EPFL's CO₂ balance was developed from a life cycle analysis established with the EPFL spin-off Quantis. The balance takes into account data from the main campus in Ecublens as well as antennas in Valais and Neuchâtel. Missing data: Geneva and Fribourg antennas.

Electricity
- 100% renewable hydraulic and solar
- Consumption: relatively stable since 2012

Gas
- Heating (60%)  
- Laboratory processes (40%)

Oil
- Secondary source of heating in the event of cold weather
- Note: with the renewal of the EPFL Central Heating Station (2021) consumption of oil will cease completely

Commuting
- Data based on EPFL employees and students mobility survey
- A mobility plan introduced in 2017:
  - Parking: revised and innovative policy
  - Public transport: newly introduced subsidies for staff; i.e.: 15% discount on Mobilis pass
  - Cycling and walking: increased support and new initiatives (Bike center, bike racks, dedicated lanes and paths …)

Business mobility
- CO₂ monitoring based on data from the EPFL's central travel agency
- Accounts for more than 1/3 of the total EPFL CO₂ footprint
- Awareness-raising measures with a SV Travel Less Without Loss pilot-project
- Travel guidelines and best practices
- Increased support for trains (in progress)
- New tools, rooms and technical support for videoconferencing

Radiative forcing and travel classes
- Reflection of terrestrial radiation by aircraft condensation trails, accentuating the effects of global warming
- Starting in 2017, radiative forcing and travel classes (business and first) are included in the business mobility impact

Nutrition
- Starting in 2018, the CO₂ impact of collective catering and food is included in the calculations
- Values based on the number of vegetarian and non-vegetarian meals consumed on campus

Air travel accounts for 95% of business mobility emissions

Travel Less Without Loss
Existing travel data

Methodology
- **Aim:** to determine the environmental impact of business mobility and CO₂ reduction potential
- Data obtained from EPFL central travel agency, 2014-2017
- Analyzed by SHARE EPFL, in coordination with EPFL Sustainability in 2017
- Published in the Sustainability Magazine

Main results
- CO₂ emissions are positively correlated with seniority: an EPFL Professor emits 10 times more CO₂ than a PhD student
- 10% of the travelers produce 58% of the total CO₂ emissions and account for 64% of the total expenses
- Business class emit 2 to 3 times more CO₂ than economy class (more space on the plane)
- Replacing higher classes by economy could lead to a reduction of 800 tons CO₂/year (17% of the total emissions) and 22% in travel expenses
- Up to 15% CO₂ reduction if all short flights were replaced by train (7h journey, ≤800 km)
- By replacing all indirect flights (extra take-off and additional kilometers) by direct flights a 8.6% reduction of CO₂ emissions is possible
- More than 500 flights are made yearly between Geneva and Zürich generating 107 tons of CO₂

Reduction potential

<table>
<thead>
<tr>
<th>CO₂ reduction potential (%)</th>
<th>Full potential</th>
<th>50% potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoided flights (videoconferencing)</td>
<td>Not included in the study</td>
<td></td>
</tr>
<tr>
<td>Business/first → Economy</td>
<td>-17%</td>
<td>-8.5%</td>
</tr>
<tr>
<td>Short trips → Train</td>
<td>-15%</td>
<td>-7.5%</td>
</tr>
<tr>
<td>Indirect flights → Direct</td>
<td>-8.6%</td>
<td>-4.3%</td>
</tr>
<tr>
<td>Total</td>
<td>-40.6%</td>
<td>-20.3%</td>
</tr>
</tbody>
</table>
**Methodology**

- **Aim**: determine whether a correlation exists between EPFL Professors’ academic performance and business trips made by plane
- **Travel data obtained from EPFL central travel agency, 2014-2017**
- **Academic performance data obtained from the Vice Presidency for Research: 22 indicators based on InCites, Web of Science, Scopus and Google Scholar**
- **Analyzed by ShARE EPFL, in coordination with EPFL Sustainability in 2018**
- **To be published**

