

Università degli Studi di Cagliari
Dipartimento di Ingegneria del Territorio
Sezione di Urbanistica

Geographic Information Systems: Strumenti ed applicazioni

Tecnica Urbanistica, 4 Dicembre 2007

Seminario tenuto da: Simone Caschili

Introduzione

Temi seminario

- Definizione di un ambiente GIS
- Architettura Hardware e Software (ArcGIS)
- Architettura dati (ArcGIS)
- Funzionalità (buffering, query, overlay mapping, etc...)
- Esempi applicazioni (rete MT sarda, Analisi Multicriteria)
- Cyber planning e pianificazione urbanistica

Definizione ambiente GIS

“In the strictest sense, a GIS is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information , i.e. data identified according to their locations. Practitioners also regard the total GIS as including operating personnel and the data that go into the system”

USGS(U.S. Geological Survey)*

*http://erg.usgs.gov/isb/pubs/gis_poster/

Definizione ambiente GIS

Persone



Software



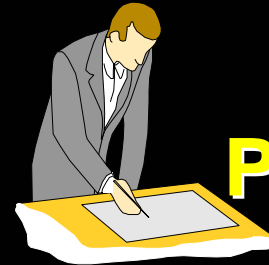
Dati



GIS



Procedure



Hardware

Architettura Hardware e Software (ArcGIS)

Hardware:

- Single user
- Multi user

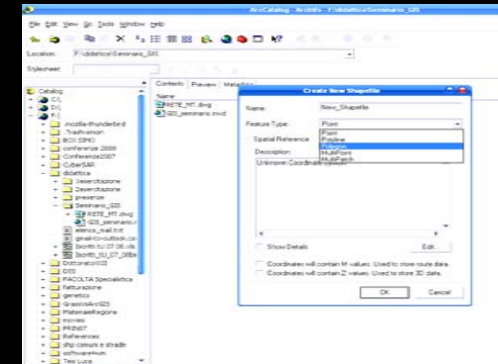
Software (ArcGIS):

- Presentazioni moduli (ArcMap – ArcCatalog – ArcScene)
- Presentazione GUI (Graphical User Interface)
- Il concetto di progetto in ArcGIS

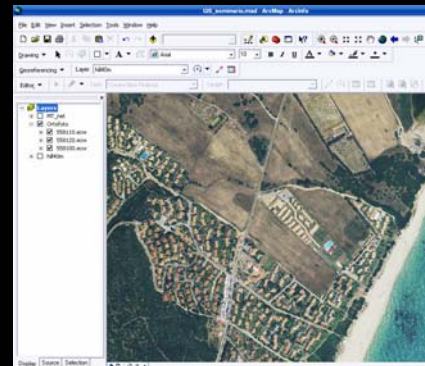
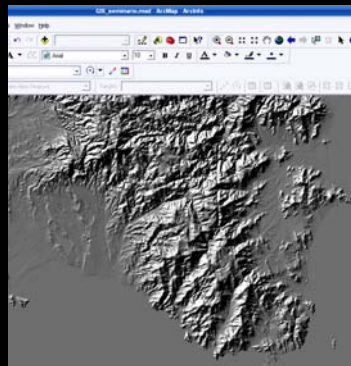
Architettura dati (ArcGIS)

Vettoriale - Shapefile

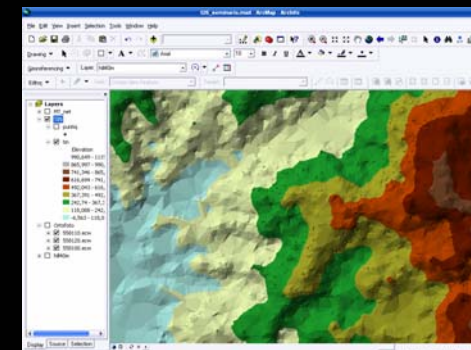
- Tipologia ed estensioni (.shp, .shx, .dbf etc ...)
- Primitive (punto, polilinea, poligono)



