

FMCW Radar, Cold Land Processes Field Experiment

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1 FMCW RADAR, COLD LAND PROCESSES FIELD EXPERIMENT

1.1 Summary

FMCW Radar Profiles and Polarimetric Backscatter for February 19, 2002	<p>Radar Profiles: Location: LSOS Snow Pit #1 Date: Feb 19, 2002 Radar Bandwidths: 2-6 GHz, 8-12 GHz, and 14-18 GHz Waveform: FMCW Modulation Time: 0.64 ms</p> <p>Polarimetric Backscatter: Ku-band FMCW radar polarimetric backscatter data from an 18-ft tower at LSOS. Location: LSOS Snow Pit #1 Date: Feb 19, 2002 Radar Bandwidth: 17-18 GHz Modulation Time: 64 ms Antenna: 25 dB standard gain Depression Angles: 50, 40, 30</p>
FMCW Radar Profiles and Polarimetric Backscatter for February 21, 2002	<p>Radar Profiles: Location: LSOS Snow Pit #1 Date: Feb 21, 2002 Radar Bandwidths: 2-6 GHz, 8-12 GHz, and 14-18 GHz Waveform: FMCW Modulation Time: 0.64 ms</p> <p>Polarimetric Backscatter: Ku-band FMCW radar polarimetric backscatter data from an 18-ft tower at LSOS. Location: LSOS Snow Pit #1 Date: Feb 21, 2002 Radar Bandwidth: 17-18 GHz Modulation Time: 64 ms Antenna: 25 dB standard gain Depression Angles: 50, 40, 30</p>
FMCW Radar Profiles and Polarimetric Backscatter for March 25, 2002	

FMCW Radar Profiles and Polarimetric Backscatter for March 26, 2002

Radar Profiles:

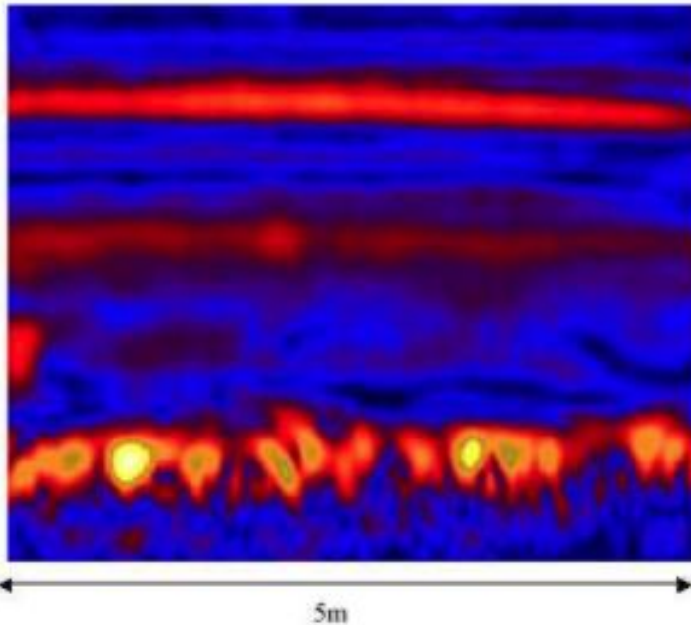
Location: LSOS Snow Pit #2
Date: Mar 26, 2002
Radar Bandwidths: 2-6 GHz, 8-12 GHz, and 14-18 GHz
Waveform: FMCW
Modulation Time: 0.64 ms

1.2 FMCW Radar Profiles for February 19, 2002

FMCW Radar Profile

Location: LSOS Snow Pit #1
Date: Feb19, 2002
Time: 1302

Radar Bandwidth: 2-6 GHz
Waveform: FMCW
Modulation Time: 0.64 ms
Antenna Gain: 12 dB



(location; mean reflectivity)

— (0.0 ns; -23dB)

— (1.0 ns; -28dB)

— (2.5 ns; -20dB)

Figure 1. FMCW Radar Profile Location: LSOS Snow Pit #1 Date: Feb19, 2002 Time: 1302

FMCW Radar Profile
Location: LSOS Snow Pit #1
Date: Feb19, 2002
Time: 1310

Radar Bandwidth: 8-12 GHz
Waveform: FMCW
Modulation Time: 0.64 ms
Antenna Gain: 20 dB

