Geodati

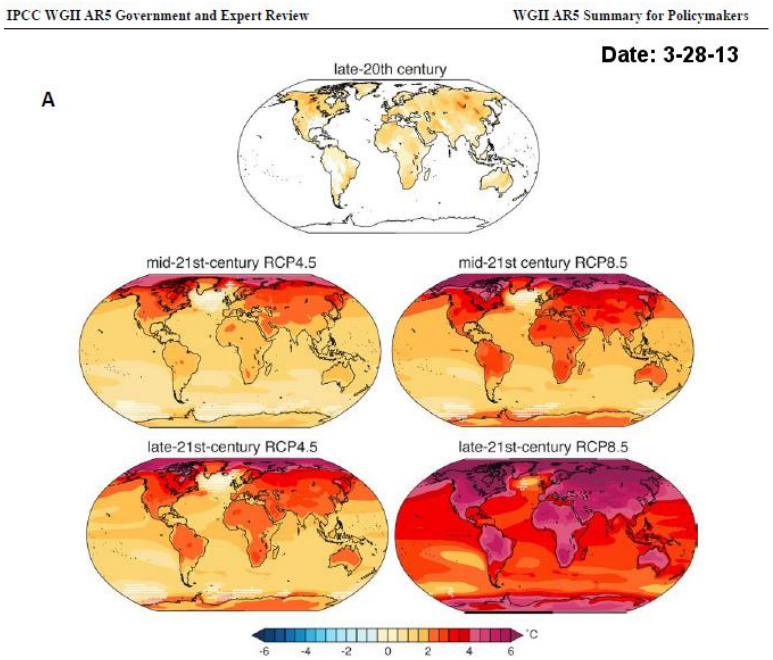
Dato geografico:

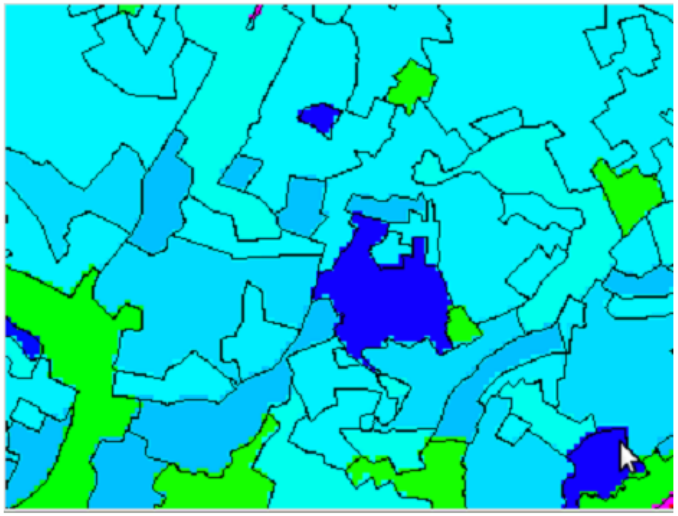
- Astrazione
-Scala di analisi (…risoluzione)
- Area di riferimento
- Dinamismo temporale

