CLIMEX and DYMEX V4.1:

New advances and strategic outlook for an important PRA toolkit

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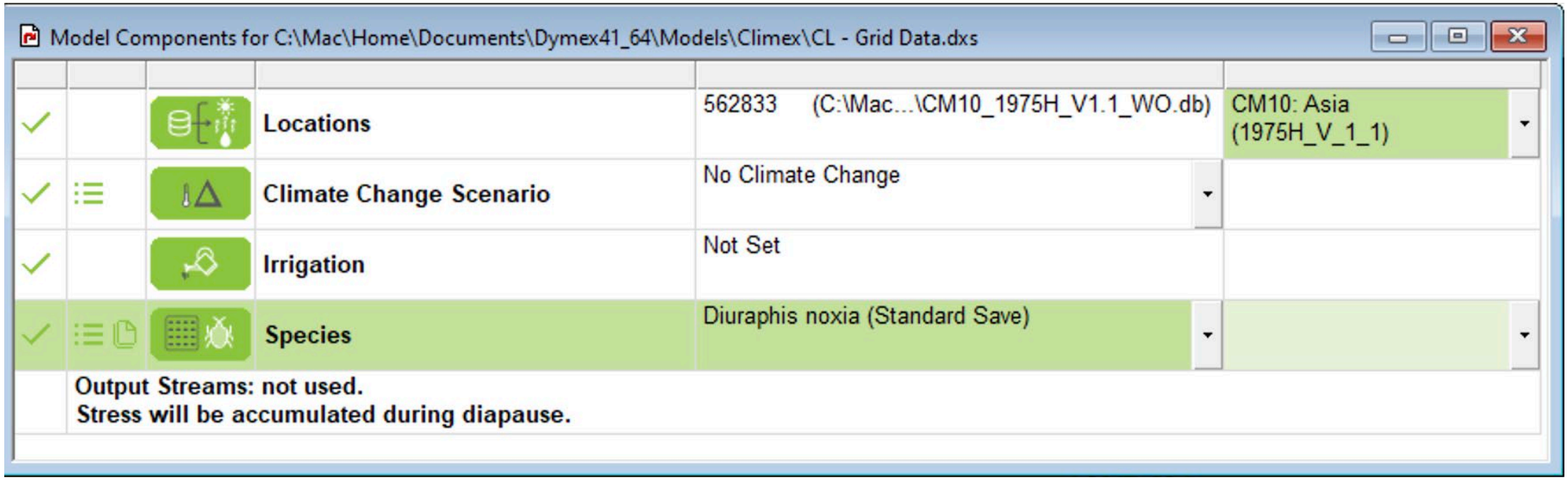
Refreshed interface

- Most noticeable difference
- Deals with scaling issues with high-resolution screens
- Should no longer need to change the screen resolution
- Changed the icons
- Fixed lots of small bugs in the interface

