High Awareness, Limited Action: Explaining Attitudinal Barriers to Climate Mitigation in Academia

Tamara Ben-Ari[1], Julien Troiville[2], Lydiane Agier[3]

[1] UMR Innovation, INRAE, Institut Agro, CIRAD, Montpellier, France
[2] Department of Marketing, School of Management Sciences, University of Québec at Montreal, Canada
[3] UMR ESTTE, Université Gustave Eiffel, Bron, France

Corresponding author:
Tamara Ben-Ari
Email: `tamara.ben-ari@inrae.fr`

Statement

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Tamara Ben-Ari[a,*], Julien Troiville[b], Lydiane Agier[c,*]

[a] *UMR Innovation, INRAE, Institut Agro, CIRAD, 2 place Viala, 34000 Montpellier, France*

[b] *Department of Marketing, School of Management Sciences, University of Quebec at Montreal, 315 rue Sainte-Catherine Est, Montreal, H2X 3X2, QC, Canada*

[c] *UMR ESTTE, Université Gustave Eiffel, 25 avenue François Mitterrand, 69675 Bron, France*

Abstract

General support for climate action is widely expressed within academia and public research, with surveys consistently reporting exceptionally high levels of awareness and concern about the climate crisis. Yet, the implementation of mitigation policies in universities and research institutions remains limited.

Drawing on a national survey of 4,688 academics and research personnel in France, we examine this apparent paradox and find that more than half express attitudinal barriers to climate action, including reluctance toward the inclusion of academia in mitigation efforts, opposition to institutional mitigation policies, and inconsistencies between stated support for mitigation and willingness to adopt corresponding changes in individual research practices.

Higher perceived costs of academic mitigation actions—particularly their potential impacts on competitiveness and scientific visibility—are consistently associated with these barriers, along with lower agreement with degrowth as a response to environmental challenges. Such barriers are also more prevalent among senior male scientists with higher levels of mobility, particularly in physics, chemistry, and medical and health sciences.

Academia provides a critical context to examine how climate inaction can persist in the near absence of climate denial. Our findings suggest that moving from stated commitments to effective action requires addressing how

*Corresponding author

Email addresses: tamara.ben-ari@inrae.fr (Tamara Ben-Ari), lydiane.agier@univ-eiffel.fr (Lydiane Agier)

climate policies interact with academic hierarchies and dominant models of productivity and recognition—an issue with direct implications for the design of mitigation policies within research institutions.

Keywords: Academic carbon footprint, Global Warming, Ecological transition, Climate delay discourses

1. Introduction

Calls for academia to align its practices with climate goals—or even to lead by example—have intensified over the past decade (1; 2; 3; 4; 5). In response to these calls, scientists and academics have started to assess the weight and distribution of the carbon footprint of scientific activities (6; 7; 8) and to conduct quantitative and qualitative surveys to understand their determinants (9; 10; 11; 12).

In countries with a relatively decarbonized electricity mix, studies show that routine research emissions are primarily driven by scope 3 GHG sources such as the purchase of equipment, materials, and services required for scientific activity (6; 13; 14; 15)—followed by air travel for international conferences, collaboration, and fieldwork (16). Large research infrastructures have been shown to generate emissions that can far exceed routine operations (17; 18; 19; 20; 15).

Awareness of the gravity of the climate crisis is far more pronounced within academia than in most other sectors. Cross-national surveys consistently show near-universal recognition of climate change among academics (above 95%) and very high levels of concern (80–95%) (21; 10; 11). These findings are corroborated by several smaller-scale surveys focused on specific disciplines or institutions (1; 22). Qualitative studies further highlight tensions between decarbonization and institutional pressures such as internationalization, competition, and resource allocation (23; 24; 3; 25; 26; 27; 12; 28).

Although the carbon footprint of knowledge production is increasingly acknowledged—and key levers of decarbonization have been identified (29; 7)—climate action in academia remains limited in scope. Institutions rarely adopt binding mitigation policies (22; 30; 29; 31), and most responses rely on symbolic gestures such as net-zero pledges, charters, or awareness campaigns with limited regulatory impact (32).

In France, similar dynamics are observed. The carbon cost of research has become a national issue across institutions and laboratories (6; 33; 34; 35), and nearly half of research units have assessed their emissions (8). Yet few institutions have implemented ambitious mitigation policies, and most efforts remain largely declarative. This continued reliance on awareness and informational strategies echoes the communicative approaches historically used to counter climate change denial, suggesting that academic climate inaction is addressed through the same tools once mobilized against denial (32).

Climate change denial—understood as the negation or rejection of the scientific consensus on the existence, causes, or consequences of climate change—has long delayed mitigation efforts (36). Coordinated campaigns have aimed to erode public trust in climate science by manufacturing uncertainty and controversy (37; 38), and by discrediting scientists and institutions (39). This strategy is often described as "evidence skepticism" and "process skepticism" (40), or more broadly as "epistemic denial" (41).

However, epistemic denial alone cannot explain the persistence of climate inaction in society. Recent research has turned to more diffuse mechanisms of inaction: "response skepticism" (42), "discourses of delay" (43), and "tertiary obstruction" (44; 45) describe strategies that downplay the legitimacy or urgency of climate policies, emphasize their perceived side effects, or defend unsustainable infrastructures and practices—even among individuals or institutions that recognize the reality of climate change and the need for mitigation. Arguments for opposing climate action include—but are not limited to—the consideration of economic costs, policy ineffectiveness, and the reduction of personal freedom (39; 46). These interlinked forms of obstruction often replace action with prolonged debate and hesitation, even as the consequences of climate change become more acute (47; 48).

In this article, we examine whether these secondary forms of obstruction are also present within academia. To do so, we analyze attitudes and behavioral intentions related to climate action among academic and research personnel. Academia provides a particularly informative context, not only because overt climate denial is rare, but also because its members contribute directly to the production of climate knowledge (49). The persistence of limited engagement with climate mitigation in such a context is therefore both paradoxical and analytically significant.

We conceptualize attitudinal patterns of climate inaction along four complementary dimensions: (1) climate change denial, capturing the epistemic rejection of climate science; (2) reluctance toward academic climate change mitigation, defined as the expression of general opposition to the inclusion of academia in climate change mitigation efforts; (3) opposition to institutional climate mitigation policies, capturing the refusal of a set of proposed climate change mitigation policies within academia; and (4) institutional–individual inconsistency, reflecting discrepancies between stated support for institutional commitments and the refusal to adopt corresponding individual-level behavioral changes.

These dimensions capture distinct forms of limited support for climate action, from general reservations to opposition to policies and individual changes. Using a national survey of 4,688 academics and research personnel in France, we examine how these barriers relate to perceived mitigation costs, environmental attitudes—particularly toward degrowth—and professional characteristics. Although climate awareness is widespread, support declines when mitigation challenges academic norms, highlighting the need to align climate policies with institutional incentives and career structures.

2. Materials and Methods

2.1. Study design and population

We analyze data from the national survey "Academic and Research Personnel in the Face of Climate Change" conducted in France in 2020 (targeting practices in 2019, pre-COVID). The survey was administered to a random sample of 30,000 individuals drawn from the CNRS Labintel directory, covering universities and public research institutions organized in mixed research units (UMR). A total of 6,724 responses were collected (20% response rate). After data cleaning, the final dataset includes 6,468 individuals. Detailed information, including survey bias is provided in the Supplement (see Appendix A, section S2 and S3). The main analysis focuses on 4,688 permanent academic and research staff, as key questions were specifically designed for this group. Respondents include researchers, faculty, engineers, technicians, and administrative personnel across disciplines. Missing responses (including "no opinion" and "not concerned") are treated as informative categories.

2.2. Outcome variables: attitudinal barriers

We construct four complementary indicators of attitudinal barriers to climate action. Detailed information is provided in the Supplement. *Climate Change Denial* is a binary variable identifying respondents who reject either the existence of climate change or its anthropogenic origin. *Reluctance toward Academic Climate Mitigation* is a binary variable that captures opposition to the inclusion of academia in mitigation efforts, based on disagreement with the need for changes in research practices or support for exempting research from emission reduction targets. *Opposition to Institutional Mitigation Policies* is a count variable (0-10) measuring the number of proposed institutional actions that respondents refuse. These actions include, among others, limiting flights, subsidizing train travel, reducing conference weight in evaluations, and integrating greenhouse gas (GHG) emissions into funding criteria. *Institutional-Individual Inconsistency* is an ordinal variable (0-2) capturing discrepancies between support for institutional policies and willingness to adopt corresponding individual changes (*e.g.*, reducing flights, IT equipment use, or energy-intensive research practices). Higher values indicate stronger inconsistency. (see construction details in Appendix A, section S4).

2.3. Explanatory variables

We consider socio-demographic and professional characteristics, including age, gender, discipline, and career stage. Academic visibility is proxied by the number of international conferences attended, publication rate, and h-index. We also include two variables capturing perceived trade-offs associated with mitigation: *Perceived Costs of Air Travel Reduction* and *Perceived Costs of Equipment Reduction*, defined as the number of domains in which respondents anticipate negative consequences (e.g., scientific quality, funding access, collaboration, or career progression). Finally, two attitudinal variables are included: *Technological Optimism* (belief that technological progress can solve environmental problems) and *Degrowth* (agreement that reducing economic activity is necessary to address environmental challenges). Detailed information is provided in Appendix A, section S5)

2.4. Statistical analysis

We adopt a nested analytical framework to examine successive layers of attitudinal barriers. Specifically, we model: (1) denial in the full sample; (2) reluctance among non-deniers; (3) opposition among non-deniers who are not reluctant; and (4) inconsistency among respondents who support all institutional actions. This approach allows us to identify where support for climate action erodes without assuming causal ordering. We use logistic regression for binary outcomes (denial, reluctance), negative binomial regression for opposition (count), and proportional odds models for inconsistency (ordinal). Multivariate models include all explanatory variables, with variance inflation factors used to assess multicollinearity. Missing data are handled using a mixed approach: variables with more than 10% missing values include a dedicated "missing" category, while others are imputed using multiple imputation by chained equations (10 datasets). Outcome variables are not imputed. Sensitivity analyzes (alternative imputations, non-nested models, and alternative specifications) yield consistent results. All analyzes are conducted in R (version 4.4.2). Detailed information is provided in Appendix A, section S6).

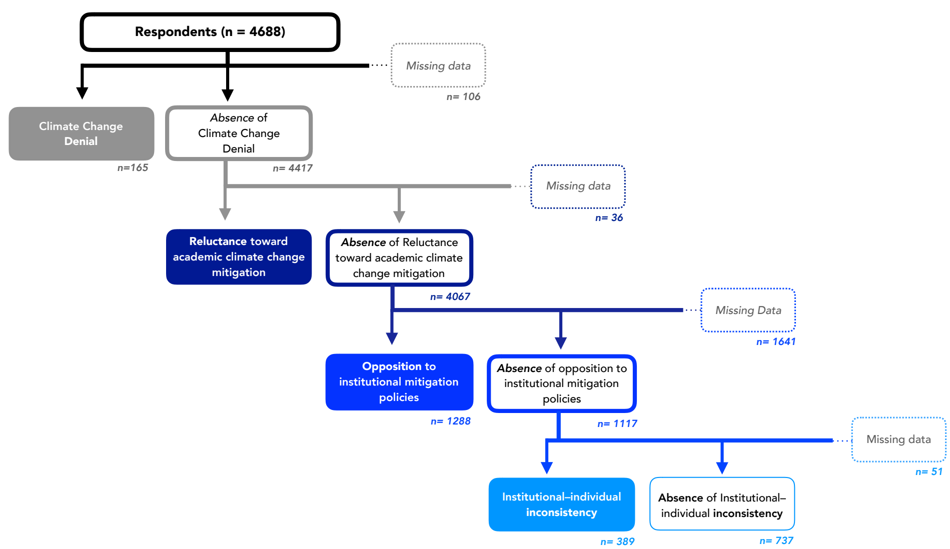

Figure 1: Nested analytical framework used to characterize four dimensions of attitudinal barriers to climate action in academia. The analysis proceeds sequentially from climate change denial to reluctance toward academic climate change mitigation, opposition to institutional mitigation policies, and institutional–individual inconsistency. Each step is estimated among the relevant subset of respondents, without assuming a causal or sequential relationship between the four dimensions.

3. Results

The vast majority of surveyed permanent academics and research personnel (86%) consider substantial changes in research practices essential to address the climate crisis, and 80% support reducing research-related GHG emissions by at least one third by 2030, in line with national cross-sectoral targets (Table S1). We examine the breadth and internal consistency of this apparent consensus.

3.1. Prevalence and Patterns of Attitudinal Barriers to climate action

Climate change Denial, or epistemic denial, is rare in academia : 0.4% of our study population deny the reality of climate change and 3.2% its anthropogenic causes (*i.e*, a total of 3.5%, Figure 2). Reluctance toward academic climate change mitigation is more prevalent, with 7% favoring an exemption of the research sector from cross-sectoral mitigation efforts and 2% rejecting the idea that substantial changes in research practices are necessary (*i.e*, a total of 8%, Figure 2).

Support for climate action among academics drops sharply when concrete mitigation actions are suggested to be implemented at the institutional level, with *Opposition* accounting for about 31% of attitudes (with 43% missing values). Among these, 24% show mild opposition (refusing 1–2 of 10 proposed institutional policies) and 7% show a stronger opposition (refusing $\geq$3 policies). Low levels of support are also observed when individual-level mitigation actions are suggested to academics who support institutional level actions, with *Institutional–Individual Inconsistency* being detected in 29% of the population (with 24% missing values), 21% showing mild *Inconsistency* (willingness to reduce their GHG emissions by $<1/3$ in a given domain, despite stating that reducing GHG emissions in this domain is a priority at an institutional level) and 8% showing a higher level (refusing to reduce their GHG emissions in a given domain, despite stating that reducing GHG emissions in this domain is a priority at an institutional level). Given their high rate of missing values, the prevalence of *Opposition to Institutional Mitigation Policies* and *Institutional–Individual Inconsistency* is likely underestimated.

Note that these four dimensions of attitudinal barriers to climate action slightly overlap (see Figure S1), with, for example, *Opposition* and *Inconsistency* being found even among those who express *Reluctance.* In total, we find that 54% of our population expresses support for at least one form of inaction, 16% express full support for mitigation actions, and 30% have missing values at any given level of action.

3.2. From Stated Support to Action: The Gap between Consensus and Individual Commitment

To better understand the gap between, on the one hand, awareness of climate change and general support for climate change mitigation in academia and, on the other hand, specific attitudes toward policies and individual commitments, we review the support for the ten suggested institutional actions and willingness to reduce individual professional GHG emissions by 2030. Institutional actions span various policy instruments following (50; 51) (*i.e.*, norms, economic incentives, and informational instruments) or push-and-pull policies that either discourage emitting practices through costs and restrictions or promote desired behavior through incentives (see classification in Table 1).

Academics and research personnel generally support institutional climate policies (Figure 2 panel A and Table S2). On average(range), 53% (32%-68%) of the respondents identify the proposed policies as priorities, 21% (14%-30%) as secondary, and 10% (3%-24%) express outright opposition, with about 15% missing data. Four specific actions received lower yet prevailing support: integrating GHG emissions into research funding criteria, financing carbon offsets, publishing GHG inventories, and implementing flight limits.

However, when asked about their willingness to reduce their own professional GHG emissions by 2030, support for climate action drops drastically (Figure 2 panel B and Table S2). On average across all actions, only 16% (5%-40%) of our population support substantial emissions reductions (*i.e.*, by $>1/3$), while 11% (7%-18%) opt for limited mitigation (*i.e.*, by $<1/3$). Additionally, 26% (6%-39%) are opposed to lowering their emissions, predominantly because they consider their GHG emissions to be already low (about 45% missing data). Even those who believe research should lead by example regarding GHG emissions reduction show considerable reluctance when it comes to individual mitigation efforts, with only 22% (8%-53%) on average supporting substantial reductions.

Two actions received comparatively larger support for substantial reductions (*i.e.*, by $>1/3$): reducing flights to conferences (40%) and reducing IT equipment use and replacement frequency (28%). Conversely, reductions in the use of laboratory, experimental, or observational equipment were considered the least acceptable actions ($\leq$6% opting for substantial reductions in

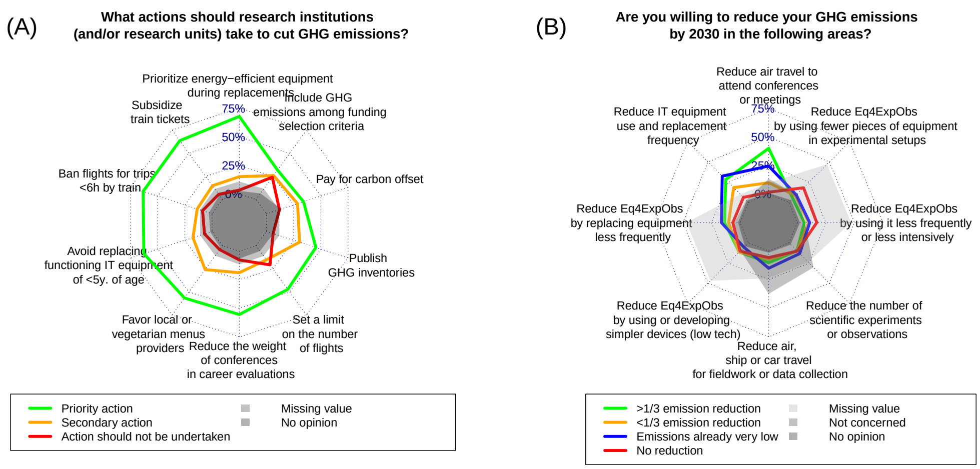

Figure 2: Opinions regarding (A) institutional mitigation options and (B) changes in individual research practices within the study population of permanent academics and research personnel (N = 4688). Missing values—such as "no opinion" or "not concerned"—are incorporated into the variable distribution estimates, and missingness is displayed in grey on the graph. Institutional options (A) include: (a) subsidizing train tickets even if the journey is longer or more expensive than flying; (b) publishing detailed GHG inventories; (c) setting limits on the annual number of flights per person; (d) including GHG emissions among funding selection criteria; (e) reducing the weight of conferences in career evaluations; (f) banning flights for trips under 6 hours by train; (g) avoiding the replacement of functioning IT equipment before 5 years of use; (h) prioritizing energy-efficient equipment even when more expensive; and (i) favoring providers offering local or vegetarian menus. Options at the individual level (B) cover willingness to reduce GHG emissions in eight areas: (a) Reduce air-travel to attend conferences, congresses or meetings, (b) Reduce air, ship or car travel for fieldwork or data collection, (c) Reduce the number of scientific experiments or observations, (d) Reduce IT equipment use and replacement frequency and (e-h) Reduce the production and operation of equipment used for your scientific experiments and observations (e) By using it less frequently or less intensively, (f) By using or developing simpler devices (low tech), (g) By using fewer pieces of equipment in experimental setups, (h) By replacing equipment less frequently.

