

TrendMiner Live Training Session

- . . . Data Preprocessing: Preparing
- : : Your Data for Comparable
- . . . Analysis



Housekeeping



Listen Only
Mode



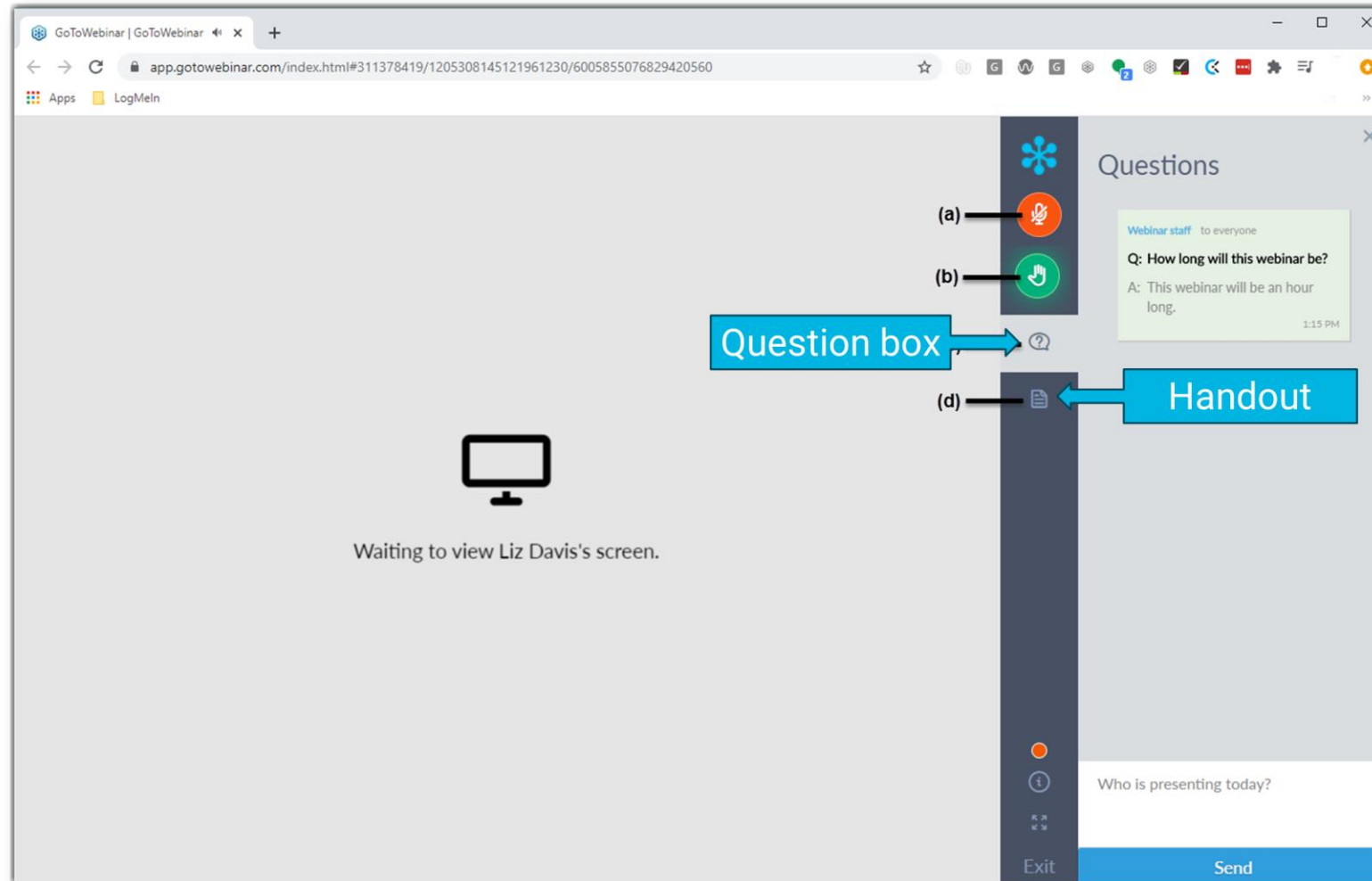
Use Question Box!



