



POLLEN IS IN THE AIR

ATOPICA, A MULTIDISCIPLINARY PROJECT ON ATOPIC DISEASES IN CHANGING CLIMATE, LAND USE & AIR QUALITY

What is the connection between pollen-related allergies, global and regional climate, air quality and land use?

How can we meet the health and environmental challenges represented by alien plant species invading Europe?

For the first time in Europe, a European Union-funded consortium has been tackling these questions using a highly interdisciplinary strategy.

PROJECT DETAILS

TOTAL COST € 4 426 870,14

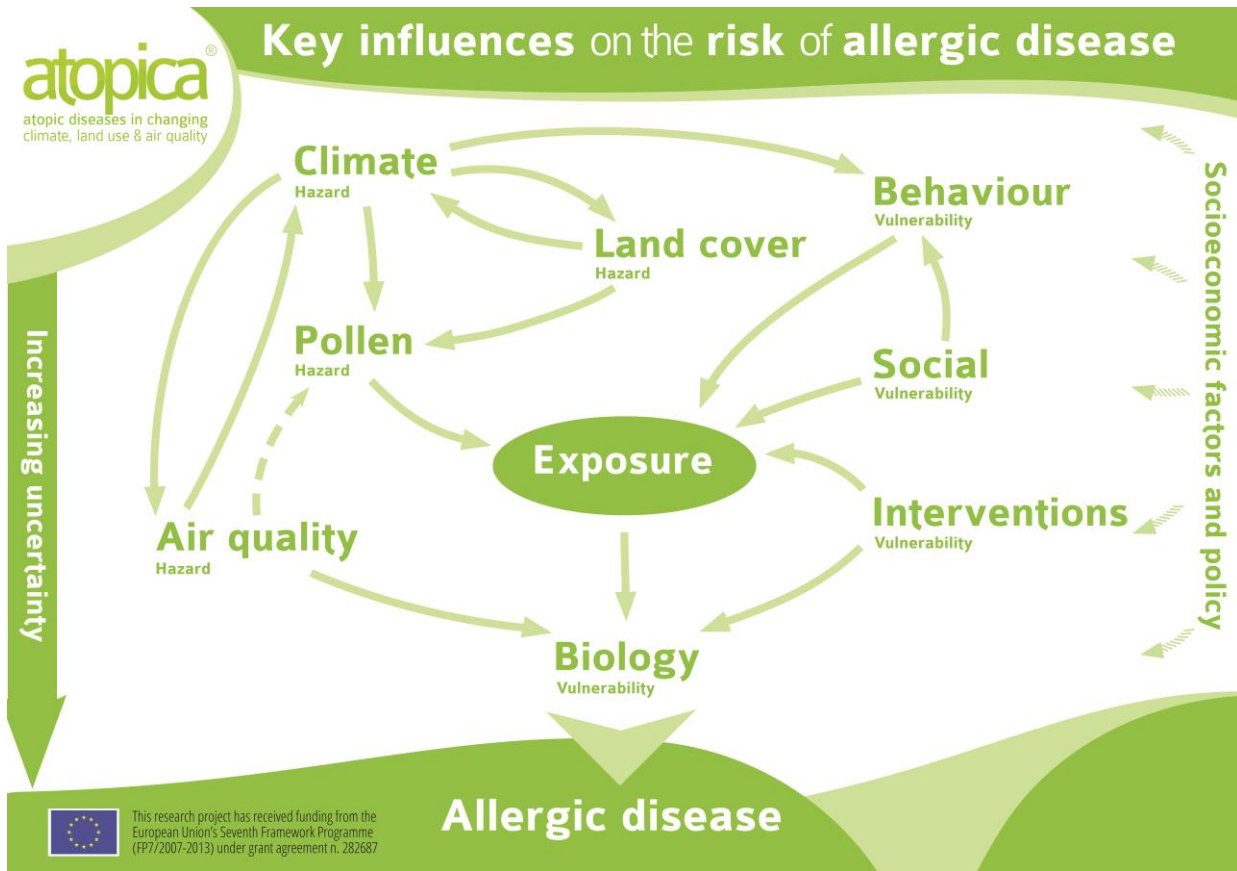
EU CONTRIBUTION € 3 497 160,14

COORDINATED IN Austria

SUBPROGRAMME ENV.2011.1.2.1-1 - Environmental change and its effects on atopic diseases (allergies, asthma, eczema) in Europe

