

## L-RAP RELEASE NOTES

The following documents changes/corrections to the program with each Version Release. The latest release incorporates all changes listed.

### Version 1.53 – January 31, 2018

- ❖ Corrected L-Moment routine that would crash if station data was less than 5 non-zero data points.
- ❖ Changed station selection routine so that if the number of data points is less than 5 non zero, then station is removed from analysis.

### Version 1.52 – January 15, 2018

- ❖ Changed question mark quality code so that it is now valid for data values of 0.00.
- ❖ Modified export routine, shifted longitude one character to match the legacy import format.
- ❖ Corrected import routine that was missing negative number in longitude
- ❖ Added trap for new gage types in import file that weren't in project file.

### Version 1.51 – Internal Release

### Version 1.50 – June 12, 2017

- ❖ Added routine to compute 5<sup>th</sup> L-Moment statistic “L-Cinco”.
- ❖ Corrected formatting on output table to include additional space between L-Moment Stats
- ❖ Corrected CSV file output, which was missing negative signs on L-Moment Stats
- ❖ Corrected crash in CSV output routine that occurred when Spanish was selected as the output format.

### Version 1.49 – June 2, 2017

- ❖ Routines REGTST01 and REGTST02 were revised to correct an issue where only 160 years of data could be analyzed. MAXREC was set to 1000 in these routines, meaning that up to 1000 years for each station could be handled by these routines.
- ❖ Modified legacy import routine so that stations with elevations greater than 9999 would be imported. Larger elevations were being truncated before.
- ❖ Modified legacy import routine to include comments for each station

### Version 1.48 – Internal Release

### Version 1.47 – March 21, 2016

- ❖ Included latest Intel FORTRAN drivers. Program now compatible with Windows 10.

### Version 1.46 – October 1, 2015

- ❖ Modified the L-Moment calculator to allow for computation of distribution parameters and plots by entering L-Moments without entering data.

### Version 1.45 – June 9, 2015

- ❖ Corrected bug which occurred when users imported annual data using the spreadsheet templates. The new notes field added in the previous update was not being initialized, which triggered an error when the file was saved or the editor was accessed.

### Version 1.44 – May 29, 2015

- ❖ Added a new notes field to the station data editor for annual maxima analyses. There are now two notes fields; Notes 1 and Notes 2. These fields are for user-defined comments. The second field was added so that data codes imported from legacy files could be stored in the Notes 2 field and editing comments entered in L-RAP could be stored in the Notes 1 field.

Data from both notes fields are exported to the legacy files. Notes 1 begins in Column 64 and Notes 2 begins in column 128. Each field is 64 characters in width.

- ❖ The station mean annual precipitation exported to the .CSV file when the regional analysis is performed was truncating the decimal values. This has now been corrected.
- ❖ The copy and paste functions would cause the Station Data editor to lock up in certain cases. This has now been corrected.
- ❖ The program version used to create the RGA file has been added to the RGA output for updating files for compatibility with future program versions.

### **Version 1.43 – February 18, 2015**

- ❖ Removed Syncfusion redistributables from installation since there are no Syncfusion controls in application.

### **Version 1.42 – February 5, 2015**

- ❖ Updated User's Manual
- ❖ Station ID's are limited to 7 alphanumeric characters. Added traps for ID's that exceed this amount to the routine that reads .RGA files, and to the Excel and ASCII import routines.
- ❖ Added 0.999 non-exceedance quantile estimate to the regional growth curve output.

### **Version 1.41 – November 19, 2014**

- ❖ Modified comma delimited output file created when the regional analysis button is clicked. Increased the significant figures to 4 for the L-Moment output, corrected a bug that prevented all digits of the station mean annual precipitation from being printed if greater than 1,000, split the discordancy value and flag into different columns.
- ❖ Modified the station screening plots to include a line indicating the value of the peak over threshold (if greater than zero) and the seasonality now reflects the reduced sample size when using peak over threshold percentile on the Select Regions tab.
- ❖ Recompiled remaining DLL's with Intel compiler (all DLL's are now Intel). Revised InstallShield so that Intel redistributables are installed with L-RAP software eliminating the 2-step installation process used in Version 1.40.

### **Version 1.40 – October 8, 2014**

- ❖ Expanded arrays so that up to 100 regions can now be analyzed
- ❖ Added Select All and Clear All buttons to Region Selection Screen
- ❖ Recompiled several FORTRAN routines with Intel Compiler
- ❖ Revised installation to install program in a two-step process using a DOS batch file. First, the FORTRAN redistributables are installed, then L-RAP is installed.

### **Version 1.39 – July 30, 2014**

- ❖ Added new feature that exports station data and L-Moments to CSV file when Regional Analysis is performed from the Regional Analysis tab. The CSV file has the same name as the specified file for outputting the regional analysis results and is stored in the same folder.

- ❖ Changed the Screen Plots Screen to not use the zero values that have the V quality flag on the Station Screen Plots Window, confirmed that only the non-zero values are being used in the L-Moment computations.
- ❖ Included threshold values for “Peaks Over Threshold” Analysis on the Data Filter tab.
- ❖ Modified Station Selection Routines so that mixing parameter includes values less than or equal to threshold. If threshold is zero, then the mixing parameter behaves as it has in the past and only reflects zero values.
- ❖ Added error traps to the editor that identifies when you have duplicate or missing records when you try to save your changes.
- ❖ Added an automatic backup feature that saves a copy of the RGA file before it overwrites it. If the save is successful, then the backup file is deleted. If the save fails, the backup is available.
- ❖ Added an exception handler to the file write routine that will catch unanticipated errors.
- ❖ Corrected an issue with the comments being aligned incorrectly after copy and pasting and then saving the file.
- ❖ Modified screening graphics so that stations with the same number can be loaded. A unique station has a unique Station Number and Gage Type, e.g. Station No=41474800 Gage Type=DY
- ❖ Corrected legacy file import routine so that stations with the same number can be loaded. Use the station ID and the gage type to ensure they are unique.
- ❖ Expanded internal array sizes so that 5,000 stations can be selected in queries (the previous limit was 1000).