Climate policy	**Policy instruments**	**Push vs. Pull**	**Domain**
Set a limit on the number of flights	Norms	Push	Travel
Ban flights for trips that can be made in less than 6h by train	Norms	Push	Travel
Avoid replacing IT equipment of less than 5 years of age	Norms	Push	Purchases
Include GHG emissions into funding selection criteria	Norms	Push	Evaluation
Reduce the weight of conferences in career evaluations	Norms	Pull	Evaluation
Favor local and vegetarian menu providers	Norms	Pull	Diets
Subsidize train tickets	Economic incentives	Pull	Travel
Finance carbon offset initiatives	Economic incentives	Pull	Travel
Prioritize energy-efficient research equipment during replacements	Economic incentives	Pull	Purchases
Publish GHG inventories	Informational instrument	Pull	Evaluation

Table 1: Typology of climate policies tested in the survey, by domain and policy instrument.

the number of equipment and frequency or intensity of use). Missing values, despite being substantial, had a minimal effect on the comparative acceptability of actions (see Figure S2). Regarding those who considered their GHG emissions to be already low, we cross-validated these self-assessments with independent information collected in the survey about respondents' actual practices (number of flights, use of energy intensive research facilities, IT renewal) and the presence of mitigation incentives in their research units. Results support the hypothesis that this response modality may be interpreted as an opposition to mitigation options (Supplement Appendix D), which would result in a greater prevalence of *Inconsistency* than estimated in this study.

3.3. Factors Associated with Attitudinal Barriers to Climate Action

We sequentially analyze how socio-demographic characteristics, professional status, academic success (h-index), international conference attendance frequency, perceived costs associated with mitigation, and broader attitudes towards the environment are associated with each of the four dimensions of attitudinal patterns of academic climate inaction (*i.e.*, *Denial*, *Reluctance*, *Opposition*, and *Inconsistency*). Descriptive statistics for each of these variables are given in Tables S4 and S5. Due to high VIF values, the explanatory variable, *number of publications* , was excluded from the multivariate models (see details in Table S6).

We rely on a nested analytical approach (see Figure 1) to examine where support for academic climate change mitigation begins to weaken and to identify the factors associated with successive layers of attitudinal barriers to climate action. Accordingly, *Reluctance* is assessed among respondents who do not deny climate change; *Opposition* among those who do not deny climate change and are not reluctant toward climate mitigation in academia; and *Inconsistency* among those who do not deny climate change, are not reluctant, and support all institutional mitigation actions. A complete presentation of the prevalence of these attitudes is provided in Supplementary Figure S1.

Results for *Denial*, *Reluctance*, and *Inconsistency* are presented as odds ratios (OR), and results for *Opposition* as incidence rate ratios (IRR). ORs indicate the likelihood of expressing a given attitudinal barrier, while IRRs indicate the expected number of institutional actions refused. In multivariate models, estimates are adjusted for all explanatory variables. Similar patterns are observed across the four nested dimensions of mitigation refusal (Figure 3; Tables S7, S8, S9, and S10).

Perceived mitigation costs and lower support for degrowth emerge as the factors most consistently associated with all four dimensions of attitudinal barriers to climate action in adjusted models. Higher perceived costs and lower agreement with degrowth are systematically associated with greater non-support for mitigation policies. More precisely, compared to considering degrowth as a response to environmental challenges (57% of our population), the strongest opposition to degrowth (7%) is significantly associated with a 10-fold increased likelihood of denying climate change (OR [95% confidence interval] = 10.4 [6.3;16.9]), with a 3-fold increased likelihood of being reluctant toward academic climate change mitigation (OR=3.2 [2.2;4.6]), with a 2-fold increased expected number of institutional actions refused (IRR = 2.1 [1.8;2.5]), and with a 3-fold increased likelihood of a 1-point inflation in *the Inconsistency* score (OR= 2.7[1.2;5.8]). Association estimates of similar magnitude are found for the highest perceived costs of air travel reduction (*i.e.*, a score of 5 to 8, 11%) compared to perceiving zero cost (12%) when modeling *Opposition* (IRR=2.6 [2.2;3.2]) and *Inconsistency* (OR = 2.3 [1.3;4.1]); a higher association was estimated for *Reluctance* (OR=6.8[3.8;11.9]), and a lower association was estimated for *Denial* (OR = 2.6 [1.2;5.3]). The perceived costs of experiment reduction policies is the third main variable associated with attitudinal barriers to climate action, despite a high rate of missing data (51%). Compared to respondents who perceive zero cost (16%), those with the highest perceived cost scores (*i.e.*, 4 to 5, 10%) exhibit a significantly greater likelihood of expressing attitudinal barriers to climate action (OR = 2.7 [1.2;5.9] for *Denial*, OR = 3.2 [1.9;5.2] *for Reluctance*, IRR=1.3 [1.1;1.5] for *Opposition*), and *Inconsistency*, OR = 1.7 [1.0;2.8].

Socio-demographic characteristics play a significant role in explaining attitudinal barriers to climate action. Higher odds of *Reluctance* (OR= 2.3 [1.7;3.1]) and *Inconsistency* (OR = 1.4 [1.0;1.9]) are found for men (57%) compared to women (43%), and higher odds of *Denial* (OR= 6.2 [2.2;17.6]) are found for respondents over 60 years old (10%) compared to the youngest group (aged 18–34, 10%).

Accounting for interaction terms in the models, men who are against degrowth as a solution to environmental problems and perceive high costs of air travel reduction (score of 3 or above, 9% of our population), have a 6-fold increased likelihood of denying climate change compared to the opposite profile (*i.e.*, women scientists who are not against degrowth - either supporting degrowth or missing value - and express no perceived costs of air travel reduction, 5%); if not (*i.e.*, among those who do not deny climate change), they have a 21-fold increased likelihood of being reluctant to academic mitigation; if not (i.e., among those who do not deny climate change and are not reluctant to academic mitigation), they are expected to refuse a 3-fold higher number of institutional climate policies ; and if not (i.e., among those who do not deny climate change, are not reluctant to academic mitigation, and support all institutional actions), they have a 3-fold increased likelihood of a 1-point inflation in the Inconsistency score.

The effect of career status is largely captured by exposures to age, gender, and h-index in multivariate models. Senior career position (35%) however, remains significantly associated with *Opposition* in adjusted models, with a 2-fold higher expected number of institutional climate policies refused compared to early-career researchers (1%). Broad research domains affect attitudinal barriers to climate action, with medical and health sciences, and physics and chemistry being associated with increased non-support for action compared to humanities, languages, and literature, showing association effects in the 2.1 to 3.1 range over one of the four dimensions of barriers to climate action. Similarly, the h-index, publication rates, and attendance at international conferences—proxies for academic visibility and success—are all significantly associated with refusing academic mitigation actions in univariate models, mostly related *to Reluctance* and *Opposition*. In multivariate models, conference attendance dominates in the *Opposition* model, with association effects of up to an IRR of 1.5 when attending at least 3 conferences per year (9%) compared to none (35%).

In univariate models, firm belief in the ability of new technologies to solve most environmental problems (10%) compared to not believing in this (41%) is significantly associated with increased non-support for action at all levels; however, the effect generally fades in multivariate models, mostly because this information is partly redundant with the degrowth attitudinal variable (V-Cramer=0.39).

Missing exposure values were informative, supporting a missing-not-at-random (MNAR) mechanism. In particular, the missing category for perceived costs of equipment reduction was associated with lower *Inconsistency* and mainly included respondents not using energy-intensive facilities (88% vs. 14% among non-missing values). Imputing all missing values reduced the magnitude of associations with perceived mitigation costs and degrowth, while revealing stronger disciplinary variations (Figure S3). Results were robust across alternative specifications. Non-nested models yielded similar estimates while additionally identifying significant age and conference attendance effects (Figure S4). Similar patterns were also observed among non-permanent personnel, despite their younger age and slightly stronger disciplinary effects (Supplement Appendix C, Figure S5).

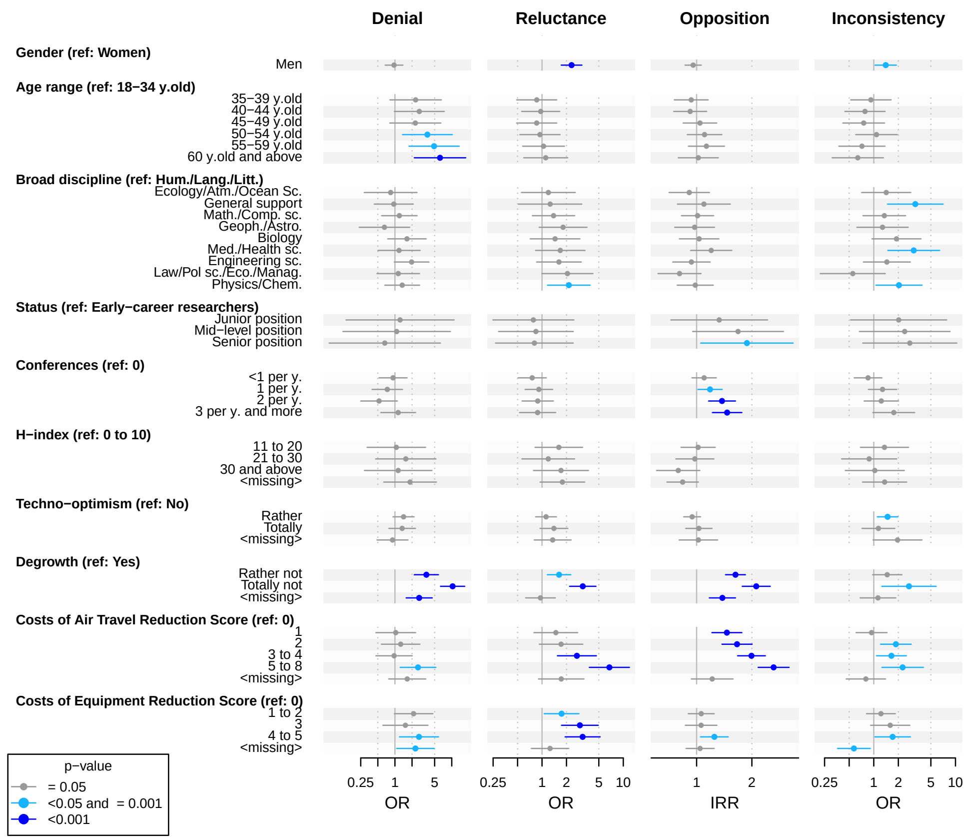

Figure 3: Multivariate regression modeling of of (from left to right) *Climate Change Denial*, *Reluctance toward academic climate change mitigation*, *Opposition to Institutional Mitigation Policies*, and *Institutional-Personal Inconsistency*, fitted in a nested approach. *Climate-Mitigation Denial* is fitted by logistic regression (N=4,582), *Reluctance toward academic climate change mitigation* is fitted by logistic regression among those who do not deny climate change (N=4,381), *Opposition to Institutional Mitigation Policies* is fitted by negative binomial regression among those who do not deny climate change and are not reluctant toward academic mitigation (2,462), and *Institutional-Personal Inconsistency* by proportional odds-regression among those who do not deny climate change, are not reluctant toward academic mitigation and who support all institutional efforts only(N=1,126). IRR = Incidence rate ratio; OR = Odds ratio.

4. Discussion

Our results reveal a marked gap between broad support for climate action and support for concrete mitigation measures within academia. While 86% of respondents recognize the need for substantial changes in research practices and 80% support ambitious emission reduction targets, support declines when mitigation involves specific institutional policies or individual behavioral changes. Climate change denial remains marginal (3.5%), but reluctance toward academic mitigation, opposition to institutional policies, and institutional–individual inconsistency are substantially more prevalent (8%, 31%, and 28%, respectively), together affecting more than half of the study population.

Across all dimensions, perceived mitigation costs—particularly those related to air travel and equipment use—and lower support for degrowth emerge as the main factors associated with attitudinal barriers to climate action. Consistent with previous research, support for climate policies appears shaped less by knowledge than by value orientations and perceived trade-offs (52; 53), declining as mitigation is perceived to entail greater personal or professional costs (51). These patterns are further structured by socio-demographic and professional characteristics, including gender, age, disciplinary background, seniority, and academic visibility.

Taken together, these results reveal a tension between widespread recognition of climate change and limited support for transformative action when mitigation challenges established professional practices or institutional norms. Rather than reflecting an academic exception, this pattern mirrors broader social dynamics. We examine three cross-cutting dynamics shaping these attitudes: sustainability pathways (technology vs. degrowth), perceived mitigation costs, and professional norms and hierarchies, before discussing their implications for sustainability in academia.

4.1. Degrowth vs. Technological solutions

Our analysis shows that opposition to degrowth as a response to environmental challenges is consistently associated with all four dimensions of attitudinal barriers to climate action. Rejection of degrowth (21% of the population and 44% among those who deny climate change or are reluctant toward academic mitigation) appears as one of the most structuring attitudinal divides, thereby delineating a clear boundary between support for and resistance to climate action. This central role of degrowth suggests that disagreements over mitigation are not only about specific policies but also about broader visions of how environmental challenges should be addressed.

Optimism about technological solutions to environmental challenges (endorsed by 43% of the total population and 56% among those who deny climate change or are reluctant toward academic mitigation) also contributes to this divide, but its association loses statistical significance once degrowth is accounted for (*i.e.*, in multivariate models; Tables S7, S8, S9 and S10), suggesting that these two dimensions partly capture overlapping value orientations. Taken together, these results point to a divide between alternative pathways to sustainability, often characterized as technology-driven versus sufficiency-oriented approaches.

Degrowth is grounded in the premise that decoupling economic (or knowledge) production from its biophysical impacts is insufficient to address the scale of the environmental crisis (54; 55). Core degrowth policies typically include reducing working hours and GHG emissions or guaranteeing a basic income (56). As such, support for degrowth can be interpreted as a proxy for progressive orientations or, conversely, opposition to it as an indicator of more conservative views, in line with studies indicating the highest support for climate policies among individuals with positive normative views on state regulation, independently of education levels (57).

Consistent with this interpretation, we find that 83% of respondents favorable to degrowth reported giving decisive weight to ecological issues in their vote, confirming mechanisms observed in the general population (52; 53). Among those who strongly reject degrowth, the divide is more balanced: 35% prioritized ecology in their voting behavior, while 54% did not.

These value-based differences are further reflected in the types of policies respondents are willing to support. Among opponents of degrowth, the strongest opposition is found for the most binding policies (regulations and norms, described in Table 1, results not shown). Similarly, strongest support among techno-optimists is found for the least constraining policies (economic incentives and informational instruments). This is consistent with (58), showing that degrowth proponents tend to favor direct regulation, while supporters of green growth are more likely to accept incentive-based policies such as subsidies.

Finally, support for degrowth is socially structured, reinforcing its role as a central axis of differentiation within academia. The share of respondents endorsing degrowth as a response to environmental challenges is highest in ecology and environmental sciences (68%), closely followed by the humanities

(67%), while other fields range between 47% and 60%. Strong opposition to degrowth is also associated with gender and age: among those who are totally opposed, 70% are men and 48% are aged 50 or older, compared to 57% of men and 38% aged 50 or older among respondents who consider degrowth necessary.

4.2. Costs of transition and climate delay narratives

A second key result concerns the role of perceived mitigation costs, which are consistently associated with all four dimensions of attitudinal barriers to climate action. These findings suggest that perceived trade-offs strongly shape support for climate mitigation, consistent with dynamics described as "policy perfectionism" (43) and previously documented in academic contexts in France (59).

Importantly, these perceived costs should not be interpreted solely as rhetorical strategies used to justify inaction. In the present context, they span several domains, including scientific outcomes, access to resources, collaboration opportunities, and career progression. As such, they likely reflect real or anticipated tensions between mitigation objectives and existing academic practices and incentive structures.

We estimate the perceived costs of climate change mitigation in academic research through a score that increases as respondents acknowledge a greater number of effects as both actual and problematic. The same weight is given to all answers. Answers can be grouped into four functional domains: (i) scientific impact, (ii) resource and funding, (iii) visibility and collaboration, and (iv) institutional and structural risks. This operationalization allows us to capture the breadth of concerns associated with mitigation policies (60).

Empirically, these perceived costs are strongly associated with indicators of academic visibility. Crossing perceived costs and visibility indicators, we find that more visible researchers tend to report higher perceived costs of air travel reduction, suggesting a greater reluctance toward policies that may challenge existing academic performance models. Specifically, 35% of frequent publishers (*i.e.*, those with $\geq$4 publications per year) report high perceived costs (score $\geq$4), compared to only 18% among low-frequency publishers ($<$1 per year). Similarly, 42% of regular conference attendees ($\geq$3 international conferences per year) report high costs, versus 20% among those who attend rarely ($<$1 per year).

These results suggest that perceived costs are not merely anticipatory or speculative but are rooted in structural dependencies between academic recognition and emission-intensive practices. Since high visibility—whether through publications or international conference participation—may be partly sustained by such practices (61), mitigation efforts may be perceived as directly challenging established pathways to academic success.

4.3. Professional norms and power asymmetries

Consistent with previous research indicating that academic visibility—through publications, citations, or mobility—is associated with greater carbon footprints (61; 62; 63) and that high competitiveness tends to induce intensive flying practices (64), our findings suggest that entrenched norms of academic success constitute a central barrier to support for climate change mitigation, particularly those targeting air travel. This is especially evident for regulatory policies (Table S2).

Empirically, indicators of academic visibility and productivity are strongly associated with higher levels of attitudinal barriers. In univariate analyzes, the strongest predictors among visibility indicators are a high publication rate for opposition and inconsistency, and the h-index for denial and reluctance. High aeromobility (three or more round trips per year) is also associated with both greater opposition to institutional mitigation policies and higher levels of institutional–individual inconsistency. Taken together, these results suggest that academic success—understood in terms of productivity, visibility, and mobility—is closely tied to practices that are difficult to reconcile with ambitious mitigation strategies. In this context, the accumulation of "network capital" (65) through mobility and productivity may divert academics from supporting climate action, particularly when it directly affects their own research practices.

These dynamics are further reinforced by social hierarchies within academia. Men in senior positions are significantly more likely to express attitudinal barriers to climate action. This gender gap echoes findings that men are generally more skeptical and opposed to climate policies (66; 67) and tend to perceive higher costs associated with mitigation, especially in wealthier countries (68). Beyond gender, seniority—understood as career advancement—is associated with greater opposition. These results are consistent with studies suggesting that individuals who have benefited the most from academic hierarchies tend to resist changes that might disrupt their professional practices or challenge their privileged position (69).

Even mitigation policies that minimally interfere with existing practices can face limited support. Carbon offsetting is among the least supported institutional options (34% support, compared to 66% for the most widely favored options), along with the integration of GHG assessments into funding decisions (32%). However, these patterns may also reflect broader concerns about the effectiveness or design of such instruments. Offsetting, for instance, has been widely criticized for its limited effectiveness (70). Similarly, the relatively recent shift in France toward a competitive, project-based funding system—where grant acquisition is increasingly central to career advancement—has drawn criticism for its systemic side effects (71).

More broadly, these findings point to a tension between support for climate action in principle and resistance to concrete climate policies perceived as disruptive, ineffective, or misaligned with academic values. While many researchers endorse mitigation goals, they tend to favor strategies that preserve existing norms while rejecting options they perceive as symbolic or poorly designed (52).

