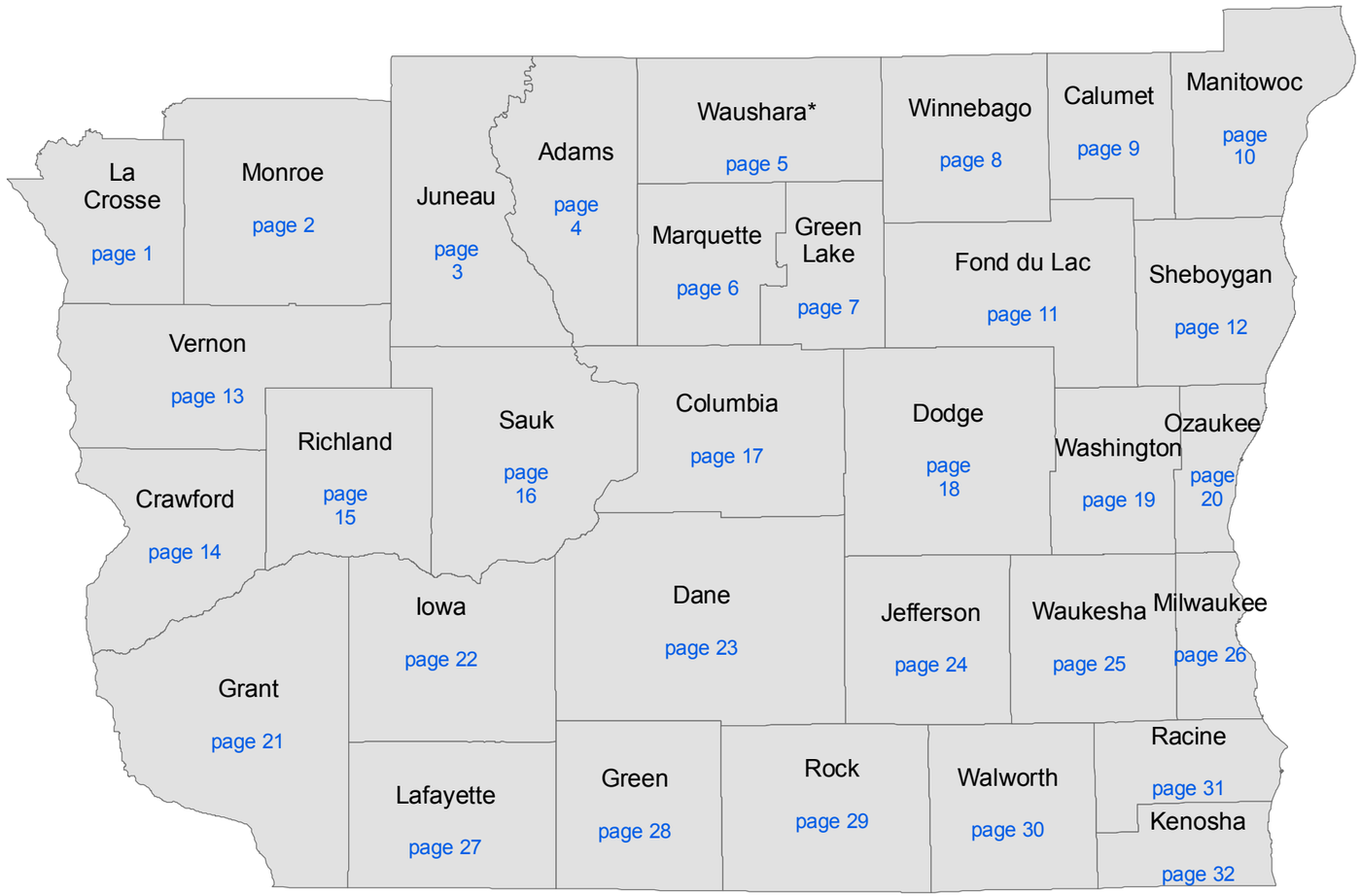
Wisconsin Flood Extent
June 2008



Overview

In June of 2008, Wisconsin and other Midwest states saw an unprecedented amount of rain fall on the region. A series of storms dating from June 5 - 12 caused widespread flooding that resulted in damage to thousands of homes, businesses and roads. Many local climate records were broken with up to 17-inches of rain in some parts of the state. Thirty counties were declared a "state of emergency" by Governor Doyle and eventually 31 counties received federal disaster declarations.

*Waushara is included in this atlas, but did not receive federal aid.

Image Analysis

The analysis of satellite imagery included imagery from several systems such as Landsat-5, SPOT-2, SPOT-4, SPOT-5, and RADARSAT-1. The goals were to:

- differentiate water from land.
- differentiate flood water from "normal" water.
- generate a GIS vector data layer (multi-polygon) in a standard projection for overlay with other GIS data.

Each of the satellite systems collected data in different ways and produce data with different characteristics. Landsat and SPOT are passive optical systems that measure surface-reflected sunlight. The radiance is recorded by onboard radiometric sensors sensitive to specific wavelengths of light at specific spatial resolutions. RADARSAT is an active microwave system that sends radar waves to the surface of the earth and records the reflected energy that returns to the satellite.

These two basic techniques, optical and radar, produce useful data because the surface features of the earth (water, soil, vegetation, urban surfaces, etc) produce different and distinguishable amounts of reflected energy. In the case of optical return, the differences are measures of red, green, blue, and infrared radiation or spectra. In the case of radar systems, the return represents different textures of surface features through "backscatter."

There are a number of limitations inherent in both of these approaches to environmental remote sensing. Satellite systems and initial signal processing systems are designed to geo-locate the data as it is received and processed. However, even with careful post-processing, data products often include geo-location errors, especially if the processing is expedited. There are also basic trade-offs between spatial resolution (amount of detail in the data) and area of extent (number of images required to cover an area). Higher resolution imagery (e.g. 4-meter pixels) may require a dozen images to cover the same area of as single moderate resolution scene (e.g. 30-meter pixels). With optical sensors, these images may take days, weeks, or even months to collect.