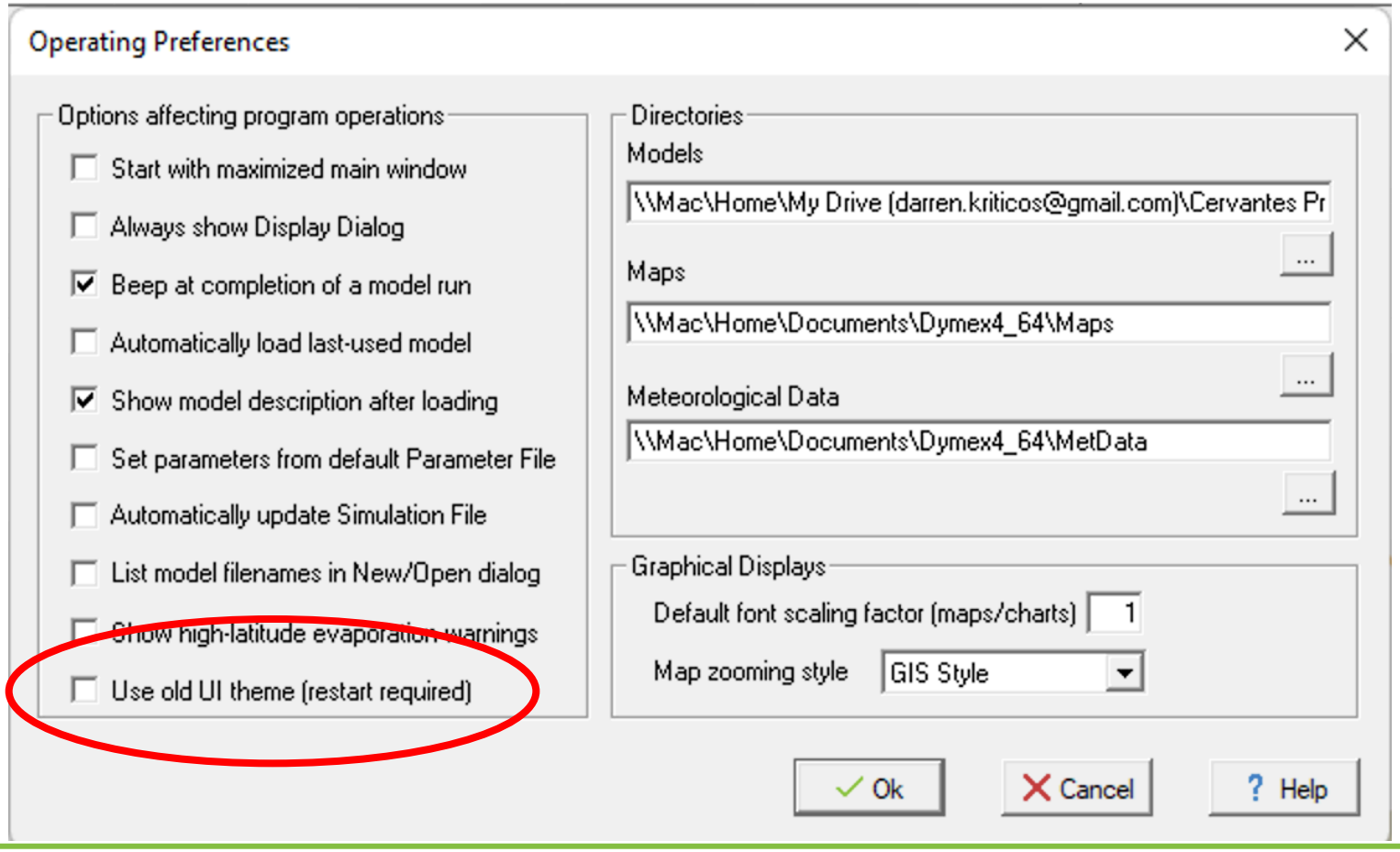

Model Components for C:\Mac\Home\Documents\Dymex41_64\Models\Climex\CL - Grid Data.dxs
Locations
562833 (C:\Mac...\CM10_1975H_V1.1_WO.db)
CM10: Asia (1975H_V_1_1)
Climate Change Scenario
No Climate Change
Irrigation
Not Set
Species
Diuraphis noxia (Standard Save)
Output Streams: not used.
Stress will be accumulated during diapause.

Parameters: Diuraphis noxia (Standard Save)

