The National Science Foundation has funded construction of a High Spectral Resolution Lidar (HSR L) for long-term unattended operation in the Arctic. This lidar provides robustly calibrated measurements of optical depth, backscatter cross section and depolarization. It operates 24-hours/day and more than 6000 hours of data has been collected during testing. Data is automatically transferred in real time from the lidar to our archive computer via a fault-tolerant client-server application where it is stored as netcdf files on a 1-terabyte raid disk system. All data can be accessed through a publicly accessible homepage which provide a complete month of 12-hour thumbnail images of the backscatter cross section between the surface and 15 km. Clicking on an image provides a full screen version of the backscatter cross section and the A R eal-T ime Quick L ook Image tool provides custom images after removal of the molecular scattering. This 5-minute average provides stable optical depth measurements though the 12-second averages making up the backscatter image does one-minute average, for longer averages OD greater than 4 are observed. This standard lidar image was created using a single channel criteria and is dominated by the optical depth. The mixed classification includes some ice clouds which exhibit low backscattered signal is due to specular reflection from crystal faces. The calibration accuracy of the HSR L is illustrated in this expanded circular depolarization (%) 08Mar2004