Accuracy Assessment of Global Land Cover Maps Over Canada

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Tools Accuracy Assessment and Analysis [A^3]

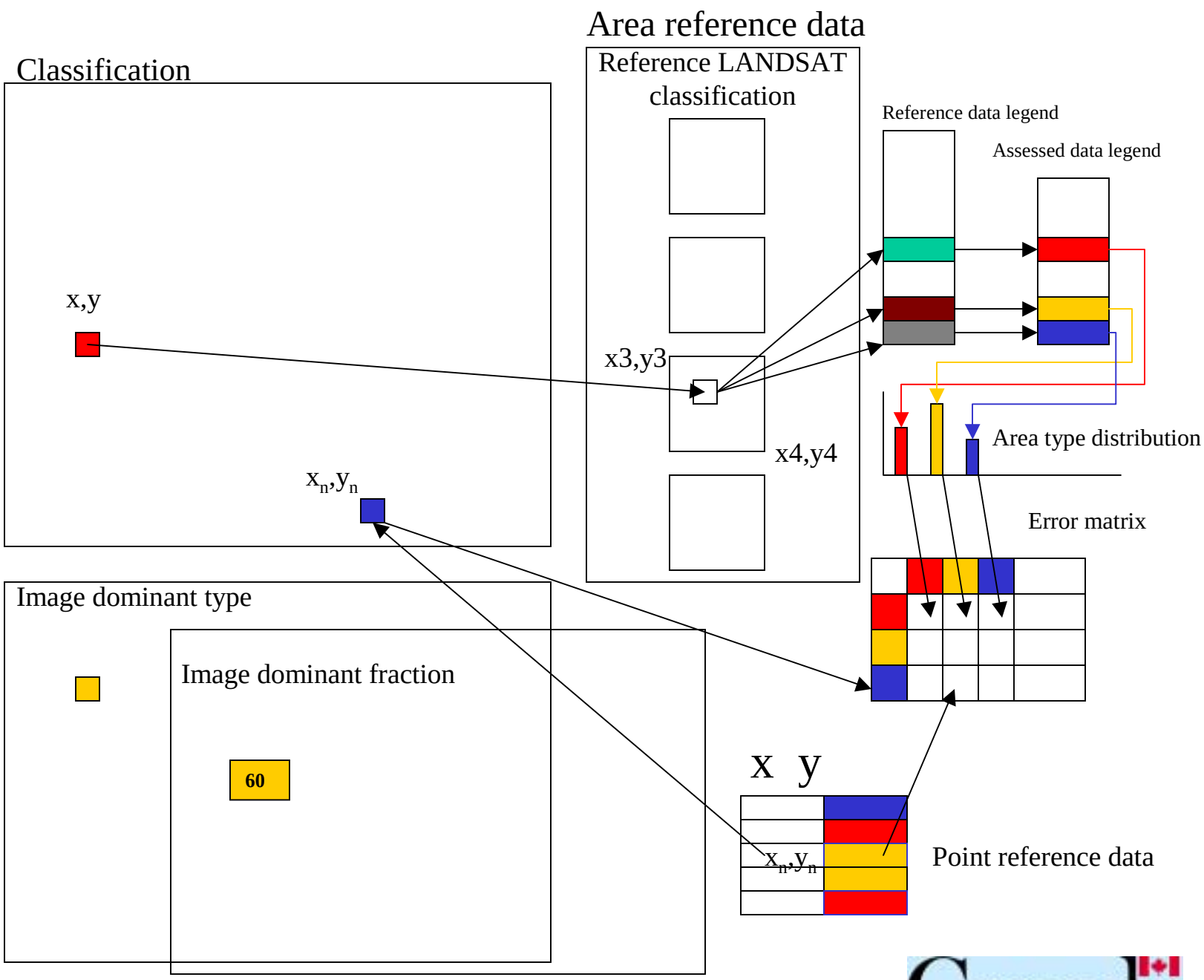
Reference sample selection
PSA algorithm
- Non-random
- Ecozone stratified
- Proportional

Coo-registration
- Automated based on NIR correlation surface
- Pixel size independent

