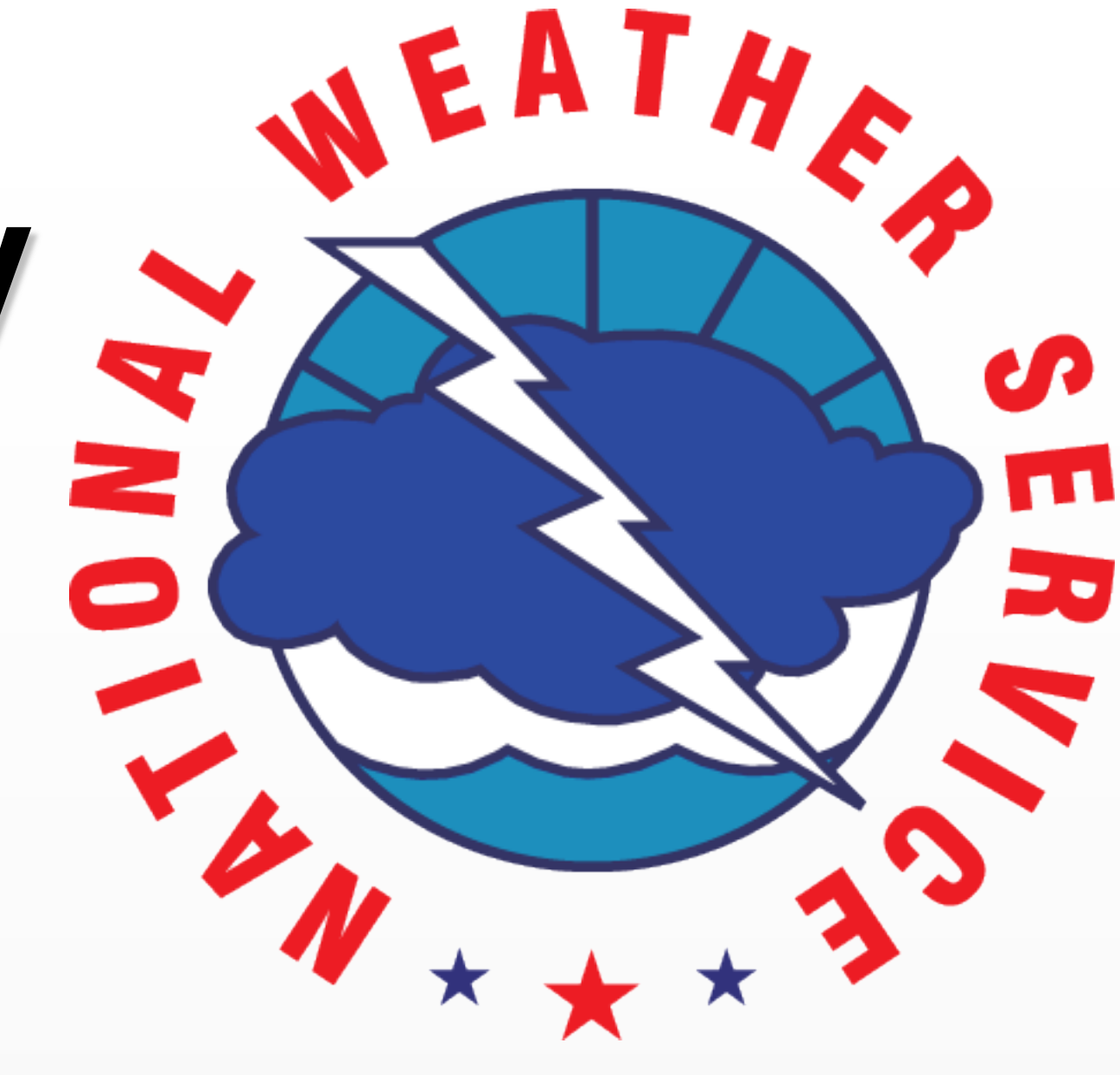




The 100th Anniversary of the 1914 Record Flood at Schenectady

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The record flood on the Mohawk River at Schenectady, New York occurred on 28 March 1914. This flood was accompanied by large ice floes and ice jams which did considerable damage to local infrastructure. More recent damaging floods with ice floes and ice jams occurred at Schenectady in January of 1996 and March of 2007.

