»With the IFHS Student Award we have a true world championship«

*An academic discussion with ROB VAN REE**

Rob van Ree works as a senior lecturer at the Maritime Institute Willem Barentsz (MIWB) on Terschelling, where he is in charge of the hydrography course. In addition to this full-time job he is chairman of the International Federation of Hydrographic Societies. Of course, the Dutchman is an active member of the Hydrographic Society Benelux (HSB), but surprisingly he is also a member of the German Hydrographic Society (DHyG). He is well-known for his interesting comments and questions at conferences after each and every presentation. No wonder he comes up with inspiring and incisive answers in this interview.

Maritime Institute Willem Barentsz | hydography course | education | Category A | IFHS | HSB

* The interview with Rob van Ree was held by Lars Schiller in June 2015 by e-mail

HN: Mr van Ree, you are working at the Maritime Institute Willem Barentsz (MIWB) on Terschelling. Barentsz was a Dutch cartographer, navigator and explorer who was born on Terschelling. What value does studying at an institute named after such a notable cartographer hold for your students?

Rob van Ree: In primary school Dutch children learn about »Behouden huys« which was the cottage in the ice of Nova Zembla, where Willem Barentsz and his group were shipwrecked in their attempt to find a Northeasterly passage to the Far East. This was in the year 1597. In the Institute garden a number of glass panes show the infamous journey, so from day 1 of their MIWB experience, students are aware of their ultimate peer. Or else they should be.

HN: The hydrography course is called »Ocean Technology«. Why is hydrography not explicitly mentioned?

van Ree: This has some history. The course dates back to 1979, when the first students entered the nautical college in Amsterdam for their four year training course Hydrography. The name remained when in 2002 the course (including second year students and lecturer) moved from Amsterdam to Terschelling. In the first few years it proved rather difficult to attract sufficient students to cover the needs of the professional field. The MIWB management decided hydrography didn't stand out for youngsters to lure them into the amphibious world that is usually covered. Although the professional name »hydrographic surveyor« remained recognised at the graduation end, a new course name was defined to attract more youngsters. Numbers are too small for significance to verify this actually was caused by the name change, but 2015/16 will be the first course year to have more than 20 students in each year.

> *»To attract young people for a hydrography course we spent a lot of effort into finding the right balance between marketing investment and number of freshmen«*
>
> Rob van Ree

HN: You offer a four-year bachelor course of study which is certified according to Category A. What are the prerequisites for the course? What previous knowledge is necessary?

van Ree: In the Netherlands Ocean Technology is a »Hogere beroepsopleiding« (HBO; higher professional education). The program is designed for a starting level of at least HAVO (comparable to the German »Fachabitur«, which in itself is insufficient to enter any academic course), with a minimum of math and physics. Apart from a general feeling for working at sea, no further entry requirements are defined.

My suggestion would be that students to enter have a good spatial insight to think through geodetic and geospatial situations. There is no entry test required.

HN: In Hamburg, the hydrography course is strongly connected to geomatics/geodesy. A basic knowledge in surveying is essential. How is that organised in Terschelling? How do you ensure this basic knowledge?

van Ree: During the first (propaedeutic) year many geodetic exercises are practiced and students take a module Geodesy in which the basics of land surveying and coordinates are taught. In other years students get involved in setting up GNSS reference stations, vessel geometry and other procedures where land surveying techniques are used in their hydrographic applications.

HN: For those graduates who would like to continue to study for a Masters degree, what opportunities are there?

van Ree: At present, in the Netherlands there is no hydrographic Masters degree program, so when students elect to continue studying they are looking at Oceanography in Utrecht or Geodesy in Delft. Several students have obtained their Masters degree at the University of New Brunswick. At this point we at MIWB are discussing with the professional field the possible requirement for a Masters degree Hydrography. With a positive outcome the MIWB management is looking at extending the

current Master of Marine Shipping Innovations with a Hydrographic version.

HN: What about PhD programs in the field of hydrography?

van Ree: That would be the next question to ask. Generally this route will be highly personalised. I am member of a commission considering possible PhD subjects in the field of Marine Geodesy, which in case of a serious proposal also looks for the required funding, including government grants.