Finally, these patterns are also structured along disciplinary lines. Taking into account gender, seniority, visibility, and climate delay narratives, we find that engineering is associated with higher odds of denial, physics and chemistry are associated with higher odds of both reluctance and inconsistency, and medicine and health sciences are associated with higher probabilities of inconsistency. While physics tends to be associated with the highest levels of aeromobility and publication rates (results not shown; (61)), and ecology and environmental sciences also exhibit high levels of both, this suggests a potential modulating role of disciplinary contexts in shaping the relationship between academic success and support for climate policies (11).

4.4. Implications for climate action in academia

Our findings provide insight into the attitudinal and behavioral patterns associated with climate inaction in academia. However, these patterns cannot be fully understood without considering the institutional structures that shape academic practices, including entrenched norms, carbon-intensive incentives, and professional hierarchies (72). In this perspective, focusing solely on individual responsibility and engagement (73), without systemic transformation (55), is unlikely to produce substantial change and may instead reinforce the status quo.

In response to growing climate imperatives, academic institutions have predominantly relied on traditional tools: disseminating knowledge, raising awareness, and improving climate literacy (74). These strategies mirror those historically used to combat denialism. Yet, our results suggest that climate inaction in academia stems less from a lack of knowledge than from divergences in sustainability pathways and from the real or perceived costs associated with mitigation policies. In a research system driven by competition, resource use intensification, and productivity metrics (*e.g.*, publication counts, citations) (75), merely increasing awareness is unlikely to foster change (76).

This implies that informational approaches, while necessary, are insufficient on their own. If they remain a central component of institutional sustainability strategies, their scope should shift toward a more explicit engagement with climate policy instruments, including their trade-offs, potential co-benefits (77), and institutional implications.

4.5. Strengths and limitations

The main strength of this study lies in its combined conceptual and statistical approach, which distinguishes between denial, reluctance, opposition, and inconsistency within a nested analytical framework. This approach allows us to identify where support for climate action begins to weaken and to examine the factors associated with each layer of attitudinal barriers. The large sample size (nearly 5,000 individuals) further enables robust estimation of these associations with substantial statistical power.

This study also has limitations. First, the representativeness of the study population may be affected by selection bias, as individuals with stronger positions regarding climate mitigation in academia may be more likely to participate. This may influence the estimated prevalence of attitudinal barriers. However, such bias is less likely to affect the structure of associations identified in the analysis, provided that these relationships remain stable across subgroups.

Second, the construction of the opposition score assigns equal weight to heterogeneous mitigation policies, ranging from relatively low-cost actions (e.g., subsidizing train travel) to more structurally constraining policies (e.g., integrating GHG emissions into funding criteria). While this choice was made in the absence of a clear theoretical or empirical basis for differential weighting, it may limit the ability to capture variation in the perceived stringency or impact of different policy instruments. These limitations should be taken into account when interpreting the results but do not undermine the consistency of the observed patterns.

5. Conclusion

This study shows that academia is not immune to the gap between climate awareness and climate action. Although climate denial is marginal, support for mitigation weakens when policies are perceived to conflict with established norms of academic evaluation, productivity, and mobility. Addressing attitudinal barriers, therefore, requires engaging with incentive systems, power relations, and organizational constraints rather than relying primarily on individual-level change. Without such structural adjustments, efforts to promote climate action risk remaining largely symbolic rather than translating into sustained and effective transformation.

By distinguishing denial, reluctance, opposition, and institutional–individual inconsistency, we show that climate inaction in academia is structured by perceived costs, competing visions of sustainability, professional hierarchies, and dominant norms of productivity and recognition. These findings suggest that awareness-raising alone is unlikely to produce substantial change in a community where awareness is already high.

If research institutions are to contribute credibly to climate mitigation, they will need policies that address the institutional incentives and professional norms sustaining high-carbon academic practices. In this sense, the challenge for academia is not only to produce knowledge about climate change, but also to transform the conditions under which knowledge itself is produced.

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References

[1] Agnes Sophie Kreil. *Reducing the climate impact associated with air travel: shifting perspectives within and beyond academia.* PhD thesis, ETH Zurich, 2021.

[2] Patricia Kanashiro, Gordon Rands, and Mark Starik. Walking the sustainability talk: if not us, who? if not now, when? *Journal of Management Education*, 44(6):822–851, 2020.

[3] James Higham and Xavier Font. Decarbonising academia: Confronting our climate hypocrisy. *Journal of Sustainable Tourism*, 28(1):1–9, 2020.

[4] Corinne Le Quéré, Stuart Capstick, Adam Corner, Drummond Cutting, Margaret Johnson, Andy Minns, and Richard Wood. Towards a culture of low-carbon research for the 21st century. Tyndall Working Paper 161, Tyndall Centre for Climate Change Research, March 2015.

[5] Joan Serrano-Plana. Reducing the carbon footprint of chemistry labs. *Nature Chemistry*, 17(11):1624–1625, 2025.

[6] Tamara Ben-Ari. How research can steer academia towards a low-carbon future. *Nature Reviews Physics*, pages 1–2, 2023.

[7] Nicola Francesco Dotti, Florence Benoit, Erik Canton, Bianca Cavicchi, Valentina Di Girolamo, Julien Ravet, and Jan-Tjibbe Steeman. Greening research: Decarbonisation and beyond. Literature review, European Commission, Directorate-General for Research and Innovation, Luxembourg, 2025. Quarterly R&I Literature Review 2024/Q3-4.

[8] Jérôme Mariette, Odile Blanchard, Olivier Berné, Olivier Aumont, Julian Carrey, AnneLaure Ligozat, Emmanuel Lellouch, Philippe-Emmanuel Roche, Gaël Guennebaud, Joel Thanwerdas, Philippe Bardou, Gérald Salin, Elise Maigne, Sophie Servan, and Tamara Ben-Ari. An open-source tool to assess the carbon footprint of research. 2(3):035008, 2022. Publisher: IOP Publishing.

[9] Sherry HY Tseng, Craig Lee, and James Higham. Managing academic air travel emissions: Towards system-wide practice change. *Transportation Research Part D: Transport and Environment*, 113:103504, 2022.

[10] Briony Latter, Christina Demski, and Stuart Capstick. Wanting to be part of change but feeling overworked and disempowered: Researchers' perceptions of climate action in uk universities. *PLOS Climate*, 3(1):e0000322, 2024.

[11] Lorraine Whitmarsh, Stuart Capstick, Isabelle Moore, Jana Köhler, and Corinne Le Quéré. Use of aviation by climate change researchers: Structural influences, personal attitudes, and information provision. *Global Environmental Change*, 65:102184, 2020.

[12] James ES Higham, Debbie Hopkins, and Caroline Orchiston. The work-sociology of academic aeromobility at remote institutions. *Mobilities*, 14(5):612–631, 2019.

[13] Marianne De Paepe, Laurent Jeanneau, Jerôme Mariette, Olivier Aumont, and André Estevez-Torres. Purchases dominate the carbon footprint of research laboratories. *PLOS Sustainability and Transformation*, 3(7):e0000116, 2024.

[14] Loïc Lannelongue, Jason Grealey, and Michael Inouye. Green algorithms: quantifying the carbon footprint of computation. *Advanced science*, 8(12):2100707, 2021.

[15] Philippe Loubet, Anthony Benoist, Jérôme Mariette, and André Estevez-Torres. Hybrid lca of french research activities reveals limited trade-offs for decarbonization strategies. *HAL*.

[16] Tamara Ben-Ari, Gaëlle Lefort, Jérome Mariette, Olivier Aumont, Laurent Jeanneau, Alexandre Santerne, Aymeric Spiga, and Philippe-E Roche. Flight quotas outperform focused mitigation strategies in reducing the carbon footprint of academic travel. *Environmental Research Letters*, 19(5):054008, 2024.

[17] Jürgen Knödlseder, Mickael Coriat, Philippe Garnier, and Annie Hughes. Scenarios of future annual carbon footprints of astronomical research infrastructures. *Nature Astronomy*, pages 1–9, 2024.

[18] Marc Odin, Maialen Barret, Sylvain Biancamaria, Karin Dassas, Antoine Firmin, Laure Gandois, François Gheusi, Sylvain Kuppel, Marion Maisonobe, Arnaud Mialon, et al. Comprehensive carbon footprint of

earth and environmental science laboratories: implications for sustainable scientific practice. *ESS Open Archive*, 2024.

[19] Jason Grealey, Loïc Lannelongue, Woei-Yuh Saw, Jonathan Marten, Guillaume Méric, Sergio Ruiz-Carmona, and Michael Inouye. The carbon footprint of bioinformatics. *Molecular biology and evolution*, 39(3):msac034, 2022.

[20] Valerie S Lang, Naman Kumar Bhalla, Simran Sunil Gurdasani, and Pardis Niknejadi. Know your footprint—evaluation of the professional carbon footprint for individual researchers in high energy physics and related fields. *npj Climate Action*, 4(1):28, 2025.

[21] Fabian Dablander, Maien SM Sachisthal, Viktoria Cologna, Noel Strahm, Anna Bosshard, Nana-Maria Grüning, Alison JK Green, Cameron Brick, Adam R Aron, and Jonas MB Haslbeck. Climate change engagement of scientists. *Nature Climate Change*, pages 1–7, 2024.

[22] Sherry Hsueh-Yu Tseng, James E. S. Higham, and Craig Lee. Towards post-covid-19 responsible academic air travel. *International Journal of Sustainability in Higher Education*, 25(1):202–220, 2023.

[23] Simon Marginson. What drives global science? the four competing narratives. *Studies in higher education*, 47(8):1566–1584, 2022.

[24] Debbie Hopkins, James Higham, Sarah Tapp, and Tara Duncan. Academic mobility in the anthropocene era: A comparative study of university policy at three new zealand institutions. *Journal of Sustainable Tourism*, 24(3):376–397, 2016.

[25] Agnes S Kreil. Does flying less harm academic work? arguments and assumptions about reducing air travel in academia. *Travel Behaviour and Society*, 25:52–61, 2021.

[26] Elina Eriksson, Daniel Pargman, Markus Robèrt, and Jarmo Laaksolahti. On the necessity of flying and of not flying: Exploring how computer scientists reason about academic travel. In *Proceedings of the 7th International Conference on ICT for Sustainability (ICT4S)*, pages 18–26. ACM, 2020.

[27] Sherry H. Y. Tseng, James Higham, and Craig Lee. Academic air travel cultures: A framework for reducing academic flying. In Kristian Bjørkdahl and Adrian Santiago Franco Duharte, editors, *Academic Flying and the Means of Communication*, pages 117–140. Springer Singapore, Singapore, 2022.

[28] Alex Glover, Tyanie Lewis, and Yolande Strengers. Overcoming remoteness: The necessity of air travel in australian universities. *Australian Geographer*, 50(4):453–471, 2019.

[29] Astrid Eichhorn, Magnus Breitholtz, Valerie Domcke, Jan Hladky, Debbie Hopkins, Agnes Kreil, Sverker Sörlin, Diarmuid Torney, Carlo Brabante, Antonin Fejfar, Raphael Heffron, Ambreena Manji, Mykolas Simas Poškus, Jana Prodanova, and Bart Vermang. Towards climate sustainability of the academic system in europe and beyond. Technical report, ALLEA, Berlin, 2022.

[30] Kristian Bjørkdahl and Adrian Santiago Franco Duharte, editors. *Academic flying and the means of communication.* Springer Singapore (Palgrave Macmillan), Singapore, 1st edition, 2022. Open access, 365 pp., editors Kristian Bjørkdahl & Adrian Santiago Franco Duharte.

[31] H Stöber, M Gaebel, and A Morrisroe. Greening in european higher education institutions. *EUA Survey Data*, 2021.

[32] Maxwell Boykoff and David Oonk. Evaluating the perils and promises of academic climate advocacy. *Climatic Change*, 163(1):27–41, 2020.

[33] Antoine Hardy. *La science et son empreinte. Une sociologie des mobilisations environnementales dans la recherche scientifique.* PhD thesis, Centre Émile Durkheim, Université Bordeaux, 2024.

[34] Antoine Hardy, Arnaud Saint-Martin, and Dana Diminescu. La frugalité contre l'extractivisme? *Socio. La nouvelle revue des sciences sociales*, (17):9–31, 2023.

[35] Antoine Hardy. Légitimer, produire: le travail pour rendre tangible les nombres du co2e. labos 1point5 et la mise en nombre des émissions de gaz à effet de serre de la recherche. *Statistique et société*, 2025.

[36] Riley E Dunlap, Aaron M McCright, et al. Organized climate change denial. *The Oxford handbook of climate change and society*, 1:144–160, 2011.

[37] Naomi Oreskes and Erik M Conway. Defeating the merchants of doubt. *Nature*, 465(7299):686–687, 2010.

[38] Leah Ceccarelli. Manufactured scientific controversy: Science, rhetoric, and public debate. *Rhetoric and Public Affairs*, 14(2):195–228, 2011.

[39] Constantine Boussalis and Travis G Coan. Text-mining the signals of climate change doubt. *Global Environmental Change*, 36:89–100, 2016.

[40] James Painter, Joshua Ettinger, David Holmes, Loredana Loy, Janaina Pinto, Lucy Richardson, Laura Thomas-Walters, Kjell Vowles, and Rachel Wetts. Climate delay discourses present in global mainstream television coverage of the ipcc's 2021 report. *Communications Earth & Environment*, 4(1):118, 2023.

[41] Stuart Bryce Capstick and Nicholas Frank Pidgeon. What is climate change scepticism? examination of the concept using a mixed methods study of the uk public. *Global environmental change*, 24:389–401, 2014.

[42] Eric Bonds. Beyond denialism: think tank approaches to climate change. *Sociology Compass*, 10(4):306–317, 2016.

[43] William F Lamb, Giulio Mattioli, Sebastian Levi, J Timmons Roberts, Stuart Capstick, Felix Creutzig, Jan C Minx, Finn Müller-Hansen, Trevor Culhane, and Julia K Steinberger. Discourses of climate delay. *Global Sustainability*, 3:e17, 2020.

[44] Forchtner B. Hultman M. Ekberg, K. and KM. Jylhä. *Climate Obstruction: How Denial, Delay and Inaction Are Heating the Planet*. Routledge, Abingdon and New York, NY, 2023.

[45] Hultman M. Forchtner, B. and K. M. Jylhä. Still heating: Unfolding a typology of climate obstruction. *Noah Marschner, Christoph Richter, Janine Patz, Axel Salheiser (Hg.) Contested Climate*, page 59, 2024.

[46] Travis G Coan, Constantine Boussalis, John Cook, and Mirjam O Nanko. Computer-assisted classification of contrarian claims about climate change. *Scientific reports*, 11(1):22320, 2021.

[47] Peter J Jacques. A general theory of climate denial. *Global Environmental Politics*, 12(2):9–17, 2012.

[48] Robert J Brulle. Advocating inaction: a historical analysis of the global climate coalition. *Environmental Politics*, 32(2):185–206, 2023.

[49] John Cook, Naomi Oreskes, Peter T. Doran, William R. L. Anderegg, Bart Verheggen, Ed W. Maibach, J. Stuart Carlton, Stephan Lewandowsky, Andrew G. Skuce, Sarah A. Green, Dana Nuccitelli, Peter Jacobs, Mark Richardson, Bärbel Winkler, Rob Painting, and Ken Rice. Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. *Environmental Research Letters*, 11(4):048002, April 2016.

[50] Hans Verkerk, Philippe Delacote, Elias Hurmekoski, Janni Kunttu, Robert Matthews, Raisa Mäkipää, Fredric Mosley, Lucia Perugini, Christopher Reyer, Stephanie Roe, et al. Forest-based climate change mitigation and adaptation in europe. 2022.

[51] Wouter Poortinga. The role of policy appraisals and second-order beliefs in public support for climate policies in the uk. *Climate Policy*, pages 1–15, 2025.

[52] Antoine Dechezleprêtre, Adrien Fabre, Tobias Kruse, Bluebery Planterose, Ana Sanchez Chico, and Stefanie Stantcheva. Fighting climate change: International attitudes toward climate policies. *American Economic Review*, 115(4):1258–1300, 2025.

[53] Matthew J. Hornsey, Emily A. Harris, Paul G. Bain, and Kelly S. Fielding. Meta-analyses of the determinants and outcomes of belief in climate change. *Nature Climate Change*, 6(6):622–626, 2016.

[54] Jason Hickel, Giorgos Kallis, Tim Jackson, Daniel W O'neill, Juliet B Schor, Julia K Steinberger, Peter A Victor, and Diana Ürge-Vorsatz. Degrowth can work—here's how science can help. *Nature*, 612(7940):400–403, 2022.

[55] Dario Krpan, Frédéric Basso, Dallas O'Dell, Jason E Hickel, and Giorgos Kallis. A call for psychological and behavioural science on degrowth. *Nature human behaviour*, 9(8):1513–1518, 2025.

[56] Giorgos Kallis, Jason Hickel, Daniel W O'Neill, Tim Jackson, Peter A Victor, Kate Raworth, Juliet B Schor, Julia K Steinberger, and Diana Ürge-Vorsatz. Post-growth: the science of wellbeing within planetary boundaries. *The lancet planetary health*, 9(1):e62–e78, 2025.

[57] Kristian Kongshøj and Troels Fage Hedegaard. Limits to degrowth? exploring patterns of support for and resistance against degrowth policies. *Ecological Economics*, 237:108699, 2025.

[58] Lewis C. King, Ivan Savin, and Stefan Drews. Shades of green growth scepticism among climate policy researchers. *Nature Sustainability*, 6(11):1316–1320, 2023.

[59] Guillaume Carbou and Léa Sébastien. Les discours d'inaction climatique dans la communauté scientifique. *Écologie et politique*, (2):71–92, 2023.

[60] Matto Mildenberger, Dustin Tingley, Yasmin Badran, Mark T. Buntaine, Courtenay R. Conrad, and Rochelle Terman. Facing change: Gender and climate change attitudes worldwide. *American Political Science Review*, 117(1):279–296, 2023.

[61] Olivier Berné, Lydiane Agier, Antoine Hardy, Emmanuel Lellouch, Olivier Aumont, Jérôme Mariette, and Tamara Ben-Ari. The carbon footprint of scientific visibility. 17(12):124008, 2022. Publisher: IOP Publishing.

[62] Tullia Jack and Andrew Glover. Online conferencing in the midst of covid-19: an "already existing experiment" in academic internationalization without air travel. *Sustainability: Science, Practice and Policy*, 17(1):293–307, 2021.

[63] Konstantinos Chalvatzis and Peter L Ormosi. The carbon impact of flying to economics conferences: is flying more associated with more citations? *Journal of Sustainable Tourism*, 29(1):40–67, 2020.

[64] Channah Herschberg, Yvonne Benschop, and Marieke van den Brink. Selecting early-career researchers: the influence of discourses of internationalisation and excellence on formal and applied selection criteria in academia. *Higher Education*, 76(5):807–825, 2018.

[65] Anthony Elliott and John Urry. *Mobile Lives*. Routledge, London, 2010.

[66] Aaron M. McCright and Riley E. Dunlap. Cool dudes: The denial of climate change among conservative white males in the united states. *Global Environmental Change*, 21(4):1163–1172, 2011.

