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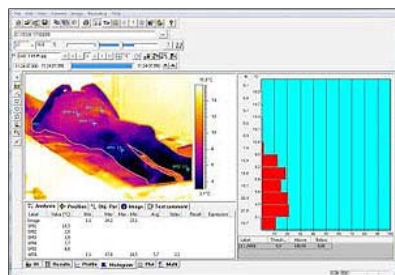
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Thermal Signatures Determine Time of Death

During decomposition microorganisms emit different thermal signatures, which can be detected by thermographic imaging. Thermography detects infrared radiation in the electromagnetic spectrum, and when used on decomposing bodies, the thermal growth signatures of microorganisms can be detected.

According to a preliminary study released by Isabel Fernández Corcobado, professor at the Institute of Legal Medicine of Granada, and her colleagues at the University of Granada, these signatures more accurately determine time of death.



This is the results of infrared thermography of a corpse. Software courtesy of Alava Ingenieros, S.A. Image courtesy of the University of Granada.

This new technique, which could prove quite useful for the field of criminology, uses new thermographical and weather measurement tools, while applying traditional microbiological methods for forensic dating.

The stages of cadaverous decomposition and putrefaction can be affected by environmental variations, which can decrease the accuracy of forensic dating. However, the growth of microorganisms on cadavers remains constant, regardless of the environmental conditions. By combining traditional microbiological methods with thermography, the margin of error associated with time of death estimations could seemingly be greatly reduced.

To carry out this work, the researchers analyzed about 240 microorganic samples taken from bodies from the Institute of Legal Medicine of Granada, and 352 samples from living donors. Because only one microorganism was studied in the preliminary research, further testing will be conducted. According to Corcobado, the study has already sparked quite a bit of interest.

The aim of this work is to establish a microbiological indicator to determine the time of death, and to provide new complimentary tools for criminal investigation techniques.

"One of the results of our investigations, is that we've detected infrared thermography can be used to substitute traditional mercury thermometers at forensic examinations," said Corcobado, adding that Flir Systems infrared cameras were used in the preliminary study because of their accuracy (0.08°C to 30°C thermal sensibility, according to Corcobado).

In addition to Corcobado, the study was carried out by Miguel Botella López, professor at the Laboratory of Anthropology of the UGR and Eulogio Bedmar Gómez, professor at the Zaidín Experimental Station (CSIC).

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