There are also sensor-specific limitations. Cloudy days limit optical systems with direct interference to the line of sight, but also by cloud shadows that interfere and limit reflectance. For example, water absorbs infrared radiation and returns a very weak signal. Cloud shadows also return a weak infrared signal and can cause confusion during spectral signature classification. Radar systems penetrate clouds and can operate at night giving them an advantage for timely delivery of imagery. However, surface features such as hill "shadows" and smooth fields can return values similar to water surfaces.

Imagery Analysts

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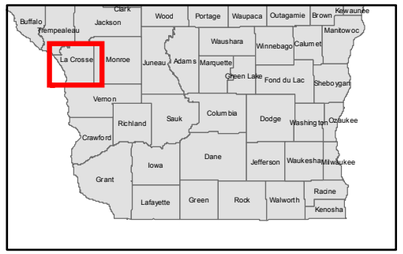
FLOOD EXTENT
La Crosse County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
479.62	30.37	8.89

Water Percent	Total Percent of Land Flooded
6.33%	1.98%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

Statistics were generated using ESRI software. TIGER 2000 and the Wisconsin DNR 24k Hydro were used to aid in statistic generation. While this data could never be 100% verified it is believed to be a fairly accurate representation of the floods of 2008.

Canadian Space Agency/Agence spatiale canadienne (2008)

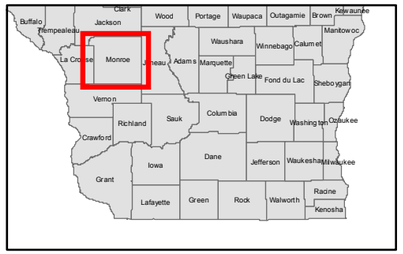
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Monroe County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
907.61	10.95	7.61

Water Percent	Total Percent of Land Flooded
1.21%	0.85%

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Canadian Space Agency/Agence spatiale canadienne (2008)

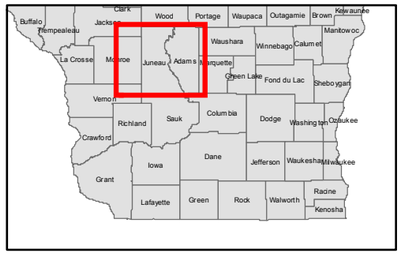
1:200,000

0 1.5 3 6 Miles

Wisconsin Emergency Management
Date: January 2009

N

FLOOD EXTENT
Juneau County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
803.48	42.25	23.36

Water Percent	Total Percent of Land Flooded
5.26%	3.07%

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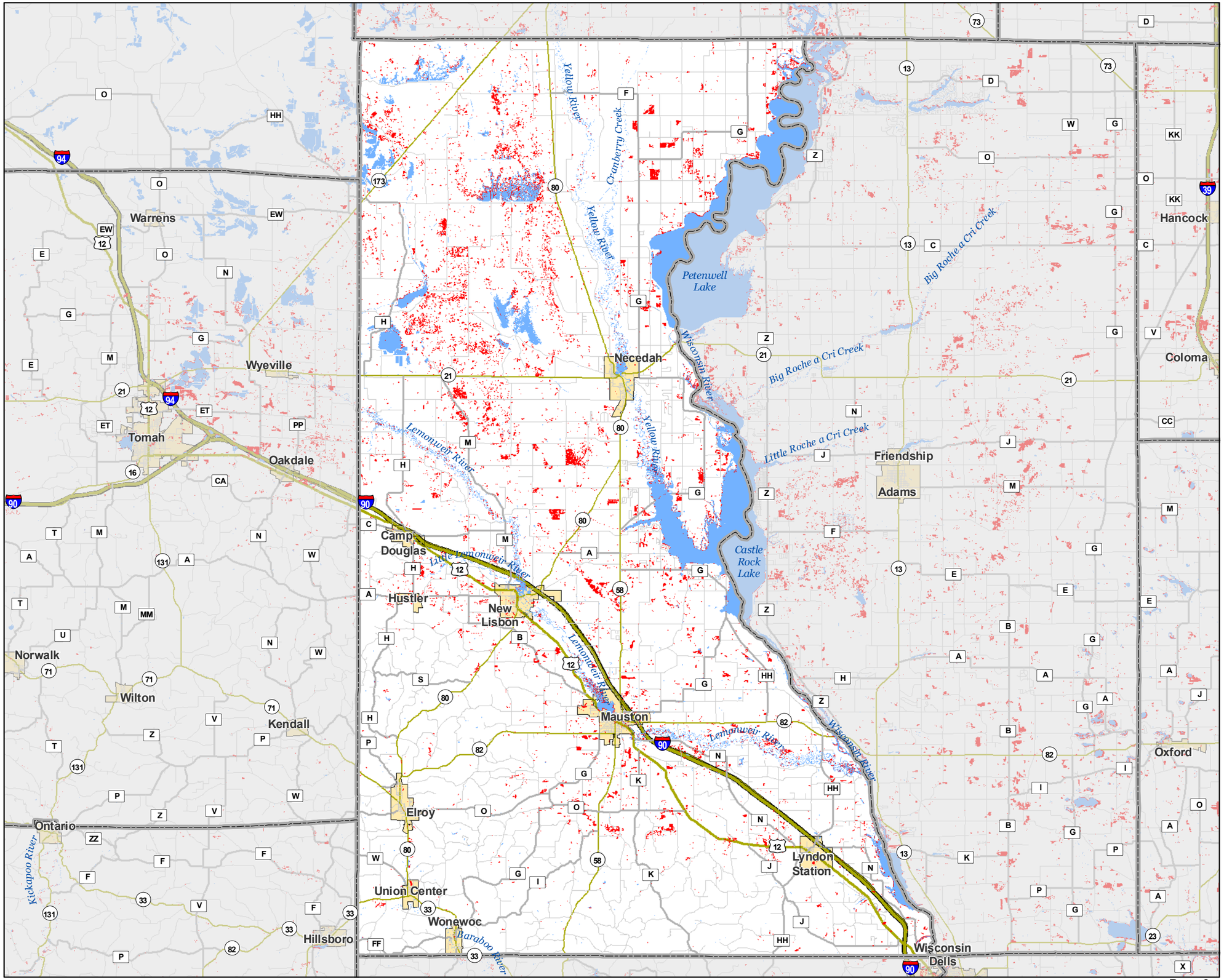
Canadian Space Agency/Agence spatiale canadienne (2008)