This work looks at the daily weather as measured at Albany, New York (the nearest long term climatological site) during the winters of 1913-1914, 1995-1996, 2006-2007 and 2013-2014.

Estimated river ice thickness was simulated for each winter using the thermal ice growth equation outlined by the U.S. Army Cold Regions Research and Engineering Laboratory (USACE, 2002):

$$h_j = \alpha \sqrt{U_j}$$

where h_j = calculated ice thickness on day j
 $\alpha \approx 0.4$ (constant from WFO ALY studies)
 U_j = Accumulated Freezing Degree Days from freezeup to day j

Simulated ice thicknesses are compared with photos from each event showing ice thickness, and with United States Geological Survey (USGS) records. The simulated ice thicknesses are fairly accurate based on the observational evidence. A complicating factor is snowfall during the ice accumulation period. According to observational evidence, greater snowfall during this period leads to thicker river ice.

1914



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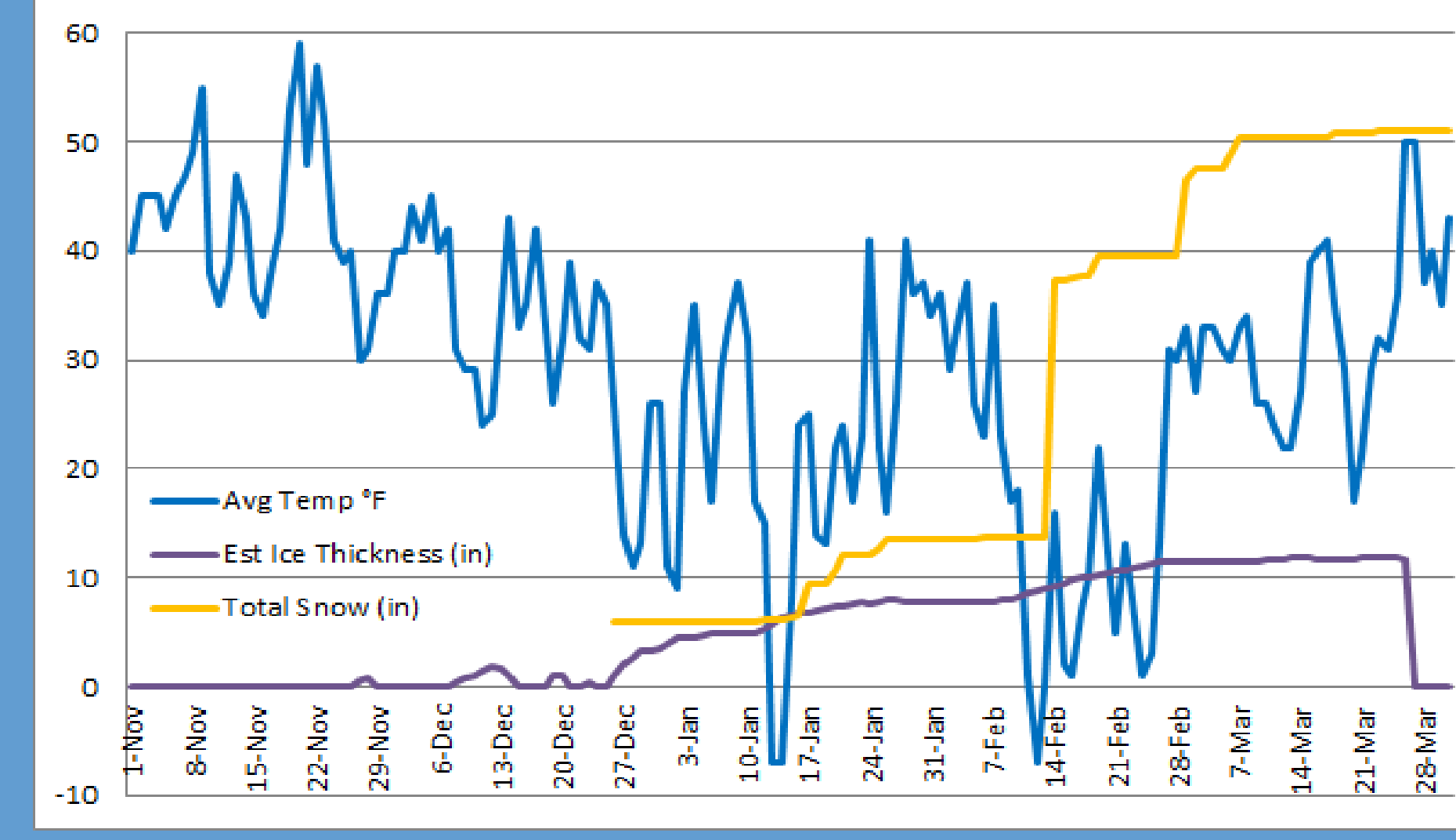
Report on Mohawk River at year Vochers Ferry Dam