HN: What are your experiences with teaching exclusively in English?

van Ree: If you mean my personal experience, there has been a fair number of short courses which I presented in English. I don't have any problems in that respect as I have lived in the UK for three years. When teaching a normal group of students they almost always are native Dutch speaking, so then the spoken English will be limited. Usually the English terms for specific professional aspects, such as equipment and procedures are explained. Most literature and study materials are in English. Usually students develop the English sufficiently to find their way in the international hydrographic community.

HN: How many freshmen enroll on average?

van Ree: The last three years about 25. This will be the same for the year starting 1st September.

HN: How do you manage to attract so many young people for a hydrography course?

van Ree: The main selection principle for youngsters is to visit exhibitions where courses are on display. To help make their choice students to be (and their parents) use specific documentation, such as »Studiekeuzegids HBO«. This guide is prepared annually based on the »Nationale Studenten Enquête«, in which all students of all Dutch HBO courses (many hundreds) are asked to complete an extensive questionnaire. And fortunately, Ocean Technology students for the largest part are very positive towards the many aspects that they are asked to judge. So the course comes out very positively in the guide. Nevertheless, a lot of effort was spent into finding the right balance between marketing investment and number of freshmen.

HN: Is it true that the students wear a uniform?

van Ree: The remote location on the island of Terschelling, with approximately 5000 inhabitants, offers insufficient options to privately rent a living space for students. So first and second year MIWB students live in a campus facility at half a kilometre from the school premises. To simulate the hierarchy of on-board relations, in particular the nautical students were in the habit of wearing uniforms. This tradition was carried forward to the Ocean Technology students when they joined MIWB in 2002. Students are very much at ease with this set-up.

HN: What software is available for teaching? What equipment?

van Ree: In general, our philosophy is to ensure that students of the initial course program will have a chance to compare any brand specific products with those of competitors. So as we regularly use QPS' QINSy, Fledermaus, Qimera, we also deploy Teledyne Reson's PDS2000, while looking for opportunities to use other survey and/or processing

Foto: (M) Klindt

Published up to now:

Horst Hecht *(HN 82)*,
Holger Klindt *(HN 83)*,
Joachim Behrens *(HN 84)*,
Bernd Jeuken *(HN 85)*,
Hans Werner Schenke *(HN 86)*,
Wilhelm Weinrebe *(HN 87)*,
William Heaps *(HN 88)*,
Christian Maushake *(HN 89)*,
Monika Breuch-Moritz *(HN 90)*,
Dietmar Grünreich *(HN 91)*,
Peter Gimpel *(HN 92)*,
Jörg Schimmler *(HN 93)*,
Delf Egge *(HN 94)*,
Gunther Braun *(HN 95)*,
Siegfried Fahrentholz *(HN 96)*,
Gunther Braun, Delf Egge, Ingo Harre, Horst Hecht, Wolfram Kirchner and Hans-Friedrich Neumann *(HN 97)*,
Werner and Andres Nicola *(HN 98)*,
Sören Themann *(HN 99)*,
Peter Ehlers *(HN 100)*

software. MIWB has an academic license for using Caris HIPS and SIPS and other packages.

Equipment consists of a fair number of land surveying tools – two total stations, two theodolites, levelling instruments – the auxiliary equipment on board, gyro, motion sensors of various manufacturers, GPS receivers, including Trimble and RTK, stressing the relationship with Geometius.

Primary hydrographic equipment available to the students and operated on board either the training vessel »Octans« or the two smaller craft, are single-beam dual-frequency echo sounders and side-scan sonar. An ADCP and sound velocity probes are also available. One type of system which isn't available is a sub-bottom profiler. Also we are looking for some shallow seismic system like a boomer, a sparker or similar.

The Acoustic System Trainer is used to illustrate and practice acoustic theory. In the Marine Simulator Training Centre at the MIWB a full vessel simulator is used to train students in surveying with dredging operations.

Although we did own a Kongsberg EM950 and a Reson Seabat 9001, these multibeam systems were too old and have been dismantled. Instead of owning such very expensive multibeam systems we borrow or cheaply rent the latest versions of Kongsberg or Teledyne Reson or R2Sonic shallow water systems. A similar thing goes for students using USB. In close cooperation with these and similar companies we have an agreement with QPS and Caris that the Ocean Technology students complete a full survey on several occasions.

Last but not least we have three small ROVs available, which will be used to study the surface behaviour of oil slicks skimming along the edge of drying out shoals in the sensitive Waddenzee area. While it will be difficult to obtain permission to produce our own oil slick, the properties of such oil in sea water can be looked at in an aquarium.