CALL FOR PROPOSAL FP7-ENV-2011

Environmental conditions influence human health and well-being, both positively and negatively, with significant economic and social consequences. A key gap in current understanding of the interactions of environment and allergy is how multiple stressors, such as climate, air quality and land use change, may interact with the development of sensitization and incidence and severity of allergic diseases. There is an urgent need to understand these complex dynamics.



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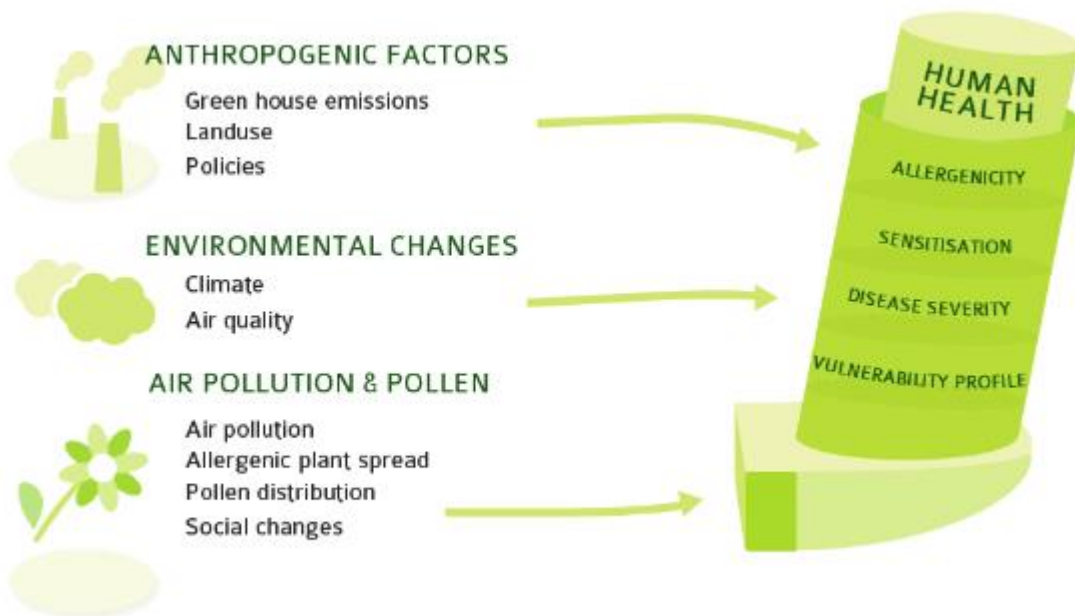
THE APPROACH

A multidisciplinary approach is thus necessary to address these issues and an effective dissemination strategy is needed to properly communicate to stakeholders and policy makers the complex interactions between environment and allergy.

Atopica researchers have been investigating how an altered environment may affect human health as a result of the migration of invasive plant species. In particular, the consortium has been studying the effects of environmental change on common ragweed by modelling changes in climate, air quality, land use and the subsequent distribution of invasive allergenic plants.

