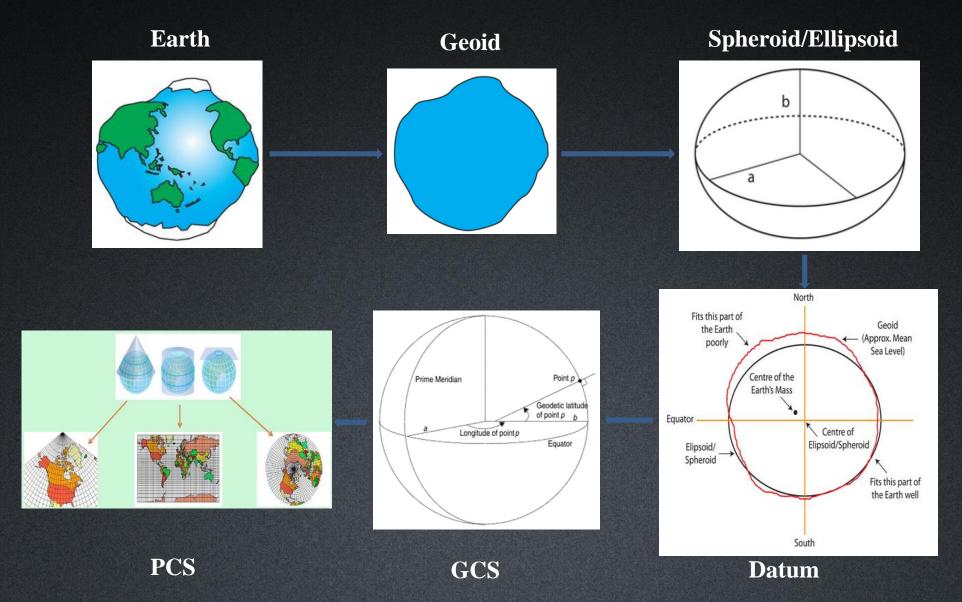
Coordinate Systems in GIS Software

SuperMap Software Co., Ltd.



TO BE THE GLOBAL LEADING GIS

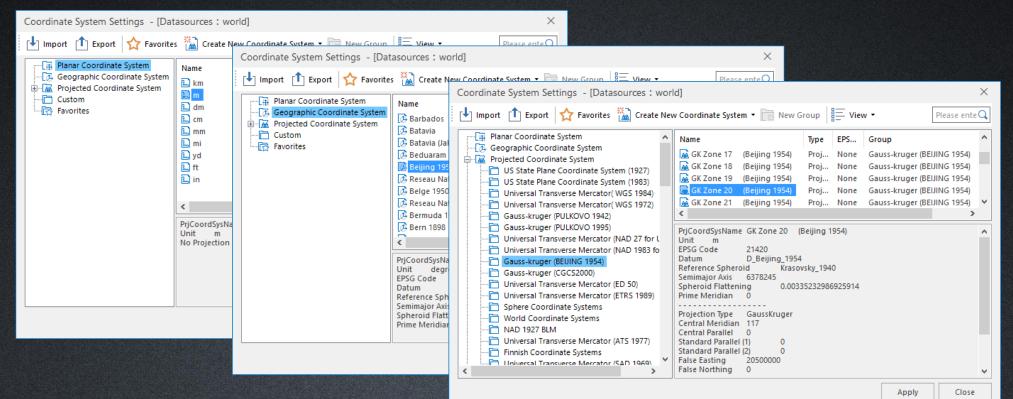
Knowledge for Coordinate Systems





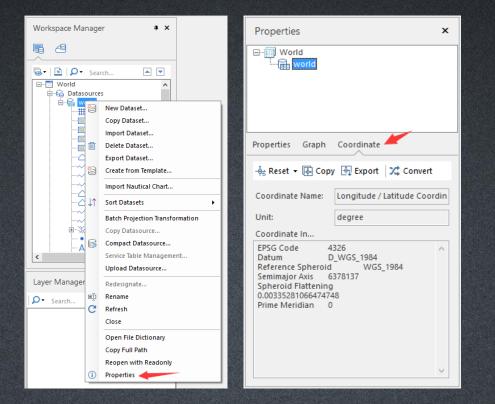
Coordinate Systems

- Types of Coordinate Systems of data in GIS software:
 - Planar Coordinate System、Geographic Coordinate System、Projected Coordinate System.



Coordinate Systems

- Datasources, Datasets, and Maps have their own Coordinate Systems
 - We can view their coordinate system information by Right click -> Properties -> Coordinate.
 - A newly created dataset has the same coordinate system with its datasource by default.
 - The coordinate system of a new map is identical to the first dataset added into it.







