

Summary of Water Year 2013 Ice Season

Ice jam season started suddenly at the end of January in most of the center and northeast parts of the nation, with rapid warming and substantial precipitation causing rapid snowmelt and runoff over deeply frozen ground following intense cold the previous week. Intense cold temperatures over the previous few weeks had led to ice production and frazil ice buildup in many parts of the country, causing river ice impacts from the wide Snake River freezing over near Weiser, Idaho, to fishing access closures due to ice jam flooding on the Upper Madison River in Montana, to residential flooding in parts of New England. Close to 30 jams were reported over a 3 day period, with ice jam flooding or road closures report in IA, IL, WI, MI, PA, NY, VT, NH and ME. Most impacts were short lived and limited to minor or lowland flooding.

With the end of rainfall and snowmelt associated with the end of January's unseasonal warm temperatures, the ice jam flood threat diminished, the snowmelt and ice breakup slowed, but new ice production occurred and some breakup jams froze in place, including the Muskegon River at Mecosta Township, MI and the Salmon River in Malone, NY. Rives continued to recede through the month of February, but by the beginning of March, many rivers had recovered from the midwinter melt out to near normal conditions.

Rain and mild temperatures in mid-March led to breakup in New England and the lower Midwest. Temperature cooled again within a week while river ice remained in place in most Northern central basins and even the Northern Mississippi continued to make ice. Snowmelt and breakup did not start in the Upper Midwest and Northern Plains until mid-April and the Red River did not rise in Fargo until the end of April. Most ice in the Northern basins had decayed over April and did not cause large jams.

In May, unusual ice shoves caused by wind across the lake caused 30' piles of ice onto homes in Lake Mille Lacs, MN and a more severe event in Manitoba, Canada, where ice was more competent.

Alaska began breakup mid-May as most of the interior had an above average snowpack and one of the coolest springs on record. The Yukon formed jams at many spots, including Eagle, with its second worst flood (worst was 2009). A jam at Bishop Rock, 17 miles below Galena, led to major flooding, National Guard evacuations and damage to 90% of homes in Galena. The flooding in Galena has been declared a National Disaster. By early June, the river ice in Alaska had all gone out with far less damage than expected based on snowpack conditions at the start of breakup.

River Ice Updates

This is the first River Ice Update of 2012-2013 Winter Season. This update is provided by the Ice Engineering Group at the Cold Regions Research and Engineering Laboratory in Hanover, NH (ERDC/CRREL) to the UOC and the EOCs on river ice conditions during the ice season. This update will be distributed once a week on Wednesday throughout the season. Additional updates may be sent on Mondays and Fridays during peak ice activity.

If you know of ice problems in your area or others who might like to be included on the distribution list, please send information to meredith.l.carr@usace.army.mil. All questions and comments are welcome.

Below is the River Ice Update for 30 Jan 2013.

30 Jan 2013

Ice jam flood risk is elevated in most of the center and northeast parts of the nation, with rapid warming and substantial precipitation causing or likely to cause rapid snowmelt and runoff over deeply frozen ground from last week's intense cold. Intense cold temperatures over the last few weeks led to ice production and frazil ice buildup in many parts of the country, causing river ice impacts from the wide Snake River freezing over near Weiser, Idaho, to fishing access closures due to ice jam flooding on the Upper Madison River in Montana, to residential flooding in parts of New England.

Currently, an ice jam on the Salmon River caused by frazil ice production during last week's cold temperatures has been causing flooding in Malone, New York for the past several days. A local road has been inundated, residents were forced to evacuate and 16 homes have been flooded. Representative Bill Owens visited the area on Tuesday to survey the damage and discuss future flood prevention.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL

72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 1 Feb 2013.

1 Feb 2013

Overview:

With the end of rainfall and snowmelt associated with this week's unseasonal warm temperatures, the ice jam flood threat has diminished through the Midwest and much of the Northeast, though risks for jamming continue in Northern New York and New England where many rivers are just reaching or past their crests.

As cold temperatures have returned, the snowmelt and ice breakup is slowing, but new ice production is possible and some breakup jams may freeze in place. Close to 30 jams were reported since Wednesday, with ice jam flooding or road closures report in IA, IL, WI, MI, PA, NY, VT, NH and ME. Most impacts were short lived and limited to minor or lowland flooding.

Michigan

A jam was formed on the Muskegon River at Mecosta Township on Wednesday. 24 homes were evacuated, homes were flooded and some roads were closed. As of Thursday night, the jam had frozen in place and water remained over bank.

