

Annual Report 2023

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1 Introduction

1.1 Objective of NCR

NCR was founded as a formal cooperation between several Dutch institutions. On October 4, 2012, the partners of the 'Netherlands Centre for River studies' (NCR, Dutch: 'Nederlands Centrum voor Rivierkunde (NCR)') formally renewed their cooperation within NCR.

The objective of NCR is:

Doelstelling van het NCR is een samenwerking tot stand te brengen tussen de belangrijkste kennisgebruikers en kennisontwikkelaars in Nederland op het gebied van rivieren met als uiteindelijk resultaat een versterking van het kennispotentieel, de profilering van de (inter)nationale positie van het Nederlands rivieronderzoek en het versterken van het onderwijs en het wetenschappelijk onderzoek aan de Nederlandse Universiteiten ten behoeve van een betere inrichting en beheer van de Nederlandse rivieren.

This translates to:

The objective of the NCR is to establish cooperation between the major knowledge suppliers and knowledge users in Netherlands in the field of river studies, with the ultimate aim of reinforcing the knowledge potential, promoting the international position of Dutch river research and strengthen the education & scientific research at Dutch universities, to better design and manage Dutch rivers.

1.2 Domains

NCR encompasses all disciplines relevant to river studies as practices by its institutional partners. They include:

- Hydrodynamics
- Sediment transport and morphology
- Fluvial geomorphology and sedimentology
- River ecology, restoration and water quality

- Governance and spatial planning
- Modelling, serious gaming and digital twins

1.3 NCR Organisation

NCR has four main bodies. The mandates for all except Young NCR (YNCR) are documented in the "Overeenkomst Nederlands Centrum voor Rivierkunde 2012".

- **Programme Secretary (Dutch: Programmasecretaris)**
Safeguards the continuity of NCR activities, secretary to SB and PC; monitors of agreed actions by the SB and PC; reports of NCR finances; management of all NCR communications.
- **Supervisory Board (Dutch: Commissie van Toezicht)**
Supervises the implementation of the cooperation agreement, settles disputes and approves the scientific programme.
- **Program Committee (Dutch: Programmacommissie)**
Determines the scientific programme, stimulates and initiates proposals for activities and integration of knowledge, ideas, experiences and results.
- **Young NCR (Dutch: Jong NCR)**
Established in December 2020, YNCR strives to strengthen the network of young/early-career scientists within NCR.

1.4 Institutional partners

The partners of NCR are: Rijkswaterstaat (RWS), Universiteit Twente (UT), Radboud Universiteit Nijmegen (RUN), Deltares, Universiteit Utrecht (UU), Technische Universiteit (TUD), Wageningen University & Research (WUR), Leiden University Collega (LUC) and Vrije Universiteit Amsterdam (VU).

Each partner contributes in-kind and/or in-cash to realise the annual programme.

1.5 Accountability

NCR activities are annually documented in an annual programme, annual report and annual budget. The annual programme and budget are approved by the Supervisory board.

2 Boards

2.1 Board membership

NCR partners nominate members for the various boards. Multiple members are allowed per partner. The boards nominate their own chair. In 2023, the chairpersons are prof. dr. Jaap Kwadijk (Supervisory board), drs. Evelien van Eijsbergen (Programme committee) and Niek van der Sleen MSc (Young NCR). Additionally, YNCR accepts members from non-NCR partners.

2.2 Board meetings

The supervisory board meets at least once a year to approve the annual programme. The programme committee meets three times per year. The programme secretary takes minutes of these meetings. Young NCR meets monthly and is administered by the deputy programme secretary. Once a year a joint meeting of the boards is called during the NCR Days.

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Programme Secretary		
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<i>Vacant</i>	Vrije Universiteit Amsterdam	

3 Activities

3.1 Types of events event

3.1.1 NCR Days

The NCR DAYS is the annual meeting of the NCR network. It is a two-day conference organised by one of the partners. The organising partner is fully responsible for the organisation of the event. The programme secretary maintains an organiser toolkit to help with the planning and budgeting of this event.

3.1.2 Meetings

Meetings are planned, formal or informal meetings of the various boards of NCR. The programme committee meets approximately three times per year, the supervisory board once per year and the YNCR meets as often as they deem necessary. In addition, there is one joint meeting of all three board during the NCR Days.

3.1.3 Event

NCR organises various events. *Themedays* or seminars, which are single or half-day events focussed on a single topic or theme, e.g. "Remote sensing of rivers". Other events include field trips, excursions, networking events and workshops. NCR aims to offer all events except the NCR Days free-of-charge to participants.

3.2 Evaluation of 2023 activities

3.2.1 NCR Days

This year, the NCR DAYS were organised as an in-person only event by Radboud University Nijmegen. This edition was well attended, with over 100 participants and 53 abstracts. (Table 3.1), with 125 remote and in-person participants (93% in-person attendance). Table 3.1 also shows the amount of participants and abstracts of the previous years. It should be noted that there were already NCR DAYS before 2010 and that the NCR DAYS were skipped in 2016.

