

Strategic Plan 2019 - 2021

We protect life and property, with world-class services

We enable society
to address climate change

Our research transforms science into
world-class operational services

MET Norway is always available
to society when it is required



Norwegian
Meteorological
Institute

MET Norway has
smart value chains

MET Norway excels in distributing,
integrating and sharing data

Photo: Kerttu Isaksson

Photo: Anne-Grete Henriksen

Photo: Iis Straume

The Norwegian Meteorological Institute (MET Norway) monitors and forecasts the weather with a high degree of quality and regularity, and calculates present and future climate so that the government, the private sector, institutions, and the general public can protect life and property, plan for the future, and protect the environment. MET conducts research and development within all its subject areas, in order to provide world-class services.

The Purpose of the Strategic Plan

MET Norway's Strategic Plan will help its employees make the right decisions. The Plan will provide objectives and direction, while leaving considerable room to seize opportunities as they arise to take the initiative, introduce exciting projects, explore fields of expertise and to develop as a professional and an employee. We have based our Strategic Plan on the statutes, vision and guiding documents of our governing authorities, and made a thorough analysis of ourselves and our surroundings.

The Strategic Plan consists of five objectives, with a number of strategic actions in no order of priority. Measures arising from the Strategic Plan can be found in the plan of operations for each individual year.

Our Vision

We protect life and property, with world-class services.

Since the Institute was founded in 1866, its central goal has been to help protect life and property. This is a social responsibility with which the Institute's staff identifies strongly. MET Norway shall benefit Norwegian society, and provide optimal forecasts of the atmosphere, ocean and sea ice, as well as climate services.

Who is MET Norway?

Our combination of expertise in geoscience and IT is unique. Our corporate culture facilitates innovation, a good reputation and the ability to adopt enabling technologies. Research-based services and a short route from research to operations are among our main strengths. The forecasting service quickly implements results from new research and responds with valuable feedback to further advance the research. MET Norway has always been a user-oriented organisation. For instance, development of the observational basis is influenced both by the demands and requests of users in the general public, and by internal requirements from scientists and forecasters. The continuous connection between research, translation and services can be illustrated as demonstrated in Figure 1.