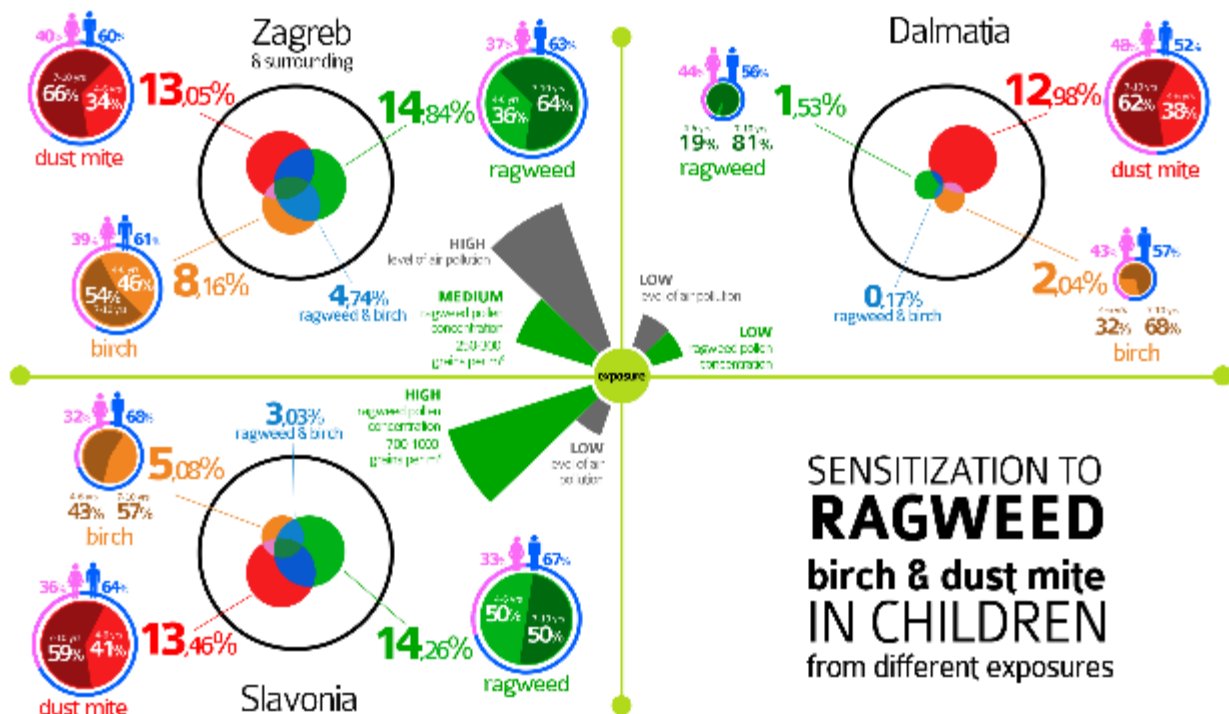


www.atopica.eu/conference



Atopica recruited more than 4000 children, aged from 4 to 11, from 3 different regions in Croatia and 850 elderly people in 3 age groups, 60-69, 70-79 and 80-89, to study allergic sensitization, prevalence and future incidence in allergy to ragweed.

A case study was conducted aiming at identifying spatial data (e.g. children's mobility and place of residence) in relation to exposure to ragweed pollen and pollutants, in order to gain more insight into the complex interaction of environmental and individual factors contributing to both allergic sensitization and clinical features of allergic diseases.



Pollen concentration data in recruitment areas as well as in many other regions of Europe were monitored.

Two modelling suites were developed to predict the fate of airborne ragweed pollen accounting for the first time for climate and land use changes, ragweed seed dispersal and release in the air.

Air quality is expected to evolve substantially in the coming decades under the combined pressure of climate and long-range transport of air pollutants. Atopica scientists investigated the respective importance of air quality management policies and climate change, as well as the main scientific uncertainties.

