

# Atmosphere-Climate-Continental landmass

Master in Earth, planetary and environmental sciences



Duration  
2 years



Component  
UFR PhITEM  
(physique,  
ingénierie, terre,  
environnement,  
mécanique)



Language(s) of  
instruction  
French, English

## Presentation

The Atmosphere-Climate-Continental landmass program follows on from the previous specialisation, Water-Climate-Environment, with changes that take into account those made to the other programs (in particular Hydro-resources) and that offer greater clarity. The Atmosphere-Climate-Continental landmass program is primarily a research-oriented course, and relies heavily on the Grenoble research laboratories' unique capabilities in climate and atmosphere studies. Eighty per cent of our students currently tend to go on to doctoral studies.

Nevertheless, the course still offers other non-thesis opportunities. The tools used in the classes, workshops and projects are therefore those already or soon to be used in the professional world. The program strives for greater openness towards the world of work through the introduction of vocational modules, and by taking care with the general modules to systematically make the necessary links with "professional" applications: climate variability and the intermittent nature of renewable energy resources ; etc

More informations [🔗 here](#)

The Atmosphere-Climate-Continental Landmass program primarily aims to train students through research into the functioning of the climate system and atmosphere in interaction with continental hydrosystems. The training is

broad and multidisciplinary, because the problems addressed (climate change ; air quality ; evolution of continental hydrosystems) are complex and require coupled approaches. Continuing on to doctoral studies is a natural goal of this program.

Environmental monitoring and forecasting require well-trained managerial staff. Air quality monitoring associations, consulting engineers and experts, local authorities, administrations and companies all have an interest in the use of new tools for environmental measurement, monitoring and forecasting. It should be emphasised that these potential opportunities are in addition to the pursuit of doctoral studies for the students.

**International education** : Internationally-oriented programmes

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## International dimension

The program has a strong international focus, with teaching mostly in English and research internship opportunities abroad. Several foreign students are welcomed onto the program every year, often as part of research agreements with our international partners.

## Organisation

**Abroad internship** : In France or abroad

## Admission

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### Access conditions

- The 1st year is open to students who have obtained a national diploma equivalent to a bachelor degree (licence) in a field compatible with that of the master, or via a validation of their studies or experience
- Entry to the 2nd year may be selective. It is open to candidates who have completed the first year of a Master in the field, subject to a review of their application

Public continuing education : You are in charge of continuing education :

- if you resume your studies after 2 years of interruption of studies
- or if you followed training under the continuous training regime one of the previous 2 years
- or if you are an employee, job seeker, self-employed

If you do not have the diploma required to integrate the training, you can undertake a [validation of personal and professional achievements \(VAPP\)](#)

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### Candidature / Application

For candidates whose country of residence is not included in the "Studies in France" portal (PEF) scheme, the calendar for the eCandidat application campaigns is available [here](#)

You want to apply and sign up for a master ? Please be aware that the procedure differs depending on the diploma you want to take, the diploma you have already obtained and, for foreign students, your place of residence. Let us be your guide – simply follow this [link](#)

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### Target

- Students in initial training who have obtained a bachelor degree (licence) in Earth, physical, or mechanical sciences

- Students from engineering schools (in particular ENSE3, G-INP) who seek studies in more "research" oriented topics concerning the atmosphere, the climate and hydrosystems
  - Foreign students wishing to pursue their studies in the fields of the atmosphere, the climate and hydrosystems
  - Students in continuing education wishing to pursue advanced studies in the fields of the atmosphere, the climate and hydrosystems
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### Fees

Tuition fees 2019-2020 : 243 €

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### Prerequisites

- Natural candidates for this course include students with bachelor degrees (licence) in Earth Sciences, especially if their studies included a fairly large physics component
- However, due to the highly multidisciplinary nature of the course, it is also perfectly suited to students with bachelors in physics, mechanics, physics-chemistry, and even chemistry
- A small but non-negligible number of students come from engineering schools, seeking studies in more "research" oriented topics

## And after

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### Further studies

Doctoral thesis, in the field of Earth, planetary and environmental sciences

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### Study abroad

Doctorate in a foreign university

## Reorientation

A reorientation to the Hydro-resources program is possible up to the end of the 1st year. A reorientation to the international Hydrohazards program is also possible, at the end of the semester 7.