Sample type
- Point
- Area

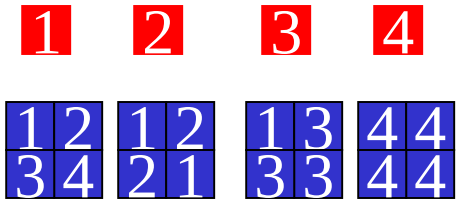
Error matrix
- Dominant type error matrix
- Sub-pixel fraction error matrix
- Handles different legends
- Handles different resolution

Landscape characteristics per coarse pixel or area
- Homogeneity
- Dominant land cover type


Area reference data
Classification
Reference LANDSAT classification
Reference data legend
Assessed data legend
x,y
x3,y3
x4,y4
Area type distribution
x_n,y_n
Error matrix
Image dominant type
Image dominant fraction
60
x y
x_n,y_n
Point reference data

Assessed map

Reference map



Sub-pixel fraction error matrix

	1	2	3	4	
1	0.25	0.25	0.25	0.25	1
2	0.5	0.5			1
3	0.25		0.75		1
4				1	1
	1	0.75	1	1.25	0.625

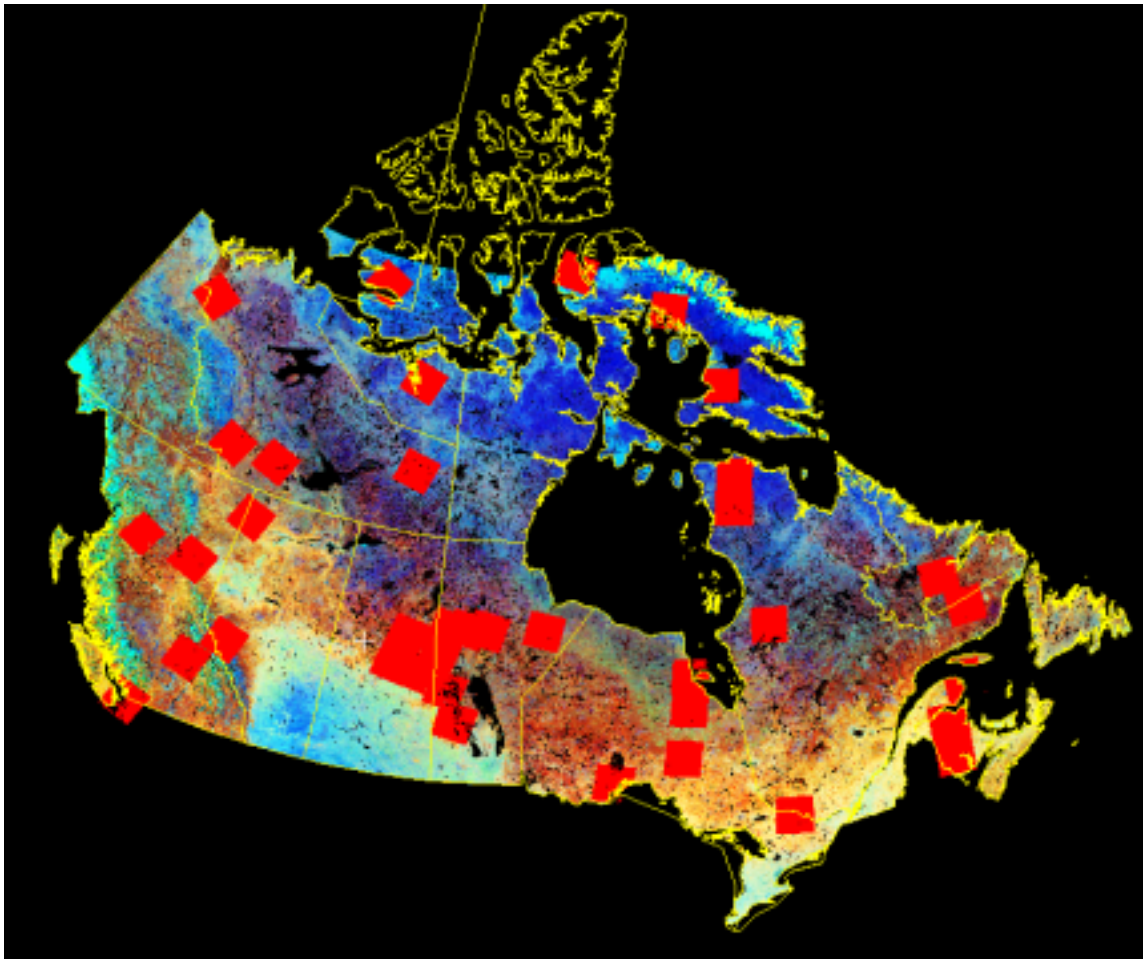
Dominant type error matrix

	1	2	3	4
1	1			
2		1		
3			1	
4				1

1.00

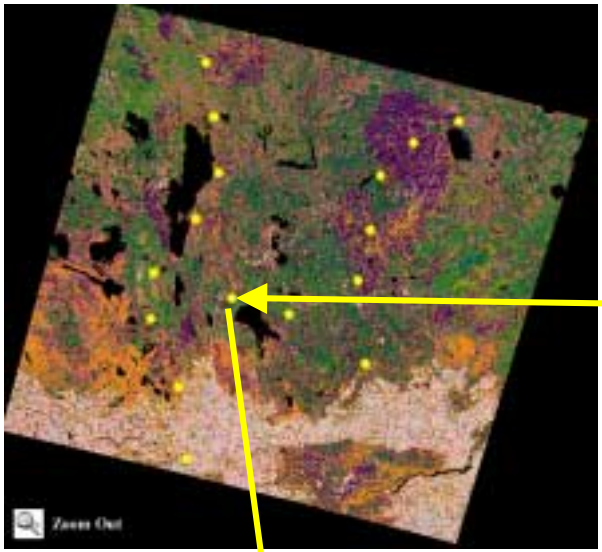
	1	2	3	4	
1			1		1
2	1				1
3			1		1
4				1	1
	1	0	2	1	0.50

