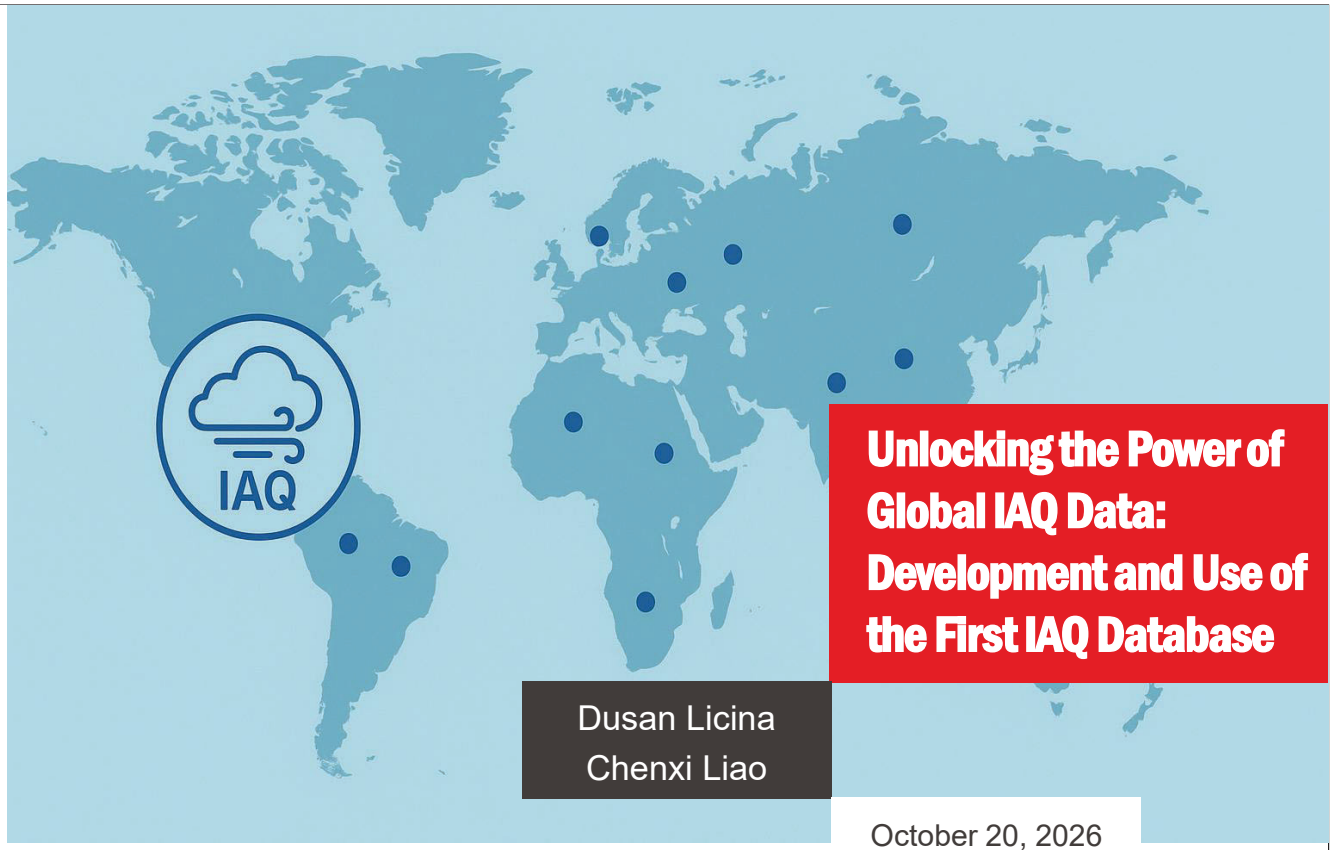


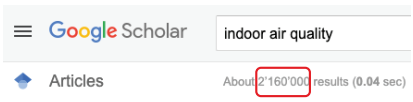
Unlocking the Power of Global IAQ Data: Development and Use of the First IAQ Database

