

Eawag
Das Wasserforschungsinstitut
der ETH Bern

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aquatic research 000

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Fly aware Eawag


Lunch seminar
18 April
2019

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Program

- 1) Air travel at Eawag: environmental taxes and estimation of air kilometers
Thomas Lichtensteiger
- 2) Survey of air mobility 2017 at Eawag – New offers for video conferencing
Gabriele Mayer
- 3) Reduction of air travel emissions at ETH Zurich
Susann Görlinger
- 4) A viewpoint of 3 engaged early career researchers
Jonas Heiberg, Mario Angst and Andri Brugger
- 5) Discussion
- 6) Links on the subject

Travel at Eawag: concepts, incentives and offers 

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Mobility management

Within the framework of Eawag's sustainability efforts, mobility management is of central importance. Employees are motivated to adopt environmentally friendly behaviours through different offers. The offers and measures are updated and expanded by Eawag's eco team "Umweltteam" on an ongoing basis.

The offers are based on the following principles, travel smart, travel mobile, travel fit and travel less.


Travel less

Travel smart The impact on the environment is 5-6 times higher in the case of flights within Europe in comparison with the train. Therefore Eawag supports the policy that unnecessary trips should be avoided and cost-effective alternatives should be offered.


Travel mobil Tips for the choice of transport for business trips:

- Minimum number of delegates
- Telephone or video conference as alternative
- Combine flights
- In the case of routes up to 800 km use the train and if possible a night train (influence start of meeting)
- Avoid flights of only 600 km or less (e.g. Amsterdam or Vienna)

Contact

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tools ecological travel

Environmental taxes 

CO₂-Compensation



Flights

Eawag is a pioneer in environmental taxes on flights:

Already in March 2003, Eawag introduced CO₂ compensation taxes on air travel.

In case of externally financed flights taxes are paid to "myclimate - the Climate Protection Partnership" for CO₂ compensation projects. Every year, Eawag pays about 20'000 CHF to myclimate.

Taxes from internally financed flights are stored in an internal account and used for internal energy-saving measures - in particular to improve bike offers at Eawag.

 Directive 06-05 (resp. Weisung Nr. 03-02) 

Eawag procedure, CO₂-Compensation for air travel

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Directive 06-05

1.) Eawag travels are to be booked in first priority via Knecht Reisen AG (currently approx. 20% via Knecht).

2.) a minimum of CHF 20 and a maximum of CHF 200 per trip are charged as an environmental tax

3.) for flights booked with Knecht, CHF 10 per hour are charged as an environmental tax and invoiced to the department of the traveler; from 19 hours the tax remains at CHF 200.

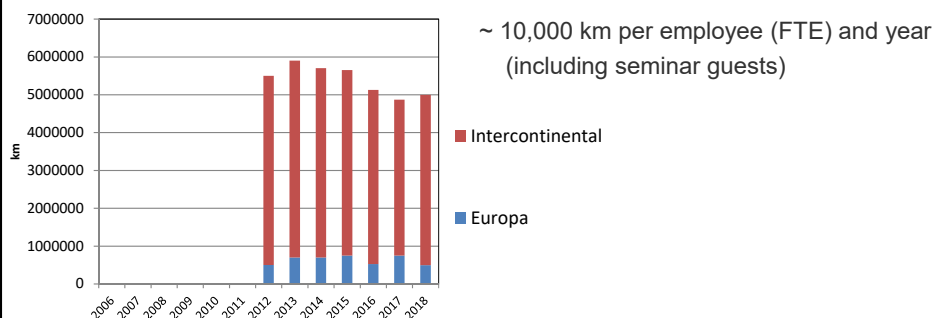
4.) for air travel booked elsewhere, 20% of the ticket price are charged as an environmental tax and invoiced semi-annually to the relevant Eawag department.

- Please note:
- The process had to be administratively simple
 - The tax is high enough for CO₂-compensation projects in Switzerland

