

## **CHEESEHEAD Jackson State University (JSU) Mobile Observations and Conditions**

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### **IOP1:**

**July 8:** Since the King Air was doing survey/test flights, the primary goal of mobile obs today was to familiarize with the domain and visit as many flux sites as possible, with the collected data available to serve as baseline for representativeness of sites relative to surroundings and road environments. The morning was spent reconfiguring and testing all equipment on the vehicle. All flux sites were visited except NE1, NE2, and NE4. Possible locations for pedestrian transects were identified. Determination was made that there was likely no need for additional vehicle transects to sites SW3, SW4, and NW1. Route from Woodruff to domain was via Lac du Flambeau. Most of the day was partly cloudy with cumulus and some smoke/cirrus at higher altitudes. Time within domain was 1825-2153 UTC.

**July 9:** Sites NE2 and NE4 were visited for the first time. Sites that were visited (within 100 m): SE4, SE3, SE5, SE1, SE2, NE2, NE3, NE4, NW3, NW2, SW2, SW3, ISS, WLEF. Counterclockwise loop of northern half of domain. A clockwise pedestrian loop was made at/near SW3, but problems were noted with temperature measurements in the Gill shield (later determined to be due to a loose sensor head). The pedestrian routing was mostly in open sun instead of within forest canopy. The domain was accessed via SR 70 and FR 149 (Cedar Rapids Rd) from Minocqua. Conditions varied from mostly clear in the morning to mostly cloudy, with most cloud cover at mid-levels. Time within domain was 1538-2114 UTC.

**July 11:** Sites that were visited: SW1, ISS, SW2, NW2, NW4, NW3, NE3, NE4, NE2, SE5, SE3, SE4. Kayak measurements were made on Hay Lake, going N/S from access point to 0.5 km up Hay Creek, then counterclockwise circuit approximately 50 m from shoreline on average. There was some difficulty keeping the water temperature sensor submerged, especially within lily pads. The domain was accessed from SR 70, with entrance via FR 152 (Sugarbush Rd) and exit via FR 149 (Cedar Rapids Rd). Sky conditions were mostly clear except a few cirrus. Time within the domain was 1525-2210 UTC (other than a drive to Park Falls for fuel).

**July 12:** Sites that were visited: SW1, SW2, NW2, NW3, NE3, NE4, NE2, ISS, WLEF, SE2, SE1, SE 5, SE3, SE4. Pedestrian measurements were made from parking near SE3/SE4 to vicinity of Lost Lake using closed road/trail, including clockwise loop. Temperature sensor problem was not yet resolved. Trail was very overgrown in places, but mostly within shade. The

domain was accessed from SR 70, with entrance via FR 152 (Sugarbush Rd) and exit via FR 149 (Cedar Rapids Rd). Sky conditions were initially mostly clear, but later developed scattered thunderstorms. Heavy rain was waited out at ISS, so that very little rain was encountered while mobile. Time within the domain was 1600-2141 UTC.

**July 13:** Sites that were visited: SE4, SE3, SE5, NE2, NE4, NE3, NW3, NW2, SW1. A large counterclockwise loop was made, bounded by FR 149/511, FR 153, FR 152, and SR 70. Pedestrian measurements were made north of NE3 to the USFS property line on closed road (mostly shade). Temperature sensor problem was not yet resolved. The domain was accessed from SR 70 via FR 149 (Cedar Rapids Rd), with return via Lac du Flambeau. Sky conditions were mostly clear all day. Time within the domain (including loop connection via SR 70) was 1833-2143 UTC.

**IOP2:**

**August 18:** Not formally an IOP day, but data were collected while going to/from the open house outreach event held at WLEF tower. Sites that were visited: WLEF, ISS, SE5, SE3, SE4, SW2?. The domain was accessed from the west by SR 182, with exit via FR 149 (Cedar Rapids Rd) and SR 70. Sky conditions generally improved from mostly cloudy to scattered clouds by the end of the day. Time within the domain was 2002-2228 UTC.

**August 19:** Since this was a survey day for the King Air and seemingly anomalous higher temperatures were noted to the north near Lake Superior, a larger scale loop route was taken that went west to Fifield, north to Ashland, east along the south side of Lake Superior, and then return southward from Ironwood/Hurley. Post-analysis determined that warmer temperatures near Lake Superior were mostly explained by elevation, with fairly uniform potential temperature between the lake and CHEESEHEAD domain. Sky conditions ranged from partly cloudy to mostly clear, with most clouds at mid to upper levels.

**August 20:** Site NE1 was visited for the first time. Sites that were visited: SW1, ISS, NW2, NW3, NE1, NE3, NE4, NE2, SE5, SE3, SE4. Pedestrian measurements were made north of NE3 to the USFS property line, on closed road (mostly shade) and return by cross-country bushwacking. Temperature sensor problem was corrected. The domain was accessed from SR 70, with entrance via FR 152 (Sugarbush Rd) and exit via FR 149 (Cedar Rapids Rd). Sky conditions were mostly cloudy in the morning, with light rain; clearing in the afternoon. Time within the domain was 1455-2127 UTC.