1:270,000

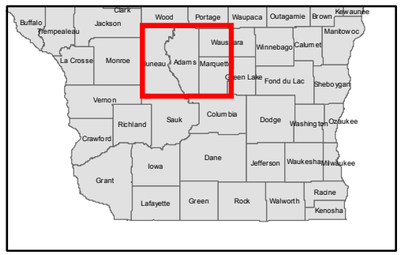
0 2.5 5 10 Miles

N

Wisconsin Emergency Management
Date: January 2009



FLOOD EXTENT
Adams County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
687.96	42.36	20.41

Water Percent	Total Percent of Land Flooded
6.16%	3.16%

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Canadian Space Agency/Agence spatiale canadienne (2008)

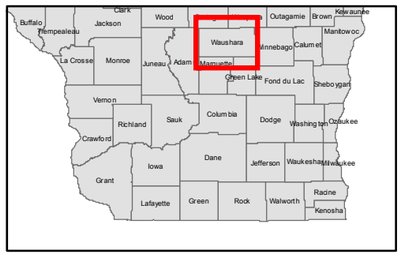
1:270,000

0 2.5 5 10 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Waushara County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
636.94	12.11	18.65

Water Percent	Total % of Land Flooded
1.90%	2.99%

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Canadian Space Agency/Agence spatiale canadienne (2008)

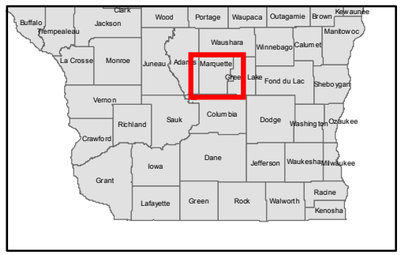
1:190,000

0 1.5 3 6 Miles

Wisconsin Emergency Management
Date: January 2009

N

FLOOD EXTENT
Marquette County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
464.07	12.41	31.28

Water Percent	Total Percent of Land Flooded
2.67%	6.93%

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Canadian Space Agency/Agence spatiale canadienne (2008)

1:160,000

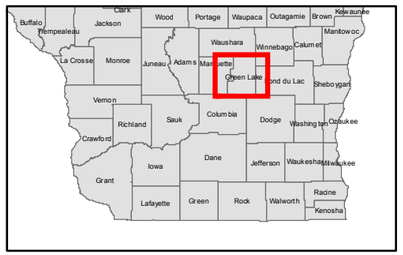
Miles

0 1.5 3 6

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Green Lake County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
380.18	27.72	38.64

Water Percent	Total Percent of Land Flooded
7.29%	10.96%

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Canadian Space Agency/Agence spatiale canadienne (2008)

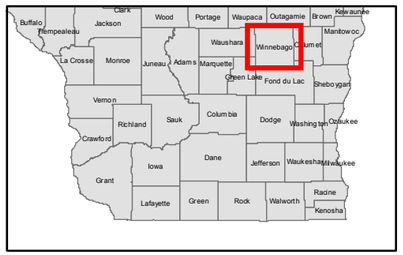
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Winnebago County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
578.40	141.25	16.74

Water Percent	Total Percent of Land Flooded
24.42%	3.83%

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Canadian Space Agency/Agence spatiale canadienne (2008)

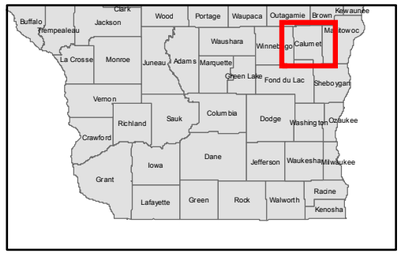
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Calumet County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
396.90	77.89	2.22

Water Percent	Total Percent of Land Flooded
19.62%	0.70%

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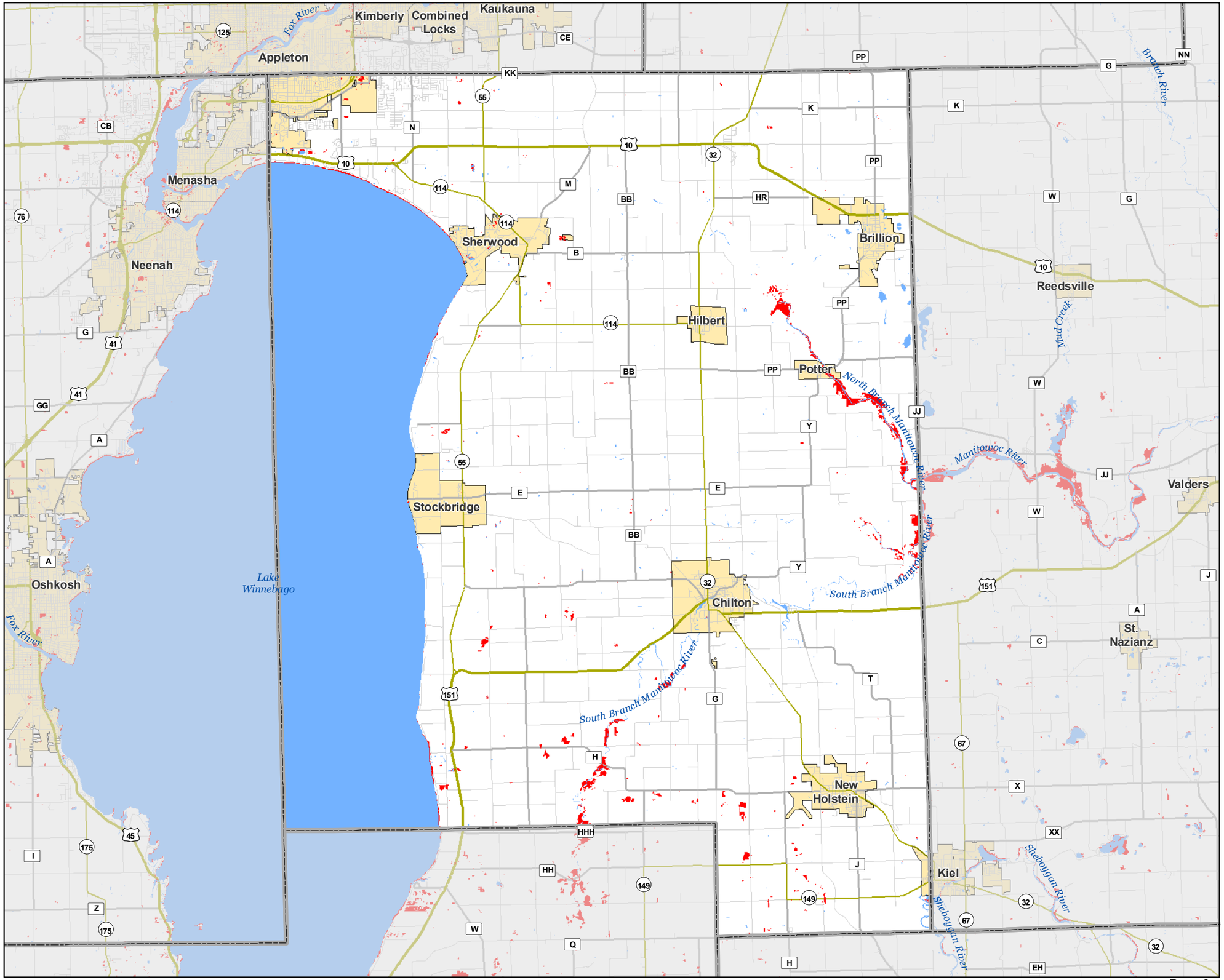
Canadian Space Agency/Agence spatiale canadienne (2008)

