

Supplementary

Table S1. Pearson correlations and Variable Importance in Projection scores of the multispectral bands

| Camera | Band Name | Band Center | Band Width | Pearson Correlation | | VIP | |
|-----------------------|-----------|-------------|------------|------------------------------|--------------------------------|------------------------------|--------------------------------|
| | | | | Total Nitrogen Concentration | Nitrate-Nitrogen Concentration | Total Nitrogen Concentration | Nitrate-Nitrogen Concentration |
| Phantom 4 | Blue | 450 | 16 | -0.59 | -0.59 | 0.47 | 0.44 |
| | Green | 560 | 16 | -0.49 | -0.67 | 0.84 | 1.06 |
| | Red | 650 | 16 | -0.55 | -0.56 | 1.19 | 1.23 |
| | Red Edge | 730 | 16 | -0.18 | -0.36 | 0.50 | 0.84 |
| | NIR | 840 | 26 | -0.08 | -0.24 | 1.55 | 1.21 |
| Parrot Sequoia | Green | 550 | 40 | -0.48 | -0.67 | 0.71 | 1.07 |
| | Red | 660 | 40 | -0.54 | -0.54 | 0.95 | 1.22 |
| | Red Edge | 735 | 10 | -0.12 | -0.30 | 0.34 | 0.32 |
| | NIR | 790 | 40 | -0.06 | -0.22 | 1.57 | 1.12 |
| Micasense | Blue | 475 | 32 | -0.59 | -0.57 | 0.76 | 0.62 |
| | Green | 560 | 27 | -0.50 | -0.68 | 1.19 | 1.40 |
| | Red | 668 | 14 | -0.52 | -0.51 | 0.85 | 0.87 |
| | Red Edge | 717 | 12 | -0.35 | -0.53 | 0.78 | 0.98 |
| | NIR | 842 | 57 | -0.08 | -0.23 | 1.29 | 0.97 |

Table S2. Pearson correlations and Variable Importance in Projection scores of the hyperspectral bands

| Hyperspectral wavelength | Pearson Correlation | | VIP | |
|--------------------------|------------------------------|--------------------------------|------------------------------|--------------------------------|
| | Total Nitrogen Concentration | Nitrate-Nitrogen Concentration | Total Nitrogen Concentration | Nitrate-Nitrogen Concentration |
| 399.3 | -0.53 | -0.57 | 1.11 | 1.22 |
| 401.5 | -0.50 | -0.50 | 1.33 | 1.23 |
| 403.7 | -0.58 | -0.63 | 0.74 | 0.63 |
| 405.9 | -0.58 | -0.61 | 0.69 | 0.65 |
| 408.2 | -0.21 | -0.20 | 1.78 | 1.88 |
| 410.4 | -0.63 | -0.62 | 0.65 | 0.52 |
| 412.6 | -0.52 | -0.55 | 0.95 | 0.95 |
| 414.8 | -0.58 | -0.65 | 0.60 | 0.48 |
| 417.0 | -0.56 | -0.62 | 0.72 | 0.68 |
| 419.2 | -0.51 | -0.55 | 0.61 | 0.49 |
