TRAINING SCHOOL

FINDING, USING AND INTERPRETING MAPS AND MODELS OF INVASIVE MOSQUITOES

Training School Objectives

The training school has a number of major objectives:

a) To teach participants how to interpret available maps, models and sampling results relating to invasive mosquitoes;
b) To use this knowledge to evaluate information available for their region, identify gaps, and propose solutions to fill the gaps;
c) To prepare a presentation on their assessments of the situation in their region.

This training is NOT, therefore, aimed at experienced mappers and modellers, but those who need to use and interpret maps and models rather than produce them, such as Public Health professionals, field staff and students.

The training will be divided into three sessions - an introductory virtual session, a face to face day to provide some theoretical overviews and begin the process of preparing the presentations, and a second virtual session to make the presentations. Trainees will be asked to form regional teams to collaborate between the face to face day and the second virtual session to finalise and produce the required presentation. Further details are given below.

Training School Sessions

1) **5th October 1100-1315 CET Online.** This introductory session will outline the training school objectives and practicalities, provide an overview of AIM-COST recommendations for surveillance and modelling best practice, and provide details of the way to use maps and models to communicate data and results to a range of stakeholders. The trainees will also be asked to arrange themselves into small regional teams ready to participate in the Face to Face day the following week.

2) **Face to Face day Monday 10th October,** the day before the start of the ESOVE conference. Location: Sofia Hotel Balkan, SOFIA, Bulgaria. This face to face training day will consist of two parts - a series of lecture sessions in the morning designed to give trainees an overview of mapping and modelling methods, focusing on what can be done and what cannot be done with these techniques, and illustrating how model and map outputs can be best produced and interpreted. The afternoon sessions will concentrate on helping the participants evaluate the data about invasive mosquitos available at the continental scale and for their region, and starting the process of preparing presentations to be given online in November.

3) **Presentation of Results. Online**, on a date in November or December to be decided at the Face to Face day in Sofia. The trainee teams will present their evaluation and analysis of the information

about invasive mosquitos available for their region, identifying any gaps, and specifying what additional information is needed to feed surveillance, control and policy decisions and describing how such information should be obtained. Each presentation will be followed by an open discussion and feedback on potential changes or improvements that could be made. The presentations will be evaluated, and the team giving the presentation with the highest score will be asked to present their findings at the AIM-COST Annual Meeting in Rome at the end of January 2023.

Trainers

Kamil Erguler, Climate and Atmosphere Research Center (CARE-C), The Cyprus Institute, Cyprus. Modelling climate impacts on vector-borne diseases.
Neil Alexander, Environmental Research Group Oxford, % Department of Zoology, University of Oxford, UK. Geographic data management and analysis.
Cedric Marsboom, Research department, Avia-GIS, Zoersel, Belgium. Spatial and mathematical modelling.
Filiz Gunay, Vector Ecology Research Group, Biology Department, Ecology Section, Hacettepe University, Turkey. Vector data collection and efforts to enhance communication.
William Wint, Environmental Research Group Oxford, % Department of Zoology, University of Oxford, UK. Spatial analysis of diseases and the hosts and vectors that carry them, data provision and management.
Sophie Vanwambeke, Georges Lemaître Centre for Earth and CLimate Research, Earth & Life Institute, UCLouvain, Belgium.
Francis Schaffner, FS Consultancy, Surveillance and management of biting insects, Riehen, Switzerland, & University of Zurich, Institute of Parasitology, Switzerland. Vector data collection, provision and analysis.
Miguel A. Miranda, Applied Zoology and Animal Conservation Research Group, University of the Balearic Islands, Spain.

Participants and Application

It is envisaged that there will be 25-30 participants. Applicants will be asked to provide a motivation letter with

a) A summary of professional qualifications and experience;
b) A detailed statement of the reasons for wanting to attend the training school;
c) Confirmation that applicants have permission from employers or institutions to attend the training school if selected, and contacts detail of the person providing that permission;
d) Email contact details and institutional affiliation.

This document and application details will be posted on the AIM-COST website, sent to the AIM-COST network members and disseminated through the ESOVE and EMCA networks. Applicants do not, however, need to be associated with either group.

