24th ANNUAL
LEAKAGE CONFERENCE

4 – 5 DECEMBER 2023
BIRMINGHAM & LIVESTREAM

Organised by
lodestar

Media partner
THE WATER REPORT
POLICY | REGULATION | COMPETITION

Meet up with our exhibitors and other delegates

aqualogic water conservation

BERMAD

GUTERMANN

HWM

MUELLER

OVARRO CONNECTING TECHNOLOGIES

SME WATER

suez

TECCURA SOFTWARE

TECHNOLOG

THE WATER REPORT POLICY | REGULATION | COMPETITION

Welcome back

Peter Simpson

Chief Executive

Anglian Water

Building understanding for resilience

How climate change will impact our networks: Modelling the relationships between soil, weather and bursts

Tim Farewell

Director

MapleSky

Richard Fielding

Smart Water Technical Lead

Anglian Water

MapleSky
Environment & Infrastructure

Modelling the impacts of climate change on infrastructure

Dr Timothy S. Farewell
tim.farewell@maplesky.co.uk
07442 238 947

Environmental Risks & Utilities…

MapleSky Environment & Infrastructure

PAST ≠ PRESENT ≠ FUTURE

Changes:

- Frequency of (bad) events
- Areas affected
- Assets at risk
- Deterioration of particular materials
- Regulation
- Demand patterns
- Opportunities for improvement

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Water is AWESOME!

Essential for life

Essential for economic growth

Essential for peace and security

Water Networks = true critical national infrastructure

Well, 2022 was fun…

BBC Sign in Home News Sport Weather iPlayer Sounds

NEWS

Home | War in Ukraine | Cost of Living | Coronavirus | Climate | UK | World | Business | Politics | Tech | Science

England | Local News | Regions | London

Islington: Flooding in north London as water main bursts

44 minutes ago

People are being asked to stay away from the area

Two adults and two children were rescued by firefighters after a burst wa main left part of north London under several feet of water.

The broken main on the corner of Hornsey Road and Tollington Road in Islington caused floods of up to 4ft (1.2m) and created two sinkholes.

About 50 properties were damaged and several roads remain closed, Lond Fire Brigade (LFB) said.

Flood levels receded after the main was shut at 11:05 BST, Thames Water

LFB said it first received calls just after 07:00.

Ban bonuses for water firm bosses until they fix leaky pipes, say Lib Dems

England's water and sewage chiefs awarded themselves £27m amid leakages of 2.4bn litres a day

A Thames Water official on Hornsey Road, Holloway, north London, on Monday, after a water main burst, causing flooding up to 4ft deep. Photograph: Jonathan Brady/PA

Water company bosses should be banned from giving themselves bonuses until they fix their leaky pipes, the Liberal Democrats have demanded.

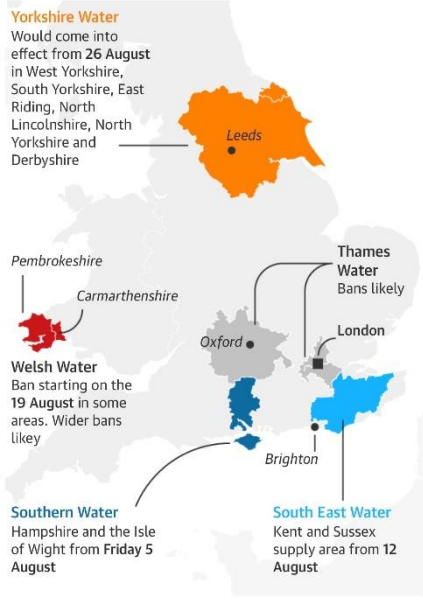
New figures uncovered by the party found that England's water and sewage company bosses have awarded themselves about £27m in bonuses over the past two years.

Analysis of Companies House records by the party found that executives at England's water and sewage companies were paid £48m in 2020 and 2021, including £27.6m in bonuses, benefits and incentives.

This is despite reports that they allow 2.4bn litres of water to be leaked in England every day.

10:30 4G

Water companies are beginning to introduce hosepipe bans



Guardian graphic

AA theguardian.com

18:48

UK World Climate crisis Newsletters More

Headlines

20°C

Water / Calls to cut bonuses for UK water bosses until reservoirs built and leaks fixed

Executive pay As drought hits, what are UK water company chief executives paid?

UK weather / Met Office warns of 'dangerous' floods across country

Drought Hosepipe ban to come into force in Cornwall and parts of Devon

Boris Johnson / No 10 admits PM will only be contacted if urgent while on holiday

Energy bills Centrica and Octopus back plan to freeze UK bills for two years

theguardian.com

How we model climate impacts

MapleSky Environment & Infrastructure

1. Assemble **data** and **identify environmental impacts**
2. Build **historic models of asset performance**
3. Construct **forward looking climate models**

Dŵr Cymru Welsh Water

love every drop anglianwater

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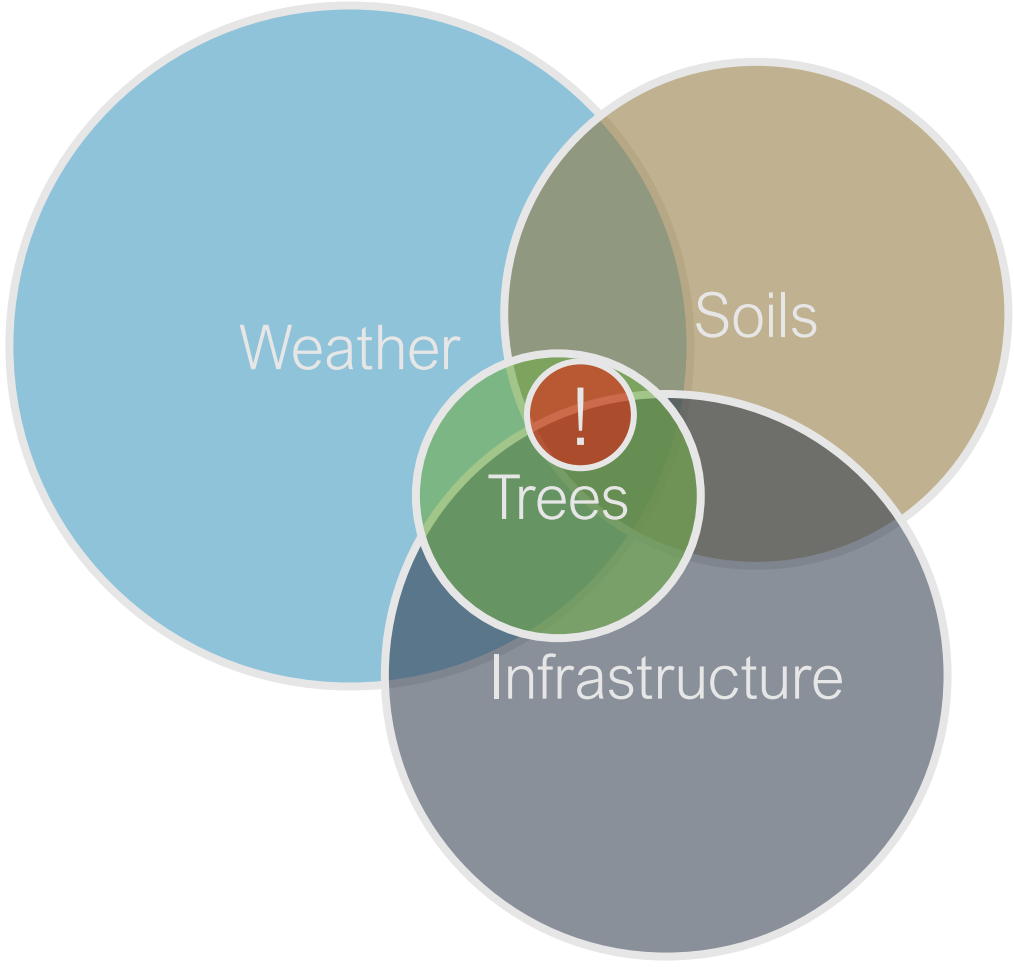
Infrastructure

1: Assemble data and find patterns

Data and Environmental Impacts



How do these factors interact to cause asset failures?

Then use this to better plan investments / interventions.

Monthly trends

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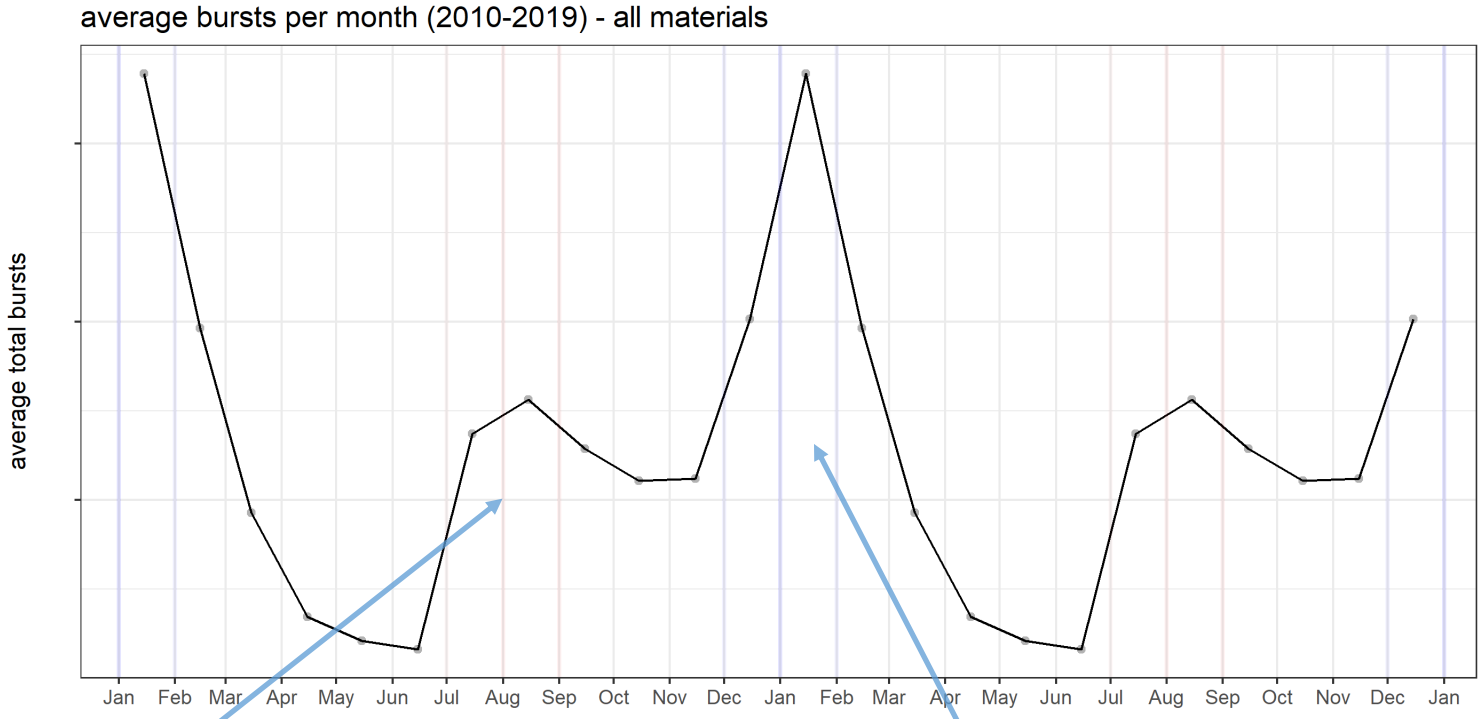

Summer peak

(temperature and ground movement impacts)

Winter peak

(Cold weather impacts)

Monthly Trends (by material)

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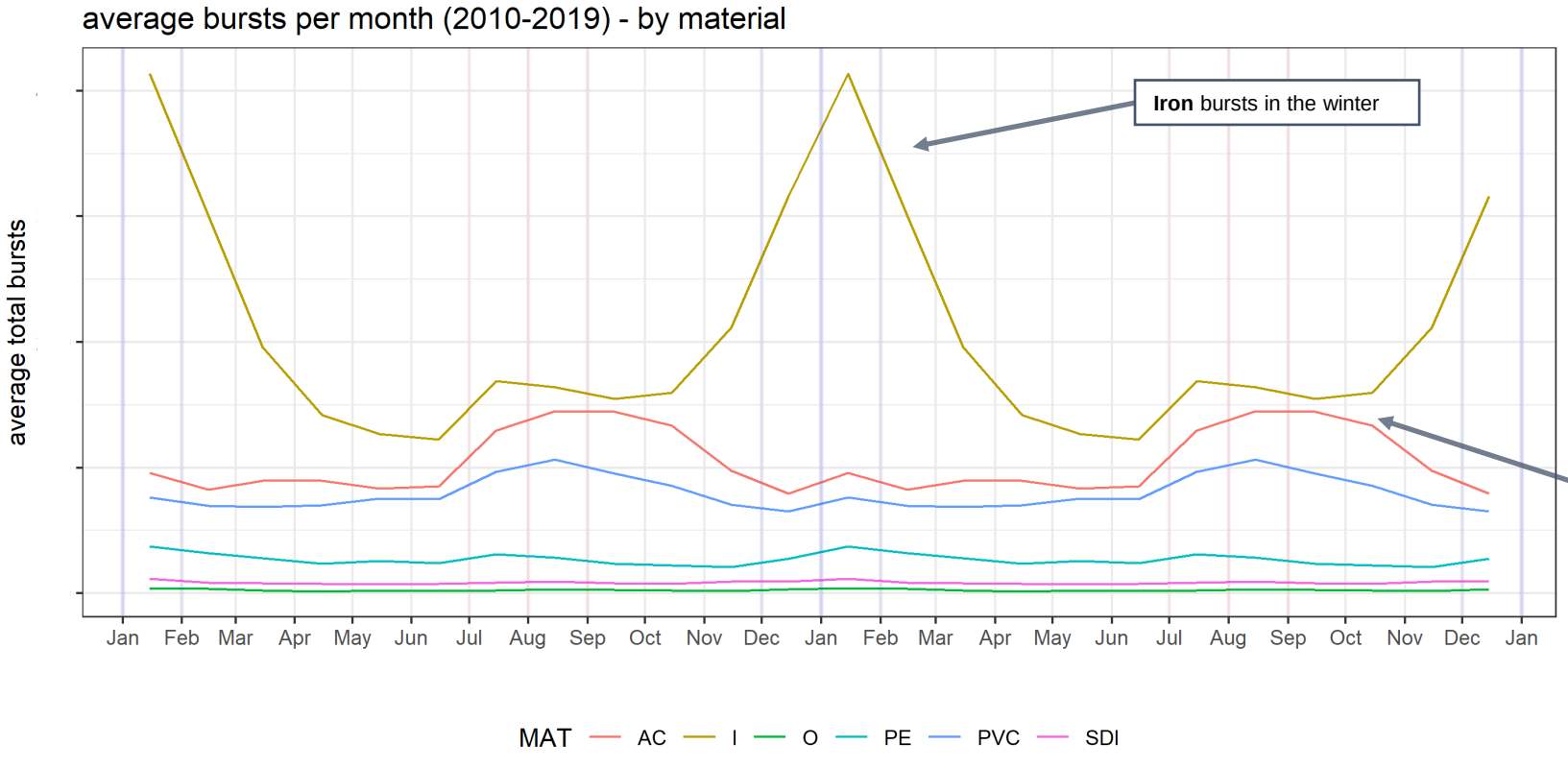
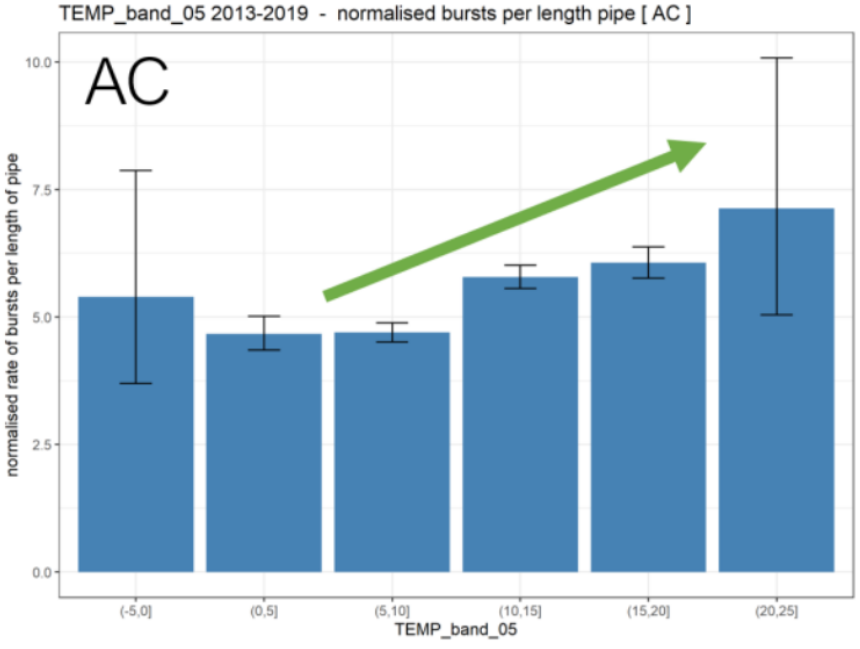


Iron bursts in the winter

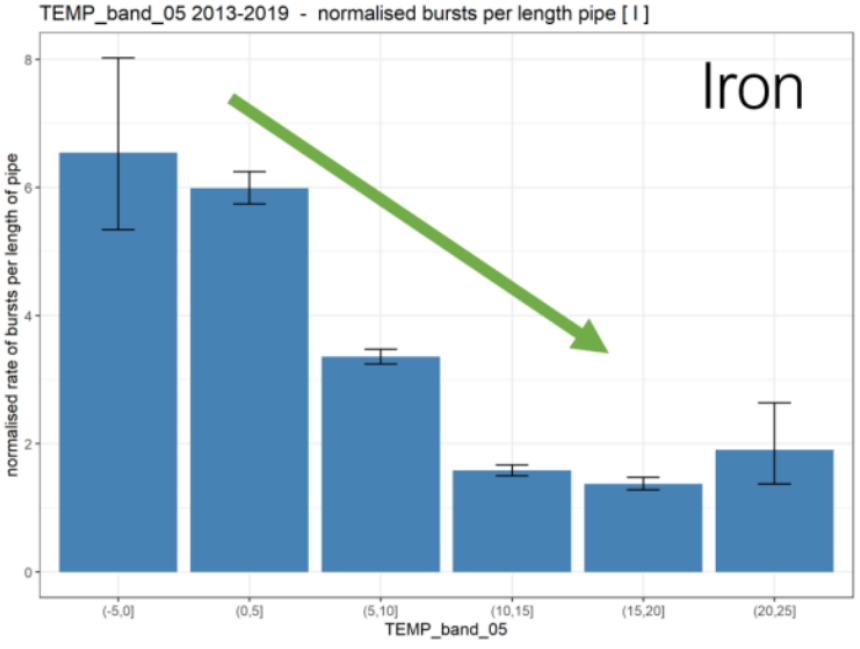
AC and **PVC** burst more often in the summer / autumn

This trend is increasing in many areas across the country – both a mixture of deterioration and increasing climate risks.

Temperature



cold hot



cold hot

Video showing different soil responses to moisture – can be viewed in the video recording from the Conference

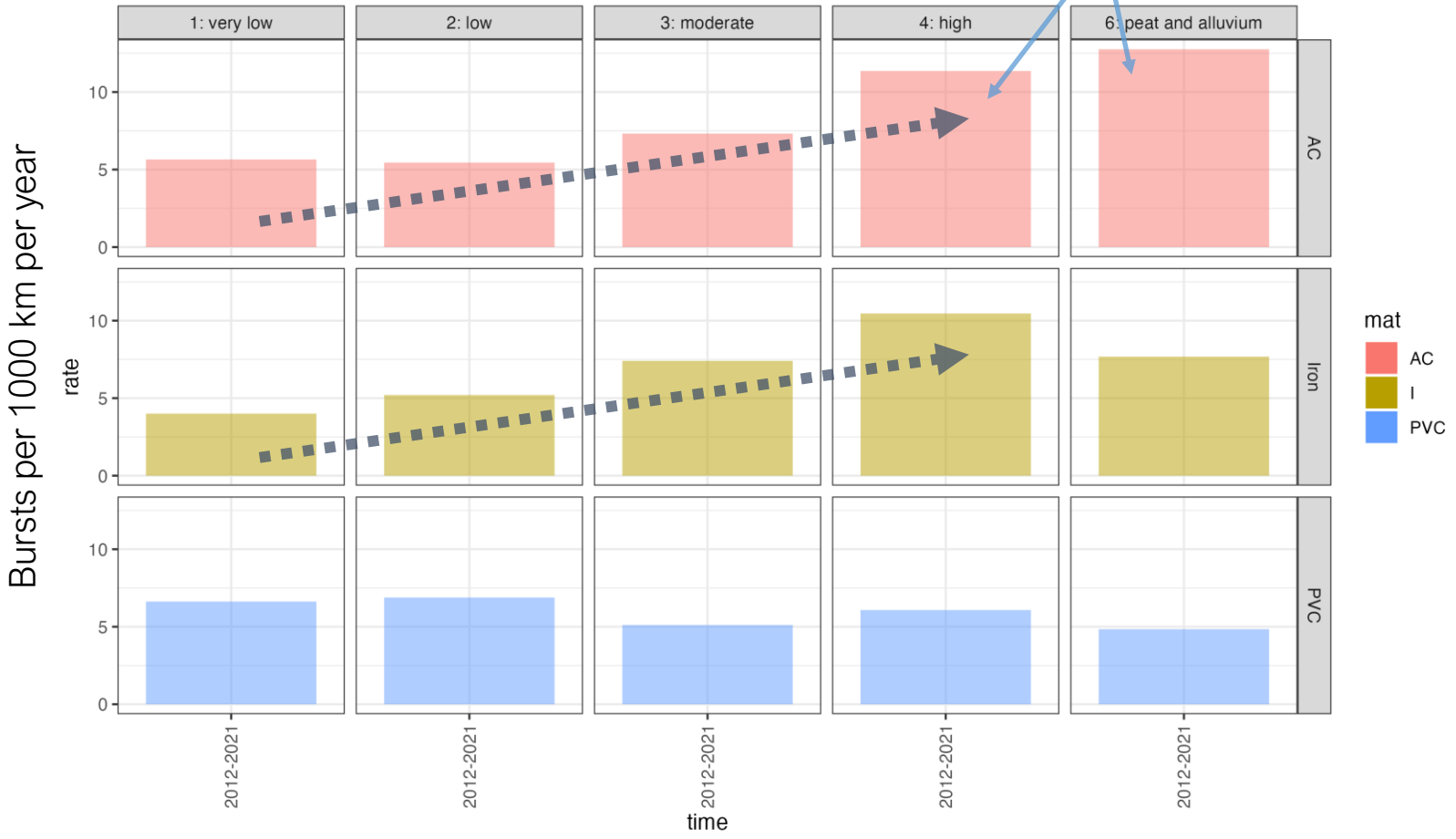
Can the soil shrink?

Soil impacts

MapleSky Environment & Infrastructure

How shrinkable are the soils?

More bursts in shrinkable soils



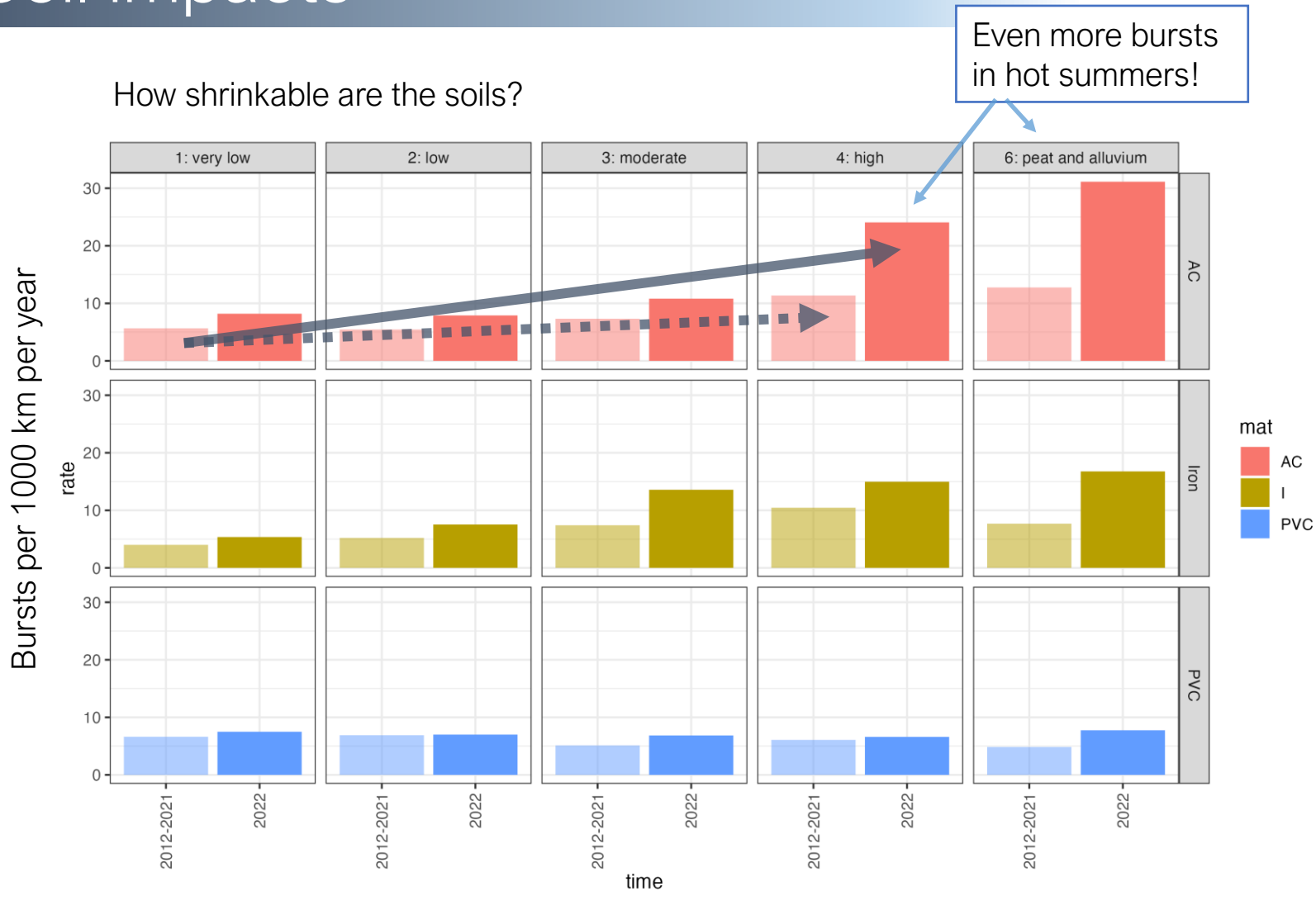
Average summer burst rates in different soils (2012-2021)

Soil impacts

MapleSky Environment & Infrastructure

How shrinkable are the soils?