[67] Aaron M. McCright and Riley E. Dunlap. The effects of gender on climate change knowledge and concern in the american public. *Population and Environment*, 32(1):66–87, 2010.

[68] Michael Bechtel and Kenneth Scheve. Facing change: Gender and climate change attitudes worldwide. *American Political Science Review*, 117(2):591–608, 2022.

[69] Frédéric Nicolas, Gabriel Montrieux, and Aïcha Bourad. La transition écologique à l'épreuve des sciences sociales du politique. *Politix*, 36(144):9–35, 2023.

[70] Keith Hyams and Tina Fawcett. The ethics of carbon offsetting. *Wiley Interdisciplinary Reviews: Climate Change*, 4(2):91–98, 2013.

[71] Kevin Gross and Carl T. Bergstrom. Contest models highlight inherent inefficiencies of scientific funding competitions. *PLOS Biology*, 17(1):e3000065, 2019.

[72] Nick Chater and George F. Loewenstein. The i-frame and the s-frame: How focusing on individual-level solutions has led behavioral public policy astray. *Behavioral and Brain Sciences*, 46:e147, 2022.

[73] Léonard Dupont, Staffan Jacob, and Hervé Philippe. Scientist engagement and the knowledge–action gap. *Nature Ecology & Evolution*, 9(1):23–33, 2025.

[74] Laila Mendy, Mikael Karlsson, and Daniel Lindvall. Counteracting climate denial: A systematic review. *Public Understanding of Science*, 33(4):504–520, 2024.

[75] BH Lim, C D'Ippoliti, M Dominik, AC Hernández-Mondragón, K Vermeir, KK Chong, H Hussein, VS Morales-Salgado, KJ Cloete, JN Kimengsi, et al. Regional and institutional trends in assessment for academic promotion. *Nature*, 638(8050):459–468, 2025.

[76] Stephan Lewandowsky. Liberty and the pursuit of science denial. *Current Opinion in Behavioral Sciences*, 42:65–69, 2021.

[77] Matthew Skiles, Euijin Yang, Orad Reshef, Diego Robalino Muñoz, Diana Cintron, Mary Laura Lind, Alexander Rush, Patricia Perez Calleja, Robert Nerenberg, Andrea Armani, et al. Conference demographics and footprint changed by virtual platforms. *Nature Sustainability*, 5(2):149–156, 2022.

[78] Marianne Blanchard, Milan Bouchet-Valat, Damien Carton, Jérôme Greffion, and Julien Gros. Les personnels de la recherche face au changement climatique (2020), 2022.

[79] Tamara Ben Ari and Olivier Berné. «la frugalité, un terme un peu radioactif». entretien avec tamara ben ari et olivier berné, cofondateurs de labos 1point5. *Socio. La nouvelle revue des sciences sociales*, (17):67–82, 2023.

[80] Pierrick Martin, Frédéric Boone, and Olivier Berné. Astrophysics in the face of the climate emergency. Conference presentation (slide deck), 2019. Presented at the French Astrophysics Week (SF2A) 2019.

[81] MESR (France). Research personnel - ministry of higher education and research. https://www.enseignementsup-recherche.gouv.fr/fr/les-personnels-de-la-recherche-46556, September 2020. Accessed August 7, 2025.

[82] Marianne Blanchard, Milan Bouchet-Valat, Damien Cartron, Jérôme Greffion, and Julien Gros. Inquiets mais pollueurs ? une enquête sur le personnel de la recherche française face au changement climatique. Working Paper 289, INED — Institut national d'études démographiques, March 2022.

[83] Marianne Blanchard, Milan Bouchet-Valat, Damien Cartron, Jérôme Greffion, and Julien Gros. Concerned yet polluting: A survey on french research personnel and climate change. *PLOS Climate*, 1(9):1–20, 09 2022.

[84] Ian R White, Patrick Royston, and Angel M Wood. Multiple imputation using chained equations: issues and guidance for practice. *Statistics in Medicine*, 30(4):377–399, 2011.

[85] Conseil national des universités (CNU). Cnu sections and disciplinary groups: Official classification, 2025. Official website. In French. Used to define the disciplinary classification in this study. Last accessed Sept, 29 2025.

Supplementary Information for :

High Awareness, Limited Action: Explaining Attitudinal Barriers to Climate Mitigation in Academia

Appendix A. Supplementary Materials and methods

S1. Research landscape

In France, the research sector comprises universities and public or semi-public research institutions, organized into mixed research units (UMR). Universities and higher education institutions often combine research with teaching, while standalone research organizations typically focus exclusively on producing knowledge. For this study, we focus on academic and research personnel, referring to all individuals working in universities or public research institutions in UMRs affiliated with the CNRS (*i.e.*, the majority of UMRs), including academics, researchers, doctoral and postdoctoral students, engineers, technicians, assistants, and administrative or support staff.

S2. Survey data

Our analysis relies on data from the survey "Academic and Research Personnel in the Face of Climate Change", publicly released in 2022 (78) and carried out within the Labos 1point5 project (79). Initially conceptualized in 2018 by astrophysicists for the French Society of Astronomy and Astrophysics (80), the survey was subsequently generalized and scaled-up to include all academic disciplines at the national level. The survey was administered, with the support of the French National Center for Scientific Research (CNRS), to a random sample of academic and research personnel in France, representing a wide range of institutions, disciplines, professional roles and statuses, age groups, and geographic locations. The purpose was to assess their attitudes, opinions, and practices regarding climate change, with a focus on air travel and the use of digital technologies (IT).

The online questionnaire was distributed between June and December 2020, aiming at the year 2019 (*i.e.*, pre-COVID-19). It was sent to 30,000 randomly selected individuals from the CNRS *Labintel* directory, which contains more than 140,000 research personnel contacts from French universities and public research organizations, representing all professional statuses within an estimated total population of approximately 170,000 academics and research personnel (81). With 6,724 responses, the survey reached a response rate of

20%. The main descriptive findings were first reported in French (82) and later made available in English as a word-for-word translation (83).

After additional data cleaning and quality checks performed by the authors of the present study, the final dataset consists of 6,468 individuals. Our analysis focuses on the subpopulation of 4,688 permanent employees, as key parts of the questionnaire were specifically designed for this group. Their responses are compared, where relevant, with those from non-permanent staff (N = 1,780) in the Appendix. Missing responses (including "no opinion" and "not concerned") are treated as informative categories.

S3. Survey biases and data quality

Potential biases related to non-response and self-reporting have been previously assessed for this survey dataset (61). To evaluate sample representativeness, information from the Labintel directory and the CNRS annual report was used to compare respondents to the target population across discipline, professional status, age, and gender. Response rates were found to vary across disciplines and professional categories, with higher participation among permanent researchers and in disciplines more closely related to environmental issues. Standardized residual analyzes conducted on the CNRS subsample indicated no significant gender bias and only limited age bias, with a slight over-representation of younger cohorts.

Self-reported variables were also examined for potential reporting biases using distributional analyzes and heaping indices (61). While some rounding effects were detected—particularly for publication counts—no substantial bias was identified for key variables such as the number of flights or bibliometric indicators, suggesting that self-reporting biases remain limited in magnitude.

Taken together, these elements indicate that the survey population broadly reflects the structure of the target population, although some differences in response rates across groups remain. It is nevertheless possible that the study population over-represents individuals with stronger positions regarding climate-related changes in research practices, as those most favorable or most opposed may be more inclined to participate in such surveys. In addition, the higher response rates observed among environmentally related disciplines suggest a potential selection bias toward respondents who are more engaged with climate issues. As a result, these biases are more likely to lead to an underestimation of attitudinal barriers to climate action rather than to their artificial inflation. Importantly, such representativeness biases are not expected to substantially affect the association estimates, provided that the relationships between predictors and outcomes remain stable across population subgroups.

S4. Definition of attitudinal barriers to climate action

Based on individual survey responses, we construct four variables that delineate the contours of academic climate inaction. These are built from several response items, whose distribution is described in Tables S1 and S2.

We first define the binary variable *Climate–Change Denial* (or simply *Denial*) that captures individuals who deny the reality and the anthropogenic origins of climate change (*i.e.*, those answering *No, probably not* , or *No, definitely not* to the question "Do you think the Earth's climate is changing ?", or *No, they play no role* , or *They play a small role* to the statement "Human activities are causing climate change"). Respondents with missing answers to both items were assigned a missing value (N = 106, 2% of our study population).

We then define the binary variable *Reluctance toward academic climate change mitigation* (or simply *Reluctance*) that captures individuals who express a general negative stance towards the role of academia in climate change mitigation (*i.e.*, those answering *Strongly disagree* to the question "Do you think the climate emergency requires substantial changes in the way we practice our professions?"; or who select the option *Given its role, public research could be granted an exemption status* after being reminded of the context of "France's commitment to reduce its greenhouse gas emissions by one third by 2030" ; with alternative response options including were *Research should reduce its emissions by a third*, and *Research must lead by example*). Respondents with missing answers to both items were treated as missing (N = 118, 2%).

Opposition to Institutional Mitigation Policies (or simply *Opposition*) is defined as a count variable corresponding to the number of times one answered *refusal to undertake this action* out of the 10 institutional mitigation actions suggested to the respondents, thereby capturing the level of rejection of specific and actionable policy instruments. Specifically, respondents were asked to indicate their level of support for a set of ten institutional mitigation actions: (i) setting limits on the number of flights, (ii) banning flights for trips that can be made in less than six hours by train, (iii) subsidizing train travel, (iv) avoiding the replacement of IT equipment less than five years old, (v) prioritizing energy-efficient research equipment during replacement, (vi) reducing the weight of conferences in career evaluations, (vii) publishing GHG inventories, (viii) including GHG emissions in funding selection criteria, (ix) financing carbon offset initiatives, and (x) favoring local and vegetarian catering options. Only respondents who provided complete responses to these ten action variables were considered (N = 2006 with missing values, 43% of our study population). Note that identical weights were assigned to all policy options (e.g., subsidizing train tickets versus integrating GHG emissions into funding criteria). This choice was made a priori, in the absence of theoretical or empirical justification for differential weighting, and should be interpreted as a simplifying assumption of the analysis.

Respondents were independently asked about their willingness to reduce their own professional GHG emissions by 2030 across several domains: (a) air travel for conferences, congresses, or meetings; (b) air, ship, or car travel for fieldwork or data collection; (c) the number of scientific experiments or observations; (d) the use and replacement frequency of IT equipment; and (e–h) the production and operation of equipment used for scientific activities, including reducing usage intensity, developing or using simpler (low-tech) devices, using fewer pieces of equipment in experimental setups, and extending equipment lifespans.

We rely on these to define *Institutional-Individual Inconsistency* (*Inconsistency*), a three-class categorical variable that reflects an increasing discrepancy between support for a given institutional mitigation option (*i.e.*,"undertaking the action is a priority") and a paradoxical rejection of the corresponding individual reduction option. Note that *Institutional-Individual Inconsistency* independently targets three domains surveyed at both the institutional and individual levels (*i.e.*, IT, air-travel, and the use of high-energy research equipment and infrastructures).

The inconsistency score is obtained in the following manner (see Table S3 for details): a value of 2 is given to respondents who answer that they are not willing to reduce GHG emissions by 2030 in any of the following domains and under the following conditions: (1) flights to conferences, meetings, or congresses, while stating that setting a limit on the number of flights or banning flights for trips less than 6 hours by train is a priority at the institutional level ; (2) IT equipment and their renewal frequency, while stating that avoiding the replacement of IT equipment less than 5 years old is a priority ; (3) by using or developing low-tech equipment, while stating that prioritizing energy-efficient equipment during replacements is a priority.

A value of 1 is assigned to all remaining respondents who indicate that they are willing to reduce their emissions by less than 1/3 in any of these domains under the same conditions (*i.e.*, while stating that the same actions are a priority). A value of 0 is assigned to all remaining respondents who indicate that they are willing to reduce their emissions by over 1/3 or that their emissions are already low in any of these domains, under the same conditions. Respondents with fully missing responses to these statements, as well as respondents who consider that none of the institutional mitigation actions related to these domains is a priority, are assigned a missing value (N = 1100, 24% of our study population).

S5. Explanatory variables

We focus on the following self-reported factors to describe the population and analyze how they intersect with academic climate inaction: age (5 year class), gender (male-female), discipline (see S6 for a description of their aggregation values), career status (early career researchers, junior position, mid-level position, senior position, or other), the number of international conferences attended over the 5 years before the survey (average annual number), the number of peer-reviewed publications over the 2017-2019 period (average annual number), and the h-index at the time of the survey. The last three variables are considered indicators of academic visibility or success.

We additionally construct two variables that quantify the perceived costs and trade-offs associated with ambitious mitigation strategies.

Perceived Costs of Air Travel Reduction correspond to the number of times a respondent selected "It is likely, and it is a problem" when evaluating the potential trade-offs or downsides of limiting professional air travel. These costs range from scientific costs (*i.e.*, lower research quality, reduced data access, or fieldwork opportunities), resource and funding costs (*i.e.*, decreased access to research funding), collaboration and visibility costs (*i.e.*, reduced dissemination of research results or threats to international collaborations), systemic and structural consequences (*i.e.*, increased administrative burden or negative impacts on early-career researchers), and decreased individual benefits (such as international mobility).

The second, *Perceived Costs of Equipment Reduction*, captures how often the same response was given for concerns related to reducing the production and operation of instruments intended for scientific experimentation and observations. These costs entail scientific costs (*i.e.*, lower research quality or constraints on or redirection of research topics), resource and funding costs (*i.e.*, decreased access to research funding), and collaboration and visibility costs (*i.e.*, delays in progress relative to competing research groups or reduced publication output). For both variables, respondents who answered "no opinion", "not concerned", or left all relevant items unanswered were treated as missing.

Finally, two attitudinal variables are defined based on the level of agreement with the following statements: (i) "Most environmental problems can be solved through the development of more advanced technologies," hereafter referred to as Technological Optimism; and (ii) "Degrowth is necessary to address environmental challenges," hereafter referred to as Degrowth. Each variable is measured on a three-point scale, with an additional category for missing values. Response modalities are presented in Tables S4 and S5.

S6. Statistical analyses

First, we detail the attitudes of our study population towards the 10 suggested institutional climate mitigation actions and the 8 individual reduction actions (see section S4). Second, we quantify the prevalence of attitudinal barriers to climate action based on *Denial*, *Reluctance*, *Opposition*, and *Inconsistency*.

We investigate where support for climate action erodes and identify the factors associated with successive layers of attitudinal barriers using a nested analytical approach (see Figure 1). Specifically, we examine (1) factors associated with *Climate change denial*; (2) among non-deniers, factors associated with *Reluctance toward academic climate change mitigation*; (3) among non-deniers who are not reluctant, factors associated with *Opposition to Institutional Mitigation Policies*; and (4) among non-deniers who are not reluctant toward academic climate change mitigation and who consider all 10 institutional mitigation actions as priorities, factors associated with *Institutional–Individual Inconsistency*.

We rely on logistic regression to model *Denial* and *Reluctance* (both binary variables), negative binomial regression to model *Opposition* (count variable), and proportional odds regression to model *Inconsistency* (ordinal categorical variable). In addition, socio-demographic characteristics (gender, age), professional situations (discipline, status), and indicators of academic visibility or success (number of publications, number of international conferences, and h-index) are considered for inclusion as explanatory variables across all multivariate models. We rely on variance inflation factor (VIF) values to identify multicollinearity among explanatory variables. Explanatory variables with a VIF>5 in all multivariate models are excluded. Univariate models including explanatory variables one at a time are fitted for comparison.

Because missing data are considered informative (*i.e.*, not missing at random), a distinct "missing" category is created for all explanatory variables with more than 10% missing values (their levels of missingness are detailed in Tables S4 and S5). For all other explanatory variables (*i.e.*, those with a missingness rate below 10%), missing values are imputed using multiple imputation by chained equations (MICE) (84), with all variables in the study considered as predictors, except for explained variables (*i.e.*, *Denial*, *Reluctance*, *Opposition*, and *Inconsistency*). Explained variables are not imputed, as no gain in statistical power is expected. Ten imputed datasets are generated.

In sensitivity analyzes, we repeat the analyzes (1) after imputing all explanatory variables' missing values (*i.e.*, assuming data is missing at random); (2) in a non-nested approach (*i.e.*, without selecting the population the models are fitted on); (3) in non-permanent personnel (note that of *Inconsistency* was not assessed in this population, for they were not asked their willingness to reduce their own professional GHG emissions). Finally, we tested hurdle models to account for potential zero inflation and overdispersion in the *Opposition* score, and non-proportional odds models for *Inconsistency* to relax the proportionality assumption. These alternative specifications do not improve the models fit based on the Akaike Information Criterion (AIC), and were not retained (results not shown). The analyzes were conducted using R version 4.4.2 (2024-10-31).

S7. Research fields

We relied on the academic classification of the detailed academic disciplines as declared in the survey and built from (85). We merged those with the classification used for engineers and technicians and regrouped them into the following broad fields : Law & Political Science / Economics& Management, Languages & Literature, Humanities, Mathematics & Computer Science, Physics & Chemistry, Geophysics & Astronomy, Ecology & Atm, Ocean Sciences, Biology, Engineering, Medical & Health Sciences (See Figure S6).

Appendix B. Experimental and observation purchases and infrastructures

In the survey, large and energy intensive research facilities include particle accelerators, radio telescopes, oceanographic vessels, research aircraft, or intensive experimental settings (*e.g.*, field platforms, greenhouses, farms, animal facilities), as well as large IT infrastructures (*e.g.*, supercomputers, data centers) and major equipment (*e.g.*, MRI scanners, high-resolution microscopes, oscilloscopes, centrifuges, deep freezers, etc.).

Appendix C. Permanent versus non permanent personnel

We present an exhaustive comparison of the socio-demographic and general characteristics of non-permanent (N=1780) versus permanent (N=4688) research personnel, together with their attitudes and opinions for key elements of the survey.

The socio-demographic characteristics of non-permanent staff members are very different from those of permanent staff members (Table S4), predominantly related to their younger age : 63% are under 30 y.old, vs. 3% among permanent staff. Half (49%) non-permanent staff members are doctoral students, 17% are postdoctoral students, and only 9% are researchers or academics (research scientist or senior researchers and associate or full professors). In comparison, among permanent staff, less than 2% are doctoral and postdoctoral students, and 62% are researchers or academics. In great part due to this age difference, non-permanent have a lower scientific visibility (in terms of numbers of publications and of conference attendance, and of h-index, air travel frequency, and engagement in international research programs).

Despite this age difference, similar opinions regarding climate change and institutional mitigation options are found for non-permanent staff compared to the permanent staff (see Tables S5 and S1), with comparable levels of *Denial* (3.5% vs. 3.7%), *Reluctance* (8.2% vs. 8.6%) and *Opposition* (22% vs. 24% with an opposition score of 1 or 2, and 6% vs. 8% with a greater opposition score, see Table S11 and Figure S7). *Inconsistency* cannot be characterized in this subpopulation, for non-permanent staff members were not asked theses questions.

