

Fargo Flood Forecast Chronology (Spring, 2009)

First Crest...

19 Mar [11:40am] Flood Warning issued for Major Flooding at Fargo, ND.
Preliminary Crest of 37 to 40 feet, expected 28 Mar to 01 Apr.

20 Mar Fargo above 18' flood stage (due to releases from Orwell and Traverse reservoirs).
Preliminary Crest of 37 to 40 feet, expected 28 Mar to 04 Apr.

22 Mar Area Flood Warning issued for most of southern RRN basin.
Preliminary Crest of 39 to 41 feet by late Friday (27 Mar).

23 Mar Preliminary Crest of 39 to 41 feet by early Saturday (28 Mar).

24 Mar Preliminary Crest of 39 to 41 feet by late Friday.

25 Mar FGON8 | 41 | 2009-03-28 18:00:00 | 2009-03-25 17:18:00 ND.
Crest near 41 feet by Saturday afternoon. Mar to 01 Apr.

26 Mar FGON8 | 41 | 2009-03-28 18:00:00 | 2009-03-26 01:39:00 and Traverse reservoirs.
FGON8 | 41 | 2009-03-28 18:00:00 | 2009-03-26 16:56:00
FGON8 | 42 | 2009-03-29 00:00:00 | 2009-03-26 21:15:00
[4:51pm] Crest of 41 to 42 feet by Saturday, worst case potentially 43 feet. 27 Mar)

27 Mar FGON8 | 42 | 2009-03-29 00:00:00 | 2009-03-27 01:56:00
FGON8 | 42 | 2009-03-29 00:00:00 | 2009-03-27 07:38:00
FGON8 | 42 | 2009-03-29 00:00:00 | 2009-03-27 15:58:00
FGON8 | 42 | 2009-03-29 00:00:00 | 2009-03-27 21:22:00
[9:09pm] Crest near 42 feet by Sunday early afternoon.
[11:53pm] Crest of 41 to 42 feet, Sunday afternoon. 17:18:00 ND.
Mar to 01 Apr

28 Mar FGON8 | 42 | 2009-03-29 18:00:00 | 2009-03-28 01:41:00 and Traverse reservoirs.
FGON8 | 42 | 2009-03-29 18:00:00 | 2009-03-28 08:25:00
[10:54am] Forecast river to remain below 41 feet. 16:56:00
21:15:00

The actual Fargo crest hit near 40.82 feet around 12:15am, early Saturday morning (preliminary).
This was a prolonged crest with river stage above 39 feet from Friday through Monday, Mar 30.

Other Results:

- Went above flood stage (18ft) 3/21/09 at 02Z
- Went above moderate FS (25ft) 3/23/09 around 1145Z
- Went above Major FS (30ft) 3/24 at 13Z, back below Major FS on 4/25 at 23Z
- Hit record crest near 40.8 feet on Saturday morning, around 12:15am.
- Spent about 53 hours above the 1897 record of 40.10 ft.
- Set records for consecutive days above Major (31), Moderate (37), and Minor stage (62).

961

FGUS73 KFGF 032030 CCB

ESFFGF

MNC005-007-027-029-051-057-069-077-087-107-111-113-119-125-073-

135-159-167-NDC003-005-017-019-027-035-039-063-067-071-077-081-

091-095-097-099-241200-

HYDROLOGIC OUTLOOK

NATIONAL WEATHER SERVICE EASTERN NORTH DAKOTA/GRAND FORKS ND

330 PM CDT FRI APR 03 2009

...ADVANCED HYDROLOGIC PREDICTION SERVICES (AHPS) ENABLE THE NATIONAL WEATHER SERVICE TO PROVIDE LONG-RANGE PROBABILISTIC RIVER OUTLOOKS...

...RED RIVER BASIN OUTLOOK FOR RIVER FLOOD POTNETIAL...

RED RIVER BASIN

LONG-RANGE PROBABILISTIC OUTLOOK

VALID APRIL 9, 2009 - JUNE 1, 2009

IN THE TABLE BELOW, THE 90 THROUGH 10 PERCENT COLUMNS GIVE THE CHANCE THAT THE RIVER AT A CERTAIN LOCATION WILL RISE ABOVE THE STAGES INDICATED BY THE VALUES IN THE ROW FOR THAT LOCATION ANYTIME DURING THE NEXT 90 DAYS.

EXAMPLE: THE RED RIVER AT WAHPETON HAS A FLOOD STAGE OF 10 FEET. IN THE NEXT 90 DAYS THERE IS A 50 PERCENT CHANCE THAT THE RED RIVER AT WAHPETON WILL RISE ABOVE 18.6 FEET AND ONLY A 10 PERCENT CHANCE

THAT IT WILL RISE ABOVE 19.9 FEET.

CHANCE OF EXCEEDING STAGES AT MAINSTEM RED RIVER LOCATIONS
VALID 4/9/2009 - 7/8/2009

LOCATION	FS (FT)	90%	80%	70%	60%	50%	40%	30%	20%	10%
WAHPETON ND	10	17.3	18.0	18.4	18.5	18.6	18.7	19.0	19.4	19.9
FARGO ND	18	40.4	40.8	41.2	41.4	41.7	41.9	42.4	43.3	44.6
HALSTAD ND	26	39.2	39.4	39.7	39.9	40.0	40.2	40.7	41.2	42.3
GRAND FORKS	28	49.8	50.3	50.7	51.2	51.7	52.1	52.7	53.8	56.1
OSLO MN	26	37.8	38.0	38.1	38.4	38.6	38.7	38.9	39.4	40.3
DRAYTON ND	32	43.6	43.9	44.1	44.5	44.7	44.9	45.2	46.1	46.6
PEMBINA ND	42	53.8	53.8	54.0	54.1	54.2	54.4	54.5	54.7	54.9

