

TrendMiner Live Training Session

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



Housekeeping



Listen Only
Mode



Use Question Box!

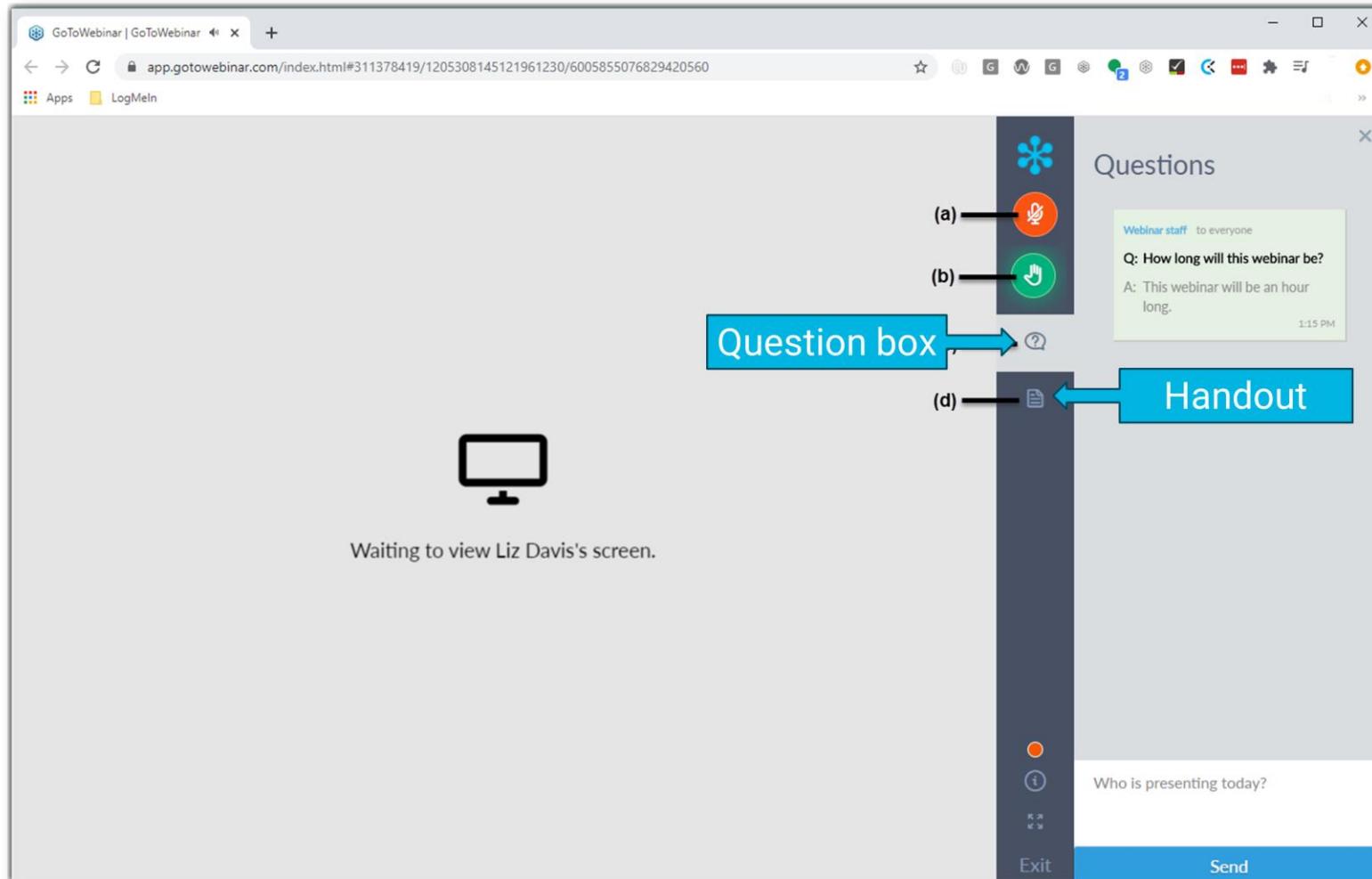


Thank You!

