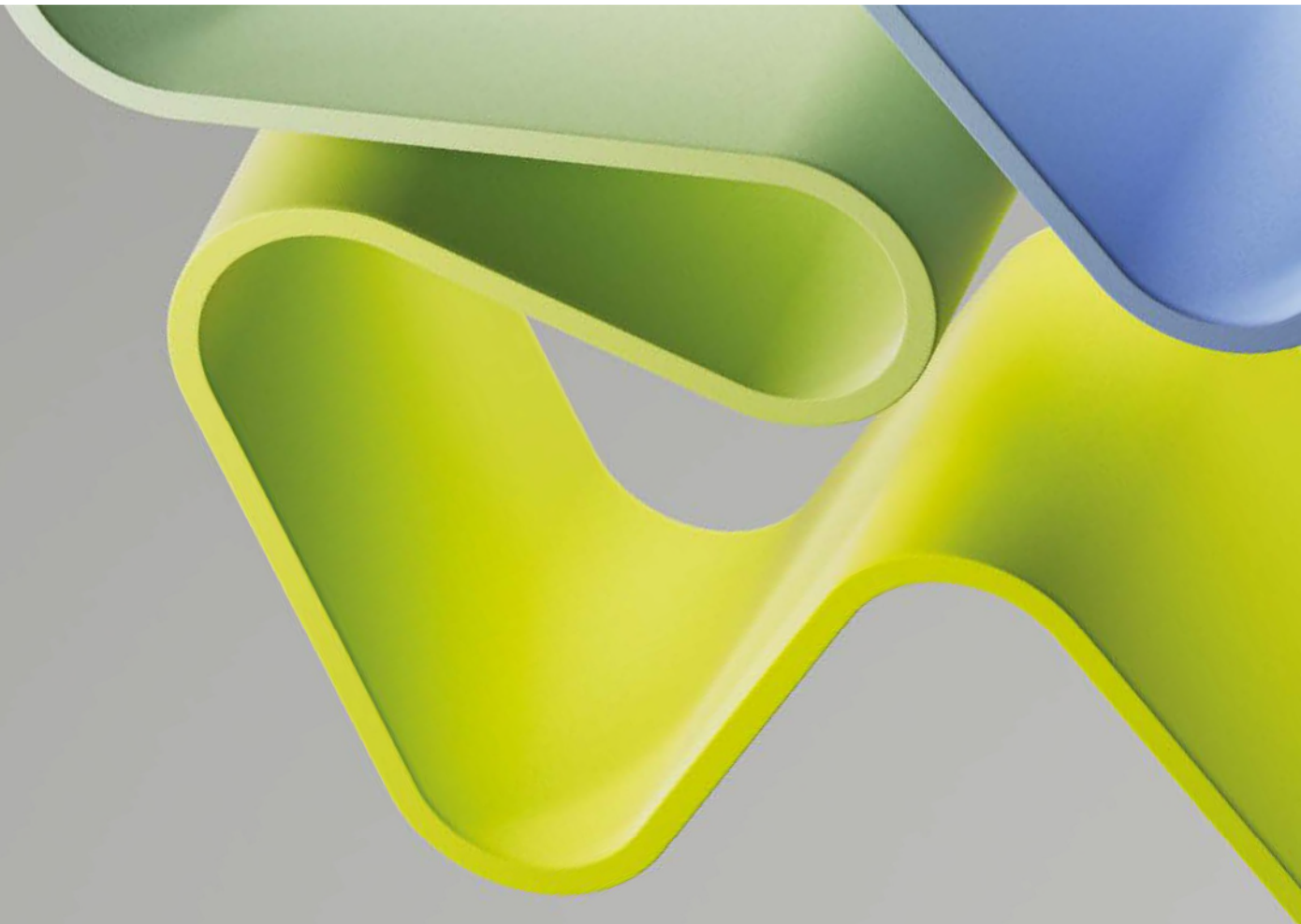


# **Evaluation of Natural Sciences 2022-2024**

## **Evaluation report**

### **Norwegian Water Resources and Energy Directorate (NVE)**

January 2024



# Contents

<b>Statement from Evaluation Committee – Institute II</b>	<b>2</b>
<b>Description of the administrative unit</b>	<b>3</b>
<b>Overall assessment</b>	<b>3</b>
<b>Recommendations</b>	<b>5</b>
<b>1. Strategy, resources, and organisation of research</b>	<b>6</b>
1.1 Research Strategy	6
1.2 Organisation of research	6
1.3 Research funding	6
1.4 Use of infrastructures	7
1.5 National and international collaboration	7
1.6 Research staff	8
<b>2. Research production, quality and integrity</b>	<b>8</b>
2.1 Research quality and integrity	9
2.2. Open Science	9
<b>3. Diversity and equality</b>	<b>9</b>
<b>4. Relevance to institutional and sectorial purposes</b>	<b>10</b>
<b>5. Relevance to society</b>	<b>10</b>
<b>List of administrative unit´s research groups</b>	<b>11</b>
<b>Methods and limitations Methods</b>	<b>12</b>
<b>Appendices (link to website)</b>	<b>13</b>
1. Description of the evaluation of EVALNAT	13
2. Invitation to the evaluation including address list	13
3. Evaluation protocol	13
4. Self-assessment administrative units	13
5. Grading scale for research groups	13

## Statement from Evaluation Committee – Institute II

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

- CICERO Centre for Climate Research
- Norwegian Meteorological Institute – Weather and Climate (MET)
- Norwegian Institute for Sustainability Research (NORSUS)
- Norwegian Research Centre (NORCE) – Climate and Environment
- Norwegian Institute for Air Research (NILU) – Environmental Chemistry Department
- Norwegian Institute for Air Research (NILU) – Atmospheric and Climate Research Department
- Norwegian Water Resources and Energy Directorate (NVE)
- Nansen Environmental and Remote Sensing Centre (NERSC)

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

The Evaluation Committee has consisted of the following members:

Professor **Mat Collins**, (Chair)

University of Exeter, United Kingdom

Professor **Dorthe Dahl-Jensen**,

Niels Bohr Institute, Denmark

Professor **Hayley Fowler**,

Newcastle University, United Kingdom

Professor **Martin Siegert**,

Imperial College London, United Kingdom

Professor **Thomas Jung**,

Alfred Wegener Institut, Germany