CHANCE OF EXCEEDING STAGES AT MINNESOTA TRIBUTARY LOCATIONS
VALID 4/9/2009 - 7/8/2009

LOCATION	FS (FT)	90%	80%	70%	60%	50%	40%	30%	20%	10%
SO FORK BUFFALO RIVER...										
SABIN	12	16.3	16.5	16.8	16.9	17.0	17.1	17.4	17.9	18.4
BUFFALO RIVER...										
HAWLEY	7	10.3	10.5	10.6	10.7	10.8	10.9	11.2	11.6	11.9
DILWORTH	12	23.3	23.5	23.9	24.0	24.1	24.3	24.6	25.3	25.9
WILD RICE RIVER...										
TWIN VALLEY	10	11.3	11.8	11.9	12.1	12.5	12.8	13.2	13.4	14.0
HENDRUM	20	32.6	33.0	33.1	33.3	33.4	33.7	34.1	36.4	39.2
MARSH RIVER...										
SHELLY	14	20.5	21.0	21.3	21.9	22.7	23.1	23.6	24.3	25.2
SAND HILL RIVER...										
CLIMAX	20	32.7	33.6	33.9	34.6	35.7	36.5	37.1	37.7	38.5
RED LAKE RIVER...										
HIGHLANDING	12	9.6	10.0	10.3	10.5	10.6	11.0	11.6	12.5	13.1
CROOKSTON	15	22.7	23.8	24.0	24.7	25.3	25.7	26.3	26.7	28.6

SNAKE RIVER...										
WARREN	845	842.6	842.6	842.7	842.7	842.8	842.9	843.0	843.7	845.4
ALVARADO	106	104.4	104.6	105.0	105.2	105.9	106.2	107.1	107.9	108.9
TWO RIVERS RIVER...										
HALLOCK	802	808.6	808.9	809.2	809.4	809.7	809.9	810.1	810.3	810.8
ROSEAU RIVER...										
ROSEAU	16	14.3	15.8	16.2	16.4	17.3	17.7	18.9	19.7	21.0

CHANCE OF EXCEEDING STAGES AT NORTH DAKOTA TRIBUTARY LOCATIONS
VALID 4/9/2009 - 7/8/2009

LOCATION	FS (FT)	90%	80%	70%	60%	50%	40%	30%	20%	10%
WILD RICE RIVER...										
ABERCROMBIE	10	26.7	27.0	27.4	27.6	28.0	28.2	28.6	29.5	30.5
SHEYENNE RIVER...										
KINDRED	16	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6
HARWOOD	884	892.1	892.1	892.1	892.1	892.2	892.2	892.2	892.3	892.3
WEST FARGO	18	22.8	22.8	22.8	22.8	22.9	22.9	22.9	23.0	23.0
MAPLE RIVER...										
ENDERLIN	9	13.9	14.5	14.7	15.0	15.3	15.5	15.7	16.4	17.3
MAPLETON	905	909.3	909.5	909.6	909.7	909.8	910.0	910.1	910.4	911.0
GOOSE RIVER...										
HILLSBORO	10	14.5	14.9	15.1	15.3	15.4	15.5	15.7	15.9	16.6
FOREST RIVER...										
MINTO	6	7.2	7.5	7.6	7.7	7.8	7.9	8.1	8.1	8.4
PARK RIVER...										
GRAFTON	12	14.7	15.5	15.8	16.0	16.2	16.6	16.9	17.2	18.4
PEMBINA RIVER...										
WALHALLA	11	14.5	14.6	14.6	14.7	14.8	14.9	15.0	15.1	15.2
NECHE	18	21.5	21.5	21.5	21.6	21.6	21.6	21.7	21.7	21.8

Prototype - NOAA's National Weather Service

THAT IT WILL RISE ABOVE 19.9 FEET.

CHANCE OF EXCEEDING STAGES AT MAINSTEM RED RIVER LOCATIONS
VALID 4/9/2009 - 7/8/2009

LOCATION	FS (FT)	90%	80%	70%	60%	50%	40%	30%	20%	10%
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WAHPETON ND	10	17.3	18.0	18.4	18.5	18.6	18.7	19.0	19.4	19.9
FARGO ND	18	40.4	40.8	41.2	41.4	41.7	41.9	42.4	43.3	44.6
HALSTAD ND	26	39.2	39.4	39.7	39.9	40.0	40.2	40.7	41.2	42.3
GRAND FORKS	28	49.8	50.3	50.7	51.2	51.7	52.1	52.7	53.8	56.1
OSLO MN	26	37.8	38.0	38.1	38.4	38.6	38.7	38.9	39.4	40.3
DRAYTON ND	32	43.6	43.9	44.1	44.5	44.7	44.9	45.2	46.1	46.6
PEMBINA ND	42	53.8	53.8	54.0	54.1	54.2	54.4	54.5	54.7	54.9

FLSFGF 260253

10/09/09 19:33:12 Pg 1 of 5

WGUS83 KPGF 260253
FLSFGF

FLOOD STATEMENT

NATIONAL WEATHER SERVICE EASTERN NORTH DAKOTA/GRAND FORKS ND
953 PM CDT WED MAR 25 2009

...THE FLOOD WARNING CONTINUES FOR THE FOLLOWING RIVERS IN
MINNESOTA AND NORTH DAKOTA...

RED RIVER AT PEMBINA AFFECTING KITTSON AND PEMBINA COUNTIES.
RED RIVER AT WAHPETON AFFECTING WILKIN AND RICHLAND COUNTIES.
RED RIVER AT FARGO AFFECTING CLAY AND CASS COUNTIES.
RED RIVER AT HALSTAD AFFECTING NORMAN AND TRAILL COUNTIES.
RED RIVER AT EAST GRAND FORKS AFFECTING POLK AND GRAND FORKS
COUNTIES.
RED RIVER AT OSLO AFFECTING MARSHALL...WALSH...POLK AND GRAND FORKS
COUNTIES.
RED RIVER AT DRAYTON AFFECTING MARSHALL...WALSH...KITTSON AND
PEMBINA COUNTIES.