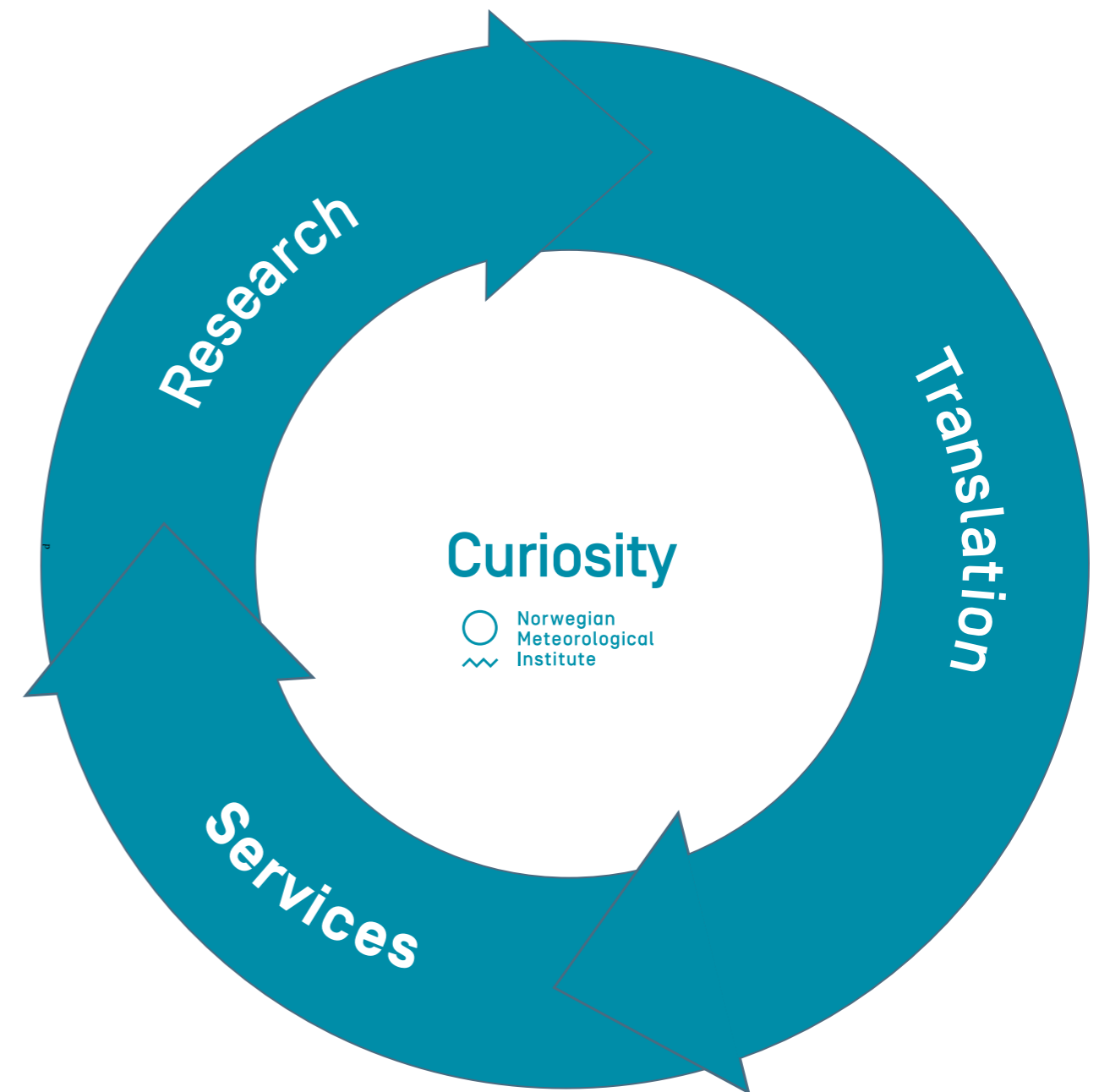


Figure 1. There is a continuous connection between research, translation and services. Based on a figure by Ole M. Sejersted, the Norwegian Academy of Science and Letters.

Our ability to share and cooperate is significant. MET Norway collaborates closely with other meteorological services, and with private and public actors. We collaborate on collecting observations, developing forecast models, on high-performance computing, national and international research projects, international development of forecast services, data management, as well as dissemination of the results. In areas where MET Norway is well-advanced, we gladly take a leading role. Research is, to a large extent, performed in national and international consortia, in which both research institutes, academia and (increasingly) private companies participate. Since government agencies – and their users – are essential recipients of our services, we work systematically to establish cooperation with public administration.

"Our way" has resulted in successful research projects, a good reputation and innovations of great public utility, such as the popular service Yr. "Our way" works as long as we stay curious, and keep pace with scientific and social trends and developments.

Value chains

The Strategic Plan supports the Institute's value chains. When data, products and services are produced, disseminated and understood, and have benefited consumers, this constitutes a value chain. To simplify the language used, we describe data, products and services collectively as "services" throughout the Strategic Plan.

A value chain is characterized by:

1. production consisting of many links, making up a chain;
2. the chain being no stronger than the weakest link;
3. the links of the chain being subject to independent development;
4. the development of each individual link providing the user with added value.

Our value chains range from observations to useful services. These contribute to the improvement and greater efficiency of public meteorological services, both nationally and internationally, placing great emphasis on the end user. Our research, development and innovation activities are primarily aimed at increasing the utility and value of the services. The services are research-driven, and evaluated based on quality, results and relevance. To strengthen the links of the chain, we collaborate with others and apply results from basic research and user feedback. Figure 2 shows an example of such a value chain.

