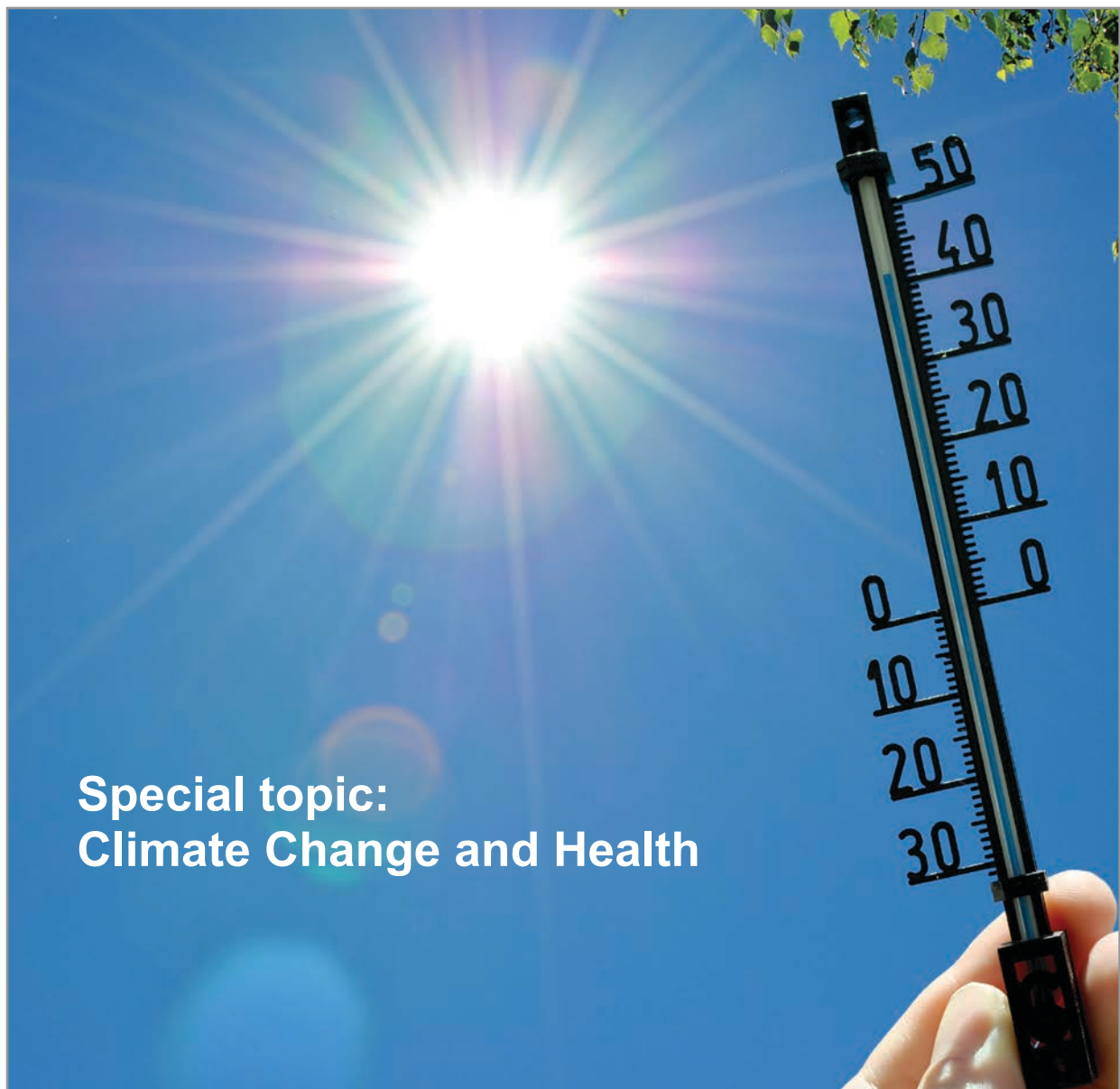


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**The complete issue with full articles in German language is available on our UMID website <https://www.umweltbundesamt.de/themen/gesundheits/newsletter-schriftenreihen/zeitschrift-umid-umwelt-mensch-informationsdienst>**

# Climate change and pollen allergy: How cities and municipalities can reduce allergenic plants in public spaces

**Karl-Christian Bergmann<sup>1</sup>, Wolfgang Straff<sup>2</sup>**

<sup>1</sup> German Pollen Information Service Foundation

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## Abstract

The climate change leads to changes in pollen exposure of the population. In particular, allergic individuals who react to the pollen of hazelnut, alder and birch are affected because these appear earlier in the year and tend to be in higher concentrations. This trend is reinforced by the new planting of allergenic tree species in cities. Up to now there is no recommendation in Germany for the new planting of trees in public spaces which considers the needs of pollen allergy sufferers. Here we propose which tree species should be avoided for new plantations in towns. Following these considerations could prevent a further increase in the amount of allergenic tree pollen. A list of allergologic safe tree species suitable for cultivation is also added.

