



INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS

INTERNSHIP SUBJECT FORM

Name of the Host Laboratory	Laboratoire de Météorologie Dynamique
Website of the Host Laboratory	http://www.lmd.jussieu.fr/
Research Group	DPAO: Dynamics and Physics of the Atmosphere and Ocean
Internship Supervisor	Rival Plougonven et Albert Hertzog
Internship Subject	Seasonal prediction of the coupled atmosphere-ocean system over the Indian Ocean
Student's level	<input type="checkbox"/> Advanced Undergraduate Students (3 rd or 4 th year) <input checked="" type="checkbox"/> Master's students (1 st or 2 nd year) <input type="checkbox"/> PhD students
Proposed Duration	<input type="checkbox"/> 3 months <input type="checkbox"/> 4 months <input checked="" type="checkbox"/> 5 months <input type="checkbox"/> 6 months
Prerequisites	Undergraduate courses in maths and physics; some basic knowledge on the atmosphere is welcome
Internship description (max. 15 lines)	<p>The climate varies on different timescales. Anthropogenic climate change encompasses the changes and shifts related to human-induced changes in the environment (composition of the atmosphere, land use). It is essential to also understand well the natural climate variability. One motivation is to better distinguish and attribute, on timescales of a few years, what events should rather be attributed to anthropogenic climate change or to natural variability. Another, important motivation is to better anticipate meteorological events up to a season in advance. An important driver of natural climate variability, on the global scale, is the El Niño Southern Oscillation (ENSO) phenomenon that occurs every 3 to 7 years in the Equatorial Pacific Ocean, and affects weather globally. A similar type of event occurs in the Indian Ocean and is called the Indian Ocean Dipole (IOD), or Indian Niño. During the second half of 2019 (July - December 2019) a strongly positive IOD event took place. Moist convection over the Indian Ocean was displaced to the Western part of the basin. This was experienced as a major difficulty for the balloon launches of the first campaign of the Strateole 2 project (a French-American project to observe the lower stratosphere using long-duration balloons, https://strateole2.aeris-data.fr/).</p> <p>The purpose of this internship will be to explore the predictability of the IOD on seasonal timescales and to identify the impacts of IOD on European weather. The internship will combine a case study approach (the 2019 strong IOD event) and systematic investigation of past events.</p>