Dati raster: risoluzione

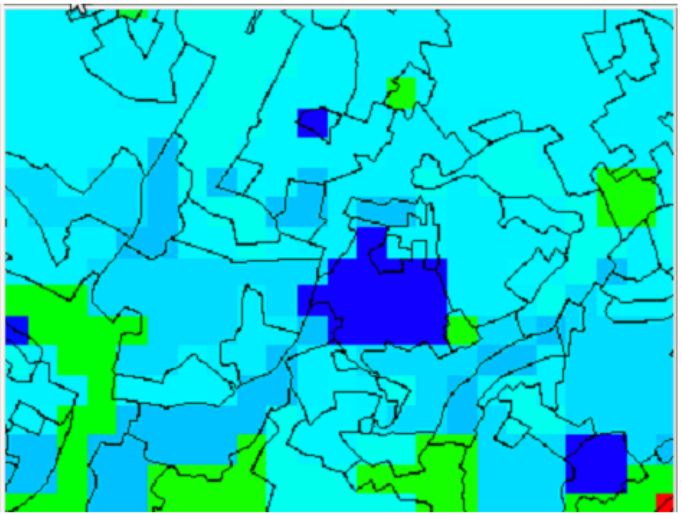
- Accuratezza

- Valutazione dell'incertezza

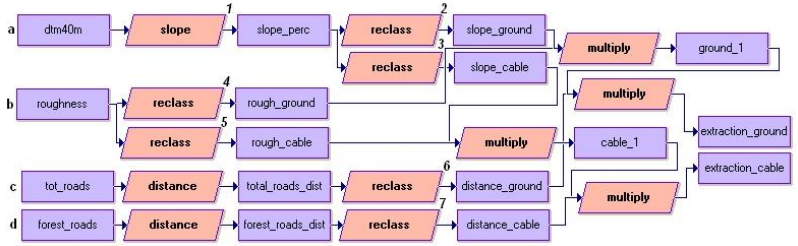


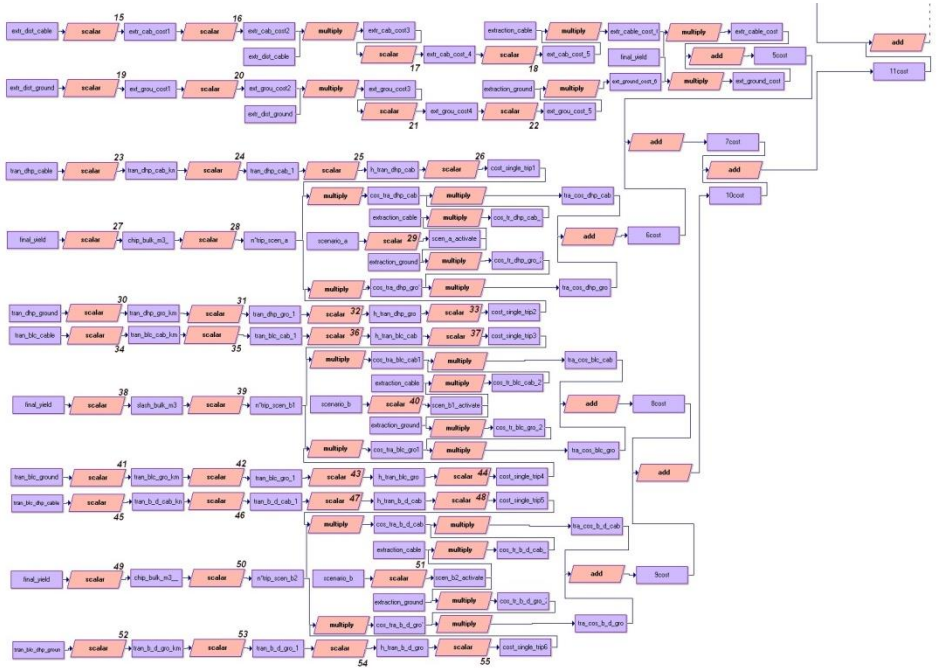


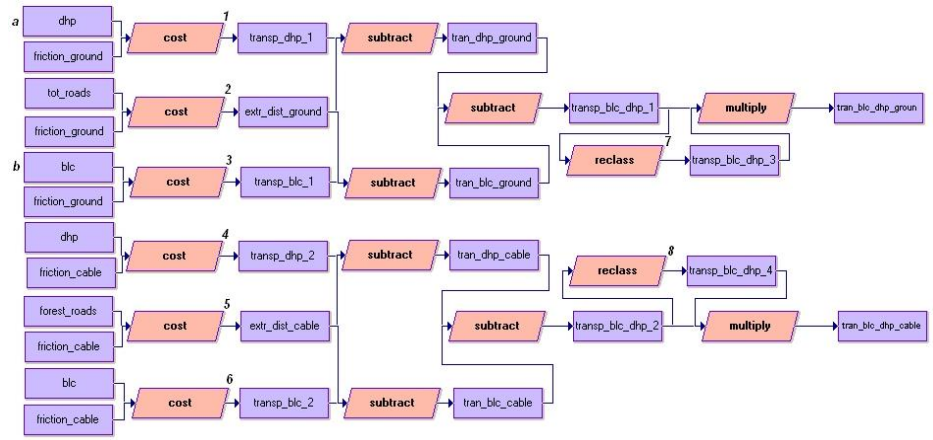
Risoluzione 25 metri

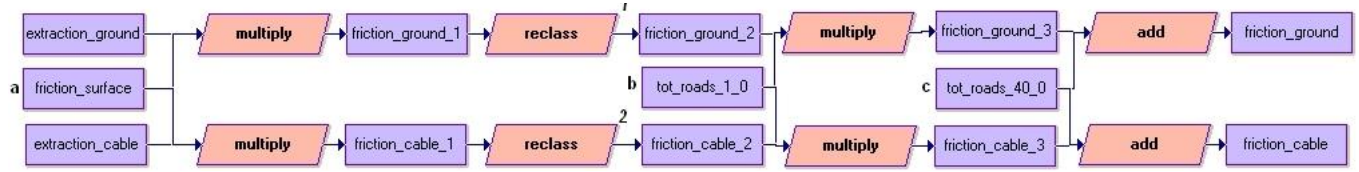


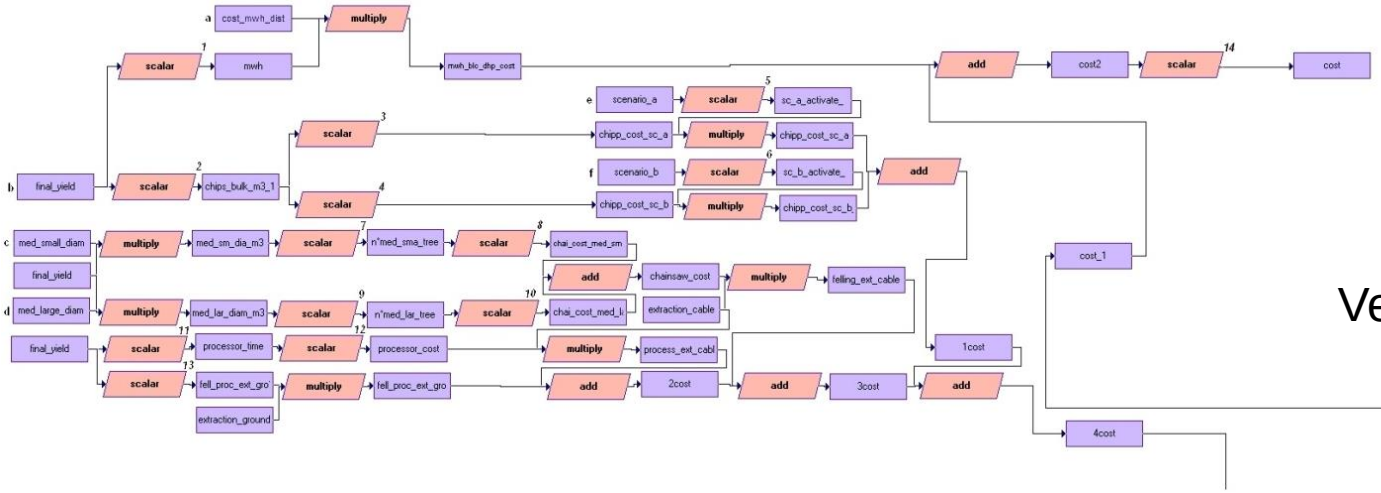
Risoluzione 100 metri





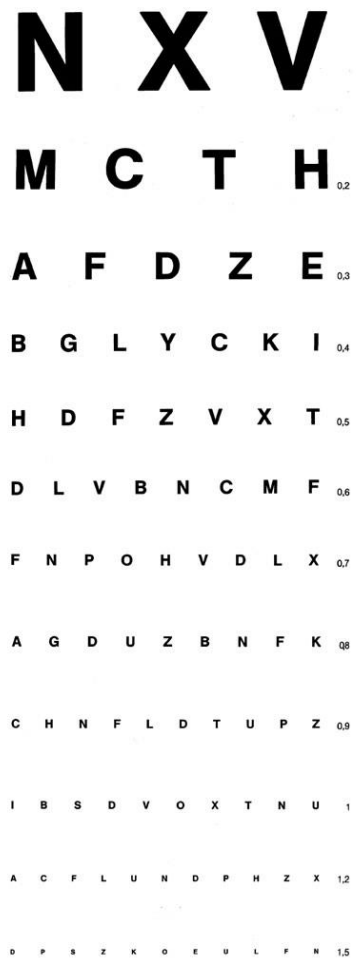


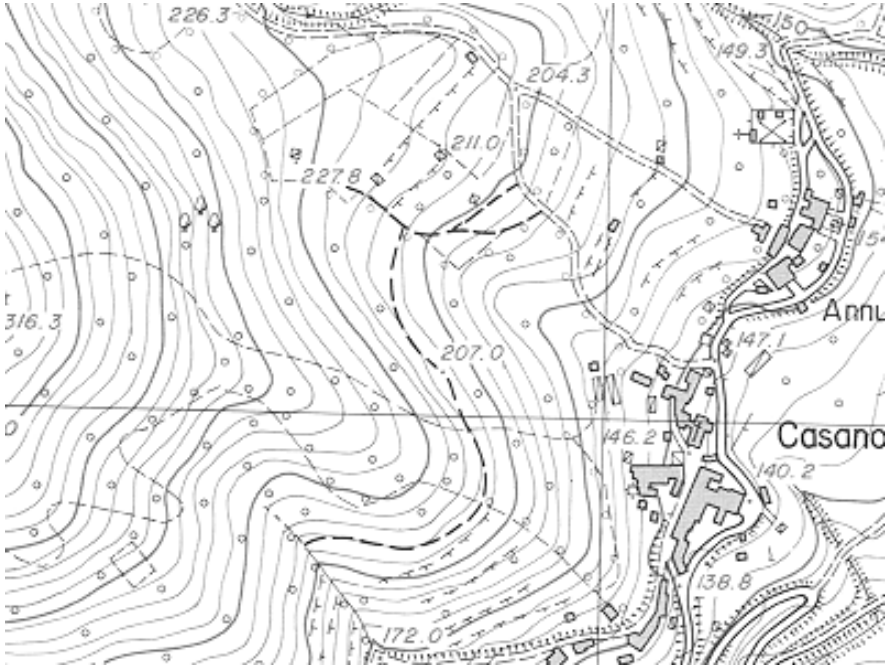




Velocità di elaborazione

Dati raster: risoluzione