Some covariates are differently distributed (socio-economic and work-related variables, see Table S4, but climate and climate change mitigation opinions are not, see Table S5), their associations with *Denial*,*Reluctance* and with *Opposition* are similar (Figure S5 and Tables S7, S8 and S9); degrowth and the perceived costs of air travel reduction and of equipment reduction remain the main drivers of obstruction.

Similar levels of missingness are found (40% in total vs. 32% among permanent staff, see Tables S4, S5 and S11 for details variable per variable).

Appendix D. Analysis of the response modality "My emissions are already very low"

A substantial proportion of respondents (6% to 24%, depending on the emission source) reported being unwilling to reduce their GHG emissions, arguing that their current levels were already very low (blue line in Figure 2, panel B). We cross-validated these self-assessments with independent information collected in the survey regarding respondents' actual practices and the presence of mitigation incentives in their research units.

First, among those who considered their equipment-related emissions to be very low ($N = 1{,}073$), only 6% reported using at least one large or energy-intensive research facility [1], compared to 22% in the rest of the sample (with missing values of 0% vs. 35%, respectively).

Among respondents who reported that their professional air travel emissions were already very low (for conferences, meetings, or fieldwork; $N = 1{,}497$), the average number of return flights taken in 2019 was 1.21, compared to 1.80 in the total population—a reduction of approximately 33%. This difference, however, is largely attributable to a lower proportion of intensive flyers in this group: only 8% reported taking four or more return flights in 2019, compared to 16% in the overall sample. When these high-frequency travelers are excluded, the average number of flights among the remainder of the self-declared low emitters drops to 0.73, virtually identical to the rest of the population (0.76).

Similarly, among those who claimed their IT-related emissions were already very low ($N = 1{,}521$), the number of computers owned per person was comparable to that of the rest of the sample—about 40% in both groups reported owning more than one computer. In addition, computer replacement rates remained high: 80% had replaced a computer within the last five years,

[1] Such as accelerators, telescopes, research vessels, greenhouses, supercomputers, or MRI scanners

versus 93% in the rest of the population. This comparison is based on a random 50% subsample of respondents who were shown these questions.

Finally, the belief that one's emissions are already minimal is no more prevalent among individuals working in laboratories where climate-related mitigation policies were already in place (results not shown).

Supplementary Tables

Variable	Categories	Permanent staff (N=4688)	Non-permanent staff (N=1780)	p-value
"Do you think the Earth's climate is changing ?"				0.007
	Yes, definitely	4142 (88%)	1614 (91%)	
	Yes, probably	423 (9%)	111 (6%)	
	No, probably not	13 (0.3%)	5 (0.3%)	
	No, definitely not	4 (0.1%)	2 (0.1%)	
	<Missing>	106 (2.3%)	48 (2.7%)	
"Human activities are causing climate change"				0.983
	Yes, they are the only cause	846 (18%)	313 (18%)	
	Yes, they play a large role	3523 (75%)	1347 (76%)	
	Yes, they play a small role	141 (3.0%)	56 (3.1%)	
	No, they play no role	7 (0.1%)	2 (0.1%)	
	<Missing>	171 (3.6%)	62 (3.5%)	
"How concerned are you about climate change?"				0.326
	Extremely concerned	1428 (30%)	566 (32%)	
	Very concerned	1827 (39%)	706 (40%)	
	Rather concerned	999 (21%)	336 (19%)	
	A little concerned	268 (6%)	99 (6%)	
	Not at all concerned	26 (0.6%)	10 (0.6%)	
	<Missing>	140 (3.0%)	63 (3.5%)	
"Are you more or less concerned than 5y. ago"				<0.001
	A lot more	1972 (42%)	833 (47%)	
	A little more	1674 (36%)	580 (33%)	
	Not more, not less	827 (18%)	242 (14%)	
	A little less	57 (1.2%)	39 (2.2%)	
	A lot less	20 (0.4%)	22 (1.2%)	
	<Missing>	138 (2.9%)	64 (3.6%)	
"Do you think the climate emergency requires substantial changes in the way we practice our professions"				<0.001
	Strongly agree	2083 (44%)	913 (51%)	
	Somewhat agree	1943 (41%)	650 (37%)	
	Somewhat disagree	310 (7%)	87 (4.9%)	
	Strongly disagree	83 (1.8%)	24 (1.3%)	
	<Missing>	269 (6%)	106 (6%)	
"In the context of France's commitment to reduce its greenhouse gas emissions by one third by 2030, do you think"				<0.001
	"Research must reduce its emissions by a third"	1944 (41%)	772 (43%)	
	"Research must lead by example"	1823 (39%)	600 (34%)	
	"Given its role, public research could be granted an exemption status"	349 (7%)	146 (8%)	
	<Missing>	572 (12%)	262 (15%)	

Table S1: Opinions on climate change and the need for mitigation options in research among permanent and non-permanent academics and research personnel. We relied on Fisher tests for categorical variables to compare groups, and on ANOVA tests for continuous variables. Missing values are considered as a category.

Institutional mitigation option	Priority option	Secondary option	Option should not be undertaken	<missing>	
Prioritize energy-efficient equipment during replacements	68%	15%	3%	14%	
Subsidize train tickets	64%	15%	6%	16%	
Ban flights for trips <6h by train	63%	14%	9%	14%	
Avoid replacing functioning IT equipment of <5y. of age	63%	18%	7%	13%	
Favor local or vegetarian menus providers	57%	26%	4%	14%	
Reduce the weight of conferences in career evaluations	55%	19%	8%	18%	
Set a limit on the number of flights	47%	15%	21%	17%	
Publish GHG inventories	45%	30%	6%	18%	
Pay for carbon offset	34%	29%	12%	25%	
Include GHG emissions among funding selection criteria	32%	26%	24%	18%	
Individual mitigation option	**> 1/3 emission reduction**	**<1/3 emission reduction**	**Emissions already very low**	**No reduction**	**<missing>**
Reduce air travel to attend conferences or meetings	40%	10%	25%	2%	24%
Reduce IT equipment use and replacement frequency	28%	18%	32%	6%	15%
Reduce Eq4ExpObs by replacing equipment less frequently	14%	10%	16%	6%	54%
Reduce Eq4ExpObs by using or developing simpler devices (low tech)	11%	11%	6%	10%	61%
Reduce air, ship or car travel for fieldwork or data collection	10%	7%	15%	6%	62%
Reduce the number of scientific experiments or observations	10%	10%	13%	10%	56%
Reduce Eq4ExpObs by using it less frequently or less intensively	6%	10%	11%	17%	56%
Reduce Eq4ExpObs by using fewer pieces of equipment in experimental setups	5%	8%	9%	18%	60%

Table S2: Opinions of respondents (N=4688) to institutional and individual mitigation options.
Eq4ExpObs: Equipment for experiments and observations.

Opinion on institutional mitigation options	Opinion on personal reduction options		Score
	Reduction option	Opinion	
Setting a limit on the number of flights is a priority	*Flights to conferences, meetings or congress*	Not willing to reduce	2
		Willing to reduce by $< 1/3$	1
		Willing to reduce by $1/3$ or more	0
		My emissions are already low	0
Banning flights for trips $< 6h$ by train is a priority	*Flights to conferences, meetings or congress*	Not willing to reduce	2
		Willing to reduce by $< 1/3$	1
		Willing to reduce by $1/3$ or more	0
		My emissions are already low	0
Avoiding replacing IT equipment of < 5 years of age is a priority	*Number of IT equipment*	Not willing to reduce	2
		Willing to reduce by $< 1/3$	1
		Willing to reduce by $1/3$ or more	0
		My emissions are already low	0
Avoiding replacing IT equipment of < 5 years of age is a priority	*IT equipment renewal*	Not willing to reduce	2
		Willing to reduce by $< 1/3$	1
		Willing to reduce by $1/3$ or more	0
		My emissions are already low	0
Prioritizing energy-efficient equipment during replacements is a priority	*Using or developing low-tech equipment*	Not willing to reduce	2
		Willing to reduce by $< 1/3$	1
		Willing to reduce by $1/3$ or more	0
		My emissions are already low	0

Table S3: Scoring system for the variable *Institutional–Individual Inconsistency*. For all individuals who express opinions on institutional mitigation options and on personal reduction options that are listed in this table, the highest score is retained. All other individuals are attributed a missing value.

Variable	Categories, or distribution indicator	Permanent staff (N=4688)		Non-permanent staff (N=1780)		P-value
		Missing	N(%), unless stated	Missing	N(%), unless stated	
Age		14 (0.3%)		13 (0.7%)		<0.001
	18-24 y.old		12 (0.3%)		279 (16%)	
	25-29 y.old		113 (2.4%)		828 (47%)	
	30-34 y.old		310 (7%)		300 (17%)	
	35-39 y.old		662 (14%)		107 (6%)	
	40-44 y.old		862 (18%)		49 (2.8%)	
	45-49 y.old		826 (18%)		21 (1.2%)	
	50-54 y.old		786 (17%)		11 (0.6%)	
	55-59 y.old		637 (14%)		12 (0.7%)	
	60 y.old and above		466 (10%)		160 (9%)	
Gender		20 (0.4%)		18 (1.0%)		0.006
	Female		1995 (43%)		820 (47%)	
	Male		2673 (57%)		942 (53%)	
Discipline		55 (1.2%)		35 (2.0%)		<0.001
	Biology		428 (9%)		123 (7%)	
	Ecology/Atm./Ocean Sc.		293 (6%)		121 (7%)	
	Geoph./Astro.		335 (7%)		114 (7%)	
	Law/Pol sc./Eco./Manag.		186 (4.4%)		101 (6%)	
	Math./Comp. sc.		560 (12%)		197 (11%)	
	Med./Health sc.		372 (8%)		181 (10%)	
	Physics/Chem.		880 (19%)		327 (19%)	
	Humanities/Lang./Litt.		654 (14%)		325 (19%)	
	Engineering sc.		526 (11%)		204 (12%)	
	General support		399 (9%)		52 (3.0%)	
Prof. status		0 (0%)		2 (0.1%)		<0.001
	Technician		270 (6%)		42 (2.4%)	
	Assistant Research Engineer		278 (6%)		49 (2.8%)	
	Research Engineer		513 (11%)		117 (7%)	
	Senior Research Engineer		510 (11%)		93 (5%)	
	PhD Candidate (with contract)		54 (1.2%)		769 (43%)	
	PhD Candidate (CIFRE – Industrial Agreement)		12 (0.3%)		103 (6%)	
	Temporary Teaching and Research Attaché (ATER)		10 (0.2%)		54 (3%)	
	Postdoctoral Researcher		9 (0.2%)		243 (14%)	
	Research Scientist		729 (16%)		12 (0.7%)	
	Associate Professor		1065 (23%)		19 (1.1%)	
	Senior Research Scientist		552 (12%)		60 (3.4%)	
	Full Professor		514 (11%)		74 (4.2%)	
	Other (unknown)		172 (3.7%)		143 (8%)	
Career stage		172 (3.7%)		145 (8%)		<0.001
	Early-Career Researchers		66 (1.5%)		872 (53%)	
	Junior Position		543 (12%)		371 (23%)	
	Mid-level Position		2331 (52%)		165 (10%)	
	Senior Position		1576 (35%)		227 (14%)	
Nb of publications		1354 (29%)		451 (25%)		<0.001
	0		231 (7%)		421 (32%)	
	]0;1[per y.		419 (13%)		448 (34%)	
	[1;2[per y.		960 (29%)		297 (22%)	
	[2;4[per y.		898 (27%)		114 (9%)	
	[4-7[per y.		586 (18%)		34 (2.6%)	
	7 per y. and above		240 (7%)		15 (1%)	
Nb of conferences		324 (7%)		189 (11%)		<0.001
	0 per y.		1550 (35%)		725 (46%)	
	<1 per y.		972 (22%)		335 (21%)	
	1 per y.		877 (20%)		303 (19%)	
	2 per y.		585 (13%)		156 (10%)	
	3 per y. and more		380 (9%)		72 (4%)	
Nb of prof. return flights in 2019		403 (9%)		222 (12%)		<0.001
	mean(sd)		1.6 (3.1)		0.9 (2.0)	
	IQR		[0 ; 2]		[0 ; 1]	
	range		(0 - 65)		(0 - 50)	
h-index		3213 (69%)		1550 (87%)		<0.001
	0 to 10		244 (17%)		161 (70%)	
	11 to 20		592 (40%)		26 (11%)	
	21 to 30		377 (26%)		17 (7%)	
	30 and above		262 (18%)		26 (11%)	
Engaged in an international research program		1216 (25.9%)		382 (21.5%)		<0.001
	No		1955 (56.3%)		1064 (76.1%)	
	Yes		1517 (43.7%)		334 (23.9%)	

Table S4: Socio-demographic and professional characteristics of permanent (N=4688) versus non-permanent (N=1780) research personnel. We relied on Fisher tests for categorical variables to compare groups, and on ANOVA tests for continuous variables.

Early-Career Researchers = PhD Candidates ; IQR = Inter-quartile range; Junior Position = Temporary Teaching and Research Attaché, Postdoctoral Researcher, Assistant Research Engineer, or Technicians (except Assistant Engineer) ; Mid-level Position = Research Scientist, Associate professor or Research Engineer, Technicians (only Assistant Engineer); sd = standard deviation; Senior Position = Senior Research Engineer, Full Professor, or Senior Research Scientist.

Variable	Categories	Permanent staff (N=4688)	Non-permanent staff (N=1780)	P-value
Techno-optimism				<0.001
	No	1936 (41%)	794 (45%)	
	Rather	1539 (33%)	499 (28%)	
	Totally	451 (10%)	134 (8%)	
	<missing>	762 (16%)	353 (20%)	
Degrowth				0.014
	Yes	2688 (57%)	998 (56%)	
	Rather not	635 (14%)	207 (12%)	
	Totally not	331 (7%)	122 (7%)	
	<missing>	1034 (22%)	453 (25%)	
Perceived costs of air travel reduction score				0.002
	0	572 (12%)	274 (15%)	
	1	663 (14%)	243 (14%)	
	2	631 (13%)	256 (14%)	
	3	576 (12%)	208 (12%)	
	4	425 (9%)	176 (10%)	
	5 to 8	528 (11%)	204 (11%)	
	<missing>	1293 (28%)	419 (24%)	
Perceived costs of equipment reduction score				<0.001
	0	734 (16%)	378 (21%)	
	1	351 (7%)	153 (9%)	
	2	353 (8%)	120 (7%)	
	3	361 (8%)	90 (5%)	
	4 to 5	483 (10%)	79 (4.4%)	
	<missing>	2406 (51%)	960 (54%)	
The decisive importance of ecology in voting				0.001
	Yes	3063 (65%)	1113 (63%)	
	No	854 (18%)	345 (19%)	
	Prefer not to answer	242 (5%)	65 (3.7%)	
	<missing>	529 (11%)	257 (14%)	
Redirect your research towards topics more related to ecology, environment or climate				<0.001
	Yes	961 (20%)	294 (17%)	
	I thought about it	805 (17%)	427 (24%)	
	No	2107 (45%)	889 (50%)	
	<missing>	815 (17%)	170 (10%)	
Forgoing research due to environmental impact				<0.001
	Yes	363 (8%)	147 (8%)	
	I thought about it	567 (12%)	276 (16%)	
	No	2861 (61%)	1163 (65%)	
	<missing>	897 (19%)	194 (11%)	
For professional trips, favor train to plane for environmental reasons (even if the journey is longer)				<0.001
	Yes, several times	778 (17%)	226 (13%)	
	Yes, one time	201 (4.3%)	90 (5%)	
	No, but I thought about it	264 (6%)	107 (6%)	
	No	806 (17%)	353 (20%)	
	<missing>	2639 (56%)	1004 (56%)	
Forgoing professional trips abroad due to environmental impact				<0.001
	Yes, decisive reason	314 (7%)	69 (3.9%)	
	Yes, secondary reason	267 (6%)	50 (2.8%)	
	No	1353 (29%)	607 (34%)	
	<missing>	2754 (59%)	1054 (59%)	
Change your personal air travel behavior				<0.001
	No	2301 (49%)	761 (43%)	
	Yes, I fly a lot less	1039 (22%)	372 (21%)	
	Yes, I fly a little less	677 (14%)	292 (16%)	
	Yes, I fly a little more	97 (2.1%)	77 (4.3%)	
	Yes, I fly a lot more	32 (0.7%)	24 (1.3%)	
	<missing>	542 (12%)	254 (14%)	
Protecting the environment is more important than protecting economic growth				<0.001
	Totally agree	2159 (46%)	975 (55%)	
	Rather agree	1489 (32%)	395 (22%)	
	Rather disagree	300 (6%)	81 (4.6%)	
	Totally disagree	68 (1.5%)	27 (1.5%)	
	<missing>	672 (14%)	302 (17%)	
I accept that regulatory constraints should be put in place to protect the environment even if this limits my comfort				<0.001
	Totally agree	1775 (38%)	798 (45%)	
	Rather agree	1833 (39%)	557 (31%)	
	Rather disagree	342 (7%)	93 (5%)	
	Totally disagree	132 (2.8%)	36 (2.0%)	
	<missing>	606 (13%)	296 (17%)	

Table S5: General opinions on climate and mitigation options of permanent and non-permanent research personnel. We relied on Fisher tests for categorical variables to compare groups, and on ANOVA tests for continuous variables. Missing values are considered as a category.

Explained variables	Criteria	Base model (i.e. intercept only)	Multivariate model including all possible explanatory variables	Multivariate model with all possible explanatory variables except *Nb of publications*
Denial	AIC	1423	1289	1288
	BIC	1429	1604	1564
	Pseudo-R2 (McFadden)	-0.39	-0.16	-0.18
	VIF values (range)	NA	[1.23–7.58] [1]	[1.23–3.78]
Reluctance	AIC	2262	2010	2003
	BIC	2269	2323	2277
	Pseudo-R2 (McFadden)	-0.41	-0.20	-0.20
	VIF values (range)	NA	[1.16–6.31] [2]	[1.15–3.79]
Opposition	AIC	6617	6257	6250
	BIC	6628	6548	6506
	Pseudo-R2 (McFadden)	-0.68	-0.57	-0.57
	VIF values (range)	NA	[1.18–7.55] [3]	[1.18–6.78] [4]
Inconsistency	AIC	1853	1778	1770
	BIC	1864	2029	1991
	Pseudo-R2 (McFadden)	-4.93	-4.38	-4.39
	VIF values (range)	NA	NA	NA

Table S6: Model fit assessment, estimated using AIC, BIC, pseudo R^2 (average values over 10 imputed datasets), and VIF values (estimated over 1 imputed dataset).

[1] The explanatory variable *Nb of publications* has the highest VIF value. The next highest value is 4.34 for *Discipline*.

[2] The explanatory variable *Nb of publications* has the highest VIF value. The next highest value is 4.25 for *Discipline*.

[3] The explanatory variable *Discipline* has the highest VIF value. The next highest value is 5.41 for *Nb of publications*.

[4] The explanatory variable *Discipline* has the highest VIF value. The next highest value is 2.99 for *Cost of Equipment Reduction Score*.