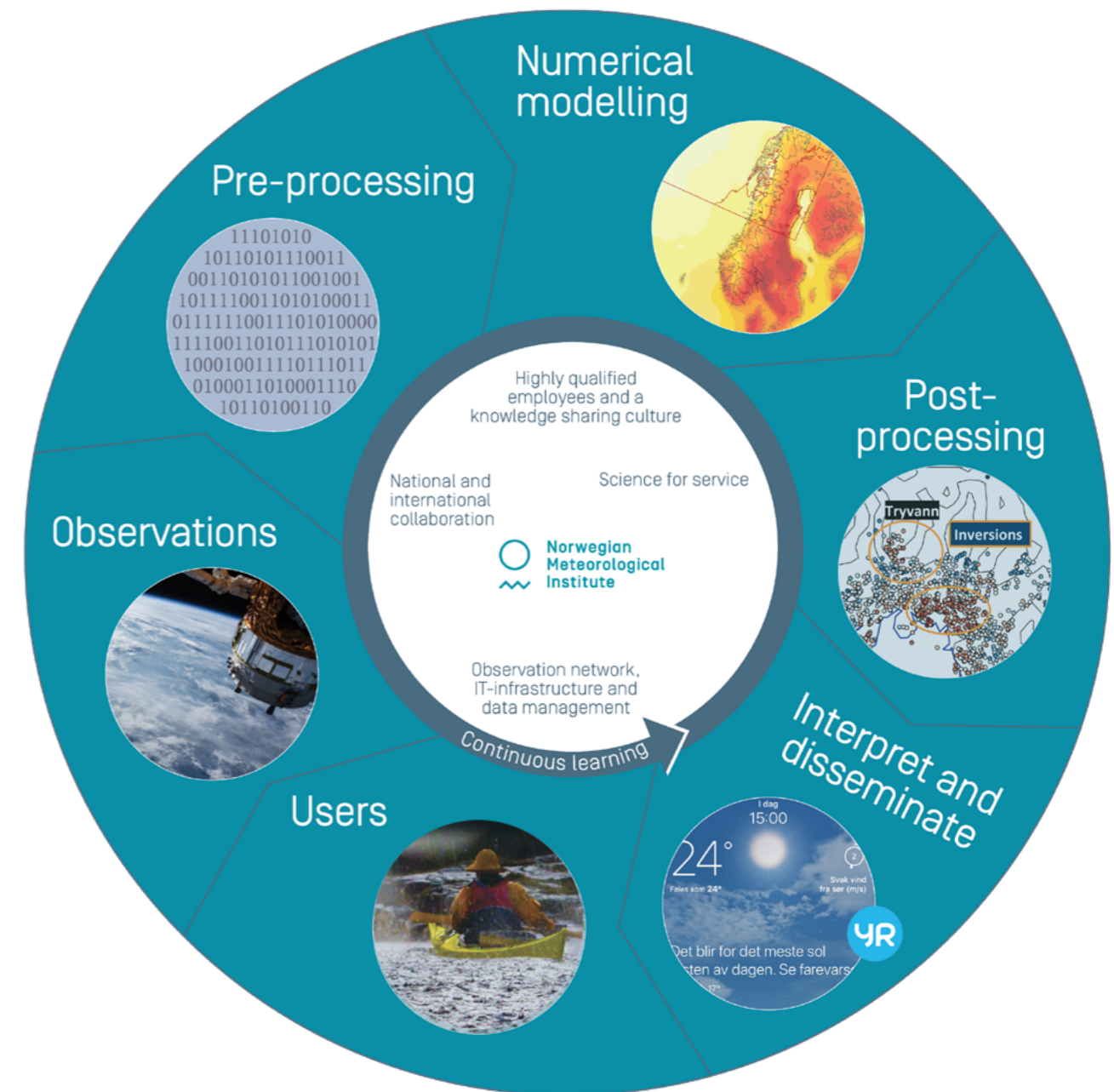


Figure 2. Illustration of the weather forecast value chain. Photos/figures by Øivinn Bruce, NASA, MET and NRK/MET.

Key trends

We choose to regard technological and professional developments and emerging social trends as opportunities. Examples of developments and trends that will affect us in the future include:

1. Private actors will enter into all parts of the value chain, and global companies will create complete value chains for weather forecasting. Organising collaboration with private actors will be a key issue in the world of meteorology. Within what is referred to as the Global Weather Enterprise, the meteorological institutes, private actors and academia, through collaboration and competition, will provide the most effective and useful weather forecasts globally.
2. The meteorological landscape will change as a result of the increasing availability of free data in Europe.
3. The amount of observations that can improve our services will greatly increase.
4. New technologies will drastically change the way we work, requiring new skills and enabling new meteorological services.
5. The calculation models will be used across scales of time and space, and different models covering the atmosphere, ocean, sea ice, waves and pollution will be interconnected.
6. Weather forecasts will be increasingly impact-based. Events involving severe weather and/or climate as one of several elements in a major crisis will receive greater attention.
7. Society will increasingly need to adapt to climate change, and there will be a greater need for solution-oriented climate services.
8. The interface between users and suppliers of weather and climate services will change. Users will expect personalized services with easy and reliable access.
9. The green shift will require new services and research projects.