.MAJOR AND RECORD FLOODING IS EXPECTED ON THE RED RIVER. THE CREST
IS MOVING UPSTREAM TOWARD FARGO AND MOOREHEAD...AND IS EXPECTED TO
REACH THOSE CITIES BY SATURDAY. THE CREST AT ANY GIVEN POINT ON THE
RED RIVER COULD LINGER FOR AN EXTENDED PERIOD DUE TO THE LARGE
VOLUME OF WATER IN BASIN.

THIS FORECAST IS FOR A 7 DAY PERIOD...THE HIGHEST STAGE INDICATED
MAY NOT REFLECT THE CREST FOR THIS FLOOD EVENT. FORECASTS ARE
UPDATED DAILY AND STAGE VALUES WILL CHANGE AS NEW WEATHER AND
RIVER INFORMATION IS USED. THIS FORECAST INCLUDES ANY
PRECIPITATION THROUGH THE NEXT 24 HOURS.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

SAFETY MESSAGES...TURN AROUND, DON'T DROWN...

- DON'T TRAVEL THROUGH FLOODED AREAS!
- CONTACT LOCAL LAW ENFORCEMENT TO REPORT FLOODING.
- PERSONS LIVING IN THE RED RIVER BASIN SHOULD MONITOR RIVER
LEVELS WHILE THE RIVER IS IN...OR NEAR...FLOOD.

FOR MORE INFORMATION...GO TO THE AHPS/RIVER SECTION
ON OUR WEB PAGE AT: WWW.WEATHER.GOV/GRANDFORKS

THE FOLLOWING SEGMENTS CONTAIN RIVER INFORMATION FOR
THE SELECTED LOCATIONS INCLUDED IN THIS MESSAGE.

THIS FORECAST DOES NOT ACCOUNT FOR ICE JAMS THAT CAN
QUICKLY RAISE LOCAL RIVER LEVELS WITH LITTLE OR NO NOTICE.

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MNC167-NDC077-271453-
/O.CON.KPGF.FL.W.0007.000000T0000Z-000000T0000Z/
/WHNN8.3.SM.000000T0000Z.090325T0000Z.000000T0000Z.NO/
953 PM CDT WED MAR 25 2009

THE FLOOD WARNING CONTINUES FOR
THE RED RIVER AT WAHPETON.

* UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.

FLSFGE 260253

10/09/09 19:33:12 Pg 2 of 5

* AT 9:00 PM WEDNESDAY THE STAGE WAS 16.5 FEET.
* MAJOR FLOODING IS OCCURRING AND MAJOR FLOODING IS FORECAST.
* FLOOD STAGE IS 10.0 FEET.
* FORECAST...THE RIVER WILL CONTINUE TO FALL TO A STAGE OF 15.9 FEET
BY FRIDAY MORNING.
* IMPACT STATEMENT - AT 16.0 FEET...TOP OF THE PERMANENT DIKE.

&&

DAILY 7 PM CDT/6 PM CST FORECAST STAGE IN FEET:

DATE (MONTH/DAY)	THU 03/26	FRI 03/27	SAT 03/28	SUN 03/29	MON 03/30	TUE 03/31	WED 04/01
RED RIVER WAHPETON	16.1	15.7	15.3	14.9	14.6	14.5	14.4

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MNC027-NDC017-271452-
/O.CON.KPGF.FL.W.0008.000000T0000Z-000000T0000Z/
/FGON8.3.SM.090321T0150Z.090328T1800Z.000000T0000Z.NR/
953 PM CDT WED MAR 25 2009

THE FLOOD WARNING CONTINUES FOR
THE RED RIVER AT FARGO.
* UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.
* AT 9:15 PM WEDNESDAY THE STAGE WAS 37.0 FEET.
* MAJOR FLOODING IS OCCURRING AND RECORD FLOODING IS FORECAST.
* FLOOD STAGE IS 18.0 FEET.
* FORECAST...THE RIVER WILL CONTINUE RISING TO NEAR 41.0 FEET BY
SATURDAY EARLY AFTERNOON.
* IMPACT STATEMENT - AT 41.3 FEET IN FARGO...TOP ELEVATION OF THE
ISLAND PARK PERMANENT LEVEE.

&&

DAILY 7 PM CDT/6 PM CST FORECAST STAGE IN FEET:

DATE (MONTH/DAY)	THU 03/26	FRI 03/27	SAT 03/28	SUN 03/29	MON 03/30	TUE 03/31	WED 04/01
RED RIVER FARGO	39.3	40.6	41.0	41.0	41.0	40.9	40.8

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MNC107-NDC097-271452-
/O.CON.KPGF.FL.W.0012.000000T0000Z-000000T0000Z/
/HILN8.3.RS.090323T1817Z.090330T0600Z.000000T0000Z.NR/
953 PM CDT WED MAR 25 2009

THE FLOOD WARNING CONTINUES FOR
THE RED RIVER AT HALSTAD.
* UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.
* AT 9:00 PM WEDNESDAY THE STAGE WAS 36.9 FEET.
* MODERATE FLOODING IS OCCURRING AND MAJOR FLOODING IS FORECAST.
* FLOOD STAGE IS 26.0 FEET.
* FORECAST...THE RIVER WILL CONTINUE RISING...WITH A CREST
BETWEEN 40 AND 42 FEET BETWEEN SUNDAY...MARCH 29TH AND FRIDAY...
APRIL 3RD.
* IMPACT STATEMENT - AT 41.0 FEET...TOP ELEVATION OF THE DIKE AT
HALSTAD.

WGUS83 KFGF 261732
FLSFGF

FLOOD STATEMENT
NATIONAL WEATHER SERVICE EASTERN NORTH DAKOTA/GRAND FORKS ND
1232 PM CDT THU MAR 26 2009

...THE FLOOD WARNING CONTINUES FOR THE FOLLOWING RIVERS IN
MINNESOTA...NORTH DAKOTA...