For the high definition images <https://www.atopica.eu/img/12.png>

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press kit

ATOPICA FACTSHEET

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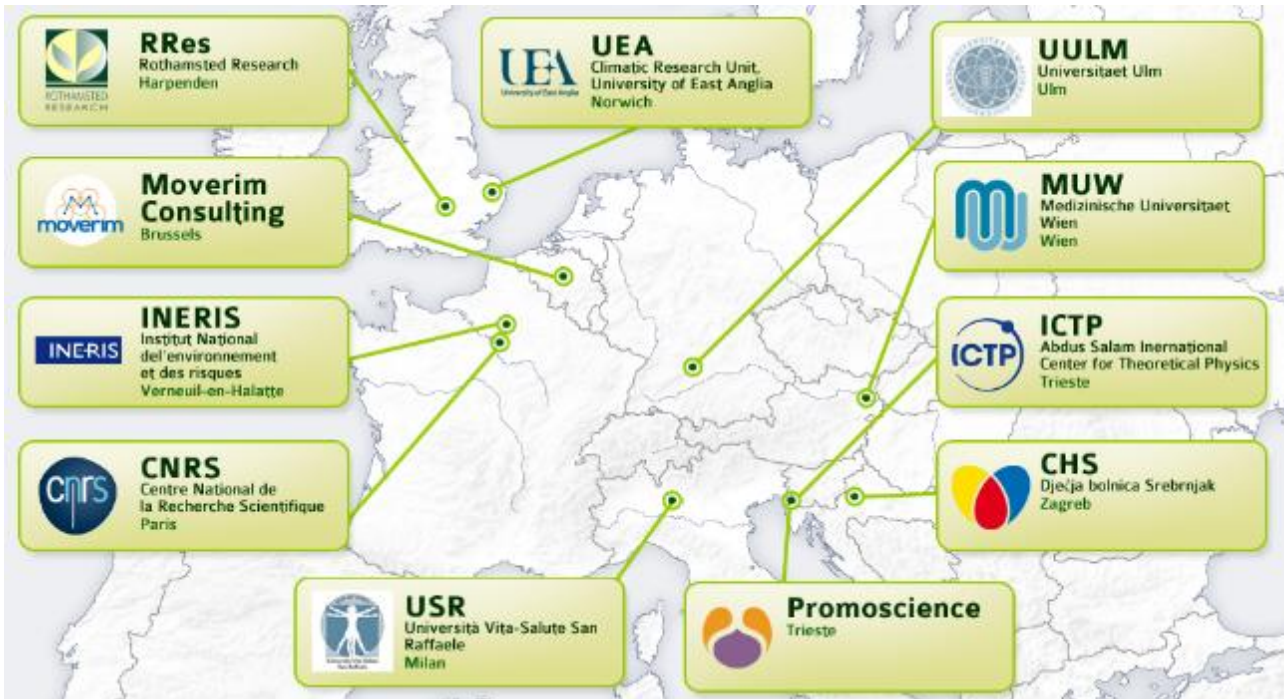


Atopica is a project co-funded by the European Union's Seventh Framework Programme. Grant agreement n.282687



THE CONSORTIUM

The Atopica consortium brings together a group of cellular and molecular biologists, immunologists, allergists, dermatologists, physicists, climate and air quality experts and land use specialists.



For the high definition image <https://www.atopica.eu/img/15.png>

THE PARTNERS

Michelle Epstein is a medical doctor specialized in Internal Medicine as well as Allergy and Clinical Immunology. After a post-doctoral training in Basic Immunology at Yale University and at the National Institutes of Health, she established her research group in the EU at the Medical University of Vienna. Epstein's team combines interests in clinical medicine with basic research on the mechanisms of allergic disease initiation and perpetuation, addressing issues related to disease susceptibility, the factors governing disease severity and chronicity, and drug discovery.

Michelle Epstein is member of the Directorate General for Health and Consumers (DG Sanco) Scientific Committee on Newly Emerging Identified Risks and on Working Groups at EFSA (European Food Safety Authority) on allergenicity and adjuvanticity of GMOs.

She is the Atopica project coordinator and her team focuses on the influence of the environment on the allergenicity of ragweed pollen in experimental models.