Dusan Licina
Chenxi Liao

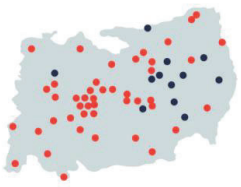
October 20, 2026

Growing IAQ data, limited opportunities for reuse

The rise of smart sensors & data-rich IAQ monitoring



Growing public and scientific attention to IAQ



Fragmentation of existing datasets

Common barriers	Our approach
Dispersed study datasets	Multi-study aggregation
Different formats & docs	Harmonized data & metadata
Difficult discovery & access	Shared online platform

Our vision

- Bring IAQ field measurements into a shared global resource
- Connects measurements with building, occupant and environmental context
- Support reuse through harmonization and quality assessment
- Enable exploration and collaborative research

Team members & project partners

Core team

Dusan Licina

Chenxi Liao

Joan Rey

Bowen Du

Charlotte Weil

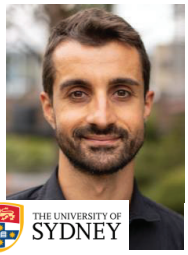
Yannick Marcon

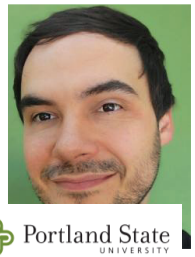
Project partners

Pawel Wargocki

Corinne Mandin

Ulla Haverinen-Shaughnessy


Federico Tartarini


Brett Stinson

Brett Singer

Project overview

INTERNAL DATA SOURCING:
From the pre-owned dataset of the core team and project partners

EXTERNAL DATA SOURCING:
From the major field investigations around the world

DATABASE ARCHITECTURE
Online platform, data submission & exploration tool

DATA SOURCING
from project members and original data contributors

METADATA SOURCING
containing key information about the collected data

QUALITY CONTROL
prior to assimilating data into the database

DATA HARMONIZATION
and planning what data will be included in the database

IAQ DATABASE
based on collected data; ongoing process

PUBLIC ACCESS & EXPLORATION
advancements in education, research and innovation

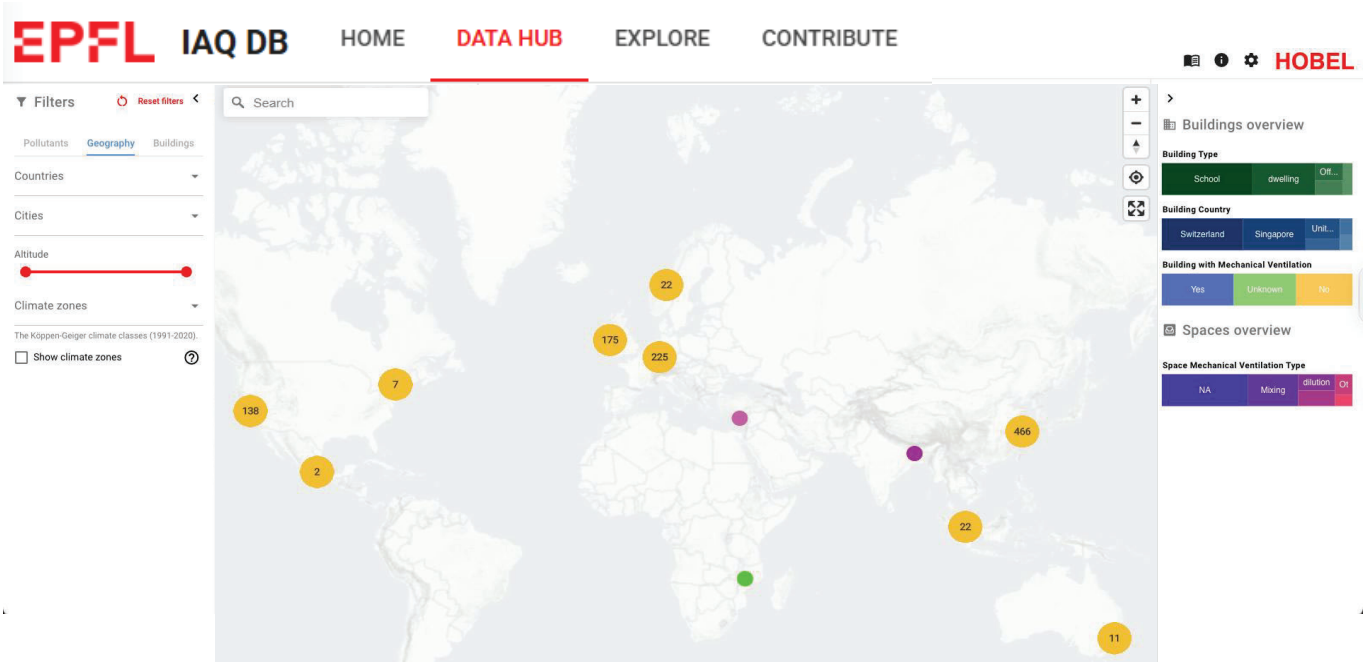
DATA VALIDATION
at a publication level to prevent transmission error