**August 21:** Sites that were visited: SE6, SE4, SE3, SE5, NE2, NE4, NE3, NW3, NW2, ISS, SE1, SE2, WLEF, SW1. Site SE6 was visited to scout out possible pedestrian transect, but it was determined to be impractical due to a large fallen tree and lack of canopy cover on trails. Pedestrian measurements were made from parking near SE3/SE4 to vicinity of Lost Lake using closed road/trail, including clockwise loop. James Mineau came along for counterclockwise loop of ISS-SE1-SE2-ISS and pedestrian transect. The domain was accessed from SR 70, with entrance via FR 149 (Cedar Rapids Rd) and exit via FR 152 (Sugarbush Rd). Sky conditions were generally partly cloudy with variable cumulus and cirrus. Time within the domain was 1645-2113 UTC.

**August 22:** Sites that were visited: SW1, ISS, WLEF, SE5, SE3, SE4, NW2, NW4. Had to return from ISS to Kemp when discovered that datalogger battery for kayak system had been forgotten. Kayak measurements were made on Hay Lake, going N/S from access point to 0.5 km up Hay Creek. The domain was accessed from SR 70, with entrance and exit via FR 149 (Cedar Rapids Rd). (No loop routes were done.) Sky conditions were mostly overcast stratus, with some breaks of stratocumulus. Time within the domain was 1534-1617 and 1911-2325 UTC.

**August 23:** Sites that were visited: SW1, ISS, WLEF, NE2, NE4, NE3, NW3, NW4, SE1, SE2. Kayak measurements were made on Hay Lake for comparison with previous day: going N/S from access point to 0.5 km up Hay Creek, then counterclockwise circuit approximately 50-100

m from shoreline with extension to southeast outlet of the lake. A clockwise loop of ISS-SE2-SE1-ISS was done with vehicle for comparison with Aug. 21. The domain was accessed from SR 70, with entrance and exit via FR 152 (Sugarbush Rd). Sky conditions ranged from clear to scattered stratocumulus. Time within the domain was 1502-2033 UTC.

**IOP3:**

**September 23:** This was a survey flight day for the King Air. Sites that were visited: SW1, ISS, WLEF, SE1, SE2, NE2, NE4, NE3, NW3, NW4, NW2, SE5, SE3, SE4. Five round-trips were made east-west on SR 182 between Blockhouse Lake Cutoff Rd and FR 149 (Cedar Rapids Rd) (about 8 km each way) to attempt to separate spatial vs temporal variability over a short time period (~1 hour). Counterclockwise loop of ISS-SE1-SE2-ISS was done. First attempt was made at dashcam documentation with cell phone, doing still photos at 2-minute and 10-second increments. The domain was accessed from SR 70, with entrance via FR 152 (Sugarbush Rd) and exit via FR 149 (Cedar Rapids Rd). Sky conditions were quite variable, from scattered to broken cumulus and cirrus. Time within the domain was 1543-2107 UTC.

**September 24:** Sites that were visited: NE3, NE4, NE2, WLEF, ISS, SE1, SE2, SW1. Repeated counterclockwise loops of ISS-SE1-SE2-ISS were done to compare temporal variation/persistence of patterns within forest canopy. Pedestrian measurements were made north of NE3 to the USFS property line, on closed road (mostly shade) and return by cross-country bushwacking. First attempt was made at dashcam video with cell phone on FR 511 ATV trail. The domain was accessed via SR 70, FR 144, and SR 182 to east end of FR 153 (Blockhouse Lake Rd), with exit via FR 152 (Sugarbush Rd). Sky conditions were clear in the morning, changing to mostly cloudy in the afternoon. Time within the domain was 1607-2111 UTC.

**September 25:** Sites that were visited: SE4, SE3, SE5, WLEF, ISS, SE1, SE2, NE2, NE4, SW1. Counterclockwise loops of ISS-SE1-SE2-ISS were done three times, and two clockwise loops of FR 511-FR 153-SR 182. Pedestrian measurements were made from parking near SE3/SE4 to vicinity of Lost Lake using closed road/trail, including clockwise loop. Dashcam videos were made on ATV trails. The domain was accessed from SR 70, with entrance via FR 149 (Cedar Rapids Rd) and exit via FR 152 (Sugarbush Rd). Sky conditions were partly cloudy with cumulus and occasional light rain. Time within the domain was 1611-0145 UTC (including evening social event off of Sugarbush Rd).

**September 26:** Sites that were visited: NE3, NW3, NW4, NW2, ISS, SW1, SE4, SE3, SE5, WLEF. Kayak measurements were made on Hay Lake, going N/S from access point to 0.5 km up Hay Creek. A perpendicular NW/SE pattern was also sampled. The domain was accessed from the east end of FR 153 (Blockhouse Lake Rd), with exit via FR 152 (Sugarbush Rd) to SR 70. Sky conditions were initially clear; partly cloudy cumulus during kayak transects; then a thickening overcast. Time within the domain was 1558-2253.

**September 27:** Data were not actually collected within the CHEESEHEAD domain, but a nearby east/west transect was made along SR 70 between Minocqua and Fifield in the evening. No photos were taken due to dropping cell phone in water the previous day.