

Investigating the environmental risk factors for childhood leukaemia: the research activity at the University of Modena and Reggio Emilia, Northern Italy

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CREAGEN research

The Environmental, Genetic and Nutritional Epidemiology Research Center (CREAGEN) is based in the University of Modena and Reggio Emilia (Northern Italy). It includes senior and junior researchers of the Medical School with a keen interest in the aetiology and epidemiology of chronic diseases as well as primary prevention strategies. Instituted

in late '90s, CREAGEN has been contributing to research in the field of Public Health. Its activity focused on the effects of trace elements (e.g. selenium and cadmium) on human health, the aetiology of neurodegenerative diseases (amyotrophic lateral sclerosis and Alzheimer's dementia), and cancer (particularly childhood leukaemia and melanoma).

Recent fields

In recent years, CREAGEN researchers have assessed the aetiological role of motorized traffic exhausts (particularly benzene and particulate matter) (Vinceti et al, 2012) and residential exposure to pesticides (Malagoli et al, 2016) as well as electromagnetic fields generated by power lines (Malagoli et al, 2010) in the aetiology of childhood

leukaemia. More recently, CREAGEN research has focused on the role of established or putative risk factors, such as congenital anomalies and maternal pregestational diabetes, and exposure to electromagnetic fields from electrical transformers and to low doses of ionizing radiation from medical procedures.

Childhood leukaemia

For childhood leukaemia, still characterized by a largely unknown aetiology, CREAGEN researchers have investigated the possible association of the several environmental risk factors which have been proposed (Metayer et al, 2016; Schuz et al, 2016). This task has also been undertaken by using emission and dispersion models for atmospheric pollutants, and

by implementing Geographic Information System methods for exposure assessment in collaboration with investigators from the Department of Engineering 'Enzo Ferrari'. The no-profit Modena association of families of children affected by cancer "ASEOP" (Associazione Sostegno Oncologia Ematologia Pediatrica) has wholeheartedly supported this research activity.