Estimation of airplane kilometers per year

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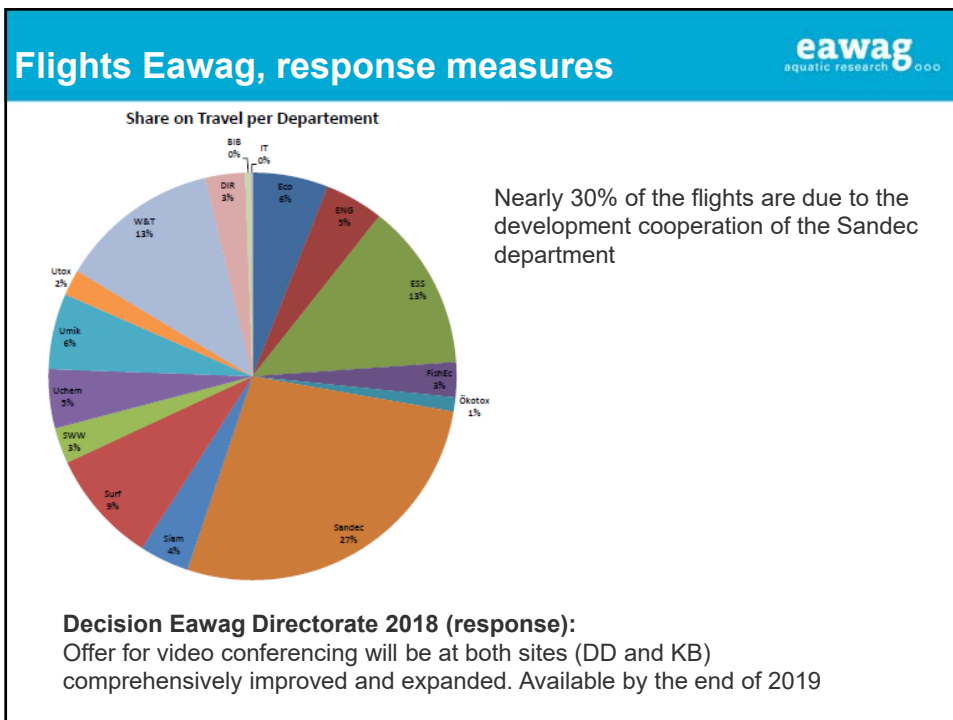
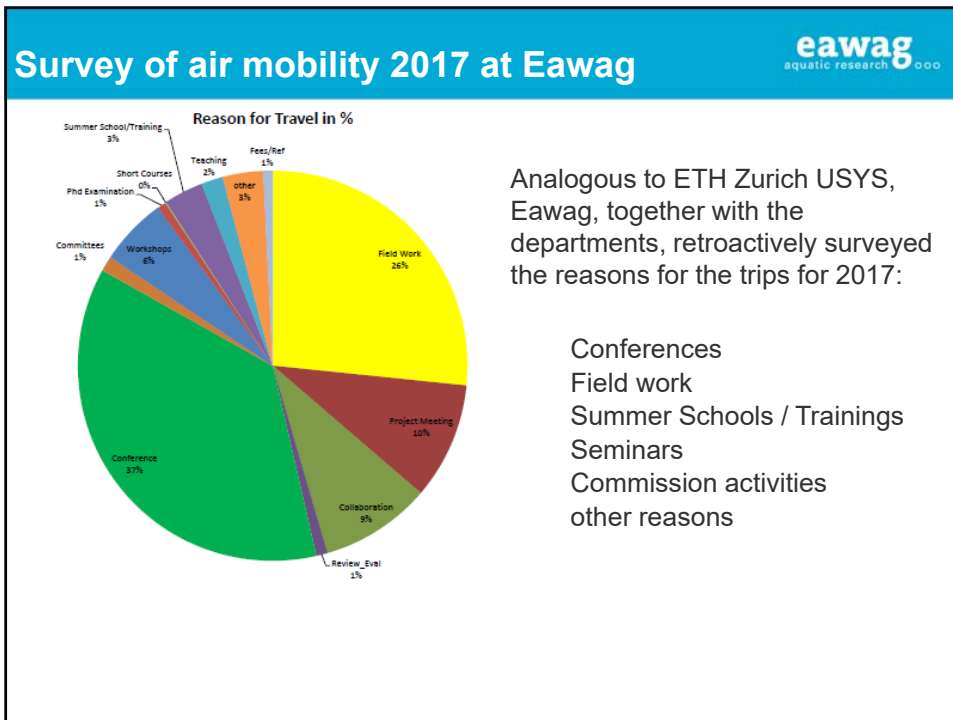
Eawag airplane kilometers



Bookings via Knecht as basis for extrapolation (in 2018, 24% intercontinental flights via Knecht):

We have exact distances for all flights booked via Knecht, continental and intercontinental.