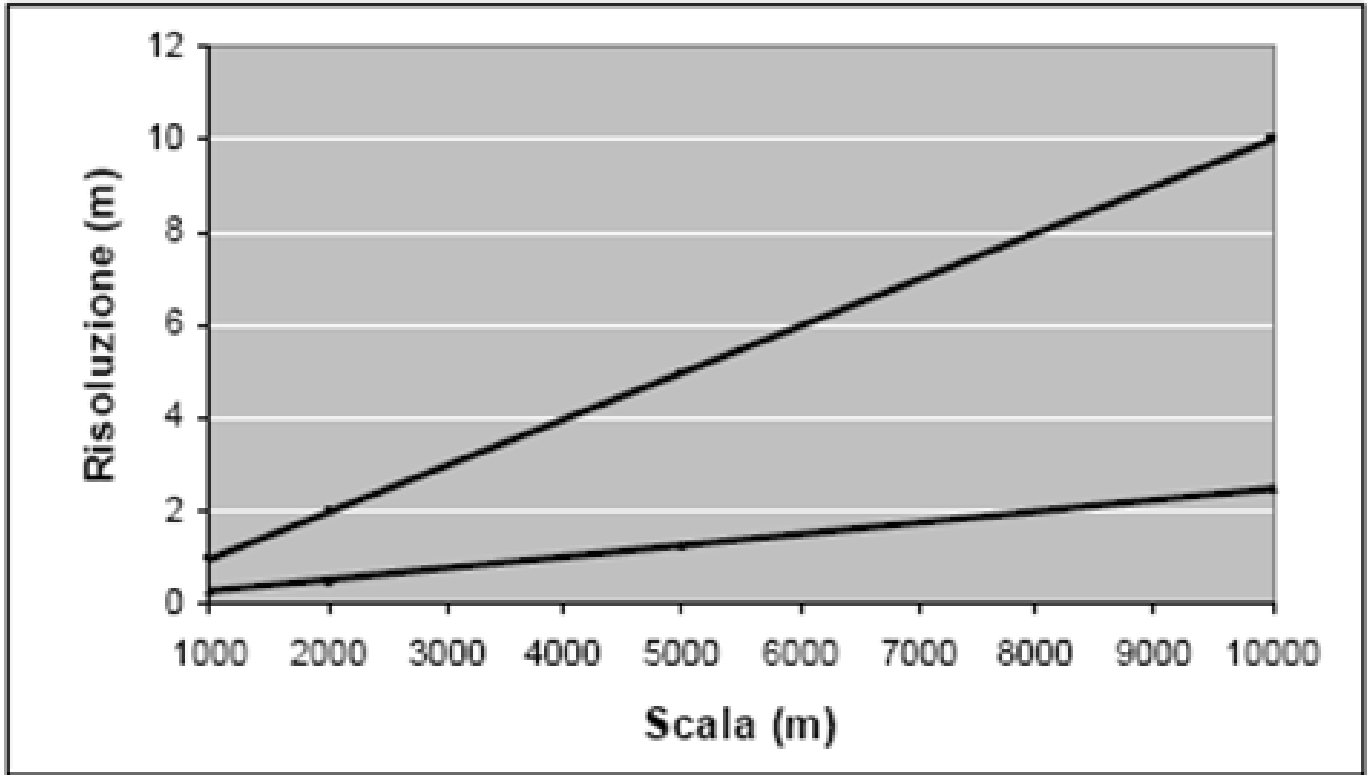




1:10.000

10 linee per millimetro a 20-30cm

Dati raster: risoluzione

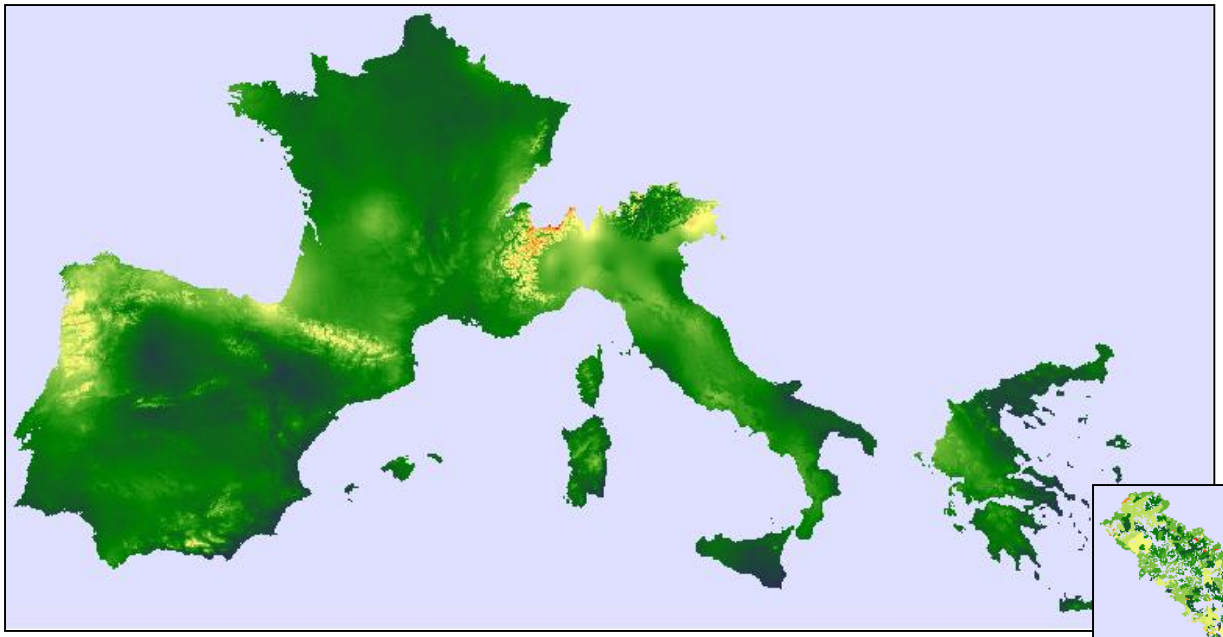


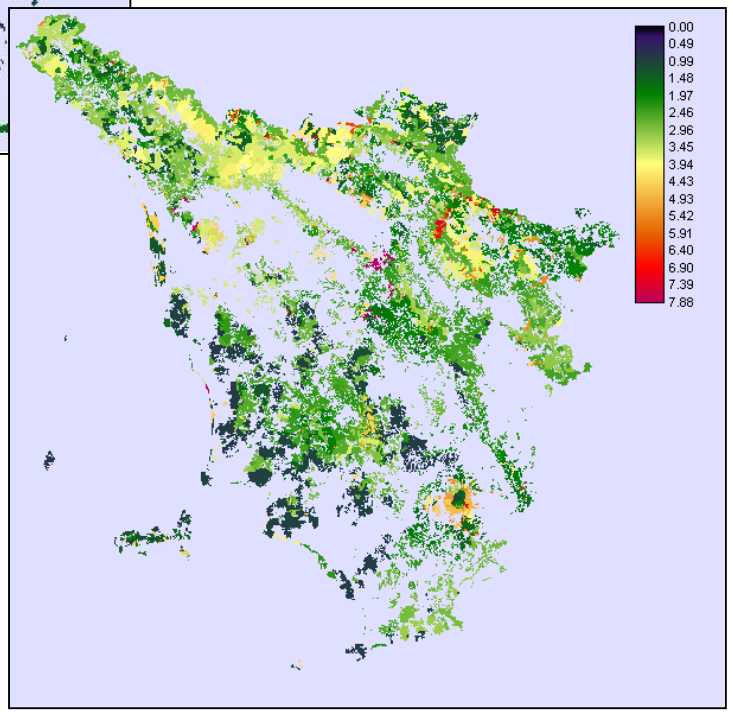
Geodati

Dato geografico:

- Astrazione
-Scala di analisi (…risoluzione)
- Area di riferimento
- Dinamismo temporale

Dati raster: area di riferimento





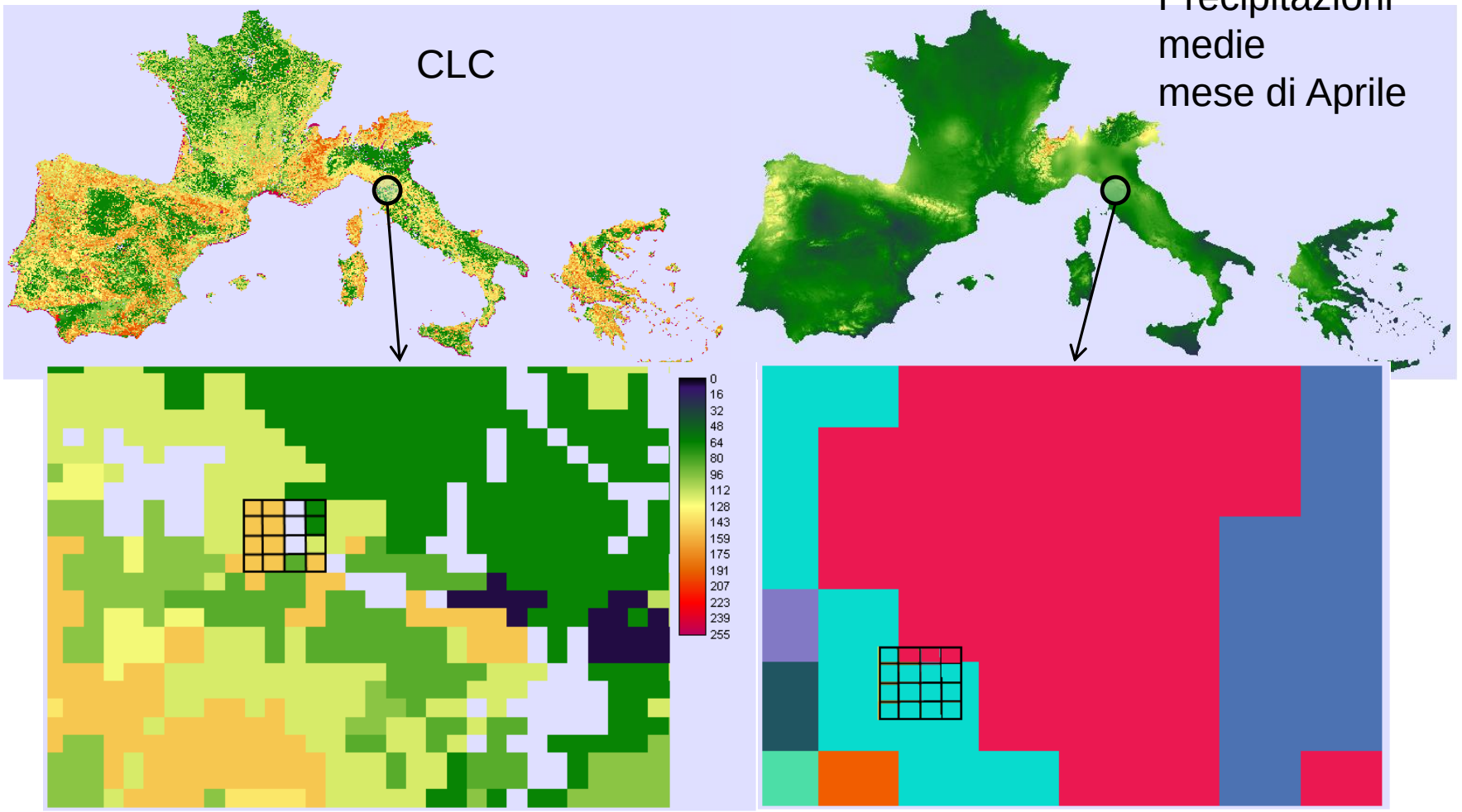
Concetto di finestra cartografica (o regione «computazionale»)

Geodati

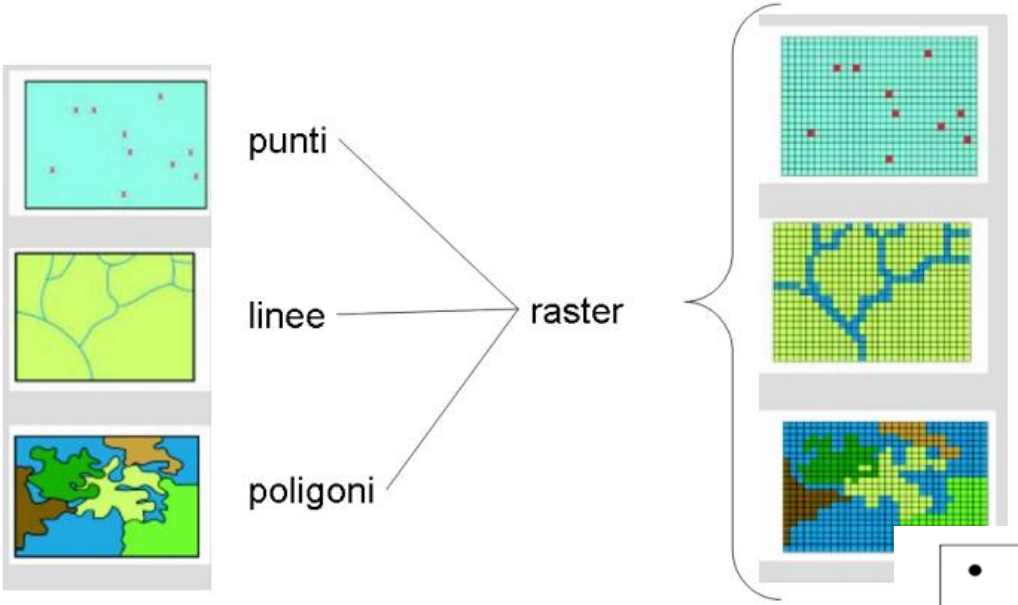
Dato geografico:

