# GIUZ Airmiles Report: Monitoring 2021 & Reduction activities 2022

*12 December 2022*


**Executive summary**
In 2021, air travel at GIUZ remained very low due to post Covid-19 travel bans. Flight distances and emissions were therefore well below the UZH target. The GIUZ Airmiles group reached out to colleagues at the department, the faculty, the UZH and the public to raise awareness of air travel in academia and airmiles monitoring at GIUZ in particular. In March 2022, the airmiles group presented the first draft of the "GIUZ Airmiles Reduction Strategy" at the Institutes' assembly (InVers). In December, they organise the workshop "Fly less?!" for all GIUZ staff and students At this workshop staff and students can exchange about best-practices and discuss future plans and measures regarding low flying academia.

**Aim**
This document reports on the activities of the GIUZ Sustainability Task Force airmiles group in 2022 and provides airmiles statistics updated with the flights of 2021.

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## Airmiles at GIUZ in 2021

For the 2021 analysis, we modified our approach to compute CO2 emissions, distances and staff count, slightly affecting all subsequent airmiles statistics. We briefly discuss our new methods before presenting the results.

- **Emissions:** We automatically retrieve the emissions from the *GoClimate* Flight Emissions *API,* compared to manual retrieval from *Atmosfair* before. Both services yield comparable but slightly different emission estimates. For example, atmosfair.de estimates 2'235 to 3'855 kg of CO2 emissions for an economy class round trip from Zurich (ZRH) to New York (JFK), depending on the airline. For the same trip, *GoClimate* estimates average emissions of 2400 kg CO2.

- **Flight distance:** We automatically compute the Haversine distance between each departure and arrival airport of each flight. The Haversine distance from Zurich (ZRH) to Lima (LIM) with a stopover in Madrid (MAD) equals 10'778 km, slightly below the 10'855 km manually retrieved from *Atmosfair.*

- **Staff count:** The GIUZ administration implemented a new method to count the Department staff, providing a harmonised baseline for evaluating per capita emissions and distance. The new staff count allows for consistent comparison across years, but in some cases, it differs

considerably from the old one. For example, the Remote Sensing division had 58 employees in 2018, according to the new count and 50, according to the old one.

In 2021, air travel at the Department remained very low due to post Covid-19 travel bans. Flight distances and emissions (Figure 1) were well below the UZH target. The remaining flights were mainly to carry out fieldwork, while travels to conferences, project meetings and teaching played hardly a role (Figure 3). The share of flights per function (e.g. PhD student, professor) remained constant, albeit at a much lower level, except for considerably fewer guests arriving at the GIUZ (Figure 2). While GIScience and Remote Sensing continued their downward trend, Human and Physical Geography had more flights in 2021 than in 2020 (Figure 4).