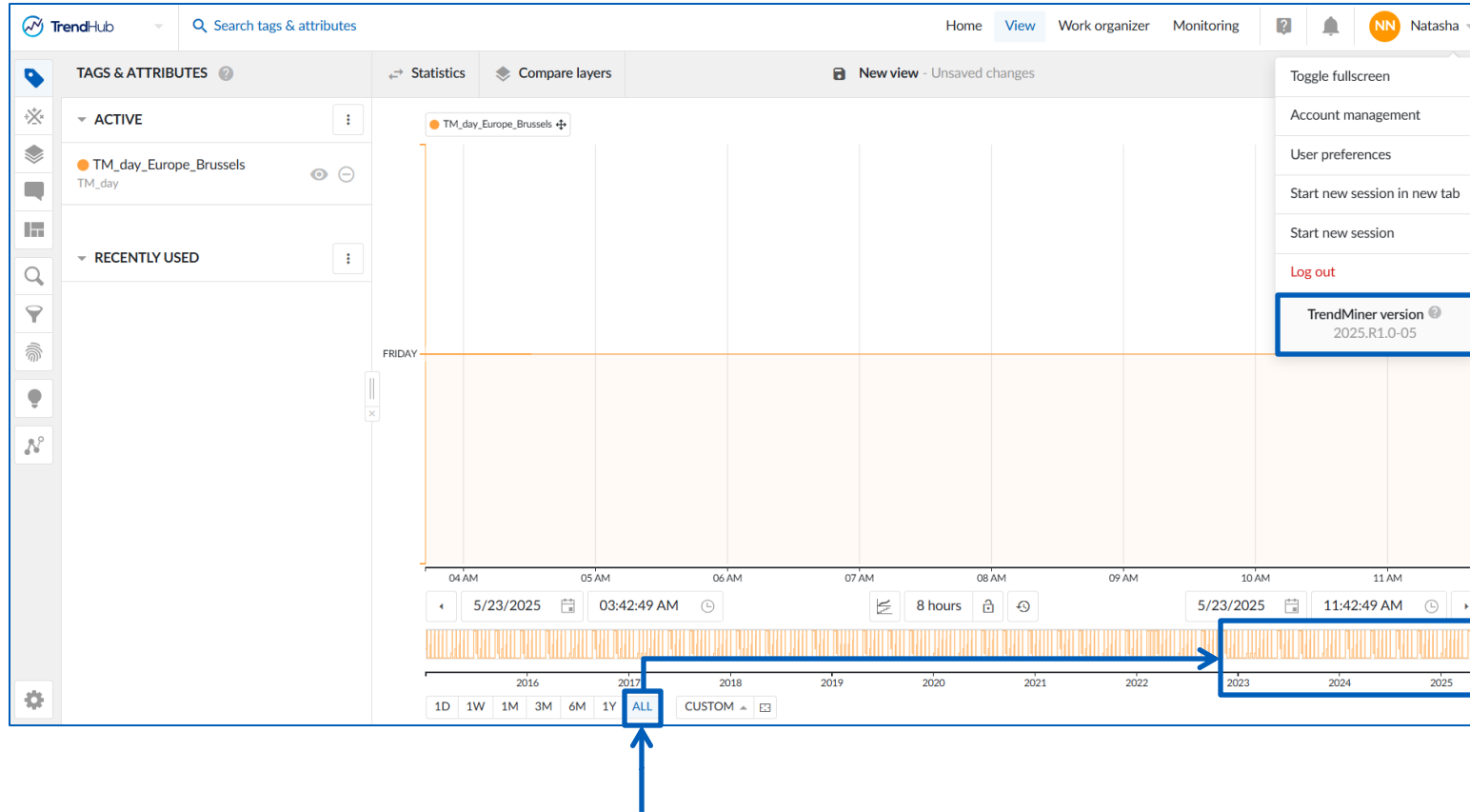
Recording and
Handout will be
provided!

Online training includes exercises.
You may log in to your own TrendMiner account using Firefox or Chrome if possible.

GoTo Webinar – Question box & handout



Do you need a training account?



2 After clicking on "ALL", your data will be available until at least 01.01.2024.

1 2 You can complete this training with your own account.

1 Version 2025.R1 or newer

✗ If one of the requirements is not met, ask for an account in the question box.

Introduction & Today's goals

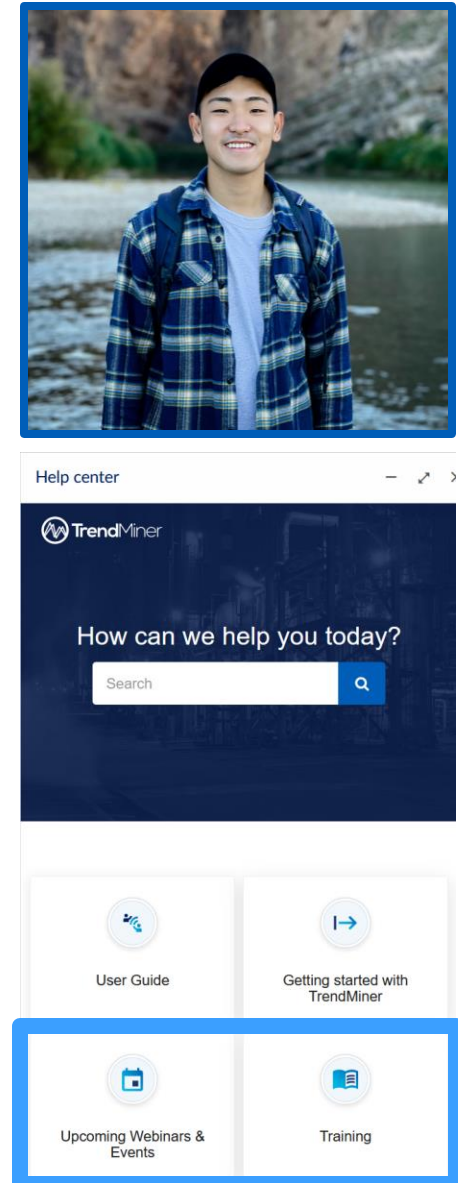


Kevin Li, Data Analytics Engineer

- Support customers reaching value with self-service analytics
- Tackling more advanced use cases
- Support users in their analytics journey

POLL about the users:

What is your current level of TrendMiner knowledge?



Today's goals

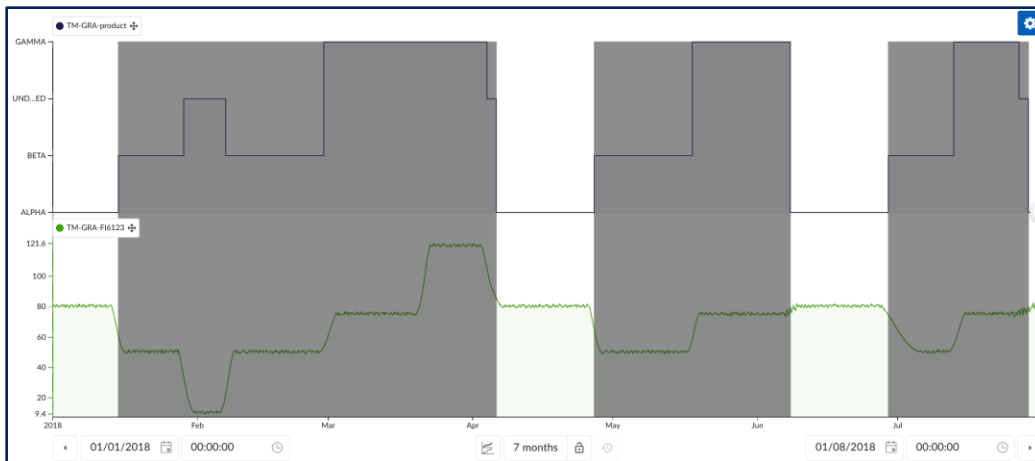
Exercises 1 - 2

Filtering data:

