

Table S1 Percentage reflectance of vegetation and soil at a 0.5 km distance in different directions of AWP in 2002 and 2012

Feature	2002					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	34.5	30.6	36.9	28.2	55.7	34.5
Soil (NE)	44.7	40.0	47.5	27.8	71.0	62.0
Vegetation (N)	34.9	31.8	36.5	27.8	54.9	38.0
Soil (N)	43.9	40.4	47.5	30.2	67.5	54.9
Vegetation (NW)	34.5	30.2	35.7	27.5	48.6	32.5
Soil (NW)	44.3	40.4	49.0	30.2	64.3	52.5

Feature	2012					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	31.4	27.1	30.2	27.8	43.9	25.5
Soil (NE)	34.9	30.2	35.3	27.1	56.1	41.6
Vegetation (N)	31.4	26.7	31.0	26.3	48.2	32.5
Soil (N)	34.1	30.2	34.9	26.7	53.3	40.0
Vegetation (NW)	31.8	27.1	30.2	27.1	44.3	29.8
Soil (NW)	40.8	37.6	46.3	31.4	65.5	52.2

Table S2 Percentage reflectance of vegetation and soil at a 0.5 km distance in different directions of AWP in 2018, 2020, and 2022

Feature	2018					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	49.4	51.4	51.8	74.9	49.8	48.6
Soil (NE)	97.3	97.6	98.0	96.9	99.2	97.6
Vegetation (N)	78.0	80.0	78.0	93.7	87.5	80.0
Soil (N)	96.5	96.9	97.6	94.9	98.8	97.3
Vegetation (NW)	52.5	56.1	54.9	91.4	54.1	51.8
Soil (NW)	99.6	99.6	99.2	100.0	99.2	98.8

Feature	2020					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	54.5	56.5	54.5	89.4	54.9	50.2
Soil (NE)	99.6	99.2	98.4	97.3	100.0	100.0
Vegetation (N)	72.9	65.9	65.9	89.4	73.7	67.5
Soil (N)	96.1	94.5	94.1	88.2	98.4	99.2
Vegetation (NW)	83.1	78.4	70.2	98.0	78.0	77.3
Soil (NW)	98.4	98.0	97.6	96.9	98.8	99.2

Feature	2022					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	49.0	45.9	40.8	58.4	45.9	26.3
Soil (NE)	51.4	48.2	43.5	58.0	51.0	30.2

Vegetation (N)	51.0	47.8	43.9	61.2	49.4	29.4
Soil (N)	60.0	57.6	56.5	64.7	64.7	43.1
Vegetation (NW)	51.4	46.3	40.8	61.2	45.9	26.7
Soil (NW)	62.0	60.4	58.0	65.1	62.0	41.2

Table S3 Percentage reflectance of vegetation and soil at a 1 km distance in different directions of AWP in 2002 and 2012

Feature	2002					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	32.9	30.6	34.1	27.8	46.7	29.0
Soil (NE)	46.3	43.1	52.5	32.9	65.5	51.8
Vegetation (N)	30.6	25.5	27.8	24.3	44.7	29.4
Soil (N)	32.9	28.6	33.3	25.1	52.2	37.6
Vegetation (NW)	31.8	27.8	32.2	26.7	45.5	30.2
Soil (NW)	35.3	32.9	40.4	27.8	57.6	41.6

Feature	2012					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	29.8	25.9	29.0	26.7	43.1	26.7
Soil (NE)	39.6	36.9	44.3	29.0	67.1	52.5
Vegetation (N)	29.4	23.9	24.7	24.3	40.8	24.3
Soil (N)	31.4	28.2	32.5	26.7	50.2	34.1
Vegetation (NW)	30.6	26.7	27.8	25.9	40.8	25.5
Soil (NW)	33.3	31.4	37.6	27.1	52.9	38.4

Table S4 Percentage reflectance of vegetation and soil at a 1 km distance in different directions of AWP in 2018, 2020, and 2022

Feature	2018					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	50.6	54.1	51.8	83.1	51.0	50.2
Soil (NE)	86.3	83.9	87.5	62.4	94.1	89.8
Vegetation (N)	62.7	65.1	60.8	83.1	68.6	67.1
Soil (N)	75.3	72.9	73.3	70.6	79.6	78.0
Vegetation (NW)	59.6	56.1	53.7	87.1	52.5	52.5
Soil (NW)	86.3	88.6	88.2	93.7	89.8	84.7

Feature	2020					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	54.5	58.0	58.0	86.7	56.5	52.9
Soil (NE)	98.8	98.4	98.0	97.6	99.2	98.4
Vegetation (N)	58.4	58.0	58.0	90.6	55.7	55.7
Soil (N)	70.6	73.3	71.8	70.6	76.1	74.5
Vegetation (NW)	67.8	67.8	62.0	93.7	62.0	63.5

Soil (NW)	97.3	98.4	98.8	98.8	98.4	97.3
2022						
Feature	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	49.0	45.5	39.6	60.0	44.3	25.5
Soil (NE)	67.8	65.1	62.7	67.5	70.2	46.7
Vegetation (N)	49.0	44.7	39.2	56.1	44.3	26.3
Soil (N)	51.8	48.6	44.7	58.0	51.0	31.4
Vegetation (NW)	48.6	43.5	36.9	58.4	41.6	24.7
Soil (NW)	55.3	53.7	51.4	62.7	57.3	36.1

Table S5 Percentage reflectance of vegetation and soil at a 5 km distance in different directions of AWP in 2002 and 2012

