Evaluation of Natural Sciences 2022-2024

Evaluation report Department of Geosciences University of Oslo

January 2024



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Statement from Evaluation Committee I

The members of this Evaluation Committee have evaluated the following administrative units at the higher education institutions within natural sciences in 2022-2023 and submitted a report for each administrative unit:

- Geophysical Institute, University of Bergen
- Department of Earth Sciences, University of Bergen
- Department of Physics and Technology, University of Bergen
- Department of Chemistry, University of Bergen
- Department of Theoretical Astrophysics, University of Oslo
- Department of Geosciences, University of Oslo
- Department of Physics, University of Oslo
- Department of Chemistry, University of Oslo

The members of the Evaluation Committee are in collective agreement with the assessments, conclusions and recommendations presented in this report. None of the Evaluation Committee members has declared any conflict of interest.

The Evaluation Committee has consisted of the following members:

Prof. James Kirchner (chair) ETH Zurich, Switzerland

Prof. Florencia Canelli University of Zurich, Switzerland Prof. Thors Hans Hansson University of Stockholm, Sweden

Prof. Isobel Hook

Prof. Gideon Henderson University of Oxford, United Kingdom

Prof. Nicola Hüsing University of Salzburg, Austria University of Lancaster, United Kingdom

Prof. Dieter Schinzer University of Magdeburg, Germany

Description of the administrative unit

The Department of Geosciences' (GEO) researchers are organised in research groups that together form their six academic sections. In 2021 GEO had 231 employees, out of which 62 were professors, associate professors, or adjunct professors, five were lecturers, 84 postdocs and researchers, 52 PhD students, 7 administrative staff, and 21 technical staff.

GEO consists of six research groups: Centre for Earth Evolution and Dynamics, Njord - Centre for Studies of the Physics of the Earth, Geography and Hydrology, Meteorology and Oceanography, Geology & Geophysics (A): Environmental geology and geochemistry, and Geology & Geophysics (B): Basin Studies.

GEO has outlined a strategic plan for the period 2021-2025, with the aim of increasing knowledge in the field and establishing itself as a leading geoscience department in Europe. The strategy focuses on four main areas: Dynamics of the solid Earth and planets, Climate change and the coupled Earth system, Environmental geosciences, and Geoscience in the Arctic. GEO's infrastructure and facilities are considered crucial for successful research. The department's strategy is integrated into the Faculty of Mathematics and Natural Sciences' broader strategy, emphasizing the importance of field observations, laboratory analysis, experiments, and numerical modelling. GEO also plays a role in data science initiatives. The administrative unit has hosted Norwegian Centres of Excellence (SFF) and received grants from the European Research Council (ERC) among other sources.

GEO states that its primary focus is research, education, outreach, and, to a lesser extent, innovation. GEO aims at advancing basic research to the highest international standards, with the overarching goal of contributing to the country's knowledge base. The commitment to research excellence is stated by GEO to be reflected through its research activities measured by publications, competitive grant success, and the development and placement of early career researchers. GEO annually trains master's students, with approximately half conducting their research theses in public or private sector organisations. The department also supports around 20 PhD candidates each year, many of whom find employment in sectors such as energy, environmental consulting, public administrations, geoinformatics, and data science. GEO's strategic location in the Oslo area, is stated to facilitate collaborations with numerous public and private entities, research organisations, and companies.

GEO sees their strengths in their diverse scientific disciplines, their success in securing external funding across various fields, cross-disciplinary initiatives, a strong publication track record, excellent infrastructures, and a broad international network. They see opportunities in the high societal relevance of their research, industry and public sector interactions, competency in seeking applied funding, adaptability, and effective communication with the public. However, they face challenges such as decreasing public funding, reliance on external funding for operations and infrastructure, a declining number of students, and the competitive research environment impacting early career researchers. Additionally, the limited availability of private funding in Norway compared to neighbouring countries poses a threat to their research sustainability.

Overall assessment

The Department of Geosciences at the University of Oslo (UiO) is a strong administrative unit with an excellent reputation across a diverse range of research topics. Many individual faculty are internationally recognized, and the department hosts an impressive number of ERC grantees. Although the department's publication rate is not particularly outstanding, the quality is high, as reflected in an excellent record of citations.

The department has been expanding its focus from traditional geosciences toward more contemporary environmental concerns. Many other geoscience departments are also undertaking this difficult transition. In Oslo's case, this also entails a transformation from more applied research, which was often well funded by the oil and gas industry, toward more basic research. Some of the expertise that was highly relevant to oil and gas exploration in the past can, looking forward, be redirected toward carbon capture and storage.