1:165,000

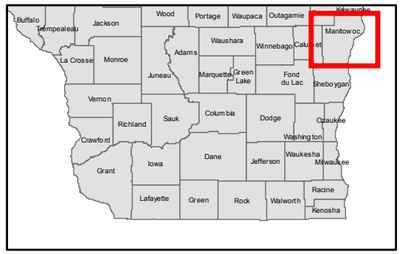
0 1.5 3 6 Miles

Wisconsin Emergency Management
Date: January 2009

N



FLOOD EXTENT
Manitowoc County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
595.60	6.39	2.31

Water Percent	Total Percent of Land Flooded
1.07%	0.39%

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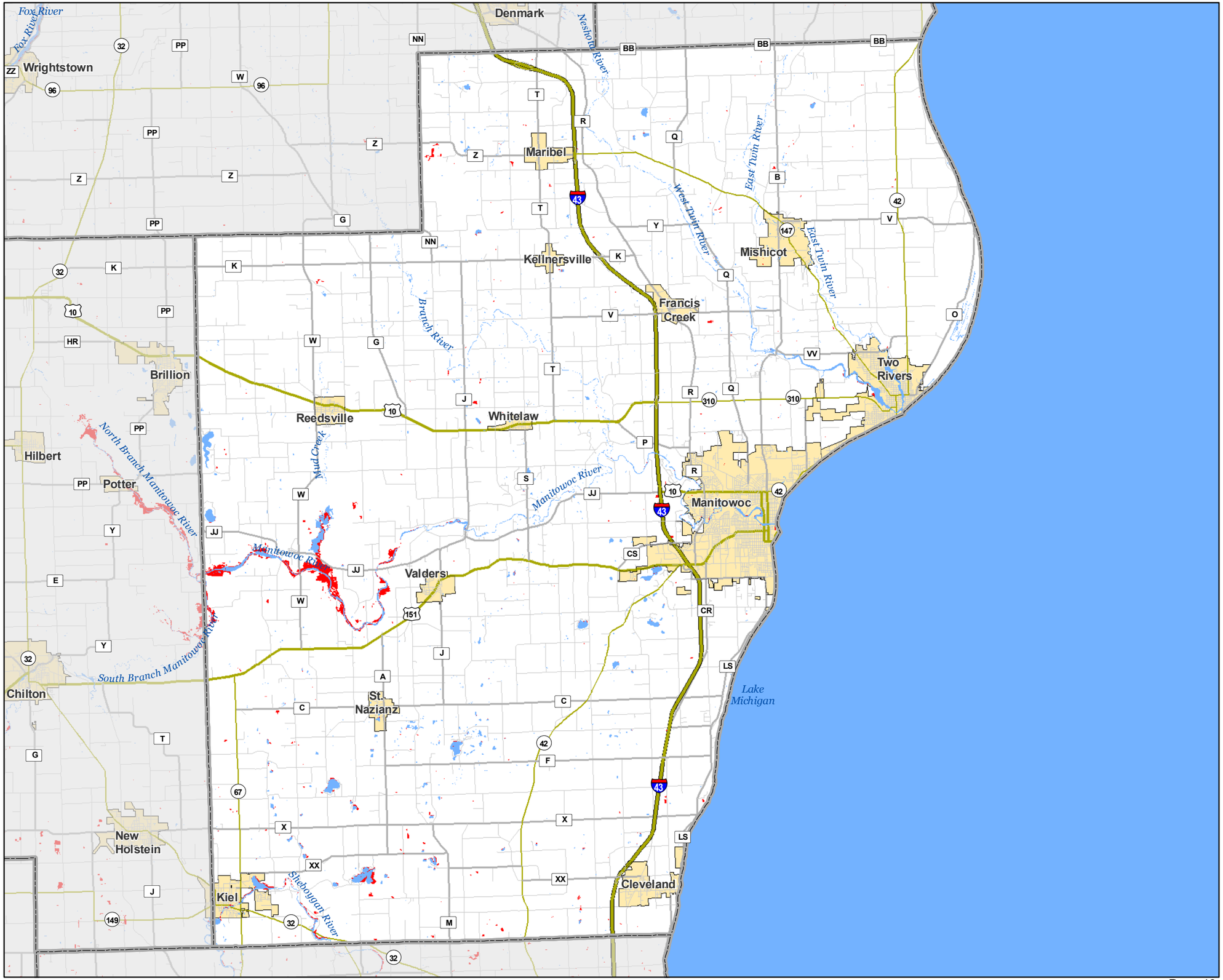
Canadian Space Agency/Agence spatiale canadienne (2008)

