

MASTER IN SPACE

EARTH OBSERVATION
ASTROPHYSICS
SATELLITE TECHNOLOGIES

*The only master degree in space sciences
& technologies in Vietnam*



USTH University of Science and Technology of Hanoi

MASTER SPACE

Earth Observation - Astrophysics - Satellite technologies

Co-accredited by France and Vietnam
Lectures delivered in english by professors from French universities

The only master degree in space sciences in Vietnam
Space: a high priority in Vietnam for the next decade

Two Specialities:

- **Science from space**
Earth observation, Universe Sciences, Instrumentation
- **Satellite technologies**
Space Engineering, Mechanics, Electronics and telecommunications

Directors:
Assoc.Pr. Phạm Anh Tuấn
Director of Vietnam National Satellite Center
Dr. Yannick Giraud-Héraud
University of Paris Diderot, CNRS

With
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Paris Observatory
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<http://www.usth.edu.vn/space>

Logos: Paris Diderot, VNSC, CNES

What is SPACE Master?

The only master degree in Space Science in Vietnam

Vietnamese Partner 



Master SPACE
(Earth Observation, Astrophysics, Satellite Technologies)



French Consortium



What is SPACE Master?

VNREDSAT1



Two specialties:

- **Master in Science from Space**
- **Master in Space Engineering**

Study courses:

- International level lectures in physics, earth remote sensing, astrophysics, space engineering, data analysis and image processing
- International professors from prestigious French and Vietnamese universities
- 2 years, equivalent to 60 ECTS each year.
- Courses in English.



Links with industry

8 months internship at international R&D and space manufactory facilities (financial support to go to France).

Director:

Dr. **Yannick Giraud-Héraud** (CNRS/UPD)

Co-Director:

Assoc. Prof. **Ngo Duc Thanh** (USTH)



Dr. Yannick Giraud-Héraud



Assoc. Prof. Ngo Duc Thanh

Montpellier University:

Assoc. Prof. **Eric Nuss**

Paris Diderot University:

Dr. **Yannick Giraud-Héraud**

Paris Est Créteil University:

Prof. **Martin Schwell**

Paris Observatory:

Prof. **Benoît Mosser**



Prof. Benoît Mosser



Assoc. Prof. Eric Nuss



Prof. Martin Schwell

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VNSC:

Dr. **Le Xuan Huy**



Dr. Linda Tomasini



Dr. Le Xuan Huy

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M1 study program

Master 1st year - Semester 1 - 30 ECTS					
Science from Space	11.10 Fundamentals in Physics I (4 ECTS)	11.1 Human, Economic, Social and Juridical Sciences (5 ECTS)	11.2 Introduction to Astrophysics & Earth Science (2 ECTS)	11.7 Advanced Electronics Systems (4 ECTS)	Satellite Technologies
	11.11 Earth and Planetary Sciences (3 ECTS)	11.3 Introduction to Satellite Technologies (3 ECTS)	11.4 Optical, IR and MW Imaging Systems (4 ECTS)	11.8 Telecoms & Antennas (3 ECTS)	
	11.12 Astrophysics (3 ECTS)	11.5 Signal Processing (3 ECTS)	11.6 Algorithmics and Programming (3 ECTS)	11.9 Radiation Thermometry (3 ECTS)	
Master 1st year - Semester 2 - 30 ECTS					
Science from Space	12.9 Fundamental in Physics II (4 ECTS)	12.1 Celestial Mechanics & Orbitography (2 ECTS)	12.2 Space Project Management (3 ECTS)	12.6 Mechanics of Structures (3 ECTS)	Satellite Technologies
	12.10 Earth Observations: Methods & Applications I (4 ECTS)	12.3 Physics of Radiation & Particules Detectors (3 ECTS)	12.4 Numerical Methods (3 ECTS)	12.7 Small Satellites Design (4 ECTS)	
	12.11 Advanced Image Processing (2 ECTS)	12.5 Introduction to Image Processing (2 ECTS)		12.8 Attitude and Orbit Control Systems (3 ECTS)	
12.12 Two Months Internship (7 ECTS)					

