Detect and Monitor Soil Saturation with MUD®

## (Mapped Underworld Dimension)

Background

Flooding is one of the most destructive and costly natural hazards in the world and is predicted to increase in frequency and intensity. Floods typically occur during heavy rains over short periods, when snow melts quickly, or when dams or levees break.

Saturated soils can also account for flooding issues. Groundwater is stored in the voids, spaces and cracks between particles of soil, sand, gravel, rock or other materials. Saturated conditions occur when all of the voids, spaces, and cracks are filled with water. With nowhere to go, the rain quickly collects on the surface and can lead to flash floods, the most dangerous kinds of flood due to the addition of speed.

Initial soil moisture conditions can explain the difference between minor and major flooding effects so accurate and timely data on soil moisture content is essential for enhanced flood prediction.

MUD® satellite remote sensing offers an alternative to field measurements and monitors soil status at high temporal and spatial resolutions.

Auracle's Mapped Underworld Dimension (MUD®) is a subsurface technology that measures and monitors surface and subsurface displacement, and simultaneously detects and maps water saturation, in 3D.
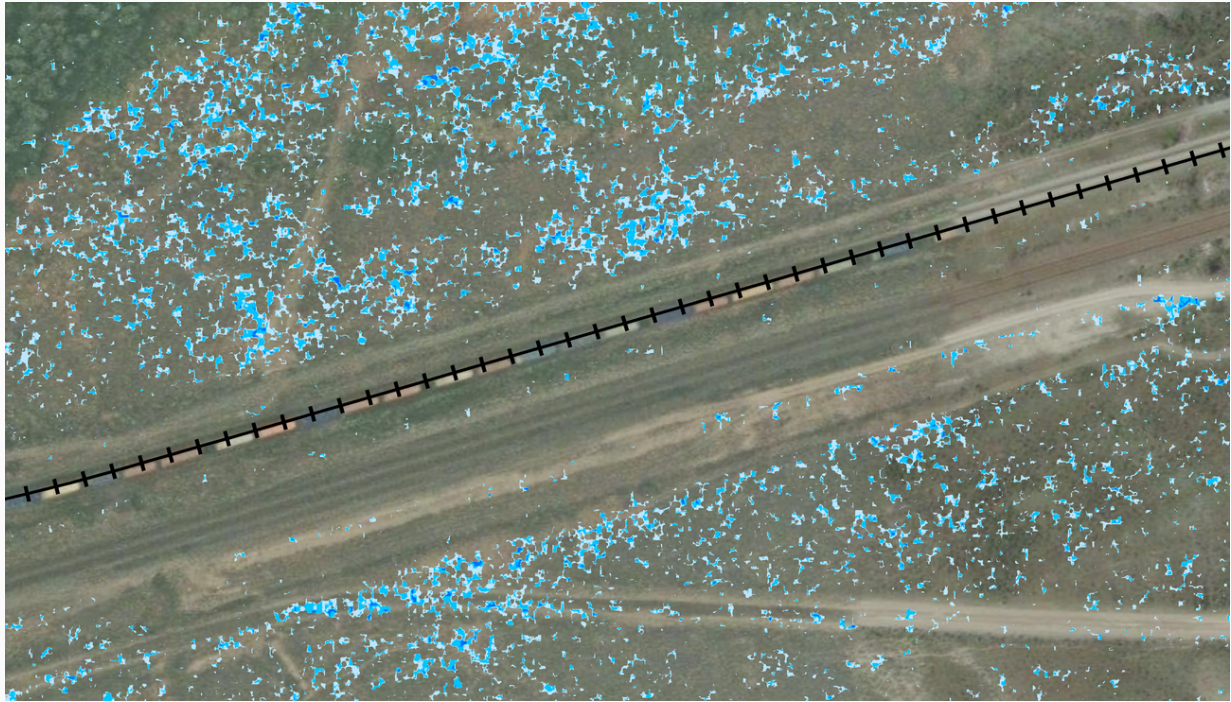
This is a MUD® Soil Saturation Base Model and represents water saturation levels present throughout the AOI the date of SAR data collection. The Base Model is used to identify changes to soil water saturation levels and occurrences of additional saturation, in the subsurface, of the exact same location, over subsequent collections.
