The Clay Research Group

RESEARCH AREAS

Climate Change ◆ Data Analysis ◆ Electrical Resistivity Tomography
Time Domain Reflectometry ◆ BioSciences ◆ Ground Movement
Soil Testing Techniques ◆ Telemetry ◆ Numerical Modelling
Ground Remediation Techniques ◆ Risk Analysis
Mapping ◆ Software Analysis Tools
Artificial Intelligence

December 2021
Issue 199

The Clay Research Group

CONTENTS

Issue 199, December 2021

Subsidence Risk

In this month's edition we look at the risk of subsidence in the Maldon district, continuing the review of the UK.

The role of the weather is reviewed on page 4, using anomaly data supplied by the Met Office to understand the association between claim numbers and rainfall.

.

Contributions Welcome

We welcome articles and comments from readers. If you have a contribution, please Email us at:

clayresearchgroup@gmail.com

THE CLAY RESEARCH GROUP
www.theclayresearchgroup.org
clayresearchgroup@gmail.com

Tree Root Recoveries

Disputes related to subsidence damage involving trees in the ownership of the local authority are amongst the most vexatious.

The homeowner is faced with lengthy delays whilst insurers' agents and council officers exchange correspondence. The adjuster often feels the local authority are simply trying to wriggle out of their responsibilities and the council will object to the sometimes threatening and perhaps unnecessary correspondence from solicitors.

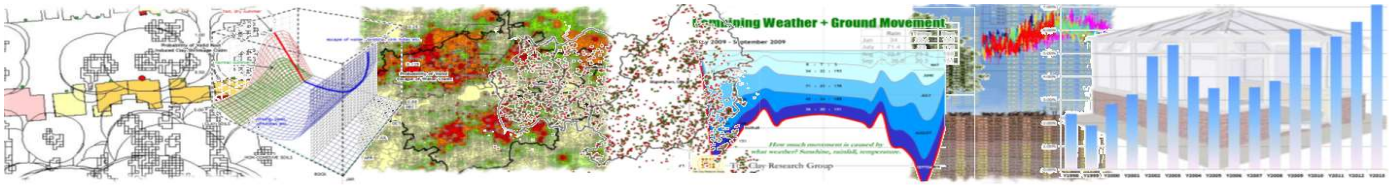
We are grateful to Andrea Plucknett who explains her view as the Treasury, Insurance & Controls Lead Officer at Welwyn Hatfield Borough Council.

Tree Murderer

Judge Robert Pawson labelled the trial of a homeowner who felled a 60 ft tall protected Monterey Pine, "murder trial of a tree". It was claimed that the homeowner stood to gain £100,000 following its removal associated with the sale of the property.

The homeowner applied to fell the tree in 2015. His application was rejected in 2018. The tree began with wither and die as a result of injection with herbicide and having cement poured around its base to deprive it of oxygen before being ring barked.

The homeowner suggested that a third party must have done this without his knowledge or consent. The judge concluded the defendant had 'lied through his teeth" and it was the "murder trial of a tree". The homeowner faces an unlimited fine and is due to be sentenced at the end of the month.



The Clay Research Group

Subsidence claim recoveries – When are legal fees reasonably incurred?

Andrea Plucknett

Having been an Insurance Officer in local government for 25 years I have handled my fair share of recoveries for costs incurred on tree root related subsidence claims, where my authority owned the offending vegetation.

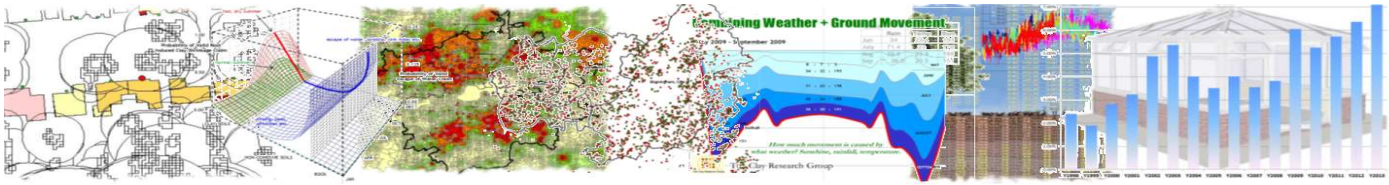
It may not be common practice, but we have always tried to be co-operative in these matters, understanding the position of the resident and their insurer, wanting to help mitigate any nuisance, while trying to balance the need to retain trees for their amenity value and environmental worth. This approach did pay off in the past and there were many times where prompt removal of an offending tree would result in a recovery action being dropped. Even when one was pursued, it was done so by the insurer or their appointed loss adjuster which enabled discussion and negotiation to be had, with both parties having a vested interest in achieving a swift and potentially mutually beneficial resolution.

Those days, however, are long gone. Collective Conditional Fee Agreements (CCFAs), in their various guises over the years, appear to have led to the demise of in-house recovery teams, with solicitors being engaged at very early stages in the process, on seemingly every claim. Undoubtedly it makes financial sense to an insurer, or even their appointed claims handler, to transfer the administrative cost burden and the risk of an unsuccessful recovery to a solicitor on a 'no win, no fee' basis. But as far as general pre-action conduct is concerned, is this reasonable behaviour in the circumstances? And if not, how can these legal fees then be considered recoverable?

I would assert that up to a certain point in the recovery process it is not and they are not.

So what factors should be considered when determining whether solicitors' costs have been reasonably incurred? I would argue they are the requirement for specialist legal knowledge at that point in the recovery process and the duty of the insurer/policyholder to mitigate their losses and not incur inflated costs unnecessarily.

Having corresponded with the tree owner, often over many months, regarding mitigation of the nuisance I would suggest the insurer, their loss adjuster or claims handler, could easily continue that correspondence, provide details of investigation and repair costs incurred and ask for recompense. This is an administrative task, requiring no legal expertise and does not incur the high hourly rate of a legal professional.



The Clay Research Group

I am sure it will be argued that a solicitor's input is needed at this point, to identify a cause of action, but case law in this area is well established and well known, evidenced by the template letters frequently used by claimants. So making reference to it at this stage as part of a liability argument does not require any specialist legal knowledge.