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# Control of the oak processionary moth (*Thaumetopoea processionea*) for the protection of human health in public areas

**Christoph Stang, Maura Schwander**

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## Abstract

The oak processionary moth (*Thaumetopoea processionea*) is an endemic butterfly species and distributed in the majority of European countries. The presence of the caterpillars in areas frequently visited and used by the public necessitates measures to protect people from the contact with the urticating hair that can cause a variety of symptoms. Thus, many efforts have been made by local authorities in Germany to antagonize infestations in these areas. The measures taken commonly entail the application of insecticides in spring preferably before the caterpillars start to develop their urticating hair when reaching the third larval stage. Since the caterpillars commonly reach this development stage within two to three weeks after hatching, the time slot is per se limited in which an effective control of the caterpillars with insecticides is possible in order to adequately protect human health. Taking into account the necessity of favorable external conditions during insecticide applications, a considerable risk of misapplications in terms of measures that result in insufficient degrees of efficiency which are the premise for a satisfactory degree of protection for human health can be assumed. Consequently misapplications would result in additional efforts to achieve adequate protection for the affected general public and, in addition, pose an unnecessary pollution of the environment. Hence, there are a number of preliminary procedures that should be executed to assess the nature and the extent of measures to control the caterpillars and thus to avoid misapplications. In a general hazard analysis, areas should be identified and located that are frequently

visited by the general public (i.e. housing areas, shopping and leisure centers, public parks or hospitals etc.) and where the presence of the oak processionary moth would result in a risk for human health. Subsequently the population dynamics and the degree of infestation in these areas should be monitored and documented during summer and autumn. Based on these observations, adequate precautionary and control measures for the subsequent year can be weighed up. In areas where minor infestations can be expected, the applicability of alternative measures, such as warnings to the general public or the temporary restriction of access to these areas as well as the mechanical removal of caterpillars and their communal nests should be taken into consideration. However, in heavily infested areas often frequented by the general public, the use of insecticides against the caterpillars of the oak processionary moth for reasons of public health in accordance with the European Biocides Regulation ((EU) 528/2012) can be considered.

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## **The influence of climate change on biotropical weather situations and human health in Germany**

**Stefan Zacharias<sup>1</sup>, Christina Koppe<sup>1</sup>, Hans-Guido Mücke<sup>2</sup>**

<sup>1</sup> *German Meteorological Service*

<sup>2</sup> *German Environment Agency*

#### **Abstract**

Biometeorological studies show that weather affects human well-being and health in many ways. Based on relationships identified in a systematic literature review and a representative survey on meteorosensitivity as well as on evaluations between weather factors and mortality for the present climate, the influence of climate change is analyzed from 19 regional models for Germany and future climate impacts on health. The evaluation of climate model simulations shows that the future heat-related health impact in Germany will increase significantly, with at least a doubling by the end of the 21st century. In contrast, the cold-related health impact will decrease. According to the model simulations, also the frequency, duration, and intensity of heat waves will increase significantly. Furthermore, rapid day-to-day temperature changes and diurnal temperature variability which are also associated with enhanced health stress are projected to increase. The obtained results document the fundamental relevance of climate change on human health in Germany and underline the importance of public adaptation strategies to minimize the impact of the expected changes on health.

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# What is the benefit of heat health warning, UV index, pollen flight and ozone forecasts to the public?

**Marcus Capellaro<sup>1</sup>, Diethard Sturm<sup>2</sup>, Hans-Guido Mücke<sup>3</sup>**

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## Abstract

Climate change affects human health through more frequent and/or more severe extreme weather events and increasing climate variability. National information and early warning systems (UV index, heat health warnings, pollen and ozone forecasts) can potentially prompt protective or adaptive measures by the population and thus protect health from environmental factors. These four information and early warning systems were evaluated by means of polls of the population, the authorities and the environment and public health agencies. The result formed the basis for a communication concept. Furthermore, a concept for the care of old and sick citizens by nursing care providers and office-based physicians was developed that will be viable under extreme weather conditions.

