

Package: waterquality (via r-universe)

May 28, 2026

Title Satellite Derived Water Quality Detection Algorithms

Version 1.0.0

Description The main purpose of waterquality is to quickly and easily convert satellite-based reflectance imagery into one or many well-known water quality algorithms designed for the detection of harmful algal blooms or the following pigment proxies: chlorophyll-a, blue-green algae (phycocyanin), and turbidity. Johansen et al. (2019) <[doi:10.21079/11681/35053](https://doi.org/10.21079/11681/35053)>.

Depends R (>= 3.4.0)

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Encoding UTF-8

LazyData true

Imports methods, terra, purrr, caret, magrittr, dplyr

RoxygenNote 7.2.3

Suggests testthat, knitr, tibble, rmarkdown, covr, tmap, tmaptools, sf

URL <https://github.com/RAJohansen/waterquality>

BugReports <https://github.com/RAJohansen/waterquality/issues>

VignetteBuilder knitr

NeedsCompilation no

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Config/pak/sysreqs libgdal-dev gdal-bin libgeos-dev libicu-dev libproj-dev libsqlite3-dev

Repository <https://cranhaven.r-universe.dev>

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RemoteSubdir waterquality

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A110SABI

*A110SABI algorithm***Description**

Applies the A110SABI algorithm

Usage

A110SABI(w857, w644, w458, w529)

Arguments

| | |
|------|--|
| w857 | numeric. Value at wavelength of 857 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 458 nm |
| w529 | numeric. Value at wavelength of 529 nm |

Value

SpatRaster or numeric

References

Alawadi, F. Detection of surface algal blooms using the newly developed algorithm surface algal bloom index (SABI). Proc. SPIE 2010, 7825.

See Also

Other algorithms: [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTibblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Am092Bsub

Am092Bsub algorithm

Description

Applies the Am092Bsub algorithm

Usage

`Am092Bsub(w681, w665)`

Arguments

w681 numeric. Value at wavelength of 681 nm

w665 numeric. Value at wavelength of 665 nm

Value

SpatRaster or numeric

References

Amin, R.; Zhou, J.; Gilerson, A.; Gross, B.; Moshary, F.; Ahmed, S. Novel optical techniques for detecting and classifying toxic dinoflagellate *Karenia brevis* blooms using satellite imagery. *Opt. Express* 2009, 17, 9126–9144.

See Also

Other algorithms: [A110SABI\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIViolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Am09KBBI

Am09KBBI algorithm

Description

Applies the Am09KBBI algorithm

Usage

`Am09KBBI(w686, w658)`

Arguments

| | |
|------|--|
| w686 | numeric. Value at wavelength of 686 nm |
| w658 | numeric. Value at wavelength of 658 nm |

Value

SpatRaster or numeric

References

Amin, R.; Zhou, J.; Gilerson, A.; Gross, B.; Moshary, F.; Ahmed, S.; Novel optical techniques for detecting and classifying toxic dinoflagellate *Karenia brevis* blooms using satellite imagery, *Optics Express*, 2009, 17, 11, 1-13.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

 Be162B643sub629

Be162B643sub629 algorithm

Description

Applies the Be162B643sub629 algorithm

Usage

Be162B643sub629(w644, w629)

Arguments

| | |
|------|--|
| w644 | numeric. Value at wavelength of 644 nm |
| w629 | numeric. Value at wavelength of 729 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

 Be162B700sub601

Be162B700sub601 algorithm

Description

Applies the Be162B700sub601 algorithm

Usage

Be162B700sub601(w700, w601)

Arguments

| | |
|------|--|
| w700 | numeric. Value at wavelength of 700 nm |
| w601 | numeric. Value at wavelength of 601 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

 Be162BsubPhy

Be162BsubPhy algorithm

Description

Applies the Be162BsubPhy algorithm

Usage

Be162BsubPhy(w715, w615)

Arguments

| | |
|------|--|
| w715 | numeric. Value at wavelength of 715 nm |
| w615 | numeric. Value at wavelength of 615 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHblue_LS8

Be16FLHblue_LS8 algorithm

Description

Applies the Be16FLHblue_LS8 algorithm

Usage

```
Be16FLHblue_LS8(w529, w644, w458)
```

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

| | |
|-------------------|------------------------------------|
| Be16FLHblue_MERIS | <i>Be16FLHblue_MERIS algorithm</i> |
|-------------------|------------------------------------|

Description

Applies the Be16FLHblue_MERIS algorithm

Usage

Be16FLHblue_MERIS(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

| | |
|------------------|-----------------------------------|
| Be16FLHblue_OLCI | <i>Be16FLHblue_OLCI algorithm</i> |
|------------------|-----------------------------------|

Description

Applies the Be16FLHblue_OLCI algorithm

Usage

Be16FLHblue_OLCI(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHblue_S2

Be16FLHblue_S2 algorithm

Description

Applies the Be16FLHblue_S2 algorithm

Usage

Be16FLHblue_S2(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHblue_WV2

Be16FLHblue_WV2 algorithm

Description

Applies the Be16FLHblue_WV2 algorithm

Usage

Be16FLHblue_WV2(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHBlueRedNIR_LS8 *Be16FLHBlueRedNIR_LS8 algorithm*

Description

Applies the Be16FLHBlueRedNIR_LS8 algorithm

Usage

Be16FLHBlueRedNIR_LS8(w658, w857, w458)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHBlueRedNIR_MERIS

Be16FLHBlueRedNIR_MERIS algorithm

Description

Applies the Be16FLHBlueRedNIR_MERIS algorithm

Usage

Be16FLHBlueRedNIR_MERIS(w658, w857, w458)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIViolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHBlueRedNIR_OLCI

Be16FLHBlueRedNIR_OLCI algorithm

Description

Applies the Be16FLHBlueRedNIR_OLCI algorithm

Usage

Be16FLHBlueRedNIR_OLCI(w658, w857, w458)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHBlueRedNIR_S2 *Be16FLHBlueRedNIR_S2 algorithm*

Description

Applies the Be16FLHBlueRedNIR_S2 algorithm

Usage

Be16FLHBlueRedNIR_S2(w658, w857, w458)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHBlueRedNIR_WV2 *Be16FLHBlueRedNIR_WV2 algorithm*

Description

Applies the Be16FLHBlueRedNIR_WV2 algorithm

Usage

Be16FLHBlueRedNIR_WV2(w658, w857, w458)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHGreenRedNIR_LS8

Be16FLHGreenRedNIR_LS8 algorithm

Description

Applies the Be16FLHGreenRedNIR_LS8 algorithm

Usage

Be16FLHGreenRedNIR_LS8(w658, w857, w558)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w558 | numeric. Value at wavelength of 558 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHGreenRedNIR_MERIS

Be16FLHGreenRedNIR_MERIS algorithm

Description

Applies the Be16FLHGreenRedNIR_MERIS algorithm

Usage

Be16FLHGreenRedNIR_MERIS(w658, w857, w558)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w558 | numeric. Value at wavelength of 558 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHGreenRedNIR_OLCI