»There is more time available in the course program, than strictly needed to address each Standards of Competence item. The extra time is spent mainly on the nautical chapter and safety«

Rob van Ree

HN: Are your graduates ready to practice hydrography, or is the course more theoretical? How much practical experience do the students get in the four years?

van Ree: Throughout the four course years the body of knowledge and skills is balanced. During normal periods at school, students are involved in practical work for at least one day per week. On these days the content is determined by the exercises listed in the IHO documentation. Recent operating practices are brought into the program by a part-time trainer/coach, freelancer, who is involved in the commercial world as well. At the end of the first and second year students have three dedicated weeks to survey parts of the Waddenzee and Terschelling harbour.

Two external periods are included in the program. During the first half of the third year each student takes on his/her 100 day apprenticeship, aimed at getting the look and feel of hydrographic operations. They are asked to look at as many activities as possible by shifting between project functions. Reporting to the MIWB focuses on three items of choice listed in the IHO Standards of Competence, illustrated by the realisation of survey work on the project.

During the second half of the fourth year the student works on his/her graduation thesis, based on an assignment provided by a company of the student's choice. This work has to show a scientific approach of sufficient strength and proper hypotheses analysis, compiled in a professional report.

In between these external periods three events require the application of knowledge and skills, including the full survey project cycle, from tender to presentation of results (and recommendations). First there is one week of surveying of a couple of wrecks with side-scan sonar and multibeam echo sounder (state-of-the-art system made available by Kongsberg), with emphasis on planning (survey method statement), mobilisation, calibration, data acquisition, processing and reporting. At the end of the third year the student group is invited by Caris to engage in a one week ›cradle-to-chart‹ survey of one of the fresh water lakes in the Randstad area, by way of a summer camp. And in the first half of the fourth year the students are working on a research complex addressing the many aspects of an oil spill between the islands.

HN: Do you follow the Standards of Competence strictly? Do you offer teaching content in addition to the IHO requirements?

van Ree: The IHO Standards of Competence provide a very useful guidance for the course program and therefore they are followed as close as possible. In general, there is more time available in the course program, than strictly needed to address each Standards of Competence item. The extra time is spent mainly on the nautical chapter and safety, while also there is space for extensive treatment of all aspects of multibeam surveying, building a multibeam simulator, ellipsoid referenced surveying, remote sensing from the user viewpoint.

HN: This year, the recertification of the course is on the agenda, isn't it? Will this lead to any changes?

van Ree: Indeed, the Ocean Technology course aims at being recognised as IHO/FIG/ICA Cat A hydrography training program. Since 1983 this was actually the case continuously. However, based on the documentation provided the International Board of Standards of Competence (IBSC) was reluctant to recertify the program as several aspects were not satisfactorily described in the documentation. The course management is invited to resubmit the documentation for recertification in spring of 2016. In the mean time the IBSC has been

invited to visit the course on Terschelling in order to optimise the mutual understanding of all issues involved.

As it is, the course management is satisfied that the course program has evolved to a mature state of high quality, with effective quality assurance in place at various scales. Other than gradually including the latest operational and scientific developments and innovations, there is no reason to consider any major reordering of the current program.

HN: Do you know where your graduates have gone on to work ?

van Ree: Generally, graduates are employed by the Dutch companies with a hydrographic function. The dredging industry takes up the largest number, about half, followed by survey companies and government (Rijkswaterstaat).

Students are enrolled as member of Hydrographic Society Benelux (HSB) as soon as they enter the course, so there is a natural flow of young graduates into the membership. Students benefit from their membership by receiving the associated magazine and visiting HSB workshops, as well as being subsidised to attend an international conference or trade show somewhere in Europe. Thus they are challenged to start their relational network and develop contacts for apprenticeship, graduation assignment and their first employment once they graduate.

HN: Skilltrade offers a Cat B course. Is this a competitor, or is their course intended for another target group?

van Ree: Skilltrade provides training for survey personnel on a commercial basis, so there is a principal difference, which is never felt as competition. Furthermore, there is a fairly close relationship between Ocean Technology and Skilltrade, whereby plans for the next years are discussed openly with a mutual interest of providing knowledgeable and skilled hydrographic surveyors. There is also some exchange of lecturers and study materials.