THIS IS AN EXTENSION FLOOD STATEMENT TO THE CURRENT WARNINGS FOR THE
RED RIVER AT PEMBINA AFFECTING KITTSON AND PEMBINA COUNTIES

...THE FLOOD WARNING CONTINUES FOR THE FOLLOWING RIVERS IN
MINNESOTA...NORTH DAKOTA...

THIS IS A FOLLOW-UP FLOOD STATEMENT TO THE CURRENT WARNINGS FOR THE
RED RIVER AT WAHPETON AFFECTING WILKIN AND RICHLAND COUNTIES

THIS IS A FOLLOW-UP FLOOD STATEMENT TO THE CURRENT WARNINGS FOR THE
RED RIVER AT FARGO AFFECTING CLAY AND CASS COUNTIES

THIS IS A FOLLOW-UP FLOOD STATEMENT TO THE CURRENT WARNINGS FOR THE
RED RIVER AT HALSTAD AFFECTING NORMAN AND TRAILL COUNTIES

THIS IS A FOLLOW-UP FLOOD STATEMENT TO THE CURRENT WARNINGS FOR THE
RED RIVER AT EAST GRAND FORKS AFFECTING POLK AND GRAND FORKS
COUNTIES

THIS IS A FOLLOW-UP FLOOD STATEMENT TO THE CURRENT WARNINGS FOR THE
RED RIVER AT OSLO AFFECTING MARSHALL...WALSH...POLK AND GRAND FORKS
COUNTIES

THIS IS A FOLLOW-UP FLOOD STATEMENT TO THE CURRENT WARNINGS FOR THE
RED RIVER AT DRAYTON AFFECTING MARSHALL...WALSH...KITTSON AND
PEMBINA COUNTIES

.MAJOR AND RECORD FLOODING IS EXPECTED ON THE RED RIVER. THE CREST
IS MOVING UPSTREAM TOWARD FARGO AND MOOREHEAD...AND IS EXPECTED TO
REACH THOSE CITIES BY SATURDAY WITH AN EXPECTED CREST NEAR 41 FEET.
DUE TO THE HIGH VOLUME OF WATER CONVERGING IN THE FARGO AND MOORHEAD AREAS..
.FLUCTUATIONS TO THE RIVER LEVELS ARE LIKELY. THE CREST
AT ANY GIVEN POINT ON THE RED RIVER COULD LINGER FOR AN EXTENDED
PERIOD DUE TO THE LARGE OVERALL VOLUME OF WATER IN THE BASIN.

THIS FORECAST IS FOR A 7 DAY PERIOD...THE HIGHEST STAGE INDICATED
MAY NOT REFLECT THE CREST FOR THIS FLOOD EVENT. FORECASTS ARE
UPDATED DAILY AND STAGE VALUES WILL CHANGE AS NEW WEATHER AND
RIVER INFORMATION IS USED. THIS FORECAST INCLUDES ANY
PRECIPITATION THROUGH THE NEXT 24 HOURS.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

SAFETY MESSAGES...TURN AROUND, DON'T DROWN...

- DON'T TRAVEL THROUGH FLOODED AREAS!
- CONTACT LOCAL LAW ENFORCEMENT TO REPORT FLOODING.
- PERSONS LIVING IN THE RED RIVER BASIN SHOULD MONITOR RIVER
LEVELS WHILE THE RIVER IS IN...OR NEAR...FLOOD.

FLSFGF 261732

10/09/09 19:32:45 Pg 2 of 5

FOR MORE INFORMATION...GO TO THE AHPS/RIVER SECTION
ON OUR WEB PAGE AT: WWW.WEATHER.GOV/GRANDFORKS

THE FOLLOWING SEGMENTS CONTAIN RIVER INFORMATION FOR
THE SELECTED LOCATIONS INCLUDED IN THIS MESSAGE.

THIS FORECAST DOES NOT ACCOUNT FOR ICE JAMS THAT CAN
QUICKLY RAISE LOCAL RIVER LEVELS WITH LITTLE OR NO NOTICE.

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MNC167-NDC077-280532-
/O.CON.KFGF.FL.W.0007.000000T0000Z-000000T0000Z/
/WHNN8.3.SM.000000T0000Z.090325T0000Z.000000T0000Z.NO/
1232 PM CDT THU MAR 26 2009

THE FLOOD WARNING CONTINUES FOR

- THE RED RIVER AT WAHPETON.
- * UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.
- * AT 12:00 PM THURSDAY THE STAGE WAS 16.0 FEET.
- * MAJOR FLOODING IS OCCURRING AND MAJOR FLOODING IS FORECAST.
- * FLOOD STAGE IS 10.0 FEET.
- * FORECAST...THE RIVER WILL CONTINUE TO FALL TO A STAGE OF 15.4 FEET
BY TOMORROW MORNING.
- * IMPACT STATEMENT(S) - AT 16.0 FEET, TOP OF THE PERMANENT DIKE.

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DAILY 7 AM CDT/6 AM CST FORECAST STAGE IN FEET:

DATE (MONTH/DAY)	FRI 03/27	SAT 03/28	SUN 03/29	MON 03/30	TUE 03/31	WED 04/01	THU 04/02
RED RIVER WAHPETON	15.4	15.0	14.8	14.6	14.5	14.5	14.5

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MNC027-NDC017-280532-
/O.CON.KFGF.FL.W.0008.000000T0000Z-000000T0000Z/
/FGON8.3.SM.090321T0150Z.090328T1800Z.000000T0000Z.NR/
1232 PM CDT THU MAR 26 2009

THE FLOOD WARNING CONTINUES FOR

- THE RED RIVER AT FARGO.
- * UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.
- * AT 11:15 AM THURSDAY THE STAGE WAS 38.8 FEET.
- * MAJOR FLOODING IS OCCURRING AND RECORD FLOODING IS FORECAST.
- * FLOOD STAGE IS 18.0 FEET.
- * FORECAST...THE RIVER WILL CONTINUE RISING TO NEAR 41.0 FEET BY
SATURDAY EARLY AFTERNOON THEN BEGIN FALLING.
- * IMPACT STATEMENT(S) - AT 41.3 FEET, FARGO...TOP ELEVATION OF THE
ISLAND PARK PERMANENT LEVEE.

