

## Fox Todd

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**From:** Fox Todd  
**Sent:** Friday, October 4, 2019 5:32 AM  
**To:** Eick Donald  
**Cc:** Helson David; Fox Todd  
**Subject:** RE: CEN20FA001 - Lansing, MI Updated Weather

**Importance:** High

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Mr. Eick,

I will include this weather summary with the public docket materials.

Sincerely,  
Andrew Todd Fox  
NTSB, Air Safety Investigator

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**From:** Eick Donald [REDACTED]  
**Sent:** Thursday, October 3, 2019 12:35 PM  
**To:** Fox Todd [REDACTED]  
**Cc:** Helson David [REDACTED]  
**Subject:** CEN20FA001 - Lansing, MI Updated Weather

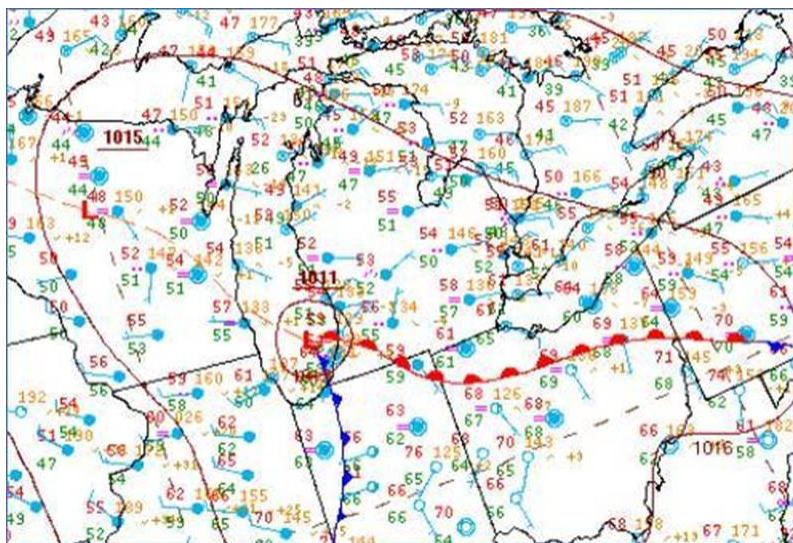
Corrected time. LIFR conditions continue to be the rule with calm surface winds and winds from the west immediately above the surface.

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**From:** Eick Donald  
**Sent:** Thursday, October 3, 2019 12:55 PM  
**To:** Fox Todd [REDACTED]  
**Cc:** Helson David [REDACTED]  
**Subject:** Lansing, Michigan Accident

### Weather conditions over Lansing, Michigan on October 3, 2019

**Synoptic conditions** – The NWS Surface Analysis Chart for 0800 EDT (1200Z ) depicted a low pressure system at 1011-hectopascals (hPa) over Lake Michigan associated with a front wave, with a cold front extending south and a warm front to the east-southeast into southern Michigan and across Indiana and Ohio. The accident site was located in the cool air side north of the front. The station models over Michigan depicted easterly winds of 5 to 10 knots, visibilities restricted in light rain and drizzle, mist, overcast cloud cover, with temperature in the low to mid 50's degrees Fahrenheit (F), with temperature-dew point spreads of 4° F or less over the area.



**Observations** – The accident occurred on approach to Capital Regional International Airport (KLAN), Lansing, Michigan, which reported an elevation of 861 ft and a magnetic variation of 5° west. The airport had an Automated Surface Observation System, and was augmented by tower personnel. The following conditions were reported at the time of the accident:

*Lansing weather observation at 0853 EDT, wind calm, visibility 1 1/4 miles in light rain and mist, Runway 28L visual range 6,000 to better than 6,000 ft, ceiling overcast at 400 ft agl, temperature 12° Celsius (C), dew point temperature 11° C, altimeter 29.93 inches of mercury (Hg). Remarks; automated station with a precipitation discriminator, rain ended at 0811 and began again at 0844 EDT, hourly precipitation 0.02 inches, temperature 12.2° C, dew point 11.1° C.*