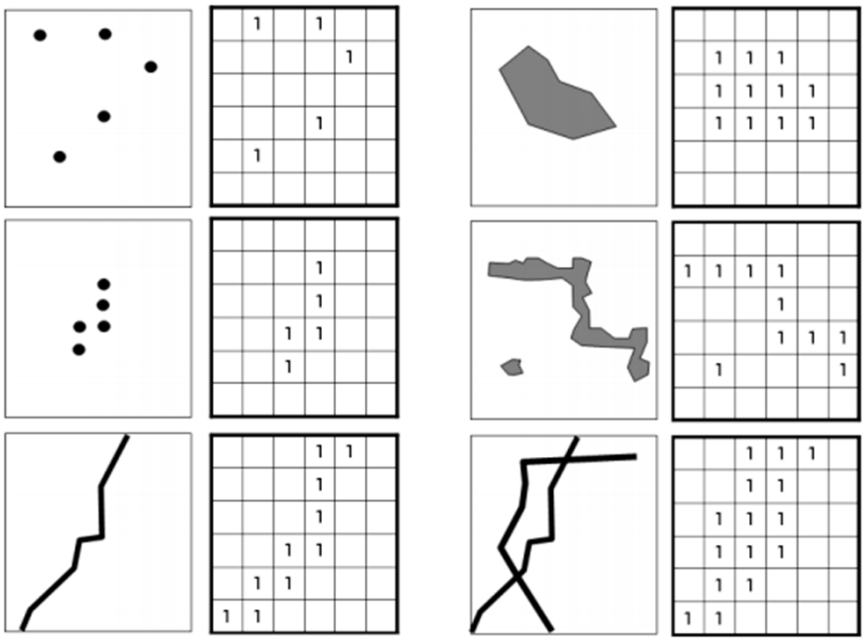
- Astrazione
-Scala di analisi (…risoluzione)
- Area di riferimento
- Dinamismo temporale

Dati raster: ricampionamento



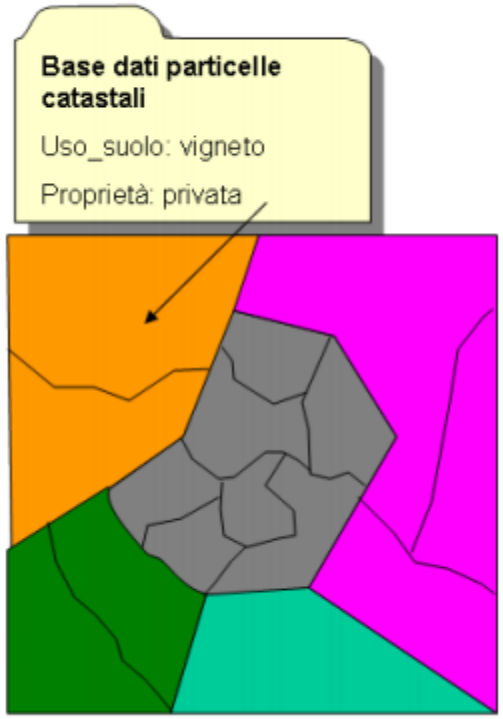
Rasterizzazione di dati vettoriali





Rasterizzazione di dati vettoriali

I dati Vettoriali associano a ciascun oggetto un record di database



Nel modello raster ciascun attributo rappresenta una griglia a parte

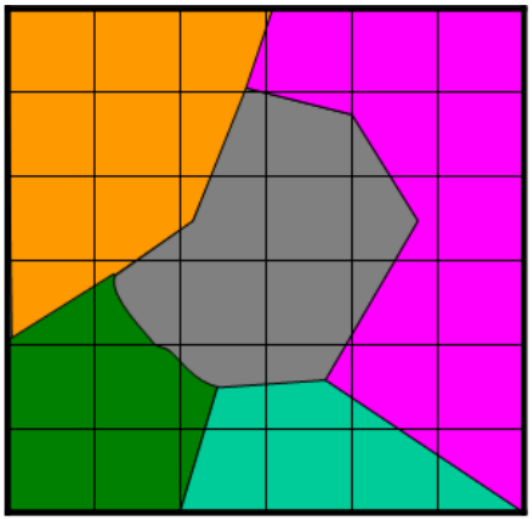
1	1	1	2	2	2
1	1	2	1	1	1
1	1	2	1	1	1
1	2	2	1	1	1
2	2	1	1	1	1
2	2	1	1	1	1

Proprietà

2	2	2	5	5	5
2	2	1	1	5	5
2	2	1	1	1	5
2	1	1	1	5	5
3	3	4	4	5	5
3	3	4	4	4	5

Uso suolo

Dati raster

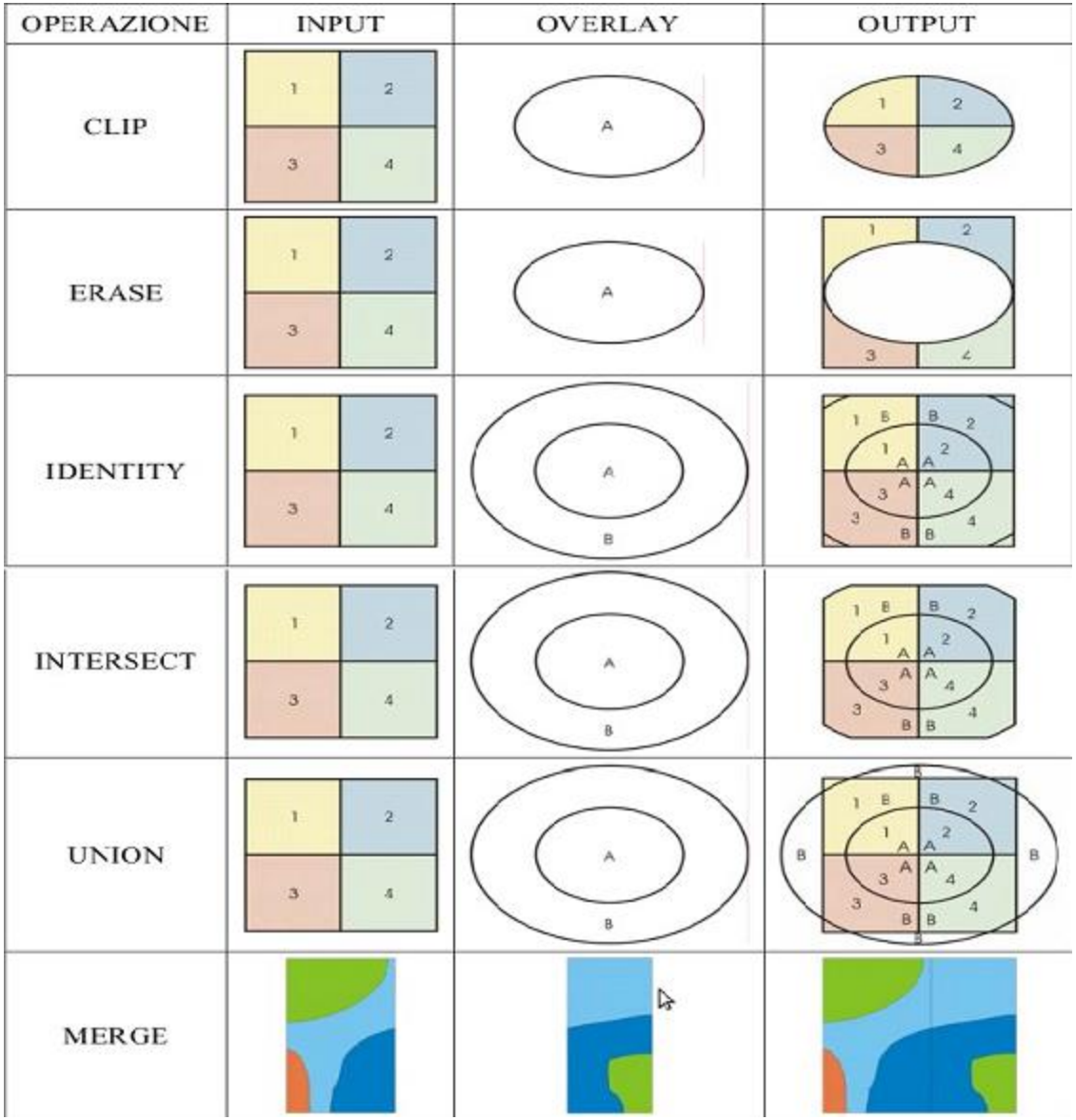


2	2	2	5	5	5
2	2	1	1	5	5
2	2	1	1	1	5
2	1	1	1	5	5
3	3	4	4	5	5
3	3	4	4	4	5

Attenzione: per loro natura i dati raster sono ***numerici:***
I dati alfanumerici debbono essere codificati

1: urbano
2: seminativo
3: bosco
4: lago
5: vigneto

Operazioni tra geodati (vettoriali)