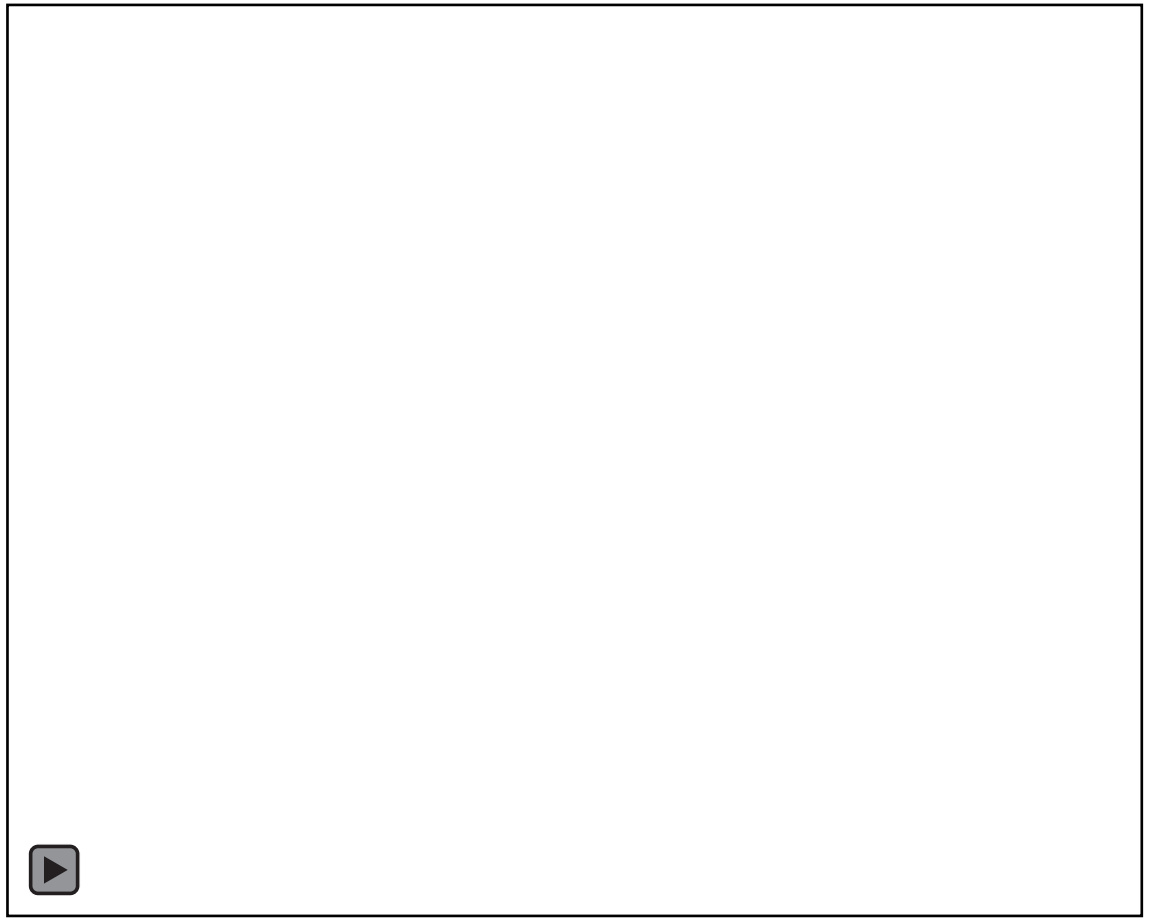
Edit Comments... | Copy to Clipboard

Moisture Index					
SM0	*SM1*	*SM2*	*SM3*		
0.05	*0.1*	*0.275*	*0.5*		
Temperature Index					
DV0	*DV1*	*DV2*	*DV3*		
3	*15*	*25*	*35*		
Light Index					
Diapause Index					
Cold Stress					
TTCS	*THCS*	*DTCS*	*DHCS*	*TTCSA*	*THCSA*
0	*0*	*25*	*-0.00012*	*0*	*0*
Heat Stress					
TTHS	*THHS*	*DTHS*	*DHHS*		
35	*0.02*	*0*	*0*		
Dry Stress					
SMDS	*HDS*				
0.05	*-0.01*				
Wet Stress					
SMWS	*HWS*				
0.5	*0.035*				
Cold-Dry Stress					
Cold-Wet Stress					
Hot-Dry Stress					
Hot-Wet Stress					
Day-degree accumulation above DV0					
DV0	*DV3*	*MTS*			
3	*35*	*7*			
Day-degree accumulation above DVCS					
DVCS	**DV4*	*MTS*			
3	*100*	*7*			
Day-degree accumulation above DVHS					
DVHS	**DV4*	*MTS*			
35	*100*	*7*			
Degree-days per Generation					
PDD					
0					