Who does MET Norway want to be?

MET shall preserve and develop the business culture that has brought us where we are today. This entails trust-based management, providing a framework for opportunity and development for our employees. Our work day will consist of tasks that are challenging and of current interest, the exchange of information, and internal and external collaboration.

By 2021, MET Norway's value chains will be well-known among employees, and integrated in the way we work. Access to observations will have increased dramatically. We will have adopted new technology and advanced statistics to analyse observations and produce services. We will explore collaboration between academia and private and public actors, and be involved in projects emerging from this. The Institute will have come a long way in adopting impact-based severe warnings, and is in the process of using our experiences from this and reaping the benefits. We disseminate our products in a way that makes us a visible provider of personalized services.

We identify professional niches and collaborations that strengthen our competitive ability. The Arctic will be of great economic, political and professional significance in the future, and in 2021, the Institute will be well positioned for further developments. Our sharing culture, expertise and will to innovate make us an attractive partner. We have a prominent place in the formal structures of international cooperation, and we recruit skilled workers from all over the world. The organisation is restructuring-friendly, with the capacity to adopt new science. Beyond 2021, MET Norway will be known for its expertise in numerical modelling, and for its capabilities for developing and employing the model systems efficiently and seamlessly in reanalysis, weather forecasting, warnings, climate forecasting and climate projections. We will use the latest science within geophysics, technology, communication and service design. Our staff will have a high level of professional competence, and transforming research into operational services.



Strategy 1

Objective

MET Norway is always available to society when it is required.

User Experience

MET Norway is crucial for protection of life and property in Norway.

Targets 2021

MET provides standardised and impact-based warnings. MET participates in Norway's total defence concept and in Norway's civil protection, so that the quality of our comprehensive services is raised and has a defined level. Our flexible services within environmental preparedness and search and rescue are market-leading, and constantly available. We cultivate relations with our partners, to our mutual benefit in demanding situations.

Strategic actions

1. Developing impact-based, local warnings in collaboration with key partners.
2. Developing contingency models used in new ways within environment and security. Important new areas are radioactivity, plastic in the ocean and emission of toxic gases into the atmosphere.
3. Developing effective and more automated aviation forecasting services through the Northern Europe Aviation Weather Consortium.
4. Enabling personalized forecasts on severe or unusual weather.
5. Cooperating with actors within Norway's total defence concept and Norway's civil protection for efficient use of impact-based warnings.
6. Conducting regular reviews and ensuring accessibility at every turn, so that we can deliver when society needs our expertise and services.

Strategy 2

Objective

We enable society to address climate change.

User Experience

MET Norway is a source of knowledge about the climate.

Targets 2021

Seamless transition between weather and climate services on different time-scales will improve our ability to monitor, forecast and make projections of weather, ocean, climate and the environment. MET Norway will collaborate with professionals and users on integrated, user-friendly climate services. We will provide target groups with the breadth of our expertise and research on global and local scales. The mix of solid competence, quality data, good user dialogue and a robust operational environment will make us an attractive partner.

Strategic actions

1. Informing Norwegian society about future climate change and the decision-making basis for adapting to the climate, through the Norwegian Centre for Climate Services and the media.
2. A special focus on climate services and data distribution in the Arctic, through national and international cooperation.
3. Automating climate and weather services to make information available in users' working tools.
4. Improving and using the observational basis from original sites and remotely measuring sensors for climate monitoring.
5. Working towards seamless transition between reanalysis, weather forecasts, warnings, seasonal and climate forecasts and climate projections.
6. Building competence about the water cycle, as a key to detailed weather forecasting, climate predictions and long-distance transport of air pollution.
7. Providing the IPCC with Coupled Model Intercomparison Project (CMIP) model runs, with an emphasis on Arctic conditions. Focusing on the role of short-lived greenhouse gases and aerosols, among other things by quantifying climate sensitivity and developing parameterisations in the earth system model NorESM.
8. Contributing to the goals of the World Climate Research Programme, through empirical-statistical and dynamic downscaling.

Photo: Heidi Lippestad

Strategy 3

Objective

Our research transforms science into world-class operational services.

User Experience

MET Norway produces services for the future.

