

Stormwater Runoff Simulation (SRS) Software-as-a-Service

Overview

The HydroTrek SRS is a leading software-as-a-service (SaaS) browser-based software platform that requires zero download of data to your desktop. It has been successfully tested at multiple areas in the United States. The SRS uses the information from multiple US Government Agencies to create the stormwater model in real-time and accurately calculates the system runoff in a variety of scenarios that include different LID controls. The SRS uses the US EPA SWMM engine for the core calculations and provides high quality results. The web-based software works well on multiple hardware platforms that include desktops, notepads and smartphones. A variety of LID implementation scenarios can be simulated quickly and compared to assist decision-making.



Figure 1. Easy-to-use Interface

Features

- Simulates stormwater runoff at any location in the United States.
- Extracts needed soil data, slopes, landcover, rainfall data and evaporation from US Government agencies through web API calls.
- Constructs the LID controls selected by the user
- Calculates the runoff for the specified simulation duration.
- Displays the results in a user-friendly interface



Figure 2. Explore LID Controls

Scenario	Description	Runoff Depth (inches)	Run-off Volume (acre-ft)	Run-off Volume (million gallons)	% Runoff reduction	Reduction in Run-off Volume (million gallons)
Pre Development	67 % Forest, 0 % Impervious	6.40	274.67	90		
Post Development	38 % Forest, 29 % Impervious	14.88	638.6	208		
#1 Rain Barrel	55 gallon, all rooftops captured, 2 rain barrels per 1,000 sq. ft.	11.88	509.85	166	20.11	42
#2 Cistern	300 gallon, all rooftops captured, 1 cistern per 1,000 sq. ft.	11.80	506.42	165	20.66	43
#3 Rain Garden	15 % Capture ratio, all rooftops captured, 12" Soil Media Thickness	12.43	533.45	174	16.44	34
#4 Rain Garden	25 % Capture ratio, all rooftops captured, 18" Soil Media Thickness	11.67	500.84	163	21.56	45
#5 Rain Garden	25 % Capture ratio, 1/3rd Roof Tops Captured, 18" Soil Media Thickness	14.00	600.83	196	5.92	12

Figure 3. Result Summaries

Advantages

- Provides an extremely easy-to-use browser-based interface to simulate stormwater runoff under different stormwater control scenarios.
- The rapid exploration improves the understanding of the hydrological and geological characteristics coupled.
- Provides the determination of historical runoff using the long rainfall histories from weather stations.
- Increases the resilience knowledge through the modeling of the impact of climate change.