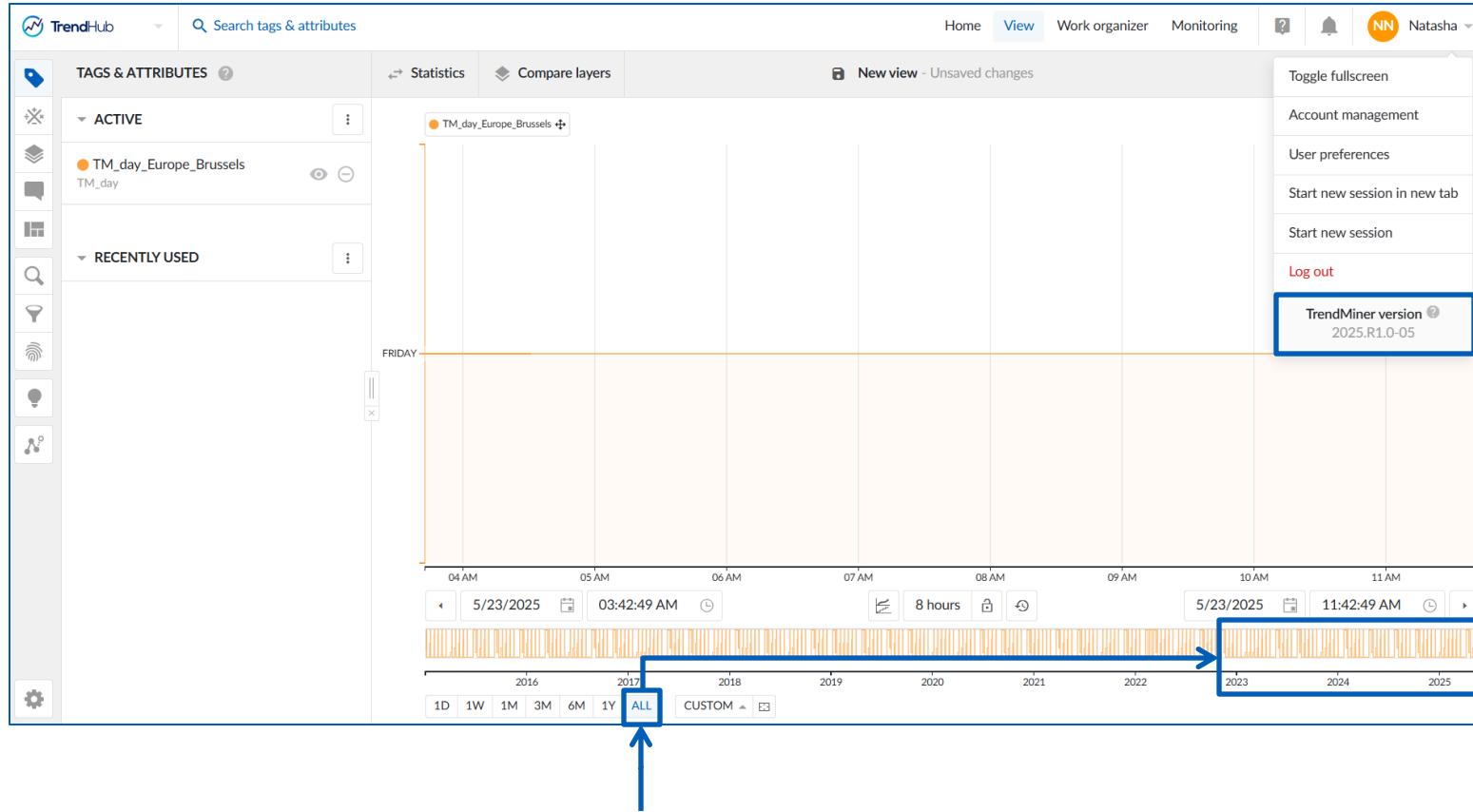
Recording and
Handout will be
provided!

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



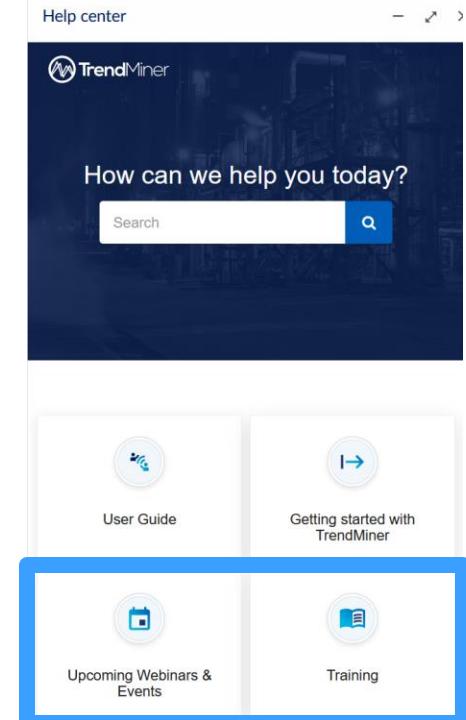
Kevin Li, Data Analytics Engineer

- 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?



The image shows a screenshot of the TrendMiner Help center. At the top, there is a navigation bar with a 'Help center' button and a search bar. Below the search bar, the TrendMiner logo is visible. The main content area has a dark background with a grid pattern. At the top of this area, the text 'How can we help you today?' is displayed. Below the search bar, there are several cards with icons and text: 'User Guide' (with a gear icon), 'Getting started with TrendMiner' (with a person icon), 'Upcoming Webinars & Events' (with a calendar icon, highlighted with a blue border), and 'Training' (with a book icon).

