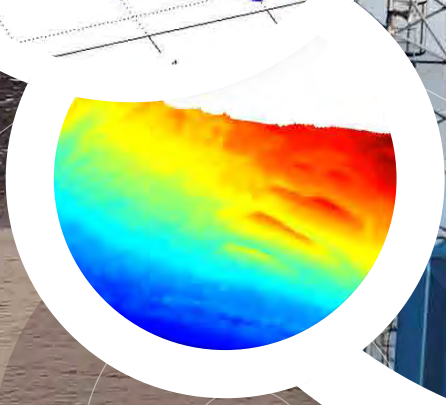
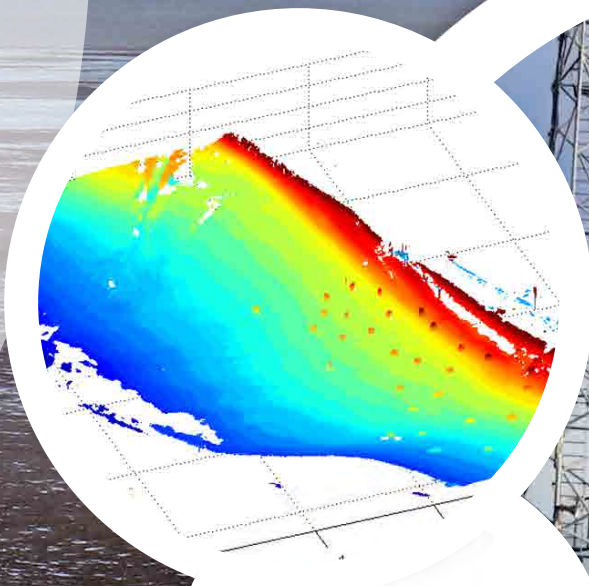


SYNOPTIC – 4D nearshore survey data

Intertidal Topographical Monitoring

SITUATIONAL
AWARENESS.
ASSURED.

/ [si-nop-tik] - wisdom emerging from a coherent understanding of everything together /



understand

WHERE SEA MEETS LAND

Marlan offers a unique solution to cost-effectively monitor dynamic intertidal zones using an award-winning remote sensing approach.

The service

Marlan provides an end-to-end data subscription service that delivers a series of topographical DEMs directly to your desktop. We install and operate innovative shore-based radar survey platforms so you don't have to worry about logistics for repeat surveys. We then apply our cutting-edge data processing algorithms to autonomously produce a stream of 4D survey data that allows you to monitor the coastline in near-real-time without getting your feet wet.



How it works

Marine radar is able to continuously observe the sea surface as the tide rises and falls. By analysing a sequence of radar images, Marlan's Synoptic survey systems are able to build up a comprehensive topographical map of the intertidal zone using patented technologies.



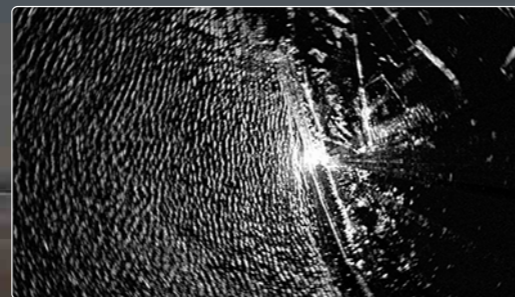
Long-term topographical monitoring

Synoptic systems are deployed in static locations and operate autonomously. The systems constantly gather data during all weather conditions simultaneously across the survey domain. This allows you to see real morphological change that will aid you in making evidence-based coastal management decisions.

The solution

Conducting regular hydrographic surveys in complex and dynamic shallow water coastal areas is an incredibly difficult logistical challenge. Synoptic offers the solution. Deployment of a Synoptic system will rapidly accelerate your understanding of coastal processes in this typically challenging operational environment. Data collection and processing is autonomous and continues 24-7 so that you never miss a storm, allowing clear observation of erosion, accretion and sediment migration – a service no other system can provide.

Near-real-time data allows rapid responses to unexpected changes in weather, morphology or damage caused by storms. These data greatly assist with flood and coastal erosion risk management.



Why radar?

Radar allows monitoring of often inaccessible areas such as mudflats, saltmarshes and sandbanks.

The autonomous nature of radar data collection reduces the risk to personnel and equipment operating in the often hazardous conditions associated with surveying intertidal areas; especially during storm conditions when other survey solutions cannot effectively operate.