Raster

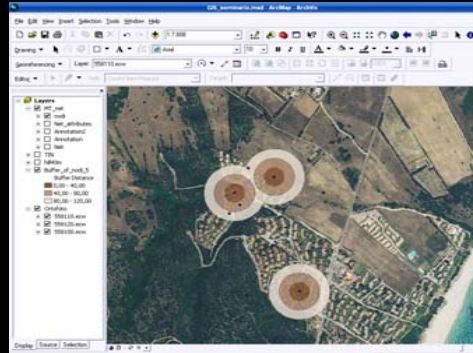


TIN (Triangulated Irregular Network)

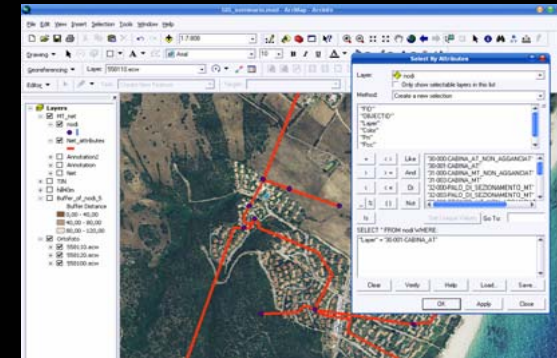
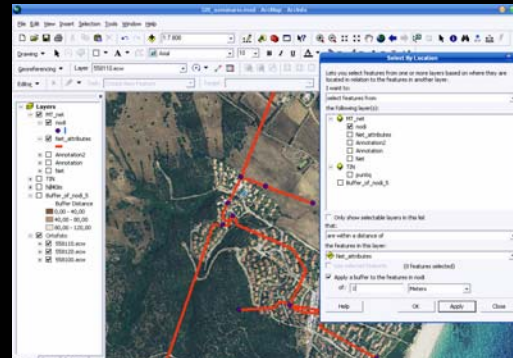


Alcune funzionalità (buffering, query, overlay mapping)

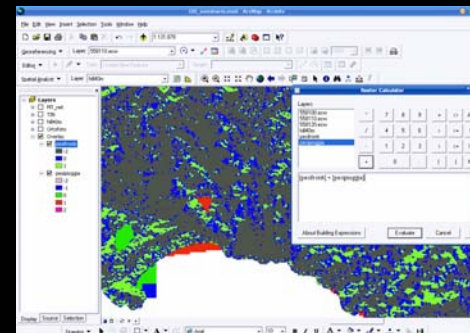
Buffer



Query:
Spaziale e per attributi



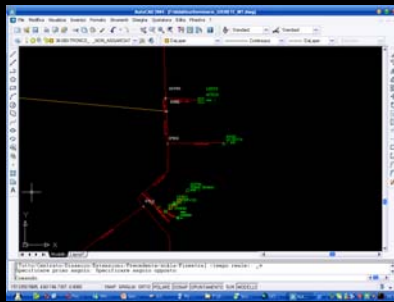
Overlay Mapping
(displaying/manipulating)



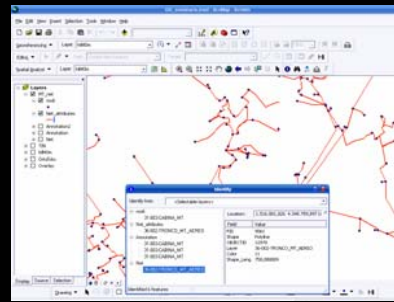
Esempi applicazioni

- Rete sarda MT (media tensione)