During evaluation, the venue (Lindenberg Cultuurhuis), proximity to the river, use of QR codes and excellent catering were named as a stand-out aspects. The location of the poster session (in the courtyard) was considered a great idea, but turned out to be a bit chilly. Additionally, the ratio of presentation by PhD researchers was named as a potential improvement for next year.

We look back to a great edition, and thank the LOC for

their efforts and hospitality.

Table 3.1: Participants of the NCR DAYS

Year	Abstracts	Presentations	Posters	Participants
2023	53	16	37	> 100
2022	61	20	41	116
2021	36	23	14	124
2020	54	27	27	110
2019	45	18	31	81
2018	60	28	32	125
2017	48	20	24	
2016				
2015	33	20	13	
2014	36	25	11	
2013	35			70
2012	32	18	10	60
2011	35			50
2010	35			68

3.2.2 NCR Themeday/seminar

This year one themeday was organised on September 13, 2023 at Rijkswaterstaat Westraven (Utrecht). The purpose of this themeday was bridging the gap between scientific research and policy: *Scientific research and practice can be perceived as two different worlds. However, both worlds deal with the same question: how to improve current river management. In the daily practice, the river managers encounters problems involving various research questions. Sometimes scientific research is needed to address the questions. How do we get this scientific knowledge implemented in practice and improve river management together? For this NCR Theme Day, we want to connect these two worlds and bridging the gap by use of the case: discharge distribution over bifurcation points in the Dutch Rhine branches.* The day was well attended: the maximum number of participants was reached. The day featured various presentations.

3.2.3 YNCR events

The social event was bowling after the NCR days. The number of participants was very low. For a next event during the NCR days, explicit communication with the LOC about the role of the NCR activity should take place. This time, it was also possible to chat with a drink afterwards, so there was no need to go bowling and have a chat there.

The annual field trip was a walking tour organized at the Pannerdensche Kop as part of the NCR Summer School 2023. Speakers were invited to give talks on the discharge and sediment partitioning at the Kop, on nature development in the Klompenerwaard and on the construction and functioning of the Regelwerk.

The social event on the 15th of September was canoeing on the Kromme Rijn. The event reached the anticipated number of attendees, and as a result the event was a successful social networking event.

The career event took place on the 3rd of November at the IHE in Delft. It was a panel discussion hosted by two YNCR members about multi-disciplinary research. Many of the participants were from IHE and IHE itself gave a lot of attention to this event.

The board members get-together was visited by most of the board members and was a suitable activity for the board to get to know each other better.

3.2.4 1st NCR Summerschool

In 2023, the first NCR Summerschool was organised by University of Twente from 10 July to 15 July. It was attended by 29 participants, of whom 8 were from abroad. Almost all attendants were PhD students.

The summerschool offered lectures, hands-on sessions and a field trip to Nijmegen and the Pannerdense Kop bifurcation. In addition to NCR partners, there were lecturers from consultancy (Wilfried

ten Brinke), Karlsruhe Institute of Technology (Mario Franca) and Vienna University of Technology (Koen Blanckaert).

The evaluation of the 1st summerschool was overwhelmingly positive. Some recommendations for organising a summerschool are making the summerschool more visible, get support from more sponsors and think about how to phrase the summerschool while advertising it, so people know what to expect.

During the 87th meeting of the PC, it was agreed to strive to hosting an NCR summerschool bi-annually (with next one in 2025). The go/no-go decision for the hosting second edition should ideally be in the first half of 2024.

3.2.5 Attendance

In total, NCR events (Table 3.2) drew between 200 and 300 participants. This is down from previous years, because fewer events were organised this year. However, many events, including the themeday and the 1st summerschool, reached their maximum capacity of participants.

Table 3.2: Approximate number of participants to other NCR events

Event	Total Participants
NCR DAYS 2023	100
YNCR social event (Bowling)	10
1st NCR Summerschool	29
YNCR Field Trip	29
Seminar 'Bridging the gap'	50
YNCR Social event (Canoeing)	25
YNCR Career event	20
Total	263

Table 3.3: Overview of NCR events in 2023

Event	Type	Description	Lead	Date
pc-86	Meeting	86th meeting of the Programme Committee	NCR	09/Mar/23
jm-14	Meeting	14th joint meeting of the NCR boards	NCR	12/Apr/23

sb-24	Meeting	24th meeting of the Supervisory board	NCR	12/Apr/23
YNCR social event	YNCR	Bowling after the NCR-DAYS	YNCR	13/Apr/23
1st NCR Summerschool	Summerschool		UT, NCR, YNCR	10-15/Jul/23
YNCR Field Trip	YNCR	Field trip during the 1st NCR Summerschool	YNCR	14/Jul/23
Seminar 'Bridging the gap'	Theme day	Discharge distribution on the Rhine Branches	Rijkswaterstaat, Deltares, University of Twente	13/Sep/23
YNCR Social event	YNCR	Canoeing on the Rijnstroom (Utrecht)	YNCR	15/Sep/23
pc-87	Meeting	87th meeting of the Programme Committee	NCR	13/Oct/23
YNCR Career event	YNCR	Panel discussion at IHE0	YNCR	03/Nov/23