&&

DAILY 7 AM CDT/6 AM CST FORECAST STAGE IN FEET:

DATE (MONTH/DAY)	FRI 03/27	SAT 03/28	SUN 03/29	MON 03/30	TUE 03/31	WED 04/01	THU 04/02
RED RIVER FARGO	40.3	40.9	41.0	41.0	41.0	40.8	40.7

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MNC107-NDC097-280532-
/O.CON.KPGF.FL.W.0012.000000T0000Z-000000T0000Z/
/HILNB.3.RS.090323T1817Z.090330T1200Z.000000T0000Z.NR/
1232 PM CDT THU MAR 26 2009

THE FLOOD WARNING CONTINUES FOR

THE RED RIVER AT HALSTAD.

- * UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.
- * AT 12:00 PM THURSDAY THE STAGE WAS 37.8 FEET.
- * MODERATE FLOODING IS OCCURRING AND MAJOR FLOODING IS FORECAST.
- * FLOOD STAGE IS 26.0 FEET.
- * FORECAST...THE RIVER WILL CONTINUE RISING TO NEAR 40.5 FEET BY MONDAY MORNING THEN BEGIN FALLING.
- * IMPACT STATEMENT(S) - AT 41.0 FEET, TOP OF THE ELEVATION OF THE DIKE AT HALSTAD.

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DAILY 7 AM CDT/6 AM CST FORECAST STAGE IN FEET:

DATE (MONTH/DAY)	FRI 03/27	SAT 03/28	SUN 03/29	MON 03/30	TUE 03/31	WED 04/01	THU 04/02
RED RIVER HALSTAD	38.8	39.7	40.2	40.5	40.5	40.4	40.3

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MNC119-NDC035-280531-
/O.CON.KPGF.FL.W.0013.000000T0000Z-000000T0000Z/
/EGFMS.3.RS.000000T0000Z.090331T0600Z.000000T0000Z.NO/
1232 PM CDT THU MAR 26 2009

THE FLOOD WARNING CONTINUES FOR

THE RED RIVER AT EAST GRAND FORKS.

- * UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.
- * AT 11:30 AM THURSDAY THE STAGE WAS 46.1 FEET.
- * MAJOR FLOODING IS OCCURRING AND MAJOR FLOODING IS FORECAST.
- * FLOOD STAGE IS 28.0 FEET.
- * FORECAST...THE RIVER WILL CONTINUE RISING TO NEAR 52.0 FEET BY EARLY TUESDAY MORNING THEN BEGIN FALLING.
- * IMPACT STATEMENT(S) - AT 52.6 FEET, WATER ON GATEWAY DRIVE APPROACH TO KENNEDY BRIDGE IN EAST GRAND FORKS.

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DAILY 7 AM CDT/6 AM CST FORECAST STAGE IN FEET:

DATE (MONTH/DAY)	FRI 03/27	SAT 03/28	SUN 03/29	MON 03/30	TUE 03/31	WED 04/01	THU 04/02
RED RIVER EAST GRAND FORKS	47.9	49.8	50.9	51.7	52.0	52.0	51.9

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MNC089-119-NDC035-099-280531-
/O.CON.KPGF.FL.W.0014.000000T0000Z-000000T0000Z/
/OSLM5.3.RS.000000T0000Z.090331T1200Z.000000T0000Z.UU/
1232 PM CDT THU MAR 26 2009

FLWFGF 262132

10/09/09 19:30:12 Pg 1 of 2

WGUS43 KPGF 262132
FLWFGF

BULLETIN - IMMEDIATE BROADCAST REQUESTED
FLOOD WARNING
NATIONAL WEATHER SERVICE EASTERN NORTH DAKOTA/GRAND FORKS ND
432 PM CDT THU MAR 26 2009

...RECORD FLOODING IS EXPECTED IN FARGO...

THIS WARNING HAS BEEN EXTENDED FOR THE RED RIVER AT FARGO AFFECTING
CLAY AND CASS COUNTIES.

CONDITIONS ON THE RED RIVER AT FARGO HAVE GROWN INCREASINGLY DANGEROUS OVER
THE
PAST 24 HOURS. THE RIVER IS CURRENTLY APPROACHING RECORD LEVELS AND SHOWING
NO
SIGN OF SLOWING AT THIS POINT. AS THE RIVER EXCEEDS THE PREVIOUS RECORD LEVE
L...
THE RELATIVE UNCERTAINTY IN FORECAST MODELS HAS INCREASED SIGNIFICANTLY. REC
ORD
FLOWS UPSTREAM OF FARGO HAVE PRODUCED UNPRECEDENTED CONDITIONS ON THE RED RI
VER.
GIVEN THESE FACTORS...THE RIVER IS EXPECTED TO BEHAVE IN WAYS NEVER PREVIOUS
LY
OBSERVED. THE CREST FORECAST AT FARGO IS NOW EXPECTED TO BE BETWEEN 41 AND 4
2 FEET
BY SATURDAY...BUT COULD POTENTIALLY BE AS HIGH AS 43 FEET...AND CONTINUE FOR
3
TO 7 DAYS.

A FOLLOW-UP FLOOD STATEMENT WITH MORE DETAILED FLOODING INFORMATION
WILL BE ISSUED SHORTLY.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

SAFETY MESSAGES...TURN AROUND...DON'T DROWN...

- DON'T TRAVEL THROUGH FLOODED AREAS!
- PERSONS IN THE WARNED AREA NEED TO TAKE STEPS TO PROTECT LIFE
AND PROPERTY. IF NECESSARY...MOVE TO A HIGHER AND SAFER LOCATION.
- PERSONS LIVING IN THE RED RIVER BASIN SHOULD MONITOR RIVER
LEVELS WHILE THE RIVER IS IN...OR NEAR...FLOOD.

