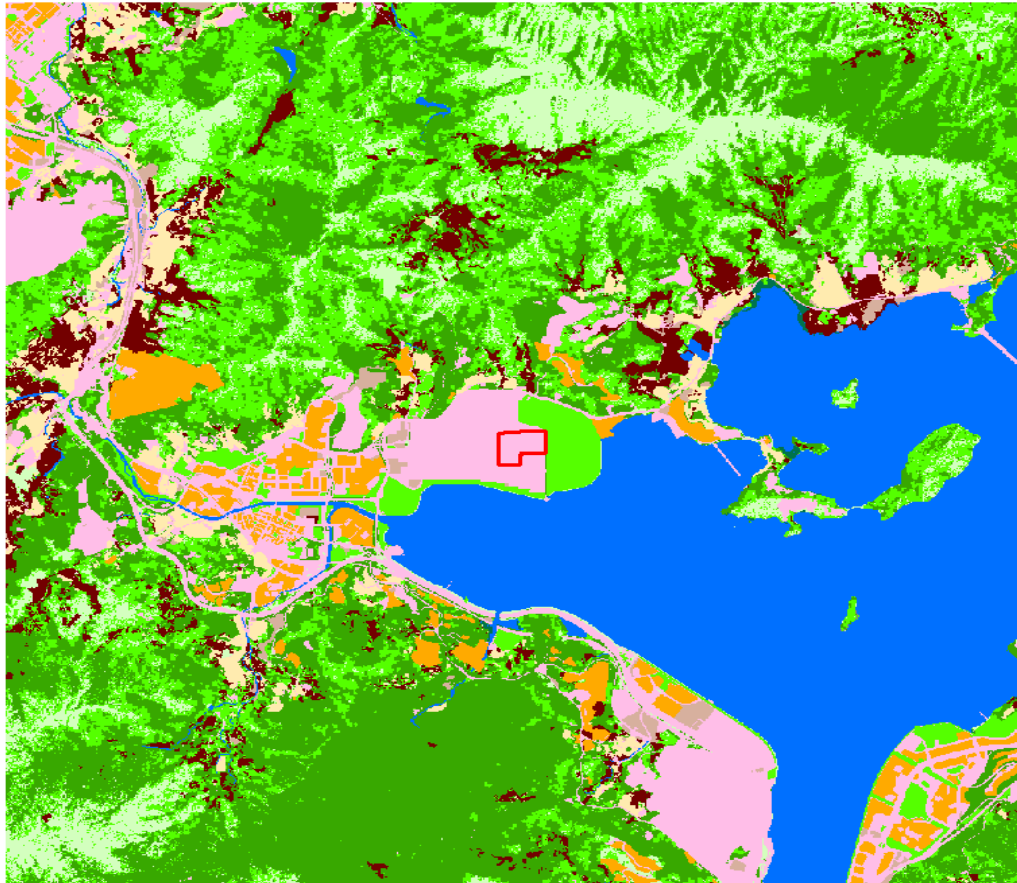


Albedo and Bowen Ratio

ID	Type (USEPA)	Albedo		Bowen Ratio		
		Seasonal Average ⁽¹⁾	Bowen Ratio (b) (Seasonal Average) ⁽¹⁾	No. of grid (n) ⁽²⁾	Percentage	b ^{n/Sn}
11	Open Water	0.1	0.1	208147	21%	0.6192
21	Low Intensity Residential	0.165	0.9	33381	3%	0.9965
22	High Intensity Residential	0.18	1.5	34354	3%	1.0140
23b	Commercial/Industrial/Transp (Not at Airport)	0.18	1.5	102485	10%	1.0424
31a	Bare Rock/ Sand/ Clay (Arid Region)	0.2	4.75	69	0%	1.0001
33	Transitional	0.18	1	9075	1%	1.0000
41	Deciduous Forest	0.1625	0.75	277778	28%	0.9232
51b	Shrubland (Non-arid Region)	0.18	1.25	200961	20%	1.0459
71	Grassland	0.185	0.8	87860	9%	0.9806
82	Row Crops	0.18	0.55	44870	4%	0.9735
91	Woody Wetland	0.14	0.225	1020	0%	0.9985
		0.158	0.600			

- Note:
- Reference from Tables A-1 and A-2 from AERSURFACE User's Guide, USEPA.
 - Each grid of size 10m x 10m for the 10km x 10km domain. There are 1.00E+06 grids, and the representative land use type was determined for each grid.
 - Simple unweighted arithmetic mean for Albedo = $S(a \times n) / S_n$; simple unweighted geometry mean for Bowen Ratio = $P b^{n/Sn}$
 - The albedo and bowen ratio are calculated according to the latest AERMOD Implementation Guide.