**Conclusions**

- **Weak correlation was noted between scientific impact, measured by H-index and Category Normalized Citation Impact, and CO2 footprint from air travel for senior EPFL researchers**
- **No significant correlation according to the status of professors (senior scientist, tenure track, full professor ...), neither between the different faculties**
- **Increased CO2 emissions from more senior professors for equal academic performance**

Similar study with similar results was conducted at University of British Columbia (UBC)

**Travel Less Without Loss**
Methodology

- Aims:
  - Investigate current practices to achieve a better overview of the types and number of meetings
  - Identify the benefits and disadvantages of travelling
  - Understand the travel planning stages and relationship with CWT
  - Attempt to quantify usage of technological solutions for remote communication
  - Identify knowledge gaps leading to infrequent use of technological solutions for remote communication
  - Survey development: Swiss Centre of Expertise in the Social Sciences (FORS), in coordination with EPFL Sustainability in 2018

- Survey participants: EPFL scientists (4’020 people)
- To be published

Business mobility survey

Main results

- **TRAVEL**: 75% (65% did travel)
- **DO NOT TRAVEL**: 25% (80% did not)
- **BOOKING**: 47% (51% used CWT)
- **PARTICIPATION**: 28%

Factors influencing the decision not to travel

- Other professional commitments: 46%
- Other private commitments: 49%
- Other private commitements: 70%
- Substitute travel with VC: 36%
- Substitute travel with VC: 82%
- Substitute travel with VC: 50%

Factors discouraging the use of VC

- Lack of informal exchanges: 76%
- Harder to reach decisions: 53%
- Lack of suitable rooms: 48%
- People less engaged: 9%
- Technical problems: 48%

Factors influencing the decision to travel

- **INSTITUTIONAL**
  - 65% CO2 information while booking
  - 82% Positive and negative impacts of business travel
  - 72% Videoconferencing
  - 25% Reduced time for research
  - 5% Positive and negative impacts of business travel

- **PERSONAL**
  - 30% Quality of life
  - 50% Prestige and reputation
  - 31% Social networking

Conclusions

- Business travel impacts
  - Personal relationships
  - Time for research and education

- Valid alternatives if additional incentives were provided:
  - Train travel <7 hours
  - Videoconferencing

- 31% of survey participants would reduce their business travel

Travel Less Without Loss

65% survey participants think that EPFL should do more for the environment
Train vs Plane

Your favourite routes across Europe

Train wins
Trains are an increasingly cost-effective alternative to planes, particularly if you’re going a relatively short distance or if you’re traveling in busy areas, where train service is fast and frequent.

While some rates are quite competitive by plane on some routes, you’ll sometimes see dramatic fare differences. The train ride will sometimes be longer than the corresponding flight, but for travelers looking to cut costs, the train often wins — and you’ll get to see some scenery along the way.

Arrive in the Center of Town
• Unlike airports, European train stations are located right in the middle of town. You don’t have to spend time and money traveling into the city because you’re already there. In contrast, traveling from the airport into the city can take anywhere from 20-60 minutes and costs between CHF 10-CHF 80.

No Long Check-In and Security Lines
• There are no lengthy check-in procedures or security screening for most train travel. You simply show up a few minutes before the train leaves, buy a ticket if you don’t have one and hop on the train.

Reliable and On Schedule
• European trains run on schedule well over 90% of the time but flights are only on schedule around 65%.

Comfort
• Train seats are usually larger and more comfortable than planes seats (especially when compared to many discount airlines). You’re also free to move about the train whenever you feel like it.

SBB CFF FFS
How to book a train travel at EPFL
• SBB Ticketshop allows you to buy tickets online with a 10% discount
• In case of questions or if you need support when booking a train ticket, you can contact the “SBB Passenger Contact Centre” on 0848 111 456
• International train ticket can be purchased at the TL shop on the Esplanade.

Travel Less Without Loss

Flights often seem to be the fastest travel options. That’s not so.