1:200,000

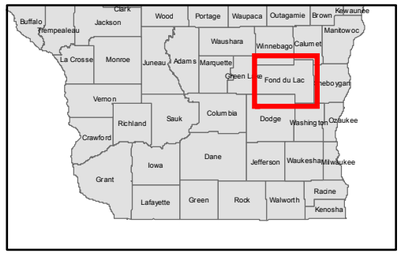
0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009



FLOOD EXTENT
Fond du Lac County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
765.46	44.07	41.81

Water Percent	Total Percent of Land Flooded
5.76%	5.80%

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Canadian Space Agency/Agence spatiale canadienne (2008)

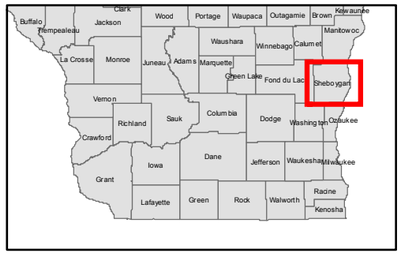
1:190,000

0 2 4 8 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Sheboygan County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
517.56	5.518	7.61

Water Percent	Total Percent of Land Flooded
1.07%	1.49%

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Canadian Space Agency/Agence spatiale canadienne (2008)

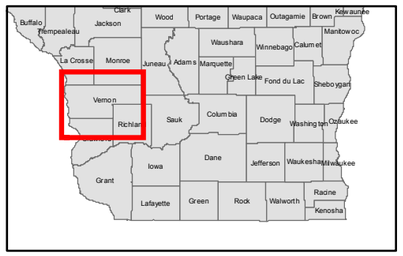
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Vernon County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
815.85	24.30	6.14

Water Percent	Total Percent of Land Flooded
2.98%	0.78%

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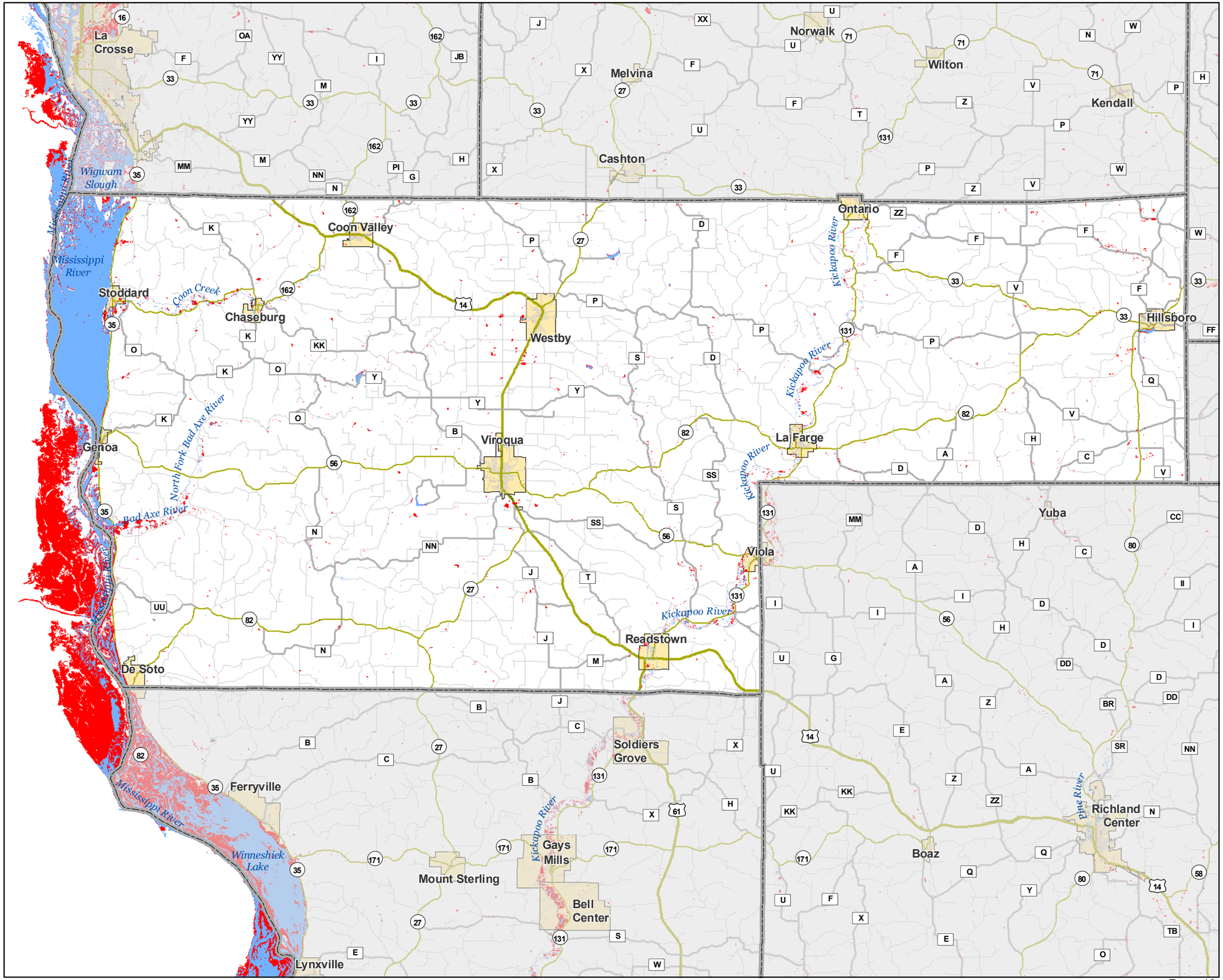
Canadian Space Agency/Agence spatiale canadienne (2008)

1:250,000

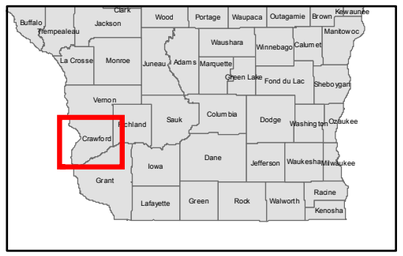
0 2.5 5 10 Miles

N

Wisconsin Emergency Management
Date: January 2009



FLOOD EXTENT
Crawford County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
598.82	28.56	28.82

Water Percent	Total Percent of Land Flooded
4.77%	5.05%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

Statistics were generated using ESRI software. TIGER 2000 and the Wisconsin DNR 24k Hydro were used to aid in statistic generation. While this data could never be 100% verified it is believed to be a fairly accurate representation of the floods of 2008.