M2 study program

Master 2nd year - Semester 3 - 30 ECTS

21.1 Human, Economic,
Social and Juridical
Sciences
(5 ECTS)

21.2 Observational
Techniques
(3 ECTS)

21.3 Space &
Application Project
(3 ECTS)

21.4 Methodology for
Astrophysics
(2 ECTS)

21.5 Seminars (0 ECTS)

Science from Space

21.13 Advanced Astro-
physics & Planetology
(4 ECTS)

21.14 Geographical
Information Systems
(2 ECTS)

21.6 Earth Observation
Engineering
(3 ECTS)

21.7 Global Navigation
Systems, Telemetry
(3 ECTS)

21.15 Remote Sensing for
continental surfaces
(5 ECTS)

21.16 Remote sensing for
the atmosphere
(3 ECTS)

21.8 Effect of Ionizing
Radiation on Components
(2 ECTS)

21.9 Spacecraft
architecture
(2 ECTS)

21.16 Remote Sensing for
the ocean & costal zones
(3 ECTS)

21.12 Control Engineering
(2 ECTS)

21.10 Embedded
Engineering
(2 ECTS)

21.11 Telecommunication
(2 ECTS)

Satellite Technologies

Master 2nd year - Semester 4 - 30 ECTS

Six Month Internship

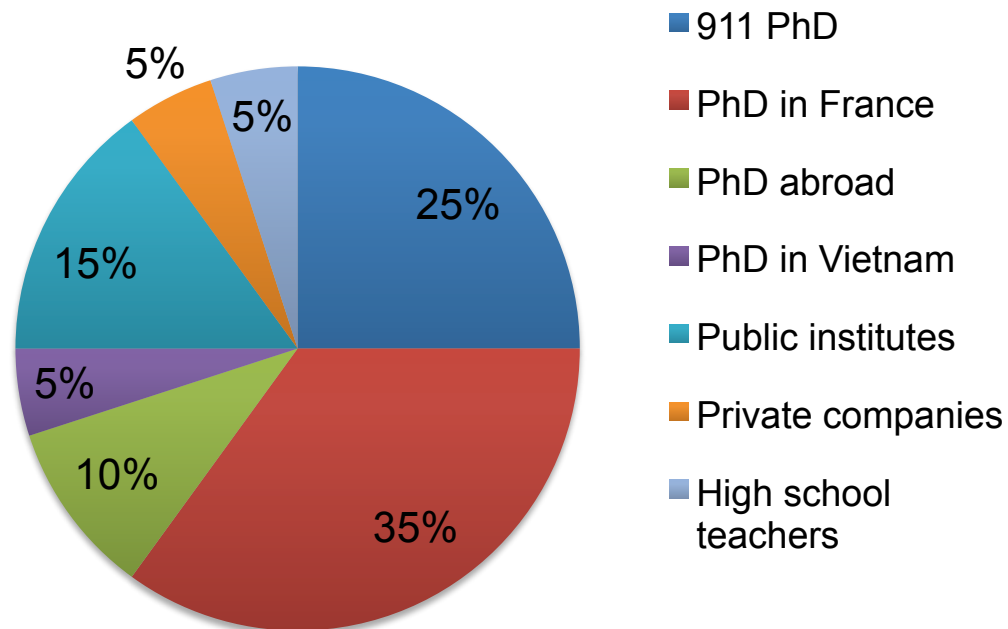
(30 ECTS)

CAREER OUTLOOK

- ◆ **Satellite image data** studies in institutes and research centers (MONRE, MARD, VAST, etc.)
- ◆ Be a **teacher / scientist at international level** in Remote Sensing – Astrophysics – Satellite Technologies
 - ✓ academic researchers or engineers in Vietnamese research centers (VAST, STI, VNSC, ...)
 - ✓ academic positions (lecturers, Professors, ...) in the most prestigious Vietnamese universities
- ◆ **Design and build satellites**, astronomical instruments (VNSC, VAST/ STI, ...)
- ◆ **Engineers or researchers** in Vietnamese high technology and spatial companies (communications, weather centers, ...)
- ◆ International organizations, NGO,...

As an example: 5 jobs per year at VNSC for USTH students

Position after graduation (2014-2017)



PhD thesis field (2014-2017)

