

Figure 4. The ETL cloud radar antenna on top of the container on the forward deck of the R/V Roger Reville. The large flat disc just to the right of the container is the reflector for the microwave radiometers inside the container. The laser ceilometer is the small white R2D2-like device on the pedestal just to the right of the reflector. The yellow box is a hazardous materials locker. The trailer in the foreground houses aerosol sampling instruments from Texas A&M University. The dark blue stuff in the background is the ocean.

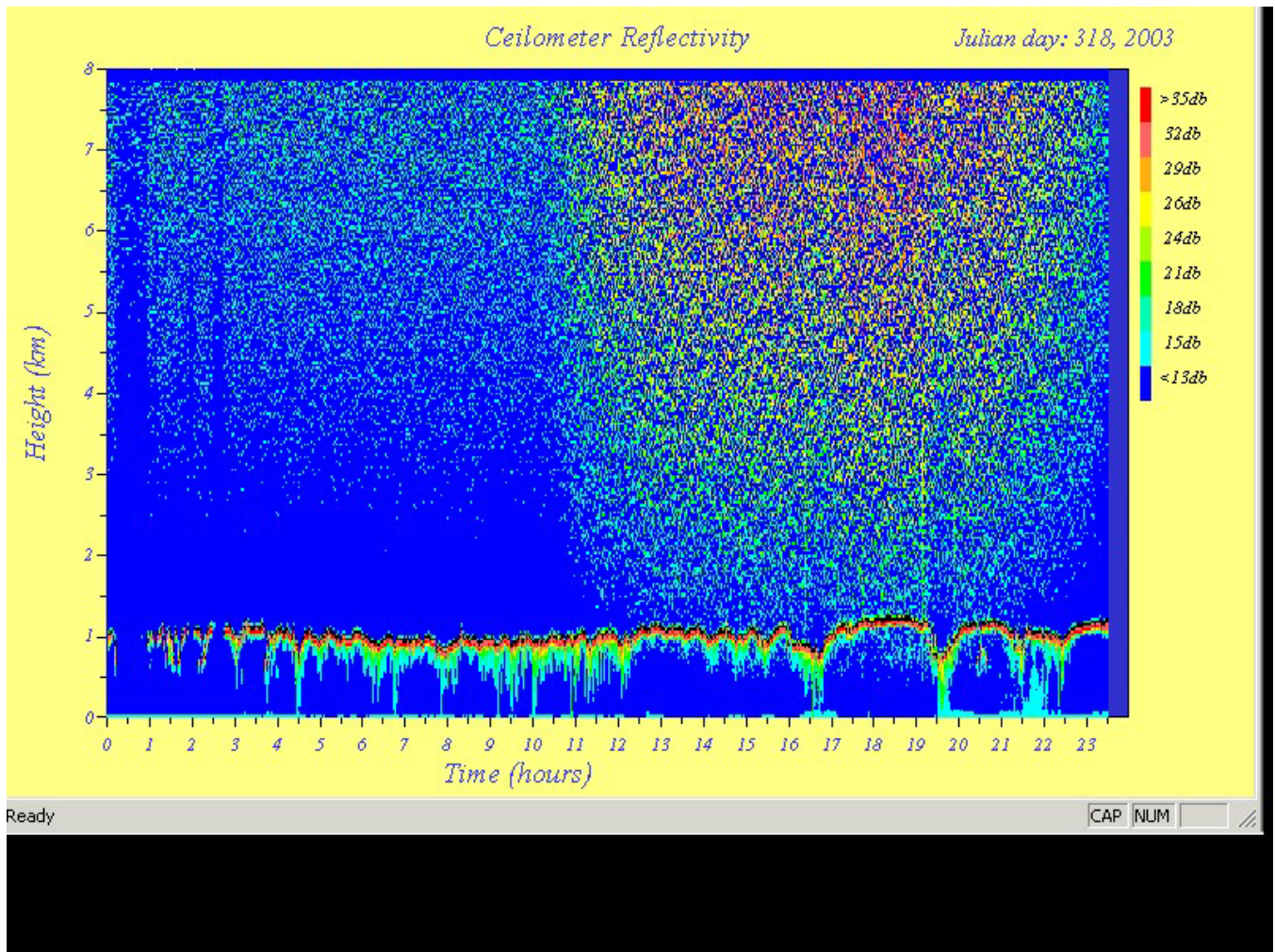


Figure 5. Image from laser ceilometer showing a time-height cross section of the atmosphere over the ship for Nov. 14, 2003. Cloud base is evident as the black dots running at about 1 km altitude. Since this indicates the bottom of the cloud, the body of the stratus cloud is above this level, but is not displayed by the ceilometer because the laser beam only penetrates a few meters into the cloud. Light bluish regions below the cloud indicates light scattering from aerosols that have grown to haze particles in the high relative humidity just below the cloud.

