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Conference Abstract

# Unexploited Biodiversity Data Sources: The case of airborne pollen

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## Abstract

With more than one billion primary biodiversity data records (PBR), the Global Biodiversity Information Facility (GBIF) is the largest and, arguably, most comprehensive and accurate resource about the biodiversity data on the planet. Yet, its gaps (taxonomical, geographical or chronological, among others) have often been brought to attention (Gaijy et al. 2013) and efforts are continuously made to ensure more uniform coverage. Especially as data obtained through this resource are increasingly being used for science, policy, and conservation (Ariño et al. 2018), drawing on every possible source of information to complement already existing data opens new opportunities for supplying the integrative knowledge required for global endeavors, such as understanding the global patterns of ecosystem and environment changes.

One such potential source that exists, but so far has experienced little integration, is the vast body of data acquired through airborne particle monitoring systems (for example, the European Aeroallergen Network, EAN). A large portion of pollen data is comprised of quantitative sampling of airborne pollen collected through semi-automated spore traps throughout the world. Its main use is clinical, as it forms the basis of the widespread allergen forecast bulletins. While geolocating the source of airborne pollen is fraught with obviously large uncertainty radii, the time and taxon components of the PBR remain highly precise and are therefore fit for many other uses (Hill et al. 2010). Presence data, and under certain circumstances, frequency data inferred from pollen counts have been often proposed as an excellent proxy for past climate change assessments as far back as the

start of the Holocene (Mauri et al. 2015) and might therefore also be possibly used for current climate change detection.

We call for a concerted effort throughout the palynological community to first increase harmonizing, and then eventually standardizing, pollen data acquisition through the adoption of Darwin Core (DwC) and, eventually, DwC extensions to

- mine current data and
- pipeline future airborne pollen data as PBR.

Success in this endeavor may contribute to a better understanding of global change.

## Keywords

pollen, DwC extensions, climate change, data mining, primary biodiversity data

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## Conflicts of interest

The authors declare no conflict of interests.

## References

- Ariño A, Noesgaard D, Hjarding A, Schigel D (2018) Biodiversity Information Services: A (not-so-) little knowledge that acts. Biodiversity Information Science and Standards 2: 25738. https://doi.org/10.3897/biss.2.25738
- Gaijy S, Chavan V, Ariño AH, Otegui J, Hobern D, Sood R, Robles E (2013) Content assesment of the primary biodiversity data ublished throug GBIF network: Status,

challenges and potentials. Biodiveristy Informatics 8 (2): 94-172. https://doi.org/10.17161/bi.v8i2.4124

- Hill AW, Otegui J, Guralnick RP, Ariño AH (2010) GBIF Position Paper on Future Directions and Recommendations for Enhancing Fitness-for-Use Across the GBIF Network, version 1.0. ISBN: 87-92020-11-9. Global Biodiversity Information Facility 1-25. URL: https://www.gbif.org/document/80623/gbif-position-paper-on-future-directions-and-recommendations-for-enhancing-fitness-for-use-across-the-gbif-network
- Mauri A, Davis BAS, Collins PM, Kaplan JO (2015) The climate of Europe during the Holocene: a gridded pollen-based reconstruction and its multi-proxy evaluation. Quaternary Science Reviews 112: 109-127. https://doi.org/10.1016/j.quascirev.2015.01.013