

Research project offer

Location : ISAE SUPAERO, Toulouse, France

Department : Department of Complex Systems Engineering (DISC)

Research group : MA

Supervisor : Florian Simatos (ISAE SUPAERO) and Lorie Hamelin (INSA Toulouse)

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OFFER DESCRIPTION

Title : Aviation and planetary boundaries

Proposed duration and period : 5-6 months, starting in April

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| <p>Context (max 10 lines)</p> | <p>Although the problem of global warming is beginning is largely discussed, the current ecological crisis is in fact much broader and more complex. Scientists interested in the Earth system in the Anthropocene era have identified eight other limits that must be respected to preserve the planet's habitability, such as the use of fresh water and changes in land use. There are also considerations about the availability of mineral resources and low-carbon energy as well as societal impacts. Thus, considering a transition to a sustainable world requires a systemic approach and a much broader spectrum of analysis than the climate spectrum alone. Concerning the aviation sector, its climate impact is now well understood, but not its larger environmental and energetic impacts.</p> |
| <p>Objectives and work (max 20 lines)</p> | <p>The goal of this project will be to first make a literature overview on planetary boundaries, and how this general concept has been declined to activity sectors such as aviation. The student will then try to create a map of how aviation interacts on these planetary boundaries, and in particular energy resources. Quantifying these impacts is a longer-term goal which will be pursued during a PhD. The goal is to answer questions such as how does aviation contribute to exceeding (or not) global limits? What pressure does the aviation sector exert on land use, mineral resources or available energy? More generally, what would aviation look like if it were compatible with maintaining the planet's habitability, and how should such compatibility be defined in the first place?</p> |

Possibility to continue with a PhD (Yes/No) : Yes

REQUIRED APPLICANT PROFILE AND SKILLS

Study level
(tick possible choices)

Undergraduate students (3rd or 4th year)
 Master students (1st or 2nd year)
 PhD students

Required profile and skills

Other useful information