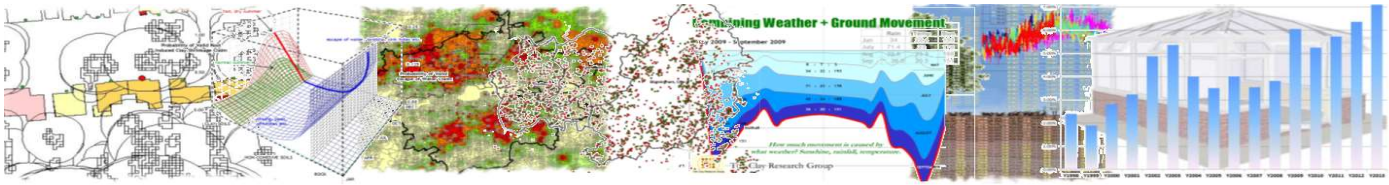
If liability is not in dispute, or it is unclear and an economic settlement is considered, then it is just quantum that needs to be agreed. Negotiation on this is a loss adjusting task, however, and loss adjuster fees are not recoverable. So I would suggest legal fees are not reasonably incurred at this stage of the process either.

Obviously there will be times where liability is in dispute and I acknowledge that legal representation at this point may be reasonable. I do believe though it is easy for insurers and their claims handlers to simply wash their hands of these claims, allowing a solicitor to run with a recovery on what, to a defendant authority, feels like a very belligerent basis. Often unreasonable demands are made for a wealth of irrelevant information masking as pre-application disclosure – in all seriousness, how significant is another claim 2 miles and 15 years away from the subsidence event in question? Template letters of claim and standard arguments are also often used, so while fees may be reasonably incurred at this point, they are not always reasonable and Grade A/B solicitor rates are often claimed when clearly they are not warranted.

What we cannot forget too is that the risk of subsidence occurring at a property is dependent on so many variable factors, it is impossible to predict where and when it will occur. More often than not the tree owners pursued in these claims are also local authorities and there is no reasonable action they can take to all their trees, to prevent it on a wide scale basis. By using CCFAs as an internal cost/staff cutting practice then, insurers and their claims handlers have transferred this financial burden to the public purse. And not only are local authorities faced with unreasonably incurred claimant legal costs, they are often forced to appoint external solicitors themselves to deal with these recoveries.

Lord Justice Jackson in his Review of Civil Litigation Costs in 2009 highlighted this practice under the old costs regime. In paragraph 4.9 he comments 'It is, in my view, absurd that insurance companies can bring claims against local authorities using CCFAs….thereby doubling the costs burden upon Council tax payers. The insurance companies can well afford to fund such litigation themselves and should do so.' While this referenced the charging of success fees, I believe the principle of insurers incurring legal fees in place of using their own administrative teams, is no different and should be challenged. Would an insurer appoint a solicitor at such an early stage in these claims, before mitigation has even been carried out, if they were funding that appointment directly…? I think not.

Andrea Plucknett
Treasury, Insurance & Controls Lead Officer
Welwyn Hatfield Borough Council



The Clay Research Group

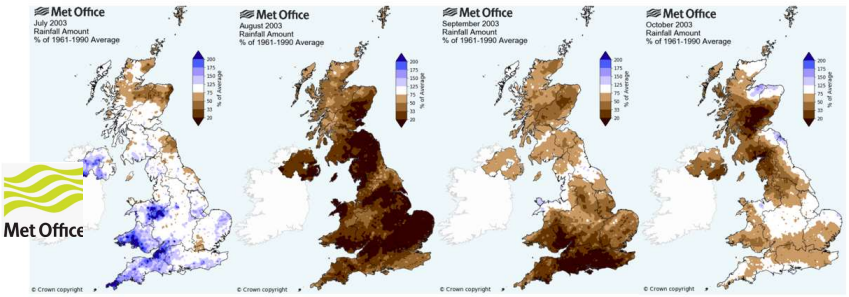
Rainfall: Surge -v- Normal Year

MET OFFICE ANOMALY DATA – HEATHROW WEATHER STATION

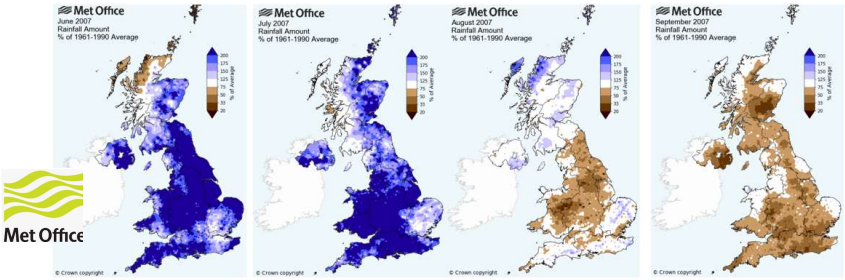
Below, anomaly data for two surge years (2003 and 2018) and a normal year (2007) comparing rainfall with the 1961 – 1990 average.

2003 – 55,400 subsidence claims

August was a particularly dry month and rainfall across the UK was 20% below the 1961 – 1990 average. Reduced rainfall continued until November.



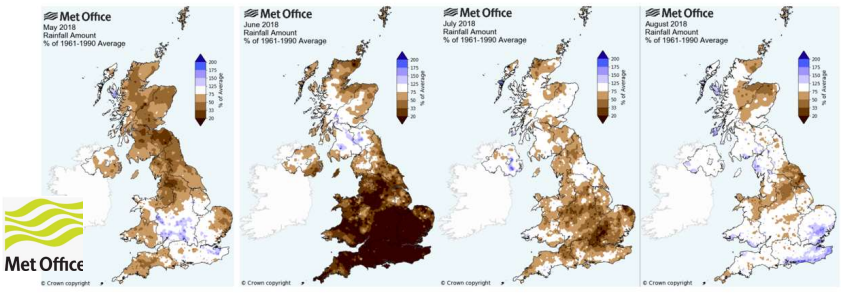
2007 – 31,895 subsidence claims

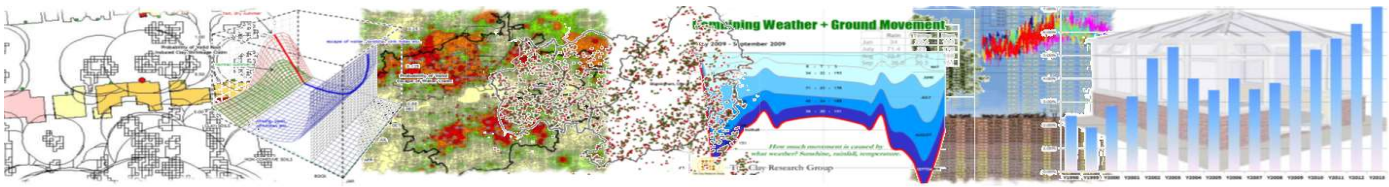


2007 was a normal claims year. There was an excess of rainfall across most of the UK in June and July, although parts of the south east and western Scotland followed the 1961 – 1990 average. Slightly drier conditions in the SE in September.

