, business operators
- Mass markets: production, distribution
- Climate warranties and risk coverage: insurance, reinsurance, brokerage, banks
- Tourism, leisure industry
- Airline companies, tour-operators, hotel trade, catering and restaurant industry



85%

of companies reckon their occupation is weather- or climate- sensitive.



56%

know precisely how their occupation is weather-dependent*

Weather- and climate- dependence has the potential to affect financial results, performance and client satisfaction: thus becoming for many companies a risk of the highest importance.

**From a 2016 study by Jean-Louis Bertrand, head of the Financial Dept at ESSCA, Angers, France.*



SIX TEACHING UNITS (TU), 5 ECTS* EACH: SEMESTER TOTAL IS 30 ECTS

- You will produce observation and modeling data (TU-1, TU-2)
- Use the data to answer client needs (TU-4) while being able to discuss your results (TU-3)
- Process the data and evaluate the economic worth of weather and climate forecasts (TU-5)
- TU-6 is dedicated to your personal project.

TU1 (5 ECTS)



Create weather and climate observation data

With CNRM, the Research Center @ Météo-France; ENM; UPS, Paul Sabatier University in Toulouse; SAFIRE (airborne research)

Observing The Climate: a conference cycle.
Study actual measurement campaigns, including the use of SAFIRE observation aircraft and UAV, unmanned aerial vehicles.

TU2 (5 ECTS)



Set up and use simulation tools in NWP – Numerical Weather Prediction – to forecast weather and climate.

With experts from Met and Climate Services of Météo-France, and CNRM.

You will be using Meso-NH (Web link) to forecast the weather, from the campaign data in TU-1; and ALADIN-CLIMAT to forecast the climate of the future.

TU3 (5 ECTS)



Climate Change Issues: a formal debate

With experts in: Health – Biodiversity – City planning – Digital world- Hydrology – Carbon tax. with the intervention of IPCC negotiators.

You will be debating what is at stake in climate scenarios and their impacts.

TU4 (5 ECTS)



Answering a need from a client at a Weather and Climate Service

With the DCSC, Climate Services Unit at Météo-France.

With the help and collaboration of Météo-France, you will analyze the needs of users in diverse sectors and develop applications for them.

Some examples of addressed themes: companies and their access to climate change; managing water resources in Europe.

*ECTS

European Credit Transfer and Accumulation System: "designed to make it easier for students to move between countries and to have their academic qualifications and study periods abroad recognized". 30 ECTS correspond to a standard semester.

https://ec.europa.eu/education/ects/users-guide/index_en.htm

TU5 (5 ECTS)



Machine learning, the Economic Value of Met and Climate Information

With experts from the insurance companies AXA and Météo-Protect.

Climate hazards have a cost: study the financial impact of climate change information. Based on the use of an industrial-level application.

TU6 (5 ECTS)



Your Personal Project

With the help of our tutors, you choose a theme and build a project, according to your academic studies as a whole and your project.

And there is a bonus: a specific module to prepare for job interviews: don't be under the weather for that special day!

ADMISSIONS

The Semester at ENM

This is a Fall Semester, from mid-September to the beginning of February.
ENM is located in Toulouse, France.

ACADEMIC PREREQUISITES

- Knowledge of scientific calculation and of a computing language to perform it.
- Skill in statistics used with multidimensional data, e.g. the R language, the Python language.
- ENM provide documents and support as a refresher course on Weather and Climate Forecasting for students with no academic background in that specific field.

ADMISSION REQUIREMENTS

Please submit your comprehensive application portfolio (Resume, Reasons for applying, Official transcripts and grades -for the two academic years prior to your application-, two reference letters) **before April 30th** to the initial training department (see Contacts).



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