

# CLIMEX and DYMEX V4.1:

New advances and strategic outlook for an important PRA toolkit

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# New features and functionality in V4.1







# 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

✓			<b>Locations</b>	562833 (C:\Mac...\CM10_1975H_V1.1_WO.db)	CM10: Asia (1975H_V_1_1) ▾
✓	☰		<b>Climate Change Scenario</b>	No Climate Change ▾	
✓			<b>Irrigation</b>	Not Set	
✓	☰		<b>Species</b>	Diuraphis noxia (Standard Save) ▾	▾

Output Streams: not used.  
Stress will be accumulated during diapause.



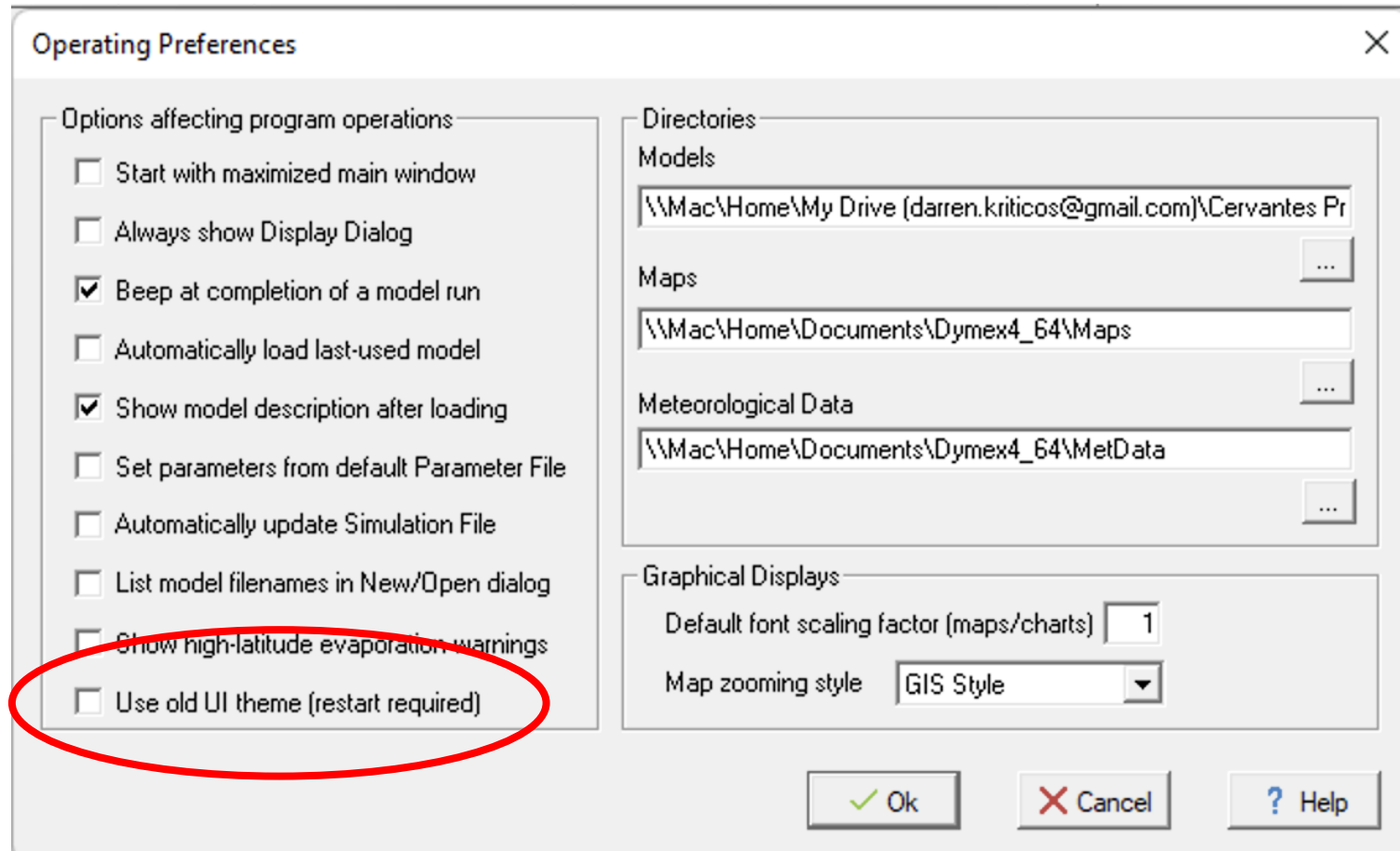
Parameters: Diuraphis noxia (Standard Save)