Assuming that a grown up and healthy tree can absorb and use 20kg of CO2 per year, we can give you a glimpse of the amount of trees needed to balance your carbon footprint.

However, if planting trees can have a positive impact on the global emissions, it is clearly not enough to reverse the carbon effect.

Plane vs. train: Carbon dioxide emissions
Carbon dioxide (or equivalent) emissions for one-way trip in kilograms per passenger

<table>
<thead>
<tr>
<th>Destination</th>
<th>Plane</th>
<th>Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zurich =&gt; Milan</td>
<td>104</td>
<td>3</td>
</tr>
<tr>
<td>London =&gt; Amsterdam</td>
<td>125</td>
<td>14</td>
</tr>
<tr>
<td>Berlin =&gt; Warsaw</td>
<td>156</td>
<td>56</td>
</tr>
<tr>
<td>Munich =&gt; Budapest</td>
<td>168</td>
<td>18</td>
</tr>
<tr>
<td>Paris =&gt; Barcelona</td>
<td>238</td>
<td>11</td>
</tr>
<tr>
<td>London =&gt; Marseilles</td>
<td>311</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: IFEU EcoPassenger © DW
Aim 1
To demonstrate that through thoughtful travel planning in consideration of the ecologic impact versus the realistic benefit of travel, it is feasible to significantly reduce, not eliminate, science-related travel and CO₂ impact.

Aim 2
To demonstrate that with the provision of reliable and efficient means to conduct high quality remote conferencing, it is feasible to reduce science-related travel.

Aim 3
To set a trend in the academic world regarding environmentally friendly means of communication and travel.

Aim 4
To raise awareness of the significant environmental impact of travel; encourage invited speakers and guests to adhere to these guidelines.

BEST PRACTICE 1: purpose of travel
Thoughtfully consider the purpose of travel:
- Does it require my presence?
- Could I say no to the invitation based on the SV sustainability travel guidelines?
- Do the potential benefits of attending this conference outweigh the costs?
  - Ecological impact
  - Time (travel to airport, baggage & security checks, flight delays, etc.)
  - Time lost from work, family and friends
  - Travel fatigue and stress
  - Is the destination reachable by train?

BEST PRACTICE 2: remote conferencing
Consider remote conferencing prior to organizing a meeting or conference, or accepting an invitation to participate in one.
- Does it require “face-to-face” communication?
- Is it possible to conduct or attend the meeting remotely?

BEST PRACTICE 3: travel sustainably
Choose to travel sustainably, search for ecologically friendly travel options:
- Use routeRank: https://www.routerank.com/en/
- Use Carlson Wagonlit Travel CWT to book all travel (see below “Monitoring” section)
- Travel by train for trips <6 hours in Europe
- Fly direct rather than indirect
- For flights out of Zurich: travel by train from Lausanne to Zurich
- Within Europe and on day flights, travel Economy Class not Business Class
- Favor Economy Class even for long distance flights
- In the event of physical or other issues that cause hardship, Business Class is acceptable.
Feedback
To ensure continuous improvement, users of conferencing services are strongly encouraged to provide feedback on the quality and reliability of the rooms after each session to ensure problems are identified and addressed rapidly.

Policy Review
- EPFL’s Travel Policy (to be reviewed in 2020)
- Professor/MER promotion files
  - The number talks/conferences that may be listed on the application have been limited to 3/year

Monitoring
The online application routeRank [https://www.routerank.com/en/] has been chosen for travel planning as it is tailored to comply with the present guidelines and will allow for data collection. An evaluation of the effectiveness, compliance to, and satisfaction with, the travel guidelines will be conducted. The CO₂ footprint related to travel will be evaluated on a yearly basis, with a comparison to the previous year. Results will be presented to all members of the School of Life Sciences, Sustainable Development, and EPFL Direction.

