

Soil Salinity Dashboard User Guide

A Digital Reference for Spatial Decision Support

1. Introduction

The Soil Salinity Dashboard is a specialized spatial decision-support tool designed for visualizing and interpreting soil salinity information across various farm areas. It integrates field-sampled data, satellite-derived indices (NDVI), and environmental layers to provide stakeholders with a comprehensive view of soil health and spatial salinity patterns.

This guide provides end users with structured instructions on accessing the system, interacting with the dashboard, and utilizing its analytical features for informed decision-making.

2. Dashboard Access Details

The dashboard is accessible via any modern web browser at the following internal URL:

URL: <http://168.231.125.30:8000/salinity/>

3. System Overview

The dashboard interface is divided into three primary functional areas:

- Control Panel (Left): Used for farm selection, data filtering, and layer management.
- Interactive Map (Center/Right): The main visualization area for spatial data.
- Data Panel (Bottom): Provides detailed attribute tables and graphical analytics.

4. Key Features and Functions

- Farm Selection: Filter the view to specific farm boundaries (e.g., Hippo Valley, Mkwesine, Triangle).
- Layer Switching: Toggle between Satellite, NDVI, and Hybrid basemaps.
- Depth and Year Filtering: View salinity measurements at various depths (0cm, 15cm, 30cm) and for specific dry season years.
- Interactive Popups: Access detailed site-specific data by clicking on individual sampled locations.
- Measurement Tools: Draw custom polygons to measure areas or localized regions of interest.
- Weather & Legend Panels: Real-time environmental context and color-coded salinity classifications.

5. Step-by-Step Instructions for Use

5.1 Selecting a Farm or Area

Upon opening the dashboard, use the 'Farms' list in the left control panel to select a specific farm. The map will automatically pan and zoom to the selected area.

5.2 Applying Filters

- To see data from a specific season, expand 'EO Salinity Analysis' and select the desired year.
- To view salinity at different depths, use the 'Salinity depth' toggle (0 cm, 15 cm, or 30 cm).

5.3 Interacting with Map Layers

Under the 'Layers' section, click the 'Satellite' button to view a high-resolution orbital background. This provides the best context for identifying field features.

5.4 Inspecting Sample Details

Locate a colored dot (sampled location) on the map and click it. A popup will reveal the Sample ID, Salinity (ECe) value, measuring depth, and date.

6. Screenshot Walkthrough

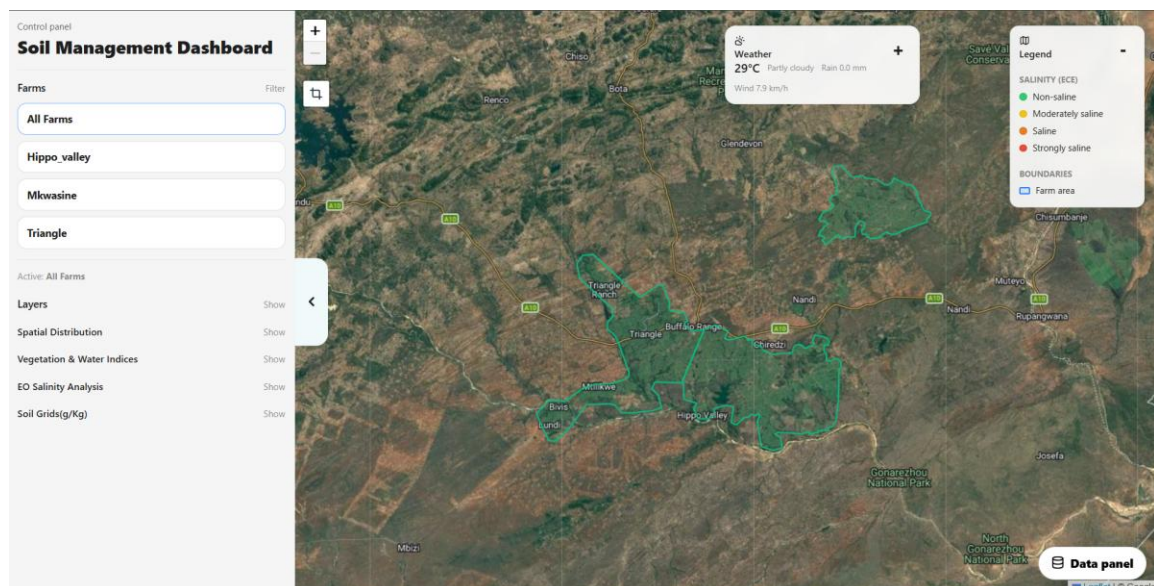


Figure 1: Main Dashboard Overview (Satellite Basemap)

The primary interface showing the satellite basemap, overlaid farm boundaries, and the distribution of salinity sample points.