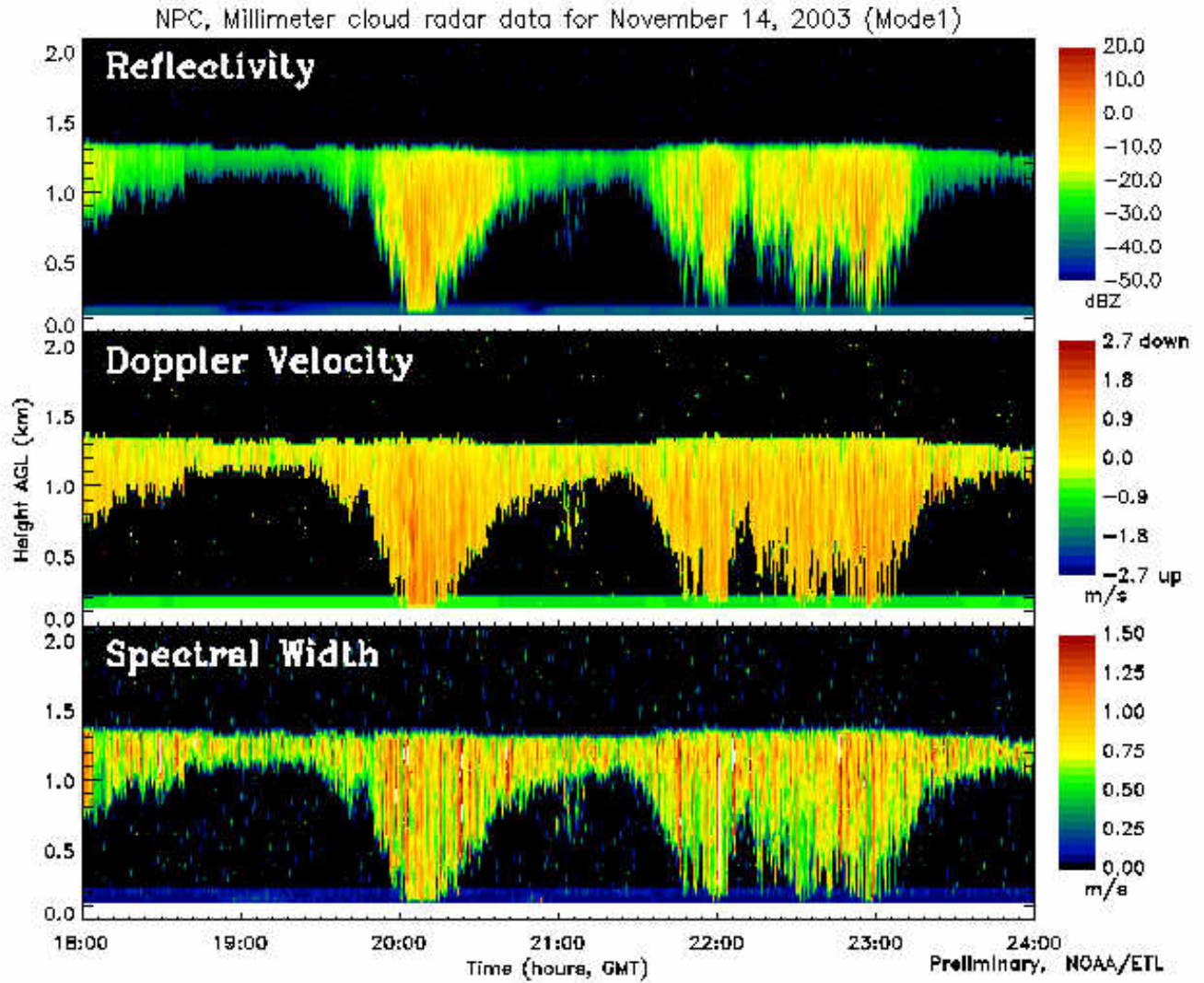


Figure 6. Time-height cross-section from the ETL cloud radar showing stratus clouds for 6 hours on Nov. 14. The upper panel is the backscatter intensity from the cloud and drizzle droplets; the middle panel is the mean vertical fall velocity of the particles (positive means downward motion). The deep regions of return that reach the surface indicate light rain (drizzle). This case has highly varying cloud characteristics.