Even more bursts in hot summers!



Average summer burst rates in different soils (2012-2021) compared with 2022 (very hot!)

Temperature & soil moisture

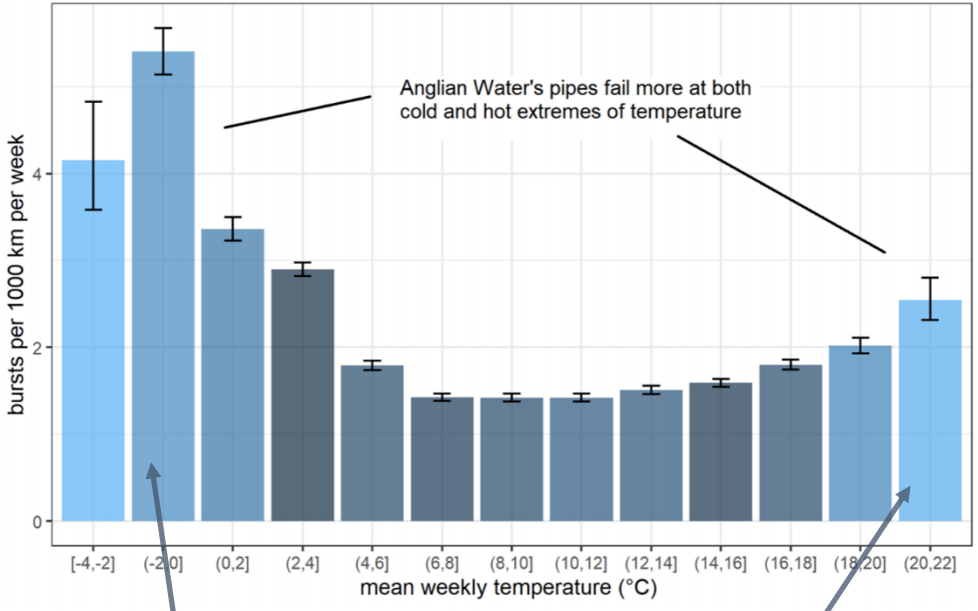
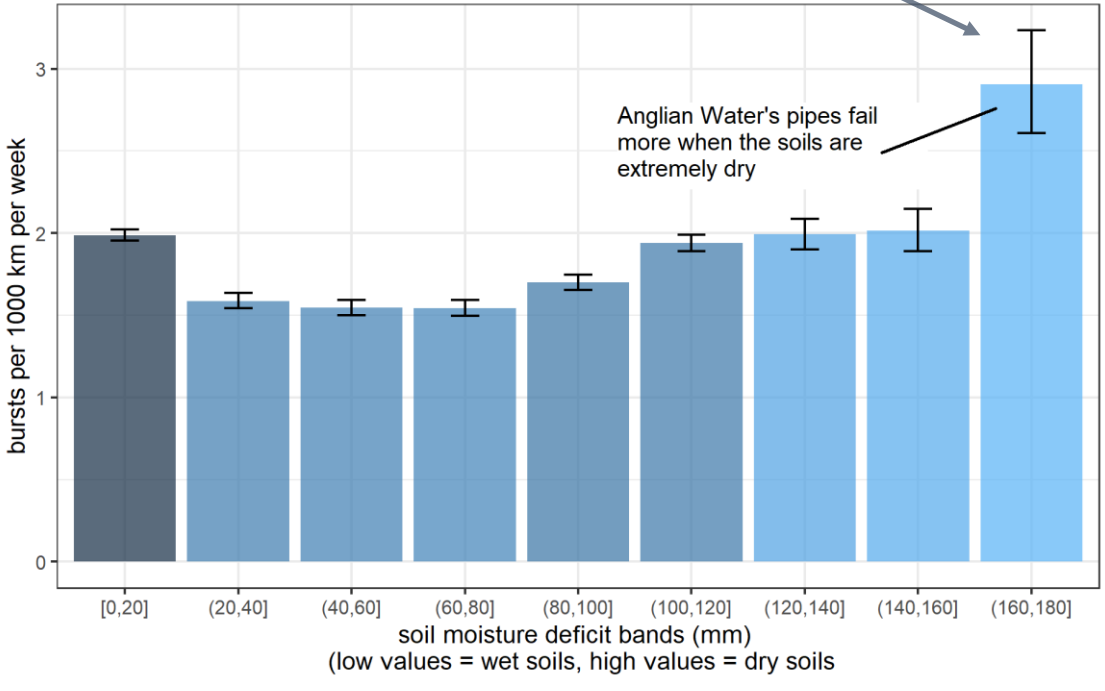


Figure 14 - failure rate (bursts per 1000 km per week) by temperature band, for all materials together, 2009-2019

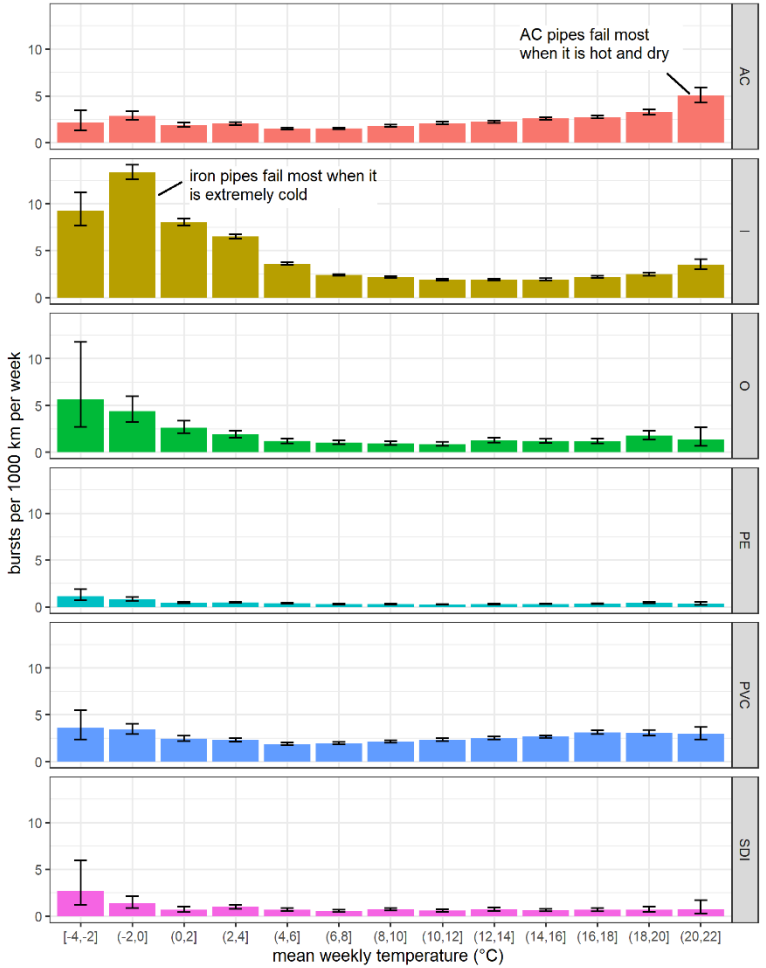
cold weather

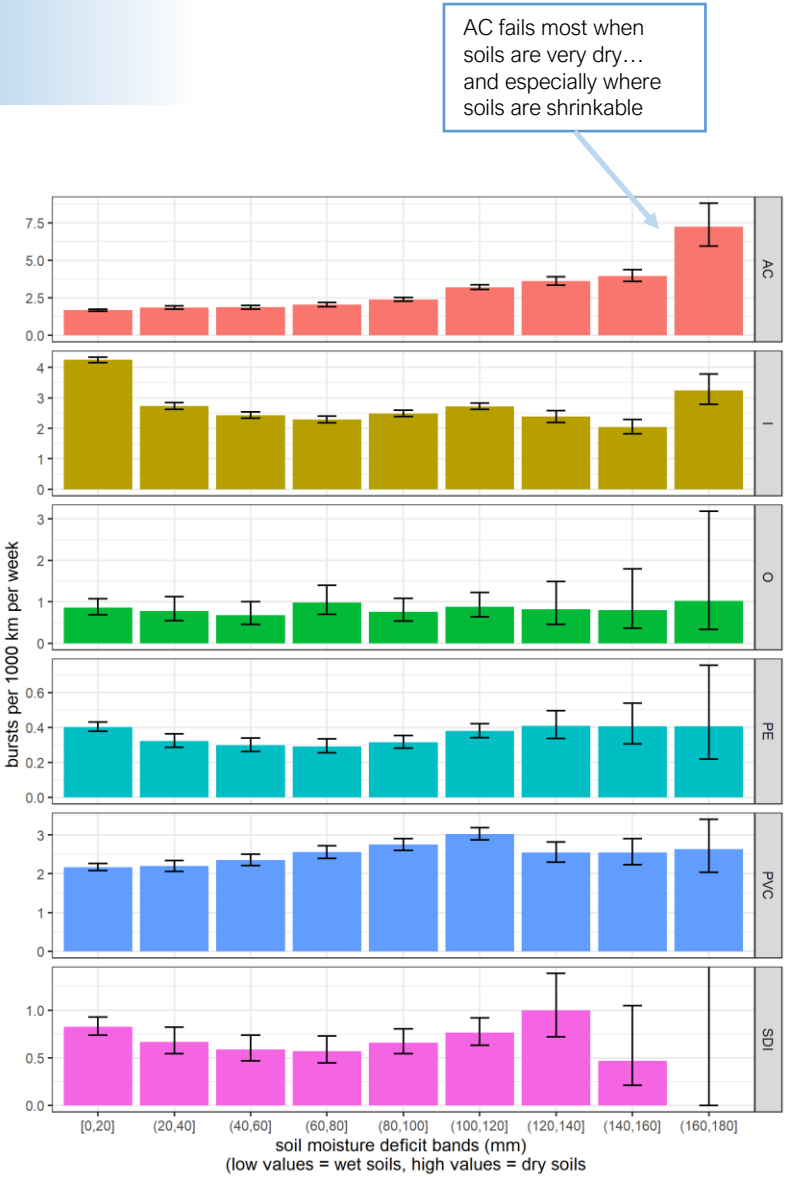
hot weather

dry soils

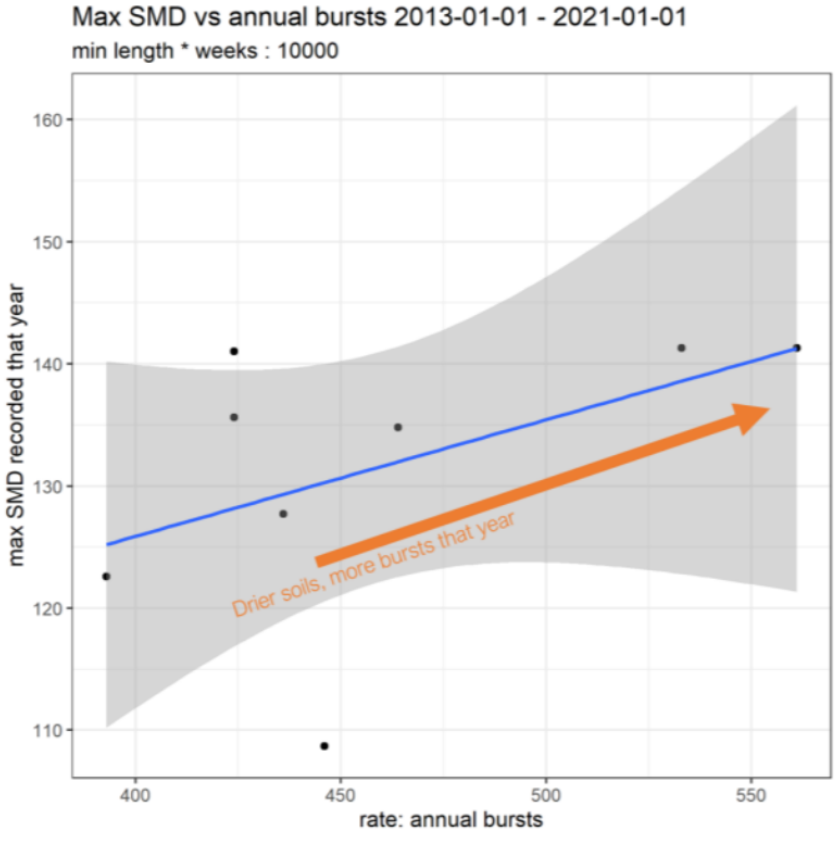


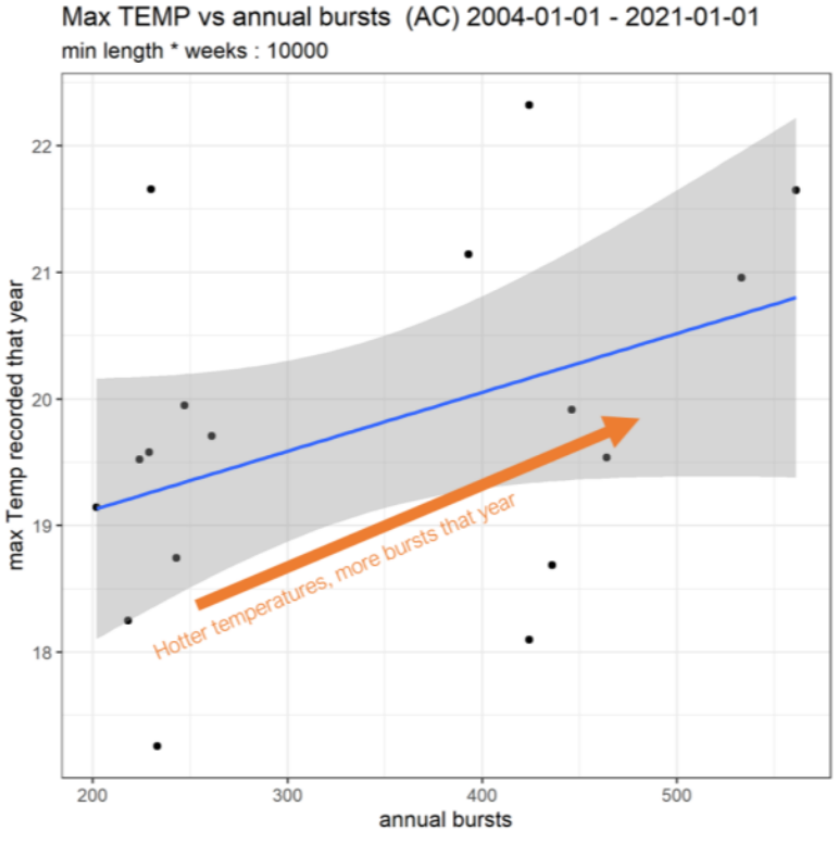
Temperature & soil moisture





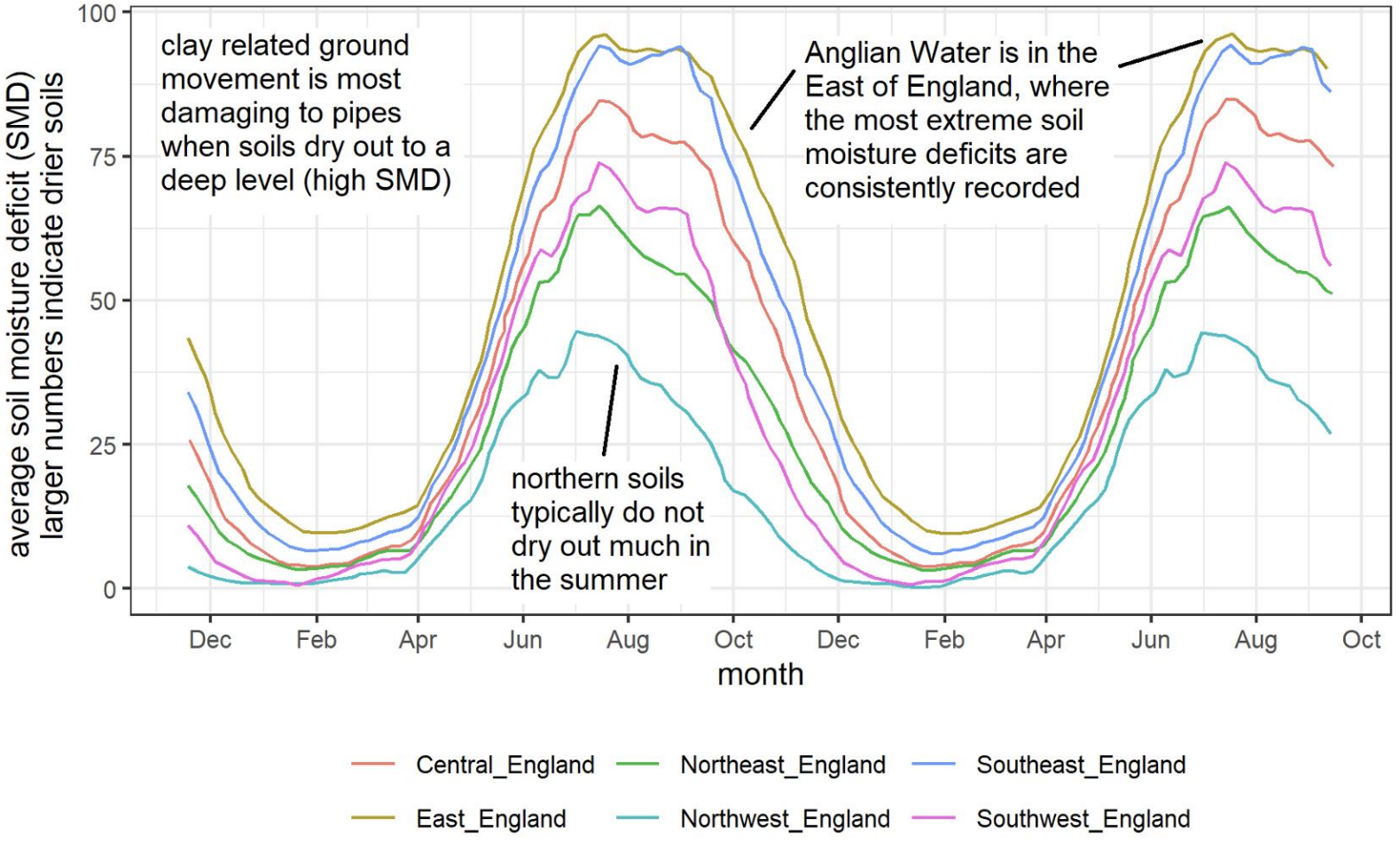
Temperature & soil moisture



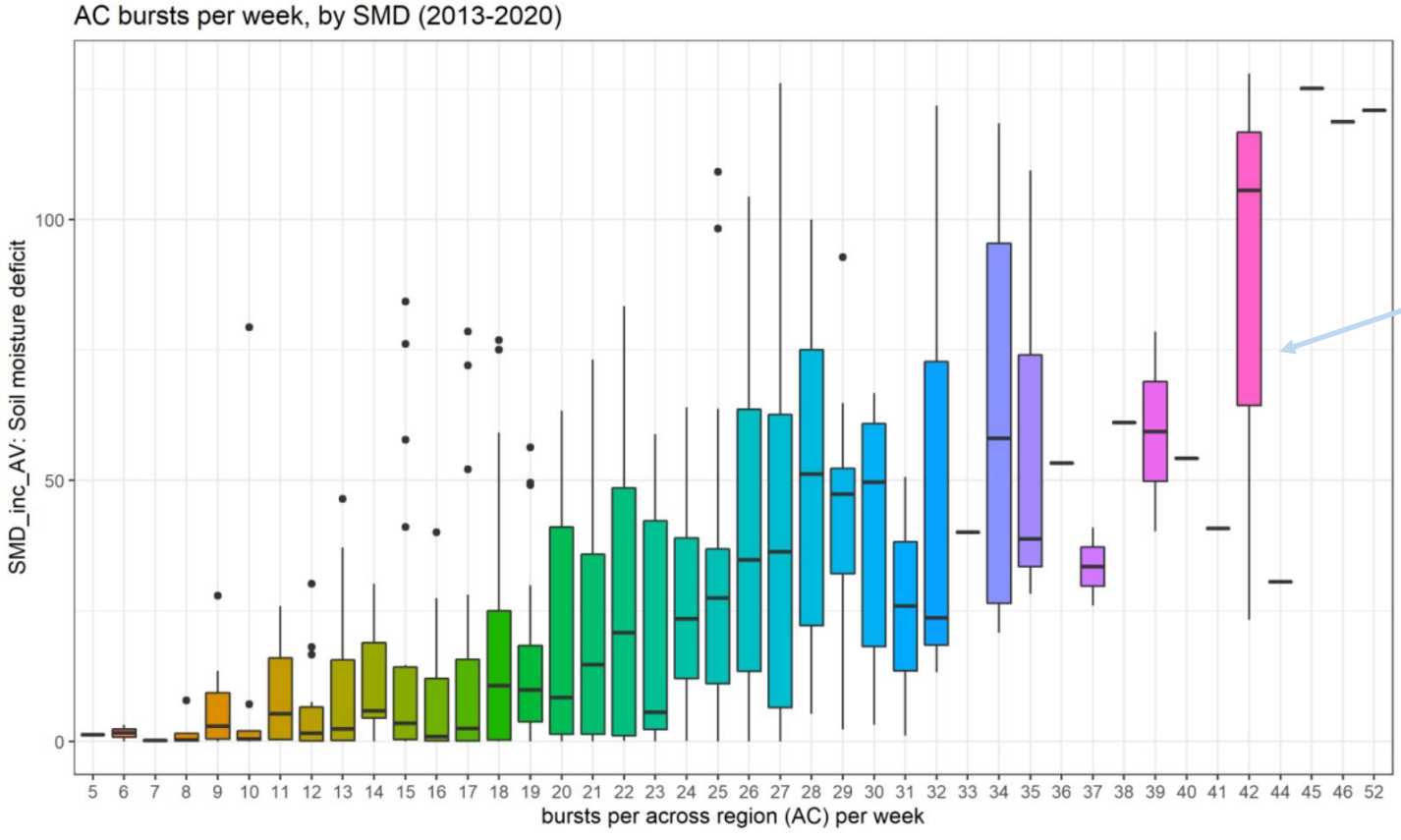


Even in Wales! hotter temperatures and drier soils lead to more bursts!

Average soil moisture by region



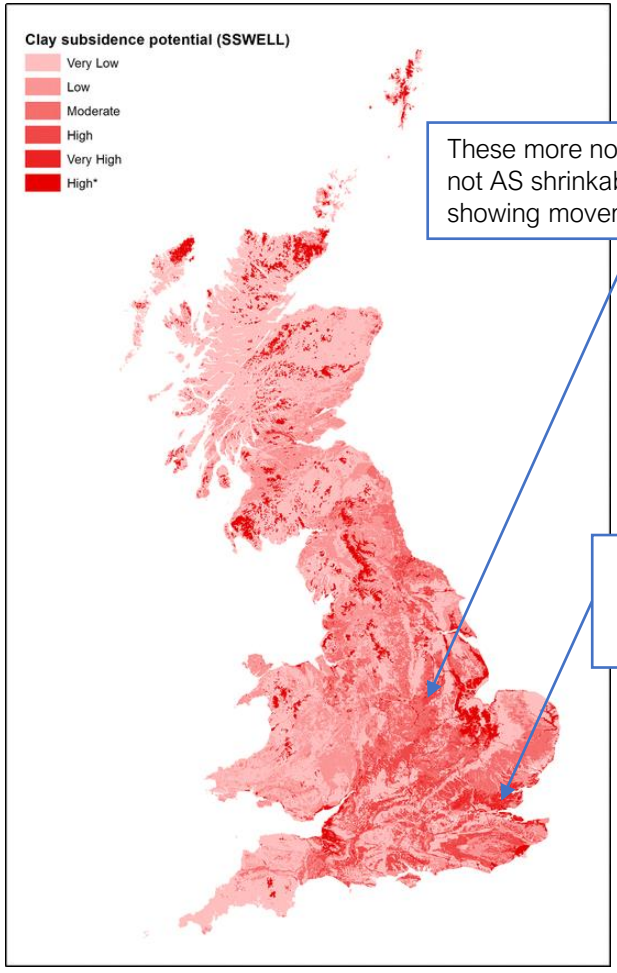
Soil moisture



When Welsh soils dry out a bit more than usual … more bursts occur!

