

# USGS Web-Based Tools for Flood Response and Warning

#### **IAFSM 2011 Annual Conference**

U.S. Department of the Interior U.S. Geological Survey

### **USGS Web-Based Tools**

- WaterAlert
- Precipitation Mapping
- Inundation Mapping



### **USGS Web-Based Tools Overview**

- WaterAlert subscription service that sends e-mail or text messages when selected parameters exceed user-definable thresholds
- Precipitation Mapping interactive mapping site that displays USGS and other agency gage data and NWS rainfall maps
- Inundation Mapping interactive mapping site that displays flooding extents near USGS streamgages



### WaterAlert

#### http://water.usgs.gov/wateralert/

- Sends emails/texts based upon user pre-set thresholds
- Almost all real-time parameters
- Hourly or daily intervals
- Thresholds:
  - greater than less than between a range outside a range





#### WaterAlert Example http://water.usgs.gov/wateralert/

> Illinois
> Surface Water





#### WaterAlert Example http://water.usgs.gov/wateralert/

- > Illinois
- Surface Water
- > Zoom
- Select Gage





# WaterAlert Example

#### http://water.usgs.gov/wateralert/

- > Illinois
- Surface Water
- > Zoom
- > Select Gage
- > Subscribe



🥖 USGS WaterAlert Subscription Forr	n - Windows Internet Explorer	x	
Science for a changing world	USGS Home Contact USGS Search USGS	•	afety • Tools • @ • **
USGS WaterAlert	[ version 1.1 ]		Мар Туре
Subscription Form			County
Site Info:			Hwy 2
Site Number: Site Name: Agency: Transaction ID:	05580950 SUGAR CREEK NEAR BLOOMINGTON, IL USGS TcM6b		
Send Notification To:	about this		Inc Rd
● My email address ○ My mobile phone	email address	Ш	Barnes Rd
Notification Frequency:	about this		7
Hourly	$\odot$		1900
Daily	۲		East R
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Discharge (cfs)	74		Z County Ro 124
Gage height (ft)	I.31		anda E
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<ul> <li>Greater than (&gt;)</li> <li>Less than (&lt;)</li> <li>Outside a range (&lt; or &gt;)</li> <li>Inside a range (&gt; and &lt;)</li> </ul>	Real-time value is greater than: ft		Google - Terms of Use to these Terms of Service
I have read and acknowled	ge the Provisional Data Statement and Disclaimer.		

Submit Reset

Cancel

### WaterAlert – Example Email



### WaterAlert – Link to NWISWeb





### WaterAlert – Example Email



Near real-time data updates

Time spans • 3, 6, 12, 24, 48 hours • 7, 30 days

Includes NWS NEXRAD maps (similar color legend)

Data table linked to map



Precipitation Data Google Maps - Windows Internet Explorer									x		
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100 may Gage Totals	Station 🗘	° Hr <sup>‡</sup>	Hr <sup>‡</sup>	Hr <sup>‡</sup>	Hr♥	Hr <sup>⊕</sup>	Ď.	D			
NWS Precip Image Regan	BIG MUDDY RIVER NEAR MT. VERNON, IL	0.00	0.00	0.00	0.00	0.05	1.84	5.04			
300 +	EMBARRAS RIVER AT LAWRENCEVILLE,	0.00	0.00	0.00	0.00	0.15	1.83	4.07			
R pids	IL								E		
Aurolar Hamman	CASEY FORK AT MOUNT VERNON, IL	0.00	0.00	0.00	0.00	0.04	1.70	4.02			
Iowa City		0.00	0.00	0.00	0.00	0.21	1.67	4 20			
Vashingt n Kewanee 33	RAYSE CREEK NEAR WALTONVILLE, IL	0.00	0.00	0.00	0.00	0.03	1.60	4.00			
	MISSISSIPPI RIVER AT CHESTER, IL	0.00	0.00	0.00	0.00	0.00	1.58	4.85			
and the pleasant Galesburg 500 Kan Dee	SHOAL CREEK NR PIERRON, IL	0.00	0.00	0.00	0.01	0.04	1.49	3.72			
Fort Burlington Peoria 57 65 Lo	OLD SHAWNEETOWN, IL	0.00	0.00	0.00	0.00	0.11	1.47	5.98			
Kenkuk Macomb Pekin OBloomington Lafay	HURRICANE CREEK NR MULBERRY	0.00	0.00	0.00	0.00	0.03	1.47	4.14			
Hamilia	KASKASKIA RIVER NEAR POSEY, IL	0.00	0.00	0.00	0.00	0.01	1.46	4.42			
Paperstown O Illinois climen Dangle	SILVER CREEK NEAR FREEBURG, IL	0.00	0.00	0.00	0.00	0.01	1.45	4.25			
Quincy Cnampaign Crawfordsville	KASKASKIA RIVER NEAR COWDEN, IL	0.00	0.00	0.00	0.00	0.02	1.43	6.12			
36 Decatur 36	FARMER CITY, IL	0.00	0.00	0.00	0.00	0.00	1.36	2.86			
Paris O Vattoon O O Charleston O OBraz	BIG MUDDY R AT RT127 AT MURPHYSBORO, IL	0.00	0.00	0.00	0.00	0.11	1.34	4.55	=		
xico Xall	WABASH RIVER AT MT. CARMEL, IL		0.00	0.00	0.00	0.14	1.30	4.19			
	L WABASH R AT MAIN ST AT CARMI, IL	0.00	0.00	0.00	0.00	0.14	1.28	4.48			
Si Peters Sti Louis	CASEY F SUBIMPOUNDMENT NR BONNIE, IL	0.00	0.00	0.00	0.00	0.03	1.26	3.42			
erson Chesterfield Washington	SALT CREEK AT ELMHURST, IL	0.00	0.00	0.00	0.01	0.01	1.24	3.07			
Oakville <sup>9</sup> Bellere Mt Verzen II. Galesburg	RICHLAND CREEK NEAR HECKER, IL	0.00	0.00	0.00	0.00	0.01	1.22	3.93			
44 Ce Blooming	NIPPERSINK CREEK NEAR SPRING GROVE, IL	0.00	0.00	0.00	0.01	0.01	1.15	3.31			
Leonard Perryvile Connale Shaw	LAKE SHELBYVILLE NEAR SHELBYVILLE, IL	0.00	0.00	0.00	0.00	0.00	1.13	3.04			
National V Springfield	BIG MUDDY RIVER AT PLUMFIELD, IL	0.00	0.00	0.00	0.00	0.12	1.12	3.63			
National/Forest Search Ine To Search	MILL CREEK NEAR BATAVIA, IL	0.00	0.00	0.00	0.01	0.01	1.11	2.31	-		
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- Google Maps mash up
- Inundations linked to predefined gage heights
- NWS radar data
- Links to USGS gage data and NWS forecast data





