

The Application of Thermal Mapping and GPS in the Selective Salting of Highways

Andy McDonald

Vaisala TMI, Birmingham, UK.

Abstract

There is a large potential saving to be made, both economically and environmentally, in the selective application of salt for winter maintenance. Despite the availability of information on which to base such decisions (Thermal Mapping for example), the human decision maker may not have the time or the inclination to fully appraise the potential on a night by night basis and so miss the opportunity.

Work by Vaisala, in partnership with the highway authority client and supplier of GPS systems in the UK, has been able to produce a computer system which successfully ingests forecast data from a site specific forecast supplier, relates this data to the rest of the road network, using Thermal Mapping, to produce a forecast of road network minimum temperature. Areas of the road network forecast to fall to or below zero degrees are then automatically abstracted by the system and the relevant geographical co-ordinates are automatically transmitted to the salting vehicle, which is itself equipped with a different GPS system providing positional reference in real time.

The end result is a system which is able to automatically control the application of salt, direct the driver of the vehicle around a chosen route and monitor the actual position of the vehicle and its current action in real-time and thus maximising the use of technology to minimise the use of salt.