| 421.4 | -0.57 | -0.63 | 0.55 | 0.47 |
| 423.6 | -0.54 | -0.59 | 0.59 | 0.47 |
| 425.8 | -0.58 | -0.61 | 0.59 | 0.43 |
| 428.1 | -0.56 | -0.58 | 0.60 | 0.52 |
| 430.3 | -0.61 | -0.61 | 0.67 | 0.49 |
| 432.5 | -0.60 | -0.61 | 0.52 | 0.40 |
| 434.7 | -0.63 | -0.63 | 0.60 | 0.45 |
| 436.9 | -0.55 | -0.60 | 0.50 | 0.45 |
| 439.1 | -0.59 | -0.58 | 0.59 | 0.49 |
| 441.3 | -0.56 | -0.58 | 0.45 | 0.41 |
| 443.5 | -0.52 | -0.56 | 0.69 | 0.64 |
| 445.8 | -0.52 | -0.58 | 0.51 | 0.51 |
| 448.0 | -0.61 | -0.57 | 0.70 | 0.55 |

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| 450.2 | -0.58 | -0.58 | 0.49 | 0.46 |
| 452.4 | -0.62 | -0.56 | 0.73 | 0.55 |
| 454.6 | -0.59 | -0.58 | 0.58 | 0.49 |
| 456.8 | -0.58 | -0.57 | 0.76 | 0.60 |
| 459.0 | -0.58 | -0.55 | 0.47 | 0.45 |
| 461.2 | -0.62 | -0.57 | 0.72 | 0.55 |
| 463.4 | -0.61 | -0.56 | 0.55 | 0.45 |
| 465.7 | -0.59 | -0.57 | 0.60 | 0.52 |
| 467.9 | -0.60 | -0.57 | 0.50 | 0.44 |
| 470.1 | -0.60 | -0.56 | 0.67 | 0.56 |
| 472.3 | -0.56 | -0.54 | 0.47 | 0.46 |
| 474.5 | -0.59 | -0.56 | 0.53 | 0.50 |
| 476.7 | -0.57 | -0.58 | 0.71 | 0.65 |
| 478.9 | -0.57 | -0.56 | 0.47 | 0.49 |
| 481.1 | -0.57 | -0.57 | 0.47 | 0.49 |
| 483.3 | -0.56 | -0.56 | 0.47 | 0.50 |
| 485.6 | -0.56 | -0.57 | 0.51 | 0.55 |
| 487.8 | -0.57 | -0.57 | 0.52 | 0.54 |
| 490.0 | -0.59 | -0.58 | 0.63 | 0.62 |
| 492.2 | -0.56 | -0.57 | 0.53 | 0.59 |
| 494.4 | -0.56 | -0.57 | 0.48 | 0.53 |
| 496.6 | -0.57 | -0.58 | 0.56 | 0.59 |
| 498.8 | -0.56 | -0.57 | 0.51 | 0.58 |
| 501.0 | -0.57 | -0.58 | 0.51 | 0.58 |
| 503.3 | -0.55 | -0.57 | 0.51 | 0.53 |
| 505.5 | -0.54 | -0.58 | 0.57 | 0.64 |
| 507.7 | -0.55 | -0.60 | 0.55 | 0.59 |
| 509.9 | -0.53 | -0.59 | 0.59 | 0.68 |
| 512.1 | -0.55 | -0.61 | 0.55 | 0.63 |
| 514.3 | -0.55 | -0.63 | 0.52 | 0.58 |
| 516.5 | -0.55 | -0.64 | 0.52 | 0.61 |
| 518.7 | -0.56 | -0.67 | 0.50 | 0.62 |
| 520.9 | -0.54 | -0.68 | 0.54 | 0.69 |
| 523.2 | -0.54 | -0.68 | 0.53 | 0.72 |
| 525.4 | -0.51 | -0.66 | 0.55 | 0.73 |
| 527.6 | -0.51 | -0.67 | 0.54 | 0.76 |
| 529.8 | -0.52 | -0.68 | 0.60 | 0.78 |
| 532.0 | -0.50 | -0.68 | 0.61 | 0.82 |
| 534.2 | -0.49 | -0.67 | 0.63 | 0.82 |
| 536.4 | -0.45 | -0.63 | 0.60 | 0.76 |
