Opening and Exploring Attribute Tables

In this Chapter you will learn

- How to open attribute tables, sort data and view summary statistics for numerical attributes
- How to add a new field and edit its contents
- How to use the field calculator to compute new values and the geometry calculator to compute areas, distances and center points.

1. Opening and Exploring Attribute Tables

Exercise 1: Open an attribute table, sort data and view summary statistics

- 1. Start ArcMap and open a new map document. Add the Earthquakes shapefile.
- 2. Right-click on "Earthquakes" in the table of contents and click "Open Attribute Table" as shown on the right.
- 3. You can see information about the depth, magnitude and time of historical earthquakes in Idaho
 □ □ Layers
 □ □ Earthquakes
- 4. The magnitude is found in a field named "MAG". When the magnitude was unknown a value of "-999" was recorded. Sort the data in the attribute table so that the strongest earthquakes appear near the top. To do this, right-click on the word "MAG" in the table and select Sort Descending as shown below.

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a	rthqua	kes											
	FID	Shape *	DEPTH	MA	cl m		YEAR	MONTH	DAY	HOUR	MINUTE	SECOND	Г
	0	Point	-9999	-99	1	Sort Ascending	1905	11	11	21	29	-9999	
	1	Point	-9999	5.	7	Sort Descending	1928	9	5	5	36	-9999	
	2	Point	-9999	5.		Advanced Sorting	1937	11	19	0	50	20	
	3	Point	24	4.7		Advanced Sorting	1973	4	14	6	45	49.2	
	- 4	Point	5	6.1		Summarize	1975	3	28	2	31	6	
	5	Point	7	4.9	Σ	Statistics	1975	3	29	13	1	19.9	
	6	Point	7	3.	_	Statistics	1975	4	2	21	6	45.9	
	7	Point	4	3.		Field Calculator	1975	4	7	13	42	34.5	
	8	Point	4	4.		Calculate Geometry	1978	11	30	6	53	40.1	
	9	Point	5	4.		calculate oconteny	1988	11	19	20	0	53.1	
	10	Point	-9999	-99		Turn Field Off	1924	11	25	7	10	-9999	
	11	Point	49	-99		Freeze/Unfreeze Column	1960	8	7	16	27	16.2	
1	• •	0	⊁ н∥		×	Delete Field							



ISTC Topic:

2.1

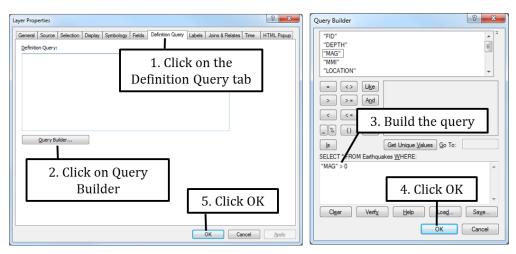
2.1. Sorting Attribute data and viewing summary statistics

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×	Remove				
D	Open Attribute Table				
	Joins and Relates				
>	Zoom To Layer				
2	Zoom To Make Visible				
	Visible Scale Range				
	Use Symbol Levels				
	Selection				
	Label Features				
	Edit Features				
	Convert Labels to Annotation				
	Convert Features to Graphics				
	Convert Symbology to Representation				
	Data				
>	Save As Layer File				
	Create Layer Package				
7	Properties				

- 5. What was the strongest earthquake and where did this Earthquake occur? You can find the answer by looking at the sorted data in the attribute table.
- 6. Sort the YEAR field in ascending order. What is the oldest earthquake in this table?
- 7. Take a closer look at the attribute table and identify the different areas shown in the image below. In this tutorial we will work with most of the tools labeled in this figure.

