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Asia Water Forum 2022

8–11 August 2022 • Online

Focus Area: Climate change and water-related risks

Session Title: Technologies for climate resilience

Schedule: [August 11 | 9:00 a.m. - 10:30 a.m. (GMT+08)]

Lessons Learned from Developing an Operational and Open-Source Flood Monitoring Tool over Southeast Asia



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Introduction: SERVIR-Mekong



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Connecting Space to Village in the Lower Mekong Region

SERVIR-Mekong is a geospatial data-for-development program that responds to the needs of Lower Mekong countries. [Learn more](#) ↗








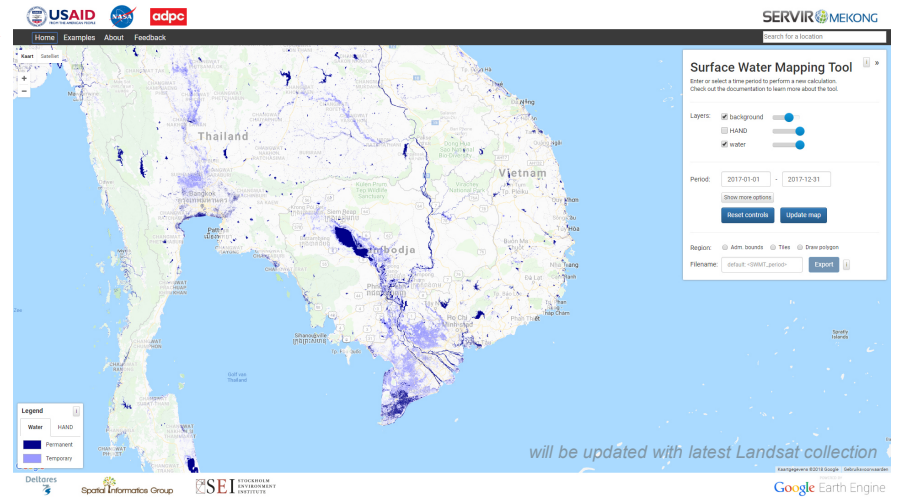


Introduction: history

Decision Support Tools

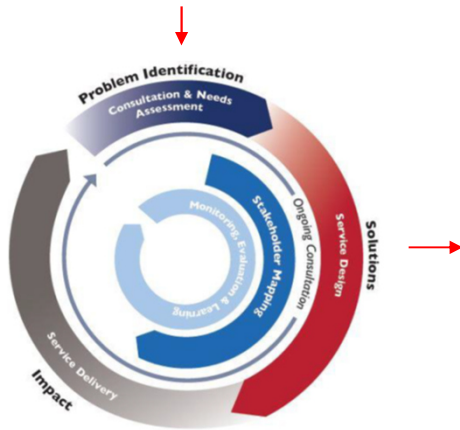
These high quality user-tailored decision support tools and applications have been developed to address on-the-ground issues, empowering decision-makers to act locally on climate-sensitive challenges such as disasters, agriculture, water management, ecosystem protection and land use.

| | | | | |
|--|---|--|--|---|
|  <p>Regional Land Cover Monitoring System</p> <p>This system guides users in applying peer-reviewed methods and cloud computing power to produce a wide variety of high-quality land cover information products that can be updated regularly and consistently.</p> |  <p>Surface Water Mapping Tool</p> <p>Surface water distribution changes over space and time and these patterns can provide insight into ecological structure and function, patterns of flooding and flood risk, and the impacts of infrastructure and climate...</p> |  <p>Regional Drought and Crop Yield Information System</p> <p>Droughts in the Lower Mekong region negatively impact ecosystem services, food and water security, and biodiversity. These impacts are exacerbated by climate change, further highlighting the need for improved governance...</p> |  <p>Satellite Radar-derived Virtual Rain and Stream Gauge Data Service</p> <p>This service provides near real-time rainfall and stream height data from publicly available satellite measurements by creation of a virtual network of rain gauges and stream gauges at points widely distributed over the...</p> |  <p>ClimateSERV</p> <p>This tool allows development practitioners, scientists/researchers, and government decision-makers to visualize and download historical rainfall data, vegetation condition data, and 180-day forecasts of rainfall and...</p> |
|--|---|--|--|---|



will be updated with latest Landsat collection

based on [Donchyts \(2018\)](#)