## Description of the administrative unit

The Hydrology Department (HD) within NVE, led by the director, has six sections led by section heads. The researchers report to their section heads. In 2021, HD had 94 employees, out of which seven were the director and section heads, two were research professors (three in 2022), 15 were researchers, three were PhD students, 61 were engineers and six were classified as 'other'.

The NVE consists of the Glaciers, Ice and Snow, and Hydrological Modelling research groups.

In the *action plan* for 2022-2026, the HD identifies two key strategic areas from the broader NVE action plan: (1) improving our society's ability to reduce damages from floods, landslides, and snow avalanches and (2) holistic and environmentally sound management of our water resources. In their self-assessment, NVE state that they have no formal policy with regards to collaboration, but have firm traditions, practices, and success with their cooperation with other public bodies, the HEIS and institute sector and with Nordic and other international organisations. They do have collaboration agreements that includes research with the University of Oslo, the UiT Arctic University of Norway, and the Norwegian Meteorological Institute. They also state that scientific skills are encouraged through an "alternative career ladder" with the aim to become a scientist with professor competencies. In the *action plan 2022-2026*, NVE state that at the HD level, a goal is to have approximately equal fractions of male and female staff.

HD partner with public administrative agencies where they share an interface. For example, they team up with the MET.no with respect to climate services and early warning systems. HD collaborate with the Norwegian Public Roads Administration and are partners in the Naturefareforum network and the Norwegian Centre for Climate Services. Additionally, they state that the HD has achieved well-functional supplementary monitoring of floods, landslides, and snow avalanches through data gathered via user surveys. In their self-assessment, they highlight a series of Varsom products, which includes an app. The Varsom app combines features for displaying hazards and registering observations in the field. This system has had an impact on both public and professional access to all forecasts, as well as their quality (crowdsourcing data, field guidance for outdoor activities).