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# Effects of climate change on human health. Results of the Network Vulnerability

**Inke Schauser<sup>1</sup>, Birgit Habedank<sup>1</sup>, Hans-Guido Mücke<sup>1</sup>, Carola Kuhn<sup>1</sup>, Hildegard Niemann<sup>2</sup>, Mareike Buth<sup>3</sup>, Walter Kahlenborn<sup>3</sup>, Stefan Greiving<sup>4</sup>, Mark Fleischhauer<sup>4</sup>, Stefan Schneiderbauer<sup>5</sup>, Marc Zebisch<sup>5</sup>**

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## Abstract

The network vulnerability, an association of 16 federal public authorities and a scientific consortium, has developed a national vulnerability assessment for the 15 sectors of the German National Adaptation Strategy. The results for the human health sector show that climate change, especially heat events, already significantly threatens human health. In case of a strong climate change heat effects and breathing difficulties caused by ozone will threaten human health in the middle of the century more often and intensive than today. The likelihood of certain infectious diseases will in-

crease with increasing expansion or establishment of the arthropod or rodent vectors of these pathogens. Until the end of the century will the dangers of human health increase further because of rising temperatures.

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## **Recommendations on UV exposure for endogenous vitamin D synthesis – not an easy task**

***Cornelia Baldermann***

*Federal Office for Radiation Protection*

#### **Abstract**

It is a challenge for policy maker worldwide to give uniformly applicable recommendations regarding the question of how much UV exposure is necessary for sufficient endogenous vitamin D synthesis. Various factors influence the vitamin D synthesis like the prevailing UV-B-irradiance as an external factor, and individual factors like skin type and age, time spent outdoors as well as the individual UV protective behavior. Due to these factors the UV dose necessary for endogenous vitamin D synthesis can strongly vary between individuals, and the necessary UV dose cannot be precisely determined on an individual level. Additionally, there is no scientific consensus on the quantity of vitamin D considered as healthy. It is well known that UV radiation triggers the vitamin D synthesis, but at the same time UV radiation is a carcinogen and causes serious adverse health effects. Worldwide the incidence of UV-induced skin cancer is increasing. It is therefore vital to deal consciously with UV radiation. Towards a recommendation which consider all known facts about UV radiation and UV-induced vitamin D synthesis, the Federal Office for Radiation protection (BfS) together with the Alliance for UV Protection (UV-Schutz-Bündnis) initiated in 2013 an interdisciplinary scientific expert discussion. Scientific authorities, expert associations, and public bodies concerned with radiation protection, health, risk assessment, medical care and nutritional science gathered the scientific knowledge on UV induced health effects and vitamin D synthesis and formulated a joint recommendation on UV exposure for endogenous vitamin D synthesis. The scientific background of this recommendation and the considerations leading to this joint view will be outlined as support for those dealing with this topic. The recommendation was published in November 2014, is easy to understand and to apply and has the potential to contribute helpfully to skin cancer prevention worldwide.

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# The impacts of climate change on human health – an overview of UMID articles from 2009 to 2015

**Birgit Zielo, Hans-Guido Mücke**

*German Environment Agency*

## Abstract

The impacts of climate change on human health are expected to become a serious public health problem even in Germany. Vulnerable people like the elderly, young children, and those suffering from chronic diseases are affected most. In terms of public health protection, managing the risks of climate change is crucial and requires efficient mitigation and adaptation strategies on an international as well as on a national level. The following article provides a summary of selected national studies that are dealing with climate change-related health issues and were published in the UMID magazine between 2009 and 2015.