The department's topics are highly relevant to society at large. The department has strong linkages with other parts of the university, including mathematics, physics, and biology, and a wide range of international collaborative linkages.

The department's strategy outlines many worthwhile goals but does not describe in concrete terms how this vision will be implemented. A key strategic challenge is how to preserve core competencies while exploiting emerging opportunities, all in the context of stagnant or declining base funding. The department will need to make potentially difficult choices about future directions, in recognition of the likely future budgetary constraints. A second challenge is the department's high rate of external funding, which imposes significant proposal-writing burdens on the permanent staff. A third key challenge is that the scarcity of permanent positions, combined with an increasingly difficult funding picture, creates poor long-term prospects for junior researchers.

Where possible, the expert panel has commented on issues identified in the terms of reference. In some cases, this may not be possible, for example due to limitations in the information that was available to the Evaluation Committee.

Recommendations

- 1. Give more attention to how the strategy can be implemented. The current strategy outlines many desirable goals, but the truly strategic part of a strategy involves figuring out how such goals can be achieved.
- 2. Link the strategy to UiO's overall strategy and climate/environment strategy, both of which run to 2030.
- 3. Consider changing name of department (and/or the study programme). "Geosciences" may not be attractive to students, as it sounds traditional and evokes connections with extractive industries.
- 4. Current and future funding constraints require careful strategic thinking. It will likely be impossible to maintain all current competencies while simultaneously pursuing new emerging opportunities. Hard choices will need to be made about which topics should be deemphasized.
- 5. Gender equality issues, including disparities in rates of publication between men and women, will require ongoing attention.
- 6. Open Access publication rates have increased to 75%, but there should be a policy and targets for Open Access publishing for the future.

1. Strategy, resources and organisation of research

Research in the administrative unit is distributed among either five or six research groups, depending on how one counts (the self-assessment says five, but six groups were evaluated as part of this review process). The department as a whole is overseen by a Head and Deputy Head of Department and an Educational Head, which seems to be a fairly typical structure among the administrative units that have been reviewed. Major decisions are discussed between the Head of Department and the group leaders before being vetted and voted on by the department's elected board. The overall approach appears to be functional and participatory.

1.1 Research Strategy

The administrative unit has an ambitious vision statement focused on dynamic earth and planetary systems, on education, and on seeking to become a recognised top-5 institute in Europe. The strategy has clear foci that have potential to provide a sensible balance between basic research and societal relevance.

The strategy document is thoughtful, detailed, and explicit, at least with respect to goals. The administrative unit's strategy has four clear foci which have potential to provide a sensible balance between basic research, societal relevance, and geographical position of Norway. Some of the specified implementation steps are really sub-goals instead, and little is said about where all the time and effort to realize this strategy will come from.

Some of the strategy goals include: a) More research groups which will be among international leaders in their fields. b) Improved education of researchers, and facilitation of career development. c) Participation in developing important research infrastructures. d) Increase completion rates at BS and MS levels (how?). e) Staff introductory courses with the best lecturers. f) Introduce numerical and practical aspects and digital tools/computational methods early in the curriculum. g) Recruit highly capable and motivated students (how?). h) Secure at least 50% external funding.

These are all admirable goals, but the truly strategic part of a strategy involves figuring out how such goals can be achieved. The SA document makes no reference to how the strategy is to be implemented. It is not referred to in the write ups of the 6 Research Groups, whose work appears to have no direct connection to the strategy. Some clarity is needed about the role of the strategy in shaping future departmental direction.

It is recommended that the strategy be put into practise, particularly through following up on plans to restructure the environmental side of the department, and while linking to the broader strategy of the University of Oslo where there are potential links to other parts of the university (e.g. mathematics, physics, and biology). The most strategic decisions will necessarily involve the hiring process for permanent researchers: defining forward-looking topic areas and identifying future leaders in those areas.

1.2 Organisation of research

The administrative unit's organisation follows common practises for similar institutes and is fit for purpose.

One weakness is in the number of research groups, with some appearing to be at a critically low level of resourcing to maintain teaching and research quality. Some consolidation, restructuring, or redrawing of responsibilities may help secure a vibrant future.

There is a well-defined and logical division of resources between research, teaching, and admin tasks. The department understands its position in the Norwegian landscape well. It seeks to be a leader for geoscience, and to capitalise on proximity of its location in Oslo to many Norwegian and international businesses. It builds on its natural advantages to play on the international research stage.

