81st International Scientific Conference of the University of Latvia 2023

Contribution ID: **2** Type: **Short talks**

Exploring Allergenic Pollen in the Norwegian Atmosphere

Thursday, 2 February 2023 10:50 (15 minutes)

Background & Aims: The environment of the Scandinavian country of Norway is exceptionally diverse. This is primarily the result of its wide-ranging latitude, longitude, altitude and high microscale topographical heterogeneity. This has contributed to complex climatological gradients and allowed for many different habitats and species. While the identification of Norwegian species has long been ongoing the modern monitoring of Norwegian pollen started in Trondheim in 1980. Since then, the pollen monitoring network has expanded to encompass twelve locations spanning the length of the country. However, relatively little is still known of how pollen in Norway varies both spatially and temporally and what type of environmental factors that influence the variation. This is especially relevant for allergenic pollen that elicit immunological reactions in the Norwegian public. We have recently started a new project aimed at gaining new and detailed understanding of the Norwegian allergenic pollen landscape and factors that influence pollen variation. The primary main objective is the creation and dissemination of updated and informative pollen calendars for each allergenic pollen type. Furthermore, the second main objective is to use local meteorology and statistical models to develop more in-depth understanding of spatiotemporal pollen variation.

Methods: The Norwegian pollen monitoring network monitors six main types of allergenic pollen: alder (*Alnus*), birch (*Betula*), grass (Poaceae), hazel (*Corylus*), mugwort (*Artemisia*) and willow (*Salix*). The pollen season is monitored from the start of the year to the 30th of September, generally considered the end of the growth period. For the pollen calendars to be reliable only recent and comparable data were used, with the years between 2007 and 2022 (16 years) being averaged to construct the calendars for the twelve locations. Four aspects of the pollen season were used: First to last observation of the season, SPIn 95% and timing of high and very high pollen concentration thresholds, with the threshold varying between pollen types.

Results: Calendars representing the three main allergenic pollen types have been consolidated so far: alder, birch and grass. The alder pollen season occurs between the beginning of February to the end of April, with six of the twelve locations having negligible SPIn. The main birch pollen season occurs between the middle of April to the end of June, with high and very high concentrations occurring for a substantial time in four locations between April and May. The main grass pollen season occurs between the beginning of June to the end of August, with high concentrations rarely being observed for most locations.

Conclusion: Large variation were observed in the timing and the presence of high pollen concentrations between the locations, likely due to the complexity of the Norwegian environment. The project will continue developing new knowledge of the Norwegian pollen landscape with multiple publications on the near horizon.

Primary author: FRISK, Carl A. (Norwegian Institute of Bioeconomy Research)

Co-authors: BROBAKK, Trond Einar (The Norwegian Asthma and Allergy Association); RAMFJORD, Hallvard (Norwegian University of Science and Technology)

Presenter: FRISK, Carl A. (Norwegian Institute of Bioeconomy Research)