ScanCorder

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COMPOLYTICS

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In addition to our sensors with application-specific spectral bands, we also offer common predefined wavelength combinations and equally distributed bands in specific ranges of the electromagnetic spectrum.

Vegetation Index VNIR

Specification

- Featuring Compolytics' unique technology of **Inverted Spectroscopy**.
- Wavelength bands are optimally distributed across the visible and near-infrared ranges, facilitating the calculation of a wide variety of plant vegetation indices, as listed overleaf.
- Handheld sensor with contact probe, excellent for solid measurement objects and bulk material.
- Free dedicated R package to easily calculate 140+ unique plant vegetation indices.

Wavelength bands

- Total number of spectral bands: **120** (LED channels x receiver channels).
- LED peak emission wavelengths in nm (typical, ±5nm):
  394, 445, 459, 490, 517, 590, 680, 700, 750, 770, 800, 849.
- Receiver peak sensitivity wavelengths in nm (typical, ±2nm):
  415, 445, 480, 515, 555, 590, 630, 680, 910, wide-band.

User interface

- Web app running in BYD browser using **C**ompolytics **I**ntegrated **C**ontrol **A**pplication for **D**evices and **A**nalysis (CICADA).
- Display and compare selected vegetation indices instantaneously.
- Export of raw data to local device.

Get a quote

(sales@compolytics.com)

Get more information

- Schedule an online demo session via our website or send your enquiries to: sales@compolytics.com.

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List of selected implemented plant vegetation indices

- This list contains selected vegetation indices that can be calculated directly using the provided R package and the VI-VNIR ScanCorder (28 out of 140+).
- There may be new or additional vegetation indices, which are also accessible by the sensor but are not yet implemented in the corresponding R package.
- This list will be expanded over time as more vegetation indices are published.

Name	Application Group	Application Molecular Target	Application Subtarget	Wavelengths Used	Reference
Anthocyanin Reflectance Index 1	Vegetation	Leaf pigments	Anthocyanins	550, 700	*Gitelson et al., 2001*
Anthocyanin Reflectance Index 2	Vegetation	Leaf pigments	Anthocyanins	550, 700, 800	*Gitelson et al., 2001*
Simple Ratio 750/710, Zarco-Tejada & Miller (ZM), Combined Index	Vegetation	Red Edge	Chlorophyll	710, 750	*Tan et al., 2018*
Carotenoid Reflectance Index 1	Vegetation	Leaf pigments	Carotenoids	510, 550	*Gitelson et al., 2002*
Carotenoid Reflectance Index 2	Vegetation	Leaf pigments	Carotenoids	510, 700	*Gitelson et al., 2002*
Reflectance Band Ratio, Datt6	Vegetation	Leaf pigments	Chlorophyll a, Chlorophyll a+b, Carotenoids	550, 708, 860	*Datt, 1998*
Simple Ratio 550/680, Disease-Water Stress Index 4	Plant health	Water content	Moisture, Drought stress	550, 680	*Fensholt & Sandholt, 2003*
Simple Ratio 554/677, Greenness Index2	Vegetation	Leaf pigments	Chlorophyll, Greenness, RGB	554, 667	*Smith et al., 1995; Zarco-Tejada et al., 2005*
Simple Ratio 750/550, Gitelson and Merzlyak Index 1	Vegetation	Red Edge	Chlorophyll	550, 750	*Anatoly et al., 1996*
Simple Ratio 750/700, Gitelson and Merzlyak Index 2	Vegetation	Red Edge	RGB, Chlorophyll	700, 750	*Anatoly et al., 1996*
Normalized Difference Index, Normalized Difference 800/680, Pigment Specific Normalised Difference A2, Lichtenthaler Indices, NDVIhyper	Vegetation	Leaf pigments	Chlorophyll, LUE, Photosynthetic activity	680, 800	*Tan et al., 2018; Lichtenthaler, 1996*
Normalized Difference Vegetation Index 4	Vegetation	Leaf pigments	Chlorophyll	700, 800	*Tan et al., 2018; El-Hendawy et al., 2022*
Normalized Difference 750/550 Green NDVI	Vegetation	Leaf pigments	Chlorophyll	550, 750	*Metternicht, 2003*
Normalized Difference 800/675 Pigment Specific Normalised Difference A1	Plant health	Leaf pigments	Senescence	675, 800	*Blackburn, 1998*
Normalized Difference 800/500 Pigment Specific Normalised Difference C1	Plant health	Leaf pigments	Senescence	500, 800	*Blackburn, 1998*
Simple Ratio 800/675, Pigment Specific Simple Ratio A1	Plant health	Leaf pigments	Senescence	675, 800	*Blackburn, 1998*
Simple Ratio 800/500, Pigment Specific Simple Ratio C1	Plant health	Leaf pigments	Senescence	500, 800	*Blackburn, 1998*
Re-normalized Difference Vegetation Index	Vegetation	Leaf pigments	Chlorophyll	800, 670	*Tan et al., 2018; Roujean & Breon, 1995*
Simple Ratio 690/550, Relative Greenness Index, Red/Green Index	Vegetation	Leaf pigments	Carotenoids	550, 690	*Zarco-Tejada et al., 2005; Gamon et al., 1997*
Red/Green Index	Vegetation	Leaf pigments	Carotenoids	490:570, 640:760	*Gamon & Surfus, 1999*
Simple Ratio 801/670, Pigment Specific 2, Ratio Vegetation Index, NIR/Red	Vegetation	Leaf pigments	Chlorophyll	670, 801	*Tan et al., 2018; El-Hendawy et al., 2022*
Simple Ratio 493/678, Disease-Water Stress Index 4	Compound	Leaf pigments	Ammonia	493, 678	*Tilley et al., 2003*
Soil Adjusted Vegetation Index, N-content (early-mid period)	Vegetation	Leaf pigments, Compound	RGB, Nitrogen	800, 670	*Huete, 1988*
Structure Independent Pigment Index	Vegetation	Leaf pigments	Chlorophyll a, Carotenoids	445, 670, 800	*Penuelas et al., 1995*
Simple Ratio 810/560, Plant Biochemical Index	Compound	Leaf pigments	Biochemical Compounds	560, 810	*Rama et al., 2008*
Simple Ratio, Water Band Index 3, Water Index, Plant Water Index	Plant health	Water content	Moisture, Drought stress, WUE	900, 950	*Xu et al., 2007, Penuelas et al., 1993*
Simple Ratio 556/750, Chl-b	Vegetation	Leaf pigments	Chlorophyll b	556, 750	*Maccioni et al., 2001*
Simple Ratio 4	Plant health	Water content	Moisture	705, 750	*Tan et al., 2018; El-Hendawy et al., 2022*