Sustainability in SV beyond Travel
Awareness about the sustainability of business travel raises awareness about sustainability in other areas. All suggestions and comments about sustainability on any aspect related to life and work in SV can be sent to: BeAware.SV@epfl.ch

Remote Conferencing Facilities
Remote meeting*/conferencing** services are provided: go.epfl.ch/videoconferenceSV. These include several meeting and conference rooms of different sizes with state-of-the-art conferencing technologies that are easy-to-use. Technical support (http://sv-it.epfl.ch) for hardware and the software can be arranged in advance of the meeting/conference and at any time throughout the session should any complications occur. Every effort will be made to ensure reliable, high quality conferencing.

Training for travel planning and remote conferencing
Administrative and other interested staff are trained on the following:
- The rationale and the implementation of these guidelines
- RouteRank (ecologically friendly travel planning application)
- Services provided by CWT
- Conference room scheduling
- How to obtain SV-IT support
  - how to request assistance for meeting/conference set-up
  - problem resolution during meeting/conference

CO₂ ‘tax’
Establishment of an SV internal CO₂ ‘tax’ will be evaluated at a later stage of the project; the funds could be partly used for CO₂ compensation and partly to create internal SV incentives. Inquiries are being made on the source of funding for this ‘tax’. While commuting is not covered by these guidelines, incentives could be geared at increasing SBB compensation, contributing to the purchase of (e) bikes (and provide charging facilities), etc.

*Remote meetings: a gathering of people from remote offices, it is not recorded; supported by Zoom software, computers, microphones, and screens;
**Remote conferences: a gathering of a large number of people from remote locations with a set agenda of speakers, presentations, etc.; supported by Zoom software, computers, microphones and screens; arrangements can be made for recording, editing, archiving, etc. in advance
Swiss network for sustainable university travel

Goals
Representatives from each Swiss university are working to reduce CO₂ emissions from business travel.

• Share knowledge, best practices, and lessons learned from business travel related projects, in order for participating institutions to learn and progress their own projects to a greater extent
• Work towards a standard method for calculating business travel greenhouse gas emissions
• Define common targets to reduce greenhouse gas emissions related to business travel
• Collaborate on the development of methodologies and implementation of measures to reduce greenhouse gas emissions from business travel
• Invite stakeholders/partners and propose common objectives, expectations and actions towards partners
• Look for common business solutions to promote sustainable travel

Best Practices
Guidelines
Policies

Travel Less Without Loss
ETH Zürich has implemented the following measures to reduce air travel:

- 2016/2017: **Student** initiative to reduce air travel emissions
- 2016: Vice President Human Resources and Infrastructure initiates the **mobility platform** with one thematic focus on flight reduction (www.ethz.ch/airtravel)
- 2016: Mobility platform commissions a **concept** on how to reduce air travel at ETH
- 2017: Governing Board decision: top down decision by the governing board
- 2017/2018: Bottom up implementation by the departments to define a **reduction goal** with the respective measures
- 2018: **ETH-wide reduction goal of on average 11%**
- 2019 - 2025: **Implementation and monitoring**
- 2022 - 2025: **Evaluation**

Since January 2019, the University of Neuchâtel has been levying a contribution to sustainability on all air travel processed by its accounting department.

This contribution is intended to finance the usual activities to promote sustainable development at the University of Neuchâtel, as well as sustainable projects contributing to the reduction of local greenhouse gas emissions.

UC San Diego

Air travel accounts for over 11% of UC San Diego’s total greenhouse gas emissions. To support the university’s Carbon Neutrality goals, the Integrated Procure-to-Pay Solutions encourages all staff, faculty, and students to adopt sustainable travel practices.

- Book direct flights
- Use a Connexus agency for complex or multi-leg trips
- Fly Coach or Economy class
- Don’t print your airline tickets, use an e-ticket

McGill

McGill has committed to attaining carbon neutrality by 2040.

- The university offers alternatives to air travel such as videoconferencing on campus and offers a discount on VIA Rail tickets
- In 2016-2017, Student initiative to reduce air travel emissions

Globally, many universities are planning for sustainable travel

To name a few...

* All information comes from university websites