

GoldSim Dashboard Tips 'n' Tricks

with illustrative examples from models for radioactive waste management.

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Interactive dashboards

Organizing Waste Disposal

Here a waste disposal landfill needs to optimize the placement of incoming materials while monitoring available space and "room" for additional risks.

Text Box for instructions.

Buttons link to **Data** arrays that are too large for the Dashboard.

Check Boxes link to conditional **Data** elements for operational flags.

Result Displays are arranged in a table, and linked to **Expressions**.

Text boxes next to the displays explain what is being shown.

Buttons are arranged in the same locations at the bottom of each Dashboard to aid in navigation.

Status Results show that layers are not over-filled.

Status Result and Result Display are combined to show that the proposed disposal plan works.

Thermometers are linked to **Expressions**.

Input Grid linked to a **Data** array for user to "load" each disposal layer.

Selecting Items in Space

This interactive map allows the user to decide which waste disposal pits to include in the analysis. Since they may be hard to find on the map, a coordinated alphabetical list is also provided.

Each item is attached to a conditional **Data** element—you can have more than one Dashboard control connected to an element output. These conditional elements are collected into a vector for all of them.

Combo Boxes allow for the quick selection of ALL or NONE of the pits, or "User-Select". With one of these set to ALL or NONE, the User-Selected pits are overridden but their selection is preserved.

Note the pairing of **Check Boxes**, which indicate the user's selection, and **Result Status Displays**, which indicate whether the pit is included in the modeling based on other choices made in the **Combo Boxes**.

The user's selection (request) is only part of the logic for including a particular pit. There are actually 3 levels of nested inclusion, from "All NDA Facilities" to "All Special Holes, West" and finally the User's Request.

Specifying Locations on a Map

GoldSim and its Dashboards do not allow the selection of arbitrary locations on a map. This workaround displays a map and provides an input table for the user to locate well modeling locations.

The map is an **imported image**, with **GoldSim Text elements** and **drawing elements** added.

This **Input Grid** allows the user to specify up to 8 well locations using the map coordinates. Locations must be identified on the map, with coordinates entered in the table.

This **Button** links to the results for the specified well locations.

Text and drawing elements provide orientation.

Instructions are provided in a **Text Box**.

A **Hyperlink** accesses a PDF document for background reading.

Text elements and Result Displays in a table provide information from the model.

Dashboard workarounds for GoldSim limitations

A "Manual" Iterative Calculation

Although GoldSim can iterate to an optimal result, this ability has its limits, as in optimizing an entire vector. This Dashboard includes instructions for the user to perform an iterative calculation.

The objective in this analysis is to determine radionuclide-specific limits on waste concentrations that just meet limits of risk.

Text Boxes

Checkboxes and Input Edit Boxes (some disabled)

Text Results

Simple Text, with **rectangles** to emulate the familiar Windows dialog box

Combo Boxes

Status Result

Buttons

Identifying the Culprit

Result Display Controls allow up to only 5 states to display a result, using predefined icons sets. This Dashboard shows how to identify the particular receptor who is most at risk, and whether any given radionuclide is at a solubility limit (☹) or is limited by its specific activity (☺).

Each of these is a 2-stage **Result Display Control** linked to an item in a conditional **Expression**, a vector of Species for each receptor. Each **Expression** tests all Species to see which receptor is at greatest risk:

The row of 7 **Buttons** (actually 6 **Buttons** and one **Text** element) at the top simulates the GUI concept of tabbed dialog boxes. These direct the user to one of 7 similar Dashboards:

More information is provided in the **Tool Tip** that appears when hovering over the (always) yellow indicator in the column heading. It's just a **Result Status Display** that is always TRUE.

This solved the problem of having far too much information for a single Dashboard.

Testing Model Functions

In order to verify and evaluate the function of different physical and chemical processes in a model, the user can select/deselect the processes and watch the results displayed on various graphs.

These **Result Windows** show where I-129 is present in various media and locations, so that the user can confirm that a selected process is working and a deselected one is not. This is useful as a qualitative quality assurance check.

These same **Buttons** are provided on every Dashboard to provide convenience and consistency.

Expressions are added in order to provide simulation information in these **Result Displays**.

The selection of physical processes through **Check Boxes** makes use of Dashboard Control Attributes, which can hide or present controls depending on the status of other controls. Here, resuspension is dependent on the state of soil/water partitioning.