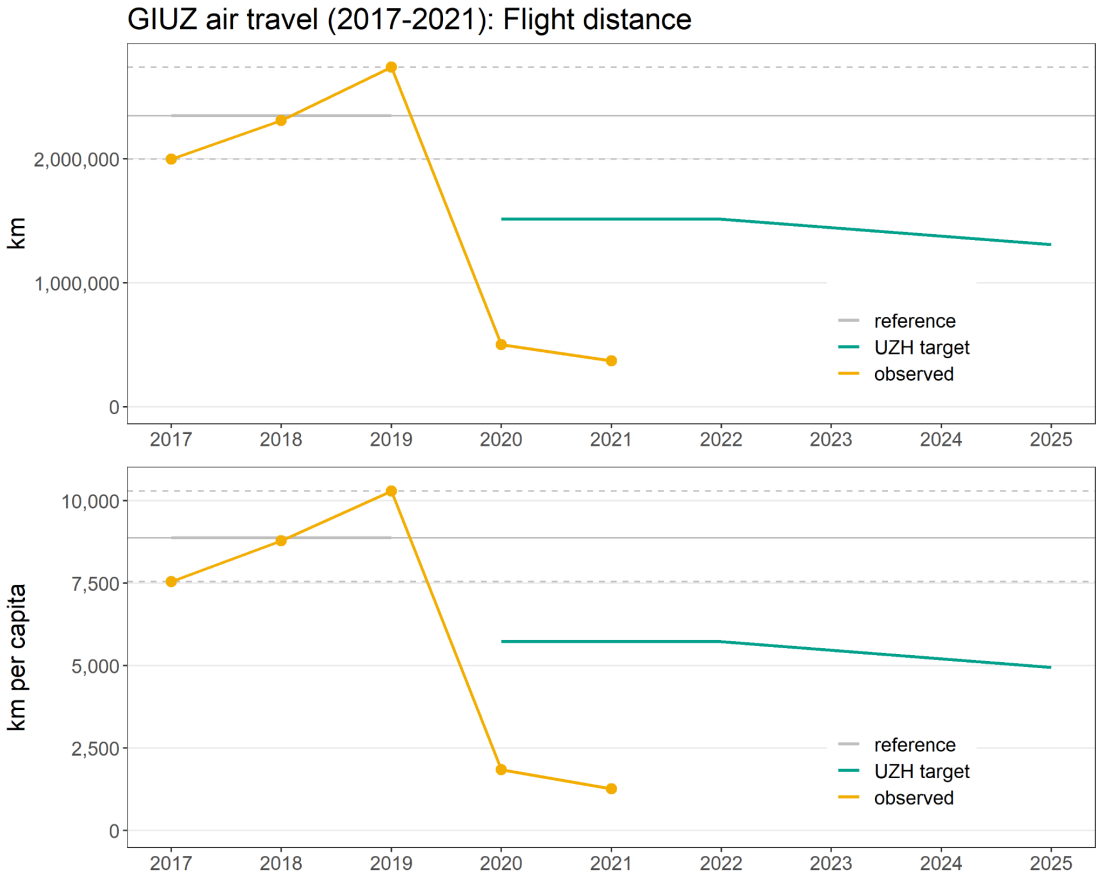


Figure 1: Air travel at GIUZ between 2017 and 2021. Due to Covid-19, air travel (orange line) continued decreasing in 2021, both in terms of total flight distance (top) and flight distance per capita (bottom). The UZH goal is to reduce air travel to 60% of the pre/pandemic level by 2022 and then continue a linear path (green line) of a 3% annual reduction until 2030.