1. Static filters – time
2. Dynamic filters – condition

Reason:

Applying filters lets you perform any further analysis on a specific part of your data



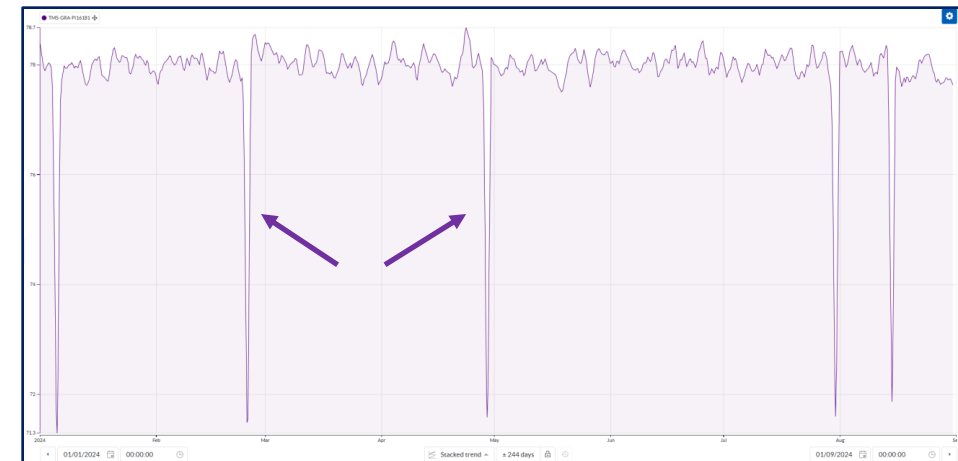
Exercises 3 - 5

Modifying data:

1. Add limit of process value
2. Fill periods with most recent data
3. Linearly interpolate over removed periods

Reason:

Sensor measurements can be disrupted or disconnections to historian can appear



Exercise 1 – Filter campaigns based on product grade

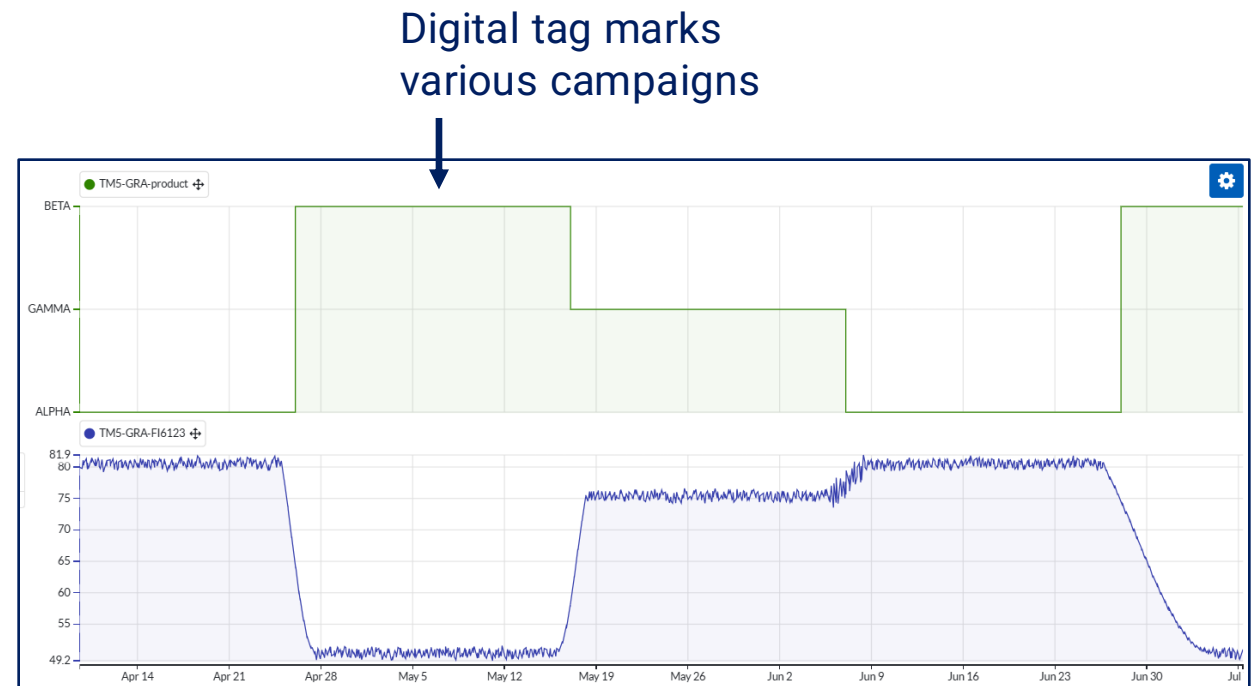
Exercise 1 – Filter campaigns based on product grade

Background:

- Continuously transitioning between products
- Analyze average flow rate of ALPHA

Goals:

- Filter the data → only ALPHA campaigns
- Obtain statistics from comparison table



Exercise 1 – Filter campaigns based on product grade

1.	Load tags	TM5-GRA-product TM5-GRA-FI6123		
2.	Set custom context chart & focus chart	1/1/2024 12:00:00 AM – 9/1/2024 12:00:00 AM		
3.	Open statistics table	Check the average flow (TM5-GRA-FI6123) in the statistics table. What does the average flow represent?		
4.	Start a new value-based search	TM5-GRA-product	=	ALPHA
		Min. duration		1h
5.	Apply static filter	From the results menu: select “Keep results”, “Select all” and “Keep”		
6.	Open statistics table	Check the average flow (TM5-GRA-FI6123) in the statistics table again. How did the average flow change?		
7.	Save ad-hoc filter	Open the filter menu and save the UNSAVED FILTER as “Only ALPHA”		
8.	Toggle saved filter	Turn the filter on and off		
9.	Save the view	as “Preprocessing – Ad-hoc filters”		