FOR MORE INFORMATION...GO TO THE AHPS/RIVER SECTION
ON OUR WEB PAGE AT: WWW.WEATHER.GOV/GRANDFORKS

THE FOLLOWING SEGMENTS CONTAIN RIVER INFORMATION FOR
THE SELECTED LOCATIONS INCLUDED IN THIS MESSAGE.

THIS FORECAST DOES NOT ACCOUNT FOR ICE JAMS THAT CAN
QUICKLY RAISE LOCAL RIVER LEVELS WITH LITTLE OR NO NOTICE.

&&

MNC027-NDC017-270032-
/O.EXT.KPGF.FL.W.0008.000000T0000Z-000000T0000Z/
/FGON8.3.SM.090321T0150Z.090329T0000Z.000000T0000Z.NR/
432 PM CDT THU MAR 26 2009

THE FLOOD WARNING CONTINUES FOR

THE RED RIVER AT FARGO.

* UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS CANCELLED.

* AT 3:15 PM THURSDAY THE STAGE WAS 39.3 FEET.

* MAJOR FLOODING IS OCCURRING AND RECORD FLOODING IS FORECAST.

* FLOOD STAGE IS 18.0 FEET.

* FORECAST...CONDITIONS ON THE RED RIVER AT FARGO HAVE GROWN INCREASINGLY DANGEROUS OVER THE PAST 24 HOURS. THE RIVER IS CURRENTLY APPROACHING RECORD LEVELS AND SHOWING NO SIGN OF SLOWING AT THIS POINT. AS THE RIVER EXCEEDS THE PREVIOUS RECORD LEVEL...THE RELATIVE UNCERTAINTY IN FORECAST MODELS HAS INCREASED SIGNIFICANTLY. RECORD FLOWS UPSTREAM OF FARGO HAVE PRODUCED UNPRECEDENTED CONDITIONS ON THE RED RIVER. GIVEN THESE FACTORS...THE RIVER IS EXPECTED TO BEHAVE IN WAYS NEVER PREVIOUSLY OBSERVED. THE CREST FORECAST AT FARGO IS NOW EXPECTED TO BE BETWEEN 41 AND 42 FEET BY SATURDAY...BUT COULD POTENTIALLY BE AS HIGH AS 43 FEET...AND CONTINUE FOR 3 TO 7 DAYS.

\$\$

TEAM FGF

FLSFGE 262151

10/09/09 19:30:23 Pg 1 of 2

WGUS83 KFGF 262151
FLSFGE

FLOOD STATEMENT
NATIONAL WEATHER SERVICE EASTERN NORTH DAKOTA/GRAND FORKS ND
451 PM CDT THU MAR 26 2009

...THE FLOOD WARNING CONTINUES FOR THE FOLLOWING RIVER IN
MINNESOTA AND NORTH DAKOTA...

...RECORD FLOODING IS EXPECTED IN FARGO...

THIS IS A FOLLOW-UP FLOOD STATEMENT TO THE CURRENT WARNING FOR THE
RED RIVER AT FARGO AFFECTING CLAY AND CASS COUNTIES.

CONDITIONS ON THE RED RIVER AT FARGO HAVE GROWN INCREASINGLY
DANGEROUS OVER THE PAST 24 HOURS. THE RIVER IS CURRENTLY APPROACHING
RECORD LEVELS AND SHOWING NO SIGN OF SLOWING AT THIS POINT. AS THE
RIVER EXCEEDS THE PREVIOUS RECORD LEVEL...THE RELATIVE UNCERTAINTY
IN FORECAST MODELS HAS INCREASED SIGNIFICANTLY. RECORD FLOWS UPSTREAM
OF FARGO HAVE PRODUCED UNPRECEDENTED CONDITIONS ON THE RED RIVER. GIVEN
THESE FACTORS...THE RIVER IS EXPECTED TO BEHAVE IN WAYS NEVER PREVIOUSLY
OBSERVED. THE CREST FORECAST AT FARGO IS NOW EXPECTED TO BE BETWEEN 41
AND 42 FEET BY SATURDAY...BUT COULD POTENTIALLY BE AS HIGH AS 43 FEET...
AND CONTINUE FOR 3 TO 7 DAYS.

THIS FORECAST IS FOR A 7 DAY PERIOD...THE HIGHEST STAGE INDICATED
MAY NOT REFLECT THE CREST FOR THIS FLOOD EVENT. FORECASTS ARE
UPDATED DAILY AND STAGE VALUES WILL CHANGE AS NEW WEATHER AND
RIVER INFORMATION IS USED. THIS FORECAST INCLUDES ANY
PRECIPITATION THROUGH THE NEXT 24 HOURS.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

SAFETY MESSAGES...TURN AROUND...DON'T DROWN...

- DON'T TRAVEL THROUGH FLOODED AREAS!
- CONTACT LOCAL LAW ENFORCEMENT TO REPORT FLOODING.
- PERSONS LIVING IN THE RED RIVER BASIN SHOULD MONITOR RIVER
LEVELS WHILE THE RIVER IS IN...OR NEAR...FLOOD.

FOR MORE INFORMATION...GO TO THE AHPS/RIVER SECTION
ON OUR WEB PAGE AT: WWW.WEATHER.GOV/GRANDFORKS

THE FOLLOWING SEGMENTS CONTAIN RIVER INFORMATION FOR
THE SELECTED LOCATIONS INCLUDED IN THIS MESSAGE.

THIS FORECAST DOES NOT ACCOUNT FOR ICE JAMS THAT CAN
QUICKLY RAISE LOCAL RIVER LEVELS WITH LITTLE OR NO NOTICE.

&&

MNC027-NDC017-280951-
/O.CON.KFGF.FL.W.0008.000000T0000Z-000000T0000Z/
/FGON8.3.SM.090321T0150Z.090329T0000Z.000000T0000Z.NR/
451 PM CDT THU MAR 26 2009

...A RIVER FLOOD WARNING REMAINS IN EFFECT FOR THE RED RIVER AT FARGO
FOR RECORD FLOODING...