Be16FLHGreenRedNIR_OLCI algorithm

Description

Applies the Be16FLHGreenRedNIR_OLCI algorithm

Usage

Be16FLHGreenRedNIR_OLCI(w658, w857, w558)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w558 | numeric. Value at wavelength of 558 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHGreenRedNIR_S2 *Be16FLHGreenRedNIR_S2 algorithm*

Description

Applies the Be16FLHGreenRedNIR_S2 algorithm

Usage

Be16FLHGreenRedNIR_S2(w658, w857, w558)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w558 | numeric. Value at wavelength of 558 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHGreenRedNIR_WV2

Be16FLHGreenRedNIR_WV2 algorithm

Description

Applies the Be16FLHGreenRedNIR_WV2 algorithm

Usage

Be16FLHGreenRedNIR_WV2(w658, w857, w558)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w558 | numeric. Value at wavelength of 558 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

| | |
|-------------------|------------------------------------|
| Be16FLHviolet_LS8 | <i>Be16FLHviolet_LS8 algorithm</i> |
|-------------------|------------------------------------|

Description

Applies the Be16FLHviolet_LS8 algorithm

Usage

Be16FLHviolet_LS8(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 429 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, Remote Sens. Environ., 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHviolet_MERIS *Be16FLHviolet_MERIS algorithm*

Description

Applies the Be16FLHviolet_MERIS algorithm

Usage

Be16FLHviolet_MERIS(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 429 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [Turblath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHviolet_OLCI *Be16FLHviolet_OLCI algorithm*

Description

Applies the Be16FLHviolet_OLCI algorithm

Usage

Be16FLHviolet_OLCI(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 429 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

 Be16FLHviolet_S2

Be16FLHviolet_S2 algorithm

Description

Applies the Be16FLHviolet_S2 algorithm

Usage

Be16FLHviolet_S2(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 429 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHvioletRedNIR_LS8\(\)](#), [Be16FLHvioletRedNIR_MERIS\(\)](#), [Be16FLHvioletRedNIR_OLCI\(\)](#), [Be16FLHvioletRedNIR_S2\(\)](#), [Be16FLHvioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

| | |
|-------------------|------------------------------------|
| Be16FLHviolet_WV2 | <i>Be16FLHviolet_WV2 algorithm</i> |
|-------------------|------------------------------------|

Description

Applies the Be16FLHviolet_WV2 algorithm

Usage

Be16FLHviolet_WV2(w529, w644, w458)

Arguments

| | |
|------|--|
| w529 | numeric. Value at wavelength of 529 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w458 | numeric. Value at wavelength of 429 nm |

Value

SpatRaster or numeric

References

Beck, R.A. and 22 others; Comparison of satellite reflectance algorithms for estimating chlorophyll-a in a temperate reservoir using coincident hyperspectral aircraft imagery and dense coincident surface observations, *Remote Sens. Environ.*, 2016, 178, 15-30.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTlblue\(\)](#), [Be16NDTlviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHVioletRedNIR_LS8

Be16FLHVioletRedNIR_LS8 algorithm

Description

Applies the Be16FLHVioletRedNIR_LS8 algorithm

Usage

Be16FLHVioletRedNIR_LS8(w658, w857, w444)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHVioletRedNIR_MERIS

Be16FLHVioletRedNIR_MERIS algorithm

Description

Applies the Be16FLHVioletRedNIR_MERIS algorithm

Usage

Be16FLHVioletRedNIR_MERIS(w658, w857, w444)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHVioletRedNIR_OLCI

Be16FLHVioletRedNIR_OLCI algorithm

Description

Applies the Be16FLHVioletRedNIR_OLCI algorithm

Usage

Be16FLHVioletRedNIR_OLCI(w658, w857, w444)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTblue\(\)](#), [Be16NDTiviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHVioletRedNIR_S2

Be16FLHVioletRedNIR_S2 algorithm

Description

Applies the Be16FLHVioletRedNIR_S2 algorithm

Usage

Be16FLHVioletRedNIR_S2(w658, w857, w444)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTblue\(\)](#), [Be16NDTiviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16FLHVioletRedNIR_WV2

Be16FLHVioletRedNIR_WV2 algorithm

Description

Applies the Be16FLHVioletRedNIR_WV2 algorithm

Usage

Be16FLHVioletRedNIR_WV2(w658, w857, w444)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w857 | numeric. Value at wavelength of 857 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [Turblath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

 Be16NDPhyI

Be16NDPhyI algorithm

Description

Applies the Be16NDPhyI algorithm

Usage

Be16NDPhyI(w700, w622)

Arguments

| | |
|------|--|
| w700 | numeric. Value at wavelength of 700 nm |
| w622 | numeric. Value at wavelength of 622 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [Turblath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16NDPhyI644over615 *Be16NDPhyI644over615 algorithm*

Description

Applies the Be16NDPhyI644over615 algorithm

Usage

Be16NDPhyI644over615(w644, w615)

Arguments

| | |
|------|--|
| w644 | numeric. Value at wavelength of 644 nm |
| w615 | numeric. Value at wavelength of 615 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16NDPhyI644over629 *Be16NDPhyI644over629 algorithm*

Description

Applies the Be16NDPhyI644over629 algorithm

Usage

Be16NDPhyI644over629(w644, w629)

Arguments

| | |
|------|--|
| w644 | numeric. Value at wavelength of 644 nm |
| w629 | numeric. Value at wavelength of 629 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

 Be16NDTIblue

Be16NDTIblue algorithm

Description

Applies the Be16NDTIblue algorithm

Usage

Be16NDTIblue(w658, w458)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: `Al10SABI()`, `Am092Bsub()`, `Am09KBBI()`, `Be162B643sub629()`, `Be162B700sub601()`, `Be162BsubPhy()`, `Be16FLHBlueRedNIR_LS8()`, `Be16FLHBlueRedNIR_MERIS()`, `Be16FLHBlueRedNIR_OLCI()`, `Be16FLHBlueRedNIR_S2()`, `Be16FLHBlueRedNIR_WV2()`, `Be16FLHGreenRedNIR_LS8()`, `Be16FLHGreenRedNIR_MERIS()`, `Be16FLHGreenRedNIR_OLCI()`, `Be16FLHGreenRedNIR_S2()`, `Be16FLHGreenRedNIR_WV2()`, `Be16FLHVioletRedNIR_LS8()`, `Be16FLHVioletRedNIR_MERIS()`, `Be16FLHVioletRedNIR_OLCI()`, `Be16FLHVioletRedNIR_S2()`, `Be16FLHVioletRedNIR_WV2()`, `Be16FLHblue_LS8()`, `Be16FLHblue_MERIS()`, `Be16FLHblue_OLCI()`, `Be16FLHblue_S2()`, `Be16FLHblue_WV2()`, `Be16FLHviolet_LS8()`, `Be16FLHviolet_MERIS()`, `Be16FLHviolet_OLCI()`, `Be16FLHviolet_S2()`, `Be16FLHviolet_WV2()`, `Be16NDPhyI644over615()`, `Be16NDPhyI644over629()`, `Be16NDPhyI()`, `Be16NDTIviolet()`, `Be16Phy2BDA644over629()`, `Da052BDA()`, `De933BDA()`, `Gi033BDA()`, `Go04MCI()`, `HU103BDA()`, `Kn07KIVU()`, `MI092BDA()`, `MM092BDA()`, `MM12NDCIalt()`, `MM12NDCI()`, `MM143BDAopt()`, `SI052BDA()`, `SM122BDA()`, `SY002BDA()`, `TurbBe16GreenPlusRedBothOverViolet()`, `TurbBe16RedOverViolet()`, `TurbBow06RedOverGreen()`, `TurbChip09NIR0verGreen()`, `TurbDox02NIRoverRed()`, `TurbFrohn09GreenPlusRedBothOverBlue()`, `TurbHarr92NIR()`, `TurbLath91RedOverBlue()`, `TurbMoore80Red()`, `Wy08CI()`