1st NCR Summerschool



YNCR Panel Discussion "Challenges and opportunities in interdisciplinary river studies"



Themeday "Discharge Distribution of the Rhine branches"

Figure 3.1: Impression of NCR activities in 2023

4 Research

4.1 Projects

Research projects are scientific endeavors that may consist of work-packages, themes and sub-projects. Multiple researchers may work on the same research project. NCR does not initiate or lead its own research projects. Instead, research projects of NCR members are promoted through the services NCR offers (see [Secretary and Services](#)). Any research project relevant to NCR [Introduction](#). A list of ongoing NCR

projects is available on the [NCR Project portal](#)

4.2 Publications

Academic and non-academic publications by NCR partners are promoted through the NCR services (see [Secretary and Services](#)). Any publication written by at least one (co-)author with an affiliation at an NCR institutional partner is eligible. A list of promoted publications is available on the [NCR publications portal](#)

Project	Description	Main contact	Started
All-Risk	All-Risk aims at supporting the ambitious Dutch Flood Protection Programme (HWBP) objectives when it comes to implementing new flood safety norms, which as of January 2017 are incorporated in the Water Law. The programme consists of 14 PhD research positions, and 4 postdoc research positions. International collaboration with universities in Houston, Tokyo and Berlin will also take place.	Dr. V.J. Cortes Arevalo	2017
Rivers2Morrow	The Rivers2Morrow is a research project of 8 PhD research topics that investigate the consequences of climate change and large-scale human interventions on the river functions water safety, nature, and navigability, and what it takes to keep these manageable. It will increase the system knowledge of lowland rivers with respect to hydraulics, morphology, ecology and governance, with a focus on developments that take place on along temporal time scale until 2100 (and some beyond). In 2023, the program is extended with 3 new PhD topics and maybe more to come.	drs. Evelien van Eijsbergen	2018

SaltiSolutions	<p>Freshwater is vital for drinking water, nature, agriculture and industry. However, the availability of freshwater is under pressure in deltas throughout the world. Salty seawater is penetrating further up the rivers due to human intervention, such as the deepening of waterways, as equally climate change. Within SALTISolutions, the researchers, together with the partners involved such as Rijkswaterstaat, water boards, port authorities and dredging companies, will produce a virtual model (digital twin) of the Rhine-Meuse Delta. This model will integrate knowledge about processes on various spatial and time scales: from turbulent flows at the smallest scale level to the consequences of climate change in the long-term. They will use this to predict how, where, when, and how long salt from seawater will penetrate, and how measures such as implementing nature-based solutions influence the freshwater supply. These insights will be tested worldwide, as a result of which the position of Dutch delta technology will be further strengthened.</p>	Mw. J. Grootveld (program manager)	2021
Delta ENIGMA	<p>On 4 December 2023, the Delta ENIGMA project has successfully begun with its seven collaborating partners. The consortium is formed by Utrecht University, Delft University of Technology, University of Twente, Wageningen University and Research, NIOZ Royal Netherlands Institute for Sea Research, Deltares and TNO. Delta ENIGMA is a NWO funded Large Scale Research Infrastructure (LSRI) roadmap project that will be active for a decade, from 2023 to 2033. It is the Dutch contribution to the European DANUBIUS-RI initiative which aims at a comprehensive measurement, documentation and analysis of the (sediment, water, biological) connectivity in the river-estuary-coast continuum. The project aims to turn the Dutch delta into a world-leading 'supersite' for research on delta bio-geomorphology under climate change. This would bring bio geomorphology research in the Netherlands to the next level by establishing a unique infrastructure on how the physical processes (organisms, currents, waves, winds and sediment load) together shape the delta landscape, even during extreme events. More detailed information can be found on our website, https://delta-enigma.nl/.</p>	Dr. Smriti Dutta	2023

<p>NL2120</p>	<p>The NL2120 knowledge and innovation programme invests in research into nature-based solutions. The aim is to mitigate climate impacts, restore biodiversity while preserving production capacity and strengthening well-being. Within these projects, the parties involved learn about the operation of natural solutions, innovative revenue models and social transition processes. The integrated approach makes the proposal unique. By combining knowledge development and practical experience, NL2120 integrates, deepens and enriches existing knowledge. The overall project has started, but PhD's are expected to start in 2024.</p>	<p>Dr. Bregje van Wesenbeeck</p>	<p>2024</p>
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5 Secretary and Services