2018 – 23,000 subsidence claims

Particularly dry June followed by a dryer than 1961-1990 average July in the high risk, root induced clay shrinkage areas in the south east. Return to the average in August.





The Clay Research Group

Subsidence Forum Training Day
View on YouTube

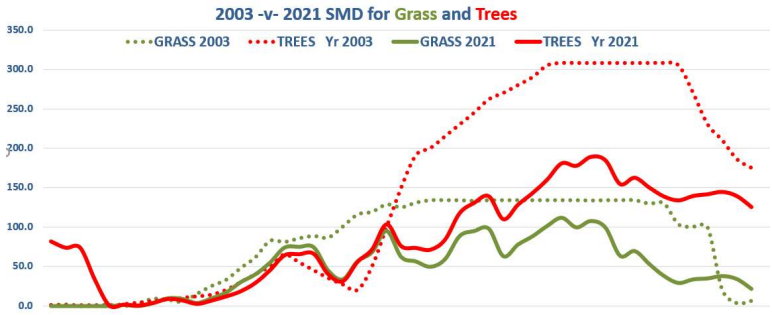
Sarah Dodd was elected Subsidence Forum Chair earlier in the year and hosted a series of training sessions in October that can be viewed on YouTube at:

https://www.youtube.com/channel/UCEgDmLmNTY7xU_Svv3829Og/videos

Topics covered include an update from NHBC, Abbey Pynford demonstrating a piled raft repair, Sarah discusses the Environment Act and legislation relating to trees. Catalyst demonstrate their approach to drainage investigations and Mike Lawson of Property Risk Inspection delivered a talk on Statutory Tree Protection.

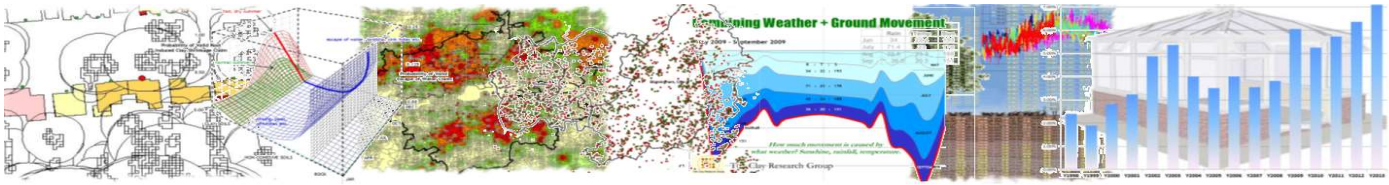
Soil Moisture Deficit

Right, SMD values provided by the Met Office for both grass and tree cover, comparing the 2003 event year (dotted lines) with 2021. Soil Moisture Deficit data supplied by the Met Office for tile 161, medium available water capacity soils for grass cover and medium available water capacity for trees.



Cliff Falls

Left, cliff fall at Budleigh Salterton on Sunday 6th December and right, Mundesley cliff fall on the 9th. Centre, map of risk from the Department of the Environment web site.



The Clay Research Group

MALDON – Street Trees and Leaking Drains

This month's study of risk of subsidence by district looks at Maldon, Essex. The BGS geology map and the CRG grid both indicate significant areas of outcropping clay soil, and yet the 'damage by LA trees' shows few claims, which might seem unusual.

In many of the districts with highly shrinkable clay soils in previous studies show root induced clay shrinkage claims associated with council trees (see issues 186 – 189 for examples) to be quite common. In contrast our sample here (see page 9) only records a few claims.

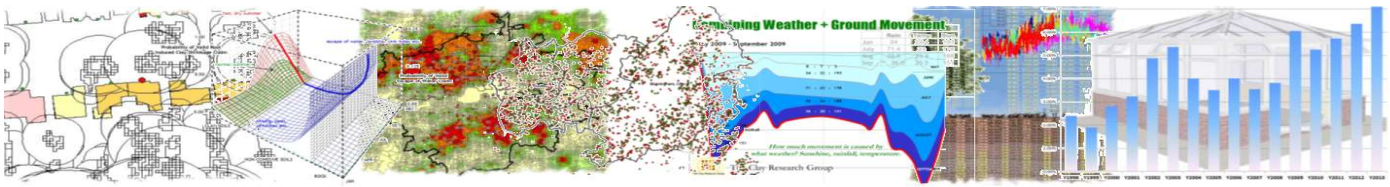
Why would this be? A review on Street View, Google Earth, provides a likely explanation. See below.





The images above, all taken from Street View, suggest Maldon may have relatively few street trees within influencing distance of houses, which would account for the low incidence. In contrast, there are numerous quite large privately owned trees in front gardens, which in turn would account for the high-risk rating, putting Maldon in 10th place in the risk table of UK districts – see pages 5 and 9.

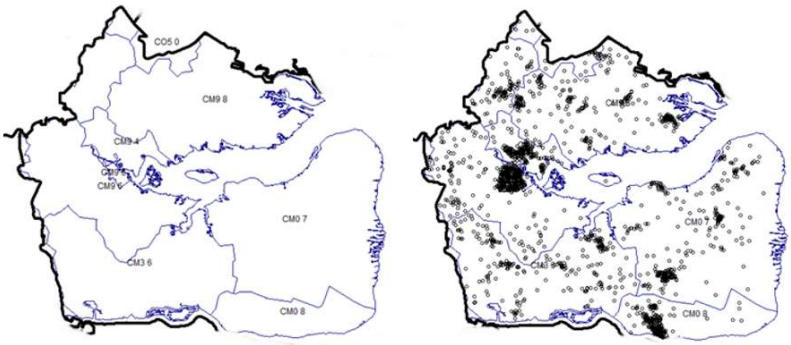
The position in the risk table can be explained by the high density of privately owned housing together with the expanse of outcropping London clay – and of course the proximity of trees within influencing distance in people's gardens. In contrast, the high risk of claims involving water escaping from drains or water services etc., corresponds to the areas of non-cohesive soils – sands and gravels and alluvium etc., as shown on page 7.



The Clay Research Group

Subsidence Risk Analysis – MALDON

Maldon occupies an area of 356.4km^2 with a population of over 63,000.



Postcode Sectors

Housing Distribution by Full Postcode

Distribution of housing stock using full postcode as a proxy. Each sector covers around 2,000 houses and full postcodes include around 15 – 20 houses on average, although there are large variations.