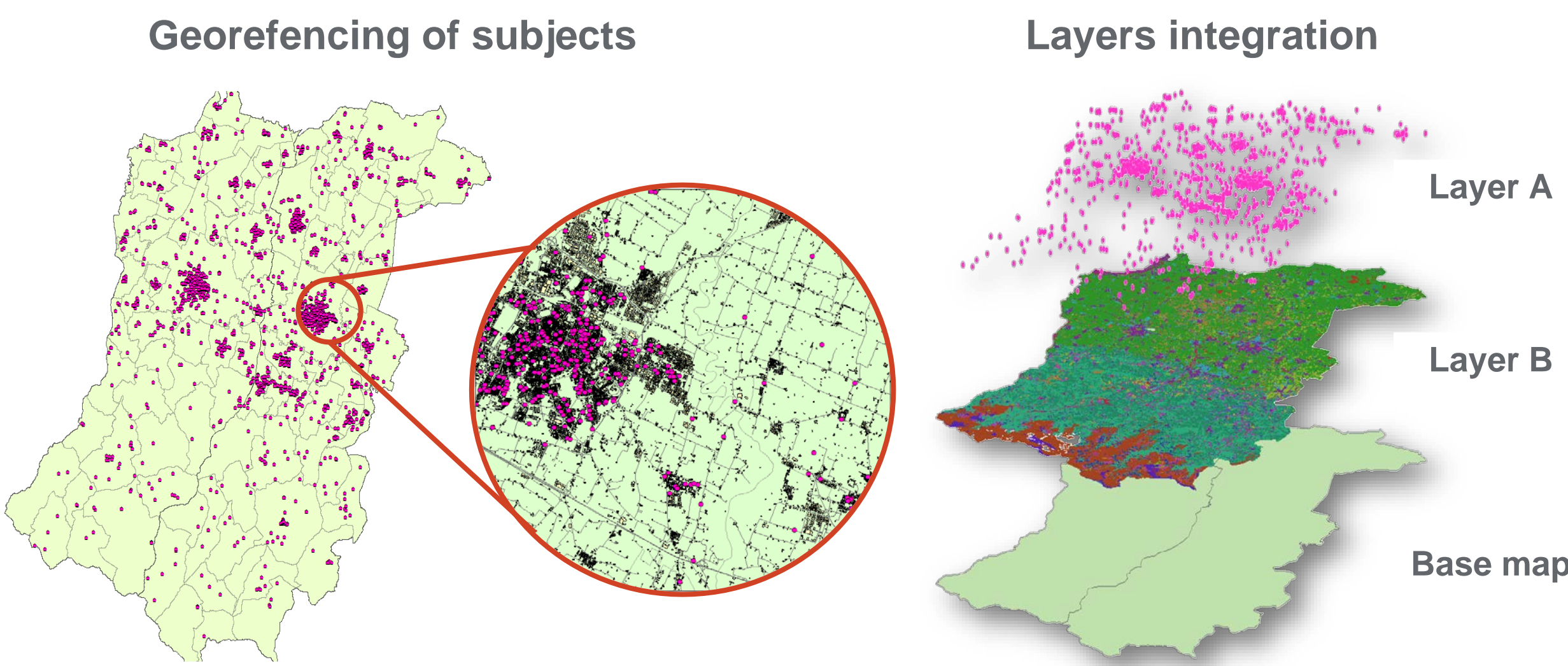


Collaboration and support

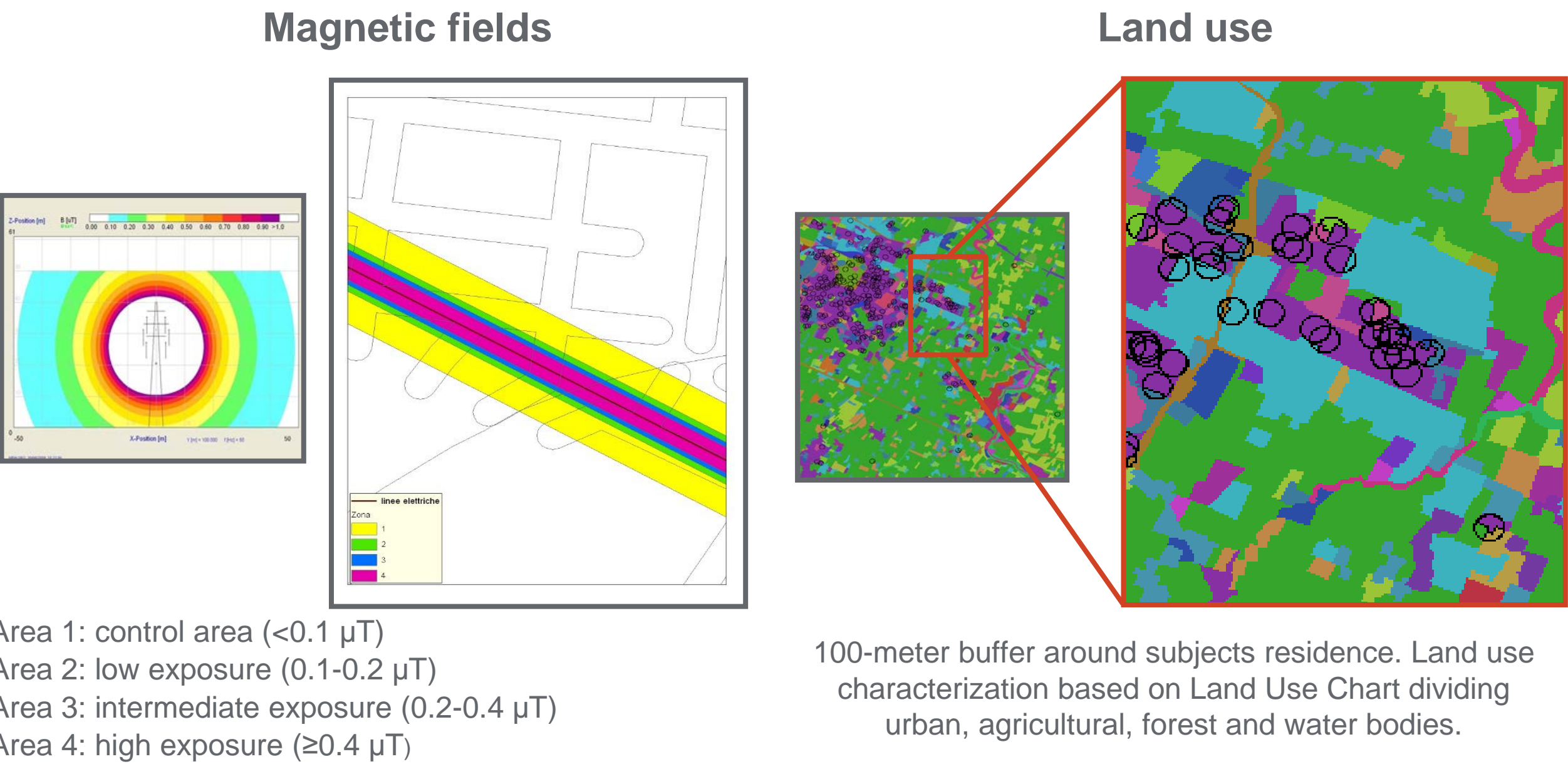
CREAGEN's research on childhood leukaemia has been carried out in collaboration with national and international investigators belonging to the Italian Association of Pediatric Haematology and Oncology (AIEOP), the Schools of Public

Health of Boston University, University of California - Los Angeles and University of California at Berkeley, and the Childhood Leukaemia International Consortium (CLIC) (Amoon et al, 2018; Kheifets et al, 2010).

Implementation of Geographic Information System methods




Examples of modelling



References

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