2002						
Feature	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	35.3	32.9	37.6	28.6	60.8	47.1
Soil (NE)	37.3	32.9	38.8	28.2	59.2	46.7
Vegetation (N)	31.4	27.8	32.2	24.7	47.1	30.2
Soil (N)	32.2	27.5	32.2	22.0	48.2	34.9
Vegetation (NW)	32.2	28.6	33.3	26.7	49.4	35.3
Soil (NW)	34.9	30.6	36.1	26.3	53.3	39.2
2012						
Feature	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	30.6	25.9	27.1	25.5	41.2	24.7
Soil (NE)	31.8	27.5	30.6	25.1	49.4	33.7
Vegetation (N)	29.8	26.3	28.6	25.9	41.2	25.1
Soil (N)	33.7	29.8	35.3	25.5	53.3	36.5
Vegetation (NW)	29.8	24.7	26.3	25.5	40.8	24.7
Soil (NW)	35.3	31.4	38.4	26.7	54.1	43.1

Table S6 Percentage reflectance of vegetation and soil at a 5 km distance in different directions of AWP in 2018, 2020, and 2022

2018						
Feature	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	52.5	60.4	51.0	95.7	51.0	51.4
Soil (NE)	91.4	96.1	94.1	98.8	96.1	96.1
Vegetation (N)	56.9	60.4	56.5	96.5	56.5	53.3
Soil (N)	89.4	92.5	92.9	92.9	92.2	89.8
Vegetation (NW)	47.1	47.8	48.2	95.7	46.7	46.7
Soil (NW)	75.3	70.2	74.9	57.6	68.6	71.4
2020						
Feature	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂

Vegetation (NE)	54.5	62.0	58.0	79.6	51.0	48.6
Soil (NE)	72.9	75.3	70.2	72.9	76.1	74.5
Vegetation (N)	52.9	53.7	53.7	85.1	50.2	51.4
Soil (N)	72.9	75.3	75.7	70.6	71.8	71.8
Vegetation (NW)	54.5	53.7	50.6	70.6	51.0	50.2
Soil (NW)	63.1	63.9	64.7	52.5	63.9	63.5

Feature	2022					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	47.8	44.7	37.3	55.7	38.8	22.7
Soil (NE)	53.7	51.0	46.3	55.7	51.4	32.5
Vegetation (N)	48.2	43.1	39.6	57.6	42.0	24.7
Soil (N)	54.5	51.4	47.8	58.0	52.9	33.7
Vegetation (NW)	49.4	44.7	40.0	58.4	44.3	26.3
Soil (NW)	51.0	46.7	42.4	54.1	47.5	29.0

Table S7 Percentage reflectance of vegetation and soil at a 10 km distance in different directions of AWP in 2002 and 2012

Feature	2002					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	28.2	23.1	24.3	24.7	38.8	23.5
Soil (NE)	35.7	31.8	39.6	27.8	68.6	51.8
Vegetation (N)	31.4	25.9	27.5	25.1	44.7	31.0
Soil (N)	32.2	27.5	31.4	22.0	48.2	33.7
Vegetation (NW)	27.8	22.4	27.5	26.3	37.6	21.6
Soil (NW)	35.3	31.4	36.5	25.9	49.8	38.4

Feature	2012					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	29.0	23.5	23.9	24.3	40.0	24.7
Soil (NE)	30.6	25.1	27.8	22.4	43.1	26.7
Vegetation (N)	29.0	23.9	24.3	24.7	41.2	27.8
Soil (N)	32.9	28.2	31.4	27.1	51.4	38.8
Vegetation (NW)	30.6	24.3	26.3	24.3	41.2	23.9
Soil (NW)	35.3	29.8	35.7	26.7	51.8	38.0

Table S8 Percentage reflectance of vegetation and soil at a 10 km distance in different directions of AWP in 2018, 2020, and 2022

Feature	2018					
	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	50.6	51.4	49.4	88.6	48.2	47.5
Soil (NE)	69.0	75.3	81.2	74.9	71.0	64.7
Vegetation (N)	47.5	47.8	46.7	83.1	50.6	49.4

Soil (N)	62.7	65.1	60.8	68.2	69.8	68.2
Vegetation (NW)	47.1	47.5	48.2	85.1	47.8	47.1
Soil (NW)	72.2	67.8	76.5	72.5	71.0	71.4

2020

Feature	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	47.1	47.1	46.7	66.3	46.7	46.7
Soil (NE)	70.6	76.9	79.6	85.1	83.9	71.8
Vegetation (N)	54.5	52.2	49.4	75.3	52.9	54.5
Soil (N)	51.4	52.2	49.8	49.4	52.9	51.8
Vegetation (NW)	47.5	49.4	49.4	94.5	48.2	48.2
Soil (NW)	56.5	56.5	52.9	52.5	54.1	53.7

2022

Feature	Blue	Green	Red	NIR	SWIR ₁	SWIR ₂
Vegetation (NE)	47.5	43.1	36.1	52.2	40.8	23.9
Soil (NE)	48.2	43.1	36.9	50.2	42.4	25.5
Vegetation (N)	47.5	42.7	36.1	53.7	43.5	25.5
Soil (N)	50.6	46.7	43.1	51.8	49.0	30.2
Vegetation (NW)	47.8	43.1	38.0	59.6	40.8	23.5
Soil (NW)	69.4	65.9	64.3	68.2	64.7	44.7