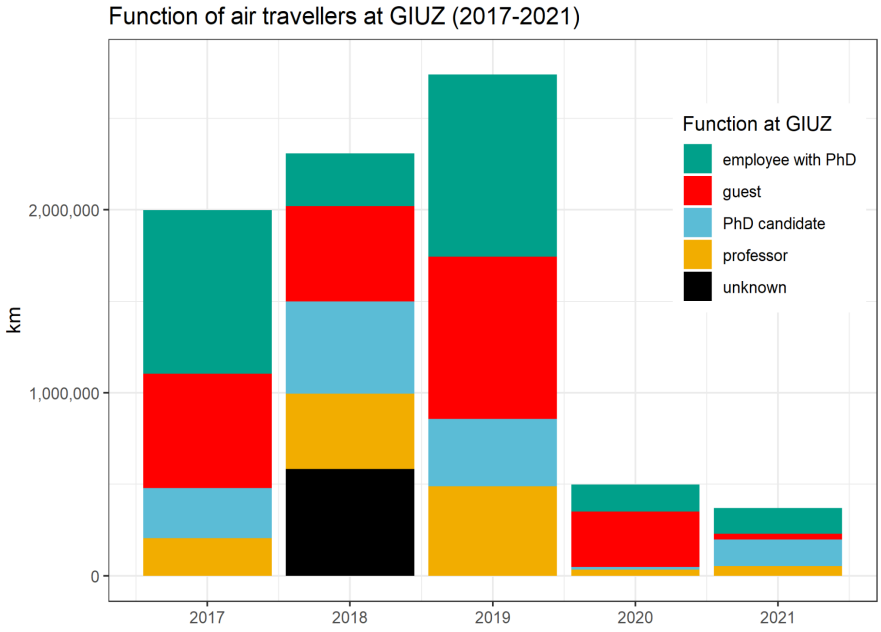


Figure 2: Functions of air travellers at the Department of Geography

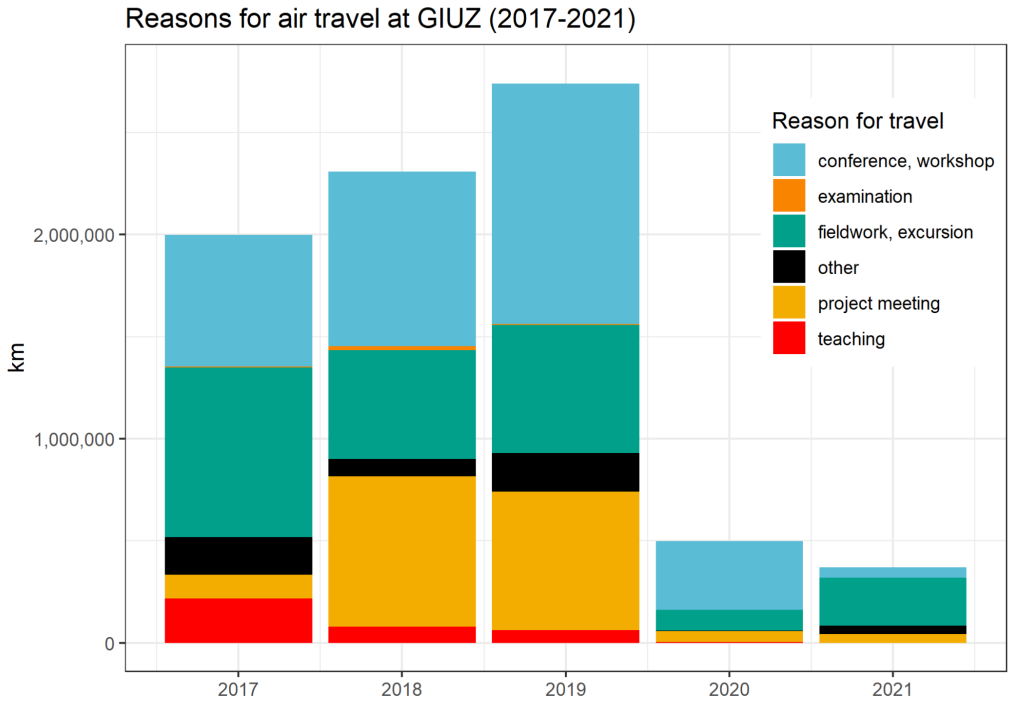


Figure 3: Reasons for air travel

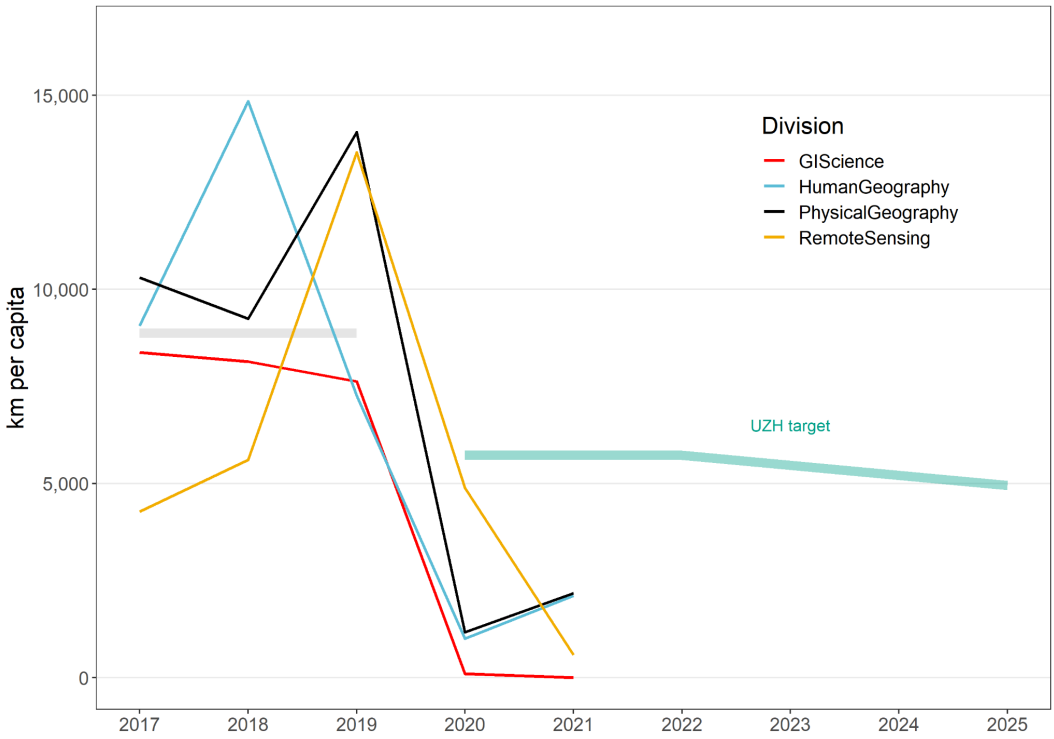


Figure 4: The annual flight distance per research division (2017-2021).

**Student project and workshop**

In 2022, GIUZ financially supported the Sustainability Task Force airmiles group for further work on reduction strategies and monitoring. With the funding, we initiated a student project to improve the airmiles analysis and organised a workshop (in December 2022) to discuss and develop reduction strategies.

In the student project, MSc students from GIScience analysed the 2021 data with supervision from the airmiles group. Alongside the yearly analysis, the project had the following aims.

- Automation
  So far, the secretariats have manually queried flight distances and CO2 equivalents. Now, we automatically retrieve the emissions from the *GoClimate* Flight Emissions *API* and compute flight distances in R, reducing the workload on the secretariats and making the reporting reproducible and consistent.
- R script
  The airmiles analysis is now available as a script in R markdown, with modular code chunks for each step (preprocessing, emission retrieval, statistical analysis, plotting), simplifying future airmiles analysis.
- Additional statistics
  The project produced new statistics about air travel at the Department.

Detailed results of the student project will be published in a separate report in 1Q/2023.