Exercise 2: Continuous filter based on product grade

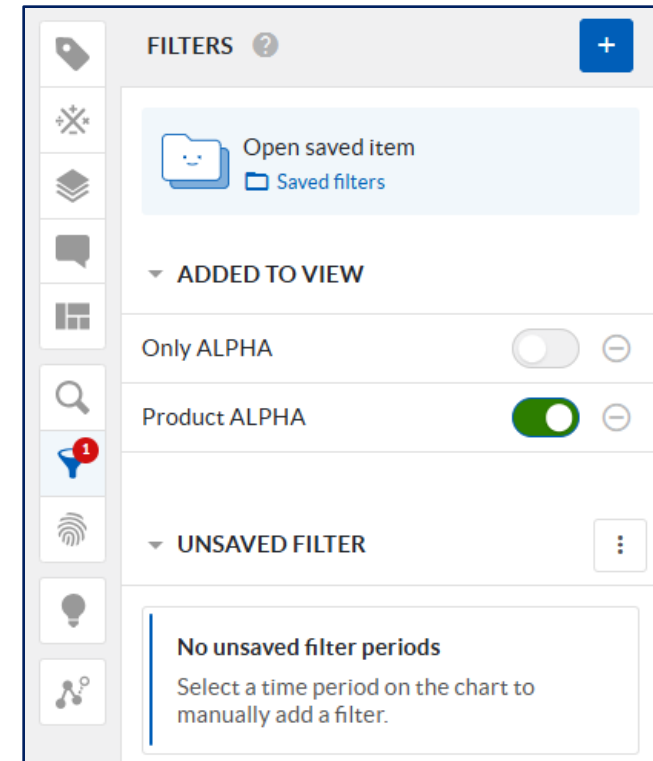
Exercise 2: Continuous filter based on product grade

Background:

- Continue from previous exercise
- Account for future campaigns with the same criteria

Goals:

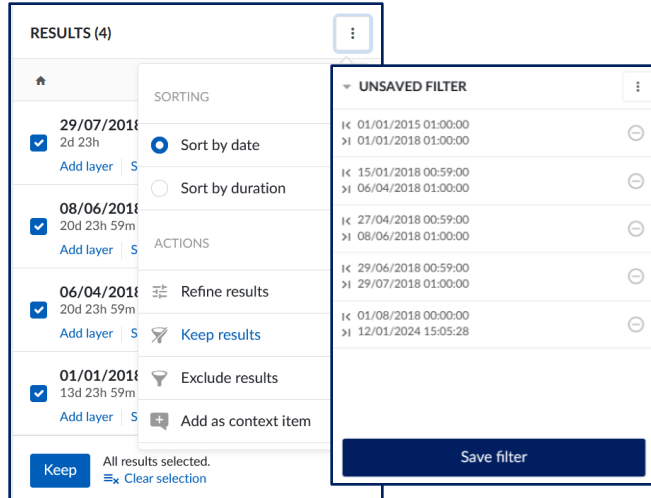
- Make use of dynamic filters (condition based)
- Create simple workflow to repeat preprocessing for future campaigns



Exercise 2: Continuous filter based on product grade

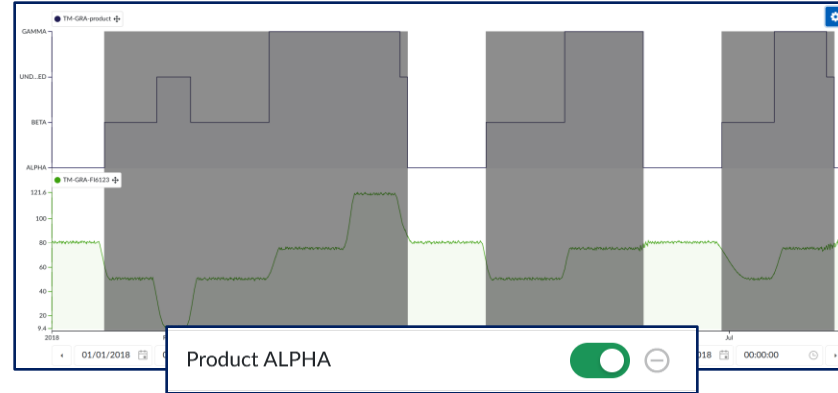
1.	Continue from	Exercise 1	
2.	Turn off previous filter	Using the toggle in the filter menu	
3.	Save value-based search	From previous exercise 1: “Only product ALPHA”	
4.	Create search-based filter	In the filter menu click on the blue “+” symbol	
		Name	“Product ALPHA”
		Based on	“Only product ALPHA” (saved search)
		Filter mode	“Filter out everything else”
5.	Test filter	Test the new filter to validate	

Summary – Filters



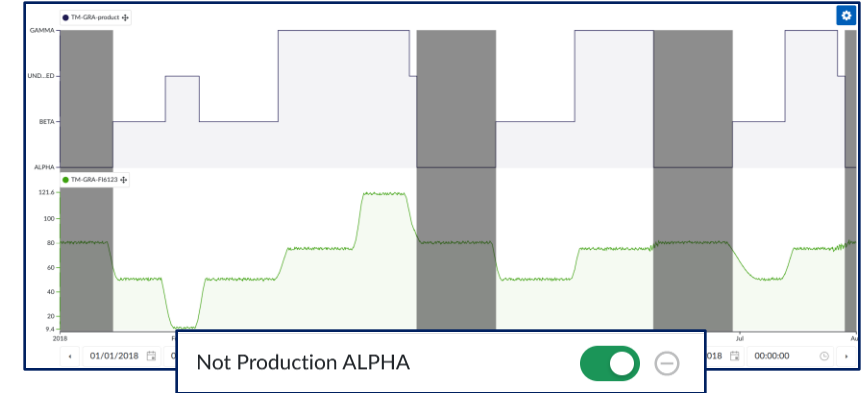
Static filter

- Time based
- Exclude or include historical results
- Valid for current search results only



Dynamic filter "ALPHA"

- Criteria based (saved VBS)
- **Filter out everything else**
- Show ALPHA campaigns only
- Applies for new/updated data



Dynamic filter "NOT ALPHA"

- Criteria based (saved VBS)
- **Filter out search results**
- Hide ALPHA campaigns
- Applies for new/updated data



Pro Tips:

- Save VBS starting with a verb (e.g. "Running"...)
- Any search can be used for filters
- Multiple filters can be used together

Remove outlier from data

Demo: Reduce noise by averaging tags

Preprocessing data with the Tag Builder



Cutting corners

- Sample rate
- discretization



Process data:

- Analog measurement
- Continuous signal

Historian:

- Digital representation of reality
- Discrete signal

Preprocessing of data:

- Moving away from high-fidelity data
- Introducing error
- Most important: to be consistent and to stick to the same method any time you repeat the analysis

[TrendMiner - Tutorial Thursday on Youtube](#)

Exercise 3: Add process value limit

Exercise 3: Add process value limit (clamp)

Background:

- Continuous signal with interruptions
- Obtain average signal value

Goals:

- Create a continuous signal
- Set minimal value of tag to 77 bar



Exercise 3: Add process value limit (clamp)

1.	Continue from	Exercise 2	
2.	Load tag	TM5-GRA-PI16181 (and remove the other tags)	
3.	Set focus chart	Visualize full period if not yet done	
4.	Create a new formula	if(p<77, 77, p)	p = TM5-GRA-PI16181 (pressure)
		Save as	TM5-GRA-PI16181-limit-77_username
5.	Group tags	Set new formula tag on scale of TM5-GRA-PI16181	

FORMULA

Name

TM5-GRA-PI16181-limit-77_NN

Formula

1 if(p<77, 77, p)

VARIABLE MAPPING

✓

p

>

●

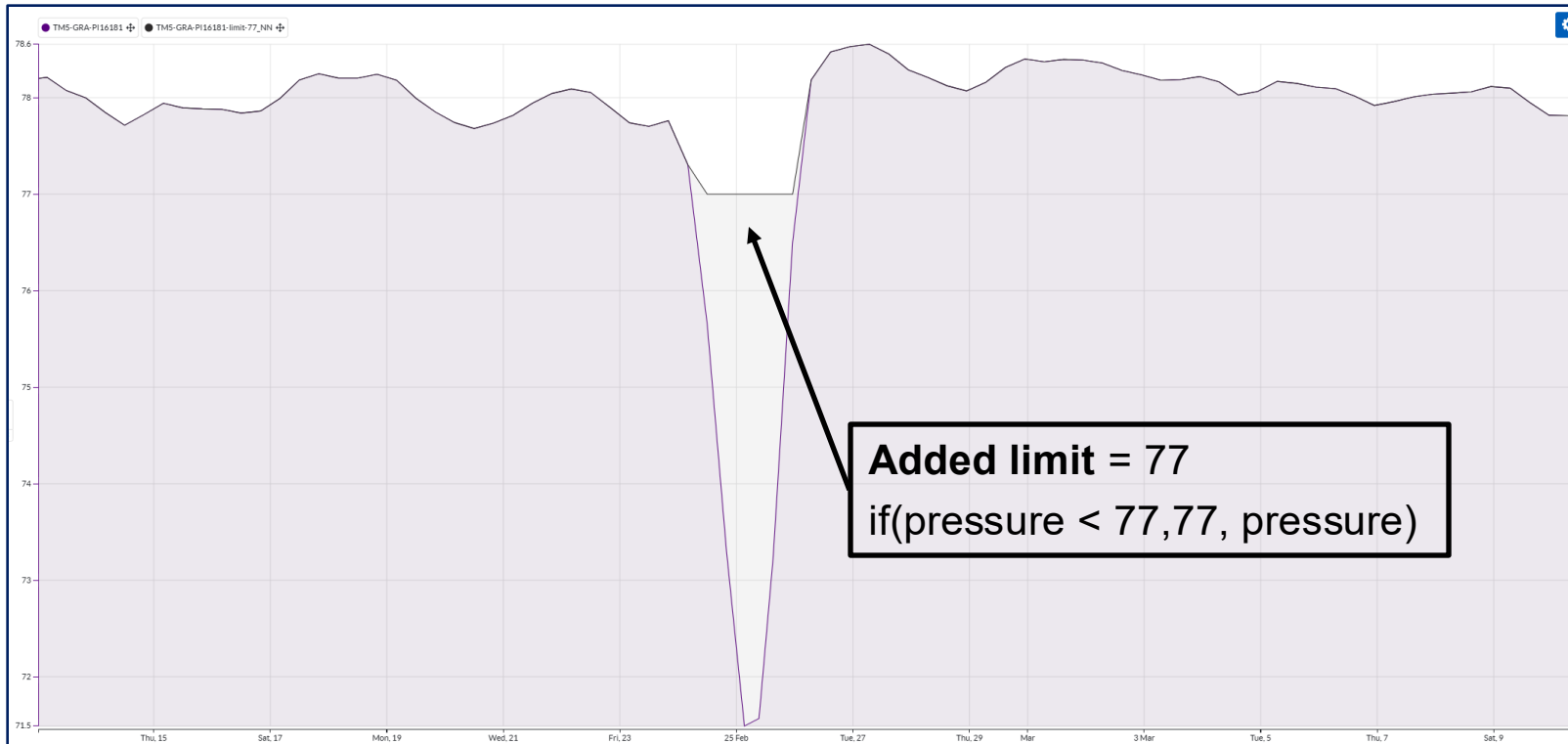
TM5-GRA-PI16181

Edit formula

Save formula

Remove from view

Exercise 3: Add process value limit (clamp)



Pro Tip: 

+ Simple and flexible concept!