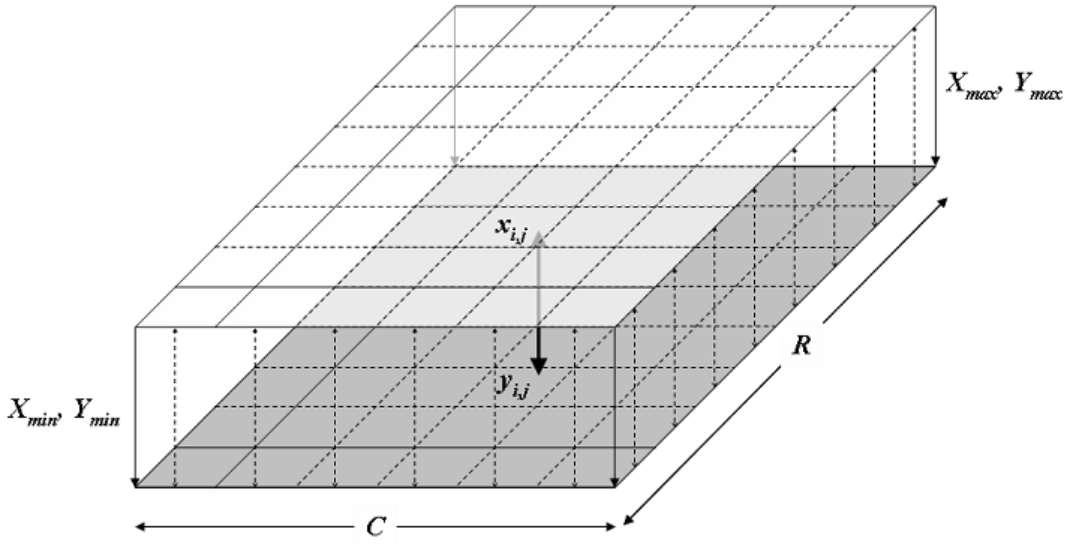


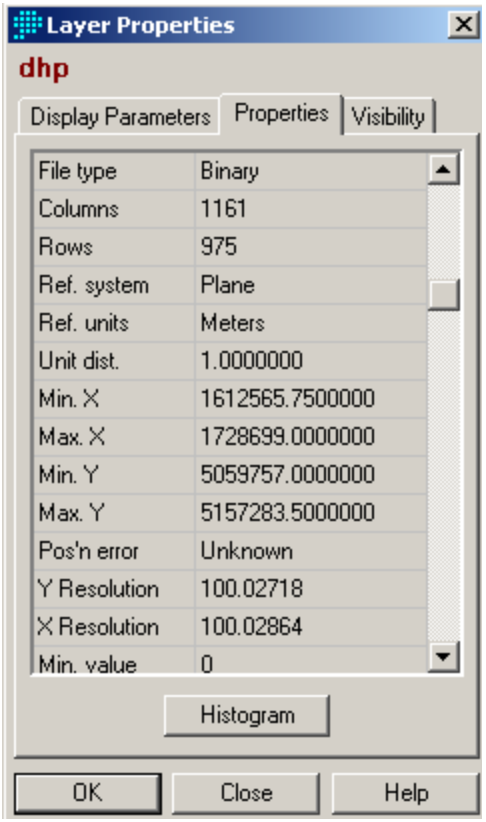
Operazioni su geodati (vettoriali)

BUFFER		-	

Geodati raster: map algebra

Necessità di perfetta sovrapposizione!