1'092'262	Totale Distanz "intercontinental"	65 Flugbuchungen	16'804.03 km pro Flugbuchung
63'761	Totale Distanz "continental"	38 Flugbuchungen	1'677.92 km pro Flugbuchung



Ausstattung Meeting-Räume

Folgende Aktivitäten sind von der Direktion im März 2019 bewilligt worden:

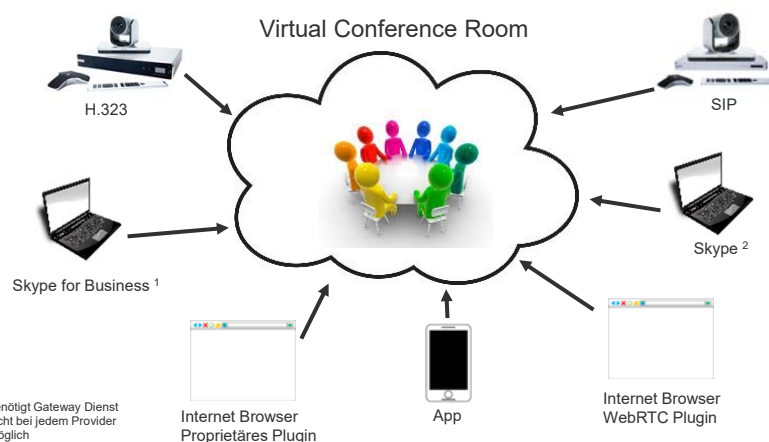
- Die Meeting-Räume in DD & KB mit Equipment für virtuelle Videokonferenz-Räume ausrüsten; es wird zuerst ein Pilotversuch gestartet mit einem virtuellen Videokonferenz-Raum (Cloud-Service)
- Den grossen Vortragsraum FC-C20 mit den herkömmlichen Geräten der neuesten Generation ausrüsten, die auch ohne virtuelle Videokonferenz-Räume betrieben werden können (Ablösung der mobilen Anlage mit einer fixen Anlage)
- Die bestehende mobile Anlage in DD für die Räume C24/D24 werden weiterhin betrieben und weitere kleinere Sitzungsräume mit virtueller Technologie ausgestattet.
- Ausbau:

Standort	Räume	Anlagentyp
DD	FC-C20	herkömmliche Anlage (Videokonferenz-Funktionalität ist im Gerät integriert)
DD	FC-C07/C09/C24/D24	bestehende mobile Anlage (1x)
DD	FC-C21/D77/E21/F77 FC-C 07/C09 – BU18	Anlage für virtuelle Konferenzräume
KB	Mehrzweckraum	bestehende Anlage bleibt
KB	HL-B01/C01 (Bootshaus)	Anlage für virtuelle Konferenzräume

Virtual Conference Rooms

Virtual Conference Room

Multipoint und Protokoll Interoperabilität via Cloud-Service



ETH zürich



Reducing air travel emissions at ETH Zurich

EAWAG, 18 April 2019

Susann Görlinger, Co-Lead Mobility Platform ETH Zurich
www.ethz.ch/airtravel

Mobility Platform ETH Zurich

ETH zürich

Overview




- Why do scientists fly?
- Flight reduction (general)
- Flight reduction project at ETH Zurich
- Lessons learned

Mobility Platform ETH Zurich

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Why do scientists fly? (Interviews at ETH Zurich)

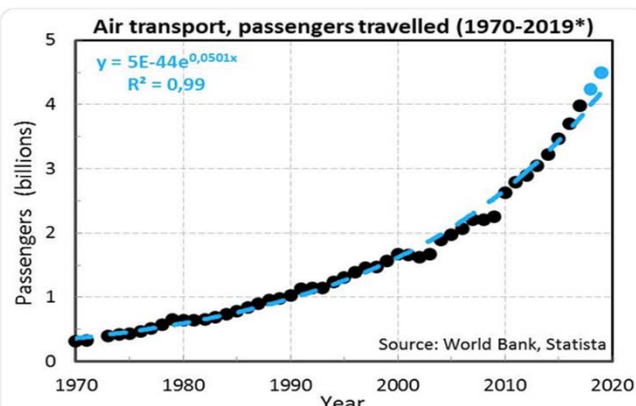
Reasons for air travel 	Benefits from air travel 	Materiel / immaterial costs of air travel 
<ul style="list-style-type: none"> • Conferences • Project meetings, Workshops • Excursions • Field research • PhD examinations • Committees • Long-term strategic collaborations 	<ul style="list-style-type: none"> • Presentation of own research • Networking • New partnerships and projects • Flying is the most efficient form of travel (time, costs) • Job enrichment • Sensitisation to other cultures 	<ul style="list-style-type: none"> • Money • Absence for supervision and teaching • Work-Life-Balance, family time • GHG emissions • Increased workload and overtime

modifiziert von: C. Robledo, H.J Althaus; Framework concept reduction air travel ETH Zurich

Mobility Platform ETH Zurich

ETH zürich

Development of worldwide air travel from 1970 – Jan 2019



Air transport, passengers travelled (1970-2019*)

