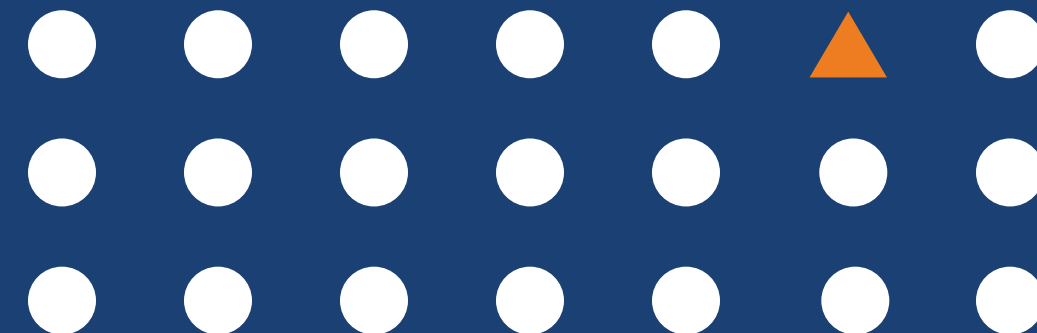




Anticipate and prevent failures inside your pipes

Improve **predictive maintenance** for naval

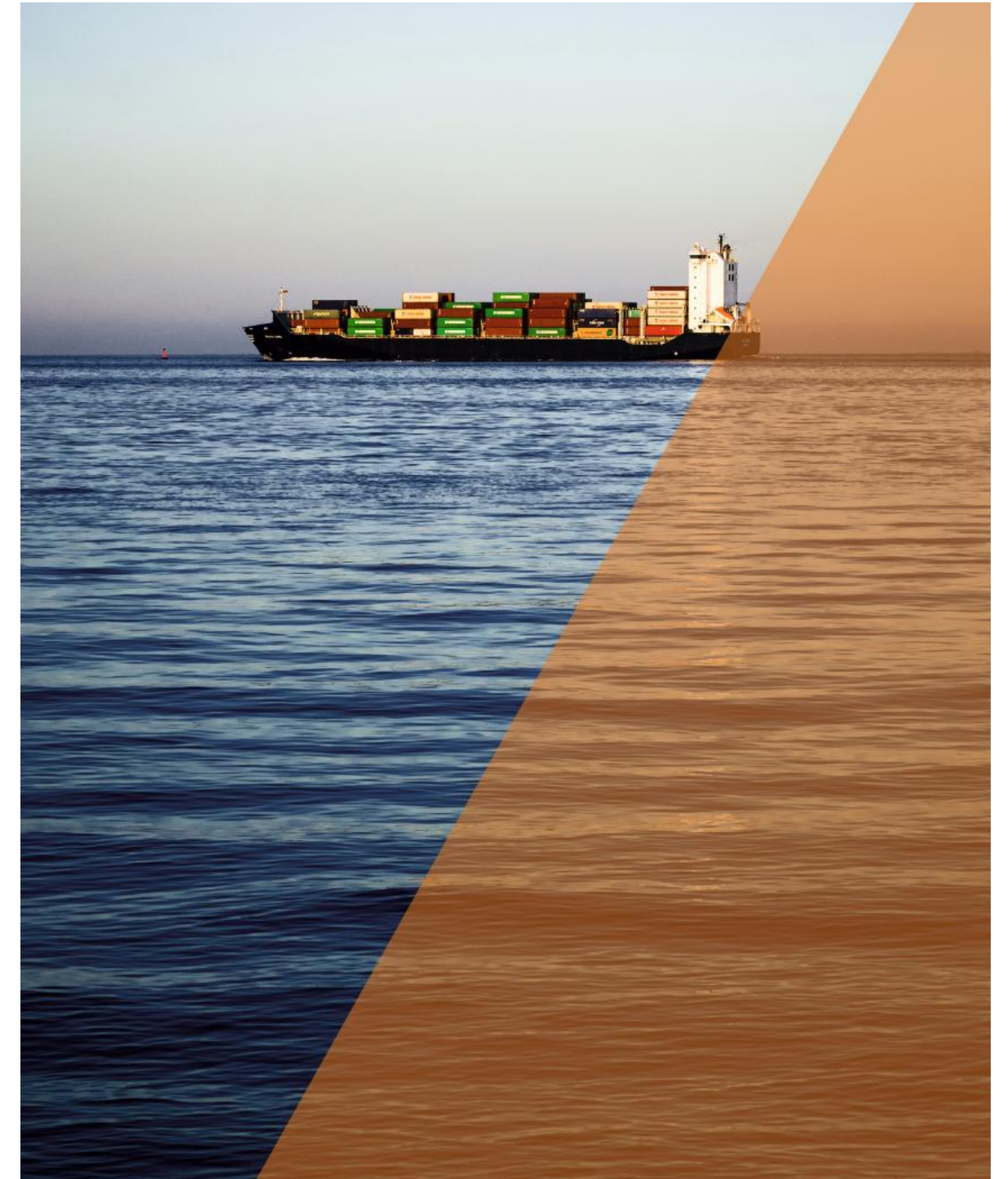


anomalies inside your pipes are invisible

20 %

of the world's electrical energy is consumed by pump systems and failures are detected too late.