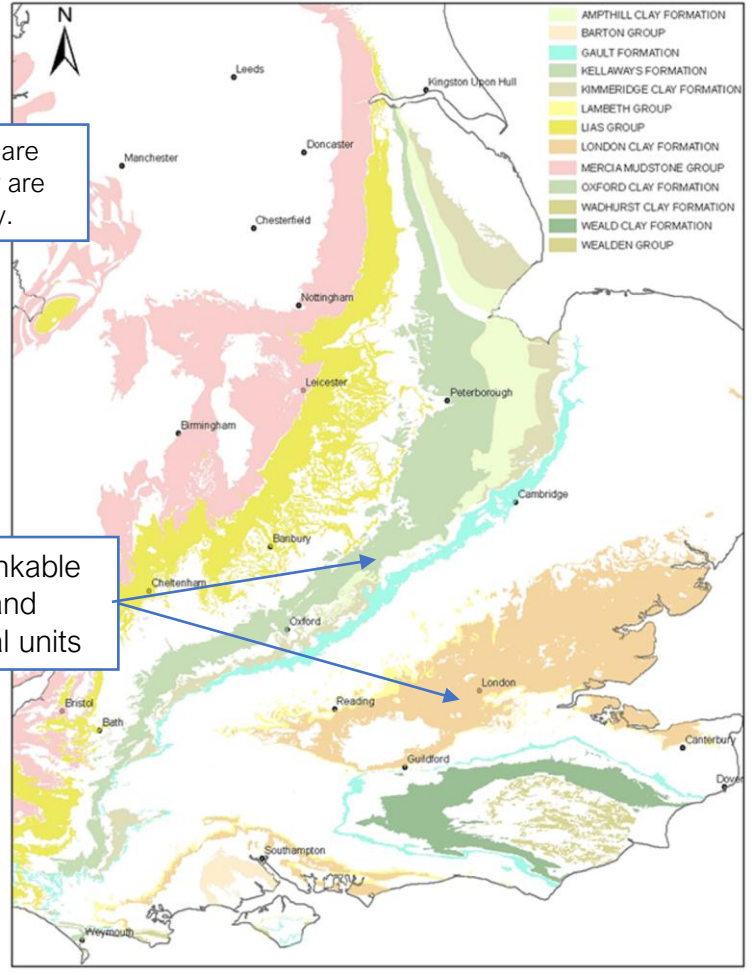
Figure 12 - the range of observed SMD values when different numbers of bursts are reported across the Welsh Water network. Higher SMD is equivalent to drier soils.

Shrinkable soils & geology



These more northern units are not AS shrinkable, but they are showing movement already.

Very shrinkable soils and geological units



https://link.springer.com/article/10.1007/s10584-015-1486-z
& www.bgs.ac.uk

Patterns of bursts & weather

Iron pipes fail most in cold winters

Iron also fails a bit more when summers are hot and dry *

Asbestos Cement pipes fail most in hot, dry summers *

* (especially in shrinkable soils)

PVC pipes also see increased failures under very hot conditions

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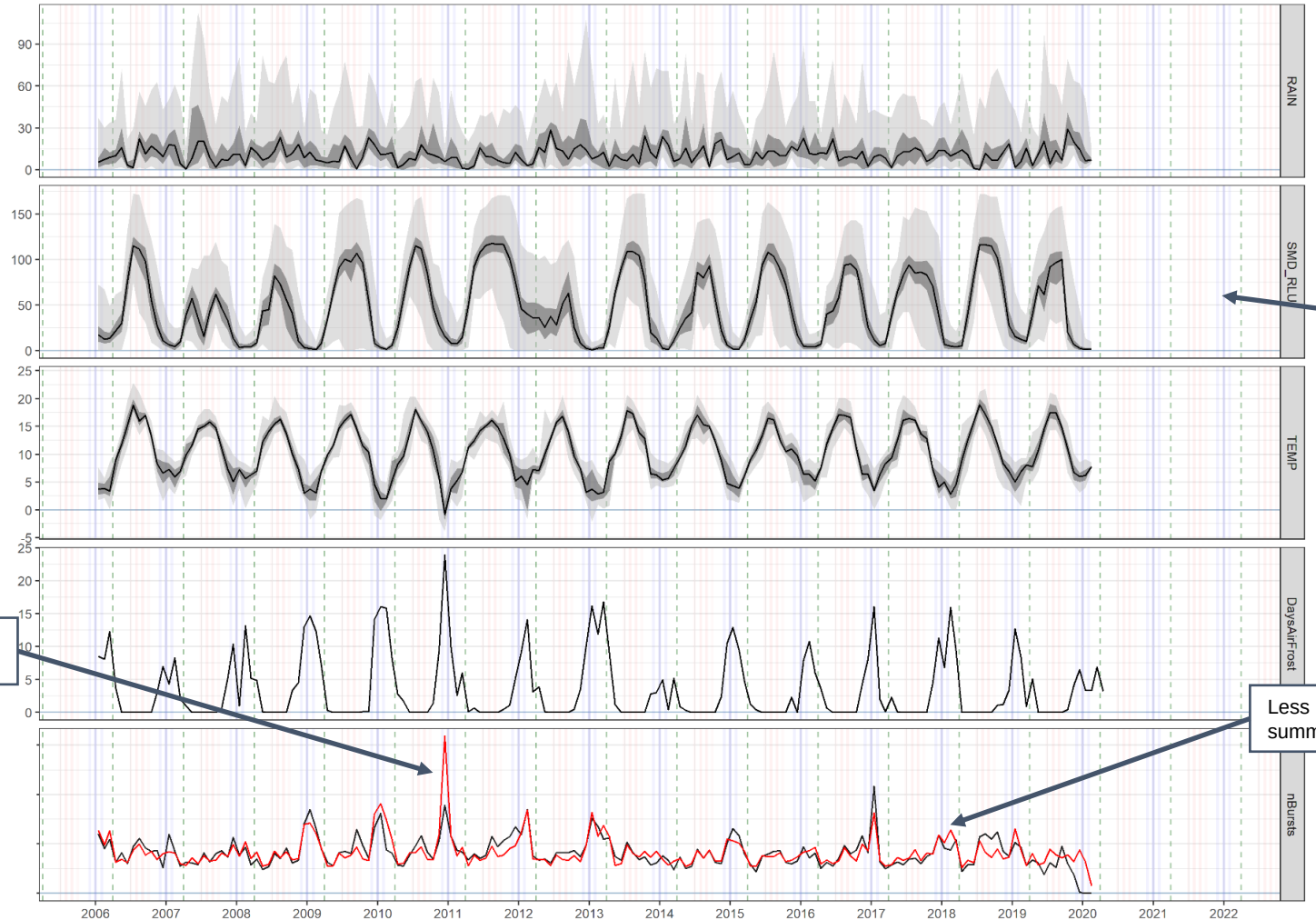
2: Build historic models of performance

Weather and bursts

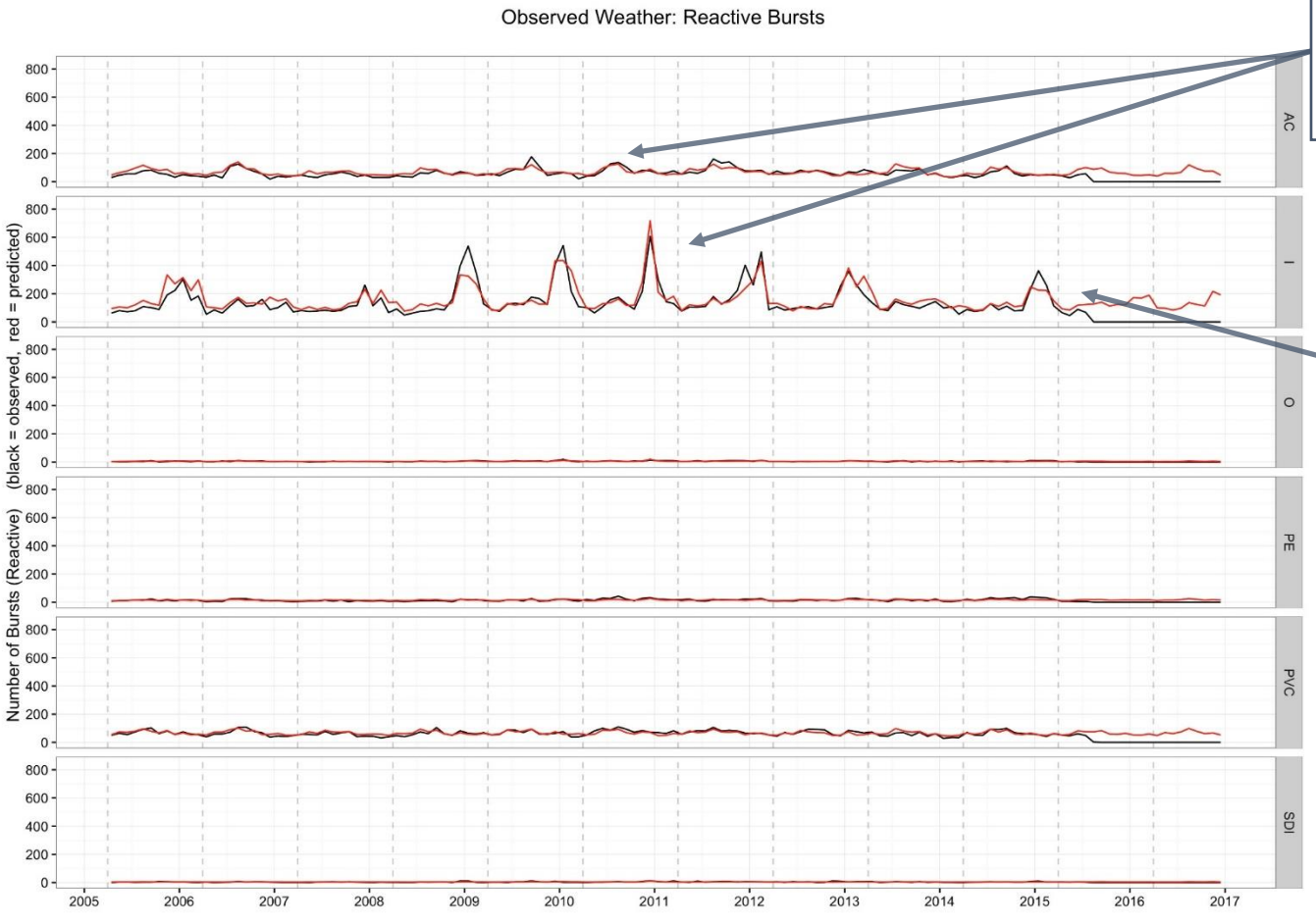


Temperature, Soil Moisture Deficit, Rainfall…

Large peaks of bursts in cold weather conditions

Less obvious are some prolonged summer outbreaks (e.g. 2018)

Predict monthly bursts



Pipes show different seasonal trends.

AC bursts in the summer.

Iron in the winter.

We are able to predict the number of bursts that will occur based on soil, weather and infrastructure parameters

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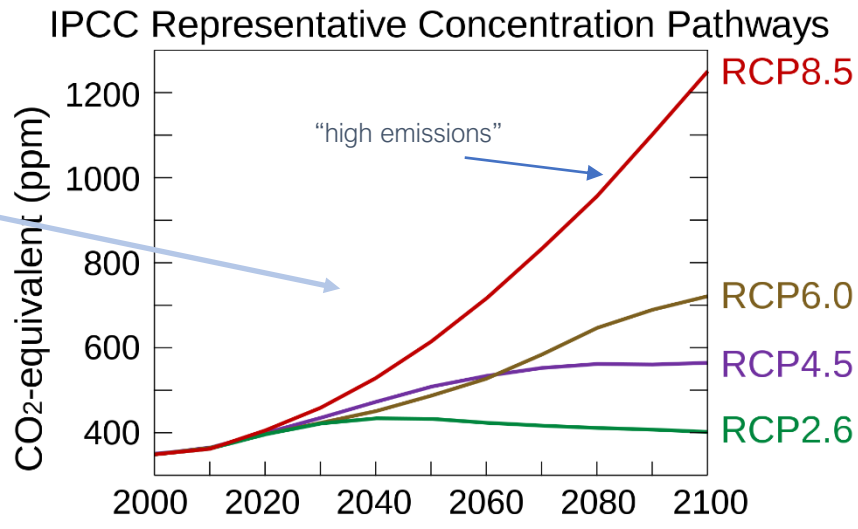
3: Construct climate models

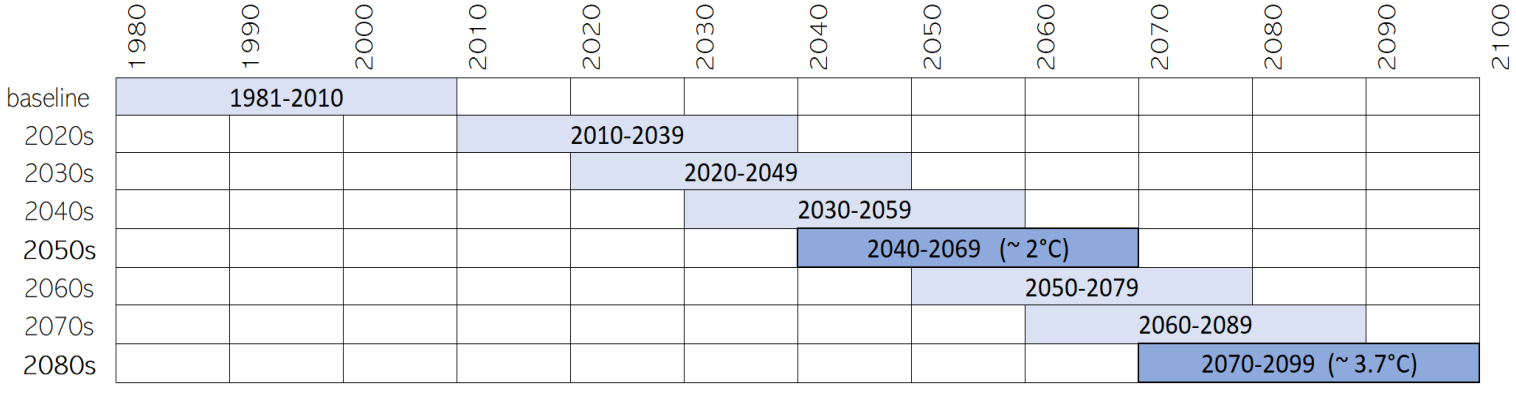
Climate Modelling (UKCP18)

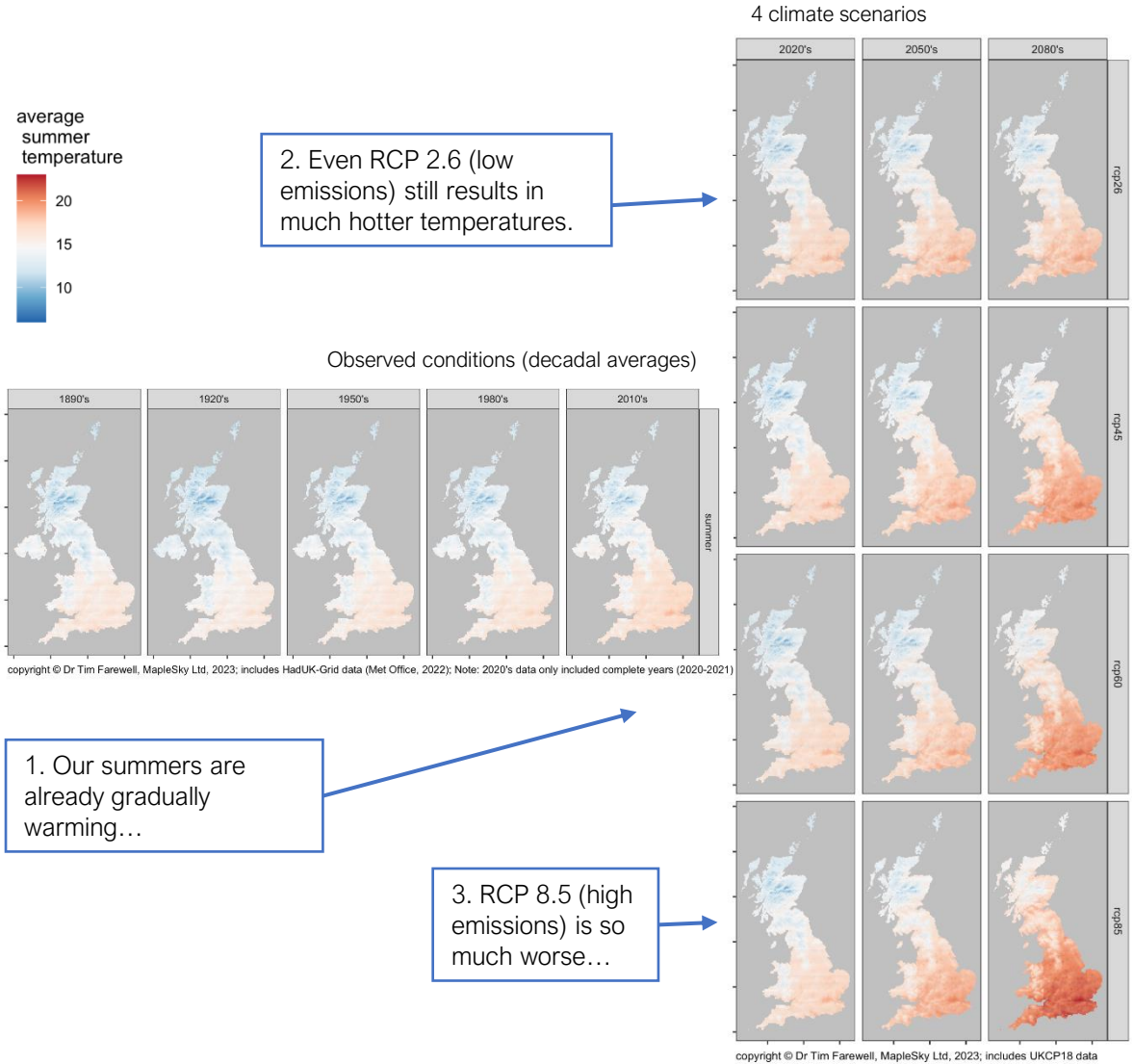
MapleSky Environment & Infrastructure

4 Representative Concentration Pathways (RCP) / emissions scenarios



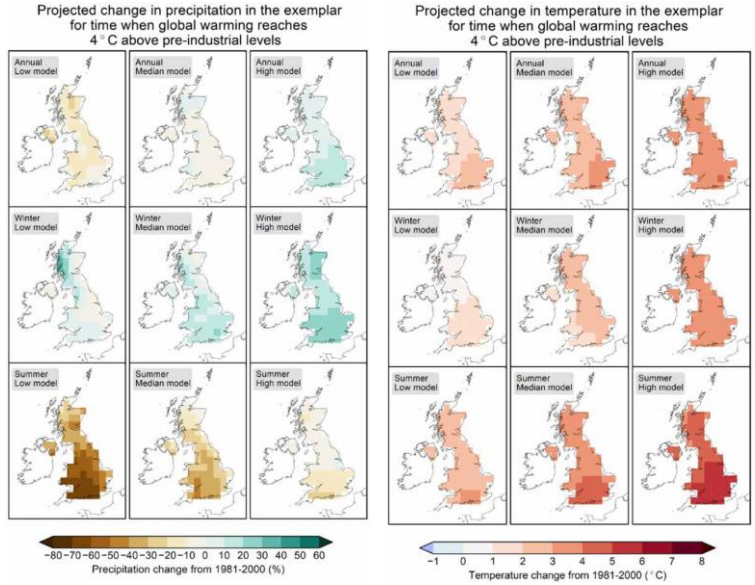
8 "decadal time-slices"




4 climate scenarios
average summer temperature
20
15
10
2. Even RCP 2.6 (low emissions) still results in much hotter temperatures.
2020's
2050's
2080's
rcp26
rcp45
rcp60
rcp85
Observed conditions (decadal averages)
1890's
1920's
1950's
1980's
2010's
summer
copyright © Dr Tim Farewell, MapleSky Ltd, 2023; includes HadUK-Grid data (Met Office, 2022); Note: 2020's data only included complete years (2020-2021)
1. Our summers are already gradually warming…
3. RCP 8.5 (high emissions) is so much worse…
copyright © Dr Tim Farewell, MapleSky Ltd, 2023; includes UKCP18 data

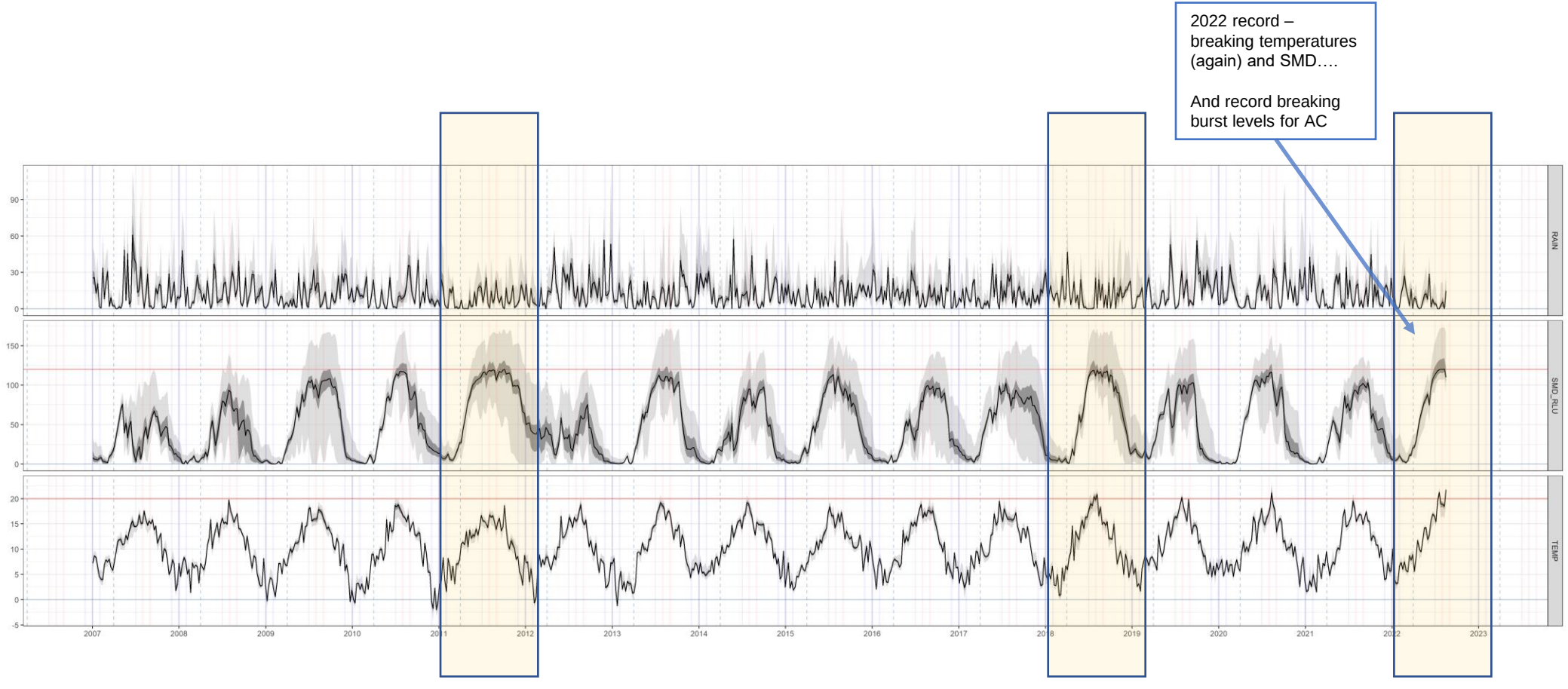
Climate change in the UK

1. Hotter, drier summers
2. Warmer, wetter winters
3. “Extreme” weather becomes common
4. Rising sea levels



https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-derived-projections.pdf

Event years (summers)