THE FLOOD WARNING CONTINUES FOR

FLSFGF 262151

10/09/09 19:30:23 Pg 2 of 2

RED RIVER AT FARGO
* UNTIL FURTHER NOTICE
* AT 04 PM THURSDAY MARCH 26 THE STAGE WAS...39.3 FEET.
* MAJOR FLOODING IS OCCURRING AND RECORD FLOODING IS FORECAST.
* FLOOD STAGE IS...18.0 FEET. MODERATE...25.0 FEET. MAJOR...30.0 FEET.
* FORECAST...CONDITIONS ON THE RED RIVER AT FARGO HAVE GROWN INCREASINGLY DANGEROUS OVER THE PAST 24 HOURS. THE RIVER IS CURRENTLY APPROACHING RECORD LEVELS AND SHOWING NO SIGN OF SLOWING AT THIS POINT. AS THE RIVER EXCEEDS THE PREVIOUS RECORD LEVEL...THE RELATIVE UNCERTAINTY IN FORECAST MODELS HAS INCREASED SIGNIFICANTLY. RECORD FLOWS UPSTREAM OF FARGO HAVE PRODUCED UNPRECEDENTED CONDITIONS ON THE RED RIVER. GIVEN THESE FACTORS...THE RIVER IS EXPECTED TO BEHAVE IN WAYS NEVER PREVIOUSLY OBSERVED. THE CREST FORECAST AT FARGO IS NOW EXPECTED TO BE BETWEEN 41 AND 42 FEET BY SATURDAY...BUT COULD POTENTIALLY BE AS HIGH AS 43 FEET... AND CONTINUE FOR 3 TO 7 DAYS.
* IMPACT STATEMENTS - AT 41.3 FEET IN FARGO...TOP ELEVATION OF THE ISLAND PARK PERMANENT LEVEE.
* FLOODING IN THE RED RIVER BASIN IS NORMALLY LONG TERM. THIS FORECAST WILL REMAIN ABOVE FLOOD STAGE THROUGH THE FORECAST PERIOD.

&&

DAILY 1 PM CDT/NOON CST FORECAST STAGE IN FEET:

DATE (MONTH/DAY)	FRI 03/27	SAT 03/28	SUN 03/29	MON 03/30	TUE 03/31	WED 04/01	THU 04/02
RED RIVER FARGO	40.8	41.9	42.0	42.0	42.0	41.9	41.7

\$\$

DK/CS

Weather Forecast Office Eastern North Dakota/Grand Forks, ND

Local weather
forecast by
"City, ST"

City, ST

Go

Adjacent Areas:



National Conditions

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[Satellite](#)
[Climate](#)
[Observed Precip](#)