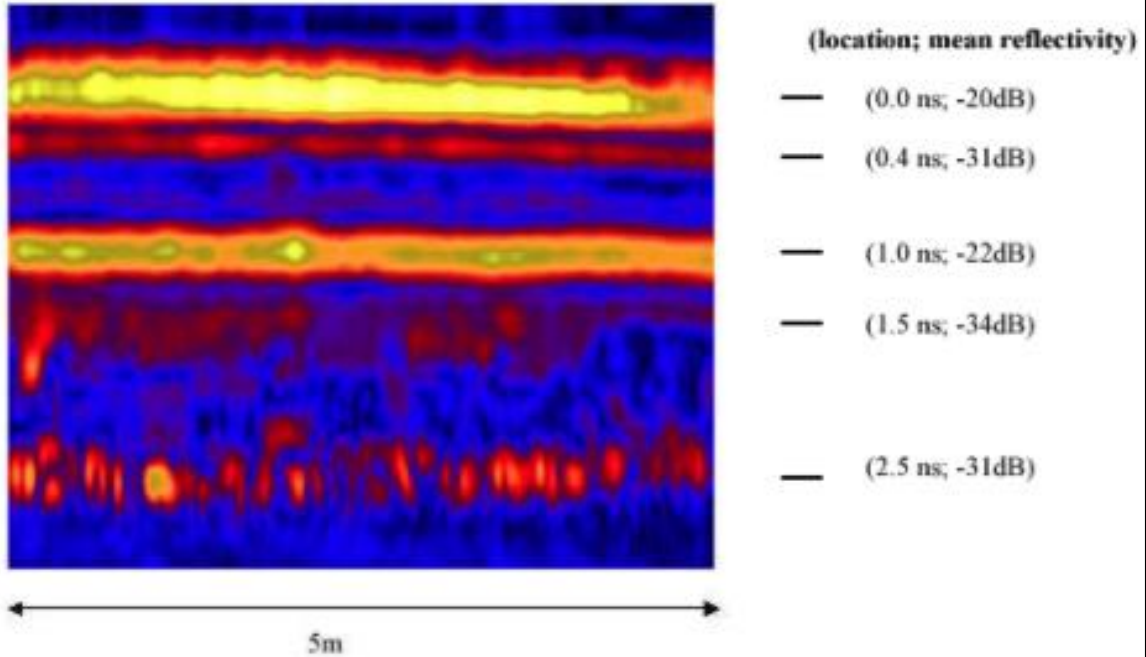


Figure 2. FMCW Radar Profile Location: LSOS Snow Pit #1 Date: Feb19, 2002 Time: 1310

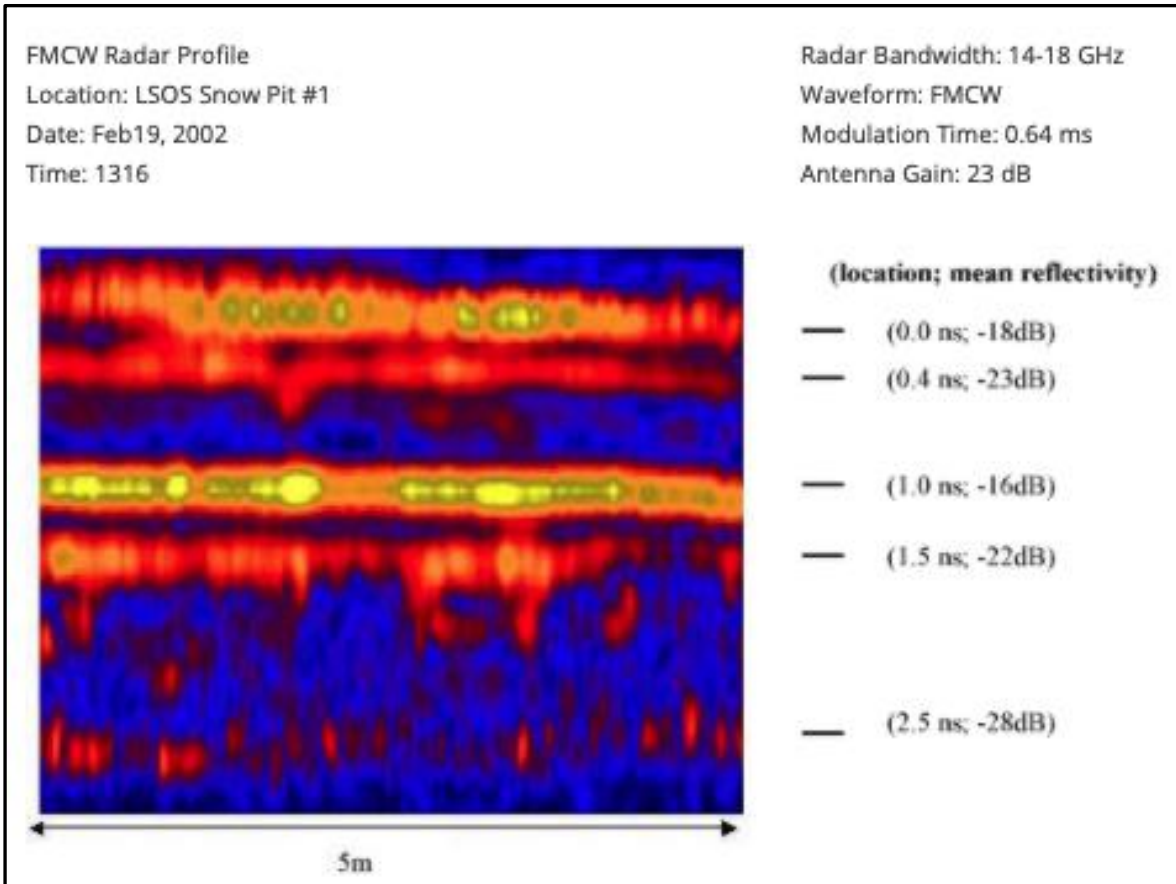


Figure 3. FMCW Radar Profile Location: LSOS Snow Pit #1 Date: Feb19, 2002 Time: 1316

1.3 Ku-Band FMCW Radar Polarimetric Backscatter for February 19, 2002

Ku-band FMCW radar polarimetric backscatter data from an 18' tower located near snow pit #1 at the LSOS:

- Radar bandwidth 17-18 GHz
- Modulation Time: 64 ms
- Antenna: 25 dB standard gain
- Depression Angles: 50, 40, 30
- Feb. 19, 12:30-13:30