Be16NDTIviolet

Be16NDTIviolet algorithm

Description

Applies the Be16NDTIviolet algorithm

Usage

```
Be16NDTIviolet(w658, w444)
```

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIR0verGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [Turblath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Be16Phy2BDA644over629 *Be16Phy2BDA644over629 algorithm*

Description

Applies the Be16Phy2BDA644over629 algorithm

Usage

Be16Phy2BDA644over629(w644, w629)

Arguments

| | |
|------|--|
| w644 | numeric. Value at wavelength of 644 nm |
| w629 | numeric. Value at wavelength of 629 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIR0verGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Da052BDA

*Da052BDA algorithm***Description**

Applies the Da052BDA algorithm

Usage

Da052BDA(w714, w672)

Arguments

| | |
|------|--|
| w714 | numeric. Value at wavelength of 714 nm |
| w672 | numeric. Value at wavelength of 672 nm |

Value

SpatRaster or numeric

References

Wynne, T. T., Stumpf, R. P., Tomlinson, M. C., Warner, R. A., Tester, P. A., Dyble, J.; Relating spectral shape to cyanobacterial blooms in the Laurentian Great Lakes. *Int. J. Remote Sens.*, 2008, 29, 3665–3672.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIR0verGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

De933BDA

*De933BDA algorithm***Description**

Applies the De933BDA algorithm

Usage

```
De933BDA(w600, w648, w625)
```

Arguments

| | |
|------|--|
| w600 | numeric. Value at wavelength of 600 nm |
| w648 | numeric. Value at wavelength of 648 nm |
| w625 | numeric. Value at wavelength of 625 nm |

Value

SpatRaster or numeric

References

Dekker, A.; Detection of the optical water quality parameters for eutrophic waters by high resolution remote sensing, Ph.D. thesis, 1993, Free University, Amsterdam.

See Also

Other algorithms: `Al10SABI()`, `Am092Bsub()`, `Am09KBBI()`, `Be162B643sub629()`, `Be162B700sub601()`, `Be162BsubPhy()`, `Be16FLHBlueRedNIR_LS8()`, `Be16FLHBlueRedNIR_MERIS()`, `Be16FLHBlueRedNIR_OLCI()`, `Be16FLHBlueRedNIR_S2()`, `Be16FLHBlueRedNIR_WV2()`, `Be16FLHGreenRedNIR_LS8()`, `Be16FLHGreenRedNIR_MERIS()`, `Be16FLHGreenRedNIR_OLCI()`, `Be16FLHGreenRedNIR_S2()`, `Be16FLHGreenRedNIR_WV2()`, `Be16FLHVioletRedNIR_LS8()`, `Be16FLHVioletRedNIR_MERIS()`, `Be16FLHVioletRedNIR_OLCI()`, `Be16FLHVioletRedNIR_S2()`, `Be16FLHVioletRedNIR_WV2()`, `Be16FLHblue_LS8()`, `Be16FLHblue_MERIS()`, `Be16FLHblue_OLCI()`, `Be16FLHblue_S2()`, `Be16FLHblue_WV2()`, `Be16FLHviolet_LS8()`, `Be16FLHviolet_MERIS()`, `Be16FLHviolet_OLCI()`, `Be16FLHviolet_S2()`, `Be16FLHviolet_WV2()`, `Be16NDPhyI644over615()`, `Be16NDPhyI644over629()`, `Be16NDPhyI()`, `Be16NDTIblue()`, `Be16NDTIviolet()`, `Be16Phy2BDA644over629()`, `Da052BDA()`, `Gi033BDA()`, `Go04MCI()`, `HU103BDA()`, `Kn07KIVU()`, `MI092BDA()`, `MM092BDA()`, `MM12NDCIalt()`, `MM12NDCI()`, `MM143BDAopt()`, `SI052BDA()`, `SM122BDA()`, `SY002BDA()`, `TurbBe16GreenPlusRedBothOverViolet()`, `TurbBe16RedOverViolet()`, `TurbBow06RedOverGreen()`, `TurbChip09NIROverGreen()`, `TurbDox02NIRoverRed()`, `TurbFrohn09GreenPlusRedBothOverBlue()`, `TurbHarr92NIR()`, `TurbLath91RedOverBlue()`, `TurbMoore80Red()`, `Wy08CI()`

extract_lm

Run linear model (lm)

Description

The function runs a linear model on a single water quality parameter and a water quality algorithm and returns a data frame containing the following: r^2 , p-value, slope, and intercept of the model

Usage

```
extract_lm(parameter, algorithm, df)
```

Arguments

| | |
|-----------|--|
| parameter | A string specifying water quality parameter |
| algorithm | A string specifying water quality algorithm |
| df | data frame containing the values for parameter and algorithm arguments |

Value

A data frame of the model results

References

Johansen, Richard; et al. (2018). Evaluating the portability of satellite derived chlorophyll-a algorithms for temperate inland lakes using airborne hyperspectral imagery and dense surface observations. *Harmful Algae*. 76. 10.1016/j.hal.2018.05.001.

R Core Team (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.

See Also

Other extract_lm: [extract_lm_cv_all\(\)](#), [extract_lm_cv_multi\(\)](#), [extract_lm_cv\(\)](#)

 extract_lm_cv

Run linear model with crossvalidation

Description

The function runs a linear model on a single water quality parameter and a water quality algorithm and conducts a k-folds cross validation, which returns a data frame containing the following: The r^2 , p-value, slope, intercept of the global lm model & average r^2 , average RMSE, average MAE from the crossvalidated model

Usage

```
extract_lm_cv(
  parameter,
  algorithm,
  df,
  train_method = "lm",
  control_method = "repeatedcv",
  folds = 3,
  nrepeats = 5
)
```

Arguments

| | |
|----------------|---|
| parameter | water quality parameter |
| algorithm | water quality algorithm |
| df | data frame containing the values for parameter and algorithm arguments |
| train_method | A string specifying which classification or regression model to use (Default = "lm"). See <code>?caret::train</code> for more details |
| control_method | A string specifying the resampling method (Default = "repeatedcv"). See <code>?caret::trainControl</code> for more details |
| folds | the number of folds to be used in the cross validation model |
| nrepeats | the number of iterations to be used in the cross validation model |

Value

A data frame of the model results

References

Johansen, Richard; et al. (2018). Evaluating the portability of satellite derived chlorophyll-a algorithms for temperate inland lakes using airborne hyperspectral imagery and dense surface observations. *Harmful Algae*. 76. 10.1016/j.hal.2018.05.001.