DATA COMPARISON
against results from an original related publication

DATA FILTERING
and visualization to check the validity of each data set

Exploring the database

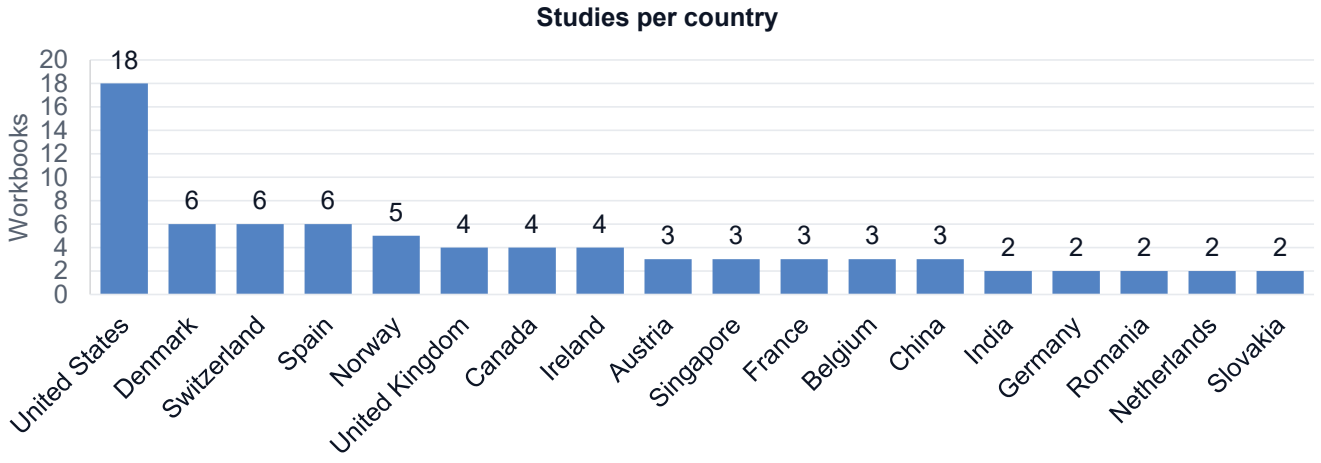
Website: https://iaqdb.epfl.ch/



Data collection: scale and geographical coverage

Metadata snapshot: 17 August 2026

86	14,191	34	509
Project submissions	Building records	Countries	City / area labels