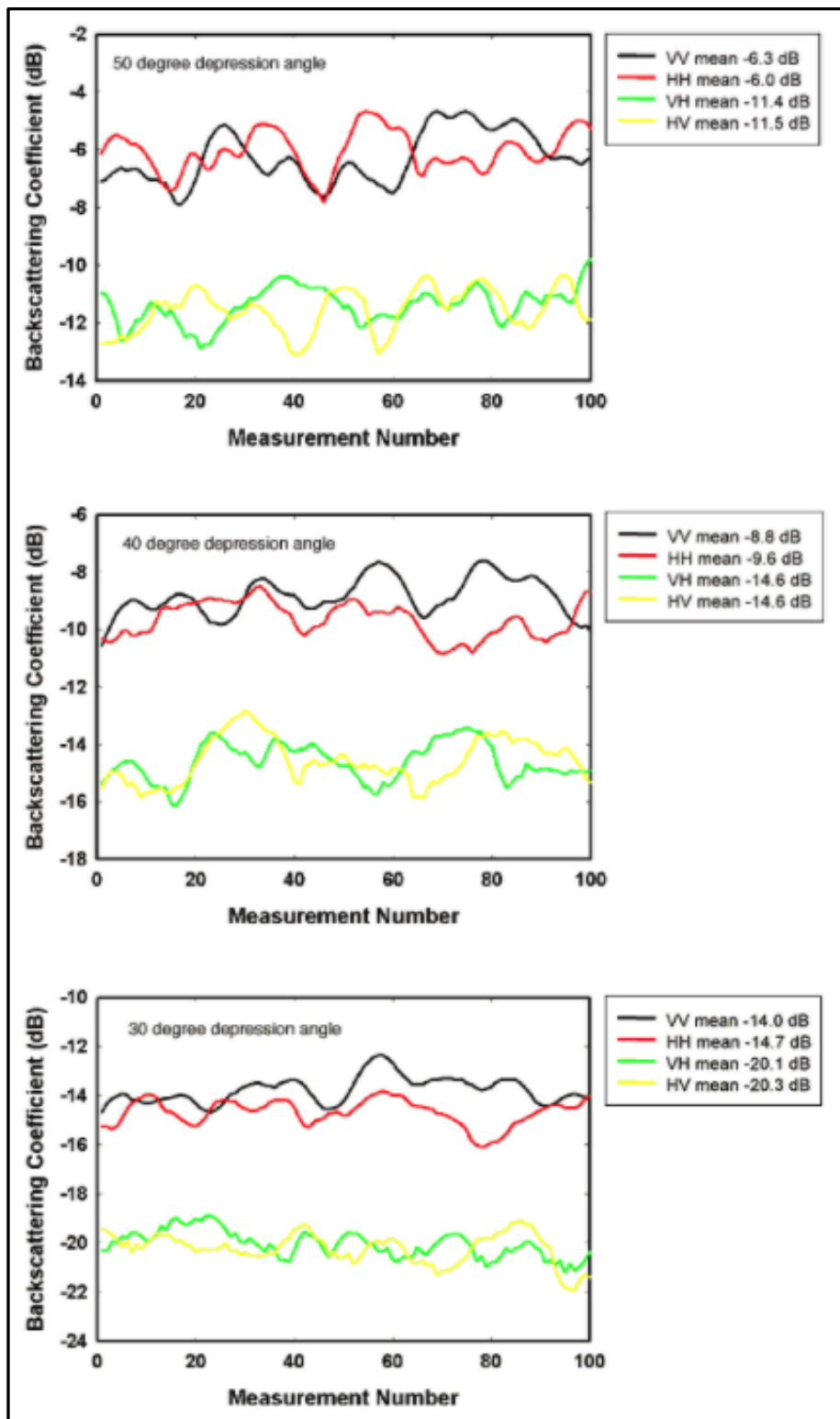


Figure 4. Ku-band FMCW radar polarimetric backscatter data from an 18' tower located near snow pit #1 at the LSOS, February 19, 2002.

1.4 FMCW Radar Profiles for February 21, 2002

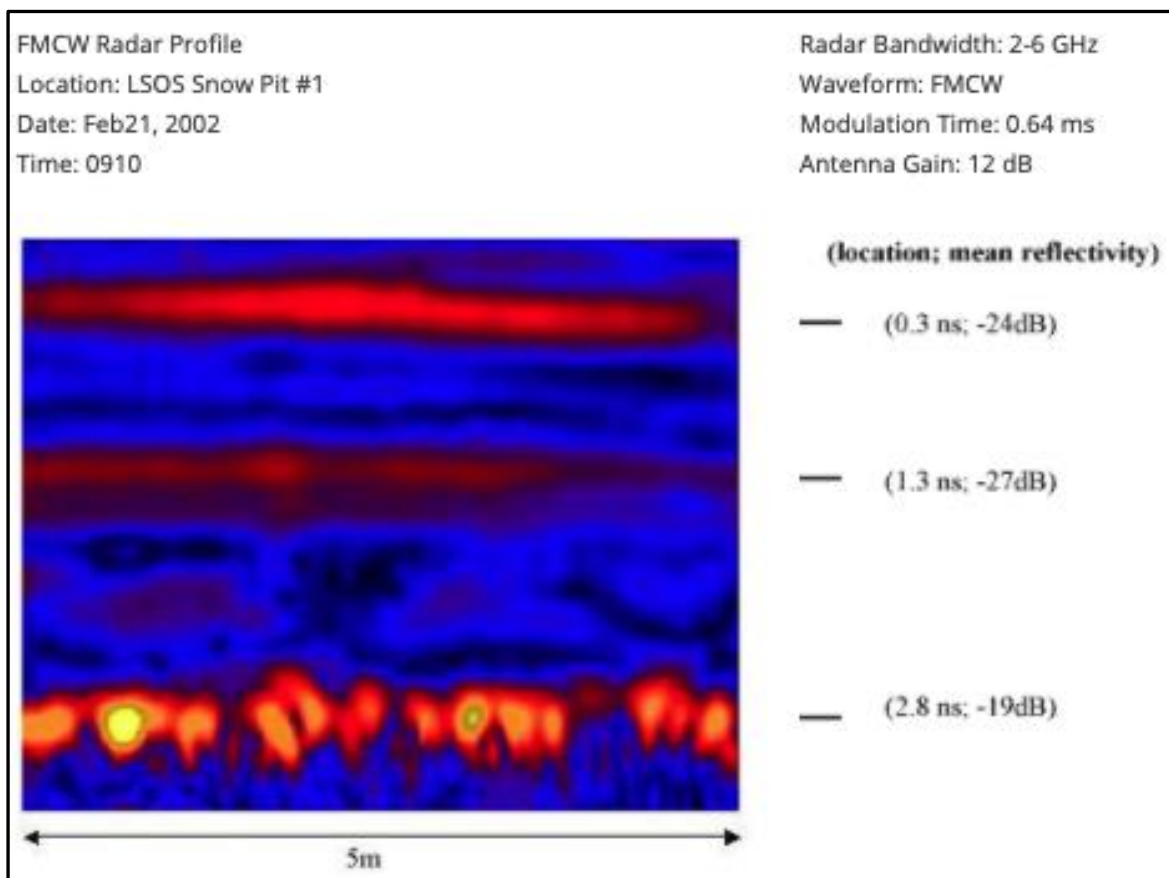


Figure 5. FMCW Radar Profile Location: LSOS Snow Pit #1 Date: Feb21, 2002 Time: 0910

