README.MD 2025-06-05

SEPARATE



Storm Event Partitioning And Rainfall Analytics for Tipping-bucket rain gauge Evaluation

© 2025 Brendan P. Murphy & Scott R. David



Example Datasets

To help users get started quickly, we include two example datasets in the Example_Datasets folder:

Filename	Description
FixedInterval_TBRG_Example.xlsx	Example dataset logged at regular intervals using fixed time steps.
CumulativeTips_TBRG_Example.xlsx	Example dataset with cumulative tip logging style (e.g., HOBO loggers).

Each file contains two columns:

- 1. **Timestamp** in the format MM/DD/YY HH:MM:SS
- 2. Rainfall Value either:
 - Cumulative tip count (Cumulative Tips format), or
 - Rainfall per interval (Fixed Interval format)

Both are preformatted to match SEPARATE's input requirements. You can use these files to test the interface, explore SEPARATE's options, or verify that your installation is working correctly. In the ouputs folder, you can find the results from each of these runs below, using a 15-min. storm intensity for plotting.

README.MD 2025-06-05

SEPARATE v1.0	- 0 X
SEPARATE Storm Event Partitioning And Rainfall Analytics for Tipping-bucket rain gauge Evaluation	
© 2025 Brendan P. Murphy & Scott R. David	
*Rainfall Record Data Excel Sheet Name * Rainfall Record Type * Tip Magnitude * Tip U	
Partitioning Criteria	
* Criterion for Fixed Minimum Inter-event Time (MI Independent Storms Criterion (ISC) • For User-Defined MIT	T) Selection •
Fixed Minimum Inter-event Time • For Statistically Independent Storms Maximum Inter-event Test Interval	hours 48 hours
Additional Exclusion Criteria	
✓ Minimum Event Rainfall Depth	0.2 tip units
✓ Minimum Event Duration	0.2 hours
Output Options	
*Output Directory • rs/Scott/Desk	ktop/Example_Runs Browse
*Outputs Prefix • Ex_Fixed	
*Image File Format .png .png	
Rainfall Record Timeseries Date Range Start Date End Date	-
Separated Storm Event Profiling (all storms) ● ✓ Include Tabular Storm Event Data	
✓ Include Graphical Storm Event Profiles	
Intensity Interval for Storm Profile 15 minute	s
Separate Storms	
Partitioning Progress:	

Figure: Fixed interval usage example.