- ▲ **Clogging:** silent buildup
- ▲ **Cavitation:** gradual erosion of components
- ▲ **Dry running:** fatal friction in pumps
- ▲ **Foreign objects:** immediate breakage



the naval market: a critical blind spot in Fluid Monitoring

The challenge

100s of pumps per vessel

Cooling, ballast, fuel, hydraulics: all running with low real-time visibility

Unplanned maintenances at sea

Fluid failures aboard are detected only after damage: no port, no backup

Naval applications

Cooling & HVAC circuits

Detect clogging, cavitation, dry-run in real time

Liquid circuits

Monitor fluid phases, detect leaks or contamination

Energy optimisation

Right-size pump operation, reduce wasted energy by up to 30%

Why SCAN42 fits

No mechanical parts

Survives vibrations and shocks of marine environments

Inline, no bypass

Installs like a flowmeter in existing pipes

Embedded AI, no cloud

Fully autonomous, embedded signal processing

Extreme conditions proven

Up to 600°C and 330 bar



SCAN42: the industrial flow scanner without equal

1

install

SCAN42 installs in-line, flanged or as a spool piece, just like a standard flow meter.

2

analyze

Depending on the version, SCAN42 measures electrical conductivity and temperature, as well as vibration and pressure. The onboard AI analyzes this multiphysics data in real time.

3

monitor

SCAN42 detects anomalies or drifts in real time, alerts maintenance teams, and tracks how they evolve.

the benefits

see everything flowing through your pipes

SCAN42 gives you a continuous picture of the fluid: its anomalies, its phase changes, its cycle transitions.

AI that learns your process

SCAN42 runs a model trained on your own data. Analysis happens inside the scanner's electronics, in real time, with no network dependency in operation.

easy installation

SCAN42 adapts to your setup: custom flange, standard fittings, and connects to your SCADA or PLC.

rugged and certified

SCAN42 technology comes out of 10 years of R&D at the CEA. SCAN42 is certified CE, FCC, CSA, food contact (EC 1935/2004), cosmetics (ISO 22716), and drinking water...



A use case: Surface vessel - water circuit monitoring

The Challenge

Progressive fouling of water circuits is invisible to the naked eye, until the pipe is clogged and the system is out of service.

The Solution

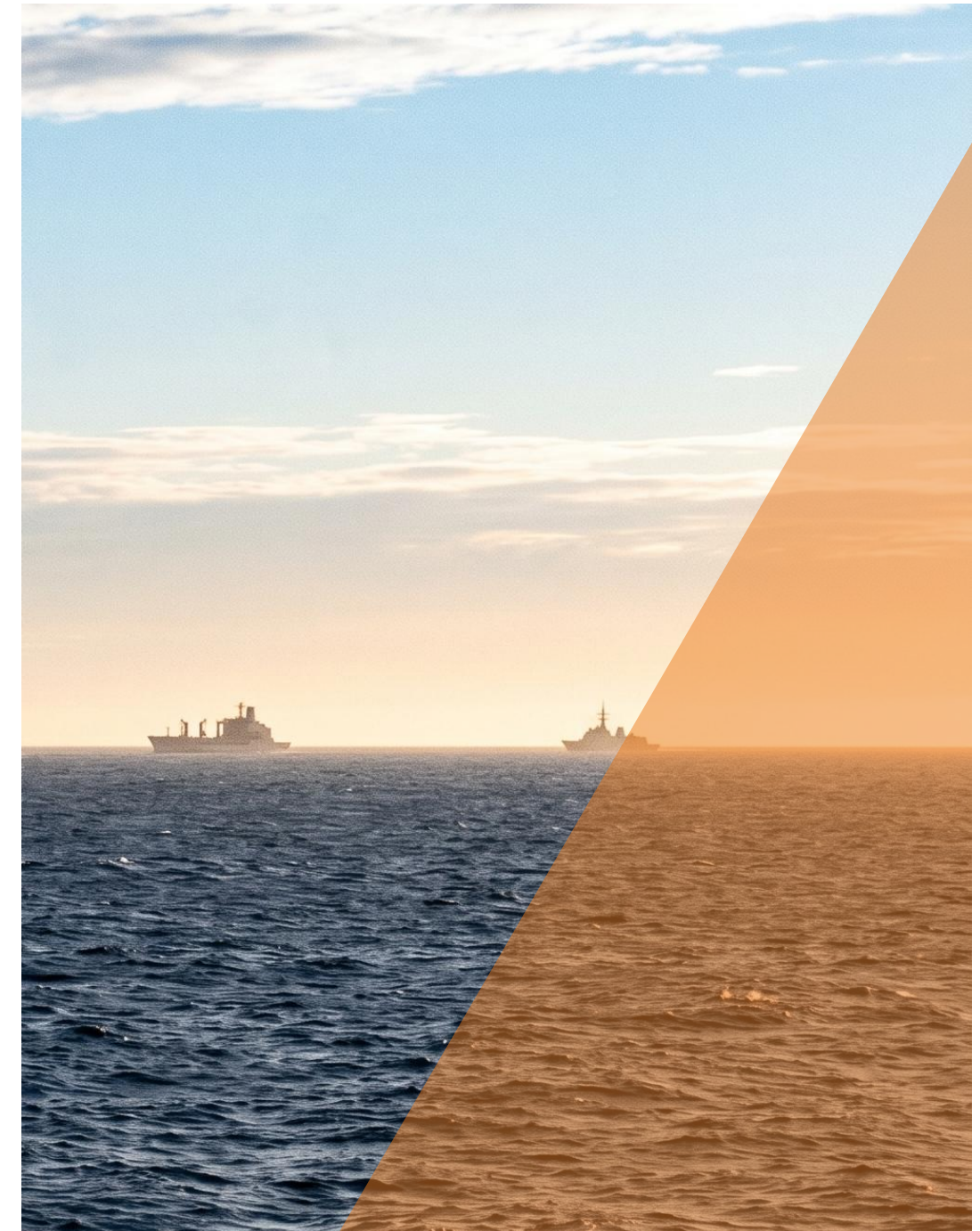
SCAN42 units deployed inline on the circuits, capturing flow signatures in real time to detect fouling at its earliest stages.

