

Dancing Rivers – Seasonal river morphological change monitoring system

User Guide

Background

The “Dancing Rivers” is a seasonal river morphological monitoring system developed to monitor erosion and deposition in highly dynamic rivers of Asia heavily influenced by the monsoon rainfall system.

Using freely available satellite data (Landsat), we developed a long time series (1988 – current) map of river morphological change comparing pre-monsoon and post-monsoon scenarios along the river. This is currently applied to Ayeyarwady river in Myanmar – one of the dynamic and last free-flowing rivers of Asia.

Uses

This tool will provide locations of erosion and deposition at the end of every monsoon season along 2000 km length of Ayeyarwady including major parts of Chindwin and Upper Ayeyarwady rivers. The government agencies can undertake a rapid assessment of eroded areas and impact on different landuse patterns, which helps to estimate the amount of investment needed for river protection works and compensation settlement needed.

How to use it?

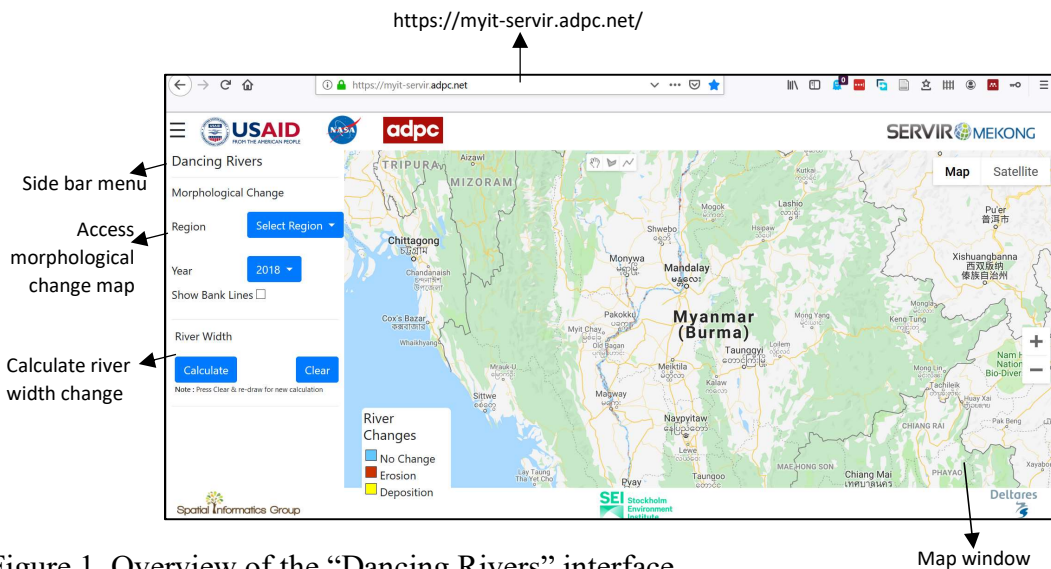


Figure 1. Overview of the “Dancing Rivers” interface

Map window

Access morphological change map

Dancing Rivers platform contains a simple and intuitive interface. The left panel is the place for selecting specific region within Myanmar and time period (year). For the current year, the database will be updated at the end of monsoon season and the users can access the results in the last week of October every year.

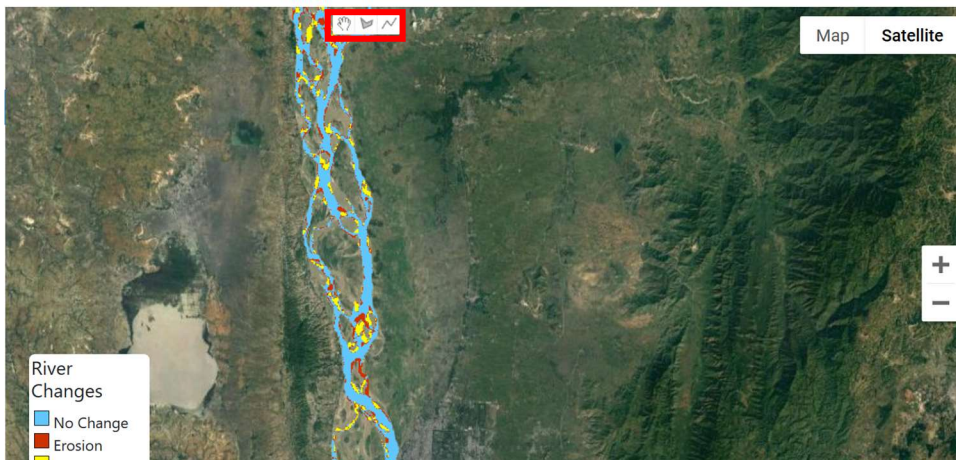
The diagram illustrates the step-by-step process to interact with the "Dancing Rivers" platform. It consists of four numbered steps:

- 1 Side panel menu:** The interface shows the "Morphological Change" section with fields for "Region" (a dropdown menu), "Year" (a dropdown menu set to "2018"), and "Show Bank Lines" (a checkbox). There are "Calculate" and "Clear" buttons at the bottom.
- 2 Select the region:** The "Region" dropdown menu is open, showing a list of regions: Ayeyarwady, Bago, Kachin, Magway Central, Magway Lower, Magway Upper, and Mandalay Central.
- 3 Select time period:** The "Year" dropdown menu is open, showing a list of years from 2018 down to 2012. There is also a "Calculate" button and a "Note: Press Clear" message.
- 4 The results will be automatically displayed in the map window:** The final screenshot shows the "Dancing Rivers" platform interface. The "Region" is set to "Mandalay Central" and the "Year" is "2018". The map displays the river's course with color-coded changes: blue for "No Change", red for "Erosion", and yellow for "Deposition". The interface includes logos for USAID, NASA, adpc, SERVICOR MEKONG, and the Stockholm Environment Institute.

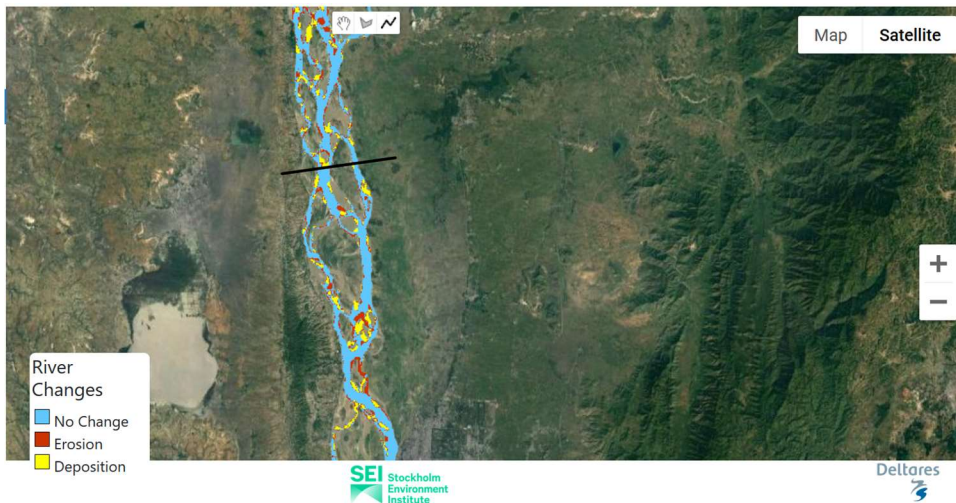
Figure 3. Step by step process to interact with the "Dancing Rivers" platform

Calculate the river width

1. Press the geometry icon (polygon or line) at the top of map window. It is highlighted in **RED** box below.



2. Draw a cross-section or area across the river. The black line is shown in the map window below. Double click on the other side of the cross-section to complete



3. Click Calculate in the Side panel menu. Highlighted in **RED** bounding box below

Dancing Rivers

Morphological Change

Region

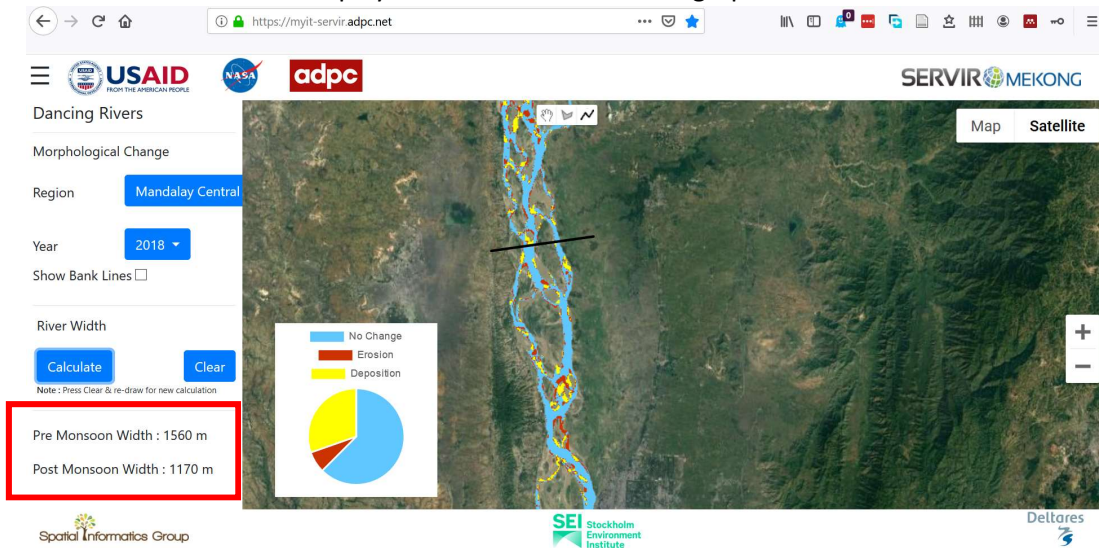
Year

Show Bank Lines

River Width

Note: Press clear or re-draw for new calculation

4. The results are displayed in both numerical and graphical formats.



Additional functionalities

We will add additional functionalities to the platform to enable users to download the erosion/deposition maps and to export the map as pdf for reporting purposes.