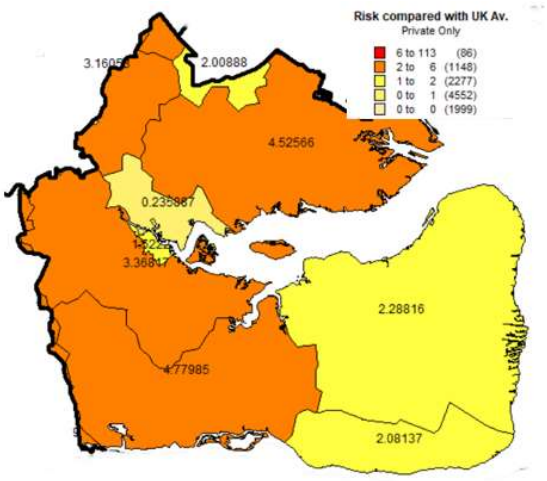
Housing distribution across the district (left, using full postcode as a proxy) helps to clarify the significance of the risk maps on the following pages. Are there simply more claims in a sector because there are more houses?

Using a frequency calculation (number of claims divided by private housing population) the relative risk across the borough at postcode sector level is revealed, rather than a 'claim count' value.

From the sample we have, sectors are rated for the risk of domestic subsidence compared with the UK average – see map, right.

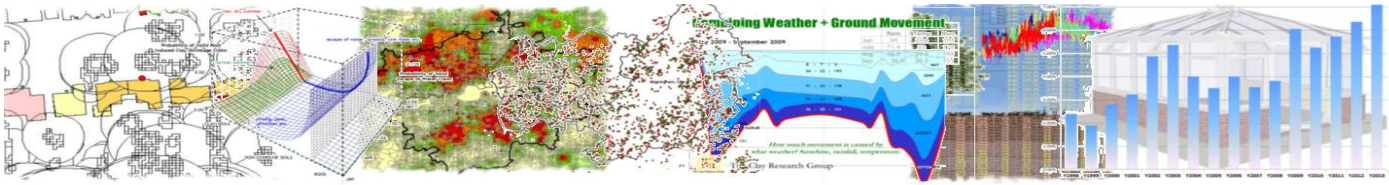
Maldon is rated 10th out of 413 districts in the UK from the sample analysed and is around 2.5x the risk of the UK average, or 0.65 on a normalised scale.

The distribution varies considerably across the borough as can be seen from the sector map.



Postcode Sector Risk Compared with UK Average

Risk compared with UK Average.
Maldon district is rated around 2.5 times the UK average risk for domestic subsidence claims from the sample analysed

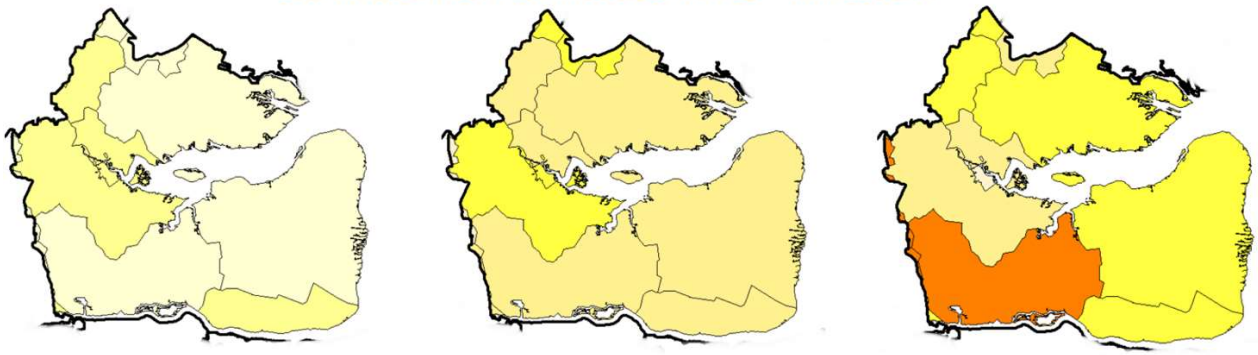


The Clay Research Group

MALDON - Properties by Style and Ownership

Below, the general distribution of properties by style of construction, distinguishing between terraced, semi-detached and detached. Unfortunately, the more useful data is missing at sector level – property age. Risk increases with age of property and the model can be further refined if this information is provided by the homeowner at the time of application.

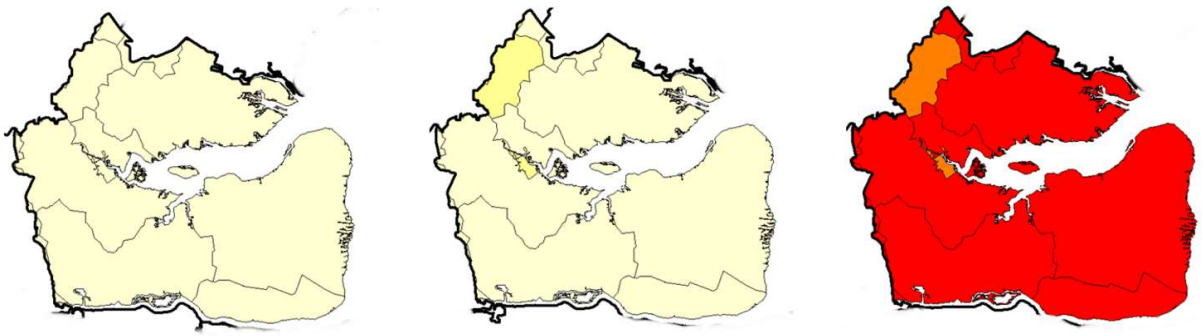
DISTRIBUTION BY HOUSE TYPE – MALDON



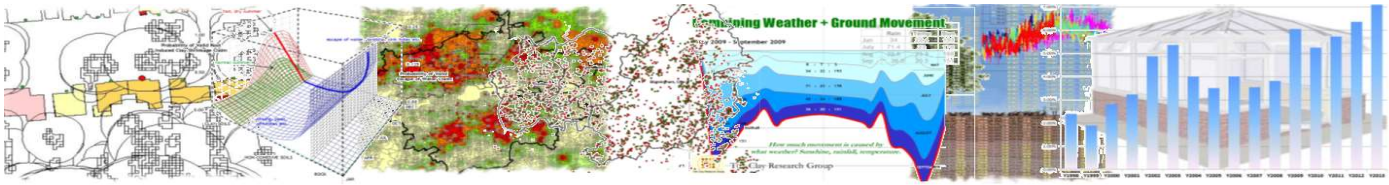
Terraced | Semi-Detached | Detached

Distribution by ownership is shown below. Privately owned properties are the dominant class and are spread across the borough. Council ownership is denser towards the city.