Cost of reinstallation of Automatic gage

Engineering and Labor	
C.S. DeGeyer 3 days @ 3.33	10.00
Subsistence	3.00
Transportation	2.50
R.S. Barnes 4 days @ 2.67	10.67
Subsistence	6.00
Hard ware	3.84
5- 9/16" x 1/2" bolts	.32
4- 3/4" x 4" "	.15
3 1/2 wood screws	.40
1 broom	.50
1 hammer	.50
1 handle	.50
2 lag screws	.25
3 Hooks	.09
1 hoop	.20
1 cold chisel	.25
Material	2.23
1 standard shifter	5.15
Freight on same	2.00
Carriage	2.00
Lumber for hook gage	1.00
Total	34.71
	74.85

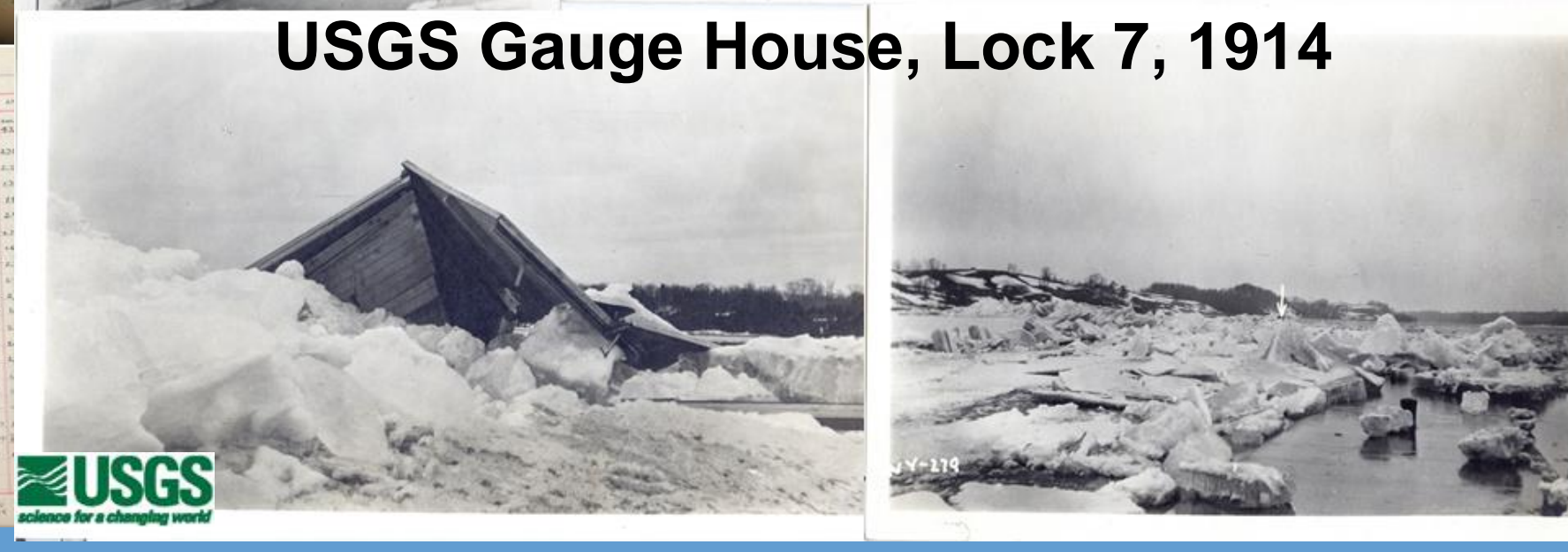
Gauge Repair Invoice, 1914

Daily Average Temperature, Estimated Ice Thickness and Accumulated Snow 1913-1914