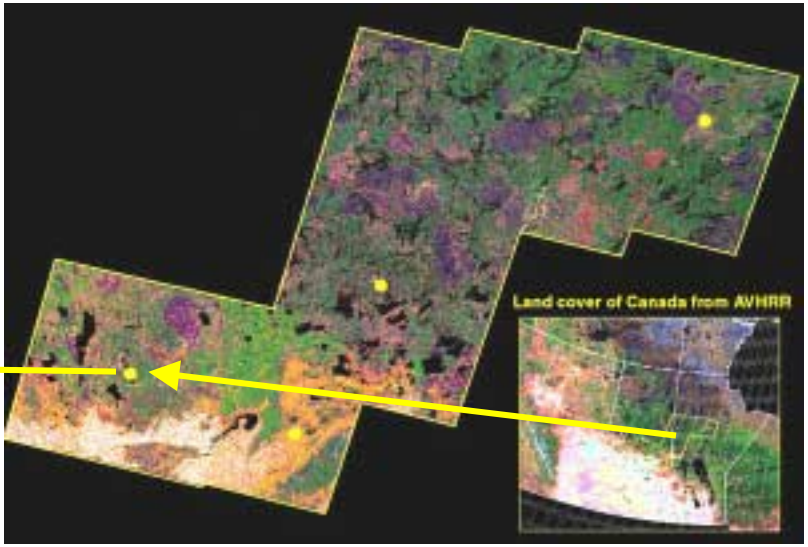
Sampling design and Reference data



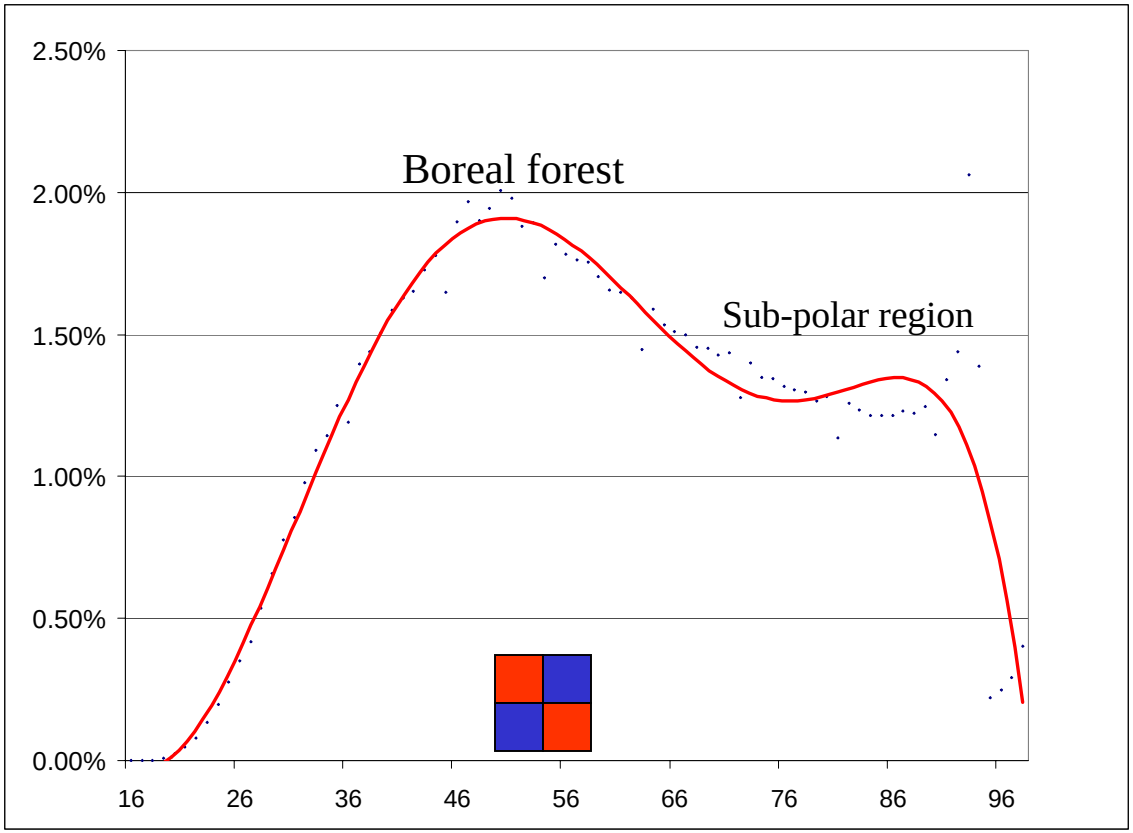
- Applied the same classification method
- Common legend