DISTRIBUTION BY OWNERSHIP – MALDON



Housing Association | Council Ownership | Private Ownership



The Clay Research Group

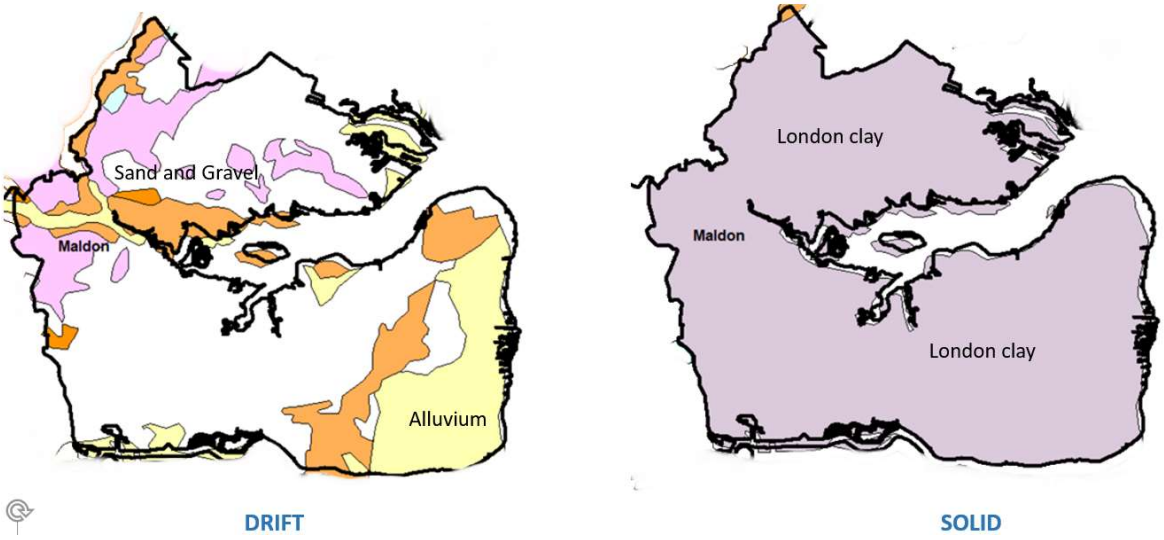
Subsidence Risk Analysis – MALDON

Below, extracts from the British Geological Survey low resolution 1:625,000 scale geological maps showing the solid and drift series. View at: http://mapapps.bgs.ac.uk/geologyofbritain/home.html for more detail.

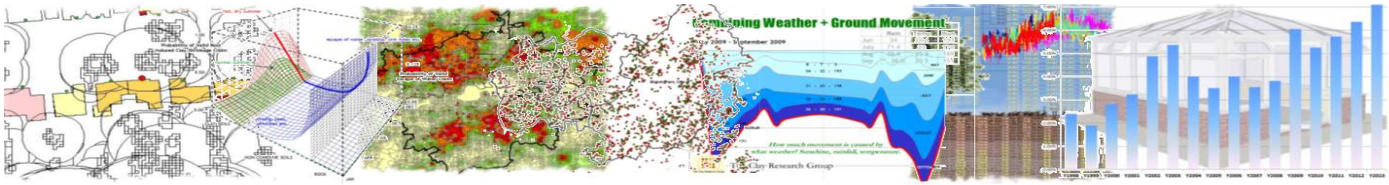
See page 10 for a seasonal analysis of the sample we hold which reveals that in the summer there is a greater than 70% probability of a claim being valid, and of the valid claims, there is a high probability (greater than 80% in the sample) that the cause will be clay shrinkage.

In the winter the situation reverses. The likelihood of a claim being declined is around 70% and if valid, there is greater than 80% probability the cause will be due to an escape of water. Maps at the foot of Page 8 shows the seasonal distribution.

1:625,000 scale British Geological Survey Maps



1:625,000 series British Geological Survey maps. Working at postcode sector level and referring to the 1:50,000 series maps deliver far greater benefit when assessing risk. The geology suggests that subsidence associated root induced clay shrinkage is the dominant cause.

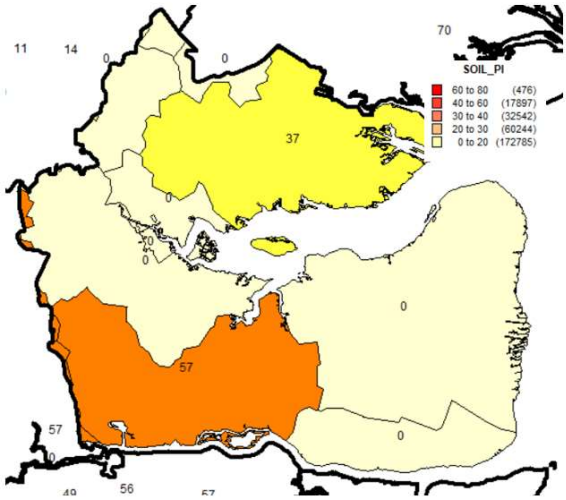


The Clay Research Group

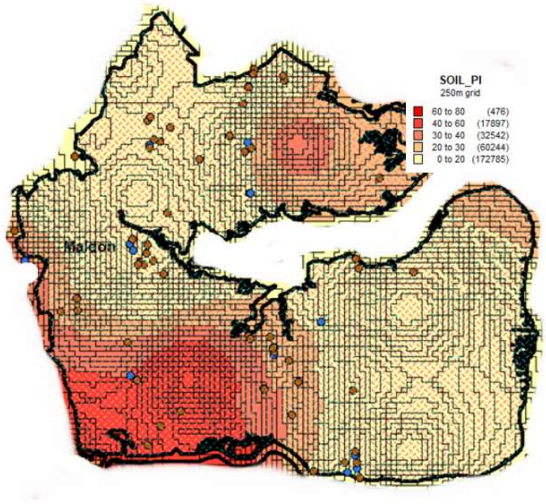
Liability by Geology and Season

Below, the average PI by postcode sector (left) derived from site investigations and interpolated to develop the CRG 250m grid (right). The distribution of a shrinkable clay in the CRG model resembles the BGS maps on the previous page. The higher the PI values, the darker red the CRG grid.