1.3 Research funding

The administrative unit is very successful in raising external funds from competitive public funding schemes (nationally and from EU). It also has strong connections to industry, giving it potential routes to additional funding. The SWOT analysis indicates a lack of private research funding in Norway (which the Evaluation Committee interpreted to indicate a lack of independent foundations funding research). This situation makes the industrial connections and funding for research even more important, and it will be useful for the administrative unit to explore connections to new industrial sectors as their research portfolio evolves. Some of the administrative unit's researchers who previously enjoyed easy access to oil and gas funding have struggled to compete in more basic research; these areas might benefit in particular from diversification of the industrial funding base.

Resource constraints in some research groups, if they cannot be addressed through additional funding, might be addressed by reorganisation or reprioritisation. The department has been broadly successful in competing at an international level. For example, according to 2.1.1.1 of the self-assessment it has had 6 ERC grants in the last 10 year (section 2.1.3.2 specifies 8 such grants; the reason for this discrepancy is unknown).

According to the administrative unit, 56% of the department's funds come from external sources (of this, 70% come from RCN, 12% from EU, 18% from industry and other sources). The staff reports spending a lot of time writing proposals, given the generally low success rates.

1.4 Use of infrastructures

The department hosts two national infrastructures (IGGL and Goldschmidt Laboratory). It makes use of only one category of infrastructures listed under the road-map table (Sigma 2). It is surprising that it makes no use of Climate and Environment or Environmentally Friendly Energy infrastructure. However, a range of other international infrastructures (such as ESA satellite data, ESRF, ESS, European Plate Observing System, etc.) are essential for some of the department's research. Involvement in Sigma2 is important for the administrative unit's work, but there are some questions about adequacy of funding for this critical computational support.

1.5 National and international collaboration

Collaborations appear strong and are laid out in extensive detail in the SA, although often in general terms. Form 12 documents extensive collaborations with national institutions (NVE, NGU, NGI, etc.), international organisations (DLR, ESA, IPCC, etc.) and private partners.

As a result of the international activities, 80 % of the administrative unit's publications between 2019 and 2021 were co-authored with international collaborators, which is above the average for Norwegian universities in the natural sciences (71 %).

1.6 Research staff

Staff numbers and make up are good, but there may be a need for some strategic reorganisation of research groups to achieve critical mass, build resilience and achieve better strategic outcomes.

The mobility policy is good, with explicit funding to help researchers benefits from exchange at a number of career stages.

Staff are highly international (representing at least 30 countries); only 41% are Norwegian. Gender balance is skewed at the postdoc levels and above (20-30% female). It is unclear how much of this skew is due to demographics (age structure) at these higher levels, or due to societal expectations. The strategy document says that the department will "continue to work for gender balance and diversity" but says nothing about how this will be done.

More generally, the strategy document outlines many steps that could be taken to support staff development and quality of life. The department has dedicated funds to support mobility and international collaboration.

2. Research production, quality and integrity

Research quality was generally assessed as excellent by the individual expert panels, with 3 research groups scoring 5, two scoring 4, and one scoring 3. Those scoring 4 were nonetheless described as "very strong" and "highly competitive internationally", and research outputs from the group scoring 3 were described as "internationally recognized in terms of originality, significance, and rigor". International rankings place the department among the best in Europe, and research staff have been recognized by various awards and distinctions at both early-career and more senior levels.

The department follows the standards for research integrity that have been adopted within the Norwegian educational sector, and the European ALLEA code of conduct. The department follows the norms in the UiO research integrity policy, and PhD students attend a mandatory course on this subject. These measures appear to be adequate so far, given that no major incidents have occurred within the department.

Bibliometric data indicate that the UiO geosciences administrative unit has a lower number of author shares per FTE relative to the average of the 16 administrative units considered by the expert panel. Impact of publications is high, however, with the administrative unit enjoying a top three performance on share of 10% most cited pubs, and of mean normalised citation score. Quality is high, while quantity is not.

The productivity of women and men within the administrative unit, measured as the average number of author shares by FTE, differs slightly: in the period 2019-21, female members of the administrative unit have an average author share of .68, whereas their male colleagues have an average of 1.05. Compared to some other administrative units in the evaluation, the difference is rather large, and there is definitely room for improvement.

Rankings and assessment for the 6 research groups fall into two broad categories, with the solidearth geological subjects being ranked as excellent, while the environmental and climate subjects are somewhat more variable.