R Core Team (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.

Max Kuhn. Contributions from Jed Wing, Steve Weston, Andre Williams, Chris Keefer, Allan Engelhardt, Tony Cooper, Zachary Mayer, Brenton Kenkel, the R Core Team, Michael Benesty, Reynald Lescarbeau, Andrew Ziem, Luca Scrucca, Yuan Tang, Can Candan and Tyler Hunt. (2018). caret: Classification and Regression Training. R package version 6.0-81. <https://CRAN.R-project.org/package=caret>

See Also

Other extract_lm: [extract_lm_cv_all\(\)](#), [extract_lm_cv_multi\(\)](#), [extract_lm\(\)](#)

| | |
|-------------------|--|
| extract_lm_cv_all | <i>Run linear model with crossvalidation over multiple dependent and all numeric independent variables in a data frame</i> |
|-------------------|--|

Description

The function runs a linear model on a list of x and list of y variables and conducts a k-folds cross validation, which returns a data frame containing the following: The r^2 , p-value, slope, intercept of the global lm model & average r^2 , average RMSE, average MAE from the crossvalidated model

Usage

```
extract_lm_cv_all(
  parameters,
  df,
  train_method = "lm",
  control_method = "repeatedcv",
  folds = 3,
  nrepeats = 5
)
```

Arguments

| | |
|----------------|---|
| parameters | the list of dependent variables to be evaluated |
| df | data frame containing the values for parameter and algorithm arguments |
| train_method | A string specifying which classification or regression model to use (Default = "lm"). See <code>?caret::train</code> for more details |
| control_method | A string specifying the resampling method (Default = "repeatedcv"). See <code>?caret::trainControl</code> for more details |
| folds | the number of folds to be used in the cross validation model |
| nrepeats | the number of iterations to be used in the cross validation model |

Value

A data frame of the model results

References

Johansen, Richard; et al. (2018). Evaluating the portability of satellite derived chlorophyll-a algorithms for temperate inland lakes using airborne hyperspectral imagery and dense surface observations. *Harmful Algae*. 76. 10.1016/j.hal.2018.05.001.

R Core Team (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.

Max Kuhn. Contributions from Jed Wing, Steve Weston, Andre Williams, Chris Keefer, Allan Engelhardt, Tony Cooper, Zachary Mayer, Brenton Kenkel, the R Core Team, Michael Benesty, Reynald Lescarbeau, Andrew Ziem, Luca Scrucca, Yuan Tang, Can Candan and Tyler Hunt. (2018). caret: Classification and Regression Training. R package version 6.0-81. <https://CRAN.R-project.org/package=caret>

See Also

Other extract_lm: [extract_lm_cv_multi\(\)](#), [extract_lm_cv\(\)](#), [extract_lm\(\)](#)

| | |
|---------------------|--|
| extract_lm_cv_multi | <i>Run linear model with crossvalidation over multiple independent and dependent variables</i> |
|---------------------|--|

Description

The function runs a linear model on a list of x and list of y variables and conducts a k-folds cross validation, which returns a data frame containing the following: The r^2 , p-value, slope, intercept of the global lm model & average r^2 , average RMSE, average MAE from the crossvalidated model

Usage

```
extract_lm_cv_multi(  
  parameters,  
  algorithms,  
  df,  
  train_method = "lm",  
  control_method = "repeatedcv",  
  folds = 3,  
  nrepeats = 5  
)
```

Arguments

| | |
|----------------|---|
| parameters | the list of a water quality parameters to be evaluated |
| algorithms | the list of water quality algorithms to be evaluated |
| df | data frame containing the values for parameters and algorithms arguments |
| train_method | A string specifying which classification or regression model to use (Default = "lm"). See <code>?caret::train</code> for more details |
| control_method | A string specifying the resampling method (Default = "repeatedcv"). See <code>?caret::trainControl</code> for more details |
| folds | the number of folds to be used in the cross validation model |
| nrepeats | the number of iterations to be used in the cross validation model |

Value

A data frame of the model results

References

Johansen, Richard; et al. (2018). Evaluating the portability of satellite derived chlorophyll-a algorithms for temperate inland lakes using airborne hyperspectral imagery and dense surface observations. *Harmful Algae*. 76. 10.1016/j.hal.2018.05.001.

R Core Team (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.

Max Kuhn. Contributions from Jed Wing, Steve Weston, Andre Williams, Chris Keefer, Allan Engelhardt, Tony Cooper, Zachary Mayer, Brenton Kenkel, the R Core Team, Michael Benesty, Reynald Lescarbeau, Andrew Ziem, Luca Scrucca, Yuan Tang, Can Candan and Tyler Hunt. (2018). *caret: Classification and Regression Training*. R package version 6.0-81. <https://CRAN.R-project.org/package=caret>

See Also

Other `extract_lm`: [extract_lm_cv_all\(\)](#), [extract_lm_cv\(\)](#), [extract_lm\(\)](#)

Gi033BDA

Gi033BDA algorithm

Description

Applies the Gi033BDA algorithm

Usage

`Gi033BDA(w672, w715, w757)`

Arguments

| | |
|------|--|
| w672 | numeric. Value at wavelength of 672 nm |
| w715 | numeric. Value at wavelength of 715 nm |
| w757 | numeric. Value at wavelength of 757 nm |

Value

SpatRaster or numeric

References

Gitelson, A.A.; U. Gritz, and M. N. Merzlyak.; Relationships between leaf chlorophyll content and spectral reflectance and algorithms for non-destructive chlorophyll assessment in higher plant leaves. J. Plant Phys. 2003, 160, 271-282.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Go04MCI

Go04MCI algorithm

Description

Applies the Go04MCI algorithm

Usage

`Go04MCI(w709, w681, w753)`

Arguments

| | |
|------|--|
| w709 | numeric. Value at wavelength of 709 nm |
| w681 | numeric. Value at wavelength of 681 nm |
| w753 | numeric. Value at wavelength of 753 nm |

Value

SpatRaster or numeric

References

Gower, J.F.R.; Brown, L.; Borstad, G.A.; Observation of chlorophyll fluorescence in west coast waters of Canada using the MODIS satellite sensor. *Can. J. Remote Sens.*, 2004, 30 (1), 17–25.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIR0verGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

HU103BDA

HU103BDA algorithm

Description

Applies the HU103BDA algorithm

Usage

HU103BDA(w615, w600, w725)