- Create a new datasource to see what its default coordinate system is.
- Create a new dataset and set its coordinate system to be the same as the WorldEarth.
- Create a new map, add the new dataset into it, and check the coordinate system of the map.



Check the coordinates of the data

- Whether coordinate values of the data is correct?
- Whether the coordinate information of the dataset is correct?
 - Both are correct.
 - Coordinate values are correct, while the coordinate system information is not.
 - Coordinates of the data are not correct.
 Registration





Projection Settings

• Right Click on dataset -> Properties -> Coordinate -> Reset

Workspace Manager		д Х	Properties # ×	Coordinate System Settings - [Dat	taset : BuildingCoordinate	e_Sheet1@World]		×
I								
Image: Search Image: A crean_Label_1 Image: A crean_Label_2 Image: A crean_Label_2	_2 _part dary_nanhai dary_1 dary		BuildingCoordinate_Sheet1	□ Image: Planar Coordinate System □ Image: Geographic Coordinate System □ Image: Projected Coordinate System □ Image: Projected Coordinate System □ Image: Custom	s in Create New Coordinat Name∆ S Zanderij Yoff Yoff Yacare Xi-An 1980 China WGS 1972 Transit Broa WGS 1972 WGS 1972 WGS 1966 Walbeck Wake-Eniwetok 1960 Wake Island Astro 1952 Voirol Unifie 1960 Wake Island Astro 1952 Voirol Unifie 1960 Voirol Unifie 1960 Voirol 1875 Voirol 282 Voirol 1875 Voirol 1875 V	Type Geographic Coordinate System Geographic Coordinate System	EPSG Code None None None None None None None Non	Please enter a name or € Group Geographic Coordinate System Geographic Coordinate System Ge
	₩ •	Rebuild Spatial Index Create Scene Cache Close Dataset Recompute Range			Datum D_WGS_1 Reference Spheroid Semimajor Axis 6378137	984 WGS_1984 0.00335281066474748		
	1 1 1 1	Delete Dataset Rename Dataset Properties	~					Apply Close



The data in different coordinate systems

- How to put two or more datasets in different coordinate systems together?

 - If the datasets will be used for data processing,
 - e.g. Append Row, Overlay Analysis, Structure Network, etc. 📂 Projection Transformation

Map Properties ×	Dataset Projection Transformation			
Basic Bounds Coordinate	Source Data Result Save As Datasource: CoordinateSystem Dataset: Railway_L Dataset: Railway_L_1	-		
Coordinate Name: Longitude / Latitude Coordinate SystemGCS_WGS_1984 Unit:	Source Coordinate System Target Coordinate System Coordinate Information: O From Dat			
degree EPSG Code 4326 Datum D_WGS_1984 Reference Spheroid WGS_1984 Semimajor Axis 6378137 Spheroid Flattening 0.00335281066474748	PrjCoordSysName Sphere Mercator (China2000) Unit m EPSG Code 3857 Datum China2000 Reference Spheroid China_2000 Semimajor Axis 6378137 Spheroid Flattening 0.00335281068118232 Ocordinate Information: Coordinate Information:	•		
Prime Meridian 0	Reference Transformation Settings PrjCoordSysName GCS_WGS_1984 Method: Geocentric Transalation(3-p +	-		
Apply Immediately Apply	Projection Transfo Settings			
Catalog Manager Map Properties	Convert	cel		



Exercise

- How many railways there are in Shaanxi Province?
 - Step 1: Coordinate Transformation
 - Step 2: Spatial Query

Spatial Query ×						
	≤ 5	Searching Layer: 🛆 Shaanxi@	CoordinateSyster 🝷 (10	selected)		
	Туре	Layer Name	Spatial Query Condition	Attribute Query Conditio	۱	have the start
	~	Railway_L_1@CoordinateSy	Intersect_RegionLine			N Straty
		Shaanxi@CoordinateSystem				
						Pro All Arri
						and the state of a state of the
						C V VIN MY Z ZA
_ Ope	rator —			h l l l h h h		
-	In	tersect. Return objects in the sea	rched layer that are intersed	1 2 m 2 m 2 m 2 m		
						I have the man
6	- 0					
	D It		<i>c</i> , <i>p</i> , <i>y</i>			franking 24
	ave Results		Show Results	bibuta Tabla		I Send V
Da	tasource:	CoordinateSystem	→ Browse in At			A when the
Da	taset:	Railway_Shaanxi	Highlight in	Мар		I make the way is
	Only Save	Spatial Info	Highlight in	Scene		
	ito close wh	en finish		ose		
	no crose wi			Query Cl	130	K / m



Thank You!

Website: <u>www.supermap.com</u>

Email: globalsupport@supermap.com

Skype: <u>supermapsupport</u>

MSN: globalsupport@supermap.com



TO BE THE GLOBAL LEADING GIS