Filippo Giorgi is an international expert in climate modelling and climate change research for which he has over 20 years of working experience. He authored or co-authored over 200 papers in peer-reviewed scientific journals and is included in the list of most highly cited scientists in the geosciences. From 2002 to 2008 Giorgi was one of the vice chairs of Working Group I of the Intergovernmental Panel on Climate Change (IPCC), which won the 2007 Nobel Peace Prize and contributed to all five IPCC Assessment Reports to date. Giorgi is a member of a number of top international scientific committees, and in particular the World Meteorological Organization (WMO)-International Council for Science (ICSU) - Intergovernmental Oceanographic Commission (IOC) Joint Scientific Committee (JSC) of the World Climate Research Program (WCRP), which supervises the research activities of WCRP.

Since 1998 he is at ICTP, where he is the head of the Earth System Physics (ESP) section.

In Atopica, he leads the work package dedicated to the collection and assessment of climate observations and model simulations for the recent past and future time periods.

Robert Vautard (Laboratoire des Sciences de l'Environnement - LSCE) has 25 years' research experience in atmospheric sciences: atmospheric chemistry and air quality studies in particular. He has coordinated the development of the CHIMERE regional air quality model, now used in operation as the national French air quality forecast tool. He also has extensive knowledge on climate which he acquired from several weather regime and climate extreme studies. Vautard is a review editor of "Detection and Attribution of Climate Change: from Global to Regional", chapter 10 of the Working Group 1 IPCC report. He has published over 100 peer-reviewed articles and has an experience in management, being director of LSCE and deputy director of the Paris Climate Consortium (www.gisclimat.fr), whose objective is to foster interdisciplinary research on climate change impacts.

He currently leads the work package on air quality and pollen modelling in Atopica. In particular, his team focuses on land use scenario provision, regional climate simulations and statistical analysis of the relations between climate variability and pollen concentrations.

Frédéric Meleux is an R&D engineer with extended knowledge on the links between local, regional and global air pollution.

He participated in the EU-funded projects GEMS (Global and regional Earth-system)

and PROMOTE (PROtocol MOniToring for the GMES Service Element:

Atmosphere) and is involved in several initiatives related to data assimilation in Air Quality models, especially for the assimilation of spaceborne products. He has contributed to the implementation of such procedures in a regional air quality model, the CHIMERE.

At INERIS he coordinates the modelling activities in the framework of the air quality forecast Prev'Air system and supervises the development of procedures aimed at improving the quality and the reliability of forecasting skills.

In Atopica, his team is in charge of the numerical simulations designed to investigate possible changes in air quality levels related to the impacts of climate change.

Mikhail Semenov, mathematician, leading specialist in modelling impacts of climate change on agricultural systems. He was a principal investigator of many national and international projects; in 2008, he was appointed Editor-in-Chief of Climate Research, an international journal on all aspects of the interactions of climate with organisms, ecosystems and human societies, including climate change impacts. Dr Semenov is one of the principal developers of a weather generator, which is used worldwide to construct local-scale daily climate scenarios based on projections from climate models: the LARS-WG model. These scenarios are used to quantify risks and uncertainties of impacts. He is also a principal developer of a plant growth simulation model (Sirius model). The Sirius model was used in many model intercomparison studies and for the prediction of the composition of plant communities under climate change.

His role in the project involves the development of local-scale climate scenarios across Europe and a model for pollen emission for Ambrosia and its progressive invasion in Europe as a result of changing climate.

Christiane Pfeiffer is a dermatologist and allergist, currently a senior attending in the department of dermatology at Ulm University since 2007. She has a strong clinical background in autoimmune and allergic diseases.

In 1998 she became a clinical attending at the department of dermatology at Dresden University of technology. Among other good clinical practice (GCP) treatment studies, she headed a subproject 'Heart in scleroderma' funded by the German Federal Ministry of Education and Research (BMBF), and performed research on activation and homing of immune cells in the autoimmune skin disease bullous pemphigoid.