Arguments

| | |
|------|--|
| w615 | numeric. Value at wavelength of 615 nm |
| w600 | numeric. Value at wavelength of 600 nm |
| w725 | numeric. Value at wavelength of 725 nm |

Value

SpatRaster or numeric

References

Hunter, P.D.; Tyler, A.N.; Willby, N.J.; Gilvear, D.J.; The spatial dynamics of vertical migration by *Microcystis aeruginosa* in a eutrophic shallow lake: A case study using high spatial resolution time-series airborne remote sensing. *Limn. Oceanogr.* 2008, 53, 2391-2406.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

Kn07KIVU

Kn07KIVU algorithm

Description

Applies the Kn07KIVU algorithm

Usage

Kn07KIVU(w458, w644, w529)

Arguments

| | |
|------|--|
| w458 | numeric. Value at wavelength of 458 nm |
| w644 | numeric. Value at wavelength of 644 nm |
| w529 | numeric. Value at wavelength of 529 nm |

Value

SpatRaster or numeric

References

Kneubuhler, M.; Frank T.; Kellenberger, T.W; Pasche N.; Schmid M.; Mapping chlorophyll-a in Lake Kivu with remote sensing methods. 2007, Proceedings of the Envisat Symposium 2007, Montreux, Switzerland 23–27 April 2007 (ESA SP-636, July 2007).

See Also

Other algorithms: `Al10SABI()`, `Am092Bsub()`, `Am09KBBI()`, `Be162B643sub629()`, `Be162B700sub601()`, `Be162BsubPhy()`, `Be16FLHBlueRedNIR_LS8()`, `Be16FLHBlueRedNIR_MERIS()`, `Be16FLHBlueRedNIR_OLCI()`, `Be16FLHBlueRedNIR_S2()`, `Be16FLHBlueRedNIR_WV2()`, `Be16FLHGreenRedNIR_LS8()`, `Be16FLHGreenRedNIR_MERIS()`, `Be16FLHGreenRedNIR_OLCI()`, `Be16FLHGreenRedNIR_S2()`, `Be16FLHGreenRedNIR_WV2()`, `Be16FLHVioletRedNIR_LS8()`, `Be16FLHVioletRedNIR_MERIS()`, `Be16FLHVioletRedNIR_OLCI()`, `Be16FLHVioletRedNIR_S2()`, `Be16FLHVioletRedNIR_WV2()`, `Be16FLHblue_LS8()`, `Be16FLHblue_MERIS()`, `Be16FLHblue_OLCI()`, `Be16FLHblue_S2()`, `Be16FLHblue_WV2()`, `Be16FLHviolet_LS8()`, `Be16FLHviolet_MERIS()`, `Be16FLHviolet_OLCI()`, `Be16FLHviolet_S2()`, `Be16FLHviolet_WV2()`, `Be16NDPhyI644over615()`, `Be16NDPhyI644over629()`, `Be16NDPhyI()`, `Be16NDTIblue()`, `Be16NDTIviolet()`, `Be16Phy2BDA644over629()`, `Da052BDA()`, `De933BDA()`, `Gi033BDA()`, `Go04MCI()`, `HU103BDA()`, `MI092BDA()`, `MM092BDA()`, `MM12NDCIalt()`, `MM12NDCI()`, `MM143BDAopt()`, `SI052BDA()`, `SM122BDA()`, `SY002BDA()`, `TurbBe16GreenPlusRedBothOverViolet()`, `TurbBe16RedOverViolet()`, `TurbBow06RedOverGreen()`, `TurbChip09NIROverGreen()`, `TurbDox02NIRoverRed()`, `TurbFrohn09GreenPlusRedBothOverBlue()`, `TurbHarr92NIR()`, `TurbLath91RedOverBlue()`, `TurbMoore80Red()`, `Wy08CI()`

Map_WQ_raster

Create waterquality Map with sampling points and optional histogram

Description

This function wraps the `tmap` package to help users generate fast and simple data visualization of their `WQ_calc` raster output along with optional geospatial objects and histogram

Usage

```
Map_WQ_raster(
  WQ_raster,
  sample_points,
  map_title,
  raster_style = "quantile",
  histogram = TRUE
)
```

Arguments

| | |
|----------------------------|---|
| <code>WQ_raster</code> | Raster file generated from <code>wq_calc</code> or other GeoTiff file |
| <code>sample_points</code> | geospatial file (.shp or .gpkg) containing sampling locations |
| <code>map_title</code> | text used to generate title of map |
| <code>raster_style</code> | method to process the color scale when <code>col</code> is a numeric variable. Please refer to the style argument in the <code>?tmap::tm_raster()</code> function for more details (Default is "quantile"). |
| <code>histogram</code> | Option to add or remove a histogram of the data values. (Default is TRUE) |

Value

A data visualization of the results

MI092BDA

*MI092BDA algorithm***Description**

Applies the MI092BDA algorithm

Usage

MI092BDA(w700, w600)

Arguments

| | |
|------|--|
| w700 | numeric. Value at wavelength of 700 nm |
| w600 | numeric. Value at wavelength of 600 nm |

Value

SpatRaster or numeric

References

Mishra, S.; Mishra, D.R.; Schluchter, W. M., A novel algorithm for predicting PC concentrations in cyanobacteria: A proximal hyperspectral remote sensing approach. *Remote Sens.*, 2009, 1, 758–775.

See Also

Other algorithms: A110SABI(), Am092Bsub(), Am09KBBI(), Be162B643sub629(), Be162B700sub601(), Be162BsubPhy(), Be16FLHBlueRedNIR_LS8(), Be16FLHBlueRedNIR_MERIS(), Be16FLHBlueRedNIR_OLCI(), Be16FLHBlueRedNIR_S2(), Be16FLHBlueRedNIR_WV2(), Be16FLHGreenRedNIR_LS8(), Be16FLHGreenRedNIR_MERIS(), Be16FLHGreenRedNIR_OLCI(), Be16FLHGreenRedNIR_S2(), Be16FLHGreenRedNIR_WV2(), Be16FLHVioletRedNIR_LS8(), Be16FLHVioletRedNIR_MERIS(), Be16FLHVioletRedNIR_OLCI(), Be16FLHVioletRedNIR_S2(), Be16FLHVioletRedNIR_WV2(), Be16FLHblue_LS8(), Be16FLHblue_MERIS(), Be16FLHblue_OLCI(), Be16FLHblue_S2(), Be16FLHblue_WV2(), Be16FLHviolet_LS8(), Be16FLHviolet_MERIS(), Be16FLHviolet_OLCI(), Be16FLHviolet_S2(), Be16FLHviolet_WV2(), Be16NDPhyI644over615(), Be16NDPhyI644over629(), Be16NDPhyI(), Be16NDTIblue(), Be16NDTIviolet(), Be16Phy2BDA644over629(), Da052BDA(), De933BDA(), Gi033BDA(), Go04MCI(), HU103BDA(), Kn07KIVU(), MM092BDA(), MM12NDCIalt(), MM12NDCI(), MM143BDAopt(), SI052BDA(), SM122BDA(), SY002BDA(), TurbBe16GreenPlusRedBothOverViolet(), TurbBe16RedOverViolet(), TurbBow06RedOverGreen(), TurbChip09NIROverGreen(), TurbDox02NIRoverRed(), TurbFrohn09GreenPlusRedBothOverBlue(), TurbHarr92NIR(), TurbLath91RedOverBlue(), TurbMoore80Red(), Wy08CI()

MM092BDA

*MM092BDA algorithm***Description**

Applies the MM092BDA algorithm

Usage

```
MM092BDA(w724, w600)
```

Arguments

| | |
|------|--|
| w724 | numeric. Value at wavelength of 724 nm |
| w600 | numeric. Value at wavelength of 600 nm |

Value

SpatRaster or numeric

References

Mishra, S.; Mishra, D.R.; Schluchter, W. M., A novel algorithm for predicting PC concentrations in cyanobacteria: A proximal hyperspectral remote sensing approach. *Remote Sens.*, 2009, 1, 758–775.