»To me it is a natural thing for the professional discipline of hydrography with its international orientation to have an international body to stimulate, create and maintain the exchange of best practices«

Rob van Ree

HN: Are there sponsors, without whom your course wouldn't take place at its current standard?

van Ree: Formally, HBO level courses initiated and recognised by the Ministry of Education, should not be dependent on external financing. Still the fit between training program content – students' knowledge, skills, attitude – and requirements by

the professional field needs continuous attention. Exchanges with companies are plentiful. It may take a form like a company offering equipment of a previous generation, software licenses, friendly rates or financing expensive simulator hardware. Indeed you can say that a lot of the operational character of the course environment is made possible by the good working relationship with the professional field.

HN: Let's talk about you: What is a senior lecturer? Is it comparable to a professor in Germany?
van Ree: My function is best described by ›senior lecturer‹. I am heading the Ocean Technology team and have been teaching since 1994. In the Netherlands professor is an academic title.
HN: What does ›ir‹ stand for? Is it a kind of engineer?
van Ree: ›ir‹ stands for Dutch ingenieur, equal to MSc. The title is given to most graduates at each of the three Technical Universities in the Netherlands (Delft, Eindhoven and Twente). I have graduated at Delft University studying physical/mathematical geodesy.
HN: Which were the main positions in your life (in training and career)?
van Ree: I studied four years Physical Geography in Amsterdam, followed by 18 months Royal Netherlands Navy as navigation officer and the Hydrography course (BSc) in Amsterdam. Upon graduation I was employed by Shell International as an expatriate, stationed in London (1984–87). Back in Holland I combined a function as positioning specialist at Delft Geophysical and the Geodesy study mentioned above. In 1992 I worked for Oceonics Intersite in Haarlem as reporting surveyor, party chief, survey manager and quality manager. In 1994 I also started as part-time lecturer at the Hydrography course, which became my full job in 1999. After Oceonics Intersite was dismantled I worked as a part-time consultant for Rijkswaterstaat and as researcher at the Royal Navy training institute KIM in Den Helder.

»The IHO governs the legal obligation of countries to chart their coastal seas, the FIG deals with the scientific aspects of hydrography. Let the IFHS represent the free market and commercial aspects of international contracts«

Rob van Ree

HN: You are committed – presumably for years – to the Hydrographic Society Benelux (HSB) and the International Federation of Hydrographic Societies (IFHS). Moreover, you are IFHS chairman since last year. What is the motivating force for your extensive voluntary work?
van Ree: Since 1996 I have been board member as honorary treasurer of HSB and in 2004 I became one of the directors of the IFHS. Last November I succeeded DHyG chairman Holger Klindt in the chair of IFHS.

My motivation for continued activities in this role is clear: the position provides me with an optimal chance to connect students with corporate members (companies) and/or individuals with specific experience: the simplest way to jump start students in their relational network.
HN: The IFHS has had a lot of success with the Hydro conferences, however the *Hydrographic Journal* was discontinued, and there is not yet a second issue of the *IFHS News*. It seems that there are plenty of obstacles to be overcome – what do you see as the key challenges for IFHS in the future?
van Ree: The *Hydrographic Journal* didn't survive the transition into a high quality e-magazine. As I see it, the main reason was that all those involved, but one, did so as volunteers: with much dedication but unavoidably with full primary jobs as well. While the transition slowly progressed in the years 2004 to 2007, the paper version of the *Hydrographic Journal* was still published twice annually. However, the precarious balance of obtaining sufficient peer reviewed articles on highly interesting topics and the necessary advertisement revenues was disturbed in the transition process.
HN: Why is it not possible to get something off the ground?
van Ree: In the rapidly changing publishing world, with its continuous battle between print and screen, news items and in-depth articles, the second best option was chosen: to design a newsletter with contributions from all national societies joined under the IFHS umbrella. The first issue of *IFHS News* was presented at the beginning of 2014, already delayed by a number of months in relation to its intended publication date.

