Cloud fraction retrieved with a shipboard whole sky camera observation

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We made a shipboard observation with an all-sky camera around Japan in the autumn of year 2013. After the image processing and spectral analyses of the observation data, we obtained the cloud fraction along the cruise. It was found that the cloud fraction was varied with the coefficient in an experimental formula of the spectral relationship between cloud and blue sky. We will further make a comparison with other observation such as a shipboard ceilometer on R/V Shirase as well.

Figure 1. (a) A whole sky camera image at 04:05 (UTC) on Sept. 24, 2013. The cloud image with \( k=9 \) (b) and \( k=4 \) (c) in Eq. (1). The white pixels are cloudy in (b) and (c).
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References
Intergovernmental Panel on Climate Change (IPCC2013), Climate Change 2013.