— Small loss of accuracy

Exercise 4: Fill periods with most recent data

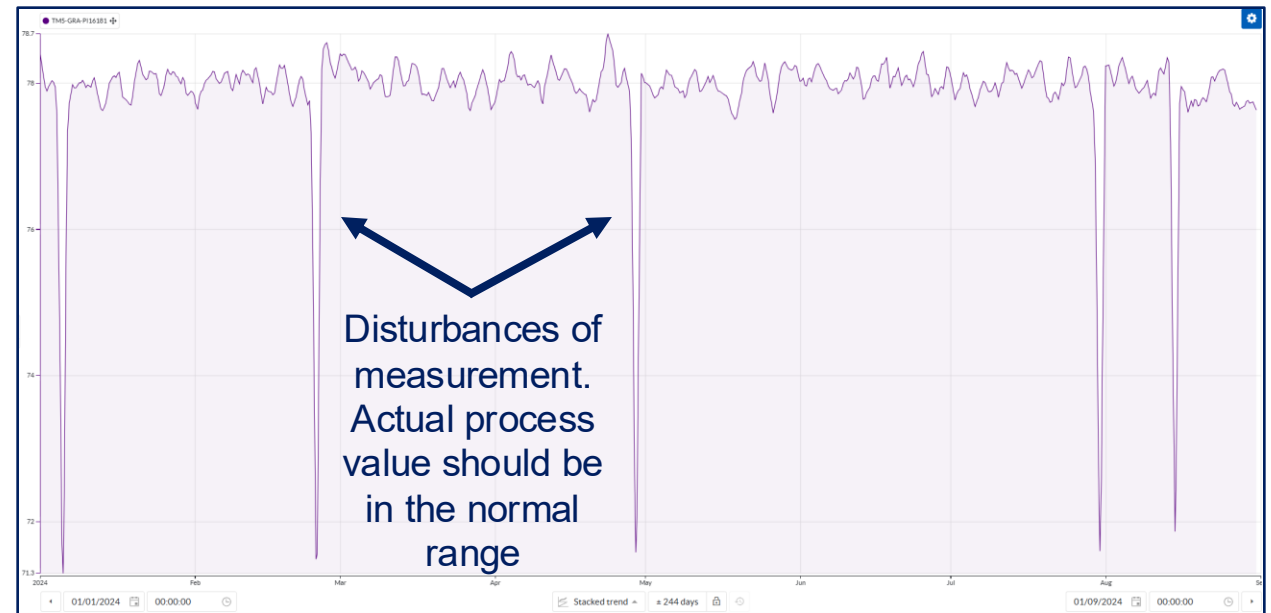
Exercise 4: Fill periods with most recent data

Background:

- Continuous signal with interruptions
- Could be connectivity loss

Goals:

- Create a continuous signal
- Fill periods with data from same tag



Exercise 4: Fill periods with most recent data

1.	Continue from	Exercise 3	
2.	Create a new formula	if(p<77, p2, p)	p = TM5-GRA-PI16181 (pressure) p2 = TM5-GRA-PI16181 shifted by 3d
		Save as	TM5-GRA-PI16181-shifted_username
3.	Group tags	Set new formula tag on scale of TM5-GRA-PI16181	
4.	Zoom in	To the period where tags are different in case you zoomed out	

FORMULA

Name

TM5-GRA-PI16181-shifted_NN

Formula

1 if(p<77, p2, p)

VARIABLE MAPPING

p

TM5-GRA-PI16181

p2

TM5-GRA-PI16181

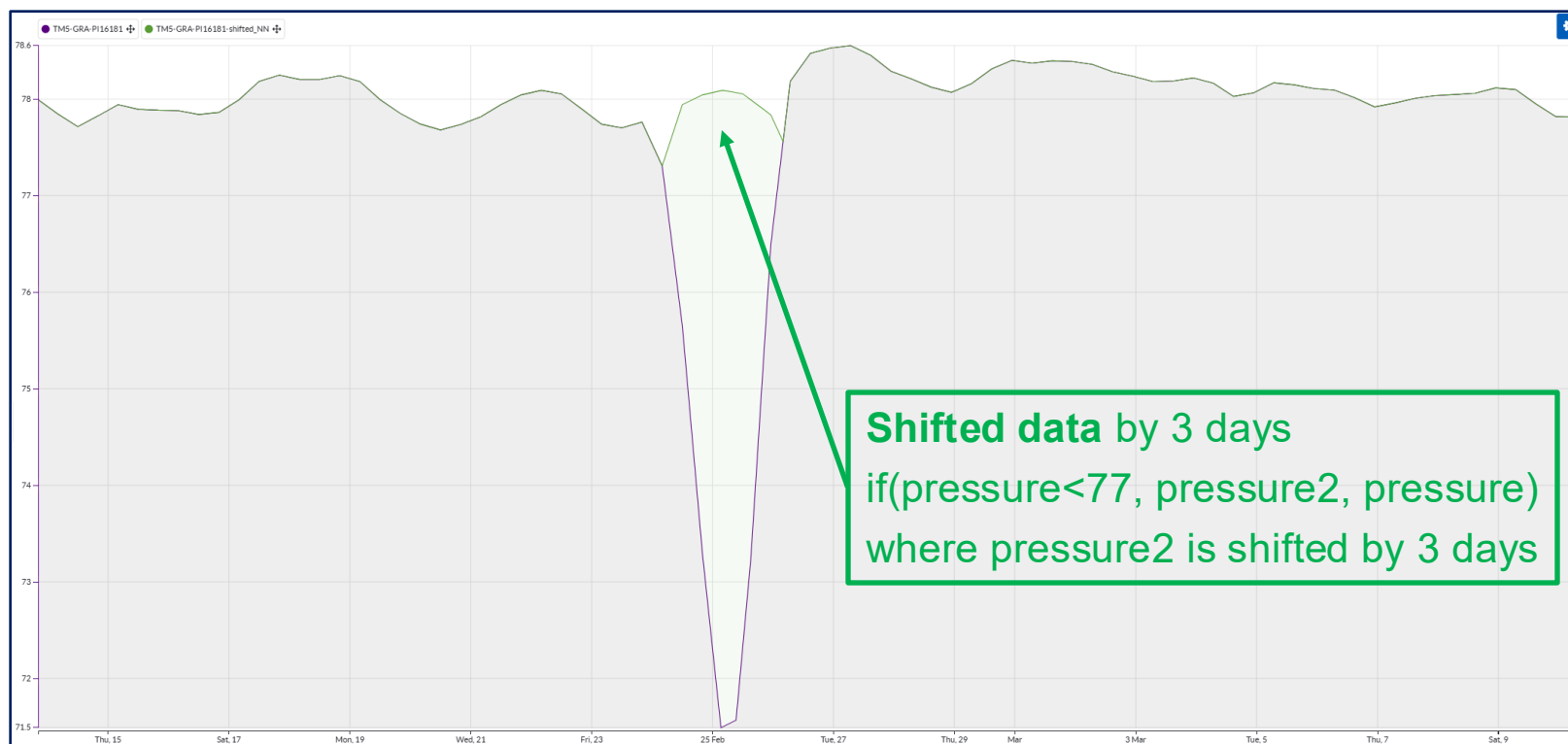
Shift: 3d

Edit formula

Save formula

Remove from view

Exercise 4: Fill periods with most recent data



Pro Tip: 

+ High accuracy

— May require fine tuning

Time shift is dependent on the duration of the outlier. Recommendation is to apply it to shorter outlier durations.