SOIL PLASTICITY INDEX
MALDON



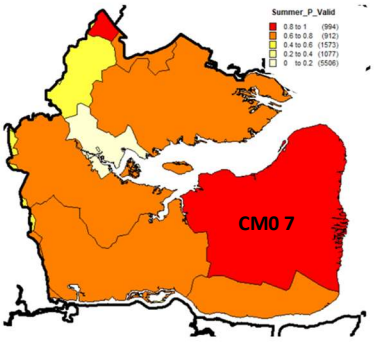
Soil PI Averaged by Sector



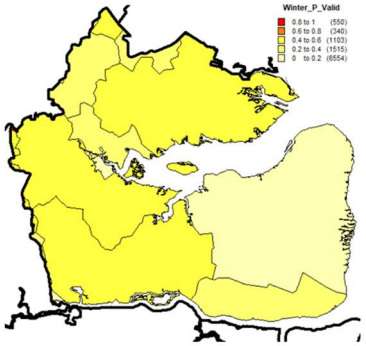
PI Interpolated on 250m CRG grid

Zero values for PI in some sectors may reflect the absence of site investigation data - not necessarily the absence of shrinkable clay. A single claim in an area with low population can raise the risk as a result of using frequency estimates.

PROBABILITY VALID by SEASON – MALDON
Distribution of domestic subsidence risk by season.



Probability Valid, Summer

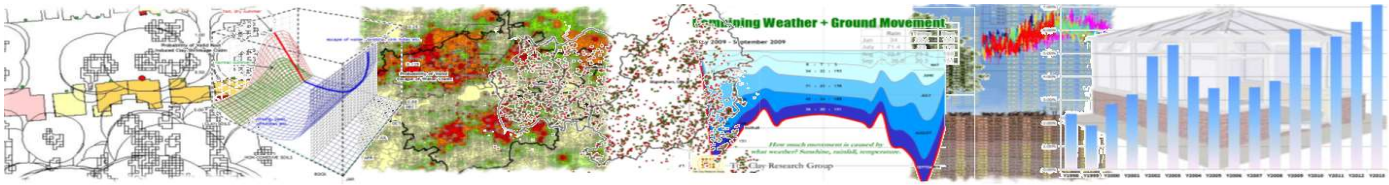


Probability Valid, Winter

Mapping the risk by season (table at foot of page 10) is perhaps the most useful way of assessing the likely cause, potential liability and geology using the values listed.

The maps left show the seasonal difference from the sample used.

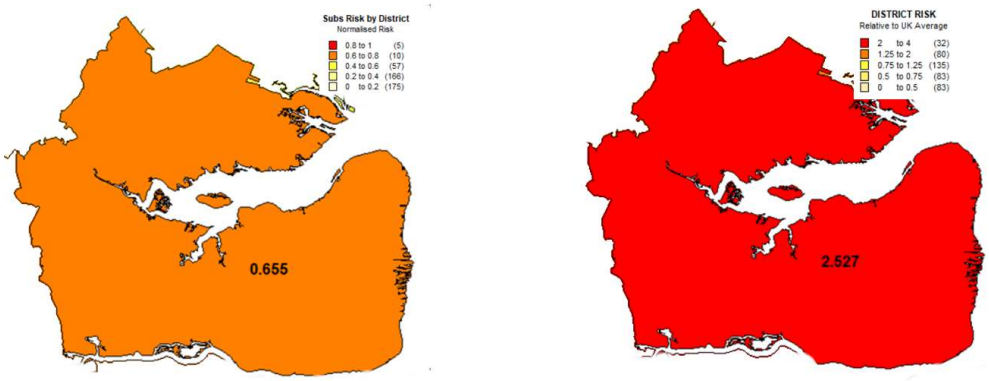
The apparent high summer risk in sector CM0 7, which has an alluvial topping, is contrary to the fact that high claims in the summer month are associated with clay soils. This is due to a few claims notified in an area with a low housing density and a few claims being notified in the summer, delivering a high frequency. The claim count should be used to identify such anomalies.



The Clay Research Group

District Risk -v- UK Average. EoW and Council Tree Risk.

SUBSIDENCE RISK RELATIVE TO UK - MALDON -



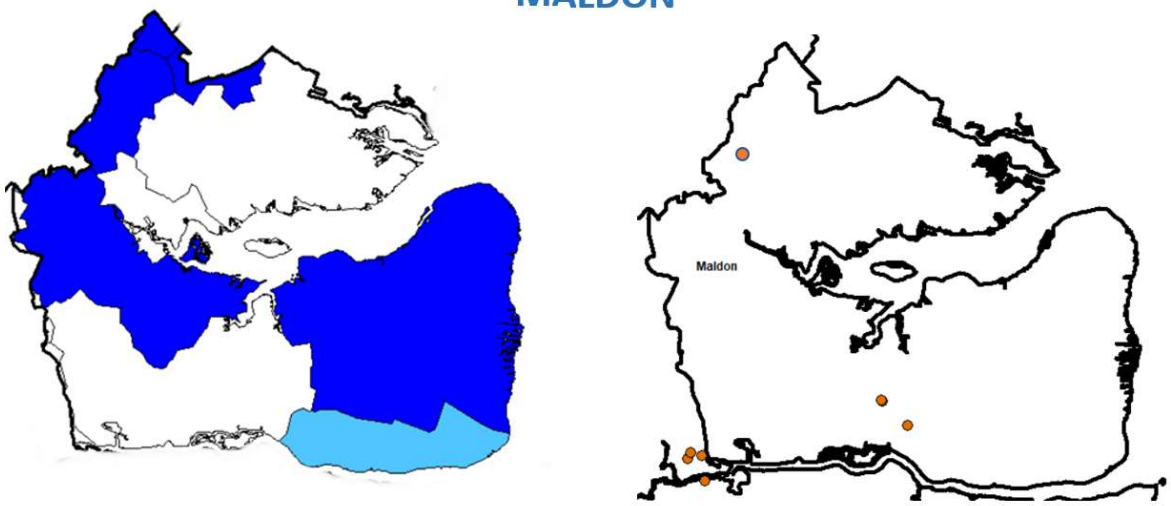
Normalised (0 – 1) Scale

Compared with UK Average

Below, left, mapping the frequency of escape of water claims reflects the presence of shrinkable, non-cohesive clay soil – alluvial and sands and gravels. The absence of shading often indicates a low frequency rather than the absence of claims.

