From: Blitz, James
To: Laverentz, Jennifer
Subject: RE: Request for permission to radiate for Snow Radar
Date: Wednesday, November 4, 2020 8:23:43 AM
Attachments: image001.png

Jennifer – Sirius XM has no objections to the CReSIS proposal for measurements in the Black Hills National Forest as described in your email.

Thanks and best regards.

Jim Blitz
Sirius XM Radio/Pandora

From: Laverentz, Jennifer <jenlav@ku.edu>
Sent: Tuesday, November 3, 2020 3:37 PM
To: Blitz, James <James.Blitz@siriusxm.com>
Subject: RE: Request for permission to radiate for Snow Radar

Jim

I hope that this email finds you well. CReSIS is once again planning (hoping is actually the correct word) that we will be able to repeat our measurements in the Black Hills National Forest this Jan/Feb 2021. For the spring 2021 mission we have a pending request with the FCC for a temporary license (1706-EX-ST-2020). They have asked us to coordinate with you for operations in the 2320-2345 band, there are no changes to the operating parameters from last year. I have copied the details from last year below.

Thank you for your time.

Best Regards,

Jennifer

Jennifer Laverentz
Administrative Manager
Center for Remote Sensing of Ice Sheets
University of Kansas
2335 Irving Hill Road Rm. 334
Lawrence, Kansas 66045
Cell Phone (785) 640-2568
Phone (785) 864-7722
Fax (785) 864-7753
cresis.ku.edu

From: Blitz, James <James.Blitz@siriusxm.com>
Sent: Friday, November 22, 2019 1:41 PM
To: Laverentz, Jennifer <jenlav@ku.edu>
Subject: RE: Request for permission to radiate for Snow Radar

Jennifer - Sirius XM does not object to this proposal.

Jim Blitz
Sirius XM Radio/Pandora

From: Laverentz, Jennifer [mailto:jenlav@ku.edu]
Sent: Tuesday, November 19, 2019 4:27 PM
To: Blitz, James <James.Blitz@siriusxm.com>
Subject: Request for permission to radiate for Snow Radar

Jim,

We are currently working on a NOAA project called "Airborne Snow Depth Retrieval for Improved Hydrological Modeling". This 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.

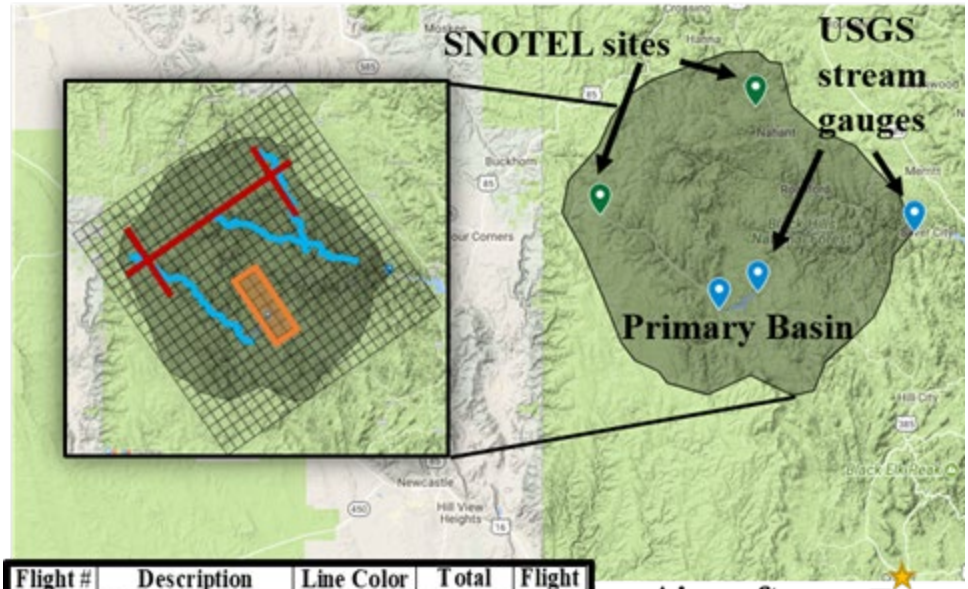
For the spring 2020 mission we have a pending request with the FCC for a temporary license (2021-EX-ST-2019) to operate our radars in South Dakota in late January/Early February. The purpose of our application is to preform measurements with an aircraft-mounted radar system.

Radar Parameters: Operating Frequency: 2-18 GHz
Output Power: 0.1 W
Sweep Duration: 250 us
Pulse Repetition Freq: 2 kHz

Dates: January/February 2020. We are planning 3 different flights of 4-5 hours each over a two-week span. If the weather is favorable, we will repeat the flight. Exact timing to be determined based upon snow depth

Proposed Locations: Measurements will be conducted within a 17 mile radius of (44° 4'56.25"N, 103°49'3.42"W). The KU Cessna C-172 will fly three types of missions (KML files with preliminary way points attached) of approximately 4-5 hours each, as indicated in the table in the figure and illustrated by the inset image. Flights 1 and 2 construct a grid of flight lines spaced 1.5 km that will be used for assimilation into the hydrology model. This spacing was primarily dictated by the range of

the aircraft. For the SNOTEL multipass flights, each red line represents five flight lines offset by 100m. These measurements will provide sufficient coverage for us to compare repeat lines with the SNOTEL sensors. The orange square consists of variable terrain. The NE and SW portions of the area consists of various levels of vegetation and relief. The relatively flat and tree-less area in the middle will help us verify snow depth measurements in the vegetated and steep terrain. We plan to fly three parallel tracks across this area with five repeat lines per track. Finally, the blue lines represent relatively flat and tree-less valleys that feed into the stream gauge locations. The length of each valley will be flown once. Ideally, all flights will be flown at 500 m above the highest terrain on a given flight line.



Flight #	Description	Line Color	Total	Flight
1	Grid N/S	Black	960 km	5 hrs
2	Grid E/W	Black	960 km	5 hrs
3	SNOTEL Multipass	Red	360 km	2 hrs
	Variable Terrain	Orange	150 km	1 hr
	Valley	Blue	150 km	1 hr

They have requested that we coordinate and obtain a written consent from you prior to the issuance of this permit. I have attached the proposed flight lines in and around Black Hills.

Please feel free to contact me via email or at the number below with any questions.

Thank you for your time.

Best Regards,

Jennifer

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