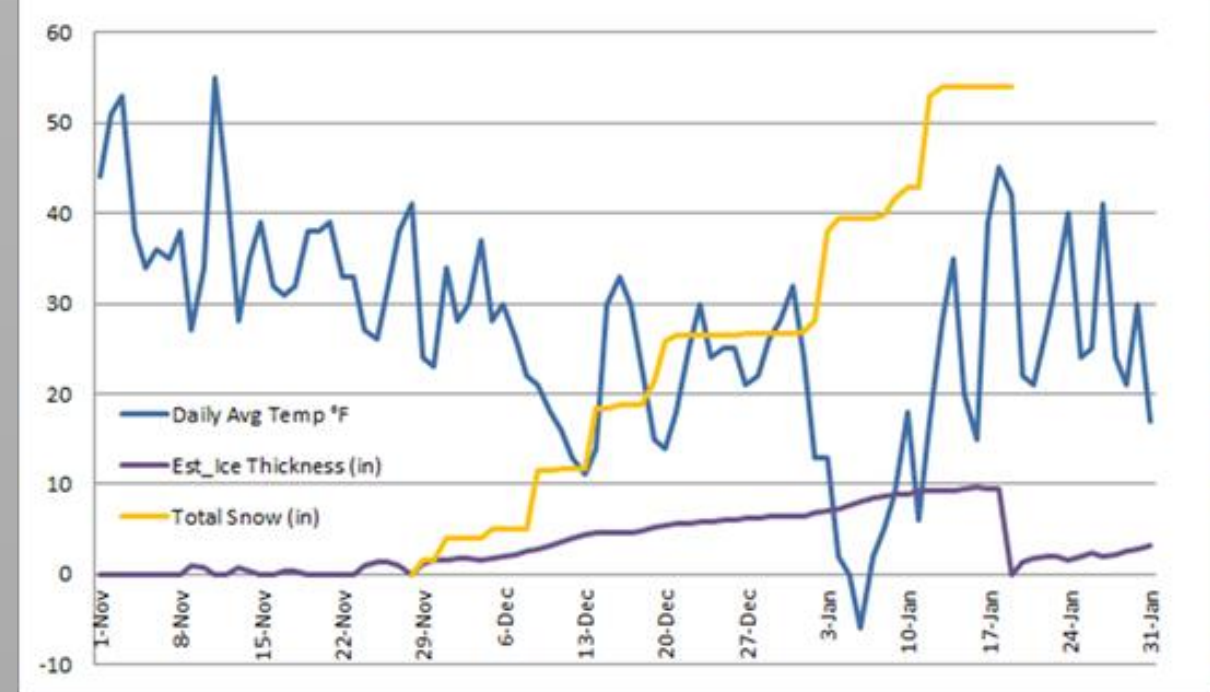


ALBANY WEATHER LOGS, 1874-1923

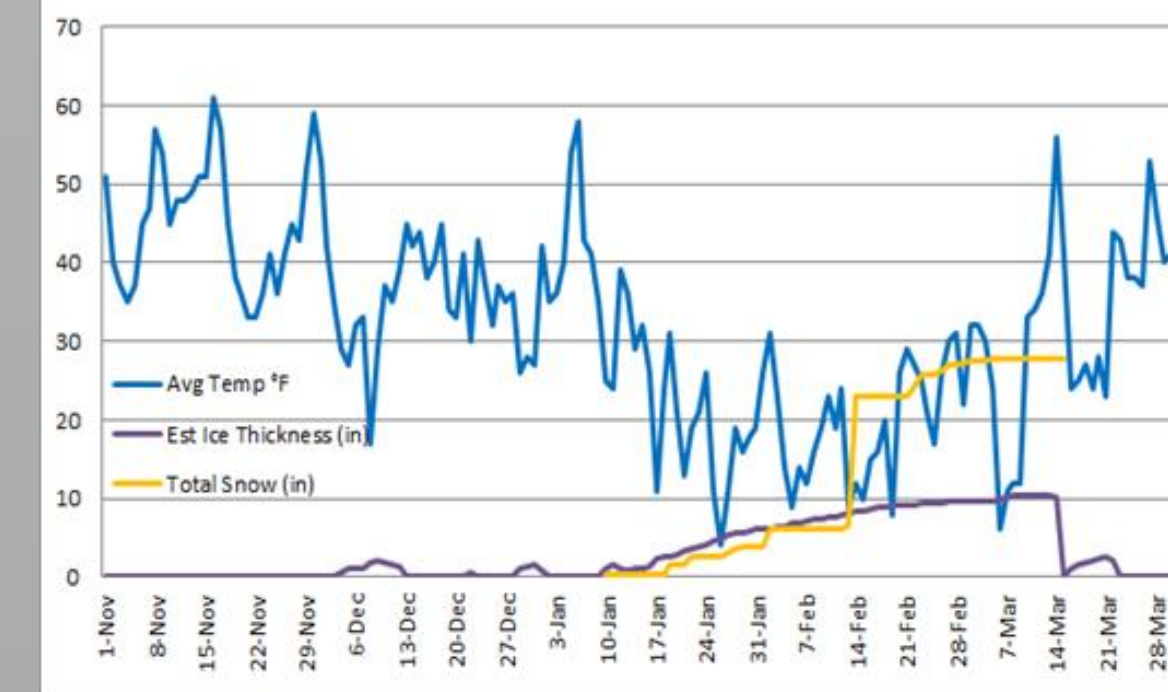
Date	Temp	Wind	Clouds	Pressure	Humidity	Ice	Snow	Remarks
1-Nov	45	W	100	30.1	75			
8-Nov	40	W	100	30.2	75			
15-Nov	45	W	100	30.1	75			
22-Nov	40	W	100	30.2	75			
29-Nov	45	W	100	30.1	75			
6-Dec	40	W	100	30.2	75			
13-Dec	45	W	100	30.1	75			
20-Dec	40	W	100	30.2	75			
27-Dec	45	W	100	30.1	75			
3-Jan	40	W	100	30.2	75			
10-Jan	45	W	100	30.1	75			
17-Jan	40	W	100	30.2	75			
24-Jan	45	W	100	30.1	75			
31-Jan	40	W	100	30.2	75			
7-Feb	45	W	100	30.1	75			
14-Feb	40	W	100	30.2	75			
21-Feb	45	W	100	30.1	75			
28-Feb	40	W	100	30.2	75			
7-Mar	45	W	100	30.1	75			
14-Mar	40	W	100	30.2	75			
21-Mar	45	W	100	30.1	75			
28-Mar	40	W	100	30.2	75			



