Grant agreement no. 243964

QWeCI

Quantifying Weather and Climate Impacts on Health in Developing Countries

M2.1.a – Generalised single host, single vector dynamic vector-pathogen-host model

Start date of project: 1st February 2010 Duration: 42 months

Lead contractor : UNILIV
Coordinator of milestone : UNILIV
Evolution of milestone

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Project co-funded by the European Commission within the Seventh Framework Programme (2007-2013)		
Dissemination Level		
PU	Public	PU
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

As explained in the periodic report

After discussion the different partners agreed that building an intermediate generic model was scientifically too complex and not required to make the transition between LMM and a RVF model with two vectors. At the same time there was large demand from the project to have a locally installable version of the model available. To achieve this we realised it would require a 'simple to use' front-end and be able to load various single point and gridded climate data sets and provide a set of basic visualisation tools. Therefore, we decided to develop a multi-platform system capable of including the LMM and future models such as the RVF model produced in QWeCI. The software should allow users with only limited computational knowledge to run and process data from the LMM for decision making questions. Full scale research analysis may be carried out using other data analysis and plotting packages using outputs from the software. Therefore this task has been replaced with development of a tool that can be used by a range of users inside and ultimately outside the project: the user-friendly application (called "Disease Model Cradle" or DMC) is currently being developed in Liverpool by Andy Heath (Fig 1 and 2). The application provides an interactive front-end to run a variety of disease models (currently LMM and the Rift Valley Fever model when available). The disease models are encapsulated as dynamic libraries and plugged into the application using a standard interface, and the modelled results displayed graphically. The aim of this multi-platform tool is to allow the partners involved in the project to run models in their local institutions with their own meteorological datasets and to investigate and validate the results with respect to epidemiological field measurements (e.g. malaria incidences, number of infected mosquitoes). The first released version of DMC is almost complete and will be deployed to Windows, Mac OS X and Linux operating systems. DMC will be used at the workshop at ICTP M20 to get the end-user feedback on the initial version. This is a major achievement of WP2.1 within the QWeCI project framework as DMC will also be utilised by other dependant work packages (WP4.1 especially).

The DMC will be run at the workshop at ICTP M20 the use and feedback from that session will be used to finalize the first version and that will be released for download to partners and other users in M21.

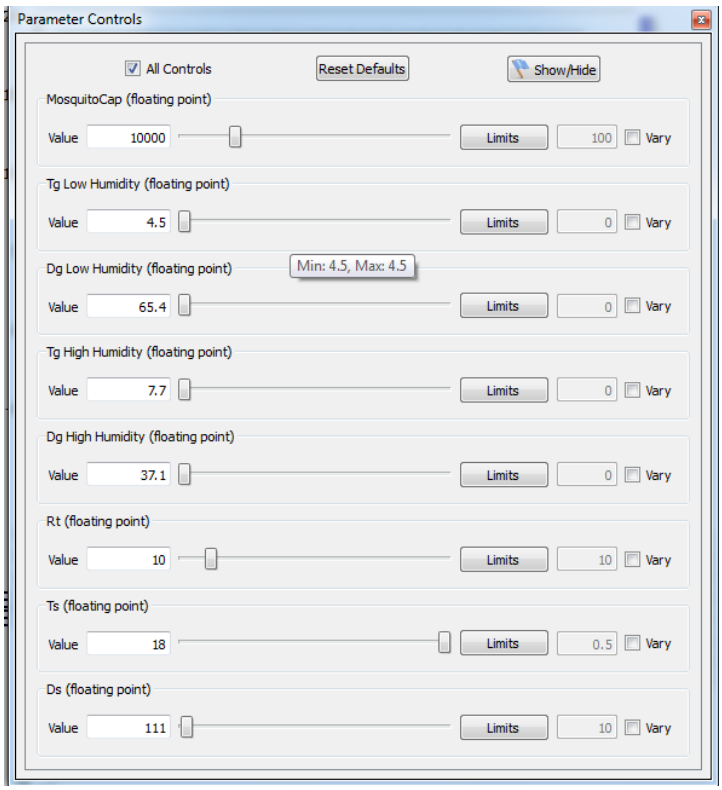

Figure 1:

Controls to set the values of the disease model parameters within DMC (the parameter controls displayed here are for the LMM). The system can automatically vary each parameter between user-defined limits for sensitivity testing purposes.

