Finanziato dall'Unione europea NextGenerationUE
Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA
VITALITY

Progetto VITALITY | Programma di Consulenza Specialistica | **Seminario**

Using machine learning with climate-aware mathematical mosquito models to derive optimal interventation strategies

Abstract

I will introduce the climate-driven, mathematical process model called VECTRI that was developed to model mosquito lifecycles and malaria transmission in Africa and has recently been extended to model the climate-senistive lifecycle af Aedes Albopictus, the “tiger” mosquito, evaluating the model performance over Italy. A set of simulation experiments then will show how heat-waves can enhance populations of this nuisance vector most locations, with the exception of the very warmest regions in southern Italiy, where the model predicts the vector to become homodynamic in the future with a warming climate and where heat waves can have a detrimental effect due to their impact on increased vector mortality. Lastly, I will show preliminary results of combining a particle-filter, machine learning algorithm to potentially derive climate-aware, optimal intervention strategies againts the vector.

martedì 1 aprile 2025 - Ore 11.00

Aula 3 - Edificio B, piano -2
Dipartimento di Medicina e Chirurgia

11.45 - 13.30

Round Table with experts both in person and remotely moderated by
Prof.ssa Roberta Spaccapelo (lecturer in Microbiology and Clinical Microbiology)

Link per collegarsi

Adrian Mark Tompkins
ICTP - The Abdus Salam International Centre for Theoretical Physics

Dr. Adrian Tompkins is a research scientist in the Earth System Physics section of ICTP. His work focuses on cloud and convection dynamics, their representation in weather and climate models, and the role of tropical convection organization in climate sensitivity. He is particularly dedicated to improving weather prediction and climate model applications in developing countries. Over the past 13 years, Dr. Tompkins has taught at more than 35 schools, workshops, and training events across Africa, Asia, and Central/South America, organizing over 25 of these in 12+ African countries. His recent efforts emphasize training in open-access climate tools and datasets, particularly within the Copernicus climate services framework, hosted by ECMWF where he previously worked. His research has expanded to climate-health applications in Africa, where he leads the development of an open-source regional malaria transmission model and a high-efficiency agent-based model for human mobility. He serves on the technical advisory group of the malaria section at the Swiss Tropical and Public Health Institute and has held advisory roles in WCRP's (World Climate Research Program), WGSIP (Working Group on Subseasonal to Interdecadal Prediction) and WASCAL (West African Science Service Centre on Climate Change and Adapted Land Use) .

A.D. 1308 unipg
DIPARTIMENTO DI MEDICINA E CHIRURGIA

A.D. 1308 unipg UNIVERSITÀ DEGLI STUDI DI PERUGIA

PNRR per la M4C2 – Linea Intervento 1.5: ECS_00000041 - CUP: J97G22000170005