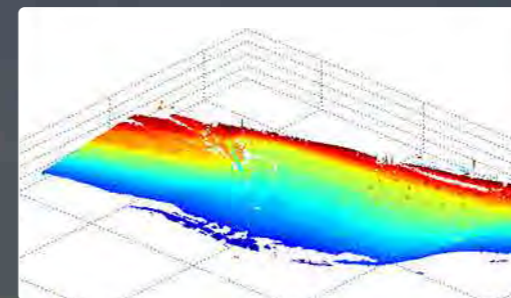
Capabilities

- Regular repeat surveys – every spring tide and before-after storms
- 4-6 km effective radial range from the radar giving coverage of up to 12 km of beach
- 3 m spatial resolution
- Vertical accuracy comparable to Airborne LiDAR
- Pre- and post-storm impact assessment
- Volumetric sediment displacement assessment

Cost-effectiveness

A radar deployment offers an extremely cost-effective option when compared with conducting repeated high resolution topographical surveys. A Synoptic system will produce a minimum of 26 topographical surveys per year, giving a comprehensive overview of morphological change.

No other survey system currently offers the ability to provide this density of data over the same spatial area and temporal resolution cost-effectively.



Innovative methodology

This radar-based technology has been developed over several years in partnership with world-leading scientists at the National Oceanography Centre and the University of Liverpool. We continue to work with our academic partners to provide cutting edge data products and continually update our algorithms through on-going R&D, in order to provide the best possible nearshore observation solution.

Features:

- Remote, autonomous and continuous data collection
- Data directly to your inbox
- Capture pre- and post-storm impacts and subsequent change or recovery
- Collected data easily combined with other hydrographic data
- Same system can be used in combination with other Synoptic data services to provide a full nearshore morphological monitoring solution
- 26 Topographical surveys per year tells the story of coastal change
- Monitor the effects of coastal defence construction and their performance

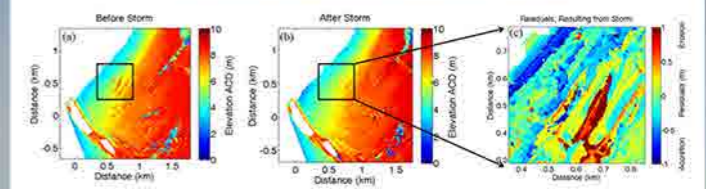
marlan
MARITIME TECHNOLOGIES

**SITUATIONAL
AWARENESS.
ASSURED.**



TEL: +44 151 602 0304
FAX: +44 151 602 0399
info@marlan-tech.co.uk
www.marlan-tech.co.uk

Morphological Response to Storm Event



Benefits:

- Allows quantification of sediment budgets and fluxes delivering cost savings during beach nourishment or dredging campaigns
- Gain deeper understanding of local coastal processes to make more cost-effective engineering and management decisions
- Ability to colour in the white ribbon without risking damage to survey vessels or personnel in the dynamic nearshore zone
- Cost-effective monitoring allowing greater spatial and temporal densities of data to be collected over large areas
- Greater situational awareness during survey campaigns, allowing MBES surveys or LiDAR flights to be targeted more cost-effectively at problem areas



SYNOPTIC – 4D nearshore survey data
Intertidal Topographical Monitoring

Who we work with



National
Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL



UNIVERSITY OF
LIVERPOOL
Innovate UK



* Terms and conditions apply

ISO9001:2015



Who are Marlan?

A group of engineers, scientists and technicians passionate about providing innovative solutions to difficult problems in coastal environments.

Marlan has extensive experience in the maritime industry, with a history of developing vessel traffic management systems typically in ports and harbours using a variety of sensing technology including (but not limited to) radar and video cameras.

Through extensive development of radar systems Marlan realised their technology could be used for more than just tracking vessels! With the increased pressures on our coastal environments as a result of higher sea levels and increased storminess and resulting erosion; now more than ever, better techniques for monitoring our vulnerable coastlines are required. Marlan are delighted to add a new tool to the arsenal of coastal engineers, managers and scientists.

Testimonials

Information on coastal conditions from radar will help the WireWall team identify oncoming wave heights that cause impact by overtopping the seawalls north of Liverpool. We hope that together the radar and WireWall system could be used to measure approaching waves, water levels, beach levels and consequent wave overtopping volumes and velocities.

**Dr. Jennifer Brown, WireWall Project Leader at
National Oceanography Centre**

The Marlan Synoptic system enabled us to resolve some of the detail of our conceptual model which will fundamentally change the approach we take to the design of our coastal defence intervention and allows us to work with natural processes with far more confidence. I can't think of anything else that would have helped and still been affordable. As such we would have had to proceed with a more typical engineering approach which would have been more expensive and less sustainable.

**Graham Lymbery, Transport, Planning and Highway
Development Manager at Sefton Council**