| 538.6 | -0.47 | -0.65 | 0.65 | 0.83 |
| 540.9 | -0.45 | -0.63 | 0.64 | 0.84 |
| 543.1 | -0.48 | -0.67 | 0.73 | 0.93 |
| 545.3 | -0.45 | -0.63 | 0.64 | 0.82 |
| 547.5 | -0.49 | -0.68 | 0.77 | 1.00 |
| 549.7 | -0.48 | -0.66 | 0.72 | 0.90 |
| 551.9 | -0.47 | -0.66 | 0.68 | 0.90 |
| 554.1 | -0.48 | -0.67 | 0.74 | 0.93 |
| 556.3 | -0.49 | -0.67 | 0.75 | 1.00 |
| 558.5 | -0.48 | -0.67 | 0.76 | 0.95 |
| 560.8 | -0.49 | -0.67 | 0.74 | 0.94 |
| 563.0 | -0.48 | -0.66 | 0.69 | 0.90 |
| 565.2 | -0.52 | -0.69 | 0.74 | 0.97 |

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| 567.4 | -0.51 | -0.68 | 0.72 | 0.92 |
| 569.6 | -0.53 | -0.69 | 0.76 | 0.97 |
| 571.8 | -0.53 | -0.69 | 0.74 | 0.96 |
| 574.0 | -0.57 | -0.72 | 0.84 | 1.05 |
| 576.2 | -0.56 | -0.70 | 0.80 | 1.03 |
| 578.4 | -0.56 | -0.70 | 0.74 | 0.94 |
| 580.7 | -0.57 | -0.69 | 0.77 | 0.94 |
| 582.9 | -0.59 | -0.70 | 0.79 | 0.96 |
| 585.1 | -0.57 | -0.69 | 0.81 | 0.96 |
| 587.3 | -0.59 | -0.69 | 0.78 | 1.01 |
| 589.5 | -0.58 | -0.69 | 0.80 | 0.99 |
| 591.7 | -0.59 | -0.69 | 0.79 | 1.02 |
| 593.9 | -0.58 | -0.68 | 0.82 | 1.01 |
| 596.1 | -0.60 | -0.69 | 0.81 | 1.03 |
| 598.4 | -0.58 | -0.68 | 0.84 | 1.04 |
| 600.6 | -0.60 | -0.68 | 0.81 | 1.03 |
| 602.8 | -0.59 | -0.68 | 0.86 | 1.08 |
| 605.0 | -0.59 | -0.68 | 0.83 | 1.06 |
| 607.2 | -0.59 | -0.66 | 0.87 | 1.07 |
| 609.4 | -0.60 | -0.66 | 0.85 | 1.07 |
| 611.6 | -0.58 | -0.66 | 0.93 | 1.10 |
| 613.8 | -0.60 | -0.65 | 0.90 | 1.08 |
| 616.0 | -0.59 | -0.65 | 0.89 | 1.06 |
| 618.3 | -0.58 | -0.63 | 0.91 | 1.08 |
| 620.5 | -0.58 | -0.62 | 0.94 | 1.05 |
| 622.7 | -0.58 | -0.61 | 0.93 | 1.06 |
| 624.9 | -0.58 | -0.62 | 0.92 | 1.06 |
| 627.1 | -0.59 | -0.62 | 0.91 | 1.06 |
| 629.3 | -0.57 | -0.61 | 0.96 | 1.08 |
| 631.5 | -0.58 | -0.61 | 0.94 | 1.08 |
| 633.7 | -0.58 | -0.62 | 0.94 | 1.06 |
| 635.9 | -0.58 | -0.62 | 0.95 | 1.09 |
| 638.2 | -0.58 | -0.61 | 0.96 | 1.08 |
| 640.4 | -0.57 | -0.59 | 1.01 | 1.10 |
| 642.6 | -0.56 | -0.58 | 1.01 | 1.07 |
| 644.8 | -0.56 | -0.58 | 1.04 | 1.08 |
| 647.0 | -0.56 | -0.58 | 1.04 | 1.07 |
| 649.2 | -0.55 | -0.57 | 1.06 | 1.05 |
| 651.4 | -0.55 | -0.56 | 1.07 | 1.05 |
| 653.6 | -0.55 | -0.54 | 1.07 | 1.07 |