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![](_page_17_Picture_6.jpeg)

![](_page_17_Picture_7.jpeg)

![](_page_18_Picture_2.jpeg)

![](_page_18_Picture_3.jpeg)

#### Salt Creek at Wood Dale, II http://il.water.usgs.gov/ifhp/dupage

![](_page_19_Picture_2.jpeg)

![](_page_19_Picture_3.jpeg)

#### Salt Creek at Wood Dale, II http://il.water.usgs.gov/ifhp/dupage

![](_page_20_Picture_2.jpeg)

![](_page_20_Picture_3.jpeg)

![](_page_21_Picture_0.jpeg)

#### Inundation Mapping Disclaimers Lincolnshire Wood Dale

These flood inundation maps are based on stages at USGS streamflow-gaging station 05528100, Des Plaines River at Lincolnshire, IL. Water-surface elevations along the Des Plaines River from Vernon Hills to Riverwoods, approximately 5 miles upstream and 5 miles downstream from the streamflow-gaging station, were generated by steady state hydraulic modeling using discharges corresponding to a given exceedance probability. Discharges along the study reach may vary in actual floods and lead to deviations in actual water-surface elevations and inundation boundaries from the predetermined maps shown here. The inundation maps are not representative if flooding sources are from Indian Creek (which enters the Des Plaines River just south of the streamflow-gaging station), other non-natural causes, or by debris- or icejams. Graphics of flood inundation boundaries are based on a digital elevation model of 10-meter by 10meter cells and, therefore, are approximate and should not be used to determine the flood potential for specific properties. Inundation areas should not be used for regulatory, permitting, or for other legal purposes. The USGS provides these maps as a planning tool and assumes no legal liability or responsibility for use or misuse of these data.

These flood inundation maps are based on stages at USGS streamflow-gaging station 05531175, Salt Creek at Wood Dale, IL. Water-surface elevations for a reach along the Salt Creek approximately 0.6 miles long that covers from upstream of Irving Park Road to downstream of Elizabeth Drive were generated by unsteady state hydraulic modeling using discharges corresponding to a given exceedance probability. Discharges along the study reach may vary in actual floods and lead to deviations in actual water-surface elevations and inundation boundaries from the predetermined maps shown here. The inundation maps are not representative if flooding sources are from non-natural causes, or by debris- or ice-jams. Graphics of flood inundation boundaries are based on a digital elevation model of 5-meter by 5-meter cells and, therefore, are approximate and should not be used to determine the flood potential for specific properties. Inundation areas should not be used for regulatory, permitting, or for other legal purposes. The USGS provides these maps as a planning tool and assumes no legal liability or responsibility for use or misuse of these data.

![](_page_22_Picture_3.jpeg)

#### **USGS Web-Based Tools**

#### **Questions/Comments**

![](_page_23_Picture_2.jpeg)