Tat	ple	on	this	tab	le.	n be used E.g. add te Field								×
	_	kes	3 🖸 🍕	*	E	2. Tools fo	r working	with	ı sele	ecti	ons			×
	FID	Shape *	DEPTH	MAG	MMI	LOC	ATION	YEAR	MONTH	DAY	HOUR	MINUTE	SECOND	~
Þ	0	Point	-9999	-999	7	Near Shoshone, Idaho		1905	11	11	21	29	-9999	=
	1	Point	-9999	5.2		In western Idaho		1928	9	5	5	36	-9999	
	2	Point	-9999	5.4	4	In eastern Idaho		1937	11	19	0	50	20	
	3	Point	24	4.75	4	In eastern Idaho		1973	4	14	6	45	49.2	
	4	Point	5	6.14	8	In eastern Idaho		1975	3	28	2	31	6	
	5	Point	7	4.95	5	In eastern Idaho		1975	3	29	13	1	19.9	
	3	Tools	for	not	zind	ern Idaho		1975	4	2	21	6	45.9	
	5.	10013	101 1	no	1118	ern Idaho		1975	4	7	13	42	34.5	
		aroun	d a f	tahl	P	ern Idaho		1978	11	30	6	53	40.1	
	_	aroun	ua	lab		ern Idaho		1988	11	19	20	0	53.1	_
	10 11	Point 1	-9999 49 • • •	-999 -999	6	Near Wardboro, Idaho Near Soda Springs, Idaho ut of 59 Selected)	4. Numb	er o	of rec	core	ds ir	n this	table	е

- 8. While it makes sense that unknown fields such as magnitude and depth are marked with a unique value such as "-999", it would be nice not to see those in the table. You can filter the data to exclude some values from the map and the table. Filtering data does not delete data; it simply makes the data invisible.
- 9. Right-click on the Earthquakes layer in the table of contents and select Properties. Go to the query tab and set up a query as shown below.



10. Note that all the earthquakes with a magnitude of -999 have been removed from your attribute table.

11. Right-click on MAG in your table and select Statistics as shown below.

	FID	shape *	DEPTH		1	INI LOCATI	0.11	VEAD	MONTH	DAY	HOUR	ANNUTE	SECOND	×	
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+-		Point	-9999	5	2	Sort Descending Advanced Sorting Summarize		1917	12	12	10	50	-9999		
+		Point	-9999	5	F			1917	9	5	5	36	-9999		
+		Point	-9999	6				1920	11	19	0	50	20	41	
t		Point	10	6			est Idaho	1944	7	12	19	30	20.7		
+		Point	10	~	_		and rotation	1945	2		3	1	11.3	- 11	
+		Point	-9999	4	Σ		-	1947	0	26	4	24	30		
1-		Point	11	4	633	Field Calculator		1963		Statistic	cs of Ear	thquakes			8
1	25	Point	8	4	100			1963	1						
1	26	Point	9	4		Calculate Geometry Turn Field Off Freeze/Unfreeze Column		1963		Field					
1	44	Point	18	4				1969							
1	55	Point	5	4			-	1969		MAG	ì				 Frequency Distribution
1	3	Point	24	4.7				1973		Statist	lics.				,,
1	4	Point	5	6.1	×	Delete Field		1975			t: 49				20 1
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- 12. Display the statistics for the MONTH field using the same method as in the previous step. What is the most common month for earthquakes to occur?
- 13. Use the figure below to select all the earthquakes that occurred in 1983.