## Professional integration statistics

According to the 2014-15 survey, three graduate respondents were on the labour market (employment+research). Of these, 100% were in employment 30 months after graduation.

## Sector(s)

- Competitive examinations for careers in research (researchers), education-research (teacher-researcher) (CNRS, University, CNAP, IRD and research organisations abroad) after pursuing doctoral studies
- Whether or not students go on to doctoral studies, the professions targeted by this program concern environmental monitoring and forecasting in varied contexts (air quality monitoring associations, local authorities, consulting companies)

## Useful info

## Contacts

### Program director

Didier Voisin

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### Program director

Christophe Brun

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### Program administration

Registrar's Office of the Master in Earth, planetary and environmental sciences

✉ [phitem.master.stpe@univ-grenoble-alpes.fr](mailto:phitem.master.stpe@univ-grenoble-alpes.fr)

### Program administration

Application

✉ [phitem.candidature.etudiant@univ-grenoble-alpes.fr](mailto:phitem.candidature.etudiant@univ-grenoble-alpes.fr)

## Partner laboratories

Laboratoire de Glaciologie et Géophysique de l'Environnement - LGGE

🔗 <http://lgge.osug.fr>

Laboratoire d'étude des Transferts en Hydrologie et Environnement - LTHE

🔗 <http://www.lthe.fr/LTHE/>

Centre d'Etudes de la Neige - CEN

🔗 <http://www.cnrm-game.fr/spip.php?rubrique85>

Irstea - Centre de Grenoble

🔗 <http://www.irstea.fr/institut/nos-centres/grenoble>

## Course location(s) - City

📍 Grenoble

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## Campus

 Grenoble - University campus

# Program

## Water, climate, environment portal 1st year

### Semester 7

	Nature	CM	TD	TP	Crédits
UE Climate and environmental variability	Teaching Unit (UE)				6 credits
UE Organic geochemistry: pollutants, modeling	Teaching Unit (UE)			18h	6 credits
UE Scientific & professional communication	Teaching Unit (UE)				3 credits
UE Hydrology and hydraulics	Teaching Unit (UE)				6 credits
UE Meteorology: 1D and synoptic	Teaching Unit (UE)				3 credits
UE Fluid mechanics	Teaching Unit (UE)				3 credits
UE Intro workshop - professional project	Teaching Unit (UE)		6h		3 credits

### Semester 8

	Nature	CM	TD	TP	Crédits
UE Remote sensing and GIS project	Teaching Unit (UE)	24h		24h	6 credits
UE Pollution atmosphérique : principes et méthodes expérimentales	Teaching Unit (UE)			24h	6 credits
UE Lautaret field workshop: snow & atmosphere interface	Teaching Unit (UE)				6 credits
UE Field workshop hydrology and hydrometeorology	Teaching Unit (UE)				6 credits
UE Instrumentation and metrology	Teaching Unit (UE)				6 credits
UE Climate archives	Teaching Unit (UE)				3 credits

UE Environmental flows	Teaching Unit (UE)	15h	12h	3h	3 credits
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## Master 2nd year

### Semester 9

	Nature	CM	TD	TP	Crédits
UE Models for the physico-chemistry of the atmosphere	Teaching Unit (UE)				6 credits
UE Atmospheric boundary layer : from fundamentals to air quality 1	Teaching Unit (UE)	24h			3 credits
UE Atmospheric boundary layer : from fundamentals to air quality 2	Teaching Unit (UE)	24h			3 credits
UE Cryosphere	Teaching Unit (UE)				6 credits
UE Climate and anthropogenic impact	Teaching Unit (UE)				6 credits
UE Hydrology of continental systems	Teaching Unit (UE)				6 credits
UE Dynamics of geophysical fluids	Teaching Unit (UE)				6 credits
UE Radiative transfer and remote sensing	Teaching Unit (UE)				6 credits
UE Numerical modeling workshop	Teaching Unit (UE)	8h			6 credits
UE Wave dynamics	Teaching Unit (UE)				3 credits
UE Ocean dynamics	Teaching Unit (UE)				3 credits
UE Inverse methods and assimilation	Teaching Unit (UE)				6 credits
UE Geostatistical	Teaching Unit (UE)				6 credits

### Semester 10

	Nature	CM	TD	TP	Crédits
UE Research internship	CHOICE				



UE Company internship

CHOICE