



## Introduction

The photo below shows the staff of KNMI in October 1905 in front of what is currently KNMI's seismology building. The photo was taken at the same location as the photo of KNMI's research staff in October 2007, shown on the cover of this report. Sitting prominently in the middle with the white beard, is Dr. Maurits Snellen, leader of the Dutch polar expedition in 1882-83. The Polar Regions, which are particularly affected by the global warming that has induced a major part of KNMI's present research activities, form another connection between the two pictures. Both pictures depict staff members of KNMI who have then and now formed the knowledge basis of the institute. This has been the constant for more than 100 years, and we will also combine personal aspirations with the institute's goals in the future.

Although it is the scientists on the cover who carry out KNMI's research activities on weather, climate, seismology and observation technology, it is ultimately society that determines the subjects of their work. Society, the client of KNMI, is represented by the KNMI Program Board. The Program Board focuses on the outlines of the policy and implementation, as set down in the KNMI long-range and annual plans of services and research. The scientific level of KNMI is monitored and reported by the KNMI Council. The Council judges the nature, content and quality of the activities and products in relation to the actual state of science, on the basis of oral and written reports that are made available to the Council.

The change of the main structure of KNMI in 2006, as mentioned and rationalized in the Preface, has also lead to several substantial changes in the structure of KNMI's research. Firstly, the Weather Service Department has been extended with separate research and development divisions. The weather research acts as a knowledge base on the subject of weather, and as a source of innovation for the weather service products and processes. Innovation is implemented in operational practice by the development division. Secondly, the



*Staff of KNMI in 1905. In the middle with the white beard is Dr. Maurits Snellen, leader of the Dutch polar expedition in 1882-83. Next to him, with a hat in his hands, is Dr. Ewoud van Everdingen, Director General of KNMI in the period 1907-1938.*

research and development activities of the Information and Observation Services and Technology Department have been concentrated in a separate division. And thirdly, the former Climatological Services division and Climate Analysis divisions have been combined into a new Climate Services division.

The Climate Services Division has become the desk that transfers KNMI's knowledge on past, present and future climate to professional users and the general public by means of advice, information and representation in (inter) national networks. It closely cooperates with the divisions that are more focused on climate research by feeding on this research and tuning it to the demands of society.

An important product of KNMI's research are the climate scenarios for professional users and the general public, which are used to adequately and timely anticipate the risks and opportunities of climate change. Effort is made to improve compatibility with user requirements by scenarios tailored to the requirements of professional users. The climate scenarios are derived from an ensemble of state-of-the-art global and regional climate model projections (which were also used in the recent report of the Intergovernmental Panel on Climate Change) as well as the best available long-term climate observations. The climate scenarios are a cornerstone of our research and are also intended as an invitation to our customers and to society to enter into the knowledge of our climate system, the composite system consisting of the atmosphere, the oceans, the cryosphere, the lithosphere, and the biosphere. It is particularly this broad knowledge that KNMI strives to disseminate into society in order for us to be able to face our distant future with trust.

KNMI's research products, such as wind measurements derived from sea waves, and improved short-range predictions of thunderstorms, also aim at improving observations and predictions of the weather. The research on seismology is focused on seismic risk for both natural and induced events, on infrasound, and on activities related to the Comprehensive Nuclear-Test-Ban Treaty.

Over the last two years, and particularly in 2006, there has been much attention to weather and climate. One reason was a large number of weather records. In 2006 in The Netherlands, July, September, the autumn and the whole year were the warmest since the start of the measurements in 1706. August 2006 was the wettest of the last 100 years, and the ozone hole in 2006 was the largest ever measured. Also in 2006, Al Gore's documentary film "An Inconvenient Truth" was released, disseminating greater knowledge about man-made climate change. Global warming reached a high position on the political agenda in 2006, as reflected, for example, by the letter on this subject by Prime Ministers Balkenende and Blair to the leaders of the EU.

In 2005 and 2006 several KNMI scientists were recognised for their outstanding work. Iwan Holleman and Hans Beekhuis received the Väisälä Award from the World Meteorological Organisation, Albert Klein Tank was awarded the International Journal of Climatology Prize 2005, and the Ozone Monitoring Instrument team received the NASA GSFC Group Achievement Award.

This sixth Biennial Report presents 20 chapters on our research activities followed by overviews of publications per division. Here the old organizational structure has been applied. We hope that this gives a balanced and concise overview of our research activities in 2005 and 2006.

*Dr. Hein W. Haak*  
*Director*  
*Climate and Seismology Department*

*Dr. Remco Den Besten*  
*Director*  
*Weather Service Department*