1. Click dro	p-down button	and	
click "Sel	ect by Attributes	5"	7
Table)	le l	Select by Attributes
		×	Enter a WHERE clause to select records in the table window.
	LOCATION	YEAR MONTH DAY HOUR MINUTE SECOND	Method : Create a new selection
Select By Attributes	lo western klabo	1991 12 28 7 0 21.1	"YEAR"
Clear Selection	In eastern Idaho	1917 12 12 10 50 -9999 =	"MONTH"
Switch Selection	in eastern Idaho	1937 11 19 0 50 20	"DAY" "HOUR"
Select All	In eastern Idaho In eastern Idaho	1978 11 30 6 53 40.1 1988 11 19 20 0 53.1	"HOUR"
Add Field	Near Cascade, Idaho	1977 11 27 9 25 55.6	
Turn All Fields On	h western klaho	1993 11 10 14 54 24.9	• • Like 1983 •
 Show Field Aliases 	In eastern Idaho In eastern Idaho	1983 11 6 21 4 48.7	>>= And 1984
Arrange Tables	h eastern Idaho		1996
· · · · · · · · · · · · · · · · · · ·	In southeast Idaho	2. Use those buttons	1988
Restore Default Column Widths	Near Soda Springs, Idaho In western Idaho	1978 10 29 13 46 45.6	_% () Not 1991 -
	h western ldaho	1983 10 29 23 29 11.8 -	Is Get Unique Values Go To:
Joins and Relates	m		SELECT * FROM Earthquakes WHERE:
Related Tables	t of 49 Selected)	3 to set up this query	"YEAR" = 1983
Create Graph			
Add Table to Layout			
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🖨 Print			Clear Verify Help Load Save
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Appearance		п. онек трри	ly ellen olose
	Table		8
	🔚 • 💱 • 🗞 🖸 💩	0 ×	
	Earthquakes		×
	FID Shape * DEPTH		YEAR MONTH DAY HOUR MINUTE SECOND
5. Selected			1991 12 28 7 0 21.1
5. Selected	records		1917 12 12 10 50 -9999
are highli	abtod -9999	5.4 4 In eastern Idaho	1937 11 19 0 50 20 E
are ingini			1978 11 30 6 53 40.1 1988 11 19 20 0 53.1
	9 Point 5 22 Point 9		1988 11 19 20 0 53.1 1977 11 27 9 25 55.6
	28 Point 10		1993 11 10 14 54 24.9
	49 Point 11		1983 11 6 21 4 48.7
	56 Point 10		1992 11 10 10 46 18.1
6. Use those two	o buttons		1992 11 10 10 54 50.8
	/		1978 10 24 20 30 59.3 1982 10 14 4 10 24.3
to toggle betwee	n viewing		
00			7. Note that there were
-11			
all records and o	only those		The second chiefe and the second seco
all records and o that are sele	only those	4.73 In western Idaho 4.10 In western Idaho (8 out of 49 Selected)	8 earthquakes in 1983

- 14. Click on the Zoom to Selected button as shown on the right. Did the earthquakes in 1983 occur in a cluster or were they dispersed all over Idaho?
- 15. Click on the Switch Selection button. What does that do? How many records are now selected?
- 16. Use the Clear Selection button to clear your selection.

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	33	C	lonr	Sc	ماد	ction		1991	12	28	7	0	21.1	
	54	U.	icai	30		CUOII		1917	12	12	10	50	-9999	
1	2	Point	-3555	0.4	4	al castern tranto		1937	11	19	0	50	20	
1	8	Point	4		5	In eastern Idaho		1978	11	30	6	53	40.1	
	9	Point	5	4.3		In eastern Idaho		1988	11	19	20	0	53.1	
	22	Point	9	4.4	6	Near Cascade, Idah	10	1977	11	27	9	25	55.6	
	28	Point	10	4.3		In western Idaho		1993	11	10	14	54	24.9	
	49	Point	11	4.18	3	In eastern Idaho		1983	11	6	21	4	48.7	
	56	Point	10	4.8	5	In eastern Idaho		1992	11	10	10	46	18.1	
	57	Point	10	4.7	5	In eastern Idaho		1992	11	10	10	54	50.8	
	12	Point	7	4.1	6	In southeast Idaho		1978	10	24	20	30	59.3	
	13	Point	7	4.7	6	Near Soda Springs,	Idaho	1982	10	14	4	10	24.3	
	18	Point	12	4.7	5	In western Idaho		1978	10	29	13	46	45.6	
	40	Point	10	5.5		In western Idaho		1983	10	29	23	29	11.8	
	41	Point	11	4.73		In western Idaho		1983	10	29	23	39	5.4	
	12	Point	16	4 10		In western kisho		1083	10	30	4	50	2	