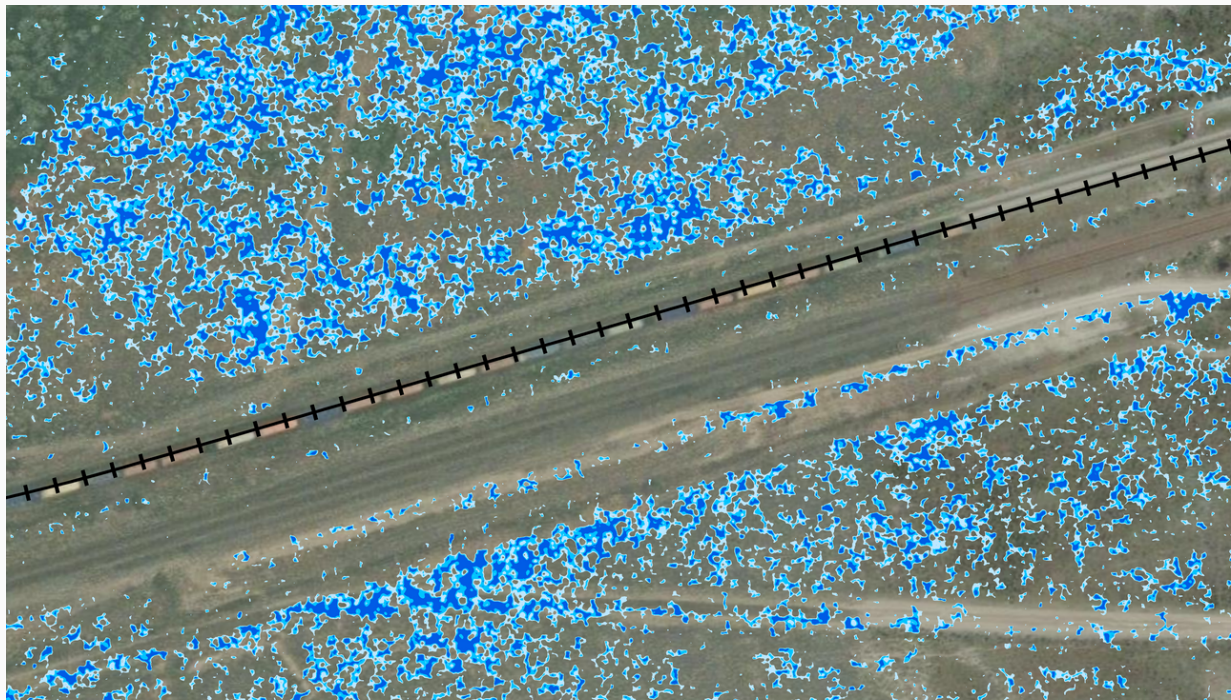
This is a MUD® Change Detection Model which identifies cumulative water saturation changes, detected during a 3 month monitoring period. MUD® determines the patterns and magnitude of change, displayed as percentages.

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Solutions

MUD® locates and monitors underground water systems, remotely, without environmental impact to detect subsurface water sources, measure water volumes and visualize the direction of water flows.

With advanced analytics and 3D subsurface visualization, MUD® measures and monitors surface and subsurface soil water retention, in percentage, without the use of expensive probes or calibration.

This data forms a base model for monitoring to proactively identify changes to water presence and flow zones at, on and underground so that immediate remediation solutions can be implemented, in advance of catastrophic failures.

Auracle's MUD® technology successfully identifies underground water and water flow at depths of 100 m.

MUD® 3D models can be used to demonstrate regulatory compliance, reduce risk to assets and optimize sustainable infrastructure.

Get in touch with any questions you may have.

MUD® locates and monitors underground water systems, down to 100 m, to measure soil and water interaction to identify saturated soils well in advance of floodiing.

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