		Permanent (N=4,582)				Non-permanent (N=1,732)	
		Univariate model		Multivariate model		Multivariate model	
Variable	category	OR [95%CI]	p-value	OR [95%CI]	p-value	OR [95%CI]	p-value
Gender	Females	(ref)		(ref)		(ref)	
	Men	0.95[0.69;1.3]	0.749	0.96[0.67;1.38]	0.84	1.01[0.54;1.88]	0.975
Age	18-34y. old	(ref)		(ref)		(ref)	
	35-39 y.old	2.31[0.81;6.57]	0.116	2.31[0.81;6.57]	0.116	1.73[0.45;6.65]	0.428
	40-44 y.old	2.69[0.98;7.39]	0.056	2.69[0.98;7.39]	0.056		
	45-49 y.old	2.28[0.81;6.43]	0.118	2.28[0.81;6.43]	0.118		
	50-54 y.old	3.73[1.36;10.23]	0.011	3.73[1.36;10.23]	0.011		
	55-59 y.old	4.88[1.76;13.51]	0.002	4.88[1.76;13.51]	0.002		
	40-59 y.old					4.59[1.62;13]	0.004
	60 y.old and above	6.22[2.19;17.62]	0.001	6.22[2.19;17.62]	0.001	8.79[2.8;27.63]	<0.001
Discipline	Hum./Lang./Litt.	(ref)		(ref)		(ref)	
	Ecology/Atm./Ocean Sc.	0.53[0.2;1.44]	0.215	0.84[0.29;2.45]	0.749	0.65[0.12;3.44]	0.613
	General support	1.52[0.79;2.92]	0.207	0.95[0.43;2.1]	0.905	0.56[0.1;3.17]	0.509
	Math./Comp. sc.	0.94[0.48;1.84]	0.866	1.2[0.58;2.45]	0.626	1.09[0.37;3.2]	0.878
	Geoph./Astro.	0.59[0.23;1.48]	0.257	0.65[0.23;1.82]	0.414	0.46[0.08;2.56]	0.378
	Biology	1.41[0.74;2.69]	0.301	1.63[0.75;3.54]	0.221	0.84[0.2;3.53]	0.808
	Med./Health sc.	1.08[0.52;2.22]	0.842	1.18[0.5;2.78]	0.703	0.69[0.21;2.3]	0.551
	Engineering sc.	1.65[0.91;2.99]	0.1	1.97[0.98;3.96]	0.059	0.54[0.15;2.01]	0.36
	Law/Pol sc./Eco./Manag.	1.59[0.71;3.55]	0.258	1.14[0.48;2.71]	0.76	0.77[0.21;2.76]	0.682
	Physics/Chem.	1.24[0.7;2.17]	0.463	1.34[0.66;2.72]	0.412	1[0.37;2.66]	0.993
Career status	Early-Career Researchers	(ref)		(ref)		(ref)	
	Junior position	1.23[0.14;11.01]	0.852	1.23[0.14;11.01]	0.852	1.02[0.4;2.62]	0.963
	Mid-level position	1.07[0.12;9.48]	0.95	1.07[0.12;9.48]	0.95	0.92[0.31;2.75]	0.883
	Senior position	0.66[0.07;6.31]	0.721	0.66[0.07;6.31]	0.721	1.41[0.44;4.47]	0.56
Nb of conference	0 per y.	(ref)		(ref)		(ref)	
	<1 per y.	0.93[0.52;1.64]	0.792	0.93[0.52;1.64]	0.792	0.49[0.19;1.21]	0.121
	1 per y.	0.73[0.4;1.36]	0.326	0.73[0.4;1.36]	0.326	0.78[0.34;1.8]	0.564
	2 per y.	0.52[0.25;1.1]	0.089	0.52[0.25;1.1]	0.089	0.3[0.08;1.19]	0.089
	3 per y. and more	1.14[0.56;2.31]	0.716	1.14[0.56;2.31]	0.716	0.4[0.11;1.43]	0.158
H-index	0-10	(ref)		(ref)		(ref)	
	11 to 20	1.34[0.43;4.15]	0.614	1.06[0.32;3.46]	0.925		
	21 to 30	2.14[0.69;6.63]	0.189	1.55[0.46;5.27]	0.48		
	30 and above	1.63[0.47;5.65]	0.438	1.14[0.29;4.47]	0.851		
	above 10					1.8[0.15;21.21]	0.639
	<missing>	2.55[0.94;6.96]	0.067	1.85[0.63;5.36]	0.261	2.85[0.33;24.68]	0.342
Techno-optimism	No	(ref)		(ref)		(ref)	
	Rather	2.21[1.48;3.3]	<0.001	1.42[0.93;2.17]	0.108	1.34[0.57;3.14]	0.5
	Totally	3.5[2.15;5.7]	<0.001	1.34[0.78;2.3]	0.293	3.96[1.55;10.15]	0.004
	<missing>	2.18[1.33;3.55]	0.002	0.91[0.48;1.7]	0.756	1.91[0.7;5.26]	0.21
Degrowth	Yes	(ref)		(ref)		(ref)	
	Rather not	4.19[2.61;6.7]	<0.001	3.57[2.19;5.83]	<0.001	2.93[1.14;7.5]	0.025
	Totally not	12.68[8.13;19.77]	<0.001	10.35[6.33;16.91]	<0.001	9.84[4.27;22.68]	<0.001
	<missing>	3.48[2.24;5.43]	<0.001	2.67[1.57;4.53]	<0.001	2.14[0.83;5.5]	0.116
Perceived costs of air travel reduction score	0	(ref)		(ref)		(ref)	
	1	1.01[0.46;2.19]	0.987	1.03[0.46;2.31]	0.936	2.8[0.46;17.12]	0.266
	2	1.3[0.61;2.74]	0.497	1.26[0.58;2.75]	0.561	4.41[0.85;22.83]	0.077
	3 to 4	1.15[0.57;2.32]	0.695	0.97[0.46;2.02]	0.926	2.86[0.58;14.14]	0.198
	5 to 8	3.74[1.94;7.22]	<0.001	2.55[1.24;5.25]	0.011	6.05[1.18;31.09]	0.031
	<missing>	2.41[1.28;4.52]	0.006	1.64[0.78;3.48]	0.195	5.13[0.98;26.93]	0.053
Perceived costs of equipment reduction score	0	(ref)		(ref)		(ref)	
	1 to 2	2.46[1.16;5.21]	0.019	2.13[0.97;4.66]	0.058	0.97[0.24;3.96]	0.965
	3	2.29[0.96;5.45]	0.061	1.53[0.61;3.81]	0.363	5.52[1.35;22.54]	0.017
	4 to 5	4.67[2.25;9.67]	<0.001	2.65[1.2;5.85]	0.016	1.59[0.32;7.78]	0.567
	<missing>	2.99[1.55;5.78]	0.001	2.29[1.07;4.91]	0.033	1.61[0.53;4.92]	0.403
Nb of publications	0	(ref)		(ref)		(ref)	
	]0;1[per y.	0.95[0.37;2.45]	0.917	NA	NA	NA	NA
	[1;2[per y.	1.03[0.45;2.38]	0.943	NA	NA	NA	NA
	[2;4[per y.	1.22[0.53;2.79]	0.641	NA	NA	NA	NA
	[4;7[per y.	0.50[0.18;1.36]	0.174	NA	NA	NA	NA
	7 per y. and above	1.97[1.78;4.98]	0.150	NA	NA	NA	NA
	<missing>	1.59[0.72;3.52]	0.253	NA	NA	NA	NA

Table S7: Odds-ratio and their 95% confidence intervals obtained with logistic regression models explaining *Climate-Mitigation Denial* among permanent and non-permanent personnel, independently.

OR: Odds ratio; 95%CI: 95% confidence interval.

		Permanent (N=4,381)				Non-permanent (N=1,654)	
		Univariate model		Multivariate model		Multivariate model	
Variable	category	OR [95%CI]	p-value	OR [95%CI]	p-value	OR [95%CI]	p-value
Gender	Females	(ref)		(ref)		(ref)	
	Men	2.33[1.79;3.03]	<0.001	2.31[1.72;3.1]	<0.001	2.25[1.42;3.58]	0.001
Age	18-34y. old	(ref)		(ref)		(ref)	
	35-39 y.old	0.86[0.49;1.52]	0.606	0.86[0.49;1.52]	0.606	1.09[0.42;2.81]	0.866
	40-44 y.old	0.96[0.56;1.65]	0.889	0.96[0.56;1.65]	0.889		
	45-49 y.old	0.86[0.49;1.52]	0.601	0.86[0.49;1.52]	0.601		
	50-54 y.old	0.94[0.53;1.66]	0.837	0.94[0.53;1.66]	0.837		
	55-59 y.old	1.04[0.58;1.89]	0.888	1.04[0.58;1.89]	0.888		
	40-59 y.old					1.84[0.64;5.29]	0.258
	60 y.old and above	1.11[0.6;2.07]	0.743	1.11[0.6;2.07]	0.743	1.22[0.42;3.59]	0.713
Discipline	Hum./Lang./Litt.	(ref)		(ref)		(ref)	
	Ecology/Atm./Ocean Sc.	1.45[0.74;2.83]	0.274	1.2[0.56;2.57]	0.645	4.6[1.39;15.24]	0.013
	General support	0.72[0.33;1.56]	0.401	1.26[0.51;3.08]	0.615	3.8[0.37;38.71]	0.259
	Math./Comp. sc.	1.55[0.88;2.73]	0.126	1.39[0.76;2.53]	0.286	3.44[1.17;10.07]	0.025
	Geoph./Astro.	2.79[1.59;4.88]	<0.001	1.82[0.92;3.58]	0.085	6.82[2.19;21.27]	0.001
	Biology	1.86[1.04;3.33]	0.035	1.45[0.72;2.93]	0.304	4.71[1.44;15.37]	0.01
	Med./Health sc.	2.29[1.29;4.04]	0.004	1.68[0.83;3.38]	0.149	2.48[0.76;8.09]	0.132
	Engineering sc.	2.36[1.39;4.02]	0.001	1.61[0.86;3.04]	0.138	4.55[1.48;14]	0.008
	Law/Pol sc./Eco./Manag.	2.34[1.17;4.66]	0.016	2.06[1;4.23]	0.051	1.31[0.25;6.81]	0.749
	Physics/Chem.	3.5[2.19;5.6]	<0.001	2.14[1.17;3.91]	0.014	5.59[2.01;15.57]	0.001
Career status	Early-Career Researchers	(ref)		(ref)		(ref)	
	Junior position	0.78[0.25;2.46]	0.675	0.78[0.25;2.46]	0.675	0.98[0.54;1.79]	0.951
	Mid-level position	0.84[0.29;2.42]	0.749	0.84[0.29;2.42]	0.749	1.07[0.44;2.6]	0.876
	Senior position	0.81[0.27;2.42]	0.7	0.81[0.27;2.42]	0.7	2.13[0.9;5.04]	0.086
Nb of conference	0 per y.	(ref)		(ref)		(ref)	
	<1 per y.	0.76[0.51;1.13]	0.169	0.76[0.51;1.13]	0.169	0.79[0.44;1.4]	0.423
	1 per y.	0.91[0.62;1.35]	0.655	0.91[0.62;1.35]	0.655	0.4[0.2;0.8]	0.009
	2 per y.	0.89[0.57;1.38]	0.59	0.89[0.57;1.38]	0.59	1.02[0.51;2.04]	0.955
	3 per y. and more	0.88[0.53;1.47]	0.63	0.88[0.53;1.47]	0.63	1.51[0.58;3.9]	0.396
H-index	0-10	(ref)		(ref)		(ref)	
	11 to 20	1.86[1;3.48]	0.05	1.61[0.82;3.16]	0.166		
	21 to 30	1.57[0.8;3.07]	0.19	1.19[0.56;2.52]	0.643		
	30 and above	2.33[1.18;4.58]	0.014	1.71[0.78;3.74]	0.177		
	above 10					0.59[0.18;1.87]	0.368
	<missing>	1.16[0.65;2.06]	0.622	1.78[0.95;3.35]	0.074	0.97[0.49;1.92]	0.927
Techno-optimism	No	(ref)		(ref)		(ref)	
	Rather	1.45[1.11;1.9]	0.007	1.12[0.83;1.51]	0.449	0.75[0.46;1.22]	0.246
	Totally	2.66[1.89;3.74]	<0.001	1.4[0.95;2.07]	0.093	1.19[0.59;2.43]	0.628
	<missing>	0.91[0.6;1.36]	0.635	1.35[0.8;2.28]	0.259	0.67[0.27;1.64]	0.383
Degrowth	Yes	(ref)		(ref)		(ref)	
	Rather not	2.22[1.63;3.02]	<0.001	1.62[1.16;2.26]	0.004	0.89[0.47;1.7]	0.727
	Totally not	5.3[3.82;7.37]	<0.001	3.17[2.18;4.61]	<0.001	2.53[1.24;5.17]	0.011
	<missing>	0.97[0.69;1.37]	0.867	0.96[0.63;1.46]	0.838	1.32[0.72;2.41]	0.367
Perceived costs of air travel reduction score	0	(ref)		(ref)		(ref)	
	1	1.5[0.81;2.76]	0.194	1.48[0.79;2.75]	0.217	0.49[0.19;1.24]	0.131
	2	1.77[0.97;3.22]	0.063	1.72[0.93;3.18]	0.086	0.86[0.38;1.91]	0.706
	3 to 4	3.1[1.82;5.28]	<0.001	2.69[1.55;4.67]	<0.001	1.65[0.85;3.2]	0.137
	5 to 8	8.62[5.08;14.64]	<0.001	6.75[3.82;11.91]	<0.001	4.25[2.05;8.83]	<0.001
	<missing>	1.41[0.8;2.47]	0.237	1.72[0.9;3.29]	0.098	0.42[0.15;1.18]	0.098
Perceived costs of equipment reduction score	0	(ref)		(ref)		(ref)	
	1 to 2	2.28[1.42;3.66]	0.001	1.74[1.06;2.85]	0.028	3.14[1.64;6.02]	0.001
	3	4.47[2.75;7.26]	<0.001	2.92[1.74;4.93]	<0.001	4.97[2.16;11.41]	<0.001
	4 to 5	5.67[3.6;8.92]	<0.001	3.16[1.92;5.19]	<0.001	7.06[3.04;16.41]	<0.001
	<missing>	1.23[0.8;1.9]	0.346	1.25[0.74;2.13]	0.403	1.54[0.75;3.17]	0.243
Nb of publications	0	(ref)		(ref)		(ref)	
	]0;1[per y.	0.95[0.48;1.87]	0.877	NA	NA	NA	NA
	[1;2[per y.	1.09[0.60;1.99]	0.775	NA	NA	NA	NA
	[2;4[per y.	1.30[0.72;2.36]	0.384	NA	NA	NA	NA
	[4;7[per y.	1.81[0.99;3.31]	0.054	NA	NA	NA	NA
	7 per y. and above	2.22[1.14;4.33]	0.09	NA	NA	NA	NA
	<missing>	0.71[0.38;1.30]	0.261	NA	NA	NA	NA

Table S8: Odds-ratio and their 95% confidence intervals obtained with logistic regression models explaining *Reluctance toward Academic Mitigation* among those who do not deny climate change, among permanent and non-permanent personnel independently.

OR: Odds ratio; 95%CI: 95% confidence interval.

		Permanent (N=2,462)				Non-permanent (N=872)	
		Univariate model		Multivariate model		Multivariate model	
Variable	category	IRR [95%CI]	p-value	IRR [95%CI]	p-value	Coefficient	p-value
Gender	Females	(ref)		(ref)		(ref)	
	Men	1[0.9;1.11]	0.955	0.96[0.86;1.06]	0.41	1.28[1.05;1.55]	0.015
Age	18-34y. old	(ref)		(ref)		(ref)	
	35-39 y.old	0.93[0.76;1.16]	0.533	0.93[0.76;1.16]	0.533	0.84[0.59;1.2]	0.343
	40-44 y.old	0.92[0.75;1.13]	0.445	0.92[0.75;1.13]	0.445		
	45-49 y.old	1.04[0.84;1.29]	0.695	1.04[0.84;1.29]	0.695		
	50-54 y.old	1.1[0.89;1.37]	0.369	1.1[0.89;1.37]	0.369		
	55-59 y.old	1.13[0.9;1.42]	0.286	1.13[0.9;1.42]	0.286		
	40-59 y.old					0.97[0.61;1.56]	0.916
	60 y.old and above	1.02[0.79;1.31]	0.868	1.02[0.79;1.31]	0.868	1.08[0.65;1.79]	0.767
Discipline	Hum./Lang./Litt.	(ref)		(ref)		(ref)	
	Ecology/Atm./Ocean Sc.	0.82[0.65;1.03]	0.093	0.91[0.71;1.17]	0.476	0.62[0.39;1]	0.05
	General support	0.6[0.46;0.78]	<0.001	1.1[0.79;1.53]	0.588	0.85[0.4;1.81]	0.675
	Math./Comp. sc.	0.96[0.78;1.18]	0.718	1.01[0.83;1.24]	0.906	0.8[0.56;1.15]	0.229
	Geoph./Astro.	1[0.8;1.26]	0.976	0.98[0.76;1.25]	0.845	0.75[0.47;1.17]	0.207
	Biology	0.96[0.77;1.18]	0.678	1.03[0.81;1.32]	0.801	0.4[0.24;0.66]	<0.001
	Med./Health sc.	1.09[0.87;1.36]	0.454	1.2[0.93;1.56]	0.165	0.7[0.46;1.07]	0.097
	Engineering sc.	0.92[0.74;1.13]	0.414	0.94[0.74;1.18]	0.588	0.56[0.37;0.84]	0.006
	Law/Pol sc./Eco./Manag.	0.91[0.68;1.21]	0.517	0.81[0.62;1.06]	0.12	0.98[0.68;1.42]	0.92
	Physics/Chem.	1.05[0.88;1.26]	0.606	0.98[0.78;1.23]	0.883	0.57[0.39;0.85]	0.005
Career status	Early-Career Researchers	(ref)		(ref)		(ref)	
	Junior position	1.33[0.72;2.43]	0.36	1.33[0.72;2.43]	0.36	1.07[0.84;1.35]	0.597
	Mid-level position	1.68[0.95;2.97]	0.074	1.68[0.95;2.97]	0.074	1.44[1.01;2.05]	0.042
	Senior position	1.88[1.05;3.36]	0.033	1.88[1.05;3.36]	0.033	1.21[0.8;1.82]	0.373
Nb of conference	0 per y.	(ref)		(ref)		(ref)	
	<1 per y.	1.1[0.94;1.28]	0.226	1.1[0.94;1.28]	0.226	1.26[0.98;1.6]	0.067
	1 per y.	1.18[1.02;1.38]	0.03	1.18[1.02;1.38]	0.03	1.07[0.83;1.38]	0.614
	2 per y.	1.38[1.16;1.63]	<0.001	1.38[1.16;1.63]	<0.001	1.15[0.85;1.55]	0.37
	3 per y. and more	1.47[1.22;1.76]	<0.001	1.47[1.22;1.76]	<0.001	1.3[0.88;1.91]	0.188
H-index	0-10	(ref)		(ref)		(ref)	
	11 to 20	1.07[0.85;1.34]	0.559	1.02[0.82;1.26]	0.861		
	21 to 30	1.21[0.95;1.54]	0.117	0.98[0.77;1.24]	0.858		
	30 and above	1.04[0.8;1.36]	0.757	0.79[0.61;1.04]	0.096		
	above 10					1.17[0.69;1.96]	0.559
	<missing>	0.76[0.62;0.93]	0.008	0.84[0.69;1.02]	0.083	0.85[0.64;1.13]	0.258
Techno-optimism	No	(ref)		(ref)		(ref)	
	Rather	1.09[0.98;1.22]	0.118	0.95[0.85;1.05]	0.301	1.07[0.88;1.3]	0.508
	Totally	1.25[1.05;1.48]	0.013	1.03[0.87;1.21]	0.737	0.77[0.53;1.11]	0.156
	<missing>	1.13[0.88;1.47]	0.34	1.02[0.8;1.3]	0.856	0.93[0.57;1.51]	0.756
Degrowth	Yes	(ref)		(ref)		(ref)	
	Rather not	1.78[1.56;2.03]	<0.001	1.63[1.44;1.84]	<0.001	1.52[1.19;1.95]	0.001
	Totally not	2.42[2.01;2.91]	<0.001	2.11[1.77;2.52]	<0.001	2.45[1.79;3.37]	<0.001
	<missing>	1.42[1.2;1.69]	<0.001	1.38[1.17;1.63]	<0.001	1.65[1.24;2.19]	0.001
Perceived costs of air travel reduction score	0	(ref)		(ref)		(ref)	
	1	1.53[1.26;1.85]	<0.001	1.46[1.21;1.76]	<0.001	1.21[0.88;1.66]	0.233
	2	1.82[1.5;2.2]	<0.001	1.66[1.37;2.01]	<0.001	1.04[0.75;1.43]	0.819
	3 to 4	2.38[2;2.83]	<0.001	1.99[1.67;2.37]	<0.001	1.73[1.3;2.29]	<0.001
	5 to 8	3.23[2.67;3.91]	<0.001	2.63[2.16;3.19]	<0.001	1.84[1.33;2.55]	<0.001
	<missing>	1.1[0.89;1.36]	0.379	1.22[0.94;1.58]	0.144	0.71[0.43;1.17]	0.179
Perceived costs of equipment reduction score	0	(ref)		(ref)		(ref)	
	1 to 2	1.25[1.05;1.48]	0.011	1.06[0.9;1.25]	0.485	1.29[0.98;1.7]	0.068
	3	1.43[1.16;1.76]	0.001	1.06[0.87;1.29]	0.575	1.39[0.91;2.15]	0.132
	4 to 5	1.81[1.52;2.17]	<0.001	1.25[1.05;1.49]	0.012	1.65[1.06;2.57]	0.027
	<missing>	1.16[1;1.33]	0.045	1.04[0.88;1.25]	0.629	0.89[0.66;1.21]	0.465
Nb of publications	0	(ref)		(ref)		(ref)	
	]0;1[per y.	1.12[0.83;1.52]	0.458	NA	NA	NA	NA
	[1;2[per y.	1.39[1.06;1.83]	0.017	NA	NA	NA	NA
	[2;4[per y.	1.73[1.32;2.26]	<0.001	NA	NA	NA	NA
	[4;7[per y.	1.66[1.26;2.19]	<0.001	NA	NA	NA	NA
	7 per y. and above	1.66[1.21;2.27]	0.002	NA	NA	NA	NA
	<missing>	0.98[0.74;1.31]	0.909	NA	NA	NA	NA