Two main reasons come to mind when trying to identify causes for the IFHS being unable to effectively produce a newsletter twice yearly as yet. One: the commitment by regional societies to produce the necessary content failed. In the planning phase the member societies agreed to forward their news items and one in-depth article well in advance of the publication date. It is a difficult and tedious job to keep asking regional societies for newsletter content. Two: while the layout had been agreed, the editorial effort from one issue to the next becomes much simpler. However, currently two people are strongly involved. I would like to see just one person in charge here.
HN: Is a holding corporation like IFHS still the right approach? What do you think about the international way forward?
van Ree: When we decided to scale down The Hydrographic Society with a central coordinating function into the IFHS with a much leaner objective, the common sense of having an international community was never an issue, just a natural thing to do. The aim was – and still is – to associate as many regional societies as possible,

if not all … However, money was in the way. With the still relatively high annual budget it was no longer evident that every regional society was willing to pay the centrally agreed membership fees. Two main regional societies decided not to join IFHS, the United States and Canada. In the board we tried to reduce costs and subsequently the fees, but until today didn't manage to arrive at a fee low enough to lure THSoA and CHA into joining.

To me it is a natural thing for the professional discipline of hydrography with its international orientation to have an international body to stimulate, create and maintain the exchange of best practices. The IHO governs the legal obligation of countries to chart their coastal seas, the FIG (commission 4) deals with the scientific aspects of hydrography and its ties with marine geodesy, oceanography and perhaps geophysics. Let the IFHS represent the free market and commercial aspects of international contracts. Indeed Memoranda of Understanding have been signed between the three organisations.

Free enterprise would also include the awareness that ideally hydrographic professionals should have free access to every piece of shoreline worldwide. And as he/she is nearly always at work under some contractual agreement, the open exchange between countries of people, job opportunities and employment is cherished. Also the exchange of knowledge and best practices is part of the IFHS mission. This is especially visible in the long tradition of organising the Hydro conferences. As you know this year's edition will be in Cape Town, November 23–25, and next year the conference will return to Germany!

For the first time at Hydro14 in Aberdeen, but hopefully rapidly becoming a tradition, we now have a true world championship. It is about writing graduation theses. In a stepped election, IFHS member societies arrange a contest to appoint their annual winner. The winners partake in the international election, so there will be an international best graduate. This champion is invited to the next Hydro conference for the presentation of his/her results. The first winner, so champion of 2014, was Oliver Kümpel from Germany (see HN 99, p. 42).

The scope of the international cooperation is mainly to have a platform where regional societies as IFHS members, each represented by one so-called director, meet on a regular basis. This space allows me to invite groups of hydrographic surveyors to define some way of national affiliation and subsequently join the IFHS. Recently Italy and South Korea entered the IFHS, France has expressed its desire to do so.

HN: With the common events in Papenburg and on Terschelling we have seen that international cooperation can be successful on a small scale. The success inspires more bilateral activities, this is at least the opinion of the DHyG board. Do you share this view?

van Ree: Of course, it was a great pleasure to be part of both events. The visit to Meyer's Werft in Papenburg was impressive. And the Waddenzee symposium at Terschelling again was highly successful. The Hydro conferences are also successful, attended by delegates from many countries. So a scope exists for events of both scales. By all means let us continue with this idea!

»The exchange of knowledge and best practices is part of the IFHS mission. This is especially visible in the long tradition of organising the Hydro conferences«

Rob van Ree

HN: The HSB offers an incredible amount of seminars with a lot of response. Unfortunately, not everything is on the web site. How do you manage to motivate lecturers as well as the audience?

van Ree: The only reason for not having everything on the web site is the nature of the material, which on occasion is left out for commercial purposes.

I never found it difficult to invite someone for a presentation of a part of his/her expertise. All that's needed is some sort of a theme. And so far we never forgot to invite our members …

HN: How important is Luxemburg within the HSB?

van Ree: Good question! In fact I've never been able to ask them …

HN: You are a HSB member as well as a DHyG member. When you compare the societies: What could DHyG learn from HSB? And what could HSB copy from DHyG?

van Ree: I don't know if we need to particularly learn from each other. What makes success in this matter, is that members feel satisfied by the exchange of knowledge and companionship. In the Benelux it is possible to have six or seven events of a few hours duration as distances are small. In the German situation distances are too large for that scheme, so the multi-day Hydrographentage are held instead.

HN: What would you like to do better?

van Ree: My challenge during this chairmanship is to get at least three more regional societies under the IFHS umbrella. We have invested in the *IFHS News*, let's get it to work. Let's team up and find our international way ahead! All it needs is a good humoured and inspired common view.

HN: What do you know without being able to prove it?

van Ree: All but a few shorelines worldwide are interconnected by the secretive and intriguing underwater world of which we still know so little. As humanity is expanding, it will do so by deploying more and more of the oceans for energy and food. The hydrographic profession will remain in a most useful position to guide the way. ⚓