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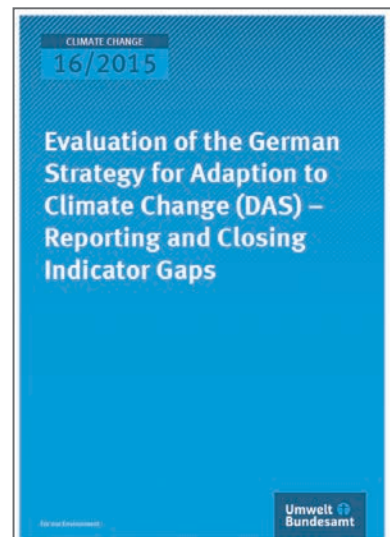
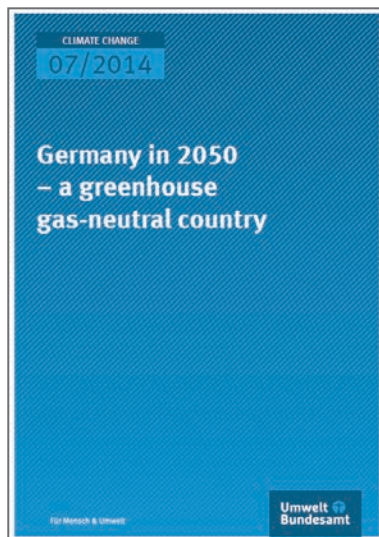
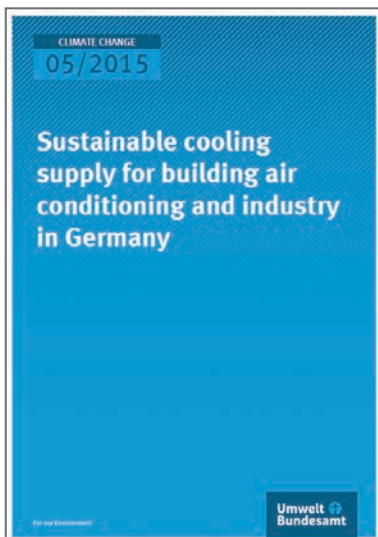
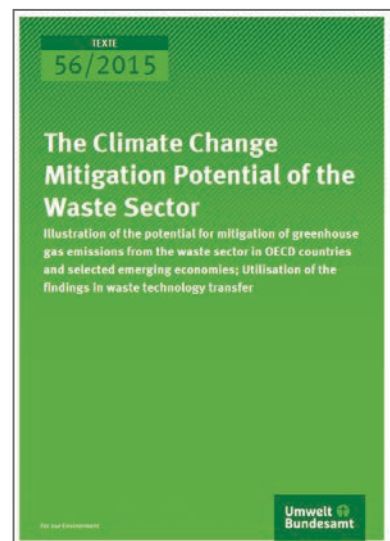
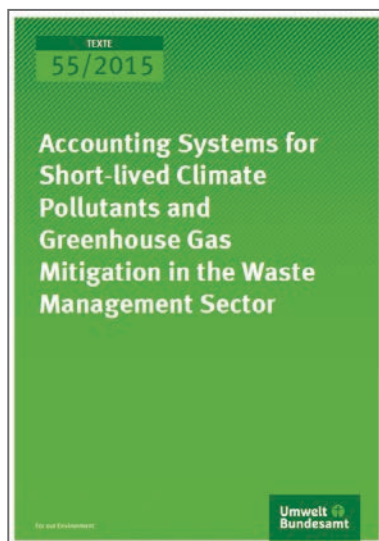
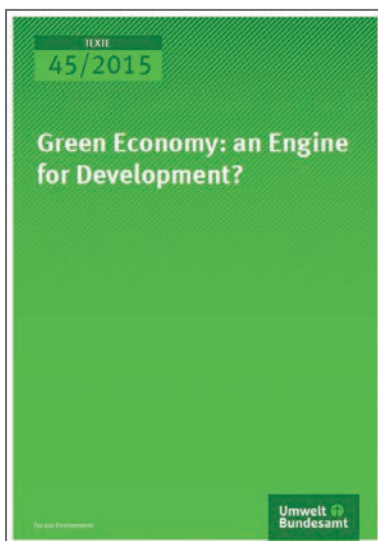
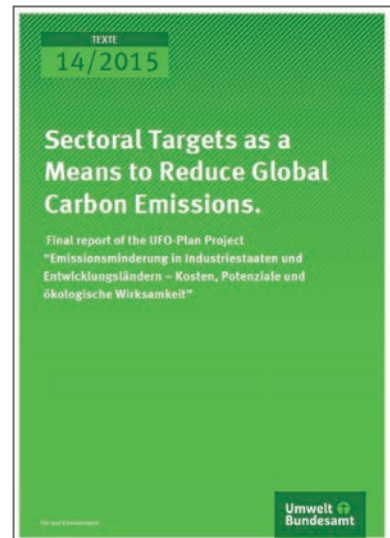
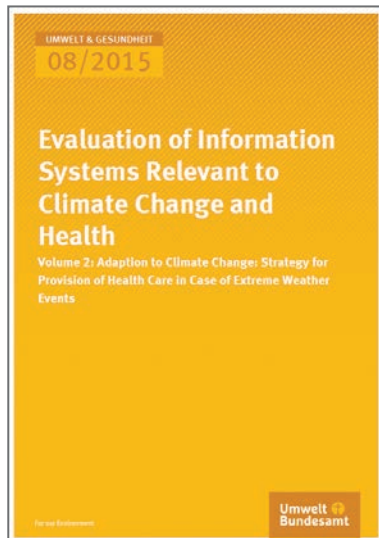
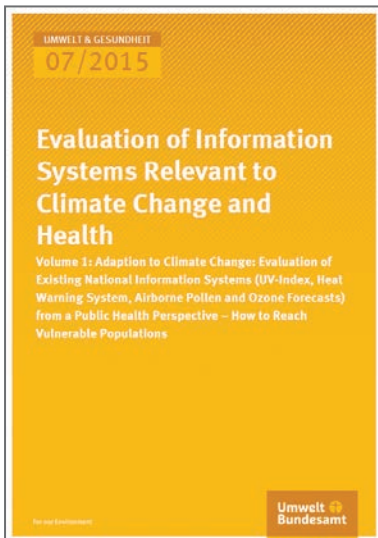
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