In their self-assessment, HD assess their strengths that will enable them to succeed in the future. These include: (1) HD owns the complete value chain from measurements and databases, through research to well-functioning and highly recognised hydrological services of importance to society (2) Long-term funding through the Ministry of Oil and Energy, and thus less dependence on external funding, providing research continuity and (3) NVE is one of the few institutions where both hydrological and cryosphere research and water resources management co-exist. HD identify opportunities for growth including greater involvement in inter- and transdisciplinary research and working more strategically at the international scene to influence research agendas and build consortia towards EU proposals. However, weaknesses such as (i) an imbalanced work staff mean that they could run out of experienced project leaders, and (ii) there are no hydrology program or research calls, only focusing on hydrology at the Research Council of Norway, may limit HD's position in the future.

## Overall assessment

NVE is a well-run institute with a clear and detailed research strategy and objectives for collaborative links. The organisation of NVE appears robust and includes strategies for external and internal funding, teaching, and education and for careers development. The reorganisation of IT infrastructure into a different department could be a cause for concern as it could affect both

operational and research performance. NVE have a clear vision of their place in the Norwegian research landscape and balance research with operational activities well.

In terms of research production, they are mostly focused on operations, with low numbers of research staff, mainly focussed in the applied area; their focus is on managing Norway's renewable energy and water resources. The HD at NVE is a small, diverse research group embedded in the national hydrological service, with substantial operational responsibilities. Fewer than half the staff are involved in research activities, with most of their work focussed on applied research; despite this their research is of good quality and adds knowledge and tools that enable the improvement of NVE's mission. A strong example of this is the Varsom app which is an exemplar of best international practice and should be commended. The imbalance between operations and research is both a weakness and a strength as it allows research findings to flow through easily to operational practice and services, enabled using key monitoring datasets, but means that they lack capacity in some emerging research areas.

NVE are strong on diversity, equality, and inclusion in recruiting, and this is reflected in the split of research staff, with 12 of 26 scientific research staff having non-Norwegian backgrounds, with 14 women and 12 men. The HD is led by a woman, with two of six department heads also being women. NVE has a good age balance across staff and gives young scientists the opportunity to build a career through their "alternative career ladder" with the aim to become a scientist with professor competencies. The Vancouver recommendations are followed.

Within NVE, the relevance to institutional and sectoral purposes is very strong, resulting from the close working between the operational part of NVE and the research part, together close collaboration with other stakeholders. Stakeholders are engaged in the framing of research questions and are also essential in completing the value chain from research outputs to operational tools and societal benefits. Within the NVE, research staff are integrated into the forecasting teams, giving them a direct appreciation of the practical challenges, and allowing research applications to be closely tailored to NVE's operational needs. NVE gains strength from collaboration with several other operational centres and research centres in Norway and some in Europe, with specific objectives for each. Research is targeted towards improving risk assessment and operational forecasting of hazards and feeds through directly into practical operations, in particular addressing cross-sectoral goals.

NVE make an important contribution to Norwegian society through their mission's main goals: "Improving our society's ability to reduce damages from floods, landslides and avalanches" and "Holistic and environmentally sound management of our water resources". They could make an even greater contribution through an expansion of their inter- and trans-disciplinary research, which would require extra funding. They are an exemplar of collaborative working and policy-driven applied science and there are still opportunities for growth in international funding.

The ability of NVE to provide scientific results and take advantage of the advances in science and technology to improve their services appears to be severely compromised by the lack of hydrology programmes and research calls from the Research Council of Norway which limits the ability of the HD to expand their research ambitions in this area. Equally, although research only constitutes a small part of the total activity at the HD, the HD is largely dependent on external project funding from the Research Council of Norway and the EU, with a very low level of funding provided by the Ministry of Petroleum and Energy. The external funding has largely contributed to the HD being recognised as the key hydrological research institute in Norway. Yet, the HD relies on success in acquiring sufficient external funding to maintain a satisfactory level of research excellence, and for maintaining the standards necessary as the national hydrological services. The level of funding from

the Ministry of Petroleum and Energy is not sufficient to maintain the high standards necessary in the national hydrological service, particularly with emerging and more frequent hazards with climate change.