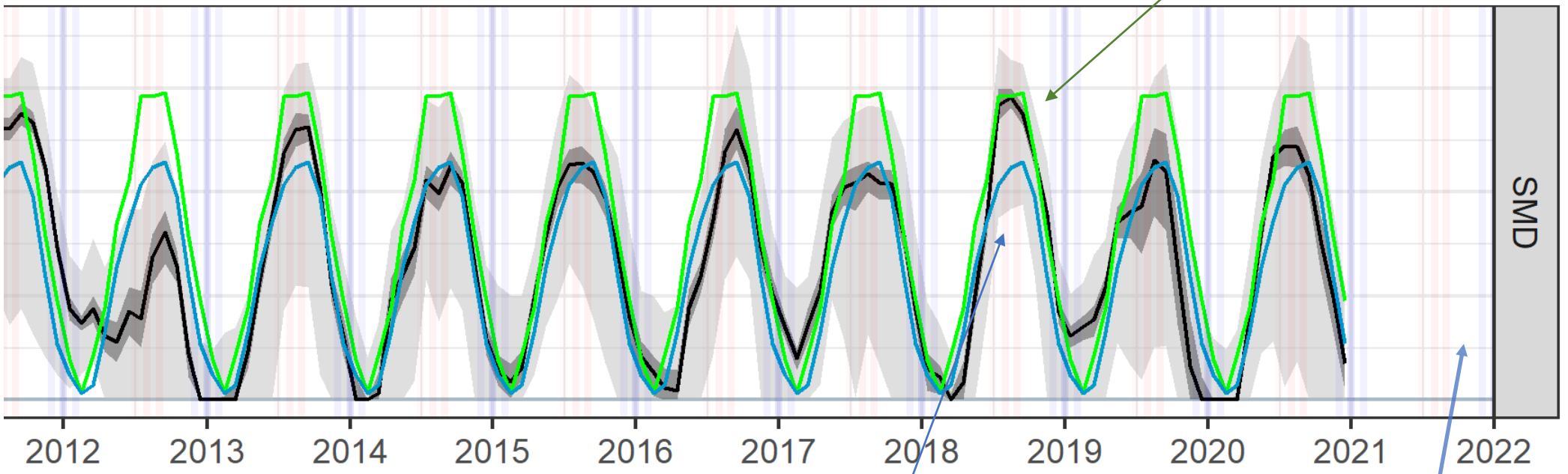


2011 2018 2022

Black line = observed

Blue line = 2006-2020 average

Green line = 2080s average



Changing burst numbers

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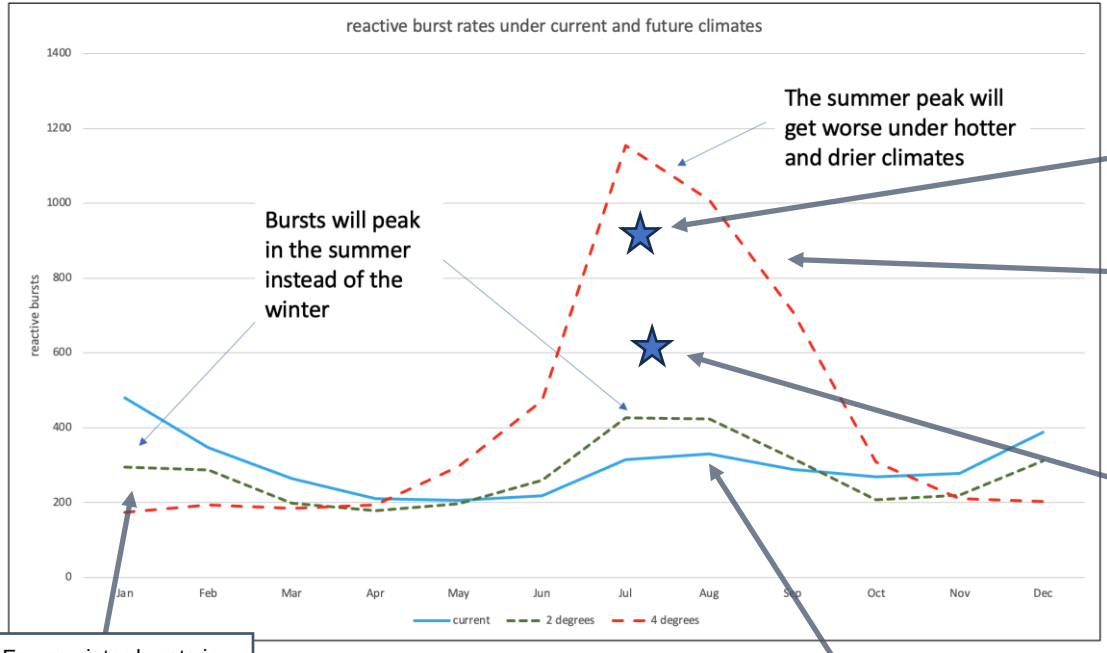


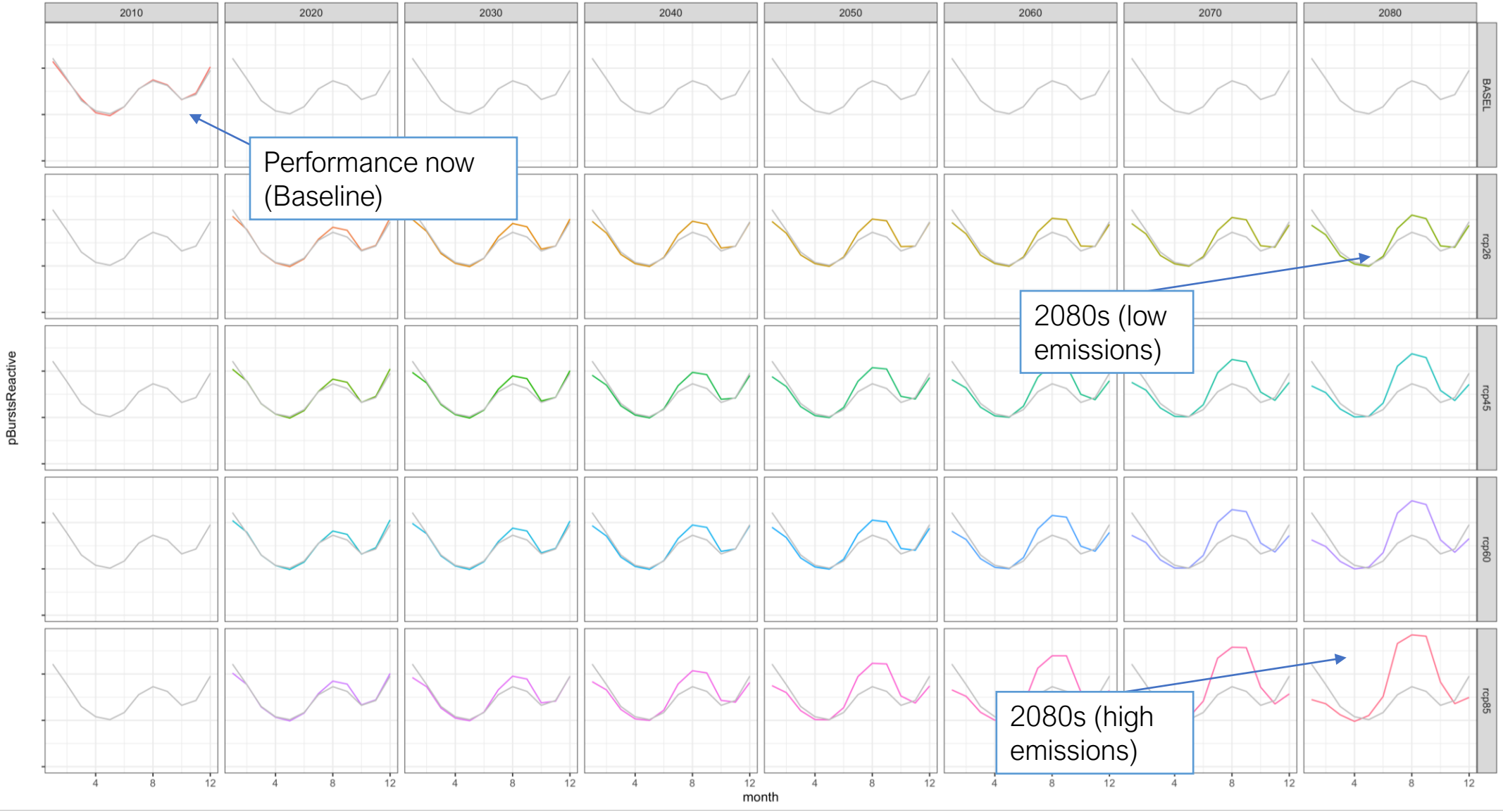
2022 record

3) More bursts at time when water demand is the greatest, an under future climates, rainfall is much less.

2018 record

1) Fewer winter bursts in an average year!

2) More summer bursts


2010
2020
2030
2040
2050
2060
2070
2080
BASEL
rcp26
rcp45
rcp60
rcp85
pBurstsReactive
4
8
12
month
Performance now (Baseline)
2080s (low emissions)
2080s (high emissions)

Bursts under future climates

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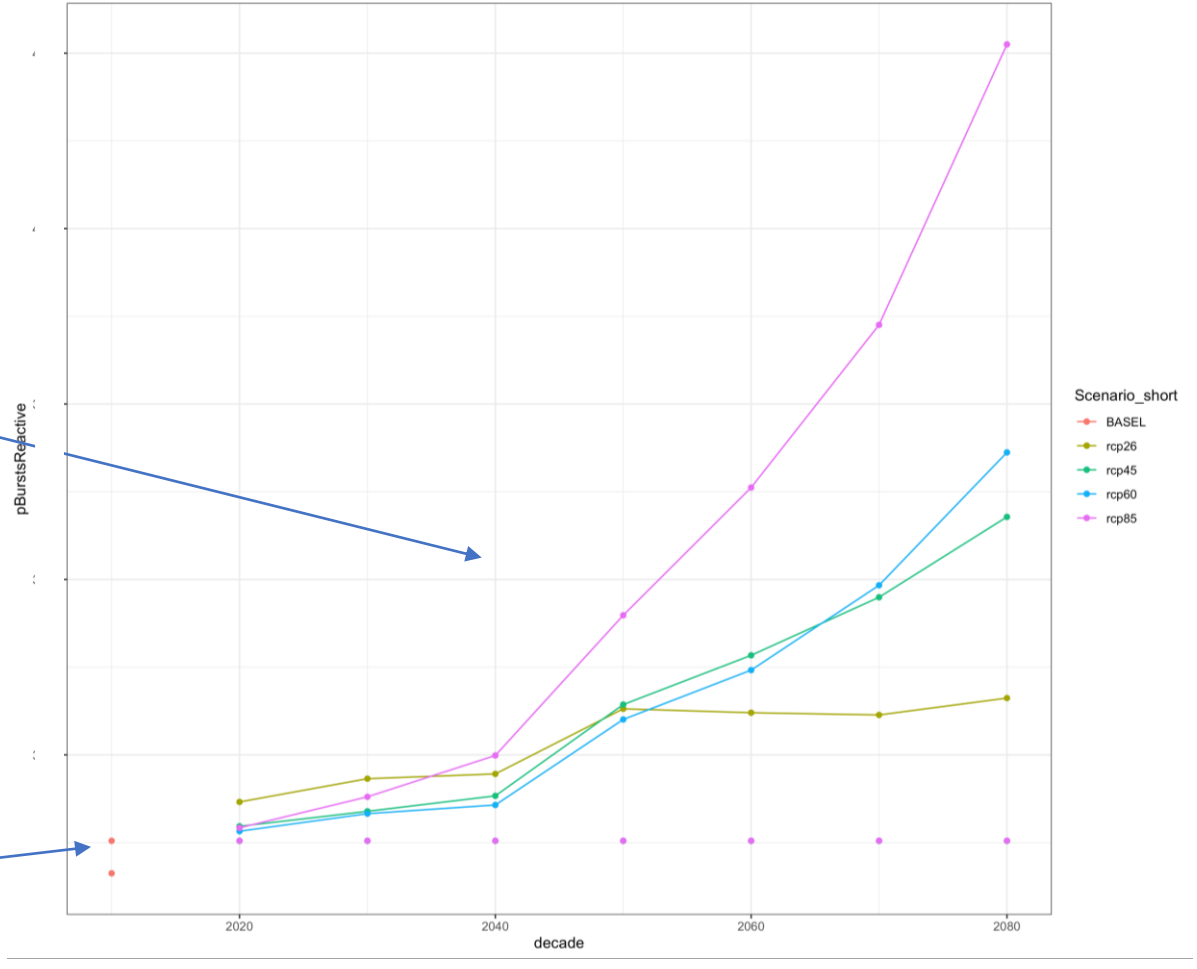
Different climate scenarios will result in different numbers of bursts.

Current baseline bursts over different time periods



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Key Findings

1. Fewer winter bursts

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Assuming no further deterioration of the assets…

- Expect **fewer iron bursts in winter**, on average.
- **Winter outbreaks still will occur**, but will be less frequent.
- When winters are cold, **many bursts will occur**.

2. More summer bursts

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Assuming no further deterioration of the assets…

- Expect more bursts:
  - AC
  - Iron
  - PVC

- Especially in shrinkable soils

3. Increasing water scarcity

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Assuming no further deterioration of the assets…

- Bursts will occur more in summer months, when water demand is greatest.
- *Extreme* years like 2022 will become *average* years
- Hose pipe bans and visibly bursting pipes … PR issues

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So, what can we do?

Identify vulnerable regions

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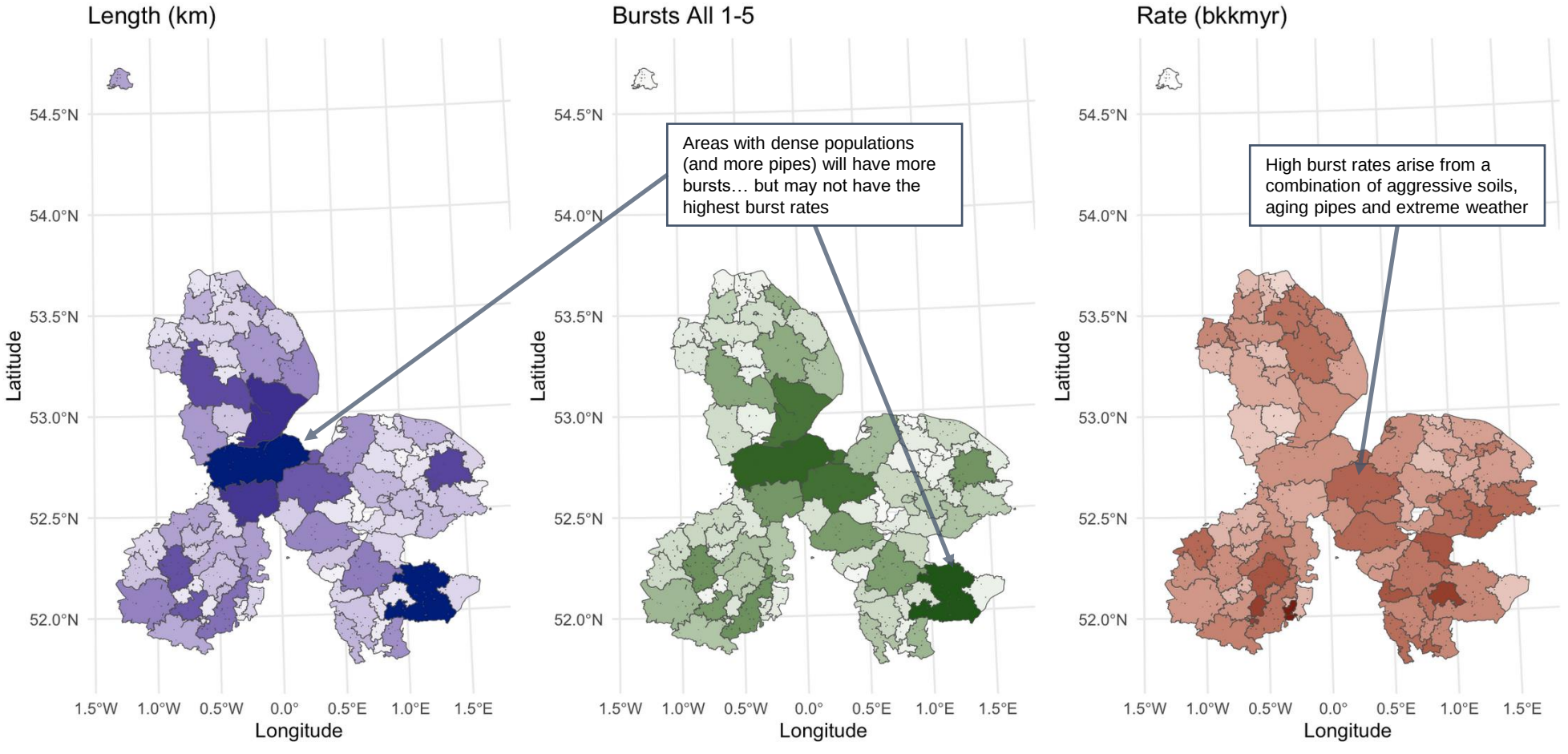

Identify vulnerable regions and assets

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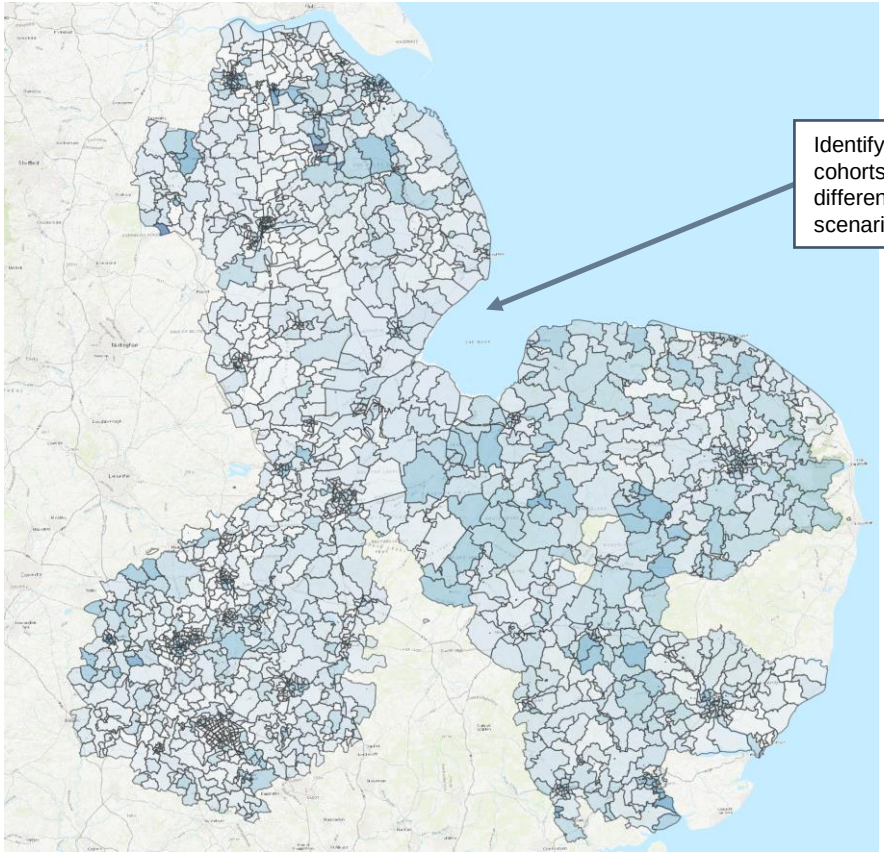
Identify ”at risk” assets under current and future weather conditions.

Help guide prioritisation for interventions



Identify DMAs and pipe cohorts most at risk under different weather scenarios

Identify high risk assets

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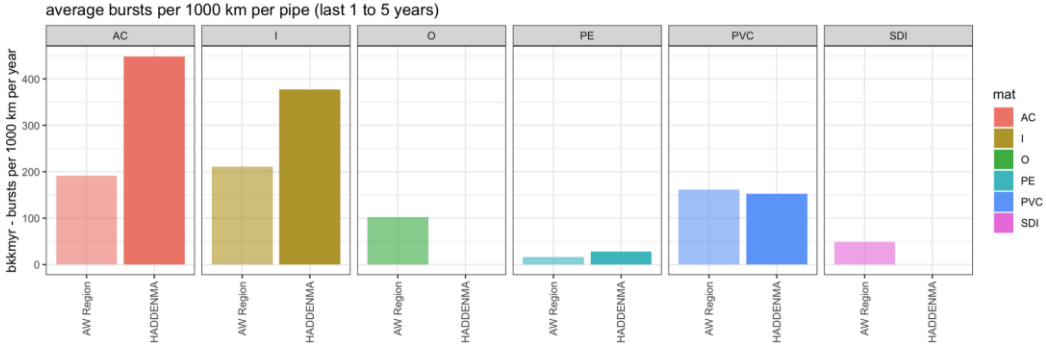
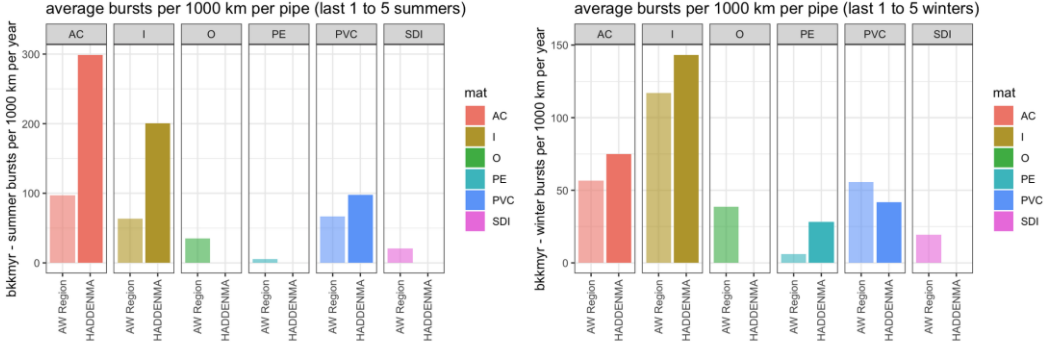
Rate of bursts comapared to the Anglian regional average

Here we compare the performance of particular pipes in this DMA with the whole population of pipes in the Anglian Region. This graph looks at the rate of bursts per 1000 km pipe (over the last 5 years) for all months of the year.



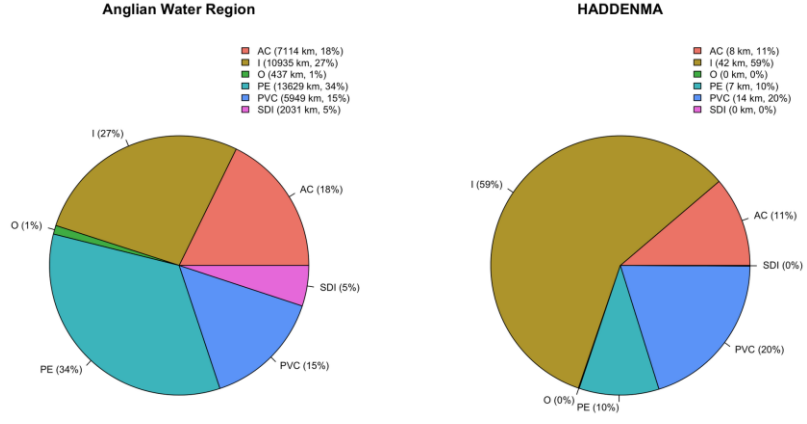
Seasonal comparisons

Some DMAs have more issues in the summer, and others more in the winter. Here we compare performance with the rest of the region for both summer and winter.



Pipe Materials in HADDENMA

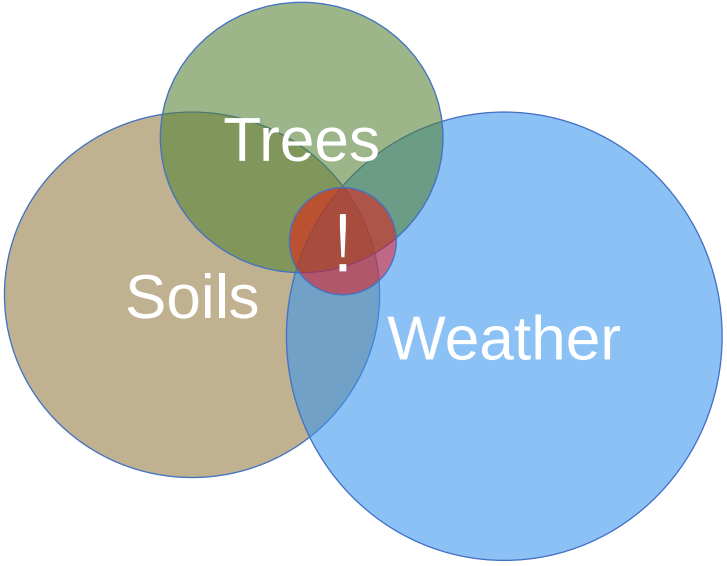
In HADDENMA, the most common pipe material is Iron (59%) and the second most common is PVC (20 %).



Prioritise asset replacements based on historic performance and coming climate risks

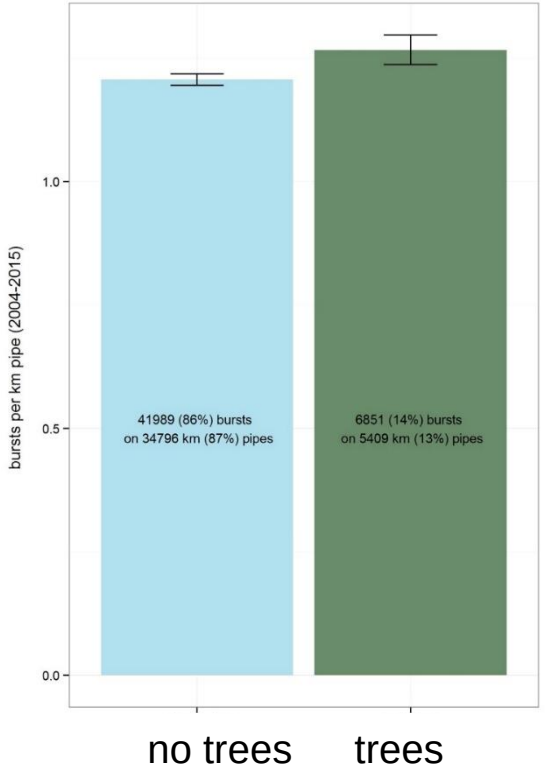
are there trees nearby?

MapleSky Environment & Infrastructure



are there trees nearby?