| 655.9 | -0.54 | -0.55 | 1.08 | 1.05 |
| 658.1 | -0.54 | -0.53 | 1.09 | 1.08 |
| 660.3 | -0.53 | -0.53 | 1.11 | 1.09 |
| 662.5 | -0.53 | -0.52 | 1.13 | 1.14 |
| 664.7 | -0.53 | -0.52 | 1.16 | 1.15 |
| 666.9 | -0.52 | -0.50 | 1.20 | 1.25 |
| 669.1 | -0.52 | -0.52 | 1.18 | 1.21 |
| 671.3 | -0.51 | -0.49 | 1.23 | 1.29 |
| 673.5 | -0.51 | -0.50 | 1.25 | 1.29 |
| 675.8 | -0.51 | -0.49 | 1.25 | 1.31 |
| 678.0 | -0.52 | -0.51 | 1.21 | 1.28 |
| 680.2 | -0.50 | -0.49 | 1.29 | 1.37 |
| 682.4 | -0.51 | -0.50 | 1.30 | 1.34 |

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| 684.6 | -0.52 | -0.51 | 1.25 | 1.27 |
| 686.8 | -0.53 | -0.52 | 1.23 | 1.20 |
| 689.0 | -0.54 | -0.55 | 1.18 | 1.15 |
| 691.2 | -0.55 | -0.57 | 1.19 | 1.16 |
| 693.4 | -0.58 | -0.61 | 1.10 | 1.20 |
| 695.7 | -0.59 | -0.65 | 1.13 | 1.34 |
| 697.9 | -0.59 | -0.67 | 1.06 | 1.32 |
| 700.1 | -0.59 | -0.69 | 1.14 | 1.41 |
| 702.3 | -0.57 | -0.69 | 1.12 | 1.43 |
| 704.5 | -0.55 | -0.69 | 1.20 | 1.52 |
| 706.7 | -0.51 | -0.66 | 1.15 | 1.50 |
| 708.9 | -0.48 | -0.65 | 1.21 | 1.56 |
| 711.1 | -0.45 | -0.62 | 1.23 | 1.58 |
| 713.4 | -0.41 | -0.59 | 1.16 | 1.54 |
| 715.6 | -0.37 | -0.56 | 1.17 | 1.52 |
| 717.8 | -0.33 | -0.52 | 1.12 | 1.48 |
| 720.0 | -0.30 | -0.49 | 1.09 | 1.42 |
| 722.2 | -0.27 | -0.46 | 1.05 | 1.34 |
| 724.4 | -0.24 | -0.43 | 0.98 | 1.27 |
| 726.6 | -0.22 | -0.40 | 0.93 | 1.20 |
| 728.8 | -0.19 | -0.37 | 0.85 | 1.10 |
| 731.0 | -0.17 | -0.35 | 0.84 | 1.01 |
| 733.3 | -0.14 | -0.32 | 0.79 | 0.95 |
| 735.5 | -0.13 | -0.31 | 0.81 | 0.91 |
| 737.7 | -0.11 | -0.29 | 0.80 | 0.88 |
| 739.9 | -0.10 | -0.27 | 0.86 | 0.83 |
| 742.1 | -0.09 | -0.26 | 0.86 | 0.86 |
| 744.3 | -0.08 | -0.25 | 0.91 | 0.85 |
| 746.5 | -0.07 | -0.24 | 0.94 | 0.88 |
| 748.7 | -0.06 | -0.23 | 0.98 | 0.87 |
| 751.0 | -0.05 | -0.22 | 1.08 | 0.94 |
| 753.2 | -0.05 | -0.22 | 1.14 | 0.98 |
| 755.4 | -0.04 | -0.21 | 1.27 | 1.08 |
| 757.6 | -0.05 | -0.21 | 1.19 | 0.99 |
| 759.8 | -0.05 | -0.21 | 1.21 | 0.99 |
| 762.0 | -0.06 | -0.21 | 1.35 | 1.15 |
| 764.2 | -0.06 | -0.21 | 1.36 | 1.28 |
| 766.4 | -0.06 | -0.22 | 1.17 | 1.06 |
| 768.6 | -0.05 | -0.21 | 1.30 | 0.99 |
| 770.9 | -0.05 | -0.21 | 1.24 | 1.02 |