Option to revert to the previous interface if you want to

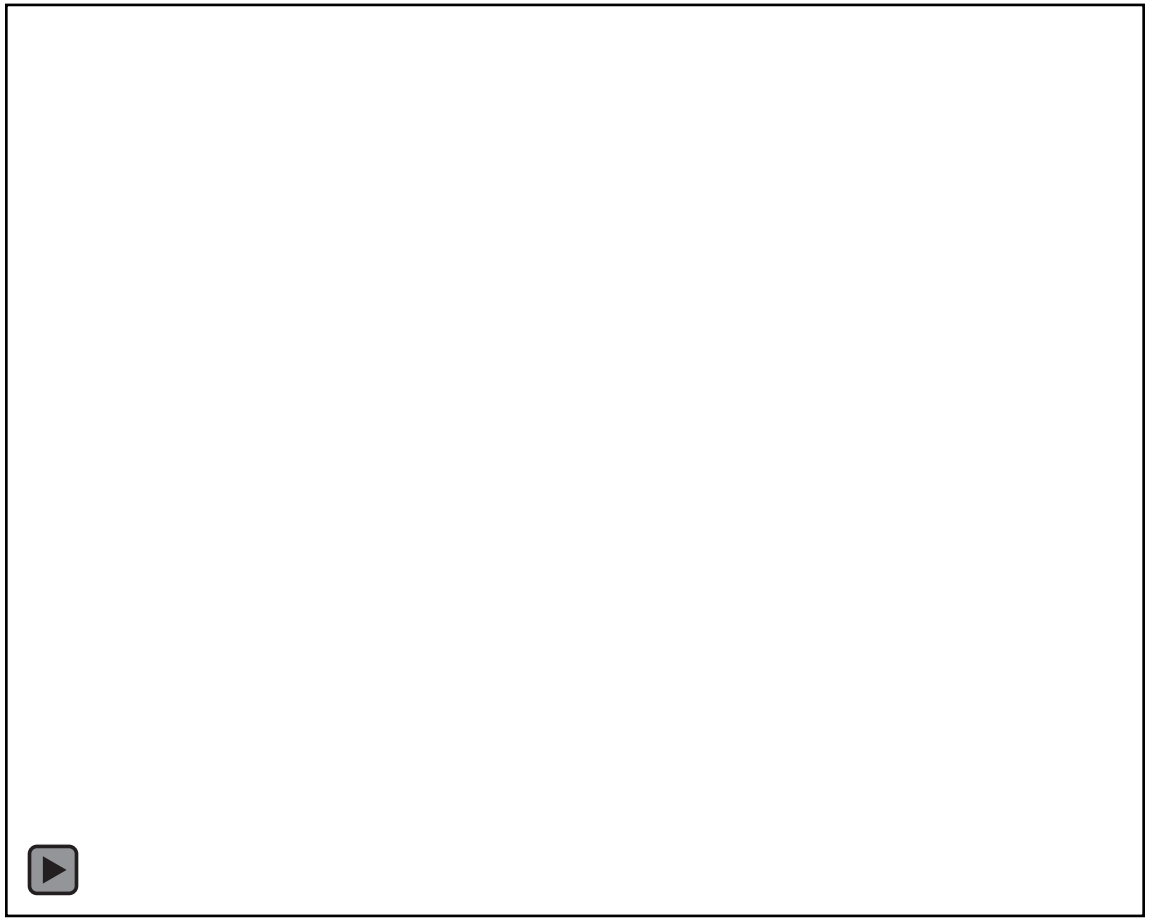


Variability modelling – inter-annual



Bactrocera dorsalis

Variability modelling - Seasonal



Bactrocera dorsalis

New climate database format

- *.db files
- Sqlite database
- MUCH faster than Metman files!

Both Builder and Simulator are now 64-bit

- Allows the system to run VERY large datasets
- Global 0.05 degree dataset (experimental) was VERY slow, but it ran successfully

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Anti-sleep function for long runs

- On laptops, the system would go to sleep on long runs, then resume processing when you woke it up
  - No longer!
  - Now it will keep processing the run, without going into sleep mode
- Useful for long batch runs like genetic algorithm