A large jam was in place on Wednesday on the Grand River at Grand Haven, but did not lead to any flooding.

New York

A jam at Sylvan Beach at the mouth of Fish Creek led to the voluntary evacuation of 60 homes. The jam released in the late afternoon on Thursday and residents were able to return to their homes.

Vermont

An ice jam formed on the Winooski River at Berlin on Thursday and then released and reformed at the Bailey Avenue Bridge in Montpelier in the business district. This jam also released before flooding could occur.

Maine

A jam on the Sandy River near Madrid led to the closure of the Rte 4 Bridge due to ice floes pushing against the structure.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 6 Feb 2013.

6 Feb 2013

Overview:

Rivers levels are remaining steady or continuing a slow recession in much of the Midwest and Northeast which experienced flow increases and ice jams last week. As cold has set in, river ice has begun to build up again on many of those rivers. With no rainfall or snowmelt indicated in the next week, river levels should remain steady and ice growth continue, with little increased risk of ice jam flooding. Since the last River Ice Update flooding and road closures have occurred in NY and MI.

Michigan

Another ice jam has formed on the Grand River behind the US 31 Drawbridge in Grand Haven in the same location as last Wednesday's jam. Though water levels rose a foot between Sunday and Monday, only minor flooding was expected on Wednesday morning.

Though water levels near the ice jam on the Muskegon River near Big Rapids have fallen, the jam has locked in place, with about 30 people temporarily displaced. \$3 Million dollars in damages are estimated, with about 80% of the damages to homes not covered by flood insurance as they are not considered to be in the floodplain.

New York

An ice jam occurred on the Hudson River between Warrensburg and Thurman on Friday, leading some flooding of local roads. When the jam released later that day, it left a 3 foot ice pack stranded on the roadway.

Minor roadway flooding was occurring Tuesday along the Salmon River in Malone as subfreezing temperatures cause the river to jam up again. About 10 homes still remain evacuated and inaccessible since an ice jam formed about two weeks ago.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 13 Feb 2013.

13 Feb 2013

Little change in ice conditions are predicted across the country through the rest of this week. Ice jams persist in Michigan and in Northern Wisconsin. The ice jam on the Grand River in Grand Haven, Michigan is still in place, but water levels have been falling slightly.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 20 Feb 2013.

20 Feb 2013

In the past week the risk of ice jam flooding in most Northern areas has remained low, as temperatures have remained seasonal, snowmelt has been minimal and precipitation amounts small, resulting in continued steady or declining river levels. Predicted below normal temperatures in the center of the country through the rest of the week indicate new ice development on the Upper Mississippi River. Also, cold temperatures and some river rises due to precipitation in Wisconsin are increasing risk of ice jams, though flooding is not expected. No ice jam related flooding is reported at this time and no significant increases in such risks are expected in the coming week.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290

phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 27 Feb 2013.

27 Feb 2013

Seasonal temperatures in river basins with ice covered conditions have persisted and are expected to continue into next week. Flows increases due to precipitation and snowmelt are not expected to be large enough in the next week to cause ice breakup on most Northern rivers. No ice jam related flooding is reported at this time and no significant increases in such risks are expected in the coming week.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 6 Mar 2013.

6 Mar 2013

As the spring breakup approaches, river ice has recovered to near normal conditions in much of the areas that experienced a midwinter melt at the end of January. Into this weekend, normal to above normal temperatures in the north central part of the country indicate that snowmelt may begin, which will start to affect river stages and ice conditions. As temperatures begin to warm, there is always risk of ice jams and areas with existing jams frozen in place from earlier in the winter are being monitored carefully. No ice jam related flooding is reported at this time.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 13 Mar 2013.

13 Mar 2013

Overview

A combination of mild temperatures, steady rainfall and snowmelt runoff moved through the Midwest and into New England over the past week, raising stages to minor flood levels in many areas, promoting the deterioration, movement and break-up of ice covers. Rainfall amounts as high as 2.5" were reported in parts of the Missouri River Basin this past weekend and as high as 2" in New Hampshire on Tuesday, with snowmelt river rises of 2 - 4' in parts of New England. Ice breakup in western Maine and New

Hampshire is expected into Wednesday with ice jamming possible. Flooding due to river ice has been reported in Iowa and Vermont.