README.MD 2025-06-05

SEPARATE Storm Event Partitioning And Rainfall Analytics for Tipping-bucket rain gauge Evaluation © 2025 Brendan P. Murphy & Scott R. David Inputs *Rainfall Record Data	SEPARATE v1.0	_	>
Inputs *Rainfall Record Data	SEPARATE		
Inputs "Rainfall Record Data Excel Sheet Name Cumulative Tips.xi "Rainfall Record Type Cumulative Tips Tip Magnitude 0.2 Tip Units mm "A criterion for Fixed Minimum Inter-event Time (MIT) Selection 0 Independent Storms Criterion (ISC) 0 For User-Defined MIT Fixed Minimum Inter-event Time hours 0 For Statistically Independent Storms Maximum Inter-event Test Interval 48 hours 0 Additional Exclusion Criteria Minimum Event Rainfall Depth 0.2 tip units Minimum Event Duration 0.2 hours 0 Output Options "Output Options "Output Options "Output Directory 0 rs/Scott/Desktop/Example_Runs Downs 0 Ex_Tips "Image File Format png Rainfall Record Timeseries Date Range 0 Start Date End Date Separated Storm Event Profiling (all storms) 1 Include Graphical Storm Event Profiles Intensity Interval for Storm Profil 15 minutes Separate Storms Partitioning Progress:	for Tipping-bucket rain gauge Evaluation		
*Rainfall Record Data	.,		
*Rainfall Record Type *Tip Magnitude	<u> </u>		
*Rainfall Record Type *Tip Magnitude			
* Tip Magnitude • 0.2 Tip Units mm Partitioning Criteria * Criterion for Fixed Minimum Inter-event Time (MIT) Selection • Independent Storms Criterion (ISC) • For User-Defined MIT Fixed Minimum Inter-event Time • For Statistically Independent Storms Maximum Inter-event Test Interval • Additional Exclusion Criteria F Minimum Event Rainfall Depth F Minimum Event Duration Output Options *Output Options *Output Prefix • Include Format Rainfall Record Timeseries Date Range Start Date Separated Storm Event Profiling (all storms) Include Graphical Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:			ı
Partitioning Criteria * Criterion for Fixed Minimum Inter-event Time (MIT) Selection Independent Storms Criterion (ISC) • For User-Defined MIT Fixed Minimum Inter-event Time			
* Criterion for Fixed Minimum Inter-event Time (MIT) Selection • Independent Storms Criterion (ISC) • For User-Defined MIT Fixed Minimum Inter-event Time • For Statistically Independent Storms Maximum Inter-event Test Interval • For Statistically Independent Storms Maximum Inter-event Test Interval • Additional Exclusion Criteria F Minimum Event Rainfall Depth F Minimum Event Duration Output Options *Output Options *Output Directory • For Statistically Independent Storms • Output Options *Output Options *Output Prefix • Ex_Tips *Image File Format Rainfall Record Timeseries Date Range Start Date Separated Storm Event Profiling (all storms) F Include Tabular Storm Event Data F Include Graphical Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:	* Tip Magnitude • 0.2 Tip Units mm		
Independent Storms Criterion (ISC) • For User-Defined MIT Fixed Minimum Inter-event Time • For Statistically Independent Storms Maximum Inter-event Test Interval • Additional Exclusion Criteria □ Minimum Event Rainfall Depth □ 0.2 tip units □ Minimum Event Duration Output Options *Output Options *Output Directory • rs/Scott/Desktop/Example_Runs □ Ex_Tips *Image File Format Rainfall Record Timeseries Date Range • Start Date □ End Date Separated Storm Event Profiling (all storms) □ Include Tabular Storm Event Data □ Include Graphical Storm Event Profiles Intensity Interval for Storm Profili Separate Storms Partitioning Progress:	Partitioning Criteria		ı
• For User-Defined MIT Fixed Minimum Inter-event Time • For Statistically Independent Storms Maximum Inter-event Test Interval • Additional Exclusion Criteria □ Minimum Event Rainfall Depth □ 0.2 tip units □ Minimum Event Duration Output Options *Output Directory • rs/Scott/Desktop/Example_Runs • Cutput Directory • Outputs Prefix • Ex_Tips *Image File Format Rainfall Record Timeseries Date Range • Start Date Separated Storm Event Profiling (all storms) □ Include Tabular Storm Event Profiles Intensity Interval for Storm Profil Separate Storms Partitioning Progress:	* Criterion for Fixed Minimum Inter-event Time (MIT) Selection •		
Fixed Minimum Inter-event Time For Statistically Independent Storms Maximum Inter-event Test Interval Additional Exclusion Criteria Minimum Event Rainfall Depth Minimum Event Duration Output Options Output Options Output Directory Cutputs Prefix Image File Format Rainfall Record Timeseries Date Range Start Date End Date Separated Storm Event Profiling (all storms) Include Tabular Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:	Independent Storms Criterion (ISC)		
● For Statistically Independent Storms Maximum Inter-event Test Interval ● Additional Exclusion Criteria ☞ Minimum Event Rainfall Depth ☑	For User-Defined MIT		ı
Maximum Inter-event Test Interval Additional Exclusion Criteria Minimum Event Rainfall Depth Minimum Event Duration Output Options *Output Directory *Output Prefix *Image File Format Rainfall Record Timeseries Date Range Start Date Separated Storm Event Profiling (all storms) Include Tabular Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:	Tixed minimum mer event rinte	ırs	
Additional Exclusion Criteria ✓ Minimum Event Rainfall Depth ✓ Minimum Event Duration Output Options *Output Directory Outputs Prefix *Image File Format Rainfall Record Timeseries Date Range Start Date Separated Storm Event Profiling (all storms) ✓ Include Tabular Storm Event Data ✓ Include Graphical Storm Event Profiles Intensity Interval for Storm Profil Separate Storms Partitioning Progress:			
✓ Minimum Event Rainfall Depth 0.2 tip units ✓ Minimum Event Duration 0.2 hours Output Options *Output Directory *Output Prefix • Ex_Tips *Image File Format Partitioning Progress: Date Range Start Date End Date Separated Storm Event Profiling (all storms) Finclude Graphical Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress: ### Discount	maximum mor over rescriber val	ırs	
Output Options *Output Directory *Output Prefix *Image File Format *Image File Format *Include Tabular Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:			
*Output Directory *Outputs Prefix *Image File Format *Image File Format *Include Tabular Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:			
*Output Directory *Outputs Prefix • rs/Scott/Desktop/Example_Runs • rs/Scott/Desktop/Example_	Minimum Event Duration 0.2 hou	rs	
*Outputs Prefix • Ex_Tips *Image File Format png Rainfall Record Timeseries Date Range Start Date End Date Separated Storm Event Profiling (all storms) Include Tabular Storm Event Data Include Graphical Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:	Output Options		 ı
*Image File Format .png Rainfall Record Timeseries Date Range Start Date	*Output Directory • rs/Scott/Desktop/Example_Runs	Browse	
Rainfall Record Timeseries Date Range Start Date Separated Storm Event Profiling (all storms) Include Tabular Storm Event Data Include Graphical Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:	*Outputs Prefix • Ex_Tips		ı
Separated Storm Event Profiling (all storms) Include Tabular Storm Event Data Include Graphical Storm Event Profiles Intensity Interval for Storm Profile Separate Storms Partitioning Progress:	*Image File Format .png		
✓ Include Tabular Storm Event Data ✓ Include Graphical Storm Event Profiles Intensity Interval for Storm Profile 15 Separate Storms Partitioning Progress:			
✓ Include Graphical Storm Event Profiles Intensity Interval for Storm Profile 15 minutes Separate Storms Partitioning Progress:	Separated Storm Event Profiling (all storms) •		
Intensity Interval for Storm Profile 15 minutes Separate Storms Partitioning Progress:	☑ Include Tabular Storm Event Data		
Separate Storms Partitioning Progress:			
Partitioning Progress:	Intensity Interval for Storm Profile 15 minutes		
	Separate Storms		
	Partitioning Progress:		

Figure: Cumulative tips usage example.