**Raising awareness: Activities 2022**
We reach out to our colleagues at the department, the faculty, the UZH and the public to raise awareness of air travel in academia and airmiles monitoring at GIUZ in particular. In March 2022, we presented the first draft of the “GIUZ Airmiles Reduction Strategy” at the Institutes’ assembly (InVers). In December, we will organise the workshop “Fly less?!” for all GIUZ staff and students. Our communication strategy involves different actions:

- **Information:** We actively communicate our goals and results.
  Our reports and data are publicly available on the GIUZ website (https://www.geo.uzh.ch/en/department/sustainability/air-miles.html) and shared through newsletters, info screens and at MAV and other events.

- **Exchanging knowledge:** We get in contact with related initiatives and exchange knowledge.
  Members of the working group exchange regularly with the UZH Sustainability Group, the MNF Sustainability Committee and other relevant initiatives and institutions.

- **Give support:** We support the GIUZ and its activities to reduce air travel.
  We provided the first draft of the “GIUZ Airmiles Reduction Strategy” and organise a workshop for all GIUZ staff and students to share thoughts, hopes and concerns about airmiles reduction in the department.

- **Provide incentives:** We provide incentives for reducing air travel at GIUZ.
  The *GIUZ Sustainability Award* recognises achievements to improve the department's environmental impact. Due to the overall low flying, there was no award in 2022. We plan to integrate further incentives into the GIUZ Reduction Strategy.