MapleSky Environment & Infrastructure



trees & soil – critical

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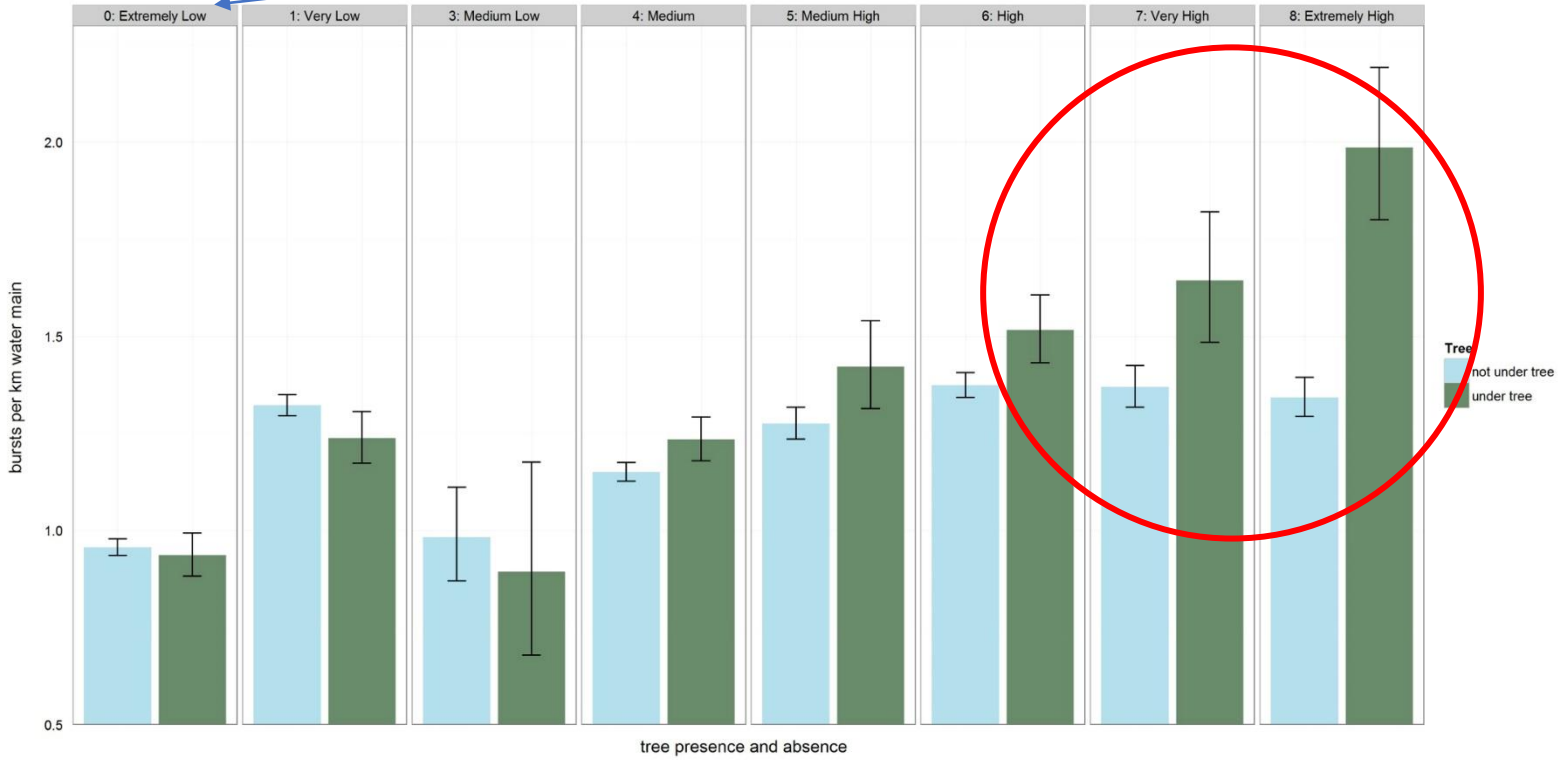
sandy soils

clay soils



Data copyright © Cranfield University, 2017; Anglian Water, 2017

Raise awareness of climate impacts

MapleSky Environment & Infrastructure

1. We are already seeing climate impacts & **these will get worse**
2. **Industry-wide current investment levels are not enough** to ensure resilience
3. Models can help ensure limited resources **target the right areas**

Connect on LinkedIn

A personal call to action

MapleSky Environment & Infrastructure

You are a key part of this process!

1. **Pre-identify coming climate risks you face**
2. Start by quantifying **current weather impacts on your network**
3. **Engage in conversation** with others about this!

Connect on LinkedIn

MapleSky
Environment &
Infrastructure

Contact details

If you have any **follow on questions**,
would like to **explore an aspect of this in more detail**…
or just **want to touch base** then do scan here to connect with me on LinkedIn.

Or reach out via:

tim.farewell@maplesky.co.uk

07442 238 947

maplesky.co.uk

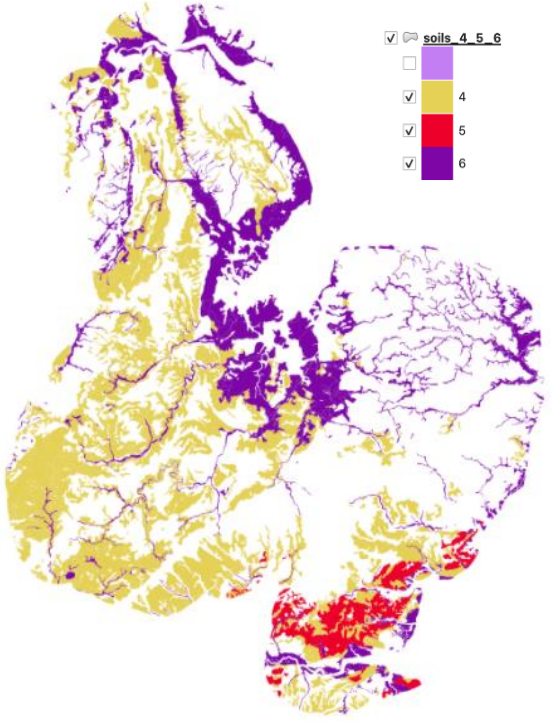
Thanks!

https://www.linkedin.com/in/timothy-farewell-26557116/

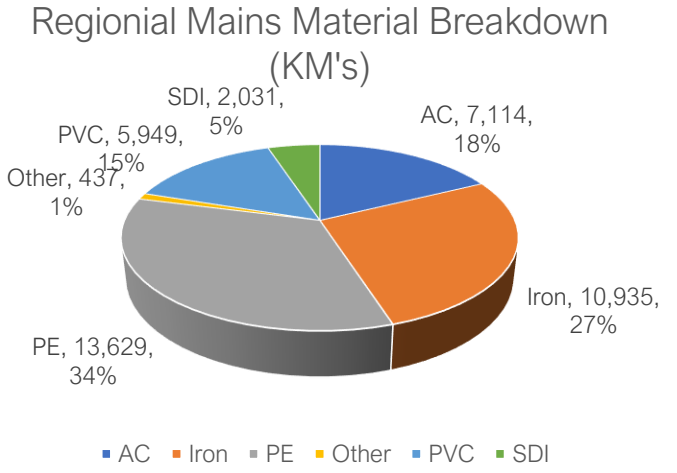
How climate change will impact our networks: Modelling the relationships between soil, weather and bursts

Annual Leakage Conference – Dec 5th 2023
Rich Fielding

The Anglian Water Region



SHRINK_SWELL	DESCRIPTION	SOIL CONDITIONS
1	very low	Hard rock, gravel, or sandy or coarse loamy soil
2	low	Heavy loam textures
3	moderate	Clayey overlying non-swelling slay, shale or marl
4	high	Clayey overlying swelling or lake clay
5	very high	Clayey overlying brownish swelling clay
6	high*	Alluvial clay or peat with very high shrink-swell potential that is realised with drainage to > 2m



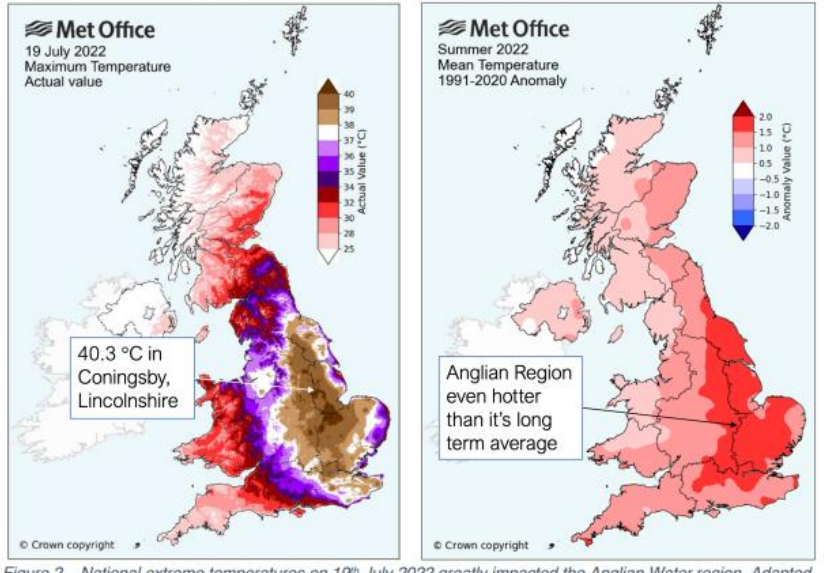


Figure 2 – National extreme temperatures on 19th July 2022 greatly impacted the Anglian Water region. Adapted from Met Office data.

Impacts of Pipe Failure

Our purpose

Our purpose is to bring environmental and social prosperity to the region we serve through our commitment to **love every drop.**

What we do

Water is our business.
We handle with care, and we don't cost the earth.

Our values

Together we...
- Build trust
- Do the right thing
- Are always exploring

Water quality contacts
Taste, odour, appearance per thousand customers

Leakage
Megalitres per day

Water supply interruptions
Minutes per household

CMeX (Customer measure of experience)
Customer Experience Survey (non contact)

Customer Service Survey (contact)

Pollution incidents
Number per 10,000km of sewer

Mains repairs
Repairs per 1,000km

Pipe Criticality - Project on a Page

Likelihood of Failure (LoF) Models

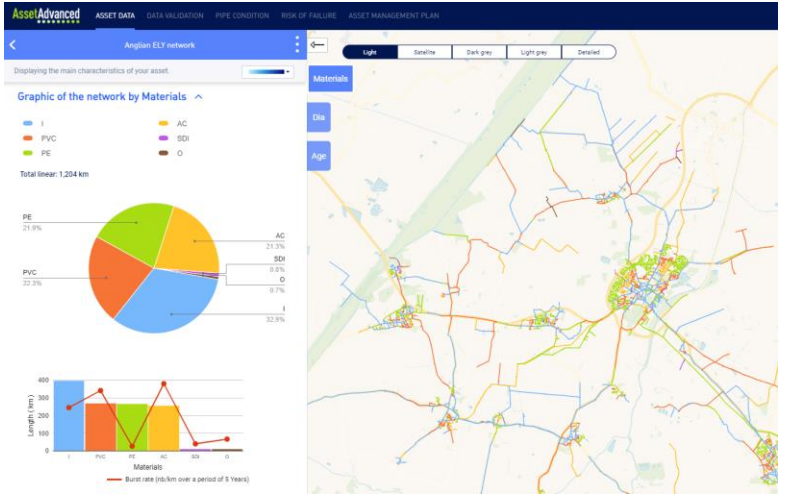
Consequence of Failure (CoF) Models

Condition Assessment

Root Cause Analysis (RCA)

Performance Reporting

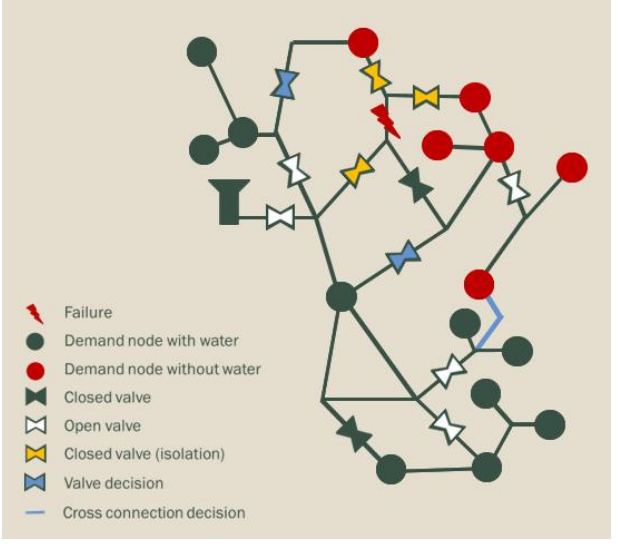
Optimisation



Tactical Utilisation

Enhanced response;

- **Optimised sensor deployment and analysis**
- **Accelerated repair**
- **Response planning**
- **Resource planning**
- **Democratised data and insight for daily decision making**



Strategic Utilisation

Prevention

- Alignment of capital investment to improve outcomes
- Plan to replace ~6,000km of our most climate vulnerable mains between 2025 and 2060

Collaboration Opportunity?

Rich Fielding – rfielding@anglianwater.co.uk

Questions?

Smart resilience (an SES Water case study)

Tanya Dady
Director and Co-founder
Dayworth Consulting

Daniel Woodworth
Director and Co-founder
Dayworth Consulting

DAYWORTH CONSULTING
SMART WATER SOLUTIONS

ses WATER

Smart Resilience

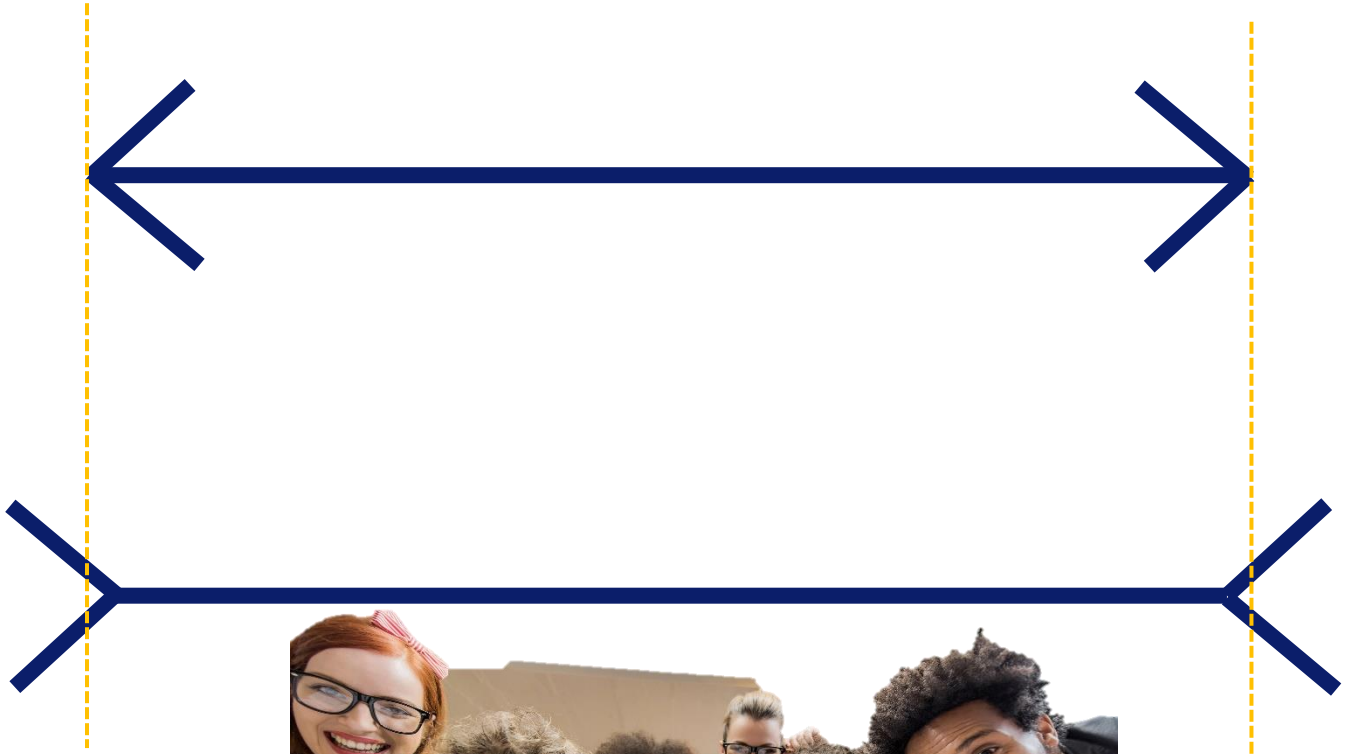
- an SES Water case study -

Tanya Dady & Daniel Woodworth
DAYWORTH CONSULTING

iDMA
SES Water's Intelligent Supply Network

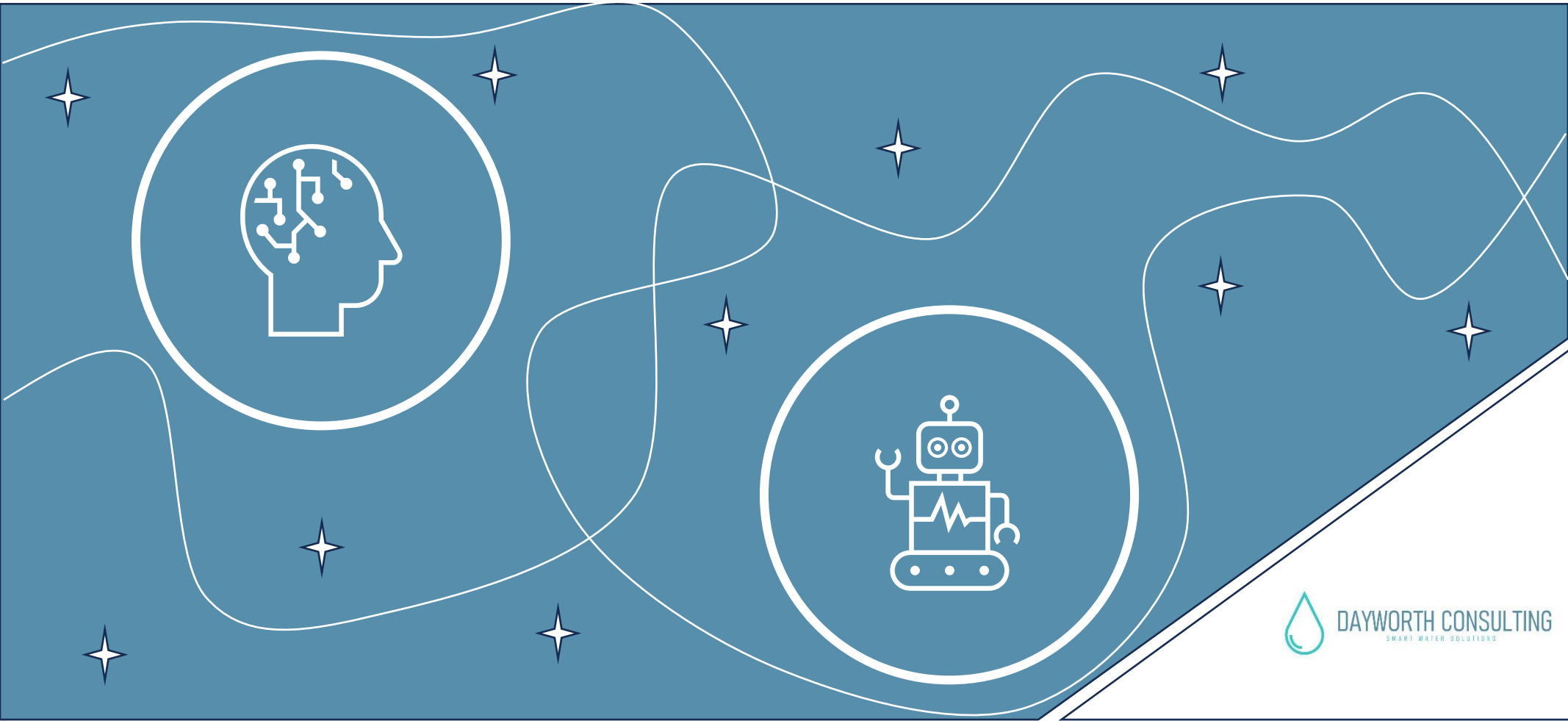
Question…

The Answer…



DAYWORTH CONSULTING
SMART WATER SOLUTIONS

The next 20 years



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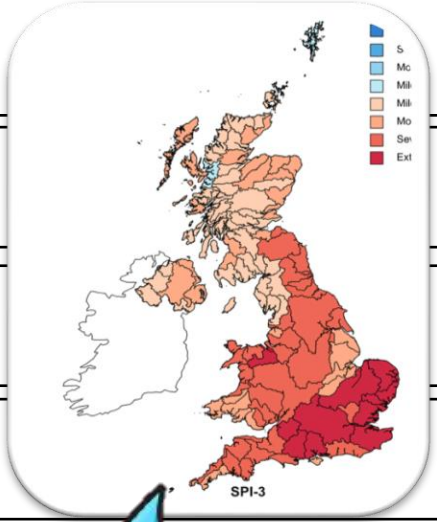
SMART WATER SOLUTIONS

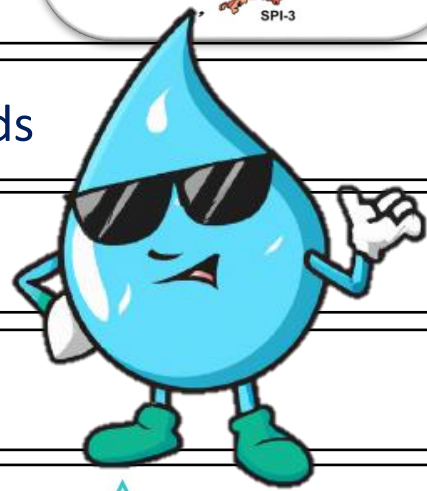
Perfect Weather

- **Drizzle** [**driz**-uhl]
  - To rain gently and steadily in fine drops.
  - A very light rain
  - Meteorology. Precipitation consisting of numerous minute droplets of water less than 0.02 inch (0.5milimeters) in diameter.
  - **Perfect all year-round weather for leakage managers**

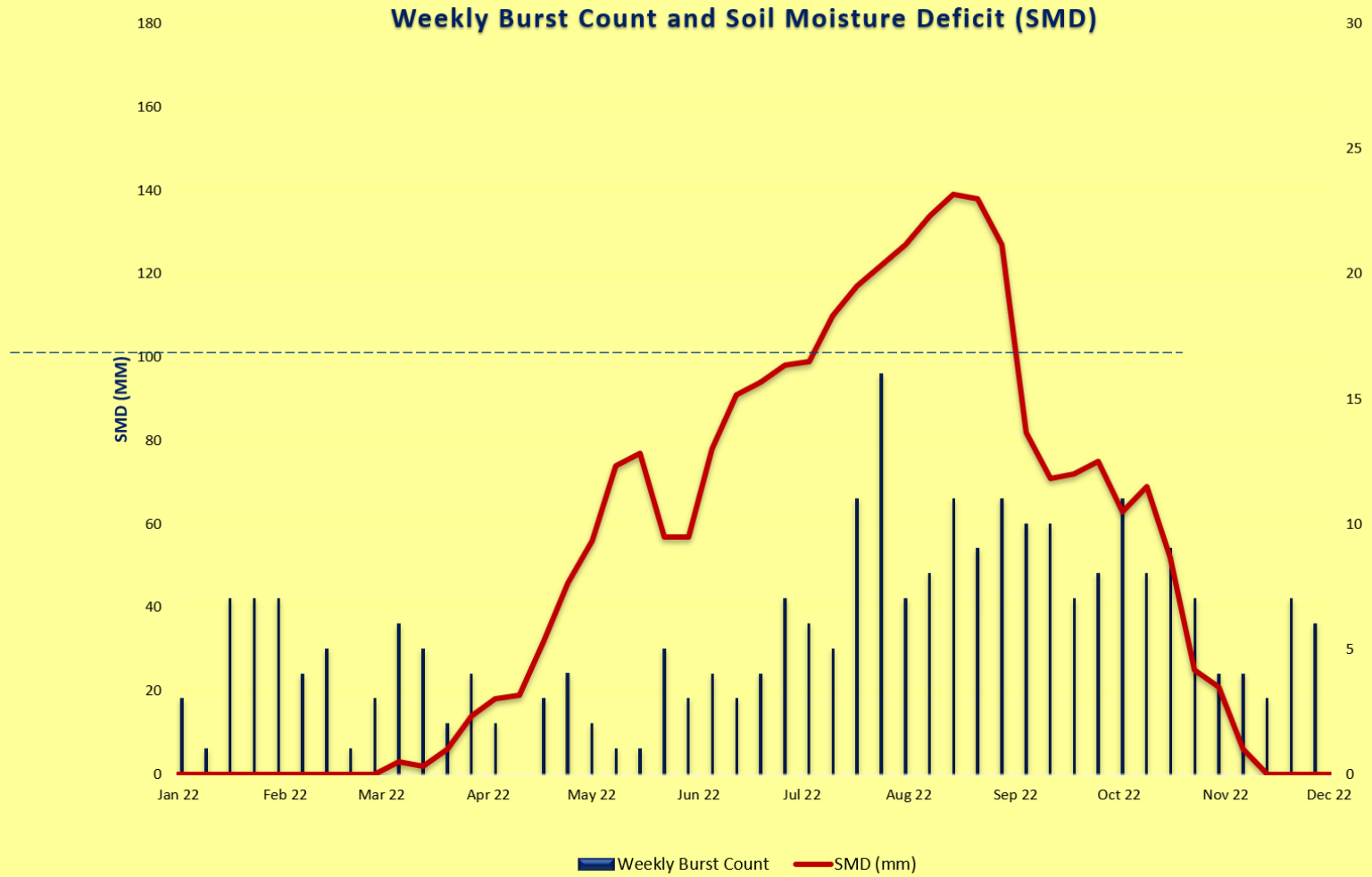
Summer

- The summer of 2022 was one of the hottest and driest on record.
- 2022 was the fourth hottest summer since records began in 1884
- UK record breaking 40.3 °C temperature recorded
- National record high night-time temperatures recorded
- 46 locations across the UK exceeded previous daily temperature records
- Melting runways at airports
- Extended dry spell in the pre-summer months
- Soil Moisture Deficit (SMD) >130mm