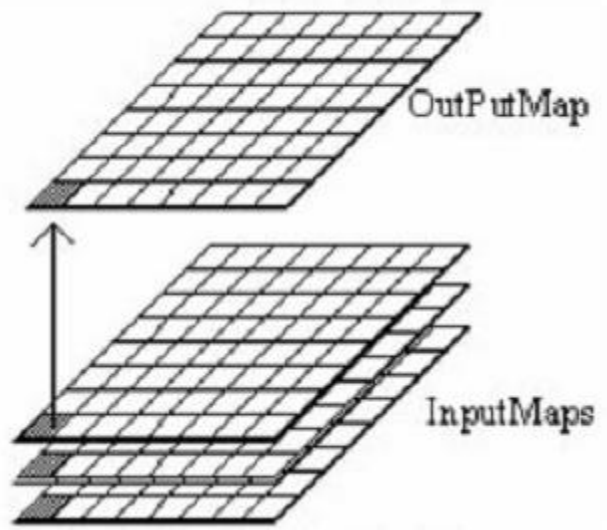


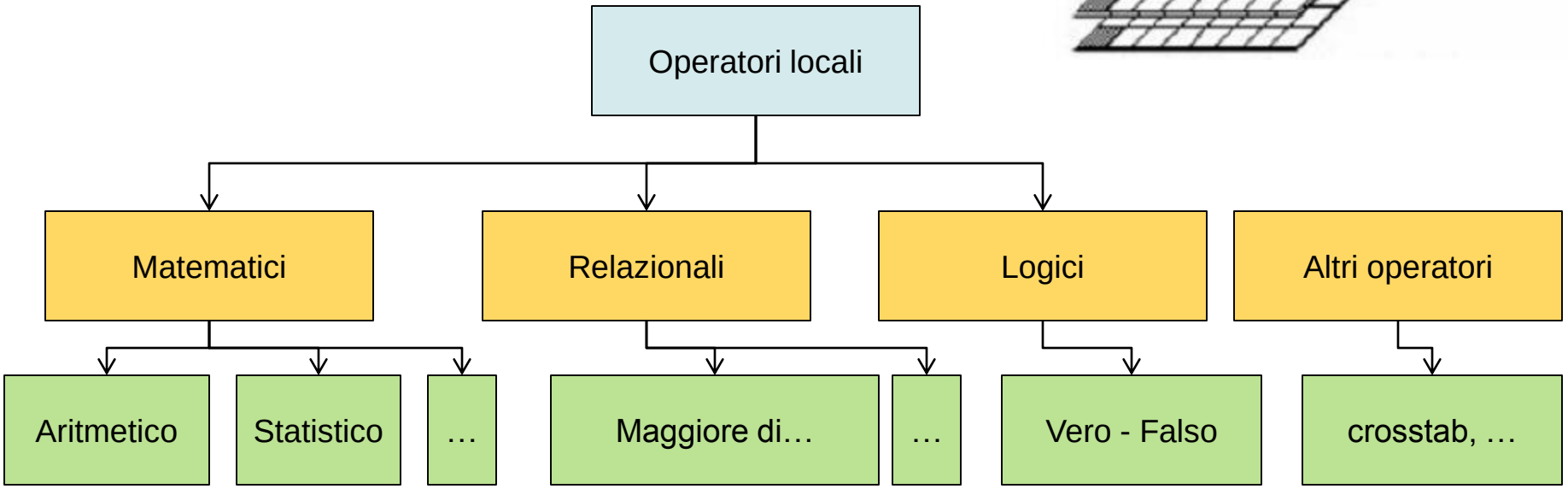
Geodati raster: map algebra

Operatori di Tomlin

- Locali
- Focali
- Zonali
- Globali

Operatori locali





Operatori locali

Operatore monoargomento

	2	1	0.5		0.9	0.8	0.5
SEN	1.2	0.8	0.5	=	0.9	0.7	0.4
	0.7	2.2	2.3		0.6	0.8	0.7

Operatori locali

Operatore multiargomento

1	0	3
3	8	0
0	1	5

MIN

1	2	2
1	9	2
4	4	3

=

1	0	2
1	8	0
0	1	3

1	7	3
3	7	4
1	1	1

+

1	2	2
1	3	2
4	4	3

=

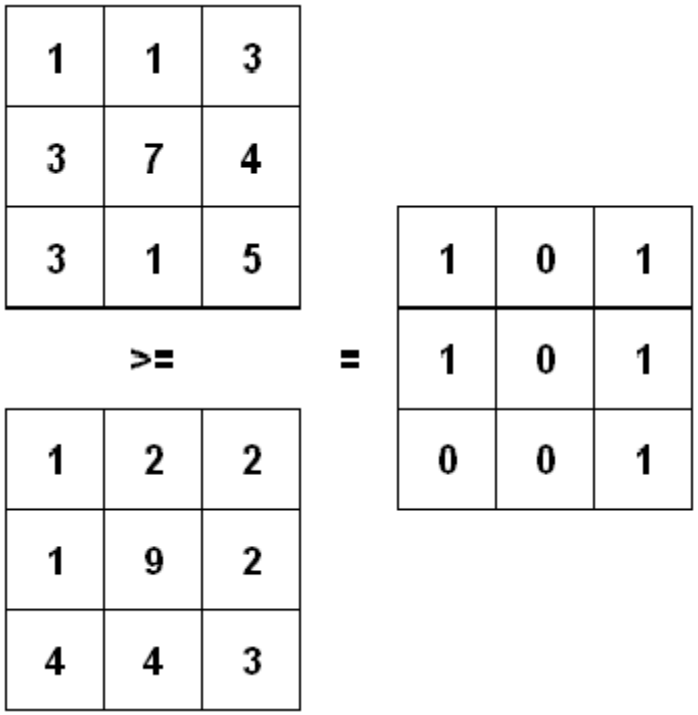
2	9	5
4	10	6
5	5	4

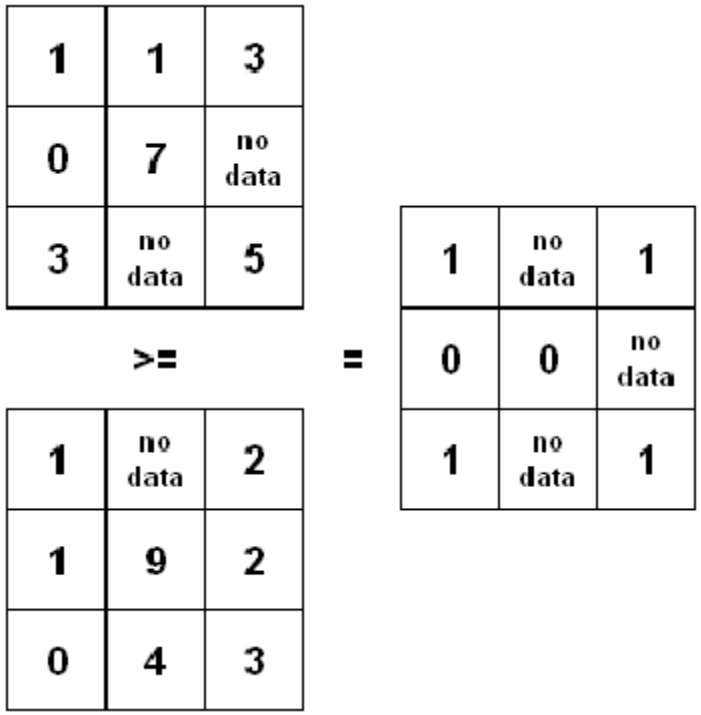
1	7	3
3	7	4
1	1	1

***** **5** **=**

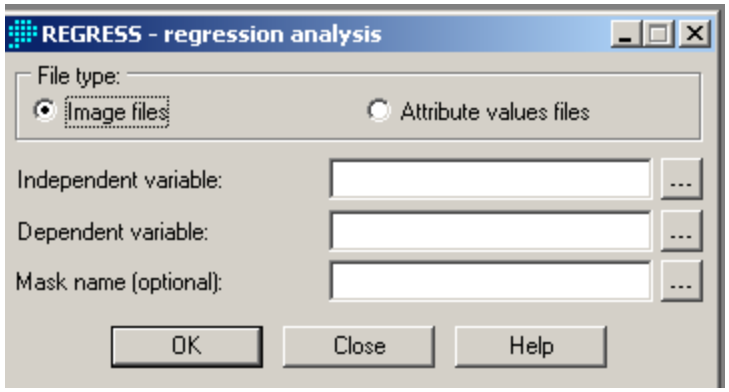
5	35	15
15	35	20
5	5	5

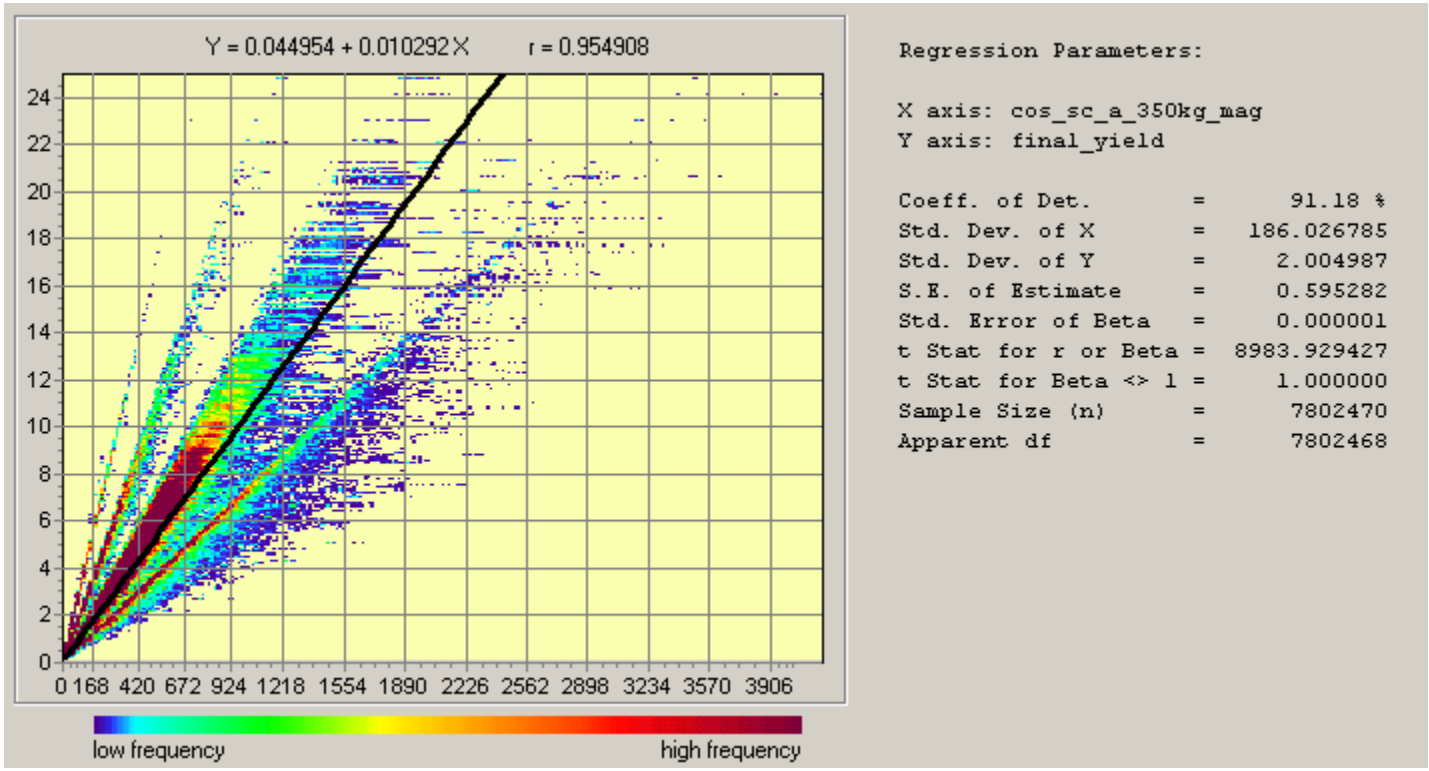
Operatori locali



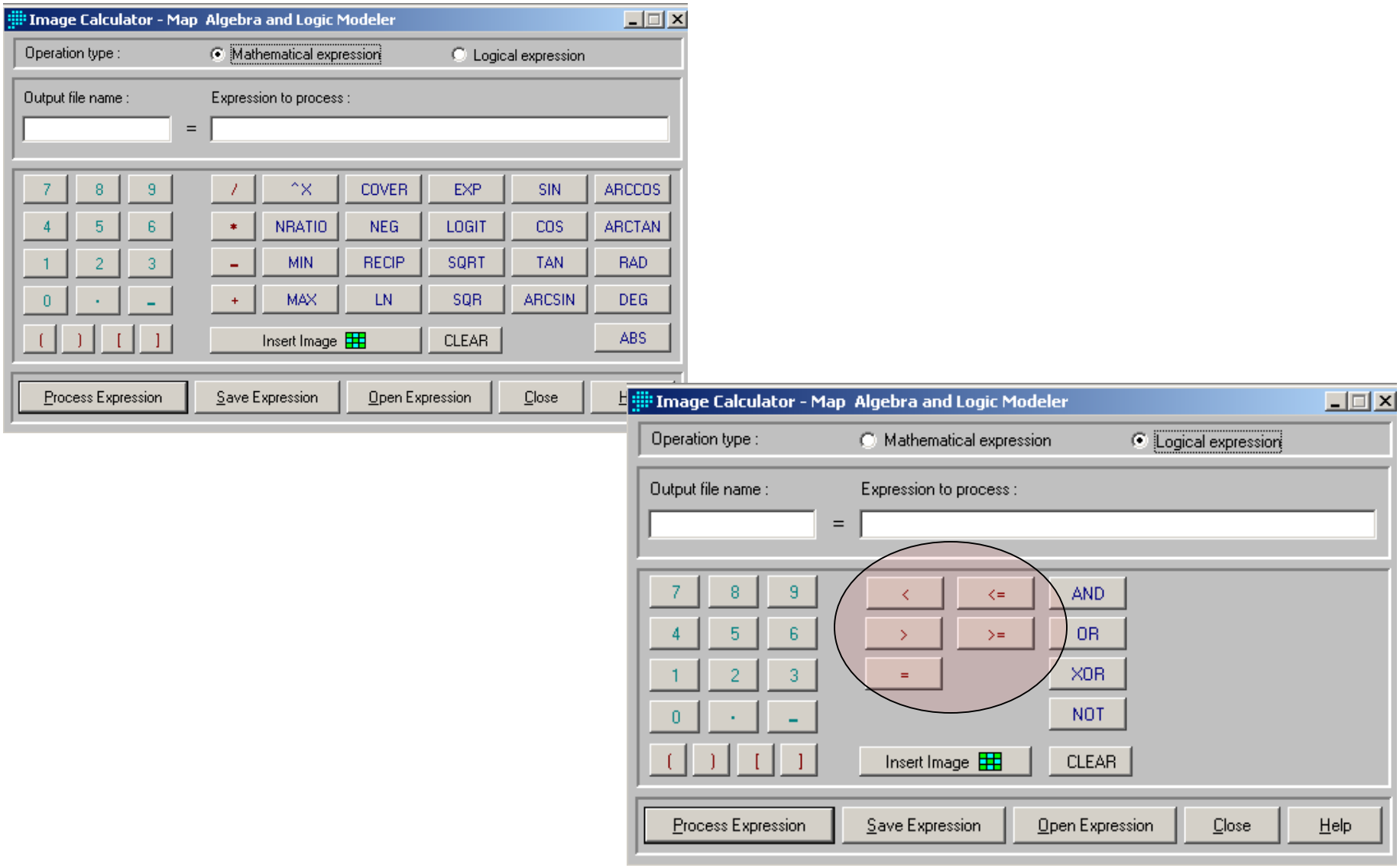


Operatori locali

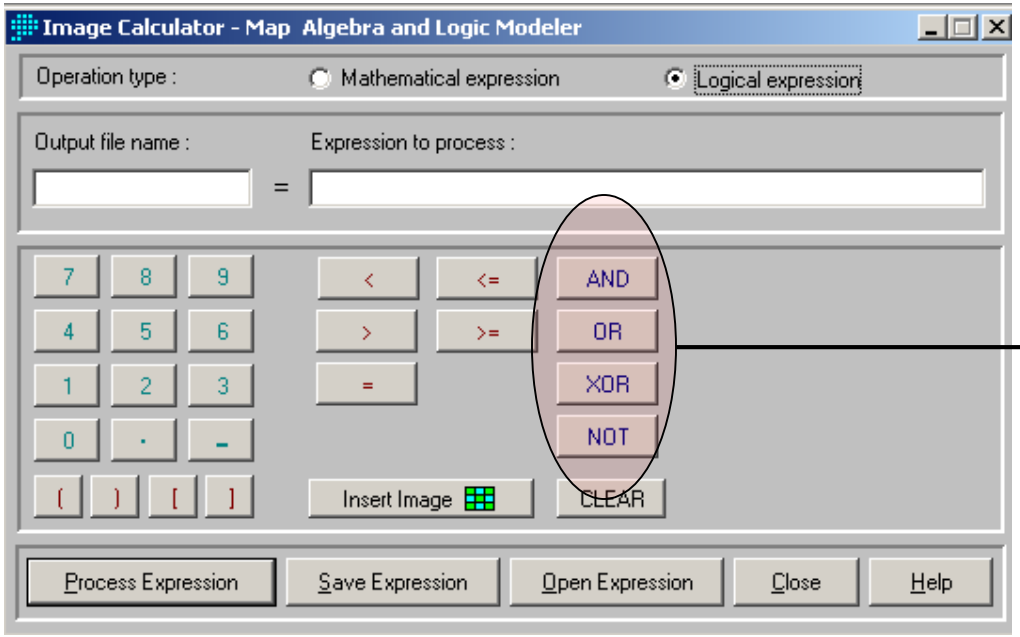




Operatori locali

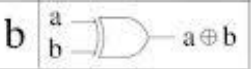


Operatori locali



Algebra booleana

Operatori locali

a	a	a	
NOT a	a’	$\overline{a}$	
a AND b	a · b	a ∧ b	
a OR b	a + b	a ∨ b	
a XOR b		a ⊕ b	