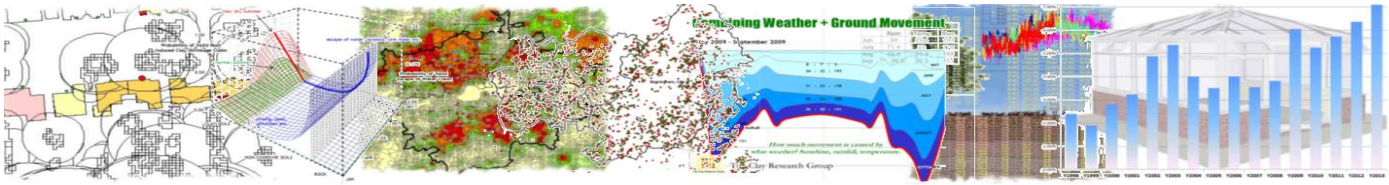
Below right, map plotting claims where damage has been attributable to vegetation in the ownership of the local authority from a sample of around 2,858 UK claims. The low number reflects the street scene as discussed earlier (page 3) in the newsletter.

Escape of Water –v- Council Tree Claims MALDON



Higher Risk Escape of Water
(17,852 claim sample)

Claims Involving Council Trees
(2,858 claim sample)

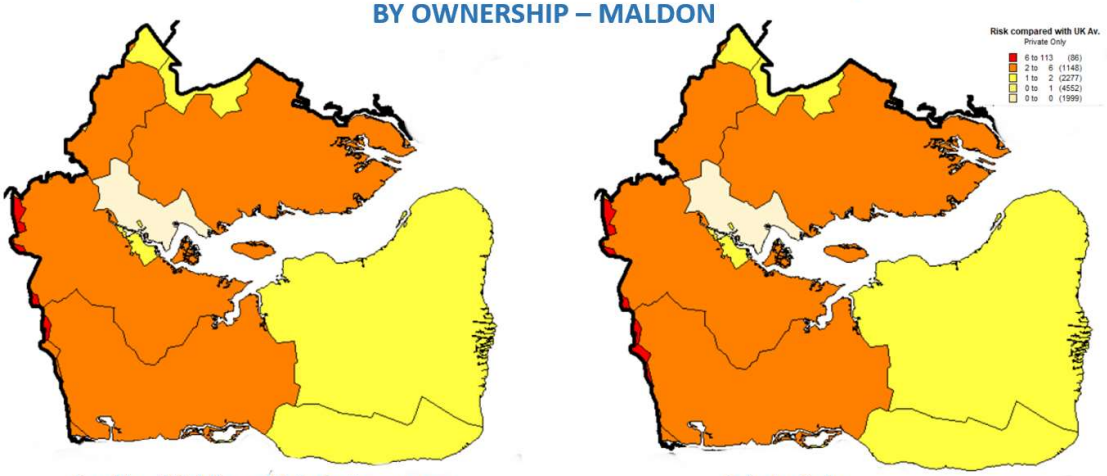


The Clay Research Group

MALDON - Frequencies & Probabilities

Mapping claims frequency against the total housing stock by ownership, (left council and housing association combined and right, private ownership only), reveals the importance of understanding properties at risk by portfolio. There are several sectors in the 'private only' map with an increased risk. There is little (if any) difference in Maldon due to the high concentration of private housing.

POSTCODE SECTOR SUBSIDENCE RISK (FREQUENCY)
BY OWNERSHIP – MALDON

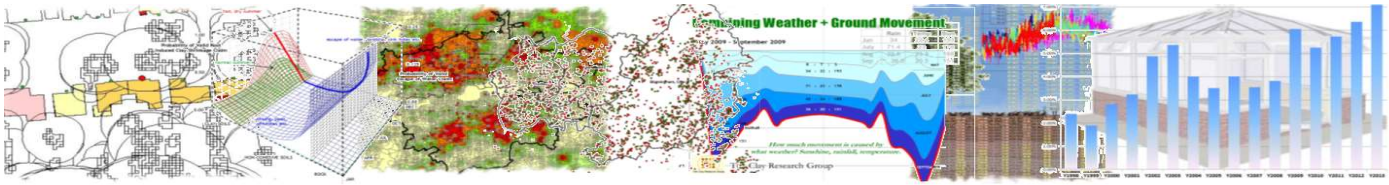


Combined Public and Private Frequency | Private Only

On a general note, the reversal of rates for valid-v-declined by season is a characteristic of the underlying geology. For clay soils, the probability of a claim being declined in the summer is low, and in the winter, it is high. Valid claims in the summer are likely to be due to clay shrinkage, and in the winter, escape of water. For non-cohesive soils, sands gravels etc., the numbers tend to be lower throughout the year, with an increase in the winter months.

Liability by Season - MALDON

District	valid summer clay	valid summer EoW	Repudiation Rate (summer)	valid winter clay	valid winter EoW	Repudiation Rate (winter)
Maldon	0.654	0.113	0.233	0.05	0.26	0.69

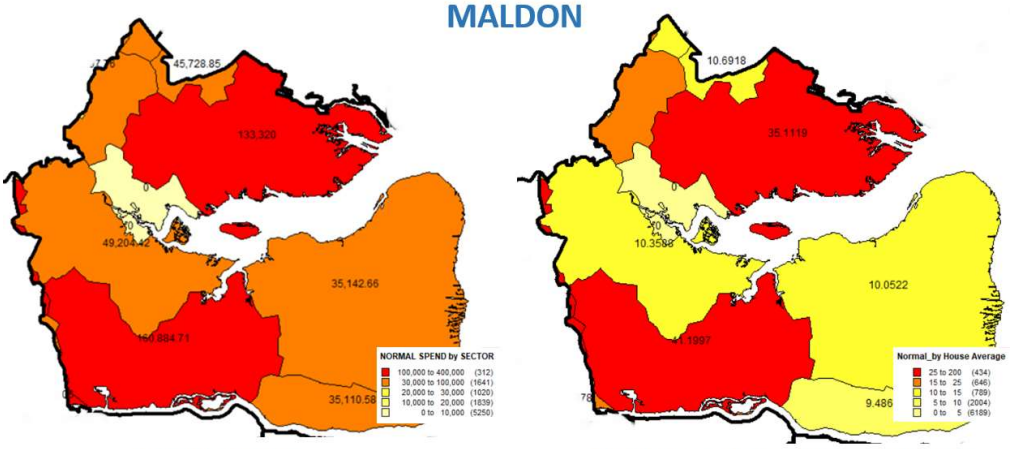


The Clay Research Group

Aggregate Subsidence Claim Spend by Postcode Sector and Household in Surge & Normal Years

The maps below show the aggregated claim cost from the sample per postcode sector for both normal (top) and surge (bottom) years. The figures will vary by the insurer's exposure, claim sample and distribution.

