# 南極昭和基地で観測されたNa密度とMLT温度の季節変化

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# Interrelation between Na density and MLT temperature in their seasonal variations observed at Syowa Station, Antarctica

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The mesosphere and lower-thermosphere (MLT) temperature and Na density were observed by using a Na temperature lidar at the Syowa Station, Antarctica (69$^o$S, 39$^o$E) from 2000 to 2002. The Na temperature lidar system was developed jointly by Shinshu University and the National Institute of Polar Research in order to examine the mechanism of energetic interactions between the lower-thermosphere and upper- mesosphere through the mesopause region. The observations were performed using the two-frequency technique as demonstrated by She et al. [1990] during winter (mainly from March to October). Total observation nights were more than 250 nights for the three years. Using the Na temperature lidar data in 2000 and 2001, Kawahara et al. [2002; 2004] had discussed seasonal variations of the MLT temperature structure over the Syowa Station, however, seasonal variations of Na density profiles have not been discussed yet. Also, both of the MLT temperature and Na density profiles observed in 2002 when the first sudden stratospheric warming in recorded history in the Antarctica was observed have not shown yet. In this study, we will present seasonal variations of the Na density and the MLT temperature profiles observed in 2000-2002 and discuss the interrelation between them and show yearly differences.