| 773.1 | -0.05 | -0.21 | 1.24 | 1.00 |
| 775.3 | -0.05 | -0.21 | 1.25 | 1.01 |
| 777.5 | -0.05 | -0.20 | 1.23 | 0.99 |
| 779.7 | -0.05 | -0.21 | 1.24 | 1.00 |
| 781.9 | -0.05 | -0.21 | 1.23 | 1.02 |
| 784.1 | -0.05 | -0.21 | 1.16 | 0.99 |
| 786.3 | -0.05 | -0.21 | 1.11 | 0.91 |
| 788.5 | -0.06 | -0.21 | 1.12 | 0.90 |
| 790.8 | -0.06 | -0.21 | 1.08 | 0.91 |
| 793.0 | -0.06 | -0.22 | 1.05 | 0.89 |
| 795.2 | -0.06 | -0.22 | 1.05 | 0.85 |
| 797.4 | -0.07 | -0.22 | 1.01 | 0.84 |
| 799.6 | -0.06 | -0.22 | 1.06 | 0.85 |

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| 801.8 | -0.07 | -0.23 | 1.04 | 0.83 |
| 804.0 | -0.06 | -0.22 | 1.02 | 0.83 |
| 806.2 | -0.07 | -0.22 | 1.03 | 0.83 |
| 808.5 | -0.07 | -0.22 | 1.06 | 0.84 |
| 810.7 | -0.07 | -0.23 | 1.04 | 0.81 |
| 812.9 | -0.07 | -0.22 | 1.29 | 1.09 |
| 815.1 | -0.07 | -0.23 | 0.99 | 0.77 |
| 817.3 | -0.08 | -0.23 | 1.03 | 0.83 |
| 819.5 | -0.09 | -0.24 | 0.97 | 0.91 |
| 821.7 | -0.07 | -0.23 | 1.10 | 0.85 |
| 823.9 | -0.08 | -0.24 | 1.03 | 0.87 |
| 826.1 | -0.08 | -0.24 | 1.04 | 0.75 |
| 828.4 | -0.09 | -0.24 | 0.91 | 0.73 |
| 830.6 | -0.08 | -0.24 | 0.95 | 0.84 |
| 832.8 | -0.09 | -0.24 | 0.92 | 0.77 |
| 835.0 | -0.08 | -0.24 | 0.92 | 0.79 |
| 837.2 | -0.09 | -0.24 | 0.89 | 0.76 |
| 839.4 | -0.08 | -0.23 | 0.99 | 0.77 |
| 841.6 | -0.09 | -0.24 | 0.88 | 0.74 |
| 843.8 | -0.08 | -0.23 | 1.08 | 0.89 |
| 846.0 | -0.09 | -0.24 | 0.87 | 0.70 |
| 848.3 | -0.08 | -0.23 | 1.03 | 0.83 |
| 850.5 | -0.08 | -0.24 | 0.98 | 0.73 |
| 852.7 | -0.08 | -0.23 | 1.02 | 0.90 |
| 854.9 | -0.09 | -0.24 | 1.00 | 0.92 |
| 857.1 | -0.08 | -0.23 | 0.97 | 0.76 |
| 859.3 | -0.09 | -0.24 | 0.89 | 0.76 |
| 861.5 | -0.08 | -0.23 | 1.06 | 0.92 |
| 863.7 | -0.09 | -0.24 | 0.90 | 0.79 |
| 866.0 | -0.08 | -0.23 | 0.93 | 0.80 |
| 868.2 | -0.09 | -0.24 | 0.94 | 0.85 |
| 870.4 | -0.08 | -0.23 | 1.05 | 0.98 |
| 872.6 | -0.10 | -0.24 | 1.04 | 0.93 |
| 874.8 | -0.09 | -0.24 | 0.96 | 0.85 |
| 877.0 | -0.10 | -0.25 | 0.95 | 0.85 |
| 879.2 | -0.09 | -0.24 | 0.97 | 0.78 |
| 881.4 | -0.10 | -0.24 | 0.87 | 0.77 |
| 883.6 | -0.09 | -0.23 | 1.06 | 0.97 |
| 885.9 | -0.10 | -0.25 | 1.06 | 0.81 |
| 888.1 | -0.09 | -0.24 | 0.88 | 0.71 |