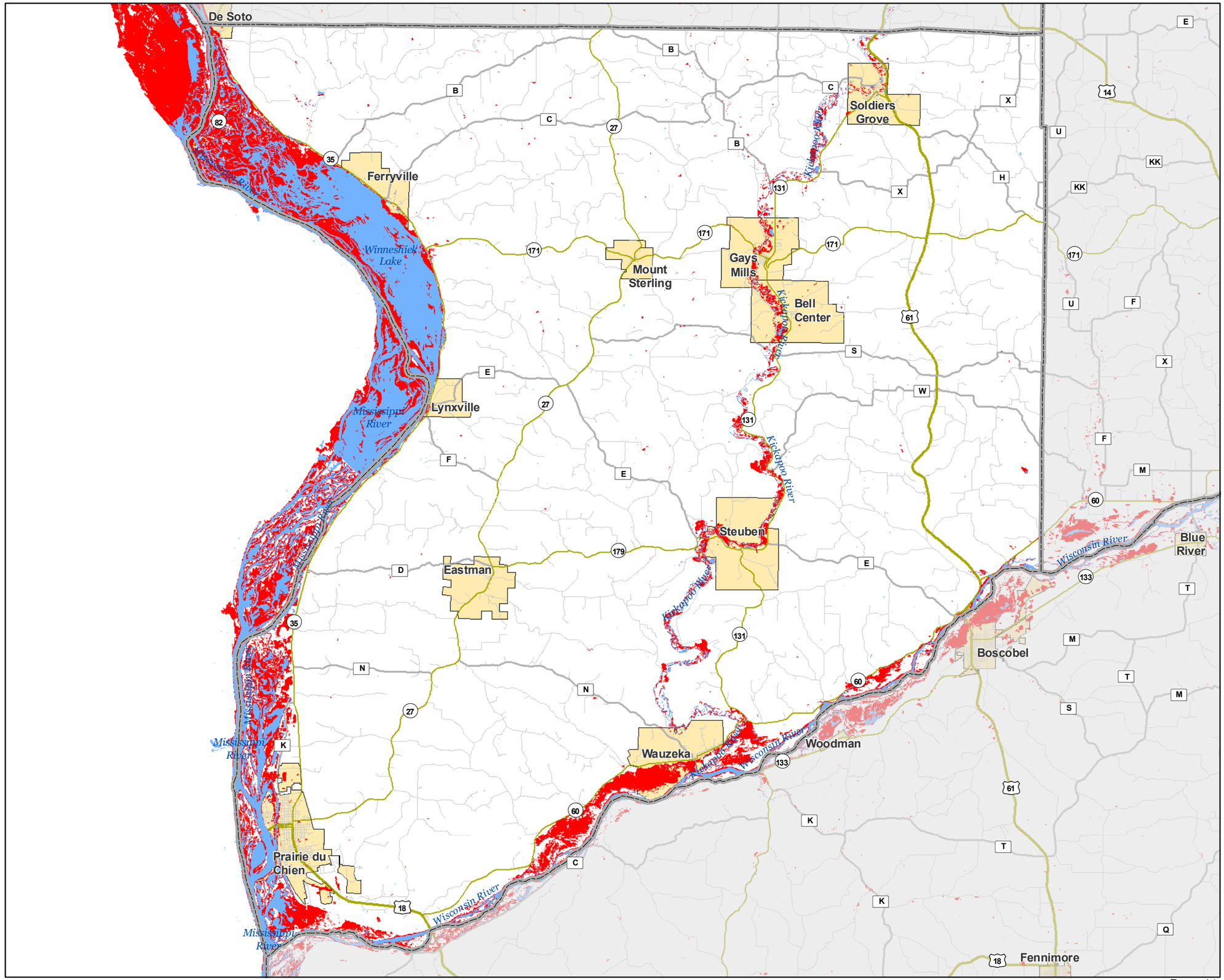
Canadian Space Agency/Agence spatiale canadienne (2008)

1:190,000

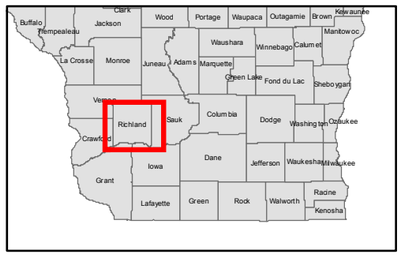
0 2 4 8 Miles

N

Wisconsin Emergency Management
Date: January 2009



FLOOD EXTENT
Richland County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
588.92	3.67	4.33

Water Percent	Total Percent of Land Flooded
0.62%	0.74%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

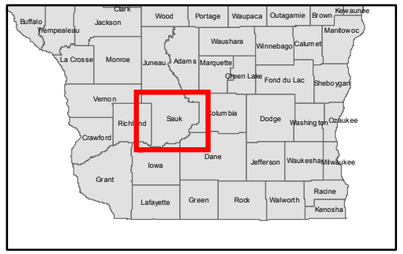
1:180,000

0 1.5 3 6 Miles

Wisconsin Emergency Management
Date: January 2009

N

FLOOD EXTENT
Sauk County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
847.74	13.21	30.92

Water Percent	Total Percent of Land Flooded
1.56%	3.70%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

