

Introduction to Vector Data

OILS 515 - Introduction to Spatial Data Management
Karl Benedict

Vector Data Overview

- Common Geometry Types
- Concept of Attributes Attached to Features
- Attribute Tables
- Linkage to Conceptual Model for Tabular Data

Spatial Data Types - Vector

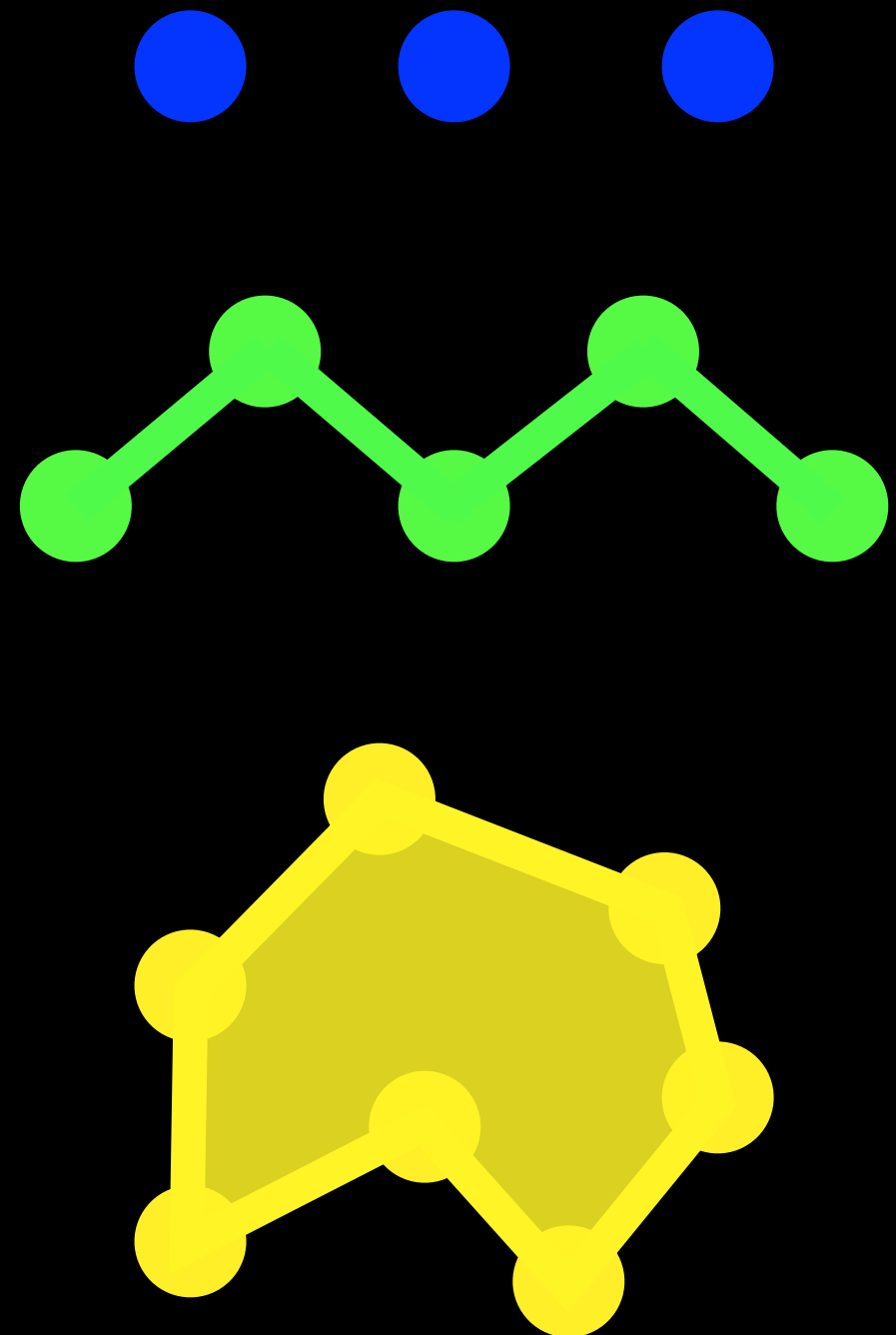
Features

- made up of one or more 2 or 3d points (nodes) & attributes

➡ Points

➡ Lines

➡ Polygons



Feature Attributes

Depend upon the specific format

- Typically defined in terms of database value types, for example
 - Text String
 - Integer
 - Floating Point
 - Date/Date-time
- Frequently viewed as tabular data

Sample Attribute Table

site_id	date	time	wteqi_1	preci_1	tobsi_1	snwdi_1
922	Aug 1, 2013	12:00 AM	0	22.1	10	0
922	Aug 1, 2013	1:00 AM	0.5	22.1	9.4	-99.9
922	Aug 1, 2013	2:00 AM	0.6	22.2	8.5	-99.9
922	Aug 1, 2013	3:00 AM	0.6	22.2	8.2	-99.9
922	Aug 1, 2013	4:00 AM	0.5	22.2	8.2	-99.9
922	Aug 1, 2013	5:00 AM	0.6	22.2	8	-99.9
922	Aug 1, 2013	6:00 AM	0.5	22.2	8.4	-99.9
922	Aug 1, 2013	7:00 AM	0.5	22.2	8.8	-99.9
922	Aug 1, 2013	8:00 AM	0.5	22.1	10.5	-99.9
922	Aug 1, 2013	9:00 AM	0.5	22.1	10	-99.9
922	Aug 1, 2013	10:00 AM	0.5	22.1	12.3	-99.9
922	Aug 1, 2013	11:00 AM	0.5	22.1	11.5	-99.9
922	Aug 1, 2013	12:00 PM	0.5	22.2	11.6	-99.9
922	Aug 1, 2013	1:00 PM	0.6	22.1	12.3	-99.9
922	Aug 1, 2013	2:00 PM	0.6	22.2	14.7	-99.9

Excerpt from the attributes of the August 2013 SNOTEL dataset for the Santa Fe SNOTEL station ([metadata](http://rgis.unm.edu/gstore/datasets/bc04bf32-7fe2-4e40-9f9a-224188b050ed/snotel_201308_922.derived.csv))
http://rgis.unm.edu/gstore/datasets/bc04bf32-7fe2-4e40-9f9a-224188b050ed/snotel_201308_922.derived.csv

Linkage with Tabular Data

- The Vector data type is well aligned with our common conception of tabular data
- Vector data can be generated from tabular data through a number of common methods
 - Geocoding - conversion of addresses into corresponding X,Y coordinates
 - Placename matching - e.g. matching with place names with known X,Y coordinates or geometries
 - Location encoded into tables - e.g. latitude and longitude values included as columns in a data table