

Semi-automated Model Maintenance and Data Verification Tool

This paper presents an innovative approach to streamline and enhance data verification processes during model maintenance scoping. The developed app offers a solution to improve the identification of faulty or problematic data, saving significant time for the modellers involved. The core functionality of the app involves pattern recognition techniques coupled with statistical methods to identify problematic data points, thus reducing the need for exhaustive manual inspection.

The primary objective of the app is to facilitate efficient model maintenance by automating several critical stages of data analysis. In the initial stage, the telemetry flow data from the past month undergoes pattern recognition analysis to detect any indications of data irregularities. Subsequently, in the second stage, the model data is cross-verified against the telemetry data using pattern recognition techniques to ensure the ongoing accuracy of the model. The third stage involves a verification process for DMA data, wherein pattern recognition is leveraged to validate the flow balance for the previous month, while property counts are utilised to classify the accuracy of DMA data. The fourth stage entails the validation of Depth data. Furthermore, the app identifies and highlights LMCs and PRVs in the data.

Apart from its core data verification and maintenance functions, the app offers additional features to modellers. It provides a flexible framework allowing modellers to create new balance calculations and modify existing DMAs.

In conclusion, this research introduces a novel semi-automated app that significantly enhances the efficiency and accuracy of model maintenance and data verification processes. That modellers have to undertake. By integrating pattern recognition and statistical techniques, the app minimises the manual effort required to identify faulty data, subsequently enabling modellers to focus on a targeted subset of problematic information.

Presenter & Author:

Ryan Searle

ryan@trident-hydraulic-solutions.co.uk

Model Maintenance Scoping

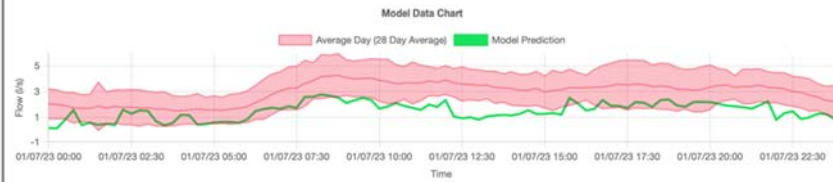
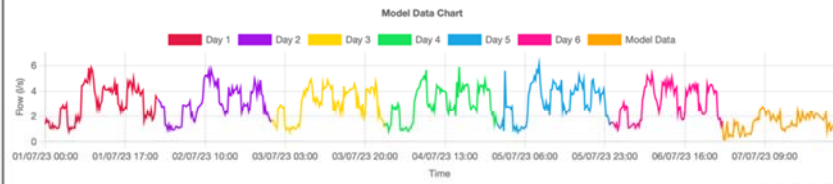


Telemetry **Model** DMA Depth Create Balance Summary

Incorrect Meters

- BOARDHOUSE WTW CWT PUMPED OUTLET FLOW TO RAVIE HILL TWS move
- TWATT TO DOUNBY FLOW move
- HAMMARHILL TWS DL0017 AI0005 SR HAMMARHILL INLET FLOW move
- LINTY BRAE DSR 1961 HY402070-DL2670-AI0003-SR INLET FLOW move
- LINTY BRAE DSR 1961 HY402070 DL2670 AI0002 SR OUTLET FLOW move
- LINTY BRAE SUPPLY TO HEATHFIELD FARM FLOW move
- HATSTON IND EST FLOW FROM LINTY BRAE FLOW move
- SANDY HILL TWS FLOW IN move
- SCAPA BOOSTER TWP move
- MARKSTONE TWS FLOW IN move
- SHARPSAY DSR 1973 HY06177 SR INLET FLOW move
- TOWERHILL NEW TWS TOWERHILL 3 SOUTH FLOW move
- TOWERHILL NEW TOWERHILL 2 CENTRE FLOW move
- TOWERHILL NEW TWS TOWERHILL 3 NORTH FLOW move
- TOWERHILL NEW TWS FLOW IN move
- CAULDHAME TWS FLOW OUT move

TOWERHILL NEW TOWERHILL 2 CENTRE FLOW



Save Comment

Model Maintenance Scoping



Telemetry **Model** DMA Depth Create Balance Summary

Incorrect Meters

- BURGIR HILL NEW TWS BURGIR HILL MAG FLOW IN move
- BURGIR HILL NEW TWS DL0013 AI0003 SR OUTLET FLOW TO UPPER ONSTON DMA move
- CAR NESS TWP 2012 HY461132 DISCHARGE FLOW move
- CAULDHAME TWS FLOW IN move
- CAULDHAME TWS FLOW OUT move
- HATSTON IND EST FLOW FROM LINTY BRAE FLOW move
- LINTY BRAE SUPPLY TO HEATHFIELD FARM FLOW move
- QUEENA BOOSTER TWP QUEENA FLOW OUT 10 move
- QUEENA BOOSTER TWP QUEENA FLOW OUT 8 move
- SANDY HILL TWS FLOW IN move
- SANDY HILL TWS FLOW OUT move
- LINTY BRAE DSR 1961 HY402070-DL2670-AI0003-SR INLET FLOW move

QUEENA BOOSTER TWP QUEENA FLOW OUT 10



Save Comment

Correct Meters

- AYRE ROAD DMA move
- BOARDHOUSE WTW CWT RAVIE HILL OUTLET FLOW TO NORTH ZONE move
- BOARDHOUSE WTW CWT RAVIE HILL OUTLET FLOW TO SOUTH ZONE move

Model Maintenance Scoping



Telemetry Model **DMA** Depth Create Balance Summary

Incorrect DMAs

Correct DMAs

AYRE ROAD DMA	Done
ST MARGARETS HOPE & WIDEWALL DMA	Done
GLAITNESS ROAD DMA	Done
STROMNESS DMA	Done
HOLM ROAD DMA	Done

GLAITNESS ROAD DMA



Pattern recognition classification: Good

Property consumption: Good

Net balance: 7.0 l/s

Property count: 891 (878.56 l/d per property)

Inflow: 7.0 l/s

Outflow: 0 l/s