Today's goals

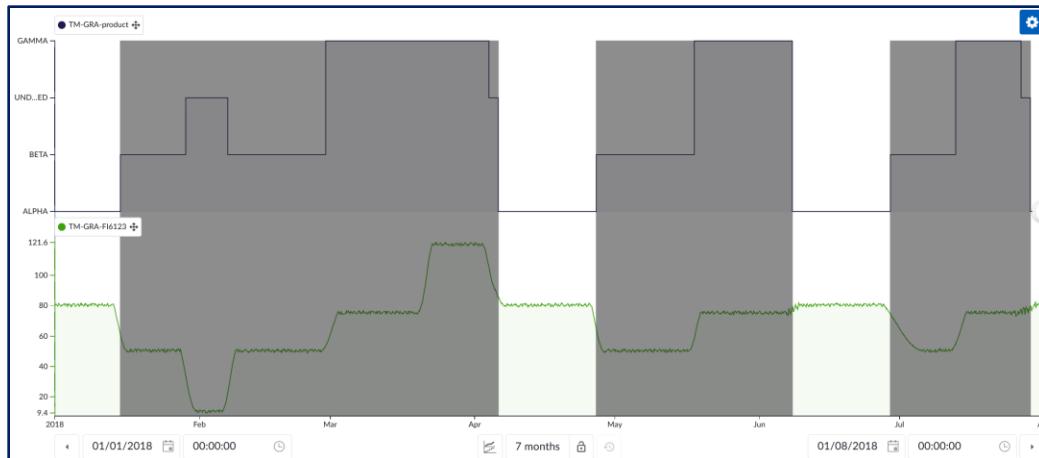
Exercises 1 - 2

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



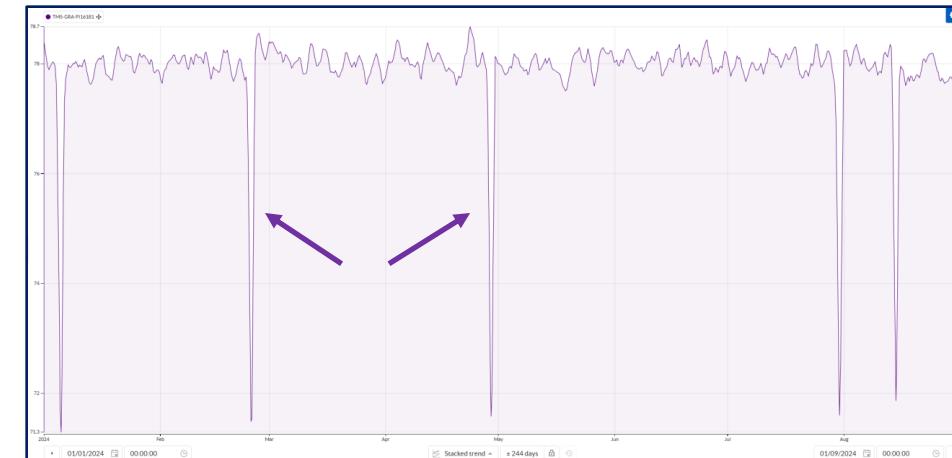
Exercises 3 - 5

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

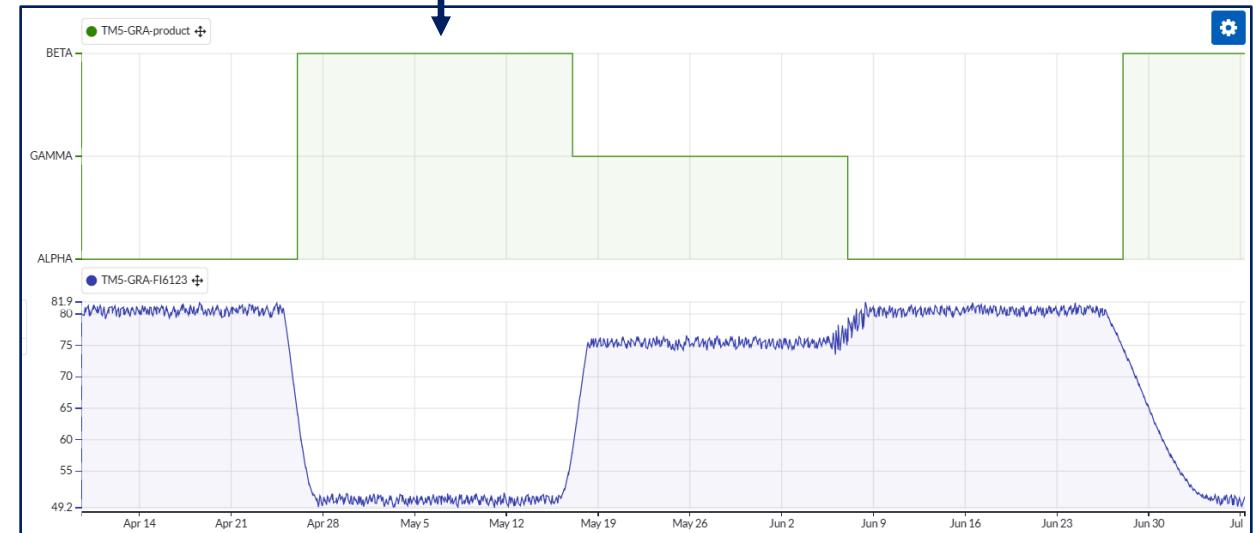
Background:

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

Goals:

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

Digital tag marks various campaigns



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

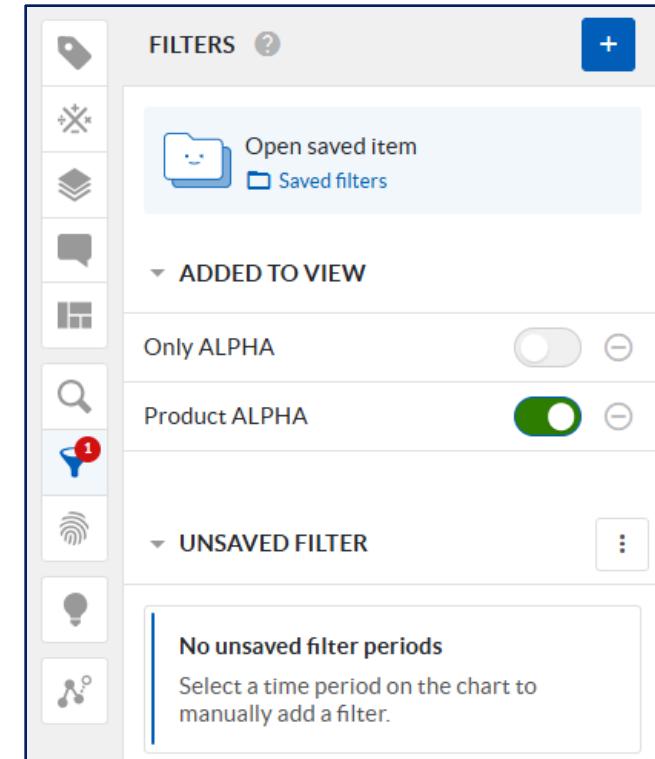
Exercise 2: Continuous filter based on product grade

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

Summary – Filters

RESULTS (4)

SORTING

29/07/2018
2d 23h **Sort by date**
 Add layer **S**

08/06/2018
20d 23h 59m **Sort by duration**
 Add layer **S**

06/04/2018 **Refine results**
20d 23h 59m **Keep results**
 Add layer **S**

01/01/2018 **Exclude results**
13d 23h 59m **Add as context item**
 Add layer **S**