Applications must be submitted by 9th September, and should be sent to neil.s.alexander@gmail.com. All applications will be reviewed and successful applicants notified the following week and must accept the invitation by the 15th of September 2022.

As a critical part of the training is to assemble as much information about the regional status of invasive mosquitoes as possible, successful applicants will be sent detailed suggestions of the type of data that they need to find and obtain before the training school starts. They will also be sent details of any advance reading that might be needed

AIM-COST support provided

Successful applicants will be given the costs of return travel to Sofia, as well as accommodation and subsistence for two nights and the COST rates, which are €191/day for accommodation, meals and any local transport. Tea and coffee will be provided at the face to face training school but trainees will be expected to buy their own lunch (€25). Those qualifying for an ITC grant (https://www.aedescost.eu/) that has an abstract accepted for the ESOVE conference may also claim for the costs of subsistence for the days of the conference again at the COST rates.

Session Content

First Virtual Session October 5th, 1100-1315 CET Online Link will be sent to successful Applicants

Overview of training school content aims and objectives, (William Wint, 20 minutes)

Overview of AIM-COST roadmap (Cedric Marsboom, 20 mins)

One of the deliverables of AIM-COST Workgroup 1 is to produce a 'Roadmap' setting out best practice for surveillance, mapping and both spatial and mathematical modelling invasive mosquitoes. In addition, the Roadmap sets out recommended principles of disseminating outputs of these technical activities beyond the spatial analyst and modeller communities.

Best practice for presenting spatial information (Sophie Vanwambeke, 90 mins)

Maps can be an outstanding communication tool and as such it's not surprising that they have gained so much in popularity now that making them is just a click away on an online mapper. Still, like other tools that collate and present summaries of data and information, preparing, communicating and reading them is not trivial. We will examine in what circumstances maps can be useful, and what are frequent pitfalls of map making and reading. Best practices for communicating spatial data and information will be demonstrated and discussed.

Face to Face Training day in SOFIA. October 10th 1000 - 1700, Sofia Hotel Balkan, Sofia, Bulgaria

Morning Session 10:00 - 12:45

10:00 - 10:15 Introduction and objectives (Filiz Gunay)

10:15 - 10:45 Mapping basics (Neil Alexander)

Using examples from the VectorNet project we shall review the display of data as points, polygons and rasters and explain the process switching between the different displays. We will demonstrate the maps produced by the VectorNet project and explain why we have displayed them in a particular way. The session will end with a review of how we have assessed the data quality and results.

10:45 - 11:15 Spatial modelling basics (William Wint)

The session will illustrate some of the outputs of spatial models of invasive mosquitoes, providing an overview of the methods and summarising the inputs required to feed the models.

11:15 - 11:45 Coffee Break

11:45 - 12:15 Mathematical modelling basics (Kamil Erguler)

This session will introduce concepts of inverse modelling, which includes (i) the development and interpretation of process-based mechanistic models and (ii) a review of the current practices for collection, curation, and analysis of time series data. Using simulated data and the AIMSurv dataset, we will discuss model calibration, evaluation, interpretation, and visualisation.

12:15 - 12:45 AIMCOST roadmap: content, and dissemination principles (Cedric Marsboom)

This session will give an overview of the AIM-COST roadmap aims and principles. Further in this session we will give an overview of what continental scale data will be made available to trainees.

12:45-13:00 Lunch (not provided)

Afternoon Session 14:00-17:00

14:00 - 16:00 Preparation of Presentations, part 1

Trainers will assist each team of trainees to

a) assess the material available to each team,
b) organise the continental and regional data that each team have collected, and
c) help suggest how to interpret the information, identify gaps, recommend future data needs, and summarise what is available in a format that is suitable for the chosen audience,
d) start preliminary drafting of presentations,
e) provide limited technical input to produce additional material if needed.

16:00 - 16:30 Tea Break

16:30-17:30 - Continued preparation of presentations

Virtual session 1: November

Presentations - 20 mins each - 5-6 teams to be identified at meeting on October 5th