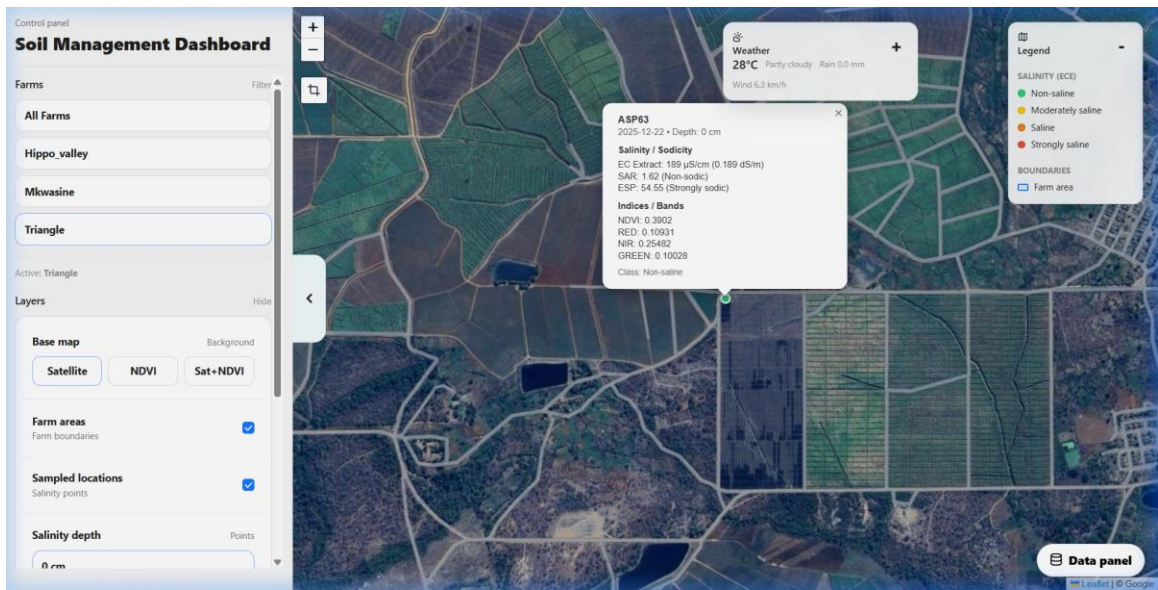
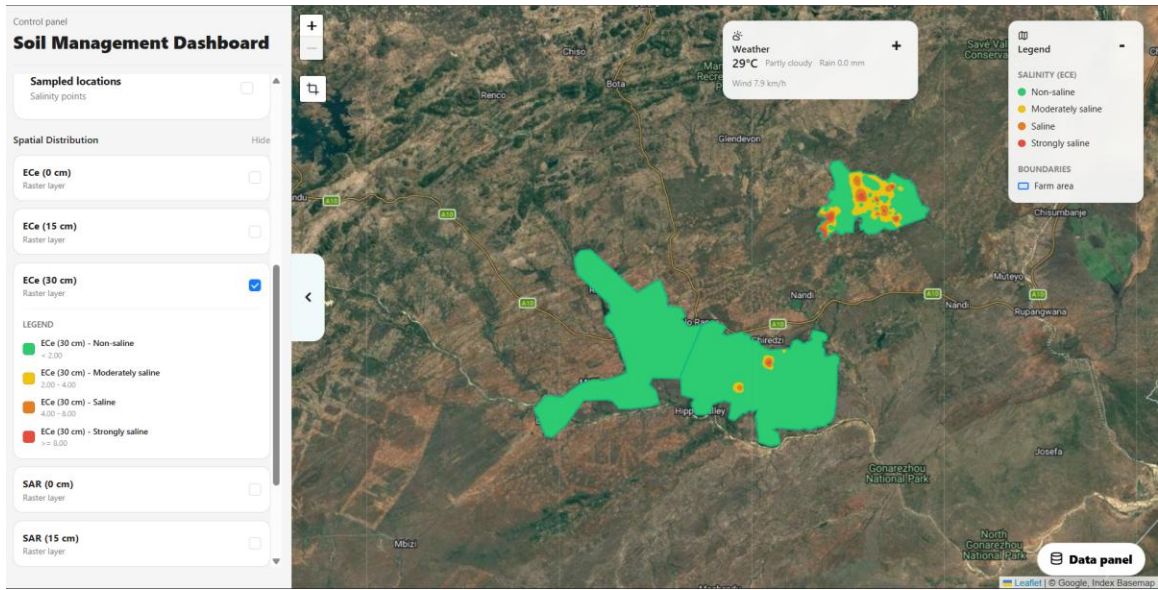