Assessment of reference data



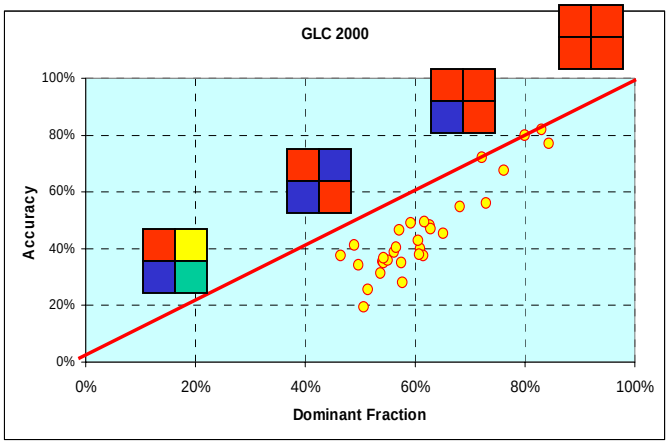


1km pixel homogeneity 1km pixel over Canada

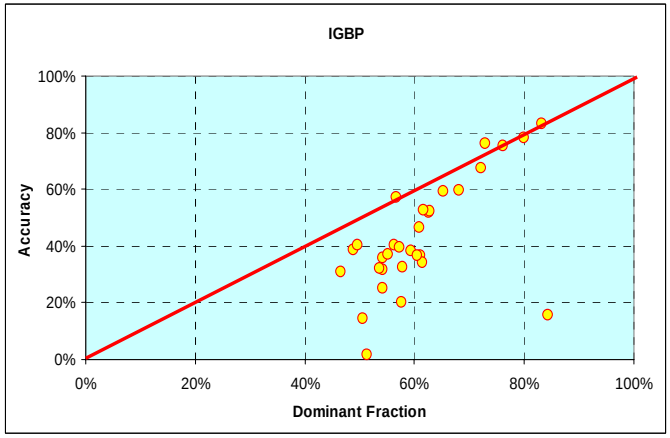


Dominant fraction in 1km pixel

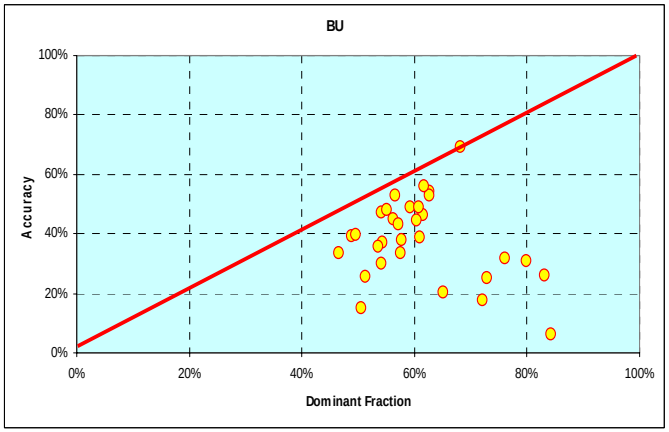
Accuracy Assessment of four global land maps over Canada