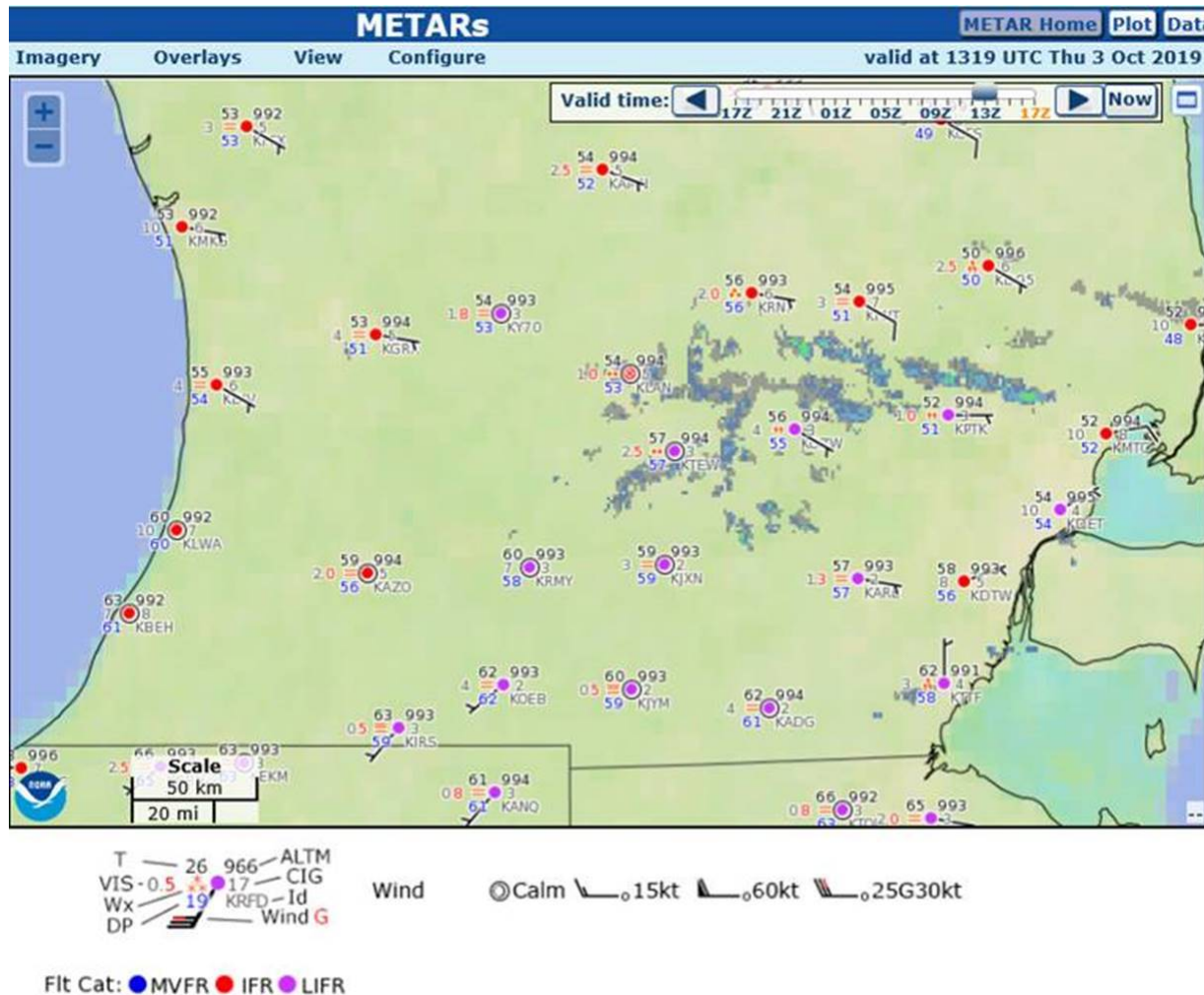
*Lansing special observation at 0906 EDT, wind calm, visibility 1 mile, R28L runway visual range better than 6,000 ft, light rain and mist, vertical visibility 500 ft agl, temperature 12° C, dew point 12° C, altimeter 29.94 inches of Hg. Remarks: automated station with a precipitation discriminator, hourly precipitation 0.01 inches, temperature 12.2° C, dew point 11.7° C.*

The raw observations issued and the general flight categories during the period were as follows:

**MVFR** SPECI KLAN 030949Z 03005KT 3SM RA BR SCT004 BKN014 OVC021 11/11 A2995 RMK AO2 P0029  
**LIFR** METAR KLAN 030953Z 31004KT 5SM RA BR BKN004 BKN015 OVC021 11/11 A2995 RMK AO2 SLP144 P0030 T01110106  
**IFR** SPECI KLAN 031001Z 10009KT 2 1/2SM +RA BR SCT004 BKN013 OVC030 11/11 A2995 RMK AO2 P0001 T01110106  
**LIFR** SPECI KLAN 031005Z 31009KT 1 3/4SM +RA BR BKN004 BKN015 OVC030 11/11 A2995 RMK AO2 P0003 T01110106  
**IFR** SPECI KLAN 031014Z 08008KT 2SM +RA BR SCT004 BKN022 OVC030 11/11 A2995 RMK AO2 P0011 T01110106  
**IFR** SPECI KLAN 031019Z 32007KT 2 1/2SM RA BR BKN006 BKN024 OVC030 12/11 A2995 RMK AO2 P0013 T01170106  
**IFR** SPECI KLAN 031043Z 01005KT 2SM -RA BR SCT007 OVC014 12/11 A2995 RMK AO2 P0017 T01170106  
**IFR** METAR KLAN 031053Z 03005KT 2 1/2SM -RA BR FEW007 OVC012 11/11 A2995 RMK AO2 SLP142 P0018 T01110106  
**MVFR** SPECI KLAN 031103Z 05005KT 3SM -RA BR BKN010 OVC015 11/11 A2995 RMK AO2 P0001 T01110106  
**IFR** SPECI KLAN 031123Z 07005KT 4SM -RA BR OVC009 12/11 A2994 RMK AO2 P0003 T01170106  
**MVFR** METAR KLAN 031153Z 08004KT 4SM -RA BR OVC010 12/11 A2993 RMK AO2 SLP138 P0009 60118 70158 T01170111 10117 20106 58007  
**IFR** SPECI KLAN 031220Z 08003KT 10SM OVC007 12/11 A2993 RMK AO2 RAE11 CIG 006V012 P0002 T01170111  
**LIFR** SPECI KLAN 031249Z 00000KT 1 3/4SM -RA BR OVC005 12/11 A2994 RMK AO2 RAE11B44 P0002  
**LIFR** **METAR KLAN 031253Z 00000KT 1 1/4SM R28L/6000VP6000FT -RA BR OVC004 12/11 A2993 RMK AO2 RAE11B44 SLP138 P0002 T01220111**  
**Accident 1258Z**  
**LIFR** **SPECI KLAN 031306Z 00000KT 1SM R28L/5500VP6000FT -RA BR VV005 12/12 A2994 RMK AO2 P0001 T01220117**  
**IFR** SPECI KLAN 031327Z 00000KT 1 3/4SM BR OVC007 13/12 A2993 RMK AO2 RAE26 P0002 T01280117  
**IFR** SPECI KLAN 031335Z 11004KT 2 1/2SM BR BKN006 OVC010 13/12 A2993 RMK AO2 RAE26 P0003 T01280122  
**LIFR** SPECI KLAN 031338Z VRB03KT 3SM BR BKN004 OVC010 13/12 A2993 RMK AO2 RAE26 P0003 T01280122

LIFR METAR KLAN 031353Z 0000KT 3SM BR BKN004 OVC010 13/12 A2993 RMK AO2 RAE26 SLP137 P0003 T01280122  
 LIFR SPECI KLAN 031404Z 0000KT 2SM BR BKN003 OVC010 13/13 A2993 RMK AO2 T01330128

A display of the METARs from the Aviation Weather Center for 0919 EDT with a radar overlay is included below and depicts an extensive area of IFR conditions over the area at the time, with KLAN reporting MVFR conditions.



**Forecast** – the NWS Grand Rapids (KGRR), Michigan, Weather Forecast Office was responsible for the issuance of the Terminal Aerodrome forecast (TAF). The following TAFs were issued surrounding the period:

**TAF KLAN 030540Z 0306/0406 08008KT 2SM -RA BR OVC006**  
 FM031300 11006KT 4SM BR VCSH OVC008  
 FM031900 27010KT P6SM OVC015  
 FM032100 28013G20KT P6SM BKN025=