Figure 2: Sample Point Detail Popup

Detailed field measurement data including EC Extract values and the exact date of sampling.

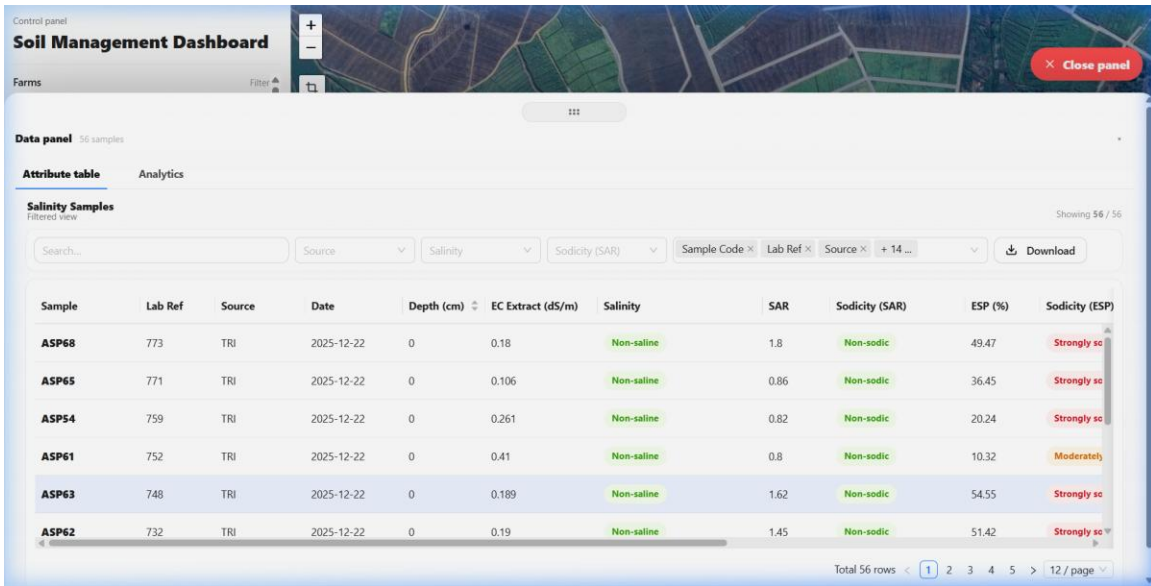


Figure 3: Data Panel - Attribute Table

A comprehensive table view of all filtered samples, including chemical indicators like SAR and ESP.