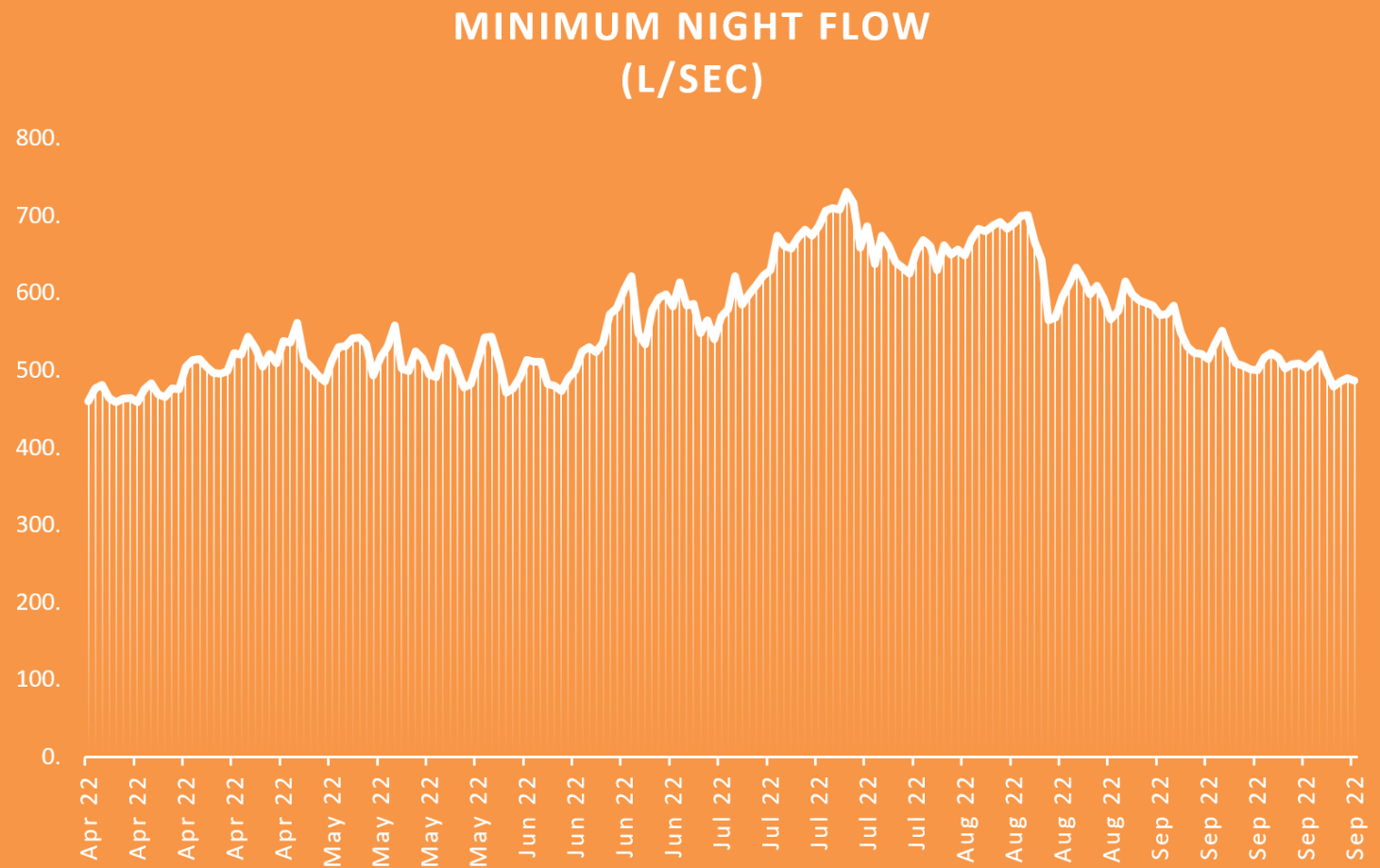




Summer: SMD

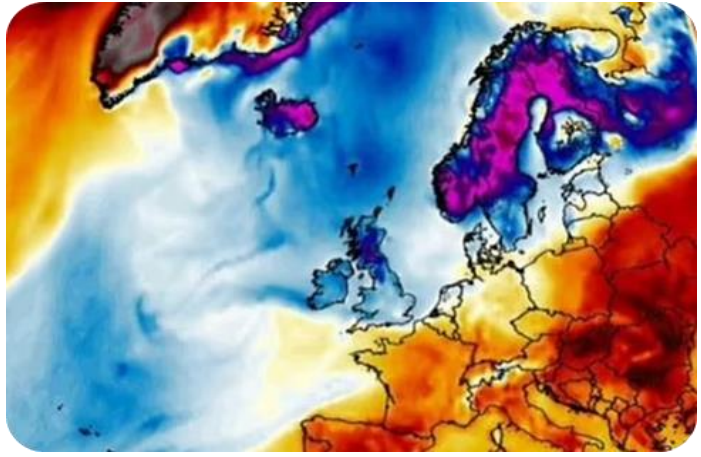

Weekly Burst Count and Soil Moisture Deficit (SMD)
SMD (MM)
180
160
140
120
100
80
60
40
20
0
30
25
20
15
10
5
0
Jan 22
Feb 22
Mar 22
Apr 22
May 22
Jun 22
Jul 22
Aug 22
Sep 22
Oct 22
Nov 22
Dec 22
Weekly Burst Count
SMD (mm)

Summer: The First Real Test

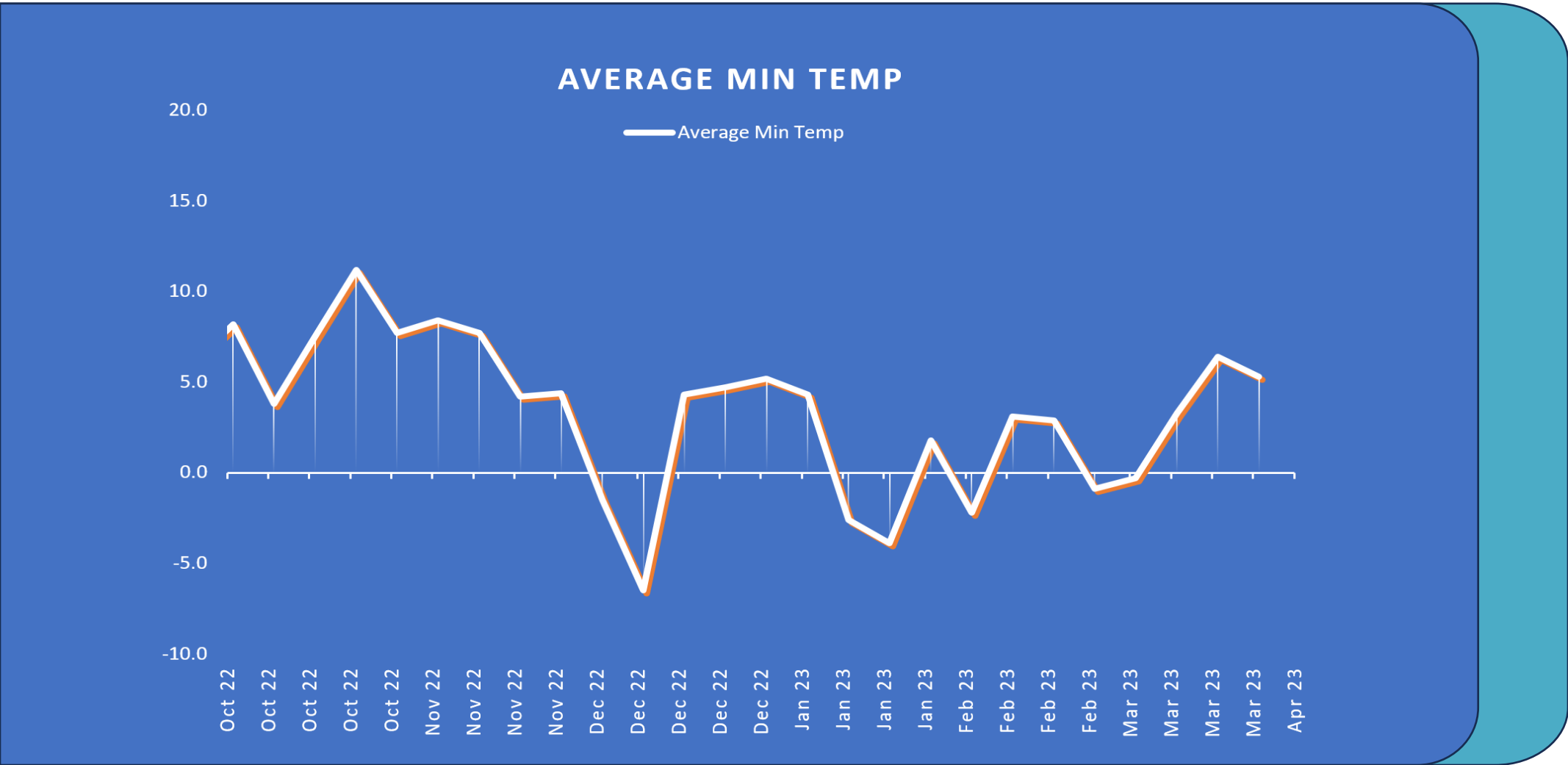


Winter:

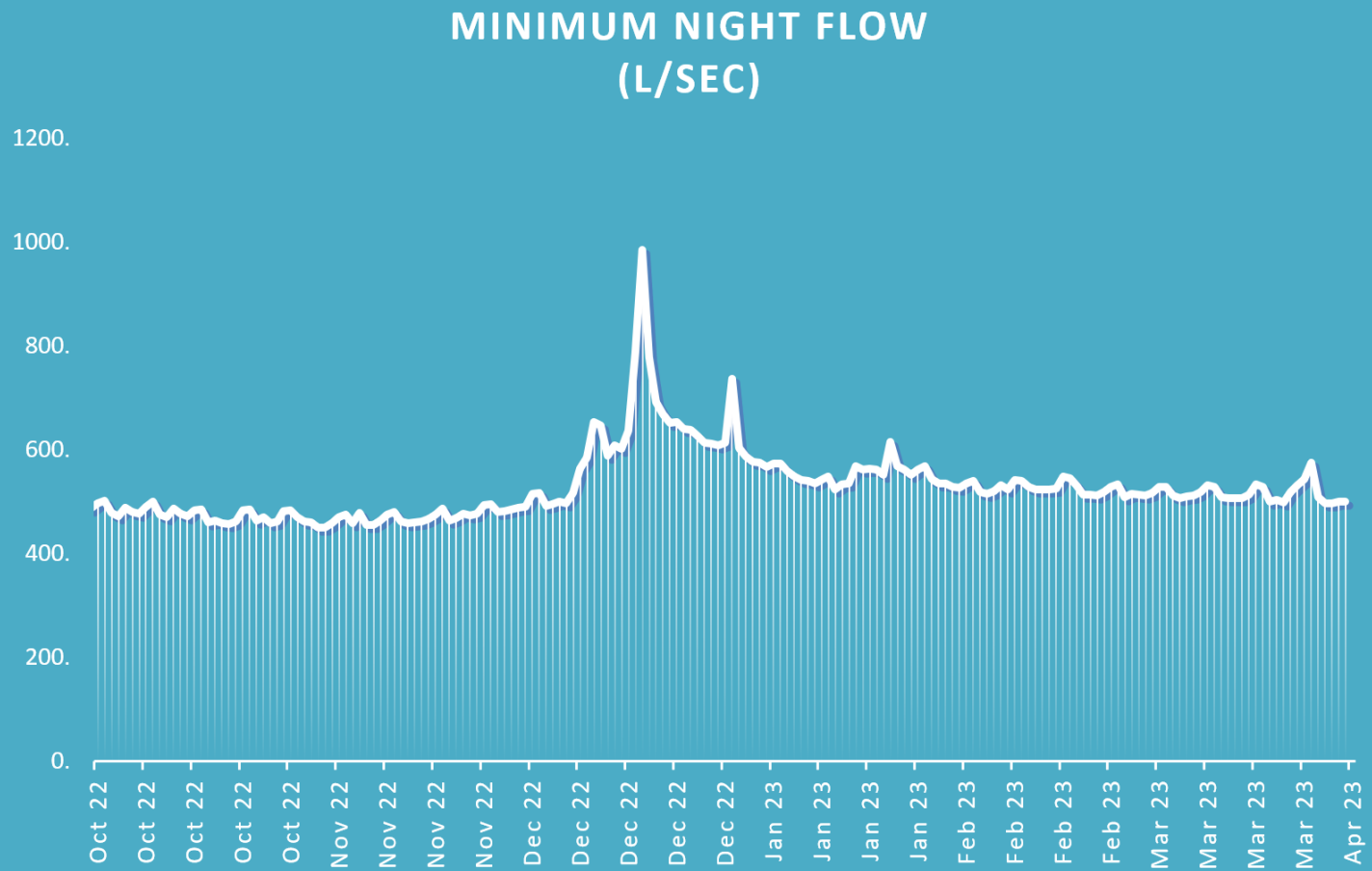
- Exceptionally harsh conditions
- Arctic air mass over the UK
- Unfavourable jet stream position
- Temperature fluctuations
- Freeze-thaw cycles
- Worst leakage outbreak on record



Temperature & MNF

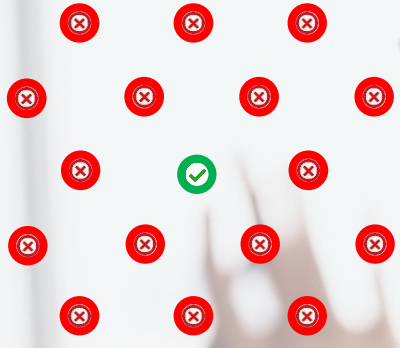


Temperature & MNF

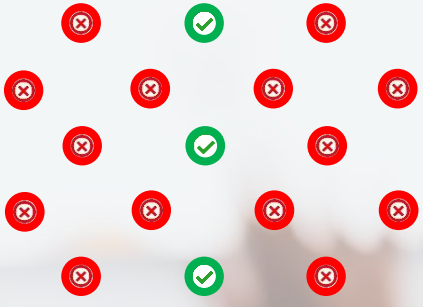


2022/23 Ofwat Common Performance Commitments

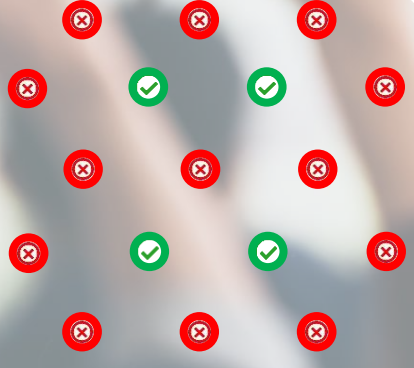
HANDS UP IF…



Bursts



Water Quality



Supply Interruptions

Leakage

‘This is the future’: the Oxfordshire village living without running water

Residents of Northend, forced to rely on bottled water and a tanker, find their lives upended in the heatwave

Water companies are asking for almost double the amount of the previous five-year period © Cate Gillon/Getty Images

NEWS

Water company exec bonuses ‘up 21% despite sewage scandal’

sewage discharges’

