

## Earth Remote Sensing and Observation Systems

Accredited by the Conférence des Grandes Écoles



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### Aims

The ERSOS (Earth Remote Sensing and Observation Systems) Specialized Master is a one-year professional degree course. Our goal is to deliver an international program in the field of Remote Sensing and Observation Systems. ERSOS aims to develop cutting edge (scientific) skills and competencies in every stage of the image chain, from the earth's surface to remotely sensed data products: systems (satellites, etc.), scientific skills (earth remote sensing, image processing, data analysis, etc), technological sensors (satellite sensors, cameras, 3D, RADAR, lidar, microwaves, etc) and international project management. The spectrum of applications is very wide and related to numerous domains. It can be divided into three areas: Environmental issues (oceanography, sustainable development, forest and water management, etc.), Civil issues (GIS, Cartography, etc.) and Safety & Security.

### Organization

**Head of Program:** Prof. Emmanuel Zenou

**Phone:** +33 (0)5 61 33 81 30

**E-mail:** emmanuel.zenou@isae.fr

**Duration of studies:** One year full time

**Beginning of classes:** September

**Location:** ISAE Campus SUPAERO, Toulouse, France

**Teaching language:** English

### Pedagogical approach

**First semester:** academic session of courses from September to March.

More than 430 hrs of lectures, tutorials, practical sessions, and conferences in the field of earth observation.

**Second semester:** students conduct a professional thesis within an aerospace company, organization or laboratory in France or abroad. They are supervised by a tutor from the host organization and from ISAE.

## Teaching staff

The teaching staff is composed of ISAE's permanent professors and experts from Industries (EADS-Astrium, Infoterra, Spot Image, C-S, etc.), Institutions (CNES, etc.) and research centers (INRIA, ONERA, OMP, etc.) all related to Earth Observation Systems.

## Syllabus (New program 2010 - 2011)

ERSOS Specialized Master courses improve scientific and technical knowledge and skills from the scene to information, via observation systems. The syllabus includes five parts:

### Part 1 - Systems - 55 hrs

Image quality, satellite system, mission analysis, geographical information systems



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### Part 2 - Remote sensing and sensors - 80 hrs

Remote sensing, optical sensors, RADAR sensors, 3D.

### Part 3 - Image analysis and data analysis - 110 hrs

Computer vision, optimization, advanced techniques in space imaging, data analysis

### Part 4 - Applications- 95 hrs

Applications are divided into:

- environmental issues,
- civil issues,
- and military issues.

Application domains are: climatology and meteorology; oceanography; sustainable land management; forest, vegetation and agriculture; hydrology and water cycle; cartography and DEM; natural disasters; military environment.

### Part 5 - Project - 90 hrs

Industrial or research project (including project management and system engineering), visits and seminars.

## Career opportunities

The ERSOS Specialized Master Program leads students to applied technical engineering, research engineering, consulting or management in the fields of image and data processing, sustainable development, space systems, etc.

# Admission 2010

## Common ISAE's admission procedures

### Postgraduate Specialized Masters in engineering

- **SM AMS - SM ASAA - SM EMS - SM ERSOS - SM HE - SM SCS - SM SEN - SM TAS Aero - SM TAS Astro**
- **MS EAS - MS SAS - MS SPA**

**Tuition fees 2010-2011:** 12 000 €.

**French and European Students:** 6000 € (students graduated in the year of application or the year before, and with no professional experience).

#### Academic requirements

Applicants must have a Master degree, or an equivalent degree in science or engineering, or a bachelor degree with 3 years of professional experience at least.

### Selection and admission

Selection and admission are made by an admission committee; possible interviews can be organized if necessary.

**Deadlines for application:** several admission committees scheduled from April to June 2010,

Application form to be downloaded at [www.isae.fr](http://www.isae.fr)

**Application fees:** 65 € (non-refundable).

**Complete application files to be sent:** Institut Supérieur de l'Aéronautique et de l'Espace - Direction des masters et mastères spécialisés - 10, avenue Édouard-Belin - BP 54032 - 31055 Toulouse Cedex 4 – France

### Language requirements for Masters in English

Language qualification requested : TOEFL 550 (paper-based). Except if applicant's first language is English or total instruction of Bachelor or Master degree has been provided in English.

## Other admission procedures

#### MS IEVex

Specific admission process through the French Ministry of Defence, contact us for more detailed information.

#### MS MGP

Selection and admission organized by HEC:

[www.hec.edu/Specialized-Masters](http://www.hec.edu/Specialized-Masters)

Contact us for more detailed information.

#### MS IMF

Selection and admission organized by ESC Toulouse:

[www.esc-toulouse.com](http://www.esc-toulouse.com)

Contact us for more detailed information.

## Contacts

Michel CHAUVIN, Deputy Director of Masters Programs: [michel.chauvin@isae.fr](mailto:michel.chauvin@isae.fr) - Phone: +33 5 61 33 80 27

Marie JENTET, Information and Marketing Manager: [marie.jentet@isae.fr](mailto:marie.jentet@isae.fr) - Phone: +33 5 61 33 80 28

Web & Application Form: [www.isae.fr](http://www.isae.fr)

# ISAE

The "Institut Supérieur de l'Aéronautique et de l'Espace" (ISAE) was created in 2007 from the merger of the two prestigious French graduate and postgraduate schools of engineering, SUPAERO and ENSICA. Today, ISAE, is a world-class higher institute for aerospace engineering education and research. Nowadays with a student corpus of over 1600, ISAE is one of Europe's largest Aerospace Institute offering graduates and postgraduates programs. Yearly, ISAE awards around 20% of master's degrees in Europe in aeronautics and space field. ISAE develops its worldwide reputation on the prestige of its master's programs, the fame of its teaching staff, or the excellence of its research but also on the high-value of its graduates, their skills in engineering or management, as well, their capacity to evolve within a very high-technology environment, their enterprising mind and international opening.

## Identity card

**Name:** Institut Supérieur de l'Aéronautique et de l'Espace (ISAE)

Founded in 2007 - as the result of the merging of SUPAERO (1909) and ENSICA (1945)

**Legal Status:** A large public institution of scientific, cultural and vocational missions

**Trustees:** Délégation Générale pour l'Armement (DGA) [French Defence Procurement] - Ministry of Defense

**Endorsements and awards:** CTI agreement of the two Graduate Programs, Conference des 'Grandes Écoles', for postgraduate specialized masters Ministry of Higher Education and Research for Masters of Science

**Staff:** 420 permanent staff

## Key figures

**2** Graduate Programs: SUPAERO and ENSICA

**18** Specialized Masters including 13 in English

**2** Masters of Science

**9** Research Masters

**6** PhD Programs

**1600** students

**160** international cooperation opportunities

**50** academic and research partnerships

## Contacts ISAE

**Email:** [communication@isae.fr](mailto:communication@isae.fr)

**Address :** ISAE - 10, avenue Édouard Belin -  
BP 54032 - 31055 Toulouse cedex 4 - France

**Phone :** 33 (0)5 61 33 80 80 - Fax : 33 (0)5 61 33 83 30

**Web site:** [www.isae.fr](http://www.isae.fr)



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