Table S9: Incidence rate ratios and their 95% confidence intervals obtained with negative binomial regression models explaining *Opposition to Institutional Mitigation* score among those who do not deny climate change and are not reluctant to academic mitigation, among permanent and non-permanent personnel independently.

IRR: Incidence rate ratio; 95%CI: 95% confidence interval.

		Univariate model		Multivariate model	
Variable	category	OR [95%CI]	p-value	OR [95%CI]	p-value
Gender	Females	(ref)		(ref)	
	Men	1.36[1.06;1.75]	0.016	1.4[1.04;1.89]	0.028
Age	18-34y. old	(ref)		(ref)	
	35-39 y.old	0.92[0.52;1.63]	0.78	0.92[0.52;1.63]	0.78
	40-44 y.old	0.78[0.44;1.38]	0.394	0.78[0.44;1.38]	0.394
	45-49 y.old	0.75[0.42;1.36]	0.345	0.75[0.42;1.36]	0.345
	50-54 y.old	1.08[0.6;1.94]	0.796	1.08[0.6;1.94]	0.796
	55-59 y.old	0.72[0.37;1.37]	0.316	0.72[0.37;1.37]	0.316
Discipline	Hum./Lang./Litt.	(ref)		(ref)	
	60 y.old and above	0.64[0.31;1.31]	0.222	0.64[0.31;1.31]	0.222
	Ecology/Atm./Ocean Sc.	2.4[1.37;4.21]	0.002	1.42[0.71;2.84]	0.319
	General support	1.6[0.89;2.89]	0.117	3.23[1.47;7.05]	0.003
	Math./Comp. sc.	1.56[0.9;2.71]	0.116	1.35[0.74;2.46]	0.332
	Geoph./Astro.	2.21[1.22;3.99]	0.009	1.28[0.62;2.64]	0.504
	Biology	2.94[1.71;5.05]	<0.001	1.9[0.95;3.79]	0.07
	Med./Health sc.	5.19[2.95;9.12]	<0.001	3.08[1.49;6.4]	0.003
	Engineering sc.	2.25[1.32;3.82]	0.003	1.45[0.75;2.8]	0.274
	Law/Pol sc./Eco./Manag.	0.58[0.24;1.4]	0.225	0.55[0.22;1.38]	0.206
	Physics/Chem.	3.75[2.31;6.06]	<0.001	2.03[1.06;3.9]	0.033
Career status	Early-Career Researchers	(ref)		(ref)	
	Junior position	2.02[0.52;7.82]	0.31	2.02[0.52;7.82]	0.31
	Mid-level position	2.39[0.67;8.57]	0.182	2.39[0.67;8.57]	0.182
	Senior position	2.76[0.73;10.39]	0.134	2.76[0.73;10.39]	0.134
Nb of conference	0 per y.	(ref)		(ref)	
	<1 per y.	0.85[0.58;1.26]	0.419	0.85[0.58;1.26]	0.419
	1 per y.	1.28[0.86;1.91]	0.225	1.28[0.86;1.91]	0.225
	2 per y.	1.24[0.76;2.01]	0.39	1.24[0.76;2.01]	0.39
	3 per y. and more	1.76[0.97;3.17]	0.061	1.76[0.97;3.17]	0.061
H-index	0-10	(ref)		(ref)	
	11 to 20	1.42[0.78;2.59]	0.25	1.35[0.69;2.66]	0.383
	21 to 30	1.07[0.54;2.1]	0.855	0.88[0.4;1.91]	0.742
	30 and above	1.28[0.64;2.58]	0.487	1.03[0.45;2.37]	0.944
	<missing>	0.8[0.47;1.37]	0.42	1.36[0.73;2.53]	0.335
Techno-optimism	No	(ref)		(ref)	
	Rather	1.63[1.26;2.13]	<0.001	1.48[1.1;1.97]	0.009
	Totally	1.47[0.96;2.24]	0.074	1.14[0.72;1.81]	0.579
	<missing>	1.68[0.91;3.1]	0.098	1.95[0.98;3.89]	0.057
Degrowth	Yes	(ref)		(ref)	
	Rather not	1.71[1.17;2.5]	0.006	1.46[0.97;2.21]	0.072
	Totally not	1.98[0.99;3.96]	0.053	2.7[1.25;5.81]	0.011
	<missing>	1.2[0.76;1.9]	0.428	1.13[0.68;1.86]	0.644
Perceived costs of air travel reduction score	0	(ref)		(ref)	
	1	0.86[0.58;1.3]	0.481	0.94[0.61;1.45]	0.78
	2	1.76[1.19;2.6]	0.005	1.86[1.21;2.87]	0.005
	3 to 4	1.54[1.06;2.24]	0.025	1.64[1.08;2.51]	0.021
	5 to 8	2.15[1.28;3.61]	0.004	2.26[1.26;4.05]	0.007
	<missing>	0.8[0.53;1.2]	0.284	0.8[0.46;1.39]	0.431
Perceived costs of equipment reduction score	0	(ref)		(ref)	
	1 to 2	1.49[1.02;2.17]	0.038	1.22[0.82;1.84]	0.329
	3	1.88[1.12;3.18]	0.018	1.59[0.91;2.77]	0.101
	4 to 5	2.78[1.77;4.36]	<0.001	1.7[1.03;2.81]	0.038
	<missing>	0.5[0.36;0.68]	<0.001	0.57[0.36;0.91]	0.018
Nb of publications	0	(ref)		(ref)	
	]0;1[per y.	0.76[0.40;1.44]	0.397	NA	NA
	[1;2[per y.	1.19[0.68;2.08]	0.543	NA	NA
	[2;4[per y.	1.22[0.69;2.16]	0.488	NA	NA
	[4;7[per y.	1.37[0.76;2.47]	0.295	NA	NA
	7 per y. and above	1.88[0.93;3.83]	0.081	NA	NA
	<missing>	0.75[0.42;1.35]	0.338	NA	NA

Table S10: Odds-ratio and their 95% confidence intervals obtained with proportional odds-regression models explaining *Institutional-Individual Inconsistency* among permanent personnel who do not deny climate change, are not reluctant to academic mitigation, and are not opposed to institutional mitigation actions (N=1,126).

OR: odds ratio ; 95%CI: 95% confidence interval.

Variable	Categories, or distribution indicator	Permanent staff (N=4688)	Non-permanent staff (N=1780)	p-value
Climate change denial				0.834
	No	4417 (94.2%)	1667 (93.7%)	
	Yes	165 (3.5%)	65 (3.7%)	
	<missing>	106 (2.3%)	48 (2.7%)	
Reluctance to academic mitigation				0.556
	No	4187 (89.3%)	1569 (88.1%)	
	Yes	383 (8.2%)	153 (8.6%)	
	<missing>	118 (2.5%)	58 (3.3%)	
Opposition to institutional mitigation options	mean (sd)	1.1 (1.4)	0.8 (1.2)	<0.001
	IQR	[0 ; 2]	[0 ; 1]	
	range	(0 - 10)	(0 - 9)	
	<missing>	2026 (43.2%)	838 (47.1%)	
	% considering 10 actions are a priority	1210 (25.8%)	489 (27.4%)	<0.001
Institutional-personal inconsistency				NA
	0	2225 (47.5%)	NA	
	1	979 (20.9%)	NA	
	2	364 (7.8%)	NA	
	<missing>	1120 (23.9%)	NA	

Table S11: Distribution of explained variables among permanent and non-permanent research personnel. Fisher tests were used for categorical variables, ANOVA for continuous variables. Missing values are considered as a separate category. IQR = Inter-quartile range; NA = Not applicable; sd = standard deviation.

Supplementary Figures

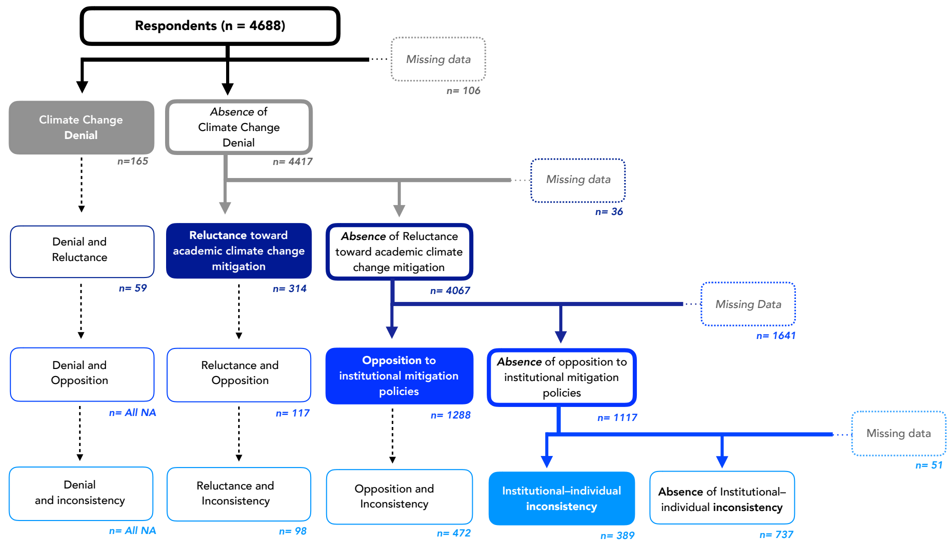

Figure S1: Nested analytical framework used to characterize attitudinal barriers to climate action in academia. The analysis proceeds sequentially from climate change denial to reluctance toward academic climate change mitigation, opposition to institutional mitigation policies, and institutional–individual inconsistency. Each step is estimated among the relevant subset of respondents. Information on the prevalence of each attitude in the excluded sub-population is presented. If the number of NA exceeds the number of data, NA is indicated.

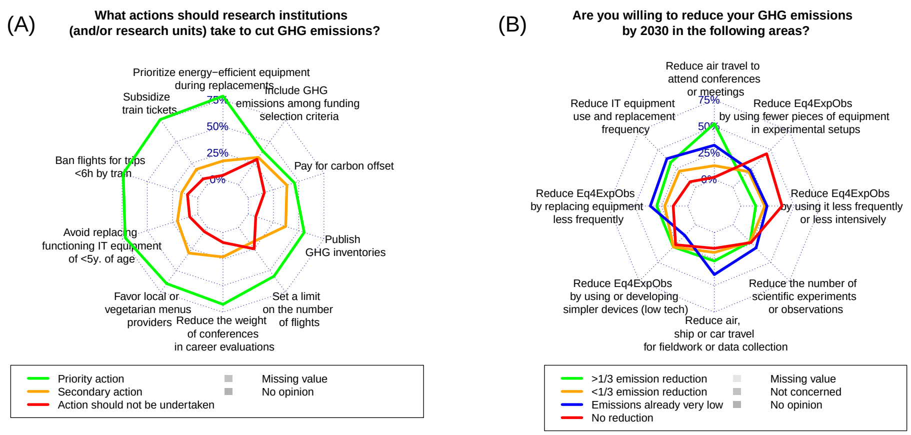

Figure S2: Opinions of permanent academics and research personnel (N = 4688) regarding (A) institutional mitigation options and (B) changes in individual research practices. Responses do not include missing values (including "no opinion" and "not concerned") into the variable distribution estimates.

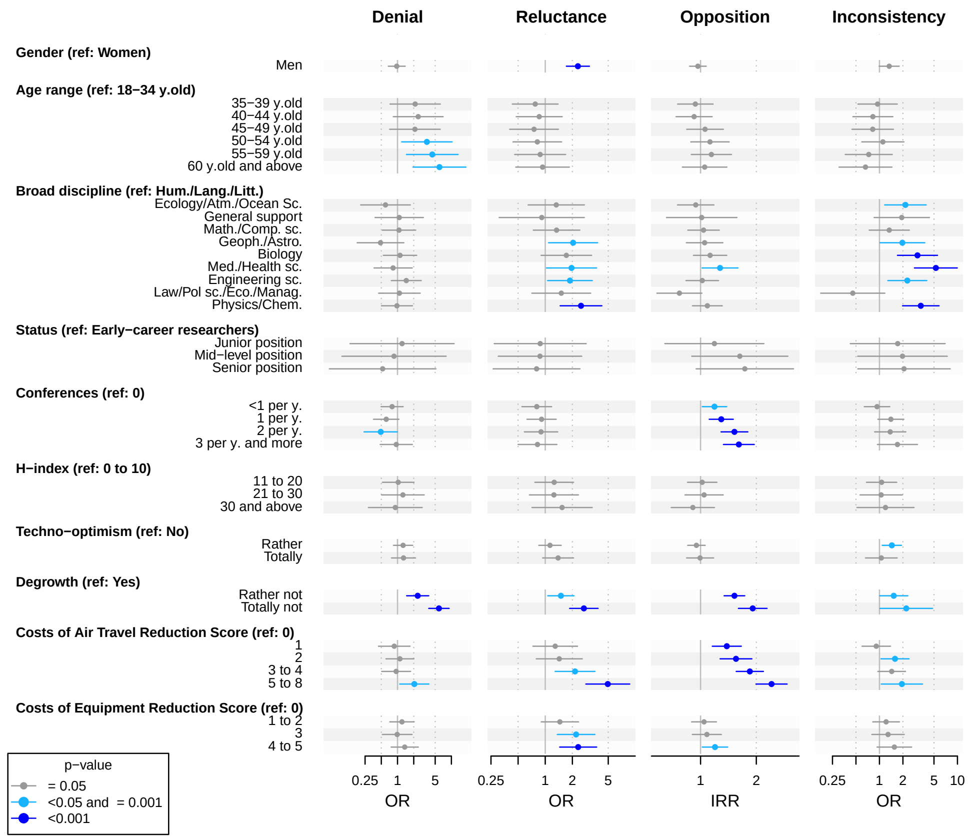

Figure S3: Multivariate regression modeling of (from left to right) *Climate Change Denial*, of *Reluctance toward academic climate change mitigation*, of *Opposition to Institutional Mitigation Policies* and of *Institutional-Personal Inconsistency* in permanent personnel, fitted in a nested approach after imputing all explanatory covariates missing values. *Climate-Mitigation Denial* is fitted by logistic regression (N=4,582), *Reluctance toward academic climate change mitigation* is fitted by logistic regression among those who do not deny climate change (N=4,381), *Opposition to Institutional Mitigation Policies* is fitted by negative binomial regression among those who do not deny climate change and are not reluctant toward academic mitigation (2,462), and *Institutional-Personal Inconsistency* by proportional odds-regression among those who do not deny climate change, are not reluctant toward academic mitigation and who support all institutional efforts only(N=1,126). IRR = Incidence rate ratio; OR = Odds ratio.