## Recommendations

There are only a few recommendations that the committee wish to make, as the HD within NVE are seen to be a highly successful and functioning unit. We recommend that:

1. Further capacity should be considered within the research arm of the organisation to enable the understanding of new hazard types emerging with climate change, and their operationalisation into prediction/forecasting.
2. Perhaps thought should be given to lobbying the funders to improve the funding landscape in Norway for hydrology. We would recommend that more funding needs to be given to this area.
3. Emerging key areas for monitoring may require additional core funding. For example, NVE's areas of responsibility have been increasing (operational landslide and avalanche warning since 2013, storm/urban water risks since 2019), but this has not been followed up with an increase in R&D funding from the Ministry (rather it has been declining). This is a severe weakness for knowledge-based services, such as the NVE warnings services, and their advice to municipalities and external stakeholders, and to future policy development in Norway. We would recommend that more funding is directed from the Ministry towards these core activities.
4. There is a more strategic focus towards the international scene, in influencing research agendas and building consortia towards EU proposals and other international funding opportunities. This could be beneficial in building the research team and strengths at the HD but also learning from best practice elsewhere.
5. NVE lobby to get the hydrological database and monitoring system considered as a national research infrastructure; NVE host the national hydrological database and run most of the monitoring stations that deliver data to this database. The committee were surprised that this was not considered to be a national research infrastructure, as it is an infrastructure of outstanding national importance.
6. A clearer understanding of the feedback chain from research into policy is developed; much research appears to be policy-driven but it is not clear how this feeds back into policy.

The table below presents the specific aspects of the evaluation the administrative Unit requested the evaluation explore and indicated where these are addressed in more detail in the subsequent report.

<b>Specific Request from the Unit's Terms of Reference</b>	<b>Where it is addressed in the report</b>
Scientific efforts for disaster risk reduction and sound water management	Sections 1.1, 1.5, 4 and 5
Research responsibilities as a national hydrological services	Sections 1 and 5
Funding	Section 1.3

# 1. Strategy, resources, and organisation of research

The organisation of NVE appears robust and includes strategies for external and internal funding, teaching, and education and for careers development. The reorganisation of IT infrastructure into a different department could be a cause for concern as it could affect both operational and research performance. They have a clear vision of their place in the Norwegian research landscape and balance research with operational activities well.

## 1.1 Research Strategy

The NVE research strategy is both clear and comprehensive. The self-assessment form gives the impression of a very well-run organisation. Externally funded research is a relatively small fraction (roughly 25-30%) of the Hydrology Department's activities but is supplemented with substantial competitive internal research funding (from within NVE). Significant resources go toward maintaining a national monitoring network and hydrological database. External funding is of lesser importance to the group, as is getting their research published. The priority appears to be getting the research pushed through into operational practice.

NVE's areas of responsibility have been increasing (operational landslide and avalanche warning since 2013, storm/urban water risks since 2019), but this has not been followed up with an increase in R&D funding from the Ministry (rather it has been declining). This is a severe weakness for knowledge-based services, such as the NVE warnings services, and their advice to municipalities and external stakeholders, and to future policy development in Norway. This is also a potential threat to research excellence, although this has not translated through to publications, which have increased three-fold during this period.

The research at NVE is unusual in the Norwegian context as it is so applied but also inter- and transdisciplinary; this should be capitalised on in the changing funding landscape and increasing demand for new applied hydrological services within and outside of NVE (but this needs more core funding – or external funding). An issue with this is the lack of hydrology program or research calls only focusing on hydrology at the Research Council of Norway; therefore, NVE have had to focus on EU calls for external funding. This could be beneficial, with more strategic focus towards the international scene, influencing research agendas and building consortia towards EU proposals and other international funding opportunities.

The SWOT analysis shows a very clear and well thought though strategy with specific and well identified actions.

## 1.2 Organisation of research

The NVE consists of the Glaciers, Ice and Snow, and Hydrological Modelling research groups. The Hydrology Department (HD) within NVE, led by the director, has six sections led by section heads. The researchers report to their section heads. In 2021, HD had 94 employees, out of which seven were the Director and section heads, two were research professors (three in 2022), 15 were researchers, three were PhD students, 61 were engineers and six were classified as 'other'.