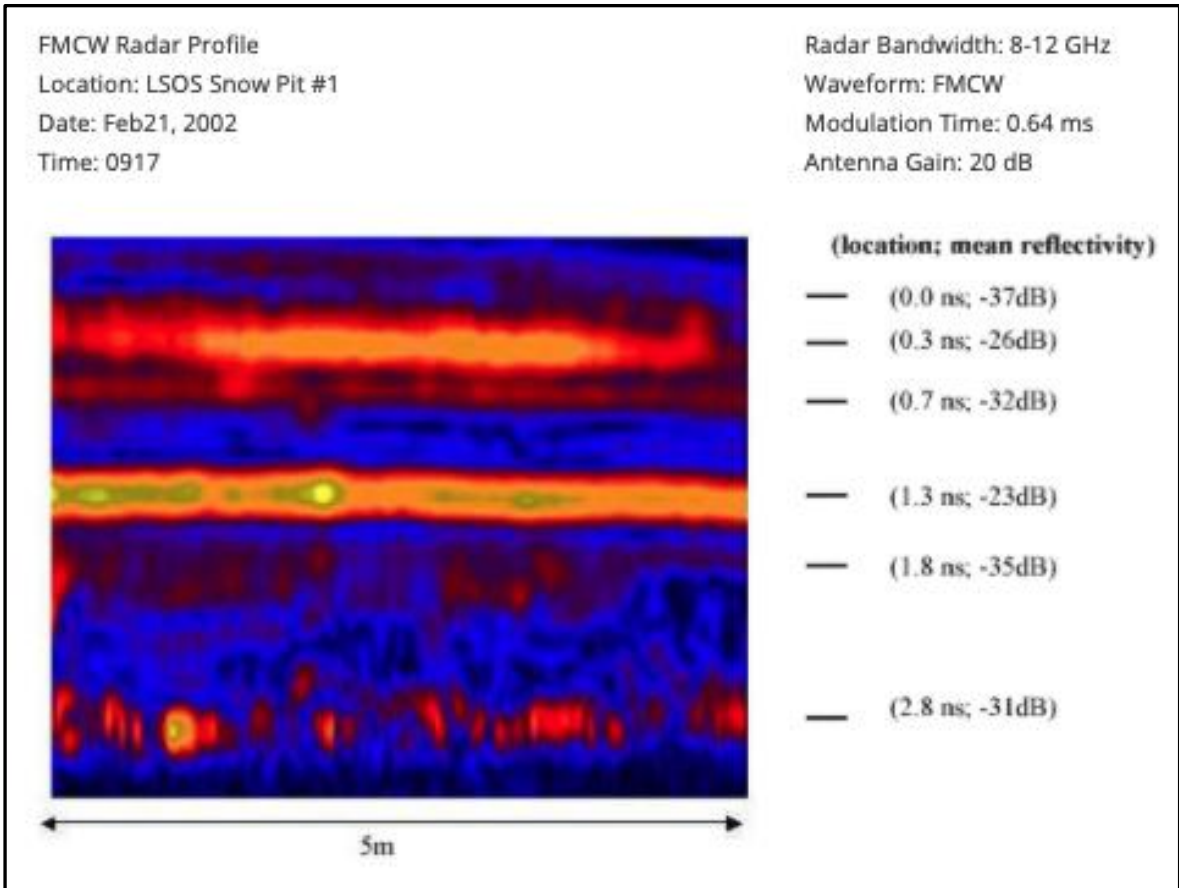


Figure 6. FMCW Radar Profile Location: LSOS Snow Pit #1 Date: Feb21, 2002 Time: 0917

