

## A study of the fluctuation of planetary albedo in decadal cycle evaluated from JRA-55

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In this study, we make time series of the mean planetary albedo in spring, summer, autumn, winter and annual averaged in the Northern Hemisphere. In addition, we explain what influences the variation of planetary albedo in decadal cycle at the top of the atmosphere (TOA). First, we illustrate that the mean planetary albedo at TOA in summer and in annual is fluctuating in decadal cycle similar to that in winter. On the other hand, the time series of the mean albedo at surface in winter, summer, autumn, and annual show decreasing trends. This result indicates that the fluctuation of planetary albedo at TOA is influenced by clouds in the atmosphere. Furthermore, we compare the cloud cover with the planetary albedo at TOA averaged in annual are similar. Further the correlation between them is positive in the Northern Hemisphere. These results show that the variation of low level cloud cover makes the fluctuation of the planetary albedo at TOA in decadal cycle. Finally, by comparing surface air temperature, planetary albedo with low level cover, we suggest that rapid global warming and hiatus are related to the fluctuation of planetary albedo through low cloud cover.

Keywords: hiatus, planetary albedo, cloud cover