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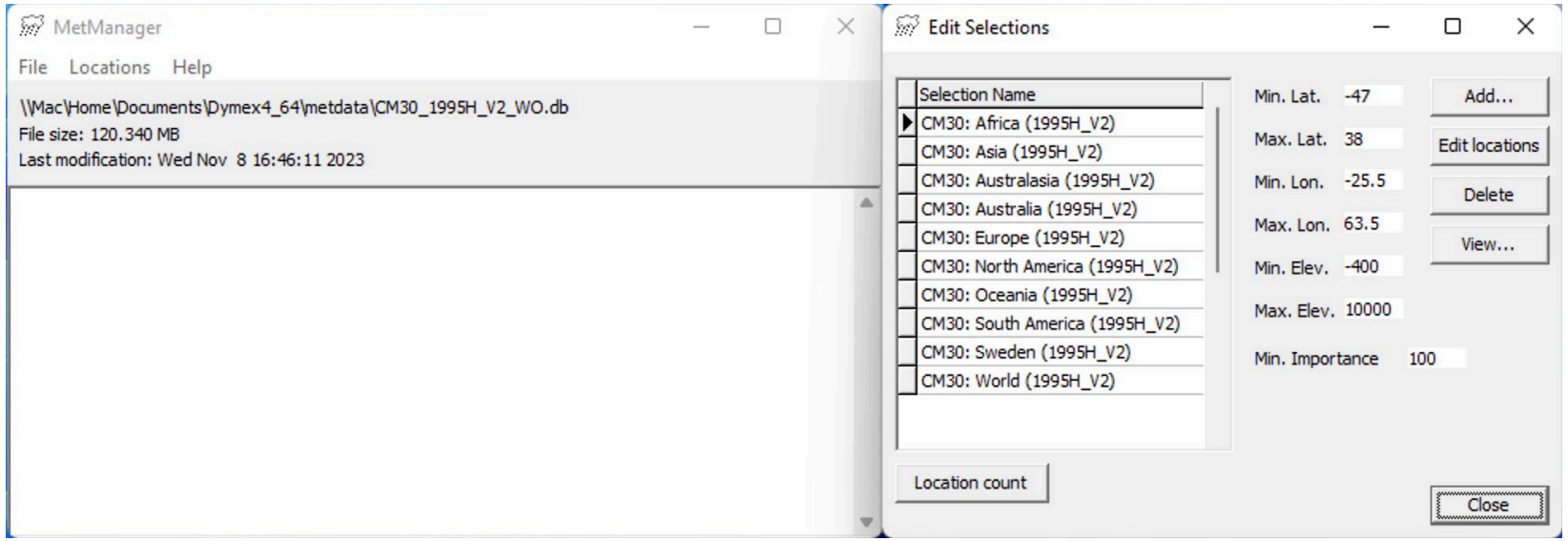
Help system