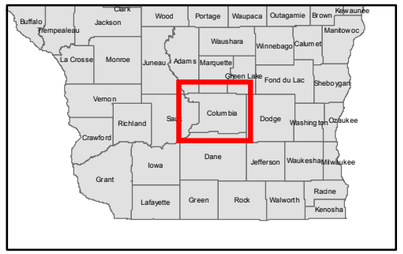
1:220,000

0 2 4 8 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Columbia County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
795.12	25.00	42.44

Water Percent	Total Percent of Land Flooded
3.14%	5.51%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

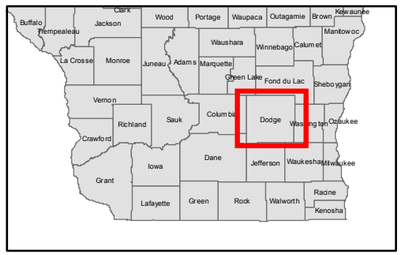
1:220,000

0 2 4 8 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Dodge County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
906.50	28.11	158.38

Water Percent	Total Percent of Land Flooded
3.10%	18.03%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

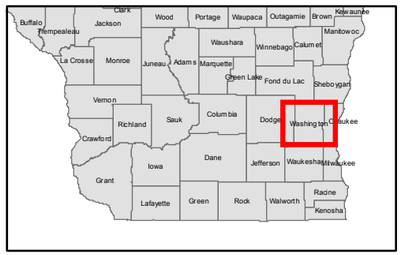
1:210,000

0 2 4 8 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Washington County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
435.75	6.91	13.62

Water Percent	Total Percent of Land Flooded
1.59%	3.18%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

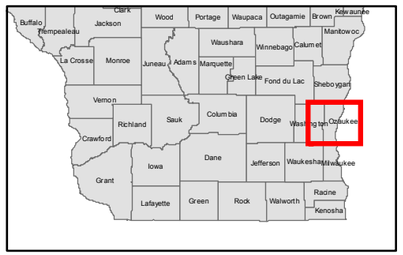
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Ozaukee County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
234.21	2.84	5.19

Water Percent	Total Percent of Land Flooded
1.21%	2.24%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

Statistics were generated using ESRI software. TIGER 2000 and the Wisconsin DNR 24k Hydro were used to aid in statistic generation. While this data could never be 100% verified it is believed to be a fairly accurate representation of the floods of 2008.

Canadian Space Agency/Agence spatiale canadienne (2008)

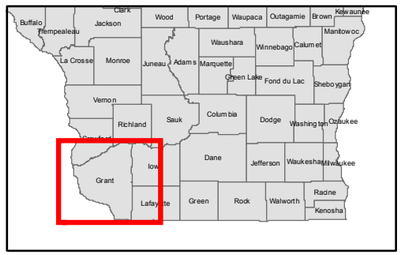
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Grant County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
1182.45	36.47	19.32

Water Percent	Total Percent of Land Flooded
3.08%	1.69%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

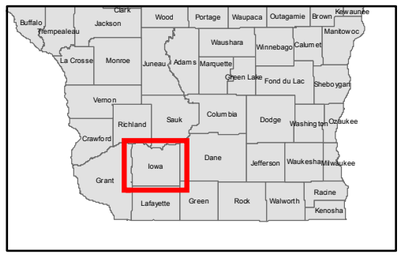
1:310,000

0 3 6 12 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Iowa County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
767.46	6.12	11.39

Water Percent	Total Percent of Land Flooded
0.80%	1.50%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

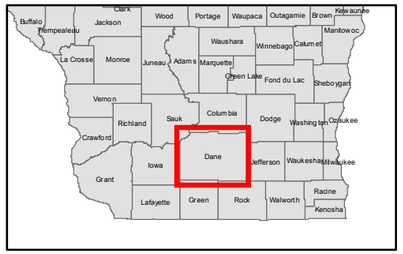
1:190,000

0 2 4 8 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Dane County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
1237.39	38.49	39.01

Water Percent	Total Percent of Land Flooded
3.11%	3.25%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

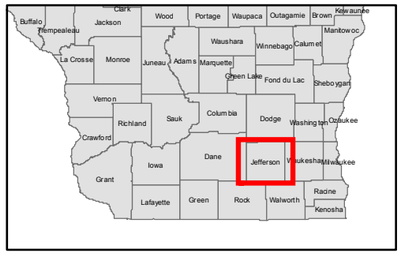
1:220,000

0 2 4 8 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Jefferson County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
582.42	26.41	101.94

Water Percent	Total Percent of Land Flooded
4.53%	18.34%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

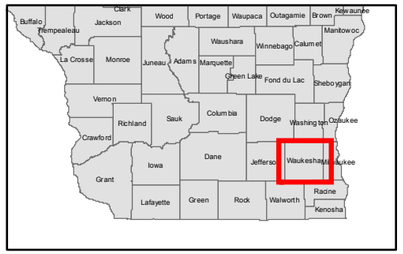
1:165,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Waukesha County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
580.29	26.69	32.93

Water Percent	Total Percent of Land Flooded
4.60%	5.95%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

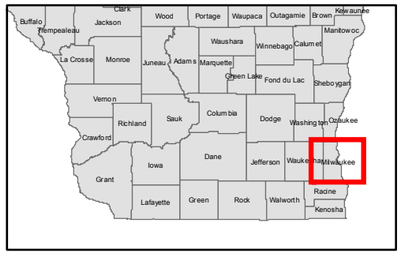
1:160,000

Miles
0 1.5 3 6

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Milwaukee County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
242.69	2.10	3.19

Water Percent	Total Percent of Land Flooded
0.87%	1.33%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

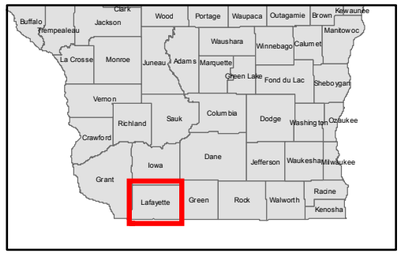
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Lafayette County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
634.05	2.69	15.89

Water Percent	Total Percent of Land Flooded
0.42%	2.52%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

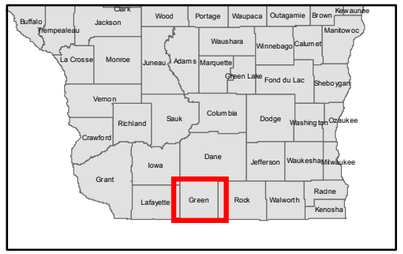
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Green County
Wisconsin



- Local Roads
- County Highways
- State Highways
- Interstates
- US Highways
- Counties
- City/Village
- Flood Water
- Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
584.10	2.17	9.51

Water Percent	Total Percent of Land Flooded
0.37%	1.63%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

Statistics were generated using ESRI software. TIGER 2000 and the Wisconsin DNR 24k Hydro were used to aid in statistic generation. While this data could never be 100% verified it is believed to be a fairly accurate representation of the floods of 2008.