## 1.3 Research funding

The main funding for the HD comes from the Ministry of Petroleum and Energy through basic funding (salaries, and goods and services), competitive funding sources from internal R&D funding (only for goods and services), equipment and maintenance (hydrological monitoring), and from commercial

contracts (mainly hydrological monitoring, and external research projects). For 2021 incurred costs for salaries and goods and services and equipment/maintenance were 86,2 mill NOK, for commercial contracts and research projects in total 27,8 mill NOK and internal R&D projects 1,6 mill NOK. Research funds are around 5% of their total budget, which is low. Research at the HD amounts to around 10-12 FTE each year, out of roughly 85 positions in total, and has been quite stable through recent years. Funding to increase the research as a percentage of total budget and to diversify and support new areas, for example understanding new emerging hazards such as slush flows, is recommended as new hazards are emerging fast in a changing climate and the demand from the frequent operational warnings is increasing.

Since 2016, the HD has been involved in European and National funded projects, with projects funded from 2016- 2021 was 35,3 mill NOK, with some of these funds redistributed to partners. This funding level is excellent given the small number of staff at the HD involved in research activities.

## 1.4 Use of infrastructures

NVE participate in just one national infrastructure (SIOS – the Svalbard Integrated Arctic Earth Observing System; 2018-2023). NVE runs the hydrology part of the SIOS-INFRANOR, with contributions to the monitoring of hydrological parameters, developing new hydrological stations and upgrading existing ones for better knowledge of the hydrology of Svalbard. For example, between 2020 and 2022 a new station was established, and an existing station rebuilt. Long-term monitoring is important to investigate the effect of climate change on the hydrology of Svalbard. This provides a unique dataset of unsurpassed quality in the High Arctic.

NVE host the national hydrological database and run most of the monitoring stations that deliver data to this database. Albeit not considered a national research infrastructure, it is an infrastructure of outstanding national importance.

NVE have no direct participation in international infrastructures as their research staff are so limited but rely heavily on their cooperation with the European Space Agency (ESA). The NVE HD conveys data to several international research infrastructures within hydrometeorology, such as Arctic-HYCOS, the Global Runoff Data Centre and the European Water Archive.

## 1.5 National and international collaboration

HD partner with public administrative agencies where they share an interface, and naturally collaborate more nationally than internationally. For example, they team up with the MET.no with respect to climate services and early warning systems. HD collaborate with the Norwegian Public Roads Administration and are partners in the Naturefareforum network and the Norwegian Centre for Climate Services. The Varsom app is internationally leading and should be capitalised on; it combines features for displaying hazards and registering observations in the field. The app has had an impact on both public and professional access to all forecasts, as well as their quality (crowdsourcing data, field guidance for outdoor activities).

In the *action plan* for 2022-2026, the HD identifies two key strategic areas from the broader NVE action plan: (1) improving society's ability to reduce damages from floods, landslides, and snow avalanches and (2) holistic and environmentally sound management of our water resources. In their self-assessment, NVE state that they have no formal policy with regards to collaboration, but have firm traditions, practices, and success with their cooperation with other public bodies, the HEIS and institute sector and with Nordic and other international organisations. They do have collaboration



agreements that include research with the University of Oslo, the UiT Arctic University of Norway, and the Norwegian Meteorological Institute. They collaborate in some international projects, and this could be extended with support for more staff time to be engaged in this.

## 1.6 Research staff

The number of research staff in the HD at NVE is relatively small. They have quite a few staff who are classified as engineers, many with PhDs, which presumably reflects their operational capabilities. Three staff are now formally qualified as research professors, and one section head is presently adjunct professor at the University of Oslo. The gender balance is good at junior levels but less so in the leadership team (the director and one section head are female). The SWOT analysis notes a potential issue in retaining junior team members. The number of research staff likely limits what can be achieved, with a clear focus on the operations from existing staff.