$y = 5E-44e^{0.0501x}$
 $R^2 = 0,99$

Source: World Bank, Statista

from: <https://twitter.com/Lacertko/status/1089558645606625282>

Mobility Platform ETH Zurich

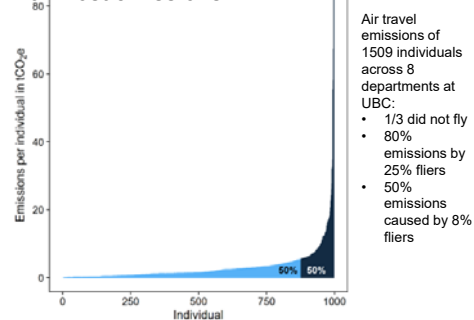
Why is the reduction of flights relevant?

1. Scientist fly a lot more than the average person (Burian, 2018)

“On average, Swedish sustainability academics fly 72% more frequently for work alone than average Swedes do in total per year. Related emissions from these flights (2.61 t CO₂-eq) are more than twice as high as those of the flights taken by an average Swede”

→ “Academics fly a lot and it has a big climate impact” (K. Nicholas)

2. A few academic fliers are responsible for most emissions



Wynes and Donner, 2018: Business-related air travel emissions for the 997 individual travellers (one third of the people in the 8 units did not fly during the sampling period). Light blue indicates those travellers responsible for the first 50% of emissions and dark blue indicates those responsible for the second 50%

Why is the reduction of flights relevant?



3. Leading by example

«Academic leaders reducing flying increase public willingness to reduce their own emissions»*

Leaders who give up flying because of climate change seem to influence the attitudes and behaviour of others. „Leading by example by giving up flying appears to send a powerful and effective message“**

→ **Trendsetting**

4. Credibility

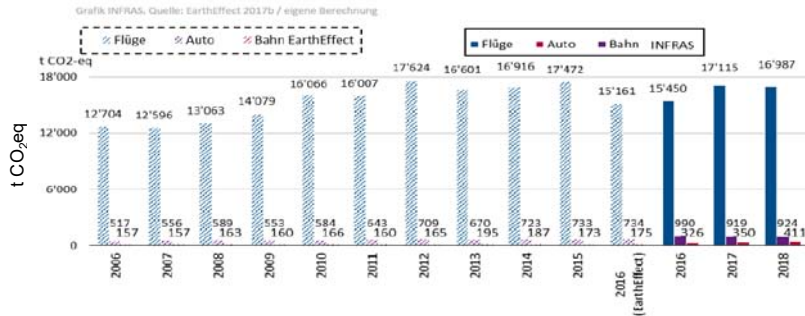
The public finds scientist who fly less more credible ***

* <https://www.slideshare.net/kimberlynicholas/academic-flying>

** S. Westlake, 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3283157

*** Attari et al. (2016, Climate Change)

Why is air travel the #1 leverage to reduce CO₂ emissions at ETH?



- More than half of CO₂ emissions at ETH are from business travel, 93% from flights, mainly overseas
- Total emissions increased since 2006; emissions per FTE nearly constant
- Emissions from student flights have doubled from 2006 – 2015
- New monitoring system based on flight number, class and date**

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Activities at ETH Zurich

- 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/air-travel)
- 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 average **11%**
- 2019 - 2025: **Implementation** and **monitoring**
- 2022 und 2025: **Evaluation**

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Important points

- Bottom-up initiative: the departments differ, they know best where they have reduction potential
- Quality of research and teaching should not suffer, career chances of (young) scientists should not be impeded
- Technical measures have been very successful in reducing direct CO₂ emissions from infrastructure, but technology will not cause a reduction in flight emissions in the near future
- It needs a cultural change to reduce CO₂ emissions from flights

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Alternatives to Flights



- **Conferences** → selection, multi-purpose travel, video presentations
- **Project meetings** → VC, Skype
- **Excursions** → how often, where to, how many people
- **Field research** → longer stays, VC (high-quality equipment on both sides needed)
- **PhD exams** → per VC, adapt regulations if needed
- **Committees** → partly per VC
- **Long-term strategic collaborations** → which ones are useful and relevant?

