MUD® Detects, Measures and Monitors Peatland

A nature-based approach to protect and preserve valuable peatland carbon stores

Peatlands, also known as wetlands, are globally important ecosystems. While they cover only 3% of the Earth's surface, peatlands store more carbon than other types of ecosystems, including forests. Countries throughout the world are developing net zero targets and many environmental organizations report that peatland carbon stores are critical to tackling climate change and achieving global net-zero CO_2 emissions by 2050.

In addition, preserving peatlands can create global financial advantages through grants, private investments and carbon credits. 3D subsurface metrology, stable, comparable and accurate measurements, is critical to accomplish these goals.

What Makes MUD® Mapping and Modeling Technology Stand Out?

Radar SAR Interferometry is a well-established method used to measure movement and deformation by duplicating the orbital path and the precise time and geometry of collection. Successive radar signals are analyzed for their differences, detecting movement or change as small as 2 mm. Auracle's Mapped Underworld Dimension (MUD®) model is an advanced Synthetic Aperture Radar (SAR) satellite-based monitoring tool that goes under the Earth's surface to penetrate and model the near subsurface and underwater, in 3D.

How does MUD® Advance Peatland Measurement and Monitoring?

MUD® is a cost- effective, nature-based solution that replaces existing technologies to detect, measure and monitor peatlands, all in one system that:

· Penetrates through the peat to the Earth's subsurface

· Allows direct measurement of peat volume

· Models the total area without drilling or probing the peatland

· Creates a peat-specific inventory

· Assesses land cover and land use

· Locates subsurface water around and within the peatland to identify risk of flood and drought

· Provides water-table height, depth and variation

MUD® CAPABILITIES

LOCATE, MEASURE AND MODEL COMPLEX 3-D PEATLANDS

SURFACE | SUBSURFACE | UNDERWATER

What intelligence comes from the MUD® system?

The MUD® system is cost-effective and reliable modeling and monitoring system that can provide early warning and early detection of surface, subsurface and underwater change that can impact peatland health. MUD® monitoring and advanced analytics can be performed throughout the year, without permits, or public scrutiny. Conducted at a variety of scales, from regional scale to project scale, MUD® is:

· a system that can produce a complete digital twin of an entire peatland

· a system that defines and detect patterns of change with high ground spatial resolution

· a system that facilitates the integration of traditional knowledge

· a system that visualizes subsurface water flow direction unseen by the eye or any other system

· a system that can be tailored for frequency on each location

· a system that cuts cost and increases intelligence

MEASURE AND MODEL PEATLANDS IN 3D

MEASURE ACCURATE VOLUMES
- Penetrate surface land cover, water and peat.
- Locate boundary lines and exact locations.

MODEL ENTIRE AREAS
- Actual volume measurement
- Remote and difficult to access locations
- No drilling or probing

MONITOR CHANGE OVER TIME
- Monitored via satellite 24/7
- In any weather, including rain and snow

What is the MUD® Monitoring Capacity?

FEATURES AVAILABLE SAR MONITORING	InSAR	MUD®	DiffInSAR	PSInSAR
MONITORING FREQUENCY	>20 days	**<40 hours**	>20 days	>20 days
MONITORS SURFACE	✓	✓	✓	✓
MONITORS UNDER LAND SURFACE	✗	✓	✗	✗
MONITORS IN 3D	✗	✓	✗	✗
MONITORS UNDER WATER	✗	✓	✗	✗
ELIMINATES LAYOVER AND DISTORTION	✗	✓	✗	✗
UNIFORM SPATIAL ACCURACY	✗	✓	✗	✗
COMPLETE AREA	✗	✓	✗	✗

AURACLE GEOSPATIAL