See Also

Other algorithms: `Al10SABI()`, `Am092Bsub()`, `Am09KBBI()`, `Be162B643sub629()`, `Be162B700sub601()`, `Be162BsubPhy()`, `Be16FLHBlueRedNIR_LS8()`, `Be16FLHBlueRedNIR_MERIS()`, `Be16FLHBlueRedNIR_OLCI()`, `Be16FLHBlueRedNIR_S2()`, `Be16FLHBlueRedNIR_WV2()`, `Be16FLHGreenRedNIR_LS8()`, `Be16FLHGreenRedNIR_MERIS()`, `Be16FLHGreenRedNIR_OLCI()`, `Be16FLHGreenRedNIR_S2()`, `Be16FLHGreenRedNIR_WV2()`, `Be16FLHVioletRedNIR_LS8()`, `Be16FLHVioletRedNIR_MERIS()`, `Be16FLHVioletRedNIR_OLCI()`, `Be16FLHVioletRedNIR_S2()`, `Be16FLHVioletRedNIR_WV2()`, `Be16FLHblue_LS8()`, `Be16FLHblue_MERIS()`, `Be16FLHblue_OLCI()`, `Be16FLHblue_S2()`, `Be16FLHblue_WV2()`, `Be16FLHviolet_LS8()`, `Be16FLHviolet_MERIS()`, `Be16FLHviolet_OLCI()`, `Be16FLHviolet_S2()`, `Be16FLHviolet_WV2()`, `Be16NDPhyI644over615()`, `Be16NDPhyI644over629()`, `Be16NDPhyI()`, `Be16NDTIblue()`, `Be16NDTIviolet()`, `Be16Phy2BDA644over629()`, `Da052BDA()`, `De933BDA()`, `Gi033BDA()`, `Go04MCI()`, `HU103BDA()`, `Kn07KIVU()`, `MI092BDA()`, `MM12NDCIalt()`, `MM12NDCI()`, `MM143BDAopt()`, `SI052BDA()`, `SM122BDA()`, `SY002BDA()`, `TurbBe16GreenPlusRedBothOverViolet()`, `TurbBe16RedOverViolet()`, `TurbBow06RedOverGreen()`, `TurbChip09NIROverGreen()`, `TurbDox02NIRoverRed()`, `TurbFrohn09GreenPlusRedBothOverBlue()`, `TurbHarr92NIR()`, `TurbLath91RedOverBlue()`, `TurbMoore80Red()`, `Wy08CI()`

MM12NDCI

*MM12NDCI algorithm***Description**

Applies the MM12NDCI algorithm

Usage

MM12NDCI(w715, w686)

Arguments

| | |
|------|--|
| w715 | numeric. Value at wavelength of 714 nm |
| w686 | numeric. Value at wavelength of 686 nm |

Value

SpatRaster or numeric

References

Mishra, S.; and Mishra, D.R. Normalized difference chlorophyll index: A novel model for remote estimation of chlorophyll-a concentration in turbid productive waters, *Remote Sens. Environ.*, 2012, 117, 394-406.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIR0verGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

MM12NDCIalt

*MM12NDCIalt algorithm***Description**

Applies the MM12NDCIalt algorithm

Usage

MM12NDCIalt(w700, w658)

Arguments

| | |
|------|--|
| w700 | numeric. Value at wavelength of 700 nm |
| w658 | numeric. Value at wavelength of 658 nm |

Value

SpatRaster or numeric

References

Mishra, S.; Mishra, D.R.; A novel remote sensing algorithm to quantify phycocyanin in cyanobacterial algal blooms, *Env. Res. Lett.*, 2014, 9 (11), DOI:10.1088/1748-9326/9/11/114003

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

MM143BDAopt

*MM143BDAopt algorithm***Description**

Applies the MM143BDAopt algorithm

Usage

MM143BDAopt(w629, w659, w724)

Arguments

| | |
|------|--|
| w629 | numeric. Value at wavelength of 629 nm |
| w659 | numeric. Value at wavelength of 659 nm |
| w724 | numeric. Value at wavelength of 724 nm |

Value

SpatRaster or numeric

References

Mishra, S.; Mishra, D.R.; A novel remote sensing algorithm to quantify phycocyanin in cyanobacterial algal blooms, *Env. Res. Lett.*, 2014, 9 (11), DOI:10.1088/1748-9326/9/11/114003

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [Turblath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

SI052BDA

*SI052BDA algorithm***Description**

Applies the SI052BDA algorithm

Usage

```
SI052BDA(w709, w620)
```

Arguments

| | |
|------|--|
| w709 | numeric. Value at wavelength of 709 nm |
| w620 | numeric. Value at wavelength of 620 nm |

Value

SpatRaster or numeric

References

Simis, S. G. H.; Peters, S.W. M.; Gons, H. J.; Remote sensing of the cyanobacteria pigment phycocyanin in turbid inland water. *Limn. Oceanogr.*, 2005, 50, 237–245.

See Also

Other algorithms: [Al10SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

SM122BDA

SM122BDA algorithm

Description

Applies the SM122BDA algorithm

Usage

SM122BDA(w709, w600)

Arguments

| | |
|------|--|
| w709 | numeric. Value at wavelength of 709 nm |
| w600 | numeric. Value at wavelength of 600 nm |

Value

SpatRaster or numeric

References

Mishra, S. Remote sensing of cyanobacteria in turbid productive waters, PhD Dissertation. Mississippi State University, USA. 2012.

See Also

Other algorithms: [Al10SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

SY002BDA

*SY002BDA algorithm***Description**

Applies the SY002BDA algorithm

Usage

SY002BDA(w650, w625)

Arguments

| | |
|------|--|
| w650 | numeric. Value at wavelength of 650 nm |
| w625 | numeric. Value at wavelength of 625 nm |

Value

SpatRaster or numeric

References

Schalles, J.; Yacobi, Y. Remote detection and seasonal patterns of phycocyanin, carotenoid and chlorophyll-a pigments in eutrophic waters. *Archiv fur Hydrobiologie, Special Issues Advances in Limnology*, 2000, 55,153–168.