CAD



GIS

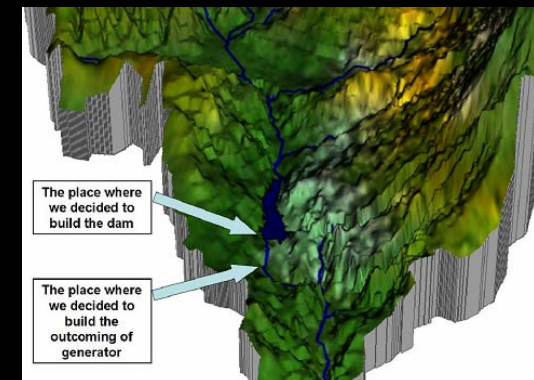
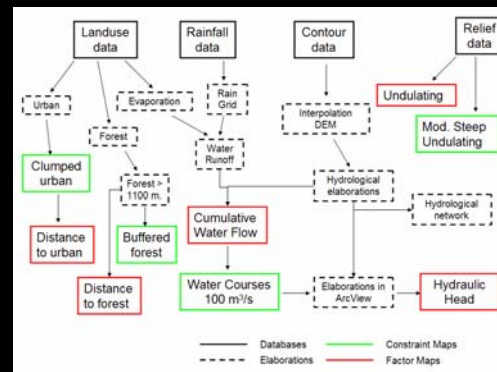


scripting

Matrici adiacenza

node_orig	Node_dest	SHAPE_LENGTH	TEXT	Area
21586	4254	47.17616919240	T-AL-55-0.43	12
21756	21756	177.97449826300	CU-26-0.16	12
21645	21615	1961.04867430000	CU-16-1.90	12
21680	21691	961.36437896700	3-AL-70-0.84	12
31619	31622	370.06611284100	CU-35-	12
32549	32533	1040.96770867000	CU-35-	12
32638	32642	621.940361418000	CU-25-	12
31626	6863	243.25436815200	3-AL-240	12
27100	27102	68.89684484700	CU-25-	12
31651	6728	617.89686495000	3-AL-240	12
31614	13643	266.77988229300	CU-35-	12
2329	23063	482.51020612800	CU-16-	12
15266	15269	94.26900111910	CU-16-0.09	12
205	15246	144.61096725600	T-AL-70-0.12	12
206	15246	134.93905956700	T-AL-70-0.12	12
16137	963	650.65262813000	CU-25-0.03	12
15060	15059	374.65957892000	T-CU-50-0.25	12
15093	15090	530.86673749100	CU-16-0.35	12
14922	15232	223.27436325500	CU-16-0.20	12
15232	15000	380.19916622000	CU-25-0.48	12
15226	14997	758.14842765600	CU-16-0.79	12
14994	14997	82.44405229570	CU-16-0	12
14997	6	227.92200307000	T-AL-70-0.30	12
6	14995	374.24301070200	CU-16-0.38	12
15000	14996	610.56404859800	CU-25-0.90	12
15000	14923	174.20101402400	CU-25-0.16	12

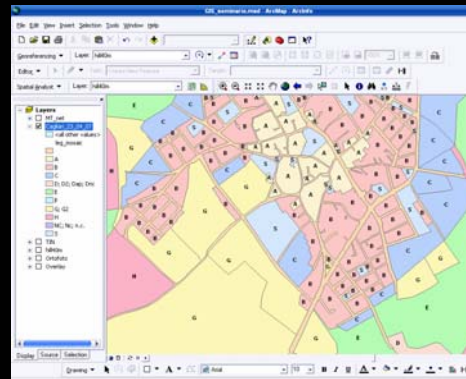
- Analisi Multicriteria (ricerca della migliore posizione per la costruzione di una diga)



Cyber planning e pianificazione urbanistica

- Pianificazione urbanistica comunale e sovracomunale:

PUC e mosaico dei PUC



- Cyber planning: GIS, Internet e coinvolgimento popolazione

Comune di Roma (<http://85.18.245.12/vistasesto/Inizio.asp>)

New York city (<http://www1.nysgis.state.ny.us/mainmap.cfm>)

Lista web gis U.S. (<http://www.gisplanning.com/>)