

**How we have started to use
technology to confirm local
knowledge.**

Jonathan Cole, Engineer

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Who I am

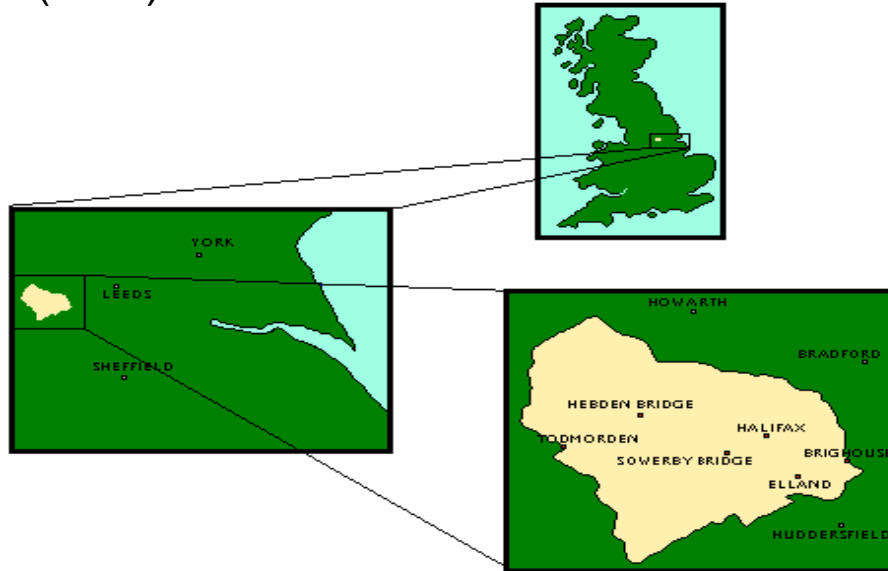
- **Jonathan Cole, Engineer (Manager for revenue maintenance and winter service).**
- **Just about to start my 20th winter season.**
- **Started as a winter supervisor and moved over to decision making over the last few seasons.**



Setting The Scene

- 684km of Precautionary Salting Network (66%)

Covered by 22 Salting Routes.



The highest point of Calderdale is 435 metres.

The lowest point in Calderdale is 48 metres.

Large areas of residential housing around 300 metres.



Setting The Scene

- How many times have you heard drivers or supervisor say:-
- It is always colder on that road.
- Why did they not send us out, it always nips in on there.
- Ice always forms on that industrial estate road.
- I could have told them there would be an issue on that road.



Thermal Mapping

- Ground survey technique which identifies variations in minimum road surface temperatures across a road network.
- Quantifies the influence of regional features on road surface temperatures.
- Identifies localised features that may require special attention (e.g. bridges).
- Temperature variations are repeatable on a night by night basis.
- Enables an understanding of the relationship between known reference points and the rest of the network.



Thermal Mapping

1. Thermal Mapping IS:

- A planning tool
 - Quantifies relationship of RSTs across Thermally Mapped area
 - Identifies the sections of network forecast to freeze first
 - Locate hazardous, cold spots
 - Repeatable results regardless of actual temperatures
 - Allows design of Thermally consistent treatment routes
 - Allows user to extend point-specific forecast data across a wider area

2. Thermal Mapping ISN'T:

- A real-time monitoring tool
 - Will not deliver instantaneous observations of current road surface conditions



Thermal Mapping

- Things to note:-
- **Thermal Map data valid for night time only**
 - **22:00 – 07:00**
- **Measurement of road surface temperature only**
 - **No measurement of surface state**
- **Forecast Thermal Maps rely on forecast input**
 - **Only as good as forecasts themselves**



Outcomes and Benefits

- Prior to a winter night you can visually see the way your network is going to react and the approximate RST.(banded in 2°C increments)
- This information is a great help with decision making.
- On marginal nights you can gauge your risk areas and treat more cost effectively.
- Our network does not naturally fall in to cold and warm but for some it does and can produce significant savings.



Outcomes and Benefits

- Do I think it is a useful tool?
It is a great additional decision makers tool.
- Is it worthwhile and value for money?
Yes, we evaluated and worked out that it is cost neutral after 1 to 2 years and then carries on giving savings from then on.
- Any other uses?
It will assist in future network reviews.



Questions

- Any further questions please contact me at:-
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