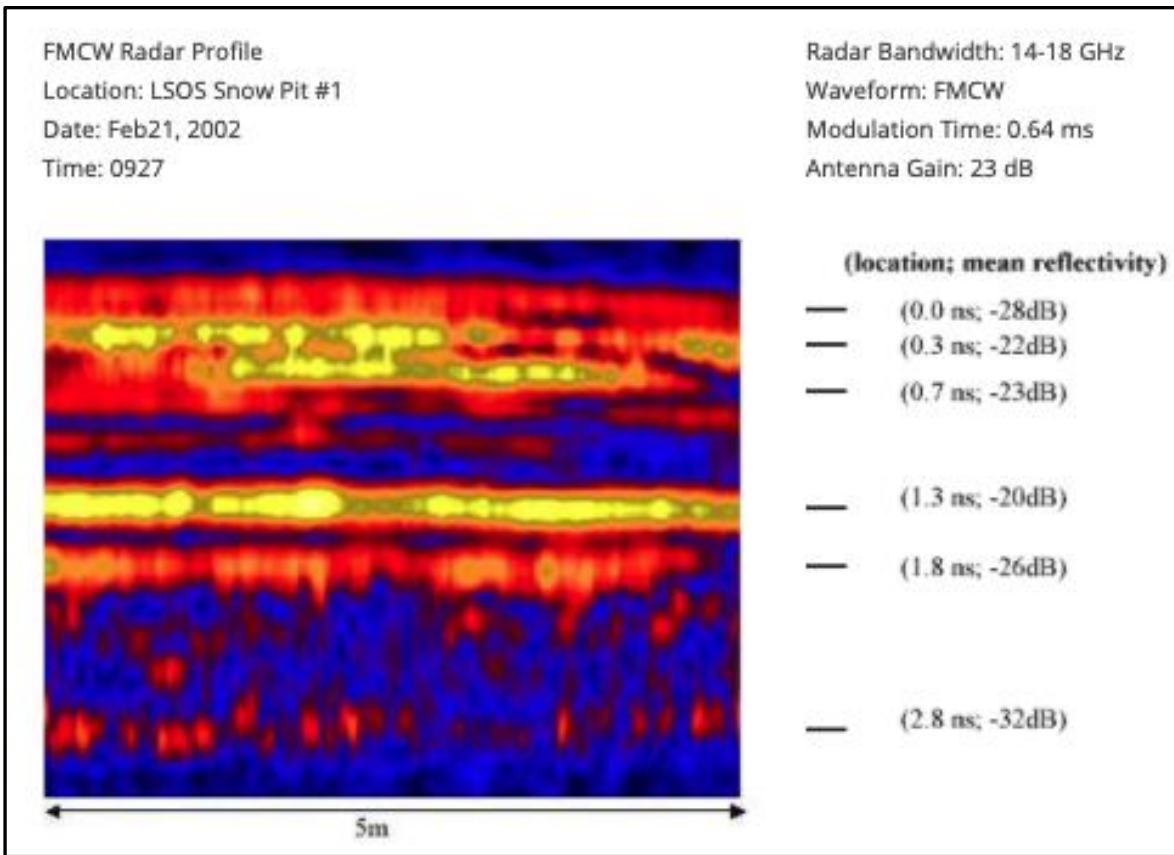


Figure 7. FMCW Radar Profile Location: LSOS Snow Pit #1 Date: Feb21, 2002 Time: 0927

1.5 Ku-Band FMCW Radar Polarimetric Backscatter for February 21, 2002

Ku-band FMCW radar polarimetric backscatter data from an 18' tower located near snow pit #1 at the LSOS

- Radar bandwidth 17-18 GHz
- Modulation Time: 64 ms
- Antenna: 25 dB standard gain
- Depression Angles: 50, 40, 30
- Feb. 21, 10:30-11:45

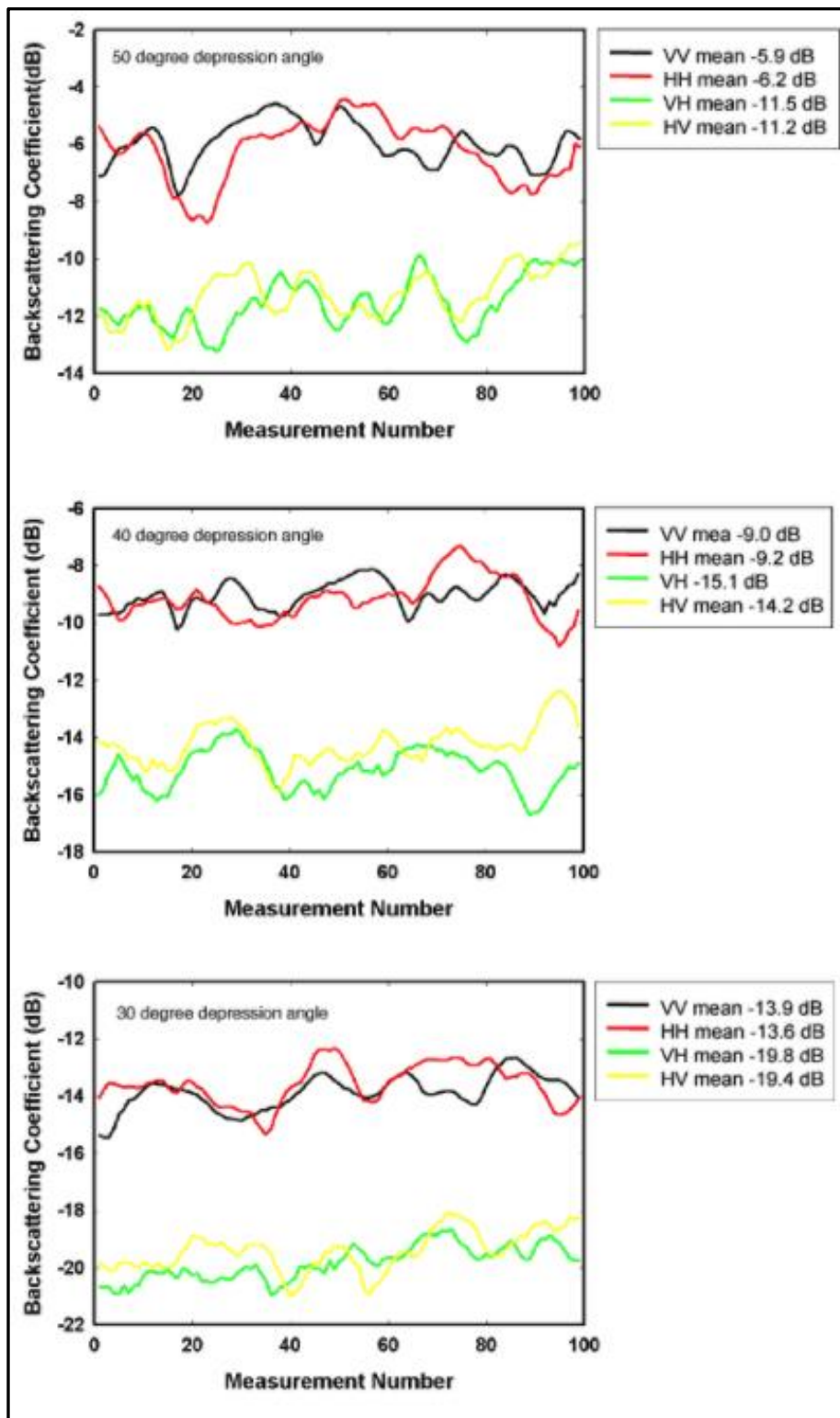


Figure 8. Ku-band FMCW radar polarimetric backscatter data from an 18' tower located near snow pit #1 at the LSOS, February 21, 2002.

