



Special Temporary Authority to Test Radar Instrumentation

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**Jennifer Laverentz
Center for Remote Sensing of Ice Sheets (CReSIS)
University of Kansas, Lawrence, Kansas
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A. Purpose of Operation and Need for License

The purpose of operation is to conduct airborne radar snow depth measurements. This flight will be a test flight to ascertain if the complete system is working prior to a full deployment in the Black Hills in late Jan/Feb 2021.

B. Locations of Proposed Operation

Project Summary: The project aims to conduct airborne radar snow-depth measurements over a drainage basin in the Black Hills National Forest. These measurements will be used in hydrological models for improved seasonal prediction of streamflow.

Proposed Locations: Measurements will be conducted within a .7-mile radius of Hillsdale Lake in Marysville, KS (38°40'21.8"N 94°54'42.7"W). The KU Cessna C-172 will fly one 1-2 hour mission to test the radar. The radar will only be on while flying over the water. Ideally, all flights will be flown at 500 m above the highest terrain on the flight line, but we will coordinate this with the pilot. Assisting the pilot with flight line accuracy will be a radar engineer, using an existing GPS-based program and LED display.

Dates: 2 hours Nov 15, 2020-Jan 31, 2021 Exact date TBD

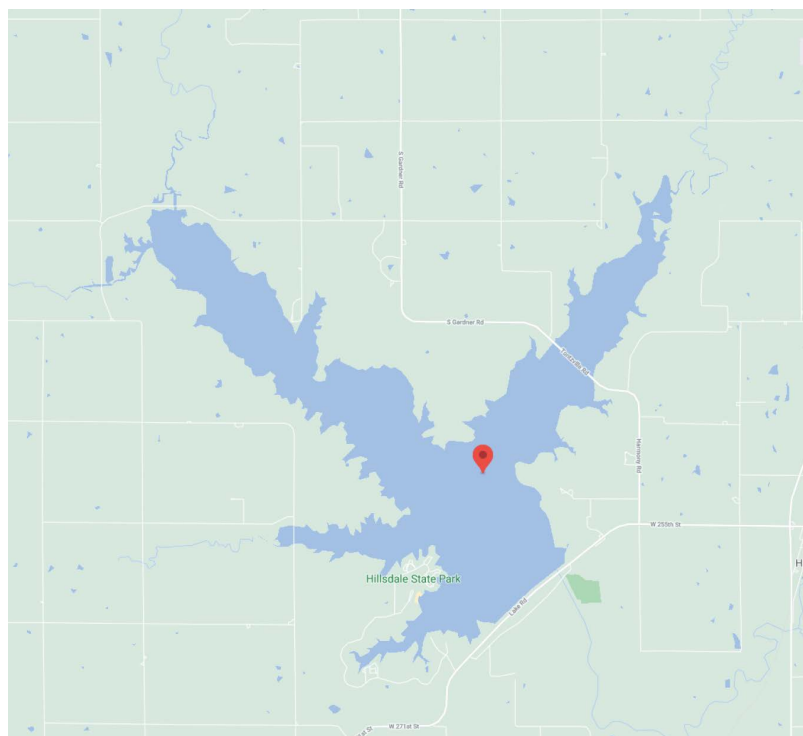


Image 1. Test area over Hillsdale Lake

C. Technical Specifications

1. Frequency of Operation

CRISIS requests authorization to operate in 2-8 GHz bands.

2. Effective Radiated Power (ERP)

The effective radiated power (ERP) will not exceed 1 W

3. Modulation Signal Description and Emissions

The system is a frequency modulated continuous wave radar that emits a 2-8 GHz chirp. The chirp duration is 1 μ s and the pulse repetition frequency is 2 kHz. The primary emission designator is 16GOMON/16GOGON

4. Antenna Information

The antenna used directive horn antenna mounted on the wing struts of a C-172.

5. Equipment Utilized

Equipment used for this system is custom built at CRISIS.

6. Station Class

This station will be Aeronautical Mobile in the areas described in section C, with a nominal altitude of 1500-4500 feet AGL.

E. Contact Information

For questions about this application or in the unlikely event interference concerns should arise, please contact:

Jennifer Laverentz
Center for Remote Sensing of Ice Sheets (CRISIS)
The University of Kansas
2335 Irving Hill Rd
Lawrence, KS 66045
Telephone: (785) 864-7722
jenlav@ku.edu