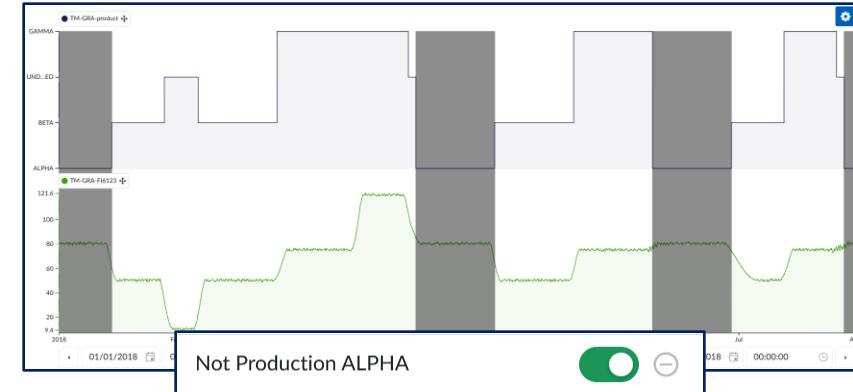
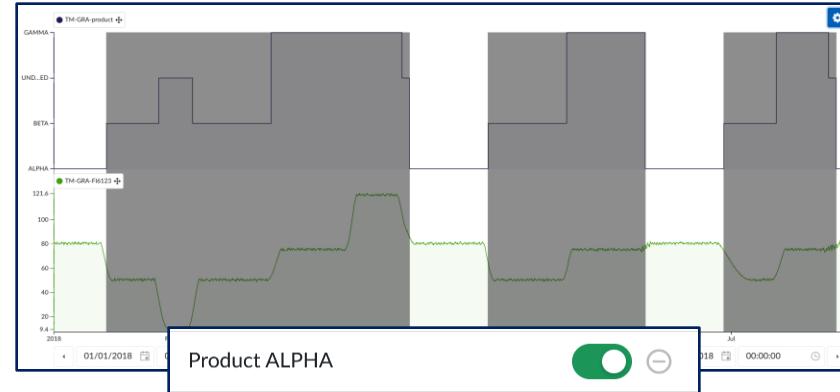
Keep All results selected. **Clear selection**

⋮

UNSAVED FILTER

- 01/01/2015 01:00:00
- 01/01/2018 01:00:00
- 15/01/2018 00:59:00
- 06/04/2018 01:00:00
- 27/04/2018 00:59:00
- 08/06/2018 01:00:00
- 29/06/2018 00:59:00
- 29/07/2018 01:00:00
- 01/08/2018 00:00:00
- 12/01/2024 15:05:28

Save filter



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



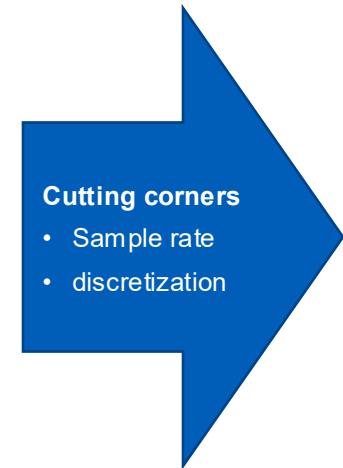
Pro Tips:

- 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



Process data:

- Analog measurement
- Continuous signal

Historian:

- Digital representation of reality
- Discrete signal

[TrendMiner - Tutorial Thursday on Youtube](#)

Exercise 3: Add process value limit

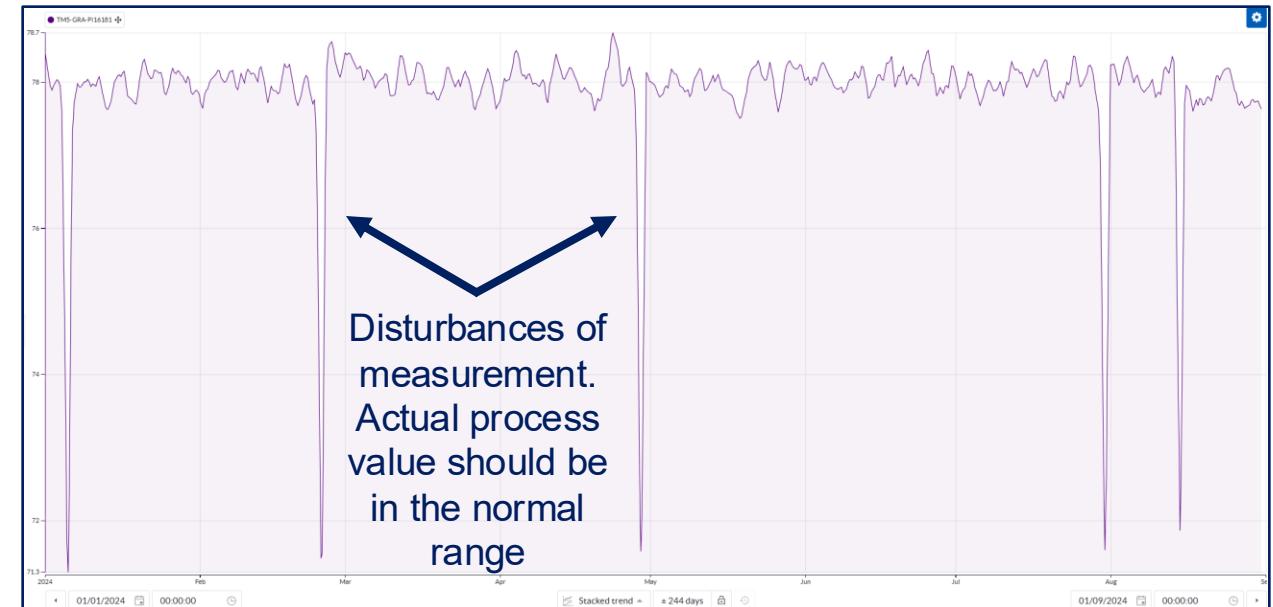
Exercise 3: Add process value limit (clamp)

