

New build RV Anna Weber-van Bosse



Progress report #3: May 2023

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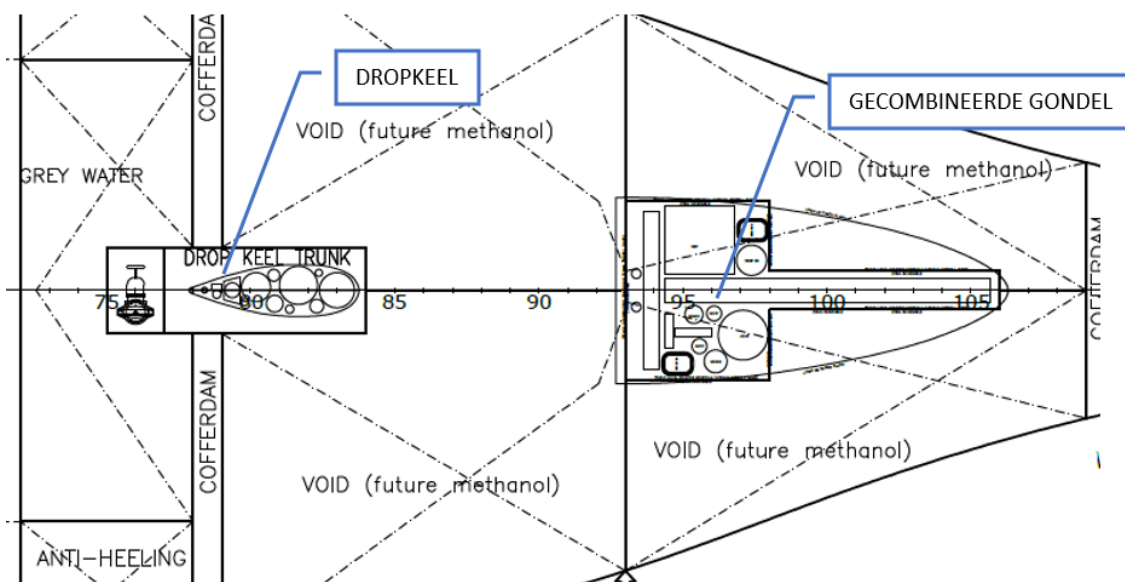


INTRODUCTION

When it is complete, the RV Anna Weber-van Bosse will serve as the ocean-going research vessel for the Netherlands' national research fleet. The fleet is owned and operated by the National Marine Facilities (NMF), a department of the Royal Netherlands Institute for Sea Research (NIOZ). The NMF fleet consists of three vessels capable of conducting research from the shallow coastal waters out into the open ocean.

As we explained in last month's progress report, each month we will explain part of the vessel's technical components until construction actually begins on the vessel. Last month we briefly summarised the equipment for the various scientific activities that can be conducted on the work deck. This month we will offer a short explanation of the acoustic sensors installed in the vessel for research purposes.

Some of the acoustic instruments will be installed in the drop keel, and some will be built in to the forwards gondola. The retractable drop keel can be lowered up to 3 meters below the vessel, so that the sensors installed there will not be disrupted by any air bubbles moving under the hull. The forward gondola will have a ridge that directs any air bubbles to the side away from the sensors. The sensors installed in the drop keel and the gondola will be integrated into the vessel's network, and the data produced will be read in real-time at several positions aboard the vessel.



Multibeam:

The two on-board multibeam systems will be installed in the central gondola.

The first multibeam system is mainly suitable for shallower waters, and can be used charting the continental plate (the 'shelf seas' near the coast) and the shallows of the continental shelf. This will mainly involve bathymetry soundings, but also water column reflections to observe floating particles and plankton.

The second, deep water system will be used for charting the sea floor from the deeper parts of the continental shelf to the mid-ocean ridges and the open ocean. The two systems differ in the angle of the opening of the sensors and their frequency range, and both systems will be tuned to minimise the likelihood of intensive sonar pulses harming any sea mammals in the vicinity.

Deep water echo sounder:

A single beam echo sounder will be installed to determine the depth of the water from the continental plate to the deepest parts of the open ocean, including the deepest trenches (full ocean depth).

Bottom penetrating echo sounder:

A parametric echo sounder will also be installed to conduct exploratory geological research. This sounder will be able to map the sedimentary layers dozens, or sometimes hundreds of meters below the seabed. This sensor is the next generation of the 3.5 kHz seismic sounder aboard the Pelagia, and will be able to measure across the full depth of our research area, from the continental plate to the deepest oceans.

Acoustic Doppler Current Profilers (ADCP's):

A total of four Acoustic Doppler Current Profilers will be installed on board to measure the speed of the current flowing beneath the vessel, and the density of particles in the water column. Each of the ADCPs will be suitable for monitoring a different section of the water column, each using a specific frequency.

Scientific echo sounder for water column observations:

To observe small particles (including plankton) and larger objects (fish, gas bubbles, etc.) in the water column, a broadband multi-frequency scientific split beam echo sounder will also be installed on board.



A LOOK BACK AT THE PROGRESS SO FAR

The shipyard seems to be catching up on the engineering work and the major procurements. A group from the management team recently visited the shipyard for the regularly scheduled meeting. At the last meeting, the two groups talked at length about the mechanical engineering installations that will be installed onboard, as well as the engineering schematics. The shipyard is on track to begin construction on schedule, and only some fine-tuning needs to be done. Several blueprints have already been sent to the vessel's classification society Bureau Veritas.

The yard has taken the first steps in designing the on-board network structure, which will be vital for handling the massive streams of data onboard a research vessel. NIOZ ICT and the scientific community will have an opportunity to cast a critical eye on the network plans in an early phase of the work.

As we strive to make the vessel as climate-neutral as possible, as quickly as possible, the contact group discussed the options for preparing the vessel to run on methanol as early as the construction phase. As an alternative option, we are also examining whether a number of class notations can be added pertaining to a future upgrade to methanol propulsion. The shipyard is studying these options as we speak. Such an upgrade will initially require a HAZID study to clarify which impact it will have on the construction.



Site team: L. Boom, J. Hoogerhuis, P. Bakker and M. van Os Shipyard management: J. Paz and S. Martin Garcia

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PROGRESS

As we explained above, the shipyard is catching up on the work, as indicated by the large number of documents presented to the NIOZ recently. The progress is also shown in the reports we receive from the shipyard each month, which detail the work being conducted at the moment. Over the past month, several technical specifications have been submitted, including the last part for the acoustic sensors. The scope of the work is therefore largely definitive. The next step will be to clarify the last propulsion issues, so that the shipyard can begin procuring parts and components. Several items will have to be dealt with for the components with longer delivery times, so that they will not result in delays down the line. The shipyard is focused on achieving the milestone we have defined for completing the basic design on schedule.

SCHEDULE FOR THE MONTH AHEAD

The yard will continue to work on the basic design and purchasing for the project. The site team will work with the shipyard to prepare several blueprints for the pipe lines for final inspection, so that they can be sent to Bureau Veritas. A kick-off meeting has been scheduled with Bureau Veritas to clarify the necessary conditions for a potential methanol upgrade, so that the impact on the project can be identified at an early phase. At MARIN, technicians have begun validating the propeller design. This issue will receive considerable attention over the coming month, so that we can move on to cavitation testing on the propeller. MARIN will also issue reports for the validation of several propulsion and sea handling issues. The tests have been completed, and we hope to welcome the scale model at the NIOZ soon. Another important item on this month's schedule is the completion of the routing for the exhaust gases.

For more information, please visit: <http://www.NewResearchFleet.nl>