

Contents

ACYCLE	- 1 -
WHAT THEY SAY	- 4 -
COPYRIGHT	- 6 -
1. ACKNOWLEDGMENTS	- 7 -
2. REFERENCES	- 8 -
3. SOFTWARE SPECIFICATIONS.....	- 10 -
3.1 SYSTEM REQUIREMENTS	- 10 -
3.2 DOWNLOADING THE ACYCLE SOFTWARE	- 10 -
3.3 MATLAB VERSION	- 12 -
3.3.1 Toolboxes	- 12 -
3.3.2 Installation	- 12 -
3.3.3 Startup	- 12 -
3.3.4 Git Clone and Updating	- 13 -
3.4 MAC VERSION	- 15 -
3.4.1 Introduction	- 15 -
3.4.2 AcycleX.X-Mac-green	- 15 -
3.5 WINDOWS VERSION	- 18 -
3.5.1 Introduction	- 18 -
3.5.2 AcycleX.X-Win-green.....	- 18 -
3.6 DATA REQUIREMENTS	- 19 -
4. ACYCLE GRAPHICAL USER INTERFACE (GUI).....	- 20 -
4.1 FUNCTIONS AND GUI	- 20 -
4.2 FILE	- 21 -
4.3 EDIT	- 21 -
4.4 PLOT	- 22 -
4.5 BASIC SERIES.....	- 25 -
Insolation	- 25 -
Astronomical Solution	- 27 -
Milankovitch Calculator	- 27 -
Signal/Noise Generator.....	- 28 -
LR04 Stack	- 31 -
Examples	- 31 -
4.6 MATH	- 35 -
Sort/Unique/Delete-empty.....	- 35 -
Interpolation	- 35 -
Interpolation Series	- 35 -
Select Parts	- 36 -
Merge Series	- 36 -
Multiply Series.....	- 36 -
Add Gaps.....	- 37 -
Remove Parts	- 37 -

<i>Remove Peaks</i>	- 37 -
<i>Clipping</i>	- 37 -
<i>Changepoint</i>	- 37 -
<i>Standardize</i>	- 38 -
<i>Principal Component</i>	- 38 -
<i>Log-transform</i>	- 38 -
<i>Derivative</i>	- 39 -
<i>Simple Function</i>	- 39 -
<i>Utilities</i>	- 39 -
<i>Find max/min</i>	- 39 -
<i>Image:</i>	- 39 -
<i>Show Image</i>	- 39 -
<i>RGB to Grayscale</i>	- 39 -
<i>Image Profile</i>	- 39 -
<i>Plot Digitizer</i>	- 40 -
4.7 TIME SERIES	- 42 -
<i>Detrending / Curve Fitting</i>	- 42 -
<i>Smoothing</i>	- 43 -
<i>Prewhitening</i>	- 44 -
<i>Spectral Analysis</i>	- 45 -
<i>Evolutionary Spectral Analysis</i>	- 47 -
<i>Circular Spectral Analysis</i>	- 49 -
<i>Wavelet</i>	- 50 -
<i>Coherence & Phase</i>	- 55 -
<i>Lead/Lag Relationship</i>	- 56 -
<i>Filtering</i>	- 57 -
<i>Dynamic Filtering</i>	- 59 -
<i>Amplitude Modulation</i>	- 61 -
<i>Build Age Model</i>	- 61 -
<i>Age Scale / Tuning</i>	- 61 -
<i>Sedimentation Rate to Age Model</i>	- 65 -
<i>Power Decomposition Analysis</i>	- 65 -
<i>Sedimentary Noise Model</i>	- 66 -
<i>Correlation Coefficient (COCO/eCOCO)</i>	- 67 -
<i>Evolutionary Correlation Coefficient (eCOCO)</i>	- 69 -
<i>TimeOpt</i>	- 72 -
<i>eTimeOpt</i>	- 73 -
<i>Spectral Moments</i>	- 74 -
4.8 HELP	- 77 -
<i>What's New</i>	- 77 -
<i>Manuals</i>	- 77 -
<i>Find Updates</i>	- 77 -
<i>Copyright</i>	- 77 -
<i>Contact</i>	- 77 -
4.9 MINI-ROBOT	- 78 -
5. DYNOT MODEL DESCRIPTION	- 79 -
5.1 DATA FORMAT	- 79 -

5.2 STARTUP.....	- 79 -
5.3 SETTINGS	- 80 -
5.4. RUNNING THE DYNOT MODEL	- 83 -
5.5. OUTPUT FILES	- 84 -
6. CASE STUDIES	- 85 -
TYPICAL PROCEDURES IN CYCLOSTRATIGRAPHY	- 85 -
EXAMPLE #1: INSOLATION	- 87 -
Step 1: Load data.....	- 87 -
Step 2: Data pre-processing.....	- 88 -
Step 3: Detrending.....	- 88 -
Step 4: Power Spectral Analysis	- 89 -
Step 4: Evolutionary Spectral Analysis	- 90 -
EXAMPLE #2: LA2004 ASTRONOMICAL SOLUTION (ETP)	- 92 -
Step 1: Load data.....	- 92 -
Step 2: Data pre-processing	- 93 -
Step 3: Detrending.....	- 93 -
Step 4: Power Spectral Analysis	- 94 -
Step 5: Evolutionary Spectral Analysis	- 95 -
Step 6: Wavelet transform.....	- 96 -
EXAMPLE #3: CARNIAN CYCLOSTRATIGRAPHY	- 98 -
Step 1. Load Data	- 98 -
Step 2. Data Preparation.....	- 99 -
Step 3. Interpolation.....	- 99 -
Step 4. Detrending.....	- 101 -
Step 5. Power spectral analysis.....	- 102 -
Step 6. Evolutionary power spectral analysis.....	- 104 -
Step 7. Correlation coefficient	- 105 -
Step 8. Filtering.....	- 109 -
Step 9. Age model and tuning	- 110 -
Step 10. Repeat steps.	- 112 -
REFERENCES	- 113 -