Career development opportunities seem good. There are formal structures in place including supervision of students, including PhD-students, and teaching, and clear career paths have been defined with criteria for promotion to senior researcher and encouraging scientists to qualify for the title of research professor. They build project leader competence where possible by switching responsibilities in ongoing projects; mentoring and research group support to emerging leaders; leading internal projects; there is potential for NVE staff to do a PhD with support from internal R&D funds or projects, and potential to host external PhD students.

## 2. Research production, quality and integrity

Productivity in research is good given the very small proportion of research staff in NVE: they produce around 35 publications a year, 1% of the Norwegian total. The evaluation committee assessed the Department's output and impact as excellent. It sets a high standard for applied research that contributes to practical societal needs through collaboration with a broad spectrum of stakeholders, while simultaneously participating in international multi-investigator publications at the highest level (although rarely as the "leading house" of such high-profile collaborations). In view of the very substantial operational responsibilities of the department, this record was viewed as impressive.

The publications mentioned are high-quality contributions to disciplinary literature, with a relatively high score of top papers cited (12%). The unit has also been involved in several high-profile publications as part of large groups of collaborators, and the percentage of papers published with national and international collaborators is high at 68% in 2021. The administrative unit is fully integrated into the sentinel papers of European research, contributing to the highest level of publications. As Norwegian time series are long and sound, and current work is excellent, the group sets a standard and defines state of the art in analysis and modelling based on environmental monitoring data. The three-fold acceleration in publication output is particularly impressive.

Research expertise is across a wide number of areas of hydrology and covers forecasting of hazards and risk and their changes with climate change. This strong interdisciplinarity is a strength of the organisation and allows them depth in several complementary areas.

NVE's policies on research integrity are in line with international practice.

## 2.1 Research quality and integrity

The group is strong and should be highlighted as an excellent example of fruitful and exciting cooperation between the academic and non-academic sectors. The group activities match the strategic goals, although the fit between NVE goals and international calls can be challenging, and thus the potential for external funding (that aligns with NVE goals) is more limited than in an academic department that can shift to pursue the "moving target" of current funding calls. A key strength is the department's operational responsibilities, which motivate research questions that may not be asked (or asked in a sufficiently focused way) in a more academically oriented research group. The department's applied research makes substantial contributions to Norwegian society and engages a diverse community of stakeholders. The department also contributes substantially to international science, both through its own publications and by participating in high-level multiinvestigator collaborations. The department's commitment to open science (data, methods, models, planning tools, etc.) is admirable.

## 2.2. Open Science

NVE have a good recognition of open access publications, code, and data, including an open data policy, and facilitates free access to hydrological data for all kinds of use. NVE also work to provide easy access to hydrological data and different hydrological analytical tools and portals, such as NEVINA: <https://nevina.nve.no/>; SeNorge: <https://senorge.no>; Sildre: <https://sildre.nve.no/> and Seriekart: <https://seriekart.nve.no/>. Tasks related to open data access are accomplished through close cooperation with other Departments at NVE

FAIR principles are adhered to.

All their results appear to be shared freely. A weakness appears to be that no open science training is provided. Data management and documentation are mainly done in projects; one recommendation would be to think about developing a formal policy.

## 3. Diversity and equality

NVE are a public body and thus have legal obligations and requirements for EDI when recruiting. Of the scientific research staff, 12 of 26 scientific have non-Norwegian backgrounds, with 14 women and 12 men, and the department is led by a woman. Two of six department heads are women. NVE try to have a good age balance across staff as well and to give young scientists the opportunity to build a career. Diversity is appreciated and valued, and they try to attract different competence and skills regarding different backgrounds. NVE rules state that they shall foster inclusion. This has led to different perspectives being utilised in their work. They focus on involving young scientists so that they can promote their ideas and perspectives. EDI can be related to publications, and the Vancouver recommendations are followed.

At NVE, scientific skills are encouraged through an "alternative career ladder" with the aim to become a scientist with professor competencies. In the *action plan 2022-2026*, NVE state that at the HD level, a goal is to have approximately equal fractions of male and female staff.