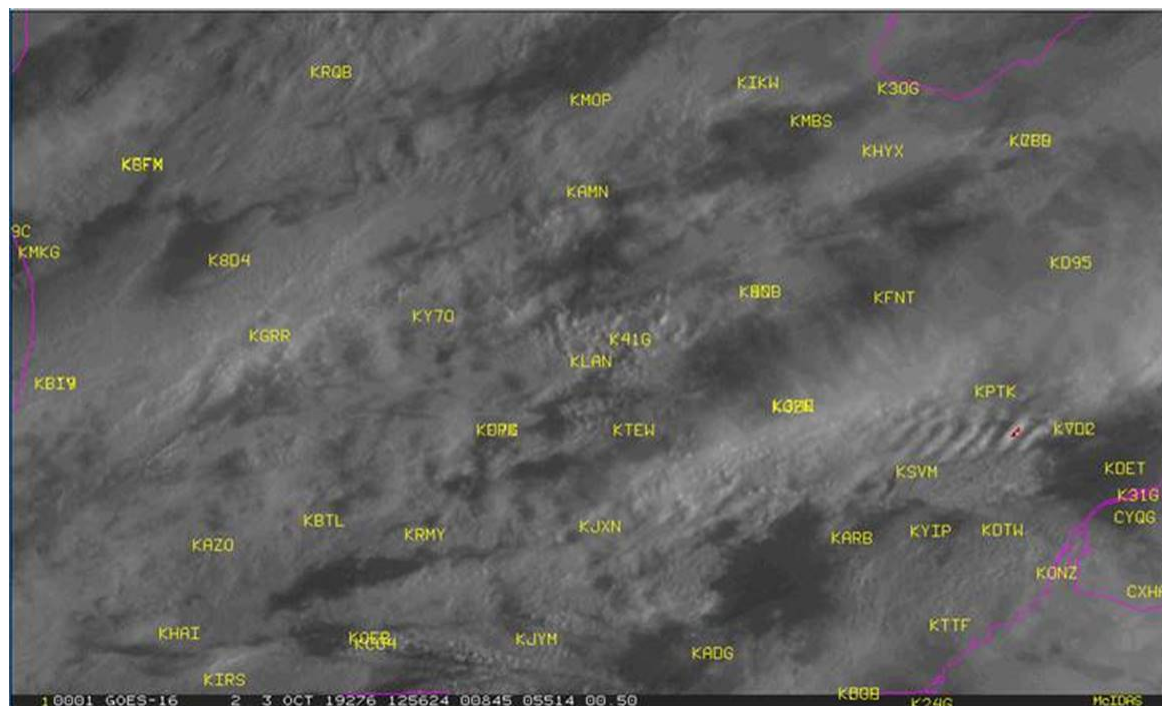
**TAF KLAN 031140Z 0312/0412 08008KT 4SM -RA BR OVC008**  
 FM031400 11006KT P6SM BKN010  
 FM031900 27010KT P6SM OVC015  
 FM032100 28012G20KT P6SM BKN025  
 FM040600 30010KT P6SM SCT025=

**Pilot Reports** – within 100 miles surrounding the period:

FNT UA /OV FNT/TM 1444/FL004/TP A320/SK OVC004-TOP065  
 FNT UA /OV FNT/TM 1505/FLDURD/TP CRJ9/RM PICKED UP PAPI AT 003-004 B002