Canadian Space Agency/Agence spatiale canadienne (2008)

1:160,000

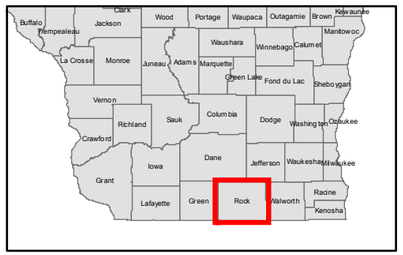
Miles

0 1.5 3 6

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Rock County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
725.71	6.96	13.69

Water Percent	Total Percent of Land Flooded
0.96%	1.90%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

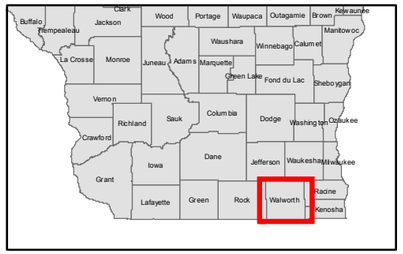
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Walworth County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
576.24	22.48	22.62

Water Percent	Total Percent of Land Flooded
3.90%	4.08%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

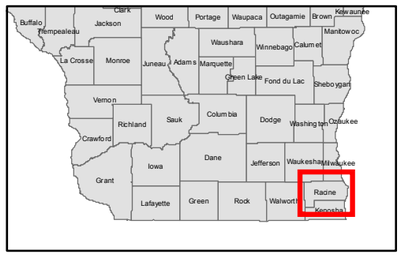
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Racine County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
340.11	7.96	18.69

Water Percent	Total % of Land Flooded
2.34%	5.63%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

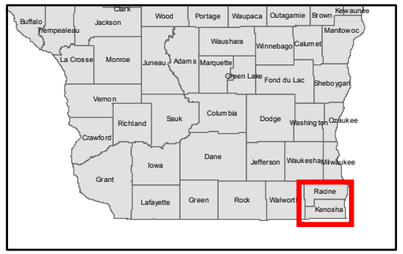
1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

FLOOD EXTENT
Kenosha County
Wisconsin



Local Roads
County Highways
State Highways
Interstates
US Highways

Counties
City/Village
Flood Water
Water

Total Sq Miles	Water Sq Miles	Total Flood Sq Miles
279.16	7.64	12.73

Water Percent	Total % of Land Flooded
2.74%	4.69%

The red patches on this map represent the potential extent of the June 2008 flooding. Three different sensors (SAR, TM, MSI) from five remote sensing platforms (RADARSAT-1, Landsat, SPOT-2, SPOT-4 and SPOT-5) were used to compile this information. From June 15 to July 1 thirty scenes were collected, compiled and analyzed. The goals were to differentiate water from land and differentiate flood water from "normal" water. Several factors may lead to improved accuracy of the data in watersheds that drain more slowly like the Rock River watershed. Watersheds like the Kickaboo drain very quickly and may have a slightly higher degree of inaccuracy. These factors include amount of cloud cover, orbit cycle, footprint size, sensor type and ground resolution. Ground-truthing techniques were also used to help verify positive values and remove erroneous data such as false positives.

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Canadian Space Agency/Agence spatiale canadienne (2008)

1:160,000

0 1.5 3 6 Miles

N

Wisconsin Emergency Management
Date: January 2009

County	County Square Miles	Water Square Miles	Total Flood Square Miles	Total Percent of Land Flooded
Adams	687.96	42.36	20.41	3.16%
Calumet	396.90	77.89	2.22	0.70%
Columbia	795.12	25.00	42.44	5.51%
Crawford	598.82	28.56	28.82	5.05%
Dane	1237.39	38.49	39.01	3.25%
Dodge	906.50	28.11	158.38	18.03%
FounduLac	765.46	44.07	41.81	5.80%
Grant	1182.45	36.47	19.32	1.69%
Green	584.10	2.17	9.51	1.63%
GreenLake	380.18	27.72	38.64	10.96%
Iowa	767.46	6.12	11.39	1.50%
Jefferson	582.42	26.41	101.94	18.34%
Juneau	803.48	42.25	23.36	3.07%
Kenosha	279.16	7.64	12.73	4.69%
LaCrosse	479.62	30.37	8.89	1.98%
Lafayette	634.05	2.69	15.89	2.52%
Manitowoc	595.60	6.39	2.31	0.39%
Marquette	464.07	12.41	31.28	6.93%
Milwaukee	242.69	2.10	3.19	1.33%
Monroe	907.61	10.95	7.61	0.85%
Ozaukee	234.21	2.84	5.19	2.24%
Racine	340.11	7.96	18.69	5.63%
Richland	588.92	3.67	4.33	0.74%
Rock	725.71	6.96	13.69	1.90%
Sauk	847.74	13.21	30.92	3.70%
Sheboygan	517.56	5.52	7.61	1.49%
Vernon	815.85	24.30	6.14	0.78%
Walworth	576.24	22.48	22.62	4.08%
Washington	435.75	6.91	13.62	3.18%
Waukesha	580.29	26.69	32.93	5.95%
Waushara	636.94	12.11	18.65	2.99%
Winnebago	578.40	141.247	16.74	3.83%
		Total	810.28	