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 | <code>if(p<77, 77, p)</code> $p = \text{TM5-GRA-PI16181}$ (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

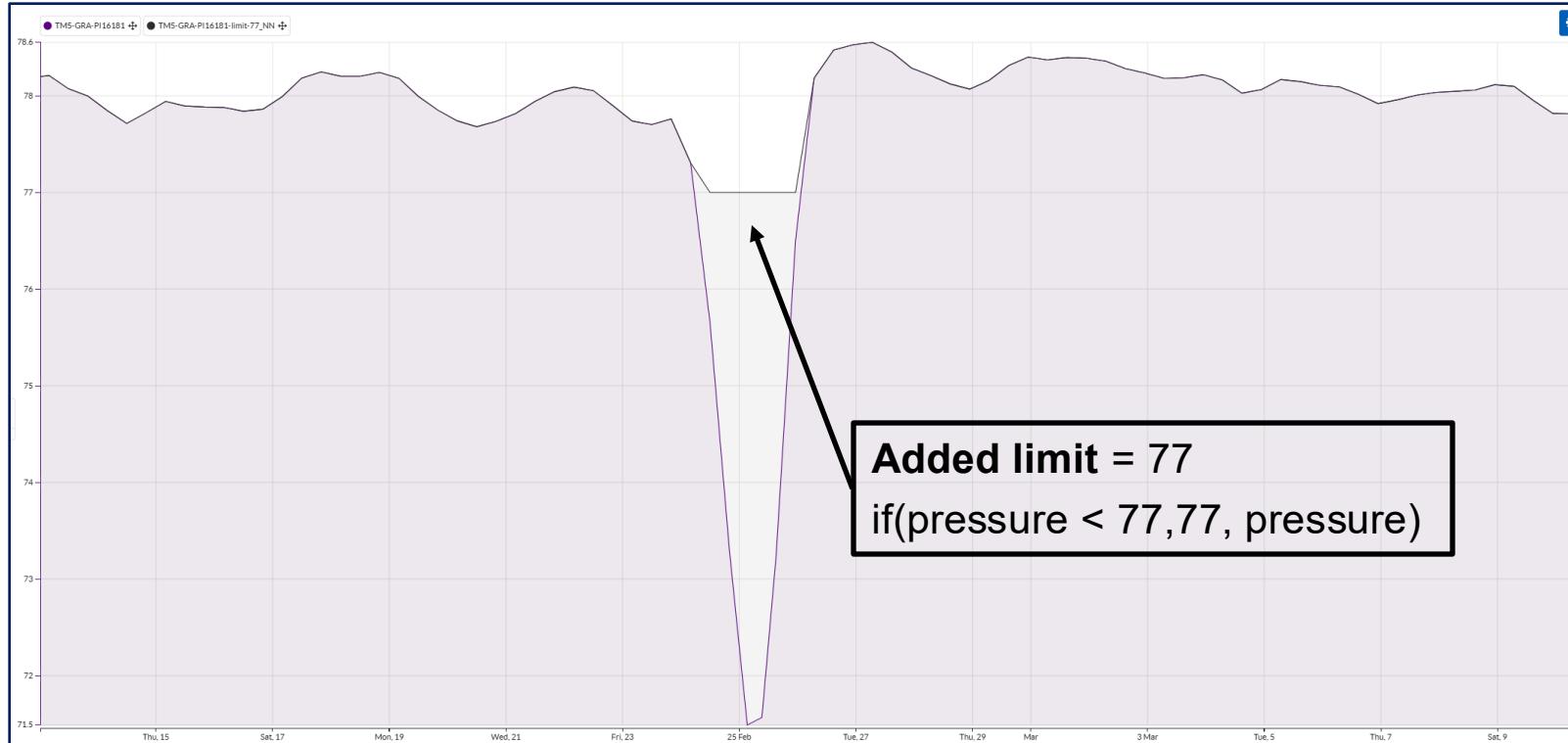
Formula: 1 if(p<77, 77, p)

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

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Background:

- Continuous signal with interruptions
- Could be connectivity loss

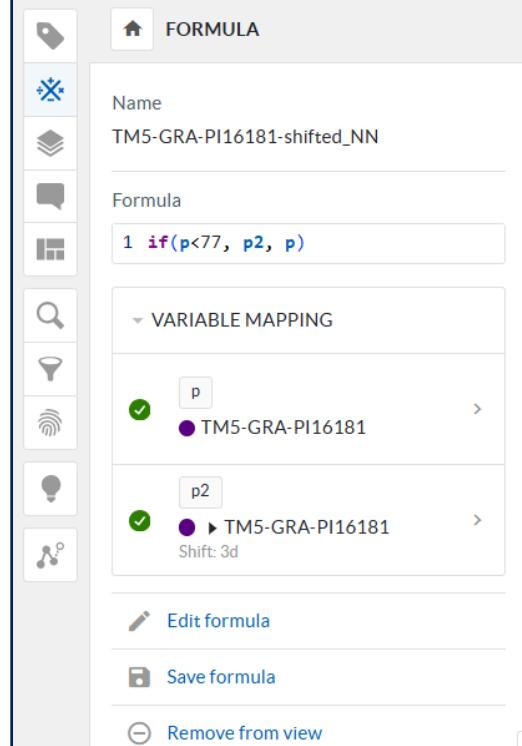
Goals:

- 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 | <code>if(p<77, p2, p)</code> | $p = \text{TM5-GRA-PI16181}$ (pressure) $p2 = \text{TM5-GRA-PI16181}$ shifted by 3d |
| | | Save as | <code>TM5-GRA-PI16181-shifted_username</code> |
| 3. | Group tags | Set new formula tag on scale of <code>TM5-GRA-PI16181</code> | |
| 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