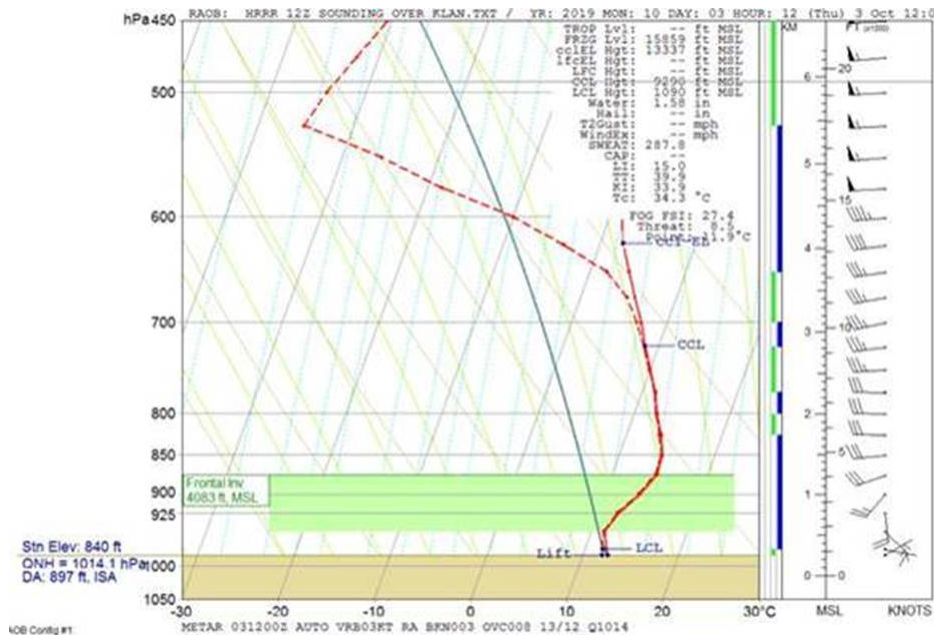


DTW UA /OV PTK/TM 1533/FL060/TP FA50/SK OVC002-TOP055/TA 21100/RM NO PRECIP



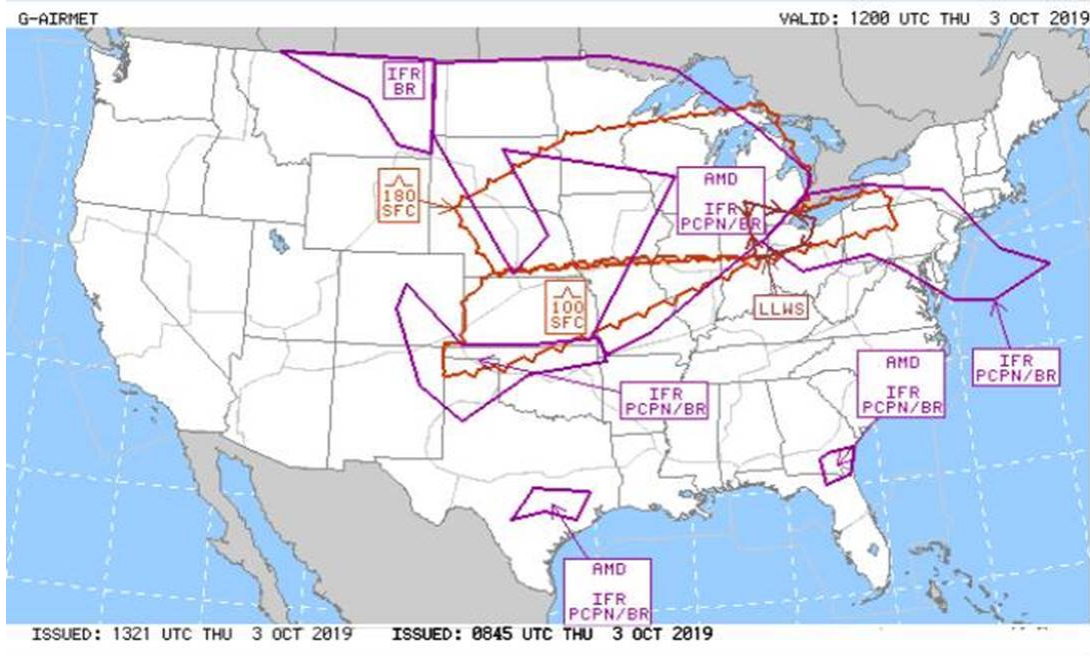
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with a relative humidity greater than 95%. The freezing level was identified at 15,860 ft. The sounding wind profile showed light surface winds which veered to the west with height with rapidly increasing wind speeds. The rapid increase in wind speeds resulted in a high potential for low-level turbulence below 5,000 ft. The mean 0 to 6 kilometer or 18,000 ft wind was from 260° at 36 knots.



Height (ft-MSL)	Pres (hPa)	T (C)	Td (C)	RH (%)	DD / FF (deg / kts)	CAT (FAA)	LLWS	Icing - Type (AFGW/C method)
840	984	12.6	12.0	96	58 / 3	LGT	LIGHT	
1093	975	12.2	11.8	97	102 / 7	SVR	LIGHT	
1808	950	11.4	11.3	99	137 / 15	SVR	LIGHT	
2542	925	12.1	12.0	99	174 / 20	XTR	LIGHT	
3300	900	13.6	13.5	99	218 / 23	XTR		
4083	875	14.7	14.5	99	249 / 30	MDT		
4890	850	14.5	14.4	99	264 / 30	LGT		
5720	825	13.6	13.4	99	271 / 29			
6572	800	12.4	12.3	99	272 / 30			
7447	775	11.4	11.3	99	271 / 32	LGT		
8347	750	10.0	9.9	99	266 / 34			
9273	725	8.6	8.5	99	262 / 35			
10226	700	7.3	6.8	97	258 / 34			
11208	675	5.7	4.9	95	259 / 33			
12221	650	4.1	1.8	85	261 / 34	LGT		
13267	625	2.5	-3.7	64	262 / 39	LGT		
14348	600	1.3	-10.0	43	264 / 44	MDT		
15470	575	0.5	-18.5	23	266 / 51			
16637	550	-1.0	-25.9	13	266 / 53			
17850	525	-2.8	-35.2	6	267 / 53			
19112	500	-5.5	-34.1	8	267 / 55			