The Value

- Early detection of fouling on circuits previously impossible to monitor in real time.
- Detection of abnormal shutdown conditions.
- Leak and refill tracking.

Shift from corrective maintenance (cleaning after an incident) to predictive maintenance (intervention at the right time).

Project ongoing

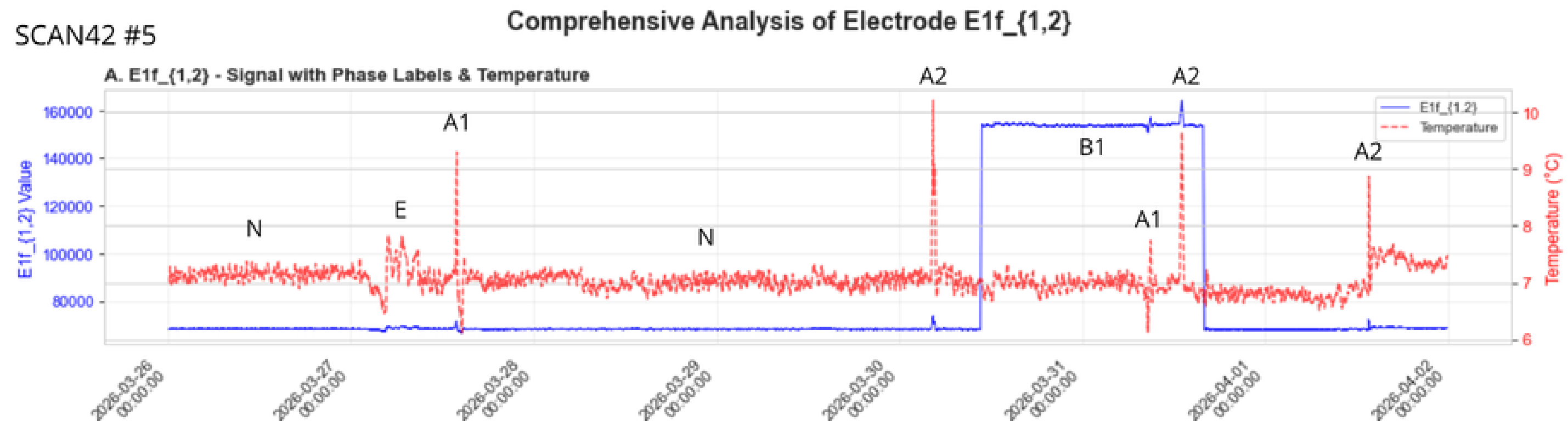


Sample recording

Data export

Measurements acquired by a SCAN42 system, segmented weekly, with labelling.

SCAN42 classifies and alerts automatically upon defective states.



run a trial in your own plant

10 years

of innovation in nuclear safety at the CEA (French Alternative Energies and Atomic Energy Commission).

5 patents

worldwide on SCAN42 technology.



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they already work with fluidd



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