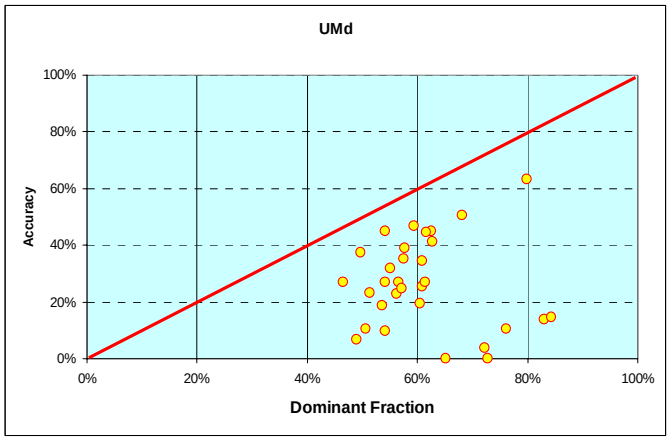
GLC 2000 NA



IGBP



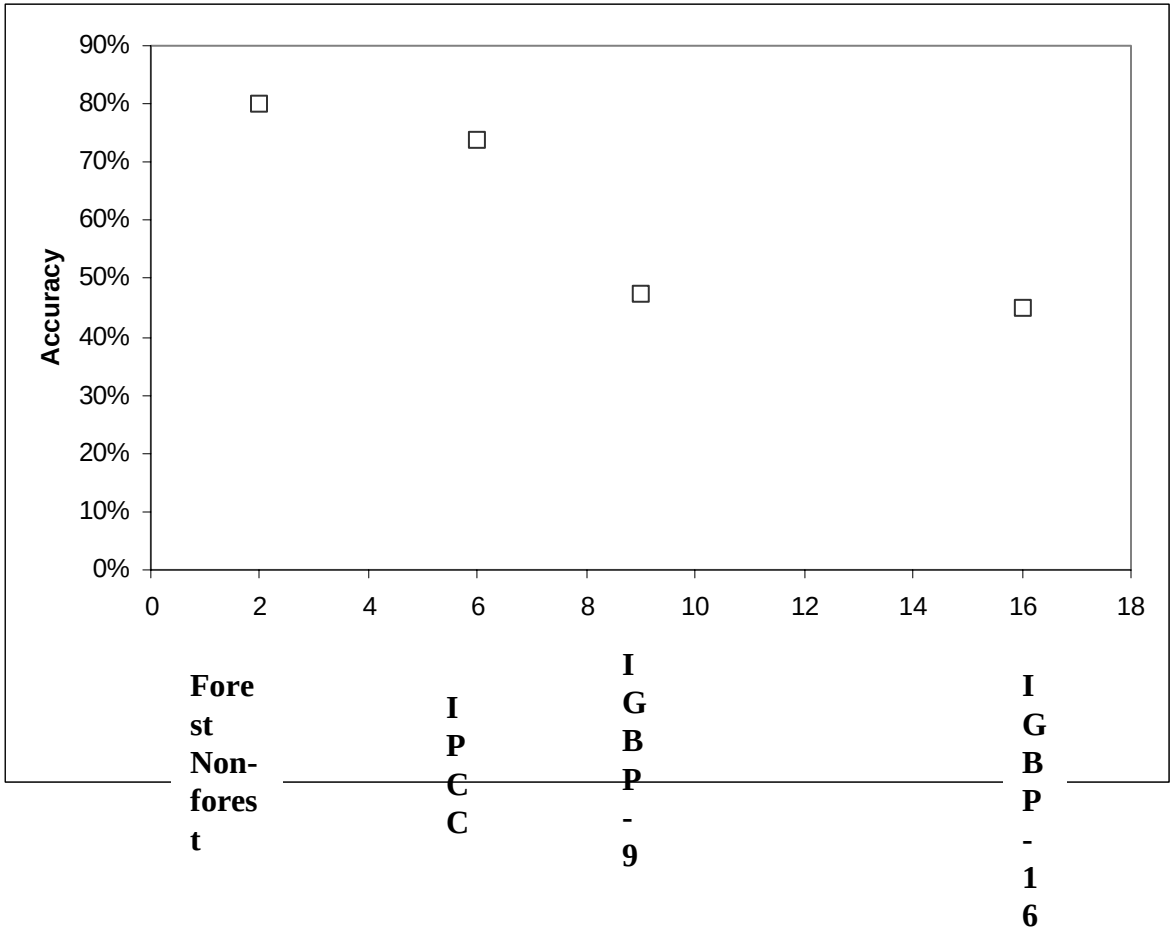
University Boston



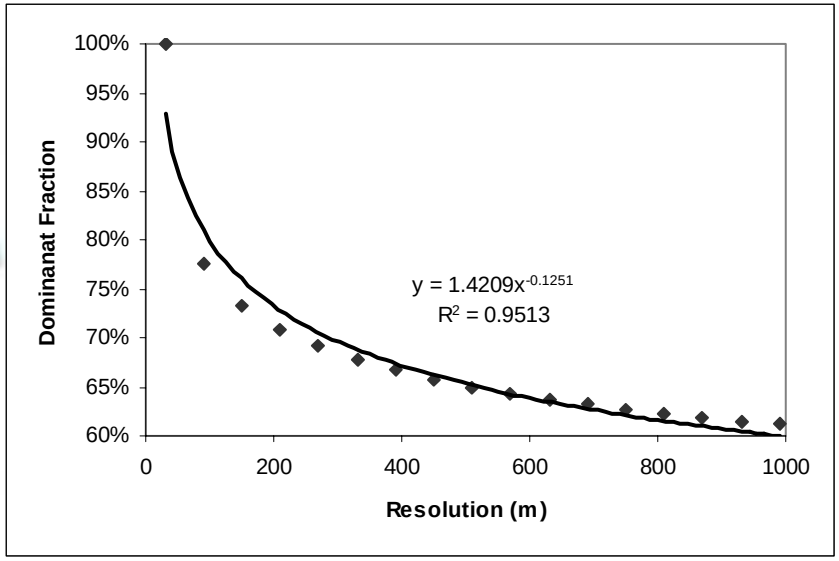