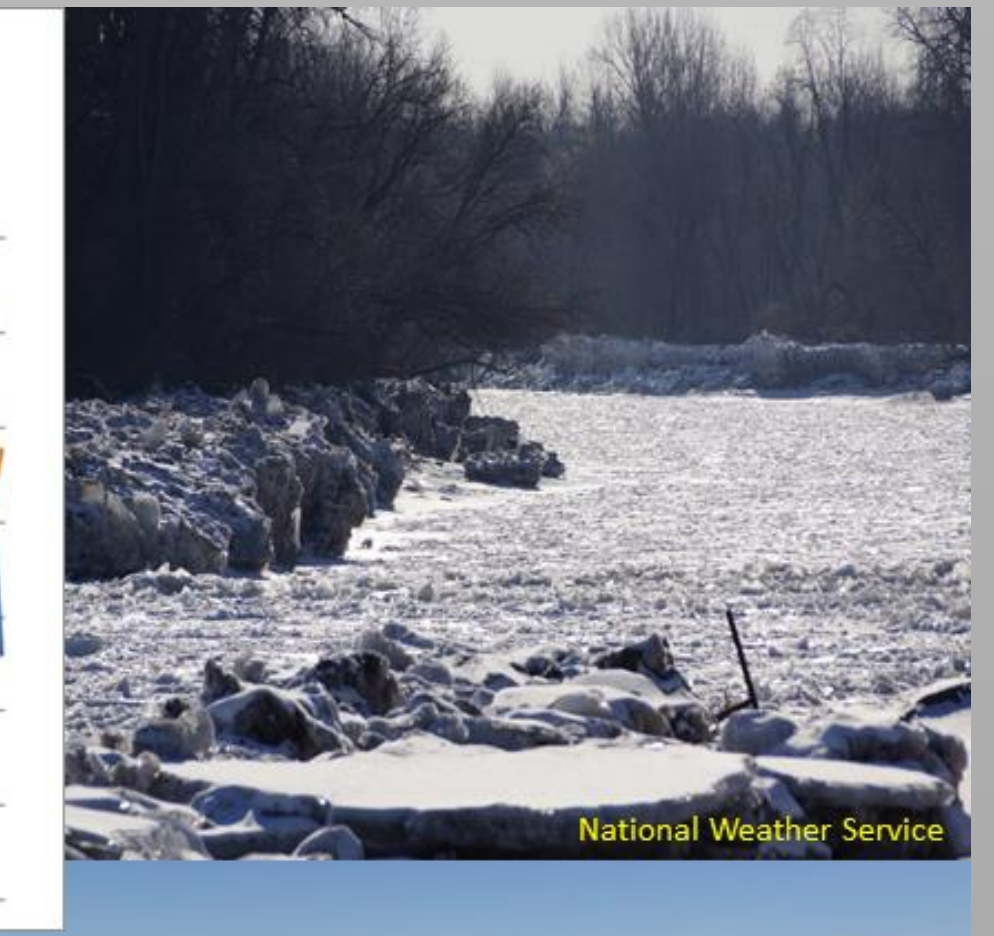
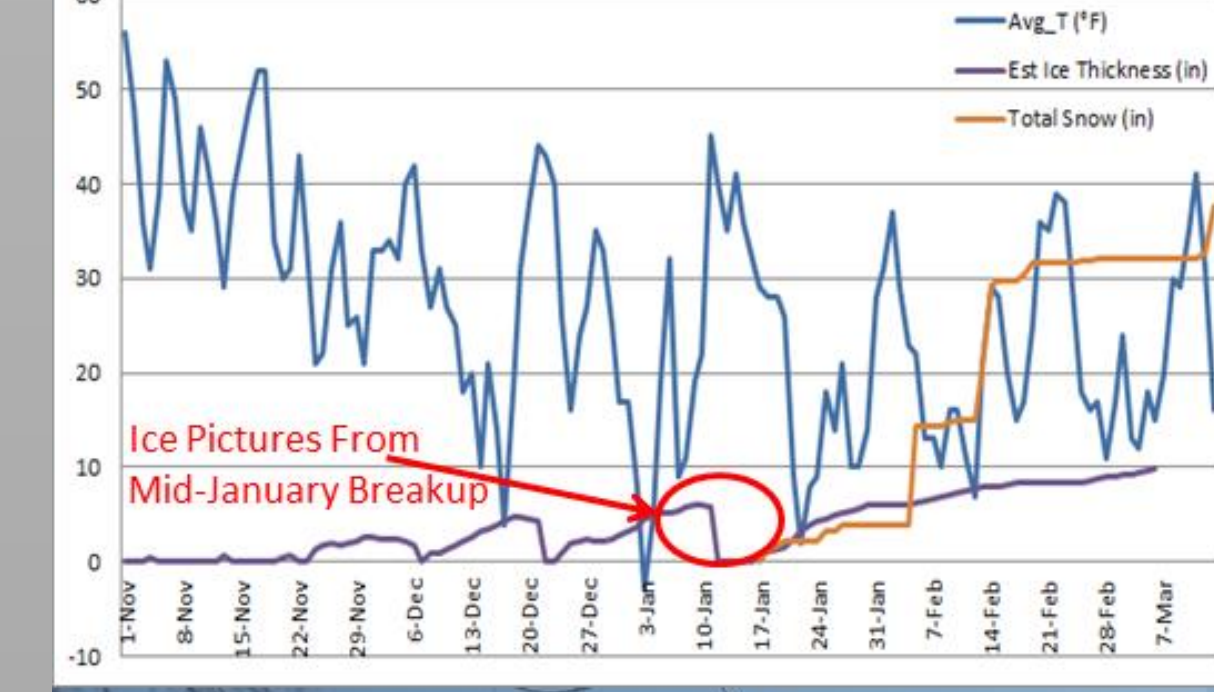
Daily Average Temperature, Estimated Ice Thickness and Accumulated Snow 1995-1996



Daily Average Temperature, Estimated Ice Thickness and Accumulated Snow 2006-2007



Daily Average Temperature, Estimated Ice Thickness and Accumulated Snow 2013-2014 (Albany, NY)



1996

2007

2014