ALLERGY, ONE WORLD

A 498 REFERENCES PAPER ON CLIMATE CHANGE AND ALLERGY

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This is certainly the most comprehensive paper that examines the association of air pollution, climate change and allergen exposure: "Air Pollution and Climate Change Effects on Allergies in the Anthropocene: Abundance, Interaction, and Modification of Allergens and Adjuvants"

Air pollution and climate change are potential drivers for the increasing burden of allergic diseases. The molecular mechanisms by which air pollutants and climate parameters may influence allergic diseases, however, are complex and elusive.

There is no causal effect of allergens on human allergy, as allergens have been always abundant even without allergy. Nevertheless allergens are drivers aggravating symptoms in allergy-prone patients by basically four factors

1. Stability effects; influencing the accumulation and degradation of allergenic proteins, the duration of exposure times to cellular receptors, and the process of antigen presentation via major histocompatibility complex (MHC) class II
2. Epitope effects, i.e., generation of new epitopes or modification of existing epitopes, changing the binding properties of antibodies and receptors, by direct chemical modification or as a result of conformational changes
3. Adjuvant effects, i.e., generation of new adjuvant functions or modification of existing adjuvant functions such as lipid-binding capacities due to modified ligand binding sites
4. Agglomeration effects, i.e., multiplication or shielding of epitopes or adjuvant functions by cross-linking (oligomerization) of allergenic proteins, which may enhance the cross-linking

I would add 5. that the absolute number of pollens increased in some areas as a stress re-

sponse of dying trees.