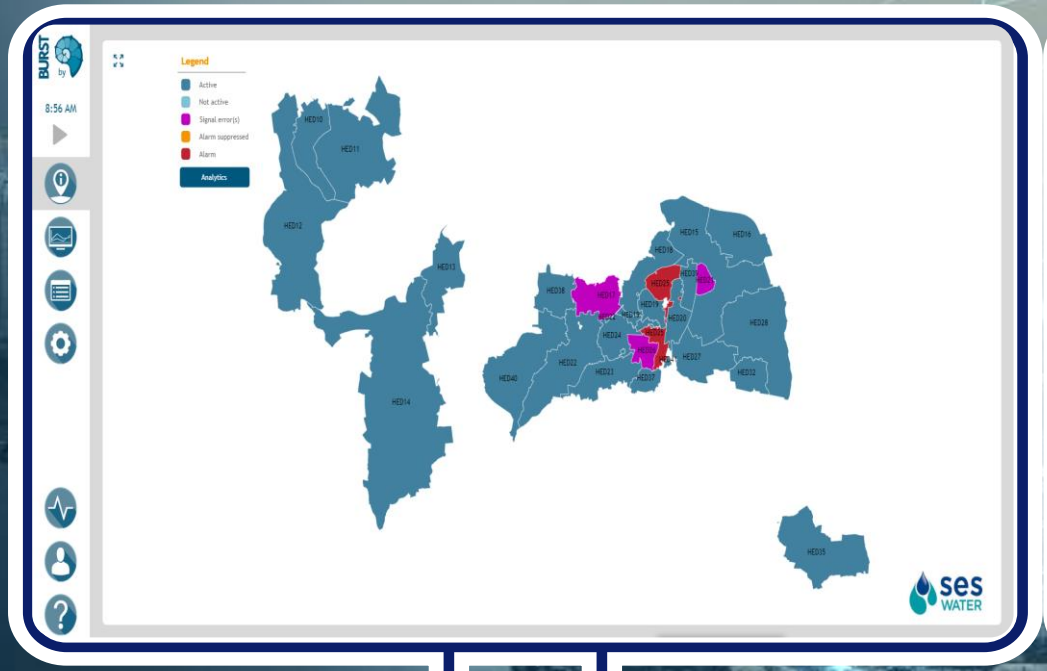
weeks - before

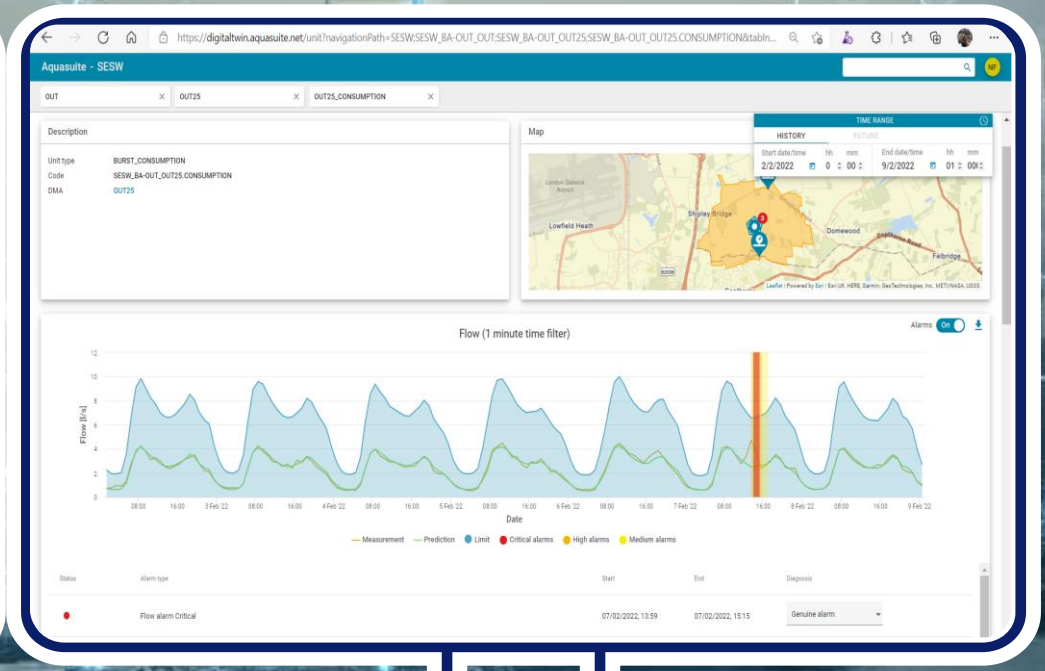
iDMA

SES Water's Intelligent Supply Network

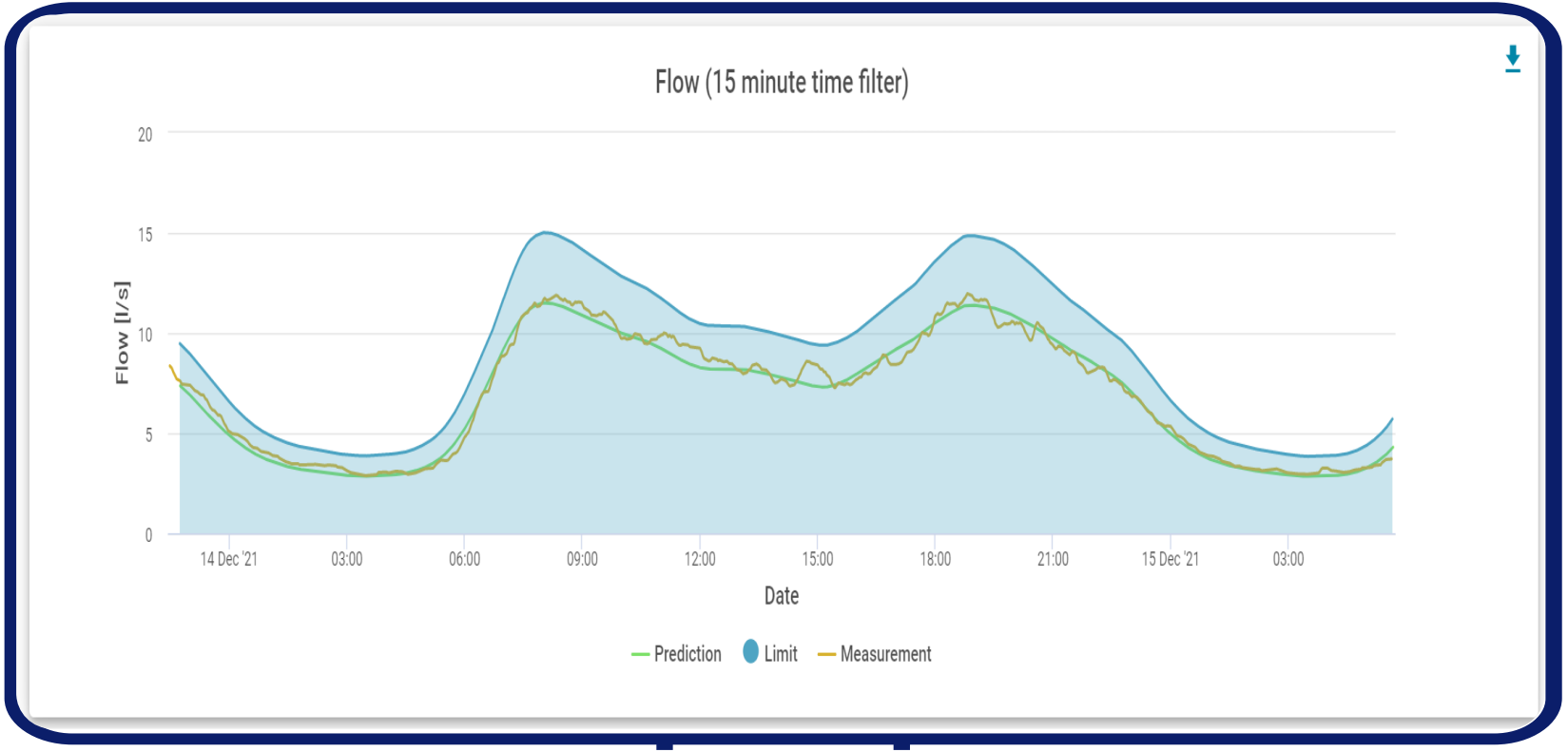
iDMA

SES Water's Intelligent Supply Network



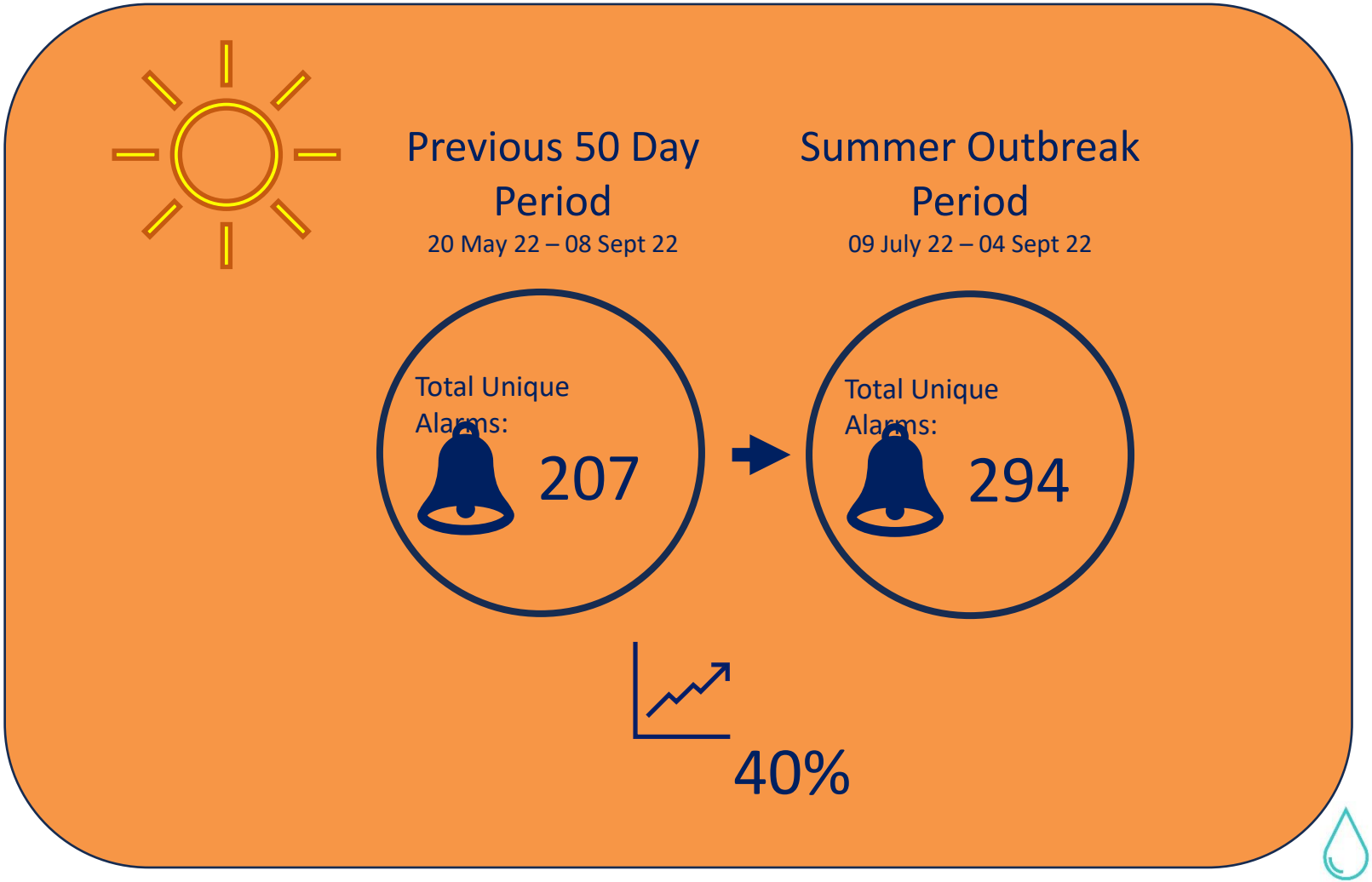


How iDMA Works

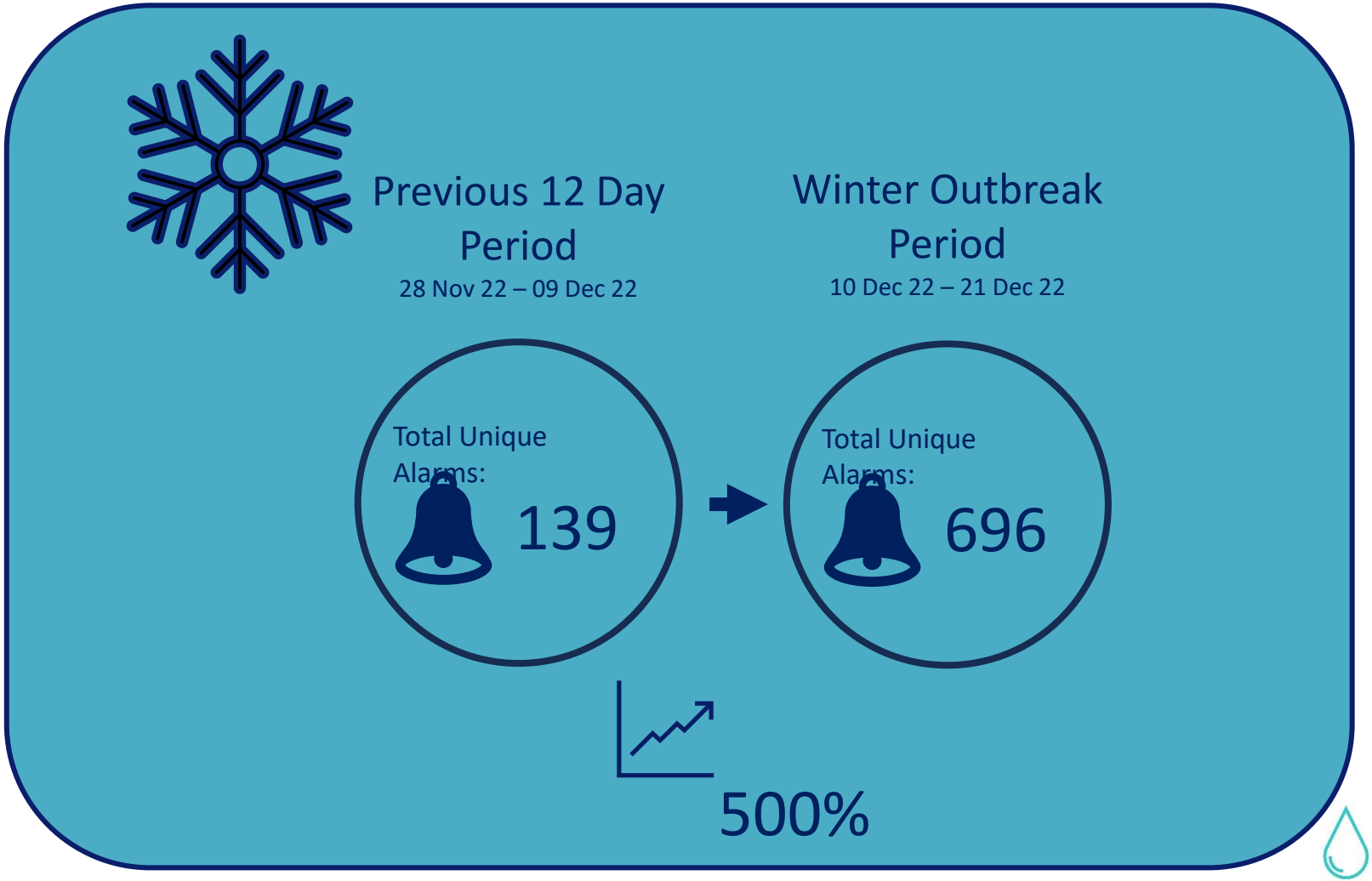


1. **Measurement** — **1 minute data, every 15 minutes**
2. **Prediction** — **Learned profiles**
3. **Limit** — **Historical data – predictions – sensitivity factors**

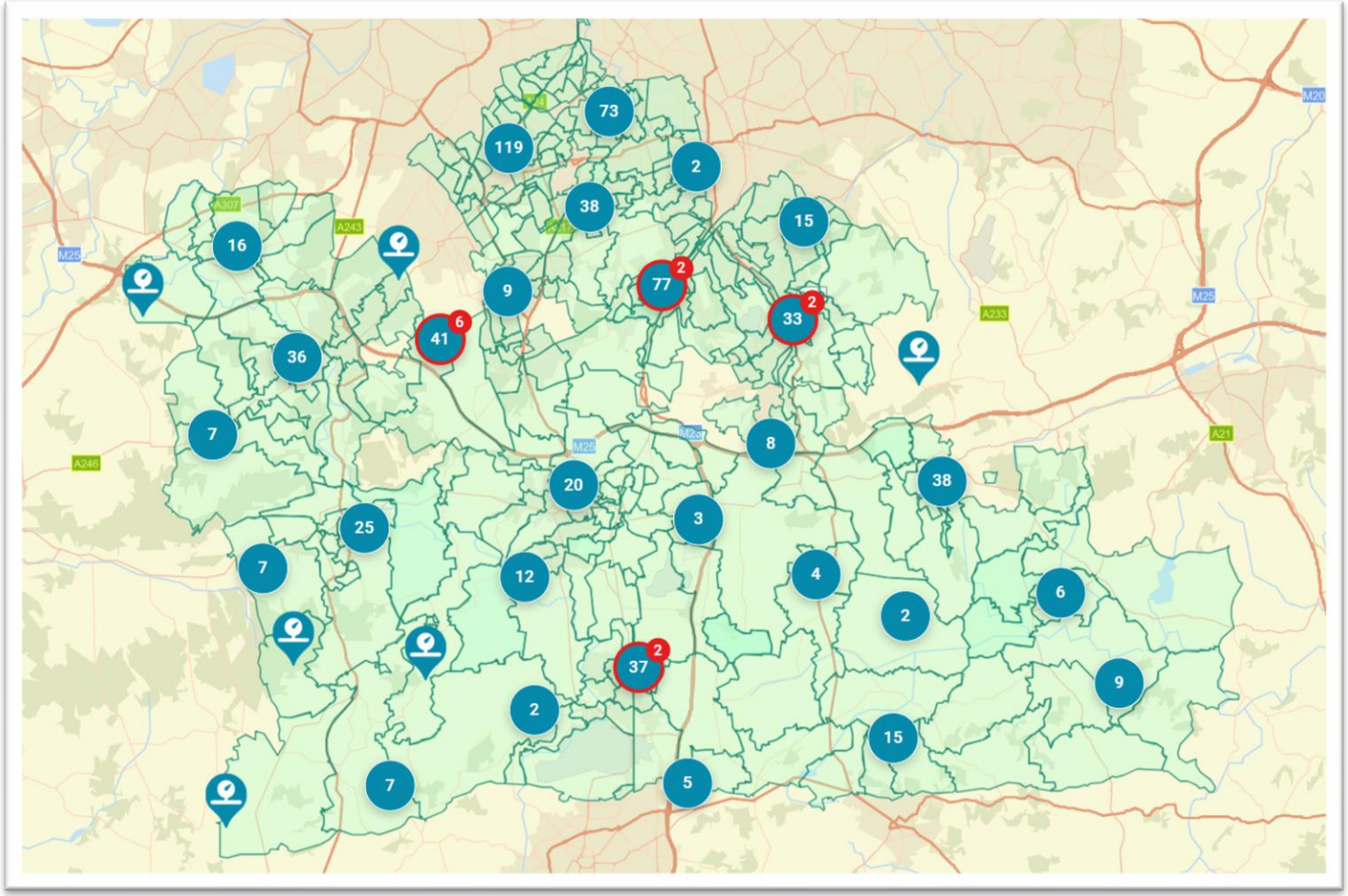
Alarms During Summer Outbreak



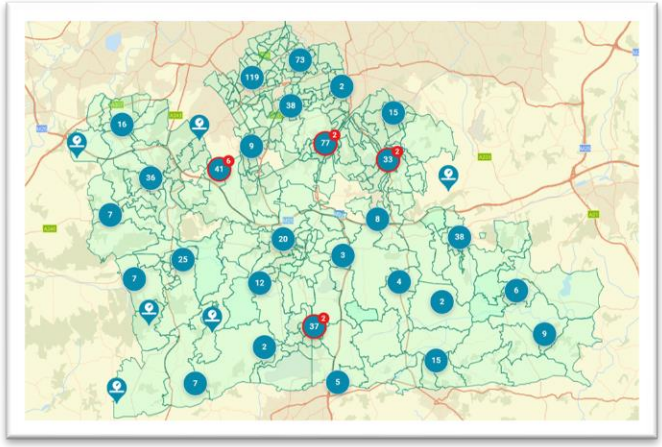
Alarms During Winter Outbreak

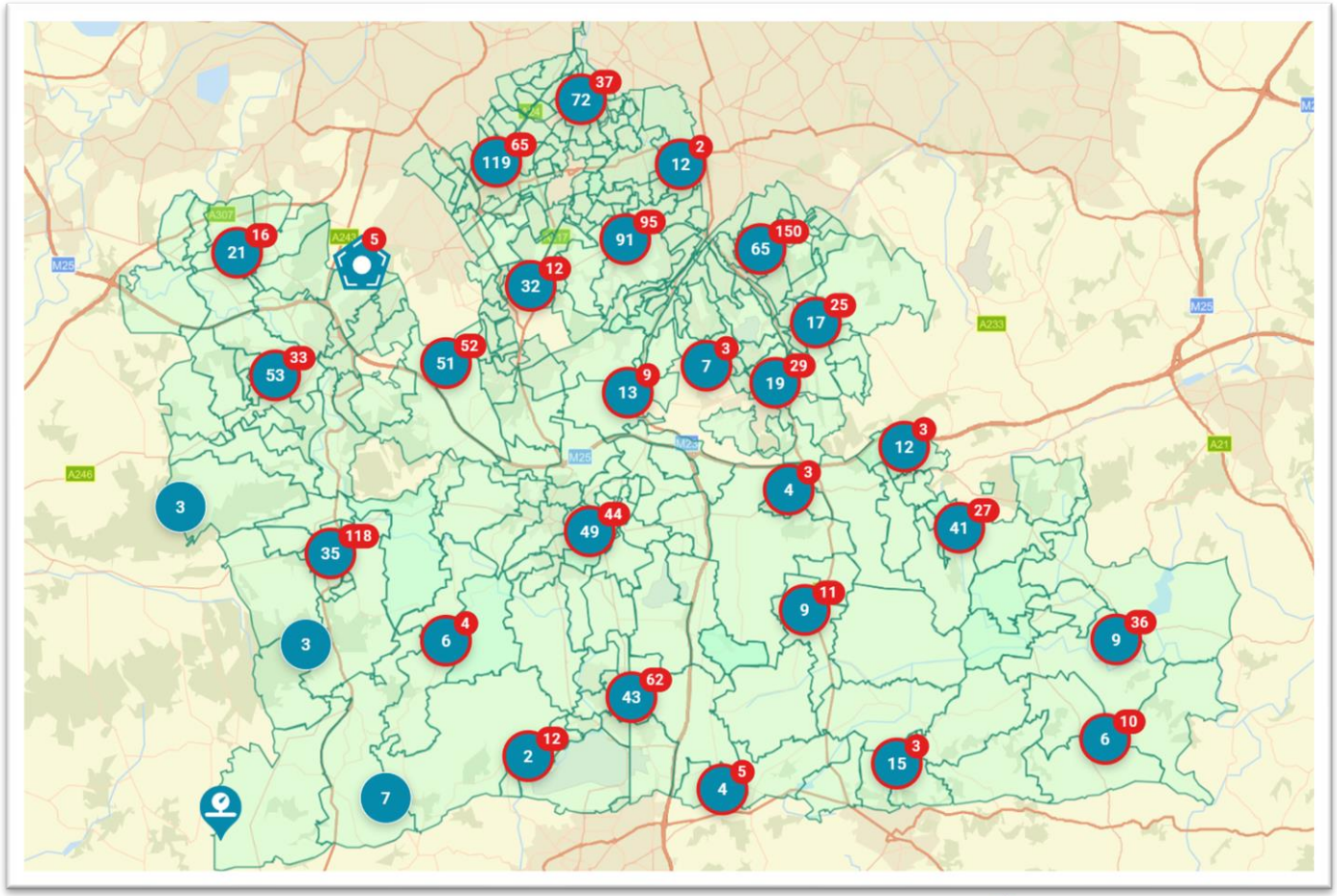


Leak Awareness

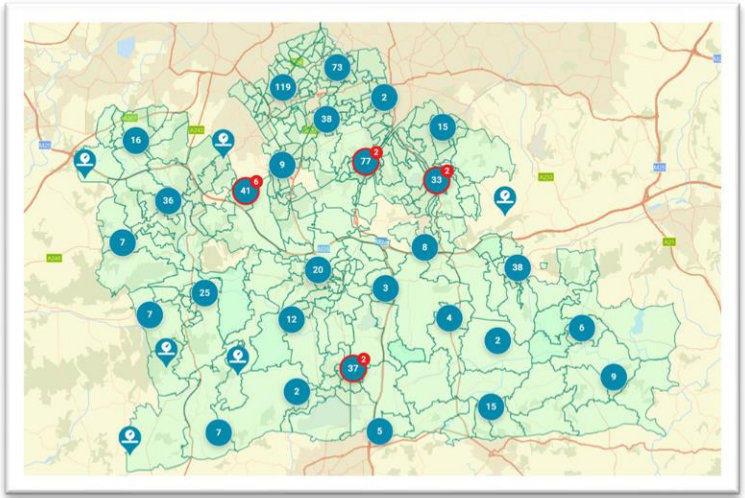


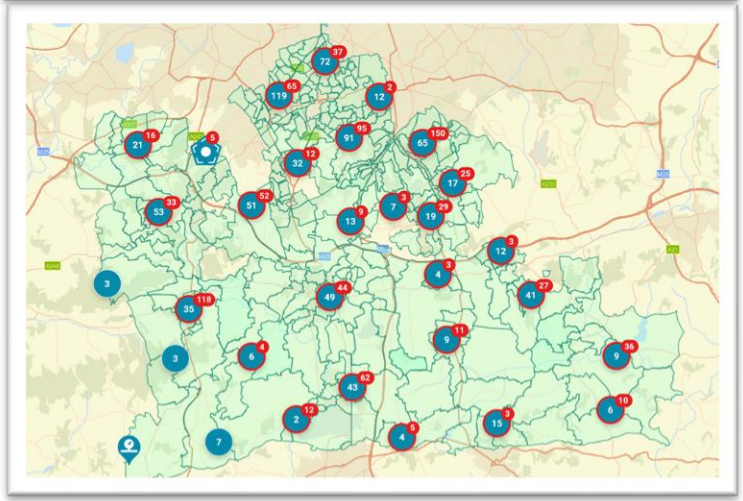
Leak Awareness





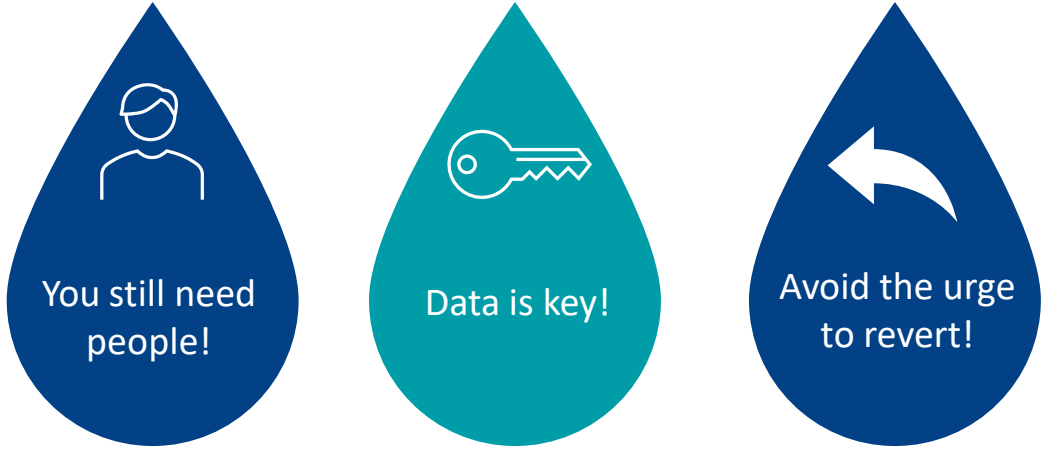
Leak Prioritisation





Alarm level	Alarm type	Location	Anomaly	Start
●	Flow alarm High	LAN38_CONSUMPTION	0.74 -	26/12/2022, 01:15
●	Flow alarm High	PUD12_CONSUMPTION	0.55 -	26/12/2022, 01:13
●	Flow alarm High	WAR28_CONSUMPTION	2.66 -	26/12/2022, 00:55
●	Flow alarm High	BKM11_CONSUMPTION	0.43 -	26/12/2022, 00:23
●	Flow alarm Critical	HOW25_CONSUMPTION	1.28 -	26/12/2022, 00:12
●	Flow alarm High	HOW25_CONSUMPTION	0.95 -	25/12/2022, 23:57
●	Flow alarm Critical	OUT20_CONSUMPTION	1.32 -	25/12/2022, 23:50
●	Flow alarm High	OUT20_CONSUMPTION	1.13 -	25/12/2022, 23:35

Reflection is Important



Be better next time

Trust the Process

- iDMA alarmed to EVERY significant leak
- Small proportion of false alarms (~10%)
- Without iDMA we would not have known about many of the bursts until the following morning
- Only 48 properties had a supply interruption over 3 hours (Avg. duration = 3.8hrs)
- No supply issues or loss of major storage
- No alternative water needed to be deployed

ses
WATER
iDMA
TESTED

Our Challenge to the Industry…

DAYWORTH CONSULTING
SMART WATER SOLUTIONS

DAYWORTH CONSULTING

SMART WATER SOLUTIONS

Questions?

The potential of AI for supporting resilience & leakage management – update on learnings from the Safe Smart Systems project

Matthew Hughes

Smart Systems Strategy Manager

Anglian Water

Jenny Wright

Strategy & Transformation Consultant

Jacobs

Safe Smart Systems

Matt Hughes

Smart Systems Strategy Manager

Anglian Water

Jenny Wright

Senior Associate Director & Transformation lead

Jacobs

5th December 2023

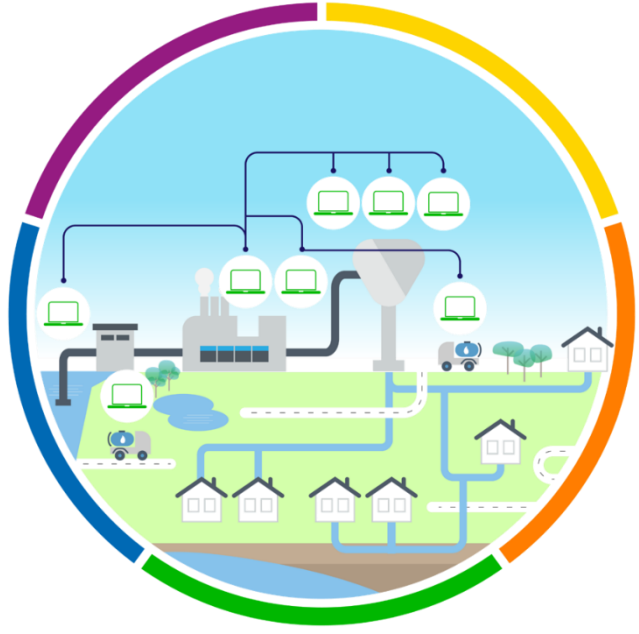
What are we covering?

- Background and overview of the project
- Progress on the project to date
- Areas of development
- Challenging our operational environment

What's the project about?

Solving tomorrow's problems and developing the capability to manage emerging change in our world

A safe, smart system embeds resilience from source to tap through optimising and automatically re-configuring based on predicted or detected faults and real-time risk profiles. It is secure by design and can respond to emerging needs as well as those of today.



Water Breakthrough Challenge

Who's involved

Our Vision and Mission

VISION

We have built and are operating an automated, connected system that delivers a clean, sustainable supply of water for future generations

MISSION

To develop and evidence a **scalable and adoptable safe smart system** within Ely (Anglian Water Region); with the **capability and culture to operate; that is validated by the industry** and provides the path which can be followed by others to embed resilience and benefits for customers, society and the environment.

What's involved

Breaking it down the key components

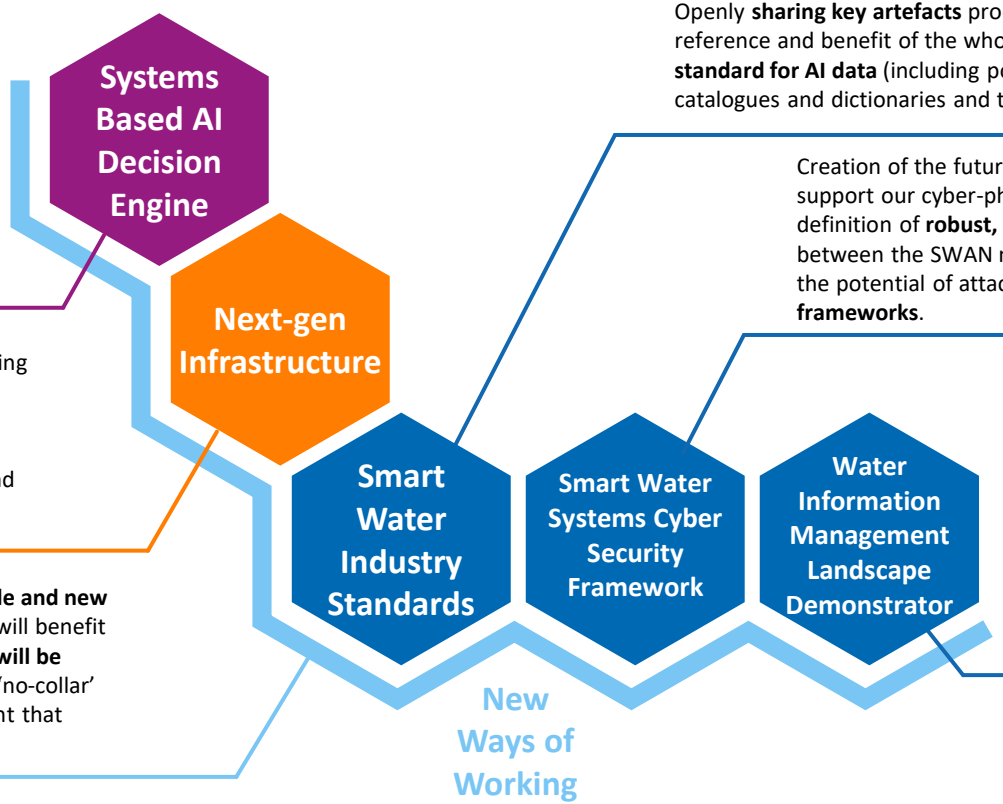
What's involved

Breaking it down the key components

System models **simulate multiple responses** to an anomaly or external change and selects / **optimises recommended setting** changes against **customer service and environmental impact criterion**.