The Geology and Geophysics group has an excellent and well-deserved international reputation. Although built on the oil and gas sector, the group appears to be transitioning effectively to focus on CCS and continues to be well funded.

The Physics of Geological Processes group is firmly grounded in basic research and internationally leading in some areas of this broad discipline. Strong links to physics through the Njord Centre help maintain research excellence. The group also crosses over to more applied subjects successfully (e.g. pollutant transport, earthquake failure).

The Centre for Earth Evolution and Dynamics builds on three successive (highly competitive) Centres of Excellence which, on its own, signifies a long history of excellence and research vision. It has a long history of excellent research output.

The Geography and Hydrology group is small but well focused and produces high-quality research. Its focus on Northern regions is well chosen for UiO. However, this research group urgently needs support or a wider departmental restructuring to enable it to thrive. Its excellence is founded on a small number of first-rate individuals, raising issues of critical mass.

The Meteorology and Oceanography group has some areas of excellent primary research, generally built around numerical modelling and physical climate science. It has international reach and influence with strong networks in these areas. This group is sensibly seeking connections to the wider chemical and biological aspects of climate change, but the department might benefit from approaching this process more strategically. For example, it could focus more resources into this area in the context of a renewed look at climate and environmental components of its strategy or focus attention on subject areas where UiO can expect to lead.

The environmental geology and geochemistry group was rated as quite weak and lacks cohesion or strategic focus. Although there is obviously some strong research here, there appears an urgent need, at departmental level, to identify priority goals in the environmental sciences and build a cohesive strategy to deliver across all existing research groups.

There appears to be a healthy ratio of PhD students to faculty across most research groups.

2.1 Research quality and integrity

Research group Basin Studies overall assessment

This is a strong group performing at a highly competitive level internationally. Their goals and activities are well-aligned, and their research strengths and adaptability promise continued success. They are uniquely placed to be leaders in carbon capture and storage, important and relevant work for society's future.

Although they educate many PhD students, few specifics on training and mentoring are provided, implying this may need more serious consideration. The gender imbalance, teaching man-power reduction, and difficulties competing against industry salaries for recruitment are ongoing concerns.

Research group Centre for Earth Evolution and Dynamics overall assessment

The CEED group operates at a very high level in all aspects of research and are easily competitive with other internationally renowned groups in the geosciences, CEED produces excellent research related to generating a digital twin of the solid Earth. The group's success largely rests on a clear vision and a coherent strategy, which has attracted top scientists at all levels. The results include many top publications, the acquisition of significant external funding, and remarkable value to society and its economy at both Norwegian and international levels.

Research group Environmental Geology and Geochemistry overall assessment

Strengths

Research of individuals within the group is recognised nationally and internationally. The PhD/master's student cohort is significant and producing good quality students. Substantial record of external grant income over the self-evaluation period. Solid publication record, with good outputs from individual researchers. Demonstrable engagement with industry and government. The group is obviously involved in applying their research results, as would be expected given the fields of their research. Strong potential to develop and evolve into a more coherent administrative unit as the wider department evolves into the Environmental Group.

Weaknesses

Overall, the self-evaluation is a little confusing and confused. Little effort is made to concisely describe the group's research objectives (other than in a generic sense) and to describe a coherent strategy for the group or set this against the strategic development of the wider Department/Institution. The group lacks an integrated approach to their research, leaving a sense that there remains potential to be realised. Whilst their research fields encourage industrial/governmental interaction, as presented, it is not clear how these external groups help to shape the group's approach or enhance the quality and impact of the group's work. Again, there is considerable potential still to be realised.

Research group Geography and Hydrology overall assessment

The expert panel assessed this as a very strong research group with a solid international reputation, which deserves to be highlighted in the national assessment. The section's research outputs are visible in highly cited publications, and it has also played a leading role in several large initiatives. The range of approaches – from measurements right through to process model development – was assessed by the expert panel as both a strength and a challenge for such a small group. The section has cultivated international collaborations and networks, which add to its visibility and influence on the international stage.

Research group Meteorology and Oceanography overall assessment

The group is very strong and addresses several fundamental gaps in our understanding of processes in the climate system acting on short and long timescales. The scope is rather broad, going from stable atmospheric boundary layers, chemistry/aerosol/clouds interactions, small-scale mixing processes in the ocean and ocean currents, which however all determines the overall climate sensitivity. The interdisciplinary research approach is already well elaborated, and efforts are going on to bring disciplines even closer together in certain fields, such as on the interacting ocean and atmosphere, and land surfaces and atmosphere surface processes (e.g. hydrology and ecology).