Needs:

- as real-time as possible
- specifically for floods
- preferably with a daily time step



HYDRAFloods

HYDrologic Remote sensing Analysis for Floods





Context: operations



HYDRAFloods



Open Science



Open Source



Web portal with analytics



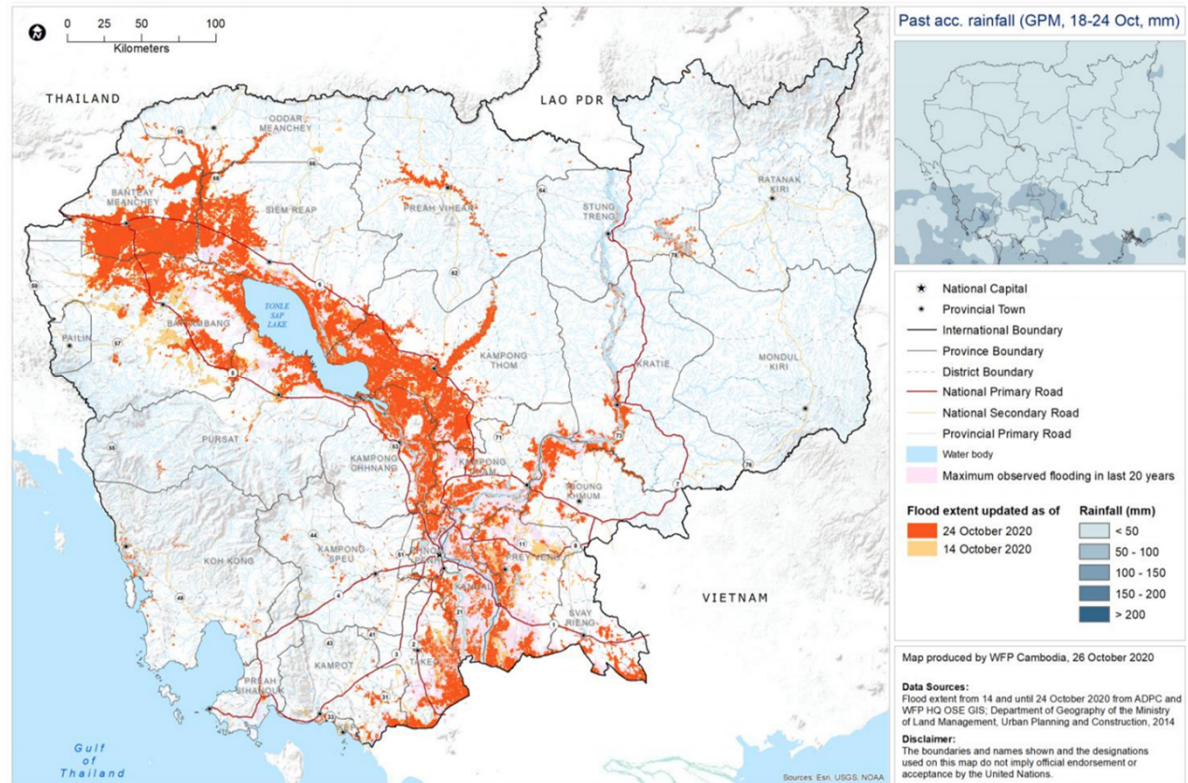
Dedicated data streams



Capacity building



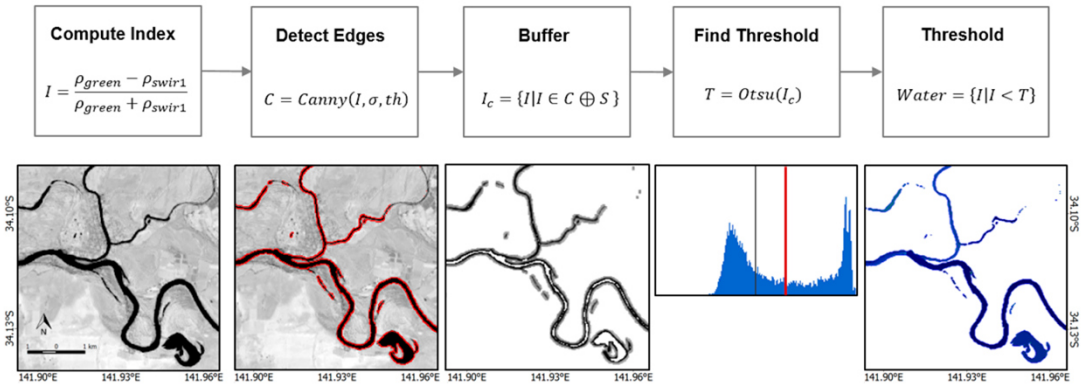
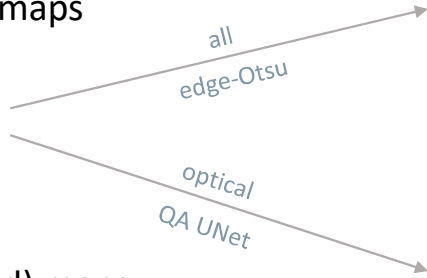
SATELLITE-DETECTED WATER (as of 24 October 2020)



Context: science

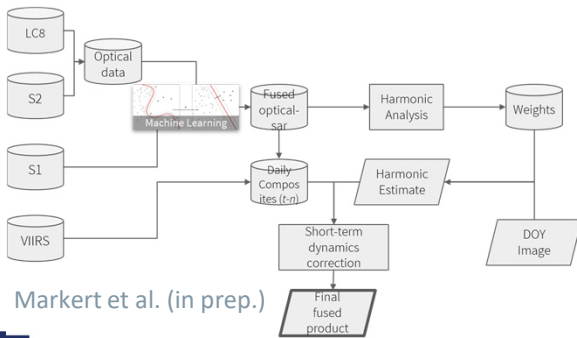


- Single sensor (flood) maps
 - Sentinel-1
 - Sentinel-2
 - Landsat 8

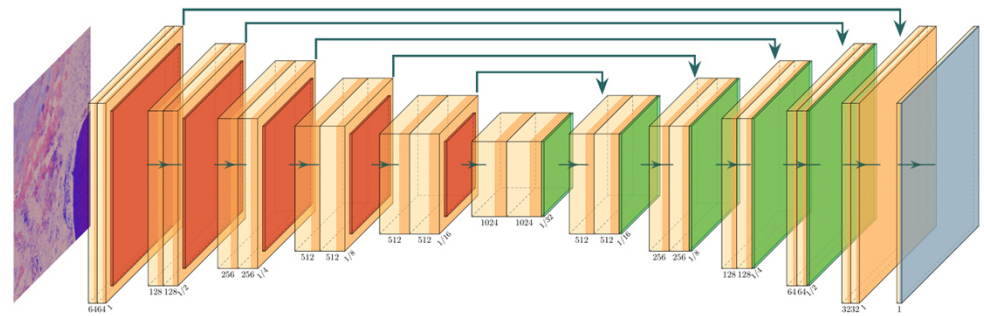


Donchyts et al. (2016), Markert et al. (2020)

- Daily data fused (flood) maps



Markert et al. (in prep.)



based on *Hughes et al. (2019)*



Lessons learned (1)

Learn from other satellite-derived flood mapping services*:



Flood Observatory



Copernicus EMS



RSS-Hydro



None offer the combination of:

- continuous monitoring
- multiple sensors
- free product/licensing

Complemented with:

- stakeholder engagement
- capacity building
- co-development
- open science & open source

* non-exhaustive list in no particular order

Which is not to say these are no good, some might fit your need. Be aware of the pros and cons of each service (including ours).

Lessons learned (2)

Learn from (your) end users*:



Important:

- data access
- (near) real-time
- flood severity & impacts
- link to forecasting, anticipatory action & early warning
- quality & uncertainty
- institutionalized

** again, non-exhaustive list in no particular order*





Contact and questions

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