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A leaky rigid lid[1] LYUBOV CHUMAKOVA, RUBEN ROSALES, MIT, ESTEBAN TABAK, Courant, NYU — Various models of the atmosphere use the rigid lid approximation. In reality the atmosphere does not have a definite top. Furthermore, mathematically the two problems are drastically different. In the study of linear problem in hydrostatic balance the rigid lid approximation leads to a problem with discrete spectrum, while a semi-infinite atmosphere problem has a continuous one. The energy that is projected onto the continuous part of the spectrum is disregarded in the rigid lid approach. We propose to fix this "leak" problem via changing the boundary conditions at the top of the rigid lid.

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