Iowa

An ice jam is causing flooding along the Cedar River above the 5-in-1 dam in Northwest Cedar Rapid, IA. The jam is about $\frac{3}{4}$ mile long and threatening flooding some 30 homes. The city has been in contact with both the Rock Island District and CRREL for technical assistance.

Vermont

An ice jam on the Missisquoi River just south of the Rte 105 and 188 interchange at East Berkshire released on Wednesday, dropping stages 4 feet. However, the ice was moving downstream and lowland and roadway flooding was predicted from East Berkshire to Enosburg and Sheldon.

Images:



Chunks of ice jam under a railroad bridge over the Cedar River along First St. NW on Tuesday, March 12, 2013, in northwest Cedar Rapids, Iowa. (Jim Slosiarek/The Gazette-KCRG)



Plastic barrels lay on top of slabs of ice as the chunks jam together causing flooding of the Cedar River on Tuesday, March 12, 2013, in northwest Cedar Rapids, Iowa. (Jim Slosiarek/The Gazette-KCRG)

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 19 Mar 2013.

19 Mar 2013

Temperatures cooled down at the end of last week and most precipitation in the North has occurred in the form of snow, which has not led to any sharp rises in river levels. River stage have been mostly in recession, including the Mississippi which is again making ice. Jams that were causing flooding in Iowa and Vermont have released. Ice has broken up in much of New England and the lower Midwest. No river ice related flooding is occurring at this time or expected in the next few days, though isolated events are possible as long as river ice remains on some Northern rivers.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 27 Mar 2013.

27 Mar 2013

With unusually cold temperatures in the past month, river ice is still in place in some North central river basins. The Souris River in North Dakota is being monitored for increased risk of ice jamming as river levels rise with reservoir releases. The Mississippi River is still making ice above Dam 14. No river ice jam related flooding is reported at this time.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 3 Apr 2013.

3 Apr 2013

The risk of ice jams remains elevated in Iowa, Illinois, Wisconsin and Minnesota where river ice has been breaking up as rivers rose with snowmelt and rainfall this past week. Cold temperatures this week will curb snowmelt in those areas until warm temperatures return this weekend with more snowmelt and increased risk of ice jams. In North Dakota, the Red and Souris Rivers have yet to rise from the thaw, which is not expected this week. Remaining river ice in those basins is at risk for jamming when the melt finally occurs.

Some nuisance jams and river ice remain in place as melt occurs in Maine. An ice jam on the Maquoketa River damaged a local bridge last week near New Vienna, Iowa.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 10 Apr 2013.

10 Apr 2013

Rain and snowmelt are causing river rises in the north central part of the country, which is breaking up remaining ice covers. There is elevated risk of ice jams in Wisconsin and Minnesota throughout the week, as the melt slowly continues. No river ice related flooding is reported at this time.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database

(<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 17 Apr 2013.

17 Apr 2013

The Souris River in North Dakota is now mostly clear of ice after stages rises near Sawyer during ice breakup late last week. The Duluth-Superior harbor was jammed up with ice Saturday due to strong east winds. Nine ships were delayed, but were able to enter the channel following coast guard ice cutter operations. No river ice related flooding is reported at this time.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 24 Apr 2013.

24 Apr 2013

River ice is still present on some rivers in the North Central part of the country. Warming temperatures starting early next week will increase snowmelt causing rivers to rise and increasing the risk for ice jams. There is no river ice related flooding currently reported.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 1 May 2013.

1 May 2013

Increase river flows due to significant snowmelt in the Northern Central part of the country are still increasing the risk of ice jams, particularly in Northern Minnesota and North Dakota.

Stage rises due to river ice occurred over the last week in North Dakota, Minnesota, Wisconsin and Michigan.

Michigan

Multiple ice jams were reported on Monday along the Peshekee River.

Minnesota

Stage rises were occurring, but jams broke up over the weekend on the Red Lake River near Crookston.

North Dakota

A jam on the Souris River near Towner released last week.

Red River Basin

Flooding was aggravated along several rivers due to backwater from ice on the Main Stem of the Red River of the North, including the Sand Hill River at Climax, MN, Sheyenne River at West Fargo Diversion, ND and at Hardwood, ND. An ice jam was observed last week at the Wahpeton ND/ Breckenridge, MN just upstream of the RR Bridge on the Bois de Sioux just before it combines with the Ottertail River to become the Red River of the North.

Wisconsin

An ice jam occurred over the weekend near Highway C South of Superior on the Nemadji River, causing stages rises.

Images:



Ice jamming at the Railroad Bridge in Wahpeton-Breckenridge on 25 April 2013. Courtesy St. Paul District.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 8 May 2013.