Exercise 5: Linearly interpolate over removed periods

Exercise 5: Linearly interpolate over removed periods

Background:

- Continuous signal with interruptions
- Obtain average signal value

Goals:

- Create a continuous signal
- Linearly interpolate between points
- Use $\text{sqrt}(-1)$ to remove data points



Exercise 5: Linearly interpolate over removed periods

1.	Continue from	Exercise 4	
2.	Create a new formula	if(p<77, sqrt(-1), p)	p = TM5-GRA-PI16181 (pressure)
		Save as	TM5-GRA-PI16181-interpolated_username
3.	Group tags	Set new formula tag on scale of TM5-GRA-PI16181	
4.	Zoom in	To the period where tags are different in case you zoomed out	
5.	Open statistics table	Compare average values What can you see?	

FORMULA

Name

TM5-GRA-PI16181-interpolated_NN

Formula

1 if(p<77, sqrt(-1), p)

VARIABLE MAPPING

p

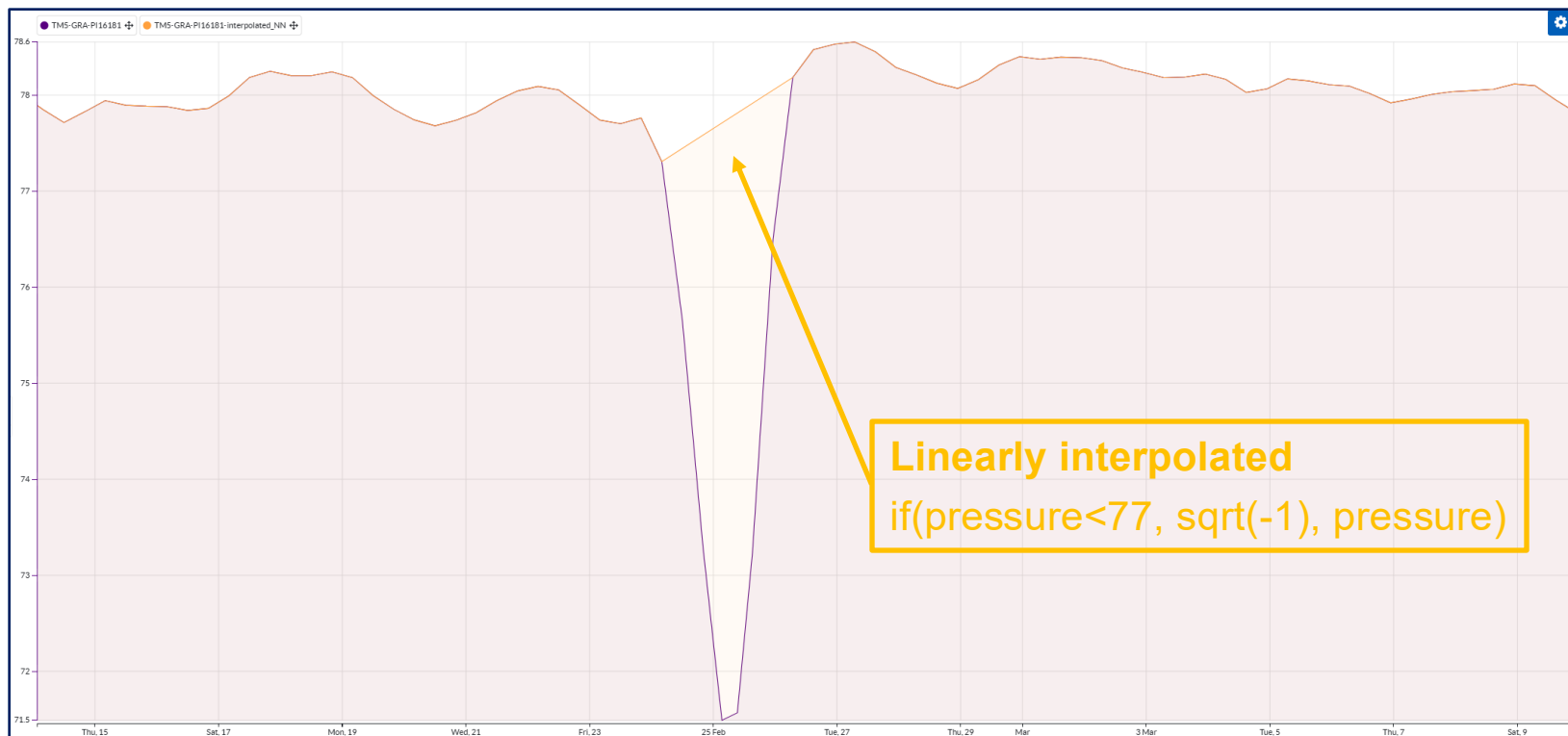
TM5-GRA-PI16181

Edit formula

Save formula

Remove from view

Exercise 5: Linearly interpolate over removed periods



Pro Tip: 

