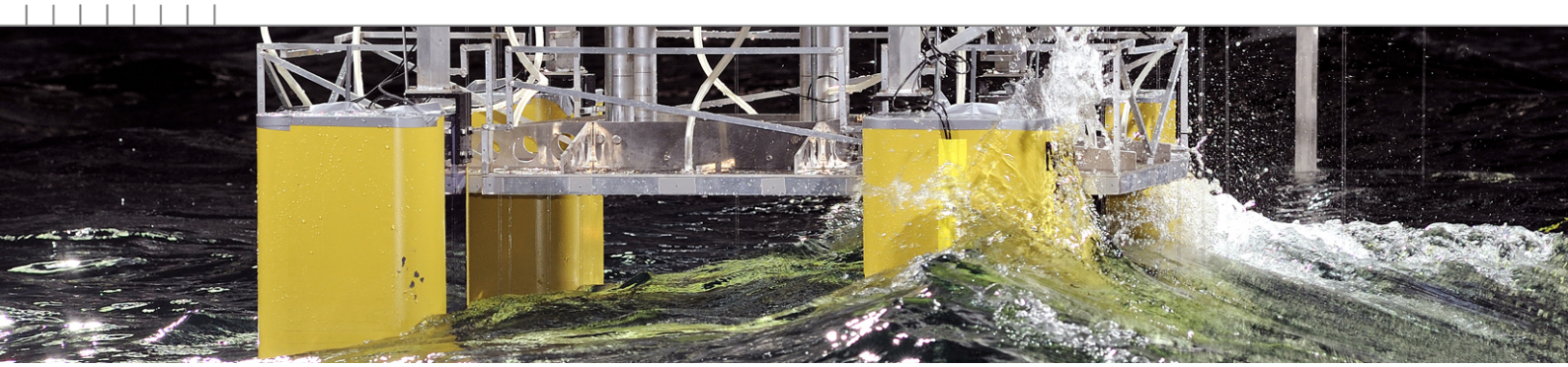


Live and online delivery of model test results

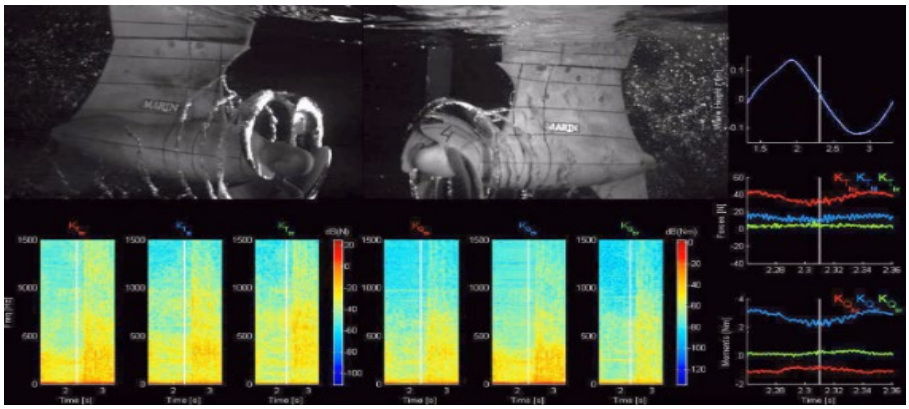
MARIN offers a streamlined online and live data delivery service, covering different aspects such as data delivery, video streaming and live status updates. With the introduction of online data delivery and communication it is possible for our clients to be involved without being physically present at MARIN. The streamlined online delivery system facilitates the exchange of data with other stakeholders of your project and makes it possible to analyse test result in your own working environment. The digital services not only have added value online, but also when being present at the model tests.

Online services in a nutshell:

- Fast and automatic upload of test results:
  - raw and processed data
  - HD video recordings
  - data analysis
- Dedicated data visualization software (TyDox)
- Live video streams
- Automatic basin logs
- MARIN inSync StagePlayer for online and interactive data visualization, see: http://demo.stageplayer.nl
- Progress meetings and discussion via video conferencing (e.g. BlueJeans or Skype)
- Online communication tailored to your project (e.g. accounting for time zone differences)

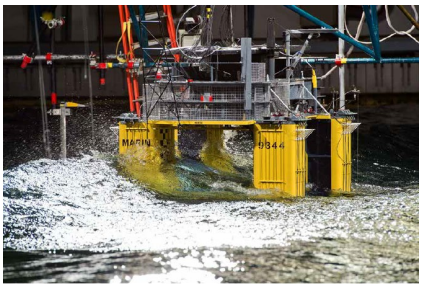
Watch online with the live video streaming service