Edit Comments... Copy to Clipboard

<input checked="" type="checkbox"/> Moisture Index					
SM0	SM1	SM2	SM3		
0.05	0.1	0.275	0.5		
<input checked="" type="checkbox"/> Temperature Index					
DV0	DV1	DV2	DV3		
3	15	25	35		
<input type="checkbox"/> Light Index					
<input type="checkbox"/> Diapause Index					
<input checked="" type="checkbox"/> Cold Stress					
TTCS	THCS	DTCS	DHCS	TTCSA	THCSA
0	0	25	-0.00012	0	0
<input checked="" type="checkbox"/> Heat Stress					
TTHS	THHS	DTHS	DHHS		
35	0.02	0	0		
<input checked="" type="checkbox"/> Dry Stress					
SMDS	HDS				
0.05	-0.01				
<input checked="" type="checkbox"/> Wet Stress					
SMWS	HWS				
0.5	0.035				
<input type="checkbox"/> Cold-Dry Stress					
<input type="checkbox"/> Cold-Wet Stress					
<input type="checkbox"/> Hot-Dry Stress					
<input type="checkbox"/> 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					



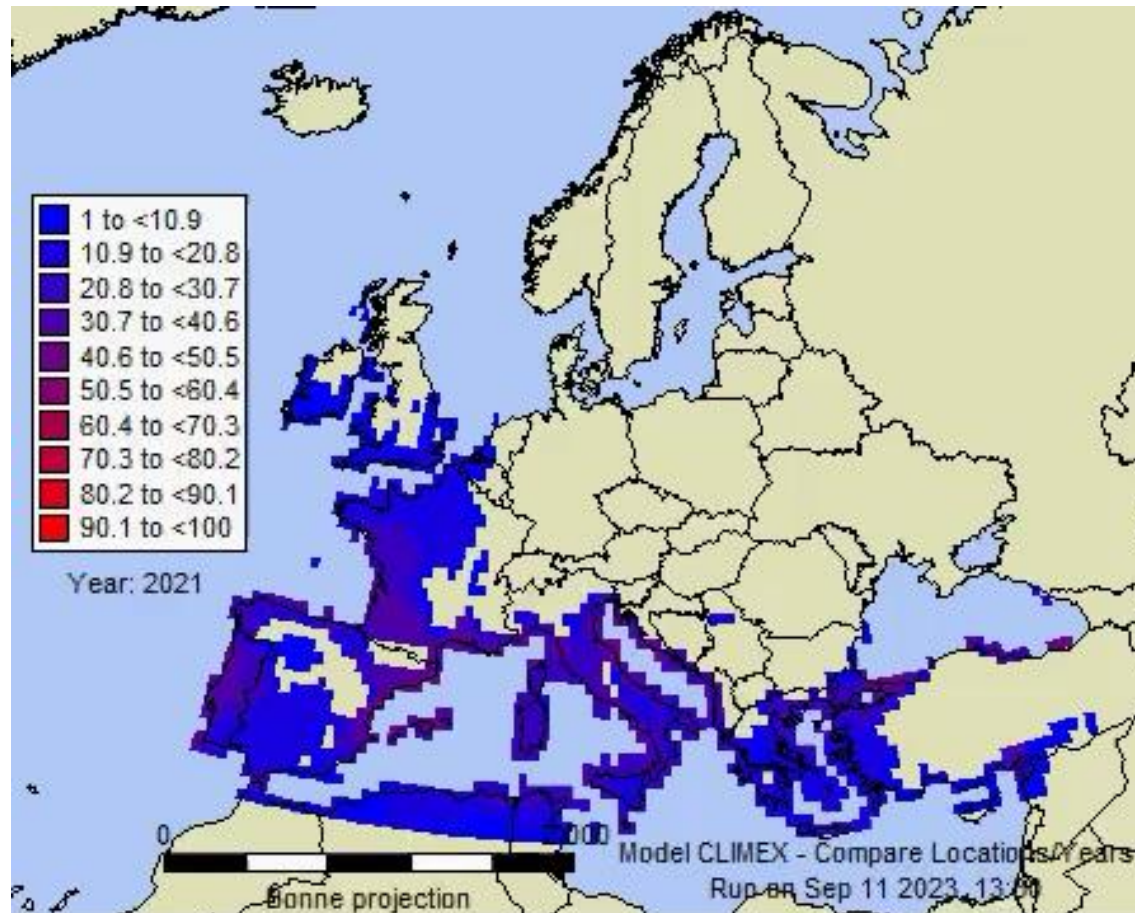
# Option to revert to the previous interface if you want to