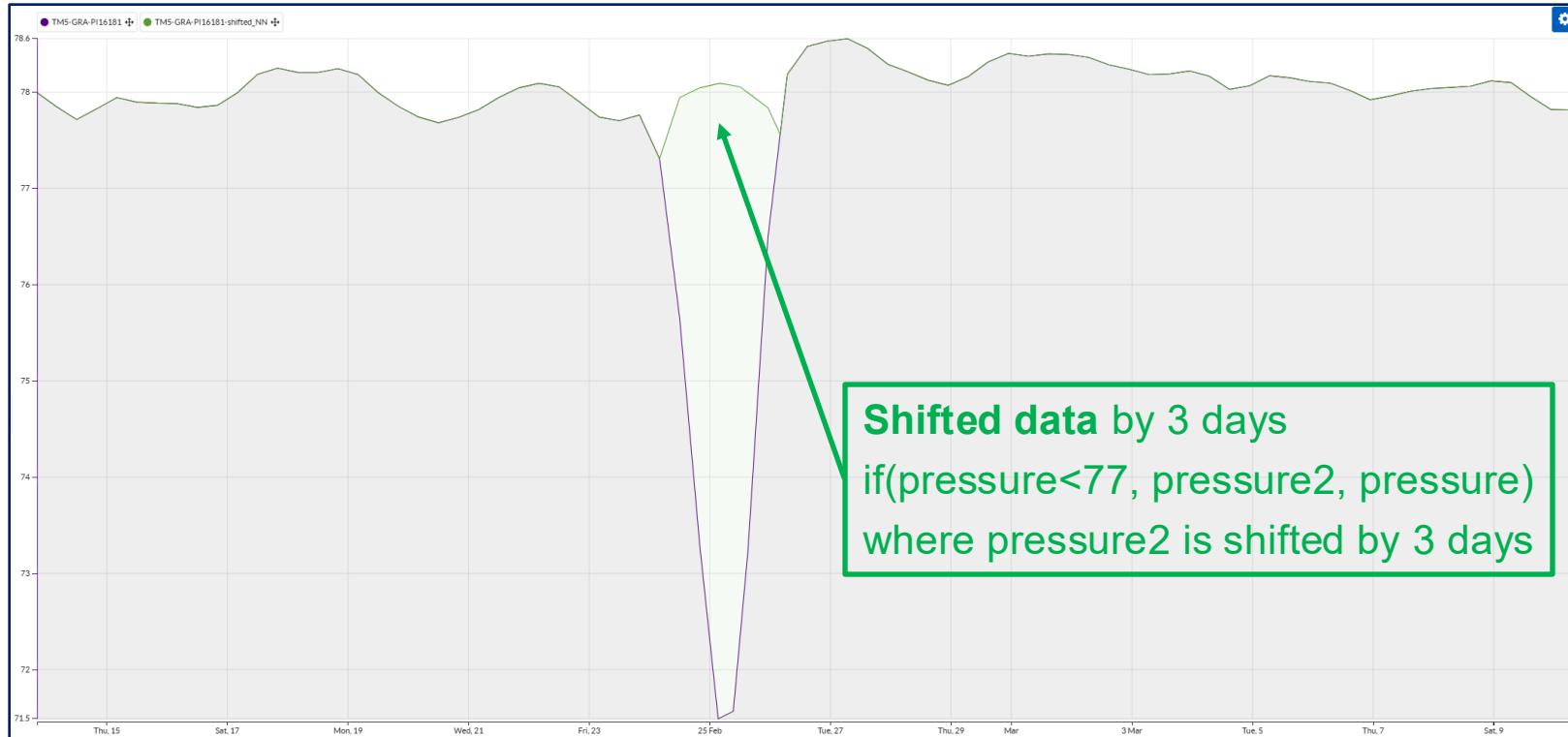
- p: TM5-GRA-PI16181
- p2: TM5-GRA-PI16181 Shift: 3d

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

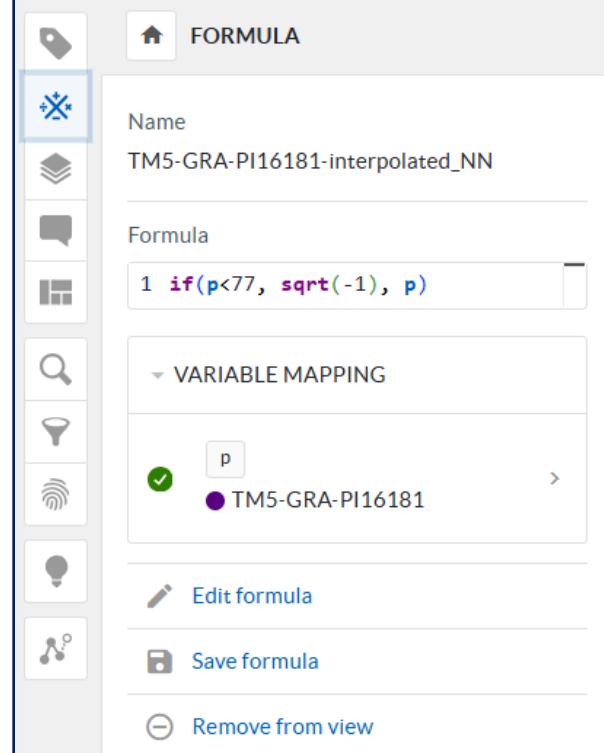
Goals:

- 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) | $p = \text{TM5-GRA-PI16181}$ (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