5.1 Overview

To support river studies, NCR offers services to its institutional partners. These services are coordinated by the Programme Secretary. All services are offered free of charge. These include

- **Website & Knowledge base.** Partners may use the NCR website to host a project website and promote their publications.
- **Mailing list & LinkedIn** Partners may distribute information, vacancies and news through the NCR mailing list and LinkedIn company page. Research projects may use the mailing list to send out newsletters to the network.
- **Vimeo** NCR offers hosting of videos on the NCR vimeo account

5.2 Activities in 2023

5.2.1 New collaboration agreement

The draft collaboration agreement has been updated to version 0.5 and is currently submitted for review to the legal department of Deltares.

5.2.2 Mailing list provider

This year we planned to phase out MailChimp in favour of Brevo (formerly SendInBlue). Deltares has now switched to Brevo as default service provider for newsletters. As a result, NCR will switch to the enterprise license of Deltares. This will hopefully be complete in the first half of 2024.

5.3 Network analyses 2023

5.3.1 Mailinglist

Subscriptions to the mailinglist have slightly increased from 484 in January 2023 to 511 in December 2023 (Fig. 5.1). This is a reversal of the downward trend of 2022.

About half (254) of subscribers are affiliated with NCR partners. Of those not affiliated with NCR partners, most are affiliated with a consultancy (54), academic or knowledge institute (39) or government (30). A majority of subscribers are affiliated with a Dutch company or institute (65%).

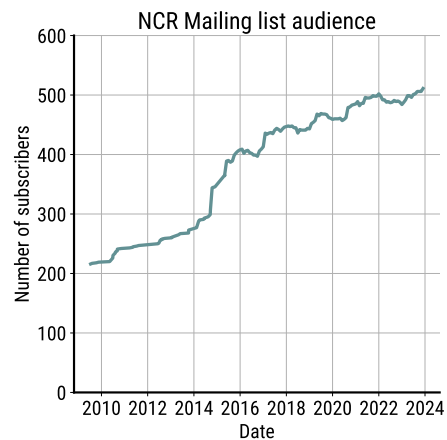


Figure 5.1: Number of subscribers to the NCR mailing list

5.3.2 Website

Website usage is tracked through the '7 day active users' metric. This metric tracks the number of active users on the website over a 7-day moving window (Fig. 5.2). The website shows an increase in average users from 113 in 2020, 136 in 2021 to 162 in 2022. However, 2023 has a lower average with 122 7-day active users. This is in line with earlier experience that website activity is mainly driven by events. Most events took place in the first half of the year.

5.3.3 Knowledge base

In 2021, the new knowledge base was launched, which added two new portals to the NCR website. The [publications portal](#), and the [projects portal](#). The portals are integrated with the subsites, such that publications and subprojects added to subsites are shown on the main NCR website.

In 2023, no new subsite were added. In total, there are now four subsites (RiverCare, All-Risk, SaltiSolutions, Rivers2Morrow)

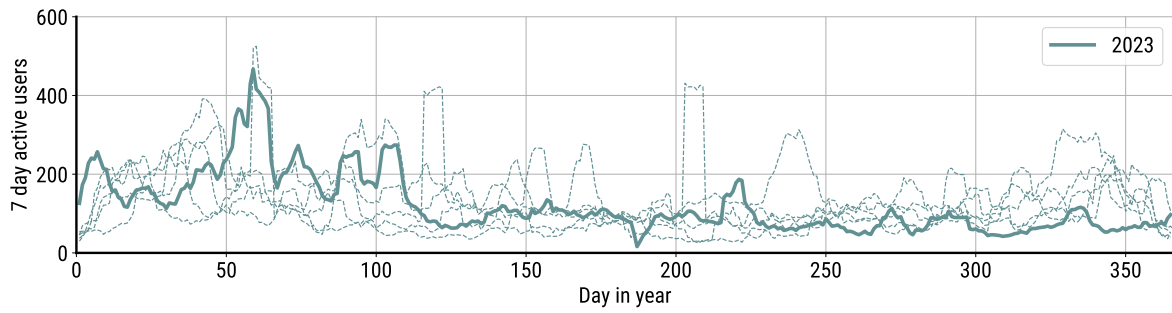


Figure 5.2: 7-day active users of ncr-web.org

5.3.4 Social media

The NCR LinkedIn company page had 616 followers at the end of 2023, which is an increase from 2022 (483 followers) and 2021 (292 followers). Most work in Research (17%), Education (17%) or Engineering (12%).

The NCR Vimeo channel ([link](#)) contains 76 videos. Over 2023, all videos gathered about 69 views and 9560 impressions. No new videos were added in 2023, which explains the low engagement on this platform.