**Inflight Weather Advisories** – The NWS had AIRMET Sierra current for IFR conditions over the region and is depicted in the following graphic-AIRMET and an AIRMET for moderate turbulence over the area.



#### Area Forecast Discussion (AFD) current at the time:

FXUS63 KGRR 031133  
AFDGRR

Area Forecast Discussion  
National Weather Service Grand Rapids MI  
733 AM EDT Thu Oct 3 2019

LATEST UPDATE...  
Aviation

.SYNOPSIS...  
Issued at 315 AM EDT Thu Oct 3 2019

- Occasional showers ending this morning
- Blustery and cooler this afternoon
- Frost possible along US-10 Friday night/Saturday morning
- High waves this afternoon and tonight may lead to hazardous boating and beach conditions

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.DISCUSSION...(Today through next Wednesday)  
Issued at 315 AM EDT Thu Oct 3 2019

Current radar signatures indicate a swath of rain stretching from northern IL into southwest MI which is expected to continue through much of the early morning hours. Given the more favorable moisture and lift conditions further south, the main axis of heavier rain is expected to line up south of the I-94 corridor. Total rainfall amounts up to 0.5" to 1" will be possible in this swath with locally higher amounts possible. This region saw the least amount of rain within the last two days, thus any impacts should be minimal. Elsewhere, generally less than 0.5" is expected.

Later today this low pressure system will track eastward as high pressure over the northern plains builds and moves in our direction. The combination of a strengthening surface pressure gradient and cold/dry air advection will support increased mixing to the surface and thus gusty winds for this afternoon and evening.

*As high pressure builds back into the region Friday, cloud cover will decrease and winds will diminish. With low temperatures into the mid to upper 30s near US-10, patchy frost will be possible into the early morning hours Saturday.*

*By late Saturday into Sunday the next low pressure system will track northeast of the Great Lakes Region as a trailing cold front sweeps through the state. This will lead to another period of rain showers and cloud cover. Continuing northwest cold air advection into Monday will lead to additional lake effect clouds as well as a few showers.*

**.AVIATION...***(For the 12Z TAFS through 12Z Friday morning)*

*Issued at 733 AM EDT Thu Oct 3 2019*

*IFR and LIFR conditions will prevail this morning then improve to MVFR this afternoon and VFR tonight. Winds will be east AOB 10 knots this morning then go west to northwest later this morning with some gusts to 20 knots possible this afternoon and evening.*

**.MARINE...**

*Issued at 315 AM EDT Thu Oct 3 2019*

*Hazardous winds and large waves are expected this afternoon and tonight as gusty N-NW winds build. Minor beach erosion will be possible as well as very dangerous conditions on piers. Winds and waves will begin to diminish early Friday. By Saturday night into Sunday we will see another push of gusty winds which will lead to hazardous boating and beach conditions.*

**.HYDROLOGY...**

*Issued at 315 PM EDT Wed Oct 2 2019*

*Generally less than 0.5" of rainfall is expected by the end of the morning for most areas, but areas south of I-94 may see rainfall totals up to 0.5-1.0". This rain is not expected to have any impact on area rivers, as much of the heavier rain is expected to fall on areas that saw little rain these last few days.*

*Minor flooding continues to be forecast for some of the forecast points, including the Maple River at Maple Rapids, Muskegon River at Croton, Newaygo, and Bridgeton, and the White River above Whitehall. The rivers are expected to crest over the next two days. Mostly dry conditions are expected for Friday, and while we may see some rain late Saturday into Sunday, very little impact is expected. Thus, river levels will continue to fall.*

**.GRR WATCHES/WARNINGS/ADVISORIES...**

*MI...None.*

*LM...Small Craft Advisory from noon today to 8 AM EDT Friday for LMZ844>849.*

Donald Eick  
NTSB Senior Meteorologist  
Office of Aviation Safety  
Operational Factors Division (AS-30)  
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Washington, DC 20594