1.6 FMCW Radar Profiles and Polarimetric Backscatter for March 25, 2002

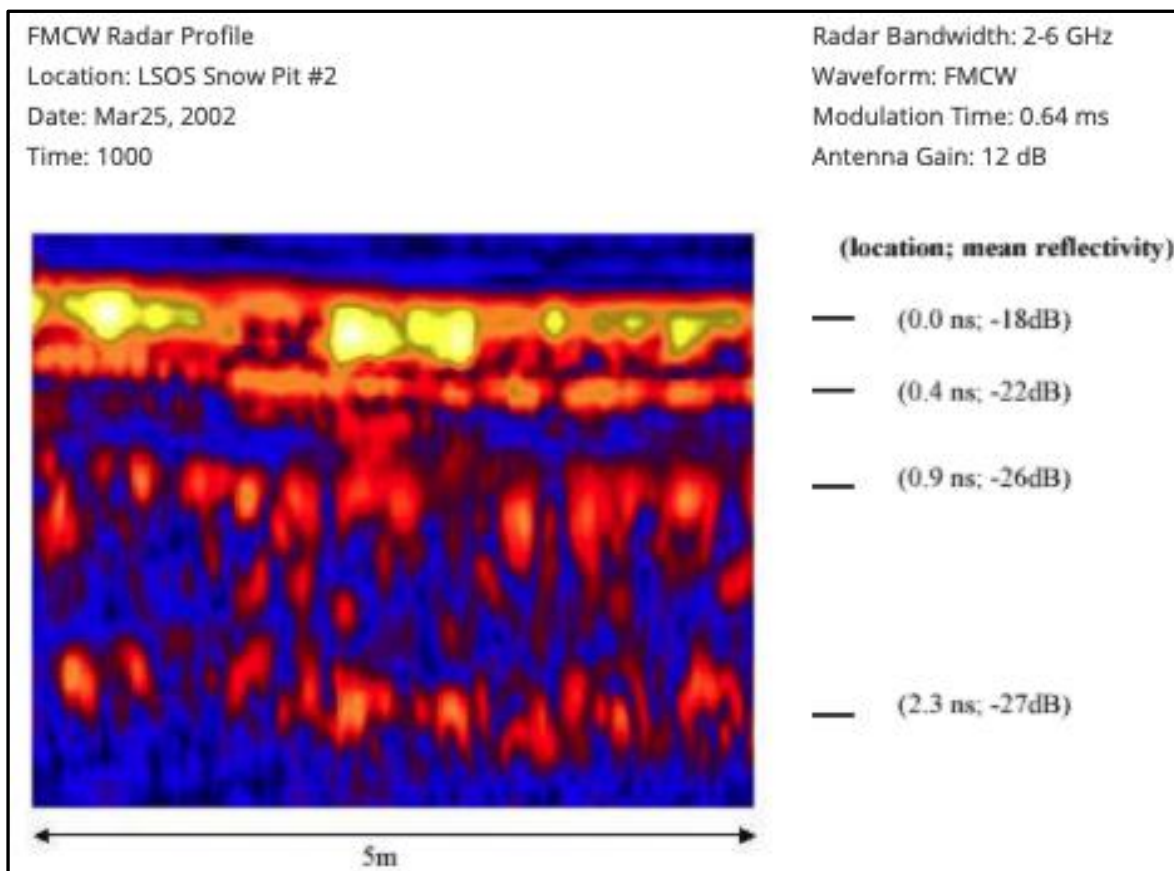
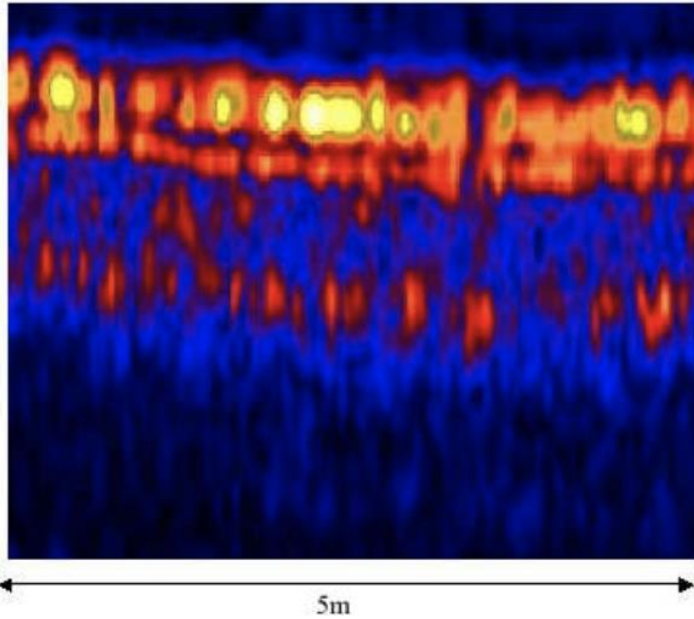


Figure 9. FMCW Radar Profile Location: LSOS Snow Pit #2 Date: Mar25, 2002 Time: 1000

FMCW Radar Profile
Location: LSOS Snow Pit #2
Date: mar25, 2002
Time: 1035

Radar Bandwidth: 8-12 GHz
Waveform: FMCW
Modulation Time: 0.64 ms
Antenna Gain: 20 dB



(location; mean reflectivity)

— (0.0 ns; -19dB)