Min / moltiplicazione / $\subset$

AND	Risultato
0 0	0
0 1	0
1 0	0
1 1	1

MAX / $\cup$

OR	Risultato
0 0	0
0 1	1
1 0	1
1 1	1

Operatori locali

Disgiunzione (OR) esclusiva o operatore di disparità

XOR	Risultato
0 0	0
0 1	1
1 0	1
1 1	0

NOR	Risultato
0 0	1
0 1	0
1 0	0
1 1	0

Operatori locali

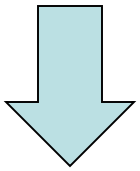
NOT	Risultato
0	1
1	0

Mappe booleane

Tipo di operazione		Input	Output	Parametri
Classificazione binaria		Mappa qualitativa o quantitativa[1]	Mappa binaria	Regole di classificazione
Operatori basati sulla posizione: BUFFER		Mappa binaria	Mappa binaria	Dimensione del buffer
Prodotto cartesiano		Mappa qualitativa	Mappa qualitativa	
Overlay	AND, MIN, Moltiplicazione, (intersezione)	Mappa binaria	Mappa binaria	
	OR, MAX, (unione)	Mappa binaria	Mappa binaria	
	NOT, complemento a 1	Mappa binaria	Mappa binaria	

Mappe booleane

SE (**mappa** *operatore* **valore**, *allora*, *altrimenti*)

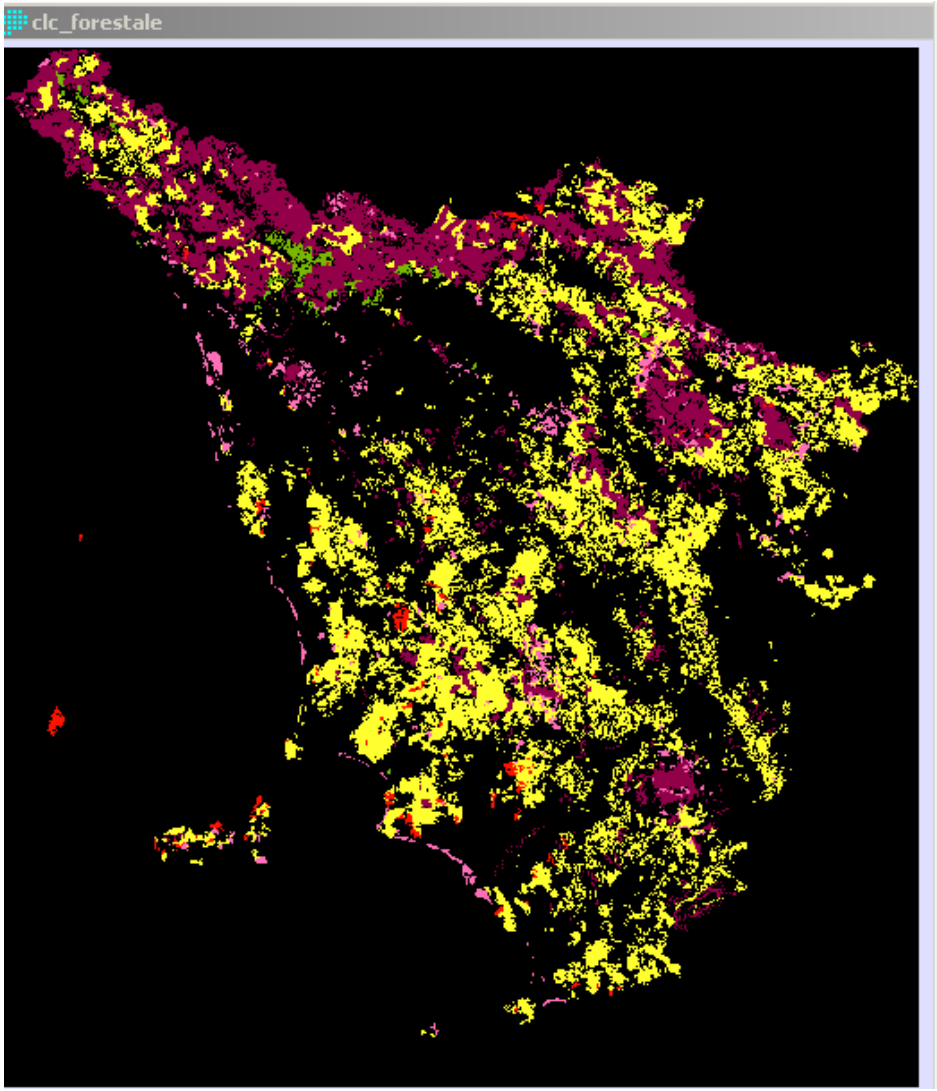


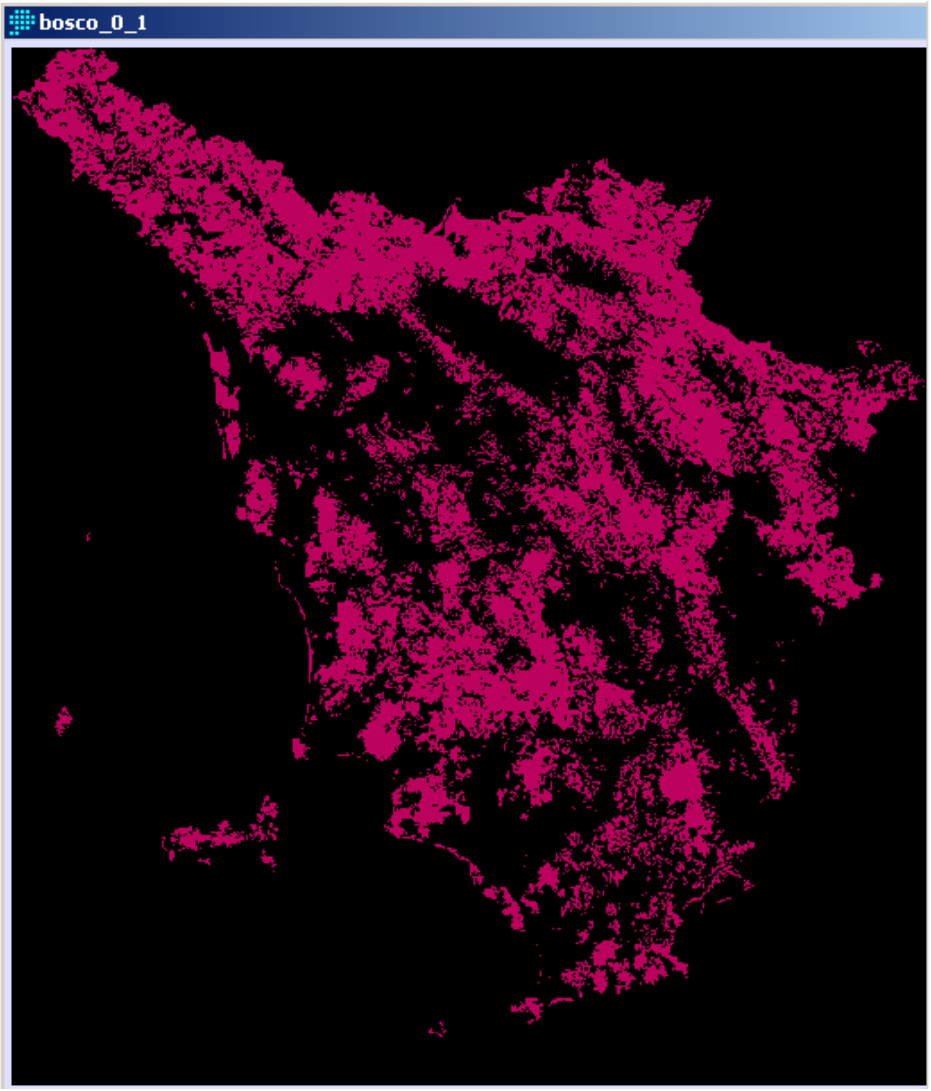
Mappa booleana

SE (**mappa** *operatore* **valore**, VERO, FALSO)