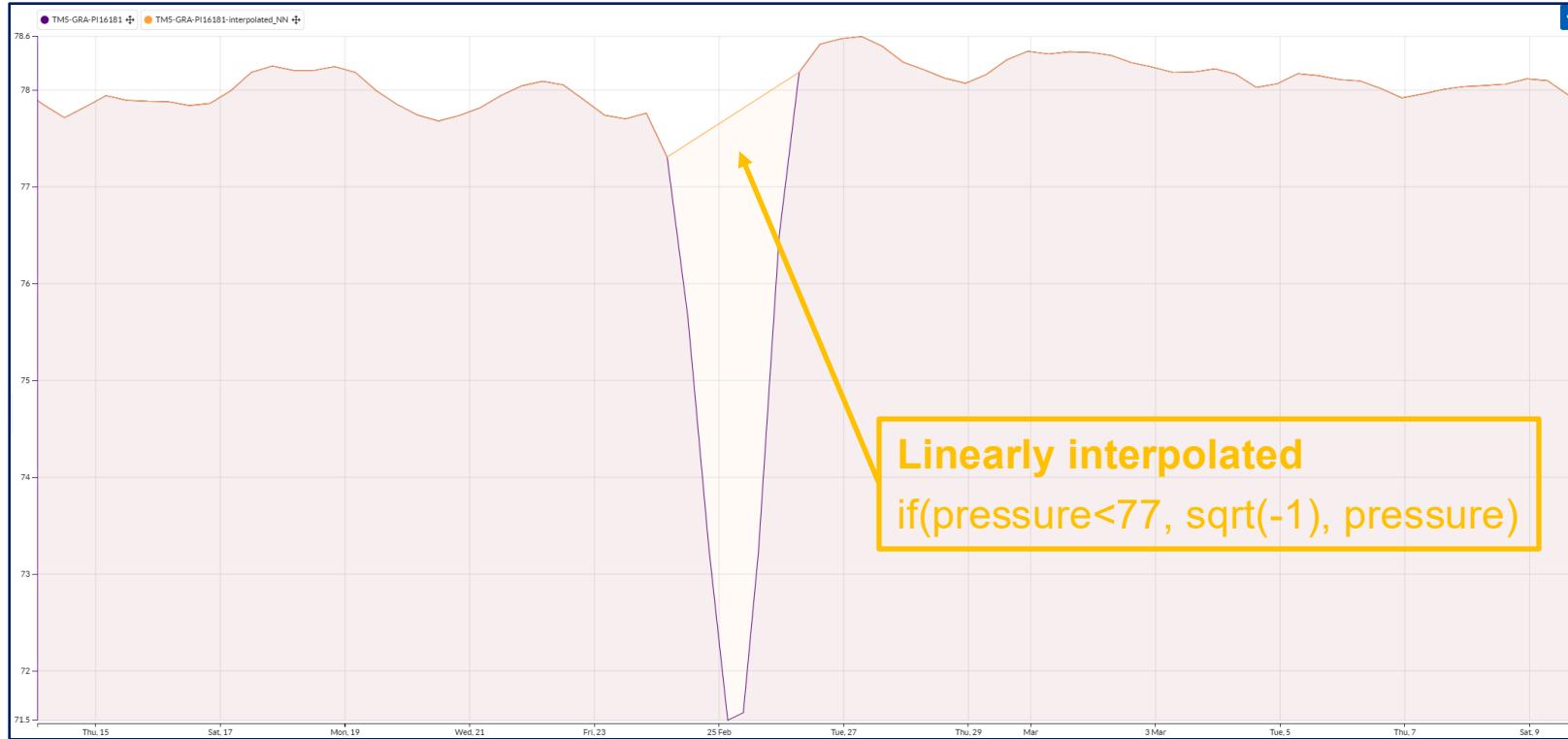
Formula: 1 `if(p<77, sqrt(-1), p)`

VARIABLE MAPPING

Variables: p (checked), TM5-GRA-PI16181

Actions: Edit formula, Save formula, Remove from view

Exercise 5: Linearly interpolate over removed periods



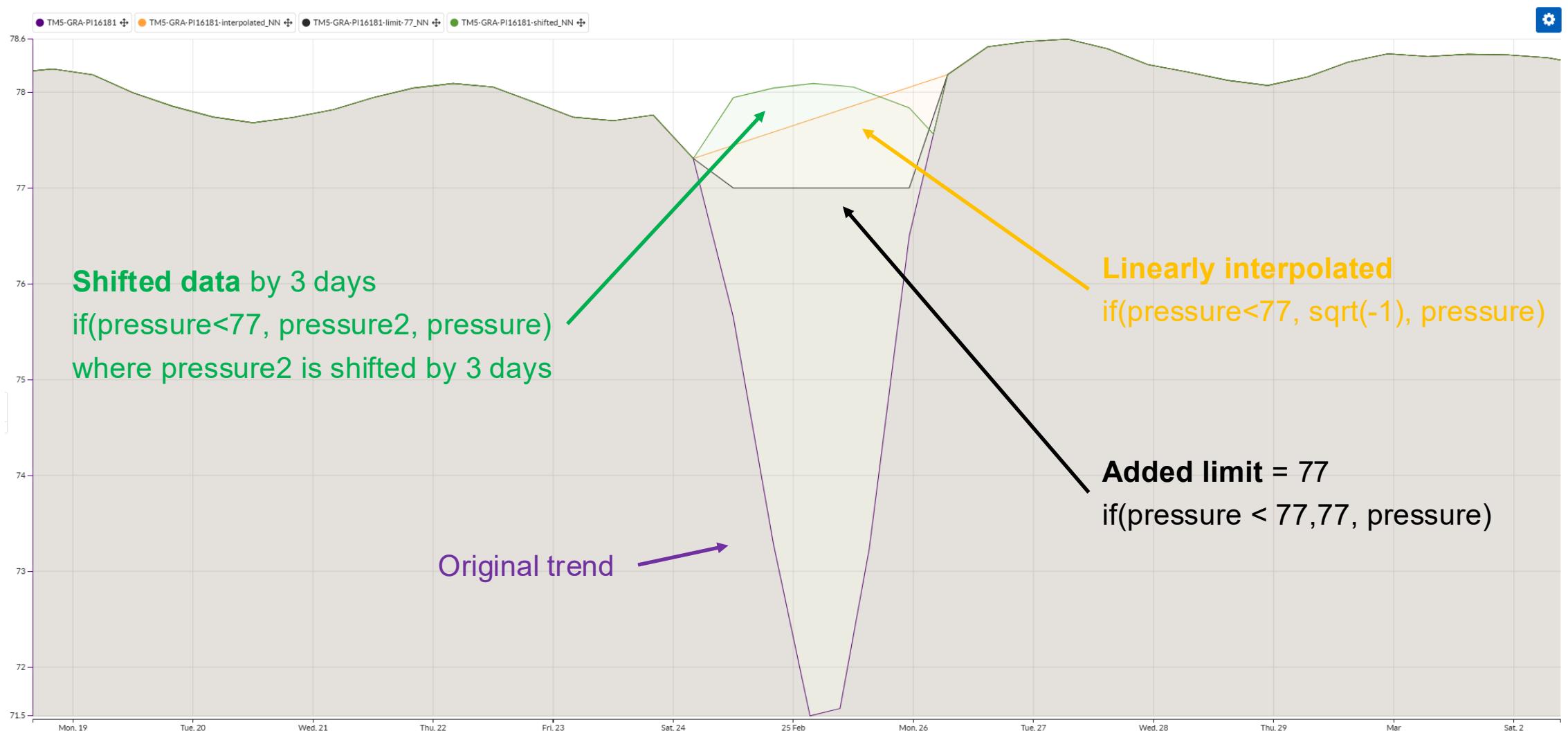
Pro Tip: 