Data collection: scale and geographical coverage

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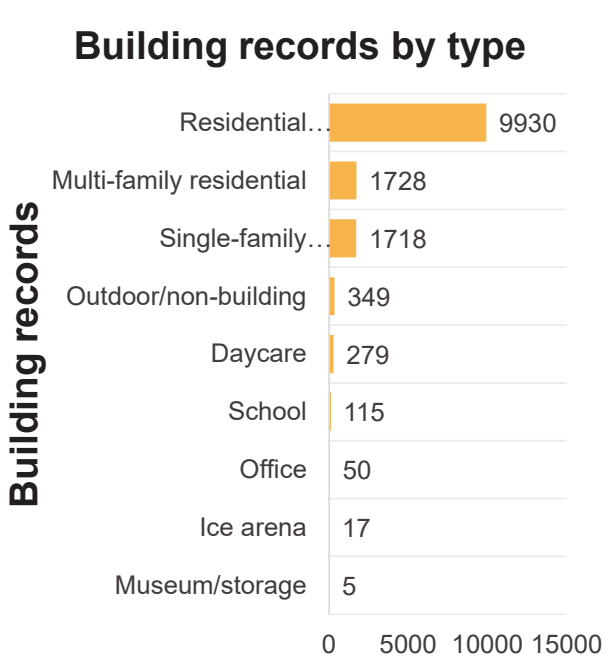

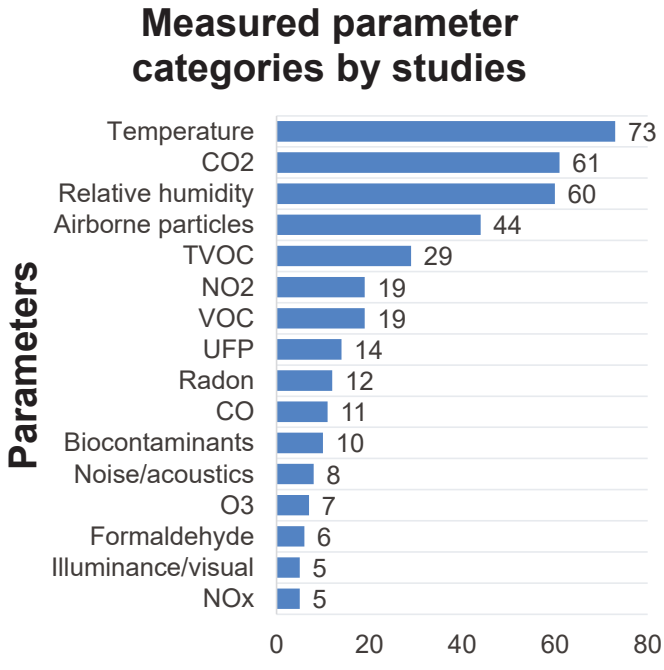

Future steps – data explorations *

Research direction	Main question
Initial publication	Database development; what data do we have, and where are the gaps?
Guideline comparisons	Where do measured concentrations exceed relevant guideline values?
Variation and assessment	How does IAQ vary with building characteristics, climate and season?
Indoor – outdoor ratios	How do outdoor air, ventilation and filtration influence indoor concentrations?
Changes over time	How has IAQ changed over time or following interventions?

*** Opportunities for joint analyses and new research proposals**

Interested? Here's how to contribute your data

1. Complete the Getting Started Form

Tell us about the study or project behind your dataset.

2. Prepare Your Metadata and Measurements

Metadata	IAQ measurements
Building characteristics and location context	Air pollutant measurements
Space characteristics, such as type and volume	Timestamps or measurement periods
Other relevant contextual information	Building and space IDs
Building and space IDs	

3. Upload your files

Recognition and opportunities for contributors

- **Early access**
  Access to the full database before public release.
- **Visibility and recognition**
  Appropriate dataset attribution, supporting discovery, reuse and impact.
- **Initial database publication**
  Potential co-authorship for substantial contributions to the database and active participation in the publication.
- **Future research collaborations**
  Opportunities to join working groups addressing questions emerging from the global dataset.
- **Contribution to the field**
  Support open science, evidence-based practice and healthier indoor environments.

Join the effort!

Have IAQ field data to contribute?

Have a research question to explore together?

Contact information:

Dr. Chenxi Liao, chenxi.liao@epfl.ch

Dr. Dusan Licina, dusan.Licina@epfl.ch