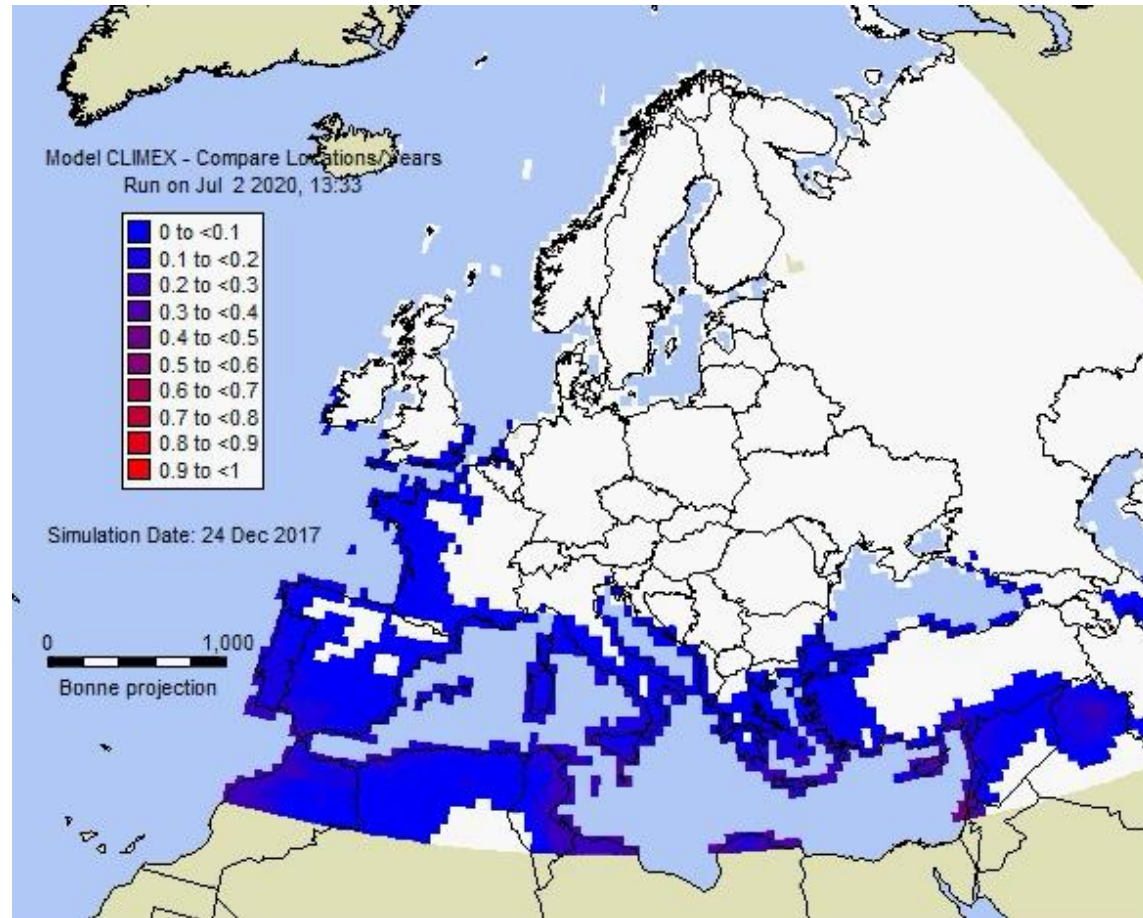


# Variability modelling – inter-annual

*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



# 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



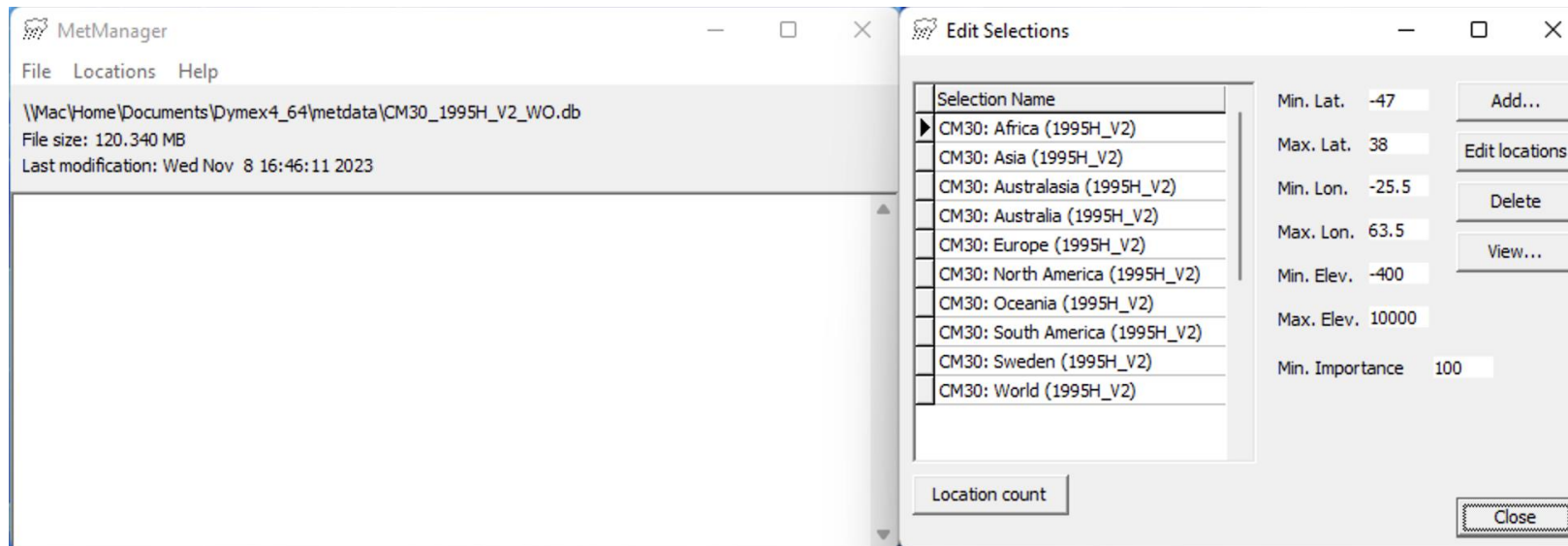
# Help system

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



# Revamped MetMan Utility

- 32-bit and 64-bit versions



# 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





# Development strategy



# Continuous improvement

- Release significant software updates approximately yearly
- Pivot to a subscription licensing model, with “grandfathering” to protect existing customers
- V4.1 is in Beta testing, expecting commercial release before end of 2024
- V4.2 will include new features on current platform, plus better support for Apple and Linux
- V5 will be a major change – new platform, focus on UX



Developing SaaS risk forecasting products

# V4.2 Sneak peek



# New functions for V4.2

- Generic infection model
  - Plant pathogens
  - Popular infection model
- Automated spatially-explicit irrigation and protected agriculture scenarios
  - 1-click composite simulations
- Outlier detection and management
- Thermoregulation - Basking module
- Multi-threading – improved performance
- Climatologies updated to 2000



# Thank you!

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