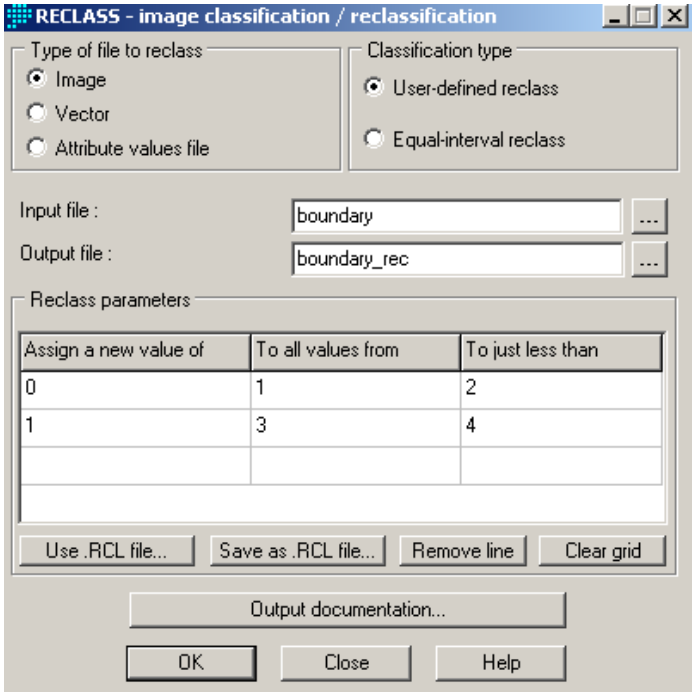
Mappe booleane

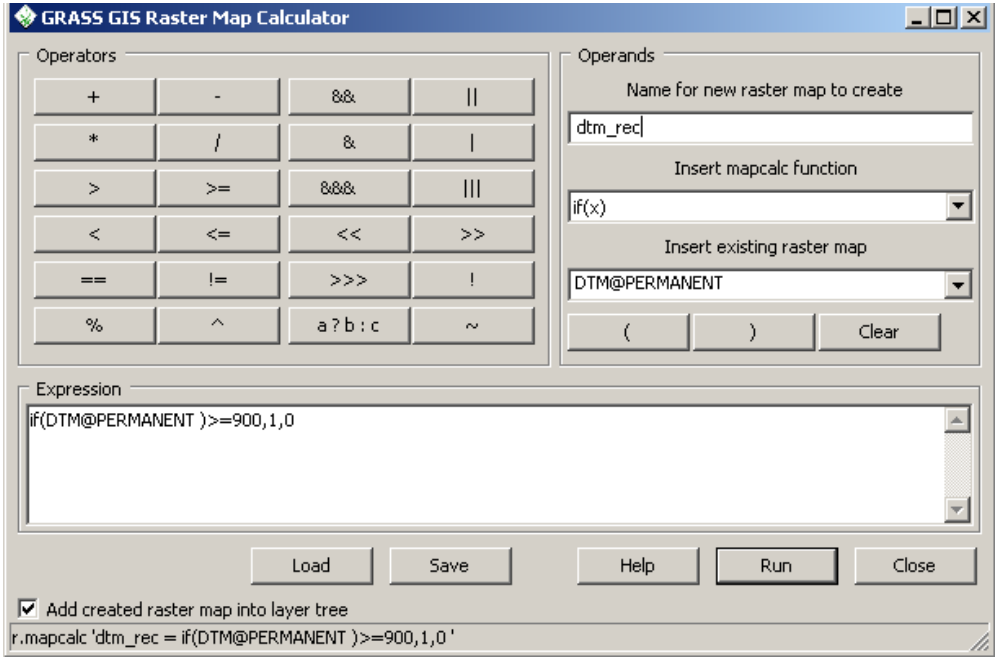
SE (CLC ≥ 311 AND CLC ≤ 313, 1, 0)

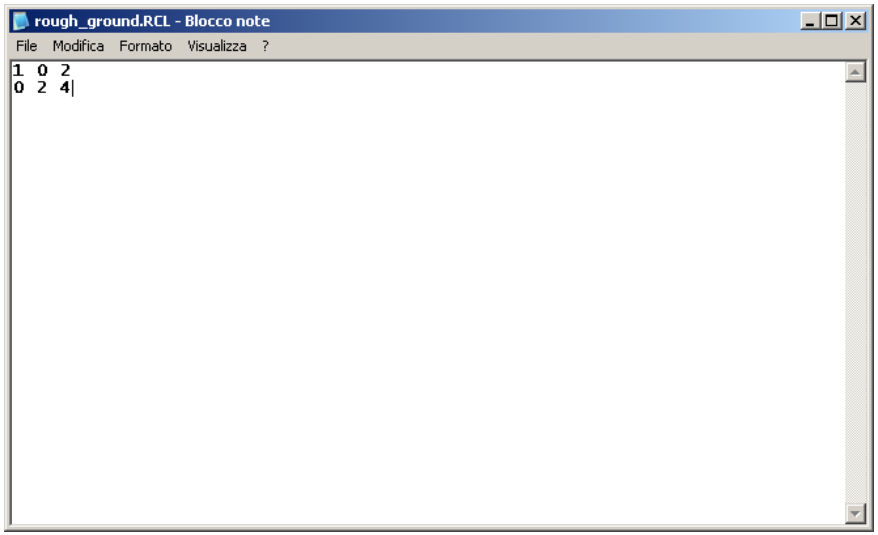




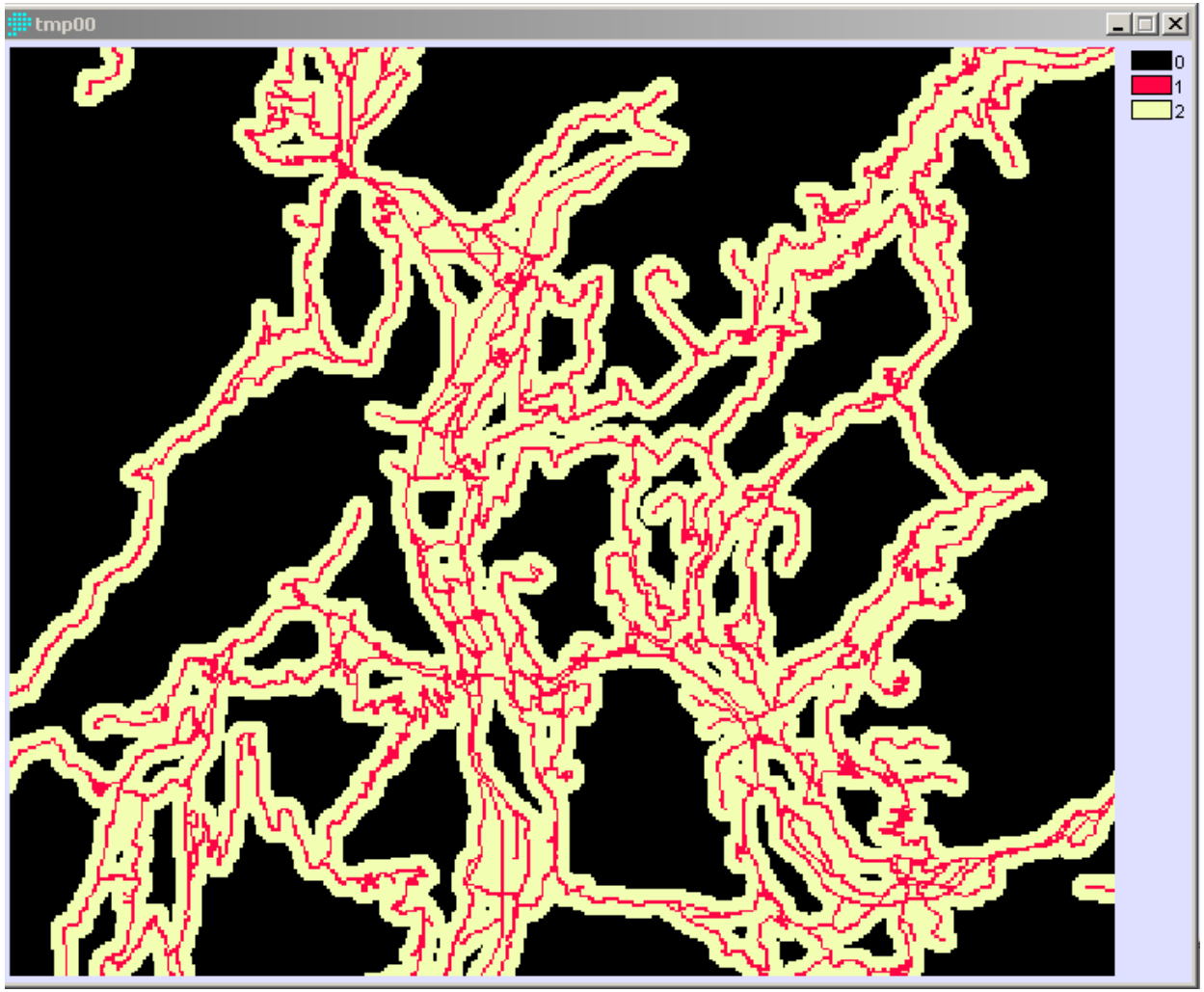
Mappe booleane







Mappe booleane



Prodotto cartesiano

Rischio frane

A- Uso del suolo {terreno agrario, terreno abbandonato, bosco}
B - Morfologia {pendenza inferiore o uguale al 20%, pendenza tra il 20 ed il 70%, pendenza maggiore o uguale al 70%}
C - Litologia {terreno argilloso, rocce ofiolitiche}

A x B x C = {agr-p1-arg, agr-p1-of, agr-p2-arg, agr-p2-of, agr-p3-arg, agr-p3-of, abb-p1-arg, abb-p1-of, abb-p2-arg, abb-p2-of, **abb-p3-arg**, abb-p3-of, bos-p1-arg, bos-p1-of, bos-p2-arg, bos-p2-of, bos-p3-arg, bos-p3-of}