- Now re-connected to the interface
- Context-sensitive responses

Revamped MetMan Utility

- 32-bit and 64-bit versions



NetCDF reader

- Supports daily gridded datasets
- ERA5
- Gridded DYMEX results

Updated climatologies

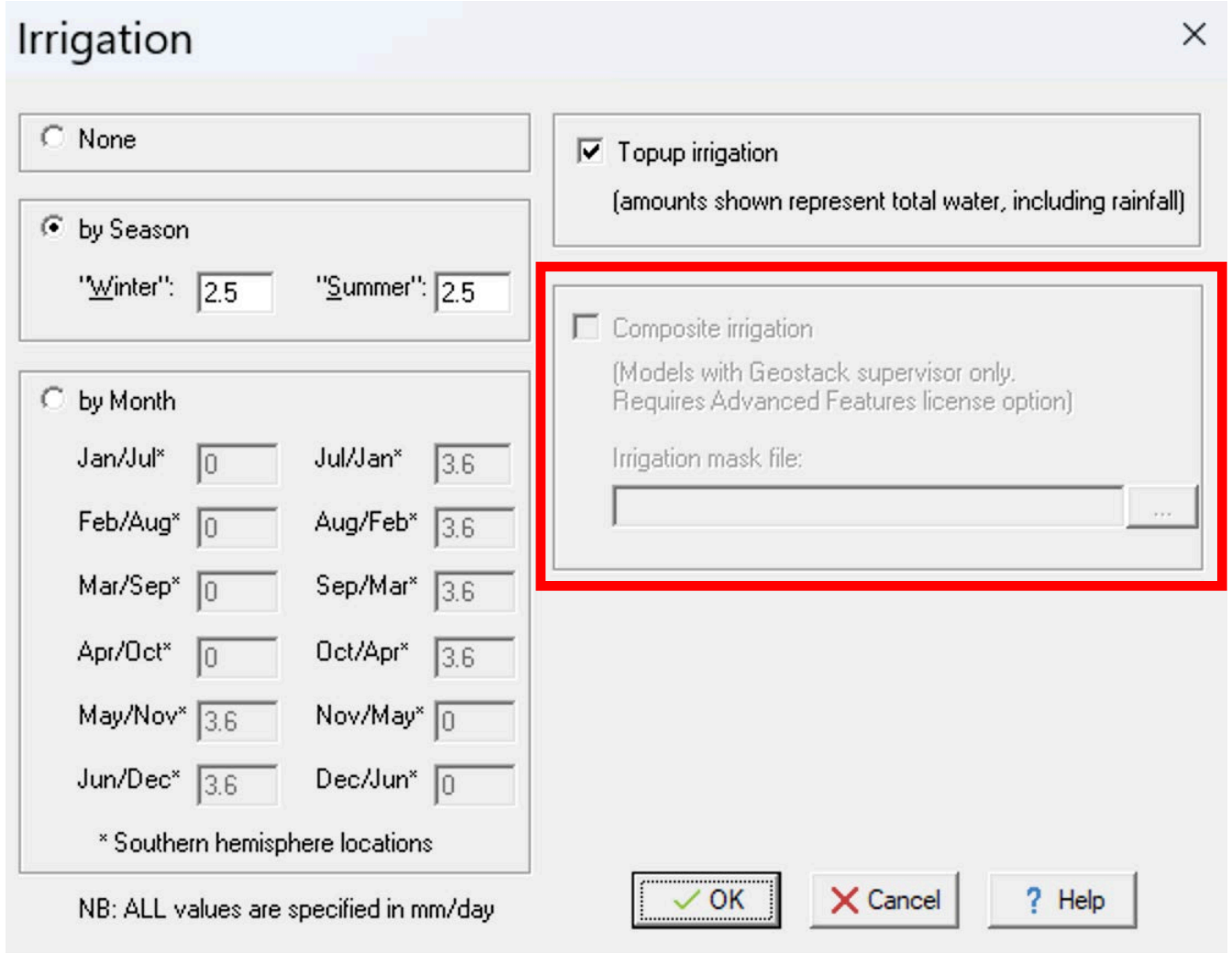
- 1995-centered, 10’ and 30’ historical
- Future climate scenarios
  - 3 GCMs (ACCESS, EC_Earth3, CNRM-CM6)
  - 2 epochs (2050, 2080)
  - 4 SSP emission scenarios (126, 245, 370, 585)
- Thanks
  - Catriona Duffy, University of Maynooth, Ireland
  - Noboru Ota, CSIRO, Australia

Generic Infection Model

- Magarey et al. (2005)
- Hydro-thermal model
- Required a daily humidity cycle sub-model
- Runs on an hourly basis
- Can be used to generate risk maps for number of infection days

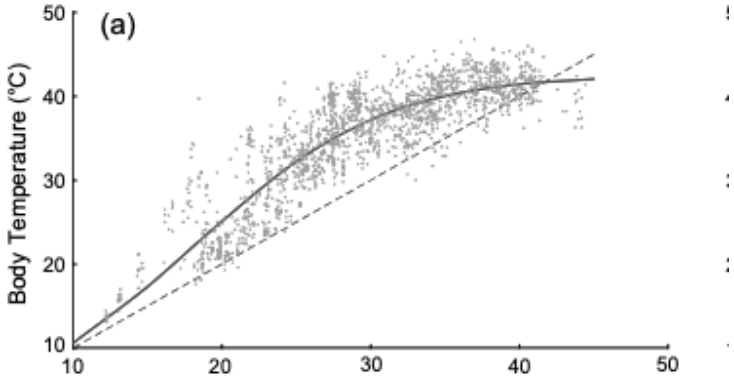
Automated composite irrigation runs

- Specify a spatial dataset describing where irrigation is practiced
- Run the model
- The model will run two simulations (natural rainfall and the specified irrigation scenario) then use the irrigation mask to create the composite scenario for Ei and GI



Basking module

- Based on Klass et al. 2007
- Allows the user to specify a response function to account for basking behaviour that optimizes insect development as a function of the daily temperature cycle
- The sigmoid *Samietz-Köhler function added to the function library*
- *Samietz and Köhler (1998*



Thank you!

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