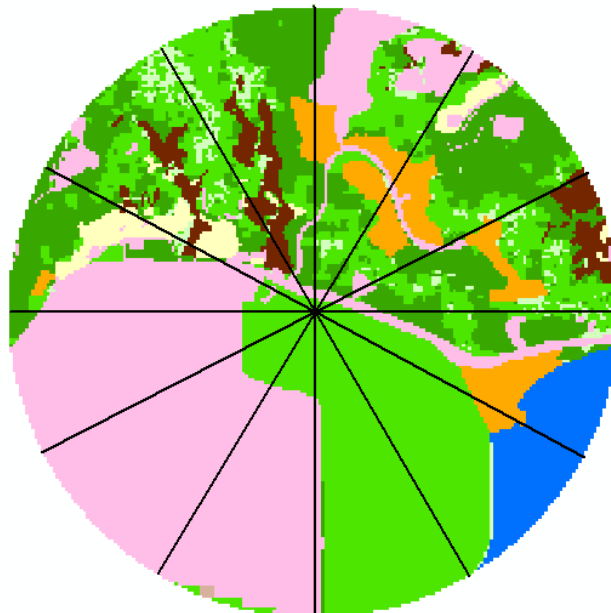
Legend

	11 Open Water/ Fish Ponds/ Gei Wals
	21 Low Intensity Residential
	22 High Intensity Residential
	23b Commercial/Industrial/Transp (Not at Airport)
	31a Bare Rock/ Sand/ Clay (Arid Region)
	33 Transitional
	41 Deciduous Forest
	51b Shrubland (Non-arid Region)
	71 Grassland
	82 Row Crops
	91 Woody Wetland
	Project Site

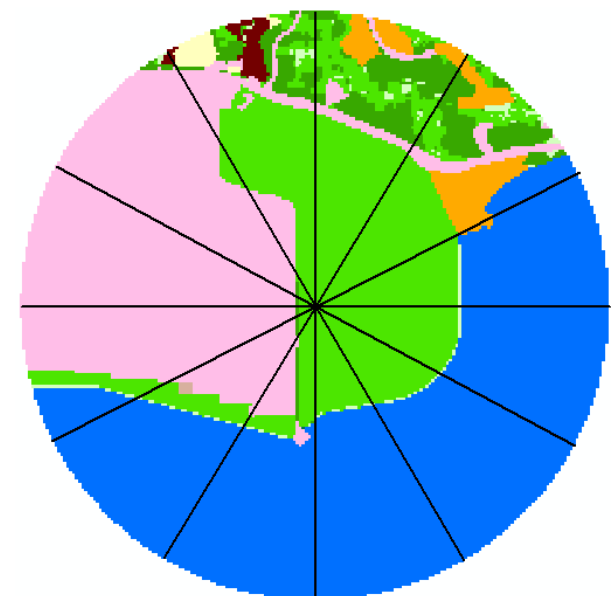
Surface Roughness

	0-30	30-60	60-90	90-120	120-150	150-180	180-210	210-240	240-270	270-300	300-330	330-360
4249	0.559	0.635	0.486	0.192	0.126	0.316	0.552	0.541	0.571	0.573	0.363	0.463
4248	0.401	0.378	0.022	0.017	0.013	0.008	0.015	0.031	0.313	0.678	0.639	0.393

4249



4248

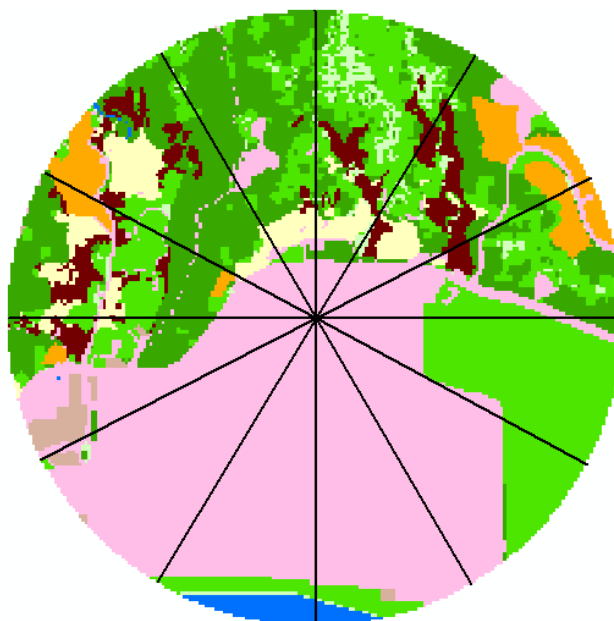
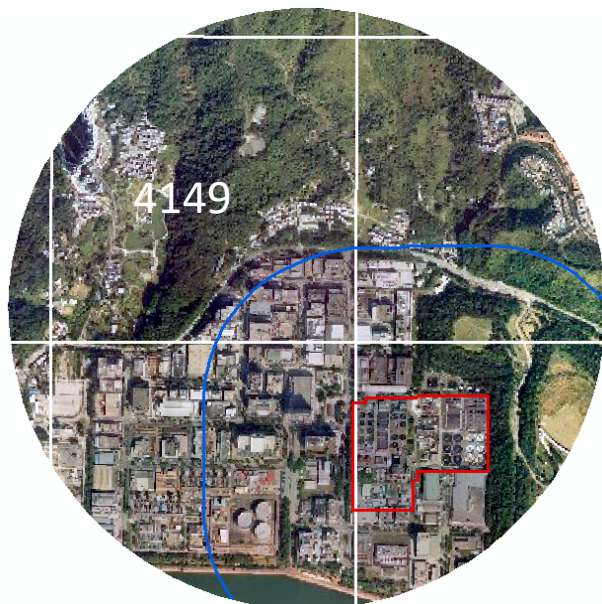


