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# The long distance transport (LDT) of Ambrosia pollen from the Pannonian Plain to Scandinavia

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Ragweed (Ambrosia spp.) pollen grains are important aeroallergens that cause seasonal allergic rhinitis and asthma to sensitive individuals. This study describes the conditions required for the LDT of ragweed pollen from the Pannonian Plain (PP) to Sweden on the 27- 28 August 2011, using a combination of daily and bi-hourly pollen count data, the overall synoptic weather situation, 3D analysis of the regional scale orography using Digital Elevation Models, surface meteorological data, satellite observations, and air mas trajectories calculated using the HYSPLIT model. During the episode, high pressure (1024-1028 hPa) situated over European Russia and the Black Sea to the east and deep low pressure ($\sim$990 hPa) over the British Isles in the northwest resulted in a general southeast-northwest movement of air, and the occurrence of the jet-effect Kosava wind in the PP. This dry and gusty wind caused ragweed pollen release on the PP and pollen to be transported to the northwest. A foehn wind that governs air movement down leeward slopes into the PP was also active. The 24 and 25 August 2011 were very hot and caused large amounts of ragweed pollen to be released and taken high up in the atmosphere through convection. Such conditions also resulted in high Planetary Boundary Layers over the entire area, conditions that facilitated the transport of pollen over areas of low elevation on the Western Carpathians (i.e. the Moravian Gate or Low Baskid passes) northward into Poland and beyond.