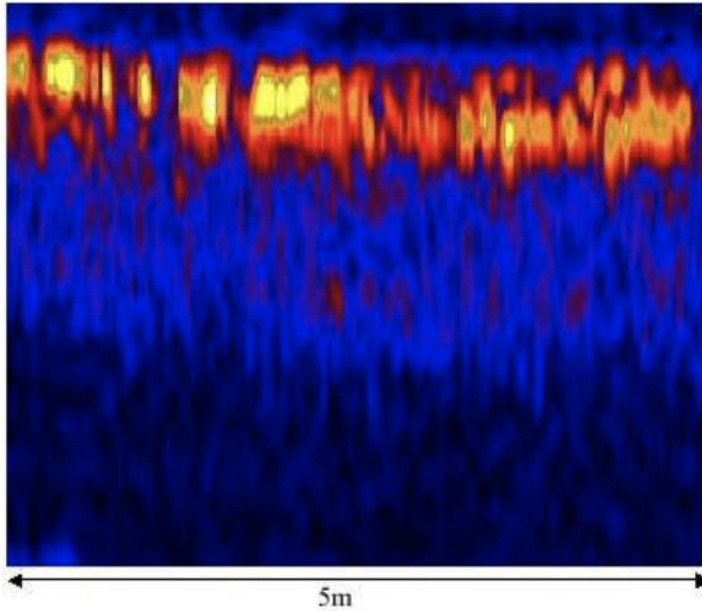
— (0.4 ns; -23dB)

— (0.9 ns; -29dB)

Figure 10. FMCW Radar Profile Location: LSOS Snow Pit #2 Date: Mar25, 2002 Time: 1035

FMCW Radar Profile
Location: LSOS Snow Pit #1
Date: Feb21, 2002
Time: 0927

Radar Bandwidth: 14-18 GHz
Waveform: FMCW
Modulation Time: 0.64 ms
Antenna Gain: 23 dB



(location; mean reflectivity)

— (0.0 ns; -19dB)

Figure 11. FMCW Radar Profile; Location: LSOS Snow Pit #1; Date: Feb21, 2002; Time: 0927

1.7 Ku-Band FMCW Radar Polarimetric Backscatter for March 25, 2002

Data not available

1.8 FMCW Radar Profiles and Polarimetric Backscatter for March 26, 2002

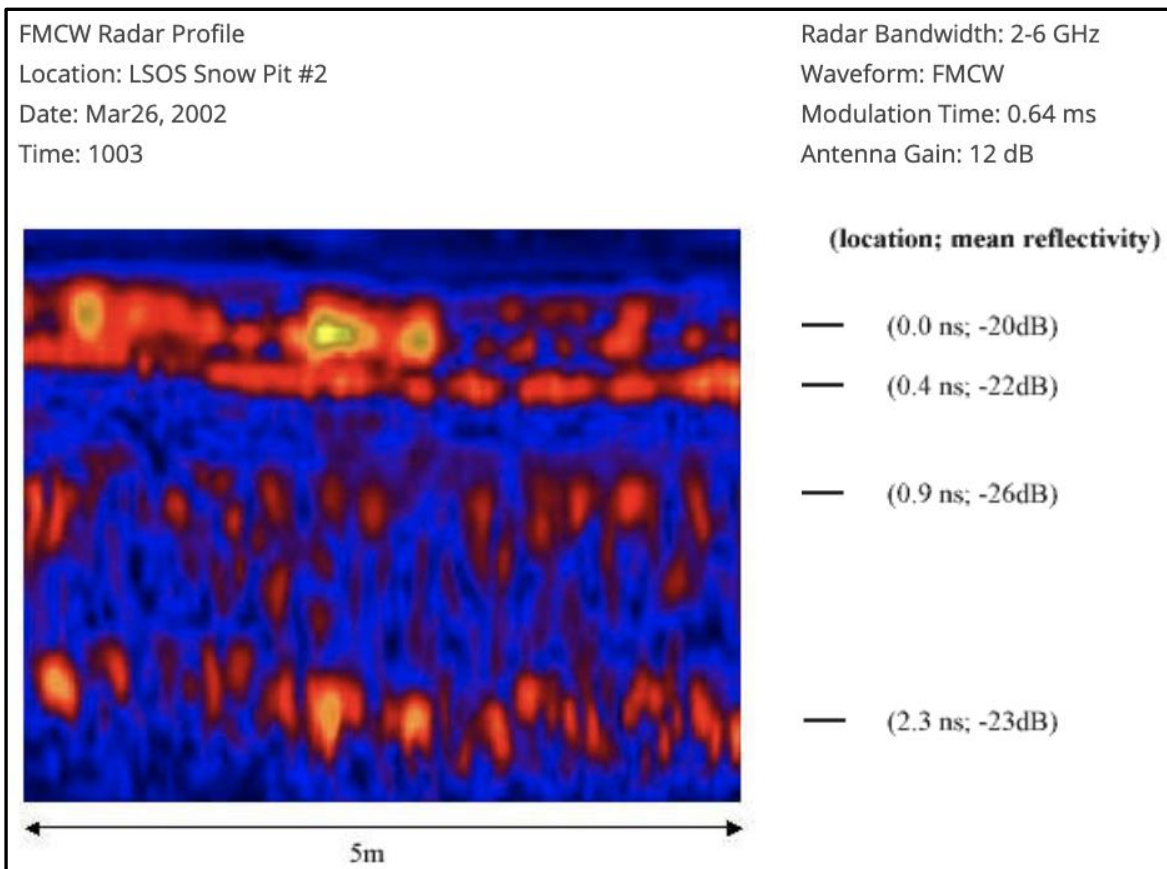


Figure 12. FMCW Radar Profile Location: LSOS Snow Pit #2 Date: Mar26, 2002 Time: 1003

FMCW Radar Profile
Location: LSOS Snow Pit #2
Date: Mar26, 2002
Time: 1011

Radar Bandwidth: 8-12 GHz
Waveform: FMCW
Modulation Time: 0.64 ms
Antenna Gain: 20 dB