## 4. Relevance to institutional and sectorial purposes

With the operational part of NVE as a major non-academic stakeholder, and with the close collaboration with other stakeholders, the involvement of non-academic partners is unusually strong. Stakeholders are engaged in the framing of research questions and are also essential in completing the value chain from research outputs to operational tools and societal benefits. Within the NVE, research staff are integrated into the forecasting teams, giving them a direct appreciation of the practical challenges, and allowing research applications to be closely tailored to NVE's operational needs.

Much NVE research appears to be policy-driven but it is not clear in how it feeds into policy; if this feedback chain could be made clearer, it could drive greater impact.

There were many examples from NVE of cooperation to achieve sector-specific and cross-sectoral goals. They aim at transcending sector-specific objectives.

Collaboration is a real strength of NVE. There are collaborative links to other operational centres and research centres in Norway and some in Europe, with specific objectives for each. Research is targeted towards improving risk assessment and operational forecasting of hazards and feeds through directly into practical operations.

There are many strong examples of innovation around their forecasting, monitoring, and data management systems available in real time online. There is little commercialisation in the sense of money making; work is mainly for the public good.

## 5. Relevance to society

The self-assessment makes a convincing case for the department's societal contribution. Engagement with non-academic partners is extensive, consistent with the operational responsibilities of the unit. These operational tasks (including flood forecasting and risk assessment, avalanche, and landslide warning, etc.) are essential for making large swaths of Norway habitable without needless risk.

Unusually, NVE research questions are framed with stakeholders. This ties the research in well with questions of relevance to society and national priorities.

### **Comments to impact case 1**

The NVE impact case study has developed a suite of warning models for forecasting floods, landslides, and avalanches. This uses a set of observational datasets through to modelling systems that are used as part of a value-chain in forecasting hazards in Norway. All warnings are issued on Varsom.no. The platform (app) is used to publish daily warnings about natural hazards in Norway. The warnings issued from NVE include snow avalanches, floods, landslide (debris flows/slush flows), rock avalanches, and (lake and river) ice warnings. All extreme weather warnings from MET.no are also issued here to gain synergies and easy overview and access to all relevant warnings at one platform. The app is an exemplar of best international practice and should be commended. The impact of the new warning system is substantial and evidenced. The warning systems are among

those considered critical societal functions and capabilities in a report from Norwegian Directorate for Civil Protection (DSB).

### Comments to impact case 2

The second case study details the development of services for climate change adaptation in Norway with emphasis on hydrology and the cryosphere. NVE have produced several climate services including climate allowances to be added to hydrological flows, climate factsheets, climate white papers, as well as contributing to the IPCC report. The climate factsheets and allowances have been used by government agencies responsible for infrastructure, municipalities, consultants, and impact researchers. The main uses include local land use planning and zoning, water management and emergency preparedness. The impact case study is strong and shows evidence of impact on society.

### List of administrative unit's research groups

Institution	Administrative Unit	Research Groups
Norwegian Water Resources and Energy Directorate (NVE)	Norwegian Water Resources and Energy Directorate (NVE)	The Hydrology Department

## 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 Committee held a meeting and discussed an initial assessment against the assessment criteria and defined questions for the interview with the Administrative Unit. The Committee shared the interview questions with the Administrative Unit two weeks before the interview.

Following the documentary review, the Committee interviewed the Administrative Unit in an hourlong virtual meeting to fact-check the Committee's understanding and refine perceptions. The Administrative Unit presented answers to the Committee's questions and addressed other follow-up questions.

After the online interview, the 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 virtually without adjustments.

### **Limitations**

The Committee judged the information received through documentary inputs and the interview with the Administrative Unit sufficient to complete the evaluation.

## 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/>

**Norges forskningsråd**

Besøksadresse: Drammensveien 288  
Postboks 564  
1327 Lysaker

Telefon: 22 03 70 00  
Telefaks: 22 03 70 01

[post@forskningsradet.no](mailto:post@forskningsradet.no) [www.forskningsradet.no](http://www.forskningsradet.no)

Publikasjonen kan lastes ned fra  
[www.forskningsradet.no/publikasjoner](http://www.forskningsradet.no/publikasjoner)

Design: [design]  
Foto/ill. omslagsside: [fotokreditt]

ISBN 978-82-12-03998-8 (pdf) 2

