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GOING FAR WITHOUT FLYING
A SHARED ACCOUNT OF A COMMITMENT TO RAIL TRAVEL

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Abstract. As the environmental transition calls for a drastic reduction in transport-related emissions, the academic world is still struggling to adapt its practices. More and more young researchers are committing to traveling by train, even for journeys of several thousand kilometers, in an individual effort to be environmentally consistent. This contribution brings together several accounts of professional trips across Europe, highlighting the structural obstacles encountered: complex organization, logistical overload, inadequate reimbursement policies, and rigid institutional frameworks. By documenting the difficulties but also the benefits of these alternative modes of transport, we aim to question the current capacity of scientific institutions to support the ecological transition and propose concrete paths to change.

Keywords: Sustainable Travel, Environmental transition

1 Introduction

In astronomy and astrophysics, professional travel represents a sizable fraction of academic carbon emissions. In 2019, a study of 362 international conferences and schools found an average of 1.0 ± 0.6 tCO2e per participant per meeting, amounting to a total of 42,500 tCO2e for the pre-COVID year (Gokus et al. 2024). In that same year, over the 112 French research laboratories that used the open source tool GES 1point5, professional travel accounted for 40% of carbon emissions on average on a perimeter excluding research infrastructure (Mariette et al. 2022). In parallel, international travel is important for scientific visibility, career development, and building meaningful scientific collaborations. Indeed, air travel frequency has been found to correlate positively with publication rate, citation rate and h-index (Berné et al. 2022). In that context, some researchers – mostly in an early career stage – are committing to traveling by train, even for journeys of several thousand kilometers, in an individual effort to be environmentally consistent while preserving their scientific visibility.

In this proceeding, we gather our experience of long-distance train travel as early career scientists. From Toulouse and London, the cities of our respective labs in the past few years, we have collectively reached Roma, Bern, Vienna, Köln, Uppsala, Helsinki and Lapland (Figure 1). The associated distances are provided in Table 1. With this account, we aim to highlight the structural obstacles in the French academic system that sometimes make European train travel an uphill battle, even though it is officially the encouraged means of transportation.

2 Travel Organization

2.1 Institutional authorization

To choose railway for a long-distance trip is not a common decision, and academic bureaucracy is sometimes not prepared for it. So it is that the number one prerequisite to far-going train travel, for a non-permanent researcher at least, is the support of their direct supervisor. First, because train travel is expensive, and expenses should be transparent with one's supervisor. All co-authors of this proceeding were affiliated with research programs with sufficient funds to support their choice, but a lack of budget can be the first reason to prevent train travel from happening. In section 2.2, we expand several strategies to cope with a restrictive budget while traveling

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Fig. 1. Map of conference destinations reached by train from Toulouse and London.

Travel			Distance (km)
London	-	Bern	1080
Paris	-	Roma	1350
Toulouse	-	Köln	1350
London	-	Vienna	1750
Toulouse	-	Vienna	2100
Toulouse	-	Uppsala	2880
Toulouse	-	Helsinki	3280
Toulouse	-	Lapland	4280

Table 1. Table of one-way railway distances between cities and/or regions

by train. In parallel, supervisors are a necessary back-up if, for any reason, train travel is in conflict with established rules. Examples encountered by co-authors include: a travel policy that stated that the quickest and cheapest route should be favored (but the train is neither); an employer enforcing that the travel occurs continuously with no personal breaks allowed during the journey (forcing 2-day long trips to occur exclusively over the weekend); or official instances requiring online booking through official systems that do not include European trains. If one's supervisor is not supportive of an early career's choice to travel by train, aside from the conflict of values this situation creates, then the traveler either has to fly against their will or refuse to go to far-away professional events, at the expense of their career (see section 4).

Recommendation : Specifically mention in official documentation (travel policies, laboratories' internal rules) that long-distance train travel is encouraged for European professional travel.

2.2 Planning and budget

Planning a long-distance train travel is complicated logistically, and usually takes several hours of working time. One needs to construct by hand the possible travel routes and compare different train operators to choose the best option, considering the following conflicting constraints: minimizing the budget, minimizing the total travel time, optimizing the number, time, and length of connections, all while balancing personal obligations. Budget constraints sometimes lead early career scientists to choose the cheapest option, but the latter might be far from convenient.

Several strategies to stay on budget have proven effective. Anticipation is key to reducing travel costs, involving booking train tickets at sale openings, often months in advance. Reducing accommodation spending is also an option, with well-rated hostels beating cheap hotels in terms of quality for less than half the price. Searching for additional funding is also a course of action some of us have successfully explored. Application writing is yet more time poured into travel organization, but it can pay off.

As a small case study, we surveyed different IRAP colleagues that attended the 2025 European Geophysical Union conference in Vienna (Austria). Over five attendees, two traveled from Toulouse to Vienna and back by train, three flew. The prices paid for return trips were respectively 420€and 580€for the train, while plane tickets cost 460€, 780€, and 820€. The high price of some plane tickets was explained by late bookings. These price ranges show that mitigation strategies can therefore bring train travel costs to be equivalent to plane travel. It also unveils that plane users rarely have to justify overspending on plane tickets, while train travelers feel a responsibility to make their choice more acceptable to the eyes of supervisors and administrators.