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Air travel reduction at ETH Zurich – Status quo:

- **Measures of the departments**
 - **Internal Carbon Pricing:** money can be used for compensation, internal research projects and teaching
 - **Compensation:** only preliminary measure, not part of the reduction goal
 - **Recommendation:** 1 intercontinental conference/PhD, train until 600–800 km with 1. class tickets, more VC (job interviews, PhD defenses, project meetings etc.), combine different activities (conference, meetings, field work)
 - **Transparency** about flights within departments
 - Support conferences in **Europe**, bi-annual conferences (instead yearly)
 - Support **VC ETH-wide**, adapt ETH regulations (less incentives for flights)
- **PhD project** to study the transformation process related to ETH Zurich's flight reduction project (Agnes Kreil)

Lessons Learned

- **Top down** support is essential
- **Bottom up** travel decisions by individuals → involve all staff and students (not just interested individuals)
- **Transparency**
 - Good database for monitoring
 - Change framing: from reduction to **alternatives** for flights
 - Important role of **champions** and **influencers**, **Trendsetting**
 - Discussion about conflicting targets (personal contacts/international research cooperations/field work **AND** climate goals)
- **Wicked problem** → there are no simple solutions but different and creative approaches (trial and error)
- **Cultural change needs endurance**
- **Common** approach of many universities needed to be successful

ETH zürich



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Mobility Platform ETH Zurich

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Swiss Federal Institute of Aquatic
Science and Technology

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Resuming Eawag's pioneering role in mobility management

A viewpoint of 3 engaged early career researchers

Overview

Motivation: personal mobility narratives

1. Data
2. Pioneering
3. Internalization
4. Awareness

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Personal mobility narratives

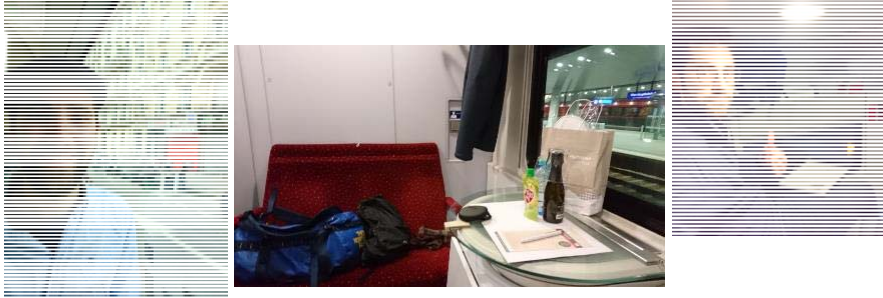
Mario Angst, post doc, PEGO, ESS



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Personal mobility narratives

Jonas Heiberg, PhD student, Cirus, ESS



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Personal mobility narratives

Andri Brugger, PhD student, Cirus, ESS



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Data

A premise to exhaust the total reduction potential

- Currently: based on “Knecht Reisen” – mostly long distance travels?
- Largest reduction potential - short distance, inner European travels?
- Our proposition: capture points of departure and arrival in expense reporting

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Pioneering

stepping up the video-conferencing game

- Technology has to be learnt! - Eawag actively promotes the usage of video conferencing tools.
- Feasibility has to be proven! – Eawag explicitly promotes key seminars to be streamed (Eawag seminar as showcase)
- Promoting video conferencing – Eawag endorses efforts to organize multi location conferences, linked through video conferencing.

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Internalization

make conscious mobility decisions commonplace

- Mobility management should be part of appraisal interviews
- Budgeting of conferences have to entail a deliberate choice of mobility
 - Erase insecurities regarding time and price amongst early career researchers
- Incorporate mobility management more prominently in employment documents
- Group leaders should act as role models regarding conscious mobility management

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Awareness

routinely update workforce about mobility management

- Raise awareness amongst ALL employees regarding
 - The pioneering role of Eawag in mobility management
 - The sincere effort to step up the game as a follow up on 2017 survey
- Foster a continuous, critical and creative discourse regarding mobility management at Eawag
- Organize a town hall meeting regarding mobility management

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Closing remarks

We enquire from group leaders and directorate to:

Data	Pioneering	Internalization	Awareness
Continue mobility census based on expenses	Organize introduction events to new video conferencing tools	Mobility management becomes part of appraisal interviews	Continue the discussion in the form of a town hall meeting
	Stream key seminars or assist organizing multi location conferences	Become role models regarding mobility management	

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Discussion

Links on the subject

SNSF - academia aims to reduce its own CO₂ emissions :

<https://www.horizons-mag.ch/2019/03/07/academia-aims-to-reduce-its-own-co2-emissions/>

The value of virtual conferencing for ecology and conservation

<https://onlinelibrary.wiley.com/doi/pdf/10.1111/cobi.12837>

The carbon footprint of academic conferences: Evidence from the 14th EAAE Congress in Slovenia

<https://onlinelibrary.wiley.com/doi/pdf/10.1111/1746-692X.12106>

Carbon footprint of conference travel

<http://www.pl-entusiast.net/2016/06/08/carbon-footprint-conference-travel/>

New university rules encourage scientists to avoid air travel

<https://www.wired.com/story/climate-scientists-take-the-train/>