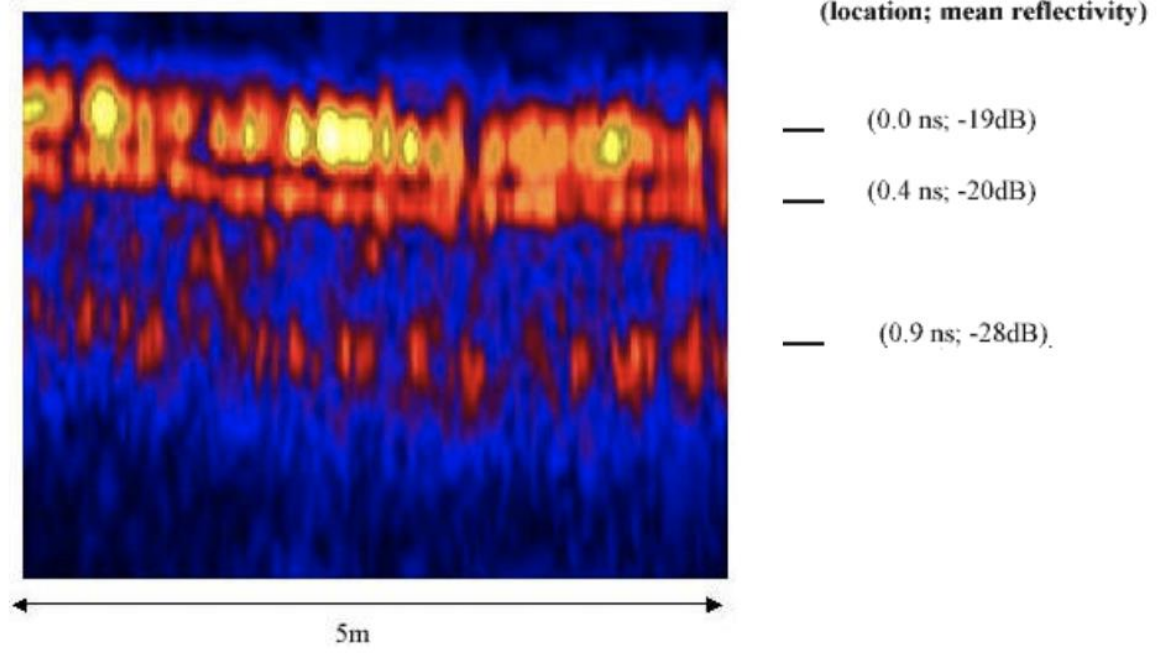


Figure 13. FMCW Radar Profile Location: LSOS Snow Pit #2 Date: Mar26, 2002 Time: 1011

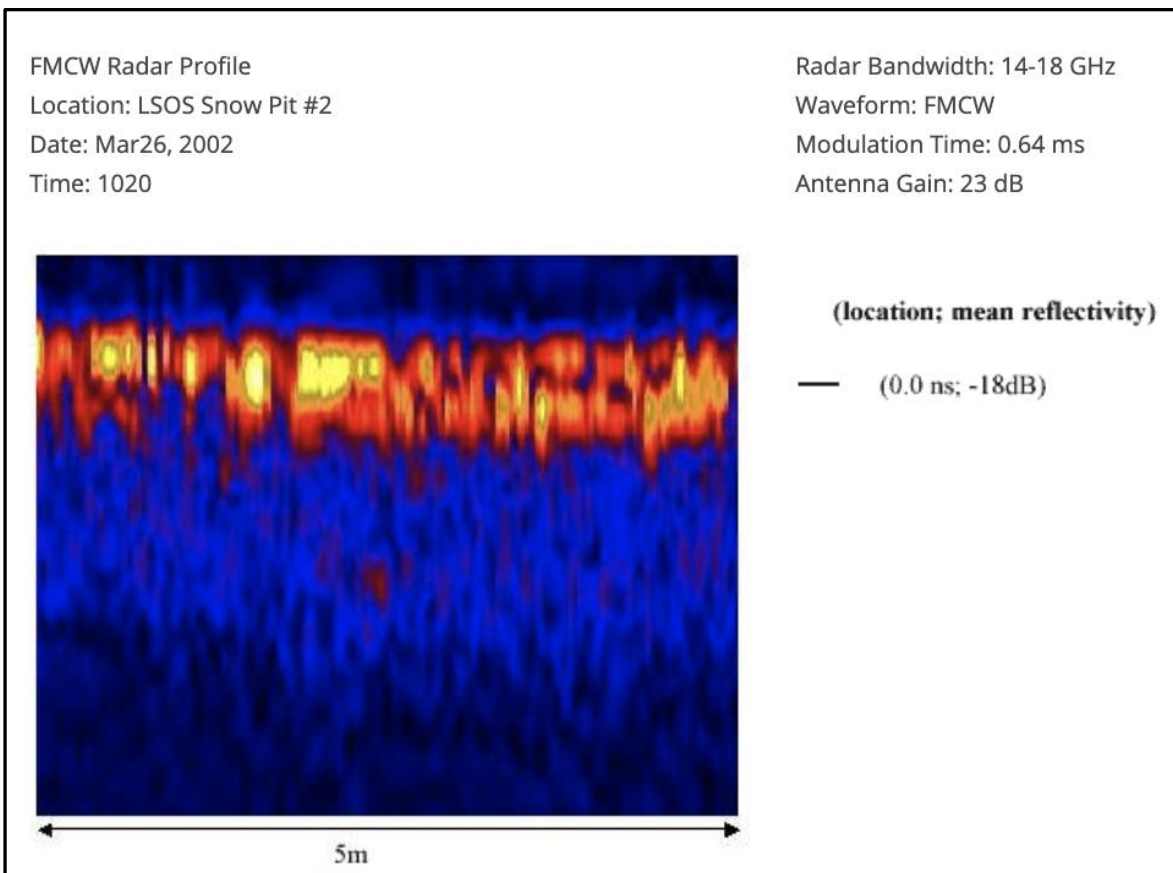


Figure 14. FMCW Radar Profile Location: LSOS Snow Pit #2 Date: Mar26, 2002 Time: 1020

1.9 KU-Band FMCW Radar Polarimetric Backscatter for March 26, 2002

Data Not Available

2 DOCUMENT INFORMATION

2.1 Publication Date

09 January 2015

2.2 Date Last Updated

16 April 2021