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Subject: WPR24FA200, Bluestem, Washington, Weather Study

A preliminary review of weather data for the surrounding area near the accident site revealed the following:

- A review of the synoptic conditions indicated no frontal boundaries in the immediate vicinity of the accident site and a weak pressure gradient which resulted in light and variable winds over eastern Washington. A review of the regional radar composite radar depicted no significant radar echoes within 50 miles of the accident site.
- A review of the closest METAR observations over the area reported LIFR to IFR conditions during the morning hours due to low ceilings and visibilities in fog prior to 1540Z and clearing to VFR conditions at the time of the accident. Conditions were reported as light and variable winds, visibility 10 miles or more, clear skies below 12,000 ft, with temperatures near 70°F.
- A High-Resolution Rapid Refresh (HRRR) numerical model was run over the approximate accident site coordinates. The sounding provided the best estimate of the conditions over the accident site with elevation of 2316 ft a near surface temperature of 21.5°C (70.7°F), a dew point temperature 3.7°C (38.7°F), a relative humidity of 31%, with an approximate density altitude of 3,610 ft. The lifted condensation level (LCL) and level of free convection (LFC) was at 7,224 ft agl, and a convective condensation level (CLC) at 7,919 ft agl. The precipitable water content was 0.48 inches. The freezing level was identified at 9,300 ft. The atmosphere was characterized as conditionally unstable based on the lapse rate and stability indices; however, no clouds were identified. The sounding also supported thermals from the surface to 8,000 ft.

- The wind profile depicted a near surface wind from 040 at 6 knots with little variation in direction of speed with height through 5,000 ft. Above 5,000 ft the winds shifted to the west with slowly increasing wind speeds with height. Between 8,600 through 11,200 ft the sounding depicted a potential for light turbulence due to the change in wind direction and an increase in wind speed.
- No PIREPs were reported within 100nm between 2200Z-0200Z.
- The NWS KOTX WSR-88D imagery depicted no meteorological echoes over the accident site surrounding the period.
- The NWS had a Convective SIGMET 15W for an area of scattered thunderstorms over extreme northern Washington and southern Canada north of the accident site, but the area did not extend over the general route of flight. The NWS Aviation Weather Center had no advisories current for any turbulence, or low-level wind shear, IFR or icing conditions current during the period over the accident site.