See Also

Other algorithms: A110SABI(), Am092Bsub(), Am09KBBI(), Be162B643sub629(), Be162B700sub601(), Be162BsubPhy(), Be16FLHBlueRedNIR_LS8(), Be16FLHBlueRedNIR_MERIS(), Be16FLHBlueRedNIR_OLCI(), Be16FLHBlueRedNIR_S2(), Be16FLHBlueRedNIR_WV2(), Be16FLHGreenRedNIR_LS8(), Be16FLHGreenRedNIR_MERIS(), Be16FLHGreenRedNIR_OLCI(), Be16FLHGreenRedNIR_S2(), Be16FLHGreenRedNIR_WV2(), Be16FLHVioletRedNIR_LS8(), Be16FLHVioletRedNIR_MERIS(), Be16FLHVioletRedNIR_OLCI(), Be16FLHVioletRedNIR_S2(), Be16FLHVioletRedNIR_WV2(), Be16FLHblue_LS8(), Be16FLHblue_MERIS(), Be16FLHblue_OLCI(), Be16FLHblue_S2(), Be16FLHblue_WV2(), Be16FLHviolet_LS8(), Be16FLHviolet_MERIS(), Be16FLHviolet_OLCI(), Be16FLHviolet_S2(), Be16FLHviolet_WV2(), Be16NDPhyI644over615(), Be16NDPhyI644over629(), Be16NDPhyI(), Be16NDTIblue(), Be16NDTIviolet(), Be16Phy2BDA644over629(), Da052BDA(), De933BDA(), Gi033BDA(), Go04MCI(), HU103BDA(), Kn07KIVU(), MI092BDA(), MM092BDA(), MM12NDCIalt(), MM12NDCI(), MM143BDAopt(), SI052BDA(), SM122BDA(), TurbBe16GreenPlusRedBothOverViolet(), TurbBe16RedOverViolet(), TurbBow06RedOverGreen(), TurbChip09NIR0verGreen(), TurbDox02NIR0verRed(), TurbFrohn09GreenPlusRedBothOverBlue(), TurbHarr92NIR(), TurbLath91RedOverBlue(), TurbMoore80Red(), Wy08CI()

TurbBe16GreenPlusRedBothOverViolet

TurbBe16GreenPlusRedBothOverViolet algorithm

Description

Applies the TurbBe16GreenPlusRedBothOverViolet algorithm

Usage

TurbBe16GreenPlusRedBothOverViolet(w558, w658, w444)

Arguments

| | |
|------|--|
| w558 | numeric. Value at wavelength of 558 nm |
| w658 | numeric. Value at wavelength of 658 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIViolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

TurbBe16RedOverViolet *TurbBe16RedOverViolet algorithm*

Description

Applies the TurbBe16RedOverViolet algorithm

Usage

TurbBe16RedOverViolet(w658, w444)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w444 | numeric. Value at wavelength of 444 nm |

Value

SpatRaster or numeric

References

Beck, R.; Xu, M.; Zhan, S.; Liu, H.; Johansen, R.A.; Tong, S.; Yang, B.; Shu, S.; Wu, Q.; Wang, S.; Berling, K.; Murray, A.; Emery, E.; Reif, M.; Harwood, J.; Young, J.; Martin, M.; Stillings, G.; Stumpf, R.; Su, H.; Ye, Z.; Huang, Y. Comparison of Satellite Reflectance Algorithms for Estimating Phycocyanin Values and Cyanobacterial Total Biovolume in a Temperate Reservoir Using Coincident Hyperspectral Aircraft Imagery and Dense Coincident Surface Observations. *Remote Sens.* 2017, 9, 538.

See Also

Other algorithms: [Al10SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIViolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

TurbBow06RedOverGreen *TurbBow06RedOverGreen algorithm*

Description

Applies the TurbBow06RedOverGreen algorithm

Usage

TurbBow06RedOverGreen(w658, w558)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w558 | numeric. Value at wavelength of 558 nm |

Value

SpatRaster or numeric

References

Bowers, D. G., and C. E. Binding. 2006. The Optical Properties of Mineral Suspended Particles: A Review and Synthesis.” *Estuarine Coastal and Shelf Science* 67 (1–2): 219–230. doi:10.1016/j.ecss.2005.11.010.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

TurbChip09NIROverGreen

TurbChip09NIROverGreen algorithm

Description

Applies the TurbChip09NIROverGreen algorithm

Usage

TurbChip09NIROverGreen(w857, w558)

Arguments

| | |
|------|--|
| w857 | numeric. Value at wavelength of 857 nm |
| w558 | numeric. Value at wavelength of 558 nm |

Value

SpatRaster or numeric

References

Chipman, J. W.; Olmanson, L.G.; Gitelson, A.A.; Remote sensing methods for lake management: A guide for resource managers and decision-makers. 2009, Developed by the North American Lake Management Society in collaboration with Dartmouth College, University of Minnesota, and University of Nebraska for the United States Environmental Protection Agency.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

TurbDox02NIRoverRed *TurbDox02NIRoverRed algorithm*

Description

Applies the TurbDox02NIRoverRed algorithm

Usage

TurbDox02NIRoverRed(w857, w658)

Arguments

| | |
|------|--|
| w857 | numeric. Value at wavelength of 857 nm |
| w658 | numeric. Value at wavelength of 658 nm |

Value

SpatRaster or numeric

References

Doxaran, D., Froidefond, J.-M.; Castaing, P. ; A reflectance band ratio used to estimate suspended matter concentrations in sediment-dominated coastal waters, *Remote Sens.*, 2002, 23, 5079-5085.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbFrohn09GreenPlusRedBothOverViolet\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

TurbFrohn09GreenPlusRedBothOverBlue

TurbFrohn09GreenPlusRedBothOverBlue algorithm

Description

Applies the TurbFrohn09GreenPlusRedBothOverBlue algorithm

Usage

TurbFrohn09GreenPlusRedBothOverBlue(w558, w658, w458)

Arguments

| | |
|------|--|
| w558 | numeric. Value at wavelength of 558 nm |
| w658 | numeric. Value at wavelength of 658 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Frohn, R. C., & Autrey, B. C. (2009). Water quality assessment in the Ohio River using new indices for turbidity and chlorophyll-a with Landsat-7 Imagery. Draft Internal Report, U.S. Environmental Protection Agency.

See Also

Other algorithms: [Al10SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

| | |
|---------------|--------------------------------|
| TurbHarr92NIR | <i>TurbHarr92NIR algorithm</i> |
|---------------|--------------------------------|

Description

Applies the TurbHarr92NIR algorithm

Usage

TurbHarr92NIR(w857)

Arguments

w857 numeric. Value at wavelength of 857 nm

Value

SpatRaster or numeric

References

Schiebe F.R., Harrington J.A., Ritchie J.C. Remote-Sensing of Suspended Sediments—the Lake Chicot, Arkansas Project. *Int. J. Remote Sens.* 1992;13:1487–1509.