(Screen shot taken from the Windows implementation).

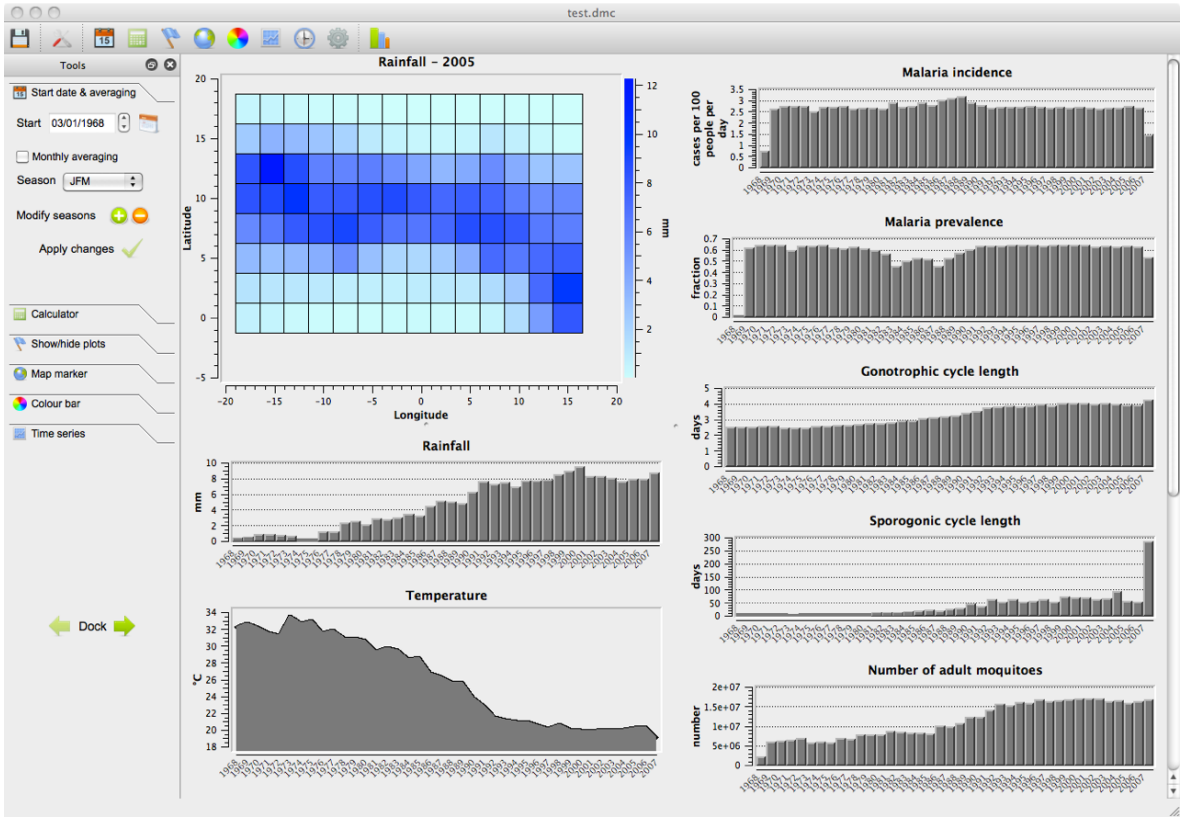

Figure 2: View of the DMC interface. Climate inputs (rainfall / temperature) are shown on the left-hand side, and the LMM malaria outputs are shown on the right-hand side.

(Screen shot taken from the Mac OS X implementation)