Positive impacts for society are gained through contributions to international assessments but also by national and local direct measures.

Research group Physics of Geological Processes overall assessment

This is a very strong to outstanding group, pursuing state-of-the-art research, and performing at a high international level. Their strategic planning and education/mentoring of new talent is excellent. The group should be commended on their success and encouraged to continue the path described in their report.

2.2 Open Science

The department's Open Science efforts are appropriate to its topics and contexts, but the statement on open science is rather generic and a statement of norms of practise rather than a set of policies or targets. There are some stronger examples, though, including open-access software being encouraged through workshops.

Open Access publication has increased to 75% (in administrative units stats and bibliometrics), but there is a disappointing lack of any policy or targets on Open Access publishing for the future. This should be addressed to ensure that the administrative unit's outputs can continue to enjoy a broad audience. An important constraint is that RCN does not pay for Open Access fees, and the university's very limited Open Access funding is quickly exhausted every year. This should be changed but is beyond the administrative unit's control.

3. Diversity and equality

There are some strong activities on harassment, microaggressions, and inclusion which is welcome.

In other respects, the EDI text in the SA is weak. There is no mention of groups where bias is evident (e.g., disabled, ethnic minorities) and no targets for inclusion.

On the one metric that is reported – gender – performance is not good. There is a substantial drop off from 46% female at PhD student to 29% at post-doc / researcher which is an earlier point in the career progression to see this decrease relative to other geoscience departments. 24% female at Professor level is poor, although the percentage is growing (from 17% in 2015 to 27% in 2020). Over the same period, the fraction of females in non-professorial researcher titles has grown from 13% to 27%, the fraction at postdoc levels has grown from 37% to 47%, and the fraction at PhD level has grown from 34% to 54%. Gender equality will require ongoing attention from the department.

The disparity between author shares per FTE for women and men is surprising, with female staff members publishing 65% the number of papers as male staff (the worst gender disparity of all administrative units considered by the expert panel). In the interview, the department indicated that the reasons for this were unclear, but may arise because younger researchers are, on average, less productive. One underlying reason is that apparently women are less frequently invited to join collaborations. To the extent that this is happening within the department or within UiO, it should be addressed urgently. More generally, the reasons underlying gender disparities in publication should be investigated further, and policies enacted to encourage publication by female staff, since this is essential to their future career success.

4. Relevance to institutional and sectorial purposes

Although there is no explicit connection between the administrative unit's strategy and wider UiO strategy, there are some strong linkages between geosciences and other parts of the university (e.g. in mathematics, physics, and biology).

The UiO-wide overall strategy and climate/environment strategy both run to 2030, which is reassuringly future facing. It would have been good for the administrative unit to link to these.

The administrative unit has strong links to a broad range of relevant sectors. It is well aware of the needs for changing geoscience through the green transition and appears to be adapting well (though continued awareness of needs will be required).

Commercialisation is strong, building on good links to industry, but also on an apparent culture of recognising IP and seeking patents for novel work.

The statement that, 'UiO acquire all rights of ownership to work results with potential for commercial exploitation', appears to give very little impetus to faculty members to develop or exploit their own research discoveries. This is in stark contrast to US universities with a successful culture of commercialisation, where most of the IP resides with the faculty member.

5. Relevance to society

The administrative unit works across a broad range of geoscience subjects with relevance to society and is successfully navigating the transition required from traditional geosciences towards a more environmental and climate focus. There is more to do strategically in that area, building on the stronger areas of research to project a green future for Norway geoscience research.

A sustainability plan for the department itself, and for UiO, would have been good to read about.

Comments to impact case 1

Several department staff played substantial roles in developing forum-based tools to use sediment cores to infer pre-anthropogenic ecological status of coastal waters. These methods have been applied to define *in situ* reference conditions for much of the Norwegian coast.

Comments to impact case 2

The department has studied the potential of various geological formations for carbon capture and storage, as well as the geochemical conditions under which carbon trapping is efficient. The major impact is described as scientific papers produced, students trained, and contributions to industry dialog meetings. The ultimate effect of these efforts is difficult to precisely measure at this time because large-scale CCS initiatives still lie mostly in the future.

Comments to impact case 3

This case describes recent research to better guide hydrocarbon exploration and development on the Norwegian Continental Shelf. This work is done in close partnership with oil and gas firms, and a major impact is the training of students who continue their careers in the industry. Section 4 gives several concrete examples of how this science is translated into practice.