University Maryland

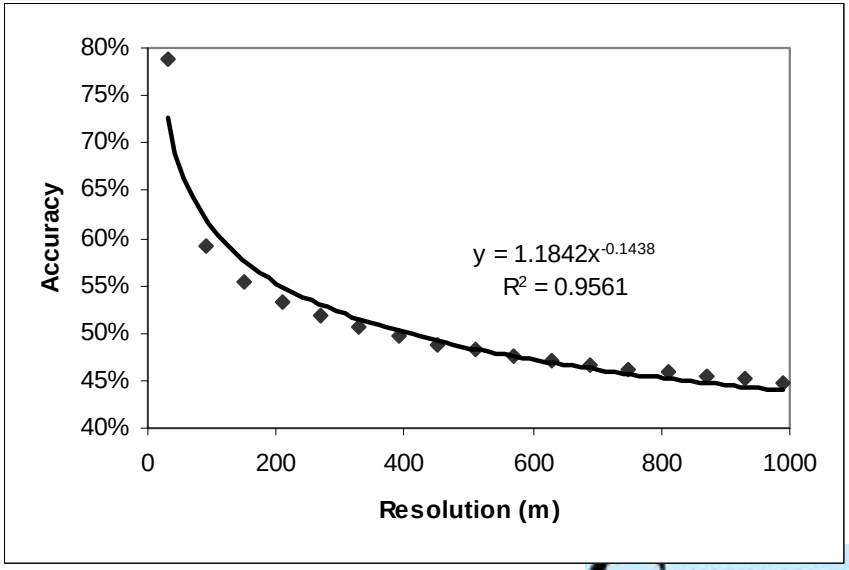
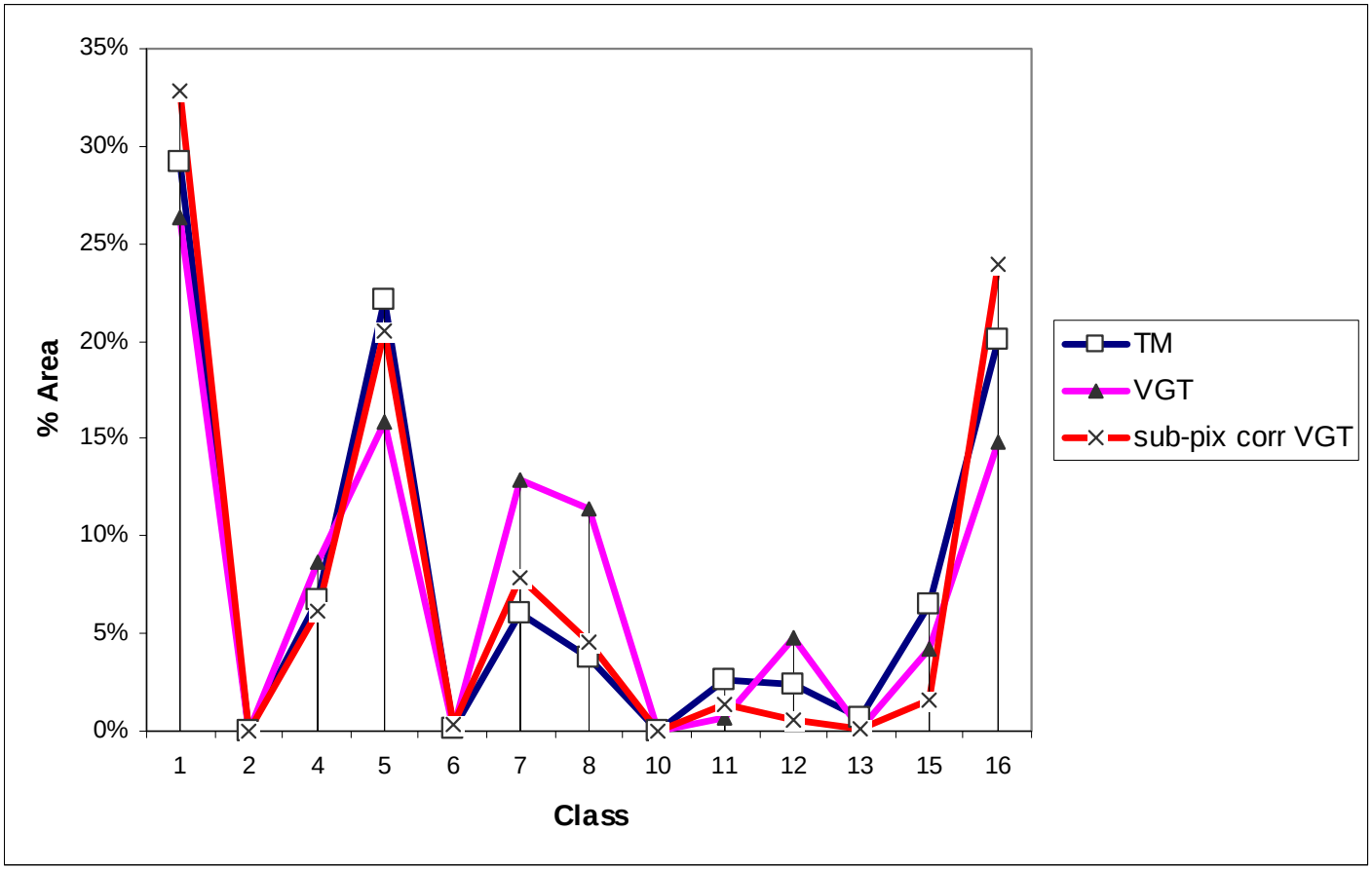
Sub-pixel dominate fraction limits maximal achievable accuracy

Accuracy of GLC 2000 NA for different thematic resolution



Accuracy – Homogeneity – Spatial resolution





Class area estimates and calibration