8 May 2013

Overview:

This will be the final regular river ice update of the season, as rivers and streams across the continental US are mostly ice free. Many areas had late snow melt and ice-outs this year. The last breakup problems occurred last week in the Northern Central region.

River Ice Updates will restart when ice jams begin occurring in the Alaska Interior. Similar to part the central US, a cool spring has led to delayed river ice breakup, with rivers 2-3 weeks behind typical breakup dates. Anchorage reported an average April temperature seven degrees below normal and May 1 ice thickness measurements at several stations exceeded April 1 thicknesses.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 15 May 2013: Alaska

15 May 2013

A steady, slow river ice melt has begun in Alaska with a sharp increase in temperatures this past weekend. Warm weather was followed by a cool period expected to last through this week which has briefly slowed snowmelt. The risk of ice jam flooding is currently rated by the National Weather Service as moderate through most of the state and will depend strongly on how abruptly temperatures warm in the next few weeks. Snowpack is above normal through most of the state and parts of south central Alaska may be more susceptible to spring flooding due to high ground water levels from significant fall rains. No river ice related flooding is reported at this time.

In Lake Mille Lacs, MN this past weekend, strong Northwest winds gusting near 40 mph pushed large piles of ice onto the southern shoreline damaging at least one home. Such ice shoves can occur as a result of certain wind conditions and decaying lake ice being blown on shore. About 10 miles of shoreline were affected with ice piles as tall as 30 feet. A more severe event in Manitoba, Canada, where ice was more competent, damaged 27 homes.

Image:



Damage to a boat house in Lake Mille Lacs, MN due to ice shoves on Saturday, 11 May 2013.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 22 May 2013: Alaska

22 May 2013

Overview:

Temperatures are rising in Alaska and expected to approach normal this week. Breakup flood potential is moderate for most of the state. Ice breakup on the Yukon River has led to ice jam flooding in 3 villages and major flooding is forecast at Fort Yukon.

Yukon River:

Ice began breaking up on the Yukon River in the last week. On Friday, a jam formed 12 miles downstream of Eagle, causing moderate flooding. Seven homes were knocked off their foundation and 9 other buildings were destroyed. This is considered the second worst in flood of record at Eagle, other than the 2009 ice jam flood. On Sunday, an ice jam released upstream of Circle, resulting in a surge of water, major flooding and damage to 15 homes. At midnight Tuesday, a resident near Fort Yukon reported that a large ice jam located about 12 miles upstream of town released suddenly: waters were beginning to rise and ice chunks were moving downstream. As stage rises and ice comes through, major flooding is expected in town this morning. There are concerns that the running ice may become jammed downstream where ice is still in place, causing any upstream flooding to persist.

Images:



and



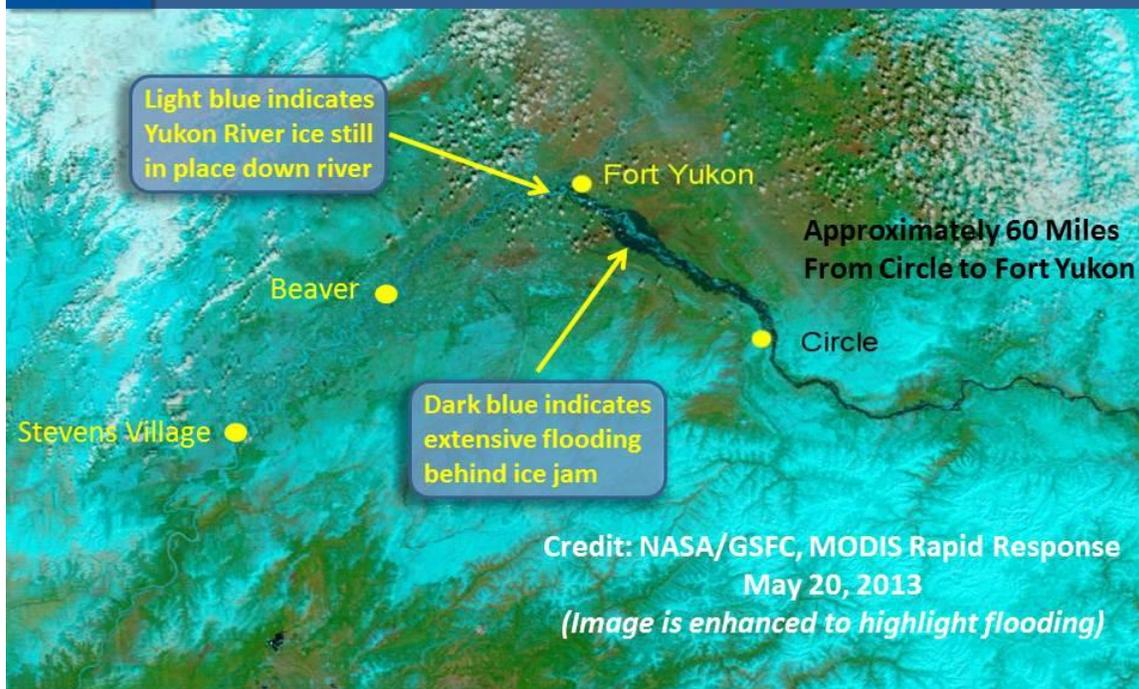
Yukon River breakup at Eagle on 17 May 2012, photos by Ed Christensen.