A key enabler to our AI Decision Engine is deploying **automated physical infrastructure** and **smart OT hardware** like valves, pumps, edge processing & computing, in the **right areas.** This provides automated protection of service to customers and the environment.

The project partners **collaborate and work in agile and new ways** to deliver transformational outcomes that will benefit the wider water industry. **New ways of working will be embedded** within operational teams to create a 'no-collar' workforce - a hybrid human-machine environment that leverages the unique strengths of both.



Openly **sharing key artefacts** produced from our digital delivery for the reference and benefit of the whole water sector. It includes a **minimum asset standard for AI data** (including policies/standards for data quality), glossaries, catalogues and dictionaries and technology **reference architecture**.

Creation of the future **cyber security standards** required to support our cyber-physical infrastructure. This includes definition of **robust, repeatable risk models**, drawing alignment between the SWAN model and IEC62443 as well as overlaying the potential of attacks to the future model on **MITRE frameworks**.

Representations of our built solution and the entirety of the Water Industry Information Management Landscape. It includes a reference architecture that encompasses data and technology. Also, a **deployment strategy for next-gen infrastructure** which will have significant impact on costs and be valuable for the wider industry.

Outcomes and Benefits

Why develop a Safe Smart System

Environment

- Reduce leakage and water losses
- Improve management and planning of water resources including sustainable abstraction
- Expedite the industry-wide net zero carbon goal by reducing our carbon footprint

Operations

- Increase proactive maintenance
- Improve operational resilience, response and recovery to short term system shocks and future stresses
- Inform targeted asset planning — focus investment in the most beneficial areas

Wider Industry

- Develop an industry 'how-to' playbook
- Develop of a Water Information Management Landscape (IML) which will enable sharing of interoperable data between water and other infrastructure companies

Customers

- Reduce bursts and service-related issues including water supply interruptions and low pressure
- Protect public health by reducing water quality anomalies

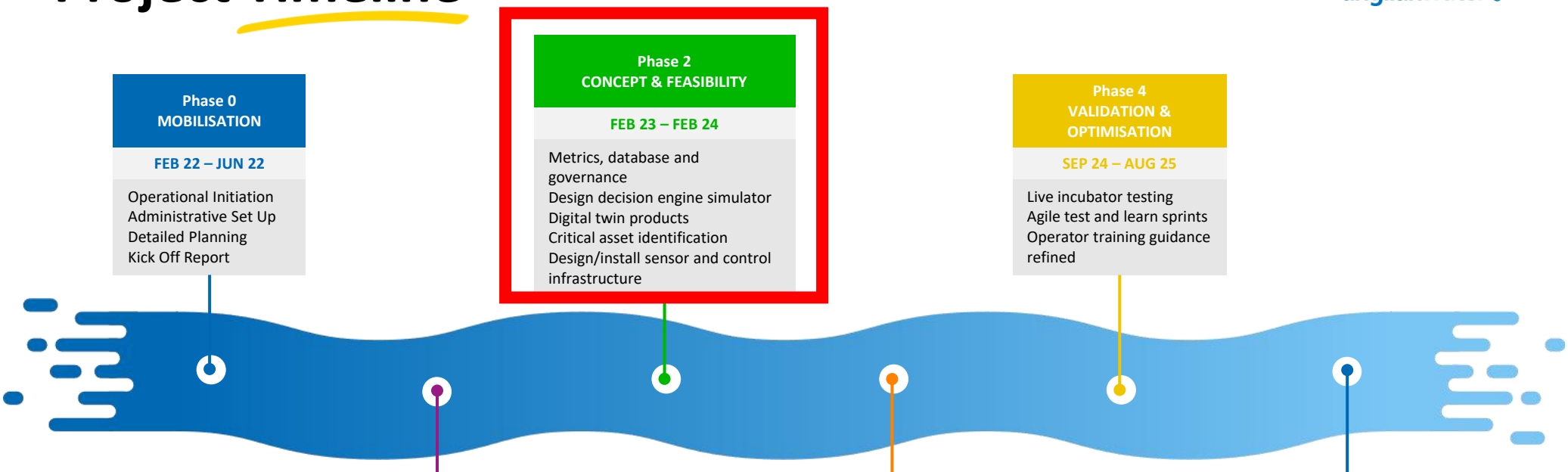
Our ways of working

- Understand the value of our virtual assets and have confidence in the data
- Work more efficiently, making informed, complex decisions based on data and insight

Our people

- Have greater visibility of system performance
- Have time to focus on how to further optimise the system and enhance customer service
- Have less surprises and can focus on prediction and prevention rather than reactive firefighting

Project Timeline



Phase 0
MOBILISATION

FEB 22 – JUN 22

Operational Initiation
Administrative Set Up
Detailed Planning
Kick Off Report

Phase 1
INITIAL RESEARCH

JUL 22 – APR 23

Baseline physical infrastructure, system performance and data structure
User research
Operator use-case development
Data quality improvement
Reference architecture

Phase 2
CONCEPT & FEASIBILITY

FEB 23 – FEB 24

Metrics, database and governance
Design decision engine simulator
Digital twin products
Critical asset identification
Design/install sensor and control infrastructure

Phase 3
DEVELOPMENT & VERIFICATION

DEC 23 – NOV 24

Live incubator testing, advising decisions
AI analytics test and learn sprints
Operator guidance developed
Additional infrastructure installation
National IMF how-to guides

Phase 4
VALIDATION & OPTIMISATION

SEP 24 – AUG 25

Live incubator testing
Agile test and learn sprints
Operator training guidance refined

Phase 5
CLOSE OUT

SEP 25 – OCT 25

Finalise project outcomes
Publish findings
Close project

Our current development

What is the first system MVP?

- The normal state for the network should be the lowest pressure and lowest energy
- We aim to demonstrate that actionable decision making can take place at a system level
- Our first *system level MVP* will include these essential capabilities of a smart network
- Support both manual and autonomous prioritisation of events
- Leads to first autonomous deployment with a reconfigurable network

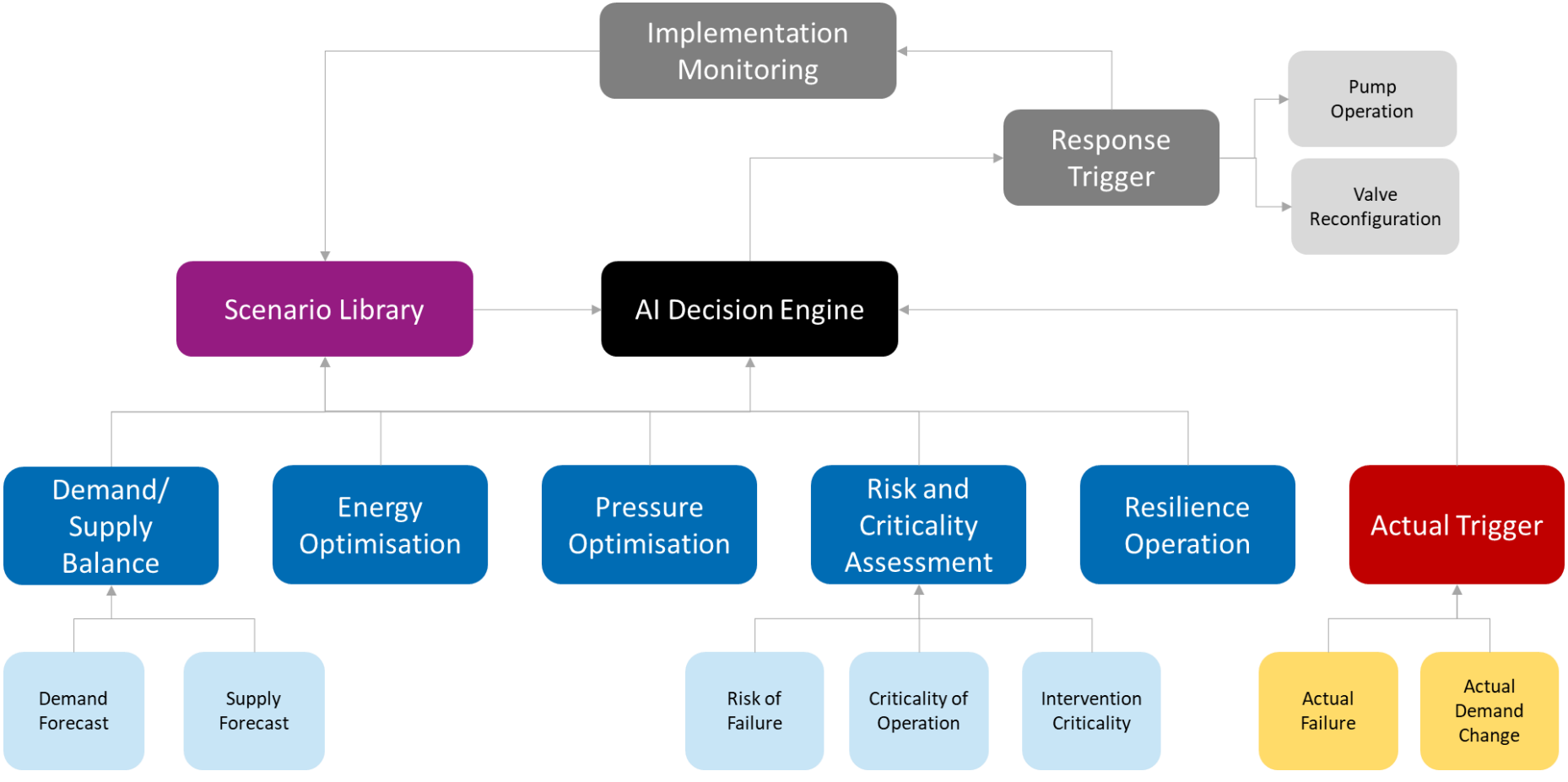
The ability to detect events (sensor or actual)

The ability to predict probable events

The ability to know the consequence of events

The ability to know how to resolve an event

High Level System Requirements



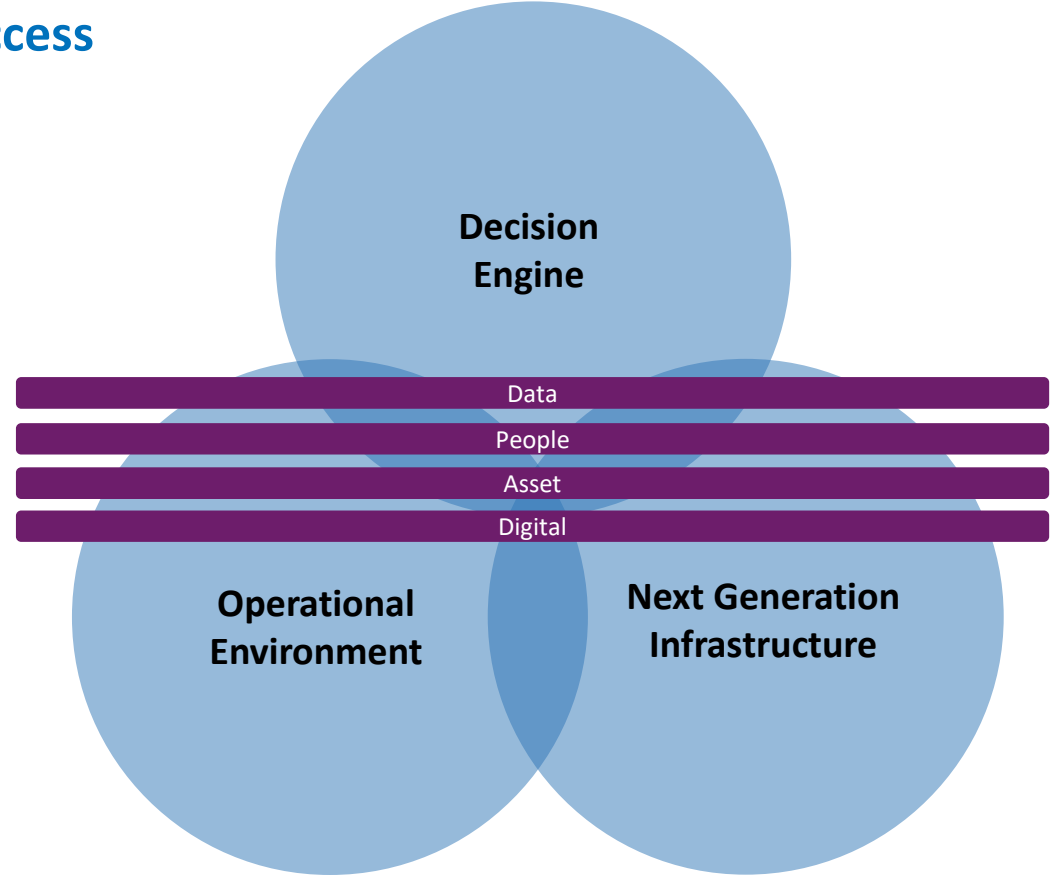
How is the project delivering?

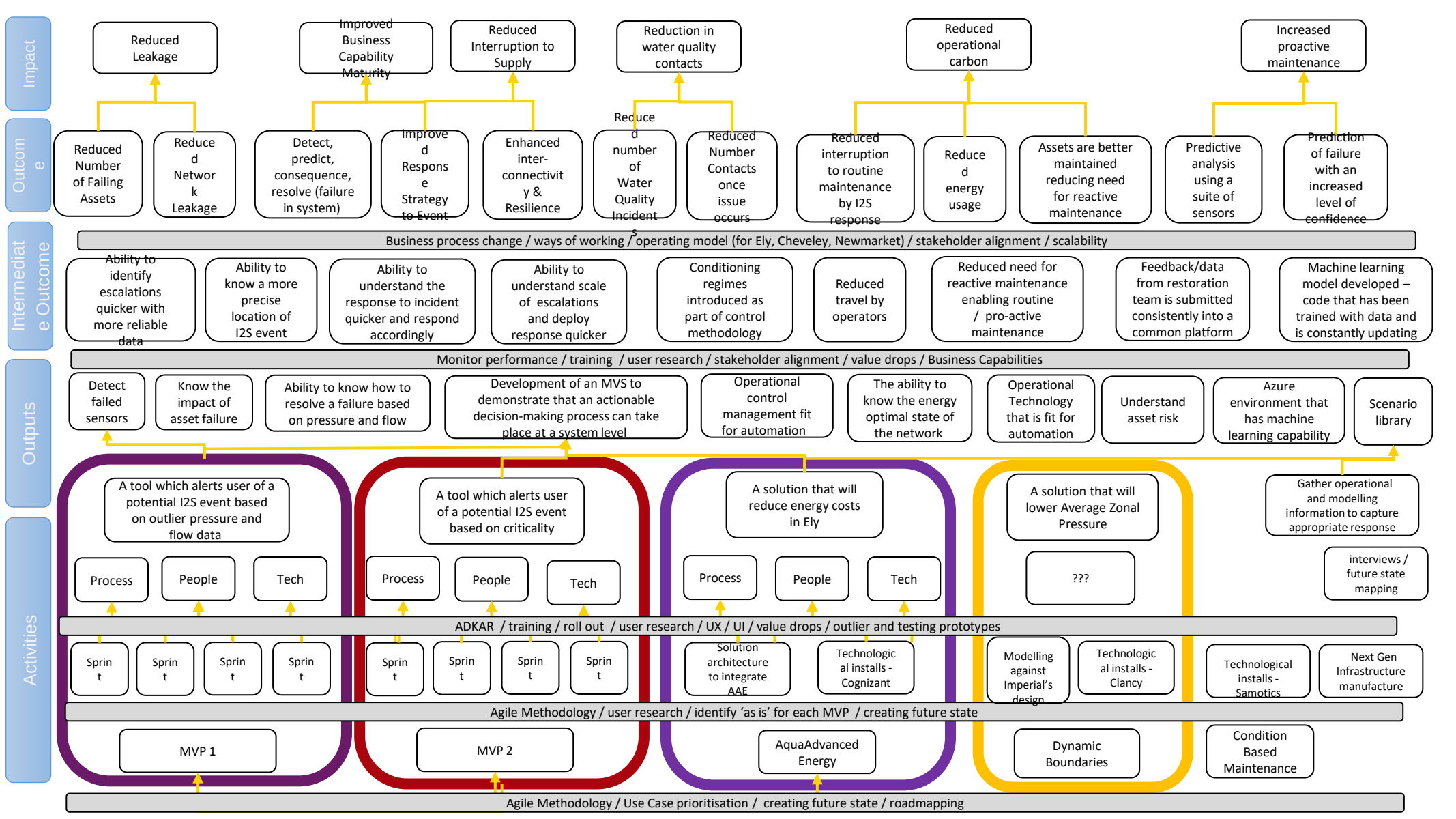
Our model for success

For our Safe Smart System to be successful and sustainable it needs 3 elements:

How is the project delivering?

Our model for success




Impact
Outcome
Intermediate Outcome
Outputs
Activities
Reduced Leakage
Improved Business Capability Maturity
Reduced Interruption to Supply
Reduction in water quality contacts
Reduced operational carbon
Increased proactive maintenance
Reduced Number of Failing Assets
Reduced Network Leakage
Detect, predict, consequence, resolve (failure in system)
Improved Response Strategy to Event
Enhanced inter-connectivity & Resilience
Reduced number of Water Quality Incident
Reduced Number Contacts once issue occurs
Reduced interruption to routine maintenance by I2S response
Reduced energy usage
Assets are better maintained reducing need for reactive maintenance
Predictive analysis using a suite of sensors
Prediction of failure with an increased level of confidence
Business process change / ways of working / operating model (for Ely, Cheveley, Newmarket) / stakeholder alignment / scalability
Ability to identify escalations quicker with more reliable data
Ability to know a more precise location of I2S event
Ability to understand the response to incident quicker and respond accordingly
Ability to understand scale of escalations and deploy response quicker
Conditioning regimes introduced as part of control methodology
Reduced travel by operators
Reduced need for reactive maintenance enabling routine / pro-active maintenance
Feedback/data from restoration team is submitted consistently into a common platform
Machine learning model developed – code that has been trained with data and is constantly updating
Monitor performance / training / user research / stakeholder alignment / value drops / Business Capabilities
Detect failed sensors
Know the impact of asset failure
Ability to know how to resolve a failure based on pressure and flow
Development of an MVS to demonstrate that an actionable decision-making process can take place at a system level
Operational control management fit for automation
The ability to know the energy optimal state of the network
Operational Technology that is fit for automation
Understand asset risk
Azure environment that has machine learning capability
Scenario library
A tool which alerts user of a potential I2S event based on outlier pressure and flow data
A tool which alerts user of a potential I2S event based on criticality
A solution that will reduce energy costs in Ely
A solution that will lower Average Zonal Pressure
Gather operational and modelling information to capture appropriate response
Process
People
Tech
Process
People
Tech
Process
People
Tech
???
interviews / future state mapping
ADKAR / training / roll out / user research / UX / UI / value drops / outlier and testing prototypes
Sprint
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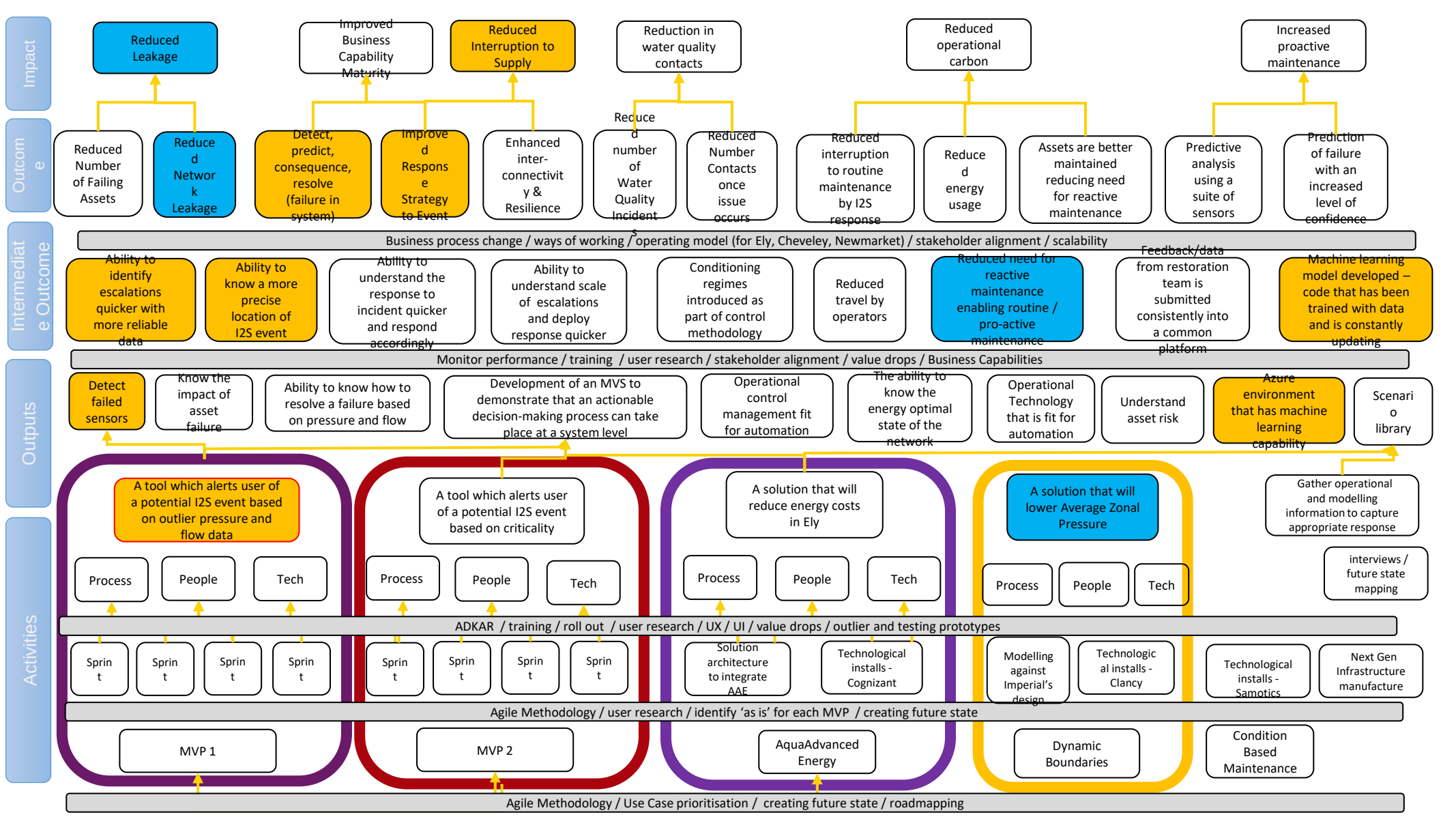
Solution architecture to integrate AAE
Technological installs - Cognizant
Modelling against Imperial's design
Technological installs - Clancy
Technological installs - Samotics
Next Gen Infrastructure manufacture
Agile Methodology / user research / identify 'as is' for each MVP / creating future state
MVP 1
MVP 2
AquaAdvanced Energy
Dynamic Boundaries
Condition Based Maintenance
Agile Methodology / Use Case prioritisation / creating future state / roadmapping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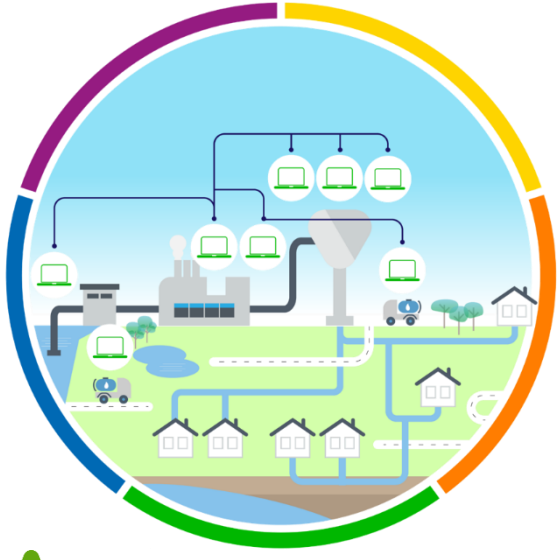
In summary

Safe Smart Systems is an opportunity to rethink water operations and make the most of emerging technologies

- A system level AI decision engine is at its heart
- Creates the opportunity to collect and manage data in more effective ways
- Security is at the foundations
- We can rethink how we organise around technology
- Water companies have immediate access to all learning
- Path to value for customers and the environment can be seen



Water Breakthrough Challenge

Want to know more

How to stay in touch or get involved

- Email the team at SafeSmartSystems@anglianwater.co.uk, you can ask about the project, an event or how to get involved
- Visit our innovation site at https://awinnovationhub.co.uk/project/safe-smart-systems/
- Look out for communication on our forums, workshops and partner events where we share learning
- Connect with us and the other team members on Linkedin where we share updates on progress and key events

Any questions

Thank you for listening

Closing remarks

Peter Simpson

Chief Executive

Anglian Water

Thank you to our exhibitors

aqualogic water conservation

BERMAD

GUTERMANN

HWM

MUELLER

OVARRO CONNECTING TECHNOLOGIES

SME WATER

suez

TECCURA SOFTWARE

TECHNOLOG

THE WATER REPORT POLICY | REGULATION | COMPETITION

Conference close

Peter Simpson

Chief Executive

Anglian Water

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