Targets 2021

MET Norway combines science and operational services through targeted research. The efforts within various research areas are governed by requirements from operational units, user needs and professional and technological possibilities. Coupled earth system models are established, together with effective methods for better use of current and new observations for initialisation and postprocessing. MET Norway focuses on partnerships and division of work with universities, leading academic communities and users, nationally and internationally. We are a leading research institution, transferring research results to operational services.

Strategic actions

1. Focusing on research projects located at the intersection between IT and geosciences.
2. Focusing on joint Earth system modelling for ocean and atmosphere, through:
 - a. [linked] data assimilation, including the use of new observations, and better utilisation of current observations;
 - b. physical links along the interfaces atmosphere-land-waves-sea ice-ocean;
 - c. ensemble forecasting and predictability;
 - d. exploring the potential of fine-scale modelling under one kilometre;
 - e. user-focused postprocessing and verification of forecasts;
 - f. establishing internal projects for positioning for external applications;
 - g. international workshops to advance projects.
3. Developing wave and current alerts for the coast and fjords, in response to an increasing need for detailed weather and ocean information from business and government agencies, such as Blue Growth and environmentally friendly ocean transport.
4. Developing and establishing the value chains for forecasting local air quality and road weather, by:
 - a. leveraging synergies internally, and with regional/global air quality modelling;
 - b. taking advantage of and developing hyperlocal postprocessed weather forecasts.
5. Strengthening international collaboration on numerical weather forecasts, through HIRLAM-ALADIN and NORDNWP.
6. Making MET Norway the hub of cryospheric information for Norway and the Arctic, by combining services for ice, snow and permafrost in a joint portal.
7. Highlighting the social benefits of our research, through research communication and Open Science.

Photo: Ketil Isaksen

Strategy 4

Objective

MET Norway has smart value chains.

User Experience

MET Norway is relevant and available.



Targets 2021

Our value chains emphasise the end users, and enable them to make smart choices. The value chains are directly linked to important national and international research and observation activities. A holistic and flexible IT architecture facilitates phasing out old solutions and making new services available. Resources are made available through automatic generation of products, robot technology for user dialogue, and increasingly automated monitoring of the atmosphere, oceans and sea ice. We direct the use of resources towards development, communication, and consultancy, as well as the possibility of exploring technology and service design. We face the challenges inherent in rapid technological development and changes in the competitive situation.

Strategic actions

1. Establishing projects for co-production with key partners, and strengthening our knowledge of social sciences and user insights in collaboration with relevant communities.
2. Strengthening communication across channels and subjects.
3. Developing a unified framework for quality control of observations based on machine learning and statistics.
4. Making data and products traceable from the moment these are collected until they are made available, by the help of metadata.
5. Establishing simple, standardized self-service solutions for internal communities that will develop new services.
6. Adopting a strategy for efficient use of internal and external resources related to the development and operation of computer systems.
7. Establishing and developing joint processes within architecture, development, operations, and management.
8. Enabling a high degree of automated processes, by continually improving our IT-delivery architecture, including establishing appropriate test environments.
9. Establishing effective digital collaborative solutions, and actively adopting governmental shared components.

Strategy 5

Objective

MET Norway excels in distributing, integrating and sharing data.

User Experience

MET Norway provides users with useful data in a suitable and timely manner.

Targets 2021

Our data are verifiable, socially beneficial, contributing to value creation and driving research. MET Norway accommodates increased reuse and pooling of data, also in new areas of use, through providing free, simple and quick access for scientists, businesses and society at large. MET Norway is a partner of choice for efficient and reliable availability, integration, and sharing of data. Integration of data is two-way, and we offer users services for conversion and processing.

Strategic actions

1. Establishing MET Norway as a centre for managing dynamic geodata, based on self-service solutions for depositing and accessing research data and metadata.
2. Establishing the same data access interface for internal and external users, and take advantage of internationally approved protocols.
3. Establishing joint solutions for processing existing and future data sources.
4. Enabling computer analysis and data extraction across data sources.
5. Establishing life-cycle management of data.
6. Establishing support for Digital Object Identifier on key data sets.
7. Being an active contributor in the work to develop international standards relevant to our areas of expertise.
8. Supporting national, regional and global strategies for data sharing and interaction between public data and research.



Photo: Bjarte Knudsen

The Norwegian Meteorological Institute 2018
Illustrations: Mai-Linn Finstad Svehagen
Layout: Magne Velle