- **Research and teaching:**
  We included airmiles monitoring in our teaching and research activities (e.g. research project in the course *GEO885 GIScience Projec*t, ongoing MSC thesis on airmiles reduction co-supervised by the GIScience division and the Department of Environmental Systems Science at ETH).

**Annex**

**Who we are**
The *airmiles group* is part of the GIUZ *Sustainability Task Force* and reports to the GIUZ *Head Infrastructure*. The working group monitors and documents business air travels at GIUZ and defines and implements reduction goals for air travel at the department. The group consist of the following members:

- Michael Zemp (PHYS)
- Isabelle Gärtner-Roer (PHYS)
- Roger Keller (HG+)
- Peter Ranacher (GIScience)
- Isabel Hagen (PHYS)
- Ana Nap (PHYS)
- Mina Karimi (GIScience)
- Somara Gantenbein (guest, UZH Sustainability Team) until October 2022
- Leonard Creutzburg (guest, UZH Sustainability Team) since November 2022

- Members of secretariats responsible for airmiles monitoring:
  - Karin Klein for GIScience
  - Corinne Wyss for HG+
  - Regina Kohler for GTT
  - Frank Hitzemann for PHYS
  - Rita Ott and Sandra Altorfer for RSL
  - Esther Mettler/Shaun Jung and Lukas Japp for Support & Management
- Student assistants for airmiles analysis in Summer 2022:
  - Simona Di Vincenzo
  - Gregory Biland

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**Airmiles Monitoring: How it is being done at GIUZ**
In coordination with the GIUZ *Head Infrastructure,* the airmiles group has developed a concept for airmiles monitoring and has put forward reduction goals. Both have been regularly updated based on discussions within the *GIUZ Sustainability Task Force* and external experts.

Air travel is collected through the department's reimbursement system by the division secretariats and evaluated by the working group. Thus far, we have collected air travel information for 2017 - 2021. The first three years (2017- 2019) build the reference period for monitoring and setting the reduction goals. The airmiles monitoring consist of the following steps:

- **Data collection**: The secretariats of each research unit collect all business air travels paid for by UZH or related third-party projects (including guests) through the reimbursement system.
- **Air travel statistics:** For each air travel, we collect statistics based on a standardised template, providing information about the route (e.g. origin, destination, airmiles, date), the research unit, and the purpose of travel. Until 2020, the division secretariates manually queried airmiles/kilometres and CO2 equivalents from *Atmosfair* (www.atmosfair.de). In 2021, we automated this process, retrieving the CO2 equivalents from the *GoClimate* Flight Emissions *API* (https://api.goclimate.com) and computing the airmiles in R.
- **Data Analysis**: We evaluate the air travel statistics. For data protection reasons, results are aggregated at the level of the research divisions.
- **Reporting:** We summarise the results in a short report for the attention of the GIUZ Direktorium. Before publication, we discuss the report with the UZH Data Protection Department (https://www.dsd.uzh.ch/de/contact.html).

**Airmiles Reduction Goal**
In June 2019, the GIUZ Direktorium set an airmiles reduction goal of 25% by 2025. In collaboration with the secretariats, the working group defined how to implement the reduction goal in practice:

- **Target:** The target is expressed in airmiles (total and per capita).
- **Baseline:** We compare all future air travel against the mean air travel during the reference period 2017-2019. We derive the actual reduction from the three-year-running-mean compared against the baseline.
- **Reduction goal:** Reduce airmiles (both in total and per capita) at GIUZ by 25% by 2025, following a linear reduction path.

In 2021, the UZH Executive Board decided on even more ambitious university-wide goals for air travel. Specifically, the UZH's flight-related greenhouse gas emissions must not exceed 60% of the pre-pandemic level (average of 2018/2019 as baseline) by 2022. They must decrease afterwards by at least 3% per year compared to the previous year, amounting to a total reduction of flight-related emissions of at least 53% by 2030.

The airmiles working group advises the department to implement incentives and measures to reach the reduction goals.