Flooding in the Village of Circle, 19 May 2012, photo by Andrew Neason, Alaska State Troopers.



Ice Jam Continues to Block the Yukon River



Map of flooding and ice conditions near Fort Yukon on 20 May 2013, credit NASA/GSFC, MODIS Rapid Response.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 29 May 2013: Alaska

29 May 2013

Overview:

Temperatures have warmed up across Southeast Alaska with resulting increase in snowmelt, rapid ice deterioration and high water. High temperatures are expected to continue through the end of the work week, with ice deteriorating rapidly in the Yukon, Kuskokwim and North Slope and Northwest Rivers. Minor flooding has occurred the past week on several locations and major ice jam flooding has been occurring on the Yukon River at Galena.

An ice jam Sunday on the Buckland River downstream of Buckland caused minor flooding. A reported run of ice past Buckland early Wednesday morning is expected to add to the jam, cause water levels to rise further. Minor flooding is occurring on the Koyukuk River at Hughes due to an ice jam that formed Sunday. Minor ice jam flooding has also been reported on the Kobuk River at Kobuk. An ice jam was reported Tuesday near Curry on the Susitna River and is likely to cause some flooding.

An ice jam has been in place since the Sunday on the Yukon River at Bishop Rock, 17 miles downstream of Galena. Major flooding has been occurring at Galena where 90% of homes are likely damaged, almost all roads and the sewage lagoon are flooded, and about 300 evacuations have been conducted over the past several days. As of mid-day Tuesday, rising waters had breached the airport runway dike and the National Guard was conducting evacuations by military aircraft. The ice holding the jam in place is deteriorating and expected to release soon. After the jam releases, a significant amount of water is likely to cause flooding downstream about 4 hours after release at Koyukuk and 6-10 hours after release at Nulato.

Images:



An ice jam at Bishop Rock, bottom right, backed up water on the Yukon River into Galena on Sunday. National Weather Service



Yukon River ice and flood water surround the community of Galena on Monday, May 27, 2013, National Weather Service.



Yukon River ice and flood water surround the community of Galena on Sunday, May 26, 2013, National Weather Service.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil

Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 5 June 2013: Alaska

5 June 2013

River ice has broken up or melted out in most of Alaska except for the North Slope. The large ice jam on the Yukon River near Galena released late last week. The Yukon River is broken up down to the Delta where an ice jam near Flat Island has been causing flooding at Emmonak and Alakanuk and inundating roads and at least two homes. Minor flooding is also occurring on the Colville River at Colville Village.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>

Below is the River Ice Update for 12 June 2013: Alaska

12 June 2013

This will be the final river ice update of the season. Reports indicate that all Alaska rivers are open or mostly open, indicating that the risk of river ice related flooding has ended.

If you know of river ice problems in your area please send information to meredith.l.carr@usace.army.mil. Questions and comments are welcome.

This River Ice Update, which summarizes river ice conditions, is provided by the Ice Engineering Group at ERDC/CRREL. Data is gathered and summarized from various sources including the Ice Jam Database (<https://rsgisias.crrel.usace.army.mil/icejam/>), National Weather Service Products, newspapers and individual observations.

Meredith Carr PhD
Research Hydraulic Engineer
RS/GIS and Water Resources Branch
ERDC/CRREL
72 Lyme Road
Hanover, NH 03755-1290
phone: 603.646.4385
email: meredith.l.carr@usace.army.mil
Ice Jam Database: <https://rsgisias.crrel.usace.army.mil/icejam/>