| 890.3 | -0.11 | -0.25 | 0.90 | 0.83 |
| 892.5 | -0.09 | -0.24 | 0.93 | 0.73 |
| 894.7 | -0.10 | -0.26 | 0.93 | 0.85 |
| 896.9 | -0.11 | -0.25 | 0.89 | 0.85 |
| 899.1 | -0.11 | -0.25 | 0.84 | 0.77 |
| 901.3 | -0.12 | -0.26 | 0.99 | 1.01 |
| 903.5 | -0.12 | -0.27 | 0.87 | 0.79 |
| 905.8 | -0.11 | -0.26 | 0.94 | 0.82 |
| 908.0 | -0.11 | -0.26 | 0.93 | 0.78 |
| 910.2 | -0.12 | -0.26 | 1.01 | 0.98 |
| 912.4 | -0.12 | -0.27 | 0.93 | 0.84 |
| 914.6 | -0.13 | -0.27 | 1.07 | 1.10 |
| 916.8 | -0.12 | -0.27 | 0.85 | 0.74 |

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|--------|-------|-------|-------------|-------------|
| 919.0 | -0.12 | -0.26 | 1.11 | 1.09 |
| 921.2 | -0.12 | -0.26 | 1.09 | 1.03 |
| 923.5 | -0.13 | -0.28 | 1.16 | 1.22 |
| 925.7 | -0.12 | -0.26 | 1.63 | 1.20 |
| 927.9 | -0.13 | -0.28 | 1.14 | 1.27 |
| 930.1 | -0.14 | -0.28 | 1.24 | 1.28 |
| 932.3 | -0.13 | -0.27 | 1.12 | 1.11 |
| 934.5 | -0.13 | -0.27 | 2.17 | 2.34 |
| 936.7 | -0.13 | -0.25 | 2.00 | 1.92 |
| 938.9 | -0.15 | -0.29 | 2.13 | 1.70 |
| 941.1 | -0.15 | -0.29 | 1.45 | 1.39 |
| 943.4 | -0.14 | -0.28 | 1.45 | 1.13 |
| 945.6 | -0.15 | -0.28 | 1.31 | 1.34 |
| 947.8 | -0.14 | -0.28 | 1.14 | 1.07 |
| 950.0 | -0.13 | -0.26 | 1.67 | 1.71 |
| 952.2 | -0.16 | -0.29 | 1.07 | 0.96 |
| 954.4 | -0.15 | -0.29 | 1.03 | 1.03 |
| 956.6 | -0.15 | -0.30 | 1.10 | 1.18 |
| 958.8 | -0.16 | -0.30 | 1.09 | 0.98 |
| 961.0 | -0.15 | -0.27 | 1.48 | 1.56 |
| 963.3 | -0.16 | -0.29 | 1.48 | 1.35 |
| 965.5 | -0.17 | -0.31 | 1.24 | 1.07 |
| 967.7 | -0.18 | -0.32 | 1.73 | 1.49 |
| 969.9 | -0.16 | -0.29 | 1.07 | 0.92 |
| 972.1 | -0.15 | -0.30 | 1.56 | 1.96 |
| 974.3 | -0.16 | -0.29 | 1.40 | 1.02 |
| 976.5 | -0.16 | -0.29 | 1.74 | 1.13 |
| 978.7 | -0.16 | -0.28 | 1.57 | 1.17 |
| 981.0 | -0.16 | -0.29 | 1.03 | 0.81 |
| 983.2 | -0.16 | -0.29 | 1.10 | 0.96 |
| 985.4 | -0.16 | -0.29 | 1.16 | 1.11 |
| 987.6 | -0.15 | -0.29 | 1.03 | 1.06 |
| 989.8 | -0.15 | -0.27 | 1.41 | 1.14 |
| 992.0 | -0.15 | -0.27 | 1.08 | 1.03 |
| 994.2 | -0.14 | -0.27 | 1.04 | 1.23 |
| 996.4 | -0.14 | -0.29 | 1.49 | 1.80 |
| 998.6 | -0.15 | -0.26 | 1.31 | 1.47 |
| 1000.9 | -0.17 | -0.30 | 1.14 | 1.10 |
| 1003.1 | -0.15 | -0.28 | 1.17 | 1.16 |