It is also mentioned that there were significant contributions to various initiatives promoting Norwegian-Russian collaboration in the wider Barents Sea region; one wonders how this is now seen, in view of recent events.

Comments to impact case 4

This case describes efforts undertaken to advance our understanding of droughts throughout Europe. These efforts included compiling an inventory of European drought impacts, the establishment of the (virtual) European Drought Centre, and the publication of an open access online textbook on hydrological drought. The specific impacts of these contributions are difficult to trace, but droughts are consequential for ecosystems and society that any advance in understanding is welcome.

Comments to impact case 5

This case outlines the department's participation in the IPCC process. Many researchers from leading Earth Science departments have contributed to IPCC's series of assessment reports. Although, as the impact case states, "It is very difficult to exactly pinpoint how the research at GEO and the contribution from our IPCC authors have contributed to the international climate negotiations and agreements", it would be unrealistic to expect otherwise, given the inherently political nature of such negotiations. It is safe to assume, however, that without such collaborative efforts such climate agreements may not have happened at all.

List of administrative unit's research groups

University of Oslo - Faculty of Department of Geosciences Center for Earth Evolution and Dynamics University and Natural Department of Geosciences Njord - Centre for Studies of the Earth	Institution	Administrative Unit	Research Groups
University of Oslo - Faculty of Department of Geosciences Njord - Centre for Studies Output Of the Physics of the Earth Geography and Hydrology Meteorology and	University of Oslo - Faculty of Mathematics and Natural Sciences		Center for Earth Evolution and Dynamics
University of Oslo - Faculty of Mathematics and Natural Department of Geosciences Meteorology and			Njord - Centre for Studies
Mathematics and Natural Department of Geosciences Meteorology and		Department of Geosciences	Geography and Hydrology
			Meteorology and
			Geology & Geophysics (A):
Geology & Geophysics (A):			Environmental geology and
Geology & Geophysics (A): Environmental geology and			geochemistry
Geology & Geophysics (A): Environmental geology and geochemistry		Geology & Geophysics (B): Basin Studies	Geology & Geophysics
Geology & Geophysics (A): Environmental geology and geochemistry Geology & Geophysics			(B): Basin Studies

Methods and limitations

Methods

The evaluation is based on documentary evidence and online interviews with the representatives of administrative unit.

The documentary inputs to the evaluation were:

- Evaluation Protocol (see appendix 3 Evaluation Protocol) that guided the process
- Terms of Reference
- Administrative unit's self-assessment report
- Administrative unit's impact cases
- Administrative unit's research groups evaluation reports
- Bibliometric data
- Personnel and funding data
- Data from Norwegian student and teacher surveys

After the documentary review, the Evaluation Committee held a meeting and discussed an initial assessment against the assessment criteria and defined questions for the interview with the administrative unit. The Evaluation Committee shared the interview questions with the administrative unit two weeks before the interview.

Following the documentary review, the Evaluation Committee interviewed the administrative unit in an hour-long virtual meeting to fact-check the Evaluation Committee's understanding and refine perceptions. The administrative unit presented answers to the Evaluation Committee's questions and addressed other follow-up questions.

After the online interview, the Evaluation Committee attended the final meeting to review the initial assessment in light of the interview and make any final adjustments.

A one-page summary of the administrative unit was developed based on the information from the self-assessment, the research group assessment, and the interview. The administrative unit had the opportunity to fact-check this summary. The administrative unit approved the summary without adjustments.

Limitations

- (1) The Evaluation Committee judged the information received through documentary inputs and the interview with the administrative unit sufficient to complete the evaluation.
- (2) The Evaluation Committee judged that the administrative unit self-assessment report was insufficient to assess all evaluation criteria fully. However, the interview with the administrative unit filled gaps in the Evaluation Committee's understanding, and the information was sufficient to complete the evaluation.
- (3) The Evaluation Committee judged that the administrative unit's self-assessment report was insufficient to assess all evaluation criteria fully, and some information gaps remained after the interview with the administrative unit.

Appendices (link to website)

- 1. Description of the evaluation of EVALNAT
- 2. Invitation to the evaluation including address list
- 3. Evaluation protocol
- 4. Self-assessment administrative units
- 5. Grading scale for research groups

Website: https://www.forskningsradet.no/tall-analyse/evalueringer/fag-tema/naturvitenskap/

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