- 11 Open Water
- 21 Low Intensity Residential
- 22 High Intensity Residential
- 23b Commercial/Industrial/Transp (Not at Airport)
- 31a Bare Rock/ Sand/ Clay (Arid Region)
- 33 Transitional
- 41 Deciduous Forest
- 51a Shrubland (Arid Region)
- 51b Shrubland (Non-arid Region)
- 71 Grassland
- 82 Row Crops
- 91 Woody Wetland

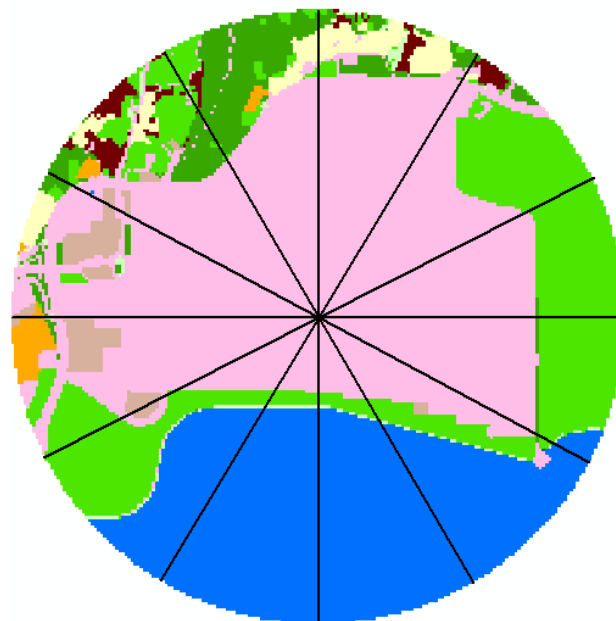
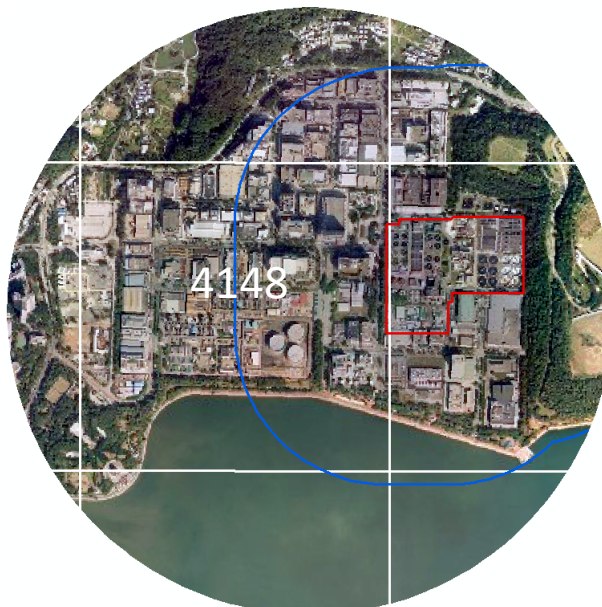
Surface Roughness

	0-30	30-60	60-90	90-120	120-150	150-180	180-210	210-240	240-270	270-300	300-330	330-360
4149	0.370	0.497	0.583	0.432	0.634	0.588	0.443	0.695	0.608	0.564	0.619	0.633
4148	0.639	0.567	0.559	0.489	0.046	0.008	0.007	0.054	0.581	0.626	0.578	0.707

4149



4148



- 11 Open Water
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- 23b Commercial/Industrial/Transp (Not at Airport)
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