- + 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



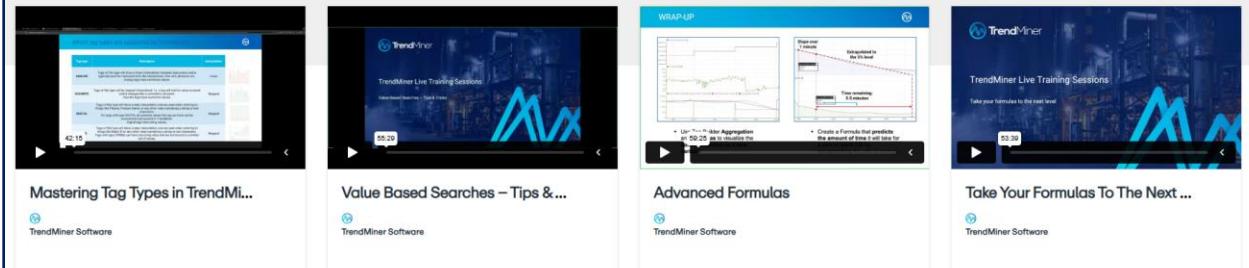
In this section

- 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 Tellen

The screenshot shows a grid of video thumbnails for live training sessions. Each thumbnail includes a play button, the session title, and the TrendMiner Software logo. The titles visible are: 'Mastering Tag Types in TrendMi...', 'Value Based Searches – Tips &...', 'WRAP-UP', 'Advanced Formulas', and 'Take Your Formulas To The Next ...'. The 'WRAP-UP' thumbnail shows a graph and text about formula aggregation. The 'Advanced Formulas' thumbnail shows a graph and text about creating formulas for time intervals. The 'Take Your Formulas To The Next ...' thumbnail shows a graph and text about formula precision.

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

Create your account now: <https://community.trendminer.com>

The screenshot shows the TrendMiner Community homepage. At the top, there is a navigation bar with the TrendMiner logo, a 'Community' dropdown, and links for 'Product Ideas', 'News', 'Events', 'Groups', and 'TrendLab'. On the right of the navigation bar are icons for notifications, creating a new topic, and logging in or signing up. The main content area features a large blue banner with the text 'Welcome to the TrendMiner Community!' and a search bar. Below the banner are five buttons: 'Ask a Question', 'Share an Idea', 'Join Events', 'Provide Feedback', and 'Check Use Cases'. The 'Ask a Question' button is highlighted with a blue arrow. The 'Join Events' button is also highlighted with a blue arrow. The 'Provide Feedback' button is highlighted with a blue arrow. The 'Check Use Cases' button is highlighted with a blue arrow. The 'Ask a Question' button has a callout text: 'Post your questions in the Community and get answers from experts and peers!'. The 'Join Events' button has a callout text: 'Use the search bar to discover contents, answers, and discussions'. The 'Provide Feedback' button has a callout text: 'Share your Product Ideas or vote for other ideas'. The 'Check Use Cases' button has a callout text: 'Visit Events to see upcoming webinars and trainings'. The 'Create new topic' button has a callout text: 'New here? Sign up in seconds. Already a member? Just log in!'. The 'Content by Role' section has a callout text: 'Select your role to discover the most relevant resources and insights'. The 'Content by Role' section lists three roles with icons: 'TrendMiner User' (person with laptop), 'Admin / IT' (person with server), and 'Project Manager' (person with briefcase).

Share your Product Ideas or vote for other ideas

Use the search bar to discover contents, answers, and discussions

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

Visit Events to see upcoming webinars and trainings

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

Ask a Question

Share an Idea

Join Events

Provide Feedback

Check Use Cases

Recently active Categories Unanswered questions

Shams92 Pioneer · Asked in Questions & Answers

Re-sync context items in bulk

Hello, we are working on a use case where we would like to do a re-sync of historic items for a longer period. To go via the interface for such a long time or performing a full historic sync don't...

0 15 2 4 hours ago

Content by Role

TrendMiner User

Admin / IT

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