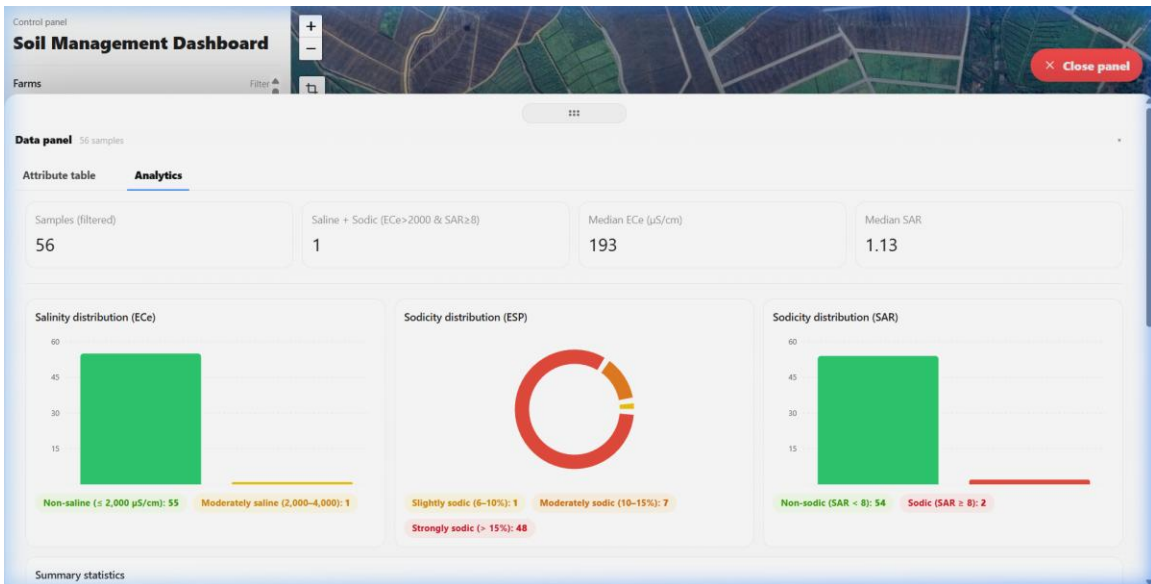
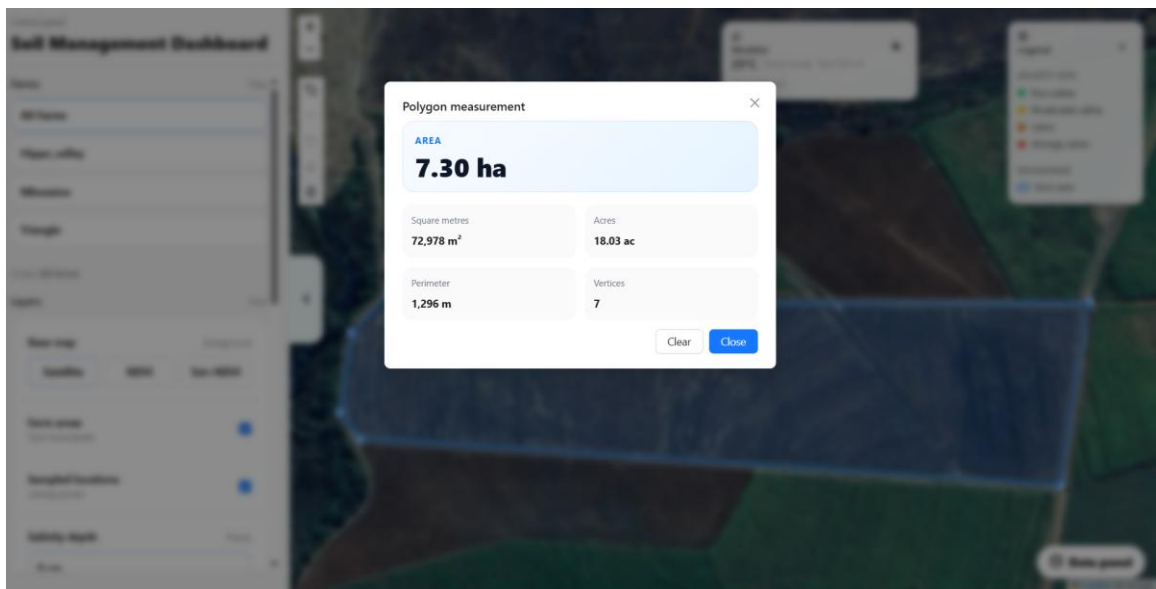


Figure 4: Data Panel - Analytics View

Graphical representation of salinity distribution, used for high-level monitoring of soil health trends.

Custom Measurement Tools



The polygon tool allows users to manually define and measure area sizes directly on the interactive map.

7. Good Practice Notes / User Tips

- For optimal performance, use high-speed internet when loading large raster layers like NDVI.
- Switch to the 'Satellite' basemap when identifying field-specific features like roads or buildings.
- Use the 'Search' feature in the Data Panel to quickly find specific sample IDs.

- Regularly check the status of 'Sampled locations' in the legend to understand the health grading of your fields.

8. Conclusion

The Soil Salinity Dashboard provides a powerful, intuitive interface for managing agricultural soil health. By leveraging the filters and analytical tools described in this guide, users can effectively monitor salinity trends and make data-driven decisions to mitigate soil degradation.