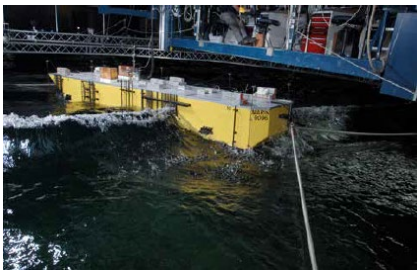
As a standard service MARIN provides the possibility to set up a live video stream via for example BlueJeans. One or more video channels from the test basin can be connected to the stream (separately, or picture-in-picture) to be visualized on your personal computer or mobile phone. In addition to the live video stream, high-definition video recordings are made available on the data exchange server after completion of each test. In consultation with your project manager it is possible to combine the live video connection with a chat window for quick or unscheduled communication.



Video contact with your project manager

During the model test campaign, but also during the preparation and finalization stages, periodic video meetings can be scheduled via for example BlueJeans or Skype, to complement communication by phone or email. These meetings can for example be used to discuss the progress of the model test campaign or to share screens for live discussion about model tests results. In consultation with your project manager meetings can be customized to accommodate your needs.





Benefits:

- No travelling time and costs
- No environmental impact of traveling
- Remote visual monitoring of your tests
- Remote access to test results immediately after the tests

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Access data immediately after the model test is completed

Swift analysis of tests results is important to guarantee continuity of your project and to safeguard the quality of the obtained test results. To ensure fast data delivery, also when not being present at the model test facility, MARIN has invested in a streamlined and automated upload system. Depending on your needs, all or parts of the data can be made available via the FTP data exchange server. The delivery time of sensor data depends on the amount of data as well as the amount of time required for processing and quality assessment, but MARIN targets the following time windows:

- Mid-frequency raw sensor data (within 1 hour, ~ 500MB per test)
- High-frequency raw sensor data (within 1 to 12 hours, ~ 5 to 10GB per test)
- Processed data (within 1 to 24 hours)

All data is transmitted via safe channels and stored on protected servers to prevent unwanted disclosure of any data related to your project. The data is stored in HDF5 format and can be readily accessed using TyDox or by using custom scripts.

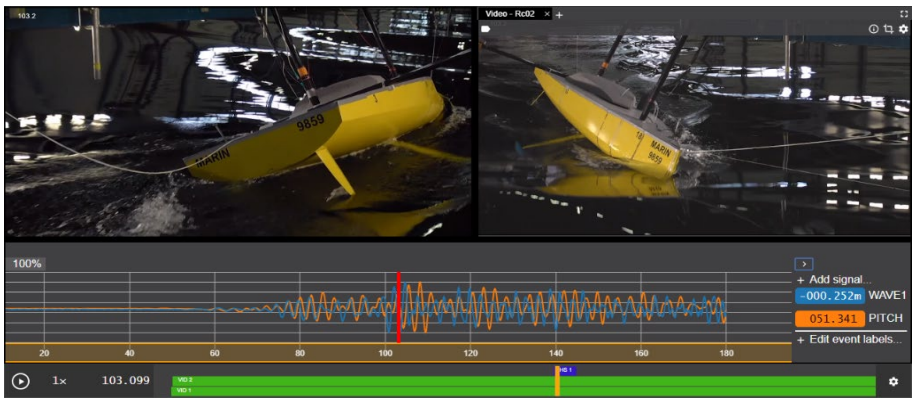
Continuous test data uploads:

- Raw and processed data at full scale
- Statistics of processed signals (e.g. peaks, spectra)
- Derived and/or filtered signals (e.g. moments of 6-components frames)
- Automated QA
- Any other deliverables (overviews, memos, etc.)

Progress reports and live status updates

Apart from the usual contact with the MARIN project team, various options are available for project reports and status updates:

- Daily progress summaries (memos in PDF format)
- A regularly updated basin schedule (Excel file) and outlook
- Automated basin logging system which stores and uploads the metadata of each completed model test.



Interactive visualization of model tests with the MARIN inSync Stageplayer

The MARIN inSync Stageplayer can be used to present an interactive side-by-side visualization of the HD video recordings and measured sensor data (H5M) files. This can be done both offline and online. The offline version can be provided for your project, the online version is still in testing phase. Dedicated lay-outs can be made tailored to the specific purpose of each model test (e.g. green water detection or impact forces). A screenshot is shown below; a full demo can be found at: **http://demo.stageplayer.nl**.