2.3 Bookings

At present, booking European railway tickets is best done outside the system. Official online tools do not cover international train tickets, and travel agencies are not always responsive enough. As an illustration, a colleague attempted to book a Paris – Vienna night train ticket through the official route, but by the time the travel agency responded, the train was fully booked and they had to fly. The situation is not ideal, and juggling several train operators when booking requires triple checking travel dates and times.

The most important problem entailed by railway travel is a direct consequence of this outside-the-system booking: the financial insecurity it triggers for young researchers, PhD students in particular. Train travelers need to pay several hundreds of euros out of their own pocket, a sum of money early career scientists often cannot afford. Requests for financial advances are ignored, and travel expense reimbursements take months. As a result, several early career colleagues testified that paying for these train travels has left them financially struggling in their day-to-day lives. In one particular case, reimbursement of expenses took more than a year, with a sum so large that interests could have been part of the discussion. This situation adds to the insecurity of an already precarious population, trapped between their will to commit to a sustainable way of traveling, and their financial reality.

Recommendations : on a short term perspective, advances for train expenses should be systematic as well as advertised. Long term, travel agencies must include European rail travel trains into their existing online tools. This is the key measure that would decrease planning complexity and prevent financial insecurity for train travelers.

3 Managing contingencies

Late trains, canceled trains, strikes, missed connections... Railway travel is full of contingencies. Long distance train travel has not been planned at a European level, and coordination between companies is close to non-existent when it comes to missed connections. Currently, travelers are left to fend for themselves when faced with unplanned travel disruption. Despite being the officially favored means of transportation (see the 2023 CNRS travel policy), long distance train travel is not currently accounted for in professional travel policies. To the best of our current knowledge, no guidelines are available for contingency management : will an unexpected hotel night or additional train ticket be refunded? On what condition? On what budget? If tickets have been booked through the official travel agency, how available will they be to manage a missed connection on a Sunday night? The *per diem* expense policy is also not adapted to trips where expenses are spent in several countries in less than a day. Trains also cross countries that are not declared on the mission order, triggering questions about insurance if anything happens in these countries. These are all elements and information that are not clearly available to train travelers.

Recommendation: Develop a travel policy that takes into account the specific characteristics of long-distance train travel (contingency management, contingency budget, insurance, daily allowances). This should be done in cooperation with people who regularly perform such travels.

4 Invisible Sacrifices

Finally, we get to the heart of why few colleagues commit to train travel, especially long distance: it is not convenient. Professional train travels imply personal sacrifices that are absent from plane travels.

First is sacrificing your own private time, specifically weekends. Conferences usually go from Monday to Friday, and essentially force train travel to occur over two full weekends. As going to abroad conferences is a professional trip, and travel time is accounted as work, these weekends are lost to train travelers.

Train travels also take time away from academic research. The time spent on organization and searching for funding is time not spent on research. Trains are also more tiring than planes, with no additional rest days planned. Traveling all weekend by train, attending a scientific conference, traveling back all weekend by train, arriving home on Sunday evening, and then going on to work the next Monday, is exhausting. In the competitive world of academic research, committing to trains entails a fatigue that puts you at a disadvantage compared to plane-traveling researchers.

Finally, the most invisible people who commit to a no-plane career are those who did not get the necessary funding or support to take the train, and therefore decided not to travel. They pay for their choice in decreased visibility for their work and fewer international collaborations.

Recommendations: *"Due to the romanticism of this hypermobile way of academic life, many conferences are [...] placed in 'exciting' locations rather than ones that are easily accessible with ground travel"* (Wassénius et al. 2023) A key recommendation is then simply to restrict conference locations to train-reachable cities, and avoid northern Sweden or southern Portugal. We also recommend allowing for travel time during the week when planning conferences, leaving part of Monday and/or Friday free. Incentives for train travels could also be put in place at different levels, locally and nationally. They could take the form of either financial support or additional days off. From a broader perspective, we must collectively rethink our approach to international travel and put an end to excessive consumption of scientific conferences by delegating result presentations and combining business trips.

5 Conclusions

After reviewing all of these difficulties, one may wonder why people still choose to subject themselves to long-distance train travel. The sense of urgency for the environment and the high travel-related carbon footprint of conferences (section 1) remain the primary motivations behind our collective commitment. Additionally, slow travel brings a kind of fulfillment that is absent when simply teleporting from point A to point B. Yes, flying is more convenient, faster, and often cheaper (though who really bears the cost of pollution remains an open question). Train travel, however, reminds us of the sheer reality of distance and geography. It takes time, it comes with uncertainties, and sometimes, it leads to unexpected encounters and memorable experiences. Beyond its constraints, slow travel offers an opportunity to rethink our professional rhythms. Enabling researchers to travel sustainably is essential if academic institutions are to align their practices with the values they publicly endorse.

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