See Also

Other algorithms: [Al10SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIR0verGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

TurbLath91RedOverBlue *TurbLath91RedOverBlue algorithm*

Description

Applies the TurbLath91RedOverBlue algorithm

Usage

TurbLath91RedOverBlue(w658, w458)

Arguments

| | |
|------|--|
| w658 | numeric. Value at wavelength of 658 nm |
| w458 | numeric. Value at wavelength of 458 nm |

Value

SpatRaster or numeric

References

Lathrop, R. G., Jr., T. M. Lillesand, and B. S. Yandell, 1991. Testing the utility of simple multi-date Thematic Mapper calibration algorithms for monitoring turbid inland waters. *International Journal of Remote Sensing*

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbMoore80Red\(\)](#), [Wy08CI\(\)](#)

| | |
|----------------|---------------------------------|
| TurbMoore80Red | <i>TurbMoore80Red algorithm</i> |
|----------------|---------------------------------|

Description

Applies the TurbMoore80Red algorithm

Usage

TurbMoore80Red(w658)

Arguments

w658 numeric. Value at wavelength of 658 nm

Value

SpatRaster or numeric

References

Moore, G.K., Satellite remote sensing of water turbidity, *Hydrological Sciences*, 1980, 25, 4, 407-422.

See Also

Other algorithms: [Al10SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [Wy08CI\(\)](#)

| | |
|---------------|-------------------------------|
| wq_algorithms | <i>wq_algorithms database</i> |
|---------------|-------------------------------|

Description

A dataset containing the information about the water quality algorithms

Usage

```
wq_algorithms
```

Format

A tibble with 91 rows and 4 variables:

- name: algorithm name
- funs: algorithm function
- satellite: satellite/instrument name ("worldview2", "sentinel2", "landsat8", "modis", or "meris")
- bands: list of the bands used from the given satellite/instrument

| | |
|---------|----------------------------------|
| wq_calc | <i>Water quality calculation</i> |
|---------|----------------------------------|

Description

Calculates a set of water quality indices

Usage

```
wq_calc(terraRast, alg = "all", sat, ...)
```

Arguments

| | |
|-----------|--|
| terraRast | Terra SpatRaster containing a satellite data |
| alg | Name (e.g. <code>Am09KBBI()</code>) or type of the algorithm ("chlorophyll", "phycocyanin", "turbidity") or "all" |
| sat | Name of the satellite or instrument ("worldview2", "sentinel2", "landsat8", "modis", "meris", or "OLCI") |
| ... | Other arguments passed on to <code>terra::rast()</code> |

Value

SpatRaster

Examples

```

library(terra)

# sentinel2 example
s2 = terra::rast(system.file("raster/S2_Harsha.tif", package = "waterquality"))
s2_A110SABI = wq_calc(s2, alg = "A110SABI", sat = "sentinel2")
s2_two_alg = wq_calc(s2, alg = c("TurbChip09NIROverGreen", "Am092Bsub"), sat = "sentinel2")

## Not run: (
s2_wq = wq_calc(s2, alg = "all", sat = "sentinel2")

# landsat8 example
l8 = terra::rast(system.file("raster/L8_Taylorville.tif", package = "waterquality"))
l8_wq = wq_calc(s2, alg = "all", sat = "landsat8")
)
## End(Not run)

```

 Wy08CI

Wy08CI algorithm

Description

Applies the Wy08CI algorithm

Usage

```
Wy08CI(w681, w665, w709)
```

Arguments

| | |
|------|--|
| w681 | numeric. Value at wavelength of 681 nm |
| w665 | numeric. Value at wavelength of 665 nm |
| w709 | numeric. Value at wavelength of 709 nm |

Value

SpatRaster or numeric

References

Wynne, T. T., Stumpf, R. P., Tomlinson, M. C., Warner, R. A., Tester, P. A., Dyble, J.; Relating spectral shape to cyanobacterial blooms in the Laurentian Great Lakes. *Int. J. Remote Sens.*, 2008, 29, 3665–3672.

See Also

Other algorithms: [A110SABI\(\)](#), [Am092Bsub\(\)](#), [Am09KBBI\(\)](#), [Be162B643sub629\(\)](#), [Be162B700sub601\(\)](#), [Be162BsubPhy\(\)](#), [Be16FLHBlueRedNIR_LS8\(\)](#), [Be16FLHBlueRedNIR_MERIS\(\)](#), [Be16FLHBlueRedNIR_OLCI\(\)](#), [Be16FLHBlueRedNIR_S2\(\)](#), [Be16FLHBlueRedNIR_WV2\(\)](#), [Be16FLHGreenRedNIR_LS8\(\)](#), [Be16FLHGreenRedNIR_MERIS\(\)](#), [Be16FLHGreenRedNIR_OLCI\(\)](#), [Be16FLHGreenRedNIR_S2\(\)](#), [Be16FLHGreenRedNIR_WV2\(\)](#), [Be16FLHVioletRedNIR_LS8\(\)](#), [Be16FLHVioletRedNIR_MERIS\(\)](#), [Be16FLHVioletRedNIR_OLCI\(\)](#), [Be16FLHVioletRedNIR_S2\(\)](#), [Be16FLHVioletRedNIR_WV2\(\)](#), [Be16FLHblue_LS8\(\)](#), [Be16FLHblue_MERIS\(\)](#), [Be16FLHblue_OLCI\(\)](#), [Be16FLHblue_S2\(\)](#), [Be16FLHblue_WV2\(\)](#), [Be16FLHviolet_LS8\(\)](#), [Be16FLHviolet_MERIS\(\)](#), [Be16FLHviolet_OLCI\(\)](#), [Be16FLHviolet_S2\(\)](#), [Be16FLHviolet_WV2\(\)](#), [Be16NDPhyI644over615\(\)](#), [Be16NDPhyI644over629\(\)](#), [Be16NDPhyI\(\)](#), [Be16NDTIblue\(\)](#), [Be16NDTIviolet\(\)](#), [Be16Phy2BDA644over629\(\)](#), [Da052BDA\(\)](#), [De933BDA\(\)](#), [Gi033BDA\(\)](#), [Go04MCI\(\)](#), [HU103BDA\(\)](#), [Kn07KIVU\(\)](#), [MI092BDA\(\)](#), [MM092BDA\(\)](#), [MM12NDCIalt\(\)](#), [MM12NDCI\(\)](#), [MM143BDAopt\(\)](#), [SI052BDA\(\)](#), [SM122BDA\(\)](#), [SY002BDA\(\)](#), [TurbBe16GreenPlusRedBothOverViolet\(\)](#), [TurbBe16RedOverViolet\(\)](#), [TurbBow06RedOverGreen\(\)](#), [TurbChip09NIROverGreen\(\)](#), [TurbDox02NIRoverRed\(\)](#), [TurbFrohn09GreenPlusRedBothOverBlue\(\)](#), [TurbHarr92NIR\(\)](#), [TurbLath91RedOverBlue\(\)](#), [TurbMoore80Red\(\)](#)

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