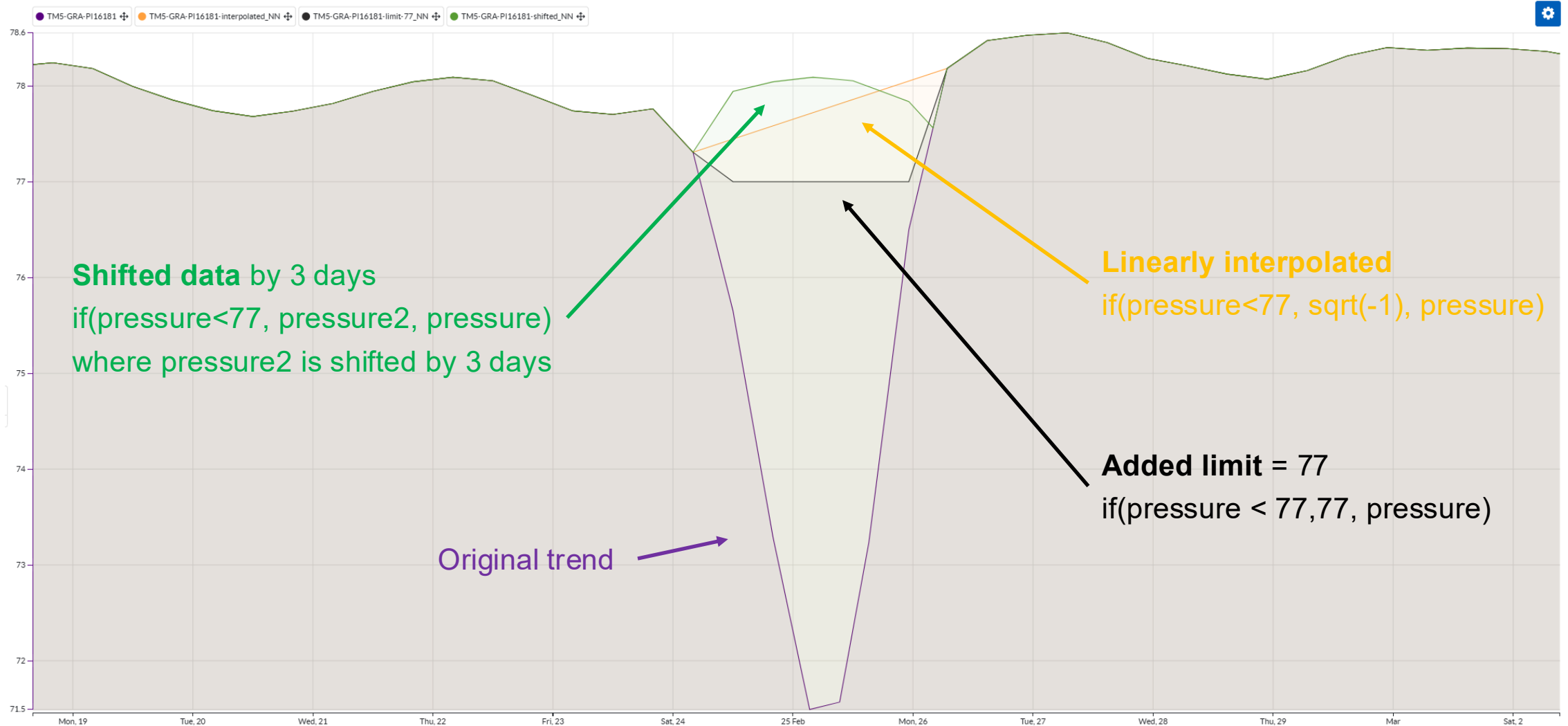
+ Constant slope
indicates removed
data

— Lower complexity

Statistics table considers
interpolated values in the
calculation.

Wrap-up

Wrap-up



Pro Tip: Be consistent - use the same methodology for same kind of analysis


Do you want to learn more?

Intermediate Guides & Live Training Webinars

Here you can find the Intermediate Guides:

[User Guide](#) / [Training](#) / [Intermediate Guides](#)

Intermediate Guides




In this section

- [Get your process statistics \(Int\)](#)
- [Detect, warn & contextualize anomalies and process events \(Int\)](#)
- [Create your actionable dashboard \(Int\)](#)
- [Trouble shooting \(Int\)](#)
- [Create your own KPIs and Variables \(Int\)](#)

<https://userguide.trendminer.com/en/intermediate-guides.html>


Here you can find all Live Training Webinars from the past years:

Live trainings - English




1 - 12 of 40

Tollan



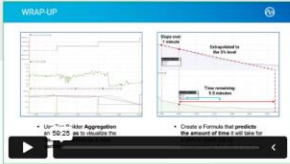
Mastering Tag Types in TrendMi...

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<https://vimeo.com/showcase/8476721>

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Post your questions in the Community and get answers from experts and peers!

New here? Sign up in seconds. Already a member? Just log in!

Select your role to discover the most relevant resources and insights

The screenshot shows the TrendMiner Community homepage. At the top, there's a navigation bar with links for Community, Product Ideas, News, Events, Groups, and TrendLab. A bell icon, a '+ Create new topic' button, and a 'LOGIN OR SIGN UP' button are on the right. Below the navigation bar is a large blue banner with the text 'Welcome to the TrendMiner Community!' and a search bar. Below the banner are five white boxes with icons and labels: 'Ask a Question', 'Share an Idea', 'Join Events', 'Provide Feedback', and 'Check Use Cases'. Below these boxes are two sections: 'Recently active' and 'Content by Role'. The 'Recently active' section shows a post by 'Shams92 Pioneer' about re-syncing context items. The 'Content by Role' section shows three buttons for 'TrendMiner User', 'Admin / IT', and 'Project Manager'.

Share Your TrendLab Location Preferences With Us

Help Us Choose the Next TrendLab Location

Share Your TrendLab Location Preferences With Us

2 hours ago • 2 replies • 23 views



Pelinsu Community Manager • 11 replies

Hello TrendMiner Community,



We're excited to share that we're currently reviewing possible locations for our next TrendLab events in 2026. To make these events as convenient and valuable to you as possible, we'd love to gather some feedback from our Community.

👉 Please take a moment to fill out this [short form](#).

Your responses will help us better understand your preferences and geographical distribution.

Thank you in advance for your participation! Stay tuned for updates!



**Thank you for your
attention**