**Supplementary Material for**

**HYDRAFloods Module 2**

Optical Water Indices

SERVIR Science Coordination Office

Curriculum Development Team

Micky Maganini

Contact: [mrm0065@uah.edu](mailto:mrm0065@uah.edu)

Prepared for “Observing and Modelling Surface Water in a Changing World” at ITC

Quartile 3 2022-2023



In the below table…

* “Red” represents radiance/reflectance in the red band
* “Green” represents radiance/reflectance in the green band
* “Blue” represents radiance/reflectance in the blue band
* “NIR” represents radiance/reflectance in the Near infrared band (0.85 - 0.88 microns on Landsat 8)
* “Swir1” represents radiance/reflectance in the first shortwave infrared band (1.57-1.65 microns on Landsat 8)
* “Swir2” represents radiance/reflectance in the second shortwave infrared band (2.11-2.99 microns on Landsat 8)

| Index Name | Formula | HYDRAFloods Code | Reference |
| --- | --- | --- | --- |
| Modified Normalized Water Index (MNDWI) |  | hf.mndwi   | <https://doi.org/10.1080/01431160600589179> |
| New Water Index (NWI) |  | hf.nwi   | <https://www.mdpi.com/2073-4441/13/12/1647> |
| General Water Index (GWI) |  | hf.gwi   | <https://github.com/Servir-Mekong/hydra-floods/blob/master/hydrafloods/indices.py> |
| Automated Water Extraction Index No Shadow |  | hf.aewinsh   | [https://doi.org10.1016/j.rse.2013.08.029](about:blank) |
| Automated Water Extraction Index with Shadow |  | hf.aewish   | <https://doi.org/10.1016/j.rse.2013.08.029> |
| Land Surface Water Index |  | hf.lswi   | <https://doi.org/10.1080/01431160802572653> |
| Water Ratio Index |  | hf.wri   | <https://doi.org/10.1109/GEOINFORMATICS.2010.5567762> |
| Multi Band Water Index |  | hf.mbwi   | <https://doi.org/10.1016/j.jag.2018.01.018> |
| Modified Water Index |  | hf.mwi   | <https://ieeexplore.ieee.org/document/9011209> |