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River Observations

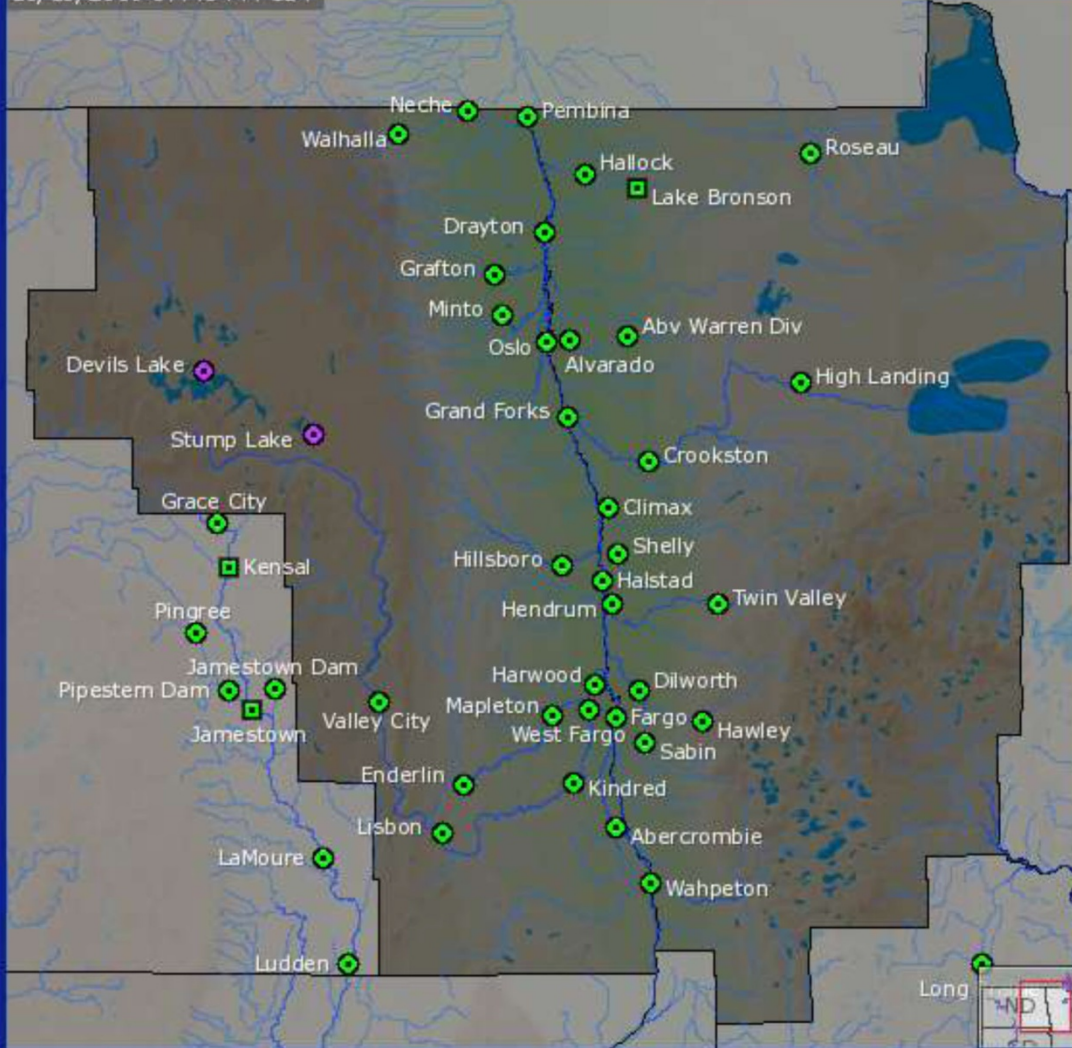
River Forecasts Within 48 Hours

Precipitation

Download

Other Information

10/15/2009 07:45 PM CDT



Print / Save Map

Map Legend

☐ Hydrograph Available

☐ Probability and Hydrograph Available

Major Flooding

Moderate Flooding

Minor Flooding

Near Flood Stage

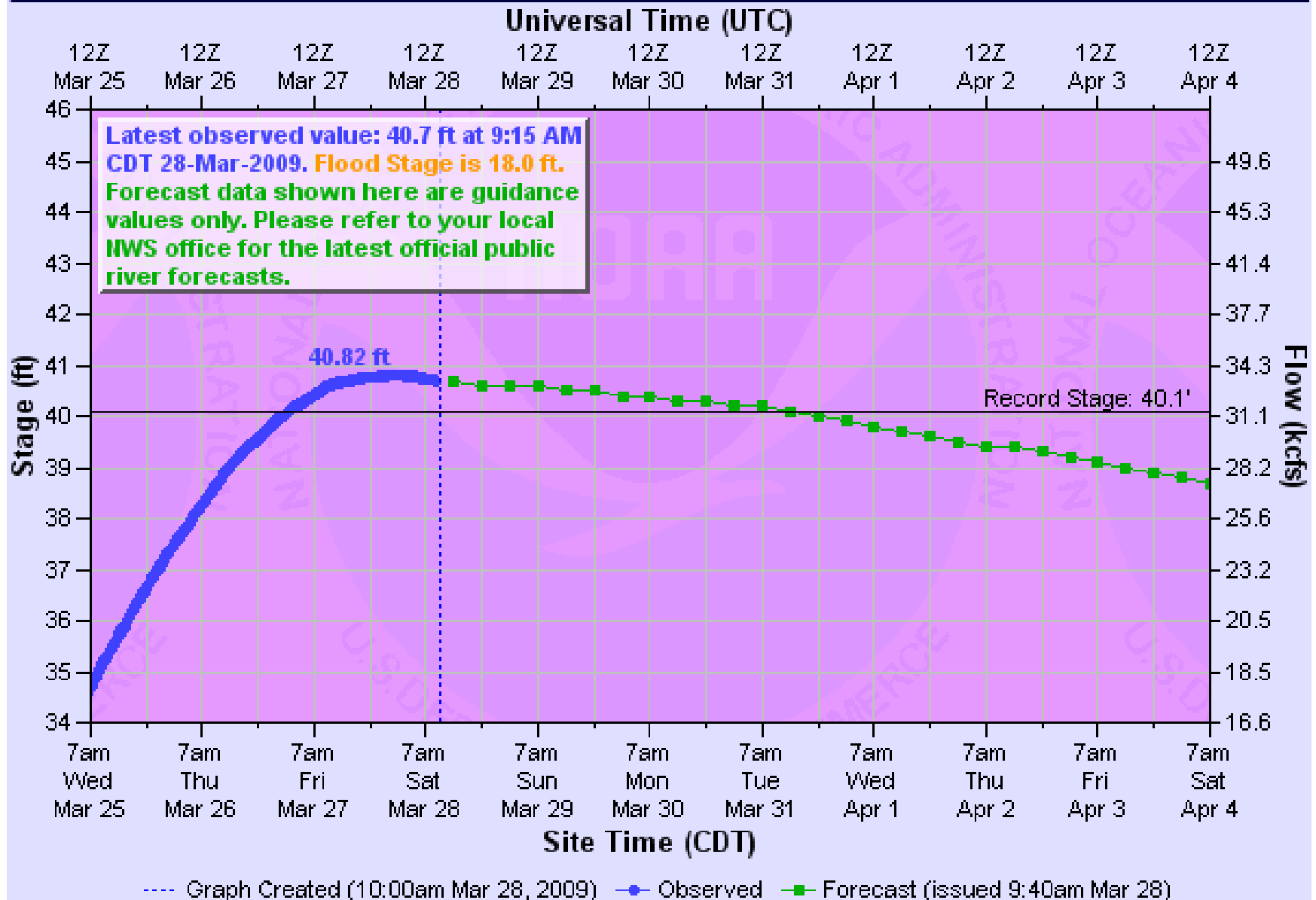
No Flooding

Observation More Than 24 Hours Old

Out of Service

☒ Topo ☒ Gauges ☐ Counties ☒ States ☒ Major Rivers ☒ Other Rivers ☐ Highways ☐ Cities

RED RIVER AT FARGO



FGON8 (plotting HGIRG) "Gage 0" Datum: 861.80'

Observations courtesy of the US Geological Survey

Probabilistic forecasts are too specific.

Too many numbers 10% 20% 30% etc.

Too precise... gives user the impression of accuracy

Solution:

Give three ranges with weather in mind: (slow, cool, dry) (average) (fast, warm, wet)

Offer less precision, ranges of, say, a couple of feet

Explain the differences in the ranges carefully

Do not fear the human forecast element; communicate with FGF and other offices.

Deterministic forecasts are not user friendly.

- Hard to tell if there has been a change to the forecast

- Hard to find forecast information

- USGS web site is easy to use but may conflict with NWS official forecast.

Solution:

- Begin forecast product by explaining any differences from previous one

- Have USGS site reflect NWS forecast

Find ways to incorporate the weather forecasts,
and its inherent uncertainties, into the river
forecast.