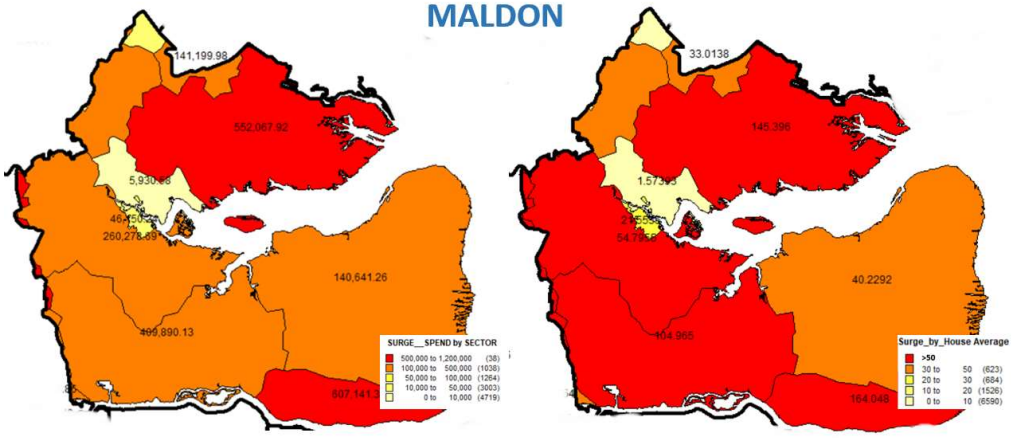
NORMAL YEAR SPEND – UK SAMPLE £200m
MALDON



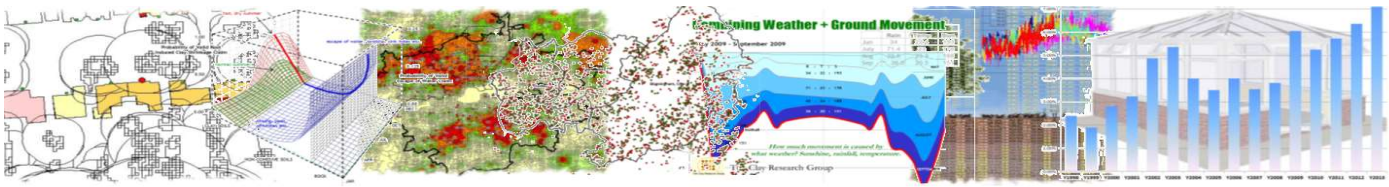
Spend by Sector | Spend Averaged over Housing Population

It will also be a function of the distribution of vegetation and age and style of construction of the housing stock. The images to the left in both examples (above and below) represent gross sector spend and those to the right, sector spend averaged across housing population to derive a notional premium per house for the subsidence peril. The figures can be distorted by a small number of high value claims.

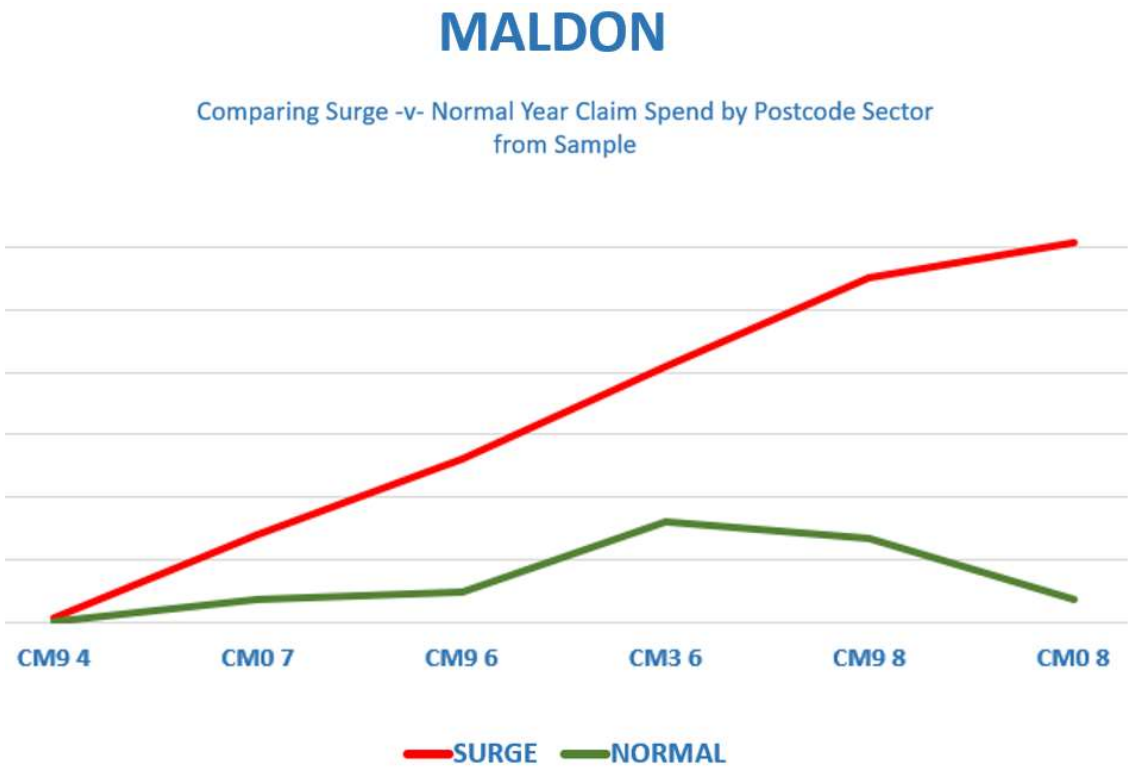
SPEND in SURGE – UK SAMPLE £419m
MALDON



Spend by Sector | Spend Averaged over Housing Population



The Clay Research Group



The above graph identifies the variable risk across the district at postcode sector level from the sample, distinguishing between normal and surge years. Divergence between the plots indicates those sectors most at risk at times of surge (red line).

It is of course the case that a single expensive claim (a sinkhole for example) can distort the outcome using the above approach. With sufficient data it would be possible to build a street level model.

In making an assessment of risk, housing distribution and count by postcode sector play a significant role. One sector may appear to be a higher risk than another based on frequency, whereas basing the assessment on count may deliver a different outcome. This can also skew the assessment of risk related to the geology, making what appears to be a high-risk series less or more of a threat than it actually is.

The models comparing the cost of surge and normal years is based on losses for surge of just over £400m, and for normal years, £200m.