She currently leads the clinical work package in Atopica and organized the external ethics advisory board and the recruitment of participants for the geriatric clinical cohort in Germany.

Mirjana Turkalj is a paediatrician with over 20 years of experience in the field of allergy and clinical immunology. She has been trained in centres of excellence for immunotherapy, food allergy and eosinophilic disorders in Europe and in the US. She is Head of the Department of Pulmonology and Allergology at the Children's Hospital of Srebrnjak (CHS), Head of the Reference Center for Clinical Allergy in Children in the Republic of Croatia and a lecturer at the Medical Faculties of the University of Zagreb, Split and Osijek. Her work mainly focuses on translational biomedical research, including genetics, epigenetics, cell biology, molecular allergology and immunology, and immunotherapy. Her role in Atopica is to coordinate and supervise all tasks within the clinical work package regarding the children's cohort, including recruitment of participants, case study (on children's residence and mobility as well as exposure to pollen and air pollution at different sites) and follow up on their morbidity.

Dejan Lazarevic is a medical doctor with twenty years' worth of experience in molecular biology, cell cycle, regeneration of spinal cord, neurodegenerative disease and genomics. He has been involved in several technology-oriented projects and has participated as a partner in the Fantom (Functional Annotation of the Mammalian genome) project. Over the years, his research focused on methods for full length cDNA creation and on the production of next-generation sequencing data, for research and diagnostic purposes. More recently, he has been working extensively on panel design for the study and diagnostics of hereditary neuromuscular disease, acute lymphatic leukaemia and prostate cancer.

His role in Atopica is to supervise and co-ordinate all the tasks pertaining to the genomics aspects of the project.

Iain Lake is a Senior Lecturer in Environmental Science and a member of the Risk, Health and Decision Support Group at the University of East Anglia. He has over 13 years' research experience in the School of Environmental Sciences and is an environment and health specialist with additional expertise in Geographic Information Systems (GIS) and statistical analysis. He is currently working on projects looking at the impact of weather and climate change upon a number of infectious and non-infectious diseases including consideration of how societies adapt to changing climates. He has recently been working on the development of health indicators of climate change for the European Centre for Disease Prevention and Control (ECDC) and has recently completed a review for the UK food regulator



on the impact of climate change upon food supplies in the UK. In Atopica, his team uses an integrated approach to investigate the association between pollen, climate, and air quality and the prevalence and severity of allergic disease at multiple space and time scales.

Laura Vivani has worked intensively for nearly 20 years on EU financial programs, including the EU Framework Programs at the Directorate General for Research & Innovation (DG RTD). Her strong background in Economic and Business innovation has permitted her to organise a great number of trainings to improve the quality and implementation of RTD EU contracts. She is heavily involved in project design phases, negotiation, implementation, dissemination and communication activities. Her many clients include private companies, universities and research centres with a particular focus on Energy, Climate change, Environment, Health, Information Technologies, Nanosciences and Nanotechnologies, Food Science, Security and Transport.

She coordinates the work package on dissemination and transfer of knowledge and is responsible for engaging with stakeholders, as well as organising and managing public events.

Riccardo Brancaleon is an electronic engineer specialised in clinical engineering. From 1998 to 2001 he held a Research Fellowship at the International School for Advanced Studies (SISSA) where he developed new tools for scientific and IP document management. From 2002 to 2003 he worked as consultant for technology transfer offices, business support agencies, research institutes, and universities. In 2004 he founded Promoscience Srl, a SME specialised in exploring the requirements of the scientific community and in developing ICT strategies for knowledge transmission. His professional experience includes management of technology transfer and R&D programmes, ICT solutions design and development as well as business intelligence analysis.

Within Atopica, he is responsible for all dissemination and communication activities, including project branding, design and implementation of the project web portal, and creation of specific communication materials.