



Advection from the North
Atlantic as the Forcing of Winter
Greenhouse Effect Over Europe

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(NTRS), et al., J. Otterman

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Advection from the North Atlantic as the Forcing of Winter Greenhouse Effect Over Europe

By J. Otterman

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 24 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. In winter, large interannual fluctuations in the surface temperature are observed over central Europe.

Comparing warm February 1990 with cold February 1996, a satellite-retrieved surface (skin) temperature difference of 9.8 K is observed for the region 50-60 degrees N; 5-35 degrees E. Previous studies show that advection from the North Atlantic constitutes the forcing to such fluctuations. The advection is quantified by Index $I_{(sub na)}$, the average of the ocean-surface wind speed over the eastern North Atlantic when the direction is from the southwest (when the wind is from another direction, it counts as a zero speed to the average). Average $I_{(sub na)}$ for February 1990 was 10.6 ms, but for February 1996 $I_{(sub na)}$ was only 2.4 ms. A large value of $I_{(sub na)}$ means a strong southwesterly flow which brings warm and moist air into central Europe at low level, producing a steeper tropospheric lapse rate. Strong ascending motions at 700 mb are observed in association with the occurrence of enhanced warm, moist advection from the ocean in February 1990 producing clouds and precipitation. Total precipitable...



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