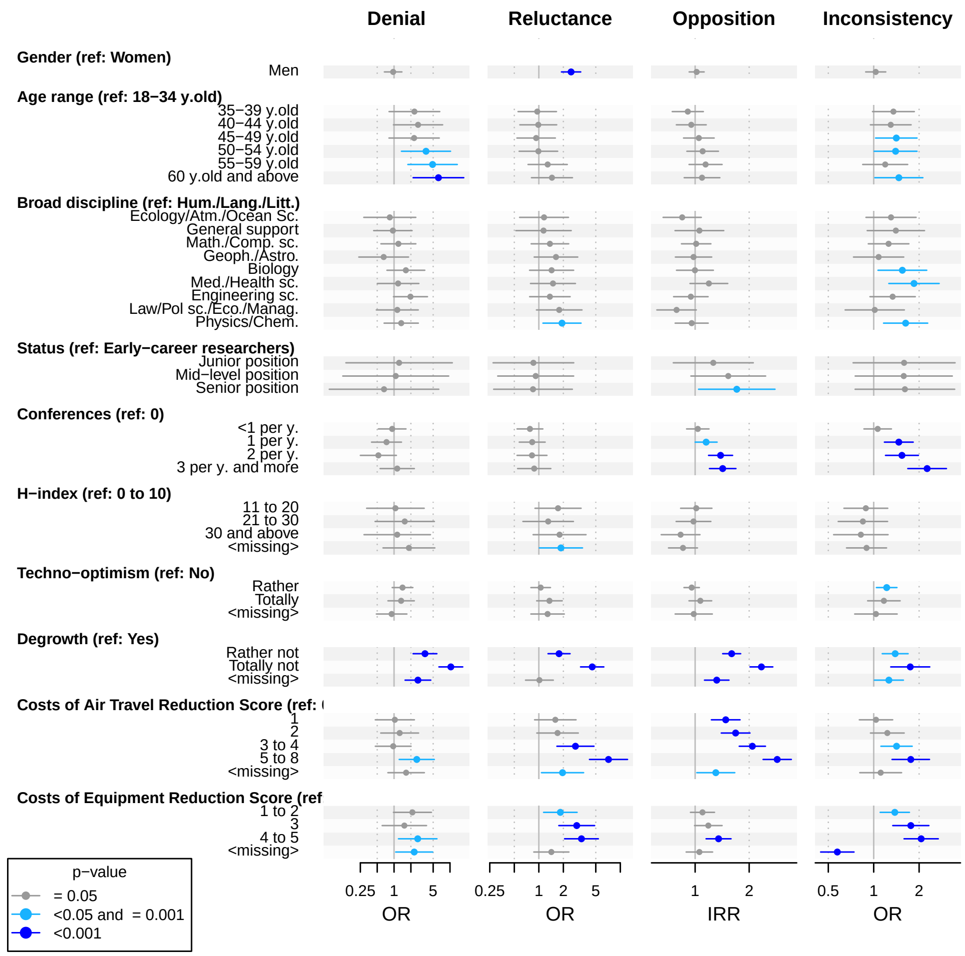

Figure S4: Multivariate regression modelling of (from left to right) *Climate Change Denial*, of *Reluctance toward academic climate change mitigation*, of *Opposition to Institutional Mitigation Policies*, and of *Institutional-Personal Inconsistency* in permanent personnel, fitted in a non-nested approach. *Climate-Mitigation Denial* is fitted by logistic regression (N=4,582), *Reluctance toward academic climate change mitigation*, is fitted by logistic regression (N=4,570), *Opposition to Institutional Mitigation Policies* is fitted by negative binomial regression (2,662), and *Institutional-Personal Inconsistency* by proportional odds-regression (N=3,568). IRR = Incidence rate ratio; OR = Odds ratio.

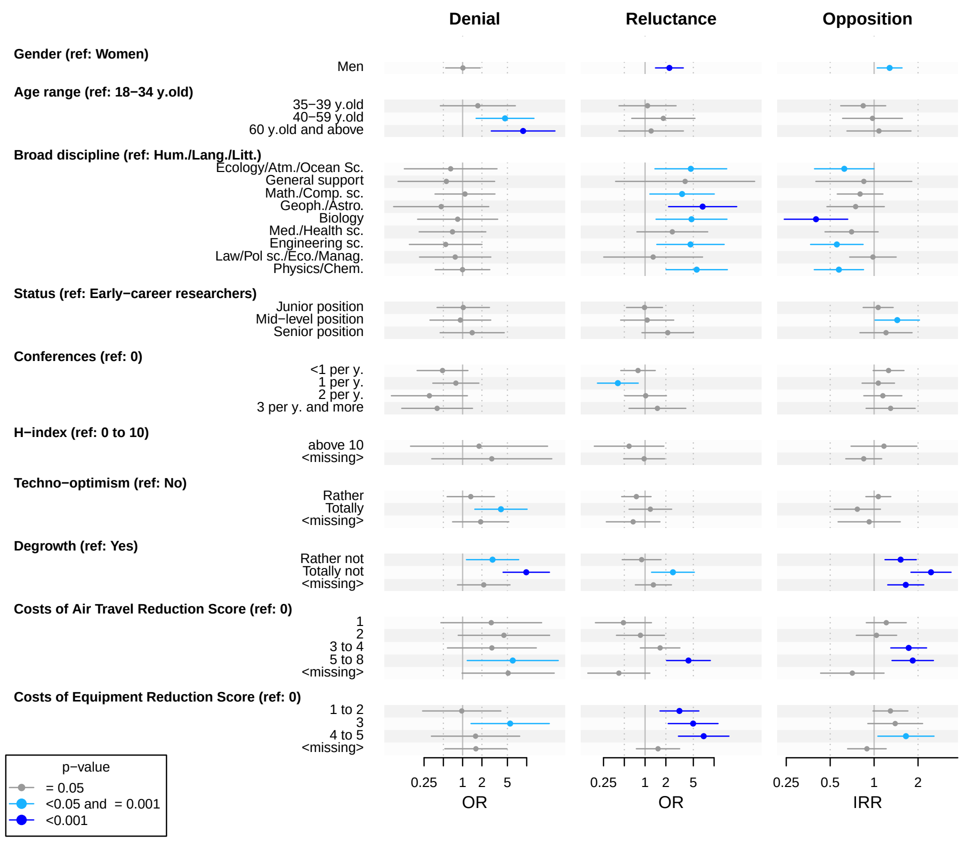

Figure S5: Multivariate regression modelling of (from left to right) *Climate Change Denial*, of *Reluctance toward academic climate change mitigation*, and of *Opposition to Institutional Mitigation Policies* in non-permanent personnel, fitted in a nested approach. *Climate-Mitigation Denial* is fitted by logistic regression (N=1,732), *Reluctance toward academic climate change mitigation* is fitted by logistic regression among those who do not deny climate change (N=1,654), *Opposition to Institutional Mitigation Policies* is fitted by negative binomial regression among those who do not deny climate change and are not reluctant toward academic mitigation (N=872). *Institutional-Personal Inconsistency* was not assessed in non-permanent personnel. IRR = Incidence rate ratio; OR = Odds ratio.

Code	Type	Discipline	Discipline	Classification_2
1	CNU	Droit prive et sciences criminelles	Private Law and Criminal Sciences	Law & Political Science / Economics & Management
2	CNU	Droit public	Public Law	Law & Political Science / Economics & Management
3	CNU	Histoire du droit et des institutions	Legal History and Institutions	Law & Political Science / Economics & Management
4	CNU	Science politique	Political Science	Law & Political Science / Economics & Management
5	CNU	Economie	Economics	Law & Political Science / Economics & Management
6	CNU	Management	Management	Law & Political Science / Economics & Management
7	CNU	Sciences du langage	Linguistics	Languages & Literature
8	CNU	Langues et litteratures anciennes	Ancient Languages and Literatures	Languages & Literature
9	CNU	Langue et litterature française	French Language and Literature	Languages & Literature
10	CNU	Litteratures comparees	Comparative Literatures	Languages & Literature
11	CNU	Etudes anglophones	English Studies	Languages & Literature
12	CNU	Etudes germaniques et scandinaves	Germanic and Scandinavian Studies	Languages & Literature
13	CNU	Etudes slaves et baltes	Slavic and Baltic Studies	Languages & Literature
14	CNU	Etudes romanes	Romance Studies	Languages & Literature
15	CNU	Langues, litteratures et cultures africaines, asiatiques et autres	African, Asian, and Other Area Languages and Cultures	Languages & Literature
16	CNU	Psychologie et ergonomie	Psychology and Ergonomics	Humanities
17	CNU	Philosophie	Philosophy	Humanities
18	CNU	Arts et architecture	Arts and Architecture	Humanities
19	CNU	Sociologie, demographie	Sociology and Demography	Humanities
20	CNU	Ethnologie, anthropologie	Ethnology and Anthropology	Humanities
21	CNU	Histoire ancienne et medievale	Ancient and Medieval History	Humanities
22	CNU	Histoire moderne et contemporaine	Modern and Contemporary History	Humanities
23	CNU	Geographie	Geography	Humanities
24	CNU	Urbanisme	Urban Planning	Humanities
25	CNU	Mathematiques	Mathematics	Mathematics & Computer Science
26	CNU	Mathematiques appliquees	Applied Mathematics	Mathematics & Computer Science
27	CNU	Informatique	Computer Science	Mathematics & Computer Science
28	CNU	Milieux denses et materiaux	Dense Media and Materials	Physics & Chemistry
29	CNU	Constituants elementaires	Elementary Constituents	Physics & Chemistry
30	CNU	Milieux dilues et optique	Diluted Media and Optics	Physics & Chemistry
31	CNU	Chimie theorique	Theoretical Chemistry	Physics & Chemistry
32	CNU	Chimie organique	Organic Chemistry	Physics & Chemistry
33	CNU	Chimie des materiaux	Materials Chemistry	Physics & Chemistry
34	CNU	Astronomie	Astronomy	Geophysics & Astronomy
35	CNU	Structure de la Terre	Earth Structure	Geophysics & Astronomy
36	CNU	Terre solide	Solid Earth	Geophysics & Astronomy
37	CNU	Oceanographie, meteo	Oceanography and Meteorology	Ecology & Atm/Ocean Sciences
64	CNU	Biochimie	Biochemistry	Biology
65	CNU	Biologie cellulaire	Cell Biology	Biology
66	CNU	Physiologie	Physiology	Biology
67	CNU	Biologie des populations et ecologie	Population Biology and Ecology	Ecology & Atm/Ocean Sciences
68	CNU	Biologie des organismes	Organismal Biology	Biology
69	CNU	Neurosciences	Neurosciences	Biology
60	CNU	Mecanique	Mechanics, Mechanical Engineering, Civil Engineering	Engineering sciences
61	CNU	Genie Informatique	Computer Engineering, Automation and Signal Processing	Engineering sciences
62	CNU	Energétique	Energy Engineering, Process Engineering	Engineering sciences
63	CNU	Génie electrique	Electrical Engineering, Electronics, Photonics and Systems	Engineering sciences
70	CNU	Sciences de l'éducation	Education and Training Sciences	Humanities
71	CNU	Sciences de l'information	Information and Communication Sciences	Humanities
72	CNU	Epistémologie	Epistemology, History of Science and Technology	Humanities
73	CNU	Culture et langues régionales	Regional Cultures and Languages	Humanities
74	CNU	Sciences des activités physiques	Science and Techniques of Physical and Sports Activities	Humanities
76	CNU	Théologie Catholique	Catholic Theology	Languages & Literature
77	CNU	Théologie protestante	Protestant Theology	Languages & Literature
42	CNU	Morphologie et morphogenèse	Morphology and Morphogenesis	Medecine & Health sciences
43	CNU	Biophysique et imagerie médicale	Biophysics and Medical Imaging	Medecine & Health sciences
44	CNU	Biochimie, biologie cellulaire et moléculaire, physiologie et nutrition	Biochemistry, Cell and Molecular Biology, Physiology and Nutrition	Medecine & Health sciences
45	CNU	Microbiologie, maladies transmissibles et hygiène	Microbiology, Infectious Diseases and Hygiene	Medecine & Health sciences
46	CNU	Santé publique	Public Health	Medecine & Health sciences
47	CNU	Cancérologie, génétique, hématologie, immunologie	Oncology, Genetics, Hematology, Immunology	Medecine & Health sciences
48	CNU	Anesthésiologie, réanimation, médecine d'urgence	Anesthesiology, Critical Care, Emergency Medicine	Medecine & Health sciences
49	CNU	Pathologie nerveuse et musculaire	Neuromuscular Pathology	Medecine & Health sciences
50	CNU	Pathologie ostéo-articulaire, dermatologie et chirurgie plastique	Musculoskeletal Pathology, Dermatology and Plastic Surgery	Medecine & Health sciences
51	CNU	Pathologie cardiorespiratoire et vasculaire	Cardiorespiratory and Vascular Pathology	Medecine & Health sciences
52	CNU	Maladies des appareils digestif et urinaire	Diseases of the Digestive and Urinary Systems	Medecine & Health sciences
53	CNU	Médecine interne, gériatrie, chirurgie générale et médecine générale	Internal Medicine, Geriatrics, General Surgery and General Medicine	Medecine & Health sciences
54	CNU	Développement et pathologie de l'enfant, gynécologie-obstétrique, endocrinologie et reproduction	Child Development and Pathology, Obstetrics and Gynecology, Endocrinology and Reproduction	Medecine & Health sciences
55	CNU	Pathologie de la tête et du cou	Head and Neck Pathology	Medecine & Health sciences
56	CNU	Développement, croissance et prévention	Development, Growth and Prevention	Medecine & Health sciences
57	CNU	Sciences biologiques, médecine et chirurgie buccales	Biological Sciences, Oral Medicine and Surgery	Medecine & Health sciences
58	CNU	Sciences physiques et physiologiques endodontiques	Physical and Physiological Sciences in Endodontics	Medecine & Health sciences
80 &85	CNU	Sciences physico-chimiques et ingénierie appliquée à la santé	Physico-Chemical Sciences and Health Engineering	Medecine & Health sciences
81&86	CNU	Sciences du médicament et des autres produits de santé	Pharmaceutical Sciences and Other Health Products	Medecine & Health sciences
82&87	CNU	Sciences biologiques, fondamentales et clinique	Biological Sciences, Basic and Clinical	Medecine & Health sciences
90	CNU	Maieutique	Midwifery	Medecine & Health sciences
91	CNU	Sciences de l'éducation et de la ré-adaptation	Education and Rehabilitation Sciences	Medecine & Health sciences
92	CNU	Sciences infirmières	Nursing Sciences	Medecine & Health sciences
A	BAP	Sciences du vivant, de la terre et de l'environnement	Life, Earth and Environmental Sciences	CNU Discipline or Biology if missing
B	BAP	Sciences chimiques et sciences des materiaux	Chemical and Materials Sciences	CNU Discipline or Physics & Chemistry if missing
C	BAP	Sciences de l'ingénieur instrumentation scientifique	Engineering Sciences and Scientific Instrumentation	CNU Discipline or Engineering if missing
D	BAP	Sciences humaines et sociales	Human and Social Sciences	CNU Discipline or Humanities if missing
E	BAP	Informatique, statistiques et calcul scientifique	Computer Science, Statistics and Scientific Computing	CNU Discipline or Mathematics & Computer Science if missing
F	BAP	Culture, communication, production et diffusion des savoirs	Culture, Communication, Knowledge Production and Dissemination	CNU Discipline or Humanities if missing
G	BAP	Patrimoine immobilier, Logistique, Restauration et Prévention	Real Estate Heritage, Logistics, Maintenance and Risk Prevention	General Support
J	BAP	Gestion et pilotage	Management and Administration	General Support

Figure S6: Broad Classification used in the main analyses to regroup detailed academic disciplines.

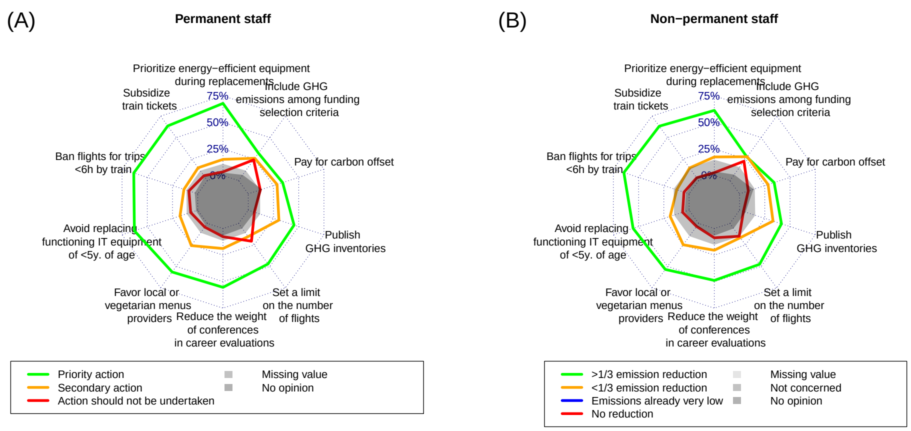

Figure S7: Opinions of permanent academics and research personnel on institutional mitigation options, among permanent (N=4688, (A)) and non-permanent (N=1780, (B)) academic and research personnel. Missing values (including no opinion or not concerned) are included in the estimation of the proportions; they are displayed using gray shading. Eq4ExpObs: Equipment for experiments and observations.

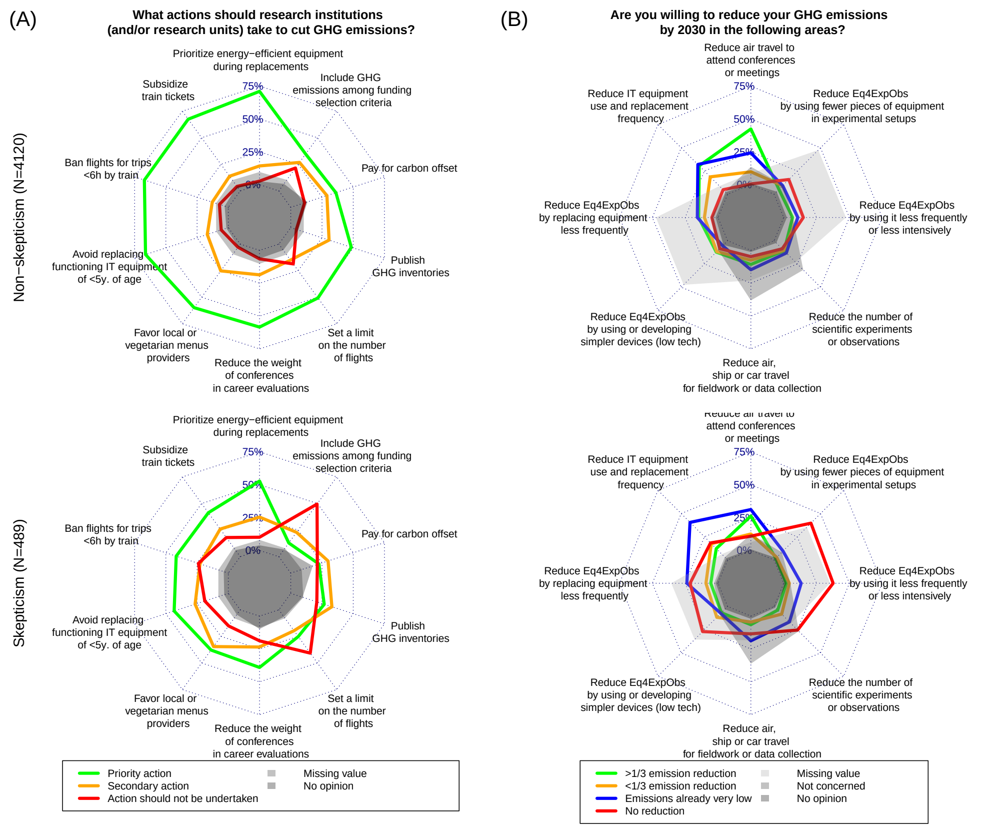

Figure S8: Opinions of permanent academics and research personnel on institutional mitigation options (left-hand side graph) and on individual mitigation options (right-hand side graph), within the subpopulation not denying climate change and not reluctant to academic mitigation (top graphs, N=3914) and within the subpopulation denying climate change or being reluctant to academic mitigation (bottom graphs, N=695) subpopulations. Missing values (including no opinion or not concerned) are included in the estimation of the proportions; they are displayed using gray shading.
Eq4ExpObs: Equipment for experiments and observations.